

# Load Feeder

Configuring SIRIUS Innovations for UL  
Selection data for Fuseless and Fused Load Feeders

Configuration Manual • 08/2011



## Industrial Controls

Answers for industry.

**SIEMENS**



## Industrial Controls

### Load feeders Configuring SIRIUS Innovations for UL

#### Configuration Manual

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### 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.

 <b>DANGER</b>
indicates that death or severe personal injury <b>will</b> result if proper precautions are not taken.
 <b>WARNING</b>
indicates that death or severe personal injury <b>may</b> result if proper precautions are not taken.
 <b>CAUTION</b>
with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.
<b>CAUTION</b>
without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.
<b>NOTICE</b>
indicates that an unintended result or situation can occur if the relevant 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.

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# Introduction

## 1.1 SIRIUS – the modular system family


### SIRIUS – the modular system family for switching, protecting and starting motors

In order to simplify the configuration of load feeders, the SIRIUS modular system offers standard components that are optimally coordinated and are easy to combine. Just 7 sizes cover the entire performance range up to 250 kW (400 hp). The individual switching devices can be easily assembled to form complete load feeders, either using link modules or by mounting directly.

SIRIUS motor starter protectors				SENTRON circuit breakers		
						
3RV2011 (S00)	3RV2021 (S0)	3RV1031 (S2)	3RV1041 (S3)	VL250/3VL3	VL400 (3VL4)	VL630 (3VL5)
SIRIUS contactors/magnetic motor controllers						
						
3RT201 (S00)	3RT202 (S0) <sup>1)</sup>	3RT103 (S2)	3RT1.4 (S3)	3RT1.5 (S6)	3RT1.6 (S10)	3RT1.7 (S12)
SIRIUS overload relays						
						
3RB3016 (S00)	3RB3026 (S0)	3RB2036 (S2)	3RB2046 (S3)	3RB2056 (S6)	3RB2066 (S10/S12)	

SIRIUS motor starter protectors					SENTRON circuit breakers
SIRIUS soft starters					
					
3RW301 (S00)	3RW402 (S0)	3RW403 (S2)	3RW404 (S3)	3RW405 (S6)	3RW407 (S10/S12)















<sup>1)</sup> We recommend the use of solid-state contactors/solid-state reversing contactors for high switching frequencies.




Highlights		
	• Load feeders:	Easy to implement up to 250 kW / 400 V (400 hp / 460 V) from standard devices
	• Modular design:	Everything fits together and can be combined
	• Variants and sizes:	Economical and flexible thanks to 7 compact sizes
	• Accessories:	Optimum variance with uniform accessories
	• Type of construction:	Space-saving design with small device width and butt-mounting type of construction up to 60 °C
	• Design:	Fast start-up, short setting-up times and simple wiring
	• Communication:	Connection to AS-Interface, PROFIBUS-DP and IO-Link up to 18,5 kW (25 hp) possible.
	• Maintenance:	Extremely durable, low maintenance and reliable
	• Approvals:	Global approvals and certifications, such as UL, CSA, CCC, shipbuilding ...
	• Mounting:	Permanently secure mounting, screw or snap fitting
	• Spring-type connection:	Quick and secure connection, vibration-proof and maintenance-free
	• Environment:	Environment-friendly production and materials, recycling capability, low power loss
	• Design:	Clear-cut, ergonomic design (winner of the iF Product Design Award)




## 1.2 SIRIUS Innovations

The innovations in the SIRIUS modular system family represent a totally new switchgear generation up to 18,5 kW (25 hp). They are based on the existing SIRIUS modular system family, which has been systematically optimized and extended with many new functions. The individual switching devices, each of which is available with screw or spring-loaded terminals, can be easily assembled to form complete load feeders, either using link modules or by mounting directly.

			Size	
	Function	Components	S00	S0
Main circuit	Switching and starting	Contactors		
		Solid-state switching devices		
		Soft starters		
	Protecting	Motor starter protectors		
		Overload relays		
	Monitoring	Current monitoring relays		
	Feeders	Feeders		
		Compact starters		

			Size	
	Function	Components	S00	S0
Control circuit		Function modules for mounting on contactors		
		Function modules for connection to the automation level	  IO-Link	

Highlights		
	• Load feeders:	Completely new series up to 18,5 kW / 400 V (25 hp / 460 V) <ul style="list-style-type: none"> <li>• Comprehensive variety of starter technologies: electromechanical, semiconductors, soft starters</li> <li>• Short-circuit breaking capacity up to 150 kA</li> </ul>
	• Modular design:	Coordinated components ensure combinability
	• Variants and sizes:	Economical and flexible with 2 sizes and a broader performance range
	• Accessories:	Optimum variance with uniform accessories
	• Type of construction:	Space-saving design with small device width and butt-mounting type of construction up to 60 °C
	• Design:	Fast startup, short setting-up times, and simple wiring
	• Communication:	Optional connection to AS-Interface or IO-Link with function modules
	• Maintenance:	Extremely durable, low maintenance, and reliable
	• Approvals:	Global approvals and certifications, such as UL, CSA, CCC, shipbuilding ...
	• Mounting:	Permanently secure mounting, screw or snap fitting
	• Spring-loaded connection technology:	Quick and secure connection, vibration-proof, and maintenance-free
	• Environment:	Environment-friendly production and materials, recycling capability, low power loss
	• Design:	Clear-cut, ergonomic design (winner of the iF Product Design Award)

## General information

"Load feeders: Configuring SIRIUS Innovations for UL" is a supporting configuration manual for users of our new "SIRIUS Innovations" switchgear generation. The standard applying to industrial control cabinets in the USA is the UL 508A "Industrial Control Panels". The configuration rules which apply in the USA are different to those which apply in Europe. This manual illustrates all UL approved switchgear and controlgear assemblies from the SIRIUS Innovations family, and so provides ideal support for the user. It contains tables for fuseless and fused designs according to UL 508, aiding selection. You can find out more information on UL in general, circuits and electrical supply systems as well as about devices and device selection from your Siemens contact.



## Standards and approvals

### 3.1 SIRIUS contactors and contactor assemblies

Table 3- 1 SIRIUS contactors and contactor assemblies

Device	Type	Standards and approvals							
		UL stan- dard	CCV UL Listed	CCN UL recog- nized	UL File No.	CSA Stan- dard	CSA File No.	CSA Class No.	IEC Standard
Contactors	3RT201...	UL508	NLDX	xx	E31519	CSA C22.2 No.14	012730	3211 04	IEC 60947-4-1 IEC60947-5-1
	3RT202...								
Contactor assemblies									
Reversing contactor assemblies	3RA23...	UL508	NLDX	xx	E31519	CSA C22.2 No.14	012730	3211 04	IEC 60947-4-1 IEC60947-5-1
Assembly kits for reversing contactor assemblies									
Assembly kits for constructing 3-pole contactor assemblies	3RA2913-2AA1	UL508	xx	NLDX2/8	E31519	CSA C22.2 No.14	012730	3211 04	IEC 60947-4-1
	3RA2913-2AA2		xx	NLDX2/8	E31519			3211 04	IEC 60947-4-1
Wiring modules (single)	3RA2923-2AA1		xx	NLDX2	E31519			3211 04	IEC 60947-4-1
	3RA2923-2AA2		xx	NLDX2	E31519			3211 04	IEC 60947-4-1
	3RA2913-3.A.		xx	NLDX2/8	E31519			3211 04	IEC 60947-4-1
	3RA2923-3.A.		xx	NLDX2	E31519			3211 04	IEC 60947-4-1
Mechanical connectors	3RA29.2-2H		xx	NLDX2	E31519			3211 04	—
Function modules for connection to the automation level	3RA2711... 3RA2712 3RA2910-0		NKCR	xx	E44653			3211 03	IEC 60947-4-1 IEC60947-5-1

## 3.1 SIRIUS contactors and contactor assemblies

Device	Type	Standards and approvals							
		UL standard	CCV UL Listed	CCN UL recognized	UL File No.	CSA Standard	CSA File No.	CSA Class No.	IEC Standard
Assembly kits for star-delta (wye-delta) combinations									
Assembly kits for constructing 3-pole contactor assemblies	3RA29.3-2BB.	UL508	NLDX	xx	E31519	CSA C22.2 No.14	012730	3211 04	IEC 60947-4-1
3-phase infeed terminal	3RA2913-3K		NMTR		E31519			3211 37	IEC 60947-4-1
3-phase busbar	3RV1915-1AB		NMTR		E31519			3211 37	IEC 60947-2
Parallel switching connections, 3-pole (neutral bridges)	3RT19.6-4BA3.		NLDX		E31519			3211 04	IEC 60947-4-1
Star-delta (wye-delta) function module	3RA2816-0EW20		NKCR		E31519			3211 03	IEC 60947-5-1
Accessories for 3RA28 function module	3RA2910-0		NKCR		E31519			3211 03	IEC 60947-4-1
Star-delta (wye-delta) function modules for connection to the automation level	3RA271. -.CA00		NKCR		E31519			3211 03	IEC 60947-5-1
Accessories for 3RA27 function module	3RA2711-0EE0.		NKCR		E31519			3211 03	IEC 60947-5-1
	3RA2910-0		NKCR		E31519			3211 03	IEC 60947-4-1
Contactors for special applications									
SIRIUS 3RT23 contactors for resistive loads (AC-1)	3RT23	UL508	NLDX	xx	E31519	CSA-C22.2 No. 14	012730	3211 04	IEC 60947-4-1
3RT25 contactors	3RT25		NLDX		E31519			3211 04	IEC 60947-4-1
Contactors with extended operating range for railway applications	3RH2122-2K.40		NKCR		E44653			3211 03	IEC 60947-5-1
	3RT20..- 2..4.		NLDX		E31519			3211 04	IEC 60947-5-1
Contactor relays									
Contactor relays	3RH21, 3RH22, 3RH24	UL508	NKCR	xx	E44653	CSA-C22.2 No. 14	012730	3211 03	IEC 60947-5-1

## 3.1 SIRIUS contactors and contactor assemblies

Device	Type	Standards and approvals							
		UL standard	CCV UL Listed	CCN UL recognized	UL File No.	CSA Standard	CSA File No.	CSA Class No.	IEC Standard
Coupling relays									
Coupling relays (interface)	3RT20...	UL508	NLDX	xx	E31519	CSA-C22.2 No. 14	012730	3211 04	IEC 60947-5-1
SIRIUS function modules for direct-on-line start									
Solid-state timing relays with semiconductor output, for snapping onto the front	3RA281-...W10	UL508	NKCR	xx	E44653	CSA-C22.2 No. 14	012730	3211 03	IEC 60947-5-1
Accessories	3RA2910-0								IEC 60947-4-1
SIRIUS function modules for IO-Link									
Function modules for direct-on-line start	3RA2711-..AA00	UL508	NKCR	xx	E44653	CSA-C22.2 No. 14	012730	3211 03	IEC 60947-5-1
Function modules for reversing start	3RA2711-..BA00		NKCR	xx	E44653			3211 03	IEC 60947-5-1
Function modules for star-delta (wye-delta) start	3RA2711-..CA00		NKCR	xx	E44653			3211 03	IEC 60947-5-1
	3RA2913-2BB.		NLDX	xx	E31519			3211 04	IEC 60947-4-1
	3RA2923-2BB.		xx	NLDX2	E31519			3211 04	IEC 60947-4-1
Accessories	3RA2711-0EE0.		NKCR	xx	E44653			3211 03	IEC 60947-5-1
	3RA2910-0		NKCR	xx	E44653			3211 03	IEC 60947-4-1
Operator panel	3RA6935-0A		NKCR	xx	E44653			3211 08	IEC 60947-5-1
	3RA2711-0EE11		NKCR	xx	E44653			3211 03	IEC 60947-5-1
	3RA6936-0.		NKCR	xx	E44653			3211 08	IEC 60947-5-1
SIRIUS function modules for AS-Interface									
Function modules for direct-on-line start	3RA2712-..AA00	UL508	NKCR	xx	E44653	CSA-C22.2 No. 14	012730	3211 03	IEC 50295
Function modules for reversing start	3RA2712-..BA00		NKCR	xx	E44653			3211 03	IEC 50295
	3RA2913-2AA.		NLDX	xx	E31519			3211 04	IEC 60947-4-1
	3RA2923-2AA.		xx	NLDX2	E31519			3211 04	IEC 60947-4-1
Function modules for star-delta (wye-delta) start	3RA2712-..CA00		NKCR	xx	E44653			3211 03	IEC 50295
	3RA2913-2BB.		NLDX	xx	E31519			3211 04	IEC 60947-4-1
	3RA2923-2BB.		xx	NLDX2	E31519			3211 04	IEC 60947-4-1
Accessories	3RA2910-0		NKCR	xx	E44653			3211 03	IEC 60947-4-1

