

Switching Devices – Contactors and Contactor Assemblies – Special Applications

4



Price groups

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Coupling contactors

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Power relays/Miniature contactors

- 4/66 3TG10 contactors, 4-pole, 4 kW

Notes:

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

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

Conversion tool

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

Switching Devices – Contactors and Contactor Assemblies

Contactors for Special Applications

Introduction

Overview



Size
Type

S00
3RT231, 3RT251

S0
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, 4/16)		(p. 4/35, 4/36)			(p. 4/15, 4/16)			(p. 4/35, 4/36)
AC-1											
I_e at 400 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
Type

S2
3RT1336, 3RT1535

S3
3RT134.

S6, S10, S12
3RT145.

4-pole 3RT13, 3RT15 contactors • 3-pole 3RT14 contactors

Type			3RT1336	3RT1535	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. 4/19)	(p. 4/39)	(p. 4/19)		(p. 4/10)	(p. 4/10)		
AC-1 (≤ 690 V)										
I _e	40 °C	A	60	60	110	140	140	275	400	690
	60 °C	A	55	55	100	120	130	250	380	650
P At 400 V	40 °C	kW	39	36	72	92	92	180	263	454
At 230 V	40 °C	kW	23	20	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 _{el} /AC-3/400 V	A						44	97	138	170
P at 400 V		kW	11	18.5			22	55	75	90
At 230 V		kW	5.5	9.5	--	--	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	3RH1921	(Chap. 3)		
Terminal covers	3RT1936-4EA2	(Chap. 3)	3RT1946-4EA1/2	(Chap. 3)
Box terminal blocks	--		--	3RT1955/56-4G (Chap. 3)
Surge suppressors	3RT1926/36	(Chap. 3)	3RT1926/36	(Chap. 3)
				3RT1956-1C (RC element) (Chap. 3)



Size	--								00	--
Type	3TK1								3TK20	3TG10
3TK, 3TG contactors										
Type		3TK10	3TK11	3TK12	3TK13	3TK14	3TK15	3TK17	3TK20	3TG10
AC, DC operation		(p. 4/23)							(p. 4/31)	(p. 4/68)
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 /AC-3/400 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.

Contactors for Special Applications

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)

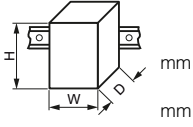
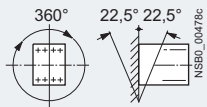
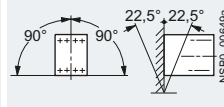
The following applies for sizes S6 to S12:

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

The 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)			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			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.

Contactors for Special Applications

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 for contactors without overload relays						
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: SITOP, 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						
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 mechanism						
- 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.	--	28/0.8	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./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, page 4/4).

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).

Contactors for Special Applications

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 mechanism						
- For $0.8 \times U_{s \min} \dots 1.1 \times U_{s \max}$	Closing delay	ms	--	20 ... 95	30 ... 95	45 ... 100
	Opening delay	ms	--	40 ... 60	40 ... 80	60 ... 100
- For $U_{s \min} \dots U_{s \max}$	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 $0.8 \times U_{s \min} \dots 1.1 \times U_{s \max}$	Closing delay	ms	--	95 ... 135	105 ... 145	120 ... 150
	Opening delay	ms	--	80 ... 90	80 ... 200	80 ... 100
- For $U_{s \min} \dots U_{s \max}$	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 $0.8 \times U_{s \min} \dots 1.1 \times U_{s \max}$	Closing delay	ms	--	35 ... 75	45 ... 80	60 ... 90
	Opening delay	ms	--	80 ... 90	80 ... 100	80 ... 100
- For $U_{s \min} \dots U_{s \max}$	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 slipping 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).

Contactors for Special Applications

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 ($L/R \leq 1$ 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 ($L/R \leq 15$ 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' :						
$z' = z \cdot (I_e/I') \cdot (400 \text{ V}/U')^{1.5} \cdot 1/\text{h}$						

Contactors for Special Applications

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			
 NSBQ_00479	• Finely stranded with end sleeve	mm²	2.5 ... 50
	• Finely stranded without end sleeve	mm²	10 ... 50
	• Solid	mm²	2.5 ... 16
	• Stranded	mm²	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			
 NSBQ_00480	• Finely stranded with end sleeve	mm²	2.5 ... 50
	• Finely stranded without end sleeve	mm²	10 ... 50
	• Solid	mm²	2.5 ... 16
	• Stranded	mm²	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			
 NSBQ_00481	• Finely stranded with end sleeve	mm²	2 x (2.5 ... 35)
	• Finely stranded without end sleeve	mm²	2 x (10 ... 35)
	• Solid	mm²	2 x (2.5 ... 16)
	• Stranded	mm²	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	mm²	10 ... 50 ³⁾	
• Stranded with cable lug	mm²	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		M3	
- Tightening torque	Nm lb.in	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.

²⁾ When connecting conductors which are larger than 25 mm², the 3RT1946-4EA1 terminal cover must be used to keep the phase clearance.

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.

Contactors for Special Applications

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	3RT19 55-4G	3RT19 56-4G	3RT19 66-4G
Terminal screws		M10 (hexagon socket, A/F 4)	M10 (hexagon socket, A/F 4)	M12 (hexagon socket, A/F 5)
• Tightening torque	Nm lb.in	10 ... 12 90 ... 110	10 ... 12 90 ... 110	20 ... 22 180 ... 195
Front clamping point connected				
 NSB0_00479	• 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				
 NSB0_00480	• 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⁾				
 NSB0_00481	• 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)
Bus connection				
• 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 conductors⁵⁾		 Spring-type terminals		
• Operating devices ⁶⁾		3.0 x 0.5; 3.5 x 0.5		
• Solid	mm ²	2 x (0.25 ... 2.5)		
• Finely stranded with end sleeve	mm ²	2 x (0.25 ... 1.5)		
• Finely stranded without end sleeve	mm ²	2 x (0.25 ... 2.5)		
• AWG cables, solid or stranded	AWG	2 x (24 ... 14)		

¹⁾ Minimum cross-section 16 mm².

²⁾ 3RT1456: When connecting cable lugs according to EN 46235, use 3RT1956-4EA1 terminal cover for conductor cross-sections from 95 mm² to keep the phase clearance.

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 mm² and more as well as EN 46235 for conductor cross-sections of 185 mm² and more to keep the phase clearance.

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

⁵⁾ Max. external diameter of the conductor insulation: 3.6 mm.
An "insulation stop" must be used for conductor cross-sections ≤ 1 mm²
(see [Accessories for 3RT10 contactors on page 3/111](#)).

⁶⁾ Tool for opening the spring-type terminals;
(see [Accessories for 3RT10 contactors on page 3/111](#)).

Contactors for Special Applications

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

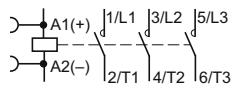


3RT1446-1A...0

Size	Rated data AC-1, T_u : 40 °C Operational current I_e	Ratings of AC loads (p.f. = 0.95) at				Auxiliary contacts Version	Rated control supply voltage U_s	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
	Up to 690 V	230 V	400 V	500 V	690 V				Article No.	Price per PU		
A		kW	kW	kW	kW	NO	NC	V				

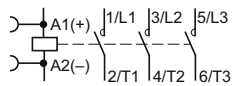
For screw fixing and snap-on mounting onto
TH 35 and TH 75 standard mounting rail

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 4/44](#) on request.

Accessories and spare parts [see "SIRIUS 3RT10 contactors", Chapter 3.](#)

Contactors for Special Applications

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)

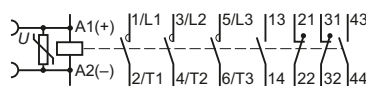
- Withdrawable coils with integrated coil switch (varistor)
- Auxiliary and control conductors: screw terminals
- Main conductors: busbar connections



3RT146.

Size	Rated data AC-1, $T_u: 40^\circ\text{C}$ Operational current I_e	Ratings of AC loads (p.f. = 0.95) at				Auxiliary contacts		Rated control supply voltage U_s	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
		230 V	400 V	500 V	690 V	Version				Article No.	Price per PU		
	Up to 690 V					NO	NC	V					
A		kW	kW	kW	kW								

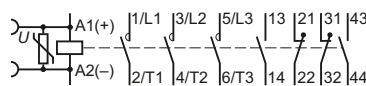
Conventional operating mechanism



S6	275	105	180	225	310	2	2	110 ... 127 220 ... 240	▶	3RT1456-6AF36 3RT1456-6AP36	1 1	1 unit 1 unit	41B 41B
S10	400	151	263	329	454	2	2	110 ... 127 220 ... 240	▶	3RT1466-6AF36 3RT1466-6AP36	1 1	1 unit 1 unit	41B 41B
S12	690	261	454	568	783	2	2	110 ... 127 220 ... 240	▶	3RT1476-6AF36 3RT1476-6AP36	1 1	1 unit 1 unit	41B 41B

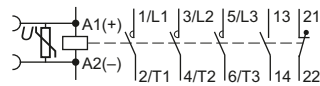
Solid-state operating mechanism

For 24 V DC PLC output



S6	275	105	180	225	310	2	2	96 ... 127 200 ... 277	B A	3RT1456-6NF36 3RT1456-6NP36	1 1	1 unit 1 unit	41B 41B
S10	400	151	263	329	454	2	2	96 ... 127 200 ... 277	B A	3RT1466-6NF36 3RT1466-6NP36	1 1	1 unit 1 unit	41B 41B
S12	690	261	454	568	783	2	2	96 ... 127 200 ... 277	B A	3RT1476-6NF36 3RT1476-6NP36	1 1	1 unit 1 unit	41B 41B

For 24 V DC PLC relay output, with remaining lifetime indicator (RLT)



S6	275	105	180	225	310	1	1	96 ... 127 200 ... 277	B B	3RT1456-6PF35 3RT1456-6PP35	1 1	1 unit 1 unit	41B 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 4/44 on request.

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

Contactors for Special Applications

SIRIUS 3RT23 contactors for resistive loads (AC-1), 4-pole, 4 NO, 18 ... 50 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.

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

Size S0 contactors have two auxiliary contacts 1 NO and 1 NC integrated in the basic version.

Mountable auxiliary contacts

Size S00

4 auxiliary contacts, including no more than 3 NC.

Size S0

4 additional auxiliary contacts.

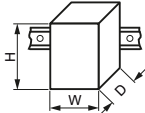
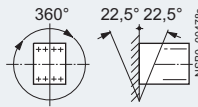
Application

The contactors are suitable for:

- 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.

General description of sizes S00 to S0, [see Chapter 3, "Power contactors for switching motors" → "SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW"](#).

Technical specifications

Type		3RT2316	3RT2317	3RT2325	3RT2326	3RT2327
Size		S00		S0		
Dimensions (W x H x D) for AC operation ¹⁾		mm	45 x 57.5 x 73 / 45 x 70 x 73	60 x 85 x 97 / 60 x 101.5 x 97	60 x 85 x 141 / 60 x 101.5 x 144	60 x 85 x 107 / 60 x 101.5 x 107
• With mounted auxiliary switch block		mm	45 x 57.5 x 116 / 45 x 70 x 121	60 x 85 x 141 / 60 x 101.5 x 144	60 x 85 x 107 / 60 x 101.5 x 107	60 x 85 x 151 / 60 x 101.5 x 154
Dimensions (W x H x D) for DC operation ¹⁾		mm	45 x 57.5 x 73 / 45 x 70 x 73	60 x 85 x 107 / 60 x 101.5 x 107	60 x 85 x 151 / 60 x 101.5 x 154	
• With mounted auxiliary switch block		mm	45 x 57.5 x 116 / 45 x 70 x 121	60 x 85 x 151 / 60 x 101.5 x 154		
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 of contactors without overload relays						
Main circuit						
Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1/EN 60947-4-1						
• Type of coordination "1"		A	35	63		
• Type of coordination "2"		A	20	20		
• Weld-free		A	10	16		

¹⁾ Dimensions for devices with screw terminals/spring-type terminals.
For size S0, devices for AC and DC operation differ in depth. The following applies: Depth (DC) = Depth (AC) + 10 mm.

