# **SIEMENS**

**SIRIUS** 

# **Switching devices – Contactors and contactor assemblies – Special applications**

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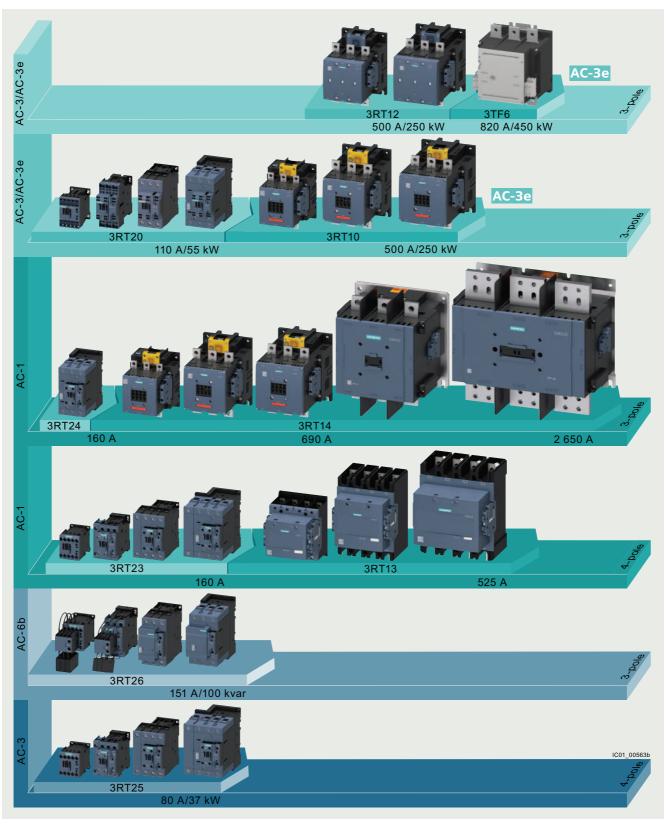
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	Price groups
	PG 41A, 41B
4/2	Introduction
	Contactors for special applications
4/7	SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A
4/21	SIRIUS 3RT.3 contactors, 4-pole, up to 525 A
4/36	SIRIUS 3RT25 contactors, 4-pole, 2 NO + 2 NC
4/42	SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole
4/52	SIRIUS 3RT23 to 3RT26, 3RT14 contactors
4/54	Contactors for railway applications - SIRIUS 3RT contactors with extended operating range, 3-pole
4/63	- SIRIUS 3RH2 contactor relays with extended operating range
4/66	- 3TH4 contactor relays, 8-pole
4/68	- 3TC contactors for switching DC voltage, 2-pole
4/71	3TC contactors for switching DC voltage, 1- and 2-pole
3/136	3TG10 power relays/miniature contactors

#### Introduction

#### Overview



Overview of the 3RT and 3TF contactors

#### Introduction

#### More information

Homepage, see www.siemens.com/sirius

SiePortal, see www.siemens.com/product?3RT\_3TK\_3TC

Conversion tool, see www.siemens.com/conversion-tool TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=Contactor









Size		S3		S6	S10		S12
Туре		3RT244.		3RT1456	3RT146.		3RT1476
3-pole 3RT244 at	nd 3RT145 to	3RT147 contac	tors				
Туре		3RT2446	3RT2448	3RT1456	3RT1466	3RT1467	3RT1476
Number of main con	ntacts	3 NO		3 NO	3 NO		3 NO
AC, AC/DC operatio	n	(p. 4/16)		(p. 4/17, 4/18)	(p. 4/17, 4/	<sup>′</sup> 18)	(p. 4/17, 4/18)
AC-1							
<i>U</i> i	V	1 000					
<i>U</i> e	V	690					
$I_{\rm e}$ up to 690 V	40 °C A	140	160	275	400	500	690
	60°C A	130	140	250	380	450	Standard operating mechanism: 650, solid-state operating mechanism: 600
Accessories for	contactors						
<b>Auxiliary switches</b>		3RH29, 3RA28	(p. 3/88 3/97)	3RH19, 3RP25			(p. 3/91, 3/93, 3/96, 10/44)
Function modules (direct-on-line start (wye-delta) starting		3RA28	(p. 3/101)				
Terminal covers		3RT2946-4EA4	(p. 3/115)	3RT1956-4EA.			(p. 3/115)
Box terminal block	s			3RT1955-4G, 3RT	19.6-4G		(p. 3/113)
Surge suppressors	•	3RT2936, 3RT29	946 (p. 3/98, 3/99)	3RT1956-1C (RC e	element)		(p. 3/99)









•	*	•				
3RT1481,	3RT1482	3RT1483	3RT1485, 3RT	1486	3RT1487	
3RT1481	3RT1482	3RT1483	3RT1485	3RT1486	3RT1487	
3 NO						
(p. 4/19)						
1 000						
1 000						
900	1 050	1 260	1 700	2 100	2 650	
3RH1981-	1JA11					(p. 4/19)
3RH1981-	1DA11					(p. 4/20)
3RT1983-4	IAA1	(p. 4/20	3RT1987-4AA	1		(p. 4/20)
3RT1982-5	5 <b>A.31</b> (p. 4/20)	<b>3RT1983-5AP31</b> (p. 4/20	3RT1987-5AP	31		(p. 4/20)
	3RT1481 3 NO (p. 4/19) 1 000 1 000 900 3RH1981- 3RH1981- 3RT1983-4	3 NO (p. 4/19) 1 000 1 000 900 1 050 3RH1981-1JA11 3RH1983-4AA1	3RT1481 3RT1482 3RT1483 3 NO (p. 4/19) 1 000 1 000 900 1 050 1 260 3RH1981-1JA11 3RH1981-1DA11 3RT1983-4AA1 (p. 4/20	3RT1481 3RT1482 3RT1483 3RT1485 3 NO (p. 4/19)  1 000 1 000 900 1 050 1 260 1 700  3RH1981-1JA11  3RH1981-1DA11 3RT1983-4AA1 (p. 4/20) 3RT1987-4AA	3RT1481 3RT1482 3RT1483 3RT1485 3RT1486 3 NO (p. 4/19)  1 000 1 000 900 1 050 1 260 1 700 2 100  3RH1981-1JA11  3RH1981-1DA11	3RT1481 3RT1482 3RT1483 3RT1485 3RT1486 3RT1487  3 NO (p. 4/19)  1 000 1 000 900 1 050 1 260 1 700 2 100 2 650  3RH1981-1JA11  3RH1983-4AA1 (p. 4/20) 3RT1987-4AA1

#### Introduction

Surge suppressors









			11					16				
Size			S00		S0			S2		S3		
Туре			3RT231		3RT232.			3RT233.		3RT234.		
4-pole 3RT23 conta	actors											
Туре			3RT231	6 3RT2317	3RT2325	3RT2326	3RT2327	3RT2336	3RT2337	3RT2344	3RT2346	3RT2348
Number of main contact	cts		4 NO		4 NO			4 NO		4 NO		
AC, DC and AC/DC op	eration		(p. 4/29	, 4/31)	(p. 4/29.	4/31)		(p. 4/29 4	1/33)	(p. 4/29	4/33)	
AC-1												
<i>U</i> i		V	690									
U <sub>e</sub>		V	690									
<i>I</i> <sub>e</sub> up to 690 V	40 °C	Α	18	22	35	40	50	60	110	110	140	160
	60 °C	Α	16	20	30	35	42	55	95	100	130	140
AC-3												
I <sub>e</sub> up to 400 V		Α	9	12	15.5	15.5	15.5					
P at 400 V		kW	4	5.5	7.5	7.5	7.5	-	-			-
Accessories for co	ontactors											
Auxiliary switches			3RH29,	3RA28							(p.	3/88 3/97)
Function modules (direct-on-line starting (wye-delta) starting)	g, star-delta		3RA28									(p. 3/101)
Terminal covers	·							3RT2936-4	<b>EA4</b> (p. 3/115)	3RT2946-4	EA4	(p. 3/115)



3RH1951-1TA11

3RT2916



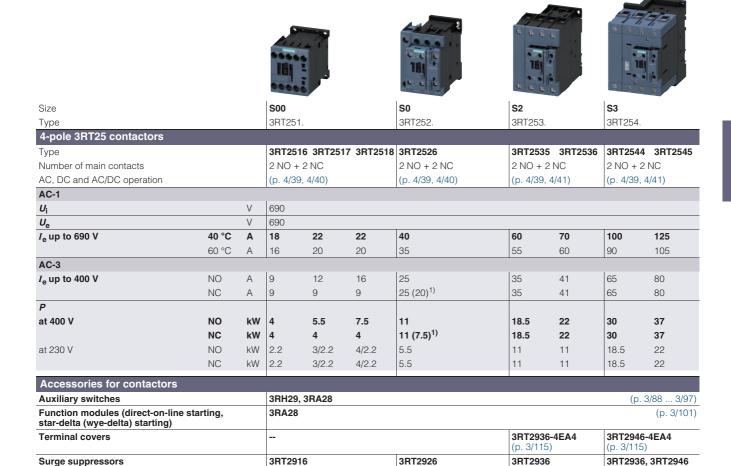


(p. 3/98, 3/99) **3RT2936** (p. 3/98, 3/99) **3RT2936, 3RT2946** (p. 3/98, 3/99)

							_	
Size		S6		S10		S12		
Туре		3RT1355		3RT136.		3RT137.		
4-pole 3RT13 conta	ctors							
Туре		3RT1355		3RT1363	3RT1364	3RT1373	3RT1374	3RT1375
Number of main contact	is	4 NO		4 NO		4 NO		
AC/DC operation		(p. 4/34)		(p. 4/34)		(p. 4/34)		
AC-1								
<i>U</i> i	V	1 000						
U <sub>e</sub>	V	690		1 000				
$I_{e}$	40 °C A	200		275	350	400	500	525
Accessories for cor	ntactors							
Second auxiliary switch	h, lateral	3RH1951-1SA11						(p. 4/35)
Terminal covers		3RT1956-4EB10	(p. 4/35)	3RT1966-4EB10	p. 4/35	3RT1976-4E	B10	(p. 4/35)
Mechanical interlocks		3RA1954-3A						(p. 4/35)
Bus connectors offset				3RT1966-4D	(p. 4/35	3RT1976-4D		(p. 4/35)
Spare parts for con	tactors							

First auxiliary switch, lateral

#### Introduction



(p. 3/98, 3/99)

(p. 3/98, 3/99)

(p. 3/98, 3/99)

(p. 3/98, 3/99)

#### Further contactors

- SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole, see page 4/42 onwards
- 3TC contactors for switching DC voltage, 1-pole and 2-pole, see page 4/71 onwards
- Contactors for railway applications
  - SIRIUS 3RT contactors with extended operating range, 3-pole, see page 4/54 onwards
  - SIRIUS 3RH2 contactor relays with extended operating range, see page 4/63 onwards
  - 3TH4 contactor relays, 8-pole, see page 4/66 onwards
  - 3TC contactors for switching DC voltage, 2-pole, see page 4/68 onwards

<sup>1)</sup> The value in brackets applies to the NC for DC operation.

#### Introduction

#### Connection methods

The following connection options are available for 3RT contactors depending on the size and version:

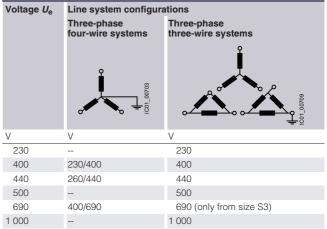
- 3RT2 contactors
  - Sizes S00 and S0: Screw terminals or spring-loaded terminals both for the main as well as for the auxiliary and control circuits
  - Sizes S2 and S3: screw terminals (complete devices) or spring-loaded terminals (auxiliary circuit only)
- 3RT13 contactors, sizes S6 to S12: Busbar connections (partly with bus connectors offset), auxiliary and control circuits with screw terminals
- 3RT14 contactors: Busbar connections



The connection method is indicated in the corresponding tables by the symbols shown on orange backgrounds.

#### Voltage data

The data for 3-phase power systems according to IEC 60947-4-1 are valid for the following line system configurations:



-- Not specified

Contactors for special applications

SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A

#### Overview



3-pole AC-1 contactors top row: 3RT148 contactors

bottom row: 3RT244, 3RT145 to 3RT147 contactors

#### Standards

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

#### Contactors with increased tamper protection

Increased tamper protection is ensured either by using our contactor versions with factory-installed, permanently mounted auxiliary switches which are protected against mechanical external actuation (e.g. 3RT14..-....-3PA0 contactors), or by using the 3RT1926-4MA10 sealable cover as an accessory, (see page 3/115).

# Protecting connections against short circuit, overload and overvoltage

All connections must generally be protected against overload and short circuits using suitable measures. Different constraints must be considered depending on the type of connection:

Short-circuit and overload protection of main connections

For information on the protection of a free-standing contactor, see the technical product data sheet.

For more information on device combinations such as contactor with overload relay or contactor with circuit breaker as motor feeder, refer to

- Digital Configuration Manual for load feeders
- · Configuration Manual for load feeders

Short-circuit and overload protection of auxiliary connections

For information on the protection of auxiliary contacts, see the technical product data sheet

Short-circuit and overload protection of control supply voltage or supply voltage connections

First of all, the relevant standards and regulations for configuring control cabinets and the parts and components installed in them must be taken into account, for example for cable dimensioning.

One possible protection for these circuits could be the selection of a suitable power supply, i.e. one with a current-limiting function. In the selection of the source and the connecting cable, the load characteristics of the contactor must be considered

(short-time inrush current peaks for solid-state contactor operating mechanisms, switch-on power, holding power). The same applies to the selection of suitable protective devices.

If there are further switching elements in the circuit, such as the auxiliary contact system of an overload relay that operates the contactor, the short-circuit protection necessary for this must also be considered.

For further recommendations, e.g. the use of miniature circuit breakers or circuit breakers for equipment in control circuits, see Control cabinet tip – Selecting and dimensioning suitable power supplies quickly and reliably.

Short-circuit and overload protection of contactors with digital input

A typical rated current of 20 mA applies to these inputs based on the PLC input types according to IEC 60947-4-1. The inputs can be protected accordingly.

- Contactors with PLC and F-PLC inputs:
  - For 3RT14..-.S and 3RT14..-.N, marked with +/-
- Supply voltage connections A1 A2:
  - For 3RT14...-N, protection based on the load characteristics must be employed.
  - For information on power consumption, see the technical product data sheet.
- For 3RT14..-.S, protection is already integrated.

#### Short-circuit and overload protection of other connections

The 3RT14..-.P contactor version with remaining lifetime indicator (RLT) also has additional connections H1 - H2 and R1 - R2.

If A1 - A2 is already protected, further protection of H1 - H2 is not required.

For protection specifications for protecting R1 - R2, see the technical product data sheet.

Contactors for special applications

#### SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A

Protection against overvoltage at the control supply voltage connection

3RT244 contactors supplied without a coil circuit can be retrofitted with RC elements, varistors, diodes or diode assemblies (combination of diode and Zener diode for short break times) for damping switching overvoltages in the coil and can be ordered separately as accessories, see page 3/98 onwards.

3RT14 contactors are already equipped with coil damping (varistor).

#### Note:

The break times of the contactor, the opening delay times of the NO contacts and the closing delay times of the NC contacts increase in the event of damping.

For more information about influencing the time response using damping, see Equipment Manual.

#### Connection methods

#### Main circuit

- 3RT244 contactors:
  - Screw terminals with box terminal;
  - direct connection to the connecting bar possible with cable lugs when the box terminal is removed.
- 3RT145 to 3RT147 contactors:
  - Screw terminals with connecting bars that the cables can be connected to using either cable lugs or flexible or rigid busbars. Alternatively, box terminals are available as accessories.
- 3RT148 contactors: Screw terminals with connecting bars

#### Auxiliary and control circuits

- 3RT24, 3RT145 to 3RT147: Screw or spring-loaded terminals
- 3RT148: Screw terminals

#### Electromagnetic compatibility (EMC)

The contactors comply with the conditions for environment A according to IEC 60947-1.

#### Note:

When the contactors are used in an environment with frequency converters, the configuration notes must be observed, see Equipment Manual.

#### Contact reliability of the auxiliary contacts

If voltages  $\leq$  110 V and currents  $\leq$  100 mA are to be switched, the auxiliary contacts of the 3RT contactors or 3RH contactor relays should be used as they guarantee a high level of contact reliability.

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

#### Operating mechanism types

#### 3RT244 contactors

The contactors are available as versions with conventional AC or DC operating mechanisms or as versions with a wide-range solid-state operating mechanism and a universal actuating voltage (AC or DC operation).

With an operating range from 0.8 to 1.1 x  $U_{\rm S}$ , control takes place via the control supply voltage connection A1 - A2.

#### 3RT145 to 3RT147 contactors

The contactors are powered via a supply voltage with an operating range from 0.8 to 1.1 x  $U_{\rm S}$ , optionally also controlled depending on the chosen mode of operation. Alternatively, control is via the separate 24 V DC control signal input. Various rated voltage ranges for AC/DC control are available.

The following control and/or operating mechanism versions are available:

- 3RT14..-.A contactors:
  - Standard operating mechanism for AC and DC operation (power consumption reduced from closing power to holding power)
- Solid-state operating mechanisms:
  - Overvoltage damping of the operating mechanism coil is already integrated in the electronics for contactors with solid-state operating mechanisms.

The following versions are available:

- 3RT14..-.N contactors:
- With two operating modes: Direct control or via PLC input (24 V DC)
- 3RT14..-.P contactors:
- Control via PLC input (24 V DC) only, but with additional remaining lifetime indicator (RLT)
- 3RT14..-S contactors:
   Control via fail-safe PLC input (24 V DC) only, for simplification of safety applications

#### 3RT148 contactors

The contactors are equipped with a solid-state operating mechanism for AC/DC control; coil damping is integrated. The operating range is 0.85 to 1.1 x  $U_{\rm S}$ .

# Replacing solenoid coils, operating mechanisms or spare contacts

#### 3RT244 contactors

Solenoid coil or spare contact replacement is possible.

#### 3RT145 to 3RT147 contactors

The operating mechanisms for 3RT14..-.A/-.N/-.P contactors are removable and can be replaced simply by unlocking and pulling them out. The spare contacts can also be replaced.

#### NOTICE

Removal or changing of the operating mechanism is not permitted for 3RT14..-.S contactors with fail-safe control.

#### 3RT148 contactors

The operating mechanisms are removable and can be replaced simply by unlocking and pulling them out.

# Fitting auxiliary contacts and mounting additional auxiliary switches

#### Features in the delivery state

- 3RT244 contactors:
- Two auxiliary contacts (1 NO + 1 NC) are integrated in the basic unit.
- 3RT14 contactors:
  - These contactors are supplied with two laterally mounted auxiliary switches with two contacts each (2 NO + 2 NC).

#### Expansion possibilities

All basic units can be expanded using auxiliary switches; the permissible configuration must be observed.

For detailed information about the fitting of auxiliary switches for 3RT244 contactors, see pages 3/80 to 3/87.

#### Accessories and spare parts

- 3RT244 and 3RT145 to 3RT147 contactors, see Basic units, page 3/69 onwards
- 3RT148 contactors, see page 4/19 onwards

Contactors for special applications

#### SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A

#### Connection of contactors to fail-safe control modules

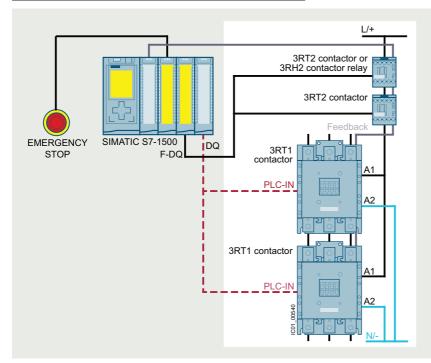
While contactors with smaller power ratings can be connected directly to the outputs of fail-safe controllers, implementing safety-related applications with standard contactors with higher power is much more complicated and elaborate because of the necessary coupling links.

Due to their fail-safe control input, the special versions from sizes S6 to S12 (3RT14..-.S) provide a much simpler way of doing this.

For more information, see

- Safety technology, page 11/1 onwards
- Guide of use for contactors in safety applications

Example for SIL 2 and SIL 3/PL e application – previously:

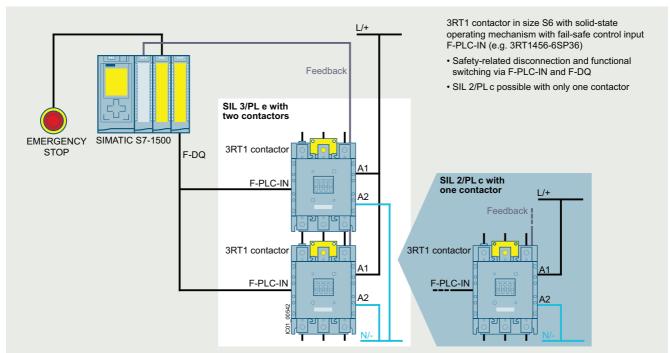


3RT1 contactor in size S6 with standard or solid-state operating mechanism with PLC-IN

- Safety-related disconnection only possible via coupling links and F-DQ
- Standard operating mechanism: functional switching via coupling links and F-DO
- Solid-state operating mechanism: operational switching with PLC-IN and DQ

Application with safety-related disconnection with standard contactors using the example of a 3RT145 contactor

#### Example for SIL 3/PL e (left-hand side) and SIL 2/PL c (right-hand side) application – new:



Application with safety-related disconnection with contactors with fail-safe control using the example of a 3RT145 contactor

Contactors for special applications

#### SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A

#### Graphic overviews with mountable accessories

- 3RT244 contactors, see page 3/11
- 3RT145 to 3RT147 contactors, see page 3/12 onwards
- 3RT148 contactors, see following graphic



① 3RT1481 to 3RT1487 contactors (3RT1487 contactor is shown)

Can be mounted on side of contactor

2 3RH1981-1JA11 second auxiliary switch

3RT1481 to 3RT1487 contactors with mountable accessories

#### Application

The 3RT.4 contactors can be used for the following applications:

- For switching weak or non-inductive loads (AC-1)
- Disconnecting loads or power generation plants from the grid (e.g. wind turbines or photovoltaic systems)
- Disconnecting frequency converters from the grid

Contactors for special applications

#### SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A

# Technical specifications

# More information Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/24229/man https://support.industry.siemens.com/cs/ww/en/ps/24229/faq Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/24229/faq Guide of use for contactors in safety applications, see https://support.industry.siemens.com/cs/ww/en/view/109807687

Type Size		3RT2446, 3RT2448 S3	3RT1456 S6	3RT1466 S10	3RT1467	3RT1476 S12
General data		53	50	510		512
Dimensions (W x H x D)						
Basic units     Screw/spring-loaded terminals	mm	70 x 140 x 152	120 x 172 x 170	145 x 210	x 202	160 x 214 x 22
Basic unit with mounted auxiliary switch     Screw terminals     Spring-loaded terminals	mm mm	70 x 140 x 196 70 x 140 x 200	120 x 172 x 217	145 x 210	x 251	160 x 214 x 27
Basic unit with mounted function module or solid-state time-delay auxiliary switch						
- Screw/spring-loaded terminals	mm	70 x 140 x 226				
Permissible mounting position  The contactors are designed for operation on a vertical mounting surface.		360° 22,5° 22,5° 88 88 88 88 88 88 88 88 88 88 88 88 88	90° 222	5°,22,5° «6,9900 00 00 00 00 00 00 00 00 00 00 00 00		
Upright mounting position		NSB0_00477a Special version required				
Mechanical endurance		opecial releight required				
Basic units and basic units with mounted auxiliary switch	Operating cycles	10 million				
Basic units with solid-state compatible auxiliary switch		5 million				
Electrical endurance for utilization category AC-1, at $U_{\rm e}$ = 400 V	Oper- ating cycles	0.5 million			0.35 million	n 0.5 million
Rated insulation voltage U <sub>i</sub> (pollution degree 3)	V	1 000				
Rated impulse withstand voltage U <sub>imp</sub>	kV	6	8			
<b>Protective separation</b> between the coil and the main contacts according to IEC 60947-1, Annex N	V	690				
Mirror contacts according to IEC 60947-4-1, Annex F						
A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact.						
<ul><li>Integrated auxiliary switches</li><li>Removable auxiliary switches</li></ul>		Yes 	 Yes			
Permissible ambient temperature			_			
During operation	°C	-25 +60				
During storage	°C	-55 +80				
Short-circuit protection						
Main circuit						
Version of the fuse link required for short-circuit protection of the main circuit						
- For type of coordination "1"		gG: 250 A (690 V, 100 kA)	gG: 355 A (690 V, 100 kA)	gG: 500 A (690 V, 100		gG: 800 A (690 V, 50 kA)
- For type of coordination "2"		gG: 250 A (690 V, 100 kA)	gG: 350 A (690 V, 100 kA)	gG: 500 A	ŕ	gG: 710 A (690 V, 100 kA
Auxiliary circuit						
<ul> <li>Version of the fuse link required for short-circuit protection of the auxiliary switch</li> </ul>	Α	Fuse gG: 10				
<ul> <li>Version of the miniature circuit breaker required for short-circuit protection of the auxiliary switch</li> </ul>	Α	On request				
Short-circuit protection for contactors with overload relays		See  Digital Configuration Manua  Configuration Manual for loa				
Short-circuit protection for fuseless load feeders		See	0000.0			
2 2 Protocolor. Io. Ideologo loda logació		• 3RA2 load feeders, page 8/	6 onwards			
		Digital Configuration Manua				
		Configuration Manual for loa				
		- Corniguration Manual 101 102	id reeders			