## 3.1 SIRIUS contactors and contactor assemblies

Device	Type	Standards and approvals							
		UL standard	CCV UL Listed	CCN UL recog-nized	UL File No.	CSA Stan-dard	CSA File No.	CSA Class No.	IEC Standard
Accessories and spare parts									
Auxiliary switch blocks	3RH29...	UL508	NKCR	xx	E44653	CSA-C22.2 No. 14	012730	3211 03	IEC 60947-5-1
Auxiliary switch blocks, time-delayed	3RA28...		NKCR	xx	E44653			3211 03	IEC 60947-5-1
Delay blocks and mechanical latches	3RT2916-2B.01		NKCR	xx	E44653			3211 03	IEC 60947-5-1
	3RT2926-2P..1		NKCR	xx	E44653			3211 03	IEC 60947-5-1
	3RT2926-3A.31		NKCR	xx	E44653			3211 03	IEC 60947-5-1
Surge suppressors	3RT29.6...		xx	NKCR2	E44653			3211 07	IEC 60947-5-1
Other function blocks	3RT2916...		NKCR	xx	E44653			3211 07	IEC 60947-5-1
	3RT2926-1QT00		xx	NKCR2	E44653			3211 07	IEC 60947-5-1
	3RH2924-1GP11		NKCR	xx	E44653			3211 03	IEC 60947-5-1
Sealable covers	3RT2916-4MA10		NLDX	xx	E31519			3211 04	IEC 60947-4-1
Terminal module for contactors with screw connections	3RT19...-4R.01		NLDX	xx	E31519			3211 02	IEC 60947-4-1
Coil terminal module	3RT2926-4R.1.		NKCR	xx	E44653			3211 03	IEC 60947-4-1
Covers for contactors with ring cable lug connections	3RT2916-4EA13		NKCR	xx	E44653			3211 03	IEC 60947-4-1
	3RT2926-4EB13		NLDX	xx	E31519			3211 04	IEC 60947-4-1
Safety main circuit connectors for 2 contactors	3RA29.6-1A		xx	NLDX2	E31519			3211 04	IEC 60947-4-1
Parallel switching connections	3RT.9.6-4BB.1		xx	NMTR7	E148698			3211 37	IEC 60947-4-1
Insulating stop to ensure that the conductor insulation is kept back, for conductors up to 1 mm²	3RT.916-4JA02		NLDX	xx	E31519			3211 04	IEC 60947-4-1

xx: Not applicable.



## 3.2 SIRIUS solid-state switching devices

Table 3- 2 SIRIUS solid-state switching devices

Device	Type	Standards and approvals							
		UL standard	CCN UL Listed	CCN UL recognized	UL File No.	CSA Standard	CSA File No.	CSA Class No.	IEC Standard
Solid-state contactors	3RF34...	UL508	NMFT	xx	E143112	CSA-C22.2 No. 14	012730	3211 06	IEC 60947-4-3
<b>Accessories</b>									
Link modules solid-state contactor – motor starter protector	3RA2921-1BA00	UL508	NLDX	NLDX7	E31519	Approved according to cULus.			IEC 60947-4-1
Insulating stop to ensure that the conductor insulation is kept back, for conductors up to 1 mm²	3RT2916-4JA02		NLDX	xx		CSA-C22.2 No. 14	012730	3211 04	

xx: Not applicable.

## 3.3 SIRIUS protection devices

Table 3- 3 SIRIUS protection devices

Device	Type	Standards and approvals							
		UL stan- dard	CCN UL Listed	CCN UL recog- nized	UL File No.	CSA Stan- dard	CSA File No.	CSA Class No.	IEC Standard
Motor starter protectors									
for motor protection	3RV20...	UL508	NLRV	xx	E47705	CSA C22.2 No.14	012730	3211 05	IEC 60947-2
- Type E	3RV20...		NKJH		E156943			3212 08	
for motor protection with overload relay function	3RV21...		NLRV		E47705			3211 05	
for starter combinations	3RV23...		NLRV		E47705			3211 05	
for transformer protection	3RV24...		NLRV		E47705			3211 05	

## 3.3 SIRIUS protection devices

Device	Type	Standards and approvals							
		UL stan- dard	CCN UL Listed	CCN UL recog- nized	UL File No.	CSA Stand- ard	CSA File No.	CSA Class No.	IEC Standard
SIRIUS Circuit Breakers ...									
for system protection	3RV27...	UL489	DIVQ	xx	E235044	CSA C22.2 No.5	012730	1432 01	IEC 60947-2
for transformer protection	3RV28...								
Mountable accessories									
Auxiliary switches	3RV2901...	UL508 UL489	NKCR DIHS	xx	E44653 E250201	CSA- C22.2 No. 5 CSA- C22.2 No. 14	012730	1437 01 3211 03	IEC 60947-5-1
Signaling switches	3RV2921-.M	UL508	NKCR		E44653	CSA- C22.2 No. 14		3211 03	
Disconnecter modules	3RV2928-1A	UL508	NKCR		E44653	CSA- C22.2 No. 14		3211 05	
Auxiliary releases	3RV2902...	UL489	DIHS		E250201	CSA- C22.2 No. 5		1437 01	
	3RV2922...	UL508	NKCR		E44653	CSA- C22.2 No. 14		3211 03	
Busbar accessories									
3-phase busbars	3RV1915...	UL508	NMTR	xx	E148698	CSA- C22.2 No. 14	012730	3211 37	IEC 60947-2 IEC 60947-4-1 IEC 60947-6-2
3-phase infeed terminals	3RV29.5...	UL508	NMTR	xx	E148698	CSA C22.2 No. 14	012730	3211 37	IEC 60947-2
3-phase infeed terminals for installing "Type E starters"	3RV2925-5EB	UL508 UL508	NMTR NLDX	xx NLDX7	E148698 E31519	CSA C22.2 No. 14	012730	3211 37	IEC 60947-2
Cover caps for terminal lugs	3RV1915-6AB	—	—	—	—	CSA C22.2 No. 14	012730	3211 05	IEC 60947-2 IEC 60947-4-1 IEC 60947-6-2
Busbar adapters for 60 mm system	8US1251-5...	UL508	NMTR	NMTR7	E328403	Approved according to cULus.			IEC 60947-4-1
Accessories	8US1...	UL508	NMTR	NMTR7	E328403	Approved according to cULus.			IEC

Device	Type	Standards and approvals							
		UL stan- dard	CCN UL Listed	CCN UL recog- nized	UL File No.	CSA Stan- dard	CSA File No.	CSA Class No.	IEC Standard
3RV29 infeed system									
3-phase busbars with infeed	3RV2917-1.	UL508	NMTR	xx	E148698	CSA-C22.2 No. 14	012730	3211 37	IEC 60439
3-phase busbars for system expansion	3RV2917-4.								
Connectors	3RV29.7-5.								
Contactors bases	3RV2927-7AA00								
Terminal blocks	3RV2917-5D								
Widened expansion plugs	3RV2917-5E								
Expansion plugs	3RV2917-5BA00								
End caps	3RV2917-6A								
Rotary operating mechanisms									
Door-coupling rotary operating mechanisms	3RV2926-0.	UL508	NLRV	xx	E47705	CSA-C22.2 No. 14	012730	3211 07	IEC 60947-2
Door-coupling rotary operating mechanisms for arduous conditions	3RV2926-2.	UL508	NLRV		E47705	CSA-C22.2 No. 14		3211 07	
		UL489	DIHS		E250201	CSA-C22.2 No. 5		1437 01	

Device	Type	Standards and approvals							
		UL stan- dard	CCN UL Listed	CCN UL recog- nized	UL File No.	CSA Stan- dard	CSA File No.	CSA Class No.	IEC Standard
Mounting accessories									
Covers	3RV2908-0P	UL508	NKCR	xx	E44653	CSA- C22.2 No. 14	012730	3211 03	IEC 60947-2
	3RV2928-4AA00		NLRV NKCR		E47705 E44653			3211 03 3211 05	
Terminal blocks and phase barriers for "Self-Protected Combination Motor Controller (Type E)" according to UL 508	3RV2928-1.		NMTR		E148698			3211 02	
Link modules for motor starter protectors – contactor	3RA.9.1...		NLDX	NLDX7	E31519	Approved according to cULus.			IEC 60947-4-1
Link modules for motor starter protectors – soft starter and motor starter protector – solid-state contactor	3RA29.1...								
Hybrid link modules for motor starter protectors – contactor	3RA29.1...								
Overload relays									
3RU2 thermal overload relays	3RU21...	UL508	NKCR	xx	E44653	CSA- C22.2 No. 14	012730	3211 03	IEC 60947-4-1 IEC 60947-5-1

Device	Type	Standards and approvals							
		UL stan- dard	CCN UL Listed	CCN UL recog- nized	UL File No.	CSA Stan- dard	CSA File No.	CSA Class No.	IEC Standard
Accessories for thermal overload relays									
Terminal support for stand-alone assembly	3RU29.6-3A...	UL508	NKCR	xx	E44653	CSA- C22.2 No. 14	012730	3211 07	IEC 60947-4-1 IEC 60947-4-2
Mechanical RESET	3RU2900-1A					CSA- C22.2 No. 14	012730	3211 03	IEC 60947-4-1
	3SX1335					—	—	—	IEC 60947-4-1 IEC 60947-4-2
	3SB3000-0EA11					CSA- C22.2 No. 14	012730	3211 03	IEC 60947-4-1 IEC 60947-4-2
Cable releases with holder for RESET	3RU2900-1.					CSA- C22.2 No. 14	012730	3211 03	IEC60947-4-1
Modules for remote RESET, electrical	3RU1900-2A.71					CSA- C22.2 No. 14	012730	3211 03	IEC 60947-4-1
Sealable covers	3RV29 08-0P					CSA- C22.2 No. 14	012730	3211 03	IEC 60947-4-1
Terminal covers	3RU29.6...					CSA- C22.2 No. 14	012730	3211 03	IEC 60947-4-1
3RB3 solid-state overload relays	3RB3....					CSA C22.2 No 14	012730	3211 03	IEC 60947-4-2
Accessories for solid-state overload relays									
Terminal support for stand-alone assembly	3RU29 .6-3A...	UL508	NKCR	xx	E44653	CSA- C22.2 No. 14	012730	3211 07	IEC 60947-4-1 IEC 60947-4-2
Mechanical RESET	3RB3980-0A	UL508	NKCR	NKCR7	E44653	Approved according to cULus.			IEC 60947-4-2
	3SX1335	UL508	NKCR	xx	E44653	—	—	—	IEC 60947-4-1 IEC 60947-4-2
	3SB3000-0EA11	UL508	NKCR	xx	E44653	CSA- C22.2 No. 14	012730	3211 03	IEC 60947-4-1 IEC 60947-4-2
Cable releases with holder for RESET	3RB3980-0.	UL508	NKCR	NKCR7	E44653	Approved according to cULus.			IEC 60947-4-1
Sealable covers	3RB3984-0	UL508	NKCR	NKCR7	E44653				

xx: Not applicable.

