Contactors and Contactor Assemblies

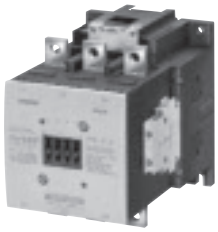
Overview



Size		**S00**			**S0**				**S2**			
Type		3RT10 1			3RT10 2				3RT10 3			
3RT10 contactors • 3RT12 and 3TF68/69 vacuum contactors												
Type		**3RT10 15**	**3RT10 16**	**3RT10 17**	**3RT10 23**	**3RT10 24**	**3RT10 25**	**3RT10 26**	**3RT10 34**	**3RT10 35**	**3RT10 36**	
AC/DC operation		(p. 2/17, 2/19)			(p. 2/17, 2/219)				(p. 2/18, 2/20)			
Type		–			–				–			
Maximum horsepower ratings (CSA and UL approved values)												
200 V	HP	1½	2	3	2	3	5	7½	10	10	15	
230 V	HP	2	3	3	3	3	5	7½	10	15	15	
460 V	HP	**3**	**5**	**7½**	**5**	**7½**	**10**	**15**	**25**	**30**	**40**	
575 V	HP	5	7½	10	7½	10	15	20	30	40	50	
AC-3												
I_e/AC-3/400 V	A	7	9	12	9	12	17	25	32	40	50	
400 V	**kW**	**3**	**4**	**5.5**	**4**	**5.5**	**7.5**	**11**	**15**	**18.5**	**22**	
230 V	kW	2.2	3	3	3	3	4	5.5	7.5	11	15	
500 V	kW	3.5	4.5	5.5	4.5	7.5	10	11	18.5	22	30	
690 V	kW	4	5.5	5.5	5.5	7.5	11	11	18.5	22	22	
1 000 V	kW	–	–	–	–	–	–	–	–	–	–	
AC-4 (at I_a = 6 x I_e)												
400 V	**kW**	**3**	**4**	**4**	**4**	**5.5**	**7.5**	**7.5**	**15**	**18.5**	**22**	
400 V (200 000 operating cycles)	kW	1.15	2	2	2	2.6	3.5	4.4	8.2	9.5	12.6	
AC-1 (40 °C, ≤ 690 V)												
I_e	**A**	**18**	**22**	**22**	**40**	**40**	**40**	**40**	**50**	**50**	**60**	

Accessories for contactors												
Auxiliary switch blocks	front	**3RH19 11**		(p. 2/41)	**3RH19 21**		(p. 2/41)					
	lateral	–			**3RH19 21**		(p. 2/43)					
Terminal covers		–			–				**3RT19 36-4EA2**		(p. 2/52)	
Box terminal blocks		–			–				–			
Surge suppressor		**3RT19 16**		(p. 2/47)	**3RT19 26**		(p. 2/47)		**3RT19 26/36**		(p. 2/48)	
3RU11 and 3RB10/12 overload relays (Part 4)												
3RU11, thermal, CLASS 10		**3RU11 16**	0.1 – 12 A	(p. 3/6)	**3RU11 26**	1.8 – 25 A	(p. 3/6)		**3RU11 36**	5.5 – 50 A	(p. 3/6)	
3RB10, solid-state, CLASS 10/20		**3RB10 16**	0.1 – 12 A	(p. 3/19)	**3RB10 26**	3 – 25 A	(p. 3/19)		**3RB10 36**	6 – 50 A	(p. 3/19)	
3RB12, solid-state, CLASS 5 – 30		**3RB12 46**	0.25 – 100 A	(p. 3/35)								
3RV10 circuit-breakers (Part 2)												
Type		**3RV10 11**	0.18 – 12 A	(p. 1/4)	**3RV10 21**	9 – 25 A	(p. 1/4)		**3RV10 31**	22 – 50 A	(p. 1/5)	
Link modules		**3RA19 11**		(p. 1/13)	**3RA19 21**		(p. 1/13)		**3RA19 31**		(p. 1/13)	
3RA13 reversing contactor assemblies												
Cabinet units	Type	**3RA13 15** (p. 2/66)	**3RA13 16**	**3RA13 17**		**3RA13 24** (p. 2/67)	**3RA13 25**	**3RA13 26**	**3RA13 34** (p. 2/68)	**3RA13 35**	**3RA13 36**	
400 V	**kW**	**3**	**4**	**5.5**		**5.5**	**7.5**	**11**	**15**	**18.5**	**22**	
Installation kits/wiring connectors		**3RA19 13-2A**		(p. 2/71)	**3RA19 23-2A**		(p. 2/71)		**3RA19 33-2A**		(p. 2/71)	
Mechanical interlocks		**3RA19 12-2H**		(p. 2/72)	**3RA19 24-2B**		(p. 2/70)					




	S3 3RT1. 4			**S6** 3RT1. 5			**S10** 3RT1. 6			**S12** 3RT1. 7		**14** 3TF6	
	3RT10 44 **3RT10 45** **3RT10 46** (p. 2/18, 2/20)			**3RT10 54** **3RT10 55** **3RT10 56** (p. 2/21, 2/22)			**3RT10 64** **3RT10 65** **3RT10 66** (p. 2/21, 2/22)			**3RT10 75** **3RT10 76** (p. 2/21, 2/22)		–	
	–			–			**3RT12 64** **3RT12 65** **3RT12 66** (p. 2/26)			**3RT12 75** **3RT12 76** (p. 2/26)		**3TF68** **3TF69** (p. 2/82)	
	20	25	30	40	50	60	60	75	100	125	150	200	290
	25	30	30	50	60	75	75	100	125	150	200	250	350
	50	**60**	**75**	**100**	**125**	**150**	**150**	**200**	**250**	**300**	**400**	**500**	**700**
	60	75	100	125	150	200	200	250	300	400	500	650	860
	65	80	95	115	150	185	225	265	300	400	500	630	820
	30	**37**	**45**	**55**	**75**	**90**	**110**	**132**	**160**	**200**	**250**	**335**	**450**
	18.5	22	22	37	45	55	55	75	90	132	160	200	260
	37	45	55	75	90	110	160	160	200	250	355	434	600
	45	55	55	110	132	160	200	250	250	400	400/500	600	800
	30	37	37	75	90	90	90/315	132/355	132/400	250/560	250/710	600	800
	30	**37**	**45**	**55**	**75**	**90**	**110**	**132**	**160**	**200**	**250**	**355**	**400**
	15.1	17.9	22	29	38	45	54/78	66/93	71/112	84/140	98/161	168	191
	100	**120**	**120**	**160**	**185**	**215**	**275/330**	**330**	**330**	**430/610**	**610**	**700**	**910**
												– **3TY7 561** (p. 2/85)	
	3RT19 46-4EA1/2 (p. 2/52)			**3RT19 56-4EA1/2/3** (p. 2/52)			**3RT19 66-4EA1/2/3** (p. 2/52)					**3TX7 686/696** (p. 2/84)	
	–			**3RT19 55/56-4G** (p. 2/52)			**3RT19 66-4G** (p. 2/52)					–	
				3RT19 56-1C (RC element)(p. 2/48)								**3TX7 572** (p. 2/83)	
	3RU11 46 18 – 100 A (p. 3/6)			–			–			–		–	
	3RB10 46 13 – 100 A (p. 3/19)			**3RB10 56** 50 – 200 A (p. 3/19)			**3RB10 66** 50 – 250/200 – 540 A (p. 3/19)			**3RB10 66** 200 – 540 A (p. 3/19)		**3RB10 66** 300 – 630 A (p. 3/19)	
				3RB12 53 50 – 205 A (p. 3/35)			**3RB12 57** 125 – 500 A (p. 3/35)					**3RB12 62** 200 – 820 A (p. 3/35)	
	3RV10 41 45 – 100 A (p. 1/5)			–			–			–		–	
	3RA19 41 (p. 1/13)			–			–			–		–	
	3RA13 44 **3RA13 45** **3RA13 46** (p. 2/69)			–			–			–		–	
	30	**37**	**45**	**55**	**75**	**90**	**110**	**132**	**160**	**200**	**250**	**335**	
	3RA19 43-2A (p. 2/71)			**3RA19 53-2A** (p. 2/71)			**3RA19 63-2A** (p. 2/71)			**3RA19 73-2A** (p. 2/71)		**3TX7 680-1A**	
				3RA19 54-2A (p. 2/70)								**3TX7 686-1A**	