Contactors for special applications

Туре			3RT2446, A	3RT2448 N	3RT1456 A	N/P/S	3RT1466 A	3, 3RT1467 N/P/S.		6 N/P/S
Size			S3		S6	.14/ .17 .0	S10		S12	
Control							0.10		0.12	
Solenoid coil operating range (AC/D	C)		0.8	0.8 x <i>U</i> <sub>s m</sub>	<sub>nin</sub> 1.1 x <i>Լ</i>	J <sub>s max</sub>				
Device consumption of the coloneid			1.1 x <i>U</i> <sub>s</sub>	0.11						
Power consumption of the solenoid (for cold coil and $1.0 \times U_s$ )	COIIS									
AC operation, 50 Hz,	Closing	VA	296							
standard version	P.f. Closed	VA	0.61 19							
	P.f.	*/ (	0.38							
<ul> <li>AC operation, 50/60 Hz, standard version</li> </ul>	Closing P.f.	VA	348/296 0.62/0.55							
Standard Version	Closed	VA	25/18							
<ul> <li>AC operation, 50/60 Hz,</li> </ul>	P.f. Closing	VA	0.35/0.41 326/326							
for USA/Canada	P.f.	VA	0.62/0.55							
	Closed P.f.	VA	22/22 0.38/0.4							
AC/DC operation	Closing for	VA		163	300	280	590	530	830	750
•	AC operation				0.0	0.0	0.0	0.0	0.0	0.0
	P.f. Closed for	VA		3.1		0.8 4.8	0.9 6.7	0.8 8.5	0.9 9.2	0.8 9
	AC operation P.f.				0.8	0.6	0.9	0.4	0.9	0.4
	Closing for	W		76		320	650	580	920	800
	DC operation Closed for	W		1.8	5.2	2.8	7.4	3.4	10	3.6
	DC operation	VV		1.0	5.2	2.0	7.4	3.4	10	3.0
Type of PLC control input according	to IEC 60947-1									
Solid-state operating mechanism	3RT14N/P				Type 2					
Rated voltage	3RT14S	V DC			Type 1 24					
Operating range		V DC			17 30					
Power consumption		mΑ			≤ 30					
<ul> <li>Recovery time after power failure, type (applicable only for fail-safe version)</li> </ul>		S			2					
_										
Type			3RT2446	3RT2448	3RT1456	3RT146	6 3RT1		T1476	
Size	3		3RT2446 S3	3RT2448	3RT1456 S6	3RT146 S10	6 3RT1	467 3R S1		
Size Rated data of the main contacts	8			3RT2448			6 3RT1			
Size Rated data of the main contacts Load rating with AC	5			3RT2448			6 3RT1			
Size Rated data of the main contacts	At 40 °C up to 690 V	A		<b>3RT2448</b>			<b>3RT</b> 1		2	
Size  Rated data of the main contacts  Load rating with AC  Utilization category AC-1			S3		S6	S10		<b>S1</b> :	2 ) andard ope	
Size  Rated data of the main contacts  Load rating with AC  Utilization category AC-1	At 40 °C up to 690 V		<b>S3</b>	160	<b>S6</b> 275	<b>S10</b>	500	690 Sta me sol	2 andard ope achanism: 6 id-state op	650, erating
Size  Rated data of the main contacts  Load rating with AC  Utilization category AC-1	At 40 °C up to 690 V At 60 °C up to 690 V	Α	140 130	160 140	<b>S6</b> 275	<b>S10</b>	500	690 Sta me sol	2 Indard ope	650, erating
Size  Rated data of the main contacts  Load rating with AC  Utilization category AC-1	At 40 °C up to 690 V	A A A	140 130 60 60	160 140 80 80	275 250	<b>\$10</b> 400 380	500 450	690 Sta me sol me	o) undard ope chanism: 6 id-state op chanism: 6	650, erating
Size  Rated data of the main contacts  Load rating with AC  Utilization category AC-1  • Rated operational currents I <sub>e</sub> • Minimum cross-section in the main	At 40 °C up to 690 V At 60 °C up to 690 V At 40 °C up to 1 000 V At 60 °C up to 1 000 V	A	140 130	160 140	275 250	<b>S10</b>	500	690 Sta me sol	o) undard ope chanism: 6 id-state op chanism: 6	650, erating
Rated data of the main contacts  Load rating with AC  Utilization category AC-1  Rated operational currents I <sub>e</sub> Minimum cross-section in the main circuit at maximum AC-1 rated value	At 40 °C up to 690 V At 60 °C up to 690 V At 40 °C up to 1 000 V At 60 °C up to 1 000 V	A A A mm <sup>2</sup>	140 130 60 60 50	160 140 80 80 70	275 250  140	\$10 400 380 240	500 450	690 Sta me sol me	ondard opechanism: 6	650, erating
Size  Rated data of the main contacts  Load rating with AC  Utilization category AC-1  • Rated operational currents I <sub>e</sub> • Minimum cross-section in the main	At 40 °C up to 690 V At 60 °C up to 690 V At 40 °C up to 1 000 V At 60 °C up to 1 000 V	A A A mm <sup>2</sup>	140 130 60 60	160 140 80 80	275 250	<b>\$10</b> 400 380	500 450	690 Sta me sol me	ondard opechanism: 6	650, erating
Rated data of the main contacts  Load rating with AC  Utilization category AC-1  Rated operational currents I <sub>e</sub> Minimum cross-section in the main circuit at maximum AC-1 rated value	At 40 °C up to 690 V At 60 °C up to 690 V At 40 °C up to 1 000 V At 60 °C up to 1 000 V	A A A mm <sup>2</sup>	140 130 60 60 50	160 140 80 80 70	275 250  140	\$10 400 380 240	500 450	690 Sta me sol me	ondard opechanism: 6	650, erating
Rated data of the main contacts  Load rating with AC  Utilization category AC-1  Rated operational currents I <sub>e</sub> Minimum cross-section in the main circuit at maximum AC-1 rated value  Power loss per main conducting path	At 40 °C up to 690 V At 60 °C up to 690 V At 40 °C up to 1 000 V At 60 °C up to 1 000 V	A A A mm <sup>2</sup>	140 130 60 60 50 9.8	160 140 80 80 70	275 250  140	\$10 400 380 240	500 450	690 Sta me sol me	ondard opechanism: 6	650, erating
Rated data of the main contacts  Load rating with AC  Utilization category AC-1  • Rated operational currents I <sub>e</sub> • Minimum cross-section in the main circuit at maximum AC-1 rated value  Power loss per main conducting path  Type  Size  Conductor cross-sections	At 40 °C up to 690 V At 60 °C up to 690 V At 40 °C up to 1 000 V At 60 °C up to 1 000 V At $I_e/AC-1/40$ °C	A A A mm <sup>2</sup>	140 130 60 60 50 9.8 3RT2446, S3	160 140 80 80 70 12.8	275 250  140 28.8	\$10 400 380 240	500 450	690 Sta me sol me	ondard opechanism: 6	650, erating
Rated data of the main contacts  Load rating with AC  Utilization category AC-1  • Rated operational currents I <sub>e</sub> • Minimum cross-section in the main circuit at maximum AC-1 rated value  Power loss per main conducting path  Type  Size	At 40 °C up to 690 V At 60 °C up to 690 V At 40 °C up to 1 000 V At 60 °C up to 1 000 V At $I_e/AC-1/40$ °C	A A A mm <sup>2</sup>	140 130 60 60 50 9.8 3RT2446, S3	160 140 80 80 70	275 250  140 28.8	\$10 400 380 240	500 450	690 Sta me sol me	ondard opechanism: 6	650, erating
Rated data of the main contacts  Load rating with AC  Utilization category AC-1  • Rated operational currents I <sub>e</sub> • Minimum cross-section in the main circuit at maximum AC-1 rated value  Power loss per main conducting path  Type  Size  Conductor cross-sections	At 40 °C up to 690 V At 60 °C up to 690 V At 40 °C up to 1 000 V At 60 °C up to 1 000 V At $I_e/AC-1/40$ °C	A A A mm <sup>2</sup>	140 130 60 60 50 9.8 3RT2446, S3	160 140 80 80 70 12.8 <b>3RT2448</b> <b>w terminal</b> 16) <sup>1)</sup>	275 250  140 28.8	\$10 400 380 240 35.2	500 450 300 35.2	690 Sta me sol me	ondard opechanism: 6	650, erating
Rated data of the main contacts  Load rating with AC  Utilization category AC-1  Rated operational currents I <sub>e</sub> Minimum cross-section in the main circuit at maximum AC-1 rated value  Power loss per main conducting path  Type Size  Conductor cross-sections  Main conductors (1 or 2 conductors of Solid  Stranded	At 40 °C up to 690 V At 60 °C up to 690 V  At 40 °C up to 1 000 V  At 60 °C up to 1 000 V  At $I_e/AC$ -1/40 °C	A A A mm² W	140 130 60 60 50 9.8 3RT2446, \$3 \$Cre 2 x (2.5 2 x (6 1	160 140 80 80 70 12.8 <b>3RT2448</b> <b>w terminal</b> 16) <sup>1)</sup> 6) <sup>1)</sup> ; 2 × (10	275 250  140 28.8	\$10 400 380 240	500 450 300 35.2	690 Sta me sol me	ondard opechanism: 6	650, erating
Rated data of the main contacts  Load rating with AC  Utilization category AC-1  Rated operational currents I <sub>e</sub> Minimum cross-section in the main circuit at maximum AC-1 rated value  Power loss per main conducting path  Type Size  Conductor cross-sections  Main conductors (1 or 2 conductors of Solid  Stranded  Finely stranded with end sleeve (DIN)	At 40 °C up to 690 V At 60 °C up to 690 V  At 40 °C up to 1 000 V  At 60 °C up to 1 000 V  At $I_e/AC$ -1/40 °C	A A A mm² W  mm² mm² mm² mm²	140 130 60 60 50 9.8 3RT2446, S3 \$\infty\$ Screeners 2 \times (2.5 2 \times (6 1 2 \times (2.5	160 140 80 80 70 12.8 <b>3RT2448</b> <b>w terminal</b> 16) <sup>1)</sup> ; 0; 1; 2 × (10 335) <sup>1)</sup> ; 1 × (2	275 250  140 28.8 s 50) <sup>1)</sup> ; 1 2.5 50) <sup>1)</sup> ; 1	\$10 400 380 240 35.2 × (10 70)	500 450 300 35.2	690 Sta me sol me	ondard opechanism: 6	650, erating
Rated data of the main contacts  Load rating with AC  Utilization category AC-1  Rated operational currents I <sub>e</sub> Minimum cross-section in the main circuit at maximum AC-1 rated value  Power loss per main conducting path  Type Size  Conductor cross-sections  Main conductors (1 or 2 conductors of Solid  Stranded	At 40 °C up to 690 V At 60 °C up to 690 V  At 40 °C up to 1 000 V  At 60 °C up to 1 000 V  At $I_e/AC$ -1/40 °C	A A A mm² W	140 130 60 60 50 9.8 3RT2446, S3 \$\infty\$ Screener 2 \times (2.5 \dots 2 \times (2.5 \dots 2 \times (1.5 \	160 140 80 80 70 12.8 <b>3RT2448</b> <b>w terminal</b> 16) <sup>1)</sup> ; 0; 1; 2 × (10 335) <sup>1)</sup> ; 1 × (2	275 250  140 28.8 s 50) <sup>1)</sup> ; 1 2.5 50) <sup>1)</sup> 10 2/0) <sup>1)</sup>	\$10 400 380 240 35.2 × (10 70)	500 450 300 35.2	690 Sta me sol me	ondard opechanism: 6	650, erating
Rated data of the main contacts  Load rating with AC  Utilization category AC-1  Rated operational currents I <sub>e</sub> Minimum cross-section in the main circuit at maximum AC-1 rated value  Power loss per main conducting path  Type Size  Conductor cross-sections  Main conductors (1 or 2 conductors of the	At 40 °C up to 690 V At 60 °C up to 690 V  At 40 °C up to 1 000 V  At 60 °C up to 1 000 V  At $I_e/AC-1/40$ °C  can be connected)	A A A mm² W  mm² mm² mm² mm²	53  140 130  60 60 50  9.8  3RT2446, S3  ○ Scree 2 × (2.5 2 × (6 1 2 × (2.5 2 × (10 Hexagon:	160 140 80 80 70 12.8 <b>3RT2448</b> <b>w terminal</b> 16) <sup>1)</sup> ; 2 x (10 35) <sup>1)</sup> ; 1 x (2 1/0) <sup>1)</sup> ; 1 x (2	275 250  140 28.8 s 50) <sup>1)</sup> ; 1 2.5 50) <sup>1)</sup> 10 2/0) <sup>1)</sup>	\$10 400 380 240 35.2 × (10 70)	500 450 300 35.2	690 Sta me sol me	ondard opechanism: 6	650, erating
Rated data of the main contacts  Load rating with AC  Utilization category AC-1  Rated operational currents Ie  Minimum cross-section in the main circuit at maximum AC-1 rated value  Power loss per main conducting path  Type Size  Conductor cross-sections  Main conductors (1 or 2 conductors of the second conductors of t	At 40 °C up to 690 V At 60 °C up to 690 V  At 40 °C up to 1 000 V  At 60 °C up to 1 000 V  At $I_e$ /AC-1/40 °C  can be connected)	A A A Mmm² W  mm² mm² mm² AWG	53  140 130  60 60 50  9.8  3RT2446, S3  ○ Scree 2 × (2.5 2 × (6 1 2 × (2.5 2 × (10 Hexagon:	160 140 80 80 70 12.8 <b>3RT2448</b> <b>w terminal</b> 16) <sup>1)</sup> ; 2 × (10 35) <sup>1)</sup> ; 1 × (2 1/0) <sup>1)</sup> ; 1 × (2 socket, A/F	275 250  140 28.8 s 50) <sup>1)</sup> ; 1 2.5 50) <sup>1)</sup> 10 2/0) <sup>1)</sup>	\$10 400 380 240 35.2 × (10 70)	500 450 300 35.2	690 Sta me sol me	ondard opechanism: 6	650, erating
Rated data of the main contacts  Load rating with AC  Utilization category AC-1  Rated operational currents Ie  Minimum cross-section in the main circuit at maximum AC-1 rated value  Power loss per main conducting path  Type Size  Conductor cross-sections  Main conductors (1 or 2 conductors of Stranded)  Stranded  Finely stranded with end sleeve (DIN AWG cables, solid or stranded)  Terminal screws  Tightening torque  Auxiliary conductors and control co (1 or 2 conductors can be connected)	At 40 °C up to 690 V At 60 °C up to 690 V  At 40 °C up to 1 000 V  At 60 °C up to 1 000 V  At $I_e$ /AC-1/40 °C  can be connected)	A A A Mmm² W  mm² mm² mm² AWG	\$3  140 130  60 60 50  9.8  3RT2446, \$3  \$2 × (2.5 2 × (6 1 2 × (2.5 2 × (10 Hexagon: 4.5 6 (4)	160 140 80 80 70 12.8 <b>3RT2448</b> <b>w terminal</b> 16) <sup>1)</sup> ; 2 x (10 35) <sup>1)</sup> ; 1 x (2 1/0) <sup>1)</sup> ; 1 x (6 cocket, A/F 0 53 lb.ir	275 250  140 28.8 s 50) <sup>1)</sup> ; 1 2.5 50) <sup>1)</sup> 10 2/0) <sup>1)</sup>	\$10 400 380 240 35.2 × (10 70)	500 450 300 35.2	690 Sta me sol me	ondard opechanism: 6	650, erating
Rated data of the main contacts  Load rating with AC  Utilization category AC-1  Rated operational currents Ie  Minimum cross-section in the main circuit at maximum AC-1 rated value  Power loss per main conducting path  Type Size  Conductor cross-sections  Main conductors (1 or 2 conductors of the second conductors of t	At 40 °C up to 690 V At 60 °C up to 690 V  At 40 °C up to 1 000 V  At 60 °C up to 1 000 V  At $I_e/AC-1/40$ °C  can be connected)	A A A A mm² W  mm² mm² AWG Nm  mm²	53  140 130  60 60 50  9.8  3RT2446, S3  Scree 2 × (2.5 2 × (6 1 2 × (2.5 2 × (10 Hexagon: 4.5 6 (4  2 × (0.5 2 × (0.5	160 140 80 80 70 12.8 <b>3RT2448</b> <b>w terminal</b> 16) <sup>1)</sup> ; 2 x (10 35) <sup>1)</sup> ; 1 x (2 1/0) <sup>1)</sup> ; 1 x (5 0 53 lb.ir 1.5) <sup>1)</sup> ; 2 x (1 1.5) <sup>1)</sup> ; 2 x (1	275 250  140 28.8 s 50) <sup>1)</sup> ; 1 2.5 50) <sup>1)</sup> 10 2/0) <sup>1)</sup> 4 n)	\$10 400 380 240 35.2 × (10 70)	500 450 300 35.2	690 Sta me sol me	ondard opechanism: 6	650, erating
Rated data of the main contacts  Load rating with AC  Utilization category AC-1  Rated operational currents Ie  Minimum cross-section in the main circuit at maximum AC-1 rated value  Power loss per main conducting path  Type Size  Conductor cross-sections  Main conductors (1 or 2 conductors of the c	At 40 °C up to 690 V At 60 °C up to 690 V  At 40 °C up to 1 000 V  At 60 °C up to 1 000 V  At $I_e/AC-1/40$ °C  can be connected)	A A A A mm² W  mm² mm² AWG Nm  mm²	140 130 60 60 50 9.8 3RT2446, \$3 \$3 \$Cre\$ 2 x (2.5 2 x (6 1 2 x (2.5 2 x (10 Hexagon: 4.5 6 (4 2 x (0.5 2 x (2.0 2 x (2.0	160 140 80 80 70 12.8 <b>3RT2448</b> <b>w terminal</b> 16) <sup>1)</sup> ; 0; 1 × (2 1/0) <sup>1)</sup> ; 1 × (2 1/0) <sup>1)</sup> ; 1 × (5 0 53 lb.ir 1.5) <sup>1)</sup> ; 2 × (1 (1.5) <sup>1)</sup> ; 2 × (1 (1.5) <sup>1)</sup> ; 2 × (1	275 250  140 28.8 s s (0.75 2.5 (0.75 2.5 (0.75 2.5 (0.75 2.5	\$10 400 380 240 35.2 x (10 70)	500 450 300 35.2	690 Sta me sol me	ondard opechanism: 6	650, erating
Rated data of the main contacts  Load rating with AC  Utilization category AC-1  Rated operational currents Ie  Minimum cross-section in the main circuit at maximum AC-1 rated value  Power loss per main conducting path  Type Size  Conductor cross-sections  Main conductors (1 or 2 conductors of the c	At 40 °C up to 690 V At 60 °C up to 690 V  At 40 °C up to 1 000 V  At 60 °C up to 1 000 V  At $I_e/AC-1/40$ °C  can be connected)	A A A A mm² W  mm² mm² AWG Nm  mm²	\$3  140 130  60 60 50  9.8  3RT2446, \$3  \$2 × (2.5 2 × (10 Hexagon: 4.5 6 (4)  2 × (0.5 2 × (0.5 2 × (0.5 3 × (20 M3 (for Pc)	160 140 80 80 70 12.8 <b>3RT2448</b> <b>w terminal</b> 16) <sup>1)</sup> ; 0; 1 × (2 1/0) <sup>1)</sup> ; 1 × (2 1/0) <sup>1)</sup> ; 1 × (5 0 53 lb.ir 1.5) <sup>1)</sup> ; 2 × (1 (1.5) <sup>1)</sup> ; 2 × (1 (1.5) <sup>1)</sup> ; 2 × (1	275 250  140 28.8 s 50) <sup>1)</sup> ; 1 2.5 50) <sup>1)</sup> 10 2/0) <sup>1)</sup> 4 n) (0.75 2.5, 8 14) <sup>1)</sup> 2; Ø 5 61	\$10 400 380 240 35.2 x (10 70)	500 450 300 35.2	690 Sta me sol me	ondard opechanism: 6	650, erating

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

Contactors for special applications

Type			3RT1456		3RT1466, 3RT1467	3RT1476
Size			S6		S10	S12
Conduct	or cross-sections					
Main cond	ductors aductors can be connected)		Screw terminals			
•	ited box terminals	Type	3RT1955-4G	3RT1956-4G	3RT1966-40	<u> </u>
**************************************	Terminal screws	1 9 0 0		M10 (hexagon socket, A/F 4)		_
	Tightening torque	Nm	10 12	10 12	20 22	011 0001101,7 (1 0
		lb.in	90 110	90 110	180 195	
Front clam	ping point connected	2				
	<ul> <li>Finely stranded with end sleeve (DIN 46228)</li> <li>Finely stranded without end sleeve</li> </ul>	mm <sup>2</sup> mm <sup>2</sup>	16 70 16 70	16 120 16 120	70 240 70 240	
	• Stranded	mm <sup>2</sup>	16 70	16 120	95 300	
N S S S	<ul> <li>AWG cables, solid or stranded</li> </ul>	AWG	6 2/0	6 250 kcmil	3/0 600 k	cmil
	<ul> <li>Flat ribbon cables (Number x Width x Thickness)</li> </ul>	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 max. 20 x 2	
Rear clam	ping point connected					
⊞:	Finely stranded with end sleeve (DIN 46228)     Finely stranded without and sleeve	mm <sup>2</sup> mm <sup>2</sup>	16 70	16 120	120 185	
00 T	<ul><li>Finely stranded without end sleeve</li><li>Stranded</li></ul>	mm <sup>2</sup>	16 70 16 70	16 120 16 120	120 185 120 240	
S S S	AWG cables, solid or stranded	AWG	6 2/0	6 250 kcmil	250 500 k	kcmil
	<ul> <li>Flat ribbon cables (Number x Width x Thickness)</li> </ul>	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 max. 20 x 2	
	ping points connected cross-section 16 mm²)					
	• Finely stranded with end sleeve (DIN 46228)	$mm_2^2$	Max. 1 x 50, 1 x 70	Max. 1 x 95, 1 x 120		max. 2 x 185
<b>1</b>	<ul> <li>Finely stranded without end sleeve</li> <li>Stranded</li> </ul>	mm <sup>2</sup> mm <sup>2</sup>	Max. 1 x 50, 1 x 70 Max. 1 x 50, 1 x 70	Max. 1 x 95, 1 x 120 Max. 1 x 95, 1 x 120		max. 2 x 185 max. 2 x 240
O SBO	AWG cables, solid or stranded	AWG	Max. 2 x 1/0	Max. 2 x 3/0	Min. 2 x 2/0 max. 2 x 50	,
	<ul> <li>Flat ribbon cables (Number x Width x Thickness)</li> </ul>	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	
Busbar co	nnections					
	Connecting bar (max. width)     Bore diameter	mm mm	17 9		25 11	
Cable lug	connection	111111	1)		2)	
ouble lug	Finely stranded with cable lug	mm <sup>2</sup>	16 95		50 240	
	Stranded with cable lug	mm <sup>2</sup>	25 120		70 240	
	AWG cables, solid or stranded	AWG	4 250 kcmil		2/0 500 k	cmil
	Terminal screws		M8 x 25 (A/F 13)		M10 x 30 (A	/F 17)
	- Tightening torque	Nm Ib.in	10 14 90 124		14 24 124 210	
Auxiliary	conductors					
(1 or 2 con	nductors can be connected)	2	- ( 2)	3)	_	
	• Solid	mm <sup>2</sup>	2 x (0.5 1.5) <sup>3)</sup> , 2 x (0.75 max. 2 x (0.75 4) <sup>3)</sup>	. 2.5)3) according to IEC 6094	47;	
	• Finely stranded with end sleeve (DIN 46228)	mm <sup>2</sup>	2 x (0.5 1.5) <sup>3)</sup> ; 2 x (0.75	. 2.5) <sup>3)</sup>		
	AWG cables, solid or stranded	AWG	2 x (18 14)	,		
	Terminal screws		M3 (Pozidriv size 2)			
	- Tightening torque	Nm Ib.in	0.8 1.2 7 10.3			
	conductors <sup>4)</sup> inductors can be connected)		Spring-loaded termina	als		
	Operating tool		3.0 x 0.5; 3.5 x 0.5			
	• Solid	mm <sup>2</sup>	2 x (0.25 2.5)			
	<ul> <li>Finely stranded with end sleeve (DIN 46228)</li> <li>Finely stranded without end sleeve</li> </ul>	mm <sup>2</sup> mm <sup>2</sup>	2 x (0.25 1.5) 2 x (0.25 2.5)			
	AWG cables, solid or stranded	AWG	2 x (24 14)			

<sup>&</sup>lt;sup>1)</sup> 3RT1456: When connecting cable lugs according to DIN 46235, use the 3RT1956-4EA1 terminal cover for conductor cross-sections from 95 mm<sup>2</sup> to maintain the phase clearance, see page 3/115.

<sup>2) 3</sup>RT1466, 3RT1467 and 3RT1476: When connecting cable lugs according to DIN 46234 for conductor cross-sections larger than 240 mm² and according to DIN 46235 for conductor cross-sections larger than 185 mm², the 3RT1966-4EA1 terminal cover is required to maintain the phase clearance, see page 3/115.

<sup>3)</sup> If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

<sup>&</sup>lt;sup>4)</sup> Max. outer diameter of the conductor insulation: 3.6 mm. On spring-loaded terminals with conductor cross-sections ≤ 1 mm<sup>2</sup> an insulation stop is recommended, see page 3/118.

Contactors for special applications

Article number		3RT1481- 6A.36	3RT1482- 6A.36	3RT1483- 6AP36	3RT1485- 6AP36	3RT1486- 6AP36	3RT1487- 6AP36
General data							
Dimensions							
Width     Height     Depth	mm mm mm	285 352 250			431 403 246		
Mounting position				e can be rotate e can be tilted ±	d ± 30°, = 30° forward or	backward	
Installation altitude at height above sea level, maximum	m	2 000					
Insulation voltage at pollution degree 3							
<ul><li> Of the main circuit</li><li> Of the auxiliary circuit</li></ul>	V	1 000 600					
Impulse withstand voltage							
<ul><li> Of the main circuit</li><li> Of the auxiliary circuit</li></ul>	kV kV	8					
Product function, mirror contact according to IEC 60947-4-1		Yes					
Ambient temperature							
<ul><li>During operation</li><li>During storage</li></ul>	°C	-25 +55 -40 +80					
Short-circuit protection							
Version of the fuse link required							
<ul> <li>For short-circuit protection of the main circuit for type of coordination 2</li> </ul>		aR: 1 000 A (1 000 V, 30 kA)	aR: 1 100 A (1 000 V, 42 kA)	aR: 1 400 A (1 000 V, 42 kA)	aR: 2 200 A (1 000 V, 42 kA)	aR: 2 500 A (1 000 V, 42 kA)	aR: 2 800 A (1 000 V, 50 kA)
For short-circuit protection of the auxiliary switch		gG: 16 A (600	O V, 1 kA)				

Contactors for special applications

Article number		3RT1481- 6AF36	6AP36	3RT1482- 6AF36	6AP36	3RT1483- 6AP36	3RT1485- 6AP36	3RT1486- 6AP36	3RT1487- 6AP36
Control circuit/control									
Operating range factor of the control supply voltage, rated value of the solenoid coil									
<ul><li>At AC at 50 Hz</li><li>At AC at 60 Hz</li><li>At DC</li></ul>		0.85 1. <sup>1</sup> 0.85 1. <sup>2</sup> 0.85 1. <sup>3</sup>	1						
Solenoid coil closing for DC	W	1 400	2 000	1 400	2 000	2 700	2 800		
Closing apparent power of the solenoid coil for AC									
• At 50 Hz • At 60 Hz	VA VA	1 000 1 000			_	1 700 1 700	1 800 1 800		
Solenoid coil closed for DC	W	6	7	6	7	8	11		
Closed apparent power of the solenoid coil for AC									
• At 50 Hz • At 60 Hz	VA VA	18 18	23 23	18 18	23 23	20 20	33 33		
Main circuit									
Operational current at AC-1									
• Up to 690 V									
<ul> <li>At an ambient temperature of 40 °C</li> <li>At an ambient temperature of 55 °C</li> </ul>	A A	900 900		1 050 1 050		1 260 1 260	1 700 1 700	2 100 2 100	2 650 2 650
• Up to 1 000 V									
<ul> <li>At an ambient temperature of 40 °C</li> <li>At an ambient temperature of 55 °C</li> </ul>	A A	900 900		1 050 1 050		1 260 1 260	1 700 1 700	2 100 2 100	2 650 2 650
Type of electrical connection for the main circuit		Busbar co	nnections						
Minimum cross-section in the main circuit for max. AC-1 rated value	mm <sup>2</sup>	600		800		1 000	1 500	2 000	3 000
Article number		3RT1481- 3RT1482-		3RT1483-	6AP36	3RT1485- 3RT1486-		3RT1487-	6AP36
Conductor cross-sections									
Control circuit/control									
Type of connectable conductor cross-sections for auxiliary contacts									
• Solid		2x (1 2.	5 mm <sup>2</sup> )						
Solid or stranded		2x (1 2.	5 mm <sup>2</sup> )						
Finely stranded with end sleeve		2x (1 2.	5 mm <sup>2</sup> )						
Main circuit									
Width of connecting bar	mm	40		50		103			
Thickness of connecting bar	mm	10		13		10		20	
Diameter of hole	mm	17		13		15		13	

Contactors for special applications

SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A

#### Selection and ordering data

#### Size S3: AC operation or AC/DC operation

- Coil circuits (varistors, diodes, etc.) retrofittableAuxiliary switches can be retrofitted
- Main and control conductors: Screw terminals



3RT244.-1...0

										_		
Size	Rated da	ta	Auxiliary co	ontacts		Rated cont	trol supply voltage $U_{\rm s}$	Screw terminals	<b>(1)</b>	PU	PS*	PG
	AC-1, t <sub>u</sub> :									(UNIT,		
	40 °C	60 °C								SET, M)		
	Operation	al current $I_{ m e}$	Ident. No.	Versi	on	50 Hz AC	50 Hz AC or DC					
	up to			T	l,			Article No.	Price			
	690 V	690 V		Υ΄	7				per PU			
	A	Α		NO	NC	V	V					
For			n mounting			5 and TH 7	75-15 DIN rails					
	peration			,								
S3	140	130	11	1	1	24		3RT2446-1AB00		1	1 unit	41B
						110		3RT2446-1AF00		1	1 unit	41B
						230		3RT2446-1AP00		1	1 unit	41B
	160	140	11	1	1	24		3RT2448-1AB00		1	1 unit	41B
						110		3RT2448-1AF00 3RT2448-1AP00		1	1 unit	41B 41B
AC/	DC opera	tion				230		3H12440-1AP00		ļ	1 unit	416
	•		t (varistor ir	ntegrat	ed in el	lectronics at	factory)					
S3	140	130	11	1	1		20 33	3RT2446-1NB30		1	1 unit	41B
							83 155	3RT2446-1NF30		1	1 unit	41B
							175 280	3RT2446-1NP30		1	1 unit	41B
	160	140	11	1	1		20 33	3RT2448-1NB30		1	1 unit	41B
							83 155	3RT2448-1NF30		1	1 unit	41B
							175 280	3RT2448-1NP30		1	1 unit	41B

Other voltages according to page 4/52 on request.