### 3.4 SIRIUS motor feeders and compact starters

Table 3- 4 SIRIUS motor feeders and compact starters

Device	Type	Standards and approvals							
		UL standard	CCN UL Listed	CCN UL recognized	UL File No.	CSA Standard	CSA File No.	CSA Class No.	IEC Standard
3RA21 direct-on-line starter	3RA21...	UL508 UL508	NLDX NKJH	NLDX7 NKJH7	E31519 E156943	Approved according to cULus.			IEC 60947-4-1
3RA22 reversing starter	3RA22...	UL508 UL508	NLDX NKJH	NLDX7 NKJH7					
Accessories for 3RA2 motor feeders									
Accessories for motor starter protectors									
Auxiliary switch for motor starter protectors	3RV2901 ...	UL489	DIHS	xx	E250201	CSA-C22.2 No. 5	012730	1437 01	IEC 60947-5-1
		UL508	NKCR		E44653	CSA-C22.2 No. 14		3211 03	
Auxiliary release for motor starter protectors	3RV2902 ...	UL489	DIHS		E250201	CSA-C22.2 No. 5		1437 01	
		UL508	NKCR		E44653	CSA-C22.2 No. 14		3211 03	
Accessories for contactors									
Auxiliary switch blocks for contactors, for snapping onto the front	3RH2911-1...	UL508	NKCR	xx	E44653	CSA-C22.2 No. 14	012730	3211 03	IEC 60947-5-1
Auxiliary switch blocks for contactors, for lateral mounting	3RH29.1-.DA..		NKCR	xx	E44653			3211 03	IEC 60947-5-1
Terminal modules for contactors with screw connections (can only be used with direct-on-line starters)	3RT19..-4R.01		NLDX	xx	E31519			3211 02	IEC 60947-4-1
Surge suppressors without LED for contactors	3RT29.6-1...		xx	NKCR2	E44653			3211 07	IEC 60947-5-1

Device	Type	Standards and approvals							
		UL standard	CCN UL Listed	CCN UL recognized	UL File No.	CSA Standard	CSA File No.	CSA Class No.	IEC Standard
Accessories for customer assembly of fuseless load feeders									
Link modules for motor starter protectors – contactor	3RA.9.1...	UL508	NLDX	NLDX7	E31519	Approved according to cULus.			IEC 60947-4-1
Hybrid link modules for motor starter protectors – contactor	3RA29.1-2F...		NLDX	NLDX7	E31519				
Link modules for motor starter protectors – soft starter	3RA29.1-...		NLDX	NLDX7	E31519				
Wiring kits for contactors	3RA2913-2...		NLDX	xx	E31519	CSA-C22.2 No. 14	012730	3211 04	
	3RA2923-2...		xx	NLDX2	E31519				
Safety main circuit connectors for 2 contactors	3RA29.6-1A		xx	NLDX2	E31519				
Lateral modules for DIN rail adapters	3RA1902-1B		NKJH	xx	E156943				

## 3.4 SIRIUS motor feeders and compact starters

Device	Type	Standards and approvals							IEC Standard
		UL standard	CCN UL Listed	CCN UL recognized	UL File No.	CSA Standard	CSA File No.	CSA Class No.	
Busbar adapters for 60 mm system	8US1251-5...	UL508	NMTR	NMTR7	E328403	Approved according to cULus.			IEC 60947-2 IEC 60947-4-1
Device holders for lateral mounting on busbar adapters	8US1250-5A.10								IEC 60947-2 IEC 60947-4-1
Lateral modules for widening busbar adapters	8US1998-2BJ10								IEC 60947-2 IEC 60947-4-1
Spacer to fix the feeder on the busbar adapter	8US19 98-1BA10								IEC 60947-2 IEC 60947-4-1
Vibration/shock kit for increased vibration and shock load	8US1998-1CA10								IEC 60947-2 IEC 60947-4-1
Link wedges	8US1998-1AA00		xx	NMTR2/8					IEC 60947-2 IEC 60947-4-1
Function modules for direct-on-line start	3RA271.-.AA00		NKCR	xx	E44653	CSA-C22.2 No.14	012730	3211 03	IEC 60947-5-1
Function modules for reversing start	3RA271.-.BA00							3211 03	IEC 60947-5-1
Function modules for star-delta (wye-delta) start	3RA271.-.CA00							3211 03	IEC 60947-5-1
Accessories	3RA2711-0EE0.							3211 03	IEC 60947-5-1
	3RA2910-0							3211 03	IEC 60947-4-1
Operator panel	3RA693.-0.							3211 08	IEC 60947-5-1
	3RA2711-0EE11							3211 03	IEC 60947-5-1



Device	Type	Standards and approvals								
		UL stan- dard	CCN UL Listed	CCN UL recog- nized	UL File No.	CSA Stan- dard	CSA File No.	CSA Class No.	IEC Standard	
3RA6 compact starters										
Direct-on-line starter	3RA61	UL508	NLRV	xx	E47705	CSA-C 22.2 No. 14	012730	3211 05 3211 08	IEC 60947-6-2	
Reversing starter	3RA62								IEC 60947-6-2	
Direct-on-line starter for IO-Link	3RA64								IEC 60947-5-1 IEC 60947-6-2	
Reversing starter for IO-Link	3RA65								IEC 60947-5-1 IEC 60947-6-2	
Special accessories for 3RA6 compact starters										
Control kit	3RA6950-0A	UL508	NLRV	xx	E47705	—			IEC 60947-6-2	
Adapter for screw fastening the compact starter	3RA6940-0A		NLRV		E47705	CSA-C 22.2 No. 14	012730	3211 05	IEC 60947-6-2	
Auxiliary switch block for compact starter	3RA691.-1A		NKCR		E44653				3211 03	IEC 60947-5-1
Main circuit terminals	3RA6920-1A		NLRV		E47705				3211 05	IEC 60947-6-2
Control circuit terminals	3RA6920-1.		NLRV		E47705				3211 05	IEC 60947-6-2
Auxiliary switch block for compact starter	3RA691.-2A		NKCR		E44653				3211 03	IEC 60947-5-1
Main circuit terminals	3RA6920-2A		NLRV		E47705				3211 05	IEC 60947-6-2
Control circuit terminals	3RA6920-2.		NLRV		E47705				3211 05	IEC 60947-6-2

## 3.4 SIRIUS motor feeders and compact starters

Device	Type	Standards and approvals							
		UL standard	CCN UL Listed	CCN UL recognized	UL File No.	CSA Standard	CSA File No.	CSA Class No.	IEC Standard
Special accessories for 3RA64, 3RA65 compact starters with IO-Link									
Additional connecting cable (flat) for the side-by-side mounting of up to 4 compact starters	3RA693.-0.	UL508	NLRV	xx	E47705	CSA-C22.2 No. 14	012730	3211 08	IEC 60947-5-1
Operator panel	3RA6935-0A		NKCR		E44653				
Enabling module	3RA6936-0A								
Connecting cable (round) for connecting the operator panel	3RA6933-0A								
Terminals for "Self-Protected Combination Motor Controller (Type E)" according to UL 508, for infeed via parallel wiring for compact starters									
Terminal block type E	3RV1928-1H	UL508	NMTR	xx	E148698	CSA-C 22.2 No. 14	012730	3211 02	IEC 60947-6-2

Device	Type	Standards and approvals								
		UL stan- dard	CCN UL Listed	CCN UL recog- nized	UL File No.	CSA Stan- dard	CSA File No.	CSA Class No.	IEC Standard	
Accessories										
3-phase busbars for infeed for 3RA6	3RV1915-1.B	UL508	NMTR	xx	E148698	CSA C22.2 No. 14	012730	3211 37	IEC 60947-2 IEC 60947-4-1 IEC 60947-6-2	
Connection pieces for 3-phase busbars	3RV1915-5DB								IEC 60947-2 IEC 60947-4-1 IEC 60947-6-2	
Cover caps for terminal lugs of the 3-phase busbars	3RV1915-6AB	—						3211 05	IEC 60947-2 IEC 60947-4-1 IEC 60947-6-2	
3-phase infeed terminals for 3-phase busbars	3RV19.5-5..	UL508	NMTR	xx	E148698			3211 37	IEC 60947-2 IEC 60947-4-1 IEC 60947-6-2	
3-phase infeed terminals for installing "Type E starters", according to UL 508, for 3-phase busbars	3RV1925-5EB								IEC 60947-2 IEC 60947-4-1 IEC 60947-6-2	
Busbar adapters for 60 mm system	8US1211-1NS10								Approved according to cULus.	IEC 60947-2 IEC 60947-4-1
Device holders for lateral mounting next to the busbar adapter for 60 mm system	8US1250-1AA10									IEC 60947-2 IEC 60947-4-1
Door-coupling rotary operating mechanisms for operating compact starters with closed control cabinet doors.	3RV29 26-0.								NLRV	xx

## 3.4 SIRIUS motor feeders and compact starters

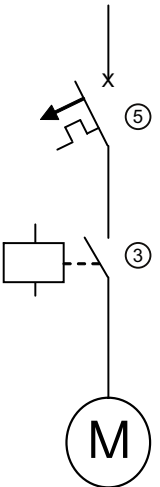
Device	Type	Standards and approvals							
		UL standard	CCN UL Listed	CCN UL recognized	UL File No.	CSA Standard	CSA File No.	CSA Class No.	IEC Standard
Mounting modules for AS-Interface									
AS-i mounting modules	3RA6970-3.	UL508	NKCR	xx	E44653	CSA-C 22.2 No. 14	012730	3211 03	IEC 50295
Infeed system for 3RA6									
3-phase infeeds and expansion modules	3RA681.-8A. 3RA6830-5AC	UL508	NMTR	xx	E148698	CSA-C 22.2 No. 14	012730	3211 37	IEC 60439
Expansion modules	3RA682.-0A.								
Accessories for 3RA6 infeed system									
PE infeeds 25/35 mm²	3RA6860-.A.	UL508	NMTR	xx	E148698	CSA-C 22.2 No. 14	012730	3211 37	IEC 60439
PE taps 6/10 mm²	3RA6870-.A.								
Expansion plugs	3RA6890-...								
Adapters 45 mm	3RA6890-0BA								
Terminal block	3RV1917-5D								
Monitoring relays									
for mounting on 3RT2 contactors	3RR2	UL508	NKCR	xx	E44653	CSA-C 22.2 No. 14	012730	3211 07	IEC 60947-4-1 IEC 60947-5-1
Accessories									
Terminal support for stand-alone assembly	3RU29.6-3A.01	UL508	NKCR	xx	E44653	CSA-C 22.2 No. 14	012730	3211 07	IEC 60947-4-1 IEC 60947-4-2
Sealable covers	3RR2940								IEC 60947-4-1 IEC 60947-5-1

xx: Not applicable.

