Notes:

3RT1 contactors in sizes S00/S0 to S12 can be found

- in the Catalog Add-On IC 10 AO · 2015 at the Information and Download Center
- in the interactive Catalog CA 01
- in the Industry Mall

Conversion tool
e.g. from 3RT13 to 3RT23, see www.siemens.com/sirius/conversion-tool

NEW

Click on the Article No. in the catalog PDF to access it in the Industry Mall and get all related information.

Article-No.

3RA1943-2C
3RA1943-2B
3RA1953-2B
3RA1953-2N

Or directly in the Internet, e. g. www.siemens.com/product?3RA1943-2C

Overview

Size			**S00**					**S0**			
Type			3RT231, 3RT251					3RT232, 3RT252			
4-pole 3RT23, 3RT25 contactors											
Type			**3RT2316**	**3RT2317**	**3RT2516**	**3RT2517**	**3RT2518**	**3RT2325**	**3RT2326**	**3RT2327**	**3RT2526**
Number of main contacts			4 NO		2 NO + 2 NC			4 NO			2 NO + 2 NC
AC, DC operation			(p. 4/15, 4/17)		(p. 4/36, 4/38)			(p. 4/15, 4/17)			(p. 4/36, 4/38)
AC-1											
I_e at 690 V [40 °C/60 °C]		A	18 / 16	22 / 20	18 / 16	22 / 20	22 / 20	35 / 30	40 / 35	50 / 42	40 / 35
P	**40 °C**	**kW**	**12**	**14.5**	**11**	**13**	**13**	**22**	**26**	**33**	**26**
	60 °C	kW	11	13	6.5	7.5	7.5	20	23	28	15
AC-2 and AC-3											
I_e at 400 V	NO	A	9	12	9	12	16	15.5	15.5	15.5	25
	NC	A	--	--	9	9	9	--	--	--	25 (20)[1]
***P* at 400 V** (NC for DC oper.)	NO / NC	**kW**	**4**	**5.5**	**4**	**5.5 / 4**	**7.5 / 4**	**7.5**	**7.5**	**7.5**	**11 (7.5)**[1]
at 230 V	NO / NC	kW	2.2	3	3	3 / 2.2	4 / 2.2	4	4	4	5.5
Accessories for contactors											
Auxiliary switch blocks			**3RH2911**		(Chap. 3)			**3RH2911, 3RH2921**		(Chap. 3)	
Timing relay blocks			**3RA281.**		(Chap. 3)			**3RA281.**		(Chap. 3)	
Surge suppressors			**3RT2916**		(Chap. 3)			**3RT2926**		(Chap. 3)	

[1] The value in brackets applies to the NC for DC operation.

Size			**S2**				**S3**			**S6, S10, S12**				
Type			3RT233, 3RT253				3RT134.			3RT145.				
4-pole 3RT23, 3RT25, 3RT13, 3RT15 contactors • 3-pole 3RT14 contactors														
Type			**3RT2336**	**3RT2337**	**3RT2535**	**3RT2536**	**3RT1344**	**3RT1346**	**3RT1446**	**3RT1456**	**3RT1466**	**3RT1476**		
Number of main contacts			4 NO		2 NO + 2 NC		4 NO		3 NO	3 NO				
AC, DC operation			(p. 4/16, 4/18)		(p. 4/37, 4/39)		(p. 4/21)		(p. 4/10)	(p. 4/10)				
AC-1 (≤ 690 V)														
I_e	**40 °C**	**A**	**60**	**110**	**60**	**70**	**110**	**140**	**140**	**275**	**400**	**690**		
	60 °C	A	55	95	55	60	100	120	130	250	380	650		
***P* at 400 V**	40 °C	**kW**	**36**	**63**	**36**	**39**	**72**	**92**	**92**	**180**	**263**	**454**		
at 230 V	40 °C	kW	21	36	21	23	42	53	53	105	151	261		
at 500 V		kW	--	--	--		--	--	115	225	329	568		
at 690 V		kW	--	--	--		--	--	159	310	454	783		
at 1 000 V	60 °C	kW	--	--	--		--	--	98	165	247	410		
AC-2 and AC-3														
I_e/400 V		A	--	--	35	41	--	--	44	97	138	170		
***P* at 400 V**		**kW**	**--**	**--**	**18.5**	**22**	**--**	**--**	**22**	**55**	**75**	**90**		
at 230 V		kW	--	--	11	11	--	--	12.7	30	37	55		
at 500 V		kW	--	--	--	--	--	--	29.9	55	90	110		
at 690 V		kW	--	--	--	--	--	--	38.2	90	132	160		
Accessories for contactors														
Auxiliary switch blocks			**3RH2921**		(Chap. 3)									
Terminal covers			**--**		(Chap. 3)		**3RT1946-4EA1/2**		(Chap. 3)	**3RT1956-4EA1/2/3**		(Chap. 3)		
Box terminal blocks			**--**				**--**			**3RT1955/56-4G**		(Chap. 3)		
Surge suppressors			**3RT2926/36**		(Chap. 3)		**3RT1926/36**		(Chap. 3)	**3RT1956-1C**		(Chap. 3)		

Size		--							**00**	--
Type		3TK1							3TK20	3TG10
4-pole 3TK, 3TG contactors										
Type		**3TK10**	**3TK11**	**3TK12**	**3TK13**	**3TK14**	**3TK15**	**3TK17**	**3TK20**	**3TG10**
Number of main contacts		4 NO							4	4
AC, DC operation		(p. 4/24)							(p. 4/32)	(p. 4/73)
AC-1 (40 °C, ≤ 690 V)										
I_e	**A**	**200**	**250**	**300**	**350**	**550**	**800**	**1000**	**18**	**20**
***P* at 400 V**	**kW**	**132**	**165**	**197**	**230**	**362**	**527**	**658**	**10**	**13**
at 230 V	kW	76	95	114	132	308	303	378	6	7.5
at 500 V	kW	165	206	247	288	452	658	828	13	--
at 690 V	kW	227	284	341	397	624	908	1135	17	--
AC-2 and AC-3										
I_e/400 V	A	120	145	210	210	400	550	700	8.4	8.4
***P* at 400 V**	**kW**	**55**	**75**	**110**	**110**	**200**	**280**	**370**	**4**	**4**
at 127 V	kW	--	--	--	--	--	--	--	1.4	--
at 230 V	kW	30	45	75	75	110	160	220	2.5	--
at 500 V	kW	--	--	--	--	--	--	--	4	--
at 690 V	kW	--	--	--	--	--	--	--	4	--

Accessories for contactors									
Auxiliary switch blocks	On front	**--**						**--**	**--**
	Lateral	**3TK1910**						**--**	**--**
Terminal covers		**3TK1940**		**3TK1942**		**3TK1944**	**3TK1946**	**--**	**--**
Surge suppressors		**3TK1930**				**3TK1934**		**3TX4490** (Chap. 3)	**--**

Note:

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

Connection methods

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

Devices of the 3TK2 series are also available for connection with flat connectors and solder pin connectors.

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

- Screw terminals
- Spring-type terminals
- Flat connectors
- Solder pin connections
- Ring terminal lug connections

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

Support function

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

Configurator available in the Industry Mall

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

Use of 3RT2 contactors with IE3 motors

Note:

For the use of 3RT2 contactors in conjunction with highly energy-efficient IE3 motors, please observe the information on dimensioning and configuring, see "Configuration Manual for SIRIUS Controls with IE3 Motors" http://support.automation.siemens.com/WW/view/en/94770820

More information, see page 1/3.

SIRIUS 3RT14 contactors for resistive loads (AC-1), 3-pole, 140 ... 690 A

Overview

Standards

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

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

3RT14 contactors are used for switching resistive loads (AC-1) or as contactors that normally only have to carry the current, for example for variable-speed operating mechanisms.

Size S3: AC or DC operation
Sizes S6 to S12: UC operating mechanism (AC 50/60 Hz and DC)

The following applies for sizes S6 to S12:

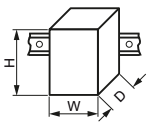
- Withdrawable coils
- Integrated coil circuit (varistor)
- Auxiliary and control conductors: Screw terminals
- Main conductors: busbar connections

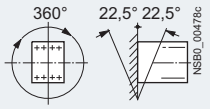
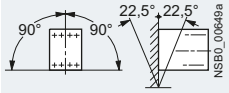
Accessories for the 3RT10 contactors can also be used here.

For a general description of sizes S3 to S12, see Chapter 3, "Power contactors for switching motors" → "SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW"

Technical specifications

Type		**3RT1446**	**3RT1456**	**3RT1466**	**3RT1476**
Size		**S3**	**S6**	**S10**	**S12**
Dimensions (W x H x D)	mm	70 x 146 x 134	120 x 172 x 170	145 x 210 x 202	160 x 214 x 225
• with mounted auxiliary switch block	mm	70 x 146 x 183	120 x 172 x 217	145 x 210 x 251	160 x 214 x 271



General technical specifications					
Permissible mounting position					
The contactors are designed for operation on a vertical mounting surface.					
3RT1446: for DC operation and up to 22.5° inclination in front, the coil operating range is reduced to 0.85 ... 1.1 x U_s					
Upright mounting position		 Special version required		--	
Mechanical endurance	Operating cycles	10 million			
Electrical endurance for utilization category AC-1 at I_e	Operating cycles	0.5 million			
Rated insulation voltage U_i (Pollution degree 3)	V	1 000			
Rated impulse withstand voltage U_{imp}	kV	6	8		
Protective separation between the coil and the main contacts Acc. to IEC 60947-1, Appendix N	V	690			
Mirror contacts					
A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact.					
• Removable auxiliary switch block		Yes, acc. to IEC 60947-4-1, Appendix F			
• Permanently fitted auxiliary switch block		Acc. to Swiss regulations (SUVA) on request	--		
Permissible ambient temperature					
• During operation	°C	-25 ... +60	-25 ... +60		
• During operation, with AS-Interface interface	°C	--	-25 ... +55		
• During storage	°C	-55 ... +80	-55 ... +80		
Degree of protection acc. to IEC 60947-1, Appendix C		IP20	IP00/open		
• Connection range		IP00 (where applicable, use additional terminal covers)			
Touch protection acc. to EN 50274		Finger-safe only for vertical contact from the front			
Shock resistance					
• Rectangular pulse, for AC and DC operation	*g*/ms	6.8/5 and 4/10	8.5/5 and 4.2/10		
• Sine pulse, for AC and DC operation	*g*/ms	10.6/5 and 6.2/10	13.4/5 and 6.5/10		
Conductor cross-sections		1)	1)		
Electromagnetic compatibility (EMC)		--	2)		

1) Conductor cross-sections, see pages 4/8 and 4/9.
2) Electromagnetic compatibility, see "SIRIUS 3RT10 Contactors", Chapter 3.

SIRIUS 3RT14 contactors for resistive loads (AC-1), 3-pole, 140 ... 690 A

Type			3RT1446	3RT1456	3RT1466	3RT1476
Size			S3	S6	S10	S12
Short-circuit protection						
Main circuit						
• Fuse links, operational class gG: LV HRC, type 3NA - Type of coordination "1"		A	250	355	500	800
• Fuse links, gR operational class: SITOR, type 3NE - Type of coordination "2"		A	250	350	500	710
Auxiliary circuit						
Short-circuit test						
• with fuse links of operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current I_k = 1 kA acc. to IEC 60947-5-1		A	10			
• with miniature circuit breakers with C characteristic with short-circuit current I_k = 400 A		A	10			
Control circuit						
Solenoid coil operating range (AC/DC)			0.8 ... 1.1 x U_s [1]	0.8 x $U_{s\,min}$ ... 1.1 x $U_{s\,max}$		
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)						
Standard version:						
• AC operation, 50 Hz	Closing	VA	270	--		
	p.f.		0.68	--		
	Closed	VA	22	--		
	p.f.		0.27	--		
• AC operation, 50/60 Hz	Closing	VA	298/274	--		
	p.f.		0.7/0.62	--		
	Closed	VA	27/20	--		
	p.f.		0.29/0.31	--		
For USA and Canada:						
• AC operation, 50 Hz	Closing	VA	270	--		
	p.f.		0.68	--		
	Closed	VA	22	--		
	p.f.		0.27	--		
• AC operation, 60 Hz	Closing	VA	300	--		
	p.f.		0.52	--		
	Closed	VA	21	--		
	p.f.		0.29	--		
• DC operation	Closing = Closed	W	15	--		
Power consumption of the solenoid operation (when coil is cold and rated range $U_{s\,min}$ ... $U_{s\,max}$)						
• Conventional operating mechanisms						
- AC operation	Closing at $U_{s\,min}$	VA/p.f.	--	250/0.9	490/0.9	700/0.9
	Closing at $U_{s\,max}$	VA/p.f.	--	300/0.9	590/0.9	830/0.9
	Closed at $U_{s\,min}$	VA/p.f.	--	4.8/0.8	5.6/0.9	7.6/0.9
	Closed at $U_{s\,max}$	VA/p.f.	--	5.8/0.8	6.7/0.9	9.2/0.9
- DC operation	Closing at $U_{s\,min}$	W	--	300	540	770
	Closing at $U_{s\,max}$	W	--	360	650	920
	Closed at $U_{s\,min}$	W	--	4.3	6.1	8.5
	Closed at $U_{s\,max}$	W	--	5.2	7.4	10
• Solid-state operating mechanism						
- AC operation	Closing at $U_{s\,min}$	VA/p.f.	--	190/0.8	400/0.8	560/0.8
	Closing at $U_{s\,max}$	VA/p.f.	--	280/0.8	530/0.8	750/0.8
	Closed at $U_{s\,min}$	VA/p.f.	--	3.5/0.5	4/0.5	5.4/0.8
	Closed at $U_{s\,max}$	VA/p.f.	--	4.4/0.4	5/0.4	7/0.8
- DC operation	Closing at $U_{s\,min}$	W	--	250	440	600
	Closing at $U_{s\,max}$	W	--	320	580	800
	Closed at $U_{s\,min}$	W	--	2.3	3.2	4
	Closed at $U_{s\,max}$	W	--	2.8	3.8	5
PLC control input (IEC 61131-2, type 2)		V DC		24, at ≤ 30 mA power consumption		
• Operating range		V DC		17 ... 30		
Operating times for 0.8 ... 1.1 x U_s [1] Total break time = Opening delay + Arcing time						
• AC operation	- Closing delay	ms	17 ... 90	--		
	- Opening delay	ms	10 ... 25	--		
• DC operation	- Closing delay	ms	90 ... 230	--		
	- Opening delay	ms	14 ... 20	--		
• Arcing time		ms	10 ... 15	--		
Operating times for 1.0 x U_s [1]						
• AC operation	- Closing delay	ms	18 ... 30	--		
	- Opening delay	ms	11 ... 23	--		
• DC operation	- Closing delay	ms	100 ... 120	--		
	- Opening delay	ms	16 ... 20	--		

[1] For DC operation and up to 22.5° inclination in front, the coil operating range is reduced to 0.85 ... 1.1 x U_s (see also permissible mounting position, page4/4).

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

SIRIUS 3RT14 contactors for resistive loads (AC-1), 3-pole, 140 ... 690 A

Type				3RT1446	3RT1456	3RT1466	3RT1476
Size				S3	S6	S10	S12
Control circuit							
Operating times (Total break time = Opening delay + Arcing time)							
• Conventional operating mechanisms							
- for 0.8 x $U_{s\,min}$ ... 1.1 x $U_{s\,max}$	Closing delay		ms	--	20 ... 95	30 ... 95	45 ... 100
	Opening delay		ms	--	40 ... 60	40 ... 80	60 ... 100
- for $U_{s\,min}$ ... $U_{s\,max}$	Closing delay		ms	--	25 ... 50	35 ... 50	50 ... 70
	Opening delay		ms	--	40 ... 60	50 ... 80	70 ... 100
• Solid-state operating mechanism, actuated via A1/A2							
- for 0.8 x $U_{s\,min}$ ... 1.1 x $U_{s\,max}$	Closing delay		ms	--	95 ... 135	105 ... 145	120 ... 150
	Opening delay		ms	--	80 ... 90	80 ... 100	80 ... 100
- for $U_{s\,min}$ ... $U_{s\,max}$	Closing delay		ms	--	100 ... 120	110 ... 130	125 ... 150
	Opening delay		ms	--	80 ... 90	80 ... 100	80 ... 100
• Solid-state operating mechanism, actuated via PLC input							
- for 0.8 x $U_{s\,min}$ ... 1.1 x $U_{s\,max}$	Closing delay		ms	--	35 ... 75	45 ... 80	60 ... 90
	Opening delay		ms	--	80 ... 90	80 ... 100	80 ... 100
- for $U_{s\,min}$ ... $U_{s\,max}$	Closing delay		ms	--	40 ... 60	50 ... 65	65 ... 80
	Opening delay		ms	--	80 ... 90	80 ... 100	80 ... 100
• Arcing time			ms	--	10 ... 15	10 ... 15	10 ... 15

Type				3RT1446	3RT1456	3RT1466	3RT1476
Size				S3	S6	S10	S12
Main circuit							
Load rating with AC							
Utilization category AC-1 Switching resistive loads							
• Rated operational currents I_e	at 40 °C up to 690 V		A	140	275	400	690
	at 60 °C up to 690 V		A	130	250	380	650[1]
	at 1 000 V		A	60	100	150	250
• Rated power for AC loads[2] with p.f. = 0.95 (at 60 °C)	at 230 V		kW	50	95	145	245
	400 V		kW	86	165	250	430
	500 V		kW	107	205	315	535
	690 V		kW	148	285	430	740
	1 000 V		kW	98	165	247	410
• Minimum conductor cross-section for loads with I_e	at 40 °C		mm^2	50	2 x 70	240	2 x 240
	at 0 °C		mm^2	50	120	240	2 x 240
Utilization categories AC-2 and AC-3 with an electrical endurance of 1.3 million operating cycles							
• Rated operational current I_e	up to 690 V		A	44	97	138	170
• Rated power for slipring or squirrel-cage motors at 50 and 60 Hz (at 60 °C)	at 230 V		kW	12.7	30	37	55
	400 V		kW	22	55	75	90
	500 V		kW	29.9	55	90	110
	690 V		kW	38.2	90	132	160
Power loss per conducting path	at I_e/AC-1		W	12.5	20	27	55

1) 600 A for 3RT1476-N contactor.

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

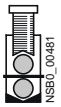
SIRIUS 3RT14 contactors for resistive loads (AC-1), 3-pole, 140 ... 690 A

Type			3RT1446	3RT1456	3RT1466	3RT1476
Size			S3	S6	S10	S12
Main circuit						
Load rating with DC						
Utilization category DC-1						
Switching resistive loads (*L/R* ≤ 1 ms)						
• Rated operational currents I_e (at 60 °C)						
- 1 conducting path	up to 24 V	A	130	250	380	500
	60 V	A	80	250	380	500
	110 V	A	12	18	33	33
	220 V	A	2.5	3.4	3.8	3.8
	440 V	A	0.8	0.8	0.9	0.9
	600 V	A	0.48	0.5	0.6	0.6
- 2 conducting paths in series	up to 24 V	A	130	250	380	500
	60 V	A	130	250	380	500
	110 V	A	130	250	380	500
	220 V	A	13	20	380	500
	440 V	A	2.4	3.2	4	4
	600 V	A	1.3	1.6	2	2
- 3 conducting paths in series	up to 24 V	A	130	250	380	500
	60 V	A	130	250	380	500
	110 V	A	130	250	380	500
	220 V	A	130	250	380	500
	440 V	A	6	11.5	11	11
	600 V	A	3.4	4	5.2	5.2
Utilization category DC-3/DC-5						
Shunt-wound and series-wound motors (*L/R* ≤15 ms)						
• Rated operational currents I_e (at 60 °C)						
- 1 conducting path	up to 24 V	A	6	250	380	500
	60 V	A	3	7.5	11	11
	110 V	A	1.25	2.5	3	3
	220 V	A	0.35	0.6	0.6	0.6
	440 V	A	0.15	0.17	0.18	0.18
	600 V	A	0.1	0.12	0.125	0.125
- 2 conducting paths in series	up to 24 V	A	130	250	380	500
	60 V	A	130	250	380	500
	110 V	A	130	250	380	500
	220 V	A	1.75	2.5	2.5	2.5
	440 V	A	0.42	0.65	0.65	0.65
	600 V	A	0.27	0.37	0.37	0.37
- 3 conducting paths in series	up to 24 V	A	130	250	380	500
	60 V	A	130	250	380	500
	110 V	A	130	250	380	500
	220 V	A	4	250	380	500
	440 V	A	0.8	1.4	1.4	1.4
	600 V	A	0.45	0.75	0.75	0.75
Switching frequency						
Switching frequency *z* in operating cycles/hour						
• Contactors without overload relays	No-load switching frequency AC	1/h	5 000	2 000		
	No-load switching frequency DC	1/h	1 000	2 000		
• Rated operation	Acc. to AC-1 (AC/DC)	1/h	650	600		
	Acc. to AC-3 (AC/DC)	1/h	1 000	1 000		

Dependence of the switching frequency z' on the operational current I' and operational voltage U':

$z' = z \cdot (I_e/I') \cdot (400\ V/U')^{1.5} \cdot 1/h$

SIRIUS 3RT14 contactors for resistive loads (AC-1), 3-pole, 140 ... 690 A

Type			3RT1446
Size			S3
Conductor cross-sections			
Main conductors (1 or 2 conductors can be connected)			**Screw terminals**
Box terminals			
	Terminal screws		M6 (hexagon socket, A/F 4)
	• Tightening torque	Nm lb.in	4 ... 6 36 ... 53
Front clamping point connected			
 NSB0_00479	• Finely stranded with end sleeve • Finely stranded without end sleeve	mm² mm²	2.5 ... 50 10 ... 50
	• Solid • Stranded	mm² mm²	2.5 ... 16 10 ... 70
	• AWG cables, solid or stranded	AWG	10 ... 2/0
	• Ribbon cable conductors (Number x Width x Thickness)	mm	6 x 9 x 0.8
Rear clamping point connected			
 NSB0_00480	• Finely stranded with end sleeve • Finely stranded without end sleeve	mm² mm²	2.5 ... 50 10 ... 50
	• Solid • Stranded	mm² mm²	2.5 ... 16 10 ... 70
	• AWG cables, solid or stranded	AWG	10 ... 2/0
	• Ribbon cable conductors (Number x Width x Thickness)	mm	6 x 9 x 0.8
Both clamping points connected			
 NSB0_00481	• Finely stranded with end sleeve • Finely stranded without end sleeve	mm² mm²	2 x (2.5 ... 35) 2 x (10 ... 35)
	• Solid • Stranded	mm² mm²	2 x (2.5 ... 16) 2 x (10 ... 50)
	• AWG cables, solid or stranded	AWG	2 x (10 ... 1/0)
	• Ribbon cable conductors (Number x Width x Thickness)	mm	2 x (6 x 9 x 0.8)
Busbar connection (bored copper bars)			
	Connecting bar (max. width)[1]	mm	10
Cable lug connection (without box terminals)[2]			
	• Finely stranded with cable lug • Stranded with cable lug	mm² mm²	10 ... 50[3] 10 ... 70[3]
	• AWG cables, solid or stranded	AWG	7 ... 1/0
	• Terminal screws		M6
Auxiliary conductors			
	• Solid	mm²	2 x (0.5 ... 1.5)[4]; 2 x (0.75 ... 2.5)[4] according to IEC 60947; max. 2 x (0.75 ... 4)[4]
	• Finely stranded with end sleeve	mm²	2 x (0.5 ... 1.5)[4]; 2 x (0.75 ... 2.5)[4]
	• AWG cables, solid or stranded	AWG	2 x (20 ... 16)[4]; 2 x (18 ... 14)[4]; 1 x 12
	• Terminal screws - Tightening torque	 Nm lb.in	M3 0.8 ... 1.2 7 ... 10.3

1) If bars larger than 12 x 10 mm are connected, a 3RT1946-4EA1 terminal cover is needed to comply with the phase clearance, see "Accessories for 3RT10 Contactors", page 3/121

2) If conductors larger than 25 mm² are connected, a 3RT1946-4EA1 terminal cover is needed to comply with the phase clearance, see "Accessories for 3RT10 Contactors", page 3/121

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

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

SIRIUS 3RT14 contactors for resistive loads (AC-1), 3-pole, 140 ... 690 A

Type			3RT1456		3RT1466	3RT1476
Size			S6		S10	S12
Conductor cross-sections						
Main conductors (1 or 2 conductors can be connected)			Screw terminals			
With mounted box terminals		Type	3RT1955-4G	3RT1956-4G	3RT1966-4G	
Terminal screws			M10 (hexagon socket, A/F 4)	M10 (hexagon socket, A/F 4)	M12 (hexagon socket, A/F 5)	
• Tightening torque		Nm lb.in	10 ... 12 90 ... 110	10 ... 12 90 ... 110	20 ... 22 180 ... 195	
Front clamping point connected						
						
• Finely stranded with end sleeve		mm^2	16 ... 70	16 ... 120	70 ... 240	
• Finely stranded without end sleeve		mm^2	16 ... 70	16 ... 120	70 ... 240	
• Stranded		mm^2	16 ... 70	16 ... 120	95 ... 300	
• AWG cables, solid or stranded		AWG	6 ... 2/0	6 ... 250 kcmil	3/0 ... 600 kcmil	
• Ribbon cable conductors (Number x Width x Thickness)		mm	Min. 3 x 9 x 0.8, max. 6 x 15.5 x 0.8	Min. 3 x 9 x 0.8, max. 10 x 15.5 x 0.8	Min. 6 x 9 x 0.8, max. 20 x 24 x 0.5	
Rear clamping point connected						
						
• Finely stranded with end sleeve		mm^2	16 ... 70	16 ... 120	120 ... 185	
• Finely stranded without end sleeve		mm^2	16 ... 70	16 ... 120	120 ... 185	
• Stranded		mm^2	16 ... 70	16 ... 120	120 ... 240	
• AWG cables, solid or stranded		AWG	6 ... 2/0	6 ... 250 kcmil	250 ... 500 kcmil	
• Ribbon cable conductors (Number x Width x Thickness)		mm	Min. 3 x 9 x 0.8, max. 6 x 15.5 x 0.8	Min. 3 x 9 x 0.8, max. 10 x 15.5 x 0.8	Min. 6 x 9 x 0.8, max. 20 x 24 x 0.5	
Both clamping points connected[1]						
						
• Finely stranded with end sleeve		mm^2	Max. 1 x 50, 1 x 70	Max. 1 x 95, 1 x 120	Min. 2 x 50, max. 2 x 185	
• Finely stranded without end sleeve		mm^2	Max. 1 x 50, 1 x 70	Max. 1 x 95, 1 x 120	Min. 2 x 50, max. 2 x 185	
• Stranded		mm^2	Max. 1 x 50, 1 x 70	Max. 1 x 95, 1 x 120	Min. 2 x 70, max. 2 x 240	
• AWG cables, solid or stranded		AWG	Max. 2 x 1/0	Max. 2 x 3/0	Min. 2 x 2/0, max. 2 x 500 kcmil	
• Ribbon cable conductors (Number x Width x Thickness)		mm	Max. 2 x (6 x 15.5 x 0.8)	Max. 2 x (10 x 15.5 x 0.8)	Max. 2 x (20 x 24 x 0.5)	
Busbar connections						
• Connecting bar (max. width)		mm	17		25	
Cable lug connection			[2]		[3]	
• Finely stranded with cable lug		mm^2	16 ... 95		50 ... 240	
• Stranded with cable lug		mm^2	25 ... 120		70 ... 240	
• AWG cables, solid or stranded		AWG	4 ... 250 kcmil		2/0 ... 500 kcmil	
• Terminal screws			M8 x 25 (A/F 13)		M10 x 30 (A/F 17)	
- Tightening torque		Nm lb.in	10 ... 14 90 ... 124		14 ... 24 124 ... 210	
Auxiliary conductors						
• Solid		mm^2	2 x (0.5 ... 1.5)[4], 2 x (0.75 ... 2.5)[4] according to IEC 60947; max. 2 x (0.75 ... 4)[4]			
• Finely stranded with end sleeve		mm^2	2 x (0.5 ... 1.5)[4]; 2 x (0.75 ... 2.5)[4]			
• AWG cables, solid or stranded		AWG	2 x (18 ... 14)			
• Terminal screws			M3 (PZ 2)			
- Tightening torque		Nm lb.in	0.8 ... 1.2 7 ... 10.3			
Auxiliary conductors[5]			Spring-type terminals			
• Operating devices[6]			3.0 x 0.5; 3.5 x 0.5			
• Solid		mm^2	2 x (0.25 ... 2.5)			
• Finely stranded with end sleeve		mm^2	2 x (0.25 ... 1.5)			
• Finely stranded without end sleeve		mm^2	2 x (0.25 ... 2.5)			
• AWG cables, solid or stranded		AWG	2 x (24 ... 14)			

1) Minimum cross-section 16 mm^2.

