




Lists 07/2005 Edition

SINUMERIK 840D sl/840D/810D/840Di  
SIMODRIVE 611 digital/SINAMICS  
Lists (1st Book)



**SIEMENS**



**SINUMERIK 840D sl**  
**SINUMERIK 840D/840Di/810D**  
**SIMODRIVE 611 digital/SINAMICS**

**Lists (1st Book)**

Overview of Functions	<b>1</b>
Lists of Machine and Setting Data	<b>2</b>
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Appendix: References	<b>A</b>
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**Valid for**

<i>Controls</i>	<i>Software version</i>
SINUMERIK 840D sl/840DE sl	1.3
SINUMERIK 840D powerline	7.3
SINUMERIK 840DE powerline (Export variant)	7.3
SINUMERIK 840Di	2.3
SINUMERIK 840DiE (Export variant)	2.3
SINUMERIK 810D powerline	7.3
SINUMERIK 810DE powerline (Export variant)	7.3
SINAMICS	2.3

# SINUMERIK®-Dokumentation

## Printing history

Brief details of this edition and previous editions are listed below.

The status of each edition is shown by the code in the "Remarks" column.

*Status codes in the "Remarks" column.*

- A ....** New documentation.
- B ....** Unrevised reprint with new Order No.
- C ....** Revised edition with new status.  
If factual changes have been made on a page since the last edition, this is indicated by a new edition coding in the header on that page.

Edition	Order No.	Remarks
07.05	6FC5 397-7AP10-0BA0	<b>A</b>

## Trademarks

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Further information is available on the Internet under:  
<http://www.siemens.com/motioncontrol>

Other functions not described in this documentation might be executable in the control. This does not, however, represent an obligation to supply such functions with a new control or when servicing.

We have checked that the contents of this document correspond to the hardware and software described. Nonetheless, differences might exist. The information contained in this document is, however, reviewed regularly and any necessary changes will be included in the next edition. We welcome suggestions for improvement.

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Siemens-Aktiengesellschaft.

# Preface

## Replacement

With the present edition, the previous Lists with order number 6FC5 297-7AB70-.... will be subdivided into Lists (Volume 1) and Lists (Volume 2).

**Volume 2** contains:

- NC Variables
- Interface Signals - solution line
- Interface Signals - power line
- PLC Blocks

The table of contents refers to the present Volume 1.

## SINUMERIK Documentation

The SINUMERIK documentation is organized in three parts:

- General Documentation
- User Documentation
- Manufacturer / service documentation

Please contact your local Siemens office for more detailed information about other SINUMERIK 840D sl/840D/840Di/810D publications and publications that apply to all SINUMERIK controls (e.g. universal interface, measuring cycles etc.).

An overview of publications which is updated each month and shows the languages available is provided on the Internet at:

<http://www.siemens.com/motioncontrol>.

Click the menu items in the following order: "Support" → "Technical Documentation" → "Overview of Publications".

The Internet edition of DOConCD – DOConWEB - can be found at:

<http://www.automation.siemens.com/doconweb>

## Target Group

This document is designed for machine tool manufacturers with SINUMERIK 840D sl/840D/840Di/810D controls and SIMODRIVE 611D or SINAMICS.

## Standard Scope

This Programming Guide describes the functionality afforded by standard functions. Extensions or changes made by the machine tool manufacturer are documented by the machine tool manufacturer.

Other functions not described in this documentation might be executable in the control. This does not, however, represent an obligation to supply such functions with a new control or when servicing.

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E-Mail: [motioncontrol.docu@siemens.com](mailto:motioncontrol.docu@siemens.com)

Fax form: See the reply form at the end of the document.

**Internet Address**

<http://www.siemens.com/motioncontrol>

## Safety Guidelines

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring to property damage only have no safety alert symbol. These notices shown below are graded according to the degree of danger.




---

### Danger

indicates that death or severe personal injury **will** result if proper precautions are not taken.

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### Warning

indicates that death or severe personal injury **may** result if proper precautions are not taken.

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### Caution

with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.

---



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### Caution

without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.

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### Notice

indicates that an unintended result or situation can occur if the corresponding information is not taken into account.

---

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

## Qualified Personnel

The device/system may only be set up and used in conjunction with this documentation. Commissioning and operation of a device/system may only be performed by **qualified personnel**. Within the context of the safety notes in this documentation qualified persons are defined as persons who are authorized to commission, ground and label devices, systems and circuits in accordance with established safety practices and standards.

## Prescribed Usage

Note the following:




---

### Warning

This device may only be used for the applications described in the catalog or the technical description and only in connection with devices or components from other manufacturers which have been approved or recommended by Siemens. Correct, reliable operation of the product requires proper transport, storage, positioning and assembly as well as careful operation and maintenance.

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# Overview of functions



## 1/12 SINUMERIK CNC controllers

In the function overview, the main functions of SINUMERIK 802S base line, SINUMERIK 802C base line, SINUMERIK 802D base line, SINUMERIK 802D, SINUMERIK 810D powerline, SINUMERIK 840Di and SINUMERIK 840D powerline are listed, allowing you quick and selective access to individual functions.

The designation "E" in the name of the controller indicates that it is the export variant, i. e. the controller can be exported with the functions specified in the table.

When complete order numbers are given in the list, they must be specified in the order with the relevant quantity. The order numbers for the hardware components and other options must be obtained from the relevant Sections.

1/66 Overview of the options for SINUMERIK 810D powerline/840Di/840D powerline

## 1/63 Positioning modules

In the function overview, the main functions of FM 353, FM 354, FM 357-2L/LX/H and SIMODRIVE 611 universal HR are listed. This allows you to find individual functions quickly and easily. For FM 353/FM 354, the functions for use as a stand-alone PLC auxiliary axis are listed.

## 1/69 Export and standard control versions

Note:  
For further details about the "restricted functionality" for the export variants, see the glossary on the enclosed CD-ROM for Catalog NC 60 or the Internet at: [www.siemens.com/automation/mall](http://www.siemens.com/automation/mall)

# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## Structure

- SIMODRIVE 611
- SINUMERIK PCU

See Converters

See Operator Components

## Drives

- SIMODRIVE 611 digital
- SIMODRIVE 611 universal HR <sup>1)</sup>
- SIMODRIVE 611 universal E HR (via PROFIBUS)
- SIMODRIVE POSMO A/SI/CD/CA
- SIMODRIVE base line
- FM STEPDRIVE (stepper motors)

See Converters

## Mode groups (MGs)

- 1 MG
- Maximum configuration
  - NCU 561.4/NCU 571.4
  - NCU 572.4
  - NCU 573.4/NCU 573.5
- Each additional MG

**6FC5 251-0AD00-0AA0**

## Machining channels

- Maximum configuration
  - NCU 561.4/NCU 571.4
  - NCU 572.4
  - NCU 573.4/NCU 573.5
- Each additional machining channel

**6FC5 251-0AA07-0AA0**

## Additional axis/spindle + channel

- NCU 561.4
- NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

**6FC5 251-0AD08-0AA0**

1) Activation via analog or PROFIBUS interface.  
 2) For positioning tasks using the PLC.  
 3) In excess of ±10 V, not PROFIBUS.

4) With system software Plus (requirements: PCU with 1.2 GHz).  
 With system software Basic and Universal: 2.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6
–	–	–	–	●	●	–	–	●	●						
●	●	●	●	–	–	●	●	–	–						
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1	1	1	1	2	2	6 <sup>4)</sup>	6 <sup>4)</sup>			10	10	1	1	1	10
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								6	6						
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1	1	1	1	2	2	6 <sup>4)</sup>	6 <sup>4)</sup>			10	10	1	1	1	10
								2	2						
								6	6						
								10	10						
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								–	–						

# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## Controller structure/application (continued)

CNC main memory (buffered) for programs and data in MB  
(SINUMERIK 810D/840D: max. 0.25 MB is reserved by technology cycles from Siemens)

NCU 561.4/NCU 571.4/NCU 572.4

NCU 573.4

NCU 573.5

Expansion of CNC main memory by 1 MB

**6FC5 251-0AD02-0AA0**

CNC main memory, maximum configuration

NCU 561.4/NCU 571.4/NCU 572.4/NCU 573.4

NCU 573.5

Axes/spindles or positioning axes/auxiliary spindles

- Maximum configuration of axes

NCU 561.4

NCU 571.4

NCU 572.4/NCU 573.4/NCU 573.5

- Maximum configuration of spindles

NCU 561.4

NCU 571.4

NCU 572.4/NCU 573.4/NCU 573.5

- Maximum configuration of axes and spindles

NCU 561.4

NCU 571.4

NCU 572.4/NCU 573.4/NCU 573.5

- Configuration per channel axes  
incl. spindles

NCU 561.4

NCU 571.4

NCU 572.4/NCU 573.4/NCU 573.5

Each additional interpolation axis/spindle <sup>1)</sup>

**6FC5 251-0AA03-0AA0**

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

1) Option: If number of axes + spindles > 5.

2) With system software Plus (requirements: PCU with 1.2 GHz).  
With system software Basic: 6.  
With system software Universal: 10.

3) Display of max. 5 axes + 1 spindle.

4) Requirement: Uninterruptible power supply and  
SW Version 2.3.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6
0.25	0.25	0.25	0.25	0.5	0.5	0.5	0.5								
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0.25	0.25	0.25	0.25	2.5	2.5	2.5 <sup>4)</sup>	2.5 <sup>4)</sup>								
								2.5	2.5						
								6	6						
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4	4	3	5	6	6	18 <sup>2)</sup>	18 <sup>2)</sup>			31	31	12 <sup>3)</sup>	4	12 <sup>3)</sup>	31
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# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## Controller structure/application (continued)

Each additional positioning axis (axis-specific feed) or auxiliary spindle (spindle-specific speed) <sup>1)</sup>

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

**6FC5 251-0AA04-0AA0**

Activation of internal drive control of 6th axis for positioning tasks (contains additional positioning axis or auxiliary spindle)

**6FC5 451-0AF01-0AA0**

Activation of internal drive control of 6th axis for interpolation tasks (contains additional interpolation axis/spindle)

**6FC5 451-0AF02-0AA0**

Additionally as a package: 2nd machining channel and maximum memory configuration

**6FC5 451-0AF03-0AA0**

Additionally as a package: 4 machining channels and 13 axes

**6FC5 251-0AD01-0AA0**

NCU 561.4/NCU 571.4

NCU 572.4/NCU 573.4/NCU 573.5

Connection of FM 354 as PLC positioning axis

See Basic Components

Connection of FM 353 as PLC positioning axis

See Basic Components

## Measuring systems that can be connected

Max. number

NCU 561.4

NCU 571.4

NCU 572.4/NCU 573.4/NCU 573.5

Incremental rotary measuring system with RS 422 (TTL)

Linear incremental encoder with current signals

• Via external EXE

• Via SIMODRIVE 611 digital closed-loop control module

Linear incremental encoder with sin/cos 1 V<sub>pp</sub>

• On-board

• Via external EXE

• Via SIMODRIVE 611 digital closed-loop control module

• Via SIMODRIVE 611 universal HR incremental shaft encoder output

• Via SIMODRIVE 611 universal HR (linear axis)

Linear incremental encoder with distance-coded reference marks

• On-board

• Via SIMODRIVE 611 digital closed-loop control module

• Via SIMODRIVE 611 universal HR (closed-loop control module)

1) Option: If number of axes + spindles > 5.

2) For spindle only.

3) SINUMERIK 810D measurement channels and via SIMODRIVE 611 digital closed-loop control module.

4) Two measurement systems per axis.

5) Second measurement system for one axis via 2nd axis SIMODRIVE 611 universal HR or ADI 4.

6) For analog axes via ADI 4.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6

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1	4	3	5	12 <sup>3)</sup>	12 <sup>3)</sup>	36 <sup>4) 5)</sup>	36 <sup>4) 5)</sup>								
								4 <sup>4)</sup>	4 <sup>4)</sup>						
								12 <sup>4)</sup>	12 <sup>4)</sup>						
								62 <sup>4)</sup>	62 <sup>4)</sup>						
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-	-	-	-	○ 7)	○ 7)	●	●	○ 7)	○ 7)						

- 7) For positioning tasks.  
8) With system software Plus (requirements: PCU with 1.2 GHz).  
9) Via ADI 4.



# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## Measurement systems that can be connected (continued)

Rotary measurement systems with distance-coded reference marks

- On-board
- Via SIMODRIVE 611 digital closed-loop control module
- Via SIMODRIVE 611 universal HR (closed-loop control module)

Absolute value encoder connection with SSI interface

Absolute value encoder connection with EnDat linear/rotary

- On-board
- Via SIMODRIVE 611 digital closed-loop control module
- Via SIMODRIVE 611 universal HR (closed-loop control module)

Absolute value/incremental encoder installed in 1FT6/1FK

- On-board
- Via SIMODRIVE 611 digital closed-loop control module
- Via SIMODRIVE 611 universal HR (closed-loop control module)

Incremental encoder with sin/cos 1 V<sub>pp</sub>

- On-board
- Via SIMODRIVE 611 digital closed-loop control module
- Via SIMODRIVE 611 universal HR (closed-loop control module)

Resolver installed in 1FT6/1FK

- Via SIMODRIVE 611 universal HR (closed-loop control module)
- Via SIMODRIVE base line (only 1FK7 with 2-pole resolver)

## CNC functionality: Program functions

Dynamic preprocessing memory (FIFO)

Look Ahead

Program preprocessing

**6FC5 251-0AC02-0AA0**

Axis/spindle replacement

Geometry axes, switchable online in the CNC program

Frame concept

Inclined-surface machining with frames

1) Second measurement system for one axis via 2nd axis  
SIMODRIVE 61 universal HR.  
2) For analog axes with ADI 4.  
3) For positioning tasks.

4) Number of traversing blocks cannot be parameterized.  
5) Not as motor measuring system, only for spindles or rotary axes for  
direct position sensing.  
6) Via SIMODRIVE 611 universal E HR closed-loop control module.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6

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–	–	–	–	●	●	●	●	●	●						
–	–	●	●	●	●	●	●	●	●						
–	–	–	–	●	●	●	●	●	●						

# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## CNC functionality: Axis functions

Feedrate override of 0 ... 200%	
Feedrate override, axis-specific of 0 ... 200%	
Traversing range $\pm 9$ decades	
Rotary axis, turning endlessly	
Measuring system 1 and 2, selectable	
Speed, max. 300 m/s	
Acceleration with jerk limitation	
Programmable acceleration	
Feedrate interpolation	
Separate path feed for corners and chamfers	
Traversing to fixed stop	<b>6FC5 255-0AB02-0AA0</b>
Traversing to fixed stop (without Force Control)	<b>6FC5 655-0AA01-0AA0</b>
Follow-up mode	
Pair of synchronized axes (gantry axes)	<b>6FC5 255-0AB00-0AA0</b>
Max. number	
NCU 561.4	
NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5	
Trailing axes (TRAIL)	
Master/slave for drives	<b>6FC5 251-0AC07-0AA0</b>
NCU 561.4	
NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5	
Analog axis <sup>1)</sup>	<b>6FC5 251-0AC06-0AA0</b>
Setpoint exchange	<b>6FC5 251-0AE76-0AA0</b>
Tangential control	<b>6FC5 251-0AB11-0AA0</b>
NCU 561.4	
NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5	
Position switching signals/cam controller	<b>6FC5 251-0AB07-0AA0</b>

1) SINUMERIK 840DE powerline/840D powerline: From the 6th axis upwards, the option "Each additional interpolating axis/spindle" is included. For SINUMERIK 840DiE/840Di with ADI 4.

2) In SW Version 6.4 and higher, functionality is included in the NCU system software.

3) In SW Version 7.1 and higher, functionality is included in the NCU system software.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6
120	120	●	●	●	●	●	●	●	●						
–	–	●	●	●	●	●	●	●	●						
●	●	●	●	●	●	●	●	●	●						
–	–	–	●	●	●	●	●	●	●						
–	–	–	–	●	●	●	●	●	●						
12	●	●	●	●	●	●	●	●	●						
–	–	–	●	●	●	●	●	●	●						
●	●	●	●	●	●	●	●	●	●						
–	–	–	–	●	●	●	●	●	●						
–	–	–	–	●	●	●	●	●	●						
–	–	–	–	○	○	○	○	○	○						
–	–	–	○	–	–	–	–	–	–						
–	●	●	●	●	●	●	●	●	●						
–	–	–	–	○ 1	○ 1	○ 3	○ 3								
								–	–						
								○ 3	○ 3						
–	–	–	–	●	●	●	●	●	●						
–	–	–	–	○	○	–	–								
								–	–						
								○	○						
–	–	–	–	–	–	–	–	○ 2)	○ 2)						
–	–	–	–	–	–	–	–	○ 3)	○ 3)						
–	–	–	–	○	○	○	○								
								–	–						
								○	○						
–	–	–	–	○	○	○	○	○	○						

# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## CNC functionality: Axis functions (continued)

Link axis <sup>1)</sup>	<b>6FC5 251-0AD10-0AA0</b>
NCU 561.4/NCU 571.4/NCU 572.4	
NCU 573.4/NCU 573.5	
Axis container	<b>6FC5 251-0AE01-0AA0</b>
NCU 561.4/NCU 571.4/NCU 572.4	
NCU 573.4/NCU 573.5	
Setpoint linkage for multiple NCUs <sup>1)</sup>	<b>6FC5 251-0AF02-0AA0</b>
NCU 561.4/NCU 571.4/NCU 572.4	
NCU 573.4/NCU 573.5	
Fast IPO link <sup>1)</sup>	<b>6FC5 251-0AF03-0AA0</b>
NCU 561.4/NCU 571.4/NCU 572.4	
NCU 573.4/NCU 573.5	
Advanced Position Control APC	<b>6FC5 251-0AF04-0AA0</b>

## CNC functionality: Spindle functions

Analog spindle speed	
Digital spindle speed	
Spindle speed, max. programmable value range: REAL ± 3.4028 ex 38 (display: ± 999 999 999.9999)	
Spindle override of 0 ... 200%	
5 gear stages	
Automatic gear stage selection	
Oriented spindle stop	
Spindle speed limitation (min. and max.)	
Constant cutting rate	
Spindle control via PLC (positioning, oscillation)	
Changeover to axis mode	
Axis synchronization on-the-fly	
Thread run-in and run-out programmable	
Thread cutting with constant or variable pitch	
NCU 561.4	
NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5	
Tapping with/without compensating chuck	
Synchronous spindle/multi-edge turning	<b>6FC5 255-0AB01-0AA0</b>
NCU 561.4	
NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5	

1) Requirement: Link module.  
2) Value range: 999 999.999.

3) Only SPOS and basic functions.  
4) Via ADI 4.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6

-	-	-	-	-	-	-	-	-	-						
								-	-						
								o	o						
-	-	-	-	-	-	o	o	-	-						
								-	-						
								o	o						
-	-	-	-	-	-	-	-	-	-						
								-	-						
								o	o						
-	-	-	-	-	-	-	-	-	-						
								-	-						
								o	o						
-	-	-	-	-	-	-	-	o	o						

•	•	•	•	-	-	• 4)	• 4)	-	-						
-	-	•	•	•	•	•	•	•	•						
• 2)	• 2)	•	•	•	•	•	•	•	•						
120	120	•	•	•	•	•	•	•	•						
•	•	•	•	•	•	•	•	•	•						
•	•	•	•	•	•	•	•	•	•						
•	•	•	•	•	•	•	•	•	•						
•	•	•	•	•	•	•	•	•	•						
•	•	•	•	•	•	•	•	•	•						
-	-	-	-	•	•	•	•	•	•						
• 3)	• 3)	• 3)	• 3)	•	•	•	•	•	•						
-	-	-	-	•	•	•	•	•	•						
•	•	•	•	•	•	•	•	•	•						
•	•	•	•	•	•	•	•	-	-						
								•	•						
•	•	•	•	•	•	•	•	•	•						
-	-	-	-	o	o	o	o	-	-						
								-	-						
								o	o						

# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## CNC functionality: Interpolations

Universal interpolator NURBS (non-uniform rational B-splines)  
Continuous-path mode with programmable rounding clearance  
Linear interpolation axes

• Maximum

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

Multi-axis interpolation (> 4 interpolating axes)

**6FC5 251-0AA16-0AA0**

Circle via center point and end point

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

Circle via interpolation point

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

Helical interpolation:

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

Spline interpolation (A, B and C splines/compressor) for 3-axis machining

**6FC5 251-0AF14-0AA0**

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

Spline interpolation (A, B and C splines/compressor) for 5-axis machining

**6FC5 251-0AA14-0AA0**

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

Polynomial interpolation

**6FC5 251-0AA15-0AA0**

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

Master-value coupling and curve table interpolation

**6FC5 251-0AD06-0AA0**

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

Involute interpolation

**6FC5 251-0AF01-0AA0**

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

1) With restricted functionality, see export information.  
2) With system software Plus (requirements: PCU with 1.2 GHz).  
With system software Basic: 6  
With system software Universal: 10.

3) Only tapping: Axis + spindle.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6
–	–	–	–	●	●	●	●	●	●						
–	–	–	–	●	●	●	●	●	●						
● 3	● 3	● 2	● 4	● 4	● 4	● 4	● 4	● 4	● 4						
3	3	2	4	5	5	4	12 <sup>2)</sup>								
								2 <sup>3)</sup>	2 <sup>3)</sup>						
								4	12						
–	–	–	–	–	○	–	○	–	○						
●	●	●	●	●	●	●	●								
								–	–						
								●	●						
●	●	●	●	●	●	●	●								
								–	–						
								●	●						
2D+1	2D+1	–	2D+2	2D+2	2D+2	2D+2	2D+6								
								–	–						
								2D+2	2D+6						
–	–	–	–	○	○	○	○								
								–	–						
								○	○						
–	–	–	–	–	–	○	○								
								–	–						
								○	○						
–	–	–	–	○	○	○	○								
								–	–						
								○ <sup>1)</sup>	○						
–	–	–	–	○	○	○	○								
								–	–						
								○ <sup>1)</sup>	○						
–	–	–	–	○	○	○	○								
								–	–						
								○	○						



# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## CNC functionality: Interpolations (continued)

Electronic gear EG	<b>6FC5 251-0AE00-0AA0</b>
NCU 561.4	
NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5	
Axial coupling in the machine coordinate system (MCS coupling)	<b>6FC5 251-0AD11-0AA0</b>
NCU 561.4	
NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5	
Continue machining at the contour (retrace support)	<b>6FC5 251-0AE72-0AA0</b>
Advanced Processing 1	<b>6FC5 251-0AF10-0AA0</b>
Advanced Processing 2	<b>6FC5 251-0AF11-0AA0</b>

## CNC functionality: Transformations

Cartesian point-to-point (PTP) traversing	
NCU 561.4	
NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5	
TRANSMIT/peripheral surface transformation	<b>6FC5 251-0AB01-0AA0</b>
NCU 561.4	
NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5	
TRANSMIT/peripheral surface transformation	<b>6FC5 651-0AA02-0AA0</b>
Inclined axis	<b>6FC5 251-0AB06-0AA0</b>
NCU 561.4	
NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5	
Chained transformations (inclined axis TRAANG to TRAORI/Universal milling head/TRANSMIT/TRACYL)	
NCU 561.4	
NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5	
Machining package 5 axes <sup>1)</sup>	<b>6FC5 251-0AA10-0AA0</b>
Handling transformation package	<b>6FC5 251-0AD07-0AA0</b>
Generic transformation	
NCU 561.4	
NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5	

1) Contains the option "Multi-axis interpolation".  
2) Only with system software Universal and Plus.

3) Only with system software Plus.  
4) With 3-axis and 4-axis transformation.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6

-	-	-	-	-	-	○	○	-	-						
								○	○						
-	-	-	-	-	-	-	○	-	-						
								-	-						
								-	○ 5)						
-	-	-	-	○	○	○	○	○ 5)	○ 5)						
-	-	-	-	-	-	○ 2)	○ 2)	-	-						
-	-	-	-	-	-	○ 3)	○ 3)	-	-						

-	-	-	-	●	●	●	●	-	-						
								●	●						
-	-	-	-	○	○	○	○	-	-						
								○	○						
-	-	-	○	-	-	-	-	-	-						
-	-	-	-	○	○	○	○	-	-						
								○	○						
-	-	-	-	●	●	●	●	-	-						
								●	●						
-	-	-	-	-	-	-	○	-	○						
-	-	-	-	-	○	-	○	-	○ 5)						
-	-	-	-	● 4)	● 4)	● 4)	●	-	-						
								● 4)	●						

5) Loadable compile cycle in SW Version 6.4 and higher in the NCU system software.

# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## CNC functionality: Measuring

Measuring Stage 1  
2 sensors (switching) with/without deletion of distance-to-go

See HMI Software

Measuring Stage 2  
(logging of measurement results, measurement functions from synchronized actions, cyclic measurement)

**6FC5 250-0AD00-0AA0**  
See HMI Software

## CNC functionality: Technologies

Punching/nibbling

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

**6FC5 251-0AC00-0AA0**

Oscillation functions (block-related, modal and asynchronous)

More than one feed in block (e. g. for calipers)

**6FC5 251-0AB04-0AA0**

Handwheel override

Contour handwheel

Electronic transfer

**6FC5 250-0AD05-0AA0**

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

## CNC functionality: Motion-synchronous action

High-speed CNC inputs/outputs

- 4 digital inputs/4 digital outputs on-board

- Expansion via NCU terminal block  
32 digital inputs/32 digital outputs,  
8 analog inputs/8 analog outputs

- Expansion via SIMATIC S7 I/O  
32 digital inputs/32 digital outputs  
4 analog inputs/4 analog outputs

See Basic Components

Synchronized action (max. 16) and high-speed auxiliary function output

Synchronized action Stage 2 (up to 255 parallel actions per channel, technology cycles)

**6FC5 251-0AD05-0AA0**

Positioning axes and spindles via synchronized actions (command axes)

Analog value control in interpolation cycle (requirement: analog output)

Path velocity-dependent analog output (laser power control)

**6FC5 251-0AC04-0AA0**

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

1) 1 sensor.  
2) With restricted functionality, see export information.

3) Requirement: MCI board extension.  
4) Requirement: SIMATIC DP ET 200 analog module.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6
–	–	–	● 1)	●	●	● 3)	● 3)	●	●						
–	–	–	–	○ 2)	○	○ 2) 3)	○ 3)	○ 2)	○						
–	–	–	–	–	–	○	○								
								–	–						
								○	○						
–	–	–	–	○	○	○	○	○	○						
–	–	–	–	●	●	●	●	●	●						
–	–	–	–	●	●	●	●	●	●						
–	–	–	–	●	●	●	●	●	●						
–	–	–	–	–	–	○ 2)	○								
								–	–						
								○ 2)	○						
–	–	–	–	–	–	● 3)	● 3)	●	●						
–	–	–	–	○	○	–	–	○	○						
–	–	–	–	–	–	○	○	–	–						
–	–	–	–	● 2)	●	● 2)	●	● 2)	●						
–	–	–	–	○ 2)	○	○ 2)	○	○ 2)	○						
–	–	–	–	●	●	●	●	●	●						
–	–	–	–	●	●	● 4)	● 4)	●	●						
–	–	–	–	○	○	○ 4)	○ 4)								
								–	–						
								○	○						

# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## CNC functionality: Motion-synchronous action (continued)

Laser switching signal, high-speed NCU 561.4 NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5: 6/12/31 axes	<b>6FC5 251-0AE74-0AA0</b>
Clearance control • 1D in interpolation cycle via synchronized action • 1D/3D in position control cycle (incl. in interpolation cycle)  NCU 561.4 NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5: 6/12/31 axes	<b>6FC5 251-0AC05-0AA0</b>
Evaluation of internal drive variables (prerequisite for Adaptive Control)	<b>6FC5 251-0AB17-0AA0</b>
Continuous Dressing (parallel dressing, online modification of the tool offset)  NCU 561.4 NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5	
Asynchronous subroutine ASUP <sup>1)</sup>	
Interrupt routines with high-speed retraction from the contour	<b>6FC5 251-0AA00-0AA0</b>
Multiple mode actions (ASUPs and synchronized actions in all operating modes)	<b>6FC5 251-0AD04-0AA0</b>

## Open Architecture

HMI programming package (OEM contract required)	See HMI Software
HMI configuring package (OEM contract required)	See HMI Software
User-interface expansion (HMI Advanced/HMI Embedded)	See HMI Software
OA package NCK (OEM contract required)	See Basic Components
OA NCK compile cycles (runtime license)	<b>6FC5 251-0AA20-0AA0</b> See Basic Components

1) High-speed CNC inputs/outputs required.  
2) With restricted functionality, see export information.

3) 20 unreserved screens.  
4) Configuration via PROFIBUS DP.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6

-	-	-	-	-	-	○	○	-	-						
								○ 5)	○ 5)						
-	-	-	-	●	●	●	●	●	●						
-	-	-	-	-	-	○ 2)	○								
								-	-						
								○ 2) 5)	○ 5)						
-	-	-	-	○ 2)	○	○ 2) 4)	○ 4)	○ 2)	○						
-	-	-	-	● 2)	●	● 2)	●								
								-	-						
								● 2)	●						
-	-	-	-	●	●	●	●	●	●						
-	-	-	-	○	○	○	○	○	○						
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-	-	-	-	○	○	○	○	○	○						
-	-	-	-	◇	◇	◇	◇	◇	◇	○ 3)	○ 3)	○ 3)	○ 3)	○ 3)	○ 3)
-	-	-	-	-	-	-	-	-	○						
-	-	-	-	-	-	-	-	-	○						

5) Loadable compile cycle in SW Version 6.4 and higher in the NCU system software.

# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## CNC programming: Language

Programming language (DIN 66025 and high-level language expansion)

Main program calls from main programs and subroutines

Subroutine levels/interrupt routines, max.

Number of subroutine repetitions  $\leq 9999$

Number of levels for skippable blocks (/O to /...)

Polar coordinates

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

1/2/3-point contours

Dimensions metric/inch,  
changeover manually or via program

Inverse-time feedrate

Auxiliary function output

• Via M word, max. programmable value range: INT  $2^{31}-1$

• Via H word,  
max. programmable value range: REAL  $\pm 3,4028 \text{ ex } 38$   
(display:  $\pm 999\,999\,999.9999$ ) INT  $-2^{31} \dots 2^{31}-1$

High-level language CNC with

• User variables, configurable

• Predefined user variables (arithmetic parameters),  
configurable

• Read/write system variables

• Indirect programming

• Program jumps and branches

• Program coordination with WAIT, START, INIT

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

• Arithmetic and trigonometric functions

• Comparing operations and logic combinations

• Macro techniques

• Control structures  
(IF-ELSE-ENDIF, WHILE, FOR, REPEAT, LOOP)

• Commands to HMI

• STRING functions

1) M function: 1 ... 99.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6

•	•	•	•	•	•	•	•	•	•						
•	•	•	•	•	•	•	•	•	•						
4/0	4/0	8/0	8/0	11/4	11/4	11/4	11/4	11/4	11/4						
•	•	•	•	•	•	•	•	•	•						
1	1	1	1	8	8	8	8	8	8						
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–	–	–	–	•	•	•	•	•	•						



# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## CNC programming: Language (continued)

Online ISO dialect interpreter

**6FC5 253-0AE00-0AA0**

Program management

- Management of programs and workpieces in NCK
- Management of programs and workpieces on hard disk (HD)
- Management of programs and workpieces on diskette drive
- Management of programs and workpieces on network drive
- Max. number of workpieces on NC/NC + HD
- Templates for workpieces, programs and INI files
- Job lists

## CNC programming: Cycles

Process-oriented cycles for drilling/milling and turning

See HMI Software

Pocket milling with free contour definition and islands

See HMI Software

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

Pocket milling with free contour definition, islands and residual material removal

See HMI Software

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

Enhanced stock removal functions with blank part description

See HMI Software

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

Enhanced stock removal functions with blank part description and residual material removal

See HMI Software

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

Measuring cycles for drilling/milling and turning

See HMI Software

Access protection for cycles

Cycle storage separate from CNC main memory

**6FC5 251-0AF00-0AA0**

1) Management of workpieces is not possible.  
2) Requirement: DNC (option).

3) With different functionality.  
4) Partially.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6
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100/–	100/–	100/–	100/–	250/–	250/–	310	310	250/–	250/–	–/310	–	–/310	–/310	–/310	–
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# Overview of functions

## SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

### CNC programming: Program support

Program editor

- Text editor with editing functions: Marking, copying, deleting, ...
- Machining step programming
- Write protection for lines
- Suppression of lines in the display

See HMI Software

- Dual editor
- Multi-channel sequence programming

**6FC5 253-0AF03-0AA0**

AutoTurn/AutoTurn Plus

See HMI Software

Program support for geometry entries

- Geometry processor with programming graphics/  
Free contour input (contour calculator)
- Screens for 1/2/3-point contours

See HMI Software

Program support for cycles

- Screens and stationary auxiliary displays
- Dynamic programming graphics during programming
- Programming support expandable (e. g. customer cycles)

### Parameter

Max. number of basic frames

Max. number of selectable offsets

Work offsets, programmable (frames)

Scratching, determining work offset

Work offsets, external (PLC)

Global and local user data

Global program user data

Display system variables (also via online configurable display)  
and log them

1) Configurable by Siemens.  
2) For presentation of the machining step.

3) With "Expand user interface", see HMI/MMC start-up instructions.  
4) With "Customer cycles" function.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6

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4	4	6	6	100	100	◇	◇	100	100	100	100	100	4	100	100
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# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## Simulation

Up to n channels can be simulated sequentially

NCU 561.4

NCU 571.4

NCU 572.4/NCU 573.4/NCU 573.5

Several channels and programs can machine the same blank part in succession

Simulation of program X, while program Y is executed

Drilling/milling <sup>1)</sup>

- Multi-sided 2D view, dynamic
- 3D view, static
- Simultaneous recording (real-time simulation of current machining)

See HMI Software

Turning <sup>1)</sup>

- Traverse path simulation without model (broken-line graphics)
- Contour of blank part can be specified
- Simulation in working plane G18
- Simulation in working planes G17/G19
- Full cut/partial cut with circumferential edges, front face and peripheral surfaces, milling and drilling operations
- Counterspindle
- 3D simulation of the finished part (static/dynamic)
- Simultaneous recording (real-time simulation of current machining)

See HMI Software

Turning <sup>1)</sup>

- Traverse path simulation without model (broken-line graphics)
- Simulation in working plane G18
- Simultaneous recording (real-time simulation of current machining)

**6FC5 673-0AB01-0AF0**

## Operating modes

JOG

- Handwheel selection
- Inch/metric changeover
- Safety Integrated user confirmation
- Manual measurement of work offset
- Manual measurement of tool compensation
- Automatic tool/workpiece measurement
- Reference point approach, automatic/via CNC program

See HMI Software

<sup>1)</sup> Toolholder vertical to the workpiece.

<sup>2)</sup> Single-sided broken-line graphics at programming level.

<sup>3)</sup> Dynamic for PCU 50/PCU 70.

<sup>4)</sup> Requirement: Measurement cycles.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6

-	-	-	-	2	2	2	2			10	1	1	1	1	-
								2	2						
								6	6						
								10	10						
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-	-	-	● 2)	◇	◇	◇	◇	◇	◇	-	○	○	-	-	-
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-	-	-	-	◇	◇	◇	◇	◇	◇	●	-	-	-	●	-
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-	-	○ 2)	● 2)	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	○ 2)	● 2)	-	-	-	-	-	-	-	-	-	-	-	-

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5) Only turning.

# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## Operating modes (continued)

MDA	
• Input in text editor	
• Save MDA program	
• Input screen forms for technology and positioning, cycle support	
Teach In	
• Teach positions in MDA buffer	
• Teach (record/playback)	
• Teach In with HT 6	
Teach In	<b>6FC5 571-0AA01-0BF0</b>
Automatic	
• Execution from network drive or PC card for PCU 20	See HMI Software
• Execution from V.24 (RS 232 C) interface	
• Execution from hard disk	
• Program control	
• Program editing:	
• Overstoring	
• DRF offset	
• Block search with/without calculation	
Repos (repositioning on the contour)	
• With operator command/semi-automatically	
• Program-controlled	
Preset	
Set actual value	

## Tools

Tool types	
• Turning	
• Drilling/milling	
• Grinding	
• Groove sawing	

1) Requirement: DNC (option).  
2) Possible with restrictions.

3) Requirement: Management of network and diskette drive on PCU 20 (option).

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6

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# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## Tools (continued)

Tool radius compensations in plane

- With approach and retract strategies

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

- With transition circle/ellipse on outer edges

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

Configurable intermediate blocks with tool radius compensation active

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

3D tool radius compensation

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

**6FC5 251-0AB13-0AA0**

Tool change via T number

Tool holder with orientation capability

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

Look-ahead detection of contour violations

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

Grinding-specific tool compensation with grinding wheel surface speed

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

Tool orientation interpolation <sup>1)</sup>

Online tool length compensation

Operation without tool management

- Tool compensation selection via D number without T assignment (flat D number)
- Editing of tool data
- Tool compensation selection via T and D numbers
- Data backup via V.24 (RS 232 C) interface
- Number of tools/cutting edges in tool list

1) Requirement: Machining package for 5 axes (option).  
2) Available soon.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6
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15/30	15/30	32/64	3)	600/ 1500	600/ 1500	600/ 1500 ◇	600/ 1500 ◇	600/ 1500	600/ 1500			–	–	–	

3) For turning 32/64. For milling 48/96.

# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## Tools (continued)

Operation with tool management

- System displays in standard software
- Easy start-up via system displays
- Tool list
- Configurable tool lists
- Number of tools/cutting edges in tool list
- Unambiguous D number structure
- Tool compensation selection via T and D numbers
- Editing of tool data
- Editing of OA data
- Magazine list
- Configurable magazine list
- More than one magazine is possible
- Magazine data
- Vacant position search and positioning
- Easy vacant position search using softkeys
- Loading and unloading of tools
- More than one loading and unloading point per magazine
- Tool cabinet and tool catalog
- Loading and unloading via code carrier system
- Adapter data
- Local offsets
- Connection to TDI
- Data backup on hard disk
- Data backup via V.24 (RS 232 C) interface

Monitoring of tool life and workpiece count

**6FC5 251-0AB12-0AA0**

**6FC5 651-0AA01-0AA0**

1) Valid for PCU 50/PCU 70. For PCU 20: 250/500.  
 2) Available soon.  
 3) Available with PCU 50.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Man- ual Turn	Shop Turn	HT 6
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-	-	-	-	○	○	◇	◇	○	○	○	○	●	-	●	-
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-	-	-	-	○	○	○	○	○	○	○	○	●	-	●	-
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-	-	-	-	600/ 1500	600/ 1500	600/ 1500 ◇	600/ 1500 ◇	600/ 1500	600/ 1500	600/ 1500	600/ 1500	600/ 1200 1)	100/ 1	600/ 1200 1)	-
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-	-	-	-	●	●	●	●	●	●	●	●	●	-	●	-
-	-	-	-	○	○	◇	◇	○	○	○	○	●	-	●	-
-	-	-	-	○	○	◇	◇	○	○	○	○	2)	-	2)	-
-	-	-	-	○	○	◇	◇	○	○	○	○	●	-	●	-
-	-	-	-	○	○	◇	◇	○	○	○	-	-	-	-	-
-	-	-	-	○	○	◇	◇	○	○	○	○	-	-	-	-
-	-	-	-	32	32	32	32	32	32	32	32	3	-	3	-
-	-	-	-	○	○	◇	◇	○	○	○	○	●	-	●	-
-	-	-	-	○	○	◇	◇	○	○	○	○	●	-	●	-
-	-	-	-	○	○	◇	◇	○	○	○	-	-	-	-	-
-	-	-	-	○	○	◇	◇	○	○	○	○	●	-	●	-
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-	-	-	-	○	○	◇	◇	○	○	○	-	●	-	●	-
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# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## Communication

Serial interface V.24 (RS 232 C)

Secure data transfer (Z modem)

Parallel interface (Centronics)

Diskette drive operation

Multipoint interface (MPI)

Ethernet connections

Interfacing to I/O via PROFIBUS DP <sup>1)</sup>  
(software option)

Data interchange between machining channels

High-speed data interchange between CNC and PLC

Data backup on hard disk

Data backup on PC card

PC card as additional program memory (PCU 20)

See HMI Software

See HMI Software

**6FC5 252-0AD00-0AA0**

## ePS Network Services

eP Access

eP Dynamic

eP Performance

See HMI Software

See HMI Software

See HMI Software

## Motion Control Information System MCIS

DNC Machine/IFC: CNC program transfer via the network

TDI: Tool management function for individual machines and networked machines

TDI Ident Connection: Connection to tool identification systems

MDA Machine/IFC: Machine and production data acquisition

RPC SINUMERIK: Data interchange between CNC and host computer

TPM Machine: Support for maintenance and repair

RCS@Event

See HMI Software

See HMI Software

See HMI Software

See HMI Software

See HMI Software

See HMI Software

See HMI Software

<sup>1)</sup> For literature on the subject of PROFIBUS DP, see Services.  
<sup>2)</sup> For PCU 50/PCU 70.

<sup>3)</sup> Requirement: DNC (option).

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6

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4) HMI Embedded SW Version 6.2. and higher.  
Remote diagnostics on PC card is not possible.  
Requirement: Management of network/diskette drive on PCU 20 (option).

5) Available soon.  
6) For PCU 50/PCU 70 with HMI-Advanced, SW Version 6.0 and higher.  
7) On request.

# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## Data management

A&D DataManagement: Data management system  
(requirement: SIMATIC STEP 7)

See HMI Software

## Tool identification system

Connection of tool identification system MOBY E

See HMI Software

## Operation

Operator panel fronts OP 015/OP 015A/TP 015A, 15" color

See Operator Components

Operator panel fronts OP 012, 12.1" color

See Operator Components

Operator panel fronts TP 012, 12.1" color <sup>3)</sup>

See Operator Components

Operator panel fronts OP 010/OP 010C/OP 010S, 10.4" color

See Operator Components

PCU 20 <sup>2)</sup>

See Operator Components

PCU 50 <sup>2)</sup>

See Operator Components

PCU 70 <sup>2)</sup>

See Operator Components

Physical separation of operator panel front (OP) and PCU  
as well as connection of up to 3 operator panels of the same type

1 operator panel for up to 8 NCUs/  
2 operator panels for up to 4 NCUs

Control unit management for each PCU  
(up to 9 PCUs for up to 9 NCUs)  
Functionality: Active, passive and displacement mechanisms

**6FC5 253-0AE03-0AA0**

Integrated operator panel: SINUMERIK 802S/802C base line, 8" monochrome

See Basic Components

Operator panel SINUMERIK 802D base line/802D, 10.4" monochrome/color

See Basic Components

Slimline operator panel OP 030 with system software

See Operator Components

Connections for OP7/OP17 operator panel

Connection of SIMATIC HMI to PLC

Connection of SIMATIC Panels OP 170/TP 170/OP 270/TP 270 to SINUMERIK with ProTool

SINUMERIK HT 6 handheld terminal

See Operator Components

Mini handheld unit

See Operator Components

B-MPI handheld unit

See Operator Components

Machine control panel

See Operator Components

Pushbutton panel

See Operator Components

Electronic handwheels can be connected

See Operator Components

1) Three CCUs on one operator panel. Two operator panels on one CCU.  
2) HMI software for PC/PG can be ordered separately.  
3) For customized operator interface.

4) Third handwheel can be operated as a contour handwheel.  
5) Requirement: MCI board extension.

# 1

1/49



# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## Operation (continued)

CNC keyboard, horizontal/vertical	See Basic Components
Full CNC keyboard	See Operator Components
Standard PC keyboard MF-II	See Operator Components
Diskette drive (3.5"/1.44 MB)	See Operator Components
Diskette drive (3.5"/1.44 MB) with USB connection	See Operator Components
Plain text display of user variables	
Multi-channel display	
2D representation of 3D protection areas/work areas	
Actual-value system for workpiece (grinding)	
Menu selection via the PLC	
CNC program messages	
Online help for programming, alarms and machine data (expandable)	
Screen blanking	
Access protection, 8 levels	
2 languages switchable online	
Languages: English, German	
Languages: English, German, French, Italian, Spanish	
Language: Simplified Chinese	
Language: Traditional Chinese	
Languages: Polish, Russian, Czech, Turkish, Hungarian	
Languages: Danish, Dutch, Finnish, Japanese, Portuguese/Brazilian, Swedish	
Language: Korean	
Other languages	
Operating software can be used for:	
• SINUMERIK 810D powerline/840D powerline	See HMI Software
• SINUMERIK 840Di	See HMI Software
User interface with TRANSLINE 2000 HMI Pro software	See HMI Software
User interface with TRANSLINE 2000 HMI Lite CE software	See HMI Software

1) Included in scope of supply.

2) Included on the system software CD-ROM.

3) SW Version 6.4 and higher.

4) SW Version 6.5 and higher.

5) Included on CD-ROM of HMI language expansion. Please enquire about available software versions.

6) On request.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6
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7) Requirement: Uninterruptible power supply and SINUMERIK 840Di  
SW Version 2.3.

8) SW Version 6.3 and higher.

9) For scope of supply, see Ordering Data.

# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## Axis monitoring

Working area limitation

Limit switch monitor

Software and hardware limit switch

2D/3D protection zones

Contour monitoring

Contour monitoring with tunnel function

**6FC5 251-0AB16-0AA0**

Position monitoring

Standstill monitoring

Clamping monitoring

Path length evaluation

**6FC5 251-0AF05-0AA0**

## Compensations

Backlash compensation

Leadscrew error compensation

Measuring system error compensation

Electronic weight counterbalance

**6FC5 255-0AC00-0AA0**

Sag compensation, multi-dimensional

**6FC5 251-0AB15-0AA0**

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

Quadrant error compensation per operation

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

Quadrant error compensation, automatic  
(neural network)

**6FC5 251-0AB14-0AA0**

NCU 561.4

NCU 571.4/NCU 572.4/NCU 573.4/NCU 573.5

Graphical monitoring of the quadrant error compensation using the circularity test

See HMI Software

Temperature compensation

**6FC5 251-0AA13-0AA0**

Automatic drift compensation for analog speed setpoints

Precontrol

• Speed dependent

• Acceleration dependent

**6FC5 250-0AA07-0AA0**

1) With restricted functionality, see export information.

2) Requirement: Start-up tool for SIMODRIVE 611 digital  
(already included in HMI-Advanced system software, also for PC/PG).

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6

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# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## PLC area

SIMATIC S7-200 (integrated)	
SIMATIC S7-300 CPU 315-2 DP (integrated)	
SIMATIC S7-300 CPU 314C-2 DP (integrated)	
NCU 561.4/NCU 571.4/NCU 572.4/NCU 573.4	
SIMATIC S7-300 CPU 317-2 DP (integrated)	
NCU 573.5	
Machining time, typically in ms/KA for bit operations <sup>4)</sup>	
NCU 561.4/NCU 571.4/NCU 572.4/NCU 573.4	
NCU 573.5	
Machining time, typically in ms/KA for word operations <sup>4)</sup>	
NCU 561.4/NCU 571.4/NCU 572.4/NCU 573.4	
NCU 573.5	
PLC user memory in KB, incl. basic PLC program	
NCU 561.4/NCU 571.4/NCU 572.4/NCU 573.4	
NCU 573.5	
PLC user memory, maximum configuration in KB	
NCU 561.4/NCU 571.4/NCU 572.4/NCU 573.4	
NCU 573.5	
Expansion of the PLC user memory by 64 KB	<b>6FC5 252-0AA03-0AA0</b>
Ladder steps memory configuration	
PLC programming with HiGraph (add-on package for STEP 7)	
PLC programming tool	See HMI Software
PLC programming tool, PLC program examples, standard machine data and alarm text editor on Toolbox	
Toolbox with basic PLC program, standard machine data and CNC variable selector	See HMI Software
Digital inputs	
• Maximum	
• With PROFIBUS DP, max.	
NCU 561.4/NCU 571.4/NCU 572.4/NCU 573.4	
NCU 573.5	
Digital outputs	
• Maximum	
• With PROFIBUS DP, max.	
NCU 561.4/NCU 571.4/NCU 572.4/NCU 573.4	
NCU 573.5	

1) Without CNC variable selector.

2) Number = Sum of inputs and outputs.

3) Included in the basic package.

4) 1 KA = 1024 instructions; corresponds to approx. 3 KB.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6
●	●	●	●	–	–	–	–	–	–						
–	–	–	–	●	●	●	●	–	–						
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1.8	1.8	0.4	0.4	0.3	0.3	0.3	0.3								
								0.1	0.1						
								0.03	0.03						
5.9	5.9	1.4	1.4	1	1	1	1								
								0.25	0.25						
								0.1	0.1						
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								● 96	● 96						
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								480	480						
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4000	4000	6000	6000	–	–	–	–	–	–						
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48	48	144	144	768 <sup>2)</sup>	768 <sup>2)</sup>	2048 <sup>2)</sup>	2048 <sup>2)</sup>								
–	–	144	144	2048 <sup>2)</sup>	2048 <sup>2)</sup>	2048 <sup>2)</sup>	2048 <sup>2)</sup>								
								2048 <sup>2)</sup>	2048 <sup>2)</sup>						
								4096 <sup>2)</sup>	4096 <sup>2)</sup>						
16	16	96	96	768 <sup>2)</sup>	768 <sup>2)</sup>	2048 <sup>2)</sup>	2048 <sup>2)</sup>								
–	–	96	96	2048 <sup>2)</sup>	2048 <sup>2)</sup>	2048 <sup>2)</sup>	2048 <sup>2)</sup>								
								2048 <sup>2)</sup>	2048 <sup>2)</sup>						
								4096 <sup>2)</sup>	4096 <sup>2)</sup>						

# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## PLC area (continued)

I/O inputs, max. number in bytes NCU 573.5	
I/O outputs, max. number in bytes NCU 573.5	
Bit memories, max. number NCU 561.4/NCU 571.4/NCU 572.4/NCU 573.4 NCU 573.5 in bytes	
Timers, max. number NCU 561.4/NCU 571.4/NCU 572.4/NCU 573.4 NCU 573.5	
Counters, max. number NCU 561.4/NCU 571.4/NCU 572.4/NCU 573.4 NCU 573.5	
FB, FC (max. number per type) NCU 561.4/NCU 571.4/NCU 572.4/NCU 573.4 NCU 573.5	
DB, max. number NCU 561.4/NCU 571.4/NCU 572.4/NCU 573.4 NCU 573.5	
Cyclic function block	
Time-controlled function blocks	
Equipment for PLC programming and program test with PG/PC	
Max. number of I/O modules (central configuration)	See Basic Components
Distributed DP slaves on the PROFIBUS DP, max. number:  NCU 561.4/NCU 571.4/NCU 572.4/NCU 573.4  NCU 573.5	
PP 72/48 I/O module	See Basic Components
Distributed I/O via PROFIBUS DP <ul style="list-style-type: none"> <li>• Via CP 342-5 DP, data transfer rate up to 1.5 Mbit/s</li> <li>• Via integrated interface, data transfer rates up to 12 Mbit/s</li> </ul>	See Communication
User machine data for configuring the PLC user program	

1) Subroutines.  
2) Included in the basic package.

3) Max. number 64, depending on the complexity of the slaves.  
4) FBs, FCs and DBs in total max. 2048.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6

-	-	-	-	-	-	-	-								
								4096	4096						
-	-	-	-	-	-	-	-								
								4096	4096						
1024	1024	3072	3072	4096	4096	4096	4096								
								4096	4096						
								4096	4096						
16	16	40	40	128	128	128	128								
								256	256						
								512	512						
32	32	32	32	64	64	64	64								
								256	256						
								512	512						
64 <sup>1)</sup>	64 <sup>1)</sup>	64 <sup>1)</sup>	64 <sup>1)</sup>	256	256	256	256								
								256	256						
								2048 <sup>4)</sup>	2048 <sup>4)</sup>						
-	-	-	-	399	399	399	399								
								399	399						
								2047 <sup>4)</sup>	2047 <sup>4)</sup>						
●	●	●	●	●	●	●	●	●	●						
-	-	-	-	●	●	●	●	●	●						
○	○	○	○	○	○	○	○	○	○						
-	-	○ 2	○ 2	○ 24	○ 24	-	-	○ 24	○ 24						
-	-	-	-	○ 3)	○ 3)	○ 3)	○ 3)								
								○ 32	○ 32						
								○ 125	○ 125						
-	-	● 2)	● 2)	-	-	○	○	-	-						
-	-	-	-	●	●	-	-	●	●						
-	-	●	●	○	○	●	●	○	○						
●	●	●	●	●	●	●	●	●	●						



# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## Monitoring functions

Axis limitation from the PLC

Spindle speed limitation

Generator operation

Extended stop and retract (ESR),  
incl. generator operation

Tool and process monitoring <sup>1)</sup>

PROFIBUS tool and process monitoring

**6FC5 255-0AE00-0AA0**

**6FC5 250-0AE01-0AA0**

See HMI Software

**6FC5 251-0AE71-0AA0**

## Safety functions

SINUMERIK Safety Integrated safety functions for  
personnel and machine protection <sup>2)</sup>

- Basic functions for up to 4 axes/spindles
- Supplementary function from the fifth axis/spindle for each axis/spindle
- Axis/spindle package for additional 13 axes/spindles

SinuCom NC SI

See Basic Components

**6FC5 250-0AC10-0AA0**

**6FC5 250-0AC11-0AA0**

**6FC5 250-0AC12-0AA0**

See HMI Software

## Start-up

Start-up software for converter system is integrated

- SIMODRIVE 611 digital
- SIMODRIVE 611 universal HR

Start-up software on external PC/PG

- SIMODRIVE 611 digital
- SIMODRIVE 611 universal HR

User-interface on PC/PG for start-up or  
servicing during operation without operator panel

Start-up trace  
(drive optimization without an additional oscilloscope)

SinuCom NC Trace

SINUMERIK 840Di Startup  
(SimoCom U and SinuCom NC)

Start-up software for CNC SinuCom NC

Series start-up via a serial interface

Series start-up by programming the  
PC card offline or online

See HMI Software

See HMI Software

See HMI Software

See HMI Software

<sup>1)</sup> Product of the Solution Provider (currently for ARTIS)  
<sup>2)</sup> Prerequisites: See Basic Components.

<sup>3)</sup> Included in the basic package.  
<sup>4)</sup> Loadable compile cycle in SW Version 6.4 and higher in the NCU system software.

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6

-	-	-	-	•	•	•	•	•	•						
•	•	•	•	•	•	•	•	•	•						
-	-	-	-	-	-	-	-	○	○						
-	-	-	-	-	-	-	-	○	○						
-	-	-	-	-	-	-	-	○	○						
-	-	-	-	-	-	-	-	○ 4)	○ 4)						

-	-	-	-	-	-	-	-	○	○						
-	-	-	-	-	-	-	-	○	○						
-	-	-	-	-	-	-	-	○	○						
-	-	-	-	-	-	-	-	○	○						

-	-	-	-	◇	◇	-	-	◇	◇	•	-				-
-	-	-	-	-	-	•	•	-	-	-	-				-
-	-	-	-	○	○	-	-	○	○						
• 3)	• 3)	• 3)	• 3)	○	○	○	○	○	○						
-	-	-	-	○	○	-	-	○	○	○	-				-
•	•	•	•	◇	◇	◇	◇	◇	◇	•	○				-
-	-	-	-	-	-	-	-	○	○						
-	-	-	-	-	-	•	•	-	-						
-	-	-	-	○	○	•	•	○	○						
•	•	•	•	•	•	◇	◇	•	•	•	•				-
-	-	•	•	•	•	-	-	•	•	•	•				-

# Overview of functions SINUMERIK CNC controllers

1

- Basic version
- Option
- ◇ Function is dependent on operating software
  - Not possible

Order No.

## Diagnostic functions

PLC status	
LAD display	
Process diagnostics for S7-HiGraph and S7-Graph for PCU 50/PCU 70 with TRANSLINE 2000 HMI Pro	See HMI Software
RCS remote diagnostics/host and viewer	See HMI Software
PLC remote diagnostics	<b>6FC5 653-0AA01-0AA0</b>
Alarms and messages	
Trip recorder can be activated for diagnostic purposes	

## Tools

SinuCom FFS	See HMI Software
SinuCom ARC	See HMI Software
SINUCOPY-FFS for SIMATIC S7 PG 740	See HMI Software
Programming language SIMATIC STEP 7	See HMI Software
• LAD ladder diagram	
• FBD function block diagram	
• STL statement list	
SIMATIC STEP 7 for SINUMERIK hardware (for service functions)	
SinuCom PCIN	See HMI Software
Data backup (Backup/Restore) with Ghost on hard disk/network	See HMI Software
CAD reader for PC	See HMI Software
Offline SINUMERIK 800/840D CNC program converter	On request

# Overview of functions SINUMERIK CNC controllers

1

SINUMERIK 802				SINUMERIK 810D powerline/840Di/840D powerline											
802S base line	802C base line	802D base line	802D	810DE power- line	810D power- line	840DiE	840Di	840DE power- line	840D power- line	Note on operating software Blank field: Function is not dependent on operating software					
										HMI Ad- van- ced	HMI Em- bed- ded	Shop Mill	Manual Turn	Shop Turn	HT 6
●	●	●	●	●	●	◇	◇	●	●	●	●	●	●	●	●
-	-	-	●	-	-	-	-	-	-			-	-	-	-
-	-	-	-	○	○	○	○	○	○						-
-	-	-	-	◇	◇	◇	◇	◇	◇	○	○	○	○	○	○
-	-	-	○	-	-	-	-	-	-						
●	●	●	●	●	●	●	●	●	●						
-	-	-	-	●	●	◇	◇	●	●	●	●	●	●	●	-
-	-	○	○	○	○	-	-	○	○						
-	-	○	○	○	○	-	-	○	○						
-	-	○	○	○	○	-	-	○	○						
●	●	●	●	○	○	○	○	○	○						
-	-	-	-	○	○	○	○	○	○						
-	-	-	-	○	○	○	○	○	○						
-	-	-	-	◇	◇	○	○	◇	◇	○	-				-
-	-	-	○	○	○	○	○	○	○						
-	-	-	-	●	●	●	●	●	●						
-	-	-	-	○	○	○	○	○	○						
-	-	-	-	○	○	○	○	○	○	-	-	-	-	-	-

# Overview of functions SINUMERIK CNC controllers

1

## Overview of the options for SINUMERIK 810D powerline/840Di/840D powerline

Option	Page	Order No.	Option	Page	Order No.
2nd additional machining channel and maximum memory expansion as a package	2/6	<b>6FC5 451-0AF03-0AA0</b>	Master/slave for drives	2/10	<b>6FC5 251-0AC07-0AA0</b>
3D tool radius compensation	2/32	<b>6FC5 251-0AB13-0AA0</b>	Master-value coupling and curve table interpolation	2/14	<b>6FC5 251-0AD06-0AA0</b>
Additional axis/spindle + channel (for NCU 561.4)	2/2	<b>6FC5 251-0AD08-0AA0</b>	Measurement level 2	2/18	<b>6FC5 250-0AD00-0AA0</b>
Advanced Position Control	2/12	<b>6FC5 251-0AF04-0AA0</b>	Mode group (BAG), each additional	2/2	<b>6FC5 251-0AD00-0AA0</b>
Advanced Processing 1	2/16	<b>6FC5 251-0AF10-0AA0</b>	Multi-axis interpolation	2/14	<b>6FC5 251-0AA16-0AA0</b>
Advanced Processing 2	2/16	<b>6FC5 251-0AF11-0AA0</b>	Multi-channel sequence programming	2/26	<b>6FC5 253-0AF03-0AA0</b>
Analog axis	2/10	<b>6FC5 251-0AC06-0AA0</b>	Non mode-specific actions	2/20	<b>6FC5 251-0AD04-0AA0</b>
Axis container	2/12	<b>6FC5 251-0AE01-0AA0</b>	OA NCK compile cycles	2/20	<b>6FC5 251-0AA20-0AA0</b>
Axial coupling in the machine	2/16	<b>6FC5 251-0AD11-0AA0</b>	Online ISO dialect interpreter	2/24	<b>6FC5 253-0AE00-0AA0</b>
Axis/spindle interpolation, each additional	2/4	<b>6FC5 251-0AA03-0AA0</b>	Operation with tool management	2/34	<b>6FC5 251-0AB12-0AA0</b>
Clearance control, 1D/3D in position control cycle	2/20	<b>6FC5 251-0AC05-0AA0</b>	Oscillation functions	2/18	<b>6FC5 251-0AB04-0AA0</b>
CNC user memory expanded by 1 MB	2/4	<b>6FC5 251-0AD02-0AA0</b>	Pair of synchronized axes (gantry axes)	2/10	<b>6FC5 255-0AB00-0AA0</b>
Continue machining at the contour (retrace support)	2/16	<b>6FC5 251-0AE72-0AA0</b>	Path length evaluation	2/42	<b>6FC5 251-0AF05-0AA0</b>
Continuous-path control dependent analog value output	2/18	<b>6FC5 251-0AC04-0AA0</b>	PLC user memory expanded by 64 KB	2/44	<b>6FC5 252-0AA03-0AA0</b>
Contour monitoring with tunnel function	2/42	<b>6FC5 251-0AB16-0AA0</b>	Polynomial interpolation	2/14	<b>6FC5 251-0AA15-0AA0</b>
Control unit management	2/38	<b>6FC5 253-0AE03-0AA0</b>	Positioning axis/auxiliary spindle, each additional	2/6	<b>6FC5 251-0AA04-0AA0</b>
Cycle storage separate from CNC main memory	2/24	<b>6FC5 251-0AF00-0AA0</b>	Position switching signals/cam controller	2/10	<b>6FC5 251-0AB07-0AA0</b>
Electronic gear unit	2/16	<b>6FC5 251-0AE00-0AA0</b>	Precontrol, acceleration-dependent	2/42	<b>6FC5 250-0AA07-0AA0</b>
Electronic transfer	2/18	<b>6FC5 250-0AD05-0AA0</b>	PROFIBUS tool and process monitoring	2/48	<b>6FC5 251-0AE71-0AA0</b>
Electronic weight counterbalance	2/42	<b>6FC5 255-0AC00-0AA0</b>	Program preprocessing	2/8	<b>6FC5 251-0AC02-0AA0</b>
Enabling of internal drive control 6th axis for interpolation tasks	2/6	<b>6FC5 451-0AF02-0AA0</b>	Punching/nibbling	2/18	<b>6FC5 251-0AC00-0AA0</b>
Enabling of internal drive control 6th axis for positioning tasks	2/6	<b>6FC5 451-0AF01-0AA0</b>	Quadrant error compensation, automatic	2/42	<b>6FC5 251-0AB14-0AA0</b>
Evaluation of internal drive variables	2/20	<b>6FC5 251-0AB17-0AA0</b>	Safety Integrated	2/48	<b>6FC5 250-0AC12-0AA0</b>
Extended stop and retract ESR	2/48	<b>6FC5 250-0AE01-0AA0</b>	• Axis/spindle package for additional 13 axes/spindles		
Fast interpolation link	2/12	<b>6FC5 251-0AF03-0AA0</b>	• Basic function	2/48	<b>6FC5 250-0AC10-0AA0</b>
Generator operation	2/48	<b>6FC5 255-0AE00-0AA0</b>	• Supplementary function from the 5th axis/spindle	2/48	<b>6FC5 250-0AC11-0AA0</b>
Handling transformation package	2/16	<b>6FC5 251-0AD07-0AA0</b>	Sag compensation, multi-dimensional	2/42	<b>6FC5 251-0AB15-0AA0</b>
Inclined axis	2/16	<b>6FC5 251-0AB06-0AA0</b>	Setpoint exchange	2/10	<b>6FC5 251-0AE76-0AA0</b>
Interrupt routines with high-speed retraction from the contour	2/20	<b>6FC5 251-0AA00-0AA0</b>	Setpoint linkage spanning NCUs	2/12	<b>6FC5 251-0AF02-0AA0</b>
Involute interpolation	2/14	<b>6FC5 251-0AF01-0AA0</b>	Spline interpolation for 3-axis machining	2/14	<b>6FC5 251-0AF14-0AA0</b>
I/O interfacing via PROFIBUS DP	2/36	<b>6FC5 252-0AD00-0AA0</b>	Spline interpolation for 5-axis machining	2/14	<b>6FC5 251-0AA14-0AA0</b>
Laser switching signal, high-speed	2/20	<b>6FC5 251-0AE74-0AA0</b>	Synchronous actions level 2	2/18	<b>6FC5 251-0AD05-0AA0</b>
Link axis	2/12	<b>6FC5 251-0AD10-0AA0</b>	Synchronous spindle/multi-edge turning	2/12	<b>6FC5 255-0AB01-0AA0</b>
Machining channel, each additional	2/2	<b>6FC5 251-0AA07-0AA0</b>	Tangential control	2/10	<b>6FC5 251-0AB11-0AA0</b>
Machining channels (4) and axes (13) as a package	2/6	<b>6FC5 251-0AD01-0AA0</b>	Temperature compensation	2/42	<b>6FC5 251-0AA13-0AA0</b>
Machining package 5 axes	2/16	<b>6FC5 251-0AA10-0AA0</b>	TRANSMIT/peripheral surface transformation	2/16	<b>6FC5 251-0AB01-0AA0</b>
			Traversing to fixed stop	2/10	<b>6FC5 255-0AB02-0AA0</b>

# Overview of functions

## Positioning modules

1

- Basic version
- Option
- Not possible

FM 353

FM 354

FM 357-2L  
FM 357-2LX  
FM 357-2H

SIMODRIVE 611  
universal HR

### Structure/application

Structure				
• SIMATIC S7-300	●	●	●	–
• SIMODRIVE 611	–	–	–	●
Axes per module	1	1	4	1/2
Channels per module	1	1	4 <sup>3)</sup>	–
Interpolating axes, max.	–	–	4	2
Max. modules per SIMATIC programmable controller	<sup>1)</sup>	<sup>1)</sup>	3 <sup>3)</sup>	–
Drives				
• FM STEPDRIVE (stepper motor control)	●	–	●	
• SIMODRIVE 611 universal HR (with analog setpoint interface)	–	●	●	
• SIMODRIVE 611 universal HR via PROFIBUS DP	–	–	●	
• SIMOVERT MASTERDRIVES MC via PROFIBUS DP	–	–	●	

### Measuring systems that can be connected

Indirect measuring systems				
• Incremental rotary measuring systems via RS 422	–	●	● <sup>2)</sup>	
• Incremental encoder with sin/cos 1 V <sub>pp</sub>	–	–	–	●
• Resolver	–	–	–	●
• Absolute rotary measuring systems with SSI	–	●	● <sup>2)</sup>	
• Absolute rotary measuring systems with EnDat	–	–	–	○
Direct measuring systems				
• Incremental rotary measuring systems via RS 422	–	●	● <sup>2)</sup>	
• Incremental encoder with sin/cos 1 V <sub>pp</sub>	–	–	–	●
• Resolver	–	–	–	●
• Absolute rotary measuring systems with SSI	–	●	● <sup>2)</sup>	
• Absolute linear scale with SSI	–	●	● <sup>2)</sup>	
• Absolute linear scale with EnDat	–	–	–	●

<sup>1)</sup> Depending on requirements and module complement of the subrack.

<sup>2)</sup> Also in combination with stepper drive.

<sup>3)</sup> With FM 357-2H only 1.

# Overview of functions

## Positioning modules

1

- Basic version
- Option
- Not possible

FM 353

FM 354

FM 357-2L  
FM 357-2LX  
FM 357-2H

SIMODRIVE 611  
universal HR

### Functionality

Traversing range in m	±1000	±1000	±1000	±200
Speed in mm/min	–	0.01 ... 500 000	0.001 ... >10 000 000	1 ... 2 000 000.000
Max. stepping rate in kHz	200	–	750	–
Acceleration in m/s <sup>2</sup>	–	0.001 ... 100	0.001 ... 100	0.001 ... 999
Acceleration in kHz/s for stepper drives	0.01 ... 10 000	–	0.001 ... 100	–
Jerk time in s	–	0 ... 10	0 ... 10	0 ... 0.2
Basic resolution				
• in mm	10 <sup>-3</sup>	10 <sup>-3</sup>	10 <sup>-3</sup>	10 <sup>-3</sup>
• in inch	10 <sup>-4</sup>	10 <sup>-4</sup>	10 <sup>-4</sup>	10 <sup>-4</sup>
• in degrees	10 <sup>-2</sup> , 10 <sup>-4</sup>	10 <sup>-2</sup> , 10 <sup>-4</sup>	10 <sup>-2</sup> , 10 <sup>-4</sup>	10 <sup>-3</sup>
Position-controlled mode	–	●	●	●
Controlled running with stepper drives	●	–	●	–
Position control cycle in ms	–	2	2 ... 3	1 ... 4
Interpolation time in ms	2	2	6 ... 9	2 ... 20
Rotary axis	●	●	●	○
Automatic block search	●	●	●	○
Programmable acceleration	●	●	●	○
High-speed process signals				
• Inputs	4	4	12	1
• Outputs	4	4	8 <sup>1)</sup>	–
Options for assigning the high-speed inputs:				
• External start	●	●	●	○
• Enable input (Stop)	●	●	●	○
• External block change	●	●	● <sup>2)</sup>	○
• Set actual value on-the-fly	●	●	● <sup>2)</sup>	–
• Measurement on-the-fly	●	●	●	–
• Home position switch	●	●	●	○
• Reversing cam	●	●	●	–
Options for assigning the high-speed outputs:				
• Position reached Stop	●	●	●	–
• Up, down	●	●	●	–
• M function output M97/M98	●	●	● <sup>2)</sup>	–
• Start enable	●	●	● <sup>2)</sup>	–
• Direct output (for user)	●	●	●	–
• Cam output	–	–	●	–

1) Expandable using local bus segment.

2) Via synchronized actions.

# Overview of functions

## Positioning modules

1

- Basic version
- Option
- Not possible

### FM 353

### FM 354

### FM 357-2L FM 357-2LX FM 357-2H

### SIMODRIVE 611 universal HR

#### CNC programming

Programming language (DIN 66025)	●	●	●	–
No. of traversing programs	199 3)	199 3)	● 4)	1
Max. program length in blocks	100	100	● 4)	64
Max. block capacity per module	● 3)	● 3)	● 4)	64
Subroutine levels, max.	1	1	11	–
No. of subroutine passes, max.	250	250	≤ 9999	–
Max. number of different subroutines from one program	20	20	● 4)	–
Dimensions in mm, degrees, inch	●	●	●	○
Block skip	●	●	●	○
Subroutines	●	●	●	–
Endless loop with M18	●	●	●	With GOTO
M function, actual-value-specific	–	–	●	–
M function, time/acknowledgement driven	●	●	●	–
Syntax check	●	●	●	●

#### Communication

Backup of user data on PG from				
• Hard disk, floppy disk	FM Param	FM Param	FM Param	○
• Memory card	–	–	●	–
I/O bus, S7-CPU ↔ FM	●	●	●	–
Software technology module for communication between CPU and positioning module	●	●	●	–
Multi-point interface MPI				
• Via SIMATIC S7-CPU	●	●	●	–
Networking with PROFIBUS DP via SIMATIC S7 CP 342-5 DP	○	○	○	–
PROFIBUS DP with Motion Control	–	–	● 5)	○
SIMODRIVE drive interface	–	±10 V	±10 V	–
FM STEPDRIVE drive interface (stepping rate, direction signal)	●	–	●	–
Data transfer via memory card	–	–	●	–

3) Limited by program memory (16 KB).

4) Limited by program memory (770 KB).

5) Cannot be used when HT 6 is used in combination with FM 357-2H.



# Overview of functions

## Positioning modules

1

- Basic version
- Option
- Not possible

FM 353

FM 354

FM 357-2L  
FM 357-2LX  
FM 357-2H

SIMODRIVE 611  
universal HR

### Operation

Standard screens for OP7	● 1)	● 1)	–	–
Standard screens for OP17	● 1)	● 1)	● 1)	–
Standard screens for OP27	–	–	● 1)	–
Standard screens for TP 170B/MP 270B	–	–	● 1)	–

### Operating modes and machine functions

Incremental dimension, relative	●	●	●	●
Jog mode	●	●	●	●
Control	●	●	●	○
MDI	●	●	● 4)	–
Automatic	●	●	●	●
Reference point approach	●	●	●	●
Follow-up mode	–	●	●	○
Parking axis	●	●	●	○
Simulation	●	●	●	–
Length measurement	●	●	●	–
Retrigger reference point	●	●	●	–
Switch off enable input	●	●	●	–
Switch off software limit switch	●	●	●	–
Measurement on-the-fly	●	●	● 2)	–
Switch off automatic drift compensation	–	●	●	–
Preset (set actual value)	●	●	●	–
Block search	●	●	–	–
Teach In	●	●	● 3)	○
Delete distance-to-go	●	●	●	–
Restart	●	●	●	–
Handling transformation	–	–	● 3)	–

- 1) Included in the configuration package.  
 2) Not with FM 357-2L.  
 3) With FM 357-2H.  
 4) Only via start-up screen.

# Overview of functions

## Positioning modules

1

- Basic version
- Option
- Not possible

### FM 353

### FM 354

### FM 357-2L FM 357-2LX FM 357-2H

### SIMODRIVE 611 universal HR

#### Compensations and reference points

20 tool compensations	●	●	●	–
Tool compensations 1 length + 1 wear (add./abs.)	●	●	●	–
Tool compensation, 3 lengths	–	–	●	–
Work offset	●	●	●	●
Reference point offset	●	●	●	●
Automatic drift compensation for analog speed setpoints	–	●	●	–
Backlash compensation	●	●	●	●

#### Axis monitoring functions

Software limit-switch monitoring	●	●	●	●
Position monitoring	–	●	●	●
Standstill monitoring	–	●	●	●
Rotation monitoring	●	–	●	–
Plausibility in data communication	●	●	●	–
Limit value	●	●	●	●
Following error	–	●	●	●
Cable break	–	●	●	●
Setpoint	●	●	●	–
Watchdog	●	●	●	–

#### PLC area

FM can be used in SIMATIC S7-300	CPU 314 and higher	CPU 314 and higher	CPU 314C and higher	–
PLC programming with HiGraph Add-on package for STEP 7	–	–	○	–
SIMATIC S7 technology modules	●	●	●	–
Digital inputs/outputs, max.	1024	1024	992	8 <sup>5)</sup>
No. of I/O modules, max.	32	32	31	–
Bit memories	2048	2048	2048	–
Counters/timers	256/256	256/256	256/256	–
Main memory in KB	48	48	48	–

<sup>5)</sup> Expansion is possible via options.

# Overview of functions

## Positioning modules

1

- Basic version
- Option
- Not possible

FM 353

FM 354

FM 357-2L  
FM 357-2LX  
FM 357-2H

SIMODRIVE 611  
universal HR

### PLC area (continued)

Machining time

• Bit commands, typ. in µs

• Word commands, typ. in µs

FB/FC/DB per type

Cyclic function block

Time-controlled function blocks

STEP 7 programming language

Programming: STL, SCL, LAD/FBD

Equipment for PLC programming and  
program testing

Memory card (flash EPROM)

0.1

0.1

0.1

–

1.0

1.0

1.0

–

512/512/511

512/512/511

512/512/511

–

●

●

●

–

●

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●

–

●

●

●

–

●

●

●

–

PG 7../PC

PG 7../PC

PG 7../PC

–

CPU 314  
CPU 315

CPU 314  
CPU 315

CPU 314C  
CPU 315  
CPU 316  
CPU 318-2

–

### Diagnostic functions

PLC status

Diagnostic buffer specifying error ID-codes

Servo alarms

Diagnostic alarms and messages

●

●

●

–

●  
1)

●  
1)

●  
1)

●

●

●

●

●

●

●

●

●

### Start-up/parameterization

PG 720, PG 740 and PG 760 programming devices

PC with RS 232 C

PC with MPI card

Windows-based start-up tool

Configured using SIMATIC STEP 7

Start-up functions

• Measuring functions

○

○

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●

1) The last 5 events.

# Overview of functions SINUMERIK CNC controllers

## Export and standard control versions

1

### Overview

As a consequence of the prevailing export restrictions applicable to the system software of numerical controls, in relation to particular control functions in accordance with the European/German Export List, SINUMERIK 810D powerline, SINUMERIK 840Di and SINUMERIK 840D powerline are available in two versions.

In the case of SINUMERIK 810D powerline, this applies to CCU components with integrated system software, with SINUMERIK 840Di to NCK system software and with SINUMERIK 840D powerline to NCU system software.

The **standard versions** of SINUMERIK 810D powerline, SINUMERIK 840Di and SINUMERIK 840D powerline offer the full scope of control functions, but require **official approval** when exported to countries outside the EU.

The **export versions** SINUMERIK 802S base line, SINUMERIK 802C base line, SINUMERIK 802D base line, SINUMERIK 802D, SINUMERIK 810DE powerline, SINUMERIK 840DiE and SINUMERIK 840DE powerline have limited functionality in accordance with the export list restrictions

and therefore do not require **official approval** as a result of their "Type" in accordance with EU or German law.

The approval status for the complete CNC system is correspondingly dependent on the hardware or software version used.

#### General note:

*If any particular components require official re-export approval according to US law, this must be duly filled for. Information about official approval requirements for supplied components is given in the delivery documentation:*

*Goods labeled here with "AL not equal to N" are subject to European or German export authorization when they are exported out of the EU. Goods labeled with "ECCN not equal to N" are subject to US re-export authorization. Even if goods are not labeled or labeled with "AL:N" or "ECCN:N", they may still be subject to export authorization due to the final destination and end use of the goods.*

### Functional restrictions for export versions

Function	Order No.	802S base line 802C base line 802D base line 802D	810DE power- line	840DiE	840DE power- line
Helical interpolation 2D+6	●	–	–	–	–
Machining package five axes	6FC5 251-0AA10-0AA0	–	–	–	–
Multi-axis interpolation (>4 interpolating axes)	6FC5 251-0AA16-0AA0	–	–	–	–
OA NCK compile cycles	6FC5 251-0AA20-0AA0	–	–	–	–
Handling transformation package	6FC5 251-0AD07-0AA0	–	–	–	–
Clearance control, 1D/3D in position control cycle <sup>1)</sup>	6FC5 251-0AC05-0AA0	–	–	–	–
Synchronized actions <sup>1)</sup>	●	–	☐☐	☐☐	☐☐
Sag compensation, multi-dimensional	6FC5 251-0AB15-0AA0	–	☐☐	☐☐	☐☐
Electronic transfer	6FC5 250-0AD05-0AA0	–	–	☐☐	☐☐
Master-value coupling and curve table interpolation	6FC5 251-0AD06-0AA0	–	☐☐	☐☐	☐☐
Electronic gear unit <sup>1)</sup>	6FC5 251-0AE00-0AA0	–	–	☐☐	☐☐
Synchronized actions level 2 <sup>1)</sup>	6FC5 251-0AD05-0AA0	–	☐☐	☐☐	☐☐
Continuous dressing <sup>2)</sup>	●	–	☐☐	☐☐	☐☐
Evaluation of internal drive variables <sup>2)</sup>	6FC5 251-0AB17-0AA0	–	☐☐	☐☐	☐☐
Measurement level 2 <sup>2)</sup>	6FC5 250-0AD00-0AA0	–	☐☐	☐☐	☐☐

● Basic version

☐☐ Limited functionality, see "Glossary".

– Not possible

1) The functional restrictions for the export versions SINUMERIK 810DE powerline/840DE powerline, SW release 6.4 or higher, and SINUMERIK 840DiE, SW release 2.3 or higher, are limited to "4 interpolating axes".

2) The functional restrictions for the export versions SINUMERIK 810DE powerline/840DE powerline, SW release 6.5 or higher, have been canceled!

# Overview of functions

## SINUMERIK CNC controllers

### Export and standard control versions

#### *Important export information*

Export of standard versions of components or systems can be subjected to a time-consuming official authorization process, so it is recommended that **the export version** is used where applicable.

When the standard variant is used, it is important to note that official authorization is also required for the export of components subject to export approval within the framework of service provision, the supply of spare parts and for delivery of software updates and upgrades. This also applies in particular in cases where the controller is exported after the machine manufacturer installed it in a machine tool. The lengthy official approval procedure can severely restrict after-sales service.

When an application for an export permit for a system is made, we therefore recommend that spare parts supplies for any components requiring approval are included in the application as a matter of course to avoid future delays.

If the control system is to be exported as an installed component in a machine tool, we recommend that machine manufacturers include any components requiring approval in the export permit application for the machine. If the machine itself does not require official export approval, but contains components which do, we recommend that an export permit for the replacement supply of such components is applied for in advance.

Spare parts supplies requiring official approval can then be exported quickly and easily by the machine manufacturer himself, or by Siemens if the manufacturer can make the original export permit available to Siemens.

# 2

## 2 Machine and Setting Data

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## 2.1 Explanatory notes on the machine and setting data

---

### Hinweis

The List Manual contains a shortened version of the information you need to start up a control.

For reasons of space, it is not possible to give all the details of all the machine data individually here.

You will find out more about the function of the machine data by following the given **cross-reference**.

In addition to this, the control has an **on-line Help system** available with detailed information on all machine data.

---

### 2.1.1 General information

**Data in the lists**      Apart from the Identifier and Name/Other information, the lists of machine and setting data also include the following information:

**Number**      The number of the data is displayed when it is listed on the MMC. This number is output when the data is saved if MD 11230: MD\_FILE\_STYLE has been set correspondingly.

**Cross reference**      The data is described in detail in the specified description of functions or guide (see section headed "References").

**Active**      A change to the data becomes active after

- POWER ON (po) "RESET" key on the front panel of the NCU module
- NEW\_CONF (cf) - "Activate MD" softkey on MMC
  - "RESET" key on the control unit
  - Changes possible at block boundaries in program mode
- RESET      at end of program M2/M30
- RESET (re)      "RESET" key on the control unit
- IMMEDIATELY (so)      After input of the value

The activation levels are listed above in order of priority.

**Protection levels**      Protection levels are indicated by numbers with the following meanings:

0 or 10: SIEMENS  
 1 or 11: OEM-HIGH  
 2 or 12: OEM-LOW

3 or 13: End user  
 4 or 14: Keyswitch position 3  
 5 or 15: Keyswitch position 2  
 6 or 16: Keyswitch position 1  
 7 or 17: Keyswitch position 0.

**Complete protection:**

The numbers within the range from 0 to 7 determine that assigned data in the NC program and in the MDA mode **cannot** be overwritten or read.

**Conditional protection:**

The numbers within the range from 10 to 17 determine only for user data (GUD) that assigned data in the NC program and in the MDA mode can be overwritten or read.

The operation and display are always protected for both protection levels.

The interlock for protection levels 0 to 3 can be canceled by setting a password, the interlocks 4 to 7 can be canceled via keyswitch position.

The user has only access to information which corresponds to the current protection level and to lower protection levels. The machine data are assigned varying protection levels as standard function.

The user can **change** the priority of the protection levels. In the machine data, only low priority protection levels can be specified, but higher priority levels can be specified in the setting data.

The following passwords are used for redefinition by the user:

**APR** (Access protection read) indicate read authorization

**APW** (Access protection write) indicate write authorization.

After the password, you will find the protection level to be set in each case as number.

**Example 1:** Change rights for individual MDs

```
%_N_SGUD_DEF      File for global variables
;$PATH=/_N_DEF_DIR
REDEF $MA_CTRLOUT_SEGMENT_NR APR 2 APW 2
```

```
REDEF $MA_ENC_SEGMENT_NR APR 2 APW 2
```

```
REDEF $SN_JOG_CONT_MODE_LEVELTRIGGRD APR 2 APW 2
M30
```

The file becomes active when the next `_N_INITIAL_INI` is read in.

Various protection levels are specified for writing (changing) or reading (part program or PLC). In the section lists of this document, the protection levels per machine data are indicated in the form of i/j.

**Example:**

MD 10000 has protection level 2/7, i.e. protection level 2 (corresponding to password) is required to write data and protection level 7 to read data.

In order to get into the machine data area, keyswitch position 3 is required at least.

**References:**     /PGA/, Programming Guide, Section 1.5  
                   /FB/, A2, "Various Interface Signals"  
                   /BA/, Operator's Guide

**Unit**

The unit refers to the default setting for the machine data

SCALING\_FACTOR\_USER\_DEF\_MASK,  
 SCALING\_FACTOR\_USER\_DEF and  
 SCALING\_SYSTEM IS METRIC = 1.

Depending on the MD SCALING\_SYSTEM\_IS\_METRIC, the physical units differ as follows:

MD 10240 = 1	MD 10240 = 0
--------------	--------------



## 2.1 Explanatory notes on the machine and setting data

mm	inch
mm/min	inch/min
m/s <sup>2</sup>	inch/s <sup>2</sup>
m/s <sup>3</sup>	inch/s <sup>3</sup>
mm/rev	inch/rev

“-” is entered in the field if the MD is not based on any physical unit.

**Default value**

This is the value to which the machine data is preset. “ / ” is entered in the list if there are different default values for the channels.

Some machine data are provided with different default values depending on the NCU used.

**Note**

When data is entered via the MMC, the input value is limited to 10 places plus decimal point and sign.

**Value range  
(minimum and  
maximum value)  
Data type**

Specification of the input limits. If no value range is specified, the data type determines the input limits and “\*\*\*” is entered in the field.

BOOLEAN	Machine data bit (1 or 0)
BYTE	Integer values (from -128 to 127)
DOUBLE	Real and integer values (from " 4.19*10 <sup>-307</sup> to " 1.67*10 <sup>308</sup> )
DWORD	Integer values (from -2.147*10 <sup>9</sup> to 2.147*10 <sup>9</sup> )
DWORD	Hexadecimal values (from 00000000 to FFFFFFFF)
STRING	Character string (maximum 16 characters) consisting of capital letters with digits and underlining
UNSIGNED WORD	Integer values (from 0 to 65536)
SIGNED WORD	Integer values (from -32768 to 32767)
UNSIGNED DWORD	Integer values (from 0 to 4294967300)
SIGNED DWORD	Integer values (from -2147483650 to 2147483649)
WORD	Hexadecimal values (from 0000 to FFFF)
FLOAT DWORD	Real values (from "8.43*10 <sup>-37</sup> to "3.37*10 <sup>38</sup> )

**Overview of machine  
and setting data**

The machine and setting data are divided into the following areas:

Table Overview of machine and setting data

Area	Designation
From 1000 to 1799	Machine data for drives
From 9000 to 9999	Machine data for operator panel
From 10000 to 18999	General machine data
From 19000 to 19999	Reserved
From 20000 to 28999	Channel-specific machine data
From 29000 to 29999	Reserved

Area	Designation
From 30000 to 38999	Axis-specific machine data
From 39000 to 39999	Reserved
From 41000 to 41999	General setting data
From 42000 to 42999	Channel-specific setting data
From 43000 to 43999	Axis-specific setting data
From 51000 to 61999	General machine data for compile cycles
From 62000 to 62999	Channel-specific machine data for compile cycles
From 63000 to 63999	Axis-specific machine data for compile cycles

**Index for MD and SD**      The section headed INDEX contains a special index for the machine and setting data listed in this section.

**Data identifiers**      The designation of the machine data is displayed on the MMC. The internal data identifier requires additional identifiers. These identifiers must be specified if a machine data is changed through programming or read in via the serial interface.

**Data areas**

\$MM_	Operator panel data
\$MN_/\$SN_	General machine data/setting data
\$MC_/\$SC_	Channel-specific machine data/setting data
\$MA_/\$SA_	Axis-specific machine data/setting data
\$MD_	Drive machine data
Please note:	
\$	System variable
M	Machine data
S	Setting data
M, N, C, A, D	Subarea (second letter)

Axis data are addressed via the axis name. The internal axis designation (AX1, AX2 ... AX8) or the name specified in MD 10000: AXCONF\_NAME\_TAB can be used as the axis name.  
E.g.: \$MA\_JOG\_VELO[Y1]=2000  
The JOG velocity of axis Y1 is 2000 mm/min.

The contents of a machine data must be preceded and followed by an apostrophe (e.g. 'X1' or 'H41') if they are a STRING (e.g. X1) or a hexadecimal value (e.g. H41).  
E.g.: \$MN\_DRIVE\_INVERTER\_CODE[0]='H14'  
FDD module 9/18 A in slot 1 of drive bus.

In order to address various contents of a machine data, entries in square brackets are required.  
E.g.: \$MA\_FIX\_POINT\_POS[0,X1]=500.000

**Examples**

\$MN\_AUXFU\_GROUP\_SPEC[2]='H41'  
Output instant of auxiliary functions of 3rd auxiliary function group.

## 2.1 Explanatory notes on the machine and setting data

```
$MN_AXCONF_MACHAX_NAME_TAB[0]='X1'
```

Name of 1st machine axis is X1.

```
$MA_REF_SET_POS[0,X1]=100.00000
```

1st reference point value of axis X1 is 100 mm.

Assignment of channel-specific machine data:

```
CHANDATA(1)
```

Assignment channel 1

```
$MC_CHAN_NAME='CHAN1'
```

Channel name for channel 1

```
$MC_AXCONF_GEOAX_NAME_TAB[1]='Y'
```

Name of 2nd geometry axis in channel 1 is Y

...

```
R10 = 33.75
```

R10 of channel 1

...

```
CHANDATA(2)
```

Assignment channel 2

```
$MC_CHAN_NAME='CHAN2'
```

Channel name for channel 2

...

```
R10 = 96.88
```

R10 of channel 2

...

## 2.1.2 Handling of machine data

### Loading of scaling machine data

Scaling machine data also include information which determines how machine data are scaled in reference to a specific physical unit (e.g. velocities).

The following are scaling machine data:

MD 10220: SCALING\_USER\_DEF\_MASK (activation of scaling factors)

MD 10230: SCALING\_FACTORS\_USER\_DEF (scaling factors of physical quantities)

MD 10240: SCALING\_SYSTEM\_IS\_METRIC (basic system is metric)

MD 10250: SCALING\_VALUE\_INCH (conversion factor for switchover to INCH system)

MD 30300: IS\_ROT\_AX (rotary axis)

When machine data are loaded (via MMC, V24, program), they are scaled with reference to the physical unit which is valid at the time of loading. If the data block contains new scaling information (e.g. rotary axis declaration), those machine data which are dependent on scaling are converted to the new scaling factor at the next "Power ON". The machine data do not therefore contain the expected values (e.g. F values too low for rotary axis traversal).

### Example

The open-loop control has been started up with default values. The 4th axis in the MD file to be loaded is defined as a rotary axis and contains the following machine data:

```
$MA_IS_ROT_AX[A1] = 1 (rotary axis)
```

```
$MA_MAX_AX_VELO [A1]= 1000 [rev/min] (maximum axis velocity)
```

When the MD block is loaded, the velocity is interpreted in relation to a linear axis (default setting \$MA\_IS\_ROT\_AX[A1]=0) and scaled according to the linear velocity. On the next Power ON, the open-loop control detects that this axis is defined as a linear axis and scales the velocity in relation to rev/min. The machine data then no longer contains the value "1000", but the value "2.7777778" (1000/360). If the MD file is loaded again, then the axis is already defined as a rotary axis and the velocity is interpreted and scaled as a rotary axis value. The MD then contains the value "1000" and is interpreted by the control in rev/min.

### Suggestion for step-by-step loading of machine data

- Change the appropriate machine data manually via the MMC (MD 10220, 10230, 10240, 10250, 30300) and initiate NCK booting. Then read in the MD block via V24 or part program and initiate NCK booting.

- Set up an MD block with the scaling machine data (MD 10220, 10230, 10240, 10250, 30300). Load this block and initiate NCK booting. Then read in the entire MD block and initiate NCK booting.
- As an alternative to the methods given above, an MD block can also be loaded twice (via V24 or as a part program), with an NCK booting after each loading operation.

---

**Note**


---

**Saving only machine data with changed values**

With regard to the saving of machine and setting data, it is possible to define in MD 11210: UPLOAD\_MD\_CHANGES\_ONLY (save only changed machine data) whether all data or only those which deviate from the default settings are output via the V24 interface.

UPLOAD\_MD\_CHANGES\_ONLY = 1

Only those data which deviate from the default are output.

UPLOAD\_MD\_CHANGES\_ONLY = 0

All data are output.

If a value has been changed in a data which is stored as an array, then the entire MD array is always output (e.g. MD 10000: AXCONF\_MACHAX\_NAME\_TAB).

---

**Note**


---

It can be sensible to back-up only the altered machine data before upgrading the software in those cases where changes have been made to the machine data default values. This applies in particular to machine data classified as SIEMENS protection level 0.

---

**Loading of standard data**

Standard machine data can be loaded in a number of different ways.

- **Set switch S3 on NCU module to position 1 and initiate NCK reset** (re-initialization of the entire SRAM of the NCU module, all user data are lost)
- **MD 11200: INIT\_MD** (load standard MD on "next" booting)

Certain input values in MD: INIT\_MD allow various data areas to be loaded with default values on the next NCK booting. The machine data is displayed in HEX format. After MD: INIT\_MD has been set, power ON must be initiated twice. The MD is activated on the 1st power ON.

On the 2nd power ON, the function is executed and the MD reset to the value "0".

**Meaning of input values****Value "0"**

The stored machine data MD will be loaded during the next booting operation.

**Value "1"**

All MDs - with the exception of memory-configuring data - will be overwritten with default values during the next booting operation.

**Value "2"**

All memory-configuring MDs will be overwritten with default values during the next booting operation.

Memory-configuring MDs are described in:

**References:** /IAD/, Installation and Start-Up Guide, Memory Configuration

- MD 10010: ASSIGN\_CHAN\_TO\_MODE\_GROUP

- All machine data starting with "MM\_"

MD 18000 - 18999 (general MDs)

MD 28000 - 28999 (channel-specific MDs)

MD 38000 - 38999 (axis-specific MDs)

**Value "4"**

- All compile cycle MDs will be deleted during the next booting operation.

---

**Note**

The drive machine data described in the following section are significant for SINUMERIK 840D and 810D. For control parameters of analog drives with regard to SINUMERIK FM-NC, please refer to:

**References:** /IAA/, Simodrive 611A, Installation and Start-Up Guide

---

## 2.2 Drive machine data

The display of the machine data has been extended in SW Version 4 and higher. **Display filters** and **System** have been newly introduced.

### Display filters

The quantity of machine data displayed on the operator panel can be limited to the machine data of interest by means of the display filters. Machine data are displayed on the operator panel if at least one of the filters indicated in the respective machine data has been activated by the user or if the mode "All machine data" has been set. The short descriptions of the filters indicated are used again in the operator interface for filter activation. They have the following meaning:

- D01 Controller data
- D02 Monitoring / limitations
- D03 Message data
- D04 Status data
- D05 Motor / power section
- D06 Measuring system
- D07 Safety Integrated
- D08 Standard machine
- EXP Expert mode

### System

The following is indicated for system:

- 810D if machine data is relevant only for 810D systems
- 840D if machine data is relevant only for 840D systems
- Nothing if machine data is valid for both systems

### Note

For machine data of control unit Performance 2 [P2], the unit(s) are displayed together with the filter in line 2 column 1. In line 3 and following, the system to which the line applies is stated in column 1. The identifier, name and values are stated several times possibly with the extensions ROT: LIN: and mark the differences between rotary motors and linear motors.

MD-Number	Identifier				Cross reference	
Display filters	Meaning			Type	Rot/Lin	Protection   <b>System</b>
Unit	Default	Minimum	Maximum	Data type		Active

1000	CURRCTRL_CYCLE_TIME				CR: DS1	
D01, D05, EXP 31,25 µs	Current controller cycle			MSD SLM FDD	2/4	
HW:P2	-	-	-	UNS.WORD	Power On	
HW:P2 840D	4	1	4	UNS.WORD	Power On	
HW:P2 810D	5	2	5	UNS.WORD	Power On	

<b>1000</b>	<b>CURRCTRL_CYCLE_TIME</b>				CR: / <b>DS1</b> /	
	Current controller cycle			FDD/MSD	2/4	<b>810D</b>
31.25 us	5	2	8	UNS. WORD	PowerOn	
<b>1000</b>	<b>CURRCTRL_CYCLE_TIME</b>				CR: / <b>DS1</b> /	
D01, D05, EXP	Current controller cycle			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
31.25 us	4	2	4	UNS. WORD	PowerOn	
<b>1001</b>	<b>SPEEDCTRL_CYCLE_TIME</b>				CR: <b>DD2</b>	
D01, D05, EXP 31,25 µs	Speed controller cycle			MSD SLM FDD	2/4	
HW:P2	-	-	-	UNS.WORD	Power On	
HW:P2 840D	4	1	16	UNS.WORD	Power On	
HW:P2 810D	10	2	40	UNS.WORD	Power On	
<b>1001</b>	<b>SPEEDCTRL_CYCLE_TIME</b>				CR: / <b>DD2</b> /	
	Speed controller cycle			FDD/MSD	2/4	<b>810D</b>
31.25 us	10	2	32	UNS. WORD	PowerOn	
<b>1001</b>	<b>SPEEDCTRL_CYCLE_TIME</b>				CR: / <b>DD2</b> /	
D01, D05, EXP	Speed controller cycle			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
31.25 us	4	2	16	UNS. WORD	PowerOn	
<b>1002</b>	<b>MONITOR_CYCLE_TIME</b>				CR: <b>DB1</b>	
D02, D05, EXP 31,25 µs	Monitoring cycle			MSD SLM FDD	2/4	
HW:P2	3200	128	3200	UNS.WORD	Power On	
<b>1002</b>	<b>MONITOR_CYCLE_TIME</b>				CR: / <b>DB1</b> /	
	Monitoring cycle			FDD/MSD	2/4	<b>810D</b>
31.25 us	640	128	3200	UNS. WORD	PowerOn	
<b>1002</b>	<b>MONITOR_CYCLE_TIME</b>				CR: / <b>DB1</b> /	
D05, D02, EXP	Monitoring cycle			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
31.25 us	3200	128	3200	UNS. WORD	PowerOn	
<b>1003</b>	<b>STS_CONFIG</b>				CR: <b>DS1</b>	
EXP	Configuration STS			MSD SLM FDD	0/0	
-						
HW:P2	0x0330	0x0000	0x07f0	UNS.WORD	Power On	
<b>1003</b>	<b>STS_CONFIG</b>				CR: / <b>DS1</b> /	
	Configuration STS			FDD/MSD	2/4	<b>810D</b>
-	330	0	ffff	UNS. WORD	PowerOn	
<b>1003</b>	<b>STS_CONFIG</b>				CR: / <b>DS1</b> /	
EXP	Configuration STS			FDD/MSD	ROT/LIN	0/0 <b>840D</b>
-	330	0	7f0	UNS. WORD	PowerOn	
<b>1004</b>	<b>CTRL_CONFIG</b>				CR: <b>DD2</b>	
EXP	Configuration structure			MSD SLM FDD	2/4	
-						
HW:P2	0x0000	0x0000	0x3115	UNS.WORD	Power On	
<b>1004</b>	<b>CTRL_CONFIG</b>				CR: / <b>DD2</b> /	
EXP	Configuration structure (not 810D)			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
-	0	0	2115	UNS. WORD	PowerOn	
<b>1005</b>	<b>ENC_RESOL_MOTOR</b>				CR: <b>DG1, DM1</b>	
D06	Motor measuring system encoder increments			MSD SLM FDD	2/4	
-						

HW:P2	2048	1	65535	UNS.WORD	Power On
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<b>1005</b>	<b>ENC_RESOL_MOTOR</b>			CR: / <b>DG1, DM1</b> /	
	Motor measuring system encoder increments			FDD/MSD	2/4 <b>810D</b>
-	2048	1	8192	UNS. WORD	PowerOn

<b>1005</b>	<b>ENC_RESOL_MOTOR</b>			CR: / <b>DG1, DM1</b> /	
D06	Motor measuring system encoder increments			FDD/MSD	ROT/LIN 2/4 <b>840D</b>
-	2048	1	65535	UNS. WORD	PowerOn

<b>1007</b>	<b>ENC_RESOL_DIRECT</b>			CR: <b>DG1</b>	
D06	Encoder increments of the direct measuring system			MSD SLM FDD	2/4
-					
HW:P2	0	0	2147483647	UNS.DWORD	Power On

<b>1007</b>	<b>ENC_RESOL_DIRECT</b>			CR: / <b>DG1</b> /	
	Encoder increments of the direct measuring system			FDD/MSD	2/4 <b>810D</b>
-	0	0	65535	UNS. WORD	PowerOn

<b>1007</b>	<b>ENC_RESOL_DIRECT</b>			CR: / <b>DG1</b> /	
D06	Encoder increments of the direct measuring system			FDD/MSD	ROT/LIN 2/4 <b>840D</b>
-	0	0	2147483647	UNS. DWORD	PowerOn

<b>1008</b>	<b>ENC_PHASE_ERROR_CORRECTION</b>			CR: <b>DG1</b>	
D06, EXP Degrees	Encoder phase error compensation IM			MSD SLM FDD	2/4
HW:P2	0.000000	-20.000000	20.000000	FLOAT	Immediately

<b>1008</b>	<b>ENC_PHASE_ERROR_CORRECTION</b>			CR: / <b>DG1</b> /	
EXP, D06 degrees	Encoder phase error compensation IM			FDD/MSD	ROT/LIN 2/4
	0.0000	-20.0000	20.0000	FLOAT	immediately

<b>1011</b>	<b>ACTUAL_VALUE_CONFIG</b>			CR: <b>DG1</b>	
D06	Configuration of the actual value sensing IM			MSD SLM FDD	2/4
-					
HW:P2	0x0000	0x0000	0xf1ff	UNS.WORD	Power On

<b>1011</b>	<b>ACTUAL_VALUE_CONFIG</b>			CR: / <b>DG1</b> /	
	Configuration of the actual value sensing IM			FDD/MSD	2/4 <b>810D</b>
-	0	0	ffff	UNS. WORD	PowerOn

<b>1011</b>	<b>ACTUAL_VALUE_CONFIG</b>			CR: / <b>DG1</b> /	
D06	Configuration of the actual value sensing IM			FDD/MSD	ROT/LIN 2/4 <b>840D</b>
-	0	0	f1ff	UNS. WORD	PowerOn

<b>1012</b>	<b>FUNC_SWITCH</b>			CR: <b>DB1</b>	
D01, D02, D03	Function switch			MSD SLM FDD	2/4
-					
HW:P2	0x0004	0x0000	0x00b5	UNS.WORD	Immediately

<b>1012</b>	<b>FUNC_SWITCH</b>			CR: / <b>DB1</b> /	
	Function switch			FDD/MSD	2/4 <b>810D</b>
-	4	0	ffff	UNS. WORD	immediately
	HSA: c				

<b>1012</b>	<b>FUNC_SWITCH</b>			CR: / <b>DB1</b> /	
D01, D02, D03	Function switch			FDD/MSD	ROT/LIN 2/4 <b>840D</b>
-	0	0	b5	UNS. WORD	immediately

<b>1013</b>	<b>ENABLE_STAR_DELTA</b>			CR: <b>DE1</b>	
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D05	Enable star/delta changeover			MSD SLM FDD	2/4	
-						
HW:P2	0	0	7	UNS.WORD	Power On	
1013	ENABLE_STAR_DELTA				CR: /DE1 /	
D05	Enable star/delta changeover (not 810D)			MSD	ROT	2/4 840D
-	0	0	7	UNS. WORD	PowerOn	
1014	UF_MODE_ENABLE				CR: DE1	
D04	Activate V/f operation			MSD SLM FDD	2/4	
-						
HW:P2	0	0	1	UNS.WORD	Power On	
1014	UF_MODE_ENABLE				CR: / DE1 /	
EXP, D04	Activate V/f operation (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
-	0	0	1	UNS. WORD	PowerOn	
1015	PEMSD_MODE_ENABLE				CR: DE1	
-	Activate PE-MSD			FDD SLM	2/4	
-						
HW:P2	0	0	1	UNS.WORD	Power On	
1015	PEMSD_MODE_ENABLE				CR: / DE1 /	
-	Activate PE-MSD (not 810D)			FDD	ROT/LIN	2/4 840D
-	0	0	1	UNS. WORD	PowerOn	
1016	COMMUTATION_ANGLE_OFFSET				CR: DL1	
-	Commutating angle offset			FDD SLM	2/4	
Degrees						
HW:P2	0.000000	-360.000000	360.000000	FLOAT	Power On	
1016	COMMUTATION_ANGLE_OFFSET				CR: / DL1 /	
-	Commutating angle offset (not 810D)			FDD	ROT/LIN	2/4 840D
degrees	0.0000	-360.0000	360.0000	FLOAT	PowerOn	
1017	STARTUP_ASSISTANCE				CR: DL1	
D04	Setting-up aid			FDD SLM	2/4	
-						
HW:P2	0	-1	1	WORD	Immediately	
1017	STARTUP_ASSISTANCE				CR: / DL1 /	
D04	Setting-up aid (not 810D)			FDD	ROT/LIN	2/4 840D
-	0	-1	1	WORD	immediately	
1019	CURRENT_ROTORPOS_IDENT				CR: DM1, DL1	
-	Current rotor position identification			FDD SLM	2/4	
%						
HW:P2	ROT: 50.000000	0.000000	100.000000	FLOAT	Immediately	
	LIN: 12.000000					
1019	CURRENT_ROTORPOS_IDENT				CR: /DM1 /	
-	Current rotor position identification (not 810D)			FDD	ROT	2/4 840D
%	50.0000	0.0000	100.0000	FLOAT	immediately	
1019	CURRENT_ROTORPOS_IDENT				CR: / DL1/	
-	Current rotor position identification (not 810D)			FDD	LIN	2/4 840D
%	12.0000	0.0000	100.0000	FLOAT	immediately	
1020	ROT: MAX_TURN_ROTORPOS_IDENT LIN: MAX_MOVE_ROTORPOS_IDENT				CR: DM1, DL1	

- ROT: Degrees LIN: mm	ROT: Maximum rotation of rotor position identification LIN: Maximum move of rotor position identification			FDD SLM	2/4	
HW:P2	ROT: 10.000000 LIN: 5.000000	0.000000	ROT: 90.000000 LIN: 30.000000	Float	Immediately	

<b>1020</b>	<b>MAX_MOVE_ROTORPOS_IDENT</b>				CR: / DL1/	
-	Maximum move of rotor position identification (not 810D)			FDD	LIN	2/4 840D
mm	5.0000	0.0000	30.0000	Float	immediately	

<b>1020</b>	<b>MAX_TURN_ROTORPOS_IDENT</b>				CR: /DM1 /	
-	Maximum rotation of rotor position identification (not 810D)			FDD	ROT	2/4 840D
degrees	10.0000	0.0000	90.0000	Float	immediately	

<b>1021</b>	<b>ENC_ABS_TURNS_MOTOR</b>				CR: DG1	
D06	Multiturn resolution absolute value encoder motor			MSD SLM FDD	2/4	
-						
HW:P2	4096	0	65535	UNS.WORD	Power On	

<b>1021</b>	<b>ENC_ABS_TURNS_MOTOR</b>				CR: / DG1 /	
D06	Multiturn resolution absolute value encoder motor			FDD/MSD	ROT/LIN	2/4
-	4096	0	65535	UNS. WORD	PowerOn	

<b>1022</b>	<b>ENC_ABS_RESOL_MOTOR</b>				CR: DG1	
D06	Measuring steps of the motor absolute track			MSD SLM FDD	2/4	
-						
HW:P2	8192	0	2147483647	UNS.DWORD	Power On	

<b>1022</b>	<b>ENC_ABS_RESOL_MOTOR</b>				CR: / DG1/	
-	Measuring steps of the motor absolute track			FDD/MSD		2/4 810D
-	8192	512	65535	UNS. WORD	PowerOn	

<b>1022</b>	<b>ENC_ABS_RESOL_MOTOR</b>				CR: / DG1 /	
D06	Measuring steps of the motor absolute track			FDD/MSD	ROT/LIN	2/4 840D
-	8192	0	2147483647	UNS. DWORD	PowerOn	

<b>1023</b>	<b>ENC_ABS_DIAGNOSIS_MOTOR</b>				CR: DG1	
D06	Diagnosis measuring circuit motor absolute track			MSD SLM FDD	2/4	
-						
HW:P2	0	0	49151	UNS.WORD	Immediately	

<b>1023</b>	<b>ENC_ABS_DIAGNOSIS_MOTOR</b>				CR: / DG1/	
-	Diagnosis measuring circuit motor absolute track			FDD/MSD		2/4 810D
-	0	0	65535	UNS. WORD	immediately	

<b>1023</b>	<b>ENC_ABS_DIAGNOSIS_MOTOR</b>				CR: / DG1 /	
D06	Diagnosis measuring circuit motor absolute track			FDD/MSD	ROT/LIN	2/4 840D
-	0	0	49151	UNS. WORD	immediately	

<b>1024</b>	<b>DIVISION_LIN_SCALE</b>				CR: , DG1, DL1	
- nm	Grid spacing motor measuring system			FDD SLM	2/4	
HW:P2	20000	0	2147483647	UNS.DWORD	Power On	

<b>1024</b>	<b>DIVISION_LIN_SCALE</b>				CR: / DL1/	
-	Grid spacing, motor measuring system (not 810D)			FDD	LIN	2/4 840D
Nm	20000	0	2147483647	UNS. DWORD	PowerOn	

<b>1025</b>	<b>SERIAL_NO_ENCODER</b>				CR: DG1	
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D06, EXP	Serial number motor measuring system			MSD SLM FDD	1/1	
-						
HW:P2	0	0	4294967295	UNS.DWORD	Power On	
<b>1025</b>	<b>SERIAL_NO_ENCODER</b>				CR: / <b>DG1</b> /	
D06, EXP	Serial number motor measuring system (not 810D)			FDD/MSD	ROT/LIN	1/1 <b>840D</b>
-	0	0	2147483647	UNS. DWORD	PowerOn	
<b>1027</b>	<b>ENC_CONFIG</b>				CR: <b>DG1</b>	
D06	Configuration for encoder IM			MSD SLM FDD	2/4	
-						
HW:P2	0x0000	0x0000	0xffff	UNS.WORD	Power On	
<b>1027</b>	<b>ENC_CONFIG</b>				CR: / <b>DG1</b> /	
D06	Configuration for encoder IM (not 810D)			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
-	0	0	ffff	UNS. WORD	PowerOn	
<b>1028</b>	<b>NO_TRANSMISSION_BITS</b>				CR: <b>DG1</b>	
D06	IM frame length SSI			MSD SLM FDD	2/4	
-						
HW:P2	25	0	25	UNS.WORD	Power On	
<b>1028</b>	<b>NO_TRANSMISSION_BITS</b>				CR: / <b>DG1</b> /	
D06	IM frame length SSI (not 810D)			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
-	25	0	25	UNS. WORD	PowerOn	
<b>1029</b>	<b>DELAY_ROTORPOS_IDENT</b>				CR: <b>FBU</b>	
-	Meas. delay rotor position identification			FDD SLM	2/4	
ms						
HW:P2	0	0	100.0	FLOAT	Immediately	
<b>1029</b>	<b>DELAY_ROTORPOS_IDENT</b>				CR: / <b>FBU</b> /	
-	Meas. delay rotor position identification (not 810D)			FDD	ROT/LIN	2/4 <b>840D</b>
ms	0.0000	0.0000	100.0000	FLOAT	immediately	
<b>1030</b>	<b>ACTUAL_VALUE_CONFIG_DIRECT</b>				CR: <b>DG1</b>	
D06	Configuration actual-value sensing DM			MSD SLM FDD	2/4	
-						
HW:P2	0x0000	0x0000	0xc018	UNS.WORD	Power On	
<b>1030</b>	<b>ACTUAL_VALUE_CONFIG_DIRECT</b>				CR: / <b>DG1</b> /	
	Configuration actual-value sensing DM			FDD/MSD		2/4 <b>810D</b>
-	0	0	ffff	UNS. WORD	PowerOn	
<b>1030</b>	<b>ACTUAL_VALUE_CONFIG_DIRECT</b>				CR: / <b>DG1</b> /	
D06	Configuration actual-value sensing DM			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
-	0	0	c018	UNS. WORD	PowerOn	
<b>1031</b>	<b>ENC_ABS_TURNS_DIRECT</b>				CR: <b>DG1</b>	
D06	Multiturn resolution of the absolute encoder DM			MSD SLM FDD	2/4	
-						
HW:P2	4096	0	65535	UNS.WORD	Power On	
<b>1031</b>	<b>ENC_ABS_TURNS_DIRECT</b>				CR: / <b>DG1</b> /	
D06	Multiturn resolution of the absolute encoder DM			FDD/MSD	ROT/LIN	2/4
-	4096	0	65535	UNS. WORD	PowerOn	
<b>1032</b>	<b>ENC_ABS_RESOL_DIRECT</b>				CR: <b>DG1</b>	
D06	Measuring steps of the absolute track DM			MSD SLM FDD	2/4	
-						
HW:P2	8192	0	2147483647	UNS.DWORD	Power On	

<b>1032</b>	<b>ENC_ABS_RESOL_DIRECT</b>				CR: / <b>DG1</b> /	
-	Measuring steps of the absolute track DM	FDD/MSD		2/4	<b>810D</b>	
-	8192	0	65535	UNS. WORD	PowerOn	
<b>1032</b>	<b>ENC_ABS_RESOL_DIRECT</b>				CR: / <b>DG1</b> /	
D06	Measuring steps of the absolute track DM	FDD/MSD	ROT/LIN	2/4	<b>840D</b>	
-	8192	0	2147483647	UNS. DWORD	PowerOn	
<b>1033</b>	<b>ENC_ABS_DIAGNOSIS_DIRECT</b>				CR: <b>DG1</b>	
D06	Diagnosis dir. measuring system absolute track	MSD SLM FDD		2/4		
-						
HW:P2	0	0	64767	UNS.WORD	Immediately	
<b>1033</b>	<b>ENC_ABS_DIAGNOSIS_DIRECT</b>				CR: / <b>DG1</b> /	
-	Diagnosis dir. measuring system absolute track	FDD/MSD		2/4	<b>810D</b>	
-	0	0	65535	UNS. WORD	immediately	
<b>1033</b>	<b>ENC_ABS_DIAGNOSIS_DIRECT</b>				CR: / <b>DG1</b> /	
D06	Diagnosis dir. measuring system absolute track	FDD/MSD	ROT/LIN	2/4	<b>840D</b>	
-	0	0	64767	UNS. WORD	immediately	
<b>1034</b>	<b>DIVISION_LIN_SCALE_DM</b>				CR: , <b>DL1</b>	
-	Grid spacing direct measuring system	FDD SLM		2/4		
nm						
HW:P2	20000	0	2147483647	UNS.DWORD	Power On	
<b>1034</b>	<b>DIVISION_LIN_SCALE_DM</b>				CR: / <b>DL1</b> /	
-	Grid spacing, direct measuring system (not 810D)	FDD	LIN	2/4	<b>840D</b>	
Nm	20000	0	2147483647	UNS. DWORD	PowerOn	
<b>1037</b>	<b>ENC_CONFIG_DIRECT</b>				CR: <b>DG1</b>	
D06	Configuration for encoder DM	MSD SLM FDD		2/4		
-						
HW:P2	0x0000	0x0000	0xffff	UNS.WORD	Power On	
<b>1037</b>	<b>ENC_CONFIG_DIRECT</b>				CR: / <b>DG1</b> /	
D06	Configuration for encoder DM (not 810D)	FDD/MSD	ROT/LIN	2/4	<b>840D</b>	
-	0	0	fff	UNS. WORD	PowerOn	
<b>1038</b>	<b>SERIAL_NO_ENCODER_DM</b>				CR: <b>DG1</b>	
D06, EXP	Serial no. for direct meas. System	MSD SLM FDD		1/1		
-						
HW:P2	0	0	4294967295	UNS.DWORD	Power On	
<b>1038</b>	<b>SERIAL_NO_ENCODER_DM</b>				CR: / <b>DG1</b> /	
D06, EXP	Serial no. for direct meas. System (not 810D)	FDD/MSD	ROT/LIN	1/1	<b>840D</b>	
-	0	0	2147483647	UNS. DWORD	PowerOn	
<b>1041</b>	<b>NO_TRANSMISSION_BITS_DM</b>				CR: <b>DG1</b>	
D06	DM frame length SSI	MSD SLM FDD		2/4		
-						
HW:P2	25	0	25	UNS.WORD	Power On	
<b>1041</b>	<b>NO_TRANSMISSION_BITS_DM</b>				CR: / <b>DG1</b> /	
D06	DM frame length SSI (not 810D)	FDD/MSD	ROT/LIN	2/4	<b>840D</b>	
-	25	0	25	UNS. WORD	PowerOn	
<b>1049</b>	<b>EMF_BREAK_ENABLE</b>				CR:	
-	Activate EMF brake	MSD SLM FDD		0/0		
-						
HW:P2	0	0	2	UNS.WORD	Power On	

<b>1055</b>	<b>ROT: MARKER_DIST LIN: MARKER_DIST</b>				<b>CR: DM1</b>
D06 ROT: Degrees LIN: mm	ROT: Distance of the reference markers LIN:			SLM FDD	2/4
HW:P2	ROT: 20.000000 LIN: 20.000000	0.000000	ROT: 90.000000 LIN: 1000.000000	Float	Power On
<b>1056</b>	<b>ROT: MARKER_DIST_DIFF LIN: MARKER_DIST_DIFF</b>				<b>CR: DM1</b>
D06 ROT: Degrees LIN: mm	ROT: Difference between distances LIN:			SLM FDD	2/4
HW:P2	ROT: 0.020000 LIN: 0.020000	0.000000	ROT: 45.000000 LIN: 500.000000	Float	Power On
<b>1060</b>	<b>ACTIVATE BRAKE_CONTROL</b>				<b>CR:</b>
D02 -	Activation of brake control			MSD SLM FDD	2/4
HW:P2 840D	0	0	1	UNS.WORD	Immediately
<b>1061</b>	<b>BRAKE_RELEASE_TIME</b>				<b>CR:</b>
D02 ms	Brake release time			MSD SLM FDD	2/4
HW:P2 840D	600.000000	10.000000	10000.000000	Float	Immediately
<b>1062</b>	<b>BREAK_CLOSE_SPEED</b>				<b>CR:</b>
D02 ROT: 1/min LIN: m/min	Speed close holding brake			MSD SLM FDD	2/4
HW:P2 840D	ROT: 500.000000 LIN: 10.000000	0.100000	100000.000000	Float	Immediately
<b>1063</b>	<b>BRAKE_DELAY_TIME</b>				<b>CR:</b>
D02 ms	Brake delay time			MSD SLM FDD	2/4
HW:P2 840D	400.000000	10.000000	600000.000000	Float	Immediately
<b>1064</b>	<b>CONTROLLER_DISABLE_TIME</b>				<b>CR:</b>
D02 ms	Servo disable time			MSD SLM FDD	2/4
HW:P2 840D	600.000000	10.000000	10000.000000	Float	Immediately
<b>1070</b>	<b>RLI_RAMP_TIME</b>				<b>CR: DM1</b>
- ms	RLI current setpoint ramp time			FDD SLM	1/1
HW:P2	500	0.0	10000.0	Float	Immediately
<b>1071</b>	<b>RLI_WAIT_TIME</b>				<b>CR: DM1</b>
- ms	RLI waiting time			FDD SLM	1/1
HW:P2	20	0.0	10000.0	Float	Immediately
<b>1072</b>	<b>RLI_AMOUNT</b>				<b>CR: DM1</b>
- -	RLI number of measurements			FDD SLM	1/1
HW:P2	12	6	60	UNS.WORD	Immediately
<b>1073</b>	<b>ROT: POSS_TURN_ROTORPOS_IDENT LIN: POSS_MOVE_ROTORPOS_IDENT</b>				<b>CR: DM1</b>

- ROT: Degrees LIN: mm	ROT: Perm. turn of rotor position ident LIN:			SLM FDD	2/4
HW:P2	ROT: 1.000000 LIN: 0.100000	0.000000	ROT: 90.000000 LIN: 30.000000	FLOAT	Immediately

<b>1075</b>	<b>ALGORITHM ROTORPOS_IDENT</b>			CR: IAD, DM1	
-	Rotor position identification procedure			FDD SLM	1/1
HW:P2	1	1	6	UNS.WORD	Immediately

<b>1075</b>	<b>ALGORITHM ROTORPOS_IDENT</b>			CR: / IAD, DM1 /	
-	Rotor position identification procedure (not 810D)			FDD	ROT/LIN 1/1
-	1	1	3	UNS. WORD	immediately

<b>1076</b>	<b>ROT: FACTOR_INERTIA LIN: FACTOR_MASS</b>			CR: DM1, DL1	
D05 ROT: kgm² LIN: kg	ROT: Load moment of inertia factor LIN: Load mass factor			FDD SLM	1/1
HW:P2	0.0	0.0	ROT: 500.0 LIN: 10000.0	FLOAT	Immediately

<b>1076</b>	<b>FACTOR_INERTIA</b>			CR: /DM1 /	
D05	Load moment of inertia factor (not 810D)			FDD	ROT 1/1
kgm²	0.0000	0.0000	500.0000	FLOAT	immediately

<b>1076</b>	<b>FACTOR_MASS</b>			CR: / DL1/	
D05	Load mass factor (not 810D)			FDD	LIN 1/1
kg	0.0000	0.0000	10000.0000	FLOAT	immediately

<b>1077</b>	<b>RLI INTEGRATOR_TIME</b>			CR: DM1	
- ms	Integral action time for RLI controller			FDD SLM	1/1
HW:P2	3.7	0.0	500.0	FLOAT	Immediately

<b>1077</b>	<b>RLI INTEGRATOR_TIME</b>			CR: / /	
-	Integral action time for RLI controller (not 810D)			FDD	ROT/LIN 1/1
ms	3.7000	0.0000	500.0000	FLOAT	immediately

<b>1078</b>	<b>MAX_TIME ROTORPOS_ID</b>			CR: DM1	
- ms	Time monitoring of rotor position ID			FDD SLM	1/1
HW:P2	800.0	100.0	10000.0	FLOAT	Immediately

<b>1078</b>	<b>MAX_TIME ROTORPOS_ID</b>			CR: / /	
-	Time monitoring of rotor position ID (not 810D)			FDD	ROT/LIN 1/1
ms	800.0000	100.0000	10000.0000	FLOAT	immediately

<b>1096</b>	<b>RED TORQUE LIMIT GS_ACTIV</b>			CR: DE1	
D02, D05 -	Red. max. torque at gen. stop active			MSD SLM FDD	2/4
HW:P2	0	0	3	UNS.WORD	Immediately

<b>1098</b>	<b>INVERTER_MAX_CURR_DERAT</b>			CR: DM1	
D05 A	PS derating limit current			MSD SLM FDD	2/4
HW:P2	200.0	0.0	500.0	FLOAT	Immediately

<b>1098</b>	<b>INVERTER_MAX_CURR_DERAT</b>				CR: / DM1 /
D05	PS derating limit current (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
A	200.0000	0.0000	500.0000	FLOAT	immediately

<b>1099</b>	<b>INVERTER_DERATING_FACT</b>				CR: DE1, DM1
D05	PS limit current derating factor			MSD SLM FDD	2/4
%					
HW:P2	0.000000	0.000000	100.000000	FLOAT	Immediately

<b>1099</b>	<b>INVERTER_DERATING_FACT</b>				CR: / DE1, DM1 /
D05	PS limit current derating factor (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
%	0.0000	0.0000	100.0000	FLOAT	immediately

<b>1100</b>	<b>PWM_FREQUENCY</b>				CR: DS1
D01, D05, EXP	Pulse-width modulation frequency			MSD SLM FDD	2/4
Hz					
HW:P2	4000.000000	2000.000000	8000.000000	FLOAT	Power On

<b>1100</b>	<b>PWM_FREQUENCY</b>				CR: / DS1 /
D01, D05, EXP	Pulse-width modulation frequency (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
Hz	4000.0000	2000.0000	8000.0000	FLOAT	PowerOn
	HSA: 3200.0000				

<b>1101</b>	<b>CTRLOUT_DELAY</b>				CR: DS1
D01, D05, EXP	Computation deadtime of the current control loop			MSD SLM FDD	2/4
μs					
HW:P2	-	0	124	WORD	Power On
HW:P2 840D	32	-	-	WORD	Power On
HW:P2 810D	110	-	-	WORD	Power On

<b>1101</b>	<b>CTRLOUT_DELAY</b>				CR: / DS1 /
D01, D05, EXP	Computation deadtime of the current control loop (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
us	62	0	124	WORD	PowerOn

<b>1102</b>	<b>MOTOR_CODE</b>				CR: DM1
D04	Motor code number			MSD SLM FDD	2/4
-					
HW:P2	0	0	65535	UNS.WORD	Power On

<b>1102</b>	<b>MOTOR_CODE</b>				CR: / DM1 /
D04, D05	Motor code number			FDD/MSD   ROT/LIN	2/4
-	0	0	65535	UNS. WORD	PowerOn

<b>1103</b>	<b>MOTOR_NOMINAL_CURRENT</b>				CR: DM1, DÜ1
D05	Motor rated current			MSD SLM FDD	2/4
A					
HW:P2	0.000000	0.000000	500.000000	FLOAT	Power On

<b>1103</b>	<b>MOTOR_NOMINAL_CURRENT</b>				CR: / DM1, DÜ1 /
D05	Motor rated current			FDD/MSD   ROT/LIN	2/4
A	0.0000	0.0000	500.0000	FLOAT	PowerOn

<b>1104</b>	<b>MOTOR_MAX_CURRENT</b>				CR: DM1, DÜ1
D05	Maximum motor current			FDD SLM	2/4
A					
HW:P2	0.040000	0.000000	500.000000	FLOAT	Power On

<b>1104</b>	<b>MOTOR_MAX_CURRENT</b>				CR: / DM1, DÜ1/
	Maximum motor current			FDD	2/4   <b>810D</b>
A	0.0000	0.0000	500.0000	FLOAT	PowerOn

<b>1104</b>	<b>MOTOR_MAX_CURRENT</b>				CR: / DM1, DÜ1 /	
D05	Maximum motor current			FDD	ROT/LIN	2/4 840D
A	0.0400	0.0000	500.0000	FLOAT		PowerOn
<b>1105</b>	<b>MOTOR_MAX_CURRENT_REDUCTION</b>				CR: DÜ1	
D02, D05 %	Reducing the maximum motor current			FDD SLM		2/4
HW:P2	100	0	100	WORD		Immediately
<b>1105</b>	<b>MOTOR_MAX_CURRENT_REDUCTION</b>				CR: / DÜ1 /	
D05, D02 %	Reducing the maximum motor current			FDD	ROT/LIN	2/4
	100	0	100	WORD		immediately
<b>1106</b>	<b>INVERTER_CODE</b>				CR: DM1	
D04 -	Power section code number			MSD SLM FDD		2/4
HW:P2	0x0000	0x0000	0xffff	UNS.WORD		Power On
<b>1106</b>	<b>INVERTER_CODE</b>				CR: / DM1 /	
D05, D04 -	Power section code number			FDD/MSD	ROT/LIN	2/4
	0	0	ffff	UNS. WORD		PowerOn
<b>1107</b>	<b>INVERTER_MAX_CURRENT</b>				CR: DM1	
D05 A	Transistor limiting current			MSD SLM FDD		2/4
HW:P2	200.000000	1.000000	500.000000	FLOAT		Power On
<b>1107</b>	<b>INVERTER_MAX_CURRENT</b>				CR: / DM1 /	
D05 A	Transistor limiting current			FDD/MSD	ROT/LIN	2/4
	200.0000	1.0000	500.0000	FLOAT		PowerOn
<b>1108</b>	<b>INVERTER_MAX_THERMAL_CURR</b>				CR: DM1	
D05 A	Power module limiting current			MSD SLM FDD		2/4
HW:P2	200.000000	1.000000	500.000000	FLOAT		Power On
<b>1108</b>	<b>INVERTER_MAX_THERMAL_CURR</b>				CR: / DM1 /	
D05 A	Power module limiting current			FDD/MSD	ROT/LIN	2/4
	200.0000	1.0000	500.0000	FLOAT		PowerOn
<b>1109</b>	<b>INVERTER_MAX_S6_CURRENT</b>				CR: DM1	
D05 A	Power module limiting current S6			MSD		2/4
HW:P2	200.000000	1.000000	500.000000	FLOAT		Power On
<b>1109</b>	<b>INVERTER_MAX_S6_CURRENT</b>				CR: /DM1 /	
D05 A	Power module limiting current S6			MSD	ROT	2/4
	200.0000	1.0000	500.0000	FLOAT		PowerOn
<b>1111</b>	<b>INVERTER_RATED_CURRENT</b>				CR: DM1	
D05 A	Rated power module current			MSD SLM FDD		2/4
HW:P2	200.000000	1.000000	500.000000	FLOAT		Power On
<b>1111</b>	<b>INVERTER_RATED_CURRENT</b>				CR: / DM1 /	
D05 A	Rated power module current			FDD/MSD	ROT/LIN	2/4
	200.0000	1.0000	500.0000	FLOAT		PowerOn
<b>1112</b>	<b>NUM_POLE_PAIRS</b>				CR: DM1	
D05 -	Motor pole pair number			FDD SLM		2/4
HW:P2	0	0	4096	UNS.WORD		Power On



<b>1112</b>	<b>NUM_POLE_PAIRS</b>				<b>CR: / DM1/</b>	
	Motor pole pair number			FDD	2/4	<b>810D</b>
-	0	0	4	UNS. WORD	PowerOn	

<b>1112</b>	<b>NUM_POLE_PAIRS</b>				<b>CR: / DM1 /</b>	
D05	Motor pole pair number			FDD	ROT/LIN	2/4 <b>840D</b>
-	0	0	4096	UNS. WORD	PowerOn	

<b>1113</b>	<b>ROT: TORQUE_CURRENT_RATIO LIN: FORCE_CURRENT_RATIO</b>				<b>CR: DM1, DL1</b>	
D05	ROT: Torque constant			FDD SLM	2/4	
ROT: Nm/A	LIN: Force constant					
HW:P2	0.000000	0.000000	ROT: 300.000000 LIN: 2000.000000	FLOAT	Power On	

<b>1113</b>	<b>TORQUE_CURRENT_RATIO</b>				<b>CR: / DM1/</b>	
	Torque constant			FDD	2/4	<b>810D</b>
Nm/A	0.0000	0.0000	5.0000	FLOAT	PowerOn	

<b>1113</b>	<b>TORQUE_CURRENT_RATIO</b>				<b>CR: /DM1 /</b>	
D05	Torque constant			FDD	ROT	2/4 <b>840D</b>
Nm/A	0.0000	0.0000	300.0000	FLOAT	PowerOn	

<b>1113</b>	<b>FORCE_CURRENT_RATIO</b>				<b>CR: / DL1/</b>	
D05	Force constant			FDD	LIN	2/4 <b>840D</b>
N/A	0.0000	0.0000	2000.0000	FLOAT	PowerOn	

<b>1114</b>	<b>EMF_VOLTAGE</b>				<b>CR: DM1, DL1</b>	
D05	Voltage constant			FDD SLM	2/4	
ROT: V						
LIN: Vs/m						
HW:P2	0.000000	0.000000	10000.000000	FLOAT	Power On	

<b>1114</b>	<b>EMF_VOLTAGE</b>				<b>CR: / DM1/</b>	
	Voltage constant			FDD	2/4	<b>810D</b>
V	0.0000	0.0000	300.0000	FLOAT	PowerOn	

<b>1114</b>	<b>EMF_VOLTAGE</b>				<b>CR: /DM1 /</b>	
D05	Voltage constant			FDD	ROT	2/4 <b>840D</b>
V	0.0000	0.0000	10000.0000	FLOAT	PowerOn	

<b>1114</b>	<b>EMF_VOLTAGE</b>				<b>CR: / DL1/</b>	
D05	Voltage constant			FDD	LIN	2/4 <b>840D</b>
Vs/m	0.0000	0.0000	10000.0000	FLOAT	PowerOn	

<b>1115</b>	<b>ARMATURE_RESISTANCE</b>				<b>CR: DM1</b>	
D05	Armature resistance			FDD SLM	2/4	
Ohm						
HW:P2	0.000000	0.000000	1000.000000	FLOAT	Power On	

<b>1115</b>	<b>ARMATURE_RESISTANCE</b>				<b>CR: / DM1/</b>	
	Armature resistance			FDD	2/4	<b>810D</b>
ohm	0.0000	0.0000	20.0000	FLOAT	PowerOn	

<b>1115</b>	<b>ARMATURE_RESISTANCE</b>				<b>CR: / DM1 /</b>	
D05	Armature resistance			FDD	ROT/LIN	2/4 <b>840D</b>
ohm	0.0000	0.0000	1000.0000	FLOAT	PowerOn	

<b>1116</b>	<b>ARMATURE_INDUCTANCE</b>				<b>CR: DM1</b>	
D05	Armature inductance			FDD SLM	2/4	
mH						
HW:P2	0.000000	0.000000	300.000000	FLOAT	Power On	

<b>1116</b>	<b>ARMATURE_INDUCTANCE</b>				<b>CR: / DM1/</b>	
	Armature inductance			FDD	2/4	<b>810D</b>
mH	0.0000	0.0000	100.0000	FLOAT	PowerOn	

<b>1116</b>	<b>ARMATURE_INDUCTANCE</b>				<b>CR: / DM1 /</b>	
D05	Armature inductance			FDD	ROT/LIN	2/4 <b>840D</b>
mH	0.0000	0.0000	300.0000	FLOAT	PowerOn	

<b>1117</b>	<b>ROT: MOTOR_INERTIA LIN: MOTOR_MASS</b>				<b>CR: DM1, DL1</b>	
D05	ROT: Motor moment of inertia			MSD SLM FDD	2/4	
ROT: kgm²	LIN: Motor mass					
LIN: kg						
HW:P2	0.000000	0.000000	ROT: 32.000000 LIN: 500.000000	FLOAT	Immediately	

<b>1117</b>	<b>MOTOR_INERTIA</b>				<b>CR: / DM1/</b>	
	Motor moment of inertia			FDD/MSD	2/4	<b>810D</b>
kgm²	0.0000	0.0000	32.0000	FLOAT	PowerOn	
	HSA: 0.0010					

<b>1117</b>	<b>MOTOR_INERTIA</b>				<b>CR: /DM1 /</b>	
D05	Motor moment of inertia			FDD/MSD	ROT	2/4 <b>840D</b>
kgm²	0.0000	0.0000	32.0000	FLOAT	immediately	
	HSA: 0.0010					

<b>1117</b>	<b>MOTOR_MASS</b>				<b>CR: / DL1/</b>	
D05	Motor mass			FDD	LIN	2/4 <b>840D</b>
kg	0.0000	0.0000	500.0000	FLOAT	immediately	

<b>1118</b>	<b>MOTOR_STANDSTILL_CURRENT</b>				<b>CR: DM1</b>	
D05	Motor standstill current			FDD SLM	2/4	
A						
HW:P2	0.000000	0.000000	500.000000	FLOAT	Power On	

<b>1118</b>	<b>MOTOR_STANDSTILL_CURRENT</b>				<b>CR: / DM1 /</b>	
D05	Motor standstill current			FDD	ROT/LIN	2/4
A	0.0000	0.0000	500.0000	FLOAT	PowerOn	

<b>1119</b>	<b>SERIES_INDUCTANCE</b>				<b>CR: DM1</b>	
D05	Inductance of the series reactor			MSD	2/4	
mH						
HW:P2	0.000000	0.000000	65.000000	FLOAT	Power On	

<b>1119</b>	<b>SERIES_INDUCTANCE</b>				<b>CR: /DM1 /</b>	
D05	Inductance of the series reactor			MSD	ROT	2/4
mH	0.0000	0.0000	65.0000	FLOAT	PowerOn	

<b>1120</b>	<b>CURRCTRL_GAIN</b>				<b>CR: DS1</b>	
D01, EXP	Current controller proportional gain			MSD SLM FDD	2/4	
V/A						
HW:P2	10.000000	0.000000	10000.000000	FLOAT	Immediately	

<b>1120</b>	<b>CURRCTRL_GAIN</b>				CR: / <b>DS1</b> /	
D01, EXP	Current controller proportional gain			FDD/MSD	ROT/LIN	2/4
V/A	10.0000	0.0000	10000.0000	FLOAT		immediately
<b>1121</b>	<b>CURRCTRL_INTEGRATOR_TIME</b>				CR: <b>DS1</b>	
D01, EXP	Current controller integral action time			MSD SLM FDD		2/4
μs						
HW:P2	2000.000000	0.000000	8000.000000	FLOAT		Immediately
<b>1121</b>	<b>CURRCTRL_INTEGRATOR_TIME</b>				CR: / <b>DS1</b> /	
D01, EXP	Current controller integral action time			FDD/MSD	ROT/LIN	2/4
us	2000.0000	0.0000	8000.0000	FLOAT		immediately
<b>1122</b>	<b>MOTOR_LIMIT_CURRENT</b>				CR: <b>DS1</b>	
D05	Motor limit current			FDD SLM		2/4
A						
HW:P2	0.0	0.0	500.0	FLOAT		Power On
<b>1122</b>	<b>MOTOR_LIMIT_CURRENT</b>				CR: / <b>DS1</b> /	
D05	Motor limit current (not 810D)			FDD	ROT/LIN	2/4
A	0.0000	0.0000	500.0000	FLOAT		<b>840D</b> PowerOn
<b>1124</b>	<b>CURRCTRL_REF_MODEL_DELAY</b>				CR: <b>DS1</b>	
D01, EXP	Balancing the reference model current			MSD SLM FDD		2/4
-						
HW:P2	0.500000	0.000000	1.000000	FLOAT		Immediately
<b>1124</b>	<b>CURRCTRL_REF_MODEL_DELAY</b>				CR: / <b>DS1</b> /	
	Balancing the reference model current			FDD/MSD		2/4
-	0.0000	0.0000	1.0000	FLOAT		<b>810D</b> immediately
<b>1124</b>	<b>CURRCTRL_REF_MODEL_DELAY</b>				CR: / <b>DS1</b> /	
D01, EXP	Balancing the reference model current			FDD/MSD	ROT/LIN	2/4
-	0.5000	0.0000	1.0000	FLOAT		<b>840D</b> immediately
<b>1125</b>	<b>UF_MODE_RAMP_TIME_1</b>				CR: <b>DE1</b>	
D04	Ramp-up time 1 in V/f operation			MSD SLM FDD		2/4
s						
HW:P2	5.000000	0.010000	100.000000	FLOAT		Immediately
<b>1125</b>	<b>UF_MODE_RAMP_TIME_1</b>				CR: / <b>DE1</b> /	
D04, EXP	Ramp-up time 1 in V/f operation (not 810D)			FDD/MSD	ROT/LIN	2/4
s	5.0000	0.0100	100.0000	FLOAT		<b>840D</b> immediately
<b>1126</b>	<b>UF_MODE_RAMP_TIME_2</b>				CR: <b>DE1</b>	
D04	Ramp-up time 2 in V/f operation			MSD SLM FDD		2/4
s						
HW:P2	5.000000	0.010000	100.000000	FLOAT		Immediately
<b>1126</b>	<b>UF_MODE_RAMP_TIME_2</b>				CR: / <b>DE1</b> /	
D04, EXP	Ramp-up time 2 in V/f operation (not 810D)			FDD/MSD	ROT/LIN	2/4
s	5.0000	0.0100	100.0000	FLOAT		<b>840D</b> immediately
<b>1127</b>	<b>UF_VOLTAGE_AT_F0</b>				CR: <b>DE1</b>	
D04	Voltage at f=0 in V/f operation			MSD		2/4
V						
HW:P2	2.000000	0.000000	20.000000	FLOAT		Immediately
<b>1127</b>	<b>UF_VOLTAGE_AT_F0</b>				CR: / <b>DE1</b> /	
D04, D05, EXP	Voltage at f=0 in V/f operation (not 810D)			MSD	ROT	2/4
V	2.0000	0.0000	20.0000	FLOAT		<b>840D</b> immediately

<b>1128</b>	<b>OPT_LOAD_ANGEL</b>				<b>CR: FBU, POS3</b>
EXP, D05	Optimum load angle			FDD SLM	2/4
Degrees					
HW:P2	90.000000	90.000000	135.000000	FLOAT	Immediately

<b>1128</b>	<b>OPT_LOAD_ANGEL</b>				<b>CR: / FBU, POS3 /</b>
EXP, D05	Optimum load angle (not 810D)			FDD	ROT/LIN
degrees	90.0000	90.0000	135.0000	FLOAT	immediately

<b>1129</b>	<b>POWER_FACTOR_COS_PHI</b>				<b>CR: DM1</b>
D05	Cos phi power factor			MSD	2/4
-					
HW:P2	0.800000	0.000000	1.000000	FLOAT	Power On

<b>1129</b>	<b>POWER_FACTOR_COS_PHI</b>				<b>CR: /DM1 /</b>
D05	Cos phi power factor (not 810D)			MSD	ROT
-	0.8000	0.0000	1.0000	FLOAT	PowerOn

<b>1130</b>	<b>MOTOR_NOMINAL_POWER</b>				<b>CR: DM1</b>
D05	Rated motor output			MSD	2/4
kW					
HW:P2	0.000000	0.000000	1500.000000	FLOAT	Power On

<b>1130</b>	<b>MOTOR_NOMINAL_POWER</b>				<b>CR: /DM1 /</b>
D05	Rated motor output			MSD	ROT
kW	0.0000	0.0000	1500.0000	FLOAT	PowerOn

<b>1132</b>	<b>MOTOR_NOMINAL_VOLTAGE</b>				<b>CR: DM1</b>
D05	Rated motor voltage			MSD	2/4
V					
HW:P2	380.000000	0.000000	5000.000000	FLOAT	Power On

<b>1132</b>	<b>MOTOR_NOMINAL_VOLTAGE</b>				<b>CR: / DM1/</b>
	Rated motor voltage			MSD	
V	0.0000	0.0000	5000.0000	FLOAT	PowerOn

<b>1132</b>	<b>MOTOR_NOMINAL_VOLTAGE</b>				<b>CR: /DM1 /</b>
D05	Rated motor voltage			MSD	ROT
V	380.0000	0.0000	5000.0000	FLOAT	PowerOn

<b>1134</b>	<b>MOTOR_NOMINAL_FREQUENCY</b>				<b>CR: DM1</b>
D05	Rated motor frequency			MSD	2/4
Hz					
HW:P2	50.000000	0.000000	3000.000000	FLOAT	Power On

<b>1134</b>	<b>MOTOR_NOMINAL_FREQUENCY</b>				<b>CR: / DM1/</b>
	Rated motor frequency			MSD	
Hz	0.0000	0.0000	3000.0000	FLOAT	PowerOn

<b>1134</b>	<b>MOTOR_NOMINAL_FREQUENCY</b>				<b>CR: /DM1 /</b>
D05	Rated motor frequency			MSD	ROT
Hz	50.0000	0.0000	3000.0000	FLOAT	PowerOn

<b>1135</b>	<b>MOTOR_NOLOAD_VOLTAGE</b>				<b>CR: DM1</b>
D05	Motor no-load voltage			MSD	2/4
V					
HW:P2	0.000000	0.000000	500.000000	FLOAT	Immediately

<b>1135</b>	<b>MOTOR_NOLOAD_VOLTAGE</b>				<b>CR: /DM1 /</b>
D05	Motor no-load voltage			MSD	ROT
V	0.0000	0.0000	500.0000	FLOAT	immediately

<b>1136</b>	<b>MOTOR_NOLOAD_CURRENT</b>				<b>CR: DM1</b>
D05	Motor no-load current			MSD SLM FDD	2/4
A					
HW:P2	0.000000	0.000000	500.000000	FLOAT	Immediately
<b>1136</b>	<b>MOTOR_NOLOAD_CURRENT</b>				<b>CR: / DM1 /</b>
D05	Motor no-load current			FDD/MSD ROT/LIN	2/4
A	0.0000	0.0000	500.0000	FLOAT	immediately
<b>1137</b>	<b>STATOR_COLD_RESISTANCE</b>				<b>CR: DM1</b>
D05	Cold stator resistance			MSD	2/4
Ohm					
HW:P2	0.000000	0.000000	120.000000	FLOAT	Immediately
<b>1137</b>	<b>STATOR_COLD_RESISTANCE</b>				<b>CR: /DM1 /</b>
D05	Cold stator resistance			MSD ROT	2/4
ohm	0.0000	0.0000	120.0000	FLOAT	immediately
<b>1138</b>	<b>ROTOR_COLD_RESISTANCE</b>				<b>CR: DM1</b>
D05	Cold rotor resistance			MSD	2/4
Ohm					
HW:P2	0.000000	0.000000	120.000000	FLOAT	Immediately
<b>1138</b>	<b>ROTOR_COLD_RESISTANCE</b>				<b>CR: /DM1 /</b>
D05	Cold rotor resistance			MSD ROT	2/4
ohm	0.0000	0.0000	120.0000	FLOAT	immediately
<b>1139</b>	<b>STATOR_LEAKAGE_REACTANCE</b>				<b>CR: DM1</b>
D05	Stator leakage reactance			MSD	2/4
Ohm					
HW:P2	0.000000	0.000000	100.000000	FLOAT	Immediately
<b>1139</b>	<b>STATOR_LEAKAGE_REACTANCE</b>				<b>CR: /DM1 /</b>
D05	Stator leakage reactance			MSD ROT	2/4
ohm	0.0000	0.0000	100.0000	FLOAT	immediately
<b>1140</b>	<b>ROTOR_LEAKAGE_REACTANCE</b>				<b>CR: DM1</b>
D05	Rotor leakage reactance			MSD	2/4
Ohm					
HW:P2	0.000000	0.000000	100.000000	FLOAT	Immediately
<b>1140</b>	<b>ROTOR_LEAKAGE_REACTANCE</b>				<b>CR: /DM1 /</b>
D05	Rotor leakage reactance			MSD ROT	2/4
ohm	0.0000	0.0000	100.0000	FLOAT	immediately
<b>1141</b>	<b>MAGNETIZING_REACTANCE</b>				<b>CR: DM1</b>
D05	Magnetizing reactance			MSD	2/4
Ohm					
HW:P2	0.000000	0.000000	1000.000000	FLOAT	Immediately
<b>1141</b>	<b>MAGNETIZING_REACTANCE</b>				<b>CR: /DM1 /</b>
D05	Magnetizing reactance			MSD ROT	2/4
ohm	0.0000	0.0000	1000.0000	FLOAT	immediately
<b>1142</b>	<b>FIELD_WEAKENING_SPEED</b>				<b>CR: DM1, DD2</b>
D05	Threshold speed for field weakening			MSD SLM FDD	2/4
1/min					
HW:P2	0.000000	0.000000	100000.000000	FLOAT	Immediately
<b>1142</b>	<b>FIELD_WEAKENING_SPEED</b>				<b>CR: / DM1, DD2/</b>
	Threshold speed for field weakening			MSD	2/4
1/min	0.0000	0.0000	50000.0000	FLOAT	810D PowerOn

<b>1142</b>	<b>FIELD WEAKENING SPEED</b>				CR: / DM1, DD2 /	
D05	Threshold speed for field weakening			FDD/MSD	ROT/LIN	2/4 840D
1/min	0.0000	0.0000	100000.0000	FLOAT		immediately

<b>1143</b>	<b>LH_CURVE_UPPER_SPEED</b>				CR: DM1, DD2	
-	Upper speed for the L_h characteristic			MSD		2/4
1/min						
HW:P2	0.000000	0.000000	100000.000000	FLOAT		Power On

<b>1143</b>	<b>LH_CURVE_UPPER_SPEED</b>				CR: / DM1, DD2/	
-	Upper speed for the L_h characteristic			MSD		2/4 810D
1/min	0.0000	0.0000	50000.0000	FLOAT		PowerOn

<b>1143</b>	<b>LH_CURVE_UPPER_SPEED</b>				CR: /DM1, DD2 /	
-	Upper speed for the L_h characteristic			MSD	ROT	2/4 840D
1/min	0.0000	0.0000	100000.0000	FLOAT		PowerOn

<b>1144</b>	<b>LH_CURVE_GAIN</b>				CR: DM1, DD2	
-	Gain factor of the L_h characteristic			MSD		2/4
%						
HW:P2	100.000000	100.000000	500.000000	FLOAT		Power On

<b>1144</b>	<b>LH_CURVE_GAIN</b>				CR: /DM1, DD2 /	
-	Gain factor of the L_h characteristic			MSD	ROT	2/4
%	100.0000	100.0000	500.0000	FLOAT		PowerOn

<b>1145</b>	<b>STALL_TORQUE_REDUCTION</b>				CR: DM1, DÜ1	
D05	Stall torque reduction factor			MSD SLM FDD		2/4
%						
HW:P2	100.000000	5.000000	1000.000000	FLOAT		Immediately

<b>1145</b>	<b>STALL_TORQUE_REDUCTION</b>				CR: / DM1, DÜ1 /	
D05	Stall torque reduction factor			FDD/MSD	ROT/LIN	2/4
%	100.0000	5.0000	1000.0000	FLOAT		immediately

<b>1146</b>	<b>MOTOR_MAX_ALLOWED_SPEED</b>				CR: DM1, DÜ1, DL1	
D05	Maximum motor speed			MSD SLM FDD		2/4
ROT: 1/min						
LIN: m/min						
HW:P2	0.000000	0.000000	100000.000000	FLOAT		Power On

<b>1146</b>	<b>MOTOR_MAX_ALLOWED_SPEED</b>				CR: / DM1, DÜ1/	
-	Maximum motor speed			FDD/MSD		2/4 810D
1/min	0.0000	0.0000	50000.0000	FLOAT		PowerOn

<b>1146</b>	<b>MOTOR_MAX_ALLOWED_SPEED</b>				CR: /DM1, DÜ1 /	
D05	Maximum motor speed			FDD/MSD	ROT	2/4 840D
1/min	0.0000	0.0000	100000.0000	FLOAT		PowerOn
	HSA: 1500.0000					

<b>1146</b>	<b>MOTOR_MAX_ALLOWED_SPEED</b>				CR: / DL1/	
D05	Maximum motor speed			FDD	LIN	2/4 840D
m/min	0.0000	0.0000	100000.0000	FLOAT		PowerOn

<b>1147</b>	<b>SPEED_LIMIT</b>				CR: DÜ1, DL1	
D02, D05	Motor speed limit			MSD SLM FDD		2/4
ROT: 1/min						
LIN: m/min						
HW:P2	ROT: 7000.000000	0.000000	100000.000000	FLOAT		Immediately
	LIN: 120.000000					

<b>1147</b>	<b>SPEED_LIMIT</b>				<b>CR: / DÜ1/</b>	
	Motor speed limit			FDD/MSD	2/4	<b>810D</b>
1/min	7000.0000 HSA: 8000.0000	0.0000	50000.0000	FLOAT	immediately	

<b>1147</b>	<b>SPEED_LIMIT</b>				<b>CR: /DÜ1 /</b>	
D02, D05	Motor speed limit			FDD/MSD	ROT	<b>840D</b>
1/min	7000.0000 HSA: 8000.0000	0.0000	100000.0000	FLOAT	immediately	

<b>1147</b>	<b>SPEED_LIMIT</b>				<b>CR: / DL1/</b>	
D02, D05	Maximum permissible motor speed			FDD	LIN	<b>840D</b>
m/min	120.0000	0.0000	100000.0000	FLOAT	immediately	

<b>1148</b>	<b>ACTUAL_STALL_POWER_SPEED</b>				<b>CR: DD1</b>	
D04	Threshold speed of pull-out power			MSD	2/4	
1/min						
HW:P2	0.000000	-100000.000000	100000.000000	FLOAT	Immediately	

<b>1148</b>	<b>ACTUAL_STALL_POWER_SPEED</b>				<b>CR: /DD1 /</b>	
D04	Threshold speed of pull-out power (not 810D)			MSD	ROT	<b>840D</b>
1/min	0.0000	-100000.0000	100000.0000	FLOAT	immediately	

<b>1149</b>	<b>RELUCT_TORQUE_RATIO</b>				<b>CR: FBU</b>	
EXP, D05 mH	Reluctance torque constant			FDD SLM	2/4	
HW:P2	0.000000	0.000000	300.000000	FLOAT	Immediately	

<b>1149</b>	<b>RELUCT_TORQUE_RATIO</b>				<b>CR: / FBU /</b>	
D05	Reluctance torque constant (not 810D)			FDD	ROT/LIN	<b>840D</b>
mH	0.0000	0.0000	300.0000	FLOAT	immediately	

<b>1150</b>	<b>FIELDCTRL_GAIN</b>				<b>CR: DS1</b>	
D01, EXP A/(Vs)	Flux controller P-gain			MSD SLM FDD	2/4	
HW:P2	400.000000	0.000000	100000.000000	FLOAT	Immediately	

<b>1150</b>	<b>FIELDCTRL_GAIN</b>				<b>CR: /DS1 /</b>	
D01, EXP A/(Vs)	Flux controller P-gain			MSD	ROT	
	400.0000	0.0000	100000.0000	FLOAT	immediately	

<b>1151</b>	<b>FIELDCTRL_INTEGRATOR_TIME</b>				<b>CR: DS1</b>	
D01, EXP ms	Flux controller integral-action time			MSD SLM FDD	2/4	
HW:P2	10.000000	0.000000	500.000000	FLOAT	Immediately	

<b>1151</b>	<b>FIELDCTRL_INTEGRATOR_TIME</b>				<b>CR: /DS1 /</b>	
D01, EXP ms	Flux controller integral-action time			MSD	ROT	
	10.0000	0.0000	500.0000	FLOAT	immediately	

<b>1159</b>	<b>FLUX_MODEL_CORRECTION</b>				<b>CR:</b>	
D01, EXP, D04 -	Flow model correction			MSD SLM FDD	2/4	
HW:P2	1	0	1	UNS.WORD	Immediately	

<b>1160</b>	<b>FLUX_ACQUISITION_SPEED</b>				<b>CR: DS1</b>	
D01, EXP 1/min	Threshold speed for flux sensing			MSD	2/4	
HW:P2	1500.000000	200.000000	100000.000000	FLOAT	Immediately	

<b>1160</b>	<b>FLUX_AQUISITION_SPEED</b>				CR: / <b>DS1</b> /
	Threshold speed for flux sensing				MSD 2/4 <b>810D</b>
1/min	1500.0000	200.0000	50000.0000	FLOAT	immediately

<b>1160</b>	<b>FLUX_ACQUISITION_SPEED</b>				CR: / <b>DS1</b> /
D01, EXP	Threshold speed for flux sensing				MSD ROT 2/4 <b>840D</b>
1/min	1500.0000	200.0000	100000.0000	FLOAT	immediately

<b>1161</b>	<b>FIXED_LINK_VOLTAGE</b>				CR: <b>DS1</b>
D02 V	Fixed DC link voltage				MSD SLM FDD 2/4
HW:P2	0	0	700	UNS.WORD	Immediately

<b>1161</b>	<b>FIXED_LINK_VOLTAGE</b>				CR: / <b>DS1</b> /
D02	Fixed DC link voltage				FDD/MSD ROT/LIN 2/4
V	0	0	700	UNS. WORD	immediately

<b>1162</b>	<b>LINK_VOLTAGE_MIN</b>				CR: <b>DE1</b>
D02 V	Minimum DC link voltage				MSD SLM FDD 2/4
HW:P2	0	0	800	UNS.WORD	Immediately

<b>1163</b>	<b>LINK_VOLTAGE_MAX</b>				CR: <b>DE1</b>
D02 V	Maximum DC link voltage				MSD SLM FDD 2/4
HW:P2	800	0	800	UNS.WORD	Immediately

<b>1165</b>	<b>DYN_MANAG_ENABLE</b>				CR: <b>DE1</b>
D02 -	Dyn. energy management active				MSD SLM FDD 2/4
HW:P2	0	0	1	UNS.WORD	Immediately

<b>1170</b>	<b>POLE_PAIR_PITCH</b>				CR: , <b>DL1</b>
D05 mm	Pole pair pitch				FDD SLM 2/4
HW:P2	72.000000	0.000000	1000.000000	FLOAT	Power On

<b>1170</b>	<b>POLE_PAIR_PITCH</b>				CR: / <b>DL1</b> /
D05	Pole pair pitch (not 810D)				FDD LIN 2/4 <b>840D</b>
mm	72.0000	0.0000	1000.0000	FLOAT	PowerOn

<b>1175</b>	<b>INVERTER_THERM_CURR_ASYN</b>				CR: <b>DE1, DM1</b>
D05 A	Power section ASYN limit current				FDD SLM 2/4
HW:P2	200.000000	0.000000	500.000000	FLOAT	Power On

<b>1175</b>	<b>INVERTER_THERM_CURR_ASYN</b>				CR: / <b>DE1, DM1</b> /
D05	Power section ASYN limit current (not 810D)				FDD ROT/LIN 2/4 <b>840D</b>
A	0.0000	0.0000	500.0000	FLOAT	PowerOn

<b>1176</b>	<b>INVERTER_MAX_S6_CURR_ASYN</b>				CR: <b>DE1, DM1</b>
D05 A	Power section S6 ASYN limit current				FDD SLM 2/4
HW:P2	200.000000	0.000000	500.000000	FLOAT	Power On

<b>1176</b>	<b>INVERTER_MAX_S6_CURR_ASYN</b>				CR: / <b>DE1, DM1</b> /
D05	Power section S6 ASYN limit current (not 810D)				FDD ROT/LIN 2/4 <b>840D</b>
A	0.0000	0.0000	500.0000	FLOAT	PowerOn

<b>1177</b>	<b>INVERTER_RATED_CURR_ASYN</b>				CR: <b>DE1, DM1</b>
D05 A	Power section ASYN rated current				FDD SLM 2/4



HW:P2	200.000000	0.000000	500.000000	FLOAT	Power On
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<b>1177</b>	<b>INVERTER_RATED_CURR_ASYN</b>				CR: / DE1, DM1 /
D05	Power section ASYN rated current (not 810D)			FDD	ROT/LIN 2/4 <b>840D</b>
A	0.0000	0.0000	500.0000	FLOAT	PowerOn

<b>1178</b>	<b>INVERTER_DERATING_SYN</b>				CR: DE1, DM1
-	Power section derating SYN			FDD SLM	2/4
%					
HW:P2	0.0	0.0	100.0	FLOAT	Power On

<b>1178</b>	<b>INVERTER_DERATING_SYN</b>				CR: / DE1, DM1 /
D05	Power section derating SYN (not 810D)			FDD	ROT/LIN 2/4 <b>840D</b>
%	0.0000	0.0000	100.0000	FLOAT	PowerOn

<b>1179</b>	<b>INVERTER_DERATING_ASYN</b>				CR: DE1, DM1
-	Power section derating ASYN			FDD MSD SLM	2/4
%					
HW:P2	0.0	0.0	100.0	FLOAT	Power On

<b>1179</b>	<b>INVERTER_DERATING_ASYN</b>				CR: / DE1, DM1 /
D05	Power section derating ASYN (not 810D)			FDD/MSD	ROT/LIN 2/4 <b>840D</b>
%	0.0000	0.0000	100.0000	FLOAT	PowerOn

<b>1180</b>	<b>CURRCTRL_ADAPT_CURRENT_1</b>				CR: FBU, DS1
-	Lower current limit adaptation			FDD SLM	2/4
%					
HW:P2	0.000000	0.000000	100.000000	FLOAT	Immediately

<b>1180</b>	<b>CURRCTRL_ADAPT_CURRENT_1</b>				CR: / FBU, DS1 /
	Lower current limit adaptation (not 810D)			FDD	ROT/LIN 2/4 <b>840D</b>
%	0.0000	0.0000	100.0000	FLOAT	immediately

<b>1181</b>	<b>CURRCTRL_ADAPT_CURRENT_2</b>				CR: FBU, DS1
-	Upper current limit adaptation			FDD SLM	2/4
%					
HW:P2	100.000000	0.000000	100.000000	FLOAT	Immediately

<b>1181</b>	<b>CURRCTRL_ADAPT_CURRENT_2</b>				CR: / FBU, DS1 /
	Upper current limit adaptation (not 810D)			FDD	ROT/LIN 2/4 <b>840D</b>
%	100.0000	0.0000	100.0000	FLOAT	immediately

<b>1182</b>	<b>REDUCE_ARMATURE_INDUCTANCE</b>				CR: FBU, DS1
-	Current controller adaptation factor			FDD SLM	2/4
%					
HW:P2	100.000000	1.000000	100.000000	FLOAT	Immediately

<b>1182</b>	<b>REDUCE_ARMATURE_INDUCTANCE</b>				CR: / FBU, DS1 /
	Current controller adaptation factor (not 810D)			FDD	ROT/LIN 2/4 <b>840D</b>
%	100.0000	1.0000	100.0000	FLOAT	immediately

<b>1183</b>	<b>CURRCTRL_ADAPT_ENABLE</b>				CR: DS1
-	Current controller adaptation ON			FDD SLM	2/4
-					
HW:P2	1	0	1	UNS.WORD	Power On

<b>1183</b>	<b>CURRCTRL_ADAPT_ENABLE</b>				CR: / DS1 /
-	Current controller adaptation ON (not 810D)			FDD	ROT/LIN 2/4 <b>840D</b>
-	0	0	1	UNS. WORD	PowerOn

<b>1185</b>	<b>STARTUP_FACT_CURRCTRL</b>				CR:
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- %	Startup factor P-IREG			MSD	2/4	
HW:P2	100.0	0.0	10000.0	FLOAT	Immediately	
<b>1185</b>	<b>STARTUP_FACT_CURRCTRL</b>				CR: / /	
-	Startup factor P-IREG (not 810D)			MSD	ROT	2/4 840D
%	100.0000	0.0000	10000.0000	FLOAT	immediately	
<b>1190</b>	<b>TORQUE_LIMIT_FROM_NC</b>				CR: DÜ1	
D02, EXP Nm	Evaluation of torque limit			MSD SLM FDD	2/4	
HW:P2	100.000000	0.000000	10000.000000	FLOAT	Immediately	
<b>1190</b>	<b>TORQUE_LIMIT_FROM_NC</b>				CR: / DÜ1 /	
D02, EXP Nm	Evaluation of torque limit (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
	100.0000	0.0000	10000.0000	FLOAT	immediately	
<b>1191</b>	<b>TORQUE_LIMIT_ADAPT_SERVO</b>				CR: DÜ1	
D02, EXP -	Adapting servo torque limit			MSD SLM FDD	2/4	
HW:P2	1.000000	0.000000	100.000000	FLOAT	Immediately	
<b>1191</b>	<b>TORQUE_LIMIT_ADAPT_SERVO</b>				CR: / DÜ1 /	
D02, EXP -	Adapting servo torque limit (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
	1.0000	0.0000	100.0000	FLOAT	immediately	
<b>1192</b>	<b>ROT: TORQUE_LIMIT_WEIGHT LIN: FORCE_LIMIT_WEIGHT</b>				CR: F1, DL1	
D02, EXP %	ROT: Weight torque LIN: Weight force			MSD SLM FDD	2/4	
HW:P2	0.000000	-100.000000	100.000000	FLOAT	Immediately	
<b>1192</b>	<b>FORCE_LIMIT_WEIGHT</b>				CR: / DL1, F1/	
D02, EXP %	Weight force (not 810D)			FDD	LIN	2/4 840D
	0.0000	-100.0000	100.0000	FLOAT	immediately	
<b>1192</b>	<b>TORQUE_LIMIT_WEIGHT</b>				CR: /F1 /	
D02, EXP %	Weight torque (not 810D)			FDD/MSD	ROT	2/4 840D
	0.0000	-100.0000	100.0000	FLOAT	immediately	
<b>1200</b>	<b>NUM_CURRENT_FILTERS</b>				CR: DD2	
D01 -	Number of current setpoint filters			MSD SLM FDD	2/4	
HW:P2	1	0	4	UNS.WORD	Immediately	
HW:P2 840D	-	-	6	UNS.WORD	Immediately	
<b>1200</b>	<b>NUM_CURRENT_FILTERS [n] 0 ...7 Index of param.-set</b>				CR: / DD2/	
	Number of current setpoint filters			FDD/MSD		2/4 810D
-	0	0	4	UNS. WORD	immediately	
<b>1200</b>	<b>NUM_CURRENT_FILTERS [n] 0 ...7 Index of param.-set</b>				CR: / DD2 /	
D01 -	Number of current setpoint filters			FDD/MSD	ROT/LIN	2/4 840D
	1	0	4	UNS. WORD	immediately	
<b>1201</b>	<b>CURRENT_FILTER_CONFIG</b>				CR: DD2	
D01 -	Type of current setpoint filter			MSD SLM FDD	2/4	
HW:P2	0x0000	0x0000	0x800f	UNS.WORD	Immediately	
HW:P2 840D	-	-	0x803f	UNS.WORD	Immediately	

<b>1201</b>	<b>CURRENT_FILTER_CONFIG [n] 0 ...7 Index of param.-set</b>				CR: / <b>DD2</b> /	
	Type of current setpoint filter			FDD/MSD	2/4	<b>810D</b>
-	0	0	ffff	UNS. WORD	immediately	
<b>1201</b>	<b>CURRENT_FILTER_CONFIG [n] 0 ...7 Index of param.-set</b>				CR: / <b>DD2</b> /	
D01	Type of current setpoint filter			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
-	0	0	800f	UNS. WORD	immediately	
<b>1202</b>	<b>CURRENT_FILTER_1_FREQUENCY</b>				CR: <b>DD2</b>	
D01	Natural frequency for current setpoint filter 1			MSD SLM FDD	2/4	
Hz						
HW:P2	2000.000000	0.000000	8000.000000	FLOAT	Immediately	
<b>1202</b>	<b>CURRENT_FILTER_1_FREQUENCY [n] 0 ...7 Index of param.-set</b>				CR: / <b>DD2</b> /	
	Natural frequency for current setpoint filter 1			FDD/MSD	2/4	<b>810D</b>
Hz	0.0000	0.0000	3999.0000	FLOAT	immediately	
<b>1202</b>	<b>CURRENT_FILTER_1_FREQUENCY [n] 0 ...7 Index of param.-set</b>				CR: / <b>DD2</b> /	
D01	Natural frequency for current setpoint filter 1			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
Hz	2000.0000	0.0000	8000.0000	FLOAT	immediately	
<b>1203</b>	<b>CURRENT_FILTER_1_DAMPING</b>				CR: <b>DD2</b>	
D01	Damping for current setpoint filter 1			MSD SLM FDD	2/4	
-						
HW:P2	0.700000	0.050000	5.000000	FLOAT	Immediately	
<b>1203</b>	<b>CURRENT_FILTER_1_DAMPING [n] 0 ...7 Index of param.-set</b>				CR: / <b>DD2</b> /	
	Damping for current setpoint filter 1			FDD/MSD	2/4	<b>810D</b>
-	1.0000	0.0500	5.0000	FLOAT	immediately	
<b>1203</b>	<b>CURRENT_FILTER_1_DAMPING [n] 0 ...7 Index of param.-set</b>				CR: / <b>DD2</b> /	
D01	Damping for current setpoint filter 1			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
-	0.7000	0.0500	5.0000	FLOAT	immediately	
<b>1204</b>	<b>CURRENT_FILTER_2_FREQUENCY</b>				CR: <b>DD2</b>	
D01	Natural frequency for current setpoint filter 2			MSD SLM FDD	2/4	
Hz						
HW:P2	0.000000	0.000000	8000.000000	FLOAT	Immediately	
<b>1204</b>	<b>CURRENT_FILTER_2_FREQUENCY [n] 0 ...7 Index of param.-set</b>				CR: / <b>DD2</b> /	
	Natural frequency for current setpoint filter 2			FDD/MSD	2/4	<b>810D</b>
Hz	0.0000	0.0000	1999.0000	FLOAT	immediately	
<b>1204</b>	<b>CURRENT_FILTER_2_FREQUENCY [n] 0 ...7 Index of param.-set</b>				CR: / <b>DD2</b> /	
D01	Natural frequency for current setpoint filter 2			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
Hz	0.0000	0.0000	8000.0000	FLOAT	immediately	
<b>1205</b>	<b>CURRENT_FILTER_2_DAMPING</b>				CR: <b>DD2</b>	
D01	Damping for current setpoint filter 2			MSD SLM FDD	2/4	
-						
HW:P2	1.000000	0.050000	5.000000	FLOAT	Immediately	
<b>1205</b>	<b>CURRENT_FILTER_2_DAMPING [n] 0 ...7 Index of param.-set</b>				CR: / <b>DD2</b> /	
D01	Damping for current setpoint filter 2			FDD/MSD	ROT/LIN	2/4
-	1.0000	0.0500	5.0000	FLOAT	immediately	
<b>1206</b>	<b>CURRENT_FILTER_3_FREQUENCY</b>				CR: <b>DD2</b>	
D01	Natural frequency for current setpoint filter 3			MSD SLM FDD	2/4	
Hz						
HW:P2	0.000000	0.000000	8000.000000	FLOAT	Immediately	

<b>1206</b>	<b>CURRENT_FILTER_3_FREQUENCY [n] 0 ...7 Index of param.-set</b>				CR: / DD2/
	Natural frequency for current setpoint filter 3			FDD/MSD	2/4 810D
Hz	0.0000	0.0000	1999.0000	FLOAT	immediately
<b>1206</b>	<b>CURRENT_FILTER_3_FREQUENCY [n] 0 ...7 Index of param.-set</b>				CR: / DD2 /
D01	Natural frequency for current setpoint filter 3			FDD/MSD ROT/LIN	2/4 840D
Hz	0.0000	0.0000	8000.0000	FLOAT	immediately
<b>1207</b>	<b>CURRENT_FILTER_3_DAMPING</b>				CR: DD2
D01	Damping for current setpoint filter 3			MSD SLM FDD	2/4
-					
HW:P2	1.000000	0.050000	5.000000	FLOAT	Immediately
<b>1207</b>	<b>CURRENT_FILTER_3_DAMPING [n] 0 ...7 Index of param.-set</b>				CR: / DD2 /
D01	Damping for current setpoint filter 3			FDD/MSD ROT/LIN	2/4
-	1.0000	0.0500	5.0000	FLOAT	immediately
<b>1208</b>	<b>CURRENT_FILTER_4_FREQUENCY</b>				CR: DD2
D01	Natural frequency for current setpoint filter 4			MSD SLM FDD	2/4
Hz					
HW:P2	0.000000	0.000000	8000.000000	FLOAT	Immediately
<b>1208</b>	<b>CURRENT_FILTER_4_FREQUENCY [n] 0 ...7 Index of param.-set</b>				CR: / DD2/
	Natural frequency for current setpoint filter 4			FDD/MSD	2/4 810D
Hz	0.0000	0.0000	1999.0000	FLOAT	immediately
<b>1208</b>	<b>CURRENT_FILTER_4_FREQUENCY [n] 0 ...7 Index of param.-set</b>				CR: / DD2 /
D01	Natural frequency for current setpoint filter 4			FDD/MSD ROT/LIN	2/4 840D
Hz	0.0000	0.0000	8000.0000	FLOAT	immediately
<b>1209</b>	<b>CURRENT_FILTER_4_DAMPING</b>				CR: DD2
D01	Damping for current setpoint filter 4			MSD SLM FDD	2/4
-					
HW:P2	1.000000	0.050000	5.000000	FLOAT	Immediately
<b>1209</b>	<b>CURRENT_FILTER_4_DAMPING [n] 0 ...7 Index of param.-set</b>				CR: / DD2 /
D01	Damping for current setpoint filter 4			FDD/MSD ROT/LIN	2/4
-	1.0000	0.0500	5.0000	FLOAT	immediately
<b>1210</b>	<b>CURRENT_FILTER_1_SUPPR_FREQ</b>				CR: DD2
D01	Blocking frequency for current setpoint filter 1			MSD SLM FDD	2/4
Hz					
HW:P2	3500.000000	1.000000	7999.000000	FLOAT	Immediately
<b>1210</b>	<b>CURRENT_FILTER_1_SUPPR_FREQ [n] 0 ...7 Index of param.-set</b>				CR: / DD2/
	Blocking frequency for current setpoint filter 1			FDD/MSD	2/4 810D
Hz	1600.0000	1.0000	3999.0000	FLOAT	immediately
<b>1210</b>	<b>CURRENT_FILTER_1_SUPPR_FREQ [n] 0 ...7 Index of param.-set</b>				CR: / DD2 /
D01	Blocking frequency for current setpoint filter 1			FDD/MSD ROT/LIN	2/4 840D
Hz	3500.0000	1.0000	7999.0000	FLOAT	immediately
<b>1211</b>	<b>CURRENT_FILTER_1_BANDWIDTH</b>				CR: DD2
D01	Bandwidth for current setpoint filter 1			MSD SLM FDD	2/4
Hz					
HW:P2	500.000000	5.000000	7999.000000	FLOAT	Immediately
<b>1211</b>	<b>CURRENT_FILTER_1_BANDWIDTH [n] 0 ...7 Index of param.-set</b>				CR: / DD2/
	Bandwidth for current setpoint filter 1			FDD/MSD	2/4 810D
Hz	400.0000	5.0000	3999.0000	FLOAT	immediately

<b>1211</b>	<b>CURRENT_FILTER_1_BANDWIDTH [n] 0 ...7 Index of param.-set</b>				<b>CR: / DD2 /</b>	
D01	Bandwidth for current setpoint filter 1			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
Hz	500.0000	5.0000	7999.0000	FLOAT		immediately
<b>1212</b>	<b>CURRENT_FILTER_1_BW_NUM</b>				<b>CR: DD2</b>	
D01, EXP	Bandwidth numerator for current setpoint filter 1			MSD SLM FDD		2/4
Hz						
HW:P2	0.000000	0.000000	7999.000000	FLOAT		Immediately
<b>1212</b>	<b>CURRENT_FILTER_1_BW_NUM [n] 0 ...7 Index of param.-set</b>				<b>CR: / DD2/</b>	
	Bandwidth numerator for current setpoint filter 1			FDD/MSD		2/4 <b>810D</b>
Hz	0.0000	0.0000	3999.0000	FLOAT		immediately
<b>1212</b>	<b>CURRENT_FILTER_1_BW_NUM [n] 0 ...7 Index of param.-set</b>				<b>CR: / DD2 /</b>	
D01, EXP	Bandwidth numerator for current setpoint filter 1			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
Hz	0.0000	0.0000	7999.0000	FLOAT		immediately
<b>1213</b>	<b>CURRENT_FILTER_2_SUPPR_FREQ</b>				<b>CR: DD2</b>	
D01	Blocking frequency for current setpoint filter 2			MSD SLM FDD		2/4
Hz						
HW:P2	3500.000000	1.000000	7999.000000	FLOAT		Immediately
<b>1213</b>	<b>CURRENT_FILTER_2_SUPPR_FREQ [n] 0 ...7 Index of param.-set</b>				<b>CR: / DD2/</b>	
	Blocking frequency for current setpoint filter 2			FDD/MSD		2/4 <b>810D</b>
Hz	1200.0000	1.0000	1999.0000	FLOAT		immediately
<b>1213</b>	<b>CURRENT_FILTER_2_SUPPR_FREQ [n] 0 ...7 Index of param.-set</b>				<b>CR: / DD2 /</b>	
D01	Blocking frequency for current setpoint filter 2			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
Hz	3500.0000	1.0000	7999.0000	FLOAT		immediately
<b>1214</b>	<b>CURRENT_FILTER_2_BANDWIDTH</b>				<b>CR: DD2</b>	
D01	Bandwidth for current setpoint filter 2			MSD SLM FDD		2/4
Hz						
HW:P2	500.000000	5.000000	7999.000000	FLOAT		Immediately
<b>1214</b>	<b>CURRENT_FILTER_2_BANDWIDTH [n] 0 ...7 Index of param.-set</b>				<b>CR: / DD2/</b>	
	Bandwidth for current setpoint filter 2			FDD/MSD		2/4 <b>810D</b>
Hz	400.0000	5.0000	1999.0000	FLOAT		immediately
<b>1214</b>	<b>CURRENT_FILTER_2_BANDWIDTH [n] 0 ...7 Index of param.-set</b>				<b>CR: / DD2 /</b>	
D01	Bandwidth for current setpoint filter 2			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
Hz	500.0000	5.0000	7999.0000	FLOAT		immediately
<b>1215</b>	<b>CURRENT_FILTER_2_BW_NUM</b>				<b>CR: DD2</b>	
D01, EXP	Bandwidth numerator for current setpoint filter 2			MSD SLM FDD		2/4
Hz						
HW:P2	0.000000	0.000000	7999.000000	FLOAT		Immediately
<b>1215</b>	<b>CURRENT_FILTER_2_BW_NUM [n] 0 ...7 Index of param.-set</b>				<b>CR: / DD2/</b>	
	Bandwidth numerator for current setpoint filter 2			FDD/MSD		2/4 <b>810D</b>
Hz	0.0000	0.0000	1999.0000	FLOAT		immediately
<b>1215</b>	<b>CURRENT_FILTER_2_BW_NUM [n] 0 ...7 Index of param.-set</b>				<b>CR: / DD2 /</b>	
D01, EXP	Bandwidth numerator for current setpoint filter 2			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
Hz	0.0000	0.0000	7999.0000	FLOAT		immediately
<b>1216</b>	<b>CURRENT_FILTER_3_SUPPR_FREQ</b>				<b>CR: DD2</b>	
D01	Blocking frequency for current setpoint filter 3			MSD SLM FDD		2/4
Hz						
HW:P2	3500.000000	1.000000	7999.000000	FLOAT		Immediately

1216	CURRENT_FILTER_3_SUPPR_FREQ [n] 0 ...7 Index of param.-set				CR: / DD2/	
	Blocking frequency for current setpoint filter 3			FDD/MSD	2/4	810D
Hz	1200.0000	1.0000	1999.0000	FLOAT	immediately	
1216	CURRENT_FILTER_3_SUPPR_FREQ [n] 0 ...7 Index of param.-set				CR: / DD2 /	
D01	Blocking frequency for current setpoint filter 3			FDD/MSD	ROT/LIN	2/4 840D
Hz	3500.0000	1.0000	7999.0000	FLOAT	immediately	
1217	CURRENT_FILTER_3_BANDWIDTH				CR: DD2	
D01	Bandwidth for current setpoint filter 3			MSD SLM FDD		2/4
Hz						
HW:P2	500.000000	5.000000	7999.000000	FLOAT	Immediately	
1217	CURRENT_FILTER_3_BANDWIDTH [n] 0 ...7 Index of param.-set				CR: / DD2/	
	Bandwidth for current setpoint filter 3			FDD/MSD	2/4	810D
Hz	400.0000	5.0000	1999.0000	FLOAT	immediately	
1217	CURRENT_FILTER_3_BANDWIDTH [n] 0 ...7 Index of param.-set				CR: / DD2 /	
D01	Bandwidth for current setpoint filter 3			FDD/MSD	ROT/LIN	2/4 840D
Hz	500.0000	5.0000	7999.0000	FLOAT	immediately	
1218	CURRENT_FILTER_3_BW_NUM				CR: DD2	
D01, EXP	Bandwidth numerator for current setpoint filter 3			MSD SLM FDD		2/4
Hz						
HW:P2	0.000000	0.000000	7999.000000	FLOAT	Immediately	
1218	CURRENT_FILTER_3_BW_NUM [n] 0 ...7 Index of param.-set				CR: / DD2/	
	Bandwidth numerator for current setpoint filter 3			FDD/MSD	2/4	810D
Hz	0.0000	0.0000	1999.0000	FLOAT	immediately	
1218	CURRENT_FILTER_3_BW_NUM [n] 0 ...7 Index of param.-set				CR: / DD2 /	
D01, EXP	Bandwidth numerator for current setpoint filter 3			FDD/MSD	ROT/LIN	2/4 840D
Hz	0.0000	0.0000	7999.0000	FLOAT	immediately	
1219	CURRENT_FILTER_4_SUPPR_FREQ				CR: DD2	
D01	Blocking frequency for current setpoint filter 4			MSD SLM FDD		2/4
Hz						
HW:P2	3500.000000	1.000000	7999.000000	FLOAT	Immediately	
1219	CURRENT_FILTER_4_SUPPR_FREQ [n] 0 ...7 Index of param.-set				CR: / DD2/	
	Blocking frequency for current setpoint filter 4			FDD/MSD	2/4	810D
Hz	1200.0000	1.0000	1999.0000	FLOAT	immediately	
1219	CURRENT_FILTER_4_SUPPR_FREQ [n] 0 ...7 Index of param.-set				CR: / DD2 /	
D01	Blocking frequency for current setpoint filter 4			FDD/MSD	ROT/LIN	2/4 840D
Hz	3500.0000	1.0000	7999.0000	FLOAT	immediately	
1220	CURRENT_FILTER_4_BANDWIDTH				CR: DD2	
D01	Bandwidth for current setpoint filter 4			MSD SLM FDD		2/4
Hz						
HW:P2	500.000000	5.000000	7999.000000	FLOAT	Immediately	
1220	CURRENT_FILTER_4_BANDWIDTH [n] 0 ...7 Index of param.-set				CR: / DD2/	
	Bandwidth for current setpoint filter 4			FDD/MSD	2/4	810D
Hz	400.0000	5.0000	1999.0000	FLOAT	immediately	
1220	CURRENT_FILTER_4_BANDWIDTH [n] 0 ...7 Index of param.-set				CR: / DD2 /	
D01	Bandwidth for current setpoint filter 4			FDD/MSD	ROT/LIN	2/4 840D
Hz	500.0000	5.0000	7999.0000	FLOAT	immediately	
1221	CURRENT_FILTER_4_BW_NUM				CR: DD2	

D01, EXP Hz	Bandwidth numerator for current setpoint filter 4			MSD SLM FDD	2/4	
HW:P2	0.000000	0.000000	7999.000000	FLOAT	Immediately	
<b>1221</b>	<b>CURRENT_FILTER_4_BW_NUM [n] 0 ...7 Index of param.-set</b>				CR: / DD2/	
	Bandwidth numerator for current setpoint filter 4			FDD/MSD	2/4	<b>810D</b>
Hz	0.0000	0.0000	1999.0000	FLOAT	immediately	
<b>1221</b>	<b>CURRENT_FILTER_4_BW_NUM [n] 0 ...7 Index of param.-set</b>				CR: / DD2 /	
D01, EXP	Bandwidth numerator for current setpoint filter 4			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
Hz	0.0000	0.0000	7999.0000	FLOAT	immediately	
<b>1222</b>	<b>CURRENT_FILTER_1_BS_FREQ</b>				CR: DD2	
D01, EXP %	Natural BSF frequ. current setp. f. 1			MSD SLM FDD	2/4	
HW:P2	100.000000	1.000000	100.000000	FLOAT	Immediately	
<b>1222</b>	<b>CURRENT_FILTER_1_BS_FREQ [n] 0 ...7 Index of param.-set</b>				CR: / DD2 /	
D01, EXP	Natural BSF frequ. current setp. f. 1 (not 810D)			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
%	100.0000	1.0000	100.0000	FLOAT	immediately	
<b>1223</b>	<b>CURRENT_FILTER_2_BS_FREQ</b>				CR: DD2	
D01, EXP %	Natural BSF frequ. current setp. f. 2			MSD SLM FDD	2/4	
HW:P2	100.000000	1.000000	100.000000	FLOAT	Immediately	
<b>1223</b>	<b>CURRENT_FILTER_2_BS_FREQ [n] 0 ...7 Index of param.-set</b>				CR: / DD2 /	
D01, EXP	Natural BSF frequ. current setp. f. 2 (not 810D)			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
%	100.0000	1.0000	100.0000	FLOAT	immediately	
<b>1224</b>	<b>CURRENT_FILTER_3_BS_FREQ</b>				CR: DD2	
D01, EXP %	Natural BSF frequ. current setp. f. 3			MSD SLM FDD	2/4	
HW:P2	100.000000	1.000000	100.000000	FLOAT	Immediately	
<b>1224</b>	<b>CURRENT_FILTER_3_BS_FREQ [n] 0 ...7 Index of param.-set</b>				CR: / DD2 /	
D01, EXP	Natural BSF frequ. current setp. f. 3 (not 810D)			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
%	100.0000	1.0000	100.0000	FLOAT	immediately	
<b>1225</b>	<b>CURRENT_FILTER_4_BS_FREQ</b>				CR: DD2	
D01, EXP %	Natural BSF frequ. current setp. f. 4			MSD SLM FDD	2/4	
HW:P2	100.000000	1.000000	100.000000	FLOAT	Immediately	
<b>1225</b>	<b>CURRENT_FILTER_4_BS_FREQ [n] 0 ...7 Index of param.-set</b>				CR: / DD2 /	
D01, EXP	Natural BSF frequ. current setp. f. 4 (not 810D)			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
%	100.0000	1.0000	100.0000	FLOAT	immediately	
<b>1230</b>	<b>ROT: TORQUE_LIMIT_1 LIN: FORCE_LIMIT_1</b>				CR: DÜ1, DL1	
D02, EXP %	ROT: 1st torque limit LIN: 1 st force threshold			MSD SLM FDD	2/4	
HW:P2	100.000000	5.000000	900.000000	FLOAT	Immediately	
<b>1230</b>	<b>TORQUE_LIMIT_1 [n] 0 ...7 Index of param.-set</b>				CR: / DÜ1 /	
D02, EXP	1st torque limit			FDD/MSD	ROT	2/4
%	100.0000	5.0000	900.0000	FLOAT	immediately	
<b>1230</b>	<b>FORCE_LIMIT_1 [n] 0 ...7 Index of param.-set</b>				CR: / DL1/	
D02, EXP	1 st force threshold			FDD	LIN	2/4
%	100.0000	5.0000	900.0000	FLOAT	immediately	

<b>1231</b>	<b>ROT: TORQUE_LIMIT_2</b> <b>LIN: FORCE_LIMIT_2</b>				<b>CR: DÜ1, DL1</b>	
D02, EXP %	ROT: 2nd torque limit LIN: 2nd force threshold			MSD SLM FDD	2/4	
HW:P2	100.000000	5.000000	100.000000	FLOAT	Immediately	
<b>1231</b>	<b>TORQUE_LIMIT_2</b>				<b>CR: /DÜ1 /</b>	
D02, EXP %	2nd torque limit (not 810D)			FDD/MSD   ROT	2/4	<b>840D</b>
	100.0000	5.0000	100.0000	FLOAT	immediately	
<b>1231</b>	<b>FORCE_LIMIT_2</b>				<b>CR: / DL1/</b>	
D02, EXP %	2nd force threshold (not 810D)			FDD   LIN	2/4	<b>840D</b>
	100.0000	5.0000	100.0000	FLOAT	immediately	
<b>1232</b>	<b>ROT: TORQUE_LIMIT_SWITCH_SPEED</b> <b>LIN: FORCE_LIMIT_SWITCH_SPEED</b>				<b>CR: DÜ1, DL1</b>	
D02, EXP ROT: 1/min LIN: m/min	ROT: Changeover speed from MD 1230 to MD 1231 LIN: Changeover speed from MD 1230 to MD 1231			MSD SLM FDD	2/4	
HW:P2	ROT: 6000.000000 LIN: 120.000000	0.000000	100000.000000	FLOAT	Immediately	
<b>1232</b>	<b>FORCE_LIMIT_SWITCH_SPEED</b>				<b>CR: / DL1/</b>	
D02, EXP m/min	Changeover speed from MD 1230 to MD 1231 (not 810D)			FDD   LIN	2/4	<b>840D</b>
	120.0000	0.0000	100000.0000	FLOAT	immediately	
<b>1232</b>	<b>TORQUE_LIMIT_SWITCH_SPEED</b>				<b>CR: /DÜ1 /</b>	
D02, EXP 1/min	Changeover speed from MD 1230 to MD 1231 (not 810D)			FDD/MSD   ROT	2/4	<b>840D</b>
	6000.0000	0.0000	100000.0000	FLOAT	immediately	
<b>1233</b>	<b>ROT: TORQUE_LIMIT_GENERATOR</b> <b>LIN: LIMIT_GENERATOR</b>				<b>CR: DÜ1, DL1</b>	
D02, EXP %	ROT: Regenerative limiting LIN:			MSD SLM FDD	2/4	
HW:P2	100.000000	5.000000	100.000000	FLOAT	Immediately	
<b>1233</b>	<b>TORQUE_LIMIT_GENERATOR [n] 0 ...7 Index of param.-set</b>				<b>CR: /DÜ1 /</b>	
D02, EXP %	Regenerative limiting (not 810D)			FDD/MSD   ROT	2/4	<b>840D</b>
	100.0000	5.0000	100.0000	FLOAT	immediately	
<b>1233</b>	<b>LIMIT_GENERATOR [n] 0 ...7 Index of param.-set</b>				<b>CR: / DL1/</b>	
D02, EXP %	Generator force limiting (not 810D)			FDD   LIN	2/4	<b>840D</b>
	100.0000	5.0000	100.0000	FLOAT	immediately	
<b>1234</b>	<b>ROT: TORQUE_LIMIT_SWITCH_HYST</b> <b>LIN: FORCE_LIMIT_SWITCH_HYST</b>				<b>CR: DÜ1, DL1</b>	
D02, EXP ROT: 1/min LIN: m/min	ROT: Hysteresis MD 1232 LIN:			MSD SLM FDD	2/4	
HW:P2	ROT: 50.000000 LIN: 3.000000	0.000000	1000.000000	FLOAT	Immediately	
<b>1234</b>	<b>FORCE_LIMIT_SWITCH_HYST</b>				<b>CR: / DL1/</b>	
D02, EXP m/min	Hysteresis MD 1232 (not 810D)			FDD   LIN	2/4	<b>840D</b>
	3.0000	0.0000	1000.0000	FLOAT	immediately	
<b>1234</b>	<b>TORQUE_LIMIT_SWITCH_HYST</b>				<b>CR: /DÜ1 /</b>	
D02, EXP 1/min	Hysteresis MD 1232 (not 810D)			FDD/MSD   ROT	2/4	<b>840D</b>
	50.0000	0.0000	1000.0000	FLOAT	immediately	
<b>1235</b>	<b>POWER_LIMIT_1</b>				<b>CR: DÜ1</b>	



D02, EXP %	1st power limit			MSD SLM FDD	2/4	
HW:P2	100.000000	5.000000	900.000000	FLOAT	Immediately	
<b>1235</b>	<b>POWER_LIMIT_1</b> [n] 0 ...7 Index of param.-set				CR: / DÜ1 /	
D02, EXP %	1st power limit			FDD/MSD ROT/LIN	2/4	
	100.0000	5.0000	900.0000	FLOAT	immediately	
<b>1236</b>	<b>POWER_LIMIT_2</b>				CR: DÜ1	
D02, EXP %	2nd power limit			MSD SLM FDD	2/4	
HW:P2	100.000000	5.000000	100.000000	FLOAT	Immediately	
<b>1236</b>	<b>POWER_LIMIT_2</b>				CR: / DÜ1 /	
D02, EXP %	2nd power limit (not 810D)			FDD/MSD ROT/LIN	2/4	840D
	100.0000	5.0000	100.0000	FLOAT	immediately	
<b>1237</b>	<b>POWER_LIMIT_GENERATOR</b>				CR: DÜ1	
D02, EXP kW	Maximum regenerative power			MSD SLM FDD	2/4	
HW:P2	100.000000	0.100000	500.000000	FLOAT	Immediately	
<b>1237</b>	<b>POWER_LIMIT_GENERATOR</b>				CR: / DÜ1/	
	Maximum regenerative power			FDD/MSD	2/4	810D
kW	100.0000	0.3000	500.0000	FLOAT	immediately	
<b>1237</b>	<b>POWER_LIMIT_GENERATOR</b>				CR: / DÜ1 /	
D02, EXP kW	Maximum regenerative power			FDD/MSD ROT/LIN	2/4	840D
	100.0000	0.1000	500.0000	FLOAT	immediately	
<b>1238</b>	<b>CURRENT_LIMIT</b>				CR: DÜ1	
D02 %	Motor current limit			MSD	2/4	
HW:P2	150.000000	0.000000	400.000000	FLOAT	Immediately	
<b>1238</b>	<b>CURRENT_LIMIT</b>				CR: / DÜ1/	
	Motor current limit			MSD	2/4	810D
%	150.0000	0.0000	300.0000	FLOAT	immediately	
<b>1238</b>	<b>CURRENT_LIMIT</b>				CR: /DÜ1 /	
D02 %	Motor current limit			MSD ROT	2/4	840D
	150.0000	0.0000	400.0000	FLOAT	immediately	
<b>1239</b>	<b>ROT: TORQUE_LIMIT_FOR_SETUP LIN: FORCE_LIMIT_FOR_SETUP</b>				CR: DÜ1, DL1	
D02 %	ROT: Torque limit in setting-up operation LIN: Force limit in setting-up operation			MSD SLM FDD	2/4	
HW:P2	1.000000	0.500000	100.000000	FLOAT	Immediately	
<b>1239</b>	<b>TORQUE_LIMIT_FOR_SETUP</b>				CR: /DÜ1 /	
D02 %	Torque limit in setting-up operation			FDD/MSD ROT	2/4	
	1.0000	0.5000	100.0000	FLOAT	immediately	
<b>1239</b>	<b>FORCE_LIMIT_FOR_SETUP</b>				CR: / DL1/	
D02 %	Force limit in setting-up operation			FDD LIN	2/4	
	1.0000	0.5000	100.0000	FLOAT	immediately	
<b>1245</b>	<b>CURRENT_SMOOTH_SPEED</b>				CR: DD2, DL1	
EXP ROT: 1/min LIN: m/min	Threshold speed dep. on M setpoint smoothing			MSD SLM FDD	2/4	
HW:P2	0.000000	0.000000	100000.000000	FLOAT	Immediately	

1245	CURRENT SMOOTH SPEED				CR: / DL1/	
EXP	Threshold speed dependend F-setpoint smoothing (not 810D)			FDD	LIN	2/4 840D
m/min	0.0000	0.0000	100000.0000	FLOAT		immediately

1245	CURRENT SMOOTH SPEED				CR: /DD2 /	
EXP	Threshold speed dep. on M setpoint smoothing (not 810D)			FDD/MSD	ROT	2/4 840D
1/min	0.0000	0.0000	100000.0000	FLOAT		immediately

1246	CURRENT SMOOTH HYSTERESIS				CR: DD2, DL1	
EXP ROT: 1/min LIN: m/min	Hysteresis speed dep. M setpoint smoothing			MSD SLM FDD		2/4
HW:P2	ROT: 50.000000 LIN: 3.000000	0.000000	1000.000000	FLOAT		Immediately

1246	CURRENT SMOOTH HYSTERESIS				CR: /DD2 /	
EXP	Hysteresis speed dep. M setpoint smoothing (not 810D)			FDD/MSD	ROT	2/4 840D
1/min	50.0000	0.0000	1000.0000	FLOAT		immediately

1246	CURRENT SMOOTH HYSTERESIS				CR: / DL1/	
EXP	Hysteresis speed dependend F-setpoint smoothing (not 810D)			FDD	LIN	2/4 840D
m/min	3.0000	0.0000	1000.0000	FLOAT		immediately

1247	MOTOR_SWITCH_SPEED1				CR: DE1	
EXP 1/min	Speed threshold for motor changeover			MSD SLM FDD		2/4
HW:P2	100000.000000	0.0	100000.000000	FLOAT		Immediately

1247	MOTOR_SWITCH_SPEED				CR: /DE1 /	
EXP	Speed threshold for motor changeover (not 810D)			MSD	ROT	2/4 840D
1/min	100000.0000	0.0000	100000.0000	FLOAT		immediately

1248	MOTOR_SWITCH_SPEED2				CR: DE1	
EXP 1/min	Speed threshold 2 motor switchover			MSD SLM FDD		2/4
HW:P2	100000.000000	0.0	100000.000000	FLOAT		Immediately

1250	ACTUAL_CURRENT_FILTER_FREQ				CR: DB1	
D04 Hz	Transition frequency for actual current smoothing			MSD SLM FDD		2/4
HW:P2	100.000000	0.000000	8000.000000	FLOAT		Immediately

1250	ACTUAL_CURRENT_FILTER_FREQ				CR: / DB1/	
	Transition frequency for actual current smoothing			FDD/MSD		2/4 810D
Hz	100.0000	0.0000	3999.0000	FLOAT		immediately

1250	ACTUAL_CURRENT_FILTER_FREQ				CR: / DB1 /	
D04	Transition frequency for actual current smoothing			FDD/MSD	ROT/LIN	2/4 840D
Hz	100.0000	0.0000	8000.0000	FLOAT		immediately

1251	LOAD_SMOOTH_TIME				CR: DD1	
- ms	Time constant for load smoothing			MSD SLM FDD		2/4
HW:P2	0.000000	0.000000	1000.000000	FLOAT		Immediately

1251	LOAD_SMOOTH_TIME				CR: / DD1 /	
-	Time constant for load smoothing (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
ms	0.0000	0.0000	1000.0000	FLOAT		immediately

<b>1252</b>	<b>ROT: TORQUE_FILTER_FREQUENCY LIN: FORCE_FILTER_FREQUENCY</b>				<b>CR: DB1, DL1</b>
D04 Hz	ROT: Transition frequency of torque setpoint smoothing LIN: Transition freq. for the force setpoint smoothing				MSD SLM FDD 2/4
HW:P2	100.000000	0.000000	8000.000000	FLOAT	Immediately
<b>1252</b>	<b>TORQUE_FILTER_FREQUENCY</b>				<b>CR: / DB1/</b>
	Transition frequency of torque setpoint smoothing			FDD/MSD	2/4 810D
Hz	100.0000	0.0000	3999.0000	FLOAT	immediately
<b>1252</b>	<b>FORCE_FILTER_FREQUENCY</b>				<b>CR: / DL1/</b>
D04	Transition freq. for the force setpoint smoothing			FDD LIN	2/4 840D
Hz	100.0000	0.0000	8000.0000	FLOAT	immediately
<b>1252</b>	<b>TORQUE_FILTER_FREQUENCY</b>				<b>CR: /DB1 /</b>
D04	Transition frequency of torque setpoint smoothing			FDD/MSD ROT	2/4 840D
Hz	100.0000	0.0000	8000.0000	FLOAT	immediately
<b>1254</b>	<b>CURRENT_MONITOR_FILTER_TIME</b>				<b>CR: DÜ1</b>
D02, EXP ms	Time constant for current monitoring			MSD SLM FDD	2/4
HW:P2	0.500000	0.000000	2.000000	FLOAT	Immediately
<b>1254</b>	<b>CURRENT_MONITOR_FILTER_TIME</b>				<b>CR: / DÜ1 /</b>
D02, EXP ms	Time constant for current monitoring			FDD/MSD ROT/LIN	2/4
	0.5000	0.0000	2.0000	FLOAT	immediately
<b>1260</b>	<b>I2T_S6_REDUCTION</b>				<b>CR: DM1</b>
D02, EXP %	i2t limit., limit current power module S6			MSD SLM FDD	2/4
HW:P2	100.0	25.0	100.0	FLOAT	Immediately
<b>1261</b>	<b>I2T_NOMINAL_REDUCTION</b>				<b>CR: DM1</b>
D02, EXP %	i2t limit. rated current power module			MSD SLM FDD	2/4
HW:P2	ROT: 110.0 LIN: 110.0	25.0	ROT: 110.0 LIN: 110.0	FLOAT	Immediately
<b>1262</b>	<b>DIAGNOSIS_I2T</b>				<b>CR: DM1</b>
D04 s	i2t time in limitation			MSD SLM FDD	2/4
HW:P2	0.0	0.0	100000.0	FLOAT	Immediately
<b>1263</b>	<b>LIMIT_I2T</b>				<b>CR: DM1</b>
D04 %	i2t actual limitation factor			MSD SLM FDD	2/4
HW:P2	0.0	0.0	100.0	FLOAT	Immediately
<b>1264</b>	<b>LOAD_I2T</b>				<b>CR: DM1</b>
D04 %	i2t Current utilization factor			MSD SLM FDD	2/4
HW:P2	0.0	0.0	100.0	FLOAT	Immediately
<b>1272</b>	<b>CURRENT_FILTER_5_FREQUENCY</b>				<b>CR:</b>
D01 Hz	Natural frequency for current setpoint filter 5			MSD SLM FDD	2/4
HW:P2 840D	2000.000000	0.000000	8000.000000	FLOAT	Immediately
<b>1273</b>	<b>CURRENT_FILTER_5_DAMPING</b>				<b>CR:</b>
D01 -	Damping for current setpoint filter 5			MSD SLM FDD	2/4

HW:P2 840D	0.700000	0.050000	5.000000	FLOAT	Immediately
<b>1274</b>	<b>CURRENT_FILTER_5_SUPPR_FREQ</b>			CR:	
D01 Hz	Blocking frequency for current setpoint filter 5			MSD SLM FDD	2/4
HW:P2 840D	3500.000000	1.000000	7999.000000	FLOAT	Immediately
<b>1275</b>	<b>CURRENT_FILTER_5_BANDWIDTH</b>			CR:	
D01 Hz	-3dB bandwidth for current setpoint filter 5			MSD SLM FDD	2/4
HW:P2 840D	500.000000	5.000000	7999.000000	FLOAT	Immediately
<b>1276</b>	<b>CURRENT_FILTER_5_BW_NUM</b>			CR:	
D01, EXP Hz	Numerator bandwidth for damped bandwidth f. 5			MSD SLM FDD	2/4
HW:P2 840D	0.000000	0.000000	7999.000000	FLOAT	Immediately
<b>1277</b>	<b>CURRENT_FILTER_5_BS_FREQ</b>			CR:	
D01, EXP %	BSF-natural frequ. current setpoint filter 5			MSD SLM FDD	2/4
HW:P2 840D	100.000000	1.000000	100.000000	FLOAT	Immediately
<b>1278</b>	<b>CURRENT_FILTER_6_FREQUENCY</b>			CR:	
D01 Hz	Natural frequency for current setpoint filter 6			MSD SLM FDD	2/4
HW:P2 840D	2000.000000	0.000000	8000.000000	FLOAT	Immediately
<b>1279</b>	<b>CURRENT_FILTER_6_DAMPING</b>			CR:	
D01 -	Damping for current setpoint filter 6			MSD SLM FDD	2/4
HW:P2 840D	0.700000	0.050000	5.000000	FLOAT	Immediately
<b>1280</b>	<b>CURRENT_FILTER_6_SUPPR_FREQ</b>			CR:	
D01 Hz	Blocking frequency for current setpoint filter 6			MSD SLM FDD	2/4
HW:P2 840D	3500.000000	1.000000	7999.000000	FLOAT	Immediately
<b>1281</b>	<b>CURRENT_FILTER_6_BANDWIDTH</b>			CR:	
D01 Hz	-3dB bandwidth for current setpoint filter 6			MSD SLM FDD	2/4
HW:P2 840D	500.000000	5.000000	7999.000000	FLOAT	Immediately
<b>1282</b>	<b>CURRENT_FILTER_6_BW_NUM</b>			CR:	
D01, EXP Hz	Numerator bandwidth for damped bandstop filter 6			MSD SLM FDD	2/4
HW:P2 840D	0.000000	0.000000	7999.000000	FLOAT	Immediately
<b>1283</b>	<b>CURRENT_FILTER_6_BS_FREQ</b>			CR:	
D01, EXP %	BSF natural freq. current setpoint 6			MSD SLM FDD	2/4
HW:P2 840D	100.000000	1.000000	100.000000	FLOAT	Immediately
<b>1300</b>	<b>SAFETY_CYCLE_TIME</b>			CR: FBSI	
D07 31.25 µs	SI monitoring cycle			MSD SLM FDD	2/4
HW:P2 840D	384	16	800	UNS.WORD	Power On
<b>1300</b>	<b>SAFETY_CYCLE_TIME</b>			CR: / FBSI /	
D07 31.25 us	SI monitoring cycle (not 810D)			FDD/MSD   ROT/LIN	2/4   840D
HW:P2 840D	384	16	800	UNS. WORD	PowerOn
<b>1301</b>	<b>SAFE_FUNCTION_ENABLE</b>			CR: FBSI	

D07	Enable safety functions			MSD SLM FDD	2/4	
-						
HW:P2 840D	0x0000	0x0000	0xffffb	UNS.WORD	Power On	

<b>1301</b>	<b>SAFE_FUNCTION_ENABLE</b>				CR: / FBSI /	
D07	Enable safety functions (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
-	0	0	ffffb	UNS. WORD	PowerOn	

<b>1302</b>	<b>SAFE_IS_ROT_AX</b>				CR: FBSI	
D07	Axis-specific bits of safety functions			MSD SLM FDD	2/4	
-						
HW:P2 840D	0x0000	0x0000	0x0003	UNS.WORD	Power On	

<b>1302</b>	<b>SAFE_IS_ROT_AX</b>				CR: / FBSI /	
D07	Axis-specific bits of safety functions (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
-	0	0	3	UNS. WORD	PowerOn	

<b>1305</b>	<b>SAFE_MODULO_RANGE</b>				CR: FBSI	
D07	Actual value range for SN for rotary axes			MSD SLM FDD	2/4	
mdegrees						
HW:P2 840D	0	0	737280000	UNS.DWORD	Power On	

<b>1305</b>	<b>SAFE_MODULO_RANGE</b>				CR: / FBSI /	
D07	Actual value range for SN for rotary axes (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
mDegrees	0	0	737280000	UNS. DWORD	PowerOn	

<b>1316</b>	<b>SAFE_ENC_CONFIG</b>				CR: FBSI	
D07	Motor encoder configuration of safety functions			MSD SLM FDD	2/4	
-						
HW:P2 840D	0x0000	0x0000	0x0007	UNS.WORD	Power On	

<b>1316</b>	<b>SAFE_ENC_CONFIG</b>				CR: / FBSI /	
D07	Motor encoder configuration of safety functions (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
-	0	0	7	UNS. WORD	PowerOn	

<b>1317</b>	<b>SAFE_ENC_GRID_POINT_DIST</b>				CR: FBSI	
D07	Grid spacing of linear scale			MSD SLM FDD	2/4	
µm, mdegrees						
HW:P2 840D	10.000000	0.010000	8000.000000	FLOAT	Power On	

<b>1317</b>	<b>SAFE_ENC_GRID_POINT_DIST</b>				CR: / FBSI /	
D07	Grid spacing of linear scale (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
um, mDegrees	10.0000	0.0100	8000.0000	FLOAT	PowerOn	

<b>1318</b>	<b>SAFE_ENC_RESOL</b>				CR: FBSI	
D07	Encoder lines per revolution			MSD SLM FDD	2/4	
-						
HW:P2 840D	2048	1	100000	UNS.DWORD	Power On	

<b>1318</b>	<b>SAFE_ENC_RESOL</b>				CR: / FBSI /	
D07	Encoder lines per revolution (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
-	2048	1	100000	UNS. DWORD	PowerOn	

<b>1320</b>	<b>SAFE_ENC_GEAR_PITCH</b>				CR: FBSI	
D07	Spindle pitch			MSD SLM FDD	2/4	
mm/rev						
HW:P2 840D	10.000000	0.100000	8388.000000	FLOAT	Power On	

<b>1320</b>	<b>SAFE_ENC_GEAR_PITCH</b>				CR: / FBSI /	
D07	Spindle pitch (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
mm/rev	10.0000	0.1000	8388.0000	FLOAT	PowerOn	

<b>1321</b>	<b>SAFE_ENC_GEAR_DENOM</b>				<b>CR: FBSI</b>	
D07	Denominator of gear unit encoder / load			MSD SLM FDD	2/4	
-						
HW:P2 840D	1	1	8388607	UNS.DWORD	Power On	
<b>1321</b>	<b>SAFE_ENC_GEAR_DENOM [n] 0 ...7 Index of param.-set</b>				<b>CR: / FBSI /</b>	
D07	Denominator of gear unit encoder / load (not 810D)			FDD/MSD   ROT/LIN	2/4	<b>840D</b>
-	1	1	8388607	UNS. DWORD	PowerOn	
<b>1322</b>	<b>SAFE_ENC_GEAR_NUMERA</b>				<b>CR: FBSI</b>	
D07	Numerator of gear unit encoder / load			MSD SLM FDD	2/4	
-						
HW:P2 840D	1	1	8388607	UNS.DWORD	Power On	
<b>1322</b>	<b>SAFE_ENC_GEAR_NUMERA [n] 0 ...7 Index of param.-set</b>				<b>CR: / FBSI /</b>	
D07	Numerator of gear unit encoder / load (not 810D)			FDD/MSD   ROT/LIN	2/4	<b>840D</b>
-	1	1	8388607	UNS. DWORD	PowerOn	
<b>1326</b>	<b>SAFE_ENC_FREQ_LIMIT</b>				<b>CR: DB1</b>	
D07	Encoder limit frequency			MSD SLM FDD	2/4	
Hz						
HW:P2 840D	300000	300000	420000	UNS.DWORD	Power On	
<b>1330</b>	<b>SAFE_STANDSTILL_TOL</b>				<b>CR: FBSI</b>	
D07	Standstill tolerance (SBH)			MSD SLM FDD	2/4	
µm, mdegrees						
HW:P2 840D	1000	1	100000	DWORD	Power On	
<b>1330</b>	<b>SAFE_STANDSTILL_TOL</b>				<b>CR: / FBSI /</b>	
D07	Standstill tolerance (SBH) (not 810D)			FDD/MSD   ROT/LIN	2/4	<b>840D</b>
um, mDegrees	1000	1	100000	DWORD	PowerOn	
<b>1331</b>	<b>SAFE_VELO_LIMIT</b>				<b>CR: FBSI</b>	
D07	Limit values for SG			MSD SLM FDD	2/4	
mm/min, rpm						
HW:P2 840D	2000.000000	0.000000	1000000.000000	FLOAT	Power On	
			0			
<b>1331</b>	<b>SAFE_VELO_LIMIT [n] 0 ...3 Index of param.-set</b>				<b>CR: / FBSI /</b>	
D07	Limit values for SG (not 810D)			FDD/MSD   ROT/LIN	2/4	<b>840D</b>
mm/min, rev/min	2000.0000	0.0000	1000000.0000	FLOAT	PowerOn	
<b>1332</b>	<b>SAFE_VELO_OVR_FACTOR</b>				<b>CR: FBSI</b>	
D07	Override factor for SG			MSD SLM FDD	2/4	
%						
HW:P2 840D	100	1	100	UNS.WORD	Power On	
<b>1332</b>	<b>SAFE_VELO_OVR_FACTOR [n] 0 ...15 Index of param.-set</b>				<b>CR: / FBSI /</b>	
D07	Override factor for SG (not 810D)			FDD/MSD   ROT/LIN	2/4	<b>840D</b>
%	100	1	100	UNS. WORD	PowerOn	
<b>1334</b>	<b>SAFE_POS_LIMIT_PLUS</b>				<b>CR: FBSI</b>	
D07	Upper limit value for SE			MSD SLM FDD	2/4	
µm, mdegrees						
HW:P2 840D	100000000	-2147000000	2147000000	DWORD	Power On	
<b>1334</b>	<b>SAFE_POS_LIMIT_PLUS [n] 0 ...1 Index of param.-set</b>				<b>CR: / FBSI /</b>	
D07	Upper limit value for SE (not 810D)			FDD/MSD   ROT/LIN	2/4	<b>840D</b>
um, mDegrees	100000000	-2147000000	2147000000	DWORD	PowerOn	
<b>1335</b>	<b>SAFE_POS_LIMIT_MINUS</b>				<b>CR: FBSI</b>	

D07 µm, mdegrees	Lower limit value for SE			MSD SLM FDD	2/4	
HW:P2 840D	-100000000	-2147000000	2147000000	DWORD	Power On	
<b>1335</b>	<b>SAFE_POS_LIMIT_MINUS [n] 0 ...1 Index of param.-set</b>				CR: / FBSI /	
D07	Lower limit value for SE (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
um, mDegrees	-100000000	-2147000000	2147000000	DWORD	PowerOn	
<b>1336</b>	<b>SAFE_CAM_POS_PLUS</b>				CR: FBSI	
D07 µm, mdegrees	Plus cam position SN			MSD SLM FDD	2/4	
HW:P2 840D	10000	-2147000000	2147000000	DWORD	Power On	
<b>1336</b>	<b>SAFE_CAM_POS_PLUS [n] 0 ...3 Index of param.-set</b>				CR: / FBSI /	
D07	Plus cam position SN (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
um, mDegrees	10000	-2147000000	2147000000	DWORD	PowerOn	
<b>1337</b>	<b>SAFE_CAM_POS_MINUS</b>				CR: FBSI	
D07 µm, mdegrees	Minus cam position SN			MSD SLM FDD	2/4	
HW:P2 840D	-10000	-2147000000	2147000000	DWORD	Power On	
<b>1337</b>	<b>SAFE_CAM_POS_MINUS [n] 0 ...3 Index of param.-set</b>				CR: / FBSI /	
D07	Minus cam position SN (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
um, mDegrees	-10000	-2147000000	2147000000	DWORD	PowerOn	
<b>1340</b>	<b>SAFE_CAM_TOL</b>				CR: FBSI	
D07 µm, mdegrees	Tolerance for safe cams			MSD SLM FDD	2/4	
HW:P2 840D	100	1	10000	DWORD	Power On	
<b>1340</b>	<b>SAFE_CAM_TOL</b>				CR: / FBSI /	
D07	Tolerance for safe cams (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
um, mDegrees	100	1	10000	DWORD	PowerOn	
<b>1342</b>	<b>SAFE_POS_TOL</b>				CR: FBSI	
D07 µm, mdegrees	Actual value tolerance for the cross-check			MSD SLM FDD	2/4	
HW:P2 840D	100	1	360000	DWORD	Power On	
<b>1342</b>	<b>SAFE_POS_TOL</b>				CR: / FBSI /	
D07	Actual value tolerance for the cross-check (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
um, mDegrees	100	1	360000	DWORD	PowerOn	
<b>1344</b>	<b>SAFE_REFP_POS_TOL</b>				CR: FBSI	
D07 µm, mdegrees	Actual value tolerance safe axis position			MSD SLM FDD	2/4	
HW:P2 840D	10	0	36000	DWORD	Power On	
<b>1344</b>	<b>SAFE_REFP_POS_TOL</b>				CR: / FBSI /	
D07	Actual value tolerance safe axis position (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
um, mDegrees	10	0	36000	DWORD	PowerOn	
<b>1346</b>	<b>SAFE_VELO_X</b>				CR: FBSI	
D07 mm/min, rpm	Speed limit nx			MSD SLM FDD	2/4	
HW:P2 840D	20.000000	0.000000	1000.000000	FLOAT	Power On	
<b>1346</b>	<b>SAFE_VELO_X</b>				CR: / FBSI /	
D07	Speed limit nx (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
mm/min, rev/min	20.0000	0.0000	1000.0000	FLOAT	PowerOn	