Contactors for Special Applications

SIRIUS 3RT23 contactors for resistive loads (AC-1), 4-pole, 4 NO, 18 ... 50 A

Type		3RT2316	3RT2317	3RT2325	3RT2326	3RT2327
Size		S00		S0		
Control circuit						
Coil operating range						
• AC operation	At 50 Hz	0.8 ... 1.1 x U_s		--		
	At 60 Hz	0.85 ... 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 ... 1.1 x U_s		
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)						
• AC operation, 50 Hz, standard version						
- Closing	VA	--		77		
- P.f.		--		0.82		
- Closed	VA	--		9.8		
- P.f.		--		0.25		
• AC operation, 50/60 Hz, standard version						
- Closing	VA	27/24.3	37/33	81/79		
- P.f.		0.8/0.75	0.8/0.75	0.72/0.74		
- Closed	VA	4.2/3.3	5.7/4.4	10.5/8.5		
- P.f.		0.25/0.25	0.25/0.25	0.25/0.28		
• AC operation, 60 Hz, USA, Canada						
- Closing	VA	31.7	43	87		
- P.f.		0.77	0.77	0.76		
- Closed	VA	4.8	6.5	9.4		
- P.f.		0.25	0.25	0.28		
• DC operation (closing = closed)	W	4		5.9		
Operating times for 0.8 ... 1.1 x U_s¹⁾ Total break time = Opening delay + Arcing time						
• AC operation						
- Closing delay	ms	8 ... 35	8 ... 33	9 ... 38	8 ... 40	
- Opening delay	ms	3.5 ... 14	4 ... 15	4 ... 16	4 ... 16	
• DC operation						
- Closing delay	ms	30 ... 100		50 ... 170		
- Opening delay	ms	7 ... 13		15 ... 17.5		
• Arcing time	ms	10 ... 15		10		

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

Contactors for Special Applications

SIRIUS 3RT23 contactors for resistive loads (AC-1), 4-pole, 4 NO, 18 ... 50 A

Type			3RT2316	3RT2317	3RT2325	3RT2326	3RT2327
Size			S00		S0		
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
	At 60 °C, up to 690 V	A	16	20	30	35	42
• Rated power for AC loads P.f. = 0.95 (at 60 °C)	At 230 V	kW	6	7.5	11	13	16
	400 V	kW	10.5	13	20	23	28
• Minimum conductor cross-section for loads with I_e	At 40 °C	mm ²	2.5		10		
	At 60 °C	mm ²	2.5		10		
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 slipping 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 ($L/R \leq 1$ ms)							
• Rated operational currents I_e (at 60 °C)							
	- 1 conducting path						
	Up to 24 V	A	16	20	30	35	42
	60 V	A	16	20	20		
	110 V	A	2.1		4.5		
	220 V	A	0.8		1		
	440 V	A	0.6		0.4		
- 2 conducting paths in series	Up to 24 V	A	16	20	30	35	42
	60 V	A	16	20	30	35	42
	110 V	A	12		30	35	42
	220 V	A	1.6		1		
	440 V	A	0.8		1		
- 3 conducting paths in series	Up to 24 V	A	16	20	30	35	42
	60 V	A	16	20	30	35	42
	110 V	A	16	20	30	35	42
	220 V	A	16	20	30	35	42
	440 V	A	1.3		2.9		
- 4 conducting paths in series	Up to 24 V	A	16	20	30	35	42
	60 V	A	16	20	30	35	42
	110 V	A	16	20	30	35	42
	220 V	A	16	20	30	35	42
	440 V	A	1.3		2.9		
Utilization category DC-3/DC-5, Shunt-wound and series-wound motors ($L/R \leq 15$ ms)							
• Rated operational currents I_e (at 60 °C)							
	- 1 conducting path						
	Up to 24 V	A	16	20	20		
	60 V	A	0.5		5		
	110 V	A	0.15		2.5		
	220 V	A	--		1		
	440 V	A	--		0.09		
- 2 conducting paths in series	Up to 24 V	A	16	20	30	35	42
	60 V	A	5		30	35	42
	110 V	A	0.35		15		
	220 V	A	--		3		
	440 V	A	--		0.27		
- 3 conducting paths in series	Up to 24 V	A	16	20	30	35	42
	60 V	A	16	20	30	35	42
	110 V	A	16	20	30	35	42
	220 V	A	1.5		10		
	440 V	A	0.2		0.6		
- 4 conducting paths in series	Up to 24 V	A	16	20	30	35	42
	60 V	A	16	20	30	35	42
	110 V	A	16	20	30	35	42
	220 V	A	1.5		30	35	42
	440 V	A	0.2		0.6		

SIRIUS 3RT23 contactors for resistive loads (AC-1), 4-pole, 4 NO, 18 ... 50 A

Selection and ordering data

AC operation

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



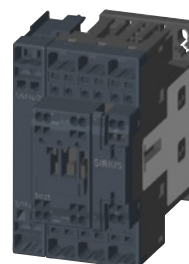
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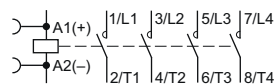


3RT232.-2A.00

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	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
400 V										
A	kW		NO NC	V AC						

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

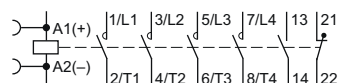
Size S00¹⁾



18 / 16	12 / 11	--	--	--	24, 50/60 Hz 110, 50/60 Hz 230, 50/60 Hz	B B B	3RT2316-1AB00 3RT2316-1AF00 3RT2316-1AP00	B B A	3RT2316-2AB00 3RT2316-2AF00 3RT2316-2AP00
22 / 20	14.5 / 13	--	--	--	24, 50/60 Hz 110, 50/60 Hz 230, 50/60 Hz	B B ▶ B	3RT2317-1AB00 3RT2317-1AF00 3RT2317-1AP00	B B A	3RT2317-2AB00 3RT2317-2AF00 3RT2317-2AP00

Size S0

1 NO + 1 NC, Ident. No. 11



35 / 30 ²⁾	22 / 20	11	1	1	24, 50 Hz 110, 50 Hz 230, 50 Hz	B B A	3RT2325-1AB00 3RT2325-1AF00 3RT2325-1AP00	B B A	3RT2325-2AB00 3RT2325-2AF00 3RT2325-2AP00
40 / 35 ²⁾	26 / 23	11	1	1	24, 50 Hz 110, 50 Hz 230, 50 Hz	B B A	3RT2326-1AB00 3RT2326-1AF00 3RT2326-1AP00	B B A	3RT2326-2AB00 3RT2326-2AF00 3RT2326-2AP00
50 ²⁾	33 / 28	11	1	1	24, 50 Hz 110, 50 Hz 230, 50 Hz	B B A	3RT2327-1AB00 3RT2327-1AF00 3RT2327-1AP00	B B A	3RT2327-2AB00 3RT2327-2AF00 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 4/44](#) on request.

Accessories and spare parts [see "SIRIUS 3RT20 contactors",
Chapter 3.](#)

Contactors for Special Applications

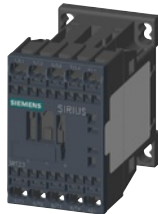
SIRIUS 3RT23 contactors for resistive loads (AC-1), 4-pole, 4 NO, 18 ... 50 A

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_{A} : 40/60 °C

Operational current I_{e}
 Ratings of AC loads
 (p.f. = 0.95)
 at 50 Hz and

400 V

A

kW

Auxiliary contacts

Ident.
 No.

Version



NO

NC

V DC

Rated control
 supply voltage
 U_{s}

DT

Screw terminals



Article No.

Price
 per PU

DT

**Spring-type
 terminals**

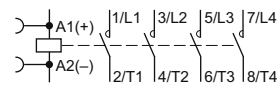


Article No.

Price
 per PU

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

Size S00



18 / 16

12 / 11

--

--

--

24

220

A

3RT2316-1BB40

►

3RT2316-2BB40

B

3RT2316-2BM40

22 / 20

14.5 / 13

--

--

--

24

220

►

3RT2317-1BB40

►

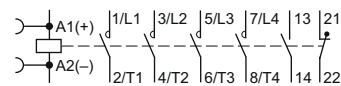
3RT2317-2BB40

B

3RT2317-2BM40

Size S0

1 NO + 1 NC, Ident. No. **11**



35 / 30¹⁾

22 / 20

11

1

1

24

220

A

3RT2325-1BB40

A

3RT2325-2BB40

B

3RT2325-2BM40

40 / 35¹⁾

26 / 23

11

1

1

24

220

A

3RT2326-1BB40

A

3RT2326-2BB40

B

3RT2326-2BM40

50¹⁾

33 / 28

11

1

1

24

220

A

3RT2327-1BB40

A

3RT2327-2BB40

B

3RT2327-2BM40

¹⁾ Minimum conductor cross-section 10 mm².

Other voltages [according to page 4/44](#) on request.

Accessories and spare parts [see "SIRIUS 3RT20 contactors", Chapter 3.](#)

SIRIUS 3RT13 contactors for resistive loads (AC-1), 4-pole, 4 NO, 60 ... 140 A

Overview

Standards

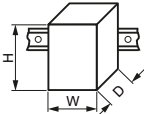
IEC 60947-1, EN 60947-1,
IEC 60947-4-1, EN 60947-4-1,
IEC 60947-5-1, EN 60947-5-1 (auxiliary switches)

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

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				3RT1336	3RT1344	3RT1346
Size				S2	S3	S3
Dimensions (W x H x D)						
• AC operation						
- With mounted auxiliary switch block						
• DC operation						
- With mounted auxiliary switch block						
						
	mm			73 x 111 x 110	92 x 140 x 134	
	mm			73 x 111 x 159	92 x 140 x 183	
	mm			73 x 111 x 125	92 x 140 x 147	
	mm			73 x 111 x 174	92 x 140 x 196	
General technical specifications						
Permissible mounting position¹⁾						
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 of contactors without overload relays						
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			160	250	250
• Type of coordination *2 ¹⁾	A			63	125	160
• Weld-free	A			50	63	100
Control circuit						
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		145	270	
	- P.f.	VA		0.79	0.68	
	- Closed	VA		12.5	22	
	- P.f.	VA		0.36	0.27	
• AC operation, 50/60 Hz	- Closing	VA		170/155	298/274	
	- P.f.			0.76/0.72	0.72/0.62	
	- Closed	VA		15/11.8	27/20	
	- P.f.			0.35/0.38	0.29/0.31	
• DC operation	- Closing = Closed	W		13.3	15	
Operating times for 0.8 ... 1.1 x U_s²⁾ Total break time = Opening delay + Arcing time						
• DC operation	- Closing delay	ms		50 ... 110	110 ... 200	
	- Opening delay	ms		15 ... 30	14 ... 20	
• AC operation	- Closing delay	ms		4 ... 35	20 ... 50	
	- Opening delay	ms		10 ... 30	10 ... 25	
• Arcing time		ms		10 ... 15	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

Contactors for Special Applications

SIRIUS 3RT13 contactors for resistive loads (AC-1), 4-pole, 4 NO, 60 ... 140 A

Type				3RT1336	3RT1344	3RT1346
Size				S2	S3	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	60	110	140	
	At 60 °C, up to 690 V	A	55	100	120	
• Rated power for AC loads P.f. = 0.95 (at 40 °C)	At 230 V	kW	23	42	53	
	400 V	kW	39	72	92	
• Minimum conductor cross-section for loads with I_e	At 40 °C	mm ²	16	50	50	
	60 °C	mm ²	16	50	50	
Utilization categories AC-2 and AC-3						
• Rated operational currents I_e	At 60 °C, up to 400 V	A	26	--	--	
• Rated power for slipring or squirrel-cage motors at 50 and 60 Hz	At 230 V	kW	5.5	--	--	
	400 V	kW	11	--	--	
Maximum breaking current AC (e.g. for isolation of load distributions)						
• At 50 and 60 Hz	At 400 V	A	400	520	760	
Load rating with DC						
Utilization category DC-1, switching resistive loads ($L/R \leq 1$ ms)						
• Rated operational currents I_e (at 40 °C)	- 1 conducting path	Up to 24 V	A	50	70	80
		60 V	A	23	23	60
		110 V	A	4.5	4.5	9
		220 V	A	1	1	2
		440 V	A	0.4	0.4	0.6
		- 2 conducting paths in series	Up to 24 V	A	50	70
60 V	A		45	70	80	
		110 V	A	45	70	80
		220 V	A	5	5	10
		440 V	A	1	1	1.8
		- 3 conducting paths in series	Up to 24 V	A	50	70
60 V	A		45	70	80	
		110 V	A	45	70	80
		220 V	A	45	70	80
		440 V	A	2.9	2.9	4.5
		- 4 conducting paths in series	Up to 24 V	A	50	70
60 V	A		45	70	80	
		110 V	A	45	70	80
		220 V	A	45	70	80
		440 V	A	2.9	2.9	4.5
		Utilization category DC-3/DC-5, Shunt-wound and series-wound motors ($L/R \leq 15$ ms)				
• Rated operational currents I_e (at 40 °C)	- 1 conducting path	Up to 24 V	A	20	20	20
		60 V	A	6	6	6.5
		110 V	A	2.5	2.5	2.5
		220 V	A	1	1	1
		440 V	A	0.1	0.15	0.15
		- 2 conducting paths in series	Up to 24 V	A	45	70
60 V	A		45	70	80	
		110 V	A	25	70	80
		220 V	A	5	7	7
		440 V	A	0.27	0.42	0.42
		- 3 conducting paths in series	Up to 24 V	A	45	70
60 V	A		45	70	80	
		110 V	A	45	70	80
		220 V	A	25	35	35
		440 V	A	0.6	0.8	0.8
		- 4 conducting paths in series	Up to 24 V	A	45	70
60 V	A		45	70	80	
		110 V	A	45	70	80
		220 V	A	45	70	80
		440 V	A	0.6	0.8	0.8

Contactors for Special Applications

SIRIUS 3RT13 contactors for resistive loads (AC-1), 4-pole, 4 NO, 60 ... 140 A

Selection and ordering data

AC operation, 4 NO contacts

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

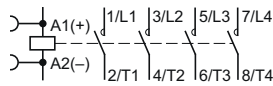


3RT133.-1A.00

Rated data AC-1, T_U : 40/60 °C Operational current I_e A	Ratings of AC loads (p.f. = 0.95) at 50 Hz and 400 V kW	Rated control supply voltage U_s V AC	DT	Screw terminals		DT	Spring-type terminals	
				Article No.	Price per PU		Article No.	Price per PU

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

Size S2



60 / 55

39 / 36

24, 50 Hz
 110, 50 Hz
 230, 50 Hz

B

3RT1336-1AB00

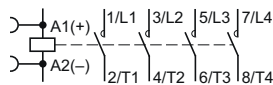
B

3RT1336-1AF00

▶

3RT1336-1AP00

Size S3



110 / 100

72 / 66

24, 50 Hz
 110, 50 Hz
 230, 50 Hz

B

3RT1344-1AB00

B

3RT1344-1AF00

▶

3RT1344-1AP00

140 / 120

92 / 79

24, 50 Hz
 110, 50 Hz
 230, 50 Hz

B

3RT1346-1AB00

B

3RT1346-1AF00

▶

3RT1346-1AP00

Other voltages [according to page 4/44](#) on request.

