

Switching Devices – Contactors and Contactor Assemblies – for Switching Motors



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Notes:

3RT1 contactors in sizes S00/S0 to S12 and 3RA1 contactor assemblies in sizes S00/S0 to S3 can be found

- in the Catalog Add-On IC 10 AO · 2014 in the DVD box IC 01
- in the Catalog Add-On IC 10 AO · 2014 at the Information and Download Center
- in the interactive catalog CA 01
- in the Industry Mall

Conversion tool,
e.g. from 3RT10 to 3RT20 [see www.siemens.com/sirius/conversion-tool](http://www.siemens.com/sirius/conversion-tool)

Switching Devices – Contactors and Contactor Assemblies

Power Contactors for Switching Motors

Introduction

Overview



Size		S00				S0					
Type		3RT201				3RT202					
3RT20 contactors											
Type		3RT2015	3RT2016	3RT2017	3RT2018	3RT2023	3RT2024	3RT2025	3RT2026	3RT2027	3RT2028
AC, DC operation		(p. 3/28, 3/30)				(p. 3/33, 3/35)					
AC-3											
I_e /AC-3/400 V	A	7	9	12	16	9	12	17	25	32	38
400 V	kW	3	4	5.5	7.5	4	5.5	7.5	11	15	18.5
230 V	kW	1.5	2.2	3	4	2.2	3	4	5.5	7.5	11
690 V	kW	4	5.5	5.5	7.5	7.5	7.5	11	11	18.5	18.5
1 000 V	kW	--	--	--	--	--	--	--	--	--	--
AC-4 (for $I_a = 6 \times I_e$)											
400 V	kW	3	4	4	5.5	4	5.5	7.5	7.5	11	11
400 V (200 000 operating cycles)	kW	1.15	2	2	2.5	2	2.6	3.5	4.4	6	6
AC-1 (40 °C, ≤ 690 V)											
I_e	3RT20 A	18	22	22	22	40	40	40	40	50	50
Accessories for contactors											
Auxiliary switch blocks	On front	3RH2911		(p. 3/53)		3RH2911		(p. 3/53)			
	Lateral	3RH2911		(p. 3/55)		3RH2921		(p. 3/55)			
Timing relay blocks		3RA281.		(p. 3/186)		3RA281.		(p. 3/186)			
Function modules		3RA271.-. AA00		(p. 3/157, 3/172)		3RA271.-. AA00		(p. 3/157, 3/172)			
Surge suppressors		3RT2916		(p. 3/59)		3RT2926		(p. 3/59)			
3RU2 and 3RB3 overload relays (Chapter 7, "Protection Equipment" → "Overload Relays")											
3RU21 , thermal, CLASS 10		3RU2116		0.11 ... 16 A		3RU2126		1.8 ... 40 A			
3RB30/3RB31 , solid-state, CLASS 5, 10, 20 and 30		3RB3016		0.1 ... 16 A		3RB3026		0.1 ... 40 A			
		3RB3113				3RB3123					
3RV20 motor starter protectors (Chapter 7, "Protection Equipment" → "Motor Starter Protectors")											
Type		3RV2011		0.11 ... 16 A		3RV2021		11 ... 40 A			
Link modules		3RA2911				3RA2921					
3RA23 reversing contactor assemblies											
Complete units	Type	3RA2315	3RA2316	3RA2317	3RA2318	--	3RA2324	3RA2325	3RA2326	3RA2327	3RA2328
		(p. 3/153)					(p. 3/155)				
400 V	kW	3	4	5.5	7.5		5.5	7.5	11	15	18.5
Assembly kits/wiring modules		3RA2913-2AA.		(p. 3/156)		--	3RA2923-2AA.		(p. 3/156)		
Function modules		3RA271.-. BA00		(p. 3/157)		--	3RA271.-. BA0		(p. 3/157)		
3RA24 contactor assemblies for wye-delta starting											
Complete units	Type	3RA2415	3RA2416	3RA2417		3RA2423		3RA2425		3RA2426	
		(p. 3/168)				(p. 3/170)					
400 V	kW	5.5	7.5	11		11		15/18.5		22	
Assembly kits/wiring modules		3RA2913-2BB.		(p. 3/171)		3RA2923-2BB.		(p. 3/171)			
Function modules		3RA271.-. CA00		(p. 3/172)		3RA271.-. CA00		(p. 3/172)			

Note:

Safety characteristics for contactors [see Chapter 16, "Appendix" → "Standards and Approvals" → "Overview"](#).

Switching Devices – Contactors and Contactor Assemblies

Power Contactors for Switching Motors

Introduction



Size
Type

S2
3RT103

S3
3RT104

S6
3RT105

3RT10 contactors

Type	3RT1034	3RT1035	3RT1036	3RT1044	3RT1045	3RT1046	3RT1054	3RT1055	3RT1056
AC, DC operation	(p. 3/83, 3/85)			(p. 3/84, 3/86)			(p. 3/87)		

AC-3

I_e /AC-3/400 V	A	32	40	50	65	80	95	115	150	185
400 V	kW	15	18.5	22	30	37	45	55	75	90
230 V	kW	7.5	11	15	18.5	22	22	37	45	55
500 V	kW	18.5	22	30	37	45	55	75	90	110
690 V	kW	18.5	22	22	45	55	55	110	132	160
1 000 V	kW	--	--	--	30	37	37	75	90	90

AC-4 (for $I_a = 6 \times I_e$)

400 V	kW	15	18.5	22	30	37	45	55	75	90
400 V (200 000 operating cycles)	kW	8.2	9.5	12.6	15.1	17.9	22	29	38	45

AC-1 (40 °C, ≤ 690 V)

I_e	A	50	60	60	100	120	120	160	185	215
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3RT14 AC-1 contactors

Type	--	(Chap. 4)	3RT1446	(Chap. 4)	3RT1456	(Chap. 4)
$I_n/AC-1/40\text{ °C} \leq 690\text{ V}$	A	--	140		275	

Accessories for contactors

Auxiliary switch blocks	On front Lateral	3RH1921	(p. 3/103)							
		3RH1921	(p. 3/105)							
Terminal covers		3RT1936-4EA2	(p. 3/110)		3RT1946-4EA1/2	(p. 3/110)		3RT1956-4EA1/2/3	(p. 3/110)	
Box terminal blocks		--			--			3RT1955/56-4G	(p. 3/110)	
Surge suppressors		3RT1926/36	(p. 3/108)						3RT1956-1C (RC element) (p. 3/108)	

3RU1 and 3RB2 overload relays (Chapter 7, "Protection Equipment" → "Overload Relays")

3RU11 , thermal, CLASS 10	3RU1136	5.5 ... 50 A	3RU1146	18 ... 100 A	--					
3RB20/3RB21 , solid-state, CLASS 5, 10, 20 and 30	3RB2036 3RB2136	6 ... 50 A	3RB2046 3RB2146	12.5 ... 100 A	3RB2056 3RB2156	50 ... 200 A				
3RB22/3RB23 , solid-state, CLASS 5, 10, 20 and 30	3RB2.83 + 3RB2906	10 ... 100 A			3RB2.83 + 3RB2956	20 ... 200 A				

3RV10 motor starter protectors (Chapter 7, "Protection Equipment" → "Motor Starter Protectors")

Type	3RV1031	22 ... 50 A	(Chap. 7)	3RV1041	45 ... 100 A	(Chap. 7)	3RV1063	40 ... 200 A
Link modules	3RA1931	(Chap. 7)		3RA1941	(Chap. 7)		--	

3RA13 reversing contactor assemblies

Complete units	Type	3RA1334 (p. 3/159)	3RA1335	3RA1336	3RA1344 (p. 3/160)	3RA1345	3RA1346	--		
400 V	kW	15	18.5	22	30	37	45	55	75	90
Assembly kits/wiring modules		3RA1933-2A	(p. 3/162)		3RA1943-2A	(p. 3/162)		3RA1953-2A	(p. 3/162)	
Mechanical interlocks		3RA1924-1A/-2B	(p. 3/161)						3RA1954-2A (p. 3/161)	

3RA14 contactor assemblies for wye-delta starting

Complete units	Type	3RA1434 (p. 3/176)	3RA1435 (p. 3/177)	3RA1436	3RA1444 (p. 3/178)	3RA145	--			
400 V	kW	22/30	37	45	55	75	--			
Assembly kits/wiring modules		3RA1933-2B/-2C	(p. 3/179)		3RA1943-2B/-2C	(p. 3/179)		3RA1953-2B	(p. 3/179)	

Switching Devices – Contactors and Contactor Assemblies

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Introduction



Size Type	S10 3RT1.6			S12 3RT1.7		14 3TF6		
3RT10 contactors • 3RT12 and 3TF68/69 vacuum contactors								
Type AC, DC operation	3RT1064 (p. 3/87)	3RT1065	3RT1066	3RT1075 (p. 3/87)	3RT1076	--		
Type	3RT1264 (p. 3/95)	3RT1265	3RT1266	3RT1275 (p. 3/95)	3RT1276	3TF68 (p. 3/123)	3TF69	
AC-3								
I _e /AC-3/400 V	A	225	265	300	400	500	630	820
400 V	kW	110	132	160	200	250	335	450
230 V	kW	55	75	90	132	160	200	260
500 V	kW	160	160	200	250	355	434	600
690 V	3RT10/3RT12 kW	200	250	250	400	400/500	600	800
1 000 V	3RT10/3RT12 kW	90/315	132/355	132/400	250/560	250/710	600	800
AC-4 (for I _a = 6 x I _e)								
400 V	kW	110	132	160	200	250	355	400
400 V (200 000 operating cycles)	3RT10/3RT12 kW	54/78	66/93	71/112	84/140	98/161	168	191
AC-1 (40 °C, ≤ 690 V)								
I _e	3RT10/3RT12 A	275/330	330	330	430/610	610	700	910
3RT14 AC-1 contactors								
Type	3RT1466	(Chap. 4)			3RT1476	(Chap. 4)		--
I _e /AC-1/40 °C/≤ 690 V	A	400				690	--	
Accessories for contactors								
Auxiliary switch blocks	On front Lateral	3RH1921 3RH1921	(p. 3/103) (p. 3/105)			--	3TY7561 (p. 3/125)	
Terminal covers		3RT1966-4EA1/-4EA2/-4EA3	(p. 3/110)			3TX7686/696 (p. 3/125)		
Box terminal blocks		3RT1966-4G	(p. 3/110)			--		
Surge suppressors		3RT1956-1C (RC element)	(p. 3/108)			3TX7572 (p. 3/125)		
3RU1 and 3RB2 overload relays (Chapter 7, "Protection Equipment" → "Overload Relays")								
3RU11, thermal, CLASS 10		--				--		
3RB20/3RB21, solid-state, CLASS 5, 10, 20 and 30		3RB2066 3RB2166	55 ... 630 A	3RB2066 3RB2166	160 ... 630 A	3RB2066 3RB2166	160 ... 630 A	
3RB22/3RB23, solid-state, CLASS 5, 10, 20 and 30		3RB2.83 + 3RB2966 63 ... 630 A						
3RV10 motor starter protectors (Chapter 7, "Protection Equipment" → "Motor Starter Protectors")								
Type	3RV1073	160 ... 400 A			3RV1083	252 ... 630 A		3RV1083 252 ... 630 A
Link modules	--				--	--		
3RA13 reversing contactor assemblies								
Complete units	Type	--				--	3TD6804 (p. 3/180)	
400 V	kW	110	132	160	200	250	335	
Assembly kits/wiring modules	3RA1963-2A	(p. 3/162)			3RA1973-2A	(p. 3/162)		3TX7680-1A (Industry Mall)
Mechanical interlocks	3RA1954-2A	(p. 3/161)					3TX7686-1A (Industry Mall)	
3RA14 contactor assemblies for wye-delta starting								
Complete units	Type	--				--	3TE6804 (p. 3/182)	
400 V	kW	--				--	630	
Assembly kits/wiring modules	3RA1963-2B	(p. 3/179)			3RA1973-2B	(p. 3/179)		3TX7680-1B (Industry Mall)

Note:

Safety characteristics for contactors see Chapter 16, "Appendix" → "Standards and Approvals" → "Overview".

Switching Devices – Contactors and Contactor Assemblies

Power Contactors for Switching Motors

Introduction

Connection methods

The contactors are available with screw terminals (box terminals or flat connectors) or with spring-type terminals.

Devices of the 3TF2 series are also available for connection with flat connectors and solder pin connectors.

As an option the devices of the 3RT2 series are also available for connection with ring terminal lugs, particularly versions for North America and Japan.



Screw terminals



Spring-type terminals



Flat connectors



Solder pin connections



Ring terminal lug connections

The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds.

Support function

The 3RT20 contactors can also be ordered via an online configurator.



Configurator available in the Industry Mall

The online configurator is indicated in the corresponding tables by the symbol shown on an orange background.

Power Contactors for Switching Motors

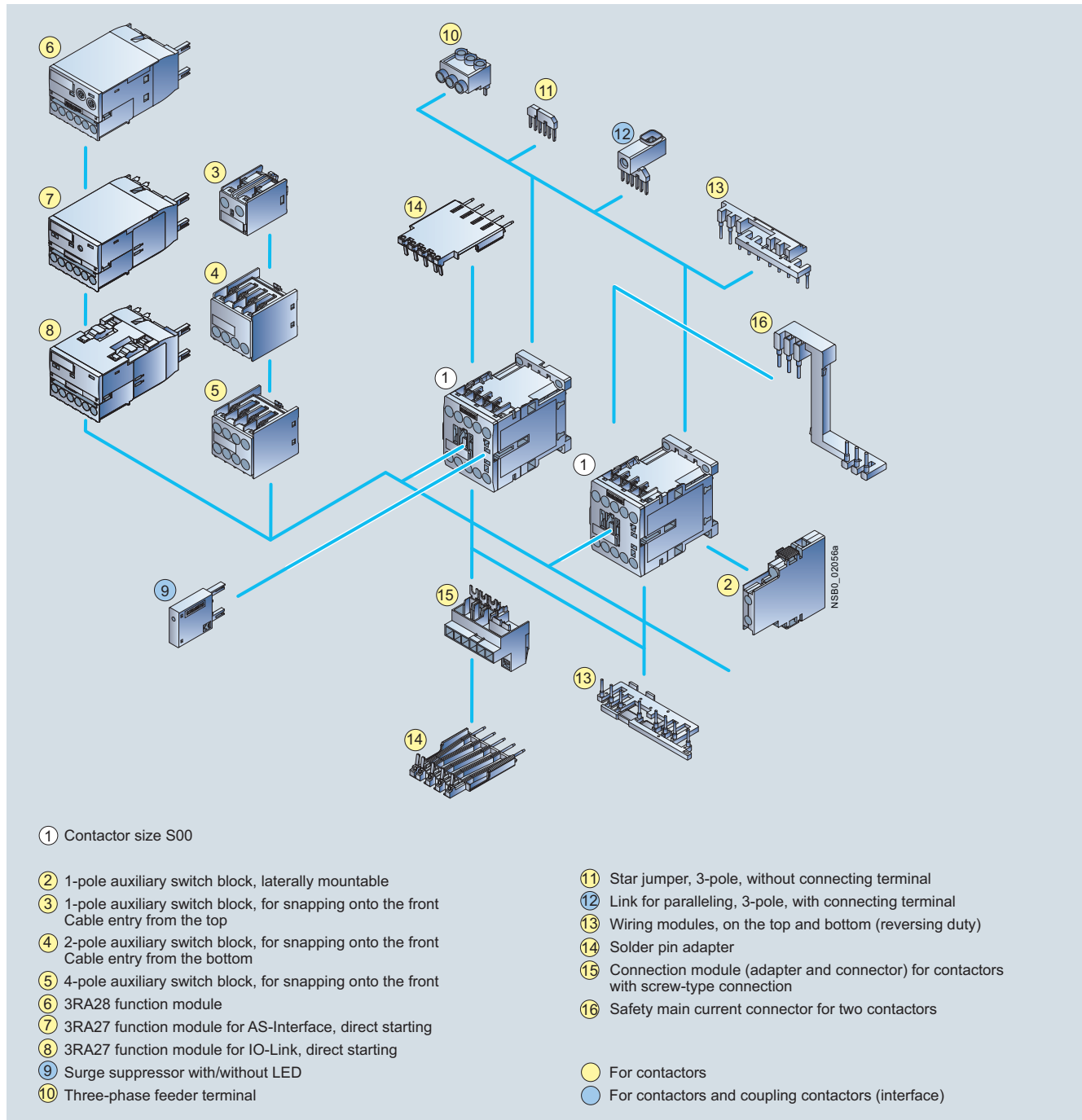
General data

Overview

The SIRIUS family of controls

The SIRIUS modular system with its components for the switching, starting, protection and monitoring of motors and industrial systems stands for the fast, flexible and space-saving construction of control cabinets.

3RT2 contactors and coupling contactors Size S00 with mountable accessories



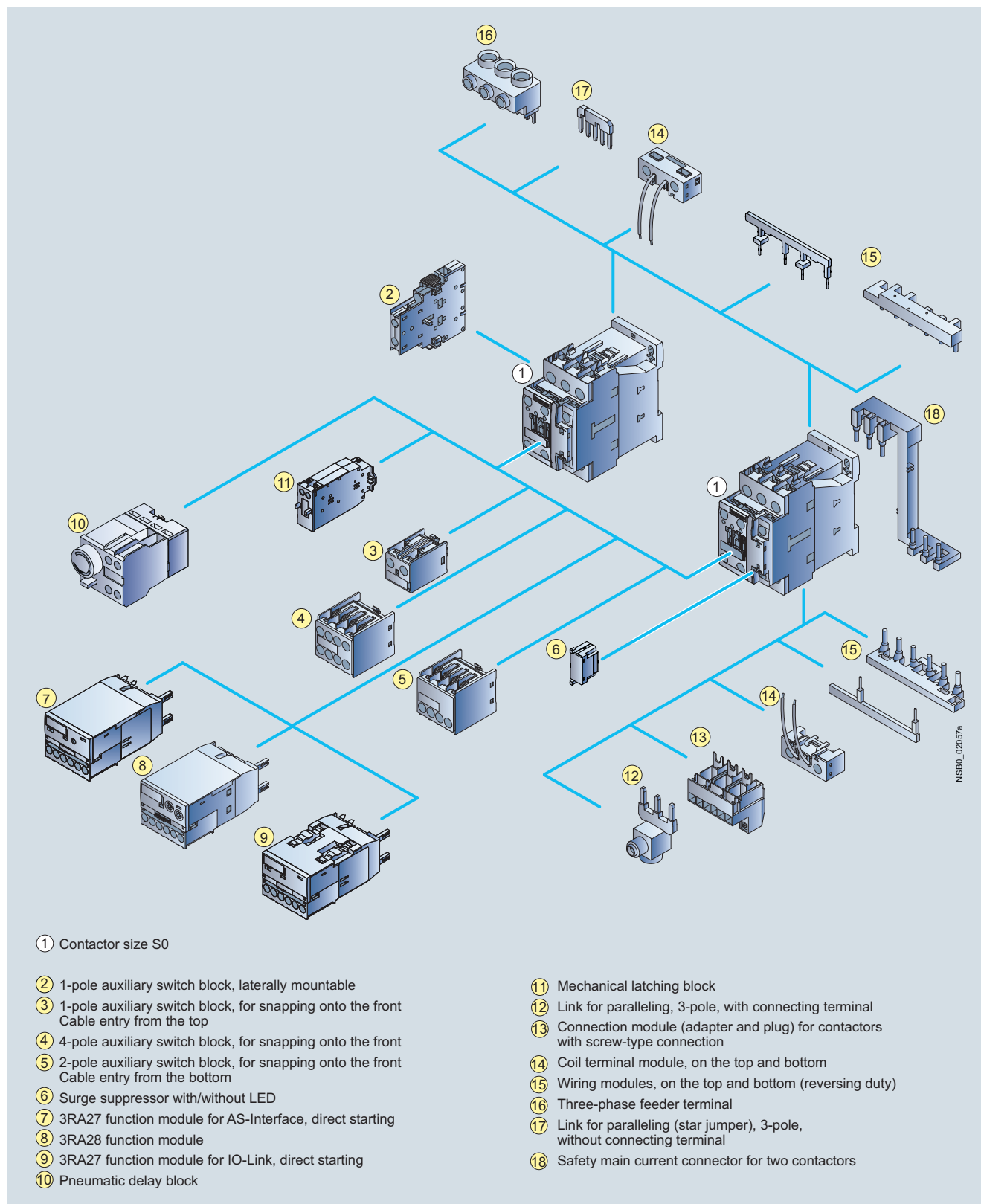
Accessories [see pages 3/48 to 3/63](#).

Contactor assemblies [see pages 3/153 to 3/155](#).

Assembly kit for reversing contactor assemblies (mech. interlocking, wiring modules) [see page 3/156](#).

Mountable overload relays [see Chapter 7, "Protection Equipment" → "Overload Relays"](#).

Fuseless load feeders [see Chapter 8, "Load Feeders and Motor Starters" → "SIRIUS 3RA2 Load Feeders"](#).

**3RT2 contactors and coupling contactors
Size S0 with mountable accessories**


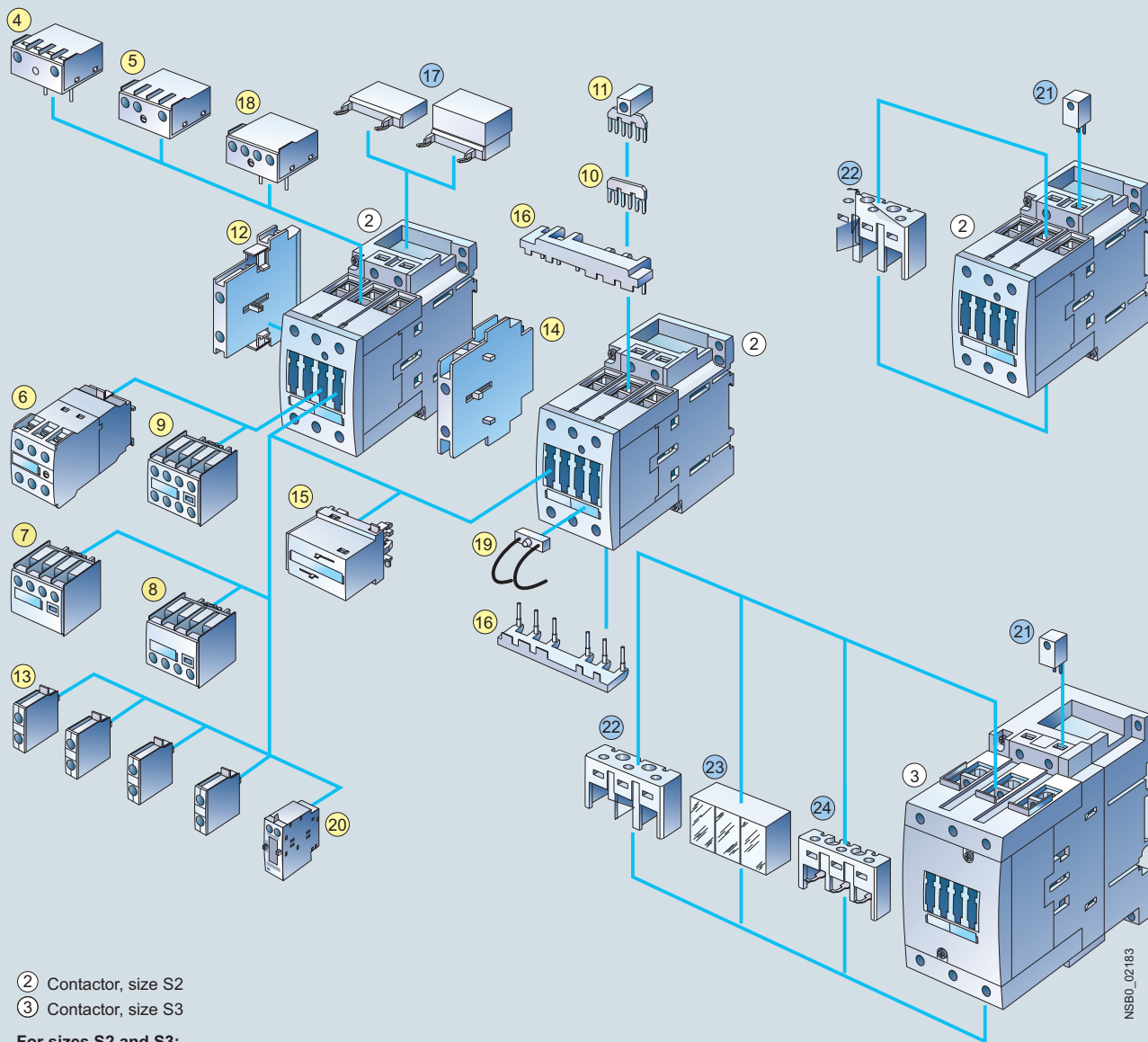
Accessories [see pages 3/48 to 3/63](#).

Power Contactors for Switching Motors

General data

3RT1 contactors

Sizes S2 and S3 with mountable accessories



- ② Contactor, size S2
- ③ Contactor, size S3

For sizes S2 and S3:

- ④ Solid-state timing relay block, ON-delay
- ⑤ Solid-state timing relay block, OFF-delay
- ⑥ Auxiliary switch block, solid-state time-delay (ON or OFF-delay or wye-delta function)
- ⑦ 2-pole auxiliary switch block, cable entry from above
- ⑧ 2-pole auxiliary switch block, cable entry from below
- ⑨ 4-pole auxiliary switch block (terminal designations according to EN 50012 or EN 50005)
- ⑩ Link for paralleling (star jumper), 3-pole, without connecting terminal
- ⑪ Link for paralleling, 3-pole, with connecting terminal
- ⑫ 2-pole auxiliary switch block, laterally mountable left or right (terminal designations according to EN 50012 or EN 50005)
- ⑬ Single-pole auxiliary switch block (up to 4 can be snapped on)
- ⑭ Mechanical interlock, laterally mountable
- ⑮ Mechanical interlock, mountable to the front
- ⑯ Wiring connectors on the top and bottom (reversing duty)

- ⑰ Surge suppressor (varistor, RC element, diode assembly), can be mounted on the top or bottom
- ⑱ Mechanical latching interface for mounting directly onto contactor coil
- ⑲ LED module for indicating contactor operation

Only for size S2:

- ⑳ Mechanical latching

Only for sizes S2 and S3:

- ㉑ Coil repeat terminal for making contactor assemblies
- ㉒ Terminal cover for box terminal

Only for size S3:

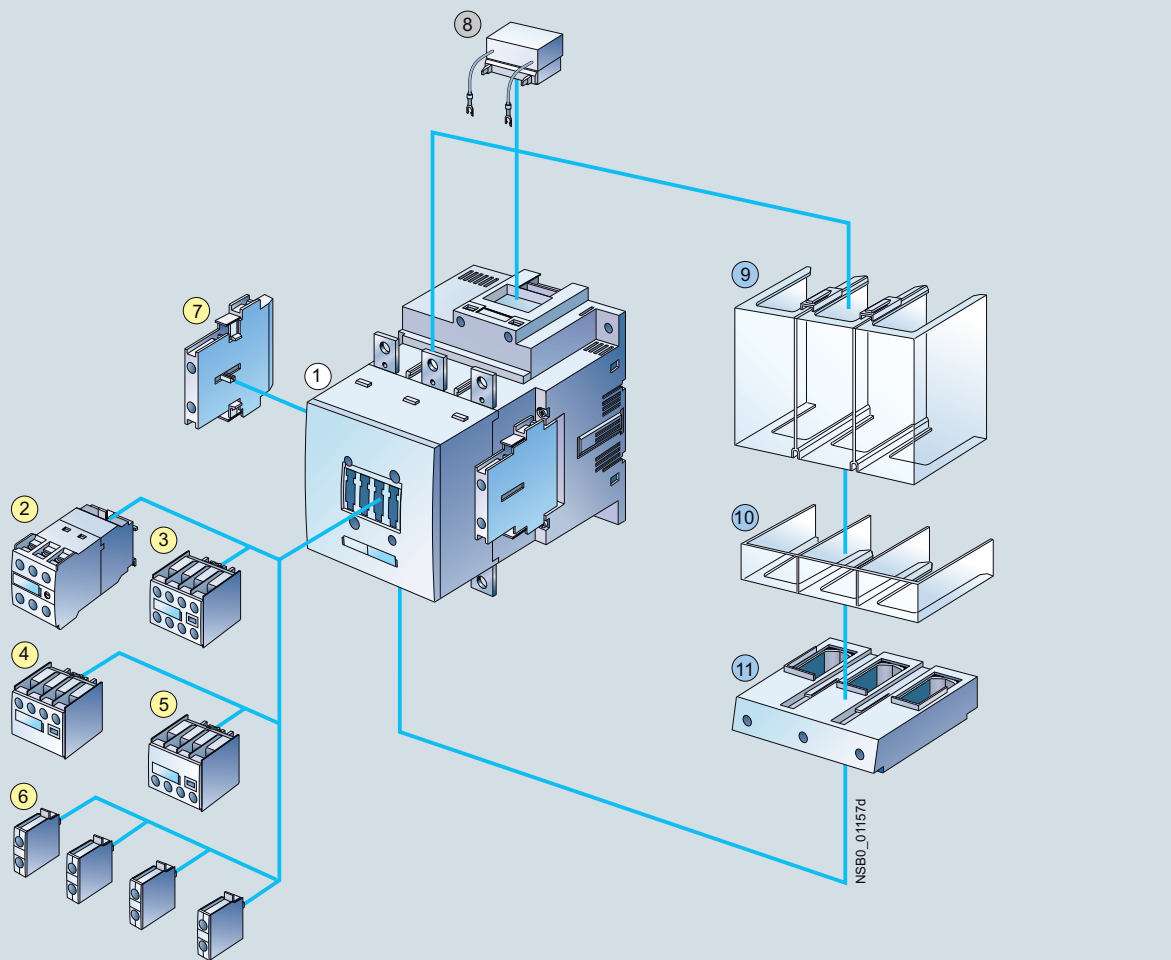
- ㉓ Terminal cover for cable lug and bar connection
- ㉔ Auxiliary conductor terminal, 3-pole

● Accessories identical for sizes S2 and S3

● Accessories differ according to size

Accessories see pages 3/103 to 3/111.

Fuseless load feeders see Chapter 8, "Load Feeders and Motor Starters" → "SIRIUS 3RA1 Load Feeders".

3RT1 contactors**Sizes S6 to S12 with mountable accessories
(illustration for basic unit)**

① 3RT10 and 3RT14 air-break contactors, sizes S6, S10 and S12

② Auxiliary switch block, solid-state time-delay (ON or OFF-delay or wye-delta function)

③ 4-pole auxiliary switch block (terminal designations according to EN 50012 or EN 50005)

④ 2-pole auxiliary switch block, cable entry from above

⑤ 2-pole auxiliary switch block, cable entry from below

⑥ Single-pole auxiliary switch block (up to 4 can be snapped on)

⑦ 2-pole auxiliary switch block, laterally mountable left or right (terminal designations according to EN 50012 or EN 50005) (identical for S0 to S12)

⑧ Surge suppressor (RC element) for plugging into top of withdrawable coil

⑨ Terminal cover for cable lug and busbar connection, different for sizes S6 and S10/S12

⑩ Terminal cover for box terminal, different for sizes S6 and S10/S12

⑪ Box terminal block, different for sizes S6 and S10/S12

● Accessories identical for sizes S0 to S12

● Accessories identical for sizes S6 to S12

● Accessories differ according to size

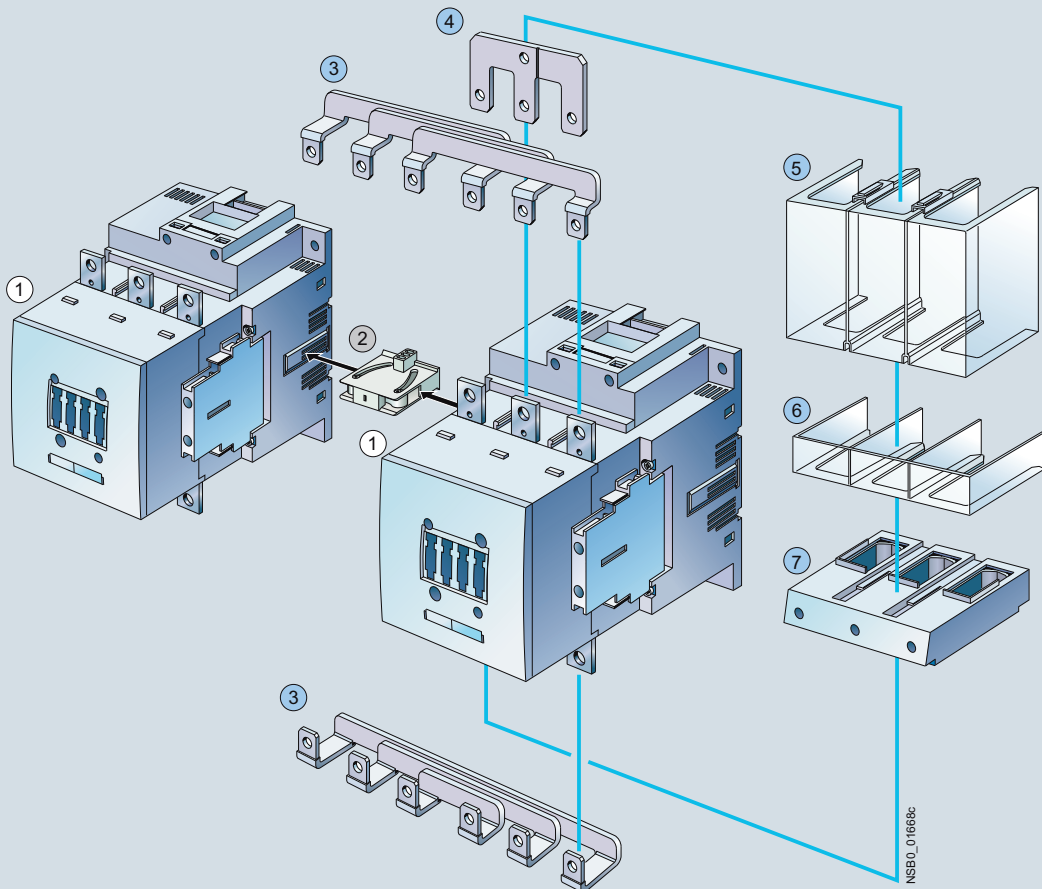
Accessories see pages 3/103 to 3/111.

Mountable overload relays see Chapter 7, "Protection Equipment" → "Overload Relays".

Power Contactors for Switching Motors

General data

3RA1 contactor assemblies, 3RT1 contactors Size S6 with accessories



① 3RT10 and 3RT14 air-break contactor, size S6

② Mechanical interlock, laterally mountable

③ Wiring modules on the top and bottom, 3RA1953-2A

④ Link for paralleling (star jumper), 3-pole, with through-hole, 3RT1956-4BA31

⑤ Terminal cover for cable lug and bar connection different for sizes S6 and S10/S12

⑥ Terminal cover for box terminal different for sizes S6 and S10/S12

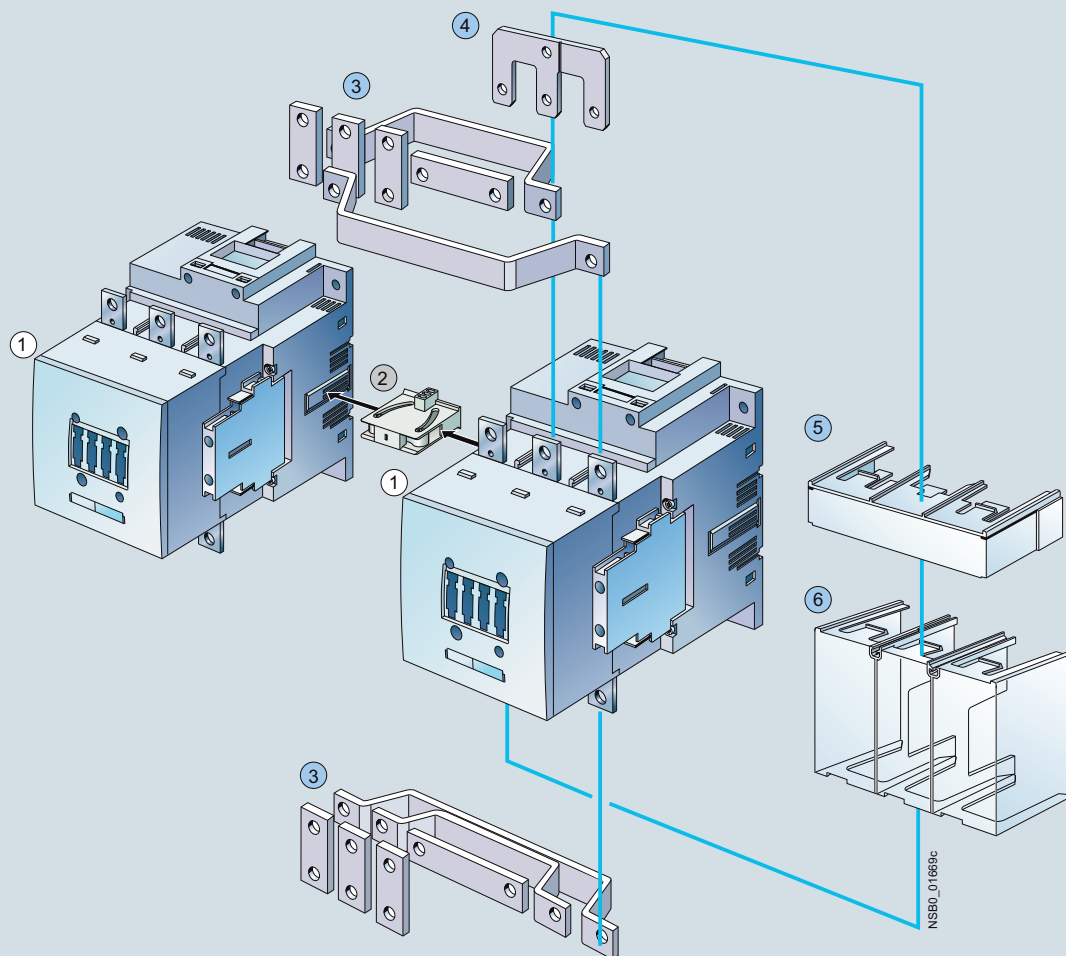
⑦ Box terminal block, different for sizes S6 and S10/S12

○ Accessories identical for sizes S6 to S12

● Accessories differ according to size

Accessories [see pages 3/161 to 3/163 and 3/103 to 3/111](#).

Mountable overload relays [see Chapter 7, "Protection Equipment" → "Overload Relays"](#).

3RA1 contactor assemblies, 3RT1 contactors
Sizes S6, S10 and S12 with accessories


① 3RT10 and 3RT14 air-break contactor, sizes S6, S10 and S12 or 3RT12 vacuum contactor, sizes S10 and S12

② Mechanical interlock, laterally mountable

③ Wiring modules on the top and bottom, 3RA19

④ Link for paralleling (star jumper), 3-pole, with through-hole, 3RT1956-4BA31

⑤ Terminal cover for box terminal, different for sizes S6 and S10/S12

⑥ Terminal cover for cable lug and busbar connection, different for sizes S6 and S10/S12

● Accessories identical for sizes S6 to S12

● Accessories different according to size

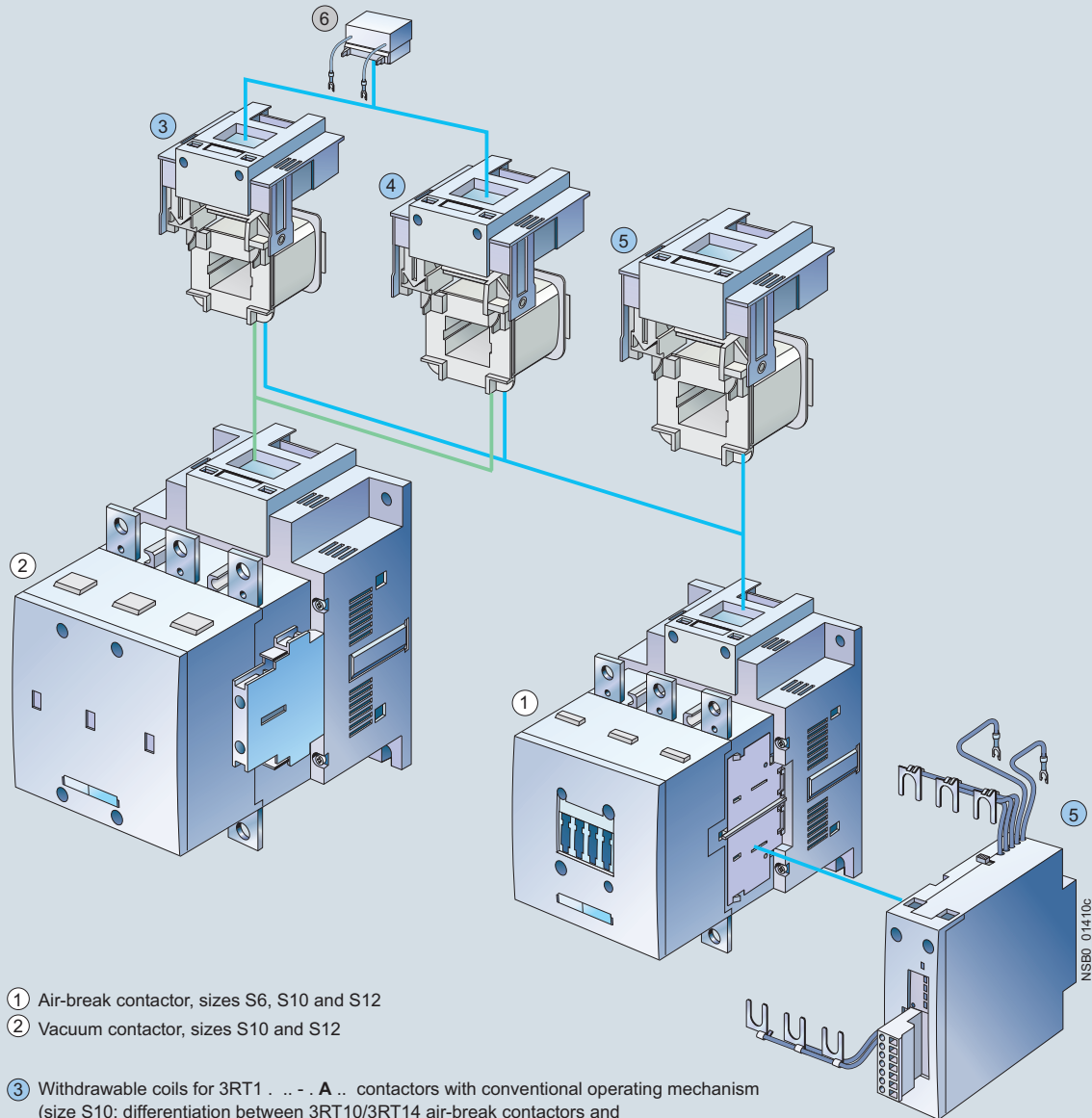
Accessories [see pages 3/161 to 3/163 and 3/103 to 3/111](#).

Mountable overload relays [see Chapter 7, "Protection Equipment" → "Overload Relays"](#).

Power Contactors for Switching Motors

General data

3RT1 contactors Sizes S6 to S12 with accessories



- ① Air-break contactor, sizes S6, S10 and S12
② Vacuum contactor, sizes S10 and S12

- ③ Withdrawable coils for 3RT1 . . . - **A** . . . contactors with conventional operating mechanism
(size S10: differentiation between 3RT10/3RT14 air-break contactors and 3RT12 vacuum contactors)
(size S12: the same for air-break and vacuum contactors)
④ Withdrawable coils for 3RT1 . . . - **N** . . . contactors with solid-state operating mechanism.
(size S10: differentiation between 3RT10/3RT14 air-break contactors and 3RT12 vacuum contactors)
(size S12: the same for air-break and vacuum contactors)
⑤ Withdrawable coils and laterally mountable module (plug-on) for 3RT1. . . - **P** . . . air-break contactors with solid-state operating mechanism and remaining lifetime indicator
⑥ Surge suppressor (RC element), plug-mountable on withdrawable coils
• 3RT1...-**A**... with conventional operating mechanism
• 3RT1...-**N**... with solid-state operating mechanism

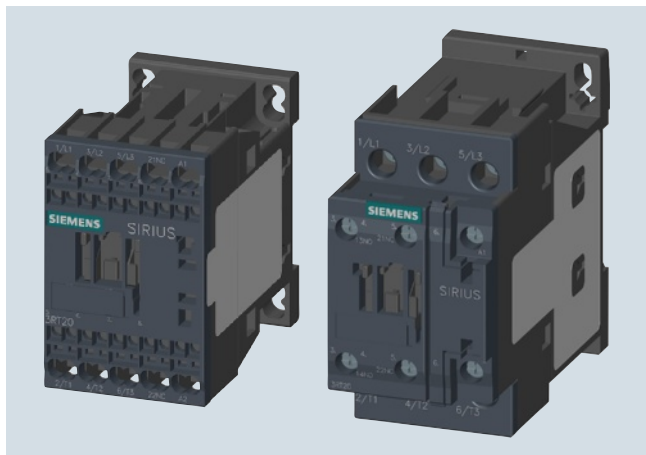
- Identical for sizes S6 to S12
● Different according to size

For surge suppressors [see page 3/108](#),
for withdrawable coils [see pages 3/114 and 3/115](#).

Mountable overload relays [see Chapter 7](#),
"Protection Equipment" → "Overload Relays".

Overview

Sizes S00 and S0, up to 18.5 kW



Contactor size S00 with spring-type terminals and contactor size S0 with screw terminals

Compared to the former 3RT1 series, the 3RT2 series is notable for its higher rating: size S00 with up to 7.5 kW and size S0 with up to 18.5 kW.

Standards

IEC 60947-1, EN 60947-1,
IEC 60947-4-1, EN 60947-4-1,
IEC 60947-5-1, EN 60947-5-1 (auxiliary switches)

The 3RT2 contactors are climate-proof and are suitable and tested for use worldwide.

If the devices are used in ambient conditions which deviate from common industrial conditions (IEC 60721-3-3 "Stationary Use, Weather-Protected"), information must be obtained about possible restrictions with regard to the reliability and endurance of the device and possible protective measures. In this case contact our Technical Assistance.

3RT2 contactors are finger-safe according to EN 50274. The devices with ring terminal lug connection comply with degree of protection IP20 when fitted with the related terminal cover.

Auxiliary contact complement

Size S00 contactors have an auxiliary contact integrated in the basic unit. The basic units size S0 contain two integrated auxiliary contacts (1 NO + 1 NC).

All basic units (except coupling contactors) can be extended with auxiliary switch blocks:

- Additional auxiliary switches with a maximum of four auxiliary contacts can be mounted. The combination of a 2-pole auxiliary switch for mounting on the front and an auxiliary switch for mounting on the side is not permitted.
- Of the maximum number of auxiliary contacts (integrated plus mountable) possible on the device, no more than four NC contacts are permitted for both sizes.

In addition, complete units with permanently mounted auxiliary switch block (2 NO + 2 NC) are offered for sizes S00 and S0.

Contact reliability

If voltages ≤ 110 V and currents ≤ 100 mA are to be switched, the auxiliary contacts of the 3RT2 contactor or 3RH21 contactor relay should be used as they guarantee a high level of contact reliability.

These auxiliary contacts are suitable for electronic circuits with currents ≥ 1 mA at a voltage ≥ 17 V.

Connection methods

The 3RT2 contactors are available with screw terminals, spring-type terminals or ring terminal lug connections.

Short-circuit protection of the contactors

For short-circuit protection of contactors without overload relays see "Technical specifications" on pages 3/17 and 3/22. For short-circuit protection of the contactors with overload relay, see Configuration Manual "Configuring SIRIUS Innovations" <http://support.automation.siemens.com/WW/view/en/39714188>.

To assemble fuseless motor feeders, you must select combinations of motor starter protector and contactor as explained in "SIRIUS 3RA2 Load Feeders" (see Chapter 8 "Load Feeders and Motor Starters").

Motor protection

3RU21 thermal overload relays or 3RB30 solid-state overload relays can be fitted to the 3RT2 contactors for protection against overload. The overload relays must be ordered separately (see Chapter 7, "Protection Equipment" → "Overload relays").

Ratings of three-phase motors

The quoted rating (in kW) refers to the output power on the motor shaft (according to the nameplate).

Control supply voltage

All contactors are available with AC or DC operation. For size S0 contactors, a UC operating mechanism is also available, which can be controlled with both AC (50 to 60 Hz) and DC.

Surge suppression

3RT2 contactors can be retrofitted with RC elements, varistors or diode assemblies (assembly of diode and Zener diode for short break times) for damping opening surges in the coil.

The surge suppressors are plugged onto the front of size S00 contactors. Space is provided for them next to a snap-on auxiliary switch block.

The surge suppressors can be plugged onto the front of size S0 contactors.

Note:

The OFF-delay of the NO contact and the ON-delay of the NC contact are increased if the contactor coils are attenuated against voltage peaks (noise suppression diode 6 to 10 times; diode assembly 2 to 6 times, varistor and suppressor diode +2 to 5 ms).

S00 and S0 contactors with communication interface

The S00 and S0 contactors with communication interface are special versions for mounting the SIRIUS function modules for connection to the control system through IO-Link or AS-Interface (see page 3/188 and 3/193).

When a function module is fitted, no additional auxiliary switches can be mounted. Without a function module, the contactors can be used like the standard versions.

Further information on IO-Link and AS-Interface see Chapter 2 "Industrial Communication".

Manuals

For more information, see

- System manual "SIRIUS Innovations – System Overview", <http://support.automation.siemens.com/WW/view/en/60311318>
- Manual "SIRIUS Innovations – SIRIUS 3RT2 Contactors/ Contactor Assemblies", <http://support.automation.siemens.com/WW/view/en/60306557>

Power Contactors for Switching Motors

SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW

Article No. scheme

Digit of the Article No.	1st - 3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th		
	□□□	□	□	□	□	–	□	□	□	□	□	–	□	□	□	□
SIRIUS power contactors	3 R T															
2nd generation		2														
Device type (e. g. 0 = 3-pole motor contactor, 3 = 4-pole AC-1 contactor)				□												
Contactor size (1 = S00, 2 = S0)					□											
Power dependent on size (e. g. 27 = 15 kW)						□										
Connection type (1 = screw, 2 = spring)							□									
Operating range / solenoid coil circuit (e. g. A = AC standard / without)								□								
Rated control supply voltage (e. g. P0 = 230 V, 50 Hz)									□	□						
Auxiliary switches (e. g. S0: 0 = 1 NO + 1 NC integrated)											□					
Special version												□	□	□	□	□
Example	3 R T	2	0	2	7	–	1	A	P	0	0					

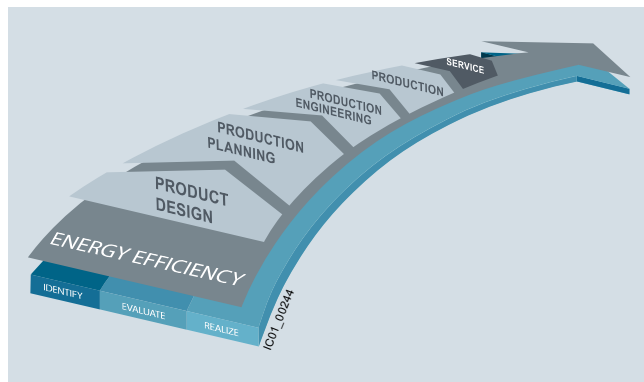
Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Benefits

Advantages through energy efficiency



Overview of the energy management process

We offer you a unique portfolio for industrial energy management, using an energy management system that helps to optimally define your energy needs. We split up our industrial energy management into three phases – identify, evaluate, and realize – and we support you with the appropriate hardware and software solutions in every process phase.

The innovative products of the SIRIUS industrial controls portfolio can also make a substantial contribution to a plant's energy efficiency (see www.siemens.com/sirius/energysaving).

3RT20 contactors contribute to energy efficiency throughout the plant as follows:

- UC coils with electric control for reduced power consumption when closing and in the closed state
- Smaller power supply units in the control circuit through lower power consumption in the closed state with 24 V DC
- Reduced heating of control cabinet:
Technology-reduced inherent power loss of the contactors, resulting in lower cooling costs and a more compact design

Accessories

Auxiliary switch blocks

Terminal designations according to EN 50012 or EN 50005.

Size S00 contactors have an auxiliary contact (NO or NC) integrated in the basic unit. Size S0 contactors have 2 auxiliary contacts (1 NO and 1 NC) integrated in the basic unit.

The contactors can be expanded with front-mounting 3RH2911 auxiliary switch blocks to form contactors with up to 5 auxiliary contacts (S00) or up to 6 auxiliary contacts (S0). Of the auxiliary contacts (integrated plus mountable) possible on the device, no more than four NC contacts are permitted.

Single- or 2-pole auxiliary switch blocks with connection options from above or below enable easy and clearly arranged wiring especially for the installation of feeders. These auxiliary switch blocks are offered only with screw terminals.

All the previously mentioned auxiliary switch variants can be snap-fitted onto the front of the contactor. The auxiliary switch block has a centrally positioned release lever for disassembly.

If the installation space is limited in depth, 2-pole auxiliary switch blocks can be attached laterally on the left or on the right. These auxiliary switch blocks can be used only when no 4-pole auxiliary switch blocks are snapped onto the front.

The solid-state compatible 3RH2911-.NF. auxiliary switch blocks include 2 enclosed contacts. They are suitable in particular for switching small voltages and currents (hard gold-plated contacts) and for operation in dusty atmospheres. The front NC auxiliary contacts are not mirror contacts. There are also versions for mounting on the side.

For details of selecting the auxiliary switches see pages 3/47 to 3/52.

Technical specifications

Type	3RT2		
Size	S00 and S0		
Rated data of the auxiliary contacts			
Acc. to IEC 60947-5-1/EN 60947-5-1 The data apply to integrated auxiliary contacts and contacts in the auxiliary switch blocks for contactor sizes S00 to S0			
Rated insulation voltage U_i (pollution degree 3)	V	690	
Conventional thermal current I_{th} = Rated operational current I_e /AC-12	A	10	
AC load			
Rated operational current I_e /AC-15/AC-14			
• For rated operational voltage U_e	Up to 230 V	A	10 ¹⁾
	380 V	A	3
	400 V	A	3
	500 V	A	2
	660 V	A	1
	690 V	A	1
DC load			
Rated operational current I_e /DC-12			
• For rated operational voltage U_e	24 V	A	10
	60 V	A	6
	110 V	A	3
	125 V	A	2
	220 V	A	1
	440 V	A	0.3
	600 V	A	0.15
Rated operational current I_e /DC-13			
• For rated operational voltage U_e	24 V	A	10 ¹⁾
	60 V	A	2
	110 V	A	1
	125 V	A	0.9
	220 V	A	0.3
	440 V	A	0.14
	600 V	A	0.1
Contact reliability at 17 V, 1 mA according to IEC 60947-5-4/EN 60947-5-4		Frequency of contact faults < 10 ⁻⁸ i.e. < 1 fault per 100 million operating cycles	

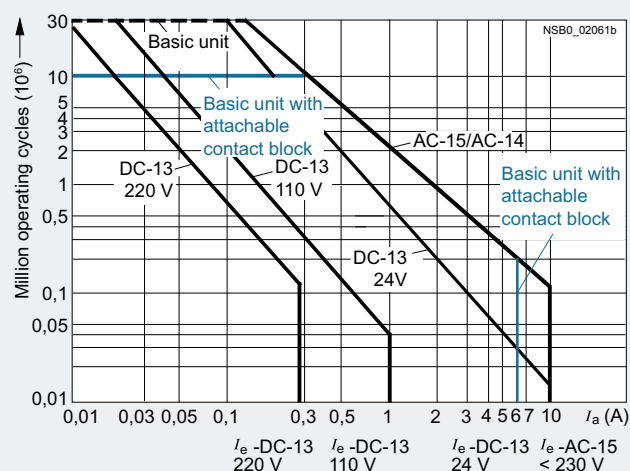
Endurance of the auxiliary contacts

It is assumed that the operating mechanisms are switched randomly, i.e. not synchronized with the phase angle of the supply system.

The contact endurance is mainly dependent on the breaking current.

The characteristic curves apply to:

- Integrated auxiliary contacts on 3RT20
- 3RH2911, 3RH2921 auxiliary switch blocks¹⁾



¹⁾ 3RH22, 3RH29, 3RT2.....4: I_e = 6 A for AC-15/AC-14 and DC-13.

Power Contactors for Switching Motors

SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW

Type

Size

Endurance of the main contacts

The characteristic curves show the contact endurance of the contactors when switching resistive and inductive AC loads (AC-1/AC-3) depending on the breaking current and rated operational voltage. It is assumed that the operating mechanisms are switched randomly, i. e. not synchronized with the phase angle of the supply system.

The rated operational current I_e complies with utilization category AC-4 (breaking six times the rated operational current) and is intended for a contact endurance of at least 200 000 operating cycles.

If a shorter contact endurance is sufficient, the rated operational current I_e /AC-4 can be increased.

If the contacts are used for mixed operation, i.e. normal switching (breaking the rated operational current according to utilization category AC-3) in combination with intermittent inching (breaking several times the rated operational current according to utilization category AC-4), the contact endurance can be calculated approximately from the following equation:

$$X = \frac{A}{1 + \frac{C}{100} \left(\frac{A}{B} - 1 \right)}$$

Characters in the equation:

- X Contact endurance for mixed operation in operating cycles
- A Contact endurance for normal operation ($I_a = I_e$) in operating cycles
- B Contact endurance for inching ($I_a = \text{multiple of } I_e$) in operating cycles
- C Inching operations as a percentage of total switching operations

3RT2

S00 and S0

Size S00

Operating cycles at

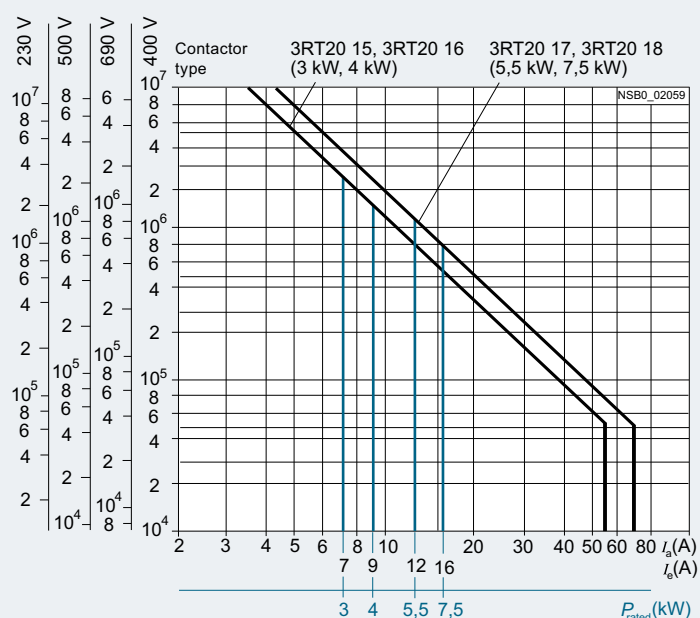


Diagram legend:

P_{rated} = Rated power for squirrel-cage motors at 400 V
 I_a = Breaking current
 I_e = Rated operational current

Size S0

Operating cycles at

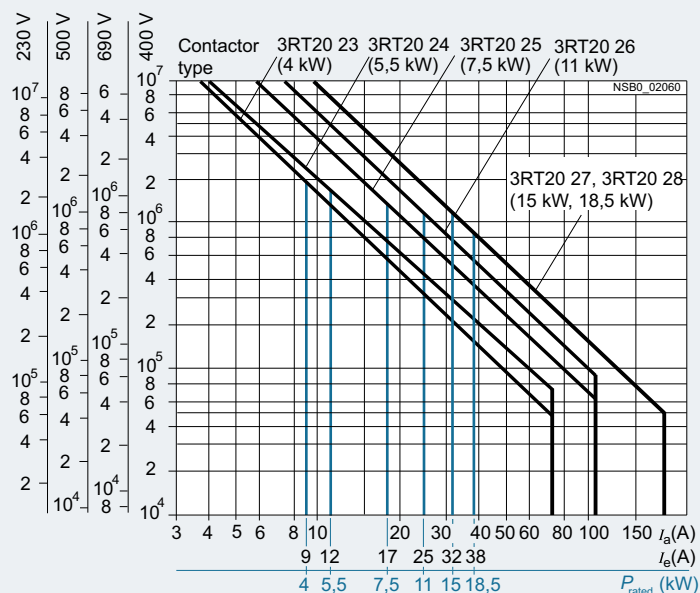
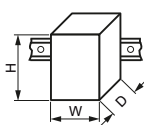
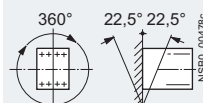


Diagram legend:

P_{rated} = Rated power for squirrel-cage motors at 400 V
 I_a = Breaking current
 I_e = Rated operational current

SIRIUS 3RT20 contactors,
3-pole, 3 ... 18.5 kW

Type			3RT20 15, 3RT20 16	3RT20 17, 3RT20 18
Size			S00	S00
Dimensions (W x H x D) ¹⁾		mm	45 x 57.5 x 73 / 45 x 70 x 73	
• With mounted auxiliary switch block		mm	45 x 57.5 x 116 / 45 x 70 x 121	
• With mounted function module		mm	45 x 57.5 x 142 / 45 x 70 x 142	
General technical specifications				
Permissible mounting position				
The contactors are designed for operation on a vertical mounting surface.				
Upright mounting position		 NSB0_00477a Special version required		
Mechanical endurance				
• Basic units	Operating cycles	30 million		
• Basic units with snap-on auxiliary switch block	Operating cycles	10 million		
• Solid-state compatible auxiliary switch block	Operating cycles	5 million		
Electrical endurance		2)		
Rated insulation voltage U_i (pollution degree 3)	V	690		
Rated impulse withstand voltage U_{imp}	kV	6		
Protective separation between the coil and the main contacts acc. to IEC 60947-1, Appendix N	V	400		
Mirror contacts				
A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact.				
• 3RT201.., 3RT231.. (removable auxiliary switch block)		Yes, this applies to both the basic unit as well as to between the basic unit and the mounted auxiliary switch block acc. to IEC 60947-4-1, Appendix F		
• 3RT201.., 3RT231.. (permanently mounted auxiliary switch block)		Yes, acc. to IEC 60947-4-1, Appendix F, and SUVA		
• 3RH2919-..NF.. solid-state compatible auxiliary switch blocks		Have no mirror contact for size S00		
Ambient temperature				
• During operation	°C	-25 ... +60		
• During storage	°C	-55 ... +80		
Degree of protection acc. to IEC 60947-1, Appendix C		IP20		
Touch protection acc. to EN 50274		Finger-safe		
Shock resistance rectangular pulse				
• AC operation	g/ms	6.7/5 and 4.2/10	7.3/5 and 4.7/10	
• DC operation	g/ms	6.7/5 and 4.2/10	7.3/5 and 4.7/10	
Shock resistance sine pulse				
• AC operation	g/ms	10.5/5 and 6.6/10	11.4/5 and 7.3/10	
• DC operation	g/ms	10.5/5 and 6.6/10	11.4/5 and 7.3/10	
Conductor cross-sections		3)		
Short-circuit protection for contactors without overload relays				
Main circuit				
• Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1/EN 60947-4-1				
- Type of coordination "1"	A	35	50	
- Type of coordination "2"	A	20	25	
- Weld-free ⁴⁾	A	10	10	
• Miniature circuit breakers (up to 230 V) with C characteristic Short-circuit current 1 kA, type of coordination "1"	A	10	10	
Auxiliary circuit				
Short-circuit test acc. to IEC 60947-5-1/EN 60947-5-1				
• With fuse links of operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current $I_k = 1$ kA	A	10		
• With 230 V miniature circuit breakers, C characteristic with short-circuit current $I_k = 400$ A	A	6		
Short-circuit protection for contactors with overload relays		See Configuration Manual "Configuring SIRIUS Innovations" ⁵⁾		
Short-circuit protection for fuseless load feeders		See Chapter 8 "Load Feeders and Motor Starters for Use in the Control Cabinet" → "SIRIUS 3RA2 Load Feeders"		

1) Dimensions for devices with screw terminals / spring-type terminals.

2) For contact endurance of the main contacts see page 3/16.

3) For conductor cross-sections, see page 3/21.

4) Test conditions according to IEC 60947-4-1.

5) See <http://support.automation.siemens.com/WW/view/en/39714188>.

Power Contactors for Switching Motors

SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW

Type			3RT2015, 3RT2016	3RT2017, 3RT2018
Size			S00	S00
Control				
Solenoid coil operating range				
• AC operation	50 Hz		0.8 ... 1.1 x U_s	
	60 Hz		0.85 ... 1.1 x U_s	
• DC operation	Up to 50 °C		0.8 ... 1.1 x U_s	
	Up to 60 °C		0.85 ... 1.1 x U_s	
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)				
• AC operation, 50/60 Hz, standard version				
- Closing	VA		27/24.3	37/33
- P.f.			0.8/0.75	0.8/0.75
- Closed	VA		4.2/3.3	5.7/4.4
- P.f.			0.25/0.25	0.25/0.25
• AC operation, 50 Hz, for USA/Canada				
- Closing	VA		26.4	36
- P.f. for closing			0.81	0.8
- Closed	VA		4.4	5.9
- P.f. for closed			0.24	0.24
• AC operation, 60 Hz, for USA/Canada				
- Closing	VA		31.7	43
- P.f. for closing			0.81	0.8
- Closed	VA		4.8	6.5
- P.f. for closed			0.25	0.25
• DC operation (closing = closed)	W		4	4
Permissible residual current of the electronics (with 0 signal)				
• AC operation			< 3 mA x (230 V/ U_s) ¹⁾	< 4 mA x (230 V/ U_s) ¹⁾
• DC operation			< 10 mA x (24 V/ U_s) ¹⁾	
Operating times ²⁾				
Total break time = Opening delay + Arcing time				
• AC operation for 0.8 ... 1.1 x U_s	Closing delay	ms	9 ... 35	8 ... 33
	Opening delay	ms	3.5 ... 14	4 ... 15
• DC operation for 0.85 ... 1.1 x U_s	Closing delay	ms	30 ... 100	30 ... 100
	Opening delay	ms	7 ... 13	7 ... 13
• Arcing time		ms	10 ... 15	10 ... 15
Operating times for 1.0 x U_s ²⁾				
• AC operation	Closing delay	ms	9.5 ... 24	9 ... 22
	Opening delay	ms	4 ... 14	4.5 ... 15
• DC operation	Closing delay	ms	35 ... 50	35 ... 50
	Opening delay	ms	7 ... 12	7 ... 12

¹⁾ The 3RT2916-1GA00 additional load module is recommended for higher residual currents.

²⁾ The OFF-delay of the NO contact and the ON-delay of the NC contact are increased if the contactor coils are attenuated against voltage peaks (noise suppression diode 6 to 10 times; diode assembly 2 to 6 times, suppressor diode +1 ms to 5 ms; varistor +2 ms to 5 ms).

Power Contactors for Switching Motors

SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW

Type			3RT2015	3RT2016	3RT2017	3RT2018
Size			S00	S00	S00	S00
Main circuit						
Load rating with AC						
Utilization category AC-1, Switching resistive loads						
• Rated operational current I_e	At 40 °C up to 690 V	A	18	22	22	22
	At 60 °C up to 690 V	A	16	20	20	20
• Rated power for AC loads ¹⁾ P.f. = 0.95 (at 60 °C)	230 V	kW	6	7.5	7.5	7.5
	400 V	kW	10.5	13	13	13
	690 V	kW	18	22	22	22
• Minimum conductor cross-section for loads with I_e	At 40 °C	mm ²	2.5	4	4	4
	At 60 °C	mm ²	2.5	2.5	2.5	2.5
Utilization categories AC-2 and AC-3						
• Rated operational currents I_e	Up to 400 V	A	7	9	12	16
	440 V	A	7	9	11	14
	500 V	A	6	7.7	9.2	12.4
	690 V	A	4.9	6.7	6.7	8.9
• Rated power for slipring or squirrel-cage motors at 50 and 60 Hz	At 230 V	kW	1.5	2.2	3	4
	400 V	kW	3	4	5.5	7.5
	690 V	kW	4	5.5	5.5	7.5
Thermal load capacity	10 s current ²⁾	A	56	72	96	128
Power loss per conducting path	At I_e /AC-3	W	0.42	0.7	1.24	2.2
Utilization category AC-4 (for $I_a = 6 \times I_e$)³⁾						
• Rated operational current I_e , maximum	Up to 400 V	A	6.5	8.5	8.5	11.5
• Rated power for squirrel-cage motors with 50 Hz and 60 Hz	Up to 400 V	A	3	4	4	5.5
• The following applies to a contact endurance of about 200 000 operating cycles:						
- Rated operational currents I_e	Up to 400 V	A	2.6	4.1	4.1	5.5
	690 V	A	1.8	3.3	3.3	4.4
- Rated power for squirrel-cage motors with 50 Hz and 60 Hz	At 230 V	kW	0.67	1.1	1.1	1.5
	400 V	kW	1.15	2	2	2.5
	690 V	kW	1.15	2.5	2.5	3.5

¹⁾ Industrial furnaces and electric heaters with resistance heating, etc.
(increased power consumption on heating up has been taken into account).

²⁾ According to IEC 60947-4-1.
Rated values for various start-up conditions
see Chapter 7, "Protection Equipment" → "Overload Relays".

³⁾ The data only apply to 3RT2516 and 3RT2517 (2 NO + 2 NC) up to a rated
operational voltage of 400 V.

Power Contactors for Switching Motors

SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW

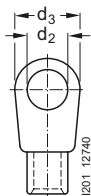
Type			3RT2015	3RT2016	3RT2017	3RT2018
Size			S00	S00	S00	S00
Main circuit						
Load rating with DC						
Utilization category DC-1, switching resistive loads ($L/R \leq 1$ ms)						
• Rated operational currents I_e (at 60 °C)						
- 1 conducting path	Up to 24 V A	15	20			
	60 V A	15	20			
	110 V A	1.5	2.1			
	220 V A	0.6	0.8			
	440 V A	0.42	0.6			
	600 V A	0.42	0.6			
- 2 conducting paths in series	Up to 24 V A	15	20			
	60 V A	15	20			
	110 V A	8.4	12			
	220 V A	1.2	1.6			
	440 V A	0.6	0.8			
	600 V A	0.5	0.7			
- 3 conducting paths in series	Up to 24 V A	15	20			
	60 V A	15	20			
	110 V A	15	20			
	220 V A	15	20			
	440 V A	0.9	1.3			
	600 V A	0.7	1			
Utilization category DC-3/DC-5, shunt-wound and series-wound motors ($L/R \leq 15$ ms)						
• Rated operational currents I_e (at 60 °C)						
- 1 conducting path	Up to 24 V A	15	20			
	60 V A	0.35	0.5			
	110 V A	0.1	0.15			
	220 V A	--				
	440 V A	--				
	600 V A	--				
- 2 conducting paths in series	Up to 24 V A	15	20			
	60 V A	3.5	5			
	110 V A	0.25	0.35			
	220 V A	--				
	440 V A	--				
	600 V A	--				
- 3 conducting paths in series	Up to 24 V A	15	20			
	60 V A	15	20			
	110 V A	15	20			
	220 V A	1.2	1.5			
	440 V A	0.14	0.2			
	600 V A	0.14	0.2			
Switching frequency						
Switching frequency z in operating cycles/hour						
Contactors without overload relays						
• No-load switching frequency	AC/DC	h ⁻¹	10 000			
• Switching frequency z during rated operation ¹⁾						
- $I_e/AC-1$	At 400 V	h ⁻¹	1 000			
- $I_e/AC-2$	At 400 V	h ⁻¹	750			
- $I_e/AC-3$	At 400 V	h ⁻¹	750			
- $I_e/AC-4$	At 400 V	h ⁻¹	250			
Contactors with overload relays						
• Mean value		h ⁻¹	15			

¹⁾ Dependence of the switching frequency z' on the operational current I' and operational voltage U' :
 $z' = z \cdot (I_e/I') \cdot (400 V/U')^{1.5} \cdot 1/h$

Power Contactors for Switching Motors

SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW

Type		3RT2015	3RT2016	3RT2017	3RT2018
Size		S00	S00	S00	S00
Conductor cross-sections					
Main and auxiliary conductors (1 or 2 conductors can be connected)		 Screw terminals			
• Solid or stranded	mm ²	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾ ; max. 2 x 4			
• Finely stranded with end sleeves (DIN 46228-1)	mm ²	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾			
• AWG cables, solid or stranded	AWG	2 x (20 ... 16) ¹⁾ ; 2 x (18 ... 14) ¹⁾ ; 2 x 12			
• Terminal screw		M3 (for Pozidriv size 2, Ø 5 ... 6)			
• Tightening torque	Nm	0.8 ... 1.2 (7 ... 10.3 lb.in)			
Main conductors, auxiliary conductors and coil terminals²⁾ (1 or 2 conductors can be connected)		 Spring-type terminals			
• Operating devices ³⁾	mm	3.0 x 0.5; 3.5 x 0.5			
• Solid or stranded	mm ²	2 x (0.5 ... 4)			
• Finely stranded with end sleeves (DIN 46228-1)	mm ²	2 x (0.5 ... 2.5)			
• Finely stranded without end sleeve	mm ²	2 x (0.5 ... 2.5)			
• AWG cables, solid or stranded	AWG	2 x (20 ... 12)			
Auxiliary conductors for front and laterally mounted auxiliary switches²⁾ (1 or 2 conductors can be connected)					
• Operating devices ³⁾	mm	3.0 x 0.5; 3.5 x 0.5			
• Solid or stranded	mm ²	2 x (0.5 ... 2.5)			
• Finely stranded with end sleeves (DIN 46228-1)	mm ²	2 x (0.5 ... 1.5)			
• Finely stranded without end sleeve	mm ²	2 x (0.5 ... 2.5)			
• AWG cables, solid or stranded	AWG	2 x (20 ... 14)			
Main conductors and auxiliary conductors		 Ring terminal lug connections			
• Terminal screw		M3, Pozidriv 2			
• Operating devices	mm	Ø 5 ... 6			
• Tightening torque	Nm	0.8 ... 1.2			
• Usable ring terminal lugs	mm	d ₂ = min. 3.2			
- DIN 46234 without insulation sleeve	mm	d ₃ = max. 7.5			
- DIN 46225 without insulation sleeve					
- DIN 46237 with insulation sleeve					
- JIS C2805 Type R without insulation sleeve					
- JIS C2805 Type RAV with insulation sleeve					
- JIS C2805 Type RAP with insulation sleeve					



¹⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

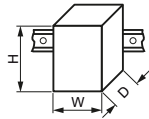
²⁾ Max. external diameter of the cable insulation: 3.6 mm.
On spring-type terminals with conductor cross-sections ≤ 1 mm², an insulation stop must be used [see Accessories, page 3/63](#).

³⁾ Tool for opening the spring-type terminals, [see Accessories, page 3/63](#).

Power Contactors for Switching Motors

SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW

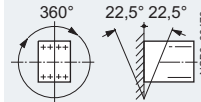
Type		3RT2023	3RT2024	3RT2025	3RT2026	3RT2027	3RT2028
Size		S0	S0	S0	S0	S0	S0
Dimensions (W x H x D) for AC operation ¹⁾		45 x 85 x 97 / 45 x 101.5 x 97					
• With mounted auxiliary switch block		45 x 85 x 141 / 45 x 101.5 x 144					
• With mounted function module		45 x 85 x 166 / 45 x 101.5 x 166					
Dimensions (W x H x D) for DC operation ¹⁾		45 x 85 x 107 / 45 x 101.5 x 107					
• With mounted auxiliary switch block		45 x 85 x 151 / 45 x 101.5 x 154					
• With mounted function module		45 x 85 x 176 / 45 x 101.5 x 176					



General data

Permissible mounting position

The contactors are designed for operation on a vertical mounting surface.



Upright mounting position



Special version required,
also applies to 3RT202...K.40. coupling contactors

Mechanical endurance

• Basic units	Operating cycles	10 million
• Basic units with snap-on auxiliary switch block	Operating cycles	10 million
• Solid-state compatible auxiliary switch block	Operating cycles	5 million

Electrical endurance

Rated insulation voltage U_i (pollution degree 3)	V	690
---	---	-----

Rated impulse withstand voltage U_{imp}	kV	6
---	----	---

Protective separation between the coil and the main contacts (acc. to IEC 60947-1, Appendix N)	V	400
--	---	-----

Mirror contacts

A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact.

• Integrated auxiliary switches	Yes, acc. to IEC 60947-4-1, Appendix F
• 3RT202..., 3RT232. (removable auxiliary switch block)	Yes, acc. to IEC 60947-4-1, Appendix F
• 3RT202..., 3RT232. (permanently mounted auxiliary switch block)	Yes, acc. to IEC 60947-4-1, Appendix F

Permissible ambient temperature

• During operation	°C	-25 ... +60
• During storage	°C	-55 ... +80

Degree of protection acc. to IEC 60947-1, Appendix C

IP20

Touch protection acc. to EN 50274

Finger-safe

Shock resistance rectangular pulse

• AC operation	g/ms	7.5/5 and 4.7/10	8.3/5 and 5.3/10
• DC operation	g/ms	10/5 and 7.5/10	10/5 and 7.5/10

Shock resistance sine pulse

• AC operation	g/ms	11.8/5 and 7.4/10	13.5/5 and 8.3/10
• DC operation	g/ms	15/5 and 10/10	15/5 and 10/10

Conductor cross-sections

3)

Short-circuit protection for contactors without overload relays

Main circuit

• Fuse links, operational class gG:
LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE
according to IEC 60947-4-1/EN 60947-4-1

- Type of coordination "1"	A	63	100	125
- Type of coordination "2"	A	25	35	50
- Weld-free ⁵⁾	A	10	16	16
• Miniature circuit breakers with C characteristic (short-circuit current 3 kA, type of coordination "1")	A	25	32	40

Auxiliary circuit

• Fuse links, operational class gG: DIAZED, type 5SB; NEOZED, type 5SE (weld-free protection $I_k \leq 1$ kA)	A	10
• Miniature circuit breakers 230 V, C characteristic (short-circuit current $I_k < 400$ A)	A	10

Short-circuit protection for contactors with overload relays
See Configuration Manual "Configuring SIRIUS Innovations" ⁴⁾
Short-circuit protection for fuseless load feeders
See Chapter 8, "Load Feeders and Motor Starters for Use in the Control Cabinet" → "SIRIUS 3RA2 Load Feeders"

¹⁾ Dimensions for devices with screw terminals / spring-type terminals.

²⁾ For contact endurance of the main contacts see page 3/16.

³⁾ For conductor cross-sections, see page 3/26.

⁴⁾ See <http://support.automation.siemens.com/WW/view/en/39714188>

⁵⁾ Test conditions according to IEC 60947-4-1.