<b>1348</b>	<b>SAFE_STOP_VELO_TOL</b>				CR: <b>FBSI</b>
D07	Actual speed tolerance for SBR			MSD SLM FDD	2/4
mm/min, rpm					
HW:P2 840D	300.000000	0.000000	20000.000000	FLOAT	Power On
<b>1348</b>	<b>SAFE_STOP_VELO_TOL</b>				CR: / <b>FBSI</b> /
D07	Actual speed tolerance for SBR (not 810D)			FDD/MSD ROT/LIN	2/4 <b>840D</b>
mm/min, rev/min					
	300.0000	0.0000	20000.0000	FLOAT	PowerOn
<b>1349</b>	<b>SAFE_SLIP_VELO_TOL</b>				CR: <b>FBSI</b>
D07	Tolerance 2 encoder drift/slip			MSD SLM FDD	2/4
mm/min, rpm					
HW:P2 840D	6.000000	0.000000	1000.000000	FLOAT	Power On
<b>1349</b>	<b>SAFE_SLIP_VELO_TOL</b>				CR: / <b>FBSI</b> /
D07	Tolerance 2 encoder drift/slip (not 810D)			FDD/MSD ROT/LIN	2/4 <b>840D</b>
mm/min, rev/min					
	6.0000	0.0000	1000.0000	FLOAT	PowerOn
<b>1350</b>	<b>SAFE_MODE_SWITCH_TIME</b>				CR: <b>FBSI</b>
D07	Tolerance time for SGE changeover			MSD SLM FDD	2/4
ms					
HW:P2 840D	500.000000	0.000000	10000.000000	FLOAT	Power On
<b>1350</b>	<b>SAFE_MODE_SWITCH_TIME</b>				CR: / <b>FBSI</b> /
D07	Tolerance time for SGE changeover (not 810D)			FDD/MSD ROT/LIN	2/4 <b>840D</b>
ms					
	500.0000	0.0000	10000.0000	FLOAT	PowerOn
<b>1351</b>	<b>SAFE_VELO_SWITCH_DELAY</b>				CR: <b>FBSI</b>
D07	Delay time for SG changeover			MSD SLM FDD	2/4
ms					
HW:P2 840D	100.000000	0.000000	60000.000000	FLOAT	Power On
<b>1351</b>	<b>SAFE_VELO_SWITCH_DELAY</b>				CR: / <b>FBSI</b> /
D07	Delay time for SG changeover (not 810D)			FDD/MSD ROT/LIN	2/4 <b>840D</b>
ms					
	100.0000	0.0000	60000.0000	FLOAT	PowerOn
<b>1352</b>	<b>SAFE_STOP_SWITCH_TIME_C</b>				CR: <b>FBSI</b>
D07	Transition time from STOP C to SBH			MSD SLM FDD	2/4
ms					
HW:P2 840D	100.000000	0.000000	10000.000000	FLOAT	Power On
<b>1352</b>	<b>SAFE_STOP_SWITCH_TIME_C</b>				CR: / <b>FBSI</b> /
D07	Transition time from STOP C to SBH (not 810D)			FDD/MSD ROT/LIN	2/4 <b>840D</b>
ms					
	100.0000	0.0000	10000.0000	FLOAT	PowerOn
<b>1353</b>	<b>SAFE_STOP_SWITCH_TIME_D</b>				CR: <b>FBSI</b>
D07	Transition time from STOP D to SBH			MSD SLM FDD	2/4
ms					
HW:P2 840D	100.000000	0.000000	60000.000000	FLOAT	Power On
<b>1353</b>	<b>SAFE_STOP_SWITCH_TIME_D</b>				CR: / <b>FBSI</b> /
D07	Transition time from STOP D to SBH (not 810D)			FDD/MSD ROT/LIN	2/4 <b>840D</b>
ms					
	100.0000	0.0000	60000.0000	FLOAT	PowerOn
<b>1354</b>	<b>SAFE_STOP_SWITCH_TIME_E</b>				CR: <b>FBSI</b>
D07	Transition time from STOP E to SBH			MSD SLM FDD	2/4
ms					
HW:P2 840D	100.000000	0.000000	60000.000000	FLOAT	Power On
<b>1354</b>	<b>SAFE_STOP_SWITCH_TIME_E</b>				CR: / <b>FBSI</b> /
D07	Transition time from STOP E to SBH (not 810D)			FDD/MSD ROT/LIN	2/4 <b>840D</b>
ms					
	100.0000	0.0000	60000.0000	FLOAT	PowerOn



<b>1355</b>	<b>SAFE_STOP_SWITCH_TIME_F</b>				CR: <b>FBSI</b>
D07	Transition period from STOP F to STOP B			MSD SLM FDD	2/4
ms					
HW:P2 840D	0.000000	0.000000	60000.000000	FLOAT	Power On
<b>1355</b>	<b>SAFE_STOP_SWITCH_TIME_F</b>				CR: / <b>FBSI</b> /
D07	Transition time from STOP F to Stop B (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
ms	0.0000	0.0000	60000.0000	FLOAT	PowerOn
<b>1356</b>	<b>SAFE_PULSE_DISABLE_DELAY</b>				CR: <b>FBSI</b>
D07	Delay time for pulse suppression			MSD SLM FDD	2/4
ms					
HW:P2 840D	100.000000	0.000000	10000.000000	FLOAT	Power On
<b>1356</b>	<b>SAFE_PULSE_DISABLE_DELAY</b>				CR: / <b>FBSI</b> /
D07	Delay time for pulse suppression (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
ms	100.0000	0.0000	10000.0000	FLOAT	PowerOn
<b>1357</b>	<b>SAFE_PULSE_DIS_CHECK_TIME</b>				CR: <b>FBSI</b>
D07	Time for testing pulse suppression			MSD SLM FDD	2/4
ms					
HW:P2 840D	100.000000	0.000000	10000.000000	FLOAT	Power On
<b>1357</b>	<b>SAFE_PULSE_DIS_CHECK_TIME</b>				CR: / <b>FBSI</b> /
D07	Time for testing pulse suppression (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
ms	100.0000	0.0000	10000.0000	FLOAT	PowerOn
<b>1358</b>	<b>SAFE_ACC_TEST_TIMEOUT</b>				CR: <b>FBSI</b>
D07	SI acceptance test timer			MSD SLM FDD	2/4
ms					
HW:P2 840D	40000.0	5000.0	100000.0	FLOAT	Power On
<b>1358</b>	<b>SAFE_ACC_TEST_TIMEOUT</b>				CR: / <b>FBSI</b> /
D07	Acceptance test monitoring (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
ms	40000.0000	5000.0000	100000.0000	FLOAT	PowerOn
<b>1360</b>	<b>SAFE_STANDSTILL_VELO_TOL</b>				CR: <b>FBSI</b>
D07	Creep speed pulse suppression			MSD SLM FDD	2/4
mm/min, rpm					
HW:P2 840D	0.000000	0.000000	1000.000000	FLOAT	Power On
<b>1360</b>	<b>SAFE_STANDSTILL_VELO_TOL</b>				CR: / <b>FBSI</b> /
D07	Creep speed pulse suppression (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
mm/min, rev/min	0.0000	0.0000	1000.0000	FLOAT	PowerOn
<b>1361</b>	<b>SAFE_VELO_STOP_MODE</b>				CR: <b>FBSI</b>
D07	Stop reaction with SG			MSD SLM FDD	2/4
-					
HW:P2 840D	5	0	14	UNS.WORD	Power On
<b>1361</b>	<b>SAFE_VELO_STOP_MODE</b>				CR: / <b>FBSI</b> /
D07	Stop reaction with SG (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
-	5	0	14	UNS. WORD	PowerOn
<b>1362</b>	<b>SAFE_POS_STOP_MODE</b>				CR: <b>FBSI</b>
D07	Stop reaction with SE			MSD SLM FDD	2/4
-					
HW:P2 840D	2	2	4	UNS.WORD	Power On

<b>1362</b>	<b>SAFE_POS_STOP_MODE</b>				CR: / FBSI /	
D07	Stop reaction with SE (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
-	2	2	4	UNS. WORD		PowerOn
<b>1363</b>	<b>SAFE_VELO_STOP_REACTION</b>				CR: FBSI	
D07	Specific SG stop reaction			MSD SLM FDD		2/4
-						
HW:P2 840D	2	0	14	UNS.WORD		Power On
<b>1363</b>	<b>SAFE_VELO_STOP_REACTION [n] 0 ...3 Index of param.-set</b>				CR: / FBSI /	
D07	Specific SG stop reaction (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
-	2	0	14	UNS. WORD		PowerOn
<b>1370</b>	<b>SAFE_TEST_MODE</b>				CR: FBSI	
D07	SI acceptance test mode			MSD SLM FDD		2/4
-						
HW:P2 840D	0	0	0x00AC	UNS.WORD		Immediately
<b>1370</b>	<b>SAFE_TEST_MODE</b>				CR: / FBSI /	
D07	Acceptance test mode (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
-	0	0	ac	UNS. WORD		immediately
<b>1371</b>	<b>SAFE_TEST_STATE</b>				CR: FBSI	
D07	SI acceptance test status			MSD SLM FDD		2/4
-						
HW:P2 840D	0	0	0x00AC	UNS.WORD		Immediately
<b>1371</b>	<b>SAFE_TEST_STATE</b>				CR: / FBSI /	
D07	Acceptance test state (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
-	0	0	ac	UNS. WORD		immediately
<b>1380</b>	<b>SAFE_PULSE_DIS_TIME_FAIL</b>				CR: FBSI	
D07	Time until pulse suppression			MSD SLM FDD		2/4
ms						
HW:P2 840D	0.000000	0.000000	800.000000	FLOAT		Power On
<b>1380</b>	<b>SAFE_PULSE_DIS_TIME_FAIL</b>				CR: / FBSI /	
D07	Time remaining until pulse suppression (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
ms	0.0000	0.0000	800.0000	FLOAT		PowerOn
<b>1390</b>	<b>SAFE_FIRMWARE_VERSION</b>				CR: FBSI	
D07	Firmware			MSD SLM FDD		2/4
-						
HW:P2 840D	0	0	4294967295	UNS.DWORD		Immediately
<b>1390</b>	<b>SAFE_FIRMWARE_VERSION</b>				CR: / FBSI /	
D07	Firmware (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
-	0	0	2147483647	UNS. DWORD		immediately
<b>1391</b>	<b>SAFE_DIAG_NC_RESULTLIST1</b>				CR: FBSI	
D07	Diagnostics: NC result list 1			MSD SLM FDD		2/4
-						
HW:P2 840D	0	0	4294967295	UNS.DWORD		Immediately
<b>1391</b>	<b>SAFE_DIAG_NC_RESULTLIST1</b>				CR: / FBSI /	
D07	Diagnostics: NC result list 1 (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
-	0	0	2147483647	UNS. DWORD		immediately
<b>1392</b>	<b>SAFE_DIAG_611D_RESULTLIST1</b>				CR: FBSI	
D07	Diagnostics: 611D result list 1			MSD SLM FDD		2/4
-						
HW:P2 840D	0	0	4294967295	UNS.DWORD		Immediately

<b>1392</b>	<b>SAFE_DIAG_611D_RESULTLIST1</b>				<b>CR: / FBSI /</b>	
D07	Diagnostics: 611D result list 1 (not 810D)			FDD/MSD	ROT/LIN	2/4
-	0	0	2147483647	UNS. DWORD		<b>840D</b>
						immediately
<b>1393</b>	<b>SAFE_DIAG_NC_RESULTLIST2</b>				<b>CR: FBSI</b>	
D07	Diagnostics: NC result list 2			MSD SLM FDD		2/4
-						
HW:P2 840D	0	0	4294967295	UNS.DWORD		Immediately
<b>1393</b>	<b>SAFE_DIAG_NC_RESULTLIST2</b>				<b>CR: / FBSI /</b>	
D07	Diagnostics: NC result list 2 (not 810D)			FDD/MSD	ROT/LIN	2/4
-	0	0	2147483647	UNS. DWORD		<b>840D</b>
						immediately
<b>1394</b>	<b>SAFE_DIAG_611D_RESULTLIST2</b>				<b>CR: FBSI</b>	
D07	Diagnostics: 611D result list 2			MSD SLM FDD		2/4
-						
HW:P2 840D	0	0	4294967295	UNS.DWORD		Immediately
<b>1394</b>	<b>SAFE_DIAG_611D_RESULTLIST2</b>				<b>CR: / FBSI /</b>	
D07	Diagnostics: 611D result list 2 (not 810D)			FDD/MSD	ROT/LIN	2/4
-	0	0	2147483647	UNS. DWORD		<b>840D</b>
						immediately
<b>1395</b>	<b>SAFE_STOP_F_DIAGNOSIS</b>				<b>CR: FBSI</b>	
D07	Diagnostics for STOP F			MSD SLM FDD		2/4
-						
HW:P2 840D	32767	0	32767	WORD		Immediately
<b>1395</b>	<b>SAFE_STOP_F_DIAGNOSIS</b>				<b>CR: / FBSI /</b>	
D07	Diagnostics for STOP F (not 810D)			FDD/MSD	ROT/LIN	2/4
-	32767	0	32767	WORD		<b>840D</b>
						immediately
<b>1396</b>	<b>SAFE_ACKN_WRITE</b>				<b>CR: FBSI</b>	
D07	User agreement			MSD SLM FDD		2/4
-						
HW:P2 840D	0x0000	0x0000	0xffff	UNS.WORD		Immediately
<b>1396</b>	<b>SAFE_ACKN_WRITE</b>				<b>CR: / FBSI /</b>	
D07	User agreement (not 810D)			FDD/MSD	ROT/LIN	2/4
-	0	0	ffff	UNS. WORD		<b>840D</b>
						immediately
<b>1397</b>	<b>SAFE_ACKN_READ</b>				<b>CR: FBSI</b>	
D07	611D internal agreement			MSD SLM FDD		2/4
-						
HW:P2 840D	0x0000	0x0000	0xffff	UNS.WORD		Immediately
<b>1397</b>	<b>SAFE_ACKN_READ</b>				<b>CR: / FBSI /</b>	
D07	611D internal agreement (not 810D)			FDD/MSD	ROT/LIN	2/4
-	0	0	ffff	UNS. WORD		<b>840D</b>
						immediately
<b>1398</b>	<b>SAFE_ACT_CHECKSUM</b>				<b>CR: FBSI</b>	
D07	Display of SI-MD check sum			MSD SLM FDD		2/4
-						
HW:P2 840D	0	0	4294967295	UNS.DWORD		Immediately
<b>1398</b>	<b>SAFE_ACT_CHECKSUM</b>				<b>CR: / FBSI /</b>	
D07	Display of SI-MD check sum (not 810D)			FDD/MSD	ROT/LIN	2/4
-	0	0	2147483647	UNS. DWORD		<b>840D</b>
						immediately
<b>1399</b>	<b>SAFE_DES_CHECKSUM</b>				<b>CR: FBSI</b>	
D07	SI-MD check sum			MSD SLM FDD		2/4
-						

HW:P2 840D	0	0	4294967295	UNS.DWORD	Power On
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<b>1399</b>	<b>SAFE_DES_CHECKSUM</b>				CR: / FBSI /
D07	SI-MD check sum (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
-	0	0	2147483647	UNS. DWORD	PowerOn

<b>1400</b>	<b>MOTOR_RATED_SPEED</b>				CR: <b>DM1, DL1</b>
D05 ROT: 1/min LIN: m/min	Rated motor speed			MSD SLM FDD	2/4
HW:P2	0.000000	0.000000	100000.000000	FLOAT	Power On

<b>1400</b>	<b>MOTOR_RATED_SPEED</b>				CR: / <b>DM1/</b>
	Rated motor speed			FDD/MSD	2/4   <b>810D</b>
1/min	0.0000	0.0000	25000.0000	FLOAT	PowerOn

<b>1400</b>	<b>MOTOR_RATED_SPEED</b>				CR: / <b>DL1/</b>
D05	Rated motor speed			FDD   LIN	2/4   <b>840D</b>
m/min	0.0000	0.0000	100000.0000	FLOAT	PowerOn

<b>1400</b>	<b>MOTOR_RATED_SPEED</b>				CR: / <b>DM1 /</b>
D05	Rated motor speed			FDD/MSD   ROT	2/4   <b>840D</b>
1/min	0.0000	0.0000	100000.0000	FLOAT	PowerOn
	HSA: 1450.0000				

<b>1401</b>	<b>MOTOR_MAX_SPEED</b>				CR: <b>DD1, DL1</b>
D02, D05 ROT: 1/min LIN: m/min	Maximum usable motor speed			MSD SLM FDD	2/4
HW:P2	0.000000	0.000000	100000.000000	FLOAT	Power On

<b>1401</b>	<b>MOTOR_MAX_SPEED [n] 0 ...7 Index of param.-set</b>				CR: / <b>DD1/</b>
	Maximum usable motor speed			FDD/MSD	2/4   <b>810D</b>
1/min	0.0000	0.0000	50000.0000	FLOAT	PowerOn

<b>1401</b>	<b>MOTOR_MAX_SPEED [n] 0 ...7 Index of param.-set</b>				CR: / <b>DD1 /</b>
D02, D05	Maximum usable motor speed			FDD/MSD   ROT	2/4   <b>840D</b>
1/min	0.0000	0.0000	100000.0000	FLOAT	PowerOn

<b>1401</b>	<b>MOTOR_MAX_SPEED [n] 0 ...7 Index of param.-set</b>				CR: / <b>DL1/</b>
D02, D05	Maximum motor operating speed			FDD   LIN	2/4   <b>840D</b>
m/min	0.0000	0.0000	100000.0000	FLOAT	PowerOn

<b>1403</b>	<b>PULSE_SUPPRESSION_SPEED</b>				CR: <b>DB1, DL1</b>
D02 ROT: 1/min LIN: m/min	Shut down speed pulse suppression			MSD SLM FDD	2/4
HW:P2	0.000000	0.000000	7200.000000	FLOAT	Immediately

<b>1403</b>	<b>PULSE_SUPPRESSION_SPEED</b>				CR: / <b>DB1 /</b>
D02	Shut down speed pulse suppression			FDD/MSD   ROT	2/4
1/min	0.0000	0.0000	7200.0000	FLOAT	immediately
	HSA: 2.0000				

<b>1403</b>	<b>PULSE_SUPPRESSION_SPEED</b>				CR: / <b>DL1/</b>
D02	Switch-off speed for cancelling of pulses			FDD   LIN	2/4
m/min	0.0000	0.0000	7200.0000	FLOAT	immediately

<b>1404</b>	<b>PULSE_SUPPRESSION_DELAY</b>				CR: <b>DB1</b>
D02 ms	Timer impulse suppression			MSD SLM FDD	2/4
HW:P2	100.000000	0.000000	100000.000000	FLOAT	Immediately

1404	PULSE_SUPPRESSION_DELAY					CR: / DB1 /	
D02	Timer impulse suppression			FDD/MSD	ROT/LIN	2/4	
ms	100.0000	0.0000	100000.0000	FLOAT		immediately	
	HSA: 5000.0000						
1405	MOTOR_SPEED_LIMIT					CR: DÜ1, DL1	
D02, D05	Monitoring motor speed			MSD SLM FDD		2/4	
%							
HW:P2	110.000000	100.000000	110.000000	FLOAT		Immediately	
1405	MOTOR_SPEED_LIMIT [n] 0 ...7 Index of param.-set					CR: /DÜ1 /	
D02, D05	Monitoring motor speed			FDD/MSD	ROT	2/4	
%	110.0000	100.0000	110.0000	FLOAT		immediately	
1405	MOTOR_SPEED_LIMIT [n] 0 ...7 Index of param.-set					CR: / DL1/	
D02, D05	Monitoring speed of motor			FDD	LIN	2/4	
%	110.0000	100.0000	110.0000	FLOAT		immediately	
1406	SPEEDCTRL_TYPE					CR: DD2	
EXP	Speed controller type			MSD SLM FDD		0/0	
-							
HW:P2	1	1	1	UNS.WORD		Power On	
1406	SPEEDCTRL_TYPE					CR: / DD2 /	
EXP	Speed controller type (not 810D)			FDD/MSD	ROT/LIN	0/0	840D
-	1	1	1	UNS. WORD		PowerOn	
1407	SPEEDCTRL_GAIN_1					CR: DD2, DL1	
D01, D08	P gain of speed controller			MSD SLM FDD		2/4	
ROT: Nms/rad							
LIN: Ns/m							
HW:P2	ROT: 0.300000	0.000000	1000000.00000	FLOAT		Immediately	
	LIN: 2000.000000		0				
1407	SPEEDCTRL_GAIN_1 [n] 0 ...7 Index of param.-set					CR: / DD2/	
	P gain of speed controller			FDD/MSD		2/4	810D
Nms/rad	0.3000	0.0000	100000.0000	FLOAT		immediately	
1407	SPEEDCTRL_GAIN_1 [n] 0 ...7 Index of param.-set					CR: / DL1/	
D01, D08	P gain speed control			FDD	LIN	2/4	840D
Ns/m	2000.0000	0.0000	1000000.0000	FLOAT		immediately	
1407	SPEEDCTRL_GAIN_1 [n] 0 ...7 Index of param.-set					CR: /DD2 /	
D01, D08	P gain of speed controller			FDD/MSD	ROT	2/4	840D
Nms/rad	0.3000	0.0000	1000000.0000	FLOAT		immediately	
1408	SPEEDCTRL_GAIN_2					CR: DD2, DL1	
D01, EXP	P gain of upper adaptation speed			MSD SLM FDD		2/4	
ROT: Nms/rad							
LIN: Ns/m							
HW:P2	ROT: 0.300000	0.000000	1000000.00000	FLOAT		Immediately	
	LIN: 2000.000000		0				
1408	SPEEDCTRL_GAIN_2 [n] 0 ...7 Index of param.-set					CR: / DD2/	
	P gain of upper adaptation speed			FDD/MSD		2/4	810D
Nms/rad	0.3000	0.0000	100000.0000	FLOAT		immediately	
1408	SPEEDCTRL_GAIN_2 [n] 0 ...7 Index of param.-set					CR: / DL1/	
D01, EXP	P gain upper adaption speed			FDD	LIN	2/4	840D
Ns/m	2000.0000	0.0000	1000000.0000	FLOAT		immediately	

<b>1408</b>	<b>SPEEDCTRL_GAIN_2 [n] 0 ...7 Index of param.-set</b>	CR: /DD2 /				
D01, EXP	P gain of upper adaptation speed	FDD/MSD	ROT	2/4	840D	
Nms/rad	0.3000	0.0000	1000000.0000	FLOAT	immediately	
<b>1409</b>	<b>SPEEDCTRL_INTEGRATOR_TIME_1</b>	CR: DD2, DL1				
D01, D08 ms	Integral action time of speed controller	MSD SLM FDD		2/4		
HW:P2	10.000000	0.000000	500.000000	FLOAT	Immediately	
<b>1409</b>	<b>SPEEDCTRL_INTEGRATOR_TIME_1 [n] 0 ...7 Index of param.-set</b>	CR: /DD2 /				
D01, D08	Integral action time of speed controller	FDD/MSD	ROT	2/4		
ms	10.0000	0.0000	500.0000	FLOAT	immediately	
<b>1409</b>	<b>SPEEDCTRL_INTEGRATOR_TIME_1 [n] 0 ...7 Index of param.-set</b>	CR: / DL1/				
D01, D08	Integral action time of speed controller	FDD	LIN	2/4		
ms	10.0000	0.0000	500.0000	FLOAT	immediately	
<b>1410</b>	<b>SPEEDCTRL_INTEGRATOR_TIME_2</b>	CR: DD2, DL1				
D01, EXP ms	Integral action time of upper adaptation speed	MSD SLM FDD		2/4		
HW:P2	10.000000	0.000000	500.000000	FLOAT	Immediately	
<b>1410</b>	<b>SPEEDCTRL_INTEGRATOR_TIME_2 [n] 0 ...7 Index of param.-set</b>	CR: /DD2 /				
D01, EXP	Integral action time of upper adaptation speed	FDD/MSD	ROT	2/4		
ms	10.0000	0.0000	500.0000	FLOAT	immediately	
<b>1410</b>	<b>SPEEDCTRL_INTEGRATOR_TIME_2 [n] 0 ...7 Index of param.-set</b>	CR: / DL1/				
D01, EXP	Integral action time of upper adaption speed	FDD	LIN	2/4		
ms	10.0000	0.0000	500.0000	FLOAT	immediately	
<b>1411</b>	<b>SPEEDCTRL_ADAPT_SPEED_1</b>	CR: DD2, DL1				
D01, EXP ROT: 1/min LIN: m/min	Lower adaptation speed	MSD SLM FDD		2/4		
HW:P2	0.000000	0.000000	100000.000000	FLOAT	Immediately	
<b>1411</b>	<b>SPEEDCTRL_ADAPT_SPEED_1</b>	CR: / DD2/				
	Lower adaptation speed	FDD/MSD		2/4	810D	
1/min	0.0000	0.0000	50000.0000	FLOAT	immediately	
<b>1411</b>	<b>SPEEDCTRL_ADAPT_SPEED_1</b>	CR: /DD2 /				
D01, EXP	Lower adaptation speed	FDD/MSD	ROT	2/4	840D	
1/min	0.0000	0.0000	100000.0000	FLOAT	immediately	
<b>1411</b>	<b>SPEEDCTRL_ADAPT_SPEED_1</b>	CR: / DL1/				
D01, EXP	Lower adaption speed threshold	FDD	LIN	2/4	840D	
m/min	0.0000	0.0000	100000.0000	FLOAT	immediately	
<b>1412</b>	<b>SPEEDCTRL_ADAPT_SPEED_2</b>	CR: DD2, DL1				
D01, EXP ROT: 1/min LIN: m/min	Upper adaptation speed	MSD SLM FDD		2/4		
HW:P2	0.000000	0.000000	100000.000000	FLOAT	Immediately	
<b>1412</b>	<b>SPEEDCTRL_ADAPT_SPEED_2</b>	CR: / DD2/				
	Upper adaptation speed	FDD/MSD		2/4	810D	
1/min	0.0000	0.0000	50000.0000	FLOAT	immediately	
<b>1412</b>	<b>SPEEDCTRL_ADAPT_SPEED_2</b>	CR: / DL1/				
D01, EXP	Upper adaption speed threshold	FDD	LIN	2/4	840D	
m/min	0.0000	0.0000	100000.0000	FLOAT	immediately	

<b>1412</b>	<b>SPEEDCTRL_ADAPT_SPEED_2</b>	CR: /DD2 /			
D01, EXP	Upper adaptation speed	FDD/MSD	ROT	2/4	<b>840D</b>
1/min	0.0000	0.0000	100000.0000	FLOAT	immediately
<b>1413</b>	<b>SPEEDCTRL_ADAPT_ENABLE</b>	CR: DD2, DL1			
D01, EXP	Select adaptation speed controller	MSD SLM FDD		2/4	
-					
HW:P2	0	0	1	UNS.WORD	Immediately
<b>1413</b>	<b>SPEEDCTRL_ADAPT_ENABLE</b>	CR: /DD2 /			
D01, EXP	Select adaptation speed controller	FDD/MSD	ROT	2/4	
-	0	0	1	UNS. WORD	immediately
<b>1413</b>	<b>SPEEDCTRL_ADAPT_ENABLE</b>	CR: / DL1/			
D01, EXP	Select adaptation speed controller	FDD	LIN	2/4	
-	0	0	1	UNS. WORD	immediately
<b>1414</b>	<b>SPEEDCTRL_REF_MODEL_FREQ</b>	CR: DD2, DL1			
D01, EXP	Natural frequency for the reference model speed	MSD SLM FDD		2/4	
Hz					
HW:P2	0.000000	0.000000	8000.000000	FLOAT	Immediately
<b>1414</b>	<b>SPEEDCTRL_REF_MODEL_FREQ [n] 0 ...7 Index of param.-set</b>	CR: /DD2 /			
D01, EXP	Natural frequency for the reference model speed (not 810D)	FDD/MSD	ROT	2/4	<b>840D</b>
Hz	0.0000	0.0000	8000.0000	FLOAT	immediately
<b>1414</b>	<b>SPEEDCTRL_REF_MODEL_FREQ [n] 0 ...7 Index of param.-set</b>	CR: / DL1/			
D01, EXP	Natural frequency for the reference model speed (not 810D)	FDD	LIN	2/4	<b>840D</b>
Hz	0.0000	0.0000	8000.0000	FLOAT	immediately
<b>1415</b>	<b>SPEEDCTRL_REF_MODEL_DAMPING</b>	CR: DD2, DL1			
D01, EXP	Damping of reference model speed	MSD SLM FDD		2/4	
-					
HW:P2	1.000000	0.500000	5.000000	FLOAT	Immediately
<b>1415</b>	<b>SPEEDCTRL_REF_MODEL_DAMPING [n] 0 ...7 Index of param.-set</b>	CR: /DD2 /			
D01, EXP	Damping of reference model speed (not 810D)	FDD/MSD	ROT	2/4	<b>840D</b>
-	1.0000	0.5000	5.0000	FLOAT	immediately
<b>1415</b>	<b>SPEEDCTRL_REF_MODEL_DAMPING [n] 0 ...7 Index of param.-set</b>	CR: / DL1/			
D01, EXP	Damping of reference model speed (not 810D)	FDD	LIN	2/4	<b>840D</b>
-	1.0000	0.5000	5.0000	FLOAT	immediately
<b>1416</b>	<b>SPEEDCTRL_REF_MODEL_DELAY</b>	CR: DD2, DL1			
D01, EXP	Balancing the reference model speed	MSD SLM FDD		2/4	
-					
HW:P2	0.000000	0.000000	1.000000	FLOAT	Immediately
<b>1416</b>	<b>SPEEDCTRL_REF_MODEL_DELAY</b>	CR: / DL1/			
D01, EXP	Balancing the reference model speed (not 810D)	FDD	LIN	2/4	<b>840D</b>
-	0.0000	0.0000	1.0000	FLOAT	immediately
<b>1416</b>	<b>SPEEDCTRL_REF_MODEL_DELAY</b>	CR: /DD2 /			
D01, EXP	Balancing the reference model speed (not 810D)	FDD/MSD	ROT	2/4	<b>840D</b>
-	0.0000	0.0000	1.0000	FLOAT	immediately
<b>1417</b>	<b>SPEED_THRESHOLD_X</b>	CR: DB1, DL1			
D03	Signal n_x for 'n_act < n_x'	MSD SLM FDD		2/4	
ROT: 1/min					
LIN: m/min					

HW:P2	ROT: 6000.000000 LIN: 120.000000	0.000000	100000.000000	FLOAT	Immediately
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<b>1417</b>	<b>SPEED_THRESHOLD_X [n] 0 ...7 Index of param.-set</b>			CR: / DB1/	
	Signal n_x for 'n_act < n_x'			FDD/MSD	2/4 810D
1/min	6000.0000	0.0000	50000.0000	FLOAT	immediately

<b>1417</b>	<b>SPEED_THRESHOLD_X [n] 0 ...7 Index of param.-set</b>			CR: /DB1 /	
D03	Signal n_x for 'n_act < n_x'			FDD/MSD ROT	2/4 840D
1/min	6000.0000	0.0000	100000.0000	FLOAT	immediately

<b>1417</b>	<b>SPEED_THRESHOLD_X [n] 0 ...7 Index of param.-set</b>			CR: / DL1/	
D03	v_x for "v_act < v_x" signal			FDD LIN	2/4 840D
m/min	120.0000	0.0000	100000.0000	FLOAT	immediately

<b>1418</b>	<b>SPEED_THRESHOLD_MIN</b>			CR: DB1, DL1	
D03 ROT: 1/min LIN: m/min	Signal n_min for 'act_n < n_min'			MSD SLM FDD	2/4
HW:P2	ROT: 5.000000 LIN: 0.300000	0.000000	100000.000000	FLOAT	Immediately

<b>1418</b>	<b>SPEED_THRESHOLD_MIN [n] 0 ...7 Index of param.-set</b>			CR: / DB1/	
	Signal n_min for 'act_n < n_min'			FDD/MSD	2/4 810D
1/min	5.0000	0.0000	25000.0000	FLOAT	immediately

<b>1418</b>	<b>SPEED_THRESHOLD_MIN [n] 0 ...7 Index of param.-set</b>			CR: /DB1 /	
D03	Signal n_min for 'act_n < n_min'			FDD/MSD ROT	2/4 840D
1/min	5.0000	0.0000	100000.0000	FLOAT	immediately

<b>1418</b>	<b>SPEED_THRESHOLD_MIN [n] 0 ...7 Index of param.-set</b>			CR: / DL1/	
D03	v_min for "v_act < v_min" signal			FDD LIN	2/4 840D
m/min	0.3000	0.0000	100000.0000	FLOAT	immediately

<b>1420</b>	<b>MOTOR_MAX_SPEED_SETUP</b>			CR: DÜ1, DL1	
D02 ROT: 1/min LIN: m/min	Max. motor speed, setting-up operation			MSD SLM FDD	2/4
HW:P2	ROT: 30.000000 LIN: 2.000000	0.000000	100000.000000	FLOAT	Immediately

<b>1420</b>	<b>MOTOR_MAX_SPEED_SETUP</b>			CR: / DÜ1/	
	Max. motor speed, setting-up operation			FDD/MSD	2/4 810D
1/min	30.0000	0.0000	50000.0000	FLOAT	immediately

<b>1420</b>	<b>MOTOR_MAX_SPEED_SETUP</b>			CR: /DÜ1 /	
D02	Max. motor speed, setting-up operation			FDD/MSD ROT	2/4 840D
1/min	30.0000	0.0000	100000.0000	FLOAT	immediately

<b>1420</b>	<b>MOTOR_MAX_SPEED_SETUP</b>			CR: / DL1/	
D02	Maximum speed in setting-up operation			FDD LIN	2/4 840D
m/min	2.0000	0.0000	100000.0000	FLOAT	immediately

<b>1421</b>	<b>SPEEDCTRL INTEGRATOR FEEDBK</b>			CR: DD1	
D01 ms	Time constant integrator feedback			MSD SLM FDD	2/4
HW:P2	0.000000	0.000000	1000.000000	FLOAT	Immediately

<b>1421</b>	<b>SPEEDCTRL INTEGRATOR FEEDBK [n] 0 ...7 Index of param.-set</b>			CR: / DD1 /	
D01	Time constant integrator feedback			FDD/MSD ROT/LIN	2/4
ms	0.0000	0.0000	1000.0000	FLOAT	immediately



<b>1424</b>	<b>SPEED_FFWD_FILTER_TIME</b>	CR: <b>DS1, DL1</b>			
D01, EXP	Balancing the speed precontrol channel	MSD SLM FDD		2/4	
µs					
HW:P2	0.000000	0.000000	50000.000000	FLOAT	Immediately
<b>1424</b>	<b>SPEED_FFWD_FILTER_TIME</b>	CR: / <b>DL1</b> /			
D01, EXP	Balancing the speed precontrol channel (not 810D)	FDD	LIN	2/4	<b>840D</b>
us	0.0000	0.0000	50000.0000	FLOAT	immediately
<b>1424</b>	<b>SPEED_FFWD_FILTER_TIME</b>	CR: / <b>DS1</b> /			
D01, EXP	Balancing the speed precontrol channel (not 810D)	FDD/MSD	ROT	2/4	<b>840D</b>
us	0.0000	0.0000	50000.0000	FLOAT	immediately
<b>1425</b>	<b>SPEED_FFWD_DELAY</b>	CR: <b>DS1</b>			
D01, EXP	Balancing computation deadtime I-controller	MSD SLM FDD		2/4	
-					
HW:P2	0.000000	0.000000	1.000000	FLOAT	Immediately
<b>1425</b>	<b>SPEED_FFWD_DELAY</b>	CR: / <b>DS1</b> /			
D01, EXP	Balancing computation deadtime I-controller (not 810D)	FDD/MSD	ROT/LIN	2/4	<b>840D</b>
-	0.0000	0.0000	1.0000	FLOAT	immediately
<b>1426</b>	<b>SPEED_DES_EQ_ACT_TOL</b>	CR: <b>DB1, DL1</b>			
D03	Tolerance bandwidth for 'n_set = n_act' signal	MSD SLM FDD		2/4	
ROT: 1/min					
LIN: m/min					
HW:P2	ROT: 20.000000	0.000000	10000.000000	FLOAT	Immediately
	LIN: 1.000000				
<b>1426</b>	<b>SPEED_DES_EQ_ACT_TOL [n] 0 ...7 Index of param.-set</b>	CR: / <b>DB1</b> /			
	Tolerance bandwidth for 'n_set = n_act' signal	FDD/MSD		2/4	<b>810D</b>
1/min	20.0000	0.0000	10000.0000	FLOAT	immediately
<b>1426</b>	<b>SPEED_DES_EQ_ACT_TOL [n] 0 ...7 Index of param.-set</b>	CR: / <b>DL1</b> /			
D03	Tolerance bandwidth for "v_set = v_act" signal	FDD	LIN	2/4	<b>840D</b>
m/min	1.0000	0.0000	10000.0000	FLOAT	immediately
<b>1426</b>	<b>SPEED_DES_EQ_ACT_TOL [n] 0 ...7 Index of param.-set</b>	CR: / <b>DB1</b> /			
D03	Tolerance bandwidth for 'n_set = n_act' signal	FDD/MSD	ROT	2/4	<b>840D</b>
1/min	20.0000	0.0000	10000.0000	FLOAT	immediately
<b>1427</b>	<b>SPEED_DES_EQ_ACT_DELAY</b>	CR: <b>DB1, DL1</b>			
D03	Delay time signal 'n_set = n_act'	MSD SLM FDD		2/4	
ms					
HW:P2	200.000000	0.000000	500.000000	FLOAT	Immediately
<b>1427</b>	<b>SPEED_DES_EQ_ACT_DELAY</b>	CR: / <b>DL1</b> /			
D03	Delay time signal 'n_set = n_act'	FDD	LIN	2/4	
ms	200.0000	0.0000	500.0000	FLOAT	immediately
<b>1427</b>	<b>SPEED_DES_EQ_ACT_DELAY</b>	CR: / <b>DB1</b> /			
D03	Delay time signal 'n_set = n_act'	FDD/MSD	ROT	2/4	
ms	200.0000	0.0000	500.0000	FLOAT	immediately
<b>1428</b>	<b>ROT: TORQUE_THRESHOLD_X LIN: FORCE_THRESHOLD_X</b>	CR: <b>DB1, DL1</b>			
D03	ROT: Threshold force M_dx	MSD SLM FDD		2/4	
%	LIN: Threshold force Fdx				
HW:P2	90.000000	0.000000	100.000000	FLOAT	Immediately

<b>1428</b>	<b>TORQUE_THRESHOLD_X [n] 0 ...7 Index of param.-set</b>				<b>CR: /DB1 /</b>	
D03	Threshold force M <sub>dx</sub>			FDD/MSD	ROT	2/4
%	90.0000	0.0000	100.0000	FLOAT		immediately
<b>1428</b>	<b>FORCE_THRESHOLD_X [n] 0 ...7 Index of param.-set</b>				<b>CR: / DL1/</b>	
D03	Threshold force F <sub>dx</sub>			FDD	LIN	2/4
%	90.0000	0.0000	100.0000	FLOAT		immediately
<b>1429</b>	<b>TORQUE_THRESHOLD_X_DELAY</b>				<b>CR: DB1, DL1</b>	
D03	Delay time signal 'Md < M <sub>dx</sub> '			MSD SLM FDD		2/4
ms						
HW:P2	800.000000	0.000000	1000.000000	FLOAT		Immediately
<b>1429</b>	<b>TORQUE_THRESHOLD_X_DELAY</b>				<b>CR: /DB1 /</b>	
D03	Delay time signal 'Md < M <sub>dx</sub> '			FDD/MSD	ROT	2/4
ms	800.0000	0.0000	1000.0000	FLOAT		immediately
<b>1429</b>	<b>TORQUE_THRESHOLD_X_DELAY</b>				<b>CR: / DL1/</b>	
D03	Delay time 'Fd < F <sub>dx</sub> ' signal			FDD	LIN	2/4
ms	800.0000	0.0000	1000.0000	FLOAT		immediately
<b>1451</b>	<b>SPEEDCTRL_GAIN_1_AM</b>				<b>CR: DE1</b>	
D01	P gain of speed control loop IM			MSD		2/4
Nms/rad						
HW:P2	0.300000	0.000000	100000.000000	FLOAT		Immediately
<b>1451</b>	<b>SPEEDCTRL_GAIN_1_AM [n] 0 ...7 Index of param.-set</b>				<b>CR: /DE1 /</b>	
D01	P gain of speed control loop IM (not 810D)			MSD	ROT	2/4
Nms/rad	0.3000	0.0000	100000.0000	FLOAT		840D immediately
<b>1453</b>	<b>SPDCTRL_INTEGR_TIME_1_AM</b>				<b>CR: DE1</b>	
D01	Integral action time of speed control loop IM			MSD		2/4
ms						
HW:P2	140.000000	0.000000	6000.000000	FLOAT		Immediately
<b>1453</b>	<b>SPDCTRL_INTEGR_TIME_1_AM [n] 0 ...7 Index of param.-set</b>				<b>CR: /DE1 /</b>	
D01	Integral action time of speed control loop IM (not 810D)			MSD	ROT	2/4
ms	140.0000	0.0000	6000.0000	FLOAT		840D immediately
<b>1458</b>	<b>DES_CURRENT_OPEN_LOOP_AM</b>				<b>CR: DE1</b>	
D01	Current setpoint controlled range IM			MSD		2/4
%						
HW:P2	90.000000	0.000000	150.000000	FLOAT		Immediately
<b>1458</b>	<b>DES_CURRENT_OPEN_LOOP_AM</b>				<b>CR: /DE1 /</b>	
D01	Current setpoint controlled range IM (not 810D)			MSD	ROT	2/4
%	90.0000	0.0000	150.0000	FLOAT		840D immediately
<b>1459</b>	<b>TORQUE_SMOOTH_TIME_AM</b>				<b>CR: DE1</b>	
D01	Torque smoothing time constant IM			MSD		2/4
ms						
HW:P2	4.000000	0.000000	100.000000	FLOAT		Immediately
<b>1459</b>	<b>TORQUE_SMOOTH_TIME_AM</b>				<b>CR: /DE1 /</b>	
D01	Torque smoothing time constant IM (not 810D)			MSD	ROT	2/4
ms	4.0000	0.0000	100.0000	FLOAT		840D immediately
<b>1465</b>	<b>SWITCH_SPEED_MSD_AM</b>				<b>CR: DE1</b>	
D01, D05, EXP 1/min	Changeover speed MSD/IM			MSD		2/4
HW:P2	100000.000000	0.000000	100000.000000	FLOAT		Immediately

<b>1465</b>	<b>SWITCH_SPEED_MSD_AM</b>				CR: /DE1 /	
D01, D06	Changeover speed MSD/IM (not 810D)			MSD	ROT	2/4 840D
1/min	100000.0000	0.0000	100000.0000	FLOAT		immediately
<b>1466</b>	<b>SWITCH_SPD_OPEN_LOOP_AM</b>				CR: DE1	
D01	Changeover speed closed/open loop IM			MSD SLM FDD		2/4
ROT: 1/min LIN: m/min						
HW:P2	ROT: 300.000000 LIN: 20.000000	ROT: 150.000000 LIN: 3.000000	100000.000000	FLOAT		Immediately
<b>1466</b>	<b>SWITCH_SPD_OPEN_LOOP_AM</b>				CR: /DE1 /	
D01	Changeover speed closed/open loop IM (not 810D)			MSD	ROT	2/4 840D
1/min	300.0000	150.0000	100000.0000	FLOAT		immediately
<b>1500</b>	<b>NUM_SPEED_FILTERS</b>				CR: DD2, DL1	
D01	Number of speed setpoint filters			MSD SLM FDD		2/4
-						
HW:P2	0	0	2	UNS.WORD		Immediately
<b>1500</b>	<b>NUM_SPEED_FILTERS [n] 0 ...7 Index of param.-set</b>				CR: / DD2/	
	Number of speed setpoint filters			FDD/MSD		2/4 810D
-	0	0	1	UNS. WORD		immediately
<b>1500</b>	<b>NUM_SPEED_FILTERS [n] 0 ...7 Index of param.-set</b>				CR: / DL1/	
D01	Number of speed setpoint filters			FDD	LIN	2/4 840D
-	0	0	2	UNS. WORD		immediately
<b>1500</b>	<b>NUM_SPEED_FILTERS [n] 0 ...7 Index of param.-set</b>				CR: /DD2 /	
D01	Number of speed setpoint filters			FDD/MSD	ROT	2/4 840D
-	0	0	2	UNS. WORD		immediately
<b>1501</b>	<b>SPEED_FILTER_TYPE</b>				CR: DD2, DL1	
D01	Speed setpoint filter type			MSD SLM FDD		2/4
-						
HW:P2	0x0000	0x0000	0x8303	UNS.WORD		Immediately
<b>1501</b>	<b>SPEED_FILTER_TYPE [n] 0 ...7 Index of param.-set</b>				CR: /DD2 /	
D01	Speed setpoint filter type (not 810D)			FDD/MSD	ROT	2/4 840D
-	0	0	8303	UNS. WORD		immediately
<b>1501</b>	<b>SPEED_FILTER_TYPE [n] 0 ...7 Index of param.-set</b>				CR: / DL1/	
D01	Speed setpoint filter type (not 810D)			FDD	LIN	2/4 840D
-	0	0	8303	UNS. WORD		immediately
<b>1502</b>	<b>SPEED_FILTER_1_TIME</b>				CR: DD2, DL1	
D01	Time constant for speed setpoint filter 1			MSD SLM FDD		2/4
ms						
HW:P2	0.000000	0.000000	500.000000	FLOAT		Immediately
<b>1502</b>	<b>SPEED_FILTER_1_TIME [n] 0 ...7 Index of param.-set</b>				CR: / DD2/	
	Time constant for speed setpoint filter 1			FDD/MSD		2/4 810D
ms	0.0000	0.0000	150.0000	FLOAT		immediately
<b>1502</b>	<b>SPEED_FILTER_1_TIME [n] 0 ...7 Index of param.-set</b>				CR: /DD2 /	
D01	Time constant for speed setpoint filter 1			FDD/MSD	ROT	2/4 840D
ms	0.0000	0.0000	500.0000	FLOAT		immediately
<b>1502</b>	<b>SPEED_FILTER_1_TIME [n] 0 ...7 Index of param.-set</b>				CR: / DL1/	
D01	Time constant for speed setpoint filter 1			FDD	LIN	2/4 840D
ms	0.0000	0.0000	500.0000	FLOAT		immediately

<b>1503</b>	<b>SPEED_FILTER_2_TIME</b>				CR: <b>DD2, DL1</b>
D01	Time constant for speed setpoint filter 2			MSD SLM FDD	2/4
ms					
HW:P2	0.000000	0.000000	500.000000	FLOAT	Immediately

<b>1503</b>	<b>SPEED_FILTER_2_TIME [n] 0 ...7 Index of param.-set</b>				CR: <b>/DD2 /</b>
D01	Time constant for speed setpoint filter 2 (not 810D)			FDD/MSD ROT	2/4 <b>840D</b>
ms	0.0000	0.0000	500.0000	FLOAT	immediately

<b>1503</b>	<b>SPEED_FILTER_2_TIME [n] 0 ...7 Index of param.-set</b>				CR: <b>/ DL1/</b>
D01	Time constant for speed setpoint filter 2 (not 810D)			FDD LIN	2/4 <b>840D</b>
ms	0.0000	0.0000	500.0000	FLOAT	immediately

<b>1506</b>	<b>SPEED_FILTER_1_FREQUENCY</b>				CR: <b>DD2, DL1</b>
D01, EXP	Natural frequency for speed setpoint filter 1			MSD SLM FDD	2/4
Hz					
HW:P2	2000.000000	10.000000	8000.000000	FLOAT	Immediately

<b>1506</b>	<b>SPEED_FILTER_1_FREQUENCY [n] 0 ...7 Index of param.-set</b>				CR: <b>/ DL1/</b>
D01, EXP	Natural frequency for speed setpoint filter 1 (not 810D)			FDD LIN	2/4 <b>840D</b>
Hz	2000.0000	10.0000	8000.0000	FLOAT	immediately

<b>1506</b>	<b>SPEED_FILTER_1_FREQUENCY [n] 0 ...7 Index of param.-set</b>				CR: <b>/DD2 /</b>
D01, EXP	Natural frequency for speed setpoint filter 1 (not 810D)			FDD/MSD ROT	2/4 <b>840D</b>
Hz	2000.0000	10.0000	8000.0000	FLOAT	immediately

<b>1507</b>	<b>SPEED_FILTER_1_DAMPING</b>				CR: <b>DD2, DL1</b>
D01, EXP	Damping for speed setpoint filter 1			MSD SLM FDD	2/4
-					
HW:P2	0.700000	0.200000	5.000000	FLOAT	Immediately

<b>1507</b>	<b>SPEED_FILTER_1_DAMPING [n] 0 ...7 Index of param.-set</b>				CR: <b>/ DL1/</b>
D01, EXP	Damping for speed setpoint filter 1 (not 810D)			FDD LIN	2/4 <b>840D</b>
-	0.7000	0.2000	5.0000	FLOAT	immediately

<b>1507</b>	<b>SPEED_FILTER_1_DAMPING [n] 0 ...7 Index of param.-set</b>				CR: <b>/DD2 /</b>
D01, EXP	Damping for speed setpoint filter 1 (not 810D)			FDD/MSD ROT	2/4 <b>840D</b>
-	0.7000	0.2000	5.0000	FLOAT	immediately

<b>1508</b>	<b>SPEED_FILTER_2_FREQUENCY</b>				CR: <b>DD2, DL1</b>
D01, EXP	Natural frequency for speed setpoint filter 2			MSD SLM FDD	2/4
Hz					
HW:P2	2000.000000	10.000000	8000.000000	FLOAT	Immediately

<b>1508</b>	<b>SPEED_FILTER_2_FREQUENCY [n] 0 ...7 Index of param.-set</b>				CR: <b>/DD2 /</b>
D01, EXP	Natural frequency for speed setpoint filter 2 (not 810D)			FDD/MSD ROT	2/4 <b>840D</b>
Hz	2000.0000	10.0000	8000.0000	FLOAT	immediately

<b>1508</b>	<b>SPEED_FILTER_2_FREQUENCY [n] 0 ...7 Index of param.-set</b>				CR: <b>/ DL1/</b>
D01, EXP	Natural frequency for speed setpoint filter 2 (not 810D)			FDD LIN	2/4 <b>840D</b>
Hz	2000.0000	10.0000	8000.0000	FLOAT	immediately

<b>1509</b>	<b>SPEED_FILTER_2_DAMPING</b>				CR: <b>DD2, DL1</b>
D01, EXP	Damping for speed setpoint filter 2			MSD SLM FDD	2/4
-					
HW:P2	0.700000	0.200000	5.000000	FLOAT	Immediately

<b>1509</b>	<b>SPEED_FILTER_2_DAMPING [n] 0 ...7 Index of param.-set</b>				CR: <b>/ DL1/</b>
D01, EXP	Damping for speed setpoint filter 2 (not 810D)			FDD LIN	2/4 <b>840D</b>
-	0.7000	0.2000	5.0000	FLOAT	immediately

<b>1509</b>	<b>SPEED_FILTER_2_DAMPING</b> [n] 0 ...7 Index of param.-set	CR: /DD2 /			
D01, EXP	Damping for speed setpoint filter 2 (not 810D)	FDD/MSD	ROT	2/4	<b>840D</b>
-	0.7000	0.2000	5.0000	FLOAT	immediately
<b>1514</b>	<b>SPEED_FILTER_1_SUPPR_FREQ</b>	CR: DD2, DL1			
D01, EXP Hz	Blocking frequency for speed setpoint filter 1	MSD SLM FDD		2/4	
HW:P2	3500.000000	1.000000	7999.000000	FLOAT	Immediately
<b>1514</b>	<b>SPEED_FILTER_1_SUPPR_FREQ</b> [n] 0 ...7 Index of param.-set	CR: /DD2 /			
D01, EXP	Blocking frequency for speed setpoint filter 1 (not 810D)	FDD/MSD	ROT	2/4	<b>840D</b>
Hz	3500.0000	1.0000	7999.0000	FLOAT	immediately
<b>1514</b>	<b>SPEED_FILTER_1_SUPPR_FREQ</b> [n] 0 ...7 Index of param.-set	CR: / DL1/			
D01, EXP	Blocking frequency for speed setpoint filter 1 (not 810D)	FDD	LIN	2/4	<b>840D</b>
Hz	3500.0000	1.0000	7999.0000	FLOAT	immediately
<b>1515</b>	<b>SPEED_FILTER_1_BANDWIDTH</b>	CR: DD2, DL1			
D01, EXP Hz	Bandwidth for speed setpoint filter 1	MSD SLM FDD		2/4	
HW:P2	500.000000	5.000000	7999.000000	FLOAT	Immediately
<b>1515</b>	<b>SPEED_FILTER_1_BANDWIDTH</b> [n] 0 ...7 Index of param.-set	CR: /DD2 /			
D01, EXP	Bandwidth for speed setpoint filter 1 (not 810D)	FDD/MSD	ROT	2/4	<b>840D</b>
Hz	500.0000	5.0000	7999.0000	FLOAT	immediately
<b>1515</b>	<b>SPEED_FILTER_1_BANDWIDTH</b> [n] 0 ...7 Index of param.-set	CR: / DL1/			
D01, EXP	Bandwidth for speed setpoint filter 1 (not 810D)	FDD	LIN	2/4	<b>840D</b>
Hz	500.0000	5.0000	7999.0000	FLOAT	immediately
<b>1516</b>	<b>SPEED_FILTER_1_BW_NUMERATOR</b>	CR: DD2, DL1			
D01, EXP Hz	Bandwidth numerator for speed setpoint filter 1	MSD SLM FDD		2/4	
HW:P2	0.000000	0.000000	7999.000000	FLOAT	Immediately
<b>1516</b>	<b>SPEED_FILTER_1_BW_NUMERATOR</b> [n] 0 ...7 Index of param.-set	CR: /DD2 /			
D01, EXP	Bandwidth numerator for speed setpoint filter 1 (not 810D)	FDD/MSD	ROT	2/4	<b>840D</b>
Hz	0.0000	0.0000	7999.0000	FLOAT	immediately
<b>1516</b>	<b>SPEED_FILTER_1_BW_NUMERATOR</b> [n] 0 ...7 Index of param.-set	CR: / DL1/			
D01, EXP	Bandwidth numerator for speed setpoint filter 1 (not 810D)	FDD	LIN	2/4	<b>840D</b>
Hz	0.0000	0.0000	7999.0000	FLOAT	immediately
<b>1517</b>	<b>SPEED_FILTER_2_SUPPR_FREQ</b>	CR: DD2, DL1			
D01, EXP Hz	Blocking frequency for speed setpoint filter 2	MSD SLM FDD		2/4	
HW:P2	3500.000000	1.000000	7999.000000	FLOAT	Immediately
<b>1517</b>	<b>SPEED_FILTER_2_SUPPR_FREQ</b> [n] 0 ...7 Index of param.-set	CR: /DD2 /			
D01, EXP	Blocking frequency for speed setpoint filter 2 (not 810D)	FDD/MSD	ROT	2/4	<b>840D</b>
Hz	3500.0000	1.0000	7999.0000	FLOAT	immediately
<b>1517</b>	<b>SPEED_FILTER_2_SUPPR_FREQ</b> [n] 0 ...7 Index of param.-set	CR: / DL1/			
D01, EXP	Blocking frequency for speed setpoint filter 2 (not 810D)	FDD	LIN	2/4	<b>840D</b>
Hz	3500.0000	1.0000	7999.0000	FLOAT	immediately
<b>1518</b>	<b>SPEED_FILTER_2_BANDWIDTH</b>	CR: DD2, DL1			
D01, EXP Hz	Bandwidth for speed setpoint filter 2	MSD SLM FDD		2/4	
HW:P2	500.000000	5.000000	7999.000000	FLOAT	Immediately

<b>1518</b>	<b>SPEED_FILTER_2_BANDWIDTH</b> [n] 0 ...7 Index of param.-set				CR: /DD2 /
D01, EXP	Bandwidth for speed setpoint filter 2 (not 810D)		FDD/MSD	ROT	2/4 <b>840D</b>
Hz	500.0000	5.0000	7999.0000	FLOAT	immediately

<b>1518</b>	<b>SPEED_FILTER_2_BANDWIDTH</b> [n] 0 ...7 Index of param.-set				CR: / DL1/
D01, EXP	Bandwidth for speed setpoint filter 2 (not 810D)		FDD	LIN	2/4 <b>840D</b>
Hz	500.0000	5.0000	7999.0000	FLOAT	immediately

<b>1519</b>	<b>SPEED_FILTER_2_BW_NUMERATOR</b>				CR: DD2, DL1
D01, EXP	Bandwidth numerator for speed setpoint filter 2		MSD SLM FDD		2/4
Hz					
HW:P2	0.000000	0.000000	7999.000000	FLOAT	Immediately

<b>1519</b>	<b>SPEED_FILTER_2_BW_NUMERATOR</b> [n] 0 ...7 Index of param.-set				CR: / DL1/
D01, EXP	Bandwidth numerator for speed setpoint filter 2 (not 810D)		FDD	LIN	2/4 <b>840D</b>
Hz	0.0000	0.0000	7999.0000	FLOAT	immediately

<b>1519</b>	<b>SPEED_FILTER_2_BW_NUMERATOR</b> [n] 0 ...7 Index of param.-set				CR: /DD2 /
D01, EXP	Bandwidth numerator for speed setpoint filter 2 (not 810D)		FDD/MSD	ROT	2/4 <b>840D</b>
Hz	0.0000	0.0000	7999.0000	FLOAT	immediately

<b>1520</b>	<b>SPEED_FILTER_1_BS_FREQ</b>				CR: DD2, DL1
D01, EXP	BSF natural frequency for speed setpoint filter 1		MSD SLM FDD		2/4
%					
HW:P2	100.000000	1.000000	141.000000	FLOAT	Immediately

<b>1520</b>	<b>SPEED_FILTER_1_BS_FREQ</b> [n] 0 ...7 Index of param.-set				CR: /DD2 /
D01, EXP	BSF natural frequency for speed setpoint filter 1 (not 810D)		FDD/MSD	ROT	2/4 <b>840D</b>
%	100.0000	1.0000	141.0000	FLOAT	immediately

<b>1520</b>	<b>SPEED_FILTER_1_BS_FREQ</b> [n] 0 ...7 Index of param.-set				CR: / DL1/
D01, EXP	BSF natural frequency for speed setpoint filter 1 (not 810D)		FDD	LIN	2/4 <b>840D</b>
%	100.0000	1.0000	141.0000	FLOAT	immediately

<b>1521</b>	<b>SPEED_FILTER_2_BS_FREQ</b>				CR: DD2, DL1
D01, EXP	BSF natural frequency for speed setpoint filter 2		MSD SLM FDD		2/4
%					
HW:P2	100.000000	1.000000	141.000000	FLOAT	Immediately

<b>1521</b>	<b>SPEED_FILTER_2_BS_FREQ</b> [n] 0 ...7 Index of param.-set				CR: /DD2 /
D01, EXP	BSF natural frequency for speed setpoint filter 2 (not 810D)		FDD/MSD	ROT	2/4 <b>840D</b>
%	100.0000	1.0000	141.0000	FLOAT	immediately

<b>1521</b>	<b>SPEED_FILTER_2_BS_FREQ</b> [n] 0 ...7 Index of param.-set				CR: / DL1/
D01, EXP	BSF natural frequency for speed setpoint filter 2 (not 810D)		FDD	LIN	2/4 <b>840D</b>
%	100.0000	1.0000	141.0000	FLOAT	immediately

<b>1522</b>	<b>ACT_SPEED_FILTER_TIME</b>				CR: DD2
D01	Time const. actual speed value filter		MSD SLM FDD		2/4
ms					
HW:P2	0.000000	0.000000	500.000000	FLOAT	Immediately

<b>1522</b>	<b>ACT_SPEED_FILTER_TIME</b>				CR: / DD2 /
D01	Time const. actual speed value filter (not 810D)		FDD/MSD	ROT/LIN	2/4 <b>840D</b>
-	0	0	0	UNS. WORD	PowerOn

<b>1550</b>	<b>ACC_SENS_REF</b>				<b>CR: DÜ1</b>
D01	Reference value accel. sensor f. 1V			MSD SLM FDD	2/4
-					
HW:P2	1000.000000	-1000000.000000	1000000.000000 0	FLOAT	Immediately
<b>1560</b>	<b>ACC_MODE</b>				<b>CR: DÜ1</b>
D01	Acceleration evaluation mode			MSD SLM FDD	2/4
-					
HW:P2	0x0000	0x0000	0x7FFF	UNS.WORD	Immediately
<b>1561</b>	<b>ACC_SENS_RESOL</b>				<b>CR: DÜ1</b>
D01	Accel. sensor resolution bits			MSD SLM FDD	2/4
-					
HW:P2	0	0	12	UNS.WORD	Power On
<b>1562</b>	<b>FACTOR_MM_DM</b>				<b>CR: DÜ1</b>
D01	Ratio motor : DM			MSD SLM FDD	2/4
-					
HW:P2	1.000000	-1000000.000000	1000000.000000 0	FLOAT	Immediately
<b>1563</b>	<b>ACC_HIGH_PASS_TIME</b>				<b>CR: DÜ1</b>
D01	Time const. accel. high pass			MSD SLM FDD	2/4
ms					
HW:P2	1000.0	0.000000	5000.000000	FLOAT	Immediately
<b>1564</b>	<b>LOAD_SPEEDCTL_DIFF_TIME</b>				<b>CR: DÜ1</b>
D01	Lead time for load speed controller			MSD SLM FDD	2/4
ms					
HW:P2	0.000000	-1000.000000	1000.000000	FLOAT	Immediately
<b>1565</b>	<b>LOAD_SPEEDCTL_GAIN</b>				<b>CR: DÜ1</b>
D01	P gain of load speed controller			MSD SLM FDD	2/4
-					
HW:P2	0.000000	-256.000000	256.000000	FLOAT	Immediately
<b>1566</b>	<b>LOAD_SPEEDCTL_LIMIT</b>				<b>CR: DÜ1</b>
D01	Limitation of load speed controller			MSD SLM FDD	2/4
ROT: 1/min					
LIN: m/min					
HW:P2	500.000000	0.000000	100000.000000	FLOAT	Immediately
<b>1567</b>	<b>LOAD_SPEEDCTL_DIFF_TIME2</b>				<b>CR:</b>
D01	Differentiation time of load speed controller 2			MSD SLM FDD	2/4
ms					
HW:P2	0.000000	-1000.000000	1000.000000	FLOAT	Immediately
<b>1569</b>	<b>ACC_FIL_DOWNSCAN</b>				<b>CR: DÜ1</b>
D01	Sub-sampling accel. filter			MSD SLM FDD	2/4
-					
HW:P2	1	1	64	UNS.WORD	Immediately
<b>1570</b>	<b>ACC_FILTER_TYPE</b>				<b>CR: DÜ1</b>
D01	Type of acceleration filter			MSD SLM FDD	2/4
-					
HW:P2	0x0000	0x0000	0x1B1F	UNS.WORD	Immediately
<b>1571</b>	<b>ACC_FILTER_TIME1</b>				<b>CR: DÜ1</b>
D01	Time constant acceleration f.1			MSD SLM FDD	2/4
ms					
HW:P2	1.000000	0.000000	500.000000	FLOAT	Immediately

<b>1572</b>	<b>ACC_DENOM_FILTER_FREQU1</b>				CR: DÜ1
D01, EXP Hz	Natural denominator freq. accel. filter 1			MSD SLM FDD	2/4
HW:P2	2000.000000	2.000000	8000.000000	FLOAT	Immediately
<b>1573</b>	<b>ACC_DENOM_FILTER_DAMP1</b>				CR: DÜ1
D01, EXP -	Denominator attenuation, accel. filter 1"			MSD SLM FDD	2/4
HW:P2	0.500000	0.000000	10.000000	FLOAT	Immediately
<b>1574</b>	<b>ACC_NOM_FILTER_FREQU1</b>				CR: DÜ1
D01, EXP Hz	Natural numerator frequ. accel. filter 1			MSD SLM FDD	2/4
HW:P2	2000.000000	2.000000	8000.000000	FLOAT	Immediately
<b>1575</b>	<b>ACC_NOM_FILTER_DAMP1</b>				CR: DÜ1
D01, EXP -	Numerator attenuation accel. filter 1			MSD SLM FDD	2/4
HW:P2	0.500000	0.000000	10.000000	FLOAT	Immediately
<b>1576</b>	<b>ACC_FILTER_TIME2</b>				CR: DÜ1
D01 ms	Time constant accel. f.2			MSD SLM FDD	2/4
HW:P2	1.000000	0.000000	500.000000	FLOAT	Immediately
<b>1577</b>	<b>ACC_DENOM_FILTER_FREQU2</b>				CR: DÜ1
D01, EXP Hz	Natural denominator freq., accel. filter 2			MSD SLM FDD	2/4
HW:P2	2000.000000	2.000000	8000.000000	FLOAT	Immediately
<b>1578</b>	<b>ACC_DENOM_FILTER_DAMP2</b>				CR: DÜ1
D01, EXP -	Denominator attenuation, accel. filter 2			MSD SLM FDD	2/4
HW:P2	0.500000	0.000000	10.000000	FLOAT	Immediately
<b>1579</b>	<b>ACC_NOM_FILTER_FREQU2</b>				CR: DÜ1
D01, EXP Hz	Natural numerator frequ., accel. filter 2			MSD SLM FDD	2/4
HW:P2	2000.000000	2.000000	8000.000000	FLOAT	Immediately
<b>1580</b>	<b>ACC_NOM_FILTER_DAMP2</b>				CR: DÜ1
D01, EXP -	Numerator attenuation, accel. filter 2			MSD SLM FDD	2/4
HW:P2	0.500000	0.000000	10.000000	FLOAT	Immediately
<b>1581</b>	<b>ACC_DENOM_FILTER_FREQU3</b>				CR: DÜ1
D01, EXP Hz	Natural denominator frequ., accel. filter 3			MSD SLM FDD	2/4
HW:P2	2000.000000	2.000000	8000.000000	FLOAT	Immediately
<b>1582</b>	<b>ACC_DENOM_FILTER_DAMP3</b>				CR: DÜ1
D01, EXP -	Denominator attenuation, accel. filter 3			MSD SLM FDD	2/4
HW:P2	0.500000	0.000000	10.000000	FLOAT	Immediately
<b>1583</b>	<b>ACC_NOM_FILTER_FREQU3</b>				CR: DÜ1
D01, EXP Hz	Natural numerator frequ., accel. filter 3			MSD SLM FDD	2/4
HW:P2	2000.000000	2.000000	8000.000000	FLOAT	Immediately
<b>1584</b>	<b>ACC_NOM_FILTER_DAMP3</b>				CR: DÜ1



D01, EXP -	Numerator attenuation, accel. filter 3			MSD SLM FDD	2/4	
HW:P2	0.500000	0.000000	10.000000	FLOAT	Immediately	
<b>1585</b>	<b>ACC_FILTER_TIME4</b>				CR: <b>DS1</b>	
D01 ms	Time constant of acc. filter 4			MSD SLM FDD	2/4	
HW:P2	1.000000	0.000000	500.000000	FLOAT	Immediately	
<b>1586</b>	<b>ACC_DENOM_FILTER_FREQU4</b>				CR: <b>DS1</b>	
D01, EXP Hz	Denominator natural frequency acc. filter 4			MSD SLM FDD	2/4	
HW:P2	2000.000000	2.000000	8000.000000	FLOAT	Immediately	
<b>1587</b>	<b>ACC_DENOM_FILTER_DAMP4</b>				CR: <b>DS1</b>	
D01, EXP -	Denominator damping acc. filter 4			MSD SLM FDD	2/4	
HW:P2	0.500000	0.000000	10.000000	FLOAT	Immediately	
<b>1588</b>	<b>ACC_NOM_FILTER_FREQU4</b>				CR: <b>DS1</b>	
D01, EXP Hz	Numerator natural frequency acc. filter 4			MSD SLM FDD	2/4	
HW:P2	2000.000000	2.000000	8000.000000	FLOAT	Immediately	
<b>1589</b>	<b>ACC_NOM_FILTER_DAMP4</b>				CR: <b>DS1</b>	
D01, EXP -	Numerator damping acc. filter 4			MSD SLM FDD	2/4	
HW:P2	0.500000	0.000000	10.000000	FLOAT	Immediately	
<b>1590</b>	<b>ACC_FILTER_TIME5</b>				CR: <b>DS1</b>	
D01 ms	Time constant of acc. filter 5			MSD SLM FDD	2/4	
HW:P2	1.000000	0.000000	500.000000	FLOAT	Immediately	
<b>1591</b>	<b>ACC_DENOM_FILTER_FREQU5</b>				CR: <b>DS1</b>	
D01, EXP Hz	Denominator natural frequency acc. filter 5			MSD SLM FDD	2/4	
HW:P2	2000.000000	2.000000	8000.000000	FLOAT	Immediately	
<b>1592</b>	<b>ACC_DENOM_FILTER_DAMP5</b>				CR: <b>DS1</b>	
D01, EXP -	Denominator damping acc. filter 5			MSD SLM FDD	2/4	
HW:P2	0.500000	0.000000	10.000000	FLOAT	Immediately	
<b>1593</b>	<b>ACC_NOM_FILTER_FREQU5</b>				CR: <b>DS1</b>	
D01, EXP Hz	Numerator natural frequency acc. filter 5			MSD SLM FDD	2/4	
HW:P2	2000.000000	2.000000	8000.000000	FLOAT	Immediately	
<b>1594</b>	<b>ACC_NOM_FILTER_DAMP5</b>				CR: <b>DS1</b>	
D01, EXP -	Numerator damping acc. filter 5			MSD SLM FDD	2/4	
HW:P2	0.500000	0.000000	10.000000	FLOAT	Immediately	
<b>1600</b>	<b>ALARM_MASK_POWER_ON</b>				CR: <b>DB1</b>	
D02, EXP -	Suppressible alarms (Power-On)			MSD SLM FDD	2/4	
HW:P2	0x0000	0x0000	0x83be	UNS.WORD	Immediately	
<b>1600</b>	<b>ALARM_MASK_POWER_ON</b>				CR: / <b>DB1/</b>	
-	Suppressible alarms (Power-On)			FDD/MSD	2/4	<b>810D</b>
-	0	0	ffff	UNS. WORD	immediately	

<b>1600</b>	<b>ALARM_MASK_POWER_ON</b>				CR: / DB1 /	
D02, EXP	Suppressible alarms (Power-On)			FDD/MSD   ROT/LIN	2/4	<b>840D</b>
-	0	0	83be	UNS. WORD	immediately	
<b>1601</b>	<b>ALARM_MASK_RESET</b>				CR: DB1	
D02, EXP	Suppressible alarms (reset)			MSD SLM FDD	2/4	
-						
HW:P2	0x0000	0x0000	0xFFFF	UNS.WORD	Immediately	
<b>1601</b>	<b>ALARM_MASK_RESET</b>				CR: / DB1 /	
D02, EXP	Suppressible alarms (reset)			FDD/MSD   ROT/LIN	2/4	
-	0	0	fff	UNS. WORD	immediately	
<b>1602</b>	<b>MOTOR_TEMP_WARN_LIMIT</b>				CR: DÜ1	
D02, D05 C	Motor temperature alarm threshold			MSD SLM FDD	2/4	
HW:P2	120	0	200	UNS.WORD	Immediately	
<b>1602</b>	<b>MOTOR_TEMP_WARN_LIMIT</b>				CR: / DÜ1 /	
D02, D05	Motor temperature alarm threshold			FDD/MSD   ROT/LIN	2/4	
	120	0	200	UNS. WORD	immediately	
<b>1603</b>	<b>MOTOR_TEMP_ALARM_TIME</b>				CR: DÜ1	
D02, D05 s	Time for motor temperature alarm			MSD SLM FDD	2/4	
HW:P2	240	0	600	UNS.WORD	Immediately	
<b>1603</b>	<b>MOTOR_TEMP_ALARM_TIME</b>				CR: / DÜ1 /	
D02, D05 s	Time for motor temperature alarm			FDD/MSD   ROT/LIN	2/4	
	240	0	600	UNS. WORD	immediately	
<b>1604</b>	<b>LINK_VOLTAGE_WARN_LIMIT</b>				CR: DÜ1	
D02, EXP V	DC-link undervoltage alarm threshold			MSD SLM FDD	2/4	
HW:P2	200	0	680	UNS.WORD	Immediately	
<b>1604</b>	<b>LINK_VOLTAGE_WARN_LIMIT</b>				CR: / DÜ1/	
	DC-link undervoltage alarm threshold			FDD/MSD	2/4	<b>810D</b>
V	200	0	600	UNS. WORD	immediately	
<b>1604</b>	<b>LINK_VOLTAGE_WARN_LIMIT</b>				CR: / DÜ1 /	
D02, EXP V	DC-link undervoltage alarm threshold			FDD/MSD   ROT/LIN	2/4	<b>840D</b>
	200	0	680	UNS. WORD	immediately	
<b>1605</b>	<b>SPEEDCTRL_LIMIT_TIME</b>				CR: DÜ1	
D02 ms	Time n-controller at limit stop			MSD SLM FDD	2/4	
HW:P2	200.000000	20.000000	10000.000000	FLOAT	Immediately	
<b>1605</b>	<b>SPEEDCTRL_LIMIT_TIME</b>				CR: / DÜ1 /	
D02 ms	Time n-controller at limit stop			FDD/MSD   ROT/LIN	2/4	
	200.0000	20.0000	10000.0000	FLOAT	immediately	
<b>1606</b>	<b>SPEEDCTRL_LIMIT_THRESHOLD</b>				CR: DÜ1, DL1	
D02 ROT: 1/min LIN: m/min	Threshold n-controller at limit stop			MSD SLM FDD	2/4	
HW:P2	ROT: 8000.000000 LIN: 500.000000	0.000000	100000.000000	FLOAT	Immediately	

<b>1606</b>	<b>SPEEDCTRL_LIMIT_THRESHOLD</b>				CR: / DÜ1/
	Threshold n-controller at limit stop			FDD/MSD	2/4 810D
1/min	8000.0000 HSA: 30.0000	0.0000	50000.0000	FLOAT	immediately

<b>1606</b>	<b>SPEEDCTRL_LIMIT_THRESHOLD</b>				CR: /DÜ1 /
D02	Threshold n-controller at limit stop			FDD/MSD ROT	2/4 840D
1/min	90000.0000 HSA: 30.0000	0.0000	100000.0000	FLOAT	immediately

<b>1606</b>	<b>SPEEDCTRL_LIMIT_THRESHOLD</b>				CR: / DL1/
D02	Threshold speed controller limit			FDD LIN	2/4 840D
m/min	500.0000	0.0000	100000.0000	FLOAT	immediately

<b>1607</b>	<b>MOTOR_TEMP_SHUTDOWN_LIMIT</b>				CR: DÜ1
D02, D05 C	Motor temperature shutdown limit			MSD SLM FDD	2/4
HW:P2	155	0	200	UNS.WORD	Immediately

<b>1607</b>	<b>MOTOR_TEMP_SHUTDOWN_LIMIT</b>				CR: / DÜ1 /
D02, D05	Motor temperature shutdown limit			FDD/MSD ROT/LIN	2/4
	155	0	200	UNS. WORD	immediately

<b>1608</b>	<b>MOTOR_FIXED_TEMPERATURE</b>				CR: DÜ1
D02, D05 C	Fixed temperature			MSD SLM FDD	2/4
HW:P2	0	0	200	UNS.WORD	Immediately

<b>1608</b>	<b>MOTOR_FIXED_TEMPERATURE</b>				CR: / DÜ1 /
D02, D05	Fixed temperature			FDD/MSD ROT/LIN	2/4
	0	0	200	UNS. WORD	immediately

<b>1610</b>	<b>DIAGNOSIS_ACTIVATION_FLAGS</b>				CR: DD1
D04	Diagnostic functions			MSD SLM FDD	2/4
-					
HW:P2	0x0000	0x0000	0x0003	UNS.WORD	Power On

<b>1610</b>	<b>DIAGNOSIS_ACTIVATION_FLAGS</b>				CR: / DD1 /
D04, EXP	Diagnostic functions (not 810D)			FDD/MSD ROT/LIN	2/4 840D
-	0 HSA: 1	0	3	UNS. WORD	PowerOn

<b>1611</b>	<b>DNDT_THRESHOLD</b>				CR: DD1
D04 %	Response threshold dn/dt			MSD SLM FDD	2/4
HW:P2	800	0	1600	UNS.WORD	Immediately

<b>1611</b>	<b>DNDT_THRESHOLD</b>				CR: / DD1 /
D04, EXP	Response threshold dn/dt			FDD/MSD ROT/LIN	2/4
%	800	0	1600	UNS. WORD	immediately

<b>1612</b>	<b>ALARM_REACTION_POWER_ON</b>				CR: DB1
D02	Configuring shutdown response to PO alarms			MSD SLM FDD	2/4
-					
HW:P2	0x0fbc	0x0000	0xffff	UNS.WORD	Immediately

<b>1612</b>	<b>ALARM_REACTION_POWER_ON</b>				CR: / DB1/
	Configuring shutdown response to PO alarms			FDD/MSD	2/4 810D
-	db2 HSA: ffff	0	fff	UNS. WORD	immediately

<b>1612</b>	<b>ALARM_REACTION_POWER_ON</b>				CR: / DB1 /
D02	Configuring shutdown response to PO alarms			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
-	fbf	0	fff	UNS. WORD	immediately
	HSA: ffff				
<b>1613</b>	<b>ALARM_REACTION_RESET</b>				CR: DB1
D02	Configuring shutdown response to RESET alarms			MSD SLM FDD	2/4
-					
HW:P2	0x0100	0x0000	0xffff	UNS.WORD	Immediately
<b>1613</b>	<b>ALARM_REACTION_RESET</b>				CR: / DB1 /
D02	Configuring shutdown response to RESET alarms			FDD/MSD   ROT/LIN	2/4
-	100	0	fff	UNS. WORD	immediately
	HSA: ffff				
<b>1615</b>	<b>SMOOTH_RUN_TOL</b>				CR: DD1, DL1
EXP	Smooth running monitoring tolerance			MSD SLM FDD	0/0
ROT: 1/min					
LIN: m/min					
HW:P2	ROT: 2.000000	0.000000	100.000000	FLOAT	Immediately
	LIN: 0.200000				
<b>1615</b>	<b>SMOOTH_RUN_TOL</b>				CR: / DD1/
	Smooth running monitoring tolerance			FDD/MSD	2/4   <b>810D</b>
1/min	2.0000	0.0000	100.0000	FLOAT	immediately
<b>1615</b>	<b>SMOOTH_RUN_TOL</b>				CR: / DD1 /
EXP	Smooth running monitoring tolerance			FDD/MSD   ROT	0/0   <b>840D</b>
1/min	2.0000	0.0000	100.0000	FLOAT	immediately
<b>1615</b>	<b>SMOOTH_RUN_TOL</b>				CR: / DL1/
EXP	Tolerance bandwidth for the smooth running monit.			FDD   LIN	0/0   <b>840D</b>
m/min	0.2000	0.0000	100.0000	FLOAT	immediately
<b>1620</b>	<b>PROG_SIGNAL_FLAGS</b>				CR: DD1
D03	Variable message function bits			MSD SLM FDD	2/4
-					
HW:P2	0x0000	0x0000	0x0007	UNS.WORD	Immediately
<b>1620</b>	<b>PROG_SIGNAL_FLAGS</b>				CR: / DD1 /
D03	Variable message function bits (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
-	0	0	7	UNS. WORD	immediately
<b>1621</b>	<b>PROG_SIGNAL_NR</b>				CR: DD1
D03	Signal number, variable message function			MSD SLM FDD	2/4
-					
HW:P2	0	0	100	UNS.WORD	Immediately
<b>1621</b>	<b>PROG_SIGNAL_NR</b>				CR: / DD1 /
D03	Signal number, variable message function (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
-	0	0	100	UNS. WORD	immediately
<b>1622</b>	<b>PROG_SIGNAL_ADDRESS</b>				CR: DD1
D03	Address, variable message function			MSD SLM FDD	2/4
-					
HW:P2	0	0	65535	UNS.WORD	Immediately
<b>1622</b>	<b>PROG_SIGNAL_ADDRESS</b>				CR: / DD1 /
D03	Address, variable message function (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
-	0	0	65535	UNS. WORD	immediately
<b>1623</b>	<b>PROG_SIGNAL_THRESHOLD</b>				CR: DD1

D03	Threshold, variable message function			MSD SLM FDD	2/4	
-						
HW:P2	0	0	16777215	UNS.DWORD	Immediately	
<b>1623</b>	<b>PROG_SIGNAL_THRESHOLD</b>				CR: / DD1 /	
D03	Threshold, variable message function (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
-	0	0	16777215	UNS. DWORD	immediately	
<b>1624</b>	<b>PROG_SIGNAL_HYSTERESIS</b>				CR: DD1	
D03	Hysteresis, variable message function			MSD SLM FDD	2/4	
-						
HW:P2	0	0	16777215	UNS.DWORD	Immediately	
<b>1624</b>	<b>PROG_SIGNAL_HYSTERESIS</b>				CR: / DD1 /	
D03	Hysteresis, variable message function (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
-	0	0	16777215	UNS. DWORD	immediately	
<b>1625</b>	<b>PROG_SIGNAL_ON_DELAY</b>				CR: DD1	
D03	Pickup delay time, variable message function			MSD SLM FDD	2/4	
ms						
HW:P2	0	0	10000	UNS.WORD	Immediately	
<b>1625</b>	<b>PROG_SIGNAL_ON_DELAY</b>				CR: / DD1 /	
D03	Pickup delay time, variable message function (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
ms	0	0	10000	UNS. WORD	immediately	
<b>1626</b>	<b>PROG_SIGNAL_OFF_DELAY</b>				CR: DD1	
D03	Dropout delay, variable message function			MSD SLM FDD	2/4	
ms						
HW:P2	0	0	10000	UNS.WORD	Immediately	
<b>1626</b>	<b>PROG_SIGNAL_OFF_DELAY</b>				CR: / DD1 /	
D03	Dropout delay, variable message function (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
ms	0	0	10000	UNS. WORD	immediately	
<b>1630</b>	<b>LINK_VOLTAGE_MON_THRESHOLD</b>				CR: DÜ1	
EXP	Response threshold, only DC link monitoring			MSD SLM FDD	2/4	
V						
HW:P2	550	0	680	UNS.WORD	Immediately	
<b>1630</b>	<b>LINK_VOLTAGE_MON_THRESHOLD</b>				CR: / DÜ1 /	
EXP	Response threshold, only DC link monitoring (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
V	550	0	680	UNS. WORD	immediately	
<b>1631</b>	<b>LINK_VOLTAGE_GEN_ON</b>				CR: DE1	
EXP	Response voltage of generator axis			MSD SLM FDD	2/4	
V						
HW:P2	450	280	650	UNS.WORD	Immediately	
<b>1631</b>	<b>LINK_VOLTAGE_GEN_ON</b>				CR: / DE1 /	
EXP	Response voltage of generator axis (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
V	450	280	650	UNS. WORD	immediately	
<b>1632</b>	<b>LINK_VOLTAGE_GEN_HYST</b>				CR: DE1	
EXP	Voltage range for generator control			MSD SLM FDD	2/4	
V						
HW:P2	30	0	300	UNS.WORD	Immediately	
<b>1632</b>	<b>LINK_VOLTAGE_GEN_HYST</b>				CR: / DE1 /	
EXP	Voltage range for generator control (not 810D)			FDD/MSD	ROT/LIN	2/4 840D
V	30	0	300	UNS. WORD	immediately	

<b>1633</b>	<b>LINK_VOLTAGE_GEN_OFF</b>				CR: <b>DE1</b>
EXP	Shutdown threshold of generator operation			MSD SLM FDD	2/4
V					
HW:P2	510	0	660	UNS.WORD	Immediately

<b>1633</b>	<b>LINK_VOLTAGE_GEN_OFF</b>				CR: / <b>DE1</b> /
EXP	Shutdown threshold of generator operation (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
V	510	0	660	UNS. WORD	immediately

<b>1634</b>	<b>LINK_VOLTAGE_RETRACT</b>				CR: <b>DE1</b>
EXP	Response threshold emergency retraction			MSD SLM FDD	2/4
V					
HW:P2	400	0	660	UNS.WORD	Immediately

<b>1634</b>	<b>LINK_VOLTAGE_RETRACT</b>				CR: / <b>DE1</b> /
EXP	Response threshold emergency retraction (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
V	400	0	660	UNS. WORD	immediately

<b>1635</b>	<b>GEN_AXIS_MIN_SPEED</b>				CR: <b>DE1, DL1</b>
EXP	Minimum speed of the generator axis			MSD SLM FDD	2/4
ROT: 1/min					
LIN: m/min					
HW:P2	0.000000	0.000000	100000.000000	FLOAT	Immediately

<b>1635</b>	<b>GEN_AXIS_MIN_SPEED</b>				CR: / <b>DE1</b> /
EXP	Minimum speed of the generator axis (not 810D)			FDD/MSD   ROT	2/4   <b>840D</b>
1/min	0.0000	0.0000	100000.0000	FLOAT	immediately

<b>1635</b>	<b>GEN_AXIS_MIN_SPEED</b>				CR: / <b>DL1</b> /
EXP	Minimum speed generator axis (not 810D)			FDD   LIN	2/4   <b>840D</b>
m/min	0.0000	0.0000	100000.0000	FLOAT	immediately

<b>1636</b>	<b>RETRACT_AND_GENERATOR_MODE</b>				CR: <b>DE1</b>
EXP	Operating mode emergency retraction/gen. operation			MSD SLM FDD	2/4
-					
HW:P2	0	0	0	UNS.WORD	Immediately
HW:P2 840D	-	-	7	UNS.WORD	Immediately

<b>1636</b>	<b>RETRACT_AND_GENERATOR_MODE</b>				CR: / <b>DE1</b> /
EXP	Operating mode emergency retraction/gen. operation (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
-	0	0	7	UNS. WORD	immediately

<b>1637</b>	<b>GEN_STOP_DELAY</b>				CR: <b>DE1</b>
EXP	Delay time for regenerative braking			MSD SLM FDD	2/4
ms					
HW:P2	0	0	10000	UNS.WORD	Immediately

<b>1637</b>	<b>GEN_STOP_DELAY</b>				CR: / <b>DE1</b> /
EXP	Delay time for regenerative braking (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
ms	0	0	10000	UNS. WORD	immediately

<b>1638</b>	<b>RETRACT_TIME</b>				CR: <b>DE1</b>
EXP	Emergency retraction time			MSD SLM FDD	2/4
ms					
HW:P2	0	0	10000	UNS.WORD	Immediately

<b>1638</b>	<b>RETRACT_TIME</b>				CR: / <b>DE1</b> /
EXP	Emergency retraction time (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
ms	0	0	10000	UNS. WORD	immediately

<b>1639</b>	<b>RETRACT_SPEED</b>				CR: <b>DE1, DL1</b>
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EXP	Emergency retraction speed			MSD SLM FDD	2/4	
-						
HW:P2	0	-4194304	4194304	DWORD	Immediately	

<b>1639</b>	<b>RETRACT_SPEED</b>				CR: /DE1 /	
EXP	Emergency retraction speed (not 810D)			FDD/MSD   ROT	2/4	<b>840D</b>
-	0	-4194304	4194304	DWORD	immediately	

<b>1639</b>	<b>RETRACT_SPEED</b>				CR: / DL1/	
EXP	Emergency retraction speed (not 810D)			FDD   LIN	2/4	<b>840D</b>
-	0	-4194304	4194304	DWORD	immediately	

<b>1650</b>	<b>DIAGNOSIS_CONTROL_FLAGS</b>			CR: DD1, DE1		
D04	Diagnostic control			MSD SLM FDD	2/4	
-						
HW:P2	0x0000	0x0000	0xffff	UNS.WORD	Immediately	

<b>1650</b>	<b>DIAGNOSIS_CONTROL_FLAGS</b>			CR: / DD1, DE1 /		
D04, EXP	Diagnostic control (not 810D)			FDD/MSD   ROT/LIN	2/4	<b>840D</b>
-	0	0	fff	UNS. WORD	immediately	

<b>1651</b>	<b>MINMAX_SIGNAL_NR</b>			CR: DD1		
D04	Signal number min./max. memory			MSD SLM FDD	2/4	
-						
HW:P2	0	0	100	UNS.WORD	Immediately	

<b>1651</b>	<b>MINMAX_SIGNAL_NR</b>			CR: / DD1 /		
D04, EXP	Signal number min./max. memory (not 810D)			FDD/MSD   ROT/LIN	2/4	<b>840D</b>
-	0	0	100	UNS. WORD	immediately	

<b>1652</b>	<b>MINMAX_ADDRESS</b>			CR: DD1		
D04	Memory cell, min./max. memory			MSD SLM FDD	2/4	
-						
HW:P2	0	0	65535	UNS.WORD	Immediately	

<b>1652</b>	<b>MINMAX_ADDRESS</b>			CR: / DD1 /		
D04, EXP	Memory cell, min./max. memory (not 810D)			FDD/MSD   ROT/LIN	2/4	<b>840D</b>
-	0	0	65535	UNS. WORD	immediately	

<b>1653</b>	<b>MINMAX_MIN_VALUE</b>			CR: DD1		
D04	Minimum value, min./max. memory			MSD SLM FDD	2/4	
-						
HW:P2	0	0	16777215	UNS.DWORD	Immediately	

<b>1653</b>	<b>MINMAX_MIN_VALUE</b>			CR: / DD1 /		
D04, EXP	Minimum value, min./max. memory (not 810D)			FDD/MSD   ROT/LIN	2/4	<b>840D</b>
-	0	0	16777215	UNS. DWORD	immediately	

<b>1654</b>	<b>MINMAX_MAX_VALUE</b>			CR: DD1		
D04	Maximum value, min./max. memory			MSD SLM FDD	2/4	
-						
HW:P2	0	0	16777215	UNS.DWORD	Immediately	

<b>1654</b>	<b>MINMAX_MAX_VALUE</b>			CR: / DD1 /		
D04, EXP	Maximum value, min./max. memory (not 810D)			FDD/MSD   ROT/LIN	2/4	<b>840D</b>
-	0	0	16777215	UNS. DWORD	immediately	

<b>1655</b>	<b>MONITOR_SEGMENT</b>			CR: DD1		
D04	Segment of memory cell for monitor			MSD SLM FDD	2/4	
-						
HW:P2	0	0	1	UNS.WORD	Immediately	

<b>1655</b>	<b>MONITOR_SEGMENT</b>				CR: / DD1 /	
D04, EXP	Segment of memory cell for monitor			FDD/MSD	ROT/LIN	2/4
-	0	0	1	UNS. WORD	immediately	
<b>1656</b>	<b>MONITOR_ADDRESS</b>				CR: DD1	
D04	Address of memory cell for monitor			MSD SLM FDD		2/4
-						
HW:P2	0	0	0x00FFFFFF	UNS.DWORD	Immediately	
<b>1656</b>	<b>MONITOR_ADDRESS</b>				CR: / DD1 /	
D04, EXP	Address of memory cell for monitor			FDD/MSD	ROT/LIN	2/4
-	0	0	65535	UNS. WORD	immediately	
<b>1657</b>	<b>MONITOR_DISPLAY</b>				CR: DD1	
D04	Display monitor value			MSD SLM FDD		2/4
-						
HW:P2	0	0	0x00FFFFFF	UNS.DWORD	Immediately	
<b>1657</b>	<b>MONITOR_DISPLAY</b>				CR: / DD1 /	
D04, EXP	Display monitor value			FDD/MSD	ROT/LIN	2/4
-	0	0	16777215	UNS. DWORD	immediately	
<b>1658</b>	<b>MONITOR_INPUT_VALUE</b>				CR: DD1	
D04	Entry of monitor value			MSD SLM FDD		2/4
-						
HW:P2	0	0	16777215	UNS.DWORD	Immediately	
<b>1658</b>	<b>MONITOR_INPUT_VALUE</b>				CR: / DD1 /	
D04, EXP	Entry of monitor value			FDD/MSD	ROT/LIN	2/4
-	0	0	16777215	UNS. DWORD	immediately	
<b>1659</b>	<b>MONITOR_INPUT_STROBE</b>				CR: DD1	
D04	Transference of monitor value			MSD SLM FDD		2/4
-						
HW:P2	0	0	1	UNS.WORD	Immediately	
<b>1659</b>	<b>MONITOR_INPUT_STROBE</b>				CR: / DD1 /	
D04, EXP	Transference of monitor value			FDD/MSD	ROT/LIN	2/4
-	0	0	1	UNS. WORD	immediately	
<b>1660</b>	<b>UF_MODE_FREQUENCY</b>				CR: DE1	
EXP	Motor frequency V/f mode			MSD SLM FDD		0/0
Hz						
HW:P2	0.000000	-10000.000000	10000.000000	FLOAT	Immediately	
<b>1660</b>	<b>UF_MODE_FREQUENCY</b>				CR: / DE1 /	
EXP	Motor frequency V/f mode (not 810D)			FDD/MSD	ROT/LIN	0/0
Hz	0.0000	-10000.0000	10000.0000	FLOAT	840D immediately	
<b>1661</b>	<b>UF_MODE_RATIO</b>				CR: DE1	
EXP	V/f ratio in V/f mode			MSD SLM FDD		0/0
Vs						
HW:P2	2.400000	0.000000	100.000000	FLOAT	Immediately	
<b>1661</b>	<b>UF_MODE_RATIO</b>				CR: / DE1 /	
EXP	V/f ratio in V/f mode (not 810D)			FDD/MSD	ROT/LIN	0/0
Vs	2.4000	0.0000	100.0000	FLOAT	840D immediately	
<b>1662</b>	<b>UF_MODE_DELTA_FREQUENCY</b>				CR: DE1	
EXP	Changing the motor frequency of V/f operation			MSD SLM FDD		0/0
Hz/s						
HW:P2	5.000000	0.000000	10000.000000	FLOAT	Immediately	



<b>1662</b>	<b>UF_MODE_DELTA_FREQUENCY</b>				CR: / DE1 /	
EXP	Changing the motor frequency of V/f operation (not 810D)				FDD/MSD	ROT/LIN
Hz/s	5.0000	0.0000	10000.0000	FLOAT	0/0	<b>840D</b>
						immediately
<b>1665</b>	<b>IPO_SPEEDCTRL_DELAY_FACTOR</b>				CR: IAD	
EXP	Run-time factor IPO/SC cycles f. RFG				MSD SLM FDD	0/0
-						
HW:P2	2.000000	0.000000	20.000000	FLOAT		Immediately
<b>1665</b>	<b>IPO_SPEEDCTRL_DELAY_FACTOR</b>				CR: / IAD /	
EXP	Run-time factor IPO/SC cycles f. RFG (not 810D)				FDD/MSD	ROT/LIN
-	2.0000	0.0000	20.0000	FLOAT	0/0	<b>840D</b>
						immediately
<b>1700</b>	<b>TERMINAL_STATE</b>				CR: DD1	
D04	Status of binary inputs				MSD SLM FDD	2/4
-						
HW:P2	0x0000	0x0000	0xffff	UNS.WORD		Immediately
<b>1700</b>	<b>TERMINAL_STATE</b>				CR: / DD1/	
	Status of binary inputs				FDD/MSD	ROT/LIN
-	0	0	7fff	UNS. WORD	2/4	<b>810D</b>
						immediately
<b>1700</b>	<b>TERMINAL_STATE</b>				CR: / DD1 /	
D04	Status of binary inputs				FDD/MSD	ROT/LIN
-	0	0	ffff	UNS. WORD	2/4	<b>840D</b>
						immediately
<b>1701</b>	<b>LINK_VOLTAGE</b>				CR: DD1	
D04	DC link voltage				MSD SLM FDD	2/4
V						
HW:P2	0	0	65535	UNS.WORD		Immediately
<b>1701</b>	<b>LINK_VOLTAGE</b>				CR: / DD1/	
	DC link voltage				FDD/MSD	ROT/LIN
V	0	0	32767	UNS. WORD	2/4	<b>810D</b>
						immediately
<b>1701</b>	<b>LINK_VOLTAGE</b>				CR: / DD1 /	
D04	DC link voltage				FDD/MSD	ROT/LIN
V	0	0	65535	UNS. WORD	2/4	<b>840D</b>
						immediately
<b>1702</b>	<b>MOTOR_TEMPERATURE</b>				CR: DD1	
D04	Motor temperature				MSD SLM FDD	2/4
C						
HW:P2	0	0	32767	WORD		Immediately
<b>1702</b>	<b>MOTOR_TEMPERATURE</b>				CR: / DD1 /	
D04	Motor temperature				FDD/MSD	ROT/LIN
	0	0	32767	WORD	2/4	
						immediately
<b>1703</b>	<b>LEAD_TIME_MOTOR_ENC</b>				CR: DD1	
EXP	Leadtime for motor measuring system converter				MSD SLM FDD	2/4
µs						
HW:P2	0	0	65535	UNS.WORD		Immediately
<b>1703</b>	<b>LEAD_TIME_MOTOR_ENC</b>				CR: / DD1/	
	Leadtime for motor measuring system converter				FDD/MSD	ROT/LIN
us	0	0	32767	UNS. WORD	2/4	<b>810D</b>
						immediately
<b>1703</b>	<b>LEAD_TIME_MOTOR_ENC</b>				CR: / DD1 /	
EXP	Leadtime for motor measuring system converter				FDD/MSD	ROT/LIN
us	0	0	65535	UNS. WORD	2/4	<b>840D</b>
						immediately

<b>1704</b>	<b>LEAD_TIME_DIRECT_ENC</b>				CR: <b>DD1</b>
EXP	Leadtime for direct measuring system converter		MSD SLM FDD	2/4	
μs					
HW:P2	0	0	65535	UNS.WORD	Immediately

<b>1704</b>	<b>LEAD_TIME_DIRECT_ENC</b>				CR: / <b>DD1/</b>
	Leadtime for direct measuring system converter		FDD/MSD	2/4	<b>810D</b>
us	0	0	32767	UNS. WORD	immediately

<b>1704</b>	<b>LEAD_TIME_DIRECT_ENC</b>				CR: / <b>DD1 /</b>
EXP	Leadtime for direct measuring system converter		FDD/MSD ROT/LIN	2/4	<b>840D</b>
us	0	0	65535	UNS. WORD	immediately

<b>1705</b>	<b>DESIRED_VOLTAGE</b>				CR: <b>DD1</b>
D04	Voltage setpoint (rms)		MSD SLM FDD	2/4	
V					
HW:P2	0.000000	-100000.000000	100000.000000	FLOAT	Immediately

<b>1705</b>	<b>DESIRED_VOLTAGE</b>				CR: / <b>DD1 /</b>
D04	Voltage setpoint (rms) (not 810D)		FDD/MSD ROT/LIN	2/4	<b>840D</b>
V	0.0000	-100000.0000	100000.0000	FLOAT	immediately

<b>1706</b>	<b>DESIRED_SPEED</b>				CR: <b>DD1, DL1</b>
D04	Speed setpoint		MSD SLM FDD	2/4	
ROT: 1/min					
LIN: m/min					
HW:P2	0.000000	-100000.000000	100000.000000	FLOAT	Immediately

<b>1706</b>	<b>DESIRED_SPEED</b>				CR: / <b>DD1/</b>
	Speed setpoint		FDD/MSD	2/4	<b>810D</b>
1/min	0.0000	0.0000	32767.0000	FLOAT	immediately

<b>1706</b>	<b>DESIRED_SPEED</b>				CR: / <b>DL1/</b>
D04	Speed setpoint		FDD LIN	2/4	<b>840D</b>
m/min	0.0000	-100000.0000	100000.0000	FLOAT	immediately

<b>1706</b>	<b>DESIRED_SPEED</b>				CR: / <b>DD1 /</b>
D04	Speed setpoint		FDD/MSD ROT	2/4	<b>840D</b>
1/min	0.0000	-100000.0000	100000.0000	FLOAT	immediately

<b>1707</b>	<b>ACTUAL_SPEED</b>				CR: <b>DD1, DL1</b>
D04	Actual speed value		MSD SLM FDD	2/4	
ROT: 1/min					
LIN: m/min					
HW:P2	0.000000	-100000.000000	100000.000000	FLOAT	Immediately

<b>1707</b>	<b>ACTUAL_SPEED</b>				CR: / <b>DD1/</b>
	Actual speed value		FDD/MSD	2/4	<b>810D</b>
1/min	0.0000	0.0000	32767.0000	FLOAT	immediately

<b>1707</b>	<b>ACTUAL_SPEED</b>				CR: / <b>DD1 /</b>
D04	Actual speed value		FDD/MSD ROT	2/4	<b>840D</b>
1/min	0.0000	-100000.0000	100000.0000	FLOAT	immediately

<b>1707</b>	<b>ACTUAL_SPEED</b>				CR: / <b>DL1/</b>
D04	Speed actual value		FDD LIN	2/4	<b>840D</b>
m/min	0.0000	-100000.0000	100000.0000	FLOAT	immediately

<b>1708</b>	<b>ACTUAL_CURRENT</b>				CR: <b>DD1</b>
D04	Smoothed actual current value		MSD SLM FDD	2/4	
%					
HW:P2	0.000000	-100000.000000	100000.000000	FLOAT	Immediately

<b>1708</b>	<b>ACTUAL_CURRENT</b>				CR: / DD1/	
	Smoothed actual current value				FDD/MSD	2/4 810D
%	0.0000	0.0000	32767.0000	FLOAT	immediately	

<b>1708</b>	<b>ACTUAL_CURRENT</b>				CR: / DD1 /	
D04	Smoothed actual current value				FDD/MSD ROT/LIN	2/4 840D
%	0.0000	-100000.0000	100000.0000	FLOAT	immediately	

<b>1709</b>	<b>VOLTAGE_LSB</b>				CR: DD1	
EXP	Significance of voltage representation				MSD SLM FDD	2/4
-						
HW:P2	0.000000	-100000.000000	100000.000000	FLOAT	Immediately	

<b>1709</b>	<b>VOLTAGE_LSB</b>				CR: / DD1/	
	Significance of voltage representation				FDD/MSD	2/4 810D
-	0.0000	0.0000	32767.0000	FLOAT	immediately	

<b>1709</b>	<b>VOLTAGE_LSB</b>				CR: / DD1 /	
EXP	Significance of voltage representation				FDD/MSD ROT/LIN	2/4 840D
-	0.0000	-100000.0000	100000.0000	FLOAT	immediately	

<b>1710</b>	<b>CURRENT_LSB</b>				CR: DD1	
EXP	Significance of current representation				MSD SLM FDD	2/4
μA						
HW:P2	0.000000	-100000.000000	100000.000000	FLOAT	Immediately	

<b>1710</b>	<b>CURRENT_LSB</b>				CR: / DD1/	
	Significance of current representation				FDD/MSD	2/4 810D
uA	0.0000	0.0000	32767.0000	FLOAT	immediately	

<b>1710</b>	<b>CURRENT_LSB</b>				CR: / DD1 /	
EXP	Significance of current representation				FDD/MSD ROT/LIN	2/4 840D
uA	0.0000	-100000.0000	100000.0000	FLOAT	immediately	

<b>1711</b>	<b>SPEED_LSB</b>				CR: DD1, DL1	
EXP	Significance of the speed representation				MSD SLM FDD	2/4
ROT: 1/min						
LIN: m/min						
HW:P2	0.000000	-100000.000000	100000.000000	FLOAT	Immediately	

<b>1711</b>	<b>SPEED_LSB</b>				CR: / DD1/	
	Significance of the speed representation				FDD/MSD	2/4 810D
1/min	0.0000	0.0000	32767.0000	FLOAT	immediately	

<b>1711</b>	<b>SPEED_LSB</b>				CR: / DL1/	
EXP	Significance of the speed representation				FDD LIN	2/4 840D
m/min	0.0000	-100000.0000	100000.0000	FLOAT	immediately	

<b>1711</b>	<b>SPEED_LSB</b>				CR: /DD1 /	
EXP	Significance of the speed representation				FDD/MSD ROT	2/4 840D
1/min	0.0000	-100000.0000	100000.0000	FLOAT	immediately	

<b>1712</b>	<b>ROTOR_FLUX_LSB</b>				CR: DD1	
EXP	Significance of the rotor flux representation				MSD SLM FDD	2/4
μVs						
HW:P2	0.000000	-100000.000000	100000.000000	FLOAT	Immediately	

<b>1712</b>	<b>ROTOR_FLUX_LSB</b>				CR: / DD1/	
	Significance of the rotor flux representation				FDD/MSD	2/4 810D
uVs	0.0000	0.0000	32767.0000	FLOAT	immediately	

<b>1712</b>	<b>ROTOR_FLUX_LSB</b>				CR: / DD1 /
EXP	Significance of the rotor flux representation			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
uVs	0.0000	-100000.0000	100000.0000	FLOAT	immediately

<b>1713</b>	<b>ROT: TORQUE_LSB LIN: FORCE_LSB</b>				CR: DD1, DL1
EXP ROT: µNm LIN: µN	ROT: Significance of the torque representation LIN: Significance of the force representation			MSD SLM FDD	2/4
HW:P2	0.000000	ROT: - 100000.000000 LIN: - 1000000.000000	ROT: 100000.000000 LIN: 1000000.000000 0	FLOAT	Immediately

<b>1713</b>	<b>TORQUE_LSB</b>				CR: / DD1/
	Significance of the torque representation			FDD/MSD	2/4   <b>810D</b>
uNm	0.0000	0.0000	32767.0000	FLOAT	immediately

<b>1713</b>	<b>FORCE_LSB</b>				CR: / DL1/
EXP	Significance of the force representation			FDD   LIN	2/4   <b>840D</b>
uN	0.0000	-1000000.0000	1000000.0000	FLOAT	immediately

<b>1713</b>	<b>TORQUE_LSB</b>				CR: / DD1 /
EXP	Significance of the torque representation			FDD/MSD   ROT	2/4   <b>840D</b>
uNm	0.0000	-100000.0000	100000.0000	FLOAT	immediately

<b>1714</b>	<b>ROTOR_POS_LSB</b>				CR: DD1
EXP Degrees	Significance of rotor position representation			MSD SLM FDD	2/4
HW:P2	0.000000	-100000.000000	100000.000000	FLOAT	Immediately

<b>1714</b>	<b>ROTOR_POS_LSB</b>				CR: / DD1/
	Significance of rotor position representation			FDD/MSD	2/4   <b>810D</b>
ø	0.0000	0.0000	32767.0000	FLOAT	immediately

<b>1714</b>	<b>ROTOR_POS_LSB</b>				CR: / DD1 /
EXP	Significance of rotor position representation			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
degrees	0.0000	-100000.0000	100000.0000	FLOAT	immediately

<b>1719</b>	<b>ABS_ACTUAL_CURRENT</b>				CR: DD1
D04 A	Absolute current setpoint value (rms)			MSD SLM FDD	2/4
HW:P2	0.000000	-100000.000000	100000.000000	FLOAT	Immediately

<b>1719</b>	<b>ABS_ACTUAL_CURRENT</b>				CR: / DD1 /
D04	Absolute current setpoint value (rms) (not 810D)			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
A	0.0000	-100000.0000	100000.0000	FLOAT	immediately

<b>1720</b>	<b>CRC_DIAGNOSIS</b>				CR: DD1
D04 -	CRC diagnostic parameter			MSD SLM FDD	2/4
HW:P2	0	0	65535	UNS.WORD	Immediately

<b>1720</b>	<b>CRC_DIAGNOSIS</b>				CR: / DD1/
	CRC diagnostic parameter			FDD/MSD	2/4   <b>810D</b>
-	0	0	32767	UNS. WORD	immediately

<b>1720</b>	<b>CRC_DIAGNOSIS</b>				CR: / DD1 /
D04, EXP	CRC diagnostic parameter			FDD/MSD   ROT/LIN	2/4   <b>840D</b>
-	0	0	65535	UNS. WORD	immediately

<b>1721</b>	<b>ACCEL_DIAGNOSIS</b>				<b>CR: DD1</b>	
D04	Diagnostics, actual speed value			MSD SLM FDD	2/4	
-						
HW:P2	0	0	65535	UNS.WORD	Immediately	
<b>1721</b>	<b>ACCEL_DIAGNOSIS</b>				<b>CR: / DD1/</b>	
	Diagnostics, actual speed value			FDD/MSD	2/4	<b>810D</b>
-						
	0	0	32767	UNS. WORD	immediately	
<b>1721</b>	<b>ACCEL_DIAGNOSIS</b>				<b>CR: / DD1 /</b>	
D04, EXP	Diagnostics, actual speed value			FDD/MSD ROT/LIN	2/4	<b>840D</b>
-						
	0	0	65535	UNS. WORD	immediately	
<b>1722</b>	<b>LOAD</b>				<b>CR: DD1</b>	
D04	Utilization			MSD SLM FDD	2/4	
%						
HW:P2	0.000000	-100000.000000	100000.000000	FLOAT	Immediately	
<b>1722</b>	<b>LOAD</b>				<b>CR: / DD1/</b>	
	Utilization			FDD/MSD	2/4	<b>810D</b>
%						
	0.0000	0.0000	32767.0000	FLOAT	immediately	
<b>1722</b>	<b>LOAD</b>				<b>CR: / DD1 /</b>	
D04	Utilization			FDD/MSD ROT/LIN	2/4	<b>840D</b>
%						
	0.0000	-100000.0000	100000.0000	FLOAT	immediately	
<b>1723</b>	<b>ACTUAL_RAMP_TIME</b>				<b>CR: DD1</b>	
EXP	Diagnostics, ramp-up time			MSD SLM FDD	2/4	
ms						
HW:P2	0	0	65535	UNS.WORD	Immediately	
<b>1723</b>	<b>ACTUAL_RAMP_TIME</b>				<b>CR: / DD1/</b>	
	Diagnostics, ramp-up time			FDD/MSD	2/4	<b>810D</b>
ms						
	0	0	32767	UNS. WORD	immediately	
<b>1723</b>	<b>ACTUAL_RAMP_TIME</b>				<b>CR: / DD1 /</b>	
EXP	Diagnostics, ramp-up time			FDD/MSD ROT/LIN	2/4	<b>840D</b>
ms						
	0	0	65535	UNS. WORD	immediately	
<b>1724</b>	<b>SMOOTH_RUN_DIAGNOSIS</b>				<b>CR: DD1</b>	
EXP	Diagnostics, smooth running monitoring			MSD SLM FDD	2/4	
-						
HW:P2	0	0	65535	UNS.WORD	Immediately	
<b>1724</b>	<b>SMOOTH_RUN_DIAGNOSIS</b>				<b>CR: / DD1/</b>	
	Diagnostics, smooth running monitoring			FDD/MSD	2/4	<b>810D</b>
-						
	0	0	32767	UNS. WORD	immediately	
<b>1724</b>	<b>SMOOTH_RUN_DIAGNOSIS</b>				<b>CR: / DD1 /</b>	
EXP	Diagnostics, smooth running monitoring			FDD/MSD ROT/LIN	2/4	<b>840D</b>
-						
	0	0	65535	UNS. WORD	immediately	
<b>1725</b>	<b>ROT: MAX_TORQUE_FROM_NC LIN: MAX_FORCE_FROM_NC</b>				<b>CR: DD1, DL1</b>	
EXP	ROT: Standardising the torque setpoint average LIN: Rating force setpoint interface			MSD SLM FDD	2/4	
ROT: Nm LIN: N						
HW:P2	0.000000	ROT: - 100000.000000 LIN: - 1000000.000000	ROT: 100000.000000 LIN: 1000000.000000 0	FLOAT	Immediately	

<b>1725</b>	<b>MAX_TORQUE_FROM_NC</b>				CR: / DD1/	
	Standardising the torque setpoint average			FDD/MSD	2/4	<b>810D</b>
Nm	0.0000	0.0000	32767.0000	FLOAT	immediately	
<b>1725</b>	<b>MAX_TORQUE_FROM_NC</b>				CR: /DD1 /	
EXP	Standardising the torque setpoint average			FDD/MSD	ROT	2/4 <b>840D</b>
Nm	0.0000	-100000.0000	100000.0000	FLOAT	immediately	
<b>1725</b>	<b>MAX_FORCE_FROM_NC</b>				CR: / DL1/	
EXP	Rating force setpoint interface			FDD	LIN	2/4 <b>840D</b>
N	0.0000	-1000000.0000	1000000.0000	FLOAT	immediately	
<b>1728</b>	<b>DESIRED_TORQUE</b>				CR: F1	
D04	Torque setpoint			MSD SLM FDD	2/4	
%						
HW:P2	0.000000	-100000.000000	100000.000000	FLOAT	Immediately	
<b>1728</b>	<b>DESIRED_TORQUE</b>				CR: / F1 /	
D04	Torque setpoint (not 810D)			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
%	0.0000	-100000.0000	100000.0000	FLOAT	immediately	
<b>1729</b>	<b>ACTUAL_ELECTRIC_ROTORPOS</b>				CR: FBU, POS3	
D04	Current rotor position (electr.)			MSD SLM FDD	2/4	
Degrees						
HW:P2	0.000000	-100000.000000	100000.000000	FLOAT	Immediately	
<b>1729</b>	<b>ACTUAL_ELECTRIC_ROTORPOS</b>				CR: / FBU, POS3 /	
D04	Current rotor position (electr.) (not 810D)			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
degrees	0.0000	-100000.0000	100000.0000	FLOAT	immediately	
<b>1730</b>	<b>OPERATING_MODE</b>				CR: DD1	
D04	Operating mode display			MSD SLM FDD	2/4	
-						
HW:P2	1	1	65535	UNS.WORD	Immediately	
<b>1730</b>	<b>OPERATING_MODE</b>				CR: / DD1/	
	Operating mode display			FDD/MSD		2/4 <b>810D</b>
-	0	0	32767	UNS. WORD	immediately	
<b>1730</b>	<b>OPERATING_MODE</b>				CR: / DD1 /	
D04	Operating mode display			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
-	1	1	65535	UNS. WORD	immediately	
<b>1731</b>	<b>CL1_PO_IMAGE</b>				CR: DB1	
D04	Image ZK1_PO register			MSD SLM FDD	2/4	
-						
HW:P2	0	0	65535	UNS.WORD	Immediately	
<b>1731</b>	<b>CL1_PO_IMAGE</b>				CR: / DB1/	
	Image ZK1_PO register			FDD/MSD		2/4 <b>810D</b>
-	0	0	32767	UNS. WORD	immediately	
<b>1731</b>	<b>CL1_PO_IMAGE</b>				CR: / DB1 /	
D04, EXP	Image ZK1_PO register			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
-	0	0	65535	UNS. WORD	immediately	
<b>1732</b>	<b>CL1_RES_IMAGE</b>				CR: DB1	
D04	Image ZK1_RES register			MSD SLM FDD	2/4	
-						
HW:P2	0	0	65535	UNS.WORD	Immediately	

<b>1732</b>	<b>CL1_RES_IMAGE</b>				CR: / DB1/	
	Image ZK1_RES register			FDD/MSD	2/4	<b>810D</b>
-	0	0	32767	UNS. WORD	immediately	
<b>1732</b>	<b>CL1_RES_IMAGE</b>				CR: / DB1 /	
D04, EXP	Image ZK1_RES register			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
-	0	0	65535	UNS. WORD	immediately	
<b>1733</b>	<b>LPFC_DIAGNOSIS</b>				CR: DD1	
EXP	NPFK diagnosis counter			MSD SLM FDD	2/4	
-						
HW:P2	0	0	65535	UNS.WORD	Immediately	
<b>1733</b>	<b>LPFC_DIAGNOSIS</b>				CR: / DD1/	
	NPFK diagnosis counter			FDD/MSD	2/4	<b>810D</b>
-	0	0	32767	UNS. WORD	immediately	
<b>1733</b>	<b>LPFC_DIAGNOSIS</b>				CR: / DD1 /	
EXP	NPFK diagnosis counter			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
-	0	0	65535	UNS. WORD	immediately	
<b>1734</b>	<b>DIAG_ROTORPOS_IDENT</b>				CR: DM1	
-	Rotor position identification diagnosis			SLM FDD	2/4	
-						
HW:P2	0	-7	4	WORD	Immediately	
<b>1734</b>	<b>DIAG_ROTORPOS_IDENT</b>				CR: / DM1 /	
-	Rotor position identification diagnosis (not 810D)			FDD	ROT/LIN	2/4 <b>840D</b>
-	0	-7	3	WORD	immediately	
<b>1735</b>	<b>PROCESSOR_LOAD</b>				CR: DD1	
-	Processor load			MSD SLM FDD	2/4	
%						
HW:P2	0	0	65535	UNS.WORD	Immediately	
<b>1735</b>	<b>PROCESSOR_LOAD</b>				CR: / DD1 /	
-	Processor load (not 810D)			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
%	0	0	65535	UNS. WORD	immediately	
<b>1736</b>	<b>TEST_ROTORPOS_IDENT</b>				CR: DM1	
D04	Rotor position identification			FDD SLM	2/4	
-						
HW:P2	0	0	3	UNS.WORD	Immediately	
<b>1736</b>	<b>TEST_ROTORPOS_IDENT</b>				CR: / DM1 /	
D04	Rotor position identification (not 810D)			FDD	ROT/LIN	2/4 <b>840D</b>
-	0	0	1	UNS. WORD	immediately	
<b>1737</b>	<b>DIFF_ROTORPOS_IDENT</b>				CR: DM1	
-	Rotor position identification difference			FDD SLM	2/4	
Degrees						
HW:P2	0.000000	-100000.000000	100000.000000	FLOAT	Immediately	
<b>1737</b>	<b>DIFF_ROTORPOS_IDENT</b>				CR: / DM1 /	
-	Rotor position identification difference (not 810D)			FDD	ROT/LIN	2/4 <b>840D</b>
degrees	0.0000	-100000.0000	100000.0000	FLOAT	immediately	
<b>1790</b>	<b>ENC_TYPE_MOTOR</b>				CR: DG1	
D04	Measuring circuit type, indirect measuring system			MSD SLM FDD	2/4	
-						
HW:P2	0	-1	32767	WORD	Immediately	

<b>1790</b>	<b>ENC_TYPE_MOTOR</b>				CR: / <b>DG1</b> /	
	Measuring circuit type, indirect measuring system			FDD/MSD	2/4	<b>810D</b>
-	0	0	32767	WORD	immediately	
<b>1790</b>	<b>ENC_TYPE_MOTOR</b>				CR: / <b>DG1</b> /	
D04, D06	Measuring circuit type, indirect measuring system			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
-	0	-1	32767	WORD	immediately	
<b>1791</b>	<b>ENC_TYPE_DIRECT</b>				CR: <b>DG1</b>	
D04	Measuring circuit type, direct measuring system			MSD SLM FDD		2/4
-						
HW:P2	0	-1	32767	WORD	Immediately	
<b>1791</b>	<b>ENC_TYPE_DIRECT</b>				CR: / <b>DG1</b> /	
	Measuring circuit type, direct measuring system			FDD/MSD	2/4	<b>810D</b>
-	0	0	32767	WORD	immediately	
<b>1791</b>	<b>ENC_TYPE_DIRECT</b>				CR: / <b>DG1</b> /	
D04, D06	Measuring circuit type, direct measuring system			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
-	0	-1	32767	WORD	immediately	
<b>1796</b>	<b>HW_VERSION</b>				CR: <b>FBA</b>	
D04	HW_VERSION			MSD SLM FDD		2/4
-						
HW:P2	0	0	65535	UNS.WORD	Immediately	
<b>1796</b>	<b>HW_VERSION</b>				CR: / <b>FBA</b> /	
EXP	Hardware version (not 810D)			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
-	0	0	65535	UNS. WORD	immediately	
<b>1797</b>	<b>PBL_VERSION</b>				CR: <b>DD1</b>	
EXP	Data version			MSD SLM FDD		2/4
-						
HW:P2	0	0	65535	UNS.WORD	Immediately	
<b>1797</b>	<b>PBL_VERSION</b>				CR: / <b>DD1</b> /	
	Data version			FDD/MSD	2/4	<b>810D</b>
-	0	0	32767	UNS. WORD	immediately	
<b>1797</b>	<b>PBL_VERSION</b>				CR: / <b>DD1</b> /	
EXP	Data version			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
-	0	0	65535	UNS. WORD	immediately	
<b>1798</b>	<b>FIRMWARE_DATE</b>				CR: <b>DD1</b>	
D04	Firmware date			MSD SLM FDD		2/4
-						
HW:P2	0	0	65535	UNS.WORD	Immediately	
<b>1798</b>	<b>FIRMWARE_DATE</b>				CR: / <b>DD1</b> /	
	Firmware date			FDD/MSD	2/4	<b>810D</b>
-	0	0	32767	UNS. WORD	immediately	
<b>1798</b>	<b>FIRMWARE_DATE</b>				CR: / <b>DD1</b> /	
D04, EXP	Firmware date			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
-	0	0	65535	UNS. WORD	immediately	
<b>1799</b>	<b>FIRMWARE_VERSION</b>				CR: <b>DD1</b>	
D04	Firmware release			MSD SLM FDD		2/4
-						
HW:P2	0	0	4294967295	UNS.DWORD	Immediately	



<b>1799</b>	<b>FIRMWARE_VERSION</b>				CR: / DD1/	
	Firmware release			FDD/MSD	2/4	<b>810D</b>
-	0	0	32767	UNS. DWORD	immediately	
<b>1799</b>	<b>FIRMWARE_VERSION</b>				CR: / DD1 /	
D04	Firmware release			FDD/MSD	ROT/LIN	2/4 <b>840D</b>
-	0	0	2147483647	UNS. DWORD	immediately	
<b>2005</b>	<b>ENC_RESOL_MOTOR_M2</b>				CR: / /	
D06	Motor measuring system encoder increments (not 810D)			MSD	ROT	2/4 <b>840D</b>
-	2048	1	65535	UNS. WORD	PowerOn	
<b>2098</b>	<b>INVERTER_MAX_CURR_DERAT_M2</b>				CR: /DE1, DM1 /	
D05	PS derating limit current (not 810D)			MSD	ROT	2/4 <b>840D</b>
A	200.0000	0.0000	500.0000	FLOAT	immediately	
<b>2099</b>	<b>INVERTER_DERATING_FACT_M2</b>				CR: /DE1, DM1 /	
D05	PS limit current derating (not 810D)			MSD	ROT	2/4 <b>840D</b>
%	0.0000	0.0000	100.0000	FLOAT	immediately	
<b>2100</b>	<b>PWM_FREQUENCY_M2</b>				CR: / /	
D01, D05, EXP	Pulse-width modulation frequency (not 810D)			MSD	ROT	2/4 <b>840D</b>
Hz	3200.0000	2000.0000	8000.0000	FLOAT	PowerOn	
<b>2102</b>	<b>MOTOR_CODE_M2</b>				CR: / /	
D04, D05	Motor code number (not 810D)			MSD	ROT	2/4 <b>840D</b>
-	0	0	65535	UNS. WORD	PowerOn	
<b>2103</b>	<b>MOTOR_NOMINAL_CURRENT_M2</b>				CR: / /	
D05	Motor rated current (not 810D)			MSD	ROT	2/4 <b>840D</b>
A	0.0000	0.0000	500.0000	FLOAT	PowerOn	
<b>2117</b>	<b>MOTOR_INERTIA_M2</b>				CR: / /	
D05	Motor moment of inertia (not 810D)			MSD	ROT	2/4 <b>840D</b>
kgm²	0.0010	0.0000	32.0000	FLOAT	immediately	
<b>2119</b>	<b>SERIES_INDUCTANCE_M2</b>				CR: / /	
D05	Inductance of the series reactor (not 810D)			MSD	ROT	2/4 <b>840D</b>
mH	0.0000	0.0000	65.0000	FLOAT	PowerOn	
<b>2120</b>	<b>CURRCTRL_GAIN_M2</b>				CR: / /	
D01, EXP	Current controller P gain (not 810D)			MSD	ROT	2/4 <b>840D</b>
V/A	10.0000	0.0000	10000.0000	FLOAT	immediately	
<b>2121</b>	<b>CURRCTRL_INTEGRATOR_TIME_M2</b>				CR: / /	
D01, EXP	Current controller integral action time (not 810D)			MSD	ROT	2/4 <b>840D</b>
us	2000.0000	0.0000	8000.0000	FLOAT	immediately	
<b>2125</b>	<b>UF_MODE_RAMP_TIME_1_M2</b>				CR: / /	
D04, EXP	Ramp-up time 1 in V/f operation (not 810D)			MSD	ROT	2/4 <b>840D</b>
s	5.0000	0.0100	100.0000	FLOAT	immediately	
<b>2126</b>	<b>UF_MODE_RAMP_TIME_2_M2</b>				CR: / /	
D04, EXP	Ramp-up time 2 in V/f operation (not 810D)			MSD	ROT	2/4 <b>840D</b>
s	5.0000	0.0100	100.0000	FLOAT	immediately	
<b>2127</b>	<b>UF_VOLTAGE_AT_F0_M2</b>				CR: / /	
D04, D05, EXP	Voltage at f=0 in V/f operation (not 810D)			MSD	ROT	2/4 <b>840D</b>
V	2.0000	0.0000	20.0000	FLOAT	immediately	

<b>2129</b>	<b>POWER_FACTOR_COS_PHI_M2</b>				CR: / /	
D05	Cos phi power factor (not 810D)			MSD	ROT	2/4 840D
-	0.8000	0.0000	1.0000	FLOAT		PowerOn
<b>2130</b>	<b>MOTOR_NOMINAL_POWER_M2</b>				CR: / /	
D05	Rated motor output (not 810D)			MSD	ROT	2/4 840D
kW	0.0000	0.0000	1500.0000	FLOAT		PowerOn
<b>2132</b>	<b>MOTOR_NOMINAL_VOLTAGE_M2</b>				CR: / /	
D05	Rated motor voltage (not 810D)			MSD	ROT	2/4 840D
V	380.0000	0.0000	5000.0000	FLOAT		PowerOn
<b>2134</b>	<b>MOTOR_NOMINAL_FREQUENCY_M2</b>				CR: / /	
D05	Rated motor frequency (not 810D)			MSD	ROT	2/4 840D
Hz	50.0000	0.0000	3000.0000	FLOAT		PowerOn
<b>2135</b>	<b>MOTOR_NOLOAD_VOLTAGE_M2</b>				CR: / /	
D05	Motor no-load voltage (not 810D)			MSD	ROT	2/4 840D
V	0.0000	0.0000	500.0000	FLOAT		immediately
<b>2136</b>	<b>MOTOR_NOLOAD_CURRENT_M2</b>				CR: / /	
D05	Motor no-load current (not 810D)			MSD	ROT	2/4 840D
A	0.0000	0.0000	500.0000	FLOAT		immediately
<b>2137</b>	<b>STATOR_COLD_RESISTANCE_M2</b>				CR: / /	
D05	Cold stator resistance (not 810D)			MSD	ROT	2/4 840D
ohm	0.0000	0.0000	120.0000	FLOAT		immediately
<b>2138</b>	<b>ROTOR_COLD_RESISTANCE_M2</b>				CR: / /	
D05	Cold rotor resistance (not 810D)			MSD	ROT	2/4 840D
ohm	0.0000	0.0000	120.0000	FLOAT		immediately
<b>2139</b>	<b>STATOR_LEAKAGE_REACTANCE_M2</b>				CR: / /	
D05	Stator leakage reactance (not 810D)			MSD	ROT	2/4 840D
ohm	0.0000	0.0000	100.0000	FLOAT		immediately
<b>2140</b>	<b>ROTOR_LEAKAGE_REACTANCE_M2</b>				CR: / /	
D05	Rotor leakage reactance (not 810D)			MSD	ROT	2/4 840D
ohm	0.0000	0.0000	100.0000	FLOAT		immediately
<b>2141</b>	<b>MAGNETIZING_REACTANCE_M2</b>				CR: / /	
D05	Magnetizing reactance (not 810D)			MSD	ROT	2/4 840D
ohm	0.0000	0.0000	1000.0000	FLOAT		immediately
<b>2142</b>	<b>FIELD_WEAKENING_SPEED_M2</b>				CR: / /	
D05	Threshold speed for field weakening (not 810D)			MSD	ROT	2/4 840D
1/min	0.0000	0.0000	100000.0000	FLOAT		immediately
<b>2143</b>	<b>LH_CURVE_UPPER_SPEED_M2</b>				CR: / /	
-	Upper speed for the L_h characteristic (not 810D)			MSD	ROT	2/4 840D
1/min	0.0000	0.0000	100000.0000	FLOAT		PowerOn
<b>2144</b>	<b>LH_CURVE_GAIN_M2</b>				CR: / /	
-	Gain factor of the L_h characteristic (not 810D)			MSD	ROT	2/4 840D
%	100.0000	100.0000	500.0000	FLOAT		PowerOn
<b>2145</b>	<b>STALL_TORQUE_REDUCTION_M2</b>				CR: / /	
D05	Stall torque reduction factor (not 810D)			MSD	ROT	2/4 840D
%	100.0000	5.0000	1000.0000	FLOAT		immediately

<b>2146</b>	<b>MOTOR_MAX_ALLOWED_SPEED_M2</b>				CR: / /	
D05	Maximum motor speed (not 810D)			MSD	ROT	2/4 840D
1/min	1500.0000	0.0000	100000.0000	FLOAT		PowerOn
<b>2147</b>	<b>SPEED_LIMIT_M2</b>				CR: / /	
D02, D05	Motor speed limit (not 810D)			MSD	ROT	2/4 840D
1/min	8000.0000	0.0000	100000.0000	FLOAT		immediately
<b>2148</b>	<b>ACTUAL_STALL_POWER_SPEED_M2</b>				CR: / /	
D04	Threshold speed of pull-out power (not 810D)			MSD	ROT	2/4 840D
1/min	0.0000	-100000.0000	100000.0000	FLOAT		immediately
<b>2150</b>	<b>FIELDCTRL_GAIN_M2</b>				CR: / /	
D01, EXP	Flux controller P-gain (not 810D)			MSD	ROT	2/4 840D
A/(Vs)	400.0000	0.0000	100000.0000	FLOAT		immediately
<b>2151</b>	<b>FIELDCTRL_INTEGRATOR_TIME_M2</b>				CR: / /	
D01, EXP	Flux controller integral-action time (not 810D)			MSD	ROT	2/4 840D
ms	10.0000	0.0000	500.0000	FLOAT		immediately
<b>2160</b>	<b>FLUX_ACQUISITION_SPEED_M2</b>				CR: / /	
D01, EXP	Threshold speed for flux sensing (not 810D)			MSD	ROT	2/4 840D
1/min	1500.0000	200.0000	100000.0000	FLOAT		immediately
<b>2185</b>	<b>STARTUP_FACT_CURRCTRL_M2</b>				CR: / /	
-	Startup factor P-IREG (M2) (not 810D)			MSD	ROT	2/4 840D
%	100.0000	0.0000	10000.0000	FLOAT		immediately
<b>2190</b>	<b>TORQUE_LIMIT_FROM_NC_M2</b>				CR: / /	
D02, EXP	Evaluation of torque limit (not 810D)			MSD	ROT	2/4 840D
Nm	100.0000	0.0000	10000.0000	FLOAT		immediately
<b>2192</b>	<b>TORQUE_LIMIT_WEIGHT_M2</b>				CR: / /	
D02, EXP	Weight torque (not 810D)			MSD	ROT	2/4 840D
%	0.0000	-100.0000	100.0000	FLOAT		immediately
<b>2230</b>	<b>TORQUE_LIMIT_1_M2 [n] 0 ...7 Index of param.-set</b>				CR: / /	
D02, EXP	1st torque limit (not 810D)			MSD	ROT	2/4 840D
%	100.0000	5.0000	900.0000	FLOAT		immediately
<b>2231</b>	<b>TORQUE_LIMIT_2_M2</b>				CR: / /	
D02, EXP	2nd torque limit (not 810D)			MSD	ROT	2/4 840D
%	100.0000	5.0000	100.0000	FLOAT		immediately
<b>2232</b>	<b>TORQUE_LIMIT_SWITCH_SPEED_M2</b>				CR: / /	
D02, EXP	Changeover speed from MD 1230 to MD 1231 (not 810D)			MSD	ROT	2/4 840D
1/min	6000.0000	0.0000	100000.0000	FLOAT		immediately
<b>2233</b>	<b>TORQUE_LIMIT_GENERATOR_M2 [n] 0 ...7 Index of param.-set</b>				CR: / /	
D02, EXP	Regenerative limiting (not 810D)			MSD	ROT	2/4 840D
%	100.0000	5.0000	100.0000	FLOAT		immediately
<b>2234</b>	<b>TORQUE_LIMIT_SWITCH_HYST_M2</b>				CR: / /	
D02, EXP	Hysteresis MD 1232 (not 810D)			MSD	ROT	2/4 840D
1/min	50.0000	0.0000	1000.0000	FLOAT		immediately
<b>2235</b>	<b>POWER_LIMIT_1_M2 [n] 0 ...7 Index of param.-set</b>				CR: / /	
D02, EXP	1st power limit (not 810D)			MSD	ROT	2/4 840D
%	100.0000	5.0000	900.0000	FLOAT		immediately

<b>2236</b>	<b>POWER_LIMIT_2_M2</b>				CR: / /	
D02, EXP	2nd power limit (not 810D)			MSD	ROT	2/4 840D
%	100.0000	5.0000	100.0000	FLOAT		immediately
<b>2238</b>	<b>CURRENT_LIMIT_M2</b>				CR: / /	
D02	Motor current limit (not 810D)			MSD	ROT	2/4 840D
%	150.0000	0.0000	400.0000	FLOAT		immediately
<b>2239</b>	<b>TORQUE_LIMIT_FOR_SETUP_M2</b>				CR: / /	
D02	Torque limit in setting-up operation (not 810D)			MSD	ROT	2/4 840D
%	1.0000	0.5000	100.0000	FLOAT		immediately
<b>2245</b>	<b>CURRENT_SMOOTH_SPEED_M2</b>				CR: / /	
EXP	Threshold speed dep. on M setpoint smoothing (not 810D)			MSD	ROT	2/4 840D
1/min	0.0000	0.0000	100000.0000	FLOAT		immediately
<b>2246</b>	<b>CURRENT_SMOOTH_HYSTERESIS_M2</b>				CR: / /	
EXP	Hysteresis speed dep. M setpoint smoothing (not 810D)			MSD	ROT	2/4 840D
1/min	50.0000	0.0000	1000.0000	FLOAT		immediately
<b>2400</b>	<b>MOTOR_RATED_SPEED_M2</b>				CR: / /	
D05	Rated motor speed (not 810D)			MSD	ROT	2/4 840D
1/min	1450.0000	0.0000	100000.0000	FLOAT		PowerOn
<b>2401</b>	<b>MOTOR_MAX_SPEED_M2</b> [n] 0 ...7 Index of param.-set				CR: / /	
D02, D05	Maximum usable motor speed (not 810D)			MSD	ROT	2/4 840D
1/min	0.0000	0.0000	100000.0000	FLOAT		PowerOn
<b>2403</b>	<b>PULSE_SUPPRESSION_SPEED_M2</b>				CR: / /	
D02	Shut down speed pulse suppression (not 810D)			MSD	ROT	2/4 840D
1/min	2.0000	0.0000	7200.0000	FLOAT		immediately
<b>2405</b>	<b>MOTOR_SPEED_LIMIT_M2</b> [n] 0 ...7 Index of param.-set				CR: / /	
D02, D05	Monitoring motor speed (not 810D)			MSD	ROT	2/4 840D
%	110.0000	100.0000	110.0000	FLOAT		immediately
<b>2407</b>	<b>SPEEDCTRL_GAIN_1_M2</b> [n] 0 ...7 Index of param.-set				CR: / /	
D01, D08	P gain of speed controller (not 810D)			MSD	ROT	2/4 840D
Nms/rad	0.3000	0.0000	1000000.0000	FLOAT		immediately
<b>2408</b>	<b>SPEEDCTRL_GAIN_2_M2</b> [n] 0 ...7 Index of param.-set				CR: / /	
D01, EXP	P gain of upper adaptation speed (not 810D)			MSD	ROT	2/4 840D
Nms/rad	0.3000	0.0000	1000000.0000	FLOAT		immediately
<b>2409</b>	<b>SPEEDCTRL_INTEGRATOR_TIME_1_M2</b> [n] 0 ...7 Index of param.-set				CR: / /	
D01, D08	Integral action time of speed controller (not 810D)			MSD	ROT	2/4 840D
ms	10.0000	0.0000	500.0000	FLOAT		immediately
<b>2410</b>	<b>SPEEDCTRL_INTEGRATOR_TIME_2_M2</b> [n] 0 ...7 Index of param.-set				CR: / /	
D01, EXP	Integral action time of upper adaptation speed (not 810D)			MSD	ROT	2/4 840D
ms	10.0000	0.0000	500.0000	FLOAT		immediately
<b>2411</b>	<b>SPEEDCTRL_ADAPT_SPEED_1_M2</b>				CR: / /	
D01, EXP	Lower adaptation speed (not 810D)			MSD	ROT	2/4 840D
1/min	0.0000	0.0000	100000.0000	FLOAT		immediately
<b>2412</b>	<b>SPEEDCTRL_ADAPT_SPEED_2_M2</b>				CR: / /	
D01, EXP	Upper adaptation speed (not 810D)			MSD	ROT	2/4 840D
1/min	0.0000	0.0000	100000.0000	FLOAT		immediately

<b>2413</b>	<b>SPEEDCTRL_ADAPT_ENABLE_M2</b>				CR: / /	
D01, EXP	Select adaptation speed controller (not 810D)			MSD	ROT	2/4 840D
-	0	0	1	UNS. WORD		immediately
<b>2417</b>	<b>SPEED_THRESHOLD_X_M2</b> [n] 0 ...7 Index of param.-set				CR: / /	
D03	Signal n_x for 'n_act < n_x' (not 810D)			MSD	ROT	2/4 840D
1/min	6000.0000	0.0000	100000.0000	FLOAT		immediately
<b>2418</b>	<b>SPEED_THRESHOLD_MIN_M2</b> [n] 0 ...7 Index of param.-set				CR: / /	
D03	Signal n_min for 'n_act < n_min' (not 810D)			MSD	ROT	2/4 840D
1/min	5.0000	0.0000	100000.0000	FLOAT		immediately
<b>2426</b>	<b>SPEED_DES_EQ_ACT_TOL_M2</b> [n] 0 ...7 Index of param.-set				CR: / /	
D03	Tolerance bandwidth for 'n_act = n_set' signal (not 810D)			MSD	ROT	2/4 840D
1/min	20.0000	0.0000	10000.0000	FLOAT		immediately
<b>2451</b>	<b>SPEEDCTRL_GAIN_1_AM_M2</b> [n] 0 ...7 Index of param.-set				CR: / /	
D01	P gain of speed control loop IM (not 810D)			MSD	ROT	2/4 840D
Nms/rad	0.3000	0.0000	100000.0000	FLOAT		immediately
<b>2453</b>	<b>SPDCTRL_INTEGR_TIME_1_AM_M2</b> [n] 0 ...7 Index of param.-set				CR: / /	
D01	Integral action time of speed control loop IM (not 810D)			MSD	ROT	2/4 840D
ms	140.0000	0.0000	6000.0000	FLOAT		immediately
<b>2458</b>	<b>DES_CURRENT_OPEN_LOOP_AM_M2</b>				CR: / /	
D01	Current setpoint controlled range IM (not 810D)			MSD	ROT	2/4 840D
%	90.0000	0.0000	150.0000	FLOAT		immediately
<b>2459</b>	<b>TORQUE_SMOOTH_TIME_AM_M2</b>				CR: / /	
D01	Torque smoothing time constant IM (not 810D)			MSD	ROT	2/4 840D
ms	4.0000	0.0000	100.0000	FLOAT		immediately
<b>2465</b>	<b>SWITCH_SPEED_MSD_AM_M2</b>				CR: / /	
D01, D06	Changeover speed MSD/IM (not 810D)			MSD	ROT	2/4 840D
1/min	100000.0000	0.0000	100000.0000	FLOAT		immediately
<b>2466</b>	<b>SWITCH_SPD_OPEN_LOOP_AM_M2</b>				CR: / /	
D01	Changeover speed closed/open loop IM (not 810D)			MSD	ROT	2/4 840D
1/min	300.0000	150.0000	100000.0000	FLOAT		immediately
<b>2602</b>	<b>MOTOR_TEMP_WARN_LIMIT_M2</b>				CR: / /	
D02, D05	Motor temperature alarm threshold (not 810D)			MSD	ROT	2/4 840D
	120	0	200	UNS. WORD		immediately
<b>2607</b>	<b>MOTOR_TEMP_SHUTDOWN_LIMIT_M2</b>				CR: / /	
D02, D05	Motor temperature shutdown limit (not 810D)			MSD	ROT	2/4 840D
	155	0	200	UNS. WORD		immediately
<b>2608</b>	<b>MOTOR_FIXED_TEMPERATURE_M2</b>				CR: / /	
D02, D05	Fixed temperature (not 810D)			MSD	ROT	2/4 840D
	0	0	200	UNS. WORD		immediately
<b>2711</b>	<b>SPEED_LSB_M2</b>				CR: / /	
EXP	Significance of the speed representation (not 810D)			MSD	ROT	2/4 840D
1/min	0.0000	-100000.0000	100000.0000	FLOAT		immediately
<b>2712</b>	<b>ROTOR_FLUX_LSB_M2</b>				CR: / /	
EXP	Significance of the rotor flux representation (not 810D)			MSD	ROT	2/4 840D
uVs	0.0000	-100000.0000	100000.0000	FLOAT		immediately

<b>2713</b>	<b>TORQUE_LSB_M2</b>				CR: / /	
EXP	Significance of the torque representation (not 810D)			MSD	ROT	2/4 <b>840D</b>
uNm	0.0000	-100000.0000	100000.0000	FLOAT		immediately

<b>2714</b>	<b>ROTOR_POS_LSB_M2</b>				CR: / /	
EXP	Significance of rotor position representation (not 810D)			MSD	ROT	2/4 <b>840D</b>
degrees	0.0000	-100000.0000	100000.0000	FLOAT		immediately

<b>2725</b>	<b>MAX_TORQUE_FROM_NC_M2</b>				CR: / /	
EXP	Standardising the torque setpoint average (not 810D)			MSD	ROT	2/4 <b>840D</b>
Nm	0.0000	-100000.0000	100000.0000	FLOAT		immediately

## 2.3 Machine data for hydraulics module

Number	MD identifier				Cross ref.	
Display filter	Name			Drive Type	Prot. level	SW 840D
Unit	Default value	Minimum value	Maximum value	Data type		Valid from

<b>5001</b>	<b>SPEEDCTRL_CYCLE_TIME</b>				CR: /FBHLA/	
D01, EXP	Velocity controller clockrate			HLD	3/3	5.1 840D
31,25 us	4	2	16	UNS. WORD		PowerOn

<b>5002</b>	<b>MONITOR_CYCLE_TIME</b>				CR: /FBHLA/	
EXP	Monitoring cycle			HLD	3/3	5.1 840D
31,25 us	3200	128	3200	UNS. WORD		PowerOn

<b>5003</b>	<b>STS_CONFIG</b>				CR: /FBHLA/	
EXP	STS configuration			HLD	3/3	5.1 840D
HEX	330	0	7F0	UNS. WORD		PowerOn

<b>5004</b>	<b>CTRL_CONFIG</b>				CR: /FBHLA/	
D01	Configuration structure			HLD	3/3	5.2 840D
HEX	1000	0	1000	UNS. WORD		PowerOn

<b>5005</b>	<b>ENC_RESOL_MOTOR</b>				CR: /FBHLA/	
EXP	Increments of rotary measuring system			HLD	3/3	5.1 840D
-	2048	128	65535	UNS. WORD		PowerOn

<b>5008</b>	<b>ENC_PHASE_ERROR_CORRECTION</b>				CR: /FBHLA/	
EXP, D06	Encoder phase error compensation			HLD	3/3	5.1 840D
degrees	0.0	-20.0	20.0	FLOAT		immediately

<b>5011</b>	<b>ACTUAL_VALUE_CONFIG</b>				CR: /FBHLA/	
D06	Configuration of actual value acquisition			HLD	3/3	5.1 840D
HEX	0	0	65535	UNS. WORD		PowerOn

<b>5012</b>	<b>FUNC_SWITCH</b>				CR: /FBHLA/	
D01, D02, D03	Function switch			HLD	3/3	5.1 840D
HEX	4	0	65535	UNS. WORD		immediately

<b>5021</b>	<b>ENC_ABS_TURN_MOTOR</b>				CR: /FBHLA/	
D06	Multiturn resol. motor absolute encoder			HLD	3/3	5.1 840D
-	0	0	FFFF	UNS. WORD		PowerOn

<b>5022</b>	<b>ENC_ABS_RESOL_MOTOR</b>				CR: /FBHLA/	
D06	Measuring steps of motor absolute track			HLD	3/3	5.1 840D
-	8192	0	7FFFFFFF	UNS. DWORD		PowerOn

<b>5023</b>	<b>ENC_ABS_DIAGNOSIS_MOTOR</b>				CR: /FBHLA/	
D06	Diagnosis of measuring circuit motor absolute track			HLD	3/3	5.1 840D
HEX	0	0	BFFF	UNS. WORD		immediately

<b>5024</b>	<b>DIVISION_LIN_SCALE</b>				CR: /FBHLA/	
D06	Linear scale graduations			HLD	3/3	5.1 840D
nm	20000	1000	5000000	UNS. DWORD		PowerOn

<b>5025</b>	<b>SERIAL_NO_ENCODER</b>				CR: /FBHLA/	
D06, EXP	Serial no. of motor measuring system			HLD	3/3	6.3 840D
-	0	0	ffffff	UNS. DWORD		PowerOn
<b>5027</b>	<b>ENC_CONFIG</b>				CR: /FBHLA/	
D06	Configuration of encoder IM			HLD	3/3	6.3 840D
HEX	0	0	fff	UNS. WORD		PowerOn
<b>5028</b>	<b>NO_TRANSMISSION_BITS</b>				CR: /FBHLA/	
D06	IM message frame length SSI			HLD	3/3	6.3 840D
-	25	0	25	UNS. WORD		PowerOn
<b>5040</b>	<b>PISTON_ZERO</b>				CR: /FBHLA/	
EXP, D04	Piston zero in relation to machine zero			HLD	3/3	5.1 840D
mm	0.0	-1000000.0	1000000.0	FLOAT		immediately
<b>5041</b>	<b>MACHINE_ZERO_HIGH</b>				CR: /FBHLA/	
EXP	Machine zero in relation to actual position zero			HLD	3/3	5.1 840D
-	0	-2147483647	7FFFFFFF	DWORD		immediately
<b>5042</b>	<b>MACHINE_ZERO_LOW</b>				CR: /FBHLA/	
EXP	Machine zero in relation to actual position zero			HLD	3/3	5.1 840D
-	0	0	FFFFFFF	UNS. DWORD		immediately
<b>5100</b>	<b>FLUID_ELASTIC_MODULUS</b>				CR: /FBHLA/	
D01	Modulus of elasticity for hydraulic oil			HLD	3/3	5.1 840D
bar	11000	1000	21000	FLOAT		immediately
<b>5101</b>	<b>WORKING_PRESSURE</b>				CR: /FBHLA/	
D01	System pressure			HLD	3/3	5.1 840D
bar	0.0	0.0	700.0	FLOAT		PowerOn
<b>5102</b>	<b>PILOT_OPERATION_PRESSURE</b>				CR: /FBHLA/	
D01	Pilot pressure			HLD	3/3	5.1 840D
bar	0.0	0.0	350.0	FLOAT		immediately
<b>5106</b>	<b>VALVE_CODE</b>				CR: /FBHLA/	
D05, D04	Valve code number			HLD	3/3	5.1 840D
-	0	0	2000	UNS. WORD		immediately
<b>5107</b>	<b>VALVE_NOMINAL_FLOW</b>				CR: /FBHLA/	
D05	Valve rated flow			HLD	3/3	5.1 840D
l/min	0.0	0.0	1000	FLOAT		immediately
<b>5108</b>	<b>VALVE_NOMINAL_PRESSURE</b>				CR: /FBHLA/	
D05	Valve rated pressure drop			HLD	3/3	5.1 840D
bar	35.0	1.0	200.0	FLOAT		immediately
<b>5109</b>	<b>VALVE_NOMINAL_VOLTAGE</b>				CR: /FBHLA/	
D05	Valve rated voltage			HLD	3/3	5.1 840D
V	10.0	0.5	15.0	FLOAT		immediately
<b>5110</b>	<b>VALVE_DUAL_GAIN_FLOW</b>				CR: /FBHLA/	
D05	Valve flow knee point			HLD	3/3	5.1 840D
%	10.0	0.2	95.0	FLOAT		immediately
<b>5111</b>	<b>VALVE_DUAL_GAIN_VOLTAGE</b>				CR: /FBHLA/	
D05	Valve voltage knee point			HLD	3/3	5.1 840D
%	10.0	0.2	95.0	FLOAT		immediately



<b>5112</b>	<b>VALVE_FLOW_FACTOR_A_B</b>				<b>CR: /FBHLA/</b>	
D05	Valve flow ratio A/B			HLD	3/3	5.1 840D
-	1.0	0.5	2.0	FLOAT		immediately
<b>5113</b>	<b>VALVE_CONFIGURATION</b>				<b>CR: /FBHLA/</b>	
D05	Valve configuration			HLD	3/3	5.1 840D
HEX	0	0	13	UNS. WORD		immediately
<b>5114</b>	<b>VALVE_NATURAL_FREQUENCY</b>				<b>CR: /FBHLA/</b>	
D01, D05	Valve natural frequency			HLD	3/3	5.1 840D
Hz	150.0	1.0	1000.0	FLOAT		immediately
<b>5115</b>	<b>VALVE_DAMPING</b>				<b>CR: /FBHLA/</b>	
D01, D05	Valve damping			HLD	3/3	5.1 840D
-	0.8	0.4	1.0	FLOAT		immediately
<b>5131</b>	<b>CYLINDER_PISTON_DIAMETER</b>				<b>CR: /FBHLA/</b>	
D05	Cylinder piston diameter			HLD	3/3	5.1 840D
mm	0.0	0.0	2500.0	FLOAT		PowerOn
<b>5132</b>	<b>PISTON_ROD_A_DIAMETER</b>				<b>CR: /FBHLA/</b>	
D05	Cylinder piston rod diameter A			HLD	3/3	5.1 840D
mm	0.0	0.0	2400.0	FLOAT		PowerOn
<b>5133</b>	<b>PISTON_ROD_B_DIAMETER</b>				<b>CR: /FBHLA/</b>	
D05	Cylinder piston rod diameter B			HLD	3/3	5.1 840D
mm	0.0	0.0	2400.0	FLOAT		PowerOn
<b>5134</b>	<b>PISTON_STROKE</b>				<b>CR: /FBHLA/</b>	
D05	Piston stroke			HLD	3/3	5.1 840D
mm	0.0	0.0	3000.0	FLOAT		immediately
<b>5135</b>	<b>CYLINDER_DEAD_VOLUME_A</b>				<b>CR: /FBHLA/</b>	
D05	Cylinder dead volume at the drive end			HLD	3/3	5.1 840D
ccm	0.0	0.0	200000.0	FLOAT		immediately
<b>5136</b>	<b>CYLINDER_DEAD_VOLUME_B</b>				<b>CR: /FBHLA/</b>	
D05	Cylinder dead volume at the non-drive end			HLD	3/3	5.1 840D
ccm	0.0	0.0	200000.0	FLOAT		immediately
<b>5140</b>	<b>VALVE_CYLINDER_CONNECTION</b>				<b>CR: /FBHLA/</b>	
D05	Connection configuration of valve cylinder			HLD	3/3	5.1 840D
HEX	0	0	1	UNS. WORD		immediately
<b>5141</b>	<b>PIPE_LENGTH_A</b>				<b>CR: /FBHLA/</b>	
D05	Pipe length at the drive end			HLD	3/3	5.1 840D
mm	0.0	0.0	10000.0	FLOAT		immediately
<b>5142</b>	<b>PIPE_LENGTH_B</b>				<b>CR: /FBHLA/</b>	
D05	Pipe length at the non-drive end			HLD	3/3	5.1 840D
mm	0.0	0.0	10000.0	FLOAT		immediately
<b>5143</b>	<b>PIPE_INNER_DIAMETER_A_B</b>				<b>CR: /FBHLA/</b>	
D05	Pipe inside diameters A and B			HLD	3/3	5.1 840D
mm	5.0	0.0	100.0	FLOAT		immediately
<b>5150</b>	<b>DRIVE_MASS</b>				<b>CR: /FBHLA/</b>	
D05	Mass moved by drive			HLD	3/3	5.1 840D
kg	0.0	0.0	50000.0	FLOAT		immediately

<b>5151</b>	<b>CYLINDER_A_ORIENTATION</b>				CR: /FBHLA/	
D05	Mounting position at the drive end of the cylinder			HLD	3/3	5.1 840D
degrees	0.0	-90.0	90.0	FLOAT		immediately
<b>5152</b>	<b>CYLINDER_FASTENING</b>				CR: /FBHLA/	
D05	Fastening the cylinder			HLD	3/3	5.1 840D
-	0	0	1	UNS. WORD		immediately
<b>5160</b>	<b>PISTON_POS_MIN_NAT_FREQ</b>				CR: /FBHLA/	
D05	Piston position min. natural frequency			HLD	3/3	5.1 840D
mm	0.0	0.0	3000.0	FLOAT		immediately
<b>5161</b>	<b>DRIVE_DAMPING</b>				CR: /FBHLA/	
D01, D05	Damping the drive			HLD	3/3	5.1 840D
-	0.1	0.01	1.0	FLOAT		immediately
<b>5162</b>	<b>DRIVE_NATURAL_FREQUENCY_A</b>				CR: /FBHLA/	
D01, D05	Natural frequency of drive A			HLD	3/3	5.1 840D
Hz	1.0	1.0	2000.0	FLOAT		immediately
<b>5163</b>	<b>DRIVE_NATURAL_FREQUENCY</b>				CR: /FBHLA/	
D01, D05	Natural frequency of the drive			HLD	3/3	5.1 840D
Hz	1.0	1.0	2000.0	FLOAT		immediately
<b>5164</b>	<b>DRIVE_NATURAL_FREQUENCY_B</b>				CR: /FBHLA/	
D01, D05	Natural frequency of drive B			HLD	3/3	5.1 840D
Hz	1.0	1.0	2000.0	FLOAT		immediately
<b>5180</b>	<b>CLOSED_LOOP_SYSTEM_DAMPING</b>				CR: /FBHLA/	
D01	Desired damping closed-loop system			HLD	3/3	5.1 840D
-	0.7	0.2	1.0	FLOAT		immediately
<b>5200</b>	<b>NUM_OUTPUT_VCTRL_FILTERS</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Number of manipulated variable filters			HLD	3/3	5.1 840D
-	0	0	2	UNS. WORD		immediately
<b>5201</b>	<b>OUTPUT_VCTRL_FILTER_CONFIG</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Type of manipulated variable filter			HLD	3/3	5.1 840D
HEX	0	0	3	UNS. WORD		immediately
<b>5202</b>	<b>OUTPUT_VCTRL_FIL_1_FREQ</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	PT2 natural frequency of manipulated variable filter 1			HLD	3/3	5.1 840D
Hz	1000.0	10.0	8000.0	FLOAT		immediately
<b>5203</b>	<b>OUTPUT_VCTRL_FIL_1_DAMP</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	PT2 damping of manipulated variable filter 1			HLD	3/3	5.1 840D
-	1.0	0.05	1.0	FLOAT		immediately
<b>5204</b>	<b>OUTPUT_VCTRL_FIL_2_FREQ</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	PT2 natural frequency of manipulated variable filter 2			HLD	3/3	5.1 840D
Hz	1000.0	10.0	8000.0	FLOAT		immediately
<b>5205</b>	<b>OUTPUT_VCTRL_FIL_2_DAMP</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	PT2 damping of manipulated variable filter 2			HLD	3/3	5.1 840D
-	1.0	0.05	1.0	FLOAT		immediately
<b>5210</b>	<b>OUTPUT_VCTRL_FIL_1_SUP_FREQ</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Blocking frequency for manipulated variable filter 1			HLD	3/3	5.1 840D
Hz	3500.0	1.0	7999.0	FLOAT		immediately

<b>5211</b>	<b>OUTPUT_VCTRL_FIL_1_BW</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Bandwidth of manipulated variable filter 1			HLD	3/3	5.1 840D
Hz	500.0	5.0	7999.0	FLOAT		immediately
<b>5212</b>	<b>OUTPUT_VCTRL_FIL_1_BW_NUM</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Numerator bandwidth of manipulated variable filter 1			HLD	3/3	5.1 840D
Hz	0.0	0.0	7999.0	FLOAT		immediately
<b>5213</b>	<b>OUTPUT_VCTRL_FIL_2_SUP_FREQ</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Blocking frequency of manipulated variable filter 2			HLD	3/3	5.1 840D
Hz	3500.0	1.0	7999.0	FLOAT		immediately
<b>5214</b>	<b>OUTPUT_VCTRL_FIL_2_BW</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Bandwidth of manipulated variable filter 2			HLD	3/3	5.1 840D
Hz	500.0	5.0	7999.0	FLOAT		immediately
<b>5215</b>	<b>OUTPUT_VCTRL_FIL_2_BW_NUM</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Numerator bandwidth of manipulated variable filter 2			HLD	3/3	5.1 840D
Hz	0.0	0.0	7999.0	FLOAT		immediately
<b>5230</b>	<b>FORCE_LIMIT_THRESHOLD</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D02	Power limitation threshold for weight			HLD	3/3	5.1 840D
N	10000.0	0.0	100000000.0	FLOAT		immediately
<b>5231</b>	<b>FORCE_LIMIT_WEIGHT</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D02	Power limitation weight			HLD	3/3	5.1 840D
N	0.0	-100000000.0	100000000.0	FLOAT		immediately
<b>5232</b>	<b>STICTION_SPEED_THRESHOLD</b>				CR: /FBHLA/	
D02	Velocity threshold static friction			HLD	3/3	5.1 840D
mm/min	10.0	0.0	500.0	FLOAT		immediately
<b>5233</b>	<b>STICTION_COMP_THRESHOLD</b>				CR: /FBHLA/	
D01	Interrupting lead static friction			HLD	3/3	5.1 840D
%	40.0	3.0	100.0	FLOAT		immediately
<b>5234</b>	<b>STICTION_FORCE_POS</b>				CR: /FBHLA/	
D02	Friction force velocity >0			HLD	3/3	5.1 840D
N	100.0	-100000000.0	100000000.0	FLOAT		immediately
<b>5235</b>	<b>STICTION_FORCE_NEG</b>				CR: /FBHLA/	
D02	Friction force velocity <0			HLD	3/3	5.1 840D
N	-100.0	-100000000.0	100000000.0	FLOAT		immediately
<b>5240</b>	<b>FORCECONTROLLED_SYSTEM_GAIN</b>				CR: /FBHLA/	
D01	Controlled system gain power controller			HLD	3/3	5.1 840D
N/V	0.0	0.0	1000000000.0	FLOAT		immediately
<b>5241</b>	<b>FORCECTRL_CONFIG</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D02	Configuration of force controller			HLD	3/3	5.1 840D
HEX	0	0	6	UNS. WORD		immediately
<b>5242</b>	<b>FORCECTRL_GAIN</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	P gain of force controller			HLD	3/3	5.1 840D
-	0.0	0.0	10000.0	FLOAT		immediately
<b>5243</b>	<b>FORCECTRL_GAIN_RED</b>				CR: /FBHLA/	
D01	Attenuation of power controller P component			HLD	3/3	5.1 840D
%	40.0	0.1	100.0	FLOAT		immediately

<b>5244</b>	<b>FORCECTRL_INTEGRATOR_TIME</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Power controller reset time			HLD	3/3	5.1 840D
ms	40.0	0.0	2000.0	FLOAT		immediately
<b>5245</b>	<b>FORCECTRL_PT1_TIME</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Power controller smoothing time constant			HLD	3/3	5.1 840D
ms	0.5	0.25	100.0	FLOAT		immediately
<b>5246</b>	<b>FORCECTRL_DIFF_TIME</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Power controller lead time			HLD	3/3	5.1 840D
ms	0.0	-10000.0	10000.0	FLOAT		immediately
<b>5247</b>	<b>FORCE_FFW_WEIGHT</b>				CR: /FBHLA/	
D01	Power controller precontrol factor			HLD	3/3	5.1 840D
%	100.0	0.0	120.0	FLOAT		immediately
<b>5260</b>	<b>NUM_FFW_FCTRL_FILTERS</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Number of pilot filters in force controller			HLD	3/3	5.2 840D
-	0	0	1	UNS. WORD		immediately
<b>5261</b>	<b>FFW_FCTRL_FILTER_TYPE</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Type of pilot filter in the force controller			HLD	3/3	5.2 840D
HEX	0	0	1	UNS. WORD		immediately
<b>5264</b>	<b>FFW_FCTRL_FIL_1_FREQ</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	PT2 natural freq. pilot filter 1			HLD	3/3	5.2 840D
Hz	2000.0	10.0	8000.0	FLOAT		immediately
<b>5265</b>	<b>FFW_FCTRL_FIL_1_DAMP</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	PT2 damping pilot filter 1			HLD	3/3	5.2 840D
-	0.7	0.2	1.0	FLOAT		immediately
<b>5268</b>	<b>FFW_FCTRL_FIL_1_SUP_FREQ</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Blocking frequency pilot filter 1			HLD	3/3	5.2 840D
Hz	3500.0	10.0	7999.0	FLOAT		immediately
<b>5269</b>	<b>FFW_FCTRL_FIL_1_BW</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Bandwidth pilot filter 1			HLD	3/3	5.2 840D
Hz	500.0	5.0	7999.0	FLOAT		immediately
<b>5270</b>	<b>FFW_FCTRL_FIL_1_BW_NUM</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Counter bandwidth pilot filter 1			HLD	3/3	5.2 840D
Hz	0.0	0.0	7999.0	FLOAT		immediately
<b>5280</b>	<b>NUM_OUTPUT_FILTERS</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Number of manipulated value filters			HLD	3/3	5.2 840D
-	0	0	1	UNS. WORD		immediately
<b>5281</b>	<b>OUTPUT_FILTER_TYPE</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Type of manipulated value filter			HLD	3/3	5.2 840D
HEX	0	0	1	UNS. WORD		immediately
<b>5284</b>	<b>OUTPUT_FIL_1_FREQ</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Natural frequency of manipulated value filter 1			HLD	3/3	5.2 840D
Hz	1000.0	10.0	8000.0	FLOAT		immediately
<b>5285</b>	<b>OUTPUT_FIL_1_DAMP</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Damping manipulated value filter 1			HLD	3/3	5.2 840D
-	1.0	0.05	1.0	FLOAT		immediately

<b>5288</b>	<b>OUTPUT_FIL_1_SUP_FREQ</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Blocking frequency manipulated value filter 1			HLD	3/3	5.2 840D
Hz	3500.0	1.0	7999.0	FLOAT		immediately
<b>5289</b>	<b>OUTPUT_FIL_1_BW</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Bandwidth manipulated value filter 1			HLD	3/3	5.2 840D
Hz	500.0	5.0	7999.0	FLOAT		immediately
<b>5290</b>	<b>OUTPUT_FIL_1_BW_NUM</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Numerator bandwidth manipulated value filter 1			HLD	3/3	5.2 840D
Hz	0.0	0.0	7999.0	FLOAT		immediately
<b>5401</b>	<b>DRIVE_MAX_SPEED</b>				CR: /FBHLA/	
D02, D05	Maximum useful velocity			HLD	3/3	5.1 840D
mm/min	0.0	0.0	120000.0	FLOAT		PowerOn
<b>5402</b>	<b>SPEED_CTRL_DISABLE_STOPTIME</b>				CR: /FBHLA/	
D02	Deceleration time with servo disable			HLD	3/3	5.1 840D
ms	0.0	0.0	120000.0	FLOAT		immediately
<b>5404</b>	<b>POWER_DISABLE_DELAY</b>				CR: /FBHLA/	
D02	Power disable timer			HLD	3/3	5.1 840D
ms	100	0	100000	FLOAT		immediately
<b>5406</b>	<b>SPEEDCTRL_GAIN_A</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01, D08	P gain of velocity controller A			HLD	3/3	5.1 840D
%	0.0	-100.0	1000.0	FLOAT		immediately
<b>5407</b>	<b>SPEEDCTRL_GAIN</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01, D08	P gain of velocity controller			HLD	3/3	5.1 840D
%	0.0	-100.0	1000.0	FLOAT		immediately
<b>5408</b>	<b>SPEEDCTRL_GAIN_B</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01, D08	P gain of velocity controller B			HLD	3/3	5.1 840D
%	0.0	-100.0	1000.0	FLOAT		immediately
<b>5409</b>	<b>SPEEDCTRL_INTEGRATOR_TIME</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01, D08	Velocity controller reset time			HLD	3/3	5.1 840D
ms	50.0	0.0	2000.0	FLOAT		immediately
<b>5413</b>	<b>SPEEDCTRL_ADAPT_ENABLE</b>				CR: /FBHLA/	
D01	Selection of velocity controller adaptation			HLD	3/3	5.1 840D
-	0	0	1	UNS. WORD		immediately
<b>5414</b>	<b>SPEEDCTRL_REF_MODEL_FREQ</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01, EXP	Natural frequency of the reference model			HLD	3/3	5.1 840D
Hz	150.0	0.0	1000.0	FLOAT		immediately
<b>5415</b>	<b>SPEEDCTRL_REF_MODEL_DAMPING</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01, EXP	Damping of the reference model			HLD	3/3	5.1 840D
-	0.9	0.4	1.0	FLOAT		immediately
<b>5420</b>	<b>DRIVE_MAX_SPEED_SETUP</b>				CR: /FBHLA/	
D02	Maximum setup mode velocity			HLD	3/3	5.1 840D
mm/min	10.0	0.0	120000.0	FLOAT		immediately
<b>5421</b>	<b>SPEEDCTRL_INTEGRATOR_FEEDBK</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Time constant for integrator feedback			HLD	3/3	5.1 840D
ms	0.0	0.0	1000.0	FLOAT		immediately

<b>5422</b>	<b>FEEDBK_SPEED_THRESHOLD</b>				CR: /FBHLA/	
D01	Speed treshold integrator feed back			HLD	3/3	5.1 840D
mm/min	10.0	0.0	120000.0	FLOAT		immediately
<b>5430</b>	<b>SPEEDCTRL_PT1_TIME</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Smoothering time constant for velocity controller			HLD	3/3	5.1 840D
ms	0.25	0.25	100.0	FLOAT		immediately
<b>5431</b>	<b>SPEEDCTRL_DIFF_TIME_A</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Lead time for velocity controller A			HLD	3/3	5.1 840D
ms	0.0	-100.0	100.0	FLOAT		immediately
<b>5432</b>	<b>SPEEDCTRL_DIFF_TIME</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Lead time for velocity controller			HLD	3/3	5.1 840D
ms	0.0	-100.0	100.0	FLOAT		immediately
<b>5433</b>	<b>SPEEDCTRL_DIFF_TIME_B</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Lead time for velocity controller B			HLD	3/3	5.1 840D
ms	0.0	-100.0	100.0	FLOAT		immediately
<b>5435</b>	<b>CONTROLLED_SYSTEM_GAIN</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Controlled system gain			HLD	3/3	5.1 840D
mm/V/min	0.0	0.0	20000.0	FLOAT		immediately
<b>5440</b>	<b>POS_DRIVE_SPEED_LIMIT</b>				CR: /FBHLA/	
D02	Positive velocity setpoint limit			HLD	3/3	5.1 840D
mm/min	0.0	0.0	120000.0	FLOAT		immediately
<b>5441</b>	<b>NEG_DRIVE_SPEED_LIMIT</b>				CR: /FBHLA/	
D02	Negative velocity setpoint limit			HLD	3/3	5.1 840D
mm/min	0.0	0.0	120000.0	FLOAT		immediately
<b>5460</b>	<b>FRICTION_COMP_GRADIENT</b>				CR: /FBHLA/	
D01	Increase in friction compensation			HLD	3/3	5.1 840D
%	0.0	0.0	400.0	FLOAT		immediately
<b>5461</b>	<b>FRICTION_COMP_OUTPUT_RANGE</b>				CR: /FBHLA/	
D01	Range of action of friction compensation			HLD	3/3	5.1 840D
%	0.1	0.1	10.0	FLOAT		immediately
<b>5462</b>	<b>AREA_FACTOR_POS_OUTPUT</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Positive area adaptation factor			HLD	3/3	5.1 840D
%	100.0	10.0	200.0	FLOAT		immediately
<b>5463</b>	<b>AREA_FACTOR_NEG_OUTPUT</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Negative area adaptation factor			HLD	3/3	5.1 840D
%	100.0	10.0	200.0	FLOAT		immediately
<b>5464</b>	<b>POS_DUAL_GAIN_COMP_FLOW</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Knee-point compensation of flow			HLD	3/3	5.1 840D
%	10.0	0.2	95.0	FLOAT		immediately
<b>5465</b>	<b>POS_DUAL_GAIN_COMP_VOLTAGE</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Knee-point compensation of voltage			HLD	3/3	5.1 840D
%	10.0	0.2	95.0	FLOAT		immediately
<b>5466</b>	<b>DUAL_GAIN_COMP_SMOOTH_RANGE</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Knee-point compensation of rounding area			HLD	3/3	5.1 840D
%	2.5	0.0	20.0	FLOAT		immediately

<b>5467</b>	<b>NEG_DUAL_GAIN_COMP_FLOW</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Knee-point compensation neg. flow			HLD	3/3	5.2 840D
%	10.0	0.2	95.0	FLOAT		immediately
<b>5468</b>	<b>NEG_DUAL_GAIN_COMP_VOLTAGE</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Knee-point compensation neg. voltage			HLD	3/3	5.2 840D
%	10.0	0.2	95.0	FLOAT		immediately
<b>5470</b>	<b>OFFSET_COMPENSATION</b>				CR: /FBHLA/	
D01	Offset compensation			HLD	3/3	5.1 840D
-	0	-4000	4000	WORD		immediately
<b>5474</b>	<b>OUTPUT_VOLTAGE_POS_LIMIT</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D02	Actuating voltage limitation			HLD	3/3	6.4 840D
V	10.0	0.0	10.0	FLOAT		immediately
<b>5475</b>	<b>OUTPUT_VOLTAGE_NEG_LIMIT</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D02	Actuating voltage limitation			HLD	3/3	5.1 840D
V	10.0	0.0	10.0	FLOAT		immediately
<b>5476</b>	<b>OUTPUT_VOLTAGE_INVERSION</b>				CR: /FBHLA/	
D01	Manipulated variable inversion			HLD	3/3	5.1 840D
HEX	0	0	1	UNS. WORD		immediately
<b>5480</b>	<b>POS_DUAL_GAIN_COMP_Z_FLOW</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Knee-point compensation pos. flow zero range			HLD	3/3	5.2 840D
%	0.01	0.01	95.0	FLOAT		immediately
<b>5481</b>	<b>POS_DUAL_GAIN_COMP_Z_VOLT</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Knee-point compensation pos. voltage zero range			HLD	3/3	5.2 840D
%	0.0	0.0	95.0	FLOAT		immediately
<b>5482</b>	<b>DUAL_GAIN_COMP_SMOOTH_Z_R</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Knee-point compensation rounding zero range			HLD	3/3	5.2 840D
%	0.0	0.0	10.0	FLOAT		immediately
<b>5483</b>	<b>NEG_DUAL_GAIN_COMP_Z_FLOW</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Knee-point compensation neg. flow zero range			HLD	3/3	5.2 840D
%	0.01	0.01	95.0	FLOAT		immediately
<b>5484</b>	<b>NEG_DUAL_GAIN_COMP_Z_VOLT</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Knee-point compensation neg. voltage zero range			HLD	3/3	5.2 840D
%	0.0	0.0	95.0	FLOAT		immediately
<b>5485</b>	<b>POS_DUAL_GAIN_COMP_S_FLOW</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Knee-point compensation pos. flow saturation			HLD	3/3	5.2 840D
%	100.0	0.2	100.0	FLOAT		immediately
<b>5486</b>	<b>POS_DUAL_GAIN_COMP_S_VOLT</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Knee-point compensation pos. voltage saturation			HLD	3/3	5.2 840D
%	100.0	0.2	100.0	FLOAT		immediately
<b>5487</b>	<b>NEG_DUAL_GAIN_COMP_S_FLOW</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Knee-point compensation neg. flow saturation			HLD	3/3	5.2 840D
%	100.0	0.2	100.0	FLOAT		immediately
<b>5488</b>	<b>NEG_DUAL_GAIN_COMP_S_VOLT</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Knee-point compensation neg. voltage saturation			HLD	3/3	5.2 840D
%	100.0	0.2	100.0	FLOAT		immediately

<b>5500</b>	<b>NUM_SPEED_FILTERS</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Number of velocity filters			HLD	3/3	5.1 840D
-	0	0	1	UNS. WORD		immediately
<b>5501</b>	<b>SPEED_FILTER_TYPE</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Type of velocity filter			HLD	3/3	5.1 840D
HEX	0	0	257	UNS. WORD		immediately
<b>5502</b>	<b>SPEED_FILTER_1_TIME</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	PT1 time constant of velocity filter 1			HLD	3/3	5.1 840D
ms	0.0	0.0	500.0	FLOAT		immediately
<b>5506</b>	<b>SPEED_FILTER_1_FREQUENCY</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	PT 2 natural frequency of velocity filter 1			HLD	3/3	5.1 840D
Hz	2000.0	10.0	8000.0	FLOAT		immediately
<b>5507</b>	<b>SPEED_FILTER_1_DAMPING</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	PT2 damping of velocity filter 1			HLD	3/3	5.1 840D
-	0.7	0.2	1.0	FLOAT		immediately
<b>5514</b>	<b>SPEED_FILTER_1_SUPPR_FREQ</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	BSF blocking frequency of velocity filter 1			HLD	3/3	5.1 840D
Hz	3500.0	10.0	7999.0	FLOAT		immediately
<b>5515</b>	<b>SPEED_FILTER_1_BANDWIDTH</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	BSF bandwidth of velocity filter 1			HLD	3/3	5.1 840D
Hz	500.0	5.0	7999.0	FLOAT		immediately
<b>5516</b>	<b>SPEED_FILTER_1_BW_NUMERATOR</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	Numerator bandwidth of velocity filter 1			HLD	3/3	5.1 840D
Hz	0.0	0.0	7999.0	FLOAT		immediately
<b>5520</b>	<b>SPEED_FILTER_1_BS_FREQ</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D01	BSF natural frequency of velocity filter 1			HLD	3/3	5.1 840D
%	100.0	1.0	141.0	FLOAT		immediately
<b>5522</b>	<b>ACT_SPEED_FILTER_TIME</b>				CR: /FBHLA/	
D01	Time constant velocity actual value filter			HLD	3/3	5.1 840D
HEX	0	0	0	UNS. WORD		PowerOn
<b>5530</b>	<b>CYLINDER_SAFETY_CONFIG</b>				CR: /FBHLA/	
D05, D02	Safety circuit			HLD	3/3	5.1 840D
HEX	4	0	3F	UNS. WORD		immediately
<b>5531</b>	<b>OUTPUT_ENABLE_DELAY</b>				CR: /FBHLA/	
D02	Manipulated variable blocking time			HLD	3/3	5.1 840D
ms	300	0	500	UNS. WORD		immediately
<b>5532</b>	<b>POWER_ENABLE_DELAY</b>				CR: /FBHLA/	
D02	Power enable blocking time			HLD	3/3	5.1 840D
ms	100	0	300	UNS. WORD		immediately
<b>5550</b>	<b>PRESSURE_SENS_A_REF</b>				CR: /FBHLA/	
D06	Reference value of pressure sensor A at 10 V			HLD	3/3	5.1 840D
bar	200.0	50.0	6000.0	FLOAT		immediately
<b>5551</b>	<b>PRESSURE_SENS_A_OFFS</b>				CR: /FBHLA/	
D06	Offset compensation for pressure sensor A			HLD	3/3	5.1 840D
-	0	-32760	32760	WORD		immediately



<b>5552</b>	<b>PRESSURE_SENS_B_REF</b>				CR: /FBHLA/	
D06	Reference value of pressure sensor B at 10V			HLD	3/3	5.1 840D
bar	200.0	50.0	6000.0	FLOAT		immediately
<b>5553</b>	<b>PRESSURE_SENS_B_OFFS</b>				CR: /FBHLA/	
D06	Offset compensation for pressure sensor B			HLD	3/3	5.1 840D
-	0	-32767	32767	WORD		immediately
<b>5600</b>	<b>ALARM_MASK_POWER_ON</b>				CR: /FBHLA/	
D02, EXP	Concealable alarms (Power On)			HLD	3/3	5.1 840D
HEX	0	0	FFFF	UNS. WORD		immediately
<b>5601</b>	<b>ALARM_MASK_RESET</b>				CR: /FBHLA/	
D02, EXP	Concealable alarms (Reset)			HLD	3/3	5.1 840D
HEX	0	0	FFFF	UNS. WORD		immediately
<b>5605</b>	<b>SPEEDCTRL_LIMIT_TIME</b>				CR: /FBHLA/	
D02	Time limit of velocity controller			HLD	3/3	5.1 840D
ms	200.0	20.0	1000.0	FLOAT		immediately
<b>5606</b>	<b>SPEEDCTRL_LIMIT_THRESHOLD</b>				CR: /FBHLA/	
D02	Threshold limit of velocity controller			HLD	3/3	5.1 840D
mm/min	120000.0	0.0	120000.0	FLOAT		immediately
<b>5609</b>	<b>ENC_SPEED_LIMIT</b>				CR: /FBHLA/	
D06, d02	Maximum measuring velocity of linear scale			HLD	3/3	5.1 840D
mm/min	240000.0	1.0	240000.0	FLOAT		immediately
<b>5610</b>	<b>DIAGNOSIS_ACTIVATION_FLAGS</b>				CR: /FBHLA/	
EXP	Diagnostic functions			HLD	3/3	5.1 840D
HEX	0	0	3	UNS. WORD		PowerOn
<b>5612</b>	<b>ALARM_REACTION_POWER_ON</b>				CR: /FBHLA/	
D02	Configurable shutdown reaction with PO alarms			HLD	3/3	5.1 840D
HEX	0	0	FFFF	UNS. WORD		immediately
<b>5613</b>	<b>ALARM_REACTION_RESET</b>				CR: /FBHLA/	
D02	Configurable shutdown reaction with RESET alarms			HLD	3/3	5.1 840D
HEX	0	0	FFFF	UNS. WORD		immediately
<b>5614</b>	<b>VALVE_ERROR_TIME</b>				CR: /FBHLA/	
D02	Valve spool monitoring timer			HLD	3/3	5.1 840D
ms	50	1	100	UNS. WORD		immediately
<b>5620</b>	<b>PROG_SIGNAL_FLAGS</b>				CR: /FBHLA/	
D03	Bits of variable signaling functions			HLD	3/3	5.1 840D
HEX	0	0	7	UNS. WORD		immediately
<b>5621</b>	<b>PROG_SIGNAL_NR</b>				CR: /FBHLA/	
D03	Signal number of variable signaling function			HLD	3/3	5.1 840D
-	0	0	100	UNS. WORD		immediately
<b>5622</b>	<b>PROG_SIGNAL_ADDRESS</b>				CR: /FBHLA/	
D03	Address of variable signaling functions			HLD	3/3	5.1 840D
HEX	0	0	FFFFFF	UNS. DWORD		immediately
<b>5623</b>	<b>PROG_SIGNAL_THRESHOLD</b>				CR: /FBHLA/	
D03	Threshold of variable signaling functions			HLD	3/3	5.1 840D
HEX	0	0	FFFFFF	UNS. DWORD		immediately

<b>5624</b>	<b>PROG_SIGNAL_HYSTERESIS</b>				CR: /FBHLA/	
D03	Hysteresis of variable signaling functions			HLD	3/3	5.1 840D
HEX	0	0	FFFFFF	UNS. DWORD	immediately	
<b>5625</b>	<b>PROG_SIGNAL_ON_DELAY</b>				CR: /FBHLA/	
D03	Pickup delay of variable signaling function			HLD	3/3	5.1 840D
-	0	0	10000	UNS. WORD	immediately	
<b>5626</b>	<b>PROG_SIGNAL_OFF_DELAY</b>				CR: /FBHLA/	
D03	Dropout delay of variable signaling function			HLD	3/3	5.1 840D
-	0	0	10000	UNS. WORD	immediately	
<b>5648</b>	<b>VALVE_ID_PARAMS1</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D04, EXP	Valve-Idi-Parameter2			HLD	3/3	6.1 840D
-	0	0	7999	UNS. WORD	immediately	
<b>5649</b>	<b>VALVE_ID_PARAMS2</b> [n] 0 ...7 Index of param. set				CR: /FBHLA/	
D04, EXP	Valve-Idi-Parameter2			HLD	3/3	6.1 840D
-	0	0	7999	UNS. WORD	immediately	
<b>5650</b>	<b>DIAGNOSIS_CONTROL_FLAGS</b>				CR: /FBHLA/	
D04, EXP	Diagnostic control			HLD	3/3	5.1 840D
HEX	0	0	FFFF	UNS. WORD	immediately	
<b>5651</b>	<b>MINMAX_SIGNAL_NR</b>				CR: /FBHLA/	
D04, EXP	Signal number of min./max. storage			HLD	3/3	5.1 840D
-	0	0	FFFF	UNS. WORD	immediately	
<b>5652</b>	<b>MINMAX_ADDRESS</b>				CR: /FBHLA/	
D04, EXP	Storage location of min./max. storage			HLD	3/3	5.1 840D
HEX	0	0	FFFFFF	UNS. DWORD	immediately	
<b>5653</b>	<b>MINMAX_MIN_VALUE</b>				CR: /FBHLA/	
D04, EXP	Minimum value of min./max. storage			HLD	3/3	5.1 840D
HEX	0	0	FFFFFF	UNS. DWORD	immediately	
<b>5654</b>	<b>MINMAX_MAX_VALUE</b>				CR: /FBHLA/	
D04, EXP	Maximum value of min./max. storage			HLD	3/3	5.1 840D
HEX	0	0	FFFFFF	UNS. DWORD	immediately	
<b>5655</b>	<b>MONITOR_SEGMENT</b>				CR: /FBHLA/	
D04, EXP	Monitor storage location segment			HLD	3/3	5.1 840D
HEX	0	0	FFFF	UNS. WORD	immediately	
<b>5656</b>	<b>MONITOR_ADDRESS</b>				CR: /FBHLA/	
D04, EXP	Monitor storage location address			HLD	3/3	5.1 840D
HEX	0	0	FFFFFF	UNS. DWORD	immediately	
<b>5657</b>	<b>MONITOR_DISPLAY</b>				CR: /FBHLA/	
D04, EXP	Monitor value display			HLD	3/3	5.1 840D
HEX	0	0	FFFFFF	UNS. DWORD	immediately	
<b>5658</b>	<b>MONITOR_INPUT_VALUE</b>				CR: /FBHLA/	
D04, EXP	Monitor value input			HLD	3/3	5.1 840D
HEX	0	0	FFFFFF	UNS. DWORD	immediately	
<b>5659</b>	<b>MONITOR_INPUT_STROBE</b>				CR: /FBHLA/	
D04, EXP	Monitor value accept			HLD	3/3	5.1 840D
HEX	0	0	FFFF	UNS. WORD	immediately	

<b>5700</b>	<b>TERMINAL_STATE</b>				<b>CR: /FBHLA/</b>	
D04	Status of binary inputs			HLD	3/3	5.1 840D
HEX	0	0	FFFF	UNS. WORD		immediately
<b>5704</b>	<b>ACTUAL_PRESSURE_A</b>				<b>CR: /FBHLA/</b>	
D04	Actual pressure value A			HLD	3/3	5.1 840D
bar	0.0	-10000.0	10000.0	FLOAT		immediately
<b>5705</b>	<b>ACTUAL_PRESSURE_B</b>				<b>CR: /FBHLA/</b>	
D04	Actual pressure value B			HLD	3/3	5.1 840D
bar	0.0	-10000.0	10000.0	FLOAT		immediately
<b>5706</b>	<b>DESIRED_SPEED</b>				<b>CR: /FBHLA/</b>	
D04	Velocity setpoint			HLD	3/3	5.1 840D
mm/min	0.0	-240000.0	240000.0	FLOAT		immediately
<b>5707</b>	<b>ACTUAL_SPEED</b>				<b>CR: /FBHLA/</b>	
D04	Actual velocity value			HLD	3/3	5.1 840D
mm/min	0.0	-240000.0	240000.0	FLOAT		immediately
<b>5708</b>	<b>ACTUAL_CYL_FORCE</b>				<b>CR: /FBHLA/</b>	
D04	Actual cylinder force value			HLD	3/3	5.1 840D
N	0.0	-1000000000.0	1000000000.0	FLOAT		immediately
<b>5709</b>	<b>VOLTAGE_LSB</b>				<b>CR: /FBHLA/</b>	
EXP	Significance of voltage display			HLD	3/3	5.1 840D
V	0.0	-100000.0	100000.0	FLOAT		immediately
<b>5710</b>	<b>PRESSURE_LSB</b>				<b>CR: /FBHLA/</b>	
EXP	Significance of pressure display			HLD	3/3	5.1 840D
bar	0.0	-240000.0	240000.0	FLOAT		immediately
<b>5711</b>	<b>SPEED_LSB</b>				<b>CR: /FBHLA/</b>	
EXP	Significance of velocity display			HLD	3/3	5.1 840D
mm/min	0.0	-240000.0	240000.0	FLOAT		immediately
<b>5713</b>	<b>FORCE_LSB</b>				<b>CR: /FBHLA/</b>	
EXP	Significance of power display			HLD	3/3	5.1 840D
uN	0.0	-10000000.0	10000000.0	FLOAT		immediately
<b>5714</b>	<b>POSITION_LSB</b>				<b>CR: /FBHLA/</b>	
EXP	Significance of position display			HLD	3/3	5.1 840D
nm	0.0	-1000000.0	1000000.0	FLOAT		immediately
<b>5715</b>	<b>DESIRED_VALVE_SPOOL_POS</b>				<b>CR: /FBHLA/</b>	
D04	Valve spool position setpoint voltage			HLD	3/3	5.1 840D
V	0.0	-10.0	10.0	FLOAT		immediately
<b>5716</b>	<b>ACTUAL_VALVE_SPOOL_POS</b>				<b>CR: /FBHLA/</b>	
D04	Voltage for actual valve spool position value			HLD	3/3	5.1 840D
V	0.0	-10.0	10.0	FLOAT		immediately
<b>5717</b>	<b>DESIRED_CYL_FORCE</b>				<b>CR: /FBHLA/</b>	
D04	Desired cylinder power			HLD	3/3	5.1 840D
N	0.0	-1000000000.0	1000000000.0	FLOAT		immediately
<b>5720</b>	<b>CRC_DIAGNOSIS</b>				<b>CR: /FBHLA/</b>	
D04, EXP	CRC diagnostic parameters			HLD	3/3	5.1 840D
-	0	0	FFFF	UNS. WORD		immediately

<b>5725</b>	<b>MAX_FORCE_FROM_NC</b>				CR: /FBHLA/	
D04, EXP	Standardization of the power setpoint interface			HLD	3/3	5.1 840D
N	0.0	0.0	1000000000.0	FLOAT		immediately

<b>5730</b>	<b>OPERATING_MODE</b>				CR: /FBHLA/	
D04	Display of the operating mode			HLD	3/3	5.1 840D
HEX	1	1	FFFF	UNS. WORD		immediately

<b>5731</b>	<b>CL1_PO_IMAGE</b>				CR: /FBHLA/	
D04, EXP	Map of the ZK1_PO register			HLD	3/3	5.1 840D
HEX	0	0	FFFF	UNS. WORD		immediately

<b>5732</b>	<b>CL1_RES_IMAGE</b>				CR: /FBHLA/	
D04, EXP	Map of the ZK1_RES register			HLD	3/3	5.1 840D
HEX	0	0	FFFF	UNS. WORD		immediately

<b>5735</b>	<b>PROCESSOR_UTILIZATION</b>				CR: /FBHLA/	
D04, EXP	Processor load			HLD	3/3	5.1 840D
%	0	0	FFFF	UNS. WORD		immediately

<b>5740</b>	<b>ACTUAL_POSITION</b>				CR: /FBHLA/	
EXP, D04	Actual position value in relation to machine zero			HLD	3/3	5.1 840D
mm	0.0	-10000000.0	10000000.0	FLOAT		immediately

<b>5741</b>	<b>ACTUAL_PISTON_POSITION</b>				CR: /FBHLA/	
EXP, D04	Piston position in relation to piston zero			HLD	3/3	5.1 840D
mm	0.0	-10000000.0	10000000.0	FLOAT		immediately

<b>5790</b>	<b>ENC_TYPE</b>				CR: /FBHLA/	
D04, D06	Measuring circuit type of measuring system			HLD	3/3	5.1 840D
-	0	-1	32767	WORD		immediately

<b>5797</b>	<b>PBL_VERSION</b>				CR: /FBHLA/	
D04	Data version			HLD	3/3	5.1 840D
-	0	0	FFFF	UNS. WORD		immediately

<b>5798</b>	<b>FIRMWARE_DATE</b>				CR: /FBHLA/	
D04	Firmware date			HLD	3/3	5.1 840D
-	0	0	FFFF	UNS. WORD		immediately

<b>5799</b>	<b>FIRMWARE_VERSION</b>				CR: /FBHLA/	
D04	Firmware version			HLD	3/3	5.1 840D
-	0	0	FFFFFF	UNS. DWORD		immediately

## 2.4 Machine data for operator panel

### Abbreviations

### Targetsystems:

Adv	HMI Advanced
Emb	HMI Embedded
OP30	OP030
MT	Manual Turn
SM	ShopMill
ST	ShopTurn

### Filter:

H01	ShopMill
H02	ShopTurn
H03	ManualTurn
H04	Zugriffsstufen
H05	Standardmaschine

### Note

The distinction between generally available MDs for the operator panel and application specific MDs for ManualTurn MT, ShopMill SM and ShopTurn ST is not made any longer.

Application specific MDs are integrated in the following list ordered by number.