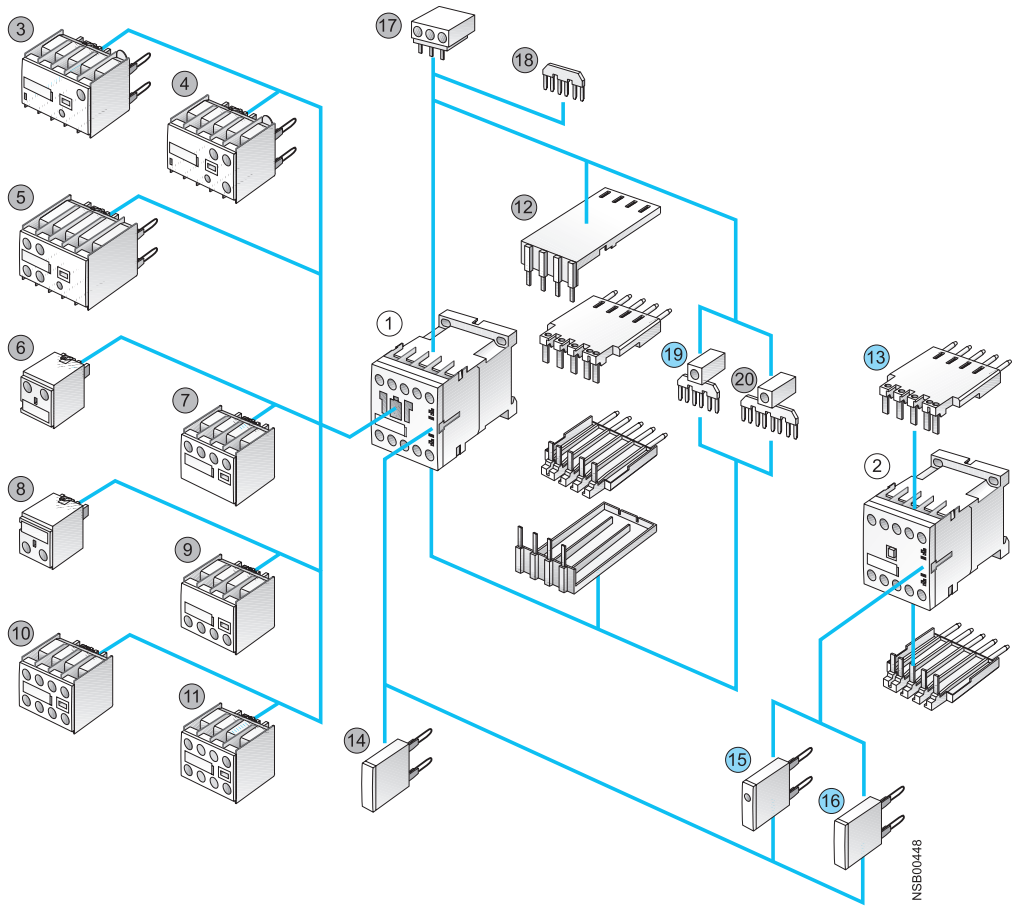
SIRIUS

3RT1 contactors, size S00

Overview

The product range at a glance

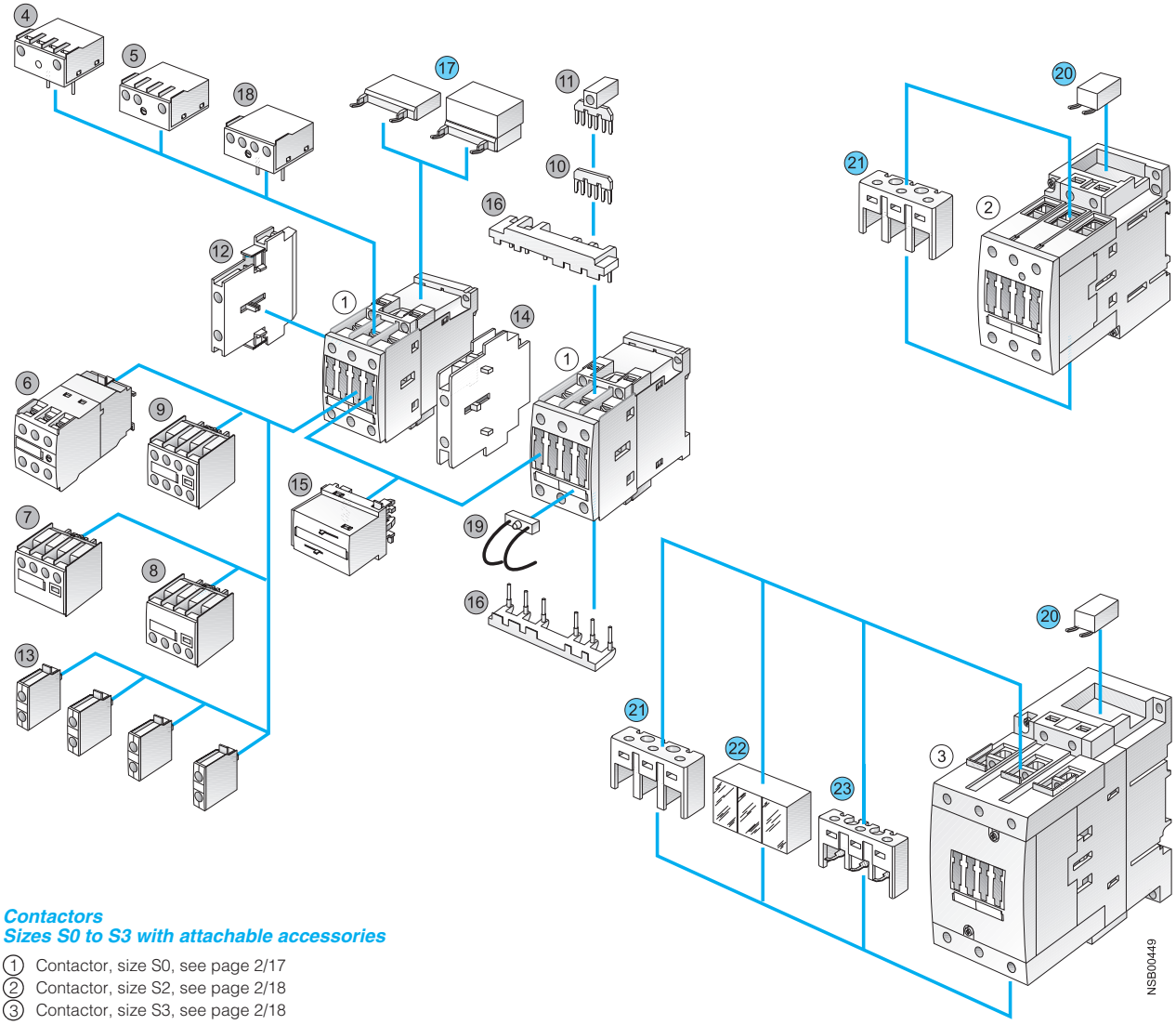
The new SIRIUS generation is a complete, modular system family, logically designed right down to the last detail, from the basic units to the accessories.



Contactors and coupling relays Size S00 with mountable accessories

1. Contactor (page 2/17)
2. Coupling relay (page 2/32)
3. Solid-state time-delay block, ON-delay (page 2/46)
4. Solid-state time-delay block, OFF-delay (page 2/46)
5. Auxiliary switch block, solid-state time-delay (page 2/45) (ON or OFF-delay or WYE-delta function)
6. Single-pole auxiliary switch block, cable entry from above (page 2/41)
7. 2-pole auxiliary switch block, cable entry from above (page 2/41)
8. Single-pole auxiliary switch block, cable entry from below (page 2/41)
9. 2-pole auxiliary switch block, cable entry from below (page 2/41)
10. 4-pole auxiliary switch block (page 2/41) (terminal designations acc. to EN 50 012 or EN 50 005)
11. 2-pole auxiliary switch block, standard design or solid-state compatible design (pages 2/41, 2/44) (terminal designations acc. to EN 50 005)
12. Solder pin adapter for contactors with 4-pole auxiliary switch block (page 2/51)
13. Solder pin adapter for contactors and coupling relays (page 2/51)
14. Additional load module for increasing the permissible off-state current (page 2/49)
15. Surge suppressor with LED (page 2/48)
16. Surge suppressor without LED (page 2/47)
17. 3-phase feeder terminal (page 2/81)
18. Link for paralleling (WYE jumper), 3-pole, without terminal (page 2/81)
19. Link for paralleling, 3-pole, with terminal (page 2/51)
20. Link for paralleling, 4-pole, with terminal (page 2/51)

- for contactors
- for contactors and coupling relays (interface)



Contactors
Sizes S0 to S3 with attachable accessories

(1) Contactor, size S0, see page 2/17
(2) Contactor, size S2, see page 2/18
(3) Contactor, size S3, see page 2/18

For sizes S0 to S3:

(4) Solid-state time-delay block, ON-delay (page 2/46)
(5) Solid-state time-delay block, OFF-delay (page 2/46)
(6) Auxiliary switch block, solid-state time-delay (page 2/45) (ON or OFF-delay or WYE-delta function)
(7) 2-pole auxiliary switch block, cable entry from above (page 2/42)
(8) 2-pole auxiliary switch block, cable entry from below (page 2/42)
(9) 4-pole auxiliary switch block (page 2/42) (terminal designations acc. to EN 50 012 or EN 50 005)
(10) Link for paralleling (WYE jumper), 3-pole, without terminal (page 2/81)
(11) Link for paralleling, 3-pole, with terminal (page 2/51)
(12) 2-pole auxiliary switch block, laterally mountable (left or right) (page 2/43) (terminal designations acc. to EN 50 012 or EN 50 005)
(13) Single-pole auxiliary switch block (up to 4 can be snapped on) (page 2/42)
(14) Mechanical interlock, laterally mountable (page 2/70)
(15) Mechanical interlock, mountable on the front (page 2/70)
(16) Reversing contactor connection links (page 2/72)
(17) Surge suppressors (page 2/47) (varistor, RC element, diode assembly), can be mounted on the top or bottom (different for S0 and S2/S3)
(18) Interface for PLC control mounting directly onto contactor coil (page 2/50)
(19) LED module for indicating contactor operation (page 2/50)

Only for sizes S2 and S3:

(20) Repeat coil terminal for making reversing contactor assemblies (page 2/70)
(21) Terminal cover for box terminals (page 2/52)

Only for size S3:

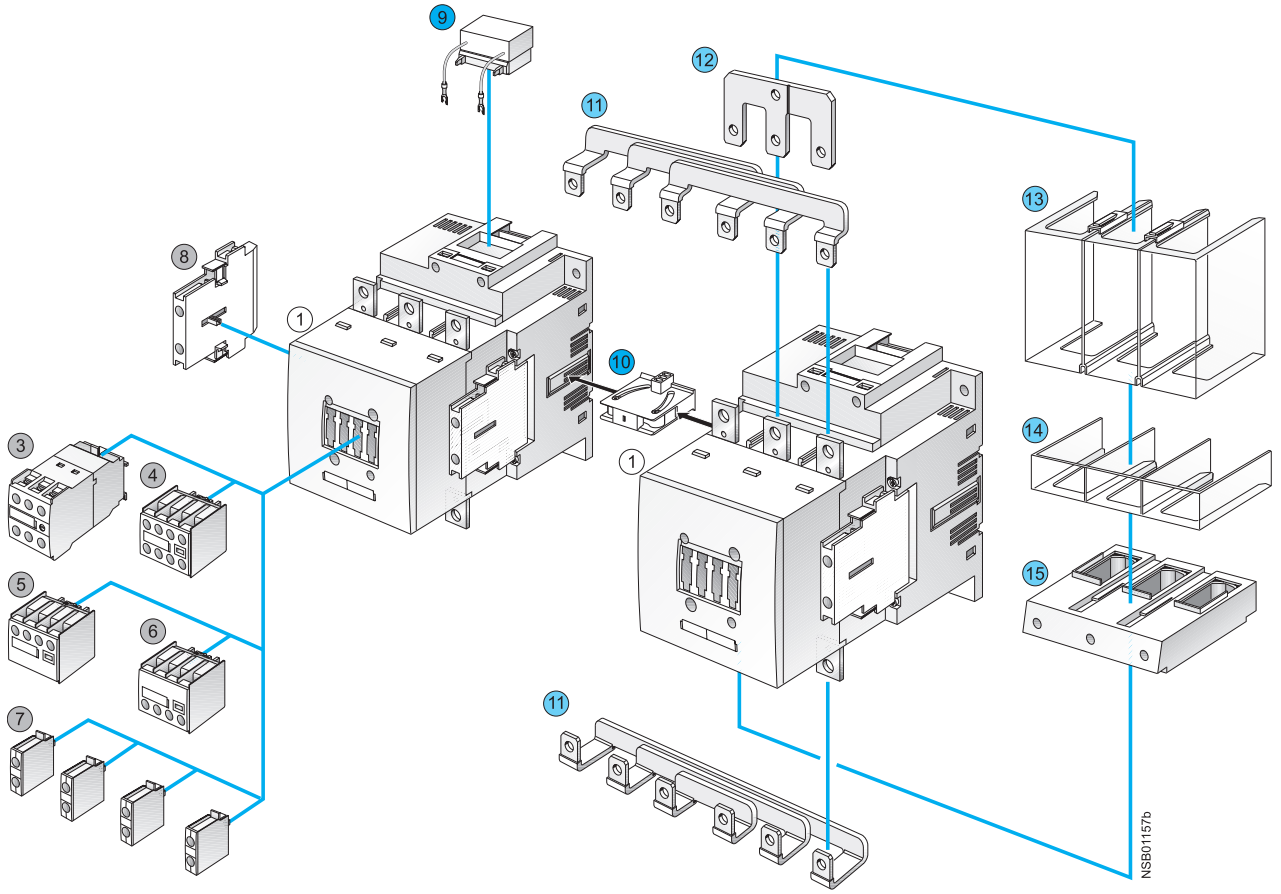
(22) Terminal cover for cable lug and busbar connection (page 2/52)
(23) Auxiliary conductor terminal, 3-pole (page 2/50)

Accessories identical for sizes S0 to S3
Accessories differ according to size

SIRIUS

3RT1 contactors, sizes S6 to S12

Overview



Contactors
Sizes S6 to S12 with accessories

(1) 3RT10 and 3RT14 air-break contactors, sizes S6, S10 and S12 (page 2/21)

(3) Auxiliary switch block, solid-state time-delay (page 2/45) (ON or OFF-delay or WYE-delta function)
(4) 4-pole auxiliary switch block (page 2/42) (terminal designations acc. to EN 50 012 or EN 50 005)
(5) 2-pole auxiliary switch block, cable entry from above (page 2/42)
(6) 2-pole auxiliary switch block, cable entry from below (page 2/42)
(7) Single-pole auxiliary switch block (up to 4 can be snapped on) (page 2/42)
(8) 2-pole auxiliary switch block, laterally mountable (left or right) (page 2/43) (terminal designations acc. to EN 50 012 or EN 50 005) (identical for S0 to S12)
(9) Surge suppressor (RC element) (page 2/48), for plugging into top of withdrawable coil
(10) Mechanical interlock, laterally mountable (page 2/70)
(11) Wiring connectors on the top and bottom (plugging) (page 2/71)
(12) Link for paralleling (WYE jumper), 3-pole, with through hole (page 2/81), different for sizes S6 and S10/S12
(13) Terminal cover for cable lug and bar connection (page 2/52), different for sizes S6 and S10/S12
(14) Terminal cover for box terminal (page 2/52), different for sizes S6 and S10/S12
(15) Box terminal block (page 2/52), different for sizes S6 and S10/S12

Accessories identical for sizes S0 to S12
Accessories identical for sizes S6 to S12
Accessories differ according to size

Selection and ordering data
AC operation

3RT10 1 . -1A . . .

3RT10 1 . -2A . . .

