# SIEMENS

**SIMATIC NET**

**PG/PC - Industrial Ethernet CP 1612 A2**

Operating Instructions

# Legal information

## Warning notice system

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 only to property damage 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. |

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

| ⚠ CAUTION |
| --- |
| indicates that minor personal injury can result if proper precautions are not taken. |

| NOTICE |
| --- |
| indicates that property damage can result if proper precautions are not taken. |

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 product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

## Proper use of Siemens products

Note the following:

| ⚠ WARNING |
| --- |
| Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed. |

## Trademarks

All names identified by ® are registered trademarks of Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

## Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

# Table of contents

# Preface 1

## Validity of this documentation

These operating instructions are valid for the following product:

- CP 1612 A2
  Article number: 6GK1161-2AA01

## Content of this documentation

These operating instructions contain information about the installation and configuration of the CP 1612 A2 communications processor.

## Updated operating instructions on the Internet

You will find the current version of these operating instructions on the Product Support pages under the following entry ID:
62611945 (https://support.industry.siemens.com/cs/ww/en/view/62611945)

## Further documentation

The documents listed below contain more detailed information on commissioning and using the communications processor.

Enter the entry ID shown below of the relevant manual as the search item.

- **Configuration manual Commissioning PC Stations**

  This provides you with detailed information on commissioning and configuring SIMATIC NET PC communications modules.

  Entry ID:
  109488960 (https://support.industry.siemens.com/cs/ww/en/view/109488960)

- **SIMATIC NET - Industrial Communication with PG/PC**

  – **Volume 1 – Basics (system manual)**

    Entry ID:
    77376110 (https://support.industry.siemens.com/cs/ww/en/view/77376110)

  – **Volume 2 – Interfaces (programming manual)**

    Entry ID:
    77378184 (https://support.industry.siemens.com/cs/ww/en/view/77378184)

    The system manuals introduce the topic of industrial communication and explain the communications protocols used. There is also a description of the OPC interface as user programming interface.

- **Installation manual SIMATIC NET PC Software**

  This document contains detailed information on installing the "SIMATIC NET

  PC Software".

  Entry ID:
   77377602 (https://support.industry.siemens.com/cs/ww/en/view/77377602)

- **System manual Industrial Ethernet Network Manual**

  In this document you will find detailed information about setting up an Industrial Ethernet network.

  Entry ID:
  27069465 (https://support.industry.siemens.com/cs/ww/en/view/27069465)

## SIMATIC NET documentation

You will find the entire SIMATIC NET documentation on the Product Support pages:
 15247 (https://support.industry.siemens.com/cs/ww/en/ps/15247)

Go to the required product group and make the following settings:

→ Filter criteria for entries → entry type "Manual"

## See also

Support (https://support.industry.siemens.com/cs/ww/en/ps)

## Trademarks

The following and possibly other names not identified by the registered trademark sign ® are registered trademarks of Siemens AG:

SIMATIC NET, HARDNET, SOFTNET, CP 1612, CP 1613, CP 5612, CP 5613, CP 5614, CP 5622

## Industry Online Support

In addition to the product documentation, the comprehensive online information platform of Siemens Industry Online Support at the following Internet address:

(http://support.automation.siemens.com/WW/llisapi.dll?func=cslib.csinfo2&aktprim=99&lang=en)

Apart from news, there you will also find:

- Project information: Manuals, FAQs, downloads, application examples etc.
- Contacts, Technical Forum

- The option submitting a support query:
(https://support.automation.siemens.com/WW/llisapi.dll?func=cslib.csinfo&lang=en&objid=38718979&caller=view)

- Our service offer:

  Right across our products and systems, we provide numerous services that support you in every phase of the life of your machine or system - from planning and implementation to commissioning, through to maintenance and modernization.

You will find contact data on the Internet at the following address:
(http://www.automation.siemens.com/partner/guiwelcome.asp?lang=en)

## SITRAIN - Training for Industry

The training offer includes more than 300 courses on basic topics, extended knowledge and special knowledge as well as advanced training for individual sectors - available at more than 130 locations. Courses can also be organized individually and held locally at your location.

You will find detailed information on the training curriculum and how to contact our customer consultants at the following Internet address:

(www.siemens.com/sitrain)

## Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions only form one element of such a concept.

Customer is responsible to prevent unauthorized access to its plants, systems, machines and networks. Systems, machines and components should only be connected to the enterprise network or the internet if and to the extent necessary and with appropriate security measures (e.g. use of firewalls and network segmentation) in place.

