Introduction

Overview

Type		3RV10	3RV11	3RV13	3RV14	3RV16	3RV16	3RV17
SIRIUS 3RV1 motor starter protectors/circuit breakers up to 100 A								
Applications								
System protection		✓[1]	✓[1]	--	--	--	--	✓
Motor protection		✓	--	--	--	--	--	--
Motor protection with overload relay function		--	✓	--	--	--	--	--
Starter combinations		--	--	✓	--	--	--	--
Transformer protection		--	--	--	✓	--	--	--
Fuse monitoring		--	--	--	--	✓	--	--
Voltage transformer circuit breakers for distance protection		--	--	--	--	--	✓	--
Size		S00, S0, S2, S3	S0, S2, S3	S0, S2, S3	S0, S2	S00	S00	S3
Rated current I_n								
• Size S00	A	Up to 12	--	--	--	0.2	Up to 3	--
• Size S0	A	Up to 25	Up to 25	Up to 25	Up to 20	--	--	--
• Size S2	A	Up to 50	Up to 50	Up to 50	Up to 40	--	--	--
• Size S3	A	Up to 100	Up to 100	Up to 100	--	--	--	Up to 70
Rated operational voltage U_e according to IEC	V	690 AC[2]	690 AC[2]	690 AC[2]	690 AC[2]	690 AC[2]	400 AC	690 AC
Rated frequency	Hz	50/60	50/60	50/60	50/60	50/60	$16^2/_3$ ... 60	50/60
Trip class		CLASS 10, 20	CLASS 10	--	CLASS 10	--	--	--
Thermal overload releases	A	0.11 ... 0.16 up to	0.11 ... 0.16 up to	Without[3]	0.11 ... 0.16 up to	0.2	1.4 ... 3	10 ... 70 Non-adjustable
	A	80 ... 100	80 ... 100		28 ... 40			
Electronic release A multiple of the rated current		13 times	13 times	13 times	20 times	6 times	4 ... 7 times	13 times
Short-circuit breaking capacity I_{cu} at 400 V AC	kA	50/100	50/100	50/100	50/100	100	50	[4]
Pages		7/8 up to 7/10	7/11	7/12	7/13	7/14, 7/16	7/16	7/15

Accessories														
For sizes	S00	S0	S2	S3	S0	S2	S3	S0	S2	S3	S0	S2	S00	S00	S3
Auxiliary switches	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓[5]
Signaling switches	--	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--
Undervoltage releases	✓	✓	✓	✓	--	--	--	✓	✓	✓	✓	✓	✓	✓	✓
Shunt releases	✓	✓	✓	✓	--	--	--	✓	✓	✓	✓	✓	✓	✓	✓
Isolator modules	--	✓	✓	--	✓	✓	--	✓	✓	--	✓	✓	--	--	--
Insulated three-phase busbar system	✓	✓	✓	--	--	✓	--	✓	✓	--	✓	✓	✓	✓	--
Busbar adapters	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--
Door-coupling rotary operating mechanisms	--	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	--	✓
Remote motorized operating mechanisms	--	--	✓	✓	--	✓	✓	--	✓	✓	--	✓	--	--	--
Link modules	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--
Enclosures for surface mounting	✓	✓	✓	--	✓	✓	--	✓	✓	--	✓	✓	✓	✓	--
Enclosures for flush mounting	✓	✓	--	--	✓	--	--	✓	--	--	✓	--	✓	✓	--
Front plates	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--
Infeed system	✓	✓	--	--	--	--	--	✓	--	--	✓	--	--	--	--
Pages	7/17 ... 7/35														

✓ Has this function or can use this accessory

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

1) For symmetrical loading of the three phases.

2) With molded-plastic enclosure 500 V AC. DC applications, see Reference Manual "Protection Equipment – Motor Starter Protectors · Molded Case Circuit Breakers", → "Technical Specifications" → "DC Short-Circuit Breaking Capacity".

3) For overload protection of the motors, appropriate overload relays must be used.

4) According to UL 489
- at 480 Y/277 V AC: 65 kA;
- at 480 V AC: 65 kA.