3RT10 2 . -1A . 00

3RT10 2 . -3A . 00

Horsepower ratings and utilization categories							Auxiliary contacts			Rated control supply voltage U_s	Screw connection	Cage Clamp connection	Weight approx.
AC-3 Maximum inductive current		Horsepower ratings[1] of three-phase motors				AC-1 Maximum resistive current	Ident. no.	Design			Order No.	Order No.	
Enclosed Amp Ratings		200 V	230 V	**460 V**	575 V								
AC3	UL	HP	HP	**HP**	HP	Amps		NO	NC	AC			
For screwing and snapping onto 35 mm standard mounting rail													
• Size S00 Terminal designations according to EN 50 012													
7	20	1.5	2	**3**	5	18	**10 E**	1	–	24 V, 50/60 Hz 120 V, 60 Hz 240 V, 60 Hz	**3RT10 15-1AB01** **3RT10 15-1AK61** **3RT10 15-1AP61**	**3RT10 15-2AB01** **3RT10 15-2AK61** **3RT10 15-2AP61**	
							01	–	1	24 V, 50/60 Hz 120 V, 60 Hz 240 V, 60 Hz	**3RT10 15-1AB02** **3RT10 15-1AK62** **3RT10 15-1AP62**	**3RT10 15-2AB02** **3RT10 15-2AK62** **3RT10 15-2AP62**	
9	20	2	3	**5**	7.5	22	**10 E**	1	–	24 V, 50/60 Hz 120 V, 60 Hz 240 V, 60 Hz	**3RT10 16-1AB01** **3RT10 16-1AK61** **3RT10 16-1AP61**	**3RT10 16-2AB01** **3RT10 16-2AK61** **3RT10 16-2AP61**	
							01	–	1	24 V, 50/60 Hz 120 V, 60 Hz 240 V, 60 Hz	**3RT10 16-1AB02** **3RT10 16-1AK62** **3RT10 16-1AP62**	**3RT10 16-2AB02** **3RT10 16-2AK62** **3RT10 16-2AP62**	
12	20	3	3	**7.5**	10	22	**10 E**	1	–	24 V, 50/60 Hz 120 V, 60 Hz 240 V, 60 Hz	**3RT10 17-1AB01** **3RT10 17-1AK61** **3RT10 17-1AP61**	**3RT10 17-2AB01** **3RT10 17-2AK61** **3RT10 17-2AP61**	
							01	–	1	24 V, 50/60 Hz 120 V, 60 Hz 240 V, 60 Hz	**3RT10 17-1AB02** **3RT10 17-1AK62** **3RT10 17-1AP62**	**3RT10 17-2AB02** **3RT10 17-2AK62** **3RT10 17-2AP62**	
• Size S0													
9	35	2	3	**5**	7.5	40	**–**	–	–	24 V, 50/60 Hz 120 V, 60 Hz 240 V, 60 Hz	**3RT10 23-1AC20** **3RT10 23-1AK60** **3RT10 23-1AP60**	**3RT10 23-3AC20** **3RT10 23-3AK60** **3RT10 23-3AP60**	
12	35	3	3	**7.5**	10	40	**–**	–	–	24 V, 50/60 Hz 120 V, 60 Hz 240 V, 60 Hz	**3RT10 24-1AC20** **3RT10 24-1AK60** **3RT10 24-1AP60**	**3RT10 24-3AC20** **3RT10 24-3AK60** **3RT10 24-3AP60**	
17	35	5	5	**10**	15	40	**–**	–	–	24 V, 50/60 Hz 120 V, 60 Hz 240 V, 60 Hz	**3RT10 25-1AC20** **3RT10 25-1AK60** **3RT10 25-1AP60**	**3RT10 25-3AC20** **3RT10 25-3AK60** **3RT10 25-3AP60**	
25	35	7.5	7.5	**15**	20	40	**–**	–	–	24 V, 50/60 Hz 120 V, 60 Hz 240 V, 60 Hz	**3RT10 26-1AC20** **3RT10 26-1AK60** **3RT10 26-1AP60**	**3RT10 26-3AC20** **3RT10 26-3AK60** **3RT10 26-3AP60**	

AC Coil Selection for 3RT101									
Coil Code	B0	H0	F0	K6	P0	P6	U6	V6	T6
50 Hz	24 V AC	48 V AC	110 V AC	110 V AC	230 V AC	220 V AC			
60 Hz	24 V AC	48 V AC	110 V AC	120 V AC	230 V AC	240 V AC	277 V AC	480 V AC	600 V AC

AC Coil Selection for 3RT102 through 3RT104									
Coil Code	C2	H2	G2	K6	L2	P6	U6	V6	T6
50 Hz	24 V AC	48 V AC	110 V AC	110 V AC	230 V AC	220 V AC			
60 Hz	24 V AC	48 V AC	110 V AC	120 V AC	230 V AC	240 V AC	277 V AC	480 V AC	600 V AC

3RT10 contactors, 3-pole

Selection and ordering data
AC operation


3RT10 3 . -1A . 00


3RT10 3 . -3A . 00


3RT10 4 . -1A . 00


3RT10 4 . -3A . 00

Horsepower ratings and utilization categories							Auxiliary contacts			Rated control supply voltage U_s	Screw connection	Cage Clamp connection for coil terminals	Weight approx.
AC-3 Maximum inductive		Horsepower ratings[1] of three-phase motors				AC-1 Maximum resistive current	Ident. no.	Design			Order No.	Order No.	
Enclosed Amp Ratings		200 V	230 V	**460 V**	575 V								
AC3	UL	HP	HP	**HP**	HP	Amps		NO	NC	AC			
For screwing and snapping onto 35 mm standard mounting rail													
• Size S2													
28	35	7.5	10	**20**	25	35	–	–	–	24 V, 50/60 Hz 120 V, 60 Hz 240 V, 60 Hz	**3RT10 33-1A C20** **3RT10 33-1A K60** **3RT10 33-1A P60**	**3RT10 33-3AC20** **3RT10 33-3AK60** **3RT10 33-3AP60**	
32	45	10	10	**25**	30	50	–	–	–	24 V, 50/60 Hz 120 V, 60 Hz 240 V, 60 Hz	**3RT10 34-1A C20** **3RT10 34-1A K60** **3RT10 34-1A P60**	**3RT10 34-3AC20** **3RT10 34-3AK60** **3RT10 34-3AP60**	
40	50	10	15	**30**	40	50	–	–	–	24 V, 50/60 Hz 120 V, 60 Hz 240 V, 60 Hz	**3RT10 35-1A C20** **3RT10 35-1A K60** **3RT10 35-1A P60**	**3RT10 35-3AC20** **3RT10 35-3AK60** **3RT10 35-3AP60**	
50	50	15	15	**40**	50	60	–	–	–	24 V, 50/60 Hz 120 V, 60 Hz 240 V, 60 Hz	**3RT10 36-1A C20** **3RT10 36-1A K60** **3RT10 36-1A P60**	**3RT10 36-3AC20** **3RT10 36-3AK60** **3RT10 36-3AP60**	
• Size S3													
65	90	20	25	**50**	60	100	–	–	–	24 V, 50/60 Hz 120 V, 60 Hz 240 V, 60 Hz	**3RT10 44-1A C20** **3RT10 44-1A K60** **3RT10 44-1A P60**	**3RT10 44-3AC20** **3RT10 44-3AK60** **3RT10 44-3AP60**	
80	105	25	30	**60**	75	120	–	–	–	24 V, 50/60 Hz 120 V, 60 Hz 240 V, 60 Hz	**3RT10 45-1A C20** **3RT10 45-1A K60** **3RT10 45-1A P60**	**3RT10 45-3AC20** **3RT10 45-3AK60** **3RT10 45-3AP60**	
95	105	30	30	**75**	100	120	–	–	–	24 V, 50/60 Hz 120 V, 60 Hz 240 V, 60 Hz	**3RT10 46-1A C20** **3RT10 46-1A K60** **3RT10 46-1A P60**	**3RT10 46-3AC20** **3RT10 46-3AK60** **3RT10 46-3AP60**	

AC Coil Selection for 3RT102 through 3RT104									
Coil Code	C2	H2	G2	K6	L2	P6	U6	V6	T6
50 Hz	24 V AC	48 V AC	110 V AC	110 V AC	230 V AC	220 V AC			
60 Hz	24 V AC	48 V AC	110 V AC	120 V AC	230 V AC	240 V AC	277 V AC	480 V AC	600 V AC

Selection and ordering data

- **AC/DC operation** (40 Hz ... 60 Hz, DC)
- **Withdrawable coils**
- **Integrated coil circuit** (varistor)
- **Auxiliary and control conductors: screw connections**
- **Main conductor: bar connections, terminal kits found on page 2/55**

3RT10 5 (shown with 3RT1956-4G installed)

3RT10 6.

3RT10 7

Size	Horsepower ratings and utilization categories						Auxiliary contacts, lateral (side) mounted		Rated control supply voltage U_s	Order No.
	AC-3 Maximum inductive current	UL horsepower ratings of three-phase motors				AC-1 Maximum resistive current				
		200 V	230 V	**460 V**	575 V					
	Amps	HP	HP	**HP**	HP	Amps	NO	NC	AC/DC V	
Conventional operating mechanism										
S6	115	40	50	**100**	125	160	2	2	110 ... 127 220 ... 240	**3RT10 54-6AF36** **3RT10 54-6AP36**
	150	50	60	**125**	150	185	2	2	110 ... 127 220 ... 240	**3RT10 55-6AF36** **3RT10 55-6AP36**
	185	60	75	**150**	200	215	2	2	110 ... 127 220 ... 240	**3RT10 56-6AF36** **3RT10 56-6AP36**
S10	225	60	75	**150**	200	275	2	2	110 ... 127 220 ... 240	**3RT10 64-6AF36** **3RT10 64-6AP36**
	265	75	100	**200**	250	330	2	2	110 ... 127 220 ... 240	**3RT10 65-6AF36** **3RT10 65-6AP36**
	300	100	125	**250**	300	330	2	2	110 ... 127 220 ... 240	**3RT10 66-6AF36** **3RT10 66-6AP36**
S12	400	125	150	**300**	400	430	2	2	110 ... 127 220 ... 240	**3RT10 75-6AF36** **3RT10 75-6AP36**
	500	150	200	**400**	500	610	2	2	110 ... 127 220 ... 240	**3RT10 76-6AF36** **3RT10 76-6AP36**
Solid-state operating mechanism · for DC 24 V PLC output										
S6	115	40	50	**100**	125	160	2	2	96 ... 127 200 ... 277	**3RT10 54-6NF36** **3RT10 54-6NP36**
	150	50	60	**125**	150	185	2	2	96 ... 127 200 ... 277	**3RT10 55-6NF36** **3RT10 55-6NP36**
	185	60	75	**150**	200	215	2	2	96 ... 127 200 ... 277	**3RT10 56-6NF36** **3RT10 56-6NP36**
S10	225	60	75	**150**	200	275	2	2	96 ... 127 200 ... 277	**3RT10 64-6NF36** **3RT10 64-6NP36**
	265	75	100	**200**	250	330	2	2	96 ... 127 200 ... 277	**3RT10 65-6NF36** **3RT10 65-6NP36**
	300	100	125	**250**	300	330	2	2	96 ... 127 200 ... 277	**3RT10 66-6NF36** **3RT10 66-6NP36**
S12	400	125	150	**300**	400	430	2	2	96 ... 127 200 ... 277	**3RT10 75-6NF36** **3RT10 75-6NP36**
	500	150	200	**400**	500	610	2	2	96 ... 127 200 ... 277	**3RT10 76-6NF36** **3RT10 76-6NP36**