## Device selection tables for motor feeders (fuseless)

### 4.1 240 VAC "corner grounded delta"

Table 4- 1 240 V – Type F

240 V corner grounded Delta - Self-Protected Manual / Magnetic Motor Control - "Construction Type F"								
	Rated motor output	Standard motor current (according to the standard)	Typical motor amps	Motor starter protector (Self Protected)	Type E terminal block	Magnetic controller (Motor Control)	SCCR	Internal wire cross section for Cu (75 °C)
	[hp]	FLC [A]	FLA [A]				[kA]	[AWG]
	X1 *)	X2 *)	X3 *)	(5) *)	(5.1) *)	(3) *)	X4 *)	X5 *)
	0,5	2,2	1,7	3RV2011-1BA..	3RV2928-1H or 3RV2928-1K	3RT2015	65	14
	0,75	3,2	2,34	3RV2011-1CA..	3RV2928-1H or 3RV2928-1K	3RT2015	65	14
	1	4,2	3,1	3RV2011-1EA..	3RV2928-1H or 3RV2928-1K	3RT2015	65	14
	1,5	6,0	4,3	3RV2011-1FA..	3RV2928-1H or 3RV2928-1K	3RT2015	65	14
	2	6,8	5,8	3RV2011-1GA..	3RV2928-1H or 3RV2928-1K	3RT2015	65	14
	3	9,6	8,3	3RV2011-1JA..	3RV2928-1H or 3RV2928-1K	3RT2016	65	14
	5	15,2	13,2	3RV2011-4AA..	3RV2928-1H or 3RV2928-1K	3RT2018	65	12
	7,5	22,0	19,4	3RV2021-4CA..	3RV2928-1H or 3RV2928-1K	3RT2026	65	10
	10	28,0	25,2	3RV2021-4NA..	3RV2928-1H or 3RV2928-1K	3RT2027	50	10
	10	28,0	25,2	3RV1031-4EA..	— a)	3RT1033	65	10
	15	42,0	38,2	3RV1031-4FA..	— a)	3RT1035	65	8
	20	54	50,6	3RV1041-4JA..	— a)	3RT1044	65	6
	25	68	62,6	3RV1041-4KA..	3RT1946-4GA07	3RT1044	65	4
	30	80	72,8	3RV1041-4KA..	3RT1946-4GA07	3RT1045	65	4
	40	104	94,5	3RV1041-4MA..	3RT1946-4GA07	3RT1046	65	2

a) No add-on terminal is required for this type.

\*) Refer to section "Notes (Page 43)".

4.1 240 VAC "corner grounded delta"

Table 4- 2 240 V – Type E

240 V corner grounded Delta - Self-Protected Manual Motor Control - "Construction Type E"							
	Rated motor output	Standard motor current (according to the standard)	Typical motor amps	Motor starter protector (Self Protected)	Type E terminal block	SCCR	Internal wire cross section for Cu (75 °C)
	[hp]	FLC [A]	FLA [A]			[kA]	[AWG]
	X1 *)	X2 *)	X3 *)	(5) *)	(5.1) *)	X4 *)	X5 *)
	0,5	2,2	1,7	3RV2011-1BA..	3RV2928-1H or 3RV2928-1K	65	14
	0,75	3,2	2,34	3RV2011-1CA..	3RV2928-1H or 3RV2928-1K	65	14
	1	4,2	3,1	3RV2011-1EA..	3RV2928-1H or 3RV2928-1K	65	14
	1,5	6,0	4,3	3RV2011-1FA..	3RV2928-1H or 3RV2928-1K	65	14
	2	6,8	5,8	3RV2011-1GA..	3RV2928-1H or 3RV2928-1K	65	14
	3	9,6	8,3	3RV2011-1JA..	3RV2928-1H or 3RV2928-1K	65	14
	5	15,2	13,2	3RV2011-4AA..	3RV2928-1H or 3RV2928-1K	65	12
	7,5	22,0	19,4	3RV2021-4CA..	3RV2928-1H or 3RV2928-1K	65	10
	10	28,0	25,2	3RV2021-4NA..	3RV2928-1H or 3RV2928-1K	50	10
	10	28,0	25,2	3RV1031-4EA..	— a)	65	10
	15	42,0	38,2	3RV1031-4FA..	— a)	65	8
	20	54	50,6	3RV1041-4JA..	— a)	65	6
	25	68	62,6	3RV1041-4KA..	3RT1946-4GA07	65	4
	30	80	72,8	3RV1041-4KA..	3RT1946-4GA07	65	4
	40	104	94,5	3RV1041-4MA..	3RT1946-4GA07	65	2

a) 3RV103 already has large distances through air and over surfaces.

\*) Refer to section "Notes (Page 43)".

Table 4- 3 240 V – Magnetic Motor Control

240 V corner grounded Delta - Magnetic Motor Control - "Construction Type C"								
	Rated motor output	Standard motor current (according to the standard)	Typical motor amps	MCCB	Magnetic controller (Motor Control)	Overload (Overload Relay)	SCCR	Internal wire cross section for Cu (75 °C)
	[hp]	FLC [A]	FLA [A]				[kA]	[AWG]
	X1 *)	X2 *)	X3 *)	(1) *)	(3) *)	(4) *) b)	X4 *)	X5 *)
	0,5	2,2	1,7	3RV1721-1ED10 a)	3RT1023	3RB2906-2BG1	50	14
	0,75	3,2	2,34	3RV1721-1GD10 a)	3RT1023	3RB2906-2BG1	50	14
	1	4,2	3,1	3RV1721-1HD10 a)	3RT1023	3RB2906-2DG1	50	14
	1,5	6,0	4,3	3RV1721-4KD10 a)	3RT1023	3RB2906-2DG1	50	14
	2	6,8	5,8	3RV1721-4AD10 a)	3RT1023	3RB2906-2DG1	50	14
	3	9,6	8,3	3RV1721-4BD10 a)	3RT1023	3RB2906-2DG1	50	14
	5	15,2	13,2	3RV1721-4CD10 a)	3RT1025	3RB2906-2DG1	50	12
	7,5	22,0	19,4	3RV1742-5HD10	3RT1026	3RB2906-2DG1	65	10
	10	28,0	25,2	3RV1742-5JD10	3RT1033	3RB2906-2JG1	65	10
	15	42,0	38,2	3RV1742-5LD10	3RT1035	3RB2906-2JG1	65	8
	20	54	50,6	3RV1742-5LD10	3RT1044	3RB2906-2JG1	65	6
	25	68	62,6	3RV1742-5QD10	3RT1044	3RB2906-2JG1	65	4
	30	80	72,8	3VL1112-1KM30-....	3RT1045	3RB2906-2JG1	65	4
	40	104	77,04	3VL3120-2KN30-...	3RT1054	3RB2956-2T.2	100	2
	50	130	96,30	3VL3125-2KN30-...	3RT1054	3RB2956-2T.2	100	1
	60	154	114,07	3VL4130-2KN30-...	3RT1055	3RB2956-2T.2	100	2/0
	75	192	142,22	3VL4140-2KN30-...	3RT1056	3RB2956-2T.2	100	3/0
	100	248	183,70	3VL4550-2KN30-...	3RT1.65	3RB2966-2WH2	10	250 kcmil
	125	312	231,11	3VL4560-2KN30-...	3RT1.66	3RB2966-2WH2	18	400 kcmil
	150	360	266,67	3VL6170-2KN30-...	3RT1.75	3RB2966-2WH2	18	500 kcmil
	200	480	355,56	3VL6180-2KN30-...	3RT1.76	3RB2966-2WH2	30	800 kcmil
	250	604	447,41	3VL7110-2KN30-...	3TF68	3RB2966-2WH2	18	1500 kcmil

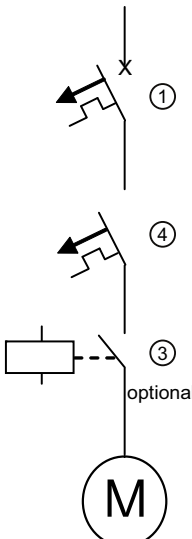
a) Possible when using a 3RV1742 65 kA.

b) Can only be used with the 3RB22 or 3RB23 evaluation modules and 3RB2987-2 connecting cables.

\*) Refer to section "Notes (Page 43)".

4.1 240 VAC "corner grounded delta"

Table 4- 4 240 V – Manual/Magnetic Motor Control

240 V corner grounded Delta - Manual / Magnetic Motor Control - "Construction Type C"								
	Rated motor output	Standard motor current (according to the standard)	Typical motor amps	MCCB	Magnetic controller ** (Motor Control)	Overload (Overload Relay)	SCCR	Internal wire cross section for Cu (75 °C)
	[hp]	FLC [A]	FLA [A]				[kA]	[AWG]
	X1 *)	X2 *)	X3 *)	(1) *)	(3) *)	(4) *)	X4 *)	X5 *)
	0,5	2,2	1,7	3RV1721-1ED10 <sup>a)</sup>	3RT1023	3RV1011-1BA..	50	14
	0,75	3,2	2,34	3RV1721-1GD10 <sup>a)</sup>	3RT1023	3RV1011-1CA..	50	14
	1	4,2	3,1	3RV1721-1HD10 <sup>a)</sup>	3RT1023	3RV1011-1EA..	50	14
	1,5	6,0	4,3	3RV1721-1JD10 <sup>a)</sup>	3RT1023	3RV1011-1FA..	50	14
	2	6,8	5,8	3RV1721-1KD10 <sup>a)</sup>	3RT1023	3RV1011-1GA..	50	14
	3	9,6	8,3	3RV1721-4AD10 <sup>a)</sup>	3RT1023	3RV1011-1JA..	50	14
	5	15,2	13,2	3RV1721-4CD10 <sup>a)</sup>	3RT1025	3RV1021-4AA..	50	12
	7,5	22,0	19,4	3RV1742-5FD10	3RT1026	3RV1021-4CA..	65	10
	10	28,0	25,2	3RV1742-5JD10	3RT1033	3RV1031-4EA..	65	10
	15	42,0	38,2	3RV1742-5PD10	3RT1035	3RV1031-4FA..	65	8
	20	54	50,6	3RV1742-5PD10	3RT1044	3RV1041-4JA..	65	6
	25	68	62,6	3RV1742-5QD10	3RT1044	3RV1041-4KA..	65	4
	30	80	72,8	3VL1112-1KM30-....	3RT1045	3RV1041-4LA..	65	4

a) Possible when using a 3RV1742 65 kA.

\*) Refer to section "Notes (Page 43)".

\*\*) No magnetic controller is required for this version of the motor starter.

This 3RV (4) is approved both as a Manual Motor Controller and as motor overload protection.

If a contactor is used, it is a Magnetic Motor Controller.

If no contactor is used, it is a Manual Motor Controller.



## 4.2 480/277 VAC, "solidly grounded wye"

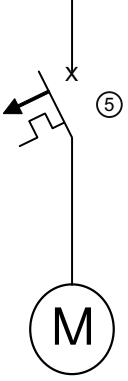
Table 4- 5 480/277 V – Type F

480 / 277 V solidly grounded Wye - Self-Protected Manual / Magnetic Motor Control "Construction Type F"								
	Motor rated output	Standard motor current (according to the standard)	Typical motor amps	Motor starter protector (Self Protected)	Type E terminal block	Magnetic controller (Motor Control)	SCCR	Internal wire cross section for Cu (75 °C)
	[hp]	FLC [A]	FLA [A]				[kA]	[AWG]
	X1 *)	X2 *)	X3 *)	(5) *)	(5.1) *)	(3) *)	X4 *)	X5 *)
	0,5	1,1	0,67	3RV20 11-0HA..	3RV2928-1H or 3RV2928-1K	3RT2015	65	14
	0,75	1,6	0,93	3RV20 11-0JA..	3RV2928-1H or 3RV2928-1K	3RT2015	65	14
	1	2,1	1,2	3RV20 11-0KA..	3RV2928-1H or 3RV2928-1K	3RT2015	65	14
	1,5	3	1,7	3RV20 11-1BA..	3RV2928-1H or 3RV2928-1K	3RT2015	65	14
	2	3,4	2,3	3RV20 11-1CA..	3RV2928-1H or 3RV2928-1K	3RT2015	65	14
	3	4,8	3,3	3RV20 11-1EA..	3RV2928-1H or 3RV2928-1K	3RT2015	65	14
	5	7,6	5,3	3RV20 11-1GA..	3RV2928-1H or 3RV2928-1K	3RT2016	65	14
	7,5	11	7,7	3RV20 11-1JA..	3RV2928-1H or 3RV2928-1K	3RT2017	65	14
	10	14	10,1	3RV20 11-1KA..	3RV2928-1H or 3RV2928-1K	3RT2018	65	14
	15	21	15,2	3RV20 11-4AA..	3RV2928-1H or 3RV2928-1K	3RT2026	65	10
	20	27	20,2	3RV20 21-4CA..	3RV2928-1H or 3RV2928-1K	3RT2027	65	10
	25	34	25	3RV20 21-4NA..	3RV2928-1H or 3RV2928-1K	3RT2028	50	8
	25	34	25	3RV1031-4EA..	— a)	3RT1034	65	8
	30	40	29,2	3RV20 21-4EA..	3RV2928-1H or 3RV2928-1K	3RT2028	50	8
	30	40	29,2	3RV1031-4EA..	— a)	3RT1035	65	8
	40	52	39,2	3RV1041-4DA..	3RT1946-4GA07	3RT1036	65	6
	50	65	48,4	3RV1041-4FA..	3RT1946-4GA07	3RT1044	65	6
	60	77	57,2	3RV1041-4JA..	3RT1946-4GA07	3RT1045	65	4
	75	96	71,2	3RV1041-4KA..	3RT1946-4GA07	3RT1046	65	3

a) No add-on terminal is required for this type.