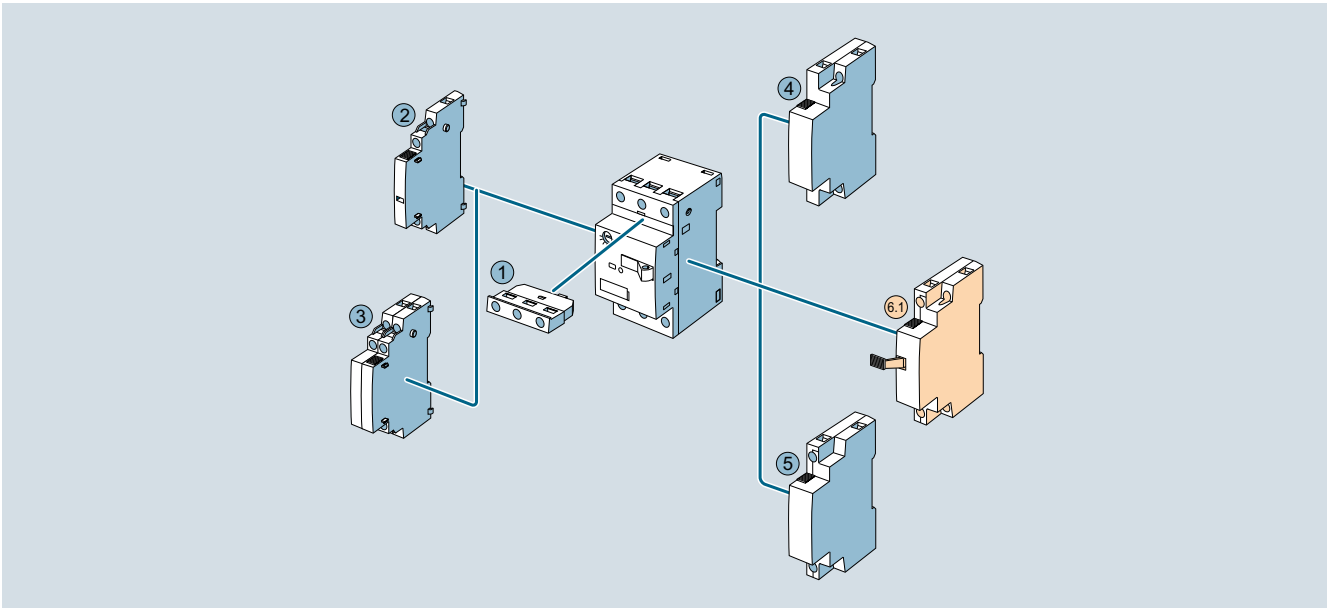
5) Only lateral auxiliary switches can be fitted.

