

Motor Starter Protectors/Circuit Breakers

SIRIUS 3RV1 Motor Starter Protectors/Circuit Breakers up to 100 A

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.

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General 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"](#).

Motor Starter Protectors/Circuit Breakers

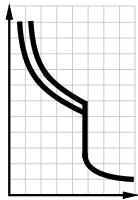
SIRIUS 3RV1 Motor Starter Protectors/Circuit Breakers up to 100 A

For motor protection

Selection and ordering data

CLASS 10, without auxiliary switches

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



3RV1011-0JA10



3RV1021-0JA10



3RV1011-1EA20

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	DT	Spring-type terminals
I_n				I_{cu}		Article No.	Price per PU	Article No.
A	kW	A	A	kA				Price per PU
Size S00								
0.16	0.04	0.11 ... 0.16	2.1	100	▶	3RV1011-0AA10	▶	3RV1011-0AA20
0.2	0.06	0.14 ... 0.2	2.6	100	▶	3RV1011-0BA10	▶	3RV1011-0BA20
0.25	0.06	0.18 ... 0.25	3.3	100	▶	3RV1011-0CA10	▶	3RV1011-0CA20
0.32	0.09	0.22 ... 0.32	4.2	100	▶	3RV1011-0DA10	▶	3RV1011-0DA20
0.4	0.09	0.28 ... 0.4	5.2	100	▶	3RV1011-0EA10	▶	3RV1011-0EA20
0.5	0.12	0.35 ... 0.5	6.5	100	▶	3RV1011-0FA10	▶	3RV1011-0FA20
0.63	0.18	0.45 ... 0.63	8.2	100	▶	3RV1011-0GA10	▶	3RV1011-0GA20
0.8	0.18	0.55 ... 0.8	10	100	▶	3RV1011-0HA10	▶	3RV1011-0HA20
1	0.25	0.7 ... 1	13	100	▶	3RV1011-0JA10	▶	3RV1011-0JA20
1.25	0.37	0.9 ... 1.25	16	100	▶	3RV1011-0KA10	▶	3RV1011-0KA20
1.6	0.55	1.1 ... 1.6	21	100	▶	3RV1011-1AA10	▶	3RV1011-1AA20
2	0.75	1.4 ... 2	26	100	▶	3RV1011-1BA10	▶	3RV1011-1BA20
2.5	0.75	1.8 ... 2.5	33	100	▶	3RV1011-1CA10	▶	3RV1011-1CA20
3.2	1.1	2.2 ... 3.2	42	100	▶	3RV1011-1DA10	▶	3RV1011-1DA20
4	1.5	2.8 ... 4	52	100	▶	3RV1011-1EA10	▶	3RV1011-1EA20
5	1.5	3.5 ... 5	65	100	▶	3RV1011-1FA10	▶	3RV1011-1FA20
6.3	2.2	4.5 ... 6.3	82	100	▶	3RV1011-1GA10	▶	3RV1011-1GA20
8	3	5.5 ... 8	104	50	▶	3RV1011-1HA10	▶	3RV1011-1HA20
10	4	7 ... 10	130	50	▶	3RV1011-1JA10	▶	3RV1011-1JA20
12	5.5	9 ... 12	156	50	▶	3RV1011-1KA10	▶	3RV1011-1KA20
Size S0								
0.16	0.04	0.11 ... 0.16	2.1	100	▶	3RV1021-0AA10	▶	--
0.2	0.06	0.14 ... 0.2	2.6	100	▶	3RV1021-0BA10	▶	--
0.25	0.06	0.18 ... 0.25	3.3	100	▶	3RV1021-0CA10	▶	--
0.32	0.09	0.22 ... 0.32	4.2	100	▶	3RV1021-0DA10	▶	--
0.4	0.09	0.28 ... 0.4	5.2	100	▶	3RV1021-0EA10	▶	--
0.5	0.12	0.35 ... 0.5	6.5	100	▶	3RV1021-0FA10	▶	--
0.63	0.18	0.45 ... 0.63	8.2	100	▶	3RV1021-0GA10	▶	--
0.8	0.18	0.55 ... 0.8	10	100	▶	3RV1021-0HA10	▶	--
1	0.25	0.7 ... 1	13	100	▶	3RV1021-0JA10	▶	--
1.25	0.37	0.9 ... 1.25	16	100	▶	3RV1021-0KA10	▶	--
1.6	0.55	1.1 ... 1.6	21	100	▶	3RV1021-1AA10	▶	--
2	0.75	1.4 ... 2	26	100	▶	3RV1021-1BA10	▶	--
2.5	0.75	1.8 ... 2.5	33	100	▶	3RV1021-1CA10	▶	--
3.2	1.1	2.2 ... 3.2	42	100	▶	3RV1021-1DA10	▶	--
4	1.5	2.8 ... 4	52	100	▶	3RV1021-1EA10	▶	--
5	1.5	3.5 ... 5	65	100	▶	3RV1021-1FA10	▶	--
6.3	2.2	4.5 ... 6.3	82	100	▶	3RV1021-1GA10	▶	--
8	3	5.5 ... 8	104	100	▶	3RV1021-1HA10	▶	--
10	4	7 ... 10	130	100	▶	3RV1021-1JA10	▶	--
12.5	5.5	9 ... 12.5	163	100	▶	3RV1021-1KA10	▶	--
16	7.5	11 ... 16	208	50	▶	3RV1021-4AA10	▶	--
20	7.5	14 ... 20	260	50	▶	3RV1021-4BA10	▶	--
22	11	17 ... 22	286	50	▶	3RV1021-4CA10	▶	--
25	11	20 ... 25	325	50	▶	3RV1021-4DA10	▶	--

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.

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

Multi-unit/reusable packaging available on request.