2) 3RT1456: When connecting cable lugs according to EN 46235, use 3RT1956-4EA1 terminal cover for conductor cross-sections from 95 mm^2 to keep the phase clearance, see "Accessories for 3RT10 Contactors", on page 3/121

3) 3RT1466 and 3RT1476: When connecting cable lugs according to EN 46234, the 3RT1966-4EA1 terminal cover must be used for conductor cross-sections of 240 mm^2 and more as well as EN 46235 for conductor cross-sections of 185 mm^2 and more to keep the phase clearance. See "Accessories for 3RT10 Contactors", on page 3/121

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

5) Max. external diameter of the conductor insulation: 3.6 mm. An "insulation stop" must be used for conductor cross-sections ≤ 1 mm^2, see "Accessories for 3RT10 Contactors", on page 3/122

6) Tool for opening the spring-type terminals, see "Accessories for 3RT10 contactors" on page 3/122

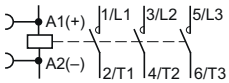
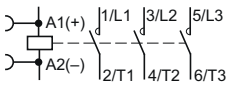
SIRIUS 3RT14 contactors for resistive loads (AC-1), 3-pole, 140 ... 690 A

Selection and ordering data

Size S3: AC or DC operation

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

3RT1446-1A..0

Size	Rated data AC-1, T_u: 40 °C					Auxiliary contacts		Rated control supply voltage U_s	DT	Screw terminals		PU (UNIT, SET, M)	PS*	PG
	Operational current I_e	Ratings of AC loads (p.f. = 0.95) at				Version				Article No.	Price per PU			
	Up to													
	690 V	230 V	400 V	500 V	690 V									
	A	kW	kW	kW	kW	NO	NC	V						
For screw fixing and snap-on mounting onto TH 35 and TH 75 standard mounting rail														
AC operation														
														
S3	**140**	53	92	115	159	--	--	AC 24, 50 Hz	B	**3RT1446-1AB00**		1	1 unit	41B
								AC 110, 50 Hz	B	**3RT1446-1AF00**		1	1 unit	41B
								AC 230, 50 Hz	▶	**3RT1446-1AP00**		1	1 unit	41B
DC operation														
														
S3	**140**	53	92	115	159	--	--	24 DC	▶	**3RT1446-1BB40**		1	1 unit	41B
								220 DC	B	**3RT1446-1BM40**		1	1 unit	41B

Other voltages according to page 4/48 on request.

Accessories and spare parts, see "SIRIUS 3RT10 contactors", Chapter 3.

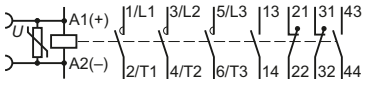
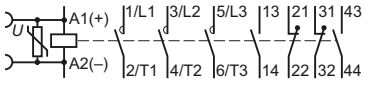
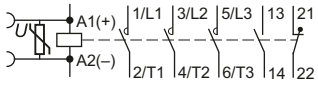
* You can order this quantity or a multiple thereof.
Illustrations are approximate

SIRIUS 3RT14 contactors for resistive loads (AC-1), 3-pole, 140 ... 690 A

Sizes S6 to S12: UC operating mechanism · AC/DC operation (50/60 Hz and DC)

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

3RT146.

Size	Rated data AC-1, T_u: 40 °C					Auxiliary contacts		Rated control supply voltage U_s	DT	Screw terminals		PU (UNIT, SET, M)	PS*	PG
	Operational current I_e	Ratings of AC loads (p.f. = 0.95) at				Version				Article No.	Price per PU			
	up to													
	690 V	230 V	400 V	500 V	690 V	NO	NC							
	A	kW	kW	kW	kW			V						
Conventional operating mechanisms														
														
S6	**275**	105	180	225	310	2	2	110 ... 127	▶	**3RT1456-6AF36**		1	1 unit	41B
								220 ... 240	▶	**3RT1456-6AP36**		1	1 unit	41B
S10	**400**	151	263	329	454	2	2	110 ... 127	▶	**3RT1466-6AF36**		1	1 unit	41B
								220 ... 240	▶	**3RT1466-6AP36**		1	1 unit	41B
S12	**690**	261	454	568	783	2	2	110 ... 127	A	**3RT1476-6AF36**		1	1 unit	41B
								220 ... 240	▶	**3RT1476-6AP36**		1	1 unit	41B
Solid-state operating mechanism														
For 24 V DC PLC output														
														
S6	**275**	105	180	225	310	2	2	96 ... 127	B	**3RT1456-6NF36**		1	1 unit	41B
								200 ... 277	A	**3RT1456-6NP36**		1	1 unit	41B
S10	**400**	151	263	329	454	2	2	96 ... 127	B	**3RT1466-6NF36**		1	1 unit	41B
								200 ... 277	A	**3RT1466-6NP36**		1	1 unit	41B
S12	**690**	261	454	568	783	2	2	96 ... 127	B	**3RT1476-6NF36**		1	1 unit	41B
								200 ... 277	A	**3RT1476-6NP36**		1	1 unit	41B
For 24 V DC PLC relay output, with remaining lifetime indicator (RLT)														
														
S6	**275**	105	180	225	310	1	1	96 ... 127	B	**3RT1456-6PF35**		1	1 unit	41B
								200 ... 277	B	**3RT1456-6PP35**		1	1 unit	41B
S10	**400**	151	263	329	454	1	1	200 ... 277	B	**3RT1466-6PP35**		1	1 unit	41B
S12	**690**	261	454	568	783	1	1	200 ... 277	B	**3RT1476-6PP35**		1	1 unit	41B

Other voltages according to page 4/48 on request.

Accessories and spare parts, see "SIRIUS 3RT10 contactors", Chapter 3.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

SIRIUS 3RT23 contactors for resistive loads (AC-1), 4-pole, 4 NO, 18 ... 110 A

Overview

Standards

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

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

Accessories and spare parts, see "3RT20 Contactors", Chapter 3.

With sizes S0 and S2, two auxiliary contacts 1 NO + 1 NC are included in the basic version.

Mountable auxiliary contacts

Size S00

4 auxiliary contacts, including no more than 3 NC.

Sizes S0 and S2

4 additional auxiliary contacts, including no more than 2 NC.

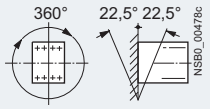
Application

The contactors are suitable:

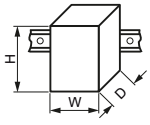
- For switching resistive loads
- For isolating systems with ungrounded or poorly grounded neutral conductors
- For system transfers when alternative AC power supplies are used
- For use as contactors which only carry current and do not have to switch in case of inductive loads – e.g. variable-speed operating mechanisms
- For switching mixed loads in distribution systems (e.g. for supplying heaters, lamps, motors, PC power supply units) with p.f. > 0.8 according to IEC 60947-4-1, test conditions for utilization category AC-1

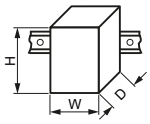
For a general description of sizes S00 to S2, see Chapter 3, "Power Contactors for Switching Motors" → "SIRIUS 3RT20 contactors, 3-pole, up to 37 kW"

Technical specifications

Type		3RT2316	3RT2317	3RT2325	3RT2326	3RT2327	3RT2336	3RT2337
Size		S00		S0			S2	
General technical specifications								
Permissible mounting position								
The contactors are designed for operation on a vertical mounting surface								
Upright mounting position		 Special version required						
Mechanical endurance	Operating cycles	30 million		10 million				
Electrical endurance at I_e/AC-1	Operating cycles	Approx. 0.5 million						
Rated insulation voltage U_i (Pollution degree 3)	V	690						
Permissible ambient temperature								
• During operation	°C	-25 ... +60						
• During storage	°C	-55 ... +80						
Degree of protection acc. to IEC 60947-1, Appendix C		IP20						
Touch protection acc. to EN 50274		Finger-safe						
Short-circuit protection								
Main circuit								
Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1/EN 60947-4-1								
• Type of coordination "1"	A	35		63			on request	
• Type of coordination "2"	A	20		20			on request	
• Weld-free	A	10		16			on request	

SIRIUS 3RT23 contactors for resistive loads (AC-1), 4-pole, 4 NO, 18 ... 110 A

Type			3RT2316	3RT2317	3RT2336	3RT2337
Size			S00		S2	
Dimensions (W x H x D)[1]		mm	45 x 57.5 x 73 / 45 x 70 x 73		74.5 x 113.5 x 130 / 74.5 x 113.5 x 130	
• with mounted auxiliary switch block		mm	45 x 57.5 x 116 / 45 x 70 x 121		74.5 x 113.5 x 173.5 / 74.5 x 113.5 x 177.5	

Type			3RT2325	3RT2326	3RT2327
Size			S0		
Dimensions (W x H x D) for AC operation[1)2)]		mm	60 x 85 x 97 / 60 x 101.5 x 97		
• with mounted auxiliary switch block		mm	60 x 85 x 141 / 60 x 101.5 x 144		
Dimensions (W x H x D) for DC operation[1)2)]		mm	60 x 85 x 107 / 60 x 101.5 x 107		
• with mounted auxiliary switch block		mm	60 x 85 x 151 / 60 x 101.5 x 154		

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

2) For size S0, devices for AC and DC operation differ in depth. The following applies: Depth (DC) = Depth (AC) + 10 mm.

Type			3RT2316	3RT2317	3RT2325	3RT2326	3RT2327	3RT2336	3RT2337
Size			S00		S0			S2	
Control circuit									
Solenoid coil operating range									
• AC operation	at 50 Hz		0.8 ... 1.1 x U_s		0.8 ... 1.1 x U_s				
	at 60 Hz		0.85 ... 1.1 x U_s		0.8 ... 1.1 x U_s				
• DC operation	at 50 °C		0.8 ... 1.1 x U_s					--	
	at 60 °C		0.85 ... 1.1 x U_s					--	
• AC/DC operation			--					0.8 x U_{smin}... 1.1 x U_{smax}	
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)									
• AC operation, 50 Hz, standard version									
- Closing		VA	--		77			190	
- p.f.			--		0.82			0.72	
- Closed		VA	--		9.8			16	
- p.f.			--		0.25			0.37	
• AC operation, 50/60 Hz, standard version									
- Closing		VA	27/24.3	37/33	81/79			210/188	
- p.f.			0.8/0.75	0.8/0.75	0.72/0.74			0.69/0.65	
- Closed		VA	4.2/3.3	5.7/4.4	10.5/8.5			17.2/16.5	
- p.f.			0.25/0.25	0.25/0.25	0.25/0.28			0.36/0.39	
• AC operation, 60 Hz, USA, Canada									
- Closing		VA	31.7	43	87			212	
- p.f.			0.77	0.77	0.76			0.67	
- Closed		VA	4.8	6.5	9.4			18.5	
- p.f.			0.25	0.25	0.28			0.37	
• AC/DC operation									
- Closing for AC operation		VA	--					40	
- p.f.			--					0.64/0.5	
- Closed for AC operation		VA	--					2	
- p.f.			--					1	
- Closing for DC operation		W	--					25	
- Closed for DC operation		W	--					1	
• DC operation (closing = closed)		W	4		5.9			--	
Operating times for 0.8 ... 1.1 x U_s[1] Total break time = Opening delay + Arcing time									
• AC operation									
- Closing delay		ms	8 ... 35	8 ... 33	9 ... 38	8 ... 40		10 ... 80	
- Opening delay		ms	3.5 ... 14	4 ... 15	4 ... 16	4 ... 16		10 ... 18	
• DC operation									
- Closing delay		ms	30 ... 100		50 ... 170			--	
- Opening delay		ms	7 ... 13		15 ... 17.5			--	
• AC/DC operation									
- Closing delay		ms	--					50 ... 110	
- Opening delay		ms	--					35 ... 55	
• Arcing time		ms	10 ... 15		10			10 ... 20	

1) With size S00, DC operation: Operating times for 0.85 ... 1.1 x U_s

SIRIUS 3RT23 contactors for resistive loads (AC-1), 4-pole, 4 NO, 18 ... 110 A

Type				3RT2316	3RT2317	3RT2325	3RT2326	3RT2327	3RT2336	3RT2337
Size				S00		S0			S2	
Main circuit										
Load rating with AC										
Utilization category AC-1 Switching resistive loads										
• Rated operational currents I_e	at 40 °C, up to 690 V		A	18	22	35	40	50	60	110
	at 60 °C, up to 690 V		A	16	20	30	35	42	55	95
• Rated power for AC loads p.f. = 0.95 (at 60 °C)	at 230 V		kW	6	7.5	11	13	16	21	36
	400 V		kW	10.5	13	20	23	28	36	63
• Minimum conductor cross-section for loads with I_e	at 40 °C		mm^2	2.5		10			16	35
	at 60 °C		mm^2	2.5		10			25	50
Utilization categories AC-2 and AC-3										
• Rated operational currents I_e	at 60 °C, up to 400 V		A	9	12	15.5			--	
• Rated power for slipring or squirrel-cage motors at 50 and 60 Hz	at 230 V		kW	2.2	3	4			--	
	400 V		kW	4	5.5	7.5			--	
Load rating with DC										
Utilization category DC-1 Switching resistive loads (*L/R* ≤ 1 ms)										
• Rated operational currents I_e (at 60 °C)										
- 1 conducting path	up to 24 V		A	16	20	30	35	42	55	95
	60 V		A	16	20	20			23	23
	110 V		A	2.1		4.5			4.5	4.5
	220 V		A	0.8		1			1	
	440 V		A	0.6		0.4			0.4	
- 2 conducting paths in series	up to 24 V		A	16	20	30	35	42	55	
	60 V		A	16	20	30	35	42	55	
	110 V		A	12		30	35	42	45	
	220 V		A	1.6		1			5	
	440 V		A	0.8		1			1	
- 3 conducting paths in series	up to 24 V		A	16	20	30	35	42	55	
	60 V		A	16	20	30	35	42	55	
	110 V		A	16	20	30	35	42	45	
	220 V		A	16	20	30	35	42	45	
	440 V		A	1.3		2.9			2.9	
- 4 conducting paths in series	up to 24 V		A	16	20	30	35	42	55	65
	60 V		A	16	20	30	35	42	55	65
	110 V		A	16	20	30	35	42	45	55
	220 V		A	16	20	30	35	42	45	55
	440 V		A	1.3		2.9			2.9	3.5
Utilization category DC-3/DC-5 Shunt-wound and series-wound motors (*L/R* ≤15 ms)										
• Rated operational currents I_e (at 60 °C)										
- 1 conducting path	up to 24 V		A	16	20	20			20	
	60 V		A	0.5		5				
	110 V		A	0.15		2.5			2.5	
	220 V		A	--		1			1	
	440 V		A	--		0.09			0.1	
- 2 conducting paths in series	up to 24 V		A	16	20	30	35	42	55	
	60 V		A	5		30	35	42	45	
	110 V		A	0.35		15			25	
	220 V		A	--		3			5	
	440 V		A	--		0.27			0.27	
- 3 conducting paths in series	up to 24 V		A	16	20	30	35	42	55	
	60 V		A	16	20	30	35	42	55	
	110 V		A	16	20	30	35	42	45	
	220 V		A	1.5		10			25	
	440 V		A	0.2		0.6			0.6	
- 4 conducting paths in series	up to 24 V		A	16	20	30	35	42	55	65
	60 V		A	16	20	30	35	42	55	65
	110 V		A	16	20	30	35	42	45	55
	220 V		A	1.5		30	35	42	25	55
	440 V		A	0.2		0.6			0.6	0.8

Selection and ordering data

AC operation

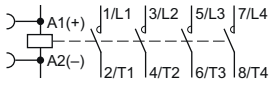
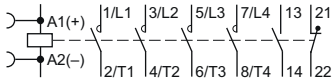
PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT231.-1A.00

3RT231.-2A.00

3RT232.-1A.00

3RT232.-2A.00

Rated data AC-1, T_u: 40/60 °C		Auxiliary contacts			Rated control supply voltage U_s	DT	Screw terminals		DT	Spring-type terminals	
Operational current I_e up to	Ratings of AC loads (p.f. = 0.95) at 50 Hz and	Ident. No.	Version				Article No.	Price per PU		Article No.	Price per PU
690 V	**400 V**		NO	NC							
A	**kW**				V AC						
For screw fixing and snap-on mounting onto TH 35 standard mounting rail											
Size S00[1]											
											
18 / 16	**12 / 11**	**--**	--	--	24, 50/60 Hz	B	**3RT2316-1AB00**		B	**3RT2316-2AB00**	
					110, 50/60 Hz	B	**3RT2316-1AF00**		B	**3RT2316-2AF00**	
					230, 50/60 Hz	B	**3RT2316-1AP00**		A	**3RT2316-2AP00**	
22 / 20	**14.5 / 13**	**--**	--	--	24, 50/60 Hz	B	**3RT2317-1AB00**		B	**3RT2317-2AB00**	
					110, 50/60 Hz	B	**3RT2317-1AF00**		B	**3RT2317-2AF00**	
					230, 50/60 Hz	▶	**3RT2317-1AP00**		A	**3RT2317-2AP00**	
Size S0											
Auxiliary contacts 1 NO + 1 NC, Ident. No. **11**											
											
35 / 30[2]	**22 / 20**	**11**	1	1	24, 50 Hz	B	**3RT2325-1AB00**		B	**3RT2325-2AB00**	
					110, 50 Hz	B	**3RT2325-1AF00**		B	**3RT2325-2AF00**	
					230, 50 Hz	A	**3RT2325-1AP00**		A	**3RT2325-2AP00**	
40 / 35[2]	**26 / 23**	**11**	1	1	24, 50 Hz	B	**3RT2326-1AB00**		B	**3RT2326-2AB00**	
					110, 50 Hz	B	**3RT2326-1AF00**		B	**3RT2326-2AF00**	
					230, 50 Hz	A	**3RT2326-1AP00**		A	**3RT2326-2AP00**	
50[2]	**33 / 28**	**11**	1	1	24, 50 Hz	B	**3RT2327-1AB00**		B	**3RT2327-2AB00**	
					110, 50 Hz	B	**3RT2327-1AF00**		B	**3RT2327-2AF00**	
					230, 50 Hz	A	**3RT2327-1AP00**		A	**3RT2327-2AP00**	

[1] For size S00: Coil operating range
at 50 Hz: 0.8 ... 1.1 x U_s
at 60 Hz: 0.85 ... 1.1 x U_s

[2] Minimum conductor cross-section 10 mm².

Other voltages according to page 4/48 on request.

Accessories and spare parts, see "SIRIUS 3RT20 contactors", Chapter 3.

SIRIUS 3RT23 contactors for resistive loads (AC-1), 4-pole, 4 NO, 18 ... 110 A

AC operation

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

3RT233.-1A.00

Rated data AC-1, T_u: 40/60 °C		Auxiliary contacts		Rated control supply voltage U_s	DT	Screw terminals	DT	Spring-type terminals for auxiliary and control circuits
Operational current I_e up to	Ratings of AC loads (p.f. = 0.95) at 50 Hz and	Ident. No.	Version			Article No. / Price per PU		Article No. / Price per PU
690 V	**400 V**							
A	**kW**		NO / NC	V AC				
For screw fixing and snap-on mounting onto TH 35 standard mounting rail								
Size S2 NEW								
Auxiliary contacts 1 NO + 1 NC, Ident. No. **11**								
60 / 55	**36**	**11**	1 / 1	24, 50 Hz	B	**3RT2336-1AB00**		--
				110, 50 Hz	B	**3RT2336-1AF00**		--
				230, 50 Hz	▶	**3RT2336-1AP00**		--
110 / 95	**63**	**11**	1 / 1	24, 50 Hz	B	**3RT2337-1AB00**		--
				110, 50 Hz	B	**3RT2337-1AF00**		--
				230, 50 Hz	▶	**3RT2337-1AP00**		--

Rated data AC-2/AC-3, T_u: up to 60 °C		AC-1, T_u: 40/60 °C	Auxiliary contacts		Rated control supply voltage U_s	DT	Screw terminals	DT	Spring-type terminals for auxiliary and control circuits
Operational current I_e	Ratings of three-phase motors at 50 Hz and	Operational current I_e up to	Ident. No.	Version			Article No. / Price per PU		Article No. / Price per PU
at 400 V	**400 V**	690 V							
A	**kW**	A		NO / NC	V AC				
For screw fixing and snap-on mounting onto TH 35 standard mounting rail									
Size S2 NEW									
Version for motor loads AC-3									
Auxiliary contacts 1 NO + 1 NC, Ident. No. **11**									
50	**22**	60/55	**11**	1 / 1	230, 50 Hz	B	**3RT2336-1AP00-4AA0**		--

Other voltages according to page 4/48 on request.

Accessories and spare parts, see "SIRIUS 3RT20 contactors", Chapter 3.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

DC operation

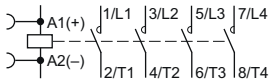
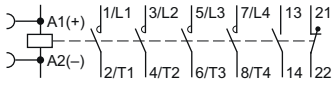
PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT231.-1B.40

3RT231.-2B.40

3RT232.-1B.40

3RT232.-2B.40

Rated data AC-1, T_u: 40/60 °C		Auxiliary contacts			Rated control supply voltage U_s	DT	Screw terminals	DT	Spring-type terminals
Operational current I_e up to	Ratings of AC loads (p.f. = 0.95) at 50 Hz and	Ident. No.	Version				Article No. Price per PU		Article No. Price per PU
690 V	**400 V**		NO	NC					
A	**kW**				V DC				
For screw fixing and snap-on mounting onto TH 35 standard mounting rail									
Size S00									
									
18 / 16	**12 / 11**	--	--	--	24	A	**3RT2316-1BB40**	▶	**3RT2316-2BB40**
					220	B	**3RT2316-1BM40**	B	**3RT2316-2BM40**
22 / 20	**14.5 / 13**	--	--	--	24	▶	**3RT2317-1BB40**	▶	**3RT2317-2BB40**
					220	B	**3RT2317-1BM40**	B	**3RT2317-2BM40**
Size S0									
Auxiliary contacts 1 NO + 1 NC, Ident. No. **11**									
									
35 / 30[1]	**22 / 20**	**11**	1	1	24	A	**3RT2325-1BB40**	A	**3RT2325-2BB40**
					220	B	**3RT2325-1BM40**	B	**3RT2325-2BM40**
40 / 35[1]	**26 / 23**	**11**	1	1	24	A	**3RT2326-1BB40**	A	**3RT2326-2BB40**
					220	B	**3RT2326-1BM40**	B	**3RT2326-2BM40**
50[1]	**33 / 28**	**11**	1	1	24	A	**3RT2327-1BB40**	A	**3RT2327-2BB40**
					220	B	**3RT2327-1BM40**	B	**3RT2327-2BM40**

[1] Minimum conductor cross-section 10 mm².

Other voltages according to page 4/48 on request.

Accessories and spare parts, see "SIRIUS 3RT20 contactors", Chapter 3.

*** You can order this quantity or a multiple thereof.**
Illustrations are approximate

SIRIUS 3RT23 contactors for resistive loads (AC-1), 4-pole, 4 NO, 18 ... 110 A

AC/DC operation (50/60 Hz and DC)

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

3RT233.-1N.30

Rated data AC-1, T_u: 40/60 °C		Auxiliary contacts			Rated control supply voltage U_s	DT	Screw terminals		DT	Spring-type terminals for auxiliary and control circuits	
Operational current I_e up to	Ratings of AC loads (p.f. = 0.95) at 50 Hz and	Ident. No.	Version				Article No.	Price per PU		Article No.	Price per PU
690 V	**400 V**		NO	NC							
A	**kW**				V AC/DC						
For screw fixing and snap-on mounting onto TH 35 standard mounting rail											
Size S2 NEW											
With integrated coil circuit (varistor)											
Auxiliary contacts 1 NO + 1 NC, Ident. No. **11**											
60 / 55	**36**	**11**	1	1	20 ... 33	▶	**3RT2336-1NB30**			--	
					175 ... 280	B	**3RT2336-1NP30**			--	
110 / 95	**63**	**11**	1	1	20 ... 33	B	**3RT2337-1NB30**			--	
					175 ... 280	B	**3RT2337-1NP30**			--	

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

Rated data			Auxiliary contacts			Rated control supply voltage U_s	DT	Screw terminals		DT	Spring-type terminals for auxiliary and control circuits	
AC-2/AC-3, T_u: up to 60 °C		AC-1, T_u: 40/60 °C	Ident. No.	Version				Article No.	Price per PU		Article No.	Price per PU
Operational current I_e	Ratings of three-phase motors at 50 Hz and	Operational current I_e up to										
at 400 V	**400 V**	690 V		NO	NC							
A	**kW**	A				V AC/DC						
For screw fixing and snap-on mounting onto TH 35 standard mounting rail												
Size S2 NEW												
Version for motor loads AC-3												
With integrated coil circuit (varistor)												
Auxiliary contacts 1 NO + 1 NC, Ident. No. **11**												
50	**22**	60/55	**11**	1	1	20 ... 33	B	**3RT2336-1NB30-4AA0**			--	

Other voltages according to page 4/48 on request.