Power Contactors for Switching Motors

SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW

Type		3RT2023 ... 3RT2025	3RT2026 ... 3RT2028	3RT202. -NB3	3RT202. -NF3..	3RT202. -NP3
Size		S0	S0	S0	S0	S0
Control						
Type of operating mechanism		AC or DC		UC (AC/DC)		
Solenoid coil operating range		AC/DC		0.8 ... 1.1 x U _s		
Power consumption of the solenoid coils (for cold coil and 1.0 x U _s)		0.7 ... 1.3 x U _s ¹⁾				
• AC operation, 50 Hz, standard version						
- Closing	VA	65	77	6.6	11.9	12.7
- P.f.		0.82	0.82	0.98	0.98	0.98
- Closed	VA	7.6	9.8	1.9	1.6	3.9
- P.f.		0.25	0.25	0.86	0.79	0.51
• AC operation, 50/60 Hz, standard version						
- Closing	VA	68/67	81/79	6.6/6.7	11.9/12.0	12.7/14.7
- P.f.		0.72/0.74	0.72/0.74	0.98/0.98	0.98/0.98	0.98/0.98
- Closed	VA	7.9/6.5	10.5/8.5	1.9/2.0	1.6/1.8	3.9/4.3
- P.f.		0.25/0.28	0.25/0.28	0.86/0.82	0.79/0.74	0.51/0.56
• AC operation, 50 Hz, for USA/Canada						
- Closing	VA	65	77	--	--	--
- P.f.		0.82	0.82	--	--	--
- Closed	VA	7.6	9.8	--	--	--
- P.f.		0.25	0.28	--	--	--
• AC operation, 60 Hz, for USA/Canada						
- Closing	VA	73	87	--	--	--
- P.f.		0.76	0.76	--	--	--
- Closed	VA	7.2	9.4	--	--	--
- P.f.		0.28	0.28	--	--	--
• DC operation (closing = closed)		W	5.9/5.9	5.9/1.4	10.2/1.3	14.3/1.9
Permissible residual current of the electronics (with 0 signal)						
• AC operation		mA	< 6 mA x (230 V/U _s)		< 7 mA x (230 V/U _s)	
• DC operation		mA	<16 mA x (24 V/U _s)			
Operating times for 0.8 ... 1.1 x U _s ²⁾						
Total break time = Opening delay + Arcing time						
• AC operation						
- Closing delay	ms	9 ... 38	8 ... 40	60 ... 80	50 ... 70	60 ... 80
- Opening delay	ms	4 ... 16	4 ... 16	30 ... 45	35 ... 45	35 ... 45
• DC operation						
- Closing delay	ms	50 ... 170	50 ... 170	60 ... 75	50 ... 70	50 ... 75
- Opening delay	ms	15 ... 17.5	15 ... 17.5	30 ... 45	35 ... 45	40 ... 50
• Arcing time		ms	10	10	10	10
Operating times for 1.0 x U _s ²⁾						
• AC operation						
- Closing delay	ms	10 ... 18	10 ... 17	65 ... 80	50 ... 70	60 ... 80
- Opening delay	ms	4 ... 16	4 ... 16	30 ... 45	35 ... 45	30 ... 50
• DC operation						
- Closing delay	ms	55 ... 80	55 ... 80	60 ... 80	56 ... 70	60 ... 80
- Opening delay	ms	16 ... 17	16 ... 17	30 ... 45	35 ... 45	30 ... 50

¹⁾ The following applies to $U_{s \max} = 280$ V: Upper limit = 1.1 x $U_{s \max}$.

²⁾ The OFF-delay of the NO contact and the ON-delay of the NC contact are increased if the contactor coils are attenuated against voltage peaks (varistor +2 ms to 5 ms, diode assembly: 2 to 6 times).

Power Contactors for Switching Motors

SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW

Type			3RT2023	3RT2024	3RT2025	3RT2026	3RT2027	3RT2028
Size			S0	S0	S0	S0	S0	S0
Main circuit								
Load rating with AC								
Utilization category AC-1, switching resistive loads								
• Rated operational current I_e	At 40 °C up to 690 V	A	40				50	
	At 60 °C up to 690 V	A	35				42	
• Rated power for AC loads ¹⁾ P.f. = 0.95 (at 60 °C)	230 V	kW	13.3				15.5	
	400 V	kW	23				27.5	
	690 V	kW	40				47.5	
• Minimum conductor cross-section for loads with I_e	At 40 °C	mm ²	10				10	
	At 60 °C	mm ²	10				10	
Utilization categories AC-2 and AC-3								
• Rated operational currents I_e	Up to 400 V	A	9	12	17	25	32	38
	440 V	A	9	12	17	22	32	35
	500 V	A	9	12	17	18	32	32
	690 V	A	9	9	13	13	21	21
• Rated power for slipring or squirrel-cage motors at 50 and 60 Hz	At 230 V	kW	2.2	3	4	5.5	7.5	11
	400 V	kW	4	5.5	7.5	11	15	18.5
	690 V	kW	7.5	7.5	11	11	18.5	18.5
Thermal load capacity	10 s current ²⁾	A	80	110	150	200	260	300
Power loss per conducting path	At I_e /AC-3	W	0.4	0.5	0.9	1.6	2.7	3.8
Utilization category AC-4 (for $I_a = 6 \times I_e$)								
• Rated operational current I_e , max.	Up to 400 V	A	8.5	12.5	15.5	15.5	22	
• Rated power for squirrel-cage motors with 50 Hz and 60 Hz	At 400 V	kW	4	5.5	7.5	7.5	11	
• The following applies to a contact endurance of about 200 000 operating cycles:								
- Rated operational currents I_e	Up to 400 V	A	4.1	5.5	7.7	9	12	
	690 V	A	3.3	5.5	7.7	9	12	
- Rated power for squirrel-cage motors with 50 Hz and 60 Hz	At 110 V	kW	0.5	0.73	1	1.2	1.6	
	230 V	kW	1.1	1.5	2	2.5	3.4	
	400 V	kW	2	2.6	3.5	4.4	6	
	690 V	kW	2.5	4.6	6	7.7	10.3	

¹⁾ Industrial furnaces and electric heaters with resistance heating, etc.
(increased power consumption on heating up has been taken into account).

²⁾ According to IEC 60947-4-1.
Rated values for various start-up conditions
[see Chapter 7, "Protection Equipment" → "Overload Relays".](#)

Power Contactors for Switching Motors

**SIRIUS 3RT20 contactors,
3-pole, 3 ... 18.5 kW**

Type	3RT2023	3RT2024	3RT2025	3RT2026	3RT2027	3RT2028
Size	S0	S0	S0	S0	S0	S0

Main circuit

Load rating with DC

**Utilization category DC-1,
switching resistive loads ($L/R \leq 1$ ms)**

- Rated operational currents I_e (at 60 °C)

- 1 conducting path	Up to 24 V	A	35
	60 V	A	20
	110 V	A	4.5
	220 V	A	1
	440 V	A	0.4
- 2 conducting paths in series	600 V	A	0.25
	Up to 24 V	A	35
	60 V	A	35
	110 V	A	35
	220 V	A	5
- 3 conducting paths in series	440 V	A	1
	600 V	A	0.8
	Up to 24 V	A	35
	60 V	A	35
	110 V	A	35
- 3 conducting paths in series	220 V	A	35
	440 V	A	2.9
	600 V	A	1.4

**Utilization category DC-3/DC-5,
shunt-wound and series-wound motors ($L/R \leq 15$ ms)**

- Rated operational currents I_e (at 60 °C)

- 1 conducting path	Up to 24 V	A	20
	60 V	A	5
	110 V	A	2.5
	220 V	A	1
	440 V	A	0.09
- 2 conducting paths in series	600 V	A	0.06
	Up to 24 V	A	35
	60 V	A	35
	110 V	A	15
	220 V	A	3
- 3 conducting paths in series	440 V	A	0.27
	600 V	A	0.16
	Up to 24 V	A	35
	60 V	A	35
	110 V	A	35
- 3 conducting paths in series	220 V	A	10
	440 V	A	0.6
	600 V	A	0.6

Switching frequency

Switching frequency z in operating cycles/hour

Contactors without overload relays

• No-load switching frequency	AC	h^{-1}	5 000
	DC	h^{-1}	1 500
• Switching frequency z during rated operation ¹⁾			
	- $I_e/AC-1$	At 400 V	h^{-1} 1 000
	- $I_e/AC-2$	At 400 V	h^{-1} 1 000
	- $I_e/AC-3$	At 400 V	h^{-1} 1 000
	- $I_e/AC-4$	At 400 V	h^{-1} 300

750
750
250

Contactors with overload relays

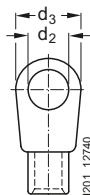
• Mean value	h^{-1}	15
--------------	----------	----

¹⁾ Dependence of the switching frequency z'
on the operational current I' and operational voltage U' :
 $z' = z \cdot (I_e/I') \cdot (400 V/U')^{1.5} \cdot 1/h$

Power Contactors for Switching Motors

SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW

Type		3RT2023	3RT2024	3RT2025	3RT2026	3RT2027	3RT2028
Size		S0	S0	S0	S0	S0	S0
Conductor cross-sections (1 or 2 conductors connectable)							
Main conductors		 Screw terminals					
Conductor cross-section							
• Solid or stranded	mm ²	2 x (1 ... 2.5) ¹⁾ ; 2 x (2.5 ... 10) ¹⁾					
• Finely stranded with end sleeves (DIN 46228-1)	mm ²	2 x (1 ... 2.5) ¹⁾ ; 2 x (2.5 ... 6) ¹⁾ ; 1 x 10					
• AWG cables, solid or stranded	AWG	2 x (16 ... 12) ¹⁾ ; 2 x (14 ... 8) ¹⁾					
• Terminal screws		M4 (for Pozidriv size 2, Ø 5 ... 6)					
- Tightening torque	Nm	2 ... 2.5 (18 ... 22 lb.in)					
Auxiliary conductors							
• Solid or stranded	mm ²	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾ ; 2 x 4					
• Finely stranded with end sleeves (DIN 46228-1)	mm ²	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾					
• Solid or stranded AWG (2 x)	AWG	2 x (20 ... 16) ¹⁾ ; 2 x (18 ... 14) ¹⁾ ; 2 x 12					
• Terminal screws		M3 (for Pozidriv size 2, Ø 5 ... 6)					
- Tightening torque	Nm	0.8 ... 1.2 (7 ... 10.3 lb.in)					
Main conductors²⁾		 Spring-type terminals					
• Operating devices ³⁾	mm	3.0 x 0.5; 3.5 x 0.5					
• Solid or stranded	mm ²	2 x (1 ... 10)					
• Finely stranded with end sleeves (DIN 46228-1)	mm ²	2 x (1 ... 6)					
• Finely stranded without end sleeve	mm ²	2 x (1 ... 6)					
• AWG cables, solid or stranded	AWG	2 x (18 ... 8)					
Auxiliary conductors²⁾							
• Operating devices ³⁾		3.0 x 0.5; 3.5 x 0.5					
• Solid or stranded	mm ²	2 x (0.5 ... 2.5)					
• Finely stranded with end sleeves (DIN 46228-1)	mm ²	2 x (0.5 ... 1.5)					
• Finely stranded without end sleeve	mm ²	2 x (0.5 ... 2.5)					
• AWG cables, solid or stranded	AWG	2 x (20 ... 14)					
Main conductors		 Ring terminal lug connections					
• Terminal screw	mm	M4, Pozidriv 2					
• Operating devices	mm	Ø 5 ... 6					
• Tightening torque	Nm	2 ... 2.5					
• Usable ring terminal lugs	mm	d ₂ = min. 4.3					
- DIN 46234 without insulation sleeve	mm	d ₃ = max. 12.2					
- DIN 46225 without insulation sleeve							
- DIN 46237 with insulation sleeve							
- JIS C2805 Type R without insulation sleeve							
- JIS C2805 Type RAV with insulation sleeve							
- JIS C2805 Type RAP with insulation sleeve							
Auxiliary conductors							
• Terminal screw		M3, Pozidriv 2					
• Operating devices	mm	Ø 5 ... 6					
• Tightening torque	Nm	0.8 ... 1.2					
• Usable ring terminal lugs	mm	d ₂ = min. 3.2					
	mm	d ₃ = max. 7.5					



¹⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

²⁾ Max. external diameter of the cable insulation: 3.6 mm.
On spring-type terminals with conductor cross-sections ≤ 1 mm², an insulation stop must be used [see Accessories, page 3/63](#).

³⁾ Tool for opening the spring-type terminals, [see Accessories, page 3/63](#).

Type		3RT201	3RT202	
Size		S00	S0	
		Integrated or mountable auxiliary switch block	Integrated	Mountable auxiliary switch block
® and ® rated data of the auxiliary contacts				
Rated voltage	V AC	600	600	600
Switching capacity		A 600, Q 600	A 600, P 600	A 600, Q 600
Uninterrupted current	At 240 V AC A	10	10	10

Power Contactors for Switching Motors

SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW

Type		3RT2015	3RT2016	3RT2017	3RT2018
Size		S00	S00	S00	S00
Ⓢ and Ⓤ rated data					
Rated insulation voltage	V AC	600			
Uninterrupted current , at 40 °C, open and enclosed	A	20			
Maximum horsepower ratings (from Ⓢ and Ⓤ approved values)					
• Rated power for three-phase motors at 60 Hz	At 200 V hp	1.5	2	3	3
	230 V hp	2	3	3	5
	460 V hp	3	5	7.5	10
	575 V hp	5	7.5	10	10
Short-circuit protection¹⁾ (contactor or overload relay)	At 600 V kA	5	5	5	5
• Fuse CLASS J ²⁾	A	40	40	40	40
• Circuit breakers with overload protection acc. to UL 489	A	50	50	50	50
• Combination motor controllers type E according to UL 508		__3)	__3)	__3)	__3)
NEMA/EEMAC ratings					
NEMA/EEMAC size	hp	--			0
• Uninterrupted current	- Open	A	--		18
	- Enclosed	A	--		18
• Rated power for three-phase motors at 60 Hz	At 200 V hp	--			3
	230 V hp	--			3
	460 V hp	--			5
	575 V hp	--			5
Overload relays					
• Type		3RU211 / 3RB301			
• Setting range	A	0.11 ... 16 / 0.1 ... 16			

Type		3RT2023	3RT2024	3RT2025	3RT2026	3RT2027	3RT2028
Size		S0	S0	S0	S0	S0	S0
Ⓢ and Ⓤ rated data							
Rated insulation voltage	V AC	600				600	
Uninterrupted current, at 40 °C, open and enclosed	A	35				42	
Maximum horsepower ratings (from Ⓢ and Ⓤ approved values)							
• Rated power for three-phase motors at 60 Hz	At 200 V hp	2	3	3	5	10	10
	230 V hp	3	3	5	7.5	10	10
	460 V hp	5	7.5	10	15	20	25
	575 V hp	7.5	10	15	20	25	25
Short-circuit protection ¹⁾ (contactor or overload relay)	At 600 V kA	5	5	5	5	5	5
• Fuse CLASS J ²⁾	A	125				150	
• Circuit breakers with overload protection acc. to UL 489	A	70				100	
• Combination motor controllers type E according to UL 508	At 480 V Type	3RV202					
	A	--					
	kA	... ³⁾					
	At 600 V Type	3RV202					
	A	--					
	kA	... ³⁾					
NEMA/EEMAC ratings							
NEMA/EEMAC size	hp	--				1	
• Uninterrupted current	- Open	A	--				27
	- Enclosed	A	--				27
• Rated power for three-phase motors at 60 Hz	At 200 V hp	--				7.5	
	230 V hp	--				7.5	
	460 V hp	--				10	
	575 V hp	--				10	
Overload relays							
• Type		3RU212 / 3RB302					
• Setting range	A	1.8 ... 40 / 0.1 ... 40					

¹⁾ For more information about short-circuit values, e.g. for protection against short-circuit currents, see the [UL reports on the individual devices](http://www.siemens.com/sirius/manuals), www.siemens.com/sirius/manuals.

For the dimensioning of load feeders, see also the Configuration Manual "Configuring SIRIUS Innovations for UL", <http://support.automation.siemens.com/WW/view/en/53433538>.

²⁾ Values for RK5 fuses on request.

³⁾ Values on request.

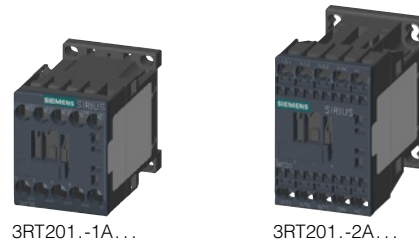
Power Contactors for Switching Motors

SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW

Selection and ordering data

AC operation

PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B

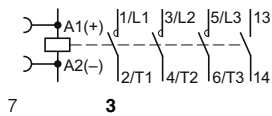


Rated data			Auxiliary contacts		Rated control supply voltage U_s at 50/60 Hz	DT	Screw terminals	DT	Spring-type terminals
AC-2 and AC-3, T_u : Up to 60 °C									
Operational current I_e up to 400 V	Rating ¹⁾ of three-phase motors at 50 Hz and 400 V	Operational current I_e up to 690 V	Ident. No.	Version			Configurator		Configurator
A	kW	A			V AC		Article No.	Price per PU	Article No.
			NO	NC					Price per PU

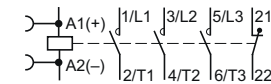
For screw and snap-on mounting onto TH 35 standard mounting rail

Size S00²⁾³⁾

- With auxiliary contact 1 NO, Ident. No. **10**



- With auxiliary contact 1 NC, Ident. No. **01**



7	3	18	10	1	--	24 110 230	▶ 3RT2015-1AB01 ▶ 3RT2015-1AF01 ▶ 3RT2015-1AP01	▶ 3RT2015-2AB01 ▶ 3RT2015-2AF01 ▶ 3RT2015-2AP01
			01	--	1	24 110 230	▶ 3RT2015-1AB02 ▶ 3RT2015-1AF02 ▶ 3RT2015-1AP02	▶ 3RT2015-2AB02 ▶ 3RT2015-2AF02 ▶ 3RT2015-2AP02
9	4	22	10	1	--	24 110 230	▶ 3RT2016-1AB01 ▶ 3RT2016-1AF01 ▶ 3RT2016-1AP01	▶ 3RT2016-2AB01 ▶ 3RT2016-2AF01 ▶ 3RT2016-2AP01
			01	--	1	24 110 230	▶ 3RT2016-1AB02 ▶ 3RT2016-1AF02 ▶ 3RT2016-1AP02	▶ 3RT2016-2AB02 ▶ 3RT2016-2AF02 ▶ 3RT2016-2AP02
12	5.5	22	10	1	--	24 110 230	▶ 3RT2017-1AB01 ▶ 3RT2017-1AF01 ▶ 3RT2017-1AP01	▶ 3RT2017-2AB01 ▶ 3RT2017-2AF01 ▶ 3RT2017-2AP01
			01	--	1	24 110 230	▶ 3RT2017-1AB02 ▶ 3RT2017-1AF02 ▶ 3RT2017-1AP02	▶ 3RT2017-2AB02 ▶ 3RT2017-2AF02 ▶ 3RT2017-2AP02
16	7.5	22	10	1	--	24 110 230	▶ 3RT2018-1AB01 ▶ 3RT2018-1AF01 ▶ 3RT2018-1AP01	▶ 3RT2018-2AB01 ▶ 3RT2018-2AF01 ▶ 3RT2018-2AP01
			01	--	1	24 110 230	▶ 3RT2018-1AB02 ▶ 3RT2018-1AF02 ▶ 3RT2018-1AP02	▶ 3RT2018-2AB02 ▶ 3RT2018-2AF02 ▶ 3RT2018-2AP02

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

²⁾ The 3RT20 contactors are also available with ring terminal lug connection. Please contact your local Siemens representative for information about these special versions.

³⁾ For size S00: Coil operating range
 at 50 Hz: 0.8 ... 1.1 × U_s ,
 at 60 Hz: 0.85 ... 1.1 × U_s .

Other voltages according to page 3/39 on request.

For accessories see page 3/48.

Power Contactors for Switching Motors

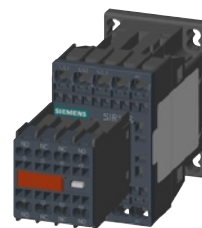
**SIRIUS 3RT20 contactors,
3-pole, 3 ... 18.5 kW**

AC operation

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B



3RT201.-1AP04-3MA0



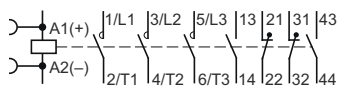
3RT201.-2AP04-3MA0

Rated data			Auxiliary contacts		DT	Screw terminals		DT	Spring-type terminals	
AC-2 and AC-3, T_U : Up to 60 °C	Rating ¹⁾ of three-phase motors at 50 Hz and 400 V	AC-1, T_U : 40 °C Operational current I_e up to 690 V	Ident. No.	Version		Configurator			Configurator	
Operational current I_e up to 400 V	400 V					Article No.	Price per PU		Article No.	Price per PU
A	kW	A	NO	NC	V AC					

For screw fixing and snap-on mounting onto
TH 35 standard mounting rail

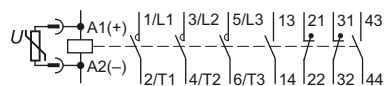
Size S00²⁾

With permanently mounted auxiliary switch block



7	3	18	22	2	2	230	B	3RT2015-1AP04-3MA0	B	3RT2015-2AP04-3MA0
9	4	22	22	2	2	230	B	3RT2016-1AP04-3MA0	B	3RT2016-2AP04-3MA0
12	5.5	22	22	2	2	230	B	3RT2017-1AP04-3MA0	B	3RT2017-2AP04-3MA0
16	7.5	22	22	2	2	230	►	3RT2018-1AP04-3MA0	►	3RT2018-2AP04-3MA0

With permanently mounted auxiliary switch block and varistor plugged onto the front side



7	3	18	22	2	2	230	B	3RT2015-1CP04-3MA0	B	3RT2015-2CP04-3MA0
9	4	22	22	2	2	230	B	3RT2016-1CP04-3MA0	B	3RT2016-2CP04-3MA0
12	5.5	22	22	2	2	230	B	3RT2017-1CP04-3MA0	B	3RT2017-2CP04-3MA0
16	7.5	22	22	2	2	230	B	3RT2018-1CP04-3MA0	B	3RT2018-2CP04-3MA0

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

²⁾ For size S00: Coil operating range
at 50 Hz: 0.8 ... 1.1 × U_s ,
at 60 Hz: 0.85 ... 1.1 × U_s .

Other voltages according to page 3/39 on request.

For accessories see page 3/48.

Power Contactors for Switching Motors

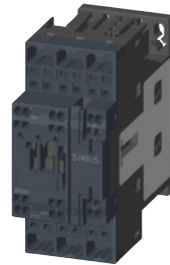
SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW

AC operation

PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B



3RT202.-1A.00

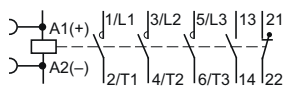


3RT202.-2A.00

Rated data		Auxiliary contacts		Rated control supply voltage		DT	Screw terminals		DT	Spring-type terminals	
AC-2 and AC-3, T_U : Up to 60 °C		AC-1, T_U : 40 °C		U_s at 50 Hz			Configurator			Configurator	
Operational current I_e up to 400 V	Rating ¹⁾ of three-phase motors at 50 Hz and 400 V	Operational current I_e up to 690 V	Ident. No.	Version			Article No.	Price per PU		Article No.	Price per PU
A	kW	A	NO	NC	V AC						

For screw and snap-on mounting onto TH 35 standard mounting rail

Size S0²⁾



9	4	40	11	1	1	24 110 230	▶ 3RT2023-1AB00 ▶ 3RT2023-1AF00 ▶ 3RT2023-1AP00	A A ▶	3RT2023-2AB00 3RT2023-2AF00 3RT2023-2AP00
12	5.5	40	11	1	1	24 110 230	▶ 3RT2024-1AB00 ▶ 3RT2024-1AF00 ▶ 3RT2024-1AP00	A A ▶	3RT2024-2AB00 3RT2024-2AF00 3RT2024-2AP00
17	7.5	40	11	1	1	24 110 230	▶ 3RT2025-1AB00 ▶ 3RT2025-1AF00 ▶ 3RT2025-1AP00	A A ▶	3RT2025-2AB00 3RT2025-2AF00 3RT2025-2AP00
25	11	40	11	1	1	24 110 230	▶ 3RT2026-1AB00 ▶ 3RT2026-1AF00 ▶ 3RT2026-1AP00	A A ▶	3RT2026-2AB00 3RT2026-2AF00 3RT2026-2AP00
32	15	50	11	1	1	24 110 230	▶ 3RT2027-1AB00 ▶ 3RT2027-1AF00 ▶ 3RT2027-1AP00	A A ▶	3RT2027-2AB00 3RT2027-2AF00 3RT2027-2AP00
38	18.5	50	11	1	1	24 110 230	▶ 3RT2028-1AB00 ▶ 3RT2028-1AF00 ▶ 3RT2028-1AP00	A A B	3RT2028-2AB00 3RT2028-2AF00 3RT2028-2AP00

For online configurator see www.siemens.com/sirius/configurators.

- ¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.
- ²⁾ The 3RT20 contactors are also available with ring terminal lug connection. Please contact your local Siemens representative for information about these special versions.

Other voltages according to page 3/39 on request.

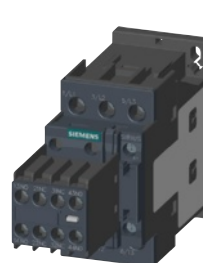
For accessories see page 3/48.
 For spare parts see page 3/64.

Power Contactors for Switching Motors

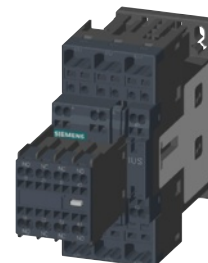
**SIRIUS 3RT20 contactors,
3-pole, 3 ... 18.5 kW**

AC operation

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B



3RT202.-1A.04



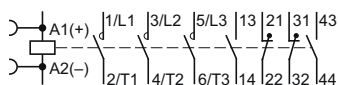
3RT202.-2A.04

Rated data		Auxiliary contacts		DT	Screw terminals		DT	Spring-type terminals	
AC-2 and AC-3, T_U : Up to 60 °C	AC-1, T_U : 40 °C	Ident. No.	Version		Configurator			Configurator	
Operational current I_e up to 400 V	Rating ¹⁾ of three-phase motors at 50 Hz and 400 V	Operational current I_e up to 690 V			Article No.	Price per PU		Article No.	Price per PU
A	kW	A	NO NC V AC						

For screw fixing and snap-on mounting onto TH 35 standard mounting rail

Size S0²⁾

With mounted auxiliary switch block (removable)³⁾



9	4	40	22	2	2	24 230	B ▶	3RT2023-1AB04 3RT2023-1AP04	B A	3RT2023-2AB04 3RT2023-2AP04
12	5.5	40	22	2	2	24 110 230	B B ▶	3RT2024-1AB04 3RT2024-1AF04 3RT2024-1AP04	B B A	3RT2024-2AB04 3RT2024-2AF04 3RT2024-2AP04
17	7.5	40	22	2	2	24 110 230	B B ▶	3RT2025-1AB04 3RT2025-1AF04 3RT2025-1AP04	B B A	3RT2025-2AB04 3RT2025-2AF04 3RT2025-2AP04
25	11	40	22	2	2	24 110 230	B B ▶	3RT2026-1AB04 3RT2026-1AF04 3RT2026-1AP04	B B A	3RT2026-2AB04 3RT2026-2AF04 3RT2026-2AP04
32	15	50	22	2	2	24 110 230	B B ▶	3RT2027-1AB04 3RT2027-1AF04 3RT2027-1AP04	B B A	3RT2027-2AB04 3RT2027-2AF04 3RT2027-2AP04
38	18.5	50	22	2	2	24 110 230	B B ▶	3RT2028-1AB04 3RT2028-1AF04 3RT2028-1AP04	B B A	3RT2028-2AB04 3RT2028-2AF04 3RT2028-2AP04

For online configurator see www.siemens.com/sirius/configurators.

- 1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.
- 2) The 3RT20 contactors are also available with ring terminal lug connection. Please contact your local Siemens representative for information about these special versions.
- 3) Article No. for the auxiliary switch block (removable): 3RH2911-.HA11

Other voltages according to page 3/39 on request.

For accessories see page 3/48.

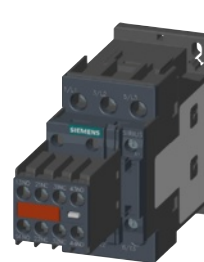
For spare parts see page 3/64.

Power Contactors for Switching Motors

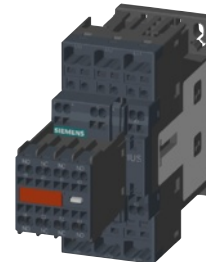
SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW

AC operation

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B



3RT202.-1AL24-3MA0



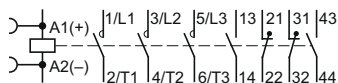
3RT202.-2AL24-3MA0

Rated data			Auxiliary contacts		Rated control supply voltage	DT	Screw terminals		DT	Spring-type terminals	
AC-2 and AC-3, T_U : Up to 60 °C		AC-1, T_U : 40 °C			U_s at 50/60 Hz						
Operational current I_e up to 400 V	Rating ¹⁾ of three-phase motors at 50 Hz and 400 V	Operational current I_e up to 690 V	Ident. No.	Version			Configurator			Configurator	
							Article No.	Price per PU		Article No.	Price per PU
A	kW	A									
			NO	NC	V AC						

For screw and snap-on mounting onto TH 35 standard mounting rail

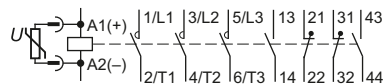
Size S0

With permanently mounted auxiliary switch block²⁾



9	4	40	22	2	2	230	B	3RT2023-1AL24-3MA0	B	3RT2023-2AL24-3MA0
12	5.5	40	22	2	2	230	B	3RT2024-1AL24-3MA0	B	3RT2024-2AL24-3MA0
17	7.5	40	22	2	2	230	B	3RT2025-1AL24-3MA0	B	3RT2025-2AL24-3MA0
25	11	40	22	2	2	230	B	3RT2026-1AL24-3MA0	B	3RT2026-2AL24-3MA0
32	15	50	22	2	2	230	B	3RT2027-1AL24-3MA0	B	3RT2027-2AL24-3MA0
38	18.5	50	22	2	2	230	B	3RT2028-1AL24-3MA0	B	3RT2028-2AL24-3MA0

With permanently mounted auxiliary switch block and varistor plugged into the front side



9	4	40	22	2	2	230	B	3RT2023-1CL24-3MA0	B	3RT2023-2CL24-3MA0
12	5.5	40	22	2	2	230	B	3RT2024-1CL24-3MA0	B	3RT2024-2CL24-3MA0
17	7.5	40	22	2	2	230	B	3RT2025-1CL24-3MA0	B	3RT2025-2CL24-3MA0
25	11	40	22	2	2	230	B	3RT2026-1CL24-3MA0	B	3RT2026-2CL24-3MA0
32	15	50	22	2	2	230	B	3RT2027-1CL24-3MA0	B	3RT2027-2CL24-3MA0
38	18.5	50	22	2	2	230	B	3RT2028-1CL24-3MA0	B	3RT2028-2CL24-3MA0

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

²⁾ No retrofitting of surge suppressors.

Other voltages according to page 3/39 on request.

For accessories see page 3/48.

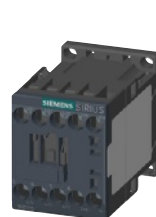
For spare parts see page 3/64.

Power Contactors for Switching Motors

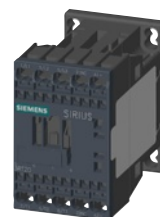
**SIRIUS 3RT20 contactors,
3-pole, 3 ... 18.5 kW**

DC operation

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B



3RT201.-1B...



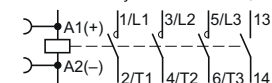
3RT201.-2B...

Rated data		Auxiliary contacts		Rated control supply voltage U_s	DT	Screw terminals		DT	Spring-type terminals	
AC-2 and AC-3, T_U : Up to 60 °C	Rating ¹⁾ of three-phase motors at 50 Hz and up to 400 V	AC-1, T_U : 40 °C	Operational current I_e up to 690 V			Configurator	Price per PU		Configurator	Price per PU
Operational current I_e up to 400 V	400 V	Operational current I_e up to 690 V	Ident. No.	Version		Article No.			Article No.	
A	kW	A	NO	NC	V DC					

For screw and snap-on mounting onto TH 35 standard mounting rail

Size S00²⁾

- With auxiliary contact 1 NO, Ident. No. **10**



7 3 18

10

1

--

24

220

A

3RT2015-1BB41

3RT2015-1BM41

B

3RT2015-2BB41

3RT2015-2BM41

9 4 22

10

1

--

24

220

B

3RT2016-1BB41

3RT2016-1BM41

B

3RT2016-2BB41

3RT2016-2BM41

12 5.5 22

10

1

--

24

220

B

3RT2017-1BB41

3RT2017-1BM41

B

3RT2017-2BB41

3RT2017-2BM41

16 7.5 22

10

1

--

24

220

B

3RT2018-1BB41

3RT2018-1BM41

B

3RT2018-2BB41

3RT2018-2BM41

01

--

1

24

220

B

3RT2018-1BB42

3RT2018-1BM42

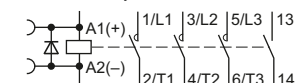
B

3RT2018-2BB42

3RT2018-2BM42

With integrated coil circuit (diode)

- With auxiliary contact 1 NO, Ident. No. **10**



7 3 18

10

1

--

24

24

A

3RT2015-1FB41

3RT2015-1FB42

B

3RT2015-2FB41

3RT2015-2FB42

9 4 22

10

1

--

24

24

B

3RT2016-1FB41

3RT2016-1FB42

B

3RT2016-2FB41

3RT2016-2FB42

12 5.5 22

10

1

--

24

24

B

3RT2017-1FB41

3RT2017-1FB42

B

3RT2017-2FB41

3RT2017-2FB42

16 7.5 22

10

1

--

24

24

B

3RT2018-1FB41

3RT2018-1FB42

B

3RT2018-2FB41

3RT2018-2FB42

01

--

1

24

24

B

3RT2018-1FB42

3RT2018-1FB42

B

3RT2018-2FB42

3RT2018-2FB42

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

²⁾ The 3RT20 contactors are also available with ring terminal lug connection. Please contact your local Siemens representative for information about these special contactor versions with ring terminal lug connection.

Other voltages according to page 3/39 on request.

For accessories see page 3/48.

Power Contactors for Switching Motors

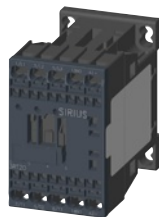
SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW

DC operation

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B



3RT201.-1BB4.-0CC0



3RT201.-2BB4.-0CC0



3RT201.-1BB44-3MA0



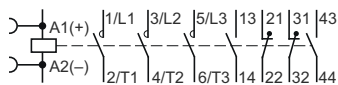
3RT201.-2BB44-3MA0

Rated data		Auxiliary contacts		Rated control supply voltage U_s	DT	Screw terminals		DT	Spring-type terminals	
AC-2 and AC-3, T_U : Up to 60 °C		AC-1, T_U : 40 °C								
Operational current I_e up to 400 V	Rating ¹⁾ of three-phase motors at 50 Hz and 400 V	Operational current I_e up to 690 V	Ident. No.	Version		Configurator			Configurator	
						Article No.		Price per PU	Article No.	
A	kW	A	NO	NC	V DC					

For screw and snap-on mounting onto TH 35 standard mounting rail

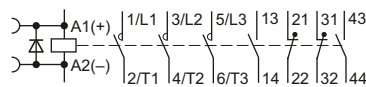
Size S00

With permanently mounted auxiliary switch block



7	3	18	22	2	2	24	▶	3RT2015-1BB44-3MA0	B	3RT2015-2BB44-3MA0
9	4	22	22	2	2	24	▶	3RT2016-1BB44-3MA0	B	3RT2016-2BB44-3MA0
12	5.5	22	22	2	2	24	B	3RT2017-1BB44-3MA0	B	3RT2017-2BB44-3MA0
16	7.5	22	22	2	2	24	B	3RT2018-1BB44-3MA0	B	3RT2018-2BB44-3MA0

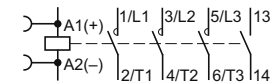
With permanently mounted auxiliary switch block and integrated coil circuit (diode)



7	3	18	22	2	2	24	B	3RT2015-1FB44-3MA0	B	3RT2015-2FB44-3MA0
9	4	22	22	2	2	24	B	3RT2016-1FB44-3MA0	B	3RT2016-2FB44-3MA0
12	5.5	22	22	2	2	24	B	3RT2017-1FB44-3MA0	B	3RT2017-2FB44-3MA0
16	7.5	22	22	2	2	24	B	3RT2018-1FB44-3MA0	B	3RT2018-2FB44-3MA0

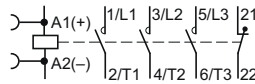
Contactors with communication interface (only available with 24 V DC coils)

• With auxiliary contact 1 NO, Ident. No. 10



7	3	18	10	1	--	24	▶	3RT2015-1BB41-0CC0	▶	3RT2015-2BB41-0CC0
			01	--	1	24	▶	3RT2015-1BB42-0CC0	A	3RT2015-2BB42-0CC0
9	4	22	10	1	--	24	▶	3RT2016-1BB41-0CC0	A	3RT2016-2BB41-0CC0
			01	--	1	24	A	3RT2016-1BB42-0CC0	A	3RT2016-2BB42-0CC0
12	5.5	22	10	1	--	24	A	3RT2017-1BB41-0CC0	▶	3RT2017-2BB41-0CC0
			01	--	1	24	A	3RT2017-1BB42-0CC0	A	3RT2017-2BB42-0CC0
16	7.5	22	10	1	--	24	A	3RT2018-1BB41-0CC0	▶	3RT2018-2BB41-0CC0
			01	--	1	24	A	3RT2018-1BB42-0CC0	A	3RT2018-2BB42-0CC0

• With auxiliary contact 1 NC, Ident. No. 01



For online configurator see www.siemens.com/sirius/configurators.

¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

Other voltages according to page 3/39 on request.

For accessories see page 3/48.

Power Contactors for Switching Motors

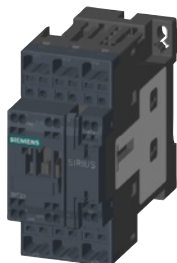
**SIRIUS 3RT20 contactors,
3-pole, 3 ... 18.5 kW**

DC operation

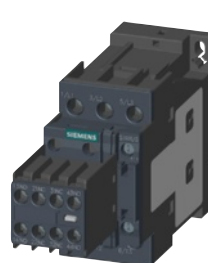
PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B



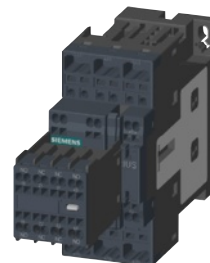
3RT202.-1B.40



3RT202.-2B.40



3RT202.-1B.44

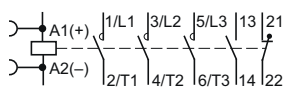


3RT202.-2B.44

Rated data			Auxiliary contacts		Rated control supply voltage	DT	Screw terminals		DT	Spring-type terminals	
AC-2 and AC-3, T_U : Up to 60 °C		AC-1, T_U : 40 °C			U_s						
Operational current I_e up to 400 V	Rating ¹⁾ of three-phase motors at 50 Hz and 400 V	Operational current I_e up to 690 V	Ident. No.	Version			Article No.	Price per PU		Article No.	Price per PU
A	kW	A			V DC						

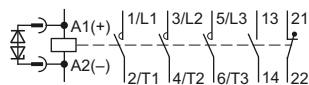
For screw and snap-on mounting onto TH 35 standard mounting rail

Size S0²⁾



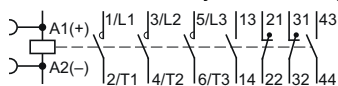
9	4	40	11	1	1	24	▶	3RT2023-1BB40	▶	3RT2023-2BB40
12	5.5	40	11	1	1	24 220	▶	3RT2024-1BB40 3RT2024-1BM40	▶	3RT2024-2BB40 3RT2024-2BM40
17	7.5	40	11	1	1	24 220	▶	3RT2025-1BB40 3RT2025-1BM40	▶	3RT2025-2BB40 3RT2025-2BM40
25	11	40	11	1	1	24 220	▶	3RT2026-1BB40 3RT2026-1BM40	▶	3RT2026-2BB40 3RT2026-2BM40
32	15	50	11	1	1	24 220	▶	3RT2027-1BB40 3RT2027-1BM40	▶	3RT2027-2BB40 3RT2027-2BM40
38	18.5	50	11	1	1	24 220	▶	3RT2028-1BB40 3RT2028-1BM40	▶	3RT2028-2BB40 3RT2028-2BM40

With coil circuit plugged in (diode assembly)



9	4	40	11	1	1	24	B	3RT2023-1FB40	▶	3RT2023-2FB40
12	5.5	40	11	1	1	24	▶	3RT2024-1FB40	▶	3RT2024-2FB40
17	7.5	40	11	1	1	24	▶	3RT2025-1FB40	▶	3RT2025-2FB40
25	11	40	11	1	1	24	▶	3RT2026-1FB40	▶	3RT2026-2FB40
32	15	50	11	1	1	24	▶	3RT2027-1FB40	▶	3RT2027-2FB40
38	18.5	50	11	1	1	24	▶	3RT2028-1FB40	▶	3RT2028-2FB40

With mounted auxiliary switch block (removable)³⁾



9	4	40	22	2	2	24	▶	3RT2023-1BB44	▶	3RT2023-2BB44
12	5.5	40	22	2	2	24	▶	3RT2024-1BB44	▶	3RT2024-2BB44
17	7.5	40	22	2	2	24	▶	3RT2025-1BB44	▶	3RT2025-2BB44
25	11	40	22	2	2	24	▶	3RT2026-1BB44	▶	3RT2026-2BB44
32	15	50	22	2	2	24	▶	3RT2027-1BB44	▶	3RT2027-2BB44
38	18.5	50	22	2	2	24	▶	3RT2028-1BB44	▶	3RT2028-2BB44

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

²⁾ The 3RT20 contactors are also available with ring terminal lug connection. Please contact your local Siemens representative for information about these special versions.

³⁾ Article No. for the auxiliary switch block (removable): 3RH2911-.HA11

Other voltages according to page 3/39 on request.

For accessories see page 3/48.

Power Contactors for Switching Motors

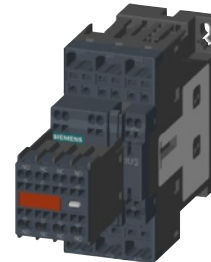
SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW

DC operation

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B



3RT202.-1BB44-3MA0



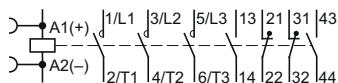
3RT202.-2BB44-3MA0

Rated data			Auxiliary contacts		Rated control supply voltage U_s	DT	Screw terminals		DT	Spring-type terminals	
AC-2 and AC-3, T_U : Up to 60 °C	Rating ¹⁾ of three-phase motors at 50 Hz and up to 400 V	AC-1, T_U : 40 °C	Operational current I_e up to	Operational current I_e up to			Configurator			Configurator	
	400 V	690 V					Article No.	Price per PU		Article No.	Price per PU
A	kW	A	NO	NC	V DC						

For screw and snap-on mounting onto TH 35 standard mounting rail

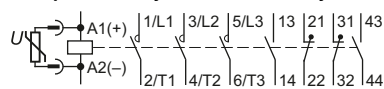
Size S0

With permanently mounted auxiliary switch block²⁾



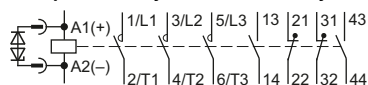
9	4	40	22	2	2	24	B	3RT2023-1BB44-3MA0	B	3RT2023-2BB44-3MA0
12	5.5	40	22	2	2	24	B	3RT2024-1BB44-3MA0	B	3RT2024-2BB44-3MA0
17	7.5	40	22	2	2	24	B	3RT2025-1BB44-3MA0	B	3RT2025-2BB44-3MA0
25	11	40	22	2	2	24	B	3RT2026-1BB44-3MA0	B	3RT2026-2BB44-3MA0
32	15	50	22	2	2	24	B	3RT2027-1BB44-3MA0	B	3RT2027-2BB44-3MA0
38	18.5	50	22	2	2	24	B	3RT2028-1BB44-3MA0	B	3RT2028-2BB44-3MA0

With permanently mounted auxiliary switch block and coil circuit plugged in (varistor)



12	5.5	40	22	2	2	24	B	3RT2024-1DB44-3MA0	X	3RT2024-2DB44-3MA0
17	7.5	40	22	2	2	24	B	3RT2025-1DB44-3MA0	X	3RT2025-2DB44-3MA0
25	11	40	22	2	2	24	B	3RT2026-1DB44-3MA0	X	3RT2026-2DB44-3MA0
32	15	50	22	2	2	24	B	3RT2027-1DB44-3MA0	X	3RT2027-2DB44-3MA0

With permanently mounted auxiliary switch block and coil circuit plugged in (diode assembly)



9	4	40	11	1	1	24	B	3RT2023-1FB44-3MA0	B	3RT2023-2FB44-3MA0
12	5.5	40	11	1	1	24	B	3RT2024-1FB44-3MA0	B	3RT2024-2FB44-3MA0
17	7.5	40	11	1	1	24	B	3RT2025-1FB44-3MA0	B	3RT2025-2FB44-3MA0
25	11	40	11	1	1	24	B	3RT2026-1FB44-3MA0	B	3RT2026-2FB44-3MA0
32	15	50	11	1	1	24	B	3RT2027-1FB44-3MA0	B	3RT2027-2FB44-3MA0
38	18.5	50	11	1	1	24	B	3RT2028-1FB44-3MA0	B	3RT2028-2FB44-3MA0

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

²⁾ No retrofitting of surge suppressors.

Other voltages according to page 3/39 on request.

For accessories see page 3/48.

Power Contactors for Switching Motors

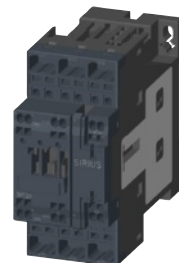
**SIRIUS 3RT20 contactors,
3-pole, 3 ... 18.5 kW**

DC operation

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B



3RT202.-1BB40-0CC0



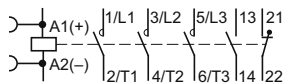
3RT202.-2BB40-0CC0

Rated data			Auxiliary contacts		Rated control supply voltage U_s	DT	Screw terminals		DT	Spring-type terminals	
AC-2 and AC-3, T_U : Up to 60 °C	Rating ¹⁾ of three-phase motors at 50 Hz and up to 400 V	AC-1, T_U : 40 °C	Operational current I_e up to 690 V	Ident. No.	Version						
A	kW	A		NO	NC	V DC					

For screw and snap-on mounting onto TH 35 standard mounting rail

Size S0

Contactors with communication interface



9	4	40	11	1	1	24	A	3RT2023-1BB40-0CC0	A	3RT2023-2BB40-0CC0
12	5.5	40	11	1	1	24	A	3RT2024-1BB40-0CC0	A	3RT2024-2BB40-0CC0
17	7.5	40	11	1	1	24	A	3RT2025-1BB40-0CC0	A	3RT2025-2BB40-0CC0
25	11	40	11	1	1	24	A	3RT2026-1BB40-0CC0	A	3RT2026-2BB40-0CC0
32	15	50	11	1	1	24	A	3RT2027-1BB40-0CC0	A	3RT2027-2BB40-0CC0
38	18.5	50	11	1	1	24	A	3RT2028-1BB40-0CC0	A	3RT2028-2BB40-0CC0

For online configurator see www.siemens.com/sirius/configurators.

For accessories see page 3/48.

¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

Power Contactors for Switching Motors

SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW

UC operating mechanism · AC/DC operation (50/60 Hz and DC)

- Extended operating range of solenoid coil $0.7 \dots 1.3 \times U_s$
- Reduced power consumption when closing and in the closed state

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B



3RT202.-1N.30



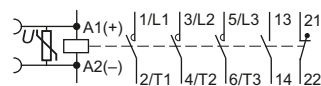
3RT202.-2N.30

Rated data			Auxiliary contacts		Rated control supply voltage $U_s^{1)}$	DT
AC-2 and AC-3, T_U : Up to 60 °C		AC-1, T_U : 40 °C	Ident. No.	Version		
Operational current I_e up to 400 V	Rating ¹⁾ of three-phase motors at 50 Hz and 400 V	Operational current I_e up to 690 V				
A	kW	A	NO	NC	V AC/DC	
						Screw terminals Configurator Article No. Price per PU
						Spring-type terminals Configurator Article No. Price per PU

For screw fixing and snap-on mounting onto TH 35 standard mounting rail

Size S0²⁾

With integrated coil circuit (varistor)



12	5.5	40	11	1	1	21 ... 28 95 ... 130 200 ... 280 ³⁾	▶ 3RT2024-1NB30 ▶ 3RT2024-1NF30 ▶ 3RT2024-1NP30	B B ▶	3RT2024-2NB30 3RT2024-2NF30 3RT2024-2NP30
17	7.5	40	11	1	1	21 ... 28 95 ... 130 200 ... 280 ³⁾	▶ 3RT2025-1NB30 ▶ 3RT2025-1NF30 ▶ 3RT2025-1NP30	B B ▶	3RT2025-2NB30 3RT2025-2NF30 3RT2025-2NP30
25	11	40	11	1	1	21 ... 28 95 ... 130 200 ... 280 ³⁾	▶ 3RT2026-1NB30 ▶ 3RT2026-1NF30 ▶ 3RT2026-1NP30	▶ ▶ ▶	3RT2026-2NB30 3RT2026-2NF30 3RT2026-2NP30
32	15	50	11	1	1	21 ... 28 95 ... 130 200 ... 280 ³⁾	▶ 3RT2027-1NB30 ▶ 3RT2027-1NF30 ▶ 3RT2027-1NP30	B B ▶	3RT2027-2NB30 3RT2027-2NF30 3RT2027-2NP30
38	18.5	50	11	1	1	21 ... 28 95 ... 130 200 ... 280 ³⁾	▶ 3RT2028-1NB30 ▶ 3RT2028-1NF30 ▶ 3RT2028-1NP30	B B ▶	3RT2028-2NB30 3RT2028-2NF30 3RT2028-2NP30

For online configurator see www.siemens.com/sirius/configurators.

¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

²⁾ Coil operating range: $0.7 \times U_{s \min} \dots 1.3 \times U_{s \max}$.

³⁾ The following applies to $U_{s \max} = 280$ V: Upper limit = $1.1 \times U_{s \max}$.

Options

**Rated control supply voltages, possible on request
(change of 10th and 11th digit of the Article No.)**

Rated control supply voltage U_s	Contactor type	3RT201	3RT202	3RT231, 3RT251	3RT232, 3RT252
	Size	S00	S0	S00	S0
Sizes S00 and S0					
AC operation¹⁾					
Solenoid coils for 50 Hz (exception: Size S00: 50 and 60 Hz ²⁾)					
24 V AC		B0	B0	B0	B0
42 V AC		D0	D0	D0	--
48 V AC		H0	H0	H0	--
110 V AC		F0	F0	F0	F0
230 V AC		P0	P0	P0	P0
240 V AC		U0	U0	--	--
400 V AC		V0	V0	V0	V0
Solenoid coils for 50 and 60 Hz²⁾					
24 V AC		B0	C2	B0	C2
42 V AC		D0	D2	D0	D2
48 V AC		H0	H2	H0	H2
110 V AC		F0	G2	F0	G2
220 V AC		N2	N2	N2	N2
230 V AC		P0	L2	P0	L2
Solenoid coils (for USA and Canada³⁾)					
50 Hz	60 Hz				
110 V AC	120 V AC	K6	K6	K6	K6
220 V AC	240 V AC	P6	P6	P6	P6
Solenoid coils (for Japan)					
50/60 Hz⁴⁾	60 Hz⁵⁾				
100 V AC	110 V AC	G6	G6	G6	G6
200 V AC	220 V AC	N6	N6	N6	N6
400 V AC	440 V AC	R6	R6	R6	R6
DC operation¹⁾					
12 V DC		A4	--	A4	--
24 V DC		B4	B4	B4	B4
42 V DC		D4	D4	D4	D4
48 V DC		W4	W4	W4	W4
60 V DC		E4	E4	--	--
110 V DC		F4	F4	F4	F4
125 V DC		G4	G4	G4	G4
220 V DC		M4	M4	M4	M4
230 V DC		P4	P4	P4	--

Examples

AC operation	3RT2023-1AP00	Contactor with screw terminals; with solenoid coil for 50 Hz for rated control supply voltage 230 V AC
	3RT2023-1AG20	Contactor with screw terminals; with solenoid coil for 50/60 Hz for rated control supply voltage 110 V AC
DC operation	3RT2025-2BB40	Contactor with spring-type terminals; for rated control supply voltage 24 V DC
	3RT2025-2BG40	Contactor with spring-type terminals; for rated control supply voltage 125 V DC

Rated control supply voltage	Contactor type	--	3RT2. 2.-N
$U_{s \min} \dots U_{s \max}$ ⁶⁾	Size	S00	S0
Size S0			
UC operation (AC 50 up to 60 Hz, DC)			
21 ... 28 V AC/DC		--	B3
95 ... 130 V AC/DC		--	F3
200 ... 280 V AC/DC ⁷⁾		--	P3

¹⁾ For deviating coil voltages and coil operating ranges of sizes S00 and S0, the SITOP power 24 V DC power supply unit with wide range input (93 to 264 V AC; 30 to 264 V DC) can be used for coil excitation (see Chapter 15, "Products for Specific Requirements" → "SITOP Power Supplies").

²⁾ Coil operating range
at 50 Hz: $0.8 \dots 1.1 \times U_s$
at 60 Hz: $0.85 \dots 1.1 \times U_s$.

³⁾ Coil operating range
Size S00: at 50 Hz: $0.85 \dots 1.1 \times U_s$
at 60 Hz: $0.8 \dots 1.1 \times U_s$
Size S0: at 50 Hz and 60 Hz: $0.8 \dots 1.1 \times U_s$.

⁴⁾ Coil operating range
Size S00: at 50/60 Hz: $0.85 \dots 1.1 \times U_s$
Size S0: at 50 Hz: $0.8 \dots 1.1 \times U_s$
at 60 Hz: $0.85 \dots 1.1 \times U_s$.

⁵⁾ Coil operating range
at 60 Hz: $0.8 \dots 1.1 \times U_s$.

⁶⁾ Coil operating range: $0.7 \times U_{s \min} \dots 1.3 \times U_{s \max}$.

⁷⁾ The following applies to $U_{s \max} = 280$ V: Upper limit = $1.1 \times U_{s \max}$.

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

General data

Overview

Auxiliary switches

See also pages 3/14 and 3/47.

Positively driven contacts (for contactor relays)

Definition according to IEC 60947-5-1, Appendix L:



Positively-driven contact elements are a combination of "n" NO contact and "m" NC contact which are designed in such a way that they cannot be closed simultaneously.

Mirror contacts (for power contactors)

Definition according to IEC 60947-4-1, Appendix F:



A mirror contact is an NC contact that cannot be closed simultaneously with an NO main contact.

Solid-state time-delay auxiliary switches

The 3RA28 solid-state delayed auxiliary switches which can be mounted onto the contactor are designed for applications in the range from 24 to 240 V AC/DC (wide voltage range). Both the electrical and mechanical connection are made by simple snap-on and locking.

The time-delay auxiliary switch is supplied with power directly by two plug-in contacts through the coil terminals of the contactor, in parallel with A./A2.

A protection circuit (varistor) is integrated in each module.

A sealable cover is available to protect against careless adjustment of the set times.

Note:

Mounting more auxiliary switches to the contactor is not permitted.

OFF-delay devices for contactors

AC and DC operation

IEC 60947, EN 60947

For screw and snap-on mounting onto TH 35 standard mounting rails. The OFF-delay devices have screw terminals.

The OFF-delay device prevents a contactor from dropping out unintentionally when there is a short-time voltage dip or voltage failure. It supplies a downstream, DC-operated contactor with the necessary energy during a voltage dip, ensuring that the contactor does not trip. The 3RA2916 OFF-delay devices are specifically designed for operation with the 3RT contactors and 3RH contactor relays in the SIRIUS series.

The OFF-delay device operates without external voltage on a capacitive basis, and can be energized with either AC or DC (24 V version only for DC operation). Voltage matching, which is only necessary with AC operation, is performed using a rectifier bridge.

A contactor opens after a delay when the capacitors of the solenoid coil, built into the OFF-delay device, are switched in parallel. In the event of voltage failures, the capacitors are discharged via the solenoid coil and thereby delay the opening of the contactor.

If the command devices are upstream of the OFF-delay device in the circuit, the OFF-delay takes effect with every opening operation. If the opening operation is downstream of the OFF-delay device, an OFF-delay only applies in the event of failure of the mains voltage.

Operation

In the case of the versions for rated control supply voltages of 110 and 230 V, either AC voltage or DC voltage can be applied on the line side, whereas the variant for 24 V is designed for DC operation only.

A DC-operated contactor is connected to the output according to the input voltage that is applied.

The mean value of the OFF-delay is approximately 1.5 times the specified minimum time.

Additional load module

Size S00 for plugging onto the front of the contactors with and without auxiliary switch block.

The module is used for increasing the permissible residual current and for limiting the residual voltage. It ensures the safe opening of contactors with direct control via 230 V AC semiconductor outputs of SIMATIC controllers. It acts simultaneously as a surge suppressor.

Surge suppressors

- Without LED (also for spring-type terminals)
Sizes S00 and S0
- With LED (also for spring-type terminals)
Sizes S00 and S0

All 3RT2 contactors and 3RH2 contactor relays can be retrofitted with RC elements or varistors for damping opening surges in the coil. Diodes or diode assemblies (comprising noise suppression diodes and Zener diodes for short break times) can be used.

The surge suppressors are plugged onto the front of size S00 contactors. Space is provided for them next to a snap-on auxiliary switch block.

Varistors, RC elements or diode assemblies can be plugged onto the front of size S0 contactors.

Coupling contactors are supplied either without overvoltage damping or with a suppressor diode, varistor or diode connected as standard, according to the version.

Note:

The OFF-delay of the NO contact and the ON-delay of the NC contact are increased if the contactor coils are attenuated against voltage peaks (noise suppression diode 6 to 10 times; diode assembly 2 to 6 times, varistor +2 to 5 ms).

Coupling links for control by PLC

DC operation

IEC 60947 and EN 60947

The coupling link is suitable for use in any climate. It is finger-safe according to EN 50274. The terminal designations comply with EN 50005.

System-compatible operation with 24 V DC, operating range 17 to 30 V.

Low power consumption of 0.5 W in conformity with the technical specifications of the solid-state systems. An LED indicates the switching state.

Surge suppression

The 3RH2924-1GP11 coupling link has an integrated surge suppressor (varistor) for the contactor coil being switched.

Mounting

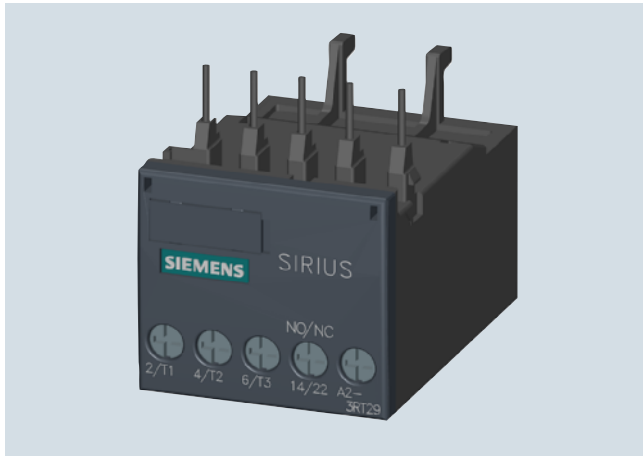
The 3RH2924-1GP11 coupling link is mounted on the contactor coil size S0 using a coil connection module.

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

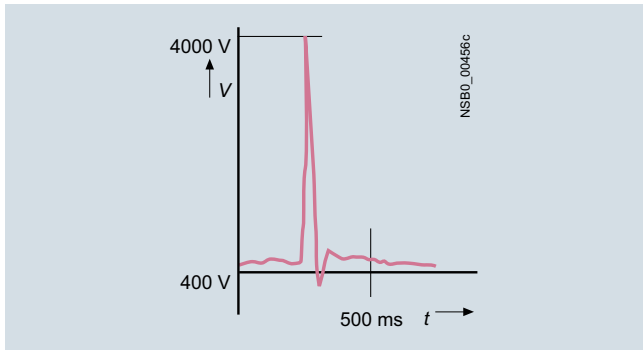
General data

EMC suppression module, three-phase for size S00 contactors



EMC suppression modules

A so-called counter-e.m.f. (electromotive force) is produced when motors or various inductive loads are turned off. Voltage peaks of up to 4000 V may occur as a result, with a frequency spectrum from 1 kHz to 10 MHz and a rate of voltage variation from 0.1 to 20 V/ns.



Voltage curve without interference suppression

Capacitive input to various analog and digital signals makes it necessary to suppress interference in the load circuit.

Reducing contact arcing

The connection between the main current path and the EMC suppression module enables contact arcing, which is responsible for contact erosion and the majority of clicking noises, to be reduced; this in turn is conducive to an electromagnetically compatible design.

Higher operational reliability

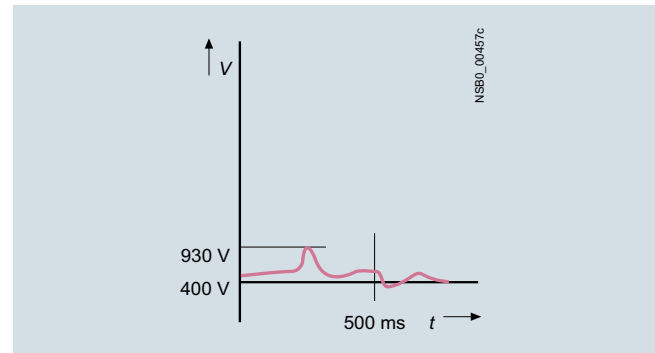
Since the EMC suppression module achieves a significant reduction in radio-frequency components and the voltage level in three phases, the contact endurance is also improved considerably. This makes an important contribution towards enhancing the reliability and availability of the system as a whole.

Dispensing with fine graduations

There is no need for fine graduations within each performance class, as smaller motors inherently have a higher inductance, so that one solution for all fixed-speed operating mechanisms up to 5.5 kW is adequate.

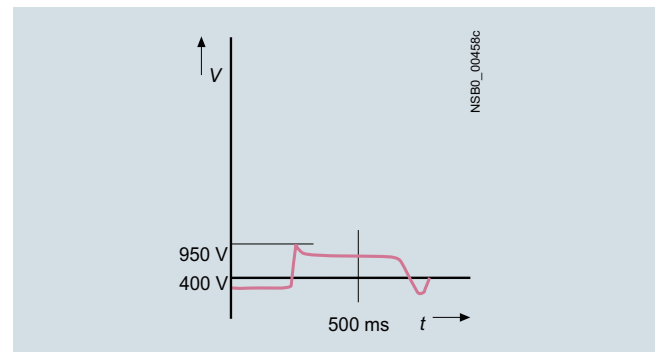
Two electrical versions are available:

- The advantages of the RC circuit lie mainly in the reduction in the rate of rise and in its RF damping ability. The selected values ensure effective interference suppression over a wide range.



Voltage curve with RC circuit

- The varistor circuit can absorb a high energy level and can also be used for frequencies ranging from 10 to 400 Hz (closed-loop controlled operating mechanisms). There is no limiting below the knee-point voltage, however.



Voltage curve with varistor circuit

Sealable covers

When contactors and contactor relays are used in safety-related applications, it must be ensured that it is impossible to operate the contactors manually.

For SIRIUS contactors there are sealable covers available for this purpose as accessories; these prevent accidental manual operation. These are transparent molded-plastic caps with a bracket that enables the contactor to be sealed.

Solder pin adapters

The solder pin adapters for the contactors size S00, up to 5.5 kW or 12 A (AC-1/AC-3), are available in two versions:

- Solder pin adapter for contactors with one integrated auxiliary contact
- Solder pin adapter for contactors with mounted 4-pole auxiliary switch block

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

General data

Technical specifications

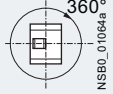
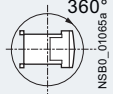
Version	Type Function Dimensions	3RA2813 ON-delay 1)	3RA2814 OFF-delay with control signal	3RA2815 OFF-delay without control signal
General data				
Rated insulation voltage U_i Pollution degree 3 Overvoltage category III	V AC	300		
Operating range of excitation		0.85 ... 1.1 x U_s , 0.95 ... 1.05 times the rated frequency		
Rated power • Power consumption at 230 V AC, 50 Hz	W VA	1 2		
Rated operational currents I_e • AC-140 • AC-15 • DC-13	At 24 ... 240 V, 50 Hz A At 24 ... 240 V, 50 Hz A At 24 V A At 125 V A At 250 V A	-- 3 1 0.2 0.1		
Short-circuit protection • Fuse links, operational class gG: DIAZED, type 5SB	A	4		
Switching frequency for load • With I_e at 230 V AC • With 3RT2 contactor at 230 V AC	h^{-1} h^{-1}	2 500 2 500		
Recovery time	ms	150		--
Minimum ON period	ms	--	35	200
Residual current , max.	mA	--		
Voltage drop , max. with conducting output	VA	--		
Short-time loading capacity up to 10 ms	A	--		
Setting accuracy , typ. with reference to upper limit of scale		±15 %		
Repeat accuracy , max.		±1 %		
Mechanical endurance	Operating cycles	10 x 10 ⁶		
Permissible ambient temperature • During operation • During storage	°C °C	-25 ... +60 -40 ... +80		
Degree of protection acc. to IEC 60947-1, Appendix C		IP20		
Shock resistance Half-sine acc. to IEC 60068-2-27	g/ms	15/11		
Vibration resistance according to IEC 60068-2-6	Hz/mm	10 ... 55/0.35		
Electromagnetic compatibility (EMC)		IEC 61000-6-2, IEC 61000-6-4, IEC 61812-1, IEC 60947-1		
Overvoltage protection		Varistor integrated		
Permissible mounting position		Any		
Conductor cross-sections				
Connection type		 Screw terminals		
• Solid	mm ²	1 x (0.5 ... 4), 2 x (0.5 ... 2.5)		
• Finely stranded with end sleeve	mm ²	1 x (0.5 ... 2.5), 2 x (0.5 ... 1.5)		
• AWG cables, solid or stranded	AWG	2 x (20 ... 14)		
• Terminal screws		M3 (for standard screw driver size 2 or Pozidriv 2)		
• Tightening torque	Nm	0.8 ... 1.2		
Connection type		 Spring-type terminals		
• Operating devices	mm	3.0 x 0.5		
• Solid	mm ²	2 x (0.25 ... 1.5)		
• Finely stranded with end sleeve	mm ²	2 x (0.25 ... 1.5)		
• Finely stranded	mm ²	2 x (0.25 ... 1.5)		
• AWG cables, solid or stranded	AWG	2 x (24 ... 16)		

1) Dimensions with mounted function module see 3RT20 contactors, pages 3/17 and 3/22.

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

General data

Version	Type Function	3RT2916-2BE01 OFF-delay devices	3RT2916-2BK01	3RT2916-2BL01
General data				
Connectable contactor sizes Caution! Only contactors and contactor relays with DC operation can be connected.				
- DC supply - AC supply				
	Type	S00 ... S3 -- 3RT20...-1BB4., 3RH2...-1BB40	S00/S0 S00/S0 3RT201.-1BF4, 3RT202.-1BF4, 3RH2...-1BF40	S00/S0 S00/S0 3RT201.-1BM4./1BP4., 3RT202.-1BM4./1BP4., 3RH2...-1BM40/1BP40
Permissible mounting position				
Mechanical endurance	Operating cycles	30 million		
Endurance, electrical approx.	Operating cycles	>1 million		
Switching frequency z max. (at $T_u = 60\text{ °C}$)	h^{-1}	300		
Permissible ambient temperature T_u				
- During operation - Side-by-side mounting without distance - Side-by-side mounting with 5 mm distance		°C -25 ... +50 °C -25 ... +60		
During storage		°C -40 ... +80		
Conductor cross-sections		2)		
U_{sp} = Coil voltage T_{sp} = Coil temperature				
Control				
Rated control supply voltage U_s	V	24 (DC) 0.9 ... 1.1 U_s	110 (AC/DC)	220/230 (AC/DC)
Operating range				
Rated frequency f with AC supply	Hz $\pm 5\%$	--	50/60	50/60
OFF-delay¹⁾ (minimum times at $U_{sp} = 0.9 \times U_s$, $T_{sp} = 20\text{ °C}$)		Notes: In practice the mean value is 1.5 times the minimum time.		
S00		$t_{off} > \text{ms}$	200	100
S0		$t_{off} > \text{ms}$	100	80
ON-delay (maximum at $U_{sp} = 0.9 \times U_s$, $T_{sp} = 20\text{ °C}$)		Notes: The total ON-delay = Contactor make-time + t_{on}		
S00		$t_{on} < \text{ms}$	10	60
S0		$t_{on} < \text{ms}$	10	80
Installed capacity C				
3RT1916-2B.01	μF	2 000	68	68
Capacitor voltage	V	35	180	350
Power loss P_v max. approx.	W	0.4	0.5	1
Surge suppression		With varistor, integrated		

¹⁾ Doubling the delay time can be achieved by doubling the capacitance.
Commercially available capacitors can be used, which can be connected to terminals C+ and Z-.

²⁾ See 3RT201 contactors, page 3/17.

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

General data

Version	Type Function	3RT2926-2P Pneumatic delay block¹⁾
General data		
Rated insulation voltage U_i (pollution degree 3)	V	690
Mechanical endurance	Operating cycles	5 million
Electrical endurance at I_e	Operating cycles	1 million
Permissible ambient temperature		
• During operation	°C	-25 ... +60
• During storage	°C	-50 ... +80
Rated operational currents I_e According to IEC 60947 utilization categories		
• AC-12	A	10
• AC-15/AC-14 at U_e	Up to 230/220 V A	6
	400/380 V A	4
	500 V A	2.5
	690/660 V A	1.5
	At 24 V A	4
• DC-13 at U_e	48 V A	2
	110 V A	0.7
	220 V A	0.3
	440 V A	0.15
Short-circuit test with fuse links of operational class gG with short-circuit current $I_k = 1$ kA according to IEC 60947-5-1	A	10
Conductor cross-sections		
• Solid, stranded:	mm ²	2 x (0.5 ... 1.5) ²⁾ or 2 x (0.75 ... 2.5) ²⁾
• Finely stranded with end sleeve	mm ²	2 x (0.5 ... 1.5) ²⁾ or 2 x (0.75 ... 2.5) ²⁾
• AWG cables	AWG	2 x (20 ... 16) ²⁾ or 2 x (18 ... 14) ²⁾
• Tightening torque of the terminal screws	Nm	0.8 ... 1.1
Time delay		
• Accuracy		±10 %
Ⓢ and Ⓢ rated data		
• Rated voltage	V AC	600
• Switching capacity		A 600, Q 600

¹⁾ For size S0.
In addition to the pneumatic delay block, no other auxiliary contacts are permitted.

²⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

Version	Type Function	3RT2926-3A Mechanical latching block for 3RT2.2. contactors
General data		
Standards		IEC 61812-1
Rated insulation voltage U_i (pollution degree 3)	V	690
Mechanical endurance	Operating cycles	3 million
Permissible ambient temperature		
• During operation	°C	-25 ... +60
• During storage	°C	-50 ... +80
Degree of protection acc. to IEC 60947-1, Appendix C		IP20
Operating range of the solenoid coil At AC 50/60 Hz and DC		0.85 ... 1.1 x U_s
Power consumption of the solenoid coils of the unlocking magnet (for cold coil and 1.0 x U_s) AC and DC operation	W	Approx. 4
Command duration for de-energizing		
• AC operation	ms	18 ... 31
• DC operation	ms	18 ... 26
Conductor cross-sections		
• Solid	mm ²	2 x (0.5 ... 2.5); 1 x 4
• AWG cables, solid	AWG	2 x 14; 1 x 12
• Finely stranded with end sleeve	mm ²	2 x (0.5 ... 2.5); 1 x 2.5
• AWG cables, finely stranded with end sleeve	AWG	2 x 14; 1 x 12
Tightening torque of the terminal screws		
	Nm lb.in	0.8 ... 1.1 7 ... 9.5

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

General data

Version	Type	3RT1900-4RE01 S00, S0 connectors	3RT1916-4RD01 S00 adapters	3RT1926-4RD01 S0 adapters
Connection modules for contactors with screw terminals				
General data				
Rated insulation voltage U_i (pollution degree 3)	V	690		
Rated impulse withstand voltage U_{imp} (pollution degree 3)	kV	6		
Rated operational voltage U_e	V	440		
Rated frequency f For AC operation	Hz	50/60		
Rated operational current I_e AC-3 at 400 V	A	25	20	25
Mechanical endurance	Operating cycles	10 million		
Electrical endurance at I_e	Operating cycles	1 million		
Protective separation according to IEC 60947-1 (pollution degree 3)	V	400		
Permissible ambient temperature				
• During operation	°C	-25 ... +60		
• During storage	°C	-50 ... +80		
Degree of protection acc. to IEC 60529		IP20		
Conductor cross-sections				
Connection type		 Screw terminals		
• Solid	mm ²	1 x (0.5 ... 6)		
• Finely stranded without/with end sleeve	mm ²	1 x (0.5 ... 6)		
• Stranded	mm ²	1 x (0.5 ... 6)		
• AWG cables, solid or stranded	AWG	1 x (20 ... 10)		
• Tightening torque	Nm	0.6 ... 0.8		
• Corresponding opening tool		Short-slot screwdriver PZ2		
IEC and UL rated data				
Rated operational voltage U_e	V	480		
Rated insulation voltage U_i	V	600		
Uninterrupted current, at 40 °C	A	16/25	16	25
Short-circuit protection ¹⁾				
• At 600 V	kA	5		
• CLASS RK5 fuse	A	100	60	100
• Circuit breakers with overload protection acc. to UL 489	A	100	60	100
Combination motor controllers type E according to UL 508				
At 480 V	Type	3RV202		
	A	22	--	22
	kA	65	--	65
At 600 V	Type	3RV202		
	A	22	--	22
	kA	10	--	10

¹⁾ For more information about short-circuit values, e.g. for protection against short-circuit currents, see the UL reports on the individual devices, www.siemens.com/sirius/manuals.

For the dimensioning of load feeders, see Configuration Manual "Configuring SIRIUS Innovations for UL", <http://support.automation.siemens.com/WW/view/en/53433538>.

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

General data

Version	Type Function	3RH2924-1GP11 Coupling links for PLC for mounting on contactors
General data		
Standards		IEC 60947
Rated insulation voltage U_i (pollution degree 3)	V	300
Protective separation between coil and contacts acc. to IEC 60947-1, Appendix N	V AC	Up to 300
Degree of protection acc. to IEC 60947-1, Appendix C		
• Connections		IP20
• Enclosure		IP40
Permissible ambient temperature		
• During operation	°C	-25 ... +60
• During storage	°C	-40 ... +80
Conductor cross-sections		
• Solid	mm ²	2 x (0.5 ... 2.5)
• Finely stranded with end sleeve	mm ²	2 x (0.5 ... 1.5)
Terminal screws		M3
Control side		
Rated control supply voltage U_s	V DC	24
Operating range	V DC	17 ... 30
Power consumption at U_s	W	0.5
Nominal current input	mA	20
Release voltage	V	≥ 4
Function display		Yellow LED
Protection circuit		Varistor
Load side		
Mechanical endurance	Operating cycles	20 million
Electrical endurance at I_e	Operating cycles	0.1 million
Switching frequency	h ⁻¹	5 000 operating cycles
Make-time	ms	Approx. 7
Break-time	ms	Approx. 4
Bounce time	ms	Approx. 2
Contact material		AgSnO
Switching voltage	V AC/DC	24 ... 250
Permissible residual current of the electronics (with 0 signal)	mA	2.5

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

General data

Options

Auxiliary switch: Terminal designations and identification numbers for auxiliary contacts

Terminal designations

The terminal designations are 2-digit, e.g. 13, 14, 21, 22:

- Tens digit: Sequence digit
 - Related terminals have the same sequence digit
- Units digit: Function digit
 - 1-2 for normally closed contacts (NC)
 - 3-4 for normally open contacts (NO)

Identification numbers

The identification number indicates the number and type of the auxiliary contacts, e.g. 40, 31, 22, 13:

- 1st digit: number of normally open contacts (NO)
- 2nd digit: number of normally closed contacts (NC)

Examples:

- 31 = 3 NO + 1 NC
- 40 = 4 NO

Selection aid for mountable auxiliary switch blocks for power contactors and contactor relays

The auxiliary switch blocks of the 3RH29 series for mounting on the front and side can be used for power contactors as well as for contactor relays.

The possible combinations of basic unit and mounted auxiliary switch block can be found in the tables on pages 3/48 to 3/52.

Where the columns and lines intersect (blue and green in the example) you will find the identification number for the combination of basic unit (column) and auxiliary switch block (line).

Additional auxiliary switch blocks		3-pole contactors		
Article No.	Auxiliary contacts	3RT201	3RT201	3RT202
	Version	S00	S00	S0
	NO NC	10	01	11
				
		2. 3. 4. 5.	5. 6. 7. 8.	3. 4. 5. 6.
According to EN 50012 ¹⁾				
Auxiliary switches without NO contact				
3RH2911-□HA01	-- 1		11	02
3RH2911-□HA02	-- 2		12	03
3RH2911-□HA03	-- 3		13	04
3RH2911-□FA04	-- 4		14	--
Auxiliary switch with 1 NO contact				
3RH2911-□HA10	1 --		20	11
		3 4		21

1
2

For screw terminals
For spring-type terminals

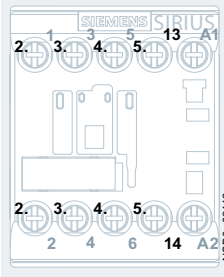
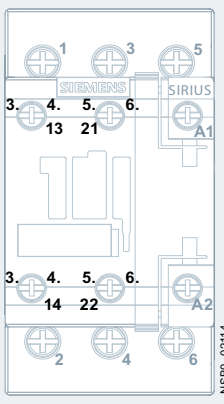
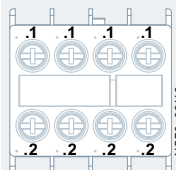
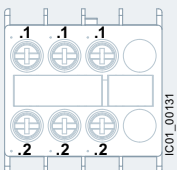
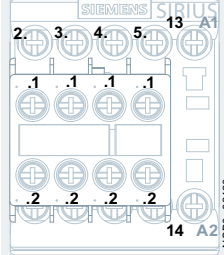
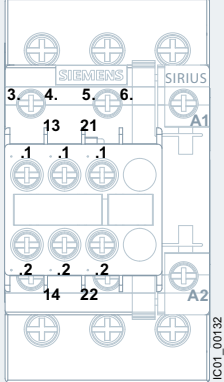
¹⁾ Combinations according to EN 50012, EN 50011 and IEC 60947-5-1 are in **bold print**. All combinations comply with EN 50005.

