

Protection Equipment



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Protection Equipment



3RV10 3RV11 3RV13 3RV14 3RV16 3RV16 3RV17 3RV18

Breakers/motor starter protectors up to 100 A

	✓ ¹⁾	✓ ¹⁾	--	--	--	--	✓	✓
	✓	--	--	--	--	--	--	--
with function	--	✓	--	--	--	--	--	--
ons	--	--	✓	--	--	--	--	--
ction	--	--	--	✓	--	--	✓	✓
	--	--	--	--	✓	--	--	--
er	--	--	--	--	--	✓	--	--
ction								
	S00, S0, S2, S3	S0, S2, S3	S0, S2, S3	S0, S2	S00	S00	S0, S3	S0
A	to 12	--	--	--	0.2	to 3	--	--
A	to 25	to 25	to 25	to 20	--	--	to 22	to 20
A	to 50	to 50	to 50	to 40	--	--	--	--
A	to 100	to 100	to 100	--	--	--	to 70	--
Rated voltage	V 690 AC ²⁾	690 AC ²⁾	690 AC ²⁾	690 AC ²⁾	690 AC ²⁾	400 AC	690 AC	690 AC
	Hz 50/60	50/60	50/60	50/60	50/60	16 ² / ₃ ... 60	50/60	50/60
	CLASS 10 CLASS 20	CLASS 10	--	CLASS 10	--	--	--	--
A	0.11 ... 0.16	0.11 ... 0.16	None ³⁾	0.11 ... 0.16	0.2	1.4 ... 3	0.16 ... 70	0.16 ... 20
A	to 80 ... 100	to 80 ... 100		to 28 ... 40			non-adjustable	non-adjustable
Rated current	13 times	13 times	13 times	20 times	6 times	4 ... 7 times	13 times	20 times
Breaking capacity 10 V AC	kA 50/100	50/100	50/100	50/100	100	50	4) 13 times	4) 20 times

	S00 S0 S2 S3	S0 S2 S3	S0 S2 S3	S0 S2	S00	S00	S0, S3	S0
	✓ ✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓	✓	✓	✓ ⁵⁾	✓ ⁵⁾
	-- ✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓	--	--	--	--
units	✓ ✓ ✓ ✓	-- -- --	✓ ✓ ✓	✓ ✓	✓	✓	✓	✓
	✓ ✓ ✓ ✓	-- -- --	✓ ✓ ✓	✓ ✓	✓	✓	✓	✓
phase	✓ ✓ ✓ --	✓ ✓ --	✓ ✓ --	✓ ✓	✓	✓	--	--
	✓ ✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓	✓	✓	--	--
ary	-- ✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓	--	--	✓	✓

Protection Equipment

Introduction



3RV10

3RV13

Case motor starter protectors up to 800 A

Options	✓			--					
Switching capacity	Standard switching capacity			Standard switching capacity				Increased switching capacity	
	3RV10 63	3RV10 73	3RV10 83	3RV13 53	3RV13 63	3RV13 73	3RV13 83	3RV13 64	3RV13 74
Rated current A	100, 160, 200	400	630	1 ... 32	100, 160, 250	400, 630	630, 800	100, 160, 250	400
Rated voltage V	690 AC			690 AC					
	50/60			50/60					
	CLASS 10A CLASS 10 CLASS 20 CLASS 30			..1)					
Rated current A	40 ... 100 to 252 ... 630			None ¹⁾					
Rated breaking capacity	Adjustable, 6 ... 13 times			Non-adjustable 1 A ... 12.5 A: 13 times; adjustable 20 A, 32 A: 6 ... 12 times		1 ... 10 times			
Rated breaking capacity 10 V AC	120	120	100	85	120	120	100	200	200
	TU 4			TU 1: 1 A ... 12.5 A; TU 2: 20 A, 32 A		TU 3			

motor	3RV10 63	3RV10 73	3RV10 83	3RV13 53	3RV13 63	3RV13 73	3RV13 83	3RV13 64	3RV13 74
units	✓	✓	✓	✓	✓	✓	✓	✓	✓
	✓	✓	✓	✓	✓	✓	✓	✓	✓
	✓	✓	✓	✓	✓	✓	✓	✓	✓
boards terminals	✓	✓	--	✓	✓	✓	--	✓	✓

Protection Equipment



3RU11

3RB20

3RB21

3RB22/3RB23

		3RU11				3RB20				3RB21				3RB22/3RB23			
Rated current I_n up to 630 A		✓ ¹⁾				✓ ¹⁾				✓ ¹⁾				✓ ¹⁾			
Three-phase		✓				✓				✓				✓			
Single-phase		✓				--				--				✓			
Rated current I_e		S00, S0, S2, S3				S00 ... S12				S00 ... S12				S00 ... S12			
A Up to 12		Up to 12				Up to 12				Up to 12				Up to 25			
A Up to 25		Up to 25				Up to 25				Up to 25				Up to 100			
A Up to 50		Up to 50				Up to 50				Up to 50				Up to 200			
A Up to 100		Up to 100				Up to 100				Up to 100				Up to 630			
A --		Up to 200				Up to 200				Up to 200				Up to 630			
A --		Up to 630				Up to 630				Up to 630				Up to 630			
Rated voltage U_e		690/1000 AC ²⁾				690/1000 AC ³⁾				690/1000 AC ³⁾				690/1000 AC ⁴⁾			
Hz		50/60				50/60				50/60				50/60			
CLASS		CLASS 10				CLASS 10, CLASS 20				CLASS 5, 10, 20, 30 adjustable				CLASS 5, 10, 20, 30 adjustable			
A		0.11 ... 0.16 to 80 ... 100				--				--				--			
A		--				0.1 ... 0.4 to 160 ... 630				0.1 ... 0.4 to 160 ... 630				0.3 ... 3 to 63 ... 630			
Motor power		0.04 to 45 kW				0.04 ... 0.09 to 90 ... 450 kW				0.04 ... 0.09 to 90 ... 450 kW				0.09 ... 1.1 to 37 ... 450 kW			

	S00	S0	S2	S3	S00	S0	S2	S3	S6	S10/S12	S00	S0	S2	S3	S6	S10/S12	S00	S0	S2	S3	S6	S10/S12
for stand-alone	✓	✓	✓	✓	✓	✓	5)	5)	5)	5)	✓	✓	5)	5)	5)	5)	5)	5)	5)	5)	5)	5)
T	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--	--	--	--
RESET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--	--	--	--
RESET	✓	✓	✓	✓	--	--	--	--	--	--	Integrated in the unit				Integrated in the unit							
	--	--	✓	✓	--	--	--	✓	✓	✓	--	--	--	✓	✓	✓	--	--	--	✓	✓	✓
	Integrated in the unit				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

responsible in the main circuit for overload protection of the electrical loads (e. g. motors), feeder cable and other switching devices in the respective load feeder.

✓ Has this function or can use this accessory

-- Does not have this function or cannot use this accessory

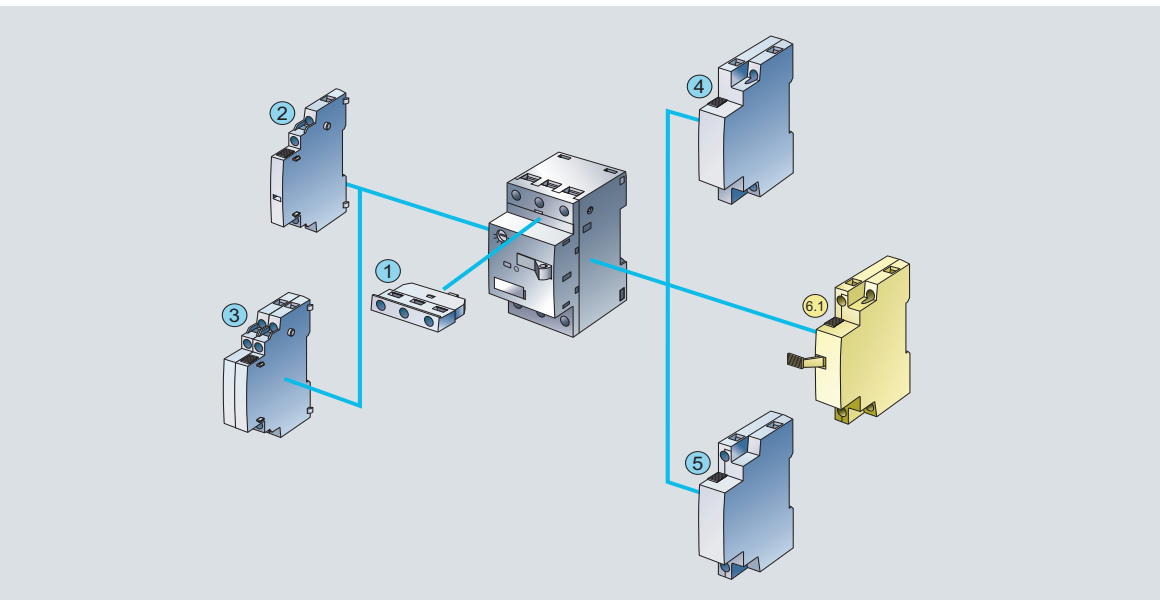
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3RV Motor Starter Protectors up to 100 A

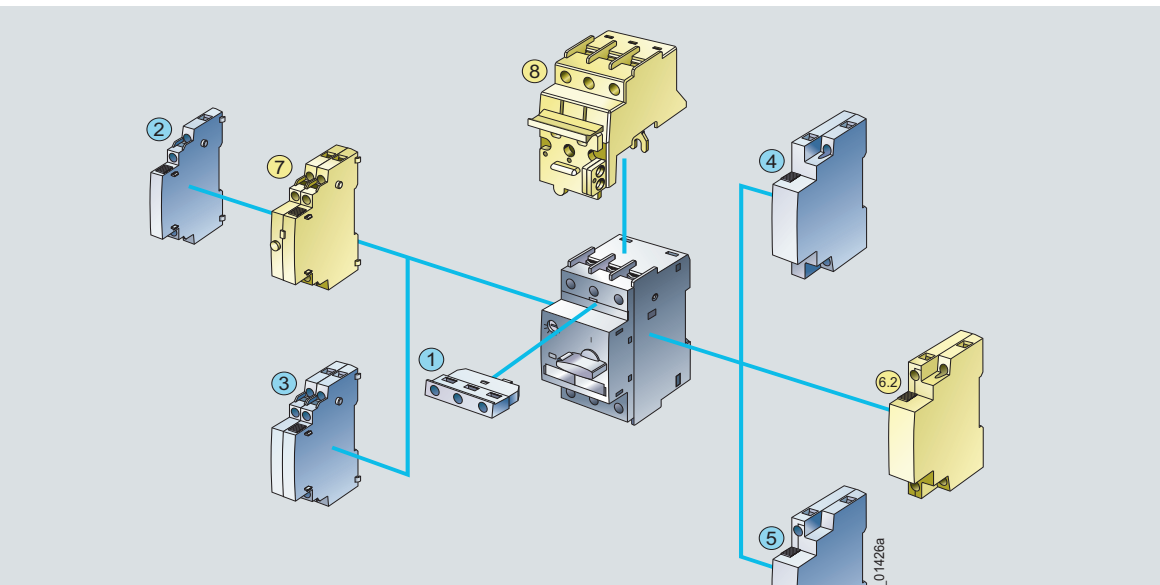
General data

Illustrations show our 3RV1 motor starter protector accessories which can be mounted for the various "Introduction" --> "Overview".

protectors with mountable accessories



protectors, sizes S0, S2 or S3, with mountable accessories



Motor Starter Protectors up to 100 A



Motor starter protector

Motor starter protectors are compact, current limiting motor starters which are optimized for load feeders. The protectors are used for switching and protecting induction motors of up to 45 kW at 400 V AC and for other loads with currents of up to 100 A.

Construction

- Motor protectors are available in four sizes:
- Width 45 mm,
Current 12 A,
Suitable for induction motors up to 5.5 kW.
- Width 45 mm,
Current 25 A,
Suitable for induction motors up to 11 kW.
- Width 55 mm,
Current 50 A,
Suitable for induction motors up to 22 kW.
- Width 70 mm,
Current 100 A,
Suitable for induction motors up to 45 kW.

Terminal terminals

Clamp terminals

Terminal terminals are indicated in the selection and ordering data by orange backgrounds.

"Safety" type of protection EEx e according to IEC 60949/EC

Motor starter protectors are suitable for the overload protection of explosion-proof motors with "increased safety" type

Application

Operating conditions

3RV1 motor starter protectors are suitable for use in any climate. They are intended for use in enclosed rooms in which no severe operating conditions (such as dust, caustic vapors, hazardous gases) prevail. When installed in dusty and damp areas, suitable enclosures must be provided.

3RV1 motor starter protectors can optionally be fed from the top or from below.

The permissible ambient temperatures, the maximum switching capacities, the tripping currents and other boundary conditions can be found in the technical specifications and tripping characteristics.

3RV1 motor starter protectors are suitable for operation in IT systems (IT networks). In this case, the different short-circuit breaking capacity in the IT system must be taken into account.

Since operational currents, starting currents and current peaks are different even for motors with identical power ratings due to the inrush current, the motor ratings in the selection tables are only guide values. The specific rated and start-up data of the motor to be protected is always paramount to the choice of the most suitable motor starter protector. This also applies to motor starter protectors for transformer protection.

Possible uses

The 3RV1 motor starter protectors can be used:

- For short-circuit protection
- For motor protection (also with overload relay function)
- For system protection
- For short-circuit protection for starter combinations
- For transformer protection
- As main control and EMERGENCY-STOP switches
- For fuse monitoring
- For use in IT systems (IT networks)
- For switching of DC currents
- As voltage transformer circuit breakers
- In areas subject to explosion hazard (ATEX)




More information is available under "[Configuration](#)".

3RV Motor Starter Protectors up to 100 A

For motor protection

Ordering data

Without auxiliary switches




Rated current	Suitable for three-phase induction motors ¹⁾ with P	Setting range for thermal overload release	Instantaneous electronic trip unit	Short-circuit breaking capacity at 400 V AC	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
I_n				I_{cu}		Order No.	Price per PU			kg	
A	kW	A	A	kA							
0.16	0.04	0.11 ... 0.16	2.1	100	▶	3RV10 11-0AA10		1	1 unit	101	0.230
0.2	0.06	0.14 ... 0.2	2.6	100	▶	3RV10 11-0BA10		1	1 unit	101	0.231
0.25	0.06	0.18 ... 0.25	3.3	100	▶	3RV10 11-0CA10		1	1 unit	101	0.233
0.32	0.09	0.22 ... 0.32	4.2	100	▶	3RV10 11-0DA10		1	1 unit	101	0.233
0.4	0.09	0.28 ... 0.4	5.2	100	▶	3RV10 11-0EA10		1	1 unit	101	0.235
0.5	0.12	0.35 ... 0.5	6.5	100	▶	3RV10 11-0FA10		1	1 unit	101	0.232
0.63	0.18	0.45 ... 0.63	8.2	100	▶	3RV10 11-0GA10		1	1 unit	101	0.233
0.8	0.18	0.55 ... 0.8	10	100	▶	3RV10 11-0HA10		1	1 unit	101	0.235
1	0.25	0.7 ... 1	13	100	▶	3RV10 11-0JA10		1	1 unit	101	0.233
1.25	0.37	0.9 ... 1.25	16	100	▶	3RV10 11-0KA10		1	1 unit	101	0.279
1.6	0.55	1.1 ... 1.6	21	100	▶	3RV10 11-1AA10		1	1 unit	101	0.281
2	0.75	1.4 ... 2	26	100	▶	3RV10 11-1BA10		1	1 unit	101	0.280
2.5	0.75	1.8 ... 2.5	33	100	▶	3RV10 11-1CA10		1	1 unit	101	0.281
3.2	1.1	2.2 ... 3.2	42	100	▶	3RV10 11-1DA10		1	1 unit	101	0.283
4	1.5	2.8 ... 4	52	100	▶	3RV10 11-1EA10		1	1 unit	101	0.281
5	1.5	3.5 ... 5	65	100	▶	3RV10 11-1FA10		1	1 unit	101	0.285
6.3	2.2	4.5 ... 6.3	82	100	▶	3RV10 11-1GA10		1	1 unit	101	0.288
8	3	5.5 ... 8	104	50	▶	3RV10 11-1HA10		1	1 unit	101	0.289
10	4	7 ... 10	130	50	▶	3RV10 11-1JA10		1	1 unit	101	0.284
12	5.5	9 ... 12	156	50	▶	3RV10 11-1KA10		1	1 unit	101	0.280
0.16	0.04	0.11 ... 0.16	2.1	100	▶	3RV10 21-0AA10		1	1 unit	101	0.286
0.2	0.06	0.14 ... 0.2	2.6	100	▶	3RV10 21-0BA10		1	1 unit	101	0.288
0.25	0.06	0.18 ... 0.25	3.3	100	▶	3RV10 21-0CA10		1	1 unit	101	0.287
0.32	0.09	0.22 ... 0.32	4.2	100	▶	3RV10 21-0DA10		1	1 unit	101	0.286
0.4	0.09	0.28 ... 0.4	5.2	100	▶	3RV10 21-0EA10		1	1 unit	101	0.288
0.5	0.12	0.35 ... 0.5	6.5	100	▶	3RV10 21-0FA10		1	1 unit	101	0.287
0.63	0.18	0.45 ... 0.63	8.2	100	▶	3RV10 21-0GA10		1	1 unit	101	0.289
0.8	0.18	0.55 ... 0.8	10	100	▶	3RV10 21-0HA10		1	1 unit	101	0.287
1	0.25	0.7 ... 1	13	100	▶	3RV10 21-0JA10		1	1 unit	101	0.350
1.25	0.37	0.9 ... 1.25	16	100	▶	3RV10 21-0KA10		1	1 unit	101	0.353
1.6	0.55	1.1 ... 1.6	21	100	▶	3RV10 21-1AA10		1	1 unit	101	0.357
2	0.75	1.4 ... 2	26	100	▶	3RV10 21-1BA10		1	1 unit	101	0.356
2.5	0.75	1.8 ... 2.5	33	100	▶	3RV10 21-1CA10		1	1 unit	101	0.357
3.2	1.1	2.2 ... 3.2	42	100	▶	3RV10 21-1DA10		1	1 unit	101	0.356
4	1.5	2.8 ... 4	52	100	▶	3RV10 21-1EA10		1	1 unit	101	0.354
5	1.5	3.5 ... 5	65	100	▶	3RV10 21-1FA10		1	1 unit	101	0.358
6.3	2.2	4.5 ... 6.3	82	100	▶	3RV10 21-1GA10		1	1 unit	101	0.357
8	3	5.5 ... 8	104	100	▶	3RV10 21-1HA10		1	1 unit	101	0.356
10	4	7 ... 10	130	100	▶	3RV10 21-1JA10		1	1 unit	101	0.361
12.5	5.5	9 ... 12.5	163	100	▶	3RV10 21-1KA10		1	1 unit	101	0.358
16	7.5	11 ... 16	208	50	▶	3RV10 21-4AA10		1	1 unit	101	0.366
20	7.5	14 ... 20	260	50	▶	3RV10 21-4BA10		1	1 unit	101	0.363
22	11	17 ... 22	286	50	▶	3RV10 21-4CA10		1	1 unit	101	0.361
25	11	20 ... 25	325	50	▶	3RV10 21-4DA10		1	1 unit	101	0.364

¹⁾ 4-pole standard motors at 50 Hz 400 V AC. The actual rated data of the motor to be protected must be considered in the units.

