### SIRIUS 3RM1 motor starters

### **Online Configurator**



Advantages of the online configurator:

- Create individual motor starters or a complex motor starter group
- Individual selection options, such as direct or reversing starting, spring-type or screw terminals, as well as motor current and control voltage
- Graphic representation of the design during configuration
- Automatic calculation of the matching motor starter protector/circuit breaker (for group configuration)

See www.siemens.com/sirius/configurators

### Online Configurator

#### Article No. scheme

Product versions		Article	nun	nber					
Product function	Direct-on-line starters	3RM10	0	□ -		AA		4	
	Failsafe direct-on-line starters	3RM11	0	<b>-</b>		AA		4	with ATEX certification and safety-related shutdown
	Reversing starters	3RM12	0	<b>-</b>		AA		4	
	Failsafe reversing starters	3RM13	0	□-		AA		4	with ATEX certification and safety-related shutdown
Wide setting range for electronic overload release0.1 0.5 A1 0.4 2.0 A1 for n for nConnection methodScrew terminals (push-in)1 22	0.1 0.5 A			1					for motor standard output 0 0.12 kW <sup>2)</sup>
	0.4 2.0 A			2					for motor standard output 0.09 0.75 kW <sup>2)</sup>
	for motor standard output 0.55 3 kW <sup>2)</sup>								
Connection method	Screw terminals				1				
	Spring-type terminals (push-in)				2				
	Mixed connection method				3				Spring-type terminals (push-in)
Rated control supply voltage $U_{\rm S}$	24 V DC						0		
	110 230 V AC; 110 V DC						1		
Example		3RM13	0	1 -	2	AA	0	4	

<sup>1)</sup> Operation of resistive loads with maximum 10 A.

<sup>2)</sup> Standard three-phase motor, basis 4-pole at 400 V AC; the actual startup characteristics of the motor as well as its rated data are important factors here. 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.

### Benefits

### Product advantages

- Less space required in the control cabinet (20 to 80%) thanks to high functional density, which also means reduced wiring and testing
- Greater endurance and reduced heat losses thanks to hybrid technology, see www.siemens.com/sirius/energysaving
- Lower costs for stock keeping and configuration as a result of the wide setting range of the electronic overload release (up to 1:5)
- Fast wiring without tools for rigid conductors or conductors equipped with end sleeves thanks to spring-type terminals (push-in)
- Safety-related shutdown in accordance with SIL 3/PL e by shutting down the control supply voltage without additional devices in the main circuit
- The motor starters can be ideally combined with 3SK safety relays for safety-related shutdown (see page 11/12)
- Motor status feedback to the higher-level control system in the case of 3RM10 and 3RM12 motor starters in the 24 V DC version

- Virtually error-free wiring on the mains connection side and reduction in short-circuit protective devices by means of 3RM19 infeed system
- ATEX certification of the overload protection of the 3RM1 Failsafe motor starters: "Increased safety" type of protection EEx e according to ATEX directive 2014/34/EU
- The 3RM1 motor starters can be used with highly energyefficient IE3/IE4 motors. In this regard, please observe the information on dimensioning and configuring, see Application Manual.

For more information about IE3/IE4, see page 1/7.

#### Standards and approvals

- IEC/EN 60947-4-2
- UL 60947-4-2
- CSA
- ATEX
- IEC 61508-1: SIL 3
- ISO 13849: PL e
- · CCC approval for China

More information					
Industry Mall, see www.siemens.com/product?3RM1 FAQs, see	https://s	upport.industry.sien	nens.com/cs/w	w/en/ps/16311/faq	
Manual, see https://support.industry.siemens.com/cs/ww/en/view/66295730					
Article number		3RM10, 3RM12	3F 3F	RM11, RM13	
General technical specifications:			•••		
Dimensions (W x H x D)	mm	22.5 x 100 x 141.	6		
Ambient temperature					
During operation	°C	-25 +60			
During storage     During transport	°C	-40 +70			
Installation altitude at height above sea level, maximum	m	4 000	2 (	000	
Shock resistance		6 g / 11 ms			
Vibration resistance		1 6 Hz, 15 mm;	20 m/s², 500 H	z	
Degree of protection		IP20			
		verticai, norizonta	ii, standing (Cor	isider derating)	
Article number		3RM1.01	3RM1.02	3RM1.07	
Main circuit:					
Operational voltage rated value maximum	V	500			
Operating frequency	Hz	50/60			
Operational current at AC-53a at 400 V at an ambient temperature of 40 $^\circ$ C	А	0.5	2	7	
Minimum load [% of IM]	%	20			
Adjustable current response value of the inverse-time delayed overload release	A	0.1 0.5	0.4 2	1.6 7	
Article number		3RM1.0AA04	3F	RM1.0AA14	
Control circuit:					
Type of voltage of the control supply voltage		DC	AC	C/DC	
Control supply voltage					
	V	24	11	0 230	
	v			0 200	