Accessories and spare parts, see "SIRIUS 3RT20 contactors", Chapter 3.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

Overview

Standards

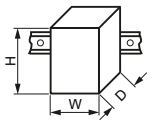
IEC 60947-1, EN 60947-1,
IEC 60947-4-1, EN 60947-4-1,
IEC 60947-5-1, EN 60947-5-1 (auxiliary switches)

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

The accessories for the 3-pole SIRIUS 3RT10 contactors can also be used for the 4-pole versions.

The contactors are suitable for switching mixed loads in distribution systems (e.g. for supplying heaters, lamps, motors, PC power supply units) with p.f. > 0.8 according to IEC 60947-4-1, test conditions for utilization category AC-1.

Technical specifications

Type			**3RT1344**	**3RT1346**
Size			**S3**	
Dimensions (W x H x D)				
• AC operation		mm	92 x 140 x 134	
- with mounted auxiliary switch block		mm	92 x 140 x 183	
• DC operation		mm	92 x 140 x 147	
- with mounted auxiliary switch block		mm	92 x 140 x 196	
General technical specifications				
Permissible mounting position[1]				
Mechanical endurance		Operating cycles	10 million	
Electrical endurance at I_e/AC-1		Operating cycles	Approx. 0.5 million	
Rated insulation voltage U_i (Pollution degree 3)		V	690	
Permissible ambient temperature				
• During operation		°C	-25 ... +60	
• During storage		°C	-55 ... +80	
Degree of protection acc. to IEC 60947-1, Appendix C			IP20	
• Connection range			IP00 (see also additional terminal covers)	
Touch protection acc. to EN 50274			Finger-safe only for vertical contact from the front	
Short-circuit protection				
Main circuit				
Fuse links, operational class gG: LV HRC, 3NA; DIAZED, 5SB; NEOZED, 5SE according to IEC 60947-4-1/EN 60947-4-1				
• Type of coordination "1"[1]		A	250	250
• Type of coordination "2"[1]		A	125	160
• Weld-free		A	63	100
Control circuit				
Solenoid coil operating range (AC/DC)			0.8 ... 1.1 x U_s	
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)				
• AC operation, 50 Hz	- Closing	VA	270	
	- p.f.	VA	0.68	
	- Closed	VA	22	
	- p.f.	VA	0.27	
• AC operation, 50/60 Hz	- Closing	VA	298/274	
	- p.f.		0.72/0.62	
	- Closed	VA	27/20	
	- p.f.		0.29/0.31	
• DC operation	- Closing = Closed	W	15	
Operating times for 0.8 ... 1.1 x U_s[2] Total break time = Opening delay + Arcing time				
• DC operation	- Closing delay	ms	110 ... 200	
	- Opening delay	ms	14 ... 20	
• AC operation	- Closing delay	ms	20 ... 50	
	- Opening delay	ms	10 ... 25	
• Arcing time		ms	10 ... 15	

1) In accordance with the corresponding 3-pole 3RT1 contactors.
2) With size S00, DC operation: Operating times for 0.85 ... 1.1 x U_s

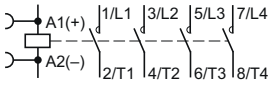
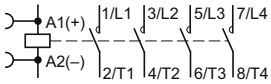
SIRIUS 3RT13 contactors for resistive loads (AC-1), 4-pole, 4 NO, 110 ... 140 A

Type			3RT1344	3RT1346
Size			S3	
Main circuit				
Load rating with AC				
Utilization category AC-1 Switching resistive loads				
• Rated operational currents I_e	at 40 °C, up to 690 V	A	110	140
	at 60 °C, up to 690 V	A	100	120
• Rated power for AC loads p.f. = 0.95 (at 40 °C)	at 230 V	kW	42	53
	400 V	kW	72	92
• Minimum conductor cross-section for loads with I_e	at 40 °C	mm^2	50	50
	60 °C	mm^2	50	50
Utilization categories AC-2 and AC-3				
• Rated operational currents I_e	at 60 °C, up to 400 V	A	--	--
• Rated power for slipring or squirrel-cage motors at 50 and 60 Hz	at 230 V	kW	--	--
	400 V	kW	--	--
Maximum breaking current AC (e.g. for isolation of load distributions)				
• at 50 and 60 Hz	at 400 V	A	520	760
Load rating with DC				
Utilization category DC-1 Switching resistive loads (*L/R* ≤ 1 ms)				
• Rated operational currents I_e (at 40 °C)				
- 1 conducting path	up to 24 V	A	70	80
	60 V	A	23	60
	110 V	A	4.5	9
	220 V	A	1	2
	440 V	A	0.4	0.6
- 2 conducting paths in series	up to 24 V	A	70	80
	60 V	A	70	80
	110 V	A	70	80
	220 V	A	5	10
	440 V	A	1	1.8
- 3 conducting paths in series	up to 24 V	A	70	80
	60 V	A	70	80
	110 V	A	70	80
	220 V	A	70	80
	440 V	A	2.9	4.5
- 4 conducting paths in series	up to 24 V	A	70	80
	60 V	A	70	80
	110 V	A	70	80
	220 V	A	70	80
	440 V	A	2.9	4.5
Utilization category DC-3/DC-5 Shunt-wound and series-wound motors (*L/R* ≤15 ms)				
• Rated operational currents I_e (at 40 °C)				
- 1 conducting path	up to 24 V	A	20	20
	60 V	A	6	6.5
	110 V	A	2.5	2.5
	220 V	A	1	1
	440 V	A	0.15	0.15
- 2 conducting paths in series	up to 24 V	A	70	80
	60 V	A	70	80
	110 V	A	70	80
	220 V	A	7	7
	440 V	A	0.42	0.42
- 3 conducting paths in series	up to 24 V	A	70	80
	60 V	A	70	80
	110 V	A	70	80
	220 V	A	35	35
	440 V	A	0.8	0.8
- 4 conducting paths in series	up to 24 V	A	70	80
	60 V	A	70	80
	110 V	A	70	80
	220 V	A	70	80
	440 V	A	0.8	0.8

Selection and ordering data

AC or DC operation, 4 NO

3RT134.-1...0

Rated data AC-1, T_u: 40/60 °C		Rated control supply voltage U_s	DT	Screw terminals		PU (UNIT, SET, M)	PS*	PG
Operational current I_e up to	Ratings of AC loads (p.f. = 0.95) at 50 Hz and			Article No.	Price per PU			
690 V	**400 V**							
A	**kW**	V						
For screw fixing and snap-on mounting onto TH 35 standard mounting rail								
Size S3								
AC operation		50 Hz AC						
								
110 / 100	**72 / 66**	24	B	**3RT1344-1AB00**		1	1 unit	41B
		110	B	**3RT1344-1AF00**		1	1 unit	41B
		230	▶	**3RT1344-1AP00**		1	1 unit	41B
140 / 120	**92 / 79**	24	B	**3RT1346-1AB00**		1	1 unit	41B
		110	B	**3RT1346-1AF00**		1	1 unit	41B
		230	▶	**3RT1346-1AP00**		1	1 unit	41B
DC operation		DC						
								
110 / 100	**72 / 66**	24	B	**3RT1344-1BB40**		1	1 unit	41B
		220	B	**3RT1344-1BM40**		1	1 unit	41B
140 / 120	**92 / 79**	24	B	**3RT1346-1BB40**		1	1 unit	41B
		220	B	**3RT1346-1BM40**		1	1 unit	41B

Other voltages according to page 4/48 on request.

Accessories and spare parts, see "SIRIUS 3RT10 contactors", Chapter 3.

*** You can order this quantity or a multiple thereof.**
Illustrations are approximate

3TK1 contactors for resistive loads (AC-1), 4-pole, 4 NO, 200 ... 1000 A

Overview

Standards

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

The contactors also comply with the requirements of the standards NFC 63-110 and NFC 20–040.

The contactors are suitable for use in any climate. They are finger-safe according to EN 50274. Terminal covers may have to be fitted onto the connecting bars, depending on the configuration with other devices.

The contactors are used mainly for resistive loads (AC-1 and p.f. > 0.95). They are also suitable for switching mixed loads in distribution systems (e.g. for supplying heaters, lamps, motors, PC power supply units) with p.f. > 0.8 according to IEC 60947-4-1, test conditions for utilization category AC-1.

Control circuit

The solenoid coils of the 3TK10 to 3TK13 contactors (operating current up to 350 A) are designed as plug-in coils.

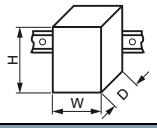
Surge suppression

The solenoid coils of the 3TK1 contactors can be connected at a later stage with RC circuits (see "Accessories", page 4/25).

Technical specifications

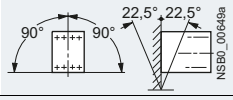
Type			3TK1
Rated data of the auxiliary contacts			
General data			
Standards			IEC 60947-5-1
Rated insulation voltage U_i (Pollution degree 3)		V	690
Conventional thermal current I_{th} = Rated operational current I_e/AC-12		A	10
Load rating with AC			
Rated operational current I_e/AC-15/AC-14			
• for rated operational voltage U_e	24 V	A	6
	110 V	A	6
	125 V	A	6
	220 V	A	6
	230 V	A	6
	380 V	A	4
	400 V	A	4
	500 V	A	1
	660 V	A	1
	690 V	A	1
Load rating with DC			
Rated operational current I_e/DC-12			--
Rated operational current I_e/DC-13			
• for rated operational voltage U_e	24 V	A	6
	60 V	A	6
	110 V	A	1.8
	125 V	A	--
	220 V	A	0.6
	440 V	A	--
	600 V	A	--
CSA and UL rated data of the auxiliary contacts			
Rated voltage		V AC, max.	600
Switching capacity			A 600, P 600

3TK1 contactors for resistive loads (AC-1), 4-pole, 4 NO, 200 ... 1000 A

Type			3TK10	3TK11	3TK12	3TK13	3TK14	3TK15	3TK17
Dimensions (W x H x D)		mm	165x156 x155	165 x172x155	201x198x 72		244x273x226		

General technical specifications

Permissible mounting position
Upright mounting position also permissible



Mechanical endurance	Operating cycles	Mill.	10				5		
Electrical endurance for I_e/AC-1 at 55 °C	Operating cycles	Mill.	0.8	0.8	0.8	0.4	0.65	0.5	0.4
Rated insulation voltage U_i (pollution degree 3)		V	1000						
Ambient temperature									
• During operation		°C	-25 ... +55						
• During storage		°C	-50 ... +70						
Degree of protection acc. to IEC 60947-1, Appendix C			IP00						
Touch protection acc. to EN 50274			Finger-safe with terminal covers						
Shock resistance, sine pulse		*g*/ms	10/15						

Short-circuit protection

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

• Type of coordination "1"		A	250		355		630	1000	
• Type of coordination "2"		A	250		315		630	850	

Auxiliary circuit

Short circuit test with fuse links of operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current I_k = 1 kA acc. to IEC 60947-5-1		A	10						

Control circuit

Coil operating range			0.85 ... 1.1 x U_s						
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)									
• 50 Hz									
- Closing		VA	820		1 100		3 500		
- p.f.			0.4		0.35		0.26		
- Closed		VA	44		52		125		
- p.f.			0.34		0.35		0.4		
• 60 Hz									
- Closing		VA	990		1 200		4 000		
- p.f.			0.35		0.31		0.22		
- Closed		VA	52		65		140		
- p.f.			0.35		0.34		0.43		
Operating times for 1.0 x U_s									
• Closing delay		ms	20 ... 40				30 ... 60		
• Opening delay		ms	7 ... 15				10 ... 20		
• Arcing time		ms	10				10		

Main circuit

Load rating with AC

Utilization category AC-1, switching resistive loads

• Rated operational currents I_e	at 40 °C up to 690 V	A	200	250	300	350	550	800	1 000
	at 50 °C up to 690 V	A	180	230	270	310	470	650	850
• Rated power for AC loads with p.f. = 0.95 (at 40 °C)	at 230 V	kW	76	95	114	132	208	303	378
	400 V	kW	132	165	197	230	362	527	658
	500 V	kW	165	206	247	288	452	658	828
	690 V	kW	227	284	341	397	624	908	1 135
• Minimum conductor cross-section for load with I_e	at 40 °C	mm²	95	150	185	240	185	240	300

Utilization categories AC-2 and AC-3

• Rated operational currents I_e	up to 400 V	A	120	145	210	210	550	550	700
	up to 690 V	A	120	120	210	210	550	550	--
• Rated power of squirrel-cage or slipring motors at 50 Hz and 60 Hz	at 230 V	kW	30	45	75	75	110	160	220
	400 V	kW	55	75	110	110	200	280	370
• Short-time current at 40 °C in cold state up to 10 s		A	900	1 200	1 600	1 600	5 300	5 300	6 400

Switching frequency [1)]

Switching frequency z in operating cycles/hour

• Contactors without overload relays	No-load switching frequency	1/h	3 600						
	AC-1	1/h	300						
	AC-3	1/h	300						

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

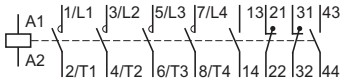
3TK1 contactors for resistive loads (AC-1), 4-pole, 4 NO, 200 ... 1000 A

Type		3TK10	3TK11	3TK12	3TK13	3TK14	3TK15	3TK17
Conductor cross-sections								
Main conductors:		Screw terminals						
• Stranded with cable lug	mm^2	2 x 70	2 x 120	2 x 120		2 x 300		
• AWG cables, solid or stranded	AWG/MCM	2 x 00	2 x 250	2 x 250		2 x 600		
• Connecting bar (max. width)	mm	30	30	33		55		
• Terminal screw		M6	M10	M10		M10		
- Tightening torque	Nm	5	16	16		16		
	lb.in	42	135	135		135		
Auxiliary conductors:								
• Solid	mm^2	2 x (0.5 ... 2.5)						
• Finely stranded with end sleeve	mm^2	2 x (0.5 ... 2.5)						
• AWG cables, solid or stranded	AWG	20 ... 14						
- Tightening torque	Nm	1.2 (10 lb.in)						

Selection and ordering data

AC operation, 4 NO contacts

3TK13

Rated data AC-1					Auxiliary contacts		Rated control supply voltage U_s	DT	Screw terminals		PU (UNIT, SET, M)	PS*	PG
Operational current I_e up to 690 V (at 40 °C)	Rating of AC loads (p.f. = 0.95) at				Version				Article No.	Price per PU			
	230 V	400 V	690 V	1000 V									
A	kW	kW	kW	kW	NO	NC	V AC						
For screw fixing													
													
200	75	130	225	205	2	2	220 ... 230, 50 Hz	B	**3TK1042-0AP0**		1	1 unit	41B
							230 ... 240, 50 Hz	D	**3TK1042-0AU0**		1	1 unit	41B
							110/120, 50/60 Hz	D	**3TK1042-0AF0**		1	1 unit	41B
							24, 50 Hz	D	**3TK1042-0AB0**		1	1 unit	41B
250	90	165	280	200	2	2	220 ... 230, 50 Hz	B	**3TK1142-0AP0**		1	1 unit	41B
							230 ... 240, 50 Hz	D	**3TK1142-0AU0**		1	1 unit	41B
							110/120, 50/60 Hz	D	**3TK1142-0AF0**		1	1 unit	41B
							24, 50 Hz	D	**3TK1142-0AB0**		1	1 unit	41B
300	110	195	340	325	2	2	220 ... 230, 50 Hz	B	**3TK1242-0AP0**		1	1 unit	41B
							230 ... 240, 50 Hz	D	**3TK1242-0AU0**		1	1 unit	41B
							110/120, 50/60 Hz	D	**3TK1242-0AF0**		1	1 unit	41B
							24, 50 Hz	D	**3TK1242-0AB0**		1	1 unit	41B
350	130	230	395	370	2	2	220 ... 230, 50 Hz	B	**3TK1342-0AP0**		1	1 unit	41B
							230 ... 240, 50 Hz	D	**3TK1342-0AU0**		1	1 unit	41B
							110/120, 50/60 Hz	D	**3TK1342-0AF0**		1	1 unit	41B
							24, 50 Hz	D	**3TK1342-0AB0**		1	1 unit	41B
550	205	360	620	510	2	2	220 ... 230, 50 Hz[1)]	B	**3TK1442-0AP0**		1	1 unit	41B
							230 ... 240, 50 Hz	D	**3TK1442-0AU0**		1	1 unit	41B
							110/120, 50/60 Hz	D	**3TK1442-0AF0**		1	1 unit	41B
800	300	525	905	575	2	2	220 ... 230, 50 Hz[1)]	B	**3TK1542-0AP0**		1	1 unit	41B
							230 ... 240, 50 Hz	D	**3TK1542-0AU0**		1	1 unit	41B
							110/120, 50/60 Hz	D	**3TK1542-0AF0**		1	1 unit	41B
1000	375	655	1135	--	2	2	220 ... 230, 50 Hz[1)]	B	**3TK1742-0AP0**		1	1 unit	41B
							230 ... 240, 50 Hz	D	**3TK1742-0AU0**		1	1 unit	41B
							110/120, 50/60 Hz	D	**3TK1742-0AF0**		1	1 unit	41B

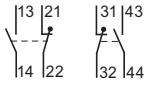
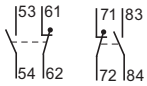
[1)] At 60 Hz: 240 V.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

Accessories

For contactors	Version	Rated control supply voltage U_s	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type		V AC						
Surge suppressors								
3TK10 ... 3TK13	RC elements	24 ... 48	D	**3TK1930-0A**		1	1 unit	41B
		110 ... 415	B	**3TK1930-0B**		1	1 unit	41B
3TK14 ... 3TK17		48 ... 110	C	**3TK1934-0C**		1	1 unit	41B
		220 ... 600	B	**3TK1934-0D**		1	1 unit	41B
Terminal covers								
3TK10, 3TK11	For mounting onto contactors	--	B	**3TK1940-0A**		1	2 units	41B
3TK12, 3TK13			B	**3TK1942-0A**		1	2 units	41B
3TK14, 3TK15			B	**3TK1944-0A**		1	2 units	41B
3TK17			B	**3TK1946-0A**		1	2 units	41B
Mechanical interlocking of two identical contactors								
3TK10, 3TK11	Locking devices, auxiliary contacts 2 NC	--	B	**3TK1920-0A**		1	1 unit	41B
3TK12, 3TK13			B	**3TK1922-0A**		1	1 unit	41B
3TK14 ... 3TK17	Mechanical interlock including mounting plate		B	**3TK1924-0A**		1	1 unit	41B

Spare parts

For contactors	Version	Auxiliary contacts Connections	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type								
Auxiliary switch blocks								
3TK1	for lateral mounting	Left Right						
	1st block 1 NO + 1 NC		B	**3TK1910-3A**		1	1 unit	41B
	2nd block 1 NO + 1 NC		B	**3TK1910-3B**		1	1 unit	41B
Contacts with fixing parts								
3TK10	4 moving and 8 fixed contacts	--	D	**3TK1960-0A**		1	1 unit	41B
3TK11			D	**3TK1961-0A**		1	1 unit	41B
3TK12			D	**3TK1962-0A**		1	1 unit	41B
3TK13			D	**3TK1963-0A**		1	1 unit	41B
3TK14			D	**3TK1964-0A**		1	1 unit	41B
3TK15			D	**3TK1965-0A**		1	1 unit	41B
3TK17			D	**3TK1967-0A**		1	1 unit	41B
Arc chutes								
3TK10	1 arc chute, 4-pole	--	D	**3TK1950-0A**		1	1 unit	41B
3TK11			D	**3TK1951-0A**		1	1 unit	41B
3TK12			D	**3TK1952-0A**		1	1 unit	41B
3TK13			D	**3TK1953-0A**		1	1 unit	41B
3TK14			D	**3TK1954-0A**		1	1 unit	41B
3TK15			D	**3TK1955-0A**		1	1 unit	41B
3TK17			D	**3TK1957-0A**		1	1 unit	41B
Solenoid coils								
3TK10, 3TK11	AC operation[1]	--		**3TK1970-0A..**	**On req.**			
3TK12, 3TK13				**3TK1972-0A..**	**On req.**			
3TK14 ... 3TK17				**3TK1974-0A..**	**On req.**			

[1] Rated control supply voltages: The 10th and 11th digits of the Article No. must be supplemented according to the table.

for contactor type		**3TK10/11/12/13**	**3TK14/15/17**
Solenoid coil type		**3TK1970-0A.., 3TK1972-0A..**	**3TK1974-0A..**
Rated control supply voltage U_s			
AC operation			
50 Hz	**60 Hz**		
24 V	--	B0	--
110 V	120 V	F0	F0
220 ... 230 V	240 V	P0	P0
230 ... 240 V	--	U0	U0

*** You can order this quantity or a multiple thereof.**
Illustrations are approximate

3TK20 contactors, 4-pole, 4 kW

Overview

Standards

IEC 60947-1, EN 60947-1,
IEC 60947-4-1, EN 60947-4-1

The contactors are suitable for use in any climate. The contactors with screw terminals are finger-safe according to EN 50274.

Connection methods

The contactors are available in versions with screw terminals, 6.3 mm plug-in terminals and solder pin connections for soldering in printed circuit boards.

The TK2 contactors with 6.3 mm x 0.8 mm flat connectors are coded and can be used in the plug-in base with solder pin connections for printed circuit boards (see "Accessories for 3TF2 contactors", Chapter 3).

Application

Contactors with plug-in terminals

The main area of application for the 3TK2 contactors with flat connectors is in household equipment. These contactors are also suitable for simple electric controllers.

No auxiliary switch blocks can be retrofitted.

Technical specifications

Type	3TK20

Contact endurance of the main contacts

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

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

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

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

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

Characters in the equation:

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

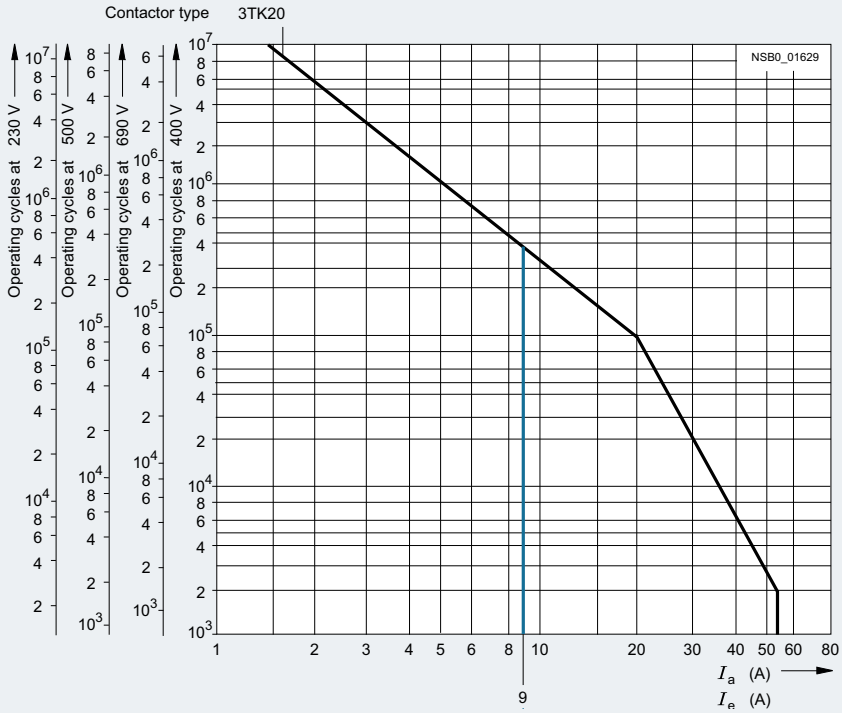
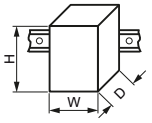


Diagram legend:

P_N= Rated power for squirrel-cage motors at 400 V
I_a= Breaking current
I_e= = Rated operational current

Type			**3TK20**
Size			**00**
Dimensions (W x H x D)		mm	45 x 48 x 63

General technical specifications

Permissible mounting position	AC and DC operation		any
Mechanical endurance			
• AC operation		Operating cycles	10 million
• DC operation			30 million
• Auxiliary switch block			10 million
Rated insulation voltage U_i (Pollution degree 3)			
• Screw terminals		V	690
• Flat connectors 6.3 mm x 0.8 mm		V	500
• Solder pin connections		V	500
Rated impulse withstand voltage U_{imp} (Pollution degree 3)			
• Screw terminals		kV	6
• Flat connectors 6.3 mm x 0.8 mm		kV	6
• Solder pin connections		kV	6
Protective separation between coil and main contacts According to IEC 60947-1, Appendix N		V	up to 300
Permissible ambient temperature[1]			
• During operation		°C	-25 ... +55
• During storage		°C	-55 ... +80
Degree of protection acc. to IEC 60947-1 Appendix C			IP00/open
• Connection range for screw terminals			IP20
Touch protection acc. to EN 50274			Finger-safe for screw terminals
Shock resistance			
• Rectangular pulse			
- AC operation		*g*/ms	8.3/5 and 5.2/10
- DC operation		*g*/ms	11.3/5 and 9.2/10
• Sine pulse			
- AC operation		*g*/ms	13/5 and 8/10
- DC operation		*g*/ms	17.4/5 and 12.9/10
Conductor cross-sections			[2]

Short-circuit protection

Main circuit[3]			
• Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1/EN 60947-4-1			
- Type of coordination "1"		A	25
- Type of coordination "2"[4]		A	10
- Weld-free		A	10
• Miniature circuit breaker with C characteristic		A	10
Auxiliary circuit			
Short-circuit test			
• with fuse links of operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current I_k = 1 kA acc. to IEC 60947-5-1		A	6

1) Applies to 50/60 Hz coil:
At 50 Hz, 1.1 x U_s, , side-by-side mounting and 100 % ON period the max. ambient temperature is +40 °C.

2) See page 4/31

3) According to excerpt from IEC 60947-4-1
Type of coordination "1":
Destruction of the contactor and the overload relay is permissible.
The contactor and/or overload relay can be replaced if necessary.
Type of coordination "2":
The overload relay must not suffer any damage. Contact welding on the contactor is permissible, however, if the contacts can be easily separated.