Motor Starter Protectors up to 100 A

Protection

with transverse auxiliary switch (1 NO + 1 NC)

Rated current	Suitable for three-phase induction motors ¹⁾ with P	Setting range for thermal overload release	Instantaneous electronic trip unit	Short-circuit breaking capacity at 400 V AC	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
I_n				I_{cu}		Order No.	Price per PU			kg	
A	kW	A	A	kA							
0.16	0.04	0.11 ... 0.16	2.1	100	▶	3RV10 11-0AA15		1	1 unit	101	0.245
0.2	0.06	0.14 ... 0.2	2.6	100	▶	3RV10 11-0BA15		1	1 unit	101	0.246
0.25	0.06	0.18 ... 0.25	3.3	100	▶	3RV10 11-0CA15		1	1 unit	101	0.246
0.32	0.09	0.22 ... 0.32	4.2	100	▶	3RV10 11-0DA15		1	1 unit	101	0.247
0.4	0.09	0.28 ... 0.4	5.2	100	▶	3RV10 11-0EA15		1	1 unit	101	0.250
0.5	0.12	0.35 ... 0.5	6.5	100	▶	3RV10 11-0FA15		1	1 unit	101	0.247
0.63	0.18	0.45 ... 0.63	8.2	100	▶	3RV10 11-0GA15		1	1 unit	101	0.249
0.8	0.18	0.55 ... 0.8	10	100	▶	3RV10 11-0HA15		1	1 unit	101	0.250
1	0.25	0.7 ... 1	13	100	▶	3RV10 11-0JA15		1	1 unit	101	0.249
1.25	0.37	0.9 ... 1.25	16	100	▶	3RV10 11-0KA15		1	1 unit	101	0.297
1.6	0.55	1.1 ... 1.6	21	100	▶	3RV10 11-1AA15		1	1 unit	101	0.298
2	0.75	1.4 ... 2	26	100	▶	3RV10 11-1BA15		1	1 unit	101	0.297
2.5	0.75	1.8 ... 2.5	33	100	▶	3RV10 11-1CA15		1	1 unit	101	0.298
3.2	1.1	2.2 ... 3.2	42	100	▶	3RV10 11-1DA15		1	1 unit	101	0.299
4	1.5	2.8 ... 4	52	100	▶	3RV10 11-1EA15		1	1 unit	101	0.296
5	1.5	3.5 ... 5	65	100	▶	3RV10 11-1FA15		1	1 unit	101	0.301
6.3	2.2	4.5 ... 6.3	82	100	▶	3RV10 11-1GA15		1	1 unit	101	0.303
8	3	5.5 ... 8	104	50	▶	3RV10 11-1HA15		1	1 unit	101	0.304
10	4	7 ... 10	130	50	▶	3RV10 11-1JA15		1	1 unit	101	0.300
12	5.5	9 ... 12	156	50	▶	3RV10 11-1KA15		1	1 unit	101	0.297
0.16	0.04	0.11 ... 0.16	2.1	100	▶	3RV10 21-0AA15		1	1 unit	101	0.300
0.2	0.06	0.14 ... 0.2	2.6	100	▶	3RV10 21-0BA15		1	1 unit	101	0.304
0.25	0.06	0.18 ... 0.25	3.3	100	▶	3RV10 21-0CA15		1	1 unit	101	0.302
0.32	0.09	0.22 ... 0.32	4.2	100	▶	3RV10 21-0DA15		1	1 unit	101	0.303
0.4	0.09	0.28 ... 0.4	5.2	100	▶	3RV10 21-0EA15		1	1 unit	101	0.303
0.5	0.12	0.35 ... 0.5	6.5	100	▶	3RV10 21-0FA15		1	1 unit	101	0.304
0.63	0.18	0.45 ... 0.63	8.2	100	▶	3RV10 21-0GA15		1	1 unit	101	0.305
0.8	0.18	0.55 ... 0.8	10	100	▶	3RV10 21-0HA15		1	1 unit	101	0.370
1	0.25	0.7 ... 1	13	100	▶	3RV10 21-0JA15		1	1 unit	101	0.368
1.25	0.37	0.9 ... 1.25	16	100	▶	3RV10 21-0KA15		1	1 unit	101	0.369
1.6	0.55	1.1 ... 1.6	21	100	▶	3RV10 21-1AA15		1	1 unit	101	0.371
2	0.75	1.4 ... 2	26	100	▶	3RV10 21-1BA15		1	1 unit	101	0.371
2.5	0.75	1.8 ... 2.5	33	100	▶	3RV10 21-1CA15		1	1 unit	101	0.372
3.2	1.1	2.2 ... 3.2	42	100	▶	3RV10 21-1DA15		1	1 unit	101	0.375
4	1.5	2.8 ... 4	52	100	▶	3RV10 21-1EA15		1	1 unit	101	0.370
5	1.5	3.5 ... 5	65	100	▶	3RV10 21-1FA15		1	1 unit	101	0.376
6.3	2.2	4.5 ... 6.3	82	100	▶	3RV10 21-1GA15		1	1 unit	101	0.374
8	3	5.5 ... 8	104	100	▶	3RV10 21-1HA15		1	1 unit	101	0.374
10	4	7 ... 10	130	100	▶	3RV10 21-1JA15		1	1 unit	101	0.375
12.5	5.5	9 ... 12.5	163	100	▶	3RV10 21-1KA15		1	1 unit	101	0.374
16	7.5	11 ... 16	208	50	▶	3RV10 21-4AA15		1	1 unit	101	0.382
20	7.5	14 ... 20	260	50	▶	3RV10 21-4BA15		1	1 unit	101	0.376
22	11	17 ... 22	286	50	▶	3RV10 21-4CA15		1	1 unit	101	0.378
25	11	20 ... 25	325	50	▶	3RV10 21-4DA15		1	1 unit	101	0.382




4-pole standard motors at 50 Hz 400 V AC. The actual rated data of the motor to be protected must be considered for the units.

Accessories can be ordered separately (e.g. accessories*).

3RV Motor Starter Protectors up to 100 A

For motor protection

without auxiliary switches




Rated current	Suitable for three-phase induction motors ¹⁾ with P	Setting range for thermal overload release	Instantaneous electronic trip unit	Short-circuit breaking capacity at 400 V AC	DT	Cage Clamp terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
I_n				I_{cu}		Order No.	Price per PU			kg	
A	kW	A	A	kA							
0.16	0.04	0.11 ... 0.16	2.1	100	▶	3RV10 11-0AA20		1	1 unit	101	0.233
0.2	0.06	0.14 ... 0.2	2.6	100	▶	3RV10 11-0BA20		1	1 unit	101	0.234
0.25	0.06	0.18 ... 0.25	3.3	100	▶	3RV10 11-0CA20		1	1 unit	101	0.234
0.32	0.09	0.22 ... 0.32	4.2	100	▶	3RV10 11-0DA20		1	1 unit	101	0.234
0.4	0.09	0.28 ... 0.4	5.2	100	▶	3RV10 11-0EA20		1	1 unit	101	0.236
0.5	0.12	0.35 ... 0.5	6.5	100	▶	3RV10 11-0FA20		1	1 unit	101	0.232
0.63	0.18	0.45 ... 0.63	8.2	100	▶	3RV10 11-0GA20		1	1 unit	101	0.234
0.8	0.18	0.55 ... 0.8	10	100	▶	3RV10 11-0HA20		1	1 unit	101	0.237
1	0.25	0.7 ... 1	13	100	▶	3RV10 11-0JA20		1	1 unit	101	0.235
1.25	0.37	0.9 ... 1.25	16	100	▶	3RV10 11-0KA20		1	1 unit	101	0.281
1.6	0.55	1.1 ... 1.6	21	100	▶	3RV10 11-1AA20		1	1 unit	101	0.283
2	0.75	1.4 ... 2	26	100	▶	3RV10 11-1BA20		1	1 unit	101	0.282
2.5	0.75	1.8 ... 2.5	33	100	▶	3RV10 11-1CA20		1	1 unit	101	0.284
3.2	1.1	2.2 ... 3.2	42	100	▶	3RV10 11-1DA20		1	1 unit	101	0.285
4	1.5	2.8 ... 4	52	100	▶	3RV10 11-1EA20		1	1 unit	101	0.284
5	1.5	3.5 ... 5	65	100	▶	3RV10 11-1FA20		1	1 unit	101	0.286
6.3	2.2	4.5 ... 6.3	82	100	▶	3RV10 11-1GA20		1	1 unit	101	0.288
8	3	5.5 ... 8	104	50	▶	3RV10 11-1HA20		1	1 unit	101	0.290
10	4	7 ... 10	130	50	▶	3RV10 11-1JA20		1	1 unit	101	0.286
12	5.5	9 ... 12	156	50	▶	3RV10 11-1KA20		1	1 unit	101	0.282

¹⁾ 4-pole standard motors at 50 Hz 400 V AC. The actual rated data of the motor to be protected must be considered for the units.

Auxiliary switches can be ordered separately (see "Mountable accessories").

For multi-unit packing and reusable packaging, see "Appendix" --> "Order information".




with transverse auxiliary switch (1 NO + 1 NC)

Rated current	Suitable for three-phase induction motors ¹⁾ with P	Setting range for thermal overload release	Instantaneous electronic trip unit	Short-circuit breaking capacity at 400 V AC	DT	Cage Clamp terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
I_n				I_{cu}		Order No.	Price per PU			kg	
A	kW	A	A	kA							
0.16	0.04	0.11 ... 0.16	2.1	100	B	3RV10 11-0AA25		1	1 unit	101	0.245
0.2	0.06	0.14 ... 0.2	2.6	100	B	3RV10 11-0BA25		1	1 unit	101	0.245
0.25	0.06	0.18 ... 0.25	3.3	100	B	3RV10 11-0CA25		1	1 unit	101	0.246
0.32	0.09	0.22 ... 0.32	4.2	100	B	3RV10 11-0DA25		1	1 unit	101	0.246
0.4	0.09	0.28 ... 0.4	5.2	100	B	3RV10 11-0EA25		1	1 unit	101	0.250
0.5	0.12	0.35 ... 0.5	6.5	100	B	3RV10 11-0FA25		1	1 unit	101	0.247
0.63	0.18	0.45 ... 0.63	8.2	100	B	3RV10 11-0GA25		1	1 unit	101	0.252
0.8	0.18	0.55 ... 0.8	10	100	B	3RV10 11-0HA25		1	1 unit	101	0.250
1	0.25	0.7 ... 1	13	100	B	3RV10 11-0JA25		1	1 unit	101	0.249
1.25	0.37	0.9 ... 1.25	16	100	B	3RV10 11-0KA25		1	1 unit	101	0.297
1.6	0.55	1.1 ... 1.6	21	100	B	3RV10 11-1AA25		1	1 unit	101	0.298
2	0.75	1.4 ... 2	26	100	B	3RV10 11-1BA25		1	1 unit	101	0.297
2.5	0.75	1.8 ... 2.5	33	100	B	3RV10 11-1CA25		1	1 unit	101	0.299
3.2	1.1	2.2 ... 3.2	42	100	B	3RV10 11-1DA25		1	1 unit	101	0.300
4	1.5	2.8 ... 4	52	100	B	3RV10 11-1EA25		1	1 unit	101	0.299
5	1.5	3.5 ... 5	65	100	B	3RV10 11-1FA25		1	1 unit	101	0.301
6.3	2.2	4.5 ... 6.3	82	100	B	3RV10 11-1GA25		1	1 unit	101	0.302
8	3	5.5 ... 8	104	50	B	3RV10 11-1HA25		1	1 unit	101	0.303
10	4	7 ... 10	130	50	B	3RV10 11-1JA25		1	1 unit	101	0.302
12	5.5	9 ... 12	156	50	B	3RV10 11-1KA25		1	1 unit	101	0.301

Motor Starter Protectors up to 100 A

Protection

without auxiliary switches

Rated current	Suitable for three-phase induction motors ¹⁾ with P	Setting range for thermal overload release	Instantaneous electronic trip unit	Short-circuit breaking capacity at 400 V AC	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
I_n				I_{cu}		Order No.	Price per PU			kg	
A	kW	A	A	kA							
16	7.5	11 ... 16	208	50	▶	3RV10 31-4AA10		1	1 unit	101	1.046
20	7.5	14 ... 20	260	50	▶	3RV10 31-4BA10		1	1 unit	101	1.043
25	11	18 ... 25	325	50	▶	3RV10 31-4DA10		1	1 unit	101	1.031
32	15	22 ... 32	416	50	▶	3RV10 31-4EA10		1	1 unit	101	1.028
40	18.5	28 ... 40	520	50	▶	3RV10 31-4FA10		1	1 unit	101	1.047
45	22	36 ... 45	585	50	▶	3RV10 31-4GA10		1	1 unit	101	1.039
50	22	40 ... 50	650	50	▶	3RV10 31-4HA10		1	1 unit	101	1.027
40	18.5	28 ... 40	520	50	▶	3RV10 41-4FA10		1	1 unit	101	2.219
50	22	36 ... 50	650	50	▶	3RV10 41-4HA10		1	1 unit	101	2.240
63	30	45 ... 63	819	50	▶	3RV10 41-4JA10		1	1 unit	101	2.247
75	37	57 ... 75	975	50	▶	3RV10 41-4KA10		1	1 unit	101	2.253
90	45	70 ... 90	1170	50	▶	3RV10 41-4LA10		1	1 unit	101	2.280
100	45	80 ... 100	1235	50	▶	3RV10 41-4MA10		1	1 unit	101	2.295
16	7.5	11 ... 16	208	100	▶	3RV10 42-4AA10		1	1 unit	101	2.174
20	7.5	14 ... 20	260	100	▶	3RV10 42-4BA10		1	1 unit	101	2.185
25	11	18 ... 25	325	100	▶	3RV10 42-4DA10		1	1 unit	101	2.211
32	15	22 ... 32	416	100	▶	3RV10 42-4EA10		1	1 unit	101	2.222
40	18.5	28 ... 40	520	100	▶	3RV10 42-4FA10		1	1 unit	101	2.203
50	22	36 ... 50	650	100	▶	3RV10 42-4HA10		1	1 unit	101	2.230
63	30	45 ... 63	819	100	▶	3RV10 42-4JA10		1	1 unit	101	2.255
75	37	57 ... 75	975	100	▶	3RV10 42-4KA10		1	1 unit	101	2.266
90	45	70 ... 90	1170	100	▶	3RV10 42-4LA10		1	1 unit	101	2.268
100	45	80 ... 100	1235	100	▶	3RV10 42-4MA10		1	1 unit	101	2.275

without auxiliary switches

16	7.5	11 ... 16	208	50	A	3RV10 31-4AB10		1	1 unit	101	1.067
20	7.5	14 ... 20	260	50	A	3RV10 31-4BB10		1	1 unit	101	1.071
25	11	18 ... 25	325	50	A	3RV10 31-4DB10		1	1 unit	101	1.054
32	15	22 ... 32	416	50	A	3RV10 31-4EB10		1	1 unit	101	1.067
40	18.5	28 ... 40	520	50	A	3RV10 31-4FB10		1	1 unit	101	1.076
45	22	36 ... 45	585	50	A	3RV10 31-4GB10		1	1 unit	101	1.073
50	22	40 ... 50	650	50	A	3RV10 31-4HB10		1	1 unit	101	1.071




Increased switching capacity

3RV Motor Starter Protectors up to 100 A

For motor protection with overload relay function

Ordering data

With overload relay function (automatic RESET), without auxiliary switches

Rated current	Suitable for three-phase induction motors ¹⁾ with P	Setting range for thermal overload release	Instantaneous electronic trip unit	Short-circuit breaking capacity at 400 V AC	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
I_n				I_{cu}		Order No.	Price per PU			kg	
A	kW	A	A	kA							
0.16	0.04	0.11 ... 0.16	2.1	100	A	3RV11 21-0AA10		1	1 unit	101	0.354
0.2	0.06	0.14 ... 0.2	2.6	100	A	3RV11 21-0BA10		1	1 unit	101	0.358
0.25	0.06	0.18 ... 0.25	3.3	100	A	3RV11 21-0CA10		1	1 unit	101	0.352
0.32	0.09	0.22 ... 0.32	4.2	100	A	3RV11 21-0DA10		1	1 unit	101	0.352
0.4	0.09	0.28 ... 0.4	5.2	100	A	3RV11 21-0EA10		1	1 unit	101	0.355
0.5	0.12	0.35 ... 0.5	6.5	100	A	3RV11 21-0FA10		1	1 unit	101	0.356
0.63	0.18	0.45 ... 0.63	8.2	100	A	3RV11 21-0GA10		1	1 unit	101	0.358
0.8	0.18	0.55 ... 0.8	10	100	A	3RV11 21-0HA10		1	1 unit	101	0.421
1	0.25	0.7 ... 1	13	100	A	3RV11 21-0JA10		1	1 unit	101	0.416
1.25	0.37	0.9 ... 1.25	16	100	A	3RV11 21-0KA10		1	1 unit	101	0.426
1.6	0.55	1.1 ... 1.6	21	100	A	3RV11 21-1AA10		1	1 unit	101	0.422
2	0.75	1.4 ... 2	26	100	A	3RV11 21-1BA10		1	1 unit	101	0.427
2.5	0.75	1.8 ... 2.5	33	100	A	3RV11 21-1CA10		1	1 unit	101	0.422
3.2	1.1	2.2 ... 3.2	42	100	A	3RV11 21-1DA10		1	1 unit	101	0.428
4	1.5	2.8 ... 4	52	100	A	3RV11 21-1EA10		1	1 unit	101	0.420
5	1.5	3.5 ... 5	65	100	A	3RV11 21-1FA10		1	1 unit	101	0.429
6.3	2.2	4.5 ... 6.3	82	100	A	3RV11 21-1GA10		1	1 unit	101	0.426
8	3	5.5 ... 8	104	100	A	3RV11 21-1HA10		1	1 unit	101	0.425
10	4	7 ... 10	130	100	A	3RV11 21-1JA10		1	1 unit	101	0.428
12.5	5.5	9 ... 12.5	163	100	A	3RV11 21-1KA10		1	1 unit	101	0.426
16	7.5	11 ... 16	208	50	A	3RV11 21-4AA10		1	1 unit	101	0.436
20	7.5	14 ... 20	260	50	A	3RV11 21-4BA10		1	1 unit	101	0.430
22	11	17 ... 22	286	50	A	3RV11 21-4CA10		1	1 unit	101	0.427
25	11	20 ... 25	325	50	A	3RV11 21-4DA10		1	1 unit	101	0.432
16	7.5	11 ... 16	208	50	A	3RV11 31-4AA10		1	1 unit	101	1.123
20	7.5	14 ... 20	260	50	A	3RV11 31-4BA10		1	1 unit	101	1.109
25	11	18 ... 25	325	50	A	3RV11 31-4DA10		1	1 unit	101	1.114
32	15	22 ... 32	416	50	A	3RV11 31-4EA10		1	1 unit	101	1.111
40	18.5	28 ... 40	520	50	A	3RV11 31-4FA10		1	1 unit	101	1.123
45	22	36 ... 45	585	50	A	3RV11 31-4GA10		1	1 unit	101	1.101
50	22	40 ... 50	650	50	A	3RV11 31-4HA10		1	1 unit	101	1.106
16	7.5	11 ... 16	208	100	A	3RV11 42-4AA10		1	1 unit	101	2.247
20	7.5	14 ... 20	260	100	A	3RV11 42-4BA10		1	1 unit	101	2.255
25	11	18 ... 25	325	100	A	3RV11 42-4DA10		1	1 unit	101	2.284
32	15	22 ... 32	416	100	A	3RV11 42-4EA10		1	1 unit	101	2.295
40	18.5	28 ... 40	520	100	A	3RV11 42-4FA10		1	1 unit	101	2.288
50	22	36 ... 50	650	100	A	3RV11 42-4HA10		1	1 unit	101	2.320
63	30	45 ... 63	819	100	A	3RV11 42-4JA10		1	1 unit	101	2.333
75	37	57 ... 75	975	100	A	3RV11 42-4KA10		1	1 unit	101	2.368
90	45	70 ... 90	1170	100	A	3RV11 42-4LA10		1	1 unit	101	2.353
100	45	80 ... 100	1235	100	A	3RV11 42-4MA10		1	1 unit	101	2.346





¹⁾ 4-pole standard motors at 50 Hz 400 V AC. The actual data of the motor to be protected must be considered.

Motor Starter Protectors up to 100 A

Combinations

Ordering data

Primary switches

Rated current	Suitable for three-phase induction motors ¹⁾ with P	Thermal overload release ²⁾	Instantaneous electronic trip unit	Short-circuit breaking capacity at 400 V AC	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
I_n				I_{cu}		Order No.	Price per PU			kg
A	kW	A	A	kA						
0.16	0.04	Without	2.1	100	A	3RV13 21-0AC10	1	1 unit	101	0.282
0.2	0.06	Without	2.6	100	A	3RV13 21-0BC10	1	1 unit	101	0.284
0.25	0.06	Without	3.3	100	A	3RV13 21-0CC10	1	1 unit	101	0.285
0.32	0.09	Without	4.2	100	A	3RV13 21-0DC10	1	1 unit	101	0.282
0.4	0.09	Without	5.2	100	A	3RV13 21-0EC10	1	1 unit	101	0.286
0.5	0.12	Without	6.5	100	A	3RV13 21-0FC10	1	1 unit	101	0.283
0.63	0.18	Without	8.2	100	A	3RV13 21-0GC10	1	1 unit	101	0.348
0.8	0.18	Without	10	100	A	3RV13 21-0HC10	1	1 unit	101	0.283
1	0.25	Without	13	100	A	3RV13 21-0JC10	1	1 unit	101	0.345
1.25	0.37	Without	16	100	A	3RV13 21-0KC10	1	1 unit	101	0.351
1.6	0.55	Without	21	100	A	3RV13 21-1AC10	1	1 unit	101	0.352
2	0.75	Without	26	100	A	3RV13 21-1BC10	1	1 unit	101	0.352
2.5	0.75	Without	33	100	A	3RV13 21-1CC10	1	1 unit	101	0.352
3.2	1.1	Without	42	100	A	3RV13 21-1DC10	1	1 unit	101	0.353
4	1.5	Without	52	100	A	3RV13 21-1EC10	1	1 unit	101	0.349
5	1.5	Without	65	100	A	3RV13 21-1FC10	1	1 unit	101	0.354
6.3	2.2	Without	82	100	A	3RV13 21-1GC10	1	1 unit	101	0.355
8	3	Without	104	100	A	3RV13 21-1HC10	1	1 unit	101	0.354
10	4	Without	130	100	A	3RV13 21-1JC10	1	1 unit	101	0.357
12.5	5.5	Without	163	100	A	3RV13 21-1KC10	1	1 unit	101	0.354
16	7.5	Without	208	50	A	3RV13 21-4AC10	1	1 unit	101	0.362
20	7.5	Without	260	50	A	3RV13 21-4BC10	1	1 unit	101	0.357
22	11	Without	286	50	A	3RV13 21-4CC10	1	1 unit	101	0.358
25	11	Without	325	50	A	3RV13 21-4DC10	1	1 unit	101	0.359
16	7.5	Without	208	50	A	3RV13 31-4AC10	1	1 unit	101	1.038
20	7.5	Without	260	50	A	3RV13 31-4BC10	1	1 unit	101	1.037
25	11	Without	325	50	A	3RV13 31-4DC10	1	1 unit	101	1.014
32	15	Without	416	50	A	3RV13 31-4EC10	1	1 unit	101	1.018
40	18.5	Without	520	50	A	3RV13 31-4FC10	1	1 unit	101	1.033
45	22	Without	585	50	A	3RV13 31-4GC10	1	1 unit	101	1.040
50	22	Without	650	50	A	3RV13 31-4HC10	1	1 unit	101	1.019
40	18.5	Without	520	50	A	3RV13 41-4FC10	1	1 unit	101	2.197
50	22	Without	650	50	A	3RV13 41-4GC10	1	1 unit	101	2.227
63	30	Without	819	50	A	3RV13 41-4JC10	1	1 unit	101	2.244
75	37	Without	975	50	A	3RV13 41-4KC10	1	1 unit	101	2.247
90	45	Without	1170	50	A	3RV13 41-4LC10	1	1 unit	101	2.269
100	45	Without	1235	50	A	3RV13 41-4MC10	1	1 unit	101	2.292

Increased switching capacity

16	7.5	Without	208	100	A	3RV13 42-1AC10	1	1 unit	101	2.175
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3RV Motor Starter Protectors up to 100 A