Contactors for special applications

#### SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A

#### Sizes S6 to S12: AC/DC operation

- 3RT14..-. A standard operating mechanisms

- Solid-state operating mechanisms
   3RT14..-.N with 24 V DC control signal input
   3RT14..-.P with 24 V DC control signal input and remaining lifetime indicator (RLT)
- For screw fixing

- Auxiliary and control conductors: Screw terminals
- Main conductors: Busbar connections; a terminal parts kit with screws, spring washers and nuts is enclosed.











BRT1456-6A.36	3RT1466-6

3RT1476-6A.36

3RT1476-6N.36

3RT1476-6P.35

Size	Rated data AC-1, t <sub>u</sub> :		Auxiliary contacts, lateral	Rated control supply voltage $U_{\rm S}$	Screw terminals	<b>+</b>	PU (UNIT, SET, M)	PS*	PG
	40 °C						OL1, IVI)		
	Operational current I <sub>e</sub>		Version	50/60 Hz AC or DC					
	up to 690 V A A		\		Article No.	Price per PU			
			NO NC	V					

Standard operating mechanisms for AC and DC operation	
(power consumption reduced from closing power to holding p	bow

With i	ntegrated co	oil circuit (varisto	r integrated	at facto	ry)				
S6	275	250	2	2	110 127 220 240	3RT1456-6AF36 3RT1456-6AP36	1 1	1 unit 1 unit	41B 41B
S10	400	380	2	2	110 127 220 240	3RT1466-6AF36 3RT1466-6AP36	1 1	1 unit 1 unit	41B 41B
	500	450	2	2	110 127 220 240	3RT1467-6AF36 3RT1467-6AP36	1 1	1 unit 1 unit	41B 41B
S12	690	650	2	2	110 127 220 240	3RT1476-6AF36 3RT1476-6AP36	1 1	1 unit 1 unit	41B 41B

#### Solid-state operating mechanisms

#### With 24 V DC control signal input e.g. for control by PLC

With i	ntegrated co	oil circuit (varisto	or integrated	l in elect	ronics at factory)				
S6	275	250	2	2	96 127 200 277	3RT1456-6NF36 3RT1456-6NP36	1 1	1 unit 1 unit	41B 41B
S10	400	380	2	2	96 127 200 277	3RT1466-6NF36 3RT1466-6NP36	1 1	1 unit 1 unit	41B 41B
	500	450	2	2	96 127 200 277	3RT1467-6NF36 3RT1467-6NP36	1 1	1 unit 1 unit	41B 41B
S12	690	650	2	2	96 127 200 277	3RT1476-6NF36 3RT1476-6NP36	1 1	1 unit 1 unit	41B 41B

#### With 24 V DC control signal input · with remaining lifetime indicator (RLT) e.g. for control by PLC

o.g	0. 00	~, · _c							
With i	integrated co	oil circuit (varisto	or integrated	d in elect	ronics at factory)				
S6	275	250	1	1	96 127 200 277	3RT1456-6PF35 3RT1456-6PP35	1 1	1 unit 1 unit	41B 41B
S10	400	380	1	1	96 127 200 277	3RT1466-6PF35 3RT1466-6PP35	1 1	1 unit 1 unit	41B 41B
	500	450	1	1	96 127 200 277	3RT1467-6PF35 3RT1467-6PP35	1 1	1 unit 1 unit	41B 41B
S12	690	650	1	1	96 127 200 277	3RT1476-6PF35 3RT1476-6PP35	1 1	1 unit 1 unit	41B 41B

Other voltages according to page 4/53 on request.

Contactors for special applications

#### SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A

#### Sizes S6 to S12: AC/DC operation

- Certified and fail-safe 24 V DC control input with max. 20 mA, e.g. for control via the fail-safe output module of a controller (F-PLC) or safety relay
- Achievable Safety Intégrity Level (SIL) according to IEC 62061 and Performance Level (PL) according to ISO 13849-1 with corresponding fault diagnostics:
  - With one contactor: SIL 2 or PL c
  - With two contactors in series: SIL 3 or PL e
  - Fail-safe applications can be implemented using this contactor.
- Version with removable lateral auxiliary switches or permanently mounted auxiliary switches
- For screw fixing
- Auxiliary and control conductors: Screw terminals
- Main conductors: Busbar connections; a terminal parts kit with screws, spring washers and nuts is enclosed.

#### For more information, see

- Safety technology, page 11/1 onwards
- · Guide of use for contactors in safety applications











3	F	?	Γ.	14	15	6-	-6	S	.3	6

3RT1466-6S.36

3RT1476-6S.36

3RT1476-6S.36-3PA0

Size	Rated data according to IEC 60947-4-1 AC-1, t <sub>u</sub> :		Auxiliar	y s, lateral	Rated control supply voltage $U_{\rm S}$	Screw terminals	<b>+</b>	PU (UNIT, SET, M)	PS*	PG
	40 °C	60 °C								
	Operational current I <sub>e</sub>		Version		50/60 Hz AC or DC					
	up to	690 V	\ \	<del> </del>		Article No.	Price per PU			
	Α	А	NO	NC	V					

#### Solid-state operating mechanisms

With two removable laterally mounted auxiliary switches										
With i	ntegrated	coil circuit (vari	stor inte	grated in	electro	nics at	fac			
			_	_						

with	ntegrated c	oii circuit (va	iristor inte	egrated in	i electronics at factory)				
S6	275	250	2	2	96 127 200 277	3RT1456-6SF36 3RT1456-6SP36	1 1	1 unit 1 unit	41B 41B
S10	400	380	2	2	96 127 200 277	3RT1466-6SF36 3RT1466-6SP36	1 1	1 unit 1 unit	41B 41B
	500	450	2	2	96 127 200 277	3RT1467-6SF36 3RT1467-6SP36	1 1	1 unit 1 unit	41B 41B
S12	690	650	2	2	96 127 200 277	3RT1476-6SF36 3RT1476-6SP36	1 1	1 unit 1 unit	41B 41B

	200 111 21 1
With two permanently laterally	mounted auxiliary switches
With integrated coil circuit (varistor	integrated in electronics at fact

With i	ntegrated o	oil circuit (va	ristor inte	grated in	electronics at factory)				
S6	275	250	2	2	96 127 200 277	3RT1456-6SF36-3PA0 3RT1456-6SP36-3PA0	1 1	1 unit 1 unit	41B 41B
S10	400	380	2	2	96 127 200 277	3RT1466-6SF36-3PA0 3RT1466-6SP36-3PA0	1 1	1 unit 1 unit	41B 41B
	500	450	2	2	96 127 200 277	3RT1467-6SF36-3PA0 3RT1467-6SP36-3PA0	1 1	1 unit 1 unit	41B 41B
S12	690	650	2	2	96 127 200 277	3RT1476-6SF36-3PA0 3RT1476-6SP36-3PA0	1 1	1 unit 1 unit	41B 41B

Contactors for special applications

#### SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A

#### AC/DC operation

- Solid-state operating mechanisms
- Version with two laterally mounted auxiliary switches (2 NO + 2 NC each)
- For screw fixing
- Auxiliary and control conductors: Screw terminals
- Main conductors: Busbar connections









3RT1481-6A.36, 3RT1482-6A.36

3RT1483-6AP36

3RT1485-6AP36, 3RT1486-6AP36

3RT1487-6AP36

Rated data according to IEC 60947-4-1	Auxilia	ary cts, lateral	Rated control s	upply voltage U <sub>s</sub>	Busbar connections	00	PU (UNIT,	PS*	PG
AC-1, t <sub>u</sub> : 40 °C	Version	on	50/60 Hz AC	DC			SET, M)		
Operational current $I_{\rm e}$ up to 1 000 V	Y	7			Article No.	Price per PU			
A	NO	NC	V	V					
Solid-state operating	mecha	nisms							
With integrated coil ci	rcuit				_				
900	2	2	100 127 200 240	100 110 200 220	3RT1481-6AF36 3RT1481-6AP36		1 1	1 unit 1 unit	41B 41B
1 050	2	2	100 127 200 240	100 110 200 220	3RT1482-6AF36 3RT1482-6AP36		1 1	1 unit 1 unit	41B 41B
1 260	2	2	100 240	100 220	3RT1483-6AP36		1	1 unit	41B
1 700	2	2	100 240	100 220	3RT1485-6AP36		1	1 unit	41B
2 100	2	2	100 240	100 220	3RT1486-6AP36		1	1 unit	41B
2 650	2	2	100 240	100 220	3RT1487-6AP36		1	1 unit	41B

Accessories, see next table; spare parts, see page 4/20.

#### Accessories

Graphic overviews for 3RT148 contactors with mountable accessories, see page 4/10.

More information	
Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/24229/man	

	For contactors	Auxilia Version	ry contac	ets		Screw terminals	<b>+</b>	PU (UNIT, SET, M)	PS*	PG
		\ \	7			Article No.	Price per PU			
	Type	NO	NC	Left	Right					
ond auxiliary	switch (1 NO +	1 NC)								
	Lateral mounting	on the r	ight and/	or the left						
7. v.	3RT148.	1	1	61 53 2 154	71 83 F 1 72 84	3RH1981-1JA11		1	1 unit	41B
981-1.JA11										

Contactors for special applications

Spare parts												
	For contactors	Auxili	iary co	ntacts		Rated contro voltage U <sub>s</sub> 50/60 Hz AC		Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
		7	\									
	Туре	NO	NC	Left	Right	V	V					
First auxiliary swi	tch (1 NO + Lateral mou			right an	ıd/or			Screw terminals				
	the left		OII tile						<b>+</b>			
3RH1981-1DA11	3RT148.	1	1	* 1	31   43 2   44			3RH1981-1DA11		1	1 unit	41B
Phase barriers												
	(1 set = 4 u 3RT1481  3RT1483	inits) 						3RT1983-4AA1		1	1 unit	41B
3RT1983-4AA1	3RT1485							3RT1987-4AA1		1	1 unit	41B
	3RT1487						-	3011907-4AA1		1	i uint	410
ODT1007.4444												
3RT1987-4AA1 Withdrawable coil	s · AC/DC	opera	tion									
	3RT1481,					100 127	100 110	3RT1982-5AF31		1	1 unit	41B
A A	3RT1482					200 240	200 220	3RT1982-5AP31		1	1 unit	41B
3RT1982-5A.31,	3RT1483					100 240	100 220	3RT1983-5AP31		1	1 unit	41B
3RT1983-5AP31	3RT1485					100 240	100 220	3RT1987-5AP31		1	1 unit	41B
3RT1987-5AP31	3RT1487											.=

Contactors for special applications

#### SIRIUS 3RT.3 contactors, 4-pole, up to 525 A

#### Overview



3RT231 to 3RT234 and 3RT135 to 3RT137 contactors, with screw terminals

#### Standards

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

# Protecting connections against short circuit, overload and overvoltage

All connections must generally be protected against overload and short circuits using suitable measures. Different constraints must be considered depending on the type of connection:

Short-circuit and overload protection of main connections

For information on the protection of a free-standing contactor, see the technical product data sheet.

For more information on device combinations such as contactor with overload relay or contactor with circuit breaker as motor feeder, refer to

- Digital Configuration Manual for load feeders
- · Configuration Manual for load feeders

Short-circuit and overload protection of auxiliary connections

For information on the protection of auxiliary contacts, see the technical product data sheet.

Short-circuit and overload protection of control supply voltage or supply voltage connections

First of all, the relevant standards and regulations for configuring control cabinets and the parts and components installed in them must be taken into account, for example for cable dimensioning.

One possible protection for these circuits could be the selection of a suitable power supply, i.e. one with a current-limiting function. In the selection of the source and the connecting cable, the load characteristics of the contactor must be considered (short-time inrush current peaks for solid-state contactor operating mechanisms, switch-on power, holding power). The same applies to the selection of suitable protective devices.

If there are further switching elements in the circuit, such as the auxiliary contact system of an overload relay that operates the contactor, the short-circuit protection necessary for this must also be considered.

For further recommendations, e.g. the use of miniature circuit breakers or circuit breakers for equipment in control circuits, see Control cabinet tip – Selecting and dimensioning suitable power supplies quickly and reliably.

Protection against overvoltage at the control supply voltage connection

3RT23 contactors supplied without a coil circuit can be retrofitted with RC elements, varistors, diodes or diode assemblies (combination of diode and Zener diode for short break times) for damping switching overvoltages in the coil and can be ordered separately as accessories, see page 3/98 onwards.

3RT13 contactors are already equipped with coil damping (varistor).

#### Note:

The break times of the contactor, the opening delay times of the NO contacts and the closing delay times of the NC contacts increase in the event of damping.

For more information about influencing the time response using damping, see Equipment Manual.

#### Connection methods

#### Main circuit

- 3RT231 and 3RT232 contactors:
   Screw terminals or spring-loaded terminals;
   spring-loaded terminals with convenient plug-in design for device connectors
- 3RT233 and 3RT234 contactors:
   Screw terminals with box terminal;
   direct connection to the connecting bar possible with cable lugs for 3RT234 when the box terminal is removed.
- 3RT135 to 3RT137 contactors: Screw terminals with connecting bars that the cables can be connected to using either cable lugs or flexible or rigid bushars
- 3RT136 and 3RT137 contactors: These can be fitted with bus connectors offset, see page 4/35.

#### Auxiliary and control circuits

Screw terminals

#### Electromagnetic compatibility

The contactors fulfill the requirements for environment category A.

#### Note:

When the contactors are used in an environment with frequency converters, the configuration notes must be observed, see Equipment Manual.

Contactors for special applications

#### SIRIUS 3RT.3 contactors, 4-pole, up to 525 A

#### Contact reliability of the auxiliary contacts

If voltages  $\leq$  110 V and currents  $\leq$  100 mA are to be switched, the auxiliary contacts of the 3RT contactors or 3RH contactor relays should be used as they guarantee a high level of contact reliability.

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

#### Motor protection

#### 3RT23 contactors

For protection against overload, 3RU2 thermal overload relays (see page 7/87 onwards) or 3RB3 electronic overload relays (see pages 7/99, 7/101 and 7/103) can be mounted on the 3RT23 contactors.

#### 3RT13 contactors

For protection against overload, 3RB2 electronic overload relays (see pages 7/100, 7/102 and 7/104) can be mounted on the 3RT13 contactors.

#### Operating mechanism types

#### 3RT23 contactors

The contactors are available as versions with conventional AC or DC operating mechanisms or as versions with a wide-range solid-state operating mechanism and a universal actuating voltage (AC or DC operation possible).

Control takes place via the control supply voltage connection A1 - A2 with varying operating ranges (see the technical product data sheet for further details).

#### 3RT13 contactors

The contactors are fitted with a wide-range solid-state operating mechanism that can be controlled with both 50/60 Hz AC and DC.

The operating range with DC control is between 0.8 x  $U_{\rm s~min}$  and 1.1 x  $U_{\rm s~max}$ , and with AC control between 0.85 x  $U_{\rm s~min}$  and 1.1 x  $U_{\rm s~max}$ .

# Replacing solenoid coils, operating mechanisms or spare contacts

#### 3RT23 contactors

Solenoid coil replacement is possible. Only the contacts for 3RT233 contactors can be replaced.

#### 3RT13 contactors

It is not possible to change the operating mechanism or contacts.

# Fitting auxiliary contacts and mounting additional auxiliary switches

#### Features in the delivery state

- 3RT23 contactors
  - 3RT231 contactor:

An auxiliary contact is integrated in the basic unit.

- 3RT232 to 3RT234 contactors:
   The basic units contain two integrated auxiliary contacts (1 NO + 1 NC).
- 3RT13 contactors
   These contactors are supplied with two laterally mounted auxiliary switches.

#### Expansion possibilities

All basic units can be expanded using auxiliary switches; the permissible configuration must be observed.

For detailed information about the fitting of auxiliary switches for 3RT23 contactors, see pages 3/80 to 3/87.

#### Accessories and spare parts

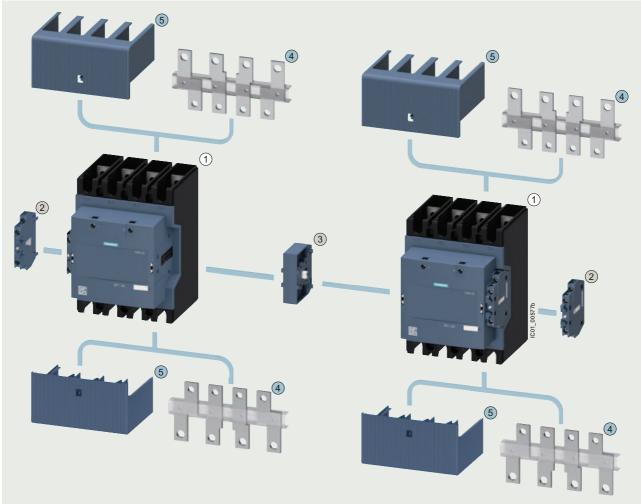
- 3RT231 to 3RT234 contactors, see page 3/69 onwards
- 3RT135 to 3RT137 contactors, see page 4/35

Contactors for special applications

SIRIUS 3RT.3 contactors, 4-pole, up to 525 A

#### Graphic overview with mountable accessories

- 3RT23 contactors, see page 3/8 onwards
- 3RT135 to 3RT137 contactors, see following graphic



- 4-pole 3RT13 contactors, sizes S6 to S12 (scope of supply: The contactors are supplied with two laterally mounted auxiliary switches)
- 3RH1951-1SA11 second auxiliary switch, can be laterally mounted on the left or right
- 3 3RA1954-3A mechanical interlock for configuring contactor assemblies:

Two 3RT13 contactors of the same size (S6, S10 and S12) can be interlocked with each other. The laterally mounted auxiliary switches of the contactors must be removed beforehand.

The mechanical interlock cannot be used in conjunction with the bus connectors offset (4).

- 4 3RT19.6-4D bus connectors offsets, can be mounted on the top or bottom (providing no terminal cover 5 is mounted)
- (5) 3RT19.6-4EB10 terminal covers, can be mounted on the top or bottom (providing no bus connectors offset (4) is mounted)
- Same accessories for sizes S6 to S12
- Different accessories depending on size

	Size	S6	S10		S12						
1	Contactors	3RT1355 ( <i>I</i> <sub>e</sub> = 200 A)	3RT1363 (I <sub>e</sub> = 275 A)	3RT1364 ( <i>I</i> <sub>e</sub> = 350 A)	3RT1373 ( <i>I</i> <sub>e</sub> = 400 A)	3RT1374 (I <sub>e</sub> = 500 A)	3RT1375 ( <i>I</i> <sub>e</sub> = 525 A)				
2	Second auxiliary switch		3RH1951-1SA11								
3	Mechanical interlock			3RA19	54-3A						
4	Bus connectors offsets		3RT19 (from <i>I</i> >	966-4D 275 A)	3RT1976-4D (from <i>I</i> > 450 A)						
5	Terminal covers	3RT1956-4EB10	3RT196	6-4EB10	3RT1976-4EB10						

3RT135 to 3RT137 contactors with mountable accessories

Contactors for special applications

#### SIRIUS 3RT.3 contactors, 4-pole, up to 525 A

#### Application

The 3RT.3 contactors can be used for the following applications:

- 4-pole switching of weak or non-inductive loads (AC-1)
- Disconnecting loads or power generation plants from the grid
- For system transfers

We additionally offer special versions of the 3RT23 contactors for switching motor-driven loads (AC-3).

#### Technical specifications

More information	
Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16165/td	Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16165/man
FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16165/faq	

Туре		3RT2316, 3RT2317	3RT2325 to 3RT2327	•	3RT2344, 3RT2346, 3RT2348
Size		S00	S0	S2	S3
General data					
Dimensions (W x H x D)  AC or DC operation  Basic units			(The values in brackets apply for DC operation)		
Screw terminals Spring-loaded terminals Basic unit with mounted	mm mm	45 x 58 x 73 45 x 70 x 73	60 x 85 x 97 (107) 61 x 102 x 97 (107)	75 x 114 x 130 	96 x 140 x 152 
auxiliary switch - Screw terminals - Spring-loaded terminals	mm mm	45 x 58 x 117 45 x 70 x 121	60 x 85 x 141 (151) 61 x 102 x 145 (155)	75 x 114 x 174	96 x 140 x 196
Basic unit with mounted function module or solid-state time-delay auxiliary switch					
<ul><li>Screw terminals</li><li>Spring-loaded terminals</li></ul>	mm mm	45 x 58 x 147 45 x 70 x 147	60 x 85 x 171 (181) 61 x 102 x 171 (181)	75 x 114 x 204 	96 x 140 x 226 
Permissible mounting position					
The contactors are designed for operation on a vertical mounting surface.		360° 22,5° 22,5°	NSB0_004786		
Upright mounting position		NS80_00477a Special version requ	ired		
Mechanical endurance	Operating cycles	30 million	10 million		
Electrical endurance at I <sub>e</sub> /AC-1	Operating cycles	Approx. 0.5 million			
Rated insulation voltage <i>U</i> <sub>i</sub> (pollution degree 3)	V	690			
Protective separation between the coil and the main contacts according to IEC 60947-1, Annex N	V	400			690
Permissible ambient temperature					
<ul><li>During operation</li><li>During storage</li></ul>	°C	-25 +60 -55 +80			

Contactors for special applications

# SIRIUS 3RT.3 contactors, 4-pole, up to 525 A

Туре	3RT2316, 3RT2317	3RT2325, 3RT2326	3RT2326-10-4AA0	3RT2327
Size	S00	S0		
Short-circuit protection				
Main circuit				
Version of the fuse link required for short-circuit protection of the main circuit				
- For type of coordination "1"	gG: 35 A (690 V, 100 kA)	gG: 63 A (690 V, 100 kA)	gG: 100 A (690 V, 100 kA), aM: 50 A (690 V, 100 kA), BS88: 100 A (415 V, 80 kA)	gG: 63 A (690 V, 100 kA)
- For type of coordination "2"	gG: 20 A (690 V, 100 kA)		gG: 35 A (690 V, 100 kA), aM: 20 A (690 V, 100 kA), BS88: 35 A (415 V, 80 kA)	gG: 20 A (690 V, 100 kA)
Auxiliary circuit				
Version of the fuse link required for short-circuit protection of the auxiliary switch	Fuse gG: 10 A (690 V	′, 1 kA)		
Version of the miniature circuit breaker required for short-circuit protection of the auxiliary switch	6 A (230 V, 400 A, C	characteristic)		

Type	3RT2336,	3RT2337	3RT2344, 3RT234	6 3RT2346-10-4AA0	3RT2348		
Size	S2		S3				
Short-circuit protection							
Main circuit							
Version of the fuse link required for short-circuit protection of the main circuit							
- For type of coordination "1"	gG: 160 A (690 V, 100		gG: 250 A (690 V, 100 kA)	gG: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A (415 V, 80 kA)	gG: 250 A (690 V, 100 kA)		
- For type of coordination "2"	gG: 63 A (690 V, 100 kA)	gR: 80 A (690 V, 100 kA)	gR: 250 A (690 V, 100 kA)	gG: 160 A (690 V, 100 kA), aM: 100 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA)	gR: 250 A (690 V, 100 kA)		
Auxiliary circuit			-				
Version of the fuse link required for short-circuit protection of the auxiliary switch	Fuse gG: 1	Fuse gG: 10 A (690 V, 1 kA)					
Version of the miniature circuit breaker required for short-circuit protection of the auxiliary switch	6 A (230 V	, 400 A, C ch	aracteristic)				

Contactors for special applications

# SIRIUS 3RT.3 contactors, 4-pole, up to 525 A

Typo			2DT2216	2DT2217	2DT2225 2DT2226 2DT2227	2DT2226 2DT2227	2DT2244 2DT2246 2DT2240
Type Size			3R12316	3H12317	3RT2325 3RT2326, 3RT2327 S0	3R12336, 3R12337 S2	S3
Control			300		30	32	33
Solenoid coil operating range							
AC operation	At 50 Hz At 60 Hz		0.8 1.1 0.85 1		0.8 1.1 x <i>U</i> <sub>S</sub>		
DC operation	At 50 °C At 60 °C		0.8 1.1 0.85 1				
<ul> <li>AC/DC operation</li> </ul>						0.8 1.1 x <i>U</i> <sub>s</sub>	
<b>Power consumption of the sol</b> (for cold coil and 1.0 x $U_s$ )	enoid coils						
AC operation, 50 Hz, standard	version						
- Closing - P.f.		VA			77 0.82	190 0.72	296 0.61
- Closed - P.f.		VA			9.8 0.25	16 0.37	19 0.38
• AC operation, 50/60 Hz, stand	ard version						
- Closing - P.f.		VA	27/24.3 0.8/0.75	37/33	81/79 0.72/0.74	210/188 0.69/0.65	348/296 0.62/0.55
- Closed - P.f.		VA	4.2/3.3 0.25/0.25	5.7/4.4	10.5/8.5 0.25/0.28	17.2/16.5 0.36/0.39	25/18 0.35/0.41
• AC operation, 60 Hz, USA, Car	nada						
- Closing - P.f.		VA	31.7 0.77	43	87 0.76	188 0.67	326 0.55
- Closed - P.f.		VA	4.8 0.25	6.5	9.4 0.28	16.5 0.37	22 0.4
<ul> <li>AC/DC operation</li> </ul>							
<ul><li>Closing for AC operation</li><li>P.f.</li></ul>		VA				40 0.95	151 0.95
<ul><li>Closed for AC operation</li><li>P.f.</li></ul>		VA				2 0.95	3.5 0.95
<ul><li>Closing for DC operation</li><li>Closed for DC operation</li></ul>		W W				23	76 2.7
• DC operation (closing = closed)		W	4		5.9		1)

 $<sup>^{\</sup>rm 1)}$  In the case of AC/DC coils, increased pickup currents (6.5 A on average) arise during the first 200 ms.