Example 1

Basic unit: 3-pole 3RT2017 motor contactor with 1 NO
Required: 1 NO + 4 NC (Ident. No. 14)
Result: 3RH2911-FA04 auxiliary switch block

Example 2

Basic unit: 3-pole 3RT2023 motor contactor with 1 NO + 1 NC
Required: 1 NO + 4 NC (Ident. No. 14)
Result: Auxiliary switch block 3RH2911-HA03

Example 1		Example 2	
Type	3RT20 motor contactor, S00 with 1 NO	3RT20 motor contactor, S0 with 1 NO + 1 NC	
			
Sequence digit	2. 3. 4. 5.	3. 4. 5. 6.	
Type	Auxiliary switch with 4 NC, 3RH2911-FA04	Auxiliary switch with 3 NC, 3RH2911-HA03	
			
Function digit	.1 .1 .1 .1 .2 .2 .2 .2	.1 .1 .1 .2 .2 .2	
Combination	3RT20 motor contactor, S00 with aux. switch block	3RT20 motor contactor, S0 with aux. switch block	
			
Terminal design.	13 21 31 41 51 14 22 32 42 52	13 21 31 41 51 14 22 32 42 52	
Result	Ident. No. 14	Ident. No. 14	

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

Auxiliary switch blocks

Selection and ordering data

Additional auxiliary switch blocks		3-pole contactors			4-pole contactors				Contactor relays			
Article No.	Auxiliary contacts	S00	S0	S0	S00	S0	S0	S0	S00			
	Version	3RT201	3RT201	3RT202	3RT231	3RT251	3RT232	3RT252	3RH21, 3RH24			
	NO NC	10	01	11	--	--	11	11	40E	31E	22E	
												
		2. 3. 4. 5.	5. 6. 7. 8.	3. 4. 5. 6.	1. 2. 3. 4.	1. 2. 3. 4.	3. 4. 5. 6.	3. 4. 5. 6.	5. 6. 7. 8.	5. 6. 7. 8.	5. 6. 7. 8.	
		According to EN 50012 ¹⁾			According to EN 50012 ¹⁾				According to EN 50011 ¹⁾			
Front auxiliary switches												
Without NO contact												
3RH2911-□HA01	-- 1		11	02	12	01	01	12	12	41X	32X	23X
3RH2911-□HA02	-- 2		12	03	13	02	02	13	--	42E	33X	24
3RH2911-□HA03	-- 3		13	04	14	03	--	--	43	34	--	--
3RH2911-□FA04	-- 4		14	--	--	--	--	--	44E	--	--	--
With 1 NO contact												
3RH2911-□HA10	1 --		20	11	21	10	10	21	21	50E	41E	32E
3RH2911-□HA11	1 1		21	12	22	11	11	22	22	51X	42X	33X
3RH2911-□HA12	1 2		22	13	23	12	12	23	--	52	43	34
3RH2911-□HA13	1 3		23	14	24	13	--	--	53X	44X	--	--
With 2 NO contacts												
3RH2911-□HA20	2 --		30	21	31	20	20	31	31	60E	51X	42X
3RH2911-□HA21	2 1		31	22	32	21	21	32	32	61	52	43
3RH2911-□HA22	2 2		32	23	33	22	22	33	--	62X	53	44X
3RH2911-□FA22	2 2		32	23	33	22	22	33	--	62X	53	44X
With 3 NO contacts												
3RH2911-□HA30	3 --		40	31	41	30	30	41	41	70	61	52
3RH2911-□HA31	3 1		41	32	42	31	31	42	42	71X	62X	53X
With 4 NO contacts												
3RH2911-□FA40	4 --		50	41	51	40	40	51	51	80E	71X	62X

¹⁾ Combinations according to EN 50012, EN 50011 and IEC 60947-5-1 are in **bold print**. All combinations comply with EN 50005.

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

Auxiliary switch blocks

Additional auxiliary switch blocks		3-pole contactors			4-pole contactors				Contactor relays		
Article No.	Auxiliary contacts Version	S00 3RT201	3RT201	S0 3RT202	S00 3RT231	3RT251	S0 3RT232	3RT252	S00 3RH21, 3RH24		
	NO NC	10	01	11	--	--	11	11	40E	31E	22E
		2. 3. 4. 5.	5. 6. 7. 8.	3. 4. 5. 6.	1. 2. 3. 4.	1. 2. 3. 4.	3. 4. 5. 6.	3. 4. 5. 6.	5. 6. 7. 8.	5. 6. 7. 8.	5. 6. 7. 8.
		According to EN 50005			According to EN 50005				According to EN 50005		

Front auxiliary switches

With make-before-break

3RH2911-□FB11	-- 1		21	12	22	11	11	22	22	51	42	33
3RH2911-□FB22	-- 2		32	23	33	22	22	33	--	62	53	44
3RH2911-□FC22	-- 3		32	23	33	22	22	33	--	62	53	44

With complete inscription¹⁾

3RH2911-1AA10	1 --		20	11	21	10	10	21	21	50	41	32
3RH2911-1BA10	1 --		20	11	21	10	10	21	21	50	41	32
3RH2911-1AA01	-- 1		11	02	12	01	01	12	12	41	32	23
3RH2911-1BA01	-- 1		11	02	12	01	01	12	12	41	32	23
3RH2911-1LA11	1 1		21	12	22	11	11	22	22	51	42	33
3RH2911-1MA11	1 1		21	12	22	11	11	22	22	51	42	33
3RH2911-1LA20	2 --		30	21	31	20	20	31	31	60	51	42
3RH2911-1MA20	2 --		30	21	31	20	20	31	31	60	51	42

¹⁾ Terminals from the top or bottom; see page 3/54.

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

Auxiliary switch blocks

Additional auxiliary switch blocks		3-pole contactors			4-pole contactors				Contactor relays		
Article No.	Auxiliary contacts Version NO NC	S00 3RT201 10	3RT201 01	S0 3RT202 11	S00 3RT231 --	3RT251 --	S0 3RT232 11	3RT252 11	S00 3RH21, 3RH24 40E	31E	22E
		2. 3. 4. 5.	5. 6. 7. 8.	3. 4. 5. 6.	1. 2. 3. 4.	1. 2. 3. 4.	3. 4. 5. 6.	3. 4. 5. 6.	5. 6. 7. 8.	5. 6. 7. 8.	5. 6. 7. 8.
		According to EN 50005			According to EN 50005				According to EN 50011 ¹⁾		

Front auxiliary switches

With complete inscription (for contactor relays)²⁾

3RH2911-□GA40	4	--		--	--	--	--	--	--	80E	--	--
3RH2911-□GA31	3	1		--	--	--	--	--	--	71E	--	--
3RH2911-□GA22	2	2		--	--	--	--	--	--	62E	--	--
3RH2911-□GA13	1	3		--	--	--	--	--	--	53E	--	--
3RH2911-□GA04	--	4		--	--	--	--	--	--	44E	--	--

With complete inscription; special version

3RH2911-□XA40-0MA0	4	--		50	41	51	40	40	51	51	80E	71X	62X
3RH2911-□XA31-0MA0	3	1		41	32	42	31	31	42	42	71E	62X	53
3RH2911-□XA22-0MA0	2	2		32	23	33	22	22	33	--	62E	53	44X
3RH2911-□XA04-0MA0	--	4		14	--	--	--	--	--	--	44E	--	--

Solid-state compatible

3RH2911-□NF02	--	2		12	03	13	02	02	13	--	42	33	24
3RH2911-□NF11	1	1		21	12	22	11	11	22	22	51	42	33
3RH2911-□NF20	2	--		30	21	31	20	20	31	31	60	51	42

¹⁾ Combinations according to EN 50011 and IEC 60947-5-1 are in **bold print**.
All combinations comply with EN 50005.

²⁾ Ordering data see [Accessories for 3RH2 Contactor Relays, Chapter 5](#).

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

Auxiliary switch blocks

Additional auxiliary switch blocks		3-pole contactors			4-pole contactors				Contactor relays		
Article No.	Auxiliary contacts Version	S00 3RT201	3RT201	S0 3RT202	S00 3RT231	3RT251	S0 3RT232	3RT252	S00 3RH21, 3RH24		
	NO NC	10	01	11	--	--	11	11	40E	31E	22E
		2. 3. 4. 5.	5. 6. 7. 8.	3. 4. 5. 6.	1. 2. 3. 4.	1. 2. 3. 4.	3. 4. 5. 6.	3. 4. 5. 6.	5. 6. 7. 8.	5. 6. 7. 8.	5. 6. 7. 8.
		According to EN 50012 ¹⁾			According to EN 50012 ¹⁾				According to EN 50011 ¹⁾		

Lateral auxiliary switches

For size S00

		Left	Right									
3RH2911-□DA02	--	2		12	--	--	02	02	--	--	--	--
3RH2911-□DA02	--	2		14	--	--	--	--	--	--	--	--
3RH2911-□DA11	1	1		21	--	--	11	11	--	--	--	--
3RH2911-□DA11	1	1		32	--	--	22	22	--	--	--	--
3RH2911-□DA20	2	--		30	--	--	20	20	--	--	--	--
3RH2911-□DA20	2	--		50	--	--	40	40	--	--	--	--
3RH2911-□DA20 + 3RH2911-□DA11	1	1		41	--	--	31	31	--	--	--	--
3RH2911-□DA20 + 3RH2911-□DA02	--	2		32	--	--	22	22	--	--	--	--
3RH2911-□DA11 + 3RH2911-□DA02	--	2		23	--	--	13	--	--	--	--	--

For size S0

		Left	Right									
3RH2921-□DA02	--	2		12	03	13	02	02	13	--	--	--
3RH2921-□DA02	--	2		14	--	--	--	--	--	--	--	--
3RH2921-□DA11	1	1		21	12	22	11	11	22	22	--	--
3RH2921-□DA11	1	1		32	23	33	22	22	33	--	--	--
3RH2921-□DA20	2	--		30	21	31	20	20	31	31	--	--
3RH2921-□DA20	2	--		50	41	51	40	40	51	51	--	--

¹⁾ Combinations according to EN 50012, EN 50011 and IEC 60947-5-1 are in **bold print**. All combinations comply with EN 50005.

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

Auxiliary switch blocks

Additional auxiliary switch blocks		3-pole contactors			4-pole contactors				Contactor relays		
Article No.	Auxiliary contacts	S00		S0	S00		S0		S00		
	Version	3RT201	3RT201	3RT202	3RT231	3RT251	3RT232	3RT252	3RH21, 3RH24		
	NO NC	10	01	11	--	--	11	11	40E	31E	22E
		2. 3. 4. 5.	5. 6. 7. 8.	3. 4. 5. 6.	1. 2. 3. 4.	1. 2. 3. 4.	3. 4. 5. 6.	3. 4. 5. 6.	5. 6. 7. 8.	5. 6. 7. 8.	5. 6. 7. 8.
		According to EN 50012 ¹⁾			According to EN 50012 ¹⁾				According to EN 50011 ¹⁾		
Lateral auxiliary switches											
For size S0, S00		Left	Right								
3RH2921-□DA20	2 --			41	32	42	31	31	42	42	--
+ 3RH2921-□DA11	1 1										
3RH2921-□DA20	2 --			32	23	33	22	22	33	--	--
+ 3RH2921-□DA02	-- 2										
3RH2921-□DA11	1 1			23	14	24	13	--	--	--	--
+ 3RH2921-□DA02	-- 2										
For contactor relays		Left									
3RH2921-□DA02	-- 2			--	--	--	--	--	--	42Z	33X
											24
3RH2921-□DA11	1 1			--	--	--	--	--	--	51X	42X
											33X
3RH2921-□DA20	2 --			--	--	--	--	--	--	60Z	51X
											42X
Solid-state compatible											
For size S00		Left	Right								
3RH2911-2DE11	1 1			21	--	--	11	11	--	--	--
3RH2911-2DE11	1 1			32	--	--	22	22	--	--	--
For size S0, S00		Left	Right								
3RH2921-2DE11	1 1			21	12	22	11	11	22	22	--
3RH2921-2DE11	1 1			32	23	33	22	22	33	--	--
For contactor relays		Left									
3RH2921-□DE11	1 1			--	--	--	--	--	--	51X	42X
											33X

¹⁾ Combinations according to EN 50012, EN 50011 and IEC 60947-5-1 are in **bold print**. All combinations comply with EN 50005.

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

Auxiliary switch blocks

PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B



3RH2911-1HA22



3RH2911-2HA22

For contactors / contactor relays ¹⁾	Auxiliary contacts Version	DT	Screw terminals		DT	Spring-type terminals	
			Article No.	Price per PU		Article No.	Price per PU

Type

NO NC

Auxiliary switch blocks for snapping onto the front

Sizes S00 and S0²⁾

3RT2.1., 3RT2.2.	--	1	
3RH21, 3RH24	--	2	
	--	3	
	1	--	
	1	1	
	1	2	
	1	3	
	2	--	
	2	1	
	2	2	
	3	--	
	3	1	

▶	3RH2911-1HA01	▶	3RH2911-2HA01
▶	3RH2911-1HA02	▶	3RH2911-2HA02
B	3RH2911-1HA03	B	3RH2911-2HA03
B	3RH2911-1HA10	B	3RH2911-2HA10
▶	3RH2911-1HA11	▶	3RH2911-2HA11
▶	3RH2911-1HA12	▶	3RH2911-2HA12
▶	3RH2911-1HA13	▶	3RH2911-2HA13
▶	3RH2911-1HA20	▶	3RH2911-2HA20
B	3RH2911-1HA21	B	3RH2911-2HA21
▶	3RH2911-1HA22	▶	3RH2911-2HA22
B	3RH2911-1HA30	B	3RH2911-2HA30
▶	3RH2911-1HA31	▶	3RH2911-2HA31

¹⁾ For detailed information on use see page 3/48.

²⁾ The 3RH29 auxiliary switches are also available with ring terminal lug connection. The 8th digit of the Article No. must be changed from a "1" to a "4", e.g. 3RH2911-1HA22 → 3RH2911-4HA22.

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

Auxiliary switch blocks

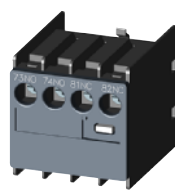
PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B



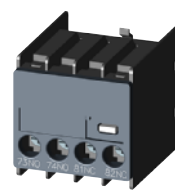
3RH2911-1FC22



3RH2911-2FC22



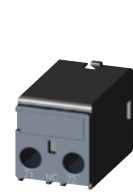
3RH2911-1LA11



3RH2911-1MA11



3RH2911-1AA01



3RH2911-1BA01

Type	For contactors / contactor relays ¹⁾	Connections	Auxiliary contacts				DT	Screw terminals		DT	Spring-type terminals	
		Position	Version									
								Article No.	Price per PU		Article No.	Price per PU
			NO	NC	NO	NC						

Auxiliary switch blocks for snapping onto the front

Sizes S00 and S0

3RT2.1., 3RT2.2.	4	--	--	--		▶	3RH2911-1FA40	▶	3RH2911-2FA40
3RH21, 3RH24	2	2	--	--		B	3RH2911-1FA22	B	3RH2911-2FA22
	--	4	--	--		B	3RH2911-1FA04	B	3RH2911-2FA04
	--	--	1	1		▶	3RH2911-1FB11	▶	3RH2911-2FB11
	1	1	1	1		▶	3RH2911-1FB22	▶	3RH2911-2FB22
	--	--	2	2		▶	3RH2911-1FC22	▶	3RH2911-2FC22
1- and 2-pole auxiliary switch blocks, cable entry from top or bottom									
3RT2.1., 3RT2.2.	Top	1	--	--		▶	3RH2911-1AA10	--	
	Bottom	1	--	--		▶	3RH2911-1BA10	--	
3RH21, 3RH24	Top	--	1	--		▶	3RH2911-1AA01	--	
	Bottom	--	1	--		▶	3RH2911-1BA01	--	
	Top	1	1	--		▶	3RH2911-1LA11	--	
	Bottom	1	1	--		▶	3RH2911-1MA11	--	
	Top	2	--	--		▶	3RH2911-1LA20	--	
	Bottom	2	--	--		▶	3RH2911-1MA20	--	

¹⁾ For detailed information on use see pages 3/48 and 3/49.

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

Auxiliary switch blocks

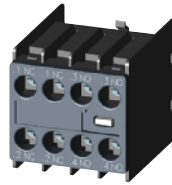
PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B



3RH2911-1DA02



3RH2911-2DA02



3RH2911-1XA22-0MA0



3RH2911-2XA22-0MA0

For contactors / contactor relays		DT	Screw terminals		DT	Spring-type terminals	
Auxiliary contacts Version							
							
Type	NO	NC	Article No.	Price per PU		Article No.	Price per PU

Auxiliary switch blocks for snapping onto the front

Sizes S00 and S0

3RT2.1., 3RT2.2. ¹⁾	4	--		B	3RH2911-1XA40-0MA0	B	3RH2911-2XA40-0MA0
3RH21, 3RH24 ¹⁾	3	1		B	3RH2911-1XA31-0MA0	B	3RH2911-2XA31-0MA0
	2	2		B	3RH2911-1XA22-0MA0	B	3RH2911-2XA22-0MA0
	--	4		B	3RH2911-1XA04-0MA0	B	3RH2911-2XA04-0MA0

Laterally mountable auxiliary switch blocks, mounting on the right and/or on the left

Size S00

3RT2.1. ²⁾	--	2	Left: Right:	A	3RH2911-1DA02	A	3RH2911-2DA02
	1	1	Left: Right:	A	3RH2911-1DA11	A	3RH2911-2DA11
	2	--	Left: Right:	A	3RH2911-1DA20	A	3RH2911-2DA20

Size S0

3RT2.2. ²⁾³⁾	--	2	Left: Right:	A	3RH2921-1DA02	A	3RH2921-2DA02
	1	1	Left: Right:	A	3RH2921-1DA11	A	3RH2921-2DA11
	2	--	Left: Right:	A	3RH2921-1DA20	A	3RH2921-2DA20

¹⁾ For detailed information on use see page 3/50.

²⁾ For detailed information on use see pages 3/51 and 3/52.

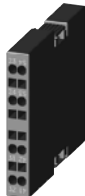
³⁾ With 3RT232., 3RT252., mountable only on the right.

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

Auxiliary switch blocks

PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B



3RH2911-2DE11



3RH2911-1NF..



3RH2911-2NF..

For contactors / contactor relays ¹⁾		DT	Screw terminals		DT	Spring-type terminals	
Contacts Version							
	 						
Type	NO NC		Article No.	Price per PU		Article No.	Price per PU

Electronic compatible auxiliary switch blocks

- For operation in dusty atmospheres
- For electronic circuits with rated operational currents
 I_e /AC-14 and DC-13 of 1 ... 300 mA at 3 ... 60 V
- Hard gold-plated contacts
- Mirror contacts acc. to IEC 60947-4-1, Appendix F,
 for auxiliary switches for mounting on the side
 (for auxiliary switches for snapping onto the front, see footnote)

Auxiliary switch blocks for snapping onto the front²⁾

Sizes S00 and S0

3RT2.1., 3RT2.2., 3RH21	--	2 ³⁾		A	3RH2911-1NF02	A	3RH2911-2NF02
	1	1 ³⁾		►	3RH2911-1NF11	►	3RH2911-2NF11
	2	--		►	3RH2911-1NF20	►	3RH2911-2NF20

Laterally mountable auxiliary switch blocks, mounting on the right and/or on the left

Size S00

3RT2.1.	1	1	Left: Right:	--	A	3RH2911-2DE11
---------	---	---	-------------------------	----	---	----------------------

Size S0

3RT2.2.	1	1	Left: Right:	--	A	3RH2911-2DE11
---------	---	---	-------------------------	----	---	----------------------

¹⁾ For detailed information on use see pages 3/50 and 3/52.

²⁾ The 3RH2911-1.NF.. auxiliary switches are also available with ring terminal lug connection. In the 8th position of the Article No., the "1" must be replaced with "4", e.g.: 3RH2911-1NF11 → 3RH2911-4NF11

³⁾ The following applies to size S0 contactors: The NC contacts are mirror contacts.

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

Auxiliary switch blocks, delayed

Selection and ordering data

PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B



3RA2813-1AW10



3RA2813-2AW10

For contactors	Rated control supply voltage $U_s^{(1)}$	Time setting range t	Output / auxiliary contacts	DT	Screw terminals	DT	Spring-type terminals
Type	V	s			Article No.	Price per PU	Article No.
						Price per PU	

Solid-state time-delay auxiliary switch blocks for snapping onto the front, terminal designations according to DIN 46199-5

Sizes S00 and S0

The electrical connection between the solid-state time-delay auxiliary switch and the contactor underneath is established automatically when it is snapped on and locked.

ON-delay

Varistor integrated

3RT2..
 3RH21⁽²⁾
 3RH24

24 ... 240 AC/DC
 0.05 ... 100,
 (1, 10, 100
 selectable)

1 CO
 1 NO + 1 NC

A
 A

3RA2813-1AW10
3RA2813-1FW10

A
 A

3RA2813-2AW10
3RA2813-2FW10

OFF-delay with control signal

Varistor integrated

3RT2..
 3RH21⁽²⁾
 3RH24

24 ... 240 AC/DC
 0.05 ... 100,
 (1, 10, 100
 selectable)

1 CO
 1 NO + 1 NC

A
 A

3RA2814-1AW10
3RA2814-1FW10

A
 A

3RA2814-2AW10
3RA2814-2FW10

OFF-delay without control signal⁽³⁾

Varistor integrated

3RT2..
 3RH21⁽²⁾
 3RH24

24 ... 240 AC/DC
 0.05 ... 100,
 (1, 10, 100
 selectable)

1 CO
 1 NO + 1 NC

A
 A

3RA2815-1AW10
3RA2815-1FW10

A
 A

3RA2815-2AW10
3RA2815-2FW10

⁽¹⁾ AC voltage values apply for 50 Hz and 60 Hz.

⁽²⁾ Cannot be fitted onto coupling contactors.

⁽³⁾ Setting of output contacts in as-supplied state not defined (bistable relay). Application of the control supply voltage once results in contact change-over to the correct setting.

For technical specifications see page 3/42.

Note:

When using the solid-state time-delay auxiliary switches, no other auxiliary switches are allowed to be connected to the basic units.

Technical specifications

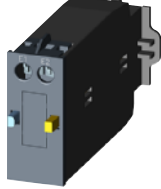
Function	Function charts	
	Timing relay energized Contact closed Contact open	
Solid-state time-delay auxiliary switches	With 1 CO contact	With 1 NO contact + 1 NC contact
ON-delay (varistor integrated)	3RA2813-.AW10 A1/A2 15/18 15/16 NSB0_02103	3RA2813-.FW10 A1/A2 27/28 35/36 NSB0_02104
OFF-delay with control signal (varistor integrated)	3RA2814-.AW10 A3/A2 B1/A2 15/18 15/16 NSB0_02100	3RA2814-.FW10 A3/A2 B1/A2 27/28 35/36 NSB0_02073
OFF-delay without control signal (varistor integrated)	3RA2815-.AW10 A1/A2 15/18 15/16 NSB0_02101	3RA2815-.FW10 A1/A2 27/28 35/36 NSB0_02102

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

Delay and latching blocks

Selection and ordering data

For contactors		Rated control supply voltage U_s	Time setting range t	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG
Type	V		s		Article No.	Price per PU		
OFF-delay devices								
Sizes S00 and S0								
For contactors with DC operation								
Non-adjustable delay time								
	3RT2.1, 110 AC/DC		S00: > 0.1	B	3RT2916-2BK01	1	1 unit	41B
	3RT2.2, 3RH2...-1BF40		S0:> 0.08					
	3RT2.1, 220/230 AC/DC		S00: > 0.5	B	3RT2916-2BL01	1	1 unit	41B
	3RT2.2, 3RH2...-1BM40		S0: > 0.3					
	3RT2.1, 24 DC		S00: > 0.2	A	3RT2916-2BE01	1	1 unit	41B
	3RT2.2, 3RH2...-1BB40		S0: > 0.1					
3RT2916-2B.01								
Delay blocks · For snapping onto the front of contactors								
Solid-state timing relays with semiconductor output								
Sizes S00 and S0								
ON-delay								
	Two-wire design, varistor integrated							
	3RT201., 3RT202., 3RH21 ²⁾ , 3RH24	24 ... 240 AC/DC ¹⁾	0.05 ... 100 (1, 10, 100; selectable)	A	3RA2811-1CW10	1	1 unit	41B
OFF-delay with control signal								
	Varistor integrated							
	3RT201., 3RT202., 3RH21 ²⁾ , 3RH24	24 ... 240 AC/DC ¹⁾	0.05 ... 100 (1, 10, 100; selectable)	A	3RA2812-1DW10	1	1 unit	41B
ON-delay								
	Two-wire design, varistor integrated				Spring-type terminals 			
	3RT201., 3RT202., 3RH21 ²⁾ , 3RH24	24 ... 240 AC/DC ¹⁾	0.05 ... 100 (1, 10, 100; selectable)	A	3RA2811-2CW10	1	1 unit	41B
OFF-delay with control signal								
	Varistor integrated							
	3RT201., 3RT202., 3RH21 ²⁾ , 3RH24	24 ... 240 AC/DC ¹⁾	0.05 ... 100 (1, 10, 100; selectable)	A	3RA2812-2DW10	1	1 unit	41B
Pneumatic ³⁾ · size S0								
Auxiliary contacts 1 NO and 1 NC ⁴⁾								
Screw terminals 								
	ON-delay							
	3RT202.	--	0.1 ... 30	C	3RT2926-2PA01	1	1 unit	41B
			1 ... 60	C	3RT2926-2PA11	1	1 unit	41B
	OFF-delay							
	3RT202.	--	0.1 ... 30	C	3RT2926-2PR01	1	1 unit	41B
			1 ... 60	C	3RT2926-2PR11	1	1 unit	41B
Mechanical latching blocks								
Size S0								
For snapping onto the front of contactors								
The contactor remains in the energized state after a voltage failure								
	3RT202.	24 AC/DC	--	B	3RT2926-3AB31	1	1 unit	41B
		110 AC/DC	--	B	3RT2926-3AF31	1	1 unit	41B
		230 AC/DC	--	B	3RT2926-3AP31	1	1 unit	41B
3RT2926-3A.31								

For technical specifications see pages 3/43, 3/44 and 3/185.

¹⁾ AC voltage values apply for 50 Hz and 60 Hz.

²⁾ Cannot be fitted onto coupling contactors.

³⁾ Certificate for versions for furnaces according to VDE 0116 on request.

⁴⁾ In addition to these, no other auxiliary contacts are permitted.

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

Surge suppressors

Selection and ordering data

For contactors	Version	Rated control supply voltage U_s ¹⁾		DT	Article No. ²⁾	Price per PU	PU (UNIT, SET, M)	PS*	PG
		AC operation	DC operation						
Type		V AC	V DC						

Surge suppressors without LED (also for spring-type terminals)

Size S00



3RT2916-1B.00

For plugging onto the front side of the contactors (with and without auxiliary switch block)									
3RT2.1, 3RH2.	Varistor	24 ... 48	24 ... 70	▶	3RT2916-1BB00		1	1 unit	41B
		48 ... 127	70 ... 150	▶	3RT2916-1BC00		1	1 unit	41B
		127 ... 240	150 ... 250	▶	3RT2916-1BD00		1	1 unit	41B
		240 ... 400	--	▶	3RT2916-1BE00		1	1 unit	41B
		400 ... 600	--	A	3RT2916-1BF00		1	1 unit	41B
3RT2.1, 3RH2.	RC elements	24 ... 48	24 ... 70	▶	3RT2916-1CB00		1	1 unit	41B
		48 ... 127	70 ... 150	▶	3RT2916-1CC00		1	1 unit	41B
		127 ... 240	150 ... 250	▶	3RT2916-1CD00		1	1 unit	41B
		240 ... 400	--	A	3RT2916-1CE00		1	1 unit	41B
		400 ... 600	--	A	3RT2916-1CF00		1	1 unit	41B
3RT2.1, 3RH2.	Noise suppression diodes	--	12 ... 250	▶	3RT2916-1DG00		1	1 unit	41B
3RT2.1, 3RH2.	Diode assemblies (diode and Zener diode) for DC operation	--	12 ... 250	▶	3RT2916-1EH00		1	1 unit	41B

Size S0



3RT2926-1E.00

For plugging onto the front side of the contactors (prior to mounting of the auxiliary switch block)									
3RT2.2	Varistor	24 ... 48	24 ... 70	▶	3RT2926-1BB00		1	1 unit	41B
		48 ... 127	70 ... 150	▶	3RT2926-1BC00		1	1 unit	41B
		127 ... 240	150 ... 250	▶	3RT2926-1BD00		1	1 unit	41B
		240 ... 400	--	▶	3RT2926-1BE00		1	1 unit	41B
		400 ... 600	--	A	3RT2926-1BF00		1	1 unit	41B
3RT2.2	RC elements	24 ... 48	24 ... 70	▶	3RT2926-1CB00		1	1 unit	41B
		48 ... 127	70 ... 150	▶	3RT2926-1CC00		1	1 unit	41B
		127 ... 240	150 ... 250	▶	3RT2926-1CD00		1	1 unit	41B
		240 ... 400	--	A	3RT2926-1CE00		1	1 unit	41B
		400 ... 600	--	A	3RT2926-1CF00		1	1 unit	41B
3RT2.2	Diode assembly for DC operation	--	24 ... 30 ... 250	▶	3RT2926-1ER00		1	1 unit	41B
				▶	3RT2926-1ES00		1	1 unit	41B

¹⁾ Can be used for AC operation for 50/60 Hz. Please inquire about further voltages.

²⁾ For packs of 10 or 5 units, "-Z" and order code "X90" must be added to the Article No.

For contactors	Version	Rated control supply voltage U_s ¹⁾		Power consumption P of the LED at U_s	DT	Article No. ²⁾	Price per PU	PU (UNIT, SET, M)	PS*	PG
		AC operation	DC operation							
Type		V AC	V DC	mW						

Surge suppressors with LED (also for spring-type terminals)

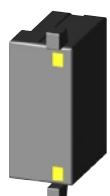
Size S00



3RT2916-1J.00

For plugging onto the front side of the contactors (with and without auxiliary switch block)									
3RT2.1, 3RH2.	Varistor	24 ... 48	12 ... 24	10 ... 120	▶	3RT2916-1JJ00	1	1 unit	41B
		48 ... 127	24 ... 70	20 ... 470	▶	3RT2916-1JK00	1	1 unit	41B
		127 ... 240	70 ... 150	50 ... 700	▶	3RT2916-1JL00	1	1 unit	41B
		--	150 ... 250	160 ... 950	A	3RT2916-1JP00	1	1 unit	41B
3RT2.1, 3RH2.	Noise sup- pression diodes	--	24 ... 70	20 ... 470	▶	3RT2916-1LM00	1	1 unit	41B
		--	50 ... 150	50 ... 700	A	3RT2916-1LN00	1	1 unit	41B
		--	150 ... 250	160 ... 950	▶	3RT2916-1LP00	1	1 unit	41B

Size S0



3RT2926-1MR00

For plugging onto the front side of the contactors (prior to mounting of the auxiliary switch block)										
3RT2.2	Varistor	24 ... 48	12 ... 24	10 ... 120	▶	3RT2926-1JJ00		1	1 unit	41B
		48 ... 127	24 ... 70	20 ... 470	▶	3RT2926-1JK00		1	1 unit	41B
		127 ... 240	70 ... 150	50 ... 700	▶	3RT2926-1JL00		1	1 unit	41B
3RT2.2	Diode assembly	--	24	20 ... 470	▶	3RT2926-1MR00		1	1 unit	41B

¹⁾ Can be used for AC operation for 50/60 Hz. Please inquire about further voltages.

²⁾ For packs of 10 or 5 units, "-Z" and order code "X90" must be added to the Article No.

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

Other function blocks

Selection and ordering data

For contactors	Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	
Type								
EMC suppression modules; 3-phase, up to 7.5 kW								
Size S00 (for contactors with AC or DC operation) ¹⁾								
	3RT201	RC elements (3 x 220 Ω/0.22 µF) Up to 400 V Up to 575 V Up to 690 V	▶ A C	Screw terminals 				
				3RT2916-1PA1		1	1 unit	41B
				3RT2916-1PA2		1	1 unit	41B
	3RT201	Varistor Up to 400 V Up to 575 V Up to 690 V	A A C	3RT2916-1PA3		1	1 unit	41B
				3RT2916-1PB1		1	1 unit	41B
				3RT2916-1PB2		1	1 unit	41B
3RT2916-1PB3		1	1 unit	41B				
Additional load modules								
Size S00								
	3RT2.1, 3RH2.	For plugging onto the front side of the contactors with or without auxiliary switch blocks ²⁾ For increasing the permissible residual current and for limiting the residual voltage. It ensures the safe opening of contactors with direct control via 230 V AC semiconductor outputs of SIMATIC controllers. It acts simultaneously as a surge suppressor. Rated voltage: AC 50/60 Hz, 180 to 255 V. Operating range: 0.8 to 1.1 x U _s	▶	3RT2916-1GA00		1	1 unit	41B
LED modules for displaying contactor operation								
Size S0								
	3RT2.2	For snapping into the location hole of an inscription label on the front of a contactor either directly on the contactor or on the front auxiliary switch. The LED module is connected to coil terminals A1 and A2 of the contactor and indicates its energized state. Yellow LED. Rated voltage: 24 ... 240 V AC/DC with reverse polarity protection.	B	3RT2926-1QT00		1	5 units	41B
Coupling links for control by PLC								
Size S0								
	3RT2.2	For mounting onto the coil terminals of the contactors With LED for indicating switching state. With integrated varistor for damping opening surges. Operating range 17 ... 30 V DC Power consumption: 0.5 W at 24 V DC Permissible residual current of the electronics (with 0 signal): 2.5 mA Rated operational current I _e : • AC-15/AC-14 at 230 V: 3 A • DC-13 at 230 V: 0.1 A	▶	3RH2924-1GP11		1	1 unit	41B
Control kit								
Sizes S00 and S0								
	3RT2.1, 3RH2.	For manual operation of the contactor contacts for start-up and service ³⁾	A	3RT2916-4MC00		1	5 units	41B
	3RT2916-4MC00	3RT2.2		A	3RT2926-4MC00		1	5 units

For technical specifications for coupling links see page 3/46.

¹⁾ See also description on page 3/41.

²⁾ For packs of 10 units, the Article No. must be supplemented with "-Z" and order code "X90".

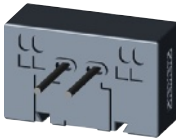
³⁾ See also Chapter 8, "Load Feeders and Motor Starters for Use in the Control Cabinet" → "ET 200S Motor Starters" → "Accessories", Article No. 3RK1903-0CA00.

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

Terminals, covers, adapters, connectors

Selection and ordering data

For contactors	Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type							
Sealable covers							
Sizes S00 and S0							
	3RT2.1, 3RT2.2, 3RH2.1 ¹⁾	Sealable covers for preventing manual operation (Not suitable for coupling contactors)	A	3RT2916-4MA10	1	5 units	41B
3RT2916-4MA10							
Connection modules for contactors with screw terminals							
Sizes S00 and S0							
Adapters for contactors Ambient temperature $T_{u \max.} = 60^\circ\text{C}$							
	3RT2.1, 3RH2.	Size S00, rated operational current I_e at AC-3/400 V: 20 A	B	3RT1916-4RD01	1	1 unit	41B
3RT1926-4RD01	3RT2.2	Size S0, rated operational current I_e at AC-3/400 V: 25 A	B	3RT1926-4RD01	1	1 unit	41B
	3RT2.1, 3RT2.2, 3RH2.	Plugs for contactors Size S00, S0	B	3RT1900-4RE01	1	1 unit	41B
3RT1900-4RE01							
Coil connection modules							
Size S0							
	3RT2.2	Connection from top Connection from below Connection diagonally	A A A	3RT2926-4RA11 3RT2926-4RB11 3RT2926-4RC11	1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
3RT2926-4RA11							
	3RT2.2	Connection from top Connection from below	A A	3RT2926-4RA12 3RT2926-4RB12	1 1	1 unit 1 unit	41B 41B
3RT2926-4RA12							
Covers for contactors with ring terminal lug connection							
Size S00							
	3RT2.1, 3RH2	Covers for ring terminal lug connections Single covers	B	3RT2916-4EA13	1	10 units	41B
3RT2916-4EA13							
Size S0							
	3RT2.2	Covers for ring terminal lug connections Set for one device, comprising 4 single covers	B	3RT2926-4EB13	1	1 unit	41B
3RT2926-4EB13							

For technical specifications for connection modules see [page 3/45](#).

¹⁾ Exception: contactors and contactor relays auxiliary switch block mounted onto the front.

Power Contactors for Switching Motors

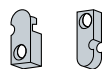
Accessories for 3RT2 Contactors

Terminals, covers, adapters, connectors

For contactors	Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type							

Screw adapters for fixing the contactors

Size S0



NSB0_01470
3RT1926-4P

3RT2.2 Screw adapters for easier screw fixing
2 units required per contactor
(1 pack contains 10 sets for 10 contactors)

C **3RT1926-4P** 1 10 units 41B

Solder pin adapters for contactors up to 5.5 kW/12 A

Size S00, up to 5.5 kW



3RT2.1, 3RH21 Assembly kit for soldering contactors onto a printed circuit board.
For 1 contactor, 1 set is required.

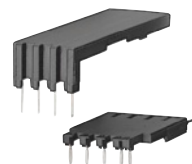
A **3RT1916-4KA1** 1 4 units 41B



3RT1916-4KA1

Solder pin adapters for contactors up to 5.5 kW / 12 A with mounted 4-pole auxiliary switch block

Size S00, up to 5.5 kW



3RT2.1, 3RH21 Assembly kit for soldering contactors with an auxiliary switch block onto a printed circuit board.
For 1 contactor, 1 set is required.

B **3RT1916-4KA2** 1 4 units 41B



3RT1916-4KA2

Safety main current connectors for 2 contactors

Sizes S00 and S0

For series connection of 2 contactors



3RA2926-1A

3RT2.1
3RT2.2

A **3RA2916-1A** 1 1 unit 41B
A **3RA2926-1A** 1 1 unit 41B

Power Contactors for Switching Motors

Accessories for 3RT2 Contactors

Terminals, covers, adapters, connectors

For contactors	Max. conductor cross-sections	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type	mm ²						

Links for paralleling

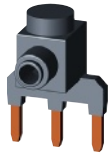
Sizes S00 and S0

3-pole, with connection terminal¹⁾²⁾

3RT201	25, stranded
3RT202	50, stranded



3RT1916-4BB31



3RT2926-4BB31



3RT1916-4BB41

4-pole, with connection terminal¹⁾²⁾

3RT23 1,	25, stranded
3RT25 1	

Screw terminals



▶	3RT1916-4BB31	1	1 unit	41B
A	3RT2926-4BB31	1	1 unit	41B

C	3RT1916-4BB41	1	1 unit	41B
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¹⁾ The links for paralleling can be reduced by one pole.

²⁾ With sizes S00 and S0 the links for paralleling are insulated.

Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
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Insulation stop for securely holding back the conductor insulation on conductors up to 1 mm²



3RT1916-4JA02

Insulation stop strip can be inserted in cable entry of the spring-type terminal (2 strips per contactor required)

- For basic units S00 (3RT201. or 3RH2.), removable individually
- For auxiliary and control current on basic units size S0 (3RT202.) and for mountable 3RH29 auxiliary switches, removable in pairs

Spring-type terminals



B	3RT2916-4JA02	1	20 units	41B
B	3RT1916-4JA02	1	20 units	41B

Tools for opening spring-type terminals

Screwdrivers

for all SIRIUS devices with spring-type terminals

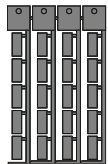
Length: approx. 200 mm,
3.0 mm x 0.5 mm,
titanium gray/black, partially insulated



3RA29 08-1A

A	3RA2908-1A	1	1 unit	41B
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Blank labels



3RT2900-1SB20

Unit labeling plates for SIRIUS devices¹⁾

- 10 mm x 7 mm, titanium gray
- 20 mm x 7 mm, titanium gray

Adhesive labels for SIRIUS devices

- 19 mm x 6 mm, titanium gray

D	3RT2900-1SB10	100	816 units	41B
D	3RT2900-1SB20	100	340 units	41B
D	3RT2900-1SB60	100	3 060 units	41B

¹⁾ PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see Chapter 16, "Appendix" → "External Partners").

Power Contactors for Switching Motors

Spare Parts for 3RT2 Contactors

Solenoid coils

Selection and ordering data

For screw, spring-type and ring terminal lug connection



3RT2924-5A.01

For contactors		Rated control supply voltage U_s			DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Size	Type	50 Hz V	50/60 Hz V	60 Hz V						
Solenoid coils · AC operation										
S0	3RT2023, 3RT2024, 3RT2025	24	--	--	B	3RT2924-5AB01		1	1 unit	41B
		42	--	--	B	3RT2924-5AD01		1	1 unit	41B
		48	--	--	B	3RT2924-5AH01		1	1 unit	41B
		110	--	--	B	3RT2924-5AF01		1	1 unit	41B
		230	--	--	B	3RT2924-5AP01		1	1 unit	41B
		400	--	--	B	3RT2924-5AV01		1	1 unit	41B
	--	24	--	--	B	3RT2924-5AC21		1	1 unit	41B
		42	--	--	B	3RT2924-5AD21		1	1 unit	41B
		48	--	--	B	3RT2924-5AH21		1	1 unit	41B
		110	--	--	B	3RT2924-5AG21		1	1 unit	41B
		220	--	--	B	3RT2924-5AN21		1	1 unit	41B
		230	--	--	B	3RT2924-5AL21		1	1 unit	41B
	110 220	--	--	24	B	3RT2924-5AC11		1	1 unit	41B
		--	--	120	B	3RT2924-5AK61		1	1 unit	41B
		--	--	240	B	3RT2924-5AP61		1	1 unit	41B
		--	100	110	B	3RT2924-5AG61		1	1 unit	41B
		--	200	220	B	3RT2924-5AN61		1	1 unit	41B
		--	400	440	B	3RT2924-5AR61		1	1 unit	41B
S0	3RT2026, 3RT2027, 3RT2028	24	--	--	B	3RT2926-5AB01		1	1 unit	41B
		42	--	--	B	3RT2926-5AD01		1	1 unit	41B
		48	--	--	B	3RT2926-5AH01		1	1 unit	41B
		110	--	--	B	3RT2926-5AF01		1	1 unit	41B
		230	--	--	B	3RT2926-5AP01		1	1 unit	41B
		400	--	--	B	3RT2926-5AV01		1	1 unit	41B
	3RT2325, 3RT2326, 3RT2327	24	--	--	B	3RT2926-5AC21		1	1 unit	41B
		42	--	--	B	3RT2926-5AD21		1	1 unit	41B
		48	--	--	B	3RT2926-5AH21		1	1 unit	41B
		110	--	--	B	3RT2926-5AG21		1	1 unit	41B
		220	--	--	B	3RT2926-5AN21		1	1 unit	41B
		230	--	--	B	3RT2926-5AL21		1	1 unit	41B
	3RT2526	24	--	--	B	3RT2926-5AC11		1	1 unit	41B
		--	--	120	B	3RT2926-5AK61		1	1 unit	41B
		--	--	240	B	3RT2926-5AP61		1	1 unit	41B
		--	100	110	B	3RT2926-5AG61		1	1 unit	41B
		--	200	220	B	3RT2926-5AN61		1	1 unit	41B
		--	400	440	B	3RT2926-5AR61		1	1 unit	41B

Note:

Contactors with AC and DC coils have different depths.
Coils can only be exchanged with AC contactors and this is only possible with AC coils.

Overview

Standards

IEC 60947-1, EN 60947-1,
IEC 60947-4-1, EN 60947-4-1,
IEC 60947-5-1, EN 60947-5-1 (auxiliary switches)

The 3RT1 contactors are suitable for use in any climate. They are finger-safe according to EN 50274.

Connection methods

The 3RT1 contactors are available with screw terminals (box terminals) or spring-type terminals.

The size S3 contactors have removable box terminals for the main conductor connections. This permits connection of ring terminal lugs or busbars.

Contact reliability

If voltages ≤ 110 V and currents ≤ 100 mA are to be switched, the auxiliary contacts of the 3RT1 contactor or 3RH11 contactor relay should be used as they guarantee a high level of contact reliability.

These auxiliary contacts are particularly suitable for solid-state circuits with currents ≥ 1 mA at a voltage ≥ 17 V.

Short-circuit protection of the contactors

Short-circuit protection of contactors without overload relay see "Technical specifications", pages 3/71 and 3/76. For short-circuit protection of contactors with overload relay, see Configuration Manual "Configuring SIRIUS" <http://support.automation.siemens.com/WW/view/en/40625241>.

To assemble fuseless motor feeders, you must select combinations of motor starter protector/circuit breaker and contactor as explained in "SIRIUS 3RA1 Load Feeders" (see Chapter 8 "Load Feeders and Motor Starters").

Motor protection

3RU11 thermal overload relays or 3RB20/3RB21 solid-state overload relays can be fitted to the 3RT1 contactors for protection against overload. The overload relays must be ordered separately.

Ratings of three-phase motors

The quoted rating (in kW) refers to the output power on the motor shaft (according to the nameplate).

Surge suppression

3RT1 contactors can be retrofitted with RC elements, varistors, diodes or diode assemblies (assembly of diode and Zener diode for short break times) for damping opening surges in the coil.

Note:

The OFF-delay of the NO contact and the ON-delay of the NC contact are increased if the contactor coils are attenuated against voltage peaks (noise suppression diode 6 to 10 times; diode assembly 2 to 6 times, varistor +2 to 5 ms).

Sizes S00 and S0, up to 11 kW

For 3RT1 devices in these sizes see Catalog IC 10 AO.

Sizes S2 and S3, up to 45 kW

Auxiliary contact complement

The basic units of sizes S2 and S3 are delivered only with the main contacts and can be extended with auxiliary switch blocks.

For sizes S2 and S3, complete units with mounted auxiliary switch block 2 NO + 2 NC are available (terminal designation according to EN 50012); the auxiliary switch block can be removed. For more information see Accessories, page 3/96.

Note:

Auxiliary contact complement according to SUVA: Contactors with permanently mounted auxiliary switch block 2 NO + 2 NC are available for safety applications according to SUVA.

Surge suppression

For size S2 and S3 contactors, varistors and RC elements can be snapped on either on the top or directly below the coil terminals. Diode assemblies are available in 2 different versions on account of their polarity. Depending on the application they can be connected either only at the bottom (assembly with motor starter protector/circuit breaker) or only at the top (assembly with overload relay).

The plug-in direction of the diodes and diode assemblies is specified by coding.

Exceptions:

3RT1926-1T.00 and 3RT1936-1T.00,
in this case the plug-in direction is marked with "+" and "-".

Sizes S6 to S12, > 45 to 250 kW

- 3RT10, contactors for switching motors,
- 3RT12, vacuum contactors for switching motors,
- 3RT14, contactors for AC-1 applications (see Chapter 4 "Contactors for Special Applications").

Operating mechanism types

Two types of solenoid operation are available:

- Conventional operating mechanisms
- Solid-state operating mechanism (with two performance levels)

Control supply voltage

The contactors can be operated with an AC operating mechanism (50 to 60 Hz) as well as with DC.

Withdrawable coils

For simple coil replacement, e.g. if the application is replaced, the solenoid coil can be pulled out upwards after the release mechanism has been actuated and can be replaced by any other coil of the same size.

Auxiliary contact complement

Contactor sizes S6 to S12 are supplied with mounted auxiliary switch blocks.

For detailed information about the fitting of auxiliary switches see Accessories, page 3/96.

- 3RT10 and 3RT14 contactors:
Auxiliary contacts mounted laterally and on front
- 3RT12 vacuum contactors:
Auxiliary contacts mounted laterally

Contactors with conventional operating mechanism

Version 3RT1...-A:

The solenoid coil is switched directly on and off with the control supply voltage U_s by way of terminals A1/A2.

Multi-voltage range for the control supply voltage U_s :

Only one coil covers several close-lying control supply voltages which are used worldwide, e.g. 110–115–120–127 V AC/DC or 220–230–240 V AC/DC. Allowance is made in addition for an operating range of 0.8 times the lower ($U_{s\min}$) and 1.1 times the upper ($U_{s\max}$) rated control supply voltage within which the contactor switches reliably and no thermal overload occurs.

Power Contactors for Switching Motors

SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW

Contactors with solid-state operating mechanism

The solenoid coil is supplied selectively with the power required for reliable switching and holding by upstream control electronics.

- Wide voltage range for the control supply voltage U_s : Compared with the conventional operating mechanism, the solid-state operating mechanism covers an even broader range of control supply voltages used worldwide within one coil version. For example, the coil for 200 to 277 V AC/DC ($U_{s \min}$ to $U_{s \max}$) covers the voltages 200-208-220-230-240-254-277 V used worldwide.
- Extended operating range 0.7 to $1.25 \times U_s$: The wide range for the rated control supply voltage and the additionally allowed coil operating range of $0.8 \times U_{s \min}$ to $1.1 \times U_{s \max}$ results in an extended coil operating range of at least 0.7 to $1.25 \times U_s$, within which the contactors will operate reliably, for the most common control supply voltages of 24, 110 and 230 V.
- Bridging temporary voltage dips: Control voltage failures dipping to 0 V (at A1/A2) are bridged for up to approx. 25 ms to avoid unintentional tripping.
- Defined ON and OFF thresholds: For voltages above $0.8 \times U_{s \min}$ the electronics will reliably switch the contactor ON, and for voltages below the value $0.5 \times U_{s \min}$ it is reliably switched OFF. The hysteresis in the switching thresholds prevents the main contacts from chattering as well as increased wear or welding when operated in weak, unstable networks. This also prevents thermal overloading of the contactor coil if the voltage applied is too low (contactor does not close properly and is continuously operated with overexcitation).
- Low control power consumption when closing and in the closed state.

Electromagnetic compatibility (EMC)

The contactors with solid-state operating mechanism conform to the requirements for operation in industrial plants:

- Interference immunity
 - Burst (IEC 61000-4-4): 4 kV
 - Surge (IEC 61000-4-5): 4 kV
 - Electrostatic discharge, ESD (IEC 61000-4-2): 8/15 kV
 - Electromagnetic field (IEC 61000-4-3): 10 V/m
- Emitted interference
 - Limit value class A according to EN 55011

Note:

In connection with converters, the control cables must be routed separately from the load cables to the converter.

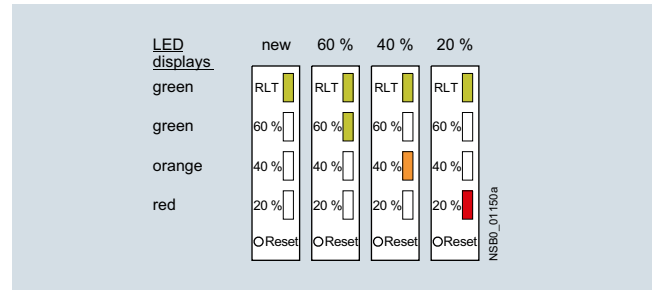
Indication of remaining lifetime (RLT)

Main contactor contacts are working parts which therefore must be replaced in good time when the end of their service life has been reached. The degree of contact erosion and thus the electrical endurance (= number of operating cycles) depends on the loading, utilization category, operating mode, etc. Up to now, routine checks or visual inspections by the maintenance personnel were needed in order to gain an insight into the state of the main contacts.

The remaining lifetime indication function now takes over this task. It does not count the number of operating cycles – which does not provide information about contact erosion – but instead electronically identifies, evaluates and stores the actual progress of erosion of each one of the three main contacts, and outputs a warning when specified limits are reached. The stored data are not lost even if the control supply voltage for A1/A2 fails. After replacement of the main contacts, measurement of the remaining lifetime must be reset using the "RESET" button (hold down RESET button for about 2 s using a pen or similar tool).

Advantages:

- Additional visual display of various levels of erosion by means of LEDs on the laterally mounted solid-state module when remaining lifetime is 60 % (green), 40 % (orange) and 20 % (red).

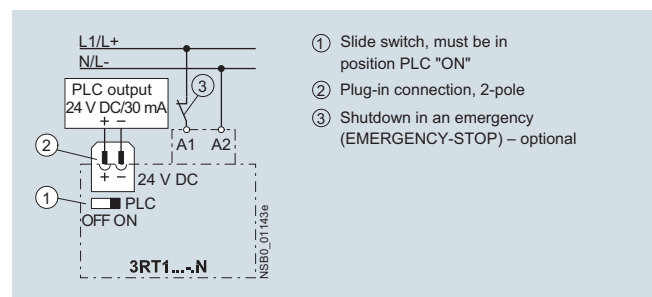


- Early warning to replace contacts
- Optimum utilization of contact material
- Visual inspection of the condition of contacts no longer necessary
- Reduction of ongoing operating costs
- Optimum planning of maintenance measures
- Avoidance of unforeseen plant downtimes

3RT1...-N version: for 24 V DC PLC output

2 control options:

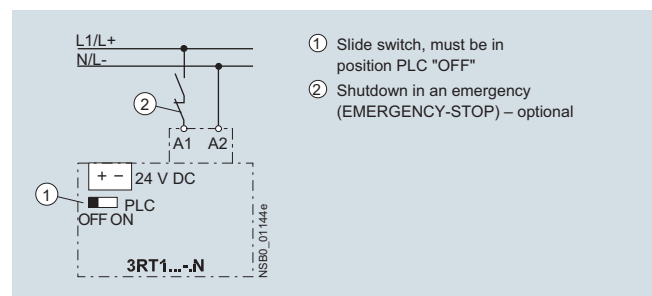
- Control without a coupling link directly through a 24 V DC ≥ 30 mA PLC output (IEC 61131-2). Connection by means of 2-pole plug-in connection. The screwless spring-type connection is part of the scope of supply. The control supply voltage which supplies the solenoid operating mechanism must be connected to A1/A2.



Note:

Before start-up, the slide switch for PLC operation must be moved to the "PLC ON" position (setting ex works: "PLC OFF").

- Conventional control by applying the control supply voltage at A1/A2 through a switching contact.



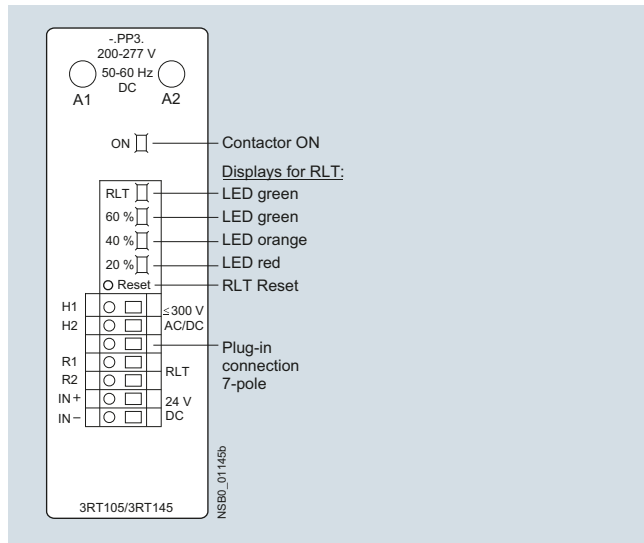
Note:

The slide switch must be in the "PLC OFF" position (= setting ex works).

Power Contactors for Switching Motors

SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW

3RT1...-P version: for 24 V DC PLC output or
PLC relay output, with remaining lifetime indicator (RLT)

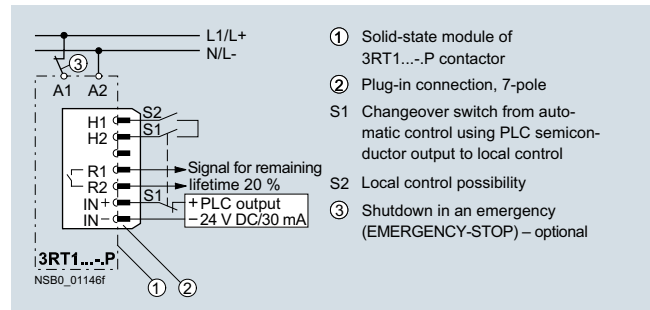


To supply the solenoid and the remaining lifetime indicator with power, the control supply voltage U_s must be connected to terminals A1/A2 of the laterally mounted electronic module. The control inputs of the contactor are connected to a 7-pole plug-in connection; the screwless spring-type connection is part of the scope of supply.

- The "Remaining Lifetime RLT" status signal is available at terminals R1/R2 through a floating relay contact (hard gold-plated, enclosed) and can be input to SIMOCODE, PLC or other devices for processing, for example. Permissible current-carrying capacity of the R1/R2 relay output:
 - I_e/AC -15/24 to 230 V: 3 A
 - I_e/DC -13/24 V: 1 A
- LED displays
The following states are indicated by means of LEDs on the laterally mounted solid-state module:
 - Contactor ON (energized state): green LED ("ON")
 - Indication of remaining lifetime

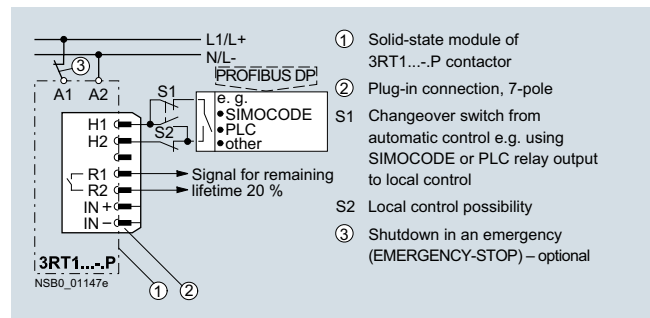
2 control options:

- Contactor control without a coupling link directly through a 24 V DC/≥ 30 mA PLC output (IEC 61131-2) by way of terminals IN+/IN-.



Possibility of switching from automatic control to local control by way of terminals H1/H2, i.e. automatic control through PLC or SIMOCODE/PROFIBUS DP can be deactivated e.g. at start-up or in the event of a fault and the contactor can be controlled manually.

- Contactor control through relay outputs at connections H1/H2, e.g. by
 - PLC or
 - SIMOCODE



Contact loading: U_s /approx. 5 mA

When operated through SIMOCODE, a communication link to PROFIBUS DP is also provided.

Article No. scheme

Digit of the Article No.	1st - 3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th
SIRIUS power contactors	3RT													
1st generation		1												
Device type (e.g. 0 = 3-pole motor contactor, 3 = 4-pole AC-1 contactor)														
Size of the contactor (3 = S2, 4 = S3, 5 = S6, etc.)														
Power dependent on size (e.g. 45 = 37 kW)														
Connection type (1 = screw, 3 = spring)														
Operating range / solenoid coil circuit (e.g. A = AC standard / without)														
Rated control supply voltage (e.g. P0 = 230 V, 50 Hz)														
Auxiliary switches (e.g. 0 = without auxiliary switches)														
Special version														
Example	3RT	1	0	4	5	-	1	A	P	0	0			

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog and in the Industry Mall.

Power Contactors for Switching Motors

SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW

Technical specifications

Type	3RT1		
Size	S2 to S12		
Rated data of the auxiliary contacts			
Acc. to IEC 60947-5-1/EN 60947-5-1			
The data apply to integrated auxiliary contacts and contacts in the auxiliary switch blocks for contactor sizes S00 to S12			
Rated insulation voltage U_i (pollution degree 3)	V	690	
• For laterally mountable auxiliary switch blocks	V	500	
Conventional thermal current I_{th} = Rated operational current I_e /AC-12	A	10	
AC load			
Rated operational current I_e /AC-15/AC-14			
• For rated operational voltage U_e	Up to 230 V	A	6
	380 V	A	3
	400 V	A	3
	500 V	A	2
	660 V ²⁾	A	1
	690 V ²⁾	A	1
DC load			
Rated operational current I_e /DC-12			
• For rated operational voltage U_e	24 V	A	10
	60 V	A	6
	110 V	A	3
	125 V	A	2
	220 V	A	1
	440 V	A	0.3
	600 V ²⁾	A	0.15
Rated operational current I_e /DC-13			
• For rated operational voltage U_e	24 V	A	10 ¹⁾
	60 V	A	2
	110 V	A	1
	125 V	A	0.9
	220 V	A	0.3
	440 V	A	0.14
	600 V ²⁾	A	0.1
Contact reliability at 17 V, 1 mA		Frequency of contact faults < 10 ⁻⁸	
According to IEC 60947-5-4/EN 60947-5-4		i.e. < 1 fault per 100 million operating cycles	

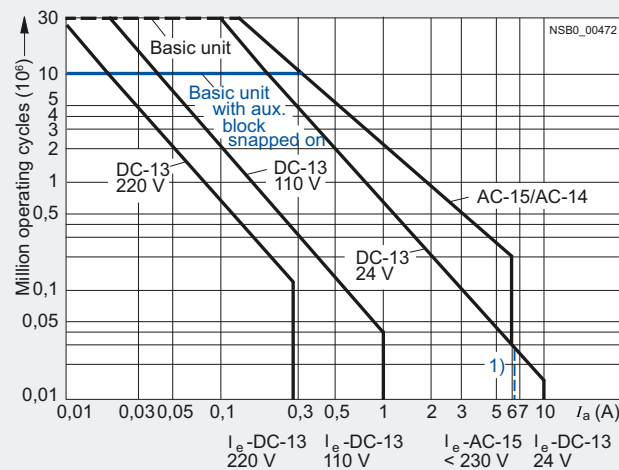
Contact endurance of the auxiliary contacts

It is assumed that the operating mechanisms are switched randomly, i.e. not synchronized with the phase angle of the supply system.

The contact endurance is mainly dependent on the breaking current.

The characteristic curves apply to:

- Integrated auxiliary contacts on 3RT10
- 3RH1911, 3RH1921 auxiliary switch blocks¹⁾



¹⁾ For mountable auxiliary switch blocks size S00 and laterally mountable auxiliary switch blocks size S0 to S12: DC-13 max. 6 A.

²⁾ For laterally mountable auxiliary switch blocks, only the rated operational voltages up to 500 V apply.

Type

Size

3RT1

S2 and S3

Contact endurance of the main contacts

The characteristic curves show the contact endurance of the contactors when switching resistive and inductive AC loads (AC-1/AC-3) depending on the breaking current and rated operational voltage. It is assumed that the operating mechanisms are switched randomly, i.e. not synchronized with the phase angle of the supply system.

The rated operational current I_e complies with utilization category AC-4 (breaking six times the rated operational current) and is intended for a contact endurance of at least 200 000 operating cycles.

If a shorter contact endurance is sufficient, the rated operational current I_e /AC-4 can be increased.

If the contacts are used for mixed operation, i.e. normal switching (breaking the rated operational current according to utilization category AC-3) in combination with intermittent inching (breaking several times the rated operational current according to utilization category AC-4), the contact endurance can be calculated approximately from the following equation:

$$X = \frac{A}{1 + \frac{C}{100} \left(\frac{A}{B} - 1 \right)}$$

Characters in the equation:

- X Contact endurance for mixed operation in operating cycles
- A Contact endurance for normal operation ($I_a = I_e$) in operating cycles
- B Contact endurance for inching ($I_a = \text{multiple of } I_e$) in operating cycles
- C Inching operations as a percentage of total switching operations

Size S2

Operating cycles at

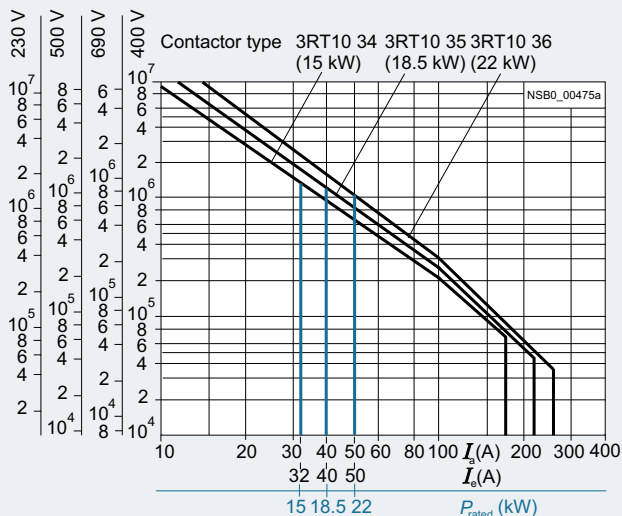


Diagram legend:

 P_{rated} = Rated power for squirrel-cage motors at 400 V I_a = Breaking current I_e = Rated operational current**Size S3**

Operating cycles at

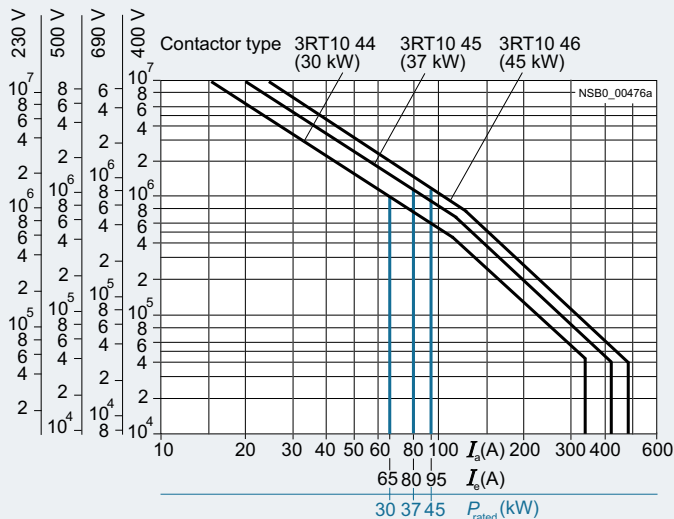


Diagram legend:

 P_{rated} = Rated power for squirrel-cage motors at 400 V I_a = Breaking current I_e = Rated operational current

Power Contactors for Switching Motors

SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW

Type **3RT1**
Size **S6 to S12**

Contact endurance of the main contacts

Sizes S6 to S12

Operating cycles at

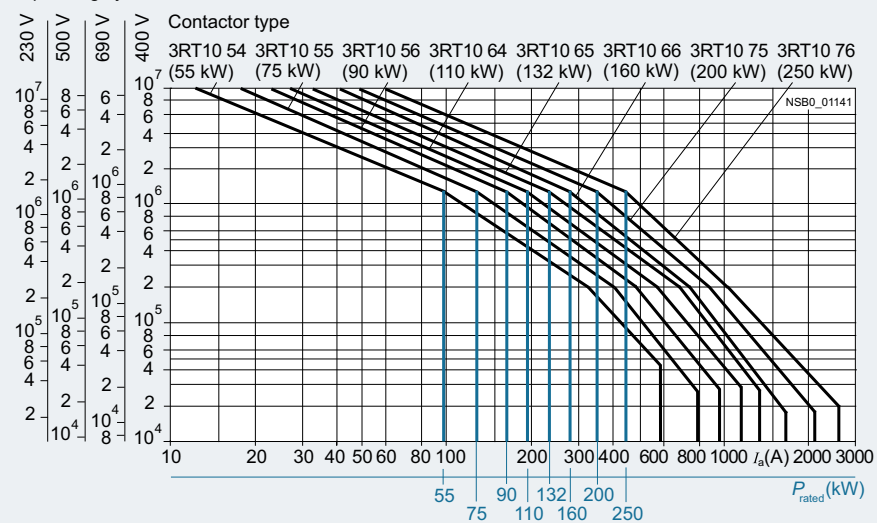


Diagram legend:

P_{rated} = Rated power for squirrel-cage motors at 400 V

I_a = Breaking current

I_e = Rated operational current

3RT12 vacuum contactors · Sizes S10 and S12

Operating cycles at

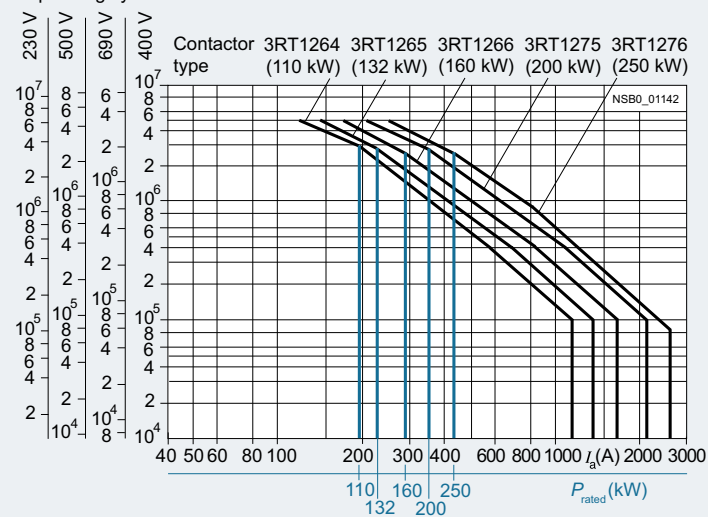


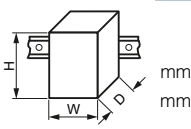
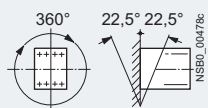
Diagram legend:

P_{rated} = Rated power for squirrel-cage motors at 400 V

I_a = Breaking current

I_e = Rated operational current

SIRIUS 3RT10 contactors,
3-pole, 15 ... 250 kW

Type		3RT1034	3RT1035	3RT1036	3RT1044	3RT1045	3RT1046
Size		S2			S3		
Dimensions (W x H x D), AC operation		55 x 112 x 110			70 x 146 x 134		
• With mounted auxiliary switch block		55 x 112 x 159			70 x 146 x 183		
Dimensions (W x H x D), DC operation		55 x 112 x 125			70 x 146 x 147		
• With mounted auxiliary switch block		55 x 112 x 174			70 x 146 x 196		
General data							
Permissible mounting position							
The contactors are designed for operation on a vertical mounting surface.							
For DC operation and up to 22.5° inclination in front, the coil operating range is reduced to 0.85 ... 1.1 x U _s .							
Upright mounting position		 NSB0_00477a Special version required.					
Mechanical endurance							
• Basic units	Operating cycles	10 million					
• Basic units with snap-on auxiliary switch block	Operating cycles	10 million					
• Solid-state compatible auxiliary switch blocks	Operating cycles	5 million					
Electrical endurance		1)					
Rated insulation voltage U_i (pollution degree 3)	V	690				1 000	
Rated impulse withstand voltage U_{imp}	kV	6				6	
Protective separation between the coil and the main contacts acc. to IEC 60947-1, Appendix N	V	400				690	
Mirror contacts							
A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact.							
• With removable auxiliary switch block		Yes, acc. to IEC 60947-4-1, Appendix F					
• With non-removable auxiliary switch block		Acc. to Swiss regulations (SUVA) on request					
Permissible ambient temperature							
• During operation	°C	-25 ... +60					
• During storage	°C	-55 ... +80					
Degree of protection acc. to IEC 60947-1, Appendix C		IP20					
• Connection range		IP00/open (where applicable, use additional terminal covers)					
Touch protection acc. to EN 50274		Finger-safe only for vertical contact from the front					
Shock resistance (AC and DC operation)							
• Rectangular pulse	g/ms	10/5 and 5/10				6.8/5 and 4/10	
• Sine pulse	g/ms	15/5 and 8/10				10.6/5 and 6.2/10	
Conductor cross-sections		2)					
Short-circuit protection for contactors without overload relays							
Main circuit							
Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1/EN 60947-4-1							
• Type of coordination "1"	A	125	125	160	250	250	
• Type of coordination "2"	A	63	63	80	125	160	
• Weld-free ³⁾	A	16	16	50	63	100	
Auxiliary circuit							
Short-circuit test							
• with fuse links of operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current I _k = 1 kA acc. to IEC 60947-5-1	A	10					
• with miniature circuit breakers with C characteristic with short-circuit current I _k = 400 A	A	10					
Short-circuit protection for contactors with overload relays		See Configuration Manual "Configuring SIRIUS" ⁴⁾					
Short-circuit protection for fuseless load feeders		See Chapter 8 "Load Feeders and Motor Starters for Use in the Control Cabinet" → "SIRIUS 3RA1 Load Feeders"					

1) For contact endurance of the main contacts see page 3/69.

2) For conductor cross-sections, see page 3/75.

3) Test conditions according to IEC 60947-4-1.

4) See <http://support.automation.siemens.com/WW/view/en/40625241>

Power Contactors for Switching Motors

SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW

Type Size		3RT1034 S2	3RT1035 S2	3RT1036 S2	3RT1044 S3	3RT1045 S3	3RT1046 S3
Control							
Solenoid coil operating range	AC/DC ¹⁾	0.8 ... 1.1 x U_s					
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)							
• AC operation, 50 Hz, standard version							
- Closing	VA	104	145		218	270	
- P.f.		0.78	0.79		0.61	0.68	
- Closed	VA	9.7	12.5		21	22	
- P.f.		0.42	0.36		0.26	0.27	
• AC operation, 50/60 Hz, standard version							
- Closing	VA	127/113	170/155		247/211	298/274	
- P.f.		0.73/0.69	0.76/0.72		0.62/0.57	0.7/0.62	
- Closed	VA	11.3/9.5	15/11.8		25/18	27/20	
- P.f.		0.41/0.42	0.35/0.38		0.27/0.3	0.29/0.31	
• AC operation, 50 Hz, for USA/Canada							
- Closing	VA	108	150		218	270	
- P.f.		0.76	0.77		0.61	0.68	
- Closed	VA	9.6	12.5		21	22	
- P.f.		0.42	0.35		0.26	0.27	
• AC operation, 60 Hz, for USA/Canada							
- Closing	VA	120	166		232	300	
- P.f.		0.7	0.71		0.55	0.52	
- Closed	VA	10.1	12.6		20	21	
- P.f.		0.42	0.37		0.28	0.29	
• DC operation							
- Closing = Closed	W	13.3	13.3		15	15	
Permissible residual current of the electronics (with 0 signal)							
• AC operation	mA	<12 mA x (230 V/ U_s)	<18 mA x (230 V/ U_s)		<25 mA x (230 V/ U_s)		
• DC operation	mA	<38 mA x (24 V/ U_s)	<38 mA x (24 V/ U_s)		<43 mA x (24 V/ U_s)		
Operating times for 0.8 ... 1.1 x U_s²⁾ (Total break time = Opening delay + Arcing time)							
• AC operation							
- Closing delay	ms	11 ... 30	10 ... 24		16 ... 57	17 ... 90	
- Opening delay	ms	7 ... 10	7 ... 10		10 ... 19	10 ... 25	
• DC operation							
- Closing delay	ms	50 ... 95	60 ... 100		90 ... 230	90 ... 230	
- Opening delay	ms	20 ... 30	20 ... 25		14 ... 20	14 ... 20	
• Arcing time	ms	10	10		10 ... 15	10 ... 15	
Operating times for 1.0 x U_s²⁾							
• AC operation							
- Closing delay	ms	13 ... 22	12 ... 20		18 ... 34	18 ... 30	
- Opening delay	ms	7 ... 10	7 ... 10		11 ... 18	11 ... 23	
• DC operation							
- Closing delay	ms	60 ... 75	70 ... 85		100 ... 120	100 ... 120	
- Opening delay	ms	20 ... 30	20 ... 25		16 ... 20	16 ... 20	

¹⁾ For DC operation and up to 22.5° inclination in front, the coil operating range is reduced to 0.85 ... 1.1 x U_s (see also permissible mounting position, page 3/71).

²⁾ The OFF-delay of the NO contact and the ON-delay of the NC contact are increased if the contactor coils are attenuated against voltage peaks (varistor +2 ms to 5 ms, diode assembly: 2 to 6 times).

Type Size		3RT1034 S2	3RT1035 S2	3RT1036 S2	3RT1044 S3	3RT1045 S3	3RT1046 S3
Main circuit							
Load rating with AC							
Utilization category AC-1							
Switching resistive loads							
• Rated operational currents I_e							
- At 40 °C up to 690 V	A	50	60	60	100	120	120
- At 40 °C up to 1 000 V	A	--	--	--	50	60	70
- At 60 °C up to 690 V	A	45	55	55	90	100	100
- At 60 °C up to 1 000 V	A	--	--	--	40	50	60
• Rated power for AC loads ¹⁾ with p.f. = 0.95 (at 60 °C)							
- At 230 V	kW	18	22	22	34	38	38
- At 400 V	kW	31	38	38	59	66	66
- At 500 V	kW	39	46	46	74	82	82
- At 690 V	kW	54	66	66	102	114	114
- At 1 000 V	kW	--	--	--	66	82	98
• Minimum conductor cross-section for loads with I_e							
- At 40 °C	mm ²	16	16	16	35	50	50
- At 60 °C	mm ²	10	16	16	35	35	35
Utilization categories AC-2 and AC-3							
• Rated operational currents I_e							
- Up to 500 V	A	32	40	50	65	80	95
- At 690 V	A	20	24	24	47	58	58
- At 1 000 V	A	--	--	--	25	30	30
• Rated power for slipring or squirrel-cage motors at 50 and 60 Hz							
- At 230 V	kW	7.5	11	15	18.5	22	22
- At 400 V	kW	15	18.5	22	30	37	45
- At 500 V	kW	18.5	22	30	37	45	55
- At 690 V	kW	18.5	22	22	45	55	55
- At 1 000 V	kW	--	--	--	30	37	37
Thermal load capacity, 10 s current²⁾	A	320	400	400	600	760	760
Power loss per conducting path at I_e/AC-3	W	1.8	2.6	5	4.6	7.7	10.8
Utilization category AC-4 (for $I_a = 6 \times I_e$)							
• Rated operational current I_e , maximum							
- Up to 400 V	A	29	35	41	55	66	80
• Rated power for squirrel-cage motors with 50 Hz and 60 Hz							
- At 400 V	kW	15	18.5	22	30	37	45
The following applies to a contact endurance of about 200 000 operating cycles:							
• Rated operational currents I_e							
- Up to 400 V	A	15.6	18.5	24	28	34	42
- Up to 690 V	A	15.6	18.5	24	28	34	42
- Up to 1 000 V	A	--	--	--	20	23	23
• Rated power for squirrel-cage motors with 50 Hz and 60 Hz							
- At 230 V	kW	4.7	5.4	7.3	8.7	10.4	12
- At 400 V	kW	8.2	9.5	12.6	15.1	17.9	22
- At 500 V	kW	9.8	11.8	15.8	18.4	22.4	27
- At 690 V	kW	13	15.5	21.8	25.4	30.9	38
- At 1 000 V	kW	--	--	--	22	30	30

¹⁾ Industrial furnaces and electric heaters with resistance heating, etc.
(increased power consumption on heating up has been taken into account).

²⁾ According to IEC 60947-4-1.
Rated values for various start-up conditions see Chapter 7, "Protection
Equipment" → "Overload Relays".