For transformer protection

Ordering data

Without auxiliary switches

Protectors for the protection of transformers with high inrush current

Rated current I_n A	Setting range for thermal overload release 	Instantaneous electronic trip unit $I >$	Short-circuit breaking capacity at 400 V AC I_{cu} kA	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
					Order No.	Price per PU			
0.16	0.11 ... 0.16	3.3	100	▶	3RV14 21-0AA10	1	1 unit	101	0.286
0.2	0.14 ... 0.2	4.2	100	▶	3RV14 21-0BA10	1	1 unit	101	0.287
0.25	0.18 ... 0.25	5.2	100	▶	3RV14 21-0CA10	1	1 unit	101	0.286
0.32	0.22 ... 0.32	6.5	100	▶	3RV14 21-0DA10	1	1 unit	101	0.288
0.4	0.28 ... 0.4	8.2	100	▶	3RV14 21-0EA10	1	1 unit	101	0.287
0.5	0.35 ... 0.5	10	100	▶	3RV14 21-0FA10	1	1 unit	101	0.286
0.63	0.45 ... 0.63	13	100	▶	3RV14 21-0GA10	1	1 unit	101	0.290
0.8	0.55 ... 0.8	16	100	▶	3RV14 21-0HA10	1	1 unit	101	0.290
1	0.7 ... 1	21	100	▶	3RV14 21-0JA10	1	1 unit	101	0.353
1.25	0.9 ... 1.25	26	100	▶	3RV14 21-0KA10	1	1 unit	101	0.354
1.6	1.1 ... 1.6	33	100	▶	3RV14 21-1AA10	1	1 unit	101	0.353
2	1.4 ... 2	42	100	▶	3RV14 21-1BA10	1	1 unit	101	0.358
2.5	1.8 ... 2.5	52	100	▶	3RV14 21-1CA10	1	1 unit	101	0.354
3.2	2.2 ... 3.2	65	100	▶	3RV14 21-1DA10	1	1 unit	101	0.358
4	2.8 ... 4	82	100	▶	3RV14 21-1EA10	1	1 unit	101	0.354
5	3.5 ... 5	104	100	▶	3RV14 21-1FA10	1	1 unit	101	0.357
6.3	4.5 ... 6.3	130	100	▶	3RV14 21-1GA10	1	1 unit	101	0.356
8	5.5 ... 8	163	100	▶	3RV14 21-1HA10	1	1 unit	101	0.358
10	7 ... 10	208	100	▶	3RV14 21-1JA10	1	1 unit	101	0.362
12.5	9 ... 12.5	260	100	▶	3RV14 21-1KA10	1	1 unit	101	0.360
16	11 ... 16	286	50	▶	3RV14 21-4AA10	1	1 unit	101	0.365
20	14 ... 20	325	50	▶	3RV14 21-4BA10	1	1 unit	101	0.365
16	11 ... 16	325	50	▶	3RV14 31-4AA10	1	1 unit	101	1.029
20	14 ... 20	416	50	▶	3RV14 31-4BA10	1	1 unit	101	1.034
25	18 ... 25	520	50	▶	3RV14 31-4DA10	1	1 unit	101	1.038
32	22 ... 32	660	50	▶	3RV14 31-4EA10	1	1 unit	101	1.029
40	28 ... 40	836	50	▶	3RV14 31-4FA10	1	1 unit	101	1.039

Accessories can be ordered separately (see "Accessories").



For packaging and reusable packaging, see "Order information".

Motor Starter Protectors up to 100 A

Monitoring

Ordering data

Primary switches

Rated current	Thermal overload release	Instantaneous electronic trip unit	Short-circuit breaking capacity at 400 V AC	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
I_n			I_{cu}		Order No.	Price per PU			kg
A	A	A	kA						
0.2	0.2	1.2	100	▶	3RV16 11-0BD10		1	1 unit	101 0.289

Switch required for signaling must be ordered

For multi-unit packing and reusable packaging, see "Appendix" --> "Order information".

Version	Contacts	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
			Order No.	Price per PU			kg
Primary switches (essential accessories)							
Transverse auxiliary switches With screw terminals, mountable on front	1 NO + 1 NC	▶	3RV19 01-1E		1	1 unit	101 0.018
Lateral auxiliary switches With screw terminals, mountable on the left	1 NO + 1 NC	▶	3RV19 01-1A		1	1 unit	101 0.045

Primary switches and other accessories
accessories".



3RV Circuit Breakers up to 100 A

For system protection
according to UL 489/CSA C22.2 No. 5-02

Ordering data

Accessory switches

Accessories for system protection and non-motor loads according to UL/CSA

Rated current ¹⁾	Thermal overload release (non-adjustable)	Instantaneous overcurrent trip unit	Short-circuit breaking capacity at 480 Y/277 V AC ²⁾ 480 V AC		DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
I_n		$I >$	I_{bc}	I_{bc}		Order No.	Price per PU			kg	
A	A	A	kA	kA							
0.16	0.16	2.1	50	--	C	3RV17 21-0AD10		1	1 unit	101	0.460
0.2	0.2	2.6	50	--	C	3RV17 21-0BD10		1	1 unit	101	0.460
0.25	0.25	3.3	50	--	C	3RV17 21-0CD10		1	1 unit	101	0.460
0.32	0.32	4.2	50	--	C	3RV17 21-0DD10		1	1 unit	101	0.460
0.4	0.4	5.2	50	--	C	3RV17 21-0ED10		1	1 unit	101	0.460
0.5	0.5	6.5	50	--	C	3RV17 21-0FD10		1	1 unit	101	0.460
0.63	0.63	8.2	50	--	C	3RV17 21-0GD10		1	1 unit	101	0.460
0.8	0.8	10	50	--	C	3RV17 21-0HD10		1	1 unit	101	0.530
1	1	13	50	--	C	3RV17 21-0JD10		1	1 unit	101	0.530
1.25	1.25	16	50	--	C	3RV17 21-0KD10		1	1 unit	101	0.530
1.6	1.6	21	50	--	C	3RV17 21-1AD10		1	1 unit	101	0.530
2	2	26	50	--	C	3RV17 21-1BD10		1	1 unit	101	0.530
2.5	2.5	33	50	--	C	3RV17 21-1CD10		1	1 unit	101	0.530
3.2	3.2	42	50	--	C	3RV17 21-1DD10		1	1 unit	101	0.530
4	4	52	50	--	C	3RV17 21-1ED10		1	1 unit	101	0.530
5	5	65	50	--	C	3RV17 21-1FD10		1	1 unit	101	0.530
6.3	6.3	82	50	--	C	3RV17 21-1GD10		1	1 unit	101	0.530
8	8	104	50	--	C	3RV17 21-1HD10		1	1 unit	101	0.530
10	10	130	50	--	C	3RV17 21-1JD10		1	1 unit	101	0.530
12.5	12.5	163	50	--	C	3RV17 21-1KD10		1	1 unit	101	0.530
15	15	208	50	--	C	3RV17 21-4AD10		1	1 unit	101	0.530
20	20	260	50	--	C	3RV17 21-4BD10		1	1 unit	101	0.530
22	22	286	50	--	C	3RV17 21-4CD10		1	1 unit	101	0.530
10	10	150	65	65	B	3RV17 42-5AD10		1	1 unit	101	0.460
15	15	225	65	65	B	3RV17 42-5BD10		1	1 unit	101	0.460
20	20	260	65	65	B	3RV17 42-5CD10		1	1 unit	101	0.460
25	25	325	65	65	B	3RV17 42-5DD10		1	1 unit	101	0.460
30	30	390	65	65	B	3RV17 42-5ED10		1	1 unit	101	0.460
35	35	455	65	--	B	3RV17 42-5FD10		1	1 unit	101	0.460
40	40	520	65	--	B	3RV17 42-5GD10		1	1 unit	101	0.460
45	45	585	65	--	B	3RV17 42-5HD10		1	1 unit	101	0.460
50	50	650	65	--	B	3RV17 42-5JD10		1	1 unit	101	0.460
60	60	780	65	--	B	3RV17 42-5LD10		1	1 unit	101	0.460
70	70	910	65	--	B	3RV17 42-5QD10		1	1 unit	101	0.460

1) See acc. to UL 489 and IEC 60947-2 (100 % rated breaker).

2) 480 Y/347 V AC see Technical Information LV 1 T, Chapter 5, Motor Protectors/Circuit Breakers up to 100 A* --> "General technical specifications" --> "Permissible rated data of devices for North America (UL/CSA)" --> "3RV17 and 3RV18 motor protectors as circuit breakers".

* Auxiliary switches must not be mounted, but auxiliary switches can be ordered separately (see "Accessories").



Circuit Breakers up to 100 A

Transformer protection
to UL 489/CSA C22.2 No. 5-02

Ordering data

Auxiliary switches

Ordering data for system and transformer protection according to UL/CSA,
designed for transformers with high inrush current

Rated current ¹⁾	Thermal overload release (non-adjustable)	Instantaneous electronic trip unit	Short-circuit breaking capacity at 480 Y/277 V AC ²⁾	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
I_n		$I >$	I_{bc}		Order No.	Price per PU			kg	
A	A	A	kA							
0.16	0.16	3.3	50	C	3RV18 21-0AD10		1	1 unit	101	0.450
0.2	0.2	4.2	50	C	3RV18 21-0BD10		1	1 unit	101	0.450
0.25	0.25	5.2	50	C	3RV18 21-0CD10		1	1 unit	101	0.450
0.32	0.32	6.5	50	C	3RV18 21-0DD10		1	1 unit	101	0.450
0.4	0.4	8.2	50	C	3RV18 21-0ED10		1	1 unit	101	0.450
0.5	0.5	10	50	C	3RV18 21-0FD10		1	1 unit	101	0.450
0.63	0.63	13	50	C	3RV18 21-0GD10		1	1 unit	101	0.450
0.8	0.8	16	50	C	3RV18 21-0HD10		1	1 unit	101	0.450
1	1	21	50	C	3RV18 21-0JD10		1	1 unit	101	0.520
1.25	1.25	26	50	C	3RV18 21-0KD10		1	1 unit	101	0.520
1.6	1.6	33	50	C	3RV18 21-1AD10		1	1 unit	101	0.520
2	2	42	50	C	3RV18 21-1BD10		1	1 unit	101	0.520
2.5	2.5	52	50	C	3RV18 21-1CD10		1	1 unit	101	0.520
3.2	3.2	65	50	C	3RV18 21-1DD10		1	1 unit	101	0.520
4	4	82	50	C	3RV18 21-1ED10		1	1 unit	101	0.520
5	5	104	50	C	3RV18 21-1FD10		1	1 unit	101	0.520
6.3	6.3	130	50	C	3RV18 21-1GD10		1	1 unit	101	0.520
8	8	163	50	C	3RV18 21-1HD10		1	1 unit	101	0.520
10	10	208	50	C	3RV18 21-1JD10		1	1 unit	101	0.520
12.5	12.5	260	50	C	3RV18 21-1KD10		1	1 unit	101	0.520
15	15	286	50	C	3RV18 21-4AD10		1	1 unit	101	0.520
20	20	325	50	C	3RV18 21-4BD10		1	1 unit	101	0.520

1) See acc. to UL 489 and IEC 60947-2 (100 % rated breaker).

2) 480 Y/347 V AC see Technical Information LV 1 T, Chapter 5, Motor Protectors/Circuit Breakers up to 100 A" --> "General technical specifications" --> "Permissible rated data of devices for North America (UL/CSA)" --> "3RV17 and 3RV18 motor breakers as circuit breakers".




Auxiliary switches must not be mounted, but auxiliary switches can be ordered separately (see "Accessories").


3RV Motor Starter Protectors up to 100 A

For distance protection

Ordering data

Former circuit breakers with auxiliary switches (1 W)

Rated current	Thermal overload release	Instantaneous electronic trip units	Auxiliary switch integrated in the motor starter protector, transverse	Short-circuit breaking capacity at 400 V AC	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
I_n				I_{cu}		Order No.	Price per PU			kg
A	A	A		kA						
1.4	1.4	6	1 CO	50	B	3RV16 11-1AG14	1	1 unit	101	0.314
2.5	2.5	10.5	1 CO	50	▶	3RV16 11-1CG14	1	1 unit	101	0.318
3	3	20	1 CO	50	▶	3RV16 11-1DG14	1	1 unit	101	0.315

Version	Contacts	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
			Order No.	Price per PU			kg

Auxiliary switches for other signaling purposes

Lateral auxiliary switches With screw terminals, mountable on the left	1 NO + 1 NC	▶	3RV19 01-1A	1	1 unit	101	0.045
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Auxiliary switches and other accessories
"accessories".

on

3RVU13 to 3RV1 voltage transformer circuit breakers

age transformer circuit breakers previously avail-
discontinued. The 3RV1 voltage transformer cir-
re offered as replacement types.

	Replacement type
D	3RV16 11-1CG14
D	3RV16 11-1CG14 + 3RV19 01-1A

Motor Starter Protectors up to 100 A

ES

Accessories

Installation and function

Motor starter protectors/circuit breakers have three components. In order to achieve maximum flexibility, shunt trip units, signal switches, auxiliary trip units and isolating switches can be supplied separately.

These components can be fitted as required on the motor starter protectors/circuit breakers without using tools.

For overview graphic see "General data" --> "Overview".


<p><i>Transverse auxiliary contacts with 2 contacts can be attached to each motor starter protector.</i></p> <p><i>Signal switches must not be used for the 3RV17 and 3RV18 circuit breakers.</i></p>	<p>Transverse auxiliary switches</p> <p>1 NO + 1 NC or 2 NO or 1 CO contact</p>	<p>An auxiliary switch block can be inserted transversely on the front. The overall width of the motor starter protectors remains unchanged.</p>
<p><i>Lateral auxiliary contacts with 2 contacts can be attached to each motor starter protector/circuit breaker.</i></p> <p><i>Signal switches (2 contacts) and shunt trip units must be mounted separately or together.</i></p>	<p>Lateral auxiliary switches (2 contacts)</p> <p>1 NO + 1 NC or 2 NO or 2 NC</p>	<p>One of the three auxiliary switches can be mounted laterally for each motor starter protector/circuit breaker. The contacts of the auxiliary switch close and open together with the main contacts of the motor starter protector/circuit breaker.</p> <p>The overall width of the lateral auxiliary switch with 2 contacts is 9 mm.</p>
<p><i>Signal switches cannot be used for the 3RV18 circuit breakers.</i></p>	<p>Lateral auxiliary switches (4 contacts)</p> <p>2 NO + 2 NC</p>	<p>One auxiliary switch can be mounted laterally for each motor starter protector. The contacts of the auxiliary switch close and open together with the main contacts of the motor starter protector/circuit breaker.</p> <p>The overall width of the lateral auxiliary switch with 4 contacts is 18 mm.</p>
	<p>Signal switches for sizes S0, S2 and S3</p> <p>Tripping 1 NO + 1 NC Short-circuit 1 NO + 1 NC</p>	<p>One signal switch can be mounted at the side of each motor starter protector with a rotary operating mechanism.</p> <p>The signal switch has two contact systems.</p> <p>One contact system always signals <u>tripping</u> irrespective of whether this was caused by a short-circuit, an overload or an auxiliary trip unit. The other contact system only switches in the event of a short-circuit. There is no signaling as a result of <u>switching off</u> with the handle.</p> <p>In order to be able to switch on the motor starter protector again after a short-circuit, the signal switch must be reset manually after the error cause has been eliminated.</p> <p>The overall width of the signal switch is 18 mm.</p>
<p><i>Shunt trip unit can be mounted per motor starter protector/circuit breaker.</i></p>	<p>Auxiliary trip units</p> <p><u>Shunt trip units</u></p>	<p>For remote-controlled tripping of the motor starter protector/circuit breaker. The release coil should only be energized for short periods (see schematics).</p>
<p><i>Signal switches cannot be mounted at the side of the 3RV11 motor starter protector/circuit breaker if the overload relay function is used.</i></p>	<p>or</p> <p><u>Undervoltage trip units</u></p>	<p>Trips the motor starter protector when the voltage is interrupted and prevents the motor from being restarted accidentally when the voltage is restored. Used for remote-controlled tripping of the motor starter protector/circuit breaker.</p> <p>Particularly suitable for EMERGENCY-STOP disconnection by way of the corresponding EMERGENCY-STOP pushbutton according to EN 60204-1.</p>
	<p>or</p> <p><u>Undervoltage trip unit with leading auxiliary contacts</u> (2 NO)</p>	<p>Function and use as for the undervoltage trip unit without leading auxiliary contacts, but with the following additional function: the auxiliary contacts will open in switch position OFF to deenergize the coil of the undervoltage trip unit, thus interrupting energy consumption. In the "tripped" position, these auxiliary contacts are not guaranteed to open. The leading contacts permit the motor starter protector/circuit breaker to reclose.</p> <p>The overall width of the auxiliary trip unit is 18 mm.</p>

3RV Motor Starter Protectors up to 100 A


Accessories

Mountable accessories

Ordering data

Version	Contacts	For motor starter protectors / circuit breakers Size	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
				Order No.	Price per PU				
									kg
Switches¹⁾									
Transverse auxiliary switches With screw terminals, mountable on front	1 CO	S00, S0, S2, S3	▶	3RV19 01-1D	1	1 unit	101	0.015	
	1 NO + 1 NC		▶	3RV19 01-1E	1	1 unit	101	0.018	
	2 NO		▶	3RV19 01-1F	1	1 unit	101	0.018	
Solid-state compatible transverse auxiliary switches With screw terminals, front mountable, for operation in dusty atmosphere and in solid-state circuits with low operating currents	1 CO	S00, S0, S2, S3	A	3RV19 01-1G	1	1 unit	101	0.016	
Covers for transverse auxiliary switches	--	S00, S0, S2, S3	▶	3RV19 01-0H	1	10 units	101	0.006	
Lateral auxiliary switches With screw terminals, mountable on the left	1 NO + 1 NC	S00, S0, S2, S3	▶	3RV19 01-1A	1	1 unit	101	0.045	
	2 NO		▶	3RV19 01-1B	1	1 unit	101	0.045	
	2 NC		▶	3RV19 01-1C	1	1 unit	101	0.045	
	2 NO + 2 NC		A	3RV19 01-1J	1	1 unit	101	0.083	


ter protector can be fitted with one transverse and one lateral auxiliary switch. The lateral auxiliary switch with 2 NO + 2 NC is used for solid-state compatible auxiliary switches. Transverse auxiliary switches must be used for the 3RV17 and 3RV18 circuit breakers.

Version	Contacts	For motor starter protectors Size	DT	Cage Clamp terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
				Order No.	Price per PU				
									kg
Switches¹⁾									
Transverse auxiliary switches With Cage Clamp terminals, mountable on front	1 NO + 1 NC	S00, S0, S2, S3	▶	3RV19 01-2E	1	1 unit	101	0.017	
	2 NO		▶	3RV19 01-2F	1	1 unit	101	0.018	
Lateral auxiliary switches With Cage Clamp terminals	1 NO + 1 NC	S00, S0, S2, S3	▶	3RV19 01-2A	1	1 unit	101	0.040	
	2 NO		▶	3RV19 01-2B	1	1 unit	101	0.040	

Motor Starter Protectors up to 100 A

ES

Accessories


Version	For motor starter protectors Size	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
			Order No.	Price per PU			
							kg
Accessories 1)							
Signal switches	Separate tripped and short-circuit alarms, 1 NO + 1 NC each	S0, S2, S3	▶ 3RV19 21-1M	1	1 unit	101	0.094
One signal switch can be mounted on the left per motor starter protector.							
Accessories 1)							
Isolator modules	Visible isolating distance for isolating individual motor starter protectors from the network, lockable in disconnected position.	S0 S2	▶ 3RV19 28-1A ▶ 3RV19 38-1A	1 1	1 unit 1 unit	101 101	0.157 0.324

cannot be used for the 3RV17 and 3RV18 circuit breakers.

3RV Motor Starter Protectors up to 100 A

Accessories

Mountable accessories

Rated control supply voltage U_s					For motor starter protectors / circuit breakers Size	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
AC 50 Hz	AC 60 Hz	AC 50/60 Hz	AC/DC 50/60 Hz, DC	DC							
100 % ON period ¹⁾					5 s ON period ²⁾						
V	V	V	V	V	Order No.	Price per PU				kg	
Undervoltage trip units											
--	--	--	--	24	S00, S0, S2, S3	A	3RV19 02-1AB4	1	1 unit	101	0.138
24	--	--	--	--	S00, S0, S2, S3	A	3RV19 02-1AB0	1	1 unit	101	0.134
110	120	--	--	--	S00, S0, S2, S3	A	3RV19 02-1AF0	1	1 unit	101	0.134
--	208	--	--	--	S00, S0, S2, S3	A	3RV19 02-1AM1	1	1 unit	101	0.128
230	240	--	--	--	S00, S0, S2, S3	▶	3RV19 02-1AP0	1	1 unit	101	0.131
400	440	--	--	--	S00, S0, S2, S3	▶	3RV19 02-1AV0	1	1 unit	101	0.127
415	480	--	--	--	S00, S0, S2, S3	A	3RV19 02-1AV1	1	1 unit	101	0.129
500	575	--	--	--	S00, S0, S2, S3	A	3RV19 02-1AS0	1	1 unit	101	0.127
Undervoltage trip units with leading auxiliary contacts 2 NO											
230	240	--	--	--	S00	A	3RV19 12-1CP0	1	1 unit	101	0.140
400	--	--	--	--	S00	A	3RV19 12-1CV0	1	1 unit	101	0.137
415	480	--	--	--	S00	A	3RV19 12-1CV1	1	1 unit	101	0.139
230	240	--	--	--	S0, S2, S3	A	3RV19 22-1CP0	1	1 unit	101	0.139
400	--	--	--	--	S0, S2, S3	A	3RV19 22-1CV0	1	1 unit	101	0.136
415	480	--	--	--	S0, S2, S3	A	3RV19 22-1CV1	1	1 unit	101	0.138
Shunt trip units											
--	--	20 ... 24	20 ... 70	--	S00, S0, S2, S3	▶	3RV19 02-1DB0	1	1 unit	101	0.133
--	--	90 ... 110	70 ... 190	--	S00, S0, S2, S3	A	3RV19 02-1DF0	1	1 unit	101	0.135
--	--	210 ... 240	190 ... 330	--	S00, S0, S2, S3	▶	3RV19 02-1DP0	1	1 unit	101	0.130
--	--	350 ... 415	330 ... 500	--	S00, S0, S2, S3	A	3RV19 02-1DV0	1	1 unit	101	0.129
--	--	500	500	--	S00, S0, S2, S3	A	3RV19 02-1DS0	1	1 unit	101	0.126

1) ON period is valid for 100 % (uninterrupted) ON period. The voltage lies at 0.9 of the lower limit of the voltage range.