Accessories and spare parts [see "SIRIUS 3RT10 contactors", Chapter 3.](#)

Contactors for Special Applications

SIRIUS 3RT13 contactors for resistive loads (AC-1), 4-pole, 4 NO, 60 ... 140 A

DC operation, 4 NO contacts

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



3RT1336-1...0

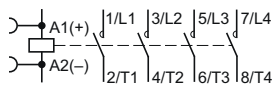


3RT134.-1...0

Rated data AC-1, T_U : 40/60 °C Operational current I_e	Ratings of AC loads (p.f. = 0.95) at 50 Hz and 400 V	Rated control supply voltage U_s	DT	Screw terminals		DT	Spring-type terminals	
				Article No.	Price per PU		Article No.	Price per PU
A	kW	V DC						

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

Size S2



60 / 55

39 / 36

24

220

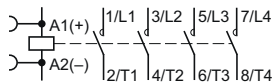
▶

3RT1336-1BB40

B

3RT1336-1BM40

Size S3



110 / 100

72 / 66

24

220

B

3RT1344-1BB40

B

3RT1344-1BM40

140 / 120

92 / 79

24

220

B

3RT1346-1BB40

B

3RT1346-1BM40

Other voltages [according to page 4/44](#) on request.

Accessories and spare parts [see "SIRIUS 3RT10 contactors",
Chapter 3.](#)

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

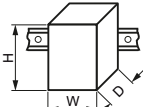
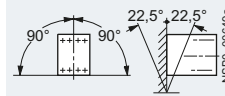
The solenoid coils of the 3TK1 contactors can be connected at a later stage with RC circuits (see "Accessories", page 4/24).

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	--
S and U rated data of the auxiliary contacts			
Rated voltage		V AC, max.	600
Switching capacity		A 600, P 600	

Contactors for Special Applications

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

Type									
Dimensions (W x H x D)		mm	3TK10 165 x 156 x 155	3TK11 165 x 172 x 155	3TK12 201 x 198 x 172	3TK13	3TK14 244 x 273 x 226	3TK15	3TK17
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 mm ²	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	400	550	700
• Rated power of squirrel-cage or slipring motors at		At 230 V kW	30	45	75	75	110	160	220
50 Hz and 60 Hz		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' : $z' = z \cdot (I_e/I') \cdot (400 V/U')^{1.5} \cdot 1/h$.

Contactors for Special Applications

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

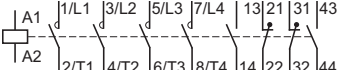
Type		3TK10	3TK11	3TK12	3TK13	3TK14	3TK15	3TK17
Conductor cross-sections								
Main conductors:		Screw terminals						
• Stranded with cable lug	mm ²	2 x 70	2 x 120	2 x 120		2 x 300		
• AWG cables, solid or stranded	AWG/MCM	2 x 00	2 x 250	2 x 250		2 x 600		
• Connecting bar (max. width)	mm	30	30	33		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 230 ... 240, 50 Hz 110/120, 50/60 Hz 24, 50 Hz	B D D D	3TK1042-0AP0 3TK1042-0AU0 3TK1042-0AF0 3TK1042-0AB0	1 1 1 1	1 unit 1 unit 1 unit 1 unit	41B 41B 41B 41B		
250	90	165	280	200	2	2	220 ... 230, 50 Hz 230 ... 240, 50 Hz 110/120, 50/60 Hz 24, 50 Hz	B D D D	3TK1142-0AP0 3TK1142-0AU0 3TK1142-0AF0 3TK1142-0AB0	1 1 1 1	1 unit 1 unit 1 unit 1 unit	41B 41B 41B 41B		
300	110	195	340	325	2	2	220 ... 230, 50 Hz 230 ... 240, 50 Hz 110/120, 50/60 Hz 24, 50 Hz	B D D D	3TK1242-0AP0 3TK1242-0AU0 3TK1242-0AF0 3TK1242-0AB0	1 1 1 1	1 unit 1 unit 1 unit 1 unit	41B 41B 41B 41B		
350	130	230	395	370	2	2	220 ... 230, 50 Hz 230 ... 240, 50 Hz 110/120, 50/60 Hz 24, 50 Hz	B D D D	3TK1342-0AP0 3TK1342-0AU0 3TK1342-0AF0 3TK1342-0AB0	1 1 1 1	1 unit 1 unit 1 unit 1 unit	41B 41B 41B 41B		
550	205	360	620	510	2	2	220 ... 230, 50 Hz ¹⁾ 230 ... 240, 50 Hz 110/120, 50/60 Hz	B D D	3TK1442-0AP0 3TK1442-0AU0 3TK1442-0AF0	1 1 1	1 unit 1 unit 1 unit	41B 41B 41B		
800	300	525	905	575	2	2	220 ... 230, 50 Hz ¹⁾ 230 ... 240, 50 Hz 110/120, 50/60 Hz	B D D	3TK1542-0AP0 3TK1542-0AU0 3TK1542-0AF0	1 1 1	1 unit 1 unit 1 unit	41B 41B 41B		
1000	375	655	1135	--	2	2	220 ... 230, 50 Hz ¹⁾ 230 ... 240, 50 Hz 110/120, 50/60 Hz	B D D	3TK1742-0AP0 3TK1742-0AU0 3TK1742-0AF0	1 1 1	1 unit 1 unit 1 unit	41B 41B 41B		

¹⁾ At 60 Hz: 240 V.

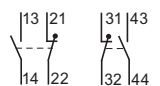
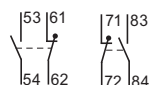
Contactors for Special Applications

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

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 mounting on the side	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..				
3TK12, 3TK13					3TK1972-0A..				
3TK14 ... 3TK17					3TK1974-0A..				

¹⁾ Rated control supply voltages: The 10th and 11th digit 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

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

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.

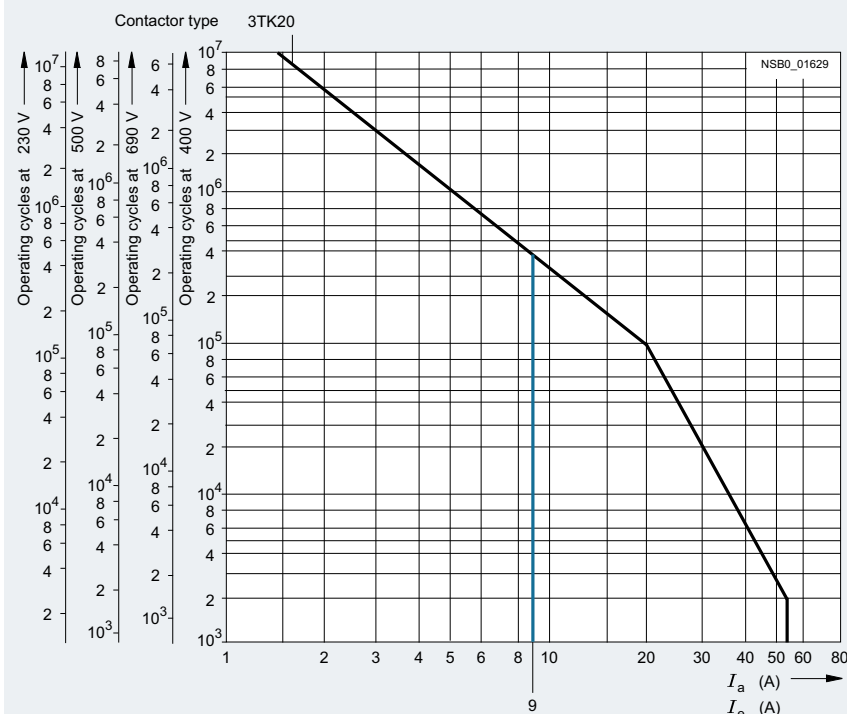
If a shorter contact endurance is sufficient, the rated operational current $I_e/AC-4$ can be increased.

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:

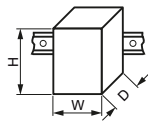
- X Contact endurance for mixed operation in operating cycles
- A Contact endurance for normal operation ($I_a = I_e$) in operating cycles
- B Contact endurance for inching ($I_a = \text{multiple of } I_e$) in operating cycles
- C Inching operations as a percentage of total switching operations



Contactors for Special Applications

3TK20 contactors, 4-pole, 4 kW

Type
Size
Dimensions (W x H x D)



mm

3TK20
00
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 temperature¹⁾		
• 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 for contactors without overload relays		
Main circuit³⁾		
• 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, $1.1 \times U_s$, side-by-side mounting and 100 % ON period,
the max. ambient temperature is +40 °C.

2) See page 4/30.

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".

Type			3TK20
Size			00
Control circuit			
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 electronics 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).

Contactors for Special Applications

3TK20 contactors, 4-pole, 4 kW

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 $\cong I_e$ /AC-3 up to 500 V, for reduced contact en- durance 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 ($L/R \leq 1$ ms) (contact endurance 0.1×10^6 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 ($L/R \leq 15$ 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' : $z' = z \cdot (I_e/I') \cdot (400 V/U')^{1.5} \cdot 1/h$					

Contactors for Special Applications

3TK20 contactors, 4-pole, 4 kW

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		--

Contactors for Special Applications

**3TK20 contactors,
4-pole, 4 kW**

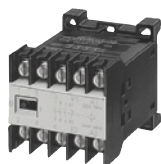
Type		3TK20...0...	3TK20...3..., 3TK20...6..., 3TK20...7...
Size		00	00
Ⓢ and Ⓞ rated data of the 3TK20 contactors			
Rated insulation voltage U_i	V AC	600	300
Uninterrupted current , open and enclosed	A	16	16 (10 for solder pin connection)
Maximum horsepower ratings (Ⓢ and Ⓞ approved values)			
• Rated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

Selection and ordering data

Size 00
AC-1: Operational current $I_e = 16 A$ (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	NO	NC						
A	kW	kW	kW	kW								
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.

Contactors for Special Applications

3TK20 contactors, 4-pole, 4 kW

Rated data Utilization categories AC-2 and AC-3 Operational current I_e					Main contacts	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
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



AC operation

9	2.4	4	4	--	4	--	C
					3	1	C
					2	2	D

Flat connectors

3TK2040-3AP0	1	1 unit	41B
3TK2031-3AP0	1	1 unit	41B
3TK2022-3AP0	1	1 unit	41B

DC operation

9	2.4	4	4	--	4	--	D
					3	1	D
					2	2	D

3TK2040-3BB4	1	1 unit	41B
3TK2031-3BB4	1	1 unit	41B
3TK2022-3BB4	1	1 unit	41B

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



AC operation

9	2.4	4	4	--	4	--	C
					3	1	C
					2	2	C

3TK2040-7AP0	1	1 unit	41B
3TK2031-7AP0	1	1 unit	41B
3TK2022-7AP0	1	1 unit	41B

DC operation

9	2.4	4	4	--	4	--	C
					3	1	D
					2	2	C

3TK2040-7BB4	1	1 unit	41B
3TK2031-7BB4	1	1 unit	41B
3TK2022-7BB4	1	1 unit	41B

Contactors with solder pin connections for printed circuit boards²⁾ for screw fixing (diagonal)



AC operation

9	2.4	4	4	--	4	--	C
					3	1	D
					2	2	C

Solder pin connections

3TK2040-6AP0	1	1 unit	41B
3TK2031-6AP0	1	1 unit	41B
3TK2022-6AP0	1	1 unit	41B

DC operation

9	2.4	4	4	--	4	--	D
					3	1	C
					2	2	C

3TK2040-6BB4	1	1 unit	41B
3TK2031-6BB4	1	1 unit	41B
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_N ; lower operating range limit according to IEC 60947.

Accessories see "3TF2 contactors", Chapter 3.

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

Contactor type	3TK20
Size	00
Rated control supply voltage U_s	

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_N ; lower operating range limit according to IEC 60947.

Please inquire about further voltages.

SIRIUS 3RT25 contactors, 4-pole, 2 NO + 2 NC, 4 ... 11 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.

Size S0 contactors have two auxiliary contacts 1 NO and 1 NC integrated in the basic version.

Mountable auxiliary contacts

Size S00 and S0

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

Application

The contactors are suitable for:

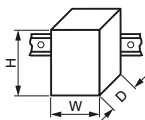
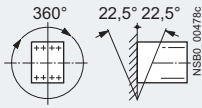
- For changing the polarity of hoisting gear motors
- For switching two separate loads

Note:

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

General description of sizes S00 to S0, see Chapter 3, "Power contactors for switching motors" → "SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW".