Power Contactors for Switching Motors

SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW

Type Size		3RT1034 S2	3RT1035 S2	3RT1036 S2	3RT1044 S3	3RT1045 S3	3RT1046 S3
Main circuit							
Load rating with DC							
Utilization category DC-1, switching resistive loads ($L/R \leq 1$ ms)							
• Rated operational currents I_e (at 60 °C)							
- 1 conducting path	Up to 24 V A	45	55	55	90	100	100
	60 V A	20	23	23	23	60	60
	110 V A	4.5	4.5	4.5	4.5	9	9
	220 V A	2	2	2	1	2	2
	440 V A	0.4	0.4	0.4	0.4	0.6	0.6
	600 V A	0.25	0.25	0.25	0.26	0.4	0.4
- 2 conducting paths in series	Up to 24 V A	45	55	55	90	100	100
	60 V A	45	45	45	90	100	100
	110 V A	45	45	45	90	100	100
	220 V A	5	5	5	5	10	10
	440 V A	1	1	1	1	1.8	1.8
	600 V A	0.8	0.8	0.8	0.8	1	1
- 3 conducting paths in series	Up to 24 V A	45	55	55	90	100	100
	60 V A	45	55	55	90	100	100
	110 V A	45	55	55	90	100	100
	220 V A	45	45	45	70	80	80
	440 V A	2.9	2.9	2.9	2.9	1.8	4.5
	600 V A	1.4	1.4	1.4	1.4	1	2.6
Utilization category DC-3/DC-5, shunt-wound and series-wound motors ($L/R \leq 15$ ms)							
• Rated operational currents I_e (at 60 °C)							
- 1 conducting path	Up to 24 V A	35	35	35	40	40	40
	60 V A	6	6	6	6	6.5	6.5
	110 V A	2.5	2.5	2.5	2.5	2.5	2.5
	220 V A	2	2	2	1	1	1
	440 V A	0.1	0.1	0.1	0.15	0.15	0.15
	600 V A	0.06	0.06	0.06	0.06	0.06	0.06
- 2 conducting paths in series	Up to 24 V A	45	55	55	90	100	100
	60 V A	45	45	45	90	100	100
	110 V A	25	25	25	90	100	100
	220 V A	5	5	5	7	7	7
	440 V A	0.27	0.27	0.27	0.42	0.42	0.42
	600 V A	0.16	0.16	0.16	0.16	0.16	0.16
- 3 conducting paths in series	Up to 24 V A	45	55	55	90	100	100
	60 V A	45	55	55	90	100	100
	110 V A	45	55	55	90	100	100
	220 V A	25	25	25	35	35	35
	440 V A	0.6	0.6	0.6	0.8	0.8	0.8
	600 V A	0.6	0.6	0.6	0.35	0.35	0.35
Switching frequency							
Switching frequency z in operating cycles/hour							
Contactors without overload relays							
• No-load switching frequency AC	h ⁻¹	5 000			5 000		
• No-load switching frequency DC	h ⁻¹	1 500			1 000		
• Switching frequency z during rated operation ¹⁾							
- $I_e/AC-1$	At 400 V h ⁻¹	1 200	1 200	1 000	1 000	900	900
- $I_e/AC-2$	At 400 V h ⁻¹	750	600	400	400	400	350
- $I_e/AC-3$	At 400 V h ⁻¹	1 000	1 000	800	1 000	1000	850
- $I_e/AC-4$	At 400 V h ⁻¹	250	300	300	300	300	250
Contactors with overload relays							
• Mean value	h ⁻¹	15					

¹⁾ Dependence of the switching frequency z' on the operational current I' and operational voltage U' :
 $z' = z \cdot (I_e/I') \cdot (400 V/U')^{1.5} \cdot 1/h$

SIRIUS 3RT10 contactors,
3-pole, 15 ... 250 kW

Type Size			3RT103. S2	3RT104. S3
Conductor cross-sections				
Main conductors (1 or 2 conductors can be connected)			Screw terminals	
Box terminals				
	- Terminal screws - Tightening torque	Nm lb.in	3 ... 4.5 27 ... 40	4 ... 6 36 ... 53
Front clamping point connected				
 NSBQ_00479	Finely stranded with end sleeve	mm ²	0.75 ... 25	2.5 ... 35
	Finely stranded without end sleeve	mm ²	0.75 ... 25	10 ... 50
	Stranded	mm ²	0.75 ... 35	10 ... 70
	Solid	mm ²	0.75 ... 16	2.5 ... 16
	AWG cables, solid or stranded	AWG	18 ... 2	10 ... 2/0
	Ribbon cable conductors (Number x Width x Thickness)	mm	6 x 9 x 0.8	6 x 9 x 0.8
Rear clamping point connected				
 NSBQ_00480	Finely stranded with end sleeve	mm ²	0.75 ... 25	2.5 ... 50
	Finely stranded without end sleeve	mm ²	0.75 ... 25	10 ... 50
	Stranded	mm ²	0.75 ... 35	10 ... 70
	Solid	mm ²	0.75 ... 16	2.5 ... 16
	AWG cables, solid or stranded	AWG	18 ... 2	10 ... 2/0
	Ribbon cable conductors (Number x Width x Thickness)	mm	6 x 9 x 0.8	6 x 9 x 0.8
Both clamping points connected				
 NSBQ_00481	Finely stranded with end sleeve	mm ²	2 x (0.75 ... 16)	2 x (2.5 ... 35)
	Finely stranded without end sleeve	mm ²	2 x (0.75 ... 16)	2 x (10 ... 35)
	Stranded	mm ²	2 x (0.75 ... 25)	2 x (10 ... 50)
	Solid	mm ²	2 x (0.75 ... 16)	2 x (2.5 ... 16)
	AWG cables, solid or stranded	AWG	2 x (18 ... 2)	2 x (10 ... 1/0)
	Ribbon cable conductors (Number x Width x Thickness)	mm	2 x (6 x 9 x 0.8)	2 x (6 x 9 x 0.8)
Busbar connection (bored copper bars) ¹⁾				
	Connecting bar (max. width)	mm	--	10
Cable lug connection (without box terminals) ²⁾				
	Finely stranded with cable lug	mm ²	--	10 ... 50 ³⁾
	Stranded with cable lug	mm ²	--	10 ... 70 ³⁾
	AWG cables, solid or stranded	AWG	--	7 ... 1/0
	Terminal screws		--	M6
Auxiliary conductors				
	Solid	mm ²	2 x (0.5 ... 1.5) ⁴⁾ ; 2 x (0.75 ... 2.5) ⁴⁾ ; max. 2 x (0.75 ... 4)	
	Finely stranded with end sleeve	mm ²	2 x (0.5 ... 1.5) ⁴⁾ ; 2 x (0.75 ... 2.5) ⁴⁾	
	AWG cables, solid or stranded	AWG	2 x (20 ... 16) ⁴⁾ ; 2 x (18 ... 14) ⁴⁾ ; 1 x 12	
	Terminal screws		M3	
	- Tightening torque	Nm lb.in	0.8 ... 1.2 7 ... 10.3	
Auxiliary conductors ⁵⁾			Spring-type terminals	
	Operating devices⁶⁾		3.0 x 0.5; 3.5 x 0.5	
	Solid	mm ²	2 x (0.25 ... 2.5)	
	Finely stranded with end sleeve	mm ²	2 x (0.25 ... 1.5)	
	Finely stranded without end sleeve	mm ²	2 x (0.25 ... 2.5)	
	AWG cables, solid or stranded	AWG	2 x (24 ... 14)	

¹⁾ If bars larger than 12 mm x 10 mm are connected, a 3RT19 46-4EA1 terminal cover is needed to comply with the phase clearance.

²⁾ When connecting conductors which are larger than 25 mm², the 3RT19 46-4EA1 terminal cover must be used to keep the phase clearance.

³⁾ Only with crimped cable lugs according to DIN 46234, max. 20 mm wide.

⁴⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

⁵⁾ Max. external diameter of the cable insulation: 3.6 mm.
An "insulation stop" must be used for conductor cross-sections ≤ 1 mm²; see "Accessories" on page 3/111.

⁶⁾ Tool for opening the spring-type terminals, see Accessories, page 3/111.

Power Contactors for Switching Motors

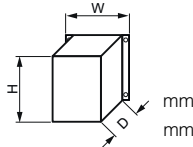
SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW

Type

Size

Dimensions (W x H x D)

- With mounted auxiliary switch block

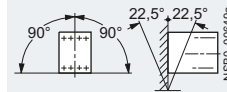


3RT1054	3RT1055, 3RT1056	3RT1064, 3RT1065, 3RT1066	3RT1075	3RT1076
S6		S10	S12	
120 x 172 x 170		145 x 210 x 202	160 x 214 x 225	
120 x 172 x 217		145 x 210 x 251	160 x 214 x 271	

General data

Permissible mounting position

The contactors are designed for operation on a vertical mounting surface.



Mechanical endurance	Operating cycles	10 million
Electrical endurance		1)
Rated insulation voltage U_i (pollution degree 3)	V	1 000
Rated impulse withstand voltage U_{imp}	kV	8
Protective separation between the coil and the main contacts acc. to IEC 60947-1, Appendix N	V	690
Mirror contacts A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact.		Yes, acc. to IEC 60947-4-1, Appendix F
Permissible ambient temperature		
• During operation	°C	-25 ... +60
• During operation, with AS-Interface interface	°C	-25 ... +55
• During storage	°C	-55 ... +80
Degree of protection acc. to IEC 60947-1, Appendix C		IP00/open (where applicable, use additional terminal covers)
Touch protection acc. to EN 50274		Finger-safe only for vertical contact from the front
Shock resistance		
• Rectangular pulse	g/ms	8.5/5 and 4.2/10
• Sine pulse	g/ms	13.4/5 and 6.5/10
Conductor cross-sections		2)
Electromagnetic compatibility (EMC)		3)
Short-circuit protection		
Main circuit		
Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1/EN 60947-4-1		
• Type of coordination "1"	A	355 355 500 630 630
• Type of coordination "2"	A	315 315 400 500 500
• Weld-free ⁴⁾	A	80 160 250 250 315
Auxiliary circuit		
Short-circuit test		
• with fuse links of operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current $I_k = 1$ kA acc. to IEC 60947-5-1	A	10
• with miniature circuit breakers with C characteristic with short-circuit current $I_k = 400$ A	A	10
Short-circuit protection for contactors with overload relays		
See Configuration Manual "Configuring SIRIUS" ⁵⁾		

1) For contact endurance of the main contacts see page 3/70.

2) For conductor cross-sections, see page 3/80.

3) For electromagnetic compatibility (EMC) see page 3/66.

4) Test conditions according to IEC 60947-4-1.

5) See <http://support.automation.siemens.com/WW/view/en/40625241>

Power Contactors for Switching Motors

SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW

Type Size		3RT105. S6	3RT106. S10	3RT107. S12
Control				
Operating range of the solenoid AC/DC (UC)		0.8 × U _{s min} ... 1.1 × U _{s max}		
Power consumption of the solenoid operation (when coil is cold and rated range U _{s min} ... U _{s max})				
Conventional operating mechanisms				
• AC operation				
- Closing at U _{s min}	VA/p.f.	250/0.9	490/0.9	700/0.9
- Closing at U _{s max}	VA/p.f.	300/0.9	590/0.9	830/0.9
- Closed at U _{s min}	VA/p.f.	4.8/0.8	5.6/0.9	7.6/0.9
- Closed at U _{s max}	VA/p.f.	5.8/0.8	6.7/0.9	9.2/0.9
• DC operation				
- Closing at U _{s min}	W	300	540	770
- Closing at U _{s max}	W	360	650	920
- Closed at U _{s min}	W	4.3	6.1	8.5
- Closed at U _{s max}	W	5.2	7.4	10
Solid-state operating mechanism				
• AC operation				
- Closing at U _{s min}	VA/p.f.	190/0.8	400/0.8	560/0.8
- Closing at U _{s max}	VA/p.f.	280/0.8	530/0.8	750/0.8
- Closed at U _{s min}	VA/p.f.	3.5/0.5	4/0.5	5.4/0.8
- Closed at U _{s max}	VA/p.f.	4.4/0.4	5/0.4	7/0.8
• DC operation				
- Closing at U _{s min}	W	250	440	600
- Closing at U _{s max}	W	320	580	800
- Closed at U _{s min}	W	2.3	3.2	4
- Closed at U _{s max}	W	2.8	3.8	5
PLC control input acc. to IEC 61131-2		Type 2		
• Rated voltage	V DC	24		
• Operating range	V DC	17 ... 30		
• Power consumption	mA	≤ 30		
Operating times (Total break time = Opening delay + Arcing time)				
Conventional operating mechanisms				
• For 0.8 × U _{s min} ... 1.1 × U _{s max}				
- Closing delay	ms	20 ... 95	30 ... 95	45 ... 100
- Opening delay	ms	40 ... 60	40 ... 80	60 ... 100
• For U _{s min} ... U _{s max}				
- Closing delay	ms	25 ... 50	35 ... 50	50 ... 70
- Opening delay	ms	40 ... 60	50 ... 80	70 ... 100
Solid-state operating mechanism, actuated via A1/A2				
• For 0.8 × U _{s min} ... 1.1 × U _{s max}				
- Closing delay	ms	95 ... 135	105 ... 145	120 ... 150
- Opening delay	ms	80 ... 90	80 ... 100	80 ... 100
• For U _{s min} ... U _{s max}				
- Closing delay	ms	100 ... 120	110 ... 130	125 ... 150
- Opening delay	ms	80 ... 90	80 ... 100	80 ... 100
Solid-state operating mechanism, actuated via PLC input				
• For 0.8 × U _{s min} ... 1.1 × U _{s max}				
- Closing delay	ms	35 ... 75	45 ... 80	60 ... 90
- Opening delay	ms	80 ... 90	80 ... 100	80 ... 100
• For U _{s min} ... U _{s max}				
- Closing delay	ms	40 ... 60	50 ... 65	65 ... 80
- Opening delay	ms	80 ... 90	80 ... 100	80 ... 100
• Arcing time	ms	10 ... 15	10 ... 15	10 ... 15

Power Contactors for Switching Motors

SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW

Type Size		3RT1054 S6	3RT1055 S6	3RT1056 S6	3RT1064 S10	3RT1065 S10	3RT1066 S10	3RT1075 S12	3RT1076 S12
Main circuit									
Load rating with AC									
Utilization category AC-1									
Switching resistive loads									
• Rated operational currents I_e									
- At 40 °C up to 690 V	A	160	185	215	275	330		430	610
- At 60 °C up to 690 V	A	140	160	185	250	300		400	550
- At 60 °C up to 1 000 V	A	80	90	100	100	150		200	200
• Rated power for AC loads ¹⁾ with p.f. = 0.95 (at 60 °C)									
- At 230 V	kW	53	60	70	94	113		151	208
- At 400 V	kW	92	105	121	164	197		263	362
- At 500 V	kW	115	131	152	205	246		329	452
- At 690 V	kW	159	181	210	283	340		454	624
- At 1 000 V	kW	131	148	165	164	246		329	329
• Minimum conductor cross-section for loads with I_e									
- At 40 °C	mm ²	70	95	95	150	185		2 x 150	2 x 185
- At 60 °C	mm ²	50	70	95	120	185		240	2 x 185
Utilization categories AC-2 and AC-3									
• Rated operational currents I_e									
- Up to 500 V	A	115	150	185	225	265	300	400	500
- At 690 V	A	115	150	170	225	265	280	400	450
- At 1 000 V	A	53	65	65	68	95	95	180	180
• Rated power for slipring or squirrel-cage motors at 50 and 60 Hz									
- At 230 V	kW	37	50	61	73	85	97	132	164
- At 400 V	kW	64	84	104	128	151	171	231	291
- At 500 V	kW	81	105	132	160	189	215	291	363
- At 690 V	kW	113	146	167	223	265	280	400	453
- At 1 000 V	kW	75	90	90	90	132	132	250	250
Thermal load capacity, 10 s current²⁾	A	1 100	1 300	1 480	1 800	2 400	2 400	3 200	4 000
Power loss per main conducting path at I_e/AC-3/500 V	W	7	9	13	17	18	22	35	55
Utilization category AC-4 (for $I_a = 6 \times I_e$)									
• Rated operational current I_e , maximum									
- Up to 400 V	A	97	132	160	195	230	280	350	430
• Rated power for squirrel-cage motors with 50 Hz and 60 Hz									
- At 400 V	kW	55	75	90	110	132	160	200	250
The following applies to a contact endurance of about 200 000 operating cycles:									
• Rated operational currents I_e									
- Up to 500 V	A	54	68	81	96	117	125	150	175
- Up to 690 V	A	48	57	65	85	105	115	135	150
- Up to 1 000 V	A	34	38	42	42	57	57	80	80
• Rated power for squirrel-cage motors with 50 Hz and 60 Hz									
- At 230 V	kW	16	20	25	30	37	40	48	56
- At 400 V	kW	29	38	45	54	66	71	85	98
- At 500 V	kW	37	47	57	67	82	87	105	123
- At 690 V	kW	48	55	65	82	102	112	133	148
- At 1 000 V	kW	49	55	60	59	80	80	113	113

1) Industrial furnaces and electric heaters with resistance heating, etc.
(increased power consumption on heating up has been taken into account).

2) According to IEC 60947-4-1.
Rated values for various start-up conditions see Chapter 7, "Protection
Equipment" → "Overload Relays".

Power Contactors for Switching Motors

SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW

Type Size		3RT1054 S6	3RT1055 S6	3RT1056 S6	3RT1064 S10	3RT1065 S10	3RT1066 S10	3RT1075 S12	3RT1076 S12
Main circuit									
Load rating with DC									
Utilization category DC-1, switching resistive loads ($L/R \leq 1$ ms)									
• Rated operational currents I_e (at 60 °C)									
- 1 conducting path	Up to 24 V A	160			200	300		400	
	60 V A	160			200	300		330	
	110 V A	18			18	33		33	
	220 V A	3.4			3.4	3.8		3.8	
	440 V A	0.8			0.8	0.9		0.9	
	600 V A	0.5			0.5	0.6		0.6	
	Up to 24 V A	160			200	300		400	
	60 V A	160			200	300		400	
	110 V A	160			200	300		400	
	220 V A	20			20	300		400	
	440 V A	3.2			3.2	4		4	
	600 V A	1.6			1.6	2		2	
- 2 conducting paths in series	Up to 24 V A	160			200	300		400	
	60 V A	160			200	300		400	
	110 V A	160			200	300		400	
	220 V A	20			20	300		400	
	440 V A	3.2			3.2	4		4	
	600 V A	1.6			1.6	2		2	
- 3 conducting paths in series	Up to 24 V A	160			200	300		400	
	60 V A	160			200	300		400	
	110 V A	160			200	300		400	
	220 V A	160			200	300		400	
	440 V A	11.5			11.5	11		11	
	600 V A	4			4	5.2		5.2	
Utilization category DC-3/DC-5, shunt-wound and series-wound motors ($L/R \leq 15$ ms)									
• Rated operational currents I_e (at 60 °C)									
- 1 conducting path	Up to 24 V A	160			200	300		400	
	60 V A	7.5			7.5	11		11	
	110 V A	2.5			2.5	3		3	
	220 V A	0.6			0.6	0.6		0.6	
	440 V A	0.17			0.17	0.18		0.18	
	600 V A	0.12			0.12	0.125		0.125	
- 2 conducting paths in series	Up to 24 V A	160			200	300		400	
	60 V A	160			200	300		400	
	110 V A	160			200	300		400	
	220 V A	2.5			2.5	2.5		2.5	
	440 V A	0.65			0.65	0.65		0.65	
	600 V A	0.37			0.37	0.37		0.37	
- 3 conducting paths in series	Up to 24 V A	160			200	300		400	
	60 V A	160			200	300		400	
	110 V A	160			200	300		400	
	220 V A	160			200	300		400	
	440 V A	1.4			1.4	1.4		1.4	
	600 V A	0.75			0.75	0.75		0.75	
Switching frequency									
Switching frequency z in operating cycles/hour									
Contactors without overload relays									
• No-load switching frequency h^{-1}									
• Switching frequency z during rated operation ¹⁾									
- $I_e/AC-1$	At 400 V h^{-1}	800	800		750	800	750	700	500
	At 400 V h^{-1}	400	300		250	300	250	200	170
	At 400 V h^{-1}	1 000	750		500	700	500	500	420
	At 400 V h^{-1}	130	130		130	130	130	130	130
Contactors with overload relays									
• Mean value h^{-1}									
60									

¹⁾ Dependence of the switching frequency z' on the operational current I' and operational voltage U :
 $z' = z \cdot (I_e/I') \cdot (400 V/U)^{1.5} \cdot 1/h$

Power Contactors for Switching Motors

SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW

Type Size	3RT105. S6		3RT106. S10	3RT107. S12	
Conductor cross-sections					
Main conductors (1 or 2 conductors can be connected)		 Screw terminals			
With mounted box terminals		Type	3RT19 55-4G (55 kW)	3RT19 56-4G	3RT19 66-4G
• Terminal screws			M10 (hexagon socket, A/F 4)	M10 (hexagon socket, A/F 4)	M12 (hexagon socket, A/F 5)
- Tightening torque		Nm	10 ... 12	10 ... 12	20 ... 22
		lb.in	90 ... 110	90 ... 110	180 ... 195
Front clamping point connected					
	• Finely stranded with end sleeve	mm ²	16 ... 70	16... 120	70 ... 240
	• Finely stranded without end sleeve	mm ²	16 ... 70	16 ... 120	70 ... 240
	• Stranded	mm ²	16 ... 70	16 ... 120	95 ... 300
	• AWG cables, solid or stranded	AWG	6 ... 2/0	6 ... 250 kcmil	3/0 ... 600 kcmil
	• Ribbon cable conductors (Number x Width x Thickness)	mm	Min. 3 x 9 x 0,8, max. 6 x 15,5 x 0,8	Min. 3 x 9 x 0,8, max. 10 x 15,5 x 0,8	Min. 6 x 9 x 0,8, max. 20 x 24 x 0,5
Rear clamping point connected					
	• Finely stranded with end sleeve	mm ²	16 ... 70	16... 120	120 ... 185
	• Finely stranded without end sleeve	mm ²	16 ... 70	16 ... 120	120 ... 185
	• Stranded	mm ²	16 ... 70	16 ... 120	120 ... 240
	• AWG cables, solid or stranded	AWG	6 ... 2/0	6 ... 250 kcmil	250 ... 500 kcmil
	• Ribbon cable conductors (Number x Width x Thickness)	mm	Min. 3 x 9 x 0,8, max. 6 x 15,5 x 0,8	Min. 3 x 9 x 0,8, max. 10 x 15,5 x 0,8	Min. 6 x 9 x 0,8, max. 20 x 24 x 0,5
Both clamping points connected ¹⁾					
	• Finely stranded with end sleeve	mm ²	Max. 1 x 50, 1 x 70	Max. 1 x 95, 1 x 120	Min. 2 x 50, max. 2 x 185
	• Finely stranded without end sleeve	mm ²	Max. 1 x 50, 1 x 70	Max. 1 x 95, 1 x 120	Min. 2 x 50, max. 2 x 185
	• Stranded	mm ²	Max. 1 x 50, 1 x 70	Max. 1 x 95, 1 x 120	Min. 2 x 70, max. 2 x 240
	• AWG cables, solid or stranded	AWG	Max. 2 x 1/0	Max. 2 x 3/0	Min. 2 x 2/0, max. 2 x 500 kcmil
	• Ribbon cable conductors (Number x Width x Thickness)	mm	Max. 2 x (6 x 15,5 x 0,8)	Max. 2 x (10 x 15,5 x 0,8)	Max. 2 x (20 x 24 x 0,5)
Busbar connections					
• Connecting bar (max. width)		mm	17	25	
Cable lug connection (without box terminals)					
• Finely stranded with cable lug ²⁾³⁾		mm ²	16 ... 95	50 ... 240	
• Stranded with cable lug ²⁾³⁾		mm ²	25 ... 120	70 ... 240	
• AWG cables, solid or stranded		AWG	4 ... 250 kcmil	2/0 ... 500 kcmil	
• Terminal screws			M8 x 25 (A/F 13)	M10 x 30 (A/F 17)	
- Tightening torque		Nm	10 ... 14	14 ... 24	
		lb.in	90 ... 124	124 ... 210	
Auxiliary conductors					
• Solid		mm ²	2 x (0,5 ... 1,5) ⁴⁾ ; 2 x (0,75 ... 2,5) ⁴⁾ ; max. 2 x (0,75 ... 4)		
• Finely stranded with end sleeve		mm ²	2 x (0,5 ... 1,5) ⁴⁾ ; 2 x (0,75 ... 2,5) ⁴⁾		
• AWG cables, solid or stranded		AWG	2 x (18 ... 14)		
• Terminal screws			M3 (Pozidriv size 2)		
- Tightening torque		Nm	0,8 ... 1,2		
		lb.in	7 ... 10,3		
Auxiliary conductors ⁵⁾			 Spring-type terminals		
• Operating devices ⁶⁾			3,0 x 0,5; 3,5 x 0,5		
• Solid		mm ²	2 x (0,25 ... 2,5)		
• Finely stranded with end sleeve		mm ²	2 x (0,25 ... 1,5)		
• Finely stranded without end sleeve		mm ²	2 x (0,25 ... 2,5)		
• AWG cables, solid or stranded		AWG	2 x (24 ... 14)		

¹⁾ Minimum cross-section 16 mm².

²⁾ 3RT105.: When connecting cable lugs to DIN 46235, use 3RT1956-4EA1 terminal cover for conductor cross-sections of 95 mm² and more to ensure phase spacing.

³⁾ 3RT106. and 3RT107.: When connecting cable lugs to DIN 46234, the 3RT1966-4EA1 terminal cover must be used for conductor cross-sections of 240 mm² and more as well as DIN 46235 for conductor cross-sections of 185 mm² and more to keep the phase clearance.

⁴⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

⁵⁾ Max. external diameter of the cable insulation: 3.6 mm.
An "insulation stop" must be used for conductor cross-sections ≤ 1 mm²; see "Accessories" on page 3/111.

⁶⁾ Tool for opening the spring-type terminals, see Accessories, page 3/111.

Power Contactors for Switching Motors

SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW

Type Size		3RT1034 S2	3RT1035 S2	3RT1036 S2	3RT1044 S3	3RT1045 S3	3RT1046 S3
Ⓢ and Ⓤ rated data							
Rated insulation voltage	V AC	600			600		
Uninterrupted current, at 40 °C, open and enclosed	A	45	55	50	90	105	105
Maximum horsepower ratings (from Ⓢ and Ⓤ approved values)							
• Rated power for three-phase motors at 60 Hz							
- At 200 V	hp	10	10	15	20	25	30
- At 230 V	hp	10	15	15	25	30	30
- At 460 V	hp	25	30	40	50	60	75
- At 575 V	hp	30	40	50	60	75	100
Short-circuit protection ¹⁾							
• At 600 V (contactor or overload relay)	kA	5	5	5	10	10	10
• CLASS RK5 fuse	A	125	150	200	250	300	350
• Circuit breakers with overload protection acc. to UL 489	A	125	150	200	250	300	400
• Combination motor controllers type E according to UL 508							
- At 480 V	Type	3RV103			3RV104		
	A	32	40	50	63	75	100
	kA	65	65	65	65	65	65
- At 600 V	Type	3RV104			3RV104		
	A	32	40	50	63	75	75
	kA	25	25	25	30	30	30
NEMA/EEMAC ratings							
NEMA/EEMAC size	hp	--			2		--
• Uninterrupted current							
- Open	A	--			45		--
- Enclosed	A	--			45		--
• Rated power for three-phase motors at 60 Hz							
- At 200 V	hp	--			10		--
- At 230 V	hp	--			15		--
- At 460 V	hp	--			25		--
- At 575 V	hp	--			25		--
Overload relays	Type	3RU113			3RU114		
• Setting range	A	5.5 ... 50			18 ... 100		

¹⁾ For more information about short-circuit values, e.g. for protection against short-circuit currents, see the [UL reports on the individual devices](http://www.siemens.com/sirius/manuals), www.siemens.com/sirius/manuals.

For the dimensioning of load feeders, see also the [UL guide "Industrial Control Panels for North America"](#), www.siemens.com/sirius/ul-download.

Size		S2 to S12 Screw terminals and spring-type terminals Snap-on auxiliary switch block (1- and 4-pole)	S2 to S12 Screw terminals and spring-type terminals Laterally mountable auxiliary switch block
Ⓢ and Ⓤ rated data of the auxiliary contacts			
Rated voltage	V AC	600	
Switching capacity		A 600, Q 600	
• Uninterrupted current at 240 V AC	A	10	

Power Contactors for Switching Motors

SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW

Type Size		3RT1054 S6	3RT1055 S6	3RT1056 S6	3RT1064 S10	3RT1065 S10	3RT1066 S10
Ⓔ and Ⓕ rated data							
Rated insulation voltage	V AC	600			600		
Uninterrupted current , at 40 °C, open and enclosed	A	140	195	195	250	330	330
Maximum horsepower ratings (from Ⓔ and Ⓕ approved values)							
• Rated power for three-phase motors at 60 Hz							
- At 200 V	hp	40	50	60	60	75	100
- At 230 V	hp	50	60	75	75	100	125
- At 460 V	hp	100	125	150	150	200	250
- At 575 V	hp	125	150	200	200	250	300
Short-circuit protection¹⁾							
• At 600 V	kA	10	10	10	10	18	18
• CLASS RK5/L fuse	A	450	500	500	700	800	800
• Circuit breakers with overload protection acc. to UL 489	A	350	450	500	500	700	800
NEMA/EEMAC ratings							
NEMA/EEMAC size	hp	--	4	--	--	--	5
• Uninterrupted current							
- Open	A	--	150	--	--	--	300
- Enclosed	A	--	135	--	--	--	270
• Rated power for three-phase motors at 60 Hz							
- At 200 V	hp	--	40	--	--	--	75
- At 230 V	hp	--	50	--	--	--	100
- At 460 V	hp	--	100	--	--	--	200
- At 575 V	hp	--	100	--	--	--	200
Overload relays	Type	3RB2056			3RB2066		

Type Size		3RT1075 S12	3RT1076 S12
Ⓔ and Ⓕ rated data			
Rated insulation voltage	V AC	600	
Uninterrupted current , at 40 °C, open and enclosed	A	400	540
Maximum horsepower ratings (from Ⓔ and Ⓕ approved values)			
• Rated power for three-phase motors at 60 Hz			
- At 200 V	hp	125	150
- At 230 V	hp	150	200
- At 460 V	hp	300	400
- At 575 V	hp	400	500
Short-circuit protection¹⁾			
• At 600 V	kA	18	30
• CLASS RK5/L fuse	A	1000	1200
• Circuit breakers with overload protection acc. to UL 489	A	900	900
NEMA/EEMAC ratings			
NEMA/EEMAC size	hp	--	6
• Uninterrupted current			
- Open	A	--	600
- Enclosed	A	--	540
• Rated power for three-phase motors at 60 Hz			
- At 200 V	hp	--	150
- At 230 V	hp	--	200
- At 460 V	hp	--	400
- At 575 V	hp	--	400
Overload relays	Type	3RB2066	

¹⁾ For more information about short-circuit values, e.g. for protection against short-circuit currents, see the UL reports on the individual devices, www.siemens.com/sirius/manuals.

For the dimensioning of load feeders, see also the UL guide "Industrial Control Panels for North America", www.siemens.com/sirius/ul-download.

Selection and ordering data

AC operation

PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B



3RT103.-1A.00



3RT103.-3A.00

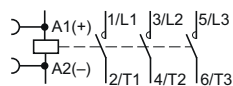


3RT103.-1A.04

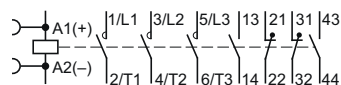
Rated data		Auxiliary contacts		Rated control supply voltage U_s at 50 Hz		DT Screw terminals		DT Spring-type terminals for coil terminals	
AC-2 and AC-3, T_U : Up to 60 °C	AC-1, T_U : 40 °C	Ident. No.	Version			Article No.	Price per PU	Article No.	Price per PU
Operational current I_e up to 500 V	Rating ¹⁾ of three-phase motors at 50 Hz and 400 V								
A	kW	A	NO	NC	V AC				

For screw and snap-on mounting onto TH 35 standard mounting rail

Size S2

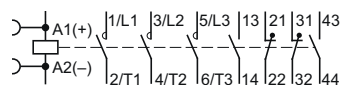


32	15	50	--	--	--	24 110 230	▶ 3RT1034-1AB00 ▶ 3RT1034-1AF00 ▶ 3RT1034-1AP00	B B ▶	3RT1034-3AB00 3RT1034-3AF00 3RT1034-3AP00
40	18.5	60	--	--	--	24 110 230	▶ 3RT1035-1AB00 ▶ 3RT1035-1AF00 ▶ 3RT1035-1AP00	B B ▶	3RT1035-3AB00 3RT1035-3AF00 3RT1035-3AP00
50	22	60	--	--	--	24 110 230	▶ 3RT1036-1AB00 ▶ 3RT1036-1AF00 ▶ 3RT1036-1AP00	B B ▶	3RT1036-3AB00 3RT1036-3AF00 3RT1036-3AP00

With mounted auxiliary switch block (removable)²⁾

32	15	50	22	2	2	24 110 230	▶ 3RT1034-1AB04 ▶ 3RT1034-1AF04 ▶ 3RT1034-1AP04	-- -- --
40	18.5	60	22	2	2	24 110 230	▶ 3RT1035-1AB04 ▶ 3RT1035-1AF04 ▶ 3RT1035-1AP04	-- -- --
50	22	60	22	2	2	24 110 230	▶ 3RT1036-1AB04 ▶ 3RT1036-1AF04 ▶ 3RT1036-1AP04	-- -- --

With permanently mounted auxiliary switch block for safety applications according to SUVA



32	15	50	22	2	2	230	B 3RT1034-1AP04-3MA0	--
40	18.5	60	22	2	2	230	B 3RT1035-1AP04-3MA0	--
50	22	60	22	2	2	230	B 3RT1036-1AP04-3MA0	--

Other voltages according to page 3/90 on request.

For accessories see page 3/103.

For spare parts see page 3/112.

For multi-unit packing and reusable packaging see Chapter 16, "Appendix" → "Ordering Notes".

¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

²⁾ Article No. for the auxiliary switch block (removable): 3RH1921-1HA22 (2 NO + 2 NC according to EN 50012; Ident. No. 22).

Power Contactors for Switching Motors

SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW

AC operation

PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B



3RT104.-1A.00



3RT104.-3A.00

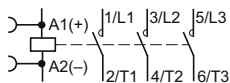


3RT104.-1A.04

Rated data			Auxiliary contacts		Rated control supply voltage	DT	Screw terminals		DT	Spring-type terminals for coil terminals	
AC-2 and AC-3, T_U : Up to 60 °C	Rating ¹⁾ of three-phase motors at 50 Hz and up to 500 V	AC-1, T_U : 40 °C Operational current I_e up to 690 V	Ident. No.	Version	U_s at 50 Hz		Article No.	Price per PU		Article No.	Price per PU
A	400 V kW	A		NO NC	V AC						

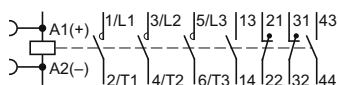
For screw and snap-on mounting onto
 TH 35 and TH 75 standard mounting rail

Size S3



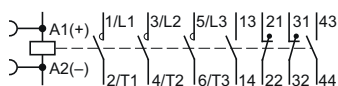
65	30	100	--	--	--	24 110 230	▶ 3RT1044-1AB00 ▶ 3RT1044-1AF00 ▶ 3RT1044-1AP00	B B ▶	3RT1044-3AB00 3RT1044-3AF00 3RT1044-3AP00
80	37	120	--	--	--	24 110 230	▶ 3RT1045-1AB00 ▶ 3RT1045-1AF00 ▶ 3RT1045-1AP00	B B ▶	3RT1045-3AB00 3RT1045-3AF00 3RT1045-3AP00
95	45	120	--	--	--	24 110 230	▶ 3RT1046-1AB00 ▶ 3RT1046-1AF00 ▶ 3RT1046-1AP00	B B ▶	3RT1046-3AB00 3RT1046-3AF00 3RT1046-3AP00

With mounted auxiliary switch block (removable)²⁾



65	30	100	22	2	2	24 110 230	▶ 3RT1044-1AB04 ▶ 3RT1044-1AF04 ▶ 3RT1044-1AP04	-- -- --
80	37	120	22	2	2	24 110 230	B ▶ 3RT1045-1AB04 ▶ 3RT1045-1AF04 ▶ 3RT1045-1AP04	-- -- --
95	45	120	22	2	2	24 110 230	B ▶ 3RT1046-1AB04 ▶ 3RT1046-1AF04 ▶ 3RT1046-1AP04	-- -- --

With permanently mounted auxiliary switch block for safety applications according to SUVA



65	30	100	22	2	2	230	▶ 3RT1044-1AP04-3MA0	--
80	37	120	22	2	2	230	B ▶ 3RT1045-1AP04-3MA0	--
95	45	120	22	2	2	230	▶ 3RT1046-1AP04-3MA0	--

Other voltages according to page 3/90 on request.

For accessories see page 3/103.

For spare parts see page 3/113.

¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

²⁾ Article No. for the auxiliary switch block (removable): 3RH1921-1HA22 (2 NO + 2 NC according to EN 50012; Ident. No. 22).

SIRIUS 3RT10 contactors,
3-pole, 15 ... 250 kW

DC operation

PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B



3RT103.-1B.40



3RT103.-3B.40

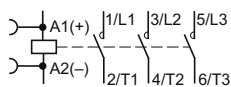


3RT103.-1B.44

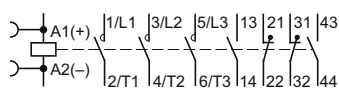
Rated data		Auxiliary contacts		DT	Screw terminals		DT	Spring-type terminals for coil terminals	
AC-2 and AC-3, T_U : Up to 60 °C	AC-1, T_U : 40 °C	Ident. No.	Version		Article No.	Price per PU		Article No.	Price per PU
Operational current I_e up to 500 V	Rating ¹⁾ of three-phase motors at 50 Hz and 400 V								
A	kW	A	NO NC	V DC					

For screw and snap-on mounting onto TH 35 standard mounting rail

Size S2

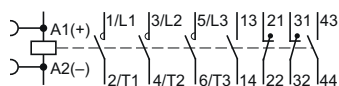


32	15	50	--	--	--	24 220	▶ 3RT1034-1BB40 B 3RT1034-1BM40	▶ 3RT1034-3BB40 B 3RT1034-3BM40
40	18.5	60	--	--	--	24 220	▶ 3RT1035-1BB40 B 3RT1035-1BM40	▶ 3RT1035-3BB40 B 3RT1035-3BM40
50	22	60	--	--	--	24 220	▶ 3RT1036-1BB40 B 3RT1036-1BM40	▶ 3RT1036-3BB40 B 3RT1036-3BM40

With mounted auxiliary switch block (removable)²⁾

32	15	50	22	2	2	24 220	▶ 3RT1034-1BB44 B 3RT1034-1BM44	--
40	18.5	60	22	2	2	24 220	▶ 3RT1035-1BB44 B 3RT1035-1BM44	--
50	22	60	22	2	2	24 220	▶ 3RT1036-1BB44 B 3RT1036-1BM44	--

With permanently mounted auxiliary switch block for safety applications according to SUVA



32	15	50	22	2	2	24	B 3RT1034-1BB44-3MA0	--
40	18.5	60	22	2	2	24	B 3RT1035-1BB44-3MA0	--
50	22	60	22	2	2	24	B 3RT1036-1BB44-3MA0	--

Other voltages according to page 3/90 on request.

For accessories see page 3/103.

For spare parts see page 3/113.

For multi-unit packing and reusable packaging see Chapter 16, "Appendix" → "Ordering Notes".

¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

²⁾ Article No. for the auxiliary switch block (removable): 3RH1921-1HA22 (2 NO + 2 NC according to EN 50012; Ident. No. 22).

Power Contactors for Switching Motors

SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW

DC operation

PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B



3RT104.-1B.40



3RT104.-3B.40



3RT104.-1B.44

Rated data

AC-2 and AC-3,
 T_U : Up to 60 °C

Operational
 current I_e
 up to
 500 V

Rating¹⁾ of
 three-phase
 motors at
 50 Hz and
 400 V

AC-1,
 T_U : 40 °C

Operational
 current I_e
 up to
 690 V

Auxiliary contacts

Ident. No.

Version



NO

NC

Rated control
 supply voltage
 U_s

V DC

DT

Screw terminals

DT

Spring-type terminals for coil terminals



Article No.

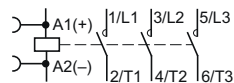
Price
 per PU

Article No.

Price
 per PU

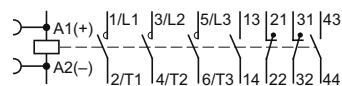
For screw and snap-on mounting onto
 TH 35 and TH 75 standard mounting rail

Size S3



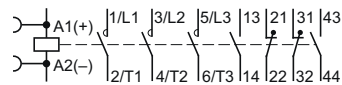
65	30	100	--	--	--	24 220	▶ 3RT1044-1BB40 B 3RT1044-1BM40	▶ 3RT1044-3BB40 B 3RT1044-3BM40
80	37	120	--	--	--	24 220	▶ 3RT1045-1BB40 B 3RT1045-1BM40	▶ 3RT1045-3BB40 B 3RT1045-3BM40
95	45	120	--	--	--	24 220	▶ 3RT1046-1BB40 B 3RT1046-1BM40	▶ 3RT1046-3BB40 B 3RT1046-3BM40

With mounted auxiliary switch block (removable)²⁾



65	30	100	22	2	2	24 220	▶ 3RT1044-1BB44 B 3RT1044-1BM44	--
80	37	120	22	2	2	24 220	▶ 3RT1045-1BB44 B 3RT1045-1BM44	--
95	45	120	22	2	2	24 220	▶ 3RT1046-1BB44 B 3RT1046-1BM44	--

With permanently mounted auxiliary switch block for safety applications according to SUVA



65	30	100	22	2	2	24	▶ 3RT1044-1BB44-3MA0	--
80	37	120	22	2	2	24	▶ 3RT1045-1BB44-3MA0	--
95	45	120	22	2	2	24	▶ 3RT1046-1BB44-3MA0	--

Other voltages [according to page 3/90](#) on request.

For accessories [see page 3/103](#).

For spare parts [see page 3/113](#).

¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

²⁾ Article No. for the auxiliary switch block (removable): 3RH1921-1HA22 (2 NO + 2 NC according to EN 50012; Ident. No. 22).

UC operating mechanism · AC/DC operation (50/60 Hz and DC)

- Withdrawable coils with integrated coil switch (varistor)
- Auxiliary and control conductors: Screw or spring-type terminals
- Main conductors: Busbar connections, for 3RT1054 (55 kW) box terminals¹⁾



3RT105.



3RT106.



3RT107.

Size	Rated data					Auxiliary contacts, lateral		Rated control supply voltage U_s	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	AC-2 and AC-3, T_U : Up to 60 °C					AC-1, T_U : 40 °C								
	Operational current I_e up to 500 V	Ratings ²⁾ of three-phase motors at 50 Hz and				Operational current I_e up to 690 V		Version						
		230 V	400 V	500 V	690 V									
	A	kW	kW	kW	kW	A	NO	NC	V AC/DC					

Conventional operating mechanisms

										Screw terminals				
S6	115	37	55	75	110	160	2	2	110 ... 127 220 ... 240	▶	3RT1054-1AF36 3RT1054-1AP36	1 1	1 unit 1 unit	41B 41B
	150	45	75	90	132	185	2	2	110 ... 127 220 ... 240	▶	3RT1055-6AF36 3RT1055-6AP36	1 1	1 unit 1 unit	41B 41B
	185	55	90	110	160	215	2	2	110 ... 127 220 ... 240	▶	3RT1056-6AF36 3RT1056-6AP36	1 1	1 unit 1 unit	41B 41B
S10	225	55	110	160	200	275	2	2	110 ... 127 220 ... 240	▶	3RT1064-6AF36 3RT1064-6AP36	1 1	1 unit 1 unit	41B 41B
	265	75	132	160	250	330	2	2	110 ... 127 220 ... 240	▶	3RT1065-6AF36 3RT1065-6AP36	1 1	1 unit 1 unit	41B 41B
	300	90	160	200	250	330	2	2	110 ... 127 220 ... 240	▶	3RT1066-6AF36 3RT1066-6AP36	1 1	1 unit 1 unit	41B 41B
S12	400	132	200	250	400	430	2	2	110 ... 127 220 ... 240	▶	3RT1075-6AF36 3RT1075-6AP36	1 1	1 unit 1 unit	41B 41B
	500	160	250	355	400	610	2	2	110 ... 127 220 ... 240	▶	3RT1076-6AF36 3RT1076-6AP36	1 1	1 unit 1 unit	41B 41B
										Spring-type terminals for coil and auxiliary switch terminals				
S6	115	37	55	75	110	160	2	2	110 ... 127 220 ... 240	B B	3RT1054-3AF36 3RT1054-3AP36	1 1	1 unit 1 unit	41B 41B
	150	45	75	90	132	185	2	2	110 ... 127 220 ... 240	B B	3RT1055-2AF36 3RT1055-2AP36	1 1	1 unit 1 unit	41B 41B
	185	55	90	110	160	215	2	2	110 ... 127 220 ... 240	B B	3RT1056-2AF36 3RT1056-2AP36	1 1	1 unit 1 unit	41B 41B
S10	225	55	110	160	200	275	2	2	110 ... 127 220 ... 240	B B	3RT1064-2AF36 3RT1064-2AP36	1 1	1 unit 1 unit	41B 41B
	265	75	132	160	250	330	2	2	110 ... 127 220 ... 240	B B	3RT1065-2AF36 3RT1065-2AP36	1 1	1 unit 1 unit	41B 41B
	300	90	160	200	250	330	2	2	110 ... 127 220 ... 240	B B	3RT1066-2AF36 3RT1066-2AP36	1 1	1 unit 1 unit	41B 41B
S12	400	132	200	250	400	430	2	2	110 ... 127 220 ... 240	B B	3RT1075-2AF36 3RT1075-2AP36	1 1	1 unit 1 unit	41B 41B
	500	160	250	355	400	610	2	2	110 ... 127 220 ... 240	B B	3RT1076-2AF36 3RT1076-2AP36	1 1	1 unit 1 unit	41B 41B

Other voltages according to page 3/90 on request.
For accessories see page 3/103.
For spare parts see page 3/114.

¹⁾ Alternatively the 3RT1054-1 contactor (55 kW) can be supplied with busbar connections instead of box terminals. Without additional price. In the 8th position of the Article No., the "1" must be replaced with "6" for screw terminals, e.g. 3RT1054-6A.36; for spring-type terminals, the "3" must be replaced by "2", e.g. 3RT1054-2A.36.

²⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

Power Contactors for Switching Motors

SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW

UC operating mechanism · AC/DC operation (50/60 Hz and DC)

- Withdrawable coils with integrated coil switch (varistor)
- Auxiliary and control conductors: Screw or spring-type terminals
- Main conductors: Busbar connections, for 3RT1054 (55 kW) box terminals¹⁾



3RT105.



3RT106.



3RT107.

Size	Rated data					Auxiliary contacts, lateral		Rated control supply voltage U_s	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	AC-2 and AC-3, T_U : Up to 60 °C					AC-1, T_U : 40 °C								
	Operational current I_e up to 500 V	Ratings ²⁾ of three-phase motors at 50 Hz and				Operational current I_e up to 690 V	Version							
	A	230 V	400 V	500 V	690 V	A	NO NC	V AC/DC						
		kW	kW	kW	kW									
Solid-state operating mechanisms · for 24 V DC PLC output														
										Screw terminals				
S6	115	37	55	75	110	160	2	2	96 ... 127 200 ... 277	A	3RT1054-1NF36 3RT1054-1NP36	1 1	1 unit 1 unit	41B 41B
	150	45	75	90	132	185	2	2	96 ... 127 200 ... 277	A	3RT1055-6NF36 3RT1055-6NP36	1 1	1 unit 1 unit	41B 41B
	185	55	90	110	160	215	2	2	96 ... 127 200 ... 277	A	3RT1056-6NF36 3RT1056-6NP36	1 1	1 unit 1 unit	41B 41B
S10	225	55	110	160	200	275	2	2	96 ... 127 200 ... 277	A	3RT1064-6NF36 3RT1064-6NP36	1 1	1 unit 1 unit	41B 41B
	265	75	132	160	250	330	2	2	96 ... 127 200 ... 277	A	3RT1065-6NF36 3RT1065-6NP36	1 1	1 unit 1 unit	41B 41B
	300	90	160	200	250	330	2	2	96 ... 127 200 ... 277	B	3RT1066-6NF36 3RT1066-6NP36	1 1	1 unit 1 unit	41B 41B
S12	400	132	200	250	400	430	2	2	96 ... 127 200 ... 277	A	3RT1075-6NF36 3RT1075-6NP36	1 1	1 unit 1 unit	41B 41B
	500	160	250	355	400	610	2	2	96 ... 127 200 ... 277	A	3RT1076-6NF36 3RT1076-6NP36	1 1	1 unit 1 unit	41B 41B
										Spring-type terminals for coil and auxiliary switch terminals				
S6	115	37	55	75	110	160	2	2	96 ... 127 200 ... 277	B	3RT1054-3NF36 3RT1054-3NP36	1 1	1 unit 1 unit	41B 41B
	150	45	75	90	132	185	2	2	96 ... 127 200 ... 277	B	3RT1055-2NF36 3RT1055-2NP36	1 1	1 unit 1 unit	41B 41B
	185	55	90	110	160	215	2	2	96 ... 127 200 ... 277	B	3RT1056-2NF36 3RT1056-2NP36	1 1	1 unit 1 unit	41B 41B
S10	225	55	110	160	200	275	2	2	96 ... 127 200 ... 277	B	3RT1064-2NF36 3RT1064-2NP36	1 1	1 unit 1 unit	41B 41B
	265	75	132	160	250	330	2	2	96 ... 127 200 ... 277	B	3RT1065-2NF36 3RT1065-2NP36	1 1	1 unit 1 unit	41B 41B
	300	90	160	200	250	330	2	2	96 ... 127 200 ... 277	B	3RT1066-2NF36 3RT1066-2NP36	1 1	1 unit 1 unit	41B 41B
S12	400	132	200	250	400	430	2	2	96 ... 127 200 ... 277	B	3RT1075-2NF36 3RT1075-2NP36	1 1	1 unit 1 unit	41B 41B
	500	160	250	355	400	610	2	2	96 ... 127 200 ... 277	B	3RT1076-2NF36 3RT1076-2NP36	1 1	1 unit 1 unit	41B 41B

Other voltages according to page 3/90 on request.
For accessories see page 3/103.
For spare parts see page 3/115.

¹⁾ Alternatively the 3RT1054-1 contactor (55 kW) can be supplied with busbar connections instead of box terminals. Without additional price. In the 8th position of the Article No., the "1" must be replaced with "6" for screw terminals, e.g. 3RT1054-6A.36; for spring-type terminals, the "3" must be replaced by "2", e.g. 3RT1054-2A.36.

²⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

UC operating mechanism · AC/DC operation (50/60 Hz and DC)

- Withdrawable coils with integrated coil switch (varistor)
- Auxiliary and control conductors: Screw terminals
- Main conductors: Busbar connections, for 3RT1054 (55 kW) box terminals¹⁾
- Indication of remaining lifetime (RLT)



3RT1056-6P..

Size	Rated data					AC-1, T_U : 40 °C	Auxiliary contacts, lateral		Rated control supply voltage U_s	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
	AC-2 and AC-3, T_U : Up to 60 °C						Version							
	Operational current I_e up to	Ratings ²⁾ of three-phase motors at 50 Hz and				Operational current I_e up to					Article No.	Price per PU		
	500 V	230 V	400 V	500 V	690 V	690 V								
	A	kW	kW	kW	kW	A	NO	NC	V AC/DC					

Solid-state operating mechanisms · with 24 V DC PLC relay output · with RLT

S6	115	37	55	75	110	160	1	1	96 ... 127 200 ... 277	B B	3RT1054-1PF35 3RT1054-1PP35	1 1	1 unit 1 unit	41B 41B
	150	45	75	90	132	185	1	1	96 ... 127 200 ... 277	B B	3RT1055-6PF35 3RT1055-6PP35	1 1	1 unit 1 unit	41B 41B
	185	55	90	110	160	215	1	1	96 ... 127 200 ... 277	B B	3RT1056-6PF35 3RT1056-6PP35	1 1	1 unit 1 unit	41B 41B
S10	225	55	110	160	200	275	1	1	96 ... 127 200 ... 277	B B	3RT1064-6PF35 3RT1064-6PP35	1 1	1 unit 1 unit	41B 41B
	265	75	132	160	250	330	1	1	96 ... 127 200 ... 277	B B	3RT1065-6PF35 3RT1065-6PP35	1 1	1 unit 1 unit	41B 41B
	300	90	160	200	250	330	1	1	96 ... 127 200 ... 277	B B	3RT1066-6PF35 3RT1066-6PP35	1 1	1 unit 1 unit	41B 41B
S12	400	132	200	250	400	430	1	1	96 ... 127 200 ... 277	B B	3RT1075-6PF35 3RT1075-6PP35	1 1	1 unit 1 unit	41B 41B
	500	160	250	355	400	610	1	1	96 ... 127 200 ... 277	B B	3RT1076-6PF35 3RT1076-6PP35	1 1	1 unit 1 unit	41B 41B

Other voltages [according to page 3/90](#) on request.For accessories [see page 3/103](#).For spare parts [see page 3/115](#).

¹⁾ Alternatively the 3RT1054-1 contactor (55 kW) can be supplied with busbar connections instead of box terminals. Without additional price. In the 8th position of the Article No., the "1" must be replaced with "6", e.g. 3RT1054-**6**..35.

²⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

Power Contactors for Switching Motors

SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW

Options

Rated control supply voltages, possible on request (change of 10th and 11th digit of the Article No.)

Rated control supply voltage U_s	Contactor type	3RT103, 3RT104	3RT144	3RT133, 3RT134, 3RT153	3RT1617, 3RT1627, 3RT1647
	Size	S2, S3	S3	S2, S3	S00, S0, S3

Sizes S2 and S3

AC operation

Solenoid coils for 50 Hz¹⁾

24 V AC	B0	B0	B0	B0
42 V AC	D0	D0	--	--
48 V AC	H0	H0	--	--
110 V AC	F0	F0	F0	F0
230 V AC	P0	P0	P0	P0
240 V AC	U0	U0	U0	U0
400 V AC	V0	V0	V0	V0

Solenoid coils for 50 and 60 Hz¹⁾

24 V AC	C2	C2	C2	C2
42 V AC	D2	D2	D2	--
48 V AC	H2	H2	H2	--
110 V AC	G2	G2	G2	G2
220 V AC	N2	N2	N2	N2
230 V AC	L2	L2	L2	L2

Solenoid coils (for USA and Canada²⁾)

50 Hz	60 Hz				
110 V AC	120 V AC	K6	K6	K6	K6
220 V AC	240 V AC	P6	P6	P6	P6

Solenoid coils (for Japan)

50/60 Hz ³⁾	60 Hz ⁴⁾				
100 V AC	110 V AC	G6	G6	G6	G6
200 V AC	220 V AC	N6	N6	N6	N6
400 V AC	440 V AC	R6	R6	R6	R6

DC operation

12 V DC	--	--	--	--
24 V DC	B4	B4	B4	--
42 V DC	D4	D4	D4	--
48 V DC	W4	W4	--	--
60 V DC	E4	E4	--	--
110 V DC	F4	F4	F4	--
125 V DC	G4	G4	G4	--
220 V DC	M4	M4	M4	--
230 V DC	P4	P4	--	--

Examples

AC operating mechanism	3RT1034-1AP00	Contactor with screw terminals; with solenoid coil for 50 Hz for rated control supply voltage 230 V AC
	3RT1034-1AG20	Contactor with screw terminals; with solenoid coil for 50/60 Hz for rated control supply voltage 110 V AC
DC operating mechanism	3RT1034-3BB40	Contactor with spring-type terminals; for rated control supply voltage 24 V DC
	3RT1034-3BG40	Contactor with spring-type terminals; for rated control supply voltage 125 V DC

Rated control supply voltage U_s	Contactor type	3RT1. 5.-.A 3RT1. 6.-.A 3RT1. 7.-.A	Rated control supply voltage U_s	Contactor type	3RT1. 5.-.N 3RT1. 6.-.N 3RT1. 7.-.N	3RT1. 5.-.P 3RT1. 6.-.P 3RT1. 7.-.P
$U_{s \min} \dots U_{s \max}^{5)}$	Size	S6, S10, S12	$U_{s \min} \dots U_{s \max}^{5)}$	Size	S6, S10, S12	S6, S10, S12

Sizes S6 to S12

UC operation (50/60 Hz AC, DC)

Conventional operating mechanisms

23 ... 26 V AC/DC	B3
42 ... 48 V AC/DC	D3
110 ... 127 V AC/DC	F3
200 ... 220 V AC/DC	M3
220 ... 240 V AC/DC	P3
240 ... 277 V AC/DC	U3
380 ... 420 V AC/DC	V3
440 ... 480 V AC/DC	R3
500 ... 550 V AC/DC	S3
575 ... 600 V AC/DC	T3

Solid-state operating mechanism

21 ... 27.3 V AC/DC	B3	--
96 ... 127 V AC/DC	F3	F3
200 ... 277 V AC/DC	P3	P3

¹⁾ Coil operating range:
at 50 Hz: 0.8 to $1.1 \times U_s$
at 60 Hz: 0.85 to $1.1 \times U_s$.

²⁾ Coil operating range (sizes S2 and S3):
at 50 Hz and 60 Hz: 0.8 to $1.1 \times U_s$.

³⁾ Coil operating range (sizes S2 and S3):
at 50 Hz: 0.8 to $1.1 \times U_s$
at 60 Hz: 0.85 to $1.1 \times U_s$.

⁴⁾ Coil operating range:
at 60 Hz: 0.8 to $1.1 \times U_s$.

⁵⁾ Operating range:
 $0.8 \times U_{s \min}$ to $1.1 \times U_{s \max}$.

Overview

UC operation

The contactors can be operated with AC (50 to 60 Hz) as well as with DC.

Two types of solenoid operation are available:

- Conventional operating mechanism, version 3RT12...A
- Solid-state operating mechanism, version 3RT12...N

Withdrawable coils

For simple coil replacement, e.g. if the application is replaced, the solenoid coil can be pulled out upwards after the release mechanism has been actuated and can be replaced by any other coil of the same size.

Vacuum interrupters

In contrast with the 3RT10 contactors – the main contacts operate in air under atmospheric conditions – the contact gaps of the

3RT12 vacuum contactors are contained in hermetically enclosed vacuum interrupters. Neither arcs nor arcing gases are produced. The particular benefit of 3RT12 vacuum contactors, however, is that their electrical endurance is at least twice as long as that of 3RT10 contactors. They are therefore particularly well suited to frequent switching in jogging/mixed operation, e.g. in crane control systems.

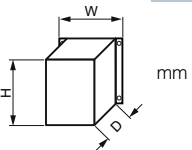
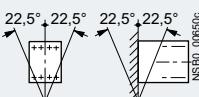
Note:

Vacuum contactors are basically unsuitable for switching DC voltage.

Auxiliary contact complement

The contactors can be fitted with up to 8 lateral auxiliary contacts (identical auxiliary switch blocks from S2 to S12). Of these, no more than 4 are permitted to be NC contacts.

Technical specifications

Type				
Size				
Dimensions (W x H x D)		3RT1264 S10 145 x 210 x 206	3RT1265 S10 145 x 210 x 206	3RT1266 S10 145 x 210 x 206
			3RT1275 S12 160 x 214 x 225	3RT1276 S12 160 x 214 x 225
General data				
Permissible mounting position				
The contactors are designed for operation on a vertical mounting surface.				
Mechanical endurance	Operating cycles	10 million		
Electrical endurance		1)		
Rated insulation voltage U_i (pollution degree 3)	V	1000		
Rated impulse withstand voltage U_{imp}	kV	8		
Protective separation between the coil and the main contacts acc. to IEC 60947-1, Appendix N	V	690		
Mirror contacts		Yes, acc. to IEC 60947-4-1, Appendix F		
A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact.				
Permissible ambient temperature				
• During operation	°C	-25 ... +60/+55 with AS-Interface		
• During storage	°C	-55 ... +80		
Degree of protection acc. to IEC 60947-1, Appendix C		IP00/open (where applicable, use additional terminal covers)		
Touch protection acc. to EN 50274		Finger-safe only for vertical contact from the front		
Shock resistance				
• Rectangular pulse	g/ms	8.5/5 and 4.2/10		
• Sine pulse	g/ms	13.4/5 and 6.5/10		
Conductor cross-sections		2)		
Electromagnetic compatibility (EMC)		3)		
Short-circuit protection				
Main circuit				
Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1/EN 60947-4-1				
• Type of coordination "1"	A	500		800
• Type of coordination "2"	A	500		800
• Weld-free ¹⁾	A	400		500
Auxiliary circuit				
• Fuse links, operational class gG: DIAZED, type 5SB; NEOZED, type 5SE (weld-free protection $I_k \leq 1$ kA)	A	10		
• Miniature circuit breakers with C characteristic (short-circuit current $I_k \leq 400$ A)				

1) For contact endurance of the main contacts see page 3/70.

2) For conductor cross-sections, see page 3/94.

3) For electromagnetic compatibility (EMC) see page 3/66.

4) Test conditions according to IEC 60947-4-1.

Power Contactors for Switching Motors

SIRIUS 3RT12 vacuum contactors, 3-pole, 110 ... 250 kW

Type Size		3RT1264 S10	3RT1265 S10	3RT1266 S10	3RT1275 S12	3RT1276 S12
Control						
Operating range of the solenoid AC/DC (UC)		$0.8 \times U_{s \min} \dots 1.1 \times U_{s \max}$				
Power consumption of the solenoid operation (when coil is cold and rated range $U_{s \min} \dots U_{s \max}$)						
Conventional operating mechanisms						
• AC operation						
- Closing at $U_{s \min}$	VA/p.f.	530/0.9			700/0.9	
- Closing at $U_{s \max}$	VA/p.f.	630/0.9			830/0.9	
- Closed at $U_{s \min}$	VA/p.f.	6.1/0.9			7.6/0.9	
- Closed at $U_{s \max}$	VA/p.f.	7.4/0.9			9.2/0.9	
• DC operation						
- Closing at $U_{s \min}$	W	580			770	
- Closing at $U_{s \max}$	W	700			920	
- Closed at $U_{s \min}$	W	6.8			8.5	
- Closed at $U_{s \max}$	W	8.2			10	
Solid-state operating mechanism						
• AC operation						
- Closing at $U_{s \min}$	VA/p.f.	420/0.8			560/0.8	
- Closing at $U_{s \max}$	VA/p.f.	570/0.8			750/0.8	
- Closed at $U_{s \min}$	VA/p.f.	4.3/0.8			5.4/0.8	
- Closed at $U_{s \max}$	VA/p.f.	5.6/0.8			7/0.8	
• DC operation						
- Closing at $U_{s \min}$	W	460			600	
- Closing at $U_{s \max}$	W	630			800	
- Closed at $U_{s \min}$	W	3.4			4	
- Closed at $U_{s \max}$	W	4.2			5	
PLC control input acc. to IEC 61131-2		Type 2				
• Rated voltage	V DC	24				
• Operating range	V DC	17 ... 30				
• Power consumption	mA	≤ 30				
Operating times (Total break time = Opening delay + Arcing time)						
Conventional operating mechanisms						
• For $0.8 \times U_{s \min} \dots 1.1 \times U_{s \max}$						
- Closing delay	ms	30 ... 95			45 ... 100	
- Opening delay	ms	40 ... 80			60 ... 100	
• For $U_{s \min} \dots U_{s \max}$						
- Closing delay	ms	35 ... 50			50 ... 70	
- Opening delay	ms	50 ... 80			70 ... 100	
• Arcing time	ms	10 ... 15			10 ... 15	
Solid-state operating mechanism, actuated via A1/A2						
• For $0.8 \times U_{s \min} \dots 1.1 \times U_{s \max}$						
- Closing delay	ms	105 ... 145			120 ... 150	
- Opening delay	ms	80 ... 100			80 ... 100	
• For $U_{s \min} \dots U_{s \max}$						
- Closing delay	ms	110 ... 130			125 ... 150	
- Opening delay	ms	80 ... 100			80 ... 100	
• Arcing time	ms	10 ... 15			10 ... 15	
Solid-state operating mechanism, actuated via PLC input						
• For $0.8 \times U_{s \min} \dots 1.1 \times U_{s \max}$						
- Closing delay	ms	45 ... 80			60 ... 90	
- Opening delay	ms	80 ... 100			80 ... 100	
• For $U_{s \min} \dots U_{s \max}$						
- Closing delay	ms	50 ... 65			65 ... 80	
- Opening delay	ms	80 ... 100			80 ... 100	
• Arcing time	ms	10 ... 15			10 ... 15	

Power Contactors for Switching Motors

SIRIUS 3RT12 vacuum contactors, 3-pole, 110 ... 250 kW

Type Size		3RT1264 S10	3RT1265 S10	3RT1266 S10	3RT1275 S12	3RT1276 S12
Main circuit						
Load rating with AC						
Utilization category AC-1						
Switching resistive loads						
• Rated operational currents I_e						
- At 40 °C up to 1 000 V	A	330			610	
- At 60 °C up to 1 000 V	A	300			550	
• Rated power for AC loads ¹⁾ with p.f. = 0.95 (at 60 °C)						
- At 230 V	kW	113			208	
- At 400 V	kW	197			362	
- At 500 V	kW	246			452	
- At 690 V	kW	340			624	
- At 1 000 V	kW	492			905	
• Minimum conductor cross-section for loads with I_e						
- At 40 °C	mm ²	185			2 x 185	
- At 60 °C	mm ²	185			2 x 185	
Utilization categories AC-2 and AC-3						
• Rated operational currents I_e						
- Up to 1000 V	A	225	265	300	400	500
• Rated power for slipping or squirrel-cage motors at 50 and 60 Hz						
- At 230 V	kW	73	85	97	132	164
- At 400 V	kW	128	151	171	231	291
- At 500 V	kW	160	189	215	291	363
- At 690 V	kW	223	265	288	400	507
- At 1 000 V	kW	320	378	428	578	728
Thermal load capacity	A	1 800	2 120	2 400	3 200	4 000
Power loss per conducting path at I_e/AC-3	W	9	12	14	21	32
Utilization category AC-4 (for $I_a = 6 \times I_e$)						
• Rated operational current I_e , maximum						
- Up to 690 V	A	195	230	280	350	430
• Rated power for squirrel-cage motors with 50 Hz and 60 Hz						
- At 400 V	kW	110	132	160	200	250
The following applies to a contact endurance of about 200 000 operating cycles:						
• Rated operational currents I_e						
- Up to 690 V	A	97	115	140	175	215
- Up to 1 000 V	A	68	81	98	123	151
• Rated power for squirrel-cage motors with 50 Hz and 60 Hz						
- At 230 V	kW	30	37	45	56	70
- At 400 V	kW	55	65	79	98	122
- At 500 V	kW	68	81	98	124	153
- At 690 V	kW	94	112	138	172	212
- At 1 000 V	kW	95	114	140	183	217
Switching frequency						
Switching frequency z in operating cycles/hour						
Contactors without overload relays						
• No-load switching frequency	h ⁻¹	2 000				
• Switching frequency z during rated operation ³⁾						
- I_e /AC-1 at 400 V	h ⁻¹	800	750		700	
- I_e /AC-2 at 400 V	h ⁻¹	300	250		250	
- I_e /AC-3 at 400 V	h ⁻¹	750	750		750	
- I_e /AC-4 at 400 V	h ⁻¹	250	250		250	
Contactors with overload relays						
• Mean value	h ⁻¹	60				

1) Industrial furnaces and electric heaters with resistance heating, etc.
(increased power consumption on heating up has been taken into account).

2) According to IEC 60947-4-1.
Rated values for various start-up conditions see Chapter 7, "Protection Equipment" → "Overload Relays".

3) Dependence of the switching frequency z' on
the operational current I' and operational voltage U':
 $z' = z \cdot (I_e/I') \cdot (400 \text{ V}/U')^{1.5} \cdot 1/\text{h}$

Power Contactors for Switching Motors

SIRIUS 3RT12 vacuum contactors, 3-pole, 110 ... 250 kW

Type Size		3RT126. S10	3RT127. S12
Conductor cross-sections			
Main conductors		 Screw terminals	
With mounted box terminals	Type	3RT19 66-4G	
• Terminal screws - Tightening torque	Nm	M12 (hexagon socket, A/F 5) 20 ... 22 (180 ... 195 lb.in)	
Front clamping point connected			
 NSB0_00479	• Finely stranded with end sleeve	mm ²	70 ... 240
	• Finely stranded without end sleeve	mm ²	70 ... 240
	• Stranded	mm ²	95 ... 300
	• AWG cables, solid or stranded	AWG	3/0 ... 600 kcmil
	• Ribbon cable conductors (Number x Width x Thickness)	mm	Min. 6 x 9 x 0.8; max. 20 x 24 x 0.5
Rear clamping point connected			
 NSB0_00480	• Finely stranded with end sleeve	mm ²	120 ... 185
	• Finely stranded without end sleeve	mm ²	120 ... 185
	• Stranded	mm ²	120 ... 240
	• AWG cables, solid or stranded	AWG	250 ... 500 kcmil
	• Ribbon cable conductors (Number x Width x Thickness)	mm	Min. 6 x 9 x 0.8; max. 20 x 24 x 0.5
Both clamping points connected			
 NSB0_00481	• Finely stranded with end sleeve	mm ²	Min. 2 x 50, max. 2 x 185
	• Finely stranded without end sleeve	mm ²	Min. 2 x 50, max. 2 x 185
	• Stranded	mm ²	Min. 2 x 70, max. 2 x 240
	• AWG cables, solid or stranded	AWG	Min. 2 x 2/0, max. 1 x 500 kcmil
	• Ribbon cable conductors (Number x Width x Thickness)	mm	Max. 2 x (20 x 24 x 0.5)
Busbar connections			
• Connecting bars (max. width)	mm	25	
Cable lug connection			
• Finely stranded with cable lug ¹⁾	mm ²	50 ... 240	
• Stranded with cable lug ¹⁾	mm ²	70 ... 240	
• AWG cables, solid or stranded	AWG	2/0 ... 500 kcmil	
• Terminal screws - Tightening torque	Nm	M10 x 30 (A/F 17) 14 ... 24 (124 ... 210 lb.in)	
Auxiliary conductors			
• Solid	mm ²	2 x (0.5 ... 1.5) ²⁾ ; 2 x (0.75 ... 2.5) ²⁾ according to IEC 60947; max. 2 x (0.75 ... 4)	
• Finely stranded with end sleeve	mm ²	2 x (0.5 ... 1.5) ²⁾ ; 2 x (0.75 ... 2.5) ²⁾	
• AWG cables, solid or stranded	AWG	2 x (18 ... 14)	
• Terminal screws - Tightening torque	Nm	M3 (Pozidriv size 2) 0.8 ... 1.2 (7 ... 10.3 lb.in)	

¹⁾ When connecting cable lugs to DIN 46234, the 3RT1966-4EA1 terminal cover must be used for conductor cross-sections of 240 mm² and more as well as DIN 46235 for conductor cross-sections of 185 mm² and more to keep the phase clearance.

²⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

Type Size		3RT1264 S10	3RT1265 S10	3RT1266 S10	3RT1275 S12	3RT1276 S12
Ⓢ and Ⓜ rated data						
Rated insulation voltage	V AC	600				600
Uninterrupted current , at 40 °C, open and enclosed	A	330				540
Maximum horsepower ratings (Ⓢ and Ⓜ approved values)						
• Rated power for three-phase motors at 60 Hz						
- At 200 V	hp	60	75	100	125	150
- At 230 V	hp	75	100	125	150	200
- At 460 V	hp	150	200	250	300	400
- At 575 V	hp	200	250	300	400	500
Short-circuit protection ¹⁾	kA	10	18	18	18	30
• CLASS L fuse	A	700	800	800	1200	1200
• Circuit breakers acc. to UL 489	A	500	700	900	1000	1200
NEMA/IEEAC ratings						
• NEMA/IEEAC size	hp	--	--	5	--	6
• Uninterrupted current						
- Open	A	--	--	300	--	600
- Enclosed	A	--	--	270	--	540
• Rated power for three-phase motors at 60 Hz						
- At 200 V	hp	--	--	75	--	150
- At 230 V	hp	--	--	100	--	200
- At 460 V	hp	--	--	200	--	400
- At 575 V	hp	--	--	200	--	400
Overload relays	Type	3RB2066			3RB2066	

¹⁾ For more information about short-circuit values, e.g. for protection against short-circuit currents, see the UL reports on the individual devices,

www.siemens.com/sirius/manuals, or the UL Guide "Industrial Control Panels for North America", www.siemens.com/sirius/ul-download.

Selection and ordering data

UC operation (50/60 Hz AC, DC)

- Withdrawable coils with integrated coil switch (varistor)
- Auxiliary and control conductors: Screw terminals
- Main conductors: Busbar connections



3RT126.



3RT127.

Size	Rated data					AC-1, T_U : 40 °C	Auxiliary contacts, lateral		Rated control supply voltage U_s	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
	AC-2 and AC-3, T_U : Up to 60 °C													
	Operational current I_e up to	Ratings ¹⁾ of three-phase motors at 50 Hz and				Operational current I_e up to					Article No.	Price per PU		
	1 000 V	230 V	400 V	500 V	690 V	1 000 V								
	A	kW	kW	kW	kW	A	NO	NC	V AC/DC					

Conventional operating mechanisms

S10	225	55	110	160	200	330	2	2	110 ... 127 220 ... 240	A	3RT1264-6AF36 3RT1264-6AP36	1	1 unit	41B
	265	75	132	160	250	330	2	2	110 ... 127 220 ... 240	A	3RT1265-6AF36 3RT1265-6AP36	1	1 unit	41B
	300	90	160	200	250	330	2	2	110 ... 127 220 ... 240	A	3RT1266-6AF36 3RT1266-6AP36	1	1 unit	41B
S12	400	132	200	250	400	610	2	2	110 ... 127 220 ... 240	A	3RT1275-6AF36 3RT1275-6AP36	1	1 unit	41B
	500	160	250	355	500	610	2	2	110 ... 127 220 ... 240	A	3RT1276-6AF36 3RT1276-6AP36	1	1 unit	41B

Solid-state operating mechanisms - for 24 V DC PLC output

S10	225	55	110	160	200	330	2	2	96 ... 127 200 ... 277	B	3RT1264-6NF36 3RT1264-6NP36	1	1 unit	41B
	265	75	132	160	250	330	2	2	96 ... 127 200 ... 277	B	3RT1265-6NF36 3RT1265-6NP36	1	1 unit	41B
	300	90	160	200	250	330	2	2	96 ... 127 200 ... 277	B	3RT1266-6NF36 3RT1266-6NP36	1	1 unit	41B
S12	400	132	200	250	400	610	2	2	96 ... 127 200 ... 277	B	3RT1275-6NF36 3RT1275-6NP36	1	1 unit	41B
	500	160	250	355	500	610	2	2	96 ... 127 200 ... 277	B	3RT1276-6NF36 3RT1276-6NP36	1	1 unit	41B

Other voltages [according to page 3/90](#) on request.For more 3TF68/3TF69 vacuum contactors (335 kW and 450 kW) [see page 3/123](#).For accessories [see page 3/105](#).

¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

Power Contactors for Switching Motors

Accessories for 3RT1 Contactors

General data

Overview

Snap-on auxiliary switch blocks

Various auxiliary switch blocks can be added to the 3RT1 basic units depending on the application:

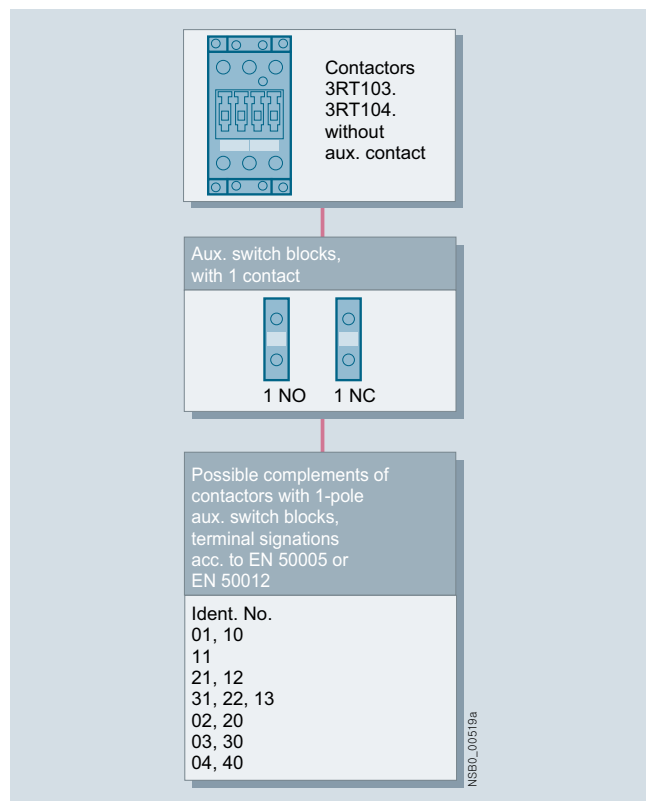
Sizes S2 to S12

Terminal designations according to EN 50005 or EN 50012

One 4-pole or up to four single-pole auxiliary switch blocks (screw or spring-type connections) can be snapped on. When the contactors are switched on, the NC contacts are opened first and then the NO contacts are closed.

Also available are 2-pole auxiliary switch blocks (screw terminals) for cable entry from above or below in the design of a quad block (feeder auxiliary switch).

If the installation space is limited in depth, 2-pole auxiliary switch blocks (screw or spring-type connections) can be attached laterally (on the left or on the right).

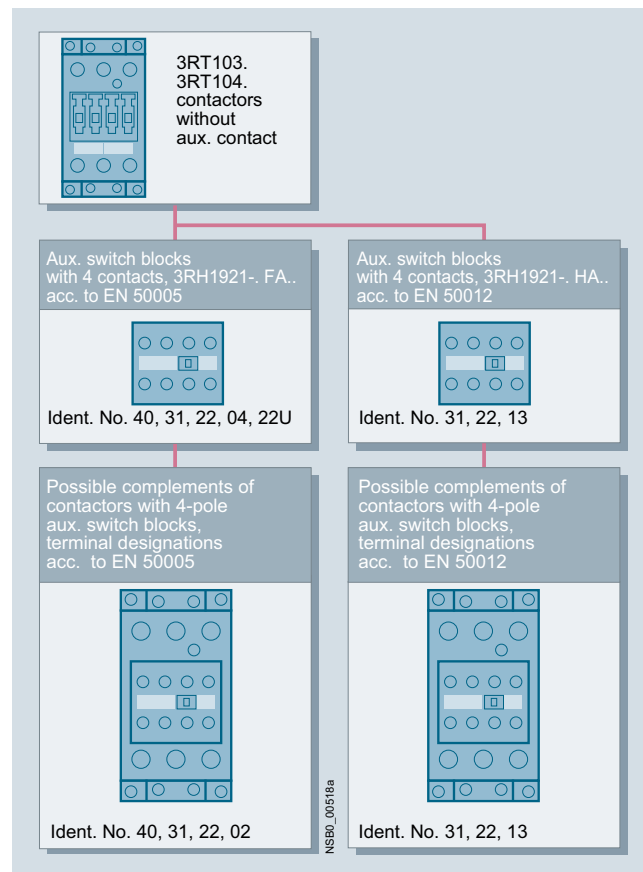


1-pole auxiliary switch blocks for 3RT1 contactors

The terminal designations of the single-pole auxiliary switch blocks are comprised of identification numbers (location identifiers) on the basic unit and of function numbers on the auxiliary switch blocks.

The terminal designations of the individual auxiliary switch blocks correspond to EN 50005 or EN 50012, those of the complete contactors with auxiliary switch block 2 NO + 2 NC correspond to EN 50012.

The auxiliary switch blocks attached to the front can be disassembled with the help of a centrally arranged release lever; the laterally attached auxiliary switch blocks are easy to remove by pressing on the checkered surfaces.



4-pole auxiliary switch blocks for 3RT1 contactors

The laterally mountable auxiliary switch blocks according to EN 50012 can be used only when no 4-pole auxiliary switch blocks are snapped onto the front. If single-pole auxiliary switch blocks are used in addition, the location identifiers on the contactor must be noted.