4) A short-circuit current of $I_q \leq$ 6 kA applies to type of coordination "2".

3TK20 contactors, 4-pole, 4 kW

Type		3TK20
Size		00
Control circuit		
Solenoid coil operating range[1]		0.8 ... 1.1 x U_s
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)		
Standard version:		
• AC operation, 50 Hz		
- Closing	VA	15
- p.f.		0.41
- Closed	VA	6.8
- p.f.		0.42
• AC operation, 60 Hz		
- Closing	VA	14.4
- p.f.		0.36
- Closed	VA	6.1
- p.f.		0.46
• AC operation, 50/60 Hz[1]		
- Closing	VA	16.5/13.2
- p.f.		0.43/0.38
- Closed	VA	8.0/5.4
- p.f.		0.48/0.42
For USA and Canada:		
• AC operation, 50 Hz		
- Closing	VA	14.6
- p.f.		0.38
- Closed	VA	6.5
- p.f.		0.40
• AC operation, 60 Hz		
- Closing	VA	14.4
- p.f.		0.30
- Closed	VA	6.0
- p.f.		0.44
• DC operation (closing = closed)	W	3
Permissible residual current of the electronic circuit[2] (with 0 signal)		
• AC operation	mA	≤ 3 x (230 V/U_s)
• DC operation	mA	≤ 1 x (230 V/U_s)
Operating times for 0.8 ... 1.1 x U_s[3] Total break time = Opening delay + Arcing time Values apply with coil in cold state and at operating temperature for operating range		
• AC operation		
- Closing delay	ms	5 ... 19
- Opening delay	ms	2 ... 22
- Dead interval		To use the 3TK20 AC-operated contactor in reversing duty an additional dead interval of 50 ms is required along with an NC contact interlock
• DC operation		
- Closing delay	ms	16 ... 65
- Opening delay	ms	2 ... 5
• Arcing time	ms	10 ... 15
Operating times for 1.0 x U_s[3]		
• AC operation		
- Closing delay	ms	5 ... 18
- Opening delay	ms	3 ... 21
- Dead interval		To use the 3TK20 AC-operated contactor in reversing duty an additional dead interval of 50 ms is required along with an NC contact interlock
• DC operation		
- Closing delay	ms	19 ... 31
- Opening delay	ms	3 ... 4
• Arcing time	ms	10 ... 15

1) Applies to 50/60 Hz coil:
At 50 Hz, 1.1 x U_s, side-by-side mounting and 100 % ON period the max. ambient temperature is +40 °C.

2) The 3TX4490-1J additional load module is recommended for higher residual currents (see "Accessories for 3TF2 contactors", Chapter 3).

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

Type			3TK20..-0...	3TK20..-3..., 3TK20..-6..., 3TK20..-7...
Size			00	00
Main circuit				
Load rating with AC				
Utilization category AC-1, switching resistive loads				
• Rated operational current I_e (at 40 °C)	up to 400/380 V	A	18	18
	690/660 V	A	18	--
• Rated operational current I_e (at 55 °C)	400/380 V	A	16	16
	690/660 V	A	16	--
• Rated power for AC loads with p.f. = 1	at 230/220 V	kW	6.0	6.0
	400/380 V	kW	10	10
	500 V	kW	13	13
	690/660 V	kW	17	--
• Minimum conductor cross-section for loads with I_e		mm^2	2.5	2.5
Utilization categories AC-2 and AC-3				
• Rated operational current I_e	up to 220 V	A	9.0	9.0
	230 V	A	9.0	9.0
	380 V	A	9.0	9.0
	400 V	A	8.4	8.4
	500 V	A	6.5	6.5
	660 V	A	5.2	--
	690 V	A	5.2	--
• Rated power for motors with slipring or squirrel cage at 50 and 60 Hz	at 110 V	kW	1.2	1.2
	115 V	kW	1.2	1.2
	120 V	kW	1.3	1.3
	127 V	kW	1.4	1.4
	200 V	kW	2.2	2.2
	220 V	kW	2.4	2.4
	230 V	kW	2.5	2.5
	240 V	kW	2.6	2.6
	380 V	kW	4.0	4.0
	400 V	kW	4.0	4.0
	415 V	kW	4.0	4.0
	440 V	kW	4.0	4.0
	460 V	kW	4.0	4.0
	500 V	kW	4.0	4.0
	575 V	kW	4.0	--
	660 V	kW	4.0	--
	690 V	kW	4.0	--
• Power loss per conducting path	at I_e/AC-3	W	0.3	0.3
Utilization category AC-4				
(Contact endurance approx. 200 000 operating cycles at $I_a = 6 \times I_e$)				
• Rated operational current I_e	up to 400 V	A	2.6	2.6
	690 V	A	1.8	--
• Rated power for motors with squirrel cage at 50 and 60 Hz	at 110 V	kW	0.32	0.32
	115 V	kW	0.33	0.33
	120 V	kW	0.35	0.35
• Max. permissible rated operational current I_e/AC-4 ≙ I_e/AC-3 up to 500 V, for reduced contact endurance and reduced switching frequency	127 V	kW	0.37	0.37
	200 V	kW	0.58	0.58
	220 V	kW	0.64	0.64
	230 V	kW	0.67	0.67
	240 V	kW	0.70	0.70
	380 V	kW	1.10	1.10
	400 V	kW	1.15	1.15
	415 V	kW	1.20	1.20
	440 V	kW	1.27	1.27
	460 V	kW	1.33	1.33
	500 V	kW	1.45	1.45
	575 V	kW	1.30	--
	660 V	kW	1.10	--
	690 V	kW	1.15	--

3TK20 contactors, 4-pole, 4 kW

Type			3TK20..-0...	3TK20..-3..., 3TK20..-6..., 3TK20..-7...
Size			00	00
Main circuit				
Load rating with DC				
Utilization category DC-1 **Switching resistive loads (*L/R* ≤ 1 ms)** (Contact endurance 0.1 x 10^6 operating cycles)				
• Rated operational currents I_e (at 55 °C)				
- 1 conducting path	up to 24 V	A	16	16
	60 V	A	6	6
	110 V	A	2	2
	220/240 V	A	1	1
- 2 conducting paths in series	up to 24 V	A	16	16
	60 V	A	16	16
	110 V	A	6	6
	220/240 V	A	2	2
- 2 conducting paths in series	up to 24 V	A	16	16
	60 V	A	16	16
	110 V	A	16	16
	220/240 V	A	6	6
Utilization category DC-3/DC-5 **Shunt-wound and series-wound motors (*L/R* ≤ 15 ms)**				
• Rated operational currents I_e (at 55 °C)				
- 1 conducting path	up to 24 V	A	6	6
	60 V	A	3	3
	110 V	A	0.5	0.5
	220/240 V	A	0.1	0.1
- 2 conducting paths in series	up to 24 V	A	10	10
	60 V	A	5	5
	110 V	A	2	2
	220/240 V	A	0.5	0.5
- 2 conducting paths in series	up to 24 V	A	16	16
	60 V	A	16	16
	110 V	A	16	16
	220/240 V	A	2	2
Switching frequency				
Switching frequency *z* in operating cycles/hour				
• Contactors without overload relays	No-load switching frequency	h^{-1}	10 000	
	AC-1	h^{-1}	1 000	
	AC-2	h^{-1}	500	
	AC-3	h^{-1}	1 000	
• Contactors with overload relays (mean value)		h^{-1}	15	
Dependence of the switching frequency z' on the operational current I' and operational voltage U': $z' = z \cdot (I_e/I') \cdot (400\ V/U')^{1.5} \cdot 1/h$				

Type			3TK20
Size			00
Conductor cross-sections			
Main and auxiliary conductors			**Screw terminals**
• Solid		mm^2	2 x (0.5 ... 2.5), 1 x 4 2 x (20 ... 14) AWG, 1 x 12 AWG
• Finely stranded with end sleeve		mm^2	2 x (0.5 ... 1.5), 1 x 2.5
• Pin-end connector (DIN 46231)		mm^2	1 x 1 ... 2.5
• Terminal screw			M3
• Prescribed tightening torque for terminal screws		Nm lb.in	0.8 ... 1.3 7 ... 11
			Flat connectors
• When using a plug-in sleeve 6.3 – 1		mm^2	0.5 ... 1
• Finely stranded with 6.3 – 2.5		mm^2	1 ... 2.5
			Solder pin connections (only for printed circuit boards)
• Solder pin cross-section	(does not apply to plug-in bases)	mm^2	0.8 x 1.2

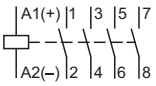
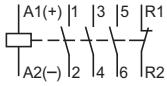
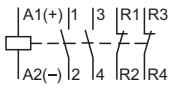
Type				3TK20
Size				00
Auxiliary contacts				
General data				
Standards				IEC 60947-5-1
Rated insulation voltage U_i (Pollution degree 3)			V	690
Conventional thermal current I_{th} = Rated operational current I_e/AC-12			A	10
Load rating with AC				
Rated operational current I_e/AC-15/AC-14				
• for rated operational voltage U_e	24 ... 230 V		A	4
	380 ... 400 V		A	3
	500 V		A	2
	660 V		A	1
	690 V		A	1
Load rating with DC				
Rated operational current I_e/DC-12				
• for rated operational voltage U_e	24 V		A	4
	48 V		A	2.2
	110 V		A	1.1
	125 V		A	1.1
	220 V		A	0.5
	440 V		A	--
	600 V		A	--
Rated operational current I_e/DC-13				
• for rated operational voltage U_e	24 V		A	2.1
	48 V		A	1.1
	110 V		A	0.52
	125 V		A	0.52
	220 V		A	0.27
	440 V		A	--
	600 V		A	--

3TK20 contactors, 4-pole, 4 kW

Type			3TK20..-0...	3TK20..-3..., 3TK20..-6..., 3TK20..-7...
Size			00	00
CSA and UL rated data of the 3TK20 contactors				
Rated insulation voltage U_i		V AC	600	300
Uninterrupted current, open and enclosed		A	16	16 (10 for solder pin connection)
Maximum horsepower ratings (CSA and UL approved values)				
• Rated power for three-phase motors at 60 Hz				
- Single-phase	at 115 V	hp	0.5	--
	200 V	hp	1	1
	230 V	hp	1.5	1
	460/575 V	hp	--	--
- 3-phase	at 115 V	hp	--	--
	200 V	hp	3	3 (1 for 3TK20..-6)
	230 V	hp	3	3 (1 for 3TK20..-6)
	460/575 V	hp	5	--
Overload relays	Type		3UA7	
• Setting range		A	8 ... 10	
CSA, UL and GL rated data of the auxiliary contacts				
Rated voltage, max.		V AC	600	
Auxiliary switch blocks, max.		V AC	300	
Switching capacity			A 600, Q 300	
Uninterrupted current at 240 V AC		A	10	

Selection and ordering data

Size 00
AC-1: Operational current I_e = 16 A (at 55 °C)

Rated data Utilization categories AC-2 and AC-3					Main contacts		DT	**Screw terminals**		PU (UNIT, SET, M)	PS*	PG
Operational current I_e	Ratings[1] of three-phase motors at 50 Hz and				Version			Article No.	Price per PU			
at 400/ 380 V	230/ 220 V	**400/ 380 V**	500 V	690/ 660 V								
A	kW	**kW**	kW	kW	NO	NC						
Terminal designations												
4 NO												
												
3 NO + 1 NC												
												
2 NO + 2 NC												
												
Contactors with screw terminals · for screw fixing and snap-on mounting onto TH 35 standard mounting rail												
 3TK20..-0...												
AC operation												
9	2.4	**4**	4	4	4	--	C	**3TK2040-0AP0**		1	1 unit	41B
					3	1	C	**3TK2031-0AP0**		1	1 unit	41B
					2	2	D	**3TK2022-0AP0**		1	1 unit	41B
DC operation												
9	2.4	**4**	4	4	4	--	C	**3TK2040-0BB4**		1	1 unit	41B
					3	1	C	**3TK2031-0BB4**		1	1 unit	41B
					2	2	C	**3TK2022-0BB4**		1	1 unit	41B

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

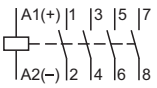
Accessories, see "3TF2 contactors", Chapter 3.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

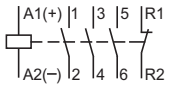
Rated data Utilization categories AC-2 and AC-3					Main contacts		DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Operational current I_e	Ratings[1] of three-phase motors at 50 Hz and				Version							
at 400/ 380 V	230/ 220 V	**400/ 380 V**	500 V	690/ 660 V	NO	NC						
A	kW	**kW**	kW	kW								

Terminal designations

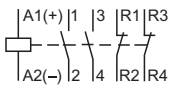
4 NO



3 NO + 1 NC



2 NO + 2 NC



Contactors with 6.3 mm x 0.8 mm flat connectors for screw fixing and snap-on mounting onto TH 35 standard mounting rail

3TK20..-3...

AC operation

9	2.4	**4**	4	--	4	--	C	**3TK2040-3AP0**	Flat connectors	1	1 unit	41B
					3	1	C	**3TK2031-3AP0**		1	1 unit	41B
					2	2	D	**3TK2022-3AP0**		1	1 unit	41B

DC operation

9	2.4	**4**	4	--	4	--	D	**3TK2040-3BB4**		1	1 unit	41B
					3	1	D	**3TK2031-3BB4**		1	1 unit	41B
					2	2	D	**3TK2022-3BB4**		1	1 unit	41B

Contactors with 6.3 mm x 0.8 mm flat connectors for screw fixing (diagonal)

3TK20..-7...

AC operation

9	2.4	**4**	4	--	4	--	C	**3TK2040-7AP0**		1	1 unit	41B
					3	1	C	**3TK2031-7AP0**		1	1 unit	41B
					2	2	C	**3TK2022-7AP0**		1	1 unit	41B

DC operation

9	2.4	**4**	4	--	4	--	C	**3TK2040-7BB4**		1	1 unit	41B
					3	1	D	**3TK2031-7BB4**		1	1 unit	41B
					2	2	C	**3TK2022-7BB4**		1	1 unit	41B

Contactors with solder pin connections for printed circuit boards[2] for screw fixing (diagonal)

3TK20..-6...

AC operation

9	2.4	**4**	4	--	4	--	C	**3TK2040-6AP0**	Solder pin connections	1	1 unit	41B
					3	1	D	**3TK2031-6AP0**		1	1 unit	41B
					2	2	C	**3TK2022-6AP0**		1	1 unit	41B

DC operation

9	2.4	**4**	4	--	**4**	--	D	**3TK2040-6BB4**		1	1 unit	41B
					3	1	C	**3TK2031-6BB4**		1	1 unit	41B
					2	2	C	**3TK2022-6BB4**		1	1 unit	41B

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

[2] Operating range at AC-1 and 220 V: 0.85 to 1.15 x U_s; lower operating range limit according to IEC 60947.

Accessories, see "3TF2 contactors", Chapter 3.

Rated control supply voltages (change of the 10th and 11th digits of the Article No.)

	Contactor type	3TK20
Rated control supply voltage U_s	Size	00
AC operation		
Solenoid coils for AC 50 and 60 Hz		
50 Hz	**60 Hz**	
24 V AC	29 V AC	B0
110 V AC	132 V AC	F0
230/220 V AC	276 V AC	P0[1]
DC operation		
24 V DC		B4

[1] Operating range at 220 V: 0.85 to 1.15 x U_s; lower operating range limit according to IEC 60947.

Please inquire about further voltages.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

SIRIUS 3RT25 contactors, 4-pole, 2 NO + 2 NC, 4 ... 22 kW

Overview

Standards

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

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

The accessories for the 3-pole 3RT20 contactors can also be used for the 4-pole versions.

With sizes S0 and S2, two auxiliary contacts 1 NO + 1 NC are included in the basic version.

Mountable auxiliary contacts

Size S00 to S2

Four additional auxiliary contacts, including no more than 2 NC.

Application

The contactors are suitable:

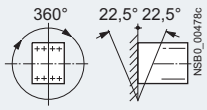
- For changing the polarity of hoisting gear motors
- For switching two separate loads

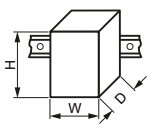
Note:

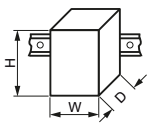
Single device for pole reversal; not suitable for reversing duty. 3RT25 contactors are not suitable for switching a load between two current sources.

For a general description of sizes S00 to S2, see Chapter 3, "Power contactors for switching motors" → "SIRIUS 3RT20 contactors, 3-pole, up to 37 kW".

Technical specifications

Type		3RT2516	3RT2517	3RT2518	3RT2526	3RT2535	3RT2536
Size		S00			S0	S2	
General technical specifications							
Permissible mounting position The contactors are designed for operation on a vertical mounting surface.							
Upright mounting position		 Special version required					
Mechanical endurance	Operating cycles	30 million			10 million		
Electrical endurance at I_e/AC-1	Operating cycles	Approx. 0.5 million					
Rated insulation voltage U_i (Pollution degree 3)	V	690					
Permissible ambient temperature							
• During operation	°C	-25 ... +60				-25 ... +60	
• During storage	°C	-55 ... +80				-55 ... +80	
Degree of protection acc. to IEC 60947-1, Appendix C		IP20					
Touch protection acc. to EN 50274		Finger-safe					
Short-circuit protection							
Main circuit Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1/EN 60947-4-1							
• Type of coordination "1"	A	35			63	125	160
• Type of coordination "2"	A	20			35	63	80
• Weld-free	A	10			16	--	--

Type			3RT2516	3RT2517	3RT2518	3RT2536	3RT2537
Size			S00			S2	
Dimensions (W x H x D)[1]			45 x 57.5 x 73 / 45 x 70 x 73			74.5 x 113.5 x 130 / 74.5 x 113.5 x 130	
• with mounted auxiliary switch block			45 x 57.5 x 116 / 45 x 70 x 121			74.5 x 113.5 x 173.5 / 74.5 x 113.5 x 177.5	

Type			3RT2526
Size			S0
Dimensions (W x H x D) for AC operation[1][2]	mm		60 x 85 x 97 / 60 x 101.5 x 97
• with mounted auxiliary switch block	mm		60 x 85 x 141 / 60 x 101.5 x 144
Dimensions (W x H x D) for DC operation[1][2]	mm		60 x 85 x 107 / 60 x 101.5 x 107
• with mounted auxiliary switch block	mm		60 x 85 x 151 / 60 x 101.5 x 154

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

2) For size S0, devices for AC and DC operation differ in depth. The following applies: Depth (DC) = Depth (AC) + 10 mm.

Type				3RT2516	3RT2517	3RT2518	3RT2526		3RT2535	3RT2536
Size				S00			S0		S2	
Control circuit										
Solenoid coil operating range										
• AC operation	at 50 Hz			0.8 ... 1.1 x U_s			0.8 ... 1.1 x U_s			
	at 60 Hz			0.85 ... 1.1 x U_s			0.8 ... 1.1 x U_s			
• DC operation	up to 50 °C			0.8 ... 1.1 x U_s					--	
	up to 60 °C			0.85 ... 1.1 x U_s					--	
• AC/DC operation				--					0.8 x U_{smin}... 1.1 x U_{smax}	
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)				see 3RT2316	see 3RT2317		see 3RT2326		see 3RT233	
Operating times for 0.8 to 1.1 x U_s (Total break time = Opening delay + Arcing time)				see 3RT2316	see 3RT2317		see 3RT2326		see 3RT233	
Main circuit										
Load rating with AC										
Utilization category AC-1 Switching resistive loads										
• Rated operational currents I_e	at 40 °C up to 690 V		A	18	22		40		60	70
	at 60 °C up to 690 V		A	16	20		35		55	60
• Rated power for AC loads p.f. = 0.95 (at 60 °C)	at 230 V		kW	6	7.5		13.3		21	23
	400 V		kW	10.5	13		23		36	39
• Minimum conductor cross-section for loads with I_e	at 40 °C		mm^2	2.5	2.5		10		16	25
Utilization categories AC-2 and AC-3							AC[1]	DC[1]		
• Rated operational currents I_e (at 60 °C)	NO up to 400 V		A	9	12	16	25	25	35	41
	NC up to 400 V		A	9	9	9	25	20	35	41
• Rated power for slipring or squirrel-cage motors at 50 and 60 Hz	NO at 230 V		kW	2.2	3	4	5.5	5.5	11	
	NC at 230 V		kW	2.2	2.2	2.2	5.5	5.5	11	
	NO at 400 V		kW	4	5.5	7.5	11	11	18.5	22
	NC at 400 V		kW	4	4	4	11	7.5	18.5	22
Load rating with DC										
Utilization category DC-1 Switching resistive loads ($L/R \leq 1$ ms)										
• Rated operational currents I_e (at 60 °C)										
- 1 conducting path	up to 24 V		A	16	20		35		55	60
	60 V		A	16	20		20		23	
	110 V		A	2.1	2.1		4.5		4.5	
	220 V		A	0.8	0.8		1		1	
	440 V		A	0.6	0.6		0.4		0.4	
- 2 conducting paths in series	up to 24 V		A	16	20		35		55	
	60 V		A	16	20		35		45	
	110 V		A	12	12		35		45	
	220 V		A	1.6	1.6		5		5	
	440 V		A	0.8	0.8		1		1	
Utilization category DC-3/DC-5[2] Shunt-wound and series-wound motors ($L/R \leq 15$ ms)										
• Rated operational currents I_e (at 60 °C)										
- 1 conducting path	up to 24 V		A	16	20		20		35	
	60 V		A	0.5	0.5		5		6	
	110 V		A	0.15	0.15		2.5		2.5	
	220 V		A	0.75	0.75		1		1	
	440 V		A	--	--		0.09		0.1	
- 2 conducting paths in series	up to 24 V		A	16	20		35		55	
	60 V		A	5	5		35		45	
	110 V		A	0.35	0.35		15		25	
	220 V		A	--	--		3		5	
	440 V		A	--	--		0.27		0.27	

[1] Values for devices with AC and DC operation: for 3RT25 26 with DC operation, different values apply to AC-2 and AC-3 for the NC.

[2] For U_s >24 V, the rated operational currents I_e for the NC contact conducting paths are 50 % of the values for the NO contact conducting paths.

SIRIUS 3RT25 contactors, 4-pole, 2 NO + 2 NC, 4 ... 22 kW

Selection and ordering data

AC operation, 2 NO + 2 NC [1]

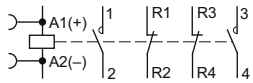
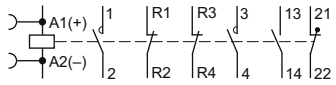
PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT251.-1A.00

3RT251.-2A.00

3RT252.-1A.00

3RT252.-2A.00

Rated data			Auxiliary contacts			Rated control supply voltage U_s	DT	Screw terminals	DT	Spring-type terminals
AC-2/AC-3, T_u: up to 60 °C		AC-1, T_u: 40/60 °C	Ident. No.	Version				Article No. / Price per PU		Article No. / Price per PU
Operational current I_e at 400 V	Ratings of three-phase motors at 50 Hz and **400 V**	Operational current I_e up to 690		NO	NC					
A	**kW**	A				V AC				
For screw fixing and snap-on mounting onto TH 35 standard mounting rail										
Size S00 [2]										
										
9	**4**	18 / 16	**--**	--	--	24, 50/60 Hz	B	**3RT2516-1AB00**	B	**3RT2516-2AB00**
						110, 50/60 Hz	B	**3RT2516-1AF00**	B	**3RT2516-2AF00**
						230, 50/60 Hz	A	**3RT2516-1AP00**	A	**3RT2516-2AP00**
12/9 [3]	**5.5/4** [3]	22 / 20	**--**	--	--	24, 50/60 Hz	B	**3RT2517-1AB00**	B	**3RT2517-2AB00**
						110, 50/60 Hz	B	**3RT2517-1AF00**	A	**3RT2517-2AF00**
						230, 50/60 Hz	▶	**3RT2517-1AP00**	A	**3RT2517-2AP00**
16/9 [3]	**7.5/4** [3]	22 / 20	**--**	--	--	24, 50/60 Hz	B	**3RT2518-1AB00**	B	**3RT2518-2AB00**
						110, 50/60 Hz	B	**3RT2518-1AF00**	B	**3RT2518-2AF00**
						230, 50/60 Hz	A	**3RT2518-1AP00**	A	**3RT2518-2AP00**
Size S0										
Auxiliary contacts 1 NO + 1 NC, Ident. No. **11**										
										
25	**11**	40 / 35	**11**	1	1	24, 50 Hz	B	**3RT2526-1AB00**	B	**3RT2526-2AB00**
						110, 50 Hz	B	**3RT2526-1AF00**	B	**3RT2526-2AF00**
						230, 50 Hz	A	**3RT2526-1AP00**	A	**3RT2526-2AP00**

[1] Single device for pole reversal; not suitable for reversing duty.

[2] For size S00: Coil operating range
at 50 Hz: 0.8 ... 1.1 x U_s
at 60 Hz: 0.85 ... 1.1 x U_s

[3] Values for NO contact/NC contact. The NC contact can switch no more than 4 kW.

Other voltages according to page 4/48 on request.

Accessories and spare parts, see "SIRIUS 3RT20 contactors", Chapter 3.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

4

AC operation, 2 NO + 2 NC[1)]

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

3RT253.-1A.00

Rated data			Auxiliary contacts			Rated control supply voltage U_s	DT	**Screw terminals**		DT	**Spring-type terminals** for auxiliary and control circuits	
AC-2/AC-3, T_u: up to 60 °C		AC-1, T_u: 40/60 °C	Ident. No.	Version				Article No.	Price per PU		Article No.	Price per PU
Operational current I_e at 400 V	Ratings of three-phase motors at 50 Hz and **400 V**	Operational current I_e up to 690		NO	NC							
A	**kW**	A				V AC						
For screw fixing and snap-on mounting onto TH 35 standard mounting rail												
Size S2 NEW												
Auxiliary contacts 1 NO + 1 NC, Ident. No. **11**												
35	**18.5**	60 / 55	**11**	1	1	24, 50 Hz	A	**3RT2535-1AB00**			**--**	
						110, 50 Hz	A	**3RT2535-1AF00**			**--**	
						230, 50 Hz	A	**3RT2535-1AP00**			**--**	
41	**22**	70 / 60	**11**	1	1	24, 50 Hz	B	**3RT2536-1AB00**			**--**	
						110, 50 Hz	B	**3RT2536-1AF00**			**--**	
						230, 50 Hz	A	**3RT2536-1AP00**			**--**	

[1)] Single device for pole reversal; not suitable for reversing duty.

Other voltages according to page 4/48 on request.