Technical specifications

Type			3RT2516	3RT2517	3RT2518	3RT2526
Size			S00			S0
Dimensions (W x H x D) for AC operation ¹⁾		mm	45 x 57.5 x 73 / 45 x 70 x 73			60 x 85 x 97 / 60 x 101.5 x 97
• With mounted auxiliary switch block		mm	45 x 57.5 x 116 / 45 x 70 x 121			60 x 85 x 141 / 60 x 101.5 x 144
Dimensions (W x H x D) for DC operation ¹⁾		mm	45 x 57.5 x 73 / 45 x 70 x 73			60 x 85 x 107 / 60 x 101.5 x 107
• With mounted auxiliary switch block		mm	45 x 57.5 x 116 / 45 x 70 x 121			60 x 85 x 151 / 60 x 101.5 x 154
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		°C	-25 ... +60			
• During operation		°C	-55 ... +80			
• During storage						
Degree of protection acc. to IEC 60947-1, Appendix C			IP20			
Touch protection acc. to EN 50274			Finger-safe			
Short-circuit protection of contactors without overload relays						
Main circuit						
Fuse links, operational class gG:						
LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE						
according to IEC 60947-4-1/EN 60947-4-1						
• Type of coordination "1"	A		35			63
• Type of coordination "2"	A		20			35
• Weld-free	A		10			16

¹⁾ Dimensions for devices with screw terminals/spring-type terminals.
For size S0, devices for AC and DC operation differ in depth. The following applies: Depth (DC) = Depth (AC) + 10 mm.

Contactors for Special Applications

SIRIUS 3RT25 contactors, 4-pole, 2 NO + 2 NC, 4 ... 11 kW

Type			3RT2516	3RT2517	3RT2518	3RT2526
Size			S00	S00	S00	S0
Control circuit						
Solenoid coil operating range						
• AC operation	At 50 Hz		0.8 ... 1.1 x U_s			--
	At 60 Hz		0.85 ... 1.1 x U_s			--
• DC operation	At 50 Hz		0.8 ... 1.1 x U_s			--
	At 60 Hz		0.85 ... 1.1 x U_s			--
• AC/DC operation						0.8 ... 1.1 x U_s
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)			See 3RT23 16	See 3RT23 17	See 3RT23 26	
Operating times for 0.8 to 1.1 x U_s (Total break time = Opening delay + Arcing time)			See 3RT23 16	See 3RT23 17	See 3RT23 26	
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	
	At 60 °C up to 690 V	A	16	20	35	
• Rated power for AC loads P.f. = 0.95 (at 60 °C)	At 230 V	kW	6	7.5	13.3	
	400 V	kW	10.5	13	23	
• Minimum conductor cross-section for loads with I_e	At 40 °C	mm ²	2.5	2.5	10	
Utilization categories AC-2 and AC-3						
• Rated operational currents I_e (at 60 °C)	NO contact up to 400 V	A	9	12	16	AC ¹⁾ 25
	NC contact up to 400 V	A	9	9	9	DC ¹⁾ 25
• Rated power for slipring or squirrel-cage motors at 50 and 60 Hz	NO contacts at 230 V	kW	2.2	3	4	5.5
	NC contacts at 230 V	kW	2.2	2.2	2.2	5.5
	NO contacts at 400 V	kW	4	5.5	7.5	11
	NC contacts at 400 V	kW	4	4	4	11
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
		60 V	A	16	20	20
		110 V	A	2.1	2.1	4.5
		220 V	A	0.8	0.8	1
		440 V	A	0.6	0.6	0.4
	- 2 conducting paths in series	Up to 24 V	A	16	20	35
		60 V	A	16	20	35
		110 V	A	12	12	35
		220 V	A	1.6	1.6	5
		440 V	A	0.8	0.8	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
		60 V	A	0.5	0.5	5
		110 V	A	0.15	0.15	2.5
		220 V	A	0.75	0.75	1
		440 V	A	--	--	0.09
	- 2 conducting paths in series	Up to 24 V	A	16	20	35
		60 V	A	5	5	35
		110 V	A	0.35	0.35	15
		220 V	A	--	--	3
		440 V	A	--	--	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.

Selection and ordering data

AC operation, 2 NO + 2 NC¹⁾

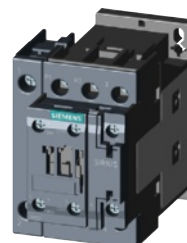
PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B



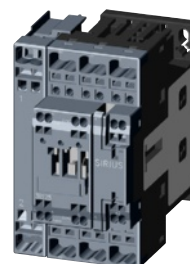
3RT251.-1A.00



3RT251.-2A.00



3RT252.-1A.00

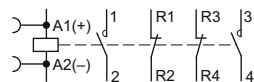


3RT252.-2A.00

Rated data		Auxiliary contacts		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								
A	kW	A	NO NC V AC						

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

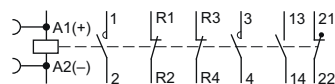
Size S00²⁾



9	4	18 / 16	--	--	--	24, 50/60 Hz 110, 50/60 Hz 230, 50/60 Hz	B B A	3RT2516-1AB00 3RT2516-1AF00 3RT2516-1AP00	B B A	3RT2516-2AB00 3RT2516-2AF00 3RT2516-2AP00
12/9 ³⁾	5.5/4 ³⁾	22 / 20	--	--	--	24, 50/60 Hz 110, 50/60 Hz 230, 50/60 Hz	B B A	3RT2517-1AB00 3RT2517-1AF00 3RT2517-1AP00	B B A	3RT2517-2AB00 3RT2517-2AF00 3RT2517-2AP00
16/9 ³⁾	7.5/4 ³⁾	22 / 20	--	--	--	24, 50/60 Hz 110, 50/60 Hz 230, 50/60 Hz	B B A	3RT2518-1AB00 3RT2518-1AF00 3RT2518-1AP00	B B A	3RT2518-2AB00 3RT2518-2AF00 3RT2518-2AP00

Size S0

1 NO + 1 NC, Ident. No. 11



25	11	40 / 35	11	1	1	24, 50 Hz 110, 50 Hz 230, 50 Hz	B B A	3RT2526-1AB00 3RT2526-1AF00 3RT2526-1AP00	B B A	3RT2526-2AB00 3RT2526-2AF00 3RT2526-2AP00
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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 4/44](#) on request.

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

Contactors for Special Applications

SIRIUS 3RT25 contactors, 4-pole, 2 NO + 2 NC, 4 ... 11 kW

DC operation, 2 NO + 2 NC¹⁾

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



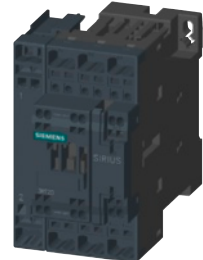
3RT251.-1B.40



3RT251.-2B.40



3RT252.-1B.40

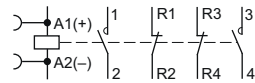


3RT252.-2B.40

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									
A	kW	A	NO NC	V DC						

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

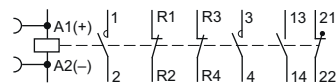
Size S00



9	4	18 / 16	--	--	--	24 220	►	3RT2516-1BB40 3RT2516-1BM40	A B	3RT2516-2BB40 3RT2516-2BM40
12/9 ²⁾	5.5/4²⁾	22 / 20	--	--	--	24 220	A B	3RT2517-1BB40 3RT2517-1BM40	A B	3RT2517-2BB40 3RT2517-2BM40
16/9 ²⁾	7.5/4²⁾	22 / 20	--	--	--	24 220	A B	3RT2518-1BB40 3RT2518-1BM40	A B	3RT2518-2BB40 3RT2518-2BM40

Size S0

1 NO + 1 NC, Ident. No. **11**



25 (20) ³⁾	11 (7.5)³⁾	40 / 35	11	1	1	24 220	A B	3RT2526-1BB40 3RT2526-1BM40	A B	3RT2526-2BB40 3RT2526-2BM40
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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 4/44](#) on request.

Accessories and spare parts [see "SIRIUS 3RT20 contactors", Chapter 3.](#)

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. 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.

Mountable auxiliary contacts

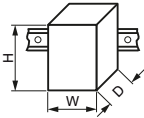
Maximum 4 auxiliary contacts can be either laterally mounted or snapped onto the top (auxiliary switch blocks according to EN 50012 or EN 50005).

Note:

Single device for pole reversal; not suitable for reversing duty. 3RT15 contactors are not suitable for switching a load between two current sources.

Technical specifications

Type			3RT1535
Size			S2
Dimensions (W x H x D)			
• AC operation			
- With mounted auxiliary switch block			
• DC operation			
- With mounted auxiliary switch block			
		mm	73 x 111 x 110
		mm	73 x 111 x 159
		mm	73 x 111 x 125
		mm	73 x 111 x 174



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 of contactors without overload relays			
Main circuit			
Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1/EN 60947-4-1			
• Type of coordination "1"	A		160
• Type of coordination "2"	A		80
• Weld-free	A		50
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		145
- P.f.	VA		0.79
- Closed	VA		12.5
- P.f.	VA		0.36
• AC operation, 50/60 Hz			
- Closing	VA		170/155
- P.f.	VA		0.76/0.72
- Closed	VA		15/11.8
- P.f.	VA		0.35/0.38
• DC operation (closing = closed)	W		13.3
Operating times for 0.8 ... 1.1 x U_s ²⁾			
Total break time = Opening delay + Arcing time			
• AC operation			
- Closing delay	ms		4 ... 35
- Opening delay	ms		10 ... 30
• DC operation			
- Closing delay	ms		50 ... 110
- Opening delay	ms		15 ... 30
• 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

Contactors for Special Applications

SIRIUS 3RT15 contactors, 4-pole, 2 NO + 2 NC, 18.5 kW

Type	3RT1535			
Size	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	60	
	At 60 °C up to 690 V	A	55	
• Rated power for AC loads	At 230 V	kW	20	
P.f. = 0.95 (at 60 °C)	400 V	kW	36	
• Minimum conductor cross-section for loads with I_e	At 40 °C	mm ²	16	
Utilization categories AC-2 and AC-3				
• Rated operational currents I_e (at 60 °C)	Up to 400 V	A	40	
• Rated power for slipping or squirrel-cage motors at 50 and 60 Hz	At 230 V	kW	9.5	
	400 V	kW	18.5	
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	50	
	60 V	A	23	
	110 V	A	4.5	
	220 V	A	1	
	440 V	A	0.4	
- 2 conducting paths in series	Up to 24 V	A	50	
	60 V	A	45	
	110 V	A	45	
	220 V	A	5	
	440 V	A	1	
Utilization category DC-3/DC-5 ¹⁾ , shunt-wound and series-wound motors ($L/R \leq 15$ ms)				
• Rated operational currents I_e (at 60 °C)				
- 1 conducting path	Up to 24 V	A	35	
	60 V	A	6	
	110 V	A	2.5	
	220 V	A	1	
	440 V	A	0.1	
- 2 conducting paths in series	Up to 24 V	A	50	
	60 V	A	45	
	110 V	A	25	
	220 V	A	5	
	440 V	A	0.27	

¹⁾ 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 3RT15 contactors,
4-pole, 2 NO + 2 NC, 18.5 kW**

Selection and ordering data

AC and DC operation, 2 NO contacts + 2 NC contacts¹⁾

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



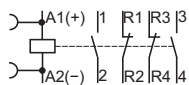
3RT1535-1...

Rated data AC-2/AC-3, T_U : Up to 60 °C		AC-1, T_U : 40/60 °C		DT	Screw terminals		DT	Spring-type terminals	
Operational current I_e	Ratings of three-phase motors at 50 Hz and	Operational current I_e			Article No.	Price per PU		Article No.	Price per PU
At 400 V	400 V								
A	kW	A	V						

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

AC operation

Size S2



40 **18.5**

60 / 55

AC 50 Hz, 24
AC 50 Hz, 110
AC 50 Hz, 230

B **3RT1535-1AB00**
B **3RT1535-1AF00**
► **3RT1535-1AP00**

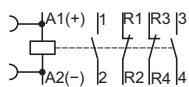
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DC operation

Size S2



40 **18.5**

60 / 55

24 DC
220 DC

► **3RT1535-1BB40**
B **3RT1535-1BM40**

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

Other voltages [according to page 4/44](#) on request.

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

Contactors for Special Applications

SIRIUS 3RT16 capacitor contactors, 12.5 ... 50 kvar

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.

Function

The 3RT16 capacitor contactors are special versions of the 3RT10 contactors size S00 to S3. The capacitors are precharged by means of the mounted leading NO contacts and resistors; only then do the main contacts close.

This prevents disturbances in the network and welding of the contactors.

Only discharged capacitors are permitted to be switched on with capacitor contactors.

For the capacitor switching capacity of the basic 3RT10 contactor version.

Auxiliary switches

The auxiliary switch block which is snapped onto the capacitor contactor contains the three leading NO contacts and in the case of S00 one standard NC contact and in the case of S0 and S3 one standard NO contact, which is unassigned. Size S00 also contains another unassigned NO contact in the basic unit.