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Туре		3RM1.01AA.4	3RM1.03AA.4	3RM1.02AA.4	
Connections/terminals:					
Type of electrical connection for main circuit (1 or 2 conductors can be connected)		Screw termin	als	○ Spring-type □ terminals	
Connectable conductor cross-section for main contacts • Solid • Finely stranded - With end sleeve - Without end sleeve	mm² mm² mm²	1x (0.5 4), 2x (0.4 1x (0.5 4), 2x (0.4 	5 2.5) 5 1.5)	1x (0.5 4) 1x (0.5 2.5) 1x (0.5 4)	
Type of electrical connection for auxiliary and control circuit (1 or 2 conductors can be connected)	Screw terminals	Spring-type	eterminals		
Type of connectable conductor cross-sections for auxiliary contacts <ul> <li>Solid</li> </ul>	mm <sup>2</sup>	1x (0.5 2.5), 2x (1.0 1.5)	1x (0.5 1.5), 2x (0.5 1.5)		
<ul> <li>Finely stranded</li> <li>With end sleeve</li> <li>Without end sleeve</li> </ul>	mm² mm²	1x (0.5 2.5), 2x (0.5 1) 	1x (0.5 1.0), 2x 1x (0.5 1.5), 2x	: (0.5 1.0) : (0.5 1.5)	
Type of connectable conductor cross-sections for AWGH cables • For main contacts • For auxiliary contacts		1x (20 12), 2x (20 1x (20 14), 2x (18 16)	0 14) 1x (20 16), 2x (	1x (20 12) (20 16)	

### Accessories

More information

Manual, see https://support.industry.siemens.com/cs/ww/en/view/66295730

# Three-phase infeed system (3RM19 three-phase busbar system)

The system permits an easy, time-saving and safe means of feeding two or more 3RM1 motor starters. It can be used only with motor starters with screw terminals and in combination with 8US1716-0RK00 adapters for mounting rails in the main circuit.

The maximum summation current must not exceed 25 A. The primary infeed is connected via a three-phase infeed terminal.

The busbars are available in three lengths, for two, three or five motor starters. More than five devices can be connected by clamping the connection tags of a second busbar rotated by  $180^{\circ}$ .

The three-phase busbars are finger-safe but empty connection tags must be fitted with covers.



- 1 Four 3RM1 motor starters on standard mounting rail with one free slot
- (2) 3RM1920-1AA three-phase feeder terminal
- 3 Two 3RM1910-1DA three-phase busbars rotated through 180° for the connection of up to nine motor starters
- 4 Covers for three 3RM1910-6AA connection tags respectively for unused slots

3RM19 infeed system with three-phase infeed terminal: In the above example, two three-phase busbars (5-pole busbars) rotated through 180° allow up to nine 3RM1 motor starters to be connected. Contact with the unused connection tags in unoccupied positions is prevented safely by the covers.

### SIRIUS 3RM1 motor starters

### Fuse module for the use of 3RM1 motor starters on 8US busbar systems and mounting rails

The fuse module permits the very compact construction of a load feeder with a maximum width of 22.5 mm. The 3RM1 motor starter in combination with the integrated fuses for short-circuit protection can therefore be used on 8US busbar systems. Thanks to the range of different adapters, the fuse module can be used in all 60 mm busbar systems and also in compact busbar systems and on mounting rails. The interface to the adapter also permits a simple and secure replacement of the load feeder.

The fuse module can be combined with all 3RM1 motor starters. The easily replaceable fuses protect the connected motor and the cables.



By means of the fuse module, 3RM1 motor starters can be used in busbar systems and 8US compact busbar systems, as well as on mounting rails

### **SIRIUS 3RM1 motor starters**

#### Device connectors for the control circuit

The device connectors for 3RM1 motor starters (24 V DC control supply voltage only) reduce the outlay for cabling by looping through the control supply voltage. The device connectors can be snapped onto a standard mounting rail or fixed to a level mounting panel using screws.



Device connectors with 3RM1 motor starter

Using the device connectors exclusively for feeding in the control supply voltage

By using device connectors, a maximum of five motor starters can be supplied with 24 V DC control supply voltage. This requires the control supply voltage to be applied to the A1 and A2 terminals of only one motor starter.

Device daisy chain connectors can be used for gaps between two motor starters. Device termination connectors terminate a group.

#### Using the device connectors for safe group shutdown

In combination with the 3RM11 and 3RM13 fail-safe motor starters, the device connector can also be used for safety-related shutdown. For this application, groups of no more than five failsafe motor starters can be connected using a device connector, and the group must be terminated with a terminating connector. Removing the control voltage supply from the first motor starter will safely shut down the whole group. Safe group shutdown can be implemented particularly easily in conjunction with 3SK safety relays. In this case, up to five motor starters can be directly connected to 3SK safety relays via the device connector and then safely shut down (see page 11/12).