2) ON period is valid for 5 s ON period at AC 50 Hz/60 Hz and DC. The voltage lies at 0.85 of the lower limit of the voltage range.

3) The shunt trip unit can be mounted on the right per motor starter

Motor Starter Protectors up to 100 A

es

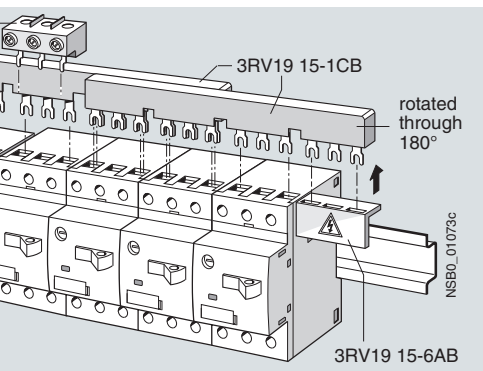
Accessories

Three-phase busbar systems

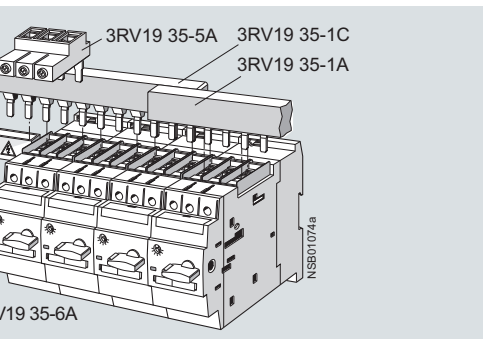
Three-phase busbar systems provide an easy, time-saving and safe means of feeding 3RV1 motor starter protectors. Different versions are available for sizes S00 and S2 and can be used for the various different types of motor starter protectors. The only exceptions are the 3RV19 15-1AB and 15-5DB three-phase busbar systems, which are not suitable for motor starter protectors with overload relay function, these must not be used with 3RV17 and 3RV18 motor starter protectors.

The three-phase busbar systems are suitable for between 2 and 5 motor starter protectors. For any kind of extension it is possible by clamping an additional busbar (rotated by 180°) underneath the respective last motor starter protector.

The connection of motor starter protectors of different sizes is possible with sizes S00 and S2. Connecting pieces are available for this purpose. The motor starter protectors are supplied with appropriate feeder terminals.



Three-phase busbar system, size S00



Three-phase busbar system, size S2



The three-phase busbar systems are finger-safe. They are designed for any short-circuit stress which can occur at the output side of connected motor starter protectors.

The three-phase busbar systems can also be used to construct "Type E Starters" of size S0 or S2 according to UL/CSA. **Special feeder terminals must be used for this purpose, however (see "Selection and ordering data").**

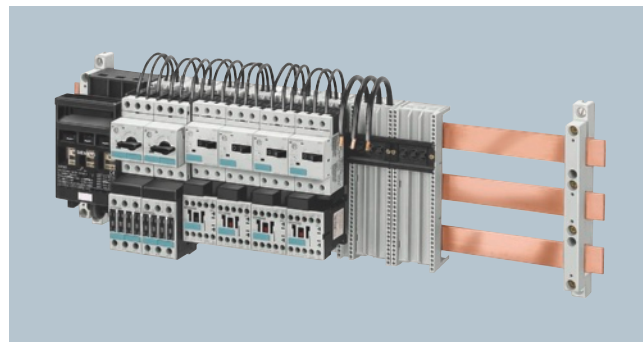
Busbar adapters for 40 mm and 60 mm systems

The motor starter protectors are mounted directly with the aid of busbar adapters on busbar systems with 40 mm and 60 mm center-to-center clearance in order to save space and to reduce infeed times and costs.

Busbar adapters for busbar systems with 40 mm center-to-center clearance are suitable for copper busbars with a width of 12 mm to 15 mm, while those with 60 mm center-to-center clearance are suitable for copper busbars with a width of 12 mm to 30 mm. The busbars can be 4 to 5 mm or 10 mm thick.

The motor starter protectors are snapped onto the adapter and connected on the line side. This prepared unit is then plugged directly onto the busbar system, and is thus connected both mechanically and electrically at the same time.

Further busbar adapters for snap-mounting direct-on-line starters and reversing starters as well as additional accessories such as line terminals and outgoing terminals, flat copper profile, etc., can be found under "Distribution/Busbar Systems and Switchgear".



SIRIUS motor starter protectors and load feeders with busbar adapters snapped onto busbars



3RV Motor Starter Protectors up to 100 A

Accessories

Busbar accessories

Ordering data

Modular spacing	Number of motor starter protectors that can be connected			Rated current I_n at 690 V	For motor starter protectors Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Without lateral accessories	Incl. lateral auxiliary switch	With auxiliary trip unit									
mm				A								kg

Busbar systems

For feeding several motor starter protectors with screw terminals, mounted side-by-side on standard mounting rails, insulated, with touch protection.

45	2	--	--	63	S00, S0 ¹⁾²⁾	▶	3RV19 15-1AB		1	1 unit	101	0.044				
	3				S00, S0 ¹⁾²⁾		3RV19 15-1BB						1	1 unit	101	0.071
	4				S00, S0 ¹⁾²⁾		3RV19 15-1CB						1	1 unit	101	0.099
	5				S00, S0 ¹⁾²⁾		3RV19 15-1DB						1	1 unit	101	0.124
55	--	2	--	63	S00, S0 ¹⁾²⁾	▶	3RV19 15-2AB		1	1 unit	101	0.048				
		3			S00, S0 ¹⁾²⁾		3RV19 15-2BB						1	1 unit	101	0.079
		4			S00, S0 ¹⁾²⁾		3RV19 15-2CB						1	1 unit	101	0.111
		5			S00, S0 ¹⁾²⁾		3RV19 15-2DB						1	1 unit	101	0.140
63	--	--	2	63	S00, S0 ¹⁾²⁾	▶	3RV19 15-3AB		1	1 unit	101	0.052				
			4		S00, S0 ¹⁾²⁾		3RV19 15-3CB						1	1 unit	101	0.120
55	2	--	--	108	S2	▶	3RV19 35-1A		1	1 unit	101	0.150				
	3				S2		3RV19 35-1B						1	1 unit	101	0.214
	4				S2		3RV19 35-1C						1	1 unit	101	0.295
75	--	2	2	108	S2 ³⁾	▶	3RV19 35-3A		1	1 unit	101	0.161				
		3	3		S2 ³⁾		3RV19 35-3B						1	1 unit	101	0.262
		4	4		S2 ³⁾		3RV19 35-3C						1	1 unit	101	0.369

3RV11 motor starter protectors with overload relay function. Feeding of S00 and S0 motor starter protectors is not possible, different modular spacings and terminal heights. The connecting piece is available for connecting busbars from 3RV10 to 3RV11.

²⁾ Not suitable for 3RV17 and 3RV18 circuit breakers.

³⁾ Auxiliary trip units and lateral auxiliary switches cannot be used in combination.

Version	Modular spacing	For motor starter protectors Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	mm								kg

Accessories for three-phase busbars

For connecting three-phase busbars for motor starter protectors of size S0 (left) to size S00 (right)	45	S00, S0	▶	3RV19 15-5DB		1	1 unit	101	0.042
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Conductor cross-section			Tightening torque	For motor starter protectors Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
Solid or stranded	Finely stranded with end sleeve	AWG cables, solid or stranded									
mm ²	mm ²	AWG	Nm								kg

Feeder terminals

Connection from top											
2.5 ... 25	4 ... 16	12-4	4	S00	▶	3RV19 15-5A		1	1 unit	101	0.040
				S0	▶	3RV19 25-5AB		1	1 unit	101	0.041

Motor Starter Protectors up to 100 A

ES

Accessories

Version	For motor starter protectors Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
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Connection tags

Touch protection for empty positions	S00, S0	▶	3RV19 15-6AB		1	10 units	101	0.003
	S2	▶	3RV19 35-6A		1	5 units	101	0.006

ers



8US12 51-5MD07

Rated current	Connecting cable	Adapter length	Adapter width	Rated voltage	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
A	AWG	mm	mm	V							

Adapters for 40 mm systems

Profiles according to DIN 46433											
15 mm and 10 mm											
25	12	121	45	690	▶	8US10 51-5DJ07		1	1 unit	143	0.106
25	12	121	55	690	▶	8US10 61-5DJ07		1	1 unit	143	0.119
56	8	139	55	690	▶	8US10 61-5FK08		1	1 unit	143	0.231
100	4	182	70	400 ¹⁾	▶	8US11 11-4SM00		1	1 unit	143	0.541
100	4	182	72	415 ... 690 ²⁾	▶	8US10 11-4TM00		1	1 unit	143	0.478

Adapters for 60 mm systems

Profiles according to DIN 46433											
30 mm and 10 mm											
able-T special profiles											
25	12	182	45	690	▶	8US12 51-5DM07		1	1 unit	143	0.183
56	8		55	690	▶	8US12 61-5FM08		1	1 unit	143	0.263
100	4		70	400 ¹⁾	▶	8US11 11-4SM00		1	1 unit	143	0.541
100	4		72	415 ... 690 ²⁾	▶	8US12 11-4TM00		1	1 unit	143	0.498

Short-circuit breaking capacity 50 kA,
 I_{sc}: short-circuit breaking capacity 25 kA.

Short-circuit breaking capacity 415/500/525 V AC:
 I_{sc}: max. 30 kA

I_{sc}: max. 16 kA

I_{sc}: max. 6 kA;

Short-circuit breaking capacity 690 V AC:

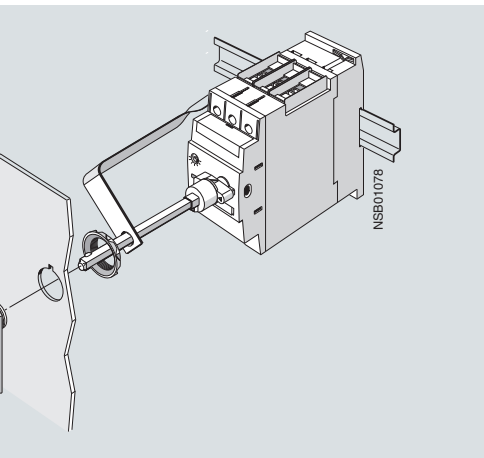
Busbar adapters see "SIVACON Power
 Adapters, Busway and Cubicle Systems" -->
 for 8US, 8UC, 4NC distribution systems:
 "SIVACON Power Adapters and Busbar Systems".

3RV Motor Starter Protectors up to 100 A Accessories

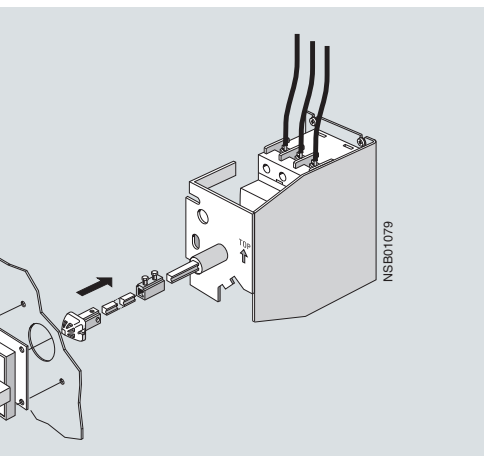
Rotary operating mechanisms

Rotary operating mechanisms

Motor starter protectors/circuit breakers with a rotary operating mechanism can be mounted in a control cabinet and operated by means of a door-coupling rotary operating mechanism. When the cabinet door is closed, the operating mechanism is coupled. When the motor starter protector/circuit breaker closes, the coupling is released and prevents the door from being opened unintentionally. The coupling can be defeated by the maintenance person. In the open position, the rotary operating mechanism can be locked with up to 3 padlocks. Inadvertent reclosing of the door is not possible in this case either.



Door-coupling rotary operating mechanism



Door-coupling rotary operating mechanism for arduous

Remote motorized operating mechanisms

3RV1 motor starter protectors are manually operated controls. They automatically trip in case of an overload or short-circuit. Intentional remote-controlled tripping is possible by means of a shunt trip unit or an undervoltage trip unit. Reclosing is only possible directly at the motor starter protector.

The remote motorized operating mechanism allows the motor starter protectors to be opened and closed by electrical commands. This enables a load or an installation to be isolated from the network or reconnected to it from an operator panel.

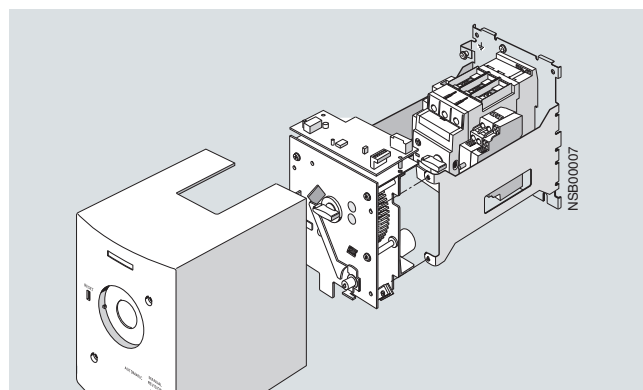
If the motor starter protector is tripped as a result of overload or short-circuit, it will be in tripped position. For reclosing, the remote motorized operating mechanism must first be set manually or electrically to the 0 position (electrically by means of the Open command). Then it can be reclosed.

The remote motorized operating mechanism is available for motor starter protectors of size S2 ($I_{n\max} = 50\text{ A}$) and S3 ($I_{n\max} = 100\text{ A}$) that are designed for control voltages of 230 V AC and 24 V DC. The motor starter protector is fitted into the remote motorized operating mechanism as shown in the drawing.

In the "MANUAL" position, the motor starter protector in the remote motorized operating mechanism can continue to be switched manually on site. In the "AUTOMATIC" position, the motor starter protector is switched by means of electrical commands. The switching command must be applied for a minimum of 100 ms. The remote motorized operating mechanism closes the motor starter protector after a maximum of 1 second. On voltage failure during the switching operation it is ensured that the motor starter protector remains in the OPEN or CLOSED position. In the "MANUAL" and "OFF" position, the remote motorized operating mechanism can be locked with a padlock.

RESET function

The RESET button on the motorized operating mechanism serves to reset any 3RV19 21-1M signal switch that might be installed.



Motor Starter Protectors up to 100 A

ES

Operating mechanisms

Ordering data

Version	Color of handle	Version of extension shaft mm	For motor starter protectors Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
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rotary operating mechanisms

The door-coupling rotary operating mechanisms consist of a knob, a coupling driver and an extension shaft of 130/330 mm in length (5 mm x 5 mm).

The door-coupling rotary operating mechanisms are designed to degree of protection IP65. The door locking device prevents accidental opening of the control cabinet door in the ON position of the motor starter protector. The OFF position can be locked with up to 3 padlocks.

Door-coupling rotary operating mechanisms	Black	130	S0, S2, S3	▶	3RV19 26-0B		1	1 unit	101	0.111
		330		▶	3RV19 26-0K		1	1 unit	101	0.324

EMERGENCY-STOP door-coupling rotary operating mechanisms	Red/	130	S0, S2, S3	▶	3RV19 26-0C		1	1 unit	101	0.110
	Yellow	330		▶	3RV19 26-0L		1	1 unit	101	0.316

rotary operating mechanisms

Conditions

The door-coupling rotary operating mechanisms consist of a knob, a coupling driver, an extension shaft of 300 mm in length (8 mm x 8 mm), a spacer and two metal brackets, into which the motor starter protector is inserted.

The door-coupling rotary operating mechanisms are designed to degree of protection IP65. The door interlocking reliably prevents opening of the control cabinet door in the ON position of the motor starter protector. The OFF position can be locked with up to 3 padlocks.

Laterally mountable auxiliary trip units and two-pole auxiliary switches can be used.

The door-coupling rotary operating mechanisms thus meet the requirements for isolating functions according to IEC 60947-2.

Door-coupling rotary operating mechanisms	Gray	300	S0	▶	3RV29 26-2B		1	1 unit	101	1.180
			S2	▶	3RV29 36-2B		1	1 unit	101	1.570
			S3	▶	3RV29 46-2B		1	1 unit	101	1.722

EMERGENCY-STOP door-coupling rotary operating mechanisms	Red/ Yellow	300	S0	▶	3RV29 26-2C		1	1 unit	101	1.188
			S2	▶	3RV29 36-2C		1	1 unit	101	1.486
			S3	▶	3RV29 46-2C		1	1 unit	101	1.732

Version	Rated control supply voltage U_s	For motor starter protectors Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
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Motorized operating mechanisms

Remote motorized operating mechanisms	50/60 Hz, 230 V AC	S2	B	3RV19 36-3AP0		1	1 unit	101	3.520
	24 V DC	S2	B	3RV19 36-3AB4		1	1 unit	101	3.420
Motorized operating mechanisms	50/60 Hz, 230 V AC	S3	B	3RV19 46-3AP0		1	1 unit	101	3.441
	24 V DC	S3	B	3RV19 46-3AB4		1	1 unit	101	3.357

3RV Motor Starter Protectors up to 100 A Accessories

Mounting accessories

Connections

Connections are available for the main contacts and auxiliary switches of size S00 motor starter

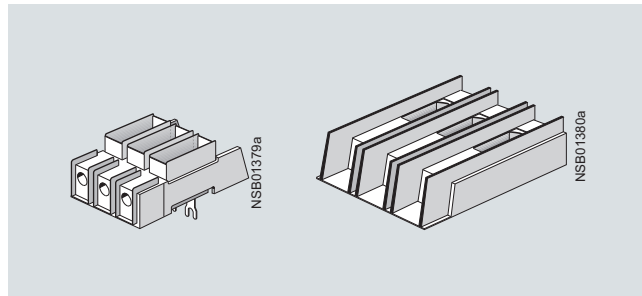
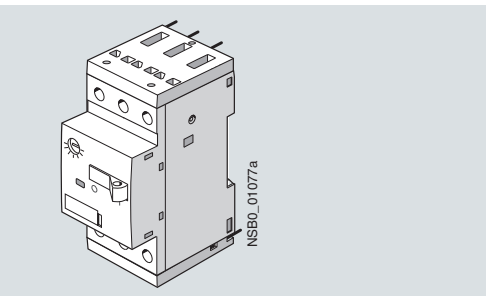
Terminal parts are clamped to the upper and lower terminals of the motor starter protectors which allows them to be inserted into printed circuit boards.

Terminals for "Self-Protected Combination Motor Controllers (Type E)" according to UL 508

The 3RV10 motor starter protectors size S0 and higher are approved according to UL 508 as "Self-Protected Combination Motor Controllers (Type E)".

This requires increased clearance and creepage distances (1 inch and 2 inches respectively) at the input side of the device, which are achieved by mounting terminal blocks.

- Size S0: The 3RV19 28-1H terminal block is simply screwed onto the basic unit.
- Size S2: The basic unit is already compliant with the new clearance and creepage distance requirements.
- Size S3: The standard box terminal must be replaced by the 3RT19 46-4GA07 terminal block.



3RV19 28-1H (left), 3RT19 46-4GA07 (right)

According to CSA, these terminal blocks can be omitted when the device is used as a "Self-Protected Combination Motor Controller" (Type E).

Three-phase feeder terminals are required for constructing "Type E Starters" with an insulated busbar system (see "Busbar accessories").

Ordering data

Version	For motor starter protectors Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Terminal covers for box terminals	S2	▶	3RT19 36-4EA2		1	1 unit	101	0.020
	S3	▶	3RT19 46-4EA2		1	1 unit	101	0.025
Additional touch protection to be fitted at the box terminals (2 units mountable per device)								
Terminal covers	S3	▶	3RT19 46-4EA1		1	1 unit	101	0.040
For cable lug and busbar connection for maintaining the required voltage clearance and as touch protection if box terminal is removed (2 units can be mounted per motor starter)								

Motor Starter Protectors up to 100 A

ES

Accessories

Version	For motor starter protectors Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Accessories								
Push-in lugs	S00, S0	A	3RB19 00-0B		100	10 units	101	0.100
For screwing the motor starter protector onto mounting plates. For each motor starter protector, 2 units are required.								
Connections								
For main contacts	S00	B	3RV19 18-5A		1	4 units	101	0.030
For soldering the main conductor connections of a motor starter protector to a printed circuit board (1 set = 2 units per motor starter protector)								
For main and auxiliary contacts	S00	B	3RV19 18-5B		1	4 units	101	0.044
For soldering the main conductor connections and the auxiliary conductor connections of the transverse auxiliary switch 1 NO + 1 NC of a motor starter protector to a printed circuit board (1 set = 3 units per motor starter protector)								
Version	For motor starter protectors Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg

Self-Protected Combination Motor Controllers according to UL 508

Note: UL 508 demands for "Combination Motor Controller Type E" 1-inch clearance and 2-inch creepage distance at line side.
The following terminal blocks must be used in 3RV10 motor starter protectors of sizes S0 and S3.

The 3RV10 motor starter protector in size S2 conforms with the required clearance and creepage distances without a terminal block.
Terminal blocks are not required for use according to CSA.

With size S0, these terminal blocks cannot be used in combination with 3RV19 .5 three-phase busbars and with size S3, they cannot be used with a transverse auxiliary switch.