Two enclosed and two standard contacts are available with the 3RH1921-FE22 solid-state compatible auxiliary switch block, which can be attached to the front. The laterally mountable, solid-state compatible 3RH1921-2DE11 auxiliary switch block contains two enclosed contacts (1 NO + 1 NC). The enclosed contacts are suitable in particular for switching small voltages and currents (hard gold-plated contacts) and for operation in dusty atmospheres. The NC auxiliary contacts are mirror contacts.

Size S2

A maximum of four auxiliary contacts can be attached; the auxiliary switch blocks used can be of any version. For reasons of symmetry, when two 2-pole laterally mountable auxiliary switch blocks are used, one block must be attached on the right and one on the left.

More auxiliary contacts are permissible with size S2 under certain conditions (please ask).

Sizes S3 to S12

A maximum of eight auxiliary contacts can be attached; please note the following:

- Of these eight auxiliary contacts, there must be no more than four NC contacts.
- Ensure the symmetry of laterally mounted auxiliary switch blocks

Power Contactors for Switching Motors

Accessories for 3RT1 Contactors

General data

Solid-state time-delay auxiliary switch blocks

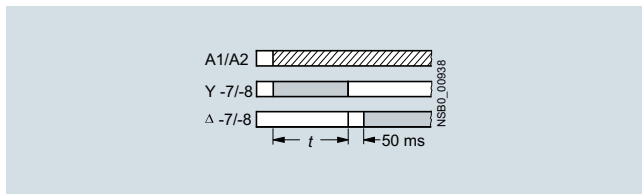
The solid-state, time-delay auxiliary switch block is fitted onto the front side of the contactor.

The timer module, which is available in the "ON-DELAY" and "OFF-DELAY" versions, allows time-delayed functions up to 100 s (three delay ranges).

It contains a relay with one NO contact and one NC contact; depending on the version, the relay is switched either after an ON-delay or after an OFF-delay.

The timer module with WYE-DELTA FUNCTION is equipped with one delayed and one instantaneous NO contact, with a dead time of 50 ms between the two. The delay time of the NO contact can be adjusted between 1.5 s and 30 s.

Wye-delta function



The contactor on which the solid-state time-delay auxiliary switch block is mounted operates without a delay.

Sizes S2 to S12

The timer module is supplied with power through two terminals (A1/A2); the time delay of the auxiliary switch block can be activated either by a parallel link to any contactor coil or by any power source.

The OFF-delay version operates without a control signal; the minimum ON period is 200 ms.

A single-pole auxiliary switch block can be snapped onto the front of the contactor in addition to the timer module.

The timer module has no integrated components for overvoltage damping.

Solid-state timing relay blocks with semiconductor output

The timer module, which is available in the "ON-DELAY" and "OFF-DELAY" versions with control signal, allows time-delayed functions up to 100 s (three delay ranges). Contactors fitted with a timing relay block close or open after a delay according to the set time.

The ON-delay variant of the timing relay is connected in series with the contactor coil; terminal A1 of this coil must not be connected.

With the OFF-delay variant of the timing relay, the contactor coil is contacted directly through the relay; terminals A1 and A2 of the contactor coil must not be connected.

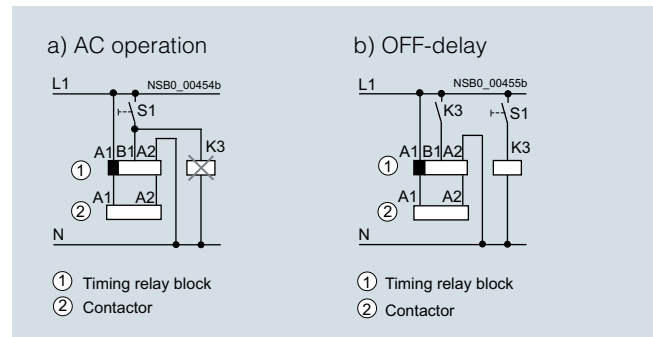
The timing relays are suitable for both AC and DC operation.

Sizes S2 and S3

The timing relay block for size S0 to S3 contactors is plugged into coil terminals A1 and A2 on top of each contactor; the timing relay is connected both electrically and mechanically by means of pins.

A varistor is integrated in the timer module in order to damp opening surges in the contactor coil.

Configuration



The activation of loads parallel to the start input is not permissible with AC operation (see (a) in the circuit diagram).

The 3RT1926-2D... OFF-delay timing relay blocks have a zero potential start input B1. This means that if there is a parallel load on terminal B1, activation can be simulated with AC voltage. In this case, the additional load (e.g. contactor K3) must be wired (see (b) in the circuit diagram).

Power Contactors for Switching Motors

Accessories for 3RT1 Contactors

General data

OFF-delay device for size S00 and S0 contactors

AC and DC operation

IEC 60947, EN 60947

For screw and snap-on mounting onto TH 35 standard mounting rails. The OFF-delay devices have screw terminals.

The OFF-delay device prevents a contactor from dropping out unintentionally when there is a short-time voltage dip or voltage failure. It supplies a downstream, DC-operated contactor with the necessary energy during a voltage dip, ensuring that the contactor does not trip. The 3RT1916 OFF-delay devices are specifically designed for operation with the 3RT contactors and 3RH contactor relays in the SIRIUS series.

The OFF-delay device operates without external voltage on a capacitive basis, and can be energized with either AC or DC (24 V version only for DC operation). Voltage matching, which is only necessary with AC operation, is performed using a rectifier bridge.

A contactor opens after a delay when the capacitors of the solenoid coil, built into the OFF-delay device, are switched in parallel. In the event of voltage failures, the capacitors are discharged via the solenoid coil and thereby delay the opening of the contactor.

If the command devices are upstream of the OFF-delay device in the circuit, the OFF-delay takes effect with every opening operation. If the opening operation is downstream of the OFF-delay device, an OFF-delay only applies in the event of failure of the mains voltage.

Operation

In the case of the versions for rated control supply voltages of 110 V and 230 V, either AC voltage or DC voltage can be applied on the line side, whereas the version for 24 V is designed for DC operation only.

A DC-operated contactor is connected to the output according to the input voltage that is applied.

The mean value of the OFF-delay is approximately 1.5 times the specified minimum time.

Surge suppressors

- Without LED (also for spring-type terminals)
Sizes S2, S3, S6 to S12

All 3RT1 contactors and 3RH1 contactor relays can be retrofitted with RC elements or varistors for damping opening surges in the coil. Diodes or diode assemblies (comprising noise suppression diodes and Zener diodes for short break times) can be used.

With the size S2 and S3 contactors, varistors, RC elements and diode assemblies can be plugged on directly at the coil terminals, either on the top or underneath.

The plug-in direction of the diodes and diode assemblies is determined by a coding device.

Coupling contactors are supplied either without overvoltage damping or with a varistor or diode connected as standard, according to the version.

Note:

The OFF-delay of the NO contact and the ON-delay of the NC contact are increased if the contactor coils are attenuated against voltage peaks (noise suppression diode 6 to 10 times; diode assembly 2 to 6 times, varistor +2 to 5 ms).

Coupling links for mounting on contactors of sizes S2 and S3

DC operation

IEC 60947 and EN 60947

The coupling link is suitable for use in any climate. It is finger-safe according to EN 50274. The terminal designations comply with EN 50005.

System-compatible operation with 24 V DC, operating range 17 to 30 V.

Low power consumption in conformity with the technical specifications of the solid-state systems. An LED indicates the switching state.

Surge suppression

The 3RH1924-1GP11 coupling link has an integrated surge suppressor (varistor) for the contactor coil being switched.

Mounting

The 3RH1924-1GP11 coupling link is mounted directly on the contactor coil.

Sealable covers for sizes S2 to S12

When contactors and contactor relays are used in safety-related applications, it must be ensured that it is impossible to operate the contactors manually.

For SIRIUS contactors there are sealable covers available for this purpose as accessories; these prevent accidental manual operation. These are transparent molded-plastic caps with a bracket that enables the contactor to be sealed.

Power Contactors for Switching Motors

Accessories for 3RT1 Contactors

General data

Technical specifications

Contactor	Type	3RT1926-2C Solid-state timing relay blocks with semiconductor output	3RT1926-2D	3RT1926-2E	3RT1926-2F	3RT1926-2G
General data						
Rated insulation voltage U_i Pollution degree 3 Overvoltage category III according to IEC 60664-1	V AC	250				
Permissible ambient temperature						
• During operation	°C	-25 ... +60				
• During storage	°C	-40 ... +80				
Degree of protection acc. to IEC 60947-1, Appendix C						
• Cover		IP40				
• Terminals		IP20				
Shock resistance Half-sine acc. to IEC 60068-2-27	g/ms	15/11				
Vibration resistance according to IEC 60068-2-6	Hz/mm	10 ... 55/0.35				
EMC tests	Basic specification	IEC 61000-6-4				
Conductor connections						
• Solid	mm ²	2 x (0.5 ... 1.5), 2 x (0.75 ... 4)				
• Finely stranded with end sleeve	mm ²	2 x (0.5 ... 2.5)				
• AWG cables, solid or stranded	AWG	2 x (18 ... 14)				
• Terminal screws		M3				
• Tightening torque	Nm lb.in	0.8 ... 1.2 7 ... 10.3				
Permissible mounting position		Any				
Control						
Operating range of excitation		0.8 ... 1.1 x U_s , 0.95 ... 1.05 times the rated frequency			0.85 ... 1.1 x U_s , 0.95 ... 1.05 times the rated frequency	
Rated power	W	1			2	
• Power consumption at 230 V AC, 50 Hz	VA	1			4	
Overvoltage protection		Varistor integrated in timing relay			--	
Recovery time	ms	50			150	
Minimum ON period	ms	35			200 (with OFF-delay)	
Setting accuracy With reference to upper limit of scale	Typ. %	±15				
Repeat accuracy	Max. %	±1				
Load side						
Rated operational currents I_e						
• Load current	A	0.3			--	
• AC-15, 230 V, 50 Hz	A	--			3	
• DC-13, 24 V	A	--			1	
• DC-13, 110 V	A	--			0.2	
• DC-13, 230 V	A	--			0.1	
Short-time loading capacity	Up to 10 ms	A 10			--	
DIAZED protection operational class gG	A	--			4	
Residual current	Max. mA	5			--	
Voltage drop With conducting output	Max. VA	3.5			--	
Mechanical endurance	Operating cycles	100 x 10 ⁶			10 x 10 ⁶	
Switching frequency for load						
• With I_e at 230 V AC	h ⁻¹	2 00			2 500	
• With 3RT2016 contactor at 230 V AC	h ⁻¹	2 500			5 000	

Power Contactors for Switching Motors

Accessories for 3RT1 Contactors

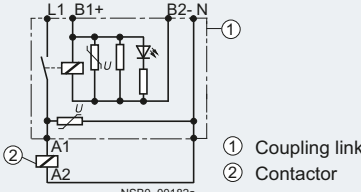
General data

Function	Function chart	
	Timing relay energized Contact closed Contact open	
Solid-state timing relay blocks	1 NO contact (semiconductor output)	
ON-delay, two-wire design (varistor integrated)	3RT1926-2C A1/A2 Timing relay A1/A2 Contactor NSBO_0939a	L1/L+ ① A1 ② A1 A2 A2 N/L- NSBO_0956 A2 can be connected to N(L-) using either the contactor or the timing relay. ----- To be connected optionally ① Timing relay block ② Contactor
OFF-delay with control signal (varistor integrated)	3RT1926-2D A1/A2 Timing relay B1/A2 A1/A2 Contactor NSBO_0940a	L1/L+ ① A1 ② A1 A2 A2 N/L- NSBO_0957 A2 must only be connected to N(L-) from the timing relay. ✗ Do not connect ① Timing relay block ② Contactor
Solid-state time-delay auxiliary switch blocks	1 NO + 1 NC	
ON-delay	3RT1926-2E A1/A2 -7/-8 -5/-6 NSBO_00936	S1 A1 A2 NSBO_01873
OFF-delay without control signal	3RT1926-2F A1/A2 -7/-8 -5/-6 NSBO_00937	S1 A1 A2 NSBO_01874a
Solid-state time-delay auxiliary switch blocks	2 NO	
Wye-delta function: 1 NO delayed, 1 NO instantaneous, dead time 50 ms (varistor integrated)	3RT1926-2G A1/A2 Y -7/-8 Δ -7/-8 NSBO_00938	S1 A1 A2 NSBO_01875

Power Contactors for Switching Motors

Accessories for 3RT1 Contactors

General data

Contactor	Type	3RH1924, 3TX7090 Coupling links for mounting on contactors acc. to IEC 60947/EN 60947
General data		
Rated insulation voltage U_i (pollution degree 3)	V	300
Protective separation between coil and contacts acc. to IEC 60947-1, Appendix N	V AC	Up to 300
Permissible ambient temperature		
• During operation	°C	-25 ... +60
• During storage	°C	-40 ... +80
Degree of protection acc. to IEC 60947-1, Appendix C		
• Connections		IP20
• Enclosure		IP40
Circuit diagram		 ① Coupling link ② Contactor NSB0_00182a
Conductor cross-sections		
• Solid	mm ²	2 x (0.5 ... 2.5)
• Finely stranded with end sleeve	mm ²	2 x (0.5 ... 1.5)
Terminal screws		M3
Control side		
Rated control supply voltage U_s	V DC	24
Operating range	V DC	17 ... 30
Power consumption at U_s	W	0.5
Nominal current input	mA	20
Release voltage	V	≥ 4
Function display		Yellow LED
Protection circuit		Varistor
Load side		
Mechanical endurance	Operating cycles	20 x 10 ⁶
Electrical endurance at I_e	Operating cycles	1 x 10 ⁵
Switching frequency	Operating cycles/h	5 000
Make-time	ms	Approx. 7
Break-time	ms	Approx. 4
Bounce time	ms	Approx. 2
Contact material		AgSnO
Switching voltage	AC/DC V	24 ... 250
Permissible residual current of the electronics (with 0 signal)	mA	2.5

Power Contactors for Switching Motors

Accessories for 3RT1 Contactors

General data

Contactor	Type	3RT1926-3A Mechanical latching blocks
General data		
Rated insulation voltage U_i (pollution degree 3)	V	690
Permissible ambient temperature		
• During operation	°C	-25 ... +60
• During storage	°C	-50 ... +80
Degree of protection acc. to IEC 60947-1, Appendix C		IP20
Mechanical endurance		
• With 3RT1.2	Operating cycles	3×10^6
• With 3RT1.3	Operating cycles	50 000
Conductor cross-sections		
• Solid	mm ² AWG	2 x (0.5 ... 2.5); 1 x 4 2 x 14; 1 x 12
• Finely stranded with end sleeve	mm ² AWG	2 x (0.5 ... 2.5); 1 x 2.5 2 x 14; 1 x 12
Tightening torque of the terminal screws	Nm lb.in	0.8 ... 1.1 7 ... 9.5
Control		
Operating range of the solenoid coil At AC 50/60 Hz and DC		0.85 ... 1.1 x U_s
Power consumption of the solenoid coils of the unlocking magnet (for cold coil and 1.0 x U_s) AC and DC operation	W	Approx. 4
Command duration for de-energizing		
• AC operation	ms	18 ... 31
• DC operation	ms	18 ... 26

Power Contactors for Switching Motors

Accessories for 3RT1 Contactors

Auxiliary switches

Selection and ordering data

PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B



3RH1921-1HA...
3RH1921-1FA...



3RH1921-2HA...
3RH1921-2FA...

For contactors		Auxiliary contacts		DT	Screw terminals		DT	Spring-type terminals	
		Ident. No.	Version						
Type			NO NC NO NC						

Auxiliary switch blocks for snapping onto the front according to EN 50012

Sizes S2 and S3¹⁾

		4-pole auxiliary switch blocks							
3RT1.3, 3RT1.4	31	3	1	--	--		▶	3RH1921-1HA31	▶ 3RH1921-2HA31
	22	2	2	--	--		▶	3RH1921-1HA22	▶ 3RH1921-2HA22
	13	1	3	--	--		▶	3RH1921-1HA13	▶ 3RH1921-2HA13

Sizes S2 to S12²⁾

		4-pole auxiliary switch blocks							
3RT1.3 ... 3RT1.7	22	2	2	--	--		B	3RH1921-1XA22-0MA0	D 3RH1921-2XA22-0MA0

Auxiliary switch blocks for snapping onto the front according to EN 50005

Sizes S2 and S3¹⁾

		4-pole auxiliary switch blocks							
3RT1.3, 3RT1.4	40	4	--	--	--		▶	3RH1921-1FA40	▶ 3RH1921-2FA40
	31	3	1	--	--		▶	3RH1921-1FA31	▶ 3RH1921-2FA31
	22	2	2	--	--		▶	3RH1921-1FA22	▶ 3RH1921-2FA22
	04	--	4	--	--		▶	3RH1921-1FA04	A 3RH1921-2FA04
	22 U	--	--	2	2		▶	3RH1921-1FC22	A 3RH1921-2FC22

For multi-unit packing and reusable packaging see Chapter 16, "Appendix" → "Ordering Notes".

¹⁾ Exception: 3RT16.

²⁾ Exception: 3RT12, 3RT16.

Power Contactors for Switching Motors

Accessories for 3RT1 Contactors

Auxiliary switches

PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B



3RH1921-1LA..



3RH1921-1MA..



3RH1921-1C..



3RH1921-2C..

For contactors Auxiliary contacts

DT

Screw terminals



DT

Spring-type terminals



Ident. No.

Version

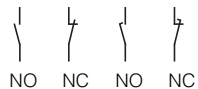
Article No.

Price
per PU

Article No.

Price
per PU

Type



Auxiliary switch blocks for snapping onto the front
 according to EN 50005

Sizes S2 and S3¹⁾

2-pole auxiliary switch blocks with cable entry
 on one side
 • Cable entry from above

3RT1.3,
3RT1.4

11

1

1

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3RH1921-1LA11

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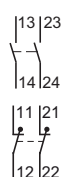
20

2

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3RH1921-1LA20

--

02

--

2

--

--



3RH1921-1LA02

--

• Cable entry from below

3RT1.3,
3RT1.4

11

1

1

--

--



3RH1921-1MA11

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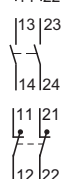
20

2

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--

--



3RH1921-1MA20

--

02

--

2

--

--



3RH1921-1MA02

--

Sizes S2 to S12²⁾

1-pole auxiliary switch blocks
 according to EN 50005 and EN 50012

3RT1.3 ...
3RT1.7

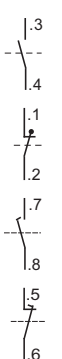
10

1

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3RH1921-1CA10



3RH1921-2CA10

01

--

1

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3RH1921-1CA01



3RH1921-2CA01

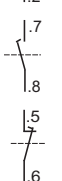
10

--

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1

--



3RH1921-1CD10

--

01

--

--

--

1



3RH1921-1CD01

--

¹⁾ Exception: 3RT16.

²⁾ Exception: 3RT12, 3RT16

Power Contactors for Switching Motors

Accessories for 3RT1 Contactors

Auxiliary switches

PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B



3RH1921-1DA11
 3RH1921-1JA11
 3RH1921-1EA...
 3RH1921-1KA...



3RH1921-2DA11
 3RH1921-2JA11
 3RH1921-2EA...
 3RH1921-2KA...

For contactors	Auxiliary contacts	DT	Screw terminals	DT	Spring-type terminals
	Version		Article No.		Article No.
	Type		Price per PU		Price per PU
	NO				
	NC				

Laterally mountable auxiliary switch blocks according to EN 50012

Sizes S2 and S3

	Left	Right
First laterally mountable auxiliary switch block (right or left), 2-pole		
3RT1.3, 3RT1.4	1 1	1 1
	21 13 22 14	31 43 32 44



3RH1921-1DA11



3RH1921-2DA11

Sizes S3 to S12

	Left	Right
Second laterally mountable auxiliary switch block (right or left), 2-pole		
3RT1.4 ... 3RT1.7	1 1	1 1
	61 53 62 54	71 83 72 84



3RH1921-1JA11



3RH1921-2JA11

Laterally mountable auxiliary switch blocks according to EN 50005

Sizes S2 to S12

	Left	Right
First laterally mountable auxiliary switch block (right or left), 2-pole		
3RT1.3 ... 3RT1.7	2 --	2 --
	53 63 54 64	73 83 74 84
1 1	51 63 52 64	71 83 72 84
-- 2	51 61 52 62	71 81 72 82



3RH1921-1EA20



3RH1921-2EA20



3RH1921-1EA11



--



3RH1921-1EA02



3RH1921-2EA02

Sizes S3 to S12

	Left	Right
Second laterally mountable auxiliary switch block (right or left), 2-pole		
3RT1.4 ... 3RT1.7	2 --	2 --
	153 163 154 164	173 183 174 184
1 1	151 163 152 164	171 183 172 184
-- 2	151 161 152 162	171 181 172 182



3RH1921-1KA20



3RH1921-2KA20



3RH1921-1KA11



--



3RH1921-1KA02



3RH1921-2KA02

Power Contactors for Switching Motors

Accessories for 3RT1 Contactors

Auxiliary switches

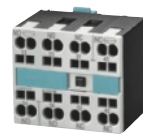
PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B



3RH1921-2DE11,
3RH1921-2JE11



3RH1921-1FE22



3RH1921-2JE22

For contactors	Contacts	DT	Screw terminals	DT	Spring-type terminals	
	Version		Article No.	Price per PU	Article No.	Price per PU
Type	    NO NO¹⁾ NC¹⁾ NC					

Solid-state compatible auxiliary switch blocks

- For operation in dusty atmospheres
- For solid-state circuits with rated operational currents I_{e} /AC-14 and DC-13 of 1 ... 300 mA at 3 ... 60 V
- Hard gold-plated contacts
- Mirror contacts according to IEC 60947-4-1, Appendix F

Auxiliary switch blocks for snapping onto the front according to EN 50005

Sizes S2 and S3

3RT1.3 ...
3RT1.7

1 1 1 1



3RH1921-1FE22

B

3RH1921-2FE22

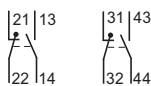
Laterally mountable auxiliary switch blocks according to EN 50012

Sizes S2 to S12

3RT1.3 ...
3RT1.7

First laterally mountable auxiliary switch block (right or left), 2-pole

Left Right



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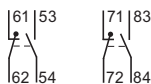
3RH1921-2DE11

Sizes S3 to S12

3RT1.4 ...
3RT1.7

Second laterally mountable auxiliary switch block (right or left), 2-pole

Left Right



--



3RH1921-2JE11

¹⁾ 1 NO + 1 NC standard auxiliary switches:
See descriptions on page 3/96.

Power Contactors for Switching Motors

Accessories for 3RT1 Contactors

Solid-state time-delay auxiliary switch blocks and timing relay blocks

Selection and ordering data

For contactors	Auxiliary contacts	Rated control supply voltage $U_s^{1)}$	Time setting range t	DT	Screw terminals		PU (UNIT, SET, M)	PS*	PG			
Type	V		s		Article No.	Price per PU						
Solid-state time-delay auxiliary switch blocks for snapping onto the front, terminal designations according to DIN 46199-5												
Sizes S2 to S12												
 3RT1926-2....	3RT10, 3RT13, 3RT14, 3RT15	1 NO + 1 NC	24 AC/DC	0.05 ... 1	C	3RT1926-2EJ11	1	1 unit	41H			
				0.5 ... 10	▶	3RT1926-2EJ21	1	1 unit	41H			
				5 ... 100	A	3RT1926-2EJ31	1	1 unit	41H			
			100 ... 127 AC	0.05 ... 1	C	3RT1926-2EC11	1	1 unit	41H			
				0.5 ... 10	▶	3RT1926-2EC21	1	1 unit	41H			
				5 ... 100	C	3RT1926-2EC31	1	1 unit	41H			
			200 ... 240 AC	0.05 ... 1	B	3RT1926-2ED11	1	1 unit	41H			
				0.5 ... 10	▶	3RT1926-2ED21	1	1 unit	41H			
				5 ... 100	B	3RT1926-2ED31	1	1 unit	41H			
			OFF-delay without control signal ²⁾³⁾									
			3RT10, 3RT13, 3RT14, 3RT15	1 NO + 1 NC	24 AC/DC	0.05 ... 1	▶	3RT1926-2FJ11	1	1 unit	41H	
						0.5 ... 10	▶	3RT1926-2FJ21	1	1 unit	41H	
	5 ... 100	▶			3RT1926-2FJ31	1	1 unit	41H				
100 ... 127 AC/DC	0.05 ... 1	B			3RT1926-2FK11	1	1 unit	41H				
	0.5 ... 10	▶			3RT1926-2FK21	1	1 unit	41H				
	5 ... 100	B			3RT1926-2FK31	1	1 unit	41H				
200 ... 240 AC/DC	0.05 ... 1	B			3RT1926-2FL11	1	1 unit	41H				
	0.5 ... 10	A			3RT1926-2FL21	1	1 unit	41H				
	5 ... 100	A			3RT1926-2FL31	1	1 unit	41H				
Wye-delta function (varistor integrated) ²⁾												
3RT10, 3RT13, 3RT14, 3RT15	1 NO delayed + 1 NO instantaneous, dead time 50 ms	24 AC/DC			1.5 ... 30	▶	3RT1926-2GJ51	1	1 unit	41H		
		100 ... 127 AC			1.5 ... 30	▶	3RT1926-2GC51	1	1 unit	41H		
		200 ... 240 AC	1.5 ... 30	▶	3RT1926-2GD51	1	1 unit	41H				
Solid-state timing relay blocks with semiconductor output												
Sizes S2 and S3												
 3RT1926-2C...	3RT103, 3RT104, 3RT13 ⁴⁾ , 3RT15	--	24 ... 66 AC/DC	0.05 ... 1	B	3RT1926-2CG11	1	1 unit	41H			
				0.5 ... 10	B	3RT1926-2CG21	1	1 unit	41H			
				5 ... 100	B	3RT1926-2CG31	1	1 unit	41H			
				90 ... 240 AC/DC	0.05 ... 1	▶	3RT1926-2CH11	1	1 unit	41H		
					0.5 ... 10	▶	3RT1926-2CH21	1	1 unit	41H		
					5 ... 100	▶	3RT1926-2CH31	1	1 unit	41H		
 3RT1926-2D...	3RT103, 3RT104, 3RT13 ⁴⁾ , 3RT15	--	24 ... 66 AC/DC	0.05 ... 1	C	3RT1926-2DG11	1	1 unit	41H			
				0.5 ... 10	B	3RT1926-2DG21	1	1 unit	41H			
				5 ... 100	D	3RT1926-2DG31	1	1 unit	41H			
				90 ... 240 AC/DC	0.05 ... 1	B	3RT1926-2DH11	1	1 unit	41H		
					0.5 ... 10	B	3RT1926-2DH21	1	1 unit	41H		
					5 ... 100	C	3RT1926-2DH31	1	1 unit	41H		
OFF-delay devices												
Sizes S2 and S3												
 3RT1916-2BE01	3RT103, 3RT104	24 DC	S2: 90 fixed	B	3RT1916-2BE01	1	1 unit	41H				
		Only for contactors with DC operation	S3: 70 fixed									

For technical specifications, operating travel diagrams and circuit diagrams see pages 3/99 and 3/100.

¹⁾ The AC voltages are valid for 50 and 60 Hz.

²⁾ Terminals A1 and A2 for the control supply voltage of the solid-state time-delay auxiliary switch must be connected to the associated contactor by means of connecting cables.

³⁾ Setting of output contacts in as-supplied state not defined (bistable relay). Application of the control supply voltage once results in contact change-over to the correct setting.

⁴⁾ In addition to these, no other auxiliary contacts are permitted.

Power Contactors for Switching Motors

Accessories for 3RT1 Contactors

Surge suppressors

Selection and ordering data

For contactors	Version	Rated control supply voltage U_s ¹⁾		DT	Article No. ²⁾	Price per PU	PU (UNIT, SET, M)	PS*	PG			
		AC operation	DC operation									
Type		V AC	V DC									
Surge suppressors without LED												
Sizes S2 and S3 (also for spring-type terminals)												
For fitting onto the coil terminals at top or bottom												
	3RT1.3, 3RT1.4		Varistor		24 ... 48	24 ... 70	▶	3RT1926-1BB00	1	1 unit	41B	
					48 ... 127	70 ... 150	▶	3RT1926-1BC00	1	1 unit	41B	
					127 ... 240	150 ... 250	▶	3RT1926-1BD00	1	1 unit	41B	
					240 ... 400	--	▶	3RT1926-1BE00	1	1 unit	41B	
					400 ... 600	--	B	3RT1926-1BF00	1	1 unit	41B	
3RT1926-1B.00												
	3RT1.3 ³⁾ , 3RT1.4		RC elements		24 ... 48	24 ... 70	▶	3RT1936-1CB00	1	1 unit	41B	
					48 ... 127	70 ... 150	▶	3RT1936-1CC00	1	1 unit	41B	
					127 ... 240	150 ... 250	▶	3RT1936-1CD00	1	1 unit	41B	
					240 ... 400	--	▶	3RT1936-1CE00	1	1 unit	41B	
					400 ... 600	--	B	3RT1936-1CF00	1	1 unit	41B	
3RT1936-1C.00												
	3RT1.3, 3RT1.4		Diode assembly for DC operation									
			• Connectable at the top		--	24	▶	3RT1936-1ER00	1	1 unit	41B	
			(e.g. for contactor with overload relay)		--	30 ... 250	▶	3RT1936-1ES00	1	1 unit	41B	
			• Connectable at the bottom		--	24	▶	3RT1936-1TR00	1	1 unit	41B	
(e.g. for fuseless load feeders)		--	30 ... 250	B	3RT1936-1TS00	1	1 unit	41B				
Sizes S6 to S12												
	3RT1.5, 3RT1.6, 3RT1.7		For connecting to withdrawable coil for contactors with		Screw terminals 							
			• conventional operating mechanism 3RT1....A...									
			• solid-state operating mechanism 3RT1....N...									
			RC elements		24 ... 48	24 ... 70	▶	3RT1956-1CB00	1	1 unit	41B	
					48 ... 127	70 ... 150	▶	3RT1956-1CC00	1	1 unit	41B	
3RT1956-1C.00					127 ... 240	150 ... 250	▶	3RT1956-1CD00	1	1 unit	41B	
					240 ... 400	--	▶	3RT1956-1CE00	1	1 unit	41B	
					400 ... 600	--	C	3RT1956-1CF00	1	1 unit	41B	
	3RT1.5, 3RT1.6, 3RT1.7		RC elements		24 ... 48	24 ... 70	▶	3RT1956-1CB02	1	1 unit	41B	
					48 ... 127	70 ... 150	A	3RT1956-1CC02	1	1 unit	41B	
					127 ... 240	150 ... 250	▶	3RT1956-1CD02	1	1 unit	41B	
					240 ... 400	--	A	3RT1956-1CE02	1	1 unit	41B	
					400 ... 600	--	C	3RT1956-1CF02	1	1 unit	41B	

¹⁾ Can be used for AC operation for 50/60 Hz. Please inquire about further voltages.

²⁾ For packs of 10 or 5 units, "-Z" and order code "X90" must be added to the Article No.

³⁾ For 3RT1.3 with AC operation mountable only at the top.

For contactors	Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type							

Main current path surge suppression modules for 3RT12 vacuum contactors

Sizes S10 and S12

3RT12	For damping overvoltages and protecting motor windings against multiple re-ignition when switching off three-phase motors.						
	For connection on the contactor feeder side (2-T1/4-T2/6-T3). For separate installation.						
	Rated operational voltage $U_o = 690$ V AC	C	3RT1966-1PV3		1	1 unit	41B
	Rated operational voltage $U_o = 1\,000$ V AC	C	3RT1966-1PV4		1	1 unit	41B

Power Contactors for Switching Motors

Accessories for 3RT1 Contactors

Miscellaneous accessories

Selection and ordering data

For contactors	Rated control supply voltage U_s	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
Type	V		Article No.	Price per PU		

Mechanical latching blocks

Size S2



3RT1926-3A.31

For mounting on 1 contactor¹⁾

The contactor remains in the energized state even after a voltage failure

3RT1.3	24 AC/DC	A	3RT1926-3AB31	1	1 unit	41B
	110 AC/DC	B	3RT1926-3AF31	1	1 unit	41B
	230 AC/DC	B	3RT1926-3AP31	1	1 unit	41B

¹⁾ Two front-mounted auxiliary switch blocks can be mounted in addition.

For contactors	Version	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
Type	V		Article No.	Price per PU		

Coupling links for control by PLC

Sizes S2 and S3



3RH1924-1GP11

For mounting onto the coil terminals of the contactors
With LED for indicating switching state

Operating range: 17 ... 30 V DC
Power consumption: 0.5 W at 24 V DC
Permissible residual current of the electronics (with 0 signal): 2.5 mA

Rated operational current I_e :

- AC-15/AC-14 at 230 V: 3 A
- DC-13 at 230 V: 0.1 A

With integrated varistor for damping opening surges.

▶	3RH1924-1GP11	1	1 unit	41B
---	----------------------	---	--------	-----

For contactors	Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type							

LED modules for displaying contactor operation

Sizes S2 to S12¹⁾ (also for spring-type terminals)

3RT1926-1QT00
mounted on contactor

3RT1.3, 3RT1.4	For snapping into the location hole of an inscription label on the front of a contactor either directly on the contactor or on the front auxiliary switch. The LED module is connected to coil terminals A1 and A2 of the contactor and indicates its energized state. Yellow LED. Rated voltage: 24 ... 240 V AC/DC with reverse polarity protection	B	3RT1926-1QT00	1	5 units	41B
-------------------	--	---	----------------------	---	---------	-----

Auxiliary terminals, 3-pole

Size S3



3RT1946-4F

3RT104.	For connection of auxiliary and control cables (0.5 to 2.5 mm ²) to the main conductor connections (for one side)	B	3RT1946-4F	1	1 unit	41B
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For technical specifications for latching blocks [see page 3/102](#).

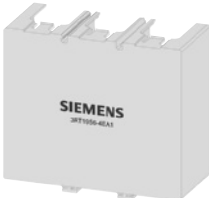
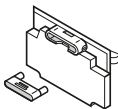
¹⁾ For sizes S6 to S12 the connecting leads have to be extended.

For technical specifications and circuit diagram for coupling links [see page 3/101](#).

Power Contactors for Switching Motors

Accessories for 3RT1 Contactors

Miscellaneous accessories

For contactors		Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	
Size	Type								
Box terminal blocks									
	S6	3RT1.5 (3RB205)	For round and ribbon cables ¹⁾						
			Up to 70 mm ^{2 2)}	▶	3RT1955-4G	1	1 unit	41B	
		Up to 120 mm ²	▶	3RT1956-4G	1	1 unit	41B		
		Auxiliary conductor connection for box terminals		B	3TX7500-0A	1	1 unit	41B	
3RT195-4G	S10, S12	3RT1.6, 3RT1.7 (3RB206,3 RB216)	Up to 240 mm ²	▶	3RT1966-4G	1	1 unit	41B	
Covers									
	S2	3RT103	Terminal covers for box terminals (additional touch protection)						
			To be fitted at the box terminals (2 units required per contactor)						
3RT1936-4EA2			--	B	3RT1936-4EA2	1	1 unit	41B	
	S3	3RT133, 3RT153	For 4-pole contactors		B	3RT1936-4EA4	1	1 unit	41B
			--		▶	3RT1946-4EA2	1	1 unit	41B
3RT1956-4EA2		3RT104, 3RT144	--						
		3RT134	For 4-pole contactors	B	3RT1946-4EA4	1	1 unit	41B	
	S6 ³⁾	3RT1.5	Length: 25 mm	▶	3RT1956-4EA2	1	1 unit	41B	
	S10, S12 ³⁾	3RT1.6, 3RT1.7	Length: 30 mm	▶	3RT1966-4EA2	1	1 unit	41B	
	S3	3RT104, 3RT144	Terminal covers for cable lugs and busbar connection ³⁾						
			For complying with the phase clearances and as touch protection if box terminal is removed (2 units required per contactor)						
		--	B	3RT1946-4EA1	1	1 unit	41B		
	3RT1956-4EA1	S6	3RT1.5	Length: 100 mm	▶	3RT1956-4EA1	1	1 unit	41B
	S10/S12	3RT1.6, 3RT1.7	Length: 120 mm	▶	3RT1966-4EA1	1	1 unit	41B	
	S6	3RT1.5	Can be screwed on free screw end; covers one busbar connection (1 set = 6 units)						
			M8		B	3TX6526-3B	1	1 unit	41B
3TX6526-3B	S10, S12	3RT1.6, 3RT1.7	M10	B	3TX6546-3B	1	1 unit	41B	
	S6	3RT1.5	For busbar cover between contactor and 3RB2 overload relay or wiring module for contactor assemblies						
			Length: 27 mm		▶	3RT1956-4EA3	1	1 unit	41B
	S10/S12 ⁴⁾	3RT1.6, 3RT1.7	Length: 42 mm	▶	3RT1966-4EA3	1	1 unit	41B	
	S6	3RT1.5	For busbar cover of the flat line connectors for reversing and wye-delta assemblies						
			Length: 38 mm		▶	3RT1956-4EA4	1	1 unit	41B
Sealable covers									
	S2 ... S12	3RT1.3... 3RT1.7 ⁵⁾	1 unit required per contactor		C	3RT1926-4MA10	1	5 units	41B
IC01_00162									
3RT1926-4MA10									

¹⁾ Connectable cross-sections of the contactors see [Technical Specifications, pages 3/75 and 3/80](#).

²⁾ As standard for 3RT1054-1 contactor (55 kW).

³⁾ Also fits on contactors S6 to S12 with box terminals.

⁴⁾ The 3RT1966-4EA3 cover is required in addition for use in contactor assemblies (reversing/wye-delta).

⁵⁾ Exception: contactors and contactor relays with auxiliary switch block mounted onto the front.

Power Contactors for Switching Motors

Accessories for 3RT1 Contactors

Miscellaneous accessories

For contactors		Max. conductor cross-sections	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
Size	Type	mm ²		Article No.	Price per PU		

Links for paralleling



3RT1936-4BB31

S2 3-pole, with connection terminal¹⁾²⁾
3RT103 95



3RT1936-4BB31

1 1 unit 41B



3RT1956-4BA31

S3 3-pole, with through hole
(star jumpers)¹⁾²⁾³⁾
3RT104, 185
3RT144
S6 3RT1.5 --
S10/S12 3RT1.6, --
3RT1.7



3RT1946-4BB31

1 1 unit 41B



3RT1956-4BA31

1 1 unit 41B



3RT1966-4BA31

1 1 unit 41B

¹⁾ The links for paralleling can be reduced by one pole.

²⁾ Size S2: The links for paralleling are insulated.
Size S3: A cover plate is included for touch protection.
(Can only be used when the box terminal is removed.)
Sizes S6 to S12: The 3RT1956-4EA1 (for S6) or 3RT1966-4EA1
(for S10 and S12) cover can be used for touch protection.

³⁾ The star jumpers to the contactors of sizes S6 and S10/S12 are approved according to UL and CSA.

Version	DT	Spring-type terminals	PU (UNIT, SET, M)	PS*	PG
		Article No.	Price per PU		

Insulation stop for securely holding back the conductor insulation on conductors up to 1 mm²



3RT1916-4JA02

Insulation stop strip can be inserted in cable entry of spring-type terminals (2 strips per contactor required, can be removed in pairs)
For all SIRIUS devices with spring-type terminals, up to 2.5 mm² conductor cross-section.

B

3RT1916-4JA02

1 20 units 41B

Tools for opening spring-type terminal points



3RA2908-1A

For all SIRIUS devices with spring-type terminals, for conductor cross-sections up to 2.5 mm²
Not suitable for devices with removable terminal
Length: approx. 200 mm,
3.0 mm x 0.5 mm,
titanium gray/black, partially insulated

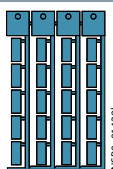
A

3RA2908-1A

1 1 unit 41B

Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
---------	----	-------------	-----------------	----------------------------	-----	----

Blank labels



3RT1900-1SB20

Unit labeling plates for SIRIUS devices¹⁾

- 10 mm x 7 mm, pastel turquoise
- 20 mm x 7 mm, pastel turquoise

C

3RT1900-1SB10

100 816 units 41B

D

3RT1900-1SB20

100 340 units 41B

Adhesive labels for SIRIUS devices

- 19 mm x 6 mm, pastel turquoise
- 19 mm x 6 mm, zinc/yellow

C

3RT1900-1SB60

100 3 060 units 41B

C

3RT1900-1SD60

100 3 060 units 41B

¹⁾ PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see Chapter 16, "Appendix" → "External Partners").

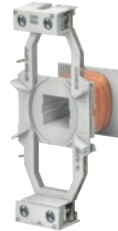
Power Contactors for Switching Motors

Spare parts for 3RT1 Contactors

Solenoid coils

Selection and ordering data

PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B



3RT1934-5A.01

For contactors		Rated control supply voltage U_s			DT	Screw terminals	DT	Spring-type terminals
		50 Hz	50/60 Hz	60 Hz		Article No.	Price per PU	Article No.
Size	Type	V	V	V				Price per PU
Solenoid coils · AC operation								
S2	3RT1034	24	--	--	B	3RT1934-5AB01	B	3RT1934-5AB02
		42	--	--	B	3RT1934-5AD01	B	3RT1934-5AD02
		48	--	--	B	3RT1934-5AH01	B	3RT1934-5AH02
		110	--	--	B	3RT1934-5AF01	B	3RT1934-5AF02
		230	--	--	B	3RT1934-5AP01	B	3RT1934-5AP02
		400	--	--	C	3RT1934-5AV01	B	3RT1934-5AV02
		--	24	--	B	3RT1934-5AC21	B	3RT1934-5AC22
		--	42	--	B	3RT1934-5AD21	B	3RT1934-5AD22
		--	48	--	B	3RT1934-5AH21	B	3RT1934-5AH22
		--	110	--	C	3RT1934-5AG21	B	3RT1934-5AG22
		--	220	--	C	3RT1934-5AN21	B	3RT1934-5AN22
		--	230	--	C	3RT1934-5AL21	B	3RT1934-5AL22
	3RT1035, 3RT1036, 3RT133., 3RT153.	110	--	120	B	3RT1934-5AK61	B	3RT1934-5AK62
		220	--	240	B	3RT1934-5AP61	B	3RT1934-5AP62
		--	100	110	B	3RT1934-5AG61	B	3RT1934-5AG62
		--	200	220	B	3RT1934-5AN61	B	3RT1934-5AN62
		--	400	440	B	3RT1934-5AR61	B	3RT1934-5AR62
		24	--	--	B	3RT1935-5AB01	B	3RT1935-5AB02
		42	--	--	B	3RT1935-5AD01	B	3RT1935-5AD02
		48	--	--	B	3RT1935-5AH01	B	3RT1935-5AH02
		110	--	--	► B	3RT1935-5AF01	B	3RT1935-5AF02
		230	--	--	► B	3RT1935-5AP01	B	3RT1935-5AP02
		400	--	--	C	3RT1935-5AV01	B	3RT1935-5AV02
		--	24	--	B	3RT1935-5AC21	B	3RT1935-5AC22
		--	42	--	B	3RT1935-5AD21	B	3RT1935-5AD22
		--	48	--	B	3RT1935-5AH21	B	3RT1935-5AH22
		--	110	--	B	3RT1935-5AG21	B	3RT1935-5AG22
		--	220	--	B	3RT1935-5AN21	B	3RT1935-5AN22
		--	230	--	B	3RT1935-5AL21	B	3RT1935-5AL22
		110	--	120	B	3RT1935-5AK61	B	3RT1935-5AK62
		220	--	240	B	3RT1935-5AP61	B	3RT1935-5AP62
		--	100	110	B	3RT1935-5AG61	B	3RT1935-5AG62
		--	200	220	B	3RT1935-5AN61	B	3RT1935-5AN62
		--	400	440	C	3RT1935-5AR61	B	3RT1935-5AR62

Note:

Contactors with AC and DC coils have different depths. That is why when replacing coils it is only possible to replace AC coils with AC coils and DC coils with DC coils.

Power Contactors for Switching Motors

Spare parts for 3RT1 Contactors

Solenoid coils

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B



3RT1944-5A.01



3RT1944-5B.42



3RT1945-5A.01



3RT1945-5A.02

For contactors		Rated control supply voltage U_s				DT	Screw terminals			DT	Spring-type terminals		
Size	Type	AC			DC		Article No.	Price per PU			Article No.	Price per PU	
		50 Hz	50/60 Hz	60 Hz									
		V	V	V	V								
Solenoid coils · AC operation													
S3	3RT1044	24	--	--	--	B	3RT1944-5AB01	B	B	3RT1944-5AB02			
		42	--	--	--	B	3RT1944-5AD01	B	B	3RT1944-5AD02			
		48	--	--	--	B	3RT1944-5AH01	B	B	3RT1944-5AH02			
		110	--	--	--	B	3RT1944-5AF01	B	B	3RT1944-5AF02			
		230	--	--	--	B	3RT1944-5AP01	B	B	3RT1944-5AP02			
		400	--	--	--	B	3RT1944-5AV01	B	B	3RT1944-5AV02			
		--	24	--	--	B	3RT1944-5AC21	B	B	3RT1944-5AC22			
		--	42	--	--	B	3RT1944-5AD21	B	B	3RT1944-5AD22			
		--	48	--	--	B	3RT1944-5AH21	B	B	3RT1944-5AH22			
		--	110	--	--	B	3RT1944-5AG21	B	B	3RT1944-5AG22			
		--	220	--	--	B	3RT1944-5AN21	B	B	3RT1944-5AN22			
		--	230	--	--	B	3RT1944-5AL21	B	B	3RT1944-5AL22			
	3RT1045, 3RT1046, 3RT134., 3RT1446, 3RT154.	110	--	120	--	B	3RT1944-5AK61	B	B	3RT1944-5AK62			
		220	--	240	--	B	3RT1944-5AP61	B	B	3RT1944-5AP62			
		--	100	110	--	B	3RT1944-5AG61	B	B	3RT1944-5AG62			
		--	200	220	--	B	3RT1944-5AN61	B	B	3RT1944-5AN62			
		--	400	440	--	B	3RT1944-5AR61	B	B	3RT1944-5AR62			
		24	--	--	--	B	3RT1945-5AB01	B	B	3RT1945-5AB02			
		42	--	--	--	B	3RT1945-5AD01	B	B	3RT1945-5AD02			
		48	--	--	--	B	3RT1945-5AH01	B	B	3RT1945-5AH02			
		110	--	--	--	B	3RT1945-5AF01	B	B	3RT1945-5AF02			
		230	--	--	--	B	3RT1945-5AP01	B	B	3RT1945-5AP02			
		400	--	--	--	C	3RT1945-5AV01	B	B	3RT1945-5AV02			
		--	24	--	--	B	3RT1945-5AC21	B	B	3RT1945-5AC22			
	--	42	--	--	B	3RT1945-5AD21	B	B	3RT1945-5AD22				
	--	48	--	--	B	3RT1945-5AH21	B	B	3RT1945-5AH22				
	--	110	--	--	B	3RT1945-5AG21	B	B	3RT1945-5AG22				
	--	220	--	--	B	3RT1945-5AN21	B	B	3RT1945-5AN22				
	--	230	--	--	B	3RT1945-5AL21	B	B	3RT1945-5AL22				
	110	--	120	--	B	3RT1945-5AK61	B	B	3RT1945-5AK62				
	220	--	240	--	B	3RT1945-5AP61	B	B	3RT1945-5AP62				
	--	100	110	--	B	3RT1945-5AG61	B	B	3RT1945-5AG62				
	--	200	220	--	C	3RT1945-5AN61	B	B	3RT1945-5AN62				
	--	400	440	--	B	3RT1945-5AR61	B	B	3RT1945-5AR62				
Solenoid coils · DC operation													
S2	3RT103.,	--	--	--	24	B	3RT1934-5BB41	B	B	3RT1934-5BB42			
	3RT133.,	--	--	--	42	B	3RT1934-5BD41	B	B	3RT1934-5BD42			
	3RT153.	--	--	--	48	B	3RT1934-5BW41	B	B	3RT1934-5BW42			
	--	--	--	--	60	B	3RT1934-5BE41	B	B	3RT1934-5BE42			
	--	--	--	--	110	B	3RT1934-5BF41	B	B	3RT1934-5BF42			
	--	--	--	--	125	B	3RT1934-5BG41	B	B	3RT1934-5BG42			
	--	--	--	--	220	B	3RT1934-5BM41	B	B	3RT1934-5BM42			
	--	--	--	--	230	B	3RT1934-5BP41	B	B	3RT1934-5BP42			
	3RT104.,	--	--	--	24	B	3RT1944-5BB41	B	B	3RT1944-5BB42			
	3RT134.,	--	--	--	42	C	3RT1944-5BD41	B	B	3RT1944-5BD42			
	3RT144.,	--	--	--	48	B	3RT1944-5BW41	B	B	3RT1944-5BW42			
	3RT154.	--	--	--	60	B	3RT1944-5BE41	B	B	3RT1944-5BE42			
--	--	--	--	110	B	3RT1944-5BF41	B	B	3RT1944-5BF42				
--	--	--	--	125	B	3RT1944-5BG41	B	B	3RT1944-5BG42				
--	--	--	--	220	B	3RT1944-5BM41	B	B	3RT1944-5BM42				
--	--	--	--	230	B	3RT1944-5BP41	B	B	3RT1944-5BP42				

Note:

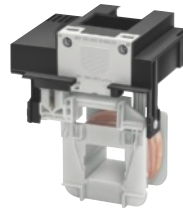
Contactors with AC and DC coils have different depths. That is why when replacing coils it is only possible to replace AC coils with AC coils and DC coils with DC coils.

Power Contactors for Switching Motors

Spare parts for 3RT1 Contactors

Solenoid coils

PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B



3RT1955-5A... 1

For contactors		Rated control supply voltage $U_{s\ min} \dots U_{s\ max}$		DT	Screw terminals 		DT	Spring-type terminals 	
Size	Type	V AC/DC			Article No.	Price per PU		Article No.	Price per PU
Withdrawable coils									
Conventional operating mechanisms									
S6	3RT105, 3RT145	23 ... 26	B	3RT1955-5AB31	B	3RT1955-5AB32			
		42 ... 48	B	3RT1955-5AD31	B	3RT1955-5AD32			
		110 ... 127	B	3RT1955-5AF31	B	3RT1955-5AF32			
		200 ... 220	B	3RT1955-5AM31	B	3RT1955-5AM32			
		220 ... 240	B	3RT1955-5AP31	B	3RT1955-5AP32			
		240 ... 277	B	3RT1955-5AU31	B	3RT1955-5AU32			
		380 ... 420	B	3RT1955-5AV31	B	3RT1955-5AV32			
		440 ... 480	B	3RT1955-5AR31	B	3RT1955-5AR32			
		500 ... 550	B	3RT1955-5AS31	B	3RT1955-5AS32			
		575 ... 600	B	3RT1955-5AT31	B	3RT1955-5AT32			
S10	3RT106, 3RT146	23 ... 26	B	3RT1965-5AB31	B	3RT1965-5AB32			
		42 ... 48	B	3RT1965-5AD31	B	3RT1965-5AD32			
		110 ... 127	B	3RT1965-5AF31	B	3RT1965-5AF32			
		200 ... 220	C	3RT1965-5AM31	B	3RT1965-5AM32			
		220 ... 240	B	3RT1965-5AP31	B	3RT1965-5AP32			
		240 ... 277	B	3RT1965-5AU31	B	3RT1965-5AU32			
		380 ... 420	B	3RT1965-5AV31	B	3RT1965-5AV32			
		440 ... 480	B	3RT1965-5AR31	B	3RT1965-5AR32			
		500 ... 550	C	3RT1965-5AS31	B	3RT1965-5AS32			
		575 ... 600	C	3RT1965-5AT31	B	3RT1965-5AT32			
S10	3RT126 vacuum contactors	23 ... 26	B	3RT1966-5AB31		---			
		42 ... 48	B	3RT1966-5AD31		---			
		110 ... 127	A	3RT1966-5AF31		---			
		200 ... 220	C	3RT1966-5AM31		---			
		220 ... 240	A	3RT1966-5AP31		---			
		240 ... 277	C	3RT1966-5AU31		---			
		380 ... 420	B	3RT1966-5AV31		---			
		440 ... 480	C	3RT1966-5AR31		---			
		500 ... 550	C	3RT1966-5AS31		---			
		575 ... 600	C	3RT1966-5AT31		---			
S12	3RT107, 3RT147, 3RT12 7 vacuum contactors	23 ... 26	B	3RT1975-5AB31	B	3RT1975-5AB32			
		42 ... 48	B	3RT1975-5AD31	B	3RT1975-5AD32			
		110 ... 127	B	3RT1975-5AF31	B	3RT1975-5AF32			
		200 ... 220	C	3RT1975-5AM31	B	3RT1975-5AM32			
		220 ... 240	B	3RT1975-5AP31	B	3RT1975-5AP32			
		240 ... 277	B	3RT1975-5AU31	B	3RT1975-5AU32			
		380 ... 420	B	3RT1975-5AV31	B	3RT1975-5AV32			
		440 ... 480	B	3RT1975-5AR31	B	3RT1975-5AR32			
		500 ... 550	C	3RT1975-5AS31	B	3RT1975-5AS32			
		575 ... 600	C	3RT1975-5AT31	B	3RT1975-5AT32			

Power Contactors for Switching Motors

Spare parts for 3RT1 Contactors

Solenoid coils

PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B



3RT1955-5N...1

For contactors			Rated control supply voltage U_s	DT	Screw terminals			DT	Spring-type terminals		
					Article No.	Price per PU			Article No.	Price per PU	
Size	Type	V AC/DC									
Withdrawable coils											
Solid-state operating mechanism											
For 24 V DC PLC output											
S6	3RT105,	21 ... 27.3		C	3RT1955-5NB31			B	3RT1955-5NB32		
	3RT145	96 ... 127		B	3RT1955-5NF31			B	3RT1955-5NF32		
		200 ... 277		B	3RT1955-5NP31			B	3RT1955-5NP32		
S10	3RT106,	21 ... 27.3		B	3RT1965-5NB31			B	3RT1965-5NB32		
	3RT146	96 ... 127		B	3RT1965-5NF31			B	3RT1965-5NF32		
		200 ... 277		B	3RT1965-5NP31			B	3RT1965-5NP32		
S12	3RT12 6	21 ... 27.3		B	3RT1966-5NB31				--		
	vacuum	96 ... 127		C	3RT1966-5NF31				--		
	contactors	200 ... 277		C	3RT1966-5NP31				--		
	3RT107,	21 ... 27.3		B	3RT1975-5NB31			B	3RT1975-5NB32		
	3RT147,	96 ... 127		B	3RT1975-5NF31			B	3RT1975-5NF32		
	3RT12 7	200 ... 277		B	3RT1975-5NP31			B	3RT1975-5NP32		
	vacuum										
	contactors										
For 24 V DC PLC output/PLC relay output, with remaining lifetime indicator (RLT)											
(withdrawable coil with laterally mounted solid-state module)											
S6	3RT105,	96 ... 127		B	3RT1955-5PF31				--		
	3RT145	200 ... 277		B	3RT1955-5PP31				--		
S10	3RT106,	96 ... 127		B	3RT1965-5PF31				--		
	3RT146	200 ... 277		B	3RT1965-5PP31				--		
S12	3RT107,	96 ... 127		B	3RT1975-5PF31				--		
	3RT147	200 ... 277		B	3RT1975-5PP31				--		

Power Contactors for Switching Motors

Spare parts for 3RT1 Contactors

Contacts and arc chutes

Selection and ordering data

For contactors		Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Size	Type							
Contacts with fixing parts								
For contactors with 3 main contacts								
S2	3RT1034	Main contacts (3 NO contacts) for utilization category AC-3 (1 set = 3 movable and 6 fixed switching elements with fixing parts)	▶	3RT1934-6A		1	1 unit	41B
	▶		3RT1935-6A		1	1 unit	41B	
	▶		3RT1936-6A		1	1 unit	41B	
S3	3RT1044		B	3RT1944-6A		1	1 unit	41B
	B		3RT1945-6A		1	1 unit	41B	
	B		3RT1946-6A		1	1 unit	41B	
S6	3RT1054		▶	3RT1954-6A		1	1 unit	41B
	▶		3RT1955-6A		1	1 unit	41B	
	▶		3RT1956-6A		1	1 unit	41B	
S10	3RT1064		▶	3RT1964-6A		1	1 unit	41B
	▶		3RT1965-6A		1	1 unit	41B	
	▶		3RT1966-6A		1	1 unit	41B	
S12	3RT1075		▶	3RT1975-6A		1	1 unit	41B
	A		3RT1976-6A		1	1 unit	41B	
S3	3RT1446	Main contacts (3 NO contacts) for utilization category AC-1	B	3RT1946-6D		1	1 unit	41B
S6	3RT1456	(1 set = 3 movable and 6 fixed switching elements with fixing parts)	B	3RT1956-6D		1	1 unit	41B
S10	3RT1466		B	3RT1966-6D		1	1 unit	41B
S12	3RT1476		A	3RT1976-6D		1	1 unit	41B
For 3RT12 vacuum contactors								
S10	3RT1264	3 vacuum interrupters with fixing parts	B	3RT1964-6V		1	1 unit	41B
	B		3RT1965-6V		1	1 unit	41B	
	B		3RT1966-6V		1	1 unit	41B	
S12	3RT1275		B	3RT1975-6V		1	1 unit	41B
	B		3RT1976-6V		1	1 unit	41B	
For contactors with 4 main contacts								
S2	3RT1336	Main contacts (4 NO contacts) for utilization category AC-1	B	3RT1936-6E		1	1 unit	41B
S3	3RT1344	(1 set = 4 movable and 8 fixed switching elements with fixing parts)	B	3RT1944-6E		1	1 unit	41B
	B		3RT1946-6E		1	1 unit	41B	
Arc chutes								
S2	3RT103.	Arc chutes, 3-pole	B	3RT1936-7A		1	1 unit	41B
S3	3RT104., 3RT1446		B	3RT1946-7A		1	1 unit	41B
S6	3RT1054		B	3RT1954-7A		1	1 unit	41B
	3RT1055		B	3RT1955-7A		1	1 unit	41B
	3RT1056		B	3RT1956-7A		1	1 unit	41B
S10	3RT1064		B	3RT1964-7A		1	1 unit	41B
	3RT1065		B	3RT1965-7A		1	1 unit	41B
	3RT1066		B	3RT1966-7A		1	1 unit	41B
S12	3RT1075		B	3RT1975-7A		1	1 unit	41B
	3RT1076		B	3RT1976-7A		1	1 unit	41B
S6	3RT1456		B	3RT1956-7B		1	1 unit	41B
S10	3RT1466		B	3RT1966-7B		1	1 unit	41B
S12	3RT1476		B	3RT1976-7B		1	1 unit	41B

Overview

Standards

IEC 60947-1, EN 60947-1,
IEC 60947-4-1, EN 60947-4-1,
IEC 60947-5-1, EN 60947-5-1 (auxiliary switches)

The 3TF68/3TF69 contactors are suitable for use in any climate.

They are finger-safe according to EN 50274. Terminal covers may have to be fitted onto the connecting bars, depending on the configuration with other devices (see [Accessories and Spare Parts on page 3/125](#)).

Main contacts

Contact erosion indication with 3TF68/3TF69 vacuum contactors

The contact erosion of the vacuum interrupters can be checked during operation with the help of 3 white double slides on the contactor base. If the distance indicated by one of the double slides is < 0.5 mm while the contactor is in the closed position, then the vacuum interrupter must be replaced. To ensure maximum reliability, it is recommended to replace all 3 vacuum interrupters simultaneously.

Auxiliary contacts

Contact reliability

These auxiliary contacts are particularly suitable for solid-state circuits with currents ≥ 1 mA at a voltage ≥ 17 V.

Electromagnetic compatibility

The 3TF68/3TF69...C contactors for AC operation are fitted with an electronically controlled solenoid operating mechanism with a high interference immunity (for EMC values see [page 3/120](#)). The solenoid coil is connected to varistors for protection against overvoltages.

The 3TF68/3TF69...Q.. contactors for AC operation are designed for operation in systems with AC control supply voltage which is subject to strong interference. The solenoid systems of these contactors are configured in the DC economy circuit with rectification. The rectifier bridge is connected to varistors for protection against overvoltages.

Protection of the main current paths

An integrated RC varistor connection for the main current paths dampens the switching overvoltage rises to safe values. This prevents multiple restricting. It can therefore be assumed that the motor winding cannot be damaged by switching overvoltages with steep voltage rises.

Note:

During operation in installations in which the emitted interference limits cannot be observed, e.g. when used for output contactors in converters, 3TF68/3TF69...Q contactors – without connection of the main current path circuit – are recommended.

Technical specifications

Contactor	Type	3TF68 and 3TF69
Rated data of the auxiliary contacts		According to IEC 60947-5-1
Rated insulation voltage U_i (pollution degree 3)	V	690
Conventional thermal current I_{th} = Rated operational current I_e/AC-12	A	10
AC load Rated operational current I_e/AC-15/AC-14 • For rated operational voltage U_e		
- At 24 V	A	10
- At 110 V	A	10
- At 125 V	A	10
- At 220 V	A	6
- At 230 V	A	5.6
- At 380 V	A	4
- At 400 V	A	3.6
- At 500 V	A	2.5
- At 660 V	A	2.5
- At 690 V	A	2.3
DC load Rated operational current I_e/DC-12 • For rated operational voltage U_e		
- At 24 V	A	10
- At 60 V	A	10
- At 110 V	A	3.2
- At 125 V	A	2.5
- At 220 V	A	0.9
- At 440 V	A	0.33
- At 600 V	A	0.22
Rated operational current I_e/DC-13 • For rated operational voltage U_e		
- At 24 V	A	10
- At 60 V	A	5
- At 110 V	A	1.14
- At 125 V	A	0.98
- At 220 V	A	0.48
- At 440 V	A	0.13
- At 600 V	A	0.07
Ⓢ and Ⓜ rated data of the auxiliary contacts		
Rated voltage, max.	V AC	600
Switching capacity		A 600, P 600

Power Contactors for Switching Motors

3TF6 vacuum contactors, 3-pole, 335 ... 450 kW

Contactor

Contact endurance of the auxiliary contacts

The contact endurance for utilization category AC-12 or AC-15/AC-14 depends mainly on the breaking current. It is assumed that the operating mechanisms are switched randomly, i.e. not synchronized with the phase angle of the supply system.

The characteristic curves apply to 230 V AC.

3TF68 and 3TF69



Contactor

Contact erosion indication with vacuum contactors

The contact erosion of the vacuum interrupters can be checked during operation with the help of three white double slides on the contactor base.

If the distance indicated by one of the double slides is < 0.5 mm while the contactor is in the closed position, the vacuum interrupter must be replaced. To ensure maximum reliability, it is recommended to replace all three vacuum interrupters at once.

3TF68 and 3TF69

Contact endurance of the main contacts

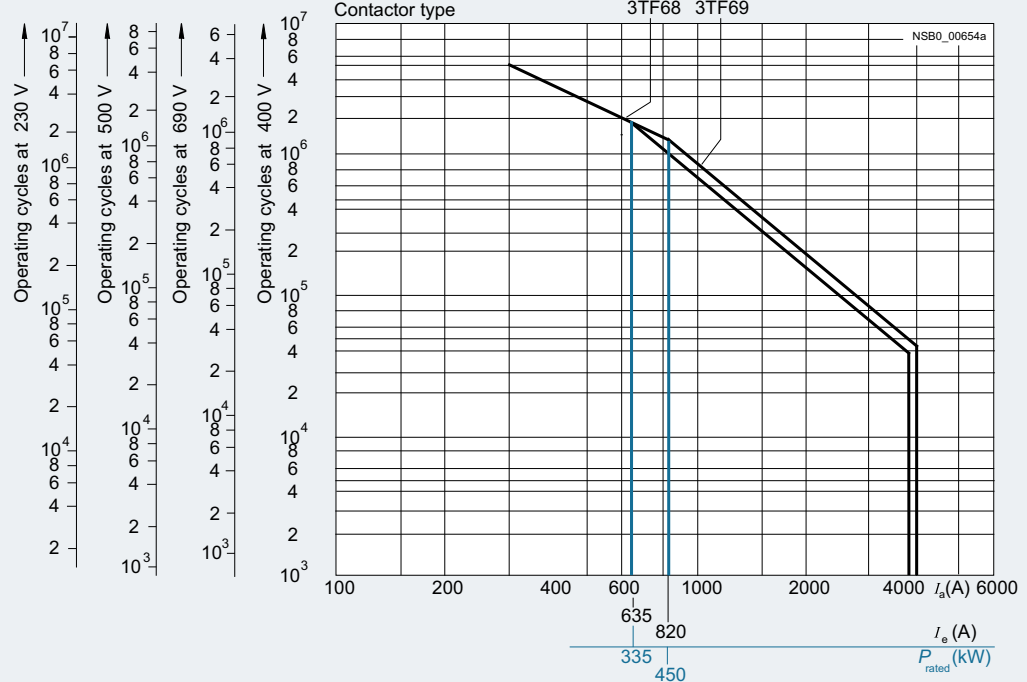


Diagram legend:

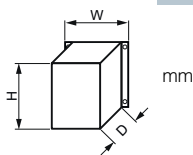
P_{rated} = Rated power for squirrel-cage motors at 400 V

I_a = Breaking current

I_e = Rated operational current

3TF6 vacuum contactors,
3-pole, 335 ... 450 kW

Type
Size
Dimensions (W x H x D)



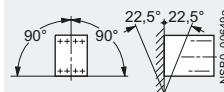
3TF68
14
230 x 276 x 237

3TF69
14
230 x 295 x 237

General data

Permissible mounting position, installation instructions¹⁾²⁾

The contactors are designed for operation on a vertical mounting surface.



Mechanical endurance

Operating cycles 5 million

Electrical endurance

Operating cycles³⁾

Rated insulation voltage U_i
(pollution degree 3)

kV 1

Rated impulse withstand voltage U_{imp}

kV 8

Protective separation between the coil and the main contacts
acc. to IEC 60947-1, Appendix N

kV 1

Mirror contacts

A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact.

One NC contact each must be connected in series for the right and left auxiliary switch block respectively.

Yes, acc. to IEC 60947-4-1, Appendix F

Permissible ambient temperature

- During operation
- During storage

°C -25 ... +55
°C -55 ... +80

Degree of protection acc. to IEC 60947-1, Appendix C

IP00/open (where applicable, use additional terminal covers)

Touch protection acc. to EN 50274

Finger-safe only for vertical contact from the front

Shock resistance

- Rectangular pulse
 - AC operation
 - DC operation
- Sine pulse
 - AC operation
 - DC operation

g/ms 8.1/5 and 4.7/10
g/ms 9/5 and 5.7/10
g/ms 12.8/5 and 7.4/10
g/ms 14.4/5 and 9.1/10

9.5/5 and 5.7/10
8.6/5 and 5.1/10
13.5/5 and 7.8/10
13.5/5 and 7.8/10

Conductor cross-sections

See "Conductor cross-sections" on page 3/122

Electromagnetic compatibility (EMC)

See "Electromagnetic compatibility (EMC)" on page 3/120

Short-circuit protection

Main circuit

Fuse links, operational class gG:
LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE
according to IEC 60947-4-1/EN 60947-4-1

- Type of coordination "1"
- Type of coordination "2"
- Weld-free⁴⁾

A 1 000
A 500
A 400

1 250
630
500

Auxiliary circuit

Short-circuit test

- with fuse links of operational class gG:
DIAZED, type 5SB; NEOZED, type 5SE
with short-circuit current $I_k = 1$ kA acc. to IEC 60947-5-1
- with miniature circuit breakers with C characteristic
with short-circuit current $I_k = 400$ A

A 10
A 10

¹⁾ To easily replace the laterally mounted auxiliary switches it is recommended to maintain a minimum distance of 30 mm between the contactors.

²⁾ If mounted at a 90° angle (current paths are horizontally above each other), the switching frequency is reduced by 80 % compared with the normal values.

³⁾ See "Endurance of the auxiliary contacts", page 3/118.

⁴⁾ Test conditions according to IEC 60947-4-1.

Note:

For short-circuit protection of contactors with overload relay,
see Configuration Manual "Configuring SIRIUS"
<http://support.automation.siemens.com/WW/view/en/40625241>.

Power Contactors for Switching Motors

3TF6 vacuum contactors, 3-pole, 335 ... 450 kW

Contactor	Type	3TF68	3TF69	
	Size	14	14	
Control				
Solenoid coil operating range		0.8 × U _{s min} ... 1.1 × U _{s max}		
Power consumption of the solenoid coils (for cold coil and 1.0 × U _s)				
• AC operation, U _{s max}	- Closing - Closed	VA/p.f. VA/p.f.	1850/1 49/0.15	950/0.98 30.6/0.31
• AC operation, U _{s min}	- Closing - Closed	VA/p.f. VA/p.f.	1200/1 13.5/0.47	600/0.98 12.9/0.43
• DC economy circuit ¹⁾	- Closing at 24 V - Closed	W W	1010 28	960 20.6
For contactors of type 3TF68/3TF69...-Q:				
• AC operation, U _{s min} ²⁾	- Closing - Closed	VA/p.f. VA/p.f.	1 000/0.99 11/1	1 150/0.99 11/1
Operating times for 0.8 ... 1.1 × U _s (Total break time = Opening delay + Arcing time)		(Values apply to cold and warm coil)		
• AC operation	- Closing delay - Opening delay	ms ms	70 ... 120 (22 ... 65) ³⁾ 70 ... 100	80 ... 120 70 ... 80
• DC economy circuit	- Closing delay - Opening delay	ms ms	76 ... 110 50	86 ... 280 19 ... 25
• Arcing time		ms	10 ... 15	10
For contactors of type 3TF68/3TF69...-Q:				
• AC operation	- Closing delay - Opening delay	ms ms	35 ... 90 65 ... 90	45 ... 160 30 ... 80
Operating times for 1.0 × U _s (Total break time = Opening delay + Arcing time)				
• AC operation	- Closing delay - Opening delay	ms ms	80 ... 100 (30 ... 45) ³⁾ 70 ... 100	85 ... 100 70
• DC economy circuit	- Closing delay - Opening delay	ms ms	80 ... 90 50	90 ... 125 19 ... 25
Minimum command duration				
for closing	Standard	ms	120	120
	Reduced make-time	ms	90	--
Minimum interval time between two ON commands		ms	100	300

¹⁾ At 24 V DC; for further voltages, deviations of up to $\pm 10\%$ are possible.

²⁾ Including reversing contactor.

³⁾ Values in brackets apply to contactors with reduced operating times.

Contactor	Type	3TF6.44-.CF7	3TF6.44-.CM7	3TF6.44-.CP7	3TF6.44-.CQ7	3TF6.44-.CS7
Electromagnetic compatibility						
Rated control supply voltage U_s	V AC	110 ... 132	200 ... 240	230 ... 277	380 ... 460	500 ... 600
Overvoltage type acc. to IEC 60801		Burst/Surge				
Degree of severity acc. to IEC 60801						
• Burst		3	4	4	4	4
• Surge		4	4	4	4	4
Overvoltage resistance						
• Burst	kV	2	4	4	4	4
• Surge	kV	6	5	5	6	6

3TF6 vacuum contactors,
3-pole, 335 ... 450 kW

Contactor	Type		3TF68	3TF69
	Size		14	14
Main circuit				
Load rating with AC				
Utilization category AC-1				
Switching resistive loads				
• Rated operational currents I_e	At 40 °C up to 690 V	A	700	910
	At 55 °C up to 690 V	A	630	850
	At 55 °C 1 000 V	A	450	800
• Rated power for AC loads with p.f. = 0.95 at 55 °C	230 V	kW	240	323
	400 V	kW	415	558
	500 V	kW	545	735
	690 V	kW	720	970
	1 000 V	kW	780	1385
• Minimum conductor cross-sections for loads with I_e	At 40°C	mm ²	2 x 240	$I_e \geq 800$ A: 2 x 60 x 5 (copper busbars)
	At 55°C	mm ²	2 x 185	$I_e < 800$ A: 2 x 240
Utilization categories AC-2 and AC-3				
• Rated operational currents I_e	Up to 690 V	A	630	820
	1 000 V	A	435	580
• Rated power for slipping or squirrel-cage motors at 50 Hz and 60 Hz	At 230 V	kW	200	260
	400 V	kW	347	450
	500 V	kW	434	600
	690 V	kW	600	800
	1 000 V	kW	600	800
Utilization category AC-4 (for $I_a = 6 \times I_e$)				
• Rated operational current I_e , maximum	Up to 690 V	A	610	690
• Rated power for squirrel-cage motors with 50 Hz and 60 Hz	At 400 V	kW	355	400
The following applies to a contact endurance of about 200 000 operating cycles:				
• Rated operational currents I_e	Up to 690 V	A	300	360
	1 000 V	A	210	250
• Rated power for squirrel-cage motors with 50 Hz and 60 Hz	At 230 V	kW	97	110
	400 V	kW	168	191
	500 V ¹⁾	kW	210	250
	690 V ¹⁾	kW	278	335
	1 000 V ¹⁾	A	290	350
Switching frequency				
Switching frequency z in operating cycles/hour				
• Contactors without overload relays	No-load switching frequency AC	1/h	2 000	1 000
	No-load switching frequency DC	1/h	1 000	1 000
	AC-1	1/h	700	700
	AC-2	1/h	200	200
	AC-3	1/h	500	500
	AC-4	1/h	150	150
• Contactors with overload relays (mean value)		1/h	15	15

¹⁾ Max. permissible rated operational current I_e /AC-4 = I_e /AC-3 up to 500 V, for reduced contact endurance and reduced switching frequency.

Power Contactors for Switching Motors

3TF6 vacuum contactors, 3-pole, 335 ... 450 kW

Contactor	Type	3TF68	3TF69
	Size	14	14
Conductor cross-sections			
Main conductors:		 Screw terminals	
- Busbar connections - Finely stranded with cable lug - Stranded with cable lug - Solid or stranded - Connecting bar (max. width) - Terminal screw - Tightening torque - With box terminal¹⁾ - Connectable copper bars - Width - Max. thickness - Terminal screw - Tightening torque	mm ² mm ² AWG mm Nm lb.in mm mm Nm	50 ... 240 70 ... 240 2/0 ... 500 MCM 50 M10 x 30 14 ... 24 124 ... 210 15 ... 25 1 x 26 or 2 x 11 A/F 6 (hexagon socket) 25 ... 40 (221 ... 354 lb.in)	50 ... 240 50 ... 240 2/0 ... 500 MCM 60 ($U_e \leq 690$ V) 50 ($U_e > 690$ V) M12 x 40 20 ... 35 177 ... 310 15 ... 38 1 x 46 or 2 x 18 A/F 8 (hexagon socket) 35 ... 50 (266 ... 443 lb.in)
Auxiliary conductors:			
- Solid - Finely stranded with end sleeve - Pin-end connector to DIN 46231 - Solid or stranded - Tightening torque	mm ² mm ² mm ² AWG Nm lb.in	2 x (0.5 ... 1) ² /2 x (1 ... 2.5) ² 2 x (0.5 ... 1) ² /2 x (0.75 ... 2.5) ² 2 x (1 ... 1.5) 2 x (18 ... 12) 0.8 ... 1.4 7 ... 12	

¹⁾ See "Accessories and Spare Parts", page 3/125.

²⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

Contactor	Type	3TF68	3TF69
	Size	14	14
Ⓢ and Ⓛ rated data			
Rated insulation voltage	V AC	600	600
Uninterrupted current			
Open and enclosed	A	630	820
Maximum horsepower ratings (Ⓢ and Ⓛ approved values)			
- Rated power for three-phase motors at 60 Hz - At 200 V - At 230 V - At 460 V - At 575 V	hp hp hp hp	231 266 530 664	290 350 700 860
NEMA/EEMAC ratings			
SIZE	hp	6	7
- Uninterrupted current - Open - Enclosed - Rated power for three-phase motors at 60 Hz - At 200 V - At 230 V - At 460 V - At 575 V	A A hp hp hp hp	600 540 150 200 400 400	820 810 -- 300 600 600
Overload relays	Type	3RB12	
Setting range	A	200 ... 820	

Short-circuit protection with overload relays see Chapter 7, "Protection Equipment" → "Overload Relays".

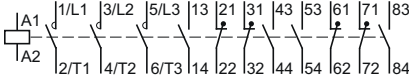
Selection and ordering data

Contactors for AC control

- Main conductors: Busbar connections
- Auxiliary and control conductors: Screw terminals
- Electronically controlled solenoid operating mechanism with high EMC¹⁾
- With overvoltage protection of the coil (varistor)



3TF68/69

Rated data						AC-1	Auxiliary contacts		Rated control supply voltage U_s	DT	Screw terminals		PU (UNIT, SET, M)	PS*	PG	
AC-2 and AC-3 (up to 55 °C)							Version									
Operational current I_e up to 690 V	Ratings ²⁾ of three-phase motors at 50 Hz and					Operational current I_e (at 40 °C)					Article No.	Price per PU				
	230 V	400 V	500 V	690 V	1 000 V											
A	kW	kW	kW	kW	kW	A	NO	NC	V							
AC operation 50/60 Hz ¹⁾																
Size 14																
																
630	200	335	434	600	--	700	4	4	110 ... 132 AC 200 ... 240 AC	A	3TF6844-OCF7 3TF6844-OCM7		1 1	1 unit 1 unit	41B 41B	
630	200	335	434	600	600	700	4	4	110 ... 132 AC 200 ... 240 AC	C A	3TF6844-8CF7 3TF6844-8CM7		1 1	1 unit 1 unit	41B 41B	
820	260	450	600	800	--	910	4	4	110 ... 132 AC 200 ... 240 AC	A	3TF6944-OCF7 3TF6944-OCM7		1 1	1 unit 1 unit	41B 41B	
820	260	450	600	800	800	910	4	4	110 ... 132 AC 200 ... 240 AC	C C	3TF6944-8CF7 3TF6944-8CM7		1 1	1 unit 1 unit	41B 41B	

¹⁾ For electromagnetic compatibility (EMC) see page 3/120.

For use of 3TF6 vacuum contactors in the environment of frequency converters, we recommend ordering a special version:

3TF6 ...-Z A02.

3TF68/3TF69 vacuum contactors in their basic version are supplied with integrated overvoltage damping for the main current paths. The surge suppression circuit is not required for operation in circuits with DC choppers, frequency converters or speed-variable operating mechanisms, for example.

The circuit could be damaged by the voltage peaks and harmonics and thus cause phase-to-phase short circuits. For this reason, the contactors can also be supplied without integrated overvoltage damping. Without additional price.

The Article No. must be supplemented by "-Z" and the order code "A02".

²⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

Other voltages see page 3/124.

For accessories see page 3/125,

for spare parts see page 3/126.

Footnotes for page 3/124:

- ¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.
- ²⁾ On these versions, a magnetic system is used in the DC economy circuit. A varistor can be retrofitted. A 3TC4417-4AB4 reversing contactor with preassembled connecting cable (approx. 1 m) and plug is included in the scope of supply of the vacuum contactor.
- ³⁾ On this version, a magnetic system with rectifier is used in the DC economy circuit. Varistor integrated. A 3TC4417-4A. reversing contactor with preassembled connecting cable (approx. 1 m) is included in the scope of supply of the vacuum contactor.
- ⁴⁾ For electromagnetic compatibility (EMC) see page 3/120.

