



Type	3RV1611-0BD10	3RV1611-1.G14	3RV1011
SIRIUS 3RV1 motor starter protectors/circuit breakers			
Applications			
• System protection	--	--	--
• Motor protection	--	--	✓
• Motor protection with overload relay function	--	--	--
• Starter combinations	--	--	--
• Transformer protection	--	--	--
• Fuse monitoring	✓	--	--
• Voltage transformer circuit breakers for distance protection	--	✓	--
Size	S00	S00	S00
Rated current I_n			
• Size S00	0.2	Up to 3	Up to 12
Rated operational voltage U_e acc. to IEC	690 AC ¹⁾	400 AC	690 AC
Rated frequency	50/60	16 ² /3 ... 60	50/60
Trip class	--	--	CLASS 10
Thermal overload releases	0.2	1.4 ... 3	0.11 ... 0.16 to 9 ... 12
Electronic releases			
A multiple of the rated current	6 times	4 ... 7 times	13 times
Short-circuit breaking capacity I_{cu} at 400 V AC	100	50	100/50
Pages	7/67	7/68	7/69
Accessories			
For sizes	S00	S00	S00
Pages	7/67, 7/68		

✓ Has this function or can use this accessory

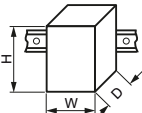
-- Does not have this function or cannot use this accessory

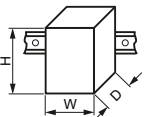
¹⁾ With molded-plastic enclosure 500 V AC. For DC applications, see "Technical Specifications" → "DC short-circuit breaking capacity", page 7/20.

Motor Starter Protectors/Circuit Breakers

SIRIUS 3RV2 Motor Starter Protectors/Circuit Breakers

General data

General data (continued)						
Type		3RV2.1.	3RV2.2.	3RV2.3.	3RV2.4.	3RV27, 3RV28
Size		S00	S0	S2	S3	S00, S0
Dimensions (W x H x D)		45 x 97 x 92	45 x 97 x 92	55 x 140 x 149	70 x 165 x 169	45 x 144 x 92
• Screw terminals • Spring-type terminals		45 x 106 x 92	45 x 119 x 92	--	--	--
Degree of protection	Acc. to IEC 60529	IP20		- IP20 (front side) - Terminal IP00 (use additional terminal covers for higher degree of protection)		
Touch protection	Acc. to IEC 60529	Finger-safe		Finger-safe, for vertical contact from the front		
Temperature compensation	Acc. to IEC 60947-4-1 °C	-20 ... +60				
Phase failure sensitivity	Acc. to IEC 60947-4-1	Yes (not for 3RV23 motor starter protectors)				No
Protection of motors in hazardous environments		Yes (only for 3RV20 motor starter protectors)				No
• EC type-examination certificate number according to European Directive 2014/34/EU (ATEX)		DMT 02 ATEX F 001 ⚠ II (2) GD				No
• according to international standard IECEx		IECEx BVS14.0102 [Ex]				No
Isolating function	Acc. to IEC 60947-2	Yes				
Main and EMERGENCY STOP switch characteristics	Acc. to EN 60204-1 VDE 0113	Yes				
(with corresponding accessories)						
Protective separation between main and auxiliary circuits required for PELV-applications	Acc. to IEC 60947-1					
• Up to 400 V + 10%		Yes				
• Up to 415 V + 5% (higher voltages on request)		Yes				
Permissible mounting position		Any, acc. to IEC 60447 start command "I" right-hand side or top				
Mechanical endurance (operating cycles)		100 000		52 A: 50 000, 80 A: 20 000	25 000	100 000
Electrical endurance (operating cycles)		100 000		52 A: 50 000, 80 A: 20 000	25 000	100 000
Max. switching frequency per hour (motor starts)	1/h	15				

General data					
Type		3RV2742	3RV1611-0BD10¹⁾	3RV1011	
Size		S3	S00	S00	
Dimensions (W x H x D)		70 x 168 x 169	45 x 90 x 70	45 x 90 x 70	
Standards					
• IEC/EN 60947-1 (VDE 0660 Part 100)		Yes			
• IEC/EN 60947-2 (VDE 0660 Part 101)		Yes			
• UL 508/UL 60947-4-1, CSA C22.2 No. 14/CSA 60947-4-1		No	Yes		
• UL 489, CSA C22.2 No.5		Yes	No		
Number of poles		3			
Max. rated current $I_{n \max}$ (= max. rated operational current I_e)	A	70	0.2	12	
Permissible ambient temperature					
• Storage/transport	°C	-50 ... +80			
• Operation	°C	-20 ... +70 (current reduction above +60 °C)			
Permissible rated current at inside temperature of control cabinet					
• +60 °C	%	100			
• +70 °C	%	87			
Permissible rated current at ambient temperature of enclosure (applies to motor starter protector/circuit breaker inside enclosure)					
• +35 °C	%	--		100	
• +60 °C	%	--		--	
Rated operational voltage U_e					
• Acc. to IEC	V AC	690 (with molded-plastic enclosure 500 V)			
• Acc. to UL/CSA	V AC	600			
Rated frequency	Hz	50/60			
Rated insulation voltage U_i	V	1 000	690		
Rated impulse withstand voltage U_{imp}	kV	8	6		
Utilization category					
• IEC 60947-2 (motor starter protector/circuit breaker)		A			
• IEC 60947-4-1 (motor starter)		AC-3			
DC short-circuit breaking capacity (time constant $t = 5$ ms)					
• 1 conducting path 150 V DC	kA	On request			
• 2 conducting paths in series 300 V DC	kA				
• 3 conducting paths in series 450 V DC	kA				

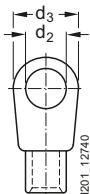
¹⁾ "Technical Specifications" for 3RV1611 voltage transformer circuit breakers, see page 7/25.