Number	MD Identifier			Filter	Cross Ref.:
Unit	Name, other Information			Data type	Protection level
System	Default value	Minimum value	Maximum value	Active	SW-Version
<b>9000</b>	<b>LCD_CONTRAST</b>			H05	<b>Ref.: A2</b>
-	Contrast			BYTE	3/4
OP30, Adv, Emb	OP30: 7, Adv: 7, Emb: 7	0	15	Power On	-
<b>9001</b>	<b>DISPLAY_TYPE</b>			H05	<b>Ref.: A2</b>
-	Type of operator panel			BYTE	0/0
OP30, Adv, Emb	OP30: 1, Adv: 1, Emb: 1	0	2	Power On	
<b>9002</b>	<b>DISPLAY_MODE</b>				<b>Ref.: A2</b>
-	External monitor (1: monochrome; 2: color)			BYTE	3/4
OP30,	OP30: 0,	0	2	Power On	1

<b>9003</b>	<b>FIRST_LANGUAGE</b>	H05	<b>Ref.: A2</b>
-	Foreground language	BYTE	3/4
OP30, Emb	OP30: 1, Emb: 1	1	2
		Power On	1.1
<b>9004</b>	<b>DISPLAY_RESOLUTION</b>	H05	<b>Ref.: A2</b>
-	Display resolution	BYTE	3/4
OP30, Adv, Emb	OP30: 3, Adv: 3, Emb: 3	0	5
		IMMEDIATELY	-
<b>9004</b>	<b>DISPLAY_RESOLUTION</b>	H05	<b>Ref.: A2</b>
-	Display resolution	BYTE	3/4
OP30, Adv, Emb	OP30: 3, Adv: 3, Emb: 3	0	5
		Power On	-
<b>9005</b>	<b>PRG_DEFAULT_DIR</b>	H05	<b>Ref.: A2</b>
-	Basic setting program directory	BYTE	3/4
OP30, Emb	OP30: 1, Emb: 1	1	5
		IMMEDIATELY	-
<b>9006</b>	<b>DISPLAY_BLACK_TIME</b>	H05	<b>Ref.: A2</b>
-	Time for screen saver	BYTE	3/4
OP30, Emb	OP30: 15, Emb: 15	0	60
		Power On	SW2
<b>9007</b>	<b>TABULATOR_SIZE</b>	H05	<b>Ref.: A2</b>
-	Tab length	BYTE	3/4
OP30, Emb	OP30: 4, Emb: 4	0	30
		IMMEDIATELY	SW2
<b>9008</b>	<b>KEYBOARD_TYPE</b>	H05	<b>Ref.: A2</b>
-	Type of keyboard (0: OP, 1: MFII/QWERTY)	BYTE	3/4
Adv, Emb	Adv: 0, Emb: 0	0	1
		Power On	SW3.6
<b>9009</b>	<b>KEYBOARD_STATE</b>	H05	<b>Ref.: A2</b>
-	Keyboard shift behavior at booting (0: Single, 2: CAPSLOCK)	BYTE	3/4
Adv, Emb	Adv: 0, Emb: 2	0	2
		Power On	SW3.6
<b>9010</b>	<b>SPIND_DISPLAY_RESOLUTION</b>	H05	<b>Ref.: A2</b>
-	Display resolution for spindle values	BYTE	3/4
Adv	Adv: 3	0	5
		IMMEDIATELY	SW 4
<b>9011</b>	<b>DISPLAY_RESOLUTION_INCH</b>	H05	<b>Ref.: A2</b>
-	Disp. resolution for INCH meas. system	BYTE	3/4
Adv, Emb	Adv: 4, Emb: 4	0	6
		IMMEDIATELY	SW 5.1
<b>9011</b>	<b>DISPLAY_RESOLUTION_INCH</b>	H05	<b>Ref.: A2</b>
-	Disp. resolution for INCH meas. system	BYTE	3/4
Adv, Emb	Adv: 4, Emb: 4	0	6
		Power On	SW 5.1
<b>9012</b>	<b>ACTION_LOG_MODE</b>	H05	<b>Ref.: IM1, IM3, IM4</b>
-	Set action mode for trip recorder	INTEGER	1/1
Adv, Emb	Adv: 0xFE, Emb: 254	0	0xFFFF
		Power On	5.2
<b>9013</b>	<b>SYS_CLOCK_SYNC_TIME</b>	H05	<b>Ref.: IM1</b>

## 2.4 Machine data for operator panel

-	Synchronization time MMC/HMI time with PLC Synchr. Time for HMI / PLC time			REAL	0/0
Emb	Emb: 0	0	199	Power On	5.3
<b>9014</b>	<b>USE_CHANNEL_DISPLAY_DATA</b>			H05	<b>Ref.:</b> FBT, FBSP, EMB, ADV
-	Use channel-specific display MDs			INTEGER	3/4
Adv, Emb	Adv: 0, Emb: 0	0	1	IMMEDIATELY	6.3
<b>9015</b>	<b>DARKTIME_TO_PLC</b>				<b>Ref.:</b> -
-				BOOL	3/4
OP30,	OP30: 0,	***	***	Power On	SW 5
<b>9016</b>	<b>SWITCH_TO_AREA</b>			H05	<b>Ref.:</b> IAM, BE1
-	Default ramp-up menu selectable			INTEGER	3/4
OP30, Emb	OP30: 20, Emb: -1	-1	10000	Power On	SW 5, Erw. 6.3
<b>9017</b>	<b>PLC_HOTKEY</b>				<b>Ref.:</b> FBO
-				STRING	3/4
OP30,	OP30: DB0.DBB0.0,	***	***	Power On	
<b>9020</b>	<b>TECHNOLOGY</b>			H05	<b>Ref.:</b> A2, FBT
-	Technology for NC prog. and simulation 0: No specific assignment 1: Turning machine configuration <>1: Milling machine configuration			BYTE	3/4
Adv, Emb	Adv: 0, Emb: 1	0	2	Power On	SW4.3, ST 6.1 SW5.1 MMC103
<b>9021</b>	<b>LAYOUT_MODE</b>			H05	<b>Ref.:</b> IM4
-	HMI design			BYTE	3/4
Adv, Emb	Adv: 0, Emb: 0	1	1	Power On	6.3
<b>9021</b>	<b>LAYOUT_MODE</b>			H05	<b>Ref.:</b> IM4
-	HMI design			INTEGER	3/4
Adv, Emb	Adv: 0, Emb: 0	0	0	Power On	6.3
<b>9021</b>	<b>LAYOUT_MODE</b>			H05	<b>Ref.:</b> IM4
-	HMI design			INTEGER	3/4
Adv, Emb	Adv: 0, Emb: 0	0	1	Power On	6.3
<b>9025</b>	<b>DISPLAY_BACKLIGHT</b>				<b>Ref.:</b> IM2
-	Brightness level background lighting			BYTE	3/4
	HT6: 15	0	31	Power On	5.3
<b>9026</b>	<b>TEACH_MODE</b>				<b>Ref.:</b> IM2
-	Teach mode to be activated			REAL	3/4
	HT6: 1	***	***	Power On	5.3
<b>9027</b>	<b>NUM_AX_SEL</b>				<b>Ref.:</b> IM2
-	Number of axis groups for traversing keys			REAL	3/4
	HT6: 0	0	4	Power On	5.3

<b>9030</b>	<b>EXPONENT_LIMIT</b>	H05	<b>Ref.: A2</b>
-	Digits for represent. without exponent	BYTE	3/4
Emb	Emb: 6      0      20	Power On	SW 5.1
<b>9031</b>	<b>EXPONENT_SCIENCE</b>	H05	<b>Ref.: A2</b>
-	Exponent in technical representation	BYTE	3/4
Emb	Emb: 1      0      1	Power On	SW 5.1
<b>9032</b>	<b>HMI_MONITOR</b>	H05	<b>Ref.: FBT, FBSP, EMB, ADV</b>
-	Define PLC data for HMI screen info	STRING	2/4
Adv, Emb	Adv: ", Emb: 0      ***      ***	Power On	6.2
<b>9033</b>	<b>MA_DISPL_INV_DIR_SPIND_M3</b>	H05	<b>Ref.: ADV</b>
-	Display of spindle direction of rotation	INTEGER	3/4
Adv	Adv: 0      0      0x7FFFFFFF	IMMEDIATELY	6.2
<b>9034</b>	<b>MA_NUM_DISPLAYED_CHANNELS</b>	H05	<b>Ref.: BAD</b>
-	Number of machine channels displayed	REAL	3/4
Adv	Adv: 1      0      2	Power On	6.4
<b>9050</b>	<b>STARTUP_LOGO</b>	H05	<b>Ref.: FBT, FBSP, EMB, ADV</b>
-	Activate OEM boot screen	BYTE	1/4
Adv, Emb	Adv: 0, Emb: 0      0      1	Power On	6.2
<b>9052</b>	<b>SHOW_CHANNEL_SPANNING_STATE</b>	H05	<b>Ref.: FBT, FBSP</b>
-	Change cross-channel status display	BYTE	2/4
Adv, Emb	Adv: 0, Emb: 0      0      1	Power On	6.3
<b>9053</b>	<b>PLC_SYMBOL_SORT</b>	H05	<b>Ref.: IM4</b>
-	Sorting algorithm for PLC symbols	INTEGER	3/4
Adv, Emb	Adv: 0, Emb: 0      0      4	IMMEDIATELY	6.3
<b>9054</b>	<b>PLC_SYMBOL_FILTER</b>	H05	<b>Ref.: BAD, BEM</b>
-	Filter settings for PLC symbols	REAL	3/4
Adv, Emb	Adv: 0, Emb: 0      0      0xFFFF	IMMEDIATELY	6.3
<b>9054</b>	<b>PLC_SYMBOL_FILTER</b>	H05	<b>Ref.: BAD, BEM</b>
-	Filter settings for PLC symbols	REAL	3/4
Adv, Emb	Adv: 0, Emb: 0      0      0xFFFF	IMMEDIATELY	6.3
<b>9055</b>	<b>PLC_ALARM_PICTURE</b>	H05	<b>Ref.: IM4</b>
-	Select acknowledgement symb. of PLC alarms	INTEGER	3/4
Adv, Emb	Adv: 1, Emb: 1      -1      1	Power On	6.3
<b>9056</b>	<b>ALARM_ROTATION_CYCLE</b>	H05	<b>Ref.:</b>
-	Rotation cycle time for alarm display	INTEGER	3/4
Emb	Emb: 0      0      10000	IMMEDIATELY	6.4
<b>9180</b>	<b>USER_CLASS_READ_TCARR</b>	H04, H05	<b>Ref.: A2</b>



## 2.4 Machine data for operator panel

-	Protect. level read tlh offsets			BYTE	3/4
Emb	Emb: 7	0	7	IMMEDIATELY	6.1
<b>9181</b>	<b>USER_CLASS_WRITE_TCARR</b>			H04, H05	<b>Ref.: A2</b>
-	Protect. level write tlh offsets			BYTE	3/4
Emb	Emb: 7	0	7	IMMEDIATELY	6.1
<b>9182</b>	<b>USER_CLASS_INCH_METRIC</b>			H04, H05	<b>Ref.: EMB</b>
-	Protect. level inch-metric switchover			BYTE	3/4
Emb	Emb: 7	0	7	IMMEDIATELY	6.2
<b>9183</b>	<b>USER_WRITE_TOOLFRAME</b>			H04, H05	<b>Ref.: A2</b>
-	Write toolholder protection level			BYTE	3/4
Adv, Emb	Adv: 7, Emb: 0	0	7	IMMEDIATELY	6.4
<b>9184</b>	<b>USER_WRITE_PARTFRAME</b>			H04, H05	<b>Ref.: A2</b>
-	Write tool ref. point protection level			BYTE	3/4
Adv, Emb	Adv: 7, Emb: 0	0	7	IMMEDIATELY	6.4
<b>9185</b>	<b>USER_WRITE_WPFRAME</b>			H04, H05	<b>Ref.: A2</b>
-	Write workpiece ref. point protec. level			BYTE	3/4
Adv, Emb	Adv: 7, Emb: 0	0	7	IMMEDIATELY	6.4
<b>9186</b>	<b>USER_WRITE_CYCFRAME</b>			H04, H05	<b>Ref.: A2</b>
-	Write cycle frame protection level			BYTE	3/4
Adv, Emb	Adv: 7, Emb: 0	0	7	IMMEDIATELY	6.4
<b>9187</b>	<b>USER_WRITE_TRAFRAME</b>			H04, H05	<b>Ref.: A2</b>
-	Write transformation frame protec. level			BYTE	3/4
Adv, Emb	Adv: 7, Emb: 0	0	7	IMMEDIATELY	6.4
<b>9188</b>	<b>USER_WRITE_EXTFRAME</b>			H04, H05	<b>Ref.: A2</b>
-	Write external WO protection level			BYTE	3/4
Adv, Emb	Adv: 7, Emb: 0	0	7	IMMEDIATELY	6.4
<b>9200</b>	<b>USER_CLASS_READ_TOA</b>			H04, H05	<b>Ref.: A2</b>
-	Protect. level read tool offsets			BYTE	3/4
OP30, Adv, Emb	OP30: 7, Adv: 7, Emb: 7	0	7	IMMEDIATELY	-
<b>9201</b>	<b>USER_CLASS_WRITE_TOA_GEO</b>			H04, H05	<b>Ref.: A2</b>
-	Protection level write tool geometry			BYTE	3/4
OP30, Adv, Emb	OP30: 7, Adv: 7, Emb: 7	0	7	IMMEDIATELY	-
<b>9202</b>	<b>USER_CLASS_WRITE_TOA_WEAR</b>			H04, H05	<b>Ref.: A2</b>
-	Protection level write tool wear data			BYTE	3/4
OP30, Adv, Emb	OP30: 7, Adv: 7, Emb: 7	0	7	IMMEDIATELY	-
<b>9203</b>	<b>USER_CLASS_WRITE_FINE</b>			H04, H05	<b>Ref.: A2</b>
-	Protection level fine			BYTE	3/4
Adv, Emb	Adv: 7, Emb: 7	0	7	IMMEDIATELY	-
<b>9204</b>	<b>USER_CLASS_WRITE_TOA_SC</b>			H04, H05	<b>Ref.: A2</b>
-	Change prot.level for tool sum offsets			BYTE	3/4

Adv	Adv: 7	0	7	IMMEDIATELY	SW 5
<b>9205</b>	<b>USER_CLASS_WRITE_TOA_EC</b>			H04, H05	<b>Ref.: A2</b>
-	Prot. level change tool setup offsets			BYTE	3/4
Adv	Adv: 7	0	7	IMMEDIATELY	SW 5
<b>9206</b>	<b>USER_CLASS_WRITE_TOA_SUPVIS</b>			H04, H05	<b>Ref.: A2</b>
-	Prot. level change tool mon. limits			BYTE	3/4
Adv, Emb	Adv: 7, Emb: 0	0	7	IMMEDIATELY	SW 5
<b>9207</b>	<b>USER_CLASS_WRITE_TOA_ASSDNO</b>			H04, H05	<b>Ref.: A2</b>
-	Modify assigned DNo of a tool cutting edge			BYTE	3/4
Adv	Adv: 7	0	7	IMMEDIATELY	SW 5
<b>9208</b>	<b>USER_CLASS_WRITE_MAG_WGROUP</b>			H04, H05	<b>Ref.: A2</b>
-	Modify wear group mag. pos./magazine			BYTE	3/4
Adv	Adv: 7	0	7	IMMEDIATELY	SW 5
<b>9209</b>	<b>USER_CLASS_WRITE_TOA_ADAPT</b>			H04, H05	<b>Ref.: A2</b>
-	Protect. level write tool adaptat. data			BYTE	3/4
OP30, Adv, Emb	OP30: 7, Adv: 7, Emb: 7	0	7	IMMEDIATELY	SW5
<b>9210</b>	<b>USER_CLASS_WRITE_ZOA</b>			H04, H05	<b>Ref.: A2</b>
-	Write protect. level of sett. zero offs.			BYTE	3/4
OP30, Adv, Emb	OP30: 7, Adv: 7, Emb: 7	0	7	IMMEDIATELY	-
<b>9211</b>	<b>USER_CLASS_READ_GUD_LUD</b>			H04, H05	<b>Ref.: A2</b>
-	Read protection level of user variables			BYTE	3/4
OP30, Adv, Emb	OP30: 7, Adv: 7, Emb: 7	0	7	IMMEDIATELY	SW6.1
<b>9212</b>	<b>USER_CLASS_WRITE_GUD_LUD</b>			H04, H05	<b>Ref.: IM1, IM3, A2</b>
-	Write protection level of user variables			BYTE	3/4
OP30, Adv, Emb	OP30: 7, Adv: 7, Emb: 7	0	7	IMMEDIATELY	SW6.1
<b>9213</b>	<b>USER_CLASS_OVERSTORE_HIGH</b>			H04, H05	<b>Ref.: A2</b>
-	Protection level extended overstore			BYTE	3/4
OP30, Adv, Emb	OP30: 7, Adv: 7, Emb: 7	0	7	IMMEDIATELY	-
<b>9214</b>	<b>USER_CLASS_WRITE_PRG_CONDIT</b>			H04, H05	<b>Ref.: A2</b>
-	Protection level program control			BYTE	3/4
OP30, Adv, Emb	OP30: 7, Adv: 7, Emb: 7	0	7	IMMEDIATELY	-
<b>9215</b>	<b>USER_CLASS_WRITE_SEA</b>			H04, H05	<b>Ref.: A2</b>
-	Protection level write setting data			BYTE	3/4
OP30, Adv, Emb	OP30: 7, Adv: 7, Emb: 7	0	7	IMMEDIATELY	-
<b>9216</b>	<b>USER_CLASS_READ_PROGRAM</b>			H04, H05	<b>Ref.: A2</b>
-	Read protection level of part program			BYTE	3/4
OP30, Adv, Emb	OP30: 7, Adv: 7, Emb: 7	0	7	IMMEDIATELY	-
<b>9217</b>	<b>USER_CLASS_WRITE_PROGRAM</b>			H04, H05	<b>Ref.: A2</b>
-	Write part program protection level			BYTE	3/4

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OP30, Adv, Emb	OP30: 7, Adv: 7, Emb: 7	0	7	IMMEDIATELY	-
<b>9218</b>	<b>USER_CLASS_SELECT_PROGRAM</b>			H04, H05	Ref.: A2
-	Protection level program selection			BYTE	3/4
OP30, Adv, Emb	OP30: 7, Adv: 7, Emb: 7	0	7	IMMEDIATELY	-
<b>9219</b>	<b>USER_CLASS_TEACH_IN</b>			H04, H05	Ref.: A2
-	Protection level TEACH IN			BYTE	3/4
OP30, Adv, Emb	OP30: 7, Adv: 7, Emb: 7	0	7	IMMEDIATELY	-
<b>9220</b>	<b>USER_CLASS_PRESET</b>			H04, H05	Ref.: A2
-	Protection level PRESET			BYTE	3/4
OP30, Adv, Emb	OP30: 7, Adv: 7, Emb: 7	0	7	IMMEDIATELY	-
<b>9221</b>	<b>USER_CLASS_CLEAR_RPA</b>			H04, H05	Ref.: A2
-	Protection level delete R variables			BYTE	3/4
OP30, Adv, Emb	OP30: 7, Adv: 7, Emb: 7	0	7	IMMEDIATELY	-
<b>9222</b>	<b>USER_CLASS_WRITE_RPA</b>			H04, H05	Ref.: A2
-	Protection level write R variables			BYTE	3/4
OP30, Adv, Emb	OP30: 7, Adv: 7, Emb: 7	0	7	IMMEDIATELY	-
<b>9223</b>	<b>USER_CLASS_SET_V24</b>			H04, H05	Ref.: A2
-	Prot. level RS-232-C parameterization			BYTE	3/4
OP30, Emb	OP30: 7, Emb: 7	0	7	IMMEDIATELY	-
<b>9224</b>	<b>USER_CLASS_READ_IN</b>			H04, H05	Ref.: A2
-	Protect. level read in data			BYTE	3/4
OP30, Emb	OP30: 7, Emb: 7	0	7	IMMEDIATELY	-
<b>9225</b>	<b>USER_CLASS_READ_CST</b>			H04, H05	Ref.: A2
-	Protect. level standard cycles			BYTE	3/4
OP30, Emb	OP30: 7, Emb: 7	0	7	IMMEDIATELY	SW2
<b>9226</b>	<b>USER_CLASS_READ_CUS</b>			H04, H05	Ref.: A2
-	Protect. level user cycles			BYTE	3/4
OP30, Emb	OP30: 7, Emb: 7	0	7	IMMEDIATELY	SW2
<b>9227</b>	<b>USER_CLASS_SHOW_SBL2</b>			H04, H05	Ref.: A2
-	Skip single block2 (SBL2)			BYTE	3/4
Emb	Emb: 7	0	7	IMMEDIATELY	SW3.5
<b>9228</b>	<b>USER_CLASS_READ_SYF</b>			H04, H05	Ref.: A2
-	Access level for selecting directory SYF			BYTE	3/4
Emb	Emb: 7	0	7	IMMEDIATELY	SW4.2
<b>9229</b>	<b>USER_CLASS_READ_DEF</b>			H04, H05	Ref.: A2
-	Access level for selecting directory DEF			BYTE	3/4
Emb	Emb: 7	0	7	IMMEDIATELY	SW4.2
<b>9230</b>	<b>USER_CLASS_READ_BD</b>			H04, H05	Ref.: A2
-	Access level for selecting directory BD			BYTE	3/4
Emb	Emb: 3	0	7	IMMEDIATELY	SW4.2

<b>9231</b>	<b>USER_CLASS_WRITE_RPA_1</b>			H04, H05	<b>Ref.: A2</b>
-	Protection level for the first RPA area			BYTE	3/4
Adv	Adv: 7	0	7	IMMEDIATELY	SW5.1
<b>9232</b>	<b>USER_BEGIN_WRITE_RPA_1</b>			H04, H05	<b>Ref.: A2</b>
-	Beginning of the first RPA area			WORD	3/4
Adv	Adv: 0	0	0	IMMEDIATELY	SW5.1
<b>9233</b>	<b>USER_END_WRITE_RPA_1</b>			H04, H05	<b>Ref.: A2</b>
-	End of the first RPA area			WORD	3/4
Adv	Adv: 0	0	0	IMMEDIATELY	SW5.1
<b>9234</b>	<b>USER_CLASS_WRITE_RPA_2</b>			H04, H05	<b>Ref.: A2</b>
-	Protection level for the second RPA area			BYTE	3/4
Adv	Adv: 7	0	7	IMMEDIATELY	SW5.1
<b>9235</b>	<b>USER_BEGIN_WRITE_RPA_2</b>			H04, H05	<b>Ref.: A2</b>
-	Beginning of the second RPA area			WORD	3/4
Adv	Adv: 0	0	0	IMMEDIATELY	SW5.1
<b>9236</b>	<b>USER_END_WRITE_RPA_2</b>			H04, H05	<b>Ref.: A2</b>
-	End of the second RPA area			WORD	3/4
Adv	Adv: 0	0	0	IMMEDIATELY	SW5.1
<b>9237</b>	<b>USER_CLASS_WRITE_RPA_3</b>			H04, H05	<b>Ref.: A2</b>
-	Protection level for the third RPA area			BYTE	3/4
Adv	Adv: 7	0	7	IMMEDIATELY	SW5.1
<b>9238</b>	<b>USER_BEGIN_WRITE_RPA_3</b>			H04, H05	<b>Ref.: A2</b>
-	Beginning of the third RPA area			WORD	3/4
Adv	Adv: 0	0	0	IMMEDIATELY	SW5.1
<b>9239</b>	<b>USER_END_WRITE_RPA_3</b>			H04, H05	<b>Ref.: A2</b>
-	End of the third RPA area			WORD	3/4
Adv	Adv: 0	0	0	IMMEDIATELY	SW5.1
<b>9240</b>	<b>USER_CLASS_WRITE_TOA_NAME</b>			H04, H05	<b>Ref.: A2</b>
-	Change tool designation and duplo			BYTE	3/4
Adv	Adv: 0	0	7	IMMEDIATELY	5
<b>9241</b>	<b>USER_CLASS_WRITE_TOA_TYPE</b>			H04, H05	<b>Ref.: A2</b>
-	Change tool type			BYTE	3/4
Adv	Adv: 0	0	7	IMMEDIATELY	5
<b>9242</b>	<b>MA_STAT_DISPLAY_BASE</b>			H05	<b>Ref.: K2</b>
-	Number basis display articul. pos. STAT			WORD	3/4
Adv, Emb	Adv: 10, Emb: 0	0	16	IMMEDIATELY	6.1
<b>9243</b>	<b>MA_TU_DISPLAY_BASE</b>			H05	<b>Ref.: K2</b>
-	Number basis display rot. axis pos. TU			WORD	3/4
Adv, Emb	Adv: 10, Emb: 0	0	16	IMMEDIATELY	6.1

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<b>9244</b>	<b>MA_ORIAXES_EULER_ANGLE_NAME</b>			H05	<b>Ref.: K2</b>
-	Orientation axes as Euler angle			WORD	3/4
Adv	Adv: 0	0	1	IMMEDIATELY	6.1
<b>9245</b>	<b>MA_PRESET_FRAMEIDX</b>			H05	<b>Ref.: K2</b>
-	Scratching value storage + preset.act.val.			WORD	3/4
Adv	Adv: 1	1	10	IMMEDIATELY	6.1
<b>9246</b>	<b>USER_CLASS_SYS_ZERO_OFF</b>			H04, H05	<b>Ref.: A2</b>
-	Access level write system frames			BYTE	2/2
Adv, Emb	Adv: 7, Emb: 7	0	7	IMMEDIATELY	Adv.: 6.03, Emb.: 6.02
<b>9247</b>	<b>USER_CLASS_BASE_ZERO_OFF_PA</b>			H04, H05	<b>Ref.: K2</b>
-	Access level basic offset PA			BYTE	2/2
Adv, Emb	Adv: 7, Emb: 7	0	7	IMMEDIATELY	5.3
<b>9248</b>	<b>USER_CLASS_BASE_ZERO_OFF_MA</b>			H04, H05	<b>Ref.: IAM, IM1</b>
-	Access level basic offset MA			BYTE	2/2
Adv, Emb	Adv: 7, Emb: 7	0	7	IMMEDIATELY	5.3
<b>9249</b>	<b>USER_CLASS_VERT_MODE_SK</b>			H04, H05	<b>Ref.: K2</b>
-	Protect. level vertical SKs of area SKs Protection for vertical SK			DOUBLE	3/4
Emb	Emb: 2004318071	0	0x77777777	IMMEDIATELY	SW6.1
<b>9251</b>	<b>USER_CLASS_TM_SKTLLIST</b>			H04, H05	<b>Ref.: FBW</b>
-	Display of tool list			BYTE	3/4
Emb	Emb: 7	0	7	Power On	SW4.1
<b>9252</b>	<b>USER_CLASS_TM_SKTOOLLOAD</b>			H04, H05	<b>Ref.: FBW</b>
-	Protection level for loading tools			BYTE	3/4
Emb	Emb: 7	0	7	Power On	SW4.1
<b>9253</b>	<b>USER_CLASS_TM_SKTOOLUNLOAD</b>			H04, H05	<b>Ref.: FBW</b>
-	Prot. level for unloading tools			BYTE	3/4
Emb	Emb: 7	0	7	Power On	SW4.1
<b>9254</b>	<b>USER_CLASS_TM_SKTOOLMOVE</b>			H04, H05	<b>Ref.: FBW</b>
-	Protection level for tool relocation			BYTE	3/4
Emb	Emb: 7	0	7	Power On	SW4.1
<b>9256</b>	<b>USER_CLASS_TM_SKMGLREPR2</b>			H04, H05	<b>Ref.: FBW</b>
-	Prot. level for display of 2nd mag. list			BYTE	3/4
Emb	Emb: 7	0	7	Power On	SW4.1
<b>9257</b>	<b>USER_CLASS_TM_SKMGLREPR3</b>			H04, H05	<b>Ref.: FBW</b>
-	Prot. level for display of 3rd mag. list			BYTE	3/4
Emb	Emb: 7	0	7	Power On	SW4.1
<b>9258</b>	<b>USER_CLASS_TM_SKNCNEWTTOOLE</b>			H04, H05	<b>Ref.: FBW</b>
-	Prot.level for creating new cutting edges			BYTE	3/4
Emb	Emb: 7	0	7	Power On	SW4.1

<b>9259</b>	<b>USER_CLASS_TM_SKNCDELTOOL</b>			H04, H05	<b>Ref.: FBW</b>
-	Protection level for deleting tools			BYTE	3/4
Emb	Emb: 7	0	7	Power On	SW4.1
<b>9260</b>	<b>USER_CLASS_TM_SKMGBUFFER</b>			H04, H05	<b>Ref.: FBW</b>
-	Prot. level for buffer on/off			BYTE	3/4
Emb	Emb: 7	0	7	Power On	SW4.1
<b>9261</b>	<b>USER_CLASS_TM_SKMGFIND</b>			H04, H05	<b>Ref.: FBW</b>
-	Protection level for search			BYTE	3/4
Emb	Emb: 7	0	7	Power On	SW4.1
<b>9262</b>	<b>USER_CLASS_TM_SKMGLISTPOS</b>			H04, H05	<b>Ref.: FBW</b>
-	Protection level for positioning			BYTE	3/4
Emb	Emb: 7	0	7	Power On	SW4.1
<b>9263</b>	<b>USER_CLASS_TM_SKMGNEXT</b>			H04, H05	<b>Ref.: FBW</b>
-	Prot. level f. paging to next magazine			BYTE	3/4
Emb	Emb: 7	0	7	Power On	SW4.1
<b>9264</b>	<b>USER_CLASS_TM_SKTLNEWTOOL</b>			H04, H05	<b>Ref.: FBW</b>
-	Protection level for creating tools			BYTE	3/4
Emb	Emb: 7	0	7	Power On	SW4.1
<b>9265</b>	<b>USER_CLASS_TM_SKTLLREPR1</b>			H04, H05	<b>Ref.: FBW</b>
-	Prot. level for display of 1st mag. list			BYTE	3/4
Emb	Emb: 7	0	7	Power On	SW4.1
<b>9266</b>	<b>USER_CLASS_TM_SKTLLREPR2</b>			H04, H05	<b>Ref.: FBW</b>
-	Prot. level for display of 2nd tool list			BYTE	3/4
Emb	Emb: 7	0	7	Power On	SW4.1
<b>9267</b>	<b>USER_CLASS_TM_SKTLLREPR3</b>			H04, H05	<b>Ref.: FBW</b>
-	Prot. level for display of 3rd tool list			BYTE	3/4
Emb	Emb: 7	0	7	Power On	SW4.1
<b>9269</b>	<b>USER_CLASS_TM_SKFINDPLACE</b>			H04, H05	<b>Ref.: FBW</b>
-	Empty softkey loc., display tool list			BYTE	3/4
Emb	Emb: 7	0	7	Power On	SW4.1
<b>9270</b>	<b>USER_CLASS_TM_SKACTPLACE</b>			H04, H05	<b>Ref.: FBW</b>
-	Prot. level f. load. to current location			BYTE	3/4
Emb	Emb: 7	0	7	Power On	SW4.1
<b>9271</b>	<b>USER_CLASS_TM_SKLDTOOLDAT</b>			H04, H05	<b>Ref.: FBW</b>
-	Check and edit the tool data			BYTE	3/4
Emb	Emb: 7	0	7	Power On	SW4.1
<b>9272</b>	<b>USER_CLASS_APPLICATION</b>			H04, H05	<b>Ref.: A2</b>
-	Protec. level for operating area selection			BYTE	3/4
Emb	Emb: 0	0	7	IMMEDIATELY	6.4

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<b>9273</b>	<b>USER_CLASS_APP_PARAMETER</b>			H04, H05	<b>Ref.:</b>
-	Protection level for softkeys in parameter			BYTE	3/4
Emb	Emb: 0	0	7	IMMEDIATELY	7.1
<b>9300</b>	<b>V24_USER_XON</b>			H05	<b>Ref.: K4</b>
-	User: X on character			REAL	3/4
OP30, Emb	OP30: 17, Emb: 17	0	0xFF	IMMEDIATELY	-
<b>9301</b>	<b>V24_USER_XOFF</b>			H05	<b>Ref.: K4</b>
-	User: X off character			REAL	3/4
OP30, Emb	OP30: 19, Emb: 19	0	0xFF	IMMEDIATELY	-
<b>9302</b>	<b>V24_USER_EOF</b>			H05	<b>Ref.: K4</b>
-	User: end-of-transmission character			REAL	3/4
OP30, Emb	OP30: 26, Emb: 26	0	0xFF	IMMEDIATELY	-
<b>9303</b>	<b>V24_USER_CONTROLS</b>			H05	<b>Ref.: K4</b>
-	User: special bits			REAL	3/4
OP30, Emb	OP30: 76, Emb: 76	0	0x3FF	IMMEDIATELY	-
<b>9303</b>	<b>V24_USER_CONTROLS</b>			H05	<b>Ref.: K4</b>
-	User: special bits			REAL	3/4
OP30, Emb	OP30: 76, Emb: 76	0	0x3FF	IMMEDIATELY	-
<b>9304</b>	<b>V24_USER_RTS</b>			H05	<b>Ref.: K4</b>
-	User: line-controlled 9305 User: baud rate			BYTE	3/4
OP30, Emb	OP30: 1, Emb: 0	0	1	IMMEDIATELY	-
<b>9305</b>	<b>V24_USER_BAUD</b>			H05	<b>Ref.: K4</b>
-	User: Baudrate (300, 600, 1200, 2400, 4800, 9600, 19200) 0 1 ...			BYTE	3/4
OP30, Emb	OP30: 4, Emb: 5	0	8	IMMEDIATELY	-
<b>9306</b>	<b>V24_USER_DATABITS</b>			H05	<b>Ref.: K4</b>
-	User: data bits			BYTE	3/4
OP30, Emb	OP30: 1, Emb: 1	0	1	IMMEDIATELY	-
<b>9307</b>	<b>V24_USER_PARITY</b>			H05	<b>Ref.: K4</b>
-	User: parity bits			BYTE	3/4
OP30, Emb	OP30: 0, Emb: 0	0	2	IMMEDIATELY	-
<b>9308</b>	<b>V24_USER_STOPBIT</b>			H05	<b>Ref.: K4</b>
-	User: stop bits			BYTE	3/4
OP30, Emb	OP30: 0, Emb: 0	0	1	IMMEDIATELY	-
<b>9309</b>	<b>V24_USER_LINE</b>			H05	<b>Ref.: K4</b>
-	User: RS-232 interface (COM1/COM2) (COM1/COM2)			BYTE	3/4
Emb	Emb: 1	1	2	IMMEDIATELY	SW5
<b>9310</b>	<b>V24_PRINTER_XON</b>			H05	<b>Ref.: K4</b>

-	Printer: X on character			REAL	3/4
OP30, Emb	OP30: 17, Emb: 17	0	0xFF	IMMEDIATELY	-
<b>9311</b>	<b>V24_PRINTER_XOFF</b>			<b>H05</b>	<b>Ref.: K4</b>
-	Printer: X off character			REAL	3/4
OP30, Emb	OP30: 19, Emb: 19	0	0xFF	IMMEDIATELY	-
<b>9312</b>	<b>V24_PRINTER_EOF</b>			<b>H05</b>	<b>Ref.: K4</b>
-	Printer: end-of-transmission character			REAL	3/4
OP30, Emb	OP30: 12, Emb: 12	0	0xFF	IMMEDIATELY	-
<b>9313</b>	<b>V24_PRINTER_CONTROLS</b>			<b>H05</b>	<b>Ref.: K4</b>
-	Printer: special bits			REAL	3/4
OP30, Emb	OP30: 76, Emb: 76	0	0x3FF	IMMEDIATELY	-
<b>9313</b>	<b>V24_PRINTER_CONTROLS</b>			<b>H05</b>	<b>Ref.: K4</b>
-	Printer: special bits			REAL	3/4
OP30, Emb	OP30: 76, Emb: 76	0	0x3FF	IMMEDIATELY	-
<b>9314</b>	<b>V24_PRINTER_RTS</b>			<b>H05</b>	<b>Ref.: K4</b>
-	Printer: line-controlled			BYTE	3/4
OP30, Emb	OP30: 0, Emb: 0	0	1	IMMEDIATELY	-
<b>9315</b>	<b>V24_PRINTER_BAUD</b>			<b>H05</b>	<b>Ref.: K4</b>
-	Printer: baud rate 9316 Printer: data bits (300, 600, 1200, 2400, 4800, 9600, 19200) 0 1 ...			BYTE	3/4
OP30, Emb	OP30: 5, Emb: 5	0	8	IMMEDIATELY	-
<b>9316</b>	<b>V24_PRINTER_DATABITS</b>			<b>H05</b>	<b>Ref.: K4</b>
-	Printer: Databits			BYTE	3/4
OP30, Emb	OP30: 1, Emb: 1	0	1	IMMEDIATELY	-
<b>9317</b>	<b>V24_PRINTER_PARITY</b>			<b>H05</b>	<b>Ref.: K4</b>
-	Printer: parity bits			BYTE	3/4
OP30, Emb	OP30: 0, Emb: 0	0	2	IMMEDIATELY	-
<b>9318</b>	<b>V24_PRINTER_STOPBIT</b>			<b>H05</b>	<b>Ref.: K4</b>
-	Printer: stop bits			BYTE	3/4
OP30, Emb	OP30: 0, Emb: 0	0	1	IMMEDIATELY	-
<b>9319</b>	<b>V24_PRINTER_LINE</b>			<b>H05</b>	<b>Ref.: K4</b>
-	Printer: RS-232 interface (COM1/COM2) (COM1/COM2)			BYTE	3/4
Emb	Emb: 1	1	2	IMMEDIATELY	-
<b>9320</b>	<b>V24_PG_PC_XON</b>			<b>H05</b>	<b>Ref.: K4</b>
-	PG: X on character			REAL	3/4
OP30, Emb	OP30: 17, Emb: 17	0	0xFF	IMMEDIATELY	-
<b>9321</b>	<b>V24_PG_PC_XOFF</b>			<b>H05</b>	<b>Ref.: K4</b>
-	PG: X off character			REAL	3/4



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OP30, Emb	OP30: 19, Emb: 19	0	0xFF	IMMEDIATELY	-
<b>9322</b>	<b>V24_PG_PC_EOF</b>			H05	Ref.: K4
-	PG: end-of-transmission character			REAL	3/4
OP30, Emb	OP30: 26, Emb: 26	0	0xFF	IMMEDIATELY	-
<b>9323</b>	<b>V24_PG_PC_CONTROLS</b>			H05	Ref.: K4
-	PG: special bits			REAL	3/4
OP30, Emb	OP30: 144, Emb: 144	0	0x3FF	IMMEDIATELY	-
<b>9323</b>	<b>V24_PG_PC_CONTROLS</b>			H05	Ref.: K4
-	PG: special bits			REAL	3/4
OP30, Emb	OP30: 144, Emb: 144	0	0x3FF	IMMEDIATELY	-
<b>9324</b>	<b>V24_PG_PC_RTS</b>			H05	Ref.: K4
-	PG: line-controlled			BYTE	3/4
OP30, Emb	OP30: 0, Emb: 0	0	1	IMMEDIATELY	-
<b>9325</b>	<b>V24_PG_PC_BAUD</b>			H05	Ref.: K4
-	PG: baud rate (300, 600, 1200, 2400, 4800, 9600) 0 1 ...			BYTE	3/4
OP30, Emb	OP30: 5, Emb: 5	0	8	IMMEDIATELY	-
<b>9326</b>	<b>V24_PG_PC_DATABITS</b>			H05	Ref.: K4
-	PG: data bits			BYTE	3/4
OP30, Emb	OP30: 1, Emb: 1	0	1	IMMEDIATELY	-
<b>9327</b>	<b>V24_PG_PC_PARITY</b>			H05	Ref.: K4
-	PG: parity bits			BYTE	3/4
OP30, Emb	OP30: 0, Emb: 0	0	2	IMMEDIATELY	-
<b>9328</b>	<b>V24_PG_PC_STOPBIT</b>			H05	Ref.: K4
-	PG: stop bits			BYTE	3/4
OP30, Emb	OP30: 0, Emb: 0	0	1	IMMEDIATELY	-
<b>9329</b>	<b>V24_PG_PC_LINE</b>			H05	Ref.: K4
-	PG: RS-232 interface (COM1/COM2) (COM1/COM2)			BYTE	3/4
Emb	Emb: 1	1	2	IMMEDIATELY	-
<b>9400</b>	<b>TOOL_REF_GEO_AXIS1</b>			H05	Ref.: BA
-	Abs.dim.f.tool length offset f.geoaxis 1			DOUBLE	3/4
OP30, Emb	OP30: 0, Emb: 0	***	***	IMMEDIATELY	-
<b>9401</b>	<b>TOOL_REF_GEO_AXIS2</b>			H05	Ref.: BA
-	Abs.dim.f.tool length offset f.geoaxis 2			DOUBLE	3/4
OP30, Emb	OP30: 0, Emb: 0	***	***	IMMEDIATELY	-
<b>9402</b>	<b>TOOL_REF_GEO_AXIS3</b>			H05	Ref.: BA
-	Abs.dim.f.tool length offset f.geoaxis 3			DOUBLE	3/4
OP30, Emb	OP30: 0, Emb: 0	***	***	IMMEDIATELY	-

<b>9410</b>	<b>TM_LOAD_PLACE</b>			H05	<b>Ref.: BA</b>
-	Number of load location			INTEGER	3/4
OP30, Emb	OP30: 0, Emb: 0	***	***	Power On	-
<b>9411</b>	<b>TM_NUM_MAG</b>			H05	<b>Ref.: BA</b>
-	Number of work magazine			INTEGER	3/4
OP30, Emb	OP30: 0, Emb: 0	***	***	Power On	-
<b>9412</b>	<b>TM_DEFAULT_TOOLSIZE</b>			H05	<b>Ref.: FBW</b>
-	Preset value for tool size			REAL	3/4
Emb	Emb: 1111	1111	7777	IMMEDIATELY	SW4.1
<b>9414</b>	<b>TM_KIND_OF_TOOLMANAGEMENT</b>			H01, H02, H05	<b>Ref.: FBW</b>
-	Type of tool management representation 0: old, 1: new ( SW 5.2 and higher)			BYTE	3/4
SM, ST, Emb	SM: 1, ST: 1, Emb: 0	0	1	Power On	SW5
<b>9415</b>	<b>TM_DEFAULT_TOOLPLACESPEC</b>			H05	<b>Ref.: FBW</b>
-	Default value for location type			BYTE	3/4
Emb	Emb: 1	1	99	IMMEDIATELY	SW4.2
<b>9416</b>	<b>TM_DEFAULT_TOOLTYPE</b>			H05	<b>Ref.: FBW</b>
-	Preset value for type of location			REAL	3/4
Emb	Emb: 120	100	900	IMMEDIATELY	SW4.1
<b>9417</b>	<b>TM_DEFAULT_TOOLSTATE</b>			H05	<b>Ref.: FBW</b>
-	Preset value for tool status loading			INTEGER	3/4
Emb	Emb: 2	0	255	IMMEDIATELY	SW4.1
<b>9419</b>	<b>TM_DEFAULT_DELETE_TOOL</b>			H05	<b>Ref.: FBW</b>
-	Preset tool data for automatic deletion			BYTE	3/4
Emb	Emb: 0	0	1	IMMEDIATELY	SW4.1
<b>9420</b>	<b>MA_ONLY_MKS_DIST_TO_GO</b>			H05	<b>Ref.: FBW</b>
-	Distance-to-go display in work window 0: WCS value 1: MCS value			BYTE	3/4
Emb	Emb: 0	0	1	IMMEDIATELY	SW4.1
<b>9421</b>	<b>MA_AXES_SHOW_GEO_FIRST</b>			H05	<b>Ref.: K1</b>
-	Actual value display with leading axes			BYTE	3/4
Adv, Emb	Adv: 1, Emb: 1	0	1	IMMEDIATELY	SW2
<b>9422</b>	<b>MA_PRESET_MODE</b>			H05	<b>Ref.: K1</b>
-	Select PRESET/Basic offset in JOG 0 no preset, no actual-value setting 1 PRESET 2 Actual-value setting 3 Actual-value setting s. Online Help			BYTE	3/4
Adv, Emb	Adv: 1, Emb: 1	0	3	IMMEDIATELY	SW5
<b>9423</b>	<b>MA_MAX_SKP_LEVEL</b>			H05	<b>Ref.: K1</b>
-	Max. skip levels in NC program			BYTE	3/4
Adv, Emb	Adv: 1, Emb: 1	1	8	Power On	SW5

## 2.4 Machine data for operator panel

<b>9424</b>	<b>MA_COORDINATE_SYSTEM</b>			<b>H05</b>	<b>Ref.: K2</b>
-	Coord.syst. for act.val. display 0: WCS 1: SZS (settable zero system)			BYTE	3/4
Adv, Emb	Adv: 0, Emb: 0	0	1	IMMEDIATELY	SW5
<b>9424</b>	<b>MA_COORDINATE_SYSTEM</b>			<b>H05</b>	<b>Ref.: K2</b>
-	Coord.syst. for act.val. display 0: WCS 1: SZS (settable zero system)			BYTE	3/4
Adv, Emb	Adv: 0, Emb: 0	0	1	Power On	SW5
<b>9425</b>	<b>MA_SCRATCH_DEFAULT_MODE</b>			<b>H05</b>	<b>Ref.: K2</b>
-	Tool offset calculation Scratching			DOUBLE	3/4
Emb	Emb: 0	0	2236962	IMMEDIATELY	5.3
<b>9426</b>	<b>MA_AX_DRIVELOAD_FROM_PLC1</b>			<b>H01, H02, H05</b>	<b>Ref.:</b>
-	Mach.axis ind. analog spindle power displ.			BYTE	3/4
SM, ST, Adv, Emb	SM: , ST: , Adv: 0, Emb: 0	0	31	Power On	Emb: 6.5 Adv: 6.4
<b>9427</b>	<b>MA_AX_DRIVELOAD_FROM_PLC2</b>			<b>H01, H02, H05</b>	<b>Ref.:</b>
-	Mach.axis ind. analog spindle power displ.			BYTE	3/4
SM, ST, Adv, Emb	SM: , ST: , Adv: 0, Emb: 0	0	31	Power On	Emb: 6.5 Adv: 6.4
<b>9428</b>	<b>MA_SPIND_MAX_POWER</b>			<b>H01, H02, H05</b>	<b>Ref.: IM4</b>
%	Maximum value of spindle power rating displ			REAL	3/4
SM, ST, Adv, Emb	SM: , ST: , Adv: 100, Emb: 100	100	0xFFFF	Power On	Emb: 6.5 Adv: 6.4
<b>9429</b>	<b>MA_SPIND_POWER_RANGE</b>			<b>H01, H02, H05</b>	<b>Ref.: IM4</b>
%	Display range of spindle power rating displ			REAL	3/4
SM, ST, Adv, Emb	SM: 200, ST: 200, Adv: 100, Emb: 100	100	0xFFFF	Power On	Emb: 6.5 Adv: 6.4
<b>9430</b>	<b>TM_UNLOAD_AND_DELETE</b>				<b>Ref.: FBO</b>
-				BOOL	3/4
OP30,	OP30: 0,	***	***	Power On	SW5
<b>9431</b>	<b>TM_LOAD_TOOL_NEW</b>				<b>Ref.: FBO</b>
-				BOOL	3/4
OP30,	OP30: 1,	***	***	Power On	SW5
<b>9432</b>	<b>TM_TOOL_STATE_DEF_VAL</b>				<b>Ref.: FBO</b>
-				BYTE	3/4
OP30,	OP30: 2,	***	***	Power On	
<b>9433</b>	<b>TM_ACT_SEARCH_AND_POS</b>				<b>Ref.: FBO</b>
-				BOOL	3/4
OP30,	OP30: 0,	***	***	Power On	
<b>9434</b>	<b>TM_LOAD_LOC1</b>				<b>Ref.: FBW</b>
-	0: automatic selection in a magazine			INTEGER	3/7

OP30,	OP30: 0,	***	***	Power On	4.2
<b>9435</b>	<b>TM_LOAD_LOC2</b>				<b>Ref.: FBW</b>
-	0: automatic selection in a magazine			INTEGER	3/7
OP30,	OP30: 0,	***	***	Power On	4.2
<b>9436</b>	<b>TM_LOAD_LOC3</b>				<b>Ref.: FBW</b>
-	0: automatic selection in a magazine			INTEGER	3/7
OP30,	OP30: 0,	***	***	Power On	4.2
<b>9437</b>	<b>TM_LOAD_LOC4</b>				<b>Ref.: FBW</b>
-	0: automatic selection in a magazine			INTEGER	3/7
OP30,	OP30: 0,	***	***	Power On	4.2
<b>9438</b>	<b>TM_LOAD_LOC5</b>				<b>Ref.: FBW</b>
-	0: automatic selection in a magazine			INTEGER	3/7
OP30,	OP30: 0,	***	***	Power On	4.2
<b>9440</b>	<b>ACTIVATE_SEL_USER_DATA</b>			H05	<b>Ref.: K2</b>
-	Activate active offset immediately			BYTE	3/4
Adv, Emb	Adv: 1, Emb: 0	0	1	IMMEDIATELY	SW4.3
<b>9442</b>	<b>MA_AUXFU_GROUPS</b>			H01, H02, H05	<b>Ref.:</b>
-	Auxiliary function groups displayed			STRING	3/4
SM, ST, Adv, Emb	SM: , ST: , Adv: "1,2,3,4,5,6,7,8,9,10,11,12,13,14,15", Emb: 0	***	***	Power On	7.1
<b>9449</b>	<b>WRITE_TOA_LIMIT_MASK</b>			H05	<b>Ref.: K2</b>
-	MD9449 appl. to wear (bit0) SC(1) EC(2) MD9449 appl. to wear (bit0), SC (1) , EC (2)			BYTE	3/4
Adv	Adv: 7	0	7	IMMEDIATELY	5.2
<b>9450</b>	<b>WRITE_TOA_FINE_LIMIT</b>			H05	<b>Ref.: K2</b>
mm	Limit value for wear fine			DOUBLE	3/4
Adv, Emb	Adv: 0, Emb: 0.999	***	***	IMMEDIATELY	SW4.2
<b>9451</b>	<b>WRITE_ZOA_FINE_LIMIT</b>			H05	<b>Ref.: K2</b>
mm	Limit value for offset fine			DOUBLE	3/4
Adv, Emb	Adv: 0, Emb: 0.999	***	***	IMMEDIATELY	SW4.2
<b>9459</b>	<b>PA_ZOA_MODE</b>			H05	<b>Ref.: K2, IM2</b>
-	Display mode zero offset			BYTE	3/4
Emb	Emb: 1	0	1	IMMEDIATELY	SW 6.1
<b>9460</b>	<b>PROGRAM_SETTINGS</b>			H05	<b>Ref.: A2</b>
-	Settings in Program area			INTEGER	3/4
Adv, Emb	Adv: 0, Emb: 128	***	***	IMMEDIATELY	SW5.1
<b>9461</b>	<b>CONTOUR_END_TEXT</b>			H05	<b>Ref.: A2</b>

## 2.4 Machine data for operator panel

-	String to be added to end of contour			STRING	3/4
Emb	Emb: "	***	***	IMMEDIATELY	SW5.1
<b>9464</b>	<b>MAX_PROGRAMM_SIZE_CHECK</b>			H05	<b>Ref.:</b>
-	File size from which no test is performed			INTEGER	3/4
Emb	Emb: 102400	51200	0x7FFFFFFF	IMMEDIATELY	6.4
<b>9477</b>	<b>TO_TRACE</b>			H01, H02, H05	<b>Ref.:</b>
-	For internal test purposes			REAL	3/4
SM, ST, Emb	SM: 0, ST: 0, Emb: 0	0	0xFFFF	Power On	
<b>9477</b>	<b>TO_TRACE</b>			H01, H02, H05	<b>Ref.:</b>
-	For internal test purposes			REAL	3/4
SM, ST, Emb	SM: 0, ST: 0, Emb: 0	0	0xFFFF	Power On	
<b>9478</b>	<b>TO_OPTION_MASK</b>			H01, H02, H05	<b>Ref.:</b>
-	For internal purposes			INTEGER	2/2
SM, ST, Emb	SM: 1, ST: 1, Emb: 0	***	***	Power On	
<b>9479</b>	<b>TO_MAG_PLACE_DISTANCE</b>			H02, H05	<b>Ref.: FBSP</b>
mm	Distance betw. indiv. magazine locations			DOUBLE	3/4
ST, Emb	ST: 0Emb: 0	0	10000	Power On	6.3
<b>9480</b>	<b>MA_SIMULATION_MODE</b>			H05	<b>Ref.: BAD</b>
-	Simulation type			BYTE	3/4
Adv	Adv: -1	-1	2	IMMEDIATELY	6.4
<b>9481</b>	<b>MA_STAND_SIMULATION_LIMIT</b>			H05	<b>Ref.: BAD</b>
-	Standard simulation limit in KB			INTEGER	3/4
Adv	Adv: 200	200	2000000	IMMEDIATELY	6.4
<b>9500</b>	<b>NC_PROPERTIES</b>			H05	<b>Ref.: A2</b>
-	NC properties Bit 0: digital drives Bit 1: software start-up switch Bit 2...4: reserved			BYTE	3/4
OP30, Emb	OP30: 255, Emb: 255	0	0xFF	IMMEDIATELY	SW2
<b>9500</b>	<b>NC_PROPERTIES</b>			H05	<b>Ref.: A2</b>
-	NC properties Bit 0: digital drives Bit 1: software start-up switch Bit 2...4: reserved			BYTE	3/4
OP30, Emb	OP30: 255, Emb: 255	0	0xFF	IMMEDIATELY	SW2
<b>9509</b>	<b>USER_CLASS_DIRECTORY_CHG</b>			H04, H05	<b>Ref.: FBT, FBSP, EMB</b>
-	Protect. level for network configuration			BYTE	3/4
Emb	Emb: 1	0	7	IMMEDIATELY	6.2
<b>9510</b>	<b>USER_CLASS_DIRECTORY1_P</b>			H04, H05	<b>Ref.: A2</b>
-	Protection level for network drive1 progr.			BYTE	3/4
Adv, Emb	Adv: 7, Emb: 1	0	7	IMMEDIATELY	6.1

<b>9511</b>	<b>USER_CLASS_DIRECTORY2_P</b>			H04, H05	<b>Ref.: A2</b>
-	Protection level for network drive2 progr.			BYTE	3/4
Adv, Emb	Adv: 7, Emb: 1	0	7	IMMEDIATELY	6.1
<b>9512</b>	<b>USER_CLASS_DIRECTORY3_P</b>			H04, H05	<b>Ref.: A2</b>
-	Protection level for network drive3 progr.			BYTE	3/4
Adv, Emb	Adv: 7, Emb: 1	0	7	IMMEDIATELY	6.1
<b>9513</b>	<b>USER_CLASS_DIRECTORY4_P</b>			H04, H05	<b>Ref.: A2</b>
-	Protection level for network drive4 progr.			BYTE	3/4
Adv, Emb	Adv: 7, Emb: 1	0	7	IMMEDIATELY	6.1
<b>9516</b>	<b>USER_CLASS_DIRECTORY1_M</b>			H04, H05	<b>Ref.: A2</b>
-	Protection level for network drive1 mach.			BYTE	3/4
Adv, Emb	Adv: 7, Emb: 0	0	7	IMMEDIATELY	6.1
<b>9517</b>	<b>USER_CLASS_DIRECTORY2_M</b>			H04, H05	<b>Ref.: A2</b>
-	Protection level for network drive2 mach.			BYTE	3/4
Adv, Emb	Adv: 7, Emb: 0	0	7	IMMEDIATELY	6.1
<b>9518</b>	<b>USER_CLASS_DIRECTORY3_M</b>			H04, H05	<b>Ref.: A2</b>
-	Protection level for network drive3 mach.			BYTE	3/4
Adv, Emb	Adv: 7, Emb: 0	0	7	IMMEDIATELY	6.1
<b>9519</b>	<b>USER_CLASS_DIRECTORY4_M</b>			H04, H05	<b>Ref.: A2</b>
-	Protection level for network drive4 mach.			BYTE	3/4
Adv, Emb	Adv: 7, Emb: 0	0	7	IMMEDIATELY	6.1
<b>9550</b>	<b>CTM_CYC_ROUGH_RELEASE_DIST</b>			H02, H03	<b>Ref.: FBMA</b>
mm	Return distance for contour roughing			DOUBLE	3/4
ST, MT	ST: 1, MT: 1	0.001	10.0	IMMEDIATELY	5.2 (840D), 3.2 (810D)
<b>9551</b>	<b>CTM_CYC_ROUGH_RELEASE_ANGLE</b>			H02, H03	<b>Ref.: FBMA</b>
degrees	Return angle for contour roughing			DOUBLE	3/4
ST, MT	ST: 45, MT: 45	0.0	90.0	IMMEDIATELY	5.2 (840D), 3.2 (810D)
<b>9552</b>	<b>CTM_CYC_ROUGH_BLANC_OFFS</b>			H02, H03	<b>Ref.: FBMA</b>
mm	Blank allowance for contour roughing			DOUBLE	3/4
ST, MT	ST: 1, MT: 1	0.0	100.0	IMMEDIATELY	5.2 (840D), 3.2 (810D)
<b>9553</b>	<b>CTM_CYC_ROUGH_TRACE_ANGLE</b>			H02, H03	<b>Ref.: FBMA</b>
degrees	Rounding angle for contour cutting			DOUBLE	3/4
ST, MT	ST: 5, MT: 5	0.0	90.0	IMMEDIATELY	5.2 (840D), 3.2 (810D)
<b>9554</b>	<b>CTM_CYC_ROUGH_MIN_REST_MAT1</b>			H02, H03	<b>Ref.: FBMA</b>
%	Diff. dimension resid. mat. machin. axis 1			DOUBLE	3/4
ST, MT	ST: 50, MT: 50	0.0	1000.0	IMMEDIATELY	5.2 (840D), 3.2 (810D)

## 2.4 Machine data for operator panel

<b>9555</b>	<b>CTM_CYC_ROUGH_MIN_REST_MAT2</b>			H02, H03	<b>Ref.: FBMA</b>
%	Diff. dimension resid. mat. machin. axis 2			DOUBLE	3/4
ST, MT	ST: 50, MT: 50	0.0	1000.0	IMMEDIATELY	5.2 (840D), 3.2 (810D)
<b>9556</b>	<b>CTM_CYC_ROUGH_VAR_DEPTH</b>			H02, H03	<b>Ref.: FBT</b>
%	Percentage variable cutt. depth cont. rot.			BYTE	3/4
ST, MT	ST: 20, MT:	0	50	IMMEDIATELY	6.3
<b>9557</b>	<b>CTM_CYC_ROUGH_FEED_INT_TIME</b>			H02, H03	<b>Ref.: FBMA</b>
	Feed interrupt time contour turning			DOUBLE	3/4
ST, MT	ST: -1, MT:	***	***	IMMEDIATELY	6.4
<b>9558</b>	<b>CTM_CYC_ROUGH_INT_REL_DIST</b>			H02, H03	<b>Ref.: FBMA</b>
mm	Retr. path feed interrupt contour turning			DOUBLE	3/4
ST, MT	ST: 0, MT:	0	10	IMMEDIATELY	6.4
<b>9560</b>	<b>CTM_TURN_GROOV_TOOL_BEND</b>			H02, H03	<b>Ref.: FBT</b>
mm	Retr. due to tool bending plunge-turning			DOUBLE	3/4
ST, MT	ST: 0.1, MT:	0.0	1.0	IMMEDIATELY	6.3
<b>9561</b>	<b>CTM_TURN_GROOV_FREE_CUT_VAL</b>			H02, H03	<b>Ref.: FBT</b>
mm	Retr. depth prior to plunge turning oper.			DOUBLE	3/4
ST, MT	ST: 0.1, MT:	0.0	1.0	IMMEDIATELY	6.3
<b>9599</b>	<b>CTM_OPTION_MASK</b>			H03	<b>Ref.: FBMA</b>
-	ManualTurn settings			INTEGER	2/2
MT	MT:	***	***	IMMEDIATELY	6.3
<b>9600</b>	<b>CTM_SIMULATION_DEF_X</b>			H01, H02, H03, H05	<b>Ref.: FBMA, FBSP</b>
-	Simulation of default value X			INTEGER	3/4
SM, ST, MT, Emb	SM: 0, ST: 0, MT: 0, Emb: 0	-10000	10000	Power On	SW2.1 (810D), 4.3 (840D)
<b>9601</b>	<b>CTM_SIMULATION_DEF_Y</b>			H01, H02, H03, H05	<b>Ref.: FBMA, FBSP</b>
-	Simulation default value Z			INTEGER	3/4
SM, ST, MT, Emb	SM: 0, ST: 0, MT: 0, Emb: 0	-10000	10000	Power On	SW2.1 (810D), 4.3 (840D)
<b>9602</b>	<b>CTM_SIMULATION_DEF_VIS_AREA</b>			H01, H02, H03, H05	<b>Ref.: FBMA, FBSP</b>
-	Simulation of display area default value			INTEGER	3/4
SM, ST, MT, Emb	SM: 100, ST: 100, MT: 100, Emb: 100	-10000	10000	Power On	SW2.1 (810D), 4.3 (840D)
<b>9603</b>	<b>CTM_SIMULATION_MAX_X</b>			H01, H02, H03, H05	<b>Ref.: FBMA, FBSP</b>
-	Simulation of maximum display X			INTEGER	3/4
SM, ST, MT, Emb	SM: 0, ST: 0, MT: 0, Emb: 0	-10000	10000	Power On	SW2.1 (810D), 4.3 (840D)

<b>9604</b>	<b>CTM_SIMULATION_MAX_Y</b>			H01, H02, H03, H05	<b>Ref.:</b> FBMA, FBSP
-	Simulation maximum display Z			INTEGER	3/4
SM, ST, MT, Emb	SM: 0, ST: 0, MT: 0, Emb: 0	-10000	10000	Power On	840D SW 4.3, 810D SW 2.1
<b>9605</b>	<b>CTM_SIMULATION_MAX_VIS_AREA</b>			H01, H02, H03, H05	<b>Ref.:</b> FBMA, FBSP
-	Simulation of maximum display area			INTEGER	3/4
SM, ST, MT, Emb	SM: 1000, ST: 1000, MT: 1000, Emb: 1000	-10000	10000	Power On	840D SW 4.3, 810D SW 2.1
<b>9606</b>	<b>CTM_SIMULATION_TIME_NEW_POS</b>			H01, H02, H03, H05	<b>Ref.:</b> FBMA, FBT
-	Simulation of actual value update rate			INTEGER	3/4
SM, ST, MT, Emb	SM: 250, ST: 350, MT: 250, Emb: 100	0	4000	Power On	840D SW 4.3, 810D SW 2.1, ST 6.1
<b>9607</b>	<b>CTM_ENABLE_RAPID_FEED</b>			H03	<b>Ref.:</b> FBMA
-	Enable selection option rapid traverse			BYTE	3/4
MT	MT: 1	0	1	IMMEDIATELY	840D SW 4.3, 810D SW 2.1
<b>9608</b>	<b>CTM_ENABLE_FEED_P_MIN</b>			H03	<b>Ref.:</b> FBMA
-	Enable selection option feed in mm/min			BYTE	3/4
MT	MT: 1	0	1	IMMEDIATELY	840D SW 4.3, 810D SW 2.1
<b>9609</b>	<b>CTM_SPEED_FIELD_DISPLAY_RES</b>			H03	<b>Ref.:</b> FBMA
-	Decimal places in speed entry field			BYTE	3/4
MT	MT: 0	0	4	IMMEDIATELY	840D SW 4.3, 810D SW 2.1
<b>9610</b>	<b>CTM_POS_COORDINATE_SYSTEM</b>			H03, H05	<b>Ref.:</b> FBMA
-	Position of coord. system for turning			BYTE	3/4
MT, Adv, Emb	MT: 2, Adv: 2, Emb: 2	0	7	IMMEDIATELY	840D SW 4.3, 810D SW 2.1
<b>9611</b>	<b>CTM_CROSS_AX_DIAMETER_ON</b>			H02, H03, H05	<b>Ref.:</b> FBMA, FBT
-	Diameter display active for transv. axes			BYTE	3/4
ST, MT, Emb	ST: 1, MT: 1, Emb: 1	0	1	IMMEDIATELY	840D SW 4.3, 810D SW 2.1, ST 6.1
<b>9612</b>	<b>CTM_TEACH_STORE_MANUAL_ABS</b>			H03	<b>Ref.:</b> FBMA
-	Save setup motions as absolute values			BYTE	3/4
MT	MT: 1	0	1	IMMEDIATELY	840D SW 4.3, 810D SW 2.1
<b>9613</b>	<b>CTM_TEACH_STORE_START_ABS</b>			H03	<b>Ref.:</b> FBMA
-	Save starting position as absolute value			BYTE	3/4
MT	MT: 1	0	1	IMMEDIATELY	840D SW 4.3, 810D SW 2.1



## 2.4 Machine data for operator panel

<b>9614</b>	<b>CTM_TEACH_STORE_MANUAL_AUTO</b>			H03	<b>Ref.: FBMA</b>
-	Save setup motions automatically			BYTE	3/4
MT	MT: 1	0	1	IMMEDIATELY	840D SW 4.3, 810D SW 2.1
<b>9615</b>	<b>CTM_TEACH_HANDW_FEED</b>			H03	<b>Ref.: FBMA</b>
-	Handwheel feedrate			BYTE	3/4
MT	MT: 0	0	2	IMMEDIATELY	840D SW 4.3, 810D SW 2.1
<b>9616</b>	<b>CTM_TEACH_HANDW_FEED_P_MIN</b>			H03	<b>Ref.: FBMA</b>
mm/min	Path feed			DOUBLE	3/4
MT	MT: 10	1	3000	IMMEDIATELY	840D SW 4.3, 810D SW 2.1
<b>9617</b>	<b>CTM_TEACH_HANDW_FEED_P_REV</b>			H03	<b>Ref.: FBMA</b>
-	Revolutional feedrate			DOUBLE	3/4
MT	MT: 1	0.01	10000	IMMEDIATELY	840D SW 4.3, 810D SW 2.1
<b>9618</b>	<b>CTM_ENABLE_C_AXIS</b>			H03	<b>Ref.: FBMA</b>
-	Enable C axis for interface			BYTE	3/4
MT	MT: 1	0	2	Power On	840D SW 4.3, 810D SW 2.1
<b>9619</b>	<b>CTM_G91_DIAMETER_ON</b>			H02, H03, H05	<b>Ref.: FBMA, FBT</b>
-	Incremental infeed			BYTE	3/4
ST, MT, Emb	ST: 0, MT: 0, Emb: 1	0	1	IMMEDIATELY	840D SW 4.3, 810D SW 2.1, ST 6.1
<b>9620</b>	<b>CTM_CYCLE_SAFETY_CLEARANCE</b>			H03	<b>Ref.: FBMA</b>
mm	Safety clearance ManualTurn cycles			DOUBLE	3/4
MT	MT: 1	0.0	1000	IMMEDIATELY	840D SW 4.3, 810D SW 2.1
<b>9621</b>	<b>CTM_CYCLE_DWELL_TIME</b>			H03	<b>Ref.: FBMA</b>
-	Tool clearance time for cycles			DOUBLE	3/4
MT	MT: -1	-100	100	IMMEDIATELY	840D SW 4.3, 810D SW 2.1
<b>9622</b>	<b>CTM_ENABLE_REFPOINT</b>			H03	<b>Ref.: FBMA</b>
-	Enable ref. pt. approach for ManualTurn			REAL	3/4
MT	MT: 1	0	1	IMMEDIATELY	840D SW 4.3, 810D SW 2.1
<b>9623</b>	<b>CTM_START_WITHOUT_REFPOINT</b>			H03	<b>Ref.: FBMA</b>
-	Enable NC start without referenced axes			BYTE	3/4
MT	MT: 0	0	1	Power On	840D SW 4.3, 810D SW 2.1
<b>9624</b>	<b>CTM_MODE_SELECT_BY_SOFTKEY</b>			H03	<b>Ref.: FBMA</b>
-	Mode switchover via vertical softkeys			BYTE	3/4
MT	MT: 0	0	1	Power On	840D SW 4.3, 810D SW 2.1

<b>9625</b>	<b>CTM_CUSTOMER_START_PICTURE</b>			<b>H03</b>	<b>Ref.: FBMA</b>
-	Customer start-up screen			BYTE	3/4
MT	MT: 0	0	1	Power On	840D SW 4.3, 810D SW 2.1
<b>9626</b>	<b>CTM_TRACE</b>			<b>H01, H02, H03</b>	<b>Ref.: FBMA</b>
-	Testflags f. intern ManualTurn diagnosis			REAL	3/4
SM, ST, MT	SM: 1, ST: 1, MT: 1	0	0xFFFF	IMMEDIATELY	840D SW 4.3, 810D SW 2.1
<b>9626</b>	<b>CTM_TRACE</b>			<b>H01, H02, H03</b>	<b>Ref.: FBMA</b>
-	Testflags f. intern ManualTurn diagnosis			REAL	3/4
SM, ST, MT	SM: 1, ST: 1, MT: 1	0	0xFFFF	IMMEDIATELY	840D SW 4.3, 810D SW 2.1
<b>9627</b>	<b>CTM_COUNT_GEAR_STEPS</b>			<b>H03</b>	<b>Ref.: FBMA</b>
-	Number of gear stages			BYTE	3/4
MT	MT: 1	0	5	IMMEDIATELY	840D SW 4.3, 810D SW 2.1
<b>9628</b>	<b>CTM_TOOL_INPUT_DIAM_ON</b>			<b>H03</b>	<b>Ref.: FBMA</b>
-	Display tool data X as diameter			BYTE	3/4
MT	MT: 0	0	1	IMMEDIATELY	840D SW 4.3, 810D SW 2.1
<b>9629</b>	<b>CTM_WEAR_INPUT_DIAM_ON</b>			<b>H03</b>	<b>Ref.: FBMA</b>
-	Display tool wear data X diameter			BYTE	3/4
MT	MT: 0	0	1	IMMEDIATELY	840D SW 4.3, 810D SW 2.1
<b>9630</b>	<b>CTM_FIN_FEED_PERCENT</b>			<b>H02, H03</b>	<b>Ref.: FBMA, FBT</b>
%	Roughing feedrate in percent			REAL	3/4
ST, MT	ST: 100, MT: 100	1	100	IMMEDIATELY	840D SW 4.3, 810D SW 2.3, ST 6.1
<b>9631</b>	<b>CTM_CYCLE_DWELL_TIME_SEC</b>			<b>H03</b>	<b>Ref.: FBMA</b>
	Dwell time for cycles in seconds			DOUBLE	3/4
MT	MT: 1	0	100	IMMEDIATELY	840D SW 4.4, 810D SW 2.4
<b>9632</b>	<b>CTM_ANGLE_REFERENCE_AXIS</b>			<b>H03, H05</b>	<b>Ref.: FBMA</b>
-	Angle reference axis 1: 1st axis 2: 2nd axis			REAL	3/4
MT, Emb	MT: 1, Emb: 1	0	1	IMMEDIATELY	840D SW 4.4, 810D SW 2.4
<b>9633</b>	<b>CTM_INC_DEC_FEED_PER_MIN</b>			<b>H03</b>	<b>Ref.: FBMA</b>
mm/min	Increments for feedrate in mm/min			DOUBLE	3/4
MT	MT: 10	0.001	1000	IMMEDIATELY	840D SW 4.4, 810D SW 2.4

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<b>9634</b>	<b>CTM_INC_DEC_FEED_PER_ROT</b>			H03	Ref.: FBMA
mm	Increments for feedrate in mm/rev			DOUBLE	3/4
MT	MT: 0.1	0.001	10	IMMEDIATELY	840D SW 4.4, 810D SW 2.4
<b>9636</b>	<b>CTM_ENABLE_S_TOOL_TABLE</b>			H03	Ref.: FBMA
-	Enable cutting speed from tool table			BYTE	3/4
MT	MT: 0	0	1	IMMEDIATELY	840D SW 4.4, 810D SW 2.4
<b>9637</b>	<b>CTM_MAX_INP_FEED_P_MIN</b>			H03	Ref.: FBMA
mm/min	Upper input limit for feedrate in mm/min			DOUBLE	3/4
MT	MT: 2000	0	100000	IMMEDIATELY	840D SW 4.4, 810D SW 2.4
<b>9638</b>	<b>CTM_MAX_INP_FEED_P_ROT</b>			H03	Ref.: FBMA
mm	Upper input limit for feedrate in mm/rev			DOUBLE	3/4
MT	MT: 1	0	10000	IMMEDIATELY	840D SW 4.4, 810D SW 2.4
<b>9639</b>	<b>CTM_MAX_TOOL_WEAR</b>			H03, H05	Ref.: FBMA
mm	Upper limit tool wear input			DOUBLE	3/4
MT, Adv	MT: 1, Adv: 1	0	10	Power On	840D SW 4.4, 810D SW 2.4
<b>9640</b>	<b>CTM_ENABLE_CALC_THREAD_PITC</b>			H01, H02, H03	Ref.: FBMA
-	Automatic calculation of thread depth			BYTE	3/4
SM, ST, MT	SM: 0, ST: 0, MT: 0	0	1	IMMEDIATELY	840D SW 4.4, 810D SW 2.4
<b>9641</b>	<b>CTM_ENABLE_G_CODE_INPUT</b>			H03	Ref.: FBMA
-	Enable of G code input			BYTE	3/4
MT	MT: 0	0	1	IMMEDIATELY	840D SW 4.4, 810D SW 2.4
<b>9642</b>	<b>CTM_ENABLE_CIRCLE_HOLE_CYCL</b>			H03	Ref.: FBMA
-	Enable drilling of hole circle			BYTE	3/4
MT	MT: 0	0	1	IMMEDIATELY	840D SW 4.4, 810D SW 2.4
<b>9643</b>	<b>CTM_ENABLE_DRIVEN_TOOL</b>			H03	Ref.: FBMA
-	Enable support of driven tools			BYTE	3/4
MT	MT: 0	0	2	IMMEDIATELY	840D SW 4.4, 810D SW 2.4
<b>9644</b>	<b>CTM_CIRC_TAP_DWELL_TIME_1</b>			H03	Ref.: FBMA
	Dwell time bottom, tapping on hole circle			DOUBLE	3/4
MT	MT: 0	0	100	IMMEDIATELY	840D SW 4.4, 810D SW 2.4
<b>9645</b>	<b>CTM_CIRC_TAP_DWELL_TIME_2</b>			H03	Ref.: FBMA
	Dwell time top, tapping on hole circle			DOUBLE	3/4
MT	MT: 0	0	100	IMMEDIATELY	840D SW 4.4, 810D SW 2.4

<b>9646</b>	<b>CTM_FACTOR_O_CALC_THR_PITCH</b>			H01, H02, H03	<b>Ref.:</b> FBMA, FBT
-	Mode for return dist. stock rem. ext.mach.			DOUBLE	3/4
SM, ST, MT	SM: 0.6134, ST: 0.6134, MT: 0.6134	***	***	IMMEDIATELY	6.3
<b>9647</b>	<b>CTM_FACTOR_I_CALC_THR_PITCH</b>			H01, H02, H03	<b>Ref.:</b> FBMA, FBT
-	Mode for return dist. stock rem. int.mach.			DOUBLE	3/4
SM, ST, MT	SM: 0.5413, ST: 0.5413, MT: 0.5413	***	***	IMMEDIATELY	6.3
<b>9648</b>	<b>CTM_ROUGH_O_RELEASE_DIST</b>			H02, H03	<b>Ref.:</b> FBMA, FBT
mm	Return dist. stock rem. for ext.machining			DOUBLE	3/4
ST, MT	ST: 1.0, MT: 1.0	-1	100	IMMEDIATELY	840D SW 4.4, 810D SW 2.4, ST 6.1
<b>9649</b>	<b>CTM_ROUGH_I_RELEASE_DIST</b>			H02, H03	<b>Ref.:</b> FBMA, FBT
mm	Return dist. stock rem. for int.machining			DOUBLE	3/4
ST, MT	ST: 0.5, MT: 0.5	-1	100	IMMEDIATELY	840D SW 4.4, 810D SW 2.4, ST 6.1
<b>9650</b>	<b>CMM_POS_COORDINATE_SYSTEM</b>			H01, H02, H05	<b>Ref.:</b> FBSP, FBT
-	Coordinate system position			BYTE	3/4
SM, ST, Adv, Emb	SM: 0, ST: 34, Adv: 0, Emb: 0	0	47	IMMEDIATELY	SW4.3, ST 6.1
<b>9651</b>	<b>CMM_TOOL_MANAGEMENT</b>			H01, H02, H05	<b>Ref.:</b> FBSP, FBT
-	Tool management concept			BYTE	3/4
SM, ST, Adv, Emb	SM: 4, ST: 4, Adv: 4, Emb: 4	1	4	Power On	6.1, ST 6.1
<b>9652</b>	<b>CMM_TOOL_LIFE_CONTROL</b>			H01, H02, H05	<b>Ref.:</b> FBSP, FBT
-	Tool monitoring			BYTE	3/4
SM, ST, Adv, Emb	SM: 1, ST: 1, Adv: 1, Emb: 1	0	1	Power On	6.1
<b>9653</b>	<b>CMM_ENABLE_A_AXIS</b>			H01	<b>Ref.:</b> FBSP
-	Enable 4th axis for user interface			BYTE	3/4
SM	SM: 0	0	3	IMMEDIATELY	840D SW 4.3, 810D SW 2.3
<b>9654</b>	<b>CMM_SPEED_FIELD_DISPLAY_RES</b>			H01, H02	<b>Ref.:</b> FBSP, FBT
-	Decimal places in speed entry field			BYTE	3/4
SM, ST	SM: 0, ST: 0	0	4	IMMEDIATELY	840D SW 4.3, 810D SW 2.3, ST 6.1
<b>9655</b>	<b>CMM_CYC_PECKING_DIST</b>			H01	<b>Ref.:</b> FBSP
mm	Amount of retract.for deep hole drilling			DOUBLE	3/4
SM	SM: -1	-1.0	100.0	IMMEDIATELY	840D SW 4.3, 810D SW 2.3
<b>9656</b>	<b>CMM_CYC_DRILL_RELEASE_DIST</b>			H01, H02	<b>Ref.:</b> FBSP
mm	Amount of retraction for boring			DOUBLE	3/4

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SM, ST	SM: -1, ST: 0.1	-1.0	10.0	IMMEDIATELY	840D SW 4.3, 810D SW 2.3
<b>9657</b>	<b>CMM_CYC_MIN_CONT_PO_TO_RAD</b>			H01, H02	<b>Ref.:</b> FBSP, FBT
%	Deviation from minimum cutter radius			REAL	3/4
SM, ST	SM: 5, ST: 5	0	50	IMMEDIATELY	840D SW 4.3, 810D SW 2.3, ST 6.1
<b>9658</b>	<b>CMM_CYC_MAX_CONT_PO_TO_RAD</b>			H01, H02	<b>Ref.:</b> FBSP, FBT
mm	Deviation from maximum cutter radius			DOUBLE	3/4
SM, ST	SM: 0.01, ST: 0.01	0.0	10	IMMEDIATELY	840D SW 4.3, 810D SW 2.3, ST 6.1
<b>9659</b>	<b>CMM_CYC_DRILL_RELEASE_ANGLE</b>			H01	<b>Ref.:</b> FBSP
degrees	Retraction angle for boring			DOUBLE	3/4
SM	SM: -1	-1.0	360.0	IMMEDIATELY	840D SW 4.3, 810D SW 2.3
<b>9660</b>	<b>CMM_ENABLE_PLANE_CHANGE</b>			H01	<b>Ref.:</b> FBSP
-	Switch to machining plane			BYTE	3/4
SM	SM: 1	0	1	IMMEDIATELY	840D SW 4.3, 810D SW 2.3
<b>9661</b>	<b>CMM_ENABLE_CUSTOMER_M_CODES</b>			H01, H02, H05	<b>Ref.:</b> FBSP
-	Entry of customized M commands			BYTE	3/4
SM, ST, Adv, Emb	SM: 0, ST: 0, Adv: 4, Emb: 0	0	4	Power On	840D SW 4.3, 810D SW 2.3
<b>9662</b>	<b>CMM_COUNT_GEAR_STEPS</b>			H01	<b>Ref.:</b> FBSP
-	Number of gear stages			BYTE	3/4
SM	SM: 1	0	5	IMMEDIATELY	840D SW 4.3, 810D SW 2.3
<b>9663</b>	<b>CMM_TOOL_DISPLAY_IN_DIAM</b>			H01, H02, H05	<b>Ref.:</b> FBSP, FBT
-	Display of radius/diameter for tool			BYTE	3/4
SM, ST, Adv, Emb	SM: 1, ST: 1, Adv: 1, Emb: 1	0	1	Power On	840D SW 4.3, 810D SW 2.3, ST 6.1
<b>9664</b>	<b>CMM_MAX_INP_FEED_P_MIN</b>			H01, H02	<b>Ref.:</b> FBSP, FBT
mm/min	Feedrate in mm/min 9665 Feedrate in mm/rev			DOUBLE	3/4
SM, ST	SM: 10000.0, ST: 10000.0	0	100000	IMMEDIATELY	840D SW 4.3, 810D SW 2.3, ST 6.1
<b>9665</b>	<b>CMM_MAX_INP_FEED_P_ROT</b>			H01, H02	<b>Ref.:</b> FBSP, FBT
	Feed in mm/rev			DOUBLE	3/4
SM, ST	SM: 1.0, ST: 1.0	0	10	IMMEDIATELY	840D SW 4.3, 810D SW 2.3, ST 6.1
<b>9666</b>	<b>CMM_MAX_INP_FEED_P_TOOTH</b>			H01, H02	<b>Ref.:</b> FBSP, FBT

	Feedrate in mm/tooth			DOUBLE	3/4
SM, ST	SM: 1.0, ST: 1.0	0	5	IMMEDIATELY	840D SW 4.3, 810D SW 2.3, ST 6.1
<b>9667</b>	<b>CMM_FOLLOW_ON_TOOL_ACTIVE</b>			H01, H02	<b>Ref.:</b> FBSP, FBT
-	Tool preselection active			BYTE	3/4
SM, ST	SM: 1, ST: 0	0	1	IMMEDIATELY	840D SW 4.3, 810D SW 2.3, ST 6.1
<b>9668</b>	<b>CMM_M_CODE_COOLANT_I_AND_II</b>			H01, H02	<b>Ref.:</b> FBSP, FBT
-	M code coolants I and II			INTEGER	3/4
SM, ST	SM: -1, ST: -1	-1	32767	IMMEDIATELY	840D SW 4.4, 810D SW 2.4, ST 6.1
<b>9669</b>	<b>CMM_FACE_MILL_EFF_TOOL_DIAM</b>			H01, H02	<b>Ref.:</b> FBSP
%	Effective mill diameter for face milling			DOUBLE	3/4
SM, ST	SM: 85.0, ST: 85.0	50.0	100.0	IMMEDIATELY	840D SW 4.4, 810D SW 2.4
<b>9670</b>	<b>CMM_START_RAD_CONTOUR_POCKE</b>			H01, H02	<b>Ref.:</b> FBSP, FBT
mm	Approach circle rad. finish. cont. pock.			DOUBLE	3/4
SM, ST	SM: -1.0, ST: -1.0	-1.0	100.0	IMMEDIATELY	840D SW 4.4, 810D SW 2.4, ST 6.1
<b>9671</b>	<b>CMM_TOOL_LOAD_DEFAULT_MAG</b>			H01, H02	<b>Ref.:</b> FBSP
-	Load default magazine tool			BYTE	3/4
SM, ST	SM: 0, ST: 0	0	30	Power On	6.4
<b>9672</b>	<b>CMM_FIXED_TOOL_PLACE</b>			H01, H02, H05	<b>Ref.:</b> FBSP, FBT
-	Fixed location coding			BYTE	3/4
SM, ST, Adv, Emb	SM: 0, ST: 1, Adv: 0, Emb: 0	0	1	Power On	840D SW 4.4, 810D SW 2.4, ST 6.1
<b>9673</b>	<b>CMM_TOOL_LOAD_STATION</b>			H01, H02, H05	<b>Ref.:</b> FBSP, FBT
-	Number of load station			BYTE	3/4
SM, ST, Adv, Emb	SM: 1, ST: 1, Adv: 1, Emb: 1	1	2	Power On	840D SW 4.4, 810D SW 2.4, ST 6.1
<b>9674</b>	<b>CMM_ENABLE_TOOL_MAGAZINE</b>			H01, H02, H05	<b>Ref.:</b> FBSP, FBT
-	Display of magazine list			BYTE	3/4
SM, ST, Adv, Emb	SM: 1, ST: 1, Adv: 1, Emb: 1	0	1	Power On	840D SW 4.4, 810D SW 2.4, ST 6.1
<b>9675</b>	<b>CMM_CUSTOMER_START_PICTURE</b>			H01, H02	<b>Ref.:</b> FBSP, FBT
-	Customer start-up screen			BYTE	3/4
SM, ST	SM: 0, ST: 0	0	1	IMMEDIATELY	840D SW 4.4, 810D SW 2.4 mit SM

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<b>9676</b>	<b>CMM_DIRECTORY_SOFTKEY_PATH1</b>			H01, H02, H05	<b>Ref.:</b> FBSP, FBT
-	Path to drive names in directory manag.			STRING	3/4
SM, ST, Adv, Emb	SM: ", ST: ", Adv: ", Emb: 0	***	***	Power On	840D SW 4.4, 810D SW 2.4 mit SM
<b>9677</b>	<b>CMM_DIRECTORY_SOFTKEY_PATH2</b>			H01, H02, H05	<b>Ref.:</b> FBSP, FBT
-	Path to drive names in directory manag.			STRING	3/4
SM, ST, Adv, Emb	SM: ", ST: ", Adv: ", Emb: 0	***	***	Power On	840D SW 4.4, 810D SW 2.4 mit SM
<b>9678</b>	<b>CMM_DIRECTORY_SOFTKEY_PATH3</b>			H01, H02, H05	<b>Ref.:</b> FBSP, FBT
-	Path to drive names in directory manag.			STRING	3/4
SM, ST, Adv, Emb	SM: ", ST: ", Adv: ", Emb: 0	***	***	Power On	840D SW 4.4, 810D SW 2.4 mit SM
<b>9679</b>	<b>CMM_DIRECTORY_SOFTKEY_PATH4</b>			H01, H02, H05	<b>Ref.:</b> FBSP, FBT
-	Path to drive names in directory manag.			STRING	3/4
SM, ST, Adv, Emb	SM: ", ST: ", Adv: ", Emb: 0	***	***	Power On	840D SW 4.4, 810D SW 2.4 mit SM
<b>9680</b>	<b>CMM_M_CODE_COOLANT_I</b>			H01, H02	<b>Ref.:</b> FBSP
-	M code coolant I			INTEGER	3/4
SM, ST	SM: 8, ST: 8	0	32767	IMMEDIATELY	840D SW 4.4, 810D SW 2.4 mit SM
<b>9681</b>	<b>CMM_M_CODE_COOLANT_II</b>			H01, H02	<b>Ref.:</b> FBSP
-	M code coolant II			INTEGER	3/4
SM, ST	SM: 7, ST: 7	0	32767	IMMEDIATELY	840D SW 4.4, 810D SW 2.4 mit SM
<b>9682</b>	<b>CMM_CYC_BGF_BORE_DIST</b>			H01	<b>Ref.:</b> FBSP
mm	Mode for return value boring			DOUBLE	3/4
SM	SM: 1	0.0	100.0	IMMEDIATELY	6.3
<b>9684</b>	<b>CMM_M_CODE_TOOL_BITS_1</b>			H01, H02	<b>Ref.:</b> BAS
-	M code for tool-specific bits 1			INTEGER	3/4
SM, ST	SM: 100, ST: 100	-1	255	IMMEDIATELY	6.2
<b>9685</b>	<b>CMM_M_CODE_TOOL_BITS_2</b>			H01, H02	<b>Ref.:</b> BAS
-	M code for tool-specific bits 2			INTEGER	3/4
SM, ST	SM: 101, ST: 101	-1	255	IMMEDIATELY	6.2
<b>9686</b>	<b>CMM_M_CODE_COOLANT_OFF</b>			H01, H02	<b>Ref.:</b> BAS
-	M code for coolant OFF			INTEGER	3/4
SM, ST	SM: 9, ST: 9	0	32767	IMMEDIATELY	6.3
<b>9687</b>	<b>CMM_TOOL_MOVE_DEFAULT_MAG</b>			H01, H02	<b>Ref.:</b> FBSP

-	Relocate default magazine tool			BYTE	3/4
SM, ST	SM: 0, ST: 0	0	30	Power On	6.4
<b>9690</b>	<b>CMM_OEM_FUNCTION_MASK_1</b>			H01	<b>Ref.: BAS</b>
-	OEM display machine data 1			INTEGER	6/6
SM	SM: 0	***	***	IMMEDIATELY	6.2
<b>9691</b>	<b>CMM_OEM_FUNCTION_MASK_2</b>			H01	<b>Ref.: BAS</b>
-	OEM display machine data 2			INTEGER	6/6
SM	SM: 0	***	***	IMMEDIATELY	6.2
<b>9703</b>	<b>CMM_INDEX_AXIS_4</b>			H01	<b>Ref.: FBSP</b>
-	Axis index for 4th axis			BYTE	3/4
SM	SM: 0	0	127	IMMEDIATELY	840D SW 5.3, 810D SW 3.3
<b>9704</b>	<b>CMM_INDEX_AXIS_5</b>			H01	<b>Ref.: FBSP</b>
-	Axis index for 5th axis			BYTE	3/4
SM	SM: 0	0	127	IMMEDIATELY	840D SW 5.3, 810D SW 3.3
<b>9705</b>	<b>CMM_INDEX_SPINDLE</b>			H01	<b>Ref.: FBSP</b>
-	Axis index for spindle			BYTE	3/4
SM	SM: 4	1	127	IMMEDIATELY	840D SW 5.3, 810D SW 3.3
<b>9706</b>	<b>CMM_GEOAX_ASSIGN_AXIS_4</b>			H01	<b>Ref.: FBSP</b>
-	Fourth axis assigned to geometry axis			BYTE	3/4
SM	SM: 0	0	3	IMMEDIATELY	6.4
<b>9707</b>	<b>CMM_GEOAX_ASSIGN_AXIS_5</b>			H01	<b>Ref.: FBSP</b>
-	Fifth axis assigned to geometry axis			BYTE	3/4
SM	SM: 0	0	3	IMMEDIATELY	6.4
<b>9718</b>	<b>CMM_OPTION_MASK_2</b>			H01, H02	<b>Ref.: FBSP, FBT</b>
-	Settings for ShopMill 2			INTEGER	2/2
SM, ST	SM: 0, ST: 2	***	***	IMMEDIATELY	6.3
<b>9719</b>	<b>CMM_OPTION_MASK</b>			H01, H02	<b>Ref.: FBSP</b>
-	Settings for ShopMill			INTEGER	2/2
SM, ST	SM: 5, ST: 5	***	***	IMMEDIATELY	840D SW 5.3, 810D SW 3.3
<b>9720</b>	<b>CMM_ENABLE_B_AXIS</b>			H01	<b>Ref.: FBSP</b>
-	Enable B axis			BYTE	3/4
SM	SM: 0	0	3	IMMEDIATELY	840D SW 4.4, 810D SW 2.4 mit SM
<b>9721</b>	<b>CMM_ENABLE_TRACYL</b>			H01	<b>Ref.: FBSP</b>
-	Enable cylinder periph. transformation			BYTE	3/4
SM	SM: 0	0	1	IMMEDIATELY	840D SW 4.4, 810D SW 2.4 mit SM



<b>9723</b>	<b>CMM_ENABLE_SWIVELLING_HEAD</b>			<b>H01, H02</b>	<b>Ref.: FBSP</b>
-	Enable inclinable heads			BYTE	3/4
SM, ST	SM: 0, ST: 0	0	1	IMMEDIATELY	840D SW 4.4, 810D SW 2.4 mit SM
<b>9724</b>	<b>CMM_CIRCLE_RAPID_FEED</b>			<b>H01, H02</b>	<b>Ref.: FBT</b>
mm/min	Rap. trav. feed positioning on circle path			DOUBLE	3/4
SM, ST	SM: 5000, ST: 5000	0	100000	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9725</b>	<b>CMM_ENABLE_QUICK_M_CODES</b>			<b>H01, H02</b>	<b>Ref.: FBSP</b>
-	Enable fast M functions			BYTE	3/4
SM, ST	SM: 0, ST: 0	***	***	IMMEDIATELY	6.4
<b>9725</b>	<b>CMM_ENABLE_QUICK_M_CODES</b>			<b>H01, H02</b>	<b>Ref.: FBSP</b>
-	Enable fast M functions			BYTE	3/4
SM, ST	SM: 0, ST: 0	***	***	IMMEDIATELY	6.4
<b>9726</b>	<b>CMM_DISPLAY_MD_IS_METRIC</b>			<b>H01, H02</b>	<b>Ref.: FBSP</b>
-	Display machine data unit (inch/mm)			BYTE	3/4
SM, ST	SM: 1, ST: 1	***	***	IMMEDIATELY	6.4
<b>9727</b>	<b>CMM_ENABLE_POS_A_B_AXIS</b>			<b>H01</b>	<b>Ref.: FBSP</b>
-	A/B axis support enable			BYTE	3/4
SM	SM:	***	***	IMMEDIATELY	6.4
<b>9728</b>	<b>CMM_DISPL_DIR_A_B_AXIS_INV</b>			<b>H01</b>	<b>Ref.: FBSP</b>
-	Direction of rotation of A/B axis adjusted			BYTE	3/4
SM	SM:	0	1	IMMEDIATELY	6.4
<b>9729</b>	<b>CMM_G_CODE_TOOL_CHANGE_PROG</b>			<b>H01, H02</b>	<b>Ref.: FBSP</b>
-	Tool change program in G code			STRING	3/4
SM, ST	SM: ", ST: "	***	***	IMMEDIATELY	6.4
<b>9747</b>	<b>CMM_ENABLE_MEAS_AUTO</b>			<b>H01</b>	<b>Ref.:</b>
-	Automatic workpiece measurement enable			BYTE	3/4
SM	SM: 1	0	1	IMMEDIATELY	7.1
<b>9748</b>	<b>CMM_MKS_POSITION_MAN_MEAS</b>			<b>H01</b>	<b>Ref.: FBSP</b>
mm	Posit. of man. tool meas. with fixed point			DOUBLE	3/4
SM	SM:	***	***	IMMEDIATELY	6.4
<b>9749</b>	<b>CMM_ENABLE_MEAS_T_AUTO</b>			<b>H01, H02</b>	<b>Ref.: FBSP, FBT</b>
-	Enable automatic tool measuring			INTEGER	3/4
SM, ST	SM: 1, ST: 1	0	1	IMMEDIATELY	6.3
<b>9750</b>	<b>CMM_MEAS_PROBE_INPUT</b>			<b>H01, H02</b>	<b>Ref.: FBSP, FBT</b>
-	Measuring input for workpiece probe			REAL	3/4
SM, ST	SM: 0, ST: 0	0	1	IMMEDIATELY	6.3
<b>9751</b>	<b>CMM_MEAS_T_PROBE_INPUT</b>			<b>H01, H02</b>	<b>Ref.: FBSP, FBT</b>

-	Measuring input for tool probe			REAL	3/4
SM, ST	SM: 1, ST: 0	0	1	IMMEDIATELY	6.3
<b>9752</b>	<b>CMM_MEASURING_DISTANCE</b>			H01, H02	<b>Ref.: FBSP, FBT</b>
mm	Max. meas. dist. f. workp. meas. in progr.			DOUBLE	3/4
SM, ST	SM: 5, ST: 5	1	1000	IMMEDIATELY	6.3
<b>9753</b>	<b>CMM_MEAS_DIST_MAN</b>			H01, H02	<b>Ref.: FBSP, FBT</b>
mm	Max. meas. dist. f. manual workp. meas.			DOUBLE	3/4
SM, ST	SM: 10, ST: 10	0.01	1000	IMMEDIATELY	6.3
<b>9754</b>	<b>CMM_MEAS_DIST_TOOL_LENGTH</b>			H01, H02	<b>Ref.: FBSP, FBT</b>
mm	Max. meas. dist. f. tool lgth rotat. spin.			DOUBLE	3/4
SM, ST	SM: 2, ST: 10	0.001	1000	IMMEDIATELY	6.3
<b>9755</b>	<b>CMM_MEAS_DIST_TOOL_RADIUS</b>			H01, H02	<b>Ref.: FBSP, FBT</b>
mm	Max. meas. dist. f. tool rad. rotat. spin.			DOUBLE	3/4
SM, ST	SM: 1, ST: 1	0.001	1000	IMMEDIATELY	6.3
<b>9756</b>	<b>CMM_MEASURING_FEED</b>			H01, H02	<b>Ref.: FBSP, FBT</b>
mm/min	Meas. feedrate f. workpiece meas.			DOUBLE	3/4
SM, ST	SM: 300, ST: 300	10	5000	IMMEDIATELY	6.3
<b>9757</b>	<b>CMM_FEED_WITH_COLL_CTRL</b>			H01, H02	<b>Ref.: FBSP, FBT</b>
mm/min	Plane feed with collision detection			DOUBLE	3/4
SM, ST	SM: 1000, ST: 1000	10	5000	IMMEDIATELY	6.3
<b>9758</b>	<b>CMM_POS_FEED_WITH_COLL_CTRL</b>			H01, H02	<b>Ref.: FBSP, FBT</b>
mm/min	Infeed rate with collision detection			DOUBLE	3/4
SM, ST	SM: 1000, ST: 1000	10	5000	IMMEDIATELY	6.3
<b>9759</b>	<b>CMM_MAX_CIRC_SPEED_ROT_SP</b>			H01, H02	<b>Ref.: FBSP, FBT</b>
	Max. periph. speed f. tool meas. w. rot. spin.			DOUBLE	3/4
SM, ST	SM: 100, ST: 100	1	200	IMMEDIATELY	6.3
<b>9760</b>	<b>CMM_MAX_SPIND_SPEED_ROT_SP</b>			H01, H02	<b>Ref.: FBSP, FBT</b>
	Max. speed f. tool meas. w. rot. spindle			DOUBLE	3/4
SM, ST	SM: 1000, ST: 1000	100	25000	IMMEDIATELY	6.3
<b>9761</b>	<b>CMM_MIN_FEED_ROT_SP</b>			H01, H02	<b>Ref.: FBSP, FBT</b>
mm/min	Min. feedr. f. tool meas. w. rot. spindle			DOUBLE	3/4
SM, ST	SM: 10, ST: 10	1	1000	IMMEDIATELY	6.3
<b>9762</b>	<b>CMM_MEAS_TOL_ROT_SP</b>			H01, H02	<b>Ref.: FBSP, FBT</b>
mm	Meas. acc. f. tool meas. w. rot. spindle			DOUBLE	3/4
SM, ST	SM: 0.01, ST: 0.01	0.001	1	IMMEDIATELY	6.3
<b>9763</b>	<b>CMM_TOOL_PROBE_TYPE</b>			H01, H02	<b>Ref.: FBSP, FBT</b>
-	Type of tool probe			REAL	3/4
SM, ST	SM: 0, ST: 0	0	999	IMMEDIATELY	6.3
<b>9764</b>	<b>CMM_TOOL_PROBE_ALLOW_AXIS</b>			H01, H02	<b>Ref.: FBSP, FBT</b>
-	Permiss. axis direct. tool probe			REAL	3/4

## 2.4 Machine data for operator panel

SM, ST	SM: 133, ST: 133	0	333	IMMEDIATELY	6.3
<b>9765</b>	<b>CMM_T_PROBE_DIAM_LENGTH_MEA</b>			H01, H02	Ref.: FBSP, FBT
mm	Dia. of tool probe f. length measurement			DOUBLE	3/4
SM, ST	SM: 0, ST: 0	0	100000	IMMEDIATELY	6.3
<b>9766</b>	<b>CMM_T_PROBE_DIAM_RAD_MEAS</b>			H01, H02	Ref.: FBSP, FBT
mm	Dia. of tool probe f. radius measurement			DOUBLE	3/4
SM, ST	SM: 0, ST: 0	0	100000	IMMEDIATELY	6.3
<b>9767</b>	<b>CMM_T_PROBE_DIST_RAD_MEAS</b>			H01, H02	Ref.: FBSP, FBT
mm	Infeed f.top edge of t-probe f.rad.meas.			DOUBLE	3/4
SM, ST	SM: 0, ST: 0	0	100000	IMMEDIATELY	6.3
<b>9768</b>	<b>CMM_T_PROBE_APPROACH_DIR</b>			H01, H02	Ref.: FBSP, FBT
-	Plane approach dir. tool probe			BYTE	3/4
SM, ST	SM: -1, ST: -1	-2	2	IMMEDIATELY	6.3
<b>9769</b>	<b>CMM_FEED_FACTOR_1_ROT_SP</b>			H01, H02	Ref.: FBSP
-	Feedrate fact. 1 tool meas. w. rot. spin.			DOUBLE	3/4
SM, ST	SM: 0, ST: 0	0	100	IMMEDIATELY	6.3
<b>9770</b>	<b>CMM_FEED_FACTOR_2_ROT_SP</b>			H01, H02	Ref.: FBSP
-	Feedrate fact. 2 tool meas. w. rot. spin.			DOUBLE	3/4
SM, ST	SM: 0, ST: 0	0	50	IMMEDIATELY	6.3
<b>9771</b>	<b>CMM_MAX_FEED_ROT_SP</b>			H01, H02	Ref.: FBSP
mm/min	Max. feedr. f. tool meas. w. rot. spindle			DOUBLE	3/4
SM, ST	SM: 20, ST: 20	1	1000	IMMEDIATELY	6.3
<b>9772</b>	<b>CMM_T_PROBE_MEASURING_DIST</b>			H01, H02	Ref.: FBSP
mm	Meas.dist. f. tool meas. w. non-rot. spin.			DOUBLE	3/4
SM, ST	SM: 5, ST: 10	0.01	1000	IMMEDIATELY	6.3
<b>9773</b>	<b>CMM_T_PROBE_MEASURING_FEED</b>			H01, H02	Ref.: FBSP
mm/min	Feedrate f. tool meas. w. non-rot. spindle			DOUBLE	3/4
SM, ST	SM: 300, ST: 300	10	5000	IMMEDIATELY	6.3
<b>9774</b>	<b>CMM_T_PROBE_MANUFACTURER</b>			H01, H02	Ref.: FBSP
-	Tool probe manufacturer			INTEGER	3/4
SM, ST	SM: 0, ST: 0	0	2	IMMEDIATELY	6.3
<b>9775</b>	<b>CMM_T_PROBE_OFFSET</b>			H01, H02	Ref.: FBSP
-	Tool meas. offset w. rot. spindle			INTEGER	3/4
SM, ST	SM: 0, ST: 0	0	2	IMMEDIATELY	6.3
<b>9776</b>	<b>CMM_MEAS_SETTINGS</b>			H01, H02	Ref.: FBSP
-	Settings for measuring cycles			INTEGER	3/4
SM, ST	SM: 0, ST: 0	***	***	IMMEDIATELY	6.4
<b>9777</b>	<b>CMM_ENABLE_TIME_DISPLAY</b>			H01	Ref.: FBSP
-	Time display enable			BYTE	3/4
SM	SM: 127	***	***	IMMEDIATELY	6.4

<b>9803</b>	<b>ST_INDEX_AXIS_4</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Axis index for 4th axis			BYTE	3/4
ST	ST: 5	0	127	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9804</b>	<b>ST_INDEX_SPINDLE_MAIN</b>			<b>H02, H03</b>	<b>Ref.: FBT</b>
-	Axis index for main spindle			BYTE	3/4
ST, MT	ST: 3, MT:	1	127	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9805</b>	<b>ST_INDEX_SPINDLE_TOOL</b>			<b>H02, H03</b>	<b>Ref.: FBT</b>
-	Axis index for tool spindle			BYTE	3/4
ST, MT	ST: 4, MT:	0	127	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9806</b>	<b>ST_INDEX_SPINDLE_SUB</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Axis index for counterspindle			BYTE	3/4
ST	ST: 6	0	127	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9807</b>	<b>ST_INDEX_AXIS_C</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Axis index for C axis			BYTE	3/4
ST	ST: 3	0	127	IMMEDIATELY	6.3
<b>9810</b>	<b>ST_GEAR_STEPS_SPINDLE_MAIN</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Number of main spindle threads			BYTE	3/4
ST	ST: 0	0	5	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9811</b>	<b>ST_GEAR_STEPS_SPINDLE_TOOL</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Number of tool spindle threads			BYTE	3/4
ST	ST: 0	0	5	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9812</b>	<b>ST_GEAR_STEPS_SPINDLE_SUB</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Number of counter spindle threads			BYTE	3/4
ST	ST: 0	0	5	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9820</b>	<b>ST_MAGN_GLASS_POS_1</b>			<b>H02</b>	<b>Ref.: FBT</b>
mm	Measure zoom-in pos. to tool, 1st axis			DOUBLE	3/4
ST	ST: 0	***	***	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9821</b>	<b>ST_MAGN_GLASS_POS_2</b>			<b>H02</b>	<b>Ref.: FBT</b>
mm	Measure zoom-in pos. to tool, 2nd axis			DOUBLE	3/4
ST	ST: 0	***	***	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9822</b>	<b>ST_DISPL_DIR_MAIN_SPIND_M3</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Displ. direction of rot. main spindle M3			BYTE	3/4
ST	ST: 0	0	1	IMMEDIATELY	840D SW 6.1, 810D SW 4.1

## 2.4 Machine data for operator panel

<b>9823</b>	<b>ST_DISPL_DIR_SUB_SPIND_M3</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Displ. direction of rot. counterspindle M3			BYTE	3/4
ST	ST: 0	0	1	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9824</b>	<b>ST_DISPL_DIR_MAIN_C_AX_INV</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Direction of rotation of C axis main spindl			BYTE	3/4
ST	ST: 0	0	1	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9825</b>	<b>ST_DISPL_DIR_SUB_C_AX_INV</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Direction of rotation of C axis counterspin			BYTE	3/4
ST	ST: 0	0	1	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9826</b>	<b>ST_DEFAULT_DIR_TURN_TOOLS</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Main dir. of rot. for all turning tools			BYTE	3/4
ST	ST: 3	3	4	Power On	840D SW 6.1, 810D SW 4.1
<b>9827</b>	<b>ST_DEFAULT_MACHINING_SENSE</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Basic sett. f. machining direction milling			BYTE	3/4
ST	ST: 0	0	1	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9828</b>	<b>ST_MEAS_T_PROBE_INPUT_SUB</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Meas. input f. tool probe counterspindle			REAL	3/4
ST	ST: 1	0	1	IMMEDIATELY	6.3
<b>9829</b>	<b>ST_SPINDLE_CHUCK_TYPES</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Spindle chuck selection			BYTE	3/4
ST	ST: 0	***	***	IMMEDIATELY	6.4
<b>9829</b>	<b>ST_SPINDLE_CHUCK_TYPES</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Spindle chuck selection			BYTE	3/4
ST	ST: 0	***	***	IMMEDIATELY	6.4
<b>9830</b>	<b>ST_SPINDLE_PARA_ZL0</b>			<b>H02</b>	<b>Ref.: FBT</b>
mm	Main spindle chuck dimension			DOUBLE	3/4
ST	ST: 0	***	***	IMMEDIATELY	6.4
<b>9831</b>	<b>ST_SPINDLE_PARA_ZL1</b>			<b>H02</b>	<b>Ref.: FBT</b>
mm	Counterspindle chuck dimension			DOUBLE	3/4
ST	ST: 0	***	***	IMMEDIATELY	6.4
<b>9832</b>	<b>ST_SPINDLE_PARA_ZL2</b>			<b>H02</b>	<b>Ref.: FBT</b>
mm	Counterspindle stop dimension			DOUBLE	3/4
ST	ST: 0	***	***	IMMEDIATELY	6.4
<b>9833</b>	<b>ST_SPINDLE_PARA_ZL3</b>			<b>H02</b>	<b>Ref.: FBT</b>
mm	Counterspindle jaw dimension			DOUBLE	3/4
ST	ST: 0	***	***	IMMEDIATELY	6.4

<b>9836</b>	<b>ST_TAILSTOCK_DIAM</b>			<b>H02</b>	<b>Ref.:</b>
mm	Tailstock diameter			DOUBLE	3/4
ST	ST:	***	***	IMMEDIATELY	7.1
<b>9837</b>	<b>ST_TAILSTOCK_LENGTH</b>			<b>H02</b>	<b>Ref.:</b>
mm	Tailstock length			DOUBLE	3/4
ST	ST:	***	***	IMMEDIATELY	7.1
<b>9840</b>	<b>ST_ENABLE_MAGN_GLASS</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Zoom-in under manual: tool meas.			BYTE	3/4
ST	ST: 0	0	1	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9841</b>	<b>ST_ENABLE_PART_OFF_RECEPT</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Enable receptacle function for cut-off			BYTE	3/4
ST	ST: 0	0	1	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9842</b>	<b>ST_ENABLE_TAILSTOCK</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Enable tailstock			BYTE	3/4
ST	ST: 0	0	1	IMMEDIATELY	6.2
<b>9843</b>	<b>ST_ENABLE_SPINDLE_CLAMPING</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Spindle clamping enable (C axis)			BYTE	3/4
ST	ST: 0	0	1	IMMEDIATELY	6.3
<b>9850</b>	<b>ST_CYCLE_THREAD_RETURN_DIST</b>			<b>H02</b>	<b>Ref.: FBT</b>
mm	Return distance f. thread turning			DOUBLE	3/4
ST	ST: 2	0.001	1000	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9851</b>	<b>ST_CYCLE_SUB_SP_WORK_POS</b>			<b>H02</b>	<b>Ref.: FBT</b>
mm	Retract position Z for counterspindle			DOUBLE	3/4
ST	ST: 0	***	***	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9852</b>	<b>ST_CYCLE_SUB_SP_DIST</b>			<b>H02</b>	<b>Ref.: FBT</b>
mm	Counterspindle: travel path to fixed stop			DOUBLE	3/4
ST	ST: 10	0.001	1000	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9853</b>	<b>ST_CYCLE_SUB_SP_FEED</b>			<b>H02</b>	<b>Ref.: FBT</b>
mm/min	Counterspindle: travel feed to fixed stop			DOUBLE	3/4
ST	ST: 0	***	***	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9854</b>	<b>ST_CYCLE_SUB_SP_FORCE</b>			<b>H02</b>	<b>Ref.: FBT</b>
	Counterspin.: travel force to fixed stop			BYTE	3/4
ST	ST: 10	1	100	IMMEDIATELY	840D SW 6.1, 810D SW 4.1
<b>9855</b>	<b>ST_CYCLE_TAP_SETTINGS</b>			<b>H02</b>	<b>Ref.: FBT</b>
-	Tapping settings			INTEGER	3/4

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ST	ST: 0	***	***	IMMEDIATELY	6.3
<b>9856</b>	<b>ST_CYCLE_TAP_MID_SETTINGS</b>			H02	Ref.: FBT
-	Centric tapping settings			INTEGER	3/4
ST	ST: 0	***	***	IMMEDIATELY	
<b>9857</b>	<b>ST_CYCLE_RET_DIST_FIXEDSTOP</b>			H02	Ref.: FBT
mm	Retr.path prior to chuck. after fixed stop			DOUBLE	3/4
ST	ST: 0	0	10	IMMEDIATELY	6.3
<b>9858</b>	<b>ST_CYCLE_RET_DIST_PART_OFF</b>			H02	Ref.: FBT
mm	Retr. path prior to cut-off w. count.sp.			DOUBLE	3/4
ST	ST: 0	0	1	IMMEDIATELY	6.3
<b>9859</b>	<b>ST_CYCLE_PART_OFF_CTRL_DIST</b>			H02	Ref.: FBT
mm	Path for cut-off check Path for cut-off control			DOUBLE	3/4
ST	ST: 0.1	0	10	IMMEDIATELY	6.3
<b>9860</b>	<b>ST_CYCLE_PART_OFF_CTRL_FEED</b>			H02	Ref.: FBT
mm/min	Feedrate for cut-off check			DOUBLE	3/4
ST	ST: 0	***	***	IMMEDIATELY	
<b>9861</b>	<b>ST_CYCLE_PART_OFF_CTRL_FORC</b>			H02	Ref.: FBT
%	Force in percent for cut-off check			BYTE	3/4
ST	ST: 10	1	100	IMMEDIATELY	6.3
<b>9862</b>	<b>ST_CYC_DRILL_MID_MAX_ECCENT</b>			H02	Ref.: FBT
mm	Max. center offset f. center boring			DOUBLE	3/4
ST	ST: 0.5	0.0	10.0	IMMEDIATELY	6.4
<b>9890</b>	<b>ST_USER_CLASS_MEAS_T_CAL</b>			H02	Ref.:
-	Protection level for calibration of tool pr			BYTE	3/4
ST	ST: 3	0	7	IMMEDIATELY	7.1
<b>9897</b>	<b>ST_OPTION_MASK_MAN_FUNC</b>			H02	Ref.:
-	Settings for ShopTurn manual functions			INTEGER	3/4
ST	ST:	***	***	IMMEDIATELY	7.1
<b>9898</b>	<b>ST_OPTION_MASK</b>			H02	Ref.: FBT
-	ShopTurn settings			INTEGER	2/2
ST	ST: 28672	***	***	IMMEDIATELY	6.3
<b>9899</b>	<b>ST_TRACE</b>			H02	Ref.: FBT
-	Test flags internal ShopTurn diagnosis			REAL	3/4
ST	ST: 0	0	0xFFFF	IMMEDIATELY	6.3
<b>9899</b>	<b>ST_TRACE</b>			H02	Ref.: FBT
-	Test flags internal ShopTurn diagnosis			REAL	3/4
ST	ST: 0	0	0xFFFF	IMMEDIATELY	6.3
<b>9900</b>	<b>MD_TEXT_SWITCH</b>			H05	Ref.: -
-	Plaintexts instead of MD identifier			BOOL	3/4
OP30, Adv, Emb	OP30: 0, Adv: 0, Emb: 0	***	***	IMMEDIATELY	SW2

<b>9950</b>	<b>MD_NC_TEA_FILTER</b>	H05	<b>Ref.:</b>
-	General machine data display options	INTEGER	0/0
Emb	Emb: 67108865 ***	Power On	
<b>9950</b>	<b>MD_NC_TEA_FILTER</b>	H05	<b>Ref.:</b>
-	General machine data display options	INTEGER	0/0
Emb	Emb: 67108865 ***	Power On	
<b>9951</b>	<b>MD_NC_TEA_IDX_LIMIT</b>	H05	<b>Ref.:</b>
-	Index filter for general machine data	INTEGER	0/0
Emb	Emb: 0 ***	Power On	
<b>9952</b>	<b>MD_AX_TEA_FILTER</b>	H05	<b>Ref.:</b>
-	Axis machine data display options	INTEGER	0/0
Emb	Emb: 67108865 ***	Power On	
<b>9952</b>	<b>MD_AX_TEA_FILTER</b>	H05	<b>Ref.:</b>
-	Axis machine data display options	INTEGER	0/0
Emb	Emb: 67108865 ***	Power On	
<b>9953</b>	<b>MD_AX_TEA_IDX_LIMIT</b>	H05	<b>Ref.:</b>
-	Index filter for axis machine data	INTEGER	0/0
Emb	Emb: 0 ***	Power On	
<b>9954</b>	<b>MD_CH_TEA_FILTER</b>	H05	<b>Ref.:</b>
-	Channel machine data display options	INTEGER	0/0
Emb	Emb: 33554433 ***	Power On	
<b>9954</b>	<b>MD_CH_TEA_FILTER</b>	H05	<b>Ref.:</b>
-	Channel machine data display options	INTEGER	0/0
Emb	Emb: 33554433 ***	Power On	
<b>9955</b>	<b>MD_CH_TEA_IDX_LIMIT</b>	H05	<b>Ref.:</b>
-	Index filter for channel machine data	INTEGER	0/0
Emb	Emb: 0 ***	Power On	
<b>9956</b>	<b>MD_DRV_TEA_FILTER</b>	H05	<b>Ref.:</b>
-	Drive machine data display options	INTEGER	0/0
Emb	Emb: 8388609 ***	Power On	
<b>9956</b>	<b>MD_DRV_TEA_FILTER</b>	H05	<b>Ref.:</b>
-	Drive machine data display options	INTEGER	0/0
Emb	Emb: 8388609 ***	Power On	
<b>9957</b>	<b>MD_DRV_TEA_IDX_LIMIT</b>	H05	<b>Ref.:</b>
-	Index filter for drive machine data	INTEGER	0/0
Emb	Emb: 0 ***	Power On	
<b>9980</b>	<b>LANGUAGE_SETTINGS</b>	H05	<b>Ref.:</b>
-	Internal language settings	INTEGER	0/0
Emb	Emb: 513 ***	Power On	
<b>9990</b>	<b>SW_OPTIONS</b>	H05	<b>Ref.: FBSP, FBT</b>
-	Enable MMC/HMI software options	INTEGER	2/2
Adv, Emb	Adv: 0, Emb: 0 ***	Power On	5.3
<b>9991</b>	<b>HMI_HELP_SYSTEMS</b>	H05	<b>Ref.: FBSP, FBT</b>
-	Enable MMC/HMI auxiliary systems Bit 0 = 1 Help enabled for calculator (standard)	INTEGER	2/2
Emb	Emb: 1 ***	Power On	6.1
<b>9992</b>	<b>HMI_TESTAUTOMAT_OPTION</b>	H05	<b>Ref.: FBT, FBSP, EMB</b>
-	Options for autom. HMI test machine	INTEGER	2/2



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Emb	Emb: 0	***	***	Power On	6.3
<b>9993</b>	<b>HMI_WIZARD_OPTION</b>			H05	<b>Ref.: FBT, FBSP, EMB</b>
-	Options for wizard			INTEGER	2/2
Emb	Emb: 0	***	***	Power On	6.3
<b>9999</b>	<b>TRACE</b>			H05	<b>Ref.: -</b>
-	Test flags for internal diagnosis			INTEGER	2/2
OP30, Adv, Emb	OP30: 0, Adv: 0, Emb: 0	0	0xFFFF	Power On	-

## 2.5 General machine data

The display of the machine data has been extended in SW Version 4 and higher. The options Display filters and Attributes have been newly introduced.

### Display filters

The quantity of machine data displayed on the operator panel can be limited to the machine data of interest by means of the display filters. Machine data are displayed on the operator panel if at least one of the filters indicated in the respective machine data has been activated by the user or if the mode "All machine data" has been set. The short descriptions of the filters indicated are used again in the operator interface for filter activation. They have the following meaning:

- N01 Configuration / scaling
- N02 Memory configuration
- N03 PLC machine data
- N04 Drive control
- N05 Status data / diagnosis
- N06 Monitoring / limitations
- N07 Auxiliary functions
- N08 Overrides / compensations
- N09 Technological functions
- N10 I/O configuration
- N11 Standard machine
- N12 NC-Language ISO-Dialect

### Attributes

In some machine data, you will find short identifiers with the following meaning under attributes:

- NBUP No back-up: the data is not entered in data back-up
- ODLS Only download: the data can only be loaded from the file
- READ Read only: the data can only be read
- NDLD No download: the data cannot be loaded from the file
- SFCO Configuration safety integrated
- SCAL Scaling Alarm
- LINK Link description

- CTEQ Must be equal for all containers
- CTDE Container description

### Introduction

The display filters and attributes are displayed in the machine data table element, as shown in the following header.

### System

You will find the identifiers such as:  
iajc with the meaning i axes and j channels for example

6a2c 6 axes, 2 channels.

7x0-iajc represents solution line systems with

x 1, 2, 3

#### Note

Machine data values which may differ according to the system used are listed in additional lines below the table header. In these cases, the fourth line is the standard assignment, the fifth line and any further lines contain differing values for the systems stated. The minus sign in a field means: The standard values stated in line 4 applies. The entry "-1" stated under protection means that there is no machine data for the system stated.

Number	MD identifier				Cross reference
Unit	Name				Active
Display filters				Attributes	D type
System	Dimension	Standard value	Minimum value	Maximum value	Protect. Level

## 2.5.1 System settings

<b>10000</b>	<b>AXCONF_MACHAX_NAME_TAB</b>				<b>K2</b>
-	Machine axis name				POWER ON
N01, N11					STRING
-	31	"X1","Y1","Z1","A1","B1","C1","U1"...	-	-	7/2
710-2a2c	2	"X1","Y1"	-	-	-/-
710-6a2c	-	"X1","Y1","Z1","A1","B1","C1"	-	-	-/-
840d-2a2c	2	"X1","Y1"	-	-	-/-
840d-4a1cg	4	"X1","Y1","Z1","A1"	-	-	-/-
840d-6a2c	-	"X1","Y1","Z1","A1","B1","C1"	-	-	-/-
<b>10002</b>	<b>AXCONF_LOGIC_MACHAX_TAB</b>				<b>B3</b>
-	Logical NCK machine axis image				POWER ON
N01					STRING
-	31	"AX1","AX2","AX3","AX4","AX5","AX6"...	-	-	3/2

710-2a2c	2	-	-	-	-/-
840d-2a2c	2	-	-	-	-/-
840d-4a1cg	4	-	-	-	-/-

<b>10008</b>	<b>MAXNUM_PLC_CTRL_AXES</b>				P2
-	Max. number of PLC-controlled axes				POWER ON
N01, N09	-				BYTE
-	-	0	0	4	7/2

<b>10010</b>	<b>ASSIGN_CHAN_TO_MODE_GROUP</b>				K1,IAD
-	Channel valid in mode group				POWER ON
N01, N02, N11	-				DWORD
-	10	1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	0	10	7/2
710-2a2c	2	-	-	2	-/-
710-6a2c	-	-	-	2	-/-
710-12a2c	-	-	-	4	-/-
840d-2a2c	2	-	-	-	-/-
840d-4a1cg	1	-	-	-	-/-
840di-basic	-	-	-	2	-/-
840di-universal	-	-	-	2	-/-
840di-plus	-	-	-	6	-/-

<b>10050</b>	<b>SYSCLOCK_CYCLE_TIME</b>				G3
s	System clock cycle				POWER ON
N01, N05, N11	SFCO				DOUBLE
-	-	0.004	0.000125	0.031	7/2
710-2a2c	-	0.002	0.001	0.008	-/-
710-6a2c	-	0.002	0.001	0.008	-/-
710-12a2c	-	0.002	0.001	0.008	-/-
840di-basic	-	0.002	0.001	0.008	-/-
840di-universal	-	0.002	0.001	0.008	-/-
840di-plus	-	0.002	0.001	0.008	-/-

<b>10059</b>	<b>PROFIBUS_ALARM_MARKER</b>				G3
-	Profibus alarm flag (internal only)				POWER ON
N05	NBUP, NDLD				BYTE
-	-	0	-	-	0/0

<b>10060</b>	<b>POSCTRL_SYSCLOCK_TIME_RATIO</b>				G3
-	Factor for position control cycle				POWER ON
N01, N05	SFCO				DWORD
-	-	1	1	31	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>10061</b>	<b>POSCTRL_CYCLE_TIME</b>				G3
-	Position control cycle				POWER ON

N01, N05				READ	DOUBLE
-	-	0.0	-	-	7/0

<b>10062</b>	<b>POSCTRL_CYCLE_DELAY</b>				G3
s	Position control cycle offset				POWER ON
N01, N05				-	DOUBLE
-	-	0.003	0.000	0.008	7/2
710-2a2c	-	0.001550	-	-	-/-
710-6a2c	-	0.001550	-	-	-/-
710-12a2c	-	0.001550	-	-	-/-
840di-basic	-	0.001550	-	-	-/-
840di-universal	-	0.001550	-	-	-/-
840di-plus	-	0.001550	-	-	-/-

<b>10065</b>	<b>POSCTRL_DESVAL_DELAY</b>				B3
s	Position setpoint delay				POWER ON
N01				-	DOUBLE
-	-	0.0	-0.1	0.1	7/2

<b>10070</b>	<b>IPO_SYSCLOCK_TIME_RATIO</b>				G3
-	Factor for interpolation cycle				POWER ON
N01, N05, N11				SFCO	DWORD
-	-	4	1	100	7/2
840d-2a2c	-	3	-	-	-/-
840d-4a1cg	-	3	-	-	-/-
840d-6a2c	-	3	-	-	-/-
840d-12a2c	-	3	-	-	-/-

<b>10071</b>	<b>IPO_CYCLE_TIME</b>				G3
-	Interpolator cycle				POWER ON
N01, N05, N11				READ	DOUBLE
-	-	0.0	-	-	7/0

<b>10072</b>	<b>COM_IPO_TIME_RATIO</b>				-
-	Division ratio between IPO and communication task				POWER ON
N01, N05				-	DOUBLE
-	-	1.0	0.0	100.0	7/2

<b>10073</b>	<b>COM_IPO_STRATEGY</b>				-
-	Strategy for activation of communication.				POWER ON
EXP				-	DWORD
-	-	0x2B	1	0x7F	0/0

<b>10074</b>	<b>PLC_IPO_TIME_RATIO</b>				-
-	Factor of PLC task for the main run.				POWER ON
N01, N05				-	DWORD
-	-	1	1	50	0/0

<b>10075</b>	<b>PLC_CYCLE_TIME</b>				-
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-	PLC cycle time				POWER ON
N01, N05	READ				DOUBLE
-	-	0.0	-	-	1/1
<b>10080</b>	<b>SYSCLOCK_SAMPL_TIME_RATIO</b>				G3
-	Division ratio for actual value recording cycle time				POWER ON
EXP, N01	-				DWORD
-	-	5	1	31	0/0
840d-2a2c	-	4	-	-	-/-
840d-4a1cg	-	4	-	-	-/-
840d-6a2c	-	4	-	-	-/-
840d-12a2c	-	4	-	-	-/-
<b>10082</b>	<b>CTRLOUT_LEAD_TIME</b>				K3
%	Shift of setpoint transfer time				POWER ON
EXP, N01	-				DOUBLE
-	-	0.0	0.0	100.0	7/2
<b>10083</b>	<b>CTRLOUT_LEAD_TIME_MAX</b>				K3
%	Max. settable offset of setpoint transfer time				NEW CONF
EXP, N01	-				DOUBLE
-	-	100.0	0.0	100.0	7/2
<b>10088</b>	<b>REBOOT_DELAY_TIME</b>				-
s	Reboot delay				IMMEDIATELY
EXP	-				DOUBLE
-	-	0.2	0.0	1.0	2/2
<b>10089</b>	<b>SAFE_PULSE_DIS_TIME_BUSFAIL</b>				FBSI
s	Delay time pulse suppr. for bus failure				POWER ON
N01, N06	-				DOUBLE
-	-	0.0	0	0.8	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-
<b>10090</b>	<b>SAFETY_SYSCLOCK_TIME_RATIO</b>				FBSI
-	Factor for monitoring cycle				POWER ON
N01, N06	SFCO				DWORD
-	-	3	1	50	7/1
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-
<b>10091</b>	<b>INFO_SAFETY_CYCLE_TIME</b>				FBSI
s	Display of monitoring cycle time				POWER ON
N01, N06, N05	READ				DOUBLE
-	-	0.0	-	-	7/0
840di-basic	-	-	-	-	-1/-

840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>10092</b>	<b>INFO_CROSSCHECK_CYCLE_TIME</b>				FBSI
s	Display cycle time for cross-check				POWER ON
N01, N06, N05				READ	DOUBLE
-	-	0.0	-	-	7/0
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>10093</b>	<b>INFO_NUM_SAFE_FILE_ACCESS</b>				FBSI
-	Number of SPL file accesses				POWER ON
EXP, N06, N05				READ	DWORD
-	-	0	-	-	0/0
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>10094</b>	<b>SAFE_ALARM_SUPPRESS_LEVEL</b>				FBSI
-	Alarm suppress level				POWER ON
EXP, N06, N05				-	BYTE
-	-	2	0	13	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>10095</b>	<b>SAFE_MODE_MASK</b>				FBSI
-	'Safety Integrated' operating modes				POWER ON
EXP, N05				-	DWORD
-	-	0	0	0x0001	7/2
710-2a2c	-	-	-	-	-1/-
710-6a2c	-	-	-	-	-1/-
710-12a2c	-	-	-	-	-1/-
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>10096</b>	<b>SAFE_DIAGNOSIS_MASK</b>				FBSI
-	'Safety Integrated' diagnosis functions				NEW CONF
EXP, N06, N05				-	DWORD
-	-	1	0	0x0001	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>10097</b>	<b>SAFE_SPL_STOP_MODE</b>				FBSI
-	Stop reaction for SPL errors				POWER ON
N01, N06				-	BYTE

-	-	3	3	4	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>10098</b>	<b>PROFISAFE_IPO_TIME_RATIO</b>				FBSI
-	Factor for PROFIsafe communication				POWER ON
N01, N06				SFCO	DWORD
-	-	1	1	25	7/1
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>10099</b>	<b>INFO_PROFISAFE_CYCLE_TIME</b>				FBSI
s	PROFIsafe communication cycle time				POWER ON
N01, N06, N05				READ	DOUBLE
-	-	0.0	-	-	7/0
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>10100</b>	<b>PLC_CYCLIC_TIMEOUT</b>				P3
s	Maximum PLC cycle time				POWER ON
EXP, N01, N06				-	DOUBLE
-	-	0.1	-	-	7/2

<b>10110</b>	<b>PLC_CYCLE_TIME_AVERAGE</b>				B1
s	Average PLC acknowledgement time				POWER ON
N01, N07				-	DOUBLE
-	-	0.05	-	-	7/2

<b>10120</b>	<b>PLC_RUNNINGUP_TIMEOUT</b>				H2
s	Monitoring time for PLC power up				POWER ON
EXP, N01, N06				-	DOUBLE
-	-	50.0	-	-	7/2

<b>10130</b>	<b>TIME_LIMIT_NETTO_COM_TASK</b>				OEM
s	Runtime limitation of communication to MMC				POWER ON
EXP, N01				-	DOUBLE
-	-	0.005	.001	0.100	7/1

<b>10131</b>	<b>SUPPRESS_SCREEN_REFRESH</b>				A2
-	Screen refresh response under overload				POWER ON
EXP				-	BYTE
-	-	0	0	2	7/2

<b>10132</b>	<b>MMC_CMD_TIMEOUT</b>				PA,M4
s	Monitoring time for MMC command in the part program				POWER ON
EXP, N01, N06				-	DOUBLE



-	-	3.0	0.0	100.0	7/2
<b>10134</b>	<b>MM_NUM_MMC_UNITS</b>				B3
-	Possible number of simultaneous MMC communication partners				POWER ON
EXP, N01, N02	-				DWORD
-	-	6	1	10	2/2
<b>10136</b>	<b>DISPLAY_MODE_POSITION</b>				-
-	Display mode for actual position in the WCS				RESET
N01	-				DWORD
-	-	0	0	1	7/1
<b>10140</b>	<b>TIME_LIMIT_NETTO_DRIVE_TASK</b>				ECO
s	Runtime limit of drive communications sub-task				POWER ON
EXP, N01	-				DOUBLE
-	-	0.02	.001	.5	7/1
<b>10150</b>	<b>PREP_DRIVE_TASK_CYCLE_RATIO</b>				ECO
-	Factor for communication with drive				POWER ON
EXP, N01	-				DWORD
-	-	2	1	50	7/1
<b>10160</b>	<b>PREP_COM_TASK_CYCLE_RATIO</b>				ECO
-	Factor for communication with MMC				POWER ON
EXP, N01	-				DWORD
-	-	3	1	50	7/1
<b>10161</b>	<b>COM_CONFIGURATION</b>				-
-	Configuration of communication				POWER ON
EXP, N01	-				DWORD
-	8	5, 5, 18, 1, 16, 8, 18, 18	-	-	0/0
<b>10185</b>	<b>NCK_PCOS_TIME_RATIO</b>				-
-	Processing time share NCK				POWER ON
EXP, N01	-				DWORD
-	-	100	0	100	0/0
710-2a2c	-	65	10	90	7/2
710-6a2c	-	65	10	90	7/2
710-12a2c	-	65	10	90	7/2
840di-basic	-	65	10	90	7/2
840di-universal	-	65	10	90	7/2
840di-plus	-	65	10	90	7/2
<b>10190</b>	<b>TOOL_CHANGE_TIME</b>				BA
-	Tool changing time for simulation				POWER ON
N01	-				DOUBLE
-	-	0.	-	-	7/2
<b>10192</b>	<b>GEAR_CHANGE_WAIT_TIME</b>				S1

s	Gear stage change waiting time				POWER ON
N01					DOUBLE
-	-	10.0	0.0	1.0e5	7/2
<b>10200</b>	<b>INT_INCR_PER_MM</b>				G2
-	Calculation resolution for linear positions				POWER ON
N01					DOUBLE
-	-	1000.	1.0	1.0e9	7/2
<b>10210</b>	<b>INT_INCR_PER_DEG</b>				G2
-	Calculation resolution for angular positions				POWER ON
N01					DOUBLE
-	-	1000.0	1.0	1.0e9	7/2
<b>10220</b>	<b>SCALING_USER_DEF_MASK</b>				G2
-	Activation of scaling factors				POWER ON
EXP, N01	SCAL				DWORD
-	-	0x200	0	0x3FFF	7/2
<b>10230</b>	<b>SCALING_FACTORS_USER_DEF</b>				G2
-	Scaling factors of physical variables				POWER ON
EXP, N01	SCAL				DOUBLE
-	15	1.0,1.0,1.0,1.0,1.0,1.0, 0,1.0,1.0,1.0...	1e-9	-	7/2
<b>10240</b>	<b>SCALING_SYSTEM_IS_METRIC</b>				G2
-	Basic system metric				POWER ON
N01	SCAL				BOOLEAN
-	-	TRUE	-	-	7/2
<b>10250</b>	<b>SCALING_VALUE_INCH</b>				G2
-	Conversion factor for INCH				POWER ON
EXP	SCAL				DOUBLE
-	-	25.4	1e-9	-	0/0
<b>10260</b>	<b>CONVERT_SCALING_SYSTEM</b>				A3,G2
-	Enable basic system conversion				POWER ON
EXP	LINK				BOOLEAN
-	-	FALSE	-	-	1/1
<b>10270</b>	<b>POS_TAB_SCALING_SYSTEM</b>				T1
-	System of units of position tables				RESET
N01, N09					BYTE
-	-	0	0	1	7/2
<b>10280</b>	<b>PROG_FUNCTION_MASK</b>				K1
-	Comparing (> and <) compatible with SW6.3				POWER ON
EXP, N01					DWORD
-	-	0x0	0	0x1	7/2

<b>10284</b>	<b>DISPLAY_FUNCTION_MASK</b>				-
-	BTSS-variable lastBlockNoStr active				POWER ON
EXP, N01	-				DWORD
-	-	0x0	-	-	7/2
<b>10290</b>	<b>CC_TDA_PARAM_UNIT</b>				G2
-	Physical units of tool data for CC				POWER ON
N09	-				DWORD
-	10	0,0,0,0,0,0,0,0,0,0	0	16	2/2
<b>10291</b>	<b>CCS_TDA_PARAM_UNIT</b>				-
-	Units of SIEMENS-OEM tool data				POWER ON
N09	-				DWORD
-	10	0,0,0,0,0,0,0,0,0,0	0	16	2/2
<b>10292</b>	<b>CC_TOA_PARAM_UNIT</b>				G2
-	Physical units of cutting edge data for CC				POWER ON
N09	-				DWORD
-	10	0,0,0,0,0,0,0,0,0,0	0	16	2/2
<b>10293</b>	<b>CCS_TOA_PARAM_UNIT</b>				-
-	Units of SIEMENS-OEM cutt. edge data				POWER ON
N09	-				DWORD
-	10	0,0,0,0,0,0,0,0,0,0	0	16	2/2
<b>10300</b>	<b>FASTIO_ANA_NUM_INPUTS</b>				A4
-	Number of active analog NCK inputs				POWER ON
N10	-				BYTE
-	-	0	0	8	7/2
<b>10310</b>	<b>FASTIO_ANA_NUM_OUTPUTS</b>				A4
-	Number of active analog NCK outputs				POWER ON
N10	-				BYTE
-	-	0	0	8	7/2
<b>10320</b>	<b>FASTIO_ANA_INPUT_WEIGHT</b>				A4
-	Weighting factor for analog NCK inputs				POWER ON
N10	-				DWORD
-	8	10000,10000,10000,10000,10000,10000,10000,10000.	1	10000000	7/2
-	-	.	-	-	-
<b>10330</b>	<b>FASTIO_ANA_OUTPUT_WEIGHT</b>				A4
-	Weighting factor for analog NCK outputs				POWER ON
N10	-				DWORD
-	8	10000,10000,10000,10000,10000,10000,10000,10000.	1	10000000	7/2
-	-	.	-	-	-
<b>10350</b>	<b>FASTIO_DIG_NUM_INPUTS</b>				A4

-	Number of active digital NCK input bytes				POWER ON
N10					BYTE
-	-	1	0	5	7/2
<b>10360</b>	<b>FASTIO_DIG_NUM_OUTPUTS</b>				A4
-	Number of active digital NCK output bytes				POWER ON
N10					BYTE
-	-	0	0	5	7/2
<b>10361</b>	<b>FASTIO_DIG_SHORT_CIRCUIT</b>				A2
-	Short circuit of digital inputs and outputs				POWER ON
N10					DWORD
-	10	0,0,0,0,0,0,0,0,0,0	-	-	7/2
<b>10362</b>	<b>HW_ASSIGN_ANA_FASTIN</b>				A4
-	Hardware assignment of the fast analog NCK inputs				POWER ON
N10					DWORD
-	8	0x01000000,0x01000000,0x01000000,0x01000000...	0x01000000	0x060003FF	7/2
<b>10364</b>	<b>HW_ASSIGN_ANA_FASTOUT</b>				A4
-	Hardware assignment of external analog NCK outputs				POWER ON
N10					DWORD
-	8	0x01000000,0x01000000,0x01000000,0x01000000...	0x01000000	0x060003FF	7/2
<b>10366</b>	<b>HW_ASSIGN_DIG_FASTIN</b>				A4
-	Hardware assignment of external digital NCK inputs				POWER ON
N10					DWORD
-	10	0x01000000,0x01000000,0x01000000,0x01000000...	0x01000000	0x060003FF	7/2
<b>10368</b>	<b>HW_ASSIGN_DIG_FASTOUT</b>				A4
-	Hardware assignment of external digital NCK outputs				POWER ON
N10					DWORD
-	4	0x01000000,0x01000000,0x01000000,0x01000000...	0x01000000	0x060003FF	7/2
<b>10380</b>	<b>HW_UPDATE_RATE_FASTIO</b>				A4
-	Updating rate of clocked external NCK I/Os				POWER ON
EXP, N10					BYTE
-	5	2,2,2,2,3	2	3	7/2
<b>10382</b>	<b>HW_LEAD_TIME_FASTIO</b>				A4
-	Lead time of clocked external NCK I/Os				POWER ON
EXP, N10					DWORD
-	5	100,100,100,100,100	-	-	7/2
<b>10384</b>	<b>HW_CLOCKED_MODULE_MASK</b>				A4

-	Synchronous processing of external NCK I/Os				POWER ON
N10	-				BYTE
-	5	0,0,0,0,0	-	-	7/2
<b>10385</b>	<b>PROFISAFE_MASTER_ADDRESS</b>				FBSI
-	PROFIsafe address PROFIsafe master module				POWER ON
N01, N06	-				DWORD
-	-	0	0	0x0500FA7D	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-
<b>10386</b>	<b>PROFISAFE_IN_ADDRESS</b>				FBSI
-	PROFIsafe address input module				POWER ON
N01, N06	-				DWORD
-	16	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	0	0x0501FFFF	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-
<b>10387</b>	<b>PROFISAFE_OUT_ADDRESS</b>				FBSI
-	PROFIsafe-address output module				POWER ON
N01, N06	-				DWORD
-	16	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	0	0x0501FFFF	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-
<b>10388</b>	<b>PROFISAFE_IN_ASSIGN</b>				FBSI
-	Input.assignment \$A_INSE to PROFIsafe module				POWER ON
N01, N06	-				DWORD
-	16	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	0	64064	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-
<b>10389</b>	<b>PROFISAFE_OUT_ASSIGN</b>				FBSI
-	Outp.assignment \$A_OUTSE to PROFIsafe module				POWER ON
N01, N06	-				DWORD
-	16	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	0	64064	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-
<b>10390</b>	<b>SAFE_IN_HW_ASSIGN</b>				FBSI

-	Input assignment of external SPL interface				POWER ON
N01, N06					DWORD
-	8	0,0,0,0,0,0,0,0	-	-	7/2
710-2a2c	-	-	-	-	-1/-
710-6a2c	-	-	-	-	-1/-
710-12a2c	-	-	-	-	-1/-
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>10392</b>	<b>SAFE_OUT_HW_ASSIGN</b>				FBSI
-	Output assignment ext. interface SPL				POWER ON
N01, N06					DWORD
-	8	0,0,0,0,0,0,0,0	-	-	7/2
710-2a2c	-	-	-	-	-1/-
710-6a2c	-	-	-	-	-1/-
710-12a2c	-	-	-	-	-1/-
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>10393</b>	<b>SAFE_DRIVE_LOGIC_ADDRESS</b>				-
-	Logical drive addresses SI				POWER ON
N01, N06					DWORD
-	31	6700,6724,6748,6772,6796,6820,6844...	258	8191	7/2
840d-2a2c	-	-	-	-	-1/-
840d-6a2c	-	-	-	-	-1/-
840d-12a2c	-	-	-	-	-1/-
840d-31a10c	-	-	-	-	-1/-
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>10394</b>	<b>PLCIO_NUM_BYTES_IN</b>				A2
-	Number of directly readable input bytes of the PLC I/Os				POWER ON
N10					BYTE
-	-	0	0	32	7/2

<b>10395</b>	<b>PLCIO_LOGIC_ADDRESS_IN</b>				A2
-	Start addr. of the directly readable input bytes of the PLC I/Os				POWER ON
N10					DWORD
-	-	0	-	-	7/2

<b>10396</b>	<b>PLCIO_NUM_BYTES_OUT</b>				A2
-	Number of directly writable output bytes of the PLC I/Os				POWER ON
N10					BYTE
-	-	0	0	32	7/2

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N09				-		DOUBLE
-	32	0,0,0,0,0,0,0,0,0,0,	-	-		7/2
		0,0,0,0,0,0,0,0...				
10470	<b>SW_CAM_ASSIGN_FASTOUT_1</b>					N3
-	Hardware assignment for output of cams 1-8 to NCK I/Os					POWER ON
N09						DWORD
-	-	0	-	-	-	7/2
10471	<b>SW_CAM_ASSIGN_FASTOUT_2</b>					N3
-	Hardware assignment for the output of cams 9-16 to NCK I/Os					POWER ON
N09						DWORD
-	-	0	-	-	-	7/2
10472	<b>SW_CAM_ASSIGN_FASTOUT_3</b>					N3
-	Configuration cams 17 - 24 to I/Os					POWER ON
N09						DWORD
-	-	0	-	-	-	7/2
10473	<b>SW_CAM_ASSIGN_FASTOUT_4</b>					N3
-	Configuration cams 25 - 32 to I/Os					POWER ON
N09						DWORD
-	-	0	-	-	-	7/2
10480	<b>SW_CAM_TIMER_FASTOUT_MASK</b>					N3
-	Mask for output of cam signals via timer interr. to NCU					POWER ON
N09						DWORD
-	-	0	-	-	-	7/2
10485	<b>SW_CAM_MODE</b>					N3
-	Behavior of SW cams					POWER ON
N09						DWORD
-	-	0	-	-	-	7/2
10530	<b>COMPAR_ASSIGN_ANA_INPUT_1</b>					A4
-	Hardware assignment of analog inputs for comparator byte 1					POWER ON
N10						BYTE
-	8	0,0,0,0,0,0,0,0	-	-	-	7/2
10531	<b>COMPAR_ASSIGN_ANA_INPUT_2</b>					A4
-	Hardware assignment of analog inputs for comparator byte 2					POWER ON
N10						BYTE
-	8	0,0,0,0,0,0,0,0	-	-	-	7/2
10540	<b>COMPAR_TYPE_1</b>					A4
-	Parameterization for comparator byte 1					POWER ON
N10						DWORD
-	-	0	-	-	-	7/2
10541	<b>COMPAR TYPE 2</b>					A4



-	Parameterization of comparator byte 2				POWER ON
N10					DWORD
-	-	0	-	-	7/2
<b>10600</b>	<b>FRAME_ANGLE_INPUT_MODE</b>				K2
-	Sequence of rotation in FRAME				POWER ON
EXP, N01, N09					BYTE
-	-	1	1	2	7/2
<b>10602</b>	<b>FRAME_GEOAX_CHANGE_MODE</b>				K2
-	Frames when changing geometry axes				POWER ON
EXP, N01, N09					BYTE
-	-	0	0	5	7/2
<b>10604</b>	<b>WALIM_GEOAX_CHANGE_MODE</b>				A3
-	Working area limit. by changing GEO axes				POWER ON
EXP, N01, N09					BYTE
-	-	0	0	1	7/2
<b>10610</b>	<b>MIRROR_REF_AX</b>				K2
-	Reference axis for mirroring				POWER ON
EXP, N01, N09					BYTE
-	-	0	0	3	7/2
<b>10612</b>	<b>MIRROR_TOGGLE</b>				K2
-	Mirror toggle				POWER ON
EXP, N01, N09					BYTE
-	-	1	0	1	7/2
<b>10613</b>	<b>NCBFRAME_RESET_MASK</b>				K2
-	Active NCU global base frames after reset				RESET
EXP					DWORD
-	-	0xFFFF	0	0xFFFF	7/2
<b>10615</b>	<b>NCBFRAME_POWERON_MASK</b>				K2
-	Reset global base frames after power on				POWER ON
EXP, N12					DWORD
-	-	0	0	0xFFFF	7/2
<b>10617</b>	<b>FRAME_SAVE_MASK</b>				K1,PGA
-	Behavior of frames in SAVE subroutines				POWER ON
EXP					DWORD
-	-	0	0	0x3	7/2
<b>10618</b>	<b>PROTAREA_GEOAX_CHANGE_MODE</b>				A3
-	Protection range on change of GEO axes				POWER ON
EXP, N01, N09					BYTE
-	-	0	0	3	7/2
<b>10620</b>	<b>EULER_ANGLE_NAME_TAB</b>				F2

-	Name of Euler angle			POWER ON
N01, N09				STRING
-	3	"A2","B2","C2"	-	7/2
<b>10624</b>	<b>ORIPATH_LIFT_VECTOR_TAB</b>			-
-	Name of retraction vector for path-relative orientation.			POWER ON
N01, N09				STRING
-	3	"A8","B8","C8"	-	7/2
<b>10626</b>	<b>ORIPATH_LIFT_FACTOR_NAME</b>			-
-	Name of rel. safety clearance with ORIPATH			POWER ON
N01, N09				STRING
-	-1	"ORIPLF"	-	7/2
<b>10630</b>	<b>NORMAL_VECTOR_NAME_TAB</b>			F2
-	Name of normal vectors			POWER ON
N01, N09				STRING
-	6	"A4","B4","C4","A5","B5","C5"	-	7/2
<b>10640</b>	<b>DIR_VECTOR_NAME_TAB</b>			F2
-	Name of direction vectors			POWER ON
N01, N09				STRING
-	6	"A3","B3","C3","AN3","BN3","CN3"	-	7/2
<b>10642</b>	<b>ROT_VECTOR_NAME_TAB</b>			F2
-	Name of rotation vectors			POWER ON
N01, N09				STRING
-	3	"A6","B6","C6"	-	7/2
<b>10644</b>	<b>INTER_VECTOR_NAME_TAB</b>			F2
-	Name of intermediate vector components			POWER ON
N01, N09				STRING
-	3	"A7","B7","C7"	-	7/2
<b>10646</b>	<b>ORIENTATION_NAME_TAB</b>			F2
-	IDs for programming a 2nd ori.path			POWER ON
N01, N09				STRING
-	3	"XH","YH","ZH"	-	7/2
<b>10648</b>	<b>NUTATION_ANGLE_NAME</b>			F2
-	Name of aperture angle			POWER ON
N01, N09				STRING
-	-1	"NUT"	-	7/2
<b>10650</b>	<b>IPO_PARAM_NAME_TAB</b>			K2
-	Name of interpolation parameters			POWER ON
EXP, N01				STRING
-	3	"I","J","K"	-	7/2

<b>10652</b>	<b>CONTOUR_DEF_ANGLE_NAME</b>	FBFA
-	Name of angle for contour definitions	POWER ON
EXP, N01, N12	-	STRING
-	-1 "ANG"	0/0
<b>10654</b>	<b>RADIUS_NAME</b>	FBFA
-	Name of radius for contour definitions	POWER ON
EXP, N01, N12	-	STRING
-	-1 "RND"	0/0
<b>10656</b>	<b>CHAMFER_NAME</b>	FBFA
-	Name of chamfer for contour definitions	POWER ON
EXP, N01, N12	-	STRING
-	-1 "CHR"	0/0
<b>10660</b>	<b>INTERMEDIATE_POINT_NAME_TAB</b>	K2
-	Name of interpolation point coordinates for G2/G3	POWER ON
EXP, N01	-	STRING
-	3 "I1","J1","K1"	7/2
<b>10670</b>	<b>STAT_NAME</b>	F2
-	Name of state information	POWER ON
N01, N09	-	STRING
-	-1 "STAT"	7/2
<b>10672</b>	<b>TU_NAME</b>	F2
-	Name of state information of axes	POWER ON
N01, N09	-	STRING
-	-1 "TU"	7/2
<b>10674</b>	<b>PO_WITHOUT_POLY</b>	F2
-	Polynomial programming programmable without G function POLY	POWER ON
N01	-	BOOLEAN
-	- FALSE	7/2
<b>10700</b>	<b>PREPROCESSING_LEVEL</b>	V2
-	Program preprocessing level	POWER ON
N01, N02	-	BYTE
-	- 1	2/2
<b>10702</b>	<b>IGNORE_SINGLEBLOCK_MASK</b>	K1
-	Prevents stopping at specific blocks in single block mode	POWER ON
N01	-	DWORD
-	- 0 0 0xFFFF	7/2
<b>10704</b>	<b>DRYRUN_MASK</b>	V1
-	Dry run feedrate activation	POWER ON
N01	-	BYTE
-	- 0 0 2	7/2

<b>10706</b>	<b>SLASH_MASK</b>				PG,A2
-	Activation of block skip				POWER ON
N01					BYTE
-	-	0	0	2	7/2
<b>10707</b>	<b>PROG_TEST_MASK</b>				K1
-	Program test mode				POWER ON
N01					DWORD
-	-	1	0	1	7/2
<b>10708</b>	<b>SERUPRO_MASK</b>				K1
-	Search run modes				POWER ON
N01					DWORD
-	-	0	0	15	7/2
<b>10710</b>	<b>PROG_SD_RESET_SAVE_TAB</b>				K1
-	Setting data to be updated				POWER ON
EXP, N01					DWORD
-	30	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0,0,0, 0,0,0,0...	-	-	7/2
<b>10711</b>	<b>NC_LANGUAGE_CONFIGURATION</b>				-
-	NC language commands of inactive functions				POWER ON
EXP, N01					DWORD
-	-	0	0	4	0/0
<b>10712</b>	<b>NC_USER_CODE_CONF_NAME_TAB</b>				PA
-	List of reconfigured NC codes				POWER ON
EXP, N01, N12					STRING
-	200	...	-	-	2/2
<b>10713</b>	<b>M_NO_FCT_STOPRE</b>				-
-	M function with preprocessing stop				POWER ON
EXP, N12, N07					DWORD
-	15	-1,-1,-1,-1,-1,-1,- 1,-1,-1,-1,-1,-1...	-	-	7/2
<b>10714</b>	<b>M_NO_FCT_EOP</b>				S1
-	M function for spindle active after reset				POWER ON
EXP, N07					DWORD
-	-	-1	-	-	7/2
<b>10715</b>	<b>M_NO_FCT_CYCLE</b>				FBFA,K1
-	M function to be replaced by SR				POWER ON
EXP, N12, N07					DWORD
-	10	-1,-1,-1,-1,-1,-1,- 1,-1,-1	-	-	7/2
<b>10716</b>	<b>M NO FCT CYCLE NAME</b>				FBFA.K1

-	SR name for M function replacement				POWER ON
EXP, N12, N07	-				STRING
-	10	-	-	-	7/2
<b>10717</b>	<b>T_NO_FCT_CYCLE_NAME</b>				FBFA,K1
-	Name of tool-changing cycle for T function replacement				POWER ON
EXP, N12, N07	-				STRING
-	-1	-	-	-	7/2
<b>10718</b>	<b>M_NO_FCT_CYCLE_PAR</b>				-
-	M function replacement with parameters				POWER ON
EXP, N12, N07	-				DWORD
-	-	-1	-	-	7/2
<b>10719</b>	<b>T_NO_FCT_CYCLE_MODE</b>				K1
-	Setting of T function substitution				POWER ON
EXP, N12, N07	-				DWORD
-	-	0	0	7	7/2
<b>10720</b>	<b>OPERATING_MODE_DEFAULT</b>				H2
-	Setting of mode after power ON				POWER ON
N01	-				BYTE
-	10	7,7,7,7,7,7,7,7,7	0	12	7/2
<b>10722</b>	<b>AXCHANGE_MASK</b>				K5
-	Paramameters for axis replacement behavior				POWER ON
EXP, N01	-				DWORD
-	-	0	0	0xFFFF	7/2
<b>10731</b>	<b>JOG_MODE_KEYS_EDGETRIGGRD</b>				IAF
-	Functioning of the JOG keys				POWER ON
EXP, N01	-				BOOLEAN
-	-	TRUE	-	-	0/0
<b>10735</b>	<b>JOG_MODE_MASK</b>				-
-	Enable JOG in automatic				POWER ON
EXP, N01	-				DWORD
-	-	0	0	0x1	7/2
<b>10760</b>	<b>G53_TOOLCORR</b>				FBFA
-	Method of operation of G53, G153 and SUPA				POWER ON
N12	-				BOOLEAN
-	-	FALSE	-	-	7/2
<b>10780</b>	<b>UNLOCK_EDIT_MODESWITCH</b>				-
-	Cancel start disable when editing a part program				POWER ON
EXP, N01	-				BOOLEAN
-	-	FALSE	-	-	0/0
<b>10800</b>	<b>EXTERN_CHAN_SYNC_M_NO_MIN</b>				FBFA

-	1st M function for channel synchronization				POWER ON
EXP, N12	-				DWORD
-	-	-1	-	-	7/2
<b>10802</b>	<b>EXTERN_CHAN_SYNC_M_NO_MAX</b>				FBFA
-	Last M function for channel synchr.				POWER ON
EXP, N12	-				DWORD
-	-	-1	-	-	7/2
<b>10804</b>	<b>EXTERN_M_NO_SET_INT</b>				FBFA
-	M function to activate ASUB				POWER ON
EXP, N12	-				DWORD
-	-	96	-	-	7/2
<b>10806</b>	<b>EXTERN_M_NO_DISABLE_INT</b>				FBFA
-	M function to deactivate ASUB				POWER ON
EXP, N12	-				DWORD
-	-	97	-	-	7/2
<b>10808</b>	<b>EXTERN_INTERRUPT_BITS_M96</b>				FBFA
-	Activate interrupt program (ASUB)				POWER ON
EXP, N12	-				DWORD
-	-	0	-	-	7/2
<b>10810</b>	<b>EXTERN_MEAS_G31_P_SIGNAL</b>				FBFA
-	Config. of measuring inputs for G31 P..				POWER ON
EXP, N12	-				BYTE
-	4	1,1,1,1	0	3	7/2
<b>10812</b>	<b>EXTERN_DOUBLE_TURRET_ON</b>				FBFA
-	Double turret with G68				POWER ON
EXP, N12	-				BOOLEAN
-	-	FALSE	-	-	7/2
<b>10814</b>	<b>EXTERN_M_NO_MAC_CYCLE</b>				FBFA
-	Macro call via M function				POWER ON
EXP, N12	-				DWORD
-	10	-1,-1,-1,-1,-1,-1,-1,-1,-1,-1	-	-	7/2
		1,-1,-1			
<b>10815</b>	<b>EXTERN_M_NO_MAC_CYCLE_NAME</b>				FBFA
-	Name of subroutine for M function macro call				POWER ON
EXP, N12	-				STRING
-	10		-	-	7/2
<b>10816</b>	<b>EXTERN_G_NO_MAC_CYCLE</b>				FBFA
-	Macro call via G function				POWER ON
EXP, N12	-				DOUBLE
-	50	-1,-1,-1,-1,-1,-1,-1,-1,-1,-1	-	-	7/2
		1,-1,-1....			

<b>10817</b>	<b>EXTERN_G_NO_MAC_CYCLE_NAME</b>	FBFA
-	Name of subroutine for G function macro call	POWER ON
EXP, N12	-	STRING
-	50	7/2
<b>10818</b>	<b>EXTERN_INTERRUPT_NUM_ASUP</b>	FBFA
-	Interrupt number for ASUP start (M96)	POWER ON
EXP, N12	-	BYTE
-	1	8
<b>10820</b>	<b>EXTERN_INTERRUPT_NUM_RETRAC</b>	FBFA
-	Interrupt number for rapid retraction (G10.6)	POWER ON
EXP, N12	-	BYTE
-	2	8
<b>10850</b>	<b>MM_EXTERN_MAXNUM_OEM_GCODES</b>	-
-	Maximum number of OEM G codes	POWER ON
EXP, N01, N12	-	DWORD
-	0	1000
<b>10880</b>	<b>MM_EXTERN_CNC_SYSTEM</b>	FBFA
-	Definition of the control system to be adapted	POWER ON
N01, N12	-	DWORD
-	1	3
<b>10881</b>	<b>MM_EXTERN_GCODE_SYSTEM</b>	FBFA
-	ISO_3 Mode: GCodeSystem	POWER ON
N01, N12	-	DWORD
-	0	2
<b>10882</b>	<b>NC_USER_EXTERN_GCODES_TAB</b>	FBFA
-	List of user-specific G commands of an external NC language	POWER ON
N12	-	STRING
-	60	2/2
<b>10884</b>	<b>EXTERN_FLOATINGPOINT_PROG</b>	FBFA
-	Evaluation of programmed values without decimal point	POWER ON
N12	-	BOOLEAN
-	TRUE	7/2
<b>10886</b>	<b>EXTERN_INCREMENT_SYSTEM</b>	FBFA
-	Incremental system in external language mode	POWER ON
N12	-	BOOLEAN
-	FALSE	7/2
<b>10888</b>	<b>EXTERN_DIGITS_TOOL_NO</b>	FBFA
-	Digits for T number in ISO mode	POWER ON
N12	-	BYTE
-	2	8

<b>10890</b>	<b>EXTERN_TOOLPROG_MODE</b>				FBFA
-	Tool change programming for external language				POWER ON
N12	-				DWORD
-	-	0	-	-	7/2
<b>10900</b>	<b>INDEX_AX_LENGTH_POS_TAB_1</b>				T1
-	Number of positions for indexing axis table 1				RESET
N09	-				DWORD
-	-	0	0	60	7/2
<b>10910</b>	<b>INDEX_AX_POS_TAB_1</b>				T1
mm/inch, degrees	Indexing position table 1				RESET
N09	-				DOUBLE
-	60	0.,0.,0.,0.,0.,0.,0.,0.,	-	-	7/2
		0.,0.,0.,0.,0....			
<b>10920</b>	<b>INDEX_AX_LENGTH_POS_TAB_2</b>				T1
-	Number of positions for indexing axis table 2				RESET
N09	-				DWORD
-	-	0	0	60	7/2
<b>10930</b>	<b>INDEX_AX_POS_TAB_2</b>				T1
mm/inch, degrees	Indexing position table 2				RESET
N09	-				DOUBLE
-	60	0.,0.,0.,0.,0.,0.,0.,0.,	-	-	7/2
		0.,0.,0.,0.,0....			
<b>10940</b>	<b>INDEX_AX_MODE</b>				-
-	Settings for indexing position				POWER ON
EXP	-				DWORD
-	-	0	0	1	7/2
<b>11100</b>	<b>AUXFU_MAXNUM_GROUP_ASSIGN</b>				H2
-	Number of auxiliary functions distr. amongst aux. fct. groups				POWER ON
N01, N07, N02	-				DWORD
-	-	1	1	255	7/2
<b>11110</b>	<b>AUXFU_GROUP_SPEC</b>				H2
-	Auxiliary function group specification				POWER ON
N07	-				DWORD
-	64	0x81,0x21,0x41,0x4	-	-	7/2
		1,0x41,0x41,0x41...			
<b>11120</b>	<b>LUD_EXTENDED_SCOPE</b>				PG
-	Activate function "program global user data (PUD)"				POWER ON
N01	-				BOOLEAN
-	-	FALSE	-	-	7/2



<b>11140</b>	<b>GUD_AREA_SAVE_TAB</b>	-
-	Add. saving for GUD modules	IMMEDIATELY
N01	-	DWORD
-	9 0,0,0,0,0,0,0,0,0	7/2
<b>11160</b>	<b>ACCESS_EXEC_CST</b>	-
-	Execution right for / N_CST_DIR	POWER ON
N01	-	BYTE
-	7	7/2
<b>11161</b>	<b>ACCESS_EXEC_CMA</b>	-
-	Execution right for / N_CMA_DIR	POWER ON
N01	-	BYTE
-	7	7/2
<b>11162</b>	<b>ACCESS_EXEC_CUS</b>	-
-	Execution right for / N_CUS_DIR	POWER ON
N01	-	BYTE
-	7	7/3
<b>11165</b>	<b>ACCESS_WRITE_CST</b>	-
-	Write protection for directory / N_CST_DIR	POWER ON
N01	-	DWORD
-	-1	7/2
<b>11166</b>	<b>ACCESS_WRITE_CMA</b>	-
-	Write protection for directory / N_CMA_DIR	POWER ON
N01	-	DWORD
-	-1	7/2
<b>11167</b>	<b>ACCESS_WRITE_CUS</b>	-
-	Write protection for directory / N_CUS_DIR	POWER ON
N01	-	DWORD
-	-1	7/3
<b>11170</b>	<b>ACCESS_WRITE_SACCESS</b>	-
-	Write protection for N_SACCESS_DEF	POWER ON
N01	-	BYTE
-	7	7/2
<b>11171</b>	<b>ACCESS_WRITE_MACCESS</b>	-
-	Write protection for N_MACCESS_DEF	POWER ON
N01	-	BYTE
-	7	7/2
<b>11172</b>	<b>ACCESS_WRITE_UACCESS</b>	-
-	Write protection for N_UACCESS_DEF	POWER ON
N01	-	BYTE
-	7	7/3

<b>11200</b>	<b>INIT_MD</b>				IAD, IAD, IA
-	Standard machine data loaded at next Power On				POWER ON
EXP, N01	-				BYTE
-	-	0	-	-	7/2
<b>11210</b>	<b>UPLOAD_MD_CHANGES_ONLY</b>				IAD
-	MD backup of changed MD only				IMMEDIATELY
N01, N05	-				BYTE
-	-	0xFF	-	-	7/3
<b>11220</b>	<b>INI_FILE_MODE</b>				IAD
-	Error response to INI file errors				RESET
N01, N05	-				BYTE
-	-	1	0	2	7/2
<b>11230</b>	<b>MD_FILE_STYLE</b>				IAD
-	Structure of MD backup files				IMMEDIATELY
N01, N05	-				BYTE
-	-	3	-	-	7/3
<b>11240</b>	<b>PROFIBUS_SDB_NUMBER</b>				K4, FBU
-	SDB1000 number				POWER ON
N01, N05	-				DWORD
-	4	-1, -1, -1, -1	-1	7	2/2
710-2a2c	-	-	-	-	-1/-
710-6a2c	-	-	-	-	-1/-
710-12a2c	-	-	-	-	-1/-
<b>11250</b>	<b>PROFIBUS_SHUTDOWN_TYPE</b>				G3, FBU
-	Profibus shutdown handling				POWER ON
EXP, N01	-				BYTE
-	-	0	0	2	7/2
<b>11270</b>	<b>DEFAULT_VALUES_MEM_MASK</b>				PGA
-	Activation of default values for NC language elem.				POWER ON
N01	-				DWORD
-	-	0	-	-	7/2
<b>11280</b>	<b>WPD_INI_MODE</b>				IAD
-	Handling of INI files in workpiece directory				POWER ON
N01	-				BYTE
-	-	0	0	1	7/2
<b>11290</b>	<b>DRAM_FILESYSTEM_MASK</b>				IAD
-	Select directories in DRAM				POWER ON
N01	-				DWORD
-	-	0	-	-	2/2
710-2a2c	-	0x3f	-	-	0/0
710-6a2c	-	0x3f	-	-	0/0

710-12a2c	-	0x3f	-	-	0/0
<b>11291</b>	<b>DRAM_FILESYST_SAVE_MASK</b>				IAD
-	Selection of directories in DRAM				POWER ON
N01					DWORD
-	-	0x07	-	-	2/2
710-2a2c	-	0x3f	-	-	0/0
710-6a2c	-	0x3f	-	-	0/0
710-12a2c	-	0x3f	-	-	0/0
<b>11292</b>	<b>DRAM_FILESYST_CONFIG</b>				-
-	Configuration of the DRAM file system				POWER ON
EXP					BYTE
-	-	0x01	-	-	0/0
710-2a2c	-	0x22	-	-	-/-
710-6a2c	-	0x22	-	-	-/-
710-12a2c	-	0x22	-	-	-/-
<b>11294</b>	<b>SIEM_TRACEFILES_CONFIG</b>				-
-	Configuration of the SIEM* trace file				POWER ON
EXP					DWORD
-	-	0	-	-	2/2
<b>11295</b>	<b>PROTOK_FILE_MEM</b>				-
-	Memory type for log files				POWER ON
N01					BYTE
-	10	0,1,1,1,1,0,0,1,1,1	0	1	1/1
<b>11297</b>	<b>PROTOK_IPOCYCLE_CONTROL</b>				-
-	Prevent overrun of IPO time level				POWER ON
N01					BYTE
-	10	1,1,1,1,1,1,1,1,1,1	0	1	1/1
<b>11300</b>	<b>JOG_INC_MODE_LEVELTRIGGRD</b>				H1
-	INC and REF in jog mode				POWER ON
N01					BOOLEAN
-	-	TRUE	-	-	7/2
<b>11310</b>	<b>HANDWH_REVERSE</b>				H1
-	Threshold for direction change handwheel				POWER ON
N09					BYTE
-	-	2	-	-	7/2
<b>11320</b>	<b>HANDWH_IMP_PER_LATCH</b>				H1
-	Handwheel pulses per detent position				POWER ON
N09					DOUBLE
-	6	1.,1.,1.,1.,1.,1.	-	-	7/2
<b>11322</b>	<b>CONTOURHANDWH_IMP_PER_LATCH</b>				H1
-	Contour handwheel pulses per detent position				POWER ON

N09	-	-	-	-	DOUBLE
-	6	1.,1.,1.,1.,1.,1.	-	-	7/2
<b>11324</b>	<b>HANDWH_VDI_REPRESENTATION</b>				OEM
-	Display of handwheel number in VDI Interface				POWER ON
N01	-	-	-	-	DWORD
-	-	0	0	1	7/2
<b>11330</b>	<b>JOG_INCR_SIZE_TAB</b>				H1
-	Increment size for INC/handwheel				POWER ON
EXP, N09	-	-	-	-	DOUBLE
-	5	1.,10.,100.,1000.,10 00.	-	-	7/2
<b>11340</b>	<b>ENC_HANDWHEEL_SEGMENT_NR</b>				FBMA
-	3rd handwheel: type of drive				POWER ON
EXP, N01	-	-	-	-	BYTE
-	-	1	1	1	0/0
<b>11342</b>	<b>ENC_HANDWHEEL_MODULE_NR</b>				FBMA
-	3rd handwheel: drive no./meas. circuit no.				POWER ON
N01	-	-	-	-	BYTE
-	-	0	0	31	7/2
<b>11344</b>	<b>ENC_HANDWHEEL_INPUT_NR</b>				FBMA
-	3rd handwheel: Input to module/meas. circ. Board				POWER ON
N01	-	-	-	-	BYTE
-	-	1	1	2	7/2
<b>11346</b>	<b>HANDWH_TRUE_DISTANCE</b>				FBMA
-	Handwheel default path or velocity				POWER ON
N01	-	-	-	-	BYTE
-	-	1	0	3	7/2
<b>11350</b>	<b>HANDWHEEL_SEGMENT</b>				-
-	Handwheel segment				POWER ON
N09	-	-	-	-	BYTE
-	6	0,0,0,0,0,0	-	-	7/2
840d-2a2c	-	1,1,1,0,0,0	-	-	-/-
840d-4a1cg	-	1,1,1,0,0,0	-	-	-/-
840d-6a2c	-	1,1,1,0,0,0	-	-	-/-
840d-12a2c	-	1,1,1,0,0,0	-	-	-/-
840d-31a10c	-	1,1,1,0,0,0	-	-	-/-
840di-basic	-	1,1,0,0,0,0	-	-	-/-
840di-universal	-	1,1,0,0,0,0	-	-	-/-
840di-plus	-	1,1,0,0,0,0	-	-	-/-
<b>11351</b>	<b>HANDWHEEL_MODULE</b>				-
-	Handwheel module				POWER ON
N09	-	-	-	-	BYTE

-	6	0,0,0,0,0,0	0	6	7/2
840d-2a2c	-	1,1,1,0,0,0	-	-	-/-
840d-4a1cg	-	1,1,1,0,0,0	-	-	-/-
840d-6a2c	-	1,1,1,0,0,0	-	-	-/-
840d-12a2c	-	1,1,1,0,0,0	-	-	-/-
840d-31a10c	-	1,1,1,0,0,0	-	-	-/-
840di-basic	-	1,1,0,0,0,0	-	-	-/-
840di-universal	-	1,1,0,0,0,0	-	-	-/-
840di-plus	-	1,1,0,0,0,0	-	-	-/-

<b>11352</b>	<b>HANDWHEEL_INPUT</b>				-
-	Handwheel connection				POWER ON
N09					BYTE
-	6	0,0,0,0,0,0	0	6	7/2
840d-2a2c	-	1,2,3,0,0,0	-	-	-/-
840d-4a1cg	-	1,2,3,0,0,0	-	-	-/-
840d-6a2c	-	1,2,3,0,0,0	-	-	-/-
840d-12a2c	-	1,2,3,0,0,0	-	-	-/-
840d-31a10c	-	1,2,3,0,0,0	-	-	-/-
840di-basic	-	1,2,0,0,0,0	-	-	-/-
840di-universal	-	1,2,0,0,0,0	-	-	-/-
840di-plus	-	1,2,0,0,0,0	-	-	-/-

<b>11353</b>	<b>HANDWHEEL_LOGIC_ADDRESS</b>				-
-	Logical handwheel slot addresses				POWER ON
N04, N10					DWORD
-	6	0,0,0,0,0,0	0	8191	7/2

<b>11380</b>	<b>MONITOR_ADDRESS</b>				STZ
-	Test MD for changing the NCK code or data for Safety Integrated				IMMEDIATELY
EXP, N06	NBUP, NDLD				DWORD
-	-	0	-	-	0/0

<b>11382</b>	<b>MONITOR_DISPLAY_INT</b>				STZ
-	INTEGER display of the addressed location				IMMEDIATELY
EXP, N06	NBUP, NDLD				DWORD
-	-	0	-	-	0/0

<b>11384</b>	<b>MONITOR_DISPLAY_REAL</b>				STZ
-	REAL display of the addressed location				IMMEDIATELY
EXP, N06	NBUP, NDLD				DOUBLE
-	-	0.0	-	-	0/0

<b>11386</b>	<b>MONITOR_INPUT_INT</b>				STZ
-	INTEGER input for the addressed location				IMMEDIATELY
EXP, N06	NBUP, NDLD				DWORD
-	-	0	-	-	0/0

<b>11388</b>	<b>MONITOR_INPUT_REAL</b>				STZ
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-	REAL input for addressed location			IMMEDIATELY
EXP, N06	NBUP, NDLD			DOUBLE
-	-	0.0	-	0/0
<b>11390</b>	<b>MONITOR_INPUT_STROBE</b>			STZ
-	Overwrite the addressed location with MONITOR_INT/REAL			IMMEDIATELY
EXP, N06	NBUP, NDLD			BYTE
-	-	0	0	2
-	-	-	-	0/0
<b>11398</b>	<b>AXIS_VAR_SERVER_SENSITIVE</b>			B3
-	Axis-Var server response			POWER ON
EXP	-			BYTE
-	-	0	-	7/2
<b>11400</b>	<b>TRACE_SELECT</b>			-
-	Activation of internal trace functions			POWER ON
EXP	-			DWORD
-	-	0	-	0/0
<b>11405</b>	<b>TCL_TRACE_ACTIVE</b>			-
-	Activation of internal task trace functions			POWER ON
EXP	-			BOOLEAN
-	-	FALSE	-	0/0
<b>11410</b>	<b>SUPPRESS_ALARM_MASK</b>			D1
-	Mask for support of special alarm outputs			POWER ON
EXP, N06	-			DWORD
-	-	0x108000	-	7/2
<b>11411</b>	<b>ENABLE_ALARM_MASK</b>			-
-	Activation of warnings			RESET
EXP	-			DWORD
-	-	0	-	7/2
<b>11412</b>	<b>ALARM_REACTION_CHAN_NOREADY</b>			D1
-	Alarm response CHAN_NOREADY permitted			POWER ON
EXP, N01	-			BOOLEAN
-	-	FALSE	-	7/2
<b>11413</b>	<b>ALARM_PAR_DISPLAY_TEXT</b>			D1
-	Alarm parameter as text output			POWER ON
EXP, N01	-			BOOLEAN
-	-	FALSE	-	0/0
<b>11415</b>	<b>SUPPRESS_ALARM_MASK_2</b>			-
-	Masking of alarm outputs			POWER ON
EXP, N06	-			DWORD
-	-	0x0	-	7/2
<b>11420</b>	<b>LEN_PROTOCOL_FILE</b>			PGA

-	Size of protocol files (kB)	-	POWER ON
N01	-	-	DWORD
-	1	1	1000000
-	-	-	7/2
<b>11450</b>	<b>SEARCH_RUN_MODE</b>	-	K1
-	Parameterization for search run	-	POWER ON
EXP, N01	-	-	DWORD
-	0	0	0x1F
-	-	-	7/2
<b>11460</b>	<b>OSCILL_MODE_MASK</b>	-	P5
-	Mode mask for asynchronous oscillation	-	POWER ON
N09	-	-	DWORD
-	0x0	0	0xFFFF
-	-	-	7/2
<b>11470</b>	<b>REPOS_MODE_MASK</b>	-	K1
-	Repositioning properties	-	POWER ON
EXP, N01	-	-	DWORD
-	0x8	0	0xFFFF
-	-	-	7/2
<b>11480</b>	<b>PLC_OB1_TRACE_DEPTH</b>	-	-
-	Buffer depth of PLC trace data in OB1	-	POWER ON
EXP, N03, N09	-	-	DWORD
-	2	2	8
-	-	-	2/2
<b>11481</b>	<b>PLC_OB35_TRACE_DEPTH</b>	-	-
-	Buffer depth of PLC trace data in OB35	-	POWER ON
EXP, N03, N09	-	-	DWORD
-	2	2	8
-	-	-	2/2
<b>11482</b>	<b>PLC_OB40_TRACE_DEPTH</b>	-	-
-	Buffer depth of PLC trace data in OB40	-	POWER ON
EXP, N03, N09	-	-	DWORD
-	2	2	8
-	-	-	2/2
<b>11500</b>	<b>PREVENT_SYNACT_LOCK</b>	-	S5,FBSY
-	Protected synchronized actions	-	POWER ON
N01, N09	-	-	DWORD
-	2	0,0	0
-	-	-	255
-	-	-	7/2
<b>11510</b>	<b>IPO_MAX_LOAD</b>	-	-
%	Max. permitted IPO load	-	POWER ON
N01, N05	-	-	DOUBLE
-	0.00	0.0	100.0
-	-	-	7/2
<b>11550</b>	<b>STOP_MODE_MASK</b>	-	-
-	Defines the stop behavior.	-	POWER ON
N01	-	-	DWORD
-	0	0	0x1
-	-	-	7/2
<b>11600</b>	<b>BAG_MASK</b>	-	K1

-	Defines the mode group behavior				POWER ON
N01					DWORD
-	-	0	0	0x3	7/2
<b>11602</b>	<b>ASUP_START_MASK</b>				K1
-	Ignore stop conditions for ASUP				POWER ON
N01					DWORD
-	-	0	0	0x7	7/2
<b>11604</b>	<b>ASUP_START_PRIO_LEVEL</b>				K1
-	Priorities from which 'ASUP_START_MASK' is effective				POWER ON
N01					DWORD
-	-	0	0	128	7/2
<b>11610</b>	<b>ASUP_EDITABLE</b>				K1
-	Activation of a user-specific ASUP program				POWER ON
N01					DWORD
-	-	0	0	3	7/2
<b>11612</b>	<b>ASUP_EDIT_PROTECTION_LEVEL</b>				K1
-	Protection level of the user-specific ASUP program				POWER ON
N01					DWORD
-	-	2	0	7	7/2
<b>11620</b>	<b>PROG_EVENT_NAME</b>				-
-	Program name for PROG_EVENT				POWER ON
EXP, N12					STRING
-	-1		-	-	7/2
<b>11640</b>	<b>ENABLE_CHAN_AX_GAP</b>				K2
-	Allow channel axis gaps in AXCONF_MACHAX_USED				POWER ON
N01, N11					DWORD
-	-	0x0	0	0x1	2/2
<b>11660</b>	<b>NUM_EG</b>				M3
-	Number of possible 'electronic gear units'				POWER ON
N09					BYTE
-	-	0	-	-	1/1
<b>11700</b>	<b>PERMISSIVE_FLASH_TAB</b>				IAD
-	Codes for NC card				POWER ON
EXP, N01					DWORD
-	6	0,0,0,0,0,0,0,0	-	-	1/1
<b>11717</b>	<b>D_NO_FCT_CYCLE_NAME</b>				-
-	UP name for D function replacement				POWER ON
EXP, N12, N07					STRING
-	-1		-	-	7/2
<b>11750</b>	<b>NCK_LEAD_FUNCTION_MASK</b>				-



-	Functions for master value coupling				NEW CONF
N09					DWORD
-	-	0x00	0	0x10	1/1
<b>11752</b>	<b>NCK_TRAIL_FUNCTION_MASK</b>				-
-	Functions for coupled motion				NEW CONF
N09					DWORD
-	-	0x200	0	0x210	1/1

## 2.5.2 Setting of overwrite switches

<b>12000</b>	<b>OVR_AX_IS_GRAY_CODE</b>				V1
-	Axis feedrate override switch Gray-coded				POWER ON
EXP, N10					BOOLEAN
-	-	TRUE	-	-	7/2
<b>12010</b>	<b>OVR_FACTOR_AX_SPEED</b>				V1
-	Evaluation of axis feedrate override switch				POWER ON
EXP, N10					DOUBLE
-	31	0.00,0.01,0.02,0.04, 0.06,0.08,0.10...	0.00	2.00	7/2
<b>12020</b>	<b>OVR_FEED_IS_GRAY_CODE</b>				V1
-	Path feedrate override switch Gray-coded				POWER ON
EXP, N10					BOOLEAN
-	-	TRUE	-	-	7/2
<b>12030</b>	<b>OVR_FACTOR_FEEDRATE</b>				V1
-	Evaluation of path feedrate override switch				POWER ON
EXP, N10					DOUBLE
-	31	0.00,0.01,0.02,0.04, 0.06,0.08,0.10...	0.00	2.00	7/2
<b>12040</b>	<b>OVR_RAPID_IS_GRAY_CODE</b>				V1
-	Rapid traverse override switch Gray-coded				POWER ON
EXP, N10					BOOLEAN
-	-	TRUE	-	-	7/2
<b>12050</b>	<b>OVR_FACTOR_RAPID_TRA</b>				V1
-	Evaluation of rapid traverse override switch				POWER ON
EXP, N10					DOUBLE
-	31	0.00,0.01,0.02,0.04, 0.06,0.08,0.10...	0.00	1.00	7/2
<b>12060</b>	<b>OVR_SPIND_IS_GRAY_CODE</b>				V1
-	Spindle override switch Gray-coded				POWER ON
EXP, N10					BOOLEAN
-	-	TRUE	-	-	7/2

<b>12070</b>	<b>OVR_FACTOR_SPIND_SPEED</b>				V1
-	Evaluation of spindle override switch				POWER ON
EXP, N10	-				DOUBLE
-	31	0.5,0.55,0.60,0.65,0.70,0.75,0.80...	0.00	2.00	7/2
<b>12080</b>	<b>OVR_REFERENCE_IS_PROG_FEED</b>				V1
-	Override reference speed				POWER ON
N10, N09	-				BOOLEAN
-	-	TRUE	-	-	7/2
<b>12082</b>	<b>OVR_REFERENCE_IS_MIN_FEED</b>				V1
-	Specification of the reference of the path override				POWER ON
N10, N09	-				BOOLEAN
-	-	FALSE	-	-	7/2
<b>12090</b>	<b>OVR_FUNCTION_MASK</b>				-
-	Selection of override specifications				RESET
N01, N10, N09	-				DWORD
-	-	0	0	0x01	7/2
<b>12100</b>	<b>OVR_FACTOR_LIMIT_BIN</b>				V1
-	Limitation for binary-coded override switch				POWER ON
EXP, N10	-				DOUBLE
-	-	1.2	0.0	2.0	7/2
<b>12200</b>	<b>RUN_OVERRIDE_0</b>				FBMA,V1
-	Traversing response with override 0				POWER ON
N01, N09	-				BOOLEAN
-	-	FALSE	-	-	7/2
<b>12202</b>	<b>PERMANENT_FEED</b>				FBMA,V1
mm/min	Fixed feedrates for linear axes				RESET
N01, N09	-				DOUBLE
-	4	0.,0.,0.,0.	-	-	7/2
<b>12204</b>	<b>PERMANENT_ROT_AX_FEED</b>				FBMA
rev/min	Fixed feedrates for rotary axes				RESET
N01, N09	-				DOUBLE
-	4	0.,0.,0.,0.	-	-	7/2
<b>12205</b>	<b>PERMANENT_SPINDLE_FEED</b>				FBMA
rev/min	Fixed feedrates for spindles				RESET
N01, N09	-				DOUBLE
-	4	0.,0.,0.,0.	-	-	7/2
<b>12300</b>	<b>CENTRAL_LUBRICATION</b>				-
-	Central lubrication active				POWER ON
N01, N09	-				BOOLEAN
-	-	FALSE	-	-	7/2

<b>12510</b>	<b>NCU_LINKNO</b>				B3
-	NCU number in an NCU cluster				POWER ON
N01					DWORD
-	-	1	1	16	7/2

<b>12520</b>	<b>LINK_TERMINATION</b>				B3
-	NCU numbers for which bus termination resistances are activated				POWER ON
N01	LINK				BYTE
-	2	0,1	0	15	3/2

<b>12540</b>	<b>LINK_BAUDRATE_SWITCH</b>				B3
-	Link bus baud rate				POWER ON
N01	LINK				DWORD
-	-	9	0	9	3/2

<b>12550</b>	<b>LINK_RETRY_CTR</b>				B3
-	Max. no. message frame transmission retries				POWER ON
N01	LINK				DWORD
-	-	4	1	15	3/2

<b>12701</b>	<b>AXCT_AXCONF_ASSIGN_TAB1</b>				B3
-	Assignment of an axis container location				POWER ON
N01	CTDE				STRING
-	32		-	-	3/2

<b>12702</b>	<b>AXCT_AXCONF_ASSIGN_TAB2</b>				B3
-	Assignment of an axis container location				POWER ON
N01	CTDE				STRING
-	32		-	-	3/2

<b>12703</b>	<b>AXCT_AXCONF_ASSIGN_TAB3</b>				B3
-	Assignment of an axis container location				POWER ON
N01	CTDE				STRING
-	32		-	-	3/2

<b>12704</b>	<b>AXCT_AXCONF_ASSIGN_TAB4</b>				B3
-	Assignment of an axis container location				POWER ON
N01	CTDE				STRING
-	32		-	-	3/2

<b>12705</b>	<b>AXCT_AXCONF_ASSIGN_TAB5</b>				B3
-	Assignment of an axis container location				POWER ON
N01	CTDE				STRING
-	32		-	-	3/2

<b>12706</b>	<b>AXCT_AXCONF_ASSIGN_TAB6</b>				B3
-	Assignment of an axis container location				POWER ON
N01	CTDE				STRING
-	32		-	-	3/2

<b>12707</b>	<b>AXCT_AXCONF_ASSIGN_TAB7</b>			B3
-	Assignment of an axis container location			POWER ON
N01	CTDE			STRING
-	32		-	3/2
<b>12708</b>	<b>AXCT_AXCONF_ASSIGN_TAB8</b>			B3
-	Assignment of an axis container location			POWER ON
N01	CTDE			STRING
-	32		-	3/2
<b>12709</b>	<b>AXCT_AXCONF_ASSIGN_TAB9</b>			B3
-	Assignment of an axis container location			POWER ON
N01	CTDE			STRING
-	32		-	3/2
<b>12710</b>	<b>AXCT_AXCONF_ASSIGN_TAB10</b>			B3
-	Assignment of an axis container location			POWER ON
N01	CTDE			STRING
-	32		-	3/2
<b>12711</b>	<b>AXCT_AXCONF_ASSIGN_TAB11</b>			B3
-	Assignment of an axis container location			POWER ON
N01	CTDE			STRING
-	32		-	3/2
<b>12712</b>	<b>AXCT_AXCONF_ASSIGN_TAB12</b>			B3
-	Assignment of an axis container location			POWER ON
N01	CTDE			STRING
-	32		-	3/2
<b>12713</b>	<b>AXCT_AXCONF_ASSIGN_TAB13</b>			B3
-	Assignment of an axis container location			POWER ON
N01	CTDE			STRING
-	32		-	3/2
<b>12714</b>	<b>AXCT_AXCONF_ASSIGN_TAB14</b>			B3
-	Assignment of an axis container location			POWER ON
N01	CTDE			STRING
-	32		-	3/2
<b>12715</b>	<b>AXCT_AXCONF_ASSIGN_TAB15</b>			B3
-	Assignment of an axis container location			POWER ON
N01	CTDE			STRING
-	32		-	3/2
<b>12716</b>	<b>AXCT_AXCONF_ASSIGN_TAB16</b>			B3
-	Assignment of an axis container location			POWER ON
N01	CTDE			STRING
-	32		-	3/2

<b>12750</b>	<b>AXCT_NAME_TAB</b>				B3
-	Axis container identifier				POWER ON
N01	CTDE				STRING
-	16	"CT1","CT2","CT3","CT4","CT5","CT6"...	-	-	1/1
<b>12970</b>	<b>PLC_DIG_IN_LOGIC_ADDRESS</b>				-
-	Logical start address of the digital PLC input address				POWER ON
N10	-				DWORD
-	-	0	0	1023	0/0
<b>12971</b>	<b>PLC_DIG_IN_NUM</b>				-
-	Number of digital input addresses				POWER ON
N10	-				DWORD
-	-	64	1	1023	0/0
<b>12974</b>	<b>PLC_DIG_OUT_LOGIC_ADDRESS</b>				-
-	Logical start address of the digital PLC output addresses				POWER ON
N10	-				DWORD
-	-	0	0	1023	0/0
<b>12975</b>	<b>PLC_DIG_OUT_NUM</b>				-
-	Number of digital output addresses				POWER ON
N10	-				DWORD
-	-	48	1	1023	0/0
<b>12978</b>	<b>PLC_ANA_IN_LOGIC_ADDRESS</b>				-
-	Logical start address of the analog PLC input addresses				POWER ON
N10	-				DWORD
-	-	0	0	1023	0/0
<b>12979</b>	<b>PLC_ANA_IN_NUM</b>				-
-	Number of analog input addresses				POWER ON
N10	-				DWORD
-	-	0	0	1023	0/0
<b>12982</b>	<b>PLC_ANA_OUT_LOGIC_ADDRESS</b>				-
-	Logical start address of the analog PLC output addresses				POWER ON
N10	-				DWORD
-	-	0	0	1023	0/0
<b>12983</b>	<b>PLC_ANA_OUT_NUM</b>				-
-	Number of analog output addresses				POWER ON
N10	-				DWORD
-	-	0	0	1023	0/0

### 2.5.3 Central drive data

13000	DRIVE_IS_ACTIVE					G2
	Drive activation (611D)					POWER ON
EXP					BOOLEAN	
	31	FALSE,FALSE,FALS S E,FALSE,FALSE,FA LSE...			7/2	

13010	DRIVE_LOGIC_NR					G2
	Logical drive number					POWER ON
EXP					BYTE	
	31	0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0...	0	31	7/2	

13020	DRIVE_INVERTER_CODE					G2
	Power section code of drive module					POWER ON
EXP					DWORD	
	31	0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0...			7/2	

13030	DRIVE_MODULE_TYPE					G2
	Module ID					POWER ON
EXP					BYTE	
	31	1,1,1,1,1,1,1,1,1,1,1, 1,1,1,1,1,1,1,1,1,1,1, 1,1,1,1...	0	10	7/2	

13040	DRIVE_TYPE					G2,FBHY
	ID for drive type (1: FDD, 2: MSD, 3: LIN)					POWER ON
EXP					BYTE	
	31	1,1,1,1,1,1,1,1,1,1,1, 1,1,1,1,1,1,1,1,1,1,1, 1,1,1,1...	0	5	7/2	

13050	DRIVE_LOGIC_ADDRESS					G2
	Logical drive addresses					POWER ON
N04, N10					DWORD	
	31	272,292,312,332,35 2 ,372,392,412,432...	258	8191	7/2	
710-6a2c		4100,4120,4140,416 0,4180,4200,4220...			-/-	
710-12a2c		4100,4120,4140,416 0,4180,4200,4220...			-/-	

<b>13060</b>	<b>DRIVE_TELEGRAM_TYPE</b>				G2
-	Standard message frame type for Profibus DP				POWER ON
N04, N10					DWORD
-	31	102,102,102,102,102 2 ,102,102,102,102...	-	-	7/2

<b>13070</b>	<b>DRIVE_FUNCTION_MASK</b>				G2
-	DP functions used				POWER ON
N04, N10					DWORD
-	31	0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0...	-	-	7/2
710-6a2c	-	2,2,2,2,2,2,2,2,2,2,2, 2,2,2,2,2,2,2,2,2,2,2, 2,2,2,2...	-	-	-/-
710-12a2c	-	2,2,2,2,2,2,2,2,2,2,2, 2,2,2,2,2,2,2,2,2,2,2, 2,2,2,2...	-	-	-/-

<b>13080</b>	<b>DRIVE_TYPE_DP</b>				G2
-	Drive type Profibus				POWER ON
EXP					BYTE
-	31	0,0,0,0,0,0,0,0,0,0,0,0 0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0...	0	4	7/2

<b>13100</b>	<b>DRIVE_DIAGNOSIS</b>				IAD,Kap.3
-	Diagnosis drive link				POWER ON
EXP, N05					DWORD
-	9	0,0,0,0,0,0,1,0,0	-	-	7/2

<b>13120</b>	<b>CONTROL_UNIT_LOGIC_ADDRESS</b>				-
-	Logical address of SINAMICS CU				POWER ON
N04, N10					DWORD
-	7	0,0,0,0,0,0,0,0	0	8191	7/2
710-2a2c	-	0,0,0,0,0,0,0,0	-	-	0/0
710-6a2c	-	0,0,0,0,0,0,0,0	-	-	0/0
710-12a2c	-	0,0,0,0,0,0,0,0	-	-	0/0
840d-2a2c	-	0,0,0,0,0,0,0,0	-	-	-1/0
840d-4a1cg	-	0,0,0,0,0,0,0,0	-	-	-1/0
840d-6a2c	-	0,0,0,0,0,0,0,0	-	-	-1/0
840d-12a2c	-	0,0,0,0,0,0,0,0	-	-	-1/0
840d-31a10c	-	0,0,0,0,0,0,0,0	-	-	-1/0
840di-basic	-	0,0,0,0,0,0,0,0	-	-	-1/0
840di-universal	-	0,0,0,0,0,0,0,0	-	-	-1/0
840di-plus	-	0,0,0,0,0,0,0,0	-	-	-1/0

<b>13200</b>	<b>MEAS_PROBE_LOW_ACTIVE</b>				M5
-	Polarity reversal of sensor				POWER ON
N10, N09					BOOLEAN
-	2	FALSE,FALSE	-	-	7/2

<b>13210</b>	<b>MEAS_TYPE</b>				M5
-	Meas. type with decentralized drives				POWER ON
N10, N09					BYTE
-	-	1	0	1	7/2
710-2a2c	-	0	-	-	-/-
710-6a2c	-	0	-	-	-/-
710-12a2c	-	0	-	-	-/-
840d-2a2c	-	0	-	-	-/-
840d-4a1cg	-	0	-	-	-/-
840d-6a2c	-	0	-	-	-/-
840d-12a2c	-	0	-	-	-/-
840d-31a10c	-	0	-	-	-/-
840di-basic	-	0	-	-	-/-
840di-universal	-	0	-	-	-/-
840di-plus	-	0	-	-	-/-

<b>13220</b>	<b>MEAS_PROBE_DELAY_TIME</b>				FBA/IAD
s	Delay time between probe deflection and recognition				POWER ON
N10, N09					DOUBLE
-	2	0.0,0.0	0	0.1	7/2

<b>13300</b>	<b>PROFISAFE_IN_FILTER</b>				-
-	Useful F data filter IN				POWER ON
N01, N06					DWORD
-	16	0xFFFFFFFF,0xFFFF FFFFFF,0xFFFFFFFF ...	-	-	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>13301</b>	<b>PROFISAFE_OUT_FILTER</b>				-
-	Useful F data filter OUT				POWER ON
N01, N06					DWORD
-	16	0xFFFFFFFF,0xFFFF FFFFFF,0xFFFFFFFF ...	-	-	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>14504</b>	<b>MAXNUM_USER_DATA_INT</b>				P3
-	Number of user data (INT)				POWER ON



N03	-	-	-	-	DWORD
-	-	0	0	256	7/2
<b>14506</b>	<b>MAXNUM_USER_DATA_HEX</b>				A2,P3
-	Number of user data (HEX)				POWER ON
N03	-	-	-	-	DWORD
-	-	0	0	256	7/2
<b>14508</b>	<b>MAXNUM_USER_DATA_FLOAT</b>				A2,P3
-	Number of user data (FLOAT)				POWER ON
N03	-	-	-	-	DWORD
-	-	0	0	32	7/2
<b>14510</b>	<b>USER_DATA_INT</b>				A2,P3
-	User data (INT)				POWER ON
N03	-	-	-	-	DWORD
-	256	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0,0,0, 0,0,0,0...	-32768	32767	7/2
<b>14512</b>	<b>USER_DATA_HEX</b>				A2,P3
-	User data (HEX)				POWER ON
N03	-	-	-	-	DWORD
-	256	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0,0,0, 0,0,0,0...	0	0x0FF	7/2
<b>14514</b>	<b>USER_DATA_FLOAT</b>				A2,P3
-	User data (FLOAT)				POWER ON
N03	-	-	-	-	DOUBLE
-	32	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0...	-3.40e38	3.40e38	7/2
<b>14516</b>	<b>USER_DATA_PLC_ALARM</b>				A2,P3
-	User data (HEX)				POWER ON
N03	-	-	-	-	BYTE
-	64	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0,0,0, 0,0,0,0...	-	-	0/0
<b>15700</b>	<b>LANG_SUB_NAME</b>				-
-	Name for substitution subroutine				POWER ON
N01	-	-	-	-	STRING
-	-1	-	-	-	7/2
<b>15702</b>	<b>LANG_SUB_PATH</b>				-
-	Call path for substitution subroutine				POWER ON
N01	-	-	-	-	BYTE
-	-	0	0	2	7/2

<b>17200</b>	<b>GMMC_INFO_NO_UNIT</b>				K1
-	Global MMC information (without phys. unit)				POWER ON
EXP					DOUBLE
-	16	3.,4.,3.,1.,0.,0.,0.,0., 0.,0.,0.,0.,0....	-	-	0/7
<b>17201</b>	<b>GMMC_INFO_NO_UNIT_STATUS</b>				K1
-	Global MMC status info (without phys. unit)				POWER ON
EXP					BYTE
-	16	1,1,1,1,0,0,0,0,0,0,0, 0,0,0,0,0	-	-	0/7
<b>17500</b>	<b>MAXNUM_REPLACEMENT_TOOLS</b>				FBW
-	Maximal number of replacement tools.				POWER ON
N09					DWORD
-	-	0	0	32	7/2
<b>17510</b>	<b>TOOL_UNLOAD_MASK</b>				FBW
-	Behavior of tool data when unloading				POWER ON
N09					DWORD
-	-	0	0	0xF	7/2
<b>17515</b>	<b>TOOL_RESETMON_MASK</b>				-
-	Tool data behavior with RESETMON				POWER ON
N09					DWORD
-	-	0x14	0	0xffff960	7/2
<b>17520</b>	<b>TOOL_DEFAULT_DATA_MASK</b>				FBW
-	Create new tool: default settings				POWER ON
N09					DWORD
-	-	0	0	0x1F	7/2
<b>17530</b>	<b>TOOL_DATA_CHANGE_COUNTER</b>				FBW
-	Mark tool data change for HMI				POWER ON
EXP, N01					DWORD
-	-	0	0	0xF	7/2
<b>17540</b>	<b>TOOLTYPES_ALLOWED</b>				-
-	Permitted tool types				POWER ON
N09					DWORD
-	-	0x3FF	0	0x3FF	7/2
840d-4a1cg	-	0x10	-	-	-1/-
<b>17600</b>	<b>DEPTH_OF_LOGFILE_OPT</b>				-
-	Depth of log memory optimization in REORG				RESET
EXP, N01					DWORD
-	-	5	0	300	3/3
<b>17900</b>	<b>VDI_FUNCTION_MASK</b>				-
-	Setting to VDI signals				POWER ON

EXP, N09	-	-	-	-	DWORD
-	-	0x0	0	0x1	7/2

## 2.5.4 Memory settings

<b>18000</b>	<b>VDI_UPDATE_IN_ONE_IPO_CYCLE</b>				P3
-	PLC interface update				POWER ON
EXP, N01	-	-	-	-	BOOLEAN
-	-	FALSE	-	-	0/0

<b>18030</b>	<b>HW_SERIAL_NUMBER</b>				-
-	Hardware series number				POWER ON
N05	-	-	-	READ	STRING
-	1	-	-	-	7/2

<b>18040</b>	<b>VERSION_INFO</b>				IAD
-	Version and possibly data of the PCMCIA card, not FM-NC				POWER ON
N05	READ				STRING

<b>18050</b>	<b>INFO_FREE_MEM_DYNAMIC</b>				S7
-	Display data of free dynamic memory				POWER ON
N01, N02, N05	-	-	-	READ	DWORD
-	-	430080	-	-	7/2
710-2a2c	-	1048576	-	-	-/-
710-6a2c	-	1048576	-	-	-/-
710-12a2c	-	1048576	-	-	-/-
840di-basic	-	1048576	-	-	-/-
840di-universal	-	1048576	-	-	-/-
840di-plus	-	1048576	-	-	-/-

<b>18060</b>	<b>INFO_FREE_MEM_STATIC</b>				S7
-	Display data of free static memory				POWER ON
N01, N02, N05	-	-	-	READ	DWORD
-	-	262144	-	-	7/2
840d-2a2c	-	3145728	-	-	-/-
840d-4a1cg	-	3145728	-	-	-/-
840d-6a2c	-	3145728	-	-	-/-
840d-12a2c	-	3145728	-	-	-/-
840d-31a10c	-	3145728	-	-	-/-
840di-basic	-	524288	-	-	-/-
840di-universal	-	524288	-	-	-/-
840di-plus	-	524288	-	-	-/-

<b>18070</b>	<b>INFO_FREE_MEM_DPR</b>				S7
-	Display data of free memory in DUAL PORT RAM				POWER ON
EXP, N01, N02, N05	-	-	-	READ	DWORD
-	-	0	-	-	7/2

<b>18072</b>	<b>INFO_FREE_MEM_CC_MD</b>				-
-	Display of free memory in CC-MD memory				POWER ON

EXP, N01, N05				READ	DWORD
-	-	0	-	-	0/0
<b>18080</b>	<b>MM_TOOL_MANAGEMENT_MASK</b>				FBW
-	Step-by-step memory reservation for tool management (SRAM)				POWER ON
N02, N09				-	DWORD
-	-	0x0	0	0xFFFF	7/1
<b>18082</b>	<b>MM_NUM_TOOL</b>				FBW,S7
-	Number of tools the NCK can manage (SRAM)				POWER ON
N02, N09				-	DWORD
-	-	30	0	600	7/2
<b>18084</b>	<b>MM_NUM_MAGAZINE</b>				FBW
-	Number of magazines the NCK can manage (SRAM)				POWER ON
N02, N09				-	DWORD
-	-	3	0	32	7/2
<b>18086</b>	<b>MM_NUM_MAGAZINE_LOCATION</b>				FBW
-	Number of magazine locations the NCK can manage (SRAM)				POWER ON
N02, N09				-	DWORD
-	-	30	0	600	7/2
<b>18088</b>	<b>MM_NUM_TOOL_CARRIER</b>				W1
-	Maximum number of definable tool holders				POWER ON
N02, N09				-	DWORD
-	-	0	0	99999999	7/2
<b>18090</b>	<b>MM_NUM_CC_MAGAZINE_PARAM</b>				FBW
-	Number of magazine data generated and evaluated by the CC (SRAM)				POWER ON
N02, N09				-	DWORD
-	-	0	0	10	2/2
<b>18091</b>	<b>MM_TYPE_CC_MAGAZINE_PARAM</b>				-
-	Type of OEM magazine data (SRAM)				POWER ON
N02, N09				-	DWORD
-	10	3,3,3,3,3,3,3,3,3,3	1	6	2/2
<b>18092</b>	<b>MM_NUM_CC_MAGLOC_PARAM</b>				FBW
-	Number of OEM magazine location data (SRAM)				POWER ON
N02, N09				-	DWORD
-	-	0	0	10	2/2
<b>18093</b>	<b>MM_TYPE_CC_MAGLOC_PARAM</b>				-
-	Type of OEM magazine location data (SRAM)				POWER ON
N02, N09				-	DWORD
-	10	3,3,3,3,3,3,3,3,3,3	1	6	2/2
<b>18094</b>	<b>MM_NUM_CC_TDA_PARAM</b>				FBW
-	Number of OEM tool data (SRAM)				POWER ON

N02, N09	-	-	-	-	DWORD
-	-	0	0	10	2/2
<b>18095</b>	<b>MM_TYPE_CC_TDA_PARAM</b>	-	-	-	-
-	Type of OEM tool data (SRAM)	-	-	-	POWER ON
N02, N09	-	-	-	-	DWORD
-	10	4,4,4,4,4,4,4,4,4,4	1	6	2/2
<b>18096</b>	<b>MM_NUM_CC_TOA_PARAM</b>	-	-	-	FBW
-	Number of data per tool edge for compile cycles (SRAM)	-	-	-	POWER ON
N02, N09	-	-	-	-	DWORD
-	-	0	0	10	2/2
<b>18097</b>	<b>MM_TYPE_CC_TOA_PARAM</b>	-	-	-	-
-	Type of OEM data per cutting edge (SRAM)	-	-	-	POWER ON
N02, N09	-	-	-	-	DWORD
-	10	4,4,4,4,4,4,4,4,4,4	1	6	2/2
<b>18098</b>	<b>MM_NUM_CC_MON_PARAM</b>	-	-	-	FBW
-	Number of monitoring data per tool for compile cycles	-	-	-	POWER ON
N02, N09	-	-	-	-	DWORD
-	-	0	0	10	2/2
<b>18099</b>	<b>MM_TYPE_CC_MON_PARAM</b>	-	-	-	FBW
-	Type of OEM monitor data (SRAM)	-	-	-	POWER ON
N02, N09	-	-	-	-	DWORD
-	10	3,3,3,3,3,3,3,3,3,3	1	6	2/2
<b>18100</b>	<b>MM_NUM_CUTTING_EDGES_IN_TOA</b>	-	-	-	S7
-	Tool offsets in the TO range (SRAM)	-	-	-	POWER ON
N02, N09	-	-	-	-	DWORD
-	-	30	0	1500	7/2
<b>18102</b>	<b>MM_TYPE_OF_CUTTING_EDGE</b>	-	-	-	W1
-	Type of D No. programming (SRAM)	-	-	-	POWER ON
N02, N09	-	-	-	-	DWORD
-	-	0	0	1	7/2
<b>18104</b>	<b>MM_NUM_TOOL_ADAPTER</b>	-	-	-	FBW
-	Tool adapters in TO area (SRAM)	-	-	-	POWER ON
N02, N09	-	-	-	-	DWORD
-	-	-1	-1	600	7/2
<b>18105</b>	<b>MM_MAX_CUTTING_EDGE_NO</b>	-	-	-	W1
-	Max. value of D No. (DRAM)	-	-	-	POWER ON
N02, N09	-	-	-	-	DWORD
-	-	9	1	32000	7/2
<b>18106</b>	<b>MM_MAX_CUTTING_EDGE_PERTOOL</b>	-	-	-	W1
-	Max. number of D numbers per tool (DRAM)	-	-	-	POWER ON

N02, N09					-	DWORD
-	-	9	1	12	7/2	
18108	MM_NUM_SUMCORR					W1
-	Resulting offsets in TO area (SRAM)					POWER ON
N02, N09					-	DWORD
-	-	-1	-1	9000	7/2	
18110	MM_MAX_SUMCORR_PER_CUTTEDGE					S7
-	Max. number of additive offsets per edge					POWER ON
N02, N09					-	DWORD
-	-	1	1	6	7/2	
18112	MM_KIND_OF_SUMCORR					W1
-	Properties of resulting offsets in TO area (SRAM)					POWER ON
N02, N09					-	DWORD
-	-	0	0	0x1F	7/2	
18114	MM_ENABLE_TOOL_ORIENT					W1
-	Assign tool cutting edge orientation					POWER ON
N02, N09					-	DWORD
-	-	0	0	3	7/2	
18116	MM_NUM_TOOL_ENV					S7
-	Number of tool environments in the TO area (SRAM)					POWER ON
N02, N09					-	DWORD
-	-	0	-	-	7/2	
18118	MM_NUM_GUD_MODULES					S7
-	Number of GUD files in active file system (SRAM)					POWER ON
N02					-	DWORD
-	-	7	1	9	7/2	
18120	MM_NUM_GUD_NAMES_NCK					S7
-	Number of global user variable names (SRAM)					POWER ON
N02					-	DWORD
-	-	50	-	-	7/2	
840d-2a2c	-	10	-	-	-/-	
840d-4a1cg	-	10	-	-	-/-	
840d-6a2c	-	10	-	-	-/-	
840d-12a2c	-	10	-	-	-/-	
840d-31a10c	-	10	-	-	-/-	
18130	MM_NUM_GUD_NAMES_CHAN					S7
-	Number of channel-specific user variable names (SRAM)					POWER ON
N02					-	DWORD
-	-	100	-	-	7/2	
840d-2a2c	-	40	-	-	-/-	
840d-4a1cg	-	40	-	-	-/-	

840d-6a2c	-	40	-	-	-/-
840d-12a2c	-	40	-	-	-/-
840d-31a10c	-	40	-	-	-/-

<b>18150</b>	<b>MM_GUD_VALUES_MEM</b>				S7
-	Memory location for global user variable values (SRAM)				POWER ON
N02					DWORD
-	-	32	-	-	7/2
840d-2a2c	-	16	-	-	-/-
840d-4a1cg	-	16	-	-	-/-
840d-6a2c	-	16	-	-	-/-
840d-12a2c	-	16	-	-	-/-
840d-31a10c	-	16	-	-	-/-

<b>18160</b>	<b>MM_NUM_USER_MACROS</b>				S7
-	Number of macros (DRAM)				POWER ON
N02					DWORD
-	-	50	-	-	7/2
840d-2a2c	-	10	-	-	-/-
840d-4a1cg	-	10	-	-	-/-
840d-6a2c	-	10	-	-	-/-
840d-12a2c	-	10	-	-	-/-
840d-31a10c	-	10	-	-	-/-

<b>18170</b>	<b>MM_NUM_MAX_FUNC_NAMES</b>				S7
-	Number of miscellaneous functions (cycles, DRAM)				POWER ON
N02					DWORD
-	-	100	-	-	7/2
840d-2a2c	-	40	-	-	-/-
840d-4a1cg	-	40	-	-	-/-
840d-6a2c	-	40	-	-	-/-
840d-12a2c	-	40	-	-	-/-
840d-31a10c	-	40	-	-	-/-

<b>18180</b>	<b>MM_NUM_MAX_FUNC_PARAM</b>				S7
-	Number of additional parameters for cycles acc. to MD 18170				POWER ON
N02					DWORD
-	-	600	-	-	7/2
840d-2a2c	-	300	-	-	-/-
840d-4a1cg	-	300	-	-	-/-
840d-6a2c	-	300	-	-	-/-
840d-12a2c	-	300	-	-	-/-
840d-31a10c	-	300	-	-	-/-

<b>18190</b>	<b>MM_NUM_PROTECT_AREA_NCK</b>				S7
-	Number of files for machine-related protection zones (SRAM)				POWER ON
N12, N02, N06, N09					DWORD
-	-	0	0	10	7/2

<b>18200</b>	<b>MM_NUM_CCS_MAGAZINE_PARAM</b>				FBW
-	Number of Siemens OEM magazine data (SRAM)				POWER ON
N02, N09	-				DWORD
-	-	0	0	10	2/2
<b>18201</b>	<b>MM_TYPE_CCS_MAGAZINE_PARAM</b>				FBW
-	Type of Siemens OEM magazine data (SRAM)				POWER ON
N02, N09	-				DWORD
-	10	3,3,3,3,3,3,3,3,3	1	6	2/2
<b>18202</b>	<b>MM_NUM_CCS_MAGLOC_PARAM</b>				FBW
-	No. of Siemens OEM magazine location data (SRAM)				POWER ON
N02, N09	-				DWORD
-	-	0	0	10	2/2
<b>18203</b>	<b>MM_TYPE_CCS_MAGLOC_PARAM</b>				FBW
-	Type of Siemens OEM magazine location data (SRAM)				POWER ON
N02, N09	-				DWORD
-	10	3,3,3,3,3,3,3,3,3	1	6	2/2
<b>18204</b>	<b>MM_NUM_CCS_TDA_PARAM</b>				FBW
-	Number of Siemens OEM tool data (SRAM)				POWER ON
N02, N09	-				DWORD
-	-	0	0	10	2/2
<b>18205</b>	<b>MM_TYPE_CCS_TDA_PARAM</b>				FBW
-	Type of Siemens OEM tool data (SRAM)				POWER ON
N02, N09	-				DWORD
-	10	4,4,4,4,4,4,4,4,4	1	6	2/2
<b>18206</b>	<b>MM_NUM_CCS_TOA_PARAM</b>				FBW
-	No. of Siemens OEM data per cutting edge (SRAM)				POWER ON
N02, N09	-				DWORD
-	-	0	0	10	2/2
<b>18207</b>	<b>MM_TYPE_CCS_TOA_PARAM</b>				FBW
-	Type of Siemens OEM data per cutting edge (SRAM)				POWER ON
N02, N09	-				DWORD
-	10	4,4,4,4,4,4,4,4,4	1	6	2/2
<b>18208</b>	<b>MM_NUM_CCS_MON_PARAM</b>				FBW
-	No. of Siemens OEM monitor data (SRAM)				POWER ON
N02, N09	-				DWORD
-	-	0	0	10	2/2
<b>18209</b>	<b>MM_TYPE_CCS_MON_PARAM</b>				FBW
-	Type of Siemens OEM monitor data (SRAM)				POWER ON
N02, N09	-				DWORD
-	10	3,3,3,3,3,3,3,3,3	1	6	2/2



<b>18210</b>	<b>MM_USER_MEM_DYNAMIC</b>	S7
-	User memory in DRAM [KB]	POWER ON
EXP, N02	-	DWORD
-	3000	7/2
<b>18220</b>	<b>MM_USER_MEM_DPR</b>	-
-	User memory in DUAL PORT RAM (DPR)	POWER ON
EXP, N02	-	DWORD
-	0	0/0
<b>18230</b>	<b>MM_USER_MEM_BUFFERED</b>	S7
-	User memory in SRAM	POWER ON
N02	-	DWORD
-	0	7/1
<b>18238</b>	<b>MM_CC_MD_MEM_SIZE</b>	-
-	CC-MD in SRAM [kB]	POWER ON
N02	-	DWORD
-	1	7/1
<b>18240</b>	<b>MM_LUD_HASH_TABLE_SIZE</b>	S7
-	Hash table size for LUD (DRAM)	POWER ON
EXP, N02	-	DWORD
-	37	11
840d-2a2c	11	-
840d-4a1cg	11	-
840d-6a2c	11	-
840d-12a2c	11	-
840d-31a10c	11	-
<b>18242</b>	<b>MM_MAX_SIZE_OF_LUD_VALUE</b>	S7
-	Maximum memory block size for LUD/GUD values	POWER ON
N02	-	DWORD
-	920	920
-	SLMAXVARBYTES	0/0
<b>18250</b>	<b>MM_CHAN_HASH_TABLE_SIZE</b>	S7
-	Hash table size for channel-specific data (DRAM)	POWER ON
EXP, N02	-	DWORD
-	23	3
-	193	0/0
<b>18260</b>	<b>MM_NCK_HASH_TABLE_SIZE</b>	S7
-	Hash table size for global data (DRAM)	POWER ON
EXP, N02	-	DWORD
-	4001	537
-	4327	0/0
<b>18270</b>	<b>MM_NUM_SUBDIR_PER_DIR</b>	S7
-	Number of subdirectories (DRAM)	POWER ON
N02	-	DWORD
-	30	24
-	250	7/1

<b>18280</b>	<b>MM_NUM_FILES_PER_DIR</b>				S7
-	Number of files per directory (DRAM)				POWER ON
N02	-				DWORD
-	-	100	64	512	7/1
<b>18290</b>	<b>MM_FILE_HASH_TABLE_SIZE</b>				S7
-	Hash table size for files of a directory (SRAM)				POWER ON
EXP, N02	-				DWORD
-	-	47	3	299	0/0
<b>18300</b>	<b>MM_DIR_HASH_TABLE_SIZE</b>				S7
-	Hash table size for subdirectories (SRAM)				POWER ON
EXP, N02	-				DWORD
-	-	11	3	349	0/0
<b>18310</b>	<b>MM_NUM_DIR_IN_FILESYSTEM</b>				S7
-	Number of directories in passive file system (SRAM)				POWER ON
N02	-				DWORD
-	-	30	30	256	7/2
<b>18320</b>	<b>MM_NUM_FILES_IN_FILESYSTEM</b>				S7
-	Number of files in passive file system (SRAM)				POWER ON
N02	-				DWORD
-	-	150	64	512	7/2
<b>18331</b>	<b>MM_FLASHFILESYS_MEM</b>				-
-	Reserved for FFS (DRAM)				POWER ON
N01, N02	-				BYTE
-	8	0,0,0,0,0,0,0,0	-	-	0/0
<b>18332</b>	<b>MM_FLASH_FILE_SYSTEM_SIZE</b>				IAD
-	Size of FFS				POWER ON
N01, N02	-				DWORD
-	-	0	0	4096	7/1
<b>18342</b>	<b>MM_CEC_MAX_POINTS</b>				K3
-	Max. number of interpolation points on sag compensation (SRAM)				POWER ON
N01, N02	-				DWORD
-	62	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0,0,0, 0,0,0,0...	0	2000	7/2
<b>18350</b>	<b>MM_USER_FILE_MEM_MINIMUM</b>				S7
-	Minimum part program memory (SRAM)				POWER ON
EXP, N02	-				DWORD
-	-	20	20	100	0/0
<b>18351</b>	<b>MM_DRAM_FILE_MEM_SIZE</b>				IAD
-	Size of part program memory (DRAM)				POWER ON
EXP, N02	-				DWORD

-	-	0	0	32768	7/1
710-2a2c	-	6000	-	-	-/-
710-6a2c	-	6000	-	-	-/-
710-12a2c	-	6000	-	-	-/-
<b>18360</b>	<b>MM_EXT_PROG_BUFFER_SIZE</b>				A2
-	FIFO buffer size for processing from external source (DRAM)				POWER ON
N01					DWORD
-	-	50	30	1000000	7/2
840d-2a2c	-	30	-	-	-/-
840d-4a1cg	-	30	-	-	-/-
840d-6a2c	-	30	-	-	-/-
840d-12a2c	-	30	-	-	-/-
840d-31a10c	-	30	-	-	-/-
<b>18362</b>	<b>MM_EXT_PROG_NUM</b>				A2
-	Number of program levels which can be simultaneously processed				POWER ON
N01					BYTE
-	-	1	0	13	7/2
<b>18370</b>	<b>MM_PROTOD_NUM_FILES</b>				D1,OEM
-	Max.no. of log files in passive file system				POWER ON
N02					DWORD
-	10	2,0,0,0,0,2,2,0,0,0	0	10	1/1
<b>18371</b>	<b>MM_PROTOD_NUM_ETPD_STD_LIST</b>				D1,OEM
-	Number of standard data lists ETPD.				POWER ON
N02					DWORD
-	10	25,0,0,0,0,25,25,0,0,0	0	25	1/1
		0			
<b>18372</b>	<b>MM_PROTOD_NUM_ETPD_OEM_LIST</b>				D1,OEM
-	Number of OEM data lists ETPD.				POWER ON
N02					DWORD
-	10	0,0,0,0,0,0,0,0,0,0	0	20	1/1
<b>18373</b>	<b>MM_PROTOD_NUM_SERVO_DATA</b>				D1
-	Number of servo data for log				POWER ON
N02					DWORD
-	10	0,0,0,0,0,10,10,0,0,0	0	10	1/1
<b>18374</b>	<b>MM_PROTOD_FILE_BUFFER_SIZE</b>				-
-	Size of log file buffer				POWER ON
N02					DWORD
-	10	8000,8000,8000,8000	5000	100000	1/1
		0,8000,8000,8000...			
<b>18375</b>	<b>MM_PROTOD_SESS_ENAB_USER</b>				-
-	Users enabled for sessions				POWER ON
N02					BYTE

-	10	0,0,0,0,0,1,1,0,0,0	0	1	1/1
<b>18390</b>	<b>MM_COM_COMPRESS_METHOD</b>				-
-	Supported compression methods.				POWER ON
EXP, N01, N02					DWORD
-	-	0x01	-	-	2/2
<b>18400</b>	<b>MM_NUM_CURVE_TABS</b>				M3
-	Number of curve tables (SRAM)				POWER ON
N02, N09					DWORD
-	-	0	-	-	1/1
<b>18402</b>	<b>MM_NUM_CURVE_SEGMENTS</b>				M3
-	Number of curve segments (SRAM)				POWER ON
N02, N09					DWORD
-	-	0	-	-	1/1
<b>18403</b>	<b>MM_NUM_CURVE_SEG_LIN</b>				-
-	Number of linear curve segments (SRAM)				POWER ON
N02, N09					DWORD
-	-	0	-	-	1/1
<b>18404</b>	<b>MM_NUM_CURVE_POLYNOMS</b>				M3
-	Number of curve table polynomials (SRAM)				POWER ON
N02, N09					DWORD
-	-	0	-	-	1/1
<b>18406</b>	<b>MM_NUM_CURVE_TABS_DRAM</b>				M3
-	Number of curve tables (DRAM)				POWER ON
N02, N09					DWORD
-	-	0	-	-	1/1
<b>18408</b>	<b>MM_NUM_CURVE_SEGMENTS_DRAM</b>				M3
-	Number of curve segments (DRAM)				POWER ON
N02, N09					DWORD
-	-	0	-	-	1/1
<b>18409</b>	<b>MM_NUM_CURVE_SEG_LIN_DRAM</b>				-
-	Number of linear curve segments (DRAM)				POWER ON
N02, N09					DWORD
-	-	0	-	-	1/1
<b>18410</b>	<b>MM_NUM_CURVE_POLYNOMS_DRAM</b>				M3
-	Number of curve table polynomials (DRAM)				POWER ON
N02, N09					DWORD
-	-	0	-	-	1/1
<b>18500</b>	<b>MM_EXTCOM_TASK_STACK_SIZE</b>				S7
-	Stack size for external communications task (DRAM)				POWER ON
EXP, N02					DWORD

-	-	19	10	60	0/0
<b>18502</b>	<b>MM_COM_TASK_STACK_SIZE</b>				-
-	Stack size in KB for communication task (DRAM)				POWER ON
EXP, N02					DWORD
-	-	12	4	20	0/0
<b>18510</b>	<b>MM_SERVO_TASK_STACK_SIZE</b>				S7
-	Stack size of servo task (DRAM)				POWER ON
EXP, N02					DWORD
-	-	8	4	20	0/0
<b>18512</b>	<b>MM_IPO_TASK_STACK_SIZE</b>				-
-	Stack size of IPO task (DRAM)				POWER ON
EXP, C02					DWORD
-	-	24	12	40	0/0
<b>18520</b>	<b>MM_DRIVE_TASK_STACK_SIZE</b>				S7,ECO
-	Stack size of drive task (DRAM)				POWER ON
EXP, N02					DWORD
-	-	10	6	20	0/0
<b>18540</b>	<b>MM_PLC_TASK_STACK_SIZE</b>				-
-	Stack size of the PLC task (DRAM)				POWER ON
EXP, N02					DWORD
-	-	30	20	40	0/0
<b>18600</b>	<b>MM_FRAME_FINE_TRANS</b>				K2
-	Fine offset with FRAME (SRAM)				POWER ON
N02					DWORD
-	-	1	0	1	7/2
<b>18601</b>	<b>MM_NUM_GLOBAL_USER_FRAMES</b>				K2
-	Number of global predefined user frames (SRAM).				POWER ON
N02					DWORD
-	-	0	0	100	7/2
<b>18602</b>	<b>MM_NUM_GLOBAL_BASE_FRAMES</b>				K2
-	Number of global base frames (SRAM).				POWER ON
N02					DWORD
-	-	0	0	16	7/2
<b>18660</b>	<b>MM_NUM_SYNACT_GUD_REAL</b>				-
-	Configurable GUD variable type REAL				POWER ON
N02					DWORD
-	9	0,0,0,0,0,0,0,0,0	-	-	7/2
<b>18661</b>	<b>MM_NUM_SYNACT_GUD_INT</b>				-
-	Configurable GUD variable type integer				POWER ON
N02					DWORD

-	9	0,0,0,0,0,0,0,0,0	-	-	7/2
<b>18662</b>	<b>MM_NUM_SYNACT_GUD_BOOL</b>				-
-	Configurable GUD variable type Boolean				POWER ON
N02					DWORD
-	9	0,0,0,0,0,0,0,0,0	-	-	7/2
<b>18663</b>	<b>MM_NUM_SYNACT_GUD_AXIS</b>				-
-	Configurable GUD variable of type Axis				POWER ON
N02					DWORD
-	9	0,0,0,0,0,0,0,0,0	-	-	7/2
<b>18700</b>	<b>MM_SIZEOF_LINKVAR_DATA</b>				B3
-	Size of NCU-link variable memory				POWER ON
N02	LINK				DWORD
-	-	0	-	-	7/2
<b>18710</b>	<b>MM_NUM_AN_TIMER</b>				-
-	Number of global time variable for synchronized actions				POWER ON
N02					DWORD
-	-	0	0	10000	7/2
<b>18720</b>	<b>MM_SERVO_FIFO_SIZE</b>				-
-	Setpoint for buffer size between IPO and position contr.				POWER ON
EXP, N01					DWORD
-	-	2	2	35	3/2
<b>18780</b>	<b>MM_NCU_LINK_MASK</b>				B3
-	Activation of NCU-link communication				POWER ON
N01					DWORD
-	-	0	0	3	3/2
<b>18781</b>	<b>NCU_LINK_CONNECTIONS</b>				B3
-	Number of internal link connections				POWER ON
N01	LINK				DWORD
-	-	0	0	32	3/1
<b>18782</b>	<b>MM_LINK_NUM_OF_MODULES</b>				B3
-	Number of NCU-link modules				POWER ON
N01, N02					DWORD
-	-	2	2	16	3/2
<b>18790</b>	<b>MM_MAX_TRACE_LINK_POINTS</b>				B3
-	Trace data buffer size for NCU-Link				POWER ON
EXP, N02, N06	NBUP				DWORD
-	-	8	0	2000	2/2
<b>18792</b>	<b>MM_TRACE_LINK_DATA_FUNCTION</b>				B3
-	Specifies the contents of the NCU-link files				POWER ON
EXP, N02, N06	NBUP				DWORD

-	-	0	0	0x7FFFFFFF	2/2
<b>18794</b>	<b>MM_TRACE_VDI_SIGNAL</b>				-
-	Trace specification of VDI signals				POWER ON
EXP, N02, N06				NBUP	DWORD
-	-	0	0	0x7FFFFFFF	2/2
<b>18800</b>	<b>MM_EXTERN_LANGUAGE</b>				FBFA
-	Activation of external NC languages				POWER ON
N01, N12				-	DWORD
-	-	0x0000	0x0000	0x0001	7/2
<b>18860</b>	<b>MM_MAINTENANCE_MON</b>				-
-	Activation of maintenance data recording				POWER ON
EXP, N01				-	BOOLEAN
-	-	FALSE	-	-	7/2
<b>18880</b>	<b>MM_MAXNUM_KIN_CHAIN_ELEM</b>				-
-	Maximum number of elements in kinematic chains				POWER ON
EXP, N01				-	DWORD
-	-	0	-	-	7/2
<b>18890</b>	<b>MM_MAXNUM_PROT_AREA_ELEM</b>				-
-	Maximum number of elements in protection areas				POWER ON
EXP, N01				-	DWORD
-	-	0	-	-	7/2
<b>18900</b>	<b>FPU_ERROR_MODE</b>				-
-	System reaction to FPU calculation error				POWER ON
EXP				NBUP, NDLD	DWORD
-	-	0x1	-	-	0/0
<b>18910</b>	<b>FPU_CTRLWORD_INIT</b>				-
-	Basic initialization of FPU control word				POWER ON
EXP				NBUP, NDLD	DWORD
-	-	0x37F	-	-	0/0
<b>18920</b>	<b>FPU_EXEPTION_MASK</b>				-
-	Exception mask for FPU calculation errors				POWER ON
EXP				NBUP, NDLD	DWORD
-	-	0xD	-	-	0/0

## 2.6 Channel-specific machine data

The display of the machine data has been extended in SW Version 4 and higher. The options Display filters and Attributes have been newly introduced.

### Display filters

The quantity of machine data displayed on the operator panel can be limited to the machine data of interest by means of the display filters. Machine data are displayed on the operator panel if at least one of the filters indicated in the respective machine data has been activated by the user or if the mode "All machine data" has been set. The short descriptions of the filters indicated are used again in the operator interface for filter activation. They have the following meaning:

- C01 Configuration
- C02 Memory configuration
- C03 Basic settings
- C04 Auxiliary functions
- C05 Velocities
- C06 Monitoring / limitations
- C07 Transformations
- C08 Overrides / compensations
- C09 Technological functions
- C10 Standard machine
- C11 NC-Language ISO-Dialect
- EXP Expert mode

### Attributes

In some machine data, you will find short identifiers with the following meaning under attributes:

- NBUP No back-up: the data is not entered in data back-up
- ODL D Only download: the data can only be loaded from the file
- READ Read only: the data can only be read
- NDLD No download: the data cannot be loaded from the file
- SFCO Configuration safety integrated
- SCAL Scaling Alarm
- LINK Link description



- CTEQ Must be equal for all containers
- CTDE Container description

#### System

You will find the identifiers such as:  
iajc with the meaning i axes and j channels for example  
6a2c 6 axes, 2 channels.  
7x0-iajc represents solution line systems with  
x 1, 2, 3

#### Note

Machine data values which may differ according to the system used are listed in additional lines below the table header. In these cases, the fourth line is the standard assignment, the fifth line and any further lines contain differing values for the systems stated. The minus sign in a field means: The standard values stated in line 4 applies. The entry "-1" stated under protection means that there is no machine data for the system stated.

The fields of the machine data table elements are completed as follows:

Number	MD identifier				Cross reference
Unit	Name				Active
Display filters				Attributes	D type
System	Dimension	Standard value	Minimum value	Maximum value	Protect. Level

### 2.6.1 Basic channel machine data

<b>20000</b>	<b>CHAN_NAME</b>				<b>K1</b>
-	Channel name				POWER ON
C01, C10				-	STRING
-	-1	"CHAN1","CHAN2"," CHAN3","CHAN4"...	-	-	7/2

<b>20050</b>	<b>AXCONF_GEOAX_ASSIGN_TAB</b>				<b>K2</b>
-	Assignment of geometry axis to channel axis				POWER ON
C01, C10				-	BYTE
-	3	1, 2, 3, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	20	7/2
710-2a2c	-	0, 0, 0	-	-	-/-
840d-2a2c	-	0, 0, 0	-	-	-/-

<b>20060</b>	<b>AXCONF_GEOAX_NAME_TAB</b>				<b>K2</b>
-	Geometry axis name in channel				POWER ON
C01, C11, C10				-	STRING

-	3	"X", "Y", "Z", "X", "Y", "Z"...	-	-	7/2
---	---	------------------------------------	---	---	-----

<b>20070</b>	<b>AXCONF_MACHAX_USED</b>				K2
-	Machine axis number valid in channel				POWER ON
C01, C10					BYTE
-	20	1, 2, 3, 4, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	31	7/2
710-2a2c	2	1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	-	-	-/-
710-6a2c	-	1, 2, 3, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	-	-	-/-
840d-2a2c	2	1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	-	-	-/-
840d-4a1cg	4	-	-	-	-/-

<b>20080</b>	<b>AXCONF_CHANAX_NAME_TAB</b>				K2
-	Channel axis name in channel				POWER ON
C01, C11, C10					STRING
-	20	"X", "Y", "Z", "A", "B", "C", "U", "V", "X11", "Y11"...	-	-	7/2
710-2a2c	2	-	-	-	-/-
840d-2a2c	2	-	-	-	-/-
840d-4a1cg	4	-	-	-	-/-

<b>20090</b>	<b>SPIND_DEF_MASTER_SPIND</b>				S1
-	Initial setting of master spindle in channel				POWER ON
C01, C03					BYTE
-	-	1,1,1,1,1,1,1,1,1,1, 1,1,1,1,1	1	20	7/2

<b>20092</b>	<b>SPIND_ASSIGN_TAB_ENABLE</b>				S1
-	Enable/disable the spindle converter.				RESET
C01, C03, C10					BYTE
-	-	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	0	1	7/7

<b>20094</b>	<b>SPIND_RIGID_TAPPING_M_NR</b>				FBFA
-	M function for switching into controlled axis mode				POWER ON
C01, C03, C10					DWORD
-	-	70,70,70,70,70,70,7, 0 70,70,70,70,70,70...	-	-	7/2

<b>20095</b>	<b>EXTERN_RIGID_TAPPING_M_NR</b>				FBFA
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20096	T_M_ADDRESS_EXT_IS_SPINO				W1,FBW
	Meaning of address extension at T, M tool change				POWER ON
C01, C04, C09					BOOLEAN
		FALSE,FALSE,FAL S E,FALSE,FALSE,FA LSE...			7/2

20100	DIAMETER_AX_DEF				P1
-	Geometry axis with transverse axis function				POWER ON
C01, C10					STRING
-	-1		-	-	7/2

20107	PROG_EVENT_IGN_INHIBIT				-
	Prog-Events ignore read-in disable				POWER ON
N01					DWORD
	-	0x0,0x0,0x0,0x0,0x0	0	0x1F	7/2
		, 0x0,0x0,0x0,0x0...			

20108	PROG_EVENT_MASK				K1
-	Setting of event-driven programm calls				POWER ON
N01	-				DWORD
-	-	0x0.0x0.0x0.0x0.0x0	0	0xF	7/2

		, 0x0,0x0,0x0,0x0...			
--	--	----------------------	--	--	--

<b>20109</b>	<b>PROG_EVENT_MASK_PROPERTIES</b>				K1
-	Properties of Prog-Events				POWER ON
N01	-				DWORD
-	-	0x0,0x0,0x0,0x0,0x0 0 , 0x0,0x0,0x0,0x0...	0x1		7/2

<b>20110</b>	<b>RESET_MODE_MASK</b>				K1
-	Definition of basic control settings after reset/PP end				RESET
C11, C03	-				DWORD
-	-	0x0,0x0,0x0,0x0,0x0 0 , 0x0,0x0,0x0,0x0...	0x3FFFF		7/2
710-2a2c	-	0x1,0x1,0x1,0x1,0x1 , 0x1,0x1,0x1,0x1...	-		-/-
710-6a2c	-	0x1,0x1,0x1,0x1,0x1 , 0x1,0x1,0x1,0x1...	-		-/-
710-12a2c	-	0x1,0x1,0x1,0x1,0x1 , 0x1,0x1,0x1,0x1...	-		-/-
840di-basic	-	0x1,0x1,0x1,0x1,0x1 , 0x1,0x1,0x1,0x1...	-		-/-
840di-universal	-	0x1,0x1,0x1,0x1,0x1 , 0x1,0x1,0x1,0x1...	-		-/-
840di-plus	-	0x1,0x1,0x1,0x1,0x1 , 0x1,0x1,0x1,0x1...	-		-/-

<b>20112</b>	<b>START_MODE_MASK</b>				K1
-	Definition of basic control settings at NC Start				RESET
C03	-				DWORD
-	-	0x400,0x400,0x400, 0 0x400,0x400,0x400..	0x3FFFF		7/2

<b>20114</b>	<b>MODESWITCH_MASK</b>				K1
-	Interruption MDA by mode change				RESET
C03	-				DWORD
-	-	0x0,0x0,0x0,0x0,0x0 0 , 0x0,0x0,0x0,0x0...	0xFFFF		7/2

<b>20116</b>	<b>IGNORE_INHIBIT_ASUP</b>				K1
-	Execute interrupt program despite read-in disable				NEW CONF
C01	-				DWORD
-	-	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	-		7/2

<b>20117</b>	<b>IGNORE_SINGLEBLOCK_ASUP</b>				K1
-	Execute interrupt program completely despite single block				NEW CONF

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<b>20128</b>	<b>COLLECT_TOOL_CHANGE</b>				FBW,K1
-	Tool change commands to PLC after search run				POWER ON
C04					DWORD
-	-	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1	-	-	1/1

<b>20130</b>	<b>CUTTING_EDGE_RESET_VALUE</b>				K1
-	Tool edge with length compens. during runup (reset/end of pp)				RESET
C03					DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	0	32000	7/2

<b>20132</b>	<b>SUMCORR_RESET_VALUE</b>				W1
-	Effective resulting offset on RESET				RESET
C03					DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	0	6	7/2

<b>20140</b>	<b>TRAFO_RESET_VALUE</b>				K1
-	Transformation data block selected during runup (reset/pp end)				RESET
C03					BYTE
-	-	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	0	8	7/2

<b>20144</b>	<b>TRAFO_MODE_MASK</b>				-
-	Function selection of kin. transformation				RESET
C07					BYTE
-	-	0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0...	0	0x01	7/2

<b>20150</b>	<b>GCODE_RESET_VALUES</b>				K1,G2
-	Initial setting of G groups				RESET
C11, C03					BYTE
-	60	2, 0, 0, 1, 0, 1, 1, 1, 1, 0, 1, 0, 1, 2, 1, 2, 1, 1, 1, 1, 1, 1...	-	-	7/2

<b>20152</b>	<b>GCODE_RESET_MODE</b>				K1
-	Reset response of G groups				RESET
C03					BYTE
-	60	0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	1	7/2

<b>20154</b>	<b>EXTERN_GCODE_RESET_VALUES</b>				FBFA
-	Initial setting of G groups in ISO mode				RESET
C11, C03					BYTE

-	31	1, 1, 1, 2, 1, 1, 1, 3, 4, 1, 1, 2, 2, 1, 3, 2, 1, 0, 1, 1, 1...	-	-	2/2
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<b>20156</b>	<b>EXTERN_GCODE_RESET_MODE</b>				K1
-	Reset response of external G groups				RESET
C03					BYTE
-	31	0, 0...	0	1	7/2

<b>20160</b>	<b>CUBIC_SPLINE_BLOCKS</b>				K1
-	Number of blocks for C spline				POWER ON
EXP, C09					BYTE
-	-	8,8,8,8,8,8,8,8,8,8, 8,8,8,8,8	4	9	7/2

<b>20170</b>	<b>COMPRESS_BLOCK_PATH_LIMIT</b>				K1,PGA
mm	Maximum traversing distance of an NC block with compression				NEW CONF
C09					DOUBLE
-	-	1.0,1.0,1.0,1.0,1.0,1. 0,1.0,1.0,1.0...	-	-	7/2

<b>20172</b>	<b>COMPRESS_VELO_TOL</b>				V1,PGA
mm/min	Max. permissible deviation of path feedrate with compression				POWER ON
C09					DOUBLE
-	-	60000.0,60000.0,60 0 00.0,60000.0...	-	-	7/2

<b>20180</b>	<b>TOCARR_ROT_ANGLE_INCR</b>				W1
-	Rotary axis increment of orientable tool holder				NEW CONF
C08					DOUBLE
-	2	0.0, 0.0,0.0, 0.0,0.0, 0.0,0.0, 0.0...	-	-	7/3

<b>20182</b>	<b>TOCARR_ROT_ANGLE_OFFSET</b>				W1
-	Rotary axis offset of orientable tool holder				NEW CONF
C08					DOUBLE
-	2	0.0, 0.0,0.0, 0.0,0.0, 0.0,0.0, 0.0...	-	-	7/3

<b>20184</b>	<b>TOCARR_BASE_FRAME_NUMBER</b>				W1
-	Base frame number for holding machine table offset				NEW CONF
C08					DWORD
-	-	-1,-1,-1,-1,-1,-1,-1, 1,-1,-1,-1,-1,-1...	-1	15	7/3

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20260	PATH_IPO_IS_ON_TCP			-
	Velocity control with spline			POWER ON
EXP, C09, C05				BOOLEAN
		FALSE,FALSE,FAL S E,FALSE,FALSE,FA LSE		0/0

<b>20262</b>	<b>SPLINE_FEED_PRECISION</b>				-
-	Permissible rel. error of path velocity for spline				POWER ON
EXP, C09, C05				-	DOUBLE
-	-	0.001,0.001,0.001,0. 001.0.001.0.001...	0.000001	1.0	0/0

<b>20270</b>	<b>CUTTING_EDGE_DEFAULT</b>				W1
-	Initial position of tool cutting edge without programming				POWER ON
C11, C03				-	DWORD
-	-	1,1,1,1,1,1,1,1,1,1, 1,1,1,1,1	-2	32000	7/2

20272	SUMCORR_DEFAULT					W1
-	Initial position resulting offset without program					POWER ON
C03					-	DWORD
	-	0,0,0,0,0,0,0,0,0,0,-1 0,0,0,0,0	-1	6	7/2	

<b>20310</b>	<b>TOOL_MANAGEMENT_MASK</b>				<b>FBW</b>
-	Activation of tool management functions				<b>POWER ON</b>
C09				-	<b>DWORD</b>
-	-	0x0,0x0,0x0,0x0,0x0,0x0	0	0xFFFFFFFF	7/2
		, 0x0,0x0,0x0,0x0...			

20320	TOOL_TIME_MONITOR_MASK				FBW
-	Time monitoring for tool in tool holder				POWER ON
C06, C09				-	DWORD
-	-	0x0,0x0,0x0,0x0,0x0	-	-	7/2
		, 0x0.0x0.0x0.0x0...			

20350	TOOL_GRIND_AUTO_TMON				W4
	Activation of tool monitoring. 0/1: Monitoring off/on				POWER ON
C06, C09				-	BYTE
	-	0,0,0,0,0,0,0,0,0,0,0	0	1	7/2
		0,0,0,0,0			

<b>20360</b>	<b>TOOL_PARAMETER_DEF_MASK</b>			W1
-	Definition of tool parameters			POWER ON
C09	-			DWORD
-	-	0x0,0x0,0x0,0x0,0x0,0x0 0x0,0x0,0x0,0x0,0x0...	0 0xFFFF	7/2

20370	SHAPED_TOOL_TYPE_NO					-
	Tool type number for contour tools					IMMEDIATELY
C01, C08						DWORD
	4	0, 0, 0, 0, 0, 0, 0, 0, 0,	-			7/2
		0, 0, 0...				