Type			3RT2316	3RT2317	3RT2325	3RT2326	3RT2327	3RT2336	3RT2337	3RT2344	3RT2346	3RT2348
Size			S00		S0			S2		S3		
Rated data of the	main contacts											
Load rating with A	C											
Utilization category A	AC-1											
<ul> <li>Rated operational currents I<sub>e</sub></li> </ul>	At 40 °C, up to 690 V	Α	18	22	35	40	50	60	110	110	140 (110) <sup>1)</sup>	160
- Carrottine - G	At 60 °C, up to 690 V	Α	16	20	30	35	42	55	95	100	130 (100) <sup>1)</sup>	140
• Rated power for three-phase loads P.f. = 0.95 (at 60 °C)	at 230 V 400 V	kW kW	6 10.5	7.5 13	11 20	13 23	16 28	21 36	36 63	38 72	49 92	53 105
Minimum cross- section in the main circuit at maximum AC-1 rated value		mm <sup>2</sup>	2.5	4	10			16	35		50 (35) <sup>1)</sup>	70
Power loss per main	conducting path											
<ul> <li>At I<sub>e</sub>/AC-1</li> </ul>	At 40 °C	W	1.1	1.6	1.8	2.4	3	3.2	9.7	7.3	11.8	15.4
<ul> <li>At I<sub>e</sub>/AC-3</li> </ul>	At 400 V	W				$(2.6)^{1)}$		$(4.3)^{1)}$			$(6.8)^{1)}$	

<sup>1)</sup> The values in brackets apply for 3RT23.6-1...0-4AA0 versions.

#### Data for North America

Technical specifications of 3RT contactors, see page 3/44 onwards.

Contactors for special applications

# SIRIUS 3RT.3 contactors, 4-pole, up to 525 A

Article number		3RT13	355-6A.36	6	3RT136	63-6A.36	6	3RT136	64-6 <b>A</b> .36		3RT137	73-6A.36 74-6A.36 75-6A.36	i,
Size		S6			S10						S12		
General data													
Dimensions													
Width     Height     Depth	mm mm mm	120 150 128			140 196 153						184 225 180		
Mounting position			rtical mou						0°, or sta	anding			
Installation altitude at height above sea level, maximum	m	2 000								<u> </u>			
Insulation voltage at pollution degree 3													
<ul><li> Of the main circuit</li><li> Of the auxiliary circuit</li></ul>	V V	1 000 690											
Impulse withstand voltage													
<ul><li> Of the main circuit</li><li> Of the auxiliary circuit</li></ul>	kV kV	8											
Product function, mirror contact according to IEC 60947-4-1		Yes											
Ambient temperature													
<ul><li>During operation</li><li>During storage</li></ul>	°C	-40 -40											
Short-circuit protection													
Version of the fuse link required													
<ul> <li>For short-circuit protection of the main circuit for type of coordination 2</li> <li>For short-circuit protection of the auxiliary switch</li> </ul>			50 A ', 100 kA) ) A (690 V		gG: 358 (500 V,	5 A 100 kA)	)	gG: 400 (500 V,	0 A 100 kA)		gG: 630 (500 V,	) A 100 kA)	
Article number Size		3RT13 6AE36 S6	855- 6 6AF36	6AP36	6AR36	3RT13 6AE36 S10		6AP36	6AR36	3RT136 6AE36		6AP36	6AR36
Control circuit/control		30				310							
Operating range factor of the control supply voltage, rated value of the solenoid coil													
• At AC at 50 Hz • At AC at 60 Hz • At DC		0.85 0.85	. 1.1										
Solenoid coil closing for DC	W	210	130	135	205		130	190		205	130	190	
Closing apparent power of the solenoid coil for AC													
<ul><li>At 50 Hz</li><li>At 60 Hz</li></ul>	VA VA	225 225	170 170	130 130	205 205	165 165	175 175	220 220	185 185	165 165	175 175	220 220	185 185
Solenoid coil closed for DC	W	2.5		3	4	2.5			4	2.5			4
Closed apparent power of the solenoid coil for AC													
• At 50 Hz • At 60 Hz	VA VA	5.5 5.5	4 4	6 6	16 16	6 6	4	7 7	16 16	6 6	4	7 7	16 16
Main circuit													
Operational current at AC-1													
• Up to 690 V													
- At an ambient temperature of 40 °C - At an ambient temperature of 60 °C	A A	200 175				275 250				350 300			
<ul> <li>Up to 1 000 V</li> <li>At an ambient temperature of 40 °C</li> <li>At an ambient temperature of 60 °C</li> </ul>	A A					250 225				275 250			

Contactors for special applications

# SIRIUS 3RT.3 contactors, 4-pole, up to 525 A

Article number		3RT13	73-			3RT137	74-			3RT137	75-		
		6AE36	6AF36	6AP36	6AR36	6AE36	6AF36	6AP36	6AR36	6AE36	6AF36	6AP36	6AR36
Size		S12											
Control circuit/control													
Operating range factor of the control supply voltage, rated value of the solenoid coil													
<ul><li>At AC at 50 Hz</li><li>At AC at 60 Hz</li><li>At DC</li></ul>		0.85 0.85 0.8 1	1.1										
Solenoid coil closing for DC	W	400	360	410	600	400	360	410	600	400	360	410	600
Closing apparent power of the solenoid coil for AC													
<ul><li>At 50 Hz</li><li>At 60 Hz</li></ul>	VA VA	475 475	340 340	385 385	420 420	475 475	340 340	385 385	420 420	475 475	340 340	385 385	420 420
Solenoid coil closed for DC	W	3.5	2.5	4.5	4.7	3.5	2.5	4.5	4.7	3.5	2.5	4.5	4.7
Closed apparent power of the solenoid coil for AC													
<ul><li>At 50 Hz</li><li>At 60 Hz</li></ul>	VA VA	8.5 8.5	17 17	17.5 17.5	21 21	8.5 8.5	17 17	17.5 17.5	21 21	8.5 8.5	17 17	17.5 17.5	21 21
Main circuit													
Operational current at AC-1  • Up to 690 V													
<ul> <li>At an ambient temperature of 40 °C</li> <li>At an ambient temperature of 60 °C</li> <li>Up to 1 000 V</li> </ul>	A A	400 350				500 400				525 425			
- At an ambient temperature of 40 °C - At an ambient temperature of 60 °C	A A	350 300				375 325				400 350			
Article number		3RT138 6A.36	55-	3RT136 6A.36	63-	3RT136 6A.36	64-	3RT137 6A.36	73-	3RT137 6A.36	74-	3RT137 6A.36	75-
Size		S6		S10				S12					
Conductor cross-sections													
Type of electrical connection for the main circuit		S .			Connecting bar, bus connectors offset > 275 A required			cting bar	bus cor	oting bar nnectors A require	offset		
Minimum cross-section in the main circuit at maximum AC-1 rated value	mm <sup>2</sup>	95		150		240				300		370	

Contactors for special applications

#### SIRIUS 3RT.3 contactors, 4-pole, up to 525 A

# Selection and ordering data

#### AC operation ~

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













3RT231.-1A.00

3RT231.-2A.00

3RT232.-1A.00

3RT232.-2A.00

3RT233.-1A.00

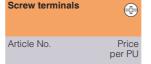
3RT234.-1A.00

Rated data AC-1, $t_{\rm U}$ : 40/60 °C Operational current $I_{\rm e}$ up to 690 V	
Λ.	

Auxiliary co	ontacts
Ident. No.	Version
	1
	NO



voltage $U_s$							
50/60 Hz AC	50 Hz AC						
V	V						



Spring-loaded terminals

Article No.	Pric per P

For screw and	snap-on mou	nting or	n TH 3	5 DIN rai			
Size S00						_	
18/16	-			24 110 230		3RT2316-1AB00 3RT2316-1AF00 3RT2316-1AP00	3RT2316-2AB00 3RT2316-2AF00 3RT2316-2AP00
22/20				24 110 230	  	3RT2317-1AB00 3RT2317-1AF00 3RT2317-1AP00	3RT2317-2AB00 3RT2317-2AF00 3RT2317-2AP00
Size S0							
35/30 <sup>1)</sup>	11	1	1	  	24 110 230	3RT2325-1AB00 3RT2325-1AF00 3RT2325-1AP00	3RT2325-2AB00 3RT2325-2AF00 3RT2325-2AP00
40/35 <sup>1)</sup>	11	1	1	 	24 110 230	3RT2326-1AB00 3RT2326-1AF00 3RT2326-1AP00	3RT2326-2AB00 3RT2326-2AF00 3RT2326-2AP00
50/42 <sup>1)</sup>	11	1	1		24 110 230	3RT2327-1AB00 3RT2327-1AF00 3RT2327-1AP00	3RT2327-2AB00 3RT2327-2AF00 3RT2327-2AP00
Size S2							
60/55	11	1	1	 	24 110 230	3RT2336-1AB00 3RT2336-1AF00 3RT2336-1AP00	  
110/95	11	1	1	  	24 110 230	3RT2337-1AB00 3RT2337-1AF00 3RT2337-1AP00	

For screw and TH 75-15 DIN r		nting o	n TH 3	5-15 and			
Size S3						_	
110/100	11	1	1		24	3RT2344-1AB00	
					110	3RT2344-1AF00	
					230	3RT2344-1AP00	
140/130	11	1	1		24	3RT2346-1AB00	
					110	3RT2346-1AF00	
					230	3RT2346-1AP00	
160/140	11	1	1		24	3RT2348-1AB00	
					110	3RT2348-1AF00	
					230	3RT2348-1AP00	

<sup>1)</sup> Required conductor cross-section 10 mm<sup>2</sup>.

Other voltages according to page 4/52 on request. Accessories and spare parts, see page 3/69 onwards.

Contactors for special applications

#### SIRIUS 3RT.3 contactors, 4-pole, up to 525 A

#### AC operation ~

no operation

Version for AC-3 motor loads

 $\begin{array}{ll} PU \text{ (UNIT, SET, M)} = 1 \\ PS^* & = 1 \text{ unit} \\ PG & = 41B \end{array}$ 







3RT2336-1AP00-4AA0



3RT2346-1AP00-4AA0

,	AC-3/AC-3e, AC-1,		Auxiliary co	contacts Rated control supply voltage <i>U</i> s		Screw terminals	<b></b>	Spring-loaded terminals	<u>~</u>	
l	t <sub>u</sub> : up to 60 °C	t <sub>u</sub> : 40/60 °C			voitage U <sub>S</sub>					
(	Operational	Operational	Ident. No.	Version	50 Hz AC					
ι	current I <sub>e</sub> up to 400 V	current I <sub>e</sub> up to 690 V		\ \ \			Article No.	Price per PU	Article No.	Price per PU
/	A	А		NO NC	V					

#### For screw and snap-on mounting on TH 35 DIN rail

c	izo	cn

32	40/35	11	1	1	230	3RT2326-1AP00-4AA0	
Size S2							
50	60/55	11	1	1	230	3RT2336-1AP00-4AA0	

# For screw and snap-on mounting on TH 35-15 and TH 75-15 DIN rails

#### Size S3

95 110/100 **11** 1 1 230 **3RT2346-1AP00-4AA0** --

Other voltages according to page 4/52 on request.

Contactors for special applications

SIRIUS 3RT.3 contactors, 4-pole, up to 525 A

#### DC operation

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



Rated data AC-1, t<sub>u</sub>: 40/60 °C Operational current I<sub>e</sub>

up to 690 V







3RT231.-2B.40

NO

Auxiliary c	ontacts	Rated control supply voltage $U_{\rm s}$		
Ident. No.	Version		DC	
	1	L.		

NC

3RT232.-1B.40

3RT232.-2B.40

Screw terminals	<b>+</b>	Spring-loaded term	ninals
Article No.	Price per PU	Article No.	Price per PU

For screw an	d snap-on	mounting on	TH 35 DIN rail

For screw and s	snap-on mountii	ng on T	H 35 D	IN rail		
Size S00						
18/16				24 220	3RT2316-1BB40 3RT2316-1BM40	3RT2316-2BB40 3RT2316-2BM40
22/20				24 220	3RT2317-1BB40 3RT2317-1BM40	3RT2317-2BB40 3RT2317-2BM40
Size S0						
35/30 <sup>1)</sup>	11	1	1	24 220	3RT2325-1BB40 3RT2325-1BM40	3RT2325-2BB40 3RT2325-2BM40
40/35 <sup>1)</sup>	11	1	1	24 220	3RT2326-1BB40 3RT2326-1BM40	3RT2326-2BB40 3RT2326-2BM40
50/42 <sup>1)</sup>	11	1	1	24 220	3RT2327-1BB40 3RT2327-1BM40	3RT2327-2BB40 3RT2327-2BM40
4)		0				

<sup>1)</sup> Required conductor cross-section 10 mm<sup>2</sup>.

Other voltages according to page 4/52 on request.

Contactors for special applications

#### SIRIUS 3RT.3 contactors, 4-pole, up to 525 A

#### AC/DC operation

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







3RT234.-1N.30

	01112001 111				5.1.12 ii 11.100						
Rated data AC-1, t <sub>u</sub> : 40/60 °C	Auxiliary contacts		Rated control supply voltage $U_{\rm S}$		Screw terminals	<b>+</b>	Spring-loaded te	rminals			
Operational current $I_{\rm e}$ up to 690 V	Ident. No.	Version	50/60 Hz AC or DC								
		\			Article No.	Price per PU	Article No.	Price per PU			
A		NO NC	V								
For screw and snap-	on mountir	ig on TH 35	DIN rail								

#### Size S2

With integrated (varistor integra	coil circuit ted in electronics	at factor	y)			
60/55	11	1	1	20 33	3RT2336-1NB30	
				175 280	3RT2336-1NP30	-
110/95	11	1	1	20 33	3RT2337-1NB30	_
				175 280	3RT2337-1NP30	

# For screw and snap-on mounting on TH 35-15 and TH 75-15 DIN rails

#### Size S3

With integrated (varistor integra	coil circuit ted in electronics	at factor	y)			
110/100	11	1	1	20 33 175 280	3RT2344-1NB30 3RT2344-1NP30	 
140/130	11	1	1	20 33 175 280	3RT2346-1NB30 3RT2346-1NP30	
160/140	11	1	1	20 33 175 280	3RT2348-1NB30 3RT2348-1NP30	 

Other voltages according to page 4/52 on request.

Contactors for special applications

SIRIUS 3RT.3 contactors, 4-pole, up to 525 A

#### AC/DC operation

Version for AC-3 motor loads

 $\begin{array}{ll} PU \text{ (UNIT, SET, M)} = 1 \\ PS^* & = 1 \text{ unit} \\ PG & = 41B \end{array}$ 



3RT2336-1NB30-4AA0



3RT2346-1NB30-4AA0
--------------------

3RT2346-1NB30-4AA0

Rated data AC-3/AC-3e, t <sub>u</sub> : up to 60 °C	AC-1, t <sub>u</sub> : 40/60 °C	Auxiliary co Ident. No.		n	Rated control supply voltage $U_{\rm S}$ 50/60 Hz AC or DC	Screw terminals	<b>+</b>	Spring-loaded terminals	8
Operational current $I_e$ up to 400 V	Operational current I <sub>e</sub> up to 690 V		\	7		Article No.	Price per PU	Article No.	Price per PU
А	А		NO	NC	V				

#### For screw and snap-on mounting on TH 35 DIN rail

#### Size S2

With integrated coil circuit (varistor integrated in electronics at factory)

50 60/55 **11** 1 1 20 ... 33

3RT2336-1NB30-4AA0 --

# For screw and snap-on mounting on TH 35-15 and TH 75-15 DIN rails

#### Size S3

With integrated coil circuit

(varistor integrated in electronics at factory)

95 110/100 **11** 1 1 20 ... 33

Other voltages according to page 4/52 on request.

Contactors for special applications

#### SIRIUS 3RT.3 contactors, 4-pole, up to 525 A

#### Sizes S6 to S12: AC/DC operation

- Solid-state operating mechanisms
- Version with two laterally mounted auxiliary switches (2 NO + 2 NC each)
- · For screw fixing
- Auxiliary and control circuits: Screw terminals
- Main conductors: Busbar connections; a terminal parts kit is enclosed.







3RT1355-6A.36

3RT1363-6A.36

3RT1373-6A.36

Size	Rated data AC-1, t <sub>u</sub> : 40 °C  Operational current I <sub>e</sub>	Auxili conta latera Versi	icts, il	Operating range 0.85 1.1 x U <sub>S</sub> Rated control supply 50/60 Hz AC	0.8 1.1 x <i>U</i> <sub>s</sub> voltage <i>U</i> <sub>s</sub> DC	Busbar connections	00	PU (UNIT, SET, M)	PS*	PG
	at 690 V	1	7			Article No.	Price per PU			
	A	NO	NC	V	V					
	state operating m									
	•	•	-	ed in electronics at fa						
S6	200	2	2	24 60 48 130 100 250 250 500	20 60 48 130 100 250 250 500	3RT1355-6AE36 3RT1355-6AF36 3RT1355-6AP36 3RT1355-6AR36		1 1 1 1	1 unit 1 unit 1 unit 1 unit	41B 41B 41B 41B
S10	275	2	2	24 60 48 130 100 250 250 500	20 60 48 130 100 250 250 500	3RT1363-6AE36 3RT1363-6AF36 3RT1363-6AP36 3RT1363-6AR36		1 1 1 1	1 unit 1 unit 1 unit 1 unit	41B 41B 41B 41B
	350	2	2	24 60 48 130 100 250 250 500	20 60 48 130 100 250 250 500	3RT1364-6AE36 3RT1364-6AF36 3RT1364-6AP36 3RT1364-6AR36		1 1 1 1	1 unit 1 unit 1 unit 1 unit	41B 41B 41B 41B
S12	400	2	2	24 60 48 130 100 250 250 500	20 60 48 130 100 250 250 500	3RT1373-6AE36 3RT1373-6AF36 3RT1373-6AP36 3RT1373-6AR36		1 1 1 1	1 unit 1 unit 1 unit 1 unit	41B 41B 41B 41B
	500	2	2	24 60 48 130 100 250 250 500	20 60 48 130 100 250 250 500	3RT1374-6AE36 3RT1374-6AF36 3RT1374-6AP36 3RT1374-6AR36		1 1 1 1	1 unit 1 unit 1 unit 1 unit	41B 41B 41B 41B
	525	2	2	24 60 48 130 100 250 250 500	20 60 48 130 100 250 250 500	3RT1375-6AE36 3RT1375-6AF36 3RT1375-6AP36 3RT1375-6AR36		1 1 1 1	1 unit 1 unit 1 unit 1 unit	41B 41B 41B 41B

Depending on the operational current, bus connectors offset must be used for sizes S10 and S12, see page 4/35:

- 3RT136: For more than 275 A, the 3RT1966-4D bus connectors offset must be used.
- 3RT137: For more than 450 A, the 3RT1976-4D bus connectors offset must be used.

Contactors for special applications

SIRIUS 3RT.3 contactors, 4-pole, up to 525 A

## Accessories

Graphic overview for 3RT135 to 3RT137 contactors with mountable accessories, see page 4/23.

More information	
Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60306557	

					https://supp	port.industry.siemens.co	om/cs/ww/er	n/view/60306	6557	
	For contactors	Auxiliary con Version	tacts			Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	Туре	I NO	hC	Left	Right					
Second auxiliary			NC	Leit	riigiit	_				
Ø1	Lateral mounting	on the right a	nd/or the left, 2-	pole		Screw terminals	<b>+</b>			
3RH1951-1SA11	3RT135 3RT137	1	1	53[61  54]62	71 83 72 84	3RH1951-1SA11		1	1 unit	41B
Terminal covers										

# 3RT1956-4EB10



3RT1966-4EB10



## Bus connectors offsets



3RT1966-4D

3RT1976-4D

Either terminal covers or bus connectors offset can be used. 3RT136 -- --3RT137

(Two units required per contactor)

Two units required per contactor (1 set = 2 units)

--

Either bus connectors offset or terminal covers can be used.

-- --

3RT1966-4D 3RT1976-4D

3RT1956-4EB10

3RT1966-4EB10

3RT1976-4EB10

1 unit 41B 1 unit 41B

1 unit

1 unit

1 unit

41B

41B

41B

## Mechanical interlocks for contactor assemblies

3RT135

3RT136

3RT137



Enables two 3RT13 contactors of the same size (S6, S10 and S12) to be interlocked with each other. The laterally mounted auxiliary switches of the contactor must be removed beforehand.

The mechanical interlock cannot be used in conjunction with the bus connectors offset.

3RT135 ... 3RT137

3RA1954-3A

1 unit

41B

#### S

3RH1951-1TA11

Spare parts										
	For contactors	Auxiliary conta Version	cts			Screw terminals	<b>+</b>	PU (UNIT, SET, M)	PS*	PG
		\	<del>}</del>			Article No.	Price per PU			
	Туре	NO	NC	Left	Right					
First auxiliary swi	tch (1 NO + 1 N	C)								
ri i	Lateral mounting	on the right and	l/or the left, 2-p	ole						
	3RT135 3RT137	1	1	13  21	31   43 2   44	3RH1951-1TA11		1	1 unit	41B

<sup>\*</sup> You can order this quantity or a multiple thereof. Illustrations are approximate

Contactors for special applications

#### SIRIUS 3RT25 contactors, 4-pole, 2 NO + 2 NC

#### Overview

#### Standards

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

# Protecting connections against short circuit, overload and overvoltage

All connections must generally be protected against overload and short circuits using suitable measures. Different constraints must be considered depending on the type of connection:

Short-circuit and overload protection of main connections

For information on the protection of a free-standing contactor, see the technical product data sheet.

For more information on device combinations such as contactor with overload relay or contactor with circuit breaker as motor feeder, refer to

- Digital Configuration Manual for load feeders
- · Configuration Manual for load feeders

Short-circuit and overload protection of auxiliary connections

For information on the protection of auxiliary contacts, see the technical product data sheet.

Short-circuit and overload protection of control supply voltage or supply voltage connections

First of all, the relevant standards and regulations for configuring control cabinets and the parts and components installed in them must be taken into account, for example for cable dimensioning.

One possible protection for these circuits could be the selection of a suitable power supply, i.e. one with a current-limiting function. In the selection of the source and the connecting cable, the load characteristics of the contactor must be considered (short-time inrush current peaks for solid-state contactor operating mechanisms, switch-on power, holding power). The same applies to the selection of suitable protective devices.

If there are further switching elements in the circuit, such as the auxiliary contact system of an overload relay that operates the contactor, the short-circuit protection necessary for this must also be considered.

For further recommendations, e.g. the use of miniature circuit breakers or circuit breakers for equipment in control circuits, see Control cabinet tip – Selecting and dimensioning suitable power supplies quickly and reliably.

# <u>Protection</u> against overvoltage at the control supply voltage <u>connection</u>

3RT25 contactors supplied without a coil circuit can be retrofitted with RC elements, varistors, diodes or diode assemblies (combination of diode and Zener diode for short break times) for damping switching overvoltages in the coil and can be ordered separately as accessories, see page 3/98 onwards.

#### Note:

The break times of the contactor, the opening delay times of the NO contacts and the closing delay times of the NC contacts increase in the event of damping.

For more information about influencing the time response using damping, see Equipment Manual.

#### Replacing solenoid coils or spare contacts

Solenoid coil or contact replacement is possible.

# Fitting auxiliary contacts and mounting additional auxiliary switches

Features in the delivery state

The basic units 3RT252 to 3RT254 contain two integrated auxiliary contacts (1 NO + 1 NC).

#### Expansion possibilities

All basic units can be expanded using auxiliary switches; the permissible configuration must be observed.

For detailed information about the fitting of auxiliary switches for 3RT25 contactors, see pages 3/80 to 3/87.

#### Accessories

The accessories for the 3-pole SIRIUS 3RT2 contactors can also be used for the 4-pole versions, see page 3/69 onwards.

#### Application

The contactors are suitable:

- · For pole-changing of hoisting gear motors
- For switching two separate loads

#### Note:

Single device for pole-changing; not suitable for reversing operation. 3RT25 contactors are not suitable for switching a load between two current sources.

Contactors for special applications

SIRIUS 3RT25 contactors, 4-pole, 2 NO + 2 NC

# Technical specifications

# More information Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16169/td https://support.industry.siemens.com/cs/ww/en/ps/16169/faq Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16169/faq

Туре		3RT2516 to 3RT2518	3RT2526	3RT2535	3RT2536	3RT2544, 3RT2545
Size		S00	S0	S2		S3
General data						
Dimensions (W x H x D)		See 3RT231., page 4/24	See 3RT232., page 4/24	See 3RT233. page 4/24	,	See 3RT234., page 4/24
Permissible mounting position						
The contactors are designed for operation on a vertical mounting surface.		360° 22,5° 22,5°	NSB0_00478c			
Upright mounting position		NSB0,00477a Special version require	ed			
Mechanical endurance	Operating cycles	30 million	10 million			
Electrical endurance at I <sub>e</sub> /AC-1	Operating cycles	Approx. 0.5 million				
Rated insulation voltage <i>U</i> <sub>i</sub> (pollution degree 3)	V	690				
<b>Protective separation</b> between the coil and the main contacts according to IEC 60947-1, Annex N	V	400				690
Permissible ambient temperature						
During operation	°C	-25 +60				
During storage	°C	-55 +80				
Short-circuit protection						
Main circuit						
<ul> <li>Version of the fuse link required for short-circuit protection of the main circuit</li> </ul>						
- For type of coordination "1"		gG: 35 A (690 V, 100 kA)	gG: 63 A (690 V, 100 kA)	gG: 125 A (690 V, 100 kA)	gG: 160 A (690 V, 100 kA)	gG: 250 A (690 V, 100 kA)
- For type of coordination "2"		gG: 20 A (690 V, 100 kA)	gG: 35 A (690 V, 50 kA)	gG: 63 A (690 V, 100 kA)	gG: 80 A (690 V, 100 kA)	gR: 250 A (690 V, 100 kA)
Auxiliary circuit						
Version of the fuse link required for short-circuit protection of the auxiliary switch		Fuse gG: 10 A (690 V,	1 kA)			
<ul> <li>Version of the miniature circuit breaker required for short-circuit protection of the auxiliary switch</li> </ul>		6 A (230 V, 400 A, C c	haracteristic)			

Contactors for special applications

## SIRIUS 3RT25 contactors, 4-pole, 2 NO + 2 NC

Туре		3RT2516- 1A	3RT2517 3RT2518	3-1A	3RT2516-1B, 3RT2517-1B, 3RT2518-1B		3RT2526- 1B	3RT253 1A	3RT253 1N	3RT254 1A	3RT254 1N
Size		S00				S0		S2		S3	
Control											
Type of operating mechanis	sm	AC			DC	AC	DC	AC	AC/DC	AC	AC/DC
Solenoid coil operating rang	ge										
AC operation	At 50 Hz	0.8 1.1 x <i>U</i> <sub>s</sub>				0.8 1.1 x <i>U</i> <sub>s</sub>		0.8 1.1 x <i>U</i> <sub>s</sub>		0.8 1.1 x <i>U</i> <sub>s</sub>	
	At 60 Hz	0.85 1.1 x <i>U</i> <sub>s</sub>				0.8 1.1 x <i>U</i> <sub>s</sub>		0.8 1.1 x <i>U</i> <sub>s</sub>		0.8 1.1 x <i>U</i> <sub>s</sub>	
	to 50 °C				0.8 1.1 x <i>U</i> <sub>s</sub>		0.8 1.1 x <i>U</i> <sub>s</sub>				
	to 60 °C				0.85 1.1 x <i>U</i> <sub>s</sub>		0.8 1.1 x <i>U</i> <sub>s</sub>				
<ul> <li>AC/DC operation</li> </ul>									0.8 x <i>U</i> <sub>s min</sub>		0.8 x <i>U</i> <sub>s mir</sub>
									 1.1 x U <sub>s max</sub>		 1.1 x <i>U</i> <sub>s ma</sub>
Power consumption of the scoils (for cold coil and 1.0 x U <sub>S</sub> )  • AC operation, 50/60 Hz, state version											
- Closing - P.f.		27/24.3 0.8/0.75	37/33		 	81/79 0.72/0.74		210/188 0.69/0.65	110 0.95	348/296 0.62/0.55	
- Closed - P.f.	VA	4.2/3.3 0.25/0.25	5.7/4.4			10.5/8.5 0.25/0.28		17.2/16.5 0.36/0.39	2.5 0.95	25/18 0.35/0.41	
DC operation											
- Closing - Closed	W W				4 4		5.9 5.9	23 1	70 1.5	 	76 1.8
Туре			3	RT25	3RT2517	3RT2518	3RT2526	3RT2	535 3RT25	36 3RT254	4 3RT2545
Size			5	300			S0	S2		S3	
Rated data of the main of Load rating with AC	contacts										
Utilization category AC-1											
<ul> <li>Rated operational currents I<sub>e</sub></li> </ul>	At 40 °C u At 60 °C u			18 16	22 20		40 35	60 55	70 60	100 90	125 105
Rated power for three-phase loads     P.f. = 0.95 (at 60 °C)	9	at 230 V 400 V	kW 6 kW 1	6 10.5	7.5 13		13.3 23	21 36	23 39	34 40	59 69
<ul> <li>Minimum cross-section in the main circuit at maximum AC-1 rated value</li> </ul>	1		mm <sup>2</sup> 2	2.5	4		10	16	25	35	50
Utilization category AC-3							AC <sup>1)</sup> E	)C <sup>1)</sup>			
• Rated operational currents I <sub>1</sub> (at 60 °C)		p to 400 V p to 400 V	A 9		12	16		35 20 35	41 41	65 65	80 80
Rated power for slip-ring or squirrel-cage motors at 50 Hz and 60 Hz	N	O at 230 V C at 230 V	kW 2	2.2	3	4	5.5 5.5	11 11	00	18.5 18.5	22 22

5.5

7.5

11 11 37 37

30 30

22 22

18.5

18.5

NO at 400 V kW 4 NC at 400 V kW 4

at 50 Hz and 60 Hz

<sup>1)</sup> Values for devices with AC and DC operation: For 3RT2526 with DC operation, different values apply to AC-3 for the NC.