For use of 3TF6 vacuum contactors in the environment of frequency converters, we recommend ordering a special version:

3TF6 ...-Z A02.

3TF68/3TF69 vacuum contactors in their basic version are supplied with integrated overvoltage damping for the main current paths. The surge suppression circuit is not required for operation in circuits with DC choppers, frequency converters or speed-variable operating mechanisms, for example.

The circuit could be damaged by the voltage peaks and harmonics and thus cause phase-to-phase short circuits. For this reason, the contactors can also be supplied without integrated overvoltage damping. Without additional price.

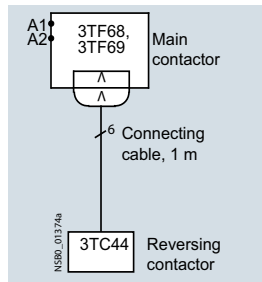
The Article No. must be supplemented by "-Z" and the order code "A02".

Power Contactors for Switching Motors

3TF6 vacuum contactors, 3-pole, 335 ... 450 kW

Contactors for DC operation and for AC operation which is subject to strong interference

- Main conductors: busbar connections
- Auxiliary and control conductors: Screw terminals
- DC solenoid system with 3TC44 reversing contactor for series resistor



3TF6.33-.Q.7

Rated data						Auxiliary contacts		Rated control supply voltage U_s		DT	Screw terminals		PU (UNIT, SET, M)	PS*	PG
AC-2 and AC-3 (up to 55 °C)						AC-1									
Operational current I_e up to 690 V	Ratings ¹⁾ of three-phase motors at 50 Hz and					Operational current I_e (at 40 °C)	Version				Article No.	Price per PU			
	230 V	400 V	500 V	690 V	1 000 V										
A	kW	kW	kW	kW	kW	A	NO	NC	V						

DC operation - DC economy circuit⁽²⁾⁽³⁾

Size 14

630	200	335	434	600	--	700	3	3	24 DC	C	3TF6833-1DB4		1	1 unit	41B
					600	700	3	3	24 DC	C	3TF6833-8DB4		1	1 unit	41B
820	260	450	600	800	--	910	3	3	24 DC	C	3TF6933-1DB4		1	1 unit	41B
					800	910	3	3	24 DC	C	3TF6933-8DB4		1	1 unit	41B

AC operation 50/60 Hz with DC economy circuit⁽³⁾⁽⁴⁾ For AC operation which is subject to strong interference

Size 14

630	200	335	434	600	--	700	3	3	110 ... 120 AC	C	3TF6833-1QG7		1	1 unit	41B
									220 ... 240 AC	A	3TF6833-1QL7		1	1 unit	41B
									380 ... 420 AC	C	3TF6833-1QV7		1	1 unit	41B
					600	700	3	3	220 ... 240 AC	C	3TF6833-8QL7		1	1 unit	41B
820	260	450	600	800	--	910	3	3	110 ... 120 AC	C	3TF6933-1QG7		1	1 unit	41B
									220 ... 240 AC	A	3TF6933-1QL7		1	1 unit	41B
									380 ... 420 AC	C	3TF6933-1QV7		1	1 unit	41B
					800	910	3	3	110 ... 120 AC	C	3TF6933-8QG7		1	1 unit	41B
									220 ... 240 AC	C	3TF6933-8QL7		1	1 unit	41B

For footnotes see page 3/123.

For accessories see page 3/125,
for spare parts see page 3/126.

Rated control supply voltages (change of 10th and 11th digit of the Article No.)

Rated control supply voltage U_s	Contactor type	Size	Rated control supply voltage U_s	Contactor type	Size
	3TF6844-.C., 3TF6944-.C..	14		3TF6833-.D., 3TF6933-.D..	14
AC operation			DC operation		
Solenoid coils for 50/60 Hz			Solenoid coils for DC economy circuit		
110 ... 132 V AC	F7		24 V DC	B4	
200 ... 240 V AC	M7		110 V DC	F4	
230 ... 277 V AC	P7		125 V DC	G4	
380 ... 460 V AC	Q7		220 V DC	M4	
500 ... 600 V AC	S7		230 V DC	P4	

Accessories

Version	Rated control supply voltage U_s		DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	V AC	V DC						

Surge suppressors¹⁾ · Varistors

3TX7572-3.

Varistors²⁾

For DC economy circuit; for lateral snapping onto auxiliary switches

--	24 ... 48	C	3TX7572-3G		1	1 unit	41B
--	48 ... 127	D	3TX7572-3H		1	1 unit	41B
--	127 ... 240	C	3TX7572-3J		1	1 unit	41B

¹⁾ The surge suppressor (varistor) is included in the scope of supply of the 3TF68 and 3TF69 contactors with AC operation.

²⁾ Includes the peak value of the alternating voltage on the DC side.

Version	DT	Screw terminals		PU (UNIT, SET, M)	PS*	PG
		Article No.	Price per PU			

Solid-state compatible auxiliary switch blocks with screw terminals



5TY7561-1.

For operation in dusty atmospheres and in solid-state circuits with rated operational currents

I_b AC-14 and DC-13 of 1 ... 300 mA at 3 ... 60 V

For mounting onto the side of contactors

With 1 changeover contact.

2nd auxiliary switch block, left or right (replacement for 3TY6561-1U, 3TY6561-1V)

Mounting on the left Mounting on the right



►	3TY7561-1UA00	1	1 unit	41B
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Coupling links for control by PLC

For snapping onto the side of auxiliary switch, with surge suppression.

Operating range: 17 V to 30 V DC.

Power consumption: 0.5 W at 24 V DC.

Fitted with varistor.¹⁾

►	3TX7090-0D	1	1 unit	41B
---	-------------------	---	--------	-----

Terminal covers



3TX76.6-0A

For protection against inadvertent contact with exposed busbar connections

Can be screwed onto free screw end on middle connecting bar.

2 units required per contactor.

(1 set = 2 units)

B	3TX7686-0A	1	1 unit	41B
B	3TX7696-0A	1	1 unit	41B

Links for paralleling (star jumpers), 3-pole

Link for paralleling
without connection terminals²⁾

C	3TX7680-0D	1	1 unit	41B
---	-------------------	---	--------	-----

Cover plates for links for paralleling

A cover plate must be used in order to protect against inadvertent contact with exposed busbar connections (EN 50274).

C	3TX7680-0E	1	1 unit	41B
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Box terminals for laminated copper bars

Without auxiliary conductor connection for 3TF68 (1 set = 3 units)

With single covers for protection against inadvertent contact (EN 50274)

D	3TX7570-1E	1	1 unit	41B
---	-------------------	---	--------	-----

With auxiliary conductor connection for 3TF69 (1 set = 3 units)

Conductor cross-sections for auxiliary conductors:

- Solid 2 x (0.75 ... 2.5) mm²
- Finely stranded with end sleeve 2 x (0.5 ... 2.5) mm²
- Solid or stranded 2 x (18 ... 12) AWG
- Tightening torque 0.8 ... 1.4 Nm (7 ... 12 lb.in)

D	3TX7690-1F	1	1 unit	41B
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¹⁾ Technical specifications for coupling links see "Accessories for 3RT10 Contactors", page 3/101.

²⁾ The link for paralleling can be reduced by one pole

Power Contactors for Switching Motors

3TF6 vacuum contactors, 3-pole, 335 ... 450 kW

Spare parts

Version	Auxiliary contacts Version	Connections	DT	Screw terminals	⊕	PU (UNIT, SET, M)	PS*	PG
				Article No.	Price per PU			
	NO NC NC							

Auxiliary switch blocks

For lateral mounting			Left	Right				
 3TY7561-1.A00	1st auxiliary switch block (replacement for 3TY7561-1A/-1B)	1 1 --			▶	3TY7561-1AA00	1	1 unit 41B
	1st auxiliary switch block	1 -- 1			▶	3TY7561-1EA00	1	1 unit 41B
	2nd auxiliary switch block (replacement for 3TY7561-1K/-1L)	1 1 --			C	3TY7561-1KA00	1	1 unit 41B
For reconnection of the coil with DC economy circuit			-- -- 1		▶	3TY7681-1G	1	1 unit 41B

Version	For type	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
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Solenoid coils

 3TY76.3-0...	AC operation¹⁾						
	The solenoid coils are fitted as standard with varistors against overvoltage; the coil is supplied with switch-on electronics.	3TF68	3TY7683-0C..				
		3TF69	3TY7693-0C..				
	DC operation¹⁾ - DC economy circuit						
	The solenoid coils for size 14 are supplied without reversing contactor.	3TF68	3TY7683-0D..				
		3TF69	3TY7693-0D..				

Vacuum interrupters

Set with 3 vacuum interrupters with components	3TF68	B	3TY7680-0B	1	1 unit	41B
In order to ensure reliable operation of the contactors, only original replacement interrupters should be used.	3TF69	C	3TY7690-0B	1	1 unit	41B

¹⁾ Rated control supply voltages for solenoid coils: The 10th and 11th digit of the Article No. must be supplemented according to page 3/124.

Version	Rated control supply voltage U_s	DT	Screw terminals	⊕	PU (UNIT, SET, M)	PS*	PG
			Article No.	Price per PU			
	V AC						

3TC44 reversing contactors

Complete with series resistor, 1 m connecting cable and plug-in connector	110 ... 120	D	3TY7684-0QG7	1	1 unit	41B
	220 ... 240	D	3TY7684-0QL7	1	1 unit	41B
For 3TF68...-Q, 3TF69...-Q	380 ... 420	D	3TY7684-0QV7	1	1 unit	41B

Solenoid coils for main contactor, with rectifier bridge

For 3TF68...-Q	110 ... 120	D	3TY7683-0QG7	1	1 unit	41B
	220 ... 240	D	3TY7683-0QL7	1	1 unit	41B
	380 ... 420	D	3TY7683-0QV7	1	1 unit	41B
For 3TF69...-Q	110 ... 120	D	3TY7693-0QG7	1	1 unit	41B
	220 ... 240	D	3TY7693-0QL7	1	1 unit	41B
	380 ... 420	D	3TY7693-0QV7	1	1 unit	41B

Overview

The 3TB5 contactors are suitable for use in any climate.

They are finger-safe according to EN 50274. Terminal covers may have to be fitted onto the connecting bars, depending on the configuration with other devices (see [Accessories and Spare Parts](#) on page 3/133).

Auxiliary contacts

The contactors are equipped with two lateral auxiliary switch blocks each with 1 NO + 1 NC contact. Further auxiliary switch blocks cannot be fitted to the DC-operated contactors.

Technical specifications

Contactor	Type Size	3TB50 6	3TB52 ... 3TB56 8 ... 12
Rated data of the auxiliary contacts		According to IEC 60947-5-1	
Rated insulation voltage U_i (pollution degree 3)	V	690	
Conventional thermal current I_{th} = Rated operational current I_e/AC-12	A	10	
AC load			
Rated operational current I_e/AC-15/AC-14			
• For rated operational voltage U_e			
- At 24 V	A	10	
- At 110 V	A	10	
- At 125 V	A	10	
- At 220 V	A	6	
- At 230 V	A	5.6	
- At 380 V	A	4	
- At 400 V	A	3.6	
- At 500 V	A	2.5	
- At 660 V	A	2.5	
- At 690 V	A	--	
DC load			
Rated operational current I_e/DC-12			
• For rated operational voltage U_e			
- At 24 V	A	10	10
- At 60 V	A	10	10
- At 110 V	A	3.2	8
- At 125 V	A	2.5	6
- At 220 V	A	0.9	2
- At 440 V	A	0.33	0.6
- At 600 V	A	0.22	0.4
Rated operational current I_e/DC-13¹⁾			
• For rated operational voltage U_e			
- At 24 V	A	10 (10)	10 (10)
- At 60 V	A	5 (7)	5 (4)
- At 110 V	A	1.14 (3.2)	2.4 (1.8)
- At 125 V	A	0.98 (2.5)	2.1 (1.6)
- At 220 V	A	0.48 (0.9)	1.1 (0.9)
- At 440 V	A	0.13 (0.33)	0.32 (0.27)
- At 600 V	A	0.075 (0.22)	0.21 (0.18)
Ⓢ and Ⓤ rated data of the auxiliary contacts			
Rated voltage, max.	V AC	600	
Switching capacity		A 600, P 600	

¹⁾ Values in brackets apply to auxiliary contacts with delayed NC contact.

Power Contactors for Switching Motors

3TB5 contactors with DC solenoid system, 3-pole, 55 ... 200 kW

Contactor

3TB5

Contact endurance of the main contacts

The characteristic curves show the contact endurance of the contactors when switching resistive and inductive AC loads (AC-1/AC-3) depending on the breaking current and rated operational voltage. It is assumed that the operating mechanisms are switched randomly, i.e. not synchronized with the phase angle of the supply system.

The rated operational current I_e complies with utilization category AC-4 (breaking six times the rated operational current) and is intended for a contact endurance of approx. 200 000 operating cycles.

If a shorter contact endurance is sufficient, the rated operational current I_e /AC-4 can be increased.

If the contacts are used for mixed operation, i.e. normal switching (breaking the rated operational current according to utilization category AC-3) in combination with intermittent inching (breaking several times the rated operational current according to utilization category AC-4), the contact endurance can be calculated approximately from the following equation:

$$X = \frac{A}{1 + \frac{C}{100} \left(\frac{A}{B} - 1 \right)}$$

Characters in the equation:

- X Contact endurance for mixed operation in operating cycles
- A Contact endurance for normal operation ($I_a = I_e$) in operating cycles
- B Contact endurance for inching ($I_a = \text{multiple of } I_e$) in operating cycles
- C Inching operations as a percentage of total switching operations

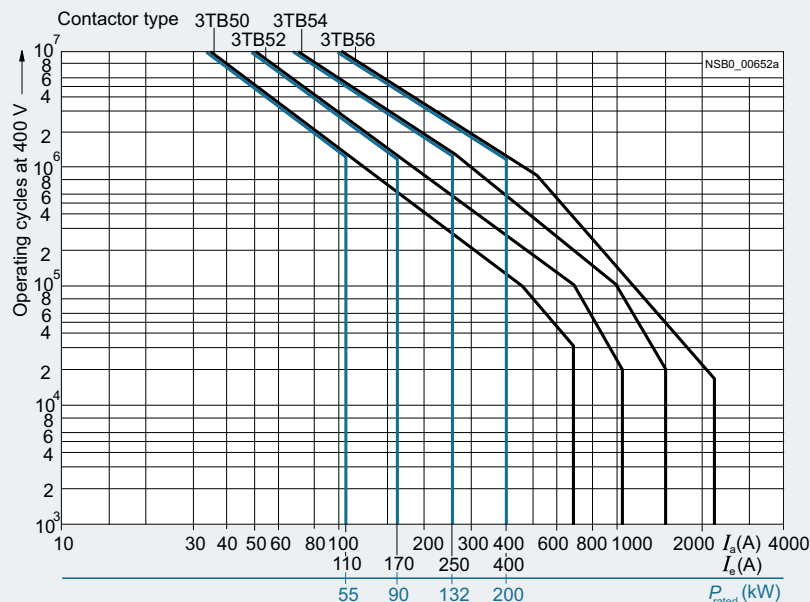


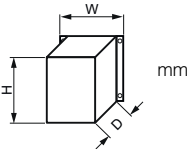
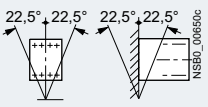
Diagram legend:

P_{rated} = Rated power for squirrel-cage motors at 400 V

I_a = Breaking current

I_e = Rated operational current

3TB5 contactors with DC solenoid system,
3-pole, 55 ... 200 kW

Type					
Size					
Dimensions (W x H x D)					
		3TB50 6 120 x 150 x 198	3TB52 8 135 x 180 x 217	3TB54 10 145 x 252 x 264	3TB56 12 160 x 252 x 282
General data					
Permissible mounting position, installation instructions¹⁾					
The contactors are designed for operation on a vertical mounting surface.					
Mechanical endurance	Operating cycles	10 million			
Electrical endurance		2)			
Rated insulation voltage U_i	V	1000			
Protective separation between the coil and the main contacts acc. to IEC 60947-1, Appendix N	V	690			
Mirror contacts		Yes, acc. to IEC 60947-4-1, Appendix F			
A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact.					
Permissible ambient temperature					
• During operation	°C	-25 ... +55			
• During storage	°C	-50 ... +80			
Degree of protection acc. to IEC 60947-1, Appendix C		IP00/open (where applicable, use additional terminal covers)			
Touch protection acc. to EN 50274		Finger-safe only for vertical contact from the front			
Shock resistance (rectangular pulse)	g/ms	5/10	5.9/10	5.9/10	5.9/10
Short-circuit protection					
Main circuit					
Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB					
• Type of coordination "1"	A	250	315	400	630
• Type of coordination "2"	A	224	250	315	500
Auxiliary circuit					
Short-circuit test					
• with fuse links of operational class gG: LV HRC, type 3NA; DIAZED, type 5SB with short-circuit current $I_k = 1$ kA according to IEC 60947-5-1	A	16			
• with miniature circuit breakers with C characteristic with short-circuit current $I_k = 400$ A	A	10			
Control					
Solenoid coil operating range		0.8 ... 1.1 x U_s			
Power consumption of the solenoid coils (when coil is cold and 1.0 x U_s)					
• Closing = Closed	W	25	30	60	86
Operating times for 0.8 ... 1.1 x U_s Total break time = Opening delay + Arcing time		(The values apply up to and including 20 % undervoltage, 10 % overvoltage, as well as when the coil is cold and warm)			
• Closing delay	ms	105 ... 360	115 ... 400	105 ... 400	110 ... 400
• Opening delay ³⁾	ms	18 ... 30	22 ... 35	24 ... 55	40 ... 110
• Arcing time	ms	10 ... 15	10 ... 15	10 ... 15	10 ... 15
Operating times for 1.0 x U_s					
• Closing delay	ms	120 ... 230	130 ... 250	115 ... 250	120 ... 250
• Opening delay ³⁾	ms	20 ... 26	24 ... 32	35 ... 50	60 ... 95

1) For reversing duty, deviations from the vertical axis are not permitted.

2) See "Contact endurance of the main contacts", page 3/128.

3) The opening delay times can increase if the contactor coils are damped against voltage peaks.

Power Contactors for Switching Motors

3TB5 contactors with DC solenoid system, 3-pole, 55 ... 200 kW

Contactor	Type	3TB50	3TB52	3TB54	3TB56
	Size	6	8	10	12
Main circuit					
Load rating with AC					
Utilization category AC-1, switching resistive loads					
• Rated operational current I_e					
- At 40 °C up to 690 V	A	170	230	325	425
- At 55 °C up to 690 V	A	160	200	300	400
• Rated power for AC loads ¹⁾ with p.f. = 0.95 (at 55 °C)					
- At 230 V	kW	61	76	114	152
- At 400 V	kW	105	132	195	262
- At 500 V	kW	138	173	260	345
- At 690 V	kW	183	228	340	455
• Minimum conductor cross-sections for loads with I_e	mm ²	70	95	185	240
Utilization categories AC-2 and AC-3		2)			
Utilization category AC-4 (for $I_a = 6 \times I_e$)					
The following applies to a contact endurance of about 200 000 operating cycles:					
• Rated operational current I_e	A	52	72	103	120
• Rated power for squirrel-cage motors with 50 Hz and 60 Hz					
- At 230 V	kW	15.6	21	31	37.5
- At 400 V	kW	27	37	55	65
- At 500 V	kW	35	48	72	85.5
- At 690 V	kW	45	64	92	106
• Max. permissible operational current $I_e/AC-4$					
- At 400 V	A	110	170	250	400
Load rating with DC					
Utilization category DC-1, switching resistive loads ($L/R \leq 1$ ms)					
• Rated operational currents I_e (at 55 °C)					
- 1 conducting path	Up to 24 V A	160	200	300	400
	60 V A	80	80	300	330
	110 V A	18	18	33	33
	220 V A	3.4	3.4	3.8	3.8
	440 V A	0.8	0.8	0.9	0.9
	600 V A	0.5	0.5	0.6	0.6
- 2 conducting paths in series	Up to 24 V A	160	200	300	400
	60 V A	160	200	300	400
	110 V A	160	200	300	400
	220 V A	20	20	300	400
	440 V A	3.2	3.2	4	4
	600 V A	1.6	1.6	2	2
- 3 conducting paths in series	Up to 24 V A	160	200	300	400
	60 V A	160	200	300	400
	110 V A	160	200	300	400
	220 V A	160	200	300	400
	440 V A	11.5	11.5	11	11
	600 V A	4	4	5.2	5.2
Utilization category DC-3/DC-5, shunt-wound and series-wound motors ($L/R \leq 15$ ms)					
• Rated operational currents I_e (at 55 °C)					
- 1 conducting path	Up to 24 V A	16	16	35	35
	60 V A	7.5	7.5	11	11
	110 V A	2.5	2.5	3	3
	220 V A	0.6	0.6	0.6	0.6
	440 V A	0.17	0.17	0.18	0.18
	600 V A	0.12	0.12	0.125	0.125
- 2 conducting paths in series	Up to 24 V A	160	200	300	400
	60 V A	160	200	300	400
	110 V A	160	200	300	400
	220 V A	2.5	2.5	2.5	2.5
	440 V A	0.65	0.65	0.65	0.65
	600 V A	0.37	0.37	0.37	0.37
- 3 conducting paths in series	Up to 24 V A	160	200	300	400
	60 V A	160	200	300	400
	110 V A	160	200	300	400
	220 V A	160	200	300	400
	440 V A	1.4	1.4	1.4	1.4
	600 V A	0.75	0.75	0.75	0.75

¹⁾ Industrial furnaces and electric heaters with resistance heating, etc. (increased power consumption on heating up has been taken into account).

²⁾ See "Selection and Ordering Data" 3/132.

Power Contactors for Switching Motors

3TB5 contactors with DC solenoid system, 3-pole, 55 ... 200 kW

Contactor	Size	Type	3TB50 6	3TB52 8	3TB54 10	3TB56 12
Main circuit						
Switching frequency						
Switching frequency z in operating cycles/hour						
• Contactors without overload relays						
- AC-1		h ⁻¹	1 000			
- AC-2		h ⁻¹	500			
- AC-3		h ⁻¹	500			
- AC-4		h ⁻¹	250			
• Contactors with overload relays (mean value)						
		h ⁻¹	15			
Conductor cross-sections						
Main conductors:			 Screw terminals			
• Finely stranded with cable lug		mm ²	16 ... 70	35 ... 95	50 ... 240	50 ... 240
• Stranded with cable lug		mm ²	25 ... 70	50 ... 120	70 ... 240	70 ... 240
• Busbars		mm	15 x 3	20 x 3	25 x 5	2 x (25 x 3)
• Terminal screw			M6	M8	M10	M10
Auxiliary conductors:						
• Solid		mm ²	1 ... 2.5			
• Finely stranded with end sleeve		mm ²	0.75 ... 1.5			
• Pin-end connector (DIN 46231)		mm ²	2 x 1 ... 2.5			
Protective conductors:						
• Stranded with cable lug		mm ²	--	25 ... 70	35 ... 70	50 ... 120
Ⓢ and Ⓛ rated data						
Ⓢ rated data						
• Uninterrupted current						
- Open		A	150	170	240	300
- Enclosed		A	135	153	215	270
• Rated power for three-phase motors at 60 Hz (enclosed)						
- 115 V		hp	25	30	40	50
- 230 V		hp	50	60	75	100
- 460 V		hp	100	120	150	200
- 575 V		hp	125	160	200	250
• Overload relays						
- Setting range		Type	3RB2056	3RB2056	3RB2066	3RB2066
		A	50 ... 200	50 ... 200	50 ... 250	200 ... 540
• NEMA/EEMAC size						
- Contactors			4	4	4	5
- Starters (= contactors + overload relay, enclosed)			3	4	4	5
Ⓛ rated data						
• Uninterrupted current						
- Open		A	150	150	240	390
- In enclosure		A	135	135	215	350
• Rated power for three-phase motors at 60 Hz						
- 115 V		hp	25	25	30	--
- 230 V		hp	50	50	75	125
- 460 V		hp	100	100	150	250
- 575 V		hp	125	125	200	300 ¹⁾
• Overload relays						
- Setting range		Type	3RB2056	3RB2056	3RB2066	3RB2066
		A	50 ... 200	50 ... 200	50 ... 250	200 ... 540
• NEMA/EEMAC size						
- Contactors			4	4	4	5
- Starters (= contactors + overload relay, enclosed)			3	4	4	5
Short-circuit protection devices						
• CLASS RK5 fuses		A	400	400	450	600
• Circuit breakers acc. to UL 489		A	175	175	250	600

¹⁾ At 575/600 V AC max. rated motor current 325 A and motor starting current 3 250 A.

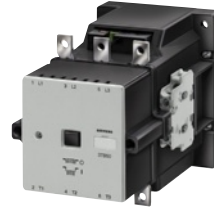
Power Contactors for Switching Motors

3TB5 contactors with DC solenoid system, 3-pole, 55 ... 200 kW

Selection and ordering data

Main conductors: Busbar connections

Auxiliary and control conductors: Screw terminals



3TB50

Size	Rated data AC-2 and AC-3 (up to 55 °C)					AC-1	Auxiliary contacts		Rated control supply voltage U_s	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
	Operational current I_e up to	Ratings ¹⁾ of three-phase motors at 50 Hz and				Operational current I_e (at 40 °C)	Version				Article No.	Price per PU		
	690 V	230 V	400 V	500 V	690 V	A	NO	NC	V DC					
DC operation - DC solenoid system														
6	110	37	55	75	90	170	2	2	24	A	3TB5017-0BB4		1	1 unit 41B
8	170	55	90	110	132	230	2	2	24	A	3TB5217-0BB4		1	1 unit 41B
10	250	75	132	160	200	325	2	2	24	C	3TB5417-0BB4		1	1 unit 41B
12	400	115	200	255	355	425	2	2	24	C	3TB5617-0BB4		1	1 unit 41B

¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

For accessories see page 3/133.
For spare parts see page 3/134.

Options

Rated control supply voltages
(change of 10th and 11th digit of the Article No.)

Rated control supply voltage U_s		Contactor type	3TB50, 3TB52, 3TB54	3TB56
		Size	6, 8, 10	12
DC operation				
24 V DC			B4	B4
110 V DC			F4	--
220 V DC			M4	M4

3TB5 contactors with DC solenoid system,
3-pole, 55 ... 200 kW

Accessories

For contactors		Version	Rated control supply voltage U_s		DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Size	Type		V AC	V DC						
Surge suppressors · Varistors										
	6	3TB50	Varistors ¹⁾ for sticking onto the contactor base or for mounting separately	24 ... 48	24 ... 70	A	3TX7462-3G 3TX7462-3H 3TX7462-3J 3TX7462-3K 3TX7462-3L	1	1 unit	41B
				48 ... 127	70 ... 150	B				
				127 ... 240	150 ... 250	A				
				240 ... 400	--	B				
				400 ... 600	--	B				
	8 ... 12	3TB52	Varistors ¹⁾ for separate screw fixing or snapping onto TH 35 standard mounting rail	--	24 ... 70	B	3TX7522-3G 3TX7522-3H 3TX7522-3J	1	1 unit	41B
		...		--	70 ... 150	B				
		3TB56		--	150 ... 250	B				
Surge suppressors · RC elements										
	6	3TB50	RC elements For lateral snapping onto auxiliary switch or TH 35 standard mounting rail	24 ... 48	--	B	3TX7522-3R 3TX7522-3S 3TX7522-3T 3TX7522-3U 3TX7522-3V	1	1 unit	41B
				48 ... 127	--	B				
				127 ... 240	--	B				
				240 ... 400	--	B				
				400 ... 600	--	B				
Surge suppressors · Diodes										
	6 ... 12	3TB50	Diode assemblies ²⁾ (diode and Zener diode) for DC solenoid system, for sticking onto the contactor base or for mounting separately	--	24 ... 250	A	3TX7462-3D	1	1 unit	41B
		3TB56								

1) Includes the peak value of the alternating voltage on the DC side.

2) Not for DC economy circuit.

For contactors		Version		DT		Screw terminals		PU (UNIT, SET, M)	PS*	PG
Size	Type					Article No.	Price per PU			
Terminal covers										
	6	3TB50	For protection against inadvertent contact with exposed busbar connections	M6	B	3TX6506-3B		1	1 unit	41B
	8	3TB52		M8	B	3TX6526-3B		1	1 unit	41B
	10 and 12	3TB54, 3TB56	Can be screwed on free screw end For covering one busbar connection (1 set = 6 units)	M10	B	3TX6546-3B		1	1 unit	41B

3TX6526-3B

Power Contactors for Switching Motors

3TB5 contactors with DC solenoid system, 3-pole, 55 ... 200 kW

Spare parts

For contactors		Auxiliary contacts			DT	Screw terminals		PU (UNIT, SET, M)	PS*	PG	
		Version	Connections								
											
Size	Type	NO	NC	NC			Article No.	Price per PU			
Auxiliary switch blocks											
	For lateral mounting					Left	Right				
	6	3TB50	(replacement for 3TY6501-1A/-1B)					▶ 3TY6501-1AA00	1	1 unit	41B
			1	1	--						
			1	--	1	--		▶ 3TY6501-1E	1	1 unit	41B
	8 ... 12	3TB52 ... 3TB56	1	1	--		--	▶ 3TY6561-1A	1	1 unit	41B
			1	1	--	--		▶ 3TY6561-1B	1	1 unit	41B
			1	--	1	--		▶ 3TY6561-1E	1	1 unit	41B
	For contactors		Version			DT	Article No.		Price per PU	PU (UNIT, SET, M)	PS*
Size	Type										
Contacts with fixing parts											
	In order to ensure reliable operation of the contactors, only original replacement contacts should be used.										
	6	3TB50	(1 set = 3 moving and 6 fixed switching elements)			B	3TY6500-0A	1	1 unit	41B	
	8	3TB52				B	3TY6520-0A	1	1 unit	41B	
	10	3TB54				B	3TY6540-0A	1	1 unit	41B	
	12	3TB56				B	3TY6560-0A	1	1 unit	41B	
Arc chutes											
	6	3TB50	1 arc chute, 3-pole			▶	3TY6502-0A	1	1 unit	41B	
	8	3TB52				▶	3TY6522-0A	1	1 unit	41B	
	10	3TB54				▶	3TY6542-0A	1	1 unit	41B	
	12	3TB56				▶	3TY6562-0A	1	1 unit	41B	
Solenoid coils											
	DC operation ¹⁾										
	6	3TB50									3TY6503-0B..
	8	3TB52									3TY6523-0B..
	10	3TB54									3TY6543-0B..
	12	3TB56									3TY6563-0B..

¹⁾ Rated control supply voltages for solenoid coils: The 10th and 11th digit of the Article No. must be supplemented according to page 3/132.

Overview

Standards

IEC 60947-1, EN 60947-1,
IEC 60947-4-1, EN 60947-4-1,
IEC 60947-5-1, EN 60947-5-1 (auxiliary switches)

The contactors are suitable for use in any climate.

The contactors with screw terminals are finger-safe acc. to EN 50274.

Connection methods

The contactors are available in versions with screw terminals, 6.3 mm plug-in terminals and solder pin connections for soldering in printed circuit boards.

Technical specifications

Contactor Type **3TF2**

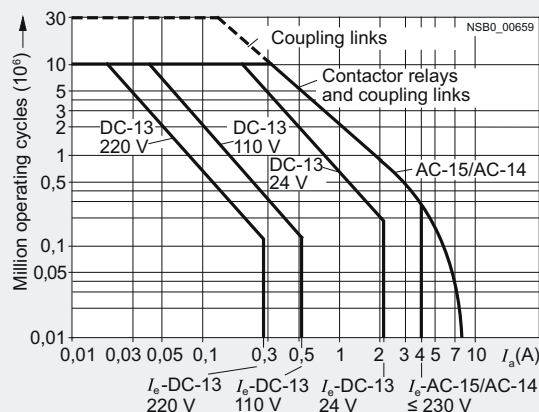
Contact endurance of the auxiliary contacts

The contact endurance for utilization category AC-12 or AC-15/AC-14 depends mainly on the breaking current. It is assumed that the operating mechanisms are switched randomly, i.e. not synchronized with the phase angle of the supply system.

Diagram legend:

I_a = Breaking current

I_e = Rated operational current



Contact endurance of the main contacts

The characteristic curves show the contact endurance of the contactors when switching inductive AC loads (AC-3) depending on the breaking current and rated operational voltage. It is assumed that the operating mechanisms are switched randomly, i.e. not synchronized with the phase angle of the supply system.

The rated operational current I_e complies with utilization category AC-4 (breaking six times the rated operational current) and is intended for a contact endurance of approx. 200 000 operating cycles. If a shorter contact endurance is sufficient, the rated operational current I_e /AC-4 can be increased.

If the contacts are used for mixed operation, i.e. normal switching (breaking the rated operational current according to utilization category AC-3) in combination with intermittent inching (breaking several times the rated operational current according to utilization category AC-4), the contact endurance can be calculated approximately from the following equation:

$$X = \frac{A}{1 + \frac{C}{100} \left(\frac{A}{B} - 1 \right)}$$

Characters in the equation:

X = Contact endurance for mixed operation in operating cycles

A = Contact endurance for normal operation ($I_a = I_e$) in operating cycles

B = Contact endurance for inching

(I_a = multiple of I_e) in operating cycles

C = Inching operations as a percentage of total switching operations

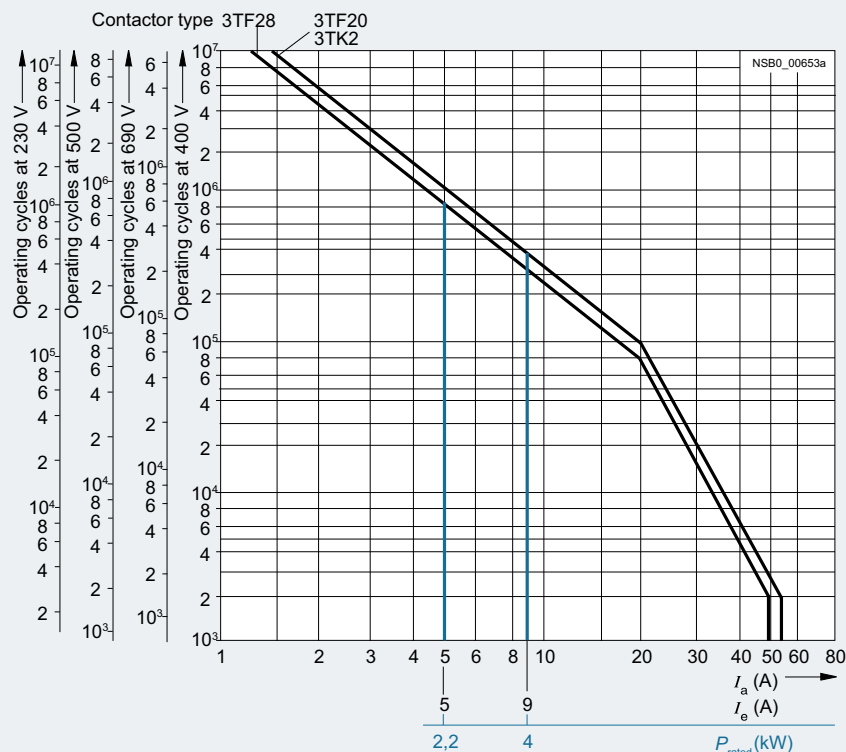


Diagram legend:

P_{rated} = Rated power for squirrel-cage motors at 400 V

I_a = Breaking current

I_e = Rated operational current

Power Contactors for Switching Motors

3TF2 contactors, 3-pole, 2.2 ... 4 kW

Type			3TF20, 3TF28	3TF22, 3TF29
Size			00	00
Dimensions (W x H x D)			45 x 48 x 63	--
• With mounted auxiliary switch block			45 x 48 x 91	45 x 48 x 91
• With 3TX4490 surge suppressor			45 x 48 x 88	45 x 48 x 116
General data				
Permissible mounting position			Any	
Mechanical endurance				
• AC operation	Operating cycles		10 million	
• DC operation	Operating cycles		30 million	
Auxiliary switch block	Operating cycles		10 million	
Rated insulation voltage U_i (pollution degree 3)				
• Screw terminals	V		690	690 ¹⁾
• Flat connectors 6.3 mm x 0.8 mm	V		500	--
• Solder pin connections	V		500	--
Rated impulse withstand voltage U_{imp} (pollution degree 3)				
• Screw terminals	kV		6	6
• Flat connectors 6.3 mm x 0.8 mm	kV		6	--
• Solder pin connections	kV		6	--
Protective separation between coil and main contacts (according to IEC 60947-1, Appendix N)			V	Up to 300
Mirror contacts				
A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact.			Yes, this applies to both the basic unit as well as to between the basic unit and the mounted auxiliary switch block acc. to IEC 60947-4-1, Appendix F	Yes, acc. to IEC 60947-4-1, Appendix F and SUVA
Permissible ambient temperature²⁾				
• During operation	°C		-25 ... +55	
• During storage	°C		-55 ... +80	
Degree of protection acc. to IEC 60947-1 Appendix C			IP00/open	
• Connection range for screw terminals			IP20	
Touch protection acc. to EN 50274			Finger-safe for screw terminals	
Shock resistance				
• Without 3TX44 auxiliary switch block				
- Rectangular pulse	AC operation <i>g/ms</i>		8.3/5 and 5.2/10	--
	DC operation <i>g/ms</i>		11.3/5 and 9.2/10	--
- Sine pulse	AC operation <i>g/ms</i>		13/5 and 8/10	--
	DC operation <i>g/ms</i>		17.4/5 and 12.9/10	--
• With 3TX44 auxiliary switch block				
- Rectangular pulse	AC operation <i>g/ms</i>		5/5 and 3.6/10	5/5 and 3.6/10
	DC operation <i>g/ms</i>		9/5 and 6.9/10	9/5 and 7.3/10
- Sine pulse	AC operation <i>g/ms</i>		7.8/5 and 5.6/10	7.8/5 and 5.6/10
	DC operation <i>g/ms</i>		13.9/5 and 10.1/10	14/5 and 11/10
Conductor cross-sections			3)	
Short-circuit protection for contactors without overload relays				
Main circuit⁴⁾				
• Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1				
- Type of coordination "1"	A		25	
- Type of coordination "2" ⁵⁾	A		10	
- Weld-free	A		10	
• Miniature circuit breaker with C characteristic	A		10	
Auxiliary circuit				
Short-circuit test				
• with fuse links of operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current I_k = 1 kA acc. to IEC 60947-5-1	A		6	

1) Auxiliary contacts 500 V

2) Applies to 50/60 Hz coil:
At 50 Hz, $1.1 \times U_N$, side-by-side mounting and 100 % ON period the max. ambient temperature is +40 °C.

3) See "Conductor Cross-Sections" on page 3/139.

4) According to excerpt from IEC 60947-4-1

Type of coordination "1":
Destruction of the contactor and the overload relay is permissible. The contactor and/or overload relay can be replaced if necessary.
Type of coordination "2":
The overload relay must not suffer any damage. Contact welding on the contactor is permissible, however, if the contacts can be easily separated.5) A short-circuit current of $I_q \leq 6$ kA applies to type of coordination "2".

Contactor		Type	3TF2	
		Size	00	
Control				
Solenoid coil operating range ¹⁾			0.8 ... 1.1 x U _s	
Power consumption of the solenoid coils (for cold coil and 1.0 x U _s)				
Standard version:				
• AC operation, 50 Hz	Closing	VA	15	
	P.f.		0.41	
	Closed	VA	6.8	
	P.f.		0.42	
• AC operation, 60 Hz	Closing	VA	14.4	
	P.f.		0.36	
	Closed	VA	6.1	
	P.f.		0.46	
• AC operation, 50/60 Hz ¹⁾	Closing	VA	16.5/13.2	
	P.f.		0.43/0.38	
	Closed	VA	8.0/5.4	
	P.f.		0.48/0.42	
For USA and Canada:				
• AC operation, 50 Hz	Closing	VA	14.6	
	P.f.		0.38	
	Closed	VA	6.5	
	P.f.		0.40	
• AC operation, 60 Hz	Closing	VA	14.4	
	P.f.		0.30	
	Closed	VA	6.0	
	P.f.		0.44	
• DC operation	Closing = Closed	W	3	
Permissible residual current of the electronic circuit ²⁾ (with 0 signal)				
	• AC operation	mA	≤ 3 x (230 V/U _s)	
	• DC operation	mA	≤ 1 x (230 V/U _s)	
Operating times for 0.8 ... 1.1 x U _s ³⁾				
Total break time = Opening delay + Arcing time				
Values apply with coil in cold state and at operating temperature for operating range				
• AC operation	Closing delay	ms	5 ... 19	To use the 3TF2 AC-operated contactor in reversing an additional dead interval of 50 ms is required along with an NC contact interlock.
	Opening delay	ms	2 ... 22	
- Dead interval				
• DC operation	Closing delay	ms	16 ... 65	
	Opening delay	ms	2 ... 5	
• Arcing time		ms	10 ... 15	
Operating times for 1.0 x U _s ³⁾				
• AC operation	Closing delay	ms	5 ... 18	To use the 3TF2 AC-operated contactor in reversing an additional dead interval of 50 ms is required along with an NC contact interlock.
	Opening delay	ms	3 ... 21	
- Dead interval				
• DC operation	Closing delay	ms	19 ... 31	
	Opening delay	ms	3 ... 4	
• Arcing time		ms	10 ... 15	

¹⁾ Applies to 50/60 Hz coil:
At 50 Hz, 1.1 x U_s , side-by-side mounting and 100 % ON period the max. ambient temperature is +40 °C.

²⁾ The 3TX4490-1J additional load module is recommended for higher residual currents [see Accessories, page 3/144](#).

³⁾ The OFF-delay of the NO contact and the ON-delay of the NC contact are increased if the contactor coils are attenuated against voltage peaks (noise suppression diode 6 to 10 times; diode assembly 2 to 6 times, varistor +2 to 5 ms).

Power Contactors for Switching Motors

3TF2 contactors, 3-pole, 2.2 ... 4 kW

Contactor	Type		3TF28, 3TF29	3TF20...-0..., 3TF22...-0...	3TF20...-3..., 3TF20...-6..., 3TF20...-7...
	Size		00	00	00
Main circuit					
Load rating with AC					
Utilization category AC-1					
Switching resistive loads					
• Rated operational current I_e (at 40 °C)	Up to 400/380 V	A	18	18	18
	690/660 V	A	18	18	--
• Rated operational current I_e (at 55 °C)	400/380 V	A	16	16	16
	690/660 V	A	16	16	--
• Rated power of AC loads P.f. = 1	At 230/220 V	kW	6.0	6.0	6.0
	400/380 V	kW	10	10	10
	500 V	kW	13	13	13
	690/660 V	kW	17	17	--
• Minimum conductor cross-section for loads with I_e		mm ²	2.5	2.5	2.5
Utilization categories AC-2 and AC-3					
• Rated operational current I_e	Up to 220 V	A	5.1	9.0	9.0
	230 V	A	5.1	9.0	9.0
	380 V	A	5.1	9.0	9.0
	400 V	A	5.1	8.4	8.4
	500 V	A	4.8	6.5	6.5
	660 V	A	4.8	5.2	--
	690 V	A	4.8	5.2	--
• Rated power for motors with slipring or squirrel cage at 50 and 60 Hz and	At 110 V	kW	0.7	1.2	1.2
	115 V	kW	0.7	1.2	1.2
	120 V	kW	0.7	1.3	1.3
	127 V	kW	0.8	1.4	1.4
	200 V	kW	1.2	2.2	2.2
	220 V	kW	1.3	2.4	2.4
	230 V	kW	1.4	2.5	2.5
	240 V	kW	1.5	2.6	2.6
	380 V	kW	2.2	4.0	4.0
	400 V	kW	2.2	4.0	4.0
	415 V	kW	2.5	4.0	4.0
	440 V	kW	2.5	4.0	4.0
	460 V	kW	2.7	4.0	4.0
	500 V	kW	2.9	4.0	4.0
	575 V	kW	3.2	4.0	--
	660 V	kW	3.8	4.0	--
	690 V	kW	4.0	4.0	--
Utilization category AC-4					
(contact endurance approx. 200 000 operating cycles at $I_a = 6 \times I_e$)					
• Rated operational current I_e ¹⁾	Up to 400 V	A	1.9	2.6	2.6
	690 V	A	1.4	1.8	--
• Rated power for motors with squirrel cage at 50 and 60 Hz and	At 110 V	kW	0.23	0.32	0.32
	115 V	kW	0.24	0.33	0.33
	120 V	kW	0.26	0.35	0.35
	127 V	kW	0.27	0.37	0.37
	200 V	kW	0.42	0.58	0.58
	220 V	kW	0.47	0.64	0.64
	230 V	kW	0.49	0.67	0.67
	240 V	kW	0.51	0.70	0.70
	380 V	kW	0.81	1.10	1.10
	400 V	kW	0.85	1.15	1.15
	415 V	kW	0.93	1.20	1.20
	440 V	kW	1.0	1.27	1.27
	460 V	kW	1.0	1.33	1.33
	500 V	kW	1.1	1.45	1.45
	575 V	kW	1.0	1.30	--
	660 V	kW	0.86	1.10	--
	690 V	kW	0.89	1.15	--
Thermal load capacity	10 s current	A	70		
Power loss per conducting path	At I_e /AC-3	W	0.3		

¹⁾ The following applies:
Max. permissible rated operational current I_e /AC-4 $\cong I_e$ /AC-3 up to 500 V,
for reduced contact endurance and reduced switching frequency

3TF2 contactors,
3-pole, 2.2 ... 4 kW

Contactor	Type	3TF28, 3TF29	3TF20...-0..., 3TF22...-0...	3TF20...-3..., 3TF20...-6..., 3TF20...-7...
	Size	00	00	00
Main circuit				
Load rating with DC				
Utilization category DC-1, switching resistive loads ($L/R \leq 1$ ms)				
• Rated operational currents I_e (at 55 °C)				
- 1 conducting path	Up to 24 V A	10	16	16
	60 V A	4	6	6
	110 V A	1.5	2	2
	220/240 V A	0.6	1	1
- 2 conducting paths in series	Up to 24 V A	10	16	16
	60 V A	10	16	16
	110 V A	4	6	6
	220/240 V A	1.5	2	2
- 3 conducting paths in series	Up to 24 V A	10	16	16
	60 V A	10	16	16
	110 V A	10	16	16
	220/240 V A	4	6	6
Utilization category DC-3/DC-5, shunt-wound and series-wound motors ($L/R \leq 15$ ms)				
• Rated operational currents I_e (at 55 °C)				
- 1 conducting path	Up to 24 V A	4	6	6
	60 V A	1.8	3	3
	110 V A	0.3	0.5	0.5
	220/240 V A	--	0.1	0.1
- 2 conducting paths in series	Up to 24 V A	6	10	10
	60 V A	3	5	5
	110 V A	1.5	2	2
	220/240 V A	0.3	0.5	0.5
- 3 conducting paths in series	Up to 24 V A	10	16	16
	60 V A	10	16	16
	110 V A	10	16	16
	220/240 V A	1.5	2	2
Switching frequency				
Switching frequency z in operating cycles/hour				
• Contactors without overload relays for rated operation ¹⁾	No-load switching frequency	h^{-1}	10000	
	AC-1	h^{-1}	1000	
	AC-2	h^{-1}	500	
	AC-3	h^{-1}	1000	
• Contactors with overload relays (mean value)		h^{-1}	15	
Conductor cross-sections				
Main and auxiliary conductors		Screw terminals		
• Solid	mm ²	2 x (0.5 ... 2.5), 1 x 4 2 x (20 ... 14) AWG, 1 x 12 AWG		
• Finely stranded with end sleeve	mm ²	2 x (0.5 ... 1.5), 1 x 2.5		
• Pin-end connector (DIN 46231)	mm ²	1 x 1 ... 2.5		
• Terminal screw		M3		
• Prescribed tightening torque for terminal screws	Nm lb.in	0.8 ... 1.3 7 ... 11		
		Flat connectors		
• When using a plug-in sleeve 6.3 – 1	mm ²	0.5 ... 1		
• Finely stranded with 6.3 – 2.5	mm ²	1 ... 2.5		
		Solder pin connections (only for printed circuit boards)		
• Solder pin cross-section	mm ²	0.8 x 1.2		
• Solder pin cross-section, plug-in base	mm ²	0.32 x 1.0		

¹⁾ Dependence of the switching frequency z' on the operational current I' and operational voltage U' :
 $z' = z \cdot (I_e/I') \cdot (400\text{ V}/U')^{1.5} \cdot 1/\text{h}$

¹⁾ Dependence of the switching frequency z' on the operational current I' and operational voltage U' :
 $z' = z \cdot (I_e/I') \cdot (400 V/U')^{1.5} \cdot 1/h$

Power Contactors for Switching Motors

3TF2 contactors, 3-pole, 2.2 ... 4 kW

Contactor	Type	3TF20 ...-0...		3TF20...-3..., 3TF20...-6..., 3TF20...-7...
	Size	00		00
Ⓢ and Ⓣ rated data of the 3TF20 contactors				
Rated insulation voltage U_i	V AC	600	300	
Uninterrupted current	Open and enclosed A	16	16 (10 for solder pin connection)	
Maximum horsepower ratings (Ⓢ and Ⓣ approved values)				
• Rated power for three-phase motors at 60 Hz				
- Single-phase	At 115 V hp	0.5	--	
	200 V hp	1	1	
	230 V hp	1.5	1	
	460/575 V hp	--	--	
- 3-phase	At 115 V hp	--	--	
	200 V hp	3	3 (1 for 3TF20...-6)	
	230 V hp	3	3 (1 for 3TF20...-6)	
	460/575 V hp	5	--	
Overload relays				
• Type		3UA7		
• Setting range		A	8 ... 10	

Contactor	Type	3TF2	
	Size	00	
Rated data of the auxiliary contacts according to IEC 60947-1			
Rated insulation voltage U_i (pollution degree 3)	V	690	
Conventional thermal current I_{th} = Rated operational current I_e /AC-12	A	10	
AC load			
Rated operational current I_e /AC-15/AC-14			
• For rated operational voltage U_e			
	24 V A	4	
	110 V A	4	
	125 V A	4	
	220 V A	4	
	230 V A	4	
	380 V A	3	
	400 V A	3	
	500 V A	2	
	660 V A	1	
	690 V A	1	
DC load			
Rated operational current I_e /DC-12			
• For rated operational voltage U_e			
	24 V A	4	
	48 V A	2.2	
	110 V A	1.1	
	125 V A	1.1	
	220 V A	0.5	
	440 V A	--	
	600 V A	--	
Rated operational current I_e /DC-13			
• For rated operational voltage U_e			
	24 V A	2.1	
	48 V A	1.1	
	110 V A	0.52	
	125 V A	0.52	
	220 V A	0.27	
	440 V A	--	
	600 V A	--	
Ⓢ, Ⓣ and Ⓜ rated data of the auxiliary contacts			
Rated voltage, max.	V AC	600	
Auxiliary switch blocks, max.	V AC	300	
Switching capacity		A 600, Q 300	
Uninterrupted current at 240 V AC	A	10	

Selection and ordering data

Size 00

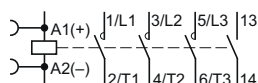
AC-1: Operational current $I_e = 16 \text{ A}$ (at 55 °C)

Screw terminals

Rated data Utilization categories AC-2 and AC-3					Auxiliary contacts		DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
Operational current I_e At 400/ 380 V	Ratings ¹⁾ of three-phase motors at 50 Hz and				Ident. No.	Version		Article No.	Price per PU		
	230/ 220 V	400/ 380 V	500 V	690/ 660 V							
A	kW	kW	kW	kW			NO NC				

Contactors with screw terminals -
for screw fixing and snap-on mounting onto TH 35 standard mounting rail

Ident. No. 10



AC operation

5	1.3	2.2	2.9	3.8	10	1	--	D	3TF2810-0AP0	1	1 unit	41B
					01	--	1	B	3TF2801-0AP0	1	1 unit	41B
9	2.4	4	4	4	10	1	--	A	3TF2010-0AP0	1	1 unit	41B
					01	--	1	A	3TF2001-0AP0	1	1 unit	41B

DC operation

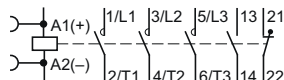
5	1.3	2.2	2.9	3.8	10	1	--	C	3TF2810-0BB4	1	1 unit	41B
					01	--	1	C	3TF2801-0BB4	1	1 unit	41B
9	2.4	4	4	4	10	1	--	A	3TF2010-0BB4	1	1 unit	41B
					01	--	1	C	3TF2001-0BB4	1	1 unit	41B

3TF20 ...-0...
3TF28 ...-0...

With permanently mounted auxiliary switch blocks

Terminal designations of the auxiliary contacts according to EN 50012

Ident. No. 11



AC operation

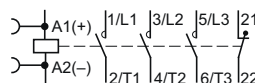
5	1.3	2.2	2.9	3.8	11	1	1	D	3TF2911-0AP0	1	1 unit	41B
					22	2	2	D	3TF2922-0AP0	1	1 unit	41B
9	2.4	4	4	4	11	1	1	D	3TF2211-0AP0	1	1 unit	41B
					22	2	2	D	3TF2222-0AP0	1	1 unit	41B

DC operation

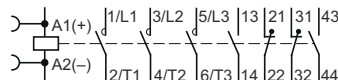
5	1.3	2.2	2.9	3.8	11	1	1	D	3TF2911-0BB4	1	1 unit	41B
					22	2	2	C	3TF2922-0BB4	1	1 unit	41B
9	2.4	4	4	4	11	1	1	C	3TF2211-0BB4	1	1 unit	41B
					22	2	2	C	3TF2222-0BB4	1	1 unit	41B

3TF22 ...-0...
3TF29 ...-0...

Ident. No. 01



Ident. No. 22



¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

For accessories, see pages 3/143 and 3/144.

Power Contactors for Switching Motors

3TF2 contactors, 3-pole, 2.2 ... 4 kW

Size 00

AC-1: Operational current $I_e = 16\text{ A}$ (at 55 °C)

Flat connectors and solder pin connections

Rated data Utilization categories AC-2 and AC-3					Auxiliary contacts		DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Operational current I_e At 400/ 380 V	Ratings ¹⁾ of three-phase motors at 50 Hz and				Ident. No.	Version						
	230/ 220 V	400/ 380 V	500 V	690/ 660 V								
		kW	kW	kW								
						NO	NC					
Ident. No. 10					Ident. No. 01							

Contactors with 6.3 mm x 0.8 mm-flat connectors ·
for screw fixing and snap-on mounting onto TH 35 standard mounting rail



3TF20...-3...

AC operation

9	2.4	4	4	--	10	1	--	D
					01	--	1	D

DC operation

9	2.4	4	4	--	10	1	--	C
					01	--	1	D

Flat connectors

3TF2010-3AP0	1	1 unit	41B
3TF2001-3AP0	1	1 unit	41B

3TF2010-3BB4	1	1 unit	41B
3TF2001-3BB4	1	1 unit	41B

Contactors with 6.3 mm x 0.8 mm flat connectors ·
for screw fixing (diagonal)



3TF20...-7...

AC operation

9	2.4	4	4	--	10	1	--	C
					01	--	1	D

DC operation

9	2.4	4	4	--	10	1	--	C
					01	--	1	C

3TF2010-7AP0	1	1 unit	41B
3TF2001-7AP0	1	1 unit	41B

3TF2010-7BB4	1	1 unit	41B
3TF2001-7BB4	1	1 unit	41B

Contactors with solder pin connections for printed circuit boards ·
for screw fixing (diagonal)



3TF20...-6...

AC operation

9	2.4	4	4	--	10	1	--	D
					01	--	1	D

DC operation

9	2.4	4	4	--	10	1	--	C
					01	--	1	C

Solder pin connections

3TF2010-6AP0	1	1 unit	41B
3TF2001-6AP0	1	1 unit	41B

3TF2010-6BB4	1	1 unit	41B
3TF2001-6BB4	1	1 unit	41B

¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

For accessories, see pages 3/143 and 3/144.

Rated control supply voltages (change of 10th and 11th digit of the Article No.)

Rated control supply voltage U_s	Contactor type	Size
	3TF20, 3TF28	00
AC operation		
Solenoid coils for AC 50 and 60 Hz		
50 Hz	60 Hz	
24 V AC	29 V AC	B0
110 V AC	132 V AC	F0
230/220 V AC	276 V AC	P0 ¹⁾
AC operation		
Solenoid coils for AC 50/60 Hz		
230 V AC		L2
DC operation		
24 V DC		B4

Rated control supply voltage U_s	Contactor type	Size
	3TF22, 3TF29	00
AC operation		
Solenoid coils for AC 50 and 60 Hz		
50 Hz	60 Hz	
230/220 V AC	276 V AC	P0 ¹⁾
DC operation		
24 V DC		B4

¹⁾ Operating range at 220 V:
0.85 to 1.15 × U_s ; lower operating range limit according to IEC 60947.

Please inquire about further voltages.

Accessories

Rated operational current I_e /AC-15/AC-14 at			Auxiliary contacts				DT	Screw terminals		PU (UNIT, SET, M)	PS*	PG
230/ 220 V	400/ 380 V	500 V	Ident. No.	Version	Connections							
A	A	A						Article No.	Price per PU			
Snap-on auxiliary switch blocks												
			For expansion to 2, 4 or 5 auxiliary contacts according to EN 50012 Only for 3TF2. Ident. No. 10 (with auxiliary contact 1 NO)									
4	3	2	11	--	1	--	--	▶	3TX4401-1A	1	1 unit	41A
			22	1	2	--	--	▶	3TX4412-1A	1	1 unit	41A
			23	1	3	--	--	▶	3TX4413-1A	1	1 unit	41A
			32	2	2	--	--	▶	3TX4422-1A	1	1 unit	41A
3TX44...-A												
For expansion to 3 or 5 auxiliary contacts according to EN 50005												
4	3	2	20	2	--	--	--	▶	3TX4420-2A	1	1 unit	41A
			11	1	1	--	--	▶	3TX4411-2A	1	1 unit	41A
			02	--	2	--	--	▶	3TX4402-2A	1	1 unit	41A
			11; U	--	--	1	1	D	3TX4411-2G	1	1 unit	41A
For expansion to 4 or 6 auxiliary contacts according to EN 50005												
4	3	2	40	4	--	--	--	▶	3TX4440-2A	1	1 unit	41A
			31	3	1	--	--	▶	3TX4431-2A	1	1 unit	41A
			22	2	2	--	--	▶	3TX4422-2A	1	1 unit	41A
			22; 2 U	--	--	2	2	B	3TX4422-2G	1	1 unit	41A
For contactors												
Type		Rated control supply voltage U_s		Time setting range (minimum times)		DT	Screw terminals		PU (UNIT, SET, M)	PS*	PG	
		V DC		s								
OFF-delay devices												
For DC-operated contactors for bridging short-time power failures up to 0.8 s												
3TF2...-0BB4		24		0.25 or 0.5		A	3TX4490-1H		1	1 unit	41B	
		3TX4490-1H										

Power Contactors for Switching Motors

3TF2 contactors, 3-pole, 2.2 ... 4 kW

For contactors	Rated control supply voltage U_s		Power consumption of LED at U_s	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type	V AC	V DC	mW						

Surge suppressors for plugging onto contactors with and without auxiliary switch blocks



3TX4490-3A

Version without LED

RC elements

3TF2...-0...	24 ... 48	24 ... 70	--	B	3TX4490-3R		1	1 unit	41B
3TF2...-1...	48 ... 127	70 ... 150	--	B	3TX4490-3S		1	1 unit	41B
	127 ... 240	150 ... 250	--	B	3TX4490-3T		1	1 unit	41B
	240 ... 400	--	--	B	3TX4490-3U		1	1 unit	41B
	400 ... 600	--	--	B	3TX4490-3V		1	1 unit	41B

Varistors

3TF2...-0...	≤ 48	24 ... 70	--	►	3TX4490-3G		1	1 unit	41B
3TF2...-1...	48 ... 127	70 ... 150	--	B	3TX4490-3H		1	1 unit	41B
	127 ... 240	150 ... 250	--	B	3TX4490-3J		1	1 unit	41B
	240 ... 400	--	--	B	3TX4490-3K		1	10 units	41B
	400 ... 600	--	--	B	3TX4490-3L		1	10 units	41B

Noise suppression diodes

3TF2...-0...	--	12 ... 250	--	►	3TX4490-3A		1	1 unit	41B
3TF2...-1...	--	--	--						

Diode assemblies (diode and Zener diode) For DC operation and short break times

3TF2...-0...	--	24 ... 250	--	B	3TX4490-3B		1	1 unit	41B
3TF2...-1...	--	--	--						



3TX4490-4G

Version with LED

Varistors

3TF2...-0...	24 ... 48	12 ... 24	10 ... 120	B	3TX4490-4G		1	1 unit	41B
3TF2...-1...	48 ... 127	24 ... 70	20 ... 470	B	3TX4490-4H		1	1 unit	41B
	127 ... 240	70 ... 150	50 ... 700	B	3TX4490-4J		1	1 unit	41B
	--	150 ... 250	160 ... 950	D	3TX4490-4K		1	1 unit	41B

Noise suppression diodes

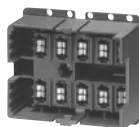
3TF2...-0...	--	24 ... 70	20 ... 470	B	3TX4490-4A		1	1 unit	41B
3TF2...-1...	--	70 ... 150	50 ... 700	B	3TX4490-4B		1	1 unit	41B
	--	150 ... 250	160 ... 950	B	3TX4490-4C		1	1 unit	41B

Additional load modules for plugging onto contactors with and without auxiliary switch blocks¹⁾

For increasing the permissible residual current and for limiting the residual voltage.

3TF2...-0A...	230/220, 50 Hz	--	D	3TX4490-1J		1	1 unit	41B
3TF2...-1A...	230, 60 Hz							
	230, 50/60 Hz							
	Operating range $0.8 \dots 1.1 \times U_s$							

Plug-in bases with solder pin connections for printed circuit boards, width 45 mm



3TX4491-2A

Rated insulation voltage U_i : 400 V (for pollution degree 3);
rated impulse withstand voltage U_{imp} : 6 kV;
rated operational current I_e : 6 A;
Ⓢ and ⓈA rated data: max. 300 V, 6 A

3TF20...-3...	For contactors with 6.3 mm x 0.8 mm flat connectors			D	3TX4491-2A		1	5 units	41A
3TF20...-7...									

Release tools

3TF2...-7...	For releasing contactors from 3TX4491-2A plug-in bases			D	3TX4491-2K		1	1 unit	41A
--------------	--	--	--	---	------------	--	---	--------	-----

¹⁾ Dimensions as for 3TX4490-3 surge suppressor.

SIRIUS 3RT20 coupling contactors (interface),
3-pole, 3 ... 15 kW

Overview

DC operation

IEC 60947-1, EN 60947-1,
IEC 60947-4-1, EN 60947-4-1,
IEC 60947-5-1, EN 60947-5-1 (auxiliary switches)

The 3RT20 coupling contactors for switching motors are tailored to the special requirements of working with electronic controls.

The 3RT201 coupling contactors cannot be extended with auxiliary switch blocks.

Coupling contactors have a low power consumption and an extended solenoid coil operating range.

Depending on the version, the solenoid coils are supplied either without overvoltage damping (3RT201.-1HB4. and 3RT201.-1MB4.-0KT0) or with a diode, suppressor diode or varistor connected as standard.

Technical specifications

All technical specifications not mentioned in the table below are identical to those of the 3RT20 contactors for switching motors; see pages 3/17 and 3/22.

Contactor	Type	Size	3RT201.-1HB4. S00	3RT201.-1JB4. S00	3RT201.-1KB4. S00	3RT202.-1KB4. S0
General data						
Mechanical endurance	Operating cycles		30 million			10 million
Protective separation between the coil and the main contacts acc. to IEC 60947-1, Appendix N	V		400			
Control						
Solenoid coil operating range			0.7 ... 1.25 x U_s			
Power consumption of the solenoid coil (for cold coil) Closing = Closed	At U_s 17 V W		1.6			2.3
	24 V W		2.8			4.5
	30 V W		4.4			7
Permissible residual current of the electronics (with 0 signal)			< 6 mA x (24 V/ U_s)			< 10 mA x (24 V/ U_s)
Overvoltage configuration of the solenoid coil			No overvoltage damping 	With diode 	With suppressor diode 	With varistor 
Operating times						
• Closing						
- At 17 V	ON-delay NO	ms	40 ... 130			70 ... 270
	OFF-delay NC	ms	30 ... 80			60 ... 250
- At 24 V	ON-delay NO	ms	35 ... 60			65 ... 90
	OFF-delay NC	ms	25 ... 40			55 ... 80
- At 30 V	ON-delay NO	ms	25 ... 50			52 ... 65
	OFF-delay NC	ms	15 ... 30			43 ... 57
• Closing at 17 ... 30 V						
	OFF-delay NO	ms	7 ... 20	38 ... 65	7 ... 20	19 ... 21
	ON-delay NC	ms	20 ... 30	55 ... 75	20 ... 30	25 ... 31

Contactor	Type	Size	3RT201.-1MB4.-0KT0 S00	3RT201.-1VB4. S00	3RT201.-1SB4. S00
	Width	mm	45	45	45
General data					
Mechanical endurance	Operating cycles		30 million		
Protective separation between the coil and the main contacts acc. to IEC 60947-1, Appendix N	V		400		
Control					
Solenoid coil operating range			0.85 ... 1.85 x U_s		
Power consumption of the solenoid coil (for cold coil) Closing = Closed	At U_s 24 V W		1.6		
Permissible residual current, upright mounting position			On request		
Overvoltage configuration of the solenoid coil			No overvoltage damping 	With diode 	With suppressor diode 

Coupling Contactors

SIRIUS 3RT20 coupling contactors (interface), 3-pole, 3 ... 15 kW

Contactor	Type	Size	3RT201.-1MB4.-0KT0 S00	3RT201.-1VB4. S00	3RT201.-1SB4. S00
Control					
Operating times					
• Closing	- At 20.5 V	ON-delay NO	ms	30 ... 120	
		OFF-delay NC	ms	20 ... 110	
	- At 24 V	ON-delay NO	ms	25 ... 90	
		OFF-delay NC	ms	15 ... 80	
	- At 44 V	ON-delay NO	ms	15 ... 60	
		OFF-delay NC	ms	10 ... 50	
• Opening	OFF-delay NO	ms	5 ... 20	20 ... 80	5 ... 20
		ON-delay NC	ms	10 ... 30	30 ... 90
					10 ... 30

Selection and ordering data

DC operation

Low power consumption

Extended operating range of the solenoid coil

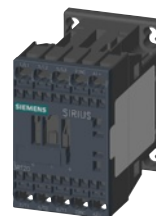
PU (UNIT, SET, M) = 1

PS* = 1 unit

PG = 41B



3RT201.-1.B4.



3RT201.-2.B4.

Rated data AC-2 and AC-3 T_U : Up to 60 °C Operational current I_e up to 400 V A	Rating¹⁾ of three-phase motors at 50 Hz and 400 V kW	Auxiliary contacts Ident. No. Version NO NC	DT Screw terminals	DT Spring-type terminals
			Configurator Article No. Price per PU	Configurator Article No. Price per PU

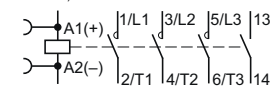
For screw fixing and snap-on mounting onto
TH 35 standard mounting rail

Size S00

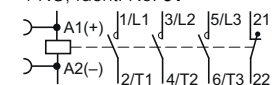
Diode, varistor or RC element, attachable

(no auxiliary switch blocks can be mounted)

- 1 NO, Ident. No. **10**



- 1 NC, Ident. No. **01**



Rated control supply voltage $U_s = 24$ V DC, coil operating range **0.7 to 1.25 x U_s**

Power consumption of the solenoid coils **2.8 W** at 24 V

7	3	10 01	1 --	-- 1	B B	3RT2015-1HB41 3RT2015-1HB42	B B	3RT2015-2HB41 3RT2015-2HB42
9	4	10 01	1 --	-- 1	B B	3RT2016-1HB41 3RT2016-1HB42	B B	3RT2016-2HB41 3RT2016-2HB42
12	5.5	10 01	1 --	-- 1	B B	3RT2017-1HB41 3RT2017-1HB42	B B	3RT2017-2HB41 3RT2017-2HB42

Rated control supply voltage $U_s = 24$ V DC, operating range **0.85 to 1.85 x U_s**

Power consumption of the solenoid coils **1.6 W** at 24 V

7	3	10 01	1 --	-- 1	B B	3RT2015-1MB41-0KT0 3RT2015-1MB42-0KT0	B B	3RT2015-2MB41-0KT0 3RT2015-2MB42-0KT0
9	4	10 01	1 --	-- 1	B B	3RT2016-1MB41-0KT0 3RT2016-1MB42-0KT0	B B	3RT2016-2MB41-0KT0 3RT2016-2MB42-0KT0
12	5.5	10 01	1 --	-- 1	B B	3RT2017-1MB41-0KT0 3RT2017-1MB42-0KT0	B B	3RT2017-2MB41-0KT0 3RT2017-2MB42-0KT0

For surge suppressors, see page 3/59.

For online configurator see www.siemens.com/sirius/configurators.

1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

SIRIUS 3RT20 coupling contactors (interface),
3-pole, 3 ... 15 kW**DC operation****Low power consumption****Extended operating range of the solenoid coil****Integrated coil circuit**

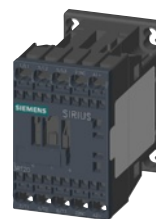
PU (UNIT, SET, M) = 1

PS* = 1 unit

PG = 41B



3RT201.-1.B4.



3RT201.-2.B4.

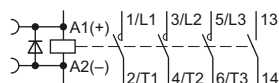
Rated data AC-2 and AC-3 T_U : Up to 60 °C Operational current I_e up to 400 V A	Rating ¹⁾ of three-phase motors at 50 Hz and 400 V kW	Auxiliary contacts		DT	Screw terminals	DT	Spring-type terminals
		Ident. No.	Version		Configurator		Configurator
					Article No.	Price per PU	Article No.
							Price per PU

For screw fixing and snap-on mounting onto
TH 35 standard mounting rail

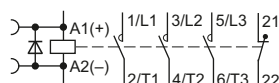
Size S00**With integrated coil circuit (diode)**

(no auxiliary switch blocks can be mounted)

- 1 NO, Ident. No. **10**



- 1 NC, Ident. No. **01**



Rated control supply voltage $U_s = 24$ V DC, coil operating range **0.7 to 1.25 x U_s**

Power consumption of the solenoid coils **2.8 W** at 24 V

7	3	10	1	--	B	3RT2015-1JB41	B	3RT2015-2JB41
		01	--	1	B	3RT2015-1JB42	B	3RT2015-2JB42
9	4	10	1	--	▶ A	3RT2016-1JB41	B	3RT2016-2JB41
		01	--	1	A	3RT2016-1JB42	B	3RT2016-2JB42
12	5.5	10	1	--	B	3RT2017-1JB41	B	3RT2017-2JB41
		01	--	1	B	3RT2017-1JB42	B	3RT2017-2JB42

Rated control supply voltage $U_s = 24$ V DC, operating range **0.85 to 1.85 x U_s**

Power consumption of the solenoid coils **1.6 W** at 24 V

7	3	10	1	--	B	3RT2015-1VB41	B	3RT2015-2VB41
		01	--	1	B	3RT2015-1VB42	B	3RT2015-2VB42
9	4	10	1	--	B	3RT2016-1VB41	B	3RT2016-2VB41
		01	--	1	B	3RT2016-1VB42	B	3RT2016-2VB42
12	5.5	10	1	--	B	3RT2017-1VB41	B	3RT2017-2VB41
		01	--	1	B	3RT2017-1VB42	B	3RT2017-2VB42

For online configurator see www.siemens.com/sirius/configurators.

- 1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

Coupling Contactors

SIRIUS 3RT20 coupling contactors (interface), 3-pole, 3 ... 15 kW

DC operation

Low power consumption

Extended operating range of the solenoid coil

Integrated coil circuit

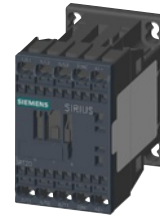
PU (UNIT, SET, M) = 1

PS* = 1 unit

PG = 41B



3RT201.-1.B4.



3RT201.-2.B4.

Rated data AC-2 and AC-3 T_U : Up to 60 °C Operational current I_e up to 400 V A	Rating ¹⁾ of three-phase motors at 50 Hz and 400 V kW	Auxiliary contacts		DT	Screw terminals	DT	Spring-type terminals
		Ident. No.	Version		Configurator Article No. Price per PU		Configurator Article No. Price per PU

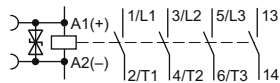
For screw fixing and snap-on mounting onto
TH 35 standard mounting rail

Size S00

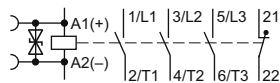
With integrated coil circuit (suppressor diode)

(no auxiliary switch blocks can be mounted)

- 1 NO, Ident. No. 10



- 1 NC, Ident. No. 01



Rated control supply voltage $U_s = 24$ V DC, coil operating range **0.7 to 1.25 x U_s**

Power consumption of the solenoid coils **2.8 W** at 24 V

7	3	10	1	--	B	3RT2015-1KB41	B	3RT2015-2KB41
		01	--	1	B	3RT2015-1KB42		3RT2015-2KB42
9	4	10	1	--	A	3RT2016-1KB41	B	3RT2016-2KB41
		01	--	1	B	3RT2016-1KB42	B	3RT2016-2KB42
12	5.5	10	1	--	B	3RT2017-1KB41	▶	3RT2017-2KB41
		01	--	1	B	3RT2017-1KB42	▶	3RT2017-2KB42

Rated control supply voltage $U_s = 24$ V DC, operating range **0.85 to 1.85 x U_s**

Power consumption of the solenoid coils **1.6 W** at 24 V

7	3	10	1	--	B	3RT2015-1SB41	B	3RT2015-2SB41
		01	--	1	B	3RT2015-1SB42	B	3RT2015-2SB42
9	4	10	1	--	B	3RT2016-1SB41	B	3RT2016-2SB41
		01	--	1	B	3RT2016-1SB42	B	3RT2016-2SB42
12	5.5	10	1	--	B	3RT2017-1SB41	B	3RT2017-2SB41
		01	--	1	B	3RT2017-1SB42	B	3RT2017-2SB42

For online configurator see www.siemens.com/sirius/configurators.

1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

**SIRIUS 3RT20 coupling contactors (interface),
3-pole, 3 ... 15 kW**
DC operation**Low power consumption****Extended operating range of the solenoid coil****Integrated coil circuit**

PU (UNIT, SET, M) = 1

PS* = 1 unit

PG = 41B



3RT202.-1KB40



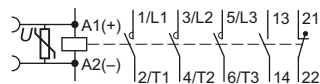
3RT202.-2KB40

Rated data AC-2 and AC-3 T_U : Up to 60 °C		Auxiliary contacts		DT	Screw terminals		DT	Spring-type terminals	
Operational current I_e up to		Ident. No.		Version	Configurator			Configurator	
400 V					Article No.		Price per PU	Article No.	
A				NO				Price per PU	
Rating ¹⁾ of three-phase motors at 50 Hz and									
400 V									
kW									
For screw fixing and snap-on mounting onto TH 35 standard mounting rail									

Size S0**With integrated coil circuit (varistor)**

(no auxiliary switch blocks can be mounted)

1 NO + 1 NC, Ident. No. 11

Rated control supply voltage $U_s = 24$ V DC, coil operating range **0.7 to 1.25 x U_s** Power consumption of the solenoid coils **4.5 W** at 24 V

9	4	11	1	1	▶	3RT2023-1KB40	▶	3RT2023-2KB40
12	5.5	11	1	1	▶	3RT2024-1KB40	B	3RT2024-2KB40
17	7.5	11	1	1	▶	3RT2025-1KB40	B	3RT2025-2KB40
25	11	11	1	1	▶	3RT2026-1KB40	B	3RT2026-2KB40
32	15	11	1	1	▶	3RT2027-1KB40	B	3RT2027-2KB40

For online configurator see www.siemens.com/sirius/configurators.

For accessories see page 3/56.

1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA23 reversing contactor assemblies

Overview

The 3RA23 contactor assemblies for reversing can be ordered as follows:

Sizes S00 and S0

- Fully wired and tested, with mechanical and electrical interlock
- As individual parts for customer assembly

There is also a range of accessories (auxiliary switch blocks, surge suppressors, etc.) that must be ordered separately.

Overload relays for motor protection [see Chapter 7 "Protection Equipment" → "Overload Relays"](#).

The 3RA23 contactor assemblies have screw or spring-type terminals (main and control circuits) and are suitable for screwing or snapping onto TH 35 standard mounting rails.

Complete reversing contactor assemblies

The fully wired reversing contactor assemblies are suitable for use in any climate. They are finger-safe according to EN 50274.

The contactor assemblies size S00 and S0 each consist of two contactors with the same power, with one NC contact (S00) or one NO contact and one NC contact (S0) in the basic unit. The contactors are mechanically and electrically interlocked (NC contact interlock).

For motor protection, either 3RU2 or 3RB3 overload relays for direct mounting or stand-alone installation, or 3RN1 thermistor motor protection releases must be ordered separately.

Reversing contactor assemblies with communication interface

The reversing contactor assemblies with communication interface are required for mounting the function modules for connection to the controller via the IO-Link or AS-Interface communication systems.

For more information on IO-Link and AS-Interface [see Chapter 2 "Industrial Communication"](#).

Components for customer assembly

Assembly kits for all sizes are available for customer assembly of reversing contactor assemblies.

Contactors, overload relays and – for momentary-contact operation of size S00 – auxiliary switches (NO contacts) for self-locking must be ordered separately. (With S0, the NO contacts integrated into the basic unit can be used.)

Rated data AC-2 and AC-3 for 50 Hz 400 V AC		Size	Article No.		
Rating kW	Operational current I_e A		Contactor	Assembly kit	Fully wired and tested contactor assemblies
			Screw terminals 	Screw terminals 	Screw terminals 
3	7	S00	3RT2015-1...2	3RA2913-2AA1	3RA2315-8XB30-1...
4	9		3RT2016-1...2		3RA2316-8XB30-1...
5.5	12		3RT2017-1...2		3RA2317-8XB30-1...
7.5	16		3RT2018-1...2		3RA2318-8XB30-1...
5.5	12	S0	3RT2024-1...0	3RA2923-2AA1	3RA2324-8XB30-1...
7.5	16		3RT2025-1...0		3RA2325-8XB30-1...
11	25		3RT2026-1...0		3RA2326-8XB30-1...
15	32		3RT2027-1...0		3RA2327-8XB30-1...
18.5	38		3RT2028-1...0		3RA2328-8XB30-1...
			Spring-type terminals 	Spring-type terminals 	Spring-type terminals 
3	7	S00	3RT2015-2...2	3RA2913-2AA2 ¹⁾	3RA2315-8XB30-2...
4	9		3RT2016-2...2		3RA2316-8XB30-2...
5.5	12		3RT2017-2...2		3RA2317-8XB30-2...
7.5	16		3RT2018-2...2		3RA2318-8XB30-2...
5.5	12	S0	3RT2024-2...0	3RA2923-2AA2 ²⁾	3RA2324-8XB30-2...
7.5	16		3RT2025-2...0		3RA2325-8XB30-2...
11	25		3RT2026-2...0		3RA2326-8XB30-2...
15	32		3RT2027-2...0		3RA2327-8XB30-2...
18.5	38		3RT2028-2...0		3RA2328-8XB30-2...