Accessories and spare parts, see "SIRIUS 3RT20 contactors", Chapter 3.

SIRIUS 3RT25 contactors, 4-pole, 2 NO + 2 NC, 4 ... 22 kW

DC operation, 2 NO + 2 NC[1)]

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

3RT251.-1B.40

3RT251.-2B.40

3RT252.-1B.40

3RT252.-2B.40

Rated data			Auxiliary contacts			Rated control supply voltage U_s	DT	Screw terminals		DT	Spring-type terminals	
AC-2/AC-3, T_u: up to 60 °C		AC-1, T_u: 40/60 °C	Ident. No.	Version				Article No.	Price per PU		Article No.	Price per PU
Operational current I_e at 400 V	Ratings of three-phase motors at 50 Hz and **400 V**	Operational current I_e up to 690		NO	NC							
A	**kW**	A		NO	NC	V DC						
For screw fixing and snap-on mounting onto TH 35 standard mounting rail												
Size S00												
9	**4**	18 / 16	**--**	--	--	24	▶	**3RT2516-1BB40**		A	**3RT2516-2BB40**	
						220	B	**3RT2516-1BM40**		B	**3RT2516-2BM40**	
12/9[2)]	**5.5/4**[2)]	22 / 20	**--**	--	--	24	A	**3RT2517-1BB40**		A	**3RT2517-2BB40**	
						220	B	**3RT2517-1BM40**		B	**3RT2517-2BM40**	
16/9[2)]	**7.5/4**[2)]	22 / 20	**--**	--	--	24	A	**3RT2518-1BB40**		A	**3RT2518-2BB40**	
						220	B	**3RT2518-1BM40**		B	**3RT2518-2BM40**	
Size S0												
Auxiliary contacts 1 NO + 1 NC, Ident. No. **11**												
25 (20)[3)]	**11 (7.5)**[3)]	40 / 35	**11**	1	1	24	A	**3RT2526-1BB40**		A	**3RT2526-2BB40**	
						220	B	**3RT2526-1BM40**		B	**3RT2526-2BM40**	

1) Single device for pole reversal; not suitable for reversing duty.
2) Values for NO contact/NC contact. The NC contact can switch no more than 4 kW.
3) Values in brackets for NC. (The deviating value for the NC only applies to devices with DC operation.)

Other voltages according to page 4/48 on request.

Accessories and spare parts, see "SIRIUS 3RT20 contactors", Chapter 3.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

4

AC/DC operation, 2 NO + 2 NC[1)]

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

3RT253.-1N.30

Rated data			Auxiliary contacts			Rated control supply voltage U_s	DT	**Screw terminals**	DT	**Spring-type terminals** for auxiliary and control circuits
AC-2/AC-3, T_u: up to 60 °C		AC-1, T_u: 40/60 °C	Ident. No.	Version				Article No. / Price per PU		Article No. / Price per PU
Operational current I_e at 400 V	Ratings of three-phase motors at 50 Hz and **400 V**	Operational current I_e up to 690		NO	NC					
A	**kW**	A				V AC/DC				
For screw fixing and snap-on mounting onto TH 35 standard mounting rail										
Size S2 NEW										
With integrated coil circuit (varistor)										
Auxiliary contacts 1 NO + 1 NC, Ident. No. **11**										
35	**18.5**	60 / 55	**11**	1	1	20 ... 33	A	**3RT2535-1NB30**		--
						83 ... 155	B	**3RT2535-1NF30**		--
						175 ... 280	B	**3RT2535-1NP30**		--
41	**22**	70 / 60	**11**	1	1	20 ... 33	A	**3RT2536-1NB30**		--
						83 ... 155	B	**3RT2536-1NF30**		--
						175 ... 280	B	**3RT2536-1NP30**		--

[1)] Single device for pole reversal; not suitable for reversing duty.

Other voltages according to page 4/48 on request.

Accessories and spare parts, see "SIRIUS 3RT20 contactors", Chapter 3.

SIRIUS 3RT26 capacitor contactors, 12.5 ... 75 kvar

Overview

Standards

IEC 60947-1, DIN EN 60947-1,
IEC 60947-4-1, EN 60947-4-1,
IEC 60947-5-1, EN 60947-5-1,
IEC 60831-1, EN 60831-1,
IEC 61921, EN 61921.

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

Function

The 3RT26 capacitor contactors are special versions of the 3RT20 contactors size S00, S0 and S2 which are configured for switching banks of capacitors.

They are designed to convey the inrush current in such applications, and are weld-resistant in compliance with the technical specifications.

The 3RT26 contactors are suitable for choked and unchoked capacitors. Besides switching power capacitors in reactive-current compensation systems, they are also used to switch converters.

In the case of 3RT26 capacitor contactors, the precharging resistors are an integral component of the contactor. The precharging resistors are activated via leading auxiliary contacts before the main contacts close. During switching, after attenuation of the peak current, they are decoupled again. Attenuation of the inrush current peaks also reduces interfering harmonics in the supply.

Notes:

Only switching onto discharged capacitors is permitted with capacitor contactors.

Manual operation for function tests is not permitted. The series resistors must not be removed.

Auxiliary switches

The variance of unassigned auxiliary switches has been increased; available versions, see "Selection and ordering data", pages 4/45.
Details of deviating versions are available on request.

In sizes S00 and S0, the auxiliary switch block which is snapped onto the capacitor contactor contains the three leading NO contacts and one unassigned auxiliary contact. In addition, another one (S00) or two (S0) unassigned auxiliary contacts are provided in the basic unit.

The fitting of auxiliary switches for capacitor contactors in sizes S00 and S0 of the respective version is not expandable. For size S2, unassigned auxiliary switches are implemented by means of lateral auxiliary switch blocks. More auxiliary switch blocks can be mounted laterally corresponding to the 3RT20 contactors.

Devices with 2 NC contacts are now consistently available in all power quantities.

Technical specifications

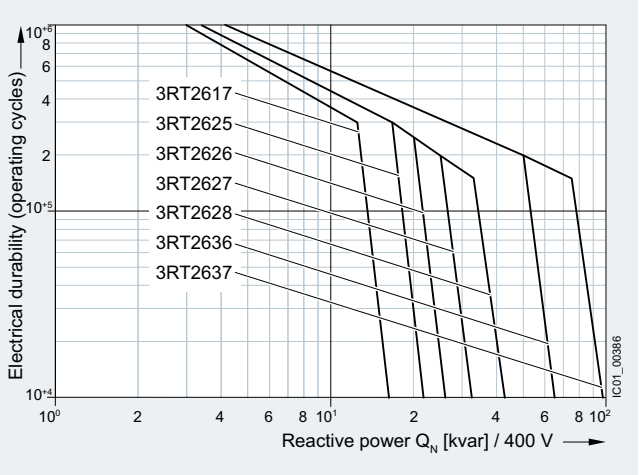
Type	3RT26
Size	S00 to S2

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_N and rated operational voltage.

The rated operational current I_e complies with utilization category AC-6b (breaking 1.35 times the rated operational current) and is intended for a contact endurance of at least 150 000 to 200 000 operating cycles.

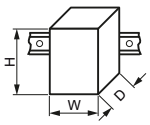
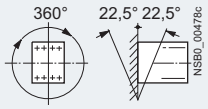
If a shorter contact endurance is sufficient, the rated operational current I_e/AC-6b can be increased.



SIRIUS 3RT26 capacitor contactors, 12.5 ... 75 kvar

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

See Chapter 3, "Power contactors for switching motors" → "SIRIUS 3RT20 contactors, 3-pole, 3 to 37 kW"

Type			**3RT261.**	**3RT2625**	**3RT2626**	**3RT2627**	**3RT2628**	**3RT2636** **3RT2637**
Size			**S00**	**S0**				**S2**
Dimensions (W x H x D) including auxiliary switches and connecting cables		mm	45x120x118	45x150x 50				65 x115 x130
General technical specifications								
Permissible mounting position The contactors are designed for operation on a vertical mounting surface.								
Mechanical endurance								
• Basic units with snap-on auxiliary switch block		Operating cycles	3 million					
Electrical endurance for apparent power at 400 V		kvar	12.5	16.7	20	25	33	50 75
		Operating cycles	300 000	200 000	200 000	200 000	150 000	200 000 150 000
Rated insulation voltage U_i (Pollution degree 3)		V	690					
Rated impulse withstand voltage U_{imp}		kV	6					
Protective separation between the coil and the main contacts, acc. to IEC 60947-1, Appendix N		V	400					
Permissible ambient temperature								
• During operation[1]		°C	-25 ... +60					
• During storage		°C	-55 ... +80					
Degree of protection acc. to IEC 60947-1, Appendix C								
• On front			IP20					
Touch protection acc. to EN 50274			Finger-safe					
Shock resistance								
• Rectangular pulse		*g*/ms	6.7/5 and 4.2/10	7.5/5 and 4.7/10	8.3/5 and 5.3/10			6.8/5 and 4/10
• Sine pulse		*g*/ms	10.5/5 and 6.6/10	11.8/5 and 7.4/10	13.5/5 and 8.3/10			10.6/5 and 6.2/10
Short-circuit protection								
Main circuit								
• Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE, according to IEC 60947-4-1/EN 60947-4-1								
- Type of coordination "1"		A	40	50	63	80	100	160 200
Auxiliary circuit								
• with fuse links of operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current I_k = 1 kA, acc. to IEC 60947-5-1		A	10					
• with miniature circuit breakers with C characteristic with short-circuit current I_k = 400 A		A	10					

[1] A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 60 °C.

SIRIUS 3RT26 capacitor contactors, 12.5 ... 75 kvar

Type			3RT2617	3RT2625	3RT2626, 3RT2627	3RT2628	3RT2636 3RT2637
Size			S00	S0			S2
Control							
Solenoid coil operating range							
• AC operation	50 Hz		0.8 ... 1.1 x U_s	0.8 ... 1.1 x U_s			0.8 ... 1.1 x U_s
	60 Hz		0.85 ... 1.1 x U_s	0.85 ... 1.1 x U_s			--
• AC/DC operation	50 Hz		--	0.7 ... 1.3 x U_s			0.8 ... 1.1 x U_s
	60 Hz		--	0.7 ... 1.3 x U_s			0.8 ... 1.1 x U_s
• DC operation			0.8 ... 1.1x U_s				--
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)							
• AC operation, 50 Hz, standard version							
- Closing		VA	--	65	77		190
- p.f.			--	0.82	0.82		0.72
- Closed		VA	--	7.6	9.8		16
- p.f.			--	0.25	0.25		0.37
• AC operation, 50/60 Hz, standard version							
- Closing		VA	37	81			190
- p.f.			0.8	0.72			0.72
- Closed		VA	5.7	10.5			16
- p.f.			0.25	0.25			0.37
• AC/DC operation, 50/60 Hz, standard version							
- Closing AC		VA	--	13.6			40
- p.f.			--	0.98			0.71
- Closed AC		VA	--	1.91			on req.
- p.f.			--	0.25			1
- Closing DC			--	13.2			25
- Closed DC			--	1.56			on req.
• DC operation							
- Closing		W	4	5.9			--
- Closed		W	4	5.9			--
Maximum permissible residual current of the electronics (with 0 signal)							
• AC operation (230 V/U_s)[1)]		mA	3	6	7		on req.
• DC operation (24 V/U_s)[1]		mA	10	16	16		on req.
Operating times for 0.8 ... 1.1 x *U* or at 60 Hz AC: 0.85 ... 1.1 x U_s							
Total break time = Opening delay + Arcing time							
• AC operation							
- Closing delay		ms	8 ... 33	9 ... 38	8 ... 40		10 ... 80
- Opening delay		ms	4 ... 15	4 ... 16			10 ... 18
• AC/DC operation							
- Closing delay		ms	--	50 ... 70			50 ... 110
- Opening delay		ms	--	35 ... 45			35 ... 55
• DC operation							
- Closing delay		ms	30 ... 100	55 ... 80	50 ... 170		--
- Opening delay		ms	7 ... 13	16 ... 17	15 ... 18		--
• Arcing time		ms	10 ... 15				

1) Size S00: The 3RT2916-1GA00 additional load module is recommended for higher residual currents.

SIRIUS 3RT26 capacitor contactors, 12.5 ... 75 kvar

Type			3RT2617	3RT2625	3RT2626	3RT2627	3RT2628	3RT2636	3RT2637	
Size			S00	S0				S2		
Auxiliary circuit										
Auxiliary contacts (unassigned)			1 NO + 1 NC, 2 NC	1 NO + 2 NC				1 NO + 1 NC, 2 NC		
Another auxiliary contact can be mounted laterally			--					✓[1]	✓[1]	
Technical specifications incl. CSA and UL rated data of the auxiliary contacts, see Chapter 3, "3RT20 motor contactors"										
Main circuit										
Load rating with AC										
Utilization category AC-6b Switching of AC capacitors										
Rated operational current I_e at AC										
• at ambient temperature of 40 °C		A	18.9	25.3	30.2	37.8	50	75.8	113.4	
• at ambient temperature of 60 °C		A	18	24	29	36	47.6	72.2	108	
Rated operational reactive power at rated operational voltage	230 V, 50/60 Hz	kvar	0 … 7.2	3 ... 9.6	4 ... 11.5	5 ... 14	6 ... 19	10 ... 29	14 ... 43	
	400 V, 50/60 Hz	kvar	0 … 12.5	6 ... 16.7	7 ... 20	8 ... 25	11 ... 33	17 ... 50	25 ... 75	
	500 V, 50/60 Hz	kvar	0 … 15	7 ... 21	8 ... 25	10 ... 31	14 ... 41	21 ... 63	31 ... 94	
	690 V, 50/60 Hz	kvar	0 … 21	10 ... 29	11 ... 34	14 ... 43	19 ... 57	29 ... 86	43 ... 129	
Minimum conductor cross-sections									< 133 A:	> 133 A
for load with 1.3 x I_e	at 40 °C	mm²	1 x 4	1 x 6	1 x 10	1 x 10	1 x 16	1 x 35	1 x 50	2 x 35; 1 x 70[4]
	at 60 °C	mm²	2 x 4; 1 x 6[2]	1 x 10	1 x 10	2 x 10; 1 x 16[3]	1 x 25	1 x 50	2 x 35; 1 x 70[4]	2 x 35; 1 x 70[4]
Switching frequency										
No-load switching frequency	AC operation	1/h	500							
	DC operation	1/h	500							
Max. switching frequency *z* in operating cycles/hour										
• at I_e/AC-6b and at	230 V, 50/60 Hz	1/h	180		100					
	400 V, 50/60 Hz	1/h	180		100				100 / 80[5]	
	480 V, 50/60 Hz	1/h	180		100		70	60	50	
	500 V, 50/60 Hz	1/h	180		100		65	55	45	
	600 V, 50/60 Hz	1/h	180		100		45	40	32	
	690 V, 50/60 Hz	1/h	180	150	100	72	36	30	25	
cULus and cULus rated data										
Rated insulation voltage		V AC	600							
Operational reactive power at AC-6b 3-phase, at operational voltage	110 ... 120 V	kvar	3.4	4.6	5.5	6.3	8.2	14	19	
	200 ... 208 V	kvar	6.2	8.3	10	11	15	25	34	
	220 ... 230 V	kvar	6.9	9.1	11	13	16	27	38	
	460 ... 480 V	kvar	14	18	22	25	33	55	75	
	575 ... 600 V	kvar	17	23	28	31	41	69	94	
Short-circuit protection	at 600 V	kA	5					10		
Fuse for main circuit	Class RK5	A	40	80			100	250		

1) No more than one lateral auxiliary switch block.
2) 1 x 6 mm² only with pin-end connector.
3) 1 x 16 mm² with pin-end connector or 3RV2925-5AB feeder terminal.
4) 1 x 70 mm² only with 3RV2935-5A feeder terminal.
5) Operating cycles/h: 100 with AC operation; 80 with AC/DC operation.

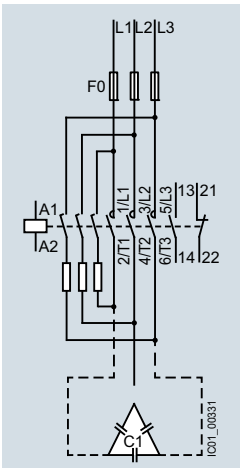
SIRIUS 3RT26 capacitor contactors, 12.5 ... 75 kvar

Type		3RT2617-1....	3RT2625-1...., 3RT2626-1...., 3RT2627-1....	3RT2628-1....	3RT263.-1....
Size		S00	S0	S0	S2
Conductor cross-sections					
Main conductors (1 or 2 conductors can be connected)		Screw terminals			
• Solid or stranded	mm^2	2 x (0.5 ... 1.5)[1] 2 x (0.75 ... 2.5)[1] max. 2 x 4	2 x (1 ... 2.5)[1] 2 x (2.5 ... 10)[1]	1 x (2.5 ... 25)	2 x (1 ... 35) 1 x (1 ... 50)
• Finely stranded with end sleeve	mm^2	2 x (0.5 ... 1.5)[1] 2 x (0.75 ... 2.5)[1]	2 x (1 ... 2.5)[1] 2 x (2.5 ... 6)[1] 1 x 10	1 x (2.5 ... 16)	2 x (1 ... 25) 1 x (1 ... 35)
• AWG cables, solid or stranded	AWG	2 x (20 ... 16)[1] 2 x (18 ... 14)[1] 2 x 12	2 x (16 ... 12)[1] 2 x (14 ... 8)[1]	1 x (10 ... 4)	2 x (18 ... 2) 1 x (18 ... 1)
• Terminal screw		M3 (for Pozidriv size 2; ∅ 5 ... 6)	M4 (for Pozidriv size 2; ∅ 5 ... 6)	M8	M6 (for Pozidriv size 2; ∅ 5 ... 6)
• Tightening torque	Nm	0.8 ... 1.2	2 ... 2.5	3 ... 4	3 ... 4.5
	lb.in	7 ... 10.3	18 ... 22	27 ... 36	27 ... 40
Auxiliary conductors					
• Solid or stranded	mm^2	2 x (0.5 ... 1.5)[1] 2 x (0.75 ... 2.5)[1] max. 2 x 4			
• Finely stranded with end sleeve	mm^2	2 x (0.5 ... 1.5)[1] 2 x (0.75 ... 2.5)[1]			
• AWG cables, solid or stranded	AWG	2 x (20 ... 16)[1] 2 x (18 ... 14)[1] 2 x 12			
• Terminal screw		M3 (for Pozidriv size 2; ∅ 5 ... 6)			
• Tightening torque	Nm	0.8 ... 1.2			
	lb.in	7 ... 10.3			

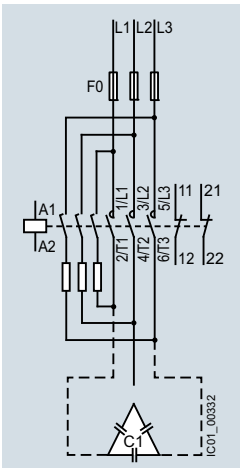
[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

Circuit diagrams

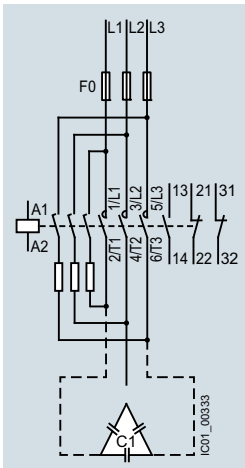
3RT2617-1A..3
Size S00, 1 NO + 1 NC



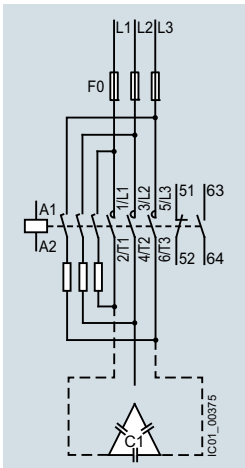
3RT2617-1A..5
Size S00, 2 NC



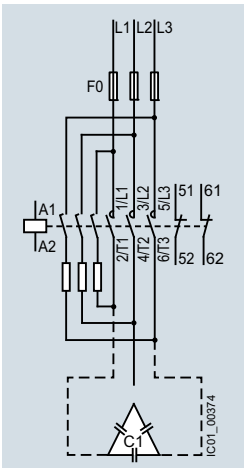
3RT262.-1A..5
Size S0, 1 NO + 2 NC



3RT263.-1A..3
Size S2, 1 NO + 1 NC



3RT263.-1A..5
Size S2, 2 NC



Selection and ordering data

AC operation

Main, auxiliary and control conductors: Screw terminals

3RT2617-1A.05

3RT262.-1A.05

3RT2628-1A.05
with feeder terminal

3RT263.-1A.05

Utilization category AC-6b Switching of AC capacitors for an ambient temperature of 60 °C Capacitor rating at operational voltage 50/60 Hz				Auxiliary contacts, unassigned Version		Rated control supply voltage U_s [1]		DT	**Screw terminals** Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
at 230 V	**at 400 V**	at 500 V	at 690 V	NO	NC								
kvar	**kvar**	kvar	kvar			V AC	Hz						
For screw fixing and snap-on mounting onto TH 35 standard mounting rail													
Size S00 [2]													
0 … 7.2	**0 … 12.5**	0 … 15	0 … 21	1	1	24	50 / 60	B	**3RT2617-1AB03**		1	1 unit	41B
						110		B	**3RT2617-1AF03**		1	1 unit	41B
						230		B	**3RT2617-1AP03**		1	1 unit	41B
0 … 7.2	**0 … 12.5**	0 … 15	0 … 21	0	2	24	50 / 60	B	**3RT2617-1AB05**		1	1 unit	41B
						110		B	**3RT2617-1AF05**		1	1 unit	41B
						230		B	**3RT2617-1AP05**		1	1 unit	41B
Size S0 [3]													
3 ... 9.6	**6 … 16.7**	7 ... 21	10 ... 29	1	2	24	50	B	**3RT2625-1AB05**		1	1 unit	41B
						110		B	**3RT2625-1AF05**		1	1 unit	41B
						230		B	**3RT2625-1AP05**		1	1 unit	41B
4 ... 11.5	**7 … 20**	8 ... 25	11 ... 34	1	2	24	50	B	**3RT2626-1AB05**		1	1 unit	41B
						110		B	**3RT2626-1AF05**		1	1 unit	41B
						230		B	**3RT2626-1AP05**		1	1 unit	41B
5 ... 14	**8 … 25**	10 ... 31	14 ... 43	1	2	24	50	B	**3RT2627-1AB05**		1	1 unit	41B
						110		B	**3RT2627-1AF05**		1	1 unit	41B
						230		B	**3RT2627-1AP05**		1	1 unit	41B
6 ... 19	**11 … 33**	14 ... 41	19 ... 57	1	2	24	50	B	**3RT2628-1AB05**		1	1 unit	41B
						110		B	**3RT2628-1AF05**		1	1 unit	41B
						230		B	**3RT2628-1AP05**		1	1 unit	41B
Size S2 [4]													
10 ... 29	**17 … 50**	21 ... 63	29 ... 86	1	1	24	50	B	**3RT2636-1AB03**		1	1 unit	41B
						110		B	**3RT2636-1AF03**		1	1 unit	41B
						230		B	**3RT2636-1AP03**		1	1 unit	41B
10 ... 29	**17 … 50**	21 ... 63	29 ... 86	0	2	24	50	B	**3RT2636-1AB05**		1	1 unit	41B
						110		B	**3RT2636-1AF05**		1	1 unit	41B
						230		B	**3RT2636-1AP05**		1	1 unit	41B
14 ... 43	**25 … 75**	31 ... 94	43 ... 129	1	1	24	50	B	**3RT2637-1AB03**		1	1 unit	41B
						110		B	**3RT2637-1AF03**		1	1 unit	41B
						230		B	**3RT2637-1AP03**		1	1 unit	41B
14 ... 43	**25 … 75**	31 ... 94	43 ... 129	0	2	24	50	B	**3RT2637-1AB05**		1	1 unit	41B
						110		B	**3RT2637-1AF05**		1	1 unit	41B
						230		B	**3RT2637-1AP05**		1	1 unit	41B

1) Coil operating range
at 50 Hz: 0.8 ... 1.1 x U_s
at 60 Hz: 0.85 ... 1.1 x U_s

2) For conductor cross-sections of 6 mm^2 pin-end connectors must be used.

3) For conductor cross-sections of 16 mm^2 pin-end connectors or 3RA2925-5AB feeder terminals must be used, see page 3/186.
With 3RT2628, the feeder terminal is in the scope of delivery.

4) For conductor cross-sections of 70 mm^2
3RV2935-5A feeder terminals must be used, see page 3/186.

Other voltages according to page 4/48 on request.

Accessories and spare parts, see "SIRIUS 3RT20 contactors", Chapter 3.

SIRIUS 3RT26 capacitor contactors, 12.5 ... 75 kvar NEW

DC operation

Main, auxiliary and control conductors: Screw terminals

3RT2617-1B.45

3RT262.-1B.45

3RT2628-1N.35
with feeder terminal

Utilization category AC-6b Switching of AC capacitors for an ambient temperature of 60 °C Capacitor rating at operational voltage 50/60 Hz				Auxiliary contacts, unassigned Version		Rated control supply voltage U_s [1]	DT	Screw terminals Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
at 230 V kvar	**at 400 V kvar**	at 500 V kvar	at 690 V kvar	NO	NC	V DC						
For screw fixing and snap-on mounting onto TH 35 standard mounting rail												
Size S00 [2]												
0 ... 7.2	**0 ... 12.5**	0 ... 15	0 ... 21	1	1	24	B	**3RT2617-1BB43**		1	1 unit	41B
						110	B	**3RT2617-1BF43**		1	1 unit	41B
0 ... 7.2	**0 ... 12.5**	0 ... 15	0 ... 21	0	2	24	B	**3RT2617-1BB45**		1	1 unit	41B
						110	B	**3RT2617-1BF45**		1	1 unit	41B
Size S0 [3]												
3 ... 9.6	**6 ... 16.7**	7 ... 21	10 ... 29	1	2	24	B	**3RT2625-1BB45**		1	1 unit	41B
						110	B	**3RT2625-1BF45**		1	1 unit	41B
4 ... 11.5	**7 ... 20**	8 ... 25	11 ... 34	1	2	24	B	**3RT2626-1BB45**		1	1 unit	41B
						110	B	**3RT2626-1BF45**		1	1 unit	41B
5 ... 14	**8 ... 25**	10 ... 31	14 ... 43	1	2	24	B	**3RT2627-1BB45**		1	1 unit	41B
						110	B	**3RT2627-1BF45**		1	1 unit	41B
6 ... 19	**11 ... 33**	14 ... 41	19 ... 57	1	2	24	B	**3RT2628-1BB45**		1	1 unit	41B
						110	B	**3RT2628-1BF45**		1	1 unit	41B

1) Operating range: 0.8 ... 1.1 x U_s

2) For conductor cross-sections of 6 mm^2 pin-end connectors must be used.