Contactors for special applications

SIRIUS 3RT25 contactors, 4-pole, 2 NO + 2 NC

## Selection and ordering data

#### AC operation ~

Single device for pole-changing (not suitable for reversing operation)

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













3RT251.	-1A.00	
3N1231.	- IA.UU	

Rated data

3RT251.-2A.00

3RT252.-1A.00

Auxiliary

3RT252.-2A.00

Rated control supply

3RT253.-1A.00

**Screw terminals** 

3RT254.-1A.00

Spring-loaded terminals

			contac	cts		voltage U <sub>s</sub>			•		
AC-3, $t_u$ : up to 6	0°C	AC-1, t <sub>u</sub> : 40/60 °C	Ident. No.	Ver	sion	50/60 Hz AC	50 Hz AC				
Operational current I <sub>e</sub> up to 400 V	Ratings of three-phase motors at 50 Hz and	Operational current I <sub>e</sub> up to		\ \	7			Article No.	Price per PU	Article No.	Price per PU
	400 V kW	A		NO	NC		V				
A			TI				V				
	ew and snap-o	on mounting	g on Ti	1 35	חוט	ı ralı					
Size S0	0										
9	4	18/16				24 110 230	  	3RT2516-1AB00 3RT2516-1AF00 3RT2516-1AP00		3RT2516-2AB00 3RT2516-2AF00 3RT2516-2AP00	
12/9 <sup>1)</sup>	5.5/4 <sup>1)</sup>	22/20	-			24 110 230	  	3RT2517-1AB00 3RT2517-1AF00 3RT2517-1AP00		3RT2517-2AB00 3RT2517-2AF00 3RT2517-2AP00	
16/9 <sup>1)</sup>	7.5/4 <sup>1)</sup>	22/20	-			24 110 230	  	3RT2518-1AB00 3RT2518-1AF00 3RT2518-1AP00		3RT2518-2AB00 3RT2518-2AF00 3RT2518-2AP00	
Size S0	1										
25	11	40/35	11	1	1	  	24 110 230	3RT2526-1AB00 3RT2526-1AF00 3RT2526-1AP00		3RT2526-2AB00 3RT2526-2AF00 3RT2526-2AP00	
Size S2											
35	18.5	60/55	11	1	1	 	24 110 230	3RT2535-1AB00 3RT2535-1AF00 3RT2535-1AP00		  	
41	22	70/60	11	1	1		24 110 230	3RT2536-1AB00 3RT2536-1AF00 3RT2536-1AP00		  	
	ew and snap-o 5 DIN rails	on mounting	g on Th	1 35	-15	and					

Size S	S <i>3</i>					
65	30	100/90	11	1	1	 24 <b>3RT2544-1AB00</b>
						 <b>3RT2544-1AF00</b>
						 230 <b>3RT2544-1AP00</b>
80	37	125/105	11	1	1	 24 <b>3RT2545-1AB00</b>
						 <b>3RT2545-1AF00</b>
						 230 3RT2545-1AP00

<sup>1)</sup> Values for NO contact/NC contact. The NC contact can switch no more than 4 kW.

Other voltages according to page 4/52 on request. Accessories and spare parts, see page 3/69 onwards.

Contactors for special applications

#### SIRIUS 3RT25 contactors, 4-pole, 2 NO + 2 NC

#### DC operation ====

Single device for pole-changing (not suitable for reversing operation)

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









Spring-loaded terminals

Price

per PU

3RT251.-1B.40

Rated data Auxiliary Rated control contacts supply voltage  $U_{\rm s}$ AC-3. Ident. Version DC AC-1  $t_{\rm u}$ : up to 60 °C *t*<sub>u</sub>: 40/60 °C Opera-Ratings of three-Operational current I<sub>e</sub> phase motors tional current I<sub>e</sub> at 50 Hz and up to up to 400 V 690 V 400 V

Screw terminals

Article No.

3RT2526-1BM40

3RT252.-2B.40

Article No.

3RT2526-2BM40

1

Price

per PU

$\overline{}$	IV. V.V	A	110	INC	٧
For	screw and	snap-on mounting on	TH 35 DI	N rai	П

Size S	00		-					
Size S	00							
9	4	18/16				24 220	3RT2516-1BB40 3RT2516-1BM40	3RT2516-2BB40 3RT2516-2BM40
12/9 <sup>1)</sup>	5.5/4 <sup>1)</sup>	22/20				24 220	3RT2517-1BB40 3RT2517-1BM40	3RT2517-2BB40 3RT2517-2BM40
16/9 <sup>1)</sup>	7.5/4 <sup>1)</sup>	22/20				24 220	3RT2518-1BB40 3RT2518-1BM40	3RT2518-2BB40 3RT2518-2BM40
Size S	0							
25 (20) <sup>2</sup>	<sup>2)</sup> 11 (7.5) <sup>2)</sup>	40/35	11	1	1	24	3RT2526-1BB40	3RT2526-2BB40

220

Other voltages according to page 4/52 on request. Accessories and spare parts, see page 3/69 onwards.

<sup>1)</sup> Values for NO contact/NC contact. The NC contact can switch no more than 4 kW.

<sup>&</sup>lt;sup>2)</sup> Value in brackets for NC contact (the deviating value for the NC contact applies only for devices with DC operation).

Contactors for special applications

SIRIUS 3RT25 contactors, 4-pole, 2 NO + 2 NC

#### AC/DC operation

Single device for pole-changing (not suitable for reversing operation)

 $\begin{array}{ll} PU \text{ (UNIT, SET, M)} = 1 \\ PS^* & = 1 \text{ unit} \\ PG & = 41B \end{array}$ 







3RT254.-1N.30

Rated da	Rated data				Rated control supply voltage $U_{\rm S}$	Screw terminals	<b>+</b>	Spring-lo	paded terminals
AC-3, $t_u$ : up to 6	60 °C	AC-1, t <sub>u</sub> : 40/60 °C	Ident. No.	Version	50/60 Hz AC or DC				
Operational current $I_e$ up to 400 V	Ratings of three- phase motors at 50 Hz and	Operational current I <sub>e</sub> up to		\		Article No.	Price per PU	Article No	o. Price per PU
А	kW	A		NO NC	V				

#### For screw and snap-on mounting on TH 35 DIN rail

#### Size S2

With i	ntegrated coil	circuit (varistor in	tegrated	in el	ectro	onics at factory)		
35	18.5	60/55	11	1	1	20 33	3RT2535-1NB30	
						83 155	3RT2535-1NF30	
						175 280	3RT2535-1NP30	-
41	22	70/60	11	1	1	20 33	3RT2536-1NB30	
						83 155	3RT2536-1NF30	
						175 280	3RT2536-1NP30	

# For screw and snap-on mounting on TH 35-15 and TH 75-15 DIN rails

#### Size S3

With i	ntegrated c	oil circuit (varistor int	egrated	l in el	ectro			
65	30	100/90	11	1	1	20 33 175 280	3RT2544-1NB30 3RT2544-1NP30	 
80	37	125/105	11	1	1	20 33 175 280	3RT2545-1NB30 3RT2545-1NP30	

Other voltages according to page 4/52 on request.

Contactors for special applications

SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

#### Overview

#### Standards

IEC 60947-1, IEC 60947-4-1, IEC 60947-5-1, IEC 60831-1, IEC 61921

#### **Function**

The 3RT26 contactors are special versions of the 3RT2, designed for switching capacitive loads (AC-6b) up to 100 kvar at 400 V

Characteristic components of the 3RT26 contactors are the precharging resistors switched on via leading auxiliary contacts, which are closed before the main contacts. This limits the peak charging current of capacitive loads and thus minimizes negative impacts on the power supply network.

The 3RT26 contactors are suitable for switching choked or unchoked capacitors in reactive current compensation systems and are also used to switch converters.

# Protecting connections against short circuit, overload and overvoltage

All connections must generally be protected against overload and short circuits using suitable measures. Different constraints must be considered depending on the type of connection:

Short-circuit and overload protection of main connections

For information on the protection of a free-standing contactor, see the technical product data sheet.

For more information on device combinations such as contactor with overload relay or contactor with circuit breaker as motor feeder, refer to

- Digital Configuration Manual for load feeders
- Configuration Manual for load feeders

Short-circuit and overload protection of auxiliary connections

For information on the protection of auxiliary contacts, see the technical product data sheet.

Short-circuit and overload protection of control supply voltage or supply voltage connections

First of all, the relevant standards and regulations for configuring control cabinets and the parts and components installed in them must be taken into account, for example for cable dimensioning.

One possible protection for these circuits could be the selection of a suitable power supply, i.e. one with a current-limiting function. In the selection of the source and the connecting cable, the load characteristics of the contactor must be considered (short-time inrush current peaks for solid-state contactor operating mechanisms, switch-on power, holding power). The same applies to the selection of suitable protective devices.

If there are further switching elements in the circuit, such as the auxiliary contact system of an overload relay that operates the contactor, the short-circuit protection necessary for this must also be considered.

For further recommendations, e.g. the use of miniature circuit breakers or circuit breakers for equipment in control circuits, see Control cabinet tip – Selecting and dimensioning suitable power supplies quickly and reliably.

<u>Protection against overvoltage at the control supply voltage connection</u>

3RT26 contactors supplied without a coil circuit can be retrofitted with RC elements, varistors, diodes or diode assemblies (combination of diode and Zener diode for short break times) for damping switching overvoltages in the coil and can be ordered separately as accessories, see page 3/98 onwards.

#### Note:

The break times of the contactor, the opening delay times of the NO contacts and the closing delay times of the NC contacts increase in the event of damping.

For more information about influencing the time response using damping, see Equipment Manual.

## Fitting auxiliary contacts and mounting additional auxiliary switches

Features in the delivery state

• 3RT261 contactors:

The basic units are equipped with a 4-pole front-mounted auxiliary switch with one freely accessible contact. The other three contacts are assigned to the precharging resistors. The basic unit contains additional free auxiliary contacts (1 NO + 1 NC or 2 NO, depending on the version).

3RT262 contactors:

The basic units are equipped with a 4-pole front-mounted auxiliary switch with one freely accessible contact. The other three contacts are assigned to the precharging resistors. The basic unit contains two additional free auxiliary contacts (1 NO + 1 NC).

• 3RT263 and 3RT264 contactors:

The auxiliary contacts for the resistors are already integrated in the basic units, which do not have any additional integrated and freely assignable auxiliary contacts. A 2-pole lateral auxiliary switch is already mounted on the left (depending on the version, 1 NO + 1 NC or 2 NC).

#### Expansion possibilities

All 3RT263 and 3RT264 contactors can be expanded using lateral auxiliary switches; the permissible configuration must be observed.

Туре	3RT261	3RT262	3RT263, 3RT264
Size	S00	S0	S2, S3
Number of unassigned auxiliary contacts as delivered from the factory	2	3	2
Number of expansion auxiliary contacts that can be fitted	0	0	2

#### Conductor cross-sections

In order to connect the required minimum cross-section, the use of 3RV2935-5A 3-phase infeed terminal may be necessary for 3RT263 contactors and of 3RA2943-3L 1-phase infeed terminal for 3RT264 contactors, see page 3/113. These infeed terminals enable the clamping of larger cross-sections than the device connection itself actually allows.

For 3RT2628 contactors, this infeed terminal is included in the scope of supply and is mounted on the contactor.

Contactors for special applications

## SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

## Technical specifications

More information	
	Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16171/man

Type

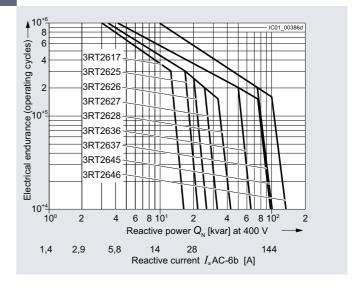
Size

3RT26 S00 to S3

### Contact endurance of the main contacts

The characteristic curves show the contact endurance of the contactors when switching capacitive loads (AC-6b) depending on the reactive power  $Q_{\rm N}$  and the rated operational voltage.

The rated operational current  $I_{\rm e}$  complies with utilization category AC-6b (breaking of 1.35 times the rated operational current) and is intended for a contact endurance of approximately 150 000 to 200 000 operating cycles.



Contactors for special applications

## SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

All technical specifications not mentioned in the table below are identical to those of the 3RT20 contactors:

- For size S00 as for the 3RT201 contactors
- For size S0 as for the 3RT202 contactors
- For size S2 as for the 3RT203 contactors
- For size S3 as for the 3RT204 contactors

#### See page 3/25 onwards.

Туре		3RT2617	3RT2625	2DT2626	3RT2627	2DT2620	3RT2636	3RT2637	2DT2645	3RT2646
Size		S00	S0	3H 12020	3H12021	3112020	S2	3H12031	S3	3H12040
General data		000	00				02		00	
Dimensions (W x H x D) including auxiliary switches and connecting cables										
• AC operation	mm	45 x 125 x 120	45 x 135 x	155		45 x 150 x 155	65 x 114 x	130	80 x 140 x	152
DC operation, AC/DC operation	mm	45 x 125 x 120	45 x 135 x	165		45 x 150 x 165	65 x 114 x	130	80 x 140 x	152
Permissible mounting position		360°	22,5° 22,5°	282						
The contactors are designed for operation on a vertical mounting surface.				NSB0_00478c						
Mechanical endurance										
Basic units with mounted auxiliary switch	Operat- ing cycles	3 million					_			
Electrical endurance	kvar	12.5	16.7	20	25	33	50	75		100
For apparent power at 400 V	Operat- ing cycles	300 000	200 000			150 000	200 000	150 000	200 000	150 000
Rated insulation voltage <i>U</i> <sub>i</sub> (pollution degree 3)	V	690							1 000 <sup>2)</sup>	
Rated impulse withstand voltage U <sub>imp</sub>	kV	6							82)	
Protective separation between the coil and the main contacts according to IEC 60947-1, Annex N	V	400							690	
Permissible ambient temperature										
<ul> <li>During operation<sup>1)</sup></li> </ul>	°C	-25 +60	1							
<ul> <li>During storage</li> </ul>	°C	-55 +80	)							
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										
Type of coordination "1"	Α	25 40	32 80	40 80	50 100	63 100	100 160	160 200		200 250
Auxiliary circuit										
• With fuse links of operational class gG: DIAZED, type 5SB; NEOZED, type 5SE With short-circuit current $I_{\rm k}$ = 1 kA according to IEC 60947-5-1	A	10								
<ul> <li>With miniature circuit breakers with C characteristic with short-circuit current I<sub>k</sub> = 400 A</li> </ul>	Α	10								
4)				0)						

<sup>1)</sup> A clearance of 10 mm is required for side-by-side mounting.

 $<sup>^{2)}</sup>$  Only applies for main conducting paths, otherwise  $\it U_{\rm i}$  = 690 V;  $\it U_{\rm imp}$  = 6 kV.

Contactors for special applications

## SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

Туре		3RT2617-1A, -1B	3RT2625-1A, -1B, 3RT2626-1A, -1B, 3RT2627-1A, -1B, 3RT2628-1A, -1B	3RT2636-1A, 3RT2637-1A	3RT2645-1A, 3RT2646-1A
Size		S00	S0	S2	S3
Control					
Solenoid coil operating range					
AC operation	50 Hz 60 Hz	0.8 1.1 x U <sub>s</sub> 0.85 1.1 x U <sub>s</sub>	0.8 1.1 x <i>U</i> s		
DC operation	At 50 °C At 60 °C	0.8 1.1 x U <sub>s</sub> 0.85 1.1 x Ü <sub>s</sub>	0.8 1.1 x <i>U</i> s	 	
Power consumption of the soleno (for cold coil and $1.0 \times U_{\rm S}$ )	oid coils				
• AC operation, 50 Hz, standard ve	rsion				
- Closing - P.f. - Closed	VA VA	  	77 0.82 9.8	190 0.72 16	296 0.61 19
- P.f.			0.25	0.37	0.38
<ul> <li>AC operation, 50/60 Hz, standard</li> </ul>					
<ul><li>Closing</li><li>P.f.</li><li>Closed</li><li>P.f.</li></ul>	VA VA	49 0.8 7.8 0.25	81/79 0.72/0.74 10.5/8.5 0.25/0.28	210/188 0.69/0.65 17.2/16.5 0.36/0.39	348/296 0.62/0.55 25/18 0.35/0.41
DC operation					
- Closing - Closed	W W	4 4	5.9 5.9	 	

Туре		3RT2621NB35	3RT2621NF35	3RT2621NP35	3RT2631N.35	3RT2641N.35
Size		S0			S2	S3
Control						
Solenoid coil operating range						
<ul> <li>AC/DC operation (50/60 Hz AC or DC)</li> </ul>		0.7 1.3 x <i>U</i> <sub>s</sub>			0.8 1.1 x <i>U</i> <sub>s</sub>	
Power consumption of the solenoid coils (for cold coil and $1.0 \times U_{\rm S}$ )						
• AC operation, 50/60 Hz, standard version						
- Closing - P.f.	VA	6.6/6.7	11.9/12.0	12.7/14.7	110 0.95	163
- P.I. - Closed	VA	0.98/0.98 1.9/2.0	1.6/1.8	3.9/4.3	2.5	3.1
- P.f.		0.86/0.82	0.79/0.74	0.51/0.56	0.95	
DC operation						
- Closing	W	5.9	10.2	14.3	70	76
- Closed	W	1.4	1.3	1.9	1.5	1.8
Maximum permissible residual current of the electronics (with 0 signal)						
• AC operation (230 V/U <sub>s</sub> )	mA	7			< 20	
<ul> <li>DC operation (24 V/U<sub>s</sub>)</li> </ul>	mA	16			< 20	

Contactors for special applications

## SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

Type		3RT2617	3RT2625	3RT2626	3RT2627	3RT2628	3RT2636	3RT2637	3RT2645	3RT2646		
Size		S00	S0				S2		S3			
Auxiliary circuit												
Auxiliary contacts (unassigne	ed)	1 NO + 1 NC, 2 NC	1 NO + 21	NC			1 NO + 1 I	NC, 2 NC				
Further auxiliary switches, la mountable	aterally						No more than one lateral auxiliary switch can be mounted					
Technical specifications included rated data of the auxiliary contactors, page 3 RT20 contactors, page 3	tacts,											
Rated data of the main c	ontacts											
Load rating with AC		_										
Utilization category AC-6b Switching of AC capacitors												
<ul> <li>Rated operational current I<sub>e</sub> at AC-6b</li> </ul>												
<ul> <li>Up to 690 V at ambient temperature</li> <li>Up to 1 000 V at ambient temperature</li> </ul>	40 °C A 60 °C A 60 °C A	18.9 18 	25.3 24	30.2 29	37.8 36	50 47.6	75.8 72.2	113.4 108	113 54	151 144 68		
voltage	230 V, 50/60 Hz kvar <b>400 V, 50/60 Hz kvar</b> 500 V, 50/60 Hz kvar 690 V, 50/60 Hz kvar 000 V, 50/60 Hz kvar	7.2 <b>12.5</b> 15 21	9.6 <b>16.7</b> 21 29	11.5 <b>20</b> 25 34	14 <b>25</b> 31 43	19 <b>33</b> 41 57	29 <b>50</b> 63 86	43 <b>75</b> 94 129	94	57 <b>100</b> 125 172 125		
Minimum cross-section in the main circuit for max. AC-6b rated value		<ul> <li>Operatir</li> </ul>	data sheets ng instructio upport.indu:	ns and mar	nuals, '			acitors				
cULus rated data												
Rated insulation voltage	V AC	600										
Operational reactive power at AC-6b, 3-phase, at operational voltage	110 120 V kvar 200 208 V kvar 220 230 V kvar 460 480 V kvar 575 600 V kvar	3.4 6.2 6.9 14	4.6 8.3 9.2 18 23	5.5 10 11 22 27	6.3 11 13 25 31	8.3 15 17 33 41	14 25 27 55 69	19 34 38 75 94	20 37 41 82 103	25 45 50 100 125		
Short-circuit protection				<i>L1</i>	O I	71	10	54	100	120		
Fuse for main circuit	Class RK5 A	5 40	80			100	250					

Contactors for special applications

## SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

Туре		3RT2617	3RT2625, 3RT2626, 3RT2627	3RT2628	3RT2636	3RT2637	3RT2645, 3RT2646
Size		S00	S0		S2		S3
Conductor cross-sections							
Main conductors (1 or 2 conductors can be connected)		Screw termina	ls				
Solid or stranded	mm <sup>2</sup>	2 x (0.5 1.5) <sup>1)</sup> . 2 x (0.75 2.5) <sup>1)</sup> ; max. 2 x 4	2 x (1 2.5) <sup>1).</sup> 2 x (2.5 10) <sup>1</sup> )		2 x (2.5 35); 1 x (2.5 50)		2 x (10 70); 1 x (10 70)
• Finely stranded with end sleeve (DIN 46228)	mm <sup>2</sup>	2 x (0.5 1.5) <sup>1)</sup> . 2 x (0.75 2.5) <sup>1</sup> )	2 x (1 2.5) <sup>1)</sup> ; 2 x (2.5 6) <sup>1)</sup> ; 1 x 10	1 x (2.5 16)	2 x (1 25); 1 x (1 35)		2 x (10 50); 1 x (10 50)
AWG cables, solid or stranded	AWG	2 x (20 16) <sup>1)</sup> ; 2 x (18 14) <sup>1)</sup> ; 2 x 12	2 x (16 12) <sup>1)</sup> ; 2 x (14 8) <sup>1)</sup>	1 x (10 4)	2 x (18 2); 1 x (18 0)		2 x (8 3/0); 1 x (8 3/0)
Terminal screw		M3 (for Pozidriv size 2; Ø 5 6 mm)	M4 (for Pozidriv size 2; Ø 5 6 mm)	M8	M6 (for Pozidriv size Ø 5 6 mm)	2;	M8 (hexagon socket, A/F 4)
Tightening torque	Nm lb.in	0.8 1.2 7 10.3	2 2.5 18 22	3 4 27 36	3 4.5 27 40		4.5 6 40 53
Auxiliary conductors (1 or 2 conductors can be connected)							
Solid or stranded	mm <sup>2</sup>	2 x (0.5 1.5) <sup>1)</sup> . 2 x (0.75 2.5) <sup>1)</sup> ; m	nax. 2 x 4				
• Finely stranded with end sleeve (DIN 46228)	mm <sup>2</sup>	2 x (0.5 1.5) <sup>1)</sup> . 2 x (0.75 2.5) <sup>1)</sup>					
AWG cables, solid or stranded	AWG	2 x (20 16) <sup>1)</sup> ; 2 x (18 14) <sup>1)</sup> ; 2 x 12					
Terminal screw		M3 (for Pozidriv size 2; Ø 5 6 mm)					
Tightening torque	Nm lb.in	0.8 1.2 7 10.3					

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

Contactors for special applications

## SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

## Selection and ordering data

## AC operation ~

Main, auxiliary and control conductors: Screw terminals







3RT262.-1A.05



3RT2628-1A.05 with infeed terminal

Switchin	Utilization category AC-6b Switching AC capacitors at an ambient temperature of 60 °C			Auxilia conta unass		Rated con voltage U <sub>s</sub>	trol supply	Screw terminals	<b>+</b>	PU (UNIT, SET, M)	PS*	PG
at arr arr	ioroni tompo		ŭ	Version	on	50 Hz AC	50/60 Hz AC					
	or rating at onal voltage 5	0/60 Hz		\lambda	<b>b</b>			Article No.	Price per PU			
at 230 V	at 400 V	at 500 V	at 690 V	1	l							
kvar	kvar	kvar	kvar	NO	NC	V	V					
For sc	rew and sn	ap-on mo	unting on	TH 35	DIN rail							<u> </u>
Size S	00											
7.2	12.5	15	21	1	1	 	24 110 230	3RT2617-1AB03 3RT2617-1AF03 3RT2617-1AP03		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
7.2	12.5	15	21	0	2	  	24 110 230	3RT2617-1AB05 3RT2617-1AF05 3RT2617-1AP05		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
Size S	0											
9.6	16.7	21	29	1	2	24 110 230	 , 	3RT2625-1AB05 3RT2625-1AF05 3RT2625-1AP05		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
11.5	20	25	34	1	2	24 110 230	, ,	3RT2626-1AB05 3RT2626-1AF05 3RT2626-1AP05		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
14	25	31	43	1	2	24 110 230	  	3RT2627-1AB05 3RT2627-1AF05 3RT2627-1AP05		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
19	33	41	57	1	2	24 110 230	  	3RT2628-1AB05 3RT2628-1AF05 3RT2628-1AP05		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B

Other voltages according to page 4/52 on request.

Contactors for special applications

## SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

## AC operation ~

Main, auxiliary and control conductors: Screw terminals







3RT264.-1A.05

Switching	n category A g AC capacito pient tempera	ors		Auxiliary contacts, unassigned Version		Rated control supply voltage $U_{\rm S}$	Screw terminals	<b>⊕</b>	PU (UNIT, SET, M)	PS*	PG
Capaciton	r rating at al voltage 50	/60 Hz		\ \	<del>/</del>		Article No.	Price per PU			
at 230 V	at 400 V	at 500 V	at 690 V		I						
kvar	kvar	kvar	kvar	NO	NC	V					
		ıp-on moui	nting on TH	1 35 DII	N rail						
Size S2											
29	50	63	86	1	1	24 110 230	3RT2636-1AB03 3RT2636-1AF03 3RT2636-1AP03		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
29	50	63	86	0	2	24 110 230	3RT2636-1AB05 3RT2636-1AF05 3RT2636-1AP05		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
43	75	94	129	1	1	24 110 230	3RT2637-1AB03 3RT2637-1AF03 3RT2637-1AP03		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
43	75	94	129	0	2	24 110 230	3RT2637-1AB05 3RT2637-1AF05 3RT2637-1AP05		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
For scr	ew and sna	ıp-on mour	nting on TH	35-15	and TH	75-15 DIN rails					
Size S3											
43	75	94	129	1	1	24 110 230	3RT2645-1AB03 3RT2645-1AF03 3RT2645-1AP03		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
43	75	94	129	0	2	24 110 230	3RT2645-1AB05 3RT2645-1AF05 3RT2645-1AP05		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
57	100	125	172	1	1	24 110 230	3RT2646-1AB03 3RT2646-1AF03 3RT2646-1AP03		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
57	100	125	172	0	2	24 110 230	3RT2646-1AB05 3RT2646-1AF05 3RT2646-1AP05		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B

Other voltages according to page 4/52 on request.