¹⁾ The assembly kit contains: Mechanical interlock; connecting clips for 2 contactors, wiring modules on the top and bottom (for main, control and auxiliary circuits).

²⁾ The assembly kit contains: Mechanical interlock; connecting clips for 2 contactors, wiring modules on the top and bottom (for main circuits).

Operating times

The operating times of the individual 3RT20 contactors are rated in such a way that no overlapping of the contact making and the arcing time between two contactors can occur on reversing, providing they are interlocked by way of their auxiliary switches (NC contact interlock) and the mechanical interlock.

For assemblies with AC operation and 50/60 Hz, a dead interval of 50 ms must be provided when used with voltages ≥ 500 V; a dead interval of 30 ms is recommended for use with voltages ≥ 400 V. These dead times do not apply to assemblies with DC operation.

The operating times of the individual contactors are not affected by the mechanical interlock.

Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA23 reversing contactor assemblies

Article No. scheme

Digit of the Article No.	1st - 3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th
	□ □ □	□	□	□	□	-	□	□	□	□	-	□	□	□
SIRIUS contactor assemblies	3 R A													
2nd generation		2												
Device type (e.g. 3 = reversing contactor assembly)			3											
Contactor size (1 = S00, 2 = S0)				□										
Power dependent on size (e.g. 27 = 15 kW)					□									
Type of overload relay (8X = without)							□	□						
Assembly (B = ready-assembled, E = ready-assembled with communication)									□					
Interlock (3 = mechanical and electrical)										□				
Free auxiliary switches (e.g. S00: 0 = none, S0: 0 = 2 NO total)											□			
Connection type (1 = screw, 2 = spring)												□		
Operating range / solenoid coil circuit (e.g. A = AC standard / without)													□	
Rated control supply voltage (e.g. L2 = 230 V, 50/60 Hz)														□ □
Example	3 R A	2	3	2	7	-	8	X	B	3	0	-	1	A L 2

Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Benefits

Using wiring kits for reversing starters has the following advantages:

- Notable reduction of wiring in the control circuit
- Integrated mechanical interlocking
- Prevention of wiring errors in the main circuit

Connecting combs for screw terminals also result in:

- Prevention of wiring errors in the control circuit
- Reduction of testing costs
- Ready-jumpered actuation of the auxiliary switches and the frame (A2)
- Integrated electrical interlocking

Accessories

Selecting the auxiliary switches

The following points should be noted:

Size S00

- For maintained-contact operation:
Use contactors with an NC contact in the basic unit for the electrical interlock.
- For momentary-contact operation:
Use contactors with an NC contact in the basic unit for the electrical interlock; in addition, an auxiliary switch block with at least one NO contact for latching is required per contactor.

Size S0

- For maintained-contact operation:
The contactors have two integrated auxiliary contacts (1 NO + 1 NC); the NC contact can be used for electrical interlocking.
- For momentary-contact operation:
Electrical interlock as for maintained-contact operation; the NO contact in the basic unit can be used for the latching.

Surge suppression

Sizes S00 and S0

All contactor assemblies can be fitted with RC elements or varistors for damping opening surges in the coil.

As with the individual contactors, the surge suppressors can either be plugged onto the top of the contactors (S00) or be plugged into the front of the contactors (S0).

Contactor Assemblies

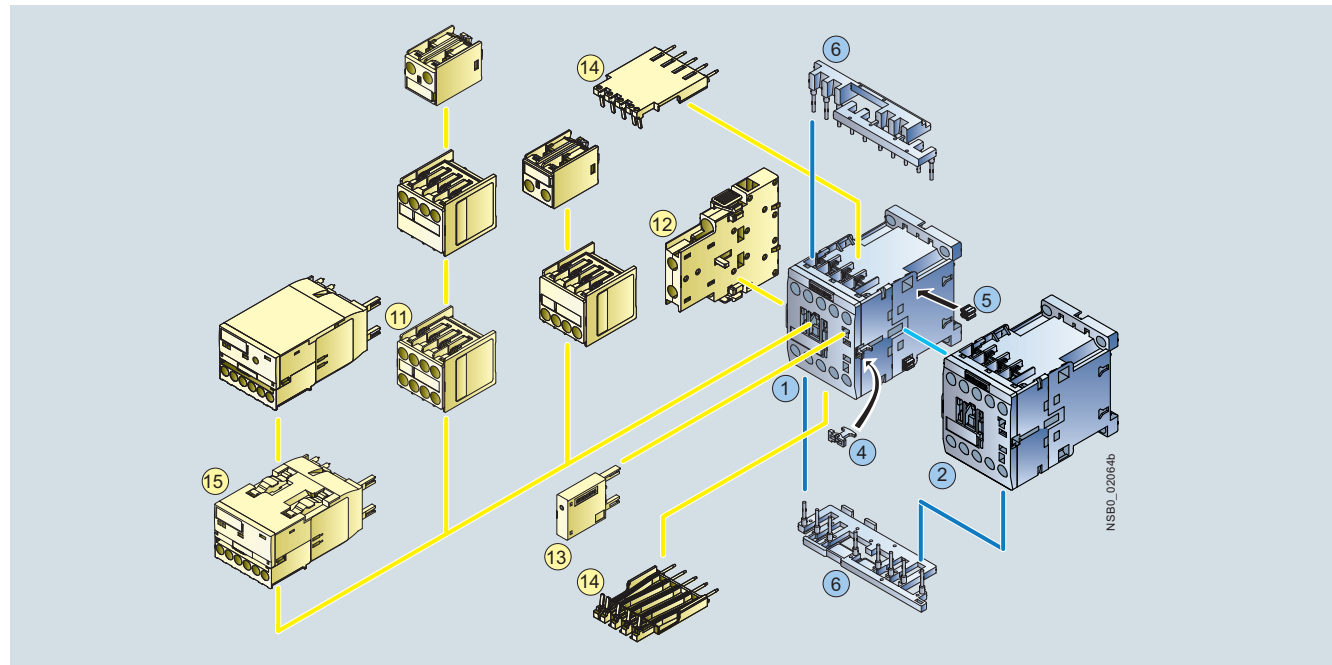
3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA23 reversing contactor assemblies

Selection and ordering data

Fully wired and tested contactor assemblies · Size S00 · up to 7.5 kW

The figure shows the version with screw terminals



Mountable accessories (optional)

To be ordered separately	Article No.	Page
⑪ Auxiliary switch block, front ¹⁾	3RH2911-1...	3/53
⑫ Auxiliary switch block, lateral	3RH2921-1DA...	3/55
⑬ Surge suppressors	3RT2916-1...	3/59
⑭ Solder pin adapters	3RT1916-4KA1	3/62
⑮ Function module for connection to the control system	3RT271.-1BA00	3/157

Complete contactor assemblies

Individual parts		Article No.		Page
		Q11	Q12	
①②	Contactor, 3 kW	3RT2015	3RT2015	3/28, 3/33
①②	Contactor, 4 kW	3RT2016	3RT2016	3/28, 3/33
①②	Contactor, 5.5 kW	3RT2017	3RT2017	3/28, 3/33
①②	Contactor, 7.5 kW	3RT2018	3RT208	3/28, 3/33
④⑤⑥	Assembly kit comprising:	3RA2913-2AA1		3/156
	④ Mechanical interlock ²⁾			3/156
	⑤ 2 connecting clips for 2 contactors ²⁾			3/156
	⑥ Wiring modules on the top and bottom for connecting the main current paths, electrical interlock included ³⁾ , interruptible (NC contact interlock)			3/156

¹⁾ Auxiliary switch block according to EN 50005 must be used.

²⁾ The parts ④ and ⑤ can only be ordered together as 3RA2912-2H mechanical connectors.

³⁾ 3RT201. contactors with one NC contact in the basic unit are required for the electrical interlock. An additional NO contact is required for momentary-contact operation.

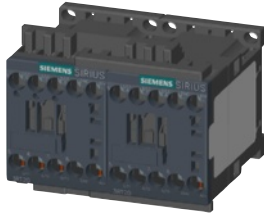
Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA23 reversing contactor assemblies

Fully wired and tested contactor assemblies²⁾ · Size S00 · up to 7.5 kW

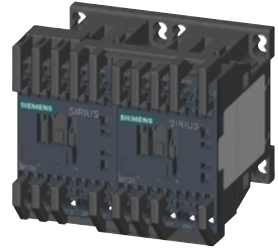
PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B



3RA231.-8XE30-1BB4



3RA231.-8XB30-1A.0



3RA231.-8XB30-2A.0

Rated data AC-2 and AC-3					DT	Screw terminals		DT	Spring-type terminals	
Operational current I_e up to 400 V	Ratings of three-phase motors at 50 Hz and			Rated control supply voltage U_s ¹⁾		Article No.	Price per PU		Article No.	Price per PU
A	kW	400 V kW	690 V kW	V						
AC operation, 50/60 Hz										
7	2.2	3	4	24 AC 110 AC 230 AC	B B A	3RA2315-8XB30-1AB0 3RA2315-8XB30-1AF0 3RA2315-8XB30-1AP0		B B A	3RA2315-8XB30-2AB0 3RA2315-8XB30-2AF0 3RA2315-8XB30-2AP0	
9	3	4	5.5	24 AC 110 AC 230 AC	B B A	3RA2316-8XB30-1AB0 3RA2316-8XB30-1AF0 3RA2316-8XB30-1AP0		B B A	3RA2316-8XB30-2AB0 3RA2316-8XB30-2AF0 3RA2316-8XB30-2AP0	
12	3	5.5	5.5	24 AC 110 AC 230 AC	B B A	3RA2317-8XB30-1AB0 3RA2317-8XB30-1AF0 3RA2317-8XB30-1AP0		B B A	3RA2317-8XB30-2AB0 3RA2317-8XB30-2AF0 3RA2317-8XB30-2AP0	
16	4	7.5	7.5	24 AC 110 AC 230 AC	B B A	3RA2318-8XB30-1AB0 3RA2318-8XB30-1AF0 3RA2318-8XB30-1AP0		B B A	3RA2318-8XB30-2AB0 3RA2318-8XB30-2AF0 3RA2318-8XB30-2AP0	
DC operation										
7	2.2	3	4	24 DC	A	3RA2315-8XB30-1BB4		A	3RA2315-8XB30-2BB4	
9	3	4	5.5	24 DC	A	3RA2316-8XB30-1BB4		A	3RA2316-8XB30-2BB4	
12	3	5.5	5.5	24 DC	A	3RA2317-8XB30-1BB4		A	3RA2317-8XB30-2BB4	
16	4	7.5	7.5	24 DC	A	3RA2318-8XB30-1BB4		A	3RA2318-8XB30-2BB4	
With communication interface										
7	2.2	3	4	24 DC	A	3RA2315-8XE30-1BB4		B	3RA2315-8XE30-2BB4	
9	3	4	5.5	24 DC	A	3RA2316-8XE30-1BB4		B	3RA2316-8XE30-2BB4	
12	3	5.5	5.5	24 DC	A	3RA2317-8XE30-1BB4		A	3RA2317-8XE30-2BB4	
16	4	7.5	7.5	24 DC	A	3RA2318-8XE30-1BB4		A	3RA2318-8XE30-2BB4	

¹⁾ Coil operating range
at 50 Hz: 0.8 ... 1.1 × U_s ;
at 60 Hz: 0.85 ... 1.1 × U_s .

²⁾ The contactors integrated in the contactor assemblies have no unassigned auxiliary contacts. When used with a communication interface and function module, the auxiliary contacts are unassigned.

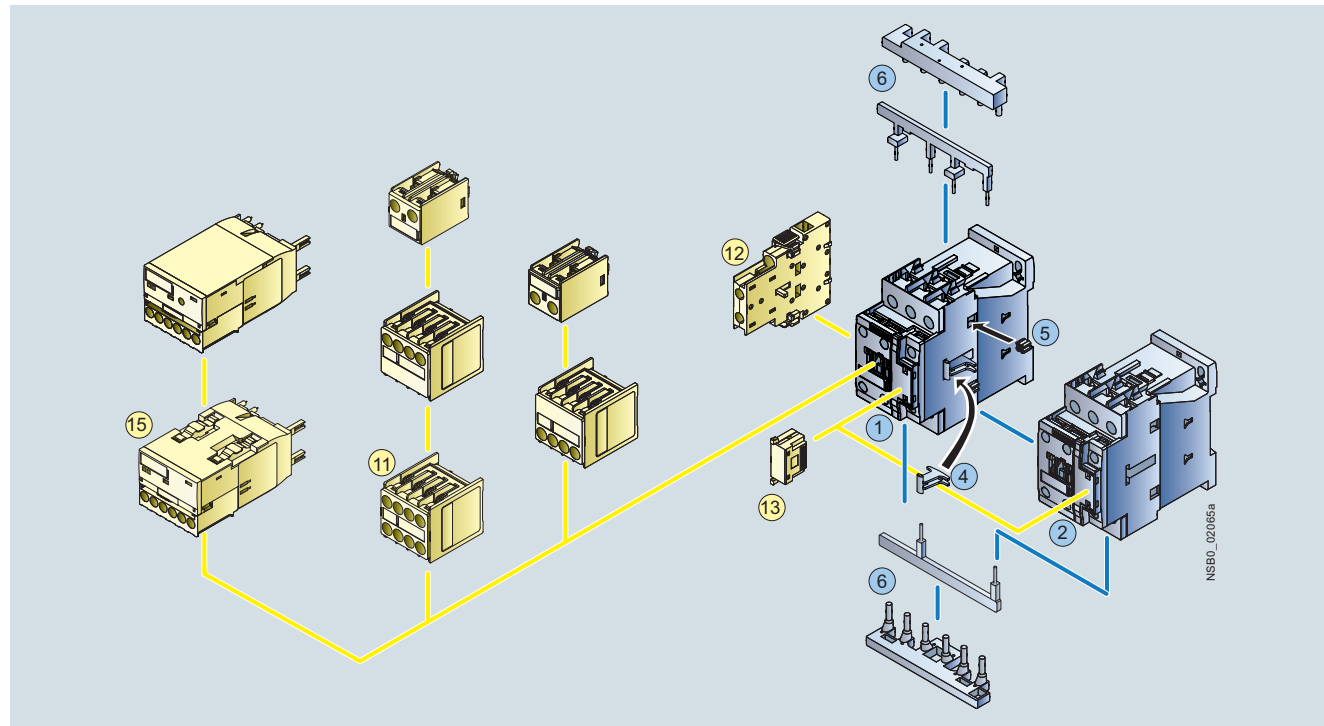
Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA23 reversing contactor assemblies

Fully wired and tested contactor assemblies · Size S0 · up to 18.5 kW

The figure shows the version with screw terminals



Mountable accessories (optional)

To be ordered separately	Article No.	Page
⑪ Auxiliary switch block, front	3RH2921-1...	3/53
⑫ Auxiliary switch block, lateral	3RH2921-1DA..	3/55
⑬ Surge suppressors	3RT2926-1...	3/59
⑮ Function module for connection to the control system	3RT271.-1BA00	3/157

Complete contactor assemblies

Individual parts		Article No.		Page
		Q11	Q12	
①②	Contactor, 5.5 kW	3RT2024	3RT2024	3/30, 3/35
①②	Contactor, 7.5 kW	3RT2025	3RT2025	3/30, 3/35
①②	Contactor, 11 kW	3RT2026	3RT2026	3/30, 3/35
①②	Contactor, 15 kW	3RT2027	3RT2027	3/30, 3/35
①②	Contactor, 18.5 kW	3RT2028	3RT2028	3/30, 3/35
④⑤⑥	Assembly kit comprising:	3RA2923-2AA1		3/156
④	Mechanical interlock ¹⁾			3/156
⑤	2 connecting clips for 2 contactors ¹⁾			3/156
⑥	Wiring modules on the top and bottom for connecting the main current paths, electrical interlock included (NC contact interlock)			3/156

¹⁾ The parts ④ and ⑤ can only be ordered together as 3RA2922-2H mechanical connectors.

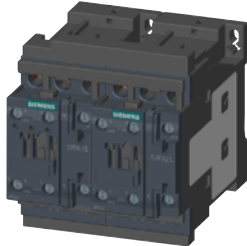
Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

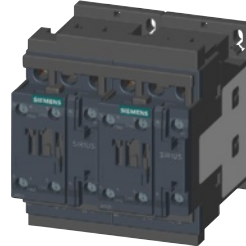
SIRIUS 3RA23 reversing contactor assemblies

Fully wired and tested contactor assemblies · Size S0 · up to 18.5 kW

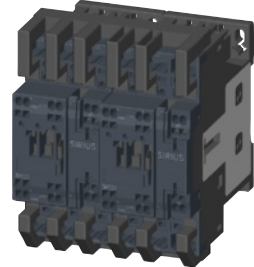
PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B



3RA2324-8XE30-1BB4



3RA2325-8XB30-1A.2



3RA2326-8XB30-2A.2

Rated data AC-2 and AC-3				Rated control supply voltage U_s	DT	Screw terminals			DT	Spring-type terminals		
Operational current I_e up to 400 V	Ratings of three-phase motors at 50 Hz and					Article No.	Price per PU			Article No.	Price per PU	
	230 V	400 V	690 V									
	A	kW	kW									
AC operation, 50/60 Hz												
12	3	5.5	7.5	24 AC 110 AC 230 AC	B B B	3RA2324-8XB30-1AC2 3RA2324-8XB30-1AG2 3RA2324-8XB30-1AL2	B B B	3RA2324-8XB30-2AC2 3RA2324-8XB30-2AG2 3RA2324-8XB30-2AL2				
17	4	7.5	11	24 AC 110 AC 230 AC	B B B	3RA2325-8XB30-1AC2 3RA2325-8XB30-1AG2 3RA2325-8XB30-1AL2	B B B	3RA2325-8XB30-2AC2 3RA2325-8XB30-2AG2 3RA2325-8XB30-2AL2				
25	5.5	11	11	24 AC 110 AC 230 AC	B B B	3RA2326-8XB30-1AC2 3RA2326-8XB30-1AG2 3RA2326-8XB30-1AL2	B B B	3RA2326-8XB30-2AC2 3RA2326-8XB30-2AG2 3RA2326-8XB30-2AL2				
32	7.5	15	18.5	24 AC 110 AC 230 AC	B B B	3RA2327-8XB30-1AC2 3RA2327-8XB30-1AG2 3RA2327-8XB30-1AL2	B B B	3RA2327-8XB30-2AC2 3RA2327-8XB30-2AG2 3RA2327-8XB30-2AL2				
38	11	18.5	18.5	24 AC 110 AC 230 AC	B B B	3RA2328-8XB30-1AC2 3RA2328-8XB30-1AG2 3RA2328-8XB30-1AL2	B B B	3RA2328-8XB30-2AC2 3RA2328-8XB30-2AG2 3RA2328-8XB30-2AL2				
DC operation												
12	3	5.5	7.5	24 DC	A	3RA2324-8XB30-1BB4	A	3RA2324-8XB30-2BB4				
17	4	7.5	11	24 DC	A	3RA2325-8XB30-1BB4	A	3RA2325-8XB30-2BB4				
25	5.5	11	11	24 DC	A	3RA2326-8XB30-1BB4	A	3RA2326-8XB30-2BB4				
32	7.5	15	18.5	24 DC	A	3RA2327-8XB30-1BB4	A	3RA2327-8XB30-2BB4				
38	11	18.5	18.5	24 DC	A	3RA2328-8XB30-1BB4	A	3RA2328-8XB30-2BB4				
With communication interface												
12	3	5.5	7.5	24 DC	A	3RA2324-8XE30-1BB4	A	3RA2324-8XE30-2BB4				
17	4	7.5	11	24 DC	A	3RA2325-8XE30-1BB4	A	3RA2325-8XE30-2BB4				
25	5.5	11	11	24 DC	A	3RA2326-8XE30-1BB4	A	3RA2326-8XE30-2BB4				
32	7.5	15	18.5	24 DC	A	3RA2327-8XE30-1BB4	A	3RA2327-8XE30-2BB4				
38	11	18.5	18.5	24 DC	A	3RA2328-8XE30-1BB4	A	3RA2328-8XE30-2BB4				

¹⁾ Coil operating range
at 50 Hz: 0.8 ... 1.1 × U_s ; at 60 Hz: 0.85 ... 1.1 × U_s .

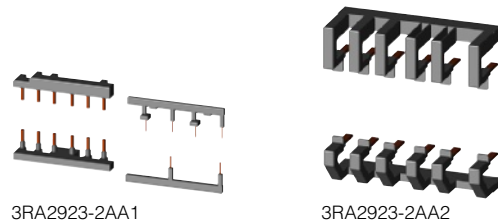
Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA23 reversing contactor assemblies

Components for customer assembly

PU (UNIT, SET, M) = 1
 PS* = 1 unit (unless otherwise specified)
 PG = 41B



For contactors	Size	Version	DT	Screw terminals		DT	Spring-type terminals	
Type				Article No.	Price per PU		Article No.	Price per PU
Assembly kits for making 3-pole contactor assemblies								
3RT201	S00-S00	The assembly kit contains: Mechanical interlock, 2 connecting clips for 2 contactors, wiring modules on the top and bottom • For main, auxiliary and control circuits	▶	3RA2913-2AA1		▶	3RA2913-2AA2	
3RT202	S0-S0	The assembly kit contains: Mechanical interlock, 2 connecting clips for 2 contactors, wiring modules on the top and bottom • For main, auxiliary and control circuits • Only for main circuit ¹⁾	▶	3RA2923-2AA1 --		▶	-- 3RA2923-2AA2	
Individual components for making 3 and 4-pole contactor assemblies								
Wiring modules								
3RT201	S00-S00	Top (in-phase)	PS = 5 units	B	3RA2913-3DA1	B	3RA2913-3DA2	
		Bottom (with phase reversal)	PS = 5 units	B	3RA2913-3EA1	B	3RA2913-3EA2	
3RT202	S0-S0	Top (in-phase)	PS = 5 units	B	3RA2923-3DA1	B	3RA2923-3DA2	
		Bottom (with phase reversal)	PS = 5 units	B	3RA2923-3EA1	B	3RA2923-3EA2	
Mechanical connectors								
		The connectors consist of a mechanical interlock and two connecting clips						
3RT201, 3RT231	S00-S00	For lateral interlock, without contactor clearance	PS = 10 units	B	3RA2912-2H	B	3RA2912-2H	
3RT202, 3RT232	S0-S0	For lateral interlock, without contactor clearance	PS = 10 units	B	3RA2922-2H	B	3RA2922-2H	

¹⁾ Version in size S0 with spring-type terminals:
 Only the wiring modules for the main circuit are included.
 No connectors are included for the auxiliary and control circuit.

Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA23 reversing contactor assemblies

Components for customer assembly

PU (UNIT, SET, M) = 1
 PS* = 1 unit (unless otherwise specified)
 PG = 41B



3RA2711-1BA00



3RA2711-2BA00

For contactors Type	Size	Version	DT	Screw terminals 		DT	Spring-type terminals 	
				Article No.	Price per PU		Article No.	Price per PU
Function modules for connection to the control system								
3RT201, 3RT202	S00, S0	IO-Link connection, comprising one basic and one coupling module and an additional module connector for assembling an IO-Link group	A	3RA2711-1BA00	A		3RA2711-2BA00	
3RT201, 3RT202	S00, S0	AS-Interface connection, comprising one basic and one coupling module	A	3RA2712-1BA00	A		3RA2712-2BA00	
Accessories for 3RA27 function modules								
3RT201, 3RT202	S00, S0	Module connector set, comprising: • 2 module connectors, 14-pole, short + 2 interface covers	A	3RA2711-0EE01	A		3RA2711-0EE01	
3RT201, 3RT202	S00, S0	Module connectors • 14-pole, 8 cm For size jump S00-S0 + 1 space	A	3RA2711-0EE02	A		3RA2711-0EE02	
3RT201, 3RT202	S00, S0	• 14-pole, 21 cm For various space combinations	A	3RA2711-0EE03	A		3RA2711-0EE03	
3RT201, 3RT202	S00, S0	• 10-pole, 8 cm For separate control signal infeed within an IO-Link group	A	3RA2711-0EE04	A		3RA2711-0EE04	
3RT201, 3RT202	S00, S0	Sealable covers PS = 5 units	A	3RA2910-0	A		3RA2910-0	

Operator panels for IO-Link [see page 3/192](#).

Contactors Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA13 reversing contactor assemblies

Overview

The 3RA13 reversing contactor assemblies can be ordered as follows:

Sizes S2 and S3

- Fully wired and tested, with mechanical and electrical interlock
- As individual parts for customer assembly

Sizes S6 to S12

- As individual parts for customer assembly

There is also a range of accessories (auxiliary switch blocks, surge suppressors, etc.) that must be ordered separately.

Overload relays for motor protection [see Chapter 7 "Protection Equipment" → "Overload Relays"](#).

The 3RA13 contactor assemblies have screw terminals. Sizes S2 to S3 are suitable for screw fixing and snap-on mounting onto TH 35 standard mounting rails.

Complete units

The fully wired reversing contactor assemblies are suitable for use in any climate. They are finger-safe according to EN 50274.

The contactor assemblies consist of two contactors with the same power, with one NC contact in the basic unit. The contactors are mechanically and electrically interlocked (NC contact interlock).

For motor protection, either 3RU11 or 3RB2 overload relays for direct mounting or stand-alone installation or 3RN1 thermistor motor protection releases must be ordered separately.

Components for customer assembly

Assembly kits for all sizes are available for customer assembly of reversing contactor assemblies.

Contactors, overload relays and the mechanical interlock and – for momentary-contact operation – auxiliary switches (NO contacts) for latching must be ordered separately.

Rated data AC-2 and AC-3 for 50 Hz 400 V AC		Size	Article No.					Fully wired and tested contactor assemblies
Rating kW	Operational current I_e A		Contactor	Mechanical interlock ¹⁾	Mechanical interlock ²⁾	Mechanical interlock ³⁾	Assembly kit	
15	32	S2	3RT1034	3RA1924-1A	3RA1924-2B	--	3RA1933-2A ⁴⁾	3RA1334-8XB30-1...
18.5	40		3RT1035					3RA1335-8XB30-1...
22	50		3RT1036					3RA1336-8XB30-1...
30	65	S3	3RT1044	3RA1924-1A	3RA1924-2B	--	3RA1943-2A ⁴⁾	3RA1344-8XB30-1...
37	80		3RT1045					3RA1345-8XB30-1...
45	95		3RT1046					3RA1346-8XB30-1...
55	115	S6	3RT1054	--	--	3RA1954-2A	3RA1953-2M ⁵⁾	--
75	150		3RT1055					
90	185		3RT1056					
110	225	S10	3RT1064	--	--	3RA1954-2A	3RA1963-2A ⁵⁾	--
132	265		3RT1065					
160	300		3RT1066					
200	400	S12	3RT1075	--	--	3RA1954-2A	3RA1973-2A ⁵⁾	--
250	500		3RT1076					

¹⁾ Can be mounted onto the front.

²⁾ Laterally mountable with one auxiliary contact.

³⁾ Laterally mountable without auxiliary contact.

⁴⁾ The assembly kit contains: two connecting clips for contactors as well as wiring modules on the top and bottom.

⁵⁾ The assembly kit contains a wiring module on the top and bottom.

Operating times

The operating times of the individual 3RT10 contactors are rated in such a way that no overlapping of the contact making and the arcing time between two contactors can occur on reversing, provided they are interlocked by way of their auxiliary switches (NC contact interlock) and the mechanical interlock.

For assemblies with AC operation and 50/60 Hz, a dead interval of 50 ms must be provided when used with voltages ≥ 500 V; a dead interval of 30 ms is recommended for use with voltages ≥ 400 V. These dead times do not apply to assemblies with DC operation.

The operating times of the individual contactors are not affected by the mechanical interlock

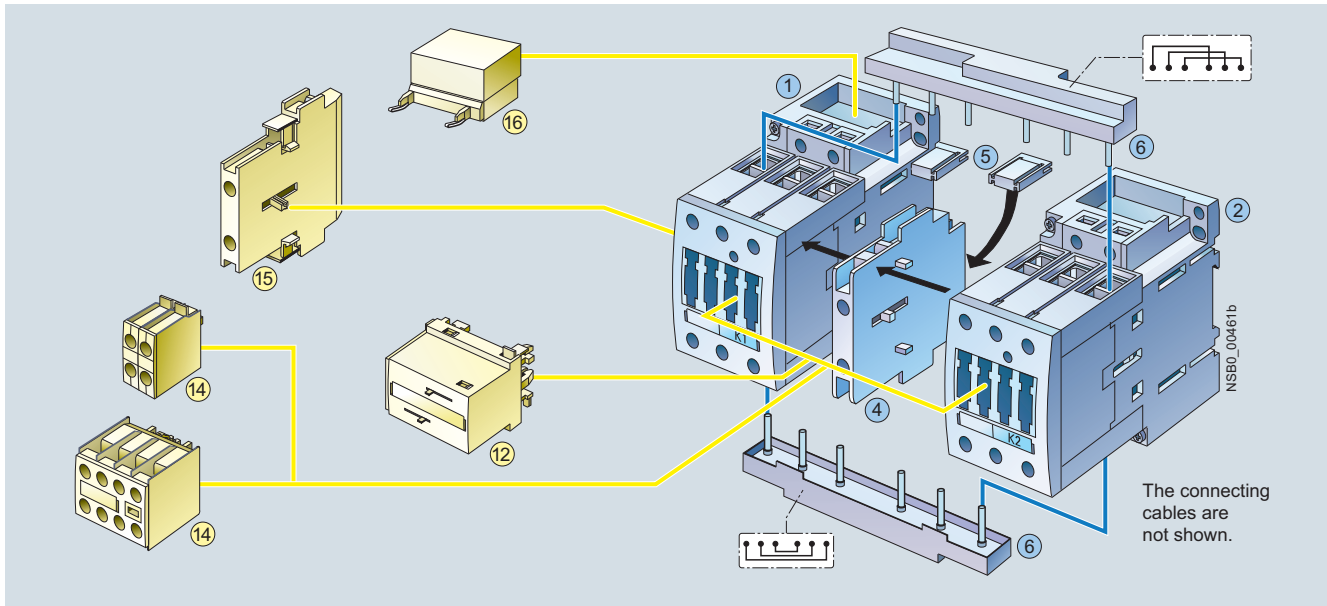
Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA13 reversing contactor assemblies

Selection and ordering data

Fully wired and tested contactor assemblies · Size S2 · up to 22 kW



Mountable accessories (optional)

To be ordered separately	Article No.	Page
12 Mech. interlock, front	3RA1924-1A	3/161
14 Auxiliary switch block, front	3RH1921-1CA...	3/103
15 Auxiliary switch block, lateral	3RH1921-1EA...	3/105
16 Surge suppressors	3RT1926-1... 3RT1936-1...	3/108

Complete contactor assemblies

Individual parts		Article No.		Page
		Q1	Q2	
①②	Contactor, 15 kW	3RT1034	3RT1034	3/83
①②	Contactor, 18.5 kW	3RT1035	3RT1035	3/83
①②	Contactor, 22 kW	3RT1036	3RT1036	3/83
④	Mech. interlock, lateral	3RA1924-2B		3/161
⑤⑥	Assembly kit	3RA1933-2A		3/162

The assembly kit contains:

- 5 2 connecting clips for two contactors with 10 mm distance
- 6 Wiring modules on the top and bottom for connecting the main current paths



3RA133...-8XB30-1...

Rated data AC-2 and AC-3					Rated control supply voltage U_s ¹⁾	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG
Operational current I_e up to 500 V	Ratings of three-phase motors at 50 Hz and									
A	kW	kW	kW	kW	V					
AC operation, 50/60 Hz										
32	7.5	15	18.5	18.5	24 AC	A	3RA1334-8XB30-1AC2	1	1 unit	41B
					110 AC	A	3RA1334-8XB30-1AG2	1	1 unit	41B
					230 AC	A	3RA1334-8XB30-1AL2	1	1 unit	41B
40	11	18.5	22	22	24 AC	A	3RA1335-8XB30-1AC2	1	1 unit	41B
					110 AC	A	3RA1335-8XB30-1AG2	1	1 unit	41B
					230 AC	A	3RA1335-8XB30-1AL2	1	1 unit	41B
50	15	22	30	22	24 AC	B	3RA1336-8XB30-1AC2	1	1 unit	41B
					110 AC	B	3RA1336-8XB30-1AG2	1	1 unit	41B
					230 AC	A	3RA1336-8XB30-1AL2	1	1 unit	41B
DC operation										
32	7.5	15	18.5	18.5	24 DC	A	3RA1334-8XB30-1BB4	1	1 unit	41B
40	11	18.5	22	22	24 DC	A	3RA1335-8XB30-1BB4	1	1 unit	41B
50	15	22	30	22	24 DC	A	3RA1336-8XB30-1BB4	1	1 unit	41B

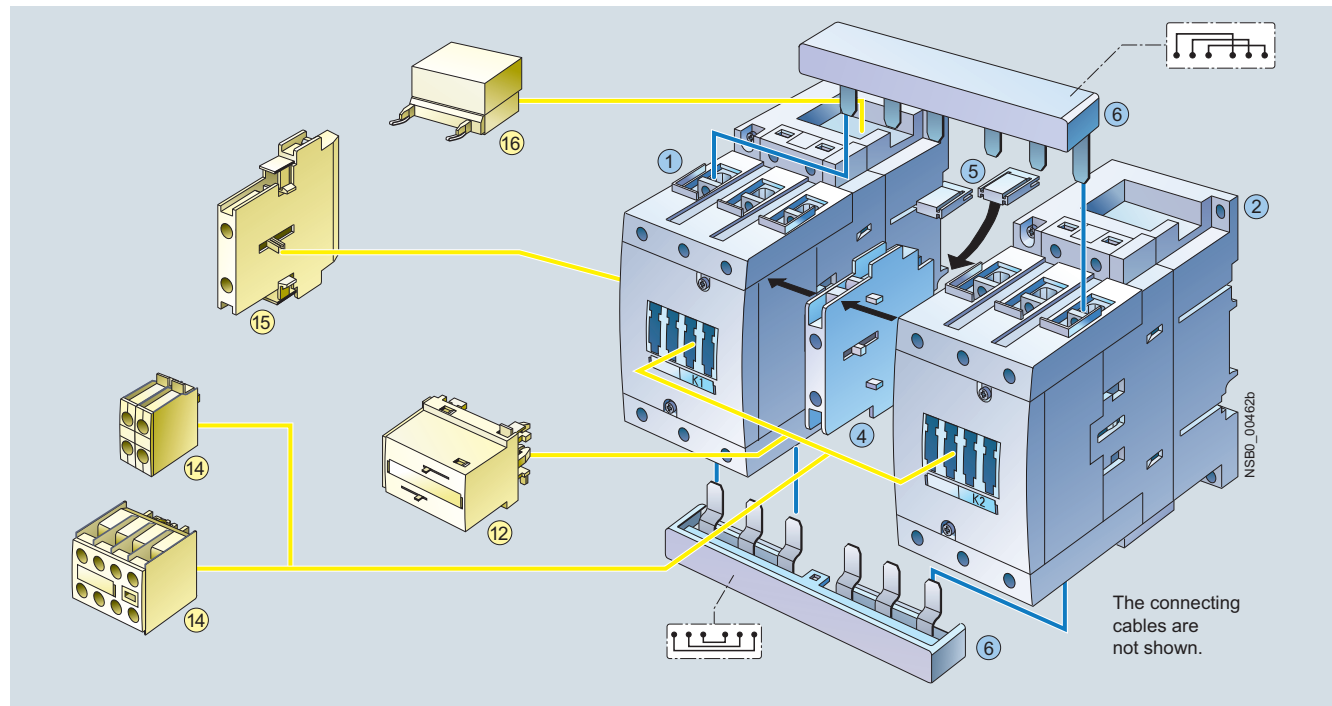
1) Coil operating range at 50 Hz: 0.8 ... 1.1 x U_s ; at 60 Hz: 0.85 ... 1.1 x U_s .

Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA13 reversing contactor assemblies

Fully wired and tested contactor assemblies · Size S3 · up to 45 kW



Mountable accessories (optional)

To be ordered separately	Article No.	Page
12 Mech. interlock, front	3RA1924-1A	3/161
14 Auxiliary switch block, front	3RH1921-1CA..	3/103
15 Auxiliary switch block, lateral	3RH1921-1EA..	3/105
16 Surge suppressors	3RT1926-1.... 3RT1936-1....	3/108

Complete contactor assemblies

Individual parts		Article No.		Page
		Q1	Q2	
①②	Contactor, 30 kW	3RT1044	3RT1044	3/84
①②	Contactor, 37 kW	3RT1045	3RT1045	3/84
①②	Contactor, 45 kW	3RT1046	3RT1046	3/84
④	Mech. interlock, lateral	3RA1924-2B		3/161
⑤⑥	Assembly kit	3RA1943-2A		3/162

The assembly kit contains:

- 5 2 connecting clips for two contactors with 10 mm distance
- 6 Wiring modules on the top and bottom for connecting the main current paths



3RA134.-8XB30-1...

Rated data AC-2 and AC-3						DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
Operational current I_e up to 500 V	Ratings of three-phase motors at 50 Hz and				Rated control supply voltage U_s 1)					
A	230 V	400 V	500 V	690 V	V		Article No.	Price per PU		
AC operation at 50/60 Hz										
65	18.5	30	37	45	24 AC 110 AC 230 AC	B	3RA1344-8XB30-1AC2 3RA1344-8XB30-1AG2 3RA1344-8XB30-1AL2	1	1 unit	41B
80	22	37	45	55	24 AC 110 AC 230 AC	B	3RA1345-8XB30-1AC2 3RA1345-8XB30-1AG2 3RA1345-8XB30-1AL2	1	1 unit	41B
95	22	45	55	55	24 AC 110 AC 230 AC	B	3RA1346-8XB30-1AC2 3RA1346-8XB30-1AG2 3RA1346-8XB30-1AL2	1	1 unit	41B
DC operation										
65	18.5	30	37	45	24 DC	B	3RA1344-8XB30-1BB4	1	1 unit	41B
80	22	37	45	55	24 DC	B	3RA1345-8XB30-1BB4	1	1 unit	41B
95	22	45	55	55	24 DC	B	3RA1346-8XB30-1BB4	1	1 unit	41B

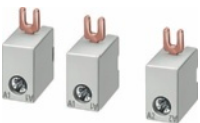
1) Coil operating range
at 50 Hz: 0.8 ... 1.1 x U_s ; at 60 Hz: 0.85 ... 1.1 x U_s .

Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA13 reversing contactor assemblies

Components for customer assembly

For contactors	Size	Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type								
Mechanical interlocks								
 3RA1924-1A mounted onto 2 contactors	3RT103 3RT104 3RT133 3RT134 3RT144 3RT153	S2 S3	Laterally mountable¹⁾ Each with one auxiliary contact (1 NC contact) per contactor (can only be used to connect contactors which are not more than 1 size larger or smaller). The mounting depth of the smaller contactor has to be adapted.)	▶	3RA1924-2B	1	1 unit	41B
	3RT103 3RT104	S2 S3	Can be mounted onto the front²⁾ Onto contactor sizes S2 and S3 (for contactors of the same size) <u>Note:</u> Sizes S2 and S3: Use 3RA1932-2C mechanical connectors.	▶	3RA1924-1A	1	1 unit	41B
	3RT1.5 3RT1.6 3RT1.7	S6 S10 S12	Laterally mountable, without auxiliary contacts Contactor sizes S6, S10 and S12 can be interlocked with each other as required; no adaptation of mounting depth is necessary. Contactor clearance 10 mm.	▶	3RA1954-2A	1	1 unit	41B
	3RT104.-A with 3RT105	S3 with S6	Adapter, laterally mountable, for mechanical interlocking of contactor S3 (only for AC operation) with contactor S6 using 3RA1954-2A locking device (must be ordered separately) incl. connecting clips	A	3RA1954-2C	1	1 unit	41B
Coil repeat terminals								
 3RA1923-3B	3RT103 3RT104	S2, S3	For the coil terminals A1 and A2 for reversing starters (contactor sizes S2 and S3). 2 x A1 and 1 x A2 required per assembly (one set contains 10 x A1 and 5 x A2)	B	3RA1923-3B	1	1 unit	41B
Base plates								
	3RT105	S6	For customer assembly of reversing contactor assemblies	B	3RA1952-2A	1	1 unit	41B
	3RT1.6	S10		B	3RA1962-2A	1	1 unit	41B
	3RT1.7	S12		B	3RA1972-2A	1	1 unit	41B

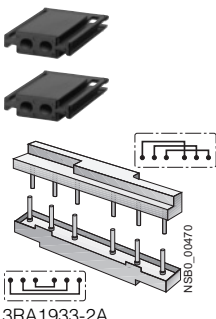
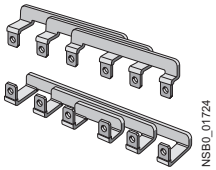
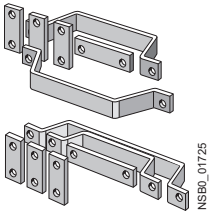
¹⁾ Can also be used for 4-pole contactors with sizes S2 and S3.

²⁾ Can also be used for size S0 4-pole contactors.

Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA13 reversing contactor assemblies

For contactors	Size	Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type								
Assembly kits for making 3-pole contactor assemblies								
 3RA1933-2A	3RT103	S2	The assembly kit contains: 2 connecting clips for two contactors, wiring modules on the top and bottom	▶ 3RA1933-2A		1	1 unit	41B
	3RT104	S3	The assembly kit contains: 2 connecting clips for two contactors, wiring modules on the top and bottom	▶ 3RA1943-2A		1	1 unit	41B
	3RT105	S6	The assembly kit contains: Wiring modules on the top and bottom (for connection with box terminal)	A 3RA1953-2A		1	1 unit	41B
	3RT105	S6	The assembly kit contains: Wiring modules on the top and bottom (for connection without box terminal)	A 3RA1953-2M		1	1 unit	41B
	3RT1.6	S10		A 3RA1963-2A		1	1 unit	41B
	3RT1.7	S12		A 3RA1973-2A		1	1 unit	41B
 3RA1953-2A								
 3RA1953-2M								

Contactor Assemblies

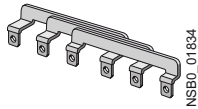
3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA13 reversing contactor assemblies

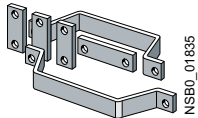
For contactors	Size	Contact clearance	Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type		mm							

Wiring modules, single

3RT103	S2-S2	10	Top (in-phase)	▶	3RA1933-3D		1	1 unit	41B
			Bottom (with phase reversal)	▶	3RA1933-3E		1	1 unit	41B
3RT104	S3-S3	10	Top (in-phase)	▶	3RA1943-3D		1	1 unit	41B
			Bottom (with phase reversal)	▶	3RA1943-3E		1	1 unit	41B
3RT105	S6-S6	10	Top (in-phase, for connection with box terminal)	A	3RA1953-3D		1	1 unit	41B
			Top (with phase reversal, for connection without box terminal)	A	3RA1953-3P		1	1 unit	41B



3RA1953-3D



3RA1953-3P

For contactors	Size	Contact clearance	Interlocking	Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type		mm								

Mechanical connectors

3RT1.3	S2-S2	0	On front	For 3-pole contactors	▶	3RA1932-2C		1	10 units	41B
3RT1.4	S3-S3									
3RT1.3	S2-S2	10	Lateral	For 3-pole contactors	▶	3RA1932-2D		1	10 units	41B
3RT1.4	S3-S3									
3RT1.5	S6-S6									
3RT1.3	S2-S2	10	Lateral	For 4-pole contactors	A	3RA1932-2G		1	10 units	41B
3RT1.4	S3-S3	10	Lateral	For 4-pole contactors	B	3RA1942-2G		1	10 units	41B



3RA1932-2C



3RA1932-2D



3RA1932-2G



3RA1942-2G

Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA24 contactor assemblies for wye-delta starting

Overview

These 3RA24 contactor assemblies for wye-delta starting are designed for standard applications.

Note:

Contactor assemblies for wye-delta starting in special applications such as very heavy starting¹⁾ or wye-delta starting of special motors must be customized. Help with designing such special applications is available from Technical Assistance.

The 3RA24 contactor assemblies for wye-delta starting can be ordered as follows:

Sizes S00 and S0

- Fully wired and tested, with electrical and mechanical interlock
- As individual parts for customer assembly

A dead interval of 50 ms on reversing is already integrated in the function module for wye-delta starting.

The 3RA24 contactor assemblies have screw or spring-type terminals and are suitable for screwing or snapping onto TH 35 standard mounting rails.

With the fully wired and tested 3RA24 contactor assemblies, the auxiliary contacts included in the basic devices are unassigned.

There is also a range of accessories (lateral auxiliary switch blocks, etc.) that must be ordered separately.

¹⁾ For effective support from Technical Assistance you must provide the following details:

- Rated motor voltage
- Rated motor current
- Service factor, operating values
- Motor starting current factor
- Starting time
- Ambient temperature

Rated data at 50 Hz 400 V AC			Size	Article No.		
Rating kW	Operational current I_e A	Motor current A		Line/delta contactor	Star contactor	Complete assemblies
				Screw terminals 	Screw terminals 	Screw terminals 
5.5	12	9.5 ... 13.8	S00-S00-S00	3RT2015-1...	3RT2015-1...	3RA2415-8XF31-1...
7.5	16	12.1 ... 17		3RT2017-1...	3RT2015-1...	3RA2416-8XF31-1...
11	25	19 ... 25		3RT2018-1...	3RT2016-1...	3RA2417-8XF31-1...
11	25	19 ... 25	S0-S0-S0	3RT2024-1...0	3RT2024-1...0	3RA2423-8XF32-1...
15	32	24.1 ... 34		3RT2026-1...0	3RT2024-1...0	3RA2425-8XF32-1...
18.5	40	34.5 ... 40		3RT2026-1...0	3RT2024-1...0	3RA2425-8XF32-1...
22	50	31 ... 43		3RT2027-1...0	3RT2026-1...0	3RA2426-8XF32-1...
				Spring-type terminals 	Spring-type terminals 	Spring-type terminals 
5.5	12	9.5 ... 13.8	S00-S00-S00	3RT2015-2...	3RT2015-2...	3RA2415-8XF31-2...
7.5	16	12.1 ... 17		3RT2017-2...	3RT2015-2...	3RA2416-8XF31-2...
11	25	19 ... 25		3RT2018-2...	3RT2016-2...	3RA2417-8XF31-2...
11	25	19 ... 25	S0-S0-S0	3RT2024-2...0	3RT2024-2...0	3RA2423-8XF32-2...
15	32	24.1 ... 34		3RT2026-2...0	3RT2024-2...0	3RA2425-8XF32-2...
18.5	40	34.5 ... 40		3RT2026-2...0	3RT2024-2...0	3RA2425-8XF32-2...
22	50	31 ... 43		3RT2027-2...0	3RT2026-2...0	3RA2426-8XF32-2...

Note:

The selection of contactor types refers to fused designs.

Function modules for wye-delta starting

The 3RA2816-0EW20 wye-delta function module (see page 3/172) replaces the complete wiring in the control circuit and can be used in the voltage range from 24 to 240 V AC/DC. It is snapped onto the front of the contactor assembly size S00 or S0.

One function module comprises a complete module kit:

- 3RA2912-0 basic module with integrated control logic and time setting
- Two 3RA2911-0 coupling modules with corresponding connecting cables

The scope of supply thus comprises a complete module kit for one contactor assembly for wye-delta starting size S00 or S0, regardless of the connection method.

Data of the control circuit

- Wide voltage range 24 to 240 V AC/DC
- Time setting range 0.5 to 60 s (3 selectable settings)
- Dead interval of 50 ms, non-adjustable

Surge suppression

Surge suppression (varistor) is included in the function modules for wye-delta starting.

Motor protection

As overload protection, the 3RU21 or 3RB3 overload relays (see table on the next page) or 3RN1 thermistor motor protection releases can be used.

The overload relay can be either mounted onto the line contactor or separately fitted. It must be set to 0.58 times the rated motor current.

Overload relays for motor protection see Chapter 7 "Protection Equipment" → "Overload Relays" → "SIRIUS 3RB3 Solid-State Overload Relays".

Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA24 contactor assemblies for wye-delta starting

Components for customer assembly

Assembly kits with wiring modules and mechanical connectors are available for contactor assemblies for wye-delta starting. Contactors, overload relays, function modules for wye-delta starting or wye-delta timing relays, auxiliary switches for electrical interlock – if required also infeed terminals and base plates – must be ordered separately.

The wiring kits for sizes S00 and S0 contain the top and bottom main conducting path connections between the line and delta contactors (top) and between the delta and star contactors (bottom).

Assemblies 3RT20	Accessories for customer assembly		Overload relay, thermal (CLASS 10 trip class)		Overload relay, solid-state (CLASS 10 trip class)	
Rating	Function modules for wye-delta starting	Assembly kit B, for single infeed	Setting range	Article No.	Setting range	Article No.
kW			A		A	
	Without external connection	Screw terminals 	Screw terminals 	Screw terminals 		
5.5	3RA2816-0EW20	3RA2913-2BB1 ¹⁾	5.5 ... 8	3RU2116-1HB0	4 ... 16	3RB3016-1TB0
7.5			7 ... 10	3RU2116-1JB0		
11			11 ... 16	3RU2116-4AB0		
11	3RA2816-0EW20	3RA2923-2BB1 ²⁾	11 ... 16	3RU2126-4AB0	6 ... 25	3RB3026-1QB0
15			14 ... 20	3RU2126-4BB0		
18.5			20 ... 25	3RU2126-4DB0		
22			20 ... 25	3RU2126-4DB0		
	Without external connection	Spring-type terminals 	Spring-type terminals 	Spring-type terminals 		
5.5	3RA2816-0EW20	3RA2913-2BB2 ¹⁾	5.5 ... 8	3RU2116-1HC0	4 ... 16	3RB3016-1TE0
7.5			7 ... 10	3RU2116-1JC0		
11			11 ... 16	3RU2116-4AC0		
11	3RA2816-0EW20	3RA2923-2BB2 ²⁾	11 ... 16	3RU2126-4AC0	6 ... 25	3RB3026-1QE0
15			14 ... 20	3RU2126-4BC0		
18.5			20 ... 25	3RU2126-4DC0		
22			20 ... 25	3RU2126-4DC0		

¹⁾ The assembly kit contains: mechanical interlock, 4 connecting clips; wiring modules on the top (connection between line and delta contactor) and on the bottom (connection between delta and star contactor); star jumper and auxiliary circuit wiring.

²⁾ The assembly kit contains: mechanical interlock, 4 connecting clips; wiring modules on the top (connection between line and delta contactor) and on the bottom (connection between delta and star contactor); star jumper.

Article No. scheme

Digit of the Article No.	1st - 3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th
	□□□	□	□	□	□	–	□	□	□	□	–	□	□	□
SIRIUS contactor assemblies	3 R A													
2nd generation	2													
Device type (e.g. 4 = contactor assembly for wye-delta starting)	4													
Contactor size (1 = S00, 2 = S0)	□													
Power dependent on size (e.g. 25 = 15 kW)	□													
Type of overload relay (8X = without)	□ □													
Assembly (B = ready-assembled, E, H = ready-assembled with communication)	□													
Interlock (3 = mechanical and electrical)	□													
Free auxiliary switches (e.g. S00: 1 = 3 NO total, S0: 2 = 3 NO + 3 NC total)	□													
Connection type (1 = screw, 2 = spring)	□													
Operating range / solenoid coil circuit (e.g. A = AC standard / without)	□													
Rated control supply voltage (e.g. L2 = 230 V, 50/60 Hz)	□ □													
Example	3 R A	2	4	2	5	–	8	X	F	3	2	–	1	2

Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

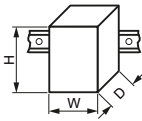
Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA24 contactor assemblies for wye-delta starting

Technical specifications

All technical specifications not mentioned in the table below are identical to those of the individual 3RT2 contactors and 3RU2 overload relays

Type							
Sizes S...S...S...							
Dimensions (W x H x D) with function module							
• AC operation ¹⁾							
• DC operation ¹⁾							
		mm	135 x 68 x 145 / 135 x 84 x 145		135 x101 x 171 / 135 x114 x 171		
		mm	135 x 68 x 145 / 135 x 84 x 145		135 x101 x 181 / 135 x114 x 181		
General data							
Individual contactors							
• Q11 line contactor	Type	3RT2015	3RT2017	3RT2018	3RT2024	3RT2026	3RT2027
• Q13 delta contactor	Type	3RT2015	3RT2017	3RT2018	3RT2024	3RT2026	3RT2027
• Q12 star contactor	Type	3RT2015	3RT2015	3RT2016	3RT2024	3RT2024	3RT2026
Mechanical endurance		Operating cycles	3 million				
Unassigned auxiliary contacts of the individual contactors			2)				
Short-circuit protection							
Main circuit without overload relays³⁾							
Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE with single or double infeed							
Highest rated current of the fuse according to IEC 60947-4-1							
• Type of coordination "1"	A	35	35	63	63	100	125
• Type of coordination "2"	A	20	20	25	25	35	63
Control circuit							
Short-circuit test							
• with fuse links of operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current I_k = 1 kA acc. to IEC 60947-5-1	A A	10 6 ⁴⁾ , if the auxiliary contact of the overload relay is connected in the contactor coil circuit.					
• with miniature circuit breakers with C characteristic with short-circuit current I_k = 400 A	A A	10 6 ⁴⁾ , if the auxiliary contact of the overload relay is connected in the contactor coil circuit.					
Main circuit							
Current-carrying capacity with reversing time up to 10 s							
• Rated operational current I_e	At 400 V A 690 V A	12 6.9	17 9	25 20.8	25 20.8	40 22.5	55 35
• Rated power for three-phase motors with 50 Hz and 60 Hz	At 230 V kW 400 V kW 690 V kW 1000 V kW	3.3 5.8 5.8 --	4.7 8.2 7.5 --	7.2 12.5 18 --	7.2 12.5 18 --	12 21 20.4 --	16.6 30.1 33 --
• Switching frequency with overload relay	h ⁻¹	15	15	15	15	15	15
Current-carrying capacity with reversing time up to 15 s							
• Rated operational current I_e	At 400 V A 690 V A	12 6.9	17 9	25 20.8	25 20.8	31 22.5	44 35
• Rated power for three-phase motors with 50 Hz and 60 Hz	At 230 V kW 400 V kW 690 V kW 1000 V kW	3.3 5.8 5.8 --	4.7 8.2 7.5 --	7.2 12.5 18 --	7.2 12.5 18 --	9.4 16.3 20.4 --	13.8 24 33 --
• Switching frequency with overload relay	h ⁻¹	15	15	15	15	15	15
Current-carrying capacity with reversing time up to 20 s							
• Rated operational current I_e	At 400 V A 690 V A	12 6.9	17 9	25 20.8	25 20.8	28 22.5	39 35
• Rated power for three-phase motors with 50 Hz and 60 Hz	At 230 V kW 400 V kW 690 V kW 1000 V kW	3.3 5.8 5.8 --	4.7 8.2 7.5 --	7.2 12.5 18 --	7.2 12.5 18 --	8.5 14.7 20.4 --	12.2 21.3 33 --
• Switching frequency with overload relay	h ⁻¹	15	15	15	15	15	15

¹⁾ Dimensions for devices with screw terminals/spring-type terminals.

²⁾ For circuit diagrams of the control circuit see "Operating Instructions",
<http://support.automation.siemens.com/WW/view/en/34291016>.

³⁾ For short-circuit protection with overload relays See the Configuration
Manual "Configuring SIRIUS Innovations – Selection Data for Fuseless and
Fused Load Feeders", Article No. 3ZX1012-0RA21-1AB0,
<http://support.automation.siemens.com/WW/view/en/39714188>.

⁴⁾ Up to $I_k < 0.5$ kA; ≤ 260 V.

Contactor Assemblies

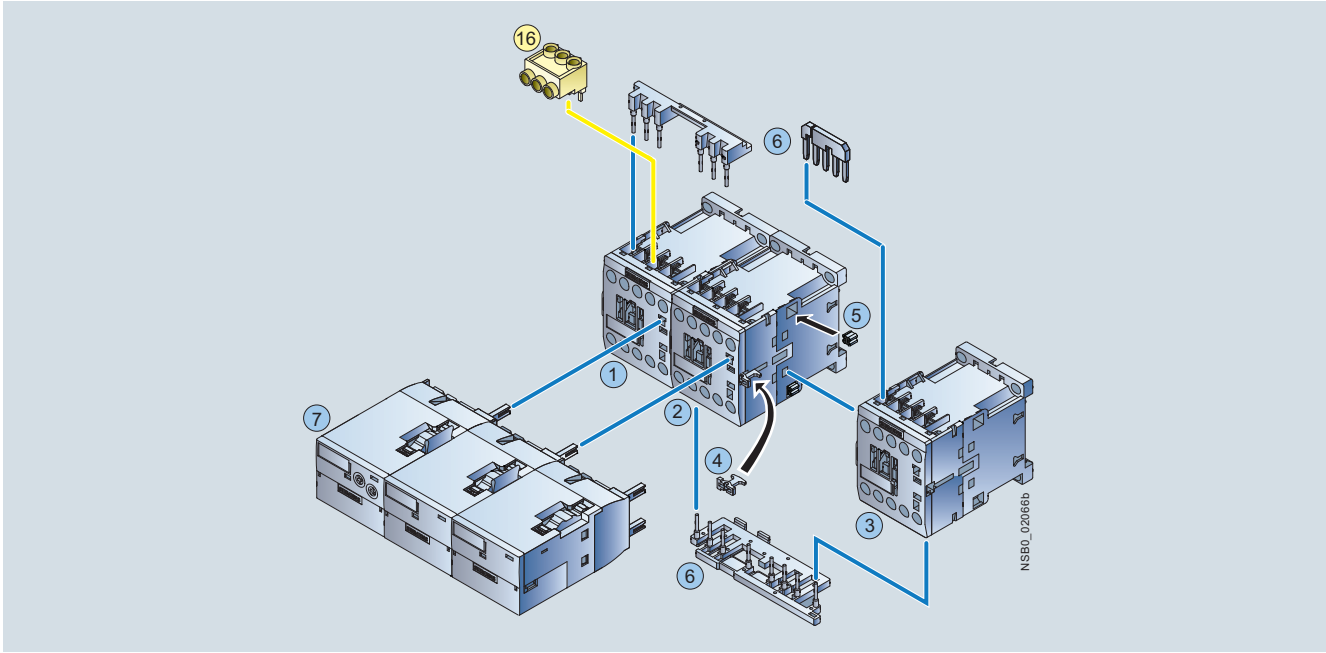
3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

**SIRIUS 3RA24 contactor assemblies
for wye-delta starting**

Selection and ordering data

Fully wired and tested contactor assemblies · Size S00-S00-S00 · up to 11 kW

The figure shows the version with screw terminals



Mountable accessories (optional)

To be ordered separately	Article No.	Page
16 Three-phase infeed terminal ²⁾	3RA2913-3K	3/172

Complete contactor assemblies

Individual parts	Article No.			Page
	Q11 ¹⁾	Q13	Q12	
1 2 3 Contactor, 5.5 kW	3RT2015	3RT2015	3RT2015	3/28, 3/33
1 2 3 Contactor, 7.5 kW	3RT2017	3RT2017	3RT2015	3/28, 3/33
1 2 3 Contactor, 11 kW	3RT2018	3RT2018	3RT2016	3/28, 3/33
4 5 6 Assembly kit comprising	3RA2913-2BB1			3/172
4 Mechanical interlock				
5 4 connecting clips for 3 contactors				
6 Wiring modules on the top and bottom for connecting the main current paths				
7 Function modules for wye-delta starting	3RA2816-0EW20			3/172

¹⁾ The version with 1 NO is required for momentary-contact operation.

²⁾ Part 16 can only be mounted with contactors with screw terminal.

Note:

When using the function modules for contactor assemblies for wye-delta starting, no other auxiliary switches are allowed to be connected to the basic units.

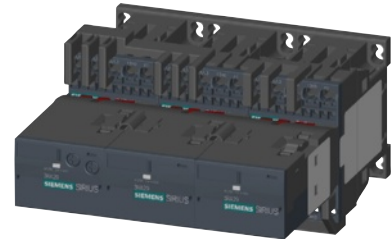
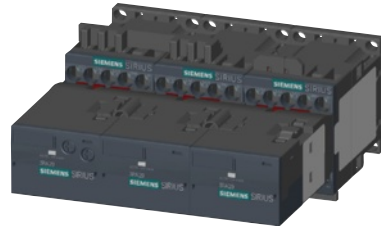
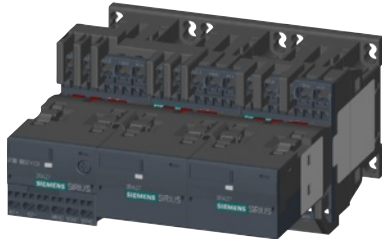
Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA24 contactor assemblies for wye-delta starting

Fully wired and tested contactor assemblies · Size S00-S00-S00 · up to 11 kW

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B



3RA241.-8XE31-2BB4

3RA241.-8XF31-1A.0

3RA241.-8XF31-2A.0

Rated data AC-3				Rated control supply voltage U_s ¹⁾	DT	Screw terminals			DT	Spring-type terminals						
Operational current I_e up to 400 V		Ratings of three-phase motors at 50 Hz and				Article No.				Price per PU			Article No.		Price per PU	
A	kW	400 V	690 V													
AC operation, 50/60 Hz																
12	3.3	5.5	9.2	24 AC	A	3RA2415-8XF31-1AB0		A	3RA2415-8XF31-2AB0							
				110 AC	A	3RA2415-8XF31-1AF0		B	3RA2415-8XF31-2AF0							
				230 AC	A	3RA2415-8XF31-1AP0		A	3RA2415-8XF31-2AP0							
16	4.7	7.5	9.2	24 AC	A	3RA2416-8XF31-1AB0		B	3RA2416-8XF31-2AB0							
				110 AC	A	3RA2416-8XF31-1AF0		B	3RA2416-8XF31-2AF0							
				230 AC	A	3RA2416-8XF31-1AP0		A	3RA2416-8XF31-2AP0							
25	5.5	11	11	24 AC	A	3RA2417-8XF31-1AB0		B	3RA2417-8XF31-2AB0							
				110 AC	A	3RA2417-8XF31-1AF0		B	3RA2417-8XF31-2AF0							
				230 AC	A	3RA2417-8XF31-1AP0		A	3RA2417-8XF31-2AP0							
DC operation																
12	3.3	5.5	9.2	24 DC	A	3RA2415-8XF31-1BB4		A	3RA2415-8XF31-2BB4							
16	4.7	7.5	9.2	24 DC	A	3RA2416-8XF31-1BB4		A	3RA2416-8XF31-2BB4							
25	5.5	11	11	24 DC	A	3RA2417-8XF31-1BB4		A	3RA2417-8XF31-2BB4							
For IO-Link connection																
12	3.3	5.5	9.2	24 DC	A	3RA2415-8XE31-1BB4		A	3RA2415-8XE31-2BB4							
16	4.7	7.5	9.2	24 DC	A	3RA2416-8XE31-1BB4		A	3RA2416-8XE31-2BB4							
25	5.5	11	11	24 DC	A	3RA2417-8XE31-1BB4		A	3RA2417-8XE31-2BB4							
For AS-Interface connection																
12	3.3	5.5	9.2	24 DC	A	3RA2415-8XH31-1BB4		A	3RA2415-8XH31-2BB4							
16	4.7	7.5	9.2	24 DC	A	3RA2416-8XH31-1BB4		A	3RA2416-8XH31-2BB4							
25	5.5	11	11	24 DC	A	3RA2417-8XH31-1BB4		A	3RA2417-8XH31-2BB4							

¹⁾ Coil operating range
at 50 Hz: 0.8 ... 1.1 x U_s ; at 60 Hz: 0.85 ... 1.1 x U_s .

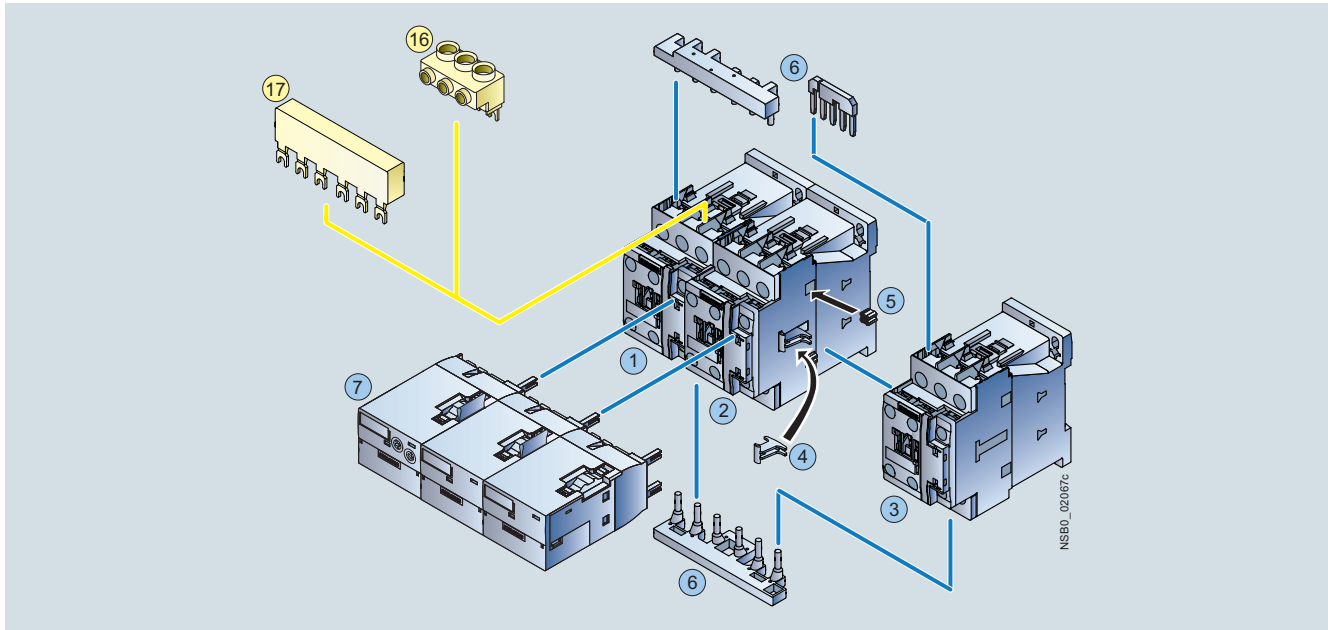
Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

**SIRIUS 3RA24 contactor assemblies
for wye-delta starting**

Fully wired and tested contactor assemblies · Size S0-S0-S0 · up to 22 kW

The figure shows the version with screw terminals



Mountable accessories (optional)

To be ordered separately	Article No.	Page
⑩ Three-phase infeed terminal ¹⁾	3RV2925-5AB	3/171
⑪ Three-phase busbar ¹⁾	3RV1915-1AB	3/171

Complete contactor assemblies

Individual parts		Article No.			Page
		Q11	Q13	Q12	
①②③	Contactor, 11 kW	3RT2024	3RT2024	3RT2024	3/30, 3/35
①②③	Contactor, 15/18.5 kW	3RT2026	3RT2026	3RT2024	3/30, 3/35
①②③	Contactor, 22 kW	3RT2027	3RT2027	3RT2026	3/30, 3/35
④⑤⑥	Assembly kit	3RA2923-2BB1			3/171
The assembly kit contains:					
④	Mechanical interlock				
⑤	4 connecting clips for 3 contactors				
⑥	Wiring modules on the top and bottom for connecting the main current paths				
⑦	Function modules for wye-delta starting	3RA2816-0EW20			3/172

¹⁾ The parts ⑩ and ⑪ Can only be mounted with contactors with screw terminal.

Note:

When using the function modules for contactor assemblies for wye-delta starting, no other auxiliary switches are allowed to be connected to the basic units.

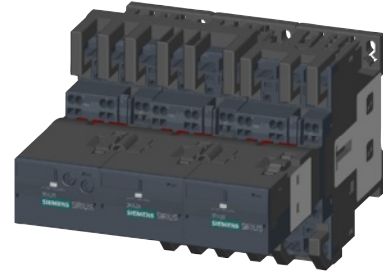
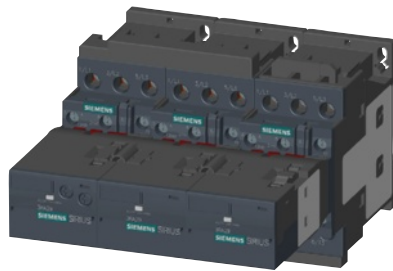
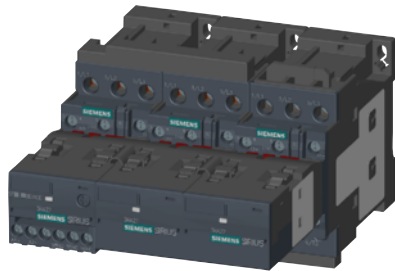
Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA24 contactor assemblies for wye-delta starting

Fully wired and tested contactor assemblies · Size S0-S0-S0 · up to 22 kW

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B



3RA242.-8XE32-1BB4

3RA242.-8XF32-1A.2

3RA242.-8XF32-2A.2

Rated data AC-3				Rated control supply voltage U_s ¹⁾	DT	Screw terminals			DT	Spring-type terminals		
Operational current I_e up to 400 V	Ratings of three-phase motors at 50 Hz and					Article No.	Price per PU			Article No.	Price per PU	
	230 V	400 V	690 V									
A	kW	kW	kW	V								
AC operation, 50/60 Hz												
25	7.1	11	19	24 AC	A	3RA2423-8XF32-1AC2	A	3RA2423-8XF32-2AC2				
				110 AC	A	3RA2423-8XF32-1AG2	B	3RA2423-8XF32-2AG2				
				230 AC	B	3RA2423-8XF32-1AL2	B	3RA2423-8XF32-2AL2				
32 / 40	11.4	15 / 18.5	19	24 AC	A	3RA2425-8XF32-1AC2	A	3RA2425-8XF32-2AC2				
				110 AC	A	3RA2425-8XF32-1AG2	B	3RA2425-8XF32-2AG2				
				230 AC	B	3RA2425-8XF32-1AL2	B	3RA2425-8XF32-2AL2				
50	--	22	19	24 AC	A	3RA2426-8XF32-1AC2	B	3RA2426-8XF32-2AC2				
				110 AC	A	3RA2426-8XF32-1AG2	B	3RA2426-8XF32-2AG2				
				230 AC	B	3RA2426-8XF32-1AL2	B	3RA2426-8XF32-2AL2				
DC operation												
25	7.1	11	19	24 DC	A	3RA2423-8XF32-1BB4	A	3RA2423-8XF32-2BB4				
32 / 40	11.4	15 / 18.5	19	24 DC	A	3RA2425-8XF32-1BB4	A	3RA2425-8XF32-2BB4				
50	--	22	19	24 DC	A	3RA2426-8XF32-1BB4	A	3RA2426-8XF32-2BB4				
For IO-Link connection												
25	7.1	11	19	24 DC	A	3RA2423-8XE32-1BB4	A	3RA2423-8XE32-2BB4				
32 / 40	11.4	15 / 18.5	19	24 DC	A	3RA2425-8XE32-1BB4	A	3RA2425-8XE32-2BB4				
50	--	22	19	24 DC	A	3RA2426-8XE32-1BB4	A	3RA2426-8XE32-2BB4				
For AS-Interface connection												
25	7.1	11	19	24 DC	A	3RA2423-8XH32-1BB4	A	3RA2423-8XH32-2BB4				
32 / 40	11.4	15 / 18.5	19	24 DC	A	3RA2425-8XH32-1BB4	A	3RA2425-8XH32-2BB4				
50	--	22	19	24 DC	A	3RA2426-8XH32-1BB4	A	3RA2426-8XH32-2BB4				

¹⁾ Coil operating range
- at 50 Hz: 0.8 ... 1.1 x U_s ;
- at 60 Hz: 0.85 ... 1.1 x U_s .

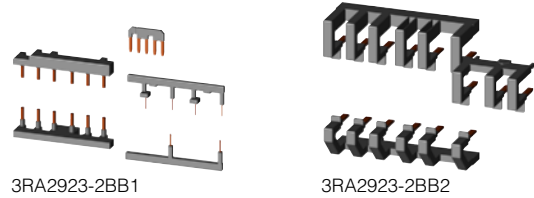
Contactor Assemblies

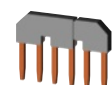
3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA24 contactor assemblies for wye-delta starting

Components for customer assembly

PU (UNIT, SET, M) = 1
 PS* = 1 unit (unless otherwise specified)
 PG = 41B



For contactors	Size	Version	DT	Screw terminals	DT	Spring-type terminals	
Type				Article No.	Price per PU	Article No.	Price per PU
Assembly kits ¹⁾ for making 3-pole contactor assemblies							
3RT201	S00	The assembly kit contains: mechanical interlock, 4 connecting clips, star jumper, wiring modules on the top and bottom • For main, auxiliary and control circuits	▶	3RA2913-2BB1	▶	3RA2913-2BB2	
3RT202	S0	The assembly kit contains: mechanical interlock, 4 connecting clips, star jumper, wiring modules on the top and bottom • For main, auxiliary and control circuits • Only for main circuit ²⁾	▶	3RA2923-2BB1 --	▶	-- 3RA2923-2BB2	
3RT202	S0	The assembly kit contains: mechanical interlock; 2 connecting clips for 2 contactors, wiring modules on the top and bottom, 3-phase infeed terminals • For main, auxiliary and control circuits	B	3RA2924-2BB1		--	
   							
Three-phase infeed terminals							
3RT201	S00	Infeed terminal blocks for the line contactor for large conductor cross-sections • Conductor cross-section 6 mm ²	PS = 10 units A	3RA2913-3K		--	
3RT202	S0	• Conductor cross-section 16 mm ²	▶	3RV2925-5AB		--	
Three-phase busbars							
3RT202	S0	Bridging phase-by-phase of all input terminals of the line contactor (Q11) and the delta contactor (Q13)	▶	3RV1915-1AB		--	
Links for paralleling, 3-pole (star jumpers)							
3RT201	S00	Without connection terminal (the links for paralleling can be reduced by one pole)	▶	3RT1916-4BA31	A	3RT2916-4BA32	
3RT202	S0		▶	3RT1926-4BA31	A	3RT2926-4BA32	

¹⁾ When using the function modules for wye-delta starting, the wiring modules for the auxiliary current are not required.

²⁾ Version in size S0 with spring-type terminals:
Only the wiring modules for the main circuit are included.
No connectors are included for the auxiliary and control circuit.

Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA24 contactor assemblies for wye-delta starting

Components for customer assembly

PU (UNIT, SET, M) = 1
 PS* = 1 unit (unless otherwise specified)
 PG = 41B



3RA2816-0EW20



3RA2712-1CA00



3RA2711-2CA00

For con- tactors Type	Size	Version	DT	Article No.	Price per PU	Article No.	Price per PU
Function modules for wye-delta starting							
3RT201, 3RT202	S00, S0	Comprising one basic module and two coupling modules Rated control supply voltage 24 ... 240 V AC/DC Time setting range 0.5 ... 60 s (10, 30, 60 s selectable)	A	3RA2816-0EW20		3RA2816-0EW20	
Accessories for 3RA28 function modules							
3RT201, 3RT202	S00, S0	Sealable covers	PS = 5 units	A	3RA2910-0	A	3RA2910-0
Function modules for wye-delta starting for connection to the control system							
3RT201, 3RT202	S00, S0	IO-Link connection , comprising one basic module and two coupling modules, plus an additional module connector for assembling an IO-Link group	A	3RA2711-1CA00		3RA2711-2CA00	
3RT201, 3RT202	S00, S0	AS-Interface connection , comprising one basic module and two coupling modules	A	3RA2712-1CA00		3RA2712-2CA00	
Accessories for 3RA27 function modules							
3RT201, 3RT202	S00, S0	Module connector set , comprising: • 2 module connectors, 14-pole, short + 2 interface covers	A	3RA2711-0EE01		3RA2711-0EE01	
3RT201, 3RT202	S00, S0	Module connectors • 14-pole, 8 cm For size jump S00-S0 + 1 space	A	3RA2711-0EE02		3RA2711-0EE02	
3RT201, 3RT202	S00, S0	• 14-pole, 21 cm For various space combinations	A	3RA2711-0EE03		3RA2711-0EE03	
3RT201, 3RT202	S00, S0	• 10-pole, 8 cm For separate control signal infeed within an IO-Link group	A	3RA2711-0EE04		3RA2711-0EE04	
3RT201, 3RT202	S00, S0	Sealable covers	PS = 5 units	A	3RA2910-0	A	3RA2910-0

Operator panels for IO-Link [see page 3/192](#).

Note:

When using the function modules for contactor assemblies for wye-delta starting, no other auxiliary switches are allowed to be connected to the basic units.

Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA14 contactor assemblies for wye-delta starting

Overview

The 3RA14 contactor assemblies for wye-delta starting are designed for standard applications.

Note:

Contactor assemblies for wye-delta starting in special applications such as very heavy starting¹⁾ or wye-delta starting of special motors must be customized. Help with designing such special applications is available from Technical Assistance.

The 3RA14 contactor assemblies for wye-delta starting can be ordered as follows:

Sizes S2 and S3

- Fully wired and tested, with electrical interlock, reversing time up to 10 s
- As individual parts for customer assembly

Sizes S6 to S12

- Only as individual parts for customer assembly

There is also a range of accessories (auxiliary switch blocks, surge suppressors, etc.) that must be ordered separately.

Overload relays for motor protection, see Chapter 7, "Protection Equipment" → "Overload Relays" → "SIRIUS 3RB2 Solid-State Overload Relays".

The 3RA14 contactor assemblies have screw terminals. Sizes S2 to S3 are suitable for screw fixing and snap-on mounting onto TH 35 standard mounting rails.

Complete units

Fully wired and tested 3RA14 contactor assemblies have one unassigned NO contact which is mounted onto the front of the Q3 delta contactor.

With the preassembled contactor assembly sizes S2 and S3, 22 to 75 kW, a timing relay is laterally mounted. A dead interval of 50 ms on reversing is already integrated in the time relay function.

¹⁾ For effective support from Technical Assistance you must provide the following details:

- Rated motor voltage
- Rated motor current
- Service factor, operating values
- Motor starting current factor
- Starting time
- Ambient temperature

Rated data at 50 Hz 400 V AC			Size			Article No. complete assembly
Rating P kW	Operational current I_e A	Motor current A		Line/delta contactor	Star contactor	
22	50	31 ... 43	S2-S2-S0	3RT1034	3RT1026	3RA1434-8XC21-1...
30	50	48.3 ... 65		3RT1034		--
37	80	62.1 ... 77.8	S2-S2-S2		3RT1034	3RA1435-8XC21-1...
45	86	69 ... 86		3RT1036		3RA1436-8XC21-1...
55	115	77.6 ... 108.6	S3-S3-S2	3RT1044	3RT1035	3RA1444-8XC21-1...
75	150	120.7 ... 150		3RT1045	3RT1036	3RA1445-8XC21-1...
90	160	86 ... 160	S6-S6-S3	3RT1054	3RT1044	--
110	195	86 ... 195				
132	230	86 ... 230		3RT1055	3RT1045	
160	280	86 ... 280		3RT1056	3RT1046	
200	350	95 ... 350	S10-S10-S6	3RT1064	3RT1054	--
250	430	95 ... 430		3RT1065	3RT1055	
315	540	277 ... 540	S12-S12-S10	3RT1075	3RT1064	--
355	610	277 ... 610				
400	690	277 ... 690			3RT1065	
500	850	277 ... 850		3RT1076	3RT1066	

Surge suppression

Sizes S2 and S3

All contactor assemblies can be fitted with RC elements, varistors or diode assemblies for damping opening surges in the coil. As with the individual contactors, the surge suppressors can either be plugged onto the top or bottom coil terminals.