For construction with three-phase busbars, see "Busbar accessories".


Terminal blocks type E	S0	▶	3RV19 28-1H		1	1 unit	101	0.083
For extended clearance and creepage distances (1 and 2 inch)	S3	A	3RT19 46-4GA07		1	1 unit	101	0.155

Version	For motor starter protectors Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Terminals, 3-pole								
For connection of auxiliary and control cables to the main conductor connections (for one side)	S3	B	3RT19 46-4F		1	1 unit	101	0.035

3RV Motor Starter Protectors up to 100 A

Accessories

Mounting accessories

Version	Method of operation	Size Contactors	Motor starter protectors	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
					Order No.	Price per PU			
									kg

single-unit packaging

For mechanical and electrical connection between contactor and motor starter protector with screw terminals	AC/DC	S00	S00	▶	3RA19 11-1AA00	1	1 unit	101	0.027
		S00	S0	▶	3RA19 21-1DA00	1	1 unit	101	0.028
	AC	S0	S0	▶	3RA19 21-1AA00	1	1 unit	101	0.037
		S2	S2	▶	3RA19 31-1AA00	1	1 unit	101	0.042
		S3	S3	▶	3RA19 41-1AA00	1	1 unit	101	0.090
	DC	S0	S0	▶	3RA19 21-1BA00	1	1 unit	101	0.039
		S2	S2	▶	3RA19 31-1BA00	1	1 unit	101	0.043
		S3	S3	▶	3RA19 41-1BA00	1	1 unit	101	0.089

multi-unit packaging

For mechanical and electrical connection between contactor and motor starter protector with screw terminals	AC/DC	S00	S00	▶	3RA19 11-1A	1	10 units	101	0.019
		S00	S0	▶	3RA19 21-1D	1	10 units	101	0.021
	AC	S0	S0	▶	3RA19 21-1A	1	10 units	101	0.028
		S2	S2	▶	3RA19 31-1A	1	5 units	101	0.033
		S3	S3	▶	3RA19 41-1A	1	5 units	101	0.072
	DC	S0	S0	▶	3RA19 21-1B	1	10 units	101	0.030
		S2	S2	▶	3RA19 31-1B	1	5 units	101	0.034
		S3	S3	▶	3RA19 41-1B	1	5 units	101	0.073

Version	Method of operation	Size Contactors	Motor starter protectors	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
									kg	

modules, single-unit packaging

Electrical and mechanical connection between motor starter protector with screw terminals and contactor with Cage Clamp terminals	AC/DC	S00	S00	▶	3RA19 11-2FA00	1	1 unit	101	0.038
		S00	S0	▶	3RA19 21-2FA00	1	1 unit	101	0.028


modules, multi-unit packaging


Electrical and mechanical connection between motor starter protector with screw terminals and contactor with Cage Clamp terminals	AC/DC	S00	S00	▶	3RA19 11-2F	1	10 units	101	0.031
		S00	S0	▶	3RA19 21-2F	1	10 units	101	0.030

Motor Starter Protectors up to 100 A

ES

Accessories

Version	Size	DT	Cage Clamp terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
			Order No.	Price per PU			
kg							
Link modules for Cage Clamp terminals							
Link modules, Cage Clamp Electrical connection between motor starter protector and contactor (busbar adapter not included in scope of supply)	S00	▶	3RA19 11-2A	1	10 units	101	0.016
Link modules, Cage Clamp with mechanical connections Mechanical and electrical connection between motor starter protector and contactor	S00	▶	3RA19 11-2E	1	10 units	101	0.028
Standard mounting rail adapters With 2 standard mounting rails 45 mm wide, one movable	S00	▶	3RA19 22-1L	1	5 units	101	0.413
Busbar adapters 45 mm wide, 182 mm long, adapted for Cage Clamp motor starter protectors. An additional standard mounting rail must be mounted for an additional contactor.	40 mm busbar system	▶	8US10 51-5CM47	1	1 unit	143	0.193
	60 mm busbar system	▶	8US12 51-5CM47	1	1 unit	143	0.190
35 mm standard mounting rails Plastic, including fixing screws	--	A	8US19 98-7CA15	1	10 units	143	0.009

Version	Size	DT	Cage Clamp terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
			Order No.	Price per PU			
kg							
Linking Cage Clamp terminals							
Screwdrivers For all SIRIUS devices with Cage Clamp terminals up to max. 2.5 mm ² conductor cross-section	Length approx. 175 mm; green, partially insulated	C	8WA2 880	1	1 unit	041	0.034
	Length approx. 175 mm; green	C	8WA2 803	1	1 unit	041	0.024

3RV Motor Starter Protectors up to 100 A

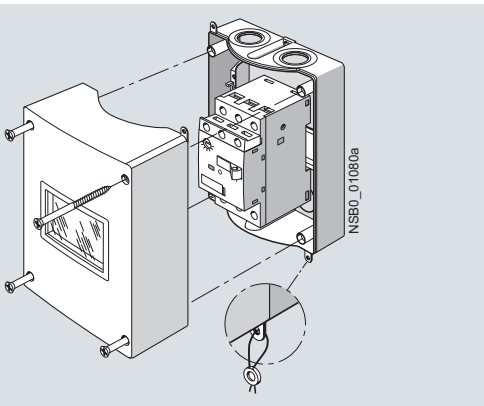
Accessories

Enclosures and front plates

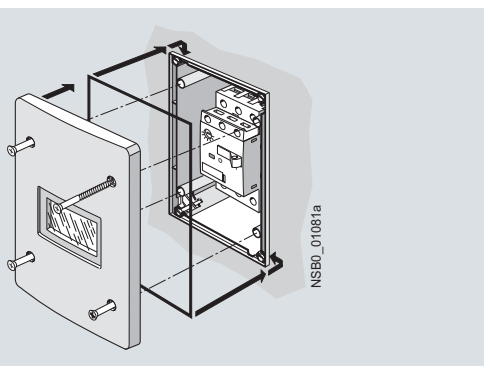
The installation of motor starter protectors of sizes S0 (2 A), S0 ($I_{n\ max} = 25\ A$) and S2 ($I_{n\ max} = 50\ A$), enclosures for surface mounting and molded-enclosures for flush mounting are available in various

in a molded-plastic enclosure the motor starter protector has a rated operational voltage U_e of 500 V.

for surface mounting have the degree of protection IP55 at the front (the flush-mounted section IP20).



Surface mounting



Flush mounting

are equipped with N and PE-terminals. There are two cable entries for cable glands at the top and two also on the rear corresponding cable entries are also a knockout on the top of the enclosure for indicators are available as accessories.

Enclosure can accommodate a motor starter protec-

A mushroom-shaped EMERGENCY-STOP knob can be fitted in place of the locking device. If it is actuated abruptly, the motor starter protector opens and the mushroom-shaped knob latches. The knob can be unlatched again either by turning it or by using a special key. The motor starter protector can subsequently be switched on again.

The molded-plastic enclosures of S0 and S2 motor starter protectors with rotary operating mechanism are fitted with a rotary operating mechanism as well.

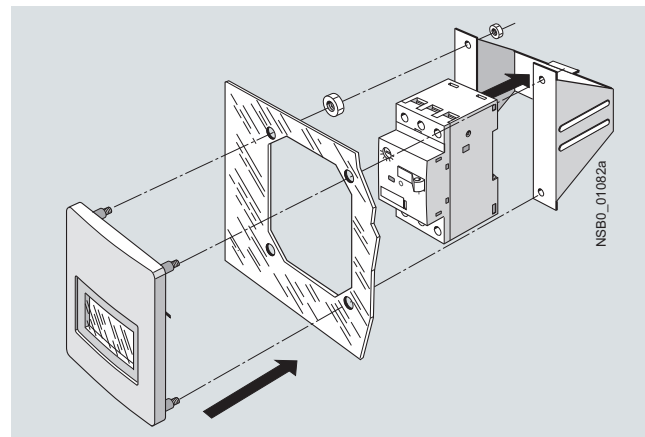
The enclosures can be supplied with a black rotary operating mechanism or with an EMERGENCY-STOP rotary operating mechanism with a red/yellow knob.

All rotary operating mechanisms can be locked in the open position with up to 3 padlocks.

Front plates

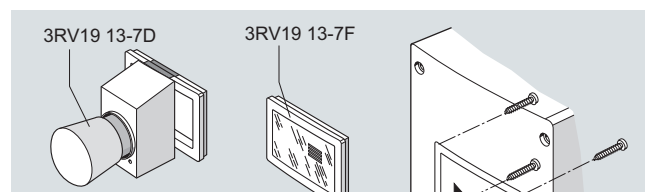
Motor starter protectors are frequently required to be actuated in any enclosure. Front plates equipped with an actuator diaphragm for size S00 motor starter protectors, or rotary operating mechanism for S0 to S3 motor starter protectors are available for this purpose.

The front plates for size S00 have a holder into which the motor starter protectors can be snapped. A holder for size S0 motor starter protectors is available for front plate sizes S0 to S3.



Front plate for size S00

Accessories for enclosures and front plates



Motor Starter Protectors up to 100 A

ES

and front plates

Ordering data

Version	Degree of protection	Integrated terminals	Overall width	For motor starter prot. Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
enclosures for surface mounting											
With actuator diaphragm	IP55	N and PE	54 mm (for protector + lateral auxiliary switch)	S00	▶	3RV19 13-1CA00		1	1 unit	101	0.296
			72 mm (for protector + lateral auxiliary switch + auxiliary trip unit)	S00	▶	3RV19 13-1DA00		1	1 unit	101	0.342
With rotary operating mechanism, lockable in 0 position	IP55	N and PE	54 mm (for protector + lateral auxiliary switch)	S0	▶	3RV19 23-1CA00		1	1 unit	101	0.332
			72 mm (for protector + lateral auxiliary switch + auxiliary trip unit)	S0	▶	3RV19 23-1DA00		1	1 unit	101	0.381
			82 mm (for protector + lateral auxiliary switch + auxiliary trip unit)	S2	A	3RV19 33-1DA00		1	1 unit	101	1.134
With EMERGENCY-STOP rotary operating mechanism, lockable in 0 position	IP55	N and PE	54 mm (for protector + lateral auxiliary switch)	S0	▶	3RV19 23-1FA00		1	1 unit	101	0.329
			72 mm (for protector + lateral auxiliary switch + auxiliary trip unit)	S0	▶	3RV19 23-1GA00		1	1 unit	101	0.372
			82 mm (for protector + lateral auxiliary switch + auxiliary trip unit)	S2	A	3RV19 33-1GA00		1	1 unit	101	1.136
enclosures for surface mounting											
With rotary operating mechanism, lockable in 0 position	IP65	PE ¹⁾	72 mm (for protector + lateral auxiliary switch + auxiliary trip unit)	S0	▶	3RV19 23-1DA01		1	1 unit	101	1.015
With EMERGENCY-STOP rotary operating mechanism, lockable in 0 position	IP65	PE ¹⁾	72 mm (for protector + lateral auxiliary switch + auxiliary trip unit)	S0	A	3RV19 23-1GA01		1	1 unit	101	1.008
enclosures for flush mounting											
With actua-	IP55	N and	72 mm	S00	A	3RV19 13-2DA00		1	1 unit	101	0.416

3RV Motor Starter Protectors up to 100 A

Accessories

Enclosures and front plates

Version	Degree of protection	For motor starter protectors Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Molded-plastic front plates with actuator diaphragm For actuating 3RV1 motor starter protectors in any enclosures, includes holder for motor starter protector.	IP55 (front side)	S00	A	3RV19 13-4C		1	1 unit	101	0.216
Molded-plastic front plates with rotary operating mechanism Lockable in 0 position For actuation of 3RV1 motor starter protectors in any enclosure.	IP55 (front side)	S0, S2, S3	▶	3RV19 23-4B		1	1 unit	101	0.124
Molded-plastic front plates with EMERGENCY-STOP rotary operating mechanism, red/yellow, lockable in 0 position EMERGENCY-STOP actuation of 3RV1 motor starter protectors in any enclosure.	IP55 (front side)	S0, S2, S3	A	3RV19 23-4E		1	1 unit	101	0.124
Holders for front plates Holder is mounted on front plate, motor starter protector with and without accessories is snapped in.	--	S0	▶	3RV19 23-4G		1	1 unit	101	0.188
For enclosures									
EMERGENCY-STOP mushroom buttons red/yellow For 3RV19 13-... enclosures and front plates Latching mushroom buttons, unlatch by turning Cannot be used in combination with locking device	IP55	S00	▶	3RV19 13-7D		1	1 unit	101	0.108
EMERGENCY-STOP mushroom buttons red/yellow, with lock For 3RV19 13-... enclosures and front panels RONIS lock, lock number SB 30, supplied with 2 keys Latching mushroom button, unlatch with key Cannot be used in combination with locking device	IP55	S00	A	3RV19 13-7E		1	1 unit	101	0.144
Locking devices For 3RV19 13-... enclosures and front plates For 3 padlocks with max. 8 mm shackle diameter. Cannot be used in combination with EMERGENCY-STOP mushroom button	IP55	S00	▶	3RV19 13-6B		1	1 unit	101	0.074
Spare actuator diaphragms Holders and screws are included in scope of supply	IP55	S00	A	3RV19 13-7F		1	1 unit	101	0.023

Molded Case Motor Starter Protectors up to 800 A



Molded case motor starter protectors

3RV13 molded case motor starter protectors for compact, current-limiting motor starter protection are used above all in load feeders for special voltages of 480 V, 550 V and 690 V. They are used for switching induction motors and other loads with rated currents up to 800 A.

Application

Molded case motor starter protectors are available in

width 90 mm,
current 32 A,
suitable for induction motors up to 22 kW.

width 105 mm,
current 250 A,
suitable for induction motors up to 110 kW.

width 140 mm,
current 630 A,
suitable for induction motors up to 200 kW.

width 210 mm,
current 800 A,
suitable for induction motors up to 355 kW.

Molded case motor starter protectors for up to 800 A are available in horizontal, vertical or lying arrangement in a mounting plate or mounting rail. Their rated data are dependent on the mounting method.

Separators for better insulation between the phases are

Benefits

- High short-circuit breaking capacity in the feeder
- Optimum usability in load feeders for the special voltages 440 V, 480 V, 550 V and 690 V
- Compact design
- The trip units are available both in purely magnetic (up to 32 A) and in solid-state versions (100 A to 800 A).

Application

Operating conditions

The 3RV1 molded case motor starter protectors for up to 800 A can be operated at ambient temperatures between -25 °C and +70 °C. They can be used according to IEC 60721-2-1 in the most difficult environmental conditions with a hot and damp climate.

Since operational currents, starting currents and current peaks are different even for motors with identical power ratings due to the inrush current, the motor ratings in the selection tables are only guide values. The specific rated and start-up data of the motor to be protected is always paramount to the choice of the most suitable molded case motor starter protectors.

Possible uses

The 3RV1 molded case motor starter protectors for up to 800 A are suitable as switching and protection devices for motors. The following versions are available:

- For motor protection; the overload and short-circuit releases are designed for optimized protection and direct starting of induction squirrel-cage motors. The motor starter protectors have an electronic trip unit which not only provides short-circuit and overload protection but is also sensitive to phase failure and phase unbalance and offers protection in the event of rotor blockage.
- For starter combinations; these molded case motor starter protectors are used for short-circuit protection in combinations of motor starter protector, motor contactor and overload relay. They are equipped with a purely magnetic trip unit (up to 32 A) or in solid-state trip unit (100 A to 800 A).

Standards and specifications

The electronic trip units for motor protection comply with IEC 60947-4-1. Isolating features are also compliant with IEC 60947-2.

The 3RV1 molded case motor starter protectors comply in addition with IEC 60068-2-6 (shock and vibration strength) and are certified for the specifications of the most important marine classification societies:




- RINA
- Det Norske Veritas
- Bureau Veritas
- Lloyd's Register of Shipping

3RV Molded Case Motor Starter Protectors up to 800 A

For motor protection

Ordering data

CLASS 10, CLASS 20, CLASS 30, without auxiliary switches

Rated current	Current setting of the inverse-time delayed overload release "L" I_R	Operating current of the instantaneous short-circuit releases "I" I_i	Short-circuit breaking capacity at 400 V AC	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
I_n			I_{cu}		Order No.	Price per PU			kg
A	A	A	kA						

trip units

Standard switching capacity, adjustable short-circuit and overload release, TU 4

100	40 ... 100	600 ... 1 300	120	X	3RV10 63-7AL10	1	1 unit	101	2.350
160	64 ... 160	960 ... 2 080	120	X	3RV10 63-7CL10	1	1 unit	101	2.350
200	80 ... 200	1 200 ... 2 600	120	X	3RV10 63-7DL10	1	1 unit	101	2.350
400	160 ... 400	2 400 ... 5 200	120	X	3RV10 73-7GL10	1	1 unit	101	3.250
630	252 ... 630	3 780 ... 8 190	100	X	3RV10 83-7JL10	1	1 unit	101	9.500



Accessories can be ordered separately (see "Accessories").

Molded Case Motor Starter Protectors up to 800 A

Combinations

Ordering data

Primary switches

Rated current	Inverse-time delayed overload release "L" I_R	Operating current of the instantaneous short-circuit releases I_i	Short-circuit breaking capacity at 400 V AC	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
I_n		$I >$	I_{cu}		Order No.	Price per PU			kg
A	A	A	kA						

trip units

Standard switching capacity, non-adjustable short-circuit release, TU 1

1	Without	13	85	X	3RV13 53-6AP10		1	1 unit	101	1.100
1.6	Without	21	85	X	3RV13 53-6BP10		1	1 unit	101	1.100
2	Without	26	85	X	3RV13 53-6CP10		1	1 unit	101	1.100
3.2	Without	42	85	X	3RV13 53-6DP10		1	1 unit	101	1.100
4	Without	52	85	X	3RV13 53-6EP10		1	1 unit	101	1.100
5	Without	65	85	X	3RV13 53-6FP10		1	1 unit	101	1.100
6.5	Without	85	85	X	3RV13 53-6GP10		1	1 unit	101	1.100
8.5	Without	111	85	X	3RV13 53-6HP10		1	1 unit	101	1.100
12.5	Without	163	85	X	3RV13 53-6JP10		1	1 unit	101	1.100

Standard switching capacity, adjustable short-circuit release, TU 2

20	Without	120 ... 240	85	X	3RV13 53-6LM10		1	1 unit	101	1.100
32	Without	192 ... 384	85	X	3RV13 53-6MM10		1	1 unit	101	1.100

trip units

Standard switching capacity, adjustable short-circuit release, TU 3

100	Without	100 ... 1 000	120	X	3RV13 63-7AN10		1	1 unit	101	2.350
160	Without	160 ... 1 600	120	X	3RV13 63-7CN10		1	1 unit	101	2.350
250	Without	250 ... 2 500	120	X	3RV13 63-7EN10		1	1 unit	101	2.350
400	Without	400 ... 4 000	120	X	3RV13 73-7GN10		1	1 unit	101	3.250
630	Without	630 ... 6 300	120	X	3RV13 73-7JN10		1	1 unit	101	3.250
630	Without	630 ... 6 300	100	X	3RV13 83-7JN10		1	1 unit	101	9.500
800	Without	800 ... 8 000	100	X	3RV13 83-7KN10		1	1 unit	101	9.500

Increased switching capacity, adjustable short-circuit release, TU 3

100	Without	100 ... 1 000	200	X	3RV13 64-7AN10		1	1 unit	101	2.350
160	Without	160 ... 1 600	200	X	3RV13 64-7CN10		1	1 unit	101	2.350
250	Without	250 ... 2 500	200	X	3RV13 64-7EN10		1	1 unit	101	2.350
400	Without	400 ... 4 000	200	X	3RV13 74-7GN10		1	1 unit	101	3.250

Accessories can be ordered separately (e.g. "SIRIUS Accessories").

on

"SIRIUS Configuration"

Ordering and assignment tables can be found in the "SIRIUS Configuration", 6ES7 660-T1815-A101-A2-7600

Get under:

www.siemens.com/lowvoltage/infomaterial


* -> "SIRIUS Modular System"

3RV Molded Case Motor Starter Protectors up to 800 A

Accessories


Mountable accessories

Ordering data

Type	Version	For molded case motor starter protectors	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
				Order No.	Price per PU			
								kg

Switches

Auxiliary switches for front mounting	1 signal switch Off-On + 1 "tripped" signal (250 V AC/DC)	3RV13 53, 3RV1. 6. ... 3RV1. 83	X	3RV19 91-1AA0	1	1 unit	101	0.040
	3 signal switches Off-On + 1 "tripped" signal (250 V AC/DC)	3RV1. 83	X	3RV19 91-1BA0	1	1 unit	101	0.040
	3 signal switches Off-On + 1 "tripped" signal (24 V DC)		X	3RV19 91-1CA0	1	1 unit	101	0.040
Connection cables for auxiliary switches	Length 2 m, 6-pole	3RV13 53, 3RV1. 6. ... 3RV1. 83	X	3RV19 91-1FA0	1	1 unit	101	0.090

Type	Rated control supply voltage U_s		For molded case motor starter protectors	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		AC 50/60 Hz	DC			Order No.	Price per PU		
		V	V						kg

Units



Undervoltage trip units	24 ... 30	24 ... 30	3RV13 53	X	3RV19 52-1AA0	1	1 unit	101	0.120
	110 ... 127	110 ... 125		X	3RV19 52-1AD0	1	1 unit	101	0.120
	220 ... 240	220 ... 250		X	3RV19 52-1AE0	1	1 unit	101	0.120
For front mounting	24 ... 30	24 ... 30	3RV1. 6.	X	3RV19 82-1AA0	1	1 unit	101	0.170
	110 ... 127	110 ... 125	...	X	3RV19 82-1AD0	1	1 unit	101	0.170
	220 ... 240	220 ... 250	3RV1. 83	X	3RV19 82-1AF0	1	1 unit	101	0.170
Shunt trip units	24 ... 30	24 ... 30	3RV13 53	X	3RV19 52-1EA0	1	1 unit	101	0.120
	110 ... 127	110 ... 125		X	3RV19 52-1ED0	1	1 unit	101	0.120
	220 ... 240	220 ... 250		X	3RV19 52-1EF0	1	1 unit	101	0.120
For front mounting	24 ... 30	24 ... 30	3RV1. 6.	X	3RV19 82-1EA0	1	1 unit	101	0.170
	110 ... 127	110 ... 125	...	X	3RV19 82-1ED0	1	1 unit	101	0.170
	220 ... 240	220 ... 250	3RV1. 83	X	3RV19 82-1EF0	1	1 unit	101	0.170