20372	SHAPED_TOOL_CHECKSUM				-
	Checksum test for contour tools				IMMEDIATELY
C01, C08				-	BOOLEAN
		FALSE,FALSE,FALS S E,FALSE,FALSE,FA LSE...	-	-	7/5

20380	TOOL_CORR_MODE_G43G44				FBFA
-	Treatment of tool length compensation with G43 / G44				RESET
C01, C08, C11				-	BYTE
-	-	0,0,0,0,0,0,0,0,0,0,0	0	2	7/2
		0,0,0,0,0			

20382	TOOL_CORR_MOVE_MODE				FBFA
-	Traversing of tool length compensation				RESET
C01, C08				-	BOOLEAN
-	-	FALSE,FALSE,FALS S E,FALSE,FALSE,FA LSE...	-	-	7/2

20384	TOOL_CORR_MULTIPLE_AXES				FBFA
	Tool length compensation in several axes simultaneously				RESET
C01, C08, C11					BOOLEAN
		TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...			7/2

20390	TOOL_TEMP_COMP_ON				W1
-	Activation of temperature compensation for tool length				RESET
C01, C08				-	BOOLEAN
-	-	FALSE,FALSE,FALS S E,FALSE,FALSE,FA LSE...	-	-	7/2

20392	TOOL_TEMP_COMP_LIMIT				W1,BAS,PG
mm	Max. temperature compensation for tool length				RESET
C01, C08				-	DOUBLE
-	3	1.0, 1.0 , 1.0,1.0, 1.0 , 1.0...	-	-	7/7

20396	TOOL_OFFSET_DRF_ON				W1
-	Handwheel override in tool direction				RESET
C01, C08				-	BOOLEAN
-	-	FALSE.FALSE.FAL	-	-	7/2

		S E,FALSE,FALSE,FA LSE...			
710-2a2c	-	-	-	-	-1/-
710-6a2c	-	-	-	-	-1/-
710-12a2c	-	-	-	-	-1/-
840d-2a2c	-	-	-	-	-1/-
840d-4a1cg	-	-	-	-	-1/-
840d-6a2c	-	-	-	-	-1/-
840d-12a2c	-	-	-	-	-1/-
840d-31a10c	-	-	-	-	-1/-
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>20400</b>	<b>LOOKAH_USE_VELO_NEXT_BLOCK</b>				B1
-	LookAhead following block velocity				POWER ON
EXP, C05					BOOLEAN
-	-	TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...	-	-	7/2

<b>20430</b>	<b>LOOKAH_NUM_OVR_POINTS</b>				B1
-	Number of override characteristics for LookAhead				POWER ON
EXP, C02, C05					DWORD
-	-	1,1,1,1,1,1,1,1,1,1, 1,1,1,1,1	0	2	7/2

<b>20440</b>	<b>LOOKAH_OVR_POINTS</b>				B1
-	Override switch points for Look Ahead				POWER ON
EXP, C05					DOUBLE
-	2	1.0, 0.2,1.0, 0.2,1.0, 0.2,1.0, 0.2...	0.2	2.0	7/2

<b>20450</b>	<b>LOOKAH_RELIEVE_BLOCK_CYCLE</b>				B1
-	Relief factor for block cycle time				POWER ON
EXP, C05					DOUBLE
-	-	0.0,0.0,0.0,0.0,0.0, 0.0,0.0,0.0,0.0...	-	-	7/2

<b>20455</b>	<b>LOOKAH_FUNCTION_MASK</b>				FBSI
-	Look Ahead special functions				NEW CONF
EXP, C05					BYTE
-	-	1,1,1,1,1,1,1,1,1,1, 1,1,1,1,1	0	1	7/2

<b>20460</b>	<b>LOOKAH_SMOOTH_FACTOR</b>				B1
--------------	-----------------------------	--	--	--	----

%	Smoothing factor for Look Ahead				NEW CONF
EXP, C05					DOUBLE
-	-	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0...	0.	500.0	7/2
<b>20462</b>	<b>LOOKAH_SMOOTH_WITH_FEED</b>				B1
-	Path velocity smoothing with programmed feed				NEW CONF
EXP, C05					BOOLEAN
-	-	TRUE,TRUE,TRUE,TRUE,TRUE,TRUE,TRUE,TRUE...	-	-	7/2
<b>20464</b>	<b>PATH_MODE_MASK</b>				-
-	Path behavior				RESET
EXP, C05					DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	0	0xffff	7/2
<b>20465</b>	<b>ADAPT_PATH_DYNAMIC</b>				B1
-	Adaptation of path dynamic response				NEW CONF
EXP, C05					DOUBLE
-	2	1.0, 1.0,1.0, 1.0,1.0, 1.0,1.0, 1.0...	1.0	100.0	7/2
<b>20470</b>	<b>CPREC_WITH_FFW</b>				K6,B1
-	Programmable contour accuracy				POWER ON
EXP, C06, C05					BOOLEAN
-	-	FALSE,FALSE,FALSE,FALSE,FALSE,FALSE,FALSE...	-	-	7/2
<b>20480</b>	<b>SMOOTHING_MODE</b>				B1
-	Behavior of smoothing with G64x				NEW CONF
EXP					DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	0	15344	7/7
<b>20482</b>	<b>COMPRESSOR_MODE</b>				F2,PGA
-	Mode of compressor				NEW CONF
EXP					BYTE
-	-	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	0	33	7/7
<b>20484</b>	<b>COMPRESSOR_PERFORMANCE</b>				PGA
-	Compressor power				RESET
EXP					BYTE

20603	CURV_EFFECT_ON_PATH_JERK	B1
-	Effect of path curvature on path jerk	NEW CONF
EXP, C05	-	DOUBLE

-	5	0., 0., 0., 0., 0., 0., 0., 0., 0.	0.	1000.	7/2
		0., 0., 0....			

<b>20610</b>	<b>ADD_MOVE_ACCEL_RESERVE</b>				K1,B1,B2
-	Acceleration margin for overlaid movements				POWER ON
C05					DOUBLE
-	-	.2,.2,.2,.2,.2,.2,.2,.2.	0.	0.9	7/2
		2,.2,.2,.2...			

<b>20620</b>	<b>HANDWH_GEOAX_MAX_INCR_SIZE</b>				H1
mm	Limitation handwheel increment for geometry axes				POWER ON
C08, C06					DOUBLE
-	-	0.0,0.0,0.0,0.0,0.0,0.0.	-	-	7/2
		0,0.0,0.0,0.0...			

<b>20621</b>	<b>HANDWH_ORIAX_MAX_INCR_SIZE</b>				F2
degrees	Limiting of handwheel increment for orientation axes				POWER ON
C08, C06					DOUBLE
-	-	0.0,0.0,0.0,0.0,0.0,0.0.	-	-	7/2
		0,0.0,0.0,0.0...			

<b>20622</b>	<b>HANDWH_GEOAX_MAX_INCR_VSIZE</b>				H1
mm/min	Path velocity override				POWER ON
C08, C06, C05					DOUBLE
-	-	500.,500.,500.,500.,	-	-	7/2
		5 00.,500.,500....			

<b>20623</b>	<b>HANDWH_ORIAX_MAX_INCR_VSIZE</b>				F2
rev/min	Orientation velocity overlay				POWER ON
C08, C06, C05					DOUBLE
-	-	0.1,0.1,0.1,0.1,0.1,0.	-	-	7/2
		1,0.1,0.1,0.1...			

<b>20624</b>	<b>HANDWH_CHAN_STOP_COND</b>				H1
-	Definition of response of handwheel travel, channel-specific				POWER ON
EXP, C09					DWORD
-	-	0x13FF,0x13FF,0x1 0	0x13FF,0x13FF,0x13FF	0xFFFF	7/2
		3FF,0x13FF,0x13FF	...		

<b>20700</b>	<b>REFP_NC_START_LOCK</b>				R1
-	NC start disable without reference point				RESET
C01, C03					BOOLEAN
-	-	TRUE,TRUE,TRUE,	-	-	7/2
		TRUE,TRUE,TRUE,			
		TRUE...			

<b>20730</b>	<b>G0_LINEAR_MODE</b>	P2
-	G0 interpolation mode	POWER ON
C09	-	BOOLEAN
-	TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...	7/2

<b>20732</b>	<b>EXTERN_G0_LINEAR_MODE</b>	P2
-	G00 interpolation mode	POWER ON
N12	-	BOOLEAN
-	TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...	7/2

<b>20734</b>	<b>EXTERN_FUNCTION_MASK</b>	FBFA
-	Function mask for external language	RESET
N12	-	DWORD
-	0,0,0,0,0,0,0,0,0,0,0 0,0,0,0,0	0xFFFF 7/2

<b>20750</b>	<b>ALLOW_G0_IN_G96</b>	V1
-	G0 logic with G96	POWER ON
C09, C05	-	BOOLEAN
-	TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...	7/2

<b>20800</b>	<b>SPF_END_TO_VDI</b>	H2
-	End of subroutine to PLC	POWER ON
C04, C03	-	BYTE
-	1,1,1,1,1,1,1,1,1,1, 1,1,1,1,1	7/2

<b>20850</b>	<b>SPOS_TO_VDI</b>	S1
-	Output of M19 to PLC on SPOS/SPOSA	POWER ON
C04, C03	-	BYTE
-	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	7/2

<b>20900</b>	<b>CTAB_ENABLE_NO_LEADMOTION</b>	M3
-	Curve tables with jump of slave axis	RESET
EXP	-	BYTE
-	0,0,0,0,0,0,0,0,0,0,0 0,0,0,0,0	2 7/2

<b>20905</b>	<b>CTAB_DEFAULT_MEMORY_TYPE</b>	M3
-	Default memory type for curve tables	RESET



21060	CONTOUR_TUNNEL_REACTION	F2
-	Reaction when contour tunnel monitoring responds	POWER ON
C06	-	BYTE

21100	ORIENTATION_IS_EULER	F2
-	Angle definition for orientation programming	NEW CONF

C01, C09				-	BOOLEAN
-	-	TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...	-	-	7/7
<b>21102</b>	<b>ORI_DEF_WITH_G_CODE</b>				F2
-	Def. of ORI axes with G code				RESET
C01, C07				-	BOOLEAN
-	-	FALSE,FALSE,FAL S E,FALSE,FALSE,FA LSE...	-	-	7/2
<b>21104</b>	<b>ORI_IPO_WITH_G_CODE</b>				F2
-	G code for orientation interpolation				RESET
C01, C07				-	BOOLEAN
-	-	FALSE,FALSE,FAL S E,FALSE,FALSE,FA LSE...	-	-	7/2
<b>21106</b>	<b>CART_JOG_SYSTEM</b>				H1
-	Coordinate systems for Cartesian JOG				POWER ON
C01, C07				-	DWORD
-	-	0,0,0,0,0,0,0,0,0,0 0,0,0,0,0	0	7	7/2
<b>21108</b>	<b>POLE_ORI_MODE</b>				F2
-	Great circle interpolation mode in pole position				NEW CONF
C07				-	DWORD
-	-	0,0,0,0,0,0,0,0,0,0 0,0,0,0,0	0	22	7/7
<b>21110</b>	<b>X_AXIS_IN_OLD_X_Z_PLANE</b>				M1
-	Coordinate system for automatic frame definition				POWER ON
EXP, C01, C09				-	BOOLEAN
-	-	TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...	-	-	7/7
<b>21120</b>	<b>ORIAX_TURN_TAB_1</b>				F2
-	Definition of reference axes for orientation axes				RESET
C07				-	BYTE
-	3	1, 2, 3,1, 2, 3,1, 2, 3,1, 2, 3...	0	3	7/2
<b>21130</b>	<b>ORIAX_TURN_TAB_2</b>				F2

-	Definition of reference axes for orientation axes				RESET
C07					BYTE
-	3	1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3...	0	3	7/2

<b>21150</b>	<b>JOG_VELO_RAPID_ORI</b>				-
rev/min	JOG rapid traverse for orientation axes				RESET
C07					DOUBLE
-	3	10.0, 10.0, 10.0, 10.0, 10.0, 10.0...	-	-	7/2

<b>21155</b>	<b>JOG_VELO_ORI</b>				-
rev/min	JOG ORI axis velocity				RESET
C07					DOUBLE
-	3	2.0, 2.0, 2.0, 2.0, 2.0, 2.0...	-	-	7/2

<b>21160</b>	<b>JOG_VELO_RAPID_GEO</b>				F2
mm/min	JOG rapid traverse for GEO axes				RESET
C07					DOUBLE
-	3	10000., 10000.0, 10000., 10000., 10000.0, 10000....	-	-	7/2

<b>21165</b>	<b>JOG_VELO_GEO</b>				F2
mm/min	JOG GEO axis velocity				RESET
C07					DOUBLE
-	3	1000., 1000., 1000., 1000., 1000., 1000....	-	-	7/2

<b>21170</b>	<b>ACCEL_ORI</b>				-
rev/s <sup>2</sup>	Acceleration for ORI axes				NEW CONF
C07					DOUBLE
-	3	.05, .05, .05, .05, .05, .05...	-	-	7/2

<b>21180</b>	<b>ROT_AX_SWL_CHECK_MODE</b>				F2
-	Check of software limits for ori. axes				IMMEDIATELY
C07					DWORD
-	-	0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0	0	2	7/2

<b>21186</b>	<b>TOCARR_ROT_OFFSET_FROM_FR</b>				-
-	Offset of TOCARR rotary axes from WO				IMMEDIATELY
C01, C07					BOOLEAN

-	-	FALSE,FALSE,FALS	-	-	7/2
		E,FALSE,FALSE,FA			
		LSE...			

<b>21190</b>	<b>TOFF_MODE</b>				F2
-	Mode of correction in tool direction				RESET
C08					BYTE
-	-	0,0,0,0,0,0,0,0,0,0,	-	-	7/2
		0,0,0,0,0			

<b>21194</b>	<b>TOFF_VELO</b>				F2
mm/min	Feedrate for online correction in tool dir.				NEW CONF
C08					DOUBLE
-	3	0., 0., 0.,0., 0., 0.,0.,	-	-	7/2
		0., 0....			

<b>21196</b>	<b>TOFF_ACCEL</b>				F2
m/s <sup>2</sup>	Acceleration for online correction in tool dir.				NEW CONF
C08					DOUBLE
-	3	100., 100.,	1.0e-3	-	7/2
		100.,100., 100.,			
		100....			

<b>21200</b>	<b>LIFTFAST_DIST</b>				K1
mm	Traversing distance on rapid lift from contour				POWER ON
C09					DOUBLE
-	-	0.1,0.1,0.1,0.1,0.1,0.	-	-	7/2
		1,0.1,0.1,0.1...			

<b>21202</b>	<b>LIFTFAST_WITH_MIRROR</b>				K1
-	Rapid retract with mirroring				POWER ON
C09					BOOLEAN
-	-	FALSE,FALSE,FALS	-	-	7/2
		E,FALSE,FALSE,FA			
		LSE...			

<b>21204</b>	<b>LIFTFAST_STOP_COND</b>				PGA
-	Stop behavior with fast retraction				NEW CONF
C09					DWORD
-	-	0,0,0,0,0,0,0,0,0,0,	-	-	7/2
		0,0,0,0,0			

<b>21210</b>	<b>SETINT_ASSIGN_FASTIN</b>				K1
-	HW assignment of ext. NCK input byte for NC progr. interrupts				POWER ON
C01, C09					DWORD

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C09					BOOLEAN
		FALSE,FALSE,FAL S E,FALSE,FALSE,FA LSE...			7/2

21380	ESR_DELAY_TIME1				M3
s	Delay time ESR axes				NEW CONF
EXP, N09					DOUBLE
-	-	0.0,0.0,0.0,0.0,0.0,0.	-	-	7/2
		0.0,0.0,0.0,0.0...			

21381	ESR_DELAY_TIME2				M3
s	ESR time for IPO controlled braking				NEW CONF
EXP, N09					DOUBLE
-	-	0.0,0.0,0.0,0.0,0.0,0.0,	-	-	7/2
		0.0,0.0,0.0,0.0...			

### 2.6.2 Machine data for grinding function

<b>21500</b>	<b>TRACLG_GRINDSPI_VERT_OFFSET</b>		S8
mm	Vertical position offset of grinding axis in centerless grinding		POWER ON
C07			DOUBLE
-	-	0.,0.,0.,0.,0.,0.,0.,0., -	7/2
		0 ..0..0..0....	

<b>21501</b>	<b>TRACLG_GRINDSPI_HOR_OFFSET</b>				S8
mm	Horiz. position offset of grinding axis in centerless grinding				POWER ON
C07					DOUBLE
-	-	0..0..0..0..0..0..0..,	-	-	7/2
		0 ..0..0..0....			

<b>21502</b>	<b>TRACLG_CTRLSPI_VERT_OFFSET</b>				S8
mm	Vert. position offset of regulating axis in centerless grinding				POWER ON
C07					DOUBLE
	-	0.,0.,0.,0.,0.,0.,0.,0.,	-		7/2
		0 ..0..0..0..0....			

21504	TRACLG_SUPPORT_VERT_OFFSET			S8
mm	Vertical offset of work blade in centerless grinding			POWER ON
C07				DOUBLE
		0,0.,0.,0.,0.,0.,0.,0.,		7/2
		0 ..0.,0.,0.,0.,0.,		

21506	TRACLG_SUPPORT_HOR_OFFSET	S8
mm	Horizontal offset of work blade in centerless grinding	POWER ON
C07	-	DOUBLE

-	-	0.,0.,0.,0.,0.,0.,0.,0.,	-	-	7/2
		0.,0.,0.,0.,0....			

<b>21508</b>	<b>TRACLG_VERT_DIR_SUPPORTAX_1</b>				S8
-	Vertical component of work blade direction vector for Q1				POWER ON
C07					DOUBLE
-	-	1.,1.,1.,1.,1.,1.,1.,1.,	-	-	7/2
		1.,1.,1.,1.,1....			

<b>21510</b>	<b>TRACLG_HOR_DIR_SUPPORTAX_1</b>				S8
-	Horizontal component of work blade direction vector for Q1				POWER ON
C07					DOUBLE
-	-	0.,0.,0.,0.,0.,0.,0.,0.,	-	-	7/2
		0.,0.,0.,0.,0....			

<b>21512</b>	<b>TRACLG_VERT_DIR_SUPPORTAX_2</b>				S8
-	Vertical component of work blade direction vector for Q2				POWER ON
C07					DOUBLE
-	-	0.,0.,0.,0.,0.,0.,0.,0.,	-	-	7/2
		0.,0.,0.,0.,0....			

<b>21514</b>	<b>TRACLG_HOR_DIR_SUPPORTAX_2</b>				S8
-	Horizontal component of work blade direction vector for Q2				POWER ON
C07					DOUBLE
-	-	1.,1.,1.,1.,1.,1.,1.,1.,	-	-	7/2
		1.,1.,1.,1.,1....			

<b>21516</b>	<b>TRACLG_SUPPORT_LEAD_ANGLE</b>				S8
degrees	Lead angle of work blade in centerless grinding				POWER ON
C07					DOUBLE
-	-	0.,0.,0.,0.,0.,0.,0.,0.,	-90.	90.	7/2
		0.,0.,0.,0.,0....			

<b>21518</b>	<b>TRACLG_CONTACT_UPPER_LIMIT</b>				S8
mm	Upper contact limit of work blade with work in centerl. grinding				POWER ON
C07					DOUBLE
-	-	0.,0.,0.,0.,0.,0.,0.,0.,	-	-	7/2
		0.,0.,0.,0.,0....			

<b>21520</b>	<b>TRACLG_CONTACT_LOWER_LIMIT</b>				S8
mm	Lower contact limit of work blade with work in centerl. grinding				POWER ON
C07					DOUBLE
-	-	0.,0.,0.,0.,0.,0.,0.,0.,	-	-	7/2
		0.,0.,0.,0.,0....			

<b>21522</b>	<b>TRACLG_GRINDSPI_NR</b>				S8
-	Definition of grinding spindle for centerless grinding				POWER ON



21526	TRACLG_G0_IS_SPECIAL				S8
	Special logic for G0 in centerless grinding				POWER ON
C07					BOOLEAN
		TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...			7/2

### 2.6.3 Channel auxiliary function settings

22030	AUXFU_ASSIGN_VALUE				H2
	Auxiliary function value				POWER ON
C04					DWORD
	255	0, 0...			7/2

<b>22035</b>	<b>AUXFU_ASSIGN_SPEC</b>				H2
-	Output specification				POWER ON
C04					DWORD
-	255	0, 0...	-	-	7/2

<b>22040</b>	<b>AUXFU_PREDEF_GROUP</b>				H2
-	Predefined auxiliary function groups				POWER ON
C04					BYTE
-	33	1, 1, 1, 1, 1, 1, 2, 2, 2, 2, 2, 4, 4, 4, 4, 4, 4, 3, 1, 1, 1...	0	64	7/2

<b>22050</b>	<b>AUXFU_PREDEF_TYPE</b>				H2
-	Predefined auxiliary function type				POWER ON
C04					STRING
-	33	"M", "M", "M", "M", "M", "M", "M", "M", "M", "M", "M", "M", "M"...	-	-	7/2

<b>22060</b>	<b>AUXFU_PREDEF_EXTENSION</b>				H2
-	Predefined auxiliary function extension				POWER ON
C04					BYTE
-	33	0, 0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 0, 0...	0	99	7/2

<b>22070</b>	<b>AUXFU_PREDEF_VALUE</b>				H2
-	Predefined auxiliary function value				POWER ON
C04					DWORD
-	33	0, 1, 2, 17, 30, 6, 3, 4, 5, 19, 70, 40, 41, 42, 43, 44, 45, -1...	-	-	7/2

<b>22080</b>	<b>AUXFU_PREDEF_SPEC</b>				H2
-	Output specification				POWER ON
C04					DWORD
-	33	0x81, 0x81, 0x81, 0x81, 0x81, 0x21, 0x21, 0x21, 0x21, 0x21, 0x21...	-	-	7/2

<b>22100</b>	<b>AUXFU_QUICK_BLOCKCHANGE</b>				H2
-	Block change delay with quick auxiliary functions.				POWER ON
C04					DWORD

22252	AUXFU_DL_SYNC_TYPE	H2
-	Output time of DL functions	POWER ON

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-	Send G commands of an external NC language to PLC				POWER ON
C11, C04	-				BYTE
-	8	0, 0, 0, 0, 0, 0, 0, 0, 0,0, 0, 0, 0, 0, 0, 0, 0...	-	-	7/2
<b>22515</b>	<b>GCODE_GROUPS_TO_PLC_MODE</b>				-
-	Behavior of G group transfer to PLC				POWER ON
C04	-				DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0,0,0,0 0,0,0,0,0	0	1	7/2
<b>22530</b>	<b>TOCARR_CHANGE_M_CODE</b>				W1
-	M code at change of tool holder				POWER ON
C04	-				DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0,0,0,0 0,0,0,0,0	-99999999	99999999	7/2
<b>22532</b>	<b>GEOAX_CHANGE_M_CODE</b>				K2
-	M code at change of geo axes				POWER ON
C04	-				DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0,0,0,0 0,0,0,0,0	0	99999999	7/2
<b>22534</b>	<b>TRAFO_CHANGE_M_CODE</b>				M1
-	M code at change of transformation				POWER ON
C04	-				DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0,0,0,0 0,0,0,0,0	0	99999999	7/2
<b>22550</b>	<b>TOOL_CHANGE_MODE</b>				W1
-	New tool compensation for M function				POWER ON
C01, C11, C04, C09	-				BYTE
-	-	0,0,0,0,0,0,0,0,0,0,0,0,0,0 0,0,0,0,0	0	1	7/2
<b>22560</b>	<b>TOOL_CHANGE_M_CODE</b>				W1
-	M function for tool change				POWER ON
C01, C04, C09	-				DWORD
-	-	6,6,6,6,6,6,6,6,6,6,6,6,6,6 6,6,6,6,6	0	99999999	7/2
<b>22562</b>	<b>TOOL_CHANGE_ERROR_MODE</b>				W1
-	Response to tool change errors				POWER ON
C09	-				DWORD
-	-	0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0 0x0,0x0,0x0,0x0,0x0...	0	0xFF	7/2

<b>22600</b>	<b>SERUPRO_SPEED_MODE</b>				K1
-	Speed for block search run type 5				IMMEDIATELY
EXP					DWORD
-	-	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1	-	-	2/2

<b>22601</b>	<b>SERUPRO_SPEED_FACTOR</b>				K1
-	Speed factor for search run type 5				IMMEDIATELY
EXP					DOUBLE
-	-	10.0,10.0,10.0,10.0,10.0,10.0,10.0,10.0,10.0,10.0,10.0,10.0,10.0,10.0,10.0,10.0,10.0,10.0,10.0,10.0	1.0	-	2/2

<b>22620</b>	<b>START_MODE_MASK_PRT</b>				K1
-	Initial setting on special starts				RESET
EXP, C03					DWORD
-	-	0x400,0x400	0	0xFFFF	7/2

<b>22621</b>	<b>ENABLE_START_MODE_MASK_PRT</b>				K1
-	Enables \$MC_START_MODE_MASK_PRT				RESET
EXP, C03					DWORD
-	-	0x0,0x0	0	0x1	7/2

<b>22622</b>	<b>DISABLE_PLC_START</b>				-
-	Enable part program start via PLC				POWER ON
EXP					DWORD
-	-	0x0,0x0	-	-	2/2

<b>22680</b>	<b>AUTO_IPTR_LOCK</b>				-
-	Disable interrupt pointer				RESET
EXP, C03					DWORD
-	-	0x0,0x0	0	0x3	7/2

<b>22700</b>	<b>TRACE_STARTTRACE_EVENT</b>				BA,S5,FBSY
-	Diagnostic data rec. starts with event TRACE_STARTTRACE_EVENT				POWER ON
EXP, C06					NBUP
-	-1		-	-	2/2

<b>22702</b>	<b>TRACE_STARTTRACE_STEP</b>				BA,S5,FBSY
-	Conditions for start of trace recording				POWER ON
EXP, C06					NBUP
-	2	<pre> 0000 0000 0000 0000 0000 0000 0000 0000  3 3 3 3 3 3 3 3 0000 0000  3 3  ... </pre>	-	-	2/2

<b>22704</b>	<b>TRACE_STOPTRACE_EVENT</b>				BA,S5,FBSY
-	Conditions for stop of trace recording				POWER ON
EXP, C06				NBUP	STRING
-	-1	"CLEARCANCELALARM_M","CLEARCANCELALARM_M"...	-	-	2/2
<b>22706</b>	<b>TRACE_STOPTRACE_STEP</b>				BA,S5,FBSY
-	CommandSequenzStep with which the recording ends				POWER ON
EXP, C06				NBUP	STRING
-	2	"" "" "" "" "" "" "" "" " " " " " " " " " " "" "" "" "" "" "" "" "" " " " " " " " " " " "" "" "" "" "" "" "" "" " " " " " " " " " "	-	-	2/2
<b>22708</b>	<b>TRACE_SCOPE_MASK</b>				BA,S5,FBSY
-	Selects the contents of the trace file				POWER ON
EXP, C06				NBUP	STRING
-	-1		-	-	2/2
<b>22710</b>	<b>TRACE_VARIABLE_NAME</b>				BA,S5,FBSY
-	Definition of trace data				POWER ON
				NBUP	STRING
-	10	"BL_NR", "TR_POINT", "EV_TYPE", "EV_SRC", "CS_ASTEP"...	-	-	2/2
<b>22712</b>	<b>TRACE_VARIABLE_INDEX</b>				BA,S5,FBSY
-	Index for trace recording data				POWER ON
EXP, C06				NBUP	DWORD
-	10	0x0, 0x0, 0x0, 0x0, 0x0, 0x0, 0x0, 0x0, 0x0, 0x0...	0	0xFFFF	2/2
<b>22714</b>	<b>MM_TRACE_DATA_FUNCTION</b>				BA,S5,FBSY
-	Activating diagnostics				POWER ON
EXP, C02, C06				NBUP	DWORD
-	-	0x0,0x0,0x0,0x0,0x0,0 , 0x0,0x0,0x0,0x0...	0	0xFFFF	2/2
<b>22800</b>	<b>TRACE_COMPRESSOR_OUTPUT</b>				D1
-	Activation of trace output for compressor				POWER ON
EXP, C01				NBUP	BYTE
-	-	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	-	-	0/0

22900	STROKE_CHECK_INSIDE				FBFA
-	Direction (inside/outside) in which prot. zone 3 is effective				POWER ON
EXP, C01, C11				-	BOOLEAN
-	-	FALSE,FALSE,FALS S E,FALSE,FALSE,FA LSE...	-	-	7/2

22910	WEIGHTING_FACTOR_FOR_SCALE				FBFA
-	Input resolution for scaling factor				POWER ON
EXP, C01, C11				-	BOOLEAN
-	-	FALSE,FALSE,FALS S E,FALSE,FALSE,FA LSE...	-	-	7/2

22914	AXES_SCALE_ENABLE				FBFA
	Activation for axial scaling factor ( G51 )				POWER ON
EXP, C01, C11					BOOLEAN
		FALSE,FALSE,FALS S E,FALSE,FALSE,FA LSE...			7/2

22920	EXTERN_FIXED_FEEDRATE_F1_ON				FBFA
Activation of fixed feedrates F1 - F9					POWER ON
EXP, C01, C11					BOOLEAN
		FALSE,FALSE,FALS			7/2
		S			
		E,FALSE,FALSE,FA			
		LSE...			

22930	EXTERN_PARALLEL_GEOAX				FBFA
-	Assignment of a parallel channel axis to the geometry axis				POWER ON
EXP, C01, C11				-	BYTE
-	3	0, 0, 0,0, 0, 0,0, 0, 0,0, 0, 0...	0	20	7/2

24000	FRAME_ADD_COMPONENTS				K2
	Frame components for G58 and G59				POWER ON
C03					BOOLEAN
		FALSE,FALSE,FALS S E,FALSE,FALSE,FA LSE...			7/7

<b>24002</b>	<b>CHBFRAME_RESET_MASK</b>				K2
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-	Active channel-specific base frames after reset				RESET
C03					DWORD
-	-	0xFFFF,0xFFFF,0xF0 FFF,0xFFFF,0xFFFF F...	0	0xFFFF	7/2
<b>24004</b>	<b>CHBFRAME_POWERON_MASK</b>				FBFA
-	Reset channel-specific base frames after power on				POWER ON
C03					DWORD
-	-	0x0,0x0,0x0,0x0,0x0 , 0x0,0x0,0x0,0x0...	0	0xFFFF	7/2
<b>24006</b>	<b>CHSFRAME_RESET_MASK</b>				K2
-	Active system frames after reset				RESET
C03					DWORD
-	-	0x1,0x1,0x1,0x1,0x1 , 0x1,0x1,0x1,0x1...	0	0x0000007F	7/2
<b>24007</b>	<b>CHSFRAME_RESET_CLEAR_MASK</b>				-
-	Deletion of system frames after reset				RESET
C03					DWORD
-	-	0x0,0x0,0x0,0x0,0x0 , 0x0,0x0,0x0,0x0...	0	0x0000007F	7/2
<b>24008</b>	<b>CHSFRAME_POWERON_MASK</b>				K2
-	Reset channel system frames after power on				POWER ON
C03					DWORD
-	-	0x0,0x0,0x0,0x0,0x0 , 0x0,0x0,0x0,0x0...	0	0x0000007F	7/2
<b>24010</b>	<b>PFRAME_RESET_MODE</b>				K2
-	Reset mode for programmable frame				POWER ON
C03					DWORD
-	-	0,0,0,0,0,0,0,0,0,0 0,0,0,0,0	0	1	7/2
<b>24020</b>	<b>FRAME_SUPPRESS_MODE</b>				K2
-	Positions for frame suppression				POWER ON
C03					DWORD
-	-	0x0,0x0,0x0,0x0,0x0 , 0x0,0x0,0x0,0x0...	0	0x00000003	7/2
<b>24030</b>	<b>FRAME_ACS_SET</b>				K2
-	Adjustment of SZS coordinate system				POWER ON
C03					DWORD
-	-	0,0,0,0,0,0,0,0,0,0 0,0,0,0,0	0	1	7/2

<b>24040</b>	<b>FRAME_ADAPT_MODE</b>				-
-	Adaptation of active frames				POWER ON
C03					DWORD
-	-	0x0,0x0,0x0,0x0,0x0,0x0 , 0x0,0x0,0x0,0x0...	0	0x0000007	7/2

<b>24050</b>	<b>FRAME_SAA_MODE</b>				-
-	Save and activate data management frames				POWER ON
C03					DWORD
-	-	0x0,0x0,0x0,0x0,0x0,0x0 , 0x0,0x0,0x0,0x0...	0	0x0000003	7/2

### 2.6.4 Transformation definitions in channel

<b>24100</b>	<b>TRAFO_TYPE_1</b>				F2
-	Definition of transformation 1 in channel				NEW CONF
C07					DWORD
-	-	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	-	-	7/7

<b>24110</b>	<b>TRAFO_AXES_IN_1</b>				F2
-	Axis assignment for the 1st transformation in the channel				NEW CONF
C07					BYTE
-	20	1, 2, 3, 4, 5, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	20	7/7

<b>24120</b>	<b>TRAFO_GEOAX_ASSIGN_TAB_1</b>				F2
-	Assignment of GEO axes to channel axes for transformation 1				NEW CONF
C07					BYTE
-	3	0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	20	7/7

<b>24130</b>	<b>TRAFO_INCLUDES_TOOL_1</b>				M1,F2
-	Tool handling with 1st active transformation				NEW CONF
C07					BOOLEAN
-	-	TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...	-	-	7/7

<b>24200</b>	<b>TRAFO_TYPE_2</b>				F2
-	Definition of the 3rd transformation in the channel				NEW CONF
C07					DWORD
-	-	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	-	-	7/7

<b>24210</b>	<b>TRAFO_AXES_IN_2</b>				F2
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-	Axis assignment for transformation 2				NEW CONF
C07					BYTE
-	20	1, 2, 3, 4, 5, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	20	7/7

<b>24220</b>	<b>TRAFO_GEOAX_ASSIGN_TAB_2</b>				F2
-	Assignment of GEO axes to channel axes for transformation 2				NEW CONF
C07					BYTE
-	3	0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	20	7/7

<b>24230</b>	<b>TRAFO_INCLUDES_TOOL_2</b>				M1,F2
-	Tool handling with active 2nd transformation				NEW CONF
C07					BOOLEAN
-	-	TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...	-	-	7/7

<b>24300</b>	<b>TRAFO_TYPE_3</b>				F2
-	Definition of the 3rd transformation in the channel				NEW CONF
C07					DWORD
-	-	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	-	-	7/7

<b>24310</b>	<b>TRAFO_AXES_IN_3</b>				F2
-	Axis assignment for the 3rd transformation in the channel				NEW CONF
C07					BYTE
-	20	1, 2, 3, 4, 5, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	20	7/7

<b>24320</b>	<b>TRAFO_GEOAX_ASSIGN_TAB_3</b>				F2
-	Assignment of GEO axes to channel axes for transformation 3				NEW CONF
C07					BYTE
-	3	0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	20	7/7

<b>24330</b>	<b>TRAFO_INCLUDES_TOOL_3</b>				M1,F2
-	Tool handling with active 3rd transformation				NEW CONF
C07					BOOLEAN
-	-	TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...	-	-	7/7

<b>24400</b>	<b>TRAFO_TYPE_4</b>				F2
-	Definition of the 4th transformation in the channel				NEW CONF

C07					DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	-	-	7/7

<b>24410</b>	<b>TRAFO_AXES_IN_4</b>				F2
-	Axis assignment for the 4th transformation in the channel				NEW CONF
C07					BYTE
-	20	1, 2, 3, 4, 5, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	20	7/7

<b>24420</b>	<b>TRAFO_GEOAX_ASSIGN_TAB_4</b>				F2
-	Assignment of GEO axes to channel axes for transformation 4				NEW CONF
C07					BYTE
-	3	0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	20	7/7

<b>24426</b>	<b>TRAFO_INCLUDES_TOOL_4</b>				M1,F2
-	Tool handling with active 4th transformation				NEW CONF
C07					BOOLEAN
-	-	TRUE,TRUE,TRUE,TRUE,TRUE,TRUE,TRUE...	-	-	7/7

<b>24430</b>	<b>TRAFO_TYPE_5</b>				F2,M1
-	Type of transformation 5 in the channel				NEW CONF
C07					DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	-	-	7/7

<b>24432</b>	<b>TRAFO_AXES_IN_5</b>				F2,M1
-	Axis assignment for transformation 5				NEW CONF
C07					BYTE
-	20	1, 2, 3, 4, 5, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	20	7/7

<b>24434</b>	<b>TRAFO_GEOAX_ASSIGN_TAB_5</b>				F2,M1
-	GEO/chann. axis assignment transform. 5				NEW CONF
C07					BYTE
-	3	0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	20	7/7

<b>24436</b>	<b>TRAFO_INCLUDES_TOOL_5</b>				M1,F2
-	Tool handling with active 5th transformation				NEW CONF
C07					BOOLEAN
-	-	TRUE,TRUE,TRUE,TRUE,TRUE,TRUE,TRUE...	-	-	7/7

		TRUE,TRUE,TRUE, TRUE...			
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<b>24440</b>	<b>TRAFO_TYPE_6</b>				F2,M1
-	Type of transformation 6 in the channel				NEW CONF
C07					DWORD
-	-	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	-	-	7/7

<b>24442</b>	<b>TRAFO_AXES_IN_6</b>				F2,M1
-	Axis assignment for transformation 6				NEW CONF
C07					BYTE
-	20	1, 2, 3, 4, 5, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	20	7/7

<b>24444</b>	<b>TRAFO_GEOAX_ASSIGN_TAB_6</b>				F2,M1
-	GEO/chann. axis assignment transform. 6				NEW CONF
C07					BYTE
-	3	0, 0, 0,0, 0, 0,0, 0, 0,0, 0, 0...	0	20	7/7

<b>24446</b>	<b>TRAFO_INCLUDES_TOOL_6</b>				M1,F2
-	Tool handling with active 6th transformation				NEW CONF
C07					BOOLEAN
-	-	TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...	-	-	7/7

<b>24450</b>	<b>TRAFO_TYPE_7</b>				F2,M1
-	Type of transformation 7 in the channel				NEW CONF
C07					DWORD
-	-	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	-	-	7/7

<b>24452</b>	<b>TRAFO_AXES_IN_7</b>				F2,M1
-	Axis assignment for transformation 7				NEW CONF
C07					BYTE
-	20	1, 2, 3, 4, 5, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	20	7/7

<b>24454</b>	<b>TRAFO_GEOAX_ASSIGN_TAB_7</b>				F2,M1
-	GEO/channel axis assignment transformation 7				NEW CONF
C07					BYTE
-	3	0, 0, 0,0, 0, 0,0, 0, 0,0, 0, 0...	0	20	7/7

<b>24456</b>	<b>TRAFO_INCLUDES_TOOL_7</b>				M1,F2
-	Tool handling with active 7th transformation				NEW CONF
C07	-				BOOLEAN
-	-	TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...	-	-	7/7

<b>24460</b>	<b>TRAFO_TYPE_8</b>				F2,M1
-	Type of transformation 8 in the channel				NEW CONF
C07	-				DWORD
-	-	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	-	-	7/7

<b>24462</b>	<b>TRAFO_AXES_IN_8</b>				F2,M1
-	Axis assignment for transformation 8				NEW CONF
C07	-				BYTE
-	20	1, 2, 3, 4, 5, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	20	7/7

<b>24464</b>	<b>TRAFO_GEOAX_ASSIGN_TAB_8</b>				F2,M1
-	GEO/chann. axis assignment transform. 8				NEW CONF
C07	-				BYTE
-	3	0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	20	7/7

<b>24466</b>	<b>TRAFO_INCLUDES_TOOL_8</b>				M1,F2
-	Tool handling with 8th active transformation				NEW CONF
C07	-				BOOLEAN
-	-	TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...	-	-	7/7

<b>24470</b>	<b>TRAFO_TYPE_9</b>				-
-	Type of transformation 9 in the channel				NEW CONF
C07	-				DWORD
-	-	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	-	-	7/7

<b>24472</b>	<b>TRAFO_AXES_IN_9</b>				-
-	Axis assignment for transformation 9				NEW CONF
C07	-				BYTE
-	20	1, 2, 3, 4, 5, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	20	7/7

<b>24474</b>	<b>TRAFO_GEOAX_ASSIGN_TAB_9</b>				-
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-	GEO/channel axis assignment transformation 9				NEW CONF
C07					BYTE
-	3	0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	20	7/7

<b>24476</b>	<b>TRAFO_INCLUDES_TOOL_9</b>				-
-	Treatment of tool with active 9th transformation				NEW CONF
C07					BOOLEAN
-	-	TRUE, TRUE, TRUE, TRUE, TRUE, TRUE, TRUE...	-	-	7/7

<b>24480</b>	<b>TRAFO_TYPE_10</b>				-
-	Transformation 10 in channel				NEW CONF
C07					DWORD
-	-	0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0	-	-	7/7

<b>24482</b>	<b>TRAFO_AXES_IN_10</b>				-
-	Axis assignment for transformation 10				NEW CONF
C07					BYTE
-	20	1, 2, 3, 4, 5, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	20	7/7

<b>24484</b>	<b>TRAFO_GEOAX_ASSIGN_TAB_10</b>				-
-	GEO/channel axis assignment transformation 10				NEW CONF
C07					BYTE
-	3	0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0...	0	20	7/7

<b>24486</b>	<b>TRAFO_INCLUDES_TOOL_10</b>				-
-	Treatment of tool with active 10th transformation				NEW CONF
C07					BOOLEAN
-	-	TRUE, TRUE, TRUE, TRUE, TRUE, TRUE, TRUE...	-	-	7/7

<b>24500</b>	<b>TRAFO5_PART_OFFSET_1</b>				F2
mm	Offset vector of 5-axis transformation 1				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0, 0.0, 0.0, 0.0, 0.0...	-	-	7/7

<b>24510</b>	<b>TRAFO5_ROT_AX_OFFSET_1</b>				F2
degrees	Position offset of rotary axes 1/2/3 for 5-axis transformation 1				NEW CONF
C07					DOUBLE

-	3	0.0, 0.0, 0.0,0.0, 0.0, 0.0...	-	-	7/7
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<b>24520</b>	<b>TRAFO5_ROT_SIGN_IS_PLUS_1</b>				F2
-	Sign of rotary axis 1/2/3 for 5-axis transformation 1				NEW CONF
C07					BOOLEAN
-	3	TRUE, TRUE, TRUE,TRUE, TRUE, TRUE...	-	-	7/7

<b>24530</b>	<b>TRAFO5_NON_POLE_LIMIT_1</b>				F2
degrees	Definition of pole range for 5-axis transformation 1				NEW CONF
C07					DOUBLE
-	-	2.0,2.0,2.0,2.0,2.0,2. 0,2.0,2.0,2.0...	-	-	7/7

<b>24540</b>	<b>TRAFO5_POLE_LIMIT_1</b>				F2
degrees	End angle toler. with interpol. through pole for 5-axis transf.				NEW CONF
C07					DOUBLE
-	-	2.0,2.0,2.0,2.0,2.0,2. 0,2.0,2.0,2.0...	-	-	7/7

<b>24550</b>	<b>TRAFO5_BASE_TOOL_1</b>				F2
mm	Vector of base tool on activation of 5-axis transformation 1				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7

<b>24558</b>	<b>TRAFO5_JOINT_OFFSET_PART_1</b>				F2
mm	Vector of kinematic table offset				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7

<b>24560</b>	<b>TRAFO5_JOINT_OFFSET_1</b>				F2
mm	Vector of the kinem.offset of the 1st 5-axis transf. in channel				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7

<b>24561</b>	<b>TRAFO6_JOINT_OFFSET_2_3_1</b>				-
mm	Vector of kinematic offset				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7

<b>24562</b>	<b>TRAFO5_TOOL_ROT_AX_OFFSET_1</b>				F2
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mm	Offset of swivel point of 1st rotary axis on 5-axis transform. 1				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7

<b>24564</b>	<b>TRAFO5_NUTATOR_AX_ANGLE_1</b>				F2
degrees	Nutating head angle in 5-axis transformation				NEW CONF
C07					DOUBLE
-	-	45.0,45.0,45.0,45.0, -89. 4 5.0,45.0,45.0...	-	89.	7/7

<b>24566</b>	<b>TRAFO5_NUTATOR_VIRT_ORIAX_1</b>				-
-	Virtual orientation axes				NEW CONF
C07					BOOLEAN
-	-	FALSE,FALSE,FAL S E,FALSE,FALSE,FA LSE...	-	-	7/7

<b>24570</b>	<b>TRAFO5_AXIS1_1</b>				F2
-	Direction of 1st rotary axis				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7

<b>24572</b>	<b>TRAFO5_AXIS2_1</b>				F2
-	Direction of 2nd rotary axis				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7

<b>24573</b>	<b>TRAFO5_AXIS3_1</b>				-
-	Direction of third rotary axis				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7

<b>24574</b>	<b>TRAFO5_BASE_ORIENT_1</b>				-
-	Tool base orientation				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7

<b>24576</b>	<b>TRAFO6_BASE_ORIENT_NORMAL_1</b>				-
-	Normal tool vector				NEW CONF
C07					DOUBLE
-	3	0.0, 1.0 , 0.0,0.0, 1.0	-	-	7/7

		, 0.0...			
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<b>24580</b>	<b>TRAFO5_TOOL_VECTOR_1</b>				F2
-	Direction of orientation vector				POWER ON
C07					BYTE
-	-	2,2,2,2,2,2,2,2,2,2,0 2,2,2,2,2	0	2	7/2

<b>24582</b>	<b>TRAFO5_TCARR_NO_1</b>				-
-	TCARR number for the first 5-axis transformation				NEW CONF
C07					DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	-	-	7/7

<b>24585</b>	<b>TRAFO5_ORIAX_ASSIGN_TAB_1</b>				F2
-	ORI/channel axis assignment transformation 1				POWER ON
C07					BYTE
-	3	0, 0, 0,0, 0, 0,0, 0, 0,0, 0, 0...	0	20	7/2

<b>24590</b>	<b>TRAFO5_ROT_OFFSET_FROM_FR_1</b>				-
-	Offset of transformation rotary axes from WO.				IMMEDIATELY
C01, C07					BOOLEAN
-	-	FALSE,FALSE,FAL S E,FALSE,FALSE,FA LSE...	-	-	7/2

<b>24600</b>	<b>TRAFO5_PART_OFFSET_2</b>				F2
mm	Offset vector of the 2nd 5-axis transformation in the channel				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7

<b>24610</b>	<b>TRAFO5_ROT_AX_OFFSET_2</b>				-
degrees	Position offset of rotary axes 1/2/3				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0, 0.0,0.0, 0.0, 0.0...	-	-	7/7

<b>24620</b>	<b>TRAFO5_ROT_SIGN_IS_PLUS_2</b>				F2
-	Sign of rotary axis 1/2/3 for 5-axis transformation 2				NEW CONF
C07					BOOLEAN
-	3	TRUE, TRUE, TRUE,TRUE, TRUE, TRUE...	-	-	7/7

<b>24630</b>	<b>TRAFO5_NON_POLE_LIMIT_2</b>				F2
degrees	Definition of pole range for 5-axis transformation 2				NEW CONF
C07					DOUBLE
-	-	2.0,2.0,2.0,2.0,2.0,2.0,2.0,2.0,2.0...	-	-	7/7
<b>24640</b>	<b>TRAFO5_POLE_LIMIT_2</b>				F2
degrees	End angle tol. with interpol. through pole for 5-axis transf.				NEW CONF
C07					DOUBLE
-	-	2.0,2.0,2.0,2.0,2.0,2.0,2.0,2.0,2.0...	-	-	7/7
<b>24650</b>	<b>TRAFO5_BASE_TOOL_2</b>				F2
mm	Vector of base tool on activation of 5-axis transformation 2				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7
<b>24658</b>	<b>TRAFO5_JOINT_OFFSET_PART_2</b>				F2
mm	Vector of kinematic table offset				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7
<b>24660</b>	<b>TRAFO5_JOINT_OFFSET_2</b>				F2
mm	Vector of the kinem.offset of the 2nd 5-axis transf. in channel				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7
<b>24661</b>	<b>TRAFO6_JOINT_OFFSET_2_3_2</b>				-
mm	Vector of kinematic offset				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7
<b>24662</b>	<b>TRAFO5_TOOL_ROT_AX_OFFSET_2</b>				F2
mm	Offset swivel point of 2nd 5-axis transf. (swivelled lin.axis)				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7
<b>24664</b>	<b>TRAFO5_NUTATOR_AX_ANGLE_2</b>				F2
degrees	Nutating head angle				NEW CONF
C07					DOUBLE
-	-	45.0,45.0,45.0,45.0, -89. 4 5.0,45.0,45.0...	-89.	89.	7/7

<b>24666</b>	<b>TRAFO5_NUTATOR_VIRT_ORIAX_2</b>				-
-	Virtual orientation axes				NEW CONF
C07					BOOLEAN
-	-	FALSE,FALSE,FALS S E,FALSE,FALSE,FA LSE...	-	-	7/7

<b>24670</b>	<b>TRAFO5_AXIS1_2</b>				F2
-	Direction of 1st rotary axis				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7

<b>24672</b>	<b>TRAFO5_AXIS2_2</b>				F2
-	Direction of 2nd rotary axis				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7

<b>24673</b>	<b>TRAFO5_AXIS3_2</b>				-
-	Direction of third rotary axis				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7

<b>24674</b>	<b>TRAFO5_BASE_ORIENT_2</b>				F2
-	Basic tool orientation				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7

<b>24676</b>	<b>TRAFO6_BASE_ORIENT_NORMAL_2</b>				-
-	Normal tool vector				NEW CONF
C07					DOUBLE
-	3	0.0, 1.0 , 0.0,0.0, 1.0 , 0.0...	-	-	7/7

<b>24680</b>	<b>TRAFO5_TOOL_VECTOR_2</b>				F2
-	Direction of orientation vector				POWER ON
C07					BYTE
-	-	2,2,2,2,2,2,2,2,2,2, 0 2,2,2,2,2	2	-	7/2

<b>24682</b>	<b>TRAFO5_TCARR_NO_2</b>				-
-	TCARR number for the second 5-axis transformation				NEW CONF
C07					DWORD

24750	TRAANG_ANGLE_2		M1
degrees	Angle between Cartesian axis and real (inclined) axis		NEW CONF
C07			DOUBLE
-	-	0.0,0.0,0.0,0.0,0.0,- 0.0,0.0,0.0,0.0...	7/7

<b>24760</b>	<b>TRAANG_BASE_TOOL_2</b>				M1
mm	Vector of base tool for 2nd TRAANG transformation				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7

<b>24770</b>	<b>TRAANG_PARALLEL_VELO_RES_2</b>				M1
-	Velocity margin for 2nd TRAANG transformation				NEW CONF
C07					DOUBLE
-	-	0.0,0.0,0.0,0.0,0.0,0.0, 0.0 0.0,0.0,0.0,0.0...	1.0	-	7/7

<b>24771</b>	<b>TRAANG_PARALLEL_ACCEL_RES_2</b>				M1
-	Acceler. margin of parallel axis for the 2nd TRAANG transform.				NEW CONF
C07					DOUBLE
-	-	0.0,0.0,0.0,0.0,0.0,0.0, 0.0 0.0,0.0,0.0,0.0...	1.0	-	7/7

<b>24800</b>	<b>TRACYL_ROT_AX_OFFSET_1</b>				M1
degrees	Offset of rotary axis for the 1st TRACYL transformation				NEW CONF
C07					DOUBLE
-	-	0.0,0.0,0.0,0.0,0.0,0.0, 0.0 0.0,0.0,0.0,0.0...	-	-	7/7

<b>24805</b>	<b>TRACYL_ROT_AX_FRAME_1</b>				-
-	Rotary axis offset TRACYL 1				NEW CONF
C07					BYTE
-	-	0.0,0.0,0.0,0.0,0.0,0.0, 0 0.0,0.0,0.0	2	-	7/7

<b>24808</b>	<b>TRACYL_DEFAULT_MODE_1</b>				-
-	TRACYL mode selection				NEW CONF
C07					BYTE
-	-	0.0,0.0,0.0,0.0,0.0,0.0, 0 0.0,0.0,0.0	1	-	7/7

<b>24810</b>	<b>TRACYL_ROT_SIGN_IS_PLUS_1</b>				M1
-	Sign of rotary axis for 1st TRACYL transformation				NEW CONF
C07					BOOLEAN
-	-	TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...	-	-	7/7

<b>24820</b>	<b>TRACYL_BASE_TOOL_1</b>				M1
mm	Vector of base tool for 1st TRACYL transformation				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0	-	-	7/7



C07					BOOLEAN
-	-	TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...	-	-	7/7

<b>24911</b>	<b>TRANSMIT_POLE_SIDE_FIX_1</b>				M1
-	Restr. working range before/behind the pole, 1. TRANSMIT				NEW CONF
C07					BYTE
-	-	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	0	2	7/7

<b>24920</b>	<b>TRANSMIT_BASE_TOOL_1</b>				M1
mm	Vector of base tool for 1st TRANSMIT transformation				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7

<b>24950</b>	<b>TRANSMIT_ROT_AX_OFFSET_2</b>				M1
degrees	Offset of rotary axis for the 2nd TRANSMIT transformation				NEW CONF
C07					DOUBLE
-	-	0.0,0.0,0.0,0.0,0.0,0. 0,0,0,0,0,0.0...	-	-	7/7

<b>24955</b>	<b>TRANSMIT_ROT_AX_FRAME_2</b>				-
-	Rotary axis offset TRANSMIT 2				NEW CONF
C07					BYTE
-	-	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	0	2	7/7

<b>24960</b>	<b>TRANSMIT_ROT_SIGN_IS_PLUS_2</b>				M1
-	Sign of rotary axis for 2nd TRANSMIT transformation				NEW CONF
C07					BOOLEAN
-	-	TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...	-	-	7/7

<b>24961</b>	<b>TRANSMIT_POLE_SIDE_FIX_2</b>				M1
-	Restr. of working range before/behind the pole, 2. TRANSMIT				NEW CONF
C07					BYTE
-	-	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	0	2	7/7

<b>24970</b>	<b>TRANSMIT_BASE_TOOL_2</b>				M1
mm	Vector of base tool for 2nd TRANSMIT transformation				NEW CONF
C07					DOUBLE
-	3	0.0, 0.0 , 0.0,0.0, 0.0 , 0.0...	-	-	7/7



<b>24995</b>	<b>TRACON_CHAIN_1</b>				M1
-	Linking transformations				NEW CONF
C07					DWORD
-	4	0, 0, 0, 0, 0, 0, 0, 0, 0, 0 0, 0, 0...	0	8	7/7

<b>24996</b>	<b>TRACON_CHAIN_2</b>				M1
-	Linking transformations				NEW CONF
C07					DWORD
-	4	0, 0, 0, 0, 0, 0, 0, 0, 0, 0 0, 0, 0...	0	8	7/7

<b>24997</b>	<b>TRACON_CHAIN_3</b>				-
-	Transformation grouping				NEW CONF
C07					DWORD
-	4	0, 0, 0, 0, 0, 0, 0, 0, 0, 0 0, 0, 0...	0	8	7/7

<b>24998</b>	<b>TRACON_CHAIN_4</b>				-
-	Transformation grouping				NEW CONF
C07					DWORD
-	4	0, 0, 0, 0, 0, 0, 0, 0, 0, 0 0, 0, 0...	0	8	7/7

## 2.6.5 Punching and nibbling

<b>26000</b>	<b>PUNCHNIB_ASSIGN_FASTIN</b>				N4
-	Hardware assignment for input byte for stroke control				POWER ON
C01, C09					DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0 0,0,0,0,0	-	-	7/2

<b>26002</b>	<b>PUNCHNIB_ASSIGN_FASTOUT</b>				N4
-	Hardware assignment for output byte for stroke control				POWER ON
C01, C09					DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0 0,0,0,0,0	-	-	7/2

<b>26004</b>	<b>NIBBLE_PUNCH_OUTMASK</b>				N4
-	Mask for fast output bits				POWER ON
C01, C09					BYTE
-	8	1, 0, 0, 0, 0, 0, 0, 0, 0,0, 0, 0, 0, 0, 0, 0, 0...	-	-	7/2

<b>26006</b>	<b>NIBBLE_PUNCH_INMASK</b>				N4
-	Mask for fast input bits				POWER ON

C01, C09					BYTE
-	8	1, 0, 0, 0, 0, 0, 0, 0, 0,0, 0, 0, 0, 0, 0, 0, 0...	-	-	7/2

<b>26008</b>	<b>NIBBLE_PUNCH_CODE</b>				N4
-	Definition of M functions				POWER ON
C09					DWORD
-	8	0,23,22, 25, 26, 0, 0, 0,0, 0, 0, 0, 0, 0, 0, 0...	-	-	7/2

<b>26010</b>	<b>PUNCHNIB_AXIS_MASK</b>				N4
-	Definition of punching and nibbling axes				POWER ON
C09					DWORD
-	-	7,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	-	-	7/2

<b>26012</b>	<b>PUNCHNIB_ACTIVATION</b>				N4
-	Activation of punching and nibbling functions				POWER ON
C09					DWORD
-	-	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	-	-	7/2

<b>26014</b>	<b>PUNCH_PATH_SPLITTING</b>				N4
-	Activation of automatic path segmentation				POWER ON
C09					DWORD
-	-	2,2,2,2,2,2,2,2,2,2, 2,2,2,2,2	-	-	7/2

<b>26016</b>	<b>PUNCH_PARTITION_TYPE</b>				N4
-	Behavior of individual axes with automatic path segmentation				POWER ON
C09					DWORD
-	-	1,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	-	-	7/2

<b>26018</b>	<b>NIBBLE_PRE_START_TIME</b>				N4
s	Delay time for nibbling/punching with G603				POWER ON
C09					DOUBLE
-	-	0.,0.,0.,0.,0.,0.,0.,0., 0.,0.,0.,0.,0....	-	-	7/2

<b>26020</b>	<b>NIBBLE_SIGNAL_CHECK</b>				N4
-	Alarm on chattering punching signal				POWER ON
C09					DWORD
-	-	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	-	-	7/2

<b>27100</b>	<b>ABSBLOCK_FUNCTION_MASK</b>				-
-	Parameterize the block display with absolute values				POWER ON
N01					DWORD
-	-	0x0,0x0,0x0,0x0,0x0 0 , 0x0,0x0,0x0,0x0...	0x1		7/2
<b>27200</b>	<b>MMC_INFO_NO_UNIT</b>				-
-	MMC info (without phys. unit)				POWER ON
EXP, -					DOUBLE
-	80	45., 2., 0., 1., 0., -1., 0., 1., 100., 1., 1., 0., 0., 0., 0....	-	-	0/2
<b>27201</b>	<b>MMC_INFO_NO_UNIT_STATUS</b>				-
-	MMC status info (without phys. unit)				POWER ON
EXP, -					BYTE
-	80	1, 1...	-	-	0/2
<b>27202</b>	<b>MMC_INFO_POSN_LIN</b>				-
mm	MMC info (lin. positions)				POWER ON
EXP, -					DOUBLE
-	50	0., 0., 1., 1., 0., 0., 100., 0., 0., 1000., 1., 1....	-	-	0/2
<b>27203</b>	<b>MMC_INFO_POSN_LIN_STATUS</b>				-
-	MMC status info (lin. positions)				POWER ON
EXP, -					BYTE
-	50	1, 1...	-	-	0/2
<b>27204</b>	<b>MMC_INFO_VELO_LIN</b>				-
mm/min	MMC info (linear velocities)				POWER ON
EXP, -					DOUBLE
-	16	10., 10., 2000., 10000., 300., 1000., 1000., 10., 0., 0., 0., 0....	-	-	0/2
<b>27205</b>	<b>MMC_INFO_VELO_LIN_STATUS</b>				-
-	MMC status info (linear velocities)				POWER ON
EXP, -					BYTE
-	16	1,1,1,1,1,1,1,0,0,0, 0,0,0,0,0...	-	-	0/2

<b>27206</b>	<b>MMC_INFO_CUT_SPEED</b>				-
m/min	MMC info (cutting speed)				POWER ON
EXP, -					DOUBLE
-	5	100.,0.,0.,0.,0.,100., 0.,0.,0.,0....	-	-	0/2

<b>27207</b>	<b>MMC_INFO_CUT_SPEED_STATUS</b>				-
-	MMC status info (cutting speed)				POWER ON
EXP, -					BYTE
-	5	1,0,0,0,0,1,0,0,0,0,1, 0,0,0,0...	-	-	0/2

<b>27208</b>	<b>MMC_INFO_REV_FEED</b>				-
mm/rev	MMC info (feed)				POWER ON
EXP, -					DOUBLE
-	10	1.,0.100,1.,1.,0.,0.,0., ,0.,0.,0....	-	-	0/2

<b>27209</b>	<b>MMC_INFO_REV_FEED_STATUS</b>				-
-	MMC status info (feed)				POWER ON
EXP, -					BYTE
-	10	1,1,1,1,0,0,0,0,0,0,1, 1,1,1,0,0,0,0,0,0...	-	-	0/2

<b>27800</b>	<b>TECHNOLOGY_MODE</b>				A2
-	Mode of technology in channel				NEW CONF
C09					BYTE
-	-	0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0	-	-	7/2

<b>27860</b>	<b>PROCESSTIMER_MODE</b>				K1
-	Activation of program runtime measurement				RESET
C09					DWORD
-	-	0x00,0x00,0x00,0x00 0,0x00,0x00,0x00...	0	0x0FFF	7/2

<b>27880</b>	<b>PART_COUNTER</b>				K1
-	Activation of workpiece counter				RESET
C09					DWORD
-	-	0x0,0x0,0x0,0x0,0x0, ,0x0,0x0,0x0,0x0...	0	0x0FFFF	7/2

<b>27882</b>	<b>PART_COUNTER_MCODE</b>				K1
-	Workpiece counting with user-defined M command				POWER ON
C09					BYTE
-	3	2, 2, 2, 2, 2, 2, 2, 0	99		7/2

27900	REORG_LOG_LIMIT				S7
	Percentage of IPO buffer for enabling log file				POWER ON
EXP, C02					BYTE
	-	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1	-	-	0/0

### 2.6.6 Channel-specific memory settings

28000	MM_REORG_LOG_FILE_MEM					S7
-	Memory space for REORG (DRAM)					POWER ON
EXP, C02			-	DWORD		
-	-	50,				

28010	MM_NUM_REORG_LUD_MODULES				S7
-	Number of blocks for local user variables in REORG (DRAM)				POWER ON
EXP, C02	-				DWORD
-	-	8,8,8,8,8,8,8,8,8,8,0	SLMAXNUMBER OF_USERMODU LES	7/2	

28020	MM_NUM_LUD_NAMES_TOTAL				S7
-	Number of local user variables (DRAM)				POWER ON
C02	-				DWORD
-	-	400,400,400,400,400 0 ,400,400,400,400...	-	-	7/2
840d-2a2c	-	200,200,200,200,200 0 ,200,200,200,200...	-	-	-/-
840d-4a1cg	-	200,200,200,200,200 0 ,200,200,200,200...	-	-	-/-
840d-6a2c	-	200,200,200,200,200	-	-	-/-

		0 ,200,200,200,200...			
840d-12a2c	-	200,200,200,200,20 0 ,200,200,200,200...	-	-	-/-
840d-31a10c	-	200,200,200,200,20 0 ,200,200,200,200...	-	-	-/-

<b>28040</b>	<b>MM_LUD_VALUES_MEM</b>				S7
-	Memory space for local user variables (DRAM)				POWER ON
C02					DWORD
-	-	50,50,50,50,50,50,5 0 ,50,50,50,50,50,50...	-	-	7/2
840d-2a2c	-	25,25,25,25,25,25,2 5 ,25,25,25	-	-	-/-
840d-4a1cg	-	25,25,25,25,25,25,2 5 ,25,25,25	-	-	-/-
840d-6a2c	-	25,25,25,25,25,25,2 5 ,25,25,25	-	-	-/-
840d-12a2c	-	25,25,25,25,25,25,2 5 ,25,25,25	-	-	-/-
840d-31a10c	-	25,25,25,25,25,25,2 5 ,25,25,25	-	-	-/-

<b>28050</b>	<b>MM_NUM_R_PARAM</b>				S7
-	Number of channel-specific R parameters (SRAM)				POWER ON
C02					DWORD
-	-	100,100,100,100,10 0 ,100,100,100,100...	0	32535	7/2

<b>28060</b>	<b>MM_IPO_BUFFER_SIZE</b>				S7
-	Number of NC blocks in IPO buffer (DRAM)				POWER ON
C02					DWORD
-	-	10,10,10,10,10,10,1 0 ,10,10,10,10,10,10...	2	300	7/2

<b>28070</b>	<b>MM_NUM_BLOCKS_IN_PREP</b>				S7
-	Number of blocks for block preparation (DRAM)				POWER ON
EXP, C02					DWORD
-	-	50,50,50,50,50,50,5 0 ,50,50,50,50,50,50...	20	-	7/2
840d-2a2c	-	38,38,38,38,38,38,3	-	-	-/-

		8,38,38,38			
840d-4a1cg	-	38,38,38,38,38,38,38,38,38,38,38,38	-	-	-/-
840d-6a2c	-	38,38,38,38,38,38,38,38,38,38,38,38	-	-	-/-
840d-12a2c	-	38,38,38,38,38,38,38,38,38,38,38,38	-	-	-/-
840d-31a10c	-	38,38,38,38,38,38,38,38,38,38,38,38	-	-	-/-

<b>28080</b>	<b>MM_NUM_USER_FRAMES</b>				S7
-	Number of settable frames (SRAM)				POWER ON
C11, C02				-	DWORD
-	-	5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5	5	100	7/2

<b>28081</b>	<b>MM_NUM_BASE_FRAMES</b>				K2
-	Number of base frames (SRAM)				POWER ON
C02				-	DWORD
-	-	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1	0	16	7/2

<b>28082</b>	<b>MM_SYSTEM_FRAME_MASK</b>				K2
-	System frames (SRAM)				POWER ON
C02				-	DWORD
-	-	0x21,0x21,0x21,0x21,0x21,0x21,0x21,0x21,0x21,0x21,0x21,0x21,0x21,0x21,0x21,0x21,0x21,0x21,0x21,0x21	0	0x0000007F	7/2

<b>28083</b>	<b>MM_SYSTEM_DATAFRAME_MASK</b>				-
-	System frames (SRAM)				POWER ON
C02				-	DWORD
-	-	0x1F,0x1F,0x1F,0x1F,0x1F,0x1F,0x1F,0x1F,0x1F,0x1F,0x1F,0x1F,0x1F,0x1F,0x1F,0x1F,0x1F,0x1F,0x1F,0x1F	0	0x0000007F	7/2

<b>28085</b>	<b>MM_LINK_TOA_UNIT</b>				FBW,S7
-	Assignment of a TO unit to a channel (SRAM)				POWER ON
C02, C09				-	DWORD
-	-	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16	1	10	7/2

<b>28090</b>	<b>MM_NUM_CC_BLOCK_ELEMENTS</b>				S7
-	Number of block elements for compile cycles (DRAM)				POWER ON
EXP, C02				-	DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	0	130	7/1

<b>28100</b>	<b>MM_NUM_CC_BLOCK_USER_MEM</b>				S7
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-	Size of block memory for compile cycles (DRAM), in KB	POWER ON
EXP, C02	-	DWORD
-	0,0,0,0,0,0,0,0,0,0,0,0 0,0,0,0,0	7/1

<b>28105</b>	<b>MM_NUM_CC_HEAP_MEM</b>	S7
-	Heap memory in kbytes for compile-cycle applications (DRAM)	POWER ON
EXP, C02	-	DWORD
-	0,0,0,0,0,0,0,0,0,0,0,0 0,0,0,0,0	7/2

<b>28150</b>	<b>MM_NUM_VDIVAR_ELEMENTS</b>	P3
-	Number of elements for writing PLC variables	POWER ON
C02	-	DWORD
-	0,0,0,0,0,0,0,0,0,0,0,0 0,0,0,0,0	7/2

<b>28160</b>	<b>MM_NUM_LINKVAR_ELEMENTS</b>	B3
-	Number of elements for writing NCU-link variables	POWER ON
C02	-	DWORD
-	0,0,0,0,0,0,0,0,0,0,0,0 0,0,0,0,0	7/2

<b>28180</b>	<b>MM_MAX_TRACE_DATAPOINTS</b>	BA,S5,FBSY
-	Length of the trace data buffer	POWER ON
EXP, C02, C06	NBUP	DWORD
-	100,100,100,100,100,100 0 ,100,100,100,100...	2/2

<b>28200</b>	<b>MM_NUM_PROTECT_AREA_CHAN</b>	S7
-	Number of files for channel-specific protection zones (SRAM)	POWER ON
C02, C06, C09	-	DWORD
-	0,0,0,0,0,0,0,0,0,0,0,0 0,0,0,0,0	10 7/2

<b>28210</b>	<b>MM_NUM_PROTECT_AREA_ACTIVE</b>	S7
-	Number of simultaneously active protection zones in one channel	POWER ON
C11, C02, C06, C09	-	DWORD
-	0,0,0,0,0,0,0,0,0,0,0,0 0,0,0,0,0	10 7/2

<b>28212</b>	<b>MM_NUM_PROTECT_AREA_CONTOUR</b>	-
-	Elements for active protection zones (DRAM)	POWER ON
C11, C02, C06, C09	-	DWORD
-	30,30,30,30,30,30,30,30 0	50 7/2



		,30,30,30,30,30,30...			
28250	MM_NUM_SYNC_ELEMENTS				S5,FBSY
-	Number of elements for expressions in synchronized actions				POWER ON
C02				-	DWORD
-	-	159,159,159,159,159	-	-	7/2
		9,159,159,159,159...			
28252	MM_NUM_FCTDEF_ELEMENTS				S5,FBSY
-	Number of FCTDEF elements				POWER ON
C02				-	DWORD
-	-	3,3,3,3,3,3,3,3,3,3,0	100		7/2
		3,3,3,3,3			
28254	MM_NUM_AC_PARAM				FBSY
-	Dimension of \$AC_PARAM.				POWER ON
C02				-	DWORD
-	-	50,50,50,50,50,50,50,0	20000		7/2
		0,50,50,50,50,50,50...			
28255	MM_BUFFERED_AC_PARAM				FBSY
-	[\$AC_PARAM] is stored in SRAM.				POWER ON
C02				-	DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0	1		7/2
		0,0,0,0,0			
28256	MM_NUM_AC_MARKER				FBSY
-	Dimension of \$AC_MARKER				POWER ON
C02				-	DWORD
-	-	8,8,8,8,8,8,8,8,8,0	20000		7/2
		8,8,8,8,8			
28257	MM_BUFFERED_AC_MARKER				FBSY
-	[\$AC_MARKER] is stored in SRAM.				POWER ON
C02				-	DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0	1		7/2
		0,0,0,0,0			
28258	MM_NUM_AC_TIMER				S5,FBSY
-	Number of time variables \$AC_TIMER (DRAM)				POWER ON
C02				-	DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0	10000		7/2
		0,0,0,0,0			
28260	NUM AC FIFO				S5,FBSY

-	Number of FIFO variable for synchronized actions				POWER ON
C01					DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0,0	0	10	7/2
-	-	0,0,0,0,0			

<b>28262</b>	<b>START_AC_FIFO</b>				S5,FBSY
-	FIFO variables store from R parameter				POWER ON
C01					DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0,0	0	32535	7/2
-	-	0,0,0,0,0			

<b>28264</b>	<b>LEN_AC_FIFO</b>				S5,M5,FBSY
-	Length of FIFO variables \$AC_FIFO1-\$AC_FIFO10				POWER ON
C01					DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0,0	0	32535	7/2
-	-	0,0,0,0,0			

<b>28266</b>	<b>MODE_AC_FIFO</b>				S5,FBSY
-	Mode of FIFO processing				POWER ON
C01					BYTE
-	-	0,0,0,0,0,0,0,0,0,0,0,0	0	-	7/2
-	-	0,0,0,0,0			

<b>28274</b>	<b>MM_NUM_AC_SYSTEM_PARAM</b>				FBSY
-	Number of \$AC_SYSTEM_PARAM for motion-synchronous actions				POWER ON
EXP, C02					DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0,0	0	20000	7/2
-	-	0,0,0,0,0			

<b>28276</b>	<b>MM_NUM_AC_SYSTEM_MARKER</b>				FBSY
-	Number of \$AC_SYSTEM_MARKER for motion-synchronous actions				POWER ON
EXP, C02					DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0,0	0	20000	7/2
-	-	0,0,0,0,0			

<b>28290</b>	<b>MM_SHAPED_TOOLS_ENABLE</b>				-
-	Enable TRC for contour tools				POWER ON
C01, C08, C02					BOOLEAN
-	-	FALSE,FALSE,FAL S E,FALSE,FALSE,FA LSE...	-	-	7/0

<b>28300</b>	<b>MM_PROTOD_USER_ACTIVE</b>				D1,OEM
-	Activation of logging for a user				POWER ON
C02					BOOLEAN
-	10	TRUE, FALSE,	-	-	1/1



		3,3,3,3,3			
--	--	-----------	--	--	--

<b>28530</b>	<b>MM_PATH_VELO_SEGMENTS</b>				K1
-	Number of memory elements for path velocity limitation				POWER ON
C02	-				DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	0	100	7/2

<b>28535</b>	<b>MM_FEED_PROFILE_SEGMENTS</b>				-
-	Displ. memory element for feed profiles				POWER ON
C02	-				DWORD
-	-	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1	1	10	7/2

<b>28540</b>	<b>MM_ARCLENGTH_SEGMENTS</b>				K1
-	Number of memory elements for arc length function representation				POWER ON
C02	-				DWORD
-	-	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	0	100	7/2

<b>28560</b>	<b>MM_SEARCH_RUN_RESTORE_MODE</b>				-
-	Data restore after simulation				POWER ON
C02	-				DWORD
-	-	0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0,0x0...	0	0x00000001	7/2

<b>28580</b>	<b>MM_ORIPATH_CONFIG</b>				-
-	Setting for ORIPATH path-relative orientation				POWER ON
C02	-				BYTE
-	-	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	0	1	1/1

## 2.7 Axis-specific machine data

The display of the machine data has been extended in SW Version 4 and higher. The options Display filters and Attributes have been newly introduced.

### Display filters

The quantity of machine data displayed on the operator panel can be limited to the machine data of interest by means of the display filters. Machine data are displayed on the operator panel if at least one of the filters indicated in the respective machine data has been activated by the user or if the mode "All machine data" has been set. The short descriptions of the filters indicated are used again in the operator interface for filter activation. They have the following meaning:

- A01 Configuration (including memory)
- A02 Measuring system
- A03 Machine geometry
- A04 Velocities / accelerations
- A05 Monitoring / limitations
- A06 Spindle
- A07 Controller data
- A08 Status data
- A09 Overrides / compensations
- A10 Technological functions
- A11 Standard machine
- A12 NC-Language ISO-Dialect
- EXP Expert mode

### Attributes

In some machine data, you will find short identifiers with the following meaning under attributes:

- NBUP No back-up: the data is not entered in data back-up
- ODLD Only download: the data can only be loaded from the file
- READ Read only: the data can only be read
- NDLD No download: the data cannot be loaded from the file
- SFCO Configuration safety integrated
- SCAL Scaling Alarm

- LINK Link description
- CTEQ Must be equal for all containers
- CTDE Container description

The fields of the machine data table elements are completed as follows:

### System

You will find the identifiers such as:

iajc with the meaning i axes and j channels for example

6a2c 6 axes, 2 channels.

7x0-iajc represents solution line systems with

x 1, 2, 3

### Note

Machine data values which may differ according to the system used are listed in additional lines below the table header. In these cases, the fourth line is the standard assignment, the fifth line and any further lines contain differing values for the systems stated. The minus sign in a field means: The standard values stated in line 4 applies. The entry "-1" stated under protection means that there is no machine data for the system stated.

Number	MD identifier				Cross reference
Unit	Name				Active
Display filters	Attributes				D type
System	Dimension	Standard value	Minimum value	Maximum value	Protect. Level

## 2.7.1 Configuration

<b>30100</b>	<b>CTRL_OUT_SEGMENT_NR</b>				G2
-	Setpoint assignment: bus segment number				POWER ON
EXP, A01	-				BYTE
-	1	1	1	5	7/2
710-2a2c	-	5	5	5	-1/-
710-6a2c	-	5	5	5	-1/-
710-12a2c	-	5	5	5	-1/-
840di-basic	-	5	5	5	-1/-
840di-universal	-	5	5	5	-1/-
840di-plus	-	5	5	5	-1/-

<b>30110</b>	<b>CTRL_OUT_MODULE_NR</b>				G2
-	Setpoint assignment: module number				POWER ON
A01, A11	-				BYTE
-	1	1,2,3,4,5,6,7,8,9,10,1	1	31	7/2

		1,12,13,14,15,16,17, 18...			
--	--	-------------------------------	--	--	--

<b>30120</b>	<b>CTRL_OUT_NR</b>				G2
-	Setpoint assignment: Setpoint output on drive submodule/module				POWER ON
EXP, A01	-				BYTE
-	1	1	1	3	2/2

<b>30130</b>	<b>CTRL_OUT_TYPE</b>				G2,S6
-	Output type of setpoint				POWER ON
A01, A11	-				BYTE
-	1	0	0	3	7/2

<b>30132</b>	<b>IS_VIRTUAL_AX</b>				M3
-	Axis is a virtual axis				POWER ON
A01	CTEQ				BOOLEAN
-	1	FALSE	-	-	7/2

<b>30134</b>	<b>IS_UNIPOLAR_OUTPUT</b>				G2
-	Setpoint output is unipolar				POWER ON
A01	-				BYTE
-	1	0	0	2	7/2

<b>30200</b>	<b>NUM_ENCS</b>				G2
-	Number of encoders				POWER ON
A01, A02	-				BYTE
-	-	1	0	2	7/2

<b>30210</b>	<b>ENC_SEGMENT_NR</b>				G2
-	Actual value assignment: bus segment number.				POWER ON
EXP, A01, A02	-				BYTE
-	2	1, 1	1	5	7/2
710-2a2c	-	5, 5	5	5	-1/-
710-6a2c	-	5, 5	5	5	-1/-
710-12a2c	-	5, 5	5	5	-1/-
840di-basic	-	5, 5	5	5	-1/-
840di-universal	-	5, 5	5	5	-1/-
840di-plus	-	5, 5	5	5	-1/-

<b>30220</b>	<b>ENC_MODULE_NR</b>				G2
-	Actual value assignment: Drive number/measuring circuit number				POWER ON
A01, A02, A11	-				BYTE
-	2	1, 1, 2, 2, 3, 3, 4, 4, 5, 5, 6, 6, 7, 7...	1	31	7/2

<b>30230</b>	<b>ENC_INPUT_NR</b>				G2
-	Actual value assignm.: Input on drive module/meas. circuit board				POWER ON

A01, A02, A11	-	BYTE
-	2	1, 2
-	1	3
-	7/2	

<b>30240</b>	<b>ENC_TYPE</b>	G2,R1
-	Encoder type of actual value sensing (actual position value).	POWER ON
A01, A02, A11	-	BYTE
-	2	0, 0
-	0	5
-	7/2	

<b>30242</b>	<b>ENC_IS_INDEPENDENT</b>	G2
-	Encoder is independent	NEW CONF
A02, A11	-	BYTE
-	2	0, 0
-	0	3
-	7/2	

<b>30244</b>	<b>ENC_MEAS_TYPE</b>	-
-	Encoder measurement type	POWER ON
A01, A02, A11	-	BYTE
-	2	1, 1
-	0	1
-	7/2	
840d-2a2c	-	0/0
840d-6a2c	-	0/0
840d-12a2c	-	0/0
840d-31a10c	-	0/0

<b>30250</b>	<b>ACT_POS_ABS</b>	R1
-	Internal encoder position	POWER ON
EXP, A02, A08	-	ODLD, -, -
-	2	0.0, 0.0
-	-	7/2

<b>30260</b>	<b>ABS_INC_RATIO</b>	R1
-	Absolute encoder: Ratio of absolute to incremental resolution	POWER ON
EXP, A01, A02	-	DWORD
-	2	4, 4
-	-	7/2

<b>30270</b>	<b>ENC_ABS_BUFFERING</b>	FBA,R1
-	Absolute encoder: Traversing range extension	POWER ON
EXP, A01, A02	-	BYTE
-	2	0, 0
-	0	1
-	7/2	

<b>30300</b>	<b>IS_ROT_AX</b>	R2
-	Rotary axis / spindle	POWER ON
A01, A06, A11	-	SCAL, CTEQ
-	FALSE	7/2

<b>30310</b>	<b>ROT_IS_MODULO</b>	R2
-	Modulo conversion for rotary axis / spindle	POWER ON
A01, A06, A11	-	CTEQ
-	FALSE	7/2



<b>30320</b>	<b>DISPLAY_IS_MODULO</b>	R2
-	Modulo 360 degrees displayed for rotary axis or spindle.	POWER ON
A01, A06, A11		CTEQ
-	FALSE	7/2
<b>30330</b>	<b>MODULO_RANGE</b>	R2
degrees	Size of modulo range.	RESET
EXP, A01		CTEQ
-	360.0	1.0
-	3600000000.0	7/2
<b>30340</b>	<b>MODULO_RANGE_START</b>	R2
degrees	Modulo range start position	RESET
EXP, A01		CTEQ
-	0.0	7/2
<b>30350</b>	<b>SIMU_AX_VDI_OUTPUT</b>	G2
-	Axis signals output for simulation axis	POWER ON
A01, A06		CTEQ
-	FALSE	7/2
<b>30450</b>	<b>IS_CONCURRENT_POS_AX</b>	P2
-	Default for reset: neutral/channel axis	RESET
EXP, A01		CTEQ
-	FALSE	7/2
<b>30455</b>	<b>MISC_FUNCTION_MASK</b>	R2
-	Axis functions	RESET
A06, A10		CTEQ
-	0x00	0
-	0x80	7/2
<b>30460</b>	<b>BASE_FUNCTION_MASK</b>	-
-	Axis functions	POWER ON
A01		CTEQ
-	0x00	0
-	0xFF	7/2
<b>30465</b>	<b>AXIS_LANG_SUB_MASK</b>	-
-	Substitution of NC language commands	POWER ON
N01		-
-	0	0
-	3	7/2
<b>30500</b>	<b>INDEX_AX_ASSIGN_POS_TAB</b>	T1
-	Axis is an indexing axis	RESET
A01, A10		-
-	0	0
-	3	7/2
<b>30501</b>	<b>INDEX_AX_NUMERATOR</b>	T1
mm, degrees	Indexing axis equidistant positions numerator	RESET

A01, A10	-			DOUBLE
-	-	0.0	-	7/2

<b>30502</b>	<b>INDEX_AX_DENOMINATOR</b>			T1
-	Indexing axis equidistant positions denominator			RESET
A01, A10	-			DWORD
-	-	1	1	7/2

<b>30503</b>	<b>INDEX_AX_OFFSET</b>			T1
mm, degrees	Indexing axis with equidistant positions first index position			RESET
A01, A10	-			DOUBLE
-	-	0.0	-	7/2

<b>30505</b>	<b>HIRTH_IS_ACTIVE</b>			T1
-	Axis is an indexing axis with Hirth tooth system			RESET
A01, A10	-		CTEQ	BOOLEAN
-	-	FALSE	-	7/2

<b>30550</b>	<b>AXCONF_ASSIGN_MASTER_CHAN</b>			K5
-	Initial setting of channel for change of axis			POWER ON
A01, A06, A10	-			BYTE
-	-	0	0	10 7/2

<b>30552</b>	<b>AUTO_GET_TYPE</b>			S1,K5
-	Automatic GET for get axis			POWER ON
EXP, A06, A10	-			BYTE
-	-	1	0	2 7/2

<b>30554</b>	<b>AXCONF_ASSIGN_MASTER_NCU</b>			B3
-	Initial setting which NCU creates setpoints for the axis			POWER ON
A01, A06, A10	-			BYTE
-	-	0	0	16 7/2

<b>30560</b>	<b>IS_LOCAL_LINK_AXIS</b>			B3
-	Axis is a local link axis			POWER ON
EXP, A01	-			BOOLEAN
-	-	FALSE	-	7/2

<b>30600</b>	<b>FIX_POINT_POS</b>			K1
mm, degrees	Fixed-value positions of axis with G75			POWER ON
A03, A10	-			DOUBLE
-	2	0.0, 0.0	-	7/2

<b>30800</b>	<b>WORKAREA_CHECK_TYPE</b>			A2
-	Type of check of working area limitations.			NEW CONF
-	-		CTEQ	BOOLEAN
-	-	FALSE	-	7/2

## 2.7.2 Encoder matching

<b>31000</b>	<b>ENC_IS_LINEAR</b>				G2
-	Linear scale				POWER ON
A02, A11	-				BOOLEAN
-	2	FALSE, FALSE	-	-	7/2

<b>31010</b>	<b>ENC_GRID_POINT_DIST</b>				G2
mm	Division period for linear scales				POWER ON
A02, A11	-				DOUBLE
-	2	0.01, 0.01	-	-	7/2

<b>31020</b>	<b>ENC_RESOL</b>				G2
-	Encoder lines per revolution				POWER ON
A02, A11	-				DWORD
-	2	2048, 2048	-	-	7/2

<b>31025</b>	<b>ENC_PULSE_MULT</b>				K4
-	Encoder multiplication (high-resolution)				POWER ON
EXP, A01, A02	-				DWORD
-	2	2048, 2048	-	-	7/2

<b>31030</b>	<b>LEADSCREW_PITCH</b>				G2
mm	Pitch of leadscrew				POWER ON
A02, A11	-				DOUBLE
-	-	10.0	-	-	7/2

<b>31040</b>	<b>ENC_IS_DIRECT</b>				G2
-	Direct measuring system (no compilation to load position)				POWER ON
A02, A11	-				BOOLEAN
-	2	FALSE, FALSE	-	-	7/2

<b>31044</b>	<b>ENC_IS_DIRECT2</b>				-
-	Encoder mounted on the additional gearbox				NEW CONF
A02	-				BOOLEAN
-	2	FALSE, FALSE	-	-	7/2

<b>31050</b>	<b>DRIVE_AX_RATIO_DENOM</b>				G2
-	Denominator load gearbox				POWER ON
A02, A11	-				DWORD
-	6	1, 1, 1, 1, 1, 1	1	2147000000	7/2

<b>31060</b>	<b>DRIVE_AX_RATIO_NUMERA</b>				G2
-	Numerator load gearbox				POWER ON
A02, A11	-				DWORD
-	6	1, 1, 1, 1, 1, 1	-2147000000	2147000000	7/2

<b>31064</b>	<b>DRIVE_AX_RATIO2_DENOM</b>				-
-	Denominator additional gearbox				NEW CONF
A02					DWORD
-	-	1	1	2147000000	7/2
<b>31066</b>	<b>DRIVE_AX_RATIO2_NUMERA</b>				-
-	Numerator additional gearbox				NEW CONF
A02					DWORD
-	-	1	-2147000000	2147000000	7/2
<b>31070</b>	<b>DRIVE_ENC_RATIO_DENOM</b>				G2
-	Denominator measuring gearbox				POWER ON
A02, A11					DWORD
-	2	1, 1	1	2147000000	7/2
<b>31080</b>	<b>DRIVE_ENC_RATIO_NUMERA</b>				G2
-	Numerator measuring gearbox				POWER ON
A02, A11					DWORD
-	2	1, 1	1	2147000000	7/2
<b>31090</b>	<b>JOG_INCR_WEIGHT</b>				H1,G2
mm, degrees	Evaluation of an increment with INC/handwheel				RESET
A01, A12					CTEQ
-	2	0.001, 0.00254	-	-	DOUBLE
-	-	-	-	-	7/2
<b>31122</b>	<b>BERO_DELAY_TIME_PLUS</b>				S1
s	BERO delay time Plus				NEW CONF
A02, A06					DOUBLE
-	2	0.000110, 0.000110	-	-	7/2
<b>31123</b>	<b>BERO_DELAY_TIME_MINUS</b>				S1
s	BERO delay time minus				NEW CONF
A02, A06					DOUBLE
-	2	0.000078, 0.000078	-	-	7/2
<b>31200</b>	<b>SCALING_FACTOR_G70_G71</b>				G2
-	Factor for converting values while G70/G71 is active				POWER ON
EXP, A01					CTEQ
-	-	25.4	1.e-9	-	DOUBLE
-	-	-	-	-	7/2
<b>31500</b>	<b>AXIS_NUMBER_FOR_MONITORING</b>				S6
-	Output setpoint of this axis for service purposes				POWER ON
A01					DWORD
-	1	0	0	31	7/2
<b>31510</b>	<b>OFFSETVALUE_FOR_MONITORING</b>				S6
V	Offset voltage for service setpoint				NEW CONF

A01	-	DOUBLE
-	1	0.0
-	-10.0	10.0
-	7/2	

<b>31520</b>	<b>GAIN_FOR_MONITORING</b>	S6
-	Gain for service setpoint	NEW CONF
A01	-	DOUBLE
-	1	1.0
-	-100.0	100.0
-	7/2	

<b>31600</b>	<b>TRACE_VDI_AX</b>	-
-	Trace-spec. f. axial VDI signals	POWER ON
EXP, N06	NBUP	BOOLEAN
-	FALSE	2/2

### 2.7.3 Closed-loop

<b>32000</b>	<b>MAX_AX_VELO</b>	G2
mm/min, rev/min	Maximum axis velocity	NEW CONF
A11, A04	CTEQ	DOUBLE
-	10000.	7/2

<b>32010</b>	<b>JOG_VELO_RAPID</b>	H1
mm/min, rev/min	Rapid traverse in jog mode	RESET
A11, A04	CTEQ	DOUBLE
-	10000.	7/2

<b>32020</b>	<b>JOG_VELO</b>	H1
mm/min, rev/min	Jog axis velocity	RESET
A11, A04	CTEQ	DOUBLE
-	2000.	7/2

<b>32040</b>	<b>JOG_REV_VELO_RAPID</b>	H1
mm/rev	Revolutional feedrate in JOG with rapid traverse override	RESET
A11, A04	CTEQ	DOUBLE
-	2.5	7/2

<b>32050</b>	<b>JOG_REV_VELO</b>	H1
mm/rev	Revolutional feedrate in JOG	RESET
A11, A04	CTEQ	DOUBLE
-	0.5	7/2

<b>32060</b>	<b>POS_AX_VELO</b>	P2
mm/min, rev/min	Initial setting for positioning axis velocity	RESET
A12, A04	CTEQ	DOUBLE
-	10000.	7/2

<b>32070</b>	<b>CORR_VELO</b>	H1,K2,W4
%	Axis velocity for override	RESET

A04				CTEQ	DOUBLE
-	-	50.0	-	-	7/2

<b>32074</b>	<b>FRAME_OR_CORRPOS_NOTALLOWED</b>				H1,K2,W4
-	Frame or tool length compensation are not permissible				POWER ON
A01				CTEQ	DWORD
-	-	0	0	0xFF	7/2

<b>32080</b>	<b>HANDWH_MAX_INCR_SIZE</b>				H1
mm, degrees	Limitation of selected increment				RESET
A05, A10				CTEQ	DOUBLE
-	-	0.0	-	-	7/2

<b>32082</b>	<b>HANDWH_MAX_INCR_VELO_SIZE</b>				H1
mm/min, rev/min	Limitation for velocity override				RESET
A05, A10, A04				CTEQ	DOUBLE
-	-	500.0	-	-	7/2

<b>32084</b>	<b>HANDWH_STOP_COND</b>				H1
-	Effect of VDI signals on handwheel travel				RESET
EXP, A10				CTEQ	DWORD
-	-	0xFF	0	0x7FF	7/2

<b>32090</b>	<b>HANDWH_VELO_OVERLAY_FACTOR</b>				H1
-	Ratio of JOG velocity to handwheel velocity (DRF)				RESET
A10, A04				CTEQ	DOUBLE
-	-	0.5	-	-	7/2

<b>32100</b>	<b>AX_MOTION_DIR</b>				G2
-	Traversing direction (not control direction)				POWER ON
A07, A03, A11				-	DWORD
-	-	1	-1	1	7/2

<b>32110</b>	<b>ENC_FEEDBACK_POL</b>				G2
-	Sign actual value (control direction)				POWER ON
A07, A02, A11				-	DWORD
-	2	1, 1	-1	1	7/2

<b>32200</b>	<b>POSCTRL_GAIN</b>				G2
1000/min	Servo gain factor				NEW CONF
A07, A11				CTEQ	DOUBLE
-	6	16.66666667, 16.66666667, 16.66666667, 16.66666667, 16.66666667...	0	2000.	7/2

<b>32210</b>	<b>POSCTRL_INTEGR_TIME</b>	G2
s	Position controller integral time	NEW CONF
A07	-	DOUBLE
-	-	7/2

<b>32220</b>	<b>POSCTRL_INTEGR_ENABLE</b>	G2
-	Enable integral component position controller	POWER ON
A07	-	BOOLEAN
-	-	7/2

<b>32230</b>	<b>POSCTRL_CONFIG</b>	-
-	Configuration of the position controller structure	POWER ON
A07	-	BYTE
-	-	7/2

<b>32250</b>	<b>RATED_OUTVAL</b>	G2
%	Rated output voltage	NEW CONF
A01, A11	CTEQ	DOUBLE
-	1	7/2
710-2a2c	0.0	-/-
710-6a2c	0.0	-/-
710-12a2c	0.0	-/-
840di-basic	0.0	-/-
840di-universal	0.0	-/-
840di-plus	0.0	-/-

<b>32260</b>	<b>RATED_VELO</b>	G2
rev/min	Rated motor speed	NEW CONF
A01, A11	CTEQ	DOUBLE
-	1	7/2

<b>32300</b>	<b>MAX_AX_ACCEL</b>	B2
m/s <sup>2</sup> , rev/s <sup>2</sup>	Axis acceleration	NEW CONF
A11, A04	CTEQ	DOUBLE
-	5	7/2

<b>32310</b>	<b>MAX_ACCEL_OVL_FACTOR</b>	B1
-	Overload factor for axial velocity steps	NEW CONF
A04	CTEQ	DOUBLE
-	5	3/3

<b>32320</b>	<b>DYN_LIMIT_RESET_MASK</b>	-
-	Reset behavior of dynamic response limitation.	RESET
A05, A06, A10, A04	CTEQ	DWORD
-	-	7/2

<b>32400</b>	<b>AX_JERK_ENABLE</b>	B2
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-	Axial jerk limitation				NEW CONF
A07, A04				CTEQ	BOOLEAN
-	-	FALSE	-	-	7/2

<b>32402</b>	<b>AX_JERK_MODE</b>				B2,G2,B3
-	Filter type for axial jerk limitation				POWER ON
A07, A04				CTEQ	BYTE
-	-	1	1	3	7/2

<b>32410</b>	<b>AX_JERK_TIME</b>				B2
s	Time constant for axial jerk filter				NEW CONF
A07, A04				-	DOUBLE
-	-	0.001	-	-	7/2

<b>32412</b>	<b>AX_JERK_FREQ</b>				P6
-	Blocking frequency of axial jerk filter				NEW CONF
A07, A04				-	DOUBLE
-	-	10.0	-	-	7/2

<b>32414</b>	<b>AX_JERK_DAMP</b>				P6
-	Damping of axial jerk filter				NEW CONF
A07, A04				-	DOUBLE
-	-	0.0	-	-	7/2

<b>32420</b>	<b>JOG_AND_POS_JERK_ENABLE</b>				B2
-	Default setting of axis jerk limitation				RESET
A04				CTEQ	BOOLEAN
-	-	FALSE	-	-	7/2

<b>32430</b>	<b>JOG_AND_POS_MAX_JERK</b>				B2
m/s <sup>3</sup> , rev/s <sup>3</sup>	Axial jerk				RESET
A04				CTEQ	DOUBLE
-	-	1000.0	1.e-9	-	7/2

<b>32431</b>	<b>MAX_AX_JERK</b>				B1
m/s <sup>3</sup> , rev/s <sup>3</sup>	Maximum axial jerk for path movement				NEW CONF
A04				-	DOUBLE
-	5	1.e6, 1.e6, 1.e6, 1.e6, 1.e6	1.e-9	-	3/3

<b>32432</b>	<b>PATH_TRANS_JERK_LIM</b>				B1
m/s <sup>3</sup> , rev/s <sup>3</sup>	Max. axial jerk at block transition in continuous-path mode				NEW CONF
A04				CTEQ	DOUBLE
-	5	1.e6, 1.e6, 1.e6, 1.e6, 1.e6	-	-	3/3

<b>32433</b>	<b>SOFT_ACCEL_FACTOR</b>				B1
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-	Scaling of acceleration limitation with SOFT				NEW CONF
A04					DOUBLE
-	5	1., 1., 1., 1., 1.	1e-9	-	3/3
<b>32434</b>	<b>G00_ACCEL_FACTOR</b>				B1
-	Scaling of acceleration limitation with G00.				NEW CONF
A04					DOUBLE
-	-	1.	1e-9	-	3/3
<b>32435</b>	<b>G00_JERK_FACTOR</b>				B1
-	Scaling of jerk limitation with G00.				NEW CONF
A04					DOUBLE
-	-	1.	1e-9	-	3/3
<b>32440</b>	<b>LOOKAH_FREQUENCY</b>				B1
-	Smoothing frequency for Look Ahead				NEW CONF
EXP, A04					DOUBLE
-	-	10.	-	-	7/2
<b>32450</b>	<b>BACKLASH</b>				K3
mm, degrees	Backlash				NEW CONF
A09					DOUBLE
-	2	0.0, 0.0	-	-	7/2
<b>32452</b>	<b>BACKLASH_FACTOR</b>				K3
-	Evaluation factor for backlash				NEW CONF
A09					DOUBLE
-	6	1.0, 1.0, 1.0, 1.0, 1.0, 1.0	0.01	100.0	7/2
<b>32460</b>	<b>TORQUE_OFFSET</b>				K3
%	Additional torque for electronic weight compensation				NEW CONF
A09					DOUBLE
-	1	0.0	-100.0	100.0	7/2
<b>32490</b>	<b>FRICT_COMP_MODE</b>				K3
-	Type of friction compensation				POWER ON
A09					BYTE
-	1	1	0	2	7/2
<b>32500</b>	<b>FRICT_COMP_ENABLE</b>				K3
-	Friction compensation active				NEW CONF
A09					BOOLEAN
-	-	FALSE	-	-	7/2
<b>32510</b>	<b>FRICT_COMP_ADAPT_ENABLE</b>				K3
-	Adaptation friction compensation active				NEW CONF

EXP, A09	-	BOOLEAN
-	1	FALSE
-	-	7/2

<b>32520</b>	<b>FRICT_COMP_CONST_MAX</b>	K3
mm/min, rev/min	Maximum friction compensation value	NEW CONF
EXP, A09	-	DOUBLE
-	1	0.0
-	-	7/2

<b>32530</b>	<b>FRICT_COMP_CONST_MIN</b>	K3
mm/min, rev/min	Minimum friction compensation value	NEW CONF
EXP, A09	-	DOUBLE
-	1	0.0
-	-	7/2

<b>32540</b>	<b>FRICT_COMP_TIME</b>	K3
s	Friction compensation time constant	NEW CONF
EXP, A09	-	DOUBLE
-	1	0.015
-	-	7/2

<b>32550</b>	<b>FRICT_COMP_ACCEL1</b>	K3
m/s <sup>2</sup> , rev/s <sup>2</sup>	Adaptation acceleration value 1	NEW CONF
EXP, A09	-	DOUBLE
-	1	0.0
-	-	7/2

<b>32560</b>	<b>FRICT_COMP_ACCEL2</b>	K3
m/s <sup>2</sup> , rev/s <sup>2</sup>	Adaptation acceleration value 2	NEW CONF
EXP, A09	-	DOUBLE
-	1	0.0
-	-	7/2

<b>32570</b>	<b>FRICT_COMP_ACCEL3</b>	K3
m/s <sup>2</sup> , rev/s <sup>2</sup>	Adaptation acceleration value 3	NEW CONF
EXP, A09	-	DOUBLE
-	1	0.0
-	-	7/2

<b>32580</b>	<b>FRICT_COMP_INC_FACTOR</b>	K3
%	Weighting factor friction comp. value w/ short trav. movem.	NEW CONF
A09	-	DOUBLE
-	1	0.0
-	0	100.0
-	-	7/2

<b>32610</b>	<b>VELO_FFW_WEIGHT</b>	K3
-	Feedforward control factor f. velocity/speed feedforward control	NEW CONF
A07, A09	-	DOUBLE
-	6	1.0, 1.0, 1.0, 1.0, 1.0, 1.0
-	-	7/2

<b>32620</b>	<b>FFW_MODE</b>	K3
-	Feedforward control mode	RESET
A07, A09	-	BYTE

-	-	1	0	4	7/2
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<b>32630</b>	<b>FFW_ACTIVATION_MODE</b>					K3,PA1
-	Activate feedforward control from program					RESET
A07, A09				CTEQ		BYTE
-	-	1	-	-	-	7/2

<b>32640</b>	<b>STIFFNESS_CONTROL_ENABLE</b>					K3,FBA
-	Dynamic stiffness control					NEW CONF
A01, A07				CTEQ		BOOLEAN
-	1	FALSE	-	-	-	7/2

<b>32642</b>	<b>STIFFNESS_CONTROL_CONFIG</b>					K3,FBA
-	Dynamic stiffness control configuration					POWER ON
A01, A07				CTEQ		BYTE
-	1	0	0	1		7/2

<b>32644</b>	<b>STIFFNESS_DELAY_TIME</b>					K3,FBA
s	Dynamic stiffness control: Delay					POWER ON
A01, A07				CTEQ		DOUBLE
-	1	0.0	-0.02	0.02		7/2

<b>32650</b>	<b>AX_INERTIA</b>					K3
kgm <sup>2</sup>	Inertia for torque feedforward control					NEW CONF
EXP, A07, A09				-		DOUBLE
-	-	0.0	-	-	-	7/2

<b>32652</b>	<b>AX_MASS</b>					K3
kg	Axis mass for torque feedforward control					NEW CONF
EXP, A07, A09				-		DOUBLE
-	-	0.0	-	-	-	7/2

<b>32700</b>	<b>ENC_COMP_ENABLE</b>					K3
-	Encoder/spindle error compensation.					NEW CONF
A09				-		BOOLEAN
-	2	FALSE, FALSE	-	-	-	7/2

<b>32710</b>	<b>CEC_ENABLE</b>					K3
-	Enable of sag compensation					NEW CONF
A09				-		BOOLEAN
-	-	FALSE	-	-	-	7/2

<b>32711</b>	<b>CEC_SCALING_SYSTEM_METRIC</b>					K3
-	Measuring system of sag compensation					NEW CONF
A09				-		BOOLEAN
-	-	TRUE	-	-	-	7/2

<b>32720</b>	<b>CEC_MAX_SUM</b>				K3
mm, degrees	Maximum compensation value for sag compensation				NEW CONF
A09	-				DOUBLE
-	-	1.0	0	10.0	7/2

<b>32730</b>	<b>CEC_MAX_VELO</b>				K3
%	Change in velocity at 1				NEW CONF
EXP, A09, A04	-				DOUBLE
-	-	10.0	0	100.0	7/2

<b>32750</b>	<b>TEMP_COMP_TYPE</b>				K3,W1
-	Temperature compensation type				POWER ON
A09	CTEQ				BYTE
-	-	0	0	7	7/2

<b>32760</b>	<b>COMP_ADD_VELO_FACTOR</b>				K3
-	Excessive velocity due to compensation				POWER ON
EXP, A09, A04	CTEQ				DOUBLE
-	-	0.01	0.	0.10	7/2

<b>32800</b>	<b>EQUIV_CURRCTRL_TIME</b>				K3,G2
s	Equiv. time const. current control loop for feedforward control				NEW CONF
EXP, A07, A09	-				DOUBLE
-	6	0.0005, 0.0005, 0.0005, 0.0005, 0.0005, 0.0005	-	-	7/2

<b>32810</b>	<b>EQUIV_SPEEDCTRL_TIME</b>				K3,G2
s	Equiv. time constant speed control loop for feedforward control				NEW CONF
A07, A09	-				DOUBLE
-	6	0.008, 0.008, 0.008, 0.008, 0.008, 0.008	-	-	7/2
840di-basic	-	0.004, 0.004, 0.004, 0.004, 0.004...	-	-	-/-
840di-universal	-	0.004, 0.004, 0.004, 0.004, 0.004...	-	-	-/-
840di-plus	-	0.004, 0.004, 0.004, 0.004, 0.004...	-	-	-/-

<b>32900</b>	<b>DYN_MATCH_ENABLE</b>				G2
-	Dynamic response adaptation				NEW CONF
A07	CTEQ				BOOLEAN
-	-	FALSE	-	-	7/2

<b>32910</b>	<b>DYN_MATCH_TIME</b>				G2
s	Time constant of dynamic response adaptation				NEW CONF
A07	-				DOUBLE

-	6	0.0, 0.0, 0.0, 0.0, 0.0, 0.0	-	-	7/2
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<b>32920</b>	<b>AC_FILTER_TIME</b>				S5,FBSY
s	Smoothing filter time constant for adaptive control				POWER ON
A10					DOUBLE
-	-	0.0	-	-	7/2

<b>32930</b>	<b>POSCTRL_OUT_FILTER_ENABLE</b>				G2
-	Activation of low-pass filter at position controller output				NEW CONF
A07	CTEQ				BOOLEAN
-	-	FALSE	-	-	7/2

<b>32940</b>	<b>POSCTRL_OUT_FILTER_TIME</b>				G2
s	Time constant of low-pass filter at position controller output				NEW CONF
A07					DOUBLE
-	-	0.0	-	-	7/2

<b>32950</b>	<b>POSCTRL_DAMPING</b>				G2
%	Damping of the speed control circuit.				NEW CONF
EXP, A07					DOUBLE
-	-	0.0	-	-	7/2

<b>32990</b>	<b>POSCTRL_DESVAL_DELAY_INFO</b>				B3
s	Actual setpoint position delay				NEW CONF
EXP, A01, A07	READ				DOUBLE
-	3	0.0, 0.0, 0.0	-	-	7/0

<b>33000</b>	<b>FIPO_TYPE</b>				G2
-	Fine interpolator type				POWER ON
EXP, A07	CTEQ				BYTE
-	-	2	1	3	7/2

<b>33050</b>	<b>LUBRICATION_DIST</b>				A2
mm, degrees	Traversing path for lubrication from PLC				NEW CONF
A03, A10					DOUBLE
-	-	1.0e8	-	-	7/2

<b>33060</b>	<b>MAINTENANCE_DATA</b>				-
-	Configuration of maintenance data recording				RESET
A10					DWORD
-	-	1	-	-	7/2

<b>33100</b>	<b>COMPRESS_POS_TOL</b>				K1,PGA
mm, degrees	Maximum deviation during compression				NEW CONF
A10	CTEQ				DOUBLE
-	-	0.1	1.e-9	-	7/7

**2.7.4 Reference point approach**

<b>34000</b>	<b>REFP_CAM_IS_ACTIVE</b>	R1
-	Axis with reference point cam	RESET
A03, A11	-	BOOLEAN
-	TRUE	7/2

<b>34010</b>	<b>REFP_CAM_DIR_IS_MINUS</b>	R1
-	Approach reference point in minus direction	RESET
A03, A11	-	BOOLEAN
-	FALSE	7/2

<b>34020</b>	<b>REFP_VELO_SEARCH_CAM</b>	R1
mm/min, rev/min	Reference point approach velocity	RESET
A03, A11, A04	-	DOUBLE
-	5000.00	7/2

<b>34030</b>	<b>REFP_MAX_CAM_DIST</b>	R1
mm, degrees	Maximum distance to reference cam	RESET
A03, A11	-	DOUBLE
-	10000.0	7/2

<b>34040</b>	<b>REFP_VELO_SEARCH_MARKER</b>	R1
mm/min, rev/min	Creep velocity	RESET
A03, A11, A04	-	DOUBLE
-	2 300.00, 300.00	7/2

<b>34050</b>	<b>REFP_SEARCH_MARKER_REVERSE</b>	R1
-	Direction reversal to reference cam	RESET
A03, A11	-	BOOLEAN
-	2 FALSE, FALSE	7/2

<b>34060</b>	<b>REFP_MAX_MARKER_DIST</b>	R1
mm, degrees	Maximum distance to reference mark	RESET
A03, A11	-	DOUBLE
-	2 20.0, 20.0	7/2

<b>34070</b>	<b>REFP_VELO_POS</b>	R1
mm/min, rev/min	Reference point positioning velocity	RESET
A03, A11, A04	-	DOUBLE
-	10000.00	7/2

<b>34080</b>	<b>REFP_MOVE_DIST</b>	R1
mm, degrees	Reference point distance	NEW CONF
A03, A11	-	DOUBLE
-	2 -2.0, -2.0	7/2

<b>34090</b>	<b>REFP_MOVE_DIST_CORR</b>				R1
mm, degrees	Reference point offset/absolute offset				NEW CONF
A03, A02, A08, A11	-				DOUBLE
-	2	0.0, 0.0	-	-	7/2
<b>34092</b>	<b>REFP_CAM_SHIFT</b>				R1
mm, degrees	Electronic cam offset for incremental measuring systems				RESET
A03, A11	-				DOUBLE
-	2	0.0, 0.0	-	-	7/2
<b>34093</b>	<b>REFP_CAM_MARKER_DIST</b>				R1
mm, degrees	Reference cam/reference mark distance				POWER ON
A03, A11	READ				DOUBLE
-	2	0.0, 0.0	-	-	7/2
<b>34100</b>	<b>REFP_SET_POS</b>				R1
mm, degrees	Reference point value/target point for distance-coded system				RESET
A03, A11	-				DOUBLE
-	4	0., 0., 0., 0.	-45000000	45000000	7/2
<b>34102</b>	<b>REFP_SYNC_ENCS</b>				R1
-	Calibration of measuring systems				RESET
A03, A02	-				BYTE
-	-	0	0	1	7/2
<b>34104</b>	<b>REFP_PERMITTED_IN_FOLLOWUP</b>				-
-	Enable referencing in follow-up mode				RESET
A03, A02	-				BOOLEAN
-	-	FALSE	-	-	7/2
<b>34110</b>	<b>REFP_CYCLE_NR</b>				R1
-	Sequence of axes in channel-specific referencing				POWER ON
A03	-				DWORD
-	-	1,2,3,4,5,6,7,8,9,10, 1 1,12,13,14,15,16,17, 18...	-1	31	7/2
<b>34120</b>	<b>REFP_BERO_LOW_ACTIVE</b>				M5
-	BERO polarity change				POWER ON
A02	-				BOOLEAN
-	-	FALSE	-	-	7/2
<b>34200</b>	<b>ENC_REFP_MODE</b>				R1
-	Referencing mode				POWER ON
A03, A02	-				BYTE
-	2	1, 1	0	8	7/2

<b>34210</b>	<b>ENC_REFP_STATE</b>				R1
-	Adjustment status of absolute encoder				IMMEDIATELY
A07, A03, A02	-				BYTE
-	2	0, 0	0	2	7/4

<b>34220</b>	<b>ENC_ABS_TURNS_MODULO</b>				R2
-	Modulo range for rotary absolute encoder				POWER ON
A03, A02	-				DWORD
-	2	4096, 4096	1	100000	7/2

<b>34230</b>	<b>ENC_SERIAL_NUMBER</b>				R1
-	Encoder serial number				POWER ON
A02	-				DWORD
-	2	0, 0	-	-	7/2

<b>34232</b>	<b>EVERY_ENC_SERIAL_NUMBER</b>				R1
-	Range of encoder serial number				POWER ON
A02	-				BOOLEAN
-	2	TRUE, TRUE	-	-	7/2

<b>34300</b>	<b>ENC_REFP_MARKER_DIST</b>				R1
mm, degrees	Basic distance of reference marks of distance-coded encoders.				POWER ON
A03, A02	-				DOUBLE
-	2	10.0, 10.0	-	-	7/2

<b>34310</b>	<b>ENC_MARKER_INC</b>				R1
mm, degrees	Interval between two reference marks for distance-coded scales				RESET
A03, A02	-				DOUBLE
-	2	0.02, 0.02	-	-	7/2

<b>34320</b>	<b>ENC_INVERS</b>				G2,R1
-	Length measuring system inverse to axis movement.				RESET
A03, A02	-				BOOLEAN
-	2	FALSE, FALSE	-	-	7/2

<b>34330</b>	<b>REFP_STOP_AT_ABS_MARKER</b>				R1
-	Distance-coded linear measuring system without target point				RESET
A03	-				BOOLEAN
-	2	TRUE, TRUE	-	-	7/2

<b>34990</b>	<b>ENC_ACTUAL_SMOOTH_TIME</b>				V1
s	Smoothing time constant for actual values.				RESET
A02	-				DOUBLE
-	2	0.0, 0.0	0.0	0.5	7/2



## 2.7.5 Spindles

<b>35000</b>	<b>SPIND_ASSIGN_TO_MACHAX</b>				S1
-	Assignment of spindle to machine axis				POWER ON
A01, A06, A11	-				BYTE
-	-	0	0	20	7/2

<b>35010</b>	<b>GEAR_STEP_CHANGE_ENABLE</b>				S1
-	Gear stage change possible				RESET
A06, A11	CTEQ				DWORD
-	-	0	0	12	7/2

<b>35012</b>	<b>GEAR_STEP_CHANGE_POSITION</b>				S1
mm, degrees	Gear stage change position				NEW CONF
A06, A11	CTEQ				DOUBLE
-	6	0.0, 0.0, 0.0, 0.0, 0.0, 0.0	-	-	7/2

<b>35014</b>	<b>GEAR_STEP_USED_IN_AXISMODE</b>				-
-	Gear stage for axis mode with M70				NEW CONF
A01, A06, A11	CTEQ				DWORD
-	-	0	0	5	7/2

<b>35020</b>	<b>SPIND_DEFAULT_MODE</b>				S1
-	Initial spindle setting				RESET
A06, A10	CTEQ				BYTE
-	-	0	0	3	7/2

<b>35030</b>	<b>SPIND_DEFAULT_ACT_MASK</b>				S1
-	Time at which initial spindle setting is effective				RESET
A06, A10	CTEQ				BYTE
-	-	0x00	0	0x03	7/2

<b>35032</b>	<b>SPIND_FUNC_RESET_MODE</b>				W4
-	Reset response of individual spindle functions				POWER ON
A06, A10	CTEQ				DWORD
-	-	0x00	0	0x01	7/2

<b>35035</b>	<b>SPIND_FUNCTION_MASK</b>				S1
-	Spindle functions				RESET
A06, A10	CTEQ				DWORD
-	-	0x510	0	0x1137	7/2

<b>35040</b>	<b>SPIND_ACTIVE_AFTER_RESET</b>				S1
-	Own spindle RESET				POWER ON
A06, A10	CTEQ				BYTE

-	-	0	0	2	7/2
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<b>35100</b>	<b>SPIND_VELO_LIMIT</b>				S1
rev/min	Maximum spindle speed				POWER ON
A06, A11, A04	CTEQ				DOUBLE
-	-	10000.0	1.0e-3	-	7/2

<b>35110</b>	<b>GEAR_STEP_MAX_VELO</b>				S1
rev/min	Maximum speed for gear stage change				NEW CONF
A06, A11, A04	CTEQ				DOUBLE
-	6	500., 500., 1000., 2000., 4000., 8000.	-	-	7/2

<b>35120</b>	<b>GEAR_STEP_MIN_VELO</b>				S1
rev/min	Minimum speed for gear stage change				NEW CONF
A06, A11, A04	CTEQ				DOUBLE
-	6	50., 50., 400., 800., 1500., 3000.	-	-	7/2

<b>35130</b>	<b>GEAR_STEP_MAX_VELO_LIMIT</b>				S1
rev/min	Maximum speed of gear stage				NEW CONF
A06, A11, A04	CTEQ				DOUBLE
-	6	500., 500., 1000., 2000., 4000., 8000.	1.0e-3	-	7/2

<b>35140</b>	<b>GEAR_STEP_MIN_VELO_LIMIT</b>				S1
rev/min	Minimum speed of gear stage				NEW CONF
A06, A11, A04	CTEQ				DOUBLE
-	6	5., 5., 10., 20., 40., 80.	-	-	7/2

<b>35150</b>	<b>SPIND_DES_VELO_TOL</b>				S1
-	Spindle speed tolerance				RESET
A03, A05, A06, A10, A04	-				DOUBLE
-	-	0.1	0.0	1.0	7/2

<b>35160</b>	<b>SPIND_EXTERN_VELO_LIMIT</b>				S1
rev/min	Spindle speed limitation from PLC				NEW CONF
A06, A04	CTEQ				DOUBLE
-	-	1000.0	1.0e-3	-	7/2

<b>35200</b>	<b>GEAR_STEP_SPEEDCTRL_ACCEL</b>				S1
rev/s²	Acceleration in speed control mode				NEW CONF
A06, A11, A04	CTEQ				DOUBLE
-	6	30.0, 30.0, 25.0, 20.0, 15.0, 10.0	1.0e-3	-	7/2

<b>35210</b>	<b>GEAR_STEP_POSCTRL_ACCEL</b>				S1
rev/s <sup>2</sup>	Acceleration in position control mode				NEW CONF
A06, A11, A04	CTEQ				DOUBLE
-	6	30.0, 30.0, 25.0, 20.0, 15.0, 10.0	1.0e-3	-	7/2

<b>35220</b>	<b>ACCEL_REDUCTION_SPEED_POINT</b>				S1,S6,B2
-	Speed for reduced acceleration				RESET
A06, A04	-				DOUBLE
-	-	1.0	0.0	1.0	7/2

<b>35230</b>	<b>ACCEL_REDUCTION_FACTOR</b>				S1,S6,B2
-	Reduced acceleration				RESET
A06, A04	CTEQ				DOUBLE
-	-	0.0	0.0	0.95	7/2

<b>35240</b>	<b>ACCEL_TYPE_DRIVE</b>				S6
-	Acceleration curve DRIVE for axes ON/OFF				RESET
A04	CTEQ				BOOLEAN
-	-	FALSE	-	-	7/2

<b>35242</b>	<b>ACCEL_REDUCTION_TYPE</b>				S6
-	Type of acceleration reduction				RESET
A04	CTEQ				BYTE
-	-	1	0	2	7/2

<b>35300</b>	<b>SPIND_POSCTRL_VELO</b>				S1
rev/min	Position control activation speed				NEW CONF
A06, A04	CTEQ				DOUBLE
-	-	500.0	-	-	7/2

<b>35310</b>	<b>SPIND_POSIT_DELAY_TIME</b>				S1
s	Positioning delay time				NEW CONF
A06, A04	CTEQ				DOUBLE
-	6	0.0, 0.05, 0.1, 0.2, 0.4, 0.8	-	-	7/2

<b>35350</b>	<b>SPIND_POSITIONING_DIR</b>				S1
-	Direction of rotation when positioning				RESET
A06	CTEQ				BYTE
-	-	3	3	4	7/2

<b>35400</b>	<b>SPIND_OSCILL_DES_VELO</b>				S1
rev/min	Oscillation speed				NEW CONF
A06, A04	CTEQ				DOUBLE
-	-	500.0	-	-	7/2

<b>35410</b>	<b>SPIND_OSCILL_ACCEL</b>				S1
rev/s <sup>2</sup>	Acceleration during oscillation				NEW CONF
A06, A04	CTEQ				DOUBLE
-	-	16.0	1.0e-3	-	7/2

<b>35430</b>	<b>SPIND_OSCILL_START_DIR</b>				S1
-	Start direction during oscillation				RESET
A06	CTEQ				BYTE
-	-	0	0	4	7/2

<b>35440</b>	<b>SPIND_OSCILL_TIME_CW</b>				S1
s	Oscillation time for M3 direction				NEW CONF
A06	CTEQ				DOUBLE
-	-	1.0	-	-	7/2

<b>35450</b>	<b>SPIND_OSCILL_TIME_CCW</b>				S1
s	Oscillation time for M4 direction				NEW CONF
A06	CTEQ				DOUBLE
-	-	0.5	-	-	7/2

<b>35500</b>	<b>SPIND_ON_SPEED_AT_IPO_START</b>				S1
-	Feedrate enable for spindle in the set range				RESET
A03, A06, A10	CTEQ				BYTE
-	-	1	0	2	7/2

<b>35510</b>	<b>SPIND_STOPPED_AT_IPO_START</b>				S1
-	Feedrate enable for spindle stopped				RESET
A03, A06, A10	CTEQ				BOOLEAN
-	-	FALSE	-	-	7/2

<b>35550</b>	<b>DRILL_VELO_LIMIT</b>				-
rev/min	Maximum speeds for tapping				NEW CONF
A06, A11, A04	CTEQ				DOUBLE
-	6	10000., 10000., 10000., 10000., 10000., 10000.	1	-	7/2

<b>35590</b>	<b>PARAMSET_CHANGE_ENABLE</b>				A2
-	Parameter set can be changed				POWER ON
EXP, A05	CTEQ				BYTE
-	-	0	0	2	7/2

## 2.7.6 Monitoring functions

<b>36000</b>	<b>STOP_LIMIT_COARSE</b>				B1
mm, degrees	Exact stop coarse				NEW CONF
A05	-				DOUBLE
-	-	0.04	-	-	7/2

<b>36010</b>	<b>STOP_LIMIT_FINE</b>				B1
mm, degrees	Exact stop fine				NEW CONF
A05	-				DOUBLE
-	-	0.01	-	-	7/2

<b>36012</b>	<b>STOP_LIMIT_FACTOR</b>				B1
-	Factor for exact stop coarse/fine and standstill				NEW CONF
A05	-				DOUBLE
-	6	1.0, 1.0, 1.0, 1.0, 1.0, 1.0	0.001	1000.0	7/2

<b>36020</b>	<b>POSITIONING_TIME</b>				B1,A3
s	Delay time exact stop fine				NEW CONF
A05	-				DOUBLE
-	-	1.0	-	-	7/2

<b>36030</b>	<b>STANDSTILL_POS_TOL</b>				A3
mm, degrees	Standstill tolerance				NEW CONF
A05	-				DOUBLE
-	-	0.2	-	-	7/2

<b>36040</b>	<b>STANDSTILL_DELAY_TIME</b>				A3
s	Delay time for standstill monitoring				NEW CONF
A05	-				DOUBLE
-	-	0.4	-	-	7/2

<b>36042</b>	<b>FOC_STANDSTILL_DELAY_TIME</b>				F1
s	Delay time for standstill monit. w/ active torque or force lim.				NEW CONF
A05	-				DOUBLE
-	-	0.4	-	-	7/2

<b>36050</b>	<b>CLAMP_POS_TOL</b>				A3
mm, degrees	Clamping tolerance				NEW CONF
A05	-				DOUBLE
-	-	0.5	-	-	7/2

<b>36052</b>	<b>STOP_ON_CLAMPING</b>				-
-	Special functions with clamped axis				NEW CONF
A10	CTEQ			BYTE	

-	-	0	0	0x07	2/1
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<b>36060</b>	<b>STANDSTILL_VELO_TOL</b>				A2
mm/min, rev/min	Threshold velocity/speed 'Axis/spindle in stop'				NEW CONF
A05, A04	-				DOUBLE
-	-	5.00	-	-	7/2

<b>36100</b>	<b>POS_LIMIT_MINUS</b>				A3
mm, degrees	1st software limit switch minus				NEW CONF
A03, A05, A11	CTEQ				DOUBLE
-	-	-1.0e8	-	-	7/2

<b>36110</b>	<b>POS_LIMIT_PLUS</b>				A3
mm, degrees	1st software limit switch plus				NEW CONF
A03, A05, A11	CTEQ				DOUBLE
-	-	1.0e8	-	-	7/2

<b>36120</b>	<b>POS_LIMIT_MINUS2</b>				A3
mm, degrees	2nd software limit switch minus				NEW CONF
A03, A05	CTEQ				DOUBLE
-	-	-1.0e8	-	-	7/2

<b>36130</b>	<b>POS_LIMIT_PLUS2</b>				A3
mm, degrees	2nd software limit switch plus				NEW CONF
A03, A05	CTEQ				DOUBLE
-	-	1.0e8	-	-	7/2

<b>36200</b>	<b>AX_VELO_LIMIT</b>				A3,G2
mm/min, rev/min	Threshold value for velocity monitoring				NEW CONF
A05, A11, A04	CTEQ				DOUBLE
-	6	11500., 11500., 11500., 11500., 11500., 11500.	-	-	7/2

<b>36210</b>	<b>CTRLOUT_LIMIT</b>				G2
%	Maximum speed setpoint				NEW CONF
EXP, A05	CTEQ				DOUBLE
-	1	110.0	0	200	7/2

<b>36220</b>	<b>CTRLOUT_LIMIT_TIME</b>				A3
s	Delay time for speed setpoint monitoring				NEW CONF
EXP, A05	-				DOUBLE
-	1	0.0	-	-	7/2

<b>36300</b>	<b>ENC_FREQ_LIMIT</b>				A3
-	Encoder limit frequency				POWER ON
EXP, A02, A05, A06	-				DOUBLE

-	2	3.0e5, 3.0e5	-	-	7/2
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<b>36302</b>	<b>ENC_FREQ_LIMIT_LOW</b>				A3
%	Encoder limit frequency for new encoder synchronization.				NEW CONF
EXP, A02, A05, A06	-				DOUBLE
-	2	99.9, 99.9	0	100	7/2

<b>36310</b>	<b>ENC_ZERO_MONITORING</b>				A3
-	Zero mark monitoring				NEW CONF
EXP, A02, A05	-				DWORD
-	2	0, 0	-	-	7/2

<b>36400</b>	<b>CONTOUR_TOL</b>				A3
mm, degrees	Tolerance band for contour monitoring				NEW CONF
A05, A11	-				DOUBLE
-	-	1.0	-	-	7/2

<b>36500</b>	<b>ENC_CHANGE_TOL</b>				G2
mm, degrees	Tolerance at actual position value change.				NEW CONF
A02, A05	-				DOUBLE
-	-	0.1	-	-	7/2

<b>36510</b>	<b>ENC_DIFF_TOL</b>				G2
mm, degrees	Tolerance of measuring system synchronization				NEW CONF
A02, A05	-				DOUBLE
-	-	0.0	-	-	7/2

<b>36520</b>	<b>DES_VELO_LIMIT</b>				DA
%	Threshold for setpoint velocity monitoring				NEW CONF
A02, A05	-				DOUBLE
-	-	125.0	-	-	7/2

<b>36600</b>	<b>BRAKE_MODE_CHOICE</b>				A3
-	Deceleration response on hardware limit switch				POWER ON
EXP, A05	CTEQ				BYTE
-	-	1	0	1	7/2

<b>36610</b>	<b>AX_EMERGENCY_STOP_TIME</b>				A3
s	Maximum time for braking ramp in case of error.				NEW CONF
A05	-				DOUBLE
-	-	0.05	-	-	7/2

<b>36620</b>	<b>SERVO_DISABLE_DELAY_TIME</b>				A2
s	Cutout delay servo enable				NEW CONF
A05	-				DOUBLE
-	-	0.1	-	-	7/2

<b>36690</b>	<b>AXIS_DIAGNOSIS</b>	-
-	Internal data for test purposes	POWER ON
EXP, A08	NBUP	DWORD
-	0	0/0

<b>36700</b>	<b>DRIFT_ENABLE</b>	K3
-	Automatic drift compensation	NEW CONF
EXP, A07, A09	-	BOOLEAN
-	FALSE	1/1

<b>36710</b>	<b>DRIFT_LIMIT</b>	K3
%	Drift limit value for automatic drift compensation	NEW CONF
EXP, A07, A09	-	DOUBLE
-	1 0.0 0 1.e9	1/1

<b>36720</b>	<b>DRIFT_VALUE</b>	K3
%	Basic drift value	NEW CONF
EXP, A07, A09	-	DOUBLE
-	1 0.0	1/1

<b>36730</b>	<b>DRIVE_SIGNAL_TRACKING</b>	S5
-	Acquisition of additional drive actual values	POWER ON
A10	-	BYTE
-	0 0 4	7/2

<b>36750</b>	<b>AA_OFF_MODE</b>	FBSY
-	Effect of value assignment for axial override of synchr. action.	POWER ON
A10	CTEQ	BYTE
-	0 0 7	7/2

### 2.7.7 Safety integrated

<b>36901</b>	<b>SAFE_FUNCTION_ENABLE</b>	FBSI
-	Enable safety functions	POWER ON
A05	-	DWORD
-	0 0 0xFFFFB	7/2
840di-basic	-	-1/-
840di-universal	-	-1/-
840di-plus	-	-1/-

<b>36902</b>	<b>SAFE_IS_ROT_AX</b>	FBSI
-	Rotary axis	POWER ON
A01, A05, A06	-	BOOLEAN
-	FALSE	7/2
840di-basic	-	-1/-
840di-universal	-	-1/-
840di-plus	-	-1/-



<b>36903</b>	<b>SAFE_CAM_ENABLE</b>				-
-	Function enable safe cams				POWER ON
A05					DWORD
-	-	0	0	0xFFF3	7/2
840d-2a2c	-	-	-	-	-1/-
840d-6a2c	-	-	-	-	-1/-
840d-12a2c	-	-	-	-	-1/-
840d-31a10c	-	-	-	-	-1/-
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36905</b>	<b>SAFE_MODULO_RANGE</b>				FBSI
degrees	Modulo value Safe cams				POWER ON
A02					DOUBLE
-	-	0.0	0.0	737280.0	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36906</b>	<b>SAFE_CTRLOUT_MODULE_NR</b>				-
-	SI drive assignment				POWER ON
A01, A05					BYTE
-	-	1,2,3,4,5,6,7,8,9,10, 1 1,12,13,14,15,16,17, 18...	1	31	7/2
840d-2a2c	-	-	-	-	-1/-
840d-6a2c	-	-	-	-	-1/-
840d-12a2c	-	-	-	-	-1/-
840d-31a10c	-	-	-	-	-1/-
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36907</b>	<b>SAFE_DRIVE_PS_ADDRESS</b>				-
-	PROFIsafe address of the drive				POWER ON
A01, A05					READ DWORD
-	-	0	-	-	7/0
840d-2a2c	-	-	-	-	-1/-
840d-6a2c	-	-	-	-	-1/-
840d-12a2c	-	-	-	-	-1/-
840d-31a10c	-	-	-	-	-1/-
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

36910	SAFE_ENC_SEGMENT_NR				FBSI
-	Actual value assignment: type of drive				POWER ON
EXP, A01, A02, A05				-	BYTE
-	-	5	5	5	0/0
710-2a2c	-	-	-	-	-1/-
710-6a2c	-	-	-	-	-1/-
710-12a2c	-	-	-	-	-1/-
840d-2a2c	-	1	1	1	-1/-
840d-6a2c	-	-	-	-	-1/-
840d-12a2c	-	1	1	1	-1/-
840d-31a10c	-	1	1	1	-1/-
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

36911	SAFE_ENC_MODULE_NR				FBSI
-	Actual value assignment: drive number/measurement circuit number				POWER ON
A01, A02, A05				-	BYTE
-	-	1,2,3,4,5,6,7,8,9,10, 1 1,12,13,14,15,16,17, 18...	1	31	7/2
710-2a2c	-	0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0...	0	0	-1/-
710-6a2c	-	0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0...	0	0	-1/-
710-12a2c	-	0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0...	0	0	-1/-
840di-basic	-	0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0...	0	0	-1/-
840di-universal	-	0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0...	0	0	-1/-
840di-plus	-	0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0,0,0,0, 0,0,0,0...	0	0	-1/-

36912	SAFE_ENC_INPUT_NR				FBSI
-	Actual value assignm.: Input on drive module/meas. circuit board				POWER ON
A01, A02, A05				-	BYTE
-	-	1	1	3	7/2
840di-basic	-	-	-	-	-1/-

840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36914</b>	<b>SAFE_SINGLE_ENC</b>				-
-	SI single-encoder system				POWER ON
A01, A02, A05					BOOLEAN
-	-	TRUE	-	-	7/2
840d-2a2c	-	-	-	-	-1/-
840d-6a2c	-	-	-	-	-1/-
840d-12a2c	-	-	-	-	-1/-
840d-31a10c	-	-	-	-	-1/-
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36915</b>	<b>SAFE_ENC_TYPE</b>				FBSI
-	Encoder type				POWER ON
A01, A02, A05					BYTE
-	-	0	0	4	7/2
710-2a2c	-	-	-	-	-1/-
710-6a2c	-	-	-	-	-1/-
710-12a2c	-	-	-	-	-1/-
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36916</b>	<b>SAFE_ENC_IS_LINEAR</b>				FBSI
-	Linear scale				POWER ON
A02, A05					BOOLEAN
-	-	FALSE	-	-	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36917</b>	<b>SAFE_ENC_GRID_POINT_DIST</b>				FBSI
mm	Scale division for linear scale				POWER ON
A02, A05					DOUBLE
-	-	0.01	0.00001	8	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36918</b>	<b>SAFE_ENC_RESOL</b>				FBSI
-	Encoder markings per revolution				POWER ON
A02, A05					DWORD
-	-	2048	1	100000	7/2

840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36919</b>	<b>SAFE_ENC_PULSE_SHIFT</b>				-
-	Shift factor of encoder multiplication				POWER ON
A02, A05					BYTE
-	-	11	2	18	7/2
840d-2a2c	-	-	-	-	-1/-
840d-6a2c	-	-	-	-	-1/-
840d-12a2c	-	-	-	-	-1/-
840d-31a10c	-	-	-	-	-1/-
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36920</b>	<b>SAFE_ENC_GEAR_PITCH</b>				FBSI
mm	Lead screw pitch				POWER ON
A02, A05					DOUBLE
-	-	10.0	0.1	10000.	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36921</b>	<b>SAFE_ENC_GEAR_DENOM</b>				FBSI
-	Denominator of gearbox encoder/load				POWER ON
A02, A05					DWORD
-	8	1, 1, 1, 1, 1, 1, 1, 1	1	2147000000	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36922</b>	<b>SAFE_ENC_GEAR_NUMERA</b>				FBSI
-	Numerator of gearbox encoder/load				POWER ON
A02, A05					DWORD
-	8	1, 1, 1, 1, 1, 1, 1, 1	1	2147000000	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36923</b>	<b>SAFE_INFO_ENC_RESOL</b>				-
mm, degrees	Safe encoder resolution				POWER ON
A02, A05					READ DOUBLE
-	8	0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0	-	-	7/0
840d-2a2c	-	-	-	-	-1/-
840d-6a2c	-	-	-	-	-1/-

840d-12a2c	-	-	-	-	-1/-
840d-31a10c	-	-	-	-	-1/-
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36925</b>	<b>SAFE_ENC_POLARITY</b>				FBSI
-	Direction reversal of actual value				POWER ON
A02, A05	-				DWORD
-	-	1	-1	1	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36926</b>	<b>SAFE_ENC_FREQ_LIMIT</b>				FBSI
-	Encoder frequency limit for safe operation				POWER ON
A02, A05	-				DWORD
-	-	300000	300000	420000	7/2
710-2a2c	-	500000	500000	500000	-1/-
710-6a2c	-	500000	500000	500000	-1/-
710-12a2c	-	500000	500000	500000	-1/-
840di-basic	-	500000	500000	500000	-1/-
840di-universal	-	500000	500000	500000	-1/-
840di-plus	-	500000	500000	500000	-1/-

<b>36927</b>	<b>SAFE_ENC_MOD_TYPE</b>				-
-	Encoder evaluation type				POWER ON
A02, A05	READ				BYTE
-	-	0	-	-	7/0
840d-2a2c	-	-	-	-	-1/-
840d-6a2c	-	-	-	-	-1/-
840d-12a2c	-	-	-	-	-1/-
840d-31a10c	-	-	-	-	-1/-
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36928</b>	<b>SAFE_ENC_IDENT</b>				-
-	Encoder identification				POWER ON
A02, A05	READ				DWORD
-	3	0, 0, 0	-	-	7/0
840d-2a2c	-	-	-	-	-1/-
840d-6a2c	-	-	-	-	-1/-
840d-12a2c	-	-	-	-	-1/-
840d-31a10c	-	-	-	-	-1/-
840di-basic	-	-	-	-	-1/-

840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36930</b>	<b>SAFE_STANDSTILL_TOL</b>				FBSI
mm, degrees	Standstill tolerance				POWER ON
A05					DOUBLE
-	-	1.	0.	100.	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36931</b>	<b>SAFE_VELO_LIMIT</b>				FBSI
mm/min, rev/min	Limit value for safe velocity				POWER ON
A05, A04					DOUBLE
-	4	2000., 2000., 2000., 2000.	-	-	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36932</b>	<b>SAFE_VELO_OVR_FACTOR</b>				FBSI
%	SG offset values				POWER ON
A05					DWORD
-	16	100, 100, 100, 100, 100, 100, 100, 100, 100...	1	100	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36933</b>	<b>SAFE_DES_VELO_LIMIT</b>				FBSI
%	SG setpoint speed limit				RESET
A05, A04					DWORD
-	-	0	0	100	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36934</b>	<b>SAFE_POS_LIMIT_PLUS</b>				FBSI
mm, degrees	Upper limit of safe end position				POWER ON
A03, A05					DOUBLE
-	2	100000., 100000.	-2147000	2147000	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36935</b>	<b>SAFE_POS_LIMIT_MINUS</b>					FBSI
mm, degrees	Lower limit of safe end position					POWER ON
A03, A05						DOUBLE
-	2	-100000., -100000.	-2147000	2147000	7/2	
840di-basic	-	-	-	-	-1/-	
840di-universal	-	-	-	-	-1/-	
840di-plus	-	-	-	-	-1/-	

<b>36936</b>	<b>SAFE_CAM_POS_PLUS</b>					FBSI
mm, degrees	Plus cam position for safe cams					POWER ON
A03, A05						DOUBLE
-	4	10., 10., 10., 10.	-2147000	2147000	7/2	
840di-basic	-	-	-	-	-1/-	
840di-universal	-	-	-	-	-1/-	
840di-plus	-	-	-	-	-1/-	

<b>36937</b>	<b>SAFE_CAM_POS_MINUS</b>					FBSI
mm, degrees	Minus cam position for safe cams					POWER ON
A03, A05						DOUBLE
-	4	-10., -10., -10., -10.	-2147000	2147000	7/2	
840di-basic	-	-	-	-	-1/-	
840di-universal	-	-	-	-	-1/-	
840di-plus	-	-	-	-	-1/-	

<b>36940</b>	<b>SAFE_CAM_TOL</b>					FBSI
mm, degrees	Tolerance for safe cams					POWER ON
A05						DOUBLE
-	-	0.1	0.001	10	7/2	
840di-basic	-	-	-	-	-1/-	
840di-universal	-	-	-	-	-1/-	
840di-plus	-	-	-	-	-1/-	

<b>36942</b>	<b>SAFE_POS_TOL</b>					FBSI
mm, degrees	Tolerance actual value cross-check					POWER ON
A05						DOUBLE
-	-	0.1	0.001	360	7/2	
840di-basic	-	-	-	-	-1/-	
840di-universal	-	-	-	-	-1/-	
840di-plus	-	-	-	-	-1/-	

<b>36944</b>	<b>SAFE_REFP_POS_TOL</b>					FBSI
mm, degrees	Tolerance actual value check (referencing)					POWER ON
A05						DOUBLE
-	-	0.01	0	36	7/2	
840di-basic	-	-	-	-	-1/-	
840di-universal	-	-	-	-	-1/-	

840di-plus	-	-	-	-	-1/-
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<b>36946</b>	<b>SAFE_VELO_X</b>				FBSI
mm/min, rev/min	Velocity limit n_x				POWER ON
A05					DOUBLE
-	-	20.	0.	6000.	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36948</b>	<b>SAFE_STOP_VELO_TOL</b>				FBSI
mm/min, rev/min	Velocity tolerance for Safe braking ramp				POWER ON
A05					DOUBLE
-	-	300.	0.	120000.	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36949</b>	<b>SAFE_SLIP_VELO_TOL</b>				FBSI
mm/min, rev/min	Slip velocity tolerance				POWER ON
A05					DOUBLE
-	-	6.	0.	6000.	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36950</b>	<b>SAFE_MODE_SWITCH_TIME</b>				FBSI
s	Tolerance time for SGE switchover				POWER ON
A05					DOUBLE
-	-	0.5	0	10.	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36951</b>	<b>SAFE_VELO_SWITCH_DELAY</b>				FBSI
s	Delay time for velocity changeover				POWER ON
A05					DOUBLE
-	-	0.1	0	60	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36952</b>	<b>SAFE_STOP_SWITCH_TIME_C</b>				FBSI
s	Transition time STOP C to safe standstill				POWER ON
A05					DOUBLE
-	-	0.1	0	10	7/2
840di-basic	-	-	-	-	-1/-



840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36953</b>	<b>SAFE_STOP_SWITCH_TIME_D</b>				FBSI
s	Transition time STOP D to safe standstill				POWER ON
A05					DOUBLE
-	-	0.1	0	60	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36954</b>	<b>SAFE_STOP_SWITCH_TIME_E</b>				FBSI
s	Transitional period STOP E to safe standstill				POWER ON
A05					DOUBLE
-	-	0.1	0	60	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36955</b>	<b>SAFE_STOP_SWITCH_TIME_F</b>				FBSI
s	Transition time STOP F to STOP B				POWER ON
A05					DOUBLE
-	-	0.0	0	60	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36956</b>	<b>SAFE_PULSE_DISABLE_DELAY</b>				FBSI
s	Delay time for pulse suppression				POWER ON
A05					DOUBLE
-	-	0.1	0	10	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36957</b>	<b>SAFE_PULSE_DIS_CHECK_TIME</b>				FBSI
s	Time for checking pulse suppression				POWER ON
A05					DOUBLE
-	-	0.1	0	10	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36958</b>	<b>SAFE_ACCEPTANCE_TST_TIMEOUT</b>				FBSI
s	Time limit for acceptance test duration				POWER ON
A05					DOUBLE
-	-	40.0	5	100	7/2

840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36960</b>	<b>SAFE_STANDSTILL_VELO_TOL</b>				FBSI
mm/min, rev/min	Creep speed for pulse suppression				POWER ON
A05, A04					DOUBLE
-	-	0.0	0.0	6000.	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36961</b>	<b>SAFE_VELO_STOP_MODE</b>				FBSI
-	Stop reaction for safe velocity				POWER ON
A05					BYTE
-	-	5	0	14	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36962</b>	<b>SAFE_POS_STOP_MODE</b>				FBSI
-	Stop reaction for safe end position				POWER ON
A05					BYTE
-	-	2	2	4	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36963</b>	<b>SAFE_VELO_STOP_REACTION</b>				FBSI
-	Stop reaction for safe velocity				POWER ON
A05					BYTE
-	4	2, 2, 2, 2	0	14	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36964</b>	<b>SAFE_IPO_STOP_GROUP</b>				FBSI
-	Safety-integrated IPO-response grouping				RESET
A01, A05					BYTE
-	-	0	0	1	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36965</b>	<b>SAFE_PARK_ALARM_SUPPRESS</b>				FBSI
-	Alarm suppression on parking axis				POWER ON
A01					BOOLEAN

-	-	FALSE	-	-	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36966</b>	<b>SAFE_BRACKETEST_TORQUE</b>				FBSI
%	Holding torque for brake test				POWER ON
A05, A10				CTEQ	DOUBLE
-	-	5.0	0.0	800.0	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36967</b>	<b>SAFE_BRACKETEST_POS_TOL</b>				FBSI
mm, degrees	Position tolerance for brake test				POWER ON
A05, A10				CTEQ	DOUBLE
-	-	1.0	-	-	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36968</b>	<b>SAFE_BRACKETEST_CONTROL</b>				-
-	Program check for the brake test				POWER ON
A05, A10				CTEQ	DWORD
-	-	0	0	1	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36970</b>	<b>SAFE_SVSS_DISABLE_INPUT</b>				FBSI
-	Input assignment SBH/SG deselection				POWER ON
A01, A05				-	DWORD
-	-	0	-	-	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36971</b>	<b>SAFE_SS_DISABLE_INPUT</b>				FBSI
-	Input assignment SBH deselection				POWER ON
A01, A05				-	DWORD
-	-	0	-	-	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36972</b>	<b>SAFE_VELO_SELECT_INPUT</b>				FBSI
-	Input assignment SG selection				POWER ON

A01, A05	-	-	-	DWORD
-	2	0, 0	-	7/2
840di-basic	-	-	-	-1/-
840di-universal	-	-	-	-1/-
840di-plus	-	-	-	-1/-

<b>36973</b>	<b>SAFE_POS_SELECT_INPUT</b>			FBSI
-	Input assignment SE selection			POWER ON
A01, A05	-	-	-	DWORD
-	-	0	-	7/2
840di-basic	-	-	-	-1/-
840di-universal	-	-	-	-1/-
840di-plus	-	-	-	-1/-

<b>36974</b>	<b>SAFE_GEAR_SELECT_INPUT</b>			FBSI
-	Input assignment speed ratio selection			POWER ON
A01, A05	-	-	-	DWORD
-	3	0, 0, 0	-	7/2
840di-basic	-	-	-	-1/-
840di-universal	-	-	-	-1/-
840di-plus	-	-	-	-1/-

<b>36975</b>	<b>SAFE_STOP_REQUEST_INPUT</b>			FBSI
-	Input assignment test stop selection			POWER ON
A01, A05	-	-	-	DWORD
-	-	0	-	7/2
710-2a2c	-	-	-	-1/-
710-6a2c	-	-	-	-1/-
710-12a2c	-	-	-	-1/-
840di-basic	-	-	-	-1/-
840di-universal	-	-	-	-1/-
840di-plus	-	-	-	-1/-

<b>36976</b>	<b>SAFE_PULSE_STATUS_INPUT</b>			FBSI
-	Input assignment status pulses suppressed			POWER ON
A01, A05	-	-	-	DWORD
-	-	0	-	7/2
710-2a2c	-	-	-	-1/-
710-6a2c	-	-	-	-1/-
710-12a2c	-	-	-	-1/-
840di-basic	-	-	-	-1/-
840di-universal	-	-	-	-1/-
840di-plus	-	-	-	-1/-

<b>36977</b>	<b>SAFE_EXT_STOP_INPUT</b>			FBSI
-	Input assignment for external stop request			POWER ON

A01, A05					DWORD
-	4	0, 0, 0, 0	-	-	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36978</b>	<b>SAFE_OVR_INPUT</b>				FBSI
-	Input assignment for SG override				POWER ON
A01, A05					DWORD
-	4	0, 0, 0, 0	-	-	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36979</b>	<b>SAFE_STOP_REQUEST_EXT_INPUT</b>				FBSI
-	Input assignment test ext. shutdown				POWER ON
A01, A05					DWORD
-	-	0	-	-	7/2
710-2a2c	-	-	-	-	-1/-
710-6a2c	-	-	-	-	-1/-
710-12a2c	-	-	-	-	-1/-
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36980</b>	<b>SAFE_SVSS_STATUS_OUTPUT</b>				FBSI
-	Output assignment SBH/SG active				POWER ON
A01, A05					DWORD
-	-	0	-	-	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36981</b>	<b>SAFE_SS_STATUS_OUTPUT</b>				FBSI
-	Output assignment SBH active				POWER ON
A01, A05					DWORD
-	-	0	-	-	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36982</b>	<b>SAFE_VELO_STATUS_OUTPUT</b>				FBSI
-	Output assignment for active SG selection				POWER ON
A01, A05					DWORD
-	2	0, 0	-	-	7/2
840di-basic	-	-	-	-	-1/-

840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36984</b>	<b>SAFE_EXT_PULSE_ENAB_OUTPUT</b>				FBSI
-	Output assignment enable pulses external				POWER ON
A01, A05					DWORD
-	-	0	-	-	7/2
710-2a2c	-	-	-	-	-1/-
710-6a2c	-	-	-	-	-1/-
710-12a2c	-	-	-	-	-1/-
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36985</b>	<b>SAFE_VELO_X_STATUS_OUTPUT</b>				FBSI
-	Output assignment n < n_x				POWER ON
A01, A05					DWORD
-	-	0	-	-	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36986</b>	<b>SAFE_PULSE_ENABLE_OUTPUT</b>				FBSI
-	Output assignment enable pulses				POWER ON
A01, A05					DWORD
-	-	0	0x0	0xFFFFFFFF	7/2
710-2a2c	-	-	-	0xCFFFFFFF	-/-
710-6a2c	-	-	-	0xCFFFFFFF	-/-
710-12a2c	-	-	-	0xCFFFFFFF	-/-
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36987</b>	<b>SAFE_REFP_STATUS_OUTPUT</b>				FBSI
-	Output assignment axis safely referenced				POWER ON
A01, A05					DWORD
-	-	0	-	-	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36988</b>	<b>SAFE_CAM_PLUS_OUTPUT</b>				FBSI
-	Output assignment SN1 + to SN4 +				POWER ON
A01, A05					DWORD
-	4	0, 0, 0, 0	-	-	7/2
840di-basic	-	-	-	-	-1/-

840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36989</b>	<b>SAFE_CAM_MINUS_OUTPUT</b>				FBSI
-	Output assignment SN1 - to SN4 -				POWER ON
A01, A05					DWORD
-	4	0, 0, 0, 0	-	-	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36990</b>	<b>SAFE_ACT_STOP_OUTPUT</b>				FBSI
-	Output assignment of active stop				POWER ON
A01, A05					DWORD
-	4	0, 0, 0, 0	-	-	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36992</b>	<b>SAFE_CROSSCHECK_CYCLE</b>				FBSI
s	Display of axial cross-check cycle				POWER ON
N01, N06, N05				READ	DOUBLE
-	-	0.0	-	-	7/0
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36993</b>	<b>SAFE_CONFIG_CHANGE_DATE</b>				FBSI
-	Date/time last change of SI-NCK MD				POWER ON
EXP, A07, A05				READ	STRING
-	7	"" "" "" "" "" "" ""	-	-	7/0
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36994</b>	<b>SAFE_PREV_CONFIG</b>				FBSI
-	Data of previous safety configuration				POWER ON
EXP, A07, A05				READ	DWORD
-	7	0, 0, 0, 0, 0, 0, 0	-	-	0/0
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36995</b>	<b>SAFE_STANDSTILL_POS</b>				FBSI
-	Standstill position				POWER ON
A07, A05					DWORD
-	-	0	-	-	0/0

840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36997</b>	<b>SAFE_ACKN</b>				FBSI
-	User acknowledge				POWER ON
A07, A05					DWORD
-	-	0	-	-	7/2
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36998</b>	<b>SAFE_ACT_CHECKSUM</b>				FBSI
-	Actual checksum				POWER ON
EXP, A07, A05					DWORD
-	2	0, 0	-	-	7/0
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

<b>36999</b>	<b>SAFE_DES_CHECKSUM</b>				FBSI
-	Desired (expected) checksum				POWER ON
EXP, A07, A05					DWORD
-	2	0, 0	-	-	7/1
840di-basic	-	-	-	-	-1/-
840di-universal	-	-	-	-	-1/-
840di-plus	-	-	-	-	-1/-

## 2.7.8 Travel to fixed stop

<b>37000</b>	<b>FIXED_STOP_MODE</b>				F1
-	Travel to fixed stop mode				POWER ON
A10					CTEQ
-	-	0	0	3	7/2

<b>37002</b>	<b>FIXED_STOP_CONTROL</b>				F1
-	Sequence control for travel to fixed stop				POWER ON
A10					BYTE
-	-	0	0	3	7/2

<b>37010</b>	<b>FIXED_STOP_TORQUE_DEF</b>				F1
%	Default fixed stop clamping torque				POWER ON
A10					CTEQ
-	-	5.0	0.0	100.0	7/2

<b>37012</b>	<b>FIXED_STOP_TORQUE_RAMP_TIME</b>				F1
s	Time period until reaching the changed torque limit				NEW CONF



A10	-	-	-	-	DOUBLE
-	-	0.0	-	-	7/2

<b>37014</b>	<b>FIXED_STOP_TORQUE_FACTOR</b>	F1
-	Adaption factor torque limit	NEW CONF
A10	-	DOUBLE
-	-	7/2

<b>37020</b>	<b>FIXED_STOP_WINDOW_DEF</b>	F1
mm, degrees	Default fixed-stop monitoring window	POWER ON
A05, A10	CTEQ	DOUBLE
-	-	7/2

<b>37030</b>	<b>FIXED_STOP_THRESHOLD</b>	F1
mm, degrees	Threshold for fixed stop detection	NEW CONF
A10	-	DOUBLE
-	-	7/2

<b>37040</b>	<b>FIXED_STOP_BY_SENSOR</b>	F1
-	Fixed stop detection by sensor	IMMEDIATELY
A10	CTEQ	BYTE
-	-	7/2

<b>37050</b>	<b>FIXED_STOP_ALARM_MASK</b>	F1
-	Enable of the fixed stop alarms	NEW CONF
A05, A10	-	BYTE
-	-	7/2

<b>37052</b>	<b>FIXED_STOP_ALARM_REACTION</b>	F1
-	Reaction with fixed stop alarms	POWER ON
A05, A10	-	BYTE
-	-	7/1

<b>37060</b>	<b>FIXED_STOP_ACKN_MASK</b>	F1
-	Waiting for PLC acknowledgements during travel to fixed stop	POWER ON
A10	CTEQ	BYTE
-	-	7/2

<b>37070</b>	<b>FIXED_STOP_ANA_TORQUE</b>	F1
%	Torque limit when approaching the fixed stop for analog drives	POWER ON
A10	CTEQ	DOUBLE
-	-	7/2

<b>37080</b>	<b>FOC_ACTIVATION_MODE</b>	F1
-	Initial setting of modal torque/force limitation	POWER ON
A10	-	BYTE
-	-	7/2

<b>37100</b>	<b>GANTRY_AXIS_TYPE</b>	G1
-	Gantry axis definition	POWER ON
A01, A10	CTEQ	BYTE
-	0 0 33	7/2

<b>37110</b>	<b>GANTRY_POS_TOL_WARNING</b>	G1
mm, degrees	Gantry warning limit	RESET
A05, A10	-	DOUBLE
-	0.0 -	7/2

<b>37120</b>	<b>GANTRY_POS_TOL_ERROR</b>	G1
mm, degrees	Gantry trip limit	POWER ON
A05, A10	-	DOUBLE
-	0.0 -	7/2

<b>37130</b>	<b>GANTRY_POS_TOL_REF</b>	G1
mm, degrees	Gantry trip limit during referencing	POWER ON
A05, A10	-	DOUBLE
-	0.0 -	7/2

<b>37135</b>	<b>GANTRY_ACT_POS_TOL_ERROR</b>	-
mm, degrees	Current gantry trip limit	RESET
A05, A10	-	DOUBLE
-	0.0 -	7/2

<b>37140</b>	<b>GANTRY_BREAK_UP</b>	G1
-	Invalidate gantry axis grouping	RESET
EXP, A01, A10	CTEQ	BOOLEAN
-	FALSE -	7/2

<b>37150</b>	<b>GANTRY_FUNCTION_MASK</b>	-
-	Gantry functions	RESET
A10	-	DWORD
-	0x00 0 0x3	7/2

<b>37160</b>	<b>LEAD_FUNCTION_MASK</b>	-
-	Functions for master value coupling	NEW CONF
A10	CTEQ	DWORD
-	0x01 0 0x1	1/1

<b>37200</b>	<b>COUPLE_POS_TOL_COARSE</b>	S3
mm, degrees	Threshold value for 'Synchronism coarse'	NEW CONF
A05, A10	-	DOUBLE
-	1.0 -	7/2

<b>37210</b>	<b>COUPLE_POS_TOL_FINE</b>	S3
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mm, degrees	Threshold value for 'Synchronism fine'				NEW CONF
A05, A10					DOUBLE
-	-	0.5	-	-	7/2

<b>37220</b>	<b>COUPLE_VELO_TOL_COARSE</b>				S3
mm/min, rev/min	Velocity tolerance 'coarse'				NEW CONF
A05, A10					DOUBLE
-	-	60.0	-	-	7/2

<b>37230</b>	<b>COUPLE_VELO_TOL_FINE</b>				S3
mm/min, rev/min	Velocity tolerance 'coarse'				NEW CONF
A05, A10					DOUBLE
-	-	30.0	-	-	7/2

<b>37250</b>	<b>MS_ASSIGN_MASTER_SPEED_CMD</b>				TE3
-	Master axis number for speed setpoint coupling				POWER ON
A10					DWORD
-	-	0	0	31	7/2
710-2a2c	-	-	-	2	-/-
710-6a2c	-	-	-	6	-/-
710-12a2c	-	-	-	12	-/-
840d-2a2c	-	-	-	2	-/-
840d-6a2c	-	-	-	6	-/-
840d-12a2c	-	-	-	12	-/-

<b>37252</b>	<b>MS_ASSIGN_MASTER_TORQUE_CTR</b>				TE3
-	Master axis number for torque control				POWER ON
A10					DWORD
-	-	0	0	31	7/2

<b>37253</b>	<b>MS_FUNCTION_MASK</b>				-
-	Master/slave settings				NEW CONF
A10					DWORD
-	-	0x0	-	-	7/2

<b>37254</b>	<b>MS_TORQUE_CTRL_MODE</b>				TE3
-	Torque compensatory controller interconnection				IMMEDIATELY
A10					DWORD
-	-	0	0	3	7/2

<b>37255</b>	<b>MS_TORQUE_CTRL_ACTIVATION</b>				TE3
-	Torque compensatory controller activation				NEW CONF
A10					BYTE
-	-	0	0	1	7/2

<b>37256</b>	<b>MS_TORQUE_CTRL_P_GAIN</b>				TE3
%	Torque compensatory controller gain factor				NEW CONF

A10	-				DOUBLE
-	-	0.0	0.0	100.0	7/2

<b>37258</b>	<b>MS_TORQUE_CTRL_I_TIME</b>				TE3
s	Torque compensatory controller integral action time				NEW CONF
A10	-				DOUBLE
-	-	0.0	0.0	100.0	7/2

<b>37260</b>	<b>MS_MAX_CTRL_VELO</b>				TE3
%	Torque compensatory controller limit				NEW CONF
A10	-				DOUBLE
-	-	100.0	0.0	100.0	7/2

<b>37262</b>	<b>MS_COUPLING_ALWAYS_ACTIVE</b>				TE3
-	Permanent master/slave link				NEW CONF
A10	-				BYTE
-	-	0	0	1	7/2

<b>37263</b>	<b>MS_SPIND_COUPLING_MODE</b>				-
-	Link response of a spindle				NEW CONF
A10	-				BYTE
-	-	0	0	1	7/2

<b>37264</b>	<b>MS_TENSION_TORQUE</b>				TE3
%	Master/slave tension torque				IMMEDIATELY
A10	-				DOUBLE
-	-	0.0	-100.0	100.0	7/2

<b>37266</b>	<b>MS_TENSION_TORQ_FILTER_TIME</b>				TE3
s	Filter time constant tension torque				NEW CONF
A10	-				DOUBLE
-	-	0.0	0.0	100.0	7/2

<b>37268</b>	<b>MS_TORQUE_WEIGHT_SLAVE</b>				TE3
%	Torque weighting of slave axis				NEW CONF
A10	-				DOUBLE
-	-	50.0	1.0	100.0	7/2

<b>37270</b>	<b>MS_VELO_TOL_COARSE</b>				TE3
%	Master/slave speed tolerance coarse				NEW CONF
A10	-				DOUBLE
-	-	5.0	-	-	7/2

<b>37272</b>	<b>MS_VELO_TOL_FINE</b>				TE3
%	Master/slave speed tolerance fine				NEW CONF
A10	-				DOUBLE
-	-	1.0	-	-	7/2

<b>37274</b>	<b>MS_MOTION_DIR_REVERSE</b>	TE3
-	Inverting traversing direction slave axis	NEW CONF
A10	-	BYTE
-	- 0 0 1	7/2
<b>37400</b>	<b>EPS_TLIFT_TANG_STEP</b>	T3
mm, degrees	Tangent angle for corner recognition	RESET
A10	CTEQ	DOUBLE
-	- 5.0 -	7/2
<b>37402</b>	<b>TANG_OFFSET</b>	T3
mm, degrees	Default angle for tangential correction	RESET
A10	CTEQ	DOUBLE
-	- 0.0 -	7/2
<b>37500</b>	<b>ESR_REACTION</b>	M3
-	Axial mode of "Extended Stop and Retract"	NEW CONF
EXP, A01, A10	CTEQ	BYTE
-	- 0 0 22	7/2
<b>37510</b>	<b>AX_ESR_DELAY_TIME1</b>	-
s	Delay time ESR single axis	NEW CONF
EXP, A01, A10	CTEQ	DOUBLE
-	- 0.0 -	7/2
<b>37511</b>	<b>AX_ESR_DELAY_TIME2</b>	-
s	ESR time for interpolatory deceleration single axis	NEW CONF
EXP, A01, A10	CTEQ	DOUBLE
-	- 0.0 -	7/2
<b>37550</b>	<b>EG_VEL_WARNING</b>	M3
%	Threshold value for velocity warning threshold.	NEW CONF
A05, A10	-	DOUBLE
-	- 90.0 0 100	7/2
<b>37560</b>	<b>EG_ACC_TOL</b>	M3
%	Threshold value for 'Axis accelerating'	NEW CONF
A05, A10	-	DOUBLE
-	- 25.0 -	7/2
<b>37600</b>	<b>PROFIBUS_ACTVAL_LEAD_TIME</b>	G3
s	Actual value acquisition time (Profibus Ti)	POWER ON
EXP, A01, A02	-	DOUBLE
-	- 0.000125 0.0 0.032	0/0
<b>37602</b>	<b>PROFIBUS_OUTVAL_DELAY_TIME</b>	G3

s	Setpoint delay time (Profibus To)				POWER ON
EXP, A01, A02	-				DOUBLE
-	-	0.003	0.0	0.032	0/0

<b>37610</b>	<b>PROFIBUS_CTRL_CONFIG</b>				K4
-	Profibus control bit configuration				POWER ON
EXP, A01	-				BYTE
-	-	0	0	2	7/2

<b>37620</b>	<b>PROFIBUS_TORQUE_RED_RESOL</b>				-
%	Resolution Profibus torque reduction				NEW CONF
EXP, A01	-				DOUBLE
-	-	1.0	0.01	10.0	7/2

### 2.7.9 Axis-specific memory settings

<b>38000</b>	<b>MM_ENC_COMP_MAX_POINTS</b>				K3
-	Number of intermediate points for interpol. compensation (SRAM)				POWER ON
A01, A09, A02	-				DWORD
-	2	0, 0	0	5000	7/2

<b>38010</b>	<b>MM_QEC_MAX_POINTS</b>				K3
-	Number of values for quadrant error compens. with neural network				POWER ON
A01, A09	-				DWORD
-	1	0	0	1040	7/2

## 2.8 Setting data

### Note

Machine data values which may differ according to the system used are listed in additional lines below the table header. In these cases, the fourth line is the standard assignment, the fifth line and any further lines contain differing values for the systems stated. The minus sign in a field means: The standard values stated in line 4 applies. The entry "-1" stated under protection means that there is no machine data for the system stated.

Number	MD identifier				Cross reference
Unit	Name				Active
Display filters				Attributes	D type
System	Dimension	Standard value	Minimum value	Maximum value	Protect. Level

### 2.8.1 General setting data

<b>41010</b>	<b>JOG_VAR_INCR_SIZE</b>				H1
-	Size of the variable increment for JOG				IMMEDIATELY
-					DOUBLE
-	-	0.	-	-	7/7
<b>41050</b>	<b>JOG_CONT_MODE_LEVELTRIGGRD</b>				H1
-	JOG continuous: (1) jog mode/ (0) continuous operation				IMMEDIATELY
-					BOOLEAN
-	-	TRUE	-	-	7/7
<b>41100</b>	<b>JOG_REV_IS_ACTIVE</b>				H1
-	JOG mode: (1) revolutionary feedrate / (0) feedrate				IMMEDIATELY
-					BOOLEAN
-	-	FALSE	-	-	7/7
<b>41110</b>	<b>JOG_SET_VELO</b>				H1
mm/min	Axis velocity in JOG				IMMEDIATELY
-					DOUBLE
-	-	0.0	-	-	7/7
<b>41120</b>	<b>JOG_REV_SET_VELO</b>				H1
mm/rev	Revolutional feedrate of axes in JOG mode				IMMEDIATELY
-					DOUBLE
-	-	0.0	-	-	7/7
<b>41130</b>	<b>JOG_ROT_AX_SET_VELO</b>				H1
rev/min	Axis velocity for rotary axes in JOG mode				IMMEDIATELY

-	-	-	-	DOUBLE
-	-	0.0	-	7/7
<b>41200</b>	<b>JOG_SPIND_SET_VELO</b>			H1
rev/min	Speed for spindle JOG mode			IMMEDIATELY
-	-	-	-	DOUBLE
-	-	0.0	-	7/7
<b>41300</b>	<b>CEC_TABLE_ENABLE</b>			K3
-	Compensation table enable			IMMEDIATELY
-	-	-	-	BOOLEAN
-	62	FALSE,FALSE,FALS S E,FALSE,FALSE,FA LSE...	-	7/7
<b>41310</b>	<b>CEC_TABLE_WEIGHT</b>			K3
-	Weighting factor compensation table			IMMEDIATELY
-	-	-	-	DOUBLE
-	62	1.0,1.0,1.0,1.0,1.0,1. 0,1.0,1.0,1.0...	-	7/7
<b>41500</b>	<b>SW_CAM_MINUS_POS_TAB_1</b>			N3
mm/inch, degrees	Trigger points at falling cam 1-8			IMMEDIATELY
-	-	-	-	DOUBLE
-	8	0.0,0.0,0.0,0.0,0.0,0. 0,0.0,0.0	-	7/7
<b>41501</b>	<b>SW_CAM_PLUS_POS_TAB_1</b>			N3
mm/inch, degrees	Trigger points at rising cam edge 1-8			IMMEDIATELY
-	-	-	-	DOUBLE
-	8	0.0,0.0,0.0,0.0,0.0,0. 0,0.0,0.0	-	7/7
<b>41502</b>	<b>SW_CAM_MINUS_POS_TAB_2</b>			N3
mm/inch, degrees	Trigger points at falling cam edge 9-16			IMMEDIATELY
-	-	-	-	DOUBLE
-	8	0.0,0.0,0.0,0.0,0.0,0. 0,0.0,0.0	-	7/7
<b>41503</b>	<b>SW_CAM_PLUS_POS_TAB_2</b>			N3
mm/inch, degrees	Trigger points at rising cam edge 9-16			IMMEDIATELY
-	-	-	-	DOUBLE
-	8	0.0,0.0,0.0,0.0,0.0,0. 0,0.0,0.0	-	7/7



<b>41504</b>	<b>SW_CAM_MINUS_POS_TAB_3</b>				N3
mm/inch, degrees	Trigger points at falling cam edge 17-24				IMMEDIATELY
-	-				DOUBLE
-	8	0.0,0.0,0.0,0.0,0.0,0.0, 0.0,0.0,0.0	-	-	7/7
<b>41505</b>	<b>SW_CAM_PLUS_POS_TAB_3</b>				N3
mm/inch, degrees	Trigger points at rising cam edge 17-24				IMMEDIATELY
-	-				DOUBLE
-	8	0.0,0.0,0.0,0.0,0.0,0.0, 0.0,0.0,0.0	-	-	7/7
<b>41506</b>	<b>SW_CAM_MINUS_POS_TAB_4</b>				N3
mm/inch, degrees	Trigger points at falling cam edge 25-32				IMMEDIATELY
-	-				DOUBLE
-	8	0.0,0.0,0.0,0.0,0.0,0.0, 0.0,0.0,0.0	-	-	7/7
<b>41507</b>	<b>SW_CAM_PLUS_POS_TAB_4</b>				N3
mm/inch, degrees	Trigger points at rising cam edge 25-32				IMMEDIATELY
-	-				DOUBLE
-	8	0.0,0.0,0.0,0.0,0.0,0.0, 0.0,0.0,0.0	-	-	7/7
<b>41520</b>	<b>SW_CAM_MINUS_TIME_TAB_1</b>				N3
s	Rate time for "-" trigger points of cams 1-8				IMMEDIATELY
-	-				DOUBLE
-	8	0.0,0.0,0.0,0.0,0.0,0.0, 0.0,0.0,0.0	-	-	7/7
<b>41521</b>	<b>SW_CAM_PLUS_TIME_TAB_1</b>				N3
s	Rate time for "+" trigger points of cams 1-8				IMMEDIATELY
-	-				DOUBLE
-	8	0.0,0.0,0.0,0.0,0.0,0.0, 0.0,0.0,0.0	-	-	7/7
<b>41522</b>	<b>SW_CAM_MINUS_TIME_TAB_2</b>				N3
s	Rate time for "-" trigger points of cams 9-16				IMMEDIATELY
-	-				DOUBLE
-	8	0.0,0.0,0.0,0.0,0.0,0.0, 0.0,0.0,0.0	-	-	7/7
<b>41523</b>	<b>SW_CAM_PLUS_TIME_TAB_2</b>				N3
s	Rate time for "+" trigger points of cams 9-16				IMMEDIATELY
-	-				DOUBLE
-	8	0.0,0.0,0.0,0.0,0.0,0.0, 0.0,0.0,0.0	-	-	7/7

		0,0,0,0,0			
<b>41524</b>	<b>SW_CAM_MINUS_TIME_TAB_3</b>				N3
s	Rate time for "-" trigger points of cams 17-24				IMMEDIATELY
-					DOUBLE
-	8	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	-	-	7/7
		0,0,0,0,0			
<b>41525</b>	<b>SW_CAM_PLUS_TIME_TAB_3</b>				N3
s	Rate time for "+" trigger points of cams 17-24				IMMEDIATELY
-					DOUBLE
-	8	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	-	-	7/7
		0,0,0,0,0			
<b>41526</b>	<b>SW_CAM_MINUS_TIME_TAB_4</b>				N3
s	Rate time for "-" trigger points of cams 25-32				IMMEDIATELY
-					DOUBLE
-	8	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	-	-	7/7
		0,0,0,0,0			
<b>41527</b>	<b>SW_CAM_PLUS_TIME_TAB_4</b>				N3
s	Rate time for "+" trigger points of cams 25-32				IMMEDIATELY
-					DOUBLE
-	8	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	-	-	7/7
		0,0,0,0,0			
<b>41600</b>	<b>COMPAR_THRESHOLD_1</b>				A4
-	Threshold value of the 1st comparator				IMMEDIATELY
-					DOUBLE
-	8	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	-	-	7/7
		0,0,0,0,0			
<b>41601</b>	<b>COMPAR_THRESHOLD_2</b>				A4
-	Threshold value of the 2nd comparator				IMMEDIATELY
-					DOUBLE
-	8	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	-	-	7/7
		0,0,0,0,0			
<b>41700</b>	<b>AXCT_SWWIDTH</b>				B3
-	Default rotation of axis container				NEW CONF
-				CTDE	DWORD
-	16	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	-32	32	7/7
		0,0,0,0,0			

## 2.8.2 Channel-specific setting data

<b>42000</b>	<b>THREAD_START_ANGLE</b>				K1
degrees	Starting angle for thread				IMMEDIATELY
-	-				DOUBLE
-	-	0.,0.,0.,0.,0.,0.,0.,0.,	-	-	7/7
		0.,0.,0.,0.,0....			
<b>42010</b>	<b>THREAD_RAMP_DISP</b>				V1
mm	Acceleration behavior of axis when thread cutting				IMMEDIATELY
-	-				DOUBLE
-	2	-1., -1., -1., -1., -1., -	-1.	999999.	7/7
		1., -1., -1....			
<b>42100</b>	<b>DRY_RUN_FEED</b>				V1
mm/min	Dry run feedrate				IMMEDIATELY
-	-				DOUBLE
-	-	5000.,5000.,5000.,5	-	-	7/7
		0 00.,5000.,5000....			
<b>42101</b>	<b>DRY_RUN_FEED_MODE</b>				V1
-	Mode for dry run velocity				IMMEDIATELY
-	-				BYTE
-	-	0,0,0,0,0,0,0,0,0,0,	0	12	7/7
		0,0,0,0,0			
<b>42110</b>	<b>DEFAULT_FEED</b>				V1,FBFA
mm/min	Path feed default value				IMMEDIATELY
-	-				DOUBLE
-	-	0.,0.,0.,0.,0.,0.,0.,	-	-	7/7
		0.,0.,0.,0.,0....			
<b>42120</b>	<b>APPROACH_FEED</b>				-
mm/min	Path feedrate in approach blocks				IMMEDIATELY
-	-				DOUBLE
-	-	0.,0.,0.,0.,0.,0.,0.,	-	-	7/7
		0.,0.,0.,0.,0....			
<b>42125</b>	<b>SERUPRO_SYNC_MASK</b>				-
-	Ssynchronization in approach blocks				IMMEDIATELY
-	-				DWORD
-	-	0,0,0,0,0,0,0,0,0,0,	-	-	7/7
		0,0,0,0,0			
<b>42140</b>	<b>DEFAULT_SCALE_FACTOR_P</b>				FBFA
-	Default scaling factor for address P				IMMEDIATELY
-	-				DWORD
-	-	1,1,1,1,1,1,1,1,1,1,	-	-	7/7

		1,1,1,1,1			
<b>42150</b>	<b>DEFAULT_ROT_FACTOR_R</b>				-
-	Default rotation factor for address R				IMMEDIATELY
-					DOUBLE
-	-	0.,0.,0.,0.,0.,0.,0.,0.,	-	-	7/7
		0.,0.,0.,0.,0....			
<b>42160</b>	<b>EXTERN_FIXED_FEEDRATE_F1_F9</b>				FBFA
-	Fixed feedrates F1 - F9				IMMEDIATELY
-					DOUBLE
-	10	0., 0., 0., 0., 0., 0.,	-	-	7/7
		0., 0., 0., 0....			
<b>42162</b>	<b>EXTERN_DOUBLE_TURRET_DIST</b>				FBFA
-	Double turret head tool distance				IMMEDIATELY
-					DOUBLE
-	-	0.,0.,0.,0.,0.,0.,0.,	-	-	7/7
		0.,0.,0.,0.,0....			
<b>42200</b>	<b>SINGLEBLOCK2_STOPRE</b>				BA
-	Activate SBL2 debug mode				IMMEDIATELY
-					BOOLEAN
-	-	FALSE,FALSE,FAL	-	-	7/7
		S E,FALSE,FALSE,FA LSE...			
<b>42300</b>	<b>COUPLE_RATIO_1</b>				-
-	Speed ratio synchr. spindle mode, numerator(0), denominator(1)				IMMEDIATELY
-					DOUBLE
-	2	1.0, 1.0,1.0, 1.0,1.0,	-1.0e8	1.0e8	7/7
		1.0,1.0, 1.0...			
<b>42400</b>	<b>PUNCH_DWELLTIME</b>				N4
s	Dwell time for punching and nibbling				IMMEDIATELY
-					DOUBLE
-	-	1.0,0.0,0.0,0.0,0.0,	-	-	7/7
		0.0,0.0,0.0,0.0...			
<b>42402</b>	<b>NIBPUNCH_PRE_START_TIME</b>				N4
s	Delay time (punch/nibble) with G603				IMMEDIATELY
-					DOUBLE
-	-	.02,0.0,0.0,0.0,0.0,	-	-	7/7
		0.0,0.0,0.0,0.0...			
<b>42404</b>	<b>MINTIME_BETWEEN_STROKES</b>				N4
s	Minimum time between 2 strokes in seconds				IMMEDIATELY
-					DOUBLE
-	-	0.0,0.0,0.0,0.0,0.0,	-	-	7/7

		0,0.0,0.0,0.0...			
<b>42440</b>	<b>FRAME_OFFSET_INCR_PROG</b>				K2
-	Traversing from zero offset with incr. programming				IMMEDIATELY
-					BOOLEAN
-	-	TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...	-	-	7/7
<b>42442</b>	<b>TOOL_OFFSET_INCR_PROG</b>				W1
-	Traversing from zero offset with incr. programming				IMMEDIATELY
-					BOOLEAN
-	-	TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...	-	-	7/7
<b>42444</b>	<b>TARGET_BLOCK_INCR_PROG</b>				BA
-	Set down mode after search run with calculation				IMMEDIATELY
-					BOOLEAN
-	-	TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...	-	-	7/7
<b>42450</b>	<b>CONTPREC</b>				B1,K6
mm	Contour accuracy				IMMEDIATELY
-					DOUBLE
-	-	0.1,0.1,0.1,0.1,0.1,0.1, 1,0.1,0.1,0.1...	0.000001	999999.	7/7
<b>42460</b>	<b>MINFEED</b>				B1,K6
mm/min	Minimum path feedrate for CPRECON				IMMEDIATELY
-					DOUBLE
-	-	1.,1.,1.,1.,1.,1.,1.,1., 1.,1.,1.,1.,1....	0.000001	999999.	7/7
<b>42465</b>	<b>SMOOTH_CONTUR_TOL</b>				B1
mm	Maximal contour tolerance on smoothing				IMMEDIATELY
-					DOUBLE
-	-	0.05,0.05,0.05,0.05, 0.05,0.05,0.05...	0.000001	999999.	7/7
<b>42466</b>	<b>SMOOTH_ORI_TOL</b>				B1
degrees	Max.angle tolerance tool orient.on smooth.				IMMEDIATELY
-					DOUBLE
-	-	0.05,0.05,0.05,0.05, 0.05,0.05,0.05...	0.000001	90.	7/7
<b>42470</b>	<b>CRIT_SPLINE_ANGLE</b>				W1,PGA
degrees	Corner limit angle for compressor				IMMEDIATELY
-					DOUBLE

-	-	36.0,36.0,36.0,36.0, 3 6.0,36.0,36.0...	0.0	89.0	7/7
<b>42471</b>	<b>MIN_CURV_RADIUS</b>				-
mm	Minimum radius of curvature				IMMEDIATELY
EXP, C09					DOUBLE
-	-	3.0,3.0,3.0,3.0,3.0,3. 0,3.0,3.0,3.0...	-	-	7/7
<b>42475</b>	<b>COMPRESS_CONTUR_TOL</b>				F2,PGA
mm	Maximal contour deviation with compressor				IMMEDIATELY
-					DOUBLE
-	-	0.05,0.05,0.05,0.05, 0 .05,0.05,0.05...	0.000001	999999.	7/7
<b>42476</b>	<b>COMPRESS_ORI_TOL</b>				F2,PGA
degrees	Max. deviation of tool orientation compressor				IMMEDIATELY
-					DOUBLE
-	-	0.05,0.05,0.05,0.05, 0 .05,0.05,0.05...	0.000001	90.	7/7
<b>42477</b>	<b>COMPRESS_ORI_ROT_TOL</b>				F2,PGA
degrees	Max. deviation of tool rotation compressor				IMMEDIATELY
-					DOUBLE
-	-	0.05,0.05,0.05,0.05, 0 .05,0.05,0.05...	0.000001	90.	7/7
<b>42480</b>	<b>STOP_CUTCOM_STOPRE</b>				W1
-	Alarm response with tool radius compensation and preproc. stop				IMMEDIATELY
-					BOOLEAN
-	-	TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...	-	-	7/7
<b>42490</b>	<b>CUTCOM_G40_STOPRE</b>				W1
-	Retraction behavior of TRC with prep. stop				IMMEDIATELY
-					BOOLEAN
-	-	FALSE,FALSE,FAL S E,FALSE,FALSE,FA LSE...	-	-	7/7
<b>42494</b>	<b>CUTCOM_ACT_DEACT_CTRL</b>				W1
-	Approach and retraction behavior for the tool radius compens.				IMMEDIATELY
-					DWORD
-	-	2222,2222,2222,222 2,2222,2222,2222...	-	-	7/7
<b>42496</b>	<b>CUTCOM_CLSD_CONT</b>				-
-	TRC behavior with closed contour				IMMEDIATELY

-	-	-	-	-	BOOLEAN
-	-	FALSE,FALSE,FAL S E,FALSE,FALSE,FA LSE...	-	-	7/7
<b>42500</b>	<b>SD_MAX_PATH_ACCEL</b>				B2
m/s <sup>2</sup>	Max. path acceleration				IMMEDIATELY
-	-	-	-	-	DOUBLE
-	-	10000.,10000.,1000 0.,10000.,10000....	1.0e-3	-	7/7
<b>42502</b>	<b>IS_SD_MAX_PATH_ACCEL</b>				B2
-	Evaluate SD SC_SD_MAX_PATH_ACCEL				IMMEDIATELY
-	-	-	-	-	BOOLEAN
-	-	FALSE,FALSE,FAL S E,FALSE,FALSE,FA LSE...	-	-	7/7
<b>42510</b>	<b>SD_MAX_PATH_JERK</b>				B2
m/s <sup>3</sup>	Max. path-related jerk as SD				IMMEDIATELY
-	-	-	-	-	DOUBLE
-	-	100000.,100000.,10 0 000.,100000....	1.e-9	-	7/7
<b>42512</b>	<b>IS_SD_MAX_PATH_JERK</b>				B2
-	Evaluate SD SD_MAX_PATH_JERK				IMMEDIATELY
-	-	-	-	-	BOOLEAN
-	-	FALSE,FALSE,FAL S E,FALSE,FALSE,FA LSE...	-	-	7/7
<b>42520</b>	<b>CORNER_SLOWDOWN_START</b>				-
mm	Start of feed reduction at G62.				IMMEDIATELY
-	-	-	-	-	DOUBLE
-	-	0.,0.,0.,0.,0.,0.,0., 0.,0.,0.,0.,0....	-	-	7/7
<b>42522</b>	<b>CORNER_SLOWDOWN_END</b>				-
mm	End of feed reduction at G62.				IMMEDIATELY
-	-	-	-	-	DOUBLE
-	-	0.,0.,0.,0.,0.,0.,0., 0.,0.,0.,0.,0....	-	-	7/7
<b>42524</b>	<b>CORNER_SLOWDOWN_OVR</b>				-
%	Feed override reduction at G62				IMMEDIATELY
-	-	-	-	-	DOUBLE
-	-	0.,0.,0.,0.,0.,0.,0.,	-	-	7/7

		0.,0.,0.,0.,0....			
<b>42526</b>	<b>CORNER_SLOWDOWN_CRIT</b>				
degrees	Corner detection at G62				IMMEDIATELY
-	-		-	-	DOUBLE
-	-	0.,0.,0.,0.,0.,0.,0.,0.,	-	-	7/7
		0.,0.,0.,0.,0....			
<b>42528</b>	<b>CUTCOM_DECEL_LIMIT</b>				
-	Feed lowering on circles of TRC				IMMEDIATELY
-	-		-	-	DOUBLE
-	-	0.,0.,0.,0.,0.,0.,0.,0.,	0.	1.	7/7
		0.,0.,0.,0.,0....			
<b>42600</b>	<b>JOG_FEED_PER_REV_SOURCE</b>				
-	Control revolutional feedrate in JOG				IMMEDIATELY
-	-		-	-	DWORD
-	-	0,0,0,0,0,0,0,0,0,0,	-3	31	7/7
		0,0,0,0,0			
<b>42650</b>	<b>CART_JOG_MODE</b>				
-	Coordinate system for Cartesian jog traverse				IMMEDIATELY
-	-		-	-	DWORD
-	-	0x0,0x0,0x0,0x0,0x0	0	0x0404	7/7
		, 0x0,0x0,0x0,0x0...			
<b>42660</b>	<b>ORI_JOG_MODE</b>				
-	Definition of virtual kinematics for JOG				IMMEDIATELY
-	-		-	-	DWORD
-	-	0,0,0,0,0,0,0,0,0,0,	0	5	7/7
		0,0,0,0,0			
<b>42670</b>	<b>ORIPATH_SMOOTH_DIST</b>				
mm, degrees	Path for smoothing the orientation				IMMEDIATELY
-	-		-	-	DOUBLE
-	-	0.05,0.05,0.05,0.05,	0.0	-	7/7
		0.05,0.05,0.05...			
<b>42672</b>	<b>ORIPATH_SMOOTH_TOL</b>				
degrees	Tolerance for smoothing the orientation				IMMEDIATELY
-	-		-	-	DOUBLE
-	-	0.05,0.05,0.05,0.05,	0.000001	-	7/7
		0.05,0.05,0.05...			
<b>42700</b>	<b>EXT_PROG_PATH</b>				
-	Program path for external subroutine call EXTCALL				IMMEDIATELY
-	-		-	-	STRING
-	-1		-	-	7/7
<b>42750</b>	<b>ABSBLOCK_ENABLE</b>				
					K1



	Enable base block display				IMMEDIATELY
					BOOLEAN
		TRUE,TRUE,TRUE, TRUE,TRUE,TRUE, TRUE...			7/7
<b>42800</b>	<b>SPIND_ASSIGN_TAB</b>				S1
	Spindle number converter.				IMMEDIATELY
					BYTE
	21	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17...	0	21	7/7
<b>42900</b>	<b>MIRROR_TOOL_LENGTH</b>				W1
	Sign change of tool length with mirror image machining				IMMEDIATELY
					BOOLEAN
		FALSE,FALSE,FAL S E,FALSE,FALSE,FA LSE...			7/7
<b>42910</b>	<b>MIRROR_TOOL_WEAR</b>				W1
	Sign change of tool wear with mirror image machining				IMMEDIATELY
					BOOLEAN
		FALSE,FALSE,FAL S E,FALSE,FALSE,FA LSE...			7/7
<b>42920</b>	<b>WEAR_SIGN_CUTPOS</b>				W1
	Sign of tool wear depending on tool point direction				IMMEDIATELY
					BOOLEAN
		FALSE,FALSE,FAL S E,FALSE,FALSE,FA LSE...			7/7
<b>42930</b>	<b>WEAR_SIGN</b>				W1
	Sign of wear				IMMEDIATELY
					BOOLEAN
		FALSE,FALSE,FAL S E,FALSE,FALSE,FA LSE...			7/7
<b>42935</b>	<b>WEAR_TRANSFORM</b>				W1,W4
	Transformations for tool components				IMMEDIATELY
					DWORD
		0,0,0,0,0,0,0,0,0,0,-			7/7

		0,0,0,0,0			
<b>42940</b>	<b>TOOL_LENGTH_CONST</b>				W1
-	Change of tool length components with change of active plane				IMMEDIATELY
-					DWORD
-		0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	-		7/7
		0,0,0,0,0			
<b>42950</b>	<b>TOOL_LENGTH_TYPE</b>				W1
-	Assignment of tool length compensation independent of tool type				IMMEDIATELY
-					DWORD
-		0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	-		7/7
		0,0,0,0,0			
<b>42960</b>	<b>TOOL_TEMP_COMP</b>				W1
-	Temperature compensation for tool				IMMEDIATELY
-					DOUBLE
-	3	0.0, 0.0, 0.0,0.0, 0.0, 0.0...	-		7/7
<b>42970</b>	<b>TOFF_LIMIT</b>				F2
mm	Upper limit of corr. value via \$AA_TOFF				IMMEDIATELY
-					DOUBLE
-	3	100000000.0, 100000000.0, 100000000.0...	-		7/7
<b>42974</b>	<b>TOCARR_FINE_CORRECTION</b>				-
-	Fine offset TCARR ON / OFF				IMMEDIATELY
C08					BOOLEAN
-		FALSE,FALSE,FAL S E,FALSE,FALSE,FA LSE...	-		7/7
<b>42980</b>	<b>TOFRAME_MODE</b>				K2
-	Frame definition at TOFRAME, TOROT and PAROT				IMMEDIATELY
-					DWORD
-		1000,1000,1000,100 0,1000,1000,1000...	-		7/7
<b>42984</b>	<b>CUTDIRMOD</b>				-
-	Modification of \$P_AD[2] or \$P_AD[11]				IMMEDIATELY
C08					STRING
-	-1		-		7/7
<b>42990</b>	<b>MAX_BLOCKS_IN_IPOBUFFER</b>				K1
-	Maximum no. of blocks in IPO buffer				IMMEDIATELY
-					DWORD
-		-1,-1,-1,-1,-1,-1,-1,-	-		7/7

		1,-1,-1,-1,-1,-1...			
<b>42995</b>	<b>CONE_ANGLE</b>				
-	Taper angle				
-					
-		0,0,0,0,0,0,0,0,0,0,-90	90		7/7
-		0,0,0,0,0			

### 2.8.3 Axis-specific setting data

<b>43100</b>	<b>LEAD_TYPE</b>				
-	Defines what is used as master value				
-		CTEQ			
-		1	0	2	7/7
<b>43102</b>	<b>LEAD_OFFSET_IN_POS</b>				
-	Offset of master value if coupled to this axis				
-					
-		0.0	-	-	7/7
<b>43104</b>	<b>LEAD_SCALE_IN_POS</b>				
-	Scaling of master value if coupled to this axis				
-					
-		1.0	-	-	7/7
<b>43106</b>	<b>LEAD_OFFSET_OUT_POS</b>				
mm, degrees	Offset of the functional value of the curve table				
-					
-		0.0	-	-	7/7
<b>43108</b>	<b>LEAD_SCALE_OUT_POS</b>				
-	Scaling of functional value of the curve table				
-					
-		1.0	-	-	7/7
<b>43120</b>	<b>DEFAULT_SCALE_FACTOR_AXIS</b>				
-	Axial default scaling factor with G51 active				
-					
-		1	-	-	7/7
<b>43200</b>	<b>SPIND_S</b>				
rev/min	Speed for spindle start by VDI				
-					
-		0.0	-	-	7/7
<b>43202</b>	<b>SPIND_CONSTCUT_S</b>				
m/min	Const cut speed for spindle start by VDI				
-					
-		0.0	-	-	7/7

<b>43206</b>	<b>SPIND_SPEED_TYPE</b>				-
-	Spindle speed type for spindle start through VDI				IMMEDIATELY
A06					DWORD
-	-	94	93	972	7/7
<b>43210</b>	<b>SPIND_MIN_VELO_G25</b>				S1
rev/min	Progr. spindle speed limitation G25				IMMEDIATELY
-					DOUBLE
-	-	0.0	-	-	7/7
<b>43220</b>	<b>SPIND_MAX_VELO_G26</b>				S1
rev/min	Progr. spindle speed limitation G26				IMMEDIATELY
-					DOUBLE
-	-	1000.0	-	-	7/7
<b>43230</b>	<b>SPIND_MAX_VELO_LIMS</b>				S1
rev/min	Spindle speed limitation with G96				IMMEDIATELY
-					DOUBLE
-	-	100.0	-	-	7/7
<b>43240</b>	<b>M19_SPOS</b>				S1
degrees	Spindle position for spindle positioning with M19.				IMMEDIATELY
-, A12					DOUBLE
-	-	0.0	-10000000.0	10000000.0	7/7
<b>43250</b>	<b>M19_SPOSMODE</b>				S1
-	Spindle position approach mode for spindle positioning with M19.				IMMEDIATELY
-, A12					DWORD
-	-	0	0	5	7/7
<b>43300</b>	<b>ASSIGN_FEED_PER_REV_SOURCE</b>				V1,P2,S1
-	Revolutional feedrate for positioning axes/spindles				IMMEDIATELY
					CTEQ
-	-	0	-3	31	7/7
<b>43340</b>	<b>EXTERN_REF_POSITION_G30_1</b>				FBFA
-	Reference point position for G30.1				IMMEDIATELY
-, A12					DOUBLE
-	-	0.0	-	-	7/7
<b>43350</b>	<b>AA_OFF_LIMIT</b>				S5,FBSY
mm, degrees	Upper limit of offset value \$AA_OFF with clearance control				POWER ON
					CTEQ
-	-	100000000.0	-	-	7/7
<b>43400</b>	<b>WORKAREA_PLUS_ENABLE</b>				A3
-	Working area limitation active in positive direction				IMMEDIATELY
					CTEQ
-	-	FALSE	-	-	7/7

<b>43410</b>	<b>WORKAREA_MINUS_ENABLE</b>	A3
-	Working area limitation active in the negative direction	IMMEDIATELY
-	-	CTEQ
-	-	BOOLEAN
-	-	FALSE
-	-	7/7
<b>43420</b>	<b>WORKAREA_LIMIT_PLUS</b>	A3
mm, degrees	Working area limitation plus	IMMEDIATELY
-	-	DOUBLE
-	-	1.0e+8
-	-	7/7
<b>43430</b>	<b>WORKAREA_LIMIT_MINUS</b>	A3
mm, degrees	Working area limitation minus	IMMEDIATELY
-	-	DOUBLE
-	-	-1.0e+8
-	-	7/7
<b>43500</b>	<b>FIXED_STOP_SWITCH</b>	F1
-	Selection of travel to fixed stop	IMMEDIATELY
-	-	BYTE
-	-	0
-	-	0
-	-	1
-	-	7/7
<b>43510</b>	<b>FIXED_STOP_TORQUE</b>	F1
%	Fixed stop clamping torque	IMMEDIATELY
-	-	DOUBLE
-	-	5.0
-	-	0.0
-	-	800.0
-	-	7/7
<b>43520</b>	<b>FIXED_STOP_WINDOW</b>	F1
mm, degrees	Fixed stop monitoring window	IMMEDIATELY
-	-	DOUBLE
-	-	1.0
-	-	7/7
<b>43600</b>	<b>IPOBRAKE_BLOCK_EXCHANGE</b>	K1
%	Block change criterion 'braking ramp'	IMMEDIATELY
A06, A10	-	DOUBLE
-	-	0.0
-	-	0
-	-	100.0
-	-	7/7
<b>43610</b>	<b>ADISPOSA_VALUE</b>	P2
mm, degrees	Tolerance window 'braking ramp'	IMMEDIATELY
A06, A10	-	DOUBLE
-	-	0.0
-	-	7/7
<b>43700</b>	<b>OSCILL_REVERSE_POS1</b>	P5
mm, degrees	Oscillation reversal point 1	IMMEDIATELY
-	-	DOUBLE
-	-	0.0
-	-	7/7
<b>43710</b>	<b>OSCILL_REVERSE_POS2</b>	P5
mm, degrees	Oscillation reversal point 2	IMMEDIATELY
-	-	DOUBLE
-	-	0.0
-	-	7/7

<b>43720</b>	<b>OSCILL_DWELL_TIME1</b>	P5
s	Hold time at oscillation reversal point 1	IMMEDIATELY
-	-	DOUBLE
-	0.0	7/7
<b>43730</b>	<b>OSCILL_DWELL_TIME2</b>	P5
s	Hold time at oscillation reversal point 2	IMMEDIATELY
-	-	DOUBLE
-	0.0	7/7
<b>43740</b>	<b>OSCILL_VELO</b>	P5
mm/min, rev/min	Feedrate of reciprocating axis	IMMEDIATELY
-	-	DOUBLE
-	0.0	7/7
<b>43750</b>	<b>OSCILL_NUM_SPARK_CYCLES</b>	P5
-	Number of spark-out strokes	IMMEDIATELY
-	-	DWORD
-	0	7/7
<b>43760</b>	<b>OSCILL_END_POS</b>	P5
mm, degrees	End position of the reciprocating axis	IMMEDIATELY
-	-	DOUBLE
-	0.0	7/7
<b>43770</b>	<b>OSCILL_CTRL_MASK</b>	P5
-	Oscillation sequence control mask	IMMEDIATELY
-	-	DWORD
-	0	7/7
<b>43780</b>	<b>OSCILL_IS_ACTIVE</b>	P5
-	Activate oscillation movement	IMMEDIATELY
-	-	BOOLEAN
-	FALSE	7/7
<b>43790</b>	<b>OSCILL_START_POS</b>	-
mm, degrees	Start position of reciprocating axis	IMMEDIATELY
-	-	DOUBLE
-	0.0	7/7
<b>43900</b>	<b>TEMP_COMP_ABS_VALUE</b>	K3
-	Position-independent temperature compensation value	IMMEDIATELY
-	-	DOUBLE
-	0.0	7/7
<b>43910</b>	<b>TEMP_COMP_SLOPE</b>	K3
-	Lead angle for position-dependent temperature compensation	IMMEDIATELY
-	-	DOUBLE
-	0.0	7/7

## 2.8 Setting data

43920	TEMP_COMP_REF_POSITION			K3
-	Ref. position of position-dependent temperature compensation			IMMEDIATELY
-				DOUBLE
-	-	0.0	-	7/7



## 2.9 Machine data for ManualTurn, ShopMill, ShopTurn

A list of the NC machine data is included in the software CD.

ManualTurn:     tools\md\ctm.8x0  
ShopMill:        tools\md\cmm.8x0  
ShopTurn:        tools\md\st.8x0

Standard value, minimal value and maximal value are available also in chapter 2.4 .





## Notes

# 3

## 3 SINAMICS Parameters

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Product: SINAMICS I, Version: 2301400, Label: , Language: eng

## 3.1 Parameters r0002 to r0964

<b>r0002</b>	<b>Control unit operating display</b>		
CU_I	Can be changed: -		Access level: 1
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

### Description:

Operating display for the control unit (CU).

### Values:

0:	[00] Operation
10:	[10] Ready
20:	[20] Wait for run-up
31:	[31] Commissioning software download active
33:	[33] Remove topology error / acknowledge
34:	[34] Exit the commissioning mode
35:	[35] Carry-out first commissioning
70:	[70] Initialization
80:	[80] Reset active
99:	[99] Internal software error

<b>r0002</b>	<b>Infeed operating display</b>		
A_INF	Can be changed: -		Access level: 1
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

### Description:

Operating display for the infeed.

The value provides information about the actual operating state and the conditions necessary to reach the next operating state.

The higher the numerical value, the greater the number of conditions that still have to be fulfilled in order to achieve the "Run" operating state.

### Values:

0:	[00] Operation - everything enabled
21:	[21] Operation - set "enable operation" = "1" (p0852)
31:	[31] Rdy to power-up - pre-chrg running (p0857)
32:	[32] Ready to power-up - set "ON/OFF1" = "0/1" (p0840)
41:	[41] Power-on inhibit - set "ON/OFF1" = "0" (p0840)

- 42: [42] Power-on inhibit - set "OC/OFF2" = "1" (p0844, p0845)  
 44: [44] Power-on inhibit - connect 24 V to terminal EP (hardware)  
 45: [45] Power-on inhibit - remove fault cause, acknowledge fault  
 46: [46] Power-on inhibit - exit comm mode (p0009, p0010)  
 60: [60] Infeed de-activated

**Dependency:**

Refer to: r0046

**Note:**

OC: Operating condition

EP: Enable Pulses (pulse enable)

COMM: Commissioning

**r0002**

SERVO

**Drive operating display**

Can be changed: -

Access level: 1

Data type: Integer16

Data set: -

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Operating display for the drive.

The value provides information about the actual operating state and the conditions necessary to reach the next operating state.

The higher the numerical value, the greater the number of conditions that still have to be fulfilled in order to achieve the "Run" operating state.

**Values:**

- 0: [00] Operation - everything enabled  
 10: [10] Operation - set "enable setpoint" = "1" (p1142)  
 11: [11] Operation - set "enable speed controller" = "1" (p0856)  
 12: [12] Operation - RFG frozen, set "RFG start" = "1" (p1141)  
 13: [13] Operation - set "enable RFG" = "1" (p1140)  
 14: [14] Operation - MotID or excitation running and/or brake opens  
 15: [15] Operation - open brake (p1215)  
 16: [16] Oper - withdraw braking w/ OFF1 using "ON/OFF1" = "1"  
 17: [17] Oper - braking w/ OFF3 can only be interrupted w/ OFF2  
 18: [18] Operation - brake on fault, remove fault, acknowledge  
 21: [21] Operation - set "enable operation" = "1" (p0852)  
 22: [22] Ready - de-magnetization running (p0347)  
 23: [23] Ready - set "infeed operation" = "1" (p0864)  
 31: [31] Ready to power-up - set "ON/OFF1" = "0/1" (p0840)  
 41: [41] Power-on inhibit - set "ON/OFF1" = "0" (p0840)  
 42: [42] Power-on inhibit - set "OC/OFF2" = "1" (p0844, p0845)

- 43: [43] Power-on inhibit - set "OC/OFF3" = "1" (p0848, p0849)
- 44: [44] Power-on inhibit - connect 24 V to terminal EP (hardware)
- 45: [45] Power-on inhibit - remove fault cause, acknowledge fault
- 46: [46] Power-on inhibit - exit comm mode (p0009, p0010)
- 60: [60] Drive object de-activated

**Dependency:**

Refer to: r0046

**Note:**

OC: Operating condition

EP: Enable Pulses (pulse enable)

RFG: Ramp-function generator

COMM: Commissioning

MotID: Motor data identification routine

**p0003**

**BOP access level**

CU\_I

Can be changed: C1, U, T

Access level: 1

Data type: Integer16

Data set: -

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

1

4

1

**Description:**

Sets the access level for reading (and writing) parameters via BOP20 and AOP.

**Values:**

- 1: Standard
- 2: Extended
- 3: Expert
- 4: Service

**Note:**

Access stage 1 (standard):

Parameters for the simplest operator control possibility (e.g. p1120 = ramp-function generator, ramp-up time).

Access stage 2 (extended):

Parameters to operate the basic functions of the drive unit.

Access stage 3 (experts):

Expert know-how is required for these parameters (e.g. BICO parameterization).

Access stage 4 (service):

For these parameters, it is necessary that authorized service personnel enter the appropriate password (p3950).

**p0004****BOP parameter menu**

CU\_I

Can be changed: C2(1), T

Access level: 1

Data type: Integer16

Data set: -

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

0

99

1

**Description:**

Display filter for BOP20 and AOP for selecting parameters using menu prompting.

**Values:**

- 0: All parameters
- 1: Displays, signals
- 2: Power module
- 3: Motor
- 4: Encoder/position encoder
- 5: Technology, units
- 7: Digital inputs/outputs, commands, sequence control
- 8: Analog inputs/outputs, terminal strip
- 10: Setpoint channel/ramp-fct generator
- 12: Functions
- 13: V/f control
- 14: Control
- 15: Data sets
- 18: Gating unit, modulator
- 19: Motor identification, power module test
- 20: Communication
- 21: Faults, alarms, monitoring functions
- 25: Cl.-loop pos ctrl
- 28: Free function blocks
- 47: Trace and function generator
- 50: OEM parameter
- 90: Topology
- 95: Safety Integrated
- 98: Command Data Set (CDS)
- 99: Drive Data Set (DDS)

**p0007****Backlighting display delay time**

CU\_I

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

0

2

0

**Description:**

Sets the delay time to switch-out background lighting.

If no keys are actuated, then the background lighting automatically switches itself off after this time has expired.

**Note:**

p0007 = 0: Background lighting is always switched on (factory setting).

<b>p0009</b>	<b>Device commissioning parameter filter</b>		
CU_I	Can be changed: C1, T	Access level: 1	
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	30	1

**Description:**

Sets the device and basic drive commissioning.

By appropriately setting this parameter, those parameters are filtered that can be written into in the various commissioning steps.

**Values:**

- 0: Ready
- 1: Device configuration
- 2: Definition drive type (in preparation)
- 3: Drive basis configuration
- 4: Data set basis configuration
- 29: Device download
- 30: Parameter reset

**Note:**

The drives can only be powered-up outside the device commissioning (the inverter enabled). In this case, p0009 must be 0 (Ready) and the individual drive objects must have already gone into operation (p0010).

p0009 = 1: Device configuration

At the first commissioning of the devices, after run-up, the device is in the "device configuration" state. To start the internal automatic first commissioning of the drive unit, p0009 should be set to 0 (Ready) after the ID for the actual topology (r0098) was transferred into the ID for the target topology (p0099). To do this, it is sufficient to set a single index value of p0099[x] the same as r0098[x]. Before the device has been completely commissioned, no other parameter can be changed. After the first commissioning was carried-out, in this state, when required, other basic device configuration parameters can be adapted (e.g. the basic clock cycle in p0110).

p0009 = 3: Drive basis configuration

In this state, after the device has been commissioned for the first time, basic changes can be made for the individual drive objects (e.g. sampling rates p0111, p0112, p0115 and the number of data sets p0120, p0130, p0140, p0170, p0180).

p0009 = 4: Data set basis configuration

In this state, after the device has been commissioned for the first time, for the individual drive objects changes can be made regarding the assignment of the components (p0121, p0131, p0141, p0151, p0161) to the individual data sets and the assignment of the power module, motor and encoder to the drive data sets (p0185, and onwards).

p0009 = 29: Device download

If a download is made using the commissioning software, the device is automatically brought into this state. After the download has been completed, p0009 is automatically set to 0 (ready). It is not possible to manually set p0009 to this value.

p0009 = 30: Parameter reset

In order to bring the complete unit into the "first commissioning" state or to load the parameters saved using p0977, to start, p0977 must be set to this value. p0976 can then be changed to the required value.

## p0010

### Infeed commissioning parameter filter

A\_INF

Can be changed: C2(1), T

Access level: 1

Data type: Integer16

Data set: -

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

0

30

1

#### Description:

Sets the parameter filter to commission an infeed unit.

Setting this parameter filters-out the parameters that can be written into in the various commissioning steps.

#### Values:

- 0: Ready
- 1: Quick commissioning
- 2: Power module commissioning
- 29: Download
- 30: Parameter reset

#### Note:

The drive can only be powered-up outside the drive commissioning (inverter enable). To realize this, this parameter must be set to 0.

For p3900 not equal to 0, at the end of the quick commissioning, this parameter is automatically reset to 0.

Procedure for "parameter reset": Set p0010 = 30 and p0970 = 1.

## p0010

### Drive, commissioning parameter filter



SERVO	Can be changed: C2(1), T		Access level: 1
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	95	1

#### Description:

Sets the parameter filter to commission a drive.

Setting this parameter filters-out the parameters that can be written into in the various commissioning steps.

#### Values:

0:	Ready
1:	Quick commissioning
2:	Power module commissioning
3:	Motor commissioning
4:	Encoder commissioning
5:	Technological application/units
15:	Data sets
29:	Download
30:	Parameter reset
95:	Safety Integrated commissioning

#### Note:

The drive can only be powered-up outside the drive commissioning (inverter enable). To realize this, this parameter must be set to 0.

For p3900 not equal to 0, at the end of the quick commissioning, this parameter is automatically reset to 0.

Procedure for "parameter reset": Set p0010 = 30 and p0970 = 1.

---

<b>p0015</b>	<b>Macro drive unit</b>		
CU_I	Can be changed: C1		Access level: 1
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	999999	0

#### Description:

Runs the appropriate ACX file on the CompactFlash Card.

The selected ACX file must be located in the following directory:

... /PMACROS/DEVICE/P15/PMxxxxxx.ACX

Example:

p0015 = 6 --> the file PM000006.ACX is run.

**Dependency:**

The ACX file to be run must be created according to the definition for ACX macros and must be saved in the directory intended on the CompactFlash Card.

Refer to: p0015, p0700, p1000, p1500, r8570

**Note:**

The macros in the specified directory are displayed in r8570.

Macros available as standard are described in the technical documentation of the particular product.

**p0015****Macro drive object**

A\_INF, SERVO

Can be changed: C2(1)

Access level: 1

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

0

999999

0

**Description:**

Runs the appropriate ACX file on the CompactFlash Card.

The selected ACX file must be located in the following directory:

... /PMACROS/<drive object>/P15/PMxxxxxx.ACX

Example:

p0015 = 6 --> the file PM000006.ACX is run.

**Dependency:**

The ACX file to be run must be created according to the definition for ACX macros and must be saved in the directory intended on the CompactFlash Card.

Refer to: p0700, p1000, p1500, r8570

**Notice:**

No errors were issued during fast commissioning (3900 = 1) when writing to parameters of the QUICK\_IBN group!

**Note:**

The macros in the specified directory are displayed in r8570.

Macros available as standard are described in the technical documentation of the particular product.

**r0018****Control unit firmware version**

CU\_I

Can be changed: -

Access level: 1

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

**Description:**

Displays the firmware version of the control unit.

**Dependency:**

Refer to: r0128, r0148, r0197, r0198

**Note:**

Example:

The value 1010100 should be interpreted as V01.01.01.00.

<b>r0020</b>	<b>Speed setpoint, smoothed</b>		
SERVO	Can be changed: -	Access level: 2	
	Data type: Floating Point	Data set: -	Function diagram: 5020, 6799
	P-Group: Displays, signals	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	- [1/min]	- [1/min]	- [1/min]

**Description:**

Displays the actual smoothed speed/velocity setpoint at the input of the speed/velocity controller or V/f characteristic (after the interpolator).

**Dependency:**

Refer to: r0060

**Note:**

Smoothing time constant = 100 ms

The signal is not suitable as process quantity and may only be used as display quantity.

The speed setpoint is available smoothed (r0020) and unsmoothed (r0060).

<b>r0020</b>	<b>Velocity setpoint, smoothed</b>		
SERVO (Lin)	Can be changed: -	Access level: 2	
	Data type: Floating Point	Data set: -	Function diagram: 5020, 6799
	P-Group: Displays, signals	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	- [m/min]	- [m/min]	- [m/min]

**Description:**

Displays the actual smoothed speed/velocity setpoint at the input of the speed/velocity controller or V/f characteristic (after the interpolator).

**Dependency:**

Refer to: r0060

**Note:**

Smoothing time constant = 100 ms

The signal is not suitable as process quantity and may only be used as display quantity.

The speed setpoint is available smoothed (r0020) and unsmoothed (r0060).

---

<b>r0021</b>	<b>Actual speed, smoothed</b>		
SERVO	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 1580, 1680, 4710, 6799
	P-Group: Displays, signals	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	- [1/min]	- [1/min]	- [1/min]

**Description:**

Displays the smooth actual value of the motor speed/velocity.

**Dependency:**

Refer to: r0063

**Note:**

Smoothing time constant = 100 ms

The signal is not suitable as process quantity and may only be used as display quantity.

The value displayed in r0021 is the smoothed value of r0063.

---

<b>r0021</b>	<b>Actual velocity, smoothed</b>		
SERVO (Lin)	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 1580, 1680, 4710, 6799
	P-Group: Displays, signals	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	- [m/min]	- [m/min]	- [m/min]

**Description:**

Displays the smooth actual value of the motor speed/velocity.

**Dependency:**

Refer to: r0063

**Note:**

Smoothing time constant = 100 ms

The signal is not suitable as process quantity and may only be used as display quantity.

The value displayed in r0021 is the smoothed value of r0063.

<b>r0024</b>	<b>Infeed line frequency smoothed</b>		
A_INF	Can be changed: -	Access level:	
	Data type: Floating Point	Data set: -	Function diagram: 8850, 8950, 8960
	P-Group: Displays, signals	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	- [Hz]	- [Hz]	- [Hz]
<b>Description:</b>			
Displays the smoothed line supply frequency.			
<b>Dependency:</b>			
Refer to: r0066			
<b>Note:</b>			
Smoothing time constant = 300 ms			
The signal is not suitable as process quantity and may only be used as display quantity.			
The line frequency is available smoothed (r0024) and unsmoothed (r0066).			
A positive sign of the frequency is obtained when the line supply phases U, V and W are connected with the correct phase sequence.			
A negative sign of the frequency is obtained when the 3 line phases are interchanged therefore designating a negative direction of the rotating field of the 3-phase line supply voltage.			

<b>r0024</b>	<b>Drive output frequency smoothed</b>		
SERVO	Can be changed: -	Access level: 3	
	Data type: Floating Point	Data set: -	Function diagram: 1690, 5300, 5730, 6799
	P-Group: Displays, signals	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	- [Hz]	- [Hz]	- [Hz]
<b>Description:</b>			
Displays the smoothed converter frequency.			
<b>Dependency:</b>			
Refer to: r0066			
<b>Note:</b>			
Smoothing time constant = 100 ms			
The signal is not suitable as process quantity and may only be used as display quantity.			
The output frequency is available smoothed (r0024) and unsmoothed (r0066).			

<b>r0025</b>	<b>Infeed input voltage, smoothed</b>		
A_INF	Can be changed: -		Access level: 5
	Data type: Floating Point	Data set: -	Function diagram: 8850, 8950
	P-Group: Displays, signals	Units group: VOLTAGE_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Veff]	- [Veff]	- [Veff]

**Description:**

Displays the smoothed actual value of the input voltage.

This voltage is present at the line supply connection of the infeed.

**Dependency:**

Refer to: r0072

**Note:**

Smoothing time constant = 300 ms

The signal is not suitable as process quantity and may only be used as display quantity.

The input voltage is available smoothed (r0025) and unsmoothed (r0072).

<b>r0025</b>	<b>Drive, output voltage smoothed</b>		
SERVO	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 1690, 5730, 6799
	P-Group: Displays, signals	Units group: VOLTAGE_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Veff]	- [Veff]	- [Veff]

**Description:**

Displays the smoothed output voltage of the power module.

**Dependency:**

Refer to: r0072

**Note:**

Smoothing time constant = 100 ms

The signal is not suitable as process quantity and may only be used as display quantity.

The output voltage is available smoothed (r0025) and unsmoothed (r0072).

<b>r0026</b>	<b>DC link voltage, smoothed</b>		
A_INF, SERVO	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 5730, 6799, 8750, 8850, 8950
	P-Group: Displays, signals	Units group: VOLTAGE_DC	Unit selection: -

Min	Max	Factory setting
- [V]	- [V]	- [V]

**Description:**

Displays the smoothed actual value of the DC link voltage.

**Dependency:**

Refer to: r0070

**Note:**

A\_INF, S\_INF: Smoothing time constant = 300 ms

SERVO, VECTOR: Smoothing time constant = 100 ms

The signal is not suitable as process quantity and may only be used as display quantity.

The DC link voltage is available smoothed (r0026) and unsmoothed (r0070).

---

<b>r0027</b>	<b>Absolute actual current, smoothed</b>	
A_INF, SERVO	Can be changed: -	Access level: 2
	Data type: Floating Point	Data set: -
		Function diagram: 5730, 6799, 8850, 8950
	P-Group: Displays, signals	Units group: CURRENT_AC_EFF
	Min	Max
	- [Aeff]	- [Aeff]
		Factory setting
		- [Aeff]

**Description:**

Displays the smoothed absolute actual current value.

**Dependency:**

Refer to: r0068

**Note:**

A\_INF, S\_INF, VECTOR: Smoothing time constant = 300 ms

SERVO: Smoothing time constant = 100 ms

The signal is not suitable as process quantity and may only be used as display quantity.

The absolute current actual value is available smoothed (r0027) and unsmoothed (r0068).

---

<b>r0028</b>	<b>Modulation depth, smoothed</b>	
A_INF, SERVO	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
		Function diagram: 5730, 6799, 8950
	P-Group: Displays, signals	Units group: PERCENT
	Min	Max
	- [%]	- [%]
		Factory setting
		- [%]

**Description:**

Displays the smoothed actual value of the modulation depth.

**Dependency:**

Refer to: r0074

**Note:**

A\_INF: Smoothing time constant = 300 ms

SERVO, VECTOR: Smoothing time constant = 100 ms

The signal is not suitable as process quantity and may only be used as display quantity.

The modulation depth is available smoothed (r0028) and unsmoothed (r0074).

---

<b>r0029</b>	<b>Infeed, smoothed reactive current actual value</b>		
A_INF	Can be changed: -		Access level:
	Data type: Floating Point	Data set: -	Function diagram: 8850, 8950
	P-Group: Displays, signals	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]

**Description:**

Displays the smoothed actual value of the reactive current component.

**Note:**

Smoothing time constant = 300 ms

The signal is not suitable as process quantity and may only be used as display quantity.

For A\_INF, the following applies:

The reactive current actual value is available smoothed (r0029) and unsmoothed (r0076).

For S\_INF, the following applies:

The reactive current actual value is available smoothed (r0029).

---

<b>r0029</b>	<b>Drive, smoothed field-generating current actual value</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5730, 6799
	P-Group: Displays, signals	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]

**Description:**

Displays the smoothed field-generating actual current.

**Dependency:**

Refer to: r0076



**Note:**

SERVO: Smoothing time constant = 100 ms

VECTOR: Smoothing time constant = 300 ms

The signal is not suitable as process quantity and may only be used as display quantity.

The field-generating current actual value is available smoothed (r0029) and unsmoothed (r0076).