Overview

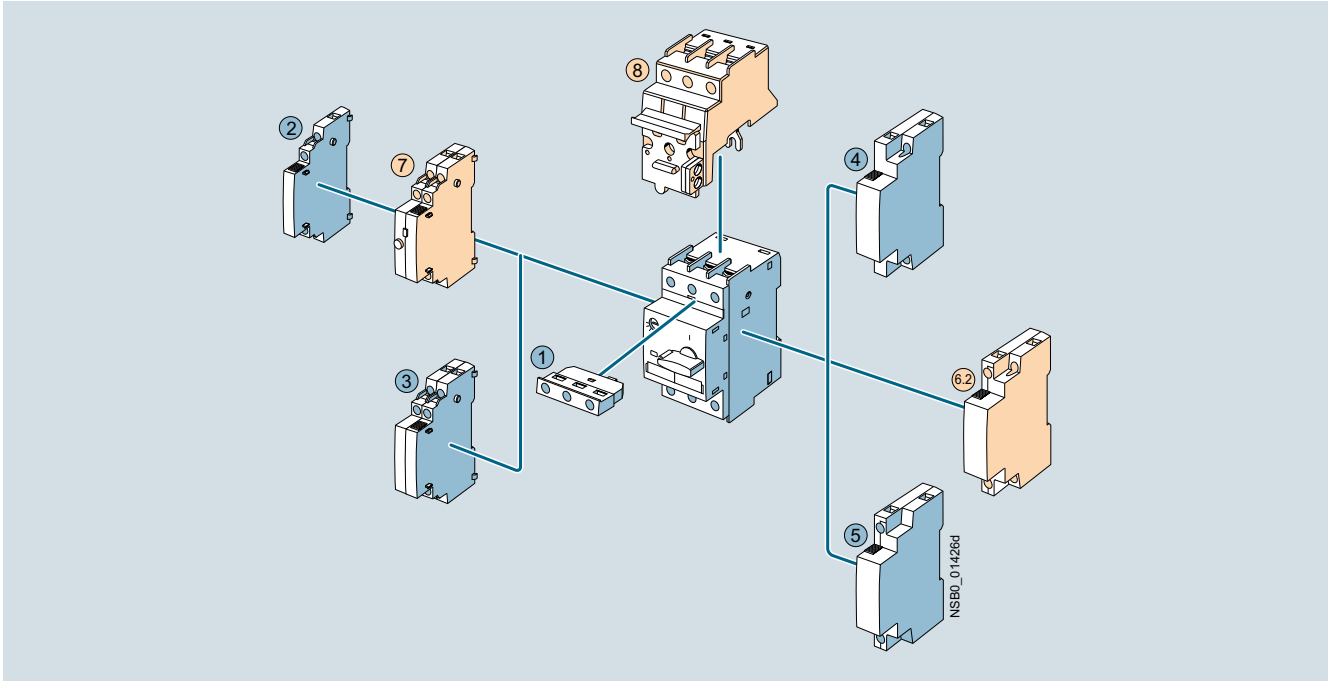
The following illustration shows our 3RV1 motor starter protectors/circuit breakers with the accessories which can be mounted for the various sizes, see also "Introduction" → "Overview" on page 7/2.

For "Accessories", see page 7/17 onwards.

Motor starter protectors/circuit breakers, size S00, with mountable accessories



Motor starter protectors/circuit breakers, sizes S0, S2 or S3, with mountable accessories



Mountable accessories for all sizes S00 ... S3		Mountable accessories		For sizes
1	Transverse auxiliary switch (can not be used with 3RV1742 circuit breaker)	6.1	Undervoltage release with leading auxiliary contacts	S00
2	Lateral auxiliary switch with 2 contacts	6.2	Undervoltage release with leading auxiliary contacts	S0 ... S3
3	Lateral auxiliary switch with 4 contacts	7	Alarm switch	S0 ... S3
4	Shunt release	8	Isolator module	S0, S2
5	Undervoltage release			

General data

Size S0 motor starter protector

3RV1 motor starter protectors/circuit breakers are compact, current limiting motor starter protectors/circuit breakers which are optimized for load feeders. The motor starter protectors/ circuit breakers are used according to IEC for switching and protecting three-phase motors of up to 45 kW at 400 V AC and for other loads with rated currents of up to 100 A.

The 3RV1 motor starter protectors/circuit breakers are generally approved according to IEC and UL/CSA.

According to UL 508 the 3RV1 motor starter protectors/circuit breakers in sizes S00 to S3 are approved as

- "Manual Motor Controllers"
- "Manual Motor Controllers" for "Group Installations"
- "Manual Motor Controllers Suitable for Tab Conductor Protection in Group Installations"
- "Self-Protected Combination Motor Controller (Type E)" This approval does not apply to size S00. Furthermore, the 3RV10 motor starter protectors in sizes S0 and S3 must be equipped with additional infeed terminals.

For 3RV2 motor starter protectors/circuit breakers sizes S00 to S2 up to 80 A, see Catalog IC 10.

The 3RV1742 are approved as circuit breakers according to UL 489; they are a special variant of the 3RV1 motor starter protectors.

Type of construction

The 3RV1 motor starter protectors/circuit breakers are available in four sizes:

- Size S00 – width 45 mm, max. rated current 12 A, at 400 V AC suitable for three-phase motors up to 5.5 kW
- Size S0 – width 45 mm, max. rated current 25 A, at 400 V AC suitable for three-phase motors up to 11 kW
- Size S2 – width 55 mm, max. rated current 50 A, at 400 V AC suitable for three-phase motors up to 22 kW
- Size S3 – width 70 mm, max. rated current 100 A, at 400 V AC suitable for three-phase motors up to 45 kW

For sizes S00 to S2 of the 3RV2 motor starter protectors/circuit breakers up to 80 A, see Catalog IC 10.