Molded Case Motor Starter Protectors up to 800 A

ES

Operating mechanisms
Accessories

Ordering data

Version	For molded case motor starter protectors	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
		Order No.	Price per PU					
							kg	
Operating mechanisms								
Lever-type rotary operating mechanisms 	With adjustable distance,	3RV13 53	X	3RV19 56-0BA0	1	1 unit	101	0.400
	with lock/door interlocking	3RV1. 6., 3RV1. 7.	X	3RV19 76-0BA0	1	1 unit	101	0.600
	(padlocks are not included in scope of supply)	3RV1. 83	X	3RV19 86-0BA0	1	1 unit	101	0.600
Connections								
Front-extended (1 set = 6 units)		3RV13 53	X	3RV19 55-1AA0	1	1 unit	101	0.300
		3RV1. 6.	X	3RV19 65-1BA0	1	1 unit	101	0.600
		3RV1. 7.	X	3RV19 75-1CA0	1	1 unit	101	0.900
		3RV1. 83-7J.10	X	3RV19 85-1DA0	1	1 unit	101	0.782
		3RV1. 83-7KN10	X	3RV19 85-1EA0	1	1 unit	101	1.015
Rear (1 set = 3 units)		3RV13 53	X	3RV19 55-3AA0	1	1 unit	101	0.200
		3RV1. 6.	X	3RV19 65-3AA0	1	1 unit	101	0.300
		3RV1. 7.	X	3RV19 75-3AA0	1	1 unit	101	1.000
		3RV1. 83	X	3RV19 85-3AA0	1	1 unit	101	1.000
Cable terminals								
Front-extended (1 set = 6 units)		3RV13 53	X	3RV19 55-2AA0	1	1 unit	101	0.150
		3RV1. 6.	X	3RV19 65-2BA0	1	1 unit	101	0.300
		3RV1. 7.-7G.10	X	3RV19 75-2CA0	1	1 unit	101	0.730
		3RV1. 73-7JN10	X	3RV19 75-2DA0	1	1 unit	101	0.750

Overload Relays

General data



Benefits	3RU11	3RB20/3RB21	3RB22/3RB23
Mounting range	S00 ... S3	S00 ... S12	S00 ... S12
Current range	0.11 ... 100 A	0.1 ... 630 A	0.3 ... 630 A (... 820 A) ¹⁾
Functions			
Protection against overcurrent	✓	✓	✓
Protection against phase unbalance	(✓)	✓	✓
Protection against phase failure	✓	✓	✓
Protection against single-phase loads	✓	--	✓
Protection against overheating	-- ²⁾	-- ²⁾	✓
Motor protection			
Protection against a ground fault	--	✓ (only 3RB21)	✓
Fault detection			
Resetting	✓	✓	✓
Remote resetting	✓ (by means of ...)	✓ (only 3RB21 with ...)	✓

Load Relays



	Benefits	3RU11	3RB20/3RB21	3RB22/3RB23
Load feeders				
Length up to 100 kA	<ul style="list-style-type: none"> Provides optimum protection of the loads and operating personnel in the event of short-circuits due to insulation faults or faulty switching operations 	✓	✓	✓
with the corresponding corresponding motor starter				
Mechanical matching	<ul style="list-style-type: none"> Simplifies configuration Reduces wiring outlay and costs Enables stand-alone installation as well as space-saving direct mounting 	✓	✓	✓ ¹⁾
Terminals for				
transformers for	<ul style="list-style-type: none"> Reduces the contact resistance (only one point of contact) Saves wiring costs (easy, no need for tools, and fast) Saves material costs Reduces installation costs 	--	✓ (S2 ... S6)	✓ (S00 ... S6)
ables are routed through openings of and connected terminals of the con-				
Terminal connection circuit²⁾	<ul style="list-style-type: none"> Enables fast connections Permits vibration-resistant connections Enables maintenance-free connections 	✓ (S00)	--	--
Terminal connection primary circuits²⁾	<ul style="list-style-type: none"> Enables fast connections Permits vibration-resistant connections Enables maintenance-free connections 	✓	✓	✓
Temperature compensation	<ul style="list-style-type: none"> Allows the use of the relays at high temperatures without derating Prevents premature tripping Allows compact installation of the control cabinet without distance between the devices/load feeders Simplifies configuration Enables space to be saved in the control cabinet 	✓	✓	✓
Thermal stability	<ul style="list-style-type: none"> Provides safe protection for the loads even after years of use in severe operating conditions 	(✓)	✓	✓
Dimensions	<ul style="list-style-type: none"> Reduce the number of variants Minimize the engineering outlay and costs Minimize storage overhead, storage costs, tied-up capital 	--	✓ (1:4)	✓ (1:10)
Class 5	<ul style="list-style-type: none"> Enables solutions for very fast starting motors requiring special protection (e. g. Ex motors) 	--	✓ (only 3RB21)	✓
Class 10	<ul style="list-style-type: none"> Enables heavy starting solutions Reduces power consumption and energy costs (up 98 % less power is used than for thermal overload relays). 	--	✓	✓

Overload Relays

General data



	Benefits	3RU11	3RB20/3RB21	3RB22/3RB23
Control supply	<ul style="list-style-type: none"> Eliminates the need for configuration and connecting an additional control circuit 	-- ¹⁾	✓	--
Number of variants of the trip	<ul style="list-style-type: none"> Reduces the number of variants Minimizes the configuring outlay and costs 	--	✓ (only 3RB21)	✓
Adjustment (Trip class can be adjusted by changing the primary switch depending on the start-up condition.)	<ul style="list-style-type: none"> Minimizes storage overhead, storage costs, and tied-up capital 			
Signaling	<ul style="list-style-type: none"> Indicates imminent tripping of the relay directly on the device due to overload, phase unbalance or phase failure Allows the imminent tripping of the relay to be signaled Allows measures to be taken in time in the event of continuous inverse-time delayed overloads Eliminates the need for an additional device Saves space in the control cabinet Reduces wiring outlay and costs 	--	--	✓
Integration	<ul style="list-style-type: none"> Allows the output of an analog output signal for actuating moving-coil instruments, feeding programmable logic controllers or transfer to bus systems Eliminates the need for an additional measuring transducer and signal converter Saves space in the control cabinet Reduces wiring outlay and costs 	--	--	✓

¹⁾ 3RU11 thermal overload relays use a bimetal contactor and require a control supply voltage.

Overload Relays

Overload relays	Current measurement	Current range	Contactors (type, size, rating in kW)							
			3RT10 1	3RT10 2	3RT10 3	3RT10 4	3RT10 5	3RT10 6	3RT10 7	3TF68/69
		A	S00	S0	S2	S3	S6	S10	S12	Size 14
Type	Type		3/4/5.5	5.5/7.5/11	15/18.5/22	30/37/45	55/75/90	110/132/160	200/250	375/450
Overload relays										
3RU11 1	Integrated	0.11 ... 12	✓	--	--	--	--	--	--	--
3RU11 2	Integrated	1.8 ... 25	--	✓	--	--	--	--	--	--
3RU11 3	Integrated	5.5 ... 50	--	--	✓	--	--	--	--	--
3RU11 4	Integrated	18 ... 100	--	--	--	✓	--	--	--	--
State overload relays										
3RB20 1	Integrated	0.1 ... 12	✓	--	--	--	--	--	--	--
3RB20 2	Integrated	0.1 ... 25	--	✓	--	--	--	--	--	--
3RB20 3	Integrated	6 ... 50	--	--	✓	--	--	--	--	--
3RB20 4	Integrated	12.5 ... 100	--	--	--	✓	--	--	--	--
3RB20 5	Integrated	50 ... 200	--	--	--	--	✓	--	--	--
3RB20 6	Integrated	55 ... 630	--	--	--	--	--	✓	✓	✓
3RB20 1 + 3UF18	Integrated	630 ... 820	--	--	--	--	--	--	--	✓
State overload relays										
3RB21 1	Integrated	0.1 ... 12	✓	--	--	--	--	--	--	--
3RB21 2	Integrated	0.1 ... 25	--	✓	--	--	--	--	--	--
3RB21 3	Integrated	6 ... 50	--	--	✓	--	--	--	--	--
3RB21 4	Integrated	12.5 ... 100	--	--	--	✓	--	--	--	--
3RB21 5	Integrated	50 ... 200	--	--	--	--	✓	--	--	--
3RB21 6	Integrated	55 ... 630	--	--	--	--	--	✓	✓	✓
3RB21 1 + 3UF18	Integrated	630 ... 820	--	--	--	--	--	--	--	✓
Solid-state overload relays										
3RB22/3RB23 +	3RB29 0	0.3 ... 25	✓	✓	--	--	--	--	--	--
	3RB29 0	10 ... 100	--	--	✓	✓	--	--	--	--
	3RB29 5	20 ... 200	--	--	--	--	✓	--	--	--
	3RB29 6	63 ... 630	--	--	--	--	--	✓	✓	✓
	3RB29 0 + 3UF18	630 ... 820	--	--	--	--	--	--	--	✓

Overload relays with trip class \geq CLASS 20, see Technical Data "Technical specifications", "Short-Circuit Protection with Feeder", and the project planning aid "Configuring SIR-Load Feeders".

Methods

3RB21 relays are available with screw terminals or spring-loaded terminals on the auxiliary current terminals. The same applies for the evaluation modules of the relays. The 3RU11 relays come with screw

Overload Relays

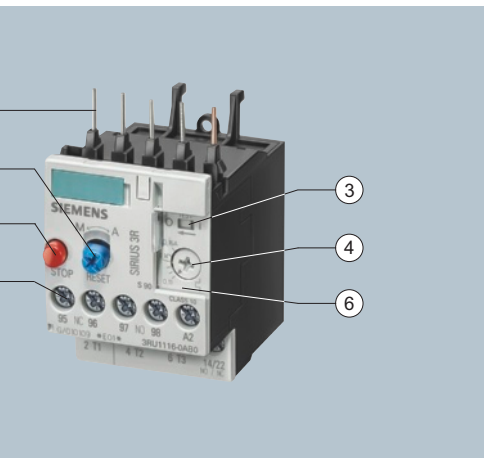
3RU1 Thermal Overload Relays

3RU11 for standard applications

"Increased safety" type of protection EEx e according to ATEX directive 94/9/EC

The 3RU11 thermal overload relays are suitable for the overload protection of explosion-proof motors with "increased safety" type of protection EEx e. The relays meet the requirements of EN 60079-7 (Electrical apparatus for areas subject to explosion hazards – Increased safety "e"); see Chapter 20 "Appendix" --> "Standards and approvals" --> "Type overview of approved devices for potentially explosive areas (ATEX explosion protection)".

EC type test certificate for Category (2) G/D exists. It has the number DMT 98 ATEX G 001.



mounting onto contactors:
 noted in electrical, mechanical and design terms to the
 these connecting pins can be used for direct mounting of
 relays. Stand-alone installation is possible as an alterna-
 cases in conjunction with a stand-alone installation

h for manual/automatic RESET and RESET button:
 h you can choose between manual and automatic
 ce set to manual RESET can be reset locally by pressing
 ton. A remote RESET is possible using the RESET mod-
 ies), which are independent of size.

h indicator and TEST function of the wiring:
 o and enables the wiring test.

setting:
 vice to the rated motor current is easy with the large ro-

ton is pressed, the NC contact is opened. This switches
 or downstream. The NC contact is closed again when
 eleased.

dealable cover:
 motor current setting and the TEST function against

als:
 y sized terminals permit connection of two conductors
 cross-sections for the main and auxiliary circuits. The
 t can be connected with screw terminals and alterna-
 ng-loaded terminals.

ermal overload relays up to 100 A have been de-
 se-time delayed protection of loads with normal
[chnical Information LV 1 T, "Function"](#) against ex-
 ature rises due to overload or phase failure. An
 se failure results in an increase of the motor cur-
 e set rated motor current. Via heating elements,
 heats up the bimetal strips inside the device
 d and as a result trigger the auxiliary contacts by
 oing mechanism. The auxiliary contacts then
 ad by means of a contactor. The break time de-

Benefits

The most important features and benefits of the 3RU11 thermal overload relays are listed in the overview table (see "Overload Relays", --> "General data").

Application

Industries

The 3RU11 thermal overload relays are suitable for customers from all industries who want to guarantee optimum inverse-time delayed protection of their electrical loads (e. g. motors) under normal starting conditions (CLASS 10).

Application

The 3RU11 thermal overload relays have been 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 by the 3RU11 thermal overload relays, all three bimetal strips must be heated. For this purpose, all main current paths of the relay must be connected in series.

Ambient conditions

The 3RU11 thermal overload relays have temperature compensation in accordance with IEC 60947-4-1 for the temperature range of -20 to +60 °C. For temperatures from +60 to +80 °C the upper set value of the setting range must be reduced by the factor listed in the table below.

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

Overload Relays

Thermal Overload Relays


Standard applications

Ordering data

Thermal overload relays with screw terminals on the auxiliary current side¹⁾ for direct mounting, CLASS 10

Technical specifications:
 3-phase failure protection
 2 contacts 1 NO + 1 NC
 automatic RESET

- Switch position indicators
- TEST function
- STOP button
- Integrated, sealable cover

Size contactor ²⁾	Rating for induction motor Rated value ³⁾	Current setting of the inverse-time delayed over- load release	Short-circuit protection with fuse, type of coord- ination 2, gL/gG opera- tional class ⁴⁾	DT	Screw terminals (on auxiliary current side)  Order No.	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	kW	A	A		Price per PU				kg
S00	0.04	0.11 ... 0.16	0.5	▶	3RU11 16-0AB0	1	1 unit	101	0.150
	0.06	0.14 ... 0.2	1	▶	3RU11 16-0BB0	1	1 unit	101	0.150
	0.06	0.18 ... 0.25	1	▶	3RU11 16-0CB0	1	1 unit	101	0.150
	0.09	0.22 ... 0.32	1.6	▶	3RU11 16-0DB0	1	1 unit	101	0.150
	0.09	0.28 ... 0.4	2	▶	3RU11 16-0EB0	1	1 unit	101	0.150
	0.12	0.35 ... 0.5	2	▶	3RU11 16-0FB0	1	1 unit	101	0.150
	0.18	0.45 ... 0.63	2	▶	3RU11 16-0GB0	1	1 unit	101	0.150
	0.18	0.55 ... 0.8	4	▶	3RU11 16-0HB0	1	1 unit	101	0.150
	0.25	0.7 ... 1	4	▶	3RU11 16-0JB0	1	1 unit	101	0.150
	0.37	0.9 ... 1.25	4	▶	3RU11 16-0KB0	1	1 unit	101	0.150
	0.55	1.1 ... 1.6	6	▶	3RU11 16-1AB0	1	1 unit	101	0.150
	0.75	1.4 ... 2	6	▶	3RU11 16-1BB0	1	1 unit	101	0.150
	0.75	1.8 ... 2.5	10	▶	3RU11 16-1CB0	1	1 unit	101	0.150
	1.1	2.2 ... 3.2	10	▶	3RU11 16-1DB0	1	1 unit	101	0.150
	1.5	2.8 ... 4	16	▶	3RU11 16-1EB0	1	1 unit	101	0.150
	1.5	3.5 ... 5	20	▶	3RU11 16-1FB0	1	1 unit	101	0.150
	2.2	4.5 ... 6.3	20	▶	3RU11 16-1GB0	1	1 unit	101	0.150
	3	5.5 ... 8	25	▶	3RU11 16-1HB0	1	1 unit	101	0.150
	4	7 ... 10	35	▶	3RU11 16-1JB0	1	1 unit	101	0.150
	5.5	9 ... 12	35	▶	3RU11 16-1KB0	1	1 unit	101	0.150
S0	0.75	1.8 ... 2.5	10	▶	3RU11 26-1CB0	1	1 unit	101	0.190
	1.1	2.2 ... 3.2	10	▶	3RU11 26-1DB0	1	1 unit	101	0.190
	1.5	2.8 ... 4	16	▶	3RU11 26-1EB0	1	1 unit	101	0.190
	1.5	3.5 ... 5	20	▶	3RU11 26-1FB0	1	1 unit	101	0.190
	2.2	4.5 ... 6.3	20	▶	3RU11 26-1GB0	1	1 unit	101	0.190
	3	5.5 ... 8	25	▶	3RU11 26-1HB0	1	1 unit	101	0.190
	4	7 ... 10	35	▶	3RU11 26-1JB0	1	1 unit	101	0.190
	5.5	9 ... 12.5	35	▶	3RU11 26-1KB0	1	1 unit	101	0.190
	7.5	11 ... 16	40	▶	3RU11 26-4AB0	1	1 unit	101	0.190
	7.5	14 ... 20	50	▶	3RU11 26-4BB0	1	1 unit	101	0.190
	11	17 ... 22	63	▶	3RU11 26-4CB0	1	1 unit	101	0.190
	11	20 ... 25	63	▶	3RU11 26-4DB0	1	1 unit	101	0.190
	S2	3	5.5 ... 8	25	▶	3RU11 36-1HB0	1	1 unit	101
4		7 ... 10	35	▶	3RU11 36-1JB0	1	1 unit	101	0.320
5.5		9 ... 12.5	35	▶	3RU11 36-1KB0	1	1 unit	101	0.320
7.5		11 ... 16	40	▶	3RU11 36-4AB0	1	1 unit	101	0.320
7.5		14 ... 20	50	▶	3RU11 36-4BB0	1	1 unit	101	0.320
11		18 ... 25	63	▶	3RU11 36-4DB0	1	1 unit	101	0.320
15		22 ... 32	80	▶	3RU11 36-4EB0	1	1 unit	101	0.320
18.5		28 ... 40	80	▶	3RU11 36-4FB0	1	1 unit	101	0.320
22		36 ... 45	100	▶	3RU11 36-4GB0	1	1 unit	101	0.320
22		40 ... 50	100	▶	3RU11 36-4HB0	1	1 unit	101	0.320

Overload Relays

3RU1 Thermal Overload Relays

3RU11 for standard applications

Overload relays with screw terminals on the auxiliary current side for stand-alone installation¹⁾, CLASS 10

Technical specifications:
 3-phase failure protection
 contacts 1 NO + 1 NC
 automatic RESET

- Switch position indicators
- TEST function
- STOP button
- Integrated, sealable cover

Size contactor ²⁾	Rating for induction motor Rated value ³⁾	Current setting of the inverse-time delayed over- load release	Short-circuit protection with fuse, type of coord- ination 2, gL/gG opera- tional class ⁴⁾	DT	Screw terminals (on auxiliary current side)	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
	kW	A	A		Order No.	Price per PU			kg	
S00	0.04	0.11 ... 0.16	0.5	B	3RU11 16-0AB1		1	1 unit	101	0.180
	0.06	0.14 ... 0.2	1	B	3RU11 16-0BB1		1	1 unit	101	0.180
	0.06	0.18 ... 0.25	1	B	3RU11 16-0CB1		1	1 unit	101	0.180
	0.09	0.22 ... 0.32	1.6	B	3RU11 16-0DB1		1	1 unit	101	0.180
	0.09	0.28 ... 0.4	2	▶	3RU11 16-0EB1		1	1 unit	101	0.180
	0.12	0.35 ... 0.5	2	▶	3RU11 16-0FB1		1	1 unit	101	0.180
	0.18	0.45 ... 0.63	2	▶	3RU11 16-0GB1		1	1 unit	101	0.180
	0.18	0.55 ... 0.8	4	▶	3RU11 16-0HB1		1	1 unit	101	0.180
	0.25	0.7 ... 1	4	▶	3RU11 16-0JB1		1	1 unit	101	0.180
	0.37	0.9 ... 1.25	4	▶	3RU11 16-0KB1		1	1 unit	101	0.180
	0.55	1.1 ... 1.6	6	▶	3RU11 16-1AB1		1	1 unit	101	0.180
	0.75	1.4 ... 2	6	▶	3RU11 16-1BB1		1	1 unit	101	0.180
	0.75	1.8 ... 2.5	10	▶	3RU11 16-1CB1		1	1 unit	101	0.180
	1.1	2.2 ... 3.2	10	▶	3RU11 16-1DB1		1	1 unit	101	0.180
	1.5	2.8 ... 4	16	▶	3RU11 16-1EB1		1	1 unit	101	0.180
	1.5	3.5 ... 5	20	▶	3RU11 16-1FB1		1	1 unit	101	0.180
2.2	4.5 ... 6.3	20	▶	3RU11 16-1GB1		1	1 unit	101	0.180	
3	5.5 ... 8	25	▶	3RU11 16-1HB1		1	1 unit	101	0.180	
4	7 ... 10	35	▶	3RU11 16-1JB1		1	1 unit	101	0.180	
5.5	9 ... 12	35	▶	3RU11 16-1KB1		1	1 unit	101	0.180	
S0	7.5	11 ... 16	40	▶	3RU11 26-4AB1		1	1 unit	101	0.240
	7.5	14 ... 20	50	▶	3RU11 26-4BB1		1	1 unit	101	0.240
	11	17 ... 22	63	▶	3RU11 26-4CB1		1	1 unit	101	0.240
	11	20 ... 25	63	▶	3RU11 26-4DB1		1	1 unit	101	0.240
S2	15	22 ... 32	80	▶	3RU11 36-4EB1		1	1 unit	101	0.480
	18.5	28 ... 40	80	▶	3RU11 36-4FB1		1	1 unit	101	0.480
	22	36 ... 45	100	▶	3RU11 36-4GB1		1	1 unit	101	0.480
	22	40 ... 50	100	▶	3RU11 36-4HB1		1	1 unit	101	0.480
S3	30	45 ... 63	125	▶	3RU11 46-4JB1		1	1 unit	101	0.810
	37	57 ... 75	160	▶	3RU11 46-4KB1		1	1 unit	101	0.810
	45	70 ... 90	160	▶	3RU11 46-4LB1		1	1 unit	101	0.810
	45	80 ... 100 ⁵⁾	200	▶	3RU11 46-4MB1		1	1 unit	101	0.810