\*) Refer to section "Notes (Page 43)".

Table 4- 6 480/277 V – Type E

480 / 277V solidly grounded Wye - Self-Protected Manual Motor Control - "Construction Type E"							
	Rated motor output	Standard motor current (according to the standard)	Typical motor amps	Motor starter protector (Self Protected)	Type E terminal block	SCCR	Internal wire cross section for Cu (75 °C)
	[hp]	FLC [A]	FLA [A]			[kA]	[AWG]
	X1 *)	X2 *)	X3 *)	(5) *)	(5.1) *)	X4 *)	X5 *)
	0,5	1,1	0,67	3RV20 11-0HA..	3RV2928-1H or 3RV2928-1K	65	14
	0,75	1,6	0,93	3RV20 11-0JA..	3RV2928-1H or 3RV2928-1K	65	14
	1	2,1	1,2	3RV20 11-0KA..	3RV2928-1H or 3RV2928-1K	65	14
	1,5	3	1,7	3RV20 11-1BA..	3RV2928-1H or 3RV2928-1K	65	14
	2	3,4	2,3	3RV20 11-1CA..	3RV2928-1H or 3RV2928-1K	65	14
	3	4,8	3,3	3RV20 11-1EA..	3RV2928-1H or 3RV2928-1K	65	14
	5	7,6	5,3	3RV20 11-1GA..	3RV2928-1H or 3RV2928-1K	65	14
	7,5	11	7,7	3RV20 11-1JA..	3RV2928-1H or 3RV2928-1K	65	14
	10	14	10,1	3RV20 11-1KA..	3RV2928-1H or 3RV2928-1K	65	14
	15	21	15,2	3RV20 11-4AA..	3RV2928-1H or 3RV2928-1K	65	10
	20	27	20,2	3RV20 21-4CA..	3RV2928-1H or 3RV2928-1K	65	10
	25	34	25	3RV20 21-4NA..	3RV2928-1H or 3RV2928-1K	50	8
	25	34	25	3RV1031-4EA..	— a)	65	8
	30	40	29,2	3RV20 21-4EA..	3RV2928-1H or 3RV2928-1K	50	8
	30	40	29,2	3RV1031-4EA..	— a)	65	8
	40	52	39,2	3RV1041-4DA..	— a)	65	6
	50	65	48,4	3RV1041-4FA..	3RT1946-4GA07	65	6
	60	77	57,2	3RV1041-4JA..	3RT1946-4GA07	65	4
	75	96	71,2	3RV1041-4KA..	3RT1946-4GA07	65	3

a) No add-on terminal is required for this type.

\*) Refer to section "Notes (Page 43)".

Table 4- 7 480/277 V – Magnetic Motor Control

480 / 277V solidly grounded Wye - Magnetic Motor Control - "Construction Type C"								
	Rated motor output	Standard motor current (according to the standard)	Typical motor amps	MCCB	Magnetic controller (Motor Control)	Overload (Overload Relay)	SCCR	Internal wire cross section for Cu (75 °C)
	[hp]	FLC [A]	FLA [A]				[kA]	[AWG]
	X1 *)	X2 *)	X3 *)	(1) *)	(3) *)	(4) *) b)	X4 *)	X5 *)
	0,5	1,10	0,67	3RV1721-1BD10	3RT1023	3RB2906-2BG1	50	14
	0,75	1,60	0,93	3RV1721-1DD10	3RT1023	3RB2906-2BG1	50	14
	1	2,10	1,2	3RV1721-1ED10	3RT1023	3RB2906-2BG1	50	14
	1,5	3,00	1,7	3RV1721-1FD10	3RT1023	3RB2906-2BG1	50	14
	2	3,40	2,3	3RV1721-1GD10	3RT1023	3RB2906-2BG1	50	14
	3	4,80	3,3	3RV1721-1HD10	3RT1023	3RB2906-2JG1	50	14
	5	7,60	5,3	3RV1721-4AD10	3RT1023	3RB2906-2JG1	50	14
	7,5	11,00	7,7	3RV1721-4BD10	3RT1024	3RB2906-2JG1	50	14
	10	14,00	10,1	3RV1721-4CD10	3RT1025	3RB2906-2JG1	50	14
	15	21,00	15,2	3RV1742-5FD10	3RT1026	3RB2906-2JG1	65	10
	20	27,00	20,2	3RV1742-5HD10	3RT1033	3RB2906-2JG1	65	10
	25	34,00	25	3RV1742-5JD10	3RT1034	3RB2906-2JG1	65	8
	30	40,00	29,2	3RV1742-5LD10	3RT1035	3RB2906-2JG1	65	8
	40	52,00	39,2	3RV1742-5PD10	3RT1036	3RB2906-2JG1	65	6
	50	65,00	48,4	3VL3110-2KN30-....	3RT1044	3RB2906-2JG1	65	6
	60	77,00	57,2	3VL3115-2KN30-....	3RT1045	3RB2906-2JG1	65	4
	75	96,00	71,2	3VL3115-2KN30-....	3RT1046	3RB2906-2JG1	65	3
	100	124,00	91,9	3VL3120-1KN30-....	3RT1054	3RB2906-2JG1	10 °)	1
	125	156,00	115,6	3VL3125-1KN30-....	3RT1055	3RB2956-2T.2	10 °)	2/0
	150	180,00	133,3	3VL4125-1KN30-....	3RT1056	3RB2956-2T.2	10 °)	3/0
	200	240,00	177,8	3VL4135-1KN30-....	3RT1.65	3RB2956-2T.2	10 °)	250 kcmil
	250	302,00	223,7	3VL4140-1KN30-....	3RT1.66	3RB2966-2WH2	18 °)	350 kcmil
	300	361,00	267,4	3VL4550-1KN30-....	3RT1.75	3RB2966-2WH2	18 °)	500 kcmil
	350	414,00	306,7	3VL4560-1KN30-....	3RT1.76	3RB2966-2WH2	18 °)	600 kcmil
	400	477,00	353,3	3VL6160-1KN30-....	3RT1.76	3RB2966-2WH2	18 °)	800 kcmil
	450	515,00	381,5	3VL6170-1KN30-....	3TF68	3RB2966-2WH2	30 °)	900 kcmil
	500	590,00	437,0	3VL6180-1KN30-....	3TF68	3RB2966-2WH2	30 °)	1250 kcmil

b) Can only be used with the 3RB22 or 3RB23 evaluation modules and 3RB2987-2 connecting cables.

c) The standard values are currently the only values for branches with this level of power (hp).

\*) Refer to section "Notes (Page 43)".

Table 4- 8 480/277 V – Manual / Magnetic Motor Control

480 / 277V solidly grounded Wye - Manual / Magnetic Motor Control - "Construction Type C"								
	Rated motor output	Standard motor current (according to the standard)	Typical motor amps	MCCB	Magnetic controller ** (Motor Control)	Overload (Overload Relay)	SCCR	Internal wire cross section for Cu (75 °C)
	[hp]	FLC [A]	FLA [A]				[kA]	[AWG]
	X1 *)	X2 *)	X3 *)	(1 *)	(3 *)	(4 *)	X4 *)	X5 *)
	0,5	1,1	0,67	3RV1721-1BD10	3RT1023	3RV1011-0HA..	50	14
	0,75	1,6	0,93	3RV1721-1DD10	3RT1023	3RV1011-0JA..	50	14
	1	2,1	1,2	3RV1721-1ED10	3RT1023	3RV1011-1AA..	50	14
	1,5	3	1,7	3RV1721-1FD10	3RT1023	3RV1011-1BA..	50	14
	2	3,4	2,3	3RV1721-1GD10	3RT1023	3RV1011-1CA..	50	14
	3	4,8	3,3	3RV1721-1HD10	3RT1023	3RV1011-1EA..	65	14
	5	7,6	5,3	3RV1721-4AD10	3RT1023	3RV1011-1GA..	65	14
	7,5	11	7,7	3RV1721-4BD10	3RT1024	3RV1011-1JA..	65	14
	10	14	10,1	3RV1721-4CD10	3RT1025	3RV1011-1KA..	65	14
	15	21	15,2	3RV1742-5FD10	3RT1026	3RV1021-4AA..	65	10
	20	27	20,2	3RV1742-5HD10	3RT1033	3RV1021-4CA..	65	10
	25	34	25	3RV1742-5JD10	3RT1034	3RV1031-4EA..	65	8
	30	40	29,2	3RV1742-5LD10	3RT1035	3RV1031-4EA..	65	8
	40	52	39,2	3RV1742-5PD10	3RT1036	3RV1031-4GA..	65	6
	50	65	48,4	3VL3110-2KN30-....	3RT1044	3RV1031-4HA..	65	6
	60	77	57,2	3VL3115-2KN30-....	3RT1045	3RV1041-4JA..	65	4
	75	96	71,2	3VL3115-2KN30-....	3RT1046	3RV1041-4KA..	65	3

\*) Refer to section "Notes (Page 43)".

\*\*) No magnetic controller is required for this version of the motor starter.

This 3RV (4) is approved both as a Manual Motor Controller and as motor overload protection.

If a contactor is used, it is a Manual/Magnetic Motor Controller.

If no contactor is used, it is a Manual Motor Controller.