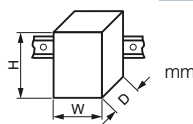
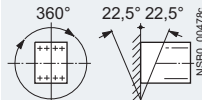
In addition, a 2-pole auxiliary switch block can be mounted laterally on the size S3 capacitor contactors (2 NO, 2 NC or 1 NO + 1 NC versions); type 3RH1921-1EA... The fitting of auxiliary switches for capacitor contactors in sizes S00 and S0 is not expandable.

Technical specifications

All technical specifications not mentioned in the table below are identical to those of the 3RT10 contactors:

- for size S00 as for the 3RT1017 contactors
- for size S0 as for the 3RT1026 contactors
- for size S3 as for the 3RT1044 contactors

See Chapter 3, "Power contactors for switching motors" → "SIRIUS 3RT10 contactors, 3-pole, 15 ... 250 kW".

Type				
Size				
Dimensions (W x H x D) including auxiliary switches and connecting cables				
		3RT1617-1A..3 S00 45 x 101 x 105	3RT1627-1A..1 S0 45 x 100 x 130	3RT1647-1A..1 S3 70 x 167 x 183
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		Operat- ing cycles	10 million	
Electrical endurance		Operat- ing cycles	> 250 000	> 150 000 > 100 000
Rated insulation voltage U_i (pollution degree 3)	V	690		1 000
Rated impulse withstand voltage U_{imp}	kV	6		6
Protective separation between the coil and the main contacts acc. to IEC 60947-1, Appendix N	V	400		690
Permissible ambient temperature	°C	-25 ... +60		
Degree of protection acc. to IEC 60947-1, Appendix C		IP20, coil assembly IP40	IP20, coil assembly IP20	IP20, terminal compartment IP00, coil assembly IP40
Touch protection acc. to EN 50274		Finger-safe		
Shock resistance (AC operation) • Rectangular pulse • Sine pulse		<i>g</i> /ms <i>g</i> /ms	7.5/5 and 4.2/10 9.8/5 and 5.9/10	8.2/5 and 4.9/10 12.5/5 and 7.8/10 6.8/5 and 4/10 10.6/5 and 6.2/10
Auxiliary circuit				
Auxiliary contacts mounted (unassigned)		1 NO + 1 NC	1 NO	1 NO
Auxiliary contacts mountable laterally (not for sizes S00 and S0)		--	--	2 NO or 2 NC or 1 NO + 1 NC
Short-circuit test • with fuse links of operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current I_k = 1 kA acc. to IEC 60947-5-1 • with miniature circuit breakers with C characteristic with short-circuit current I_k = 400 A		A A	10 10	

SIRIUS 3RT16 capacitor contactors, 12.5 ... 50 kvar

Type		3RT1617-1A...3	3RT1627-1A...1	3RT1647-1A...1
Size		S00	S0	S3
Control				
Solenoid coil operating range				
• AC operation	50 Hz	0.8 ... 1.1 x U_s	0.8 ... 1.1 x U_s	
	60 Hz	0.85 ... 1.1 x U_s	0.8 ... 1.1 x U_s	
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)				
• AC operation, 50 Hz, standard version				
- Closing	VA	--	61	270
- P.f.		--	0.82	0.68
- Closed	VA	--	7.8	22
- P.f.		--	0.24	0.27
• AC operation, 50/60 Hz, standard version				
- Closing	VA	27/24.3	64/63	298/274
- P.f.		0.8/0.75	0.72/0.74	0.7/0.62
- Closed	VA	4.4/3.4	8.4/6.8	27/20
- P.f.		0.27/0.27	0.24/0.28	0.29/0.31
• AC operation, 50 Hz, for USA/Canada				
- Closing	VA	26.4	61	270
- P.f.		0.81	0.82	0.68
- Closed	VA	4.7	7.8	22
- P.f.		0.26	0.24	0.27
• AC operation, 60 Hz, for USA/Canada				
- Closing	VA	31.7	69	300
- P.f.		0.77	0.76	0.52
- Closed	VA	5.1	7.5	21
- P.f.		0.27	0.28	0.29
Permissible residual current of the electronics (with 0 signal)				
• AC operation	mA	<3 mA x (230 V/ U_s) ¹⁾	<6 mA x (230 V/ U_s)	<25 mA x (230 V/ U_s)
Operating times for 0.8 ... 1.1 x U_s ²⁾ (Total break time = Opening delay + Arcing time)				
• AC operation				
- Closing delay	ms	8 ... 35	8 ... 44	17 ... 90
- Opening delay	ms	4 ... 30	4 ... 20	10 ... 25
Operating times for 1.0 x U_s ²⁾				
• AC operation				
- Closing delay	ms	10 ... 25	10 ... 17	18 ... 30
- Opening delay	ms	5 ... 30	4 ... 20	11 ... 23
Main circuit				
Load rating with AC				
Utilization category AC-6b, switching low-inductance AC capacitors				
Capacitor rating at rated power	230 V, 50/60 Hz kvar	3 ... 7.5	3.5 ... 15	3.5 ... 30
	400 V, 50/60 Hz kvar	5 ... 12.5	6 ... 25	5 ... 50
	525 V, 50/60 Hz kvar	7.5 ... 15	7.8 ... 30	7.5 ... 60
	690 V, 50/60 Hz kvar	10 ... 21	10 ... 42	10 ... 84
Max. switching frequency z in operating cycles/hour		180	100	
Short-circuit protection		1.6 ... 2.2 x I_e		

¹⁾ The 3RT1916-1GA00 additional load module is recommended for higher residual currents.

²⁾ The OFF-delay of the NO contact and the ON-delay of the NC contact are increased if the contactor coils are attenuated against voltage peaks (varistor +2 ms to 5 ms; diode assembly 2 to 6 times, for S00 noise suppression diode 6 to 10 times).

Contactors for Special Applications

SIRIUS 3RT16 capacitor contactors, 12.5 ... 50 kvar

Type		3RT1617-1A...3	3RT1627-1A...1	3RT1647-1A...1
Size		S00	S0	S3
Conductor cross-sections				
Main conductors (1 or 2 conductors can be connected)		 Screw terminals		
Box terminals				
Terminal screw - Tightening torque	Nm	M3 0.8 ... 1.2	M4 (Pozidriv size 2) 2 ... 2.5	M6 (hexagon socket, A/F 4) 4 ... 6
	lb.in	7 ... 10.3	18 ... 22	36 ... 53
	mm ²	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾ according to IEC 60947; max. 2 x (1 ... 4) ¹⁾	2 x (1 ... 2.5) ¹⁾ ; 2 x (2.5 ... 6) ¹⁾ according to IEC 60947; max. 1 x 10 ¹⁾²⁾	--
	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⁾²⁾	--
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⁾²⁾	--
	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⁾²⁾	--
	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⁾²⁾	--
	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⁾²⁾	--
- AWG cables - Solid - Solid or stranded - Stranded	AWG	2 x (20 ... 16)	2 x (16 ... 12)	--
	AWG	2 x (18 ... 14)	2 x (14 ... 10)	--
	AWG	1 x 12	1 x 8	--
	AWG	1 x 12	1 x 8	--
Front clamping point connected				
 NSB0_00479 - Finely stranded with end sleeve - Finely stranded without end sleeve - Solid - Stranded - AWG cables, solid or stranded - Ribbon cable conductors (Number x Width x Thickness)	mm ²	--	--	2.5 ... 35
	mm ²	--	--	10 ... 50
	mm ²	--	--	2.5 ... 16
	mm ²	--	--	10 ... 70
- AWG cables, solid or stranded - Ribbon cable conductors (Number x Width x Thickness)	AWG	--	--	10 ... 2/0
	mm	--	--	6 x 9 x 0.8
	mm	--	--	6 x 9 x 0.8
	mm	--	--	6 x 9 x 0.8
Rear clamping point connected				
 NSB0_00480 - Finely stranded with end sleeve - Finely stranded without end sleeve - Solid - Stranded - AWG cables, solid or stranded - Ribbon cable conductors (Number x Width x Thickness)	mm ²	--	--	2.5 ... 50
	mm ²	--	--	10 ... 50
	mm ²	--	--	2.5 ... 16
	mm ²	--	--	10 ... 70
- AWG cables, solid or stranded - Ribbon cable conductors (Number x Width x Thickness)	AWG	--	--	10 ... 2/0
	mm	--	--	6 x 9 x 0.8
	mm	--	--	6 x 9 x 0.8
	mm	--	--	6 x 9 x 0.8
Both clamping points connected				
 NSB0_00481 - Finely stranded with end sleeve - Finely stranded without end sleeve - Solid - Stranded - AWG cables, solid or stranded - Ribbon cable conductors (Number x Width x Thickness)	mm ²	--	--	2 x (2.5 ... 35)
	mm ²	--	--	2 x (10 ... 35)
	mm ²	--	--	2 x (2.5 ... 16)
	mm ²	--	--	2 x (10 ... 50)
- AWG cables, solid or stranded - Ribbon cable conductors (Number x Width x Thickness)	AWG	--	--	2 x (10 ... 1/0)
	mm	--	--	2 x (6 x 9 x 0.8)
	mm	--	--	2 x (6 x 9 x 0.8)
	mm	--	--	2 x (6 x 9 x 0.8)
Auxiliary conductors				
Solid	mm ²	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾ according to IEC 60947; max. 2 x (1 ... 4)	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾ according to IEC 60947; max. 2 x (0.75 ... 4)	
	mm ²	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾	
	mm ²	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾	
	mm ²	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾	
Finely stranded with end sleeve	mm ²	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾	
	mm ²	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾	
	mm ²	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾	
	mm ²	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾	
- AWG cables, solid or stranded - Terminal screw - Tightening torque	AWG	2 x (20 ... 16) ¹⁾ ; 2 x (18 ... 14) ¹⁾ ; 1 x 12	2 x (16 ... 12) 2 x (14 ... 10)	--
	AWG	2 x (20 ... 16) ¹⁾ ; 2 x (18 ... 14) ¹⁾ ; 1 x 12	2 x (16 ... 12) 2 x (14 ... 10)	--
	AWG	2 x (20 ... 16) ¹⁾ ; 2 x (18 ... 14) ¹⁾ ; 1 x 12	2 x (16 ... 12) 2 x (14 ... 10)	--
	AWG	2 x (20 ... 16) ¹⁾ ; 2 x (18 ... 14) ¹⁾ ; 1 x 12	2 x (16 ... 12) 2 x (14 ... 10)	--
Terminal screw - Tightening torque	Nm	M3 0.8 ... 1.2	M4 (Pozidriv size 2) 2 ... 2.5	M6 (hexagon socket, A/F 4) 4 ... 6
	lb.in	7 ... 10.3	18 ... 22	36 ... 53
	mm ²	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾ according to IEC 60947; max. 2 x (1 ... 4) ¹⁾	2 x (1 ... 2.5) ¹⁾ ; 2 x (2.5 ... 6) ¹⁾ according to IEC 60947; max. 1 x 10 ¹⁾²⁾	--
	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⁾²⁾	--

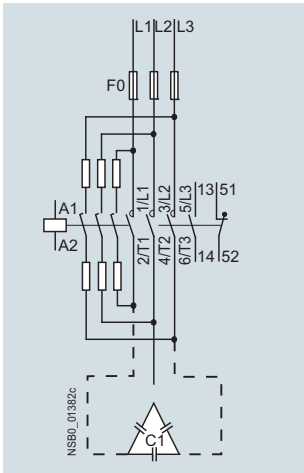
¹⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

²⁾ With 3RV1925-5AB infeed terminal for 16 mm².

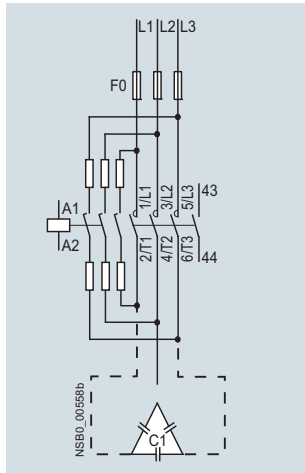
SIRIUS 3RT16 capacitor contactors, 12.5 ... 50 kvar

Circuit diagrams

Size S00



Sizes S0 and S3



Selection and ordering data

AC operation

Main, auxiliary and control conductors: Screw terminals



3RT1617-1A.03



3RT1627-1A.01



3RT1647-1A.01

Utilization category AC-6b
Switching of AC capacitors
for an ambient temperature of 60 °C¹⁾

Capacitor rating at
operational voltage 50/60 Hz

At 230 V	At 400 V	At 525 V	At 690 V
kvar	kvar	kvar	kvar

Auxiliary contacts,
unassigned

Version

NO	NC

Rated control supply
voltage $U_s^{2)}$

V AC Hz

DT

Screw terminals



PU
(UNIT,
SET,
M)

PS*

PG

Article No.

Price
per PU

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

Size S00

3 ... 7.5	5 ... 12.5	7.5 ... 15	10 ... 21	1	1	24	50 / 60	B	3RT1617-1AB03	1	1 unit	41B
						110		B	3RT1617-1AF03	1	1 unit	41B
						230		▶	3RT1617-1AP03	1	1 unit	41B

Size S0³⁾

3.5 ... 15	6 ... 25	7.8 ... 30	10 ... 42	1	--	24	50	B	3RT1627-1AB01	1	1 unit	41B
						110		B	3RT1627-1AF01	1	1 unit	41B
						230		▶	3RT1627-1AP01	1	1 unit	41B

Size S3

3.5 ... 30	5 ... 50	7.5 ... 60	10 ... 84	1	--	24	50	B	3RT1647-1AB01	1	1 unit	41B
						110		B	3RT1647-1AF01	1	1 unit	41B
						230		▶	3RT1647-1AP01	1	1 unit	41B

¹⁾ For size S3: 55 °C.