<b>r0030</b>	<b>Active current actual value, smoothed</b>		
A_INF	Can be changed: -		Access level:
	Data type: Floating Point	Data set: -	Function diagram: 8850, 8950
	P-Group: Displays, signals	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]

**Description:**

Displays the smoothed actual value of the active current components.

**Dependency:**

Refer to: r0078

**Note:**

Smoothing time constant = 300 ms

The signal is not suitable as process quantity and may only be used as display quantity.

The active current actual value is available smoothed (r0030) and unsmoothed (r0078).

<b>r0030</b>	<b>Current actual value, torque-generating, smoothed</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5730, 6799
	P-Group: Displays, signals	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]

**Description:**

Displays the smoothed torque-generating actual current.

**Dependency:**

Refer to: r0078

**Note:**

SERVO: Smoothing time constant = 100 ms

VECTOR: Smoothing time constant = 300 ms

The signal is not suitable as process quantity and may only be used as display quantity.

The following applies for SERVO:

The torque-generating current actual value is available smoothed (r0030 with 100 ms, r0078[1] with p0045) and unsmoothed (r0078[0]).

For VECTOR, the following applies:

The torque-generating current actual value is available smoothed (r0030 with 300 ms) and unsmoothed (r0078).

---

<b>r0031</b>	<b>Actual torque smoothed</b>	
SERVO	Can be changed: -	Access level: 2
	Data type: Floating Point	Data set: -
	P-Group: Displays, signals	Units group: TORQUE
	Min	Max
	- [Nm]	- [Nm]
		Unit selection: -
		Factory setting
		- [Nm]

**Description:**

Displays the smoothed torque/force actual value.

**Dependency:**

Refer to: r0080

**Note:**

Smoothing time constant = 100 ms

The signal is not suitable as process quantity and may only be used as display quantity.

The active current actual value is available smoothed (r0031) and unsmoothed (r0080).

---

<b>r0031</b>	<b>Force actual value, smoothed</b>	
SERVO (Lin)	Can be changed: -	Access level: 2
	Data type: Floating Point	Data set: -
	P-Group: Displays, signals	Units group: FORCE
	Min	Max
	- [N]	- [N]
		Unit selection: -
		Factory setting
		- [N]

**Description:**

Displays the smoothed torque/force actual value.

**Dependency:**

Refer to: r0080

**Note:**

Smoothing time constant = 100 ms

The signal is not suitable as process quantity and may only be used as display quantity.

The active current actual value is available smoothed (r0031) and unsmoothed (r0080).

---

<b>r0032</b>	<b>Power factor, smoothed</b>	
A_INF, SERVO	Can be changed: -	Access level: 2

Data type: Floating Point	Data set: -	Function diagram: 5730, 6799, 8850, 8950
P-Group: Displays, signals	Units group: POWER_P3	Unit selection: -
Min	Max	Factory setting
- [kW]	- [kW]	- [kW]

**Description:**

Displays the smoothed actual value of the active power.

**Dependency:**

Refer to: r0082

**Note:**

Significance for the drive: Power output at the motor shaft

Significance for the infeed: Power consumed

For A\_INF and S\_INF the following applies:

The active power is available smoothed (r0032 with 300 ms) and unsmoothed (r0082).

The following applies for SERVO:

The active power is available smoothed (r0032 with 100 ms, r0082[1] with p0045) and unsmoothed (r0082[0]).

For VECTOR, the following applies:

The active power is available smoothed (r0032 with 100 ms) and unsmoothed (r0082).

**r0033**

**Torque utilization, smoothed**

SERVO

Can be changed: -		Access level: 3
Data type: Floating Point	Data set: -	Function diagram: 8012
P-Group: Displays, signals	Units group: PERCENT	Unit selection: -
Min	Max	Factory setting
- [%]	- [%]	- [%]

**Description:**

Displays the smoothed torque/force utilization as a percentage.

The torque/force utilization is obtained from the required smoothed torque/force referred to the torque/force limit.

**Note:**

Smoothing time constant = 100 ms

The signal is not suitable as process quantity and may only be used as display quantity.

The torque utilization is available smoothed (r0033) and unsmoothed (r0081).

For M\_set total (r0079) > M\_max offset (p1532), the following applies:

- demanded torque = M\_set total - M\_max offset

- actual torque limit = M\_max upper effective (r1538) - M\_max offset

For  $M_{\text{set total}} (r0079) \leq M_{\text{max offset}} (p1532)$ , the following applies:

- demanded torque =  $M_{\text{max offset}} - M_{\text{set total}}$
- actual torque limit =  $M_{\text{max offset}} - M_{\text{max lower effective}} (r1539)$

For the actual torque limit = 0, the following applies:  $r0033 = 100 \%$

For the actual torque limit < 0, the following applies:  $r0033 = 0 \%$

---

<b>r0035</b>	<b>CO: Motor temperature</b>		
SERVO	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 8016
	P-Group: Displays, signals	Units group: TEMPERATURE	Unit selection: -
	Min	Max	Factory setting
	- [°C]	- [°C]	- [°C]

**Description:**

Displays the actual temperature in the motor.

**Note:**

For induction motors, the following applies:

If neither a temperature sensor nor a PTC thermistor are connected, the temperature of the thermal motor model is displayed ( $r0632$ ).

For synchronous motors, the following applies:

If neither a temperature sensor nor a PTC thermistor is connected, the parameterized ambient temperature is displayed ( $r0625$ ).

---

<b>r0036</b>	<b>Power module overload I2t</b>		
A_INF, SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 8014
	P-Group: Displays, signals	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	- [%]	- [%]	- [%]

**Description:**

Displays the power module overload determined using the I2t calculation.

A current reference value is defined for the I2t monitoring of the power module. It represents the current that can be conducted by the power module without any influence of the switching losses (e.g. the continuously permissible current of the capacitors, inductances, busbars, etc.).

If the I2t reference current of the power module is not exceeded, then an overload (0 %) is not displayed.

In the other case, the degree of thermal overload is calculated whereby 100% corresponds to the maximum permissible value and results in shutdown (trip) (F30005).

**Dependency:**

Refer to: p0290, p0294

<b>r0037[0...19]</b>	<b>Power module temperatures</b>		
A_INF, SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 8014
	P-Group: Displays, signals	Units group: TEMPERATURE	Unit selection: -
	Min	Max	Factory setting
	- [°C]	- [°C]	- [°C]
	<b>Description:</b> Displays the temperatures in the power module.		
	<b>Index:</b> [0] = Maximum inverter [1] = Maximum depletion layer [2] = Maximum rectifier [3] = Air intake [4] = Electronics unit in the power module [5] = Inverter 1 [6] = Inverter 2 [7] = Inverter 3 [8] = Inverter 4 [9] = Inverter 5 [10] = Inverter 6 [11] = Rectifier 1 [12] = Rectifier 2 [13] = Depletion layer 1 [14] = Depletion layer 2 [15] = Depletion layer 3 [16] = Depletion layer 4 [17] = Depletion layer 5 [18] = Depletion layer 6 [19] = Cooling system water intake		
	<b>Dependency:</b> Refer to: p0290		
<b>r0038</b>	<b>Power factor, smoothed</b>		
A_INF	Can be changed: -		Access level:
	Data type: Floating Point	Data set: -	Function diagram: 6799, 8850, 8950
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the smoothed actual power factor.

**Note:**

Smoothing time constant = 300 ms

The signal is not suitable as process quantity and may only be used as display quantity.

Significance for the motor: Motor power factor

Significance for the infeed: Power factor at the connection point (p3470, p3471)

<b>p0045</b>	<b>Smoothing time constant, display values</b>		
SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 5730, 6714, 8012
	P-Group: -	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	200.00 [ms]	1.00 [ms]

**Description:**

Sets the smoothing time constant for the following display values:

SERVO: r0078[1], r0079[1], r0081 (calculated from the quantities smoothed with p0045), r0082[1].

VECTOR: r0063[1], r0068[1], r0080[1], r0082[1].

<b>r0046</b>	<b>CO/BO: Infeed missing enable signals</b>		
A_INF	Can be changed: -		Access level: 1
	Data type: Unsigned32	Data set: -	Function diagram: 8934
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays missing enable signals that are preventing the closed-loop infeed control from being commissioned.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	OFF1 enable missing	No	Yes	-
	01	OFF2 enable missing	No	Yes	-
	03	Enable run missing	No	Yes	-
	08	EP terminals enable missing	No	Yes	-
	16	OFF1 enable internal missing	No	Yes	-
	17	OFF2 enable internal missing	No	Yes	-

26	Infeed inactive or not operational	No	Yes	-
----	------------------------------------	----	-----	---

**Dependency:**

Refer to: r0002

**Note:**

The value r0046 = 0 indicates that all enable signals for the infeed are present.

Bit 00 = 1 (enable signal missing), if:

- the signal source in p0840 is a 0 signal.
- there is a power-on inhibit.

Bit 01 = 1 (enable signal missing), if:

- the signal source in p0844 or p0845 is a 0 signal.

Bit 03 = 1 (enable signal missing), if:

- the signal source in p0852 is a 0 signal.

Bit 08 = 1 (enable signal missing), if:

- the pulse enable via terminal EP is missing (booksize: X21, chassis: X41).

Bit 16 = 1 (enable signal missing), if:

- there is an OFF1 fault response. The system is only enable if the fault is removed and was acknowledged and the power-on inhibit withdrawn with OFF1 = 0.

Bit 17 = 1 (enable signal missing), if:

- The commissioning mode is selected (p0009 > 0 or p0010 > 0) or there is an OFF2 fault response or the OFF1 signal source (p0840) is changed.

Bit 26 = 1 (enable signal missing), if:

- the infeed is inactive (p0105 = 0) or is not operational (r7850[Do-Index]=0).

**r0046**

**CO/BO: Missing drive enable signals**

SERVO

Can be changed: -

Access level: 1

Data type: Unsigned32

Data set: -

Function diagram: 2634

P-Group: Displays, signals

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays missing enable signals that are preventing the closed-loop drive control from being commissioned.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	OFF1 enable missing	No	Yes	-
	01	OFF2 enable missing	No	Yes	-
	02	OFF3 enable missing	No	Yes	-
	03	Enable run missing	No	Yes	-

05	STOP2 enable missing	No	Yes	-
06	STOP1 enable missing	No	Yes	-
08	EP terminals enable missing	No	Yes	-
09	Infeed enable missing	No	Yes	-
10	Ramp-function generator enable missing	No	Yes	-
11	Ramp-function generator start missing	No	Yes	-
12	Setpoint enable missing	No	Yes	-
16	OFF1 enable internal missing	No	Yes	-
17	OFF2 enable internal missing	No	Yes	-
18	OFF3 enable internal missing	No	Yes	-
19	Pulse enable internal missing	No	Yes	-
21	STOP2 enable internal missing	No	Yes	-
22	STOP1 enable internal missing	No	Yes	-
26	Drive inactive or not operational	No	Yes	-
27	Demagnetization not completed	No	Yes	-
28	Brake open missing	No	Yes	-
29	Ready from cooling system missing	No	Yes	-
30	Function generator with current input	Not active	active	-
31	Jog setpoint active	No	Yes	-

**Dependency:**

Refer to: r0002

**Note:**

The value r0046 = 0 indicates that all enable signals for this drive are present.

Bit 00 = 1 (enable signal missing), if:

- the signal source in p0840 is a 0 signal.
- there is a power-on inhibit.

Bit 01 = 1 (enable signal missing), if:

- the signal source in p0844 or p0845 is a 0 signal.

Bit 02 = 1 (enable signal missing), if:

- the signal source in p0848 or p0849 is a 0 signal.

Bit 03 = 1 (enable signal missing), if:

- the signal source in p0852 is a 0 signal.

Bit 05, bit 06: (being developed)

Bit 08 = 1 (enable signal missing), if:

- the pulse enable via terminal EP is missing (booksize: X21, chassis: X41).

Bit 09 = 1 (enable signal missing), if:

- the signal source in p0864 is a 0 signal.

Bit 10 = 1 (enable signal missing), if:



- the signal source in p1140 is a 0 signal.
- Bit 11 = 1 (enable signal missing) if the speed setpoint is frozen, because:
  - the signal source in p1141 is a 0 signal.
- or
- the speed setpoint is entered from jogging and the two signal sources for jogging, bit 0 (p1055) and bit 1 (p1056) have a 1 signal.
- Bit 12 = 1 (enable signal missing), if:
  - the signal source in p1142 is a 0 signal.
- Bit 16 = 1 (enable signal missing), if:
  - there is an OFF1 fault response. The system is only enable if the fault is removed and was acknowledged and the power-on inhibit withdrawn with OFF1 = 0.
- Bit 17 = 1 (enable signal missing), if:
  - the commissioning mode is selected (p0009 > 0 or p0010 > 0) or an OFF2 fault response is present.
- Bit 18 = 1 (enable signal missing), if:
  - OFF3 has still not be completed or an OFF3 fault response is present.
- Bit 19 = 1 (internal pulse enable missing), if:
  - synchronization is running between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle.
- Bit 21 = 1 (enable signal missing), if:
  - The pulses have been enabled and the speed setpoint has still not been enabled, because:
    - the holding brake opening time (p1216) has still not expired.
    - The motor has still not been magnetized (induction motor).
- Bit 22: Being developed
- Bit 26 = 1 (enable signal missing), if:
  - the axis is inactive (p0105 = 0) or is not operational (r7850[Do-Index]=0).
- Bit 27 = 1 (enable signal missing), if:
  - de-magnetizing has still not been completed (only for vector).
- Bit 28 = 1 (enable signal missing), if:
  - the holding brake is closed or has still not been opened.
- Bit 31 = 1 (enable signal missing), if:
  - the speed setpoint is entered from jogging 1 or 2.

---

<b>r0049[0...3]</b>	<b>Motor/encoder data set effective</b>		
SERVO	Can be changed: -		Access level: 2
	Data type: Unsigned8	Data set: -	Function diagram: 8565
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the effective motor data set (MDS) and the effective encoder data sets (EDS).

**Index:**

[0] = Motor data set MDS effective

[1] = Encoder data set EDS effective

[2] = Encoder 2 encoder data set EDS effective

[3] = Encoder 3 encoder data set EDS effective

**Dependency:**

Refer to: p0186, p0187, p0188, p0189, r0838

**Note:**

Value 99 means: No encoder assigned (not configured).

---

<b>r0050</b>	<b>CO/BO: Command data set CDS effective</b>		
A_INF, SERVO	Can be changed: -		Access level: 2
	Data type: Unsigned8	Data set: -	Function diagram: 8560
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the effective command data set (CDS).

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	CDS eff., bit 0	Off	On	-
	01	CDS eff., bit 1	Off	On	-
	02	CDS eff., bit 2	Off	On	-
	03	CDS eff., bit 3	Off	On	-

**Dependency:**

Refer to: p0810, p0811, p0812, p0813, r0836

**Note:**

The command data set selected via binector inputs p0810, p0811, p0812 and p0813 is displayed via r0836.

---

<b>r0051</b>	<b>CO/BO: Drive data set DDS effective</b>		
SERVO	Can be changed: -		Access level: 2
	Data type: Unsigned8	Data set: -	Function diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Min	Max	Factory setting

**Description:**

Displays the effective drive data set (DDS).

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	DDS eff., bit 0	Off	On	-
	01	DDS eff., bit 1	Off	On	-
	02	DDS eff., bit 2	Off	On	-
	03	DDS eff., bit 3	Off	On	-
	04	DDS eff., bit 4	Off	On	-

**Dependency:**

Refer to: p0820, p0821, p0822, p0823, p0824, r0837

---

<b>r0056</b>	<b>CO/BO: Closed-loop control status word 1</b>			
SERVO	Can be changed: -		Access level: 3	
	Data type: Unsigned16	Data set: -	Function diagram: 5492	
	P-Group: Displays, signals	Units group: -	Unit selection: -	
	Min	Max	Factory setting	
	-	-	-	

**Description:**

Displays the closed-loop control status word 1 (closed-loop control STW1) of the drive.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	01	De-magnetizing completed	No	Yes	-
	04	Magnetizing completed	No	Yes	2701
	08	Field weakening active	No	Yes	-
	14	Vdc_max controller active	No	Yes	-
	15	Vdc_min controller active	No	Yes	-

---

<b>r0060</b>	<b>CO: Speed setpoint before the setpoint filter</b>			
SERVO	Can be changed: -		Access level: 3	
	Data type: Floating Point	Data set: -	Function diagram: 2701, 5020, 6030, 6799	
	P-Group: Displays, signals	Units group: SPEED_ROT	Unit selection: -	
	Min	Max	Factory setting	
	- [1/min]	- [1/min]	- [1/min]	

**Description:**

Displays the actual speed/velocity setpoint at the input of the speed/velocity controller or V/f characteristic (after the interpolator).

**Dependency:**

Refer to: r0020

**Note:**

The speed setpoint is available smoothed (r0020) and unsmoothed (r0060).

---

<b>r0060</b>	<b>CO: Velocity setpoint before the setpoint filter</b>		
SERVO (Lin)	Can be changed: -	Access level: 3	
	Data type: Floating Point	Data set: -	Function diagram: 2701, 5020, 6030, 6799
	P-Group: Displays, signals	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	- [m/min]	- [m/min]	- [m/min]

**Description:**

Displays the actual speed/velocity setpoint at the input of the speed/velocity controller or V/f characteristic (after the interpolator).

**Dependency:**

Refer to: r0020

**Note:**

The speed setpoint is available smoothed (r0020) and unsmoothed (r0060).

---

<b>r0061</b>	<b>CO: Speed actual value motor encoder</b>		
SERVO	Can be changed: -	Access level: 2	
	Data type: Floating Point	Data set: -	Function diagram: 1580, 4710, 6010
	P-Group: Displays, signals	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	- [1/min]	- [1/min]	- [1/min]

**Description:**

Displays the speed/velocity sensed by the motor encoder (unsmoothed).

---

<b>r0061</b>	<b>CO: Velocity actual value, motor encoder</b>		
SERVO (Lin)	Can be changed: -	Access level: 2	
	Data type: Floating Point	Data set: -	Function diagram: 1580, 4710, 6010

P-Group: Displays, signals	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
Min	Max	Factory setting
- [m/min]	- [m/min]	- [m/min]

**Description:**

Displays the speed/velocity sensed by the motor encoder (unsmoothed).

---

<b>r0062</b>	<b>CO: Speed setpoint after the filter</b>	
SERVO	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
		Function diagram: 1590, 1750, 5020, 5030, 5210, 6030
	P-Group: Displays, signals	Units group: SPEED_ROT
	Min	Max
	- [1/min]	- [1/min]
		Unit selection: -
		Factory setting
		- [1/min]

**Description:**

Displays the actual speed/velocity setpoint after the setpoint filters.

---

<b>r0062</b>	<b>CO: Velocity setpoint after the filter</b>	
SERVO (Lin)	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
		Function diagram: 1590, 1750, 5020, 5030, 5210, 6030
	P-Group: Displays, signals	Units group: SPEED_LIN_METRIC_P3
	Min	Max
	- [m/min]	- [m/min]
		Unit selection: -
		Factory setting
		- [m/min]

**Description:**

Displays the actual speed/velocity setpoint after the setpoint filters.

---

<b>r0063</b>	<b>CO: Actual speed, smoothed</b>	
SERVO	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
		Function diagram: -
	P-Group: Displays, signals	Units group: SPEED_ROT
	Min	Max
	- [1/min]	- [1/min]
		Unit selection: -
		Factory setting
		- [1/min]

**Description:**

Displays the actual smoothed speed/velocity actual value for the speed/velocity control.

**Dependency:**

Refer to: r0021

**Note:**

The value is calculated in sensorless operation.

The speed actual value is available smoothed (r0021) and unsmoothed (r0063).

**r0063****CO: Actual speed, smoothed**

SERVO (Lin)

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Displays, signals

Units group:

Unit selection: -

SPEED\_LIN\_METRIC\_P3

Min

Max

Factory setting

- [m/min]

- [m/min]

- [m/min]

**Description:**

Displays the actual smoothed speed/velocity actual value for the speed/velocity control.

**Dependency:**

Refer to: r0021

**Note:**

The value is calculated in sensorless operation.

The speed actual value is available smoothed (r0021) and unsmoothed (r0063).

**r0064****CO: Speed controller system deviation**

SERVO

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: 5040, 6040

P-Group: Displays, signals

Units group: SPEED\_ROT

Unit selection: -

Min

Max

Factory setting

- [1/min]

- [1/min]

- [1/min]

**Description:**

Displays the actual control difference of the speed/velocity controller.

**Note:**

In the servo control mode with active reference model, the system deviation to the P component of the speed/velocity controller is displayed.

**r0064****CO: Velocity controller system deviation**

SERVO (Lin)

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: 5040, 6040

P-Group: Displays, signals

Units group:

Unit selection: -

SPEED\_LIN\_METRIC\_P3

Min

Max

Factory setting

- [m/min]

- [m/min]

- [m/min]

**Description:**

Displays the actual control difference of the speed/velocity controller.

**Note:**

In the servo control mode with active reference model, the system deviation to the P component of the speed/velocity controller is displayed.

<b>r0065</b>	<b>Slip frequency</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 6310, 6730
	P-Group: Displays, signals	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	- [Hz]	- [Hz]	- [Hz]

**Description:**

Displays the slip frequency for induction motors.

<b>r0066</b>	<b>CO: Infeed line frequency</b>		
A_INF	Can be changed: -		Access level:
	Data type: Floating Point	Data set: -	Function diagram: 8850, 8950
	P-Group: Displays, signals	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	- [Hz]	- [Hz]	- [Hz]

**Description:**

Displays the line frequency.

**Dependency:**

Refer to: r0024

**Note:**

The line frequency is available smoothed (r0024) and unsmoothed (r0066).

A positive sign of the frequency is obtained when the line supply phases U, V and W are connected with the correct phase sequence.

A negative sign of the frequency is obtained when the 3 line phases are interchanged therefore designating a negative direction of the rotating field of the 3-phase line supply voltage.

<b>r0066</b>	<b>CO: Drive output frequency</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 1690, 5300,

5730, 6310, 6730, 6731, 6799

P-Group: Displays, signals

Units group: FREQUENCY

Unit selection: -

Min

Max

Factory setting

- [Hz]

- [Hz]

- [Hz]

**Description:**

Displays the motor module output frequency.

**Dependency:**

Refer to: r0024

**Note:**

The output frequency is available smoothed (r0024) and unsmoothed (r0066).

**r0067[0...1]****Permissible absolute infeed current magnitude OK**

A\_INF

Can be changed: -

Access level:

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Displays, signals

Units group: CURRENT\_AC\_EFF

Unit selection: -

Min

Max

Factory setting

- [Aeff]

- [Aeff]

- [Aeff]

**Description:**

Displays the actual permissible absolute line-side current.

**Index:**

[0] = Motor mode

[1] = Regenerative mode

**Dependency:**

The permissible current is either the maximum converter current or the parameterized current limits, whichever is lower.

Refer to: p3530, p3531

**r0067****Maximum drive output current**

SERVO

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: 5722, 6300,  
6640, 6724

P-Group: Displays, signals

Units group: CURRENT\_AC\_EFF

Unit selection: -

Min

Max

Factory setting

- [Aeff]

- [Aeff]

- [Aeff]

**Description:**

Displays the maximum output current of the motor module.

**Dependency:**

The maximum output current is determined by the parameterized current limit and the



motor and converter thermal protection.

Refer to: p0290, p0640

<b>r0068</b>	<b>CO: Absolute current actual value</b>		
A_INF, SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5730, 6714, 8014, 8850, 8950
	P-Group: Displays, signals	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]
<b>Description:</b>			
Displays actual absolute current.			
<b>Dependency:</b>			
Refer to: r0027			
<b>Notice:</b>			
Bei A_INF, S_INF the following applies:			
The value is updated with the current controller sampling time.			
The following applies for SERVO:			
The value is updated with a sampling time of 1 ms.			
<b>Note:</b>			
The calculated RMS value is only applicable for alternating currents.			
For DC current, a value is displayed that is too low by $\sqrt{2}$ .			
Absolute current value = $\sqrt{I_q^2 + I_d^2}$			
The absolute current actual value is available smoothed (r0027) and unsmoothed (r0068).			

<b>r0069[0...6]</b>	<b>Phase current, actual value</b>		
A_INF, SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 1630, 5730, 6714, 6731, 8950
	P-Group: Displays, signals	Units group: CURRENT_AC_PP	Unit selection: -
	Min	Max	Factory setting
	- [A]	- [A]	- [A]
<b>Description:</b>			
Displays the measured actual phase currents as peak value.			
<b>Index:</b>			
[0] = Phase U			
[1] = Phase V			

- [2] = Phase W  
 [3] = Phase U offset  
 [4] = Phase V offset  
 [5] = Phase W offset  
 [6] = Total U, V, W

**Note:**

In indices 3 ... 5, the offset currents of the 3 phases, which are added to correct the phase currents, are displayed.

The sum of the 3 corrected phase currents is displayed in index 6.

---

<b>r0070</b>	<b>CO: Actual DC link voltage</b>		
A_INF, SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 1774, 5730, 6730, 6731, 6799, 8750, 8850, 8940, 8950, 8964
	P-Group: Displays, signals	Units group: VOLTAGE_DC	Unit selection: -
	Min	Max	Factory setting
	- [V]	- [V]	- [V]

**Description:**

Displays the measured actual value of the DC link voltage.

**Dependency:**

Refer to: r0026

**Note:**

The DC link voltage is available smoothed (r0026) and unsmoothed (r0070).

---

<b>r0072</b>	<b>CO: Infeed, input voltage</b>		
A_INF	Can be changed: -		Access level:
	Data type: Floating Point	Data set: -	Function diagram: 8850, 8950
	P-Group: Displays, signals	Units group: VOLTAGE_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Veff]	- [Veff]	- [Veff]

**Description:**

Displays the actual power module input voltage (line module).

**Dependency:**

Refer to: r0025

**Note:**

This value depends on the converter reactive current.

The input voltage is available smoothed (r0025) and unsmoothed (r0072).

<b>r0072</b>	<b>CO: Drive, output voltage</b>	
SERVO	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
		Function diagram: 1630, 5730, 6730, 6731, 6799
	P-Group: Displays, signals	Units group: VOLTAGE_AC_EFF
	Min	Max
	- [Veff]	- [Veff]
		Unit selection: -
		Factory setting

**Description:**

Displays the actual power module output voltage (motor module).

**Dependency:**

Refer to: r0025

**Note:**

The output voltage is available smoothed (r0025) and unsmoothed (r0072).

<b>r0074</b>	<b>CO: Modulat_depth</b>	
A_INF, SERVO	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
		Function diagram: 5730, 6730, 6731, 6799, 8940, 8950
	P-Group: Displays, signals	Units group: PERCENT
	Min	Max
	- [%]	- [%]
		Unit selection: -
		Factory setting

**Description:**

Displays the actual modulation depth.

**Dependency:**

Refer to: r0028

**Note:**

For space vector modulation, 100% corresponds to the maximum output voltage without overcontrol.

Values above 100 % indicate an overcontrol condition - values below 100% have no overcontrol.

The phase voltage (phase-to-phase, RMS) is calculated as follows:  $(r0074 * r0070) / (\sqrt{2} * 100 \%)$ .

The modulation depth is available smoothed (r0028) and unsmoothed (r0074).

<b>r0075</b>	<b>Reactive current setpoint</b>	
A_INF	Can be changed: -	Access level:

Data type: Floating Point	Data set: -	Function diagram: 8946
P-Group: Displays, signals	Units group: CURRENT_AC_EFF	Unit selection: -
Min	Max	Factory setting
- [Aeff]	- [Aeff]	- [Aeff]

**Description:**

Displays the reactive current setpoint.

**Note:**

The reactive current requirement of a line filter can be covered by the controlled infeed/regenerative feedback. The magnitude of the reactive current is determined by the capacitance of the line filter (p0221) that is automatically parameterized when a line filter is selected (p0220). For p0221 = 0, the controller does not generate reactive current for a line filter.

Setpoint r0075 includes the reactive current for a line filter that depends on the actual operating point.

**r0075****Current setpoint, field-generating**

SERVO

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: 1630, 5714,  
5722, 6714

P-Group: Displays, signals

Units group: CURRENT\_AC\_EFF

Unit selection: -

Min

Max

Factory setting

- [Aeff]

- [Aeff]

- [Aeff]

**Description:**

Displays the field-generating current setpoint (Id\_set).

**Note:**

This value is irrelevant for the V/f control mode.

**r0076****Reactive current actual value**

A\_INF

Can be changed: -

Access level:

Data type: Floating Point

Data set: -

Function diagram: 1774, 8946,  
8950

P-Group: Displays, signals

Units group: CURRENT\_AC\_EFF

Unit selection: -

Min

Max

Factory setting

- [Aeff]

- [Aeff]

- [Aeff]

**Description:**

Displays the reactive current actual value.

**Dependency:**

Refer to: r0029

**Note:**

The reactive current actual value is available smoothed (r0029) and unsmoothed (r0076).

---

<b>r0076</b>	<b>Current actual value, field-generating</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 1630, 1710, 5714, 5730, 6799
	P-Group: Displays, signals	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]

**Description:**

Displays the field-generating current actual value (Id\_act).

**Dependency:**

Refer to: r0029

**Note:**

This value is irrelevant for the V/f control mode.

The field-generating current actual value is available smoothed (r0029) and unsmoothed (r0076).

---

<b>r0077</b>	<b>CO: Active current setpoint</b>		
A_INF	Can be changed: -		Access level:
	Data type: Floating Point	Data set: -	Function diagram: 1774, 8940, 8946
	P-Group: Displays, signals	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]

**Description:**

Displays the active current setpoint (Iq\_set).

---

<b>r0077</b>	<b>CO: Current setpoint, torque-generating</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 1630, 1774, 5714, 6710, 6714, 6719
	P-Group: Displays, signals	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]

**Description:**

Displays the torque/force generating current setpoint.

**Note:**

This value is irrelevant for the V/f control mode.

**r0078****CO: Active current actual value**

A\_INF

Can be changed: -

Access level:

Data type: Floating Point

Data set: -

Function diagram: 1774, 1775,  
8850, 8946, 8950

P-Group: Displays, signals

Units group: CURRENT\_AC\_EFF

Unit selection: -

Min

Max

Factory setting

- [Aeff]

- [Aeff]

- [Aeff]

**Description:**

Displays the actual value for the active current.

**Dependency:**

Refer to: r0030

**Note:**

The active current actual value is available smoothed (r0030) and unsmoothed (r0078).

**r0078[0...1]****CO: Current actual value, torque-generating**

SERVO

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: 1630, 5714,  
5730

P-Group: Displays, signals

Units group: CURRENT\_AC\_EFF

Unit selection: -

Min

Max

Factory setting

- [Aeff]

- [Aeff]

- [Aeff]

**Description:**

Displays the torque/force generating current actual value (Iq\_act).

**Index:**

[0] = Unsmoothed

[1] = Smoothed with p0045

**Dependency:**

Refer to: r0030, p0045

**Note:**

These values are irrelevant for the V/f control mode.

The torque-generating current actual value is available smoothed (r0030 with 100 ms,

r0078[1] with p0045) and unsmoothed (r0078[0]).

### r0079[0...1]

#### CO: Torque setpoint total

SERVO

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: 5610, 8012

P-Group: Displays, signals

Units group: TORQUE

Unit selection: -

Min

Max

Factory setting

- [Nm]

- [Nm]

- [Nm]

#### Description:

Displays the torque/force setpoint at the output of the speed/velocity controller (before clock cycle interpolation).

#### Index:

[0] = Umsmoothed

[1] = Smoothed with p0045

### r0079[0...1]

#### CO: Total force setpoint

SERVO (Lin)

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: 5610, 8012

P-Group: Displays, signals

Units group: FORCE

Unit selection: -

Min

Max

Factory setting

- [N]

- [N]

- [N]

#### Description:

Displays the torque/force setpoint at the output of the speed/velocity controller (before clock cycle interpolation).

#### Index:

[0] = Umsmoothed

[1] = Smoothed with p0045

### r0080

#### CO: Torque actual value

SERVO

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: 5730

P-Group: Displays, signals

Units group: TORQUE

Unit selection: -

Min

Max

Factory setting

- [Nm]

- [Nm]

- [Nm]

#### Description:

Displays the actual torque/force actual value.

#### Dependency:

Refer to: r0031

**Note:**

The torque actual value is available smoothed (r0031) and unsmoothed (r0080).

---

<b>r0080</b>	<b>CO: Torque actual value</b>		
SERVO (Lin)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5730
	P-Group: Displays, signals	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	- [N]	- [N]	- [N]

**Description:**

Displays the actual torque/force actual value.

**Dependency:**

Refer to: r0031

**Note:**

The torque actual value is available smoothed (r0031) and unsmoothed (r0080).

---

<b>r0081</b>	<b>CO: Torque utilization</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 8012
	P-Group: Displays, signals	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	- [%]	- [%]	- [%]

**Description:**

Displays the torque/force utilization as a percentage.

The torque/force utilization is obtained from the required smoothed torque/force referred to the torque/force limit.

**Dependency:**

Refer to: r0033

**Note:**

The torque utilization is available smoothed (r0033) and unsmoothed (r0081).

For SERVO, the following applies:

The calculation of the torque utilization depends on the selected smoothing time constant p0045.

---

<b>r0081</b>	<b>CO: Force utilization</b>		
SERVO (Lin)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 8012
	P-Group: Displays, signals	Units group: PERCENT	Unit selection: -



Min	Max	Factory setting
- [%]	- [%]	- [%]

**Description:**

Displays the torque/force utilization as a percentage.

The torque/force utilization is obtained from the required smoothed torque/force referred to the torque/force limit.

**Dependency:**

Refer to: r0033

**Note:**

The torque utilization is available smoothed (r0033) and unsmoothed (r0081).

For SERVO, the following applies:

The calculation of the torque utilization depends on the selected smoothing time constant p0045.

**r0082**

**CO: Active power actual value**

A\_INF

Can be changed: -

Access level:

Data type: Floating Point

Data set: -

Function diagram: 8850, 8950

P-Group: Displays, signals

Units group: POWER\_P3

Unit selection: -

Min

Max

Factory setting

- [kW]

- [kW]

- [kW]

**Description:**

Displays the instantaneous active power.

**Dependency:**

Refer to: r0032

**Note:**

The active power is available smoothed (r0032 with 300 ms) and unsmoothed (r0082).

**r0082[0...2]**

**CO: Active power actual value**

SERVO

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: 5730

P-Group: Displays, signals

Units group: POWER\_P3

Unit selection: -

Min

Max

Factory setting

- [kW]

- [kW]

- [kW]

**Description:**

Displays the instantaneous active power.

**Index:**

[0] = Umsmoothed

[1] = Smoothed with p0045

[2] = Power drawn

**Dependency:**

Refer to: r0032

**Note:**

The active power is available smoothed (r0032 with 100 ms, r0082[1] with p0045) and unsmoothed (r0082[0]).

<b>r0083</b>	<b>CO: Flux setpoint</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5722
	P-Group: Displays, signals	Units group: FLUX_RELATIVE	Unit selection: -
	Min	Max	Factory setting
	- [%]	- [%]	- [%]
	<b>Description:</b>		
	Displays the flux setpoint.		
<b>r0084</b>	<b>CO: Actual flux</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5722, 6730, 6731
	P-Group: Displays, signals	Units group: FLUX_RELATIVE	Unit selection: -
	Min	Max	Factory setting
	- [%]	- [%]	- [%]
	<b>Description:</b>		
	Displays the actual flux.		
<b>r0088</b>	<b>DC-link voltage setpoint</b>		
A_INF	Can be changed: -		Access level:
	Data type: Floating Point	Data set: -	Function diagram: 8940, 8964
	P-Group: Displays, signals	Units group: VOLTAGE_DC	Unit selection: -
	Min	Max	Factory setting
	- [V]	- [V]	- [V]
	<b>Description:</b>		
	Displays the setpoint for the DC link voltage.		
<b>r0089[0...2]</b>	<b>Actual phase voltage</b>		
SERVO	Can be changed: -		Access level: 3

Data type: Floating Point	Data set: -	Function diagram: 6719
P-Group: Displays, signals	Units group: VOLTAGE_AC_PP	Unit selection: -
Min	Max	Factory setting
- [V]	- [V]	- [V]

**Description:**

Displays the actual phase voltage.

**Index:**

[0] = Phase U

[1] = Phase V

[2] = Phase W

---

**r0093 CO: Pole position angle electrically normalized**

SERVO

Can be changed: -		Access level: 3
Data type: Floating Point	Data set: -	Function diagram: -
P-Group: Displays, signals	Units group: ANGLE	Unit selection: -
Min	Max	Factory setting
- [°]	- [°]	- [°]

**Description:**

Displays the normalized electrical pole position angle.

**Dependency:**

Refer to: r0094, p0431, r1778

**Note:**

For operation with encoder and pulse cancellation, the following applies:

- the value is generated from  $r0094 + 180^\circ$ .
- this angle can be used to adjust the encoders of synchronous motors.

For pulse enable, the following applies:

- the value indicates the transformation angle used by the control  $+ 180^\circ$ .
- this value is, contrary to r0094, also applicable (provides information) for sensorless operation and after a pole position identification routine.

---

**r0094 CO: Transformation angle**

A\_INF

Can be changed: -		Access level:
Data type: Floating Point	Data set: -	Function diagram: -
P-Group: Displays, signals	Units group: ANGLE	Unit selection: -
Min	Max	Factory setting
- [°]	- [°]	- [°]

**Description:**

Displays the transformation angle.

**Note:**

The transformation angle corresponds to the line supply angle.

**r0094****CO: Transformation angle**

SERVO

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: 1580, 4710,  
6714, 6730

P-Group: Displays, signals

Units group: ANGLE

Unit selection: -

Min

Max

Factory setting

- [°]

- [°]

- [°]

**Description:**

Displays the transformation angle.

**Dependency:**

Refer to: r0093, p0431, r1778

**Note:**

The transformation angle corresponds to the electrical commutation angle.

If no pole position identification is carried-out (p1982), and the encoder is adjusted, the following applies:

The encoder supplies the value and indicates the electrical angle of the flux position (d axis).

**p0097****Select drive object type**

CU\_I

Can be changed: C1(1)

Access level: 1

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Topology

Units group: -

Unit selection: -

Min

Max

Factory setting

0

12

0

**Description:**

Executes an automatic device configuration.

In so doing, p0099, p0107 and p0108 are appropriately set.

**Values:**

- 0: No selection
- 1: Drive object type SERVO
- 2: Drive object type VECTOR
- 3: SINAMICS GM (DFEMV & VECTORMV)
- 4: SINAMICS SM (AFEMV | VECTORMV)
- 5: SINAMICS GL (VECTORGL)
- 12: Drive object type VECTOR parallel circuit

**Dependency:**

Refer to: r0098, p0099  
Refer to: A01330

**Note:**

For p0097 = 0, p0099 is automatically set to the factor setting.  
The setting p0097 = 1 is not possible for chassis-type power modules as well as for SINAMICS G or SINAMICS GM.  
The setting p0097 = 12 is not possible for booksize power modules.

r0098[0...5]				Actual device topology			
CU_I	Can be changed: -			Access level: 1			
	Data type: Unsigned32			Data set: -			Function diagram: -
	P-Group: Topology			Units group: -			Unit selection: -
	Min			Max			Factory setting
	-			-			-

**Description:**

Displays the automatically detected actual device topology in coded form.

**Index:**

- [0] = DRIVE-CLiQ socket X100
- [1] = DRIVE-CLiQ socket X101
- [2] = DRIVE-CLiQ socket X102
- [3] = DRIVE-CLiQ socket X103
- [4] = DRIVE-CLiQ socket X104
- [5] = DRIVE-CLiQ socket X105

**Dependency:**

Refer to: p0097, p0099

**Note:**

Topology coding: abcd efgh hex  
a = number of active line modules  
b = number of motor modules  
c = number of motors  
d = number of encoders (or the line supply voltage sensing for active line modules)  
e = number of additional encoders (or the line supply voltage sensing for active line modules)  
f = number of terminal modules  
g = number of terminal boards  
h = reserved  
if the value 0 is displayed in all indices, then components are not detected via DRIVE-CLiQ.  
If a value F hex occurs at a position of the coding (abcd efgh hex), then an overflow has

occurred.

**p0099[0...5]****Device target topology**

CU\_I

Can be changed: C1(1)

Access level: 1

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Topology

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 hex

FFFF FFFF hex

0000 hex

**Description:**

Sets the device target topology in coded form (refer to r0098). The setting is made during commissioning.

**Index:**

[0] = DRIVE-CLiQ socket X100

[1] = DRIVE-CLiQ socket X101

[2] = DRIVE-CLiQ socket X102

[3] = DRIVE-CLiQ socket X103

[4] = DRIVE-CLiQ socket X104

[5] = DRIVE-CLiQ socket X105

**Dependency:**

The parameter can only be written into for p0097 = 0.

To perform an automatic device configuration run, an index of the device target topology must be set to the value of the device actual topology in r0098 for acknowledgement. An index of the device actual topology with a value other than 0 must be selected.

Refer to: p0097, r0098

Refer to: A01330

**Note:**

The parameter can only be set to the values 0, the value of the actual device topology, the value of the actual device target topology and FFFFFFFF hex.

If the value 0 is displayed in all of the indices, then the system has still not be commissioned.

The value FFFFFFFF hex indicates that the topology was not generated by the automatic device configuration but was commissioned using the commissioning software (e.g. using parameter download).

**p0100****IEC/NEMA mot stds**

SERVO

Can be changed: C2(1)

Access level: 1

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Converter

Units group: -

Unit selection: -

Min

Max

Factory setting

0

1

0

**Description:**

Defines whether the motor and drive converter power settings (e.g. rated motor power - p0307) are expressed in [kW] or [hp].

Depending on the selection, the rated motor frequency (p0310) is either set to 50 Hz or 60 Hz.

The following applies for IEC drives: The power factor (p0308) should be parameterized.

The following applies for NEMA drives: The efficiency (p0308) should be parameterized.

**Values:**

0: IEC motor [50 Hz / kW]

1: NEMA motor [60 Hz / hp]

**Dependency:**

If p0100 is changed, all of the rated motor parameters are reset.

Refer to: r0206, p0210, p0300, p0304, p0305, p0307, p0308, p0310, p0311, p0312, p0314, p0320, p0322, p0323, p0335, r0336, r0337, p0338, p1800

**Note:**

The parameter can only be changed for closed-loop vector control (p0107).

The parameter value is not reset when the factory setting is restored (p0010 = 30, p0970).

**p0101[0...15]**

**Drive object numbers**

CU\_I

Can be changed: C1(1)

Access level: 2

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Topology

Units group: -

Unit selection: -

Min

Max

Factory setting

0

62

0

**Description:**

The parameter contains the object number via which every drive object can be addressed.

The number of an existing drive object is entered into each index.

The numbers are automatically assigned once and cannot longer be changed as long as the object has not been deleted.

In the commissioning software, this object number cannot be entered using the Expert list, but is automatically assigned when inserting an object.

**Index:**

[0] = Drive object number, control unit

[1] = Drive object number, object 1

[2] = Drive object number, object 2

[3] = Drive object number, object 3

[4] = Drive object number, object 4

[5] = Drive object number, object 5

[6] = Drive object number, object 6  
 [7] = Drive object number, object 7  
 [8] = Drive object number, object 8  
 [9] = Drive object number, object 9  
 [10] = Drive object number, object 10  
 [11] = Drive object number, object 11  
 [12] = Drive object number, object 12  
 [13] = Drive object number, object 13  
 [14] = Drive object number, object 14  
 [15] = Drive object number, object 15

**Note:**

Value = 0: No drive object is defined.

**r0102****Number of drive objects**

CU\_I

Can be changed: -

Access level: 2

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Topology

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the total number of available drive objects.

**Note:**

The numbers of the drive objects are in p0101.

**p0103[0...15]****Application-specific view**

CU\_I

Can be changed: C1(2)

Access level: 2

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

0

999

0

**Description:**

The application-specific view of an existing drive object is entered into each index.

**Dependency:**

Refer to: p0103, r0103, p0107, r0107

Refer to: F01051

**Note:**

The application-specific views are defined in files on the CompactFlash Card with the



following structure:

PDxxxxyy.ACX

xxx: Application-specific view, set using p0103

yyy: Type of drive object (p0107)

Example:

PD052011.ACX

--> "011" stands for the drive object, type SERVO

--> "052" is the view for this drive object set using p0103

<b>r0103</b>	<b>Application-specific view</b>		
A_INF, SERVO	Can be changed: -		Access level: 2
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Displays the application-specific view of the individual drive object.			
<b>Dependency:</b>			
Refer to: p0103, r0103, p0107, r0107			
Refer to: F01051			
<b>p0105</b>	<b>Activate/de-activate drive object</b>		
CU_I	Can be changed: U, T		Access level: 2
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	1	1
<b>Description:</b>			
Setting to activate/de-activate a drive object.			
<b>Values:</b>			
0: De-activate drive object			
1: Activate drive object			
<b>Dependency:</b>			
Refer to: r0106			
<b>p0105</b>	<b>Activate/de-activate drive object</b>		
A_INF, SERVO	Can be changed: T		Access level: 2
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -

Min	Max	Factory setting
0	1	1

**Description:**

Setting to activate/de-activate a drive object.

**Values:**

- 0: De-activate drive object  
1: Activate drive object

**Dependency:**

Refer to: r0106

**Note:**

Setting a drive object to de-activated principally corresponds to the "parking axis" function. however, here, all of the DRIVE-CLiQ components, assigned to the drive object, are in involved.

**r0106****Drive object active/inactive**

All objects

Can be changed: -

Access level: 2

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Closed-loop control

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the "active/inactive" state of a drive object.

**Values:**

- 0: Drive object inactive  
1: Drive object active

**Dependency:**

Refer to: p0105

**p0107[0...15]****Drive object type**

CU\_I

Can be changed: C1(2)

Access level: 2

Data type: Integer16

Data set: -

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

0

254

0

**Description:**

The type of an existing drive object is entered into each index.

**Values:**

- 0: Not a type

1:	SINAMICS S
2:	SINAMICS G
3:	SINAMICS I
4:	SINAMICS CX32
5:	SINAMICS GM
6:	SINAMICS SM
7:	SINAMICS GL
10:	ACTIVE LINE MODULE
11:	SERVO
12:	VECTOR
13:	VECTORMV
14:	VECTORGL
20:	SMART LINE MODULE
30:	BASIC LINE MODULE
40:	ACTIVE LINE MODULEMV
41:	BASIC LINE MODULEMV
100:	TB30 (Terminal Board)
200:	TM31 (Terminal Module)
201:	TM41 (Terminal Module)
202:	TM17 High Feature (Terminal Module)
203:	TM15 (Terminal Module)
204:	TM15 (Terminal module for SINAMICS)
254:	CU-LINK

**Index:**

[0]	= Drive object time, control unit
[1]	= Drive object type, object 1
[2]	= Drive object type, object 2
[3]	= Drive object type, object 3
[4]	= Drive object type, object 4
[5]	= Drive object type, object 5
[6]	= Drive object type, object 6
[7]	= Drive object type, object 7
[8]	= Drive object type, object 8
[9]	= Drive object type, object 9
[10]	= Drive object type, object 10
[11]	= Drive object type, object 11
[12]	= Drive object type, object 12
[13]	= Drive object type, object 13
[14]	= Drive object type, object 14
[15]	= Drive object type, object 15

**Dependency:**

Refer to: p0103, r0103, p0107, r0107

Refer to: F01051

**Caution!**

If you change this parameter and exit the device commissioning mode, then the complete software will be set up again and all of the previous drive parameter settings are deleted.

**Note:**

The number (p0101) and the associated drive object type are in the same index.

For SINAMICS S a drive object type can only be changed between SERVO and VECTOR. If you change the parameter and exit drive start-up (p0009 from 2 to 0) the drive parameters are set up again.

<b>r0107</b>	<b>Drive object type</b>		
A_INF	Can be changed: -	Access level: 2	
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
	<b>Description:</b>		
	Displays the type of each drive object.		
	<b>Values:</b>		
	10: ACTIVE LINE MODULE		
	<b>Dependency:</b>		
	Refer to: p0103, r0103, p0107, r0107		
	Refer to: F01051		
<b>r0107</b>	<b>Drive object type</b>		
SERVO	Can be changed: -	Access level: 2	
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
	<b>Description:</b>		
	Displays the type of each drive object.		
	<b>Values:</b>		
	11: SERVO		
	<b>Dependency:</b>		
	Refer to: p0103, r0103, p0107, r0107		
	Refer to: F01051		
<b>p0108[0...15]</b>	<b>Drive object, function module</b>		
CU_I	Can be changed: C1(2)	Access level: 2	
	Data type: Unsigned32	Data set: -	Function diagram: -

P-Group: -	Units group: -	Unit selection: -
Min	Max	Factory setting
0000 bin	1111 1111 1111 1111 1111 1111	0000 bin
	1111 1111 bin	

**Description:**

The function module of an existing drive object is entered into each index.

**Index:**

- [0] = Function module control unit
- [1] = Function module object 1
- [2] = Function module object 2
- [3] = Function module object 3
- [4] = Function module object 4
- [5] = Function module object 5
- [6] = Function module object 6
- [7] = Function module object 7
- [8] = Function module object 8
- [9] = Function module object 9
- [10] = Function module object 10
- [11] = Function module object 11
- [12] = Function module object 12
- [13] = Function module object 13
- [14] = Function module object 14
- [15] = Function module object 15

**Note:**

A "function module" is a functional expansion of a drive object that can be activated when commissioning.

<b>r0108</b>	<b>Drive object, function module</b>		
A_INF	Can be changed: -	Access level: 2	
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the activated function module for the particular drive object.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	15	Parallel cct. config.	Not activated	Activated	-
	28	Cooling system	Not activated	Activated	-

**Note:**

A "function module" is a functional expansion of a drive object that can be activated when commissioning.

**r0108****Drive object, function module**

SERVO

Can be changed: -

Access level: 2

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Closed-loop control

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the activated function module for the particular drive object.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	08	Extended setpoint channel	Not activated	Activated	-
	12	Linear motor	Not activated	Activated	-
	14	Extended brake control	Not activated	Activated	-
	16	Drive Technology	Not activated	Activated	-
	17	Extended messages/monitoring	Not activated	Activated	-
	28	Cooling system	Not activated	Activated	-
	29	CAN	Not activated	Activated	-

**Note:**

A "function module" is a functional expansion of a drive object that can be activated when commissioning.

**p0110[0...2]****DRIVE-CLiQ basis sampling times**

CU\_I

Can be changed: C1(1)

Access level: 4

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Closed-loop control

Units group: TIME\_M6

Unit selection: -

Min

Max

Factory setting

31.25 [μs]

10000.00 [μs]

[0] 125.00 [μs]

[1] 250.00 [μs]

[2] 250.00 [μs]

**Description:**

Setting the basic clock cycles.

The basis clock cycle of the device (e.g. drive unit) is identical with the current controller clock cycle of a DRIVE- CLiQ communications line. All current controller clock cycles of

the same communications line (e.g. current controller clock cycles of the drives) must be identical with the selected basis clock cycle.

The basis clock cycle for individual drives is selected in p0111.

**Index:**

- [0] = Bas. clock cycle 0
- [1] = Bas. clock cycle 1
- [2] = Bas. clock cycle 2

**Note:**

The basis clock cycle can be changed in steps of 1.25 µs.

The values of the basic clock cycles are aligned to the number of drives.

The factory settings should be kept. For mixed operation involving active line modules and motor modules with servo and vector drives, the basic clock cycle 0 is used for the fastest clock cycle (servo) basic clock cycle 1 for the average clock cycle (active line module) and basic clock cycle 2 for the slowest clock cycle (vector).

After parameters have been changed, they should be saved and a POWER ON carried-out.

<b>p0111</b>	<b>DRIVE-CLiQ basis sampling time selection</b>		
A_INF, SERVO	Can be changed: C1(3)		Access level: 4
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	2	0

**Description:**

Selects the basis clock cycle for this drive.

**Values:**

- 0: Bas. clock cycle 0
- 1: Bas. clock cycle 1
- 2: Bas. clock cycle 2

**Dependency:**

Refer to: p0110

**Note:**

All of the drives communicating via the same DRIVE-CLiQ socket of the control unit must have the same basic clock cycle.

After parameters have been changed, they should be saved and a POWER ON carried-out.

<b>p0112</b>	<b>Sampling times pre-setting p0115</b>		
A_INF, SERVO	Can be changed: C1(3)		Access level: 4

Data type: Integer16	Data set: -	Function diagram: -
P-Group: Closed-loop control	Units group: -	Unit selection: -
Min	Max	Factory setting
0	5	3

**Description:**

Pre-assignment of the sampling times in p0115.

The clock cycles for the current controller/speed controller/flux controller/setpoint channel / - / - / technology controller are pre-assigned as follows:

SINAMICS S, servo drive:

p0112 = 1: 250 / 250 / 250 / 4000 / - / - / 4000 µs (for chassis drive units)

p0112 = 2: 125 / 250 / 250 / 4000 / - / - / 4000 µs

p0112 = 3: 125 / 125 / 125 / 4000 / - / - / 4000 µs

p0112 = 4: 62.5 / 62.5 / 62.5 / 1000 / - / - / 1000 µs

p0112 = 5: Not possible

SINAMICS S, active infeed:

p0112 = 1: 400 / - / - / 1600 µs

p0112 = 2: 250 / - / - / 2000 µs

p0112 = 3: 125 / - / - / 2000 µs

p0112 = 4: 125 / - / - / 1000 µs

p0112 = 5: 125 / - / - / 500 µs

SINAMICS S, smart infeed:

p0112 = 1: 400 / - / - / 1600 µs

p0112 = 2: 250 / - / - / 2000 µs

p0112 = 3: 250 / - / - / 2000 µs

p0112 = 4: 250 / - / - / 1000 µs

p0112 = 5: Not possible

SINAMICS S, basic infeed:

p0112 = 1: 2000 / - / - / 2000 µs

p0112 = 2: 2000 / - / - / 2000 µs

p0112 = 3: 2000 / - / - / 2000 µs

p0112 = 4: 1000 / - / - / 1000 µs

p0112 = 5: 500 / - / - / 500 µs

SINAMICS S/G, vector drive:

p0112 = 1: 400 / 1600 / 1600 / 1600 / - / - / 3200 µs (for a rated pulse frequency of 1.25 kHz)

p0112 = 2: 250 / 1000 / 2000 / 1000 / - / - / 4000 µs

p0112 = 3: 250 / 1000 / 1000 / 1000 / - / - / 4000 µs (for a rated pulse frequency of 2 kHz)

SINAMICS S, vector drive:

p0112 = 4: 250 / 500 / 1000 / 500 / - / - / 2000 µs



p0112 = 5: 250 / 250 / 1000 / 250 / - / - / 1000 µs

**Values:**

- 0: Expert
- 1: xLow
- 2: Low
- 3: Standard
- 4: High
- 5: xHigh

**Dependency:**

It is not permissible to select a value of p0112 if the associated current controller clock cycle is not identical to the basic clock cycle.

Refer to: p0110, p0111

**Note:**

For p0112 = 0 (expert) the individual sampling times in p0115 can be adjusted.

After parameters have been changed, they should be saved and a POWER ON carried-out.

**p0115[0...6]**

A\_INF, SERVO

**Sampling times for internal control loops**

Can be changed: C1(3)

Data type: Floating Point

P-Group: Closed-loop control

Min

0.00 [µs]

Data set: -

Units group: TIME\_M6

Max

16000.00 [µs]

Access level: 4

Function diagram: -

Unit selection: -

Factory setting

[0] 125.00 [µs]

[1] 125.00 [µs]

[2] 125.00 [µs]

[3] 4000.00 [µs]

[4] 0.00 [µs]

[5] 0.00 [µs]

[6] 4000.00 [µs]

**Description:**

Sets the sampling times for the control loops.

The default setting is made in p0112 and can only be changed for individual loops in the expert mode (p0112 = 0).

**Index:**

[0] = Current controller

[1] = Speed controller

[2] = Flux controller

[3] = Setpoint channel

[4] = Pos ctr (beingDev)

[5] = Positioning (being developed)

[6] = Techn. ctrl

**Dependency:**

The sampling times can only be separately set if p0112 is set to 0 (expert mode). If a sampling time is modified in the expert mode, then all of the sampling times with higher indices are automatically changed in the same ratio as the sampling time itself was changed. Slower time slices are only taken if the calculated sampling time is also permitted. Upper limit is 8 ms.

The current controller sampling times must be set so that they are identical to the selected basis clock cycle (p0111 and p0110).

Higher-level controls must be calculated in integral ratios to lower-level controls (e.g.  $p0115[1] = N * p0115[0]$ ; where N is a whole number).

Refer to: p0110, p0111, p0112

**Note:**

if a control loop does not exist (e.g. positioning), a 0 is assigned to the parameter value. For function modules that can be activated (e.g. technology controller), the parameters values are pre-assigned.

For the active line module (ALM), the currents and DC link voltage controllers operate with the same sampling time.

For the basic line module (BLM), the DC link voltage measurement operates in the current controller clock cycle.

After parameters have been changed, they should be saved and a POWER ON carried-out.

**p0117****Current controller computation deadtime mode**

CU\_I

Can be changed: U, T

Access level: 4

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Closed-loop control

Units group: -

Unit selection: -

Min

Max

Factory setting

0

6

6

**Description:**

Sets the mode for the computation deadtime of the current controller.

0: Offset (shifted) clocking, minimum computation deadtime of each drive, automatic setting

1: Clocking at the same time, the deadtime aligns itself to the deadtime of the latest drive, automatic setting

2: Manual setting of the computation deadtime, early transfer

3: Manual setting of the computation deadtime, late transfer

4-6: As for 0-2, however, no early transfers are set for vectors

**Dependency:**

Refer to: p0118

Refer to: A02100

**Note:**

Re p0117 = 0:

The times when the setpoints become effective for the individual controls is automatically and individually determined. Another computation deadtime is set for each control (closed-loop) (p0118). Current is impressed for the individual controls without any offset with respect to time (improved EMC compatibility).

Re p0117 = 1:

The latest closed-loop control determines when the setpoints for each of the individual controls become active. The same computation deadtime is set for each control (p0118). Current is impressed (flows) for the individual controls without any offset with respect to time.

Re p0117 = 2:

The computation deadtime is manually set. The user must optimize the value in p0118.

Re p0117 = 3:

Only for internal Siemens use.

Re p0117 = 4 - 6:

Behavior as for p0117 = 0 - 2, however for vectors, the earliest times are not determined.

The modified computation deadtime mode is not effective until the drive unit is powered-up again.

p0118		Current controller computation deadtime	
A_INF, SERVO	Can be changed: U, T	Access level: 4	
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: TIME_M6	Unit selection: -
	Min	Max	Factory setting
	0.00 [µs]	2000.00 [µs]	0.00 [µs]
<b>Description:</b>			
This parameter is preset as a function of the current controller sampling time (p0115[0]) and normally does not have to be changed.			
<b>Dependency:</b>			
Refer to: p0117			
Refer to: A02100			
<b>Note:</b>			
For p0118 ≤ 0.005 µs, the current controller output is delayed by a complete current controller clock cycle (p0115[0]).			
After p0118 has been changed, we recommend that the current controller is adapted (p1715).			

p0120	Power module data sets (PDS) number
-------	-------------------------------------

A_INF, SERVO	Can be changed: C1(3)		Access level: 2
	Data type: Unsigned8	Data set: -	Function diagram: -
	P-Group: Data sets	Units group: -	Unit selection: -
	Min	Max	Factory setting
	1	8	1

**Description:**

Sets the number of power module data sets (PDS).

The value corresponds to the number of power modules connected together for a parallel circuit configuration.

**Dependency:**

Refer to: p0107, r0107

**Note:**

This parameter is only significant for drive objects A\_INFEED and VECTOR with a parallel circuit configuration.

---

**p0121[0...n] Power module component number**

A_INF, SERVO	Can be changed: C1(4)		Access level: 4
	Data type: Unsigned8	Data set: PDS	Function diagram: -
	P-Group: Data sets	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	199	0

**Description:**

The power module data set is assigned to a power module using this parameter.

This unique component number is assigned when parameterizing the topology.

Only component numbers can be entered into this parameter that correspond to a power module.

**Dependency:**

Refer to: p0107, r0107

**Note:**

For parallel circuit configurations, the parameter index is assigned to a power module.

---

**p0124[0...15] Detection of main components using LED**

CU_I	Can be changed: U, T		Access level: 2
	Data type: Unsigned8	Data set: -	Function diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	1	0

**Description:**

Detects the main components of the drive object selected via the index.

---

<b>p0124[0...n]</b>	<b>Power module detection via LED</b>		
A_INF, SERVO	Can be changed: U, T		Access level: 2
	Data type: Unsigned8	Data set: PDS	Function diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	1	0

---

**Description:**

Detects the power module assigned to this drive and data set.

**Note:**

While p0124 = 1, the READY LED flashes green/orange or red/orange with 2 Hz at the appropriate power module.

For parallel circuit configurations, the parameter index is assigned to a power module.

---

<b>p0125[0...n]</b>	<b>Activate/de-activate power module components</b>		
A_INF, SERVO	Can be changed: C1(4), T		Access level: 2
	Data type: Integer16	Data set: PDS	Function diagram: -
	P-Group: Data sets	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	1	1

---

**Description:**

Setting to activate/de-activate a power module component.

**Values:**

- 0: De-activate component
- 1: Activate component

**Dependency:**

Refer to: r0126

**Note:**

The activation of a component can be rejected if the component was inserted for the first time.

In this case, it is only possible to activate the component when the pulses for all of the drive objects are inhibited.

---

<b>r0126[0...n]</b>	<b>Power module components active/inactive</b>		
A_INF, SERVO	Can be changed: -		Access level: 2

---

Data type: Integer16	Data set: PDS	Function diagram: -
P-Group: Data sets	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	-

**Description:**

Displays the "active/inactive" state of a power module component.

**Values:**

- 0: Component inactive
- 1: Component active

**Dependency:**

Refer to: p0125

**r0127[0...n]****Power module version EPROM data**

A\_INF, SERVO

Can be changed: -		Access level: 3
Data type: Unsigned32	Data set: PDS	Function diagram: -
P-Group: Converter	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	-

**Description:**

Displays the version of the EPROM data of the power module.

**Dependency:**

Refer to: r0147

**Note:**

For parallel circuit configurations, the parameter index is assigned to a power module.

**r0128[0...n]****Power module firmware version**

A\_INF, SERVO

Can be changed: -		Access level: 3
Data type: Unsigned32	Data set: PDS	Function diagram: -
P-Group: Converter	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	-

**Description:**

Displays the power module firmware version.

**Dependency:**

Refer to: r0018, r0148, r0197, r0198

**Note:**

Example:

The value 1010100 should be interpreted as V01.01.01.00.

For parallel circuit configurations, the parameter index is assigned to a power module.

<b>p0130</b>	<b>Motor data sets (MDS) number</b>		
SERVO	Can be changed: C1(3)		Access level: 2
	Data type: Unsigned8	Data set: -	Function diagram: 8575
	P-Group: Data sets	Units group: -	Unit selection: -
	Min	Max	Factory setting
	1	16	1

**Description:**

Sets the number of motor data sets (MDS).

<b>p0131[0...n]</b>	<b>Motor component number</b>		
SERVO	Can be changed: C1(4)		Access level: 4
	Data type: Unsigned8	Data set: MDS	Function diagram: -
	P-Group: Data sets	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	199	0

**Description:**

The motor data set is assigned to a motor using this parameter.

This unique component number is assigned when parameterizing the topology.

Only component numbers can be entered into this parameter that correspond to a motor.

<b>p0139[0...2]</b>	<b>Copy motor data set MDS</b>		
SERVO	Can be changed: C2(15)		Access level: 2
	Data type: Unsigned8	Data set: -	Function diagram: 8575
	P-Group: Data sets	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	31	[0] 0
			[1] 0
			[2] 0

**Description:**

Copying a motor data set (MDS) into another.

**Index:**

[0] = Source motor data set

[1] = Target motor data set

[2] = Start copying

**Note:**

## Procedure:

1. In Index 0, enter which motor data set should be copied.
2. In Index 1, enter the motor data set data that is to be copied into.
3. Start copying: Set index 2 from 0 to 1.

p0139[2] is automatically set to 0 when copying is completed.

When copying, p0131 is not taken into account.

<b>p0140</b>	<b>Encoder data sets (EDS) number</b>		
SERVO	Can be changed: C1(3)		Access level: 4
	Data type: Unsigned8	Data set: -	Function diagram: -
	P-Group: Data sets	Units group: -	Unit selection: -
	Min	Max	Factory setting
	1	3	1

**Description:**

Sets the number of encoder data sets (EDS).

**Note:**

When parameterizing the drive with "no encoder" there must be at least one encoder data set (p0140 >= 1).

<b>p0141[0...n]</b>	<b>Encoder interface (sensor module) component number</b>		
SERVO	Can be changed: C1(4)		Access level: 4
	Data type: Unsigned8	Data set: EDS	Function diagram: 4704, 8570
	P-Group: Data sets	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	199	0

**Description:**

This parameter is used to assign the encoder data set to an encoder evaluation (e.g. SMC).

This unique component number is assigned when parameterizing the topology.

Only component numbers can be entered into this parameter that correspond to an encoder evaluation.

**Note:**

If the encoder evaluation and encoder are integrated (motor with DRIVE-CLiQ), then their component numbers are identical.

For an SMC, different component numbers are assigned for the SMC (p0141) and the (actual) encoder (p0142).

<b>p0142[0...n]</b>	<b>Encoder component number</b>
---------------------	---------------------------------



SERVO	Can be changed: C1(4)		Access level: 4
	Data type: Unsigned8	Data set: EDS	Function diagram: 4704
	P-Group: Data sets	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	199	0

**Description:**

This parameter is used to assign the encoder data set to an encoder.

This assignment is made using the unique component number that was assigned when parameterizing the topology.

Only component numbers can be entered into this parameter that correspond to an encoder.

**Note:**

If the encoder evaluation and encoder are integrated (motor with DRIVE-CLiQ), then their component numbers are identical.

For an SMC, different component numbers are assigned for the SMC (p0141) and the (actual) encoder (p0142).

---

**p0144[0...n] Voltage sensing module detection via LED**

A_INF	Can be changed: U, T		Access level: 5
	Data type: Unsigned8	Data set: -	Function diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	1	0

**Description:**

Detects the voltage sensing module (VSM) module assigned to this infeed.

---

**p0144[0...n] Sensor module detection via LED**

SERVO	Can be changed: U, T		Access level: 2
	Data type: Unsigned8	Data set: EDS	Function diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	1	0

**Description:**

Detects the sensor module assigned to this drive and data set.

**Note:**

While p0144 = 1, the READY LED flashes green/orange or red/orange with 2 Hz at the appropriate sensor module.

---

**p0145[0...n]      Activate/de-activate encoder interface**

A\_INF

Can be changed: C1(4), T

Access level: 2

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Data sets

Units group: -

Unit selection: -

Min

Max

Factory setting

0

1

1

**Description:**

Setting to activate/de-activate an encoder interface (voltage sensor module, VSM).

**Values:**

0:      De-activate component

1:      Activate component

**Dependency:**

Refer to: r0146

**Note:**

For chassis infeed modules, it is not possible to activate/de-activate the voltage sensing module (VSM) via p0145. The VSM can only be activated/de-activated in the group with the appropriate infeed module via p0125[0...n].

The activation of a component can be rejected if the component was inserted for the first time.

In this case, it is only possible to activate the component when the pulses for all of the drive objects are inhibited.

---

**p0145[0...n]      Activate/de-activate encoder interface**

SERVO

Can be changed: C1(4), U, T

Access level: 2

Data type: Integer16

Data set: EDS

Function diagram: -

P-Group: Data sets

Units group: -

Unit selection: -

Min

Max

Factory setting

0

1

1

**Description:**

Setting to activate/de-activate an encoder interface (sensor module).

**Values:**

0:      De-activate component

1:      Activate component

**Dependency:**

Refer to: r0146

**Note:**

The de-activation of an encoder interface corresponds to the "parking encoder" function

and has the same effect.

The activation of a component can be rejected if the component was inserted for the first time.

In this case, it is only possible to activate the component when the pulses for all of the drive objects are inhibited.

<b>r0146[0...n]</b>		<b>Encoder interface active/inactive</b>	
A_INF	Can be changed: -		Access level: 2
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Data sets	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Displays the "active/inactive" state of an encoder interface (voltage sensing module, VSM).			
<b>Values:</b>			
0: Component inactive			
1: Component active			
<b>Dependency:</b>			
Refer to: p0145			

<b>r0146[0...n]</b>		<b>Encoder interface active/inactive</b>	
SERVO	Can be changed: -		Access level: 2
	Data type: Integer16	Data set: EDS	Function diagram: -
	P-Group: Data sets	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Displays the "active/inactive" state of an encoder interface (sensor module).			
<b>Values:</b>			
0: Component inactive			
1: Component active			
<b>Dependency:</b>			
Refer to: p0145			

<b>r0147[0...n]</b>		<b>Voltage sensing module, EPROM data version</b>	
A_INF	Can be changed: -		Access level:
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Min	Max	Factory setting

- - -

**Description:**

Displays the version of the EPROM data of the voltage sensing module (VSM).

**r0147[0...n]****Sensor module EPROM data version**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: EDS

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

- - -

**Description:**

Displays the version of the EPROM data of the sensor module.

**Dependency:**

Refer to: r0127

**r0148[0...n]****Voltage sensing module, firmware version**

A\_INF

Can be changed: -

Access level:

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

- - -

**Description:**

Displays the firmware version of the voltage sensing module (VSM).

**Dependency:**

Refer to: r0018, r0128, r0197, r0198

**Note:**

Example:

The value 1010100 should be interpreted as V01.01.01.00.

**r0148[0...n]****Sensor module firmware version**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: EDS

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

- - -

**Description:**

Displays the sensor module firmware version.

**Dependency:**

Refer to: r0018, r0128, r0197, r0198

**Note:**

Example:

The value 1010100 should be interpreted as V01.01.01.00.

<b>p0170</b>		<b>Command Data Set (CDS) number</b>	
A_INF, SERVO	Can be changed: C1(3)		Access level: 2
	Data type: Unsigned8	Data set: -	Function diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	1	1	1

**Description:**

Sets the number of command data sets (CDS).

**Note:**

It is possible to toggle between command parameters (BICO parameters) using this data set changeover.

<b>p0180</b>		<b>Drive Data Set (DDS) number</b>	
SERVO	Can be changed: C1(3)		Access level: 2
	Data type: Unsigned8	Data set: -	Function diagram: 8565
	P-Group: Data sets	Units group: -	Unit selection: -
	Min	Max	Factory setting
	1	32	1

**Description:**

Sets the number of drive data sets (DDS).

<b>p0186[0...n]</b>		<b>Motor data sets (MDS) number</b>	
SERVO	Can be changed: C1(4)		Access level: 3
	Data type: Unsigned8	Data set: DDS	Function diagram: 8575
	P-Group: Data sets	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	15	0

**Description:**

Using the parameter, each drive data set (= index) is assigned the associated motor data set (MDS).

The parameter value therefore corresponds to the number of the assigned motor data

set.

---

**p0187[0...n] Encoder 1 encoder data set number**

SERVO

Can be changed: C1(4)

Access level: 3

Data type: Unsigned8

Data set: DDS

Function diagram: 1580, 8570

P-Group: Data sets

Units group: -

Unit selection: -

Min

Max

Factory setting

0

99

99

**Description:**

Using the parameter, each drive data set (= index) is assigned the associated encoder data set (EDS) for encoder 1.

The parameter value therefore corresponds to the number of the assigned encoder data set.

Example:

Encoder data set 0 should be assigned to encoder 1 in drive data set 2.

--> p0187[2] = 0

**Note:**

A value of 99 means that no encoder has been assigned to this drive data set (not configured).

The same value must be entered for all of the indices.

---

**p0188[0...n] Encoder 2 encoder data set number**

SERVO

Can be changed: C1(4)

Access level: 3

Data type: Unsigned8

Data set: DDS

Function diagram: 1580, 8570

P-Group: Data sets

Units group: -

Unit selection: -

Min

Max

Factory setting

0

99

99

**Description:**

Using the parameter, each drive data set (= index) is assigned the associated encoder data set (EDS) for encoder 2.

The parameter value therefore corresponds to the number of the assigned encoder data set.

**Note:**

A value of 99 means that no encoder has been assigned to this drive data set (not configured).

The same value must be entered for all of the indices.

---

**p0189[0...n] Encoder 3 encoder data set number**

SERVO	Can be changed: C1(4)		Access level: 3
	Data type: Unsigned8	Data set: DDS	Function diagram: 1580, 8570
	P-Group: Data sets	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	99	99

**Description:**

Using the parameter, each drive data set (= index) is assigned the associated encoder data set (EDS) for encoder 3.

The parameter value therefore corresponds to the number of the assigned encoder data set.

**Note:**

A value of 99 means that no encoder has been assigned to this drive data set (not configured).

The same value must be entered for all of the indices.

---

**r0192 Power module properties**

A_INF, SERVO	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the properties supported by the power module.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Edge modulation possible	No	Yes	-
	01	Free telegram can be selected	No	Yes	-
	02	Smart mode possible for active line module	No	Yes	-
	03	Safety Integrated possible for VECTOR	No	Yes	-
	06	Water cooling	no	Yes	-
	07	SERVO pulse frequency changeover, DDS-dependent	No	Yes	-
	08	Simulation operation possible	No	Yes	-

**Notice:**

This information represents the characteristics/features of the power module firmware. It does not provide information/data about the characteristics/features of the hardware (e.g. bit 06 = 1 means that although the firmware supports "water cooling", a power module

with water cooling does not have to be used).

**r0194[0...n]****VSM properties**

A\_INF

Can be changed: -

Access level: 5

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the properties supported by the voltage sensing module (VSM).

**Bit field:****Bit****Signal name****0 signal****1 signal****FP**

00

Reserved

No

Yes

-

**r0197****Loader 1 version**

CU\_I

Can be changed: -

Access level: 1

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Closed-loop control

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the version of loader 1 (first level loader).

**Dependency:**

Refer to: r0018, r0128, r0148, r0198

**Note:**

Example:

The value 1010100 should be interpreted as V01.01.01.00.

**r0198****Loader 2 version**

CU\_I

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Closed-loop control

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the version of loader 2 (second level loader).

**Dependency:**



Refer to: r0018, r0128, r0148, r0197

**Note:**

Example:

The value 1010100 should be interpreted as V01.01.01.00.

<b>p0199[0...24] Drive object name</b>			
All objects	Can be changed: C2(5)		Access level: 2
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Applications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	65535	0

**Description:**

Freely assignable name for a drive object.

In the commissioning software, this name cannot be entered using the expert list, but is specified in the configuration assistant. The object name can be subsequently modified in the Project Navigator using standard Windows resources.

<b>r0200[0...n] Power module, actual code number</b>			
A_INF, SERVO	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: PDS	Function diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the unique code number of the power module.

**Note:**

r0200 = 0: No power module found

For parallel circuit configurations, the parameter index is assigned to a power module.

<b>p0201[0...n] Power module code number</b>			
A_INF, SERVO	Can be changed: C2(2)		Access level: 3
	Data type: Unsigned16	Data set: PDS	Function diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	65535	0

**Description:**

Sets the actual code number from r0200 to acknowledge the power module being used.

When commissioned for the first time, the code number is automatically transferred from r0200 into p0201.

**Note:**

The parameter is used to identify when the drive is being commissioned for the first time.

The power module commissioning can only be exited (p0201 = r0200), if the actual and acknowledged code numbers are identical (p0010 = 2).

For parallel circuit configurations, the parameter index is assigned to a power module.

r0203[0...n]	Actual power module type		
A_INF, SERVO	Can be changed: -	Access level: 3	
	Data type: Integer16	Data set: PDS	Function diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Displays the type of power module found.			
<b>Values:</b>			
2: MICROMASTER 440			
3: MICROMASTER 411			
4: MICROMASTER 410			
5: MICROMASTER 436			
6: MICROMASTER 440 PX			
7: MICROMASTER 430			
100: SINAMICS S			
150: SINAMICS G			
200: SINAMICS GM			
250: SINAMICS SM			
300: SINAMICS GL			
<b>Note:</b>			
For parallel circuit configurations, the parameter index is assigned to a power module.			

r0204[0...n]	Power module properties		
A_INF, SERVO	Can be changed: -	Access level: 3	
	Data type: Unsigned32	Data set: PDS	Function diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Displays the properties supported by the power module hardware.			

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	DC/AC device	AC/AC device	DC/AC device	-
	01	RFI filter available	No	Yes	-
	02	Active line module available	No	Yes	-
	03	Smart line module available	No	Yes	-
	04	Basic line module available with thyristor bridge	No	Yes	-
	05	Basic line module available with diode bridge	No	Yes	-
	06	Water cooling	no	Yes	-
	12	Safe brake control (SBC) supported	Yes	No	-

**Note:**

For parallel circuit configurations, the parameter index is assigned to a power module.

---

<b>r0206[0...4]</b>	<b>Rated power module power</b>		
A_INF, SERVO	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Converter	Units group: POWER_P3	Unit selection: -
	Min	Max	Factory setting
	- [kW]	- [kW]	- [kW]
<b>Description:</b>			
Displays the rated power module power for various load duty cycles.			
<b>Index:</b>			
[0] = Rating plate			
[1] = Load duty cycle with high overload			
[2] = Load duty cycle with low overload			
[3] = S1 load duty cycle			
[4] = S6 load duty cycle			
<b>Dependency:</b>			
The value is displayed in [kW] or [hp].			
Refer to: p0100			

---

<b>r0207[0...4]</b>	<b>Rated power module current</b>		
A_INF, SERVO	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 8014
	P-Group: Converter	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]

**Description:**

Displays the rated power module power for various load duty cycles.

**Index:**

- [0] = Rating plate
- [1] = Load duty cycle with high overload
- [2] = Load duty cycle with low overload
- [3] = S1 load duty cycle
- [4] = S6 load duty cycle

---

<b>r0208</b>	<b>Rated power module line supply voltage</b>	
A_INF, SERVO	Can be changed: -	Access level: 2
	Data type: Floating Point	Data set: -
	P-Group: Converter	Units group: VOLTAGE_AC_EFF
	Min	Max
	- [Veff]	- [Veff]
		Factory setting
		- [Veff]

---

**Description:**

Displays the rated line supply voltage of the power module.

r0208 = 400: 380 - 480 V +/-10 %

r0208 = 500: 500 - 600 V +/-10 %

r0208 = 690: 660 - 690 V +/-10 %

For the basic line module (BLM) the following applies:

r0208 = 690: 500 - 690 V +/-10 %

---

<b>r0209[0...4]</b>	<b>Power module, maximum current</b>	
A_INF, SERVO	Can be changed: -	Access level: 2
	Data type: Floating Point	Data set: -
	P-Group: Converter	Units group: CURRENT_AC_EFF
	Min	Max
	- [Aeff]	- [Aeff]
		Factory setting
		- [Aeff]

---

**Description:**

Displays the maximum output current of the power module.

**Index:**

- [0] = Catalog
- [1] = Load duty cycle with high overload
- [2] = Load duty cycle with low overload
- [3] = S1 load duty cycle
- [4] = S6 load duty cycle

---

<b>p0210</b>	<b>Drive unit line supply voltage</b>	
A_INF	Can be changed: C2(1)	Access level: 1

---

Data type: Floating Point	Data set: -	Function diagram: 8960
P-Group: Converter	Units group: VOLTAGE_AC_EFF	Unit selection: -
Min	Max	Factory setting
100 [Veff]	1000 [Veff]	400 [Veff]

**Description:**

Sets the drive unit supply voltage.

The value corresponds to the rms value of the phase-to-phase rated line supply voltage.

**Dependency:**

Refer to: p3400

**Warning!**

If the infeed is continually in the controlled mode with high DC link voltages ( $p3510 > 660$  V), depending on the particular application, this can damage the connected motors that have not been specified for these high voltages.

Before an active infeed with a line supply voltage  $p0210 > 415$  V goes into pulsed operation it must be ensured that all of the components connected to the DC link can be permanently operated with DC link voltages exceeding 660 V.

Controlled operation of booksize power modules for  $p0210 > 415$  V is possible if the maximum steady-state DC link voltage ( $p0280$ ) is increased as follows:  $p0280 \geq 1.5 * p0210$  and  $p0280 > 660$  V.

In this case, the setpoint of the DC link voltage  $p3510$  is not automatically adapted. We recommend  $p3510 = 1.5 * p0210$ . Closed-loop voltage controlled operation is active with  $p3400.0 = 0$  and  $p3400.3 = 1$ .

**Notice:**

For  $p0210 > 415$  V for booksize power modules with a supply voltage of 3-ph. 380 ... 480 V, the smart mode is automatically activated ( $p3400.0 = 1$ ). In this case, the smart mode cannot be de-activated. This is because in the voltage controlled mode, the maximum steady-state DC link voltage ( $p0280$ ) would be exceeded.

**Note:**

When pre-assigning the setpoint for the DC link voltage ( $p3510$ ), the following is generally valid:

$$p3510 = 1.5 * p0210.$$

For booksize power modules with supply voltage of 3-ph. 380 ... 480 V AC, the following applies:

380 V  $\leq p0210 \leq 400$  V  $\rightarrow$  default setpoint for the DC link voltage:  $p3510 = 600$  V

401 V  $\leq p0210 \leq 415$  V  $\rightarrow$  default setpoint for the DC link voltage:  $p3510 = 625$  V

416 V  $\leq p0210 \leq 480$  V  $\rightarrow$  smart mode for non-regulated DC link voltage:  $p3510 = 1.35 * p0210$

**p0210****Drive unit line supply voltage**

SERVO

Can be changed: C2(2), T

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Converter

Units group: VOLTAGE\_DC

Unit selection: -

Min

Max

Factory setting

1 [V]

63000 [V]

600 [V]

**Description:**

Sets the drive unit supply voltage.

AC/AC drive units: The RMS value of the phase-to-phase line supply voltage should be entered.

DC/AC drive units: The rated DC voltage of the supply busbars should be entered.

**Dependency:**

For VECTOR (p0107) the following applies:

Set p1254 to 0 (automatic detection of the Vdc switch-in levels).

The switch-in thresholds of the Vdc\_max controller are then directly determined using p0210.

**Caution:**

If the line supply voltage is higher than the entered value, the Vdc controller may be automatically de-activated in some cases to prevent the motor from accelerating. In this case, an appropriate alarm is output.

**Note:**

For VECTOR (p0107) the following applies:

If the line supply voltage is higher than the parameterized value, then the DC link voltage controller could be automatically de-activated in order to prevent the drive accelerating.

Setting ranges for p0210 as a function of the rated power module voltage:

V<sub>rated</sub> = 400 V:

- p0210 = 380 ... 480 V (AC/AC), 510 ... 650 V (DC/AC)

V<sub>rated</sub> = 500 V:

- p0210 = 500 ... 575 V (AC/AC), 675 ... 810 V (DC/AC)

V<sub>rated</sub> = 690 V:

- p0210 = 660 ... 690 V (AC/AC), 890 ... 1035 V (DC/AC)

The pre-charging switch-in threshold for the DC link voltage (Vdc) is calculated from p0210:

V<sub>dc\_pre</sub> = p0210 \* 0.82 \* 1.35 (AC/AC)V<sub>dc\_pre</sub> = p0210 \* 0.82 (DC/AC)

The undervoltage thresholds for the DC link voltage (Vdc) are calculated from p0210 as a function of the rated power module voltage:

V<sub>rated</sub> = 400 V:  
- V<sub>min</sub> = p0210 \* 0.78 (AC/AC), p0210 \* 0.66 (DC/AC)  
V<sub>rated</sub> = 500 V:  
- V<sub>min</sub> = p0210 \* 0.76 (AC/AC)  
V<sub>rated</sub> = 690 V:  
- V<sub>min</sub> = p0210 \* 0.74 (AC/AC), p0210 \* 0.63 (DC/AC)

<b>p0211</b>	<b>Rated line freq</b>		
A_INF	Can be changed: C2(1)		Access level: 1
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Converter	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	10 [Hz]	100 [Hz]	50 [Hz]

**Description:**

Sets the rated line frequency for the infeed.

<b>p0220</b>	<b>Infeed line filter type</b>		
A_INF	Can be changed: C2(1)		Access level:
	Data type: Integer16	Data set: -	Function diagram: 8964
	P-Group: Converter	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	19	0

**Description:**

Sets the line filter type for the active line module (ALM).

For booksize units, parameters p0221 and p0222 are pre-assigned using the filter type.

The reactor parameters p0223 and p0224 are pre-assigned using the rated drive converter power.

For chassis units, parameters p0221 to p0224 (including the reactor parameter) are pre-assigned using the filter type.

**Values:**

- 0: No line filter
- 1: Line filter booksize 400 V 16 kW
- 2: Line filter booksize 400 V 36 kW
- 3: Line filter booksize 400 V 55 kW
- 4: Line filter booksize 400 V 80 kW
- 5: Line filter booksize 400 V 120 kW
- 10: Line filter chassis unit F 400 V 110 kW 132 kW
- 11: Line filter chassis unit G 400 V 160 kW 200 kW
- 12: Line filter chassis unit G 400 V 250 kW
- 13: Line filter chassis unit H 400 V 315 kW 400 kW 450 kW

- 14: Line filter chassis unit J 400 V 560 kW 800 kW
- 15: Line filter chassis unit F 690 V 132 kW
- 16: Line filter chassis unit G 690 V 315 kW
- 17: Line filter chassis unit H 690 V 450 kW 560 kW
- 18: Line filter chassis unit J 690 V 710 kW
- 19: Line filter chassis unit J 690 V 1000 kW 1100 kW

---

<b>p0221</b>	<b>Infeed filter capacitance</b>		
A_INF	Can be changed: C2(1)	Access level:	
	Data type: Floating Point	Data set: -	Function diagram: 8950
	P-Group: Converter	Units group: CAPACITY_M6	Unit selection: -
	Min	Max	Factory setting
	0.00 [μF]	100000.00 [μF]	0.00 [μF]
 <b>Description:</b>			
Sets the filter capacitance of the line filter (connected in a delta configuration).			
 <b>Note:</b>			
When a Siemens line filter is used (p0220) this parameter is automatically preset with the correct value.			
For a parallel circuit, the value corresponds to the capacitance of a power module.			

---

<b>p0222</b>	<b>Infeed filter resistance</b>		
A_INF	Can be changed: C2(1)	Access level:	
	Data type: Floating Point	Data set: -	Function diagram: 8950
	P-Group: Converter	Units group: RESISTANCE	Unit selection: -
	Min	Max	Factory setting
	0.00000 [Ohm]	100.00000 [Ohm]	0.00000 [Ohm]
 <b>Description:</b>			
Sets the filter resistance in series with the filter capacitance.			
 <b>Note:</b>			
When a Siemens line filter is used (p0220) this parameter is automatically preset with the correct value.			
For a parallel circuit, the value corresponds to the resistance of a power module.			

---

<b>p0223</b>	<b>Infeed inductance between filter and power module</b>		
A_INF	Can be changed: C2(1)	Access level:	
	Data type: Floating Point	Data set: -	Function diagram: 8950
	P-Group: Converter	Units group: INDUCTANCE_M3	Unit selection: -
	Min	Max	Factory setting

---



0.001 [mH]

1000.000 [mH]

2.100 [mH]

**Description:**

Sets the inductance between the filter and power module.

**Note:**

The parameter is automatically pre-assigned depending on the power module being used and matches the specified Siemens commutating reactors.

For a parallel circuit, the value corresponds to the inductance of a power module.

**p0224**

**Infeed resistance between filter and power module**

A\_INF

Can be changed: C2(1)

Access level:

Data type: Floating Point

Data set: -

Function diagram: 8950

P-Group: Converter

Units group: RESISTANCE

Unit selection: -

Min

Max

Factory setting

0.00000 [Ohm]

100.00000 [Ohm]

0.00100 [Ohm]

**Description:**

Sets the resistance between the filter and power module

**Note:**

The parameter is automatically pre-assigned depending on the power module being used and matches the specified Siemens commutating reactors.

For a parallel circuit, the value corresponds to the resistance of a power module.

**p0225**

**Infeed inductance between line supply and filter**

A\_INF

Can be changed: C2(1)

Access level:

Data type: Floating Point

Data set: -

Function diagram: 8950

P-Group: Converter

Units group: INDUCTANCE\_M3

Unit selection: -

Min

Max

Factory setting

0.001 [mH]

1000.000 [mH]

0.001 [mH]

**Description:**

Sets the inductance between line supply and filter.

**Note:**

The value must be, for example, appropriately increased if an additional inductance (reactor or transformer is installed in front of the filter).

**p0226**

**Infeed resistance between line supply and filter**

A\_INF

Can be changed: C2(1)

Access level:

Data type: Floating Point

Data set: -

Function diagram: 8950

P-Group: Converter	Units group: RESISTANCE	Unit selection: -
Min	Max	Factory setting
0.00 [Ohm]	100.00 [Ohm]	0.00 [Ohm]

**Description:**

Sets the resistance between the line supply and filter.

**Note:**

The value must be, for example, appropriately increased if an additional resistor is installed in front of the filter.

---

<b>p0227</b>	<b>Infeed DC-link capacitance, total</b>	
A_INF	Can be changed: C2(1)	Access level:
	Data type: Floating Point	Data set: -
	P-Group: Converter	Units group: CAPACITY_M3
	Min	Max
	0.001 [mF]	1000.000 [mF]
		0.700 [mF]
		Function diagram: 8950
		Unit selection: -
		Factory setting

**Description:**

Sets the total DC link capacitance.

**Note:**

The total DC link capacitance of a DC link group comprises the sum of the sub-capacitances of all motor/infeed modules and the additional DC link capacitors.

---

<b>p0251[0...n]</b>	<b>Operating hours counter, power module fan</b>	
A_INF, SERVO	Can be changed: T	Access level: 4
	Data type: Unsigned32	Data set: PDS
	P-Group: Modulation	Units group: -
	Min	Max
	0	4294967295
		0
		Function diagram: -
		Unit selection: -
		Factory setting

**Description:**

Displays the power module fan operating hours.

The number of hours operated can only be reset to 0 in this parameter (e.g. after a fan has been replaced).

**Dependency:**

Refer to: p0252

**Note:**

The value is in the unit [h] (hours).

<b>p0252</b>	<b>Maximum operating time, power module fan</b>		
A_INF, SERVO	Can be changed: T		Access level: 4
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	50000	40000
<b>Description:</b>			
Sets the maximum operating time of the power module fan.			
The pre-alarm (warning) is output 500 hours before this set value.			
The monitoring is de-activated with p0252 = 0.			
<b>Dependency:</b>			
Refer to: p0251			
<b>Note:</b>			
The value is in the unit [h] (hours).			

<b>p0260</b>	<b>Cooling system, starting time 1</b>		
A_INF (RKA), SERVO (RKA)	Can be changed: U, T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Converter	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0.0 [s]	60.0 [s]	5.0 [s]
<b>Description:</b>			
Sets starting time 1 to monitor the cooling system after power on command.			
The following feedback signals are evaluated:			
- "RKA powered-up"			
- "RKA water flow OK"			
<b>Dependency:</b>			
Refer to: F49152, F49153			
<b>Note:</b>			
RKA: Cooling system			

<b>p0261</b>	<b>Cooling system, starting time 2</b>		
A_INF (RKA), SERVO (RKA)	Can be changed: U, T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Converter	Units group: TIME	Unit selection: -

Min	Max	Factory setting
0.0 [s]	1200.0 [s]	180.0 [s]

**Description:**

Sets starting time 2 to monitor the cooling system after power on command.

The following feedback signals are evaluated:

- "RKA conductivity, no fault"
- "RKA conductivity, no alarm"

**Dependency:**

Refer to: p0266

Refer to: F49151, A49171

**p0262****Cooling system, fault conductivity delay time**

A\_INF (RKA),  
SERVO (RKA)

Can be changed: U, T

Access level: 4

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Converter

Units group: TIME

Unit selection: -

Min

Max

Factory setting

0.0 [s]

30.0 [s]

0.0 [s]

**Description:**

Sets the delay time for the fault "RKA: Conductivity limit value exceeded".

The fault is only output if the cause is present for a time longer than is set in this parameter.

**Dependency:**

Refer to: F49151

**p0263****Cooling system fault water flow, delay time**

A\_INF (RKA),  
SERVO (RKA)

Can be changed: U, T

Access level: 4

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Converter

Units group: TIME

Unit selection: -

Min

Max

Factory setting

0.0 [s]

20.0 [s]

3.0 [s]

**Description:**

Sets the delay time for the fault "RKA: Water flow rate too low".

The fault is only output if the cause is present for a time longer than is set in this parameter.

**Dependency:**

Refer to: F49153

<b>p0264</b>	<b>Cooling system, run-on time</b>		
A_INF (RKA), SERVO (RKA)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Converter	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0.0 [s]	180.0 [s]	30.0 [s]

**Description:**

Sets the run-up time of the cooling system after a power-off command.

<b>r0265</b>	<b>BO: Cooling system, control word</b>		
A_INF (RKA), SERVO (RKA)	Can be changed: -		Access level: 3
	Data type: Unsigned8	Data set: -	Function diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the control word for the cooling system.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Power-up cooling system	Power-down	Power-up	-
	01	Message, converter off	On	Off	-
	02	Acknowledge faults	No acknowledgment	Acknowledgment	-
	03	Leakage water detection OK	Leakage water	No leakage water	-

<b>p0266[0...7]</b>	<b>BI: Cooling system, signal source feedback signals</b>		
A_INF (RKA), SERVO (RKA)	Can be changed: U, T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	[0] 0
			[1] 0
			[2] 1
			[3] 1
			[4] 1
			[5] 1

[6] 1

[7] 1

**Description:**

Sets the signal sources for the feedback signals from the cooling system.

**Index:**

[0] = Cooling system power-up

[1] = Cooling system ready to be powered-up

[2] = Cooling system, no alarm present

[3] = Cooling system, no fault present

[4] = Cooling system, no leakage water

[5] = Cooling system water flow OK

[6] = Cooling system, conductivity &lt; fault threshold

[7] = Cooling system, conductivity &lt; alarm threshold

**r0267****BO: Cooling system status word display**A\_INF (RKA),  
SERVO (RKA)

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the status word of the cooling system.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	RKA powered-up	No	Yes	-
	01	RKA ready to be powered-up	No	Yes	-
	02	RKA no alarm present	No	Yes	-
	03	RKA no fault present	No	Yes	-
	04	RKA no leakage water	No	Yes	-
	05	RKA water flow OK	No	Yes	-
	06	RKA conductivity, no fault	No	Yes	-
	07	RKA conductivity, no alarm	No	Yes	-

**Dependency:**

Refer to: p0266

**p0280****DC link voltage maximum steady-state**

A\_INF

Can be changed: C2(1), T

Access level:

Data type: Floating Point

Data set: -

Function diagram: 8940, 8964

P-Group: Converter

Units group: VOLTAGE\_DC

Unit selection: -

Min	Max	Factory setting
270 [V]	1500 [V]	660 [V]

**Description:**

Sets the maximum steady-state DC link voltage. When the DC link voltage setpoint reaches the threshold, alarm A06800 is output.

The percentage setpoint for the DC link voltage in p3510 is limited to the value in p0280.

The voltage can be increased (boosted) using the modulation depth reserve controller.

The modulation depth reserve (p3480) can be too low if p0210 (drive unit supply voltage) was incorrectly parameterized, a line overvoltage condition is present or a high reactive current is required.

**Dependency:**

Refer to: A06800

**Warning!**

Before increasing the voltage limit for pulsed operation of a controlled booksize infeed with line supply voltages p0210 > 415 V it should be checked whether the motors, connected to the DC link, are specified for the higher motor voltages.

The warning information associated with p0210 must be carefully observed.

**Caution!**

All motors connected to the DC link must be rated for the maximum DC-link voltage set in this parameter.

**Note:**

A brief, dynamic increase of the DC link voltage does not result in an alarm.

**p0281**

**Line supply overvoltage, warning threshold**

A\_INF

Can be changed: T

Access level:

Data type: Floating Point

Data set: -

Function diagram: 8960

P-Group: Converter

Units group: PERCENT

Unit selection: -

Min

Max

Factory setting

100 [%]

200 [%]

110 [%]

**Description:**

Sets the alarm threshold for a line supply overvoltage condition.

The setting is made as a percentage of the drive unit supply voltage (p0210).

**Dependency:**

Refer to: p0211, p0221, p0222, p0223, p0224, p0225, p0226

**Note:**

If synchronizing voltages are not detected, the line supply voltage is estimated using a

model. It is therefore important to ensure that drive unit data is correctly specified.

<b>p0282</b>	<b>Line supply undervoltage, alarm threshold</b>		
A_INF	Can be changed: T		Access level:
	Data type: Floating Point	Data set: -	Function diagram: 8960
	P-Group: Converter	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	10 [%]	100 [%]	85 [%]
<b>Description:</b>			
Sets the alarm threshold for a line undervoltage condition.			
The setting is made as a percentage of the drive unit supply voltage (p0210).			
<b>Dependency:</b>			
Refer to: p0222, p0224, p0225, p0226, p3421, p3422			
Refer to: A06105			
<b>Note:</b>			
If synchronizing voltages are not detected, the line supply voltage is estimated using a model. It is therefore important to ensure that drive unit data is correctly specified.			

<b>p0283</b>	<b>Line supply undervoltage, shutdown (trip) threshold</b>		
A_INF	Can be changed: C2(1), T		Access level:
	Data type: Floating Point	Data set: -	Function diagram: 8960
	P-Group: Converter	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	10 [%]	100 [%]	75 [%]
<b>Description:</b>			
Sets the trip threshold for the line supply undervoltage.			
The setting is made as a percentage of the drive unit supply voltage (p0210).			
<b>Dependency:</b>			
Refer to: p0282			
Refer to: F06100			

<b>p0284</b>	<b>Line supply frequency exceeded, alarm threshold</b>		
A_INF	Can be changed: T		Access level:
	Data type: Floating Point	Data set: -	Function diagram: 8964
	P-Group: Converter	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	100.0 [%]	300.0 [%]	110.0 [%]



**Description:**

Sets the alarm threshold for an excessively high line frequency.

**Dependency:**

Set as a percentage of the rated line frequency.

Refer to: p0211

---

<b>p0285</b>	<b>Line supply frequency fallen below, alarm threshold</b>		
A_INF	Can be changed: T		Access level:
	Data type: Floating Point	Data set: -	Function diagram: 8964
	P-Group: Converter	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.0 [%]	100.0 [%]	90.0 [%]

**Description:**

Sets the alarm threshold for an excessively low line frequency.

**Dependency:**

Set as a percentage of the rated line frequency.

Refer to: p0211

---

<b>p0287[0...1]</b>	<b>Ground fault monitoring thresholds</b>		
A_INF, SERVO	Can be changed: T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: -	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.0 [%]	100.0 [%]	[0] 6.0 [%] [1] 16.0 [%]

**Description:**

Sets the shutdown thresholds for the ground fault monitoring.

The setting is made as a percentage of the maximum power module current (r0209).

**Index:**

[0] = Threshold for pulse inhibit

[1] = Threshold for pulse enable

**Dependency:**

Refer to: F30021

**Note:**

De-activating the ground fault monitoring:

- sequence: --> p0287[1] = 0 --> p0287[0] = 0

- independent of the firmware version of the power module.

Sets the thresholds:

- the prerequisite is at least firmware version 2.2 of the power module.

---

<b>r0289</b>	<b>Maximum power module output current</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Displays, signals	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]

**Description:**

Displays the actual, maximum output current of the power module taking into account de-rating factors.

---

<b>p0290</b>	<b>Power module overload response</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Integer16	Data set: -	Function diagram: 8014
	P-Group: Converter	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	3	0

**Description:**

Sets the response to a thermal overload condition of the power module.

The following quantities can result in a response to thermal overload:

- heatsink temperature (r0037.0)
- chip temperature (r0037.1)
- power module overload I2T (r0036)

Possible measures to avoid thermal overload:

- reduce the output current (closed-loop speed/velocity or torque/force control) or the output frequency (V/f control).
- reduce the pulse frequency (only for closed-loop vector control).

A reduction, if parameterized, is always realized after an appropriate alarm is output.

**Values:**

- 0: Reduce output current or output frequency
- 1: No reduction, shutdown when overload threshold is reached
- 2: Reduce the output current or output and pulse frequency (not
- 3: Reduce the pulse frequency (not using I2t)

**Dependency:**

If a sinusoidal filter is parameterized as output filter (p0230 = 3, 4), then only responses can be selected without pulse frequency reduction (p0290 = 0, 1).

If a fault or alarm is present, then r2135.13 or r2135.15 is set.

Refer to: r0036, r0037, p0108, r0108, r2135

Refer to: A05000, A05001, A07805

**Caution:**

If the thermal overload of the power module is not sufficiently reduced by the actions taken, the drive is always shut down. This means that the power module is always protected independent of the setting of this parameter.

**Note:**

The setting p0290 = 0, 2 is only practical if the load decreases with decreasing speed (e.g. for applications with variable torque such as for pumps and fans).

Under overload conditions, the current and torque limit are reduced, and therefore the motor is braked and forbidden speed ranges (e.g. minimum speed p1080 and suppression [skip] speeds p1091 ... p1094) can be passed through.

For p0290 = 2, 3, the I2t overload detection of the power module does not influence the responses.

<b>p0294</b>	<b>Power module alarm with I2t overload</b>		
A_INF, SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 8014
	P-Group: Converter	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	10.0 [%]	100.0 [%]	95.0 [%]

**Description:**

Sets the alarm threshold for the I2t power module overload.

Drive:

If this threshold is exceeded, an overload alarm is generated and the system responds as parameterized in p0290.

Infeed:

When the threshold value is exceeded, only an overload alarm is output.

**Dependency:**

Refer to: r0036, p0290

Refer to: A07805

**Note:**

The I2t fault threshold is 100 %. If this value is exceeded, fault F30005 is output.

<b>p0295</b>	<b>Fan run-on time</b>		
A_INF, SERVO	Can be changed: U, T		Access level: 1
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Converter	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0 [s]	600 [s]	0 [s]

**Description:**

Sets the run-on time of the fan after the power module is powered-down.

**r0296****DC link voltage undervoltage threshold**

A\_INF

Can be changed: -

Access level: 2

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Converter

Units group: VOLTAGE\_DC

Unit selection: -

Min

Max

Factory setting

- [V]

- [V]

- [V]

**Description:**

If the DC link voltage falls below the threshold specified here, the drive unit is tripped due to a DC link undervoltage condition.

**r0297****DC link voltage overvoltage threshold**

A\_INF

Can be changed: -

Access level: 2

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Converter

Units group: VOLTAGE\_DC

Unit selection: -

Min

Max

Factory setting

- [V]

- [V]

- [V]

**Description:**

If the DC link voltage exceeds the threshold specified here, the drive unit is tripped due to DC link overvoltage.

**p0300[0...n]****Mot type selection**

SERVO

Can be changed: C2(1, 3)

Access level: 2

Data type: Integer16

Data set: MDS

Function diagram: 6310

P-Group: Motor

Units group: -

Unit selection: -

Min

Max

Factory setting

0

10000

0

**Description:**

Selects the motor type or start to read-in the motor parameters for a motor with DRIVE-CLiQ (p0300 = 10000).

For p0300 < 10000, the following applies: The first digit of the parameter value always defines the general motor type and corresponds to the unlisted motor belonging to a motor list:

- 1 = Rotating induction motor
- 2 = Rotating synchronous motor
- 3 = Linear induction motor (reserved)

4 = Linear synchronous motor (reserved)

7 = SIEMOSYN motor (only VECTOR)

8 = Reluctance motor (only VECTOR)

The type information must be entered to filter motor-specific parameters and to optimize the operating characteristics and behavior. For example, for synchronous motors, power factor (p0308) is neither used nor displayed (in the BOP/AOP).

**Values:**

0:	No motor selected
1:	Induction motor (rotating)
2:	Synchronous motor (rotating, permanent-magnet)
4:	Synchronous motor (linear, permanent-magnet)
102:	1PH2 induction motor
104:	1PH4 induction motor
107:	1PH7 induction motor
134:	1PM4 induction motor
136:	1PM6 induction motor
206:	1FT6 synchronous motor
236:	1FK6 synchronous motor
237:	1FK7 synchronous motor
261:	1FE1 synchronous motor
276:	1FS6 synchronous motor
286:	1FW6 synchronous motor
291:	2SP1 synchronous motor
401:	1FN1 synchronous motor (linear)
403:	1FN3 synchronous motor (linear)
10000:	Motor with DRIVE-CLiQ

**Dependency:**

VECTOR: Motors, selection 206, 236, 237 cannot be operated (also not as motor with DRIVE-CLiQ).

When the motor type is changed, the code number in p0301 may be reset to 0.

Refer to: p0301

**Note:**

For p0300 = 10000, the motor parameters are automatically downloaded for a motor with DRIVE-CLiQ.

If a motor type has not been selected (p0300 = 0), then the drive commissioning routine cannot be exited.

A motor type with a value above p0300 >= 100 describes motors for which a motor parameter list exists.

Motor types with a value below p0300 < 100 correspond to the selection of an unlisted motor. When appropriately selected, this means that the motor parameters are pre-assigned the settings for an unlisted motor.

If a catalog motor is selected (p0300 >= 100) and an associated motor code number

(p0301), then the parameters, that are associated if this list, cannot be changed (write protection). The write protection is canceled if the motor type p0300 is set to a non-Siemens motor that matches p0301 (e.g. p0300 = 2 for p0301 = 2xxxx).

This also applies for parameters for a motor with DRIVE-CLiQ. In this case p0300 can only be set to p0300 = 10000 (read motor parameters) or to the corresponding non-Siemens motor (first digit of the motor code number) in order to be able to cancel the write protection.

---

<b>p0301[0...n]</b>	<b>Motor code number selection</b>		
SERVO	Can be changed: C2(1, 3), U		Access level: 2
	Data type: Unsigned16	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	65535	0

**Description:**

The parameter is used to select a motor from a motor parameter list.

When changing the code number (with the exception to the value 0), all of the motor parameters are pre-assigned from the internally available parameter lists.

**Dependency:**

Only code numbers for motor types can be selected that correspond to the motor type selected in p0300. For 1PH2, 1PH4, 1PH7, 1PM4, 1PM6, 1FT6 motors, code numbers are also possible, whose fourth decimal position is greater by a value of 1 or 2 than the matching motor type in p0300. For 1FE1 motors, the third decimal position can be higher by a value of 1.

Refer to: p0300

**Note:**

The motor code number can only be changed if the matching list motor was first selected in p0300.

For a motor with DRIVE-CLiQ, p0301 cannot be changed. In this case, p0301 is automatically written to the code number of the motor parameter read-in (r0302) if p0300 is set to 10000.

When selecting a list motor (p0300 >= 100), drive commissioning can only be exited if a code number is selected.

---

<b>r0302[0...n]</b>	<b>Motor code number of motor with DRIVE-CLiQ</b>		
SERVO	Can be changed: -		Access level: 2
	Data type: Unsigned16	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the motor code number from the saved motor data from a motor with DRIVE-CLiQ.

**Note:**

Drive commissioning can only be exited if the code number that was downloaded (r0302) matches the stored code number (p0301). If the numbers differ, then the motor data set should be re-loaded using p0300 = 10000.

The motor data are always expected from the first encoder that is assigned to the drive data sets (refer to p0187 = encoder 1) data set number.

<b>p0304[0...n]</b>	<b>Rated motor voltage</b>		
SERVO	Can be changed: C2(1, 3)		Access level: 1
	Data type: Floating Point	Data set: MDS	Function diagram: 6300, 6724
	P-Group: Motor	Units group: VOLTAGE_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	0 [Veff]	20000 [Veff]	0 [Veff]

**Description:**

Sets the rated motor voltage (rating plate).

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

For synchronous motors (p0300 = 2xx), the parameter can be optionally input.

The following applies for SERVO:

For synchronous motors, the parameter is of no significance from a control-related perspective.

For VECTOR, the following applies:

if the rated voltage is entered for synchronous motors during the commissioning phase, then the stator leakage inductance (p0356, p0357) can be more accurately calculated (refer to p0340 and p3900).

<b>p0305[0...n]</b>	<b>Rated motor current</b>		
SERVO	Can be changed: C2(1, 3)		Access level: 1
	Data type: Floating Point	Data set: MDS	Function diagram: 6300
	P-Group: Motor	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	0.00 [Aeff]	10000.00 [Aeff]	0.00 [Aeff]

**Description:**

Sets the rated motor current (rating plate).

**Notice:**

For VECTOR, the following applies:

If the rated motor current exceeds twice the maximum drive converter current (r0209), then the maximum current is reduced due to the current harmonics that increase overproportionally (r0067).

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

The parameter is not used for synchronous motors (p0300 = 2xx).

<b>p0306[0...n]</b>	<b>Number of motors connected in parallel</b>		
SERVO	Can be changed: C2(1, 3)		Access level: 1
	Data type: Unsigned8	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Min	Max	Factory setting
	1	100	1

**Description:**

Number of motors connected to a power module.

Internally, an equivalent motor is calculated dependent on the number of motors entered.

The following should be carefully observed for motors connected in series:

The following rating plate data should only be entered for one motor:

- resistances and inductances: p0350, p0352, p0353, p0354, p0356, p0357, p0358, p0360
- currents: p0305, p0318, p0320, p0323, p0325, p0329, p0338, p0391, p0392
- torques/forces: p0312, p0319
- power ratings: p0307
- masses/moments of inertia: p0341, p0344

All other parameters take into account the replacement/equivalent motor (e.g. r0331, r0370, r0373, r0374).

**Dependency:**

Refer to: r0331, r0370, r0373, r0374, r0376, r0377, r0382

**Caution!**

The motors to be connected-up in parallel, must be of the same type.

The mounting regulations when connecting motors in parallel must be carefully maintained!

The number of motors set must correspond to the number of motors that are actually connected in parallel.

After changing p0306, it is imperative that the control parameters are adapted (e.g. using automatic calculation with p0340 = 1).



**Note:**

Only possible for SERVO!

<b>p0307[0...n]</b>	<b>Rated motor power</b>	
SERVO	Can be changed: C2(1, 3)	Access level: 1
	Data type: Floating Point	Data set: MDS
	P-Group: Motor	Units group: POWER_P3
	Min	Max
	0.00 [kW]	10000.00 [kW]
		0.00 [kW]

**Description:**

Sets the rated motor power (rating plate).

**Dependency:**

IEC drives (p0100 = 0): Units, kW

NEMA drives (p0100 = 1): Units, hp

Refer to: p0100

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

<b>p0308[0...n]</b>	<b>Rated motor power factor</b>	
SERVO	Can be changed: C2(1, 3)	Access level: 1
	Data type: Floating Point	Data set: MDS
	P-Group: Motor	Units group: -
	Min	Max
	0.000	1.000
		0.000

**Description:**

Sets the rated motor power factor cos phi (rating plate).

For a parameter value of 0.000, the power factor is internally calculated and displayed in r0332.

**Dependency:**

This parameter is only available for IEC motors (p0100 = 0).

Refer to: p0100, r0332

**Note:**

The parameter is not used for synchronous motors (p0300 = 2xx).

The parameter is automatically preset for motors from the motor list (p0301).

<b>p0310[0...n]</b>	<b>Rated motor frequency</b>	
SERVO	Can be changed: C2(1, 3)	Access level: 1

Data type: Floating Point	Data set: MDS	Function diagram: 6300
P-Group: Motor	Units group: FREQUENCY	Unit selection: -
Min	Max	Factory setting
0.00 [Hz]	3000.00 [Hz]	0.00 [Hz]

**Description:**

Sets the rated motor frequency (rating plate).

**Dependency:**

The number of pole pairs (r0313) is automatically re-calculated when the parameter is changed (together with p0311), if p0314 = 0.

Only for vector drives (refer to p0107):

The rated frequency is restricted to values between 1.00 Hz and 650.00 Hz.

Refer to: p0311, r0313, p0314

**Note:**

The parameter is automatically pre-assigned for induction motors from the motor list (p0301).

For synchronous motors, the parameter is not required and must therefore be pre-assigned zero. For p0310 = 0, it is not possible to calculate the pole pair; instead, it must be entered in p0314.

**p0311[0...n]****Rated motor speed**

SERVO

Can be changed: C2(1, 3)

Access level: 1

Data type: Floating Point

Data set: MDS

Function diagram: -

P-Group: Motor

Units group: SPEED\_ROT

Unit selection: -

Min

Max

Factory setting

0.0 [1/min]

210000.0 [1/min]

0.0 [1/min]

**Description:**

Sets the rated motor speed/velocity (rating plate).

For vector drives (refer to p0107):

For p0311 = 0, the rated motor slip of induction motors is internally calculated and displayed in r0330.

It is especially important to correctly enter the rated motor speed for closed-loop vector control and slip compensation for V/f control.

**Dependency:**

The following applies for rotating motors:

If p0311 is changed and for p0314 = 0, the pole pair (r0313) is re-calculated automatically.

The following applies for linear motors:

The pole pair width is set in p0315.

Refer to: p0310, r0313, p0314

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

<b>p0311[0...n]</b>	<b>Rated motor velocity</b>		
SERVO (Lin)	Can be changed: C2(1, 3)		Access level: 1
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.0 [m/min]	6000.0 [m/min]	0.0 [m/min]

**Description:**

Sets the rated motor speed/velocity (rating plate).

For vector drives (refer to p0107):

For p0311 = 0, the rated motor slip of induction motors is internally calculated and displayed in r0330.

It is especially important to correctly enter the rated motor speed for closed-loop vector control and slip compensation for V/f control.

**Dependency:**

The following applies for rotating motors:

If p0311 is changed and for p0314 = 0, the pole pair (r0313) is re-calculated automatically.

The following applies for linear motors:

The pole pair width is set in p0315.

Refer to: p0310, r0313, p0314

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

<b>p0312[0...n]</b>	<b>Rated motor torque</b>		
SERVO	Can be changed: C2(3)		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	0.00 [Nm]	100000.00 [Nm]	0.00 [Nm]

**Description:**

Sets the motor rated torque/force (rating plate).

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

<b>p0312[0...n]</b>	<b>Rated motor force</b>		
SERVO (Lin)	Can be changed: C2(3)		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	0.00 [N]	100000.00 [N]	0.00 [N]

**Description:**

Sets the motor rated torque/force (rating plate).

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

<b>r0313[0...n]</b>	<b>Motor pole pair number, actual (or calculated)</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Unsigned8	Data set: MDS	Function diagram: 5300
	P-Group: Motor	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the number of motor pole pairs. The value is used for internal calculations.

Values:

r0313 = 1: 2-pole motor

r0313 = 2: 4-pole motor

etc.

**Dependency:**

For p0314 > 0, the entered value is displayed in r0313.

For p0314 = 0, the pole pair number is automatically calculated from the rated frequency (p0310) and the rated speed (p0311).

Refer to: p0310, p0311, p0314

**Note:**

For the automatic calculation, the pole pair number is set to the value of 2 if the rated speed or the rated frequency is zero.

<b>p0314[0...n]</b>	<b>Motor pole pair number</b>		
SERVO	Can be changed: C2(1, 3)		Access level: 2
	Data type: Unsigned8	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Min	Max	Factory setting

0

127

0

**Description:**

Sets the motor pole pair number.

Values:

p0314 = 1: 2-pole motor

p0314 = 2: 4-pole motor

etc.

**Dependency:**

For p0314 = 0, the pole pair number is automatically calculated from the rated frequency (p0310) and the rated speed (p0311) and displayed in r0313.

**Notice:**

For induction motors, the value need only be input if the rated data of a generator is entered therefore resulting in a negative rated slip. In this case, the number of pole pairs in r0313 is too low by 1 and must be manually corrected.

**p0315[0...n]**

**Motor pole pair width**

SERVO

Can be changed: C2(1, 3)

Access level: 1

Data type: Floating Point

Data set: MDS

Function diagram: -

P-Group: Motor

Units group: LENGTH\_M3

Unit selection: -

Min

Max

Factory setting

1.00 [mm]

1000.00 [mm]

30.00 [mm]

**Description:**

Sets the pole pair width of the linear motor.

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

**p0316[0...n]**

**Motor torque constant**

SERVO

Can be changed: C2(1, 3), U, T

Access level: 2

Data type: Floating Point

Data set: MDS

Function diagram: -

P-Group: Motor

Units group: TORQUE\_PER\_CURR Unit selection: -

Min

Max

Factory setting

0.00 [Nm/A]

100.00 [Nm/A]

0.00 [Nm/A]

**Description:**

Sets the torque/force constant of the synchronous motor.

p0316 = 0: The torque/force constant is calculated from the motor data.

p0316 > 0: The selected value is used as torque/force constant.

**Dependency:**

Refer to: r0334

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

This parameter is not used for induction motors (p0300 = 1xx).

---

<b>p0316[0...n]</b>	<b>Motor force constant</b>	
SERVO (Lin)	Can be changed: C2(1, 3), U, T	Access level: 2
	Data type: Floating Point	Data set: MDS
	P-Group: Motor	Units group: FORCE_PER_CURR
	Min	Max
	0.00 [N/Aeff]	1000.00 [N/Aeff]
		0.00 [N/Aeff]

**Description:**

Sets the torque/force constant of the synchronous motor.

p0316 = 0: The torque/force constant is calculated from the motor data.

p0316 > 0: The selected value is used as torque/force constant.

**Dependency:**

Refer to: r0334

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

This parameter is not used for induction motors (p0300 = 1xx).

---

<b>p0317[0...n]</b>	<b>Motor voltage constant</b>	
SERVO	Can be changed: C2(3)	Access level: 3
	Data type: Floating Point	Data set: MDS
	P-Group: Motor	Units group: VOLTAGE_AC_EFF
	Min	Max
	0.0 [Veff]	10000.0 [Veff]
		0.0 [Veff]

**Description:**

Sets the voltage constant for synchronous motors.

Units for rotating synchronous motors: Vrms/(1000 RPM), phase-to-phase

Units for linear synchronous motors: Vrms s/m, phase

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

This parameter is not used for induction motors (p0300 = 1xx).

---

<b>p0317[0...n]</b>	<b>Motor voltage constant</b>
---------------------	-------------------------------

SERVO (Lin)	Can be changed: C2(3)		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: FLUX_PER_METER	Unit selection: -
	Min	Max	Factory setting
	0.0 [Veff s/m]	1000.0 [Veff s/m]	0.0 [Veff s/m]

**Description:**

Sets the voltage constant for synchronous motors.

Units for rotating synchronous motors: Vrms/(1000 RPM), phase-to-phase

Units for linear synchronous motors: Vrms s/m, phase

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

This parameter is not used for induction motors (p0300 = 1xx).

---

**p0318[0...n] Motor stall current**

SERVO	Can be changed: C2(3)		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	0.00 [Aeff]	10000.00 [Aeff]	0.00 [Aeff]

**Description:**

Sets the stall current for synchronous motors (p0300 = 2xx).

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

This parameter is not used for induction motors (p0300 = 1xx).

This parameter value is not evaluated from a control-related perspective.

---

**p0319[0...n] Motor stall torque**

SERVO	Can be changed: C2(3)		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	0.0 [Nm]	100000.0 [Nm]	0.0 [Nm]

**Description:**

Sets the stall (standstill) torque/force for synchronous motors (p0300 = 2xx, 4xx).

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

This parameter is not used for induction motors (p0300 = 1xx).

This parameter value is not evaluated from a control-related perspective.

---

<b>p0319[0...n]</b>	<b>Motor stall force</b>		
SERVO (Lin)	Can be changed: C2(3)		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	0.0 [N]	100000.0 [N]	0.0 [N]

**Description:**

Sets the stall (standstill) torque/force for synchronous motors (p0300 = 2xx, 4xx).

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

This parameter is not used for induction motors (p0300 = 1xx).

This parameter value is not evaluated from a control-related perspective.

---

<b>p0320[0...n]</b>	<b>Motor rated magnetization current/short-circuit current</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: 5722
	P-Group: Motor	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	0.000 [Aeff]	5000.000 [Aeff]	0.000 [Aeff]

**Description:**

Induction motors:

Sets the rated motor magnetizing current.

For p0320 = 0.000 the magnetizing current is internally calculated and displayed in r0331.

Synchronous motors:

Sets the rated motor short-circuit current.

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

---

<b>p0322[0...n]</b>	<b>Maximum motor speed</b>		
SERVO	Can be changed: C2(1, 3)		Access level: 2
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting



0.0 [1/min]

210000.0 [1/min]

0.0 [1/min]

**Description:**

Sets the maximum motor speed/velocity.

**Dependency:**

Refer to: p1082

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

**p0322[0...n]**

**Motor velocity, maximum**

SERVO (Lin)

Can be changed: C2(1, 3)

Access level: 2

Data type: Floating Point

Data set: MDS

Function diagram: -

P-Group: Motor

Units group:

Unit selection: -

SPEED\_LIN\_METRIC\_P3

Min

Max

Factory setting

0.0 [m/min]

1000.0 [m/min]

0.0 [m/min]

**Description:**

Sets the maximum motor speed/velocity.

**Dependency:**

Refer to: p1082

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

**p0323[0...n]**

**Maximum motor current**

SERVO

Can be changed: C2(1, 3)

Access level: 2

Data type: Floating Point

Data set: MDS

Function diagram: 5722

P-Group: Motor

Units group: CURRENT\_AC\_EFF

Unit selection: -

Min

Max

Factory setting

0.00 [Aeff]

20000.00 [Aeff]

0.00 [Aeff]

**Description:**

Set the maximum permissible motor current (e.g. de-magnetizing current for synchronous motors).

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

For induction motors, the parameter has not effect if p0323 is set to 0.

For synchronous motors, a value must always be entered for the maximum motor current.

p0323 is a motor data. The user-selectable current limit is entered into p0640.

<b>p0325[0...n]</b>	<b>Pole position identification current, 1st phase</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	0.000 [Aeff]	10000.000 [Aeff]	0.000 [Aeff]
<p><b>Description:</b></p> <p>Sets the current for the 1st phase of the two-stage technique for pole position identification routine.</p> <p>The current of the 2nd phase is set in p0329.</p> <p>A two-stage technique is selected with p1980 = 4, 5.</p> <p><b>Dependency:</b></p> <p>Refer to: p0329, p1980, p1981, p1982, p1983, r1984, r1985, r1987, p1990</p> <p>Refer to: F07995</p> <p><b>Notice:</b></p> <p>When the motor code (p0301) is changed, it is possible that p0325 is not pre-assigned. p0325 can be pre-assigned using p0340 = 3.</p> <p><b>Note:</b></p> <p>The value is automatically pre-assigned for the following events:</p> <ul style="list-style-type: none"> <li>- For p0325 = 0 and automatic calculation of the closed-loop control parameters (p0340 = 1, 2, 3).</li> <li>- for quick commissioning (p3900 = 1, 2, 3).</li> </ul>			
<b>p0326[0...n]</b>	<b>Stall torque correction factor</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	5 [%]	300 [%]	60 [%]
<p><b>Description:</b></p> <p>Sets the correction factor for the stall torque/force at a 600 V DC link voltage.</p> <p><b>Note:</b></p> <p>The parameter is automatically preset for motors from the motor list (p0301).</p>			
<b>p0327[0...n]</b>	<b>PE spindle, optimum load angle</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 3

Data type: Floating Point	Data set: MDS	Function diagram: 5722
P-Group: Motor	Units group: ANGLE	Unit selection: -
Min	Max	Factory setting
0.0 [°]	135.0 [°]	90.0 [°]

**Description:**

Sets the optimum load angle for synchronous motors with reluctance torque (e.g. 1FE ... motors).

This parameter has no significance for induction motors.

**Note:**

For synchronous motors without reluctance torque, a angle of 90 degrees must be set.

The parameter is automatically preset for motors from the motor list (p0301).

---

**p0328[0...n] PE spindle, reluctance torque constant**

SERVO

Can be changed: C2(3), U, T

Access level: 3

Data type: Floating Point	Data set: MDS	Function diagram: -
P-Group: Motor	Units group: INDUCTANCE_M3	Unit selection: -
Min	Max	Factory setting
0.00 [mH]	1000.00 [mH]	0.00 [mH]

**Description:**

Sets the reluctance torque constant for synchronous motors with reluctance torque (e.g. 1FE ... motors).

This parameter has no significance for induction motors.

**Note:**

For synchronous motors without reluctance torque, the value 0 must be set.

The parameter is automatically preset for motors from the motor list (p0301).

---

**p0329[0...n] Pole position identification current**

SERVO

Can be changed: C2(3), U, T

Access level: 3

Data type: Floating Point	Data set: MDS	Function diagram: -
P-Group: Motor	Units group: CURRENT_AC_EFF	Unit selection: -
Min	Max	Factory setting
0.00 [Aeff]	10000.00 [Aeff]	0.00 [Aeff]

**Description:**

Sets the current for the pole position identification routine.

For a two-stage technique, the current is set for the second phase.

**Dependency:**

Refer to: p0325, p1980, p1981, p1982, p1983, r1984, r1985, r1987, p1990

Refer to: F07995

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

---

<b>r0330[0...n]</b>	<b>Rated motor slip</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	- [Hz]	- [Hz]	- [Hz]

**Description:**

Displays the rated motor slip.

**Dependency:**

The rated slip is calculated from the rated frequency, rated speed and number of pole pairs.

Refer to: p0310, p0311, r0313

**Note:**

The parameter is not used for synchronous motors (p0300 = 2xx).

---

<b>r0331[0...n]</b>	<b>Motor magnetizing current/short-circuit current (actual)</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: 5722, 6722, 6724
	P-Group: Motor	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]

**Description:**

Induction motor:

Displays the rated magnetizing current from p0320.

For p0320 = 0, the internally calculated magnetizing current is displayed.

Synchronous motor:

Displays the rated short-circuit current from p0320.

**Dependency:**

If p0320 was not entered, then the parameter is calculated from the rating plate parameters.

---

<b>r0332[0...n]</b>	<b>Rated motor power factor</b>		
SERVO	Can be changed: -		Access level: 3

Data type: Floating Point	Data set: MDS	Function diagram: -
P-Group: Motor	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	-

**Description:**

Displays the rated power factor for induction motors.

For IEC motors, the following applies (p0100 = 0):

For p0308 = 0, the internally-calculated power factor is displayed.

For p0308 > 0, this value is displayed.

For NEMA motors, the following applies (p0100 = 1):

For p0309 = 0, the internally-calculated power factor is displayed.

For p0309 > 0, this value is converted into the power factor and displayed.

**Dependency:**

If p0308 is not entered, the parameter is calculated from the rating plate parameters.

**Note:**

The parameter is not used for synchronous motors (p0300 = 2xx).

---

**r0333[0...n]**

**Rated motor torque**

SERVO

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: MDS

Function diagram: -

P-Group: Motor

Units group: TORQUE

Unit selection: -

Min

Max

Factory setting

- [Nm]

- [Nm]

- [Nm]

**Description:**

Displays the motor rated torque/force.

**Note:**

For induction and reluctance motors, r0333 is calculated from p0307 and p0311.

For synchronous motors, r0333 is calculated from p0305, p0316, p0327 and p0328. The result can deviate from the input in p0312. If p0316 = 0, then r0333 = p0312 is displayed.

---

**r0333[0...n]**

**Rated motor force**

SERVO (Lin)

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: MDS

Function diagram: -

P-Group: Motor

Units group: FORCE

Unit selection: -

Min

Max

Factory setting

- [N]

- [N]

- [N]

**Description:**

Displays the motor rated torque/force.

**Note:**

For induction and reluctance motors, r0333 is calculated from p0307 and p0311.

For synchronous motors, r0333 is calculated from p0305, p0316, p0327 and p0328. The result can deviate from the input in p0312. If p0316 = 0, then r0333 = p0312 is displayed.

**r0334[0...n]****Motor-torque constant, actual**

SERVO

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: MDS

Function diagram: -

P-Group: Motor

Units group: TORQUE\_PER\_CURR Unit selection: -

Min

Max

Factory setting

- [Nm/A]

- [Nm/A]

- [Nm/A]

**Description:**

Displays the torque/force constant of the synchronous motor used.

**Dependency:**

Refer to: p0316

**Note:**

This parameter is not used for induction motors (p0300 = 1xx).

For synchronous motors, parameter r0334 = p0316 is displayed. if p0316 = 0, r0334 is calculated from p0305 and p0312.

**r0334[0...n]****Motor force constant, actual**

SERVO (Lin)

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: MDS

Function diagram: -

P-Group: Motor

Units group: FORCE\_PER\_CURR Unit selection: -

Min

Max

Factory setting

- [N/Aeff]

- [N/Aeff]

- [N/Aeff]

**Description:**

Displays the torque/force constant of the synchronous motor used.

**Dependency:**

Refer to: p0316

**Note:**

This parameter is not used for induction motors (p0300 = 1xx).

For synchronous motors, parameter r0334 = p0316 is displayed. if p0316 = 0, r0334 is calculated from p0305 and p0312.

<b>p0335[0...n]</b>	<b>Motor cooling type</b>	
SERVO	Can be changed: C2(1, 3), T	Access level: 1
	Data type: Integer16	Data set: MDS
	P-Group: Motor	Units group: -
	Min	Max
	0	6
		Factory setting
		0

**Description:**

Sets the motor cooling system used.

**Values:**

- 0: Non-ventilated
- 1: Forced-ventilated
- 2: Water cooling
- 4: Non-ventilated and internal fan
- 5: Forced-ventilated and internal fan
- 6: Water cooling and internal fan

**Note:**

The parameter influences the thermal 3-mass motor model.

1LA1 and 1LA8 motors are characterized by the fact that they have an internal rotor fan.

The parameter is automatically preset for motors from the motor list (p0301).

<b>r0336[0...n]</b>	<b>Rated motor frequency (actual)</b>	
SERVO	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: MDS
	P-Group: Motor	Units group: FREQUENCY
	Min	Max
	- [Hz]	- [Hz]
		Factory setting
		- [Hz]

**Description:**

Displays the rated frequency of the motor.

For p0310 > 0, this value is displayed.

**Dependency:**

Refer to: p0311, p0314

**Note:**

For p0310 = 0 or for synchronous motors, the rated motor frequency r0336 is calculated from the rated speed and the pole pair number.

For p0310 > 0, this value is displayed (not for synchronous motors).

<b>r0337[0...n]</b>	<b>Rated motor EMF</b>	
---------------------	------------------------	--

SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: VOLTAGE_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Veff]	- [Veff]	- [Veff]

**Description:**

Displays the rated EMF of the motor.

**Note:**

EMF: Electromagnetic force

---

<b>r0337[0...n]</b>	<b>Rated motor EMF</b>		
SERVO (Lin)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: FLUX_PER_METER	Unit selection: -
	Min	Max	Factory setting
	- [Veff s/m]	- [Veff s/m]	- [Veff s/m]

**Description:**

Displays the rated EMF of the motor.

**Note:**

EMF: Electromagnetic force

---

<b>p0338[0...n]</b>	<b>Motor limit current</b>		
SERVO	Can be changed: C2(1, 3)		Access level: 2
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	0.00 [Aeff]	10000.00 [Aeff]	0.00 [Aeff]

**Description:**

Sets the motor limit current for synchronous motors (for a 600 V DC link voltage).

Using this current, the maximum torque is achieved at the rated speed (voltage limit characteristic).

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

---

<b>r0339[0...n]</b>	<b>Rated motor voltage</b>		
SERVO	Can be changed: -		Access level: 3



Data type: Floating Point	Data set: MDS	Function diagram: -
P-Group: Motor	Units group: VOLTAGE_AC_EFF	Unit selection: -
Min	Max	Factory setting
- [Veff]	- [Veff]	- [Veff]

**Description:**

Displays the rated motor voltage

**Note:**

For induction motors (p0300 = 1xx) the parameter is set to p0304.

For synchronous motors, parameter r0339 = p0304 is displayed. If p0304 = 0, then r0339 is calculated from p0305 and p0316.

**p0340**

**Automatic calculation, control parameters**

A\_INF

Can be changed: T		Access level:
Data type: Integer16	Data set: -	Function diagram: -
P-Group: Closed-loop control	Units group: -	Unit selection: -
Min	Max	Factory setting
0	2	0

**Description:**

Setting to reset and automatically calculate filter and control (closed-loop) parameters.

**Values:**

- 0: No calculation
- 1: Complete re-calculation. of control parameters with COMM data
- 2: Reset control parameters

**Notice:**

The following parameters are influenced using p0340:

p0340 = 1:

--> All of the parameters influenced for p0340 = 2

--> p3421 = p0223 + p0225

--> p3422 = p0227

p0340 = 2:

--> p3560, p3562, p3564, p3603, p3615 and p3617 are reset to the factory setting. These controller parameters are not available for S\_Infeed.

**Note:**

When existing the quick commissioning using p3900 > 0, p0340 is automatically set to 1.

At the end of the calculations, p0340 is automatically set to 0.

**p0340[0...n]**

**Automatic calculation of motor/control parameters**

SERVO	Can be changed: C2(3), T		Access level: 2
	Data type: Integer16	Data set: DDS	Function diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	5	0

**Description:**

Setting to automatically calculate motor parameters and V/f open-loop and closed-loop control parameters from the rating plate data.

**Values:**

- 0: No calculation
- 1: Complete calculation
- 2: Calculation of equivalent circuit diagram parameters
- 3: Calculation of closed-loop control parameters
- 4: Calculation of controller parameters
- 5: Calculation of technological limits and threshold values

**Notice:**

The following parameters are influenced using p0340:

The parameters designated with (\*) are, for list motors (p0300 > 100) not overwritten.

SERVO:

p0340 = 1:

--> All of the parameters influenced for p0340 = 2, 3, 4, 5

--> p0341 (\*)

--> p0342, p0344, p0640, p1082, p2000, p2001, p2002, p2003

p0340 = 2:

--> p0350 (\*), p0354 (\*), p0356 (\*), p0358 (\*), p0360 (\*)

--> p0625 (matching p0350)

p0340 = 3:

--> All of the parameters influenced for p0340 = 4, 5

--> p0325 (is only calculated for p0325 = 0)

--> p0348 (\*) (is only calculated for p0348 = 0)

--> p0441, p0442, p0443, p0444, p0445 (only for 1FT6, 1FK6, 1FK7 motors)

--> p0492, p1082, p1980, p1319, p1326, p1327, p1612, p1752, p1755

p0340 = 4:

--> p1460, p1462, p1463, p1464, p1465, p1470, p1472, p1590, p1592, p1715, p1717

--> p1461 (for p0348 > p0322, p1461 is set to 100 %)

--> p1463 (for p0348 > p0322, p1463 is set to 400 %)

p0340 = 5:

--> p1037, p1038, p1520, p1521, p1530, p1531, p2140, p2142, p2150, p2162, p2163, p2164, p2175, p2177, p2194

VECTOR:

p0340 = 1:

--> All of the parameters influenced for p0340 = 2, 3, 4, 5

--> p0341 (\*)

--> p0342, p0344, p0640, p1082, p1654, p1825, p1828, p1829, p1830, p1831, p1832, p1905, p2000, p2001, p2002, p2003

p0340 = 2:

--> p0350 (\*), p0352, p0354 (\*), p0356 (\*), p0358 (\*), p0360 (\*)

--> p0625 (matching p0350)

p0340 = 3:

--> All of the parameters influenced for p0340 = 4, 5

--> p0346, p0347, p0492, p1320, p1321, p1322, p1323, p1324, p1325, p1326, p1327, p1582, p1584, p1616, p1744, p1755, p1756, p2178

p0340 = 4:

--> p1290, p1292, p1293, p1299, p1338, p1339, p1340, p1341, p1345, p1346, p1460, p1461, p1462, p1463, p1464, p1465, p1470, p1472, p1590, p1592, p1715, p1717, p1740, p1760, p1761, p1764, p1767, p1781, p1783, p1785, p1786

p0340 = 5:

--> p1037, p1038, p1520, p1521, p1530, p1531, p1802, p1803, p2140, p2142, p2150, p2162, p2163, p2164, p2175, p2177, p2194

**Note:**

p0340 = 1 contains the calculations of p0340 = 2, 3, 4, 5 without overwriting the motor parameters from the Siemens motor lists (p0301 > 0).

p0340 = 2 calculates the motor parameters (p0350 ... p0360), but only if it does involve a Siemens catalog motor (p0301 = 0).

p0340 = 3 contains the calculations of p0340 = 4, 5.

p0340 = 4 only calculates the controller parameters.

p0340 = 5 only calculates the controller limits.

When existing the quick commissioning using p3900 > 0, p0340 is automatically set to 1.

At the end of the calculations, p0340 is automatically set to 0.

If the STARTER commissioning software (start-up tool) writes a 3 into p0340 when "downloading into the target device", then this corresponds to a "complete calculation of the motor/control parameters without equivalent circuit diagram data". The same calculations are carried-out as for p0340 = 1, however, without the equivalent circuit diagram parameters of the motor (refer to p0340 = 2), the motor moment of inertia (p0341) and the motor weight (p0344).

For third-party linear synchronous motors (p300 = 4) equivalent circuit diagram data are not calculated (refer to p340 = 2).

---

**p0341[0...n]      Motor moment of inertia**

SERVO	Can be changed: C2(3), U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: 5210
	P-Group: Motor	Units group: INERTIA	Unit selection: -
	Min	Max	Factory setting
	0.00000 [kgm²]	100000.00000 [kgm²]	0.00000 [kgm²]

**Description:**

Sets the motor moment of inertia/mass (without load).

**Dependency:**

This means that together with p0342, the rated starting time of the motor is calculated.

Refer to: p0342

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

SERVO:

p0341 \* p0342 + p1498 influence the speed/torque pre-control in sensorless operation.

VECTOR:

The product p0341 \* p0342 is taken into account when automatically calculating the speed controller (p0340 = 4).

**p0341[0...n]****Motor weight**

SERVO (Lin)	Can be changed: C2(3), U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: 5210
	P-Group: Motor	Units group: MASS	Unit selection: -
	Min	Max	Factory setting
	0.00000 [kg]	10000.00000 [kg]	0.00000 [kg]

**Description:**

Sets the motor moment of inertia/mass (without load).

**Dependency:**

This means that together with p0342, the rated starting time of the motor is calculated.

Refer to: p0342

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

SERVO:

p0341 \* p0342 + p1498 influence the speed/torque pre-control in sensorless operation.

VECTOR:

The product p0341 \* p0342 is taken into account when automatically calculating the speed controller (p0340 = 4).

<b>p0342[0...n]</b>	<b>Ratio between the total and motor moment of inertia</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: 5210
	P-Group: Motor	Units group: -	Unit selection: -
	Min	Max	Factory setting
	1.000	10000.000	1.000
<p><b>Description:</b></p> <p>Sets the ratio between the total moment of inertia/mass (load + motor) and the intrinsic motor moment of inertia/ mass (no load).</p> <p><b>Dependency:</b></p> <p>This means that together with p0341, the rated starting (accelerating time) of the motor is calculated for a vector drive.</p> <p>Refer to: p0341, p1498</p> <p><b>Note:</b></p> <p>SERVO:</p> <p>p0341 * p0342 + p1498 influence the speed/torque pre-control in sensorless operation.</p> <p>VECTOR:</p> <p>The product p0341 * p0342 is taken into account when automatically calculating the speed controller (p0340 = 4).</p>			
<b>p0344[0...n]</b>	<b>Motor weight</b>		
SERVO	Can be changed: C2(3), T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: MASS	Unit selection: -
	Min	Max	Factory setting
	0.0 [kg]	50000.0 [kg]	0.0 [kg]
<p><b>Description:</b></p> <p>Sets the motor weight.</p> <p>The following applies for vector drives (refer to p0107):</p> <p>The parameter influences the thermal 3 mass model of the induction motor.</p> <p><b>Note:</b></p> <p>The parameter is not used for synchronous motors (p0300 = 2xx).</p> <p>The parameter is automatically preset for motors from the motor list (p0301).</p>			
<b>p0348[0...n]</b>	<b>Speed at the start of field weakening Vdc = 600 V</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: 5722

P-Group: Motor	Units group: SPEED_ROT	Unit selection: -
Min	Max	Factory setting
0.0 [1/min]	210000.0 [1/min]	0.0 [1/min]

**Description:**

Sets the speed/velocity at the start of field weakening for a DC link voltage of 600 V.

**Dependency:**

Refer to: p0320, r0331

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

---

**p0348[0...n] Velocity at the start of field weakening Vdc = 600 V**

SERVO (Lin)	Can be changed: C2(3), U, T	Access level: 3
	Data type: Floating Point	Data set: MDS
		Function diagram: 5722
	P-Group: Motor	Unit selection: -
		SPEED_LIN_METRIC_P3
	Min	Max
	0.0 [m/min]	1000.0 [m/min]
		Factory setting
		0.0 [m/min]

**Description:**

Sets the speed/velocity at the start of field weakening for a DC link voltage of 600 V.

**Dependency:**

Refer to: p0320, r0331

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

---

**p0350[0...n] Motor stator resistance, cold**

SERVO	Can be changed: C2(3), U, T	Access level: 2
	Data type: Floating Point	Data set: MDS
		Function diagram: -
	P-Group: Motor	Unit selection: -
		RESISTANCE
	Min	Max
	0.00000 [Ohm]	2000.00000 [Ohm]
		Factory setting
		0.00000 [Ohm]

**Description:**

Sets the stator resistance of the motor at ambient temperature p0625.

**Dependency:**

Refer to: p0625

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

The motor identification routine determines the stator resistance from the total stator resistance minus the cable resistance (p0352).

---

<b>p0352[0...n]</b>	<b>Cable resistance</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: RESISTANCE	Unit selection: -
	Min	Max	Factory setting
	0.00000 [Ohm]	120.00000 [Ohm]	0.00000 [Ohm]

**Description:**

Resistance of the power cable between the motor module and motor.

**Note:**

The parameter influences the temperature adaptation of the stator resistance.

The motor identification routine does not change the cable resistance. This is subtracted from the total measured stator resistance in order to calculate the stator resistance (p0350, p0352).

---

<b>p0353[0...n]</b>	<b>Motor series inductance</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 2
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: INDUCTANCE_M3	Unit selection: -
	Min	Max	Factory setting
	0.000 [mH]	1000000.000 [mH]	0.000 [mH]

**Description:**

Sets the series inductance.

**Note:**

For the automatic calculation with p0340 = 1 or 3, the calculation of p0348 is influenced by p0353 if p0348 was 0.

For the automatic calculation with p0340 = 1, 3 or 4, the calculation of p1715 is influenced by p0353.

---

<b>p0354[0...n]</b>	<b>Motor rotor resistance, cold</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: RESISTANCE	Unit selection: -
	Min	Max	Factory setting
	0.00000 [Ohm]	300.00000 [Ohm]	0.00000 [Ohm]

**Description:**

Sets the rotor/secondary section resistance of the motor at the ambient temperature p0625.

This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910).

**Dependency:**

Refer to: p0625

**Note:**

The parameter is not used for synchronous motors (p0300 = 2xx).

The parameter is automatically preset for motors from the motor list (p0301).

---

<b>p0356[0...n]</b>	<b>Motor stator leakage inductance</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: INDUCTANCE_M3	Unit selection: -
	Min	Max	Factory setting
	0.00000 [mH]	1000.00000 [mH]	0.00000 [mH]

**Description:**

Induction motor: Sets the rotor leakage inductance of the motor.

Synchronous motor: Sets the stator quadrature axis inductance of the motor.

This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910).

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

---

<b>p0358[0...n]</b>	<b>Motor rotor leakage inductance</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: INDUCTANCE_M3	Unit selection: -
	Min	Max	Factory setting
	0.00000 [mH]	1000.00000 [mH]	0.00000 [mH]

**Description:**

Sets the rotor/secondary section leakage inductance of the motor.

The value is automatically calculated using the motor model (p0340 = 1, 2) or determined using the motor identification routine (p1910).

**Note:**



The parameter is not used for synchronous motors (p0300 = 2xx).

The parameter is automatically preset for motors from the motor list (p0301).

<b>p0360[0...n]</b>	<b>Motor magnetizing inductance</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: INDUCTANCE_M3	Unit selection: -
	Min	Max	Factory setting
	0.00000 [mH]	10000.00000 [mH]	0.00000 [mH]
<b>Description:</b>			
Sets the magnetizing inductance of the motor.			
This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910).			
<b>Note:</b>			
The parameter is not used for synchronous motors (p0300 = 2xx).			
The parameter is automatically preset for motors from the motor list (p0301).			

<b>r0370[0...n]</b>	<b>Motor stator resistance, cold</b>		
SERVO	Can be changed: -		Access level: 4
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: RESISTANCE	Unit selection: -
	Min	Max	Factory setting
	- [Ohm]	- [Ohm]	- [Ohm]
<b>Description:</b>			
Displays the motor stator resistance at an ambient temperature p0625. The value does not include the cable resistance.			
<b>Dependency:</b>			
Refer to: p0625			

<b>r0373[0...n]</b>	<b>Motor rated stator resistance</b>		
SERVO	Can be changed: -		Access level: 4
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: RESISTANCE	Unit selection: -
	Min	Max	Factory setting
	- [Ohm]	- [Ohm]	- [Ohm]
<b>Description:</b>			
Displays the rated motor stator resistance at rated temperature (sum from p0625 and p0627).			

**Dependency:**

Refer to: p0627

**Note:**

The parameter is not used for synchronous motors (p0300 = 2xx).

**r0374[0...n]****Motor rotor resistance, cold**

SERVO

Can be changed: -

Access level: 4

Data type: Floating Point

Data set: MDS

Function diagram: -

P-Group: Motor

Units group: RESISTANCE

Unit selection: -

Min

Max

Factory setting

- [Ohm]

- [Ohm]

- [Ohm]

**Description:**

Displays the rotor/secondary section resistance of the motor for the ambient temperature p0625.

**Dependency:**

Refer to: p0625

**Note:**

The parameter is not used for synchronous motors (p0300 = 2xx).

**r0376[0...n]****Rated motor rotor resistance**

SERVO

Can be changed: -

Access level: 4

Data type: Floating Point

Data set: MDS

Function diagram: -

P-Group: Motor

Units group: RESISTANCE

Unit selection: -

Min

Max

Factory setting

- [Ohm]

- [Ohm]

- [Ohm]

**Description:**

Displays the rated (nominal) rotor/secondary section resistance of the motor at the rated temperature (sum of p0625 and p0628).

**Dependency:**

Refer to: p0628

**Note:**

The parameter is not used for synchronous motors (p0300 = 2xx).

**r0377[0...n]****Motor leakage inductance, total**

SERVO

Can be changed: -

Access level: 4

Data type: Floating Point

Data set: MDS

Function diagram: 6640

P-Group: Motor

Units group: INDUCTANCE\_M3

Unit selection: -

Min	Max	Factory setting
- [mH]	- [mH]	- [mH]

**Description:**

Induction motor:

Displays the stator leakage inductance of the motor including the series inductance (p0353) for servo drives or the motor reactor (p0233) for vector drives.

Synchronous motor:

Displays the stator quadrature axis inductance including the series inductance (p0353) for servo drives or the motor reactor (p0233) for vector drives.

---

**r0382[0...n] Motor main inductance, transformed**

SERVO	Can be changed: -	Access level: 4
	Data type: Floating Point	Data set: MDS
	P-Group: Motor	Function diagram: -
	Units group: INDUCTANCE_M3	Unit selection: -
Min	Max	Factory setting
- [mH]	- [mH]	- [mH]

**Description:**

Displays the magnetizing inductance of the motor.

**Note:**

The parameter is not used for synchronous motors (p0300 = 2xx).

---

**r0384[0...n] Motor rotor time constant**

SERVO	Can be changed: -	Access level: 4
	Data type: Floating Point	Data set: MDS
	P-Group: Motor	Function diagram: 6722
	Units group: TIME_M3	Unit selection: -
Min	Max	Factory setting
- [ms]	- [ms]	- [ms]

**Description:**

Displays the rotor time constant.

**Note:**

The parameter is not used for synchronous motors.

The value is calculated from the sum of the inductances on the rotor side (p0358, p0360) divided by the rotor resistance (p0354). The temperature adaptation of the rotor resistance is not taken into account.

---

**r0386[0...n] Motor stator leakage time constant**

SERVO	Can be changed: -	Access level: 4
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Data type: Floating Point	Data set: MDS	Function diagram: -
P-Group: Motor	Units group: TIME_M3	Unit selection: -
Min	Max	Factory setting
- [ms]	- [ms]	- [ms]

**Description:**

Displays the stator leakage time constant.

**Note:**

The value is calculated from the sum of all leakage inductances (p0233\*, p0353\*\*, p0356, p0358) divided by the sum of all motor resistances (p0350, p0352\*, p0354).

The temperature adaptation of the resistances is not taken into account.

\* only applies for VECTOR (r0107).

\*\* only applies for SERVO (r0107).

**p0391[0...n]****Current controller adaptation, lower starting point**

SERVO

Can be changed: C2(3), U, T

Access level: 3

Data type: Floating Point

Data set: MDS

Function diagram: 5714

P-Group: Motor

Units group: CURRENT\_AC\_EFF

Unit selection: -

Min

Max

Factory setting

0.00 [Aeff]

6000.00 [Aeff]

0.00 [Aeff]

**Description:**

Sets the lower starting point of the current-dependent current controller adaptation.

**Dependency:**

Refer to: p0392, p0393, p1715

**Note:**

For p0393 = 100 %, the current controller adaptation is disabled and p1715 is effective over the entire range.

The parameter is automatically preset for motors from the motor list (p0301).

**p0392[0...n]****Current controller adaptation, upper starting point**

SERVO

Can be changed: C2(3), U, T

Access level: 3

Data type: Floating Point

Data set: MDS

Function diagram: 5714

P-Group: Motor

Units group: CURRENT\_AC\_EFF

Unit selection: -

Min

Max

Factory setting

0.00 [Aeff]

6000.00 [Aeff]

0.00 [Aeff]

**Description:**

Sets the upper starting point of the current-dependent current controller adaptation.

**Dependency:**

Refer to: p0391, p0393, p1715

**Note:**

For p0393 = 100 %, the current controller adaptation is disabled and p1715 is effective over the entire range.

The parameter is automatically preset for motors from the motor list (p0301).

---

<b>p0393[0...n]</b>	<b>Current controller adaptation, P gain, scaling upper</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: 5714
	P-Group: Motor	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.00 [%]	1000.00 [%]	100.00 [%]

**Description:**

Sets the factor for the current controller P gain after the adaptation range (currents greater than p0392). The value is referred to p1715.

**Dependency:**

Refer to: p0391, p0392, p1715

**Note:**

For p0393 = 100 %, the current controller adaptation is disabled and p1715 is effective over the entire range.

The parameter is automatically preset for motors from the motor list (p0301).

---

<b>r0395[0...n]</b>	<b>Stator resistance, actual</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: 6300, 6730, 6731
	P-Group: Motor	Units group: RESISTANCE	Unit selection: -
	Min	Max	Factory setting
	- [Ohm]	- [Ohm]	- [Ohm]

**Description:**

Displays the actual stator resistance (phase value).

The parameter is influenced by the temperature model and includes the temperature-independent cable resistance.

---

<b>r0396[0...n]</b>	<b>Rotor resistance, actual</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: 6730
	P-Group: Motor	Units group: RESISTANCE	Unit selection: -

Min	Max	Factory setting
- [Ohm]	- [Ohm]	- [Ohm]

**Description:**

Displays the actual rotor/secondary section resistance (phase value).

The parameter is influenced by the temperature model.

**Note:**

This parameter is not used for synchronous motors (p0300 = 2xx).

**p0400[0...n]****Enc type selection**

SERVO

Can be changed: C2(1, 4)

Access level: 2

Data type: Integer16

Data set: EDS

Function diagram: 1580, 4704,  
6004

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

0

10000

0

**Description:**

Selects the encoder from the list of encoder types supported.

**Values:**

- 0: No encoder
- 1001: Resolver 1 speed
- 1002: Resolver 2 speed
- 1003: Resolver 3 speed
- 1004: Resolver 4 speed
- 2001: 2048, 1 Vpp, A/B C/D R
- 2002: 2048, 1 Vpp, A/B R
- 2003: 256, 1 Vpp, A/B R
- 2004: 400, 1 Vpp, A/B R
- 2005: 512, 1 Vpp, A/B R
- 2010: 18000, 1 Vpp, A/B R distance-coded
- 2050: Encoder with EnDat interface
- 2051: 2048, 1 Vpp, A/B, EnDat, Multiturn 4096
- 2052: 32, 1 Vpp, A/B, EnDat, Multiturn 4096
- 2053: 512, 1 Vpp, A/B, EnDat, Multiturn 4096
- 2110: 4000 nm, 1 Vpp, A/B R distance-coded
- 2111: 20000 nm, 1 Vpp, A/B R distance-coded
- 2112: 40000 nm, 1 Vpp, A/B R distance-coded
- 2151: 16000 nm, 1 Vpp, A/B, EnDat, resolution 100 nm
- 3001: 1024 HTL A/B R at X521/X531
- 3002: 1024 TTL A/B R at X521/X531
- 3003: 2048 HTL A/B R at X521/X531
- 3005: 1024 HTL A/B at X521/X531

3006: 1024 TTL A/B at X521/X531  
3007: 2048 HTL A/B at X521/X531  
3008: 2048 TTL A/B at X521/X531  
3009: 1024 HTL A/B unipolar at X521/X531  
3011: 2048 HTL A/B unipolar at X521/X531  
3020: 2048 TTL A/B R at X520  
9999: User-defined  
10000: Identify encoder

**Note:**

The connected encoder can be identified by p0400 = 10000. This requires that the encoder supports this function and is possible in the following cases: Motor with DRIVE-CLiQ, encoder with EnDat interface.

If an identification is not possible, then p0400 is set to 0.

The encoder data (e.g. pulse number p0408) can only be changed when p0400 = 9999.

<b>p0404[0...n]</b>		<b>Encoder configuration effective</b>	
SERVO	Can be changed: C2(4)		Access level: 3
	Data type: Unsigned32	Data set: EDS	Function diagram: 4704
	P-Group: Encoder	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 bin	0000 0000 1111 1111 1111 1111 1111 1111 bin	0000 bin

**Description:**

Settings for the basic encoder properties.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Linear encoder	No	Yes	-
	01	Abs value encoder	No	Yes	-
	02	Multiturn encoder	No	Yes	-
	03	Track A/B sq-wave	No	Yes	-
	04	Track A/B sinus	No	Yes	-
	05	Track C/D	No	Yes	-
	06	Hall sensor	No	Yes	-
	08	EnDat encoder	No	Yes	-
	09	SSI encoder	No	Yes	-
	12	Equidistant zero mark	No	Yes	-
	13	Irregular zero mark	No	Yes	-
	14	Distance-coded zero mark	No	Yes	-
	15	Commutation with zero mark	No	Yes	-
	16	Acceleration	No	Yes	-

20	Voltage level 5 V	No	Yes	-
21	Voltage level 24 V	No	Yes	-
22	Remote sense (only SMC30)	No	Yes	-
23	Resolver excit.	No	Yes	-

**Note:**

ZM: Zero mark

SMC: Sensor Module Cabinet

If a technique to determine the commutation information/data has not been selected (e.g. track C/D, Hall sensor), and the encoder pulse number is an integer multiple of the pole number, then the following applies:

The track A/B is adjusted to match the magnetic position of the motor.

Re bit 1, 2 (absolute value encoder, multi-turn encoder):

These bits can only be selected for EnDat or SSI encoders.

Re bit 12 (equidistant zero mark):

The zero marks occur at regular intervals (e.g. rotary encoder with 1 zero mark per revolution). The bit activates the monitoring of the zero mark clearance (p0425).

Re bit 13 (irregular zero mark):

The zero marks occur at irregular intervals (e.g. a linear scale with only 1 zero mark in the traversing range). The zero mark clearance is not monitored.

Re bit 14 (clearance-coded zero mark):

The distance (clearance) between two or several consecutive zero marks allows the absolute position to be calculated.

Re bit 15 (commutation with zero mark):

For clearance-coded zero marks, the following applies:

The phase sequence of the Hall signal (if available) must be the same as the phase sequence of the encoder.

The fine synchronization is only started after 2 zero marks have been passed.

**p0405[0...n]****Square-wave encoder track A/B**

SERVO

Can be changed: C2(4)

Access level: 3

Data type: Unsigned32

Data set: EDS

Function diagram: 4704, 6004

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 bin

1111 bin

0000 bin

**Description:**

Settings for the track A/B of a square-wave encoder. For square-wave encoders, p0404.3 must also be 1.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
------------	-----	-------------	----------	----------	----



00	Signal	Unipolar	Bipolar	-
01	Level	HTL	TTL	-
02	Track monitoring	None	A/B <> -A/B	-
03	Zero pulse	24 V unipolar	Same as A/B track	-

---

#### p0407[0...n] Linear encoder grid division

SERVO

Can be changed: C2(4)

Access level: 3

Data type: Unsigned32

Data set: EDS

Function diagram: 4704, 6004

P-Group: Encoder

Units group: LENGTH\_M9

Unit selection: -

Min

Max

Factory setting

0 [nm]

250000000 [nm]

16000 [nm]

##### Description:

Sets the grid division for a linear encoder.

##### Note:

The lowest permissible value is 250 nm.

---

#### p0408[0...n] Rotary encoder pulse No.

SERVO

Can be changed: C2(4)

Access level: 3

Data type: Unsigned32

Data set: EDS

Function diagram: 4704, 6004

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

0

16777215

2048

##### Description:

Sets the number of pulses for a rotary encoder.

##### Note:

The number of pole pairs for a resolver is entered here.

The smallest permissible value is 1 pulse.

---

#### p0410[0...n] Encoder inversion actual value

SERVO

Can be changed: C2(4)

Access level: 3

Data type: Unsigned16

Data set: EDS

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 bin

0011 bin

0000 bin

##### Description:

Setting to invert actual values.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Invert speed actual value	No	Yes	4710, 6010
	01	Invert position actual value	No	Yes	4704

**Note:**

The inversion influences the following parameters:

Bit 00: r0061, r0063 (exception: sensorless closed-loop control), r0094

Bit 01: r0482, r0483

---

<b>p0418[0...n]</b>	<b>Fine resolution Gx_XIST1 (in bits)</b>		
SERVO	Can be changed: C2(4)		Access level: 3
	Data type: Unsigned8	Data set: EDS	Function diagram: 4704
	P-Group: Encoder	Units group: -	Unit selection: -
	Min	Max	Factory setting
	2	18	11

**Description:**

Sets the fine resolution in bits of the incremental position actual values.

**Note:**

The parameter applies for the following process data:

- Gx\_XIST1
- Gx\_XIST2 for reference mark or flying measurement

---

<b>p0419[0...n]</b>	<b>Fine resolution absolute value Gx_XIST2 (in bits)</b>		
SERVO	Can be changed: C2(4)		Access level: 3
	Data type: Unsigned8	Data set: EDS	Function diagram: 4704
	P-Group: Encoder	Units group: -	Unit selection: -
	Min	Max	Factory setting
	2	18	9

**Description:**

Sets the fine resolution in bits of the absolute position actual values.

**Note:**

This parameter applies to process data Gx\_XIST2 when reading the absolute value.

---

<b>p0421[0...n]</b>	<b>Absolute encoder rotary multi-turn resolution</b>		
SERVO	Can be changed: C2(4)		Access level: 3

Data type: Unsigned16	Data set: EDS	Function diagram: 4704, 6004
P-Group: Encoder	Units group: -	Unit selection: -
Min	Max	Factory setting
0	65535	4096

**Description:**

Sets the number of rotations that can be resolved for a rotary absolute encoder.

**p0422[0...n]**

**Absolute value encoder linear measuring step resolution**

SERVO

Can be changed: C2(4)

Access level: 3

Data type: Unsigned32

Data set: EDS

Function diagram: 4704, 6004

P-Group: Encoder

Units group: LENGTH\_M9

Unit selection: -

Min

Max

Factory setting

0 [nm]

4294967295 [nm]

8192 [nm]

**Description:**

Sets the resolution of the absolute position for a linear absolute encoder.

**Note:**

The serial protocol of an absolute encoder provides the position with a certain resolution , e.g. 100 nm. This value must be entered here.

**p0423[0...n]**

**Absolute value encoder rotary single-turn resolution**

SERVO

Can be changed: C2(4)

Access level: 3

Data type: Unsigned32

Data set: EDS

Function diagram: 4704, 6004

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

0

1073741823

8192

**Description:**

Sets the number of measuring steps per revolution for a rotary absolute value encoder.  
The resolution refers to the absolute position.

**p0424[0...n]**

**Encoder, linear zero mark distance**

SERVO

Can be changed: C2(4)

Access level: 3

Data type: Unsigned16

Data set: EDS

Function diagram: -

P-Group: Encoder

Units group: LENGTH\_M3

Unit selection: -

Min

Max

Factory setting

0 [mm]

65535 [mm]

20 [mm]

**Description:**

Sets the distance between two zero marks for a linear encoder. This information is used

for zero mark monitoring.

**Note:**

For distance-coded zero marks, this means the basic distance.

---

<b>p0425[0...n]</b>	<b>Encoder, rotary zero mark distance</b>		
SERVO	Can be changed: C2(4)		Access level: 3
	Data type: Unsigned32	Data set: EDS	Function diagram: 4704, 6004, 8570
	P-Group: Encoder	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	16777215	2048

**Description:**

Sets the distance in pulses between two zero marks for a rotary encoder. This information is used for zero mark monitoring.

**Note:**

For distance-coded zero marks, this means the basic distance.

---

<b>p0430[0...n]</b>	<b>Sensor module configuration</b>		
SERVO	Can be changed: C2(4)		Access level: 3
	Data type: Unsigned32	Data set: EDS	Function diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 bin	1110 0000 0000 1011 0000 0000	1110 0000 0000 1000 0000
		0000 0000 bin	0000 0000 0000 bin

**Description:**

Sets the configuration of the sensor module.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	17	Burst oversampling	No	Yes	-
	19	Safety position actual value sensing	No	Yes	-
	29	Phase correction	No	Yes	-
	30	Amplitude correction	No	Yes	-
	31	Offset correction	No	Yes	-

---

<b>p0431[0...n]</b>	<b>Angular commutation offset</b>		
SERVO	Can be changed: C2(4)		Access level: 3
	Data type: Floating Point	Data set: EDS	Function diagram: -

P-Group: Encoder	Units group: ANGLE	Unit selection: -
Min	Max	Factory setting
-180.00 [°]	180.00 [°]	0.00 [°]

**Description:**

Sets the angular commutation offset.

**Dependency:**

The value is taken into account in r0094.

Refer to: r0094, r1778

**Note:**

For p0404.5 = 1 (track C/D) the following applies:

The angular offset in p0431 acts on track A/B, the zero mark on track C/D.

For p0404.6 = 1 (Hall sensor) the following applies:

The angular offset in p0431 acts on track A/B and the zero mark.

**p0440[0...n]**

**Copy encoder serial number**

SERVO

Can be changed: C2(4)

Access level: 3

Data type: Integer16

Data set: EDS

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 hex

0001 hex

0000 hex

**Description:**

Copies the actual serial number of the encoder belong to this encoder data set to p0441 ... p0445.

Example:

For p0440[0] = 1, the serial number of the encoder belonging EDS0 is copied to p0441[0]

... p0445[0].

**Values:**

0: No action

1: Transfer serial number

**Dependency:**

Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464, p1990

**Note:**

For encoders with serial number, encoder replacement is monitored in order to request angular commutation calibration (adjustment) for motor encoders and absolute calibration for direct measuring systems with absolute value data. The serial number, which from then onwards is used for monitoring purposes, can be transferred using p0440.

In the following cases, copying is automatically started in the following cases:

1.) When commissioning 1FT6, 1FK6, 1FK7 motors.

2.) When writing into p0431.

3.) For p1990 = 1.

p0440 is automatically set to 0 when the copying has been completed.

In order to permanently accept the copied values, it is necessary to save in a non-volatile fashion (p0977).

---

#### p0441[0...n] Encoder commissioning serial number part 1

SERVO

Can be changed: C2(4)

Access level: 4

Data type: Unsigned32

Data set: EDS

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 hex

FFFF FFFF hex

0000 hex

##### Description:

Serial number part 1 of the encoder for the commissioning.

##### Dependency:

Refer to: p0440, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464

Refer to: F07414

##### Note:

A value of zero is displayed if an encoder is not present.

---

#### p0442[0...n] Encoder commissioning serial number part 2

SERVO

Can be changed: C2(4)

Access level: 4

Data type: Unsigned32

Data set: EDS

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 hex

FFFF FFFF hex

0000 hex

##### Description:

Serial number part 2 of the encoder for the commissioning.

##### Dependency:

Refer to: p0440, p0441, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464

Refer to: F07414

##### Note:

A value of zero is displayed if an encoder is not present.

---

#### p0443[0...n] Encoder commissioning serial number part 3

SERVO

Can be changed: C2(4)

Access level: 4

Data type: Unsigned32

Data set: EDS

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min	Max	Factory setting
0000 hex	FFFF FFFF hex	0000 hex

**Description:**

Serial number part 3 of the encoder for the commissioning.

**Dependency:**

Refer to: p0440, p0441, p0442, p0444, p0445, r0460, r0461, r0462, r0463, r0464

Refer to: F07414

**Note:**

A value of zero is displayed if an encoder is not present.

---

**p0444[0...n] Encoder commissioning serial number part 4**

SERVO	Can be changed: C2(4)	Access level: 4
	Data type: Unsigned32	Data set: EDS
	P-Group: Encoder	Units group: -
	Min	Max
	0000 hex	FFFF FFFF hex
		Factory setting
		0000 hex

**Description:**

Serial number part 4 of the encoder for the commissioning.

**Dependency:**

Refer to: p0440, p0441, p0442, p0443, p0445, r0460, r0461, r0462, r0463, r0464

Refer to: F07414

**Note:**

A value of zero is displayed if an encoder is not present.

---

**p0445[0...n] Encoder commissioning serial number part 5**

SERVO	Can be changed: C2(4)	Access level: 4
	Data type: Unsigned32	Data set: EDS
	P-Group: Encoder	Units group: -
	Min	Max
	0000 hex	FFFF FFFF hex
		Factory setting
		0000 hex

**Description:**

Serial number part 5 of the encoder for the commissioning.

**Dependency:**

Refer to: p0440, p0441, p0442, p0443, p0444, r0460, r0461, r0462, r0463, r0464

Refer to: F07414

**Note:**

A value of zero is displayed if an encoder is not present.

**r0451[0...2]****Commutation angle factor**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 4710

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the relationship between the electrical and mechanical pole positions.

**Index:**

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

**Note:**

A value of zero is displayed if an encoder is not present.

**r0455[0...2]****Encoder configuration recognized**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the detected encoder configuration.

In this case, the encoder must automatically support the function (e.g. encoder with EnDat interface).

**Index:**

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

**Bit field:**

Bit	Signal name	0 signal	1 signal	FP
00	Linear encoder	No	Yes	-
01	Abs value encoder	No	Yes	-
02	Multiturn encoder	No	Yes	-
03	Track A/B sq-wave	No	Yes	-
04	Track A/B sinus	No	Yes	-
05	Track C/D	No	Yes	-



06	Hall sensor	No	Yes	-
08	EnDat encoder	No	Yes	-
09	SSI encoder	No	Yes	-
12	Equidistant zero mark	No	Yes	-
13	Irregular zero mark	No	Yes	-
14	Distance-coded zero mark	No	Yes	-
15	Commutation with zero mark	No	Yes	-
16	Acceleration	No	Yes	-
20	Voltage level 5 V	No	Yes	-
21	Voltage level 24 V	No	Yes	-
22	Remote sense (only SMC30)	No	Yes	-
23	Resolver excit.	No	Yes	-

**Dependency:**

Refer to: p0404

**Note:**

ZM: Zero mark

This parameter is only used for diagnostics.

A value of zero is displayed if an encoder is not present.

**r0456[0...2]**

**Encoder configuration supported**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Contains the encoder configuration supported by the sensor module.

**Index:**

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Linear encoder	No	Yes	-
	01	Abs value encoder	No	Yes	-
	02	Multiturn encoder	No	Yes	-
	03	Track A/B sq-wave	No	Yes	-
	04	Track A/B sinus	No	Yes	-

05	Track C/D	No	Yes	-
06	Hall sensor	No	Yes	-
08	EnDat encoder	No	Yes	-
09	SSI encoder	No	Yes	-
12	Equidistant zero mark	No	Yes	-
13	Irregular zero mark	No	Yes	-
14	Distance-coded zero mark	No	Yes	-
15	Commutation with zero mark	No	Yes	-
16	Acceleration	No	Yes	-
20	Voltage level 5 V	No	Yes	-
21	Voltage level 24 V	No	Yes	-
22	Remote sense (only SMC30)	No	Yes	-
23	Resolver excit.	No	Yes	-

**Dependency:**

Refer to: p0404

**Note:**

ZM: Zero mark

This parameter is only used for diagnostics.

A value of zero is displayed if an encoder is not present.

**r0458[0...2]****Sensor module properties**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 4704

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Sets the sensor module configuration.

**Index:**

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Encoder data available	No	Yes	-
	01	Motor data available	No	Yes	-
	02	KTY84 connection available	No	Yes	-
	03	PTC connection available	No	Yes	-

04	Module temperature available	No	Yes	-
05	Absolute encoder: p0408 and p0421 not power of two	No	Yes	-
06	Encoder module permits parking/unparking	No	Yes	-
07	Hall sensor can be combined with actual value inversion	No	Yes	-
16	Pole position identification	No	Yes	-
17	Burst oversampling	No	Yes	-
19	Safety position actual value sensing	No	Yes	-
29	Phase correction	No	Yes	-
30	Amplitude correction	No	Yes	-
31	Offset correction	No	Yes	-

**Note:**

A value of zero is displayed if an encoder is not present.

**r0460[0...2]**

**Encoder serial number part 1**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the actual serial number part 1 of the appropriate encoder.

**Index:**

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

**Dependency:**

Refer to: p0441, p0442, p0443, p0444, p0445, r0461, r0462, r0463, r0464

**r0461[0...2]**

**Encoder serial number part 2**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the actual serial number part 2 of the appropriate encoder.

**Index:**

[0] = Encoder 1  
 [1] = Encoder 2  
 [2] = Encoder 3

**Dependency:**

Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0462, r0463, r0464

**r0462[0...2]****Encoder serial number part 3**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the actual serial number part 3 of the appropriate encoder.

**Index:**

[0] = Encoder 1  
 [1] = Encoder 2  
 [2] = Encoder 3

**Dependency:**

Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0463, r0464

**r0463[0...2]****Encoder serial number part 4**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the actual serial number part 4 of the appropriate encoder.

**Index:**

[0] = Encoder 1  
 [1] = Encoder 2  
 [2] = Encoder 3

**Dependency:**

Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0464

**r0464[0...2]****Encoder serial number part 5**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Encoder	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	-

**Description:**

Displays the actual serial number part 5 of the appropriate encoder.

**Index:**

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

**Dependency:**

Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463

---

**p0478[0...2] Measuring system assignment**

SERVO	Can be changed: U, T	Access level: 3
	Data type: Unsigned8	Data set: -
	P-Group: -	Function diagram: -
	Min	Unit selection: -
	Max	Factory setting
	0	[0] 1
		[1] 0
		[2] 0

**Description:**

Sets whether the signals from encoders 1, 2, 3 are assigned to the drive or the higher-level control.

p0478[0 ... 2] = 0:

The messages of the measuring system are assigned to the higher-level control and for the drive, do not result in a response.

p0478[0 ... 2] = 1:

The messages of the measuring system are assigned to the drive and result in the selected response.

**Index:**

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

---

**r0479[0...2] CO: Diagnostics encoder position actual value Gn\_XIST1**

SERVO	Can be changed: -	Access level: 4
	Data type: Integer32	Function diagram: -
	P-Group: Encoder	Unit selection: -
	Min	Factory setting
	Max	
	-	-

**Description:**

Displays the encoder actual position value Gn\_XIST1 according to PROFIdrive for diagnostics. In contrast to p0482, the value is updated in each DRIVE-CLiQ basic clock cycle and displayed with sign.

**Index:**

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

**p0480[0...2]****CI: Signal source for encoder control word Gn\_STW**

SERVO

Can be changed: T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 1580, 4720

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source for the encoder control word Gn\_STW according to PROFIdrive.

**Index:**

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

**r0481[0...2]****CO: Encoder status word Gn\_ZSW**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 4704, 4730, 6004

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the encoder status word Gn\_ZSW according to PROFIdrive.

**Index:**

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

**Bit field:**

Bit	Signal name	0 signal	1 signal	FP
00	Function 1 active	No	Yes	-
01	Function 2 active	No	Yes	-
02	Function 3 active	No	Yes	-

03	Function 4 active	No	Yes	-
04	Value 1	Does not exist	Displayed in r0483	-
05	Value 2	Does not exist	Displayed in r0483	-
06	Value 3	Does not exist	Displayed in r0483	-
07	Value 4	Does not exist	Displayed in r0483	-
08	Measuring probe 1 deflected	No	Yes	-
09	Measuring probe 2 deflected	No	Yes	-
11	Encoder fault acknowledge active	No	Yes	-
13	Absolute value cyclically	No	Displayed in r0483	-
14	Parking encoder active	No	Yes	-
15	Encoder fault	None	Displayed in r0483	-

#### r0482[0...2]

#### CO: Encoder actual position value Gn\_XACT1

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 1580, 2450,  
3090, 4704, 4740

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

#### Description:

Displays the encoder actual position value Gn\_XIST1 according to PROFIdrive.

#### Index:

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

#### Note:

This value is reset when de-selecting the function "parking axis".

#### r0483[0...2]

#### CO: Encoder actual position value Gn\_XACT2

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 1580, 2450,  
4704, 6004

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

#### Description:

Displays the encoder actual position value Gn\_XIST2 according to PROFIdrive.

#### Recommendation:

Possible causes of 4097 and 4098: CU hardware defect  
Possible causes of 4099 and 4100: Too many measuring pulses occurred.

**Index:**

- [0] = Encoder 1
- [1] = Encoder 2
- [2] = Encoder 3

**Note:**

If Gx\_ZSW.14 = 0 and GxZSW.15 = 1 (r0481), then an error code with the following significance is located in Gx\_XIST2 (r0483):

- 1: Encoder fault
- 2: Reserved
- 3: Reserved
- 4: Abort, reference mark search
- 5: Abort, retrieve reference value
- 6: Abort, flying measurement
- 7: Abort, retrieve measured value
- 8: Abort, absolute value transfer
- 3841: Function not supported
- 4097: Abort, reference mark search due to an initialization error
- 4098: Abort, flying measurement due to an initialization error
- 4099: Abort, reference mark search due to a measuring error
- 4100: Abort, flying measurement due to a measuring error

<b>r0484[0...2]</b>	<b>CO: Redundant coarse encoder position + CRC Gn_XIST1</b>		
SERVO	Can be changed: -	Access level: 3	
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the redundant coarse encoder position including CRC (Cyclic Redundancy Check).  
Upper 16 bits:  
CRC over the redundant coarse encoder position.  
Lower 16 bits:  
Redundant coarse encoder position. The count direction is opposite to r0482 (encoder position actual value Gn\_XIST1). The value contains 2 bit fine resolution.

**Index:**

- [0] = Encoder 1



[1] = Encoder 2

[2] = Encoder 3

**Dependency:**

The values are valid when the safety position actual value sensing is activated (p0430.19 = 1).

Refer to: p0430

**Note:**

This absolute value does not change, contrary to r0482, when de-selecting the function "parking axis".

<b>r0487[0...2]</b>		<b>Diagnostic encoder control word Gn_STW</b>	
SERVO	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: 1580, 4704, 4720, 4740
	P-Group: Encoder	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the encoder control word Gn\_STW according to PROFIdrive for diagnostics.

**Index:**

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Request function 1	No	Yes	-
	01	Request function 2	No	Yes	-
	02	Request function 3	No	Yes	-
	03	Request function 4	No	Yes	-
	04	Request command bit 0	No	Yes	-
	05	Request command bit 1	No	Yes	-
	06	Request command bit 2	No	Yes	-
	07	Mode	Reference marks	Flying measurement	-
	13	Request absolute value cyclic	No	Yes	-
	14	Request parking encoder	No	Yes	-
	15	Request acknowledge encoder fault	No	Yes	-

**Note:**

The signal source for the encoder control word is set with p0480.

**p0488[0...2]****Measuring probe 1 input terminal**

SERVO

Can be changed: U, T

Access level: 3

Data type: Integer16

Data set: -

Function diagram: 4740

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

0

6

0

**Description:**

Sets the input terminal to connect probe 1.

**Values:**

- 0: No measuring probe
- 1: DI/DO 9 (X122.8)
- 2: DI/DO 10 (X122.10)
- 3: DI/DO 11 (X122.11)
- 4: DI/DO 13 (X132.8)
- 5: DI/DO 14 (X132.10)
- 6: DI/DO 15 (X132.11)

**Index:**

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

**Dependency:**

Refer to: p0489, p0490, p0728

**Note:**

DI/DO: Bidirectional digital input/output

The terminal must be set as input (p0728).

Refer to the encoder interface for PROFIdrive.

**p0489[0...2]****Measuring probe 2 input terminal**

SERVO

Can be changed: U, T

Access level: 3

Data type: Integer16

Data set: -

Function diagram: 4740

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

0

6

0

**Description:**

Sets the input terminal to connect probe 2.

**Values:**

- 0: No meas probe
- 1: DI/DO 9 (X122.8)
- 2: DI/DO 10 (X122.10)

- 3: DI/DO 11 (X122.11)
- 4: DI/DO 13 (X132.8)
- 5: DI/DO 14 (X132.10)
- 6: DI/DO 15 (X132.11)

**Index:**

- [0] = Encoder 1
- [1] = Encoder 2
- [2] = Encoder 3

**Dependency:**

Refer to: p0488, p0490, p0728

**Note:**

DI/DO: Bidirectional digital input/output

The terminal must be set as input (p0728).

Refer to the encoder interface for PROFIdrive.

<b>p0490</b>	<b>Invert measuring probe or equivalent zero mark</b>		
CU_I	Can be changed: U, T	Access level: 3	
	Data type: Unsigned32	Data set: -	Function diagram: 4740
	P-Group: Encoder	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 bin	1111 1111 1111 1111 bin	0000 bin

**Description:**

Setting to invert the digital input signals to connect a measuring probe or an equivalent zero mark.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	09	DI/DO 9 (X122.8)	Not inverted	Inverted	-
	10	DI/DO 10 (X122.10)	Not inverted	Inverted	-
	11	DI/DO 11 (X122.11)	Not inverted	Inverted	-
	13	DI/DO 13 (X132.8)	Not inverted	Inverted	-
	14	DI/DO 14 (X132.10)	Not inverted	Inverted	-
	15	DI/DO 15 (X132.11)	Not inverted	Inverted	-

**Dependency:**

Refer to: p0488, p0489, p0495, p0728

**Note:**

The terminal must be set as input.

When the measuring probe or the equivalent zero mark is inverted, this has no effect on the status displays of the digital inputs (r0721, r0722, r0723).

DI: Digital input, DO: Digital output

<b>p0491</b>	<b>Motor encoder fault response: ENCODER</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	3	0

**Description:**

Sets the behavior for the ENCODER fault response (motor encoder).

This means, for example, if an encoder fault occurs, sensorless operation can be automatically selected with a shutdown behavior that can be selected.

**Values:**

- 0: Encoder fault results in OFF2
- 1: Enc fault results in sensorless oper. and oper. continues
- 2: Encoder fault results in sensorless operation and OFF1
- 3: Encoder fault results in sensorless operation and OFF3

**Dependency:**

The following parameters are relevant for sensorless operation.

Refer to: p0341, p0342, p1470, p1472, p1517, p1612, p1755

**Note:**

For a value 1, 2, 3, the following applies:

Encoderless operation must have been commissioned.

Refer to the status display "sensorless operation due to a fault" (BO: r1407.13).

<b>p0492</b>	<b>Square-wave encoder, maximum speed difference per sampling cycle</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Encoder	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.0 [1/min]	210000.0 [1/min]	0.0 [1/min]

**Description:**

Maximum permissible speed/velocity difference between two computation cycles when evaluating square-wave encoders.

When the value is exceeded, depending on p0491, either sensorless closed-loop speed/torque control is selected or the drive is powered-down.

**Note:**

For a value of 0.0, the speed change monitoring is disabled.

When half of the parameter value is exceeded, an alarm is already generated and the speed limiting is limited to this.

The parameter is only pre-assigned for vector drives when selecting p0340 = 1, 3.

<b>p0492</b>	<b>Square-wave encoder, max. velocity difference per sampling cycle</b>		
SERVO (Lin)	Can be changed: U, T	Access level: 3	
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Encoder	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.0 [m/min]	1000.0 [m/min]	0.0 [m/min]

**Description:**

Maximum permissible speed/velocity difference between two computation cycles when evaluating square-wave encoders.

When the value is exceeded, depending on p0491, either sensorless closed-loop speed/torque control is selected or the drive is powered-down.

**Note:**

For a value of 0.0, the speed change monitoring is disabled.

When half of the parameter value is exceeded, an alarm is already generated and the speed limiting is limited to this.

The parameter is only pre-assigned for vector drives when selecting p0340 = 1, 3.

<b>p0495[0...2]</b>	<b>Equivalent zero mark, input terminal</b>		
SERVO	Can be changed: U, T	Access level: 3	
	Data type: Integer16	Data set: -	Function diagram: 4735
	P-Group: Encoder	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	6	0

**Description:**

Selects the input terminal for connecting an equivalent zero mark (external encoder zero mark).

**Values:**

- 0: No equivalent zero mark (evaluation of the encoder zero mark)
- 1: DI/DO 9 (X122.8)
- 2: DI/DO 10 (X122.10)
- 3: DI/DO 11 (X122.11)
- 4: DI/DO 13 (X132.8)
- 5: DI/DO 14 (X132.10)
- 6: DI/DO 15 (X132.11)

**Index:**

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

**Dependency:**

Refer to: p0490

**Note:**

Refer to the encoder interface for PROFIdrive.

The terminal must be set as input.

For p0495 = 0 (factory setting), the encoder zero mark is evaluated as zero mark.

For p0495 > 0, the following applies:

Depending on the direction of motion, the positive or negative edge at the appropriate input is evaluated.

- increasing position actual values (r0482) --> the 0/1 edge is evaluated.

- decreasing position actual values (r0482) --> the 1/0 edge is evaluated.

Only one zero mark is supported. If function 2, 3 or 4 is selected, this results in an error message in Gn\_ZSW.

The inversion of the inputs via p0490 affects the function "referencing with equivalent zero mark". This is the reason that the edge evaluation is interchanged as a function of the direction of motion.

An input can only be assigned to one encoder as measuring probe 1, 2 or equivalent zero mark. Exception: The same encoder can be simultaneously used as measuring probe and equivalent zero mark as both functions cannot be simultaneously requested.

**p0496[0...2]**

**Encoder diagnostic signal selection**

SERVO

Can be changed: U, T

Access level: 4

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

0

42

0

**Description:**

Selects the trace signal to be output in r0497, r0498 and r0499 for encoder diagnostics.

**Values:**

- 0: not active
- 1: r0497: Mechanical revolution
- 10: r0498: Raw value, track A, r0499: Raw value, track B
- 11: r0498: Fine position X (-A/2), r0499: Fine position Y (-B/2)
- 12: r0498: Fine pos phi, r0499: -
- 13: r0498: Offset correction X; r0499: Offset correction Y
- 14: r0498: Phase correction X; r0499: Amplitude correction Y
- 20: r0498: Raw value, track C, r0499: Raw value track D
- 21: r0498: CD position X (-D/2), r0499: CD position Y (C/2)

- 22: r0498: CD position phi, r0499: CD pos. phi - mech. revolution  
23: r0497: Zero mark status  
30: r0497: Absolute position serial  
40: r0498: Raw temperature, r0499: Temperature in 0.1 °C  
41: r0498: Resistance in 0.1 Ohm, r0499: Temperature in 0.1 °C  
42: r0497: Resistance 2500 Ohm

**Index:**

- [0] = Encoder 1  
[1] = Encoder 2  
[2] = Encoder 3

**Note:**

- Re p0496 = 1: 360 ° <--> 2<sup>32</sup>  
Re p0496 = 10, 20 (resolver): 2900 mV <--> 26214 dec  
Re p0496 = 10, 20 (sin/cos 1 Vpp, EnDat): 500 mV <--> 21299 dec  
Re p0496 = 11, 21 (resolver): 2900 mV <--> 13107 dec, internal processor offset is corrected  
Re p0496 = 13 (resolver): 2900 mV <--> 13107 dec  
Re p0496 = 11, 21 (sin/cos 1 Vpp, EnDat): 500 mV <--> 10650 dec, internal processor offset is corrected  
Re p0496 = 13 (sin/cos 1 Vpp, EnDat): 500 mV <--> 10650 dec  
Re p0496 = 12: 180 ° fine position <--> 32768 dec  
Re p0496 = 14: 100 % <--> 16384 dec  
Re p0496 = 22: 180 ° <--> 32768 dec  
Re p0496 = 23: Encoder zero mark <--> MSB set (detected during the zero mark or at least 1 current controller clock cycle)  
Re p0496 = 30: Rotary: 1 Single-turn measuring step <--> 1 dec, linear: 1 measuring step <--> 1 dec  
Re p0496 = 40: r0498 <--> (R\_KTY/1 kOhm - 0.9) \* 32768  
Re p0496 = 42: 2500 Ohm <--> 2<sup>32</sup>

**r0497[0...2]**

**Encoder diagnostic signal double word**

SERVO

Can be changed: -

Access level: 4

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Trace signal for encoder diagnostics (double word representation). The output signal is selected in p0496.

**Index:**

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

**r0498[0...2]****Encoder diagnostic signal word low**

SERVO

Can be changed: -

Access level: 4

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Trace signal for encoder diagnostics (low component). The output signal is selected in p0496.

**Index:**

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

**r0499[0...2]****Encoder diagnostic signal word high**

SERVO

Can be changed: -

Access level: 4

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Trace signal for encoder diagnostics (high component). The output signal is selected in p0496.

**Index:**

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

**p0500****Technology application**

SERVO

Can be changed: C2(1, 5), T

Access level: 2

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Applications

Units group: -

Unit selection: -

Min

Max

Factory setting

100

102

100

**Description:**

Sets the technology application.



The parameter influences the calculation of open-loop and closed-loop control parameters that is e.g. initiated using p0578.

The calculation of the following parameters depends on p0500 (only for servo drives):  
p1520, p1521, p1530, p1531

**Values:**

- 100: Standard drive (SERVO)
- 101: Feed drive (limit current limitation)
- 102: Spindle drive (rated current limitation)

**Note:**

The calculation of parameters, dependent on the technological application can be called-up as follows:

- when exiting the quick commissioning using p3900 > 0
- when writing p0340 = 1, 3, 5
- when writing p0578 = 1

<b>p0528</b> SERVO	<b>Units system for controller gains</b> Can be changed: C2(5) Data type: Integer16 P-Group: Applications Min 0	Access level: 4 Data set: - Units group: - Max 1 Function diagram: - Unit selection: - Factory setting 0
	<b>Description:</b> For controller gains, changes-over the units system between physical and referred (without dimensions) representation types.	
	<b>Values:</b> 0: Physical representation 1: No dimensions (referred) representation type	
	<b>Note:</b> Controller gain factors are always saved as physical units. For VECTOR (r0107) the following applies: The parameter is pre-assigned a value of 1. The parameter cannot be changed.	

<b>p0578[0...n]</b> SERVO	<b>Calculate parameters that are dependent on the technology/units</b> Can be changed: C2(5), T Data type: Integer16 P-Group: Applications Min 0	Access level: 2 Data set: DDS Units group: - Max 1 Function diagram: - Unit selection: - Factory setting 0
------------------------------	---	--

**Description:**

This parameter is used to calculate all parameters that depend on the technology of the application (p0500).

All of the parameters are calculated that can also be determined using p0430 = 5.

**Values:**

- 0: No calculation  
1: Complete parameterization

**Note:**

At the end of the calculations, p0578 is automatically set to 0.

**p0580****Measuring probe, input terminal**

SERVO

Can be changed: U, T

Access level: 3

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

0

6

0

**Description:**

Sets the input terminal for the measuring probe for speed actual value measurement.

**Values:**

- 0: No meas probe  
1: DI/DO 9 (X122.8)  
2: DI/DO 10 (X122.10)  
3: DI/DO 11 (X122.11)  
4: DI/DO 13 (X132.8)  
5: DI/DO 14 (X132.10)  
6: DI/DO 15 (X132.11)

**Dependency:**

Refer to: p0581, p0728

Refer to: A07350

**Note:**

DI/DO: Bidirectional digital input/output

The terminal must be set as input (p0728).

**p0581****Meas probe, edge**

SERVO

Can be changed: U, T

Access level: 3

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

0

1

0

**Description:**

Sets the edge to evaluate the measuring probe signal for speed actual value measurement.

0: 0/1 edge

1: 1/0 edge

**Dependency:**

Refer to: p0580

**p0582**

**Measuring probe, pulses per revolution**

SERVO

Can be changed: U, T

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

1

8

1

**Description:**

Sets the number of pulses per revolution (e.g. for disks with holes).

**p0583**

**Measuring probe, maximum measuring time**

SERVO

Can be changed: U, T

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Encoder

Units group: TIME

Unit selection: -

Min

Max

Factory setting

0 [s]

10 [s]

10 [s]

**Description:**

Sets the maximum measuring time for the measuring probe.

If a new pulse is not received before the maximum measuring time has expired, then the speed actual value in r0586 is set to zero. This timer stage is re-started with the next pulse.

**Dependency:**

Refer to: r0586

**r0586**

**CO: Measuring probe, speed actual value**

SERVO

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Displays, signals

Units group: SPEED\_ROT

Unit selection: -

Min

Max

Factory setting

- [1/min]

- [1/min]

- [1/min]

**Description:**

Displays the speed actual value measured using the BERO.

**Dependency:**

Refer to: p0580, p0583

**Note:**

If a measuring probe is not selected (p580 = 0), then a value of zero is displayed.

**r0586****CO: Measuring probe, velocity actual value**

SERVO (Lin)

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Displays, signals

Units group:

Unit selection: -

SPEED\_LIN\_METRIC\_P3

Min

Max

Factory setting

- [m/min]

- [m/min]

- [m/min]

**Description:**

Displays the speed actual value measured using the BERO.

**Dependency:**

Refer to: p0580, p0583

**Note:**

If a measuring probe is not selected (p580 = 0), then a value of zero is displayed.

**r0587****CO: Measuring probe, measuring time measured**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Displays, signals

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the time between the last two BERO pulses.

The measuring time is specified as 32-bit value with a resolution of 1/48 µs.

If a new pulse is not received before the maximum measured time in p0583 expires, then r0587 is set to the maximum measuring time.

**Dependency:**

Refer to: p0580

**Note:**

If a measuring probe is not selected (p580 = 0), then a value of zero is displayed.

<b>r0588</b>	<b>CO: Measuring probe, pulse counter</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the number of measuring pulses that have occurred (been received) up until now.

**Dependency:**

Refer to: p0580

**Note:**

After reaching  $4294967295 (2^{32} - 1)$ , the counter starts again at 0.

<b>r0589</b>	<b>Measuring probe, delay time</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the time since the last measuring pulse was detected.

The delay time is specified as 32-bit value with a resolution of  $1/48 \mu s$ .

When a measuring pulse occurs (is received) the delay time is reset and is limited to the maximum measuring time in p0583.

**Dependency:**

Refer to: p0580

**Note:**

If a measuring probe is not selected ( $p580 = 0$ ), then a value of zero is displayed.

<b>p0600[0...n]</b>	<b>Motor temperature sensor for monitoring</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 2
	Data type: Integer16	Data set: MDS	Function diagram: 8016
	P-Group: Motor	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	11	0

**Description:**

Sets the sensor to monitor the motor temperature.

**Values:**

- 0: No sensor
- 1: Temperature sensor via encoder 1
- 2: Temperature sensor via encoder 2
- 3: Temperature sensor via encoder 3
- 10: Temperature sensor via a BICO interconnection
- 11: Temperature sensor via motor module

**Dependency:**

Refer to: p0601, p0603

**Note:**

For a value = 0, for synchronous motors, the temperature monitoring function is disabled.

For a value = 10, the BICO interconnection should be executed via p0603.

**p0601[0...n]****Motor temperature sensor type**

SERVO

Can be changed: C2(3), U, T

Access level: 2

Data type: Integer16

Data set: MDS

Function diagram: 8016

P-Group: Motor

Units group: -

Unit selection: -

Min

Max

Factory setting

0

3

2

**Description:**

Sets the sensor type for the motor temperature monitoring.

**Values:**

- 0: No sensor available
- 1: PTC thermistor
- 2: KTY84
- 3: KTY84 and PTC (only for temperature sensor via encoder)

**Dependency:**

Refer to: p0600

**Note:**

PTC thermistor (p0601 = 1): Trip resistance = 1650 Ohm.

The temperature sensor for the temperature evaluation is set in p0600.

For p0600 = 10 (temperature sensor via a BICO interconnection), the setting in p0601 has no significance.

**p0603****CI: Motor temperature**

SERVO

Can be changed: C2(3), T

Access level: 2

Data type: Unsigned32

Data set: -

Function diagram: 8016

P-Group: Motor	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	0

**Description:**

Sets the signal source to evaluate the motor temperature via a BICO interconnection.

**Dependency:**

Refer to: p0600

**Note:**

KTY temperature sensor: Valid temperature range -48 °C ... 248 °C.

PTC temperature sensor:

For the -50 °C, the following applies: Motor temperature < nominal response temperature of the PTC.

For the 250 °C, the following applies: Motor temperature >= nominal response temperature of the PTC.

Note:

When using a terminal module 31 (TM31), the following applies:

- the sensor type used is set using p4100.
- the temperature signal is interconnected using CO: r4105.

---

<b>p0604[0...n]</b>	<b>Motor overtemperature alarm threshold</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 2
	Data type: Floating Point	Data set: MDS	Function diagram: 8016
	P-Group: Motor	Units group: TEMPERATURE	Unit selection: -
	Min	Max	Factory setting
	0.0 [°C]	200.0 [°C]	120.0 [°C]

**Description:**

Sets the alarm threshold for monitoring the motor temperature.

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

---

<b>p0605[0...n]</b>	<b>Motor overtemperature fault threshold</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 2
	Data type: Floating Point	Data set: MDS	Function diagram: 8016
	P-Group: Motor	Units group: TEMPERATURE	Unit selection: -
	Min	Max	Factory setting
	0.0 [°C]	200.0 [°C]	155.0 [°C]

**Description:**

Sets the fault threshold to monitor the motor temperature.

**Note:**

The parameter is automatically preset for motors from the motor list (p0301).

---

<b>p0606[0...n]</b>	<b>Motor overtemperature timer</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 2
	Data type: Floating Point	Data set: MDS	Function diagram: 8016
	P-Group: Motor	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0.000 [s]	600.000 [s]	240.000 [s]

**Description:**

Sets the timer stage for the alarm threshold for the motor temperature monitoring function.

This timer stage is started when the temperature alarm threshold (p0604) is exceeded.

If the timer stage expires before the temperature in the meantime falls below the alarm threshold, the fault F07011 is output.

If the temperature fault threshold (p0605) is prematurely exceeded before the timer stage has expired, then fault F07011 is immediately output.

**Dependency:**

Refer to: p0604, p0605

Refer to: F07011, A07910

**Note:**

KTY sensor: When setting the minimum value, the timer is disabled and a fault is not output until p0605 is exceeded.

PTC sensor: The timer minimum value has no particular significance.

---

<b>p0607[0...n]</b>	<b>Temperature sensor fault timer</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 2
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0.000 [s]	600.000 [s]	0.100 [s]

**Description:**

Sets the timer stage between the output of alarm and fault for a temperature sensor fault.

If there is a sensor fault, this timer stage is started. If the sensor fault is still present after the timer stage has expired, a corresponding fault message is output.



**Note:**

If the motor is an induction motor, the timer is switched off when setting the minimum value and no alarm is output. Temperature monitoring is then based on the thermal model.

<b>p0620[0...n] Thermal adaptation, stator and rotor resistance</b>			
SERVO	Can be changed: C2(3), U, T		Access level: 2
	Data type: Integer16	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	2	2

**Description:**

Sets the thermal adaptation of the stator/primary section resistance and rotor/secondary section resistance according to r0395 and r0396.

**Values:**

- 0: No thermal adaptation of stator and rotor resistances
- 1: Resistances adapted to the temperatures of the thermal model
- 2: Resistances adapted to the measured stator winding temperature

**Note:**

For p0620 = 1, the following applies:

The stator resistance is adapted using the temperature in r0035 and the rotor resistance together with the model temperature in r0633.

For p0620 = 2, the following applies:

The stator resistance is adapted using the temperature in r0035. The rotor temperature to adapt the rotor resistance is calculated as follows from the stator temperature (r0035).

$$\text{theta\_R} = (\text{r0628} + \text{r0625}) / (\text{r0627} + \text{r0625}) * \text{r0035}$$

<b>p0625[0...n] Motor ambient temperature</b>			
SERVO	Can be changed: C2(3), U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: 8016
	P-Group: Motor	Units group: TEMPERATURE	Unit selection: -
	Min	Max	Factory setting
	-40 [°C]	80 [°C]	20 [°C]

**Description:**

Defines the ambient temperature of the motor to calculate the temperature model.

**Note:**

The parameters for stator and rotor resistance (p0350, p0354) refer to this temperature.

---

<b>p0626[0...n]</b>	<b>Motor overtemperature, stator core</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: 8016
	P-Group: Motor	Units group: TEMPERATURE_K	Unit selection: -
	Min	Max	Factory setting
	20 [K]	200 [K]	50 [K]

**Description:**

Defines the rated overtemperature of the stator core referred to the ambient temperature.

**Dependency:**

Refer to: p0625

---

<b>p0627[0...n]</b>	<b>Motor overtemperature, stator winding</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: 8016
	P-Group: Motor	Units group: TEMPERATURE_K	Unit selection: -
	Min	Max	Factory setting
	20 [K]	200 [K]	80 [K]

**Description:**

Defines the rated overtemperature of the stator winding referred to the ambient temperature.

**Dependency:**

Refer to: p0625

---

<b>p0628[0...n]</b>	<b>Rotor winding overtemperature</b>		
SERVO	Can be changed: C2(3), U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: 8016
	P-Group: Motor	Units group: TEMPERATURE_K	Unit selection: -
	Min	Max	Factory setting
	20 [K]	200 [K]	100 [K]

**Description:**

Defines the rated overtemperature of the squirrel cage rotor referred to ambient temperature.

**Dependency:**

Refer to: p0625

---

<b>r0630[0...n]</b>	<b>Motor temperature model ambient temperature</b>		
SERVO	Can be changed: -		Access level: 4
	Data type: Floating Point	Data set: MDS	Function diagram: 8016

P-Group: Motor	Units group: TEMPERATURE	Unit selection: -
Min	Max	Factory setting
- [°C]	- [°C]	- [°C]

**Description:**

Displays the ambient temperature of the motor temperature model.

---

<b>r0631[0...n]</b>	<b>Motor temperature model, stator core temperature</b>		
SERVO	Can be changed: -		Access level: 4
	Data type: Floating Point	Data set: MDS	Function diagram: 8016
	P-Group: Motor	Units group: TEMPERATURE	Unit selection: -
	Min	Max	Factory setting
	- [°C]	- [°C]	- [°C]

**Description:**

Displays the stator core temperature of the motor temperature model.

---

<b>r0632[0...n]</b>	<b>Motor temperature model, stator winding temperature</b>		
SERVO	Can be changed: -		Access level: 4
	Data type: Floating Point	Data set: MDS	Function diagram: 8016
	P-Group: Motor	Units group: TEMPERATURE	Unit selection: -
	Min	Max	Factory setting
	- [°C]	- [°C]	- [°C]

**Description:**

Displays the stator winding temperature of the motor temperature model.

---

<b>r0633[0...n]</b>	<b>Motor temperature model, rotor temperature</b>		
SERVO	Can be changed: -		Access level: 4
	Data type: Floating Point	Data set: MDS	Function diagram: 8016
	P-Group: Motor	Units group: TEMPERATURE	Unit selection: -
	Min	Max	Factory setting
	- [°C]	- [°C]	- [°C]

**Description:**

Displays the rotor temperature of the motor temperature model.

---

<b>p0640[0...n]</b>	<b>Current limit</b>		
SERVO	Can be changed: C2(1, 3), U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 5722, 6640
	P-Group: Motor	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting

0.00 [Aeff]

10000.00 [Aeff]

0.00 [Aeff]

**Description:**

Sets the current limit.

**Dependency:**

Refer to: r0209, p0323

**Note:**

The current limit p0640 is limited to r0209 and p0323. The limit to p0323 is not realized if a value of zero is entered there.

For vector drives, the following additionally applies (refer to p0107): p0640 is limited to  $4.0 * p0305$ .

The resulting current limit is displayed in r0067 and if required, r0067 is reduced by the thermal model of the motor module.

The torque and power limits (p1520, p1521, p1530, p1531) matching the current limit are automatically calculated when exiting the quick commissioning using  $p3900 > 0$  or using the automatic parameterization with  $p0340 = 3, 5$ .

For servo drives, the following applies (refer to p0107):

p0640 is pre-assigned as follows using the automatic parameterization ( $p0340 = 1$ ,  $p3900 > 0$ ) taking into account the limits r0209 and r0323:

- for induction motors:  $p0640 = 1.5 * p0305$

- for synchronous motors:  $p0640 = p0338$

For vector drives (refer to p0107), the following applies:

p0640 is pre-assigned for the automatic self commissioning routine (e.g. to  $1.5 * p0305$ , with  $p0305 = r0207[1]$ ).

p0640 must be entered when commissioning the system. This is the reason that p0640 is not calculated by the automatic parameterization when exiting the fast commissioning ( $p3900 > 0$ ).

**p0643[0...n]****Overvoltage protection for synchronous motors**

SERVO

Can be changed: T

Access level: 3

Data type: Integer16

Data set: MDS

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

0

1

0

**Description:**

Sets the overvoltage protection for synchronous motors in the field-weakening range.

**Values:**

0: No measure

1: Voltage Protection Module (VPM)

**Dependency:**

Refer to: p0316, p1082, p9601, p9801

Refer to: F07432

**Note:**

In the field-weakening range, synchronous motors can, when a fault condition exists, generate high DC link voltages. The following possibilities exist to protect the drive system from being destroyed due to overvoltage:

- limit the maximum speed (p1082) without any additional protection.

The maximum speed without protection is calculated from  $p1082 = 9590/p0316$ .

- use a voltage protection module (VPM) in conjunction with the function "safe standstill" (p9601, p9801).

When a fault condition exists, the VPM short-circuits the motors. During the short-circuit, the pulses must be cancelled - this means that the terminals for the safe standstill must be connected to the VPM.

<b>p0650[0...n]</b>	<b>Actual motor operating hours</b>		
SERVO	Can be changed: T	Access level: 3	
	Data type: Unsigned32	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	4294967295	0

**Description:**

Displays the operating hours for the corresponding motor.

The motor operating time counter continues to run when the pulses are enabled. When the pulse enable is withdrawn, the counter is held and the value saved.

**Dependency:**

The following prerequisites must be fulfilled in order to be able to save the operating hours counter in a non-volatile fashion:

- firmware with V2.2 or higher.
- control unit 320 (CU320) with hardware version C or higher (module with NVRAM).

Refer to: p0651

Refer to: A01590

**Note:**

The value is in the unit [h] (hours).

The operating hours counter in p0650 can only be reset to 0. In this case, p0651 is automatically set to 0.

For p0651 = 0, the operating hours counter is disabled.

The operating hours counter only runs for MDS0 and MDS1 (motor data set).

<b>p0651[0...n]</b>	<b>Motor operating hours maintenance interval</b>
---------------------	---

SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: MDS	Function diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	99999	0

**Description:**

Sets the service/maintenance intervals in hours for the appropriate motor.  
An appropriate fault is output when the operating hours set here are reached.

**Dependency:**

Refer to: p0650  
Refer to: A01590

**Note:**

The value is in the unit [h] (hours).  
For p0651 = 0, the operating hours counter is disabled.  
The operating hours counter only runs for MDS0 and MDS1 (motor data set).

---

**p0680[0...1] Central measuring probe, input terminal**

CU_I	Can be changed: U, T		Access level: 3
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	6	0

**Description:**

Sets the digital input used for the function "central measuring probe evaluation".  
p0680[0]: Digital input, measuring probe 1  
p0680[1]: Digital input, measuring probe 2

**Values:**

- 0: No measuring probe
- 1: DI/DO 9 (X122.8)
- 2: DI/DO 10 (X122.10)
- 3: DI/DO 11 (X122.11)
- 4: DI/DO 13 (X132.8)
- 5: DI/DO 14 (X132.10)
- 6: DI/DO 15 (X132.11)

**Dependency:**

Refer to: p0728

**Note:**

Prerequisite: The DI/DO must be set as input (p0728.x = 0).

<b>p0681</b>	<b>BI: Central measuring probe, synchronizing signal SYN signal source</b>		
CU_I	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for the synchronizing signal (SYN) of the function "central measuring probe evaluation".

The signal is used to synchronize the common system time between the master and slave.

<b>p0682</b>	<b>CI: Central measuring probe, control word signal source</b>		
CU_I	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for the control word of the function "central measuring probe evaluation".

<b>p0684</b>	<b>Central measuring probe evaluation technique</b>		
CU_I	Can be changed: U, T		Access level: 3
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	0	0

**Description:**

Sets the evaluation technique for the function "central measuring probe evaluation".

**Values:**

0: Measurement with handshake

<b>r0685</b>	<b>Central measuring probe, control word display</b>		
CU_I	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting

- - -

**Description:**

Displays the control word for the function "central measuring probe evaluation".

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Falling edge	No	Yes	-
	01	Falling edge	No	Yes	-
	02	Falling edge	No	Yes	-
	03	Falling edge	No	Yes	-
	04	Falling edge	No	Yes	-
	05	Falling edge	No	Yes	-
	08	Rising edge	No	Yes	-
	09	Rising edge	No	Yes	-
	10	Rising edge	No	Yes	-
	11	Rising edge	No	Yes	-
	12	Rising edge	No	Yes	-
	13	Rising edge	No	Yes	-

**r0686[0...1] CO: Central measuring probe, measuring time rising edge**

CU\_I

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Displays, signals

Units group: -

Unit selection: -

Min

Max

Factory setting

- - -

**Description:**

Displays the measuring time for a rising edge at the digital input.

The measuring time is specified as 16-bit value with a resolution of 0.25 µs.

r0686[0]: Measuring time, rising edge measuring probe 1

r0686[1]: Measuring time, rising edge measuring probe 2

**r0687[0...1] CO: Central measuring probe, measuring time falling edge**

CU\_I

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Displays, signals

Units group: -

Unit selection: -

Min

Max

Factory setting

- - -



**Description:**

Displays the measuring time for a falling edge at the digital input.

The measuring time is specified as 16-bit value with a resolution of 0.25 µs.

r0687[0]: Measuring time, falling edge measuring probe 1

r0687[1]: Measuring time, falling edge measuring probe 2

<b>r0688</b>	<b>CO: Central measuring probe, status word display</b>		
CU_I	Can be changed: -	Access level: 3	
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the status word for the function "central measuring probe evaluation".

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	DI MT 1	Low	High	-
	01	DI MT 2	Low	High	-
	02	DI MT 3	Low	High	-
	03	DI MT 4	Low	High	-
	04	DI MT 5	Low	High	-
	05	DI MT 6	Low	High	-
	06	DI MT 7	Low	High	-
	07	DI MT 8	Low	High	-
	08	USAMP_MT_1	Low	High	-
	09	USAMP_MT_2	Low	High	-
	10	USAMP_MT_3	Low	High	-
	11	USAMP_MT_4	Low	High	-
	12	USAMP_MT_5	Low	High	-
	13	USAMP_MT_6	Low	High	-
	14	USAMP_MT_7	Low	High	-
	15	USAMP_MT_8	Low	High	-

<b>p0700[0...n]</b>	<b>Macro binector input (BI)</b>		
A_INF, SERVO	Can be changed: C2(1), T	Access level: 1	
	Data type: Unsigned32	Data set: CDS	Function diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting

0

999999

0

**Description:**

Runs the appropriate ACX file on the CompactFlash Card.

The binector inputs (BI) of the appropriate command data set (CDS) are appropriately interconnected.

The selected ACX file must be located in the following directory:

... /PMACROS/<drive object>/P700/PMxxxxxx.ACX

Example:

p0700 = 6 --> the file PM000006.ACX is run.

**Dependency:**

The ACX file to be run must be created according to the definition for ACX macros and must be saved in the directory intended on the CompactFlash Card.

Refer to: p0015, p1000, p1500, r8571

**Notice:**

No errors were issued during fast commissioning (3900 = 1) when writing to parameters of the QUICK\_IBN group!

**Note:**

The macros in the specified directory are displayed in r8571.

Macros available as standard are described in the technical documentation of the particular product.

BI: Binector input

**r0721****CU digital inputs, terminal actual value**

CU\_I

Can be changed: -

Access level: 2

Data type: Unsigned32

Data set: -

Function diagram: 1510, 2100, 2120, 2130, 2131, 2132, 2133

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the actual value at the digital inputs.

This means that the actual input signal can be checked at terminal DI x or DI/DO x prior to switching from the simulation mode (p0795.x = 1) to terminal mode (p0795.x = 0). The input signal at terminal DI x is displayed in bit x of r0721.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	DI 0 (X122.1)	Low	High	-
	01	DI 1 (X122.2)	Low	High	-

02	DI 2 (X122.3)	Low	High	-
03	DI 3 (X122.4)	Low	High	-
04	DI 4 (X132.1)	Low	High	-
05	DI 5 (X132.2)	Low	High	-
06	DI 6 (X132.3)	Low	High	-
07	DI 7 (X132.4)	Low	High	-
08	DI/DO 8 (X122.7)	Low	High	-
09	DI/DO 9 (X122.8)	Low	High	-
10	DI/DO 10 (X122.10)	Low	High	-
11	DI/DO 11 (X122.11)	Low	High	-
12	DI/DO 12 (X132.7)	Low	High	-
13	DI/DO 13 (X132.8)	Low	High	-
14	DI/DO 14 (X132.10)	Low	High	-
15	DI/DO 15 (X132.11)	Low	High	-

**Note:**

If a DI/DO is parameterized as output (p0728.x = 1), then r0721.x = 0 is displayed.

DI: Digital input

DI/DO: Bidirectional digital input/output

**r0722**

**CO/BO: CU digital inputs, status**

CU\_I

Can be changed: -

Access level: 1

Data type: Unsigned32

Data set: -

Function diagram: 1510, 2100,  
2120, 2130, 2131, 2132, 2133

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the status of the digital inputs.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	DI 0 (X122.1)	Low	High	-
	01	DI 1 (X122.2)	Low	High	-
	02	DI 2 (X122.3)	Low	High	-
	03	DI 3 (X122.4)	Low	High	-
	04	DI 4 (X132.1)	Low	High	-
	05	DI 5 (X132.2)	Low	High	-
	06	DI 6 (X132.3)	Low	High	-
	07	DI 7 (X132.4)	Low	High	-

08	DI/DO 8 (X122.7)	Low	High	-
09	DI/DO 9 (X122.8)	Low	High	-
10	DI/DO 10 (X122.10)	Low	High	-
11	DI/DO 11 (X122.11)	Low	High	-
12	DI/DO 12 (X132.7)	Low	High	-
13	DI/DO 13 (X132.8)	Low	High	-
14	DI/DO 14 (X132.10)	Low	High	-
15	DI/DO 15 (X132.11)	Low	High	-

**Dependency:**

Refer to: r0723

**Note:**

DI: Digital input

DI/DO: Bidirectional digital input/output

**r0723****BO: CU digital inputs, status inverted**

CU\_I

Can be changed: -

Access level: 1

Data type: Unsigned32

Data set: -

Function diagram: 1510, 2100,  
2120, 2130, 2131 2132, 2133

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the inverted status of the digital inputs.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	DI 0 (X122.1)	Low	High	-
	01	DI 1 (X122.2)	Low	High	-
	02	DI 2 (X122.3)	Low	High	-
	03	DI 3 (X122.4)	Low	High	-
	04	DI 4 (X132.1)	Low	High	-
	05	DI 5 (X132.2)	Low	High	-
	06	DI 6 (X132.3)	Low	High	-
	07	DI 7 (X132.4)	Low	High	-
	08	DI/DO 8 (X122.7)	Low	High	-
	09	DI/DO 9 (X122.8)	Low	High	-
	10	DI/DO 10 (X122.10)	Low	High	-
	11	DI/DO 11 (X122.11)	Low	High	-
	12	DI/DO 12 (X132.7)	Low	High	-

13	DI/DO 13 (X132.8)	Low	High	-
14	DI/DO 14 (X132.10)	Low	High	-
15	DI/DO 15 (X132.11)	Low	High	-

**Dependency:**

Refer to: r0722

**Note:**

DI: Digital input

DI/DO: Bidirectional digital input/output

---

**p0728 CU, set input or output**

CU_I	Can be changed: T	Access level: 1
	Data type: Unsigned32	Data set: -
		Function diagram: 1510, 2130, 2131, 2132, 2133
	P-Group: Commands	Units group: -
	Min	Max
	0000 bin	1111 1111 1111 1111 bin
		0000 bin

**Description:**

Sets the bidirectional digital inputs/outputs as an input or output.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	08	DI/DO 8 (X122.7)	Input	Output	-
	09	DI/DO 9 (X122.8)	Input	Output	-
	10	DI/DO 10 (X122.10)	Input	Output	-
	11	DI/DO 11 (X122.11)	Input	Output	-
	12	DI/DO 12 (X132.7)	Input	Output	-
	13	DI/DO 13 (X132.8)	Input	Output	-
	14	DI/DO 14 (X132.10)	Input	Output	-
	15	DI/DO 15 (X132.11)	Input	Output	-

**Note:**

DI/DO: Bidirectional digital input/output

---

**p0738 BI: CU, signal source for terminal DI/DO 8**

CU_I	Can be changed: U, T	Access level: 1
	Data type: Unsigned32	Data set: -
		Function diagram: 1510, 2130
	P-Group: Commands	Units group: -
	Min	Max
	-	0

**Description:**

Sets the signal source for terminal DI/DO 8 (X122.7).

**Note:**

Prerequisite: The DI/DO must be set as an output (p0728.8 = 1).

DI/DO: Bidirectional digital input/output

**p0739****BI: CU, signal source for terminal DI/DO 9**

CU\_I

Can be changed: U, T

Access level: 1

Data type: Unsigned32

Data set: -

Function diagram: 2130

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source for terminal DI/DO 9 (X122.8).

**Note:**

Prerequisite: The DI/DO must be set as an output (p0728.9 = 1).

DI/DO: Bidirectional digital input/output

**p0740****BI: CU, signal source for terminal DI/DO 10**

CU\_I

Can be changed: U, T

Access level: 1

Data type: Unsigned32

Data set: -

Function diagram: 2131

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source for terminal DI/DO 10 (X122.10).

**Note:**

Prerequisite: The DI/DO must be set as output (p0728.10 = 1).

DI/DO: Bidirectional digital input/output

**p0741****BI: CU, signal source for terminal DI/DO 11**

CU\_I

Can be changed: U, T

Access level: 1

Data type: Unsigned32

Data set: -

Function diagram: 1510, 2131

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source for terminal DI/DO 11 (X122.11).

**Note:**

Prerequisite: The DI/DO must be set as an output (p0728.11 = 1).