Universal Coil Selection for 3RT105 through 3RT107: Conventional Operation

Coil Code	B3	D3	F3	M3	P3	U3	V3	R3	S3	T3
Volts AC/DC 40 - 60 Hz, DC	23 .. 26 V	42 .. 48 V	110 .. 127 V	200 .. 220 V	220 .. 240 V	240 .. 277 V	380 .. 420 V	440 .. 480 V	500 .. 500 V	575 .. 600 V

Universal Coil Selection for 3RT105 through 3RT107: Solid-State

Coil Code	B3	F3	P3
Volts AC/DC 40 - 60 Hz, DC	21 .. 27.3 V	96 .. 127 V	200 .. 227 V

3RT10 contactors, 3-pole

Selection and ordering data

- **AC/DC operation** (40 Hz ... 60 Hz, DC)
- **Withdrawable coils**
- **Integrated coil circuit** (varistor)
- **Auxiliary and control conductors: screw connections**
- **Main conductor: bar connections, for 3RT10 54 (55 kW) box terminals** [1]) (see page 2/25)

3RT10 56

3RT10 56

Size	Horsepower ratings and utilization categories						Auxiliary contacts, lateral (side) mounted		Rated control supply voltage U_s	Order No.
	AC-3 Maximum inductive current	UL horsepower ratings of three-phase motors 200 V	230 V	**460 V**	575 V	AC-1 Maximum resistive current				
	Amps	HP	**HP**	**HP**	HP	Amps	NO	NC	AC/DC V	
Solid-state operating mechanism · for DC 24 V PLC output/PLC relay output, with remaining lifetime indication										
S6	115	40	50	**100**	125	160	1	1	96 ... 127 200 ... 277	**3RT10 54-6PF35** **3RT10 54-6PP35**
	150	50	60	**125**	150	185	1	1	96 ... 127 200 ... 277	**3RT10 55-6PF35** **3RT10 55-6PP35**
	185	60	75	**150**	200	215	1	1	96 ... 127 200 ... 277	**3RT10 56-6PF35** **3RT10 56-6PP35**
S10	225	60	75	**150**	200	275	1	1	96 ... 127 200 ... 277	**3RT10 64-6PF35** **3RT10 64-6PP35**
	265	75	100	**200**	250	330	1	1	96 ... 127 200 ... 277	**3RT10 65-6PF35** **3RT10 65-6PP35**
	300	100	125	**250**	300	330	1	1	96 ... 127 200 ... 277	**3RT10 66-6PF35** **3RT10 66-6PP35**
S12	400	125	150	**300**	400	430	1	1	96 ... 127 200 ... 277	**3RT10 75-6PF35** **3RT10 75-6PP35**
	500	150	200	**400**	500	610	1	1	96 ... 127 200 ... 277	**3RT10 76-6PF35** **3RT10 76-6PP35**
Solid-state operating mechanism · with AS-Interface and remaining lifetime indication										
S6	115	40	50	**100**	125	160	1	1	96 ... 127 200 ... 277	**3RT10 54-6QF35** **3RT10 54-6QP35**
	150	50	60	**125**	150	185	1	1	96 ... 127 200 ... 277	**3RT10 55-6QF35** **3RT10 55-6QP35**
	185	60	75	**150**	200	215	1	1	96 ... 127 200 ... 277	**3RT10 56-6QF35** **3RT10 56-6QP35**
S10	225	60	75	**150**	200	275	1	1	96 ... 127 200 ... 277	**3RT10 64-6QF35** **3RT10 64-6QP35**
	265	75	100	**200**	250	330	1	1	96 ... 127 200 ... 277	**3RT10 65-6QF35** **3RT10 65-6QP35**
	300	100	125	**250**	300	330	1	1	96 ... 127 200 ... 277	**3RT10 66-6QF35** **3RT10 66-6QP35**
S12	400	125	150	**300**	400	430	1	1	96 ... 127 200 ... 277	**3RT10 75-6QF35** **3RT10 75-6QP35**
	500	150	200	**400**	500	610	1	1	96 ... 127 200 ... 277	**3RT10 76-6QF35** **3RT10 76-6QP35**

Universal Coil Selection for 3RT105 through 3RT107: Solid-State			
Coil Code	B3	F3	P3
Volts AC/DC 40 - 60 Hz, DC	21 .. 27.3 V	96 .. 127 V	200 .. 227 V

Note: B3 code not available for the ASI Interface or Remaining Lifetime Contactors.

Description

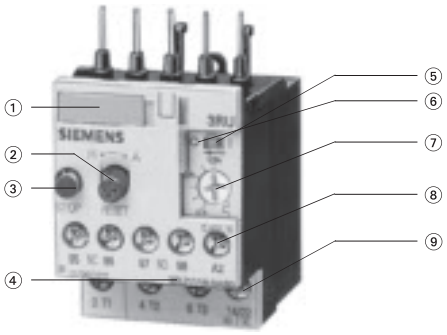
The 3RU11 thermal overload relays up to 100 A are designed for current-dependent protection of applications with normal start-up conditions (see "Trip classes") against impermissibly high rises in temperature as a result of overload or phase failure (see "Phase failure protection"). An overload or phase failure causes the motor current to rise above the set rated motor current (see "Setting"). This current rise heats up the bimetal strips within the relay via heating elements which, in turn, operate the auxiliary contacts via a tripping mechanism due to their deflection (see "Auxiliary contacts"). These switch the load off via a contactor. The switch-off time is dependent on the ratio of tripping current to operational current I_e and is stored in the form of a tripping characteristic with long-term stability (see "Tripping characteristics"). The "Tripped" state is signalled by means of a switching position indicator (see "Indication of status").

Resetting takes place manually or automatically (see "Manual and automatic resetting") after a recovery time has elapsed (see "Recovery time").

The 3RU11 thermal overload relays are electrically and mechanically optimised to the 3RT1 contactors such that, in addition to individual mounting, they can also be directly mounted onto the contactors to save space (see "Design and mounting"). The main and auxiliary circuits can be connected in various ways (see "Connection"), including the use of Cage Clamp terminals. When the overload relay has been connected, it can be tested for correct functioning using a TEST slide (see "TEST function"). In addition to the TEST function, the 3RU11 thermal overload relay is equipped with a STOP function (see "STOP function").

For a wide variety of application possibilities for the 3RU11 thermal overload relay, please refer to the sections "Application", "Ambient conditions", "Overload relays in WYE-delta combinations" and "Operation with frequency converters".

3RU11 overload relay



1. Equipment designation label
2. Manual/automatic RESET selector switch
3. STOP button
4. Complete order number on the front of the device
5. Switching position indication and TEST function
6. Transparent cover, sealable (secures adjuster knob for rated motor current, TEST function and Manual/Automatic RESET setting)
7. Adjuster knob for rated motor current
8. Repeat coil terminal (for mounting onto contactors)
9. Auxiliary switch repeat terminal (for mounting onto contactors)

The 3RU11 thermal overload relays can protect your loads from overload and phase failure. You must implement short-circuit protection (see "Short-circuit protection") by means of a fuse or circuit-breaker.

The 3RU11 thermal overload relays are environmentally friendly (see "Environmental considerations") and comply with all the main international standards and approvals (see "Specifications" and "Increased safety type of protection EEx").

The accessories for the 3RU11 thermal overload relays have been designed on the principle that all requirements are covered by a small number of variants.

Application

The 3RU11 thermal overload relays are designed for the protection of three-phase and single-phase AC and DC motors.

If single-phase AC or DC loads are to be protected using 3RU11 thermal overload relays, all three bimetal strips should be heated. Therefore all main circuits of the relay must be connected in series.