## 4.3 480 VAC "corner grounded delta"

Table 4- 9 480 V – Magnetic Motor Control

480V corner grounded Delta - Magnetic Motor Control - "Construction Type C"								
	Rated motor output	Standard motor current (according to the standard)	Typical motor amps	MCCB	Magnetic controller (Motor Control)	Overload (Overload Relay)	SCCR	Internal wire cross section for Cu (75 °C)
	[hp]	FLC [A]	FLA [A]				[kA]	[AWG]
	X1 *)	X2 *)	X3 *)	(1) *)	(3) *)	(4) *) a)	X4 *)	X5 *)
	3	4,8	3,3	3RV1742-5AD10	3RT1023	3RB2906-2DG1	65	14
	5	7,6	5,3	3RV1742-5AD10	3RT1023	3RB2906-2DG1	65	14
	7,5	11	7,7	3VL1102-2KM30-....	3RT1024	3RB2906-2DG1	65	14
	10	14	10,1	3VL1102-2KM30-....	3RT1025	3RB2906-2DG1	65	14
	15	21	15,2	3VL1125-2KM30-....	3RT1026	3RB2906-2DG1	65	10
	20	27	20,2	3VL1106-2KM30-....	3RT1033	3RB2906-2DG1	65	10
	25	34	25	3VL1106-2KM30-....	3RT1034	3RB2906-2DG1	65	8
	30	40	29,2	3VL1108-2KM30-....	3RT1035	3RB2906-2JG1	65	8
	40	52	39,2	3VL1110-2KM30-....	3RT1036	3RB2906-2JG1	65	6
	50	65	48,4	3VL1112-2KM30-....	3RT1044	3RB2906-2JG1	65	6
	60	77	57,2	3VL1150-2KM30-....	3RT1045	3RB2906-2JG1	65	4
	75	96	71,2	3VL1150-2KM30-....	3RT1046	3RB2906-2JG1	65	3
	100	124	91,9	3VL3117-1KN30-....	3RT1054	3RB2906-2JG1	10 b)	1
	125	156	115,6	3VL3122-1KN30-....	3RT1055	3RB2956-2T.2	10 b)	2/0
	150	180	133,3	3VL4125-1KN30-....	3RT1056	3RB2956-2T.2	10 b)	3/0
	200	240	177,8	3VL4135-1KN30-....	3RT1.65	3RB2956-2T.2	10 b)	250 kcmil
	250	302	223,7	3VL4140-1KN30-....	3RT1.66	3RB2966-2WH2	18 b)	350 kcmil
	300	361	267,4	3VL4550-1KN30-....	3RT1.75	3RB2966-2WH2	18 b)	500 kcmil
	350	414	306,7	3VL4560-1KN30-....	3RT1.76	3RB2966-2WH2	18 b)	600 kcmil
	400	477	353,3	3VL6170-1KN30-....	3RT1.76	3RB2966-2WH2	18 b)	800 kcmil
	450	515	381,5	3VL6180-1KN30-....	3TF68	3RB2966-2WH2	30 b)	900 kcmil
	500	590	437,0	3VL7180-1KN30-....	3TF68	3RB2966-2WH2	30 b)	1250 kcmil

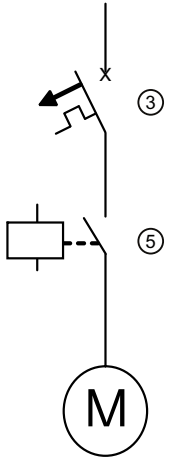
a) Can only be used with the 3RB23 evaluation module and 3RB2987-2.. connecting cables

b) The standard values are currently the only values for branches with this level of power (hp).

\*) Refer to section "Notes (Page 43)".

## 4.4 600/347 VAC "solidly grounded wye"

Table 4- 10 600/347 V – Type F

600 / 347 V solidly grounded Wye - Self-Protected Manual / Magnetic Motor Control "Construction Type F"								
	Motor rated output	Standard motor current (according to the standard)	Typical motor amps	Motor starter protector (Self Protected)	Type E terminal block	Magnetic controller (Motor Control)	SCCR	Internal wire cross section for Cu (75 °C)
	[hp]	FLC [A]	FLA [A]				[kA]	[AWG]
	X1 *)	X2 *)	X3 *)	(5) *)	(5.1) *)	(3) *)	X4 *)	X5 *)
	0,5	0,9	0,6	3RV20 11-0HA..	3RV2928-1H or 3RV2928-1K	3RT2015	30	14
	0,75	1,3	0,9	3RV20 11-0JA..	3RV2928-1H or 3RV2928-1K	3RT2015	30	14
	1	1,7	1,1	3RV20 11-0KA..	3RV2928-1H or 3RV2928-1K	3RT2015	30	14
	1,5	2,4	1,6	3RV20 11-1BA..	3RV2928-1H or 3RV2928-1K	3RT2015	30	14
	2	2,7	1,8	3RV20 11-1BA..	3RV2928-1H or 3RV2928-1K	3RT2015	30	14
	3	3,9	2,6	3RV20 11-1DA..	3RV2928-1H or 3RV2928-1K	3RT2015	30	14
	5	6,1	4,1	3RV20 11-1FA..	3RV2928-1H or 3RV2928-1K	3RT2015	30	14
	7,5	9,0	6,0	3RV20 11-1HA..	3RV2928-1H or 3RV2928-1K	3RT2016	30	14
	10	11,0	7,3	3RV20 11-1HA..	3RV2928-1H or 3RV2928-1K	3RT2017	30	14
	15	17,0	12,9	3RV1031-4AA..	— a)	3RT1034	25	12
	20	22,0	16,7	3RV1031-4BA..	— a)	3RT1034	25	10
	25	27,0	20,5	3RV1031-4DA..	— a)	3RT1034	25	10
	30	32,0	24,2	3RV1031-4EA..	— a)	3RT1034	25	8
	40	41,0	31,1	3RV1031-4FA..	— a)	3RT1035	25	8
	50	52,0	39,4	3RV1031-4HA..	— a)	3RT1036	25	6
	60	62,0	47,0	3RV1041-4JA..	3RT1946-4GA07	3RT1044	30	6
	75	77,0	58,3	3RV1041-4KA..	3RT1946-4GA07	3RT1045	30	4
	100	99,0	75,0	3RV1041-4LA..	3RT1946-4GA07	3RT1046	30	3

a) No add-on terminal is required for this type.

\*) Refer to section "Notes (Page 43)".

Table 4- 11 600/347 V – Type E

600 / 347 V solidly grounded Wye - Self Protected Manual Motor Control - "Construction Type E "							
	Motor rated output	Standard motor current (according to the standard)	Typical motor amps	Motor starter protector (Self Protected)	Type E terminal block	SCCR	Internal wire cross section for Cu (75 °C)
	[hp]	FLC [A]	FLA [A]			[kA]	[AWG]
	X1 *)	X2 *)	X3 *)	(5) *)	(5.1) *)	X4 *)	X5 *)
	0,5	0,9	0,6	3RV20 11-0HA..	3RV2928-1H or 3RV2928-1K	30	14
	0,75	1,3	0,9	3RV20 11-0JA..	3RV2928-1H or 3RV2928-1K	30	14
	1	1,7	1,1	3RV20 11-0KA..	3RV2928-1H or 3RV2928-1K	30	14
	1,5	2,4	1,6	3RV20 11-1BA..	3RV2928-1H or 3RV2928-1K	30	14
	2	2,7	1,8	3RV20 11-1BA..	3RV2928-1H or 3RV2928-1K	30	14
	3	3,9	2,6	3RV20 11-1DA..	3RV2928-1H or 3RV2928-1K	30	14
	5	6,1	4,1	3RV20 11-1FA..	3RV2928-1H or 3RV2928-1K	30	14
	7,5	9,0	6,0	3RV20 11-1HA..	3RV2928-1H or 3RV2928-1K	30	14
	10	11,0	7,3	3RV20 11-1HA..	3RV2928-1H or 3RV2928-1K	30	14
	15	17,0	12,9	3RV1031-4AA..	— a)	25	12
	20	22,0	16,7	3RV1031-4BA..	— a)	25	10
	25	27,0	20,5	3RV1031-4DA..	— a)	25	10
	30	32,0	24,2	3RV1031-4EA..	— a)	25	8
	40	41,0	31,1	3RV1031-4FA..	— a)	25	8
	50	52,0	39,4	3RV1031-4HA..	— a)	25	6
	60	62,0	47,0	3RV1041-4JA..	3RT1946-4GA07	30	6
	75	77,0	58,3	3RV1041-4KA..	3RT1946-4GA07	30	4
	100	99,0	75,0	3RV1041-4LA..	3RT1946-4GA07	30	3
	125	125,0	94,7	3RV1041-4MA..	3RT1946-4GA07	30	1

a) No add-on terminal is required for this type.

\*) Refer to section "Notes (Page 43)"

4.4 600/347 VAC "solidly grounded wye"

Table 4- 12 600/347 V – Type C

600 / 347 V solidly grounded Wye - Magnetic Motor Control - "Construction Type C"								
	Motor rated output	Standard motor current (according to the standard)	Typical motor amps	MCCB	Magnetic controller (Motor Control)	Overload (Overload Relay)	SCCR	Internal wire cross section for Cu (75 °C)
	[hp]	FLC [A]	FLA [A]				[kA]	[AWG]
	X1 *)	X2 *)	X3 *)	(1) *)	(3) *)	(4) *) a)	X4 *)	X5 *)
	0,5	0,9	0,6	3RV1721-1BD10	3RT1023	3RB2906-2BG1	10	14
	0,75	1,3	0,9	3RV1721-1CD10	3RT1023	3RB2906-2BG1	10	14
	1	1,7	1,1	3RV1721-1DD10	3RT1023	3RB2906-2BG1	10	14
	1,5	2,4	1,6	3RV1721-1ED10	3RT1023	3RB2906-2BG1	10	14
	2	2,7	1,8	3RV1721-1FD10	3RT1023	3RB2906-2BG1	10	14
	3	3,9	2,6	3RV1721-1HD10	3RT1023	3RB2906-2BG1	10	14
	5	6,1	4,1	3RV1742-5AD10	3RT1023	3RB2906-2DG1	20	14
	7,5	9,0	6,0	3RV1742-5BD10	3RT1023	3RB2906-2DG1	20	14
	10	11,0	7,3	3RV1742-5CD10	3RT1024	3RB2906-2DG1	20	14
	15	17,0	12,9	3RV1742-5FD10	3RT1025	3RB2906-2DG1	20	12
	20	22,0	16,7	3RV1742-5FD10	3RT1026	3RB2906-2DG1	20	10
	25	27,0	20,5	3RV1742-5GD10	3RT1033	3RB2906-2JG1	20	10
	30	32,0	24,2	3RV1742-5HD10	3RT1034	3RB2906-2JG1	20	8
	40	41,0	31,1	3RV1742-5JD10	3RT1035	3RB2906-2JG1	20	8
	50	52,0	39,4	3RV1742-5LD10	3RT1036	3RB2906-2JG1	20	6
	60	62,0	47,0	3RV1742-5QD10	3RT1044	3RB2906-2JG1	10	6
	75	77,0	58,3	3VL3115-3KN30-....	3RT1045	3RB2906-2JG1	25	4
	100	99,0	75,0	3VL3117-3KN30-....	3RT1046	3RB2906-2JG1	25	3
	125	125,0	94,7	3VL3117-3KN30-....	3RT1054	3RB29 56-2T.2	25	1
	150	144,0	109,1	3VL3120-3KN30-...	3RT1055	3RB29 56-2T.2	25	1/0
	200	192,0	145,5	3VL3125-3KN30-...	3RT1056	3RB29 56-2T.2	25	3/0
	250	242,0	183,3	3VL4140-3KN30-...	3RT1.64	3RB29 66-2WH2	18	250 kcmil
	300	289,0	218,9	3VL4540-3KN30-...	3RT1.65	3RB29 66-2WH2	18	350 kcmil
	350	336,0	254,5	3VL4560-3KN30-...	3RT1.66	3RB29 66-2WH2	18	500 kcmil
	400	382,0	289,4	3VL6170-3KN30-...	3RT1.75	3RB29 66-2WH2	18	600 kcmil
	450	412,0	312,1	3VL6180-3KN30-...	3RT1.76	3RB29 66-2WH2	30	700 kcmil
	500	472,0	357,6	3VL7190-3KN30-...	3RT1.76	3RB29 66-2WH2	30	900 kcmil

a) Can only be used with the 3RB22 or 3RB23 evaluation modules and 3RB2987-2 connecting cables.

\*) Refer to section "Notes (Page 43)".

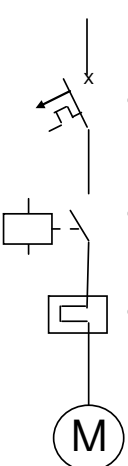
This 3RV (4) is approved both as a Manual Motor Controller and as motor overload protection.

If a contactor is used, it is a Magnetic Motor Controller.

If no contactor is used, it is a Manual Motor Controller.