Overload Relays


Thermal Overload Relays

Standard applications

Thermal overload relays with Cage Clamp terminals for direct mounting¹⁾ and stand-alone installation²⁾, CLASS 10

Technical specifications:
 3-phase failure protection
 1 NO + 1 NC
 automatic RESET

- Switch position indicators
- TEST function
- STOP button
- Integrated, sealable cover

Size of contactor ³⁾	Rating for induction motor Rated value ⁴⁾	Current setting of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination 2, gL/gG operational class ⁵⁾	DT	Cage Clamp terminals (on auxiliary current side)		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
	kW	A	A		Order No.	Price per PU				kg	
Stand-alone installation⁶⁾											
S00	0.04	0.11 ... 0.16	0.5	B	3RU11 16-0AC1		1	1 unit	101	0.190	
	0.06	0.14 ... 0.2	1	B	3RU11 16-0BC1		1	1 unit	101	0.190	
	0.06	0.18 ... 0.25	1	B	3RU11 16-0CC1		1	1 unit	101	0.190	
	0.09	0.22 ... 0.32	1.6	B	3RU11 16-0DC1		1	1 unit	101	0.190	
	0.09	0.28 ... 0.4	2	B	3RU11 16-0EC1		1	1 unit	101	0.190	
	0.12	0.35 ... 0.5	2	B	3RU11 16-0FC1		1	1 unit	101	0.190	
	0.18	0.45 ... 0.63	2	▶	3RU11 16-0GC1		1	1 unit	101	0.190	
	0.18	0.55 ... 0.8	4	▶	3RU11 16-0HC1		1	1 unit	101	0.190	
	0.25	0.7 ... 1	4	▶	3RU11 16-0JC1		1	1 unit	101	0.190	
	0.37	0.9 ... 1.25	4	▶	3RU11 16-0KC1		1	1 unit	101	0.190	
	0.55	1.1 ... 1.6	6	▶	3RU11 16-1AC1		1	1 unit	101	0.190	
	0.75	1.4 ... 2	6	▶	3RU11 16-1BC1		1	1 unit	101	0.190	
	0.75	1.8 ... 2.5	10	C	3RU11 16-1CC1		1	1 unit	101	0.190	
	1.1	2.2 ... 3.2	10	▶	3RU11 16-1DC1		1	1 unit	101	0.190	
	1.5	2.8 ... 4	16	B	3RU11 16-1EC1		1	1 unit	101	0.190	
	1.5	3.5 ... 5	20	B	3RU11 16-1FC1		1	1 unit	101	0.190	
	2.2	4.5 ... 6.3	20	▶	3RU11 16-1GC1		1	1 unit	101	0.190	
	3	5.5 ... 8	25	▶	3RU11 16-1HC1		1	1 unit	101	0.190	
	4	7 ... 10	35	▶	3RU11 16-1JC1		1	1 unit	101	0.190	
5.5	9 ... 12	35	▶	3RU11 16-1KC1		1	1 unit	101	0.190		
Direct mounting¹⁾⁷⁾											
S0	0.75	1.8 ... 2.5	10	B	3RU11 26-1CD0		1	1 unit	101	0.190	
	1.1	2.2 ... 3.2	10	B	3RU11 26-1DD0		1	1 unit	101	0.190	
	1.5	2.8 ... 4	16	B	3RU11 26-1ED0		1	1 unit	101	0.190	
	1.5	3.5 ... 5	20	B	3RU11 26-1FD0		1	1 unit	101	0.190	
	2.2	4.5 ... 6.3	20	B	3RU11 26-1GD0		1	1 unit	101	0.190	
	3	5.5 ... 8	25	B	3RU11 26-1HD0		1	1 unit	101	0.190	
	4	7 ... 10	35	B	3RU11 26-1JD0		1	1 unit	101	0.190	
	5.5	9 ... 12.5	35	B	3RU11 26-1KD0		1	1 unit	101	0.190	
	7.5	11 ... 16	40	▶	3RU11 26-4AD0		1	1 unit	101	0.190	
	7.5	14 ... 20	50	▶	3RU11 26-4BD0		1	1 unit	101	0.190	
	11	17 ... 22	63	▶	3RU11 26-4CD0		1	1 unit	101	0.190	
	11	20 ... 25	63	▶	3RU11 26-4DD0		1	1 unit	101	0.190	
	Direct mounting¹⁾⁷⁾										
	S2	3	5.5 ... 8	25	B	3RU11 36-1HD0		1	1 unit	101	0.320
4		7 ... 10	35	B	3RU11 36-1JD0		1	1 unit	101	0.320	
5.5		9 ... 12.5	35	B	3RU11 36-1KD0		1	1 unit	101	0.320	
7.5		11 ... 16	40	B	3RU11 36-4AD0		1	1 unit	101	0.320	
7.5		14 ... 20	50	B	3RU11 36-4BD0		1	1 unit	101	0.320	
11		18 ... 25	63	B	3RU11 36-4DD0		1	1 unit	101	0.320	
15		22 ... 32	80	▶	3RU11 36-4ED0		1	1 unit	101	0.320	
18.5		28 ... 40	80	▶	3RU11 36-4FD0		1	1 unit	101	0.320	
22		36 ... 45	100	▶	3RU11 36-4GD0		1	1 unit	101	0.320	
22		40 ... 50	100	▶	3RU11 36-4HD0		1	1 unit	101	0.320	
Direct mounting¹⁾⁷⁾											
S3	11	18 ... 25	63	B	3RU11 46-4DD0		1	1 unit	101	0.550	
	15	22 ... 32	80	B	3RU11 46-4ED0		1	1 unit	101	0.550	

Overload Relays

3RU1 Thermal Overload Relays

Accessories

Optional accessories are available for the 3RU11 and 3RU12 relays:

For 3RU11 and 3RU12 overload relay sizes S00 to S3 one terminal block is available for stand-alone installation

For 3RU11 and 3RU12 a remote RESET module in three voltage variants

- One mechanical RESET module for all sizes
- One cable release for resetting devices which are difficult to access (for all sizes)
- Terminal covers

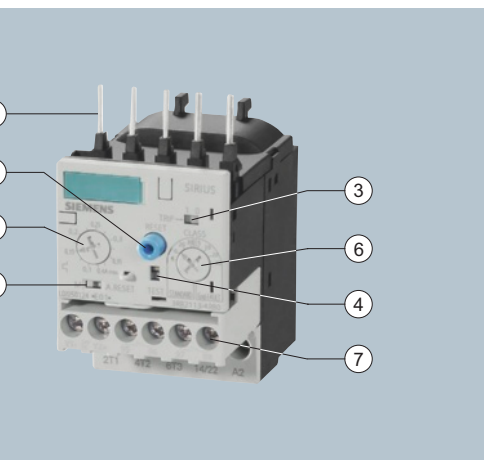
Ordering data

Version	Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Accessories for stand-alone installation								
For separate mounting of overload relays; screw and snap-on mounting onto TH 35 standard mounting rail; size S3 also for TH 75 standard mounting rail	S00	▶	3RU19 16-3AA01		1	1 unit	101	0.060
	S0	▶	3RU19 26-3AA01		1	1 unit	101	0.080
	S2	▶	3RU19 36-3AA01		1	1 unit	101	0.180
	S3	▶	3RU19 46-3AA01		1	1 unit	101	0.280
RESET¹⁾								
Resetting plungers, holders and formers	S00 ...S3	▶	3RU19 00-1A		1	1 unit	101	0.038
Pushbuttons with extended stroke (12 mm), IP65, Ø 22 mm		B	3SB30 00-0EA11		1	1 unit	102	0.020
Extension plungers For compensation of the distance between the pushbutton and the unlatching button of the relay		A	3SX1 335		1	1 unit	102	0.004
Accessories with holder for RESET¹⁾								
For Ø 6.5 mm holes in the control panel; max. control panel thickness 8 mm	S00 ...S3	▶	3RU19 00-1B		1	1 unit	101	0.063
			3RU19 00-1C		1	1 unit	101	0.073
Remote RESET, electrical								
Operating range 0.85 ... 1.1 x U _s ; power consumption AC: 80 VA, DC: 70 W; ON period 0.2 ... 4 s; switching frequency 60/h	24 ... 30 V	S00 ...S3	▶	3RU19 00-2AB71	1	1 unit	101	0.066
			▶	3RU19 00-2AF71	1	1 unit	101	0.067
			▶	3RU19 00-2AM71	1	1 unit	101	0.066

Overload Relays

Solid-State Overload Relays

3RB21 for standard applications



mounting onto contactors:
 noted in electrical, mechanical and design terms to the soft starters, these connecting pins can be used for disconnection of the overload relays. Stand-alone installation is possible (in some cases in conjunction with a stand-alone module).

switch for manual/automatic RESET and RESET button:
 On the selector switch you can choose between manual and automatic reset. The device set to manual RESET can be reset locally by pressing the RESET button. On the 3RB21 a solid-state remote RESET is possible.

Indicator and TEST function of the wiring:
 The green indicator light indicates the tripped status and enables the wiring test.

Test (device test):
 The TEST button tests all important device components and functions.

Current setting:
 The current setting to the rated motor current is easy with the large rotary selector switch.

Internal ground-fault detection (only 3RB21):
 On the selector switch you can set the required trip class and activate the internal ground-fault detection dependent on the start-up current.

Terminals (removable joint block for auxiliary circuits):
 The large sized terminals permit connection of two conductors with different cross-sections for the main and auxiliary circuits. The terminals can be connected with screw terminals and alternating-current loaded terminals.

The 3RB20 and 3RB21 solid-state overload relays up to 630 A with internal power supply have been designed for inverse-time delayed protection of loads with normal and heavy starting (see [Technical Information LV 1 T, "Function"](#)) against excessive temperature rises due to overload, phase unbalance or phase failure. An overload, phase unbalance or phase failure result in an increase of the motor current beyond the set rated motor current. This current rise is detected by the current transformers integrated into the devices and evaluated by corresponding solid-state circuits which then output a pulse to the auxiliary contacts. The auxiliary contacts then switch off the load by means of a contactor. The break time depends on the ratio between the tripping current and current setting I_e and is stored in the form of a long-term stable tripping characteristic (see [Technical Information LV 1 T, "Characteristic Curves"](#)).

In addition to inverse-time delayed protection of loads against excessive temperature rises due to overload, phase unbalance and phase failure, the 3RB21 solid-state overload relays also allow internal ground-fault detection (not possible in conjunction with contactor assemblies for wye-delta starting). This provides protection of loads against high-resistance short-circuits due to damage to the insulation material, moisture, condensed water etc.

The "tripped" status is signaled by means of a switch position indicator. Resetting takes place either manually or automatically after the recovery time has elapsed (see [Technical Information LV 1 T, "Function"](#)).

The devices are manufactured in accordance with environmental guidelines and contain environmentally friendly and reusable materials. They comply with all important worldwide standards and approvals.

"Increased safety" type of protection EEx e according to ATEX directive 94/9/EC

The 3RB20/3RB21 solid-state overload relays are suitable for the overload protection of explosion-proof motors with "increased safety" type of protection EEx e. The relays meet the requirements of EN 60079-7 (Electrical apparatus for areas subject to explosion hazards – Increased safety "e");
 See [Chapter 20 "Appendix" --> "Standards and approvals" --> "Type overview of approved devices for potentially explosive areas \(ATEX explosion protection\)"](#).

EC type test certificate for Group II, Category (2) G/D exists. It has the number PTB 06 ATEX 3001.

Benefits

The most important features and benefits of the 3RB20/3RB21 solid-state overload relays are listed in the overview table (see ["Overload Relays" --> "General data"](#)), page 5/39).

Overload Relays

3RB2 Solid-State Overload Relays

3RB20, 3RB21 for standard applications

3RB21 solid-state overload relays are suitable for all industries who want to guarantee optimum in-creased protection of their electrical loads (e. g. normal and heavy starting conditions (CLASS 5 to minimize project completion times, inventories and motion, and optimize plant availability and maintenance).

3RB21 solid-state overload relays have been developed for protection of induction motors in sinusoidal AC networks. The relays are not suitable for the protection of single-phase AC or DC loads.

The 3RB22/3RB23 thermal overload relay or the 3RB22/3RB23 solid-state relay can be used for single-phase AC loads. For single-phase AC loads, we recommend the 3RU11 thermal overload relay.

Conditions

The relays are insensitive to external influences such as vibration, high humidity environments, ageing and temperature fluctuations.

At ambient temperature range from -25 °C to $+60\text{ °C}$, the relays compensate the temperature derating according to IEC 60947-4-1.

For 3RB21 solid-state overload relays with the sizes S6 to S12, the upper set value of the setting range must be derated at ambient temperatures $> 50\text{ °C}$ by a certain factor (see Table 1 and Table 2).

	Setting range	Derating factor for the upper set value for stand-alone installation at ambient temperature	
		$+50\text{ °C}$	$+60\text{ °C}$
S6	50 ... 200 A	100 %	100 %
S6	55 ... 250 A	100 %	100 %
S6	160 ... 630 A	100 %	90 %

	Setting range	Derating factor for the upper set value for mounting onto contactor at ambient temperature	
		$+50\text{ °C}$	$+60\text{ °C}$
S6	50 ... 200 A	100 %	70 %
S6	55 ... 250 A	100 %	70 %
S6	160 ... 630 A	100 %	70 %

Accessories

The following accessories are available for the 3RB20/3RB21 solid-state overload relays:

- One terminal bracket each for the overload relays size S00 and S0 (sizes S2 to S12 can be installed as stand-alone installation without a terminal bracket)
- One mechanical remote RESET module for all sizes
- One cable release for resetting devices which are difficult to access (for all sizes)
- One sealable cover for all sizes
- Box terminal blocks for sizes S6 and S10/S12
- Terminal covers for sizes S2 to S10/S12

Overload Relays

3RB2 Solid-State Overload Relays

3RB20, 3RB21 for standard applications

State overload relays with spring-loaded terminals on auxiliary current side for direct mounting¹⁾²⁾ and installation²⁾³⁾, CLASS 10

Technical specifications:

Protection, phase failure protection and unbalance

per supply
contacts 1 NO + 1 NC

- Manual and automatic RESET
- Switch position indicators
- TEST function and self-monitoring

Size contactor ⁴⁾	Rating for induction motor Rated value ⁵⁾	Current setting of the inverse- time delayed overload release	Short-circuit protection with fuse, type of coordi- nation 2, gL/gG opera- tional class ⁶⁾	DT	Spring-type terminals (on auxiliary current side)	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
	kW	A	A		Order No.	Price per PU			kg	
S00	0.04 ... 0.09	0.1 ... 0.4	1	A	3RB20 16-1RD0		1	1 unit	101	0.200
	0.12 ... 0.37	0.32 ... 1.25	2	A	3RB20 16-1ND0		1	1 unit	101	0.200
	0.55 ... 1.5	1 ... 4	10	A	3RB20 16-1PD0		1	1 unit	101	0.200
	1.1 ... 5.5	3 ... 12	20	A	3RB20 16-1SD0		1	1 unit	101	0.200
S0	0.04 ... 0.09	0.1 ... 0.4	1	A	3RB20 26-1RD0		1	1 unit	101	0.220
	0.12 ... 0.37	0.32 ... 1.25	2	A	3RB20 26-1ND0		1	1 unit	101	0.220
	0.55 ... 1.5	1 ... 4	10	A	3RB20 26-1PD0		1	1 unit	101	0.220
	1.1 ... 5.5	3 ... 12	20	A	3RB20 26-1SD0		1	1 unit	101	0.220
	3 ... 11	6 ... 25	35	A	3RB20 26-1QD0		1	1 unit	101	0.220
S2	3 ... 11	6 ... 25	63	A	3RB20 36-1QD0		1	1 unit	101	0.360
				A	3RB20 36-1QX1		1	1 unit	101	0.230
	7.5 ... 22	12.5 ... 50	80	A	3RB20 36-1UD0		1	1 unit	101	0.360
				A	3RB20 36-1UX1		1	1 unit	101	0.230
S3	7.5 ... 22	12.5 ... 50	160	A	3RB20 46-1UD0		1	1 unit	101	0.560
				A	3RB20 46-1ED0		1	1 unit	101	0.560
	11 ... 45	25 ... 100	315	A	3RB20 46-1EX1		1	1 unit	101	0.450
S6 with busbar connec- tion	22 ... 90	50 ... 200	315	A	3RB20 56-1FF2		1	1 unit	101	1.030
				A	3RB20 56-1FX2		1	1 unit	101	0.690
S10/S12 and size 14	22 ... 110	55 ... 250	400	A	3RB20 66-1GF2		1	1 unit	101	1.820
				A	3RB20 66-1MF2		1	1 unit	101	1.820

Overload Relays

Thermal- and State Overload Relays

3RB20 for standard applications


State overload relays with screw terminals on auxiliary current side for direct mounting¹⁾²⁾ and stand-alone, CLASS 20

Technical specifications:

Protection, phase failure protection and unbalance

Power supply
Contacts 1 NO + 1 NC

- Manual and automatic RESET
- Switch position indicators
- TEST function and self-monitoring

Size contactor ⁴⁾	Rating for induction motor Rated value ⁵⁾	Current setting of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination 2, gL/gG operational class ⁶⁾	DT	Screw terminals (on auxiliary current side)		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	kW	A	A		Order No.	Price per PU				kg
S00	0.04 ... 0.09	0.1 ... 0.4	1	▶	3RB20 16-2RB0		1	1 unit	101	0.200
	0.12 ... 0.37	0.32 ... 1.25	2	▶	3RB20 16-2NB0		1	1 unit	101	0.200
	0.55 ... 1.5	1 ... 4	10	▶	3RB20 16-2PB0		1	1 unit	101	0.200
	1.1 ... 5.5	3 ... 12	20	▶	3RB20 16-2SB0		1	1 unit	101	0.200
S0	0.04 ... 0.09	0.1 ... 0.4	1	▶	3RB20 26-2RB0		1	1 unit	101	0.220
	0.12 ... 0.37	0.32 ... 1.25	2	▶	3RB20 26-2NB0		1	1 unit	101	0.220
	0.55 ... 1.5	1 ... 4	10	▶	3RB20 26-2PB0		1	1 unit	101	0.220
	1.1 ... 5.5	3 ... 12	20	▶	3RB20 26-2SB0		1	1 unit	101	0.220
	3 ... 11	6 ... 25	35	▶	3RB20 26-2QB0		1	1 unit	101	0.220
S2	3 ... 11	6 ... 25	63	▶	3RB20 36-2QB0		1	1 unit	101	0.360
				▶	3RB20 36-2QW1		1	1 unit	101	0.230
	7.5 ... 22	12.5 ... 50	80	▶	3RB20 36-2UB0		1	1 unit	101	0.360
				▶	3RB20 36-2UW1		1	1 unit	101	0.230
S3	7.5 ... 22	12.5 ... 50	160	▶	3RB20 46-2UB0		1	1 unit	101	0.560
				▶	3RB20 46-2EB0		1	1 unit	101	0.560
	11 ... 45	25 ... 100	315	▶	3RB20 46-2EW1		1	1 unit	101	0.450
S6 with busbar connection S6 with box terminals	22 ... 90	50 ... 200	315	▶	3RB20 56-2FC2		1	1 unit	101	1.030
				▶	3RB20 56-2FW2		1	1 unit	101	0.690
S10/S12 and size 14	22 ... 110	55 ... 250	400	▶	3RB20 66-2GC2		1	1 unit	101	1.820
	90 ... 450	160 ... 630	800	▶	3RB20 66-2MC2		1	1 unit	101	1.820

Overload Relays

3RB2 Solid-State Overload Relays

3RB20, 3RB21 for standard applications

State overload relays with spring-loaded terminals on auxiliary current side for direct mounting¹⁾²⁾ and installation²⁾³⁾, CLASS 20

Technical specifications:

Protection, phase failure protection and unbalance

per supply
contacts 1 NO + 1 NC

- Manual and automatic RESET
- Switch position indicators
- TEST function and self-monitoring

Size contactor ⁴⁾	Rating for induction motor Rated value ⁵⁾	Current setting of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination 2, gL/gG operational class ⁶⁾	DT	Spring-type terminals (on auxiliary current side)	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
	kW	A	A		Order No.	Price per PU			kg	
S00	0.04 ... 0.09	0.1 ... 0.4	1	A	3RB20 16-2RD0		1	1 unit	101	0.200
	0.12 ... 0.37	0.32 ... 1.25	2	A	3RB20 16-2ND0		1	1 unit	101	0.200
	0.55 ... 1.5	1 ... 4	10	A	3RB20 16-2PD0		1	1 unit	101	0.200
	1.1 ... 5.5	3 ... 12	20	A	3RB20 16-2SD0		1	1 unit	101	0.200
S0	0.04 ... 0.09	0.1 ... 0.4	1	A	3RB20 26-2RD0		1	1 unit	101	0.220
	0.12 ... 0.37	0.32 ... 1.25	2	A	3RB20 26-2ND0		1	1 unit	101	0.220
	0.55 ... 1.5	1 ... 4	10	A	3RB20 26-2PD0		1	1 unit	101	0.220
	1.1 ... 5.5	3 ... 12	20	A	3RB20 26-2SD0		1	1 unit	101	0.220
	3 ... 11	6 ... 25	35	A	3RB20 26-2QD0		1	1 unit	101	0.220
S2	3 ... 11	6 ... 25	63	A	3RB20 36-2QD0		1	1 unit	101	0.360
				A	3RB20 36-2QX1		1	1 unit	101	0.230
	7.5 ... 22	12.5 ... 50	80	A	3RB20 36-2UD0		1	1 unit	101	0.360
				A	3RB20 36-2UX1		1	1 unit	101	0.230
S3	7.5 ... 22	12.5 ... 50	160	A	3RB20 46-2UD0		1	1 unit	101	0.560
				A	3RB20 46-2ED0		1	1 unit	101	0.560
	11 ... 45	25 ... 100	315	A	3RB20 46-2EX1		1	1 unit	101	0.450
S6 with busbar connection	22 ... 90	50 ... 200	315	A	3RB20 56-2FF2		1	1 unit	101	1.030
				A	3RB20 56-2FX2		1	1 unit	101	0.690
S10/S12 and size 14	22 ... 110	55 ... 250	400	A	3RB20 66-2GF2		1	1 unit	101	1.820
				A	3RB20 66-2MF2		1	1 unit	101	1.820