Sizes S6 to S12

The contactors are fitted with varistors as standard.

Motor protection

As overload protection, the 3RU11 or 3RB2 overload relays (see table on the next page) or 3RN1 thermistor motor protection releases can be used.

The overload relay can be either mounted onto the line contactor or separately fitted. It must be set to 0.58 times the rated motor current.

Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA14 contactor assemblies for wye-delta starting

Components for customer assembly

Assembly kits with wiring modules and, if necessary, mechanical connectors are available for contactor assemblies for wye-delta starting. Contactors, overload relays, wye-delta timing relays, auxiliary switches for electrical interlock – if required also infeed terminals, mechanical interlocks and base plates – must be ordered separately.

In the case of sizes S2 to S12 only the bottom main conducting path connection between the delta and star contactors is included in the wiring module, owing to the larger conductor cross-section at the infeed.

Note:

The selection of contactor types refers to fused design.

P kW	Accessories for customer assembly					Overload relay, thermal (CLASS 10 trip class)		Overload relay, solid-state (CLASS 10 trip class)	
	Timing relays	Assembly kit A, for double infeed	Assembly kit B, for single infeed	Star jumper	Base plates	Setting range A	Article No.	Setting range A	Article No.
22	3RP1574-1N.30	3RA1933-2C ¹⁾	3RV1935-1A	3RT1926-4BA31	3RA1932-2E	18 ... 25	3RU1136-4DB0	12.5 ... 50	3RB2036-1UB0
30						28 ... 40	3RU1136-4FB0		
37	3RP1574-1N.30	3RA1933-2B ¹⁾	3RV1935-1A	3RT1936-4BA31	3RA1932-2F	36 ... 45	3RU1136-4GB0	12.5 ... 50	3RB2036-1UB0
45						40 ... 50	3RU1136-4HB0		
55	3RP1574-1N.30	3RA1943-2C ¹⁾	--	3RT1936-4BA31	3RA1942-2E	45 ... 63	3RU1146-4JB0	25 ... 100	3RB2046-1EB0
75						70 ... 90	3RU1146-4LB0		
90	3RP1574-1N.30	--	3RA1953-3D ²⁾	3RT1946-4BA31	3RA1952-2E	--	--	50 ... 200	3RB2056-1FC2
110									
132									
160									
200	3RP1574-1N.30	--	--	3RT1956-4BA31	3RA1962-2E	--	--	55 ... 250	3RB2066-1GC2
250								160 ... 630	3RB2066-1MC2
315	3RP1574-1N.30	--	--	3RT1966-4BA31	3RA1972-2E	--	--	160 ... 630	3RB2066-1MC2
355									
400									
500									

¹⁾ Assembly kit contains wiring module on the bottom (connection between delta and star contactor) and star jumper.

²⁾ Wiring module on top from reversing contactor assembly (note conductor cross-sections).

Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

**SIRIUS 3RA14 contactor assemblies
for wye-delta starting**

Technical specifications

All technical specifications not mentioned in the table below are identical to those of the individual 3RT1 contactors and 3RU1 overload relays

Type			3RA1435	3RA1436	3RA1444	3RA1445
Size			S2-S2-S2	S2-S2-S2	S3-S3-S2	S3-S3-S2
Dimensions (W x H x D) with base plate						
• DC operation						
• AC operation						
General data						
Individual contactors						
• Q1 line contactor	Type		3RT1035	3RT1036	3RT1044	3RT1045
• Q3 delta contactor	Type		3RT1035	3RT1036	3RT1044	3RT1045
• Q2 star contactor	Type		3RT1034	3RT1034	3RT1035	3RT1036
Mechanical endurance		Operating cycles	3 million			
Unassigned auxiliary contacts of the individual contactors			1)			
Short-circuit protection						
Main circuit without overload relays²⁾						
Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE with single or double infeed						
Highest rated current of the fuse acc. to IEC 60947-4-1/EN 60947-4-1						
• Type of coordination "1"	A		125	160	250	250
• Type of coordination "2"	A		63	80	125	160
Control circuit						
Short-circuit test						
• with fuse links of operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current $I_k = 1$ kA acc. to IEC 60947-5-1	A		10			
	A		6 ³⁾ , if the auxiliary contact of the overload relay is connected in the contactor coil circuit			
• with miniature circuit breakers with C characteristic with short-circuit current $I_k = 400$ A	A		10			
	A		6 ³⁾ , if the auxiliary contact of the overload relay is connected in the contactor coil circuit			
Main circuit						
Current-carrying capacity with reversing time up to 10 s						
• Rated operational current I_e						
	At 400 V	A	80	86	115	150
	500 V	A	69.3	86	112.6	138.6
	690 V	A	69.3	69.3	98.7	138.6
• Rated power for three-phase motors at 50 Hz and 60 Hz and						
	At 230 V	kW	25.5	27.8	37	49
	400 V	kW	44	48	65	85
	500 V	kW	48	60	80	98
	690 V	kW	66	67	97	136
	1 000 V	kW	--	--	--	--
• Switching frequency with overload relay		h^{-1}	15	15	15	15
Current-carrying capacity with reversing time up to 15 s						
• Rated operational current I_e						
	At 400 V	A	57	67	97	106
	500 V	A	57	67	97	106
	690 V	A	57	67	97	106
• Rated power for three-phase motors at 50 Hz and 60 Hz and						
	At 230 V	kW	18.2	21.6	32	35
	400 V	kW	31.6	38	55	60
	500 V	kW	40	47	69	75
	690 V	kW	55	65	95	104
	1 000 V	kW	--	--	--	--
• Switching frequency with overload relay		h^{-1}	15	15	15	15
Current-carrying capacity with reversing time up to 20 s						
• Rated operational current I_e						
	At 400 V	A	51	57	85	92
	500 V	A	51	57	85	92
	690 V	A	51	57	85	92
• Rated power for three-phase motors at 50 Hz and 60 Hz and						
	At 230 V	kW	16.3	18.4	28	30
	400 V	kW	28	32	48	52
	500 V	kW	35	40	60	65
	690 V	kW	49	55	83	90
	1 000 V	kW	--	--	--	--
• Switching frequency with overload relay		h^{-1}	15	15	15	15

1) For circuit diagrams for the control circuit see Reference Manual "Switching Devices – Contactors and Contactor Assemblies", <http://support.automation.siemens.com/WW/view/en/35554359>.

2) For short-circuit protection with overload relay see Configuration Manual "SIRIUS Configuration – Selection Data for Fuseless Load Feeders", Article No. 3ZX1012-ORA21-0AB0, <http://support.automation.siemens.com/WW/view/en/40625241>.

3) Up to $I_k < 0.5$ kA; ≤ 260 V.

4) Selection data for fuseless load feeders.

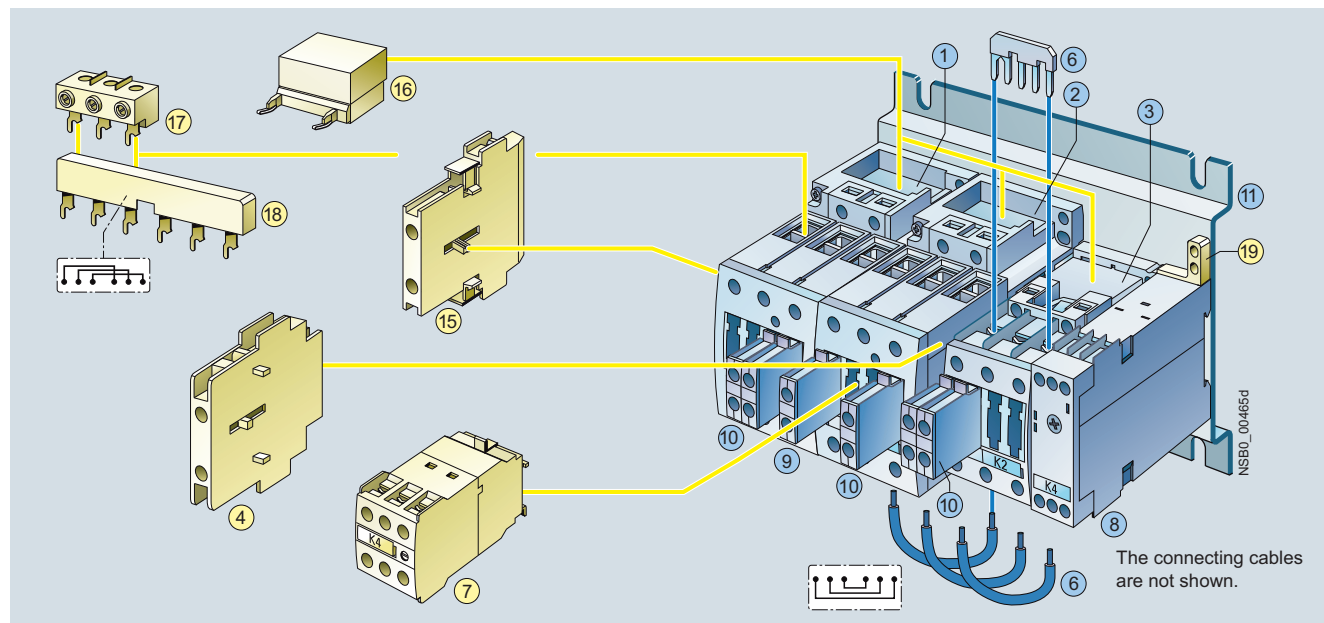
Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

SIRIUS 3RA14 contactor assemblies for wye-delta starting

Selection and ordering data

Fully wired and tested contactor assemblies · Size S2-S2-S0 · up to 30 kW



Mountable accessories (optional)

To be ordered separately	Article No.	Page
④ Mech. interlock, lateral Depth compensation required Q3: 1.5 mm; Q2: 0 mm ¹⁾	3RA1924-2B	3/161
⑦ Solid-state time-delay auxiliary switch block, front ²⁾	3RT1926-2G...	3/107
⑮ Auxiliary switch block, lateral	3RH1921-1EA...	3/105
⑯ Surge suppressors	3RT1926-1... 3RT1936-1...	3/108, 3/108
⑰ Three-phase infeed terminals	3RV1935-5A	3/179
⑱ Three-phase busbars	3RV1935-1A	3/179
⑲ Push-in lug for timing relay screw mounting	3RP1903	3)

1) Use the 3RA1932-2B base plate for this design.

2) Generally possible. If a solid-state time-delay auxiliary switch block is mounted onto the front of Q3, an auxiliary switch block can only be mounted onto the side.

Complete contactor assemblies

Individual parts		Article No.			Page
		Q1	Q3	Q2	
①②③	Contactor, 22/30 kW	3RT1034	3RT1034	3RT1026	3/83
⑧	Timing relay, lateral	3RP1574-1N.30			3)
⑨	Auxiliary switch block with 1 unassigned NO contact	3RH1921-1CA10			3/103
⑩	Auxiliary switch block for local control				
	2 units	3RH1921-1CA01			3/103
	3 units	3RH1921-1CA10			
⑪	Base plate	3RA1932-2E			3/179
⑥	Assembly kit	3RA1933-2C			3/179

The assembly kit contains the star jumper on the top and the wiring module on the bottom for connecting the main current paths.

3) See Chapter 10 "Monitoring and Control Devices" → "3RP, 7PV Timing Relays" → "3RP15 Timing Relays in Industrial Enclosure, 22.5 mm".



3RA1434-8XC21-1...

Rated data AC-3						DT	Screw terminals		PU (UNIT, SET, M)	PS*	PG
Operational current I_e up to	Ratings of three-phase motors at 50 Hz and										
400 V	230 V	400 V	500 V	690 V	Rated control supply voltage U_s 1)						
A	kW	kW	kW	kW	V		Article No.	Price per PU			
AC operation, 50/60 Hz											
50 / 65	19.6	22 / 30	35	34	24 AC	A	3RA1434-8XC21-1AC2		1	1 unit	41B
					110 AC	A	3RA1434-8XC21-1AG2		1	1 unit	41B
					230 AC	▶	3RA1434-8XC21-1AL2		1	1 unit	41B
DC operation											
50 / 65	19.6	22 / 30	35	34	24 DC	▶	3RA1434-8XC21-1BB4		1	1 unit	41B

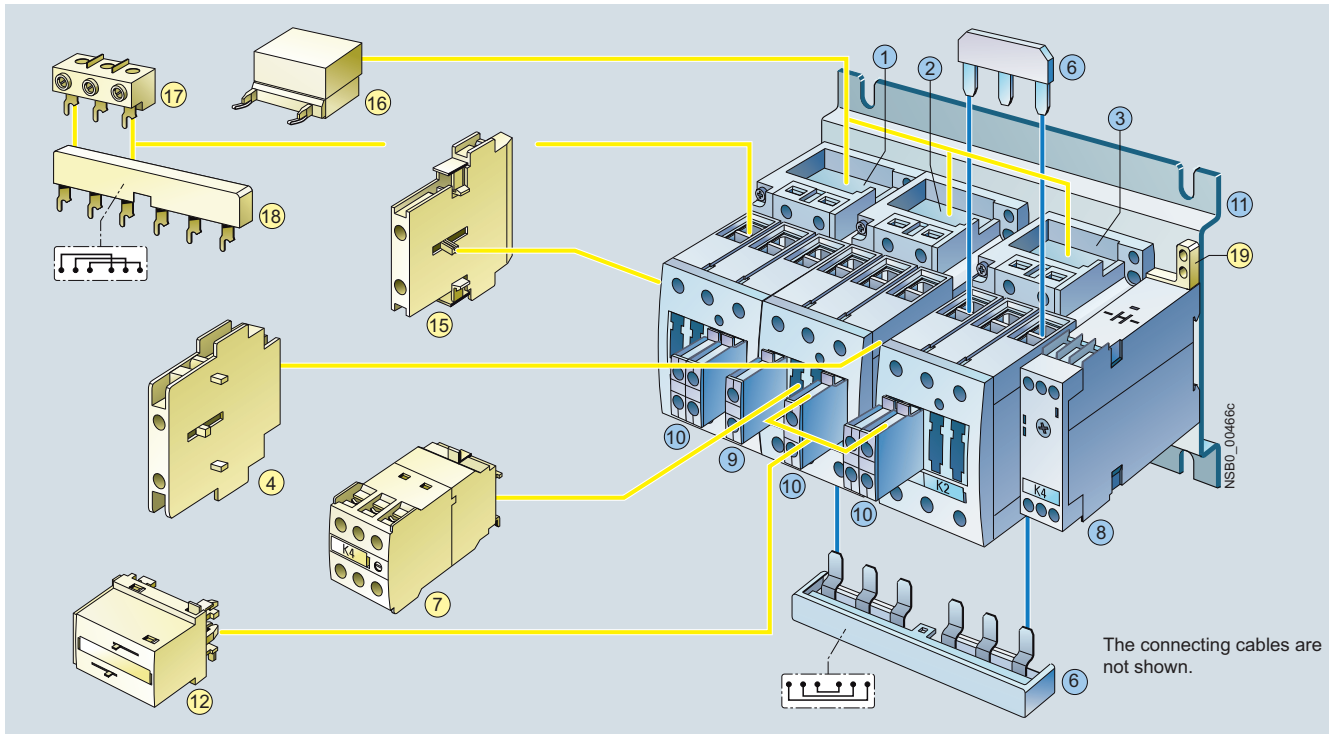
1) Coil operating range at 50 Hz: 0.8 ... 1.1 x U_s ; at 60 Hz: 0.85 ... 1.1 x U_s .

Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

**SIRIUS 3RA14 contactor assemblies
for wye-delta starting**

Fully wired and tested contactor assemblies · Size S2-S2-S2 · up to 45 kW



Mountable accessories (optional)

To be ordered separately	Article No.	Page
④ Mech. interlock, lateral	3RA1924-2B	3/161
⑦ Solid-state time-delay auxiliary switch block, front ¹⁾	3RT1926-2G...	3/107
⑫ Mech. interlock, front	3RA1924-1A	3/161
⑮ Auxiliary switch block, lateral	3RH1921-1EA...	3/105
⑯ Surge suppressors	3RT1926-1... 3RT1936-1...	3/108, 3/108
⑰ Three-phase infeed terminal	3RV1935-5A	3/179
⑱ Three-phase busbar	3RV1935-1A	3/179
⑲ Push-in lug for timing relay screw mounting	3RP1903	2)

¹⁾ Generally possible. If a solid-state time-delay auxiliary switch block is mounted onto the front of Q3, an auxiliary switch block can only be mounted onto the side.

Complete contactor assemblies

Individual parts	Article No. Q1	Q3	Q2	Page
①②③ Contactor, 37 kW	3RT1035	3RT1035	3RT1034	3/83
①②③ Contactor, 45 kW	3RT1036	3RT1036	3RT1034	3/83
⑧ Timing relay, lateral	3RP1574-1N..30			2)
⑨ Auxiliary switch block with 1 unassigned NO contact	3RH1921-1CA10			3/103
⑩ Auxiliary switch block for local control				
2 units	3RH1921-1CA01			3/103
3 units	3RH1921-1CA10			
⑪ Base plate	3RA1932-2F			3/179
⑥ Assembly kit	3RA1933-2B			3/179

The assembly kit contains the star jumper on the top and the wiring module on the bottom for connecting the main current paths.

²⁾ See Chapter 10 "Monitoring and Control Devices" → "3RP, 7PV Timing Relays" → "3RP15 Timing Relays in Industrial Enclosure, 22.5 mm".



3RA143.-8XC21-1...

Rated data AC-3		Rated control supply voltage U_s ¹⁾				DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
Operational current I_e up to	Ratings of three-phase motors at 50 Hz and	230 V	400 V	500 V	690 V		Article No.	Price per PU		
400 V										
A	kW	kW	kW	kW	V					
AC operation, 50/60 Hz										
80	25	37	51	63	24 AC	A	3RA1435-8XC21-1AC2	1	1 unit	41B
					110 AC	A	3RA1435-8XC21-1AG2	1	1 unit	41B
					230 AC	▶	3RA1435-8XC21-1AL2	1	1 unit	41B
86	27	45	55	63	24 AC	A	3RA1436-8XC21-1AC2	1	1 unit	41B
					110 AC	A	3RA1436-8XC21-1AG2	1	1 unit	41B
					230 AC	▶	3RA1436-8XC21-1AL2	1	1 unit	41B
DC operation										
80	25	37	51	63	24 DC	A	3RA1435-8XC21-1BB4	1	1 unit	41B
86	27	45	55	63	24 DC	A	3RA1436-8XC21-1BB4	1	1 unit	41B

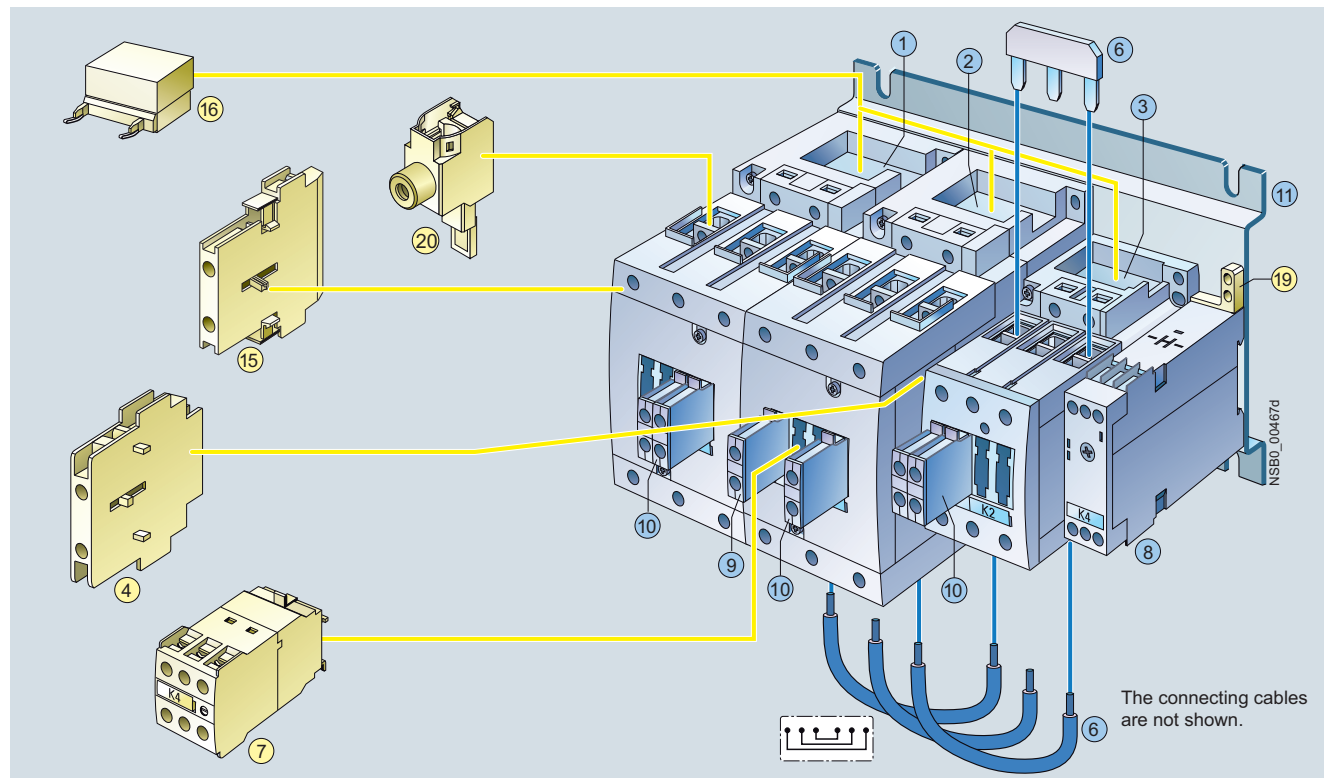
¹⁾ Coil operating range
at 50 Hz: 0.8 ... 1.1 × U_s ;
at 60 Hz: 0.85 ... 1.1 × U_s .

Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

**SIRIUS 3RA14 contactor assemblies
for wye-delta starting**

Fully wired and tested contactor assemblies · Size S3-S3-S2 · Up to 75 kW



Mountable accessories (optional)

To be ordered separately	Article No.	Page
④ Mech. interlock, lateral, depth compensation required Q3: 0 mm; Q2: 27.5 mm ¹⁾	3RA1924-2B	3/161
⑦ Solid-state time-delay auxiliary switch block, front ²⁾	3RT1926-2G...	3/107
⑮ Auxiliary switch block, lateral	3RH1921-1EA...	3/105
⑯ Surge suppressors	3RT19.6-1...	3/108
⑰ Push-in lug for timing relay screw mounting	3RP1903	3)
⑳ Single-phase infeed terminals	3RA1943-3L	3/179

Complete contactor assemblies

Individual parts		Article No.			Page
		Q1	Q3	Q2	
①②③	Contactor, 55 kW	3RT1044	3RT1044	3RT1035	3/83
①②③	Contactor, 75 kW	3RT1045	3RT1045	3RT1036	3/83
⑧	Timing relay, lateral	3RP1574-1N.30			3)
⑨	Auxiliary switch block with 1 unassigned NO contact	3RH1921-1CA10			3/103
⑩	Auxiliary switch block for local control				
	2 units	3RH1921-1CA01			3/103
	3 units	3RH1921-1CA10			
⑪	Base plate	3RA1942-2E			3/179
⑥	Assembly kit	3RA1943-2C			3/179

The assembly kit contains the star jumper on the top and the wiring module on the bottom for connecting the main current paths.

¹⁾ Use the 3RA1942-2B base plate for this design.

²⁾ Generally possible. If a solid-state time-delay auxiliary switch block is mounted onto the front of Q3, an auxiliary switch block can only be mounted onto the side.

³⁾ See Chapter 10 "Monitoring and Control Devices" → "3RP, 7PV Timing Relays" → "3RP15 Timing Relays in Industrial Enclosure, 22.5 mm".



Rated data AC-3						DT	Screw terminals		PU (UNIT, SET, M)	PS*	PG
Operational current I_e up to		Ratings of three-phase motors at 50 Hz and									
400 V	230 V	400 V	500 V	690 V							
A	kW	kW	kW	kW	V		Article No.	Price per PU			
AC operation, 50/60 Hz											
115	37	55	81	93	24 AC 110 AC 230 AC	B B ▶	3RA1444-8XC21-1AC2 3RA1444-8XC21-1AG2 3RA1444-8XC21-1AL2	1 1 1	1 unit 1 unit 1 unit	41B 41B 41B	
150	47	75	103	110	24 AC 110 AC 230 AC	B B ▶	3RA1445-8XC21-1AC2 3RA1445-8XC21-1AG2 3RA1445-8XC21-1AL2	1 1 1	1 unit 1 unit 1 unit	41B 41B 41B	
DC operation											
115	37	55	81	93	24 DC	B	3RA1444-8XC21-1BB4	1	1 unit	41B	
150	47	75	103	110	24 DC	B	3RA1445-8XC21-1BB4	1	1 unit	41B	

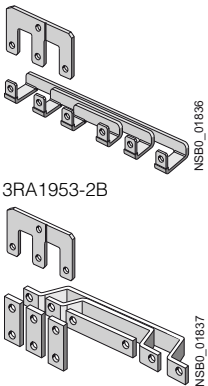
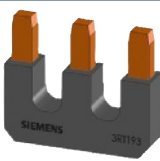
¹⁾ Coil operating range at 50 Hz: 0.8 ... 1.1 x U_N ; at 60 Hz: 0.85 ... 1.1 x U_N .

Contactor Assemblies

3RA23, 3RA13, 3RA24, 3RA14 Contactor Assemblies

**SIRIUS 3RA14 contactor assemblies
for wye-delta starting**

Components for customer assembly

Version	Size	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Assembly kits							
 The assembly kit contains: star jumper, wiring module on the bottom (Wiring module on the top is not included in the scope of supply. A double infeed between the line contactor and the delta contactor is recommended.) 3RA1953-2B 3RA1953-2N, 3RA1963-2B, 3RA1973-2B	S2-S2-S0	▶	3RA1933-2C		1	1 unit	41B
	S2-S2-S2	▶	3RA1933-2B		1	1 unit	41B
	S3-S3-S2	▶	3RA1943-2C		1	1 unit	41B
	S3-S3-S3	▶	3RA1943-2B		1	1 unit	41B
	S6-S6-S6	A	3RA1953-2B		1	1 unit	41B
	S6-S6-S6	A	3RA1953-2N		1	1 unit	41B
	S10-S10-S10	A	3RA1963-2B		1	1 unit	41B
	S12-S12-S12	B	3RA1973-2B		1	1 unit	41B
Single-phase infeed terminals							
Conductor cross-section: 95 mm ²	S3	A	3RA1943-3L		1	1 unit	41B
Three-phase infeed terminals							
Infeed terminal blocks for the line contactor for large conductor cross-sections Conductor cross-section: 50 mm ²	S2	▶	3RV1935-5A		1	1 unit	41E
Three-phase busbars							
Bridging phase-by-phase of all input terminals of the line contactor Q1 and the delta contactor Q3	S2	▶	3RV1935-1A		1	1 unit	41E
Links for paralleling, 3-pole (star jumpers)							
 Without connection terminal (the links for paralleling can be reduced by one pole) 3RT1936-4BA31	S2	▶	3RT1936-4BA31		1	1 unit	41B
	S3	▶	3RT1946-4BA31		1	1 unit	41B
	S6 ¹⁾²⁾	▶	3RT1956-4BA31		1	1 unit	41B
	S10, S12 ¹⁾²⁾	▶	3RT1966-4BA31		1	1 unit	41B
Base plates							
For customer assembly of contactor assemblies for wye-delta starting with a laterally mounted timing relay							
Side-by-side mounting	S2, S2, S0	B	3RA1932-2E		1	1 unit	41B
10 mm distance between Q3 and Q2	S2, S2, S2	B	3RA1932-2F		1	1 unit	41B
Side-by-side mounting	S3, S3, S2	B	3RA1942-2E		1	1 unit	41B
10 mm distance between Q1, Q3 and Q2	S6, S6, S3	B	3RA1952-2E		1	1 unit	41B
	S6, S6, S6	B	3RA1952-2F		1	1 unit	41B
	S10, S10, S6	B	3RA1962-2E		1	1 unit	41B
	S10, S10, S10	B	3RA1962-2F		1	1 unit	41B
	S12, S12, S10	B	3RA1972-2E		1	1 unit	41B
	S12, S12, S12	B	3RA1972-2F		1	1 unit	41B
For customer assembly of contactor assemblies for wye-delta starting with a front-mounted timing relay							
10 mm distance between Q1, Q3 and Q2	S2, S2, S0	B	3RA1932-2B		1	1 unit	41B
	S2, S2, S2	B	3RA1932-2B		1	1 unit	41B
	S3, S3, S2	B	3RA1942-2B		1	1 unit	41B

¹⁾ The 3RT1956-4EA1 (for S6) or 3RT1966-4EA1 (for S10 and S12) cover can be used for touch protection.

²⁾ Sizes S6 and S10/S12 are approved as star jumpers according to UL and CSA.

Contactor Assemblies

3TD, 3TE Contactor Assemblies

**3TE6 contactor assemblies
for wye-delta starting, 630 kW**

Overview

The contactor assemblies are suitable for use in any climate. They are finger-safe according to EN 50274.

3TE contactor assemblies are available as complete units and components for customer assembly. They consist of two 3TF68 contactors, and the 3RT1075 contactor as star (wye) contactor.

The complete unit combinations are optionally supplied without a main conducting path connection between the line contactor and the delta contactor.

Control circuit (auxiliary contacts)

The 3TF68 contactors have four lateral auxiliary switches, each with 1 NO + 1 NC contact. The following auxiliary contacts are required for the control circuit of the assembly:

- Line contactor Q1: 13-14, 43-44
- Star (wye) contactor Q2: 13-14, 21-22
- Delta contactor Q3: 13-14, 21-22

The star-delta (wye-delta) changeover is implemented via a lateral time relay 3RP1574 (1 ... 20 ms) or 3RP1576 (3 ... 60 ms).

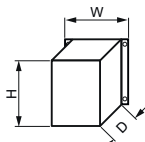
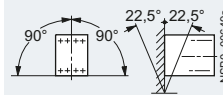
Motor protection

3TE68 contactor assemblies are supplied without overload protection. Overload relays or thermistor motor protection releases must be ordered separately.

The overload relay can be either mounted onto the line contactor or separately fitted. It must be set to 0.58 times the rated motor current.

Technical specifications

The technical specifications are identical to those of the 3TF68 individual contactors unless otherwise stated.

Type					
Size					
Dimensions (W x H x D) with base plate		mm		3TE68	
				14	
				665 x 325 x 278	
General data					
Permissible mounting position, installation instructions¹⁾					
The contactors are designed for operation on a vertical mounting surface.					
Individual contactors					
• Q1 line contactor	Type	3TF68			
• Q2 star contactor	Type	3RT1075			
• Q3 delta contactor	Type	3TF68			
Mechanical endurance		Operating cycles	3 million		
Unassigned auxiliary contacts of the individual contactors			2)		
Main circuit					
Current-carrying capacity with reversing time up to 10 s					
• Rated operational current I_e	Up to 690 V	A	1 090		
• Rated power for three-phase motors at 50 Hz	At 230 V	kW	355		
	400 V	kW	612		
	500 V	kW	800		
	690 V	kW	1 046		
	• Switching frequency with overload relay		h ⁻¹	3	
Current-carrying capacity with reversing time up to 15 s					
• Rated operational current I_e	Up to 500 V	A	923		
	690 V	A	883		
• Rated power for three-phase motors at 50 Hz	At 230 V	kW	295		
	400 V	kW	515		
	500 V	kW	677		
	690 V	kW	885		
	• Switching frequency with overload relay		h ⁻¹	2	
Current-carrying capacity with reversing time up to 20 s					
• Rated operational current I_e	Up to 500 V	A	800		
	690 V	A	765		
• Rated power for three-phase motors at 50 Hz	At 230 V	kW	244		
	400 V	kW	444		
	500 V	kW	590		
	690 V	kW	770		
	• Switching frequency with overload relay		h ⁻¹	2	

¹⁾ If the contactors are mounted at a 90° angle (conducting paths horizontally one above the other), the following reductions apply: switching frequency: to 80 % of the standard values.

²⁾ See circuit diagrams of the control circuits in Reference Manual "Contactors and Contactor Assemblies",
<http://support.automation.siemens.com/WW/view/en/35554359>.

Contactor Assemblies

3TD, 3TE Contactor Assemblies

3TE6 contactor assemblies for wye-delta starting, 630 kW

Contactor	Type	3TE68
Short-circuit protection		
Main circuit		
Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE Highest rated current of the fuse acc. to IEC 60947-4-1/EN 60947-4-1		
• Type of coordination "1"	A	1 000
• Type of coordination "2"	A	500 ¹⁾
Auxiliary circuit		
Short-circuit test		
• with fuse links of operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current $I_k = 1$ kA acc. to IEC 60947-5-1	A	10
• with miniature circuit breakers with C characteristic with short-circuit current $I_k = 400$ A	A	10
Short-circuit protection with fuses for motor feeders with short-circuit currents up to 50 kA and 690 V		
Rated motor current	A	277 ... 1 090
Overload relays	Type	3RB2066
Setting range (The overload relays must be set to 0.58 times the rated motor current.)	A	160 ... 630
Permissible back-up fuses for starters, comprising contactor assemblies and overload relays. Single or double infeed ¹⁾		
• Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE - Type of coordination "1"	A	1 000
- Type of coordination "2"	A	500
• Fuse links, aM operational class: LV HRC, type 3ND - Type of coordination "2"	A	630
• Fuse links, Siemens Canada, HRC fuses, Type II	A	1 000
• Fuse links, UL-listed fuses, CLASS L	A	1 200
• Fuse links, British Standard Fuses, BS88 - Type of coordination "1"	A	1 000
- Type of coordination "2"	A	500

¹⁾ The maximum rated motor current must not be exceeded.

Short-circuit protection with overload relays [see Chapter 7](#),
"Protection Equipment" → "Overload Relays"
→ "SIRIUS 3RB2 Solid-State Overload Relays".

Use double infeed for higher rated motor currents; [see the circuit diagrams in the Reference Manual "Contactors and Contactor Assemblies"](#),
<http://support.automation.siemens.com/WW/view/en/35554359>.

Selection and ordering data

Size	Rated data AC-3				Rated control supply voltage U_s	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
	Operational current I_e up to	Ratings of three-phase motors at 50 Hz and					Article No.	Price per PU		
	690 V	230 V	400 V	500 V	690 V					
	A	kW	kW	kW	kW	V AC				

Complete units, reversing time up to 10 s

AC operation, 50/60 Hz

Without main current path connection between line and delta contactor

14	1 090	315	630	800	1 000	110	C	3TE6804-5CF0	1	1 unit	41B
							D	3TE6804-5CP0	1	1 unit	41B

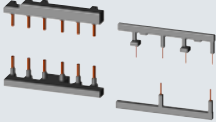
¹⁾ Operating range at 220 V:
0.85 ... 1.15 × U_s ;
lower operating range limit according to IEC 60947.

For motor protection, overload relays for stand-alone installation must be ordered separately; [see Chapter 7](#),
"Protection Equipment" → "Overload Relays"
→ "SIRIUS 3RB2 Solid-State Overload Relays".

Overview

The function modules for mounting onto contactors enable the assembly of starters and contactor assemblies for direct-on-line, reversing and wye-delta starting without any additional, complicated wiring of the individual components.

They include the key control functions required for the particular feeder, e.g. timing and interlocking, and can be connected to the control system by either parallel wiring or through IO-Link or AS-Interface.

Version	SIRIUS 3RA28 function modules	SIRIUS 3RA27 function modules for IO-Link ¹⁾	SIRIUS 3RA27 function modules for AS-Interface ¹⁾
For direct-on-line starting	Timing relays: ON-delay or OFF-delay with semiconductor output With screw or spring-type terminals 	With screw or spring-type terminals 	With screw or spring-type terminals 
For reversing starting	Wiring modules for sizes S00 and S0 With screw or spring-type terminals (with screw terminals for main and control circuit) 	1 function module for size S00 and S0, screw or spring-type connection, plus the respective wiring modules ¹⁾ 	1 function module for size S00 and S0, screw or spring-type connection, plus the respective wiring modules ¹⁾ 
For wye-delta starting	1 function module for size S00 and S0 with screw or spring-type terminals plus the respective wiring modules ²⁾ 	1 function module for size S00 and S0 with screw or spring-type terminals plus the respective wiring modules ²⁾ 	1 function module for size S00 and S0 with screw or spring-type terminals plus the respective wiring modules ²⁾ 
Accessories	Sealable covers 	Operator panel for autonomous control of up to four feeders Module connector for the grouping of starters Connection cable between the operator panel and the feeder group Sealable covers 	AS-Interface addressing unit 3RK1904-2AB02 (see Chapter 2, "Industrial Communication") Sealable covers 

¹⁾ Use of the communication-capable function modules for IO-Link or AS-Interface requires contactors with communication interface (see pages 3/34 and 3/37).

²⁾ The modules for the control current wiring, which are included in the wiring kit, are not required.

Note:

When using the function modules, no other auxiliary switches are allowed to be connected to the basic units.

Function Modules

SIRIUS 3RA28 Function Modules for Mounting on 3RT2 and 3RH21 Contactors

Introduction

Overview

Simply by being plugged in place, the SIRIUS function modules enable different functionalities required for the assembly of starters to be realized in the feeder. The function modules and wiring kits thus help to reduce the wiring work within the feeder practically to zero.

SIRIUS function modules for direct-on-line starting

All solid-state timing relays which can be mounted onto the contactor are designed for applications in the range from 24 to 240 V AC/DC (wide voltage range). Both the electrical and mechanical connection are made by simple snapping on and locking.

A protection circuit (varistor) is integrated in each module.

The solid-state timing relay with semiconductor output uses two contact legs to actuate the contactor underneath by means of a semiconductor after the set time t has elapsed.

The switching state feedback is performed by a mechanical switching state indicator (plunger). In addition, the auxiliary switches in the contactors are freely accessible and can be used for feedbacks to the control system or for signal lamps.

A sealable cover is available to protect against careless adjustment of the set times.

SIRIUS function modules for reversing starting

The wiring kits for reversing starters enable the cost-effective assembly of contactor assemblies. They can be used for all applications with reversing duty up to 18.5 kW.

For detailed description see page 3/150.

SIRIUS function modules for wye-delta starting

Both interlocking and timing functions are required for the assembly of wye-delta starters. With the function modules for wye-delta starting and the matching link modules for the main circuit, these starters can be assembled easily and with absolutely no errors.

The entire sequence in the control circuit is integrated in the snap-on modules. This covers:

- An adjustable star time t from 0.5 to 60 s
- A non-adjustable dead interval of 50 ms
- Electrical contacting to the contactors by means of coil pick-off (contact legs)
- Feedback of the switching state at the contactor using a mechanical switch position indicator (plunger)
- Electrical interlocking between the contactors

These modules do not require their own terminals and can therefore be used for contactors with both screw and spring-type terminals in the two sizes S00 and S0. To start the wye-delta starter, only the first of the three contactors (line contactor) is actuated. All other functions then take place inside the individual modules.

This also offers advantages if the timing function was previously implemented in a controller, as it again results in a significant reduction in the number of PLC outputs, the programming work and the wiring outlay.

The kits for the main circuit include the mechanical interlock, the star jumper, the wiring modules at the top and at the bottom, and the required connecting clips.

A protection circuit (varistor) is integrated in the basic module.

Application

The snap-on function modules for direct-on-line starting are used above all for realizing timing functions independently of the control system.

With the OFF-delay variant of the timing relay it is possible for example for the fan motor for cooling a main drive to be switched off with a delay so that sufficient cooling after operation is guaranteed even if the plant and its control system have already been switched off.

The ON-delay timing relays enable for example the time-delayed starting of several drives so that the summation starting current does not rise too high, which could result in voltage failure.

The function modules for wye-delta starting are mostly used where current-limiting measures for starting a drive are required, e.g. for large fans and ventilators, and a high level of availability is essential at the same time. This technology has been used with success for several decades and has the additional advantage of requiring relatively little know-how. Through the use of function modules, the assembly work with simple standard components is even easier and error-free.

Benefits

The use of snap-on function modules for direct-on-line starting (timing relays) results in the following advantages:

- Reduction of control current wiring
- Prevention of wiring errors
- Reduction of testing costs
- Implementation of timing functions independently of the control system
- Less space required in the control cabinet compared to a separate timing relay
- No additive protection circuit required (varistor integrated)

For advantages of using wiring kits for the assembly of reversing starters see page 3/151.

The use of function modules for wye-delta starting results in the following advantages:

- Operation solely through the line contactor A1/A2 – no further wiring needed
- Reduction of the control current wiring inside the contactor assembly and to the higher-level control system where applicable
- Prevention of wiring errors
- Reduction of testing costs
- Integrated electrical interlocking saves costs and prevents errors
- Less space needed in the control cabinet compared to using a separate timing relay
- Adjustable starting in star mode from 0.5 to 60 s
- Independent of the contactor's control supply voltage (24 to 240 V AC/DC)
- Varistor integrated – no additive protection circuit required
- No control current wiring thanks to plug-in technology and connecting cables
- Mechanically coded assembly enables easy configuration and reliable wiring
- Fewer versions – one module kit for screw and spring-type connection and for the two sizes S00 and S0
- Mechanical interlocking (with wiring kit for the main circuit)

SIRIUS 3RA28 Function Modules for Mounting on 3RT2 and 3RH21 Contactors

Introduction

Technical specifications

Type			3RA2811	3RA2812	3RA2816
Function			ON-delay	OFF-delay with control signal	Wye-delta function
Dimensions			See 3RT20 contactors, pages 3/17 and 3/22.		
General data					
Rated insulation voltage U_i	V AC		300		
Pollution degree 3					
Overvoltage category III					
Operating range of excitation			0.85 ... 1.1 x U_N , 0.95 ... 1.05 times the rated frequency		
Overvoltage protection			Varistor integrated		
Rated power	W		1		1
• Power consumption at 230 V AC, 50 Hz	VA		1		2
Rated operational currents I_e					
• Load current					
- At 24 ... 240 V, 50 Hz	A		0.4		--
- At 24 ... 240 V, DC	A		0.4		--
• AC-15	At 24 ... 240 V, 50 Hz	A	--		3
• DC-13	- At 24 V	A	--		1
	- At 125 V	A	--		0.2
	- At 250 V	A	--		0.1
DIASED protection	Operational class gG	A	--		4
Switching frequency for load					
• With I_e at 230 V AC	h^{-1}		2 500		--
• With 3RT2 contactor at 230 V AC	h^{-1}		2 500		--
Recovery time	ms		50		150
Minimum ON period	ms		--	35	--
Residual current	Max.	mA	5		--
Voltage drop	Max.	VA	3.5		--
With conducting output					--
Short-time loading capacity	Up to 10 ms	A	10		--
Setting accuracy	Typ.		$\pm 15\%$		
With reference to upper limit of scale					
Repeat accuracy	Max.		$\pm 1\%$		
Mechanical endurance	Operating cycles		100 x 10 ⁶		10 x 10 ⁶
Permissible ambient temperature					
• During operation	°C		-25 ... +60		
• During storage	°C		-40 ... +80		
Degree of protection	acc. to IEC 60947-1, Appendix C		IP20		
Shock resistance	g/ms		15/11		
Half-sine acc. to IEC 60068-2-27					
Vibration resistance					
according to IEC 60068-2-6	Hz/mm		10 ... 55/0.35		
Electromagnetic compatibility (EMC)			IEC 61812-1, IEC 61000-6-2, IEC 61000-6-4		IEC 60947-4-1
Permissible mounting position			Any		
Conductor cross-sections					
Connection type (1 or 2 conductors can be connected)			 Screw terminals		
• Solid	mm ²		1 x (0.5 ... 4), 2 x (0.5 ... 2.5)		--
• Finely stranded with end sleeve	mm ²		1 x (0.5 ... 2.5), 2 x (0.5 ... 1.5)		--
• AWG cables, solid or stranded	AWG		2 x (20 ... 14)		--
• Terminal screws			M3 (for standard screw driver size 2 or Pozidriv 2)		--
• Tightening torque	Nm		0.8 ... 1.2		--
Connection type (1 or 2 conductors can be connected)			 Spring-type terminals		
• Operating devices	mm		3.0 x 0.5		--
• Solid	mm ²		2 x (0.25 ... 1.5)		--
• Finely stranded with end sleeve	mm ²		2 x (0.25 ... 1.5)		--
• Finely stranded	mm ²		2 x (0.25 ... 1.5)		--
• AWG cables, solid or stranded	AWG		2 x (24 ... 16)		--

Function Modules

SIRIUS 3RA28 Function Modules for Mounting on 3RT2 and 3RH21 Contactors

For direct-on-line starting

Selection and ordering data

PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B



3RA2811-1CW10



3RA2811-2CW10

For contactors	Rated control supply voltage $U_s^{1)}$	Time setting range t	DT	Screw terminals		DT	Spring-type terminals	
Type	V AC/DC	s		Article No.	Price per PU		Article No.	Price per PU
Solid-state timing relays with semiconductor output, for snapping onto the front								
The electrical connection between the timing relay and the contactor underneath is established automatically when it is snapped on and locked.								
ON-delay Two-wire design, varistor integrated								
3RT201., 3RT202., 3RH21 ²⁾ , 3RH24	24 ... 240	0.05 ... 100 (1, 10, 100; selectable)	A	3RA2811-1CW10		A	3RA2811-2CW10	
OFF-delay with control signal Varistor integrated								
3RT201., 3RT202., 3RH21 ²⁾ , 3RH24	24 ... 240	0.05 ... 100 (1, 10, 100; selectable)	A	3RA2812-1DW10		A	3RA2812-2DW10	
Accessories								
Sealable covers for 3RA27, 3RA28, 3RA29				A	3RA2910-0	A	3RA2910-0	

1) AC voltage values apply for 50 Hz and 60 Hz.

2) Cannot be fitted onto coupling contactors.

Note:

When using the function modules, no other auxiliary switches are allowed to be connected to the basic units.

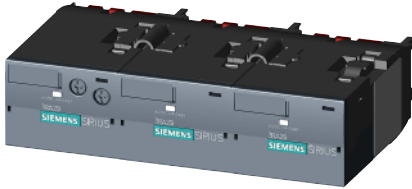
Function	Function charts
1 NO contact (semiconductor output)	
ON-delay	3RA2811-.CW10
OFF-delay with control signal	3RA2812-.DW10

SIRIUS 3RA28 Function Modules for Mounting on 3RT2 and 3RH21 Contactors

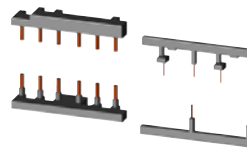
For reversing starting / for wye-delta starting

Selection and ordering data

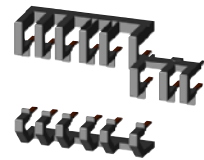
PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B



3RA2816-0EW20



3RA2923-2AA1



3RA2923-2BB2

For contactors	Rated control supply voltage U_s ¹⁾	Time setting range t	DT	Screw terminals		DT	Spring-type terminals	
Type	V AC/DC	s		Article No.	Price per PU		Article No.	Price per PU
Assembly kits for reversing starting								
Assembly kits for making 3-pole contactor assemblies The assembly kit contains: Mechanical interlock, 2 connecting clips for 2 contactors, wiring modules on the top and bottom								
3RT201.	• For size S00		►	3RA2913-2AA1		►	3RA2913-2AA2	
3RT202.	• For size S0		►	3RA2923-2AA1		►	3RA2923-2AA2	
Assembly kits for wye-delta starting								
Assembly kits for making 3-pole contactor assemblies The assembly kit contains: Mechanical interlock, 4 connecting clips for 3 contactors; star jumper, wiring modules on the top and bottom								
3RT201.	• For size S00		►	3RA2913-2BB1		►	3RA2913-2BB2	
3RT202.	• For size S0 (only main current for version with spring-type terminals)		►	3RA2923-2BB1		►	3RA2923-2BB2	
Function modules for wye-delta starting								
The electrical connection between the function module and the contactor assembly is established automatically by snapping on and plugging in the connecting cables. Wye-delta function (varistor integrated)								
3RT201. 3RT202. ²⁾	24 ... 240	0.5 ... 60 (10, 30, 60; selectable)	A	3RA2816-0EW20		A	3RA2816-0EW20	
Individual modules								
	24 ... 240	Basic modules for wye-delta starting	A	3RA2912-0		A	3RA2912-0	
	--	Coupling modules for wye-delta starting	A	3RA2911-0		A	3RA2911-0	
Accessories								
	Sealable covers for 3RA27, 3RA28, 3RA29		A	3RA2910-0		A	3RA2910-0	

¹⁾ AC voltage values apply for 50 Hz and 60 Hz.

²⁾ Cannot be fitted onto coupling contactors.

Note:

When using the function modules, no other auxiliary switches are allowed to be connected to the basic units.

Function	Function charts
2 NO contacts (interconnected internally)	
Wye-delta function	3RA2816-0EW20
• 1 NO contact delayed	A1/A2 Q1
• 1 NO contact instantaneous	Y Q2 Δ Q3

Function Modules

SIRIUS 3RA27 Function Modules for IO-Link for Mounting on 3RT2 Contactors

Introduction

Overview

The SIRIUS function modules for IO-Link enable the assembly of starters and contactor assemblies for direct-on-line, reversing and wye-delta starting without any additional, complicated wiring of the individual components. They include the key control functions required for the particular feeder, e.g. timing and interlocking.

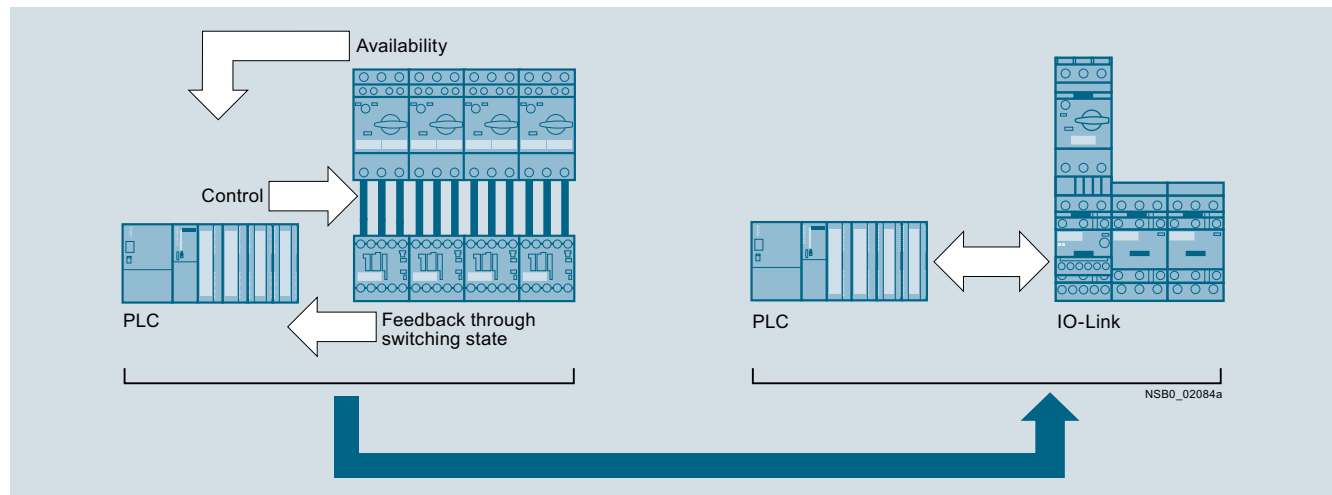
The electrical and mechanical connection to the contactor is established by snapping on and locking. An additive protection circuit for the individual contactors can be dispensed with completely because a varistor is integrated in the modules. Feedback from the contactor contacts is performed with Hall sensors which provide reliable feedback concerning the switching state even under extremely dusty conditions.

The starters are connected to the higher-level control system through IO-Link, with the possibility of connecting up to four starters as a group to one port of the IO-Link master.

Through this type of connection to the control system, a maximum of wiring is saved.

The following essential signals are transmitted:

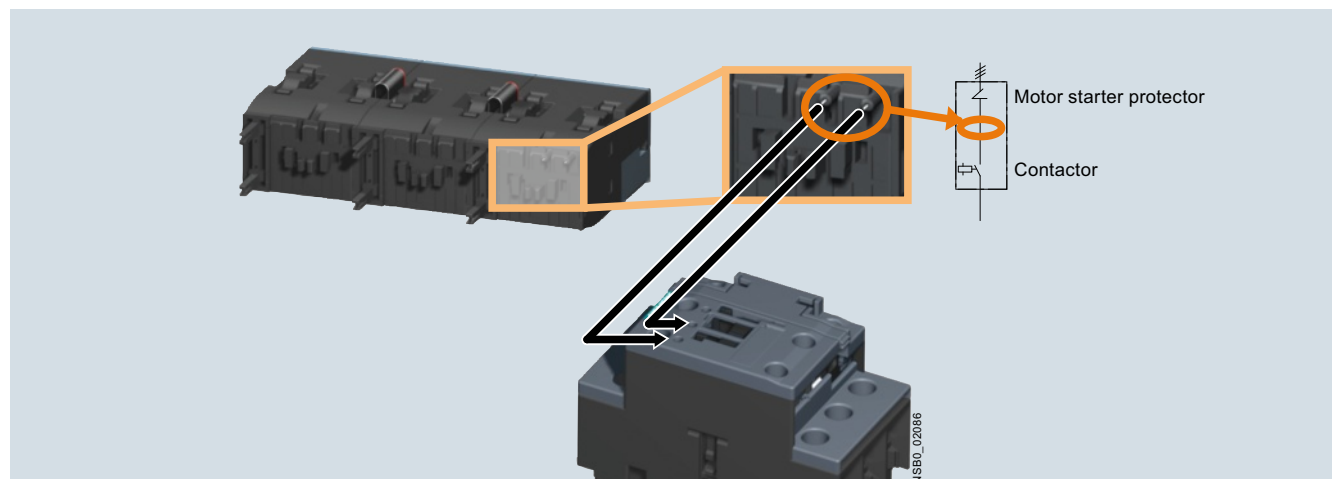
- Availability of the feeder in response to an indirect inquiry from the motor starter protector/circuit breaker
- Starter control
- Feedback concerning the switching state of the starter



Signal transmission through IO-Link

The inquiry from the motor starter protector/circuit breaker does not take place through additive wiring between the auxiliary switch and the module but by means of a voltage inquiry at the contactor input.

This requires special versions of the contactors with communication interface (see pages 3/34 and 3/37).



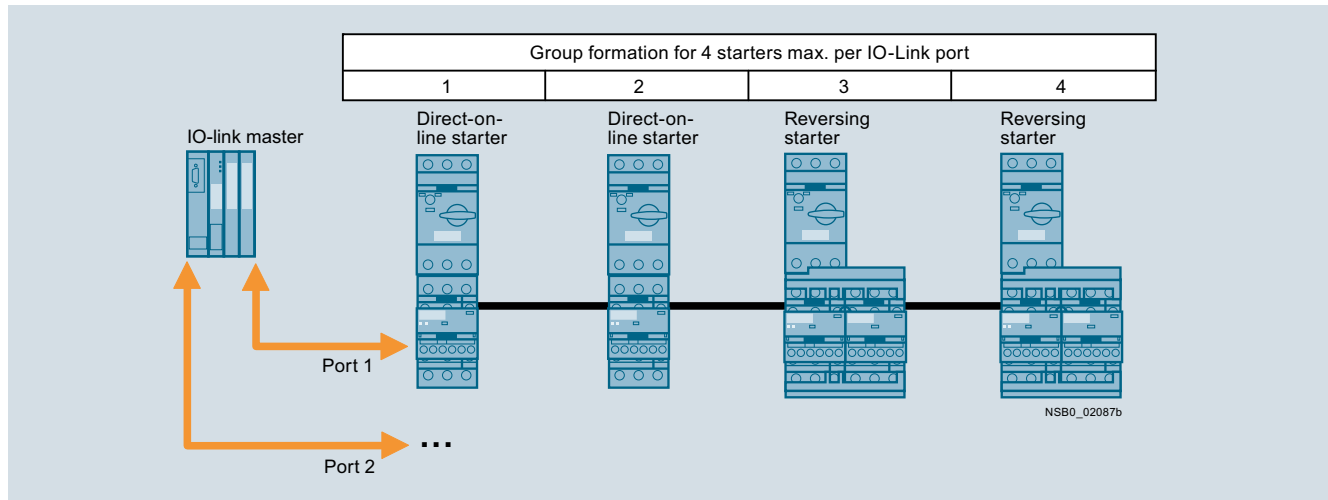
Availability signal through voltage pick-off

SIRIUS 3RA27 Function Modules for IO-Link for Mounting on 3RT2 Contactors

Introduction

By grouping up to four starters it is possible to connect up to 16 starters to one master of the ET 200S. In this case all the signals of the individual controls are made available directly in the process image of the input through only 3 individual wires

per starter group. If the potential at the master of the ET 200S is the same as that of the controls, a further reduction of wiring is possible by providing the control supply voltage to the contactors by jumpering the corresponding communication wires.



Group formation with IO-Link

In case of a malfunction, the corresponding error signals are also sent directly to the PLC in acyclic mode. This is in addition to transmission of the switching signals and status signals.

Possible error signals:

- Device defect
- No main voltage (motor starter protector tripped)
- No control supply voltage
- Limit position on the right / on the left
- Manual mode
- Process image fault

This easy integration of the starters in the TIA world does not limit the flexibility in the field in the least. For example, all function modules have special terminals in order to enable direct local disconnection. These terminals can be connected for example to a position switch. The input interrupts the voltage supply to the contactor coil directly, i.e. without going through the PLC. These terminals are jumpered in the as-delivered state.

Local manual operation of the complete starter group is also straight-forward using a hand-held device. The latter is easily connected to the last starter and can be built into the front panel of the control cabinet if required. This offers significant advantages particularly for commissioning.

Application

The use of SIRIUS function modules with IO-Link is recommended above all in machines and plants in which there are several motor feeders in one control cabinet. Using IO-Link, the connection of these feeders to the automation level is easy, quick and error-free. And with IO modules no longer needed, the width of the ET 200S is far smaller.

Benefits

- Reduction of the control current wiring to no more than three cables for four feeders
- Elimination of testing costs and wiring errors
- Reduction of configuration work
- Integration in TIA means clear diagnostics if a fault occurs
- Dispensing with IO modules saves space in the control cabinet
- All essential timing and interlocking functions for reversing duty and wye-delta starting are integrated
- No additive protection circuit required

For further information on the IO-Link see [Chapter 2 "Industrial Communication"](#).

Function Modules

SIRIUS 3RA27 Function Modules for IO-Link for Mounting on 3RT2 Contactors

Introduction

Technical specifications

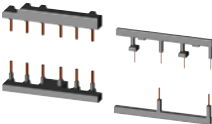
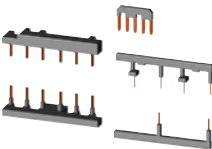
Type	3RA2711			
Dimensions	See 3RT20 contactors, pages 3/17 and 3/22.			
General data				
Suitable for IO-Link masters acc. to specification			1.0	
Permissible ambient temperature				
• During operation	According to IEC 60947-1	°C	-25 ... +60	
• During storage	According to IEC 60721-3-1	°C	-40 ... +80	
• During transport	According to IEC 60721-3-2	°C	-40 ... +80	
Degree of protection			IP20	
Operational voltage U_{HI}		V DC	24 ± 20 %	
Power consumption, max. at U_{HI}		A	2	
Max. length of the cables for the input Y1–Y2		According to EN 50295	m	30
EMC interference immunity				
• Electrostatic discharge	According to IEC 61000-4-2	kV	6/8	
• Field-related interference	According to IEC 61000-4-3	V/m	10 (80 MHz ... 3 GHz)	
• Burst	According to IEC 61000-4-4	kV	2/1	
• Conductor-related interference	According to IEC 61000-4-5	kV	0.5/1	
• High frequency, asymmetric	According to IEC 61000-4-6	V rms	10 (150 kHz ... 80 MHz)	
Conductor cross-sections				
Connection type (1 or 2 conductors can be connected)		 Screw terminals		
• Solid	mm ²	1 x (0.5 ... 4), 2 x (0.5 ... 2.5)		
• Finely stranded with end sleeve	mm ²	1 x (0.5 ... 2.5), 2 x (0.5 ... 1.5)		
• AWG cables	AWG	2 x (20 ... 14)		
• Terminal screws		M3 (for standard screwdriver Ø 6 mm or Pozidriv 2)		
• Tightening torque of the terminal screws	Nm	0.8 ... 1.2		
Connection type (1 or 2 conductors can be connected)		 Spring-type terminals		
• Operating devices	mm	3.0 x 0.5		
• Solid	mm ²	2 x (0.25 ... 1.5)		
• Finely stranded with end sleeve	mm ²	2 x (0.25 ... 1.5)		
• Finely stranded	mm ²	2 x (0.25 ... 1.5)		
• AWG cables	AWG	2 x (24 ... 16)		

SIRIUS 3RA27 Function Modules for IO-Link for Mounting on 3RT2 Contactors

For direct-on-line starting / for reversing starting /
for wye-delta starting

Selection and ordering data

PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41B

Version		DT	Screw terminals		DT	Spring-type terminals	
			Article No.	Price per PU		Article No.	Price per PU
Function modules for direct-on-line starting							
	IO-Link connection Includes one module connector for assembling an IO-Link group	A	3RA2711-1AA00		A	3RA2711-2AA00	
							
3RA2711-2AA00							
Function modules for reversing starting ¹⁾							
	IO-Link connection, comprising one basic and one coupling module and an additional module connector for assembling an IO-Link group	A	3RA2711-1BA00		A	3RA2711-2BA00	
3RA2711-1BA00							
	Assembly kits for making 3-pole contactor assemblies³⁾ The assembly kit contains: mechanical interlock, 2 connecting clips for two contactors, wiring modules on the top and bottom						
3RA2923-2AA1			▶ 3RA2913-2AA1		▶ 3RA2913-2AA2		
	• For size S00 • For size S0 - For main, auxiliary and control current - Only for main current⁴⁾		▶ 3RA2923-2AA1		▶ --		
			--		▶ 3RA2923-2AA2		
3RA2923-2AA2							
Function modules for wye-delta starting ²⁾							
	IO-Link connection, comprising one basic module and two coupling modules, plus an additional module connector for assembling an IO-Link group	A	3RA2711-1CA00		A	3RA2711-2CA00	
3RA2711-1CA00							
	Assembly kits for making 3-pole contactor assemblies³⁾ The assembly kit contains: mechanical interlock, 4 connecting clips for 3 contactors; star jumper, wiring modules on the top and bottom						
3RA2923-2BB1			▶ 3RA2913-2BB1		▶ 3RA2913-2BB2		
			▶ 3RA2923-2BB1		▶ --		
			--		▶ 3RA2923-2BB2		

¹⁾ For prewired contactor assemblies for reversing starting with communication interface, see pages 3/153 and 3/155. When these contactor assemblies are used, the assembly kit for the wiring is already integrated.

²⁾ For complete contactor assemblies for wye-delta starting including function modules see pages 3/168 and 3/170.

³⁾ When using the function modules for wye-delta starting, the wiring modules for the auxiliary current are not required.

⁴⁾ Version in size S0 with spring-type terminals:
Only the wiring modules for the main circuit are included.
No connectors are included for the auxiliary and control circuit.

For matching contactors with communication interface required (see pages 3/34 and 3/37).

For matching IO-Link masters see Chapter 2 "Industrial Communication".

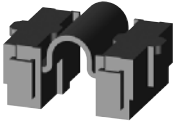
Note:

When using the function modules, no other auxiliary switches are allowed to be connected to the basic units.

Function Modules

SIRIUS 3RA27 Function Modules for IO-Link for Mounting on 3RT2 Contactors

For direct-on-line starting / for reversing starting /
for wye-delta starting

Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Accessories						
 3RA2711-0EE01  3RA2711-0EE02  3RA2910-0		Module connector set , comprising: • 2 module connectors, 14-pole, short • 2 interface covers		1	1 unit	41B
	A	3RA2711-0EE01				
	A	3RA2711-0EE02		1	1 unit	41B
	A	3RA2711-0EE03		1	1 unit	41B
	A	3RA2711-0EE04		1	1 unit	41B
	A	3RA2910-0		1	5 units	41B
Operator panels¹⁾						
 3RA6935-0A	A	Operator panel (set) , comprising: • 1 x operator panel • 1 x enabling module • 1 x interface cover • 1 x fixing terminal		1	1 unit	42F
	A	Connection cable , length 2 m, 10- to 14-pole For connecting the operator panel to the communication module		1	1 unit	41B
	A	Enabling modules (replacement)		1	1 unit	42F
	A	Interface covers (replacement)		1	5 units	42F
	A	3RA6936-0B				

¹⁾ Suitable only for communication through IO-Link.

SIRIUS 3RA27 Function Modules for AS-Interface for Mounting on 3RT2 Contactors

Introduction

Overview

The SIRIUS function modules for AS-Interface enable the assembly of starters and contactor assemblies for direct-on-line, reversing and wye-delta starting without any additional, complicated wiring of the individual components. They include the key control functions required for the particular feeder, e.g. timing and interlocking.

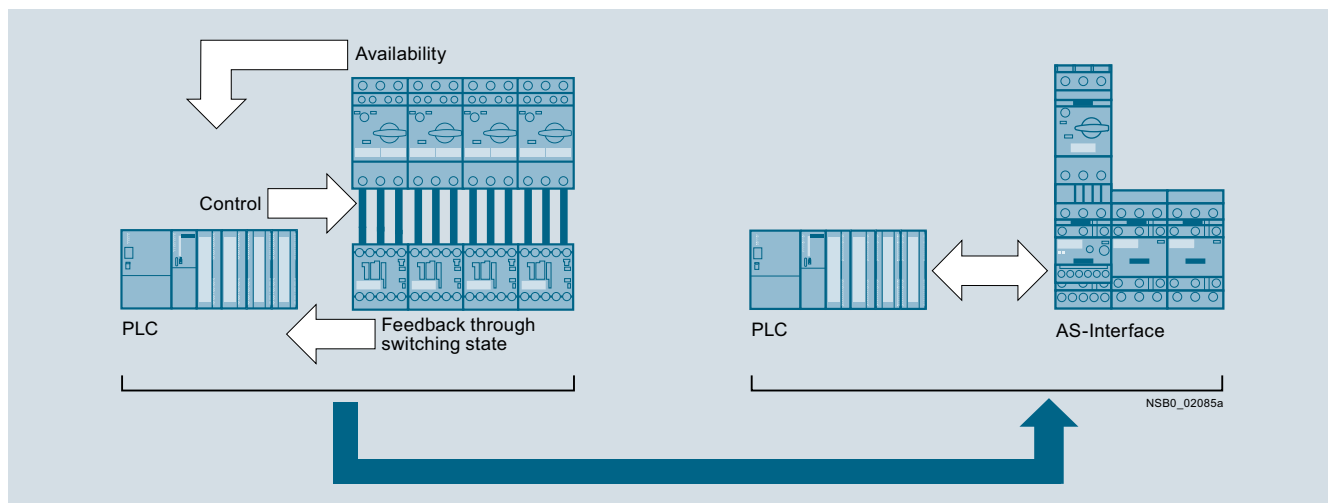
The electrical and mechanical connection to the contactor is established by snapping on and locking. An additive protection circuit for the individual contactors can be dispensed with completely because a varistor is integrated in the modules. Feedback from the contactor contacts is performed with Hall sensors which provide reliable feedback concerning the switching state even under extremely dusty conditions.

Connection of the starters to the higher-level control system takes place through AS-Interface with the Specification V2.1 in A/B technology. As the result, up to 62 starters can be connected to one master and the address is entered in normal manner with an addressing unit.

Through this type of connection to the control system, a maximum of wiring is saved. The wiring outlay is reduced to the control supply voltage and the two individual wires for AS-Interface.

The following essential signals are transmitted:

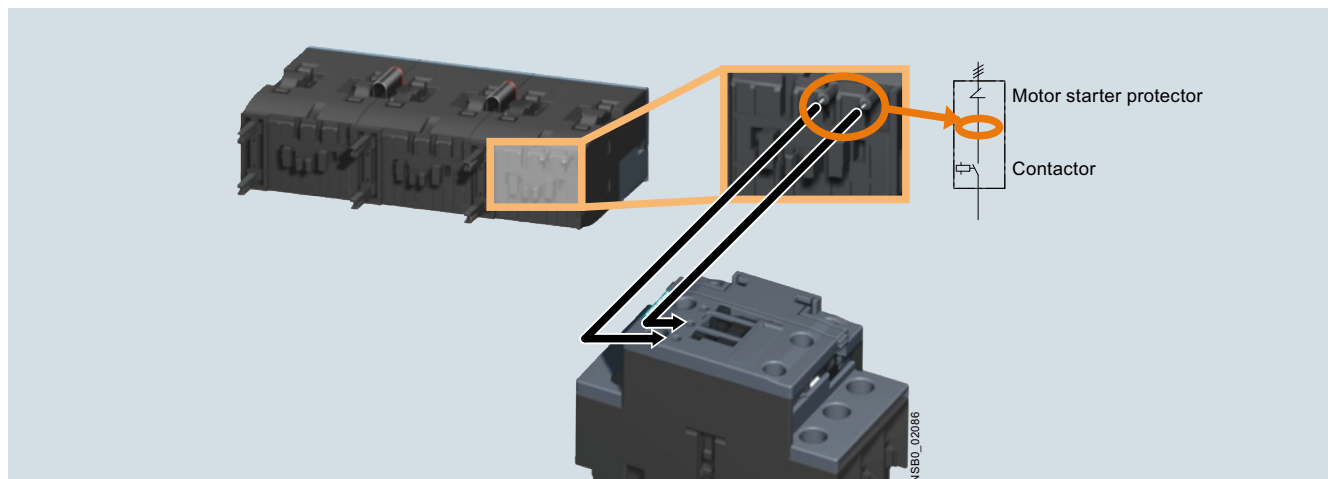
- Availability of the feeder in response to an indirect inquiry from the motor starter protector
- Starter control
- Feedback concerning the switching state of the starter/circuit breaker



Signal transmission through AS-Interface

The inquiry from the motor starter protector/circuit breaker does not take place through additive wiring between the auxiliary switch and the module but by means of a voltage inquiry at the contactor input.

This requires special versions of the contactors with communication interface (see pages 3/34 and 3/37).

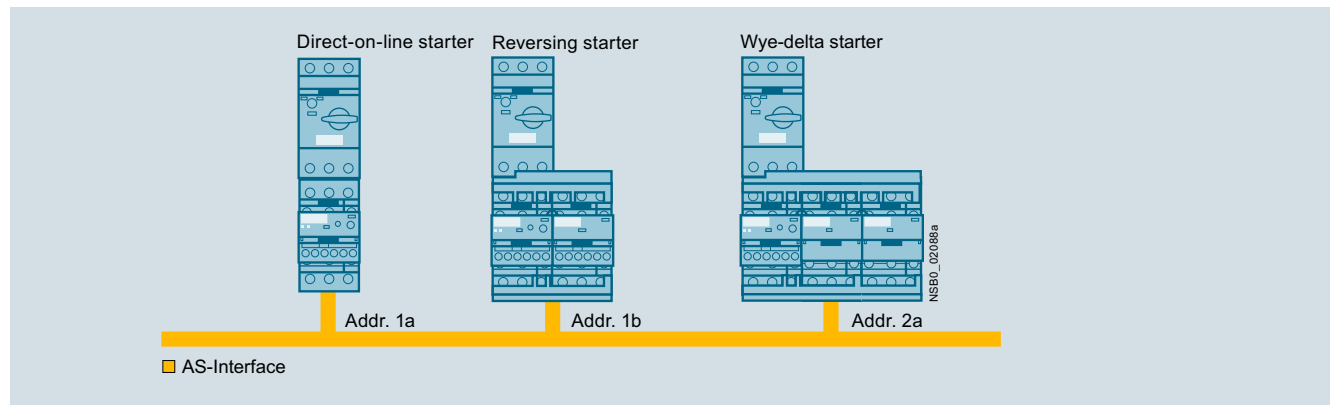


Availability signal through voltage pick-off

Function Modules

SIRIUS 3RA27 Function Modules for AS-Interface for Mounting on 3RT2 Contactors

Introduction



Topology with AS-Interface

This easy integration of the starters in the TIA world does not limit the flexibility in the field in the least. For example, all function modules have special terminals in order to enable direct local disconnection. These terminals can be connected for example

to a position switch. The input interrupts the voltage supply to the contactor coil directly, i.e. without going through the PLC. These terminals are jumpered in the as-delivered state.

Application

The use of SIRIUS function modules with AS-Interface is recommended above all in machines and plants requiring easy connection of several different sensors and actuators both inside and outside the control cabinet to the higher-level control system. And with IO modules no longer needed, the width of the PLC is far smaller.

Benefits

- Reduction of control current wiring
- Elimination of testing costs and wiring errors
- Reduction of configuration work
- Dispensing with IO modules saves space in the control cabinet
- All essential timing and interlocking functions for reversing duty and wye-delta starting are integrated
- No additive protection circuit required

SIRIUS 3RA27 Function Modules for AS-Interface for Mounting on 3RT2 Contactors

Introduction

Technical specifications

Type	3RA2712		
Dimensions	See 3RT20 contactors, pages 3/17 and 3/22.		
General data			
Slave type		A/B slave	
Suitable for AS-i masters acc. to Spec.		2.1 or higher	
AS-i Slave Profile IO.ID.ID2		7.A.E	
ID1 Code (factory setting)		7	
Permissible ambient temperature			
• During operation	According to IEC 60947-1	°C	-25 ... +60
• During storage	According to IEC 60721-3-1	°C	-40 ... +80
• During transport	According to IEC 60721-3-2		-40 ... +80
Degree of protection		IP20	
Operational voltage			
• AS-Interface		V	26.5 ... 31.6
• AUX PWR 24 V DC		V	24 ± 20 %
Power consumption, max.			
• AS-Interface		mA	30
• AUX PWR			
- Maximum pick-up/hold current	Size S00	mA	200
	Size S0	mA	300
Max. length of the cables for the input Y1–Y2		According to EN 50295	m 30
EMC interference immunity			
• Electrostatic discharge	According to IEC 61000-4-2	kV	6/8
• Field-related interference	According to IEC 61000-4-3	V/m	10 (80 MHz ... 3 GHz)
• Burst	According to IEC 61000-4-4	kV	1/2
• Conductor-related interference	According to IEC 61000-4-5	kV	0.5/1
• High frequency, asymmetric	According to IEC 61000-4-6	V rms	10 (150 kHz ... 80 MHz)
Conductor cross-sections			
Connection type (1 or 2 conductors can be connected)		 Screw terminals	
• Solid	mm ²	1 x (0.5 ... 4), 2 x (0.5 ... 2.5)	
• Finely stranded with end sleeve	mm ²	1 x (0.5 ... 2.5), 2 x (0.5 ... 1.5)	
• AWG cables	AWG	2 x (20 ... 14)	
• Terminal screws		M3 (for standard screwdriver Ø 6 mm or Pozidriv 2)	
• Tightening torque of the terminal screws	Nm	0.8 ... 1.2	
Connection type (1 or 2 conductors can be connected)		 Spring-type terminals	
• Operating devices	mm	3.0 x 0.5	
• Solid	mm ²	2 x (0.25 ... 1.5)	
• Finely stranded with end sleeve	mm ²	2 x (0.25 ... 1.5)	
• Finely stranded	mm ²	2 x (0.25 ... 1.5)	
• AWG cables	AWG	2 x (24 ... 16)	

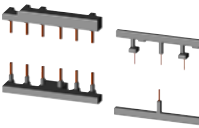
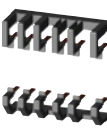
Function Modules

SIRIUS 3RA27 Function Modules for AS-Interface for Mounting on 3RT2 Contactors

For direct-on-line starting / for reversing starting /
for wye-delta starting

Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

Version		DT	Screw terminals	DT	Spring-type terminals
			Article No.		Article No.
			Price per PU		Price per PU
Function modules for direct-on-line starting					
 3RA2712-1AA00	AS-Interface connection	A	3RA2712-1AA00	A	3RA2712-2AA00
 3RA2712-2AA00					
Function modules for reversing starting ¹⁾					
 3RA2712-1BA00	AS-Interface connection, comprising one basic and one coupling module	A	3RA2712-1BA00	A	3RA2712-2BA00
 3RA2923-2AA1	Assembly kits for making 3-pole contactor assemblies The assembly kit contains: mechanical interlock, 2 connecting clips for two contactors, wiring modules on the top and bottom				
 3RA2923-2AA2	• For size S00 • For size S0 - For main, auxiliary and control current - Only for main current	▶	3RA2913-2AA1	▶	3RA2913-2AA2
		▶	3RA2923-2AA1		--
			--	▶	3RA2923-2AA2

¹⁾ For prewired contactor assemblies for reversing starting with communication interface, see pages 3/153 and 3/155. When these contactor assemblies are used, the assembly kit for the wiring is already integrated.

Matching contactors with communication interface required (see pages 3/34 and 3/37).

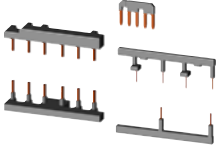
For matching AS-Interface masters, routers and power supply units see Chapter 2 "Industrial Communication".

Note:

When using the function modules, no other auxiliary switches are allowed to be connected to the basic units.

SIRIUS 3RA27 Function Modules for AS-Interface for Mounting on 3RT2 Contactors

For direct-on-line starting / for reversing starting /
for wye-delta starting

Version		DT	Screw terminals		DT	Spring-type terminals	
			Article No.	Price per PU		Article No.	Price per PU
Function modules for wye-delta starting¹⁾							
 3RA2712-1CA00  3RA2712-2CA00		A	3RA2712-1CA00		A	3RA2712-2CA00	
 3RA2923-2BB1  3RA2923-2BB2							
AS-Interface connection, comprising one basic module and two coupling modules							
Assembly kits for making 3-pole contactor assemblies The assembly kit contains: mechanical interlock, 4 connecting clips for 3 contactors; star jumper, wiring modules on the top and bottom							
• For size S00		▶	3RA2913-2BB1		▶	3RA2913-2BB2	
• For size S0 - For main, auxiliary and control current - Only for main current		▶	3RA2923-2BB1 --		▶	-- 3RA2923-2BB2	

¹⁾ For complete contactor assemblies for wye-delta starting including function modules, see pages 3/168 and 3/170.

Matching contactors with communication interface required (see pages 3/34 and 3/37).

For matching AS-Interface masters, routers and power supply units see Chapter 2 "Industrial Communication".

Note:

When using the function modules, no other auxiliary switches are allowed to be connected to the basic units.

Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Accessories						
 3RA2910-0	A	3RA2910-0		1	5 units	41B

Sealable covers
for 3RA27, 3RA28, 3RA29

Function Modules

SIRIUS 3RA27 Function Modules for AS-Interface for Mounting on 3RT2 Contactors

Notes