Ideal connection: Combination of four SIRIUS 3RM1 Failsafe motor starters with SIRIUS 3SK safety relays

# Electromechanical switching devices in series with hybrid motor starters

Switching an inductive load - in particular of motors < 1 kW with high inductance - with an electromechanical switching device (e.g. contactor) can cause high and steep voltage edges.

The resulting faults/damage can be prevented by first disconnecting with the hybrid motor starter or by using EMC suppression modules:

- For 3RT2916-1P. EMC suppression modules for direct mounting on the contactor, see page 3/119
- For motor suppression modules that are fitted in the main circuit, see page 8/94

#### Note:

#### For more information, see

https://support.industry.siemens.com/cs/ww/en/view/109758696.

IE3/IE4 ready SIRIUS 3RM1 motor starters

More information										
Industry Mall, see w	ww.siemens.com/pro	oduct?3RM1								
	Rating for three- phase motor at 400 $V^{1)}$	Adjustable current response value of the inverse-time delayed	Control voltage	supply	SD	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	P
		overload release	At DC	At AC at 50 Hz						
Direct on line of	KW	A	V	V	a					
Direct-on-line sta		0.1 0.5	24		2	2BM1001 □ 4 404		- 1	1 unit	41
and the second	0.09 0.75	0.1 0.5	24		2	3RM1007-0AA04		1	1 unit	41
111	0.55 3	16 7	24		2	3RM1002-0404		1	1 unit	41
	0.0012	0.1 0.5	110	110 230	2	3RM1001-0AA14		1	1 unit	4
and the second sec	0.00 0.75	0.1 0.5	110	110 230	2	3PM1002-0AA14		1	1 unit	4
E- /	0.09 0.75	16 7	110	110 230	2	2PM1002-DAA14			1 unit	4
	0.55 3	1.0 7	110	110 230	2	SRM1007-LAA14		I	i unit	4
BRM1001-1AA04										
Reversing starte	rs									
anna anna	0 0.12	0.1 0.5	24		2	3RM1201-□AA04		1	1 unit	41
199	0.09 0.75	0.4 2	24		2	3RM1202-□AA04		1	1 unit	4
	0.55 3	1.6 7	24		2	3RM1207-□AA04		1	1 unit	4
	0 0.12	0.1 0.5	110	110 230	2	3RM1201-□AA14		1	1 unit	4
	0.09 0.75	0.4 2	110	110 230	2	3RM1202-□AA14		1	1 unit	4
	0.55 3	1.6 7	110	110 230	2	3RM1207-□AA14		1	1 unit	4
SORE										
3RM1201-1AA04	. Here at a standard									
-alisate direct-ol	n-line starters									
Anna Anna Anna Anna Anna Anna Anna Anna	00.12	0.1 0.5	24		2	3RM1101-⊔AA04		1	1 unit	4
177	0.09 0.75	0.4 2	24		2	3RM1102-□AA04		1	1 unit	4
	0.55 3	1.6 7	24		2	3RM1107-□AA04		1	1 unit	4
and the second se	0 0.12	0.1 0.5	110	110 230	2	3RM1101-□AA14		1	1 unit	4
	0.09 0.75	0.4 2	110	110 230	2	3RM1102-□AA14		1	1 unit	4
	0.55 3	1.6 7	110	110 230	2	3RM1107-□AA14		1	1 unit	4
ERREL										
RM1101-1AA04	a startors									
		0.1 0.5	24		2	2DM1201-0 A 04		1	1 unit	4-
and the second	00.12	0.1 0.5	24		2				1 unit	4
111	0.09 0.75	0.4 2	24		2				T UNIL 1	4
	0.55 3	1.6 /	24		2	3RM1307-□AA04		1	1 unit	4
	0 0.12	0.1 0.5	110	110 230	2	3RM1301-□AA14		1	1 unit	41
E	0.09 0.75	0.4 2	110	110 230	2	3RM1302-□AA14		1	1 unit	41
	0.55 3	1.6 7	110	110 230	2	3RM1307-□AA14		1	1 unit	41
Five of electrical c	onnection									
Screw terminals for	r main circuit. screw	terminals for control cir	cuit			1				
<ul> <li>Spring-type termin for control circuit</li> </ul>	als (push-in) for mai	n circuit, spring-type ter	minals (p	oush-in)		2				
<ul> <li>Screw terminals for</li> </ul>	r main circuit, sprind	-type terminals (push-ir	ı) for con	trol circuit		3				
		a ser a s	,			-				