Overload Relays

3-Phase Overload Relays

3RB21 for standard applications

3-phase state overload relays with screw terminals on auxiliary current side for direct mounting¹⁾²⁾ and stand-alone mounting, CLASS 5, 10, 20 and 30 adjustable

Technical specifications:


Overload protection, phase failure protection and unbalance

Short-circuit fault detection (activatable)

Power supply

Contacts 1 NO + 1 NC

- Manual and automatic RESET
- Electrical remote RESET integrated
- Switch position indicators
- TEST function and self-monitoring

Size contactor ⁴⁾	Rating for induction motor Rated value ⁵⁾	Current setting of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination 2, gL/gG operational class ⁶⁾	DT	Screw terminals (on auxiliary current side) 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
	kW	A	A		Order No.	Price per PU			kg	
S00	0.04 ... 0.09	0.1 ... 0.4	1	▶	3RB21 13-4RB0		1	1 unit	101	0.200
	0.12 ... 0.37	0.32 ... 1.25	2	▶	3RB21 13-4NB0		1	1 unit	101	0.200
	0.55 ... 1.5	1 ... 4	10	▶	3RB21 13-4PB0		1	1 unit	101	0.200
	1.1 ... 5.5	3 ... 12	20	▶	3RB21 13-4SB0		1	1 unit	101	0.200
S0	0.04 ... 0.09	0.1 ... 0.4	1	▶	3RB21 23-4RB0		1	1 unit	101	0.220
	0.12 ... 0.37	0.32 ... 1.25	2	▶	3RB21 23-4NB0		1	1 unit	101	0.220
	0.55 ... 1.5	1 ... 4	10	▶	3RB21 23-4PB0		1	1 unit	101	0.220
	1.1 ... 5.5	3 ... 12	20	▶	3RB21 23-4SB0		1	1 unit	101	0.220
	3 ... 11	6 ... 25	35	▶	3RB21 23-4QB0		1	1 unit	101	0.220
S2	3 ... 11	6 ... 25	63	▶	3RB21 33-4QB0		1	1 unit	101	0.360
				▶	3RB21 33-4QW1		1	1 unit	101	0.230
	7.5 ... 22	12.5 ... 50	80	▶	3RB21 33-4UB0		1	1 unit	101	0.360
				▶	3RB21 33-4UW1		1	1 unit	101	0.230
S3	7.5 ... 22	12.5 ... 50	160	▶	3RB21 43-4UB0		1	1 unit	101	0.560
	11 ... 45	25 ... 100	315	▶	3RB21 43-4EB0		1	1 unit	101	0.560
				▶	3RB21 43-4EW1		1	1 unit	101	0.450
S6 with busbar connection	22 ... 90	50 ... 200	315	▶	3RB21 53-4FC2		1	1 unit	101	1.030
				▶	3RB21 53-4FW2		1	1 unit	101	0.690
S10/S12	22 ... 110	55 ... 250	400	▶	3RB21 63-4GC2		1	1 unit	101	1.820

Overload Relays

3RB2 Solid-State Overload Relays

3RB20, 3RB21 for standard applications

State overload relays with spring-loaded terminals on auxiliary current side for direct mounting¹⁾²⁾ and installation¹⁾³⁾, CLASS 5, 10, 20 and 30 adjustable

Technical specifications:

Protection, phase failure protection and unbalance

Ground-fault detection (activatable)

Power supply

Contacts 1 NO + 1 NC

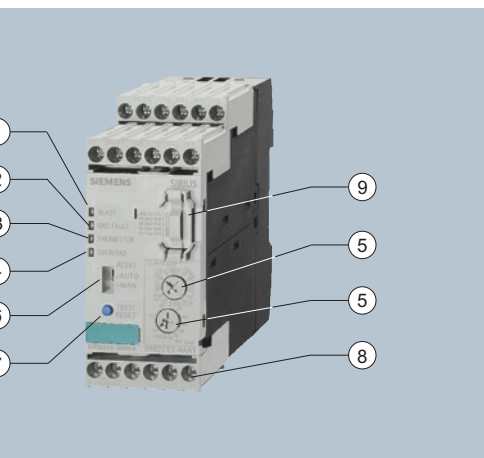
- Manual and automatic RESET
- Electrical remote RESET integrated
- Switch position indicators
- TEST function and self-monitoring

Size contactor ⁴⁾	Rating for induction motor Rated value ⁵⁾	Current setting of the inverse- time delayed overload release	Short-circuit protection with fuse, type of coordi- nation 2, gL/gG opera- tional class ⁶⁾	DT	Spring-type terminals (on auxiliary current side)	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
	kW	A	A		Order No.	Price per PU			kg	
S00	0.04 ... 0.09	0.1 ... 0.4	1	A	3RB21 13-4RD0		1	1 unit	101	0.200
	0.12 ... 0.37	0.32 ... 1.25	2	A	3RB21 13-4ND0		1	1 unit	101	0.200
	0.55 ... 1.5	1 ... 4	10	A	3RB21 13-4PD0		1	1 unit	101	0.200
	1.1 ... 5.5	3 ... 12	20	A	3RB21 13-4SD0		1	1 unit	101	0.200
S0	0.04 ... 0.09	0.1 ... 0.4	1	▶	3RB21 23-4RD0		1	1 unit	101	0.220
	0.12 ... 0.37	0.32 ... 1.25	2	▶	3RB21 23-4ND0		1	1 unit	101	0.220
	0.55 ... 1.5	1 ... 4	10	▶	3RB21 23-4PD0		1	1 unit	101	0.220
	1.1 ... 5.5	3 ... 12	20	A	3RB21 23-4SD0		1	1 unit	101	0.220
	3 ... 11	6 ... 25	35	A	3RB21 23-4QD0		1	1 unit	101	0.220
S2	3 ... 11	6 ... 25	63	A	3RB21 33-4QD0		1	1 unit	101	0.360
				A	3RB21 33-4QX1		1	1 unit	101	0.230
	7.5 ... 22	12.5 ... 50	80	A	3RB21 33-4UD0		1	1 unit	101	0.360
				A	3RB21 33-4UX1		1	1 unit	101	0.230
S3	7.5 ... 22	12.5 ... 50	160	A	3RB21 43-4UD0		1	1 unit	101	0.560
				A	3RB21 43-4ED0		1	1 unit	101	0.560
	11 ... 45	25 ... 100	315	A	3RB21 43-4EX1		1	1 unit	101	0.450
S6 with busbar connec- tion	22 ... 90	50 ... 200	315	A	3RB21 53-4FF2		1	1 unit	101	1.030
				A	3RB21 53-4FX2		1	1 unit	101	0.690
S10/S12 and size	22 ... 110	55 ... 250	400	A	3RB21 63-4GF2		1	1 unit	101	1.820

Overload Relays

Solid-State Overload Relays

3RB22/3RB23 for high-feature applications



1 Evaluation module
 2 "OK" LED:
 Green light signals that the device is working correctly.
 3 ULT LED
 Red light signals a ground-fault tripping.
 4 THERMISTOR LED:
 Red light signals an active thermistor trip.
 5 AD LED:
 Red light signals an active overload trip; a flickering red light indicates an imminent trip (overload warning).
 6 Trip class adjustment:
 The setting of the trip class relative to the motor current and to the required trip class for the start-up conditions is easy with the two rotary switches.
 7 Manual/Automatic RESET:
 The device can be reset manually or automatically.
 8 Function expansion module:
 Various functions can be added, e. g. internal ground-fault detection, analog output with corresponding signals.

The modular, solid-state overload relays with external power supply type 3RB22 (with monostable auxiliary contacts) and type 3RB23 (with bistable auxiliary contacts) up to 630 A (up to 820 A possible with a series transformer) have been designed for inverse-time delayed protection of loads with normal and heavy starting (see [Technical Information LV 1 T, "Function"](#)) against excessive temperature rises due to overload, phase unbalance or phase failure. An overload, phase unbalance or phase failure result in an increase of the motor current beyond the set rated motor current. This current rise is detected by means of a current measuring module and electronically evaluated by a special evaluation module which is connected to it. The evaluation electronics sends a signal to the auxiliary contacts. The auxiliary contacts then switch off the load by means of a contactor. The break time depends on the ratio between the tripping current and current setting I_e and is stored in the form of a long-term stable tripping characteristic (see [Technical Information LV 1 T, "Characteristic Curves"](#)). The "tripped" status is signaled by means of a continuous red "OVERLOAD" LED.

The LED indicates imminent tripping of the relay due to overload, phase unbalance or phase failure by flickering when the limit current has been violated. This warning can also be issued as a signal through auxiliary contacts.

In addition to the described inverse-time delayed protection of loads against excessive temperature rises, the 3RB22/3RB23 solid-state overload relays also allow direct temperature monitoring of the motor windings (full motor protection) by connection with broken-wire interlock of a PTC sensor circuit. With this temperature-dependent protection, the loads can be protected against overheating caused indirectly by reduced coolant flow, for example, which cannot be detected by means of the current alone. In the event of overheating, the devices switch off the contactor, and thus the load, by means of the auxiliary contacts. The "tripped" status is signaled by means of a continuously illuminated "THERMISTOR" LED.

To also protect the loads against high-resistance short-circuits due to damage to the insulation, humidity, condensed water, etc., the 3RB22/3RB23 solid-state overload relays offer the possibility of internal ground-fault detection in conjunction with a function expansion module (for details see ["Selection and ordering data"](#), not possible in conjunction with contactor assembly for Wye-Delta starting). In the event of a ground fault the 3RB22/3RB23 relays trip instantaneously. The "tripped" status is signaled by means of a continuous red "Ground Fault" LED. Signaling through auxiliary contacts is also possible.

After tripping due to overload, phase unbalance, phase failure, thermistor or ground-fault tripping, the relay is reset manually or automatically after the recovery time has elapsed (see [Technical Information LV 1 T, "Function"](#)).

In conjunction with a function expansion module the motor current measured by the microprocessor can be output in the form of an analog signal 4 ... 20 mA DC for operating rotary coil instruments or for feeding into analog inputs of programmable logic controllers. With an additional AS-Interface analog module the current values can also be transferred over the AS-i bus



Overload Relays 3RB2 Solid-State Overload Relays

3RB22, 3RB23 for high-feature applications

"Safety" type of protection EEx e according to Directive 94/9/EC

non-removable) solid-state overload relays are suitable for the protection of explosion-proof motors with "increased safety" type of protection EEx e. The relays meet the requirements of EN 60079-7 (Electrical apparatus for areas subject to explosive hazards – Increased safety "e"); see "Appendix" --> "Standards and approvals" --> "List of approved devices for potentially explosive atmospheres (explosion protection)".

certification for Group II, Category (2) G/D exists. It is issued by PTB 05 ATEX 3022.

Important features and benefits of the 3RB22/3RB23 solid-state overload relays are listed in the overview table (see "Overview" --> "General data").

Application

Industries

The 3RB22/3RB23 solid-state overload relays are suitable for customers from all industries who want to guarantee optimum inverse-time delayed and temperature-dependent protection of their electrical loads (e. g. motors) under normal and heavy starting conditions (CLASS 5 to CLASS 30), minimize project completion times, inventories and power consumption, and optimize plant availability and maintenance management.

Application

The 3RB22/3RB23 solid-state overload relays have been designed for the protection of three-phase asynchronous and single-phase AC motors.

If single-phase AC motors are to be protected by the 3RB22/3RB23 solid-state overload relays, the main current paths of the current measuring modules must be series-connected (see [Technical Information LV 1 T, "Schematics"](#)).

Ambient conditions

The devices are insensitive to external influences such as shocks, corrosive environments, ageing and temperature fluctuation.

For the temperature range from -25 °C to $+60\text{ °C}$, the 3RB22/3RB23 solid-state overload relays compensate the temperature according to IEC 60947-4-1.

Configuration notes for use of the devices below -25 °C or above $+60\text{ °C}$ on request.

Accessories

The following accessories are available for the 3RB22/3RB23 solid-state overload relays:

- A sealable cover for the evaluation module
- Box terminal blocks for the current measuring modules size S6 and S10/S12
- Terminal covers for the current measuring modules size S6 and S10/S12
- Push-in lugs for screw fixing the sizes S00 to S3 current measuring modules

Overload Relays

3RB22 and 3RB23 Solid-State Overload Relays

3RB22 for high-feature applications

Ordering data

Solid-state overload relays for full motor protection with screw terminals or spring-loaded terminals. Easy installation, CLASS 5, 10, 20 and 30 adjustable

Technical specifications:

Protection: overload protection, phase failure protection and unbalance

Power supply: 24 ... 240 V AC/DC


Contacts: 2 NO + 2 NC

Reset: automatic RESET

Reset: manual RESET integrated


Operation: operating and status displays

- TEST function and self-monitoring
- Internal ground-fault detection with function expansion module
- Screw terminals or spring-loaded terminals for auxiliary, control and sensor circuits
- Input for PTC sensor circuit
- Analog output with function expansion module

Size of contactor	Version	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
		Order No.	Price per PU				

Modules

S00 ... S12	Monostable	▶	3RB22 83-4AA1	1	1 unit	101	0.300
	Bistable	▶	3RB23 83-4AA1	1	1 unit	101	0.300

Size of contactor	Version	DT	Spring-type terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
		Order No.	Price per PU				

Modules

S00 ... S12	Monostable	A	3RB22 83-4AC1	1	1 unit	101	0.300
	Bistable	A	3RB23 83-4AC1	1	1 unit	101	0.300

Size of contactor	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
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Expansion modules

S00 ... S12	For plugging into evaluation module (1 unit)							
	Analog Basic 1 modules ¹⁾	▶	3RB29 85-2AA0	1	1 unit	101	0.030	
	Analog Basic 1 GF modules ¹⁾²⁾	▶	3RB29 85-2AA1	1	1 unit	101	0.030	

Analog output 4 ... 20 mA DC, with overload warning

Analog output 4 ... 20 mA DC, with internal ground-fault detection and overload warning

Overload Relays

3RB2 Solid-State Overload Relays

3RB22, 3RB23 for high-feature applications

Mounting modules for direct mounting¹⁾ and stand-alone installation¹⁾²⁾

Size of contactor ³⁾	Rating for induction motor rated value ⁴⁾	Current setting of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination 2, gL/gG operational class ⁵⁾	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	kW	A								kg
S00/S0	0.09 ... 1.1	0.3 ... 3	20	▶	3RB29 06-2BG1		1	1 unit	101	0.100
	1.1 ... 11	2.4 ... 25	63	▶	3RB29 06-2DG1		1	1 unit	101	0.150
S2/S3	5.5 ... 45	10 ... 100	315	▶	3RB29 06-2JG1		1	1 unit	101	0.350
S6 with busbar connection	11 ... 90	20 ... 200	315	▶	3RB29 56-2TH2		1	1 unit	101	1.000
				▶	3RB29 56-2TG2		1	1 unit	101	0.600
S6 with box terminals										
S10/S12 and size 14 (3TF68/3TF69)	37 ... 450	63 ... 630	800	▶	3RB29 66-2WH2		1	1 unit	101	1.750

... cable between the current measuring module and the protection module is not included in the scope of supply separately.

Mounting modules with an Order No. ending with "2" are for direct mounting and stand-alone installation. For contactors, direct mounting is not possible.

Mounting modules with an Order No. ending with "1" are for direct mounting and stand-alone installation.

³⁾ Observe maximum rated operational current of the devices.

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

⁵⁾ Maximum protection by fuse for overload relay, type of coordination 2. For fuse values in conjunction with contactors, see Technical Information LV 1 T "Technical specifications" -> "Short-circuit protection with fuses for motor feeders".

⁶⁾ The modules with an Order No. with "G" in penultimate position are

Size of contactor	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
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Overload Relays

Solid-State Overload Relays

Accessories for standard applications

Optional accessories are available for the solid-state overload relays:

Terminal bracket each for the overload relays size S00 to S12 can be installed as stand-alone installation (a terminal bracket)

Terminal remote RESET module for all sizes

Terminal block for resetting devices which are difficult to reach (all sizes)

Terminal cover for all sizes

Terminal blocks for sizes S6 and S10/S12

Terminal covers for sizes S2 to S10/S12

Overload relays for high-feature applications

The following optional accessories are available for the 3RB22/3RB23 solid-state overload relays:

- A sealable cover for the evaluation module
- Box terminal blocks for the current measuring modules size S6 and S10/S12
- Terminal covers for the current measuring modules size S6 and S10/S12
- Push-in lugs for screw fixing the sizes S00 to S3 current measuring modules

Ordering data

Version	Size	DT	Order No.	Price	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Accessories for stand-alone installation¹⁾								
For separate mounting of the overload relays; screw and snap-on mounting onto TH 35 standard mounting rail	S00	▶	3RB29 13-0AA1		1	1 unit	101	0.060
	S0	▶	3RB29 23-0AA1		1	1 unit	101	0.080
Accessories for RESET²⁾								
Resetting plungers, holders and formers	S00 ... S10/S12	▶	3RU19 00-1A		1	1 unit	101	0.038
Pushbuttons with extended stroke (12 mm), IP65, Ø 22 mm		B	3SB30 00-0EA11		1	1 unit	102	0.020
Extension plungers For compensation of the distance between a pushbutton and the unlatching button of the relay		A	3SX1 335		1	1 unit	102	0.004
Accessories with holder for RESET²⁾								
For Ø 6.5 mm holes in the control panel; max. control panel thickness 8 mm	S00 ... S10/S12	▶	3RU19 00-1B		1	1 unit	101	0.063
		▶	3RU19 00-1C		1	1 unit	101	0.073

Overload Relays

3RB2 Solid-State Overload Relays

Accessories

Version	Size	DT	Order No.	Price	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
S								
For covering the setting knobs								
• For 3RB20/3RB21	S00 ... S10/S12	▶	3RB29 84-0		1	10 units	101	0.020
• For 3RB22/3RB23	--	▶	3RB29 84-2		1	10 units	101	0.050
rs								
Covers for cable lugs and busbar connections								
• Length 55 mm ¹⁾	S3	▶	3RT19 46-4EA1		1	1 unit	101	0.040
• Length 100 mm	S6	▶	3RT19 56-4EA1		1	1 unit	101	0.070
• Length 120 mm	S10/S12	▶	3RT19 66-4EA1		1	1 unit	101	0.130
Covers for box terminals								
• Length 20.6 mm ¹⁾	S2	▶	3RT19 36-4EA2		1	1 unit	101	0.020
• Length 20.8 mm ¹⁾	S3	▶	3RT19 46-4EA2		1	1 unit	101	0.025
• Length 25 mm	S6	▶	3RT19 56-4EA2		1	1 unit	101	0.030
• Length 30 mm	S10/S12	▶	3RT19 66-4EA2		1	1 unit	101	0.040
Covers for screw terminals								
Between contactor and overload relay, without box terminals (1 unit required per combination)	S6	▶	3RT19 56-4EA3		1	1 unit	101	0.020
	S10/S12	▶	3RT19 66-4EA3		1	1 unit	101	0.060
locks								
For round and ribbon cables								
• Up to 70 mm ²	S6 ²⁾	▶	3RT19 55-4G		1	1 unit	101	0.230
• Up to 120 mm ²	S6	▶	3RT19 56-4G		1	1 unit	101	0.260
• Up to 240 mm ²	S10/S12	▶	3RT19 66-4G		1	1 unit	101	0.676
For conductor cross-sections see Technical Information LV 1 T, "Technical specifications".								
mount-								
or								
locks								
For screw fixing of 3RB22/3RB23 overload relays	--	▶	3RP19 03		1	10 units	101	0.002
For screw fixing of 3RB29 06 current measuring modules (2 units are required per module)	S00 ...S3	A	3RB19 00-0B		100	10 units	101	0.100
ing spring-loaded terminals by hand								
Screwdrivers, 2.5 mm x 0.4 mm,	Can be used for	C	8WH9 200-0AA00		1	10 units	044	0.032

Overload Relays

Thermal-Overload Relays

Version	Size/ Color	Use	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Terminal Blocks									
Terminal Cage Clamp terminals									
Screwdrivers									
3.5 mm x 0.5 mm, suitable for a max. conductor cross-section of 2.5 mm ²	Length approx. 175 mm; green, partially insulated	Main and auxiliary circuit connections	C	8WA2 880		1	1 unit	041	0.034
	Length approx. 175 mm; green		C	8WA2 803		1	1 unit	041	0.024
Labeling Systems									
Unit labeling plates For SIRIUS devices	10 mm x 7 mm, pastel turquoise	3RB2, 3RU11	D	3RT19 00-1SB10		100	816 units	101	24.000
	20 mm x 7 mm, pastel turquoise		C	3RT19 00-1SB20		100	340 units	101	0.200
Inscription labels for sticking For SIRIUS devices	19 mm x 6 mm, pastel turquoise	3RB2, 3RU11	D	3RT19 00-1SB60		100	3060 units	101	15.000
	19 mm x 6 mm zinc yellow		C	3RT19 00-1SD60		100	3060 units	101	12.000

Computer labeling systems

For individual inscription of unit labeling plates

Obtainable from:

murrplastik Systemtechnik GmbH<http://www.murrplastik.com>

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