Table 4- 13 600/347 V solidly grounded Wye - Manual / Magnetic Motor Control - Construction Type "C"

	Motor rated output	Standard motor current (according to the standard)	Typical motor current	MCCB	Magnetic controller (Motor Control)	Overload (overload relay)	SCCR	Conductor cross section in cabinet for Cu (75 °C)
	[hp]	FLC [A]	FLA [A]				[kA]	[AWG]
	X1 *)	X2 *)	X3 *)	(1) *)	(3) *)	(4) *)	X4 *)	X5 *)
	0,5	0,9	0,6	3RV1721-1BD10	3RT1023	3RV1021-0HA..	10	14
	0,75	1,3	0,9	3RV1721-1CD10	3RT1023	3RV1021-0JA..	10	14
	1	1,7	1,1	3RV1721-1DD10	3RT1023	3RV1021-0KA..	10	14
	1,5	2,4	1,6	3RV1721-1ED10	3RT1023	3RV1021-1BA..	10	14
	2	2,7	1,8	3RV1721-1FD10	3RT1023	3RV1021-1BA..	10	14
	3	3,9	2,6	3RV1721-1HD10	3RT1023	3RV1021-1DA..	10	14
	5	6,1	4,1	3RV1742-5AD10	3RT1023	3RV1021-1FA..	20	14
	7,5	9,0	6,0	3RV1742-5BD10	3RT1023	3RV1021-1HA..	20	14
	10	11,0	7,3	3RV1742-5CD10	3RT1024	3RV1021-1HA..	20	14
	15	17,0	12,9	3RV1742-5FD10	3RT1025	3RV1031-4AA..	20	12
	20	22,0	16,7	3RV1742-5FD10	3RT1026	3RV1031-4BA..	20	10
	25	27,0	20,5	3RV1742-5GD10	3RT1033	3RV1031-4DA..	20	10
	30	32,0	24,2	3RV1742-5HD10	3RT1034	3RV1031-4EA..	20	8
	40	41,0	31,1	3RV1742-5JD10	3RT1035	3RV1031-4GA..	20	8
	50	52,0	39,4	3RV1742-5LD10	3RT1036	3RV1031-4HA..	20	6
	60	62,0	47,0	3RV1742-5QD10	3RT1044	3RV1041-4JA..	10	6
	75	77,0	58,3	3VL3115-3KN30-....	3RT1045	3RV1041-4JA..	25	4
	100	99,0	75,0	3VL3117-3KN30-....	3RT1046	3RV1041-4LA..	25	3

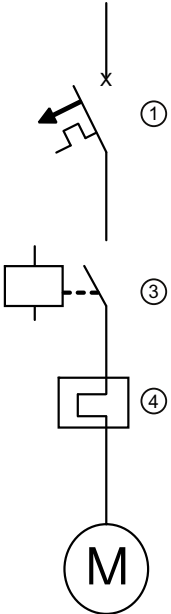
\*) Refer to section "Notes (Page 43)".

#### Note

With the 3RV17, at 600 /347 V 20 kA or 10 kA is possible. 25 kA can be achieved if a 3VL is used.

## 4.5 600 VAC "corner grounded delta"

Table 4- 14 600 V – Magnetic Motor Control

600 V corner grounded Delta - Magnetic Motor Control - "Construction Type C"								
	Rated motor output	Standard motor current (according to the standard)	Typical motor amps	MCCB	Magnetic controller (Motor Control)	Overload (overload relay)	SCCR	Internal wire cross section for Cu (75 °C)
	[hp]	FLC [A]	FLA [A]				[kA]	[AWG]
	X1 *)	X2 *)	X3 *)	(1) *)	(3) *)	(4) *) a)	X4 *)	X5 *)
	20	22,0	16,7	3VL2105-3KN30-....	3RT1026	3RB2906-2DG1	25	10
	25	27,0	20,5	3VL2105-3KN30-....	3RT1033	3RB2906-2JG1	25	10
	30	32,0	24,2	3VL2106-3KN30-....	3RT1034	3RB2906-2JG1	25	8
	40	41,0	31,1	3VL2191-3KN30-....	3RT1035	3RB2906-2JG1	25	8
	50	52,0	39,4	3VL2191-3KN30-....	3RT1036	3RB2906-2JG1	25	6
	60	62,0	47,0	3VL2110-3KN30-....	3RT1044	3RB2906-2JG1	25	6
	75	77,0	58,3	3VL3115-3KN30-....	3RT1045	3RB2906-2JG1	25	4
	100	99,0	75,0	3VL3117-3KN30-....	3RT1046	3RB2906-2JG1	25	3
	125	125,0	94,7	3VL3117-3KN30-....	3RT1054	3RB29 56-2T.2	25	1
	150	144,0	109,1	3VL3120-3KN30-...	3RT1055	3RB29 56-2T.2	25	1/0
	200	192,0	145,5	3VL3125-3KN30-...	3RT1056	3RB29 56-2T.2	25	3/0
	250	242,0	183,3	3VL4140-3KN30-...	3RT1.64	3RB29 66-2WH2	18	250 kcmil
	300	289,0	218,9	3VL4540-3KN30-...	3RT1.65	3RB29 66-2WH2	18	350 kcmil
	350	336,0	254,5	3VL4560-3KN30-...	3RT1.66	3RB29 66-2WH2	18	500 kcmil
	400	382,0	289,4	3VL6170-3KN30-...	3RT1.75	3RB29 66-2WH2	18	600 kcmil
	450	412,0	312,1	3VL6180-3KN30-...	3RT1.76	3RB29 66-2WH2	30	700 kcmil
	500	472,0	357,6	3VL7190-3KN30-...	3RT1.76	3RB29 66-2WH2	30	900 kcmil

a) Can only be used with the 3RB22 or 3RB23 evaluation module and 3RB29 87-2 connecting cables.

\*) Refer to section "Notes (Page 43)".

## 4.6 Notes

### X1:

Motor power: Table taken from UL 508A Table 50.1 for AC motors.

### X2:

From UL 508A, Table 50.1

### X3:

Here, example average values of typical UL motors have been adopted.  
In individual cases, the values may deviate from these.

### X4:

The combination can be set up to the value displayed here.

### X5:

The selection of the conductor cross section inside the cabinet is carried out using UL 508A, Table 28.1.

In the table, copper is specified at 75°C, since most of the 3RU- /3RT- /3RB connection terminals are also approved for Cu at 75°C.

The values specified here represent minimum values according to UL 508A. Please remember to always carry out tests for a specific application.

#### 1)

Isolating function here: Molded Case Circuit Breaker according to UL 489; e.g.: 3VL, 3RV, 5SJ4...-HG

#### 2)

Isolating function here: Instantaneous Trip Circuit Breaker (Circuit breaker for starter combination e.g. 3VL)

#### 3)

Motor control here: Contactor type 3RT, conversion factor: 1 kW = 1.34 hp

#### 4)

Motor overload here: Bi-metallic type 3RB or 3RU

#### 5)

Self Protected Manual Motor Control: Each 3RV with this addition is approved for the complete feeder protection and for the complete motor protection.

Should this version be used, the additional terminals (5.1) are needed for the 3RV, to increase the clearances and creepage distances.

The 3RV is selected according to the typical rated motor currents (motor rating plate). The adjustable overload range is set as far as possible to the average setting range and for motors with SF 1.0. For actual applications, always test the actual setting range specifically based on the motors' set values.

### 5.1)

Additional terminals for 5)

#### \*)

### General instructions:

If combinations are missing, contact Technical Assistance ([www.siemens.com/industrial-controls/technical-assistance](http://www.siemens.com/industrial-controls/technical-assistance)) for help.

Pictograms are shown with IEC graphical symbols.

*4.6 Notes*

## Contactor assemblies for star-delta (wye-delta) start

### Procedure

1. The smallest contactor size for the line contactor (=1M) and delta contactor (=2M) is calculated from the standards using Full Load Current (FLC), according to the hp values. The fraction for the 1M contactor and the 2M contactor is at least  $FLC * 0.577$ .
2. The smallest contactor size for the star (wye) contactor (=1S) is calculated using Full load current (FLC), according to the hp values from the standards. The fraction for the 1S contactor is at least  $FLC * 0.333$ .
3. All the selected contactors should also be configured for the Locked Rotor Current (LRC). The LRC can be taken from the standards according to the hp values. The fraction for the contactors (1M; 2M; 1S) are calculated in the same way as for the FLC. The LRC values of the contactors may not be smaller than the values from the standards.

## 5.1 230 V Y-D combinations

Standard values acc. to UL 508A			Selection criteria for contactors 1M (=Main) and 2M (=Delta)			Selection criteria for the contactor 1S (=Wye)		
Motor Power	acc. to UL 508A Tab. 50.1	acc. to UL 508A Tab. 50.3	Fraction of FLC for 1M & 2M	Fraction of LRC for 1M & 2M	Smallest 1M & 2M acc. to thermal continuous current	Fraction of FLC for 1S	Fraction of LRC for 1S	Smallest 1S acc. to thermal continuous current
hp	FLC <sup>1)</sup>	LRC <sup>1), 2)</sup>	0.577xFLC	0.577xLRC		0.333xFLC	0.333xLRC	
5	15,2	92	8,8	53,1	3RT2016	5,1	30,6	3RT2015
7,5	22	127	12,7	73,3	3RT2018	7,3	42,3	3RT2016
10	28	162	16,2	93,5	3RT2026	9,3	53,9	3RT2023
15	42	232	24,2	133,9	3RT2027	14,0	77,3	3RT2025
20	54	290	31,2	167,3	3RT1035	18,0	96,6	3RT1026
25	68	365	39,2	210,6	3RT1035	22,6	121,5	3RT1033
30	80	435	46,2	251,0	3RT1044	26,6	144,9	3RT1033
40	104	580	60,0	334,7	3RT1044	34,6	193,1	3RT1035
50	130	725	75,0	418,3	3RT1045	43,3	241,4	3RT1044
60	154	870	88,9	502,0	3RT1054	51,3	289,7	3RT1044
75	192	1085	110,8	626,0	3RT1054	63,9	361,3	3RT1044
100	248	1450	143,1	836,7	3RT1055	82,6	482,9	3RT1054
125	312	1850	180,0	1067,5	3RT1056	103,9	616,1	3RT1054
150	360	2170	207,7	1252,1	3RT1065	119,9	722,6	3RT1054
200	480	2900	277,0	1673,3	3RT1066	159,8	965,7	3RT1056
250	604	3650	348,5	2106,1	3RT1075	201,1	202,1	3RT1065

FLC (Full-Load-Current): Motor current according to standard tables.

LRC (Locked-Rotor Current): Locked-rotor current according to the standard tables.

<sup>1)</sup> Check the actual value according to the motors' data sheets.

<sup>2)</sup> These values apply for motors with the designations B, C, D.

The motor overload protection (bi-metal) should be selected according to the motor's rating plate.

The necessary Branch Circuit Protection Device should be selected according to the application, e.g. UL 508A.

## 5.2 460 V Y-D combinations

Standard values acc. to UL 508A			Selection criteria for contactors 1M (=Main) and 2M (=Delta)			Selection criteria for the contactor 1S (=Wye)		
Motor Power	acc. to UL 508A Tab. 50.1	acc. to UL 508A Tab. 50.3	Fraction of FLC for 1M & 2M	Fraction of LRC for 1M & 2M	Smallest 1M & 2M acc. to thermal continuous current	Fraction of FLC for 1S	Fraction of LRC for 1S	Smallest 1S acc. to thermal continuous current
hp	FLC <sup>1)</sup>	LRC <sup>1), 2)</sup>	0.577xFLC	0.577xLRC		0.333xFLC	0.333xLRC	
5	8	46	4,4	26,5	3RT2015	2,5	15,3	3RT2015
7,5	11	64	6,3	36,6	3RT2016	3,7	21,1	3RT2015
10	14	81	8,1	46,7	3RT2017	4,7	27,0	3RT2015
15	21	116	12,1	66,9	3RT2018	7,0	38,6	3RT2016
20	27	145	15,6	83,7	3RT2026	9,0	48,3	3RT2024
25	34	183	19,6	105,6	3RT2026	11,3	60,9	3RT2025
30	40	218	23,1	125,8	3RT2027	13,3	72,6	3RT2025
40	52	290	30,0	167,3	3RT2028	17,3	96,6	3RT2026
50	65	363	37,5	209,5	3RT1035	21,6	120,9	3RT1033
60	77	435	44,4	251,0	3RT1036	25,6	144,9	3RT1033
75	96	543	55,4	313,3	3RT1044	32,0	180,8	3RT1034
100	124	725	71,5	418,3	3RT1045	41,3	241,4	3RT1036
125	156	908	90,0	523,9	3RT1046	51,9	302,4	3RT1036 3RT1044
150	180	1085	103,9	626,0	3RT1054	59,9	361,3	3RT1044
200	240	1450	138,5	836,7	3RT1055	79,9	482,9	3RT1046
250	302	1825	174,3	1053,0	3RT1056	201,1	202,1	3RT1054
300	361	2200	208,3	1269,4	3RT1065	120,2	732,6	3RT1054 3RT1055
350	414	2550	238,9	1471,4	3RT1065 3RT1066	137,9	849,2	3RT1055
400	477	2900	275,2	1673,3	3RT1066	158,8	965,7	3RT1056
450	515	3250	297,2	1875,3	3RT1066 3RT1075	171,5	1082,3	3RT1056
500	590	3625	340,4	2091,6	3RT1075	196,5	1207,1	3RT1065

FLC (Full-Load-Current): Motor current according to standard tables.