Circuit breakers acc. to UL 489

The 3RV1742 circuit breakers are available in size S3 (width 70 mm):

- Maximum rated current 70 A at 480 Y/277 V AC
- Maximum rated current 10 A to 30 A at 480 V AC

For sizes S00 and S0 of the 3RV27 and 3RV28 circuit breakers up to 22 A, see Catalog IC 10.

Connection methods

The SIRIUS 3RV1 motor starter protectors/circuit breakers can be supplied with screw terminals and spring-type terminals.

	Screw terminals
	Spring-type terminals
	The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds.

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

3RV10 motor starter protectors are suitable for the overload protection of explosion-proof motors with "increased safety" type of protection EEx e.

Article No. scheme

Digit of the Article No.	1st - 3rd	4th	5th	6th	7th		8th	9th	10th	11th	12th		13th	14th	15th	16th
	□□□	□	□	□	□	–	□	□	□	□	□	–	□	□	□	□
Motor starter protectors/ circuit breakers	**3 R V**															
SIRIUS 1st generation		**1**														
Type of motor starter protector/ circuit breaker			□													
Size				□												
Switching capacity					□											
Setting range for overload release							□	□								
Trip class (CLASS)									□							
Connection methods										□						
With or without auxiliary switch											□					
Special versions													□	□	□	□
Example	**3 R V**	**1**	**0**	**3**	**1**	**–**	**4**	**A**	**A**	**1**	**0**					

Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Application

Operating conditions

3RV1 motor starter protectors/circuit breakers 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/circuit breakers 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, see Reference Manual "Protection Equipment – Circuit Breakers · Molded Case Circuit Breakers".

3RV1 motor starter protectors/circuit breakers 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 startup data of the motor to be protected is always paramount to the choice of the most suitable motor starter protector/circuit breaker. This also applies to motor starter protectors for transformer protection.

Note:

For the use of 3RV1 motor starter protectors in size S3 in conjunction with highly energy-efficient IE3 motors, please observe the information on dimensioning and configuring, see "Configuration Manual for SIRIUS Controls with IE3 Motors", http://support.automation.siemens.com/WW/view/en/94770820.

The 3RV1 motor starter protectors/circuit breakers in size S00 to S2 have not been specially optimized for use with IE3 motors. In this case please use the new motor starter protectors/circuit breakers of series 3RV2, see Catalog IC 10, Chapter 7 "Protection Equipment" → "SIRIUS 3RV2 Motor Starter Protectors/Circuit Breakers up to 80 A".

Possible uses

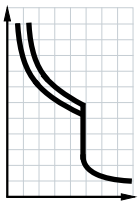
The 3RV1 motor starter protectors/circuit breakers can be used:

- 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 and EMERGENCY-STOP switches
- For fuse monitoring
- For operation in IT systems (IT networks)
- For switching of DC current
- As voltage transformer circuit breakers
- In areas subject to explosion hazard (ATEX)
- Approved as circuit breakers according to UL 489 (3RV1742)

For more information, see Reference Manual "Protection Equipment – Circuit Breakers · Molded Case Circuit Breakers".