Additionally, Siemens' guidance on appropriate security measures should be taken into account. For more information about industrial security, please visit

http://www.siemens.com/industrialsecurity

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends to apply product updates as soon as available and to always use the latest product versions. Use of product versions that are no longer supported, and failure to apply latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under

https://support.industry.siemens.com/cs/ww/de/ps/15247/pm

## SIMATIC NET glossary

Explanations of many of the specialist terms used in this documentation can be found in the SIMATIC NET glossary.

You will find the SIMATIC NET glossary on the Internet at the following address:

50305045 (http://support.automation.siemens.com/WW/view/en/50305045)

# Description of the device

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**Product features**

The CP 1612 A2 is a PCI module for connecting PGs/PCs to Industrial Ethernet. The essential properties are as follows:
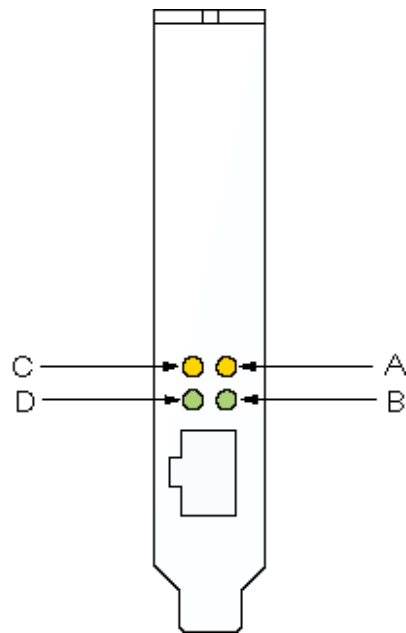
- RJ-45 connector for Industrial Ethernet for connecting a twisted-pair cable

- Data rates 10/100/1000 Mbps (half/full duplex) are supported

- Autosensing and autonegotiation

**Hardware requirement**

The CP 1612 A2 requires a PCI slot to operate.

**LED display**

To indicate module activity, the CP 1612 A2 has four LEDs on its front panel. The assignment is as follows:



| | |
|---|---|
| A | 1000 Mbps |
| B | 10 Mbps |
| C | 100 Mbps |
| D | FDX (full duplex) |

# Software installation 3

## 3.1 Installing the driver

### Installation

After the PC has booted, the Windows plug-and-play mechanism searches for a driver for the communications processor. The driver can be found on the "SIMATIC NET PC Software" DVD. It is, however, recommended that you install the entire SIMATIC NET PC software

## 3.2 Uninstalling the driver

### Uninstalling after using the communications processor with SIMATIC NET PC software

The driver is uninstalled automatically when you uninstall the "SIMATIC NET, PC Software" DVD or STEP 7.

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#### Note

The procedure recommended here uninstalls the entire "SIMATIC NET PC Software" on the PC not only the driver for the communications processor.

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#### Note
#### Further information on uninstalling

When uninstalling STEP 7, note the following instructions (https://support.industry.siemens.com/cs/ww/en/view/189025)

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## 3.3 Installing the "SIMATIC NET PC Software"

### "SIMATIC NET PC Software"

The "SIMATIC NET PC Software" is the software package with which you can operate the communications processor in your PG/PC.

To configure the communications processor, you require additional configuration software. You will find information on the configuration software in the section "Configuration (Page 15)".

## Condition

The plug and play function is activated in the BIOS of your PG/PC.

## Prior to hardware installation

Install the software as described in the installation manual "SIMATIC NET PC Software". You will find this installation manual on the Product Support pages under the following entry ID:
77377602 (https://support.industry.siemens.com/cs/ww/en/view/77377602)

You should also note the current information on the "SIMATIC NET PC Software" on the Product Support pages in:
(https://support.industry.siemens.com/cs/ww/en/ps/15362/pm)

## After the hardware installation

After installing the communications processor, your PG/PC automatically searches for a suitable driver.

1. Follow the instructions of the Hardware Wizard of Windows.

2. Do not activate the search for drivers on the Internet.

## 3.4 Uninstalling the "SIMATIC NET PC Software"

## Condition

The "SIMATIC NET PC Software" is installed on the PG/PC.

## Procedure

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**Note**

The recommended procedure removes the entire "SIMATIC NET PC Software" on the PG/PC, not only the driver for the communications processor.

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Uninstall the entire software package as described and recommended in the installation manual "SIMATIC NET PC Software".