Accessories, see page 3/69 onwards.

Contactors for special applications

## SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

## DC operation ====

Main, auxiliary and control conductors: Screw terminals







3RT262.-1B.45



3RT2628-1B.45 with infeed terminal

Switching	n category and AC capacitorient temperature	ors	°C	Auxiliary contacts, unassigned Version		Rated control supply voltage $U_{\rm S}$	Screw terminals	<b>+</b>	PU (UNIT, SET, M)	PS*	PG
	Capacitor rating at operational voltage 50/60 Hz at 230 V at 400 V at 500 V at 690 V				7		Article No.	Price per PU			
kvar	kvar	kvar	kvar	NO	NC	V					
For scr	ew and sna	ap-on mo	unting on	TH 35	DIN rai						
Size S0	0										
7.2	12.5	15	21	1	1	24 110	3RT2617-1BB43 3RT2617-1BF43		1 1	1 unit 1 unit	41B 41B
7.2	12.5	15	21	0	2	24 110	3RT2617-1BB45 3RT2617-1BF45		1 1	1 unit 1 unit	41B 41B
Size S0											
9.6	16.7	21	29	1	2	24 110	3RT2625-1BB45 3RT2625-1BF45		1 1	1 unit 1 unit	41B 41B
11.5	20	25	34	1	2	24 110	3RT2626-1BB45 3RT2626-1BF45		1 1	1 unit 1 unit	41B 41B
14	25	31	43	1	2	24 110	3RT2627-1BB45 3RT2627-1BF45		1 1	1 unit 1 unit	41B 41B
19	33	41	57	1	2	24 110	3RT2628-1BB45 3RT2628-1BF45		1 1	1 unit 1 unit	41B 41B

Other voltages according to page 4/52 on request.

Accessories, see page 3/69 onwards.

Contactors for special applications

## SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

## AC/DC operation

Main, auxiliary and control conductors: Screw terminals







3RT2628-1N.35



3RT263.-1N.35



3RT264.-1N.35

				with ii	nteed ter	minal					
Switchin	on category g AC capaci bient tempe	tors	°C	Auxiliary contacts, unassigned Version		Rated control supply voltage $U_{\rm S}$ 50/60 Hz AC or DC	Screw terminals	<b>+</b>	PU (UNIT, SET, M)	PS*	PG
	or rating at nal voltage 5	0/60 Hz		\I	4		Article No.	Price per PU			
at 230 V	at 400 V	at 500 V	at 690 V	I	I						
kvar	kvar	kvar	kvar	NO	NC	V					
For sci	rew and sn	ap-on mo	unting on	TH 35	DIN rai	<u> </u>					
Size St	0										
9.6	16.7	21	29	1	2	21 28 95 130 200 280	3RT2625-1NB35 3RT2625-1NF35 3RT2625-1NP35		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
11.5	20	25	34	1	2	21 28 95 130 200 280	3RT2626-1NB35 3RT2626-1NF35 3RT2626-1NP35		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
14	25	31	43	1	2	21 28 95 130 200 280	3RT2627-1NB35 3RT2627-1NF35 3RT2627-1NP35		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
19	33	41	57	1	2	21 28 95 130 200 280	3RT2628-1NB35 3RT2628-1NF35 3RT2628-1NP35		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
Size Si	2										
29	50	63	86	0	2	20 33 83 155 175 280	3RT2636-1NB35 3RT2636-1NF35 3RT2636-1NP35		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
43	75	94	129	0	2	20 33 83 155 175 280	3RT2637-1NB35 3RT2637-1NF35 3RT2637-1NP35		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
For sci	rew and sn	ap-on mo	unting on	TH 35-	15 and	TH 75-15 DIN rails					
Size S	3										
43	75	94	129	0	2	20 33 83 155 175 280	3RT2645-1NB35 3RT2645-1NF35 3RT2645-1NP35		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
57	100	125	172	0	2	20 33 83 155 175 280	3RT2646-1NB35 3RT2646-1NF35 3RT2646-1NP35		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B

Other voltages according to page 4/52 on request.

Accessories, see page 3/69 onwards.

Contactors for special applications

## SIRIUS 3RT23 to 3RT26, 3RT14 contactors

#### Options

#### Rated control supply voltages for 3RT2 contactors, possible on request (change of the 10th and 11th digits of the article number)

Delivery time on request

Rated control supply voltage $U_{\rm S}$	Contactor type	3RT231, 3RT251	3RT232, 3RT252	3RT233, 3RT253	3RT234, 3RT244, 3RT254	3RT2617, 3RT262, 3RT263, 3RT264
	Size	S00	S0	S2	S3	S00 to S3
Sizes S00 to S3						
AC operation <sup>1)</sup>						
Solenoid coils for 50 Hz (exception: Size S00: 50 Hz	Hz and 60 Hz <sup>2)</sup> )					
24 V AC 42 V AC 48 V AC 110 V AC 230 V AC 240 V AC 400 V AC		B0 D0 H0 F0 P0  V0	B0 D0  F0 P0  V0	B0 D0  F0 P0 U0 V0	B0 D0 H0 F0 P0 U0 V0	B0   F0 P0 
Solenoid coils for 50 Hz	and 60 Hz <sup>2)</sup>					
24 V AC 42 V AC 48 V AC 110 V AC 220 V AC 230 V AC		B0 D0 H0 F0 N2 P0	C2 D2 H2 G2 N2 L2	C2 D2 H2 G2 N2 L2	C2 D2 H2 G2 N2 L2	C2    N2 L2
Solenoid coils (for USA	•					
	) Hz					
	20 V AC 10 V AC	K6 P6	K6 P6	K6 P6	K6 P6	
Solenoid coils (for Japan 50/60 Hz <sup>4)</sup> 60	n) ) Hz <sup>5)</sup>					
200 V AC 22 400 V AC 44	0 V AC 20 V AC 40 V AC	G6 N6 R6	G6 N6 R6	G6 N6 R6	G6 N6 R6	G6 N6 R6
DC operation <sup>1)</sup>						
12 V DC 24 V DC 42 V DC 48 V DC 60 V DC 110 V DC 125 V DC 220 V DC 230 V DC		A4 B4 D4 W4  F4 G4 M4 P4	A4 B4 D4 W4  F4 G4 M4	- - - - - -	     	 B4    F4 
Evernles						

#### Examples

AC operation 3RT2325-1AP00 3RT2325-1A**G2**0 Contactor with screw terminals; with solenoid coil for 50 Hz for rated control supply voltage 230 V AC Contactor with screw terminals; with solenoid coil for 50/60 Hz for rated control supply voltage 110 V AC

DC operation 3RT2526-2B**B4**0 Contactor with spring-loaded terminals; for rated control supply voltage 24 V DC Contactor with spring-loaded terminals; for rated control supply voltage 125 V DC

- At 50 Hz: 0.8 to 1.1 x U<sub>s</sub>
- At 60 Hz: 0.85 to 1.1 x  $\ddot{U}_{\rm S}$

- Size S00:
- At 50 Hz: 0.85 to 1.1 x  $U_s$ , At 60 Hz: 0.8 to 1.1 x  $U_s$ ,
- Sizes S0 to S3: at 50 Hz and 60 Hz: 0.8 to 1.1 x U<sub>s</sub>.

- 4) Coil operating range
  - Size S00:
  - at 50/60 Hz: 0.85 to 1.1 x U<sub>s</sub>,
  - Sizes S0 to S3: At 50 Hz: 0.8 to 1.1 x  $U_s$ , At 60 Hz: 0.85 to 1.1 x  $\dot{U}_s$
- <sup>5)</sup> Coil operating range at 60 Hz: 0.8 to 1.1 x  $U_{\rm s}$ .

voltage type voltage type	lN
$U_{\rm Smin}$ to $U_{\rm Smax}^{1/2}$ Size S0 $U_{\rm Smin}$ to $U_{\rm Smax}^{1/2}$ Size S2 S3	

## AC/DC operation (50/60 Hz AC or DC)

AOIDO Operation (00/00 Hz A	0 01 00)			
21 28 V AC/DC	B3	20 33 V AC/DC	B3	B3
95 130 V AC/DC	F3	48 80 V AC/DC	E3	E3
200 280 V AC/DC	P3	83 155 V AC/DC	F3	F3
		175 280 V AC/DC	P3	P3

<sup>1)</sup> Coil operating range: 0.8 x  $U_{\rm s~min}$  to 1.1 x  $U_{\rm s~max}$ .

<sup>&</sup>lt;sup>1)</sup> For deviating coil voltages and operating ranges of sizes S00 and S0, a SITOP 24 V DC power supply with wide-range input can be used for the coil control, see page 15/1 or Catalog KT 10.1.

<sup>2)</sup> Coil operating range

<sup>3)</sup> Coil operating range

Contactors for special applications

## SIRIUS 3RT23 to 3RT26, 3RT14 contactors

Rated control supply voltages for 3RT14 contactors, possible on request (change of the 10th and 11th digits of the article number)

Delivery time on request

Rated control supply voltage	type	3RT145A, 3RT146A, 3RT147A	Rated control supply voltage	type	3RT145N, 3RT146N, 3RT147N	3RT145P, 3RT145S, 3RT146P, 3RT146S, 3RT147P, 3RT147S
$U_{\rm smin}$ to $U_{\rm smax}$	Sizes	S6 to S12	$U_{\rm s  min}$ to $U_{\rm s  max}$	Sizes	S6 to S12	

#### Sizes S6 to S12

AC/DC operation (50/60 Hz AC or DC) and operating range 0.8 x  $U_{\rm s~min}$  to 1.1 x  $U_{\rm s~max}$ 

Standard operating mechanisms		Solid-state operating mechanisms		
23 26 V AC/DC 42 48 V AC/DC 110 127 V AC/DC 200 220 V AC/DC 220 240 V AC/DC	B3 D3 F3 M3 P3	21 27.3 V AC/DC 96 127 V AC/DC 200 277 V AC/DC	B3 F3 P3	 F3 P3
240 277 V AC/DC 380 420 V AC/DC 440 480 V AC/DC 500 550 V AC/DC 575 600 V AC/DC	U3 V3 R3 S3 T3			

Contactors for special applications Contactors for railway applications

#### SIRIUS 3RT contactors with extended operating range, 3-pole

#### Overview

#### Standards

IEC 60947-4-1, IEC 60077-2, EN 50155

#### Performance range

#### Sizes S00 to S3

 3RT20 contactors for motor loads (AC-3 and AC-3e) up to 110 A/55 kW

#### Sizes S6 to S12

- 3RT10 contactors for motor loads (AC-3 and AC-3e) from 55 kW to 500 A/250 kW
- 3RT14 contactors for weak or non-inductive loads (AC-1) up to 690 A

#### Application

Besides standard approval in compliance with IEC 60947-4-1, the contactors with an extended operating range are also approved in compliance with the relevant parts of IEC 60077-2, thus fulfilling the requirement for use in railway applications.

Thus, their suitability for increased requirements such as an

- extended temperature range compared to the IEC 60947-4-1 product standard or
- extended operating range of the contactor operating mechanisms or also
- increased resistance to mechanical oscillations and vibrations is warranted. The design of the terminals in the spring-loaded connection system also contributes toward vibration resistance.

#### Operating range of contactor operating mechanisms

The contactors with extended operating range and railway approval are available with a solid-state DC operating mechanism in all sizes from S00 to S12.

This operating mechanism version has an operating range from 0.7 to 1.25 x  $U_{\rm S}$  in the temperature range -40 to 70 °C.

As from size S6, the operating mechanisms are equipped with an additional control input that can be operated between 24 and 110 V DC. This function can optionally be switched on or off via a selector switch.

# Protecting connections against short circuit, overload and overvoltage

All connections must generally be protected against overload and short circuits using suitable measures. Different constraints must be considered depending on the type of connection:

Short-circuit and overload protection of main connections

For information on the protection of a free-standing contactor, see the technical product data sheet.

For more information on device combinations such as contactor with overload relay or contactor with circuit breaker as motor feeder, refer to

- Digital Configuration Manual for load feeders
- · Configuration Manual for load feeders

Short-circuit and overload protection of auxiliary connections

For information on the protection of auxiliary contacts, see the technical product data sheet.

Short-circuit and overload protection of control supply voltage or supply voltage connections

First of all, the relevant standards and regulations for configuring control cabinets and the parts and components installed in them must be taken into account, for example for cable dimensioning.

One possible protection for these circuits could be the selection of a suitable power supply, i.e. one with a current-limiting function. In the selection of the source and the connecting cable, the load characteristics of the contactor must be considered (short-time inrush current peaks for solid-state contactor operating mechanisms, switch-on power, holding power). The same applies to the selection of suitable protective devices.

If there are further switching elements in the circuit, such as the auxiliary contact system of an overload relay that operates the contactor, the short-circuit protection necessary for this must also be considered.

For further recommendations, e.g. the use of miniature circuit breakers or circuit breakers for equipment in control circuits, see Control cabinet tip – Selecting and dimensioning suitable power supplies quickly and reliably.

Short-circuit and overload protection of contactors with digital input

A typical rated current of 20 mA applies to these inputs based on the PLC input types according to IEC 60947-4-1.

The inputs can be protected accordingly (for 3RT1...-X contactors, marked with IN+/IN-). The supply voltage connections A1 - A2 must be protected based on the load characteristics.

For information on power consumption, see the technical product data sheet.

Protection against overvoltage at the control supply voltage connection

3RT contactors are already equipped with coil damping (varistor).

#### Note:

The break times of the contactor, the opening delay times of the NO contacts and the closing delay times of the NC contacts increase in the event of damping.

For more information about influencing the time response using damping, see Equipment Manual.

Contactors for special applications Contactors for railway applications

## SIRIUS 3RT contactors with extended operating range, 3-pole

# Fitting auxiliary contacts and mounting additional auxiliary switches

#### Features in the delivery state

- 3RT20 contactors:
  - 3RT201 contactors:
  - An auxiliary contact is integrated in the basic unit.
  - 3RT202 to 3RT204 contactors:
  - The basic units contain two integrated auxiliary contacts (1 NO  $\pm$  1 NC).
- 3RT10 and 3RT14 contactors:
  - These contactors are supplied with two laterally mounted auxiliary switches. The fitting of auxiliary switches is possible on the front and on the side.

#### Expansion possibilities

All basic units (with the exception of coupling contactors in size S00) can be expanded using auxiliary switches; the permissible configuration must be observed.

Detailed information about the fitting of auxiliary switches for 3RT20 contactors, see pages 3/80 to 3/87.

#### Ambient temperature

The permissible ambient temperature for operation of the contactors (across the full operating range of the operating mechanisms) is -40 to +70  $^{\circ}$ C.

#### Side-by-side mounting

#### Contactors with conventional operating mechanism

Sizes S00 and S0:

Side-by-side mounting is permissible at ambient temperatures up to 60 °C. At > 60 to 70 °C, a clearance of at least 10 mm shall be provided.

#### Contactors with series resistor

• Size S00:

Side-by-side mounting is permissible at ambient temperatures up to 70  $^{\circ}\text{C}.$ 

# Contactors with solid-state operating mechanism (version: 3RT...--ULA2)

- Sizes S00 to S3:
  - Side-by-side mounting is permissible at ambient temperatures up to 70 °C.
- Sizes S6 to S12:
  - Side-by-side mounting is permissible at ambient temperatures up to 60 °C. At > 60 to 70 °C, a clearance of at least 10 mm shall be provided.

Contactors for special applications Contactors for railway applications

#### SIRIUS 3RT contactors with extended operating range, 3-pole

## Technical specifications

More information	
Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16177/td	Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16177/man
FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16177/faq	Guide of use for contactors in safety applications, see https://support.industry.siemens.com/cs/ww/en/view/109807687

Туре			3R12017	2XB4 0LA2	2XF4 0LA2	2XB4 0LA2	2XF4 0LA2	3H1202.	3R1202 2XB40- 0LA2	2XF40- 0LA2
Size			S00					S0		
General data										
Upright mounting position										
<ul><li>Contactors with series resistor</li><li>Contactors with conventional coil</li></ul>				sion (on re sion (on re						
Ambient temperature										
<ul><li>During operation</li><li>During storage</li></ul>		°C	-40 +70 <sup>1)</sup> -55 +80	-40 +7	70					
Control										
Solenoid coil operating range	DC		0.7 1.25 >	(U <sub>s</sub>						
Power consumption of the solenoid c	oils		For cold coi	and 1.0 x	: U <sub>s</sub>					
Contactors with series resistor	Closing Closed	W	13 4.0							
Contactors with conventional coil	Closing Closed	W	2.8 2.8					4.5 4.5		
<ul> <li>Contactors with solid-state operating mechanism</li> </ul>	Closing Closed	W		4.0 0.95	4.5 0.75	4.0 0.95	4.5 0.75		6.7 1.4	13.2 1.3

## Rated data of the main contacts

#### Load rating with AC

Minimum cross-section in the main circuit					
<ul> <li>At maximum AC-1 rated value</li> </ul>	$mm^2$	4		10	
<ul> <li>At maximum I<sub>th</sub> rated value</li> </ul>	$mm^2$		4		10

<sup>3</sup>RT20..-.K contactors without the article number suffix "-0LA2" are coupling contactors that are certified for the -25 to +60 °C standard temperature range. For railway applications, an additional certification approves these contactors with a minimum clearance of 10 mm for the extended temperature range from -40 to +70 °C.

All details and technical specifications not mentioned here are identical to those of the basic units, see page 3/25 onwards.

Туре				5- 3XF40- 0LA2	3RT203 3XB40- 0LA2	6- 3XF40- 0LA2	3RT203 3XB40- 0LA2	3RT203 3XB40- 0LA2	8- 3XF40- 0LA2	3RT204 3XB40- 0LA2	
Size			S2							S3	
General data											
Ambient temperature											
During operation		°C	-40 +7	0							
During storage		°C	-55 +8	80							
Control											
Solenoid coil operating range	DC		0.7 1.2	25 x <i>U</i> s							
Power consumption of the solenoid c	oils		For cold	coil and	1.0 x <i>U</i> <sub>s</sub>						
Contactors with solid-state operating mechanism	Closing Closed	W	23 1							76 1.8	64 1.0
Rated data of the main contacts											
Load rating with AC			_								
Minimum cross-section in the main ci • At maximum AC-1 rated value	rcuit	mm <sup>2</sup>	16		25			35		50	

25

 $\,\mathrm{mm}^2$ 

All details and technical specifications not mentioned here are identical to those of the basic units, see page 3/25 onwards.

ullet At maximum  $I_{\mathrm{th}}$  rated value

Contactors for special applications Contactors for railway applications

## SIRIUS 3RT contactors with extended operating range, 3-pole

Туре		3RT1054-	3RT1055-	3RT1056-	3RT1064-	3RT1065-	3RT1066-	3RT1075-	3RT1076-
1)60		.X.46- 0LA2							
Size		S6			S10			S12	
General data									
Ambient temperature									
During operation	°C	-40 +70							
During storage	°C	-55 +80							
Control									
Solenoid coil closing for DC	W	320			580			800	
Solenoid coil closed for DC	W	2.8			3.4			3.6	
Control version of the switch operating mechanism		PLC-IN or	standard A	1 - A2 (can	be set)				
Actuated via A1/A2									
Rated control supply voltage	V DC	24, 72 or 1	10						
Operating range		0.7 1.25							
Actuated via PLC input									
Rated voltage	V DC	24 110							
Operating range		0.7 1.25							
Consumed current at PLC control input according to IEC 60947-1, maximum	mA	2							
Rated data of the main contacts									
Load rating with AC									
Minimum cross-section in the main circuit									
At maximum AC-1 rated value	$\text{mm}^2$	70	95		150	185		300	370
• At maximum $I_{\text{th}}$ rated value	mm <sup>2</sup>	70	95		150	185		300	370

For all details and technical specifications not mentioned here, see https://support.industry.siemens.com/cs/ww/en/ps/16177/td.

Туре		3RT1456X.46-0LA2	3RT1466X.46-0LA2	2 3RT1467X.46-0LA2	3RT1476X.46-0LA2
Size		S6	S10		S12
General data					
Ambient temperature					
During operation	°C	-40 +70			
During storage	°C	-55 +80			
Control					
<ul> <li>Solenoid coil closing for DC</li> </ul>		320	580		800
<ul> <li>Solenoid coil closed for DC</li> </ul>		2.8	3.4		3.6
<ul> <li>Control version of the switch operating mechanism</li> </ul>		PLC-IN or standard A	1 - A2 (can be set)		
Actuated via A1/A2					
Rated control supply voltage	V DC	24, 72 or 110			
Operating range		0.7 1.25			
Actuated via PLC input					
Rated voltage	V DC	24 110			
Operating range		0.7 1.25			
Consumed current at PLC control input according to IEC 60947-1, maximum	mA	2			
Rated data of the main contacts					
Load rating with AC					
Minimum cross-section in the main circuit					
<ul> <li>At maximum AC-1 rated value</li> </ul>	mm <sup>2</sup>	140	240	300	480

240

For all details and technical specifications not mentioned here, see https://support.industry.siemens.com/cs/ww/en/ps/16177/td.

ullet At maximum  $I_{\mathrm{th}}$  rated value

480

Contactors for special applications Contactors for railway applications

SIRIUS 3RT contactors with extended operating range, 3-pole

IE3/IE4 ready

AC-3

## Selection and ordering data

DC operation





3RT201 -2K

3RT201.-2K.42-0LA0

									3RT2012K.4.		3RT2012h	(.42-0LA0	
Rated data a	according	g to IEC	60947-4	l-1	Auxiliary o	ontac	ts	Rated control	Spring-loaded terminals	000	PU	PS*	PG
AC-3 and AC $t_u$ : 70 °C	C-3e,							supply voltage $U_{\rm s}$			(UNIT, SET, M)		
Operational	Rating				Ident. No.	Vers	ion						
current I <sub>e</sub> up to	three-p	ohase m	otors			Ţ	L,		Article No.	Price			
400 V	230 V	400 V	500 V	690 V		\	1			per PU			
400 V A	kW	kW	kW	kW		NO	NC	V DC					
For screw					TH 35 DIN		110	V B0					
Size S00	una on	iap on	mount	ing on	III oo biit	ran							
Coupling co	ntactor	s with ir	ntegrate	d coil ciı	rcuit								
<ul> <li>Suppresso</li> </ul>	r diode i	ntegrate	ed at fact	tory									
12	3	5.5	5.5	5.5	10 <sup>1)</sup>	1		24	3RT2017-2KB41		1	1 unit	41B
					4)			110	3RT2017-2KF41		1	1 unit	41B
12	3	5.5	5.5	5.5	01 <sup>1)</sup>		1	24 110	3RT2017-2KB42 3RT2017-2KF42		1 1	1 unit 1 unit	41B 41B
Varistor interpretation	egrated	at factor	ry						••				
12	3	5.5	5.5	5.5	10 <sup>1)</sup>	1		24	3RT2017-2LB41		1	1 unit	41B
					45			110	3RT2017-2LF41		1	1 unit	41B
12	3	5.5	5.5	5.5	01 <sup>1)</sup>		1	24 110	3RT2017-2LB42 3RT2017-2LF42		1	1 unit 1 unit	41B 41B
With plug-o	n sarias	resisto	r and in	tearated	coil circuit	<b>,</b>		110	3H12U17-2LF42		'	- I UIIII	410
• Suppresso				•	oon on our								
12	3	5.5	5.5	5.5	2)		13)	24	3RT2017-2KB42-0LA0		1	1 unit	41B
								110	3RT2017-2KF42-0LA0		1	1 unit	41B
16	4	7.5	10	11	2)		1 <sup>3)</sup>	24	3RT2018-2KB42-0LA0		1	1 unit	41B
								110	3RT2018-2KF42-0LA0		1	1 unit	41B
Varistor interest	0		,	F F	2)		13)	0.4	0DT0047 01 D40 01 40			4	445
12	3	5.5	5.5	5.5	/		10)	24 110	3RT2017-2LB42-0LA0 3RT2017-2LF42-0LA0		1	1 unit 1 unit	41B 41B
16	4	7.5	10	11	2)		13)	24	3RT2018-2LB42-0LA0		1	1 unit	41B
								110	3RT2018-2LF42-0LA0		1	1 unit	41B

 $<sup>^{1)}</sup>$  It is not possible to mount an auxiliary switch. A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 60  $^{\circ}\text{C}.$ 

 $<sup>^{2)}</sup>$  One 4-pole auxiliary switch according to EN 50005 can be mounted from -40 to 70  $^{\circ}\mathrm{C}$ ; no clearance required.

<sup>3)</sup> NC contact cannot be used because it is used for switching of the series resistor.