For motor protection

CLASS 10, without auxiliary switches



Rated current	Suitable for three-phase motors[1] with *P*	Setting range for thermal overload releases	Instantaneous overcurrent releases	Short-circuit breaking capacity at 400 V AC	DT	Screw terminals ⊕ Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
I_n		⊏	$I >$	I_{cu}						
A	kW	A	A	kA						
Size S2										
16	7.5	11 ... 16	208	50	▶	**3RV1031-4AA10**		1	1 unit	41E
20	7.5	14 ... 20	260	50	▶	**3RV1031-4BA10**		1	1 unit	41E
25	11	18 ... 25	325	50	▶	**3RV1031-4DA10**		1	1 unit	41E
32	15	22 ... 32	416	50	▶	**3RV1031-4EA10**		1	1 unit	41E
40	18.5	28 ... 40	520	50	▶	**3RV1031-4FA10**		1	1 unit	41E
45	22	36 ... 45	585	50	▶	**3RV1031-4GA10**		1	1 unit	41E
50	22	40 ... 50	650	50	▶	**3RV1031-4HA10**		1	1 unit	41E
Size S3										
40	18.5	28 ... 40	520	50	▶	**3RV1041-4FA10**		1	1 unit	41E
50	22	36 ... 50	650	50	▶	**3RV1041-4HA10**		1	1 unit	41E
63	30	45 ... 63	819	50	▶	**3RV1041-4JA10**		1	1 unit	41E
75[2]	37	57 ... 75	975	50	▶	**3RV1041-4KA10**		1	1 unit	41E
90[2]	45	70 ... 90	1 170	50	▶	**3RV1041-4LA10**		1	1 unit	41E
100[2]	45	80 ... 100	1 235	50	▶	**3RV1041-4MA10**		1	1 unit	41E
Size S3, with increased switching capacity										
16	7.5	11 ... 16	208	100	▶	**3RV1042-4AA10**		1	1 unit	41E
20	7.5	14 ... 20	260	100	▶	**3RV1042-4BA10**		1	1 unit	41E
25	11	18 ... 25	325	100	▶	**3RV1042-4DA10**		1	1 unit	41E
32	15	22 ... 32	416	100	▶	**3RV1042-4EA10**		1	1 unit	41E
40	18.5	28 ... 40	520	100	▶	**3RV1042-4FA10**		1	1 unit	41E
50	22	36 ... 50	650	100	▶	**3RV1042-4HA10**		1	1 unit	41E
63	30	45 ... 63	819	100	▶	**3RV1042-4JA10**		1	1 unit	41E
75[2]	37	57 ... 75	975	100	▶	**3RV1042-4KA10**		1	1 unit	41E
90[2]	45	70 ... 90	1 170	100	▶	**3RV1042-4LA10**		1	1 unit	41E
100[2]	45	80 ... 100	1 235	100	▶	**3RV1042-4MA10**		1	1 unit	41E


3RV1031-4HA10


3RV1041-4LA10


3RV1042-4JA10

CLASS 20, without auxiliary switches

Rated current	Suitable for three-phase motors[1] with *P*	Setting range for thermal overload releases	Instantaneous overcurrent releases	Short-circuit breaking capacity at 400 V AC	DT	Screw terminals ⊕ Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
I_n		⊏	$I >$	I_{cu}						
A	kW	A	A	kA						
Size S2										
16	7.5	11 ... 16	208	50	A	**3RV1031-4AB10**		1	1 unit	41E
20	7.5	14 ... 20	260	50	A	**3RV1031-4BB10**		1	1 unit	41E
25	11	18 ... 25	325	50	A	**3RV1031-4DB10**		1	1 unit	41E
32	15	22 ... 32	416	50	A	**3RV1031-4EB10**		1	1 unit	41E
40	18.5	28 ... 40	520	50	A	**3RV1031-4FB10**		1	1 unit	41E
45	22	36 ... 45	585	50	A	**3RV1031-4GB10**		1	1 unit	41E
50	22	40 ... 50	650	50	A	**3RV1031-4HB10**		1	1 unit	41E
Size S3, with increased switching capacity										
40	18.5	28 ... 40	520	100	A	**3RV1042-4FB10**		1	1 unit	41E
50	22	36 ... 50	650	100	A	**3RV1042-4HB10**		1	1 unit	41E
63	30	45 ... 63	819	100	A	**3RV1042-4JB10**		1	1 unit	41E
75[2]	37	57 ... 75	975	100	A	**3RV1042-4KB10**		1	1 unit	41E
90[2]	45	70 ... 90	1 170	100	A	**3RV1042-4LB10**		1	1 unit	41E
100[2]	45	80 ... 100	1 235	100	A	**3RV1042-4MB10**		1	1 unit	41E


3RV1031-4AB10


3RV1042-4KB10

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

[2] For the use of 3RV104. motor starter protectors with an energy-efficient IE3 motor we recommend using a contactor for normal switching duty, see also page 7/7.

Auxiliary switches and other accessories can be ordered separately (see "Mountable accessories" from page 7/17 onwards).

Multi-unit/reusable packaging available on request.

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