²⁾ Operating range: 0.85 ... 1.1 x U_s .

³⁾ For conductor cross-sections > 6 mm²
use 3RV1925-5AB terminals (2 units).

Other voltages [according to page 4/44](#) on request.

Accessories and spare parts [see "SIRIUS 3RT10 contactors",
Chapter 3.](#)

Contactors for Special Applications

SIRIUS 3RT2, 3RT1 contactors

Options

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

Rated control supply voltage U_s	Contactor type	3RT231, 3RT251	3RT232, 3RT252	3RT133, 3RT134, 3RT153	3RT144	3RT1617, 3RT1627, 3RT1647
	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 Hz¹⁾)

24 V AC	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
230 V AC	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 Hz¹⁾

24 V AC	B0	C2	C2	C2	C2
42 V AC	D0	D2	D2	D2	--
48 V AC	H0	H2	H2	H2	--
110 V AC	F0	G2	G2	G2	G2
220 V AC	N2	N2	N2	N2	N2
230 V AC	P0	L2	L2	L2	L2

Solenoid coils (for USA and Canada²⁾)

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

Solenoid coils (for Japan)

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

DC operation

12 V DC	A4	--	--	--	--
24 V DC	B4	B4	B4	B4	--
42 V DC	D4	D4	D4	D4	--
48 V DC	W4	W4	W4	W4	--
60 V DC	--	--	--	E4	--
110 V DC	F4	F4	F4	F4	--
125 V DC	G4	G4	G4	G4	--
220 V DC	M4	M4	M4	M4	--
230 V DC	P4	--	--	P4	--

Examples

AC operation	3RT2325-1AP00	Contactor with screw terminals; with solenoid coil for 50 Hz for rated control supply voltage 230 V AC.
	3RT2325-1AG20	Contactor with screw terminals; with solenoid coil for 50/60 Hz for rated control supply voltage 110 V AC.
DC operation	3RT2526-2BB40	Contactor with spring-type terminals; for rated control supply voltage 24 V DC.
	3RT2526-2BG40	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/Q..., 3RT1466-6P/Q..., 3RT1476-6P/Q...
$U_{s \min} \dots U_{s \max}^{5)}$	Size	S6, S10, S12	$U_{s \min} \dots U_{s \max}^{5)}$	Size	S6, S10, S12	S6, S10, S12

Sizes S6 to S12

UC operation (AC 40 to 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: $0.8 \dots 1.1 \times U_s$
at 60 Hz: $0.85 \dots 1.1 \times U_s$.

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

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

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

⁵⁾ Coil operating range: $0.7 \times U_{s \min} \dots 1.3 \times U_{s \max}$.

Contactors for Special Applications

Contactors with Extended Operating Range $0.7 \dots 1.25 \times U_s$ for Railway Applications

**SIRIUS 3RT20 motor contactors,
5.5 ... 18.5 kW**

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.

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 $1.25 \times U_s$ 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.

Contactors with conventional coil

Control and auxiliary circuits

These contactors have an extended operating range from 0.7 to $1.25 \times U_s$; on size S00 the solenoid 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.

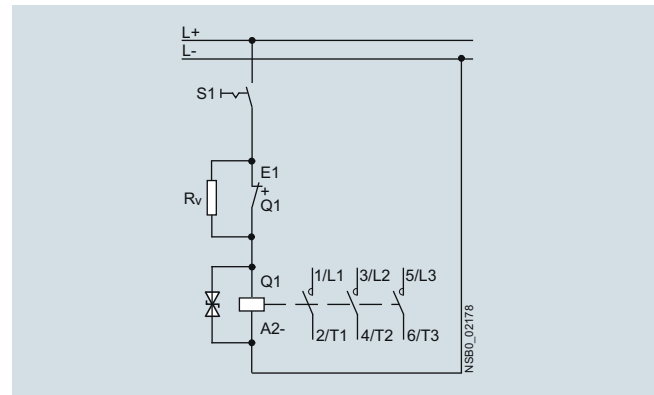
3RT201. contactors with series resistor

Control and auxiliary circuits

The solenoid coils of the contactors have an extended coil operating range from 0.7 to $1.25 \times U_s$ 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. contactors with solid-state operating mechanism, extended operating range

Control and auxiliary circuits

The solenoid coils of the contactors have an extended coil operating range from 0.7 to $1.25 \times U_s$ 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 $1.25 \times U_s$ 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 and 3/7).

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.

Contactors for Special Applications

Contactors with Extended Operating Range $0.7 \dots 1.25 \times U_s$ for Railway Applications

SIRIUS 3RT20 motor contactors, 5.5 ... 18.5 kW

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

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, 3 ... 18.5 kW".

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

Contactors for Special Applications

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

SIRIUS 3RT20 motor contactors, 5.5 ... 18.5 kW

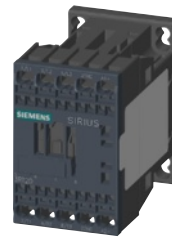
Selection and ordering data

DC operation

Spring-type terminals

For screw and snap-on mounting onto standard mounting rails

Solenoid coil with surge suppressor (S00)



3RT201.-2K.4.



3RT201.-2K.42-0LA0

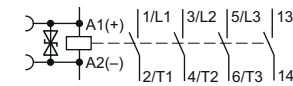
Rated data					Auxiliary contacts		Rated control supply voltage U_s	DT	Spring-type terminals	PU (UNIT, SET, M)	PS*	PG
AC-2 and AC-3 T_U : 70 °C					Ident. No.	Version						
Operational current I_e at	Rating ¹⁾ of three-phase motors at								Configurator	Article No.	Price per PU	
400 V	230 V	400 V	500 V	690 V								
A	kW	kW	kW	kW	NO	NC	V DC					

3RT20 contactors for switching motors

Size S00

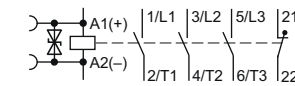
With conventional coil, fitted with suppressor diode

- 1 NO, Ident. No. **10**



12	3	5.5	5.5	5.5
12	3	5.5	5.5	5.5

- 1 NC, Ident. No. **01**

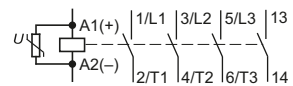


10 ²⁾	1	--	24
01 ²⁾	--	1	24
			110
			110

►	3RT2017-2KB41	1	1 unit	41B
B	3RT2017-2KF41	1	1 unit	41B
►	3RT2017-2KB42	1	1 unit	41B
B	3RT2017-2KF42	1	1 unit	41B

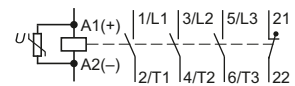
With conventional coil, fitted with varistor

- 1 NO, Ident. No. **10**



12	3	5.5	5.5	5.5
12	3	5.5	5.5	5.5

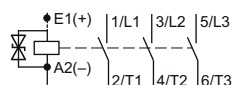
- 1 NC, Ident. No. **01**



10 ²⁾	1	--	24
01 ²⁾	--	1	24
			110
			110

B	3RT2017-2LB41	1	1 unit	41B
B	3RT2017-2LF41	1	1 unit	41B
B	3RT2017-2LB42	1	1 unit	41B
B	3RT2017-2LF42	1	1 unit	41B

With series resistor, fitted with suppressor diode

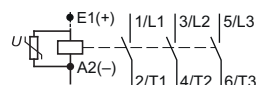


12	3	5.5	5.5	5.5
16	4	7.5	10	11

-- ³⁾	--	1 ⁴⁾	24
-- ³⁾	--	1 ⁴⁾	24
			110
			110

B	3RT2017-2KB42-0LA0	1	1 unit	41B
B	3RT2017-2KF42-0LA0	1	1 unit	41B
B	3RT2018-2KB42-0LA0	1	1 unit	41B
B	3RT2018-2KF42-0LA0	1	1 unit	41B

With series resistor, fitted with varistor



12	3	5.5	5.5	5.5
16	4	7.5	10	11

-- ³⁾	--	1 ⁴⁾	24
-- ³⁾	--	1 ⁴⁾	24
			110
			110

B	3RT2017-2LB42-0LA0	1	1 unit	41B
B	3RT2017-2LF42-0LA0	1	1 unit	41B
B	3RT2018-2LB42-0LA0	1	1 unit	41B
B	3RT2018-2LF42-0LA0	1	1 unit	41B

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 up to 70 °C.

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

Accessories see "3RT20 Contactors", Chapter 3.

Contactors for Special Applications

Contactors with Extended Operating Range $0.7 \dots 1.25 \times U_s$ for Railway Applications

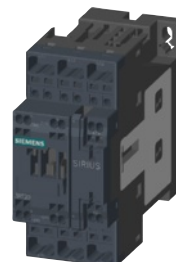
SIRIUS 3RT20 motor contactors, 5.5 ... 18.5 kW

DC operation

Spring-type terminals

For screw and snap-on mounting onto standard mounting rails

Solenoid coil fitted with varistor (S0)



3RT202.-2K.40



3RT202.-2X.40-0LA2

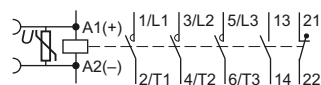
Rated data AC-2 and AC-3 T_U : 70 °C					Auxiliary contacts		Rated control supply voltage U_s	DT	Spring-type terminals		PU (UNIT, SET, M)	PS*	PG
Operational current I_e at					Ident. No.	Version			Configurator				
Rating ¹⁾ of three-phase motors at							Article No.	Price per PU					
400 V	230 V	400 V	500 V	690 V									
A	kW	kW	kW	kW	NO	NC	V DC						

3RT20 contactors for switching motors

Size S0

With conventional operating mechanism²⁾

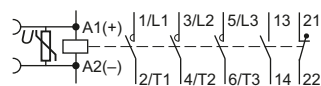
1 NO + 1 NC, Ident. No. 11



17	4	7.5	10	11	11	1	1	24 110	B B	3RT2025-2KB40 3RT2025-2KF40	1 1	1 unit 1 unit	41B 41B
25	5.5	11	11	11	11	1	1	24 110	B B	3RT2026-2KB40 3RT2026-2KF40	1 1	1 unit 1 unit	41B 41B
32	7.5	15	18.5	18.5	11	1	1	24 110	B B	3RT2027-2KB40 3RT2027-2KF40	1 1	1 unit 1 unit	41B 41B

With solid-state operating mechanism

1 NO + 1 NC, Ident. No. 11



17	4	7.5	10	11	11	1	1	24 110	B B	3RT2025-2XB40-0LA2 3RT2025-2XF40-0LA2	1 1	1 unit 1 unit	41B 41B
25	5.5	11	11	11	11	1	1	24 110	B B	3RT2026-2XB40-0LA2 3RT2026-2XF40-0LA2	1 1	1 unit 1 unit	41B 41B
32	7.5	15	18.5	18.5	11	1	1	24 110	B B	3RT2027-2XB40-0LA2 3RT2027-2XF40-0LA2	1 1	1 unit 1 unit	41B 41B
38	7.5	18.5	18.5	18.5	11	1	1	24 110	B B	3RT2028-2XB40-0LA2 3RT2028-2XF40-0LA2	1 1	1 unit 1 unit	41B 41B

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 $> 60^\circ\text{C}$.

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

**SIRIUS 3RT10 motor contactors,
18.5 ... 45 kW**

Overview

Standards

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

The contactors are finger-safe according to EN 50274 (exception: series resistor S2 and S3). The auxiliary conductor and coil terminals of sizes S2 to S3 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.

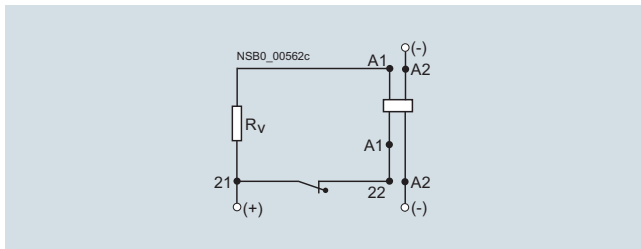
Uninterrupted duty at temperatures > +60 °C reduces the mechanical endurance, the current carrying capacity of the conducting paths and the switching frequency.

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 S2 to 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 S2 to 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 sizes S2 and 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

At ambient temperatures up to 70 °C, sizes S2 and S3 of these contactor versions are allowed to be mounted side by side.

Dimensions

Because of the built-on contactor control unit, the height of the size S2 and S3 contactors increases by up to 34 mm.