Overload relays in WYE-delta combinations

When overload relays are used in WYE-delta combinations, it is important to note that only $1/\sqrt{3}$ of the motor current flows through the mains contactor. An overload relay mounted on the main contactor must be set to 0.58 times the motor current.

A second overload relay must be mounted on the star contactor if your load is also to be optimally protected in WYE operation. The WYE current is 1/3 of the rated motor current. The relevant relay must be set to this current.

Control circuit

An additional power supply is not required for operation of the 3RU11 thermal overload relays.

Ambient conditions

The 3RU11 thermal overload relays are temperature compensating according to IEC 60 947-4-1/DIN VDE 0660 Part 102 in the temperature range –20 °C to +60 °C. For temperatures from +60 °C to +80 °C, the upper setting value of the setting range must be reduced by a specific factor as given in the table below.

Ambient temperature in °C	Reduction factor for the upper setting value
+60	1.0
+65	0.94
+70	0.87
+75	0.81
+80	0.73

Trip classes

The 3RU11 thermal overload relay is available for normal start-up conditions in CLASS 10. For further details about trip classes, see "Tripping characteristics".

Tripping characteristics

The tripping characteristics show the relationship between the tripping time and the tripping current as a multiple of the operational current I_e and are specified for symmetrical three-pole and two-pole loading from cold.

The smallest current at which tripping occurs is called the limiting tripping current. In accordance with IEC 60 947-4-1/DIN VDE 0660 Part 102, this must lie within certain specified limits. The limits of the limiting tripping current lie, in the case of the 3RU11 thermal overload relay for symmetrical three-pole loading between 105 % and 120 % of the operational current.

Starting from the limiting tripping current, the tripping characteristic moves on to larger tripping currents based on the characteristics of the so-called trip classes (CLASS 10, CLASS 20 etc.). The trip classes describe time-intervals within which the overload relay must trip with 7.2 times the operational current I_e for symmetrical three-pole loading from cold.

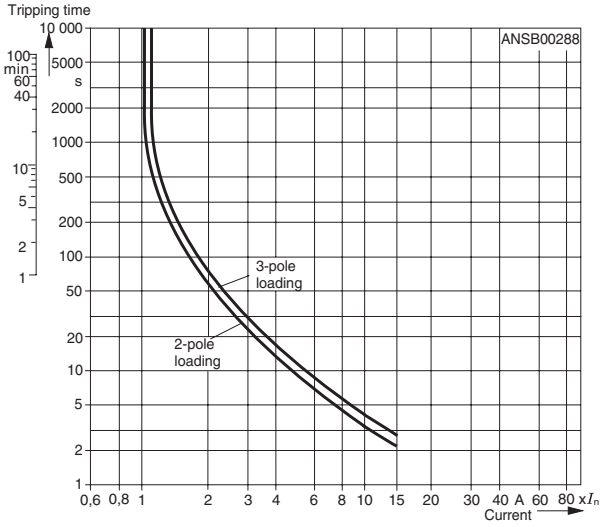
The tripping times are:

CLASS	Tripping times
10A	2 s to 10 s
10	4 s to 10 s
20	6 s to 20 s
30	9 s to 30 s

3RU11 up to 100 A, CLASS 10

Description

This is the schematic representation of a characteristic. The characteristics of the individual 3RU11 thermal overload relays can be requested from Technical Assistance at the e-mail address: nst.technical-assistance@siemens.de



The tripping characteristic of a three-pole 3RU11 thermal overload relay (see characteristic for symmetrical three-pole loading from cold) is valid when all three bimetal strips are loaded with the same current simultaneously. If, however, only two bimetal strips are heated as a result of phase failure, these two strips would have to provide the force necessary for operating the release mechanism and, if no additional measures were implemented, they would require a longer tripping time or a higher current. These increased current levels over long periods usually result in damage to the consumer. To prevent damage, the 3RU11 thermal overload relay features phase failure sensitivity which, thanks to an appropriate mechanical mechanism, results in accelerated tripping according to the characteristic for two-pole loading from cold.

In contrast to a load in the cold state, a load at operating temperature has a lower heat reserve. This fact affects the 3RU11 thermal overload relay in that following an extended period of loading at operational current I_e, the tripping time reduces by about a quarter.

Phase failure protection

The 3RU11 thermal overload relays feature phase failure protection (see "Tripping characteristics") for the purpose of minimizing the heating of the load during single-phase operation as a result of phase failure.

Setting

The 3RU11 thermal overload relay is adjusted to the rated motor current using a rotary knob. The scale of the rotary knob is calibrated in Amperes.

Manual and automatic resetting

It is possible to switch between manual resetting and automatic resetting by depressing and rotating the blue button (RESET button). When manual resetting is selected, a reset can be performed directly on the device by pressing the RESET button. Remote resetting can be implemented by using the mechanical and electrical RESET modules from the range of accessories (see "Accessories"). When the blue button is set to Automatic RESET, the relay will be reset automatically.

A reset is not possible until the recovery time has elapsed (see "Recovery time").

Recovery time

After tripping due to an overload, it takes a certain length of time for the bimetal strips of the 3RU11 thermal overload relays to cool down. The relay can only be reset once it has cooled down. This time (recovery time) is dependent on the tripping characteristic and the level of the tripping current.

After tripping due to overload, the recovery time allows the load to cool down.

TEST function

Correct functioning of the ready 3RU11 thermal overload relay can be tested with the TEST slide. The slide is operated to simulate tripping of the relay. During this simulation, the NC contact (95-96) is opened and the NO contact (97-98) is closed whereby the overload relay checks that the auxiliary circuit is wired correctly. When the 3RU11 thermal overload relay is set to Automatic RESET, an automatic reset takes place when the TEST slide is released. The relay must be reset using the RESET button when it is set to Manual RESET.

STOP function

When the STOP button is pressed, the NC contact is opened and the series-connected contactor and therefore the load is switched Off. The load is reconnected via the contactor when the STOP button is released.

Status indication

The current status of the 3RU11 thermal overload relay is indicated by the position of the marking on the "TEST function/switching position indicator" slide. The marking on the slide is on the left at the "O" mark following a trip due to overload or phase failure and at the "I" mark otherwise.

Auxiliary contacts

The 3RU11 thermal overload relay is equipped with an NO contact for the tripped signal and an NC contact for switching off the contactor.

Connection

All the 3RU11 thermal overload relays have screw terminals for the main and auxiliary circuits. Once the box terminals have been removed from the main conductor connections of the overload relays of size S3, it is possible to connect busbars.

Alternatively the devices are available with Cage Clamp terminals. In these devices, the auxiliary conductor connections and, in the case of size S00, the main conductor connections are Cage Clamp terminals. For details of the various connection possibilities, see the "Technical data" and "Selection and ordering data".

Design and mounting

The 3RU11 thermal overload relays are suitable for direct mounting on the 3RT1 contactors. They can also be mounted as single units if the appropriate adapters are used. For details of the mounting possibilities, see the "Selection and ordering data" and the "Technical data".

Operation with frequency converters

The 3RU11 thermal overload relays are suitable for operation with frequency converters. Depending on the frequency of the converter, a current higher than the motor current may have to be set due to the occurrence of eddy currents and skin effects.

Environmental considerations

The devices are manufactured taking environmental considerations into account and comprise environmentally-friendly and recyclable materials.

Specifications

The 3RU11 thermal overload relays comply with the requirements of:

- IEC 60 947-1/ DIN VDE 0660 Part 100
- IEC 60 947-4-1/ DIN VDE 0660 Part 102
- IEC 60 947-5-1/ DIN VDE 0660 Part 200
- IEC 60801-2, -3, -4, -5 and
- UL 508/CSA C 22.2.

The 3RU11 thermal overload relays are also safe from touch according to DIN VDE 0106 Part 100 and climate-proof to IEC 721.

Degree of protection "Increased safety" EEx

The 3RU11 thermal overload relay meets the requirements for overload protection of motors of the "Increased safety" type of protection EEx e IEC 50 019/ DIN VDE 0165, DIN VDE 0170, DIN VDE 171.
KEMA test certificate number Ex-97.Y.3235,
DMT 98 ATEX G001,
EN 50 019: 1977 + A1 ... A5,
Increased Safety "e": Appendix A, Guideline for temperature monitoring of squirrel cage motors during operation.

Accessories

For the 3RU11 thermal overload relay, there are:

- one adapter for each of the four overload relay sizes S00 to S3 for individual mounting
- one electrical remote RESET module for all sizes in three different voltage variants
- one mechanical remote RESET module for all sizes
- one cable release for all sizes for resetting inaccessible devices
- terminal covers

The accessories can also be used for the 3RB20 overload relay.