3) For conductor cross-sections of 16 mm^2 pin-end connectors or 3RV2925-5AB feeder terminals must be used, see page 3/186.
With 3RT2628, the feeder terminal is in the scope of delivery.

Other voltages according to page 4/48 on request.

Accessories and spare parts, see "SIRIUS 3RT20 contactors", Chapter 3.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

NEW SIRIUS 3RT26 capacitor contactors, 12.5 ... 75 kvar

AC/DC operation (50/60 Hz and DC)

Main, auxiliary and control conductors: Screw terminals

3RT262.-1N.35

3RT2628-1N.35
with feeder terminal

3RT263.-1N.35

Utilization category AC-6b Switching of AC capacitors for an ambient temperature of 60 °C Capacitor rating at operational voltage 50/60 Hz				Auxiliary contacts, unassigned Version		Rated control supply voltage U_s [1]		DT	**Screw terminals**		PU (UNIT, SET, M)	PS*	PG
									Article No.	Price per PU			
at 230 V	**at 400 V**	at 500 V	at 690 V	NO	NC	V AC	V DC						
kvar	**kvar**	kvar	kvar										
For screw fixing and snap-on mounting onto TH 35 standard mounting rail													
Size S0 [2]													
3 ... 9.6	**6 ... 16.7**	7 ... 21	10 ... 29	1	2	21 ... 28	21 ... 28	B	**3RT2625-1NB35**		1	1 unit	41B
						95 ... 130	95 ... 130	B	**3RT2625-1NF35**		1	1 unit	41B
						200 ... 280	200 ... 280	B	**3RT2625-1NP35**		1	1 unit	41B
4 ... 11.5	**7 ... 20**	8 ... 25	11 ... 34	1	2	21 ... 28	21 ... 28	B	**3RT2626-1NB35**		1	1 unit	41B
						95 ... 130	95 ... 130	B	**3RT2626-1NF35**		1	1 unit	41B
						200 ... 280	200 ... 280	B	**3RT2626-1NP35**		1	1 unit	41B
5 ... 14	**8 ... 25**	10 ... 31	14 ... 43	1	2	21 ... 28	21 ... 28	B	**3RT2627-1NB35**		1	1 unit	41B
						95 ... 130	95 ... 130	B	**3RT2627-1NF35**		1	1 unit	41B
						200 ... 280	200 ... 280	B	**3RT2627-1NP35**		1	1 unit	41B
6 ... 19	**11 ... 33**	14 ... 41	19 ... 57	1	2	21 ... 28	21 ... 28	B	**3RT2628-1NB35**		1	1 unit	41B
						95 ... 130	95 ... 130	B	**3RT2628-1NF35**		1	1 unit	41B
						200 ... 280	200 ... 280	B	**3RT2628-1NP35**		1	1 unit	41B
Size S2 [3]													
10 ... 29	**17 ... 50**	21 ... 63	29 ... 86	0	2	20 ... 33	20 ... 33	B	**3RT2636-1NB35**		1	1 unit	41B
						83 ... 155	83 ... 155	B	**3RT2636-1NF35**		1	1 unit	41B
						175 ... 280	175 ... 280	B	**3RT2636-1NP35**		1	1 unit	41B
14 ... 43	**25 ... 75**	31 ... 94	43 ... 129	0	2	20 ... 33	20 ... 33	B	**3RT2637-1NB35**		1	1 unit	41B
						83 ... 155	83 ... 155	B	**3RT2637-1NF35**		1	1 unit	41B
						175 ... 280	175 ... 280	B	**3RT2637-1NP35**		1	1 unit	41B

1) Coil operating range: 0.7 ... 1.3 x U_s

2) For conductor cross-sections of 16 mm^2 pin-end connectors or 3RV2925-5AB feeder terminals must be used, see page 3/186. With 3RT2628, the feeder terminal is in the scope of delivery.

3) For conductor cross-sections of 70 mm^2 3RV2935-5A feeder terminals must be used, see page 3/186.

Other voltages according to page 4/48 on request.

Accessories and spare parts, see "SIRIUS 3RT20 contactors", Chapter 3.

*** You can order this quantity or a multiple thereof.**
Illustrations are approximate

Options

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

Rated control supply voltage U_s	Contactor type	3RT231., 3RT251.	3RT232., 3RT252.	3RT233., 3RT253.	3RT134.	3RT144.	3RT2617, 3RT262., 3RT263.
	Size	S00	S0	S2	S3	S3	S00, S0, S3
Sizes S00 to S3							
AC operation							
Solenoid coils for 50 Hz (exception: Size S00: 50 and 60 Hz[1])							
24 V AC		B0	B0	B0	B0	B0	B0
42 V AC		D0	D0	--	--	D0	--
48 V AC		H0	H0	--	--	H0	--
110 V AC		F0	F0	F0	F0	F0	F0
230 V AC		P0	P0	P0	P0	P0	P0
240 V AC		--	--	U0	U0	U0	--
400 V AC		V0	V0	V0	V0	V0	--
Solenoid coils for 50 and 60 Hz[1]							
24 V AC		B0	C2	C2	C2	C2	C2
42 V AC		D0	D2	--	D2	D2	--
48 V AC		H0	H2	H2	H2	H2	--
110 V AC		F0	G2	--	G2	G2	--
220 V AC		N2	N2	N2	N2	N2	N2
230 V AC		P0	L2	L2	L2	L2	L2
Solenoid coils (for USA and Canada[2]**)**							
50 Hz	**60 Hz**						
110 V AC	120 V AC	K6	K6	K6	K6	K6	--
220 V AC	240 V AC	P6	P6	--	P6	P6	--
Solenoid coils (for Japan)							
50/60 Hz[3]	**60 Hz**[4]						
100 V AC	110 V AC	G6	G6	--	G6	G6	G6
200 V AC	220 V AC	N6	N6	--	N6	N6	N6
400 V AC	440 V AC	R6	R6	--	R6	R6	R6
DC operation							
12 V DC		A4	--	--	--	--	--
24 V DC		B4	B4	--	B4	B4	B4
42 V DC		D4	D4	--	D4	D4	--
48 V DC		W4	W4	--	W4	W4	--
60 V DC		--	--	--	--	E4	--
110 V DC		F4	F4	--	F4	F4	F4
125 V DC		G4	G4	--	G4	G4	--
220 V DC		M4	M4	--	M4	M4	--
230 V DC		P4	--	--	--	P4	--

Examples

AC operation	3RT2325-1A**P0**0	Contactor with screw terminals; with solenoid coil for 50 Hz for rated control supply voltage 230 V AC
	3RT2325-1A**G2**0	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-type terminals; for rated control supply voltage 24 V DC
	3RT2526-2B**G4**0	Contactor with spring-type terminals; for rated control supply voltage 125 V DC

Rated control supply voltage	Contactor type	3RT1456-6A..., 3RT1466-6A..., 3RT1476-6A...	Rated control supply voltage	Contactor type	3RT1456-6N..., 3RT1466-6N..., 3RT1476-6N...	3RT1456-6P..., 3RT1466-6P..., 3RT1476-6P...
$U_{s\,min}$ ... $U_{s\,max}$[5]	Size	S6, S10, S12	$U_{s\,min}$ ... $U_{s\,max}$[5]	Size	S6, S10, S12	S6, S10, S12
Sizes S6 to S12						
AC/DC operation (AC 50/60 Hz, DC)						
23 ... 26 V AC/DC		B3	21 ... 27.3 V AC/DC		B3	--
42 ... 48 V AC/DC		D3	96 ... 127 V AC/DC		F3	F3
110 ... 127 V AC/DC		F3	200 ... 277 V AC/DC		P3	P3
200 ... 220 V AC/DC		M3				
220 ... 240 V AC/DC		P3				
240 ... 277 V AC/DC		U3				
380 ... 420 V AC/DC		V3				
440 ... 480 V AC/DC		R3				
500 ... 550 V AC/DC		S3				
575 ... 600 V AC/DC		T3				

1) Coil operating range
at 50 Hz: 0.8 ... 1.1 x U_s
at 60 Hz: 0.85 ... 1.1 x U_s

2) Coil operating range
Size S00: at 50 Hz: 0.85.... 1.1 x U_s
at 60 Hz: 0.8 ... 1.1 x U_s
Size S0 to S3: at 50 Hz and 60 Hz: 0.8 ... 1.1 x U_s

3) Coil operating range
Size S00: at 50/60 Hz: 0.85 ...1.1 x U_s
Sizes S0 to S3: at 50 Hz: 0.8 ... 1.1 x U_s
at 60 Hz: 0.85 ... 1.1 x U_s

4) Coil operating range
at 60 Hz: 0.8 ...1.1 x U_s

5) Coil operating range: 0.7 x $U_{s\,min}$ ...1.25 x $U_{s\,max}$

Overview

Standards

IEC 60947-4-1, EN 60947-4-1

The contactors are finger-safe according to EN 50274. They have spring-type connections as well as screw connections. The size S00 and S0 contactors have spring-type connections for all terminals, the size S2 contactors have them for the auxiliary and control circuit terminals.

Ambient temperature

The permissible ambient temperature for operation of the contactors (across the full coil operating range) is -40 to +70 °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 contactors have an extended coil operating range from 0.7 to 1.25 or 1.3 x U_S and are fitted as standard with surge suppressors. The opening delay is consequently 2 to 5 ms longer than for standard contactors.

Application

For operation in installations which 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.

3RT20 contactors with conventional coil

Control and auxiliary circuits

These contactors have an extended operating range from 0.7 to 1.25 x U_S; on size S00 the coils are fitted with suppressor diodes, on size S0 with varistors. An additional series resistor is not required.

Note:

An additional auxiliary switch block cannot be mounted.

Side-by-side mounting

A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 60 °C ≤ 70 °C.

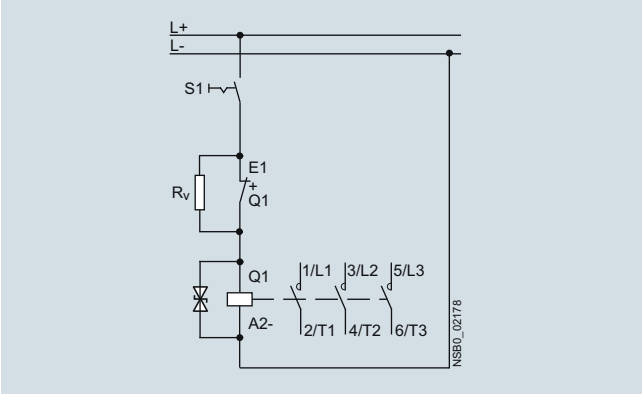
3RT201 contactors with series resistor

Control and auxiliary circuits

The solenoid coils of these contactors have an extended coil operating range from 0.7 to 1.25 x U_S and are fitted as standard with a surge suppressor (suppressor diode or varistor as preferred).

A surge suppressor (a suppressor diode or varistor as preferred) is integrated.

The DC solenoid systems of the contactors are modified (to holding excitation) by means of a series resistor.



Circuit diagram (version with suppressor diode)

The size S00 contactors are supplied prewired with a plug-on module containing the series resistor. The suppressor diode is integrated. A 4-pole auxiliary switch block (according to EN 50005) can be fitted additionally.

A circuit diagram showing the terminals is stuck onto each contactor. One NC of the auxiliary contacts is required for the series resistor function. The selection and ordering data shows the number of additional, unassigned auxiliary contacts. With size S00 it is possible to extend the number of auxiliary contacts.

Side-by-side mounting

At ambient temperatures up to 70 °C, the size S00 contactors are allowed to be mounted side by side.

3RT202 and 3RT203 contactors with solid-state operating mechanism, extended operating range

Control and auxiliary circuits

The solenoid coils of these contactors have an extended coil operating range from 0.7 to 1.25 x U_S and are fitted as standard with varistors to provide protection against overvoltage.

The contactors are energized via upstream control electronics which ensure the coil operating range of 0.7 to 1.25 x U_S at an ambient temperature of 70 °C. They are supplied as complete units with integrated coil electronics. A varistor is integrated for damping opening surges in the coil.

The possibility of mounting auxiliary switches is the same as that for equivalent standard contactors for switching motors in the matching size (see exploded drawings of the 3RT20 contactors in Chapter 3, pages 3/6 to 3/8).

Side-by-side mounting

At ambient temperatures up to 70 °C, size S0 of these contactor versions are allowed to be mounted side by side.

4

Technical specifications

Type			3RT2017	3RT202.	3RT202.-2XB40-0LA2	3RT202.-2XF40-0LA2
Size			S00	S0	S0	S0
General technical specifications						
Upright mounting position						
• Contactors with series resistor			Special version (on request)			
• Contactors with conventional coil			Special version (on request)			
Ambient temperature						
• During operation		°C	-40 ... +70[1)]		-40 ... +70	
• During storage		°C	-55 ... +80		-55 ... +80	
Control circuit						
Solenoid coil operating range	DC		0.7 ... 1.25 x U_S			
Power consumption of the solenoid coils			for cold coil and 1.0 x U_S			
• Contactors with series resistor	- Closing	W	13	--	--	--
	- Closed	W	4	--	--	--
• Contactors with conventional coil	- Closing	W	2.8	4.5	--	--
	- Closed	W	2.8	4.5	--	--
• Contactors with solid-state operating mechanism	- Closing	W	--	--	6.7	13.2
	- Closed	W	--	--	0.8	1.56

Type			3RT203.-3XB40-0LA2	3RT203.-3XF40-0LA2
Size			S2	S2
General technical specifications				
Upright mounting position				
• Contactors with series resistor			--	
• Contactors with conventional coil			--	
Ambient temperature				
• During operation		°C	-40 ... +70	
• During storage		°C	-55 ... +80	
Control circuit				
Solenoid coil operating range	DC		0.7 ... 1.25 x U_S	
Power consumption of the solenoid coils			for cold coil and 1.0 x U_S	
• Contactors with series resistor			--	
• Contactors with conventional coil			--	
• Contactors with solid-state operating mechanism	- Closing	W	23	
	- Closed	W	1	

All details and technical specifications not mentioned here are identical to those of the 3RT20 basic versions, see Chapter 3, "Power contactors for switching motors" → "SIRIUS 3RT20 contactors, 3-pole, up to 37 kW"

1) 3RT20 ..-.K contactors without the Article No. suffix -"0LA0" are coupling contactors, which are certified for the temperature range -25 °C to +60 °C. For railway applications, an additional certification approves these contactors with a minimum distance of 10 mm for the extended temperature range -40 °C to +70 °C.

Selection and ordering data

DC operation
Spring-type terminals
for screw fixing and snap-on mounting onto standard mounting rails
Solenoid coil with surge suppressor (S00)

3RT201.-2K.4.

3RT201.-2K.42-0LA0

Rated data AC-2 and AC-3 T_u: 70 °C					Auxiliary contacts			Rated control supply voltage U_S	DT	Spring-type terminals	PU (UNIT, SET, M)	PS*	PG
Operational current I_e at	Rating[1] of three-phase motors at				Ident. No.	Version				Configurator			
400 V	230 V	**400 V**	500 V	690 V						Article No.	Price per PU		
A	kW	**kW**	kW	kW		NO	NC	V DC					
3RT20 contactors for switching motors													
Size S00													
with conventional coil, fitted with suppressor diode													
• 1 NO, Ident. No. **10**					• 1 NC, Ident. No. **01**								
12	3	**5.5**	5.5	5.5	**10**[2]	1	--	24	▶	**3RT2017-2KB41**	1	1 unit	41B
								110	B	**3RT2017-2KF41**	1	1 unit	41B
12	3	**5.5**	5.5	5.5	**01**[2]	--	1	24	▶	**3RT2017-2KB42**	1	1 unit	41B
								110	B	**3RT2017-2KF42**	1	1 unit	41B
with conventional coil, fitted with varistor													
• 1 NO, Ident. No. **10**					• 1 NC, Ident. No. **01**								
12	3	**5.5**	5.5	5.5	**10**[2]	1	--	24	B	**3RT2017-2LB41**	1	1 unit	41B
								110	B	**3RT2017-2LF41**	1	1 unit	41B
12	3	**5.5**	5.5	5.5	**01**[2]	--	1	24	B	**3RT2017-2LB42**	1	1 unit	41B
								110	B	**3RT2017-2LF42**	1	1 unit	41B
with series resistor, fitted with suppressor diode													
12	3	**5.5**	5.5	5.5	**--**[3]	--	1[4]	24	B	**3RT2017-2KB42-0LA0**	1	1 unit	41B
								110	B	**3RT2017-2KF42-0LA0**	1	1 unit	41B
16	4	**7.5**	10	11	**--**[3]	--	1[4]	24	B	**3RT2018-2KB42-0LA0**	1	1 unit	41B
								110	B	**3RT2018-2KF42-0LA0**	1	1 unit	41B
with series resistor, fitted with varistor													
12	3	**5.5**	5.5	5.5	**--**[3]	--	1[4]	24	B	**3RT2017-2LB42-0LA0**	1	1 unit	41B
								110	B	**3RT2017-2LF42-0LA0**	1	1 unit	41B
16	4	**7.5**	10	11	**--**[3]	--	1[4]	24	B	**3RT2018-2LB42-0LA0**	1	1 unit	41B
								110	B	**3RT2018-2LF42-0LA0**	1	1 unit	41B

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

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

2) It is not possible to mount an auxiliary switch block. A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 60 °C.

3) One 4-pole auxiliary switch block according to EN 50005 can be mounted; no distance required for mounting at -40 ... 70 °C.

4) NC contact cannot be used because it is used for switching of the series resistor.

Accessories, see "3RT20 contactors", Chapter 3.

*** You can order this quantity or a multiple thereof.**
Illustrations are approximate

Contactors for Special Applications

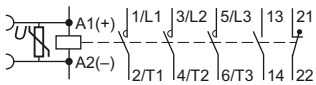
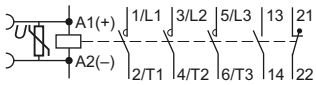
Contactors with Extended Operating Range 0.7 ... 1.25 x U_S for Railway Applications

SIRIUS 3RT20 motor contactors, up to 37 kW

DC operation
Spring-type terminals
for screw fixing and snap-on mounting onto standard mounting rails
Solenoid coil fitted with varistor (S0)

3RT202.-2K.40

3RT202.-2X.40-0LA2

Rated data AC-2 and AC-3 T_u: 70 °C					Auxiliary contacts		Rated control supply voltage U_s	DT	Spring-type terminals	PU (UNIT, SET, M)	PS*	PG
Operational current I_e at	Rating[1] of three-phase motors at				Ident. No.	Version			Configurator			
400 V	230 V	**400 V**	500 V	690 V					Article No. / Price per PU			
A	kW	**kW**	kW	kW		NO NC	V DC					
3RT20 contactors for switching motors												
Size S0												
with conventional operating mechanism[2]												
1 NO + 1 NC, Ident. No. **11**												
												
17	4	**7.5**	10	11	**11**	1 1	24	B	**3RT2025-2KB40**	1	1 unit	41B
							110	B	**3RT2025-2KF40**	1	1 unit	41B
25	5.5	**11**	11	11	**11**	1 1	24	B	**3RT2026-2KB40**	1	1 unit	41B
							110	B	**3RT2026-2KF40**	1	1 unit	41B
32	7.5	**15**	18.5	18.5	**11**	1 1	24	B	**3RT2027-2KB40**	1	1 unit	41B
							110	B	**3RT2027-2KF40**	1	1 unit	41B
with solid-state operating mechanism												
1 NO + 1 NC, Ident. No. **11**												
												
17	4	**7.5**	10	11	**11**	1 1	24	B	**3RT2025-2XB40-0LA2**	1	1 unit	41B
							110	B	**3RT2025-2XF40-0LA2**	1	1 unit	41B
25	5.5	**11**	11	11	**11**	1 1	24	B	**3RT2026-2XB40-0LA2**	1	1 unit	41B
							110	B	**3RT2026-2XF40-0LA2**	1	1 unit	41B
32	7.5	**15**	18.5	18.5	**11**	1 1	24	B	**3RT2027-2XB40-0LA2**	1	1 unit	41B
							110	B	**3RT2027-2XF40-0LA2**	1	1 unit	41B
38	7.5	**18.5**	18.5	18.5	**11**	1 1	24	B	**3RT2028-2XB40-0LA2**	1	1 unit	41B
							110	B	**3RT2028-2XF40-0LA2**	1	1 unit	41B

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

Accessories, see "3RT20 contactors", Chapter 3.

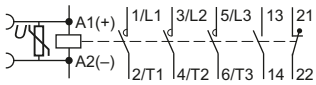
1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

2) It is not possible to mount an auxiliary switch block. A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 60 °C.

DC operation
Spring-type terminals
for screw fixing and snap-on mounting onto standard mounting rails
Solenoid coil fitted with varistor (S2)

3RT203.-3X.40-0LA2

Rated data AC-2 and AC-3 T_u: 70 °C					Auxiliary contacts			Rated control supply voltage U_s	DT	**Spring-type terminals** for auxiliary and control circuits	PU (UNIT, SET, M)	PS*	PG
Operational current I_e at	Rating[1] of three-phase motors at				Ident. No.	Version				**Configurator**			
										Article No.	Price per PU		
400 V	230 V	**400 V**	500 V	690 V		NO	NC						
A	kW	**kW**	kW	kW		NO	NC	V DC					
3RT20 contactors for switching motors													
Size S2 NEW													
with solid-state operating mechanism													
1 NO + 1 NC, Ident. No. **11**													
40	11	**18.5**	22	22	**11**	1	1	24	B	**3RT2035-3XB40-0LA2**	1	1 unit	41B
								110	B	**3RT2035-3XF40-0LA2**	1	1 unit	41B
50	15	**22**	30	22	**11**	1	1	24	B	**3RT2036-3XB40-0LA2**	1	1 unit	41B
								110	B	**3RT2036-3XF40-0LA2**	1	1 unit	41B
65	18.5	**30**	37	37	**11**	1	1	24	B	**3RT2037-3XB40-0LA2**	1	1 unit	41B
								110	B	**3RT2037-3XF40-0LA2**	1	1 unit	41B
80	22	**37**	37	45	**11**	1	1	24	B	**3RT2038-3XB40-0LA2**	1	1 unit	41B
								110	B	**3RT2038-3XF40-0LA2**	1	1 unit	41B



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

Accessories, see "3RT20 contactors", Chapter 3.

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

*** You can order this quantity or a multiple thereof.**
Illustrations are approximate

Overview

Standards

IEC 60947-4-1, EN 60947-4-1

The contactors are finger-safe according to EN 50274 (exception: S3 series resistor). On size S3, the auxiliary conductor and coil terminals are all spring-type terminals.

Control and auxiliary circuits

Contactors are available with:

- Coils with series resistor
- Coils with solid-state control unit

The solenoid coils of the contactors have an extended coil operating range from 0.7 to 1.25 x U_S and are fitted as standard with varistors to provide protection against overvoltage. The opening delay is consequently 2 to 5 ms longer than for standard contactors.

Ambient temperature

The permissible ambient temperature for operation of the contactors (across the full coil operating range) is -40 °C to +70 °C.

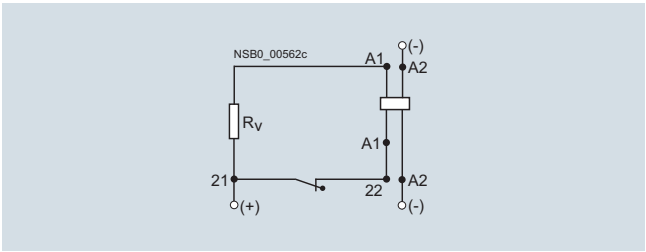
Uninterrupted duty at temperatures > +60 °C reduces the mechanical endurance, the current carrying capacity of the conducting paths and the switching frequency.

Application

For operation in installations which 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.

3RT10 contactors with series resistor

The DC solenoid systems of the contactors are modified (to holding excitation) by means of a series resistor.



Circuit diagram with series resistor

Auxiliary switches

The size S3 contactors are equipped on the front with an auxiliary switch block with 2 NO + 2 NC contacts. The separate series resistor, which is attached laterally next to the contactor on the 35 mm standard mounting rail, is fitted with connecting cables for mounting onto contactors. A circuit diagram showing the terminals is stuck onto each contactor. The NC contact 21-22 of the auxiliary contacts is required for the series resistor function. The selection and ordering data shows the number of additional, unassigned auxiliary contacts.

Mounting

The resistor module of the size S3 contactors must be mounted to the left of the contactor owing to the prefabricated connecting cables.

Dimensions

Attaching the series resistor increases the width of contactor size S3.

3RT10 contactors with contactor control unit, extended operating range

They are supplied as complete units with a built-on contactor control unit.

Control and auxiliary circuits

The contactors are energized via upstream control electronics which ensure the coil operating range of 0.7 to 1.25 x U_S at an ambient temperature of 70 °C.

A varistor is integrated for damping opening surges in the coil. The opening delay is consequently 2 to 5 ms longer than for standard contactors.

The possibility of mounting auxiliary switches is the same as that for equivalent standard contactors.

Mounting

These contactor versions of size S3 are approved for side-by-side mounting at ambient temperatures of up to 70 °C.

Dimensions

Because of the built-on contactor control unit, the height of the size S3 contactors increases by up to 34 mm.

Technical specifications

Type			**3RT104.**
Size			**S3**
3RT10 contactors with series resistor			
General technical specifications			
Ambient temperature			
• During operation		°C	-40 ... +70
Control circuit			
Solenoid coil operating range	AC/DC		0.7 ... 1.25 x U_S
Power consumption of the solenoid coils			for cold coil and 1.0 x U_S
• Closing		W	78
• Closed		W	23
Upright mounting position			--
3RT10 contactors with contactor control unit			
Control circuit			
Solenoid coil operating range			0.7 ... 1.25 x U_S
Power consumption			for cold coil and 1.0 x U_S
• Closing		W	19
• Closed		W	12
Upright mounting position			--

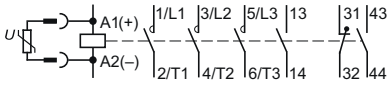
All details and technical specifications not mentioned here are identical to those of the 3RT10 basic versions, see Chapter 3, "Power contactors for switching motors" → "SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW"

Selection and ordering data

DC operation
Spring-type terminals for auxiliary/control circuits
for screw fixing and snap-on mounting onto standard mounting rails
Solenoid coil fitted with varistor

3RT1034..-3K..44-0LA0

Rated data AC-2 and AC-3 T_u: 70 °C					Auxiliary contacts		Rated control supply voltage U_s	DT	**Spring-type terminals** for auxiliary and control circuits		PU (UNIT, SET, M)	PS*	PG
Operational current I_e at	Ratings of three-phase motors at				Version				Article No.	Price per PU			
400 V	230 V	**400 V**	500 V	690 V									
A	kW	**kW**	kW	kW	NO	NC	V DC						
For screw fixing and snap-on mounting onto TH 35 and TH 75 standard mounting rail													
Size S3													
with series resistor													
65	18.5	**30**	37	43	2	1[1]	24	B	**3RT1044-3KB44-0LA0**		1	1 unit	41B
							110	B	**3RT1044-3KF44-0LA0**		1	1 unit	41B
80	22	**37**	45	55	2	1[1]	24	B	**3RT1045-3KB44-0LA0**		1	1 unit	41B
							110	B	**3RT1045-3KF44-0LA0**		1	1 unit	41B
95	22	**45**	55	55	2	1[1]	24	B	**3RT1046-3KB44-0LA0**		1	1 unit	41B
							110	B	**3RT1046-3KF44-0LA0**		1	1 unit	41B



[1] The auxiliary contacts are not expandable.