Contactors for Special Applications

Contactors with Extended Operating Range $0.7 \dots 1.25 \times U_s$ for Railway Applications

SIRIUS 3RT10 motor contactors, 18.5 ... 45 kW

Technical specifications

Type		3RT103.	3RT104.
Size		S2	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	46	78
• Closed	W	14	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	15	19
• Closed	W	11	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 and snap-on mounting onto standard mounting rails

Solenoid coil fitted with varistor



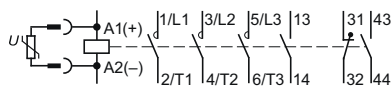
3RT103.-3K.44-0LA0

Rated data AC-2 and AC-3 T_U : 70 °C		Auxiliary contacts		Rated control supply voltage U_s		DT	Spring-type terminals	PU (UNIT, SET, M)	PS*	PG
Operational current I_e at 400 V A	Ratings of three-phase motors at 230 V kW	400 V kW	500 V kW	690 V kW	Version NO NC	V DC	Article No.	Price per PU		

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

Size S2

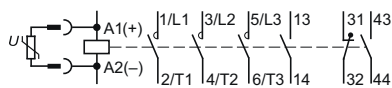
With series resistor



40	11	18.5	22	22	2	1 ¹⁾	24	B	3RT1035-3KB44-0LA0	1	1 unit	41B
							110	B	3RT1035-3KF44-0LA0	1	1 unit	41B
50	15	22	30	22	2	1 ¹⁾	24	B	3RT1036-3KB44-0LA0	1	1 unit	41B
							110	B	3RT1036-3KF44-0LA0	1	1 unit	41B

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.

Contactors for Special Applications

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

**SIRIUS 3RT10 motor contactors,
18.5 ... 45 kW**

DC operation

For screw and snap-on mounting onto standard mounting rails

Contactor control unit

Solenoid coil fitted with varistor

PU (UNIT, SET, M) = 1

PS* = 1 unit

PG = 41B

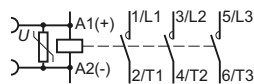


3RT10...-3X.40-0LA2

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 standard mounting rail

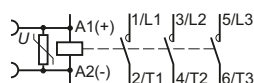
Size S2



40	18.5	--	--	24	B	3RT1035-1XB40-0LA2	B	3RT1035-3XB40-0LA2
		--	--	110	B	3RT1035-1XF40-0LA2	B	3RT1035-3XF40-0LA2
50	22	--	--	24	B	3RT1036-1XB40-0LA2	B	3RT1036-3XB40-0LA2
		--	--	110	B	3RT1036-1XF40-0LA2	B	3RT1036-3XF40-0LA2

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

Size S3



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.

Contactors for Special Applications

Contactors with Extended Operating Range $0.7 \dots 1.25 \times U_s$ for Railway Applications

**3TB5 motor contactors,
55 ... 200 kW**

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.

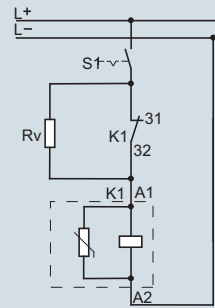
With types 3TB50, the series resistor must be attached onto the right-hand side of the auxiliary switch block by means of the enclosed mounting parts and sets of links provided. With types 3TB52 to 3TB56, the series resistor must be attached separately next to the contactors.

Auxiliary contacts

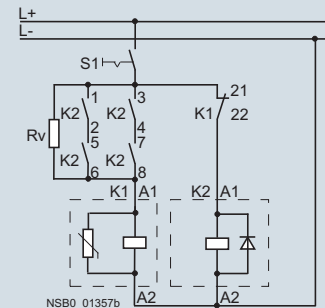
The contactors are equipped with two lateral auxiliary switch blocks each with 1 NO + 1 NC contact. Further auxiliary switch blocks cannot be fitted to the DC-operated contactors.

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

3TB50



3TB52 ... 3TB56



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 $1.25 \times U_s$ 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](#).

Contactors for Special Applications

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

**3TB5 motor contactors,
55 ... 200 kW**

Selection and ordering data

3TB50 to 3TB56 contactors

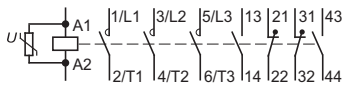
for screw fixing

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	V DC				
A	kW	kW	kW	kW	kW							

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⁾	24 110	B	3TB5017-0LB4 3TB5017-0LF4	1 1	1 unit 1 unit	41B 41B
8	170	55	90	110	132	2	1 ³⁾	24 110	C D	3TB5217-0LB4 3TB5217-0LF4	1 1	1 unit 1 unit	41B 41B
10	250	75	132	160	200	2	1 ³⁾	24 110	C A	3TB5417-0LB4 3TB5417-0LF4	1 1	1 unit 1 unit	41B 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	24 110	C D	3TY6503-0LB4 3TY6503-0LF4	1 1	1 unit 1 unit	41B 41B
8	3TB52 and 3TC52		24 110	D D	3TY6523-0LB4 3TY6523-0LF4	1 1	1 unit 1 unit	41B 41B
10	3TB54		24 110	C C	3TY6543-0LB4 3TY6543-0LF4	1 1	1 unit 1 unit	41B 41B
12	3TB56 and 3TC56		24 110	C C	3TY6563-0LB4 3TY6563-0LF4	1 1	1 unit 1 unit	41B 41B

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

Contactors for Special Applications

Contactors with Extended Operating Range $0.7 \dots 1.25 \times U_s$ for Railway Applications

3TC contactors for switching DC voltage, 2-pole

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.

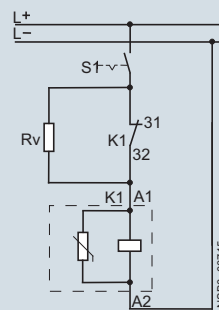
With types 3TC48, the series resistor must be attached onto the right-hand side of the auxiliary switch block by means of the enclosed mounting parts and sets of links provided, while in the case of the 3TC44 it must be mounted and wired between the contactor poles. With types 3TC52 and 3TC56, the series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

Auxiliary contacts

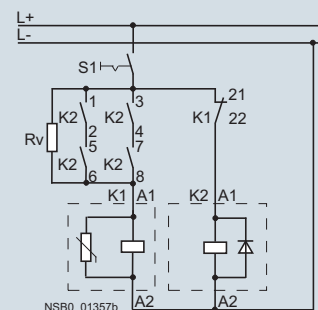
The contactors are equipped with two lateral auxiliary switch blocks each with 1 NO + 1 NC contact. Further auxiliary switch blocks cannot be fitted to the DC-operated contactors.

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

3TC44, 3TC48



3TC52, 3TC56



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 $1.25 \times U_s$ 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	295
• 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 4/56.

Contactors for Special Applications

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

3TC contactors for switching DC voltage, 2-pole

Selection and ordering data

3TC44: for screw and snap-on mounting onto 35 mm standard mounting rail

3TC48 to 3TC56: screw fixing

Solenoid coil fitted with varistor

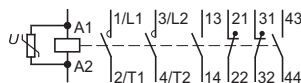


3TC48

Size	Utilization category	Rated operational current I_e at 750 V	Rated power of loads at					Auxiliary contacts ¹⁾	Rated control supply voltage U_s	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
			220 V	440 V	600 V	750 V		Version			Article No.	Price per PU		
			kW	kW	kW	kW		NO NC	V DC					

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	Remarks	Rated control supply voltage U_s	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Size	Type	V DC						

Arc chutes

For contactors with extended operating range

2	3TC4417-0L...	With cutout for resistor mounting	B	3TY2442-0B		1	1 unit	41B
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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 Chapter 3.

Contactors for Special Applications

Contactors for Switching DC Voltage

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

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 4/58.

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 $1.2 \times U_s$.

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 4/59.

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 4/55).

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
Ⓢ and Ⓞ rated data of the auxiliary contacts			
Rated voltage, max.	V AC		600
Switching capacity			A 600, P 600

Contactors for Special Applications

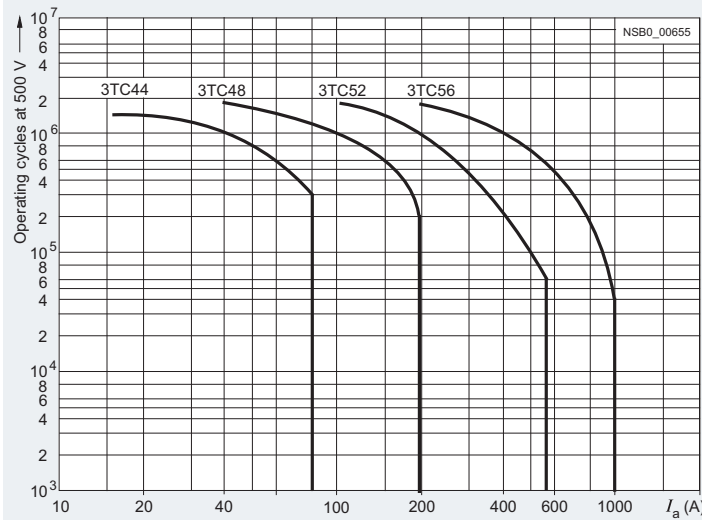
Contactors for Switching DC Voltage

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

Type

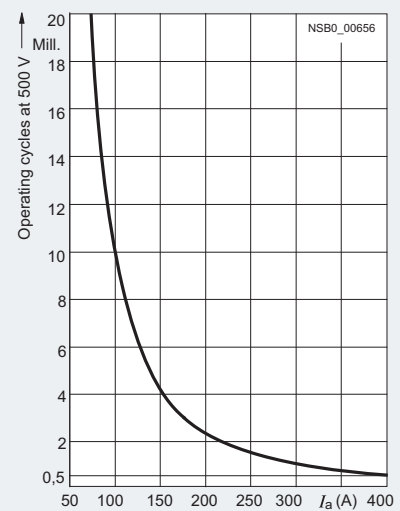
3TC44 ... 3TC78

Contact endurance of the main contacts



3TC44 to 3TC56 contactors

Legend for the diagrams:
 I_a = Breaking current



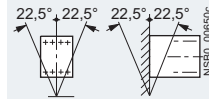
Contactors

Type
Size3TC44
23TC48
43TC52
83TC56
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 contacts²⁾

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
- During storage

°C

-25 ... +55

°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"
- Type of coordination "2"

A

50

160

250

400

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
- Miniature circuit breaker with C characteristic

A

16

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 4/56](#).

Contactors for Special Applications

Contactors for Switching DC Voltage

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

Type			3TC44	3TC48	3TC52	3TC56
Size			2	4	8	12
Dimensions (W x H x D)						
• DC operation			70 x 85 x 141	100 x 183 x 180	135 x 238 x 232	160 x 279 x 310
• AC operation			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:						
• 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)			

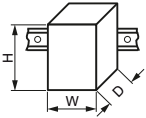
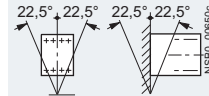
¹⁾ The opening delay times can increase if the contactor coils are damped against voltage peaks. 3TC44 contactors are not allowed to be fitted with diodes.

Rated data of the auxiliary contacts [see page 4/56](#).

Contactors for Special Applications

Contactors for Switching DC Voltage

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

Type		mm	3TC74		3TC78
Design			1-pole contactors		2-pole contactors
Dimensions			78 x 352 x 276		160 x 366 x 290
General technical specifications					
Permissible mounting position					
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_g /DC-1 (at 55 °C)			A	500	500
• Minimum conductor cross-section			mm ²	2 x 150	2 x 150
• Rated power			At 220 V	kW	110
(< 750 V DC: one conducting path,			440 V	kW	220
> 750 V DC: two conducting paths in series)			600 V	kW	300
			750 V	kW	375
			1200 V	kW	--
			1500 V	kW	--
					750
• Critical currents, without arc extinction			At 440 V	A	≤ 7
			600 V	A	≤ 13
			750 V	A	≤ 15
			≤ 800 V	A	--
			1200 V	A	--
			1500 V	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	

1) Endurance see page 4/57.

2) See "Selection and Ordering Data", page 4/61.

Rated data of the auxiliary contacts see page 4/56.

