

Load Feeders and Motor Starters for Use in the Control Cabinet

SIRIUS 3RA6 Compact Starters

General data

Overview

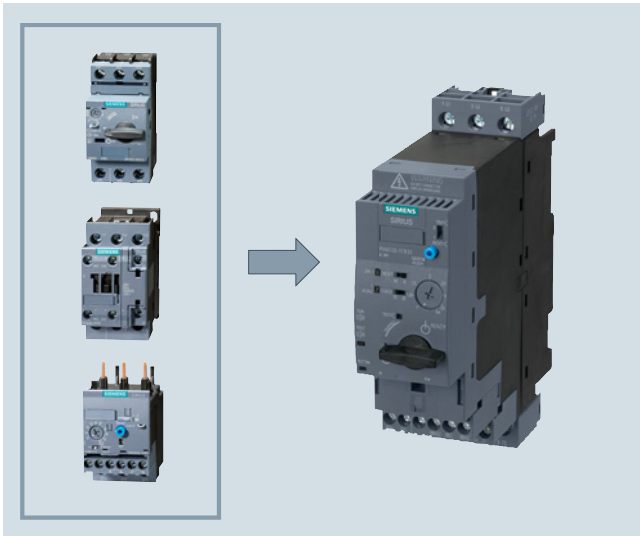
3RA6 fuseless compact starters and infeed system for 3RA6



3RA62 reversing starter

Integrated functionality

The SIRIUS 3RA6 compact starters are a generation of special load feeders with the integrated functionality of a motor starter protector, contactor and electronic overload relay. In addition, various functions of optional mountable accessories (e.g. auxiliary switches, surge suppressors) are already integrated in the SIRIUS compact starter.



3RA6 compact starters with the integrated functionality of a motor starter protector, contactor and electronic overload relay.

Applications

SIRIUS compact starters can be used wherever standard three-phase motors or resistive loads up to 32 A (approx. 15 kW/400 V) are directly started or switched.

The compact starters are not suitable for the protection of DC loads.

Approvals according to IEC, UL, CSA and CCC standards have been issued for the compact starters.

More information

Home page, see www.siemens.com/compactstarter

Industry Mall, see www.siemens.com/product?3RA68

Online configurator, see www.siemens.com/sirius/configurators

Very high operational reliability

The high short-circuit breaking capacity and defined shut-down when the end of service life is reached mean that the SIRIUS compact starter achieves a very high level of operational reliability that would otherwise have only been possible with considerable additional outlay. This sets it apart from devices with similar functionality.

Safe disconnection

The auxiliary switches (NC contacts) of the 3RA6 compact starters are designed as mirror contacts. This enables their use for safe disconnection – e.g. EMERGENCY STOP up to SIL 1 (IEC 62061) or PL c (ISO 13849-1) or, if used in conjunction with an additional infeed contactor, up to SIL 3 (IEC 62061) or PL e (ISO 13849-1).

Communications integration through AS-Interface

For the integration of communication via AS-Interface there is an AS-i add-on module available in several versions for mounting instead of the control circuit terminals on the SIRIUS compact starter.

The design of the AS-i add-on module permits a group of up to 62 feeders with a total of four cables to be connected to the control system. This reduces wiring work considerably compared to the parallel wiring method.

Communications integration using IO-Link

Up to four compact starters in IO-Link version (reversing and direct-on-line starters) can be connected together and conveniently linked to the IO-Link master through a standardized IO-Link connection. The SIRIUS 4SI electronic modules are used e.g. as IO-Link masters for connection to the SIMATIC ET 200S distributed I/O system.

The IO-Link connection enables a high density of information in the local range.

For details of the communication connection using IO-Link, see [page 2/101 onwards](#).

The diagnostics data of the process collected by the 3RA6 compact starter, e.g. short circuit, end of service life, limit position, etc., are not only indicated on the compact starter itself but also transmitted to the higher-level control system through IO-Link.