You will find the installation manual on the "SIMATIC NET PC Software" DVD or on the Product Support pages under the following entry ID:

77377602 (https://support.industry.siemens.com/cs/ww/en/view/77377602)

# Hardware installation

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## 4.1 Installing and connecting up

### Number of permitted communications processors

**Note**

A maximum of 1 configured CP 1612 A2 is permitted in one PG/PC.

Exception: With SOFTNET-IE S7 REDCONNECT a maximum of two CP 1612 A2s can be configured in a PG/PC.

### Notes on passive network components

You will find important notes on the use of passive network components in the document "System manual IE/PN passive network components (https://support.industry.siemens.com/cs/ww/en/view/84922825)".

### Procedure

To install and connect up the communications processor follow the steps outlined below:

**Note**

When handling the module, make sure that you do not touch the connectors or the electronic components.

1. Turn off your computer and pull out the power cable connector from the socket.

2. Open the housing of the computer as described in the manual for your PG/PC and remove the cover of a free PCI slot in your computer.

3. Remove the communications processor from its packaging.

4. Insert the communications processor in the PCI slot.
   Make sure that the communications processor is inserted and secured correctly.

5. Close the computer housing as described in the manual accompanying your PG/PC

6. Insert the connecting cable (TP) in the socket on the front panel of the communications processor.

7. Plug the power supply connector into the socket again and turn on your computer.

# Configuration 5

## Configuring

To be able to configure the communications processor, the following engineering or configuration tools are available:

- STEP 7 V5.5
- STEP 7 Professional (TIA Portal)
- Communication Settings (COML S7)

The steps involved are described in the "Commissioning PC Stations" manual or in the relevant online helps.

# Technical specifications

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## CP 1612 A2

The following technical specifications apply to the CP 1612 A2 communications processor:

| Data transfer | |
|---|---|
| Transmission speed | 10/100 /1000 Mbps |

| Interfaces | |
|---|---|
| Connection to 10BaseT/100BaseTX/1000BaseT | RJ-45 connector |
| Connection to PC/PG | PCI slot (3.3 V/5 V, 32 bits) |

| Voltage | |
|---|---|
| Power supply | +5 V, +/-5 %; +12 V |

| Current consumption | |
|---|---|
| at +5 V | maximum 450 mA |
| at +12 V | maximum 500 mA |

| Permitted environmental conditions | |
|---|---|
| Operating temperature | 0 ℃ to +40 ℃ |
| Transportation/storage temperature | -25 ℃ to +55 ℃ |

| Construction | |
|---|---|
| Module format | PCB, short PCI format |
| Dimensions (H x D) | 107 x 125 mm |
| Weight | 60 g |
| Space required | PCI slot, short |

# Approvals

<span style="float:right; font-size:3em;">A</span>

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**Note**

The specified approvals apply only when the corresponding mark is printed on the communications processor.

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## Electromagnetic compatibility - EMC directive

The communications processor meets the requirements of the EC Directive:2004/108/EEC (EMC directive).

The communications processor is designed for use in the following areas:

| Area of application | Requirements | |
|---|---|---|
| | **Emission** | **Immunity** |
| Residential areas, business and commercial operations, and small businesses | EN 61000-6-3 | EN 61000-6-1 |
| Industrial environment | EN 61000-6-4 | EN 61000-6-2 |

## Declaration of conformity

You will find the declaration of conformity for this communications processor on the Product Support pages under the following entry ID:

58826997 (https://support.industry.siemens.com/cs/ww/en/view/58826997)

## C-TICK approval

The communications processor meets the requirements of the Australian AS/NZS 3548 standard according to EN 61000-6-3.

## CSA approval

The communications processor has an approval in accordance with the Canadian CAN/CSA C22.2 No. 60950-1 standard.

## ICES conformity

The communications processor meets the requirements of the Canadian standard ICES-003. It is rated as a digital device of Class B ("Class B digital apparatus").

## FCC approval

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Siemens AG is not responsible for any radio television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Siemens AG. The correction of interference caused by such unauthorized modification, substitution or attachment will be the responsibility of the user. The use of shielded I/O cables is required when connecting this equipment to any and all optional peripheral or host devices. Failure to do so may violate FCC and ICES rules.

## UL approval

The communications processor has an approval in accordance with the US standard UL 60950-1.

## Marking for the customs union

EAC (Eurasian Conformity)

Customs union of Russia, Belarus and Kazakhstan

Declaration of the conformity according to the technical regulations of the customs union (TR CU)