Contactors for special applications Contactors for railway applications

AC-3e IE3/IE4 ready SIRIUS 3RT contactors with extended operating range, 3-pole

#### DC operation ====





3RT201.-2X.42-0LA2



3RT202.-2K.40



3RT202.-2X.40-0LA2

Rated data a	ccording to	)				Auxiliary contacts		cts	Rated		Spring-loaded terminals	$\infty$	PU	PS*	PG
IEC 60077-2	IEC 60947	7-4-1							control supply				(UNIT, SET, M)		
	AC-3 and	АС-Зе							voltage U <sub>s</sub>				OLI, WI)		
<i>t</i> <sub>u</sub> : 70 °C	<i>t</i> <sub>u</sub> : 60 °C														
tional	Opera- tional	motors	g of thre s	e-phas	se	Ident. No.	Vers	ion							
	current I <sub>e</sub> up to	at									Article No.	Price per PU			
up to							۱ ا	4							
690 V	400 V	230 V	400 V	500 V	690 V		Ì								
Α	Α	kW	kW	kW	kW		NO	NC	V DC						

## For screw and snap-on mounting on TH 35 DIN rail

#### Size S00

With inte	grated coil	circuit	(varisto	or integ	grated i	n electr	onics at	factor	y)				
18	12	3	5.5	5.5	5.5	10	1		24 34 72 125	3RT2017-2XB41-0LA2 3RT2017-2XF41-0LA2	1 1	1 unit 1 unit	41B 41B
18	12	3	5.5	5.5	5.5	01		1	24 34 72 125	3RT2017-2XB42-0LA2 3RT2017-2XF42-0LA2	1 1	1 unit 1 unit	41B 41B
18	16	4	7.5	10	11	10	1		24 34 72 125	3RT2018-2XB41-0LA2 3RT2018-2XF41-0LA2	1 1	1 unit 1 unit	41B 41B
18	16	4	7.5	10	11	01		1	24 34 72 125	3RT2018-2XB42-0LA2 3RT2018-2XF42-0LA2	1 1	1 unit 1 unit	41B 41B

## Size S0

Size	50												
With in	ntegrated coil	circuit											
<ul> <li>Coup</li> </ul>	oling contactor	s with va	aristor in	tegrate	d at fac	ctory							
	17	4	7.5	10	11	11 <sup>1)</sup>	1	1	24 110	3RT2025-2KB40 3RT2025-2KF40	1 1	1 unit 1 unit	41B 41B
	25	5.5	11	11	11	11 <sup>1)</sup>	1	1	24 110	3RT2026-2KB40 3RT2026-2KF40	1 1	1 unit 1 unit	41B 41B
	32	7.5	15	18.5	18.5	11 <sup>1)</sup>	1	1	24 110	3RT2027-2KB40 3RT2027-2KF40	1 1	1 unit 1 unit	41B 41B
<ul> <li>Varis</li> </ul>	stor integrated	in electro	onics at	factory	,								
30	17	4	7.5	10	11	11	1	1	24 110	3RT2025-2XB40-0LA2 3RT2025-2XF40-0LA2	1 1	1 unit 1 unit	41B 41B
30	25	5.5	11	11	11	11	1	1	24 110	3RT2026-2XB40-0LA2 3RT2026-2XF40-0LA2	1 1	1 unit 1 unit	41B 41B
36	32	7.5	15	18.5	18.5	11	1	1	24 110	3RT2027-2XB40-0LA2 3RT2027-2XF40-0LA2	1 1	1 unit 1 unit	41B 41B
38	38	7.5	18.5	18.5	18.5	11	1	1	24 110	3RT2028-2XB40-0LA2 3RT2028-2XF40-0LA2	1 1	1 unit 1 unit	41B 41B

 $<sup>^{1)}</sup>$  It is not possible to mount an auxiliary switch. A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 60  $^{\circ}\text{C}.$ 

Contactors for special applications Contactors for railway applications

SIRIUS 3RT contactors with extended operating range, 3-pole

IE3/IE4 ready

AC-3

DC operation ====





3RT203.-3X.40-0LA2

3R12043X.40-0LA2
------------------

Rated data a IEC 60077-2	IEC 6094 AC-3 and	7-4-1			Auxiliary	conta	ots	Rated control supply voltage	Spring-loaded terminals for auxiliary and control circuits		PU (UNIT, SET, M)	PS*	PG
t <sub>u</sub> : 70 °C Conventional	t <sub>u</sub> : 60 °C Opera- tional	Rating motors	e-phas	se	Ident. No.	Vers	ion	$U_{\mathtt{S}}$					
thermal current $I_{th}$ up to 690 V	current I <sub>e</sub> up to	230 V	500 V kW	690 V kW		    NO	J NC	V DC	Article No.	Price per PU			

## For screw and snap-on mounting on TH 35 DIN rail

s	ize	S2

With into	egrated coil	circuit (	varisto	r integ	grated i	in electr	onics at	facto	ry)				
50	40	11	18.5	22	22	11	1	1	24 110	3RT2035-3XB40-0LA2 3RT2035-3XF40-0LA2	1 1	1 unit 1 unit	41B 41B
55	50	15	22	30	22	11	1	1	24 110	3RT2036-3XB40-0LA2 3RT2036-3XF40-0LA2	1 1	1 unit 1 unit	41B 41B
60	65	18.5	30	37	37	11	1	1	24 110	3RT2037-3XB40-0LA2 3RT2037-3XF40-0LA2	1 1	1 unit 1 unit	41B 41B
75	80	22	37	37	45	11	1	1	24	3RT2038-3XB40-0LA2	1	1 unit	41B

# For screw and snap-on mounting on TH 35-15 and TH 75-15 DIN rails

#### Size S3

With inte	grated coil	circuit (	(varisto	r integ	grated	in electr	onics at	facto	ry)
90	80	22	37	45	55	11	1	1	2

90	80	22	37	45	55	11	1	1	110
95	95	22	45	55	75	11	1	1	24 110
95	110	30	55	75	75	11	1	1	24 110

3RT2045-3XB40-0LA2	1 1 unit
3RT2045-3XF40-0LA2	1 1 unit
3RT2046-3XB40-0LA2	1 1 unit
3RT2046-3XF40-0LA2	1 1 unit
3RT2047-3XB40-0LA2	1 1 unit
3RT2047-3XF40-0LA2	1 1 unit

41B 41B 41B 41B 41B 41B

Contactors for special applications Contactors for railway applications

AC-3e IE3/IE4 ready SIRIUS 3RT contactors with extended operating range, 3-pole

#### DC operation

- Solid-state operating mechanisms with 24 to 110 V DC control signal input
- For screw fixing
- Auxiliary and control conductors: Spring-loaded terminals

 Main conductors: Busbar connections; a terminal parts kit with screws, spring washers and nuts is enclosed.







3RT105.-2X.46-0LA2

3RT106.-2X.46-0LA2

3RT107.-2X.46-0LA2

Si	ze	Rated data according	to	Auxilia		Rated control	Spring-loaded terminals	$\infty$	PU	PS*	PG
		IEC 60077-2	IEC 60947-4-1	conta		supply voltage U <sub>s</sub>		Ш	(UNIT, SET, M)		
			AC-3 and AC-3e	ialeia	l	O <sub>S</sub>			JLI, IVI)		
		t <sub>u</sub> : 70 °C	t <sub>u</sub> : 60 °C								
		Conventional thermal		Version	n						
		current I <sub>th</sub>	current I <sub>e</sub> up to	J	L		Article No.	Price			
		690 V	400 V		T			per PU			
		А	A	NO	NC	V DC					

#### Solid-state operating mechanisms

# With control signal input 24 ... 110 V DC e. g. for control by PLC

S6	120	115	2	2	24 72 110	3RT1054-2XB46-0LA2 3RT1054-2XJ46-0LA2 3RT1054-2XF46-0LA2	1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
	140	150	2	2	24 72 110	3RT1055-2XB46-0LA2 3RT1055-2XJ46-0LA2 3RT1055-2XF46-0LA2	1 1 1	1 unit 1 unit 1 unit	41E 41E 41E
	145	185	2	2	24 72 110	3RT1056-2XB46-0LA2 3RT1056-2XJ46-0LA2 3RT1056-2XF46-0LA2	1 1 1	1 unit 1 unit 1 unit	41E 41E 41E
S10	215	225	2	2	24 72 110	3RT1064-2XB46-0LA2 3RT1064-2XJ46-0LA2 3RT1064-2XF46-0LA2	1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
	265	265	2	2	24 72 110	3RT1065-2XB46-0LA2 3RT1065-2XJ46-0LA2 3RT1065-2XF46-0LA2	1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
	265	300	2	2	24 72 110	3RT1066-2XB46-0LA2 3RT1066-2XJ46-0LA2 3RT1066-2XF46-0LA2	1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
S12	350	400	2	2	24 72 110	3RT1075-2XB46-0LA2 3RT1075-2XJ46-0LA2 3RT1075-2XF46-0LA2	1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
	475	500	2	2	24 72 110	3RT1076-2XB46-0LA2 3RT1076-2XJ46-0LA2 3RT1076-2XF46-0LA2	1 1 1	1 unit 1 unit 1 unit	41B 41B 41B

Contactors for special applications Contactors for railway applications

#### SIRIUS 3RT contactors with extended operating range, 3-pole

#### DC operation

- Solid-state operating mechanisms with 24 to 110 V DC control signal input
- For screw fixing
- Auxiliary and control conductors: Spring-loaded terminals

 Main conductors: Busbar connections; a terminal parts kit with screws, spring washers and nuts is enclosed.







3RT1456-2X.46-0LA2

3RT146.-2X.46-0LA2

3RT1476-2X.46-0LA2

Size	Rated data according	to	Auxiliary		Rated control	Spring-loaded terminals	$\infty$	PU	PS*	PG
	IEC 60077-2	IEC 60947-4-1	contac		supply voltage U <sub>s</sub>		ш	(UNIT, SET, M)		
		AC-1	laterar	iaiciai	Os			OL1, IVI)		
	t <sub>u</sub> : 70 °C	t <sub>u</sub> : 40 °C								
	Conventional thermal	Operational current $I_e$ up to	Version							
	current Ith up to		J	L		Article No.	Price			
	690 V	400 V	1	T			per PU			
			1	,						
	A	Α	NO	NC	V DC					

#### Solid-state operating mechanisms

# With control signal input 24 ... 110 V DC e. g. for control by PLC

#### With integrated coil circuit (varistor integrated in electronics at factory)

S6	190	275	2	2	24 72 110	3RT1456-2XB46-0LA2 3RT1456-2XJ46-0LA2 3RT1456-2XF46-0LA2	1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
S10	330	400	2	2	24 72 110	3RT1466-2XB46-0LA2 3RT1466-2XJ46-0LA2 3RT1466-2XF46-0LA2	1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
	330	500	2	2	24 72 110	3RT1467-2XB46-0LA2 3RT1467-2XJ46-0LA2 3RT1467-2XF46-0LA2	1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
S12	520	690	2	2	24 72 110	3RT1476-2XB46-0LA2 3RT1476-2XJ46-0LA2 3RT1476-2XF46-0LA2	1 1 1	1 unit 1 unit 1 unit	41B 41B 41B

Contactors for special applications Contactors for railway applications

## SIRIUS 3RH2 contactor relays with extended operating range

#### Overview

#### Standards

IEC 60947-5-1

#### Ambient temperature

The permissible ambient temperature for operation of the contactor relays (across the full operating range of the operating mechanisms) is -40 to +70  $^{\circ}$ C.

Uninterrupted duty at temperatures > +60 °C reduces the mechanical endurance, the current carrying capacity of the conducting paths and the switching frequency.

#### Control and auxiliary circuits

The solenoid coils of the contactor relays have an extended coil operating range from 0.7 to  $1.25 \times U_s$  and are fitted as standard with surge suppressors. The opening delay times are consequently 2 to 5 ms longer than for standard contactors.

#### Application

For operation in installations that are subject both to considerable variations in the control voltage and to high ambient temperatures, e.g. railway applications under extreme climatic conditions, rolling mills, etc.

Also for control supply voltages with battery buffering to extend the operating time in the event of battery charge failure.

#### Operating mechanism types

#### Contactor relays with conventional coil

These contactor relays have an extended operating range of 0.7 to 1.25 x  $U_s$ . An additional auxiliary switch is not required.

#### Contactor relays with series resistor

These contactor relays have an extended operating range of 0.7 to 1.25 x  $U_{\rm S}$ .

The DC solenoid system is modified to holding operation by means of a series resistor. This is plugged on in a prewired module

A 4-pole auxiliary switch can be fitted additionally.

#### Contactor relays with solid-state operating mechanism

Thanks to the integrated electronics, these contactor relays have an extended operating range of 0.7 to  $1.25 \times U_c$ .

# Protecting connections against short circuit, overload and overvoltage

All connections must generally be protected against overload and short circuits using suitable measures. Different constraints must be considered depending on the type of connection:

Short-circuit and overload protection of auxiliary connections

For information on the protection of auxiliary contacts, see the technical product data sheet.

Short-circuit and overload protection of control supply voltage or supply voltage connections

First of all, the relevant standards and regulations for configuring control cabinets and the parts and components installed in them must be taken into account, for example for cable dimensioning.

One possible protection for these circuits could be the selection of a suitable power supply, i.e. one with a current-limiting function. In the selection of the source and the connecting cable, the load characteristics of the contactor relay must be considered (short-time inrush current peaks for solid-state contactor operating mechanisms, switch-on power, holding power). The same applies to the selection of suitable protective devices.

If there are further switching elements in the circuit, such as the auxiliary contact system of an overload relay that operates the auxiliary contactor, the short-circuit protection necessary for this must also be considered.

For further recommendations, e.g. the use of miniature circuit breakers or circuit breakers for equipment in control circuits, see Control cabinet tip – Selecting and dimensioning suitable power supplies quickly and reliably.

Protection against overvoltage at the control supply voltage connection

- Contactor relays with conventional coil:
   A surge suppressor (suppressor diode) is integrated.
- Contactor relays with series resistor:
   A surge suppressor (suppressor diode or varistor as preferred) is integrated.
- Contactor relays with solid-state operating mechanism: A surge suppressor (varistor) is integrated.

#### Connection methods

The 3RH2 contactor relays are available with screw terminals.

#### Side-by-side mounting

#### Contactor relays with conventional coil

A clearance of 10 mm is required for side-by-side mounting at ambient temperatures  $> 60 \, ^{\circ}\text{C} \le 70 \, ^{\circ}\text{C}$ .

Contactor relays with series resistor

Side-by-side mounting is permissible at ambient temperatures up to 70  $^{\circ}\text{C}.$ 

Contactor relays with solid-state operating mechanism

Side-by-side mounting is permissible at ambient temperatures up to 70  $^{\circ}$ C.

Contactors for special applications Contactors for railway applications

## SIRIUS 3RH2 contactor relays with extended operating range

## Technical specifications

More information	
Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16174/td	Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16174/man
FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16174/faq	

Туре			3RH212K, -2L	3RH2122-2XB40-0LA2	3RH2122-2XF40-0LA2
General data					
Upright mounting position					
<ul> <li>Contactors with series resistor</li> </ul>			Special version (on request)		
<ul> <li>Contactors with conventional coil</li> </ul>			Special version (on request)		
Ambient temperature					
During operation		°C	-40 +70 <sup>1)</sup>		
During storage		°C	-55 +80		
Control					
Solenoid coil operating range	DC operation		0.7 1.25 x U <sub>s</sub>		
Power consumption of the solenoid co	oils		For cold coil and 1.0 x $U_{\rm S}$		
Contactors with series resistor	Closing Closed	W	13 4		
Contactors with conventional coil	Closing Closed	W	2.8 2.8	 	
Contactors with solid-state operating mechanism	Closing Closed	W		4 0.95	4.5 0.75

<sup>3</sup>RH21...K contactor relays without article number suffix "-0LA." are coupling contactor relays that are certified for the temperature range -25 to +60 °C. For railway applications, an additional certification approves these contactors with a minimum clearance of 10 mm for the extended temperature range from -40 to +70 °C.

All details and technical specifications not mentioned here are identical to those of the 3RH2 basic units, see page 5/5 onwards.

Contactors for special applications Contactors for railway applications

#### SIRIUS 3RH2 contactor relays with extended operating range

## Selection and ordering data

DC operation ====





								CO. CO. CO. CO. CO.		CCCK		
								3RH2122-2K.40		3RH2122-2	2K.40-0LA0	)
Rated I <sub>e</sub> /AC-t <sub>u</sub> : 70	°C at	al current 500 V	690 V	Contacts Ident. No. according to EN 50011	Vers	ion	Rated control supply voltage $U_{\rm S}$	Spring-loaded terminals	•••	PU (UNIT, SET, M)	PS*	PG
					\	<del> </del>		Article No.	Price per PU			
A	A	A apop o	A	ing on TH 3	NO E DIN	NC	V DC					
Size		и ѕпар-с	ni inouni	ilig on This	אום פּ	Tall						
_	ntegrated	coil circu	uit									
	pressor dic			tory								
10	3	2	1	22E	2	2 <sup>1)</sup>	24 110	3RH2122-2KB40 3RH2122-2KF40		1 1	1 unit 1 unit	41A 41A
				31E	3	1 <sup>1)</sup>	24 110	3RH2131-2KB40 3RH2131-2KF40		1 1	1 unit 1 unit	41A 41A
				40E	4	01)	24 110	3RH2140-2KB40 3RH2140-2KF40		1 1	1 unit 1 unit	41A 41A
• Vari	stor integra	ated at fac	tory									
10	3	2	1	22E	2	2 <sup>1)</sup>	24 110	3RH2122-2LB40 3RH2122-2LF40		1 1	1 unit 1 unit	41A 41A
				31E	3	1 <sup>1)</sup>	24 110	3RH2131-2LB40 3RH2131-2LF40		1 1	1 unit 1 unit	41A 41A
				40E	4	0 <sup>1)</sup>	24 110	3RH2140-2LB40 3RH2140-2LF40		1 1	1 unit 1 unit	41A 41A
With	olug-on se	ries resis	stor and in	tegrated coil	circui	t						
	pressor dic	_	ated at fac	•		0)						
10	3	2	1	21X	2	1 <sup>2)</sup>	24 110	3RH2122-2KB40-0LA0 3RH2122-2KF40-0LA0		1 1	1 unit 1 unit	41A 41A
	stor integra					. 2)						
10	3	2	1	21X	2	1 <sup>2)</sup>	24 110	3RH2122-2LB40-0LA0 3RH2122-2LF40-0LA0		1 1	1 unit 1 unit	41A 41A

2

10

3

With integrated coil circuit (varistor integrated in electronics at factory)

22E

40E

2

12)

02)

24 ... 34

24 ... 34

72 ... 125

24 ... 34 72 ... 125

72 ... 125

3RH2122-2XB40-0LA2

3RH2122-2XF40-0LA2

3RH2131-2XB40-0LA2

3RH2131-2XF40-0LA2

Other voltages according to page 3/67 on request.

1 unit

1 unit

1 unit

1 unit

1 unit

41A

41A

41A

41A

41A 41A

<sup>1)</sup> It is not possible to mount an auxiliary switch.

<sup>2) 4-</sup>pole auxiliary switch according to EN 50005 can be mounted.

<sup>3</sup>RH2140-2XB40-0LA2 3RH2140-2XF40-0LA2 Accessories, see page 3/69 onwards.

Contactors for special applications Contactors for railway applications

#### 3TH4 contactor relays, 8-pole

#### Overview

#### Standards

IEC 60947-5-1

Terminal covers may have to be fitted onto the connecting bars, depending on the configuration with other devices.

#### Ambient temperature

The permissible ambient temperature for operation of the contactors (across the full solenoid coil operating range) is -50 to +70 °C. Uninterrupted duty at temperatures < -25 °C and > +55 °C reduces the mechanical endurance, the current carrying capacity of the conducting paths and the switching frequency.

A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 55 °C. There is no need to reduce the technical specifications.

#### Application

For operation in installations which are subject both to considerable variations in the control voltage and to high ambient temperatures, e.g. in railway applications.

#### Control and auxiliary circuits

The solenoid coils of the contactor relays have an extended coil operating range from 0.7 to 1.25 x  $U_{\rm s}$  and are fitted as standard with varistors to provide protection against overvoltage. The opening delay times are consequently 2 to 5 ms longer than for standard contactors.

#### Technical specifications

More information	
	Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16176/man
FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16176/faq	

Туре			3TH42
General data			
Permissible ambient temperature			
<ul> <li>During operation</li> </ul>		°C	-50 +70 <sup>1)</sup>
<ul> <li>During storage</li> </ul>		°C	-55 <b>+</b> 80
Control			
Solenoid coil operating range			0.7 1.25 x U <sub>s</sub>
Power consumption of the solenoir For cold coil: Closing = Closed	id coils (for cold coil and 1.0 x $U_{\rm S}$ )	W	5.2
Permissible residual current of the	e electronics (with 0 signal)		
DC operation			$\leq$ 10 mA x (24 V/ $U_{\rm S}$ )
Operating times within operating r	ange		
Total break time = Opening delay +	Arcing time		
DC operation	Closing delay Opening delay	ms ms	40 200 20 30
Arcing time		ms	10 20

<sup>1)</sup> Side-by-side mounting with 10 mm clearance.

All details and technical specifications not mentioned here are identical to those of the 3TH4 basic units, see page 5/14 onwards.

Contactors for special applications Contactors for railway applications

3TH4 contactor relays, 8-pole

## Selection and ordering data

DC operation



3TH4244-0L.

Contacts	Rated	operatio	nal curre	ent	Contacts <sup>1)</sup>		Rated control	Screw terminals	<b>(+)</b>	PU	PS*	PG
	I <sub>e</sub> /AC-	15			Ident. No. according to	Version	supply voltage $U_{\rm s}$			(UNIT, SET, M)		
	230 V	400 V	500 V	690 V	EN 50011							
						\		Article No.	Price per PU			
Number	Α	Α	Α	Α		NO NO	V DC					
For scr	ew and	snap-	on mou	ınting d	on TH 35 D	IN rail						
With int	tegrate	d coil c	ircuit (	varisto	r integrate	d at facto	ry)					
8	10	6	4	2	44E	4 4	24 110	3TH4244-0LB4 3TH4244-0LF4		1 1	1 unit 1 unit	41A 41A
8	10	6	4	2	53E	5 3	24 110	3TH4253-0LB4 3TH4253-0LF4		1 1	1 unit 1 unit	41A 41A
8	10	6	4	2	62E	6 2	24 110	3TH4262-0LB4 3TH4262-0LF4		1 1	1 unit 1 unit	41A 41A

<sup>1)</sup> No expansion contacts can be fitted.

Accessories, see page 5/20.

Contactors for special applications Contactors for railway applications

#### 3TC contactors for switching DC voltage, 2-pole

#### Overview

#### Standards

IEC 60947-4-1

# Protecting connections against short circuit, overload and overvoltage

All connections must generally be protected against overload and short circuits using suitable measures. Different constraints must be considered depending on the type of connection:

Short-circuit and overload protection of main connections

For information on the protection of a free-standing contactor, see the technical product data sheet.

For more information on device combinations such as contactor with overload relay or contactor with circuit breaker as motor feeder, refer to

- Digital Configuration Manual for load feeders
- · Configuration Manual for load feeders

Short-circuit and overload protection of auxiliary connections

For information on the protection of auxiliary contacts, see the technical product data sheet.

Short-circuit and overload protection of control supply voltage or supply voltage connections

First of all, the relevant standards and regulations for configuring control cabinets and the parts and components installed in them must be taken into account, for example for cable dimensioning.

One possible protection for these circuits could be the selection of a suitable power supply, i.e. one with a current-limiting function. In the selection of the source and the connecting cable, the load characteristics of the contactor must be considered (short-time inrush current peaks for solid-state contactor operating mechanisms, switch-on power, holding power). The same applies to the selection of suitable protective devices.

If there are further switching elements in the circuit, such as the auxiliary contact system of an overload relay that operates the contactor, the short-circuit protection necessary for this must also be considered.

For further recommendations, e.g. the use of miniature circuit breakers or circuit breakers for equipment in control circuits, see Control cabinet tip – Selecting and dimensioning suitable power supplies quickly and reliably.

# Protection against overvoltage at the control supply voltage connection

The 3TC contactors for railway applications are fitted as standard with varistors against overvoltage.

#### Ambient temperature

The permissible ambient temperature for operation of the contactors (across the full solenoid coil operating range) is -50 to +70 °C. Uninterrupted duty at temperatures < -25 °C and > +55 °C reduces the mechanical endurance, the current carrying capacity of the conducting paths and the switching frequency.

A clearance of 10 mm is required for side-by-side mounting of size 2 contactors at ambient temperatures > 55 °C. There is no need to reduce the technical specifications.

#### Series resistor

The DC solenoid systems of the 3TC contactors must be modified (to holding coil) by means of a series resistor. This series resistor is supplied separately packed with the contactors.

With types 3TC48, the series resistor must be attached onto the right-hand side of the auxiliary switch by means of the enclosed mounting parts and sets of links provided, while in the case of the 3TC44 it must be mounted and wired between the contactor poles. With types 3TC52 and 3TC56, the series resistor must be attached separately next to the contactors.

# Fitting auxiliary contacts and mounting additional auxiliary switches

Features in the delivery state

The 3TC contactors are equipped with two lateral auxiliary switches with four auxiliary contacts. Of those contacts, one NC contact is required if a series resistor is used (2 NO + 1 NC).

#### Expansion possibilities

Contactors with AC operation can be expanded using auxiliary switches; the permissible configuration must be observed.

#### Reversing contactors

With the 3TC52 and 3TC56 contactors, the series resistor must be connected using an additional K2 reversing contactor. This contactor is automatically included in the scope of supply.

## Application

For operation in installations which are subject both to considerable variations in the control voltage and to high ambient temperatures, e.g. in railway applications.

#### Control and auxiliary circuits

The solenoid coils of the contactors have an extended coil operating range from 0.7 to 1.25 x  $U_{\rm S}$ .

Contactors for special applications Contactors for railway applications

## **3TC contactors for switching DC voltage, 2-pole**

## Technical specifications

Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16180/td		Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16180/man							
Туре		3TC44	3TC48	3TC52	3TC56				
Size		2	4	8	12				
General data									
Ambient temperature									
During operation	°C	-40 +70							
Control									
Solenoid coil operating range		0.7 1.25 x	$U_{\rm S}$						
Power consumption of the solenoid coils		For cold coil	and 1.0 x U <sub>s</sub>						
Closing	W	48	26	40	130				
Closed	W	13	14	21	59				

All details and technical specifications not mentioned here are identical to those of the basic units of the 3TC contactors, see page 4/72.

Contactors for special applications Contactors for railway applications

#### 3TC contactors for switching DC voltage, 2-pole

## Selection and ordering data

#### DC operation

3TC44: for screw and snap-on mounting on TH 35 DIN rail, 3TC48 to 3TC56: For screw fixing



3TC4817-0L.4	3TC5617-0L.4 with reversing contactor

Size	Utilization Rated Rated power operational current $I_{\rm e}$ at						Auxilia contac Versio	cts <sup>1)</sup>	Rated control supply voltage $U_{\rm S}$	Screw terminals	<b></b>	PU (UNIT, SET, M)	PS*	PG
		750 V	220 V	440 V	600 V	750 V	1	7		Article No.	Price per PU			
		А	kW	kW	kW	kW	NO	NC	V DC					
Con	tactors for	switching	DC vo	oltage										
With	integrated	coil circu	it (var	istor i	ntegra	ated a	t facto	ry)						
2	DC-1	32	7	14		24	2	1 <sup>2)</sup>	24	3TC4417-0LB4		1	1 unit	41B
	DC-3/DC-5	7.5	5	9	9	4			110	3TC4417-0LF4		1	1 unit	41B
	laterally m tional auxil								ly in					
		•			OII LI		,							
4	DC-1 DC-3/DC-5	75 75	16.5 13	33 27	38	56 45	2	1 <sup>2)</sup>	24 110	3TC4817-0LB4 3TC4817-0LF4		1 1	1 unit 1 unit	41B 41B
8	DC-1	170	48	97		165	2	1 <sup>2)</sup>	24	3TC5217-0LB4		1	1 unit	41B
	DC-3/DC-5	170	41	82	110	110			110	3TC5217-0LF4		1	1 unit	41B
12	DC-1	400 400	88 70	176 140	 200	300 250	2	1 <sup>2)</sup>	24 110	3TC5617-0LB4 3TC5617-0LF4		1	1 unit	41B 41B
	DC-3/DC-5	400	70	140	200	200			110	3103017-0LF4		1	1 unit	410

<sup>1)</sup> No expansion auxiliary contacts can be fitted.

Other rated control supply voltages according to page 4/79 on request.

#### Accessories

Accessories, see basic units of the 3TC contactors, page 4/79 onwards.

#### Spare parts for contactors with extended operating range

For contactor		Remarks	Rated control supply voltage $U_{\rm S}$	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Size	Type		V DC					
Arc chutes								
2	3TC4417-0L	With recess for resistor mounting		3TY2442-0B		1	1 unit	41B
Solenoid coil	ls							
2	3TC44	With series resistor, without varistor	24 110	3TY6443-0LB4 3TY6443-0LF4		1 1	1 unit 1 unit	41B 41B
4	3TC48		24 110	3TY6483-0LB4 3TY6483-0LF4		1 1	1 unit 1 unit	41B 41B

All spare parts not mentioned here are identical to those of the basic units of the 3TC contactors, see page 4/79.

<sup>&</sup>lt;sup>2)</sup> One NC contact used for series resistor.

Contactors for special applications

3TC contactors for switching DC voltage, 1- and 2-pole

#### Overview

#### 3TC4 and 3TC5

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

The DC motor ratings given in the tables are applicable to the DC-3 and DC-5 utilization categories with 2-pole switching of the load or with the two conducting paths of the contactor connected in series.

One contactor conducting path can switch full power up to 220 V. For voltages over 220 V, the two conducting paths are to be switched in series, see Rated data of the main contacts, page 4/74.

#### Surge suppression

Contactors (not for railway applications) supplied without a coil circuit can be retrofitted with RC elements, varistors, diodes or diode assemblies (combination of diode and Zener diode for short break times) for damping switching overvoltages in the coil, see page 4/80 onwards.

# Fitting auxiliary contacts and mounting additional auxiliary switches

- Features in the delivery state:
   The 3TC contactors are equipped with two lateral auxiliary switches with four auxiliary contacts. Of those contacts, one NC contact is required if a series resistor is used (2 NO + 1 NC).
- Expansion possibilities: Contactors with AC operation can be expanded using auxiliary switches; the permissible configuration must be observed.

#### **3TC7**

IEC 60947-4-1

The solenoid excitation is configured for a particularly large operating range. It is between 0.7 or 0.8 and 1.2 x  $U_c$ .