LRC (Locked-Rotor Current): Locked-rotor current according to the standard tables.

<sup>1)</sup> Check the actual value according to the motors' data sheets.

<sup>2)</sup> These values apply for motors with the designations B, C, D.

The motor overload protection (bi-metal) should be selected according to the motor's rating plate.

The necessary Branch Circuit Protection Device should be selected according to the application, e.g. UL 508A.

## 5.3 575 V Y-D combinations

Standard values acc. to UL 508A			Selection criteria for contactors 1M (=Main) and 2M (=Delta)			Selection criteria for the contactor 1S (=Wye)		
Motor Power	acc. to UL 508A Tab. 50.1	acc. to UL 508A Tab. 50.3	Fraction of FLC for 1M & 2M	Fraction of LRC for 1M & 2M	Smallest 1M & 2M acc. to thermal continuous current	Fraction of FLC for 1S	Fraction of LRC for 1S	Smallest 1S acc. to thermal continuous current
hp	FLC <sup>1)</sup>	LRC <sup>1), 2)</sup>	0.577xFLC	0.577xLRC		0.333xFLC	0.333xLRC	
5	6	37	3,5	21,2	3RT2015	2,0	12,3	3RT2015
7,5	9	51	5,2	29,3	3RT2015	3,0	16,9	3RT2015
10	11	65	6,3	37,4	3RT2016	3,7	21,6	3RT2015
15	17	93	9,8	53,7	3RT2017	5,7	31,0	3RT2015
20	22	116	12,7	66,9	3RT2025	7,3	38,6	3RT2023
25	27	146	15,6	84,2	3RT2025	9,0	48,6	3RT2023
30	32	174	18,5	100,4	3RT2026	10,7	57,9	3RT2024
40	41	232	23,7	133,9	3RT2027	13,7	77,3	3RT2025
50	52	290	30,0	167,3	3RT1034	17,3	96,6	3RT1026
60	62	348	35,8	200,8	3RT1035	20,6	115,9	3RT1026
75	77	434	44,4	250,4	3RT1036	25,6	144,5	3RT1033
100	99	580	57,1	334,7	3RT1044	33,0	193,1	3RT1035
125	125	726	72,1	418,9	3RT1045	41,6	241,8	3RT1036
150	144	868	83,1	500,8	3RT1046	48,0	289,0	3RT1036
200	192	1160	110,8	669,3	3RT1054	63,9	386,3	3RT1045
250	242	1460	139,6	842,4	3RT1055 3RT1056	201,1	202,1	3RT1046
300	289	1760	166,8	1015,5	3RT1056	96,2	586,1	3RT1046
350	336	2040	193,9	1177,1	3RT1065	111,9	679,3	3RT1054
400	382	2320	220,4	1338,6	3RT1065	127,2	772,6	3RT1055
450	412	2600	237,7	1500,2	3RT1065	137,2	865,8	3RT1055
500	472	2900	272,3	1673,3	3RT1066	157,2	965,7	3RT1056

FLC (Full-Load-Current): Motor current according to standard tables.

LRC (Locked-Rotor Current): Locked-rotor current according to the standard tables.

1) Check the actual value according to the motors' data sheets.

2) These values apply for motors with the designations B, C, D.

The motor overload protection (bi-metal) should be selected according to the motor's rating plate.

The necessary (Branch Circuit Protection Device) should be selected according to the application, (e.g. UL 508A).



## Fused selection tables up to 600 V / 690 V

### 6.1 Short-circuit protection: Contactor + 3RB3 solid-state overload relay

Fuse links according to UL 508

Short-circuit protection up to 690 V / 100 kA, type of coordination 1 and 2

Table 6- 1 Fuse links for overload relay and contactor size S00

Overload relay Type	Overload relay Setting range A	Fuse links <sup>1)</sup> Acc. to UL 508 <sup>2)</sup> (600 V)	
		Standard short-circuit rating	High short-circuit rating
3RB3016-1RB0	0,1 ... 0,4	3	3
		—	—
3RB3016-1NB0	0,32 ... 1,25	6	6
		—	—
3RB3016-1PB0	1 ... 4	15	15
		—	—
		—	—
		—	—
3RB3016-1SB0	3 ... 12	45	45
		—	—
		—	—
3RB3016-1TB0	4 ... 16	60	60
		—	—
		—	—

<sup>1)</sup> Take account of the operating voltage.

<sup>2)</sup> RK1, RK5, J, CC.

6.1 Short-circuit protection: Contactor + 3RB3 solid-state overload relay

Table 6- 2 Fuse links for overload relay and contactor size S0

Overload relay Type	Overload relay Setting range A	Fuse links <sup>1)</sup> Acc. to UL 508 <sup>2)</sup> (600 V)	
		Standard short-circuit rating	High short-circuit rating
3RB3026-1RB0	0,1 ... 0,4	3	3
		—	—
3RB3026-1NB0	0,32 ... 1,25	6	6
		—	—
3RB3026-1PB0	1 ... 4	15	15
		—	—
3RB3026-1SB0	3 ... 12	45	45
		—	—
		—	—
3RB3026-1QB0	6 ... 25	100	100
		—	—
		—	—
		—	—
		—	—
3RB3026-1VB0	10 ... 40	100	100
		—	—
		—	—

<sup>1)</sup> Take account of the operating voltage.

<sup>2)</sup> RK1, RK5, J, CC.

## 6.2 Short-circuit protection: Contactor + 3UF7 + 3RB22 / 23 solid-state overload relay

Fuse links according to UL 508

Short-circuit protection up to 690 V / 100 kA, type of coordination 1 and 2

Table 6-3 Fuse links for overload relay and contactor size S00 and S0

Overload relay	Overload relay Setting range	Fuse links <sup>1)</sup>	
		Acc. to UL 508 <sup>2)</sup> (600 V)	
		Standard short-circuit rating	High short-circuit rating
<b>MLFB</b>	<b>A</b>		
<b>Size S00</b>			
3UF7100-1AA00-0/ 3RB2906-2BG1	0,3 ... 3,0	10	10
<b>Size S0</b>			
3UF7101-1AA00-0/ 3RB2906-2DG1	2,4 ... 25	100	100
3UF7102-1AA00-0/ 3RB2906-2JG1	10 ... 100	400	400

<sup>1)</sup> Take account of the operating voltage.

<sup>2)</sup> RK1, RK5, J, CC.

## 6.3 Short-circuit protection: Contactor + 3RR2 monitoring relay, type of coordination 1 and 2

Short-circuit protection with fuses for motor feeders with 3RR2, contactor mounting, and stand-alone assembly

Fuse links according to UL 508

Short-circuit protection up to 690 V / 100 kA, type of coordination 1 and 2

Table 6-4 Fuse links for monitoring relay and contactor size S00 and S0

Monitoring relay	Overload relay Setting range	Fuse links <sup>1)</sup>	
		Acc. to UL 508 <sup>2)</sup> (600 V)	
		Standard short-circuit rating	High short-circuit rating
<b>MLFB</b>	<b>A</b>		
<b>Size S00</b>			
3RR2.41	1,6 ... 16	60	60
<b>Size S0</b>			
3RR2.42	4 ... 40	100	100

<sup>1)</sup> Take account of the operating voltage.

<sup>2)</sup> RK1, RK5, J, CC.

## 6.4 Short-circuit protection: Solid-state contactor, type of coordination 1 and 2

### Short-circuit protection with fuses for 3RF34 solid-state contactor

Fuse links according to UL 508

Short-circuit protection up to 600 V / 50 kA

Table 6- 5 Fuse links for monitoring relay and contactor size S00 and S0

Solid-state contactor			Fuse links <sup>2)</sup>		
			Acc. to UL 508 <sup>3)</sup>		
MLFB	I <sub>e</sub> @ 40 °C [A]	P @ 400 V [kW] <sup>1)</sup>	600 V Standard short-circuit rating	480 V High short-circuit rating	600 V High short-circuit rating
			5 kA	65 kA	65 kA
3RF3405-1BB54	5,2	2,2	10	25	45
3RF3410-1BB54	9,2	4	20	45	45
3RF3412-1BB54	12,5	5,5	30	45	50
3RF3416-1BB54	16	7,5	30	50	50
<b>Reversing contactors</b>					
3RF3403-1BD54	3,8	1,5	10	45	-
3RF3405-1BD54	5,4	2,2	10	45	
3RF3410-1BD54	7,4	3	20	45	

<sup>1)</sup> Guide value for 4-pole standard motors at 400 V AC, 50 Hz. Selection depends on the concrete startup data and rated data of the motor to be protected.

<sup>2)</sup> Take account of the operating voltage.

<sup>3)</sup> Class K5, RK5, RK1, J.

## Installation guidelines

### 7.1 Installation instructions for "Screwed onto base plate" variant for 3RA2-.. load feeder for UL/CSA at 480 V / 600 V

<b>⚠ WARNING</b>
<b>Hazardous Voltage!</b>
May cause death, serious injury or property damage.
When mounting on an insulated base plate; if screws are used for mounting, the screws must not be grounded.
Alternatively, the DIN rail adapter <b>3RA2922-1AA00</b> can be used without restriction.

Maintain the following distances when mounting the combinations:

Table 7- 1 Installation guidelines for 480 V / 600 V AC

Distance from grounded or live parts as well as from cable ducts made of insulating material in accordance with IEC 60947-4 for 3RA2 direct-on-line starters screwed onto an insulated base plate				
Motor starter protector	Contactor	Y mm	Y2 mm	Z mm
<b>Rated operational voltage 480 V / 600 V</b>				
3RV2.1	3RT201	50	10	20
3RV2.2	3RT201	80	10	20
	3RT2.2	80	10	20

7.1 Installation instructions for "Screwed onto base plate" variant for 3RA2... load feeder for UL/CSA at 480 V / 600 V

Distance from grounded or live parts as well as from cable ducts made of insulating material in accordance with IEC 60947-4 for 3RA2 reversing starters screwed onto an insulated base plate					
Motor starter protector	Contactor	X2 mm	Y mm	Y2 mm	Z mm
<b>Rated operational voltage 480 V / 600 V</b>					
3RV2.1	3RT201	45	50	10	20
3RV2.2	3RT201	45	80	10	20
	3RT2.2	45	80	10	20

**Note**

- To fix the devices in place, screws made from a non-conducting material (plastic screws) should be used.
- When using an insulated base plate for more than one connector type and/or size, on the infeed side of the motor starter protector the clearance should always be greater than the minimum clearance of 50 mm/80 mm. The 10 mm minimum clearance on the outgoing side of the contactor should also be adhered to, but there are no restrictions on a larger clearance being selected.

# Service and support

## 8.1 Service and support

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- Send them a fax: +49(911) 895-5907

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