Motor Starter Protectors/Circuit Breakers

SIRIUS 3RV2 Motor Starter Protectors/Circuit Breakers

General data

Conductor cross-sections of main circuit (continued)			
Type		3RV2.4/ 3RV2742	3RV1611-0BD10 ¹⁾ / 3RV1011
Size		S3	S00
Connection type		 Screw terminals with box terminal	 Screw terminals
Terminal screw		M6	Pozidriv size 2
Prescribed tightening torque	Nm	4.5 ... 6	0.8 ... 1.2
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected			
• Solid or stranded	mm ²	2 x (2.5 ... 16) ²⁾ , 2 x (10 ... 50) ²⁾ , 1 x (10 ... 70) ²⁾	2 x (0.5 ... 1.5) ²⁾ , 2 x (0.75 ... 2.5) ²⁾
• Finely stranded with end sleeve (DIN 46228-1)	mm ²	2 x (2.5 ... 35) ²⁾ , 1 x (2.5 ... 50) ²⁾	2 x (0.5 ... 1.5) ²⁾ , 2 x (0.75 ... 2.5) ²⁾
• AWG cables, solid or stranded	AWG	2 x (10 ... 1/0) ²⁾ , 1 x (10 ... 2/0) ²⁾	2 x (18 ... 14)
Ribbon cable conductors (number x width x thickness)	mm	2 x (6 x 9 x 0.8)	--
Removable box terminals³⁾			
• With copper bars ⁴⁾	mm	2 x 12 x 4	--
• With cable lugs ⁵⁾			
- Terminal screw		M6	
- Prescribed tightening torque	Nm	4.5 ... 6	
- Usable ring terminal lugs	mm	d ₂ = min. 6.3 d ₃ = max. 19	



¹⁾ "Technical Specifications" for 3RV16 voltage transformer circuit breakers, see page 7/25.

²⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

³⁾ Cable lug and busbar connection possible after removing the box terminals. This does not apply for 3RV2742.

⁴⁾ If bars larger than 12 mm x 10 mm are connected, a 3RT2946-4EA2 cover is needed to maintain the required phase clearance, see page 7/54.

⁵⁾ When conductors larger than 25 mm² are connected, the 3RT2946-4EA2 cover is needed to maintain the required phase clearance, see page 7/54.

Conductor cross-sections for auxiliary and control circuits							
Type		3RV2.11	3RV1011/ 3RV1611- 0BD10 ¹⁾	3RV2.21	3RV2.3	3RV2.4	3RV27, 3RV28
Size		S00		S0	S2	S3	S00, S0, S3
Connection type		 Screw terminals					
Terminal screw		M3, Pozidriv size 2					
Operating devices	mm	Ø 5 ... 6					
Prescribed tightening torque	Nm	0.8 ... 1.2					
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected							
• Solid or stranded	mm ²	2 x (0.5 ... 1.5) ²⁾ , 2 x (0.75 ... 2.5) ²⁾					
• Finely stranded with end sleeve (DIN 46228-1)	mm ²	2 x (0.5 ... 1.5) ²⁾ , 2 x (0.75 ... 2.5) ²⁾					
• AWG cables, solid or stranded	AWG	2 x (18 ... 14) ²⁾ , 2 x (20 ... 16) ²⁾					
Connection type		 Spring-type terminals					
Operating devices	mm	3.0 x 0.5					
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected							
• Solid or stranded	mm ²	2 x (0.5 ... 2.5)					
• Finely stranded without end sleeve	mm ²	2 x (0.5 ... 2.5)					
• Finely stranded with end sleeve (DIN 46228-1)	mm ²	2 x (0.5 ... 1.5)					
• AWG cables, solid or stranded	AWG	2 x (20 ... 14)					
Max. external diameter of the conductor insulation	mm	3.6					
¹⁾ *Technical Specifications* for 3RV16 voltage transformer circuit breakers, see page 7/25.		²⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.					

¹⁾ "Technical Specifications" for 3RV16 voltage transformer circuit breakers, see page 7/25.

²⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

Motor Starter Protectors/Circuit Breakers

SIRIUS 3RV1 Motor Starter Protectors/Circuit Breakers

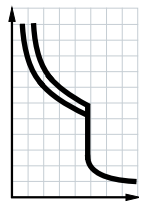
For fuse monitoring

Technical specifications

See pages 7/10, 7/12, 7/15, 7/20, 7/21 and 7/24

Selection and ordering data

Without auxiliary switches



Rated current	Thermal overload release	Instantaneous electronic release	Short-circuit breaking capacity at 400 V AC	SD	Screw terminals	PU (UNIT, SET, M)	PS*	PG
I_n		$I >$	I_{cu}		Article No.	Price per PU		
A	A	A	kA	d				
Size S00								
0.2	0.2	1.2	100	►	3RV1611-0BD10	1	1 unit	41E



3RV1611-0BD10

Note:

The auxiliary switch required for signaling must be ordered separately.

Accessories

Version	Contacts	SD	Screw terminals	PU (UNIT, SET, M)	PS*	PG
			Article No.	Price per PU		
		d				

Mountable auxiliary switches (essential accessories)



3RV2901-1E

Transverse auxiliary switches With screw terminals, mountable on the front	1 NO + 1 NC	►	3RV2901-1E	1	1 unit	41E
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3RV2901-1A

Lateral auxiliary switches With screw terminals, mountable on the left	1 NO + 1 NC	►	3RV2901-1A	1	1 unit	41E
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Additional auxiliary switches and other accessories, see "Accessories", page 7/43 onwards.

Motor Starter Protectors/Circuit Breakers

SIRIUS 3RV1 Molded Case Motor Starter Protectors up to 800 A

General data

Overview

More information

Homepage, see www.siemens.com/sirius-circuit-breaker



SIRIUS 3RV1063-7AL10 molded case motor starter protector

The 3RV10 and 3RV13 molded case motor starter protectors for up to 800 A are compact, current-limiting motor starter protectors which can be used above all in motor feeders for special voltages of 440 V, 480 V and 690 V. They are used for switching and protecting three-phase motors and other loads with rated currents up to 800 A.

Note:

For motor feeders above 100 A and at 400 V and 500 V, the 3VL molded case motor starter protectors must be used, see [Catalog LV 10](#).

Type of construction

The molded case motor starter protectors are available in three widths:

- 3RV1.6. – width 105 mm, max. rated current 250 A, at 690 V AC suitable for three-phase motors up to 160 kW
- 3RV1.7. – width 140 mm, max. rated current 630 A, at 690 V AC suitable for three-phase motors up to 315 kW
- 3RV1.83 – width 210 mm, max. rated current 800 A, at 690 V AC suitable for three-phase motors up to 500 kW

The 3RV1 molded case motor starter protectors for up to 800 A can be mounted in horizontal, vertical or lying arrangement directly on a mounting plate or mounting rail. Their rated data are adversely affected as the result.

The phase barriers for better insulation between the phases are included in the scope of supply, and it is essential to use them.

The motor starter protectors can be supplied through top and bottom terminals without impairing their function, enabling them to be installed in any type of switchgear without any further steps.

Connection methods

The 3RV1 molded case motor starter protectors up to 800 A are suitable solely for screw connection.



Screw terminals

The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds.

Article No. scheme

Product versions		Article number									
Molded case motor starter protectors		3RV1	☐	☐	☐	☐	☐	☐	☐	☐	☐
Type of motor starter protector/ e.g. 0 = for motor protection circuit breaker			☐								
Rated current e.g. 6 = 100 A			☐								
Breaking capacity e.g. 3 = standard switching capacity			☐								
Setting range for overload release e.g. 7A = 40 ... 100 A					☐	☐					
Trip class (CLASS) e.g. L = CLASS 10A, 10, 20, 30							☐				
Connection methods e.g. 1 = screw terminals								☐			
With or without auxiliary switch e.g. 0 = without									☐		
Special versions										☐	☐
Example		3RV1	0	6	3	-	7	A	L	1	0

Note:

The Article No. scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders please use the article numbers quoted in the selection and ordering data.

Motor Starter Protectors/Circuit Breakers

SIRIUS 3RV1 Molded Case Motor Starter Protectors up to 800 A

General data

Benefits

- High short-circuit breaking capacity in the feeder
- Optimum usability in motor feeders for the special voltages 440 V, 480 V and 690 V
- Compact design
- The releases are available in electronic versions (100 A to 800 A).
- Available for motor or starter protection (short-circuit protection alone)

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.

The 3RV1 molded case motor starter protectors up to 800 A have not been tested for use with frequency converters. The possibility of premature tripping in such applications cannot therefore be ruled out.

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-on-line starting of three-phase AC squirrel-cage motors. The motor starter protectors have an electronic release 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 circuit breaker, motor contactor and overload relay. They are equipped with an electronic release (100 A to 800 A).

Standards and specifications

The electronic releases 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 major marine classification societies:

- RINA
- Det Norske Veritas
- Bureau Veritas
- Lloyds Register of Shipping
- Germanischer Lloyd
- American Bureau of Shipping

Use of SIRIUS protection devices in conjunction with IE3/IE4 motors

Note:

For the use of 3RV1 motor starter protectors/circuit breakers in conjunction with highly energy-efficient IE3/IE4 motors, please observe the information on dimensioning and configuring, [see Application Manual](#).

For more information, [see page 1/7](#).