3TC74 contactors can be used at up to 750 V/400 A and 50 Hz in AC-1 operation. For voltages over 750 V, the two conducting paths (3TC74: two contactors) are to be switched in series, see Rated data of the main contacts, page 4/76.

#### Application

The contactors are suitable for switching and controlling DC motors as well as all other DC circuits.

A version with a particularly large solenoid coil operating range is available for operation in electrically driven vehicles and in switchgear subject to large fluctuations in actuating voltage (see page 4/70).

Contactors for special applications

## 3TC contactors for switching DC voltage, 1- and 2-pole

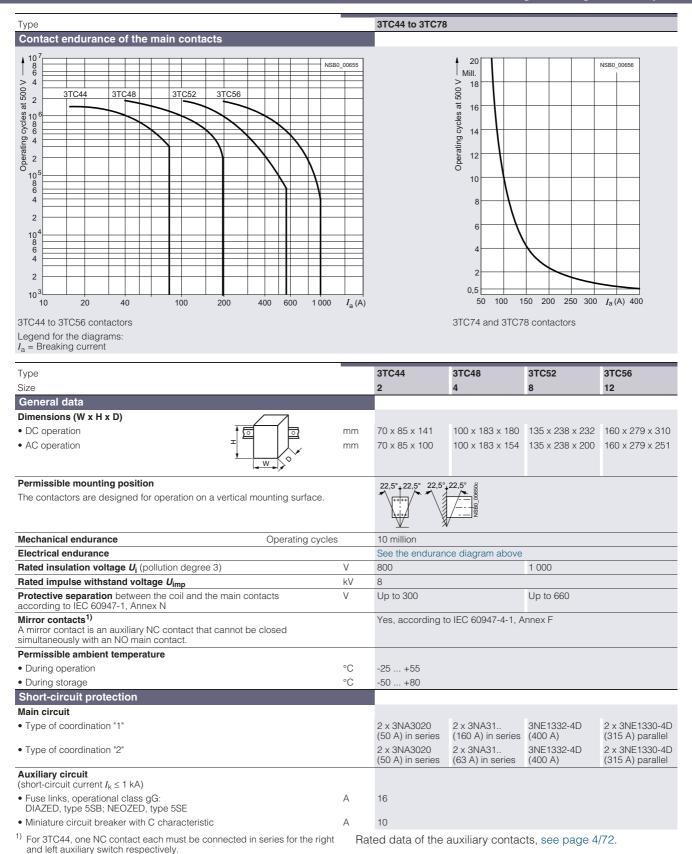
## Technical specifications

More information	
	Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16181/man
FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16181/faq	

Туре		31	TC4 and 3TC7	3TC5
Rated data of the auxiliary contacts			<u> </u>	
Rated insulation voltage U <sub>i</sub> (pollution degree 3)	V	69	90	
Conventional thermal current $I_{\rm th}$ = rated operational current $I_{\rm e}/AC$ -12	А	10	)	10
AC load				
Rated operational current I <sub>e</sub> /AC-15				
$ullet$ At rated operational voltage $U_{ m e}$	24 V A 110 V A 125 V A 220 V A 230 V A 380 V A 400 V A 660 V A 690 V A	10 6 5. 4 3. 2. 2.	0 0 6 6 5 5	10 10 10 6 5.6 4 3.6 2.5 2.5
DC load				
Rated operational current I <sub>e</sub> /DC-12				
$ullet$ At rated operational voltage $U_{\mathrm{e}}$	24 V A 60 V A 110 V A 125 V A 220 V A 440 V A 600 V A	10 3. 2. 0. 0.	) 2 5	10 10 8 6 2 0.6 0.4
Rated operational current I <sub>e</sub> /DC-13				
$ullet$ At rated operational voltage $U_{ m e}$	24 V A 48 V A 110 V A 125 V A	5 1. 0.	) 14 98 48	10 5 2.4 2.1
	440 V A 600 V A	0.	13 07	0.32 0.21

Туре	3TC44 to 3TC56
cULus rated data of the auxiliary contacts	
Rated voltage, max.	600
Switching capacity	A 600, P 600

Contactors for special applications



Contactors for special applications

# 3TC contactors for switching DC voltage, 1- and 2-pole

Time			3TC44	3TC48	3TC52	3TC56
Type Size			2	4	8	12
Control			2	4	0	12
Solenoid coil operating range			_			
DC operation			0.7 1.25 x U <sub>s</sub>			
AC operation			0.8 1.1 x U <sub>s</sub>			
Power consumption of the solenoid coils			0.0 1.1 X Og			
(for cold coil and $1.0 \times U_s$ )						
DC operation	Closing = Closed	W	10	19	30	86
AC operation, 50 Hz coil	Closing Closed	VA/p.f. VA/p.f.	68/0.86 10/0.29	300/0.5 26/0.24	640/0.48 46/0.23	1 780/0.3 121/0.22
AC operation, 60 Hz coil	Closing Closed	VA/p.f. VA/p.f.	95/0.79 12/0.3	365/0.45 35/0.26	730/0.38 56/0.24	2 140/0.3 140/0.29
<ul> <li>AC operation, 50/60 Hz coil</li> </ul>	Closing	VA/p.f.	79/73/0.83/0.78			
	at 50/60 Hz Closed at 50/60 Hz	VA/p.f.	11/9/0.28/0.27			
Rated data of the main contacts						
Load rating with DC						
Utilization category DC-1 ( <i>L/R</i> ≤ 1 ms)						
• Rated operational currents $I_e$ (at 55 °C)	Up to $U_{\rm e}$ 750 V	Α	32	75	220	400
Minimum conductor cross-section		$\text{mm}^2$	6	25	95	240
<ul> <li>Rated power at U<sub>e</sub></li> <li>(≤ 220 V DC: one conducting path,</li> <li>&gt; 220 V DC: two conducting paths in series)</li> </ul>	At 220 V 440 V 600 V	kW kW kW	7 14 19.2	16.5 33 45	48 97 132	88 176 240
	750 V	kW	24	56	165	300
Utilization category DC-3 and DC-5, shunt-wound and series-wound motors ( <i>L/F</i>	? < 15 ms)					
<ul> <li>Rated operational currents I<sub>e</sub> (at 55 °C)</li> </ul>	Up to 220 V 440 V 600 V 750 V	A A A	32 29 21 7.5	75 75 75 75	220 220 220 170	400 400 400 400
<ul> <li>Rated power at U<sub>e</sub>     (≤ 220 V DC: one conducting path,</li> </ul>	At 110 V 220 V	kW kW	2.5	6.5 13	20 41	35 70
> 220 V DC: two conducting paths in series)	440 V	kW	9	27	82	140
	600 V 750 V	kW kW	9	38 45	110 110	200 250
Conductor cross-sections	730 V	KVV	4	40	110	230
Main conductors (1 or 2 conductors can be connected)			Screw term	ninals		
• Solid		$\text{mm}^2$	2 x (2.5 10)	2 x (6 16)		
Finely stranded with end sleeve		mm <sup>2</sup>	2 x (1.5 4)	` '		
Stranded with cable lug		$\text{mm}^2$	2 x 16	2 x 35	2 x 120	2 x 150
Pin cable lug according to DIN 46231		$\text{mm}^2$	2 x (1 6)			
Busbars		mm		15 x 2.5	25 x 4	2 x (25 x 3)
Terminal screw			M5	M6	M10	
Auxiliary conductors (1 or 2 conductors can be connected)						
Solid		mm <sup>2</sup>	2 x (1 2.5)			
Finely stranded with end sleeve		mm <sup>2</sup>	2 x (0.75 1.5)			
i mory strainada with olla sideve		111111	2 × (0.70 1.0)			

Rated data of the auxiliary contacts, see page 4/72.

Contactors for special applications

### 3TC contactors for switching DC voltage, 1- and 2-pole

Time			27.074	2TC70				
Type Design			3TC74 1-pole contactors	3TC78 2-pole contactors				
General data			1-pole contactors	z-pole contactors				
Dimensions (W x H x D)	T O O	mm	78 x 352 x 276	160 x 366 x 290				
Permissible mounting position			22,5°, 22,5° 22,5°, 22,5° §					
The contactors are designed for operation on a vertical mounting surface.	al		Name of the state					
Mechanical endurance		Oper- ating cycles	30 million					
Electrical endurance			See page 4/73					
Rated insulation voltage $U_i$ (pollution degree 3)		V	1 500					
Rated impulse withstand voltage $U_{imp}$		kV	8					
<b>Protective separation</b> between the coil and the main according to IEC 60947-1, Annex N	contacts	V	630					
Mirror contacts <sup>1)</sup> A mirror contact is an auxiliary NC contact that canno be closed simultaneously with an NO main contact.	t		Yes, according to IEC 60947-4-1, A	Annex F				
Permissible ambient temperature		°C	-25 +55					
Short-circuit protection								
Main circuit								
Type of coordination "1"		Α	2 x 3NE1330-4D (315 A) parallel	2 x 3NE1330-5E (315 A) parallel				
Type of coordination "2"		Α	2 x 3NE1330-4D (315 A) parallel	2 x 3NE1330-5E (315 A) parallel				
<b>Auxiliary circuit</b> (Short-circuit current $I_k \le 1 \text{ kA}$ )								
<ul> <li>Fuse links, operational class gG: DIAZED, type 5SB; NEOZED, type 5SE</li> </ul>		А	16					
Miniature circuit breaker with C characteristic		Α	10					
Control								
Solenoid coil operating range								
DC operation	At $U_{\rm C}$ = 24 V		0.8 1.2 x <i>U</i> <sub>s</sub>					
	At $U_{\rm C}$ > 24 V		0.7 1.2 x <i>U</i> <sub>s</sub>					
AC operation	At $U_{\rm C}$ = 24 V		0.7 1.15 x <i>U</i> <sub>s</sub>					
	At $U_{\rm c}$ > 24 V		0.7 1.14 x <i>U</i> <sub>s</sub>					
Power consumption of the solenoid coils (for cold coil and 1.0 $\times$ $U_{\rm S}$ )								
DC operation	Closing = Closed	W	46	92				
AC operation, 50 Hz	Closing = Closed	VA	80	160				
		P.f.	0.95					

<sup>&</sup>lt;sup>1)</sup> For 3TC78, one auxiliary NC contact each of the right and left conducting paths must be connected in series.

Rated data of the auxiliary contacts, see page 4/72.

Contactors for special applications

# 3TC contactors for switching DC voltage, 1- and 2-pole

Туре			3TC74	3TC78
Design			1-pole contactors	2-pole contactors
Rated data of the main contacts				
Load rating with DC			-	
Utilization category DC-1 (L/R ≤ 1 ms)				
<ul> <li>Rated operational current I<sub>e</sub>/DC-1 (at 55 °C)</li> </ul>		Α	500	
Minimum conductor cross-section		mm <sup>2</sup>	2 x 150	
<ul> <li>Rated power</li> <li>(≤ 750 V DC: one conducting path,</li> <li>&gt; 750 V DC: two conducting paths in series)</li> </ul>	At 220 V 440 V 600 V	kW kW kW	110 220 300	
	750 V 1 200 V 1 500 V	kW kW kW	375  	600 750
Critical currents, without arc extinction	At 440 V 600 V 750 V	A A A	≤ 7 ≤ 13 ≤ 15	  
	≤ 800 V 1 200 V 1 500 V	A A A	  	≤ 7 ≤ 13 ≤ 15
Utilization category DC-3 and DC-5, shunt-wound and series-wound motors ( $L/R \le 15$ ms)				
<ul> <li>Rated operational current I<sub>e</sub> (at 55 °C)</li> </ul>		Α	400	
• Rated power at $U_{\rm e}$ ( $\leq$ 750 V DC: one conducting path, > 750 V DC: two conducting paths in series)	At 110 V 220 V 440 V 600 V 750 V 1 200 V 1 500 V	kW kW kW kW kW kW	35 70 140 200 250 	400 500
Permissible rated current for regenerative braking At 110 600 V		Α	400	
Conductor cross-sections				
Main conductors (1 or 2 conductors can be connected)			Screw terminals	
Stranded with cable lug		$\text{mm}^2$	2 x 150	
• Busbars		mm	2 × (30 × 4)	
Auxiliary conductors (1 or 2 conductors can be connected)				
• Solid		mm <sup>2</sup>	1 2.5	
<ul> <li>Finely stranded with end sleeve</li> </ul>		mm <sup>2</sup>	0.75 1.5	

Rated data of the auxiliary contacts, see page 4/72.

Contactors for special applications

3TC contactors for switching DC voltage, 1- and 2-pole

#### Selection and ordering data

DC operation ==== or AC operation, 50 Hz





3TC4817-0A.4

3TC4817-0B.0	

											31C4817-0A.4		31C4817-0	B.0	
Size	category <sup>1)</sup> ti		DC m					Auxi cont Vers	liary acts <sup>3)</sup> ion	Rated control supply voltage $U_{\rm S}$	Screw terminals	<b>+</b>	PU (UNIT, SET, M)	PS*	PG
		r <sub>e</sub> ′	110 V	220 V	440 V	/ 600 \	/ 750 V	\ \	7		Article No.	Price per PU			
		А	kW	kW	kW	kW	kW	NO	NC	V					
зтс	44 to 3TC5	6 2-pole	cont	actors	s · Op	eratic	nal v	oltag	e up t	o 750 V					
DC	operation														
Fors	screw and sn	ap-on m	ountin	g on T	H 35 D	IN rail									
2	DC-3, DC-5	32	2.5	5	9	9	4	2	2	24 DC 110 DC 220 DC	3TC4417-0AB4 3TC4417-0AF4 3TC4417-0AM4		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
For s	screw fixing														
4	DC-3, DC-5	75	6.5	13	27	38	45	2	2	24 DC 110 DC 220 DC	3TC4817-0AB4 3TC4817-0AF4 3TC4817-0AM4		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
8	DC-3, DC-5	220 <sup>4)</sup>	20	41	82	110	110	2	2	24 DC 110 DC 220 DC	3TC5217-0AB4 3TC5217-0AF4 3TC5217-0AM4		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
12	DC-3, DC-5	400	35	70	140	200	250	2	2	24 DC 110 DC 220 DC	3TC5617-0AB4 3TC5617-0AF4 3TC5617-0AM4		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
AC	operation, 5	50 Hz													
Fors	screw and sn	ap-on m	ountin	g on T	H 35 D	IN rail									
2	DC-3, DC-5	32	2.5	5	9	9	4	2	2	220/230 AC <sup>5)</sup> 110/110 AC	3TC4417-0BP0 3TC4417-0BF0		1 1	1 unit 1 unit	41B 41B
For s	screw fixing														
4	DC-3, DC-5	75	6.5	13	27	38	45	2	2	220/230 AC <sup>5)</sup> 110 AC	3TC4817-0BP0 3TC4817-0BF0		1 1	1 unit 1 unit	41B 41B
8	DC-3, DC-5	220 <sup>4)</sup>	20	41	82	110	110	2	2	220/230 AC <sup>5)</sup> 110 AC	3TC5217-0BP0 3TC5217-0BF0		1 1	1 unit 1 unit	41B 41B
12	DC-3, DC-5	400	35	70	140	200	250	2	2	220/230 AC <sup>5)</sup> 110 AC	3TC5617-0BP0 3TC5617-0BF0		1 1	1 unit 1 unit	41B 41B

<sup>1)</sup> Permissible load for DC-1 utilization category, see detailed technical specifications in the Reference Manual.

<sup>2)</sup> The following rated operational currents are permitted for reversing duty with 3TC44 to 3TC56 contactors:

Contactor Type	Rated operati	
3TC44 3TC48 3TC52 3TC56	32 A 75 A 170 A 400 A	7 A 75 A 170 A 400 A

<sup>3)</sup> The fitting of auxiliary switches cannot be altered on DC-operated contactors.

Other rated control supply voltages according to page 4/79 on request.

Accessories, see page 4/79 onwards.

Spare parts, see page 4/81.

<sup>&</sup>lt;sup>4)</sup> At > 600 V:  $I_{\rm e}$  = 170 A.

<sup>5)</sup> Operating range at 220 V AC: 0.85 to 1.15  $\times$   $U_{\rm S}$ ; lower operating range limit according to IEC 60947.

Contactors for special applications

### 3TC contactors for switching DC voltage, 1- and 2-pole

DC operation ==== or AC operation, 50 Hz

For screw fixing





3TC7414-

3TC7814-10

													3107414		310/014-	TOW	
Size	Utiliza- tion cat- egory <sup>1)</sup>		DC motors at							Au: iary cor tac Vei sio	/ n- :ts <sup>2)</sup> r-	Rated control supply voltage $U_{\rm S}$	Screw terminals	<b>⊕</b>	PU (UNIT, SET, M)	PS*	PG
			110 V	220 V	440 V	600 V	750 V	1200 V	1 500 V	, I	<u> </u>		Article No.	Price per PU			
		Α	kW	kW	kW	kW	kW	kW	kW	NO	NC	V					
3TC	74 1-pole	conta	ctors	s · Op	eratio	nal v	oltage	e up to	750 V								
DC	operation	,											•				
12	DC-3, DC-5	400	35	70	140	200	250			4	4	24 DC 110 DC	3TC7414-0EB 3TC7414-0EF		1 1	1 unit 1 unit	41B 41B
AC	operation	i, 50 H	Z														
12	DC-3, DC-5	400	35	70	140	200	250			4	4	230/220 AC <sup>3)</sup>	3TC7414-1CM		1	1 unit	41B
3ТС	78 2-pole	conta	actors	s · Op	eratio	nal v	oltage	e up to	1 500	٧							
DC	operation	1											-				
12	DC-3, DC-5	400	35	70	140	200	250	400	500	4	4	24 DC 110 DC	3TC7814-0EB 3TC7814-0EF		1 1	1 unit 1 unit	41B 41B
AC	operation	i, 50 H	Z											-			
12	DC-3, DC-5	400	35	70	140	200	250	400	500	4	4	230/220 AC <sup>3)</sup>	3TC7814-1CM		1	1 unit	41B

<sup>1)</sup> Permissible load for DC-1 utilization category, see detailed technical specifications in the Reference Manual.

Other rated control supply voltages according to page 4/79 on request.

Spare parts, see page 4/81.

The fitting of auxiliary switches cannot be altered on DC-operated contactors.

 $<sup>^{3)}\,</sup>$  Upper operating range limit at 230 V AC: 1.14 x  $U_{\rm S}.$ 

Contactors for special applications

3TC contactors for switching DC voltage, 1- and 2-pole

## Options

# Rated control supply voltages, possible on request (change of the 10th and 11th digits of the article number)

Delivery time on request

Rated control supply	Contactor type	3TC44	3TC48	3TC52/3TC56	3TC74/3TC78
voltage $U_{\rm s}$					
DC operation					
24 V DC		B4	B4	B4	В
48 V DC 60 V DC		W4 E4	W4 E4		
110 V DC		F4	F4	F4	F
125 V DC		G4	G4		
220 V DC		M4	M4	M4	M
230 V DC		P4	P4		
AC operation					
Solenoid coils for 50 Hz					
24 V AC		B0	В0	=_	
110 V AC		F0	F0	FO	
230/220 V AC		P0 <sup>1)</sup>	P0 <sup>1)</sup>	P0 <sup>1)</sup>	$M^{2)}$
240 V AC		U0	U0		
Solenoid coils for 50/60 Hz					
24 V AC		C2			
110 V AC		G2			
120 V AC		K2			
220 V AC		N2			
230 V AC		L2			

 $<sup>^{1)}</sup>$  Operating range at 220 V AC: 0.85 to 1.15  $\times$   $U_{\rm S};$  lower operating range limit according to IEC 60947.

#### Accessories

Accessories									
	For contactor	Version Auxiliary switches Auxiliary Left Right contacts		witches Right	Screw terminals		PU (UNIT, SET, M)	PS*	PG
	Size Type	NO NC			Article No.	Price per PU			
Second auxiliary	switches (for AC	operation onl	y)						
	4 3TC48	2nd auxiliary s	witch, left   53  61		3TY6501-1K		1	1 unit	41B
3TY6501- 3TY6501- 1K 1L		2nd auxiliary s	witch, right		3TY6501-1L		1	1 unit	41B
IK IL		1 1		71   83 2   2   84					
4	8 and 12 3TC52, 3TC56	2nd auxiliary s 1 1	witch, left  53  61 		3TY6561-1K		1	1 unit	41B
3TY6561- 3TY6561- 1K 1L		2nd auxiliary s	witch, right	71  83 	3TY6561-1L		1	1 unit	41B
Solid-state compa	atible auxiliary sv	witches							
3TY7561-1UA00	2 and 4 3TC44, 3TC48	solid-state circ currents $I_e$ /DC- 2nd auxiliary s	uits with rate -13 of 1 30 witch, left or	00 mA at 3 60 V	3TY7561-1UA00		1	1 unit	41B

 $<sup>^{2)}</sup>$  Upper operating range limit at 230 V AC: 1.14 x  $U_{\rm S}.$ 

Contactors for special applications

	For contactor		Version	Rated control supply voltage $U_{\rm S}$		Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	Size	Type		V AC	V DC					
Surge suppressors	s · Varisto	rs								
	2	3TC44 <sup>1)</sup>	Varistors <sup>2)</sup> With line spacer, for mounting on the coil terminal	240 400	24 70 70 150 150 250 	3TX7402-3G 3TX7402-3H 3TX7402-3J 3TX7402-3K 3TX7402-3L		1 1 1 1	1 unit 1 unit 1 unit 1 unit 1 unit	41B 41B 41B 41B 41B
3TX7402-3.	4	3TC48	Varistors <sup>2)</sup> For sticking onto the contactor base or for mounting separately	24 48 48 127 127 240 240 400 400 600		3TX7462-3G 3TX7462-3H 3TX7462-3J 3TX7462-3K 3TX7462-3L		1 1 1 1	1 unit 1 unit 1 unit 1 unit 1 unit	41B 41B 41B 41B 41B
	8 and 12	3TC52, 3TC56	Varistors For sticking onto the contactor base or for mounting separately	24 48 48 127 127 240 240 400 400 600		3TX7462-3G 3TX7462-3H 3TX7462-3J 3TX7462-3K 3TX7462-3L		1 1 1 1 1	1 unit 1 unit 1 unit 1 unit 1 unit	41B 41B 41B 41B 41B
3TX7462-3.	8 and 12	3TC52, 3TC56	Varistors <sup>2)</sup> For separate screw fixing or snapping onto TH 35 DIN rail		24 70 70 150 150 250	3TX7522-3G 3TX7522-3H 3TX7522-3J		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
3TX7522-3. Surge suppressors	s · RC eler	nents								
	4	3TC48	RC elements For lateral snapping onto	24 48	 24 70	3TX7462-3R 3TX7522-3R		1 1 1	1 unit 1 unit	41B 41B
Edward Color			auxiliary switch or TH 35 DIN rail	48 127  127 240	70 150	3TX7462-3S 3TX7522-3S 3TX7462-3T		1	1 unit 1 unit 1 unit	41B 41B 41B
				 240 400 400 600	150 250 	3TX7522-3T 3TX7462-3U 3TX7462-3V		1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
3TX7522-3.	8 and 12	3TC52, 3TC56	RC elements For lateral snapping onto auxiliary switch or TH 35 DIN rail	24 48 48 127 127 240 240 400 400 600		3TX7522-3R 3TX7522-3S 3TX7522-3T 3TX7522-3U 3TX7522-3V		1 1 1 1 1	1 unit 1 unit 1 unit 1 unit 1 unit	41B 41B 41B 41B 41B
Surge suppressor	· Diode as	sembly								
3TX7462-3.	4 to 12	3TC48, 3TC52, 3TC56	Diode assembly <sup>3</sup> ) (Diode and Zener diode) for DC solenoid system, for sticking onto the contactor base or for mounting separately		24 250	3TX7462-3D s the peak value of the si		1	1 unit	41B

<sup>1)</sup> The connection piece for mounting the surge suppressor must be bent slightly.

<sup>3)</sup> Not for DC operation.

For contacto		ctor	Version		Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	Size Type								
Terminal covers									
	2	3TC44	For protection against inadvertent contact with exposed busbar connections (1 set = 2 units)		3TY2444-0B		1	1 unit	41B
	6	3TC48	For protection against inadvertent	M6	3TX6506-3B		1	1 unit	41B
	8 and 12 3TC52, 3TC56		contact with exposed busbar connections	M10	3TX6546-3B		1	1 unit	41B
3TX6546-3B			Can be screwed on free screw end; covers one busbar connection (1 set = 6 units)						

<sup>2)</sup> Includes the peak value of the superimposed alternating voltage on the DC side.

Contactors for special applications

Spare parts											
	For contactor		Version	Auxiliar	Auxiliary swi Left	tches Right	Screw terminals		PU (UNIT, SET, M)	PS*	PG
				\			Article No.	Price per PU			
A	Size	Type		NO NO	;						
Auxiliary switch	nes For later	al mou	ntina								
3TY6501-1AA00	2 and 4	3TC44,	Auxiliary switch (replacement for 3TY6501-1A, 3TY6501-1B)	1 1	13  21 	31  43 + 1 32  44	3TY6501-1AA00		1	1 unit	41B
8	8 and 12	3TC52, 3TC56	Auxiliary switch, left  Auxiliary switch, right		13  21 	31  43   <sub>2 1</sub>	3TY6561-1A 3TY6561-1B		1	1 unit	41B 41B
3TY6561-1A			3 '			32 44					
3TY2741-2J	12	3TC74	Auxiliary switch	4 4	13 21 31 43 	53 61 71 83 \	3TY2741-2J		1	1 unit	41B
3112/41-20	12	3TC78	Auxiliary switch, left	2 2	13 21 31 43 		3TY2781-2C		1	1 unit	41B
3TY2781-2C			Auxiliary switch, right	2 2		53  61  71  83 	3TY2781-2D		1	1 unit	41B

Contactors for special applications

	For contactor		Version	Rated control supply voltage $U_s$	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	Size	Type		V AC/DC					
Surge sup	pressor	rs · Varisto	ors						
	12	3TC7	For sticking onto the contactor base	24 110	3TX2746-2F 3TX2746-2G		1	1 unit 1 unit	41B 41B
	For cor	ntactor	Version		Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	Size	Type							
Solenoid o									
	DC op	peration <sup>1)</sup>							
	2 4 8 12	3TC44 3TC48 3TC52 3TC56			3TY6443-0B 3TY6483-0B 3TY6523-0B 3TY6563-0B				
	AC op	peration <sup>1)</sup>							
	2 4 8 12	3TC44 3TC48 3TC52 3TC56			3TY7403-0A 3TY6483-0A 3TY6523-0A 3TY6566-0A				
Contacts v	vith fixi	ng parts							
			reliable operation of the co e contacts should be used						
3TY2520-0A	2 4 8 12	3TC44 3TC48 3TC52 3TC56	(1 set = 2 moving and 4	fixed contacts)	3TY2440-0A 3TY2480-0A 3TY2520-0A 3TY2560-0A		1 1 1 1	1 unit 1 unit 1 unit 1 unit	41B 41B 41B 41B
	12	3TC7	Main contacts (1 set) For 3TC78: 2 units requir	ed per contactor	3TY2740-0E		1	1 unit	41B
Arc chutes	\$								
	2 4 8 12	3TC44 3TC48 3TC52 3TC56	Arc chutes, 2-pole		3TY2442-0A 3TY2482-0A 3TY2522-0A 3TY2562-0A		1 1 1 1	1 unit 1 unit 1 unit 1 unit	41B 41B 41B 41B
3TY2482-0A	12	3TC7	For 3TC78: 2 units requir	ed per contactor	3TY2742-0C		1	1 unit	41B

Rated control supply voltages, see page 4/79.
 The 10th and 11th digits of the article number must be supplemented accordingly.

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