Contactors for Special Applications

Contactors for Switching DC Voltage

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

Type		3TC74	3TC78
Design		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

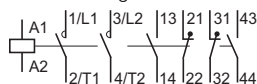


3TC48

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

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 110 DC 220 DC		▶ 3TC4417-0AB4 ▶ 3TC4417-0AF4 ▶ 3TC4417-0AM4	1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
Screw fixing															
4	DC-3, DC-5	75	6.5	13	27	38	45	2	2	24 DC 110 DC 220 DC	A A A	3TC4817-0AB4 3TC4817-0AF4 3TC4817-0AM4	1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
8	DC-3, DC-5	220 ⁴⁾	20	41	82	110	110	2	2	24 DC 110 DC 220 DC	C C C	3TC5217-0AB4 3TC5217-0AF4 3TC5217-0AM4	1 1 1	1 unit 1 unit 1 unit	41B 41B 41B
12	DC-3, DC-5	400	35	70	140	200	250	2	2	24 DC 110 DC 220 DC	C C C	3TC5617-0AB4 3TC5617-0AF4 3TC5617-0AM4	1 1 1	1 unit 1 unit 1 unit	41B 41B 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⁾ 110 / 110 AC	▶ ▶	3TC4417-0BP0 3TC4417-0BF0	1 1	1 unit 1 unit	41B 41B
Screw fixing															
4	DC-3, DC-5	75	6.5	13	27	38	45	2	2	220/230 AC ⁵⁾ 110 AC	A C	3TC4817-0BP0 3TC4817-0BF0	1 1	1 unit 1 unit	41B 41B
8	DC-3, DC-5	220 ⁴⁾	20	41	82	110	110	2	2	220/230 AC ⁵⁾ 110 AC	A C	3TC5217-0BP0 3TC5217-0BF0	1 1	1 unit 1 unit	41B 41B
12	DC-3, DC-5	400	35	70	140	200	250	2	2	220/230 AC ⁵⁾ 110 AC	C C	3TC5617-0BP0 3TC5617-0BF0	1 1	1 unit 1 unit	41B 41B

Other rated control supply voltages according to page 4/62 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

Contactors for Special Applications

Contactors for Switching DC Voltage

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



3TC74



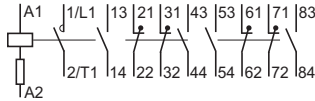
3TC78

Size	Utilization category ¹⁾	Operational current I_e	Ratings of DC motors at							Auxiliary contacts ²⁾	Rated control supply voltage U_s	DT	Screw terminals	⊕	PU (UNIT, SET, M)	PS*	PG
			110 V	220 V	440 V	600 V	750 V	1200 V	1500 V	Version							
			A	kW	kW	kW	kW	kW	kW				Article No.	Price per PU			
										NO	NC	V					

3TC74 1-pole contactors · Operational voltage up to 750 V

DC operation

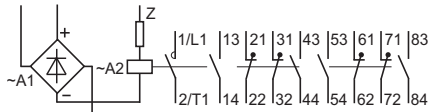
Terminal designations acc. to EN 50005



12	DC-3, DC-5	400	35	70	140	200	250	--	--	4	4	24 DC 110 DC	C C	3TC7414-0EB 3TC7414-0EF	1 1	1 unit 1 unit	41B 41B
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AC operation, 50 Hz

Terminal designations acc. to EN 50005

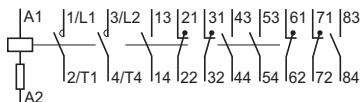


12	DC-3, DC-5	400	35	70	140	200	250	--	--	4	4	230/220 AC ³⁾	C	3TC7414-1CM	1	1 unit	41B
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3TC78 2-pole contactors · Operational voltage up to 1500 V

DC operation

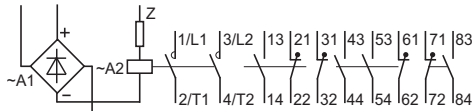
Terminal designations acc. to EN 50005



12	DC-3, DC-5	400	35	70	140	200	250	400	500	4	4	24 DC 110 DC	C C	3TC7814-0EB 3TC7814-0EF	1 1	1 unit 1 unit	41B 41B
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AC operation, 50 Hz

Terminal designations acc. 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: $1.14 \times U_s$.

Other rated control supply voltages according to page 4/62 on request.

Spare parts see page 4/64.

Contactors for Special Applications

Contactors for Switching DC Voltage

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

Options

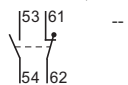
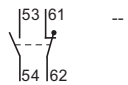
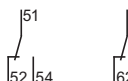
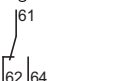
Rated control supply voltages (change of 10th and 11th digit of the Article No.)

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 $1.15 \times U_s$;
lower operating range limit according to IEC 60947.

²⁾ Upper operating range limit at 230 V: $1.14 \times U_s$.

Accessories

For contactors		Version Auxiliary contacts		DT	Screw terminals		PU (UNIT, SET, M)	PS*	PG						
Size	Type	NO	NC		Article No.	Price per PU									
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															
 5TY7561-1.	2 and 4	3TC44, 3TC48	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			▶	3TY7561-1UA00	1	1 unit	41B					
			2nd auxiliary switch block, left or right (replacement for 3TY6561-1U, 3TY6561-1V)												
			Mounting: Left Right												
			1 CO contact												
															
															



5TY7561-1.

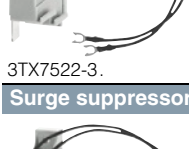
Contactors for Special Applications

Contactors for Switching DC Voltage

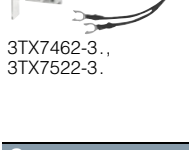
**3TC contactors,
1- and 2-pole, 32 ... 400 A**

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

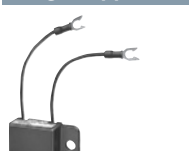
Surge suppressors - Varistors

	2	3TC44 ¹⁾	Varistors²⁾	24 ... 48	24 ... 70	A	3TX7402-3G	1	1 unit	41B
			With line spacer, for mounting onto the coil terminal	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	Varistors²⁾	24 ... 48	24 ... 70	A	3TX7462-3G	1	1 unit	41B
			For sticking onto the contactor base or for mounting separately	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
	8 and 12	3TC52, 3TC56	Varistors	24 ... 48	--	A	3TX7462-3G	1	1 unit	41B
			For sticking onto the contactor base or for mounting separately	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	Varistors²⁾	--	24 ... 70	B	3TX7522-3G	1	1 unit	41B
			For separate screw fixing or snapping onto TH 35 standard mounting rail	--	70 ... 150	B	3TX7522-3H	1	1 unit	41B
				--	150 ... 250	B	3TX7522-3J	1	1 unit	41B
				--	--	--				
				--	--	--				

Surge suppressors - RC elements

	4	3TC48	RC elements	24 ... 48	--	C	3TX7462-3R	1	1 unit	41B
			For lateral snapping onto auxiliary switch or TH 35 standard mounting rail	--	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
	8 and 12	3TC52, 3TC56	RC elements	24 ... 48	--	B	3TX7462-3U	1	1 unit	41B
			For lateral snapping onto auxiliary switch or TH 35 standard mounting rail	48 ... 127	--	B	3TX7522-3U	1	1 unit	41B
				127 ... 240	--	B	3TX7462-3V	1	1 unit	41B
				240 ... 400	--	B	3TX7522-3T	1	1 unit	41B
				400 ... 600	--	B	3TX7522-3V	1	1 unit	41B

Surge suppressors - Diodes

	4 to 12	3TC48, 3TC52, 3TC56	Diode assemblies³⁾	--	24 ... 250	A	3TX7462-3D	1	1 unit	41B
			(diode and Zener diode) for DC solenoid system, for sticking onto the contactor base or for mounting separately							

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

Terminal covers

	6	3TC48	For protection against inadvertent contact with exposed busbar connections	M6	B	3TX6506-3B	1	1 unit	41B
	8 and 12	3TC52, 3TC56	Can be screwed on free screw end. Covers one busbar connection (1 set = 6 units).	M10	B	3TX6546-3B	1	1 unit	41B

Contactors for Special Applications

Contactors for Switching DC Voltage

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

Spare parts

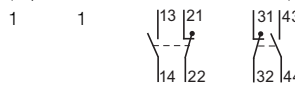
For contactors	Version	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
	Auxiliary contacts					
Size	Type	NO	NC	Article No.	Price per PU	

Auxiliary switch blocks

For mounting on the side

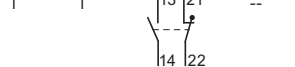
Left Right

2 and 4 3TC44, 3TC48 Auxiliary switch block (replacement for 3TY6501-1A/-1B)



► **3TY6501-1AA00** 1 1 unit 41B

8 and 12 3TC52, 3TC56 Auxiliary switch block, left



► **3TY6561-1A** 1 1 unit 41B

Auxiliary switch block, right



► **3TY6561-1B** 1 1 unit 41B



3TY6561-1A

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

Contacts with fixing parts



3TY2520-0A

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)
4 3TC48
8 3TC52
12 3TC56

B **3TY2440-0A** 1 1 unit 41B
B **3TY2480-0A** 1 1 unit 41B
B **3TY2520-0A** 1 1 unit 41B
C **3TY2560-0A** 1 1 unit 41B

Arc chutes



3TY2482-0A

2 3TC44 Arc chutes, 2-pole
4 3TC48
8 3TC52
12 3TC56

C **3TY2442-0A** 1 1 unit 41B
C **3TY2482-0A** 1 1 unit 41B
C **3TY2522-0A** 1 1 unit 41B
C **3TY2562-0A** 1 1 unit 41B

Solenoid coils

DC operation¹⁾

2 3TC44
4 3TC48
8 3TC52
12 3TC56

3TY6443-0B..
3TY6483-0B..
3TY6523-0B..
3TY6563-0B..

AC operation¹⁾

2 3TC44
4 3TC48
8 3TC52
12 3TC56

3TY7403-0A..
3TY6483-0A..
3TY6523-0A..
3TY6566-0A..

¹⁾ Rated control supply voltages [see table, page 4/62](#).
The 10th and 11th digit of the Article No. must be supplemented accordingly.

Contactors for Special Applications

Contactors for Switching DC Voltage

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

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

Power Relays/Miniature Contactors

3TG10 contactors, 4-pole, 4 kW

Overview

Version

The 3TG10 power relays/miniature contactors with 4 main contacts are available with screw terminals or 6.3 mm x 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

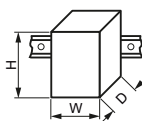
The 3UA7 overload relay can be used for overload protection. This applies to mounting onto contactors and to stand-alone installation.

Technical specifications

Type

Dimensions (W x H x D)

- With 3UA7 overload relay mounted below



mm	3TG10
mm	36 x 56 x 56
mm	45 x 100 x 62

General technical specifications

Endurance

- Mechanical
- Electrical
- AC-1 at I_e
- AC-3 at I_e

Operating cycles	3 million
Operating cycles	0.1 million
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 operation¹⁾
- During storage

°C	-25 ... + 55
°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"
- Type of coordination "2"

A	25
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
- P.f.
- DC operation

VA	4.4
	0.9 (hum-free)
W	4

Load rating with AC

Utilization category AC-1, switching resistive loads

Rated operational current I_e up to 400 V at 55 °C¹⁾

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
- For flat connector

kW	7.5 (13 at 400 V)
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

Rated power for slipping or squirrel-cage motors with 50 and 60 Hz and at 400 V

A	8.4
kW	4

Utilization category AC-5a (permissible nominal impedance: $\geq 0.5 \Omega$)

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.

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				kW	1.6
Per main current path at 230 V, 50 Hz					
Load rating with DC					
Utilization category DC-1, switching resistive loads ($L/R \leq 15$ ms)					
• Rated operational currents I_e					
- 1 conducting path	Up to 24 V	A		16	
	60 V	A		6	
	110 V	A		2	
	220/240 V	A		0.8	
- 2 conducting paths in series	Up to 24 V	A		16	
	60 V	A		16	
	110 V	A		6	
	220/240 V	A		1.6	
- 3 conducting paths in series	Up to 24 V	A		18	
	60 V	A		18	
	110 V	A		16	
	220/240 V	A		6	
- 4 conducting paths in series	Up to 24 V	A		20	
	60 V	A		20	
	110 V	A		20	
	220/240 V	A		20	
Utilization category DC-3 and DC-5					
Shunt-wound and series-wound motors ($L/R \leq 15$ 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	
	220/240 V	A		0	
- 2 conducting paths in series	Up to 24 V	A		16	
	60 V	A		5	
	110 V	A		0.35	
	220/240 V	A		0	
- 3 conducting paths in series	Up to 24 V	A		16	
	60 V	A		16	
	110 V	A		10	
	220/240 V	A		1.75	
- 4 conducting paths in series	Up to 24 V	A		18	
	60 V	A		16	
	110 V	A		10	
	220/240 V	A		2	
Conductor cross-sections					
					 Screw terminals
Terminal screws				mm ²	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				mm ²	0.5 ... 1
- 6.3 ... 1				mm ²	1 ... 2.5
- 6.3 ... 2.5				mm ²	
Ⓢ and Ⓣ rating (screw terminals)					
Rated insulation voltage			AC	V	600
Uninterrupted current			Open and enclosed		A
					20
Maximum horsepower ratings (from Ⓢ and Ⓣ 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

Power Relays/Miniature Contactors

3TG10 contactors, 4-pole, 4 kW

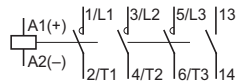
Selection and ordering data

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

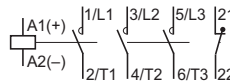
Rated data				Main contacts	Rated control supply voltage U_s	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Utilization category											
AC-1				AC-2 and AC-3							
Switching of resistive loads at 55 °C											
Operational current I_e up to 400 V	Power of AC loads at 50 Hz and 400 V	Operational 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

20 13 8.4 4

4 --

24 AC

Screw terminals



B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

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3TG10 ...-0...

DC operation

20 13 8.4 4

4 --

24 DC

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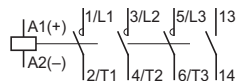
B

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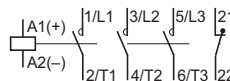
B

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

16 10 8.4 4

4 --

24 AC

Flat connectors



B

D

B

B

B

B

B

B

B

B

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3TG10 ...-1...

DC operation

16 10 8.4 4

4 --

24 DC

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

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B

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B

B

B

B

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	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type				mm ²						

Links for paralleling (insulated star jumpers)

3-pole, without connection terminal¹⁾²⁾

16

--

►

3RT1916-4BA31

1

1 unit

41B

3-pole, with connection terminal¹⁾³⁾

40

25

►

3RT1916-4BB31

1

1 unit

41B

4-pole, with connection terminal¹⁾⁴⁾

40

25

C

3RT1916-4BB41

1

1 unit

41B

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.