Spare parts, see "3RT10 contactors", Chapter 3.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

SIRIUS 3RT10 motor contactors, 30 ... 45 kW

DC operation
for screw fixing and snap-on mounting onto standard mounting rails
Solenoid coil fitted with varistor

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

3RT104 .-1X.40-0LA2

3RT104 .-3X.40-0LA2

Rated data AC-2 and AC-3 T_u: up to 70 °C		Auxiliary contacts[1]		Rated control supply voltage U_s	DT	**Screw terminals**		DT	**Spring-type terminals** for coil terminals	
Rated operational current I_e up to 400 V	Ratings of three-phase motors at 50 Hz **400 V**	Version				Article No.	Price per PU		Article No.	Price per PU
A	kW	NO	NC	V DC						
For screw fixing and snap-on mounting onto TH 35 and TH 75 standard mounting rail										
Size S3										
Contactor control unit										
65	**30**	--	--	24	B	**3RT1044-1XB40-0LA2**		B	**3RT1044-3XB40-0LA2**	
		--	--	110	B	**3RT1044-1XF40-0LA2**		B	**3RT1044-3XF40-0LA2**	
80	**37**	--	--	24	B	**3RT1045-1XB40-0LA2**		B	**3RT1045-3XB40-0LA2**	
		--	--	110	B	**3RT1045-1XF40-0LA2**		B	**3RT1045-3XF40-0LA2**	
95	**45**	--	--	24	B	**3RT1046-1XB40-0LA2**		B	**3RT1046-3XB40-0LA2**	
		--	--	110	B	**3RT1046-1XF40-0LA2**		B	**3RT1046-3XF40-0LA2**	

[1] Auxiliary switch blocks mountable as standard contactors.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

Overview

The contactors are finger-safe according to EN 50274. Terminal covers may have to be fitted onto the connecting bars, depending on the configuration with other devices.

All details not mentioned here are identical to those of the basic versions of the 3TB5 contactors, see Chapter 3.

Ambient temperature

The permissible ambient temperature for operation of the contactors (across the full 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.

Series resistor

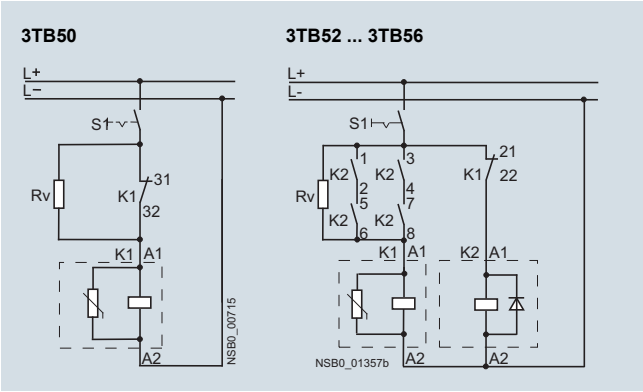
The DC solenoid systems of the 3TB contactors must be modified (to hold-in coil) by means of a series resistor. This series resistor is supplied separately packed with the contactors.

With types 3TB50, the series resistor must be attached onto the right-hand side of the auxiliary switch block by means of the enclosed mounting parts and sets of links provided. With types 3TB52 to 3TB56, the series resistor must be attached separately next to the contactors.

Auxiliary contacts

The contactors are equipped with two lateral auxiliary switch blocks each with 1 NO + 1 NC contact. Further auxiliary switch blocks cannot be fitted to the DC-operated contactors.

One NC contact is required for the series resistor function. Two NO contacts and one NC contact are thus freely available.



Circuit diagrams with series resistor

Reversing contactors

With the 3TB52 to 3TB56 contactors, the series resistor must be connected using an additional K2 reversing contactor (3RT1317-1F.40). This contactor is automatically included in the scope of supply in the same packaging as the contactor.

Dimensions

Attaching resistors and varistors increases the width of the contactors.

Application

For operation in plants 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_S and are fitted as standard with varistors to provide protection against overvoltage. The opening delay is consequently 2 to 5 ms longer than for standard contactors.

Technical specifications

Type		3TB50	3TB52	3TB54	3TB56
Size		6	8	10	12
General technical specifications					
Ambient temperature					
• During operation	°C	-40 ... +70			
Control circuit					
Solenoid coil operating range		0.7 ... 1.25 x U_S			
Power consumption of the solenoid coils		for cold coil and 1.0 x U_S			
• Closing	W	38	40	190	295
• Closed	W	20	21	43	59

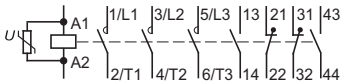
All technical specifications not mentioned here are identical to those of the basic versions of the 3TB5 contactors, see Chapter 3.

4

Selection and ordering data

3TB50 to 3TB56 contactors
for screw fixing
Solenoid coil fitted with varistor

Size	Rated data AC-2 and AC-3 at 55 °C					Auxiliary contacts[2]		Rated control supply voltage U_s	DT	Screw terminals		PU (UNIT, SET, M)	PS*	PG
	Operational current I_e at	Ratings[1] of three-phase motors at				Version				Article No.	Price per PU			
	400 V	230 V	**400 V**	500 V	690 V	NO	NC							
	A	kW	**kW**	kW	kW			V DC						
Contactors for switching AC voltage DC operation														
Terminal designations according to EN 50012 or EN 50005														
6	110	37	**55**	75	90	2	1[3]	24	B	**3TB5017-0LB4**		1	1 unit	41B
								110	▶	**3TB5017-0LF4**		1	1 unit	41B
8	170	55	**90**	110	132	2	1[3]	24	C	**3TB5217-0LB4**		1	1 unit	41B
								110	D	**3TB5217-0LF4**		1	1 unit	41B
10	250	75	**132**	160	200	2	1[3]	24	C	**3TB5417-0LB4**		1	1 unit	41B
								110	A	**3TB5417-0LF4**		1	1 unit	41B
12	400	115	**200**	255	355	2	1[3]	110	▶	**3TB5617-0LF4**		1	1 unit	41B



1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.
2) The number of auxiliary contacts cannot be increased.
3) One NC contact used for series resistor.

Accessories

Spare parts

For contactors		Remarks	Rated control supply voltage U_s	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Size	Type		V DC						
Solenoid coils									
For contactors with extended operating range									
6	3TB50	with series resistor, without varistor	24	C	**3TY6503-0LB4**		1	1 unit	41B
			110	D	**3TY6503-0LF4**		1	1 unit	41B
8	3TB52 and 3TC52		24	D	**3TY6523-0LB4**		1	1 unit	41B
			110	D	**3TY6523-0LF4**		1	1 unit	41B
10	3TB54		24	C	**3TY6543-0LB4**		1	1 unit	41B
			110	C	**3TY6543-0LF4**		1	1 unit	41B
12	3TB56 and 3TC56		24	C	**3TY6563-0LB4**		1	1 unit	41B
			110	C	**3TY6563-0LF4**		1	1 unit	41B

All spare parts not mentioned here are identical to those of the basic versions of the 3TB5 contactors, see Chapter 3.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

Overview

Standards

IEC 60947-4-1, EN 60947-4-1

The contactors are finger-safe according to EN 50274 (exception: series resistor). Terminal covers may have to be fitted onto the connecting bars, depending on the configuration with other devices.

All specifications and technical specifications not mentioned here are identical to those of the standard 3TC contactors.

Ambient temperature

The permissible ambient temperature for operation of the contactors (across the full 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.

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

Series resistor

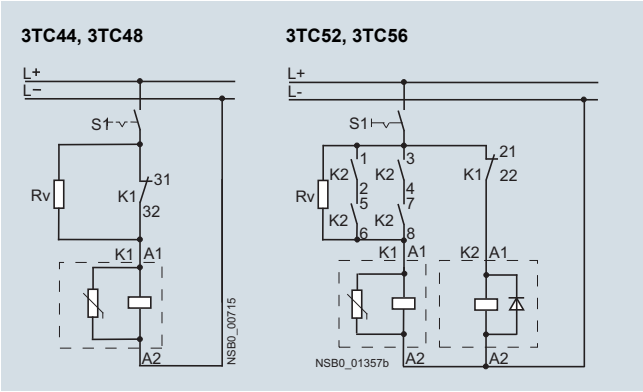
The DC solenoid systems of the 3TC contactors must be modified (to hold-in coil) by means of a series resistor. This series resistor is supplied separately packed with the contactors.

With types 3TC48, the series resistor must be attached onto the right-hand side of the auxiliary switch block 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.

Auxiliary contacts

The contactors are equipped with two lateral auxiliary switch blocks each with 1 NO + 1 NC contact. Further auxiliary switch blocks cannot be fitted to the DC-operated contactors.

One NC contact is required for the series resistor function. Two NO contacts and one NC contact are thus freely available.



Circuit diagrams with series resistor

Reversing contactors

With the 3TC52 and 3TC56 contactors, the series resistor must be connected using an additional K2 reversing contactor (3RT1317-1F.40). This contactor is automatically included in the scope of supply in the same packaging as the contactor.

Dimensions

Attaching resistors and varistors increases the width of the contactors.

Application

For operation in plants 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_S and are fitted as standard with varistors to provide protection against overvoltage.
The opening delay is consequently 2 to 5 ms longer than for standard contactors.

Technical specifications

Type		3TC44	3TC48	3TC52	3TC56
Size		2	4	8	12
General technical specifications					
Ambient temperature					
• During operation	°C	-40 ... +70			
Control circuit					
Solenoid coil operating range		0.7 ... 1.25 x U_S			
Power consumption of the solenoid coils		for cold coil and 1.0 x U_S			
• 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 versions of the 3TC contactors, see page 4/61.

4

Selection and ordering data

3TC44: for screw fixing and snap-on mounting onto 35 mm standard mounting rail
3TC48 to 3TC56: screw fixing
Solenoid coil fitted with varistor

3TC48

Size	Utilization category	Rated operaional current I_e at	Rated power of loads at				Auxiliary contacts[1] Version		Rated control supply voltage U_S	DT	Screw terminals Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
		750 V	220 V	440 V	600 V	750 V	NO	NC	V DC						
		A	kW	kW	kW	kW									
Contactors for switching DC voltage DC operation															
Terminal designations according to EN 50012 and EN 50005															
2	DC-1	32	7	14	19.2	24	2	1[2]	24	B	**3TC4417-0LB4**		1	1 unit	41B
	DC-3/DC-5	7.5	5	9	9	4			110	C	**3TC4417-0LF4**		1	1 unit	41B
4	DC-1	75	16.5	33	45	56	2	1[2]	24	C	**3TC4817-0LB4**		1	1 unit	41B
	DC-3/DC-5	75	13	27	38	45			110	C	**3TC4817-0LF4**		1	1 unit	41B
8	DC-1	170	48	97	132	165	2	1[2]	24	C	**3TC5217-0LB4**		1	1 unit	41B
	DC-3/DC-5	170	41	82	110	110			110	C	**3TC5217-0LF4**		1	1 unit	41B
12	DC-1	400	88	176	240	300	2	1[2]	24	C	**3TC5617-0LB4**		1	1 unit	41B
	DC-3/DC-5	400	70	140	200	250			110	C	**3TC5617-0LF4**		1	1 unit	41B

1) The number of auxiliary contacts cannot be increased.
2) One NC contact used for series resistor.

Accessories

Spare parts

For contactors Size	Type	Remarks	Rated control supply voltage U_S V DC	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Arc chutes									
For contactors with extended operating range									
2	3TC4417-0L..	with cutout for resistor mounting		B	**3TY2442-0B**		1	1 unit	41B
Solenoid coils									
For contactors with extended operating range									
2	3TC44	with series resistor, without varistor	24	C	**3TY6443-0LB4**		1	1 unit	41B
			110	C	**3TY6443-0LF4**		1	1 unit	41B
4	3TC48		24	C	**3TY6483-0LB4**		1	1 unit	41B
			110	C	**3TY6483-0LF4**		1	1 unit	41B

All spare parts not mentioned here are identical to those of the basic versions of the 3TC contactors, see pages 4/69 and 4/70.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

Overview

3TC4 and 3TC5

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

The contactors are finger-safe according to EN 50274. Terminal covers may have to be fitted onto the connecting bars, depending on the configuration with other devices.

The DC motor ratings given in the tables are applicable to the DC-3 and DC-5 utilization categories with two-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 "Technical specifications, main circuit", page 4/63.

Auxiliary contacts

The contactors are equipped with two lateral auxiliary switch blocks each with 1 NO + 1 NC contact. On the contactors 3TC48 to 3TC56 with AC operation, a second auxiliary switch block can be mounted on the right and left. On contactors with DC operation, expansion of the auxiliary contacts is not possible.

3TC7

IEC 60947-4-1, EN 60947-4-1.

The contactors are suitable for use in any climate. They are suitable for switching and controlling DC motors as well as all other DC circuits.

The solenoid excitation is configured for a particularly large operating range. It is between 0.7 or 0.8 to 1.2 × U_s.

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 "Technical specifications, main circuit", page 4/64.

Application

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

A version with an especially large actuating voltage is available for operation in electrically driven vehicles and in switchgear with a particularly large coil operating range (see page 4/60).

Technical specifications

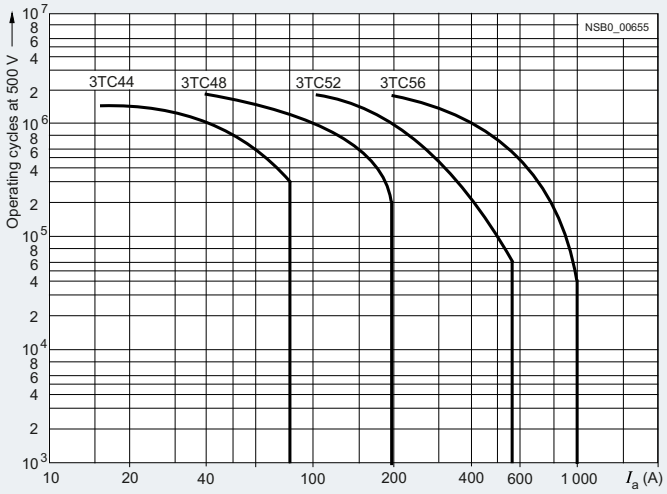
Type			3TC4 and 3TC7	3TC5
Rated data of the auxiliary contacts				
Rated insulation voltage U_i (Pollution degree 3)		V	690	
Conventional thermal current I_{th} = Rated operational current I_e/AC-12		A	10	10
AC load **Rated operational current I_e/AC-15/AC-14** • for rated operational voltage U_e				
	24 V	A	10	10
	110 V	A	10	10
	125 V	A	10	10
	220 V	A	6	6
	230 V	A	5.6	5.6
	380 V	A	4	4
	400 V	A	3.6	3.6
	500 V	A	2.5	2.5
	660 V	A	2.5	2.5
	690 V	A	--	--
DC load **Rated operational current I_e/DC-12** • for rated operational voltage U_e				
	24 V	A	10	10
	60 V	A	10	10
	110 V	A	3.2	8
	125 V	A	2.5	6
	220 V	A	0.9	2
	440 V	A	0.33	0.6
	600 V	A	0.22	0.4
Rated operational current I_e/DC-13 • for rated operational voltage U_e				
	24 V	A	10	10
	48 V	A	5	5
	110 V	A	1.14	2.4
	125 V	A	0.98	2.1
	220 V	A	0.48	1.1
	440 V	A	0.13	0.32
	600 V	A	0.07	0.21

Type		3TC44 ... 3TC56
CSA and UL rated data of the auxiliary contacts		
Rated voltage, max.	V AC	600
Switching capacity		A 600, P 600

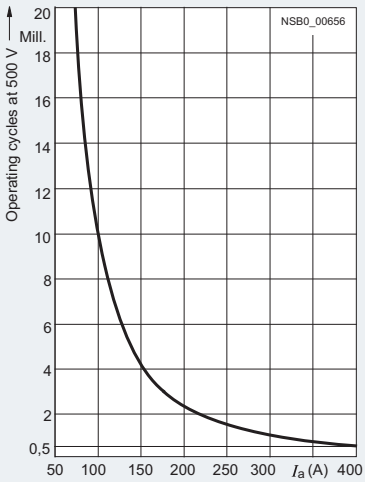
3TC contactors, 1- and 2-pole, 32 ... 400 A

Type	3TC44 ... 3TC78

Contact endurance of the main contacts

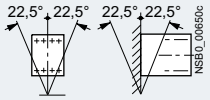


3TC44 to 3TC56 contactors



3TC74 and 3TC78 contactors

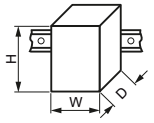
Legend for the diagrams:
I_a = Breaking current

Contactors	Type Size		3TC44 2	3TC48 4	3TC52 8	3TC56 12
General technical specifications						
Permissible mounting position The contactors are designed for operation on a vertical mounting surface.						
Mechanical endurance	Operating cycles		10 million			
Electrical endurance	Operating cycles		[1]			
Rated insulation voltage U_i (pollution degree 3)		V	800		1 000	
Protective separation between the coil and the main contacts acc. to IEC 60947-1, Appendix N		V	up to 300		up to 660	
Mirror contacts[2] A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact.			Yes, acc. to IEC 60947-4-1, Appendix F			
Permissible ambient temperature						
• During operation		°C	-25 ... +55			
• During storage		°C	-50 ... +80			
Degree of protection acc. to IEC 60947-1, Appendix C			IP00/open, for AC operation, coil assembly IP40			
Shock resistance	Rectangular pulse	*g*/ms	7.5/5 and 3.4/10	10/5 and 5/10	12/5 and 5.5/10	12/5 and 5.6/10
Short-circuit protection						
Main circuit Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE						
• Type of coordination "1"		A	50	160	250	400
• Type of coordination "2"		A	35	63	80	250
Auxiliary circuit (Short-circuit current $I_k \leq 1$ kA)						
• Fuse links, operational class gG: DIAZED, type 5SB; NEOZED, type 5SE		A	16			
• Miniature circuit breaker with C characteristic		A	10			

1) See the endurance diagram above.

2) For 3TC44, one NC contact each must be connected in series for the right and left auxiliary switch block respectively.

Rated data of the auxiliary contacts, see page 4/61.

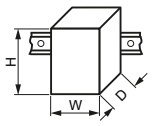
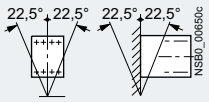


			3TC44	3TC48	3TC52	3TC56
Type						
Size			**2**	**4**	**8**	**12**
Dimensions (W x H x D)						
• DC operation		mm	70 x 85 x 141	100 x 183 x 180	135 x 238 x 232	160 x 279 x 310
• AC operation		mm	70 x 85 x 100	100 x 183 x 154	135 x 238 x 200	160 x 279 x 251
Control circuit						
Solenoid coil operating range			0.8 ... 1.1 x U_s			
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)						
• DC operation	- Closing = Closed	W	10	19	30	86
• AC operation, 50 Hz coil	- Closing	VA/p.f.	68/0.86	300/0.5	640/0.48	1780/0.3
	- Closed	VA/p.f.	10/0.29	26/0.24	46/0.23	121/0.22
• AC operation, 60 Hz coil	- Closing	VA/p.f.	95/0.79	365/0.45	730/0.38	2140/0.3
	- Closed	VA/p.f.	12/0.3	35/0.26	56/0.24	140/0.29
• AC operation, 50/60 Hz coil	- Closing at 50 Hz/60 Hz	VA/p.f.	79/73/0.83/0.78	--	--	--
	- Closed at 50 Hz/60 Hz	VA/p.f.	11/9/0.28/0.27	--	--	--
Operating times (for 0.8 ... 1.1 x U_s) Total break time = Opening delay + Arcing time			(The values apply up to and including 20 % undervoltage, 10 % overvoltage, as well as when the coil is cold and warm)			
• DC operation	- Closing delay	ms	35 ... 190	90 ... 380	120 ... 400	110 ... 400
	- Opening delay[1]	ms	10 ... 25	17 ... 28	22 ... 35	40 ... 110
• AC operation	- Closing delay	ms	10 ... 40	20 ... 50	20 ... 50	20 ... 50
	- Opening delay[1]	ms	5 ... 25	5 ... 30	10 ... 30	10 ... 30
• Arcing time	- DC-1	ms	20			
	- DC-3/DC-5	ms	30			
Main circuit						
Load rating with DC						
Utilization category DC-1, switching resistive loads (L/R ≤ 1 ms)						
• Rated operational currents I_e (at 55 °C)	up to U_e 750 V	A	32	75	220	400
• Minimum conductor cross-section		mm^2	6	25	95	240
• Rated power at U_e (≤ 220 V DC: one conducting path, > 220 V DC: two conducting paths in series)	at 220 V	kW	7	16.5	48	88
	440 V	kW	14	33	97	176
	600 V	kW	19.2	45	132	240
	750 V	kW	24	56	165	300
Utilization category DC-3 and DC-5 Shunt-wound and series-wound motors (L/R ≤ 15 ms)						
• Rated operational currents I_e (at 55 °C)	up to 220 V	A	32	75	220	400
	440 V	A	29	75	220	400
	600 V	A	21	75	220	400
	750 V	A	7.5	75	170	400
• Rated power at U_e (≤ 220 V DC: one conducting path, > 220 V DC: two conducting paths in series)	at 110 V	kW	2.5	6.5	20	35
	220 V	kW	5	13	41	70
	440 V	kW	9	27	82	140
	600 V	kW	9	38	110	200
	750 V	kW	4	45	110	250
Switching frequency						
Switching frequency *z* in operating cycles/hour						
AC/DC operation						
• with resistive load DC-1		h^{-1}	1 500	1 000		
• for inductive load DC-3/DC-5		h^{-1}	750	600		
Conductor cross-sections (1 or 2 conductors connectable)						
Main conductors:			**Screw terminals**			
• Solid		mm^2	2 x (2.5 ... 10)	2 x (6 ... 16)	--	--
• Finely stranded with end sleeve		mm^2	2 x (1.5 ... 4)	--	--	--
• Stranded with cable lug		mm^2	2 x 16	2 x 35	2 x 120	2 x 150
• Pin-end connector to DIN 46231		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	M10
Auxiliary conductors:						
• Solid		mm^2	2 x (1 ... 2.5)			
• Finely stranded with end sleeve		mm^2	2 x (0.75 ... 1.5)			

[1] The opening delay times can increase if the contactor coils are damped against voltage peaks. The 3TC44 contactors are not allowed to be fitted with diodes.

Rated data of the auxiliary contacts, see page 4/61.

3TC contactors, 1- and 2-pole, 32 ... 400 A

Type				**3TC74**	**3TC78**
Type				**1-pole contactors**	**2-pole contactors**
Dimensions			mm	78 x 352 x 276	160 x 366 x 290
General technical specifications					
Permissible mounting position The contactors are designed for operation on a vertical mounting surface.					
Mechanical endurance		Operating cycles		30 million	
Electrical endurance		Operating cycles		[1]	
Rated insulation voltage U_i (pollution degree 3)			V	1 500	
Rated impulse withstand voltage U_{imp}			kV	8	
Protective separation between the coil and the main contacts acc. to IEC 60947-1, Appendix N			V	630	
Permissible ambient temperature			°C	-25 ... +55	
Degree of protection acc. to IEC 60947-1 Appendix C				IP00/open	
Short-circuit protection					
Main circuit Fuse links, operational class gG: LV HRC, type 3NA					
• Type of coordination "1"			A	630	
• Type of coordination "2"			A	500	
Auxiliary circuit (short-circuit current $I_k \leq 1$ kA)					
• Fuse links, operational class gG: DIAZED, type 5SB; NEOZED, type 5SE			A	16	
• Miniature circuit breaker with C characteristic			A	10	
Control circuit					
Solenoid coil operating range					
• DC operation	at U_c = 24 V at U_c > 24 V			0.8 ... 1.2 x U_s 0.7 ...1.2 x U_s	
• AC operation	at U_c = 24 V at U_c > 24 V			0.7 ...1.15 x U_s 0.7 ...1.14 x U_s	
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)					
• DC operation	Closing = Closed		W	46	92
• AC operation, 50 Hz	Closing, = Closed		VA p.f.	80 0.95	160 0.95
Operating times (Total break time = Opening delay + Arcing time)				(The values apply up to and including 15 % undervoltage, 10 % overvoltage, as well as when the coil is cold and warm)	
• AC and DC operation	- Closing delay - Opening delay		ms ms	60 ... 100 20 ... 35	
• Arcing time at 0.06 ... 4 x I_e			ms	40 ... 70	
Main circuit					
Load rating with DC					
Utilization category DC-1, switching resistive loads ($L/R \leq 1$ ms)					
• Rated operational current I_e/DC-1 (at 55 °C)			A	500	500
• Minimum conductor cross-section			mm^2	2 x 150	2 x 150
• Rated power (≤ 750 V DC: one conducting path, > 750 V DC: two conducting paths in series)	at 220 V 440 V 600 V		kW kW kW	110 220 300	110 220 300
	750 V 1200 V 1500 V		kW kW kW	375 -- --	375 600 750
• Critical currents, without arc extinction	at 440 V 600 V 750 V		A A A	≤ 7 ≤ 13 ≤ 15	-- -- --
	≤ 800 V 1200 V 1500 V		A A A	-- -- --	≤ 7 ≤ 13 ≤ 15
Utilization categories DC-3 and DC-5, switching DC motors				[2]	
Permissible rated current for regenerative braking at 110 ... 600 V			A	400	
Switching frequency					
Switching frequency *z* in operating cycles/hour					
AC/DC operation					
• with resistive load DC-1			h^{-1}	750	1 000
• for inductive load DC-3/DC-5			h^{-1}	500	500

[1] Endurance, see page 4/62.