DI/DO: Bidirectional digital input/output

---

<b>p0742</b>	<b>BI: CU, signal source for terminal DI/DO 12</b>		
CU_I	Can be changed: U, T		Access level: 1
	Data type: Unsigned32	Data set: -	Function diagram: 1510, 2132
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for terminal DI/DO 12 (X132.7).

**Note:**

Prerequisite: The DI/DO must be set as an output (p0728.12 = 1).

DI/DO: Bidirectional digital input/output

---

<b>p0743</b>	<b>BI: CU, signal source for terminal DI/DO 13</b>		
CU_I	Can be changed: U, T		Access level: 1
	Data type: Unsigned32	Data set: -	Function diagram: 2132
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for terminal DI/DO 13 (X132.8).

**Note:**

Prerequisite: The DI/DO must be set as an output (p0728.13 = 1).

DI/DO: Bidirectional digital input/output

---

<b>p0744</b>	<b>BI: CU, signal source for terminal DI/DO 14</b>		
CU_I	Can be changed: U, T		Access level: 1
	Data type: Unsigned32	Data set: -	Function diagram: 2133
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for terminal DI/DO 14 (X132.10).

**Note:**

Prerequisite: The DI/DO must be set as an output (p0728.14 = 1).

DI/DO: Bidirectional digital input/output

**p0745****BI: CU, signal source for terminal DI/DO 15**

CU\_I

Can be changed: U, T

Access level: 1

Data type: Unsigned32

Data set: -

Function diagram: 1510, 2133

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source for terminal DI/DO 15 (X132.11).

**Note:**

Prerequisite: The DI/DO must be set as an output (p0728.15 = 1).

DI/DO: Bidirectional digital input/output

**r0747****CU, digital outputs status**

CU\_I

Can be changed: -

Access level: 1

Data type: Unsigned32

Data set: -

Function diagram: 2130, 2131,  
2132, 2133

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the status of digital outputs.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	08	DI/DO 8 (X122.7)	Low	High	-
	09	DI/DO 9 (X122.8)	Low	High	-
	10	DI/DO 10 (X122.10)	Low	High	-
	11	DI/DO 11 (X122.11)	Low	High	-
	12	DI/DO 12 (X132.7)	Low	High	-
	13	DI/DO 13 (X132.8)	Low	High	-
	14	DI/DO 14 (X132.10)	Low	High	-
	15	DI/DO 15 (X132.11)	Low	High	-



**Note:**

Inversion using p0748 has been taken into account.

The setting of the DI/DO as either input or output is of no significance (p0728).

DI/DO: Bidirectional digital input/output

<b>p0748</b>	<b>CU, invert digital outputs</b>		
CU_I	Can be changed: U, T		Access level: 1
	Data type: Unsigned32	Data set: -	Function diagram: 2130, 2131, 2132, 2133
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 bin	1111 1111 1111 1111 bin	0000 bin

**Description:**

Setting to invert the signals at the digital outputs.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	08	DI/DO 8 (X122.7)	Not inverted	Inverted	-
	09	DI/DO 9 (X122.8)	Not inverted	Inverted	-
	10	DI/DO 10 (X122.10)	Not inverted	Inverted	-
	11	DI/DO 11 (X122.11)	Not inverted	Inverted	-
	12	DI/DO 12 (X132.7)	Not inverted	Inverted	-
	13	DI/DO 13 (X132.8)	Not inverted	Inverted	-
	14	DI/DO 14 (X132.10)	Not inverted	Inverted	-
	15	DI/DO 15 (X132.11)	Not inverted	Inverted	-

**Note:**

DI/DO: Bidirectional digital input/output

<b>p0771[0...2]</b>	<b>CI: Test sockets signal source</b>		
CU_I	Can be changed: U, T		Access level: 2
	Data type: Unsigned32	Data set: -	Function diagram: 8134
	P-Group: Terminals	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for the signal to be output at the test sockets.

**Index:**

[0] = T0

[1] = T1

[2] = T2

**Dependency:**

Can only be set when p0776 = 99.

Refer to: r0772, r0774, p0776, p0777, p0778, p0779, p0780, p0783, p0784, r0786

**r0772[0...2]****Test sockets output signal**

CU\_I

Can be changed: -

Access level: 2

Data type: Floating Point

Data set: -

Function diagram: 8134

P-Group: Terminals

Units group: PERCENT

Unit selection: -

Min

Max

Factory setting

- [%]

- [%]

- [%]

**Description:**

Displays the actual value of the signal to be output.

**Index:**

[0] = T0

[1] = T1

[2] = T2

**Dependency:**

Refer to: p0771, r0772, r0774, p0776, p0777, p0778, p0779, p0780, p0783, p0784, r0786

**r0774[0...2]****Test sockets output voltage**

CU\_I

Can be changed: -

Access level: 2

Data type: Floating Point

Data set: -

Function diagram: 8134

P-Group: Terminals

Units group: VOLTAGE\_DC

Unit selection: -

Min

Max

Factory setting

- [V]

- [V]

- [V]

**Description:**

Displays the actual output voltage for the test sockets.

**Index:**

[0] = T0

[1] = T1

[2] = T2

**Dependency:**

Refer to: p0771, r0772, p0776, p0777, p0778, p0779, p0780, p0783, p0784, r0786

**p0776[0...2]****Test socket mode**

CU\_I

Can be changed: U, T

Access level: 4

Data type: Integer16

Data set: -

Function diagram: 8134

P-Group: Terminals	Units group: -	Unit selection: -
Min	Max	Factory setting
96	99	99

**Description:**

Sets the mode for the test sockets.

**Values:**

- 96: Physical address (32-bit integer signal, unsigned)
- 97: Physical address (32-bit integer signal)
- 98: Physical address (32-bit floating-point signal)
- 99: BICO signal

**Index:**

- [0] = T0
- [1] = T1
- [2] = T2

**Dependency:**

Refer to: p0771, r0772, r0774, p0777, p0778, p0779, p0780, p0783, p0784, r0786, p0788, p0789, r0790

**p0777[0...2]**

**Test socket characteristic value x1**

CU\_I

Can be changed: U, T

Access level: 2

Data type: Floating Point

Data set: -

Function diagram: 8134

P-Group: Terminals

Units group: PERCENT

Unit selection: -

Min

Max

Factory setting

-100000.00 [%]

100000.00 [%]

0.00 [%]

**Description:**

The normalization characteristic for the test sockets is defined using two points. This parameter specifies the x coordinate (percentage) of the first point on the characteristic.

**Index:**

- [0] = T0
- [1] = T1
- [2] = T2

**Dependency:**

Can only be set when p0776 = 99.

Refer to: p0778, p0779, p0780, r0786

**Note:**

The value 0.00 % corresponds to 2.49 V.

**p0778[0...2]**

**Test socket characteristic value y1**

CU\_I

Can be changed: U, T

Access level: 2

Data type: Floating Point	Data set: -	Function diagram: 8134
P-Group: Terminals	Units group: VOLTAGE_DC	Unit selection: -
Min	Max	Factory setting
0.00 [V]	4.98 [V]	2.49 [V]

**Description:**

The normalization characteristic for the test sockets is defined using two points. This parameter specifies the y coordinate (output voltage) of the first point on the characteristic.

**Index:**

[0] = T0

[1] = T1

[2] = T2

**Dependency:**

Can only be set when p0776 = 99.

Refer to: p0777, p0779, p0780, r0786

**p0779[0...2]****Test socket characteristic value x2**

CU\_I

Can be changed: U, T

Access level: 2

Data type: Floating Point

Data set: -

Function diagram: 8134

P-Group: Terminals

Units group: PERCENT

Unit selection: -

Min

Max

Factory setting

-100000.00 [%]

100000.00 [%]

100.00 [%]

**Description:**

The normalization characteristic for the test sockets is defined using two points. This parameter specifies the x coordinate (percentage) of the second point on the characteristic.

**Index:**

[0] = T0

[1] = T1

[2] = T2

**Dependency:**

Can only be set when p0776 = 99.

Refer to: p0777, p0778, p0780, r0786

**Note:**

The value 100.00 % corresponds to 4.98 V.

**p0780[0...2]****Test socket characteristic value y2**

CU\_I

Can be changed: U, T

Access level: 2

Data type: Floating Point

Data set: -

Function diagram: 8134

P-Group: Terminals	Units group: VOLTAGE_DC	Unit selection: -
Min	Max	Factory setting
0.00 [V]	4.98 [V]	4.98 [V]

**Description:**

The normalization characteristic for the test sockets is defined using two points. This parameter specifies the y coordinate (output voltage) of the second point on the characteristic.

**Index:**

[0] = T0

[1] = T1

[2] = T2

**Dependency:**

Can only be set when p0776 = 99.

Refer to: p0777, p0778, p0779, r0786

---

<b>p0783[0...2]</b>	<b>Test sockets offset</b>	
CU_I	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: -
	P-Group: Terminals	Units group: VOLTAGE_DC
	Min	Max
	-4.98 [V]	4.98 [V]
		0.00 [V]
		Function diagram: 8134
		Unit selection: -
		Factory setting

**Description:**

Sets an additional offset for the test sockets.

**Index:**

[0] = T0

[1] = T1

[2] = T2

---

<b>p0784[0...2]</b>	<b>Test socket limit on/off</b>	
CU_I	Can be changed: U, T	Access level: 2
	Data type: Integer16	Data set: -
	P-Group: Terminals	Units group: -
	Min	Max
	0	1
		0
		Function diagram: 8134
		Unit selection: -
		Factory setting

**Description:**

Sets the limit for a signal to be output via test sockets.

**Values:**

0: Limiting off

1: Limiting on

**Index:**

- [0] = T0
- [1] = T1
- [2] = T2

**Note:**

Limiting on:  
If signals are output outside the permissible measuring range, the signal is limited to 4.98 V or to V.  
Limiting off:  
If signals are output outside the permissible measuring range, this causes signal overflow. In the case of signal overflow, the signal jumps from 0 V to 4.98 V or from 4.98 V to 0 V.

r0786[0...2] Test socket normalization per volt			
CU_I	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 8134
	P-Group: Terminals	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the normalization of the signal to be output. A change in the output voltage by 1 volt corresponds to the value in this parameter. The units are determined by the interconnected test signal.

**Index:**

- [0] = T0
- [1] = T1
- [2] = T2

**Dependency:**

Refer to: p0771, r0772, r0774, p0777, p0778, p0779, p0780, p0783, p0784

**Note:**

Example:  
r0786[0] = 1500.0 and the measuring signal is r0063 (CO: Smoothed speed actual value [RPM]).  
A change of 1 V at the output of test socket T0 corresponds to 1500.0 [RPM].

p0788[0...2] Test sockets physical address			
CU_I	Can be changed: U, T		Access level: 4
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Terminals	Units group: -	Unit selection: -

Refer to: p0789, r0790

## 000000000000

Refer to: p0788

—

$$[0] = T0$$

[1] = T1

[2] = T2

**Dependency:**

Only effective when p0776 = 97 or p0776 = 96.

Refer to: p0788

**p0795****CU digital inputs simulation mode**

CU\_I

Can be changed: U, T

Access level: 2

Data type: Unsigned32

Data set: -

Function diagram: 1510, 2100,  
2120, 2130, 2131, 2132, 2133

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 bin

1111 1111 1111 1111 bin

0000 bin

**Description:**

Sets the simulation mode for digital inputs.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	DI 0 (X122.1)	Terminal eval.	Simulation	-
	01	DI 1 (X122.2)	Terminal eval.	Simulation	-
	02	DI 2 (X122.3)	Terminal eval.	Simulation	-
	03	DI 3 (X122.4)	Terminal eval.	Simulation	-
	04	DI 4 (X132.1)	Terminal eval.	Simulation	-
	05	DI 5 (X132.2)	Terminal eval.	Simulation	-
	06	DI 6 (X132.3)	Terminal eval.	Simulation	-
	07	DI 7 (X132.4)	Terminal eval.	Simulation	-
	08	DI/DO 8 (X122.7)	Terminal eval.	Simulation	-
	09	DI/DO 9 (X122.8)	Terminal eval.	Simulation	-
	10	DI/DO 10 (X122.10)	Terminal eval.	Simulation	-
	11	DI/DO 11 (X122.11)	Terminal eval.	Simulation	-
	12	DI/DO 12 (X132.7)	Terminal eval.	Simulation	-
	13	DI/DO 13 (X132.8)	Terminal eval.	Simulation	-
	14	DI/DO 14 (X132.10)	Terminal eval.	Simulation	-
	15	DI/DO 15 (X132.11)	Terminal eval.	Simulation	-

**Dependency:**

The setpoint for the input signals is specified using p0796.

Refer to: p0796

**Note:**

DI: Digital input



DI/DO: Bidirectional digital input/output

This parameter is not saved when data is backed-up (p0971, p0977).

<b>p0796</b>	<b>CU digital inputs simulation mode setpoint</b>		
CU_I	Can be changed: U, T		Access level: 2
	Data type: Unsigned32	Data set: -	Function diagram: 1510, 2100, 2120, 2130, 2131, 2132, 2133
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 bin	1111 1111 1111 1111 bin	0000 bin

**Description:**

Sets the setpoint for the input signals in the digital input simulation mode.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	DI 0 (X122.1)	Low	High	-
	01	DI 1 (X122.2)	Low	High	-
	02	DI 2 (X122.3)	Low	High	-
	03	DI 3 (X122.4)	Low	High	-
	04	DI 4 (X132.1)	Low	High	-
	05	DI 5 (X132.2)	Low	High	-
	06	DI 6 (X132.3)	Low	High	-
	07	DI 7 (X132.4)	Low	High	-
	08	DI/DO 8 (X122.7)	Low	High	-
	09	DI/DO 9 (X122.8)	Low	High	-
	10	DI/DO 10 (X122.10)	Low	High	-
	11	DI/DO 11 (X122.11)	Low	High	-
	12	DI/DO 12 (X132.7)	Low	High	-
	13	DI/DO 13 (X132.8)	Low	High	-
	14	DI/DO 14 (X132.10)	Low	High	-
	15	DI/DO 15 (X132.11)	Low	High	-

**Dependency:**

The simulation of a digital input is selected using p0795.

Refer to: p0795

**Note:**

DI: Digital input

DI/DO: Bidirectional digital input/output

This parameter is not saved when data is backed-up (p0971, p0977).

---

<b>p0799</b>	<b>CU inputs/outputs, sampling time</b>		
CU_I	Can be changed: C1(3)		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 2100, 2120, 2130, 2131, 2132, 2133
	P-Group: Commands	Units group: TIME_M6	Unit selection: -
	Min	Max	Factory setting
	0.00 [µs]	5000.00 [µs]	4000.00 [µs]

**Description:**

Sets the sampling time for the inputs and outputs.

**Dependency:**

The parameter can only be modified for p0009 = 3, 29.

The sampling times can only be set as an integer multiple of the basic sampling time (p0110, p0111).

Refer to: p0009, p0110, p0111

**Note:**

The modified sampling time is not effective until the drive unit is powered-up again.

---

<b>p0806</b>	<b>BI: Inhibit master control</b>		
A_INF, SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to block the master control.

**Dependency:**

Refer to: r0807

**Note:**

The master control is used from the commissioning software (drive control panel) and from the advanced operator panel (AOP, local mode).

---

<b>r0807</b>	<b>BO: Master control active</b>		
A_INF, SERVO	Can be changed: -		Access level: 2
	Data type: Unsigned8	Data set: -	Function diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays what has the master control.

The drive can be controlled via the BICO interconnection or from external (e.g. the commissioning software).

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Master control active	No	Yes	5030

**Dependency:**

Refer to: p0806

**Note:**

Bit 0 = 0: BICO interconnection active

Bit 0 = 1: Master control for PC/AOP

The master control is used from the commissioning software (drive control panel) and from the advanced operator panel (AOP, local mode).

---

<b>p0809[0...2]</b>	<b>Copy command data set CDS</b>		
A_INF, SERVO	Can be changed: T		Access level: 2
	Data type: Unsigned8	Data set: -	Function diagram: 8560
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	15	0

**Description:**

Copies one command data set (CDS) into another.

**Index:**

[0] = Source Command Data Set

[1] = Target command data set

[2] = Start copying

**Note:**

Procedure:

1. In Index 0, enter which command data set should be copied.

2. In Index 1, enter the command data set that is to be copied into.

3. Start copying: Set index 2 from 0 to 1.

p0809[2] is automatically set to 0 when copying is completed.

---

<b>p0810</b>	<b>BI: Command data set selection CDS bit 0</b>		
A_INF	Can be changed: T		Access level:
	Data type: Unsigned32	Data set: -	Function diagram: 8560

P-Group: Commands	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	0

**Description:**

Sets the signal source to select the command data set bit 0 (CDS bit 0).

**Dependency:**

Refer to: r0050, p0811, p0812, p0813, r0836

**Note:**

Command data sets are selected using the binector inputs p0810, p0811, p0812 and p0813.

For a command data set, selected using the binector inputs, is displayed in r0836.

The currently effective command data set is displayed in r0050.

A command data set can be copied using p0809.

**p0811****BI: Command data set selection CDS bit 1**

A\_INF

Can be changed: T

Access level:

Data type: Unsigned32

Data set: -

Function diagram: 8560

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source to select the command data set bit 1 (CDS bit 1).

**Dependency:**

Refer to: r0050, p0810, p0812, p0813, r0836

**Note:**

Command data sets are selected using the binector inputs p0810, p0811, p0812 and p0813.

For a command data set, selected using the binector inputs, is displayed in r0836.

The currently effective command data set is displayed in r0050.

A command data set can be copied using p0809.

**p0812****BI: Command data set selection CDS bit 2**

A\_INF

Can be changed: T

Access level:

Data type: Unsigned32

Data set: -

Function diagram: 8560

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source to select the command data set bit 2 (CDS bit 2).

**Dependency:**

Refer to: r0050, p0810, p0811, p0813, r0836

**Note:**

Command data sets are selected using the binector inputs p0810, p0811, p0812 and p0813.

For a command data set, selected using the binector inputs, is displayed in r0836.

The currently effective command data set is displayed in r0050.

A command data set can be copied using p0809.

<b>p0813</b>	<b>BI: Command data set selection CDS bit 3</b>		
A_INF	Can be changed: T	Access level:	
	Data type: Unsigned32	Data set: -	Function diagram: 8560
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to select the command data set bit 3 (CDS bit 3).

**Dependency:**

Refer to: r0050, p0810, p0811, p0812, r0836

**Note:**

Command data sets are selected using the binector inputs p0810, p0811, p0812 and p0813.

For a command data set, selected using the binector inputs, is displayed in r0836.

The currently effective command data set is displayed in r0050.

A command data set can be copied using p0809.

<b>p0819[0...2]</b>	<b>Copy drive data set DDS</b>		
SERVO	Can be changed: C2(15)	Access level: 2	
	Data type: Unsigned8	Data set: -	Function diagram: 8565
	P-Group: Data sets	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	31	[0] 0
			[1] 0
			[2] 0

**Description:**

Copies a drive data set (DDS) into another.

**Index:**

[0] = Source drive data set

[1] = Target drive data set

[2] = Start copying

**Note:**

Procedure:

1. In Index 0, enter which drive data set is to be copied.

2. In Index 1, enter the drive data set data that is to be copied into.

3. Start copying: Set index 2 from 0 to 1.

p0819[2] is automatically set to 0 when copying is completed.

---

<b>p0820[0...n]</b>	<b>BI: Drive data set selection DDS bit 0</b>		
SERVO	Can be changed: C2(15), T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 8565
	P-Group: Data sets	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to select the drive data set, bit 0 (DDS, bit 0).

**Dependency:**

Refer to: r0051, r0837

---

<b>p0821[0...n]</b>	<b>BI: Drive data set selection DDS bit 1</b>		
SERVO	Can be changed: C2(15), T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 8565
	P-Group: Data sets	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to select the drive data set, bit 1 (DDS, bit 1).

**Dependency:**

Refer to: r0051, r0837

---

<b>p0822[0...n]</b>	<b>BI: Drive data set selection DDS bit 2</b>		
SERVO	Can be changed: C2(15), T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 8565

P-Group: Data sets	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	0

**Description:**

Sets the signal source to select the drive data set, bit 2 (DDS, bit 2).

**Dependency:**

Refer to: r0051, r0837

---

<b>p0823[0...n]</b>	<b>BI: Drive data set selection DDS bit 3</b>	
SERVO	Can be changed: C2(15), T	Access level: 3
	Data type: Unsigned32	Data set: CDS
	P-Group: Data sets	Units group: -
	Min	Max
	-	-
		Factory setting
		0

**Description:**

Sets the signal source to select the drive data set, bit 3 (DDS, bit 3).

**Dependency:**

Refer to: r0051, r0837

---

<b>p0824[0...n]</b>	<b>BI: Drive data set selection DDS bit 4</b>	
SERVO	Can be changed: C2(15), T	Access level: 3
	Data type: Unsigned32	Data set: CDS
	P-Group: Data sets	Units group: -
	Min	Max
	-	-
		Factory setting
		0

**Description:**

Sets the signal source to select the drive data set, bit 4 (DDS, bit 4).

**Dependency:**

Refer to: r0051, r0837

---

<b>p0826[0...n]</b>	<b>Motor changeover, motor number</b>	
SERVO	Can be changed: C2(1, 3), U	Access level: 2
	Data type: Unsigned16	Data set: MDS
	P-Group: Motor	Units group: -
	Min	Max
	0	15
		Factory setting
		0

**Description:**

Sets the freely-assignable motor number for the motor changeover.

**Note:**

When the motor data sets are changed-over, the following applies:

The same motor number signifies the same thermal model.

<b>p0827[0...n]</b>	<b>Motor changeover status word bit number</b>		
SERVO	Can be changed: C2(3), U		Access level: 2
	Data type: Unsigned16	Data set: MDS	Function diagram: 8575
	P-Group: Motor	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	15	0

**Description:**

Sets the bit number for every motor data set.

Example:

p0827[0] = 0: For MDS0, r0830.0 is switched.

p0827[1] = 5: For MDS1, r0830.5 is switched.

**Dependency:**

Refer to: r0830

**Note:**

A motor is only changed over (a new motor selected) after the pulses have been cancelled.

When the motor data sets are changed-over, the following applies:

Bit numbers that are not identical, signify that the motor must be changed over.

<b>p0828[0...n]</b>	<b>BI: Motor changeover, feedback signal</b>		
SERVO	Can be changed: C2(15), T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 8575
	P-Group: Data sets	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for the feedback signal when changing over the motor.

For p0833.0 = 1 the following applies:

This feedback signal (0/1 edge) is required after a motor changeover to enable the pulses.

**Dependency:**

Refer to: p0833

<b>r0830</b>	<b>CO/BO: Motor changeover, status word</b>
--------------	---



SERVO	Can be changed: -	Access level: 2
	Data type: Unsigned16	Function diagram: 8575
	P-Group: Displays, signals	Unit selection: -
	Min	Factory setting
	-	-

**Description:**

Displays the status word of the motor changeover.

These signals can be connected to digital outputs to change over the motor.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Motor selection, bit 0	Low	High	-
	01	Motor selection, bit 1	Low	High	-
	02	Motor selection, bit 2	Low	High	-
	03	Motor selection, bit 3	Low	High	-
	04	Motor selection, bit 4	Low	High	-
	05	Motor selection, bit 5	Low	High	-
	06	Motor selection, bit 6	Low	High	-
	07	Motor selection, bit 7	Low	High	-
	08	Motor selection, bit 8	Low	High	-
	09	Motor selection, bit 9	Low	High	-
	10	Motor selection, bit 10	Low	High	-
	11	Motor selection, bit 11	Low	High	-
	12	Motor selection, bit 12	Low	High	-
	13	Motor selection, bit 13	Low	High	-
	14	Motor selection, bit 14	Low	High	-
	15	Motor selection, bit 15	Low	High	-

**Dependency:**

Refer to: p0827

---

**p0831[0...15] BI: Motor changeover, contactor feedback**

SERVO	Can be changed: U, T	Access level: 3
	Data type: Unsigned32	Function diagram: 8575
	P-Group: Communications	Unit selection: -
	Min	Factory setting
	-	0

**Description:**

Sets the signal source for the feedback signal of the contactors when changing over motors.

There is a fixed inter-relationship between energizing the contactor and the feedback signal.

Example:

A changeover is to be made between MDS0 (motor 0) and MDS1 (motor 1). The contactors should be switched using bit 4 (contactor 0) and 5 (contactor 1). The changeover should be made with an interconnection of the feedback signal.

Implementation:

MDS0: p0827[0] = 4, interconnect output to switch contactor 0 to r0830.4, p0831[4] = "input, feedback signal, contactor 0"

MDS1: p0827[1] = 5, interconnect output to switch contactor 1 to r0830.5, p0831[5] = "input, feedback signal, contactor 1"

The following sequence applies when changing over from MDS0 to MDS1:

1. The status bit p0830.4 is deleted. When the feedback signal (p0831[4]) is connected, the system waits until the feedback signal "contactor open" is displayed. If the feedback signal is not connected, then the system waits for the switch-off interlocking time of 320 ms.
2. The status bit p0830.5 is set. If the feedback signal (p0831[5]) is connected, the system waits until the feedback signal "contactor closed" is displayed. If the feedback signal is not connected, then the system waits for the switch- on interlocking time of 160 ms.

**Index:**

- [0] = Feedback signal, contactor 0
- [1] = Feedback signal, contactor 1
- [2] = Feedback signal, contactor 2
- [3] = Feedback signal, contactor 3
- [4] = Feedback signal, contactor 4
- [5] = Feedback signal, contactor 5
- [6] = Feedback signal, contactor 6
- [7] = Feedback signal, contactor 7
- [8] = Feedback signal, contactor 8
- [9] = Feedback signal, contactor 9
- [10] = Feedback signal, contactor 10
- [11] = Feedback signal, contactor 11
- [12] = Feedback signal, contactor 12
- [13] = Feedback signal, contactor 13
- [14] = Feedback signal, contactor 14
- [15] = Feedback signal, contactor 15

<b>r0832</b>	<b>CO/BO: Mot. changeover, contactor feedback sig. status word</b>		
SERVO	Can be changed: -		Access level: 2
	Data type: Unsigned32	Data set: -	Function diagram: 8575
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Min	Max	Factory setting

**Description:**

Displays the status word of the contactor feedback signals when changing over a motor.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Feedback signal, contactor 0	Opened	Closed	-
	01	Feedback signal, contactor 1	Opened	Closed	-
	02	Feedback signal, contactor 2	Opened	Closed	-
	03	Feedback signal, contactor 3	Opened	Closed	-
	04	Feedback signal, contactor 4	Opened	Closed	-
	05	Feedback signal, contactor 5	Opened	Closed	-
	06	Feedback signal, contactor 6	Opened	Closed	-
	07	Feedback signal, contactor 7	Opened	Closed	-
	08	Feedback signal, contactor 8	Opened	Closed	-
	09	Feedback signal, contactor 9	Opened	Closed	-
	10	Feedback signal, contactor 10	Opened	Closed	-
	11	Feedback signal, contactor 11	Opened	Closed	-
	12	Feedback signal, contactor 12	Opened	Closed	-
	13	Feedback signal, contactor 13	Opened	Closed	-
	14	Feedback signal, contactor 14	Opened	Closed	-
	15	Feedback signal, contactor 15	Opened	Closed	-

**Dependency:**

Refer to: p0831

<b>p0833</b>	<b>Motor changeover, configuration</b>		
SERVO	Can be changed: C2(3), U		Access level: 2
	Data type: Unsigned16	Data set: -	Function diagram: 8575
	P-Group: Motor	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	3	0

**Description:**

Sets the configuration for the motor changeover.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Contactor changeover from the application/ drive	Drive	application	-
	01	Pulse cancellation by application/drive	Drive	application	-

**Note:**

For VECTOR, the following applies:

The "flying restart" function should be activated (p1200) when changing-over to a motor that is already running.

---

<b>r0835</b>	<b>CO/BO: Motor data set changeover status word</b>		
SERVO	Can be changed: -		Access level: 2
	Data type: Unsigned16	Data set: -	Function diagram: 8575
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the status word for the motor data set changeover.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Motor data set changeover active	Not active	active	8575

---

<b>r0836</b>	<b>CO/BO: Command data set CDS selected</b>		
A_INF, SERVO	Can be changed: -		Access level: 2
	Data type: Unsigned8	Data set: -	Function diagram: 1530, 8560
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the command data set (CDS) selected using p0810 ... p0813.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	CDS select. bit 0	Off	On	-
	01	CDS select. bit 1	Off	On	-
	02	CDS select. bit 2	Off	On	-
	03	CDS select. bit 3	Off	On	-

**Dependency:**

Refer to: r0050, p0810, p0811, p0812, p0813

**Note:**

The currently effective command data set is displayed in r0050.

---

<b>r0837</b>	<b>CO/BO: Drive data set DDS selected</b>		
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SERVO	Can be changed: -	Access level: 2
	Data type: Unsigned8	Function diagram: 8565
	P-Group: Displays, signals	Unit selection: -
	Min	Factory setting
	-	-

**Description:**

Displays the drive data set (DDS) selected using p0820 ... p0824.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	DDS select. bit 0	Off	On	-
	01	DDS select. bit 1	Off	On	-
	02	DDS select. bit 2	Off	On	-
	03	DDS select. bit 3	Off	On	-
	04	DDS select. bit 4	Off	On	-

**Dependency:**

Refer to: r0051, p0820, p0821, p0822, p0823, p0824

---

**r0838[0...3] Motor/encoder data set selected**

SERVO	Can be changed: -	Access level: 2
	Data type: Unsigned8	Function diagram: 8565
	P-Group: Displays, signals	Unit selection: -
	Min	Factory setting
	-	-

**Description:**

Displays the selected motor data set (MDS) and the selected encoder data sets (EDS).

**Index:**

- [0] = Motor data set MDS selected
- [1] = Encoder 1 encoder data set EDS selected
- [2] = Encoder 2 encoder data set EDS selected
- [3] = Encoder 3 encoder data set EDS selected

**Dependency:**

Refer to: r0049, p0186, p0187, p0188, p0189

**Note:**

Value 99 means: No encoder assigned (not configured).

---

**p0840[0...n] BI: ON/OFF1**

A_INF, SERVO	Can be changed: T	Access level: 3
	Data type: Unsigned32	Function diagram: 2501, 8720,
		Data set: CDS

P-Group: Commands	Units group: -	8920
Min	Max	Unit selection: -
-	-	Factory setting
		0

**Description:**

Sets the signal source for control word 1 bit 0 (ON/OFF1).

**Recommendation:**

When the signal source is set, this does not trigger a response - but only a signal change of the source.

**Note:**

For drives with closed-loop speed control (p1300 = 20, 21), the following applies:

Bit 0 = 0: OFF1 (braking with the ramp-function generator, then pulse cancellation and power-on inhibit)

For drives with closed-loop torque control (p1300 = 22, 23), the following applies:

Bit 0 = 0: Immediate pulse cancellation

For drives with closed-loop torque control (activated using p1501), the following applies:

Bit 0 = 0: No dedicated braking response, but pulse cancellation when standstill is detected (p1226, p1227)

For drives with closed-loop speed/torque control, the following applies:

Bit 0 = 0/1: ON (pulses can be enabled)

For active infeeds (active line module and smart line module) the following applies:

Bit 0 = 0: OFF1 (reduce Vdc along the ramp, then pulse cancellation and pre-charging contactor/line contactor open)

Bit 0 = 0/1: ON (pre-charging contactor/line contactor closed, pulses can be enabled)

For passive infeed units (basic line module) the following applies:

Bit 0 = 0: OFF1 (pre-charging contactor/line contactor open)

Bit 0 = 0/1: ON (pre-charging contactor/line contactor closed)

r0863.1 of a drive can also be selected as signal source.

**p0844[0...n]**

A\_INF, SERVO

**BI: 1. OFF2**

Can be changed: T

Data type: Unsigned32

Data set: CDS

Access level: 3

Function diagram: 2501, 8720, 8920

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

1

**Description:**

Sets the signal source for the 1st OC/OFF2.

The AND logic operation of the 1st OC/OFF2 and 2nd OC/OFF2 results in control word 1, bit 1 (OC/OFF2).

**Note:**

For drives, the following applies:

Bit 1 = 0: OFF2 (immediate pulse cancellation and power-on inhibit)

Bit 1 = 1: No OFF2 (enable is possible)

For infeed units, the following applies:

Bit 1 = 0: OFF2 (immediate pulse cancellation for active infeed modules and smart line modules, pre-charging contactor/line contactor open and power-on inhibit)

Bit 1 = 1: No OFF2 (enable is possible)

OC: Operating condition

<b>p0845[0...n]</b>	<b>BI: 2. OFF2</b>		
A_INF, SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 2501, 8720, 8920
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	1

**Description:**

Sets the signal source for the 2nd OC/OFF2.

The AND logic operation of the 1st OC/OFF2 and 2nd OC/OFF2 results in control word 1, bit 1 (OC/OFF2).

**Note:**

For drives, the following applies:

Bit 1 = 0: OFF2 (immediate pulse cancellation and power-on inhibit)

Bit 1 = 1: No OFF2 (enable is possible)

For infeed units, the following applies:

Bit 1 = 0: OFF2 (immediate pulse cancellation for active infeed modules and smart line modules, pre-charging contactor/line contactor open and power-on inhibit)

Bit 1 = 1: No OFF2 (enable is possible)

OC: Operating condition

<b>p0848[0...n]</b>	<b>BI: 1. OFF3</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 2501
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting

- - 1

**Description:**

Sets the signal source for the 1st OC/OFF3.

The AND logic operation of the 1st OC/OFF3 and 2nd OC/OFF3 results in control word 1, bit 2 (OC/OFF3).

**Note:**

Bit 2 = 0: OFF3 (braking along the OFF3 ramp (p1135), then pulse cancellation and power-on inhibit)

Bit 2 = 1: No OFF3 (enable is possible)

OC: Operating condition

**p0849[0...n]****BI: 2. OFF3**

SERVO

Can be changed: T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: 2501

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

1

**Description:**

Sets the signal source for the 2nd OC/OFF3.

The AND logic operation of the 1st OC/OFF3 and 2nd OC/OFF3 results in control word 1, bit 2 (OC/OFF3).

**Note:**

Bit 2 = 0: OFF3 (braking along the OFF3 ramp (p1135), then pulse cancellation and power-on inhibit)

Bit 2 = 1: No OFF3 (enable is possible)

OC: Operating condition

**p0852[0...n]****BI: Enable operation**

A\_INF, SERVO

Can be changed: T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: 2442, 2443, 2501, 8920

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

1

**Description:**

Sets the signal source for control word 1 bit 3 (enable operation)



**Note:**

Bit 3 = 0: Inhibit operation (cancel pulses)

Bit 3 = 1: Enable operation (pulses can be enabled)

---

<b>p0854[0...n]</b>	<b>BI: Master ctrl by PLC</b>		
A_INF, SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 2501, 2442, 2443, 8720, 8920
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	1

**Description:**

Sets the signal source for control word 1 bit 10 (PLC control).

**Note:**

Bit 10 = 0: PLC has no master control

Bit 10 = 1: Master ctrl by PLC

---

<b>p0855[0...n]</b>	<b>BI: Unconditionally release holding brake</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 2701
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for the command "unconditionally open holding brake".

**Dependency:**

Refer to: p0858

**Note:**

The signal via BI: p0858 (unconditionally close holding brake) has higher priority than via BI: p0855 (unconditionally open holding brake).

---

<b>p0856[0...n]</b>	<b>BI: Enable speed controller</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 2501, 2701
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	1

**Description:**

Sets the signal source for the command "enable speed controller" (r0898.12).  
0 signal: Set the I component and speed controller output to zero.  
1 signal: Enable the speed controller.

**Dependency:**

Refer to: r0898

**Note:**

If "enable speed controller" is withdrawn, then if a brake being used, then it is closed.

<b>p0857</b>	<b>Power module monitoring time</b>		
A_INF, SERVO	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 2610, 8932, 8964
	P-Group: Commands	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	100.0 [ms]	60000.0 [ms]	6000.0 [ms]

**Description:**

Sets the monitoring time for the power module.  
The following applies for infeeds and drives:  
The monitoring time is started after an 0/1 edge of the ON/OFF1 command. If the power module does not return a READY signal within the monitoring time, then fault F06000 (infeeds) or F07802 (drives) is output.  
For drives, the following also applies:  
After the pulse enable (operation enabled, p0852), the monitoring time is re-started. If the infeed does not signal ready to the drive within the monitoring time (using BI: p0864 of the drive), then Fault F07840 is output.

**Dependency:**

Refer to: F06000, F07802, F07840, F30027

**Notice:**

The time to pre-charge the DC link is monitored in the power module and cannot be changed. The maximum duration of the pre-charging depends on the power class and the power module design. The monitoring time for the pre- charging is started after the 0/1 edge of the ON/OFF1 command. Fault F30027 is output when the maximum pre-charging duration is exceeded.

**Note:**

The pre-assignment (default) value for p0857 depends on the power class and the design of the power module.

The monitoring time for the ready signal of the power module includes the time to pre-charge the DC link and, if relevant, the de-bounce time of the contactors.

If an excessively low value is entered into p0857, then after enable, this results in a fault.

<b>p0858[0...n]</b>	<b>BI: Unconditionally close holding brake</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Unsigned32	Data set: CDS	Function diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for the command "unconditionally close holding brake".

**Note:**

The signal via BI: p0858 (unconditionally close holding brake) has higher priority than via BI: p0855 (unconditionally open holding brake).

<b>p0860</b>	<b>BI: Line contactor, feedback signal</b>		
A_INF, SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 8734, 8934
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	863.1

**Description:**

Sets the signal source for the feedback signal from the line contactor.

**Recommendation:**

For activated monitoring (BI: p0860 not equal to r0863.1) to control the line line contactor, the signal BO: r0863.1 of the particular drive object should be used.

**Dependency:**

Refer to: p0861, r0863

Refer to: F07300

**Notice:**

The line contactor monitoring is de-activated if the control signal of the particular drive object is set as the signal source for the feedback signal of the line contactor (BI: p0860 = r0863.1).

**Note:**

The state of the line contactor is monitored depending on signal BO: r0863.1.

For activated monitoring (BI: p0860 not equal to r0863.1), fault F07300 is then also output

if the contactor is closed before it is controlled using r0863.1.

---

<b>p0861</b>	<b>Line contactor monitoring time</b>		
A_INF, SERVO	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 8734, 8934
	P-Group: Commands	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0 [ms]	5000 [ms]	100 [ms]

**Description:**

Sets the monitoring time of the line contactor.

This time starts each time that the line contactor switches (r0863.1). If a feedback signal is not received from the line contactor within the time, a message is output.

**Dependency:**

Refer to: p0860, r0863

Refer to: F07300

**Note:**

The monitoring function is disabled for the factory setting of p0860.

---

<b>p0862</b>	<b>Power module ON delay</b>		
A_INF, SERVO	Can be changed: T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 2610, 8932
	P-Group: Commands	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0 [ms]	65000 [ms]	0 [ms]

**Description:**

Sets the delay time for the control command of the power module and a line contactor, if used.

**Note:**

This means that it is possible to realize a shifted (delayed) pre-charging or power-on using a single ON command.

When the infeed units are active, before the line contactor is closed, an offset adjustment of the current measurement is carried-out for a duration of 120 ms (p3491).

---

<b>r0863</b>	<b>CO/BO: Drive coupling status word/control word</b>		
A_INF, SERVO	Can be changed: -		Access level: 2
	Data type: Unsigned16	Data set: -	Function diagram: 1773, 1774
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting

**Description:**

Displays the status and control words of the drive coupling.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Infeed operation	No	Yes	8732, 8932
	01	Energize line contactor	No	Yes	2610, 8734, 8934

**Dependency:**

Refer to: p0864

**Note:**

Bit 0 signals that the infeed is ready.

Bit 1 is used to control an external line contactor.

When transferring the operating message/signal via BO: r0863.0 allows several drives to start (run-up) staggered over time when they are simultaneously powered-up.

To realize this, the following connections/interconnections are required:

Drive 1: BI: p0864 with BO: Interconnect r0863.0 of the infeed

Drive 2: BI: p0864 with BO: Interconnect r0863.0 from drive 1

Drive 3: BI: p0864 with BO: Interconnect r0863.0 from drive 2, etc.

The first drive only transfers the operating signal to the next drive after it has reached its ready condition.

<b>p0864</b>	<b>BI: Infeed operation</b>	
SERVO	Can be changed: T	Access level: 2
	Data type: Unsigned32	Data set: -
		Function diagram: 1773, 1774, 2610
	P-Group: Commands	Units group: -
	Min	Unit selection: -
		Factory setting
	-	0

**Description:**

Sets the signal source for the signal "infeed operation" (BO: r0863.0).

**Dependency:**

Refer to: r0863

**Note:**

The sequence control of a servo/vector drive requires the signal "infeed operation" (BO: r0863.0).

The following applies for an infeed without DRIVE-CLiQ:

For these infeeds, the "ready" signal is available via an output terminal. This signal must be connected to a digital input. The drives supplied from this infeed must use this signal as ready signal (BI: p0864 = digital input).

---

<b>r0896</b>	<b>BO: Parking axis, status word</b>	
SERVO	Can be changed: -	Access level: 2
	Data type: Unsigned8	Data set: -
	P-Group: Displays, signals	Units group: -
	Min	Max
	-	-
		Function diagram: -
		Unit selection: -
		Factory setting

**Description:**

Displays the status word for the "parking axis" function.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Parking axis active	No	Yes	-

**Dependency:**

Refer to: p0897

---

<b>p0897</b>	<b>BI: Parking axis selection</b>	
SERVO	Can be changed: T	Access level: 2
	Data type: Unsigned32	Data set: -
	P-Group: Displays, signals	Units group: -
	Min	Max
	-	-
		Function diagram: -
		Unit selection: -
		Factory setting
		0

**Description:**

Sets the signal source to select the "parking axis" function.

**Dependency:**

Refer to: r0896

**Note:**

After it has been selected the "parking axis" function only becomes active when the pulses are cancelled.

---

<b>r0898</b>	<b>CO/BO: Control word drive object 1</b>	
CU_I	Can be changed: -	Access level: 2
	Data type: Unsigned16	Data set: -
	P-Group: Displays, signals	Units group: -
	Min	Max
		Function diagram: -
		Unit selection: -
		Factory setting

**Description:**

Displays the control word of drive object 1 (control unit).

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Synchronization signal SYN	No	Yes	-
	01	Real time synchronization PING	No	Yes	-
	07	Acknowledge fault	No	Yes	-
	12	Master sign-of-life bit 0	No	Yes	-
	13	Master sign-of-life bit 1	No	Yes	-
	14	Master sign-of-life bit 2	No	Yes	-
	15	Master sign-of-life bit 3	No	Yes	-

---

**r0898 CO/BO: Control word sequence control infeed**

A_INF	Can be changed: -		Access level: 2
	Data type: Unsigned16	Data set: -	Function diagram: 1530, 8920
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays control word 1 of the infeed.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	ON/OFF1	No	Yes	-
	01	OC / OFF2	No	Yes	-
	03	Enable operation	No	Yes	-
	05	Inhibit motoring operation	No	Yes	-
	06	Inhibit regenerating	No	Yes	-
	10	Master ctrl by PLC	No	Yes	-

**Note:**

OC: Operating condition

---

**r0898 CO/BO: Control word sequence control**

SERVO	Can be changed: -		Access level: 2
	Data type: Unsigned16	Data set: -	Function diagram: 1530, 2501
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Min	Max	Factory setting

- - -

**Description:**

Displays the control word for the sequence control.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	ON/OFF1	No	Yes	-
	01	OC / OFF2	No	Yes	-
	02	OC / OFF3	No	Yes	-
	03	Enable operation	No	Yes	-
	04	Enables the ramp-function generator	No	Yes	-
	05	Freeze ramp-function generator	Yes	No	-
	06	Enable speed setpoint	No	Yes	-
	07	Command, open brake	No	Yes	-
	08	Jog 1	No	Yes	-
	09	Jog 2	No	Yes	-
	10	Master ctrl by PLC	No	Yes	-
	12	Speed controller enable	No	Yes	-

**r0899****CO/BO: Status word drive object 1**

CU\_I

Can be changed: -

Access level: 2

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Displays, signals

Units group: -

Unit selection: -

Min

Max

Factory setting

- - -

**Description:**

Displays the status word from drive object 1 (control unit).

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	03	Fault present	No	Yes	-
	07	Alarm present	No	Yes	-
	08	System time synchronized	No	Yes	-
	12	Slave sign-of-life bit 0	No	Yes	-
	13	Slave sign-of-life bit 1	No	Yes	-
	14	Slave sign-of-life bit 2	No	Yes	-
	15	Slave sign-of-life bit 3	No	Yes	-

**r0899****CO/BO: Status word sequence control infeed**

A\_INF

Can be changed: -

Access level: 2



Data type: Unsigned16	Data set: -	Function diagram: 1530, 8926
P-Group: Displays, signals	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	-

**Description:**

Displays the status word of the infeed sequence control.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Ready to power up	No	Yes	-
	01	Ready	No	Yes	-
	02	Operation enabled	No	Yes	-
	04	No OFF2 active	OFF2 active	OFF2 inactive	-
	06	Power-on inhibit	No	Yes	-
	09	Control from PLC	No	Yes	-
	11	Pre-charging compl	No	Yes	-
	12	Line contactor closed	No	Yes	8934

**Note:**

Re bit 12:

The feedback signal of a line contactor (auxiliary contact) can be interconnected via BI: p0860.

---

<b>r0899</b>	<b>CO/BO: Status word sequence control</b>	
SERVO	Can be changed: -	Access level: 2
	Data type: Unsigned16	Data set: -
	P-Group: Displays, signals	Units group: -
	Min	Max
	-	-

**Description:**

Displays the status word of the sequence control.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Ready to power up	No	Yes	-
	01	Ready	No	Yes	-
	02	Operation enabled	No	Yes	-
	03	Jog active	No	Yes	-
	04	No coasting active	OFF2 active	OFF2 inactive	-
	05	No fast stop active	OFF3 active	OFF3 inactive	-

06	Power-on inhibit active	No	Yes	-
09	Control from PLC	No	Yes	-
11	Pulses enabled	No	Yes	-
12	Holding brake open	No	Yes	-
13	Command, close holding brake	No	Yes	-
14	Pulse enable from the brake control	No	Yes	-
15	Setpoint enable from the brake control	No	Yes	-

**Note:**

Re bit 0, 1, 2, 4, 5, 6, 9:

For PROFIdrive, these signals are used for status word 1.

Re bit 13:

When the "safe brake control" (SBC) is activated and selected, the brake is no longer controlled using this signal.

Re bit 14, 15:

These signals are only of significance when the "extended brake control" function module is activated (r0108.14 = 1).

**p0918****PROFIBUS address**

CU\_I

Can be changed: T

Access level: 2

Data type: Unsigned16

Data set: -

Function diagram: 1520, 2410

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

1

126

126

**Description:**

Displays or sets the PROFIBUS address for PROFIBUS interface X126 on the control unit. The address can be set as follows:

1) Using the DIP power-up the control unit.

--> p0918 can then only be read and displays the selected address.

--> A change only becomes effective after a POWER ON.

2) Using p0918

--> only if all of the DIP switches - from S1 to S7 - are either set to ON or OFF.

--> A change only becomes effective after save and POWER ON.

**Note:**

Permissible PROFIBUS addresses: 1 ... 126

Address 126 is intended for commissioning.

Every PROFIBUS address change only becomes effective after a POWER ON.

<b>p0922</b>	<b>PROFIBUS PZD telegram selection</b>	
CU_I	Can be changed: C2(1), T	Access level: 1
	Data type: Unsigned16	Data set: -
	P-Group: Communications	Function diagram: -
	Units group: -	Unit selection: -
	Min	Max
	390	999
		Factory setting
		999

**Description:**

Sets the send and receive telegram for PROFIBUS.

Either standard telegrams according to PROFIdrive can be selected or a telegram can be freely configured.

**Values:**

390: SIEMENS telegram 390 for the control unit

391: SIEMENS telegram 391 for the control unit

999: Free telegram configuration with BICO

<b>p0922</b>	<b>PROFIBUS PZD telegram selection</b>	
A_INF	Can be changed: C2(1), T	Access level: 1
	Data type: Unsigned16	Data set: -
	P-Group: Communications	Function diagram: 1520, 2420, 2460, 2470
	Units group: -	Unit selection: -
	Min	Max
	370	999
		Factory setting
		999

**Description:**

Sets the send and receive telegram for PROFIBUS.

Either a manufacturer-specific telegram 370 can be selected or a telegram can be freely configured.

**Values:**

370: SIEMENS telegram 370 for the infeed

999: Free telegram configuration with BICO

**Dependency:**

Refer to: F01505, F01506

**Note:**

If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited.

The inhibited interconnections can only be changed again if a value of 999 was set.

<b>p0922</b>	<b>PROFIBUS PZD telegram selection</b>	
SERVO	Can be changed: C2(1), T	Access level: 1

Data type: Unsigned16	Data set: -	Function diagram: 1520, 2420, 2460, 2470
P-Group: Communications	Units group: -	Unit selection: -
Min	Max	Factory setting
2	999	999

**Description:**

Sets the send and receive telegram for PROFIBUS.

Either standard telegrams according to PROFIdrive, manufacturer-specified telegrams or telegrams that can be freely configured can be selected.

**Values:**

2:	Standard telegram 2
3:	Standard telegram 3
4:	Standard telegram 4
5:	Standard telegram 5
6:	Standard telegram 6
102:	SIEMENS telegram 102
103:	SIEMENS telegram 103
105:	SIEMENS telegram 105
106:	SIEMENS telegram 106
116:	SIEMENS telegram 116
999:	Free telegram configuration with BICO

**Dependency:**

Refer to: p2038

Refer to: F01505, F01506

**Note:**

For p0922 = 100 ... 199, p2038 is automatically set to 1 and p2038 can no longer be changed. This means that for these telegrams, the "SIMODRIVE 611 universal" interface mode is set and cannot be changed.

If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited.

The inhibited interconnections can only be changed again if a value of 999 was set.

**p0925****PROFIBUS clock synchronous sign-of-life tolerance**

CU\_I, SERVO

Can be changed: U, T

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 2410

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

0

65535

1

**Description:**

Number of tolerated consecutive sign-of-life errors of the clock synchronous PROFIBUS

master. The sign-of-life signal is normally received in PZD4 (control word 2) from the master.

**Dependency:**

Refer to: p2045, r2065

Refer to: F01912

**Note:**

The sign-of-life monitoring is disabled for p0925 = 65535.

<b>r0930</b>	<b>PROFIBUS operating mode</b>		
SERVO	Can be changed: -	Access level: 3	
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
	<b>Description:</b> Displays the operating mode. 1: Closed-loop speed controlled operation with ramp-function generator 3: Closed-loop speed controlled operation without ramp-function generator		

---

<b>r0944</b>	<b>Counter for fault buffer changes</b>		
All objects	Can be changed: -	Access level: 2	
	Data type: Unsigned16	Data set: -	Function diagram: 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
	<b>Description:</b> Displays fault buffer changes. This counter is incremented every time the fault buffer changes. <b>Recommendation:</b> Used to check whether the fault buffer has been read out consistently. <b>Dependency:</b> Refer to: r0945, r0947, r0948, r0949, r2109		

---

<b>r0945[0...63]</b>	<b>Fault code</b>		
All objects	Can be changed: -	Access level: 2	
	Data type: Unsigned16	Data set: -	Function diagram: 1750, 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the numbers of faults that have occurred.

**Dependency:**

Refer to: r0947, r0948, r0949, r2109, r2130, r2133, r2136

**Note:**

Fault buffer structure (general principle):

r0945[0], r0949[0], r0948[0], r2109[0] --> actual fault case, fault 1

...

r0945[7], r0949[7], r0948[7], r2109[7] --> actual fault case, fault 8

r0945[8], r0949[8], r0948[8], r2109[8] --> 1st acknowledged fault case, fault 1

...

r0945[15], r0949[15], r0948[15], r2109[15] --> 1st acknowledged fault case, fault 8

...

r0945[56], r0949[56], r0948[56], r2109[56] --> 7th acknowledged fault case, fault 1

...

r0945[63], r0949[63], r0948[63], r2109[63] --> 7th acknowledged fault case, fault 8

---

**r0946[0...65534] Fault code list**

All objects	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Lists the fault codes stored in the drive unit.

The indices can only be accessed with a valid fault code.

**Dependency:**

The parameter assigned to the fault code is entered in r0951 under the same index.

Refer to: r0951

---

**r0947[0...63] Fault number**

All objects	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: 1750, 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

This parameter is identical to r0945.

---

<b>r0948[0...63]</b>	<b>Fault time received in milliseconds</b>		
All objects	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 1750, 8060
	P-Group: Messages	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	- [ms]	- [ms]	- [ms]

**Description:**

Displays the system runtime in milliseconds when the fault occurred.

**Dependency:**

Refer to: r0945, r0947, r0949, r2109, r2114, r2130, r2133, r2136

---

<b>r0949[0...63]</b>	<b>Fault value</b>		
All objects	Can be changed: -		Access level: 3
	Data type: Integer32	Data set: -	Function diagram: 1750, 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays additional information about the fault that occurred (as integer number).

**Dependency:**

Refer to: r0945, r0947, r0948, r2109, r2130, r2133, r2136

---

<b>r0951[0...65534]</b>	<b>Fault number list</b>		
All objects	Can be changed: -		Access level: 4
	Data type: Unsigned16	Data set: -	Function diagram: 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Lists parameters assigned to a fault.

**Dependency:**

Refer to: r0946

---

<b>p0952</b>	<b>Fault cases, counter</b>		
All objects	Can be changed: U, T		Access level: 3

Data type: Unsigned16	Data set: -	Function diagram: 1710, 8060
P-Group: Messages	Units group: -	Unit selection: -
Min	Max	Factory setting
0	65535	0

**Description:**

Number of fault situations that have occurred since the last reset.

**Dependency:**

The fault buffer is deleted (cleared) by setting p0952 to 0.

Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136

**r0964[0...6]****Device identification**

CU\_I

Can be changed: -

Access level: 2

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the device identification.

**Index:**

[0] = Company (Siemens = 42)

[1] = Device type

[2] = Firmware version

[3] = Firmware date (year)

[4] = Firmware date (day/month)

[5] = Number of drive objects

[6] = Firmware patch/hot fix

**Note:**

Example:

r0964[0] = 42 --> SIEMENS

r0964[1] = 5000 --> SINAMICS S CU320

r0964[1] = 5200 --> SINAMICS G CU320

r0964[2] = 102 --> first part of the firmware version V01.02 (second part, refer under index 6)

r0964[3] = 2003 --> year 2003

r0964[4] = 1401 --> 14th of January

r0964[5] = 4 --> 4 drive objects

r0964[6] = 600 --> second part, firmware version (complete version: V01.02.06.00)



## 3.2 Parameters p0969 to p1461

<b>p0969</b>	<b>System runtime relative</b>		
CU_I	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 1750, 8060
	P-Group: Displays, signals	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0 [ms]	4294967295 [ms]	0 [ms]

### Description:

Displays the system runtime in ms since the last POWER ON.

### Note:

The value in p0969 can only be reset to 0.

The value overflows after approx. 49 days.

<b>p0970</b>	<b>Reset infeed parameter</b>		
A_INF	Can be changed: C2(30)		Access level: 2
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Factory settings	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	100	0

### Description:

The parameter is used to initiate that the parameters of an individual infeed unit are reset.

The parameters of the basic commissioning (refer to p0009) are in this case not reset (p0107, p0108, p0121, p0170). These can only be reset using the factory setting of the complete drive unit (p0976).

The sampling times (p0111, p0112, p0115) are only not reset if this results in a conflict with the basic clock cycle (p0110).

### Values:

- 0: not active
- 1: Starts a parameter reset
- 100: Starts a BICO interconnection reset

### Note:

A factory setting run can only be started if p0010 was first set to 30 (parameter reset).

At the end of the calculations, p0970 is automatically set to 0.

<b>p0970</b>	<b>Reset drive parameters</b>		
SERVO	Can be changed: C2(30)		Access level: 2

Data type: Unsigned16	Data set: -	Function diagram: -
P-Group: Factory settings	Units group: -	Unit selection: -
Min	Max	Factory setting
0	100	0

**Description:**

The parameter is used to initiate that the parameters of an individual drive unit are reset.

Parameters p0100, p0205 (only for VECTOR) and the parameters of the basic drive commissioning (p0009) are not reset (p0107, p0108, p0111, p0112, p0115, p0121, p0130, p0131, p0140, p0141, p0142, p0170, p0186 ... p0189). These can only be reset using the factory setting of the complete drive unit (p0976).

**Values:**

0:	not active
1:	Starts a parameter reset
100:	Starts a BICO interconnection reset

**Note:**

A factory setting run can only be started if p0010 was first set to 30 (parameter reset).

At the end of the calculations, p0970 is automatically set to 0.

**p0971****Save drive object parameters**

All objects

Can be changed: U, T	Access level: 1
Data type: Unsigned16	Function diagram: -
P-Group: Displays, signals	Unit selection: -
Min	Factory setting
0	0
	1

**Description:**

Saves the parameters of the particular drive object in the non-volatile memory (CompactFlash Card).

**Values:**

0:	not active
1:	Save drive object

**Dependency:**

Refer to: p0977

**Caution:**

The control unit power supply may only be powered-down after data has been saved (i.e. after data save has been started, wait until the parameter again has the value 0).

**Note:**

Starting from the particular drive object, the following parameters are saved:

CU3xx: Device-specific parameters and PROFIBUS device parameters.

Other objects: Parameters of the actual object and PROFIBUS device parameters.

<b>r0975[0...10]</b>	<b>Drive object identification</b>		
All objects	Can be changed: -		Access level: 2
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Displays the identification of the drive object.			
<b>Index:</b>			
[0] = Company (Siemens = 42)			
[1] = Drive object type			
[2] = Firmware version			
[3] = Firmware date (year)			
[4] = Firmware date (day/month)			
[5] = PROFIdrive drive object, type class			
[6] = PROFIdrive drive object, sub-type Class 1			
[7] = Reserved			
[8] = Reserved			
[9] = Reserved			
[10] = Firmware patch/hot fix			
<b>Note:</b>			
Example:			
r0975[0] = 42 --> SIEMENS			
r0975[1] = 11 --> SERVO drive object type			
r0975[2] = 102 --> first part, firmware version V01.02 (second part, refer to index 10)			
r0975[3] = 2003 --> year 2003			
r0975[4] = 1401 --> 14th of January			
r0975[5] = 1 --> PROFIdrive drive object, type class			
r0975[6] = 9 --> PROFIdrive drive object sub-type class 1			
r0975[7] = 0 (reserved)			
r0975[8] = 0 (reserved)			
r0975[9] = 0 (reserved)			
r0975[10] = 600 --> second part, firmware version (complete version: V01.02.06.00)			

<b>p0976</b>	<b>Reset and load all parameters</b>		
CU_I	Can be changed: C1(30)		Access level: 2
	Data type: Unsigned16	Data set: -	Function diagram: -

P-Group: Factory settings	Units group: -	Unit selection: -
Min	Max	Factory setting
0	1013	0

**Description:**

Resets or downloads all parameters of the drive system.

**Values:**

- 0: not active
- 1: Starts to reset all parameters to factory setting
- 2: Starts to download param. saved in non-volatile way w/ p0977 = 1
- 3: Start to download the volatile parameters from RAM
- 10: Starts to download param. saved in non-volatile way w/ p0977=10
- 11: Starts to download param. saved in non-volatile way w/ p0977=11
- 12: Starts to download param. saved in non-volatile way w/ p0977=12
- 20: Starts to download Siemens internal setting 20
- 21: Starts to download Siemens internal setting 21
- 22: Starts to download Siemens internal setting 22
- 23: Starts to download Siemens internal setting 23
- 24: Starts to download Siemens internal setting 24
- 25: Starts to download Siemens internal setting 25
- 26: Starts to download Siemens internal setting 26
- 100: Starts to reset all BICO interconnections
- 1011: Starts to download param. saved in volatile way w/ p0977 = 1011
- 1012: Starts to download param. saved in volatile way w/ p0977 = 1012
- 1013: Starts to download param. saved in volatile way w/ p0977 = 1013

**Note:**

After all of the parameters have been reset to their factory setting, the system must be commissioned for the first time again.

Resetting or loading is realized in the non-volatile memory.

Procedure:

1. Set p0009 = 30 (parameter reset).
  2. Set p0976 to "required value". A new system run-up is started.
- p0009 is automatically set to 0 after this has been carried-out.

**p0977****Save all parameters**

CU\_I

Can be changed: U, T

Access level: 1

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Displays, signals

Units group: -

Unit selection: -

Min

Max

Factory setting

0

1013

0

**Description:**

Saves all parameters of the drive system to the non-volatile memory (CompactFlash Card).

**Values:**

- 0: not active
- 1: Save in non-volatile fashion - downloaded at POWER ON
- 10: Save as opt. in non-vol. fashion - downloaded w/ p0976=10
- 11: Save as opt. in non-vol. fashion - downloaded w/ p0976=11
- 12: Save as opt. in non-vol. fashion - downloaded w/ p0976=12
- 20: Save in a non-volatile fashion as setting 20 (reserved)
- 21: Save in a non-volatile fashion as setting 21 (reserved)
- 22: Save in a non-volatile fashion as setting 22 (reserved)
- 23: Save in a non-volatile fashion as setting 23 (reserved)
- 24: Save in a non-volatile fashion as setting 24 (reserved)
- 25: Save in a non-volatile fashion as setting 25 (reserved)
- 26: Save in a non-volatile fashion as setting 26 (reserved)
- 1011: Save in volatile fashion, loaded with p0976=1011
- 1012: Save in volatile fashion, loaded with p0976=1012
- 1013: Save in volatile fashion, loaded with p0976=1013

**Dependency:**

Refer to: p0976

**Caution:**

The control unit power supply may only be powered-down after data has been saved (i.e. after data save has been started, wait until the parameter again has the value 0).

**Note:**

Parameters saved with p0977 = 10, 11 or 12 can be downloaded again with p0976 = 10, 11 or 12.

p0978[0...15]		List of drive objects	
CU_I	Can be changed: C1(1)		Access level: 2
	Data type: Unsigned8	Data set: -	Function diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	255	[0] 1
			[1] 0
			[2] 0
			[3] 0
			[4] 0
			[5] 0
			[6] 0

[7] 0  
[8] 0  
[9] 0  
[10] 0  
[11] 0  
[12] 0  
[13] 0  
[14] 0  
[15] 0

**Description:**

This parameter is an image of p0101 in conformance with PROFIdrive.

Parameters p0101 and p0978 contain the following information:

- 1) The same number of drive objects
- 2) The same drive objects

In this sense, they are consistent.

Difference between p0101 and p0978:

p0978 can be re-sorted and a zero inserted in order to identify those drive objects that participate in the process data exchange and to define their sequence in the process data exchange. Drive objects that are listed after the first zero, are excluded from the process data exchange.

For p0978, in addition, the value 255 can be inserted a multiple number of times.

p0978[n] = 255 means: The drive object is visible for the PROFIBUS master and is empty (without any actual process data exchange). This allows cyclic communications of a PROFIBUS master with unchanged configuring to the drive units with a lower number of drive objects.

**Dependency:**

Refer to: p0101, p0971, p0977

**Note:**

p0978 cannot be changed when the drive system is first commissioned. The reason for this is that at this time the actual topology has still not been acknowledged (p0099 is still not equal to r0098 and p0009 is set to 0).

**r0979[0...30]****Encoder format PROFIdrive**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 4704

P-Group: Encoder

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the actual position encoder used according to PROFIdrive.

**Index:**

- [0] = Header
- [1] = Type, encoder 1
- [2] = Resolution encod 1
- [3] = Shift factor G1\_XACT1
- [4] = Shift factor G1\_XACT2
- [5] = Distinguishable revolutions encoder 1
- [6] = Reserved
- [7] = Reserved
- [8] = Reserved
- [9] = Reserved
- [10] = Reserved
- [11] = Type, encoder 2
- [12] = Resolution encod 2
- [13] = Shift factor G2\_XACT1
- [14] = Shift factor G2\_XACT2
- [15] = Distinguishable revolutions encoder 2
- [16] = Reserved
- [17] = Reserved
- [18] = Reserved
- [19] = Reserved
- [20] = Reserved
- [21] = Type, encoder 3
- [22] = Resolution encod 3
- [23] = Shift factor G3\_XACT1
- [24] = Shift factor G3\_XACT2
- [25] = Distinguishable revolutions encoder 3
- [26] = Reserved
- [27] = Reserved
- [28] = Reserved
- [29] = Reserved
- [30] = Reserved

**Note:**

Information on the individual indices should be taken from the PROFIdrive Profile Drive Technology.

**r0980[0...99]**

**List of existing parameters 1**

All objects

Can be changed: -

Access level: 4

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min	Max	Factory setting
-	-	-

**Description:**

Displays the parameters that exist for this drive.

**Dependency:**

Refer to: r0981, r0989

**Note:**

The existing parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. In a long list, index 99 contains the parameter number at which position the list continues.

This list completely comprises the following parameters:

r0980[0...99], r0981[0...99] ... r0989[0...99]

The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

---

**r0981[0...99]      List of existing parameters 2**

All objects	Can be changed: -	Access level: 4
	Data type: Unsigned16	Data set: -
	P-Group: -	Function diagram: -
	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	-

**Description:**

Displays the parameters that exist for this drive.

**Dependency:**

Refer to: r0980, r0989

**Note:**

The existing parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. In a long list, index 99 contains the parameter number at which position the list continues.

This list completely comprises the following parameters:

r0980[0...99], r0981[0...99] ... r0989[0...99]

The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

---

**r0989[0...99]      List of existing parameters 10**

All objects	Can be changed: -	Access level: 4
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Data type: Unsigned16	Data set: -	Function diagram: -
P-Group: -	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	-

**Description:**

Displays the parameters that exist for this drive.

**Dependency:**

Refer to: r0980, r0981

**Note:**

The existing parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here.

This list completely comprises the following parameters:

r0980[0...99], r0981[0...99] ... r0989[0...99]

The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

---

**r0990[0...99]**

**List of modified parameters 1**

All objects	Can be changed: -	Access level: 3
	Data type: Unsigned16	Function diagram: -
	P-Group: -	Unit selection: -
	Min	Factory setting
	-	-

**Description:**

Displays those parameters with a value other than the factory setting for this drive.

**Dependency:**

Refer to: r0991, r0999

**Note:**

Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. In a long list, index 99 contains the parameter number at which position the list continues.

This list completely comprises the following parameters:

r0990[0...99], r0991[0...99] ... r0999[0...99]

The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

---

**r0991[0...99]**

**List of modified parameters 2**

All objects	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays those parameters with a value other than the factory setting for this drive.

**Dependency:**

Refer to: r0990, r0999

**Note:**

Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. In a long list, index 99 contains the parameter number at which position the list continues.

This list completely comprises the following parameters:

r0990[0...99], r0991[0...99] ... r0999[0...99]

The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

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**r0999[0...99] List of modified parameters 10**

All objects	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays those parameters with a value other than the factory setting for this drive.

**Dependency:**

Refer to: r0990, r0991

**Note:**

Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here.

This list completely comprises the following parameters:

r0990[0...99], r0991[0...99] ... r0999[0...99]

The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

p1000[0...n]	Macro connector inputs (CI) for speed setpoints		
SERVO	Can be changed: C2(1), T		Access level: 1
	Data type: Unsigned32	Data set: CDS	Function diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	999999	0
<p><b>Description:</b></p> <p>Runs the appropriate ACX file on the CompactFlash Card.</p> <p>The connector inputs (CI) for the speed setpoints of the appropriate command data set (CDS) are appropriately interconnected.</p> <p>The selected ACX file must be located in the following directory:</p> <p>... /PMACROS/&lt;drive object&gt;/P1000/PMxxxxxx.ACX</p> <p>Example:</p> <p>p1000 = 6 --&gt; the file PM000006.ACX is run.</p> <p><b>Dependency:</b></p> <p>The ACX file to be run must be created according to the definition for ACX macros and must be saved in the directory intended on the CompactFlash Card.</p> <p>Refer to: p0015, p0700, p1500, r8572</p> <p><b>Notice:</b></p> <p>No errors were issued during fast commissioning (3900 = 1) when writing to parameters of the QUICK_IBN group!</p> <p><b>Note:</b></p> <p>The macros in the specified directory are displayed in r8572.</p> <p>Macros available as standard are described in the technical documentation of the particular product.</p> <p>CI: Connector input</p>			

p1000[0...n]	Macro connector inputs (CI) for velocity setpoints		
SERVO (Lin)	Can be changed: C2(1), T		Access level: 1
	Data type: Unsigned32	Data set: CDS	Function diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	999999	0

**Description:**

Runs the appropriate ACX file on the CompactFlash Card.

The connector inputs (CI) for the speed setpoints of the appropriate command data set (CDS) are appropriately interconnected.

The selected ACX file must be located in the following directory:

... /PMACROS/<drive object>/P1000/PMxxxxxx.ACX

Example:

p1000 = 6 --> the file PM000006.ACX is run.

**Dependency:**

The ACX file to be run must be created according to the definition for ACX macros and must be saved in the directory intended on the CompactFlash Card.

Refer to: p0015, p0700, p1500, r8572

**Notice:**

No errors were issued during fast commissioning (3900 = 1) when writing to parameters of the QUICK\_IBN group!

**Note:**

The macros in the specified directory are displayed in r8572.

Macros available as standard are described in the technical documentation of the particular product.

CI: Connector input

<b>p1001[0...n]</b>	<b>CO: Fixed speed setpoint 1</b>		
SERVO (Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3010
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	-210000.000 [1/min]	210000.000 [1/min]	0.000 [1/min]
	<b>Description:</b>		
	Sets a value for the fixed speed / velocity setpoint 1.		
	<b>Dependency:</b>		
	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		

<b>p1001[0...n]</b>	<b>CO: Fixed velocity setpoint 1</b>		
SERVO (Lin, Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3010
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	-1000.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 1.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

<b>p1002[0...n]</b>	<b>CO: Fixed speed setpoint 2</b>		
SERVO (Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3010
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	-210000.000 [1/min]	210000.000 [1/min]	0.000 [1/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 2.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

<b>p1002[0...n]</b>	<b>CO: Fixed velocity setpoint 2</b>		
SERVO (Lin, Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3010
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	-1000.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 2.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

<b>p1003[0...n]</b>	<b>CO: Fixed speed setpoint 3</b>		
SERVO (Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3010
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	-210000.000 [1/min]	210000.000 [1/min]	0.000 [1/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 3.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

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<b>p1003[0...n]</b>	<b>CO: Fixed velocity setpoint 3</b>		
SERVO (Lin, Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3010
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	-1000.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 3.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

---

<b>p1004[0...n]</b>	<b>CO: Fixed speed setpoint 4</b>		
SERVO (Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3010
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	-210000.000 [1/min]	210000.000 [1/min]	0.000 [1/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 4.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

---

<b>p1004[0...n]</b>	<b>CO: Fixed velocity setpoint 4</b>		
SERVO (Lin, Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3010
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	-1000.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 4.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

<b>p1005[0...n]</b>	<b>CO: Fixed speed setpoint 5</b>	
SERVO (Extended setp.)	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Setpoints	Units group: SPEED_ROT
	Min	Max
	-210000.000 [1/min]	210000.000 [1/min]
		0.000 [1/min]
	<b>Description:</b> Sets a value for the fixed speed / velocity setpoint 5.	
	<b>Dependency:</b> Refer to: p1020, p1021, p1022, p1023, r1024, r1197	

<b>p1005[0...n]</b>	<b>CO: Fixed velocity setpoint 5</b>	
SERVO (Lin, Extended setp.)	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3
	Min	Max
	-1000.000 [m/min]	1000.000 [m/min]
		0.000 [m/min]
	<b>Description:</b> Sets a value for the fixed speed / velocity setpoint 5.	
	<b>Dependency:</b> Refer to: p1020, p1021, p1022, p1023, r1024, r1197	

<b>p1006[0...n]</b>	<b>CO: Fixed speed setpoint 6</b>	
SERVO (Extended setp.)	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Setpoints	Units group: SPEED_ROT
	Min	Max
	-210000.000 [1/min]	210000.000 [1/min]
		0.000 [1/min]
	<b>Description:</b> Sets a value for the fixed speed / velocity setpoint 6.	
	<b>Dependency:</b> Refer to: p1020, p1021, p1022, p1023, r1024, r1197	

<b>p1006[0...n]</b>	<b>CO: Fixed velocity setpoint 6</b>	
SERVO (Lin,	Can be changed: U, T	Access level: 2

Extended setp.)

Data type: Floating Point	Data set: DDS	Function diagram: 3010
P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
Min	Max	Factory setting
-1000.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 6.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

---

**p1007[0...n] CO: Fixed speed setpoint 7**SERVO (Extended  
setp.)

Can be changed: U, T

Access level: 2

Data type: Floating Point	Data set: DDS	Function diagram: 3010
P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
Min	Max	Factory setting
-210000.000 [1/min]	210000.000 [1/min]	0.000 [1/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 7.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

---

**p1007[0...n] CO: Fixed velocity setpoint 7**SERVO (Lin,  
Extended setp.)

Can be changed: U, T

Access level: 2

Data type: Floating Point	Data set: DDS	Function diagram: 3010
P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
Min	Max	Factory setting
-1000.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 7.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

---

**p1008[0...n] CO: Fixed speed setpoint 8**SERVO (Extended  
setp.)

Can be changed: U, T

Access level: 2

Data type: Floating Point	Data set: DDS	Function diagram: 3010
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P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
Min	Max	Factory setting
-210000.000 [1/min]	210000.000 [1/min]	0.000 [1/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 8.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

---

<b>p1008[0...n]</b>	<b>CO: Fixed velocity setpoint 8</b>	
SERVO (Lin, Extended setp.)	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3
	Min	Max
	-1000.000 [m/min]	1000.000 [m/min]
		Function diagram: 3010
		Unit selection: -
		Factory setting
		0.000 [m/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 8.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

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<b>p1009[0...n]</b>	<b>CO: Fixed speed setpoint 9</b>	
SERVO (Extended setp.)	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Setpoints	Units group: SPEED_ROT
	Min	Max
	-210000.000 [1/min]	210000.000 [1/min]
		Function diagram: 3010
		Unit selection: -
		Factory setting
		0.000 [1/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 9.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

---

<b>p1009[0...n]</b>	<b>CO: Fixed velocity setpoint 9</b>	
SERVO (Lin, Extended setp.)	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3
		Function diagram: 3010
		Unit selection: -

Min	Max	Factory setting
-1000.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 9.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

---

<b>p1010[0...n]</b>	<b>CO: Fixed speed setpoint 10</b>	
SERVO (Extended setp.)	Can be changed: U, T	Access level: 2
Data type: Floating Point	Data set: DDS	Function diagram: 3010
P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
Min	Max	Factory setting
-210000.000 [1/min]	210000.000 [1/min]	0.000 [1/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 10.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

---

<b>p1010[0...n]</b>	<b>CO: Fixed velocity setpoint 10</b>	
SERVO (Lin, Extended setp.)	Can be changed: U, T	Access level: 2
Data type: Floating Point	Data set: DDS	Function diagram: 3010
P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
Min	Max	Factory setting
-1000.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 10.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

---

<b>p1011[0...n]</b>	<b>CO: Fixed speed setpoint 11</b>	
SERVO (Extended setp.)	Can be changed: U, T	Access level: 2
Data type: Floating Point	Data set: DDS	Function diagram: 3010
P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
Min	Max	Factory setting
-210000.000 [1/min]	210000.000 [1/min]	0.000 [1/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 11.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

<b>p1011[0...n]</b>	<b>CO: Fixed velocity setpoint 11</b>		
SERVO (Lin, Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3010
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	-1000.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 11.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

<b>p1012[0...n]</b>	<b>CO: Fixed speed setpoint 12</b>		
SERVO (Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3010
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	-210000.000 [1/min]	210000.000 [1/min]	0.000 [1/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 12.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

<b>p1012[0...n]</b>	<b>CO: Fixed velocity setpoint 12</b>		
SERVO (Lin, Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3010
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	-1000.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 12.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

---

<b>p1013[0...n]</b>	<b>CO: Fixed speed setpoint 13</b>		
SERVO (Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3010
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	-210000.000 [1/min]	210000.000 [1/min]	0.000 [1/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 13.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

---

<b>p1013[0...n]</b>	<b>CO: Fixed velocity setpoint 13</b>		
SERVO (Lin, Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3010
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	-1000.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 13.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

---

<b>p1014[0...n]</b>	<b>CO: Fixed speed setpoint 14</b>		
SERVO (Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3010
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	-210000.000 [1/min]	210000.000 [1/min]	0.000 [1/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 14.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

<b>p1014[0...n]</b>	<b>CO: Fixed velocity setpoint 14</b>		
SERVO (Lin, Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3010
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	-1000.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 14.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

<b>p1015[0...n]</b>	<b>CO: Fixed speed setpoint 15</b>		
SERVO (Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3010
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	-210000.000 [1/min]	210000.000 [1/min]	0.000 [1/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 15.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

<b>p1015[0...n]</b>	<b>CO: Fixed velocity setpoint 15</b>		
SERVO (Lin, Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3010
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	-1000.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets a value for the fixed speed / velocity setpoint 15.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023, r1024, r1197

---

**p1020[0...n] BI: Fixed speed setpoint selection Bit 0**SERVO (Extended  
setp.)

Can be changed: T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: 2505

P-Group: Setpoints

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source to select the speed/velocity fixed setpoint.

**Dependency:**

Selects the required fixed speed setpoint using p1020 ... p1023.

Displays the number of the actual fixed speed setpoint in r1197.

Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015.

Refer to: p1021, p1022, p1023, r1197

**Note:**If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then  
r1024 = 0 (setpoint = 0).

---

**p1020[0...n] BI: Fixed velocity setpoint selection Bit 0**SERVO (Lin,  
Extended setp.)

Can be changed: T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: 2505

P-Group: Setpoints

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source to select the speed/velocity fixed setpoint.

**Dependency:**

Selects the required fixed speed setpoint using p1020 ... p1023.

Displays the number of the actual fixed speed setpoint in r1197.

Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015.

Refer to: p1021, p1022, p1023, r1197

**Note:**If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then  
r1024 = 0 (setpoint = 0).

---

**p1021[0...n] BI: Fixed speed setpoint selection Bit 1**

SERVO (Extended setp.)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 2505
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to select the speed/velocity fixed setpoint.

**Dependency:**

Selects the required fixed speed setpoint using p1020 ... p1023.

Displays the number of the actual fixed speed setpoint in r1197.

Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015.

Refer to: p1020, p1022, p1023, r1197

**Note:**

If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).

---

<b>p1021[0...n]</b>	<b>BI: Fixed velocity setpoint selection Bit 1</b>		
SERVO (Lin, Extended setp.)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 2505
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to select the speed/velocity fixed setpoint.

**Dependency:**

Selects the required fixed speed setpoint using p1020 ... p1023.

Displays the number of the actual fixed speed setpoint in r1197.

Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015.

Refer to: p1020, p1022, p1023, r1197

**Note:**

If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).

---

<b>p1022[0...n]</b>	<b>BI: Fixed speed setpoint selection Bit 2</b>		
SERVO (Extended setp.)	Can be changed: T		Access level: 3

Data type: Unsigned32	Data set: CDS	Function diagram: 2505
P-Group: Setpoints	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	0

**Description:**

Sets the signal source to select the speed/velocity fixed setpoint.

**Dependency:**

Selects the required fixed speed setpoint using p1020 ... p1023.

Displays the number of the actual fixed speed setpoint in r1197.

Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015.

Refer to: p1020, p1021, p1023, r1197

**Note:**

If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then  
r1024 = 0 (setpoint = 0).

**p1022[0...n]****BI: Fixed velocity setpoint selection Bit 2**

SERVO (Lin,  
Extended setp.)

Can be changed: T

Access level: 3

Data type: Unsigned32	Data set: CDS	Function diagram: 2505
P-Group: Setpoints	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	0

**Description:**

Sets the signal source to select the speed/velocity fixed setpoint.

**Dependency:**

Selects the required fixed speed setpoint using p1020 ... p1023.

Displays the number of the actual fixed speed setpoint in r1197.

Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015.

Refer to: p1020, p1021, p1023, r1197

**Note:**

If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then  
r1024 = 0 (setpoint = 0).

**p1023[0...n]****BI: Fixed speed setpoint selection Bit 3**

SERVO (Extended  
setp.)

Can be changed: T

Access level: 3

Data type: Unsigned32	Data set: CDS	Function diagram: 2505
P-Group: Setpoints	Units group: -	Unit selection: -



Min	Max	Factory setting
-	-	0

**Description:**

Sets the signal source to select the speed/velocity fixed setpoint.

**Dependency:**

Selects the required fixed speed setpoint using p1020 ... p1023.

Displays the number of the actual fixed speed setpoint in r1197.

Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015.

Refer to: p1020, p1021, p1022, r1197

**Note:**

If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then  
r1024 = 0 (setpoint = 0).

**p1023[0...n]**

**BI: Fixed velocity setpoint selection Bit 3**

SERVO (Lin,  
Extended setp.)

Can be changed: T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: 2505

P-Group: Setpoints

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source to select the speed/velocity fixed setpoint.

**Dependency:**

Selects the required fixed speed setpoint using p1020 ... p1023.

Displays the number of the actual fixed speed setpoint in r1197.

Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015.

Refer to: p1020, p1021, p1022, r1197

**Note:**

If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then  
r1024 = 0 (setpoint = 0).

**r1024**

**CO: Fixed speed setpoint effective**

SERVO (Extended  
setp.)

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: 1550, 3010

P-Group: Setpoints

Units group: SPEED\_ROT

Unit selection: -

Min

Max

Factory setting

- [1/min]

- [1/min]

- [1/min]

**Description:**

Displays the selected and effective fixed speed/velocity setpoint.

This setpoint is the output value for the fixed speed/velocity setpoints and must be appropriately interconnected (e.g. with the main setpoint).

**Recommendation:**

Interconnect the signal with main setpoint (p1070).

**Dependency:**

Selects the required fixed speed setpoint using p1020 ... p1023.

Displays the number of the actual fixed speed setpoint in r1197.

Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015.

Refer to: p1070, r1197

**Note:**

If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then  
r1024 = 0 (setpoint = 0).

**r1024****CO: Fixed velocity setpoint effective**

SERVO (Lin,  
Extended setp.)

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: 1550, 3010

P-Group: Setpoints

Units group:

Unit selection: -

SPEED\_LIN\_METRIC\_P3

Min

Max

Factory setting

- [m/min]

- [m/min]

- [m/min]

**Description:**

Displays the selected and effective fixed speed/velocity setpoint.

This setpoint is the output value for the fixed speed/velocity setpoints and must be appropriately interconnected (e.g. with the main setpoint).

**Recommendation:**

Interconnect the signal with main setpoint (p1070).

**Dependency:**

Selects the required fixed speed setpoint using p1020 ... p1023.

Displays the number of the actual fixed speed setpoint in r1197.

Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015.

Refer to: p1070, r1197

**Note:**

If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then  
r1024 = 0 (setpoint = 0).

## p1030[0...n] Motorized potentiometer, configuration

SERVO (Extended setp.)

Can be changed: U, T

Access level: 3

Data type: Unsigned16

Data set: DDS

Function diagram: 3020

P-Group: Closed-loop control

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 bin

1111 bin

0110 bin

### Description:

Sets the configuration for the motorized potentiometer.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Data save active	No	Yes	-
	01	Ramp-function generator active	No	Yes	-
	02	Initial rounding-off active	No	Yes	-
	03	Save in NVRAM active	No	Yes	-

### Note:

Re bit 00:

0: The setpoint for the motorized potentiometer is not saved and after ON is entered using p1040.

1: The setpoint for the motorized potentiometer is saved after OFF and after ON set to the saved value. In order to save in a non-volatile fashion, bit 03 should be set to 1.

Re bit 01:

0: Without ramp-function generator in the automatic mode (ramp-up/ramp-down time = 0).

1: With ramp-function generator in the automatic mode.

Re bit 02:

0: Without initial rounding-off

1: With initial rounding-off. The selected ramp-up/down time is correspondingly exceeded. The initial rounding-off is a sensitive way of specifying small changes (progressive reaction when keys are pressed).

The jerk for the initial rounding-off is independent of the ramp-up time and only depends on the selected maximum speed (p1082). It is calculated as follows:

$$r = 0.01 \% * p1082 [1/s] / 0.13^2 [s^2]$$

The jerk acts up until the maximum acceleration is reached ( $a_{max} = p1082 [1/s] / p1047 [s]$ ), and then the drive continues to run linearly with a constant rate of acceleration. The higher the maximum acceleration (the lower that p1047 is), the longer the ramp-up time increases with respect to the set ramp-up time.

Re bit 03:

0: Non-volatile data save de-activated.

1: The setpoint for the motorized potentiometer is saved in a non-volatile fashion (for bit 00 = 1).

The following prerequisites must be fulfilled in order to be able to save the setpoint in a non-volatile fashion:

- Firmware with V2.3 or higher.
- control unit 320 (CU320) with hardware version C or higher (module with NVRAM).

---

<b>p1035[0...n]</b>	<b>BI: Motorized potentiometer, setpoint, raise</b>		
SERVO (Extended setp.)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 2442, 2505
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to increase the setpoint for the motorized potentiometer

**Dependency:**

Refer to: p1036

---

<b>p1036[0...n]</b>	<b>BI: Motorized potentiometer, lower setpoint</b>		
SERVO (Extended setp.)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 2442, 2505
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to reduce the setpoint for the motorized potentiometer.

**Dependency:**

Refer to: p1035

---

<b>p1037[0...n]</b>	<b>Motorized potentiometer, maximum speed</b>		
SERVO (Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3020
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	-210000.000 [1/min]	210000.000 [1/min]	0.000 [1/min]

**Description:**

Sets the maximum speed/velocity for the motorized potentiometer.

**Note:**

This parameter is automatically pre-assigned in the commissioning phase.

The setpoint output from the motorized potentiometer is limited to this value.

---

<b>p1037[0...n]</b>	<b>Motorized potentiometer, maximum velocity</b>		
SERVO (Lin, Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3020
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	-1000.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets the maximum speed/velocity for the motorized potentiometer.

**Note:**

This parameter is automatically pre-assigned in the commissioning phase.

The setpoint output from the motorized potentiometer is limited to this value.

---

<b>p1038[0...n]</b>	<b>Motorized potentiometer, minimum speed</b>		
SERVO (Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3020
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	-210000.000 [1/min]	210000.000 [1/min]	0.000 [1/min]

**Description:**

Sets the minimum speed/velocity for the motorized potentiometer.

**Note:**

This parameter is automatically pre-assigned in the commissioning phase.

The setpoint output from the motorized potentiometer is limited to this value.

---

<b>p1038[0...n]</b>	<b>Motorized potentiometer, minimum velocity</b>		
SERVO (Lin, Extended setp.)	Can be changed: U, T		Access level: 2

Data type: Floating Point	Data set: DDS	Function diagram: 3020
P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
Min	Max	Factory setting
-1000.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets the minimum speed/velocity for the motorized potentiometer.

**Note:**

This parameter is automatically pre-assigned in the commissioning phase.

The setpoint output from the motorized potentiometer is limited to this value.

**p1039[0...n]****BI: Motorized potentiometer, inversion**

SERVO (Extended setp.)

Can be changed: T

Access level: 3

Data type: Unsigned32	Data set: CDS	Function diagram: 3020
P-Group: Setpoints	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	0

**Description:**

Sets the signal source to invert the maximum or minimum speed/velocity for the motorized potentiometer.

**Dependency:**

Refer to: p1037, p1038

**Note:**

The inversion is only active during "motorized potentiometer raise" or "motorized potentiometer lower".

**p1040[0...n]****Motorized potentiometer, starting value**

SERVO (Extended setp.)

Can be changed: U, T

Access level: 2

Data type: Floating Point	Data set: DDS	Function diagram: 3020
P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
Min	Max	Factory setting
-210000.000 [1/min]	210000.000 [1/min]	0.000 [1/min]

**Description:**

Sets the starting value for the motorized potentiometer. This starting value becomes effective after the drive has been powered-up.

**Dependency:**

Only effective if p1030.0 = 0.

Refer to: p1030

<b>p1040[0...n]</b>	<b>Motorized potentiometer, starting value</b>		
SERVO (Lin, Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3020
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	-1000.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets the starting value for the motorized potentiometer. This starting value becomes effective after the drive has been powered-up.

**Dependency:**

Only effective if p1030.0 = 0.

Refer to: p1030

<b>p1041[0...n]</b>	<b>BI: Motorized potentiometer, manual/automatic</b>		
SERVO (Extended setp.)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 3020
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to change over from manual to automatic when using a motorized potentiometer.

In the manual mode, the setpoint is changed using two signals - raise and lower. In the automatic mode, the setpoint must be interconnected via a connector input.

**Dependency:**

Refer to: p1030, p1035, p1036, p1042

**Note:**

The effectiveness of the internal ramp-function generator can be set in automatic mode.

<b>p1042[0...n]</b>	<b>CI: Motorized potentiometer, automatic setpoint</b>		
SERVO (Extended setp.)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 3020

P-Group: Setpoints	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	0

**Description:**

Sets the signal source for the setpoint of the motorized potentiometer in the automatic mode.

**Dependency:**

Refer to: p1041

---

<b>p1043[0...n]</b>	<b>BI: Motorized potentiometer, accept setpoint</b>	
SERVO (Extended setp.)	Can be changed: T	Access level: 3
Data type: Unsigned32	Data set: CDS	Function diagram: 3020
P-Group: Setpoints	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	0

**Description:**

Sets the signal source for the setting command to accept the setting value for the motorized potentiometer.

**Dependency:**

Refer to: p1044

---

<b>p1044[0...n]</b>	<b>CI: Motorized potentiometer, setting value</b>	
SERVO (Extended setp.)	Can be changed: T	Access level: 3
Data type: Unsigned32	Data set: CDS	Function diagram: 3020
P-Group: Setpoints	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	0

**Description:**

Sets the signal source for the setting value for the motorized potentiometer.

**Dependency:**

Refer to: p1043

**Note:**

The value becomes effective for a 0/1 edge of the setting command.

---

<b>r1045</b>	<b>CO: Mot. potentiometer, speed setp. in front of ramp-fct. gen.</b>	
SERVO (Extended	Can be changed: -	Access level: 3



setp.)

Data type: Floating Point	Data set: -	Function diagram: 3020
P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
Min	Max	Factory setting
- [1/min]	- [1/min]	- [1/min]

**Description:**

Sets the effective setpoint in front of the internal motorized potentiometer ramp-function generator.

---

**r1045 CO: Mot. potentiom.,velocity setp. in front of ramp-fct. gen.**

SERVO (Lin, Extended setp.) Can be changed: - Access level: 3

Data type: Floating Point	Data set: -	Function diagram: 3020
P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
Min	Max	Factory setting
- [m/min]	- [m/min]	- [m/min]

**Description:**

Sets the effective setpoint in front of the internal motorized potentiometer ramp-function generator.

---

**p1047[0...n] Motorized potentiometer, ramp-up time**

SERVO (Extended setp.) Can be changed: U, T Access level: 2

Data type: Floating Point	Data set: DDS	Function diagram: 3020
P-Group: Setpoints	Units group: TIME	Unit selection: -
Min	Max	Factory setting
0.000 [s]	1000.000 [s]	10.000 [s]

**Description:**

Sets the ramp-up time for the internal ramp-function generator for the motorized potentiometer.

The setpoint is changed from the zero up to the speed/velocity limit (p1082) within this time (if no initial rounding-off has been activated).

**Dependency:**

Refer to: p1030, p1048, p1082

**Note:**

When the initial rounding-off is activated (p1030.2) the ramp-up time is correspondingly extended.

---

**p1048[0...n] Motorized potentiometer, ramp-down time**SERVO (Extended  
setp.)

Can be changed: U, T

Access level: 2

Data type: Floating Point

Data set: DDS

Function diagram: 3020

P-Group: Setpoints

Units group: TIME

Unit selection: -

Min

Max

Factory setting

0.000 [s]

1000.000 [s]

10.000 [s]

**Description:**

Sets the ramp-down time for the internal ramp-function generator for the motorized potentiometer.

The setpoint is changed from the speed/velocity limit (p1082) to zero within this time (if no initial rounding-off has been activated).

**Dependency:**

Refer to: p1030, p1047, p1082

**Note:**

The deceleration time is extended corresponding to the activated initial rounding-off (p1030.2).

---

**r1050****CO: Motor. potentiometer, setpoint after the ramp-function generator**SERVO (Extended  
setp.)

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: 1550, 3020

P-Group: Setpoints

Units group: SPEED\_ROT

Unit selection: -

Min

Max

Factory setting

- [1/min]

- [1/min]

- [1/min]

**Description:**

Sets the effective setpoint after the internal motorized potentiometer ramp-function generator.

This setpoint is the output value of the motorized potentiometer and must be appropriately interconnected onwards (e.g. with the main setpoint).

**Recommendation:**

Interconnect the signal with main setpoint (p1070).

**Dependency:**

Refer to: p1070

---

**r1050****CO: Motor. potentiometer, setpoint after the ramp-function generator**SERVO (Lin,  
Extended setp.)

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: 1550, 3020

P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
Min	Max	Factory setting
- [m/min]	- [m/min]	- [m/min]

**Description:**

Sets the effective setpoint after the internal motorized potentiometer ramp-function generator.

This setpoint is the output value of the motorized potentiometer and must be appropriately interconnected onwards (e.g. with the main setpoint).

**Recommendation:**

Interconnect the signal with main setpoint (p1070).

**Dependency:**

Refer to: p1070

---

**p1055[0...n]**

**BI: Jog bit 0**

SERVO

Can be changed: T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: 2501, 3030

P-Group: Setpoints

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source for jog 1.

**Recommendation:**

When the signal source is set, this does not trigger a response - but only a signal change of the source.

**Dependency:**

Refer to: p1058

---

**p1056[0...n]**

**BI: Jog bit 1**

SERVO

Can be changed: T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: 2501, 3030

P-Group: Setpoints

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source for jog 2.

**Recommendation:**

When the signal source is set, this does not trigger a response - but only a signal change of the source.

**Dependency:**

Refer to: p1059

---

<b>p1058[0...n]</b>	<b>Jog 1 speed setpoint</b>	
SERVO (Extended setp.)	Can be changed: T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Setpoints	Units group: SPEED_ROT
	Min	Max
	-210000.000 [1/min]	210000.000 [1/min]
		Function diagram: 3030
		Unit selection: -
		Factory setting
		0.000 [1/min]

**Description:**

Sets the speed/velocity for jog 1. Jogging is level-triggered and allows the motor to be incrementally moved.

**Dependency:**

Refer to: p1055, p1056

---

<b>p1058[0...n]</b>	<b>Jog 1 velocity setpoint</b>	
SERVO (Lin, Extended setp.)	Can be changed: T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3
	Min	Max
	-1000.000 [m/min]	1000.000 [m/min]
		Function diagram: 3030
		Unit selection: -
		Factory setting
		0.000 [m/min]

**Description:**

Sets the speed/velocity for jog 1. Jogging is level-triggered and allows the motor to be incrementally moved.

**Dependency:**

Refer to: p1055, p1056

---

<b>p1059[0...n]</b>	<b>Jog 2 speed setpoint</b>	
SERVO (Extended setp.)	Can be changed: T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Setpoints	Units group: SPEED_ROT
	Min	Max
	-210000.000 [1/min]	210000.000 [1/min]
		Function diagram: 3030
		Unit selection: -
		Factory setting
		0.000 [1/min]

**Description:**

Sets the speed/velocity for jog 2. Jogging is level-triggered and allows the motor to be incrementally moved.

**Dependency:**

Refer to: p1055, p1056

<b>p1059[0...n]</b>	<b>Jog 2 velocity setpoint</b>		
SERVO (Lin, Extended setp.)	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3030
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	-1000.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets the speed/velocity for jog 2. Jogging is level-triggered and allows the motor to be incrementally moved.

**Dependency:**

Refer to: p1055, p1056

<b>p1063[0...n]</b>	<b>Speed limit, setpoint channel</b>		
SERVO (Extended setp.)	Can be changed: C2(1), U, T		Access level: 1
	Data type: Floating Point	Data set: DDS	Function diagram: 3040
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.000 [1/min]	210000.000 [1/min]	210000.000 [1/min]

**Description:**

Sets the speed limit/velocity limit effective in the setpoint channel.

**Dependency:**

Refer to: p1082, p1083, p1085, p1086, p1088

<b>p1063[0...n]</b>	<b>Velocity limit, setpoint channel</b>		
SERVO (Lin, Extended setp.)	Can be changed: C2(1), U, T		Access level: 1
	Data type: Floating Point	Data set: DDS	Function diagram: 3040
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.000 [m/min]	1000.000 [m/min]	1000.000 [m/min]

**Description:**

Sets the speed limit/velocity limit effective in the setpoint channel.

**Dependency:**

Refer to: p1082, p1083, p1085, p1086, p1088

---

<b>p1070[0...n]</b>	<b>CI: Main setpoint</b>		
SERVO (Extended setp.)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 1550, 3030
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	1024[0]

**Description:**

Sets the signal source for the main setpoint.

Examples:

r1024: Fixed speed setpoint effective

r1050: Motor. potentiometer, setpoint after the ramp-function generator

**Dependency:**

Refer to: p1071, r1073, r1078

---

<b>p1071[0...n]</b>	<b>CI: Main setpoint scaling</b>		
SERVO (Extended setp.)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 3030
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	1

**Description:**

Sets the signal source for scaling the main setpoint.

---

<b>r1073</b>	<b>CO: Main setpoint effective</b>		
SERVO (Extended setp.)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 3030
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	- [1/min]	- [1/min]	- [1/min]

**Description:**

Displays the effective main setpoint. The value shown is the main setpoint after scaling.

---

<b>r1073</b>	<b>CO: Main setpoint effective</b>		
SERVO (Lin,	Can be changed: -		Access level: 3

Extended setp.)

Data type: Floating Point	Data set: -	Function diagram: 3030
P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
Min	Max	Factory setting
- [m/min]	- [m/min]	- [m/min]

**Description:**

Displays the effective main setpoint. The value shown is the main setpoint after scaling.

**p1075[0...n]**

**CI: Suppl setpoint**

SERVO (Extended setp.)

Can be changed: T

Access level: 3

Data type: Unsigned32	Data set: CDS	Function diagram: 1550, 3030
P-Group: Setpoints	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	0

**Description:**

Sets the signal source for the supplementary setpoint.

**Dependency:**

Refer to: p1076, r1077, r1078

**p1076[0...n]**

**CI: Supplementary setpoint scaling**

SERVO (Extended setp.)

Can be changed: T

Access level: 3

Data type: Unsigned32	Data set: CDS	Function diagram: 3030
P-Group: Setpoints	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	1

**Description:**

Sets the signal source for scaling the supplementary setpoint.

**r1077**

**CO: Supplementary setpoint effective**

SERVO (Extended setp.)

Can be changed: -

Access level: 3

Data type: Floating Point	Data set: -	Function diagram: 3030
P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
Min	Max	Factory setting
- [1/min]	- [1/min]	- [1/min]

**Description:**

Displays the effective supplementary setpoint. The value shown is the additional setpoint after scaling.

---

<b>r1077</b>	<b>CO: Supplementary setpoint effective</b>		
SERVO (Lin, Extended setp.)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 3030
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	- [m/min]	- [m/min]	- [m/min]

**Description:**

Displays the effective supplementary setpoint. The value shown is the additional setpoint after scaling.

---

<b>r1078</b>	<b>CO: Total setpoint effective</b>		
SERVO (Extended setp.)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 3030
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	- [1/min]	- [1/min]	- [1/min]

**Description:**

Displays the total effective setpoint. The value indicates the sum of the effective main setpoint and supplementary setpoint.

---

<b>r1078</b>	<b>CO: Total setpoint effective</b>		
SERVO (Lin, Extended setp.)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 3030
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	- [m/min]	- [m/min]	- [m/min]

**Description:**

Displays the total effective setpoint. The value indicates the sum of the effective main setpoint and supplementary setpoint.



<b>p1080[0...n]</b>	<b>Minimum speed</b>		
SERVO (Extended setp.)	Can be changed: C2(1), T		Access level: 1
	Data type: Floating Point	Data set: DDS	Function diagram: 3050
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.000 [1/min]	19500.000 [1/min]	0.000 [1/min]
<b>Description:</b>			
Sets the lowest possible speed/velocity. This value is not fallen below in operation.			
<b>Note:</b>			
The parameter value applies for both motor directions of rotation.			
In exception cases, the motor can operate below this value (e.g. when reversing).			

<b>p1080[0...n]</b>	<b>Minimum velocity</b>		
SERVO (Lin, Extended setp.)	Can be changed: C2(1), T		Access level: 1
	Data type: Floating Point	Data set: DDS	Function diagram: 3050
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.000 [m/min]	1000.000 [m/min]	0.000 [m/min]
<b>Description:</b>			
Sets the lowest possible speed/velocity. This value is not fallen below in operation.			
<b>Note:</b>			
The parameter value applies for both motor directions of rotation.			
In exception cases, the motor can operate below this value (e.g. when reversing).			

<b>p1082[0...n]</b>	<b>Maximum speed</b>		
SERVO	Can be changed: C2(1), T		Access level: 1
	Data type: Floating Point	Data set: DDS	Function diagram: 3050, 3060, 3070, 5300
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.000 [1/min]	210000.000 [1/min]	1500.000 [1/min]
<b>Description:</b>			
Sets the highest possible speed/velocity.			

The value in p1082 is calculated, during the commissioning phase, dependent on the motor and drive unit and can only be equal to or less than the value in p0322 (maximum motor speed).

**Dependency:**

If a sinusoidal filter (p0230 = 3) is parameterized as output filter, then the maximum speed is limited corresponding to the maximum permissible filter output frequency (refer to the filter data sheet).

Refer to: p0115, r0313, p0322, r0336

**Note:**

The parameter applies for both motor directions.

<b>p1082[0...n]</b>	<b>Maximum velocity</b>		
SERVO (Lin)	Can be changed: C2(1), T		Access level: 1
	Data type: Floating Point	Data set: DDS	Function diagram: 3050, 3060, 3070, 5300
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.000 [m/min]	1000.000 [m/min]	1000.000 [m/min]

**Description:**

Sets the highest possible speed/velocity.

The value in p1082 is calculated, during the commissioning phase, dependent on the motor and drive unit and can only be equal to or less than the value in p0322 (maximum motor speed).

**Dependency:**

If a sinusoidal filter (p0230 = 3) is parameterized as output filter, then the maximum speed is limited corresponding to the maximum permissible filter output frequency (refer to the filter data sheet).

Refer to: p0115, r0313, p0322, r0336

**Note:**

The parameter applies for both motor directions.

<b>p1083[0...n]</b>	<b>CO: Speed limit in positive direction of rotation</b>		
SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3050
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.000 [1/min]	210000.000 [1/min]	210000.000 [1/min]

**Description:**

Sets the maximum speed/velocity for the positive direction.

<b>p1083[0...n]</b>	<b>CO: Velocity limit, positive direction</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3050
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.000 [m/min]	1000.000 [m/min]	1000.000 [m/min]

**Description:**

Sets the maximum speed/velocity for the positive direction.

<b>r1084</b>	<b>Speed limit positive effective</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 3050, 5030, 5210, 6640, 8010
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	- [1/min]	- [1/min]	- [1/min]

**Description:**

Displays the effective positive speed/velocity limit.

<b>r1084</b>	<b>Velocity limit positive effective</b>		
SERVO (Lin)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 3050, 5030, 5210, 6640, 8010
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	- [m/min]	- [m/min]	- [m/min]

**Description:**

Displays the effective positive speed/velocity limit.

<b>p1085[0...n]</b>	<b>CI: Speed limit in positive direction of rotation</b>		
SERVO (Extended setp.)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 3050
	P-Group: Setpoints	Units group: -	Unit selection: -

Min	Max	Factory setting
-	-	1083[0]

**Description:**

Sets the signal source for the speed/velocity limit of the positive direction.

**p1085[0...n] CI: Velocity limit, positive direction**

SERVO (Lin, Extended setp.)	Can be changed: T	Access level: 3
	Data type: Unsigned32	Data set: CDS
	P-Group: Setpoints	Units group: -
	Min	Max
	-	-
		Function diagram: 3050
		Unit selection: -
		Factory setting
		1083[0]

**Description:**

Sets the signal source for the speed/velocity limit of the positive direction.

**p1086[0...n] CO: Speed limit negative direction of rotation**

SERVO	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Setpoints	Units group: SPEED_ROT
	Min	Max
	-210000.000 [1/min]	0.000 [1/min]
		Function diagram: 3050
		Unit selection: -
		Factory setting
		-210000.000 [1/min]

**Description:**

Sets the speed/velocity limit for the negative direction (of rotation).

**p1086[0...n] CO: Velocity limit, negative direction**

SERVO (Lin)	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3
	Min	Max
	-1000.000 [m/min]	0.000 [m/min]
		Function diagram: 3050
		Unit selection: -
		Factory setting
		-1000.000 [m/min]

**Description:**

Sets the speed/velocity limit for the negative direction (of rotation).

**r1087 Speed limit negative effective**

SERVO	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
		Function diagram: 3050, 5030, 5210, 6640, 8010

P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
Min	Max	Factory setting
- [1/min]	- [1/min]	- [1/min]

**Description:**

Displays the effective negative speed/velocity limit.

---

**r1087**

**Velocity limit negative effective**

SERVO (Lin)

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: 3050, 5030, 5210, 6640, 8010

P-Group: Setpoints

Units group:  
SPEED\_LIN\_METRIC\_P3

Unit selection: -

Min

Max

Factory setting

- [m/min]

- [m/min]

- [m/min]

**Description:**

Displays the effective negative speed/velocity limit.

---

**p1088[0...n]**

**CI: Speed limit negative direction of rotation**

SERVO (Extended setp.)

Can be changed: T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: 3050

P-Group: Setpoints

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

1086[0]

**Description:**

Sets the signal source for the speed/velocity limit of the negative direction.

---

**p1088[0...n]**

**CI: Velocity limit, negative direction**

SERVO (Lin, Extended setp.)

Can be changed: T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: 3050

P-Group: Setpoints

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

1086[0]

**Description:**

Sets the signal source for the speed/velocity limit of the negative direction.

---

**p1091[0...n]**

**Skip speed 1**

SERVO (Extended setp.)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 3050
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.000 [1/min]	210000.000 [1/min]	0.000 [1/min]

**Description:**

Sets the skip speed/velocity 1.

**Dependency:**

Refer to: p1092, p1093, p1094, p1101

**Note:**

The skip (suppression) speeds can be used to prevent the effects of mechanical resonance.

---

<b>p1091[0...n]</b>	<b>Skip velocity 1</b>		
SERVO (Lin, Extended setp.)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 3050
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets the skip speed/velocity 1.

**Dependency:**

Refer to: p1092, p1093, p1094, p1101

**Note:**

The skip (suppression) speeds can be used to prevent the effects of mechanical resonance.

---

<b>p1092[0...n]</b>	<b>Skip speed 2</b>		
SERVO (Extended setp.)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 3050
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.000 [1/min]	210000.000 [1/min]	0.000 [1/min]

**Description:**

Sets the skip speed/velocity 2.

**Dependency:**

Refer to: p1091, p1093, p1094, p1101

<b>p1092[0...n]</b>	<b>Skip velocity 2</b>		
SERVO (Lin, Extended setp.)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 3050
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets the skip speed/velocity 2.

**Dependency:**

Refer to: p1091, p1093, p1094, p1101

<b>p1093[0...n]</b>	<b>Skip speed 3</b>		
SERVO (Extended setp.)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 3050
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.000 [1/min]	210000.000 [1/min]	0.000 [1/min]

**Description:**

Sets the skip speed/velocity 3.

**Dependency:**

Refer to: p1091, p1092, p1094, p1101

<b>p1093[0...n]</b>	<b>Skip velocity 3</b>		
SERVO (Lin, Extended setp.)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 3050
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets the skip speed/velocity 3.

**Dependency:**

Refer to: p1091, p1092, p1094, p1101

---

<b>p1094[0...n]</b>	<b>Skip speed 4</b>		
SERVO (Extended setp.)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 3050
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.000 [1/min]	210000.000 [1/min]	0.000 [1/min]

**Description:**

Sets the skip speed/velocity 4.

**Dependency:**

Refer to: p1091, p1092, p1093, p1101

---

<b>p1094[0...n]</b>	<b>Skip velocity 4</b>		
SERVO (Lin, Extended setp.)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 3050
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets the skip speed/velocity 4.

**Dependency:**

Refer to: p1091, p1092, p1093, p1101

---

<b>p1101[0...n]</b>	<b>Skip speed bandwidth</b>		
SERVO (Extended setp.)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 3050
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.000 [1/min]	210000.000 [1/min]	0.000 [1/min]

**Description:**

Sets the bandwidth for the skip speeds/velocities 1 to 4.



**Dependency:**

Refer to: p1091, p1092, p1093, p1094

**Note:**

The setpoint (reference) speeds are skipped (suppressed) in the range of the skip speed +/-p1101.

Steady-state operation is not possible in the skipped (suppressed) speed range. The skip (suppression) range is skipped.

Example:

p1091 = 600 and p1101 = 20 --> setpoint speeds of between 580 and 620 [RPM] are skipped.

<b>p1101[0...n]</b>	<b>Skip velocity bandwidth</b>		
SERVO (Lin, Extended setp.)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 3050
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.000 [m/min]	1000.000 [m/min]	0.000 [m/min]

**Description:**

Sets the bandwidth for the skip speeds/velocities 1 to 4.

**Dependency:**

Refer to: p1091, p1092, p1093, p1094

**Note:**

The setpoint (reference) speeds are skipped (suppressed) in the range of the skip speed +/-p1101.

Steady-state operation is not possible in the skipped (suppressed) speed range. The skip (suppression) range is skipped.

Example:

p1091 = 600 and p1101 = 20 --> setpoint speeds of between 580 and 620 [RPM] are skipped.

<b>p1110[0...n]</b>	<b>BI: Inhibit negative direction</b>		
SERVO (Extended setp.)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 2505
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to disable the negative direction.

**Dependency:**

Refer to: p1111

---

<b>p1111[0...n]</b>	<b>BI: Inhibit positive direction</b>		
SERVO (Extended setp.)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 2505
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to disable the positive direction.

**Dependency:**

Refer to: p1110

---

<b>r1112</b>	<b>CO: Speed setpoint after minimum limiting</b>		
SERVO (Extended setp.)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 3050
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	- [1/min]	- [1/min]	- [1/min]

**Description:**

Displays the speed / velocity setpoint after the minimum limiting.

**Dependency:**

Refer to: p1091, p1092, p1093, p1094, p1101

---

<b>r1112</b>	<b>CO: Velocity setpoint after minimum limiting</b>		
SERVO (Lin, Extended setp.)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 3050
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	- [m/min]	- [m/min]	- [m/min]

**Description:**

Displays the speed / velocity setpoint after the minimum limiting.

**Dependency:**

Refer to: p1091, p1092, p1093, p1094, p1101

<b>p1113[0...n]</b>	<b>BI: Direction reversal</b>		
SERVO (Extended setp.)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 2442, 2505
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to reverse the motor direction (of rotation).

**Dependency:**

Refer to: r1198

<b>r1114</b>	<b>CO: Setpoint after the direction of rotation limit</b>		
SERVO (Extended setp.)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 1550, 3040, 3050
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	- [1/min]	- [1/min]	- [1/min]

**Description:**

Displays the speed/velocity setpoint after the changeover and limiting the direction.

<b>r1114</b>	<b>CO: Setpoint after the direction limiting</b>		
SERVO (Lin, Extended setp.)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 1550, 3040, 3050
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	- [m/min]	- [m/min]	- [m/min]

**Description:**

Displays the speed/velocity setpoint after the changeover and limiting the direction.

<b>p1115</b>	<b>Ramp-function generator selection</b>		
SERVO (Extended setp.)	Can be changed: T		Access level: 3

setp.)

Data type: Integer16	Data set: -	Function diagram: 1550, 3080
P-Group: Setpoints	Units group: -	Unit selection: -
Min	Max	Factory setting
0	1	0

**Description:**

Sets the ramp-function generator type.

**Values:**

- 0: Basic ramp-function generator
- 1: Extended ramp-function generator

**Note:**

Another ramp-function generator type can only be selected when the motor is at a standstill.

**r1119****CO: Ramp-function generator setpoint at the input**SERVO (Extended  
setp.)

Can be changed: -

Access level: 3

Data type: Floating Point	Data set: -	Function diagram: 1550, 1750, 3050, 3060, 3070, 8010
P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
Min	Max	Factory setting
- [1/min]	- [1/min]	- [1/min]

**Description:**

Displays the setpoint at the input of the ramp-function generator.

**Note:**

The setpoint is influenced by other functions, e.g. skip (suppressed) speeds, minimum and maximum limits.

**r1119****CO: Ramp-function generator setpoint at the input**SERVO (Lin,  
Extended setp.)

Can be changed: -

Access level: 3

Data type: Floating Point	Data set: -	Function diagram: 1550, 1750, 3050, 3060, 3070, 8010
P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
Min	Max	Factory setting
- [m/min]	- [m/min]	- [m/min]

**Description:**

Displays the setpoint at the input of the ramp-function generator.

**Note:**

The setpoint is influenced by other functions, e.g. skip (suppressed) speeds, minimum and maximum limits.

---

<b>p1120[0...n]</b>	<b>Ramp-function generator ramp-up time</b>		
SERVO (Extended setp.)	Can be changed: C2(1), U, T	Access level: 1	
	Data type: Floating Point	Data set: DDS	Function diagram: 3060, 3070
	P-Group: Setpoints	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0.000 [s]	999999.000 [s]	10.000 [s]

**Description:**

The drive is accelerated from standstill (setpoint = 0) up to the maximum speed/velocity (p1082) in this time.

**Dependency:**

Refer to: p1082

**Note:**

The parameter is adapted during the rotating measurement (p1960 > 0). This is the reason that during the rotating measurement, the motor can accelerate faster than was originally parameterized.

---

<b>p1121[0...n]</b>	<b>Ramp-function generator ramp-down time</b>		
SERVO	Can be changed: C2(1), U, T	Access level: 1	
	Data type: Floating Point	Data set: DDS	Function diagram: 3060, 3070
	P-Group: Setpoints	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0.000 [s]	999999.000 [s]	10.000 [s]

**Description:**

The drive is decelerated from the maximum speed / velocity (p1082) down to standstill (setpoint = 0) in this time.

**Dependency:**

Refer to: p1082

---

<b>p1122[0...n]</b>	<b>BI: Bypass ramp-function generator</b>		
SERVO (Extended setp.)	Can be changed: U, T	Access level: 3	

Data type: Unsigned32	Data set: CDS	Function diagram: 2505
P-Group: Setpoints	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	0

**Description:**

Sets the signal source for bypassing the ramp generator (ramp-up and ramp-down times = 0).

**Note:**

For VECTOR in sensorless operation, it is not permissible that the ramp-function generator is bypassed.

**p1130[0...n]****Ramp-function generator initial rounding-off time**

SERVO (Extended setp.)

Can be changed: U, T

Access level: 2

Data type: Floating Point	Data set: DDS	Function diagram: 3070
P-Group: Setpoints	Units group: TIME	Unit selection: -
Min	Max	Factory setting
0.000 [s]	30.000 [s]	0.000 [s]

**Description:**

Sets the initial rounding-off time for the extended ramp generator. The value applies to ramp-up and ramp-down.

**Note:**

Rounding-off times avoid an abrupt response and prevent damage to the mechanical system.

**p1131[0...n]****Ramp-function generator final rounding-off time**

SERVO (Extended setp.)

Can be changed: U, T

Access level: 2

Data type: Floating Point	Data set: DDS	Function diagram: 3070
P-Group: Setpoints	Units group: TIME	Unit selection: -
Min	Max	Factory setting
0.000 [s]	30.000 [s]	0.000 [s]

**Description:**

Sets the final rounding-off time for the extended ramp generator. The value applies to ramp-up and ramp-down.

**Note:**

Rounding-off times avoid an abrupt response and prevent damage to the mechanical system.

<b>p1134[0...n]</b>	<b>Ramp-function generator rounding-off type</b>		
SERVO (Extended setp.)	Can be changed: U, T	Access level: 2	
	Data type: Integer16	Data set: DDS	Function diagram: 3070
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	1	0

**Description:**

Sets the smoothed response to the OFF1 command or the reduced setpoint for the extended ramp-function generator.

**Values:**

- 0: Cont. smoothing
- 1: Discont smoothing

**Dependency:**

No effect up to initial rounding-off time (p1130) > 0 s.

**Note:**

p1134 = 0 (continuous smoothing)

The rounding-off is always effective. Overshoots may occur.

p1134 = 1 (discontinuous smoothing)

The final rounding-off is not effective when the setpoint is suddenly reduced (as step function) while running-up.

<b>p1135[0...n]</b>	<b>OFF3 ramp-down time</b>		
SERVO	Can be changed: C2(1), U, T	Access level: 2	
	Data type: Floating Point	Data set: DDS	Function diagram: 3060, 3070
	P-Group: Setpoints	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0.000 [s]	600.000 [s]	0.000 [s]

**Description:**

Sets the ramp-down time from the maximum speed down to zero speed for the OFF3 command.

**Note:**

This time can be exceeded if the DC-link voltage reaches its maximum value.

<b>p1136[0...n]</b>	<b>OFF3 initial rounding-off time</b>
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SERVO (Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3070, 3080
	P-Group: Setpoints	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0.000 [s]	30.000 [s]	0.000 [s]

**Description:**

Sets the initial rounding-off time for OFF3 for the extended ramp generator.

---

<b>p1137[0...n]</b>	<b>OFF3 final rounding-off time</b>		
SERVO (Extended setp.)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 3070
	P-Group: Setpoints	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0.000 [s]	30.000 [s]	0.000 [s]

**Description:**

Sets the final rounding-off time for OFF3 for the extended ramp generator.

---

<b>p1140[0...n]</b>	<b>BI: Enables the ramp-function generator</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 2442, 2443, 2501
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	1

**Description:**

Sets the signal source for control word 1 bit 4 (operating condition/disable ramp-function generator).

**Dependency:**

Refer to: p1141, p1142

**Note:**

Bit 4 = 0: Inhibits the ramp-function generator (the ramp-function generator output is set to zero)

Bit 4 = 1: Operating condition (the ramp-function generator can be enabled)

---

<b>p1141[0...n]</b>	<b>BI: Start ramp-function generator</b>		
SERVO	Can be changed: T		Access level: 3



Data type: Unsigned32	Data set: CDS	Function diagram: 2442, 2443, 2501
P-Group: Setpoints	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	1

**Description:**

Sets the signal source for control word 1 bit 5 (enables ramp-function generator/ stops ramp-function generator)

**Dependency:**

Refer to: p1140, p1142

**Note:**

Bit 5 = 0: Stop the ramp-function generator (the ramp-function generator output is frozen)

Bit 5 = 1: Enables the ramp-function generator

**p1142[0...n]**

**BI: Enable speed setpoint**

SERVO

Can be changed: T

Access level: 3

Data type: Unsigned32	Data set: CDS	Function diagram: 2442, 2443, 2501
P-Group: Setpoints	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	1

**Description:**

Sets the signal source for control word 1 bit 6 (enables setpoint/disable setpoint).

**Dependency:**

Refer to: p1140, p1141

**Note:**

Bit 6 = 0: Inhibits the setpoint (the ramp-function generator input is set to zero)

Bit 6 = 1: Enables setpoint

**p1143[0...n]**

**BI: Ramp-function generator, accept setting value**

SERVO (Extended setp.)

Can be changed: T

Access level: 3

Data type: Unsigned32	Data set: CDS	Function diagram: 3070
P-Group: Setpoints	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	0

**Description:**

Sets the signal source for accepting the setting value of the ramp-function generator.

**Dependency:**

The signal source for the ramp-function generator setting value is set using parameters.

Refer to: p1144

**Note:**

0/1 signal:

The ramp-function generator output is immediately (without delay) set to the setting value of the ramp-function generator.

1 signal:

The setting value of the ramp-function generator is effective.

1/0 signal:

The input value of the ramp-function generator is effective. The ramp-function generator output is adapted to the input value using the ramp-up time or the ramp-down time.

0 signal:

The input value of the ramp-function generator is effective.

---

<b>p1144[0...n]</b>	<b>CI: Ramp-function generator setting value</b>		
SERVO (Extended setp.)	Can be changed: U, T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 3070
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for the ramp-function generator setting value.

**Dependency:**

The signal source for accepting the setting value is set using parameters.

Refer to: p1143

---

<b>p1145[0...n]</b>	<b>Ramp-function generator tracking intensity.</b>		
SERVO (Extended setp.)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 3080
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.0	50.0	1.3

**Description:**

Sets the ramp-function generator tracking.

The output value of the ramp-function generator is tracked (corrected) corresponding to the maximum possible drive acceleration. The reference value is the deviation at the speed/velocity controller input that is necessary to ensure that the motor runs-up at the torque/force limit.

**Recommendation:**

p1145 = 0.0:

This value de-activates the ramp-function generator tracking.

p1145 = 0.0 ... 1.0:

Generally, these values are not practical. They cause the motor to accelerate below its torque limit. The lower the selected value, the greater the margin between the controller and torque limit at run-up.

p1145 > 1.0:

The greater the value, the higher the permissible deviation between the speed setpoint and speed actual value.

**Note:**

In the V/f mode, the ramp-function generator tracking is not active.

For SERVO with V/f operation, the following applies:

The complete ramp-function generator is not active, i.e. ramp-up and ramp-down time = 0.

p1148[0...n]	Ramp-function gen., tolerance for ramp-up and ramp-down active		
SERVO (Extended setp.)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 3060, 3070
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.00 [1/min]	1000.00 [1/min]	19.80 [1/min]

**Description:**

Sets the tolerance value for the status of the ramp-function generator (ramp-up active, ramp-down active).

If the input of the ramp-function generator does not change in comparison to the output by more than the entered tolerance time, then the status bits "ramp-up active" and "ramp-down active" are not influenced.

**Dependency:**

Refer to: r1199

p1148[0...n]	Ramp-function gen., tolerance for ramp-up and ramp-down active		
SERVO (Lin,	Can be changed: U, T		Access level: 3

Extended setp.)

Data type: Floating Point	Data set: DDS	Function diagram: 3060, 3070
P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
Min	Max	Factory setting
0.00 [m/min]	10.00 [m/min]	0.20 [m/min]

**Description:**

Sets the tolerance value for the status of the ramp-function generator (ramp-up active, ramp-down active).

If the input of the ramp-function generator does not change in comparison to the output by more than the entered tolerance time, then the status bits "ramp-up active" and "ramp-down active" are not influenced.

**Dependency:**

Refer to: r1199

**r1150****CO: Ramp-function generator speed setpoint at the output**

SERVO (Extended setp.)

Can be changed: -

Access level: 3

Data type: Floating Point	Data set: -	Function diagram: 1550, 3060, 3070, 3080
P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
Min	Max	Factory setting
- [1/min]	- [1/min]	- [1/min]

**Description:**

Displays the setpoint at the output of the ramp-function generator.

**r1150****CO: Ramp-function generator velocity setpoint at the output**

SERVO (Lin, Extended setp.)

Can be changed: -

Access level: 3

Data type: Floating Point	Data set: -	Function diagram: 1550, 3060, 3070, 3080
P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
Min	Max	Factory setting
- [m/min]	- [m/min]	- [m/min]

**Description:**

Displays the setpoint at the output of the ramp-function generator.

**p1152****BI: Setpoint 2 enable**

SERVO (Extended

Can be changed: T

Access level: 3

brk)

Data type: Unsigned32	Data set: -	Function diagram: 2711
P-Group: Commands	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	899.15

**Description:**

Sets the signal source for "setpoint 2 enable".

---

<b>p1155[0...n]</b>	<b>CI: Speed controller speed setpoint 1</b>	
SERVO	Can be changed: T	Access level: 3
	Data type: Unsigned32	Data set: CDS
	P-Group: Setpoints	Units group: -
	Min	Max
	-	-
		Function diagram: 1550, 3080
		Unit selection: -
		Factory setting
		0

**Description:**

Sets the signal source for the speed/velocity setpoint 1 of the speed/velocity controller.

**Dependency:**

The effectiveness of this setpoint depends on, e.g. STW1.4 and STW1.6.

Refer to: r0898, p1140, p1142, p1160, r1170

---

<b>p1155[0...n]</b>	<b>CI: Velocity controller, velocity setpoint 1</b>	
SERVO (Lin)	Can be changed: T	Access level: 3
	Data type: Unsigned32	Data set: CDS
	P-Group: Setpoints	Units group: -
	Min	Max
	-	-
		Function diagram: 1550, 3080
		Unit selection: -
		Factory setting
		0

**Description:**

Sets the signal source for the speed/velocity setpoint 1 of the speed/velocity controller.

**Dependency:**

The effectiveness of this setpoint depends on, e.g. STW1.4 and STW1.6.

Refer to: r0898, p1140, p1142, p1160, r1170

---

<b>p1160[0...n]</b>	<b>CI: Speed controller speed setpoint 2</b>	
SERVO	Can be changed: T	Access level: 3
	Data type: Unsigned32	Data set: CDS
	P-Group: Setpoints	Units group: -
	Min	Max
	-	-
		Function diagram: 1550, 3080
		Unit selection: -
		Factory setting
		0

**Description:**

Sets the signal source for the speed/velocity setpoint 2 of the speed/velocity controller.

**Dependency:**

Refer to: p1155, r1170

**Note:**

For OFF1/OFF3, the ramp-function generator ramp is effective.

The ramp-function generator is set (SERVO: to the actual value, VECTOR: to the setpoint (r1170)) and stops the drive corresponding to the ramp-downtime (p1121 or p1135).

While stopping via the ramp-function generator, STW1.4 is effective (enable ramp-function generator).

**p1160[0...n]****CI: Velocity controller, velocity setpoint 2**

SERVO (Lin)

Can be changed: T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: 1550, 3080

P-Group: Setpoints

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source for the speed/velocity setpoint 2 of the speed/velocity controller.

**Dependency:**

Refer to: p1155, r1170

**Note:**

For OFF1/OFF3, the ramp-function generator ramp is effective.

The ramp-function generator is set (SERVO: to the actual value, VECTOR: to the setpoint (r1170)) and stops the drive corresponding to the ramp-downtime (p1121 or p1135).

While stopping via the ramp-function generator, STW1.4 is effective (enable ramp-function generator).

**r1169****CO: Speed controller, speed setpoints 1 and 2**

SERVO

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Setpoints

Units group: SPEED\_ROT

Unit selection: -

Min

Max

Factory setting

- [1/min]

- [1/min]

- [1/min]

**Description:**

Displays the speed/velocity setpoint after the addition of the speed/velocity setpoint 1 (p1155) and the speed/velocity setpoint 2 (p1160).

**Dependency:**

Refer to: p1155, p1160

<b>r1169</b>	<b>CO: Velocity controller, velocity setpoints 1 and 2</b>		
SERVO (Lin)	Can be changed: -	Access level: 3	
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	- [m/min]	- [m/min]	- [m/min]
<b>Description:</b>			
Displays the speed/velocity setpoint after the addition of the speed/velocity setpoint 1 (p1155) and the speed/velocity setpoint 2 (p1160).			
<b>Dependency:</b>			
Refer to: p1155, p1160			

<b>r1170</b>	<b>CO: Speed controller, setpoint sum</b>		
SERVO	Can be changed: -	Access level: 3	
	Data type: Floating Point	Data set: -	Function diagram: 1550, 1590, 3080, 5020
	P-Group: Setpoints	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	- [1/min]	- [1/min]	- [1/min]
<b>Description:</b>			
Displays the speed/velocity setpoint after selecting the ramp-function generator and adding the speed/velocity setpoint 1 (p1155) and speed/velocity setpoint 2 (p1160).			
<b>Dependency:</b>			
Refer to: r1150, p1155, p1160			

<b>r1170</b>	<b>CO: Velocity controller, setpoint sum</b>		
SERVO (Lin)	Can be changed: -	Access level: 3	
	Data type: Floating Point	Data set: -	Function diagram: 1550, 1590, 3080, 5020
	P-Group: Setpoints	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	- [m/min]	- [m/min]	- [m/min]
<b>Description:</b>			
Displays the speed/velocity setpoint after selecting the ramp-function generator and adding the speed/velocity setpoint 1 (p1155) and speed/velocity setpoint 2 (p1160).			
<b>Dependency:</b>			

Refer to: r1150, p1155, p1160

**p1189[0...n] Speed setpoint configuration**

SERVO	Can be changed: U, T	Access level: 2
	Data type: Unsigned16	Data set: DDS
	P-Group: Closed-loop control	Function diagram: 3080
	Units group: -	Unit selection: -
	Min	Max
	0000 bin	0011 bin
		0011 bin

**Description:**

Sets the configuration for the speed/velocity setpoint.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Interpolation ramp-fct gen/speed controller active	No	Yes	3080
	01	Interpol. op-loop ctrl /speed controller active	No	Yes	3080

**p1189[0...n] Velocity setpoint configuration**

SERVO (Lin)	Can be changed: U, T	Access level: 2
	Data type: Unsigned16	Data set: DDS
	P-Group: Closed-loop control	Function diagram: 3080
	Units group: -	Unit selection: -
	Min	Max
	0000 bin	0011 bin
		0011 bin

**Description:**

Sets the configuration for the speed/velocity setpoint.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Interpolation ramp-fct gen/speed controller active	No	Yes	3080
	01	Interpol. op-loop ctrl /speed controller active	No	Yes	3080

**p1190 CI: DSC position deviation XERR**

SERVO	Can be changed: T	Access level: 3
	Data type: Unsigned32	Function diagram: 1550, 3090
	P-Group: Setpoints	Unit selection: -
	Units group: -	Factory setting
	Min	Max
	-	0

**Description:**

Sets the signal source for the position deviation XERR for DSC (position controller output



of the higher-level control).

**Dependency:**

Clock synchronous PROFIBUS must be active.

The position controller gain factor (KPC), the position deviation (XERR) and the speed setpoint (N\_SOLL\_B) must be included in the setpoint telegram.

At least the encoder interface (Gx\_XIST1) must be included in the actual value telegram.

The position actual value used for the internal position controller can be selected using p1192.

Refer to: p1191, p1192

**Note:**

DSC: Dynamic servo control

---

<b>p1191</b>	<b>CI: DSC position controller gain KPC</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 1550, 3090
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for the position controller gain KPC for DSC.

**Dependency:**

Refer to: p1190

**Note:**

DSC: Dynamic servo control

---

<b>p1192[0...n]</b>	<b>DSC enc selection</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Integer16	Data set: DDS	Function diagram: 3090
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	1	3	1

**Description:**

Sets the number of the encoder used for DSC.

**Values:**

- 1: Encoder 1 (motor encoder)
- 2: Encoder 2
- 3: Encoder 3

**Note:**

DSC: Dynamic servo control

Value 1 corresponds to encoder 1 (motor encoder); the encoder data set is assigned via p0187.

Value 2 corresponds to encoder 2; the encoder data set is assigned via p0188.

Value 3 corresponds to encoder 3; the encoder data set is assigned via p0189.

---

<b>p1193[0...n]</b>	<b>DSC encoder adaptation factor</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 3090
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.000	1000000.000	1.000

**Description:**

Sets the factor to adapt the encoder when using either encoder 2 or 3 for DSC.

The factor sets the ratio of the pulse difference between the motor encoder and the selected encoder for the same distance moved through. This factor takes into account gear ratios, differences in the number of encoder pulses, etc.

**Dependency:**

Refer to: p1192

**Note:**

Example:

Encoder 1: Motor encoder with 2048 pulses/revolution, ballscrew with 10 mm/revolution pitch

Encoder 2: Linear scale with 20 µm grid division as direct measuring system

p1193 = number of pulses, encoder 1 per motor revolution / number of pulses, encoder 2 per motor revolution

p1193 = 2048 / (10 mm / 20 µm) = 4.096

---

<b>r1197</b>	<b>Fixed speed setpoint, actual number</b>		
SERVO (Extended setp.)	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 3010
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the number of the selected fixed speed/velocity setpoint.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023

**Note:**

If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then  
r1024 = 0 (setpoint = 0).

<b>r1197</b>	<b>Fixed velocity setpoint, actual number</b>		
SERVO (Lin, Extended setp.)	Can be changed: -	Access level: 3	
	Data type: Unsigned32	Data set: -	Function diagram: 3010
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the number of the selected fixed speed/velocity setpoint.

**Dependency:**

Refer to: p1020, p1021, p1022, p1023

**Note:**

If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then  
r1024 = 0 (setpoint = 0).

<b>r1198</b>	<b>CO/BO: Control word setpoint channel</b>		
SERVO (Extended setp.)	Can be changed: -	Access level: 3	
	Data type: Unsigned16	Data set: -	Function diagram: 1530, 2505
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the control word for the setpoint channel.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Fixed setp. bit 0	No	Yes	-
	01	Fixed setp. bit 1	No	Yes	-
	02	Fixed setp. bit 2	No	Yes	-
	03	Fixed setp. bit 3	No	Yes	-
	05	Inhibit negative direction	No	Yes	-
	06	Inhibit positive direction	No	Yes	-
	11	Direction reversal	No	Yes	-

13	Motorized potentiometer, raise	No	Yes	-
14	Motorized potentiometer, lower	No	Yes	-
15	Bypass ramp-function generator	No	Yes	-

**r1199 CO/BO: Ramp-function generator status word**

SERVO (Extended setp.)

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 1550, 3080, 8010

P-Group: Setpoints

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the status word for the ramp-function generator (RFG).

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Ramp-up active	No	Yes	-
	01	Ramp-down active	No	Yes	-
	02	Ramp-function generator active	No	Yes	-
	03	Ramp-function generator set	No	Yes	-
	04	Ramp-function generator held	No	Yes	-
	05	Ramp-function generator tracking active	No	Yes	-
	06	Maximum limit active	No	Yes	-

**Note:**

Re bit 02:

The bit is an OR logic operation - bit 00 and bit 01.

**p1215 Motor holding brake configuration**

SERVO

Can be changed: U, T

Access level: 2

Data type: Integer16

Data set: -

Function diagram: 2701, 2707, 2711

P-Group: Functions

Units group: -

Unit selection: -

Min

Max

Factory setting

0

3

0

**Description:**

Sets the holding brake configuration.

**Values:**

- 0: No motor holding brake being used
- 1: Motor holding brake acc. to sequence control
- 2: Motor holding brake always open
- 3: Motor hold. brake just like seq. ctrl, brake conn. via BICO

**Dependency:**

Refer to: p1216, p1217, p1226, p1227, p1228

**Caution:**

For the setting p1215 = 0, if a brake is used, it remains closed. If the motor moves, this will destroy the brake.

**Notice:**

If p1215 was set to 1 or if p1215 was set to 3, then when the pulses are cancelled, the brake is closed even if the motor is still rotating. Pulse cancellation can either be caused by a 0 signal at p0844, p0845 or p0852 or as a result of a fault with OFF2 response. If this is not desirable (e.g. for a flying restart), then the brake can be kept open using a 1 signal at p0855.

**Note:**

If the configuration is set to "no holding brake present" at run-up, then the motor holding brake will be automatically identified. If a motor holding brake is detected, the configuration is set to "motor holding brake as for sequence control".

if an external motor holding brake is being used, then p1215 should be set to 3 and r0899.12 should be interconnected as control signal.

When the function module "extended brake control" is activated (r0108.14 = 1), r1229.1 should be interconnected as control signal.

The parameter can only be set to zero when the pulses are inhibited.

The parameterization "no motor holding brake available" and "safe brake control" enabled (p1215 = 0, p9602 = 1, p9802 = 1) is not practical if there is no motor holding brake.

<b>p1216</b>	<b>Motor holding brake, opening time</b>		
SERVO	Can be changed: U, T	Access level: 2	
	Data type: Floating Point	Data set: -	Function diagram: 2701, 2711
	P-Group: Functions	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0 [ms]	10000 [ms]	100 [ms]

**Description:**

Sets the time to open the motor holding brake.

After controlling the holding brake (opens), the speed/velocity setpoint remains at zero for this time. After this, the speed/velocity setpoint is enabled.

**Recommendation:**

This time should be set longer than the actual opening time of the brake. This ensures

that the drive cannot accelerate when the brake is applied.

**Dependency:**

Refer to: p1215, p1217

<b>p1217</b>	<b>Motor holding brake closing time</b>		
SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 2701, 2711
	P-Group: Functions	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0 [ms]	10000 [ms]	100 [ms]

**Description:**

Sets the time to apply the motor holding brake.

After OFF1 or OFF3 and the holding brake is controlled (the brake closes), then the drive remains closed-loop controlled for this time stationary with a speed setpoint/velocity setpoint of zero. The pulses are cancelled when the time expires.

**Recommendation:**

This time should be set longer than the actual closing time of the brake. This ensures that the pulses are only canceled after the brake has closed.

**Dependency:**

Refer to: p1215, p1216

**Notice:**

If the selected closing time is too short with respect to the actual closing time of the brake, then the load can sag.

If the closing time is selected to be too long with respect to the actual closing time of the brake, the control works against the brake and therefore reduces its lifetime.

<b>p1218[0...1]</b>	<b>BI: Open motor holding brake</b>		
SERVO (Extended brk)	Can be changed: T		Access level: 2
	Data type: Unsigned32	Data set: -	Function diagram: 2707
	P-Group: Functions	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	1

**Description:**

Sets the signal source for a conditional opening of the motor holding brake.

**Dependency:**

Refer to: p1215

**Note:**

[0]: Signal, open brake, AND logic operation, input 1

[1]: Signal, open brake, AND logic operation, input 2

<b>p1219[0...3]</b>	<b>BI: Immediately close motor holding brake</b>		
SERVO (Extended brk)	Can be changed: T	Access level: 2	
	Data type: Unsigned32	Data set: -	Function diagram: 2707
	P-Group: Functions	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	[0] 0
			[1] 0
			[2] 0
			[3] 1229.9

**Description:**

Sets the signal source for an unconditional (immediate) closing of the motor holding brake.

**Dependency:**

Refer to: p1215, p1275

**Note:**

[0]: Signal, immediately close brake, inversion via p1275.0

[1]: Signal, immediately close brake, inversion via p1275.1

[2]: Signal, immediately close brake

[3]: Signal, immediately close brake - refer to the factory setting

These four signals form an OR logic operation.

<b>p1220</b>	<b>CI: Open motor holding brake, signal source, threshold</b>		
SERVO (Extended brk)	Can be changed: T	Access level: 2	
	Data type: Unsigned32	Data set: -	Function diagram: 2707
	P-Group: Functions	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	1

**Description:**

Sets the signal source for the command "open brake".

**Dependency:**

Refer to: p1215, p1221, r1229, p1277

<b>p1221</b>	<b>Open motor holding brake, threshold</b>		
SERVO (Extended)	Can be changed: U, T	Access level: 2	

brk)

Data type: Floating Point	Data set: -	Function diagram: 2707
P-Group: Functions	Units group: PERCENT	Unit selection: -
Min	Max	Factory setting
0.00 [%]	200.00 [%]	0.00 [%]

**Description:**

Sets the threshold value for the command "open brake".

**Dependency:**

Refer to: p1220, r1229, p1277

---

**p1222 BI: Motor holding brake, feedback signal, brake closed**SERVO (Extended  
brk)

Can be changed: T

Access level: 2

Data type: Unsigned32	Data set: -	Function diagram: 2711
P-Group: Functions	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	0

**Description:**

Sets the signal source for the feedback signal "brake closed".

For motor holding brakes with feedback signal, the signal "brake closed" can be activated using p1275.5 = 1.

**Dependency:**

Refer to: p1223, p1275

**Note:**

1 signal: Brake closed.

When braking with 1 feedback signal, the inverted feedback signal is connected to the BICO input for the second feedback signal (p1223).

---

**p1223 BI: Motor holding brake, feedback signal, brake open**SERVO (Extended  
brk)

Can be changed: T

Access level: 2

Data type: Unsigned32	Data set: -	Function diagram: 2711
P-Group: Functions	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	1

**Description:**

Sets the signal source for the feedback signal "brake open".

For motor holding brakes with feedback signal, the signal "brake open" can be activated



using p1275.5 = 1.

**Dependency:**

Refer to: p1222, p1275

**Note:**

1 signal: Brake open.

When braking with 1 feedback signal, the inverted feedback signal is connected to the BICO input for the second feedback signal (p1222).

<b>p1224[0...3]</b>	<b>BI: Close motor holding brake at standstill</b>		
SERVO (Extended brk)	Can be changed: T	Access level: 2	
	Data type: Unsigned32	Data set: -	Function diagram: 2704
	P-Group: Functions	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for close brake at standstill.

**Dependency:**

Refer to: p1275

**Note:**

[0]: Signal, close brake at standstill, inversion via p1275.2

[1]: Signal, close brake at standstill, inversion via p1275.3

[2]: Signal, close brake at standstill

[3]: Signal, close brake at standstill

These four signals form an OR logic operation.

<b>p1225</b>	<b>CI: Standstill detection, threshold value</b>		
SERVO (Extended brk)	Can be changed: T	Access level: 2	
	Data type: Unsigned32	Data set: -	Function diagram: 2704
	P-Group: Functions	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	63[0]

**Description:**

Sets the signal source "threshold value" for the standstill identification.

**Dependency:**

Refer to: p1226, p1228, r1229

<b>p1226</b>	<b>Threshold for zero speed detection</b>		
SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 2701, 2704
	P-Group: Functions	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.0 [1/min]	210000.0 [1/min]	20.0 [1/min]

**Description:**

Sets the speed/velocity threshold for the standstill identification.

Acts on the actual value and setpoint monitoring.

When braking with OFF1 or OFF3, when the threshold is fallen below, standstill is identified.

The following applies when the brake control is activated:

When the threshold is fallen below, the brake control is started and the system waits for the brake closing time in p1217. The pulses are then canceled.

if the brake control is not activated, the following applies:

When the threshold is fallen below, the pulses are cancelled and the drive coasts down.

**Dependency:**

Refer to: p1215, p1216, p1217, p1227

**Note:**

Standstill is detected if the actual speed drops below the speed threshold in p1226 or if the monitoring time (p1227) - started when speed setpoint <= speed threshold (p1226) - has expired.

The actual value sensing is subject to measuring noise. For this reason, standstill cannot be detected if the speed threshold is too low.

<b>p1226</b>	<b>Standstill detection, velocity threshold</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 2701, 2704
	P-Group: Functions	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.0 [m/min]	1000.0 [m/min]	0.2 [m/min]

**Description:**

Sets the speed/velocity threshold for the standstill identification.

Acts on the actual value and setpoint monitoring.

When braking with OFF1 or OFF3, when the threshold is fallen below, standstill is identified.

The following applies when the brake control is activated:

When the threshold is fallen below, the brake control is started and the system waits for the brake closing time in p1217. The pulses are then canceled.

if the brake control is not activated, the following applies:

When the threshold is fallen below, the pulses are cancelled and the drive coasts down.

**Dependency:**

Refer to: p1215, p1216, p1217, p1227

**Note:**

Standstill is detected if the actual speed drops below the speed threshold in p1226 or if the monitoring time (p1227) - started when speed setpoint <= speed threshold (p1226) - has expired.

The actual value sensing is subject to measuring noise. For this reason, standstill cannot be detected if the speed threshold is too low.

<b>p1227</b>	<b>Zero speed detection monitoring time</b>		
SERVO	Can be changed: U, T	Access level: 2	
	Data type: Floating Point	Data set: -	Function diagram: 2701, 2704
	P-Group: Functions	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0.000 [s]	300.000 [s]	4.000 [s]

**Description:**

Sets the monitoring time for the standstill identification.

When braking with OFF1 or OFF3, standstill is identified after this time has expired.

After this, the brake control is started, the system waits for the closing time in p1217 and then the pulses are cancelled.

**Dependency:**

Refer to: p1215, p1216, p1217, p1226

**Note:**

Standstill (zero speed) is detected if, during the complete monitoring time (p1227), the speed setpoint falls below the speed threshold (p1226).

For p1227 = 300.000 s, the following applies:

The monitoring is deactivated.

This is the pre-setting (default setting) for SINAMICS G.

For p1227 = 0.000 s, the following applies:

With OFF1 or OFF3 and a ramp-down time = 0, the pulses are immediately cancelled and the motor "coasts" down.

<b>p1228</b>	<b>Pulse cancellation delay time</b>		
SERVO	Can be changed: U, T	Access level: 2	
	Data type: Floating Point	Data set: -	Function diagram: 2701, 2704

P-Group: Functions	Units group: TIME	Unit selection: -
Min	Max	Factory setting
0.000 [s]	10.000 [s]	0.000 [s]

**Description:**

Sets the delay time for pulse cancellation.

After OFF1 or OFF3 and zero speed detection, the system waits for this time to expire and the pulses are then canceled.

**Dependency:**

Refer to: p1226, p1227

**Note:**

Standstill (zero speed) is detected if, during the complete delay time (p1228), the speed actual value falls below the speed threshold (p1226).

**r1229****CO/BO: Motor holding brake status word**

SERVO (Extended  
brk)

Can be changed: -

Access level: 2

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Functions

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the status word for the motor holding brake.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	01	Command, open brake (continuous signal)	No	Yes	2711
	03	Pulse enable, expanded brake control	No	Yes	2711
	04	Brake does not open	No	Yes	2711
	05	Brake does not close	No	Yes	2711
	06	Brake threshold exceeded	No	Yes	2707
	07	Brake threshold fallen below	No	Yes	2704
	08	Brake monitoring time expired	No	Yes	2704
	09	Pulse enable request missing/n_ctrl inhibited	No	Yes	2707
	10	Brake OR logic operation result	No	Yes	2707
	11	Brake AND logic operation result	No	Yes	2707

**p1240****Vdc controller or Vdc monitoring configuration**

SERVO

Can be changed: U, T

Access level: 3

Data type: Integer16

Data set: -

Function diagram: 6220

P-Group: Functions	Units group: -	Unit selection: -
Min	Max	Factory setting
0	6	0

**Description:**

Sets the configuration of the controller or monitoring for the DC link voltage (Vdc).

**Values:**

- 0: Inhib Vdc ctrl
- 1: Enables Vdc\_max controller
- 2: Enables Vdc\_min controller (kinetic buffering)
- 3: Enables Vdc\_min controller and Vdc\_max controller
- 4: Activates Vdc\_max monitoring
- 5: Activates Vdc\_min monitoring
- 6: Activates Vdc\_min monitoring and Vdc\_max monitoring

**Dependency:**

Refer to: p1244, p1248, p1250

**Note:**

p1240 = 1, 3:

When the upper DC link voltage threshold is reached (p1244), then the following applies:

- the Vdc\_max controller limits the regenerative energy in order that the DC link voltage is kept below the maximum DC link voltage when braking.
- when other drives regenerate into the DC link, then the Vdc\_max controller causes the motor to accelerate.

p1240 = 2, 3:

When the lower DC link voltage threshold is reached (p1244), the following applies:

- the Vdc\_min controller limits the energy taken from the DC link in order to keep the DC link voltage above the minimum DC link voltage when accelerating.
- the motor is braked in order to use its kinetic energy to buffer the DC link.

p1240 = 4, 5, 6:

When the threshold in p1244 or p1268 is reached, the DC link voltage monitoring initiates a fault with a response and therefore reduces additional negative effects on the DC link voltage.

**p1244**

**DC link voltage threshold, upper**

SERVO

Can be changed: U, T

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Functions

Units group: VOLTAGE\_DC

Unit selection: -

Min

Max

Factory setting

400 [V]

800 [V]

750 [V]

**Description:**

Sets the upper threshold for the DC link voltage.

For p1240 = 1, 3, this threshold is used as limit setpoint for the Vdc\_max controller.

For p1240 = 4, 6, for DC link voltages above this threshold, an appropriate fault is output.

**Dependency:**

Refer to: p1240, p1248, p1250

---

<b>p1248</b>	<b>DC link voltage threshold, lower</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Functions	Units group: VOLTAGE_DC	Unit selection: -
	Min	Max	Factory setting
	100 [V]	700 [V]	450 [V]

**Description:**

Sets the lower threshold for the DC link voltage.

For p1240 = 2, 3, this threshold is used as limit setpoint for the Vdc\_min controller.

For p1240 = 5, 6, for DC link voltages below this threshold, an appropriate fault is output.

**Dependency:**

Refer to: p1240, p1244, p1250

---

<b>p1250</b>	<b>Vdc controller proportional gain</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 6220
	P-Group: Functions	Units group: GAIN_VOLTAGE_CTRL	Unit selection: p0528
	Min	Max	Factory setting
	0.00 [A/V]	10.00 [A/V]	1.00 [A/V]

**Description:**

Sets the proportional gain for the Vdc controller (DC link voltage controller).

**Dependency:**

Refer to: p1240, p1244, p1248

---

<b>p1275</b>	<b>Motor holding brake control word</b>		
SERVO (Extended brk)	Can be changed: U, T		Access level: 2
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 bin	0010 1111 bin	0000 bin

**Description:**

Sets the control word for the motor holding brake.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Inverting BI: 1219[0]	No	Yes	2707
	01	Inverting BI: 1219[1]	No	Yes	2707
	02	Inverting BI: 1224[0]	No	Yes	2704
	03	Inverting BI: 1224[1]	No	Yes	2704
	05	Brake with feedback	No	Yes	2711

---

**p1276 Motor holding brake, standstill detection, bypass**

SERVO (Extended brk)	Can be changed: U, T	Access level: 2
Data type: Floating Point	Data set: -	Function diagram: 2704
P-Group: Functions	Units group: TIME	Unit selection: -
Min	Max	Factory setting
0.000 [s]	300.000 [s]	300.000 [s]

**Description:**

Sets the delay time for closing the brake at standstill.

After this time has expired, if the "close brake at standstill" or OFF1/OFF3 is present, the brake is closed and the pulses are cancelled.

For p1276 = 300.000 s, the timer is de-activated - this means that the timer output is always zero.

---

**p1277 Motor holding brake, braking threshold delay exceeded**

SERVO (Extended brk)	Can be changed: U, T	Access level: 2
Data type: Floating Point	Data set: -	Function diagram: 2707
P-Group: Functions	Units group: TIME	Unit selection: -
Min	Max	Factory setting
0.000 [s]	300.000 [s]	0.000 [s]

**Description:**

Sets the delay time for the signal "braking threshold exceeded" (BO: r1229.6).

**Dependency:**

Refer to: p1220, p1221, r1229

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**p1279[0...3] BI: Motor holding brake, OR/AND logic operation**

SERVO (Extended brk)	Can be changed: T	Access level: 2
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Data type: Unsigned32	Data set: -	Function diagram: 2707
P-Group: Functions	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	0

**Description:**

Sets the signal source for the OR/AND logic operation.

**Dependency:**

Refer to: r1229

**Note:**

[0]: OR logic operation, input 1 --> the result is displayed in r1229.10.

[1]: OR logic operation, input 2 --> the result is displayed in r1229.10.

[2]: AND logic operation, input 1 --> the result is displayed in r1229.11.

[3]: AND logic operation, input 2 --> the result is displayed in r1229.11.

**p1300[0...n]****Open-loop/closed-loop control operating mode**

SERVO

Can be changed: C2(1), T

Access level: 2

Data type: Integer16

Data set: DDS

Function diagram: 1590, 1690,  
5060, 6300

P-Group: V/f open-loop control

Units group: -

Unit selection: -

Min

Max

Factory setting

20

23

21

**Description:**

Sets the open and closed loop control mode of a drive.

**Values:**

20: Speed control (sensorless)

21: Speed control (with encoder)

23: Torque control (with encoder)

**Dependency:**

Closed-loop speed control can be selected if, as operating mode (refer to p0108), at least closed-loop speed control was selected.

Closed-loop torque control can only be selected if, as operating mode, at least the closed-loop torque/force control was selected.

Only operation with V/f characteristic is possible if the rated motor speed is not entered (p0311).

Closed-loop speed or torque control (with encoder) cannot be selected if the encoder type is not entered (p0400).

For vector drives (refer to p0107):

A synchronous motor can only be operated in a V/f control mode (p1300 < 20).

Refer to: p0108, r0108, p0300, p0311, p0400, p1501



**Note:**

Closed-loop speed or torque control (with encoder) cannot be selected if the encoder type is not entered (p0400).

The closed-loop torque control can only be changed over in operation (p1300 = 20 or 21) by selecting the closed-loop speed control (p1501). At the changeover, the setting of p1300 does not change. In this case, the actual state is displayed in r1407, bit 2 and bit 3.

In the servo control mode the following applies:

Only p1300 = 20, 21, 23 can be set.

For closed-loop vector control, the following applies:

Closed-loop speed control can be selected if, as operating mode, at least closed-loop speed control was selected (p0108 bit 2).

Only operation with V/f characteristic is possible if the rated motor speed is not entered (p0311).

A synchronous motor without speed encoder can only be operated in a V/f control mode (p1300 < 20).

For the open-loop control modes p1300 = 5 and 6 (textile sector), the slip compensation p1355 and the resonance damping p1338 are internally switched-out (disabled) in order to be able to precisely set the output frequency.

During operation (the pulses enabled) the open-loop/closed-loop control mode cannot be changed by changing- over drive data sets.

**p1317[0...n]**

**V/f control diagnostics activation**

SERVO

Can be changed: T

Access level: 3

Data type: Integer16

Data set: DDS

Function diagram: 5718

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

0

1

0

**Description:**

Activates the V/f control with linear characteristic for diagnostic purposes.

0: Operation as set in p1300.

1: Activates the V/f control.

**Values:**

0: Off (p1300 eff)

1: On

**Dependency:**

Refer to: p1318, p1319, p1326, p1327

**p1318[0...n]**

**V/f control ramp-up/ramp-down time**

SERVO

Can be changed: U, T

Access level: 3

Data type: Floating Point

Data set: DDS

Function diagram: 5300

P-Group: V/f open-loop control	Units group: TIME	Unit selection: -
Min	Max	Factory setting
0.000 [s]	999999.000 [s]	10.000 [s]

**Description:**

Sets the ramp-up and ramp-down time for the V/f control.

The ramp-function generator requires this time to reach the maximum speed (p1082) from zero.

**Dependency:**

Refer to: p1317, p1319, p1326, p1327

**Note:**

This ramp is used for stall protection and operates independently of any ramp-function generator that might have been configured.

**p1319[0...n]****V/f control voltage at zero frequency**

SERVO

Can be changed: U, T

Access level: 3

Data type: Floating Point

Data set: DDS

Function diagram: 5300

P-Group: V/f open-loop control

Units group: VOLTAGE\_AC\_EFF

Unit selection: -

Min

Max

Factory setting

0.0 [Veff]

25.0 [Veff]

0.0 [Veff]

**Description:**

The linear characteristic for the V/f control is defined by 0 Hz / p1319 and p1326 / p1327.

This parameter specifies the voltage for a frequency of 0 Hz.

**Dependency:**

Activates the V/f control using p1317.

Refer to: p1317, p1326, p1327

**Note:**

Linear interpolation is carried-out between the points 0 Hz / p1319 and p1326 / p1327.

**p1326[0...n]****V/f control programmable characteristic frequency 4**

SERVO

Can be changed: U, T

Access level: 3

Data type: Floating Point

Data set: DDS

Function diagram: 5300, 6300

P-Group: V/f open-loop control

Units group: FREQUENCY

Unit selection: -

Min

Max

Factory setting

0.00 [Hz]

10000.00 [Hz]

0.00 [Hz]

**Description:**

In the servo control mode the following applies:

The linear characteristic for the V/f control is defined by 0 Hz / p1319 and p1326 / p1327.

For closed-loop vector control, the following applies:

The programmable characteristic for the V/f control is defined using 4 points and 0 Hz/p1310.

This parameter specifies the voltage of the fourth point along the characteristic.

**Dependency:**

In the servo control mode the following applies:

Activates the V/f control using p1317.

For closed-loop vector control, the following applies:

Selects the freely programmable characteristic using p1300 = 3.

The following applies for the frequency values: p1320 ≤ p1322 ≤ p1324 ≤ p1326.

Otherwise, a standard characteristic is used that contains the rated motor operating point.

Refer to: p1317, p1319, p1327

**Note:**

In the servo control mode the following applies:

Linear interpolation is carried-out between the points 0 Hz / p1319 and p1326 / p1327.

For closed-loop vector control, the following applies:

Linear interpolation is carried-out between the points 0 Hz / p1310, p1320 / p1321 ... p1326 / p1327.

The voltage boost when accelerating (p1311) is also applied to the freely programmable V/Hz characteristic.

<b>p1327[0...n] V/f control programmable characteristic voltage 4</b>			
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5300, 6300
	P-Group: V/f open-loop control	Units group: VOLTAGE_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	0.0 [Veff]	10000.0 [Veff]	0.0 [Veff]

**Description:**

In the servo control mode the following applies:

The linear characteristic for the V/f control is defined by 0 Hz / p1319 and p1326 / p1327.

For closed-loop vector control, the following applies:

The programmable characteristic for the V/f control is defined using 4 points and 0 Hz/p1310.

This parameter specifies the voltage of the fourth point along the characteristic.

**Dependency:**

In the servo control mode the following applies:

Activates the V/f control using p1317.

For closed-loop vector control, the following applies:

Selects the freely programmable characteristic using p1300 = 3.

Refer to: p1317, p1319, p1326

**Note:**

In the servo control mode the following applies:

Linear interpolation is carried-out between the points 0 Hz / p1319 and p1326 / p1327.

For closed-loop vector control, the following applies:

Linear interpolation is carried-out between the points 0 Hz / p1310, p1320 / p1321 ...  
p1326 / p1327.

The voltage boost when accelerating (p1311) is also applied to the freely programmable  
V/Hz characteristic.

<b>p1400[0...n]</b>	<b>Speed control configuration</b>		
SERVO	Can be changed: U, T		Access level: 2
	Data type: Unsigned16	Data set: DDS	Function diagram: 1590, 5490
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 bin	1111 1111 1111 1111 bin	0000 0011 1010 0000 bin

**Description:**

Sets the configuration for the speed/velocity control.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	04	Torque limiting motoring/regenerating active	No	Yes	-
	05	Kp/Tn adaptation active	No	Yes	-
	07	Interpolation speed controller pre-control active	No	Yes	-
	08	Interpolation torque setpoint active	No	Yes	-
	09	Damping for sensorless open-loop controlled oper.	No	Yes	-
	10	Speed pre-control	To setp. filter 2	For balancing	-
	11	Sensorless oper. speed actual value starting value	0.0	Setpoint	-
	12	Sensorless operation changeover	When accelerating	Steady-state	-
	13	Motor/generator dependent on	Actual speed value	Speed setpoint	-

**Note:**

Re bit 07:

The interpolator is only effective for clock-cycle synchronous PROFIBUS operation and has, when the dynamic servo control (DSC) is active, and additional deadtime of one speed controller clock cycle.

---

**p1400[0...n]      Velocity control, configuration**

SERVO (Lin)	Can be changed: U, T		Access level: 2
	Data type: Unsigned16	Data set: DDS	Function diagram: 1590, 5490
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 bin	1111 1111 1111 1111 bin	0000 0011 1010 0000 bin

**Description:**

Sets the configuration for the speed/velocity control.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	04	Torque limiting motoring/regenerating active	No	Yes	-
	05	Kp/Tn adaptation active	No	Yes	-
	07	Interpolation speed controller pre-control active	No	Yes	-
	08	Interpolation torque setpoint active	No	Yes	-
	09	Damping for sensorless open-loop controlled oper.	No	Yes	-
	10	Speed pre-control	To setp. filter 2	For balancing	-
	11	Sensorless oper. speed actual value starting value	0.0	Setpoint	-
	12	Sensorless operation changeover	When accelerating	Steady-state	-
	13	Motor/generator dependent on	Actual speed value	Speed setpoint	-

**Note:**

Re bit 07:

The interpolator is only effective for clock-cycle synchronous PROFIBUS operation and has, when the dynamic servo control (DSC) is active, and additional deadtime of one speed controller clock cycle.

<b>p1404[0...n]</b>	<b>Sensorless operation changeover speed</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 1590, 5060
	P-Group: Closed-loop control	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.0 [1/min]	210000.0 [1/min]	210000.0 [1/min]

**Description:**

Sets the speed/velocity to change over between operation with and without encoder. Above this speed/velocity, the drive system is automatically operated in the sensorless mode.

**Note:**

The changeover speed applies when changing over between operation with and without encoder.

Separate speed controllers should be set when operating with and without encoder.

Operation with encoder: p1460 (Kp), p1462 (Tn), p1461, p1463, p1457, p1458  
(parameters for speed controller adaptation)

Operation without encoder (sensorless operation): p1470 (Kp), p1472 (Tn)

<b>p1404[0...n]</b>	<b>Sensorless operation changeover velocity</b>		
SERVO (Lin)	Can be changed: T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 1590, 5060
	P-Group: Closed-loop control	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.0 [m/min]	1000.0 [m/min]	1000.0 [m/min]

**Description:**

Sets the speed/velocity to change over between operation with and without encoder.  
Above this speed/velocity, the drive system is automatically operated in the sensorless mode.

**Note:**

The changeover speed applies when changing over between operation with and without encoder.

Separate speed controllers should be set when operating with and without encoder.

Operation with encoder: p1460 (Kp), p1462 (Tn), p1461, p1463, p1457, p1458  
(parameters for speed controller adaptation)

Operation without encoder (sensorless operation): p1470 (Kp), p1472 (Tn)

<b>r1406</b>	<b>CO/BO: Control word speed controller</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: 1530, 2520
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the control word of the speed/velocity controller.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	08	Travel to fixed endstop active	No	Yes	-
	12	Torque control active	No	Yes	-

<b>r1406</b>	<b>CO/BO: Control word, velocity controller</b>		
SERVO (Lin)	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: 1530, 2520
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the control word of the speed/velocity controller.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	08	Travel to fixed endstop active	No	Yes	-
	12	Torque control active	No	Yes	-

<b>r1407</b>	<b>CO/BO: Status word speed controller</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: 1530, 2522
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the status word of the speed/velocity controller.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	V/f control active	No	Yes	-
	01	Sensorless operation active	No	Yes	-
	02	Torque control active	No	Yes	-
	04	DSC active	No	Yes	-
	05	Speed controller I component held	No	Yes	-
	06	Speed controller I component set	No	Yes	-
	07	Torq limit reached	No	Yes	5610
	08	Upper torque limit active	No	Yes	5610
	09	Lower torque limit active	No	Yes	5610
	11	Speed setpoint limited	No	Yes	-
	13	Sensorless operation due to a fault	No	Yes	-

<b>r1407</b>	<b>CO/BO: Status word, velocity controller</b>		
SERVO (Lin)	Can be changed: -		Access level: 3

Data type: Unsigned16	Data set: -	Function diagram: 1530, 2522
P-Group: Closed-loop control	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	-

**Description:**

Displays the status word of the speed/velocity controller.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	V/f control active	No	Yes	-
	01	Sensorless operation active	No	Yes	-
	02	Torque control active	No	Yes	-
	04	DSC active	No	Yes	-
	05	Speed controller I component held	No	Yes	-
	06	Speed controller I component set	No	Yes	-
	07	Torq limit reached	No	Yes	5610
	08	Upper torque limit active	No	Yes	5610
	09	Lower torque limit active	No	Yes	5610
	11	Speed setpoint limited	No	Yes	-
	13	Sensorless operation due to a fault	No	Yes	-

**r1408 CO/BO: Closed-loop control status word 3**

SERVO

Can be changed: -	Access level: 3
Data type: Unsigned16	Function diagram: 5040, 5493
P-Group: Closed-loop control	Unit selection: -
Min	Factory setting
-	-

**Description:**

Displays closed-loop control status word 3 (closed-loop control STW3).

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	CI-loop curr ctrl	Not active	active	-
	04	Limit Vd	Not active	active	-
	05	Limit Vq	Not active	active	-
	06	Positive limiting Iq	Not active	active	-
	07	Negative limiting Iq	Not active	active	-
	08	Limit iq_set	Not active	active	-
	09	Limit id_set	Not active	active	-



**Note:**

The selected current limit is taken into account by the upstream torque limiting; this is the reason that bits 6, 7 and 8 are only set for overshoots due to the current setpoint filter.

<b>p1414[0...n]</b>	<b>Speed setpoint filter activation</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Unsigned16	Data set: DDS	Function diagram: 5020
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 bin	0011 bin	0000 bin

**Description:**

Activates the speed /velocity setpoint filters 1 and 2.

**Recommendation:**

If only one filter is required, filter 1 should be activated and filter 2 deactivated, to avoid excessive processing time.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Activate filter 1	No	Yes	-
	01	Activate filter 2	No	Yes	-

**Dependency:**

The speed setpoint filter is parameterized using p1415 ... p1420 and p1421 ... p1426.

<b>p1414[0...n]</b>	<b>Velocity setpoint filter activation</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Unsigned16	Data set: DDS	Function diagram: 5020
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 bin	0011 bin	0000 bin

**Description:**

Activates the speed /velocity setpoint filters 1 and 2.

**Recommendation:**

If only one filter is required, filter 1 should be activated and filter 2 deactivated, to avoid excessive processing time.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Activate filter 1	No	Yes	-
	01	Activate filter 2	No	Yes	-

**Dependency:**

The speed setpoint filter is parameterized using p1415 ... p1420 and p1421 ... p1426.

<b>p1415[0...n]</b>	<b>Speed setpoint filter 1 type</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Integer16	Data set: DDS	Function diagram: 5020
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	2	0
	<b>Description:</b> Sets the type for the speed/velocity setpoint filter 1.		
	<b>Values:</b> 0: Low pass: PT1 1: Low pass: PT2 2: General 2nd-order filter		
	<b>Dependency:</b> PT1 low pass: p1416 PT2 low pass: p1417, p1418 General filter: p1417 - p1420		
<b>p1415[0...n]</b>	<b>Velocity setpoint filter 1 type</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Integer16	Data set: DDS	Function diagram: 5020
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	2	0
	<b>Description:</b> Sets the type for the speed/velocity setpoint filter 1.		
	<b>Values:</b> 0: Low pass: PT1 1: Low pass: PT2 2: General 2nd-order filter		
	<b>Dependency:</b> PT1 low pass: p1416 PT2 low pass: p1417, p1418 General filter: p1417 - p1420		
<b>p1416[0...n]</b>	<b>Speed setpoint filter 1 time constant</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5020, 6030
	P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -

Min	Max	Factory setting
0.00 [ms]	5000.00 [ms]	0.00 [ms]

**Description:**

Sets the time constant for the speed/velocity setpoint filter 1 (PT1).

**Dependency:**

Refer to: p1414, p1415

**Note:**

For SERVO (p0107) the following applies:

This parameter is only effective if the speed filter is set as a PT1 low pass.

---

<b>p1416[0...n]</b>	<b>Velocity setpoint filter 1 time constant</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5020, 6030
	P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	5000.00 [ms]	0.00 [ms]

**Description:**

Sets the time constant for the speed/velocity setpoint filter 1 (PT1).

**Dependency:**

Refer to: p1414, p1415

**Note:**

For SERVO (p0107) the following applies:

This parameter is only effective if the speed filter is set as a PT1 low pass.

---

<b>p1417[0...n]</b>	<b>Speed setpoint filter 1 denominator natural frequency</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5020
	P-Group: Closed-loop control	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	0.5 [Hz]	16000.0 [Hz]	2000.0 [Hz]

**Description:**

Sets the denominator natural frequency for the speed/velocity setpoint filter 1 (PT2, general filter).

**Dependency:**

Refer to: p1414, p1415

**Note:**

This parameter is only effective if the speed filter is parameterized as a PT2 low pass or as general filter.

The filter is only effective if the natural frequency is less than half of the sampling frequency.

---

<b>p1417[0...n]</b>	<b>Velocity setpoint filter 1 denominator natural frequency</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5020
	P-Group: Closed-loop control	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	0.5 [Hz]	16000.0 [Hz]	2000.0 [Hz]

**Description:**

Sets the denominator natural frequency for the speed/velocity setpoint filter 1 (PT2, general filter).

**Dependency:**

Refer to: p1414, p1415

**Note:**

This parameter is only effective if the speed filter is parameterized as a PT2 low pass or as general filter.

The filter is only effective if the natural frequency is less than half of the sampling frequency.

---

<b>p1418[0...n]</b>	<b>Speed setpoint filter 1 denominator damping</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5020
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.050	10.000	0.700

**Description:**

Sets the denominator damping for the speed/velocity setpoint filter 1 (PT2, general filter).

**Dependency:**

Refer to: p1414, p1415

**Note:**

This parameter is only effective if the speed filter is parameterized as a PT2 low pass or as general filter.

---

<b>p1418[0...n]</b>	<b>Velocity setpoint filter 1 denominator damping</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3

Data type: Floating Point	Data set: DDS	Function diagram: 5020
P-Group: Closed-loop control	Units group: -	Unit selection: -
Min	Max	Factory setting
0.050	10.000	0.700

**Description:**

Sets the denominator damping for the speed/velocity setpoint filter 1 (PT2, general filter).

**Dependency:**

Refer to: p1414, p1415

**Note:**

This parameter is only effective if the speed filter is parameterized as a PT2 low pass or as general filter.

---

**p1419[0...n] Speed setpoint filter 1 numerator natural frequency**

SERVO	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Data set: DDS
	P-Group: Closed-loop control	Units group: FREQUENCY
	Min	Max
	0.5 [Hz]	16000.0 [Hz]
		2000.0 [Hz]

**Description:**

Sets the numerator natural frequency for the speed/velocity setpoint filter 1 (general filter).

**Dependency:**

Refer to: p1414, p1415

**Note:**

This parameter is only effective if the speed filter is set as a general filter.

The filter is only effective if the natural frequency is less than half of the sampling frequency.

---

**p1419[0...n] Velocity setpoint filter 1 numerator natural frequency**

SERVO (Lin)	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Data set: DDS
	P-Group: Closed-loop control	Units group: FREQUENCY
	Min	Max
	0.5 [Hz]	16000.0 [Hz]
		2000.0 [Hz]

**Description:**

Sets the numerator natural frequency for the speed/velocity setpoint filter 1 (general filter).

**Dependency:**

Refer to: p1414, p1415

**Note:**

This parameter is only effective if the speed filter is set as a general filter.

The filter is only effective if the natural frequency is less than half of the sampling frequency.

---

<b>p1420[0...n]</b>	<b>Speed setpoint filter 1 numerator damping</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5020
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.000	10.000	0.700

**Description:**

Sets the numerator damping for the speed/velocity setpoint filter 1 (general filter).

**Dependency:**

Refer to: p1414, p1415

**Note:**

This parameter is only effective if the speed filter is set as a general filter.

---

<b>p1420[0...n]</b>	<b>Velocity setpoint filter 1 numerator damping</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5020
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.000	10.000	0.700

**Description:**

Sets the numerator damping for the speed/velocity setpoint filter 1 (general filter).

**Dependency:**

Refer to: p1414, p1415

**Note:**

This parameter is only effective if the speed filter is set as a general filter.

---

<b>p1421[0...n]</b>	<b>Speed setpoint filter 2 type</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Integer16	Data set: DDS	Function diagram: 5020
	P-Group: Closed-loop control	Units group: -	Unit selection: -

Min	Max	Factory setting
0	2	0

**Description:**

Sets the type for the speed/velocity setpoint filter 2.

**Values:**

- 0: Low pass: PT1
- 1: Low pass: PT2
- 2: General 2nd-order filter

**Dependency:**

PT1 low pass: p1422

PT2 low pass: p1423, p1424

General filter: p1423 - p1426

---

<b>p1421[0...n]</b>	<b>Velocity setpoint filter 2 type</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Integer16	Data set: DDS	Function diagram: 5020
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	2	0

**Description:**

Sets the type for the speed/velocity setpoint filter 2.

**Values:**

- 0: Low pass: PT1
- 1: Low pass: PT2
- 2: General 2nd-order filter

**Dependency:**

PT1 low pass: p1422

PT2 low pass: p1423, p1424

General filter: p1423 - p1426

---

<b>p1422[0...n]</b>	<b>Speed setpoint filter 2 time constant</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5020
	P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	5000.00 [ms]	0.00 [ms]

**Description:**

Sets the time constant for the speed/velocity setpoint filter 2 (PT1).

**Dependency:**

Refer to: p1414, p1421

**Note:**

This parameter is only effective if the speed filter is set as a PT1 low pass.

---

<b>p1422[0...n]</b>	<b>Velocity setpoint filter 2 time constant</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5020
	P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	5000.00 [ms]	0.00 [ms]

**Description:**

Sets the time constant for the speed/velocity setpoint filter 2 (PT1).

**Dependency:**

Refer to: p1414, p1421

**Note:**

This parameter is only effective if the speed filter is set as a PT1 low pass.

---

<b>p1423[0...n]</b>	<b>Speed setpoint filter 2 denominator natural frequency</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5020
	P-Group: Closed-loop control	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	0.5 [Hz]	16000.0 [Hz]	2000.0 [Hz]

**Description:**

Sets the denominator natural frequency for the speed/velocity setpoint filter 2 (PT2, general filter).

**Dependency:**

Refer to: p1414, p1421

**Note:**

This parameter is only effective if the speed filter is parameterized as a PT2 low pass or as general filter.

The filter is only effective if the natural frequency is less than half of the sampling frequency.

---

<b>p1423[0...n]</b>	<b>Velocity setpoint filter 2 denominator natural frequency</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5020



P-Group: Closed-loop control	Units group: FREQUENCY	Unit selection: -
Min	Max	Factory setting
0.5 [Hz]	16000.0 [Hz]	2000.0 [Hz]

**Description:**

Sets the denominator natural frequency for the speed/velocity setpoint filter 2 (PT2, general filter).

**Dependency:**

Refer to: p1414, p1421

**Note:**

This parameter is only effective if the speed filter is parameterized as a PT2 low pass or as general filter.

The filter is only effective if the natural frequency is less than half of the sampling frequency.

---

**p1424[0...n] Speed setpoint filter 2 denominator damping**

SERVO	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Data set: DDS
	P-Group: Closed-loop control	Units group: -
	Min	Max
	0.050	10.000
		0.700

**Description:**

Sets the denominator damping for the speed/velocity setpoint filter 2 (PT2, general filter).

**Dependency:**

Refer to: p1414, p1421

**Note:**

This parameter is only effective if the speed filter is parameterized as a PT2 low pass or as general filter.

---

**p1424[0...n] Velocity setpoint filter 2 denominator damping**

SERVO (Lin)	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Data set: DDS
	P-Group: Closed-loop control	Units group: -
	Min	Max
	0.050	10.000
		0.700

**Description:**

Sets the denominator damping for the speed/velocity setpoint filter 2 (PT2, general filter).

**Dependency:**

Refer to: p1414, p1421

**Note:**

This parameter is only effective if the speed filter is parameterized as a PT2 low pass or as general filter.

---

<b>p1425[0...n]</b>	<b>Speed setpoint filter 2 numerator natural frequency</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5020
	P-Group: Closed-loop control	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	0.5 [Hz]	16000.0 [Hz]	2000.0 [Hz]

**Description:**

Sets the numerator natural frequency for the speed/velocity setpoint filter 2 (general filter).

**Dependency:**

Refer to: p1414, p1421

**Note:**

This parameter is only effective if the speed filter is set as a general filter.

The filter is only effective if the natural frequency is less than half of the sampling frequency.

---

<b>p1425[0...n]</b>	<b>Velocity setpoint filter 2 numerator natural frequency</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5020
	P-Group: Closed-loop control	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	0.5 [Hz]	16000.0 [Hz]	2000.0 [Hz]

**Description:**

Sets the numerator natural frequency for the speed/velocity setpoint filter 2 (general filter).

**Dependency:**

Refer to: p1414, p1421

**Note:**

This parameter is only effective if the speed filter is set as a general filter.

The filter is only effective if the natural frequency is less than half of the sampling frequency.

<b>p1426[0...n]</b>	<b>Speed setpoint filter 2 numerator damping</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5020
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.000	10.000	0.700
<b>Description:</b>			
Sets the numerator damping for the speed/velocity setpoint filter 2 (general filter).			
<b>Dependency:</b>			
Refer to: p1414, p1421			
<b>Note:</b>			
This parameter is only effective if the speed filter is set as a general filter.			

<b>p1426[0...n]</b>	<b>Velocity setpoint filter 2 numerator damping</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5020
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.000	10.000	0.700
<b>Description:</b>			
Sets the numerator damping for the speed/velocity setpoint filter 2 (general filter).			
<b>Dependency:</b>			
Refer to: p1414, p1421			
<b>Note:</b>			
This parameter is only effective if the speed filter is set as a general filter.			

<b>p1428[0...n]</b>	<b>Speed pre-control balancing deadline</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5030, 6031
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.0	2.0	0.0
<b>Description:</b>			
Sets the deadline to balance the speed/velocity setpoint for active torque/force pre-control.			
The selected multiplier refers to the speed/velocity controller clock cycle (deadline=			

p1428 \* p0115[1]).

**Dependency:**

In conjunction with p1429, this parameter can simulate the characteristics of how the torque is established (dynamic response of closed current control loop).

For VECTOR (r0107) the following applies:

The parameter is only effective if the acceleration model is supplied using external acceleration signals (p1400.2 = 1). For p1400.2 = 0, a fixed deadtime is used.

Refer to: p1429, p1511

p1428[0...n]	Velocity pre-control balancing deadtime		
SERVO (Lin)	Can be changed: U, T	Access level: 3	
	Data type: Floating Point	Data set: DDS	Function diagram: 5030, 6031
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.0	2.0	0.0

**Description:**

Sets the deadtime to balance the speed/velocity setpoint for active torque/force pre-control.

The selected multiplier refers to the speed/velocity controller clock cycle (deadtime= p1428 \* p0115[1]).

**Dependency:**

In conjunction with p1429, this parameter can simulate the characteristics of how the torque is established (dynamic response of closed current control loop).

For VECTOR (r0107) the following applies:

The parameter is only effective if the acceleration model is supplied using external acceleration signals (p1400.2 = 1). For p1400.2 = 0, a fixed deadtime is used.

Refer to: p1429, p1511

p1429[0...n]	Speed pre-control balancing time constant		
SERVO	Can be changed: U, T	Access level: 3	
	Data type: Floating Point	Data set: DDS	Function diagram: 5030, 6031
	P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	10000.00 [ms]	0.00 [ms]

**Description:**

Sets the time constant (PT1) for balancing the speed/velocity setpoint for the active torque/force pre-control.

**Dependency:**

In conjunction with p1428, this parameter can simulate the characteristics of how torque is established (dynamic response of the closed current control loop).

For VECTOR (r0107) the following applies:

The parameter is only effective if the acceleration model is supplied using external acceleration signals (p1400.2 = 1). For p1400.2 = 0, time constant p1442 (or p1452 for sensorless closed-loop vector control) is used.

Refer to: p1428, p1511

<b>p1429[0...n]</b>	<b>Velocity pre-control balancing time constant</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5030, 6031
	P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	10000.00 [ms]	0.00 [ms]

**Description:**

Sets the time constant (PT1) for balancing the speed/velocity setpoint for the active torque/force pre-control.

**Dependency:**

In conjunction with p1428, this parameter can simulate the characteristics of how torque is established (dynamic response of the closed current control loop).

For VECTOR (r0107) the following applies:

The parameter is only effective if the acceleration model is supplied using external acceleration signals (p1400.2 = 1). For p1400.2 = 0, time constant p1442 (or p1452 for sensorless closed-loop vector control) is used.

Refer to: p1428, p1511

<b>p1430[0...n]</b>	<b>CI: Speed pre-control</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 1550, 1590, 5020
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for the speed/velocity pre-control channel (speed/velocity pre-control or torque/force pre-control).

<b>p1430[0...n]</b>	<b>CI: Velocity pre-control</b>		
SERVO (Lin)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 1550, 1590, 5020
	P-Group: Closed-loop control	Units group: -	Unit selection: -

Min	Max	Factory setting
-	-	0

**Description:**

Sets the signal source for the speed/velocity pre-control channel (speed/velocity pre-control or torque/force pre-control).

---

**r1432 CO: Speed pre-control after balancing**

SERVO	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
	P-Group: Closed-loop control	Function diagram: 5030
	Units group: SPEED_ROT	Unit selection: -
Min	Max	Factory setting
- [1/min]	- [1/min]	- [1/min]

**Description:**

Displays the speed/velocity pre-control value after the balancing for the torque/force build-up (emulates the closed current control loop).

**Dependency:**

Balancing can be parameterized with p1428 and/or p1429.

---

**r1432 CO: Velocity pre-control after balancing**

SERVO (Lin)	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
	P-Group: Closed-loop control	Function diagram: 5030
	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
Min	Max	Factory setting
- [m/min]	- [m/min]	- [m/min]

**Description:**

Displays the speed/velocity pre-control value after the balancing for the torque/force build-up (emulates the closed current control loop).

**Dependency:**

Balancing can be parameterized with p1428 and/or p1429.

---

**p1433[0...n] Speed controller reference model natural frequency**

SERVO	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Data set: DDS
	P-Group: Closed-loop control	Function diagram: 5030, 6031
	Units group: FREQUENCY	Unit selection: -
Min	Max	Factory setting
0.0 [Hz]	8000.0 [Hz]	0.0 [Hz]

**Description:**

Sets the natural frequency of a PT2 element for the reference model of the speed/velocity controller.

**Recommendation:**

The reference model is correctly set when the characteristics of p1429 (reference model output) and p1445 (actual speed value) are virtually identical when the I-component of the speed controller is disabled.

**Dependency:**

Together with p1434 and p1435, the characteristics (in the time domain) of the closed-loop speed control (P) can be emulated.

For VECTOR (r0107) the following applies:

The reference model is activated with p1400.3 = 1.

Refer to: p1434, p1435

<b>p1433[0...n] Velocity controller reference model natural frequency</b>			
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5030, 6031
	P-Group: Closed-loop control	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	0.0 [Hz]	8000.0 [Hz]	0.0 [Hz]

**Description:**

Sets the natural frequency of a PT2 element for the reference model of the speed/velocity controller.

**Recommendation:**

The reference model is correctly set when the characteristics of p1429 (reference model output) and p1445 (actual speed value) are virtually identical when the I-component of the speed controller is disabled.

**Dependency:**

Together with p1434 and p1435, the characteristics (in the time domain) of the closed-loop speed control (P) can be emulated.

For VECTOR (r0107) the following applies:

The reference model is activated with p1400.3 = 1.

Refer to: p1434, p1435

<b>p1434[0...n] Speed controller reference model damping</b>			
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5030, 6031
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.000	5.000	1.000

**Description:**

Sets the damping of a PT2 element for the reference model of the speed/velocity controller.

**Recommendation:**

The reference model is correctly set when the characteristics of p1429 (reference model output) and p1445 (actual speed value) are virtually identical when the I-component of the speed controller is disabled.

**Dependency:**

In conjunction with p1433 and p1435, the characteristics (in time) of the P-controlled speed control loop can be simulated.

For VECTOR (r0107) the following applies:

The reference model is activated with p1400.3 = 1.

Refer to: p1433, p1435

---

<b>p1434[0...n]</b>	<b>Velocity controller reference model damping</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5030, 6031
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.000	5.000	1.000

**Description:**

Sets the damping of a PT2 element for the reference model of the speed/velocity controller.

**Recommendation:**

The reference model is correctly set when the characteristics of p1429 (reference model output) and p1445 (actual speed value) are virtually identical when the I-component of the speed controller is disabled.

**Dependency:**

In conjunction with p1433 and p1435, the characteristics (in time) of the P-controlled speed control loop can be simulated.

For VECTOR (r0107) the following applies:

The reference model is activated with p1400.3 = 1.

Refer to: p1433, p1435

---

<b>p1435[0...n]</b>	<b>Speed controller reference model deadline</b>		
SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 5030, 6031
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.00	2.00	0.00



**Description:**

Sets the "fractional" deadtime for the reference model of the speed/velocity controller.  
This parameter emulates the computation deadtime of the proportionally controlled speed/velocity control loop.  
The selected multiplier refers to the speed/velocity controller clock cycle (deadtime= p1435 \* p0115[1]).

**Recommendation:**

The reference model is correctly set when the characteristics of p1429 (reference model output) and p1445 (actual speed value) are virtually identical when the I-component of the speed controller is disabled.

**Dependency:**

In conjunction with p1433 and p1434, the characteristics (in time) of the P-controlled speed control loop can be simulated.  
For VECTOR (r0107) the following applies:  
The reference model is activated with p1400.3 = 1.  
Refer to: p0115, p1433, p1434

p1435[0...n]	Velocity controller reference model deadtime		
SERVO (Lin)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 5030, 6031
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.00	2.00	0.00

**Description:**

Sets the "fractional" deadtime for the reference model of the speed/velocity controller.  
This parameter emulates the computation deadtime of the proportionally controlled speed/velocity control loop.  
The selected multiplier refers to the speed/velocity controller clock cycle (deadtime= p1435 \* p0115[1]).

**Recommendation:**

The reference model is correctly set when the characteristics of p1429 (reference model output) and p1445 (actual speed value) are virtually identical when the I-component of the speed controller is disabled.

**Dependency:**

In conjunction with p1433 and p1434, the characteristics (in time) of the P-controlled speed control loop can be simulated.  
For VECTOR (r0107) the following applies:  
The reference model is activated with p1400.3 = 1.  
Refer to: p0115, p1433, p1434

---

<b>r1436</b>	<b>CO: Speed controller reference model speed setpoint output</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5030, 6031
	P-Group: Closed-loop control	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	- [1/min]	- [1/min]	- [1/min]

**Description:**

Displays the speed/velocity setpoint at the output of the reference model.

**Dependency:**

For VECTOR (r0107) the following applies:

The reference model is activated with p1400.3 = 1.

---

<b>r1436</b>	<b>CO: Velocity controller, reference model velocity_setpoint output</b>		
SERVO (Lin)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5030, 6031
	P-Group: Closed-loop control	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	- [m/min]	- [m/min]	- [m/min]

**Description:**

Displays the speed/velocity setpoint at the output of the reference model.

**Dependency:**

For VECTOR (r0107) the following applies:

The reference model is activated with p1400.3 = 1.

---

<b>r1438</b>	<b>CO: Speed controller, speed setpoint</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 1550, 1590, 3080, 5030, 5040, 5060, 5210, 5300, 6040
	P-Group: Closed-loop control	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	- [1/min]	- [1/min]	- [1/min]

**Description:**

Displays the speed/velocity setpoint after setpoint limiting for the P component of the speed/velocity controller.

For V/f operation, the value that is displayed is of no relevance.

**Dependency:**

Refer to: r1439

**Note:**

In the standard state (the reference model is de-activated), r1438 = r1439.

<b>r1438</b>	<b>CO: Velocity controller, velocity setpoint</b>		
SERVO (Lin)	Can be changed: -	Access level: 3	
	Data type: Floating Point	Data set: -	Function diagram: 1550, 1590, 3080, 5030, 5040, 5060, 5210, 5300, 6040
	P-Group: Closed-loop control	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	- [m/min]	- [m/min]	- [m/min]

**Description:**

Displays the speed/velocity setpoint after setpoint limiting for the P component of the speed/velocity controller.

For V/f operation, the value that is displayed is of no relevance.

**Dependency:**

Refer to: r1439

**Note:**

In the standard state (the reference model is de-activated), r1438 = r1439.

<b>r1439</b>	<b>Speed setpoint, I component</b>		
SERVO	Can be changed: -	Access level: 3	
	Data type: Floating Point	Data set: -	Function diagram: 5030, 5040, 6031
	P-Group: Closed-loop control	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	- [1/min]	- [1/min]	- [1/min]

**Description:**

Displays the speed/velocity setpoint for the I component of the speed/velocity controller (output of the reference model after the setpoint limiting).

**Dependency:**

Refer to: r1438

**Note:**

In the standard state (the reference model is de-activated), r1438 = r1439.

<b>r1439</b>	<b>Velocity setpoint, I component</b>
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SERVO (Lin)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5030, 5040, 6031
	P-Group: Closed-loop control	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	- [m/min]	- [m/min]	- [m/min]

**Description:**

Displays the speed/velocity setpoint for the I component of the speed/velocity controller (output of the reference model after the setpoint limiting).

**Dependency:**

Refer to: r1438

**Note:**

In the standard state (the reference model is de-activated), r1438 = r1439.

---

**p1441[0...n] Actual speed smoothing time**

SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 4710, 6010
	P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	50.00 [ms]	0.00 [ms]

**Description:**

Sets the smoothing time constant (PT1) for the speed/velocity actual value.

**Dependency:**

Refer to: r0063

**Note:**

The speed actual value should be smoothed for encoders with a low pulse number or for resolvers.

After this parameter has been changed, we recommend that the speed controller is adapted and/or the speed controller settings checked Kp (p1460) and Tn (p1462).

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**p1441[0...n] Actual velocity, smoothing time**

SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 4710, 6010
	P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	50.00 [ms]	0.00 [ms]

**Description:**

Sets the smoothing time constant (PT1) for the speed/velocity actual value.

**Dependency:**

Refer to: r0063

**Note:**

The speed actual value should be smoothed for encoders with a low pulse number or for resolvers.

After this parameter has been changed, we recommend that the speed controller is adapted and/or the speed controller settings checked Kp (p1460) and Tn (p1462).

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<b>r1444</b>	<b>Speed controller, speed setpoint steady-state (static)</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5030
	P-Group: Closed-loop control	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	- [1/min]	- [1/min]	- [1/min]

**Description:**

Displays the sum of all speed/velocity setpoints that are present.

The following sources are available for the displayed setpoint:

- setpoint at the ramp-function generator input (r1119).
- speed/velocity setpoint 1 (p1155).
- speed/velocity setpoint 2 (p1160).
- speed/velocity setpoint for speed/velocity pre-control /(p1430).
- setpoint from DSC (for DSC active).
- setpoint via PC (for master control active, p3983).

**Dependency:**

Refer to: r1119, p1155, p1160, p1430

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<b>r1444</b>	<b>Velocity controller, velocity setpoint, total</b>		
SERVO (Lin)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5030
	P-Group: Closed-loop control	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	- [m/min]	- [m/min]	- [m/min]

**Description:**

Displays the sum of all speed/velocity setpoints that are present.

The following sources are available for the displayed setpoint:

- setpoint at the ramp-function generator input (r1119).
- speed/velocity setpoint 1 (p1155).
- speed/velocity setpoint 2 (p1160).
- speed/velocity setpoint for speed/velocity pre-control /(p1430).
- setpoint from DSC (for DSC active).
- setpoint via PC (for master control active, p3983).

**Dependency:**

Refer to: r1119, p1155, p1160, p1430

---

<b>r1454</b>	<b>CO: Speed controller system deviation I component</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5040
	P-Group: Closed-loop control	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	- [1/min]	- [1/min]	- [1/min]

**Description:**

Displays the system deviation of the I component of the speed/velocity controller.

When the reference model is inactive ((1433 = 0 Hz), this parameter corresponds to the system deviation of the complete PI controller (r1454 = r0064).

---

<b>r1454</b>	<b>CO: Velocity controller system deviation I component</b>		
SERVO (Lin)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5040
	P-Group: Closed-loop control	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	- [m/min]	- [m/min]	- [m/min]

**Description:**

Displays the system deviation of the I component of the speed/velocity controller.

When the reference model is inactive ((1433 = 0 Hz), this parameter corresponds to the system deviation of the complete PI controller (r1454 = r0064).

---

<b>p1455[0...n]</b>	<b>CI: Speed controller P gain adaptation signal</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 5050, 6050
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the source for the adaptation signal to additionally adapt the P gain of the speed/velocity controller.

**Dependency:**

Refer to: p1456, p1457, p1458, p1459

<b>p1455[0...n]</b>	<b>CI: Velocity controller, P gain adaptation signal</b>		
SERVO (Lin)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 5050, 6050
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the source for the adaptation signal to additionally adapt the P gain of the speed/velocity controller.

**Dependency:**

Refer to: p1456, p1457, p1458, p1459

<b>p1456[0...n]</b>	<b>Speed controller P gain adaptation lower starting point</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5050, 6050
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.00 [%]	400.00 [%]	0.00 [%]

**Description:**

Sets the lower starting point of the adaptation range for the additional adaptation of the P gain of the speed/velocity controller. The values are in % and refer to the set source of the adaptation signal.

**Dependency:**

Refer to: p1455, p1457, p1458, p1459

<b>p1456[0...n]</b>	<b>Velocity controller P gain adaptation, lower starting point</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5050, 6050
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.00 [%]	400.00 [%]	0.00 [%]

**Description:**

Sets the lower starting point of the adaptation range for the additional adaptation of the P gain of the speed/velocity controller. The values are in % and refer to the set source of the adaptation signal.

**Dependency:**

Refer to: p1455, p1457, p1458, p1459

---

<b>p1457[0...n]</b>	<b>Speed controller P gain adaptation upper starting point</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5050, 6050
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.00 [%]	400.00 [%]	0.00 [%]

**Description:**

Sets the upper starting point of the adaptation range for the additional adaptation of the P gain of the speed/velocity controller. The values are in % and refer to the set source of the adaptation signal.

**Dependency:**

Refer to: p1455, p1456, p1458, p1459

---

<b>p1457[0...n]</b>	<b>Velocity controller P gain adaptation upper starting point</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5050, 6050
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.00 [%]	400.00 [%]	0.00 [%]

**Description:**

Sets the upper starting point of the adaptation range for the additional adaptation of the P gain of the speed/velocity controller. The values are in % and refer to the set source of the adaptation signal.

**Dependency:**

Refer to: p1455, p1456, p1458, p1459

---

<b>p1458[0...n]</b>	<b>Adaptation factor, lower</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5050, 6050
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.0 [%]	200000.0 [%]	100.0 [%]



**Description:**

Sets the adaptation factor before the adaptation range (0 % ... p1456) to additionally adapt the P gain of the speed/ velocity controller.

**Dependency:**

Refer to: p1455, p1456, p1457, p1459

---

<b>p1459[0...n]</b>	<b>Adaptation factor, upper</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5050, 6050
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.0 [%]	200000.0 [%]	100.0 [%]

**Description:**

Sets the adaptation factor after the adaptation range (> p1457) to additionally adapt the P gain of the speed/velocity controller.

**Dependency:**

Refer to: p1455, p1456, p1457, p1458

---

<b>p1460[0...n]</b>	<b>Speed controller P gain adaptation speed, lower</b>		
SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 5040, 6040
	P-Group: Closed-loop control	Units group: GAIN_SPEED_CTRL	Unit selection: p0528
	Min	Max	Factory setting
	0.000 [Nms/rad]	999999.000 [Nms/rad]	0.300 [Nms/rad]

**Description:**

Sets the P gain of the speed/velocity controller before the adaptation speed range/velocity range (0 ... p1464). This value corresponds to the basic setting of the P gain of the speed/velocity controller without adaptation (p1461 = 100 %).

**Dependency:**

For VECTOR (r0107) the following applies:

For p0528 = 1, the speed controller gain is represented without any dimensions.

Refer to: p1461, p1464, p1465

**Note:**

SERVO:

When automatically calculating the speed controller, only the motor moment of inertia is taken into account (p0341). For higher load moments of inertia (p0342 > 1 or p1498 > 0) we recommend that the speed controller gain is checked.

<b>p1460[0...n]</b>	<b>Velocity controller, P gain adaptation velocity, lower</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 5040, 6040
	P-Group: Closed-loop control	Units group: GAIN_SPEED_CTRL_LIN	Unit selection: p0528
	Min	Max	Factory setting
	0.000 [Ns/m]	999999.000 [Ns/m]	10.000 [Ns/m]

**Description:**

Sets the P gain of the speed/velocity controller before the adaptation speed range/velocity range (0 ... p1464). This value corresponds to the basic setting of the P gain of the speed/velocity controller without adaptation (p1461 = 100 %).

**Dependency:**

For VECTOR (r0107) the following applies:

For p0528 = 1, the speed controller gain is represented without any dimensions.

Refer to: p1461, p1464, p1465

**Note:**

SERVO:

When automatically calculating the speed controller, only the motor moment of inertia is taken into account (p0341). For higher load moments of inertia (p0342 > 1 or p1498 > 0) we recommend that the speed controller gain is checked.

<b>p1461[0...n]</b>	<b>Speed controller P gain adaptation speed, upper</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5050, 6050
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.000 [%]	200000.000 [%]	100.000 [%]

**Description:**

Sets the P gain of the speed/velocity controller for the upper adaptation speed range/velocity range (> p1465). The entry is made referred to the P gain for the lower adaptation speed range/velocity range of the speed/velocity controller (% referred to p1460).

**Dependency:**

Refer to: p1460, p1464, p1465

**Note:**

SERVO:

When automatically calculating the speed controller, only the motor moment of inertia is

taken into account (p0341). For higher load moments of inertia (p0342 > 1 or p1498 > 0) we recommend that the speed controller gain is checked.

---

<b>p1461[0...n]</b>	<b>Velocity controller, P gain adaptation velocity, upper</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5050, 6050
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.000 [%]	200000.000 [%]	100.000 [%]

**Description:**

Sets the P gain of the speed/velocity controller for the upper adaptation speed range/velocity range (> p1465). The entry is made referred to the P gain for the lower adaptation speed range/velocity range of the speed/velocity controller (% referred to p1460).

**Dependency:**

Refer to: p1460, p1464, p1465

**Note:**

SERVO:

When automatically calculating the speed controller, only the motor moment of inertia is taken into account (p0341). For higher load moments of inertia (p0342 > 1 or p1498 > 0) we recommend that the speed controller gain is checked.

### 3.3 Parameters p1462 to p3415

<b>p1462[0...n]</b>	<b>Speed controller integral action time adaptation speed, lower</b>		
SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 5040, 5050, 6040, 6050
	P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	100000.00 [ms]	20.00 [ms]
<p><b>Description:</b></p> <p>Sets the integration action time of the speed/velocity controller before the adaptation speed range/velocity range (0 ... p1464). This value corresponds to the basic setting of the integral action time of the speed/velocity controller without adaptation (p1461 = 100 %).</p> <p><b>Dependency:</b></p> <p>Refer to: p1463, p1464, p1465</p>			
<b>p1462[0...n]</b>	<b>Velocity contr., integral act. time adaptation velocity, lower</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 5040, 5050, 6040, 6050
	P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	100000.00 [ms]	20.00 [ms]
<p><b>Description:</b></p> <p>Sets the integration action time of the speed/velocity controller before the adaptation speed range/velocity range (0 ... p1464). This value corresponds to the basic setting of the integral action time of the speed/velocity controller without adaptation (p1461 = 100 %).</p> <p><b>Dependency:</b></p> <p>Refer to: p1463, p1464, p1465</p>			
<b>p1463[0...n]</b>	<b>Speed controller integral action time adaptation speed, upper</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5050, 6050
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.0 [%]	200000.0 [%]	100.0 [%]

**Description:**

Sets the integral action time of the speed/velocity controller after the adaptation speed range/velocity range (> p1465). The entry is made referred to the integral action time for the lower adaptation speed range/velocity range of the speed/velocity controller (% referred to p1462).

**Dependency:**

Refer to: p1462, p1464, p1465

---

<b>p1463[0...n]</b>	<b>Velocity contr., integral act. time adaptation velocity, upper</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5050, 6050
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.0 [%]	200000.0 [%]	100.0 [%]

**Description:**

Sets the integral action time of the speed/velocity controller after the adaptation speed range/velocity range (> p1465). The entry is made referred to the integral action time for the lower adaptation speed range/velocity range of the speed/velocity controller (% referred to p1462).

**Dependency:**

Refer to: p1462, p1464, p1465

---

<b>p1464[0...n]</b>	<b>Speed controller adaptation speed, lower</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5050, 6050
	P-Group: Closed-loop control	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.00 [1/min]	210000.00 [1/min]	0.00 [1/min]

**Description:**

Sets the lower adaptation speed/velocity of the speed/velocity controller. No adaptation is effective below this speed/velocity.

**Dependency:**

Refer to: p1460, p1461, p1462, p1463, p1465

---

<b>p1464[0...n]</b>	<b>Velocity controller adaptation velocity, lower</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5050, 6050
	P-Group: Closed-loop control	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting

0.00 [m/min]

1000.00 [m/min]

0.00 [m/min]

**Description:**

Sets the lower adaptation speed/velocity of the speed/velocity controller. No adaptation is effective below this speed/velocity.

**Dependency:**

Refer to: p1460, p1461, p1462, p1463, p1465

**p1465[0...n]****Speed controller adaptation speed, upper**

SERVO

Can be changed: U, T

Access level: 3

Data type: Floating Point

Data set: DDS

Function diagram: 5050, 6050

P-Group: Closed-loop control

Units group: SPEED\_ROT

Unit selection: -

Min

Max

Factory setting

0.00 [1/min]

210000.00 [1/min]

210000.00 [1/min]

**Description:**

Sets the upper adaptation speed/velocity of the speed/velocity controller. No adaptation is effective above this speed/velocity. For P gain, p1460 \* p1461 is effective. For the integral action time, p1462 \* p1463 is effective.

**Dependency:**

Refer to: p1460, p1461, p1462, p1463, p1464

**p1465[0...n]****Velocity controller adaptation velocity, upper**

SERVO (Lin)

Can be changed: U, T

Access level: 3

Data type: Floating Point

Data set: DDS

Function diagram: 5050, 6050

P-Group: Closed-loop control

Units group:  
SPEED\_LIN\_METRIC\_P3

Unit selection: -

Min

Max

Factory setting

0.00 [m/min]

1000.00 [m/min]

1000.00 [m/min]

**Description:**

Sets the upper adaptation speed/velocity of the speed/velocity controller. No adaptation is effective above this speed/velocity. For P gain, p1460 \* p1461 is effective. For the integral action time, p1462 \* p1463 is effective.

**Dependency:**

Refer to: p1460, p1461, p1462, p1463, p1464

**p1466[0...n]****CI: Speed controller P-gain scaling**

SERVO

Can be changed: T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: 5050, 6050

P-Group: Closed-loop control

Units group: -

Unit selection: -

Min

Max

Factory setting

- - 1

**Description:**

Sets the signal source for the scaling of the P gain of the speed/velocity controller. This also makes the effective P gain (including adaptations) scalable.

<b>p1466[0...n]</b>	<b>CI: Velocity controller P gain scaling</b>		
SERVO (Lin)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 5050, 6050
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	1

**Description:**

Sets the signal source for the scaling of the P gain of the speed/velocity controller. This also makes the effective P gain (including adaptations) scalable.

<b>r1468</b>	<b>Speed controller P-gain effective</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 3080, 5040, 5210
	P-Group: Closed-loop control	Units group: GAIN_SPEED_CTRL	Unit selection: p0528
	Min	Max	Factory setting
	- [Nms/rad]	- [Nms/rad]	- [Nms/rad]

**Description:**

Displays the effective P gain of the speed/velocity controller.

<b>r1468</b>	<b>Velocity controller, P gain effective</b>		
SERVO (Lin)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 3080, 5040, 5210
	P-Group: Closed-loop control	Units group: GAIN_SPEED_CTRL_LIN	Unit selection: p0528
	Min	Max	Factory setting
	- [Ns/m]	- [Ns/m]	- [Ns/m]

**Description:**

Displays the effective P gain of the speed/velocity controller.

<b>r1469</b>	<b>Speed controller integral action time effective</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5040, 6040

P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
Min	Max	Factory setting
- [ms]	- [ms]	- [ms]

**Description:**

Displays the effective integral action time of the speed/velocity controller.

**r1469****Velocity controller integral action time effective**

SERVO (Lin)

Can be changed: -		Access level: 3
Data type: Floating Point	Data set: -	Function diagram: 5040, 6040
P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
Min	Max	Factory setting
- [ms]	- [ms]	- [ms]

**Description:**

Displays the effective integral action time of the speed/velocity controller.

**p1470[0...n]****Speed controller sensorless operation P-gain**

SERVO

Can be changed: U, T		Access level: 2
Data type: Floating Point	Data set: DDS	Function diagram: 5210, 6040,, 6050
P-Group: Closed-loop control	Units group: GAIN_SPEED_CTRL	Unit selection: p0528
Min	Max	Factory setting
0.000 [Nms/rad]	999999.000 [Nms/rad]	0.300 [Nms/rad]

**Description:**

Sets the P gain for sensorless operation for the speed/velocity controller.

**Dependency:**

For VECTOR (r0107) the following applies:

For p0528 = 1, the speed controller gain is represented without any dimensions.

**Note:**

SERVO:

When automatically calculating the speed controller, only the motor moment of inertia is taken into account (p0341). For higher load moments of inertia (p0342 > 1 or p1498 > 0) we recommend that the speed controller gain is checked.

VECTOR:

The product p0341 \* p0342 is taken into account when automatically calculating the speed controller (p0340 = 4).

**p1470[0...n]****Velocity controller sensorless operation P-gain**

SERVO (Lin)

Can be changed: U, T	Access level: 2
----------------------	-----------------



Data type: Floating Point	Data set: DDS	Function diagram: 5210, 6040,, 6050
P-Group: Closed-loop control	Units group: GAIN_SPEED_CTRL_LIN	Unit selection: p0528
Min	Max	Factory setting
0.000 [Ns/m]	999999.000 [Ns/m]	10.000 [Ns/m]

**Description:**

Sets the P gain for sensorless operation for the speed/velocity controller.

**Dependency:**

For VECTOR (r0107) the following applies:

For p0528 = 1, the speed controller gain is represented without any dimensions.

**Note:**

SERVO:

When automatically calculating the speed controller, only the motor moment of inertia is taken into account (p0341). For higher load moments of inertia (p0342 > 1 or p1498 > 0) we recommend that the speed controller gain is checked.

VECTOR:

The product p0341 \* p0342 is taken into account when automatically calculating the speed controller (p0340 = 4).

<b>p1472[0...n]</b>	<b>Speed controller sensorless operation integral action time</b>	
SERVO	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
		Function diagram: 5210, 6040, 6050
	P-Group: Closed-loop control	Units group: TIME_M3
	Min	Max
	0.0 [ms]	100000.0 [ms]
		20.0 [ms]
	<b>Description:</b>	
	Set the integral action time for sensorless operation for the speed/velocity controller.	

<b>p1472[0...n]</b>	<b>Velocity controller sensorless operation integral action time</b>	
SERVO (Lin)	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
		Function diagram: 5210, 6040, 6050
	P-Group: Closed-loop control	Units group: TIME_M3
	Min	Max
	0.0 [ms]	100000.0 [ms]
		20.0 [ms]

**Description:**

Set the integral action time for sensorless operation for the speed/velocity controller.

---

<b>p1476[0...n]</b>	<b>BI: Speed controller hold integrator</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 5040
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to hold the integrator for the speed/velocity controller.

---

<b>p1476[0...n]</b>	<b>BI: Velocity controller, hold integrator</b>		
SERVO (Lin)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 5040
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to hold the integrator for the speed/velocity controller.

---

<b>p1477[0...n]</b>	<b>BI: Speed controller set integrator value</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 5040, 5210
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to set the integrator setting value (p1478).

**Note:**

For the interface mode "SIMODRIVE 611 universal" (p2038 = 1), p1477 and p1478 are used for the signal STW2.6 (integrator inhibit, speed controller).

---

<b>p1477[0...n]</b>	<b>BI: Set velocity controller integrator value</b>		
SERVO (Lin)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 5040, 5210
	P-Group: Closed-loop control	Units group: -	Unit selection: -

Min	Max	Factory setting
-	-	0

**Description:**

Sets the signal source to set the integrator setting value (p1478).

**Note:**

For the interface mode "SIMODRIVE 611 universal" (p2038 = 1), p1477 and p1478 are used for the signal STW2.6 (integrator inhibit, speed controller).

**p1478[0...n]**

**CI: Speed controller integrator setting value**

SERVO

Can be changed: T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: 5040, 5210

P-Group: Closed-loop control

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source for the integrator setting value for the speed/velocity controller.

The signal to set this integrator setting value is interconnected via p1477.

**Dependency:**

For VECTOR (r0107) the following applies:

The setting value of the speed controller integrator is weighted with the scaling factor of the signal source in p1479.

**Note:**

For the interface mode "SIMODRIVE 611 universal" (p2038 = 1), p1477 and p1478 are used for the signal STW2.6 (integrator inhibit, speed controller).

**p1478[0...n]**

**CI: Velocity controller, integrator value**

SERVO (Lin)

Can be changed: T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: 5040, 5210

P-Group: Closed-loop control

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source for the integrator setting value for the speed/velocity controller.

The signal to set this integrator setting value is interconnected via p1477.

**Dependency:**

For VECTOR (r0107) the following applies:

The setting value of the speed controller integrator is weighted with the scaling factor of

the signal source in p1479.

**Note:**

For the interface mode "SIMODRIVE 611 universal" (p2038 = 1), p1477 and p1478 are used for the signal STW2.6 (integrator inhibit, speed controller).

---

<b>r1480</b>	<b>CO: Speed controller PI torque output</b>	
SERVO	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
	P-Group: Closed-loop control	Units group: TORQUE
	Min	Max
	- [Nm]	- [Nm]
		Function diagram: 1590, 5040, 5060, 5210
		Unit selection: -
		Factory setting
		- [Nm]

**Description:**

Displays the torque/force setpoint at the output of the PI speed/velocity controller.

---

<b>r1480</b>	<b>CO: Velocity controller PI force output</b>	
SERVO (Lin)	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
	P-Group: Closed-loop control	Units group: FORCE
	Min	Max
	- [N]	- [N]
		Function diagram: 1590, 5040, 5060, 5210
		Unit selection: -
		Factory setting
		- [N]

**Description:**

Displays the torque/force setpoint at the output of the PI speed/velocity controller.

---

<b>r1481</b>	<b>CO: Speed controller P torque output</b>	
SERVO	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
	P-Group: Closed-loop control	Units group: TORQUE
	Min	Max
	- [Nm]	- [Nm]
		Function diagram: 5040, 5210
		Unit selection: -
		Factory setting
		- [Nm]

**Description:**

Displays the torque/force setpoint at the output of the P speed/velocity controller.

---

<b>r1481</b>	<b>CO: Velocity controller P force output</b>	
SERVO (Lin)	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
	P-Group: Closed-loop control	Units group: FORCE
		Unit selection: -
		Function diagram: 5040, 5210

Min	Max	Factory setting
- [N]	- [N]	- [N]

**Description:**

Displays the torque/force setpoint at the output of the P speed/velocity controller.

<b>r1482</b>	<b>CO: Speed controller I torque output</b>	
SERVO	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
		Function diagram: 5040, 5210, 6040
	P-Group: Closed-loop control	Unit selection: -
	Units group: TORQUE	
	Min	Max
	- [Nm]	- [Nm]
		Factory setting
		- [Nm]

**Description:**

Displays the torque/force setpoint at the output of the I speed/velocity control.

<b>r1482</b>	<b>CO: Velocity controller I force output</b>	
SERVO (Lin)	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
		Function diagram: 5040, 5210, 6040
	P-Group: Closed-loop control	Unit selection: -
	Units group: FORCE	
	Min	Max
	- [N]	- [N]
		Factory setting
		- [N]

**Description:**

Displays the torque/force setpoint at the output of the I speed/velocity control.

<b>p1494[0...n]</b>	<b>Speed controller integrator feedback time constant</b>	
SERVO	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
		Function diagram: 5040, 5210
	P-Group: Closed-loop control	Unit selection: -
	Units group: TIME_M3	
	Min	Max
	0.00 [ms]	1000.00 [ms]
		Factory setting
		0.00 [ms]

**Description:**

Sets the time constant of the PT1 filter for integrator feedback.

The integrator of the speed/velocity controller is re-parameterized to become a PT1 filter through a feedback element (1st Order low pass filter characteristics).

The following applies:

$p1494 < 0.25 (2 * p0115[1])$  --> the PT1 filter is not active - the pure integrator is effective.

$p1494 \geq 0.25 (2 * p0115[1])$  --> the PT1 filter is active and has replaced the pure

integrator.

**Note:**

Applications:

Motion at zero setpoint and dominant stiction can be suppressed but this has a negative impact on the remaining setpoint-actual value difference. This can be used, for example, to avoid oscillation of a position-controlled axis at standstill (stick-slip effect) or overshoot when traversing (moving) in micrometer steps.

Also prevents tension/stressing for axes that are mechanically and rigidly coupled with one another (e.g. for synchronous spindles, master - slave axes).

---

<b>p1494[0...n]</b>	<b>Velocity controller integrator feedback time constant</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 5040, 5210
	P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	1000.00 [ms]	0.00 [ms]

**Description:**

Sets the time constant of the PT1 filter for integrator feedback.

The integrator of the speed/velocity controller is re-parameterized to become a PT1 filter through a feedback element (1st Order low pass filter characteristics).

The following applies:

$p1494 < 0.25 (2 * p0115[1])$  --> the PT1 filter is not active - the pure integrator is effective.

$p1494 \geq 0.25 (2 * p0115[1])$  --> the PT1 filter is active and has replaced the pure integrator.

**Note:**

Applications:

Motion at zero setpoint and dominant stiction can be suppressed but this has a negative impact on the remaining setpoint-actual value difference. This can be used, for example, to avoid oscillation of a position-controlled axis at standstill (stick-slip effect) or overshoot when traversing (moving) in micrometer steps.

Also prevents tension/stressing for axes that are mechanically and rigidly coupled with one another (e.g. for synchronous spindles, master - slave axes).

---

<b>p1498[0...n]</b>	<b>Load moment of inertia</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: -
	P-Group: Closed-loop control	Units group: INERTIA	Unit selection: -
	Min	Max	Factory setting
	0.00000 [kgm²]	100000.00000 [kgm²]	0.00000 [kgm²]

**Description:**

Sets the load moment of inertia / the mass.

**Note:**

(p0341 \* p0342) + p1498 influence the speed-torque pre-control in sensorless operation.

**p1498[0...n]**

**Load mass**

SERVO (Lin)

Can be changed: U, T

Access level: 3

Data type: Floating Point

Data set: DDS

Function diagram: -

P-Group: Closed-loop control

Units group: MASS

Unit selection: -

Min

Max

Factory setting

0.00000 [kg]

10000.00000 [kg]

0.00000 [kg]

**Description:**

Sets the load moment of inertia / the mass.

**Note:**

(p0341 \* p0342) + p1498 influence the speed-torque pre-control in sensorless operation.

**p1500[0...n]**

**Macro connector inputs (CI) for torque setpoints**

SERVO

Can be changed: C2(1), T

Access level: 1

Data type: Unsigned32

Data set: CDS

Function diagram: -

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

0

999999

0

**Description:**

Runs the appropriate ACX file on the CompactFlash Card.

The connector inputs (CI) for the torque setpoints of the appropriate command data set (CDS) are appropriately interconnected.

The selected ACX file must be located in the following directory:

... /PMACROS/<drive object>/P1500/PMxxxxxx.ACX

Example:

p1500 = 6 --> the file PM000006.ACX is run.

**Dependency:**

The ACX file to be run must be created according to the definition for ACX macros and must be saved in the directory intended on the CompactFlash Card.

Refer to: p0015, p0700, p1000, r8573

**Notice:**

No errors were issued during fast commissioning (3900 = 1) when writing to parameters

of the QUICK\_IBN group!

**Note:**

The macros in the specified directory are displayed in r8573.

Macros available as standard are described in the technical documentation of the particular product.

CI: Connector input

---

<b>p1500[0...n]</b>	<b>Macro connector inputs (CI) for force setpoints</b>		
SERVO (Lin)	Can be changed: C2(1), T		Access level: 1
	Data type: Unsigned32	Data set: CDS	Function diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	999999	0

**Description:**

Runs the appropriate ACX file on the CompactFlash Card.

The connector inputs (CI) for the torque setpoints of the appropriate command data set (CDS) are appropriately interconnected.