Selection and ordering data

3RU11 thermal overload relays with screw-type terminals for mounting onto contactor [1], CLASS 10

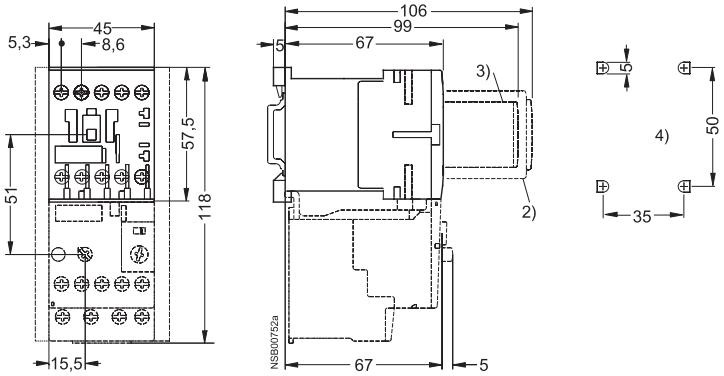
Features and technical characteristics
- Auxiliary contacts: 1 NO + 1 NC
- Manual/automatic RESET
- Switching position indication
- TEST function
- STOP button
- Phase failure sensitivity
- Integrated, sealable cover
- CLASS 10

	For 3RT1 contactor	Setting range	for mounting onto contactor [1]
	Size	A	Order No.
Size S00			
3RU11 16-..B0 	S00 (3RT101)	0.11 – 0.16	**3RU11 16-0AB0**
		0.14 – 0.2	**3RU11 16-0BB0**
		0.18 – 0.25	**3RU11 16-0CB0**
		0.22 – 0.32	**3RU11 16-0DB0**
		0.28 – 0.4	**3RU11 16-0EB0**
		0.35 – 0.5	**3RU11 16-0FB0**
		0.45 – 0.63	**3RU11 16-0GB0**
		0.55 – 0.8	**3RU11 16-0HB0**
		0.7 – 1	**3RU11 16-0JB0**
		0.9 – 1.25	**3RU11 16-0KB0**
		1.1 – 1.6	**3RU11 16-1AB0**
		1.4 – 2	**3RU11 16-1BB0**
		1.8 – 2.5	**3RU11 16-1CB0**
		2.2 – 3.2	**3RU11 16-1DB0**
		2.8 – 4	**3RU11 16-1EB0**
		3,5 – 5	**3RU11 16-1FB0**
		4.5 – 6.3	**3RU11 16-1GB0**
		5.5 – 8	**3RU11 16-1HB0**
		7 – 10	**3RU11 16-1JB0**
		9 – 12	**3RU11 16-1KB0**
Size S0			
3RU11 26-..B0 	S0 (3RT102)	1.8 – 2.5	**3RU11 26-1CB0**
		2.2 – 3.2	**3RU11 26-1DB0**
		2.8 – 4	**3RU11 26-1EB0**
		3.5 – 5	**3RU11 26-1FB0**
		4.5 – 6.3	**3RU11 26-1GB0**
		5.5 – 8	**3RU11 26-1HB0**
		7 – 10	**3RU11 26-1JB0**
		9 – 12.5	**3RU11 26-1KB0**
		11 – 16	**3RU11 26-4AB0**
		14 – 20	**3RU11 26-4BB0**
		17 – 22	**3RU11 26-4CB0**
		20 – 25	**3RU11 26-4DB0**
Size S2			
3RU11 36-..B0 	S2 (3RT103)	5.5 – 8	**3RU11 36-1HB0**
		7 – 10	**3RU11 36-1JB0**
		9 – 12.5	**3RU11 36-1KB0**
		11 – 16	**3RU11 36-4AB0**
		14 – 20	**3RU11 36-4BB0**
		18 – 25	**3RU11 36-4DB0**
		22 – 32	**3RU11 36-4EB0**
		28 – 40	**3RU11 36-4FB0**
		36 – 45	**3RU11 36-4GB0**
		40 – 50	**3RU11 36-4HB0**
Size S3			
3RU11 46-..B0 	S3 (3RT104)	18 – 25	**3RU11 46-4DB0**
		22 – 32	**3RU11 46-4EB0**
		28 – 40	**3RU11 46-4FB0**
		36 – 50	**3RU11 46-4HB0**
		45 – 63	**3RU11 46-4JB0**
		57 – 75	**3RU11 46-4KB0**
		70 – 90	**3RU11 46-4LB0**
		80 – 100 [2]	**3RU11 46-4MB0**

1) The 3RU11 overload relays can also be panel mounted using the appropriate adapters (see Accessories).
2) Overload relay > 100 A, see 3RB20 or 3RB21 or 3RB22 or 3RB23.

Dimension drawings

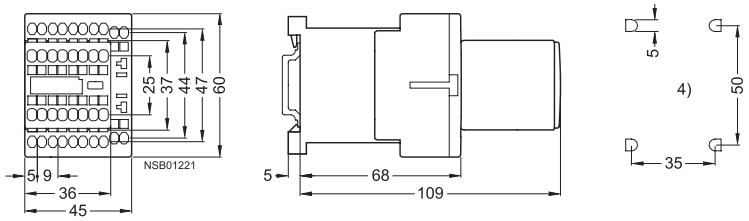
3RT10 1 contactors
Size S00, screw connection
with surge suppressor, auxiliary switch block and mounted overload relay



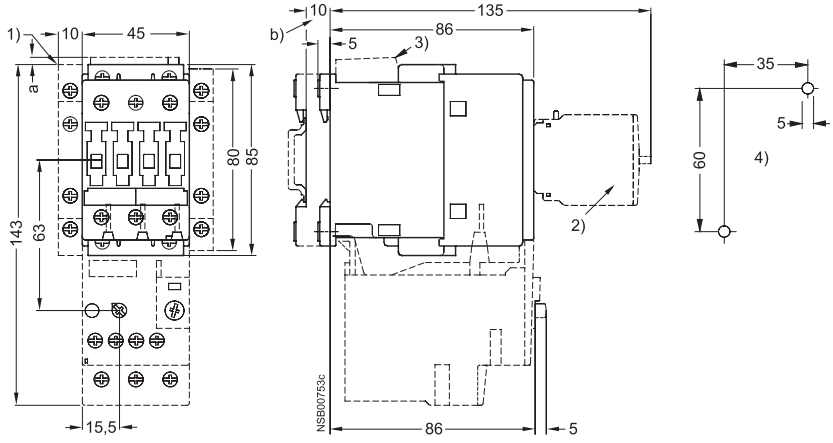
Lateral clearance from earthed parts = 6 mm

2) Auxiliary switch block (also 3RH19 11- . NF . . solid-state compatible design)
3) Surge suppressor (also 3RT19 16-1GA00 additional load module)
4) Drilling pattern

3RT10 1 contactors
Size S00, Cage Clamp connection
with auxiliary switch block



3RT10 2 contactors, 3RT10 2 coupling relays
Size S0, screw connection
with surge suppressor, auxiliary switch blocks and mounted overload relay



For size S0:
a = 3 mm at < 240 V
a = 7 mm at > 240 V
b = DC 10 mm deeper than AC

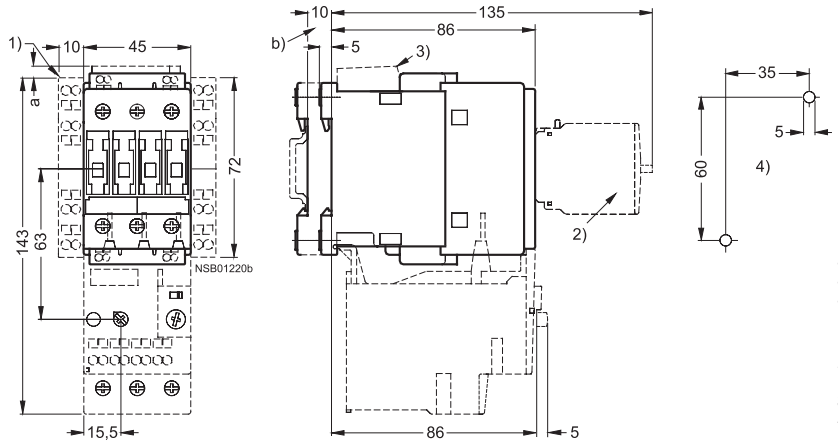
1) Auxiliary switch block, laterally mountable
2) Auxiliary switch block, mountable on the front, 1, 2 and 4-pole (also 3RH19 21- . FE22 solid-state compatible design)
3) Surge suppressor
4) Drilling pattern

SIRIUS

3RT10 contactors, 3-pole

Dimension drawings

3RT10 2 contactors, 3RT10 2 coupling relays
Size S0, Cage Clamp connection
with surge suppressor, auxiliary switch blocks and mounted overload relay