[2] See "Selection and ordering data", page 4/66.

Rated data of the auxiliary contacts, see page 4/61.

Type		3TC74	3TC78
Type		1-pole contactors	2-pole contactors
Conductor cross-sections			
Main conductors		Screw terminals	
• Stranded with cable lug	mm^2	2 x ... 150	
• Busbars	mm	2 x (30 x 4)	
Auxiliary conductors			
• Solid	mm^2	1 ... 2.5	
• Finely stranded with end sleeve	mm^2	0.75 ... 1.5	

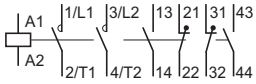
Selection and ordering data


3TC44


3TC48

Size	Utilization category[1]	Operat. current I_e[3]	Ratings of DC motors at 110 V	220 V	440 V	600 V	750 V	Auxiliary contacts[2] Version		Rated control supply voltage U_s	DT	Screw terminals Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
		A	kW	kW	kW	kW	kW	NO	NC	V						
3TC44 to 3TC56 two-pole contactors																

Terminal designations according to EN 50012



DC operation

Screw fixing and snap-on mounting onto TH 35 standard mounting rail

2	DC-3, DC-5	32	2.5	5	9	9	4	2	2	24 DC	▶	**3TC4417-0AB4**		1	1 unit	41B
										110 DC	▶	**3TC4417-0AF4**		1	1 unit	41B
										220 DC	▶	**3TC4417-0AM4**		1	1 unit	41B
Screw fixing																
4	DC-3, DC-5	75	6.5	13	27	38	45	2	2	24 DC	A	**3TC4817-0AB4**		1	1 unit	41B
										110 DC	A	**3TC4817-0AF4**		1	1 unit	41B
										220 DC	A	**3TC4817-0AM4**		1	1 unit	41B
8	DC-3, DC-5	220[4]	20	41	82	110	110	2	2	24 DC	C	**3TC5217-0AB4**		1	1 unit	41B
										110 DC	C	**3TC5217-0AF4**		1	1 unit	41B
										220 DC	C	**3TC5217-0AM4**		1	1 unit	41B
12	DC-3, DC-5	400	35	70	140	200	250	2	2	24 DC	C	**3TC5617-0AB4**		1	1 unit	41B
										110 DC	C	**3TC5617-0AF4**		1	1 unit	41B
										220 DC	C	**3TC5617-0AM4**		1	1 unit	41B

AC operation, 50 Hz

Screw fixing and snap-on mounting onto TH 35 standard mounting rail

2	DC-3, DC-5	32	2.5	5	9	9	4	2	2	220/230 AC[5]	▶	**3TC4417-0BP0**		1	1 unit	41B
										110/110 AC	▶	**3TC4417-0BF0**		1	1 unit	41B
Screw fixing																
4	DC-3, DC-5	75	6.5	13	27	38	45	2	2	220/230 AC[5]	A	**3TC4817-0BP0**		1	1 unit	41B
										110 AC	C	**3TC4817-0BF0**		1	1 unit	41B
8	DC-3, DC-5	220[4]	20	41	82	110	110	2	2	220/230 AC[5]	A	**3TC5217-0BP0**		1	1 unit	41B
										110 AC	C	**3TC5217-0BF0**		1	1 unit	41B
12	DC-3, DC-5	400	35	70	140	200	250	2	2	220/230 AC[5]	C	**3TC5617-0BP0**		1	1 unit	41B
										110 AC	C	**3TC5617-0BF0**		1	1 unit	41B

Other rated control supply voltages according to page 4/67 on request.

1) Permissible load for DC-1 utilization category, see detailed technical specifications in the reference manual "Contactors and Contactor Assemblies".

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

3) The following rated operational currents are permitted for reversing duty with 3TC44 to 3TC56 contactors:

Contactor Type	Rated operational voltage 110 V, 220 V	440 V
3TC44	32 A	7 A
3TC48	75 A	75 A
3TC52	170 A	170 A
3TC56	400 A	400 A

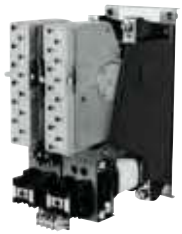
4) At > 600 V: I_e = 170 A.

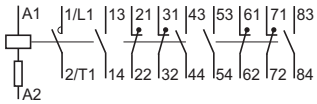
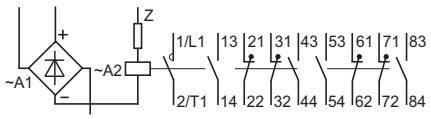
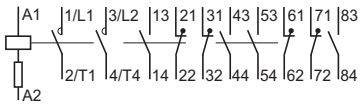
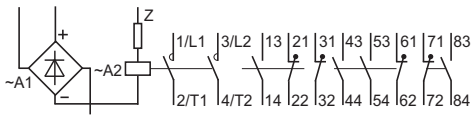
5) Operating range at 220 V: 0.85 to 1.15 x U_s

*** You can order this quantity or a multiple thereof.**
Illustrations are approximate

3TC contactors, 1- and 2-pole, 32 ... 400 A


3TC74


3TC78

Size	Utilization category [1]	Operational current I_e	Ratings of DC motors at 110 V	220 V	440 V	600 V	750 V	1200 V	1500 V	Auxiliary contacts [2] Version		Rated control supply voltage U_s	DT	Screw terminals Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
										NO	NC							
		A	kW	kW	kW	kW	kW	kW	kW			V						
3TC74 1-pole contactors · Operational voltage up to 750 V																		
DC operation																		
Terminal designations according to EN 50005																		
																		
12	DC-3, DC-5	400	35	70	140	200	250	--	--	4	4	24 DC	C	**3TC7414-0EB**		1	1 unit	41B
												110 DC	C	**3TC7414-0EF**		1	1 unit	41B
AC operation, 50 Hz																		
Terminal designations according to EN 50005																		
																		
12	DC-3, DC-5	400	35	70	140	200	250	--	--	4	4	230/220 AC [3]	C	**3TC7414-1CM**		1	1 unit	41B
3TC78 2-pole contactors · Operational voltage up to 1500 V																		
DC operation																		
Terminal designations according to EN 50005																		
																		
12	DC-3, DC-5	400	35	70	140	200	250	400	500	4	4	24 DC	C	**3TC7814-0EB**		1	1 unit	41B
												110 DC	C	**3TC7814-0EF**		1	1 unit	41B
AC operation, 50 Hz																		
Terminal designations according to EN 50005																		
																		
12	DC-3, DC-5	400	35	70	140	200	250	400	500	4	4	230/220 AC [3]	C	**3TC7814-1CM**		1	1 unit	41B

[1] Permissible load for DC-1 utilization category, see detailed technical specifications in the reference manual "Contactors and Contactor Assemblies".

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

[3] Upper operating range limit at 230 V: 1.14 x U_s

Other rated control supply voltages according to page 4/67 on request.

Spare parts, see page 4/69.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

4

Options

Rated control supply voltages (change of the 10th and 11th digits of the Article No.)

Rated control supply voltage U_s	Contactor type 3TC44	3TC48	3TC52/56	3TC74/78
AC operation				
Solenoid coils for 50 Hz				
24 V AC	B0	B0	--	--
110 V AC	F0	F0	F0	--
230/220 V AC	P0[1]	P0[1]	P0[1]	M[2]
240 V AC	U0	U0	--	--
AC operation				
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	--	--	--
DC operation				
24 V DC	B4	B4	B4	B
48 V DC	W4	W4	--	--
60 V DC	E4	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	--	--

[1] Operating range at 220 V or 380 V: 0.85 to 1.15 × U_s lower operating range limit according to IEC 60947.

[2] Upper operating range limit at 230 V: 1.14 × U_s

Accessories

For contactors Size	Type	Version Auxiliary contacts NO	NC	DT	Screw terminals Article No.	PU (UNIT, SET, M)	PS*	PG
Second auxiliary switch blocks (only for AC operation)								
4	3TC48	2nd auxiliary switch block, left		►	**3TY6501-1K**	1	1 unit	41B
		1	1	--				
		2nd auxiliary switch block, right		D	**3TY6501-1L**	1	1 unit	41B
		1	1	--				
8 and 12	3TC52, 3TC56	2nd auxiliary switch block, left		C	**3TY6561-1K**	1	1 unit	41B
		1	1	--				
		2nd auxiliary switch block, right		C	**3TY6561-1L**	1	1 unit	41B
		1	1	--				
Solid-state compatible auxiliary switch blocks								
		For operation in dusty atmospheres and in solid-state circuits with rated operational currents I_e AC-14 and DC-13 of 1 ... 300 mA at 3 ... 60 V						
2 and 4	3TC44, 3TC48	2nd auxiliary switch block, left or right (replacement for 3TY6561-1U, 3TY6561-1V)		►	**3TY7561-1UA00**	1	1 unit	41B
		Mounting:	Left	Right				
		1 CO contact	51 52 54	61 62 64				

5TY7561-1.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

3TC contactors, 1- and 2-pole, 32 ... 400 A

For contactors Size	Type	Version	Rated control supply voltage U_s V AC	V DC	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Surge suppressors · Varistors										
 3TX7402-3.										
2	3TC44[1]	**Varistors**[2] with line spacer, for mounting onto the coil terminal	24 ... 48	24 ... 70	A	**3TX7402-3G**		1	1 unit	41B
			48 ... 127	70 ... 150	A	**3TX7402-3H**		1	1 unit	41B
			127 ... 240	150 ... 250	A	**3TX7402-3J**		1	1 unit	41B
			240 ... 400	--	C	**3TX7402-3K**		1	1 unit	41B
			400 ... 600	--	C	**3TX7402-3L**		1	1 unit	41B
4	3TC48	**Varistors**[2] for sticking onto the contactor base or for mounting separately	24 ... 48	24 ... 70	A	**3TX7462-3G**		1	1 unit	41B
			48 ... 127	70 ... 150	B	**3TX7462-3H**		1	1 unit	41B
			127 ... 240	150 ... 250	A	**3TX7462-3J**		1	1 unit	41B
			240 ... 400	--	B	**3TX7462-3K**		1	1 unit	41B
			400 ... 600	--	B	**3TX7462-3L**		1	1 unit	41B
 3TX7462-3.										
8 and 12	3TC52, 3TC56	**Varistors** for sticking onto the contactor base or for mounting separately	24 ... 48	--	A	**3TX7462-3G**		1	1 unit	41B
			48 ... 127	--	B	**3TX7462-3H**		1	1 unit	41B
			127 ... 240	--	A	**3TX7462-3J**		1	1 unit	41B
			240 ... 400	--	B	**3TX7462-3K**		1	1 unit	41B
			400 ... 600	--	B	**3TX7462-3L**		1	1 unit	41B
8 and 12	3TC52, 3TC56	**Varistors**[2] for separate screw fixing or snapping onto TH 35 standard mounting rail	--	24 ... 70	B	**3TX7522-3G**		1	1 unit	41B
			--	70 ... 150	B	**3TX7522-3H**		1	1 unit	41B
			--	150 ... 250	B	**3TX7522-3J**		1	1 unit	41B
 3TX7522-3.										
Surge suppressors · RC elements										
4	3TC48	**RC elements** for lateral snapping onto auxiliary switch or TH 35 standard mounting rail	24 ... 48	--	C	**3TX7462-3R**		1	1 unit	41B
			--	24 ... 70	B	**3TX7522-3R**		1	1 unit	41B
			48 ... 127	--	A	**3TX7462-3S**		1	1 unit	41B
			--	70 ... 150	B	**3TX7522-3S**		1	1 unit	41B
			127 ... 240	--	A	**3TX7462-3T**		1	1 unit	41B
			--	150 ... 250	B	**3TX7522-3T**		1	1 unit	41B
			240 ... 400	--	A	**3TX7462-3U**		1	1 unit	41B
			400 ... 600	--	B	**3TX7462-3V**		1	1 unit	41B
 3TX7462-3., 3TX7522-3.										
8 and 12	3TC52, 3TC56	**RC elements** for lateral snapping onto auxiliary switch or TH 35 standard mounting rail	24 ... 48	--	B	**3TX7522-3R**		1	1 unit	41B
			48 ... 127	--	B	**3TX7522-3S**		1	1 unit	41B
			127 ... 240	--	B	**3TX7522-3T**		1	1 unit	41B
			240 ... 400	--	B	**3TX7522-3U**		1	1 unit	41B
			400 ... 600	--	B	**3TX7522-3V**		1	1 unit	41B
Surge suppressors · Diodes										
 3TX7462-3.										
4 to 12	3TC48, 3TC52, 3TC56	**Diode assemblies**[3] (diode and Zener diode) for DC solenoid system, for sticking onto the contactor base or for mounting separately	--	24 ... 250	A	**3TX7462-3D**		1	1 unit	41B

[1] The connection piece for mounting the surge suppressor must be bent slightly.

[2] Includes the peak value of the alternating voltage on the DC side.

[3] Not for DC economy circuit.

For contactors Size	Type	Version		DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Terminal covers									
 3TX6526-3B									
6	3TC48	for protection against inadvertent contact with exposed busbar connections Can be screwed on free screw end. Covers one busbar connection (1 set = 6 units).	M6	B	**3TX6506-3B**		1	1 unit	41B
8 and 12	3TC52, 3TC56		M10	B	**3TX6546-3B**		1	1 unit	41B

* You can order this quantity or a multiple thereof.
Illustrations are approximate

Spare parts

For contactors Size	Type	Version Auxiliary contacts NO	NC	DT	Screw terminals Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Auxiliary switch blocks									
for lateral mounting									
2 and 4	3TC44, 3TC48	Auxiliary switch block (replacement for 3TY6501-1A/-1B) 1 1 13 21 14 22 31 43 32 44		▶	**3TY6501-1AA00**		1	1 unit	41B
8 and 12	3TC52, 3TC56	Auxiliary switch block, left 1 1 13 21 14 22 --		▶	**3TY6561-1A**		1	1 unit	41B
		Auxiliary switch block, right 1 1 -- 31 43 32 44		▶	**3TY6561-1B**		1	1 unit	41B


3TY6561-1A

For contactors Size	Type	Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Contacts with fixing parts								
		In order to ensure reliable operation of the contactors, only **original replacement contacts** should be used.						
2	3TC44	(1 set = 2 moving and 4 fixed switching elements)	B	**3TY2440-0A**		1	1 unit	41B
4	3TC48		B	**3TY2480-0A**		1	1 unit	41B
8	3TC52		B	**3TY2520-0A**		1	1 unit	41B
12	3TC56		C	**3TY2560-0A**		1	1 unit	41B
Arc chutes								
2	3TC44	Arc chutes, 2-pole	C	**3TY2442-0A**		1	1 unit	41B
4	3TC48		C	**3TY2482-0A**		1	1 unit	41B
8	3TC52		C	**3TY2522-0A**		1	1 unit	41B
12	3TC56		C	**3TY2562-0A**		1	1 unit	41B
Solenoid coils								
		DC operation[1]						
2	3TC44			**3TY6443-0B..**				
4	3TC48			**3TY6483-0B..**				
8	3TC52			**3TY6523-0B..**				
12	3TC56			**3TY6563-0B..**				
		AC operation[1]						
2	3TC44			**3TY7403-0A..**				
4	3TC48			**3TY6483-0A..**				
8	3TC52			**3TY6523-0A..**				
12	3TC56			**3TY6566-0A..**				


3TY2520-0A


3TY2482-0A

[1] Rated control supply voltages, see table, page 4/67.
The 10th and 11th digits of the Article No. must be supplemented accordingly.

*** You can order this quantity or a multiple thereof.**
Illustrations are approximate

3TC contactors, 1- and 2-pole, 32 ... 400 A

For contactors Type	Version	DT	Screw terminals Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Auxiliary switch blocks							
3TC74	4 NO + 4 NC	B	**3TY2741-2J**		1	1 unit	41B
3TC78	Auxiliary switch block left with 2 NO + 2 NC	▶	**3TY2781-2C**		1	1 unit	41B
	Auxiliary switch block right with 2 NO + 2 NC	C	**3TY2781-2D**		1	1 unit	41B

For contactors Type	Version	Rated control supply voltage U_s V AC/DC	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Surge suppressors · Varistors								
3TC7	for sticking onto the contactor base	24	C	**3TX2746-2F**		1	1 unit	41B
		110	C	**3TX2746-2G**		1	1 unit	41B
Contacts with fixing parts								
3TC7	Main contacts (1 set) for 3TC78: 2 units required per contactor	--	C	**3TY2740-0E**		1	1 unit	41B
Arc chutes								
3TC7	for 3TC78: 2 units required per contactor	--	C	**3TY2742-0C**		1	1 unit	41B

* You can order this quantity or a multiple thereof.
Illustrations are approximate

Overview

Version

The 3TG10 power relays/miniature contactors with 4 main contacts are available with screw terminals or 6.3 mm × 0.8 mm flat connectors. The versions with screw terminals are suitable for use in any climate and finger-safe according to EN 50274.

The 3TG10 miniature contactors are characterized by their width of only 36 mm.

Surge suppression

The 3TG10 power relays/miniature contactors have an integrated protective circuit against opening surges.

Application

Because they are hum-free they are suitable for use in household appliances and distribution boards in office and residential areas. They can also be used for applications where there is little space such as air conditioners, heating systems, pumps and fans, i.e. for simple electrical controls.

Standards

IEC 60947-1, IEC 60947-4-1, IEC 60947-5-1

Overload and short-circuit protection

The 3UA7 overload relay can be used for overload protection. This applies to mounting onto contactors and to stand-alone installation.

Technical specifications

Type				**3TG10**
Dimensions (W x H x D)			mm	36 x 56 x 56
• with 3UA7 overload relay mounted below			mm	45 x 100 x 62
General technical specifications				
Endurance				
• Mechanical	Operating cycles			3 million
• Electrical				
- AC-1 at I_e	Operating cycles			0.1 million
- AC-3 at I_e	Operating cycles			0.4 million
Rated insulation voltage U_i (pollution degree 3)			V	400
Rated impulse withstand voltage U_{imp}			kV	4
Protective separation Between coil and contacts acc. to IEC 60947-1, Appendix N			V	up to 300
Permissible ambient temperature				
• During operation[1]			°C	-25 ... + 55
• During storage			°C	-50 ... + 80
Degree of protection according to IEC 60947-1 and IEC 60529				IP00, drive system IP20
Short-circuit protection				
Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1				
• Type of coordination "1"			A	25
• Type of coordination "2"			A	10
Miniature circuit breakers, C characteristic			A	10
Control circuit				
Solenoid coil operating range				0.85 ... 1.1 x U_s
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)				
• AC operation, 45 ... 450 Hz			VA	4.4
- p.f.				0.9 (hum-free)
• DC operation			W	4
Load rating with AC				
Utilization category AC-1, switching resistive loads				
Rated operational current I_e up to 400 V at 55 °C[1]			A	20 for screw terminals, 16 for flat connector
Rated power U_e for AC loads with p.f. = 1, 230/220 V				
• for screw terminals			kW	7.5 (13 at 400 V)
• for flat connector			kW	6 (10 at 400 V)
Minimum conductor cross-section for load with I_e			mm^2	2.5
Utilization categories AC-2 and AC-3 **Operational current for AC-3 at 400 V rated value**			A	8.4
Rated power for slipring or squirrel-cage motors with 50 and 60 Hz and at 400 V			kW	4
Utilization category AC-5a (permissible nominal impedance: ≥ 0.5 Ω) **Switching of gas discharge lamps** Per main current path at 230 V, 50 Hz Rated power/rated operational current per lamp				
• Uncorrected	18 W	0.37 A		43
	36 W	0.43 A		37
	58 W	0.67 A		24
• DUO switching	18 W	2 x 0.11 A		2 x 81
	36 W	2 x 0.21 A		2 x 42
	58 W	2 x 0.32 A		2 x 28

[1] If the three main current paths carry a load of 20 A, the following applies if I > 10 A in the fourth conducting path: Permissible ambient temperature 40 °C.

3TG10 contactors, 4-pole, 4 kW

Type					3TG10
Load rating with AC					
Switching gas discharge lamps with correction or ECG Per main current path 230 V, 50 Hz					
Connection	Rated power per lamp	Capacitor capacitance	Rated operational current per lamp		
• Shunt compensation	L18 W	4.5 µF	0.11 A	Unit(s)	15
	L36 W	4.5 µF	0.21 A	Unit(s)	15
	L58 W	7 µF	0.32 A	Unit(s)	10
• with ECG (single lamp)	L18 W	6.8 µF	0.10 A	Unit(s)	39
	L36 W	6.8 µF	0.18 A	Unit(s)	39
	L58 W	10 µF	0.27 A	Unit(s)	26
• with ECG (two lamps)	L18 W	10 µF	0.18 A	Unit(s)	2 x 26
	L36 W	10 µF	0.35 A	Unit(s)	2 x 26
	L58 W	22 µF	0.52 A	Unit(s)	2 x 12
Utilization category AC-5b, switching incandescent lamps Per main current path at 230 V, 50 Hz				kW	1.6
Load rating with DC					
Utilization category DC-1, switching resistive loads (*L/R* ≤ 15 ms) • Rated operational currents I_e					
- 1 conducting path			up to 24 V	A	16
			60 V	A	6
			110 V	A	2
			220 V/240 V	A	0.8
- 2 conducting paths in series			up to 24 V	A	16
			60 V	A	16
			110 V	A	6
			220 V/240 V	A	1.6
- 3 conducting paths in series			up to 24 V	A	18
			60 V	A	18
			110 V	A	16
			220 V/240 V	A	6
- 4 conducting paths in series			up to 24 V	A	20
			60 V	A	20
			110 V	A	20
			220 V/240 V	A	20
Utilization category DC-3 and DC-5 Shunt-wound and series-wound motors (*L/R* ≤ 15 ms) • Rated operational currents I_e					
- 1 conducting path			up to 24 V	A	10
			60 V	A	0.5
			110 V	A	0.15
			220 V/240 V	A	0
- 2 conducting paths in series			up to 24 V	A	16
			60 V	A	5
			110 V	A	0.35
			220 V/240 V	A	0
- 3 conducting paths in series			up to 24 V	A	16
			60 V	A	16
			110 V	A	10
			220 V/240 V	A	1.75
- 4 conducting paths in series			up to 24 V	A	18
			60 V	A	16
			110 V	A	10
			220 V/240 V	A	2
Conductor cross-sections					
					Screw terminals
Terminal screws					M3
• Finely stranded with end sleeve (DIN 46228 Form A/D/C)				mm^2	2 x (0.75 ... 2.5)
• Solid				mm^2	2 x (1 ... 2.5), 1 x 4
Permissible opening tool (screwdriver)					3.0 mm x 0.5 mm (3RA2908-1A) or Pozidriv 2
					Flat connectors
• Finely stranded 6.3 mm plug-in sleeve acc. to DIN 46245/46247					
- 6.3 ... 1				mm^2	0.5 ... 1
- 6.3 ... 2.5				mm^2	1 ... 2.5
cULus and CSA rating (screw terminals)					
Rated insulation voltage			AC	V	600
Uninterrupted current	Open and enclosed			A	20
Maximum horsepower ratings (from cULus and CSA approved values)					Single-phase/Three-phase
Rated power for three-phase motors at 60 Hz			at 115 V	hp	0.5/ --
			200 V	hp	1/ 3
			230 V	hp	1.5/ 3
			460 ... 600 V	hp	0/ 5

Selection and ordering data

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

Rated data Utilization category				Main contacts		Rated control supply voltage U_s	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
AC-1 Switching of resistive loads at 55 °C		AC-2 and AC-3										
Operational current I_e up to 400 V	Power of AC loads at 50 Hz and 400 V	Operational current I_e up to 400 V[1]	Power of AC loads at 50 Hz and 400 V	Version								
A	kW	A	kW	NO	NC	V						
4-pole · Hum-free ·with screw terminals												
Auxiliary contacts 1 NO, Ident. No. **10**				Auxiliary contacts 1 NC, Ident. No. **01E**								
AC operation, 45 ... 450 Hz								**Screw terminals**				
20	13	8.4	4	4	--	24 AC	B	**3TG1010-0AC2**		1	1 unit	41H
						110 AC	B	**3TG1010-0AG2**		1	1 unit	41H
						230 AC	B	**3TG1010-0AL2**		1	1 unit	41H
				3	1	24 AC	▶	**3TG1001-0AC2**		1	1 unit	41H
						110 AC	▶	**3TG1001-0AG2**		1	1 unit	41H
						230 AC	▶	**3TG1001-0AL2**		1	1 unit	41H
DC operation												
20	13	8.4	4	4	--	24 DC	B	**3TG1010-0BB4**		1	1 unit	41H
				3	1	24 DC	▶	**3TG1001-0BB4**		1	1 unit	41H
4-pole · Hum-free ·with flat connectors 6.3 mm x 0.8 mm												
Auxiliary contacts 1 NO, Ident. No. **10**				Auxiliary contacts 1 NC, Ident. No. **01E**								
AC operation, 45 ... 450 Hz								**Flat connectors**				
16	10	8.4	4	4	--	24 AC	B	**3TG1010-1AC2**		1	1 unit	41H
						110 AC	D	**3TG1010-1AG2**		1	1 unit	41H
						230 AC	B	**3TG1010-1AL2**		1	1 unit	41H
				3	1	24 AC	D	**3TG1001-1AC2**		1	1 unit	41H
						110 AC	D	**3TG1001-1AG2**		1	1 unit	41H
						230 AC	B	**3TG1001-1AL2**		1	1 unit	41H
DC operation												
16	10	8.4	4	4	--	24 DC	B	**3TG1010-1BB4**		1	1 unit	41H
		8.4	4	3	1	24 DC	B	**3TG1001-1BB4**		1	1 unit	41H

3TG10..-0...

3TG10..-1...

[1] The rated operational currents apply to each pole.

Accessories

Max. rated operational currents I_e/AC-1 (at 55 °C) of the contactors	Max. conductor cross-sections	DT	**Screw terminals**	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type	mm^2		Article No.				
Links for paralleling (insulated star jumpers)							
3-pole, without connection terminals[1)2)]							
16	--	▶	**3RT1916-4BA31**		1	1 unit	41B
3-pole, with connection terminal[1)3)]							
40	25	▶	**3RT1916-4BB31**		1	1 unit	41B
4-pole, with connection terminal[1)4)]							
40	25	C	**3RT1916-4BB41**		1	1 unit	41B

3RT1916-4BB31

[1] The links for paralleling can be reduced by one pole. The rated operational currents apply to each pole.
[2] Replacement for 3TX4490-2C.
[3] Replacement for 3TX4490-2A.
[4] Replacement for 3TX4490-2B

*** You can order this quantity or a multiple thereof.**
Illustrations are approximate

Notes