The selected ACX file must be located in the following directory:

... /PMACROS/<drive object>/P1500/PMxxxxxx.ACX

Example:

p1500 = 6 --> the file PM000006.ACX is run.

**Dependency:**

The ACX file to be run must be created according to the definition for ACX macros and must be saved in the directory intended on the CompactFlash Card.

Refer to: p0015, p0700, p1000, r8573

**Notice:**

No errors were issued during fast commissioning (3900 = 1) when writing to parameters of the QUICK\_IBN group!

**Note:**

The macros in the specified directory are displayed in r8573.

Macros available as standard are described in the technical documentation of the particular product.

CI: Connector input

---

<b>p1501[0...n]</b>	<b>BI: Change over between closed-loop speed/torque control</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 2520, 5060, 6060



P-Group: Closed-loop control	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	0

**Description:**

Sets the signal source for toggling between speed and torque control.

**Dependency:**

The input connectors to enter the torque are provided using p1511, p1512 and p1513.

Refer to: p1300

**Caution:**

If the closed-loop torque control is not activated (p1300) and a change is made to closed-loop torque control (p1501), OFF1 (p0840) does not have its own braking response but pulse cancellation when standstill is detected (p1226, p1227).

**Note:**

0 signal: Speed control

1 signal: Torque Control

<b>p1501[0...n]</b>	<b>BI: Changeover velocity/force control</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 2520, 5060, 6060
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for toggling between speed and torque control.

**Dependency:**

The input connectors to enter the torque are provided using p1511, p1512 and p1513.

Refer to: p1300

**Caution:**

If the closed-loop torque control is not activated (p1300) and a change is made to closed-loop torque control (p1501), OFF1 (p0840) does not have its own braking response but pulse cancellation when standstill is detected (p1226, p1227).

**Note:**

0 signal: Speed control

1 signal: Torque Control

<b>r1509</b>	<b>CO: Torque setpoint before torque limiting</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 1590, 5060, 5610
	P-Group: Closed-loop control	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	- [Nm]	- [Nm]	- [Nm]

**Description:**

Displays the complete torque/force setpoint before the torque/force limiting (sum from the controller output, supplementary torque/force and if required the pre-control torque/force, sensorless operation).

In the closed-loop speed/velocity controlled mode,  $p1509 = p1480 + r1515 + \text{pre-controlled torque/force, sensorless operation.}$

p1509 and p1515 are identical for closed-loop torque/force control.

<b>r1509</b>	<b>CO: Force setpoint before force limiting</b>		
SERVO (Lin)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 1590, 5060, 5610
	P-Group: Closed-loop control	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	- [N]	- [N]	- [N]

**Description:**

Displays the complete torque/force setpoint before the torque/force limiting (sum from the controller output, supplementary torque/force and if required the pre-control torque/force, sensorless operation).

In the closed-loop speed/velocity controlled mode,  $p1509 = p1480 + r1515 + \text{pre-controlled torque/force, sensorless operation.}$

p1509 and p1515 are identical for closed-loop torque/force control.

<b>p1511[0...n]</b>	<b>CI: Supplementary torque 1</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 5060, 6060
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for supplementary torque/force 1.

<b>p1511[0...n]</b>	<b>CI: Supplementary force 1</b>		
SERVO (Lin)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 5060, 6060
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for supplementary torque/force 1.

<b>p1512[0...n]</b>	<b>CI: Supplementary torque 1 scaling</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 5060, 6060
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for scaling supplementary torque/force 1.

<b>p1512[0...n]</b>	<b>CI: Supplementary force 1 scaling</b>		
SERVO (Lin)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 5060, 6060
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for scaling supplementary torque/force 1.

<b>p1513[0...n]</b>	<b>CI: Supplementary torque 2</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 5060, 6060
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for supplementary torque/force 2.

<b>p1513[0...n]</b>	<b>CI: Supplementary force 2</b>
---------------------	----------------------------------

SERVO (Lin)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 5060, 6060
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for supplementary torque/force 2.

---

<b>r1515</b>	<b>Supplementary torque total</b>		
SERVO	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 5040, 5060
	P-Group: Closed-loop control	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	- [Nm]	- [Nm]	- [Nm]

**Description:**

Displays the total supplementary torque/force.

The displayed value is the sum of supplementary torque values 1 and 2 ( $p1515 = p1511 * p1512 + p1513$ ).

---

<b>r1515</b>	<b>Supplementary force, total</b>		
SERVO (Lin)	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 5040, 5060
	P-Group: Closed-loop control	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	- [N]	- [N]	- [N]

**Description:**

Displays the total supplementary torque/force.

The displayed value is the sum of supplementary torque values 1 and 2 ( $p1515 = p1511 * p1512 + p1513$ ).

---

<b>p1517[0...n]</b>	<b>Accelerating torque smoothing time constant</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5210
	P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	100.00 [ms]	4.00 [ms]

**Description:**

Sets the smoothing time constant of the accelerating torque/force for sensorless

operation.

<b>p1517[0...n]</b>	<b>Acceleration force smoothing time constant</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5210
	P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	100.00 [ms]	4.00 [ms]

**Description:**

Sets the smoothing time constant of the accelerating torque/force for sensorless operation.

<b>p1520[0...n]</b>	<b>CO: Torque limit, upper/motoring</b>		
SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	-100000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]

**Description:**

Sets the fixed upper or torque/force limit when motoring.

**Dependency:**

p1400 bit 4 = 0: top / bottom

p1400 bit 4 = 1: motoring / regenerating

The factory setting depends on p0500.

p0500 = 101 --> set to the maximum value

Otherwise --> set to the rated value

Refer to: p1521, p1522, p1523, p1532, r1538, r1539

**Note:**

For vector drives (refer to p0107):

The torque limit is limited to 400% of the rated motor torque. When automatically calculating the motor/closed-loop control parameters (refer to p0340), the torque limit is set so that it matches the current limit p0640.

<b>p1520[0...n]</b>	<b>CO: Force limit upper/motoring</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: FORCE	Unit selection: -

Min	Max	Factory setting
-100000.00 [N]	1000000.00 [N]	0.00 [N]

**Description:**

Sets the fixed upper or torque/force limit when motoring.

**Dependency:**

p1400 bit 4 = 0: top / bottom

p1400 bit 4 = 1: motoring / regenerating

The factory setting depends on p0500.

p0500 = 101 --> set to the maximum value

Otherwise --> set to the rated value

Refer to: p1521, p1522, p1523, p1532, r1538, r1539

**Note:**

For vector drives (refer to p0107):

The torque limit is limited to 400% of the rated motor torque. When automatically calculating the motor/closed-loop control parameters (refer to p0340), the torque limit is set so that it matches the current limit p0640.

**p1521[0...n]**

SERVO

**CO: Torque limit, lower/regenerative**

Can be changed: U, T

Access level: 2

Data type: Floating Point

Data set: DDS

Function diagram: 5620, 5630, 6630

P-Group: Closed-loop control

Units group: TORQUE

Unit selection: -

Min

Max

Factory setting

-100000.00 [Nm]

1000000.00 [Nm]

0.00 [Nm]

**Description:**

Sets the fixed lower or torque/force limit when regenerating.

**Dependency:**

p1400 bit 4 = 0: top / bottom

p1400 bit 4 = 1: motoring / regenerating

The factory setting depends on p0500.

p0500 = 101 --> set to the maximum value

Otherwise --> set to the rated value

Refer to: p1520, p1522, p1523, p1532

**Note:**

For vector drives (refer to p0107):

The torque limit is limited to 400% of the rated motor torque. When automatically calculating the motor/closed-loop control parameters (refer to p0340), the torque limit is set so that it matches the current limit p0640.

<b>p1521[0...n]</b>	<b>CO: Force limit, lower/regenerative</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	-100000.00 [N]	1000000.00 [N]	0.00 [N]

**Description:**

Sets the fixed lower or torque/force limit when regenerating.

**Dependency:**

p1400 bit 4 = 0: top / bottom

p1400 bit 4 = 1: motoring / regenerating

The factory setting depends on p0500.

p0500 = 101 --> set to the maximum value

Otherwise --> set to the rated value

Refer to: p1520, p1522, p1523, p1532

**Note:**

For vector drives (refer to p0107):

The torque limit is limited to 400% of the rated motor torque. When automatically calculating the motor/closed-loop control parameters (refer to p0340), the torque limit is set so that it matches the current limit p0640.

<b>p1522[0...n]</b>	<b>CI: Torque limit, upper/motoring</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 1610, 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	1520[0]

**Description:**

Sets the signal source for the upper or torque/force limit when motoring.

**Dependency:**

p1400 bit 4 = 0: top / bottom

p1400 bit 4 = 1: motoring / regenerating

Refer to: p1520, p1521, p1523, p1532

<b>p1523[0...n]</b>	<b>CI: Torque limit, lower/regenerative</b>		
SERVO	Can be changed: T		Access level: 3

Data type: Unsigned32	Data set: CDS	Function diagram: 1610, 5620, 5630, 6630
P-Group: Closed-loop control	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	1521[0]

**Description:**

Sets the signal source for the lower or torque/force limit when regenerating.

**Dependency:**

p1400 bit 4 = 0: top / bottom

p1400 bit 4 = 1: motoring / regenerating

Refer to: p1520, p1521, p1522, p1532

---

<b>r1526</b>	<b>Torque limit, upper/motoring without offset</b>	
SERVO	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
		Function diagram: 5620, 5630, 6630, 6640
	P-Group: Closed-loop control	Units group: TORQUE
	Min	Max
	- [Nm]	- [Nm]
		Factory setting
		- [Nm]

**Description:**

Displays the upper torque/force limit of all torque/force limits without offset.

**Dependency:**

p1400 bit 4 = 0: top / bottom

p1400 bit 4 = 1: motoring / regenerating

Refer to: p1520, p1521, p1522, p1523, p1528, p1529

---

<b>r1526</b>	<b>Force limit, upper/motoring without offset</b>	
SERVO (Lin)	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
		Function diagram: 5620, 5630, 6630, 6640
	P-Group: Closed-loop control	Units group: FORCE
	Min	Max
	- [N]	- [N]
		Factory setting
		- [N]

**Description:**

Displays the upper torque/force limit of all torque/force limits without offset.

**Dependency:**

p1400 bit 4 = 0: top / bottom

p1400 bit 4 = 1: motoring / regenerating

Refer to: p1520, p1521, p1522, p1523, p1528, p1529



<b>r1527</b>	<b>Torque limit, lower/regenerative without offset</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5620, 5630, 6630, 6640
	P-Group: Closed-loop control	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	- [Nm]	- [Nm]	- [Nm]

**Description:**

Displays the lower torque/force limit of all torque/force limits without offset.

**Dependency:**

p1400 bit 4 = 0: top / bottom

p1400 bit 4 = 1: motoring / regenerating

Refer to: p1520, p1521, p1522, p1523, p1528, p1529

<b>r1527</b>	<b>Force limit, lower/regenerative without offset</b>		
SERVO (Lin)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5620, 5630, 6630, 6640
	P-Group: Closed-loop control	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	- [N]	- [N]	- [N]

**Description:**

Displays the lower torque/force limit of all torque/force limits without offset.

**Dependency:**

p1400 bit 4 = 0: top / bottom

p1400 bit 4 = 1: motoring / regenerating

Refer to: p1520, p1521, p1522, p1523, p1528, p1529

<b>p1528[0...n]</b>	<b>CI: Torque limit, upper/motoring, scaling</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 1610, 5620, 5630
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	1

**Description:**

Sets the signal source for the scaling of the upper or motoring torque/force limit in p1522.

**Dependency:**

p1400 bit 4 = 0: top / bottom

p1400 bit 4 = 1: motoring / regenerating

---

<b>p1529[0...n]</b>	<b>Cl: Torque limit, lower/regenerating scaling</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 1610, 5620, 5630
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	1

---

**Description:**

Sets the signal source for the scaling of the lower or torque/force limit in p1523 when regenerating.

**Dependency:**

p1400 bit 4 = 0: top / bottom

p1400 bit 4 = 1: motoring / regenerating

---

<b>p1530[0...n]</b>	<b>Power limit, motoring</b>		
SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 5640, 6640
	P-Group: Closed-loop control	Units group: POWER_P3	Unit selection: -
	Min	Max	Factory setting
	0.00 [kW]	10000.00 [kW]	0.00 [kW]

---

**Description:**

Sets the power limit when motoring.

**Dependency:**

The factory setting depends on p0500.

p0500 = 101 --> set to the maximum value

Otherwise --> set to the rated value

Refer to: p1531

**Note:**

For vector drives (refer to p0107):

The power limit is limited to 300% rated motor power.

---

<b>p1531[0...n]</b>	<b>Power limit, regenerating</b>		
SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 5640, 6640
	P-Group: Closed-loop control	Units group: POWER_P3	Unit selection: -
	Min	Max	Factory setting

---

-10000.00 [kW]

-0.01 [kW]

-0.01 [kW]

**Description:**

Sets the regenerative power limit.

**Dependency:**

The factory setting depends on p0500.

p0500 = 101 --> set to the maximum value

Otherwise --> set to the rated value

Refer to: p1530

**Note:**

For vector drives (refer to p0107):

The power limit is limited to 300% rated motor power.

**p1532[0...n]**

**CO: Torque limit, offset**

SERVO

Can be changed: U, T

Access level: 3

Data type: Floating Point

Data set: DDS

Function diagram: 5620, 5630, 8012

P-Group: Closed-loop control

Units group: TORQUE

Unit selection: -

Min

Max

Factory setting

-100000.00 [Nm]

100000.00 [Nm]

0.00 [Nm]

**Description:**

Sets the torque/force offset for the torque/force limit.

**Dependency:**

Refer to: p1520, p1521, p1522, p1523, p1528, p1529

**p1532[0...n]**

**CO: Force offset, force limit**

SERVO (Lin)

Can be changed: U, T

Access level: 3

Data type: Floating Point

Data set: DDS

Function diagram: 5620, 5630, 8012

P-Group: Closed-loop control

Units group: FORCE

Unit selection: -

Min

Max

Factory setting

-100000.00 [N]

100000.00 [N]

0.00 [N]

**Description:**

Sets the torque/force offset for the torque/force limit.

**Dependency:**

Refer to: p1520, p1521, p1522, p1523, p1528, p1529

**r1533**

**Current limit, torque-generating, total**

SERVO

Can be changed: -

Access level: 3

Data type: Floating Point	Data set: -	Function diagram: 5640, 5722, 6640
P-Group: Displays, signals	Units group: CURRENT_AC_EFF	Unit selection: -
Min	Max	Factory setting
- [Aeff]	- [Aeff]	- [Aeff]

**Description:**

Displays the maximum torque/force generating current as a result if all current limits.

---

<b>r1534</b>	<b>CO: Torque limit, upper total</b>	
SERVO	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
		Function diagram: 1610, 5620, 5630, 5640
	P-Group: Closed-loop control	Units group: TORQUE
	Min	Max
	- [Nm]	- [Nm]
		Unit selection: -
		Factory setting
		- [Nm]

**Description:**

Displays the upper torque/force limit of all torque/force limits.

**Dependency:**

Refer to: p1520, p1521, p1522, p1523, p1528, p1529, p1532

---

<b>r1534</b>	<b>CO: Force limit, upper, total</b>	
SERVO (Lin)	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
		Function diagram: 1610, 5620, 5630, 5640
	P-Group: Closed-loop control	Units group: FORCE
	Min	Max
	- [N]	- [N]
		Unit selection: -
		Factory setting
		- [N]

**Description:**

Displays the upper torque/force limit of all torque/force limits.

**Dependency:**

Refer to: p1520, p1521, p1522, p1523, p1528, p1529, p1532

---

<b>r1535</b>	<b>CO: Torque limit, lower total</b>	
SERVO	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
		Function diagram: 1610, 5620, 5630, 5640
	P-Group: Closed-loop control	Units group: TORQUE
	Min	Max
	- [Nm]	- [Nm]
		Unit selection: -
		Factory setting
		- [Nm]

**Description:**

Displays the lower torque/force limit of all torque/force limits.

**Dependency:**

Refer to: p1520, p1521, p1522, p1523, p1528, p1529, p1532

<b>r1535</b>	<b>CO: Force limit, lower, total</b>		
SERVO (Lin)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 1610, 5620, 5630, 5640
	P-Group: Closed-loop control	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	- [N]	- [N]	- [N]

**Description:**

Displays the lower torque/force limit of all torque/force limits.

**Dependency:**

Refer to: p1520, p1521, p1522, p1523, p1528, p1529, p1532

<b>r1538</b>	<b>CO: Upper effective torque limit</b>		
SERVO	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 1590, 1610, 1750, 5610, 5650, 5714, 6040, 6060, 6640, 8012
	P-Group: Closed-loop control	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	- [Nm]	- [Nm]	- [Nm]

**Description:**

Displays the actually effective upper torque/force limit.

**Note:**

The effective upper torque limit is reduced with respect to the upper torque limit p1520, if the current limit p0640 is reduced or the rated magnetizing current of the induction motor p0320 is increased.

For vector drives (refer to p0107), this is possibly the case for rotating measurements (refer to p1960).

The torque limit P1520 can be re-calculated using p0340 = 1, 3 or 5.

<b>r1538</b>	<b>CO: Upper force limit effective</b>		
SERVO (Lin)	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 1590, 1610, 1750, 5610, 5650, 5714, 6040,

6060, 6640, 8012

P-Group: Closed-loop control

Units group: FORCE

Unit selection: -

Min

Max

Factory setting

- [N]

- [N]

- [N]

**Description:**

Displays the actually effective upper torque/force limit.

**Note:**

The effective upper torque limit is reduced with respect to the upper torque limit p1520, if the current limit p0640 is reduced or the rated magnetizing current of the induction motor p0320 is increased.

For vector drives (refer to p0107), this is possibly the case for rotating measurements (refer to p1960).

The torque limit P1520 can be re-calculated using p0340 = 1, 3 or 5.

**r1539**

SERVO

**CO: Lower effective torque limit**

Can be changed: -

Access level: 2

Data type: Floating Point

Data set: -

Function diagram: 1590, 1610,  
1750, 5610, 5650, 5714, 6040,  
6060, 6640, 8012

P-Group: Closed-loop control

Units group: TORQUE

Unit selection: -

Min

Max

Factory setting

- [Nm]

- [Nm]

- [Nm]

**Description:**

Displays the actually effective lower torque/force limit.

**Note:**

The effective lower torque limit is reduced with respect to the selected lower torque limit p1521 if the current limit p0640 is reduced or the rated magnetizing current of the induction motor p0320 is increased.

For vector drives (refer to p0107), this is possibly the case for rotating measurements (refer to p1960).

The torque limit P1520 can be re-calculated using p0340 = 1, 3 or 5.

**r1539**

SERVO (Lin)

**CO: Lower force limit effective**

Can be changed: -

Access level: 2

Data type: Floating Point

Data set: -

Function diagram: 1590, 1610,  
1750, 5610, 5650, 5714, 6040,  
6060, 6640, 8012

P-Group: Closed-loop control

Units group: FORCE

Unit selection: -

Min	Max	Factory setting
- [N]	- [N]	- [N]

**Description:**

Displays the actually effective lower torque/force limit.

**Note:**

The effective lower torque limit is reduced with respect to the selected lower torque limit p1521 if the current limit p0640 is reduced or the rated magnetizing current of the induction motor p0320 is increased.

For vector drives (refer to p0107), this is possibly the case for rotating measurements (refer to p1960).

The torque limit P1520 can be re-calculated using p0340 = 1, 3 or 5.

---

<b>p1542[0...n]</b>	<b>CI: Travel to a fixed endstop, torque reduction</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 5610
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for the torque/force reduction when traversing to a fixed endstop.

This value is converted into a factor and is interconnected to the scaling of the torque/force limits.

**Dependency:**

Refer to: p1528, p1529, r1543, p1544, p1545

---

<b>r1543</b>	<b>CO: Travel to fixed endstop, torque scaling</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5610
	P-Group: Setpoints	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	- [%]	- [%]	- [%]

**Description:**

Displays the internally converted factor to interconnect to the scaling of the torque/force limits.

**Dependency:**

Refer to: p1528, p1529, p1542, p1544, p1545

---

<b>p1544</b>	<b>Travel to fixed endstop evaluation, torque reduction</b>
--------------	---

SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5610
	P-Group: Setpoints	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0 [%]	65535 [%]	100 [%]

**Description:**

Sets the evaluation for the torque/force reduction when traversing to a fixed endstop.

**Dependency:**

Refer to: p1528, p1529, p1542, r1543, p1545

**Note:**

4000 hex (16384 dec) in the MOMRED control word corresponds to a reduction by the percentage specified in this parameter.

---

**p1545[0...n] BI: Activates travel to a fixed endstop**

SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 2444, 2520
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to activate/de-activate the "travel to fixed endstop" function

1: Travel to fixed endstop is active

0: Travel to fixed endstop is inactive

**Dependency:**

Refer to: p1542, r1543, p1544

---

**p1546 Speed threshold, motoring/regenerating**

SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Functions	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.0 [1/min]	210000.0 [1/min]	20.0 [1/min]

**Description:**

Sets the speed/velocity threshold for the motoring/regenerating limit.

For speeds/velocities where the absolute value is less than p1546, then the following applies:

- for p1400.13 = 0: Motoring limit (speed/velocity threshold is compared to the speed/velocity actual value).



- for p1400.13 = 1: Regenerative limiting (speed/velocity threshold is compared to the speed/velocity setpoint).

<b>p1546</b>	<b>Velocity threshold motoring/regenerating</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
		SPEED_LIN_METRIC_P3	
	Min	Max	Factory setting
	0.0 [m/min]	1000.0 [m/min]	0.2 [m/min]

**Description:**

Sets the speed/velocity threshold for the motoring/regenerating limit.

For speeds/velocities where the absolute value is less than p1546, then the following applies:

- for p1400.13 = 0: Motoring limit (speed/velocity threshold is compared to the speed/velocity actual value).
- for p1400.13 = 1: Regenerative limiting (speed/velocity threshold is compared to the speed/velocity setpoint).

<b>p1550[0...n]</b>	<b>BI: Accept the actual torque as torque offset</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Unsigned32	Data set: CDS	Function diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	9718.23

**Description:**

For a positive edge, the actual torque (r0079[0]) at this instant in time is used instead of the torque offset from p1532 as long as p1550 remains at 1.

<b>p1569[0...n]</b>	<b>CI: Friction characteristic, input control</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Unsigned32	Data set: CDS	Function diagram: 7010
	P-Group: Functions	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	3841[0]

**Description:**

Sets the signal source to use the torque of the friction characteristic in the closed-loop control.

**Dependency:**

Refer to: p3842

---

<b>p1590[0...n]</b>	<b>Flux controller P gain</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5722
	P-Group: Closed-loop control	Units group: GAIN_FLUX_CTRL	Unit selection: p0528
	Min	Max	Factory setting
	0.0 [A/Vs]	999999.0 [A/Vs]	10.0 [A/Vs]

**Description:**

Sets the proportional gain of the flux controller.

**Note:**

For synchronous motors, this parameters has no effect.

The value is automatically pre-assigned dependent on the motor when the drive system is first commissioned.

When calculating controller parameter (p0340 = 4), this value is re-calculated.

---

<b>p1592[0...n]</b>	<b>Flux controller integral.action time</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5722
	P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0 [ms]	10000 [ms]	30 [ms]

**Description:**

Sets the integral action time of the flux controller.

**Note:**

For synchronous motors, this parameters has no effect.

The value is automatically pre-assigned dependent on the motor when the drive system is first commissioned.

When calculating controller parameter (p0340 = 4), this value is re-calculated.

---

<b>p1612[0...n]</b>	<b>Current setpoint, open-loop control, sensorless</b>		
SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: -
	P-Group: Closed-loop control	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	0.00 [Aeff]	500.00 [Aeff]	0.00 [Aeff]

**Description:**

Sets the current setpoint for controlled (open-loop) sensorless operation.

---

<b>r1650</b>	<b>Current setpoint torque-generating before filter</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5710
	P-Group: Closed-loop control	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]

---

**Description:**

Displays the torque/force generating current setpoint Iqset after the torque/force limits and the clock cycle interpolation is front of the current setpoint filters.

---

<b>r1650</b>	<b>Current setpoint force-generating before filter</b>		
SERVO (Lin)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 5710
	P-Group: Closed-loop control	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]

---

**Description:**

Displays the torque/force generating current setpoint Iqset after the torque/force limits and the clock cycle interpolation is front of the current setpoint filters.

---

<b>r1651</b>	<b>CO: Torque setpoint, function generator</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Displays, signals	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	- [Nm]	- [Nm]	- [Nm]

---

**Description:**

Displays the torque/force setpoint of the function generator.

---

<b>r1651</b>	<b>CO: Force setpoint, function generator</b>		
SERVO (Lin)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Displays, signals	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	- [N]	- [N]	- [N]

---

**Description:**

Displays the torque/force setpoint of the function generator.

---

<b>p1656[0...n]</b>	<b>Activates current setpoint filter</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Unsigned16	Data set: DDS	Function diagram: 5710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 hex	000F hex	0001 hex

**Description:**

Activates current setpoint filters 1 to 4.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Filter 1	not active	active	-
	01	Filter 2	not active	active	-
	02	Filter 3	not active	active	-
	03	Filter 4	not active	active	-

**Dependency:**

The current setpoint filters are parameterized with p1656 to p1676.

**Note:**

If not all of the filters are required, then the filters should be used consecutively starting from filter 1.

---

<b>p1657[0...n]</b>	<b>Current setpoint filter 1 type</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Integer16	Data set: DDS	Function diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0001 hex	0002 hex	0001 hex

**Description:**

Sets the current setpoint filter 1 as low pass (PT2) or as extended general 2nd-order filter.

**Values:**

- 1: Low pass: PT2
- 2: General 2nd-order filter

**Dependency:**

The current setpoint filters are parameterized with p1656 to p1676.

**Note:**

For an extended general 2nd order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed. The numerator damping can be determined from the equation for the 3 dB bandwidth:  $f_{3dB} \text{ bandwidth} = 2 * D_{\text{numerator}} * f_{\text{bandstop frequency}}$ .

<b>p1658[0...n] Current setpoint filter 1 denominator natural frequency</b>			
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	0.5 [Hz]	16000.0 [Hz]	1999.0 [Hz]

**Description:**

Sets the denominator natural frequency for current setpoint filter 1 (PT2, general filter).

**Dependency:**

The current setpoint filters are parameterized with p1656 to p1676.

<b>p1659[0...n] Current setpoint filter 1 denominator damping</b>			
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.001	10.000	0.700

**Description:**

Sets the denominator damping for current setpoint filter 1.

**Dependency:**

The current setpoint filters are parameterized with p1656 to p1676.

<b>p1660[0...n] Current setpoint filter 1 numerator natural frequency</b>			
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	0.5 [Hz]	16000.0 [Hz]	1999.0 [Hz]

**Description:**

Sets the numerator natural frequency for current setpoint filter 1 (general filter).

**Dependency:**

The current setpoint filters are parameterized with p1656 to p1676.

<b>p1661[0...n]</b>	<b>Current setpoint filter 1 numerator damping</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.000	10.000	0.700

**Description:**

Sets the numerator damping for current setpoint filter 1.

**Dependency:**

The current setpoint filters are parameterized with p1656 to p1676.

<b>p1662[0...n]</b>	<b>Current setpoint filter 2 type</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Integer16	Data set: DDS	Function diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0001 hex	0002 hex	0001 hex

**Description:**

Sets the current setpoint filter 2 as low pass (PT2) or as extended general 2nd-order filter.

**Values:**

- 1: Low pass: PT2
- 2: General 2nd-order filter

**Dependency:**

The current setpoint filters are parameterized with p1656 to p1676.

**Note:**

For an extended general 2nd order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed. The numerator damping can be determined from the equation for the 3 dB bandwidth:  $f_{3dB} \text{ bandwidth} = 2 * D_{\text{numerator}} * f_{\text{bandstop frequency}}$ .

<b>p1663[0...n]</b>	<b>Current setpoint filter 2 denominator natural frequency</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	0.5 [Hz]	16000.0 [Hz]	1999.0 [Hz]

**Description:**

Sets the denominator natural frequency for current setpoint filter 2 (PT2, general filter).

**Dependency:**

The current setpoint filters are parameterized with p1656 to p1676.

<b>p1664[0...n] Current setpoint filter 2 denominator damping</b>			
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.001	10.000	0.700

**Description:**

Sets the denominator damping for current setpoint filter 2.

**Dependency:**

The current setpoint filters are parameterized with p1656 to p1676.

<b>p1665[0...n] Current setpoint filter 2 numerator natural frequency</b>			
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	0.5 [Hz]	16000.0 [Hz]	1999.0 [Hz]

**Description:**

Sets the numerator natural frequency for current setpoint filter 2 (general filter).

**Dependency:**

The current setpoint filters are parameterized with p1656 to p1676.

<b>p1666[0...n] Current setpoint filter 2 numerator damping</b>			
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.000	10.000	0.700

**Description:**

Sets the numerator damping for current setpoint filter 2.

**Dependency:**

The current setpoint filters are parameterized with p1656 to p1676.

<b>p1667[0...n]</b>	<b>Current setpoint filter 3 type</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Integer16	Data set: DDS	Function diagram: 5710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0001 hex	0002 hex	0001 hex
	<b>Description:</b> Sets the current setpoint filter 3 as low pass (PT2) or as extended general 2nd-order filter. <b>Values:</b> 1: Low pass: PT2 2: General 2nd-order filter <b>Dependency:</b> The current setpoint filters are parameterized with p1656 to p1676.		
<b>p1668[0...n]</b>	<b>Current setpoint filter 3 denominator natural frequency</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5710
	P-Group: Closed-loop control	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	0.5 [Hz]	16000.0 [Hz]	1999.0 [Hz]
	<b>Description:</b> Sets the denominator natural frequency for current setpoint filter 3 (PT2, general filter). <b>Dependency:</b> The current setpoint filters are parameterized with p1656 to p1676.		
<b>p1669[0...n]</b>	<b>Current setpoint filter 3 denominator damping</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.001	10.000	0.700
	<b>Description:</b> Sets the denominator damping for current setpoint filter 3. <b>Dependency:</b> The current setpoint filters are parameterized with p1656 to p1676.		
<b>p1670[0...n]</b>	<b>Current setpoint filter 3 numerator natural frequency</b>		
SERVO	Can be changed: U, T		Access level: 3



Data type: Floating Point	Data set: DDS	Function diagram: 5710
P-Group: Closed-loop control	Units group: FREQUENCY	Unit selection: -
Min	Max	Factory setting
0.5 [Hz]	16000.0 [Hz]	1999.0 [Hz]

**Description:**

Sets the numerator natural frequency for current setpoint filter 3 (general filter).

**Dependency:**

The current setpoint filters are parameterized with p1656 to p1676.

---

**p1671[0...n] Current setpoint filter 3 numerator damping**

SERVO	Can be changed: U, T	Access level: 3
Data type: Floating Point	Data set: DDS	Function diagram: 5710
P-Group: Closed-loop control	Units group: -	Unit selection: -
Min	Max	Factory setting
0.000	10.000	0.700

**Description:**

Sets the numerator damping for current setpoint filter 3.

**Dependency:**

The current setpoint filters are parameterized with p1656 to p1676.

---

**p1672[0...n] Current setpoint filter 4 type**

SERVO	Can be changed: U, T	Access level: 3
Data type: Integer16	Data set: DDS	Function diagram: 5710
P-Group: Closed-loop control	Units group: -	Unit selection: -
Min	Max	Factory setting
0001 hex	0002 hex	0001 hex

**Description:**

Sets the current setpoint filter 4 as low pass (PT2) or as extended general 2nd-order filter.

**Values:**

- 1: Low pass: PT2
- 2: General 2nd-order filter

**Dependency:**

The current setpoint filters are parameterized with p1656 to p1676.

---

**p1673[0...n] Current setpoint filter 4 denominator natural frequency**

SERVO	Can be changed: U, T	Access level: 3
Data type: Floating Point	Data set: DDS	Function diagram: 5710
P-Group: Closed-loop control	Units group: FREQUENCY	Unit selection: -
Min	Max	Factory setting

0.5 [Hz]

16000.0 [Hz]

1999.0 [Hz]

**Description:**

Sets the denominator natural frequency for current setpoint filter 4 (PT2, general filter).

**Dependency:**

The current setpoint filters are parameterized with p1656 to p1676.

---

<b>p1674[0...n]</b>	<b>Current setpoint filter 4 denominator damping</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.001	10.000	0.700

**Description:**

Sets the denominator damping for current setpoint filter 4.

**Dependency:**

The current setpoint filters are parameterized with p1656 to p1676.

---

<b>p1675[0...n]</b>	<b>Current setpoint filter 4 numerator natural frequency</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5710
	P-Group: Closed-loop control	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	0.5 [Hz]	16000.0 [Hz]	1999.0 [Hz]

**Description:**

Sets the numerator natural frequency for current setpoint filter 4 (general filter).

**Dependency:**

The current setpoint filters are parameterized with p1656 to p1676.

---

<b>p1676[0...n]</b>	<b>Current setpoint filter 4 numerator damping</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.000	10.000	0.700

**Description:**

Sets the numerator damping for current setpoint filter 4.

**Dependency:**

The current setpoint filters are parameterized with p1656 to p1676.

<b>p1699</b>	<b>Filter data transfer</b>	
SERVO	Can be changed: U, T	Access level: 3
	Data type: Integer16	Data set: -
	P-Group: Closed-loop control	Function diagram: -
	Min	Unit selection: -
	0	Max
		Factory setting
		0

**Description:**

Activates data transfer for parameter changes for the filter.

p1699 = 0:

The new filter data are immediately transferred.

p1699 = 1:

The new filter data are only transferred when this parameter is reset.

**Dependency:**

Refer to: p1414, p1415, p1416, p1417, p1418, p1419, p1420, p1421, p1422, p1423, p1424, p1425, p1426, p1656, p1657, p1658, p1659, p1660, p1661, p1662, p1663, p1664, p1665, p1666, p1667, p1668, p1669, p1670, p1671, p1672, p1673, p1674, p1675, p1676

<b>p1701[0...n]</b>	<b>Current controller reference model deadtime</b>	
SERVO	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Data set: DDS
	P-Group: Closed-loop control	Function diagram: 5714
	Min	Unit selection: -
	0.0	Max
		Factory setting
		1.0

**Description:**

Sets the fractional deadtime for the current controller reference model.

This parameter emulates the computation deadtime of the proportionally controlled current control loop.

**Note:**

Deadtime = p1701 \* p0115[0]

<b>p1715[0...n]</b>	<b>Current controller P gain</b>	
SERVO	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Data set: DDS
	P-Group: Closed-loop control	Function diagram: 5714, 6714
	Min	Unit selection: p0528
	0.000 [V/A]	GAIN_CURRENT_CTRL
		Max
		Factory setting
		100000.000 [V/A]
		0.000 [V/A]

**Description:**

Sets the proportional gain of the current controller for the lower adaptation current range. This value is automatically preset using p3900 or p0340 when commissioning has been completed.

**Dependency:**

p0391, p0392 and p0393 are only available for SERVO.

Refer to: p0391, p0392, p0393

**Note:**

For p0393 = 100 %, the current controller adaptation is disabled and p1715 is effective over the entire range.

<b>p1717[0...n]</b>	<b>Current controller integral-action time</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 5714, 6714
	P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	1000.00 [ms]	2.00 [ms]

**Description:**

Sets the integral-action time of the current controller.

**Dependency:**

Refer to: p1715

<b>r1732</b>	<b>Direct-axis voltage setpoint</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 1630, 5714, 6714, 5718
	P-Group: Closed-loop control	Units group: VOLTAGE_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Veff]	- [Veff]	- [Veff]

**Description:**

Displays the direct-axis voltage setpoint Ud.

<b>r1733</b>	<b>Quadrature-axis voltage setpoint</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 1630, 5714, 5718, 6714, 6719
	P-Group: Closed-loop control	Units group: VOLTAGE_AC_EFF	Unit selection: -
	Min	Max	Factory setting

- [Veff]

- [Veff]

- [Veff]

**Description:**

Displays the quadrature-axis component of voltage setpoint Uq.

<b>p1752[0...n]</b>	<b>Motor model changeover speed operation with encoder</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: -
	P-Group: Closed-loop control	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.0 [1/min]	210000.0 [1/min]	210000.0 [1/min]

**Description:**

Sets the speed/velocity to change over the motor model for operation with encoder.

**Dependency:**

Refer to: p1756

<b>p1752[0...n]</b>	<b>Motor model with encoder changeover velocity</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: -
	P-Group: Closed-loop control	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.0 [m/min]	1000.0 [m/min]	1000.0 [m/min]

**Description:**

Sets the speed/velocity to change over the motor model for operation with encoder.

**Dependency:**

Refer to: p1756

<b>p1755[0...n]</b>	<b>Motor model changeover speed sensorless operation</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: -
	P-Group: Closed-loop control	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.0 [1/min]	210000.0 [1/min]	210000.0 [1/min]

**Description:**

Sets the speed/velocity to change over the motor model to sensorless operation (without encoder).

**Dependency:**

Refer to: p1756

**Note:**

The changeover speed applies for the changeover between open-loop and closed-loop control mode.

---

<b>p1755[0...n]</b>	<b>Motor model changeover velocity sensorless operation</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: -
	P-Group: Closed-loop control	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.0 [m/min]	1000.0 [m/min]	1000.0 [m/min]

**Description:**

Sets the speed/velocity to change over the motor model to sensorless operation (without encoder).

**Dependency:**

Refer to: p1756

**Note:**

The changeover speed applies for the changeover between open-loop and closed-loop control mode.

---

<b>p1756</b>	<b>Motor model changeover speed hysteresis</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.0 [%]	90.0 [%]	5.0 [%]

**Description:**

Sets the hysteresis for the changeover speed/velocity of the motor model.

**Dependency:**

Refer to: p1752, p1755

**Note:**

The value is entered relative to p1404, p1752 or p1755.

---

<b>r1778</b>	<b>Motor model flux angle difference</b>		
SERVO	Can be changed: -		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: ANGLE	Unit selection: -

Min	Max	Factory setting
- [°]	- [°]	- [°]

**Description:**

Displays the difference between the motor model flux angle and the transformation angle.

---

**p1780[0...n] Motor model configuration adaptation**

SERVO	Can be changed: U, T	Access level: 3
	Data type: Unsigned8	Data set: DDS
	P-Group: Closed-loop control	Function diagram: -
	Units group: -	Unit selection: -
	Min	Max
	0000 bin	0011 1110 bin
		0011 1100 bin

**Description:**

Sets the configuration for the adaptation circuit of the motor model:

Induction motor: Rs, Rr (only for operation with encoder), Lh and offset compensation.

Permanent-magnet synchronous motor: kT

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	01	Select motor model IM Rs adaptation	No	Yes	-
	02	Select motor model IM Lh adaptation	No	Yes	-
	03	Select motor model PESM KT adaptation	No	Yes	-
	04	Select motor model, offset adaptation	No	Yes	-
	05	Select IM Rr adaptation (only for operation with encoder)	No	Yes	-

---

**p1800[0...n] Pulse frequency**

SERVO	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Modulation	Function diagram: -
	Units group: FREQUENCY_P3	Unit selection: -
	Min	Max
	1.000 [kHz]	16.000 [kHz]
		4.000 [kHz]

**Description:**

Sets the drive converter switching frequency.

This parameter is preset to the rated converter value when the drive is first commissioned.

**Dependency:**

The switching frequency can only be changed in an integer ratio to the current controller sampling rate (p0115[0]).

The minimum pulse frequency is half the value of the current controller sampling rate

(current controller frequency).

If a sinusoidal filter is parameterized as output filter (p0230 = 3), then the pulse frequency cannot be changed below the minimum value required for the filter.

Refer to: p0110, p0111, p0112, p0115

**Note:**

The maximum possible pulse frequency is also determined by the power module being used.

When the pulse frequency is increased, depending on the particular power module, the maximum output current can be reduced (de-rating, refer to r0067).

---

<b>p1827</b>	<b>Infeed compensation valve lockout time operating mode</b>		
A_INF	Can be changed: U, T		Access level: 4
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	1	0

**Description:**

Sets the operating mode for the compensation of the valve lockout time.

**Values:**

- 0: Compensation valve lockout time de-activated
- 1: Compensation valve lockout time activated

**Note:**

The compensation is also active if, for power modules connected in parallel, the control to suppress circulating currents is activated (p7035).

---

<b>p1980[0...n]</b>	<b>Pole position identification technique</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Integer16	Data set: MDS	Function diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	99	99

**Description:**

Sets the pole position identification technique.

**Values:**

- 0: Saturation-based 1st+ 2nd harmonics
- 1: Saturation-based 1st harmonics
- 2: Saturation-based 1st + 2nd harmonics
- 3: Saturation-based differential 1st harmonics



- 4: Saturation-based, 2-stage
- 5: Saturation-based two-staged differential
- 10: Motion-based
- 99: No technique selected

**Dependency:**

Refer to: p0325, p0329, p1981, p1982, p1983, r1984, r1985, r1987

**Notice:**

If the incorrect technique is applied, this can cause the motor to accelerate in an uncontrolled fashion.

**Note:**

When commissioning a list motor, the technique is automatically selected depending on the motor type being used.

The following applies for 1FN3 motors:

A technique with a 2nd harmonic may not be used.

For 1FN7 motors, the following applies:

A two-stage technique may not be used.

The automatically set value in p0329 may not be changed.

<b>p1981[0...n]</b>		<b>Pole position identification maximum distance</b>	
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor identification	Units group: ANGLE	Unit selection: -
	Min	Max	Factory setting
	0 [°]	90 [°]	10 [°]
<b>Description:</b>			
Sets the maximum distance when carrying-out the pole position identification routine. If this distance (travel) is exceeded, an appropriate fault is output.			
<b>Dependency:</b>			
Refer to: p0325, p0329, p1980, p1982, p1983, r1984, r1985, r1987, p1990			
Refer to: F07995			

<b>p1982[0...n]</b>		<b>Pole position identification selection</b>	
SERVO	Can be changed: T		Access level: 3
	Data type: Integer16	Data set: MDS	Function diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	2	0

**Description:**

Activates the pole position identification routine to determine the commutation angle and to carry-out a plausibility check.

**Values:**

- 0: Pole position identification off
- 1: Pole position identification for commutation
- 2: Pole position identification for plausibility check

**Recommendation:**

Re p1982 = 1:

This is used for synchronous motors with motor encoder without absolute data.

The information/data regarding the absolute commutation angle is supplied via a track C/D, Hall sensors, an absolute value encoder or from the pole position identification routine.

Re p1982 = 2:

This is used for synchronous motor with motor encoder with absolute data to check this data.

**Dependency:**

Refer to: p0325, p0329, p1980, p1981, p1983, r1984, r1985, r1987, p1990

**p1983****Pole position identification, test**

SERVO

Can be changed: U, T

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Motor identification

Units group: -

Unit selection: -

Min

Max

Factory setting

0

1

0

**Description:**

Start the pole position identification routine for test purposes.

p1983 = 1: Start - is automatically set to zero after being carried-out.

**Dependency:**

Refer to: p0325, p0329, p1980, p1981, p1982, r1984, r1985, r1987, p1990

**Notice:**

For p1983 = 1 and if the pulses are not enabled, then the function is only executed the next time that the pulses are enabled.

**Note:**

When this test is executed, it does not influence the commutation angle.

**r1984****Pole position identification, angular difference**

SERVO

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Motor identification	Units group: ANGLE	Unit selection: -
Min	Max	Factory setting
- [°]	- [°]	- [°]

**Description:**

Displays the angular difference between the actual electrical commutation angle and the angle determined by the pole position identification.

**Dependency:**

Refer to: p0325, p0329, p1980, p1981, p1982, p1983, r1985, r1987, p1990

**Note:**

When the pole position identification routine is executed several times using p1983, then using this value, then the spread of the measured values can be determined using this value. At the same position, the spread should be less than 2 degrees electrical.

---

<b>r1985</b>	<b>Pole position identification, saturation characteristic</b>		
SERVO	Can be changed: -	Access level: 4	
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Motor identification	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]

**Description:**

Displays the saturation characteristic of the pole position identification routine.  
The values for the characteristic of the last pole position identification routine are output every 1 ms in order to record signals (e.g. trace).

**Dependency:**

Refer to: p0325, p0329, p1980, p1981, p1982, p1983, r1984, r1987, p1990

---

<b>r1987</b>	<b>Pole position identification trigger characteristic</b>		
SERVO	Can be changed: -	Access level: 4	
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Motor identification	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	- [%]	- [%]	- [%]

**Description:**

Displays the trigger characteristic of the pole position identification routine.  
The values for the characteristic of the last pole position identification routine are output every 1 ms in order to record signals (e.g. trace).  
The values for the trigger characteristic and the saturation characteristic are always output in synchronism from a time perspective.

**Dependency:**

Refer to: p0325, p0329, p1980, p1981, p1982, p1983, r1984, r1985

**Note:**

The following information and data can be taken from the trigger characteristic.

- the value -100% marks the angle at the start of the measurement.
- the value +100 % marks the commutation angle determined from the pole position identification routine.

<b>p1990</b>		<b>Angular commutation offset, commissioning support</b>	
SERVO	Can be changed: U, T		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	1	0

**Description:**

Activates the commissioning help to determine the angular commutation offset for the active motor. This function can be started when commissioning a build-in motor for the first time or after the encoder has been replaced.

p1990 = 1: Activates the routine to determine the angular commutation offset

Alarm A07971 is output while the angular commutation offset is being determined.

p1990 is automatically set to 0 after the angular commutation offset has been determined.

**Dependency:**

Refer to: p0325, p0329, p1980, p1981, p1982, p1983, r1984, r1985, r1987

Refer to: A07971

**Notice:**

For p1990 = 1 and with the pulses not enabled, the function is only executed the next time that the pulses are enabled.

**Note:**

For motor encoders with zero mark, the following applies:

Before activation, the motor must be moved over the zero mark (either in sensorless operation or manually).

If fault F07414 is present, the following applies:

First set p1990 to 1, then acknowledge the fault and then issue the enable signals.

The following generally applies:

This function provides a result that is suitable to operate the motor. A better result can be achieved by operating under no-load conditions at a speed > p1752 (operation with encoder) or p1755 (sensorless operation) and transferring from r1778 into p0431. As an

alternative, the average value can be determined from several results of the pole position identification run as test (p1983) for various electrical angles and then entered into p0431).

<b>p1991[0...n]</b>	<b>Motor changeover, angular commutation correction</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: -	Units group: ANGLE	Unit selection: -
	Min	Max	Factory setting
	-180 [°]	180 [°]	0 [°]
<b>Description:</b>			
Sets the angle that is added to the commutating angle.			
<b>Caution!</b>			
If the angular correction is not correctly set, when changing over and with closed-loop torque control, the motor can accelerate to high speeds in spite of the fact that a setpoint of zero has been entered.			
<b>Note:</b>			
When changing-over between star and delta operation, 0° (motor data set for star operation) or 30/-30 ° (motor data set for delta operation) is set.			

<b>r1992</b>	<b>Pole position identification diagnostics</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Displays diagnostics information for the pole position identification routine.			

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Critical encoder fault occurred	No	Yes	-
	02	Parking active	No	Yes	-
	07	Pole position identification for encoder carried-out	No	Yes	-
	08	Fine synchronization carried-out	No	Yes	-
	09	Coarse synchronization carried-out	No	Yes	-
	10	Commutation information available	No	Yes	-
	11	Speed information available	No	Yes	-

12	Position information available	No	Yes	-
15	Zero mark passed	No	Yes	-

**p1993[0...n] Pole position identification current, motion-based**

SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor identification	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	0 [Aeff]	20000 [Aeff]	0 [Aeff]

**Description:**

Sets the current when executing the motion-based pole position identification.

**Dependency:**

Refer to: p1980, p1982, p1994

**p1994[0...n] Pole position identification rise time, motion-based**

SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: MDS	Function diagram: -
	P-Group: Motor identification	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0 [ms]	2500 [ms]	100 [ms]

**Description:**

Sets the rise time of the current when executing the motion-based pole position identification.

**Dependency:**

Refer to: p1980, p1982, p1993

**p2000 Reference frequency**

A_INF	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Communications	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	0.10 [Hz]	1000.00 [Hz]	50.00 [Hz]

**Description:**

Sets the reference quantity for the frequency.

All frequencies specified as relative value are referred to this reference quantity.

The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

The following applies: Reference frequency (in Hz).

<b>p2000</b>	<b>Reference speed reference frequency</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Communications	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	6.00 [1/min]	210000.00 [1/min]	3000.00 [1/min]
<b>Description:</b>			
Sets the reference quantity for speed/velocity and frequency.			
All speeds/velocities or frequencies specified as relative value are referred to this reference quantity.			
The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.			
The following applies: Reference frequency (in Hz) = reference speed/velocity (in (RPM) / 60)			
<b>Dependency:</b>			
Refer to: p2001, p2002, p2003, r2004			
<b>Note:</b>			
If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.			
Example 1:			
The signal of an analog input (e.g. r4055[0]) is connected to a speed setpoint (e.g. p1070[0]). The actual percentage input value is cyclically converted into the absolute speed setpoint using the reference speed (p2000).			
Example 2:			
The setpoint from PROFIBUS (r2050[1]) is connected to a speed setpoint (e.g. p1070[0]). The current input value is cyclically converted into a percentage value via the pre-specified normalization 4000H. This percentage value is converted to the absolute speed setpoint via reference speed (p2000).			

<b>p2000</b>	<b>Reference velocity, reference frequency</b>		
SERVO (Lin)	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Communications	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.60 [m/min]	600.00 [m/min]	120.00 [m/min]
<b>Description:</b>			
Sets the reference quantity for speed/velocity and frequency.			

All speeds/velocities or frequencies specified as relative value are referred to this reference quantity.

The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

The following applies: Reference frequency (in Hz) = reference speed/velocity (in (RPM) / 60)

**Dependency:**

Refer to: p2001, p2002, p2003, r2004

**Note:**

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

Example 1:

The signal of an analog input (e.g. r4055[0]) is connected to a speed setpoint (e.g. p1070[0]). The actual percentage input value is cyclically converted into the absolute speed setpoint using the reference speed (p2000).

Example 2:

The setpoint from PROFIBUS (r2050[1]) is connected to a speed setpoint (e.g. p1070[0]). The current input value is cyclically converted into a percentage value via the pre-specified normalization 4000H. This percentage value is converted to the absolute speed setpoint via reference speed (p2000).

<b>p2001</b>	<b>Reference voltage</b>		
A_INF, SERVO	Can be changed: T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Communications	Units group: VOLTAGE_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	10 [Veff]	10000 [Veff]	1000 [Veff]

**Description:**

Sets the reference quantity for voltages.

All voltages specified as relative value are referred to this reference quantity.

The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

**Note:**

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

For infeed units, the parameterized device supply voltage (p0210) is pre-assigned as the reference quantity.

Example:

The actual value of the DC link voltage (r0079[0]) is connected to a test socket (e.g.



p0771[0]). The actual voltage value is cyclically converted into a percentage of the reference voltage (p2001) and output according to the parameterized scaling.

<b>p2002</b>	<b>Reference current</b>		
A_INF, SERVO	Can be changed: T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Communications	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	0.10 [Aeff]	10000.00 [Aeff]	100.00 [Aeff]

**Description:**

Sets the reference quantity for currents.

All currents specified as relative value are referred to this reference quantity.

The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

**Note:**

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

For infeed units, the rated line current, that is obtained from the rated power and parameterized rated line supply voltage ( $p2002 = r0206 / p0210 / 1.73$ ) is pre-assigned as the reference quantity.

Example:

The actual value of a phase current (r0069[0]) is connected to a test socket (e.g. p0771[0]). The actual current value is cyclically converted into a percentage of the reference current (p2002) and output according to the parameterized scaling.

<b>p2003</b>	<b>Reference torque</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Communications	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	0.00 [Nm]	200000.00 [Nm]	1.00 [Nm]

**Description:**

Sets the reference quantity for torques/forces.

All torques/forces specified as relative value are referred to this reference quantity.

The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

**Note:**

If a BICO interconnection is established between different physical quantities, then the

particular reference quantities are used as internal conversion factor.

Example:

The actual value of the total torque (r0079[0]) is connected to a test socket (e.g. p0771[0]). The actual torque is cyclically converted into a percentage of the reference torque (p2003) and output according to the parameterized scaling.

---

<b>p2003</b>	<b>Reference force</b>		
SERVO (Lin)	Can be changed: T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Communications	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	0.00 [N]	200000.00 [N]	100.00 [N]

**Description:**

Sets the reference quantity for torques/forces.

All torques/forces specified as relative value are referred to this reference quantity.

The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

**Note:**

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

Example:

The actual value of the total torque (r0079[0]) is connected to a test socket (e.g. p0771[0]). The actual torque is cyclically converted into a percentage of the reference torque (p2003) and output according to the parameterized scaling.

---

<b>r2004</b>	<b>Reference power</b>		
A_INF, SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Communications	Units group: POWER_P3	Unit selection: -
	Min	Max	Factory setting
	- [kW]	- [kW]	- [kW]

**Description:**

Displays the reference quantity for power ratings.

All power ratings specified as relative value are referred to this reference quantity.

The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

**Dependency:**

This value is calculated as voltage x current for the infeed and as torque x speed for closed-loop controls.

Refer to: p2000, p2001, p2002, p2003

**Note:**

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

The reference power is calculated as follows:

- $2 \cdot \pi \cdot \text{reference speed} / 60 \cdot \text{reference torque (motor)}$
- $\text{reference voltage} \cdot \text{reference current} \cdot \sqrt{3} \text{ (infeed)}$

<b>r2032</b>	<b>Master control, control word effective</b>		
A_INF	Can be changed: -	Access level: 5	
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the effective control word 1 (STW1) of the drive for the master control.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	ON/OFF1	No	Yes	-
	01	OC / OFF2	No	Yes	-
	03	Enable operation	No	Yes	-
	07	Acknowledge fault	No	Yes	-
	10	Master ctrl by PLC	No	Yes	-

**Note:**

The master control is used from the commissioning software (drive control panel) and from the advanced operator panel (AOP, local mode).

<b>r2032</b>	<b>Master control, control word effective</b>		
SERVO	Can be changed: -	Access level: 2	
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the effective control word 1 (STW1) of the drive for the master control.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
------------	-----	-------------	----------	----------	----

00	ON/OFF1	No	Yes	-
01	OC / OFF2	No	Yes	-
02	OC / OFF3	No	Yes	-
03	Enable operation	No	Yes	-
04	Enables the ramp-function generator	No	Yes	-
05	Start ramp-function generator	No	Yes	-
06	Enable speed setpoint	No	Yes	-
07	Acknowledge fault	No	Yes	-
08	Jog bit 0	No	Yes	3030
09	Jog bit 1	No	Yes	3030
10	Master ctrl by PLC	No	Yes	-

**Note:**

The master control is used from the commissioning software (drive control panel) and from the advanced operator panel (AOP, local mode).

**p2037****PROFIBUS STW1.10 = 0 mode**

SERVO

Can be changed: T

Access level: 3

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

0

2

0

**Description:**

Sets the processing mode for PROFIBUS STW1.10 "Control from PLC".

Generally, control word 1 is received with the first PROFIBUS receive word (PZD1) (this is in conformance to the PROFIdrive profile). The behavior of STW1.10 = 0 corresponds to that of the PROFIdrive profile. For other applications that deviate from this, the behavior can be adapted using this particular parameter.

**Values:**

- 0: Freeze setpoints and continue to process sign-of-life
- 1: Freeze setpoints and sign-of-life
- 2: Setpoints are not frozen

**Note:**

If the STW1 is not transferred according to the PROFIdrive with PZD1 (with bit 10 "control by the PLC"), then P2037 should be set to 2.

**p2038****PROFIBUS STW/ZSW interface mode**

SERVO

Can be changed: T

Access level: 3

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Communications	Units group: -	Unit selection: -
Min	Max	Factory setting
0	2	0

**Description:**

Sets the interface mode of the PROFIBUS control and status words.

When selecting a telegram via p0922, this parameter influences the device-specific assignment of the bits in the control and status words.

**Values:**

- 0: SINAMICS
- 1: SIMODRIVE 611 universal
- 2: VIK-NAMUR

**Dependency:**

Refer to: p0922

**Note:**

For p0922 = 100 ... 199, p2038 is automatically set to 1 and p2038 can no longer be changed. This means that for these telegrams, the "SIMODRIVE 611 universal" interface mode is set and cannot be changed.

---

<b>p2040</b>	<b>COMM INT monitoring time</b>	
CU_I	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Data set: -
	P-Group: Communications	Units group: TIME_M3
	Min	Max
	0 [ms]	65535000 [ms]
		20 [ms]

**Description:**

Sets the monitoring time to monitor the process data received via COMM BOARD. If no process data is received within this time, an appropriate message is output.

**Dependency:**

Refer to: F08501

**Note:**

0: The monitoring is deactivated.

---

<b>r2043</b>	<b>BO: PROFIBUS PZD status</b>	
CU_I	Can be changed: -	Access level: 3
	Data type: Unsigned8	Data set: -
	P-Group: Communications	Units group: -
	Min	Max
	-	-
		Factory setting
		-

**Description:**

Displays the PROFIBUS PZD state.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Setpoint failure	No	Yes	-

**Dependency:**

Refer to: p2044

**Note:**

When using the "setpoint failure" signal, PROFIBUS can be monitored and an application-specific response triggered when the setpoint fails.

---

<b>p2044</b>	<b>PROFIBUS fault delay</b>			
A_INF, SERVO	Can be changed: U, T		Access level: 3	
	Data type: Floating Point	Data set: -	Function diagram: 2410	
	P-Group: Communications	Units group: TIME	Unit selection: -	
	Min	Max	Factory setting	
	0 [s]	100 [s]	0 [s]	

**Description:**

Sets the delay time to initiate fault F01910 after a PROFIBUS setpoint failure.

The time until the fault is initiated can be used by the application. This means that it is possible to respond to the failure while the drive is still operational (e.g. emergency retraction).

**Dependency:**

Refer to: r2043

Refer to: F01910

---

<b>p2045</b>	<b>CI: Clock synchronous PROFIBUS signal source for master sign-of-life</b>			
CU_I, SERVO	Can be changed: T		Access level: 3	
	Data type: Unsigned32	Data set: -	Function diagram: 2444	
	P-Group: Communications	Units group: -	Unit selection: -	
	Min	Max	Factory setting	
	-	-	0	

**Description:**

Connector input for the sign-of-life of the clock synchronous PROFIBUS master.

The sign-of-life is expected at bits 12 to 15. Bits 0 to 11 are not evaluated.

The sign-of-life signal is normally received in PZD4 (control word 2) from the PROFIBUS master.

**Dependency:**

Refer to: p0925, r2065

<b>r2050[0...4]</b>	<b>CO: PROFIBUS PZD receive word</b>		
A_INF, CU_I	Can be changed: -		Access level: 3
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Connector output to interconnect PZD (setpoints) with word format received from the PROFIBUS master.			
<b>Index:</b>			
[0] = PZD 1			
[1] = PZD 2			
[2] = PZD 3			
[3] = PZD 4			
[4] = PZD 5			

<b>r2050[0...15]</b>	<b>CO: PROFIBUS PZD receive word</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Integer16	Data set: -	Function diagram: 2440, 2460
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Connector output to interconnect PZD (setpoints) with word format received from the PROFIBUS master.			
<b>Index:</b>			
[0] = PZD 1			
[1] = PZD 2			
[2] = PZD 3			
[3] = PZD 4			
[4] = PZD 5			
[5] = PZD 6			
[6] = PZD 7			
[7] = PZD 8			
[8] = PZD 9			
[9] = PZD 10			
[10] = PZD 11			
[11] = PZD 12			
[12] = PZD 13			

[13] = PZD 14

[14] = PZD 15

[15] = PZD 16

**Dependency:**

Refer to: r2060

**p2051[0...6]****CI: PROFIBUS PZD send word**

CU\_

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Selects the PZD (actual values) with word format to be sent to the PROFIBUS master.

**Index:**

[0] = PZD 1

[1] = PZD 2

[2] = PZD 3

[3] = PZD 4

[4] = PZD 5

[5] = PZD 6

[6] = PZD 7

**p2051[0...4]****CI: PROFIBUS PZD send word**

A\_INF

Can be changed: U, T

Access level:

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Selects the PZD (actual values) with word format to be sent to the PROFIBUS master.

**Index:**

[0] = PZD 1

[1] = PZD 2

[2] = PZD 3

[3] = PZD 4

[4] = PZD 5

**p2051[0...18]****CI: PROFIBUS PZD send word**

SERVO

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 2470



P-Group: Communications	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	0

**Description:**

Selects the PZD (actual values) with word format to be sent to the PROFIBUS master.

**Index:**

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10
- [10] = PZD 11
- [11] = PZD 12
- [12] = PZD 13
- [13] = PZD 14
- [14] = PZD 15
- [15] = PZD 16
- [16] = PZD 17
- [17] = PZD 18
- [18] = PZD 19

**Dependency:**

Refer to: p2061

---

**r2053[0...6] PROFIBUS diagnostics send PZD word**

CU\_I

Can be changed: -	Access level: 3
Data type: Unsigned16	Function diagram: -
P-Group: Communications	Unit selection: -
Min	Factory setting
-	-

**Description:**

Displays the PZD (actual values) with word format sent to the PROFIBUS master.

**Index:**

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4

[4] = PZD 5  
[5] = PZD 6  
[6] = PZD 7

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Bit 0	Off	On	-
	01	Bit 1	Off	On	-
	02	Bit 2	Off	On	-
	03	Bit 3	Off	On	-
	04	Bit 4	Off	On	-
	05	Bit 5	Off	On	-
	06	Bit 6	Off	On	-
	07	Bit 7	Off	On	-
	08	Bit 8	Off	On	-
	09	Bit 9	Off	On	-
	10	Bit 10	Off	On	-
	11	Bit 11	Off	On	-
	12	Bit 12	Off	On	-
	13	Bit 13	Off	On	-
	14	Bit 14	Off	On	-
	15	Bit 15	Off	On	-

<b>r2053[0...4]</b>	<b>PROFIBUS diagnostics send PZD word</b>			
A_INF	Can be changed: -	Access level:		
	Data type: Unsigned16	Data set: -	Function diagram: -	
	P-Group: Communications	Units group: -	Unit selection: -	
	Min	Max	Factory setting	
	-	-	-	

**Description:**  
Displays the PZD (actual values) with word format sent to the PROFIBUS master.

**Index:**  
[0] = PZD 1  
[1] = PZD 2  
[2] = PZD 3  
[3] = PZD 4  
[4] = PZD 5

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Bit 0	Off	On	-
	01	Bit 1	Off	On	-

02	Bit 2	Off	On	-
03	Bit 3	Off	On	-
04	Bit 4	Off	On	-
05	Bit 5	Off	On	-
06	Bit 6	Off	On	-
07	Bit 7	Off	On	-
08	Bit 8	Off	On	-
09	Bit 9	Off	On	-
10	Bit 10	Off	On	-
11	Bit 11	Off	On	-
12	Bit 12	Off	On	-
13	Bit 13	Off	On	-
14	Bit 14	Off	On	-
15	Bit 15	Off	On	-

#### r2053[0...18]

#### PROFIBUS diagnostics send PZD word

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 2450, 2470

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

#### Description:

Displays the PZD (actual values) with word format sent to the PROFIBUS master.

#### Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10
- [10] = PZD 11
- [11] = PZD 12
- [12] = PZD 13
- [13] = PZD 14
- [14] = PZD 15
- [15] = PZD 16

[16] = PZD 17

[17] = PZD 18

[18] = PZD 19

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Bit 0	Off	On	-
	01	Bit 1	Off	On	-
	02	Bit 2	Off	On	-
	03	Bit 3	Off	On	-
	04	Bit 4	Off	On	-
	05	Bit 5	Off	On	-
	06	Bit 6	Off	On	-
	07	Bit 7	Off	On	-
	08	Bit 8	Off	On	-
	09	Bit 9	Off	On	-
	10	Bit 10	Off	On	-
	11	Bit 11	Off	On	-
	12	Bit 12	Off	On	-
	13	Bit 13	Off	On	-
	14	Bit 14	Off	On	-
	15	Bit 15	Off	On	-

**Dependency:**

Refer to: p2051, p2061

**r2054****COMM INT state**

CU\_I

Can be changed: -

Access level: 3

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Values:**

0: No initialization

1: Fatal Error

2: Initialization

3: Send configuration

4: Receive configuration

5: Non-cyclic communication

6: Cyclic communications but no setpoints (stop/no clock cycle)

255: Cyclic communication

---

### r2058[0...139] COMM INT receive configuration data

CU\_I

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

#### Description:

Displays the configuration data received via COMM BOARD.

---

### r2059[0...7] COMM INT identification data

CU\_I

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

#### Description:

Displays the identification data of the COMM BOARD.

#### Note:

Index 0: CB data structure version (e.g.: 100 = V1.00).

Index 1: CB driver version (e.g.: 100 = V1.00).

Index 2: Company, (e.g.: 42 = Siemens).

Index 3: Device type.

Index 4: Firmware version.

Index 5: Firmware date (year).

Index 6: Firmware date (day/month).

---

### r2060[0...14] CO: PROFIBUS PZD receive double word

SERVO

Can be changed: -

Access level: 3

Data type: Integer32

Data set: -

Function diagram: 2440, 2460

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

#### Description:

Connector output to interconnect PZD (setpoints) with double word format received from the PROFIBUS master.

#### Index:

[0] = PZD 1 + 2

[1] = PZD 2 + 3  
 [2] = PZD 3 + 4  
 [3] = PZD 4 + 5  
 [4] = PZD 5 + 6  
 [5] = PZD 6 + 7  
 [6] = PZD 7 + 8  
 [7] = PZD 8 + 9  
 [8] = PZD 9 + 10  
 [9] = PZD 10 + 11  
 [10] = PZD 11 + 12  
 [11] = PZD 12 + 13  
 [12] = PZD 13 + 14  
 [13] = PZD 14 + 15  
 [14] = PZD 15 + 16

**Dependency:**

Refer to: r2050

**p2061[0...14] CI: PROFIBUS PZD send double word**

SERVO

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 2470

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Selects the PZD (actual values) with double word format to be sent to the PROFIBUS master.

**Index:**

[0] = PZD 1 + 2  
 [1] = PZD 2 + 3  
 [2] = PZD 3 + 4  
 [3] = PZD 4 + 5  
 [4] = PZD 5 + 6  
 [5] = PZD 6 + 7  
 [6] = PZD 7 + 8  
 [7] = PZD 8 + 9  
 [8] = PZD 9 + 10  
 [9] = PZD 10 + 11  
 [10] = PZD 11 + 12  
 [11] = PZD 12 + 13  
 [12] = PZD 13 + 14  
 [13] = PZD 14 + 15  
 [14] = PZD 15 + 16

**Dependency:**

Refer to: p2051

## r2063[0...14] PROFIBUS diagnostics PZD send double word

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 2450, 2470

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

### Description:

Displays the PZD (actual values) with double word format sent to the PROFIBUS master.

### Index:

- [0] = PZD 1 + 2
- [1] = PZD 2 + 3
- [2] = PZD 3 + 4
- [3] = PZD 4 + 5
- [4] = PZD 5 + 6
- [5] = PZD 6 + 7
- [6] = PZD 7 + 8
- [7] = PZD 8 + 9
- [8] = PZD 9 + 10
- [9] = PZD 10 + 11
- [10] = PZD 11 + 12
- [11] = PZD 12 + 13
- [12] = PZD 13 + 14
- [13] = PZD 14 + 15
- [14] = PZD 15 + 16

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Bit 0	Off	On	-
	01	Bit 1	Off	On	-
	02	Bit 2	Off	On	-
	03	Bit 3	Off	On	-
	04	Bit 4	Off	On	-
	05	Bit 5	Off	On	-
	06	Bit 6	Off	On	-
	07	Bit 7	Off	On	-
	08	Bit 8	Off	On	-
	09	Bit 9	Off	On	-
	10	Bit 10	Off	On	-
	11	Bit 11	Off	On	-
	12	Bit 12	Off	On	-

13	Bit 13	Off	On	-
14	Bit 14	Off	On	-
15	Bit 15	Off	On	-
16	Bit 16	Off	On	-
17	Bit 17	Off	On	-
18	Bit 18	Off	On	-
19	Bit 19	Off	On	-
20	Bit 20	Off	On	-
21	Bit 21	Off	On	-
22	Bit 22	Off	On	-
23	Bit 23	Off	On	-
24	Bit 24	Off	On	-
25	Bit 25	Off	On	-
26	Bit 26	Off	On	-
27	Bit 27	Off	On	-
28	Bit 28	Off	On	-
29	Bit 29	Off	On	-
30	Bit 30	Off	On	-
31	Bit 31	Off	On	-

**r2064[0...7]****PROFIBUS diagnostics clock synchronous mode**

CU\_I

Can be changed: -

Access level: 3

Data type: Integer32

Data set: -

Function diagram: 2410

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the last parameter received from the PROFIBUS master for clock synchronism.

The parameters for clock synchronism are created when configuring the bus and are transferred at the start of cyclic operation from the PROFIBUS master to the slave.

**Index:**

[0] = Clock synchronous mode activated

[1] = Bus cycle time (Tdp) [μs]

[2] = Master cycle time (Tmapc) [μs]

[3] = Instant of actual value acquisition (Ti) [μs]

[4] = Instant of setpoint acquisition (To) [μs]

[5] = Data exchange interval (Tdx) [μs]

[6] = PLL window (Tpll-w) [1/12 μs]

[7] = PLL delay time (Tpll-d) [1/12 μs]



<b>r2065</b>	<b>PROFIBUS diagnostics master sign-of-life</b>		
CU_I, SERVO	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: 2410
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<p><b>Description:</b></p> <p>Displays how often the sign-of-life from the clock synchronous PROFIBUS master failed. An appropriate fault is output when the tolerance, specified in p0925, is exceeded.</p> <p><b>Dependency:</b></p> <p>Refer to: F01912</p>			

<b>r2075[0...4]</b>	<b>PROFIBUS diagnostics telegram offset PZD receive</b>		
A_INF, CU_I	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<p><b>Description:</b></p> <p>PZD byte offset in the PROFIBUS receive telegram (master output).</p> <p><b>Index:</b></p> <p>[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5</p> <p><b>Note:</b></p> <p>Value range: 0 - 242: Byte offset 255: Not occupied</p>			

<b>r2075[0...15]</b>	<b>PROFIBUS diagnostics telegram offset PZD receive</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

PZD byte offset in the PROFIBUS receive telegram (master output).

**Index:**

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10
- [10] = PZD 11
- [11] = PZD 12
- [12] = PZD 13
- [13] = PZD 14
- [14] = PZD 15
- [15] = PZD 16

**Note:**

Value range:  
0 - 242: Byte offset  
255: Not occupied

r2076[0...6] PROFIBUS PZD diagnostics telegram offset send			
CU_	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

PZD byte offset in the PROFIBUS send telegram (master input).

**Index:**

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7

**Note:**

Value range:  
0 - 242: Byte offset  
255: Not occupied

<b>r2076[0...4]</b>	<b>PROFIBUS PZD diagnostics telegram offset send</b>		
A_INF	Can be changed: -	Access level:	
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

PZD byte offset in the PROFIBUS send telegram (master input).

**Index:**

[0] = PZD 1  
[1] = PZD 2  
[2] = PZD 3  
[3] = PZD 4  
[4] = PZD 5

**Note:**

Value range:  
0 - 242: Byte offset  
255: Not occupied

<b>r2076[0...18]</b>	<b>PROFIBUS PZD diagnostics telegram offset send</b>		
SERVO	Can be changed: -	Access level: 3	
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

PZD byte offset in the PROFIBUS send telegram (master input).

**Index:**

[0] = PZD 1  
[1] = PZD 2  
[2] = PZD 3  
[3] = PZD 4  
[4] = PZD 5  
[5] = PZD 6

- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10
- [10] = PZD 11
- [11] = PZD 12
- [12] = PZD 13
- [13] = PZD 14
- [14] = PZD 15
- [15] = PZD 16
- [16] = PZD 17
- [17] = PZD 18
- [18] = PZD 19

**Note:**  
Value range:  
0 - 242: Byte offset  
255: Not occupied

<b>p2079</b>		<b>PROFIBUS PZD telegram selection extended</b>	
CU_I	Can be changed: C2(1), T		Access level: 3
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	390	999	999
<b>Description:</b>			
Sets the send and receive telegram for PROFIBUS. Contrary to p922, a telegram can be selected using p2079 and subsequently expanded.			
If, with p922, a value not equal to 999 is set, then p2079 has the same value and is inhibited. All of the interconnections contained in the telegram are inhibited. Also expansions are inhibited.			
If p922 is set to 999, then p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set.			
If p922 = 999, and with p2079, a value is set that is not equal to 999, then the interconnections contained in the telegram are inhibited, but the telegram can be expanded.			
<b>Values:</b>			
390: SIEMENS telegram 390 for the control unit			
391: SIEMENS telegram 391 for the control unit			
999: Free telegram configuration with BICO			

<b>p2079</b>	<b>PROFIBUS PZD telegram selection extended</b>
--------------	---

A_INF	Can be changed: C2(1), T		Access level:
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	370	999	999

**Description:**

Sets the send and receive telegram for PROFIBUS. Contrary to p922, a telegram can be selected using p2079 and subsequently expanded.

For p0922 < 999 the following applies:

p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited.

For p0922 = 999 the following applies:

p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set.

For p0922 = 999 and p2079 < 999 the following applies:

The interconnections contained in the telegram are inhibited. However, the telegram can be extended.

**Values:**

370: SIEMENS telegram 370 for the infeed

999: Free telegram configuration with BICO

**Dependency:**

Refer to: p0922

---

<b>p2079</b>	<b>PROFIBUS PZD telegram selection extended</b>		
SERVO	Can be changed: C2(1), T		Access level: 3
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	2	999	999

**Description:**

Sets the send and receive telegram for PROFIBUS. Contrary to p922, a telegram can be selected using p2079 and subsequently expanded.

For p0922 < 999 the following applies:

p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited.

For p0922 = 999 the following applies:

p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set.

For p0922 = 999 and p2079 < 999 the following applies:

The interconnections contained in the telegram are inhibited. However, the telegram can

be extended.

**Values:**

2: Standard telegram 2  
 3: Standard telegram 3  
 4: Standard telegram 4  
 5: Standard telegram 5  
 6: Standard telegram 6  
 102: SIEMENS telegram 102  
 103: SIEMENS telegram 103  
 105: SIEMENS telegram 105  
 106: SIEMENS telegram 106  
 116: SIEMENS telegram 116  
 999: Free telegram configuration with BICO

**Dependency:**

Refer to: p0922

---

**p2080[0...15]**

**BI: PROFIBUS send status word 1**

All objects

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 2472

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Selects bits to be sent to the PROFIBUS master. The individual bits are combined to form status word 1.

**Index:**

[0] = Bit 0  
 [1] = Bit 1  
 [2] = Bit 2  
 [3] = Bit 3  
 [4] = Bit 4  
 [5] = Bit 5  
 [6] = Bit 6  
 [7] = Bit 7  
 [8] = Bit 8  
 [9] = Bit 9  
 [10] = Bit 10  
 [11] = Bit 11  
 [12] = Bit 12  
 [13] = Bit 13  
 [14] = Bit 14  
 [15] = Bit 15

**Dependency:**

Refer to: p2088, r2089

---

<b>p2081[0...15]</b>	<b>BI: PROFIBUS send status word 2</b>		
All objects	Can be changed: U, T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 2472
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Selects bits to be sent to the PROFIBUS master. The individual bits are combined to form status word 2.

**Index:**

[0] = Bit 0  
[1] = Bit 1  
[2] = Bit 2  
[3] = Bit 3  
[4] = Bit 4  
[5] = Bit 5  
[6] = Bit 6  
[7] = Bit 7  
[8] = Bit 8  
[9] = Bit 9  
[10] = Bit 10  
[11] = Bit 11  
[12] = Bit 12  
[13] = Bit 13  
[14] = Bit 14  
[15] = Bit 15

**Dependency:**

Refer to: p2088, r2089

**Note:**

When using the clock synchronous (isosynchronous) PROFIBUS with sign-of-life in status word 2, bit 12 to 15 are reserved to transfer the sign-of-life and may not be freely interconnected.

---

<b>p2082[0...15]</b>	<b>BI: PROFIBUS send free status word 3</b>		
All objects	Can be changed: U, T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 2472
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Selects bits to be sent to the PROFIBUS master. The individual bits are combined to form free status word 3.

**Index:**

- [0] = Bit 0
- [1] = Bit 1
- [2] = Bit 2
- [3] = Bit 3
- [4] = Bit 4
- [5] = Bit 5
- [6] = Bit 6
- [7] = Bit 7
- [8] = Bit 8
- [9] = Bit 9
- [10] = Bit 10
- [11] = Bit 11
- [12] = Bit 12
- [13] = Bit 13
- [14] = Bit 14
- [15] = Bit 15

**Dependency:**

Refer to: p2088, r2089

<b>p2083[0...15]</b>	<b>BI: PROFIBUS send free status word 4</b>		
All objects	Can be changed: U, T	Access level: 3	
	Data type: Unsigned32	Data set: -	Function diagram: 2472
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Selects bits to be sent to the PROFIBUS master. The individual bits are combined to form free status word 4.

**Index:**

- [0] = Bit 0
- [1] = Bit 1
- [2] = Bit 2
- [3] = Bit 3
- [4] = Bit 4
- [5] = Bit 5
- [6] = Bit 6
- [7] = Bit 7
- [8] = Bit 8



[9] = Bit 9  
[10] = Bit 10  
[11] = Bit 11  
[12] = Bit 12  
[13] = Bit 13  
[14] = Bit 14  
[15] = Bit 15

**Dependency:**

Refer to: p2088, r2089

---

**p2088[0...3] PROFIBUS invert status word**

All objects	Can be changed: U, T	Access level: 3
	Data type: Unsigned16	Data set: -
	P-Group: Communications	Function diagram: 2472
	Units group: -	Unit selection: -
	Min	Max
	0000 bin	1111 1111 1111 1111 bin
		0000 bin

**Description:**

Setting to invert the individual binector inputs of the binector connector converter.

**Index:**

[0] = Status word 1  
[1] = Status word 2  
[2] = Free status word 3  
[3] = Free status word 4

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Bit 0	Not inverted	Inverted	-
	01	Bit 1	Not inverted	Inverted	-
	02	Bit 2	Not inverted	Inverted	-
	03	Bit 3	Not inverted	Inverted	-
	04	Bit 4	Not inverted	Inverted	-
	05	Bit 5	Not inverted	Inverted	-
	06	Bit 6	Not inverted	Inverted	-
	07	Bit 7	Not inverted	Inverted	-
	08	Bit 8	Not inverted	Inverted	-
	09	Bit 9	Not inverted	Inverted	-
	10	Bit 10	Not inverted	Inverted	-
	11	Bit 11	Not inverted	Inverted	-
	12	Bit 12	Not inverted	Inverted	-
	13	Bit 13	Not inverted	Inverted	-
	14	Bit 14	Not inverted	Inverted	-
	15	Bit 15	Not inverted	Inverted	-

**Dependency:**

Refer to: p2080, p2081, p2082, p2083, r2089

**r2089[0...3]****CO: PROFIBUS send status word**

All objects

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 2472

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Connector output to interconnect the status words to a PROFIBUS PZD send word.

**Index:**

[0] = Status word 1

[1] = Status word 2

[2] = Free status word 3

[3] = Free status word 4

**Dependency:**

Refer to: p2051, p2080, p2081, p2082, p2083

**Note:**

r2089 together with p2080 to p2083 forms four binector-connector converters.

**r2090****BO: PROFIBUS PZD1 receive bit-serial**

All objects

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 2460

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Binector output for bit-serial interconnection of PZD1 (normally control word 1) received from the PROFIBUS master.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Bit 0	Off	On	-
	01	Bit 1	Off	On	-
	02	Bit 2	Off	On	-
	03	Bit 3	Off	On	-
	04	Bit 4	Off	On	-
	05	Bit 5	Off	On	-

06	Bit 6	Off	On	-
07	Bit 7	Off	On	-
08	Bit 8	Off	On	-
09	Bit 9	Off	On	-
10	Bit 10	Off	On	-
11	Bit 11	Off	On	-
12	Bit 12	Off	On	-
13	Bit 13	Off	On	-
14	Bit 14	Off	On	-
15	Bit 15	Off	On	-

## r2091

### BO: PROFIBUS PZD2 received bit-serial

All objects

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 2460

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

#### Description:

Binector output for bit-serial interconnection of PZD2 received from the PROFIBUS master.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Bit 0	Off	On	-
	01	Bit 1	Off	On	-
	02	Bit 2	Off	On	-
	03	Bit 3	Off	On	-
	04	Bit 4	Off	On	-
	05	Bit 5	Off	On	-
	06	Bit 6	Off	On	-
	07	Bit 7	Off	On	-
	08	Bit 8	Off	On	-
	09	Bit 9	Off	On	-
	10	Bit 10	Off	On	-
	11	Bit 11	Off	On	-
	12	Bit 12	Off	On	-
	13	Bit 13	Off	On	-
	14	Bit 14	Off	On	-
	15	Bit 15	Off	On	-

---

**r2092 BO: PROFIBUS PZD3 received bit-serial**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 2460

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Binector output for bit-serial interconnection of PZD3 received from the PROFIBUS master.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Bit 0	Off	On	-
	01	Bit 1	Off	On	-
	02	Bit 2	Off	On	-
	03	Bit 3	Off	On	-
	04	Bit 4	Off	On	-
	05	Bit 5	Off	On	-
	06	Bit 6	Off	On	-
	07	Bit 7	Off	On	-
	08	Bit 8	Off	On	-
	09	Bit 9	Off	On	-
	10	Bit 10	Off	On	-
	11	Bit 11	Off	On	-
	12	Bit 12	Off	On	-
	13	Bit 13	Off	On	-
	14	Bit 14	Off	On	-
	15	Bit 15	Off	On	-

---

**r2093 BO: PROFIBUS PZD4 received bit-serial**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 2460

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Binector output for bit-serial interconnection of PZD4 (normally control word 2) received from the PROFIBUS master.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Bit 0	Off	On	-
	01	Bit 1	Off	On	-
	02	Bit 2	Off	On	-
	03	Bit 3	Off	On	-
	04	Bit 4	Off	On	-
	05	Bit 5	Off	On	-
	06	Bit 6	Off	On	-
	07	Bit 7	Off	On	-
	08	Bit 8	Off	On	-
	09	Bit 9	Off	On	-
	10	Bit 10	Off	On	-
	11	Bit 11	Off	On	-
	12	Bit 12	Off	On	-
	13	Bit 13	Off	On	-
	14	Bit 14	Off	On	-
	15	Bit 15	Off	On	-

#### r2094

#### BO: PROFIBUS PZD received bit-serial

All objects

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 2460

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

#### Description:

Binector output for bit-serial onward interconnection of a PZD word received from the PROFIBUS master . The PZD is selected via p2099[0].

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Bit 0	Off	On	-
	01	Bit 1	Off	On	-
	02	Bit 2	Off	On	-
	03	Bit 3	Off	On	-
	04	Bit 4	Off	On	-
	05	Bit 5	Off	On	-
	06	Bit 6	Off	On	-
	07	Bit 7	Off	On	-
	08	Bit 8	Off	On	-
	09	Bit 9	Off	On	-

10	Bit 10	Off	On	-
11	Bit 11	Off	On	-
12	Bit 12	Off	On	-
13	Bit 13	Off	On	-
14	Bit 14	Off	On	-
15	Bit 15	Off	On	-

**Dependency:**

Refer to: p2099

**r2095****BO: PROFIBUS PZD received bit-serial**

All objects

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 2460

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Binector output for bit-serial interconnection of a PZD word received from the PROFIBUS master. The PZD is selected via p2099[1].

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Bit 0	Off	On	-
	01	Bit 1	Off	On	-
	02	Bit 2	Off	On	-
	03	Bit 3	Off	On	-
	04	Bit 4	Off	On	-
	05	Bit 5	Off	On	-
	06	Bit 6	Off	On	-
	07	Bit 7	Off	On	-
	08	Bit 8	Off	On	-
	09	Bit 9	Off	On	-
	10	Bit 10	Off	On	-
	11	Bit 11	Off	On	-
	12	Bit 12	Off	On	-
	13	Bit 13	Off	On	-
	14	Bit 14	Off	On	-
	15	Bit 15	Off	On	-

**Dependency:**

Refer to: p2099

## p2098[0...1] Invert connector-binector converter bit-serial

All objects	Can be changed: U, T	Access level: 3
	Data type: Unsigned16	Data set: -
	P-Group: Communications	Units group: -
	Min	Max
	0000 bin	1111 1111 1111 1111 bin
		0000 bin

### Description:

Setting to invert the individual binector outputs of the connector-binector converter.

Using p2098[0], the signals of CI: p2099[0] are influenced.

Using p2098[1], the signals of CI: p2099[1] are influenced.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Bit 0	Not inverted	Inverted	-
	01	Bit 1	Not inverted	Inverted	-
	02	Bit 2	Not inverted	Inverted	-
	03	Bit 3	Not inverted	Inverted	-
	04	Bit 4	Not inverted	Inverted	-
	05	Bit 5	Not inverted	Inverted	-
	06	Bit 6	Not inverted	Inverted	-
	07	Bit 7	Not inverted	Inverted	-
	08	Bit 8	Not inverted	Inverted	-
	09	Bit 9	Not inverted	Inverted	-
	10	Bit 10	Not inverted	Inverted	-
	11	Bit 11	Not inverted	Inverted	-
	12	Bit 12	Not inverted	Inverted	-
	13	Bit 13	Not inverted	Inverted	-
	14	Bit 14	Not inverted	Inverted	-
	15	Bit 15	Not inverted	Inverted	-

### Dependency:

Refer to: r2094, r2095, p2099

### Note:

Bit x = 1: Inverts the appropriate binector output.

Bit x = 0: No inversion.

## p2099[0...1] CI: PROFIBUS PZD selection receive bit-serial

All objects	Can be changed: U, T	Access level: 3
	Data type: Unsigned32	Data set: -
		Function diagram: 2460

P-Group: Communications	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	0

**Description:**

Selects a PROFIBUS PZD receive word for bit-serial interconnection.

**Dependency:**

Refer to: r2094, r2095

**Note:**

p2099 together with r2094 and r2095 forms two connector-binecator converters:

Connector input p2099[0] to binecator outputs in r2094

Connector input p2099[1] to binecator outputs in r2094

---

**p2100[0...19]    Setting the fault number for fault response**

All objects

Can be changed: U, T		Access level: 3
Data type: Unsigned16	Data set: -	Function diagram: 1750, 8075
P-Group: Messages	Units group: -	Unit selection: -
Min	Max	Factory setting
0	65535	0

**Description:**

Selects the faults for which the fault response should be changed

**Dependency:**

The fault is selected and the required response is set under the same index.

Refer to: p2101

**Notice:**

It is not possible to re-parameterize the fault response to a fault in the following cases:

- if there is no existing fault number.
- the message type is not "fault" (F).
- when a fault is present.

---

**p2101[0...19]    Setting the fault response**

CU\_I

Can be changed: U, T		Access level: 3
Data type: Integer16	Data set: -	Function diagram: 1750, 8075
P-Group: Messages	Units group: -	Unit selection: -
Min	Max	Factory setting
0	0	0



**Description:**

Sets the fault response for the selected fault.

**Values:**

0: NONE

**Dependency:**

The fault is selected and the required response is set under the same index.

**p2101[0...19]**

**Setting the fault response**

A\_INF

Can be changed: U, T

Access level:

Data type: Integer16

Data set: -

Function diagram: 1750, 8075

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

0

2

0

**Description:**

Sets the fault response for the selected fault.

**Values:**

0: NONE

1: OFF1

2: OFF2

**Dependency:**

The fault is selected and the required response is set under the same index.

**p2101[0...19]**

**Setting the fault response**

SERVO

Can be changed: U, T

Access level: 3

Data type: Integer16

Data set: -

Function diagram: 1750, 8075

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

0

7

0

**Description:**

Sets the fault response for the selected fault.

**Values:**

0: NONE

1: OFF1

2: OFF2

3: OFF3

4: STOP1 (being developed)

5: STOP2

6: DCBRAKE (being developed)

7: ENCODER (p0491)

**Dependency:**

The fault is selected and the required response is set under the same index.

Refer to: p2100

**Notice:**

It is not possible to re-parameterize the response to a specific fault for faults that are already present (queued).

**Note:**

OFF1:

Braking along the ramp-function generator down ramp followed by a pulse inhibit.

OFF2:

Internal/external pulse inhibit.

OFF3:

Braking along the OFF3 down ramp followed by a pulse inhibit.

STOP2:

n\_set = 0

The fault response can only be changed for faults with the appropriate identification.

Example:

F12345 and fault response = NONE (OFF1, OFF2) --> The NONE fault response can be changed to either OFF1 or OFF2.

---

**p2103**

**BI: 1. Acknowledge faults**

CU\_I

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the first signal source to acknowledge faults.

**Note:**

A fault acknowledgment is triggered with a 0/1 signal.

---

**p2103[0...n]**

**BI: 1. Acknowledge faults**

A\_INF, SERVO

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: 2442, 2443,  
2546, 8920

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the first signal source to acknowledge faults.

**Note:**

A fault acknowledgment is triggered with a 0/1 signal.

---

<b>p2104</b>	<b>BI: 2. Acknowledge faults</b>		
CU_I	Can be changed: U, T		Access level: 5
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the second signal source to acknowledge faults.

**Note:**

A fault acknowledgment is triggered with a 0/1 signal.

---

<b>p2104[0...n]</b>	<b>BI: 2. Acknowledge faults</b>		
A_INF, SERVO	Can be changed: U, T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 2546, 8920
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the second signal source to acknowledge faults.

**Note:**

A fault acknowledgment is triggered with a 0/1 signal.

---

<b>p2105</b>	<b>BI: 3. Acknowledge faults</b>		
CU_I	Can be changed: U, T		Access level: 5
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the third signal source to acknowledge faults.

**Note:**

A fault acknowledgment is triggered with a 0/1 signal.

**p2105[0...n]****BI: 3. Acknowledge faults**

A\_INF, SERVO

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: 2546, 8920

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the third signal source to acknowledge faults.

**Note:**

A fault acknowledgment is triggered with a 0/1 signal.

**p2106****BI: External fault 1**

CU\_I

Can be changed: U, T

Access level: 5

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

1

**Description:**

Sets the signal source for external fault 1.

**Dependency:**

Refer to: F07860

**Note:**

An external fault is triggered with a 1/0 signal.

If this fault is output at the control unit, then it is transferred to all existing drive objects.

**p2106[0...n]****BI: External fault 1**

A\_INF, SERVO

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: 2546

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

1

**Description:**

Sets the signal source for external fault 1.

**Dependency:**

Refer to: F07860

**Note:**

An external fault is triggered with a 1/0 signal.

If this fault is output at the control unit, then it is transferred to all existing drive objects.

---

<b>p2107</b>	<b>BI: External fault 2</b>	
CU_I	Can be changed: U, T	Access level: 5
	Data type: Unsigned32	Data set: -
	P-Group: Messages	Function diagram: -
	Min	Unit selection: -
	Max	Factory setting
	-	1

**Description:**

Sets the signal source for external fault 2.

**Dependency:**

Refer to: F07861

**Note:**

An external fault is triggered with a 1/0 signal.

If this fault is output at the control unit, then it is transferred to all existing drive objects.

---

<b>p2107[0...n]</b>	<b>BI: External fault 2</b>	
A_INF, SERVO	Can be changed: U, T	Access level: 3
	Data type: Unsigned32	Data set: CDS
	P-Group: Messages	Function diagram: 2546
	Min	Unit selection: -
	Max	Factory setting
	-	1

**Description:**

Sets the signal source for external fault 2.

**Dependency:**

Refer to: F07861

**Note:**

An external fault is triggered with a 1/0 signal.

If this fault is output at the control unit, then it is transferred to all existing drive objects.

---

<b>p2108</b>	<b>BI: External fault 3</b>	
CU_I	Can be changed: U, T	Access level: 5
	Data type: Unsigned32	Data set: -
		Function diagram: -

P-Group: Messages	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	1

**Description:**

Sets the signal source for external fault 3.

External fault 3 is initiated by the following AND logic operation:

- BI: p2108 negated

- BI: p3111

- BI: p3112 negated

**Dependency:**

Refer to: p3110, p3111, p3112

Refer to: F07862

**Note:**

An external fault is triggered with a 1/0 signal.

If this fault is output at the control unit, then it is transferred to all existing drive objects.

---

<b>p2108[0...n]</b>	<b>BI: External fault 3</b>	
A_INF, SERVO	Can be changed: U, T	Access level: 3
	Data type: Unsigned32	Data set: CDS
	P-Group: Messages	Units group: -
	Min	Max
	-	-
		Factory setting
		1

**Description:**

Sets the signal source for external fault 3.

External fault 3 is initiated by the following AND logic operation:

- BI: p2108 negated

- BI: p3111

- BI: p3112 negated

**Dependency:**

Refer to: p3110, p3111, p3112

Refer to: F07862

**Note:**

An external fault is triggered with a 1/0 signal.

If this fault is output at the control unit, then it is transferred to all existing drive objects.

---

<b>r2109[0...63]</b>	<b>Fault time removed in milliseconds</b>	
All objects	Can be changed: -	Access level: 3

Data type: Unsigned32	Data set: -	Function diagram: 1750, 8060
P-Group: Messages	Units group: TIME_M3	Unit selection: -
Min	Max	Factory setting
- [ms]	- [ms]	- [ms]

**Description:**

Displays the system runtime in milliseconds when the fault was removed.

**Dependency:**

Refer to: r0945, r0947, r0948, r0949, r2114, r2130, r2133, r2136

---

**r2110[0...63]**

**Alarm number**

All objects

Can be changed: -	Access level: 2
Data type: Unsigned16	Function diagram: 8065
P-Group: Messages	Unit selection: -
Min	Factory setting
-	-

**Description:**

This parameter is identical to r2122.

---

**p2111**

**Alarm counter**

All objects

Can be changed: U, T	Access level: 3
Data type: Unsigned16	Function diagram: 1750, 8065
P-Group: Messages	Unit selection: -
Min	Factory setting
0	0

**Description:**

Number of alarms that have occurred after the last reset.

**Dependency:**

When p2111 is set to 0, the following is initiated:

- all of the alarms of the alarm buffer that have gone [0...7] are transferred into the alarm history [8...63].
- the alarm buffer [0...7] is deleted.

Refer to: r2110, r2122, r2123, r2124, r2125

**Note:**

The parameter is reset to 0 at POWER ON.

---

**p2112**

**BI: External alarm 1**

CU\_I

Can be changed: U, T	Access level: 5
Data type: Unsigned32	Function diagram: -

P-Group: Messages	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	1

**Description:**

Sets the signal source for external alarm 1.

**Dependency:**

Refer to: A07850

**Note:**

An external alarm is triggered with a 1/0 signal.

**p2112[0...n]****BI: External alarm 1**

A\_INF, SERVO

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: 2546

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

1

**Description:**

Sets the signal source for external alarm 1.

**Dependency:**

Refer to: A07850

**Note:**

An external alarm is triggered with a 1/0 signal.

**r2114[0...1]****System runtime total**

CU\_I

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the total system runtime for the drive unit.

Index 0 indicates the system runtime in milliseconds after reaching 86.400.000 ms (24 hours), the value is reset.

Index 1 indicates the system runtime in days.

**Dependency:**

Refer to: r0948, r2109, r2123, r2125, r2130, r2136, r2145, r2146



**Note:**

The time in r2114 is used to display the fault and alarm times.

At power-off the counter value is saved.

After the drive unit is powered-up, the counter continues to run with the value that was saved the last time that the drive unit was powered-down.

<b>p2116</b>	<b>BI: External alarm 2</b>	
CU_I	Can be changed: U, T	Access level: 5
	Data type: Unsigned32	Data set: -
	P-Group: Messages	Function diagram: -
	Min	Unit selection: -
	Max	Factory setting
	-	1

**Description:**

Sets the signal source for external alarm 2.

**Dependency:**

Refer to: A07851

**Note:**

An external alarm is triggered with a 1/0 signal.

<b>p2116[0...n]</b>	<b>BI: External alarm 2</b>	
A_INF, SERVO	Can be changed: U, T	Access level: 3
	Data type: Unsigned32	Data set: CDS
	P-Group: Messages	Function diagram: 2546
	Min	Unit selection: -
	Max	Factory setting
	-	1

**Description:**

Sets the signal source for external alarm 2.

**Dependency:**

Refer to: A07851

**Note:**

An external alarm is triggered with a 1/0 signal.

<b>p2117</b>	<b>BI: External alarm 3</b>	
CU_I	Can be changed: U, T	Access level: 5
	Data type: Unsigned32	Data set: -
	P-Group: Messages	Function diagram: -
	Min	Unit selection: -
	Max	Factory setting
	-	1

**Description:**

Sets the signal source for external alarm 3.

**Dependency:**

Refer to: A07852

**Note:**

An external alarm is triggered with a 1/0 signal.

**p2117[0...n]**

A\_INF, SERVO

**BI: External alarm 3**

Can be changed: U, T

Data type: Unsigned32

P-Group: Messages

Min

-

Data set: CDS

Units group: -

Max

-

Access level: 3

Function diagram: 2546

Unit selection: -

Factory setting

1

**Description:**

Sets the signal source for external alarm 3.

**Dependency:**

Refer to: A07852

**Note:**

An external alarm is triggered with a 1/0 signal.

**p2118[0...19]**

All objects

**Sets the message number for message type.**

Can be changed: U, T

Data type: Unsigned16

P-Group: Messages

Min

0

Data set: -

Units group: -

Max

65535

Access level: 3

Function diagram: 1750, 8075

Unit selection: -

Factory setting

0

**Description:**

Selects faults or alarms for which the message type should be changed.

**Dependency:**

Selects the fault or alarm selection and sets the required type of message realized under the same index.

Refer to: p2119

**Notice:**

It is not possible to re-parameterize the message type in the following cases:

- if there is no existing message number.
- if a message is present.

## p2119[0...19]

### Setting the message type

All objects

Can be changed: U, T

Access level: 3

Data type: Integer16

Data set: -

Function diagram: 1750, 8075

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

1

3

1

#### Description:

Sets the message type for the selected fault or alarm.

#### Values:

- 1: Fault (F)
- 2: Alarm (A)
- 3: No message (N)

#### Dependency:

Selects the fault or alarm selection and sets the required type of message realized under the same index.

Refer to: p2118

#### Notice:

It is not possible to re-parameterize the message type for the existing faults or alarms.

#### Note:

The message type can only be changed for messages with the appropriate identification.

Example:

F12345(A) --> Fault F12345 can be changed to alarm A12345.

In this case, the message number that may be possibly entered in p2100[0...19] and p2126[0...19] is automatically removed.

## r2120

### Sum of fault and alarm buffer changes

All objects

Can be changed: -

Access level: 4

Data type: Unsigned16

Data set: -

Function diagram: 8065

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

#### Description:

Displays the sum of all of the fault and alarm buffer changes in the drive unit.

#### Dependency:

Refer to: r0944, r2121

## r2121

### Counter, alarm buffer changes

All objects	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: 8065
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

This counter is incremented every time the alarm buffer changes.

**Dependency:**

Refer to: r2110, r2122, r2123, r2124, r2125

**r2122[0...63]****Alarm code**

All objects	Can be changed: -		Access level: 2
	Data type: Unsigned16	Data set: -	Function diagram: 1750, 8065
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the number of alarms that have occurred.

**Dependency:**

Refer to: r2110, r2123, r2124, r2125, r2134, r2145, r2146

**Note:**

Alarm buffer structure (general principle):

r2122[0], r2124[0], r2123[0], r2125[0] --> alarm 1 (the oldest)

...

r2122[7], r2124[7], r2123[7], r2125[7] --> Alarm 8 (the latest)

When the alarm buffer is full, the alarms that have gone are entered into the alarm history:

r2122[8], r2124[8], r2123[8], r2125[8] --> Alarm 1 (the latest)

...

r2122[63], r2124[63], r2123[63], r2125[63] --> alarm 56 (the oldest)

**r2123[0...63]****Alarm time received in milliseconds**

All objects	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 1750, 8065
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the system runtime in milliseconds when the alarm occurred.

**Dependency:**

Refer to: r2110, r2114, r2122, r2124, r2125, r2134, r2145, r2146

**r2124[0...63]**

**Alarm value**

All objects

Can be changed: -

Access level: 3

Data type: Integer32

Data set: -

Function diagram: 1750, 8065

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays additional information about the active alarm (as integer number).

**Dependency:**

Refer to: r2110, r2122, r2123, r2125, r2134, r2145, r2146

**r2125[0...63]**

**Alarm time removed in milliseconds**

All objects

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 1750, 8065

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the system runtime in milliseconds when the alarm was cleared.

**Dependency:**

Refer to: r2110, r2114, r2122, r2123, r2124, r2134, r2145, r2146

**p2126[0...19]**

**Setting fault number for acknowledge mode**

All objects

Can be changed: U, T

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 1750, 8075

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

0

65535

0

**Description:**

Selects the faults for which the acknowledge mode is to be changed

**Dependency:**

Selects the faults and sets the required acknowledge mode realized under the same index

Refer to: p2127

**Notice:**

It is not possible to re-parameterize the acknowledge mode of a fault in the following cases:

- if there is no existing fault number.
- the message type is not "fault" (F).
- when a fault is present.

---

<b>p2127[0...19]</b>	<b>Sets acknowledgment mode</b>		
All objects	Can be changed: U, T		Access level: 3
	Data type: Integer16	Data set: -	Function diagram: 1750, 8075
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	1	2	1

**Description:**

Sets the acknowledge mode for selected fault.

**Values:**

- 1: Acknowledgment is only possible using POWER ON
- 2: Fault can be IMMEDIATELY acknowledged after cause removed

**Dependency:**

Selects the faults and sets the required acknowledge mode realized under the same index

Refer to: p2126

**Notice:**

It is not possible to re-parameterize the acknowledge mode for existing faults.

**Note:**

- 1: POWER ON (POWER\_ON)
- 2: IMMEDIATELY

The acknowledge mode can only be changed for faults with the appropriate identification.

Example:

F12345 and acknowledge mode = POWER ON (IMMEDIATELY) --> The acknowledge mode can be changed from POWER ON to IMMEDIATELY.

---

<b>p2128[0...15]</b>	<b>Selecting fault/alarm code for trigger</b>		
All objects	Can be changed: U, T		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: 1750, 8070
	P-Group: Messages	Units group: -	Unit selection: -

Min	Max	Factory setting
0	65535	0

**Description:**

Selects faults or alarms which can be used as trigger.

**Dependency:**

Refer to: r2129

**r2129**

**CO/BO: Trigger word for faults and alarms**

All objects

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 1530, 8070

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Trigger signal for the selected faults and alarms

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Trigger signal p2128[0]	Off	On	-
	01	Trigger signal p2128[1]	Off	On	-
	02	Trigger signal p2128[2]	Off	On	-
	03	Trigger signal p2128[3]	Off	On	-
	04	Trigger signal p2128[4]	Off	On	-
	05	Trigger signal p2128[5]	Off	On	-
	06	Trigger signal p2128[6]	Off	On	-
	07	Trigger signal p2128[7]	Off	On	-
	08	Trigger signal p2128[8]	Off	On	-
	09	Trigger signal p2128[9]	Off	On	-
	10	Trigger signal p2128[10]	Off	On	-
	11	Trigger signal p2128[11]	Off	On	-
	12	Trigger signal p2128[12]	Off	On	-
	13	Trigger signal p2128[13]	Off	On	-
	14	Trigger signal p2128[14]	Off	On	-
	15	Trigger signal p2128[15]	Off	On	-

**Dependency:**

If one of the faults or alarms selected in p2128[n] occurs, then the particular bit of this binector output is set.

Refer to: p2128

**Note:**

CO: r2129 = 0 --&gt; None of the selected messages has occurred.

CO: r2129 &gt; 0 --&gt; At least one of the selected messages has occurred.

---

<b>r2130[0...63]</b>	<b>Fault time received in days</b>		
All objects	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Displays the system runtime in days when the fault occurred.			
<b>Dependency:</b>			
Refer to: r0945, r0947, r0948, r0949, r2109, r2114, r2133, r2136			

---

<b>r2131</b>	<b>CO: Actual fault code</b>		
All objects	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Displays the code of the oldest active fault.			
<b>Note:</b>			
0: No fault present.			

---

<b>r2132</b>	<b>CO: Actual alarm code</b>		
All objects	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: 8065
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Displays the code of the last alarm that occurred.			
<b>Note:</b>			
0: No alarm present.			

---



<b>r2133[0...63]</b>	<b>Fault value for float values</b>		
All objects	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Displays additional information about the fault that occurred for float values.			
<b>Dependency:</b>			
Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2136			
<b>Note:</b>			
Displays additional information about the safety fault that has occurred (for float values)			

<b>r2134[0...63]</b>	<b>Alarm value for float values</b>		
All objects	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 8065
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Displays additional information about the active alarm for float values.			
<b>Dependency:</b>			
Refer to: r2110, r2122, r2123, r2124, r2125, r2145, r2146			

<b>r2135</b>	<b>CO/BO: Status word faults/alarms 2</b>		
All objects	Can be changed: -		Access level: 2
	Data type: Unsigned16	Data set: -	Function diagram: 1530, 2548
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Displays the second status word of faults and alarms.			

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Fault, encoder 1	No	Yes	-
	01	Fault, encoder 2	No	Yes	-
	02	Fault, encoder 3	No	Yes	-

12	Fault motor overtemperature	No	Yes	-
13	Fault thermal overload power module	No	Yes	-
14	Alarm, motor overtemperature	No	Yes	-
15	Alarm, power module thermal overload	No	Yes	-

**r2136[0...63] Fault time removed in days**

All objects

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 8060

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the system runtime in days when the fault was removed.

**Dependency:**

Refer to: r0945, r0947, r0948, r0949, r2109, r2114, r2130, r2133

**r2138 CO/BO: Control word faults/alarms**

All objects

Can be changed: -

Access level: 2

Data type: Unsigned16

Data set: -

Function diagram: 1530, 2546

P-Group: Displays, signals

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the control word of the faults and alarms.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	07	Acknowledge fault	No	Yes (0/1 edge)	-
	10	External alarm 1 (A07850)	Yes (1/0 edge)	No	-
	11	External alarm 2 (A07851)	Yes (1/0 edge)	No	-
	12	External alarm 3 (A07852)	Yes (1/0 edge)	No	-
	13	External fault 1 (F07860)	Yes (1/0 edge)	No	-
	14	External fault 2 (F07861)	Yes (1/0 edge)	No	-
	15	External fault 3 (F07862)	Yes (1/0 edge)	No	-

**Dependency:**

Refer to: p2103, p2104, p2105, p2106, p2107, p2108, p2112, p2116, p2117, p3110, p3111, p3112

**r2139 CO/BO: Status word faults/alarms 1**

All objects	Can be changed: -	Access level: 2
	Data type: Unsigned16	Function diagram: 1530, 2548
	P-Group: Displays, signals	Unit selection: -
	Min	Factory setting
	-	-

**Description:**

Displays the first status word of faults and alarms.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Ackn. running	No	Yes	-
	03	Fault present	No	Yes	-
	06	Internal message 1 present	No	Yes	-
	07	Alarm present	No	Yes	-
	08	Internal message 2 present	No	Yes	-

**Note:**

Zu bit 03, 07:

These bits are set if at least one fault/alarm occurs. Data is entered into the fault/alarm buffer with delay. This is the reason that the fault/alarm buffer should only be read if, after "fault present"/"alarm present" has occurred, a change in the buffer was also detected (r0944, r2121).

---

<b>p2140[0...n]</b>	<b>Hysteresis speed 2</b>	
SERVO	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Function diagram: 8010
	P-Group: Messages	Unit selection: -
	Min	Factory setting
	0.00 [1/min]	90.00 [1/min]

**Description:**

Sets the hysteresis speed/velocity (bandwidth) for the following signals:

"|n\_act| <= speed threshold value 2" (BO: r2197.1)

"|n\_act| > speed threshold value 2" (BO: r2197.2)

**Dependency:**

Refer to: p2155, r2197

---

<b>p2140[0...n]</b>	<b>Hysteresis velocity 2</b>	
SERVO (Lin)	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Function diagram: 8010
	P-Group: Messages	Unit selection: -

	SPEED_LIN_METRIC_P3	
Min	Max	Factory setting
0.00 [m/min]	10.00 [m/min]	0.90 [m/min]

**Description:**

Sets the hysteresis speed/velocity (bandwidth) for the following signals:

"|n\_act| <= speed threshold value 2" (BO: r2197.1)

"|n\_act| > speed threshold value 2" (BO: r2197.2)

**Dependency:**

Refer to: p2155, r2197

---

<b>p2141[0...n]</b>	<b>Speed threshold 1</b>	
SERVO	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Data set: DDS
	P-Group: Messages	Units group: SPEED_ROT
	Min	Max
	0.00 [1/min]	210000.00 [1/min]
		Factory setting
		5.00 [1/min]

**Description:**

Sets the speed/velocity threshold value for the signal "f or n comparison value reached or exceeded" (BO: r2199.1).

**Dependency:**

Refer to: p2142, r2199

---

<b>p2141[0...n]</b>	<b>Velocity threshold value 1</b>	
SERVO (Lin)	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Data set: DDS
	P-Group: Messages	Units group: SPEED_LIN_METRIC_P3
	Min	Max
	0.00 [m/min]	1000.00 [m/min]
		Factory setting
		0.05 [m/min]

**Description:**

Sets the speed/velocity threshold value for the signal "f or n comparison value reached or exceeded" (BO: r2199.1).

**Dependency:**

Refer to: p2142, r2199

---

<b>p2142[0...n]</b>	<b>Hysteresis speed 1</b>	
SERVO	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Data set: DDS
	P-Group: Messages	Units group: SPEED_ROT
		Function diagram: 8010
		Unit selection: -

Min	Max	Factory setting
0.00 [1/min]	300.00 [1/min]	2.00 [1/min]

**Description:**

Sets the hysteresis speed/velocity (bandwidth) for the signal "f or n / v comparison value reached or exceeded" (BO: r2199.1).

**Dependency:**

Refer to: p2141, r2199

<b>p2142[0...n]</b>	<b>Hysteresis velocity 1</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 8010
	P-Group: Messages	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.00 [m/min]	10.00 [m/min]	0.02 [m/min]

**Description:**

Sets the hysteresis speed/velocity (bandwidth) for the signal "f or n / v comparison value reached or exceeded" (BO: r2199.1).

**Dependency:**

Refer to: p2141, r2199

<b>r2145[0...63]</b>	<b>Alarm time received in days</b>		
All objects	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: 8065
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the system runtime in days when the alarm occurred.

**Dependency:**

Refer to: r2110, r2114, r2122, r2123, r2124, r2125, r2134, r2146

<b>r2146[0...63]</b>	<b>Alarm time removed in days</b>		
All objects	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: 8065
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the system runtime in days when the alarm was cleared.

**Dependency:**

Refer to: r2110, r2114, r2122, r2123, r2124, r2125, r2134, r2145

**p2147****Delete fault buffer of all drive objects**

CU\_I

Can be changed: U, T

Access level: 4

Data type: Integer16

Data set: -

Function diagram: 8060

P-Group: Displays, signals

Units group: -

Unit selection: -

Min

Max

Factory setting

0

1

0

**Description:**

Is used to delete (clear) the fault buffer of all of the existing drive objects.

**Values:**

0: not active

1: Start to delete the fault buffer of all drive objects

**Dependency:**

Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136

**Note:**

p2147 is automatically set to 0 after execution.

**p2148[0...n]****BI: Ramp-function generator active**

SERVO

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: 8010

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source for the signal "ramp-function generator active" for the following signals/messages:

"Speed setpoint - actual value deviation within tolerance t<sub>on</sub>" (BO: r2199.4)

Ramp-up/ramp-down completed (BO: r2199.5)

**Note:**

The binector input is automatically pre-assigned to r1199.2.

The following applies for SERVO:

The pre-assignment is only made when the function module "setpoint channel" is activated (r0108.8 = 1).

<b>p2149[0...n]</b>	<b>Monitoring, configuration</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Unsigned16	Data set: DDS	Function diagram: 8010
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 bin	0001 bin	0000 bin

**Description:**

Configuration word for messages and monitoring functions.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Enable alarm A07903	No	Yes	8010

**Dependency:**

Refer to: r2197

Refer to: A07903

**Note:**

Re bit 00:

Alarm A07903 is output when the bit is set with p2197.7 = 0 (n\_set <> n\_act).

<b>p2150[0...n]</b>	<b>Hysteresis speed 3</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 8010
	P-Group: Messages	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.00 [1/min]	300.00 [1/min]	2.00 [1/min]

**Description:**

Sets the hysteresis speed/velocity (bandwidth) for the following signals:

"|n\_act| < speed threshold value 3" (BO: r2199.0)

"n\_set >= 0" (BO: r2198.5)

"n\_act >= 0" (BO: r2197.3)

**Dependency:**

Refer to: p2161, r2197, r2199

<b>p2150[0...n]</b>	<b>Hysteresis velocity 3</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 8010
	P-Group: Messages	Units group: SPEED_LIN_METRIC_P3	Unit selection: -

Min	Max	Factory setting
0.00 [m/min]	3.00 [m/min]	0.02 [m/min]

**Description:**

Sets the hysteresis speed/velocity (bandwidth) for the following signals:

"|n\_act| < speed threshold value 3" (BO: r2199.0)

"n\_set >= 0" (BO: r2198.5)

"n\_act >= 0" (BO: r2197.3)

**Dependency:**

Refer to: p2161, r2197, r2199

---

**p2151[0...n] CI: Speed setpoint for messages/signals**

SERVO	Can be changed: T	Access level: 3
	Data type: Unsigned32	Data set: CDS
	P-Group: Messages	Function diagram: 8010
	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	1170[0]

**Description:**

Sets the signal source for the speed setpoint for the following messages:

"Speed setpoint - actual value deviation within tolerance t\_off" (BO: r2197.7)

Ramp-up/ramp-down completed (BO: r2199.5)

"|n\_set| < p2161" (BO: r2198.4)

"n\_set > 0" (BO: r2198.5)

**Dependency:**

Refer to: r2197, r2198, r2199

---

**p2153[0...n] Speed actual value filter time constant**

SERVO	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Data set: DDS
	P-Group: Messages	Function diagram: 8010
	Units group: TIME_M3	Unit selection: -
Min	Max	Factory setting
0 [ms]	1000000 [ms]	0 [ms]

**Description:**

Sets the time constant of the PT1 element to smooth the speed / velocity actual value.

The smoothed actual speed/ velocity is compared with the threshold values and is only used for messages and signals.

**Dependency:**

Refer to: r2169

---

**p2154[0...n] CI: Speed setpoint 2**



SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 8010
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for speed setpoint 2.

The sum from CI: p2151 and CI: p2154 is used for the following messages:

"Speed setpoint - actual value deviation within tolerance t\_off" (BO: r2197.7)

"Speed setpoint - actual value deviation within tolerance t\_on" (BO: r2199.4)

Ramp-up/ramp-down completed (BO: r2199.5)

**Dependency:**

Refer to: p2151, r2197, r2199

**p2155[0...n]**

**Speed threshold 2**

SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 8010
	P-Group: Messages	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.00 [1/min]	210000.00 [1/min]	900.00 [1/min]

**Description:**

Sets the speed/velocity threshold value for the following messages:

"|n\_act| <= speed threshold value 2" (BO: r2197.1)

"|n\_act| > speed threshold value 2" (BO: r2197.2)

**Dependency:**

Refer to: p2140, r2197

**p2155[0...n]**

**Velocity threshold value 2**

SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 8010
	P-Group: Messages	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.00 [m/min]	1000.00 [m/min]	9.00 [m/min]

**Description:**

Sets the speed/velocity threshold value for the following messages:

"|n\_act| <= speed threshold value 2" (BO: r2197.1)

"|n\_act| > speed threshold value 2" (BO: r2197.2)

**Dependency:**

Refer to: p2140, r2197

---

<b>p2156[0...n]</b>	<b>On delay, comparison value reached</b>		
SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 8010
	P-Group: Messages	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.0 [ms]	10000.0 [ms]	0.0 [ms]

**Description:**

Sets the switch-in delay time for the signal "comparison value reached" (BO: r2199.1).

**Dependency:**

Refer to: p2141, p2142, r2199

---

<b>p2161[0...n]</b>	<b>Speed threshold 3</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 8010
	P-Group: Messages	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.00 [1/min]	210000.00 [1/min]	5.00 [1/min]

**Description:**

Sets the speed/velocity threshold value for the signal "|n\_act| &lt; speed threshold value 3" (BO: r2199.0).

**Dependency:**

Refer to: p2150, r2199

---

<b>p2161[0...n]</b>	<b>Velocity threshold value 3</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 8010
	P-Group: Messages	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.00 [m/min]	1000.00 [m/min]	0.05 [m/min]

**Description:**

Sets the speed/velocity threshold value for the signal "|n\_act| &lt; speed threshold value 3" (BO: r2199.0).

**Dependency:**

Refer to: p2150, r2199

---

<b>p2162[0...n]</b>	<b>Hysteresis speed n_act &gt; n_max</b>
---------------------	--

SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 8010
	P-Group: Messages	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.00 [1/min]	60000.00 [1/min]	600.00 [1/min]

**Description:**

Sets the hysteresis speed/velocity (bandwidth) for the signal "n\_act > n\_max" (BO: r2197.6).

**Dependency:**

Refer to: r1084, r1087, r2197

**Note:**

For a negative speed limit (r1087) the hysteresis is effective below the limit value and for a positive speed limit (r1084) above the limit value.

---

**p2162[0...n] Hysteresis velocity n\_act > n\_max**

SERVO (Lin)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 8010
	P-Group: Messages	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.00 [m/min]	1000.00 [m/min]	6.00 [m/min]

**Description:**

Sets the hysteresis speed/velocity (bandwidth) for the signal "n\_act > n\_max" (BO: r2197.6).

**Dependency:**

Refer to: r1084, r1087, r2197

**Note:**

For a negative speed limit (r1087) the hysteresis is effective below the limit value and for a positive speed limit (r1084) above the limit value.

---

**p2163[0...n] Speed threshold 4**

SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 8010
	P-Group: Messages	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.00 [1/min]	210000.00 [1/min]	90.00 [1/min]

**Description:**

Sets the speed/velocity threshold value for the "speed setpoint - actual value deviation in tolerance t<sub>off</sub>" signal/ message (BO: r2197.7).

**Dependency:**

Refer to: p2164, p2166, r2197

---

<b>p2163[0...n]</b>	<b>Velocity threshold value 4</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 8010
	P-Group: Messages	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.00 [m/min]	1000.00 [m/min]	0.90 [m/min]

**Description:**

Sets the speed/velocity threshold value for the "speed setpoint - actual value deviation in tolerance t<sub>off</sub>" signal/ message (BO: r2197.7).

**Dependency:**

Refer to: p2164, p2166, r2197

---

<b>p2164[0...n]</b>	<b>Hysteresis speed 4</b>		
SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 8010
	P-Group: Messages	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.00 [1/min]	200.00 [1/min]	2.00 [1/min]

**Description:**

Sets the hysteresis speed/velocity (bandwidth) for the "speed setpoint - actual value deviation in tolerance t<sub>off</sub>" signal/message (BO: r2197.7).

**Dependency:**

Refer to: p2163, p2166, r2197

---

<b>p2164[0...n]</b>	<b>Hysteresis velocity 4</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 8010
	P-Group: Messages	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.00 [m/min]	10.00 [m/min]	0.02 [m/min]

**Description:**

Sets the hysteresis speed/velocity (bandwidth) for the "speed setpoint - actual value deviation in tolerance t\_off" signal/message (BO: r2197.7).

**Dependency:**

Refer to: p2163, p2166, r2197

---

<b>p2166[0...n]</b>	<b>Off delay n_act = n_set</b>		
SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 8010
	P-Group: Messages	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.0 [ms]	10000.0 [ms]	200.0 [ms]

**Description:**

Sets the power-off delay time for the "speed setpoint - actual value deviation in tolerance t\_off" signal/message (BO: r2197.7).

**Dependency:**

Refer to: p2163, p2164, r2197

---

<b>p2167[0...n]</b>	<b>Switch-on delay n_act = n_set</b>		
SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 8010
	P-Group: Messages	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.0 [ms]	10000.0 [ms]	200.0 [ms]

**Description:**

Sets the switch-in delay for the "speed setpoint - actual value deviation in tolerance t\_on" signal/message (BO: r2199.4).

---

<b>r2169</b>	<b>CO: Speed actual value smoothed signals</b>		
SERVO	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 1750, 8010, 8012
	P-Group: Messages	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	- [1/min]	- [1/min]	- [1/min]

**Description:**

Displays the smoothed actual speed/velocity for messages/signals.

**Dependency:**

Refer to: p2153

<b>r2169</b>	<b>CO: Velocity actual value, smoothed signals</b>		
SERVO (Lin)	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 1750, 8010, 8012
	P-Group: Messages	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	- [m/min]	- [m/min]	- [m/min]
<b>Description:</b>			
Displays the smoothed actual speed/velocity for messages/signals.			
<b>Dependency:</b>			
Refer to: p2153			

<b>p2174[0...n]</b>	<b>Torque threshold value 1</b>		
SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 8012
	P-Group: Messages	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	0.00 [Nm]	99999.00 [Nm]	5.13 [Nm]
<b>Description:</b>			
Sets the torque/force threshold value for the signal "Torque setpoint < torque threshold value 1" (BO: r2198.10).			
<b>Dependency:</b>			
Refer to: p2195, r2198			

<b>p2174[0...n]</b>	<b>Force threshold value 1</b>		
SERVO (Lin)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 8012
	P-Group: Messages	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	0.00 [N]	99999.00 [N]	1000.00 [N]
<b>Description:</b>			
Sets the torque/force threshold value for the signal "Torque setpoint < torque threshold value 1" (BO: r2198.10).			
<b>Dependency:</b>			
Refer to: p2195, r2198			

---

**p2175[0...n]      Motor locked speed threshold**

SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 8012
	P-Group: Messages	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.00 [1/min]	210000.00 [1/min]	120.00 [1/min]

**Description:**

Sets the speed/velocity threshold for the signal "Motor locked" (BO: r2198.6).

**Dependency:**

Refer to: p2177, r2198

---

**p2175[0...n] Motor locked, velocity threshold**

SERVO (Lin)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 8012
	P-Group: Messages	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.00 [m/min]	1000.00 [m/min]	1.20 [m/min]

**Description:**

Sets the speed/velocity threshold for the signal "Motor locked" (BO: r2198.6).

**Dependency:**

Refer to: p2177, r2198

---

**p2177[0...n] Motor locked delay time**

SERVO	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 8012
	P-Group: Messages	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0.000 [s]	65.000 [s]	1.000 [s]

**Description:**

Sets the delay time for the message "Motor locked" (BO: r2198.6).

If "Motor locked" is identified within this time, then ZSW2.6 is set and an appropriate fault is output.

**Dependency:**

Refer to: p2175, r2198

---

**p2181[0...n] Load monitoring, response**

SERVO (Extended msg)	Can be changed: U, T		Access level: 3
	Data type: Integer16	Data set: DDS	Function diagram: 8013

P-Group: Messages	Units group: -	Unit selection: -
Min	Max	Factory setting
0	6	0

**Description:**

Sets the response when evaluating the load monitoring.

**Values:**

- 0: Load monitoring disabled
- 1: A07920 for torque/speed too low
- 2: A07921 for torque/speed too high
- 3: A07922 for torque/speed out of tolerance
- 4: F07923 for torque/speed too low
- 5: F07924 for torque/speed too high
- 6: F07925 for torque/speed out of tolerance

**Dependency:**

Refer to: p2182, p2183, p2184, p2185, p2186, p2187, p2188, p2189, p2190, r2198

Refer to: A07920, A07921, A07922, F07923, F07924, F07925

**Note:**

The response to the faults F07923 ... F07925 can be set.

---

**p2182[0...n] Load monitoring, speed threshold value 1**

SERVO (Extended  
msg)

Can be changed: U, T

Access level: 3

Data type: Floating Point

Data set: DDS

Function diagram: 8013

P-Group: Messages

Units group: SPEED\_ROT

Unit selection: -

Min

Max

Factory setting

0.00 [1/min]

210000.00 [1/min]

150.00 [1/min]

**Description:**

Sets the speed/torque envelop curve for the load monitoring.

The envelope curve (upper and lower envelope curve) is defined as follows based on 3 speed thresholds:

p2182 (n\_threshold 1) --> p2185 (M\_threshold 1, upper), p2186 (M\_threshold 1, lower)

p2183 (n\_threshold 2) --> p2187 (M\_threshold 2, upper), p2188 (M\_threshold 2, lower)

p2184 (n\_threshold 3) --> p2189 (M\_threshold 3, upper), p2190 (M\_threshold 3, lower)

**Dependency:**

The following applies: p2182 < p2183 < p2184

Refer to: p2183, p2184, p2185, p2186

Refer to: A07926

---

**p2182[0...n] Load monitoring, velocity threshold 1**



SERVO (Lin, Extended msg)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 8013
	P-Group: Messages	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.00 [m/min]	1000.00 [m/min]	0.05 [m/min]

**Description:**

Sets the speed/torque envelop curve for the load monitoring.

The envelope curve (upper and lower envelope curve) is defined as follows based on 3 speed thresholds:

p2182 (n\_threshold 1) --> p2185 (M\_threshold 1, upper), p2186 (M\_threshold 1, lower)

p2183 (n\_threshold 2) --> p2187 (M\_threshold 2, upper), p2188 (M\_threshold 2, lower)

p2184 (n\_threshold 3) --> p2189 (M\_threshold 3, upper), p2190 (M\_threshold 3, lower)

**Dependency:**

The following applies: p2182 < p2183 < p2184

Refer to: p2183, p2184, p2185, p2186

Refer to: A07926

---

**p2183[0...n] Load monitoring, speed threshold value 2**

SERVO (Extended msg)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 8013
	P-Group: Messages	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.00 [1/min]	210000.00 [1/min]	900.00 [1/min]

**Description:**

Sets the speed/torque envelop curve for the load monitoring.

The envelope curve is defined as follows based on 3 speed thresholds:

p2182 (n\_threshold 1) --> p2185 (M\_threshold 1, upper), p2186 (M\_threshold 1, lower)

p2183 (n\_threshold 2) --> p2187 (M\_threshold 2, upper), p2188 (M\_threshold 2, lower)

p2184 (n\_threshold 3) --> p2189 (M\_threshold 3, upper), p2190 (M\_threshold 3, lower)

**Dependency:**

The following applies: p2182 < p2183 < p2184

Refer to: p2182, p2184, p2187, p2188

Refer to: A07926

---

**p2183[0...n] Load monitoring, velocity threshold 2**

SERVO (Lin, Extended msg)	Can be changed: U, T	Access level: 3
------------------------------	----------------------	-----------------

Data type: Floating Point	Data set: DDS	Function diagram: 8013
P-Group: Messages	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
Min	Max	Factory setting
0.00 [m/min]	1000.00 [m/min]	0.05 [m/min]

**Description:**

Sets the speed/torque envelop curve for the load monitoring.

The envelope curve is defined as follows based on 3 speed thresholds:

p2182 (n\_threshold 1) --> p2185 (M\_threshold 1, upper), p2186 (M\_threshold 1, lower)

p2183 (n\_threshold 2) --> p2187 (M\_threshold 2, upper), p2188 (M\_threshold 2, lower)

p2184 (n\_threshold 3) --> p2189 (M\_threshold 3, upper), p2190 (M\_threshold 3, lower)

**Dependency:**

The following applies: p2182 < p2183 < p2184

Refer to: p2182, p2184, p2187, p2188

Refer to: A07926

**p2184[0...n] Load monitoring, speed threshold value 3**

SERVO (Extended msg)

Can be changed: U, T

Access level: 3

Data type: Floating Point	Data set: DDS	Function diagram: 8013
P-Group: Messages	Units group: SPEED_ROT	Unit selection: -
Min	Max	Factory setting
0.00 [1/min]	210000.00 [1/min]	1500.00 [1/min]

**Description:**

Sets the speed/torque envelop curve for the load monitoring.

The envelope curve is defined as follows based on 3 speed thresholds:

p2182 (n\_threshold 1) --> p2185 (M\_threshold 1, upper), p2186 (M\_threshold 1, lower)

p2183 (n\_threshold 2) --> p2187 (M\_threshold 2, upper), p2188 (M\_threshold 2, lower)

p2184 (n\_threshold 3) --> p2189 (M\_threshold 3, upper), p2190 (M\_threshold 3, lower)

**Dependency:**

The following applies: p2182 < p2183 < p2184

Refer to: p2182, p2183, p2189, p2190

Refer to: A07926

**p2184[0...n] Load monitoring, velocity threshold 3**

SERVO (Lin, Extended msg)

Can be changed: U, T

Access level: 3

Data type: Floating Point	Data set: DDS	Function diagram: 8013
P-Group: Messages	Units group: SPEED_LIN_METRIC_P3	Unit selection: -

Min	Max	Factory setting
0.00 [m/min]	1000.00 [m/min]	0.05 [m/min]

**Description:**

Sets the speed/torque envelop curve for the load monitoring.

The envelope curve is defined as follows based on 3 speed thresholds:

p2182 (n\_threshold 1) --> p2185 (M\_threshold 1, upper), p2186 (M\_threshold 1, lower)

p2183 (n\_threshold 2) --> p2187 (M\_threshold 2, upper), p2188 (M\_threshold 2, lower)

p2184 (n\_threshold 3) --> p2189 (M\_threshold 3, upper), p2190 (M\_threshold 3, lower)

**Dependency:**

The following applies: p2182 < p2183 < p2184

Refer to: p2182, p2183, p2189, p2190

Refer to: A07926

---

**p2185[0...n] Load monitoring torque threshold 1, upper**

SERVO (Extended msg)

Can be changed: U, T

Access level: 3

Data type: Floating Point

Data set: DDS

Function diagram: 8013

P-Group: Messages

Units group: TORQUE

Unit selection: -

Min

Max

Factory setting

0.00 [Nm]

99999.00 [Nm]

99999.00 [Nm]

**Description:**

Sets the speed/torque / velocity/force envelope curve for the load monitoring.

**Dependency:**

The following applies: p2185 > p2186

Refer to: p2182, p2186

Refer to: A07926

---

**p2185[0...n] Load monitoring force threshold 1, upper**

SERVO (Lin, Extended msg)

Can be changed: U, T

Access level: 3

Data type: Floating Point

Data set: DDS

Function diagram: 8013

P-Group: Messages

Units group: FORCE

Unit selection: -

Min

Max

Factory setting

0.00 [N]

100000.00 [N]

100000.00 [N]

**Description:**

Sets the speed/torque / velocity/force envelope curve for the load monitoring.

**Dependency:**

The following applies: p2185 > p2186

Refer to: p2182, p2186

Refer to: A07926

<b>p2186[0...n]</b>	<b>Load monitoring torque threshold 1, lower</b>		
SERVO (Extended msg)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 8013
	P-Group: Messages	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	0.00 [Nm]	99999.00 [Nm]	0.00 [Nm]
<b>Description:</b>			
Sets the speed/torque / velocity/force envelope curve for the load monitoring.			
<b>Dependency:</b>			
The following applies: p2186 < p2185			
Refer to: p2182, p2185			
Refer to: A07926			

<b>p2186[0...n]</b>	<b>Load monitoring force threshold 1, lower</b>		
SERVO (Lin, Extended msg)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 8013
	P-Group: Messages	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	0.00 [N]	100000.00 [N]	0.00 [N]
<b>Description:</b>			
Sets the speed/torque / velocity/force envelope curve for the load monitoring.			
<b>Dependency:</b>			
The following applies: p2186 < p2185			
Refer to: p2182, p2185			
Refer to: A07926			

<b>p2187[0...n]</b>	<b>Load monitoring torque threshold 2, upper</b>		
SERVO (Extended msg)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 8013
	P-Group: Messages	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	0.00 [Nm]	99999.00 [Nm]	99999.00 [Nm]
<b>Description:</b>			
Sets the speed/torque / velocity/force envelope curve for the load monitoring.			

**Dependency:**

The following applies: p2187 > p2188

Refer to: p2183, p2188

Refer to: A07926

---

<b>p2187[0...n]</b>	<b>Load monitoring force threshold 2, upper</b>	
SERVO (Lin, Extended msg)	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Data set: DDS
	P-Group: Messages	Units group: FORCE
	Min	Max
	0.00 [N]	100000.00 [N]
		Function diagram: 8013
		Unit selection: -
		Factory setting
		100000.00 [N]

**Description:**

Sets the speed/torque / velocity/force envelope curve for the load monitoring.

**Dependency:**

The following applies: p2187 > p2188

Refer to: p2183, p2188

Refer to: A07926

---

<b>p2188[0...n]</b>	<b>Load monitoring torque threshold 2, lower</b>	
SERVO (Extended msg)	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Data set: DDS
	P-Group: Messages	Units group: TORQUE
	Min	Max
	0.00 [Nm]	99999.00 [Nm]
		Function diagram: 8013
		Unit selection: -
		Factory setting
		0.00 [Nm]

**Description:**

Sets the speed/torque / velocity/force envelope curve for the load monitoring.

**Dependency:**

The following applies: p2188 < p2187

Refer to: p2183, p2187

Refer to: A07926

---

<b>p2188[0...n]</b>	<b>Load monitoring force threshold 2, lower</b>	
SERVO (Lin, Extended msg)	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Data set: DDS
	P-Group: Messages	Units group: FORCE
	Min	Max
	0.00 [N]	100000.00 [N]
		Function diagram: 8013
		Unit selection: -
		Factory setting
		0.00 [N]

**Description:**

Sets the speed/torque / velocity/force envelope curve for the load monitoring.

**Dependency:**

The following applies: p2188 < p2187

Refer to: p2183, p2187

Refer to: A07926

---

<b>p2189[0...n]</b>	<b>Load monitoring torque threshold 3, upper</b>		
SERVO (Extended msg)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 8013
	P-Group: Messages	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	0.00 [Nm]	99999.00 [Nm]	99999.00 [Nm]

**Description:**

Sets the speed/torque / velocity/force envelope curve for the load monitoring.

**Dependency:**

The following applies: p2189 > p2190

Refer to: p2184, p2190

Refer to: A07926

---

<b>p2189[0...n]</b>	<b>Load monitoring force threshold 3, upper</b>		
SERVO (Lin, Extended msg)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 8013
	P-Group: Messages	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	0.00 [N]	100000.00 [N]	100000.00 [N]

**Description:**

Sets the speed/torque / velocity/force envelope curve for the load monitoring.

**Dependency:**

The following applies: p2189 > p2190

Refer to: p2184, p2190

Refer to: A07926

---

<b>p2190[0...n]</b>	<b>Load monitoring torque threshold 3, lower</b>		
SERVO (Extended msg)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 8013

P-Group: Messages	Units group: TORQUE	Unit selection: -
Min	Max	Factory setting
0.00 [Nm]	99999.00 [Nm]	0.00 [Nm]

**Description:**

Sets the speed/torque / velocity/force envelope curve for the load monitoring.

**Dependency:**

The following applies: p2190 < p2189

Refer to: p2184, p2189

Refer to: A07926

---

<b>p2190[0...n]</b>	<b>Load monitoring force threshold 3, lower</b>	
SERVO (Lin, Extended msg)	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Data set: DDS
	P-Group: Messages	Units group: FORCE
	Min	Max
	0.00 [N]	100000.00 [N]
		Function diagram: 8013
		Unit selection: -
		Factory setting
		0.00 [N]

**Description:**

Sets the speed/torque / velocity/force envelope curve for the load monitoring.

**Dependency:**

The following applies: p2190 < p2189

Refer to: p2184, p2189

Refer to: A07926

---

<b>p2192[0...n]</b>	<b>Load monitoring, delay time</b>	
SERVO (Extended msg)	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Data set: DDS
	P-Group: Messages	Units group: TIME
	Min	Max
	0.00 [s]	65.00 [s]
		Function diagram: 8013
		Unit selection: -
		Factory setting
		10.00 [s]

**Description:**

Sets the delay time to evaluate the load monitoring.

---

<b>p2194[0...n]</b>	<b>Torque threshold value 2</b>	
SERVO	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Messages	Units group: PERCENT
	Min	Max
		Function diagram: 8012
		Unit selection: -
		Factory setting

0.00 [%]

100.00 [%]

90.00 [%]

**Description:**

Sets the torque/force threshold value for the signal "Torque utilization < torque threshold value 2" (BO: r2199.11).

**Dependency:**

Refer to: r0033, p2195, r2199

**p2195[0...n]****Torque utilization switch-off delay**

SERVO

Can be changed: U, T

Access level: 2

Data type: Floating Point

Data set: DDS

Function diagram: 8012

P-Group: Messages

Units group: TIME\_M3

Unit selection: -

Min

Max

Factory setting

0.0 [ms]

1000.0 [ms]

800.0 [ms]

**Description:**

Sets the power-down delay time for the negated signal "Ramp-up completed".

The evaluation of the message "Torque setpoint < p2174" (BO: r2198.10) and "Torque utilization < p2194" (BO: r2199.11) is only realized after ramp-up has been completed and the delay time has expired.

**Dependency:**

Refer to: p2174, p2194

**r2197****CO/BO: Status word monitoring 1**

SERVO

Can be changed: -

Access level: 2

Data type: Unsigned16

Data set: -

Function diagram: 1530, 2534

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the first status word for monitoring functions.

**Bit field:**

Bit	Signal name	0 signal	1 signal	FP
01	n_act  <= speed threshold value 2	No	Yes	8010
02	n_act  > speed threshold value 2	No	Yes	8010
03	n_act >= 0	No	Yes	8010
06	n_act > n_max	No	Yes	8010
07	Speed setp - act val deviation in tolerance t_off	No	Yes	8010

**Note:**



Re bit 01, 02:

The speed threshold value 2 is set in p2155.

<b>r2198</b>	<b>CO/BO: Status word monitoring 2</b>		
SERVO	Can be changed: -		Access level: 2
	Data type: Unsigned16	Data set: -	Function diagram: 1530, 2536
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the second status word for monitoring functions.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	04	n_set  < p2161	No	Yes	8010
	05	n_set > 0	No	Yes	8010
	06	Motor locked	No	Yes	8012
	07	Motor stalled	No	Yes	8012
	10	Torque setpoint < torque threshold value 1	No	Yes	8012
	11	Load monitoring signals an alarm	No	Yes	8013
	12	Load monitoring signals a fault condition	No	Yes	8013

**Note:**

Re bit 10:

The torque threshold value 1 is set in p2174.

Re bit 07:

For servo drives, bit 07 is not used and is always inactive.

<b>r2199</b>	<b>CO/BO: Status word monitoring 3</b>		
SERVO	Can be changed: -		Access level: 2
	Data type: Unsigned16	Data set: -	Function diagram: 1530, 2536
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the third status word for monitoring functions.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	n_act  < speed threshold value 3	No	Yes	8010

01	f or n comparison value reached or exceeded No	Yes	8010
04	Speed setp - act val deviation in tolerance No t_on	Yes	8010
05	Ramp-up/ramp-down completed No	Yes	8010
11	Torque utilization < torque threshold value 2 No	Yes	8012

**Note:**

Re bit 00:

The speed threshold value 3 is set in p2161.

Re bit 01:

The comparison value is set in p2141.

Re bit 11:

The torque threshold value 2 is set in p2194.

**p2200[0...n]****BI: Technology controller enable**

SERVO (Tech\_ctrl)

Can be changed: U, T

Access level: 2

Data type: Unsigned32

Data set: CDS

Function diagram: 7958

P-Group: Technology

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source to switch-in/switch-out the technology controller.

The technology controller is switched-in with a 1 signal.

**p2201[0...n]****CO: Technology controller, fixed value 1**

SERVO (Tech\_ctrl)

Can be changed: U, T

Access level: 2

Data type: Floating Point

Data set: DDS

Function diagram: 7950

P-Group: Technology

Units group: PERCENT

Unit selection: -

Min

Max

Factory setting

-200.00 [%]

200.00 [%]

10.00 [%]

**Description:**

Sets the value for fixed value 1 of the technology controller.

**Dependency:**

Refer to: p2220, p2221, p2222, p2223, r2224, r2229

**p2202[0...n]****CO: Technology controller, fixed value 2**

SERVO (Tech\_ctrl)

Can be changed: U, T

Access level: 2

Data type: Floating Point

Data set: DDS

Function diagram: 7950

P-Group: Technology

Units group: PERCENT

Unit selection: -

Min	Max	Factory setting
-200.00 [%]	200.00 [%]	20.00 [%]

**Description:**

Sets the value for fixed value 2 of the technology controller.

**Dependency:**

Refer to: p2220, p2221, p2222, p2223, r2224, r2229

---

**p2203[0...n] CO: Technology controller, fixed value 3**

SERVO (Tech_ctrl)	Can be changed: U, T	Access level: 2
Data type: Floating Point	Data set: DDS	Function diagram: 7950
P-Group: Technology	Units group: PERCENT	Unit selection: -
Min	Max	Factory setting
-200.00 [%]	200.00 [%]	30.00 [%]

**Description:**

Sets the value for fixed value 3 of the technology controller.

**Dependency:**

Refer to: p2220, p2221, p2222, p2223, r2224, r2229

---

**p2204[0...n] CO: Technology controller, fixed value 4**

SERVO (Tech_ctrl)	Can be changed: U, T	Access level: 2
Data type: Floating Point	Data set: DDS	Function diagram: 7950
P-Group: Technology	Units group: PERCENT	Unit selection: -
Min	Max	Factory setting
-200.00 [%]	200.00 [%]	40.00 [%]

**Description:**

Sets the value for fixed value 4 of the technology controller.

**Dependency:**

Refer to: p2220, p2221, p2222, p2223, r2224, r2229

---

**p2205[0...n] CO: Technology controller, fixed value 5**

SERVO (Tech_ctrl)	Can be changed: U, T	Access level: 2
Data type: Floating Point	Data set: DDS	Function diagram: 7950
P-Group: Technology	Units group: PERCENT	Unit selection: -
Min	Max	Factory setting
-200.00 [%]	200.00 [%]	50.00 [%]

**Description:**

Sets the value for fixed value 5 of the technology controller.

**Dependency:**

Refer to: p2220, p2221, p2222, p2223, r2224, r2229

**p2206[0...n] CO: Technology controller, fixed value 6**

SERVO (Tech_ctrl)	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Technology	Units group: PERCENT
	Min	Max
	-200.00 [%]	200.00 [%]
		60.00 [%]

**Description:**

Sets the value for fixed value 6 of the technology controller.

**Dependency:**

Refer to: p2220, p2221, p2222, p2223, r2224, r2229

**p2207[0...n] CO: Technology controller, fixed value 7**

SERVO (Tech_ctrl)	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Technology	Units group: PERCENT
	Min	Max
	-200.00 [%]	200.00 [%]
		70.00 [%]

**Description:**

Sets the value for fixed value 7 of the technology controller.

**Dependency:**

Refer to: p2220, p2221, p2222, p2223, r2224, r2229

**p2208[0...n] CO: Technology controller, fixed value 8**

SERVO (Tech_ctrl)	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Technology	Units group: PERCENT
	Min	Max
	-200.00 [%]	200.00 [%]
		80.00 [%]

**Description:**

Sets the value for fixed value 8 of the technology controller.

**Dependency:**

Refer to: p2220, p2221, p2222, p2223, r2224, r2229

**p2209[0...n] CO: Technology controller, fixed value 9**

SERVO (Tech_ctrl)	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Technology	Units group: PERCENT
		Unit selection: -

Min	Max	Factory setting
-200.00 [%]	200.00 [%]	90.00 [%]

**Description:**

Sets the value for fixed value 9 of the technology controller.

**Dependency:**

Refer to: p2220, p2221, p2222, p2223, r2224, r2229

---

**p2210[0...n] CO: Technology controller, fixed value 10**

SERVO (Tech_ctrl)	Can be changed: U, T	Access level: 2
Data type: Floating Point	Data set: DDS	Function diagram: 7950
P-Group: Technology	Units group: PERCENT	Unit selection: -
Min	Max	Factory setting
-200.00 [%]	200.00 [%]	100.00 [%]

**Description:**

Sets the value for fixed value 10 of the technology controller.

**Dependency:**

Refer to: p2220, p2221, p2222, p2223, r2224, r2229

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**p2211[0...n] CO: Technology controller, fixed value 11**

SERVO (Tech_ctrl)	Can be changed: U, T	Access level: 2
Data type: Floating Point	Data set: DDS	Function diagram: 7950
P-Group: Technology	Units group: PERCENT	Unit selection: -
Min	Max	Factory setting
-200.00 [%]	200.00 [%]	110.00 [%]

**Description:**

Sets the value for fixed value 11 of the technology controller.

**Dependency:**

Refer to: p2220, p2221, p2222, p2223, r2224, r2229

---

**p2212[0...n] CO: Technology controller, fixed value 12**

SERVO (Tech_ctrl)	Can be changed: U, T	Access level: 2
Data type: Floating Point	Data set: DDS	Function diagram: 7950
P-Group: Technology	Units group: PERCENT	Unit selection: -
Min	Max	Factory setting
-200.00 [%]	200.00 [%]	120.00 [%]

**Description:**

Sets the value for fixed value 12 of the technology controller.

**Dependency:**

Refer to: p2220, p2221, p2222, p2223, r2224, r2229

**p2213[0...n] CO: Technology controller, fixed value 13**

SERVO (Tech_ctrl)	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Technology	Units group: PERCENT
	Min	Max
	-200.00 [%]	200.00 [%]
		Factory setting
		130.00 [%]

**Description:**

Sets the value for fixed value 13 of the technology controller.

**Dependency:**

Refer to: p2220, p2221, p2222, p2223, r2224, r2229

**p2214[0...n] CO: Technology controller, fixed value 14**

SERVO (Tech_ctrl)	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Technology	Units group: PERCENT
	Min	Max
	-200.00 [%]	200.00 [%]
		Factory setting
		140.00 [%]

**Description:**

Sets the value for fixed value 14 of the technology controller.

**Dependency:**

Refer to: p2220, p2221, p2222, p2223, r2224, r2229

**p2215[0...n] CO: Technology controller, fixed value 15**

SERVO (Tech_ctrl)	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Technology	Units group: PERCENT
	Min	Max
	-200.00 [%]	200.00 [%]
		Factory setting
		150.00 [%]

**Description:**

Sets the value for fixed value 15 of the technology controller.

**Dependency:**

Refer to: p2220, p2221, p2222, p2223, r2224, r2229

**p2220[0...n] BI: Technology controller fixed value selection bit 0**

SERVO (Tech_ctrl)	Can be changed: T	Access level: 3
	Data type: Unsigned32	Data set: CDS
	P-Group: Commands	Units group: -
		Function diagram: 7950
		Unit selection: -

Min	Max	Factory setting
-	-	0

**Description:**

Sets the signal source to select the fixed value of the technology controller.

**Dependency:**

Refer to: p2221, p2222, p2223

---

**p2221[0...n] BI: Technology controller fixed value selection bit 1**

SERVO (Tech_ctrl)	Can be changed: T	Access level: 3
	Data type: Unsigned32	Data set: CDS
	P-Group: Commands	Units group: -
	Min	Max
	-	-
		Factory setting
		0

**Description:**

Sets the signal source to select the fixed value of the technology controller.

**Dependency:**

Refer to: p2220, p2222, p2223

---

**p2222[0...n] BI: Technology controller fixed value selection bit 2**

SERVO (Tech_ctrl)	Can be changed: T	Access level: 3
	Data type: Unsigned32	Data set: CDS
	P-Group: Commands	Units group: -
	Min	Max
	-	-
		Factory setting
		0

**Description:**

Sets the signal source to select the fixed value of the technology controller.

**Dependency:**

Refer to: p2220, p2221, p2223

---

**p2223[0...n] BI: Technology controller fixed value selection bit 3**

SERVO (Tech_ctrl)	Can be changed: T	Access level: 3
	Data type: Unsigned32	Data set: CDS
	P-Group: Commands	Units group: -
	Min	Max
	-	-
		Factory setting
		0

**Description:**

Sets the signal source to select the fixed value of the technology controller.

**Dependency:**

Refer to: p2220, p2221, p2222

---

<b>r2224</b>	<b>CO: Technology controller, fixed value effective</b>		
SERVO (Tech_ctrl)	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 7950
	P-Group: Technology	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	- [%]	- [%]	- [%]
<b>Description:</b>			
Displays the selected and effective fixed value of the technology controller.			
<b>Dependency:</b>			
Refer to: r2229			

---

<b>r2229</b>	<b>Technology controller current number</b>		
SERVO (Tech_ctrl)	Can be changed: -		Access level: 2
	Data type: Unsigned32	Data set: -	Function diagram: 7950
	P-Group: Technology	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Displays the number of the selected fixed setpoint of the technology controller.			
<b>Dependency:</b>			
Refer to: r2224			

---

<b>p2230[0...n]</b>	<b>Technology controller motorized potentiometer configuration</b>				
SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 3		
	Data type: Unsigned32	Data set: DDS	Function diagram: 7954		
	P-Group: Technology	Units group: -	Unit selection: -		
	Min	Max	Factory setting		
	0000 bin	1111 bin	0110 bin		
<b>Description:</b>					
Sets the configuration for the motorized potentiometer of the technology controller.					
<b>Bit field:</b>	<b>Bit</b>	<b>Signal name</b>	<b>0 signal</b>	<b>1 signal</b>	<b>FP</b>
	00	Data save active	No	Yes	-
	02	Initial rounding-off active	No	Yes	-
	03	Non-volatile data save active for P2230 = 1	No	Yes	-
<b>Dependency:</b>					



Refer to: r2231, p2240

**Note:**

Re bit 00:

0: The setpoint for the motorized potentiometer is not saved and after ON is entered using p2240.

1: The setpoint for the motorized potentiometer is saved and after ON is entered using r2231. In order to save in a non-volatile fashion, bit 03 should be set to 1.

Re bit 02:

0: Without initial rounding-off

1: With initial rounding-off. The selected ramp-up/down time is correspondingly exceeded.

Re bit 03:

0: Non-volatile data save de-activated.

1: The setpoint for the motorized potentiometer is saved in a non-volatile fashion (for p2230.0 = 1).

The following prerequisites must be fulfilled in order to be able to save the setpoint in a non-volatile fashion:

- Firmware with V2.3 or higher.
- control unit 320 (CU320) with hardware version C or higher (module with NVRAM).

<b>r2231 Technology controller motorized potentiometer setpoint memory</b>			
SERVO (Tech_ctrl)	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 7954
	P-Group: Technology	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	- [%]	- [%]	- [%]
<b>Description:</b>			
Displays the setpoint memory for the motorized potentiometer of the technology controller.			
For p2230.0 = 1, the last setpoint that was saved is entered after ON.			
<b>Dependency:</b>			
Refer to: p2230			

<b>p2235[0...n] BI: Technology controller motorized potentiometer, raise setpoint</b>			
SERVO (Tech_ctrl)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 7954
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to increase the setpoint for the motorized potentiometer of the technology controller.

**Dependency:**

Refer to: p2236

---

<b>p2236[0...n]</b>	<b>BI: Technology controller motorized potentiometer, lower setpoint</b>		
SERVO (Tech_ctrl)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 7954
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to reduce the setpoint for the motorized potentiometer of the technology controller.

**Dependency:**

Refer to: p2235

---

<b>p2237[0...n]</b>	<b>Technology controller motorized potentiometer maximum value</b>		
SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7954
	P-Group: Technology	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	-200.00 [%]	200.00 [%]	100.00 [%]

**Description:**

Sets the maximum value for the motorized potentiometer of the technology controller.

**Dependency:**

Refer to: p2238

---

<b>p2238[0...n]</b>	<b>Technology controller motorized potentiometer minimum value</b>		
SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7954
	P-Group: Technology	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	-200.00 [%]	200.00 [%]	-100.00 [%]

**Description:**

Sets the minimum value for the motorized potentiometer of the technology controller.

**Dependency:**

Refer to: p2237

<b>p2240[0...n]</b>	<b>Technology controller motorized potentiometer starting value</b>		
SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7954
	P-Group: Technology	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	-200.00 [%]	200.00 [%]	0.00 [%]
<b>Description:</b>			
Sets the starting value for the motorized potentiometer of the technology controller.			
For p2230.0 = 0, this setpoint is entered after ON.			
<b>Dependency:</b>			
Refer to: p2230			

<b>r2245</b>	<b>CO: Technology controller mot. potentiometer setpoint before RFG</b>		
SERVO (Tech_ctrl)	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 7954
	P-Group: Technology	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	- [%]	- [%]	- [%]
<b>Description:</b>			
Sets the effective setpoint in front of the internal motorized potentiometer ramp-function generator of the technology controller.			
<b>Dependency:</b>			
Refer to: r2250			

<b>p2247[0...n]</b>	<b>Technology controller motorized potentiometer ramp-up time</b>		
SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7954
	P-Group: Technology	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0.0 [s]	1000.0 [s]	10.0 [s]
<b>Description:</b>			
Sets the ramp-up time for the internal ramp-function generator for the motorized potentiometer of the technology controller.			
<b>Dependency:</b>			
Refer to: p2248			
<b>Note:</b>			

The time is referred to 100 %.

When the initial rounding-off is activated (p2230.2 = 1) the ramp-up is correspondingly extended.

---

<b>p2248[0...n]</b>	<b>Technology controller motorized potentiometer ramp-down time</b>		
SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7954
	P-Group: Technology	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0.0 [s]	1000.0 [s]	10.0 [s]

**Description:**

Sets the ramp-down time for the internal ramp-function generator for the motorized potentiometer of the technology controller.

**Dependency:**

Refer to: p2247

**Note:**

The time is referred to 100 %.

When the initial rounding-off is activated (p1030.2) the ramp-down is correspondingly extended.

---

<b>r2250</b>	<b>CO: Technology controller motorized potentiometer setpoint after RFG</b>		
SERVO (Tech_ctrl)	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 7954
	P-Group: Technology	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	- [%]	- [%]	- [%]

**Description:**

Displays the effective setpoint after the internal ramp-function generator for the motorized potentiometer of the technology controller.

**Dependency:**

Refer to: r2245

---

<b>p2253[0...n]</b>	<b>Cl: Technology controller setpoint 1</b>		
SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 2
	Data type: Unsigned32	Data set: CDS	Function diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for the setpoint 1 of the technology controller.

**Dependency:**

Refer to: p2254, p2255

---

<b>p2254[0...n]</b>	<b>CI: Technology controller setpoint 2</b>		
SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 3
	Data type: Unsigned32	Data set: CDS	Function diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for the setpoint 2 of the technology controller.

**Dependency:**

Refer to: p2253, p2256

---

<b>p2255</b>	<b>Technology controller setpoint 1 scaling</b>		
SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 7958
	P-Group: Technology	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.00 [%]	100.00 [%]	100.00 [%]

**Description:**

Sets the scaling for the setpoint 1 of the technology controller.

**Dependency:**

Refer to: p2253

---

<b>p2256</b>	<b>Technology controller setpoint 2 scaling</b>		
SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 7958
	P-Group: Technology	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.00 [%]	100.00 [%]	100.00 [%]

**Description:**

Sets the scaling for the setpoint 2 of the technology controller.

**Dependency:**

Refer to: p2254

<b>p2257</b>	<b>Technology controller, ramp-up time</b>		
SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 7958
	P-Group: Technology	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0.00 [s]	650.00 [s]	1.00 [s]
	<b>Description:</b> Sets the ramp-up time of the technology controller.		
	<b>Dependency:</b> Refer to: p2258		
	<b>Note:</b> The ramp-up time is referred to 100 %.		
<b>p2258</b>	<b>Technology controller ramp-down time</b>		
SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 7958
	P-Group: Technology	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0.00 [s]	650.00 [s]	1.00 [s]
	<b>Description:</b> Sets the ramp-down time of the technology controller.		
	<b>Dependency:</b> Refer to: p2257		
	<b>Note:</b> The ramp-down time is referred to 100 %.		
<b>r2260</b>	<b>CO: Technology controller setpoint after ramp-function generator</b>		
SERVO (Tech_ctrl)	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 7958
	P-Group: Technology	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	- [%]	- [%]	- [%]
	<b>Description:</b> Sets the setpoint after the ramp-function generator of the technology controller.		
<b>p2261</b>	<b>Technology controller setpoint filter time constant</b>		

SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 7958
	P-Group: Technology	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0.00 [s]	60.00 [s]	0.00 [s]

**Description:**

Sets the time constant for the setpoint filter (PT1) of the technology controller.

---

**r2262 CO: Technology controller setpoint after filter**

SERVO (Tech_ctrl)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 7958
	P-Group: Technology	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	- [%]	- [%]	- [%]

**Description:**

Displays the smoothed setpoint after the setpoint filter (PT1) of the technology controller.

---

**p2263 Technology controller type**

SERVO (Tech_ctrl)	Can be changed: T		Access level: 3
	Data type: Integer16	Data set: -	Function diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	1	0

**Description:**

Sets the technology controller type.

**Values:**

- 0: D component in the actual value signal
- 1: D component in the fault signal

---

**p2264[0...n] CI: Technology controller actual value**

SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 2
	Data type: Unsigned32	Data set: CDS	Function diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for the actual value of the technology controller.

<b>p2265</b>	<b>Technology controller actual value filter time constant</b>		
SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 7958
	P-Group: Technology	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0.00 [s]	60.00 [s]	0.00 [s]
<b>Description:</b>			
Sets the time constant for the actual value filter (PT1) of the technology controller.			
<b>r2266</b>	<b>CO: Technology controller actual value after filter</b>		
SERVO (Tech_ctrl)	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 7958
	P-Group: Technology	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	- [%]	- [%]	- [%]
<b>Description:</b>			
Displays the smoothed actual value after the filter (PT1) of the technology controller			
<b>r2273</b>	<b>CO: Technology controller error</b>		
SERVO (Tech_ctrl)	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 7958
	P-Group: Technology	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	- [%]	- [%]	- [%]
<b>Description:</b>			
Displays the error (system deviation) between the setpoint and actual value of the technology controller.			
<b>Dependency:</b>			
Refer to: p2263			
<b>p2274</b>	<b>Technology controller differentiation, time constant</b>		
SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 7958
	P-Group: Technology	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0.000 [s]	60.000 [s]	0.000 [s]



**Description:**

Sets the time constant for the differentiation (D component) of the technology controller.

**Note:**

p2274 = 0: Differentiation is disabled.

---

<b>p2280</b>	<b>Technology controller proportional gain</b>		
SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.000	1000.000	1.000

**Description:**

Sets the proportional gain (P component) of the technology controller.

**Note:**

p2280 = 0: The proportional gain is disabled.

---

<b>p2285</b>	<b>Technology controller integral action time</b>		
SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 7958
	P-Group: Technology	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0.000 [s]	60.000 [s]	0.000 [s]

**Description:**

Sets the integral actual time (I component, integrating time constant) of the technology controller.

**Note:**

p2285 = 0: The integral action time is disabled.

---

<b>p2289[0...n]</b>	<b>CI: Technology controller pre-control signal</b>		
SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 2
	Data type: Unsigned32	Data set: CDS	Function diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for the pre-control signal of the technology controller.

**p2291****CO: Technology controller maximum limiting**

SERVO (Tech_ctrl)	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: -
	P-Group: Technology	Units group: PERCENT
	Min	Max
	-200.00 [%]	200.00 [%]
		100.00 [%]
		Function diagram: 7958
		Unit selection: -
		Factory setting

**Description:**

Sets the maximum limit of the technology controller.

**Dependency:**

Refer to: p2292

**Caution!**

The maximum limit must always be greater than the minimum limit (p2291 > p2292).

**p2292****CO: Technology controller minimum limiting**

SERVO (Tech_ctrl)	Can be changed: U, T	Access level: 2
	Data type: Floating Point	Data set: -
	P-Group: Technology	Units group: PERCENT
	Min	Max
	-200.00 [%]	200.00 [%]
		0.00 [%]
		Function diagram: 7958
		Unit selection: -
		Factory setting

**Description:**

Sets the minimum limit of the technology controller.

**Dependency:**

Refer to: p2291

**Caution!**

The maximum limit must always be greater than the minimum limit (p2291 > p2292).

**p2293****Technology controller ramp-up/ramp-down time**

SERVO (Tech_ctrl)	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Data set: -
	P-Group: Technology	Units group: TIME
	Min	Max
	0.00 [s]	100.00 [s]
		1.00 [s]
		Function diagram: 7958
		Unit selection: -
		Factory setting

**Description:**

Sets the ramp-up and ramp-down time for the maximum and minimum limiting (p2291 and p2292) of the technology controller.

**Dependency:**

Refer to: p2291, p2292

**Note:**

The ramp-up/ramp-down times are referred to 100 %.

---

<b>r2294</b>	<b>CO: Technology controller output signal</b>		
SERVO (Tech_ctrl)	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 7958
	P-Group: Technology	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	- [%]	- [%]	- [%]

**Description:**

Displays the output signal of the technology controller.

**Dependency:**

Refer to: p2295

---

<b>p2295</b>	<b>CO: Technology controller output scaling</b>		
SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 7958
	P-Group: Technology	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	-100.00 [%]	100.00 [%]	100.00 [%]

**Description:**

Sets the scaling for the output signal of the technology controller.

---

<b>p2296[0...n]</b>	<b>CI: Technology controller output scaling</b>		
SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 2
	Data type: Unsigned32	Data set: CDS	Function diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	2295[0]

**Description:**

Sets the signal source for the scaling value of the technology controller.

**Dependency:**

Refer to: p2295

**p2297[0...n] CI: Technology controller maximum limiting**

SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 2
	Data type: Unsigned32	Data set: CDS	Function diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	2291[0]

**Description:**

Sets the signal source for the maximum limiting of the technology controller.

**Dependency:**

Refer to: p2291

**p2298[0...n] CI: Technology controller minimum limiting**

SERVO (Tech_ctrl)	Can be changed: U, T		Access level: 2
	Data type: Unsigned32	Data set: CDS	Function diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	2292[0]

**Description:**

Sets the signal source for the minimum limiting of the technology controller.

**Dependency:**

Refer to: p2292

**r2349 CO/BO: Technology controller status word**

SERVO (Tech_ctrl)	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the status word of the technology controller.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Technology controller de-activated	No	Yes	-
	01	Technology controller limited	No	Yes	-
	02	Technology controller, motorized potentiometer limited max.	No	Yes	-
	03	Technology controller, motorized potentiometer limited max.	No	Yes	-

meter limited min.

---

<b>p2900[0...n]</b>	<b>CO: Fixed value 1 [%]</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 1021
	P-Group: Free function blocks	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	-10000.00 [%]	10000.00 [%]	0.00 [%]
	<b>Description:</b>		
	Sets a fixed percentage.		
	<b>Dependency:</b>		
	Refer to: p2901, p2930		
	<b>Note:</b>		
	The value can be used to interconnect a scaling function (e.g. scaling of the main setpoint)		

---

<b>p2901[0...n]</b>	<b>CO: Fixed value 2 [%]</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 1021
	P-Group: Free function blocks	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	-10000.00 [%]	10000.00 [%]	0.00 [%]
	<b>Description:</b>		
	Sets a fixed percentage.		
	<b>Dependency:</b>		
	Refer to: p2900, p2930		
	<b>Note:</b>		
	The value can be used to interconnect a scaling function (e.g. scaling of the supplementary setpoint)		

---

<b>p2930[0...n]</b>	<b>CO: Fixed value M [Nm]</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: DDS	Function diagram: 1021
	P-Group: Free function blocks	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	-100000.00 [Nm]	100000.00 [Nm]	0.00 [Nm]

---

**Description:**

Sets a fixed value for torque / force.

**Dependency:**

Refer to: p2900, p2901

**Note:**

The value can, for example, be used to interconnect a supplementary torque.

**p2930[0...n]**

SERVO (Lin)

**CO: Fixed value F [N]**

Can be changed: U, T

Access level: 3

Data type: Floating Point

Data set: DDS

Function diagram: 1021

P-Group: Free function blocks

Units group: FORCE

Unit selection: -

Min

Max

Factory setting

-100000.00 [N]

100000.00 [N]

0.00 [N]

**Description:**

Sets a fixed value for torque / force.

**Dependency:**

Refer to: p2900, p2901

**Note:**

The value can, for example, be used to interconnect a supplementary torque.

**p3110**

All objects

**External fault 3, power-up delay**

Can be changed: U, T

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 2546

P-Group: Messages

Units group: TIME\_M3

Unit selection: -

Min

Max

Factory setting

0 [ms]

1000 [ms]

0 [ms]

**Description:**

Sets the delay time for external fault 3.

**Dependency:**

Refer to: p2108, p3111, p3112

Refer to: F07862

**p3111**

CU\_I

**BI: External fault 3, enable**

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 2546

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

- - 1

**Description:**

Sets the signal source for the enable signal of external fault 3.

External fault 3 is initiated by the following AND logic operation:

- BI: p2108 negated

- BI: p3111

- BI: p3112 negated

**Dependency:**

Refer to: p2108, p3110, p3112

Refer to: F07862

**p3111[0...n]**

**BI: External fault 3, enable**

A\_INF, SERVO

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: -

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

1

**Description:**

Sets the signal source for the enable signal of external fault 3.

External fault 3 is initiated by the following AND logic operation:

- BI: p2108 negated

- BI: p3111

- BI: p3112 negated

**Dependency:**

Refer to: p2108, p3110, p3112

Refer to: F07862

**p3112**

**BI: External fault 3 enable negated**

CU\_I

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 2546

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source for the negated enable signal of external fault 3.

External fault 3 is initiated by the following AND logic operation:

- BI: p2108 negated

- BI: p3111

- BI: p3112 negated

**Dependency:**

Refer to: p2108, p3110, p3111

Refer to: F07862

**p3112[0...n]**

A\_INF, SERVO

**BI: External fault 3 enable negated**

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: CDS

Function diagram: -

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source for the negated enable signal of external fault 3.

External fault 3 is initiated by the following AND logic operation:

- BI: p2108 negated

- BI: p3111

- BI: p3112 negated

**Dependency:**

Refer to: p2108, p3110, p3111

Refer to: F07862

**r3113**

All objects

**CO/BO: NAMUR message bit bar**

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the status of NAMUR signal bit bar.

The faults or alarms are assigned to the appropriate signaling/message classes and influence a specific message bit.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Fault, drive converter data electronics / software error	No	Yes	-
	01	Line supply fault	No	Yes	-
	02	DC link overvoltage	No	Yes	-
	03	Drive converter electronics fault	No	Yes	-
	04	Drive converter overtemperature	No	Yes	-
	05	Ground fault	No	Yes	-



06	Motor overload	No	Yes	-
07	Bus error	No	Yes	-
08	External safety-relevant shutdown	No	Yes	-
09	Motor encoder fault	No	Yes	-
10	Error, internal communications	No	Yes	-
11	Infeed fault	No	Yes	-
15	Other faults	No	Yes	-

## p3400

### Infeed configuration word

A\_INF

Can be changed: C2(1), T

Access level: 2

Data type: Unsigned16

Data set: -

Function diagram: 8940

P-Group: Closed-loop control

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 bin

1111 1111 1111 1111 bin

1010 bin

#### Description:

Sets the configuration word of the infeed.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	ALM 0 / SLM 1	Off	On	-
	01	Flat-top mode	Off	On	-
	03	Vdc controller on	Off	On	-
	05	Line supply voltage sensing with VSM	Off	On	-

#### Dependency:

Refer to: p0210

#### Note:

Re bit 00:

In the smart mode, the DC link voltage is not controlled - however, infeed can still regenerate. The magnitude of the DC link voltage depends on the actual line supply voltage and the DC link load.

For drive units belonging to the 400 V voltage class, for a drive unit supply voltage (p0210) greater than 415 V, the infeed is always operated in the smart mode. This means that the 660 V limit can be maintained for the steady-state DC link voltage (p0280) up to a line supply voltage of 480 V.

Re bit 01:

If the flat top mode is deactivated, switching losses are higher. This means that the full power is no longer continuously available.

For p3400.0 = 1, this bit is not effective.

Re bit 03:

If the Vdc controller is switched-out, overvoltage or undervoltage conditions occur in the DC link if no other voltage- regulating component is located in the DC link.

For p3400.0 = 1, this bit is not effective.

Re bit 05:

VSM: Voltage sensing module

If a VSM is detected when commissioning the system, this bit is automatically set.

When the bit is set, the line supply voltage input of the VSM must be connected (connected at the line side of the commutating reactor).

**r3402****Infeed internal status**

A\_INF

Can be changed: -

Access level: 2

Data type: Integer16

Data set: -

Function diagram: 8832, 8932

P-Group: Closed-loop control

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the internal status of the infeed module.

**Values:**

- 0: Initialization
- 1: Fault
- 2: No ON command
- 3: Offset measurement running
- 4: ON delay active
- 5: Precharg. running
- 6: No pulse enable
- 7: Synchronization running
- 8: Ramp-up running
- 9: oper.
- 10: Shutdown running
- 11: Identification running

**r3405****CO/BO: Status word infeed**

A\_INF

Can be changed: -

Access level: 2

Data type: Unsigned16

Data set: -

Function diagram: 8928

P-Group: Closed-loop control

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Status word of the infeed.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
------------	-----	-------------	----------	----------	----

00	Smart mode active	No	Yes	-
01	Vdc-ctrl active	No	Yes	-
02	Phase failure detected	No	Yes	-
03	Current limit reached	No	Yes	-
04	Infeed operates regenerating/motoring	Motor mode	Regenerative mode	-
05	Motor operation inhibited	No	Yes	-
06	Regenerative operation inhibited	No	Yes	-

**Note:**

Re bit 02:

The bit indicates the alarm A6205 that is present.

The bit is set when a phase failure has been detected. The signal is reset, if

- the infeed has reached the normal operating state again (p3402 = 9) after a phase failure has been bypassed/buffered
- the pulse enable is withdrawn due to a fault or powering-down with OFF1/OFF2.

**p3410**

**Infeed identification method**

A\_INF

Can be changed: C2(1), T

Access level: 2

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Closed-loop control

Units group: -

Unit selection: -

Min

Max

Factory setting

0

5

5

**Description:**

Sets the line and DC link parameter identification routine for the infeed module.

**Values:**

- 0: Identification off
- 1: Activate identification
- 2: Set controller settings
- 3: Save identification and controller settings
- 4: Save identification and controller settings with L adaptation
- 5: Reset, identification and controller settings with L adaptation

**Dependency:**

Refer to: r3411, r3412, p3415, p3416, p3417, p3421, p3422

Refer to: A06400

**Notice:**

For p3410 = 1, 3, 4, 5, alarm A06400 is output and designates that the selected identification will take place the next time that the pulses are enabled.

**Note:**

When p3410 = 1 an identification run for the total inductance and DC link capacitance is initiated when the pulses are next enabled. The results are displayed in r3411, r341. The infeed then goes into the power-on state.

For p3410 = 2, the data (r3411 and r3412) determined during the identification run (p3410 = 1) is transferred into p3421 and p3422. Calculations for the controller are then repeated. The user must save the new parameters in a non-volatile fashion in order to permanently select the new controller setting.

When p3410 = 3 an identification run for the total inductance and DC link capacitance is initiated when the pulses are next enabled. The data determined during identification (r3411 and r3412) are transferred into p3421 and p3422 and the controller parameters recalculated. All of the parameters for the infeed module are then automatically stored in a non-volatile memory. The infeed continues to operate without any interruption with the new controller parameters.

When p3410 = 4 an identification run for the total inductance and DC link capacitance is initiated when the pulses are next enabled. The data determined during identification (r3411 and r3412) are transferred into p3421 and p3422 and the controller parameters recalculated. The identification is then repeated at an increased current level (p3415[1]). If the inductance measured the second time is lower, the parameters are written to the current controller adaptation (p3620, p3622).. All of the parameters for the infeed module are then automatically stored in a non-volatile memory. The infeed continues to operate without any interruption with the new controller parameters.

For p3410 = 5, the same measurements and write operations are always carried-out as for p3410 = 4. However, for the first identification run, initially the controller setting is reset by setting p3421 to p0223 and p3422 to p0227. Further, before the measurements are carried-out, a brief identification run is executed to coarsely set the controller.

p3410 is automatically set to 0 after an identification run has been successfully completed.

**r3411[0...1]****Infeed identified inductance**

A\_INF

Can be changed: -

Access level: 2

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Closed-loop control

Units group: INDUCTANCE\_M3

Unit selection: -

Min

Max

Factory setting

- [mH]

- [mH]

- [mH]

**Description:**

Displays the identified total inductance. The value corresponds to the total inductance between the rigid line supply and the infeed input terminals.

**Index:**

[0] = Result run 1

[1] = Result run 2

**Dependency:**

Refer to: p3410

**Note:**

The value measured in the first identification run is displayed in r3411[0] (if p3410 = 1, 3, 4, 5). This value is transferred to p3421.

The value measured in the second identification run (if p3410 = 4, 5) is displayed in r3411[1] - this value is used to set the current controller adaptation (p3622).

---

<b>r3412[0...1]</b>	<b>Infeed DC-link capacitance identified</b>		
A_INF	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: CAPACITY_M3	Unit selection: -
	Min	Max	Factory setting
	- [mF]	- [mF]	- [mF]

**Description:**

Displays the identified total DC link capacitance.

**Index:**

[0] = Result run 1

[1] = Result run 2

**Dependency:**

Refer to: p3410

**Note:**

The value measured in the first identification run (if p3410 = 1, 3, 4, 5) is displayed in r3412[0]. For p3410 = 1, 3, this value is transferred to p3422.

The DC link capacitance is not measured at the second identification run.

---

<b>p3415[0...1]</b>	<b>Infeed excitation current L identification</b>		
A_INF	Can be changed: T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.00 [%]	100.00 [%]	[0] 30.00 [%] [1] 48.00 [%]

**Description:**

Sets the magnitude of the excitation frequency for the L identification.

The setting is made as a percentage of the maximum power module current (r0209).

**Index:**

[0] = Result run 1

[1] = Result run 2

**Dependency:**

Refer to: p3410, r3411, p3421, p3620, p3622

**Notice:**

In order to correctly identify the current level (p3410 = 4, 5) depending on the reactor inductance, the following must apply:

p3415[0] < p3415[1]

**Note:**

The reactive current for identification run 1 is set in p3415[0] (basic controller setting).

The reactive current for identification run 2 is set in p3415[1] (adaptation of the current controller when reducing the reactor inductance with increasing current magnitude).

## 3.4 Parameters p3416 to p8711

<b>p3416</b>	<b>Infeed excitation amplitude C identification</b>		
A_INF	Can be changed: T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.10 [%]	20.00 [%]	2.00 [%]
	<b>Description:</b> Sets the level of the excitation frequency for identification of the total DC link capacitance. The amplitude is indicated as a percentage of the DC voltage setpoint (Vdc = p0210 * p3510).		
	<b>Dependency:</b> Refer to: p3410, r3412, p3422		
<b>p3417</b>	<b>Infeed excitation frequency C identification</b>		
A_INF	Can be changed: T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	10.00 [Hz]	200.00 [Hz]	50.00 [Hz]
	<b>Description:</b> Sets the level of the excitation frequency for identification of the total DC link capacitance.		
	<b>Dependency:</b> Refer to: p3410, r3412, p3422		
<b>p3421</b>	<b>Infeed inductance</b>		
A_INF	Can be changed: T		Access level:
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: INDUCTANCE_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [mH]	1000.00 [mH]	2.00 [mH]
	<b>Description:</b> Sets the total line supply inductance. This value is preset to the sum of the values in p0223 and p0225.		
	<b>Dependency:</b> Refer to: p0223, p0225, p3410, p3622		

**Note:**

The controller setting is derived from this value.

The value can be automatically determined using the identification run (p3410).

For a parallel circuit, the value corresponds to the inductance of a power module.

**p3422****Infeed DC link capacitance**

A\_INF

Can be changed: T

Access level:

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Closed-loop control

Units group: CAPACITY\_M3

Unit selection: -

Min

Max

Factory setting

0.00 [mF]

1000.00 [mF]

2.00 [mF]

**Description:**

Sets the DC link capacitance. This value is preset to p0227.

**Dependency:**

Refer to: p0227, p3410

**Note:**

The controller setting is derived from this value.

The value can be automatically determined using the identification run (p3410).

**p3440****Smart mode configuration**

A\_INF

Can be changed: T

Access level: 4

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Closed-loop control

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 bin

1111 1111 1111 1111 bin

0001 bin

**Description:**

Sets the configuration of the smart mode.

**Bit field:****Bit****Signal name****0 signal****1 signal****FP**

00

Soft pulse mode

Off

On

-

**Note:**

Re bit 00:

When the pulsed mode for the smart mode is de-activated, when regenerating, higher phase current gradients occur.

**r3452****Infeed PLL status**



A_INF	Can be changed: -		Access level: 4
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the status of the line supply PLL.

**Values:**

- 0: Initialization running
- 1: Error when synchronizing
- 2: Anal. line supply
- 3: Calculation line data
- 4: No pulse enable
- 5: PLL calculation
- 6: Final status controlled / smart mode
- 7: Reserved

---

**p3458 Infeed PLL smoothing time**

A_INF	Can be changed: U, T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	2.0 [ms]	1000.0 [ms]	50.0 [ms]

**Description:**

Sets the smoothing time for the line supply PLL.

**Note:**

It may be necessary to reduce the smoothing time for weak line supplies with high frequency fluctuations. There is otherwise a risk of brief orientation errors and the infeed could fail.

---

**r3460 Infeed PLL system deviation**

A_INF	Can be changed: -		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: ANGLE	Unit selection: -
	Min	Max	Factory setting
	- [°]	- [°]	- [°]

**Description:**

Displays the PLL system deviation.

---

**r3461 Infeed PLL system deviation after filtering**

A\_INF

Can be changed: -

Access level: 4

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Closed-loop control

Units group: ANGLE

Unit selection: -

Min

Max

Factory setting

- [°]

- [°]

- [°]

**Description:**

Displays the PLL system deviation after filtering.

**Dependency:**

Refer to: p3458

---

**p3463 Infeed, line angle change, phase failure detection**

A\_INF

Can be changed: T

Access level: 4

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Closed-loop control

Units group: ANGLE

Unit selection: -

Min

Max

Factory setting

-180.0 [°]

180.0 [°]

15.0 [°]

**Description:**

If the line supply angle (angle between the line supply phases) suddenly changes by this value, then a phase failure is assumed. The pulses are then inhibited for 10 ms.

**Dependency:**

Refer to: A06205

---

**p3469[0...n] Latch delay time correction, zero crossover detection**

A\_INF

Can be changed: T

Access level: 4

Data type: Floating Point

Data set: PDS

Function diagram: -

P-Group: Closed-loop control

Units group: TIME\_M6

Unit selection: -

Min

Max

Factory setting

-10000.0 [μs]

10000.0 [μs]

0.0 [μs]

**Description:**

Calibration value for the RC filter of the zero crossover detection of the line supply voltage in the power module.

For p3469 = 0, a new calibration is carried-out at the next identification run with p3410 = 4 or p3410 = 5.

**Note:**

The calibration value is saved in the EEPROM of the power module (not on the CompactFlash Card), as it involves a characteristic/feature of the power module.

<b>r3470</b>	<b>Infeed active current filter</b>		
A_INF	Can be changed: -		Access level:
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]
	<p><b>Description:</b></p> <p>Displays the active current requirement due to the line filter.</p> <p><b>Dependency:</b></p> <p>Refer to: r0038, p0221, p0222</p> <p><b>Note:</b></p> <p>With respect to the line supply, the sum of the active currents of the power module (p0078) and line filter (p3470) are effective.</p> <p>The active current demand of the line filter is taken into account when calculating the power factor (r0038).</p> <p>The magnitude of the line filter active current depends on the capacitance (p0221) and the resistance (p0222) of the line filter.</p>		
<b>r3471</b>	<b>Infeed reactive current filter</b>		
A_INF	Can be changed: -		Access level:
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]
	<p><b>Description:</b></p> <p>Displays the reactive current requirement as a result of the line filter.</p> <p><b>Dependency:</b></p> <p>Refer to: r0038, p0221, p0222</p> <p><b>Note:</b></p> <p>With respect to the line supply, the sum of the reactive currents of the power module (p0076) and line filter (p3471) are effective.</p> <p>The reactive current requirement of the line filter is taken into account when calculating the power factor (r0038).</p> <p>The magnitude of the line filter reactive current depends on the capacitance (p0221) and the resistance (p0222) of the line filter.</p>		
<b>p3480</b>	<b>Infeed modulation depth limit</b>		

A_INF	Can be changed: U, T		Access level:
	Data type: Floating Point	Data set: -	Function diagram: 8940
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	50.0 [%]	110.0 [%]	97.0 [%]

**Description:**

Sets the maximum steady-state modulation depth. When this limit is reached, the DC link voltage is boosted to maintain the control margin. This means that the control reserve is maintained.

**Dependency:**

Refer to: p3481, r3485

---

**p3481 Infeed standby controller dynamic response**

A_INF	Can be changed: U, T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: 8940
	P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.0 [ms]	1000.0 [ms]	7.5 [ms]

**Description:**

Sets the dynamic response of the reserve controller for the modulation depth. As the smoothing time increases, the response of the DC link voltage tracking becomes slower.

**Dependency:**

Refer to: p3480, r3485

---

**r3485 Infeed standby controller output**

A_INF	Can be changed: -		Access level:
	Data type: Floating Point	Data set: -	Function diagram: 8940
	P-Group: Closed-loop control	Units group: VOLTAGE_DC	Unit selection: -
	Min	Max	Factory setting
	- [V]	- [V]	- [V]

**Description:**

Displays the reserve controller output for the modulation depth.

The DC link voltage is increased by this voltage value - the summed setpoint for the DC link voltage is output in r0088.

The summed setpoint is limited to the maximum steady-stage DC link voltage (p0280).

**Dependency:**

Refer to: p3480, p3481

---

**p3490 Infeed OFF command delay time**

A_INF	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 8932
	P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.0 [ms]	1000000.0 [ms]	0.0 [ms]

**Description:**

Sets the delay time for the ON/OFF1 command of the infeed. After ON/OFF1 = 0 the infeed remains in operation for the specified time

**Dependency:**

Refer to: p0840

**Notice:**

The ON/OFF1 command of the infeed can be interrupted.

**Note:**

This parameter is only relevant if a motor module and the infeed are controlled by the same OFF command. In this case, the delay time and the stop ramp time of the motor can be coordinated with one another.

---

**p3491 Infeed I-offset measurement monitoring time**

A_INF	Can be changed: T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: 8932
	P-Group: Commands	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0 [ms]	65000 [ms]	2000 [ms]

**Description:**

Sets the monitoring time for the current-offset measurement of the power module.  
The time is started with the normal end of the measurement. If the measurement is invalid and if no valid measurement can be taken within the monitoring period (phase currents too high), an appropriate message is generated.

**Note:**

Set this parameter to 0 to allow variations in the delay when running-up.

---

**p3492 Infeed, line supply undervoltage delay time**

A_INF	Can be changed: T		Access level:
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Commands	Units group: TIME	Unit selection: -
	Min	Max	Factory setting
	0 [s]	300 [s]	0 [s]

**Description:**

Sets the delay time for shutdown due to a line supply undervoltage condition (A06100).  
After the fault occurs, the power module is only tripped (shut down) after this delay has expired. If the fault is removed during this design time, then the power module is not tripped (shut down).

**Dependency:**

Refer to: p0283  
Refer to: F06100

**Note:**

The degree of ruggedness of the infeed with respect to fluctuations in the line supply voltage can be increased by parameterizing this delay value.  
However, the following should be noted:

- the infeed power decreases proportionally (linearly) with the line supply voltage.
- when other components are connected, for low line supply voltage, operating faults or damage can occur. In this case, the specifications of the connected electrical components should always be carefully observed.

p3510 Infeed DC link voltage setpoint			
A_INF	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 1774, 8940
	P-Group: Closed-loop control	Units group: VOLTAGE_DC	Unit selection: -
	Min	Max	Factory setting
	300.00 [V]	1600.00 [V]	600.00 [V]

**Description:**

Sets the setpoint for the DC link voltage.

**Dependency:**

Refer to: p3511

**Warning!**

Before increasing the voltage limit for pulsed operation of a controlled booksize infeed with line supply voltages  $p0210 > 415\text{ V}$  it should be checked whether the motors, connected to the DC link, are specified for the higher motor voltages.  
The warning information associated with p0210 must be carefully observed.

**Note:**

The permissible range of the DC link voltage depends on the parameterized unit supply voltage (p0210).  
For booksize drive units, the following applies:  $1.42 \cdot p0210 < p3510 < 1.6 \cdot p0210$ .  
For chassis drive units, the following applies:  $1.42 \cdot p0210 < p3510 < 2.0 \cdot p0210$ .

---

<b>p3511</b>	<b>CI: Infeed DC link voltage supplementary setpoint</b>		
A_INF	Can be changed: T		Access level:
	Data type: Unsigned32	Data set: -	Function diagram: 8940
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for the supplementary setpoint for the DC link voltage.

**Dependency:**

Refer to: p3510

---

<b>p3513</b>	<b>BI: Inhibit voltage-controlled operation</b>		
A_INF	Can be changed: T		Access level:
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for inhibiting the voltage-controlled mode of the infeed.

**Dependency:**

Refer to: p3400, r3405

**Notice:**

The DC link voltage must be controlled by a different component at the DC link; otherwise this results in an overvoltage or undervoltage condition.

**Note:**

The current controller remains active and can be controlled by means of its setpoint inputs (p3515, p3610).

---

<b>p3514</b>	<b>Infeed supplementary active current steady-state</b>		
A_INF	Can be changed: U, T		Access level:
	Data type: Floating Point	Data set: -	Function diagram: 8940
	P-Group: Closed-loop control	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	-1000.00 [Aeff]	1000.00 [Aeff]	0.00 [Aeff]

**Description:**

Sets a steady-state supplementary setpoint for the active line supply current.

**Dependency:**

Refer to: p3515

**p3515****CI: Infeed supplementary active current**

A\_INF

Can be changed: T

Access level:

Data type: Unsigned32

Data set: -

Function diagram: 8940

P-Group: Closed-loop control

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Sets the signal source for the supplementary setpoint of the active current.

**Dependency:**

Refer to: p3514

**Note:**

For a master-slave infeed, the master can enter the current setpoint via this connector input.

**p3516****Infeed current distribution factor (parallel connection)**

A\_INF

Can be changed: T

Access level: 5

Data type: Floating Point

Data set: -

Function diagram: 8940

P-Group: Closed-loop control

Units group: PERCENT

Unit selection: -

Min

Max

Factory setting

0.00 [%]

100.00 [%]

100.00 [%]

**Description:**

Sets the factor to be multiplied by the active current setpoint for the current controller.

For a master slave infeed configuration, the value reduced in this way can be distributed to the slave axes. The overall gain from the perspective of the voltage controller remains the same.

**r3517****Infeed active current controller unlimited setpoint**

A\_INF

Can be changed: -

Access level: 5

Data type: Floating Point

Data set: -

Function diagram: 8940

P-Group: Closed-loop control

Units group: CURRENT\_AC\_EFF

Unit selection: -

Min

Max

Factory setting

- [Aeff]

- [Aeff]

- [Aeff]

**Description:**

Displays the unlimited setpoint of the active current controller.

For a master-slave infeed configuration, the master retrieves this setpoint and distributes



it to all of the slaves. The slaves operate in the current-controlled mode.

<b>p3520[0...3]</b>	<b>CI: Infeed power pre-control</b>		
A_INF	Can be changed: U, T		Access level: 5
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0
<b>Description:</b>			
Sets the signal source for power pre-control.			
<b>Dependency:</b>			
Refer to: p3521			
<b>Note:</b>			
Closed-loop control of the DC link voltage is improved by pre-controlling the power required for the other modules.			
A non-normalized quantity is expected so that the various power reference values (r2004) of the drive objects do not have to be taken into account.			
The scaling factors p3521 are used to adapt the scaling.			

<b>p3521[0...3]</b>	<b>Infeed pre-control power scaling</b>		
A_INF	Can be changed: U, T		Access level: 5
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	-100000.00000 [%]	100000.00000 [%]	100.00000 [%]
<b>Description:</b>			
Sets the scaling factor for the power pre-control.			
<b>Dependency:</b>			
Refer to: p3520			

<b>p3530</b>	<b>Infeed current limit, motoring</b>		
A_INF	Can be changed: U, T		Access level:
	Data type: Floating Point	Data set: -	Function diagram: 8940
	P-Group: Closed-loop control	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	1.00 [Aeff]	100000.00 [Aeff]	10000.00 [Aeff]
<b>Description:</b>			
Sets the motoring limit for the active line current.			

The currently effective current limit is displayed in r0067[0].

**Dependency:**

Refer to: r0067, p3532

**Caution:**

If this limit is selected lower than the maximum current permissible for the power module (r0067), the infeed can no longer provide its full controlled power.

Operating faults of the infeed can occur due to the resulting DC link undervoltage.

**Notice:**

For self-commutated infeeds, the DC link voltage decreases if more power is drawn from the DC link by the connected load than can be supplied by the line because of the power module maximum current or a limit in p3530.

If the DC link voltage decreases down to the rectified value, then the complete current - necessary to cover the required active power - flows, uncontrolled into the rectifier circuit via the diodes.

This is the reason that, for physical reasons, the value in p3530 cannot act as current limit that is always maintained.

The value forms a current threshold from which point onwards the DC link energy is used as buffer for brief power fluctuations.

<b>p3531</b>	<b>Infeed current limit, regenerating</b>		
A_INF	Can be changed: U, T		Access level:
	Data type: Floating Point	Data set: -	Function diagram: 8940
	P-Group: Closed-loop control	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	-100000.00 [Aeff]	-1.00 [Aeff]	-10000.00 [Aeff]

**Description:**

Sets the limit for the active line supply current when regenerating.

The currently effective current limit is displayed in r0067[1].

**Dependency:**

Refer to: r0067, p3533

**Caution:**

If this limit is selected lower than the maximum current permissible for the power module (r0067), the infeed can no longer provide its full controlled power.

This can result in an overvoltage condition in the DC link.

**Notice:**

For self-commutated infeeds, the DC link voltage increases if more power is input to the DC link through the connected source than can be fed to the line because of the

maximum power module current or a limit in p3531

If the DC link voltage exceeds the permissible threshold (p0297), defined by the hardware, then the unit is tripped due to overvoltage.

The value in p3531 represents a current limit that is always maintained - however, this can result in overvoltage conditions in the DC link.

The value in p3531 represents a current limit from which point onwards the capacitance of the DC link can be used as buffer for brief power fluctuations.

---

<b>p3532</b>	<b>BI: Infeed, inhibit motoring</b>		
A_INF	Can be changed: T	Access level:	
	Data type: Unsigned32	Data set: -	Function diagram: 8920
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for inhibiting the motoring mode of the infeed.

**Dependency:**

Refer to: r3405, p3530

**Notice:**

If the motor mode is inhibited although power is withdrawn from the DC link, then the DC link voltage drops to the rectified value.

In this state, the DC link is post-charged through the diodes and motoring power is fed to the power module in spite of the motoring inhibit.

**Note:**

The inhibit only becomes active after operation has been enabled and the Vdc has been ramped-up (r0863.0 = 1).

---

<b>p3533</b>	<b>BI: Infeed, inhibit regenerative operation</b>		
A_INF	Can be changed: T	Access level:	
	Data type: Unsigned32	Data set: -	Function diagram: 8920
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to inhibit the regenerating mode of the infeed.

**Dependency:**

Refer to: r3405, p3531

**Notice:**

The DC link voltage will increase if regenerative operation is inhibited even though power is being regenerated into the DC link.

**Note:**

The inhibit only becomes active after operation has been enabled and the Vdc has been ramped-up (r0863.0 = 1).

---

<b>r3554</b>	<b>Infeed Vdc controller integral component</b>		
A_INF	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 8940
	P-Group: Closed-loop control	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]

**Description:**

Displays the integral action component of the DC link voltage controller (Vdc controller).

---

<b>p3560</b>	<b>Infeed Vdc controller proportional gain</b>		
A_INF	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 8940
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.01 [%]	1000.00 [%]	100.00 [%]

**Description:**

Sets the normalized proportional gain for the DC link voltage controller (Vdc controller).

**Note:**

A value of 100 % corresponds to the basic setting derived from loop control parameters (p3421, p3422).

---

<b>p3562</b>	<b>Infeed,Vdc controller integral action time</b>		
A_INF	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 8940
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.10 [%]	100000.00 [%]	100.00 [%]

**Description:**

Sets the normalized integral action time for the DC-link voltage controller (Vdc).

**Note:**

A value of 100 % corresponds to the basic setting derived from loop control parameters (p3421, p3422).

---

<b>p3564</b>	<b>Infeed Vdc monitor, time constant</b>		
A_INF	Can be changed: T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.0 [ms]	100.0 [ms]	0.2 [ms]

**Description:**

Sets the filter time constant for the DC link voltage monitor (Vdc).

---

<b>p3566</b>	<b>Infeed Vdc ramp duration</b>		
A_INF	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 8932
	P-Group: Commands	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	40 [ms]	1000 [ms]	100 [ms]

**Description:**

Sets the ramp time for the DC link voltage (Vdc) when powering-up and powering-down.

Powering-up (pulses enabled, r0898.3 = 1):

During this time, the DC link voltage is increased from the rectifier value after pre-charging to the voltage setpoint (p3510, p3511). The voltage setpoint is increased, when necessary, so that the modulation depth reserve (p3481) is maintained. The reactive current is set to the value 0 while ramping.

Powering-down (inhibit pulses, r0898.3 = 0):

During this time, the DC link voltage is reduced to the rectified value ( $\sqrt{2}$  \* line supply voltage). The reactive current value is set to the value 0 when the ramp starts.

---

<b>r3602</b>	<b>Infeed control status</b>		
A_INF	Can be changed: -		Access level: 4
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the status of the closed-loop infeed control.

**Values:**

- 0: Initialization running
- 1: No pulse enable
- 2: Ramp-up, DC-link voltage
- 3: Ramp-up reactive current
- 4: Shutdown running
- 5: Reset identification
- 6: oper.
- 7: Identification running
- 8: Smart mode running

---

<b>p3603</b>	<b>Infeed current pre-control factor D-action</b>		
A_INF	Can be changed: U, T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: 8946
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.00 [%]	500.00 [%]	100.00 [%]

**Description:**

The D component of the current pre-control is determined from the device data of the filter. p3603 can be used to weigh the pre-calculated D component. If no dynamic precontrol is to be used, set the factor to zero.

---

<b>r3606</b>	<b>Infeed active current controller system deviation</b>		
A_INF	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 8946
	P-Group: Closed-loop control	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]

**Description:**

Displays the system deviation of the active current controller.

---

<b>r3608</b>	<b>Infeed reactive current controller system deviation</b>		
A_INF	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 8946
	P-Group: Closed-loop control	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]

**Description:**

Displays the system deviation of the reactive current controller.

---

<b>p3610</b>	<b>Infeed reactive current fixed setpoint</b>
--------------	---

A_INF	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 1774, 8946
	P-Group: Closed-loop control	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	-10000.0 [Aeff]	10000.0 [Aeff]	0.0 [Aeff]

**Description:**

Sets the fixed setpoint for the reactive current.

---

<b>p3611</b>	<b>CI: Infeed reactive current supplementary setpoint</b>		
A_INF	Can be changed: U, T		Access level: 5
	Data type: Unsigned32	Data set: -	Function diagram: 8946
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for the supplementary setpoint of the reactive current.

---

<b>p3615</b>	<b>Infeed current controller P gain</b>		
A_INF	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 8946
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.00 [%]	1000.00 [%]	100.00 [%]

**Description:**

Sets the normalized P gain for closed-loop current control of the infeed.

**Note:**

A value of 100 % corresponds to the basic setting derived from loop control parameters (p3421, p3422).

---

<b>p3617</b>	<b>Infeed current controller integral action time</b>		
A_INF	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 8946
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.10 [%]	100000.00 [%]	100.00 [%]

**Description:**

Sets the normalized integral action time for the infeed current controller.

**Note:**

A value of 100 % corresponds to the basic setting derived from loop control parameters (p3421, p3422).

---

<b>r3618</b>	<b>Infeed active current controller, integral component</b>		
A_INF	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 8946
	P-Group: Closed-loop control	Units group: VOLTAGE_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Veff]	- [Veff]	- [Veff]

**Description:**

Displays the integral component of the active current controller.

---

<b>r3619</b>	<b>Infeed reactive current controller integral component</b>		
A_INF	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: 8946
	P-Group: Closed-loop control	Units group: VOLTAGE_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Veff]	- [Veff]	- [Veff]

**Description:**

Displays the integral action component of the reactive current controller.

---

<b>p3620</b>	<b>Infeed current controller adaptation lower application threshold</b>		
A_INF	Can be changed: U, T		Access level:
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Motor	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.00 [%]	100.00 [%]	0.00 [%]

**Description:**

Sets the switch-in threshold for the current controller adaptation.

The value refers to the maximum power modular current (r0209). From the starting threshold onwards, the inductance value (p3421) used for current control is reduced linearly as a function of the current value. The inductance value for the maximum power module current is therefore  $p3421 * p3622$ .

**Dependency:**

Refer to: p3410, p3415, p3622

**Note:**



For the identification with p3410 = 4, 5, the parameter is automatically set to 80% of the current magnitude for run 1 (p3415[0]).

<b>p3622</b>	<b>Infeed current controller adaptation reduction factor</b>		
A_INF	Can be changed: U, T	Access level:	
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Motor	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.01 [%]	100.00 [%]	100.00 [%]

**Description:**

Sets the inductance of the commutating reactor at the maximum power module current (r0209) as a percentage of the inductance (p3421) at the application threshold (p3620).

**Dependency:**

Refer to: p3410, p3415, p3620

**Note:**

This parameter can be set automatically using the identification function (p3410 = 4, 5).

<b>p3624[0...1]</b>	<b>Infeed harmonics controller order</b>		
A_INF	Can be changed: T	Access level: 2	
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	5	13	[0] 5
			[1] 7

**Description:**

Sets the Order of the line harmonics for the current harmonics controller.

p3624[0]: Order of the line harmonics for the first harmonics controller.

p3624[1]: Order of the line harmonics for the second harmonics controller.

**Dependency:**

Refer to: p3625, r3626

**Note:**

Harmonics in the line supply voltage can cause harmonics in the converter current. These types of current harmonics can be reduced by activating additional controller modules.

Example:

For a 50 Hz line supply harmonics at 250 Hz in the phase currents can be reduced by activating a harmonic controller with Order 5 (p3624[0] = 5).

<b>p3625[0...1]</b>	<b>Infeed harmonics controller scaling</b>		
---------------------	--	--	--

A_INF	Can be changed: U, T		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.0 [%]	300.0 [%]	100.0 [%]

**Description:**

Sets the gain of the harmonics controller.

p3625[0]: Gain of the first harmonics controller

p3625[1]: Gain of the second harmonics controller

0 %: Controller is de-activated

100 %: Controller is activated with default gain setting

**Dependency:**

Refer to: p3624, r3626

**Note:**

The harmonics controller corrects the power module voltages so that the line-side current harmonics are reduced.

The order of a current harmonic, that is to be dampened using a harmonics controller, is defined using p3524.

---

**r3626[0...1] Infeed harmonics control output**

A_INF	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: VOLTAGE_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Veff]	- [Veff]	- [Veff]

**Description:**

Displays the output voltages of the harmonics controller.

r3626[0]: RMS value of the 5th harmonic of the controller output voltage

r3626[1]: RMS value of the 7th harmonic of the controller output voltage

The harmonics controller corrects the power module voltages so that the line-side current harmonics are reduced.

**Dependency:**

Refer to: p3624, p3625

---

**r3632 Infeed input voltage Vsd (active component)**

A_INF	Can be changed: -		Access level:
	Data type: Floating Point	Data set: -	Function diagram: 1774, 8946, 8950
	P-Group: Closed-loop control	Units group: VOLTAGE_AC_EFF	Unit selection: -

Min	Max	Factory setting
- [Veff]	- [Veff]	- [Veff]

**Description:**

Displays the voltage Vsd (active component) at the 3-phase line supply input of the power module.

<b>r3633</b>	<b>Infeed input voltage Vs<sub>q</sub> (reactive component)</b>	
A_INF	Can be changed: -	Access level:
	Data type: Floating Point	Data set: -
	P-Group: Closed-loop control	Function diagram: 1774, 8946, 8950
	Units group: VOLTAGE_AC_EFF	Unit selection: -
	Min	Max
	- [Veff]	- [Veff]
		Factory setting
		- [Veff]

**Description:**

Displays the voltage Vs<sub>q</sub> (reactive component) at the 3-phase line supply input of the power module.

<b>r3635</b>	<b>Infeed output voltage angle</b>	
A_INF	Can be changed: -	Access level: 2
	Data type: Floating Point	Data set: -
	P-Group: Closed-loop control	Function diagram: 8950
	Units group: ANGLE	Unit selection: -
	Min	Max
	- [°]	- [°]
		Factory setting
		- [°]

**Description:**

Displays the output voltage angle (relative to the line angle).

<b>p3660</b>	<b>VSM input line supply voltage, voltage scaler</b>	
A_INF	Can be changed: T	Access level:
	Data type: Floating Point	Data set: -
	P-Group: Closed-loop control	Function diagram: -
	Units group: PERCENT	Unit selection: -
	Min	Max
	0.00 [%]	100000.00 [%]
		0.00 [%]
		Factory setting

**Description:**

Sets the voltage scaler for the voltage sensing module (VSM).

**Note:**

When the 690 V input is used (X522) without voltage scaler, 0 % should be entered.  
When the 100 V input (X521) is used with voltage scaler to measure medium voltages,

the dividing (scaling) factor multiplied by 100% should be entered.

Example:

1000 V line supply voltage, voltage scaling, 10:1

--> voltage at the VSM input is 100 V

--> p3660 =  $10 * 100 \% = 1000 \%$

**r3661****CO: VSM input line supply voltage u1 - u2**

A\_INF

Can be changed: -

Access level:

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Closed-loop control

Units group: VOLTAGE\_AC\_PP

Unit selection: -

Min

Max

Factory setting

- [V]

- [V]

- [V]

**Description:**

Displays the voltage between L1 and L2.

**Dependency:**

Refer to: p3660

**Note:**

X521.1 or X522.1: Connection of L1

X521.2 or X522.2: Connection of L2

**r3662****CO: VSM input line supply voltage u2 - u3**

A\_INF

Can be changed: -

Access level:

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Closed-loop control

Units group: VOLTAGE\_AC\_PP

Unit selection: -

Min

Max

Factory setting

- [V]

- [V]

- [V]

**Description:**

Displays the voltage between L2 and L3.

**Dependency:**

Refer to: p3660

**Note:**

X521.2 or X522.2: Connection of L2

X521.3 or X522.3: Connection of L3

**r3664****BO: VSM temperature evaluation, status**

A\_INF

Can be changed: -

Access level:

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Terminals	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	-

**Description:**

Displays the status of the temperature evaluation of the voltage sensing module (VSM).  
This displays as to whether the temperature actual value has exceeded the fault/alarm threshold.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Temperature alarm threshold exceeded	No	Yes	-
	01	Temperature fault threshold exceeded	No	Yes	-

**Dependency:**

Refer to: p3665, r3666, p3667, p3668

---

<b>p3665[0...n]</b>	<b>VSM temperature evaluation, sensor type</b>		
A_INF	Can be changed: T	Access level:	
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	2	0
<b>Description:</b>			
Setting of the temperature sensor for the voltage sensing module (VSM).			
The temperature sensor is connected to terminals X520.5 and X520.6 of the VSM.			
<b>Values:</b>			
0: No sensor			
1: PTC			
2: KTY84			

---

<b>r3666</b>	<b>CO: VSM temperature KTY</b>		
A_INF	Can be changed: -	Access level:	
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: TEMPERATURE	Unit selection: -
	Min	Max	Factory setting
	- [°C]	- [°C]	- [°C]

**Description:**

Displays the temperature actual value of a KTY84 temperature sensor connected to the voltage sensing module (VSM).  
Prerequisite:

A KTY84 sensor is connected and p3665 is set to 2.

**Dependency:**

Refer to: p3665

---

<b>p3667</b>	<b>VSM line filter overtemperature alarm threshold</b>		
A_INF	Can be changed: T		Access level: 5
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: -	Units group: TEMPERATURE	Unit selection: -
	Min	Max	Factory setting
	0 [°C]	301 [°C]	150 [°C]
<b>Description:</b>			
Sets the alarm threshold for the KTY temperature sensor of the voltage sensing module (VSM) to monitor the line filter temperature.			
Prerequisite:			
A KTY84 sensor is connected and p3665 is set to 2.			
<b>Dependency:</b>			
Refer to: p3665			
Refer to: F34207			

---



---

<b>p3668</b>	<b>VSM line filter overtemperature shutdown threshold</b>		
A_INF	Can be changed: T		Access level: 5
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: -	Units group: TEMPERATURE	Unit selection: -
	Min	Max	Factory setting
	0 [°C]	301 [°C]	180 [°C]
<b>Description:</b>			
Sets the shutdown threshold for the KTY temperature sensor of the VSM to monitor the line filter temperature.			
<b>Dependency:</b>			
Refer to: p3667			
Refer to: A34211			

---



---

<b>p3669</b>	<b>VSM line filter overtemperature hysteresis</b>		
A_INF	Can be changed: T		Access level: 5
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: -	Units group: TEMPERATURE_K	Unit selection: -
	Min	Max	Factory setting
	1 [K]	50 [K]	3 [K]

---

**Description:**

Sets the hysteresis for the alarm threshold of the VSM to monitor the line filter temperature.

**Dependency:**

Refer to: p3667

---

<b>p3670</b>	<b>VSM 10 V input CT gain</b>		
A_INF	Can be changed: T		Access level:
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: CURRENT_AC_PP	Unit selection: -
	Min	Max	Factory setting
	0.000 [A]	1000.000 [A]	1.000 [A]

**Description:**

Sets CT gain of the CT connected at the 10 V input of the voltage sensing module (VSM).

The parameter specifies the current magnitude in [A] referred to the input voltage at the VSM in [V].

Example:

CT with 1 V per 200 A.

--> p3670 = 200

**Dependency:**

Refer to: r3671, r3672

**Note:**

The CT for phase 1 is connected at terminals X520.1 and X520.2 of the VSM.

The CT for phase 2 is connected at terminals X520.3 and X520.4 of the VSM.

---

<b>r3671</b>	<b>CO: VSM 10 V input CT 1 actual value</b>		
A_INF	Can be changed: -		Access level:
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: CURRENT_AC_PP	Unit selection: -
	Min	Max	Factory setting
	- [A]	- [A]	- [A]

**Description:**

Displays the current actual value from current transducer (CT) 1 at the 10 V input of the voltage sensing module (VSM).

**Dependency:**

Refer to: p3670

**Note:**

The CT for phase 1 is connected at terminals X520.1 and X520.2 of the VSM.

---

<b>r3672</b>	<b>CO: VSM 10 V input CT 2 actual value</b>		
A_INF	Can be changed: -		Access level:
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: CURRENT_AC_PP	Unit selection: -
	Min	Max	Factory setting
	- [A]	- [A]	- [A]
<b>Description:</b>			
Displays the current actual value from current transducer (CT) 2 at the 10 V input of the voltage sensing module (VSM).			
<b>Dependency:</b>			
Refer to: p3670			
<b>Note:</b>			
The CT for phase 2 is connected at terminals X520.3 and X520.4 of the VSM.			

---

<b>r3673</b>	<b>CO: VSM 10 V input 1 actual value</b>		
A_INF	Can be changed: -		Access level:
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: VOLTAGE_AC_PP	Unit selection: -
	Min	Max	Factory setting
	- [V]	- [V]	- [V]
<b>Description:</b>			
Displays the actual value of the voltage measured at the 10 V input 1 of the voltage sensing modules (VSM).			
<b>Dependency:</b>			
Refer to: p3670			
<b>Note:</b>			
10 V input 1: Terminals X520.1 and X520.2			

---

<b>r3674</b>	<b>CO: VSM 10 V input 2 actual value</b>		
A_INF	Can be changed: -		Access level:
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: VOLTAGE_AC_PP	Unit selection: -
	Min	Max	Factory setting
	- [V]	- [V]	- [V]

---



**Description:**

Displays the actual value of the voltage measured at the 10 V input 2 of the voltage sensing modules (VSM).

**Dependency:**

Refer to: p3670

**Note:**

10 V input 2: Terminals X520.3 and X520.4

---

<b>p3676</b>	<b>VSM line filter capacitance alarm threshold</b>		
A_INF	Can be changed: T	Access level: 5	
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: -	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.00 [%]	100.00 [%]	0.00 [%]

**Description:**

Sets the alarm threshold for the change of the capacitance of the line filter.

The filter capacitance monitoring function is de-activated with p3676 = 0.00 %.

**Dependency:**

Refer to: p3670

Refer to: A06250

**Note:**

Prerequisite for monitoring the filter capacitance:

The phase currents must be measured at two capacitors of the line filter. To do this, CTs should be connected at the 10 V inputs of the VSM.

---

<b>r3677[0...2]</b>	<b>VSM line filter capacitance</b>		
A_INF	Can be changed: -	Access level: 5	
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: CAPACITY_M6	Unit selection: -
	Min	Max	Factory setting
	- [µF]	- [µF]	- [µF]

**Description:**

Displays the capacitance of the line filter (for a star circuit configuration).

**Index:**

[0] = Phase U

[1] = Phase V

[2] = Phase W

**Dependency:**

Refer to: p3676

**Note:**

Prerequisites:

The filter capacitance monitoring is activated.

---

<b>p3820[0...n]</b>	<b>Friction characteristic, value n0</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.00 [1/min]	210000.00 [1/min]	15.00 [1/min]

**Description:**

The friction characteristic is defined by 10 value pairs.

This parameter specifies the n coordinate of the 1st value pair of the friction characteristic.

**Dependency:**

Refer to: p3830, p3845

---

<b>p3820[0...n]</b>	<b>Friction characteristic, value n0</b>		
SERVO (Lin)	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.00 [m/min]	21000.00 [m/min]	1.50 [m/min]

**Description:**

The friction characteristic is defined by 10 value pairs.

This parameter specifies the n coordinate of the 1st value pair of the friction characteristic.

**Dependency:**

Refer to: p3830, p3845

---

<b>p3821[0...n]</b>	<b>Friction characteristic, value n1</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.00 [1/min]	210000.00 [1/min]	30.00 [1/min]

**Description:**

The friction characteristic is defined by 10 value pairs.

This parameter specifies the n coordinate of the 2nd value pair of the friction characteristic.

**Dependency:**

Refer to: p3831, p3845

<b>p3821[0...n]</b>	<b>Friction characteristic, value n1</b>		
SERVO (Lin)	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.00 [m/min]	21000.00 [m/min]	3.00 [m/min]

**Description:**

The friction characteristic is defined by 10 value pairs.

This parameter specifies the n coordinate of the 2nd value pair of the friction characteristic.

**Dependency:**

Refer to: p3831, p3845

<b>p3822[0...n]</b>	<b>Friction characteristic, value n2</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.00 [1/min]	210000.00 [1/min]	60.00 [1/min]

**Description:**

The friction characteristic is defined by 10 value pairs.

This parameter specifies the n coordinate of the 3rd value pair of the friction characteristic.

**Dependency:**

Refer to: p3832, p3845

<b>p3822[0...n]</b>	<b>Friction characteristic, value n2</b>		
SERVO (Lin)	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: SPEED_LIN_METRIC_P3	Unit selection: -

Min	Max	Factory setting
0.00 [m/min]	21000.00 [m/min]	6.00 [m/min]

**Description:**

The friction characteristic is defined by 10 value pairs.

This parameter specifies the n coordinate of the 3rd value pair of the friction characteristic.

**Dependency:**

Refer to: p3832, p3845

**p3823[0...n]****Friction characteristic, value n3**

SERVO

Can be changed: T

Access level: 2

Data type: Floating Point

Data set: DDS

Function diagram: 7010

P-Group: Functions

Units group: SPEED\_ROT

Unit selection: -

Min

Max

Factory setting

0.00 [1/min]

210000.00 [1/min]

120.00 [1/min]

**Description:**

The friction characteristic is defined by 10 value pairs.

This parameter specifies the n coordinate of the 4th value pair of the friction characteristic.

**Dependency:**

Refer to: p3833, p3845

**p3823[0...n]****Friction characteristic, value n3**

SERVO (Lin)

Can be changed: T

Access level: 2

Data type: Floating Point

Data set: DDS

Function diagram: 7010

P-Group: Functions

Units group:  
SPEED\_LIN\_METRIC\_P3

Unit selection: -

Min

Max

Factory setting

0.00 [m/min]

21000.00 [m/min]

12.00 [m/min]

**Description:**

The friction characteristic is defined by 10 value pairs.

This parameter specifies the n coordinate of the 4th value pair of the friction characteristic.

**Dependency:**

Refer to: p3833, p3845

**p3824[0...n]****Friction characteristic, value n4**

SERVO

Can be changed: T

Access level: 2

Data type: Floating Point

Data set: DDS

Function diagram: 7010

P-Group: Functions	Units group: SPEED_ROT	Unit selection: -
Min	Max	Factory setting
0.00 [1/min]	210000.00 [1/min]	150.00 [1/min]

**Description:**

The friction characteristic is defined by 10 value pairs.

This parameter specifies the n coordinate of the 5th value pair of the friction characteristic.

**Dependency:**

Refer to: p3834, p3845

---

<b>p3824[0...n]</b>	<b>Friction characteristic, value n4</b>	
SERVO (Lin)	Can be changed: T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Functions	Function diagram: 7010
		Units group: SPEED_LIN_METRIC_P3
	Min	Max
	0.00 [m/min]	21000.00 [m/min]
		15.00 [m/min]

**Description:**

The friction characteristic is defined by 10 value pairs.

This parameter specifies the n coordinate of the 5th value pair of the friction characteristic.

**Dependency:**

Refer to: p3834, p3845

---

<b>p3825[0...n]</b>	<b>Friction characteristic, value n5</b>	
SERVO	Can be changed: T	Access level: 2
	Data type: Floating Point	Data set: DDS
	P-Group: Functions	Function diagram: 7010
		Units group: SPEED_ROT
	Min	Max
	0.00 [1/min]	210000.00 [1/min]
		300.00 [1/min]

**Description:**

The friction characteristic is defined by 10 value pairs.

This parameter specifies the n coordinate of the 6th value pair of the friction characteristic.

**Dependency:**

Refer to: p3835, p3845

---

<b>p3825[0...n]</b>	<b>Friction characteristic, value n5</b>	
SERVO (Lin)	Can be changed: T	Access level: 2

Data type: Floating Point	Data set: DDS	Function diagram: 7010
P-Group: Functions	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
Min	Max	Factory setting
0.00 [m/min]	21000.00 [m/min]	30.00 [m/min]

**Description:**

The friction characteristic is defined by 10 value pairs.

This parameter specifies the n coordinate of the 6th value pair of the friction characteristic.

**Dependency:**

Refer to: p3835, p3845

**p3826[0...n]****Friction characteristic, value n6**

SERVO

Can be changed: T

Access level: 2

Data type: Floating Point	Data set: DDS	Function diagram: 7010
P-Group: Functions	Units group: SPEED_ROT	Unit selection: -
Min	Max	Factory setting
0.00 [1/min]	210000.00 [1/min]	600.00 [1/min]

**Description:**

The friction characteristic is defined by 10 value pairs.