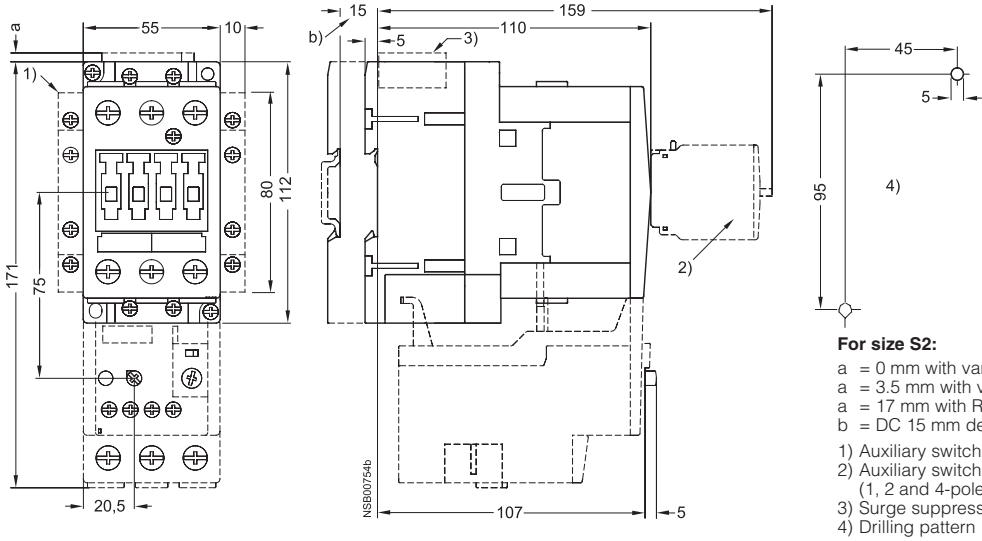


For size S0:

a = 0 mm with varistor < 240 V, diode assembly
a = 3.5 mm with varistor > 240 V
a = 17 mm with RC element
b = DC 15 mm deeper than AC

1) Auxiliary switch block, laterally mountable
2) Auxiliary switch block, mountable on the front (1, 2 and 4-pole)
3) Surge suppressor
4) Drilling pattern

3RT10 3 contactors
Size S2, screw connection
with surge suppressor, auxiliary switch blocks and mounted overload relay



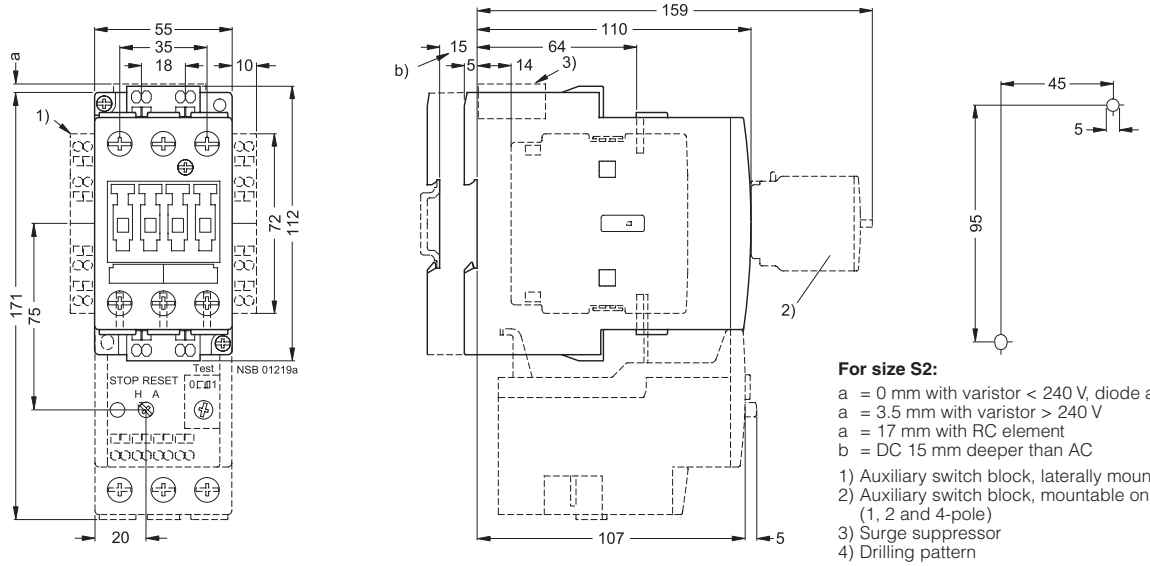
For size S2:

a = 0 mm with varistor < 240 V, diode assembly
a = 3.5 mm with varistor > 240 V
a = 17 mm with RC element
b = DC 15 mm deeper than AC

1) Auxiliary switch block, laterally mountable
2) Auxiliary switch block, mountable on the front (1, 2 and 4-pole)
3) Surge suppressor
4) Drilling pattern

Dimension drawings

3RT10 3 contactors
Size S2, Cage Clamp connection
with surge suppressor, auxiliary switch blocks and mounted overload relay



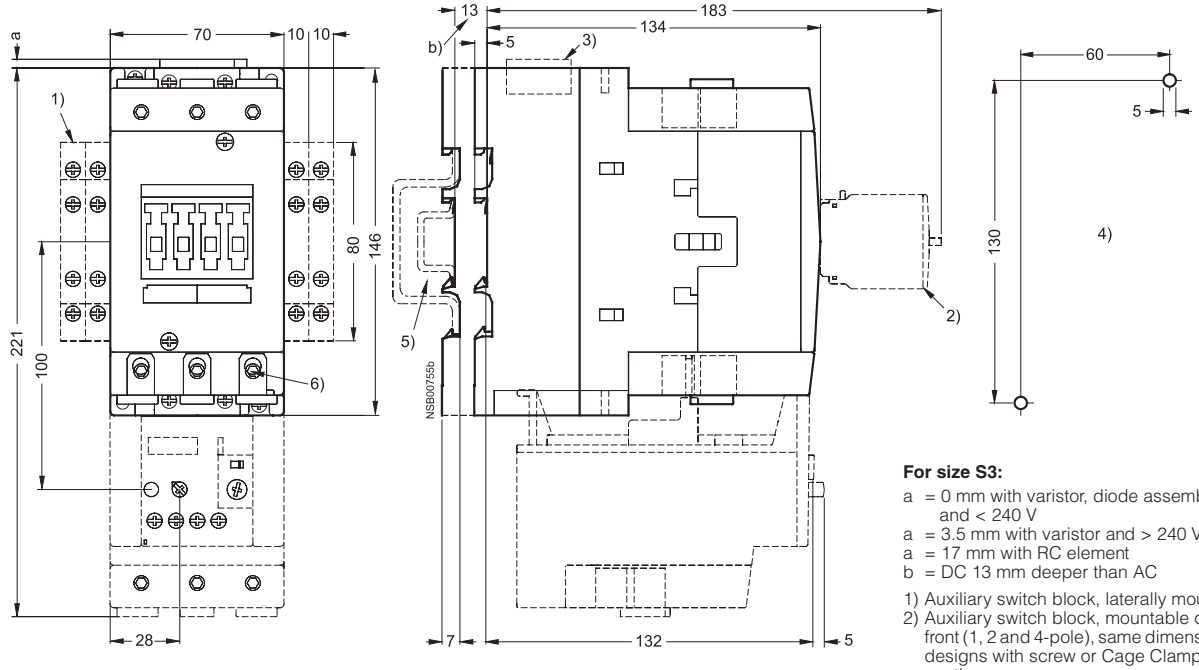
For size S2:

a = 0 mm with varistor < 240 V, diode assembly
a = 3.5 mm with varistor > 240 V
a = 17 mm with RC element
b = DC 15 mm deeper than AC

1) Auxiliary switch block, laterally mountable
2) Auxiliary switch block, mountable on the front (1, 2 and 4-pole)
3) Surge suppressor
4) Drilling pattern

3RT10 4, 3RT14 46 contactors
Size S3, screw connection
with surge suppressor, auxiliary switch blocks and mounted overload relay

Lateral clearance from earthed parts = 6 mm



For size S3:

a = 0 mm with varistor, diode assembly and < 240 V
a = 3.5 mm with varistor and > 240 V
a = 17 mm with RC element
b = DC 13 mm deeper than AC

1) Auxiliary switch block, laterally mountable
2) Auxiliary switch block, mountable on the front (1, 2 and 4-pole), same dimensions for designs with screw or Cage Clamp connection
3) Surge suppressor
4) Drilling pattern
5) For mounting on 35 mm standard mounting rail (15 mm deep) acc. to EN 50 022 or 75 mm standard mounting rail acc. to EN 50 023
6) Hexagon socket screw 4 mm