This parameter specifies the n coordinate of the 7th value pair of the friction characteristic.

**Dependency:**

Refer to: p3836, p3845

**p3826[0...n]****Friction characteristic, value n6**

SERVO (Lin)

Can be changed: T

Access level: 2

Data type: Floating Point	Data set: DDS	Function diagram: 7010
P-Group: Functions	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
Min	Max	Factory setting
0.00 [m/min]	21000.00 [m/min]	60.00 [m/min]

**Description:**

The friction characteristic is defined by 10 value pairs.

This parameter specifies the n coordinate of the 7th value pair of the friction characteristic.

**Dependency:**

Refer to: p3836, p3845

<b>p3827[0...n]</b>	<b>Friction characteristic, value n7</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.00 [1/min]	210000.00 [1/min]	1200.00 [1/min]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the n coordinate of the 8th value pair of the friction characteristic.			
<b>Dependency:</b>			
Refer to: p3837, p3845			

<b>p3827[0...n]</b>	<b>Friction characteristic, value n7</b>		
SERVO (Lin)	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.00 [m/min]	21000.00 [m/min]	120.00 [m/min]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the n coordinate of the 8th value pair of the friction characteristic.			
<b>Dependency:</b>			
Refer to: p3837, p3845			

<b>p3828[0...n]</b>	<b>Friction characteristic, value n8</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.00 [1/min]	210000.00 [1/min]	1500.00 [1/min]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the n coordinate of the 9th value pair of the friction characteristic.			
<b>Dependency:</b>			

Refer to: p3838, p3845

---

<b>p3828[0...n]</b>	<b>Friction characteristic, value n8</b>		
SERVO (Lin)	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.00 [m/min]	21000.00 [m/min]	150.00 [m/min]

**Description:**

The friction characteristic is defined by 10 value pairs.

This parameter specifies the n coordinate of the 9th value pair of the friction characteristic.

**Dependency:**

Refer to: p3838, p3845

---

<b>p3829[0...n]</b>	<b>Friction characteristic, value n9</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: SPEED_ROT	Unit selection: -
	Min	Max	Factory setting
	0.00 [1/min]	210000.00 [1/min]	3000.00 [1/min]

**Description:**

The friction characteristic is defined by 10 value pairs.

This parameter specifies the n coordinate of the 10th value pair of the friction characteristic.

**Dependency:**

Refer to: p3839, p3845

---

<b>p3829[0...n]</b>	<b>Friction characteristic, value n9</b>		
SERVO (Lin)	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: SPEED_LIN_METRIC_P3	Unit selection: -
	Min	Max	Factory setting
	0.00 [m/min]	21000.00 [m/min]	300.00 [m/min]

**Description:**

The friction characteristic is defined by 10 value pairs.

This parameter specifies the n coordinate of the 10th value pair of the friction



characteristic.

**Dependency:**

Refer to: p3839, p3845

---

<b>p3830[0...n]</b>	<b>Friction characteristic, value M0</b>		
SERVO	Can be changed: T	Access level: 2	
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 1st value pair of the friction characteristic.			
<b>Dependency:</b>			
Refer to: p3820, p3845			

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---

<b>p3830[0...n]</b>	<b>Friction characteristic, value M0</b>		
SERVO (Lin)	Can be changed: T	Access level: 2	
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [N]	1000000.00 [N]	0.00 [N]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 1st value pair of the friction characteristic.			
<b>Dependency:</b>			
Refer to: p3820, p3845			

---



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<b>p3831[0...n]</b>	<b>Friction characteristic, value M1</b>		
SERVO	Can be changed: T	Access level: 2	
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 2nd value pair of the friction characteristic.			

---

characteristic.

**Dependency:**

Refer to: p3821, p3845

---

<b>p3831[0...n]</b>	<b>Friction characteristic, value M1</b>		
SERVO (Lin)	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [N]	1000000.00 [N]	0.00 [N]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 2nd value pair of the friction characteristic.			
<b>Dependency:</b>			
Refer to: p3821, p3845			

---

<b>p3832[0...n]</b>	<b>Friction characteristic, value M2</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 3rd value pair of the friction characteristic.			
<b>Dependency:</b>			
Refer to: p3822, p3845			

---

<b>p3832[0...n]</b>	<b>Friction characteristic, value M2</b>		
SERVO (Lin)	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [N]	1000000.00 [N]	0.00 [N]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 3rd value pair of the friction			

characteristic.

**Dependency:**

Refer to: p3822, p3845

---

<b>p3833[0...n]</b>	<b>Friction characteristic, value M3</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 4th value pair of the friction characteristic.			
<b>Dependency:</b>			
Refer to: p3823, p3845			

---



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<b>p3833[0...n]</b>	<b>Friction characteristic, value M3</b>		
SERVO (Lin)	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [N]	1000000.00 [N]	0.00 [N]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 4th value pair of the friction characteristic.			
<b>Dependency:</b>			
Refer to: p3823, p3845			

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<b>p3834[0...n]</b>	<b>Friction characteristic, value M4</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 5th value pair of the friction characteristic.			

---

characteristic.

**Dependency:**

Refer to: p3824, p3845

---

<b>p3834[0...n]</b>	<b>Friction characteristic, value M4</b>		
SERVO (Lin)	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [N]	1000000.00 [N]	0.00 [N]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 5th value pair of the friction characteristic.			
<b>Dependency:</b>			
Refer to: p3824, p3845			

---

<b>p3835[0...n]</b>	<b>Friction characteristic, value M5</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 6th value pair of the friction characteristic.			
<b>Dependency:</b>			
Refer to: p3825, p3845			

---

<b>p3835[0...n]</b>	<b>Friction characteristic, value M5</b>		
SERVO (Lin)	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [N]	1000000.00 [N]	0.00 [N]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 6th value pair of the friction			

characteristic.

**Dependency:**

Refer to: p3825, p3845

---

<b>p3836[0...n]</b>	<b>Friction characteristic, value M6</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 7th value pair of the friction characteristic.			
<b>Dependency:</b>			
Refer to: p3826, p3845			

---



---

<b>p3836[0...n]</b>	<b>Friction characteristic, value M6</b>		
SERVO (Lin)	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [N]	1000000.00 [N]	0.00 [N]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 7th value pair of the friction characteristic.			
<b>Dependency:</b>			
Refer to: p3826, p3845			

---



---

<b>p3837[0...n]</b>	<b>Friction characteristic, value M7</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 8th value pair of the friction characteristic.			

---

characteristic.

**Dependency:**

Refer to: p3827, p3845

---

<b>p3837[0...n]</b>	<b>Friction characteristic, value M7</b>		
SERVO (Lin)	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [N]	1000000.00 [N]	0.00 [N]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 8th value pair of the friction characteristic.			
<b>Dependency:</b>			
Refer to: p3827, p3845			

---

<b>p3838[0...n]</b>	<b>Friction characteristic, value M8</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 9th value pair of the friction characteristic.			
<b>Dependency:</b>			
Refer to: p3828, p3845			

---

<b>p3838[0...n]</b>	<b>Friction characteristic, value M8</b>		
SERVO (Lin)	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [N]	1000000.00 [N]	0.00 [N]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 9th value pair of the friction			

characteristic.

**Dependency:**

Refer to: p3828, p3845

---

<b>p3839[0...n]</b>	<b>Friction characteristic, value M9</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: TORQUE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [Nm]	1000000.00 [Nm]	0.00 [Nm]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 10th value pair of the friction characteristic.			
<b>Dependency:</b>			
Refer to: p3829, p3845			

---



---

<b>p3839[0...n]</b>	<b>Friction characteristic, value M9</b>		
SERVO (Lin)	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010
	P-Group: Functions	Units group: FORCE	Unit selection: -
	Min	Max	Factory setting
	-1000000.00 [N]	1000000.00 [N]	0.00 [N]
<b>Description:</b>			
The friction characteristic is defined by 10 value pairs.			
This parameter specifies the M coordinate of the 10th value pair of the friction characteristic.			
<b>Dependency:</b>			
Refer to: p3829, p3845			

---



---

<b>r3840</b>	<b>CO/BO: Friction characteristic, status word</b>		
SERVO	Can be changed: -		Access level: 2
	Data type: Unsigned32	Data set: -	Function diagram: 7010
	P-Group: Functions	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Displays the state of the friction characteristic.			

---

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Friction characteristic OK	No	Yes	-
	01	Friction characteristic plot activated	No	Yes	-
	02	Friction characteristic plot completed	No	Yes	-
	03	Friction characteristic plot aborted	No	Yes	-
	08	Fiction characteristic direction of rotation, positive	No	Yes	-

---

<b>r3841</b>	<b>CO: Friction characteristic output</b>			
SERVO	Can be changed: -			Access level: 2
	Data type: Floating Point	Data set: -		Function diagram: 7010
	P-Group: Functions	Units group: TORQUE		Unit selection: -
	Min	Max		Factory setting
	- [Nm]	- [Nm]		- [Nm]

**Description:**

Displays the torque / the force of the friction characteristic dependent on the speed / velocity.

**Dependency:**

Refer to: p1569, p3842

---

<b>r3841</b>	<b>CO: Friction characteristic output</b>			
SERVO (Lin)	Can be changed: -			Access level: 2
	Data type: Floating Point	Data set: -		Function diagram: 7010
	P-Group: Functions	Units group: FORCE		Unit selection: -
	Min	Max		Factory setting
	- [N]	- [N]		- [N]

**Description:**

Displays the torque / the force of the friction characteristic dependent on the speed / velocity.

**Dependency:**

Refer to: p1569, p3842

---

<b>p3842</b>	<b>Friction characteristic activation</b>			
SERVO	Can be changed: T			Access level: 2
	Data type: Integer16	Data set: -		Function diagram: 7010
	P-Group: Functions	Units group: -		Unit selection: -
	Min	Max		Factory setting
	0	1		0



**Description:**

Setting to activate and de-activate the friction characteristic.

**Values:**

- 0: Friction characteristic de-activated
- 1: Friction characteristic activated

**Dependency:**

Refer to: p1569, r3841, p3845

<b>p3845</b>	<b>Friction characteristic plot activation</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Integer16	Data set: -	Function diagram: 7010
	P-Group: Functions	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	3	0

**Description:**

Setting for the friction characteristic plot.

After the next power-on command, the friction characteristic is automatically plotted.

**Values:**

- 0: Friction characteristic plot de-activated
- 1: Friction char. plot activated for all directions of rotation
- 2: Friction char. plot activated for a pos. direction of rotation
- 3: Friction char. plot activated for a neg. direction of rotation

**Notice:**

In order to permanently accept the determined settings they must be saved in a non-volatile fashion (p0971, p0977).

**Note:**

When the friction characteristic plot is active, it is not possible to save the parameters (p0971, p0977). The drive data set changeover is suppressed.

When the friction characteristic plot is active (p3845 > 0), it is not possible to change p3820 ... p3829, p3830 ... p3839, p3842, p3846 and p3847.

When plotting the friction characteristic, in addition to the friction, the motor losses are also determined (e.g. iron losses, eddy current losses and re-magnetization losses). A differentiation is not made between these individual loss components. We recommend that a motor temperature sensor is used because torque deviations can also be emulated/mapped on the characteristic due to the thermal influence.

<b>p3846[0...n]</b>	<b>Friction characteristic plot ramp-up/ramp-down time</b>		
SERVO	Can be changed: T		Access level: 2
	Data type: Floating Point	Data set: DDS	Function diagram: 7010

P-Group: Functions	Units group: TIME	Unit selection: -
Min	Max	Factory setting
0.000 [s]	999999.000 [s]	10.000 [s]

**Description:**

Sets the ramp-up/ramp-down time of the ramp-up/ramp-down function generator to automatically plot the friction characteristic. The drive is accelerated from standstill (setpoint = 0) up to the maximum speed/velocity (p1082) in this time.

**Dependency:**

Refer to: p3845

**p3847[0...n]****Friction characteristic plot warm-up time**

SERVO

Can be changed: T		Access level: 2
Data type: Floating Point	Data set: DDS	Function diagram: 7010
P-Group: Functions	Units group: TIME	Unit selection: -
Min	Max	Factory setting
0.000 [s]	3600.000 [s]	0.000 [s]

**Description:**

Sets the warm-up time.

For an automatic trace (plot) to start, the highest selected speed (p3829) is approached and this time is held. After this, the measurement is started with the highest speed.

**Dependency:**

Refer to: p3829, p3845

**p3870****Long stator configuration**

SERVO

Can be changed: U, T		Access level: 3
Data type: Unsigned16	Data set: -	Function diagram: -
P-Group: -	Units group: -	Unit selection: -
Min	Max	Factory setting
0000 bin	0011 bin	0000 bin

**Description:**

Sets the configuration when operating a long stator motor.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Activate long stator help functions	not active	active	-
	01	Suppress Gx_ZSW.14	not active	active	-

**Dependency:**

Refer to: p3871, p3872, p3873, p3874, r3875, p3876, p3878, p3879

**Notice:**

The following restrictions apply to this function:

- it is not permissible to change over the drive data set.
- the encoder/drive may not be parked using a PROFIBUS telegram.
- a maximum of 4 drives may be connected to the control unit.
- it is not permissible to commute with the zero mark (p0404).

**Note:**

Re bit 0:

All of the help functions for long stator motors can be enabled/disabled using this bit.

Re bit 1:

Bit 14 (parking encoder active) is always set to 0 in the encoder status word GX\_ZSW independent of whether the encoder is parked or not.

<b>p3871</b>	<b>BI: Set long stator signal source commutation angle (p3872)</b>		
SERVO	Can be changed: T	Access level: 3	
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to set the commutation angle from CI: p3872.

**Dependency:**

Refer to: p3870, p3872, p3873, p3874, r3875, p3876, p3878, p3879

**Danger!**

If an incorrect commutation angle is set, this can result in instability in the closed-loop control and in turn injure personnel or cause damage to the machine !

**Note:**

Setting takes place for a 0/1 signal edge.

<b>p3872</b>	<b>CI: Long stator signal source commutation angle</b>		
SERVO	Can be changed: T	Access level: 3	
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	3878[0]

**Description:**

Sets the signal source for the commutation angle.

This angle is set for a 0/1 signal edge via BI: p3871.

**Dependency:**

Refer to: p3870, p3871, p3873, r3875, p3876, p3878, p3879

**Danger!**

If an incorrect commutation angle is set, this can result in instability in the closed-loop control and in turn injure personnel or cause damage to the machine !

---

<b>p3873</b>	<b>BI: Long stator sig. source to change over to cl.-loop ctrl w/ enc.</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source to change over to closed-loop control with encoder.

**Dependency:**

Refer to: p3870, p3871, p3872, p3874, r3875, p3876, p3878, p3879

**Danger!**

If an incorrect commutation angle is set, this can result in instability in the closed-loop control and in turn injure personnel or cause damage to the machine !

**Note:**

= 1 --> closed-loop control with encoder

= 0 --> sensorless closed-loop control

For a 0/1 edge, the commutation angle is set from CI: p3874.

---

<b>p3874</b>	<b>CI: Long stator signal source commutation angle oper. with encoder</b>		
SERVO	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	3879[0]

**Description:**

Sets the signal source for the commutation angle for operation with encoder.

**Dependency:**

Refer to: p3870, p3871, p3872, p3873, r3875, p3876, p3878, p3879

**Note:**

This angle is set for a 0/1 signal edge via BI: p3873.

<b>r3875</b>	<b>CO/BO: Long stator status word</b>		
SERVO	Can be changed: -	Access level: 3	
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the status word for long stator motors.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Encoder module is unparked	No	Yes	-
	01	Closed-loop speed control with encoder requested	not active	active	-

**Dependency:**

Refer to: p3870, p3871, p3872, p3873, p3874, p3876, p3878, p3879

**Note:**

Re bit 0:

=1: The encoder is parked. Contrary to r481.14, parking is also displayed here if the suppression of the parking bit is active in r481.14 (p3870.1=1).

Re bit 1:

=1: The long-stator functions requested closed-loop speed control with encoder. Read r1407.2 to identify whether an encoder is actually being used for closed-loop control.

The display is updated in a 1ms clock cycle.

<b>p3876</b>	<b>BI: Unpark long stator signal source 1 encoder</b>		
SERVO	Can be changed: T	Access level: 3	
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source 1 to unpark the encoder.

**Dependency:**

Refer to: p3870, p3871, p3872, p3873, p3874, r3875, p3878, p3879

**Note:**

= 1 --&gt; Encoder is unparked

= 0 --&gt; Encoder is parked

---

<b>p3878</b>	<b>CO: Long stator commutation angle 1</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: -	Units group: ANGLE	Unit selection: -
	Min	Max	Factory setting
	-180 [°]	180 [°]	0 [°]
<b>Description:</b>			
Enters the commutation angle 1 for long stator motors.			
<b>Dependency:</b>			
Refer to: p3870, p3871, p3872, p3873, p3874, r3875, p3876, p3879			

---

<b>p3879</b>	<b>CO: Long stator commutation angle 2</b>		
SERVO	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: -	Units group: ANGLE	Unit selection: -
	Min	Max	Factory setting
	-180 [°]	180 [°]	0 [°]
<b>Description:</b>			
Enters the commutation angle 2 for long stator motors.			
<b>Dependency:</b>			
Refer to: p3870, p3871, p3872, p3873, p3874, r3875, p3876, p3878			

---

<b>p3900</b>	<b>Completion of quick commissioning</b>		
A_INF	Can be changed: C2(1)		Access level: 1
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	3	0
<b>Description:</b>			
Used to calculate all of the dependent parameters when exiting the quick commissioning (p0010 = 1).			
<b>Values:</b>			
0: No quick parameterization			
1: Quick parameterization after parameter reset			
2: Quick parameterization (only) for BICO and controller parameters			
3: Quick parameterization (only) for control parameters			

**Note:**

p3900 = 1 initially resets the parameters (factory setting) for all parameters of the drive object without overwriting the entries made during the quick commissioning.

When the calculations have been completed, p3900 and p0010 are automatically reset to a value of 0.

For active infeeds (active line module and smart line module) the following applies:

For p3900 > 0, p0340 = 1 is always called and the appropriate parameters calculated (refer to p0340).

<b>p3900</b>		<b>Completion of quick commissioning</b>	
SERVO	Can be changed:	C2(1)	Access level: 1
	Data type:	Integer16	Data set: -
	P-Group:	Displays, signals	Function diagram: -
	Min	Max	Unit selection: -
	0	3	Factory setting 0

**Description:**

Exits the quick commissioning (p0010 = 1) with automatic calculation of all of the parameters that depend on the entries made during the quick commissioning.

p3900 = 1 initially includes a parameter reset (factory setting, the same as p0970 = 1) for all parameters of the drive object; however, without overwriting the entries made during the quick commissioning.

The interconnections of PROFIBUS PZD telegram selection (p0922) and the interconnections via p0700, p1000 and p1500 are re-established and all of the dependent motor, open-loop and control-loop control parameters are calculated (corresponding to p0340 = 1).

p3900 = 2 includes the restoration of the interconnections of PROFIBUS PZD telegram selection (p0922) and the interconnections via p0700, p100 and p1500 and the calculations corresponding to p0340 = 1.

p3900 = 3 only includes the calculations associated with the motor, open-loop and closed-loop control parameters corresponding to p0340 = 1.

**Values:**

- 0: No quick parameterization
- 1: Quick parameterization after parameter reset
- 2: Quick parameterization (only) for BICO and motor parameters
- 3: Quick parameterization for motor parameters (only)

**Note:**

When the calculations have been completed, p3900 and p0010 are automatically reset to a value of 0.

When calculating motor, open-loop and closed-loop control parameters (such as for p0340 = 1) parameters associated with a selected Siemens list motor are not overwritten.

---

**p3902[0...n] Power module EEPROM Vdc calibration**

A\_INF, SERVO

Can be changed: C1, C2(1), T

Access level: 3

Data type: Unsigned32

Data set: PDS

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

0

4294967295

0

**Description:**

Calibration factor for the DC link voltage measurement.

**Caution!**

Incorrect use of the calibration can have a negative impact on the closed-loop control.

**Note:**

The parameter only has an effect for chassis-type power modules.

Calculation algorithm:  $p3902\_new = p3902\_alt * r0026 / Vdc\_measured$  value

---

**p3950****Service parameter**

CU\_I

Can be changed: C1, U, T

Access level: 4

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

0

65535

0

**Description:**

For service personnel only.

---

**p3981****Faults, acknowledge drive object**

All objects

Can be changed: U, T

Access level: 2

Data type: Unsigned8

Data set: -

Function diagram: 2501

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

0

1

0

**Description:**

Acknowledges all active faults of a drive object.

**Note:**

Parameter should be set from 0 to 1 to acknowledge.

After acknowledgement, the parameter is automatically reset to 0.



<b>p3985</b>	<b>Master control mode selection</b>		
A_INF, SERVO	Can be changed: U, T		Access level: 3
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Setpoints	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	1	0

**Description:**

Sets the mode to change over the master control / local mode.

**Values:**

- 0: Change master control for STW1.0 = 0  
1: Change master control in operation

**Danger!**

When changing the master control in operation, the drive can manifest undesirable behavior - e.g. it can accelerate up to another setpoint.

<b>r3986</b>	<b>No. of parameters</b>		
All objects	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the number of parameters for this drive unit.

The number comprises the device-specific and the drive-specific parameters.

**Dependency:**

Refer to: r0980, r0981, r0989

<b>r3988</b>	<b>Ramp-up state</b>		
CU_I	Can be changed: -		Access level: 4
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the ramp-up state.

**Values:**

- 0: Not active

- 1: Fatal fault
- 10: Fault
- 20: Reset all parameters
- 30: Drive object modified
- 40: Download using commissioning software
- 90: Reset control unit and delete drive objects
- 100: Start initialization
- 110: Instantiate control unit basis
- 150: Wait until actual topology determined
- 160: Evaluate topology
- 170: Instantiate control unit rest
- 180: Initialization YDB configuration information
- 200: First commissioning
- 210: Create drive packages
- 250: Wait for topology acknowledge
- 325: Wait for input of drive type
- 350: Determine drive type
- 360: Write into topology-dependent parameters
- 370: Wait until p0009 = 0 is set
- 380: Check topology
- 550: Call conversion functions for parameter
- 625: Wait non-cyclic starting DRIVE CLiQ
- 650: Start cyclic operation
- 660: Evaluate drive commissioning status
- 680: Wait for CU link slaves
- 700: Save parameters
- 725: Wait until DRIVE-CLiQ cyclic
- 740: Check the ability to operate
- 750: Interrupt enable
- 800: Initialization finished

**p4700[0...1]****Trace control**

CU\_I

Can be changed: U, T

Access level: 3

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Trace and function generator

Units group: -

Unit selection: -

Min

Max

Factory setting

0

1

0

**Values:**

0: Stop trace

1: Start trace

**Index:**

[0] = Trace 0

[1] = Trace 1

---

<b>p4701</b>	<b>Measuring function, control</b>	
CU_I	Can be changed: U, T	Access level: 3
	Data type: Integer16	Data set: -
	P-Group: Trace and function generator	Function diagram: -
	Units group: -	Unit selection: -
	Min	Max
	0	2
		Factory setting
		0

**Values:**

- 0: Stop measuring function
- 1: Start measuring function
- 2: Measuring function, check parameterization

---

<b>r4705[0...1]</b>	<b>Trace status</b>	
CU_I	Can be changed: -	Access level: 3
	Data type: Integer16	Data set: -
	P-Group: Trace and function generator	Function diagram: -
	Units group: -	Unit selection: -
	Min	Max
	-	-
		Factory setting
		-

**Description:**

Displays the current status of the trace.

**Values:**

- 0: Trace not active
- 1: Trace is recording presamples
- 2: Trace is waiting for trigger event
- 3: Trace is recording
- 4: Recording (trace) ended

**Index:**

- [0] = Trace 0
- [1] = Trace 1

---

<b>r4706</b>	<b>Measuring function, status</b>	
CU_I	Can be changed: -	Access level: 3
	Data type: Integer16	Data set: -
	P-Group: Trace and function generator	Function diagram: -
	Units group: -	Unit selection: -
	Min	Max
	-	-
		Factory setting
		-

**Values:**

- 0: Measurement function inactive
- 1: Measuring function, parameterization checked
- 2: Measuring function waits for stabilizing time

- 3: Measuring function recording (tracing)
- 4: Measuring function, trace ended with error
- 5: Measuring function, trace successfully completed

**r4708[0...1]****Trace memory space required**

CU\_I

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Trace and function generator

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the required memory in bytes for the actual parameterization.

**Index:**

[0] = Trace 0

[1] = Trace 1

**Dependency:**

Refer to: r4799

**p4710[0...1]****Trace trigger condition**

CU\_I

Can be changed: U, T

Access level: 3

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Trace and function generator

Units group: -

Unit selection: -

Min

Max

Factory setting

1

7

2

**Description:**

Sets the trigger condition for the trace.

**Values:**

- 1: Immediate start
- 2: Positive edge
- 3: Negative edge
- 4: Entry to hysteresis band
- 5: Leaving hysteresis band
- 6: Trigger at bit mask
- 7: Start with function generator

**Index:**

[0] = Trace 0

[1] = Trace 1

**p4711[0...1]****Trace trigger signal**

CU\_I

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

Only effective when p4710 does not equal 1.

Only effective when  $p4710 = 2, 3$ .

[1] = Trace 1



**Description:**

Sets the trigger condition for bit mask trigger.

**Index:**

[0] = Trace 0

[1] = Trace 1

**Dependency:**

Only effective when p4710 = 6.

<b>p4717</b>	<b>Measuring function, number of averaging operations</b>		
CU_I	Can be changed: U, T		Access level: 3
	Data type: Unsigned8	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	255	0

<b>p4718</b>	<b>Measuring function, number of stabilizing periods</b>		
CU_I	Can be changed: U, T		Access level: 3
	Data type: Unsigned8	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	255	0

<b>r4719[0...1]</b>	<b>Trace trigger index</b>		
CU_I	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the trigger index in the trace buffer. The trigger event occurred at this point.

**Index:**

[0] = Trace 0

[1] = Trace 1

**Dependency:**

Only valid when p4705 = 4.

<b>p4720[0...1]</b>	<b>Trace recording cycle</b>		
CU_I	Can be changed: U, T		Access level: 3

Data type: Floating Point	Data set: -	Function diagram: -
P-Group: Trace and function generator	Units group: TIME_M3	Unit selection: -
Min	Max	Factory setting
0.000 [ms]	60000.000 [ms]	1.000 [ms]

**Description:**

Sets the recording cycle for the trace.

**Index:**

[0] = Trace 0

[1] = Trace 1

---

**p4721[0...1]****Trace recording time**

CU\_I

Can be changed: U, T

Access level: 3

Data type: Floating Point	Data set: -	Function diagram: -
P-Group: Trace and function generator	Units group: TIME_M3	Unit selection: -
Min	Max	Factory setting
0.000 [ms]	3600000.000 [ms]	1000.000 [ms]

**Description:**

Sets the recording time for the trace.

**Index:**

[0] = Trace 0

[1] = Trace 1

---

**p4722[0...1]****Trace trigger delay**

CU\_I

Can be changed: U, T

Access level: 3

Data type: Floating Point	Data set: -	Function diagram: -
P-Group: Trace and function generator	Units group: TIME_M3	Unit selection: -
Min	Max	Factory setting
-3600000.000 [ms]	3600000.000 [ms]	0.000 [ms]

**Description:**

Sets the trigger delay for the trace.

Trigger delay &lt; 0:

Pretrigger: Tracing (recording) starts the selected time before the trigger event actually occurs.

Trigger delay &gt; 0:

Post trigger: Tracing does not start until the set time after the trigger event.

**Index:**

[0] = Trace 0

[1] = Trace 1



<b>p4723[0...1]</b>	<b>Time slice cycle for trace</b>		
CU_I	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.03125 [ms]	4.00000 [ms]	0.12500 [ms]
	<b>Description:</b> Sets the time slice cycle in which the trace is called.		
	<b>Index:</b> [0] = Trace 0 [1] = Trace 1		
<b>p4724[0...1]</b>	<b>Trace average in the time range</b>		
CU_I	Can be changed: U, T		Access level: 3
	Data type: Unsigned8	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 bin	0001 bin	0001 bin
	<b>Index:</b> [0] = Trace 0 [1] = Trace 1		
<b>r4725[0...1]</b>	<b>Trace, data type 1 traced</b>		
CU_I	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
	<b>Index:</b> [0] = Trace 0 [1] = Trace 1		
<b>r4726[0...1]</b>	<b>Trace, data type 2 traced</b>		
CU_I	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Index:**

[0] = Trace 0

[1] = Trace 1

**r4727[0...1]****Trace, data type 3 traced**

CU\_I

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Trace and function generator

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Index:**

[0] = Trace 0

[1] = Trace 1

**r4728[0...1]****Trace, data type 4 traced**

CU\_I

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Trace and function generator

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Index:**

[0] = Trace 0

[1] = Trace 1

**r4729[0...1]****Trace number of recorded values**

CU\_I

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Trace and function generator

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the number of traced values for each signal.

**Index:**

[0] = Trace 0

[1] = Trace 1

**Dependency:**

Only valid when p4705 = 4.

<b>p4730[0...1]</b>	<b>Trace record signal 0</b>		
CU_I	Can be changed: U, T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0
	<b>Description:</b> Selects the first signal to be traced. Or: Defines the data type of the signal to be traced when selecting using the physical address (p4780). <b>Index:</b> [0] = Trace 0 [1] = Trace 1		
<b>p4731[0...1]</b>	<b>Trace record signal 1</b>		
CU_I	Can be changed: U, T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0
	<b>Description:</b> Selects the second signal to be traced. Or: Defines the data type of the signal to be traced when selecting using the physical address (p4781). <b>Index:</b> [0] = Trace 0 [1] = Trace 1		
<b>p4732[0...1]</b>	<b>Trace record signal 2</b>		
CU_I	Can be changed: U, T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0
	<b>Description:</b> Selects the third signal to be traced. Or: Defines the data type of signal to be traced when selecting using the physical address (p4782).		

**Index:**

[0] = Trace 0

[1] = Trace 1

**p4733[0...1]****Trace record signal 3**

CU\_I

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Trace and function generator

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Selects the fourth signal to be traced.

Or: Defines the data type of the signal to be traced when selecting using the physical address (p4783).

**Index:**

[0] = Trace 0

[1] = Trace 1

**r4740[0...16383] Trace 0 trace buffer signal 0 floating point**

CU\_I

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Trace and function generator

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Trace buffer, trace 0, signal 0. The trace buffer is sub-divided into memory banks each having 500 values. Parameter p4795 can be used to toggle between the individual banks.

**Example A:**

The first 500 values of signal 0, trace 0 are to be read-out. To do this, p4795 must be set to 0, corresponding to memory bank 0. The first 500 values can only be read-out using r4740[0] to r4740[499].

**Example B:**

The values 750 to 800 from signal 0, trace 0 are to be read-out. To do this, p4795 must be set to 1, corresponding to memory bank 1. The values can now be read out in r4740[250] to r4740[299].

**Dependency:**

Refer to: p4795

**r4741[0...16383] Trace 0 trace buffer signal 1 floating point**

CU\_I

Can be changed: -

Access level: 3

Data type: Floating Point	Data set: -	Function diagram: -
P-Group: Trace and function generator	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	-

**Description:**

Recording buffer trace 0 signal 1.

**Dependency:**

Refer to: r4740, p4795

---

**r4742[0...16383] Trace 0 trace buffer signal 2 floating point**

CU_I	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
	P-Group: Trace and function generator	Units group: -
	Min	Max
	-	-
		Function diagram: -
		Unit selection: -
		Factory setting
		-

**Description:**

Recording buffer trace 0 signal 2.

**Dependency:**

Refer to: r4740, p4795

---

**r4743[0...16383] Trace 0 trace buffer signal 3 floating point**

CU_I	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
	P-Group: Trace and function generator	Units group: -
	Min	Max
	-	-
		Function diagram: -
		Unit selection: -
		Factory setting
		-

**Description:**

Recording buffer trace 0 signal 3.

**Dependency:**

Refer to: r4740, p4795

---

**r4750[0...16383] Trace 1 trace buffer signal 0 floating point**

CU_I	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
	P-Group: Trace and function generator	Units group: -
	Min	Max
	-	-
		Function diagram: -
		Unit selection: -
		Factory setting
		-

**Description:**

Recording buffer trace 1 signal 0.

**Dependency:**

Refer to: r4740, p4795

---

**r4751[0...16383] Trace 1 trace buffer signal 1 floating point**

CU_I	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Recording buffer trace 1 signal 1.

**Dependency:**

Refer to: r4740, p4795

---

**r4752[0...16383] Trace 1 trace buffer signal 2 floating point**

CU_I	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Recording buffer trace 1 signal 2.

**Dependency:**

Refer to: r4740, p4795

---

**r4753[0...16383] Trace 1 trace buffer signal 3 floating point**

CU_I	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Recording buffer trace 1 signal 3.

**Dependency:**

Refer to: r4740, p4795

---

**r4760[0...16383] Trace 0 trace buffer signal 0**

CU_I	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

---

**r4761[0...16383] Trace 0 trace buffer signal 1**

CU_I	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

---

**r4762[0...16383] Trace 0 trace buffer signal 2**

CU_I	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

---

**r4763[0...16383] Trace 0 trace buffer signal 3**

CU_I	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

---

**p4780[0...1] Trace physical address signal 0**

CU_I	Can be changed: U, T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0000 hex

**Description:**

Sets the physical address for the first signal to be traced.

The data type is defined by making the appropriate selection in p4730.

**Index:**

[0] = Trace 0

[1] = Trace 1

**p4781[0...1]****Trace physical address signal 1**

CU\_I

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Trace and function generator

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 hex

FFFF FFFF hex

0000 hex

**Description:**

Sets the physical address for the second signal to be traced.

The data type is defined by making the appropriate selection in p4731.

**Index:**

[0] = Trace 0

[1] = Trace 1

**p4782[0...1]****Trace physical address signal 2**

CU\_I

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Trace and function generator

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 hex

FFFF FFFF hex

0000 hex

**Description:**

Sets the physical address for the third signal to be traced.

The data type is defined by making the appropriate selection in p4732.

**Index:**

[0] = Trace 0

[1] = Trace 1

**p4783[0...1]****Trace physical address signal 3**

CU\_I

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Trace and function generator

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 hex

FFFF FFFF hex

0000 hex

**Description:**

Sets the physical address for the fourth signal to be traced.



The data type is defined by making the appropriate selection in p4733.

**Index:**

[0] = Trace 0

[1] = Trace 1

<b>p4789[0...1]</b>		<b>Trace physical address trigger signal</b>	
CU_I	Can be changed: U, T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0000 hex

**Description:**

Sets the physical address for the trigger signal.

The data type is defined by making the appropriate selection in p4711.

**Index:**

[0] = Trace 0

[1] = Trace 1

<b>p4795</b>		<b>Trace memory bank changeover</b>	
CU_I	Can be changed: U, T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	500	0

**Description:**

Changes over the memory bank to read-out the contents of the trace buffer.

**Dependency:**

Refer to: r4740, r4741, r4742, r4743, r4750, r4751, r4752, r4753

<b>r4799</b>		<b>Trace memory location free</b>	
CU_I	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the free memory for the trace in bytes.

**Dependency:**

Refer to: r4708

**p4800****Function generator control**

CU\_I

Can be changed: U, T

Access level: 3

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Trace and function generator

Units group: -

Unit selection: -

Min

Max

Factory setting

0

2

0

**Description:**

The function generator is started with p4800 = 1.

The signal is only generated for a 1 signal of BI: p4819.

**Values:**

- 0: Stop function generator
- 1: Start function generator
- 2: Check function generator parameterization

**Dependency:**

Refer to: p4819

**r4805****Function generator status**

CU\_I

Can be changed: -

Access level: 3

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Trace and function generator

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the actual status of the function generator.

**Values:**

- 0: not active
- 1: Generate accelerating ramp to offset
- 2: Generate parameterized signal shape
- 3: Generate braking ramp
- 4: Function generator stopped due to missing enable signals
- 5: Function generator waits for BI: p4819
- 6: Function generator parameterization has been checked

**Dependency:**

Refer to: p4800, p4819

**r4806****BO: Function generator status signal**

CU\_I

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Trace and function generator

Units group: -

Unit selection: -

Min	Max	Factory setting
-	-	-

**Description:**

Displays the status of the function generator.

0 signal: Function generator inactive

1 signal: Function generator running

<b>p4810</b>	<b>Function generator mode</b>	
CU_I	Can be changed: U, T	Access level: 3
	Data type: Integer16	Data set: -
	P-Group: Trace and function generator	Units group: -
	Min	Max
	0	99
		Factory setting
		0

**Description:**

Sets the operating mode of the function generator.

**Values:**

- 0: Connection at connector output r4818
- 1: Connection at current setpoint after filter and r4818
- 2: Connection as disturbing torque and r4818
- 3: Connection at speed setpoint after filter and r4818
- 4: Connection at current setpoint before filter and r4818
- 5: Connection at speed setpoint before filter and r4818
- 99: Connection at physical address and r4818

<b>p4812</b>	<b>Function generator physical address</b>	
CU_I	Can be changed: U, T	Access level: 3
	Data type: Unsigned32	Data set: -
	P-Group: Trace and function generator	Units group: -
	Min	Max
	0	4294967295
		Factory setting
		0

**Description:**

Sets the physical address where the function generator is to be connected.

**Dependency:**

Only effective when p4810 = 99.

<b>p4813</b>	<b>Function generator physical address reference value</b>	
CU_I	Can be changed: U, T	Access level: 3
	Data type: Floating Point	Data set: -
	P-Group: Trace and function generator	Units group: -
		Unit selection: -

Min	Max	Factory setting
1.00	1000000.00	1.00

**Description:**

Sets the reference value for 100 % for referred inputs.

**Dependency:**

Only effective when p4810 = 99.

**p4815[0...2]****Function generator drive number**

CU\_I

Can be changed: U, T

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Trace and function generator

Units group: -

Unit selection: -

Min

Max

Factory setting

0

65535

0

**Description:**

Selects the required drive where the function generator is to be connected.

**Index:**

[0] = First drive for connection

[1] = Second drive for connection

[2] = Third drive for connection

**Dependency:**

Only effective when p4810 = 1, 2, 3, 4 or 5.

**Note:**

For the function generator, only type SERVO drives can be used.

**r4818****CO: Function generator output signal**

CU\_I

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Trace and function generator

Units group: PERCENT

Unit selection: -

Min

Max

Factory setting

- [%]

- [%]

- [%]

**Description:**

Displays the output signal for the function generator.

**Dependency:**

Refer to: p4810

**Note:**

The value is displayed independently of the function generator mode.

The signal is available as connector output for an ongoing interconnection.

<b>p4819</b>	<b>BI: Function generator control</b>		
CU_I	Can be changed: U, T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	1
<b>Description:</b>			
Sets the signal source to control the function generator.			
When the function generator is running, the 0 signal from BI: p4819 is used to stop the signal generation and p4800 is set to 0.			
<b>Dependency:</b>			
Refer to: p4800			

<b>p4820</b>	<b>Function generator signal shape</b>		
CU_I	Can be changed: U, T		Access level: 3
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Min	Max	Factory setting
	1	5	1
<b>Description:</b>			
Sets the signal to be generated for the function generator.			
<b>Values:</b>			
1: Square-wave			
2: Staircase			
3: Triangular			
4: Binary noise - PRBS (Pseudo Random Binary Signal)			
5: Sinusoidal			

<b>p4821</b>	<b>Function generator period</b>		
CU_I	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	60000.00 [ms]	1000.00 [ms]
<b>Description:</b>			
Sets the period of the signal to be generated for the function generator.			
<b>Dependency:</b>			
Ineffective when p4820 = 4 (PRBS).			

<b>p4822</b>	<b>Function generator pulse width</b>		
CU_I	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	60000.00 [ms]	500.00 [ms]
	<b>Description:</b> Sets the pulse width for the signal to be generated for the function generator.		
	<b>Dependency:</b> Only effective when p4820 = 1 (square-wave).		
<b>p4823</b>	<b>Function generator bandwidth</b>		
CU_I	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: FREQUENCY	Unit selection: -
	Min	Max	Factory setting
	0.00 [Hz]	16000.00 [Hz]	4000.00 [Hz]
	<b>Description:</b> Sets the bandwidth for the signal to be generated for the function generator.		
	<b>Dependency:</b> Only effective when p4820 = 4 (PRBS). Refer to: p4830 Refer to: A02041		
<b>p4824</b>	<b>Function generator amplitude</b>		
CU_I	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	-1600.00 [%]	1600.00 [%]	5.00 [%]
	<b>Description:</b> Sets the amplitude for the signal to be generated for the function generator.		
	<b>Dependency:</b> Units are dependent on p4810. If p4810 = 1, 2, 4: the amplitude is referred to p2002 (rated motor current). If p4810 = 3, 5: the amplitude is referred to p2000 (rated motor speed).		
<b>p4825</b>	<b>Function generator 2nd amplitude</b>		

CU_I	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	-1600.00 [%]	1600.00 [%]	7.00 [%]

**Description:**

Sets the second amplitude for the signal to be generated for the function generator.

**Dependency:**

Only effective for p4820 = 2 (staircase).

Units are dependent on p4810.

If p4810 = 1, 2, 4: the amplitude is referred to p2002 (rated motor current).

If p4810 = 3, 5: the amplitude is referred to p2000 (rated motor speed).

---

**p4826 Function generator offset**

CU_I	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	-1600.00 [%]	1600.00 [%]	0.00 [%]

**Description:**

Sets the offset (DC component) of the signal to be generated for the function generator.

**Dependency:**

Units are dependent on p4810.

If p4810 = 1, 2, 4: the offset is referred to p2002 (rated motor current).

If p4810 = 3, 5: the offset is referred to p2009 (rated motor speed).

If p4810 = 2: in order to avoid effects of play (backlash), the offset does not act on the current setpoint, but instead on the speed setpoint.

---

**p4827 Function generator ramp-up time to offset**

CU_I	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	100000.00 [ms]	32.00 [ms]

**Description:**

Sets the ramp-up time to the offset for the function generator.

---

**p4828 Function generator lower limit**

CU_I	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	-10000.00 [%]	0.00 [%]	-100.00 [%]

**Description:**

Sets the lower limit for the function generator.

**Dependency:**

For p4810 = 2 the limit only applies to the current setpoint, but not the speed setpoint (offset).

---

**p4829 Function generator upper limit**

CU_I	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.00 [%]	10000.00 [%]	100.00 [%]

**Description:**

Sets the upper limit for the function generator.

**Dependency:**

For p4810 = 2 the limit only applies to the current setpoint, but not the speed setpoint (offset).

---

**p4830 Function generator time slice cycle**

CU_I	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.03125 [ms]	2.00000 [ms]	0.12500 [ms]

**Description:**

Sets the time slice cycle in which the function generator is called.

---

**p4831 Function generator amplitude scaling**

CU_I	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Trace and function generator	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	0.00000 [%]	200.00000 [%]	100.00000 [%]





- - 0

**Description:**

Sets the signal source to switch-in/switch-out the test.

The test mode is set using p6650.

**r7000****Par\_circuit No. of active power modules**

A\_INF (Parallel)

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Modulation

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the active power modules for a parallel circuit configuration.

**Dependency:**

Refer to: p7001

**p7001[0...n]****Par\_circuit enable power modules**

A\_INF (Parallel)

Can be changed: T

Access level: 3

Data type: Integer16

Data set: PDS

Function diagram: -

P-Group: Modulation

Units group: -

Unit selection: -

Min

Max

Factory setting

0

1

1

**Description:**

Enables the power modules in the parallel circuit configuration.

**Values:**

0: Deactivated

1: Activated

**Dependency:**

Refer to: r7000

**r7002[0...n]****Par\_circuit status power modules**

A\_INF (Parallel)

Can be changed: -

Access level: 3

Data type: Integer16

Data set: PDS

Function diagram: -

P-Group: Modulation

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the status of the power modules in the parallel circuit configuration.

**Values:**

0: Pulses inhibited  
1: Pulses enabled

**Dependency:**

Refer to: r7000, p7001

<b>p7010</b>	<b>Par_circuit current dissymmetry alarm threshold</b>		
A_INF (Parallel)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Modulation	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	2 [%]	100 [%]	20 [%]

**Description:**

Sets the alarm threshold to detect current dissymmetry in the parallel circuit configuration.

The deviation between the measured values and average value is evaluated. The specified value is referred to the rated power module current (p7251[0]).

**Dependency:**

Refer to: r7251

Refer to: A05052

<b>p7011</b>	<b>Par_circuit DC link voltage dissymmetry, alarm threshold</b>		
A_INF (Parallel)	Can be changed: U, T		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Modulation	Units group: PERCENT	Unit selection: -
	Min	Max	Factory setting
	2 [%]	100 [%]	10 [%]

**Description:**

Sets the alarm threshold to detect dissymmetry of the DC link voltages in the parallel circuit configuration.

The deviation between the measured values and average value is evaluated. The specified value is referred to the rated link voltage.

**Dependency:**

Refer to: A05053

<b>r7020[0...n]</b>	<b>Par_circuit deviation current in phase U</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: CURRENT_AC_PP	Unit selection: -
	Min	Max	Factory setting
	- [A]	- [A]	- [A]

**Description:**

Displays the deviation between the measured current actual value of phase U and the average value as peak value.

The maximum deviation from the average value is displayed in r7025.

**Dependency:**

Refer to: r7021, r7022, r7025

**r7021[0...n]****Par\_circuit deviation current in phase V**

A\_INF (Parallel)

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: PDS

Function diagram: -

P-Group: Displays, signals

Units group: CURRENT\_AC\_PP

Unit selection: -

Min

Max

Factory setting

- [A]

- [A]

- [A]

**Description:**

Displays the deviation between the measured current actual value of phase V and the average value as peak value.

The maximum deviation from the average value is displayed in r7026.

**Dependency:**

Refer to: r7020, r7022, r7026

**r7022[0...n]****Par\_circuit deviation current in phase W**

A\_INF (Parallel)

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: PDS

Function diagram: -

P-Group: Displays, signals

Units group: CURRENT\_AC\_PP

Unit selection: -

Min

Max

Factory setting

- [A]

- [A]

- [A]

**Description:**

Displays the deviation between the measured current actual value of phase W and the average value as peak value.

The maximum deviation from the average value is displayed in r7027.

**Dependency:**

Refer to: r7020, r7021, r7027

**r7025****Par\_circuit max. deviation currents phase U**

A\_INF (Parallel)

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Displays, signals

Units group: CURRENT\_AC\_PP

Unit selection: -

Min

Max

Factory setting

- [A]

- [A]

- [A]

**Description:**

Displays the maximum absolute deviation of the measured current actual values of phase U from the average value as peak value.

The deviation of the individual currents from the average value is displayed in r7020.

**Dependency:**

Refer to: r7020, r7026, r7027

Refer to: A05052

---

<b>r7026</b>	<b>Par_circuit max. deviation currents phase V</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Displays, signals	Units group: CURRENT_AC_PP	Unit selection: -
	Min	Max	Factory setting
	- [A]	- [A]	- [A]

**Description:**

Displays the maximum absolute deviation of the measured current actual values of phase V from the average value as peak value.

The deviation of the individual currents from the average value is displayed in r7021.

**Dependency:**

Refer to: r7021, r7025, r7027

Refer to: A05052

---

<b>r7027</b>	<b>Par_circuit max. deviation currents phase W</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Displays, signals	Units group: CURRENT_AC_PP	Unit selection: -
	Min	Max	Factory setting
	- [A]	- [A]	- [A]

**Description:**

Displays the maximum absolute deviation of the measured current actual values of phase W from the average value as peak value.

The deviation of the individual currents from the average value is displayed in r7022.

**Dependency:**

Refer to: r7022, r7025, r7026

Refer to: A05052

---

<b>r7030[0...n]</b>	<b>Par_circuit deviation DC link voltage</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: PDS	Function diagram: -

P-Group: Displays, signals	Units group: VOLTAGE_DC	Unit selection: -
Min	Max	Factory setting
- [V]	- [V]	- [V]

**Description:**

Displays the deviation of the measured DC link voltage from the average value.

The maximum deviation from the average value is displayed in r7031.

**Dependency:**

Refer to: r7031

---

<b>r7031</b>	<b>Par_circuit max. deviation, DC link voltage</b>	
A_INF (Parallel)	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
	P-Group: Displays, signals	Units group: VOLTAGE_DC
	Min	Max
	- [V]	- [V]
		Factory setting
		- [V]

**Description:**

Displays the maximum absolute deviation of the measured DC link voltage from the average value.

The deviation of the individual voltages from the average value is displayed in r7030.

**Dependency:**

Refer to: r7030

Refer to: A05053

---

<b>p7035</b>	<b>Infeed par_circuit circulating current control, operating mode</b>	
A_INF (Parallel)	Can be changed: U, T	Access level: 3
	Data type: Integer16	Data set: -
	P-Group: Modulation	Units group: -
	Min	Max
	0	1
		Factory setting
		1

**Description:**

Sets the operating mode of the circulating current control.

The circulating current control ensures symmetrical distribution of the total currents to the individual converters.

**Values:**

- 0:     Circulating current control de-activated  
1:     Circulating control control activated

---

<b>p7036</b>	<b>Infeed par_cct circulating current controller, proportional gain</b>	
A_INF (Parallel)	Can be changed: U, T	Access level: 3

Data type: Floating Point	Data set: -	Function diagram: -
P-Group: Modulation	Units group: PERCENT	Unit selection: -
Min	Max	Factory setting
0.00000 [%]	1000.00000 [%]	100.00000 [%]

**Description:**

Sets the normalized proportional gain for the circulating current controller.

**Note:**

A value of 100 % corresponds to the basic setting derived from loop control parameters (p3421, p3622).

---

**p7037 Infeed par\_cct circulating current control, integral action time**

A_INF (Parallel)	Can be changed: U, T	Access level: 3
Data type: Floating Point	Data set: -	Function diagram: -
P-Group: Modulation	Units group: PERCENT	Unit selection: -
Min	Max	Factory setting
0.0 [%]	100000.0 [%]	100.0 [%]

**Description:**

Sets the normalized integral action time of the circulating current controller.

**Note:**

A value of 100 % corresponds to the basic setting derived from the controller sampling time p0115[0].

The integral component of the controller is de-activated with p7037 = 0.

---

**p7038 Infeed par\_circuit circulating current control, limit**

A_INF (Parallel)	Can be changed: U, T	Access level: 3
Data type: Floating Point	Data set: -	Function diagram: -
P-Group: Modulation	Units group: PERCENT	Unit selection: -
Min	Max	Factory setting
1 [%]	100 [%]	100 [%]

**Description:**

Sets the limit of the circulating current controller output values.

The parameter is, depending on the phase, referred to the valve lockout times p1828, p1829 or p1830.

---

**p7040[0...n] Par\_circuit correction, valve lockout time phase U**

A_INF (Parallel)	Can be changed: U, T	Access level: 4
Data type: Floating Point	Data set: PDS	Function diagram: -

P-Group: Modulation	Units group: TIME_M6	Unit selection: -
Min	Max	Factory setting
0.00 [μs]	1000000.00 [μs]	0.00 [μs]

**Description:**

For the particular motor module, the correction time must be added to the valve lockout time to be compensated for phase U (p1828).

The correction value is used to compensate variations/spread in the valve lockout times of motor modules for a parallel circuit configuration.

---

<b>p7042[0...n]</b>	<b>Par_circuit correction, valve lockout time phase V</b>	
A_INF (Parallel)	Can be changed: U, T	Access level: 4
	Data type: Floating Point	Data set: PDS
	P-Group: Modulation	Units group: TIME_M6
	Min	Max
	0.00 [μs]	1000000.00 [μs]
		0.00 [μs]

**Description:**

For the particular motor module, the correction time must be added to the valve lockout time to be compensated for phase V (p1829).

The correction value is used to compensate variations/spread in the valve lockout times of motor modules for a parallel circuit configuration.

---

<b>p7044[0...n]</b>	<b>Par_circuit correction, valve lockout time phase W</b>	
A_INF (Parallel)	Can be changed: U, T	Access level: 4
	Data type: Floating Point	Data set: PDS
	P-Group: Modulation	Units group: TIME_M6
	Min	Max
	0.00 [μs]	1000000.00 [μs]
		0.00 [μs]

**Description:**

For the particular motor module, the correction time must be added to the valve lockout time to be compensated for phase W (p1830).

The correction value is used to compensate variations/spread in the valve lockout times of motor modules for a parallel circuit configuration.

---

<b>r7050[0...n]</b>	<b>Par_circuit circulating current phase U</b>	
A_INF (Parallel)	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: PDS
	P-Group: Displays, signals	Units group: CURRENT_AC_PP
	Min	Max
	- [A]	- [A]
		- [A]



**Description:**

Displays the circulating current of phase U as peak value.

<b>r7051[0...n]</b>	<b>Par_circuit circulating current phase V</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: CURRENT_AC_PP	Unit selection: -
	Min	Max	Factory setting
	- [A]	- [A]	- [A]

**Description:**

Displays the circulating current of phase V as peak value.

<b>r7052[0...n]</b>	<b>Par_circuit circulating current phase W</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: CURRENT_AC_PP	Unit selection: -
	Min	Max	Factory setting
	- [A]	- [A]	- [A]

**Description:**

Displays the circulating current of phase W as peak value.

<b>r7100[0...99]</b>	<b>Par_circuit ring buffer fault/alarm code</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Ring buffer for faults and alarms that have occurred from power modules connected in parallel (motor module, active line infeed, voltage sensing module).

Displays the fault/alarm code.

**Dependency:**

Refer to: r7101, r7102, r7103

**Note:**

The last fault case that occurred is documented in index 0.

The parameter is reset to 0 at POWER ON.

---

**r7101[0...99]      Par\_circuit ring buffer data set number**

A\_INF (Parallel)

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Displays, signals

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Ring buffer for faults and alarms that have occurred from power modules connected in parallel (motor module, active line infeed, voltage sensing module).

p7101 < 100:

Displays the power module data set number (Power Data Set, PDS).

p7101 >= 100:

Displays the voltage sensing module data set number (VSMDS)

**Dependency:**

Refer to: r7100, r7102, r7103

**Note:**

The last fault case that occurred is documented in index 0.

The parameter is reset to 0 at POWER ON.

---

**r7102[0...99]      Par\_circuit ring buffer fault/alarm received**

A\_INF (Parallel)

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Displays, signals

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Ring buffer for faults and alarms that have occurred from power modules connected in parallel (motor module, active line infeed, voltage sensing module).

Displays the relative system runtime when the fault or alarm occurred.

**Dependency:**

Refer to: r7100, r7101, r7103

**Note:**

The last fault case that occurred is documented in index 0.

The parameter is reset to 0 at POWER ON.

---

**r7103[0...99]      Par\_circuit ring buffer fault/alarm gone**

A\_INF (Parallel)

Can be changed: -

Access level: 3

Data type: Unsigned32	Data set: -	Function diagram: -
P-Group: Displays, signals	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	-

**Description:**

Ring buffer for faults and alarms that have occurred from power modules connected in parallel (motor module, active line infeed, voltage sensing module).

Displays the relative system runtime when the fault or alarm was withdrawn.

**Dependency:**

Refer to: r7100, r7101, r7102

**Note:**

The last fault case that occurred is documented in index 0.

The parameter is reset to 0 at POWER ON.

---

**r7200[0...n] Par\_circuit power module overload I2T**

A_INF (Parallel)	Can be changed: -	Access level: 3
Data type: Floating Point	Data set: PDS	Function diagram: -
P-Group: Displays, signals	Units group: PERCENT	Unit selection: -
Min	Max	Factory setting
- [%]	- [%]	- [%]

**Description:**

Displays the overload of the particular power module in a parallel circuit configuration calculated using the I2t function.

The maximum value of all power modules is displayed in r0036.

---

**r7201[0...n] Par\_circuit power module temperatures max. inverter**

A_INF (Parallel)	Can be changed: -	Access level: 3
Data type: Floating Point	Data set: PDS	Function diagram: -
P-Group: Displays, signals	Units group: TEMPERATURE	Unit selection: -
Min	Max	Factory setting
- [°C]	- [°C]	- [°C]

**Description:**

Displays the maximum inverter temperature in the power module for a parallel circuit configuration.

The maximum value of all power modules is displayed in r0037[0].

---

**r7202[0...n] Par\_circuit power module temperatures max. depletion layer**

A_INF (Parallel)	Can be changed: -	Access level: 3
------------------	-------------------	-----------------

Data type: Floating Point	Data set: PDS	Function diagram: -
P-Group: Displays, signals	Units group: TEMPERATURE	Unit selection: -
Min	Max	Factory setting
- [°C]	- [°C]	- [°C]

**Description:**

Displays the maximum depletion layer temperature in the power module for a parallel circuit configuration.

The maximum value of all power modules is displayed in r0037[1].

---

**r7203[0...n] Par\_circuit power module temperatures max. rectifier**

A\_INF (Parallel)

Can be changed: -

Access level: 3

Data type: Floating Point	Data set: PDS	Function diagram: -
P-Group: Displays, signals	Units group: TEMPERATURE	Unit selection: -
Min	Max	Factory setting
- [°C]	- [°C]	- [°C]

**Description:**

Displays the maximum rectifier temperature in the power module for a parallel circuit configuration.

The maximum value of all power modules is displayed in r0037[2].

---

**r7204[0...n] Par\_circuit power module temperatures air intake**

A\_INF (Parallel)

Can be changed: -

Access level: 3

Data type: Floating Point	Data set: PDS	Function diagram: -
P-Group: Displays, signals	Units group: TEMPERATURE	Unit selection: -
Min	Max	Factory setting
- [°C]	- [°C]	- [°C]

**Description:**

Displays the air intake temperature in the power module for a parallel circuit configuration.

The maximum value of all power modules is displayed in r0037[3].

---

**r7205[0...n] Par\_circuit power module temperatures electronics**

A\_INF (Parallel)

Can be changed: -

Access level: 3

Data type: Floating Point	Data set: PDS	Function diagram: -
P-Group: Displays, signals	Units group: TEMPERATURE	Unit selection: -
Min	Max	Factory setting
- [°C]	- [°C]	- [°C]

**Description:**

Displays the temperature of the electronics module in the power module for a parallel

circuit configuration.

The maximum value of all power modules is displayed in r0037[4].

<b>r7206[0...n]</b>	<b>Par_circuit power module temperatures inverter 1</b>		
A_INF (Parallel)	Can be changed: -	Access level: 3	
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: TEMPERATURE	Unit selection: -
	Min	Max	Factory setting
	- [°C]	- [°C]	- [°C]

**Description:**

Displays the inverter temperature 1 in the power module for a parallel circuit configuration.

The maximum value of all power modules is displayed in r0037[5].

<b>r7207[0...n]</b>	<b>Par_circuit power module temperatures inverter 2</b>		
A_INF (Parallel)	Can be changed: -	Access level: 3	
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: TEMPERATURE	Unit selection: -
	Min	Max	Factory setting
	- [°C]	- [°C]	- [°C]

**Description:**

Displays the inverter temperature 2 in the power module for a parallel circuit configuration.

The maximum value of all power modules is displayed in r0037[6].

<b>r7208[0...n]</b>	<b>Par_circuit power module temperatures inverter 3</b>		
A_INF (Parallel)	Can be changed: -	Access level: 3	
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: TEMPERATURE	Unit selection: -
	Min	Max	Factory setting
	- [°C]	- [°C]	- [°C]

**Description:**

Displays the inverter temperature 3 in the power module for a parallel circuit configuration.

The maximum value of all power modules is displayed in r0037[7].

<b>r7209[0...n]</b>	<b>Par_circuit power module temperatures inverter 4</b>		
A_INF (Parallel)	Can be changed: -	Access level: 3	
	Data type: Floating Point	Data set: PDS	Function diagram: -

P-Group: Displays, signals	Units group: TEMPERATURE	Unit selection: -
Min	Max	Factory setting
- [°C]	- [°C]	- [°C]

**Description:**

Displays the inverter temperature 4 in the power module for a parallel circuit configuration.

The maximum value of all power modules is displayed in r0037[8].

---

<b>r7210[0...n]</b>	<b>Par_circuit power module temperatures inverter 5</b>	
A_INF (Parallel)	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: PDS
	P-Group: Displays, signals	Units group: TEMPERATURE
	Min	Max
	- [°C]	- [°C]
		Factory setting
		- [°C]

**Description:**

Displays the inverter temperature 5 in the power module for a parallel circuit configuration.

The maximum value of all power modules is displayed in r0037[9].

---

<b>r7211[0...n]</b>	<b>Par_circuit power module temperatures inverter 6</b>	
A_INF (Parallel)	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: PDS
	P-Group: Displays, signals	Units group: TEMPERATURE
	Min	Max
	- [°C]	- [°C]
		Factory setting
		- [°C]

**Description:**

Displays the inverter temperature 6 in the power module for a parallel circuit configuration.

The maximum value of all power modules is displayed in r0037[10].

---

<b>r7212[0...n]</b>	<b>Par_circuit power module temperatures inverter 1</b>	
A_INF (Parallel)	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: PDS
	P-Group: Displays, signals	Units group: TEMPERATURE
	Min	Max
	- [°C]	- [°C]
		Factory setting
		- [°C]

**Description:**

Displays rectifier temperature 1 in the power module for a parallel circuit configuration.

The maximum value of all power modules is displayed in r0037[11].

<b>r7213[0...n]</b>	<b>Par_circuit power module temperatures inverter 2</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: TEMPERATURE	Unit selection: -
	Min	Max	Factory setting
	- [°C]	- [°C]	- [°C]

**Description:**

Displays rectifier temperature 2 in the power module for a parallel circuit configuration.

The maximum value of all power modules is displayed in r0037[12].

<b>r7214[0...n]</b>	<b>Par_circuit power module temperatures depletion layer 1</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: TEMPERATURE	Unit selection: -
	Min	Max	Factory setting
	- [°C]	- [°C]	- [°C]

**Description:**

Displays depletion layer temperature 1 in the power module for a parallel circuit configuration.

The maximum value of all power modules is displayed in r0037[13].

<b>r7215[0...n]</b>	<b>Par_circuit power module temperatures depletion layer 2</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: TEMPERATURE	Unit selection: -
	Min	Max	Factory setting
	- [°C]	- [°C]	- [°C]

**Description:**

Displays depletion layer temperature 2 in the power module for a parallel circuit configuration.

The maximum value of all power modules is displayed in r0037[14].

<b>r7216[0...n]</b>	<b>Par_circuit power module temperatures depletion layer 3</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: TEMPERATURE	Unit selection: -
	Min	Max	Factory setting

- [°C]

- [°C]

- [°C]

**Description:**

Displays depletion layer temperature 3 in the power module for a parallel circuit configuration.

The maximum value of all power modules is displayed in r0037[15].

**r7217[0...n]****Par\_circuit power module temperatures depletion layer 4**

A\_INF (Parallel)

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: PDS

Function diagram: -

P-Group: Displays, signals

Units group: TEMPERATURE

Unit selection: -

Min

Max

Factory setting

- [°C]

- [°C]

- [°C]

**Description:**

Displays depletion layer temperature 4 in the power module for a parallel circuit configuration.

The maximum value of all power modules is displayed in r0037[16].

**r7218[0...n]****Par\_circuit power module temperatures depletion layer 5**

A\_INF (Parallel)

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: PDS

Function diagram: -

P-Group: Displays, signals

Units group: TEMPERATURE

Unit selection: -

Min

Max

Factory setting

- [°C]

- [°C]

- [°C]

**Description:**

Displays depletion layer temperature 5 in the power module for a parallel circuit configuration.

The maximum value of all power modules is displayed in r0037[17].

**r7219[0...n]****Par\_circuit power module temperatures depletion layer 6**

A\_INF (Parallel)

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: PDS

Function diagram: -

P-Group: Displays, signals

Units group: TEMPERATURE

Unit selection: -

Min

Max

Factory setting

- [°C]

- [°C]

- [°C]

**Description:**

Displays depletion layer temperature 6 in the power module for a parallel circuit configuration.

The maximum value of all power modules is displayed in r0037[18].



<b>r7220[0...n]</b>	<b>Infeed par_circuit absolute current value, motoring permissible</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]

**Description:**

Displays the currently permissible line-side absolute current when motoring.

The minimum value of all power modules multiplied by the number motor modules is displayed in r0067[0].

<b>r7221[0...n]</b>	<b>Infeed par_circuit absolute current regenerating, permissible</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]

**Description:**

Displays the currently permissible line-side absolute regenerative current.

The minimum value of all power modules multiplied by the number motor modules is displayed in r0067[1].

<b>r7222[0...n]</b>	<b>Par_circuit absolute current actual value</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]

**Description:**

Displays actual absolute current.

The summed value of all power modules is displayed in r0068.

<b>r7223[0...n]</b>	<b>Par_circuit phase current, actual value phase U</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: CURRENT_AC_PP	Unit selection: -
	Min	Max	Factory setting
	- [A]	- [A]	- [A]

**Description:**

Displays the measured actual value of phase U as peak value.

The summed value of all power modules is displayed in r0069[0].

---

<b>r7224[0...n]</b>	<b>Par_circuit phase current, actual value phase V</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: CURRENT_AC_PP	Unit selection: -
	Min	Max	Factory setting
	- [A]	- [A]	- [A]

**Description:**

Displays the measured actual value of phase V as peak value.

The summed value of all power modules is displayed in r0069[1].

---

<b>r7225[0...n]</b>	<b>Par_circuit phase current, actual value phase W</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: CURRENT_AC_PP	Unit selection: -
	Min	Max	Factory setting
	- [A]	- [A]	- [A]

**Description:**

Displays the measured actual value of phase W as peak value.

The summed value of all power modules is displayed in r0069[2].

---

<b>r7226[0...n]</b>	<b>Par_circuit phase current actual value, phase U offset</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: CURRENT_AC_PP	Unit selection: -
	Min	Max	Factory setting
	- [A]	- [A]	- [A]

**Description:**

Displays the measured offset of phase U as peak value.

The summed value of all power modules is displayed in r0069[3].

---

<b>r7227[0...n]</b>	<b>Par_circuit phase current, actual value, phase V offset</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: CURRENT_AC_PP	Unit selection: -

Min	Max	Factory setting
- [A]	- [A]	- [A]

**Description:**

Displays the measured offset of phase V as peak value.

The summed value of all power modules is displayed in r0069[4].

<b>r7228[0...n]</b>	<b>Par_circuit phase current, actual value, phase W offset</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: CURRENT_AC_PP	Unit selection: -
	Min	Max	Factory setting
	- [A]	- [A]	- [A]

**Description:**

Displays the measured offset of phase W as peak value.

The summed value of all power modules is displayed in r0069[5].

<b>r7229[0...n]</b>	<b>Par_circuit phase current actual value sum U, V, W</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: CURRENT_AC_PP	Unit selection: -
	Min	Max	Factory setting
	- [A]	- [A]	- [A]

**Description:**

Displays the measured sum of the currents in phases U, V and W as peak value.

The summed value of all power modules is displayed in r0069[6].

<b>r7230[0...n]</b>	<b>Par_circuit DC link voltage actual value</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: PDS	Function diagram: -
	P-Group: Displays, signals	Units group: VOLTAGE_DC	Unit selection: -
	Min	Max	Factory setting
	- [V]	- [V]	- [V]

**Description:**

Displays the measured actual value of the DC link voltage.

The average value of all power modules is displayed in r0070.

<b>r7231[0...n]</b>	<b>Par_circuit phase voltage, actual value phase U</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3

Data type: Floating Point	Data set: PDS	Function diagram: -
P-Group: Displays, signals	Units group: VOLTAGE_AC_PP	Unit selection: -
Min	Max	Factory setting
- [V]	- [V]	- [V]

**Description:**

Displays the actual voltage, phase U.

The average value of all power modules is displayed in r0089[0].

---

<b>r7232[0...n]</b>	<b>Par_circuit phase voltage, actual value phase V</b>	
A_INF (Parallel)	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: PDS
	P-Group: Displays, signals	Units group: VOLTAGE_AC_PP
	Min	Max
	- [V]	- [V]
		Factory setting
		- [V]

**Description:**

Displays the actual voltage, phase V.

The average value of all power modules is displayed in r0089[1].

---

<b>r7233[0...n]</b>	<b>Par_circuit phase voltage, actual value phase W</b>	
A_INF (Parallel)	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: PDS
	P-Group: Displays, signals	Units group: VOLTAGE_AC_PP
	Min	Max
	- [V]	- [V]
		Factory setting
		- [V]

**Description:**

Displays the actual voltage, phase W.

The average value of all power modules is displayed in r0089[2].

---

<b>r7250[0...4]</b>	<b>Par_circuit power module rated power</b>	
A_INF (Parallel)	Can be changed: -	Access level: 2
	Data type: Floating Point	Data set: -
	P-Group: Converter	Units group: POWER_P3
	Min	Max
	- [kW]	- [kW]
		Factory setting
		- [kW]

**Description:**

Displays the rated power of the individual power modules connected in parallel for various load duty cycles.

The sum of the rated powers of all power modules connected in parallel is displayed in

r0206.

**Index:**

- [0] = Rating plate
- [1] = Load duty cycle with high overload
- [2] = Load duty cycle with low overload
- [3] = S1 load duty cycle
- [4] = S6 load duty cycle

**Dependency:**

The value is displayed in [kW] or [hp].

Refer to: p0100

<b>r7251[0...4] Par_circuit power module rated current</b>			
A_INF (Parallel)	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Converter	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]
<b>Description:</b>			
Displays the rated current of the individual power modules connected in parallel for various load duty cycles.			
The sum of the rated currents of all power modules connected in parallel is displayed in r0207.			
<b>Index:</b>			
[0] = Rating plate			
[1] = Load duty cycle with high overload			
[2] = Load duty cycle with low overload			
[3] = S1 load duty cycle			
[4] = S6 load duty cycle			

<b>r7252[0...4] Par_circuit maximum power module current</b>			
A_INF (Parallel)	Can be changed: -		Access level: 2
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Converter	Units group: CURRENT_AC_EFF	Unit selection: -
	Min	Max	Factory setting
	- [Aeff]	- [Aeff]	- [Aeff]
<b>Description:</b>			
Displays the maximum output current of the individual power modules connected in parallel.			
The sum of the maximum currents of all power modules connected in parallel is displayed in r0209.			
<b>Index:</b>			

- [0] = Rating plate  
 [1] = Load duty cycle with high overload  
 [2] = Load duty cycle with low overload  
 [3] = S1 load duty cycle  
 [4] = S6 load duty cycle

---

**r7300[0...n] CO: Par\_circuit VSM input line voltage u1 - u2**


---

A\_INF (Parallel)

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Closed-loop control

Units group: VOLTAGE\_AC\_PP

Unit selection: -

Min

Max

Factory setting

- [V]

- [V]

- [V]

**Description:**

Displays the voltage between phases L1 and L2 of the particular voltage sensing module (VSM) for a parallel circuit configuration.

The average value of all VSM is displayed in r3661.

**Dependency:**

Refer to: p3660

**Note:**

X521.1 or X522.1: Connection of L1

X521.2 or X522.2: Connection of L2

---

**r7301[0...n] CO: Par\_circuit VSM input line voltage u2 - u3**


---

A\_INF (Parallel)

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Closed-loop control

Units group: VOLTAGE\_AC\_PP

Unit selection: -

Min

Max

Factory setting

- [V]

- [V]

- [V]

**Description:**

Displays the voltage between phases L2 and L3 of the particular voltage sensing module (VSM) for a parallel circuit configuration.

The average value of all VSM is displayed in r3662.

**Dependency:**

Refer to: p3660

**Note:**

X521.2 or X522.2: Connection of L2

X521.3 or X522.3: Connection of L3

<b>r7305[0...n]</b>	<b>Par_circuit VSM temperature evaluation, status</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Terminals	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the status of the temperature evaluation of the particular voltage sensing module (VSM) for a parallel circuit configuration.

This displays as to whether the temperature actual value has exceeded the fault/alarm threshold.

The overall status of the temperature evaluation of all VSM is displayed in r3664.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Temperature alarm threshold exceeded	No	Yes	-
	01	Temperature fault threshold exceeded	No	Yes	-

**Dependency:**

Refer to: p3665, r3666, p3667, p3668

<b>r7306[0...n]</b>	<b>CO: Par_circuit VSM temperature KTY</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: TEMPERATURE	Unit selection: -
	Min	Max	Factory setting
	- [°C]	- [°C]	- [°C]

**Description:**

Displays the temperature actual value of the KTY84 temperature sensor connected to the voltage sensing module (VSM) for a parallel circuit configuration.

The maximum value of all VSM is displayed in r3666.

Prerequisite:

A KTY84 sensor is connected and p3665 is set to 2.

**Dependency:**

Refer to: p3665

<b>r7310[0...n]</b>	<b>CO: Par_circuit VSM 10 V input CT1 actual value</b>		
A_INF (Parallel)	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Closed-loop control	Units group: CURRENT_AC_PP	Unit selection: -

Min	Max	Factory setting
- [A]	- [A]	- [A]

**Description:**

Displays the current actual value from current transducer (CT) 1 at the 10 V input of the particular voltage sensing module (VSM) for a parallel circuit configuration.

The average value of all VSM is displayed in r3671.

**Dependency:**

Refer to: p3670

**Note:**

The CT for phase 1 is connected at terminals X520.1 and X520.2 of the VSM.

---

<b>r7311[0...n]</b>	<b>CO: Par_circuit VSM 10 V input CT2 actual value</b>	
A_INF (Parallel)	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
	P-Group: Closed-loop control	Units group: CURRENT_AC_PP
	Min	Max
	- [A]	- [A]
		Factory setting
		- [A]
		Function diagram: -
		Unit selection: -

**Description:**

Displays the current actual value from current transducer (CT) 2 at the 10 V input of the particular voltage sensing module (VSM) for a parallel circuit configuration.

The average value of all VSM is displayed in r3672.

**Dependency:**

Refer to: p3670

**Note:**

The CT for phase 2 is connected at terminals X520.3 and X520.4 of the VSM.

---

<b>r7315[0...n]</b>	<b>CO: Par_circuit VSM 10 V input 1 actual value</b>	
A_INF (Parallel)	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
	P-Group: Closed-loop control	Units group: VOLTAGE_AC_PP
	Min	Max
	- [V]	- [V]
		Factory setting
		- [V]
		Function diagram: -
		Unit selection: -

**Description:**

Displays the actual value of the voltage measured at the 10 V input 1 of the voltage sensing modules (VSM).

The average value of all VSM is displayed in r3673.

**Dependency:**



Refer to: p3670

**Note:**

10 V input 1: Terminals X520.1 and X520.2

---

<b>r7316[0...n]</b>	<b>CO: Par_circuit VSM 10 V input 2 actual value</b>	
A_INF (Parallel)	Can be changed: -	Access level: 3
	Data type: Floating Point	Data set: -
	P-Group: Closed-loop control	Units group: VOLTAGE_AC_PP
	Min	Max
	- [V]	- [V]
		Factory setting
		- [V]

**Description:**

Displays the actual value of the voltage measured at the 10 V input 2 of the voltage sensing modules (VSM).

The average value of all VSM is displayed in r3674.

**Dependency:**

Refer to: p3670

**Note:**

10 V input 2: Terminals X520.3 and X520.4

---

<b>r7320[0...n]</b>	<b>Par_circuit VSM line filter capacitance phase U</b>	
A_INF (Parallel)	Can be changed: -	Access level: 4
	Data type: Floating Point	Data set: -
	P-Group: Closed-loop control	Units group: CAPACITY_M6
	Min	Max
	- [μF]	- [μF]
		Factory setting
		- [μF]

**Description:**

Displays the capacitance of the line filter, phase U of the particular voltage sensing module (VSM).

The average value of all VSM is displayed in r3677[0].

**Dependency:**

Refer to: p3676

**Note:**

Prerequisites:

The filter capacitance monitoring is activated.

---

<b>r7321[0...n]</b>	<b>Par_circuit VSM line filter capacitance phase V</b>	
A_INF (Parallel)	Can be changed: -	Access level: 4

Data type: Floating Point	Data set: -	Function diagram: -
P-Group: Closed-loop control	Units group: CAPACITY_M6	Unit selection: -
Min	Max	Factory setting
- [µF]	- [µF]	- [µF]

**Description:**

Displays the capacitance of the line filter, phase V of the particular voltage sensing module (VSM).

The average value of all VSM is displayed in r3677[1].

**Dependency:**

Refer to: p3676

**Note:**

Prerequisites:

The filter capacitance monitoring is activated.

**r7322[0...n]**

A\_INF (Parallel)

**Par\_circuit VSM line filter capacitance phase W**

Can be changed: -

Access level: 4

Data type: Floating Point	Data set: -	Function diagram: -
P-Group: Closed-loop control	Units group: CAPACITY_M6	Unit selection: -
Min	Max	Factory setting
- [µF]	- [µF]	- [µF]

**Description:**

Displays the capacitance of the line filter, phase W of the particular voltage sensing module (VSM).

The average value of all VSM is displayed in r3677[2].

**Dependency:**

Refer to: p3676

**Note:**

Prerequisites:

The filter capacitance monitoring is activated.

**p7820**

CU\_I

**Component ID of access to SAC parameter**

Can be changed: U, T

Access level: 4

Data type: Unsigned16	Data set: -	Function diagram: -
P-Group: -	Units group: -	Unit selection: -
Min	Max	Factory setting
0	65535	0

**Description:**

Reserved for internal Siemens service.

---

<b>p7821</b>	<b>ParameterID of access to SAC parameter</b>		
CU_I	Can be changed: U, T		Access level: 4
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	65535	0

**Description:**

Reserved for internal Siemens service.

---

<b>p7822</b>	<b>Parameter index for access to SAC parameter</b>		
CU_I	Can be changed: U, T		Access level: 4
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	65535	0

**Description:**

Reserved for internal Siemens service.

---

<b>r7823</b>	<b>Read value</b>		
CU_I	Can be changed: -		Access level: 4
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Reserved for internal Siemens service.

---

<b>p7828</b>	<b>Firmware download component number</b>		
CU_I	Can be changed: U, T		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	399	0

**Description:**

Component number of the DRIVE-CLiQ component for which a firmware download is to be made.

**Dependency:**

Refer to: p0121, p0141, p7829

**Note:**

For p7828 = 399, the firmware for all of the known components is downloaded.  
The firmware download is started with p7829 = 1.

<b>p7829</b>	<b>Activate firmware download</b>		
CU_I	Can be changed: U, T		Access level: 3
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	999	0

**Description:**

Activating the firmware download for the DRIVE-CLiQ components specified in p7828.

- 1: Activate download
- 0: Download successfully completed
- > 1: Fault code
- 011: DRIVE-CLiQ component has detected a checksum error.
- 015: The selected DRIVE-CLiQ components did not accept the contents of the firmware file.
- 101: After several communication attempts, not response from the DRIVE-CLiQ component.
- 140: Firmware file for the DRIVE-CLiQ component not available on the CompactFlash Card.
- 143: Component is not changed in the firmware download mode.
- 156: Component with the specified component number is not available.

Additional values:  
Only for internal Siemens troubleshooting.

**Dependency:**

Refer to: p7828

**Note:**

p7829 is automatically set to 0 after the firmware has been successfully downloaded.  
The new firmware only becomes active at the next system run-up.

<b>p7830</b>	<b>Diagnostics telegram selection</b>
--------------	---------------------------------------

SERVO	Can be changed: T		Access level: 4
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	3	0

**Description:**

Selects a telegram whose contents should be shown in p7831 ... p7836.

**Values:**

- 0: Reserved
- 1: First cyclic receive telegram, sensor 1
- 2: First cyclic receive telegram, sensor 2
- 3: First cyclic receive telegram, sensor 3

**Dependency:**

Refer to: r7831, r7832, r7833, r7834, r7835, r7836

---

**r7831[0...15] Telegram diagnostics signals**

SERVO	Can be changed: -		Access level: 4
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Indicates the signals contained in the selected telegram (P7830).

**Values:**

- 0: UNUSED
- 1: UNKNOWN
- 102: SAPAR\_ID\_DSA\_ALARM
- 110: SAPAR\_ALARMBITS\_FLOAT\_0
- 111: SAPAR\_ALARMBITS\_FLOAT\_1
- 112: SAPAR\_ALARMBITS\_FLOAT\_2
- 113: SAPAR\_ALARMBITS\_FLOAT\_3
- 114: SAPAR\_ALARMBITS\_FLOAT\_4
- 115: SAPAR\_ALARMBITS\_FLOAT\_5
- 10500: ENC\_ID\_TIME\_PRETRIGGER
- 10501: ENC\_ID\_TIME\_SEND\_TELEG\_1
- 10502: ENC\_ID\_TIME\_CYCLE\_FINISHED
- 10503: ENC\_ID\_TIME\_DELTA\_FUNMAN
- 10504: ENC\_ID\_SUBTRACE\_CALCTIMES
- 10505: ENC\_ID\_SYNO\_PERIOD
- 10516: ENC\_ID\_ADC\_TRACK\_A
- 10517: ENC\_ID\_ADC\_TRACK\_B

10518: ENC\_ID\_ADC\_TRACK\_C  
10519: ENC\_ID\_ADC\_TRACK\_D  
10520: ENC\_ID\_ADC\_TRACK\_A\_SAFETY  
10521: ENC\_ID\_ADC\_TRACK\_B\_SAFETY  
10523: ENC\_ID\_ADC\_TEMP\_1  
10532: ENC\_ID\_TRACK\_AB\_X  
10533: ENC\_ID\_TRACK\_AB\_Y  
10534: ENC\_ID\_OFFSET\_CORR\_AB\_X  
10535: ENC\_ID\_OFFSET\_CORR\_AB\_Y  
10536: ENC\_ID\_AB\_ABS\_VALUE  
10537: ENC\_ID\_TRACK\_CD\_X  
10538: ENC\_ID\_TRACK\_CD\_Y  
10539: ENC\_ID\_TRACK\_CD\_ABS  
10542: ENC\_ID\_AB\_RAND\_X  
10543: ENC\_ID\_AB\_RAND\_Y  
10544: ENC\_ID\_AB\_RAND\_ABS\_VALUE  
10545: ENC\_ID\_SUBTRACE\_ABS\_ARRAY  
10546: ENC\_ID\_PROC\_OFFSET\_0  
10547: ENC\_ID\_PROC\_OFFSET\_4  
10564: ENC\_SELFTEMP\_ACT  
10565: ENC\_ID\_MOTOR\_TEMP\_TOP  
10566: ENC\_ID\_MOTOR\_TEMP\_1  
10580: ENC\_ID\_RESISTANCE\_1  
10596: ENC\_ID\_AB\_ANGLE  
10597: ENC\_ID\_CD\_ANGLE  
10598: ENC\_ID\_MECH\_ANGLE\_HI  
10599: ENC\_ID\_RM\_POS\_PHI\_COMMU  
10600: ENC\_ID\_PHI\_COMMU  
10612: ENC\_ID\_DIFF\_CD\_INC  
10613: ENC\_ID\_RM\_POS\_PHI\_COMMU\_RFG  
10628: ENC\_ID\_MECH\_ANGLE  
10629: ENC\_ID\_MECH\_RM\_POS  
10644: ENC\_ID\_INIT\_VECTOR  
10645: FEAT\_INIT\_VЕКТОР  
10660: ENC\_ID\_SENSOR\_STATE  
10661: ENC\_ID\_BASIC\_SYSTEM  
10662: ENC\_ID\_REFMARK\_STATUS  
10663: ENC\_ID\_DSA\_STATUS1\_SENSOR  
10664: ENC\_ID\_DSA\_RMSTAT\_HANDSHAKE  
10665: ENC\_ID\_DSA\_CONTROL1\_SENSOR  
10676: ENC\_ID\_COUNTCORR\_SAW\_VALUE  
10677: ENC\_ID\_COUNTCORR\_ABS\_VALUE  
10678: ENC\_ID\_SAWTOOTH\_CORR  
10692: ENC\_ID\_RESISTANCE\_CALIB\_INSTANT  
10693: ENC\_ID\_SERPROT\_POS

10724: ENC\_ID\_ACT\_FUNMAN\_FUNCTION  
10725: ENC\_ID\_SAFETY\_COUNTER\_CRC  
10740: ENC\_ID\_POS\_ABSOLUTE  
10741: ENC\_ID\_POS\_REFMARK  
10742: ENC\_ID\_SAWTOOTH  
10743: ENC\_ID\_SAFETY\_PULSE\_COUNTER  
10756: ENC\_ID\_DSA\_ACTUAL\_SPEED  
10772: ENC\_ID\_DSA\_POS\_XIST1  
10788: ENC\_ID\_AB\_CROSS\_CORR  
10789: ENC\_ID\_AB\_GAIN\_Y\_CORR

**Index:**

[0] =  
[1] =  
[2] =  
[3] =  
[4] =  
[5] =  
[6] =  
[7] =  
[8] =  
[9] =  
[10] =  
[11] =  
[12] =  
[13] =  
[14] =  
[15] =

**r7832[0...15]**

**Telegram diagnostics numerical format**

SERVO

Can be changed: -

Access level: 4

Data type: Integer16

Data set: -

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Indicates the original numerical format of the signals contained in the telegram.

The associated signal number is represented at the appropriate index in r7831.

**Values:**

-1: Unknown  
0: Boolean  
1: Signed 1 byte  
2: Signed 2 byte  
3: Signed 4 byte

- 4: Signed 8 byte
- 5: Unsigned 1 byte
- 6: Unsigned 2 byte
- 7: Unsigned 4 byte
- 8: Unsigned 8 byte
- 9: Float 4 byte
- 10: Double 8 byte
- 11: mm dd yy HH MM SS MS DOW
- 12: ASCII string
- 13: SIMUMERIK frame type
- 14: SIMUMERIK axis type

**Index:**

- [0] =
- [1] =
- [2] =
- [3] =
- [4] =
- [5] =
- [6] =
- [7] =
- [8] =
- [9] =
- [10] =
- [11] =
- [12] =
- [13] =
- [14] =
- [15] =

**r7833[0...15]****Telegram diagnostics unsigned**

SERVO

Can be changed: -

Access level: 4

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Parameter to display a DSA signal in the unsigned-integer format.

The associated signal number is represented at the appropriate index in r7831.

**Index:**

- [0] =
- [1] =
- [2] =
- [3] =



[4] =  
[5] =  
[6] =  
[7] =  
[8] =  
[9] =  
[10] =  
[11] =  
[12] =  
[13] =  
[14] =  
[15] =

#### r7834[0...15]

#### Telegram diagnostics signed

SERVO

Can be changed: -

Access level: 4

Data type: Integer32

Data set: -

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

#### Description:

Parameter to display a DSA signal in the signed-integer format.

The associated signal number is represented at the appropriate index in r7831.

#### Index:

[0] =  
[1] =  
[2] =  
[3] =  
[4] =  
[5] =  
[6] =  
[7] =  
[8] =  
[9] =  
[10] =  
[11] =  
[12] =  
[13] =  
[14] =  
[15] =

#### r7835[0...15]

#### Telegram diagnostics real

SERVO

Can be changed: -

Access level: 4

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: -	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	-

**Description:**

Parameter to display a DSA signal in the float format.

The associated signal number is represented at the appropriate index in r7831.

**Index:**

[0] =  
[1] =  
[2] =  
[3] =  
[4] =  
[5] =  
[6] =  
[7] =  
[8] =  
[9] =  
[10] =  
[11] =  
[12] =  
[13] =  
[14] =  
[15] =

**r7836[0...15]****Telegram diagnostics unit**

SERVO

Can be changed: -	Access level: 4
Data type: Integer16	Function diagram: -
P-Group: -	Unit selection: -
Min	Factory setting
-	-

**Description:**

Parameter to display the units of a DSA signal.

The associated signal number is represented at the appropriate index in r7831.

**Values:**

-1: Unknown  
0: None  
1: Millimeter or degrees  
2: Millimeter  
3: Degrees  
4: mm/min or RPM  
5: Millimeter / min

6:	Revolutions / min
7:	m/sec <sup>2</sup> or V/sec <sup>2</sup>
8:	m/sec <sup>2</sup>
9:	V/sec <sup>2</sup>
10:	m/sec <sup>3</sup> or V/sec <sup>3</sup>
11:	m/sec <sup>3</sup>
12:	V/sec <sup>3</sup>
13:	Sec
14:	16.667 / sec
15:	mm / rev
16:	ACX_UNIT_COMPENSATION_CORR
18:	Newton
19:	Kilogram
20:	Kilogram meter <sup>2</sup>
21:	Percent
22:	Hertz
23:	Volt peak-to-peak
24:	Amps, peak-to-peak
25:	Degrees Celsius
26:	Degrees
28:	Millimeter or degrees
29:	Meters / minute
30:	Meters / second
31:	Ohm
32:	Millihenry
33:	Newton meter
34:	Newton meter / Amps
35:	Volt / Amp
36:	Newton meter second / rad
38:	31.25 microseconds
39:	Microseconds
40:	Milliseconds
42:	Kilowatt
43:	Micro amps peak-to-peak
44:	Volt seconds
45:	Microvolt seconds
46:	Micro Newton meter
47:	Amps / Volt seconds
48:	Per mille
49:	Hertz / second
53:	Micrometer or millidegrees
54:	Micrometer
55:	Millidegrees
59:	Nanometer
61:	Newton/Amps

62:	Volt seconds / meter
63:	Newton seconds / meter
64:	Micronewton
65:	Liters / minute
66:	Bar
67:	Cubic centimeters
68:	Millimeters / Volt minute
69:	Newton/Volt
80:	Millivolts, peak-to-peak
81:	Volt rms
82:	Millivolts, rms
83:	Amps rms
84:	Micro amps, rms
85:	Micrometers / revolution
90:	Tenths of a second
91:	Hundredths of a second
92:	10 microseconds
93:	Pulses
94:	256 pulses
95:	Tenth of a pulse
96:	Revolutions
97:	100 revolutions / minute
98:	10 revolutions / minute
99:	0.1 revolutions / minute
100:	Thousandth revolution / minute
101:	Pulses / second
102:	100 pulses / second
103:	10 revolutions / (minute * second)
104:	10000 pulses/second^2
105:	0.1 Hertz
106:	0.01 Hertz
107:	0.1 / seconds
108:	Factor 0.1
109:	Factor 0.01
110:	Factor 0.001
111:	Factor 0.0001
112:	0.1 Volt peak-to-peak
113:	0.1 Volt peak-to-peak
114:	0.1 amps, peak-to-peak
115:	Watt
116:	100 Watt
117:	10 Watt
118:	0.01 percent
119:	1 / second ^3
120:	0.01 percent/millisecond

121: Pulses / revolution  
122: Microfarads  
123: Milliohm  
124: 0.01 Newton meter  
125: Kilogram millimeter ^2  
126: Rad / (seconds newton meter)  
127: Henry  
128: Kelvin  
129: Hours  
130: Kilohertz  
131: Milliampere, peak-to-peak  
132: Millifarads  
133: Meter  
135: Kilowatt hours  
136: Percent  
137: Amps / Volt  
138: Volt  
139: Millivolts  
140: Microvolts  
141: Amps  
142: Milliampere  
143: Micro amp  
144: Milliampere, rms  
145: Millimeter  
146: Nanometer  
147: Joules

**Index:**

[0] =  
[1] =  
[2] =  
[3] =  
[4] =  
[5] =  
[6] =  
[7] =  
[8] =  
[9] =  
[10] =  
[11] =  
[12] =  
[13] =  
[14] =  
[15] =

---

**r7843[0...20]      CompactFlash Card serial number**

CU_I	Can be changed: -		Access level: 1
	Data type: Unsigned8	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the actual serial number of the CompactFlash Card.

---

**r7850[0...15]      Status, drive object: Not ready for oper./ready for operation**

CU_I	Can be changed: -		Access level: 4
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Indicates, whether for an activated drive object, all activated topology components are available or not (or these can be addressed).

0: Drive object not ready for operation

1: Drive object is ready for operation

---

**p7852      Number of indices for r7853**

CU_I	Can be changed: U, T		Access level: 4
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	1	200	1

**Description:**

Displays the number of indices for r7853[0...n].

This corresponds to the number of DRIVE-CLiQ components that are assigned the drive object in the target topology.

**Dependency:**

Refer to: r7853

---

**r7853[0...n]      Component available/not available**

CU_I	Can be changed: -		Access level: 4
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting

**Description:**

Displays the component and whether this component is currently present.

High byte: Component number

Low byte: 0/1 (not available/available)

**Dependency:**

Refer to: p7852

**r7901[0...19]**

**Time slice cycle times**

CU_I	Can be changed: -	Access level: 4
	Data type: Floating Point	Data set: -
	P-Group: -	Function diagram: -
	Units group: TIME_M6	Unit selection: -
	Min	Max
	- [µs]	- [µs]
		Factory setting
		- [µs]

**Description:**

Displays the actual cycle times for all existing time slices.

For r7901[x] = 0, the following applies: The time slice is not active.

**p8550**

**AOP LOCAL/REMOTE**

CU_I	Can be changed: U, T	Access level: 4
	Data type: Unsigned32	Data set: -
	P-Group: -	Function diagram: -
	Units group: -	Unit selection: -
	Min	Max
	0000 bin	1111 1111 1111 1111 1111 1111 0100 1001 bin
		1111 1111 bin

**Description:**

Is used to save the current configuration of the Advanced Operator Panels (AOP).

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	LOCAL save	No	Yes	-
	01	Start in LOCAL	No	Yes	-
	02	Change in oper.	No	Yes	-
	03	OFF acts like OFF2	No	Yes	-
	04	OFF acts like OFF2	No	Yes	-
	05	OFF acts like OFF3	No	Yes	-
	07	CW/CCW active	No	Yes	-
	08	Jog active	No	Yes	-
	09	Save speed setpoint	No	Yes	-
	14	Inhibit operation	No	Yes	-

15	Inhibit parameters	No	Yes	-
----	--------------------	----	-----	---

**r8570[0...9]****Macro drive unit**

CU\_I

Can be changed: -

Access level: 1

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the ACX file saved in the appropriate directory of the CompactFlash Card.

**Dependency:**

Refer to: p0015

**r8570[0...9]****Macro drive object**

A\_INF, SERVO

Can be changed: -

Access level: 1

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the ACX file saved in the appropriate directory of the CompactFlash Card.

**Dependency:**

Refer to: p0015

**r8571[0...9]****Macro binector input (BI)**

A\_INF, SERVO

Can be changed: -

Access level: 1

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the ACX file saved in the appropriate directory of the CompactFlash Card.

**Dependency:**

Refer to: p0700

**r8572[0...9]****Macro connector inputs (CI) for speed setpoints**

A\_INF, SERVO

Can be changed: -

Access level: 1

Data type: Unsigned32

Data set: -

Function diagram: -



P-Group: -	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	-

**Description:**

Displays the ACX file saved in the appropriate directory of the CompactFlash Card.

**Dependency:**

Refer to: p1000

---

<b>r8573[0...9]</b>	<b>Macro connector inputs (CI) for torque setpoints</b>	
A_INF, SERVO	Can be changed: -	Access level: 1
	Data type: Unsigned32	Data set: -
	P-Group: -	Units group: -
	Min	Max
	-	-
		Function diagram: -
		Unit selection: -
		Factory setting
		-

**Description:**

Displays the ACX file saved in the appropriate directory of the CompactFlash Card.

**Dependency:**

Refer to: p1500

---

<b>p8641</b>	<b>CBC abort connection option code</b>	
SERVO (CAN)	Can be changed: T	Access level: 3
	Data type: Integer16	Data set: -
	P-Group: -	Units group: -
	Min	Max
	0	3
		Function diagram: -
		Unit selection: -
		Factory setting
		3

**Description:**

Sets the drive behavior if a CAN communication error occurs.

**Values:**

- 0: No response
- 1: OFF1
- 2: OFF2
- 3: OFF3

**Dependency:**

Refer to: F08700

---

<b>p8700[0...1]</b>	<b>CBC receive PDO 1</b>	
SERVO (CAN)	Can be changed: C1(3), T	Access level: 3
	Data type: Unsigned32	Data set: -
	P-Group: Communications	Units group: -
		Function diagram: 9204, 9206
		Unit selection: -

Min	Max	Factory setting
0000 hex	8000 06DF hex	[0] 8000 06DF hex
		[1] 00FE hex

**Description:**

Sets the communication parameters for CANopen receive process data object 1 (RPDO 1).

**Index:**

[0] = PDO COB-ID

[1] = PDO transmission type

**Dependency:**

A valid COB-ID can only be set for the available (existing) channel.

**Note:**

Corresponds to the CANopen object 1400 hex + 40 hex \* x (x: drive number 0 ... 7).

Transmission types 0, 1, FE and FF can be set.

PDO: Process data object

**p8701[0...1]****CBC receive PDO 2**

SERVO (CAN)

Can be changed: C1(3), T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 9204, 9206

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 hex

8000 06DF hex

[0] 8000 06DF hex

[1] 00FE hex

**Description:**

Sets the communication parameters for CANopen receive process data object 2 (RPDO 2).

**Index:**

[0] = PDO COB-ID

[1] = PDO transmission type

**Dependency:**

A valid COB-ID can only be set for the available (existing) channel.

**Note:**

Corresponds to the CANopen object 1401 hex + 40 hex \* x (x: drive number 0 ... 7).

Transmission types 0, 1, FE and FF can be set.

PDO: Process data object

**p8702[0...1]****CBC receive PDO 3**

SERVO (CAN)

Can be changed: C1(3), T

Access level: 3

Data type: Unsigned32	Data set: -	Function diagram: 9204, 9206
P-Group: Communications	Units group: -	Unit selection: -
Min	Max	Factory setting
0000 hex	8000 06DF hex	[0] 8000 06DF hex
		[1] 00FE hex

**Description:**

Sets the communication parameters for CANopen receive process data object 3 (RPDO 3).

**Index:**

[0] = PDO COB-ID  
[1] = PDO transmission type

**Dependency:**

A valid COB-ID can only be set for the available (existing) channel.

**Note:**

Corresponds to the CANopen object 1402 hex + 40 hex \* x (x: drive number 0 ... 7).

Transmission types 0, 1, FE and FF can be set.

PDO: Process data object

**p8703[0...1]**

**CBC receive PDO 4**

SERVO (CAN)

Can be changed: C1(3), T

Access level: 3

Data type: Unsigned32	Data set: -	Function diagram: 9204, 9206
P-Group: Communications	Units group: -	Unit selection: -
Min	Max	Factory setting
0000 hex	8000 06DF hex	[0] 8000 06DF hex
		[1] 00FE hex

**Description:**

Sets the communication parameters for CANopen receive process data object 4 (RPDO 4).

**Index:**

[0] = PDO COB-ID  
[1] = PDO transmission type

**Dependency:**

A valid COB-ID can only be set for the available (existing) channel.

**Note:**

Corresponds to the CANopen object 1403 hex + 40 hex \* x (x: drive number 0 ... 7).

Transmission types 0, 1, FE and FF can be set.

PDO: Process data object

**p8704[0...1]****CBC receive PDO 5**

SERVO (CAN)

Can be changed: C1(3), T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 9204

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 hex

8000 06DF hex

[0] 8000 06DF hex

[1] 00FE hex

**Description:**

Sets the communication parameters for CANopen receive process data object 5 (RPDO 5).

**Index:**

[0] = PDO COB-ID

[1] = PDO transmission type

**Dependency:**

A valid COB-ID can only be set for the available (existing) channel.

**Note:**

Corresponds to the CANopen object 1404 hex + 40 hex \* x (x: drive number 0 ... 7).

Transmission types 0, 1, FE and FF can be set.

PDO: Process data object

**p8705[0...1]****CBC receive PDO 6**

SERVO (CAN)

Can be changed: C1(3), T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 9204

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 hex

8000 06DF hex

[0] 8000 06DF hex

[1] 00FE hex

**Description:**

Sets the communication parameters for CANopen receive process data object 6 (RPDO 6).

**Index:**

[0] = PDO COB-ID

[1] = PDO transmission type

**Dependency:**

A valid COB-ID can only be set for the available (existing) channel.

**Note:**

Corresponds to the CANopen object 1405 hex + 40 hex \* x (x: drive number 0 ... 7).

Transmission types 0, 1, FE and FF can be set.

PDO: Process data object

---

<b>p8706[0...1]</b>	<b>CBC receive PDO 7</b>	
SERVO (CAN)	Can be changed: C1(3), T	Access level: 3
	Data type: Unsigned32	Data set: -
	P-Group: Communications	Units group: -
	Min	Max
	0000 hex	8000 06DF hex
		[0] 8000 06DF hex
		[1] 00FE hex

**Description:**

Sets the communication parameters for CANopen receive process data object 7 (RPDO 7).

**Index:**

[0] = PDO COB-ID

[1] = PDO transmission type

**Dependency:**

A valid COB-ID can only be set for the available (existing) channel.

**Note:**

Corresponds to the CANopen object 1406 hex + 40 hex \* x (x: drive number 0 ... 7).

Transmission types 0, 1, FE and FF can be set.

PDO: Process data object

---

<b>p8707[0...1]</b>	<b>CBC receive PDO 8</b>	
SERVO (CAN)	Can be changed: C1(3), T	Access level: 3
	Data type: Unsigned32	Data set: -
	P-Group: Communications	Units group: -
	Min	Max
	0000 hex	8000 06DF hex
		[0] 8000 06DF hex
		[1] 00FE hex

**Description:**

Sets the communication parameters for CANopen receive process data object 8 (RPDO 8).

**Index:**

[0] = PDO COB-ID

[1] = PDO transmission type

**Dependency:**

A valid COB-ID can only be set for the available (existing) channel.

**Note:**

Corresponds to the CANopen object 1407 hex + 40 hex \* x (x: drive number 0 ... 7).

Transmission types 0, 1, FE and FF can be set.

PDO: Process data object

**p8710[0...3]****CBC receive mapping for RPDO 1**

SERVO (CAN)

Can be changed: C1(3), T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 9204, 9206

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 hex

FFFF FFFF hex

0000 hex

**Description:**

Sets the mapping parameters for CANopen receive process data object 1 (RPDO 1).

**Index:**

[0] = Mapped object 1

[1] = Mapped object 2

[2] = Mapped object 3

[3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1600 hex + 40 hex \* x (x: drive number 0 ... 7).

Dummy mapping not supported.

**p8711[0...3]****CBC receive mapping for RPDO 2**

SERVO (CAN)

Can be changed: C1(3), T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 9204, 9206

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 hex

FFFF FFFF hex

0000 hex

**Description:**

Sets the mapping parameters for CANopen receive process data object 2 (RPDO 2).

**Index:**

[0] = Mapped object 1

[1] = Mapped object 2

[2] = Mapped object 3

[3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1601 hex + 40 hex \* x (x: drive number 0 ... 7).

Dummy mapping not supported.

## 3.5 Parameters p8712 to r9976

---

<b>p8712[0...3]</b>	<b>CBC receive mapping for RPDO 3</b>		
SERVO (CAN)	Can be changed: C1(3), T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 9204, 9206
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0000 hex

**Description:**

Sets the mapping parameters for CANopen receive process data object 3 (RPDO 3).

**Index:**

[0] = Mapped object 1

[1] = Mapped object 2

[2] = Mapped object 3

[3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1602 hex + 40 hex \* x (x: drive number 0 ... 7).

Dummy mapping not supported.

---

<b>p8713[0...3]</b>	<b>CBC receive mapping for RPDO 4</b>		
SERVO (CAN)	Can be changed: C1(3), T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 9204, 9206
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0000 hex

**Description:**

Sets the mapping parameters for CANopen receive process data object 4 (RPDO 4).

**Index:**

[0] = Mapped object 1

[1] = Mapped object 2

[2] = Mapped object 3

[3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1603 hex + 40 hex \* x (x: drive number 0 ... 7).

Dummy mapping not supported.

---

**p8714[0...3] CBC receive mapping for RPDO 5**

SERVO (CAN)	Can be changed: C1(3), T	Access level: 3
	Data type: Unsigned32	Data set: -
	P-Group: Communications	Function diagram: 9204
	Min	Unit selection: -
	Max	Factory setting
	0000 hex	FFFF FFFF hex
		0000 hex

**Description:**

Sets the mapping parameters for CANopen receive process data object 5 (RPDO 5).

**Index:**

[0] = Mapped object 1

[1] = Mapped object 2

[2] = Mapped object 3

[3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1604 hex + 40 hex \* x (x: drive number 0 ... 7).

Dummy mapping not supported.

---

**p8715[0...3] CBC receive mapping for RPDO 6**

SERVO (CAN)	Can be changed: C1(3), T	Access level: 3
	Data type: Unsigned32	Data set: -
	P-Group: Communications	Function diagram: 9204
	Min	Unit selection: -
	Max	Factory setting
	0000 hex	FFFF FFFF hex
		0000 hex

**Description:**

Sets the mapping parameters for CANopen receive process data object 6 (RPDO 6).

**Index:**

[0] = Mapped object 1

[1] = Mapped object 2

[2] = Mapped object 3

[3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1605 hex + 40 hex \* x (x: drive number 0 ... 7).

Dummy mapping not supported.

---

**p8716[0...3] CBC receive mapping for RPDO 7**

SERVO (CAN)	Can be changed: C1(3), T	Access level: 3
	Data type: Unsigned32	Data set: -
		Function diagram: 9204



P-Group: Communications	Units group: -	Unit selection: -
Min	Max	Factory setting
0000 hex	FFFF FFFF hex	0000 hex

**Description:**

Sets the mapping parameters for CANopen receive process data object 7 (RPDO 7).

**Index:**

- [0] = Mapped object 1
- [1] = Mapped object 2
- [2] = Mapped object 3
- [3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1606 hex + 40 hex \* x (x: drive number 0 ... 7).  
Dummy mapping not supported.

---

<b>p8717[0...3]</b>	<b>CBC receive mapping for RPDO 8</b>	
SERVO (CAN)	Can be changed: C1(3), T	Access level: 3
	Data type: Unsigned32	Data set: -
	P-Group: Communications	Units group: -
	Min	Max
	0000 hex	FFFF FFFF hex
		Function diagram: 9204
		Unit selection: -
		Factory setting
		0000 hex

**Description:**

Sets the mapping parameters for CANopen receive process data object 8 (RPDO 8).

**Index:**

- [0] = Mapped object 1
- [1] = Mapped object 2
- [2] = Mapped object 3
- [3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1607 hex + 40 hex \* x (x: drive number 0 ... 7).  
Dummy mapping not supported.

---

<b>p8720[0...4]</b>	<b>CBC transmit PDO 1</b>	
SERVO (CAN)	Can be changed: C1(3), T	Access level: 3
	Data type: Unsigned32	Data set: -
	P-Group: Communications	Units group: -
	Min	Max
	0000 hex	C000 06DF hex
		Function diagram: 9208, 9210
		Unit selection: -
		Factory setting
		[0] C000 06DF hex
		[1] 00FE hex

- [2] 0000 hex
- [3] 0000 hex
- [4] 0000 hex

**Description:**  
Sets the communication parameters for CANopen transmit process data object 1 (TPDO 1).

**Index:**  
[0] = PDO COB-ID  
[1] = PDO transmission type  
[2] = Inhibit time (in 100 µs)  
[3] = Reserved  
[4] = Event timer (in ms)

**Dependency:**  
A valid COB-ID can only be set for the available (existing) channel.

**Notice:**  
For inhibit time and even timer, the following apply:  
A value that is not a multiple integer of CANopen (4 ms) is rounded-off.

**Note:**  
Corresponds to the CANopen object 1800 hex + 40 hex \* x (x: drive number 0 ... 7).  
Transmission types 0, 1 ... F0, FE and FF can be set.  
PDO: Process data object

<b>p8721[0...4] CBC transmit PDO 2</b>		
SERVO (CAN)	Can be changed: C1(3), T	Access level: 3
	Data type: Unsigned32	Function diagram: 9208, 9210
	P-Group: Communications	Unit selection: -
	Min	Factory setting
	0000 hex	[0] C000 06DF hex
		[1] 00FE hex
		[2] 0000 hex
		[3] 0000 hex
		[4] 0000 hex

**Description:**  
Sets the communication parameters for CANopen transmit process data object 2 (TPDO 2).

**Index:**  
[0] = PDO COB-ID  
[1] = PDO transmission type  
[2] = Inhibit time (in 100 µs)

- [3] = Reserved
- [4] = Event timer (in ms)

**Dependency:**

A valid COB-ID can only be set for the available (existing) channel.

**Notice:**

For inhibit time and even timer, the following apply:  
A value that is not a multiple integer of CANopen (4 ms) is rounded-off.

**Note:**

Corresponds to the CANopen object 1801 hex + 40 hex \* x (x: drive number 0 ... 7).  
Transmission types 0, 1 ... F0, FE and FF can be set.  
PDO: Process data object

p8722[0...4]	CBC transmit PDO 3		
SERVO (CAN)	Can be changed: C1(3), T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 9208, 9210
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 hex	C000 06DF hex	[0] C000 06DF hex
			[1] 00FE hex
			[2] 0000 hex
			[3] 0000 hex
			[4] 0000 hex

**Description:**

Sets the communication parameters for CANopen transmit process data object 3 (TPDO 3).

**Index:**

- [0] = PDO COB-ID
- [1] = PDO transmission type
- [2] = Inhibit time (in 100 µs)
- [3] = Reserved
- [4] = Event timer (in ms)

**Dependency:**

A valid COB-ID can only be set for the available (existing) channel.

**Notice:**

For inhibit time and even timer, the following apply:  
A value that is not a multiple integer of CANopen (4 ms) is rounded-off.

**Note:**

Corresponds to the CANopen object 1802 hex + 40 hex \* x (x: drive number 0 ... 7).

Transmission types 0, 1 ... F0, FE and FF can be set.

PDO: Process data object

---

<b>p8723[0...4]</b>	<b>CBC transmit PDO 4</b>	
SERVO (CAN)	Can be changed: C1(3), T	Access level: 3
	Data type: Unsigned32	Data set: -
	P-Group: Communications	Units group: -
	Min	Max
	0000 hex	C000 06DF hex
		[0] C000 06DF hex
		[1] 00FE hex
		[2] 0000 hex
		[3] 0000 hex
		[4] 0000 hex

**Description:**

Sets the communication parameters for CANopen transmit process data object 4 (TPDO 4).

**Index:**

- [0] = PDO COB-ID
- [1] = PDO transmission type
- [2] = Inhibit time (in 100 µs)
- [3] = Reserved
- [4] = Event timer (in ms)

**Dependency:**

A valid COB-ID can only be set for the available (existing) channel.

**Notice:**

For inhibit time and even timer, the following apply:

A value that is not a multiple integer of CANopen (4 ms) is rounded-off.

**Note:**

Corresponds to the CANopen object 1803 hex + 40 hex \* x (x: drive number 0 ... 7).

Transmission types 0, 1 ... F0, FE and FF can be set.

PDO: Process data object

---

<b>p8724[0...4]</b>	<b>CBC transmit PDO 5</b>	
SERVO (CAN)	Can be changed: C1(3), T	Access level: 3
	Data type: Unsigned32	Data set: -
	P-Group: Communications	Units group: -
	Min	Max
	0000 hex	C000 06DF hex
		[0] C000 06DF hex
		Function diagram: 9208
		Unit selection: -
		Factory setting

- [1] 00FE hex
- [2] 0000 hex
- [3] 0000 hex
- [4] 0000 hex

**Description:**

Sets the communication parameters for CANopen transmit process data object 5 (TPDO 5).

**Index:**

- [0] = PDO COB-ID
- [1] = PDO transmission type
- [2] = Inhibit time (in 100 µs)
- [3] = Reserved
- [4] = Event timer (in ms)

**Dependency:**

A valid COB-ID can only be set for the available (existing) channel.

**Notice:**

For inhibit time and even timer, the following apply:  
A value that is not a multiple integer of CANopen (4 ms) is rounded-off.

**Note:**

Corresponds to the CANopen object 1804 hex + 40 hex \* x (x: drive number 0 ... 7).  
Transmission types 0, 1 ... F0, FE and FF can be set.  
PDO: Process data object

p8725[0...4] SERVO (CAN)	CBC transmit PDO 6		
	Can be changed: C1(3), T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 9208
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 hex	C000 06DF hex	[0] C000 06DF hex
			[1] 00FE hex
			[2] 0000 hex
			[3] 0000 hex
			[4] 0000 hex

**Description:**

Sets the communication parameters for CANopen transmit process data object 6 (TPDO 6).

**Index:**

- [0] = PDO COB-ID
- [1] = PDO transmission type

[2] = Inhibit time (in 100 µs)

[3] = Reserved

[4] = Event timer (in ms)

**Dependency:**

A valid COB-ID can only be set for the available (existing) channel.

**Notice:**

For inhibit time and even timer, the following apply:

A value that is not a multiple integer of CANopen (4 ms) is rounded-off.

**Note:**

Corresponds to the CANopen object 1805 hex + 40 hex \* x (x: drive number 0 ... 7).

Transmission types 0, 1 ... F0, FE and FF can be set.

PDO: Process data object

**p8726[0...4]**

SERVO (CAN)

**CBC transmit PDO 7**

Can be changed: C1(3), T

Data type: Unsigned32

P-Group: Communications

Min

0000 hex

Data set: -

Units group: -

Max

C000 06DF hex

Access level: 3

Function diagram: 9208

Unit selection: -

Factory setting

[0] C000 06DF hex

[1] 00FE hex

[2] 0000 hex

[3] 0000 hex

[4] 0000 hex

**Description:**

Sets the communication parameters for CANopen transmit process data object 7 (TPDO 7).

**Index:**

[0] = PDO COB-ID

[1] = PDO transmission type

[2] = Inhibit time (in 100 µs)

[3] = Reserved

[4] = Event timer (in ms)

**Dependency:**

A valid COB-ID can only be set for the available (existing) channel.

**Notice:**

For inhibit time and even timer, the following apply:

A value that is not a multiple integer of CANopen (4 ms) is rounded-off.

**Note:**

Corresponds to the CANopen object 1806 hex + 40 hex \* x (x: drive number 0 ... 7).

Transmission types 0, 1 ... F0, FE and FF can be set.

PDO: Process data object

<b>p8727[0...4]</b>	<b>CBC transmit PDO 8</b>	
SERVO (CAN)	Can be changed: C1(3), T	Access level: 3
	Data type: Unsigned32	Data set: -
	P-Group: Communications	Units group: -
	Min	Max
	0000 hex	C000 06DF hex
		Function diagram: 9208
		Unit selection: -
		Factory setting
		[0] C000 06DF hex
		[1] 00FE hex
		[2] 0000 hex
		[3] 0000 hex
		[4] 0000 hex

**Description:**

Sets the communication parameters for CANopen transmit process data object 8 (TPDO 8).

**Index:**

- [0] = PDO COB-ID
- [1] = PDO transmission type
- [2] = Inhibit time (in 100 µs)
- [3] = Reserved
- [4] = Event timer (in ms)

**Dependency:**

A valid COB-ID can only be set for the available (existing) channel.

**Notice:**

For inhibit time and even timer, the following apply:

A value that is not a multiple integer of CANopen (4 ms) is rounded-off.

**Note:**

Corresponds to the CANopen object 1807 hex + 40 hex \* x (x: drive number 0 ... 7).

Transmission types 0, 1 ... F0, FE and FF can be set.

PDO: Process data object

<b>p8730[0...3]</b>	<b>CBC send mapping for TPDO 1</b>	
SERVO (CAN)	Can be changed: C1(3), T	Access level: 3
	Data type: Unsigned32	Data set: -
	P-Group: Communications	Units group: -
	Min	Max
		Function diagram: 9208, 9210
		Unit selection: -
		Factory setting

0000 hex

FFFF FFFF hex

0000 hex

**Description:**

Sets the mapping parameters for CANopen transmit process data object 1 (TPDO 1).

**Index:**

[0] = Mapped object 1

[1] = Mapped object 2

[2] = Mapped object 3

[3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1A00 hex + 40 hex \* x (x: drive number 0 ... 7).

**p8731[0...3]****CBC send mapping for TPDO 2**

SERVO (CAN)

Can be changed: C1(3), T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 9208, 9210

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 hex

FFFF FFFF hex

0000 hex

**Description:**

Sets the mapping parameters for CANopen transmit process data object 2 (TPDO 2).

**Index:**

[0] = Mapped object 1

[1] = Mapped object 2

[2] = Mapped object 3

[3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1A01 hex + 40 hex \* x (x: drive number 0 ... 7).

**p8732[0...3]****CBC send mapping for TPDO 3**

SERVO (CAN)

Can be changed: C1(3), T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 9208, 9210

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 hex

FFFF FFFF hex

0000 hex

**Description:**

Sets the mapping parameters for CANopen transmit process data object 3 (TPDO 3).

**Index:**

[0] = Mapped object 1



[1] = Mapped object 2  
[2] = Mapped object 3  
[3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1A02 hex + 40 hex \* x (x: drive number 0 ... 7).

---

**p8733[0...3] CBC send mapping for TPDO 4**

SERVO (CAN)	Can be changed: C1(3), T	Access level: 3
	Data type: Unsigned32	Data set: -
	P-Group: Communications	Function diagram: 9208, 9210
	Min	Unit selection: -
	Max	Factory setting
	0000 hex	FFFF FFFF hex
		0000 hex

**Description:**

Sets the mapping parameters for CANopen transmit process data object 4 (TPDO 4).

**Index:**

[0] = Mapped object 1  
[1] = Mapped object 2  
[2] = Mapped object 3  
[3] = Mapped object 4

**Note:**

: drive number 0 ... 7).

---

**p8734[0...3] CBC send mapping for TPDO 5**

SERVO (CAN)	Can be changed: C1(3), T	Access level: 3
	Data type: Unsigned32	Data set: -
	P-Group: Communications	Function diagram: 9208
	Min	Unit selection: -
	Max	Factory setting
	0000 hex	FFFF FFFF hex
		0000 hex

**Description:**

Sets the mapping parameters for CANopen transmit process data object 5 (TPDO 5).

**Index:**

[0] = Mapped object 1  
[1] = Mapped object 2  
[2] = Mapped object 3  
[3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1A04 hex + 40 hex \* x (x: drive number 0 ... 7).

---

**p8735[0...3] CBC send mapping for TPDO 6**

SERVO (CAN)	Can be changed: C1(3), T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 9208
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0000 hex

**Description:**

Sets the mapping parameters for CANopen transmit process data object 6 (TPDO 6).

**Index:**

[0] = Mapped object 1

[1] = Mapped object 2

[2] = Mapped object 3

[3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1A05 hex + 40 hex \* x (x: drive number 0 ... 7).

---

**p8736[0...3] CBC send mapping for TPDO 7**

SERVO (CAN)	Can be changed: C1(3), T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 9208
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0000 hex

**Description:**

Sets the mapping parameters for CANopen transmit process data object 7 (TPDO 7).

**Index:**

[0] = Mapped object 1

[1] = Mapped object 2

[2] = Mapped object 3

[3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1A06 hex + 40 hex \* x (x: drive number 0 ... 7).

---

**p8737[0...3] CBC send mapping for TPDO 8**

SERVO (CAN)	Can be changed: C1(3), T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 9208
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting

0000 hex

FFFF FFFF hex

0000 hex

**Description:**

Sets the mapping parameters for CANopen transmit process data object 8 (TPDO 8).

**Index:**

[0] = Mapped object 1

[1] = Mapped object 2

[2] = Mapped object 3

[3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1A07 hex + 40 hex \* x (x: drive number 0 ... 7).

**p8744**

**CBC PDO mapping configuration**

SERVO (CAN)

Can be changed: C2, T

Access level: 2

Data type: Integer16

Data set: -

Function diagram: 9204, 9206,  
9208, 9210

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

0

2

2

**Description:**

Selector switch for the PDO mapping.

Sets the mapping for download or in the online mode after acknowledging with p8741.

**Values:**

0: Must be set before making changes

1: Predefined Connection Set

2: Free PDO Mapping

**r8750[0...15]**

**CBC mapped 16-bit receive objects**

SERVO (CAN)

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays 16-bit receive CANopen objects mapped to process data buffer.

Example:

The control word is mapped in p8720[0] and p8721[0]; this means that r8750[0] indicates that it is located at the first position (p8850[0]) in the process data buffer.

**Index:**

[0] = PZD 1  
 [1] = PZD 2  
 [2] = PZD 3  
 [3] = PZD 4  
 [4] = PZD 5  
 [5] = PZD 6  
 [6] = PZD 7  
 [7] = PZD 8  
 [8] = PZD 9  
 [9] = PZD 10  
 [10] = PZD 11  
 [11] = PZD 12  
 [12] = PZD 13  
 [13] = PZD 14  
 [14] = PZD 15  
 [15] = PZD 16

**r8751[0...15]****CBC mapped 16-bit transmit objects**

SERVO (CAN)

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays mapped 16-bit transmit CANopen objects in the process data buffer.

**Index:**

[0] = PZD 1  
 [1] = PZD 2  
 [2] = PZD 3  
 [3] = PZD 4  
 [4] = PZD 5  
 [5] = PZD 6  
 [6] = PZD 7  
 [7] = PZD 8  
 [8] = PZD 9  
 [9] = PZD 10  
 [10] = PZD 11  
 [11] = PZD 12  
 [12] = PZD 13  
 [13] = PZD 14  
 [14] = PZD 15  
 [15] = PZD 16

**Dependency:**

Refer to: r8750

---

## **r8760[0...14] CBC mapped 32-bit receive objects**

SERVO (CAN)	Can be changed: -	Access level: 3
	Data type: Unsigned16	Function diagram: -
	P-Group: Communications	Unit selection: -
	Min	Factory setting
	-	-

### **Description:**

Displays 32-bit receive CANopen objects mapped to process data buffer.

### **Index:**

- [0] = PZD 1 + 2
- [1] = PZD 2 + 3
- [2] = PZD 3 + 4
- [3] = PZD 4 + 5
- [4] = PZD 5 + 6
- [5] = PZD 6 + 7
- [6] = PZD 7 + 8
- [7] = PZD 8 + 9
- [8] = PZD 9 + 10
- [9] = PZD 10 + 11
- [10] = PZD 11 + 12
- [11] = PZD 12 + 13
- [12] = PZD 13 + 14
- [13] = PZD 14 + 15
- [14] = PZD 15 + 16

---

## **r8761[0...14] CBC mapped 32-bit transmit objects**

SERVO (CAN)	Can be changed: -	Access level: 3
	Data type: Unsigned16	Function diagram: -
	P-Group: Communications	Unit selection: -
	Min	Factory setting
	-	-

### **Description:**

Displays mapped 32-bit transmit CANopen objects in the process data buffer.

### **Index:**

- [0] = PZD 1 + 2
- [1] = PZD 2 + 3
- [2] = PZD 3 + 4
- [3] = PZD 4 + 5
- [4] = PZD 5 + 6

[5] = PZD 6 + 7  
 [6] = PZD 7 + 8  
 [7] = PZD 8 + 9  
 [8] = PZD 9 + 10  
 [9] = PZD 10 + 11  
 [10] = PZD 11 + 12  
 [11] = PZD 12 + 13  
 [12] = PZD 13 + 14  
 [13] = PZD 14 + 15  
 [14] = PZD 15 + 16

---

<b>r8784</b>	<b>CO: CBC status word</b>	
SERVO (CAN)	Can be changed: -	Access level: 3
	Data type: Unsigned16	Data set: -
	P-Group: Communications	Function diagram: -
	Min	Unit selection: -
	Max	Factory setting
	-	-

**Description:**

Displays the CANopen status word.

**Note:**

Corresponds to the CANopen object 6041 hex + 800 hex \* : drive number 0 ... 7).

Re bit 10:

When the ramp-function generator is activated, the interconnection from CI: p2151 = r1119 can be changed, so that to evaluate bit 10, the setpoint can be retrieved (taken) from in front of the ramp-function generator.

---

<b>p8785</b>	<b>BI: CBC status word bit 8</b>	
SERVO (CAN)	Can be changed: T	Access level: 3
	Data type: Unsigned32	Data set: -
	P-Group: Communications	Function diagram: -
	Min	Unit selection: -
	Max	Factory setting
	-	0

**Description:**

Binector input for CANopen status word bit 8.

**Dependency:**

Refer to: r8784

---

<b>p8786</b>	<b>BI: CBC status word bit 14</b>	
SERVO (CAN)	Can be changed: T	Access level: 3
	Data type: Unsigned32	Data set: -
		Function diagram: -

P-Group: Communications	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	0

**Description:**

Binector input for CANopen status word bit 14.

**Dependency:**

Refer to: r8784

---

<b>p8787</b>	<b>BI: CBC status word bit 15</b>	
SERVO (CAN)	Can be changed: T	Access level: 3
	Data type: Unsigned32	Data set: -
	P-Group: Communications	Units group: -
	Min	Max
	-	-
		Factory setting
		0

**Description:**

Binector input for CANopen status word bit 15.

**Dependency:**

Refer to: r8784

---

<b>p8790</b>	<b>CBC control word - auto interconnection</b>	
SERVO (CAN)	Can be changed: C1(3), T	Access level: 3
	Data type: Integer16	Data set: -
	P-Group: Communications	Units group: -
	Min	Max
	0	1
		Factory setting
		0

**Description:**

Sets the automatic BICO interconnection of the CANopen control word.

**Values:**

- 0: No interconn
- 1: Interconnection

**Dependency:**

Refer to: r8750, r8795, r8850

**Note:**

The following BICO interconnections are automatically established if the CANopen control word is mapped at one of the locations x = 0 ... 3 in the receive process data buffer.

BI: p0840.0 = r889x.0

BI: p0844.0 = r889x.1

BI: p0848.0 = r889x.2

BI: p0852.0 = r889x.3

BI: p2103.0 = r889x.7

<b>r8795</b>	<b>CBC control word</b>	
SERVO (CAN)	Can be changed: -	Access level: 3
	Data type: Unsigned16	Data set: -
	P-Group: -	Units group: -
	Min	Max
	-	-
		Function diagram: -
		Unit selection: -
		Factory setting
		-
	<b>Description:</b>	
	Access to the CANopen control word using SDO transfer.	
	<b>Dependency:</b>	
	Refer to: p8790	
	<b>Note:</b>	
	Corresponds to the CANopen object 6040 hex +800 hex * x (x: drive number 0 ... 7).	

<b>r8796</b>	<b>CBC target velocity</b>	
SERVO (CAN)	Can be changed: -	Access level: 3
	Data type: Integer32	Data set: -
	P-Group: -	Units group: -
	Min	Max
	-	-
		Function diagram: -
		Unit selection: -
		Factory setting
		-
	<b>Description:</b>	
	Access to the CANopen object target velocity using the SDO transfer.	
	The value is displayed in increments/second as standard.	
	<b>Note:</b>	
	Corresponds to the CANopen object 60FF hex + 800 hex * x (x: drive number 0 ... 7).	
	The displayed value is calculated as follows:	
	$r8796 = n\_set \text{ [RPM]} / 60 \text{ s} * p0408 * 2^{p0418}$	

<b>r8797</b>	<b>CBC target torque</b>	
SERVO (CAN)	Can be changed: -	Access level: 3
	Data type: Integer16	Data set: -
	P-Group: -	Units group: -
	Min	Max
	-	-
		Function diagram: -
		Unit selection: -
		Factory setting
		-



**Description:**

Access to the CANopen object target torque using SDO transfer.  
The value is displayed as per mille (1/1000) as standard.

**Note:**

Corresponds to the CANopen object 6071 hex +800 hex \* x (x: drive number 0 ... 7).  
The displayed value is calculated as follows:  
$$r8797 \text{ [per mille]} = M\_set \text{ [Nm]} / p0312 \text{ [Nm]} * 1000$$

<b>p8798[0...1] CBC speed conversion factor</b>			
SERVO (CAN)	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	1	4294967295	1

**Description:**

The factor converts the required velocity units into the internal velocity units (U/s).  
With the factor setting, for CANopen, the velocity units are increments/second.  
The parameter corresponds to the CANopen object 6094 hex.  
The internal velocity is calculated as follows:  
$$n\_set\_internal = \text{object } 6094.1 / \text{object } 6094.2 * 1 / (p0408 * 2^{p0418}) * \text{required velocity}$$

**Index:**

[0] = Counter  
[1] = Denominator

<b>r8850[0...15] CO: COMM BOARD PZD receive word</b>			
SERVO	Can be changed: -		Access level: 3
	Data type: Integer16	Data set: -	Function diagram: 9204, 9206
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Connector output for interconnecting the PZD (setpoints) received from the COMM BOARD in the word format.

**Index:**

[0] = PZD 1  
[1] = PZD 2  
[2] = PZD 3  
[3] = PZD 4

[4] = PZD 5  
 [5] = PZD 6  
 [6] = PZD 7  
 [7] = PZD 8  
 [8] = PZD 9  
 [9] = PZD 10  
 [10] = PZD 11  
 [11] = PZD 12  
 [12] = PZD 13  
 [13] = PZD 14  
 [14] = PZD 15  
 [15] = PZD 16

**Dependency:**

Refer to: r8860, r8890, r8891, r8892, r8893

**Note:**

PZD1 to PZD4 are displayed bit-serially in r8890 to r8893.

**p8851[0...15]****CI: COMM BOARD PZD send word**

SERVO

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 9208

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Selects PZD (actual values) to be sent to COMM BOARD in the word format.

**Index:**

[0] = PZD 1  
 [1] = PZD 2  
 [2] = PZD 3  
 [3] = PZD 4  
 [4] = PZD 5  
 [5] = PZD 6  
 [6] = PZD 7  
 [7] = PZD 8  
 [8] = PZD 9  
 [9] = PZD 10  
 [10] = PZD 11  
 [11] = PZD 12  
 [12] = PZD 13  
 [13] = PZD 14  
 [14] = PZD 15  
 [15] = PZD 16

**Dependency:**

Refer to: p8861

**r8853[0...15] COMM BOARD PZD send diagnostics**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 9208, 9210

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays PZD (actual values) sent to COMM BOARD.

**Index:**

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10
- [10] = PZD 11
- [11] = PZD 12
- [12] = PZD 13
- [13] = PZD 14
- [14] = PZD 15
- [15] = PZD 16

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Bit 0	Off	On	-
	01	Bit 1	Off	On	-
	02	Bit 2	Off	On	-
	03	Bit 3	Off	On	-
	04	Bit 4	Off	On	-
	05	Bit 5	Off	On	-
	06	Bit 6	Off	On	-
	07	Bit 7	Off	On	-
	08	Bit 8	Off	On	-
	09	Bit 9	Off	On	-
	10	Bit 10	Off	On	-
	11	Bit 11	Off	On	-

12	Bit 12	Off	On	-
13	Bit 13	Off	On	-
14	Bit 14	Off	On	-
15	Bit 15	Off	On	-

**Dependency:**

Refer to: p8851, p8861

**r8860[0...14]****CO: COMM BOARD PZD receive double word**

SERVO

Can be changed: -

Access level: 3

Data type: Integer32

Data set: -

Function diagram: 9204, 9206

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Connector output for interconnecting the PZD (setpoints) received from the COMM BOARD with double word format.

**Index:**

[0] = PZD 1 + 2

[1] = PZD 2 + 3

[2] = PZD 3 + 4

[3] = PZD 4 + 5

[4] = PZD 5 + 6

[5] = PZD 6 + 7

[6] = PZD 7 + 8

[7] = PZD 8 + 9

[8] = PZD 9 + 10

[9] = PZD 10 + 11

[10] = PZD 11 + 12

[11] = PZD 12 + 13

[12] = PZD 13 + 14

[13] = PZD 14 + 15

[14] = PZD 15 + 16

**Dependency:**

Refer to: r8850

**p8861[0...14]****CI: COMM BOARD PZD send doubleword**

SERVO

Can be changed: U, T

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 9208, 9210

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

0

**Description:**

Selects PZD (actual values) to be sent to COMM BOARD in the double word format.

**Index:**

- [0] = PZD 1 + 2
- [1] = PZD 2 + 3
- [2] = PZD 3 + 4
- [3] = PZD 4 + 5
- [4] = PZD 5 + 6
- [5] = PZD 6 + 7
- [6] = PZD 7 + 8
- [7] = PZD 8 + 9
- [8] = PZD 9 + 10
- [9] = PZD 10 + 11
- [10] = PZD 11 + 12
- [11] = PZD 12 + 13
- [12] = PZD 13 + 14
- [13] = PZD 14 + 15
- [14] = PZD 15 + 16

**Dependency:**

Refer to: p8851

**r8890**

**BO: COMM BOARD PZD1 receive bit-serial**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 9204, 9206

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Binector output for bit-serial interconnection of a PZD1 (normally control word 1) word received from the COMM BOARD.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Bit 0	Off	On	-
	01	Bit 1	Off	On	-
	02	Bit 2	Off	On	-
	03	Bit 3	Off	On	-
	04	Bit 4	Off	On	-
	05	Bit 5	Off	On	-
	06	Bit 6	Off	On	-
	07	Bit 7	Off	On	-
	08	Bit 8	Off	On	-

09	Bit 9	Off	On	-
10	Bit 10	Off	On	-
11	Bit 11	Off	On	-
12	Bit 12	Off	On	-
13	Bit 13	Off	On	-
14	Bit 14	Off	On	-
15	Bit 15	Off	On	-

**Dependency:**

Refer to: r8850

**r8891****BO: COMM BOARD PZD2 receive bit-serial**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 9204, 9206

P-Group: Communications

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Binector output for bit-serial interconnection of a PZD2 word received from the COMM BOARD.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Bit 0	Off	On	-
	01	Bit 1	Off	On	-
	02	Bit 2	Off	On	-
	03	Bit 3	Off	On	-
	04	Bit 4	Off	On	-
	05	Bit 5	Off	On	-
	06	Bit 6	Off	On	-
	07	Bit 7	Off	On	-
	08	Bit 8	Off	On	-
	09	Bit 9	Off	On	-
	10	Bit 10	Off	On	-
	11	Bit 11	Off	On	-
	12	Bit 12	Off	On	-
	13	Bit 13	Off	On	-
	14	Bit 14	Off	On	-
	15	Bit 15	Off	On	-

**Dependency:**

Refer to: r8850

<b>r8892</b>	<b>BO: COMM BOARD PZD3 receive bit-serial</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: 9204, 9206
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Binector output for bit-serial interconnection of a PZD3 word received from the COMM BOARD..

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Bit 0	Off	On	-
	01	Bit 1	Off	On	-
	02	Bit 2	Off	On	-
	03	Bit 3	Off	On	-
	04	Bit 4	Off	On	-
	05	Bit 5	Off	On	-
	06	Bit 6	Off	On	-
	07	Bit 7	Off	On	-
	08	Bit 8	Off	On	-
	09	Bit 9	Off	On	-
	10	Bit 10	Off	On	-
	11	Bit 11	Off	On	-
	12	Bit 12	Off	On	-
	13	Bit 13	Off	On	-
	14	Bit 14	Off	On	-
	15	Bit 15	Off	On	-

**Dependency:**

Refer to: r8850

<b>r8893</b>	<b>BO: COMM BOARD PZD4 receive bit-serial</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: 9204, 9206
	P-Group: Communications	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Binector output for bit-serial interconnection of a PZD4 (normally control word 2) word received from the COMM BOARD.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Bit 0	Off	On	-
	01	Bit 1	Off	On	-
	02	Bit 2	Off	On	-
	03	Bit 3	Off	On	-
	04	Bit 4	Off	On	-
	05	Bit 5	Off	On	-
	06	Bit 6	Off	On	-
	07	Bit 7	Off	On	-
	08	Bit 8	Off	On	-
	09	Bit 9	Off	On	-
	10	Bit 10	Off	On	-
	11	Bit 11	Off	On	-
	12	Bit 12	Off	On	-
	13	Bit 13	Off	On	-
	14	Bit 14	Off	On	-
	15	Bit 15	Off	On	-

**Dependency:**

Refer to: r8850

**r9406[0...19]****ACX:Parameter number for parameters that have not been read-in**

All objects

Can be changed: -

Access level: 4

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

List of parameters that were not able to be transferred when downloading a parameterization.

Parameter numbers for parameters that were not able to be transferred.

if 9406[x] == 0 -> no fault

otherwise, 9406[x] corresponding to parameter number(s)

**Note:**



All indices from r9406 to p9408 designate the same parameter. The ParNo. is in r9406[x], the ParIdx for this is in r9407[x] and the associated fault code is in r94088[x].

<b>r9407[0...19]</b>	<b>ACX:Parameter index for parameters that have not been read-in</b>		
All objects	Can be changed: -	Access level: 1	
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
The first index of the parameters that were not able to be transferred when downloading from the saved files.			
if 9406[x] == 0 -> no fault			
9407[x] corresponding to the first parameter indices.			
<b>Note:</b>			
All indices from r9406 to p9408 designate the same parameter. The ParNo. is in r9406[x], the ParIdx for this is in r9407[x] and the associated fault code is in r94088[x].			

<b>r9408[0...19]</b>	<b>ACX:Fault code for parameters that have not been read-in</b>		
All objects	Can be changed: -	Access level: 1	
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Particular fault codes for parameters that were not able to be transferred from the saved files when reading-in (downloading).			
if 9406[x] == 0 -> no fault			
9408[x] specifies the parameter error(s).			
<b>Note:</b>			
All indices from r9406 to p9408 designate the same parameter. The ParNo. is in r9406[x], the ParIdx for this is in r9407[x] and the associated fault code is in r94088[x].			

<b>r9409</b>	<b>Number of parameters to be saved</b>		
A_INF, SERVO	Can be changed: -	Access level: 4	
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -

Min	Max	Factory setting
-	-	-

**Description:**

Displays the number of modified parameters and those that have still not be saved for this drive object.

**Dependency:**

Refer to: p0971, p0977

**Note:**

The modified parameters that still need to be saved are internally listed in r9410 ... r9419.

**r9481****No. of BICO interconnections**

All objects

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the number of BICO interconnections (signal drains) to other drive objects.

The selected BICO interconnections should be entered into r9482[0...59] and r9483[0...59].

**Dependency:**

Refer to: r9482, r9483

**r9482[0...59]****BICO interconnections, BI/CI parameters**

All objects

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the signal drains (binector/connector inputs, CI/CI parameters) to other drive objects.

The number of BICO interconnections to other drive objects is displayed in r9481.

**Dependency:**

Refer to: r9481, r9483

**Note:**

The list is sorted according to signal sources and is structured as follows:

r9842[0]: Interconnection 1 (signal drain, BICO coded), r9843[0]: Interconnection 1 (signal source, BICO coded)  
r9842[1]: Interconnection 2 (signal drain, BICO coded), r9843[1]: Interconnection 2 (signal source, BICO coded)  
...

---

#### **r9483[0...59] BICO interconnections, BO/CO parameters**

All objects	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

##### **Description:**

Displays the signal sources (binector/connector outputs, BO/CO parameters) to other drive objects.

The number of BICO interconnections to other drive objects is displayed in r9481.

##### **Dependency:**

Refer to: r9481, r9482

##### **Note:**

The list is sorted according to signal sources and is structured as follows:

r9842[0]: Interconnection 1 (signal drain, BICO coded), r9843[0]: Interconnection 1 (signal source, BICO coded)

r9842[1]: Interconnection 2 (signal drain, BICO coded), r9843[1]: Interconnection 2 (signal source, BICO coded)  
...

---

#### **p9484 BICO interconnections, search signal source**

All objects	Can be changed: T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	4294967295	0

##### **Description:**

Sets the signal source (BO/CO parameter, BICO coded) to search in the signal drains.

The question is answered:

How often is a connection made to a signal source in the drive object and from which index are these interconnections saved (r9482[0...59], r9483[0...59]).

##### **Dependency:**

Refer to: r9481, r9482, r9483, r9485, r9486

<b>r9485</b>	<b>BICO interconnections, signal source search number</b>		
All objects	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<p><b>Description:</b></p> <p>Displays the number of BICO interconnections to the signal drain being searched for.</p> <p>The signal source to be searched is set in p9484 (BICO-coded).</p> <p>The search result is contained in r9482[0...59] and r9483[0...59] and is specified by the number (r9485) and the first index (r9486).</p> <p><b>Dependency:</b></p> <p>Refer to: r9481, r9482, r9483, p9484, r9486</p>			

<b>r9486</b>	<b>BICO interconnections, signal source search first index</b>		
All objects	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<p><b>Description:</b></p> <p>Displays the first index of the signal source being searched for.</p> <p>The signal source to be searched is set in p9484 (BICO-coded).</p> <p>The search result is contained in r9482[0...59] and r9483[0...59] and is specified by the number (r9485) and the first index (r9486).</p> <p><b>Dependency:</b></p> <p>Refer to: r9481, r9482, r9483, p9484, r9485</p>			

<b>r9490</b>	<b>Number of BICO interconnections to other drives</b>		
All objects	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<p><b>Description:</b></p> <p>Displays the number of signal sources from this drive to other drives/drive objects (binector output/connector output, BO/CO).</p> <p><b>Dependency:</b></p>			

Refer to: r9491, r9492, p9493

r9491[0...9]	BI/CI of BICO interconnections to other drives		
All objects	Can be changed: -	Access level: 3	
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Displays the signal receiver list (binector input/connector input, BI/CI) for the first interconnections between this drive and other drives/drive objects.			
<b>Dependency:</b>			
Refer to: r9490, r9492, p9493			
<b>Notice:</b>			
A drive cannot be deleted if this list is not empty! Otherwise, another drive would continue to attempt to read a signal from a drive that no longer existed.			
<b>Note:</b>			
All indices of r9491 to p9493 designate the same interconnection.			
r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection.			

r9492[0...9]	BO/CO of BICO interconnections to other drives		
All objects	Can be changed: -	Access level: 3	
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-
<b>Description:</b>			
Displays the signal source list (binector output/connector output, BO/CO) for the first interconnections between this drive and other drives/drive objects.			
<b>Dependency:</b>			
Refer to: r9490, r9491, p9493			
<b>Notice:</b>			
A drive cannot be deleted if this list is not empty! Otherwise, another drive would continue to attempt to read a signal from a drive that no longer existed.			
<b>Note:</b>			

All indices of r9491 to p9493 designate the same interconnection.

r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection.

<b>p9493[0...9]</b>		<b>Reset BICO interconnections to other drives</b>	
All objects	Can be changed: T		Access level: 3
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 hex	000F hex	000F hex
<b>Description:</b>			
Setting to reset the BICO interconnections to other drives. Each interconnection can be individually reset.			
<b>Values:</b>			
0: Set connection to 0			
1: Set connection to 1 (100 %)			
2: Set connection to factory setting			
15: Finished			
<b>Dependency:</b>			
Refer to: r9490, r9491, r9492			
<b>Note:</b>			
All indices of r9491 to p9493 designate the same interconnection.			
r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection.			

<b>p9495</b>		<b>Mark BICO to non operational/de-activated drive objects</b>	
All objects	Can be changed: T		Access level: 3
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	2	0
<b>Description:</b>			
If this drive object has BICO interconnections to other non-operational or de-activated drive objects as drain, then using these parameters, all of the associated BI/CI parameters of this drive object can be set to the re-set value and marked, or only marked.			
<b>Values:</b>			
0: Do not do anything			
1: Mark connection			
2: Set the connection to default and mark			
<b>Dependency:</b>			

Refer to: p9496, p9497, r9498, r9499

Refer to: A01318, A01507

**Note:**

The BI/CI parameters involved are listed in r9498[0...29] (drain).

The associated BO/CO parameters are listed in r9499[0...29] (source).

However, r9498 and r9499 are only then filled if p9495 is not equal to 0, otherwise they remain empty.

<b>p9496 Repeat BICO to now operational/activated drive objects</b>			
All objects	Can be changed: T		Access level: 3
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	2	0
<b>Description:</b>			
If this drive object has BICO interconnections to other drive objects that are not operational or are inactive, then using this parameter, all of the BI/CI parameters involved with this drive object can be re-established.			
<b>Values:</b>			
0: Do not do anything			
1: Re-establish the connections from the list			
2: Delete the connection from the list			
<b>Dependency:</b>			
Refer to: p9495, p9497, r9498, r9499			
Refer to: A01318, A01507			
<b>Note:</b>			
The BI/CI parameters involved are listed in r9498[0...29] (drain).			
The associated BO/CO parameters are listed in r9499[0...29] (source).			
After setting p9496 to 1 or 2, r9498 and r9499 are reset, r9497 is set to 0 and p9496 itself is set to 0.			

<b>p9497 Number of BICO interconnections to non-operational/de-activated</b>			
All objects	Can be changed: T		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	65535	0

**Description:**

Displays the number of signal drains of this drive object to other drives/drive objects that are no longer operational/ activated (binector input/connector input, BI/CI).

**Dependency:**

Refer to: p9495, p9496, r9498, r9499

Refer to: A01318, A01507

**Note:**

The parameter is only used for display purposes and cannot be written into.

**r9498[0...29]****BI/CI of BICO interconnections to non-operational/de-activated**

All objects

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

List of the BI/CI parameters that represent a connection to non-operational/de-activated drive objects.

**Dependency:**

Refer to: p9495, p9496, p9497, r9499

Refer to: A01318, A01507

**Note:**

All indices from r9498 to p9499 designate the same interconnection.

This signal drain is in r9498[x] and the associated signal source in r9499[x].

**r9499[0...29]****BO/CO of BICO interconnections to non-operational/de-activated**

All objects

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Commands

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

List of the BO/CO parameters that represent a connection to non-operational/de-activated drive objects.

**Dependency:**

Refer to: p9495, p9496, p9497, r9498

Refer to: A01318, A01507



**Note:**

All indices from r9498 to p9499 designate the same interconnection.

This signal drain is in r9498[x] and the associated signal source in r9499[x].

<b>p9500</b>	<b>SI motion monitoring clock cycle</b>		
SERVO	Can be changed: U, T	Access level: 4	
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.50 [ms]	25.00 [ms]	12.00 [ms]

**Description:**

Sets the monitoring clock cycle for safe motion monitoring.

**Dependency:**

Refer to: p0115

Refer to: F01652

**Note:**

The monitoring clock cycle must be a multiple of the position controller clock cycle.

<b>p9501</b>	<b>SI motion enable safety-relevant functions</b>		
SERVO	Can be changed: U, T	Access level: 4	
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 bin	1111 1111 1111 1111 1111 1111	0000 bin
		1111 1111 bin	

**Description:**

Sets the enable signals for the safe motion monitoring.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Enable SBH/SG	Inhibit	Enable	-
	01	Enable SE	Inhibit	Enable	-
	03	Enable actual value synchronization	Inhibit	Enable	-
	04	Enable external ESR activation	Inhibit	Enable	-
	05	Enable override SG	Inhibit	Enable	-
	06	Enable external STOPs	Inhibit	Enable	-
	07	Enable cam synchronization	Inhibit	Enable	-
	08	Enable SN1+	Inhibit	Enable	-
	09	Enable SN1 -	Inhibit	Enable	-

10	Enable SN2 +	Inhibit	Enable	-
11	Enable SN2 -	Inhibit	Enable	-
12	Enable SN3 +	Inhibit	Enable	-
13	Enable SN3 -	Inhibit	Enable	-
14	Enable SN4 +	Inhibit	Enable	-
15	Enable SN4 -	Inhibit	Enable	-

**Dependency:**

Refer to: F01682

**Note:**

A change only becomes effective after a POWER ON.

ESR: Extended stopping and retraction

SBH: Safe operating stop

SE: Safe software limit switch

SG: Safely-reduced speed

SN: Safe software cams

**p9502****SI motion axis type**

SERVO

Can be changed: U, T

Access level: 4

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Safety Integrated

Units group: -

Unit selection: -

Min

Max

Factory setting

0

1

0

**Description:**

Sets the axis type (linear axis or rotary axis/spindle).

**Values:**

0: Linear axis

1: Rot axis/spindle

**Note:**

A change only becomes effective after a POWER ON.

**p9516****SI motion motor encoder configuration, safety-relevant functions**

SERVO

Can be changed: U, T

Access level: 4

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Safety Integrated

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 bin

0011 bin

0000 bin

**Description:**

Sets the configuration for the motor encoder and position actual value.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Motor encoder, rotating/linear	Rotating:	Linear	-
	01	Position actual value, sign change	No	Yes	-

**Note:**

A change only becomes effective after a POWER ON.

---

<b>p9517</b>	<b>SI motion linear scale, grid division</b>			
SERVO	Can be changed: U, T		Access level: 4	
	Data type: Floating Point	Data set: -	Function diagram: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Min	Max	Factory setting	
	0.00	250000.00	10.00	

**Description:**

Sets the grid division in  $\mu\text{m}$  for a linear motor encoder.

**Dependency:**

Refer to: p9516

**Note:**

A change only becomes effective after a POWER ON.

---

<b>p9518</b>	<b>SI motion encoder pulses per revolution</b>			
SERVO	Can be changed: U, T		Access level: 4	
	Data type: Unsigned32	Data set: -	Function diagram: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Min	Max	Factory setting	
	0	100000	2048	

**Description:**

Sets the number of encoder pulses per revolution for rotary motor encoders.

**Dependency:**

Refer to: p9516

**Note:**

A change only becomes effective after a POWER ON.

<b>p9519</b>	<b>SI motion fine resolution G1_XIST1</b>		
SERVO	Can be changed: U, T		Access level: 4
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	2	18	11
<p><b>Description:</b></p> <p>Sets the fine resolution for G1_XIST1 in bits.</p> <p>For safe functions that are not enabled (p9501 = 0), the following applies:</p> <p>p9519 is automatically set the same as p0418 at run-up.</p> <p>For safety functions that are enabled (p9501 &gt; 0), the following applies:</p> <p>p9519 is checked to see that it matches p0418.</p> <p><b>Dependency:</b></p> <p>Refer to: p0418</p> <p>Refer to: F01670, F01671</p> <p><b>Note:</b></p> <p>A change only becomes effective after a POWER ON.</p> <p>G1_XIST1: Position actual value of the motor encoder according to PROFIdrive</p>			

<b>p9520</b>	<b>SI motion spindle pitch</b>		
SERVO	Can be changed: U, T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.10	8388.00	10.00
<p><b>Description:</b></p> <p>Sets the gear ratio between the encoder and load in mm/rev for a linear axis with rotary encoder.</p> <p><b>Note:</b></p> <p>A change only becomes effective after a POWER ON.</p>			

<b>p9521[0...7]</b>	<b>SI motion gearbox encoder/load denominator</b>		
SERVO	Can be changed: U, T		Access level: 4
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting

1 2147000000 1

**Description:**

Sets the denominator for the gearbox between the encoder and load.  
The actual gearbox stage is selected via safety-relevant inputs (SGE).

**Index:**

- [0] = Gearbox 1
- [1] = Gearbox 2
- [2] = Gearbox 3
- [3] = Gearbox 4
- [4] = Gearbox 5
- [5] = Gearbox 6
- [6] = Gearbox 7
- [7] = Gearbox 8

**Dependency:**

Refer to: p9522

**Note:**

A change only becomes effective after a POWER ON.

<b>p9522[0...7]</b>	<b>SI motion gearbox encoder/load numerator</b>		
SERVO	Can be changed: U, T	Access level: 4	
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	1	2147000000	1

**Description:**

Sets the numerator for the gearbox between the encoder and load.  
The actual gearbox stage is selected via safety-relevant inputs (SGE).

**Index:**

- [0] = Gearbox 1
- [1] = Gearbox 2
- [2] = Gearbox 3
- [3] = Gearbox 4
- [4] = Gearbox 5
- [5] = Gearbox 6
- [6] = Gearbox 7
- [7] = Gearbox 8

**Dependency:**

Refer to: p9521

**Note:**

A change only becomes effective after a POWER ON.

<b>p9526</b>	<b>SI motion encoder assignment, control</b>		
SERVO	Can be changed: U, T		Access level: 4
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	1	3	1
<p><b>Description:</b></p> <p>Sets the number of the encoder that the control uses for the safe motion monitoring functions.</p> <p><b>Dependency:</b></p> <p>For the safe motion monitoring functions, the redundant safety position actual value sensing must be activated in the appropriate encoder data set (p0430.19 = 1).</p> <p>Refer to: p0187, p0188, p0189, p0430</p> <p><b>Note:</b></p> <p>If a 1 is parameterized (the control uses an encoder for closed-loop speed control), then a single-encoder system is being used.</p> <p>A change only becomes effective after a POWER ON.</p>			

<b>p9530</b>	<b>SI motion standstill tolerance</b>		
SERVO	Can be changed: U, T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.00	100.00	1.00
<p><b>Description:</b></p> <p>Sets the tolerance in mm or degrees for the function "safe operating stop" (SBH).</p> <p><b>Dependency:</b></p> <p>Refer to: C01707</p> <p><b>Note:</b></p> <p>A change only becomes effective after a POWER ON.</p>			

<b>p9531[0...3]</b>	<b>SI motion SG limit values</b>		
SERVO	Can be changed: U, T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting

0.00

1000000.00

2000.00

**Description:**

Sets the limit values in mm/min or RPM for the function "safely-reduced speed" (SG).

**Index:**

[0] = Limit value SG1

[1] = Limit value SG2

[2] = Limit value SG3

[3] = Limit value SG4

**Dependency:**

Refer to: p9532, p9561, p9563

Refer to: C01714

**Note:**

A change only becomes effective after a POWER ON.

**p9532[0...15]**

**SI motion SG override factor**

SERVO

Can be changed: U, T

Access level: 4

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Safety Integrated

Units group: PERCENT

Unit selection: -

Min

Max

Factory setting

0.000 [%]

100.000 [%]

100.000 [%]

**Description:**

Sets the override factor for the limit value for SG2 and SG4 for the function "safely reduced speed" (SG).

**Index:**

[0] = SG override factor 0

[1] = SG override factor 1

[2] = SG override factor 2

[3] = SG override factor 3

[4] = SG override factor 4

[5] = SG override factor 5

[6] = SG override factor 6

[7] = SG override factor 7

[8] = SG override factor 8

[9] = SG override factor 9

[10] = SG override factor 10

[11] = SG override factor 11

[12] = SG override factor 12

[13] = SG override factor 13

[14] = SG override factor 14

[15] = SG override factor 15

**Dependency:**

Refer to: p9501, p9531

**Note:**

The actual override factor for SG2 and SG4 is selected using the safety-relevant inputs (SGE).

A change only becomes effective after a POWER ON.

**p9534[0...1]****SI motion SE upper limit values**

SERVO

Can be changed: U, T

Access level: 4

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Safety Integrated

Units group: -

Unit selection: -

Min

Max

Factory setting

-2147000.00

2147000.00

100000.00

**Description:**

Sets the upper limit value in mm or degrees for the function "safe software limit switch" (SE).

**Index:**

[0] = Limit value SE1

[1] = Limit value SE 2

**Dependency:**

Refer to: p9501, p9535, p9562

**Note:**

For the setting of the SE limit values, the following applies: p9534 > p9535

A change only becomes effective after a POWER ON.

**p9535[0...1]****SI motion SE lower limit values**

SERVO

Can be changed: U, T

Access level: 4

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Safety Integrated

Units group: -

Unit selection: -

Min

Max

Factory setting

-2147000.00

2147000.00

-100000.00

**Description:**

Sets the lower limit value in mm or degrees for the function "safe software limit switch" (SE).

**Index:**

[0] = Limit value SE1

[1] = Limit value SE 2

**Dependency:**



Refer to: p9501, p9536, p9562

**Note:**

For the setting of the SE limit values, the following applies: p9534 > p9535

A change only becomes effective after a POWER ON.

---

<b>p9536[0...29]</b>	<b>SI motion SN plus cam position</b>		
SERVO	Can be changed: U, T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-2147000.00	2147000.00	10.00

**Description:**

Sets the plus cam position in mm or degrees for the function "safe software cams" (SN).

**Index:**

- [0] = Cam position SN1
- [1] = Cam position SN2
- [2] = Cam position SN3
- [3] = Cam position SN4
- [4] = Cam position SN5
- [5] = Cam position SN6
- [6] = Cam position SN7
- [7] = Cam position SN8
- [8] = Cam position SN9
- [9] = Cam position SN10
- [10] = Cam position SN11
- [11] = Cam position SN12
- [12] = Cam position SN13
- [13] = Cam position SN14
- [14] = Cam position SN15
- [15] = Cam position SN16
- [16] = Cam position SN17
- [17] = Cam position SN18
- [18] = Cam position SN19
- [19] = Cam position SN20
- [20] = Cam position SN21
- [21] = Cam position SN22
- [22] = Cam position SN23
- [23] = Cam position SN24
- [24] = Cam position SN25
- [25] = Cam position SN26
- [26] = Cam position SN27
- [27] = Cam position SN28

[28] = Cam position SN29

[29] = Cam position SN30

**Dependency:**

Refer to: p9501, p9537

**Note:**

A change only becomes effective after a POWER ON.

**p9537[0...29]****SI motion SN minus cam position**

SERVO

Can be changed: U, T

Access level: 4

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Safety Integrated

Units group: -

Unit selection: -

Min

Max

Factory setting

-2147000.00

2147000.00

-10.00

**Description:**

Sets the minus cam position in mm or degrees for the function "safe software cams (SN).

**Index:**

[0] = Cam position SN1

[1] = Cam position SN2

[2] = Cam position SN3

[3] = Cam position SN4

[4] = Cam position SN5

[5] = Cam position SN6

[6] = Cam position SN7

[7] = Cam position SN8

[8] = Cam position SN9

[9] = Cam position SN10

[10] = Cam position SN11

[11] = Cam position SN12

[12] = Cam position SN13

[13] = Cam position SN14

[14] = Cam position SN15

[15] = Cam position SN16

[16] = Cam position SN17

[17] = Cam position SN18

[18] = Cam position SN19

[19] = Cam position SN20

[20] = Cam position SN21

[21] = Cam position SN22

[22] = Cam position SN23

[23] = Cam position SN24

[24] = Cam position SN25

[25] = Cam position SN26

[26] = Cam position SN27

[27] = Cam position SN28

[28] = Cam position SN29

[29] = Cam position SN30

**Dependency:**

Refer to: p9501, p9536

**Note:**

A change only becomes effective after a POWER ON.

---

<b>p9540</b>	<b>SI motion SN tolerance</b>	
SERVO	Can be changed: U, T	Access level: 4
	Data type: Floating Point	Data set: -
	P-Group: Safety Integrated	Function diagram: -
	Min	Unit selection: -
	Max	Factory setting
	0.0010	10.0000
		0.1000

**Description:**

Sets the tolerance in mm or degrees for the function "safe software cams" (SN).

Within this tolerance, both monitoring channels may signal different signal states of the same safe software cam.

**Note:**

A change only becomes effective after a POWER ON.

---

<b>p9542</b>	<b>SI motion actual value comparison tolerance (crosswise)</b>	
SERVO	Can be changed: U, T	Access level: 4
	Data type: Floating Point	Data set: -
	P-Group: Safety Integrated	Function diagram: -
	Min	Unit selection: -
	Max	Factory setting
	0.0010	360.0000
		0.1000

**Description:**

Sets the tolerance in mm or degrees for the crosswise data comparison of the actual position between the two monitoring channels.

**Dependency:**

Refer to: C01711

**Note:**

A change only becomes effective after a POWER ON.

---

<b>p9544</b>	<b>SI motion actual value comparison tolerance (referencing)</b>	
--------------	--	--

SERVO	Can be changed: U, T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.0000	36.0000	0.0100

**Description:**

Sets the tolerance in mm or degrees to check the actual values after referencing (incremental encoder) or when powering-up (absolute value encoder).

**Dependency:**

Refer to: C01711

**Note:**

A change only becomes effective after a POWER ON.

**p9546****SI motion velocity limit n\_x**

SERVO	Can be changed: U, T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.00	6000.00	20.00

**Description:**

Sets the velocity limit n\_x in mm/min or RPM to detect that the drive is at standstill.  
When this limit value is fallen below, SGA "n < n\_x" is set.

**Note:**

A change only becomes effective after a POWER ON.

SGA: Safety-related output

**p9548****SI motion SBR actual speed tolerance**

SERVO	Can be changed: U, T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0.00	120000.00	300.00

**Description:**

Sets the velocity tolerance in mm/min or RPM for the "safe braking ramp" (SBR).

**Dependency:**

Refer to: C01706

**Note:**

A change only becomes effective after a POWER ON.

SBR: Safe braking ramp

---

<b>p9549</b>	<b>SI motion slip speed tolerance</b>	
SERVO	Can be changed: U, T	Access level: 4
	Data type: Floating Point	Data set: -
	P-Group: Safety Integrated	Units group: -
	Min	Max
	0.00	6000.00
		Factory setting
		6.00

**Description:**

Sets the velocity tolerance in mm/min or RPM that is used for a two encoder system in crosswise comparison between the drive and the control.

**Dependency:**

Refer to: p9501, p9542

**Note:**

If the "actual value synchronization" is not enabled (p9501.3 = 0), then the value parameterized in p9542 is used as tolerance in the crosswise data comparison.

A change only becomes effective after a POWER ON.

---

<b>p9550</b>	<b>SI motion SGE changeover tolerance time</b>	
SERVO	Can be changed: U, T	Access level: 4
	Data type: Floating Point	Data set: -
	P-Group: Safety Integrated	Units group: TIME_M3
	Min	Max
	0.00 [ms]	10000.00 [ms]
		Factory setting
		500.00 [ms]

**Description:**

Sets the tolerance time for the changeover of the safety-related inputs (SGE).

**Note:**

A change only becomes effective after a POWER ON.

---

<b>p9551</b>	<b>SI motion SG changeover delay time</b>	
SERVO	Can be changed: U, T	Access level: 4
	Data type: Floating Point	Data set: -
	P-Group: Safety Integrated	Units group: TIME_M3
	Min	Max
	0.00 [ms]	60000.00 [ms]
		Factory setting
		100.00 [ms]

**Description:**

Sets the delay time for the SG changeover for the function "safely reduced speed" (SG).  
When transitioning from a higher to a lower safely-reduced velocity/speed stage or to the safe operating stop, within this delay time, the "old" velocity stage remains active.

**Note:**

A change only becomes effective after a POWER ON.

---

<b>p9552</b>	<b>SI motion transition time STOP C to SBH</b>		
SERVO	Can be changed: U, T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	10000.00 [ms]	100.00 [ms]

**Description:**

Sets the transition time from STOP C to "safe operating stop" (SBH).

**Note:**

A change only becomes effective after a POWER ON.

---

<b>p9553</b>	<b>SI motion transition time STOP D to SBH</b>		
SERVO	Can be changed: U, T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	60000.00 [ms]	100.00 [ms]

**Description:**

Sets the transition time from STOP D to "safe operating stop" (SBH).

**Note:**

A change only becomes effective after a POWER ON.

---

<b>p9554</b>	<b>SI motion transition time STOP E to SBH</b>		
SERVO	Can be changed: U, T		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	60000.00 [ms]	100.00 [ms]

**Description:**

Sets the transition time from STOP E to "safe operating stop" (SBH).

**Note:**

A change only becomes effective after a POWER ON.

---

<b>p9555</b>	<b>SI motion transition time STOP F to STOP B</b>		
SERVO	Can be changed: U, T	Access level: 4	
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	60000.00 [ms]	0.00 [ms]

**Description:**

Sets the transition time from STOP F to STOP B.

**Dependency:**

Refer to: C01711

**Note:**

A change only becomes effective after a POWER ON.

---

<b>p9556</b>	<b>SI motion pulse cancellation delay time</b>		
SERVO	Can be changed: U, T	Access level: 4	
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	10000.00 [ms]	100.00 [ms]

**Description:**

Sets the delay time for the safe pulse cancellation after STOP B.

**Dependency:**

Refer to: p9560

Refer to: C01701

**Note:**

A change only becomes effective after a POWER ON.

---

<b>p9557</b>	<b>SI motion pulse cancelation test time</b>		
SERVO	Can be changed: U, T	Access level: 4	
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: TIME_M3	Unit selection: -

Min	Max	Factory setting
0.00 [ms]	10000.00 [ms]	100.00 [ms]

**Description:**

Sets the time after which the pulses must have been cancelled when initiating the test stop.

**Dependency:**

Refer to: C01798

**Note:**

A change only becomes effective after a POWER ON.

**p9558****SI motion acceptance test mode, time limit**

SERVO

Can be changed: U, T

Access level: 4

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Safety Integrated

Units group: TIME\_M3

Unit selection: -

Min

Max

Factory setting

5000.00 [ms]

100000.00 [ms]

40000.00 [ms]

**Description:**

Sets the maximum time for the acceptance test mode.

If the acceptance test mode takes longer than the selected time limit, then the mode is automatically terminated.

**Dependency:**

Refer to: C01799

**Note:**

A change only becomes effective after a POWER ON.

**p9560****SI motion pulse cancellation shutdown speed**

SERVO

Can be changed: U, T

Access level: 4

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: Safety Integrated

Units group: -

Unit selection: -

Min

Max

Factory setting

0.00

6000.00

0.00

**Description:**

Sets the velocity, under which the axis is considered to be "stationary" and for a STOP B, the pulses are cancelled (by changing to STOP A).

**Dependency:**

Refer to: p9556



**Note:**

A change only becomes effective after a POWER ON.

**p9561**

**SI motion SG stop response**

SERVO

Can be changed: U, T

Access level: 4

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Safety Integrated

Units group: -

Unit selection: -

Min

Max

Factory setting

0

14

5

**Description:**

Sets the stop response for the function "safely reduced speed" (SG).

This setting applies for all SG limit values.

An input value of less than 5 signifies personnel protection, from 10 and upwards, machine protection.

**Values:**

0: STOP A

1: STOP B

2: STOP C

3: STOP D

4: STOP E

5: Sets the stop response via p9563 (SG-specific)

10: STOP A with delayed pulse cancellation when the bus fails

11: STOP B with delayed pulse cancellation when the bus fails

12: STOP C with delayed pulse cancellation when the bus fails

13: STOP D with delayed pulse cancellation when the bus fails

14: STOP E with delayed pulse cancellation when the bus fails

**Dependency:**

Refer to: p9531, p9563, p9580

**Note:**

A change only becomes effective after a POWER ON.

**p9562**

**SI motion SE stop response**

SERVO

Can be changed: U, T

Access level: 4

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Safety Integrated

Units group: -

Unit selection: -

Min

Max

Factory setting

2

4

2

**Description:**

Sets the stop response for the function "safe software limit switch" (SE).

**Values:**

2: STOP C

3: STOP D

4: STOP E

**Dependency:**

Refer to: p9534, p9535

**Note:**

A change only becomes effective after a POWER ON.

**p9563[0...3]****SI motion SG-specific stop response**

SERVO

Can be changed: U, T

Access level: 4

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Safety Integrated

Units group: -

Unit selection: -

Min

Max

Factory setting

0

14

2

**Description:**

Sets the stop response for the function "safely reduced speed" (SG, SG-specific).

This setting applies to the individual SG limit values.

**Values:**

0: STOP A

1: STOP B

2: STOP C

3: STOP D

4: STOP E

10: STOP A with delayed pulse cancellation when the bus fails

11: STOP B with delayed pulse cancellation when the bus fails

12: STOP C with delayed pulse cancellation when the bus fails

13: STOP D with delayed pulse cancellation when the bus fails

14: STOP E with delayed pulse cancellation when the bus fails

**Index:**

[0] = Limit value SG1

[1] = Limit value SG2

[2] = Limit value SG3

[3] = Limit value SG4

**Dependency:**

Refer to: p9531, p9561, p9580

**Note:**

A change only becomes effective after a POWER ON.

**p9570****SI motion acceptance test mode**

SERVO

Can be changed: U, T

Access level: 4

Data type: Integer16	Data set: -	Function diagram: -
P-Group: Safety Integrated	Units group: -	Unit selection: -
Min	Max	Factory setting
0000 hex	00AC hex	0000 hex

**Description:**

Setting to select and de-select the acceptance test mode.

**Values:**

0: [00 hex] De-select the acceptance test mode  
172: [AC hex] Select the acceptance test mode

**Dependency:**

Refer to: p9558, r9571  
Refer to: C01799

---

**r9571**

**SI motion acceptance test status**

SERVO

Can be changed: -	Access level: 4
Data type: Integer16	Function diagram: -
P-Group: Safety Integrated	Unit selection: -
Min	Factory setting
-	-

**Description:**

Displays the status of the acceptance test mode.

**Values:**

0: [00 hex] Acc\_mode inactive  
12: [0C hex] Acc\_mode not possible due to POWER ON fault  
13: [0D hex] Acc\_mode not possible due to incorrect ID in p9570  
15: [0F hex] Acc\_mode not possible due to expired Acc\_timer  
172: [AC hex] Acc\_mode active

**Dependency:**

Refer to: p9558, p9570  
Refer to: C01799

---

**p9580**

**SI motion pulse cancellation delay time after bus failure**

SERVO

Can be changed: U, T	Access level: 4
Data type: Floating Point	Function diagram: -
P-Group: Safety Integrated	Unit selection: -
Min	Factory setting
0.00 [ms]	800.00 [ms]
	0.00 [ms]

**Description:**

Sets the delay time after which the pulses are safely cancelled after a bus failure.

**Dependency:**

Refer to: p9561, p9563

**Note:**

A change only becomes effective after a POWER ON.

**p9601****SI enables safety functions (control unit)**

SERVO

Can be changed: C2

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Safety Integrated

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 bin

0001 bin

0000 bin

**Description:**

Sets the enable signals for safety functions on the control unit.

**Bit field:****Bit****Signal name****0 signal****1 signal****FP**

00

Enable SH via terminal (Control Unit)

Inhibit

Enable

2810

**Dependency:**

Refer to: p9801

**Note:**

CU: Control unit

SH: Safe standstill

SI: Safety Integrated

**p9602****SI enable safe brake control (control unit)**

SERVO

Can be changed: C2

Access level: 3

Data type: Integer16

Data set: -

Function diagram: 2814

P-Group: Safety Integrated

Units group: -

Unit selection: -

Min

Max

Factory setting

0

1

0

**Description:**

Sets the enable signal for the function "Safe brake control" (SBC) on the control unit.

**Values:**

0: Inhibit SBC

1: Enable SBC

**Dependency:**

Refer to: p9802

**Note:**

The "safe brake control" function is not activated until at least one safety monitoring function has been enabled (i.e. p9601 not equal to 0).

The parameterization "no motor holding brake available" and "safe brake control" enabled (p1215 = 0, p9602 = p9802 = 1) is not practical if there is no motor holding brake.

CU: Control unit

SBC: Safe brake control

SI: Safety Integrated

<b>p9620</b>	<b>BI: SI signal source for safe standstill (control unit)</b>		
SERVO	Can be changed: C2		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 2810
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	0

**Description:**

Sets the signal source for the function "Safe standstill" (SH) on the control unit.

**Dependency:**

Refer to: p9601

**Note:**

The following signal sources are permitted:

- fixed zero (standard setting)
- digital inputs (DI 0 to DI 7 on the control unit)

<b>p9650</b>	<b>SI SGE changeover tolerance time (control unit)</b>		
SERVO	Can be changed: C2		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 2810
	P-Group: Safety Integrated	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	2000.00 [ms]	500.00 [ms]

**Description:**

Sets the tolerance time to change over the safety-related inputs (SGE) on the control unit.

An SGE changeover is not simultaneously effective due to the different runtimes in the two monitoring channels. After an SGE changeover, dynamic data is not subject to a crosswise data comparison during this tolerance time.

**Dependency:**

Refer to: p9850

**Note:**

For a crosswise data comparison between p9650 and p9850, a difference of one Safety monitoring clock cycle is tolerated.

The parameterized time is internally rounded-off to an integer multiple of the monitoring clock cycle.

SGE: Safety-related input (e.g. SH terminals)

---

<b>p9658</b>	<b>SI transition time STOP F to STOP A (control unit)</b>		
SERVO	Can be changed: C2		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 2802
	P-Group: Safety Integrated	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	0.00 [ms]	30000.00 [ms]	0.00 [ms]

**Description:**

Sets the transition period from STOP F to STOP A on the control unit.

**Dependency:**

Refer to: r9795, p9858

Refer to: F01611

**Note:**

For a crosswise data comparison between p9658 and p9858, a difference of one Safety monitoring clock cycle is tolerated.

The parameterized time is internally rounded-off to an integer multiple of the monitoring clock cycle.

STOP F: Defect in a monitoring channel (error in the crosswise data comparison)

STOP A: Pulse cancellation via the safety shutdown path

---

<b>p9659</b>	<b>SI forced checking procedure timer</b>		
SERVO	Can be changed: C2		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 2810
	P-Group: Safety Integrated	Units group: TIME_H	Unit selection: -
	Min	Max	Factory setting
	0.00 [h]	9000.00 [h]	8.00 [h]

**Description:**

Sets the time to carry-out the dynamic update and testing the safety shutdown paths (forced checking procedure).

Within the parameterized time, safe standstill must have been de-selected at least once.

The monitoring time is reset each time that SH is de-selected.

**Dependency:**

Refer to: A01699

## r9710[0...1]

### SI motion diagnostics result list 1

SERVO

Can be changed: -

Access level: 4

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

#### Description:

Displays result list 1, that for the crosswise data comparison with the control, led to the fault.

#### Index:

[0] = Result list, control

[1] = Result list, drive

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Actual value > upper limit, SBH	No	Yes	-
	01	Actual value > lower limit, SBH	No	Yes	-
	02	Actual value > upper limit, SE1	No	Yes	-
	03	Actual value > lower limit, SE1	No	Yes	-
	04	Actual value > upper limit, SE2	No	Yes	-
	05	Actual value > lower limit, SE2	No	Yes	-
	06	Actual value > upper limit, SG1	No	Yes	-
	07	Actual value > lower limit, SG1	No	Yes	-
	08	Actual value > upper limit, SG2	No	Yes	-
	09	Actual value > lower limit, SG2	No	Yes	-
	10	Actual value > upper limit, SG3	No	Yes	-
	11	Actual value > lower limit, SG3	No	Yes	-
	12	Actual value > upper limit, SG4	No	Yes	-
	13	Actual value > lower limit, SG4	No	Yes	-
	16	Actual value > upper limit, SBR	No	Yes	-
	17	Actual value > lower limit, SBR	No	Yes	-

#### Dependency:

Refer to: C01711

## r9711[0...1]

### SI motion diagnostics result list 2

SERVO

Can be changed: -

Access level: 4

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: -

Units group: -

Unit selection: -

Min

Max

Factory setting

**Description:**

Displays result list 2, that for the crosswise data comparison with the control, led to the fault.

**Index:**

[0] = Result list, control

[1] = Result list, drive

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Actual value > upper limit, SN1+	No	Yes	-
	01	Actual value > lower limit, SN1+	No	Yes	-
	02	Actual value > upper limit, SN1-	No	Yes	-
	03	Actual value > lower limit, SN1-	No	Yes	-
	04	Actual value > upper limit, SN2+	No	Yes	-
	05	Actual value > lower limit, SN2+	No	Yes	-
	06	Actual value > upper limit, SN2-	No	Yes	-
	07	Actual value > lower limit, SN2-	No	Yes	-
	08	Actual value > upper limit, SN3+	No	Yes	-
	09	Actual value > lower limit, SN3+	No	Yes	-
	10	Actual value > upper limit, SN3-	No	Yes	-
	11	Actual value > lower limit, SN3-	No	Yes	-
	12	Actual value > upper limit, SN4+	No	Yes	-
	13	Actual value > lower limit, SN4+	No	Yes	-
	14	Actual value > upper limit, SN4-	No	Yes	-
	15	Actual value > lower limit, SN4-	No	Yes	-
	16	Actual value > upper limit, n_x+	No	Yes	-
	17	Actual value > lower limit, n_x+	No	Yes	-
	18	Actual value > upper limit, n_x-	No	Yes	-
	19	Actual value > lower limit, n_x-	No	Yes	-
	20	Actual value > upper limit, modulo	No	Yes	-
	21	Actual value > lower limit, modulo	No	Yes	-

**Dependency:**

Refer to: C01711

**r9718****CO/BO: SI motion control signals 1**

SERVO

Can be changed: -

Access level: 4

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Safety Integrated

Units group: -

Unit selection: -

Min

Max

Factory setting



**Description:**

Control signal 1 for safety-relevant motion monitoring functions.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	23	Set offset for TfS to the actual torque	Reset	Set	-

**Note:**

TfS: Traverse to fixed endstop

---

**r9719 CO/BO: SI motion control signals 2**

SERVO	Can be changed: -	Access level: 4
	Data type: Unsigned32	Data set: -
	P-Group: Safety Integrated	Units group: -
	Min	Max
	-	-
		Function diagram: -
		Unit selection: -
		Factory setting

**Description:**

Control signal 2 for safety-relevant motion monitoring functions.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	13	Control signal, close brake from control	No	Yes	-

---

**r9725 SI motion, diagnostics STOP F**

SERVO	Can be changed: -	Access level: 4
	Data type: Unsigned32	Data set: -
	P-Group: -	Units group: -
	Min	Max
	-	-
		Function diagram: -
		Unit selection: -
		Factory setting

**Description:**

Displays the message value that resulted in the STOP F on the drive.

Value = 0 means:

The controlled signaled a STOP F.

Value = 1 ... 999 means:

Number of the incorrect crosswise compared data between the drive and control.

Value >= 1000 means:

Additional diagnostic values of the drive.

**Dependency:**

Refer to: C01711

**Note:**

The significance of the individual values is described in message 27001 of the higher-level control.

---

<b>p9726</b>	<b>SI motion, user agreement selection/de-selection</b>		
SERVO	Can be changed: U, T		Access level: 4
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 hex	00AC hex	0000 hex

**Description:**

Setting to select and de-select the user agreement.

**Values:**

0: [00 hex] De-select user agreement

172: [AC hex] Select user agreement

**Dependency:**

Refer to: r9727

---

<b>r9727</b>	<b>SI motion user agreement, inside the drive</b>		
SERVO	Can be changed: -		Access level: 4
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the internal state of the user agreement.

Value = 0: User agreement is not set.

Value = AC hex: User agreement is set.

**Dependency:**

Refer to: p9726

---

<b>r9728[0...1]</b>	<b>SI motion actual checksum, SI parameters</b>		
SERVO	Can be changed: -		Access level: 4
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the checksum over the checked Safety Integrated parameters of the motion monitoring functions (actual checksum).

**Index:**

[0] = Check sum over SI parameters for motion monitoring

[1] = Check sum over SI parameters for actual values

**Dependency:**

Refer to: p9729

Refer to: F01680

---

<b>p9729[0...1]</b>	<b>SI motion reference checksum, SI parameters</b>		
SERVO	Can be changed: U, T		Access level: 4
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0000 hex

**Description:**

Sets the checksum using the checksum-tested Safety Integrated parameters for motion monitoring functions (reference checksum).

**Index:**

[0] = Check sum over SI parameters for motion monitoring

[1] = Check sum over SI parameters for actual values

**Dependency:**

Refer to: r9728

Refer to: F01680

---

<b>r9744</b>	<b>SI message buffer changes, counter</b>		
SERVO	Can be changed: -		Access level: 4
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the changes of the safety message buffer. This counter is incremented every time that the safety message buffer changes.

**Recommendation:**

This is used to check whether the safety message buffer has been read-out consistently.

**Dependency:**

Refer to: r9747, r9748, r9749, p9752, r9753, r9754, r9755, r9756, p9759

**r9747[0...63]****SI message code**

SERVO

Can be changed: -

Access level: 4

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the numbers of safety messages that have occurred.

**Dependency:**

Refer to: r9744, r9748, r9749, p9752, r9753, r9754, r9755, r9756, p9759

**Note:**

The messages type "safety message" (Cxxxxx) are entered in the message fault buffer.

**r9748[0...63]****SI message time received in milliseconds**

SERVO

Can be changed: -

Access level: 4

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Messages

Units group: TIME\_M3

Unit selection: -

Min

Max

Factory setting

- [ms]

- [ms]

- [ms]

**Description:**

Displays the relative system runtime in milliseconds when the safety message occurred.

**Dependency:**

Refer to: r9744, r9747, r9749, p9752, r9753, r9754, r9755, r9756, p9759

**r9749[0...63]****SI message value**

SERVO

Can be changed: -

Access level: 4

Data type: Integer32

Data set: -

Function diagram: -

P-Group: Messages

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the additional information about the safety message that occurred (as integer number).

**Dependency:**

Refer to: r9744, r9747, r9748, p9752, r9753, r9754, r9755, r9756, p9759

**p9752****SI message cases, counter**

SERVO	Can be changed: U, T		Access level: 4
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	65535	0

**Description:**

Number of safety messages that have occurred since the last reset.

**Dependency:**

The safety message buffer is cleared by resetting the parameter to 0.

Refer to: r9744, r9747, r9748, r9749, r9753, r9754, r9755, r9756, p9759

**Note:**

The parameter is reset to 0 at POWER ON.

---

**r9753[0...63] SI message value for float values**

SERVO	Can be changed: -		Access level: 4
	Data type: Floating Point	Data set: -	Function diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays additional information about the safety message that has occurred for float values.

**Dependency:**

Refer to: r9744, r9747, r9748, r9749, p9752, r9754, r9755, r9756, p9759

---

**r9754[0...63] SI message time received in days**

SERVO	Can be changed: -		Access level: 4
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the relative system runtime in days when the safety message occurred.

**Dependency:**

Refer to: r9744, r9747, r9748, r9749, p9752, r9753, r9755, r9756, p9759

---

**r9755[0...63] SI message time removed in milliseconds**

SERVO	Can be changed: -		Access level: 4
-------	-------------------	--	-----------------

Data type: Unsigned32	Data set: -	Function diagram: -
P-Group: Messages	Units group: TIME_M3	Unit selection: -
Min	Max	Factory setting
- [ms]	- [ms]	- [ms]

**Description:**

Displays the relative system runtime in milliseconds when the safety message was removed.

**Dependency:**

Refer to: r9744, r9747, r9748, r9749, p9752, r9753, r9754, r9756, p9759

**r9756[0...63]****SI message time removed in days**

SERVO

Can be changed: -		Access level: 4
Data type: Unsigned16	Data set: -	Function diagram: -
P-Group: Messages	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	-

**Description:**

Displays the relative system runtime in days when the safety message was removed.

**Dependency:**

Refer to: r9744, r9747, r9748, r9749, p9752, r9753, r9754, r9755, p9759

**p9759****SI, acknowledge messages, drive object**

SERVO

Can be changed: U, T		Access level: 4
Data type: Unsigned8	Data set: -	Function diagram: -
P-Group: Messages	Units group: -	Unit selection: -
Min	Max	Factory setting
0	1	0

**Description:**

Acknowledges all safety messages present for a drive object.

**Dependency:**

Refer to: r9744, r9747, r9748, r9749, p9752, r9753, r9754, r9755, r9756

**Note:**

Parameter should be set from 0 to 1 to acknowledge.

After acknowledgement, the parameter is automatically reset to 0.

**p9761****SI password input**

SERVO

Can be changed: C1, T		Access level: 3
Data type: Unsigned32	Data set: -	Function diagram: 2800

P-Group: Safety Integrated	Units group: -	Unit selection: -
Min	Max	Factory setting
0000 hex	FFFF FFFF hex	0000 hex

**Description:**

Enters the Safety Integrated password.

**Dependency:**

Refer to: F01659

**Note:**

It is not permissible to change Safety Integrated parameter settings until the Safety Integrated password has been entered.

**p9762**

**SI password new**

SERVO

Can be changed: C2		Access level: 3
Data type: Unsigned32	Data set: -	Function diagram: 2800
P-Group: Safety Integrated	Units group: -	Unit selection: -
Min	Max	Factory setting
0000 hex	FFFF FFFF hex	0000 hex

**Description:**

Enters a new Safety Integrated password.

**Dependency:**

A change made to the Safety Integrated password must be acknowledged in the following parameter:

Refer to: p9763

**p9763**

**SI password acknowledgment**

SERVO

Can be changed: C2		Access level: 3
Data type: Unsigned32	Data set: -	Function diagram: 2800
P-Group: Safety Integrated	Units group: -	Unit selection: -
Min	Max	Factory setting
0000 hex	FFFF FFFF hex	0000 hex

**Description:**

Acknowledges the new Safety Integrated password.

**Dependency:**

Refer to: p9762

**Note:**

The new password entered into p9762 must be re-entered in order to acknowledge.

p9762 = p9763 = 0 is automatically set after the new Safety Integrated password has

been successfully acknowledged.

**r9770[0...2]****SI version (control unit)**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: 2802

P-Group: Safety Integrated

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the Safety Integrated version on the control unit.

**Index:**

[0] = Safety Version (major release)

[1] = Safety Version (minor release)

[2] = Safety Version (baselevel or patch)

**Dependency:**

Refer to: r9870, r9890

**Note:**

Example:

r9770[0] = 2, r9770[1] = 3, r9770[2] = 1 --> Safety-Version V02.03.01

**r9771****SI common functions (control unit)**

SERVO

Can be changed: -

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: 2804

P-Group: Safety Integrated

Units group: -

Unit selection: -

Min

Max

Factory setting

-

-

-

**Description:**

Displays the safety integrated monitoring functions supported on the control unit and motor module.

The control unit determines this display.

**Bit field:**

Bit	Signal name	0 signal	1 signal	FP
00	SH supported via terminal	No	Yes	-
01	SBC supported	No	Yes	-
02	SI Motion supported	No	Yes	-

**Dependency:**

Refer to: r9871



**Note:**

CU: Control unit  
SBC: Safe brake control  
SH: Safe standstill  
SI: Safety Integrated

<b>r9772</b>	<b>CO/BO: SI status (control unit)</b>		
SERVO	Can be changed: -		Access level: 2
	Data type: Unsigned32	Data set: -	Function diagram: 2804
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the Safety Integrated status on the control unit.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	SH selected on control unit	No	Yes	2810
	01	SH active on the control unit	No	Yes	2810
	04	SBC requested	No	Yes	2814
	09	STOP A cannot be acknowledged, active	No	Yes	2802
	10	STOP A active	No	Yes	2802
	15	STOP F active	No	Yes	2802

**Dependency:**

Refer to: r9872

<b>r9773</b>	<b>CO/BO: SI status (control unit + motor module)</b>		
SERVO	Can be changed: -		Access level: 2
	Data type: Unsigned32	Data set: -	Function diagram: 2804
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the Safety Integrated status on the drive (control unit + motor module).

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	SH in the drive selected	No	Yes	2804
	01	SH in the drive active	No	Yes	2804
	04	SBC requested	No	Yes	2804
	31	Shutdown paths must be tested	No	Yes	2810

**Note:**

This status is formed from the AND operation of the relevant status of the two monitoring channels.

---

<b>r9774</b>	<b>CO/BO: SI status (safe standstill group)</b>		
SERVO	Can be changed: -		Access level: 2
	Data type: Unsigned32	Data set: -	Function diagram: 2804
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the status for Safety Integrated of the group to which this drive belongs.

These signals are an AND logic operation of the individual status signals of the drives included in this group.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	SH selected in group	No	Yes	2804
	01	SH active in group	No	Yes	2804
	04	SBC requested	No	Yes	2804
	31	Shutdown paths of the group must be tested	No	Yes	2804

**Dependency:**

Refer to: p9620, r9773

**Note:**

A group is formed by appropriately grouping the terminals for "safe standstill".

The status of a group of n drives is, for drives 1 to n - 1 displayed with a delay of one monitoring clock cycle; this is a system-related effect.

---

<b>r9780</b>	<b>SI monitoring clock cycle (control unit)</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 2802
	P-Group: Safety Integrated	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	- [ms]	- [ms]	- [ms]

**Description:**

Displays the clock cycle time for the safety functions on the control unit.

**Dependency:**

Refer to: r9880

---

## **r9794[0...19] SI crosswise comparison list (control unit)**

SERVO	Can be changed: -	Access level: 3
	Data type: Unsigned16	Data set: -
	P-Group: Safety Integrated	Function diagram: 2802
	Min	Unit selection: -
	Max	Factory setting
	-	-

### **Description:**

Displays the number of the data that are being presently compared crosswise on the control unit.

Example:

r9794[0] = 1 (monitoring clock cycle)

r9794[1] = 2 (enable safety-related functions)

r9794[2] = 3 (SGE changeover, tolerance time)

r9794[3] = 4 (transition time, STOP F to STOP A)

...

The list of crosswise compared data is obtained dependent on the particular application.

### **Dependency:**

Refer to: r9894

### **Note:**

The complete list of numbers for crosswise data comparison is listed in Fault F01611.

---

## **r9795 SI diagnostics STOP F (control unit)**

SERVO	Can be changed: -	Access level: 2
	Data type: Unsigned32	Data set: -
	P-Group: Safety Integrated	Function diagram: 2802
	Min	Unit selection: -
	Max	Factory setting
	-	-

### **Description:**

Displays the number of the cross-checked data which has caused STOP F on the control unit.

### **Dependency:**

Refer to: r9895

Refer to: F01611

### **Note:**

The complete list of numbers for crosswise data comparison is listed in Fault F01611.

<b>r9798</b>	<b>SI actual checksum SI parameters (control unit)</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 2800
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the checksum over the checked Safety Integrated parameters on the control unit (actual checksum).

**Dependency:**

Refer to: p9799, r9898

<b>p9799</b>	<b>SI reference checksum SI parameters (control unit)</b>		
SERVO	Can be changed: C2		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 2800
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0000 hex

**Description:**

Sets the checksum for the checked Safety Integrated parameters on the control unit (reference checksum).

**Dependency:**

Refer to: r9798, p9899

<b>p9801</b>	<b>SI enables safety functions (motor module)</b>		
SERVO	Can be changed: C2		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 bin	0001 bin	0000 bin

**Description:**

Sets the enable signals for safety functions on the motor module.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	Enable SH via terminal (Motor Module)	Inhibit	Enable	2810

**Dependency:**

Refer to: p9601

**Note:**

MM: Motor module  
SH: Safe standstill  
SI: Safety Integrated

<b>p9802</b>	<b>SI enable safe brake control (motor module)</b>		
SERVO	Can be changed: C2		Access level: 3
	Data type: Integer32	Data set: -	Function diagram: 2814
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	1	0

**Description:**

Sets the enable signal for the "Safe brake control" function (SBC) on the motor module.

0: Inhibit SBC

1: Enable SBC

**Dependency:**

Refer to: p9602

**Note:**

The "safe brake control" function is not activated until at least one safety monitoring function has been enabled (i.e. p9801 not equal to 0).

The parameterization "no motor holding brake available" and "safe brake control" enabled (p1215 = 0, p9602 = p9802 = 1) is not practical if there is no motor holding brake.

MM: Motor module

SBC: Safe brake control

SI: Safety Integrated

<b>p9810</b>	<b>SI PROFIsafe address (motor module)</b>		
SERVO	Can be changed: C2		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 hex	FFFE hex	0000 hex

**Description:**

Sets the PROFIsafe address of the motor module.

<b>p9850</b>	<b>SI SGE changeover tolerance time (motor module)</b>		
SERVO	Can be changed: C2		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 2810

P-Group: Safety Integrated	Units group: TIME_M6	Unit selection: -
Min	Max	Factory setting
0.00 [μs]	2000000.00 [μs]	500000.00 [μs]

**Description:**

Sets the tolerance time to change over the safety-related inputs (SGE) on the motor module.

An SGE changeover is not simultaneously effective due to the different runtimes in the two monitoring channels. After an SGE changeover, dynamic data is not subject to a crosswise data comparison during this tolerance time.

**Dependency:**

Refer to: p9650

**Note:**

For a crosswise data comparison between p9650 and p9850, a difference of one Safety monitoring clock cycle is tolerated.

The parameterized time is internally rounded-off to an integer multiple of the monitoring clock cycle.

SGE: Safety-related input (e.g. SH terminals)

---

<b>p9858</b>	<b>SI transition time STOP F to STOP A (control unit)</b>		
SERVO	Can be changed: C2	Access level: 3	
	Data type: Floating Point	Data set: -	Function diagram: 2802
	P-Group: Safety Integrated	Units group: TIME_M6	Unit selection: -
	Min	Max	Factory setting
	0.00 [μs]	30000000.00 [μs]	0.00 [μs]

**Description:**

Sets the transition period from STOP F to STOP A on the motor module.

**Dependency:**

Refer to: p9658, r9895

Refer to: F30611

**Note:**

For a crosswise data comparison between p9658 and p9858, a difference of one Safety monitoring clock cycle is tolerated.

The parameterized time is internally rounded-off to an integer multiple of the monitoring clock cycle.

STOP F: Defect in a monitoring channel (error in the crosswise data comparison)

STOP A: Pulse cancellation via the safety shutdown path

---

**r9870[0...2]      SI version (motor module)**

SERVO	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: 2802
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the Safety Integrated version on the motor module.

**Index:**

[0] = Safety Version (major release)

[1] = Safety Version (minor release)

[2] = Safety Version (baselevel or patch)

**Dependency:**

Refer to: r9770, r9890

**Note:**

Example:

r9870[0] = 2, r9870[1] = 3, r9870[2] = 1 --> Safety-Version V02.03.01

---

**r9871 SI common functions (motor module)**

SERVO	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 2804
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the safety integrated monitoring functions supported on the control unit and motor module.

The motor module determines this display.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	SH supported via terminal	No	Yes	-
	01	SBC supported	No	Yes	-
	02	SI Motion supported	No	Yes	-

**Dependency:**

Refer to: r9771

**Note:**

MM: Motor module

SBC: Safe brake control

SH: Safe standstill

SI: Safety Integrated

---

<b>r9872</b>	<b>CO/BO: SI status list (motor module)</b>		
SERVO	Can be changed: -		Access level: 2
	Data type: Unsigned32	Data set: -	Function diagram: 2804
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the Safety Integrated status on the motor module.

Bit field:	Bit	Signal name	0 signal	1 signal	FP
	00	SH on selected on motor module	No	Yes	2810
	01	SH on motor module active	No	Yes	2810
	04	SBC requested	No	Yes	2814
	09	STOP A cannot be acknowledged, active	No	Yes	2802
	10	STOP A active	No	Yes	2802
	15	STOP F active	No	Yes	2802

**Dependency:**

Refer to: r9772

---

<b>r9880</b>	<b>SI monitoring clock cycle (motor module)</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Floating Point	Data set: -	Function diagram: 2802
	P-Group: Safety Integrated	Units group: TIME_M3	Unit selection: -
	Min	Max	Factory setting
	- [ms]	- [ms]	- [ms]

**Description:**

Displays the cycle time for the safety functions on the motor module.

**Dependency:**

Refer to: r9780

---

<b>r9881[0...11]</b>	<b>SI motion sensor module node identifier control</b>		
SERVO	Can be changed: -		Access level: 4
	Data type: Unsigned8	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-



**Description:**

Displays the node identifier of the sensor module that is used by the control for the motion monitoring functions.

---

<b>r9890[0...2]</b>	<b>SI version (sensor module)</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the Safety Integrated version on the sensor module.

**Index:**

- [0] = Safety Version (major release)
- [1] = Safety Version (minor release)
- [2] = Safety Version (baselevel or patch)

**Dependency:**

Refer to: r9770, r9870

**Note:**

Example:

r9890[0] = 2, r9890[1] = 3, r9890[2] = 1 --> Safety-Version V02.03.01

---

<b>r9894[0...19]</b>	<b>SI crosswise comparison list (motor module)</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Unsigned16	Data set: -	Function diagram: 2802
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the number of the data that are being presently compared crosswise on the motor module.

Example:

- r9894[0] = 1 (monitoring clock cycle)
- r9894[1] = 2 (enable safety-related functions)
- r9894[2] = 3 (SGE changeover, tolerance time)
- r9894[3] = 4 (transition time, STOP F to STOP A)

...

The list of crosswise compared data is obtained dependent on the particular application.

**Dependency:**

Refer to: r9794

**Note:**

The complete list of numbers for crosswise data comparison is listed in Fault F30611.

---

<b>r9895</b>	<b>SI diagnostics STOP F (motor module)</b>		
SERVO	Can be changed: -		Access level: 2
	Data type: Unsigned32	Data set: -	Function diagram: 2802
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the number of the cross-checked data which has caused STOP F on the motor module.

**Dependency:**

Refer to: r9795

Refer to: F30611

**Note:**

The complete list of numbers for crosswise data comparison is listed in Fault F30611.

---

<b>r9898</b>	<b>SI actual checksum SI parameters (motor module)</b>		
SERVO	Can be changed: -		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 2800
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	-	-	-

**Description:**

Displays the checksum for the checked Safety Integrated parameters on the motor module (actual checksum).

**Dependency:**

Refer to: r9798, p9899

---

<b>p9899</b>	<b>SI reference checksum SI parameters (motor module)</b>		
SERVO	Can be changed: C2		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: 2800
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0000 hex

**Description:**

Sets the checksum for the checked Safety Integrated parameters on the motor module (reference checksum).

**Dependency:**

Refer to: p9799, r9898

**p9904**

**Topology comparison, acknowledge differences**

CU\_I

Can be changed: C1(1)

Access level: 3

Data type: Unsigned32

Data set: -

Function diagram: -

P-Group: Topology

Units group: -

Unit selection: -

Min

Max

Factory setting

0000 hex

FFFF FFFF hex

0000 hex

**Description:**

If, when comparing the actual topology and target topology, only error has occurred, that can be acknowledged, then using this parameter, a new comparison can be started - acknowledging the error in the target topology.

Differences that can be acknowledged:

- topology comparison, component shifted
- topology comparison, serial number of a component has been detected to be different (byte 3 = 1)
- topology comparison shows one component that is connected differently

The following parameter values are available:

p9904 = 1 --> the procedure is started.

p9904 = 0 after starting --> the procedure has been successfully completed.

p9904 = 1 after starting --> the procedure has not been successfully completed.

The possible causes for an unsuccessful procedure are located in bytes 4, 3, 2.

Byte 2:

Number of structural differences.

Byte 3:

Number of differences that can be acknowledged (p9904).

Byte 4:

Number of differences. These differences can be resolved as follows:

- sets the topology comparison (p9906 or p9907/p9908).
- change over the actual topology.

The appropriate action should be selected corresponding to the message that is displayed/output.

**Note:**

In order to permanently accept the acknowledgement of the fault that can be resolved,

then it must be saved in a non-volatile fashion (p0977).

**p9905****Device specialization**

CU\_I

Can be changed: C1(1)

Access level: 3

Data type: Unsigned16

Data set: -

Function diagram: -

P-Group: Topology

Units group: -

Unit selection: -

Min

Max

Factory setting

0

1

0

**Description:**

With p9905 = 1, the serial numbers and the hardware versions of all of the components are transferred from the actual topology into the target topology and a new comparison is started..

For the device specialization, the components of the target topology may only differ from those of the actual topology by the serial numbers.

**Note:**

p9905 is automatically set to 0 at the end of the operation.

In order to permanently accept the data, it is necessary to save in a non-volatile fashion (p0977).

**p9906****Topology comparison, comparison stage of all components**

CU\_I

Can be changed: C1(1)

Access level: 3

Data type: Integer16

Data set: -

Function diagram: -

P-Group: Topology

Units group: -

Unit selection: -

Min

Max

Factory setting

0

99

0

**Description:**

Sets the type of comparison between the actual topology and target topology.

The comparison is started by setting the required value.

**Values:**

- 0: High: Compares the complete electronic rating plate
- 1: Average: Compares the component type and the Order number
- 2: Low: Compares the component type
- 3: Minimum: Compares the component class
- 99: Topology has different comparison stages

**Note:**

The electronic rating plate comprises the following data:

- component type (e.g. "SMC20")
- Order No. (e.g. "6SL3055-0AA0-5BA0")

- manufacturer (e.g. SIEMENS)
- hardware version (e.g. "A")
- Serial No. (e.g. "T-P30050495")

When comparing the topology, the following data is compared in the target and actual topologies:

p9906 = 0: Component type, Order No., Hardware version, Manufacturer, Serial No.

p9906 = 1: Component type, Order No.

p9906 = 2: Component type

p9906 = 3: Component class (e.g. sensor module or motor module)

<b>p9907</b>	<b>Topology comparison, comparison stage of the component number</b>		
CU_I	Can be changed: C1(1)		Access level: 3
	Data type: Unsigned8	Data set: -	Function diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	199	0
<b>Description:</b>			
Enters the number of the component where the setting of how the actual topology should be compared to the target topology should be changed.			
<b>Dependency:</b>			
Refer to: p9908			

<b>p9908</b>	<b>Topology comparison, comparison stage of a component</b>		
CU_I	Can be changed: C1(1)		Access level: 3
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	99	0
<b>Description:</b>			
Sets the type of comparison of a component in the target topology with the actual topology.			
The comparison is started by setting the required value.			
<b>Values:</b>			
0: High: Compares the complete electronic rating plate			
1: Average: Compares the component type and the Order number			
2: Low: Compares the component type			
3: Minimum: Compares the component class			
99: Topology has different comparison stages			
<b>Dependency:</b>			
Refer to: p9907			

**Note:**

The electronic rating plate comprises the following data:

- component type (e.g. "SMC20")
- Order No. (e.g. "6SL3055-0AA0-5BA0")
- manufacturer (e.g. SIEMENS)
- hardware version (e.g. "A")
- Serial No. (e.g. "T-P30050495")

When comparing the topology, the following data is compared in the target and actual topologies:

p9908 = 0: Component type, Order No., Hardware version, Manufacturer, Serial No.

p9908 = 1: Component type, Order No.

p9908 = 2: Component type

p9908 = 3: Component class (e.g. sensor module or motor module)

**p9909****Topology comparison, component replacement**

CU\_I

Can be changed: C1(1)

Access level: 3

Data type: Unsigned8

Data set: -

Function diagram: -

P-Group: Topology

Units group: -

Unit selection: -

Min

Max

Factory setting

0

1

1

**Description:**

For p9909 = 1, the serial number and the hardware version of the new replaced component is automatically transferred from the actual topology into the target topology and then saved in a non-volatile fashion.

For the components that have been replaced, the electronic type plate must match as far as the following data is concerned:

- component type (e.g. "SMC20")
- Order No. (e.g. "6SL3055-0AA0-5BA0")

For p9909 = 0, serial numbers and hardware versions are not automatically transferred. In this case, the transfer must be made using p9904.

**Dependency:**

Refer to: p9904, p9905

**Note:**

The modified target topology is automatically saved in a non-volatile fashion when the drive object runs-up (e.g. after a POWER ON).

Special case for control unit and option slot modules:

When replacing these components, independent of p9909, the serial number and hardware version are automatically transferred and saved in a non-volatile fashion.

<b>p9910</b>	<b>Transfer additional components into the target topology</b>		
CU_I	Can be changed: C1(1)		Access level: 1
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	12	0
	<b>Description:</b> Transfer additional inserted DRIVE-CLiQ components into the target topology and add the appropriate drive objects to the project. <b>Values:</b> 0: No selection 1: Drive object type SERVO 2: Drive object type VECTOR 3: SINAMICS GM (DFEMV & VECTORMV) 4: SINAMICS SM (AFEMV   VECTORMV) 5: SINAMICS GL (VECTORGL) 12: Drive object type VECTOR parallel circuit		
<b>p9915</b>	<b>DRIVE-CLiQ data transfer error, shutdown threshold, master</b>		
CU_I	Can be changed: C1(1)		Access level: 4
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 hex	0007 07FF hex	0007 02FF hex
	<b>Description:</b> Only for internal Siemens service.		
<b>p9916</b>	<b>DRIVE-CLiQ data transfer error, shutdown threshold, slave</b>		
CU_I	Can be changed: C1(1)		Access level: 4
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 hex	0007 07FF hex	0007 02FF hex
	<b>Description:</b> Only for internal Siemens service.		
<b>r9925[0...99]</b>	<b>CompactFlash Card file error</b>		
CU_I	Can be changed: -		Access level: 2

Data type: Unsigned8	Data set: -	Function diagram: -
P-Group: -	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	-

**Description:**

Displays the directory and the name of the file that was identified as illegal with respect to the state when supplied from the factory when checking the CompactFlash Card.

**Dependency:**

Refer to: A01016

**r9926****CompactFlash Card check status**

CU\_I

Can be changed: -		Access level: 2
Data type: Unsigned8	Data set: -	Function diagram: -
P-Group: -	Units group: -	Unit selection: -
Min	Max	Factory setting
-	-	-

**Description:**

Displays the status when checking the CompactFlash Card after powering-up.

**Dependency:**

Refer to: A01016

**p9930[0...8]****System logbook activation**

CU\_I

Can be changed: U, T		Access level: 3
Data type: Unsigned8	Data set: -	Function diagram: -
P-Group: -	Units group: -	Unit selection: -
Min	Max	Factory setting
0	255	0

**Description:**

Only for service purposes.

**Index:**

- [0] = System logbook stage (0: not active)
- [1] = COM2/COM1 (0: COM2, 1: COM1)
- [2] = Activate file write (0: not active)
- [3] = Display time stamp (0: No display)
- [4] = Display system logbook stage (0: No display)
- [5] = Display drive object number (0: No display)
- [6] = Display software module name (0: No display)
- [7] = Output buffer size (stages, each 1 kB)
- [8] = System logbook file size (stages, each 10 kB)



**Notice:**

Before powering-down the control unit, ensure that the system logbook is switched-out (p9930[0] = 0).

---

<b>p9931[0...99]</b>	<b>System logbook module selection</b>		
CU_I	Can be changed: U, T		Access level: 3
	Data type: Unsigned32	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0000 hex

**Description:**

Only for service purposes.

---

<b>p9932</b>	<b>Save system logbook EEPROM</b>		
CU_I	Can be changed: U, T		Access level: 3
	Data type: Unsigned8	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	255	0

**Description:**

Only for service purposes.

---

<b>p9950</b>	<b>Runtime measurement, control</b>		
CU_I	Can be changed: U, T		Access level: 4
	Data type: Integer16	Data set: -	Function diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Min	Max	Factory setting
	0	3	0

**Description:**

Setting to control the runtime measurement.

**Values:**

- 0: Stop runtime measurement
- 1: Start runtime meas (internal)
- 2: Clear trace buffer (internal)
- 3: Activate calculation of remaining computing time

**Dependency:**

Refer to: r9976

**r9976[0...7]****System load**

CU\_I

Can be changed: -

Access level: 3

Data type: Floating Point

Data set: -

Function diagram: -

P-Group: -

Units group: PERCENT

Unit selection: -

Min

Max

Factory setting

- [%]

- [%]

- [%]

**Description:**

Displays the system load.

The system load measurement is automatically started after run-up.

The individual values (computation load and cyclic load) are measured over short time slices and from the measurements, the maximum, the minimum and the average value are formed and displayed in the appropriate indices. Further, the degree of memory utilization of the data and program memory is displayed.

**Index:**

[0] = comp. time load (min)

[1] = Computation time load (averaged)

[2] = Computation time load (max)

[3] = Computation time load cyclic (min)

[4] = Computation time load cyclic (avg)

[5] = Computation time load cyclic (max)

[6] = Data memory locked

[7] = Program memory locked

**Dependency:**

Refer to: p9950

Refer to: A01053



## Notes

# A Appendix

## References

You will find a list that is updated monthly of the documentation available in each language in the Internet at:

<http://www.siemens.com/motioncontrol>

Follow the menu items → "Support" → "Technical documentation" → "Overview of publications" or "DOConWEB".



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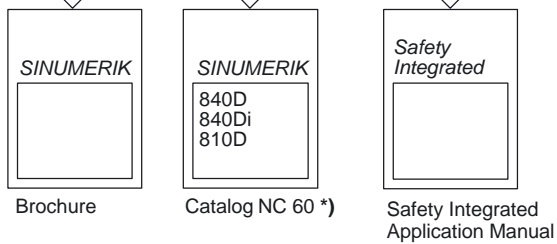
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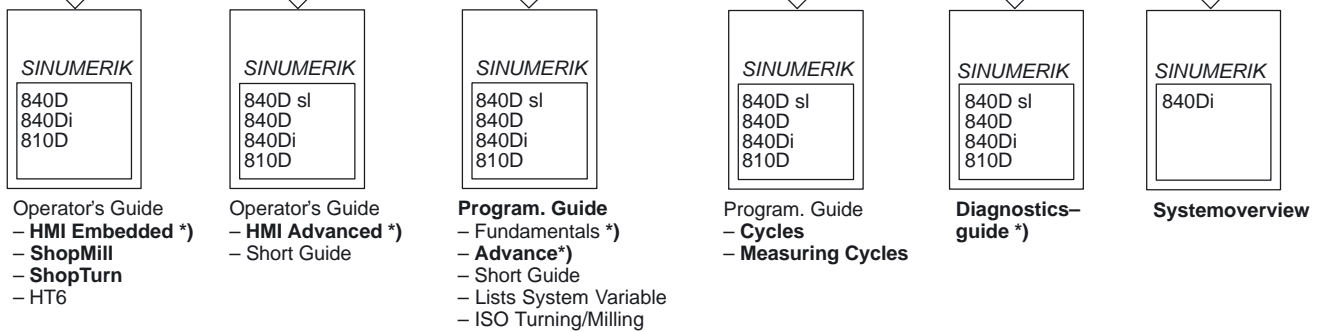


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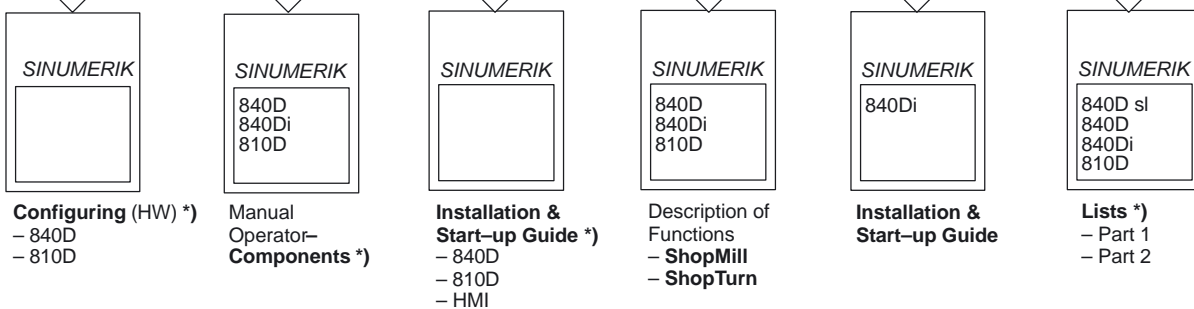
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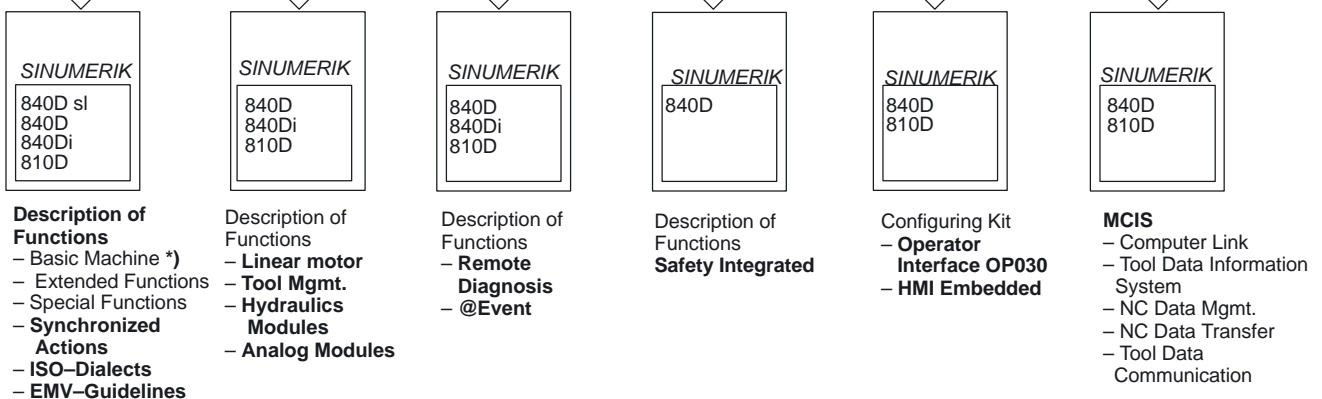
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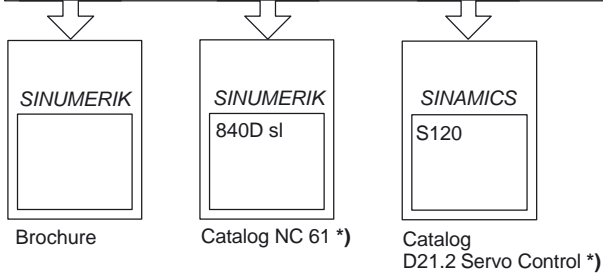
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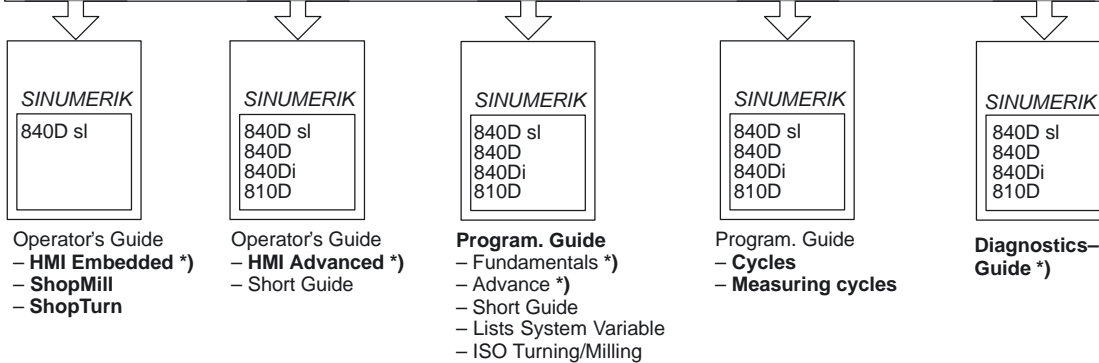
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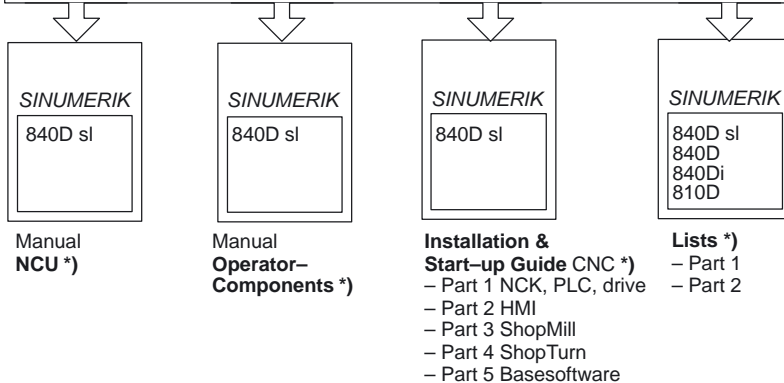
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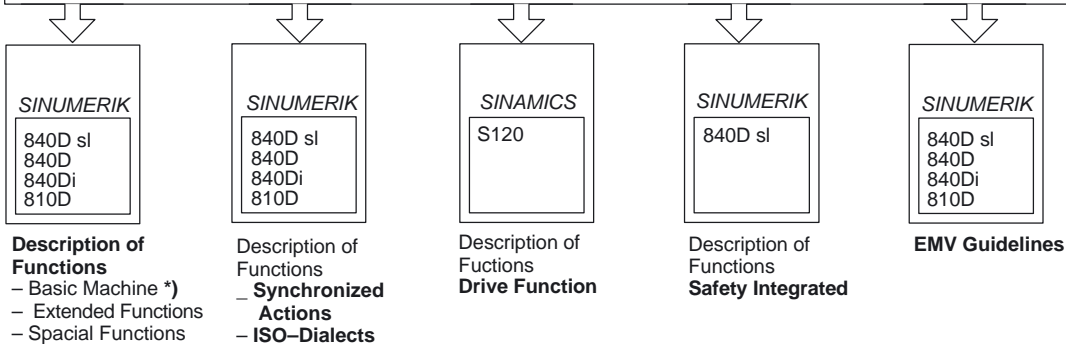
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