Thanks to the optionally available operator panel, which can be installed in the control cabinet door, it is easy to control the 3RA6 compact starters with IO-Link from the control cabinet door.

Permanent wiring/easy replacement

Using the SIRIUS infeed system for 3RA6 (see [page 8/79](#)), it is possible to carry out the wiring in advance without a compact starter having to be connected.

A compact starter is very easily replaced simply by pulling it out of the device without disconnecting the wiring.

Even with screw connections or mounting on a standard mounting rail there is no need to disconnect any wiring (on account of the removable main and control circuit terminals) in order to replace a compact starter.

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Consistent solution from the infeed to the motor feeder

The SIRIUS infeed system for 3RA6 with integrated PE bar is offered as a user-friendly possibility of feeding in summation currents up to 100 A with a maximum conductor cross-section of 70 mm² and connecting the motor cable directly without additional intermediate terminals.

Screw and spring-type terminals

The SIRIUS compact starters and the infeed system for 3RA6 are available with screw and spring-type terminals.



Screw terminals



Spring-type terminals

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

System configurator for engineering

A free system configurator is available to reduce further the amount of engineering work for selecting the required compact starters and matching infeed.

Use of load feeders in conjunction with IE3/IE4 motors

Note:

For the use of SIRIUS 3RA6 compact starters in conjunction with highly energy-efficient IE3/IE4 motors, please observe the information on dimensioning and configuring; see "Application Manual for SIRIUS Controls with IE3/IE4 Motors", <https://support.industry.siemens.com/cs/ww/en/view/94770820>.

For more information see Preface, page 7.

Types of infeed for the 3RA6 fuseless compact starters

On the whole four different infeed possibilities are available:

- Parallel wiring
- Use of three-phase busbars (combination with SIRIUS motor starter protectors and SIRIUS contactors possible)
- 8US busbar adapters
- SIRIUS infeed system for 3RA6 (see page 8/79)

To comply with the clearance and creepage distances demanded according to UL 508 there are the following infeed possibilities:

Type of infeed	Infeed terminal (according to UL 508, type E)	Type
Parallel wiring	Terminal block for "Self-Protected Combination Motor Controller (Type E)"	3RV2928-1H
Three-phase busbars	Three-phase infeed terminal for constructing "Type E Starters", UL 508	3RV2925-5EB
Infeed system for 3RA6	Infeed on left, 50/70 mm ² , screw terminal with 3 sockets, outgoing terminal with screw/spring-type terminals incl. PE bar	3RA6813-8AB (screw terminals), 3RA6813-8AC (spring-type terminals)

SIRIUS 3RA6 compact starters

SIRIUS 3RA6 compact starters are universal motor feeders according to IEC 60947-6-2. As control and protective switching devices (CPS) they can connect, convey and disconnect the thermal, dynamic and electrical loads from short-circuit currents up to $I_{cs} = 53$ kA, i.e. they are practically weld-free. They combine the functions of a motor starter protector, a contactor and an electronic overload relay in one enclosure. 45-mm-wide direct-on-line starters and 90-mm-wide reversing starters are available as variants.

The reversing starter version comes with not only an internal electrical interlock but also with a mechanical interlock to prevent simultaneous actuation of both directions of rotation.

The compact starters have isolating features in accordance with IEC 60947.2 and can be used as disconnecter units (main control switch according to EN 60204 or VDE 0113). Isolation is effected by moving the handle into the "OFF" position; disconnection by means of the control contacts is not enough.

3RA6 fuseless compact starters are available in five current setting ranges. The 3RA61 and 3RA62 have two control voltage ranges (AC/DC), and the 3RA64 and 3RA65 have one control voltage range (DC):

Current setting range	At 400 V AC for three-phase motors Standard output P	Rated control supply voltage for	
		3RA61, 3RA62 compact starters	3RA64, 3RA65 compact starters for IO-Link
A	kW	V AC/DC	V DC
0.1 ... 0.4	0.09	24	24
0.32 ... 1.25	0.37	110 ... 240	
1 ... 4	1.5		
3 ... 12	5.5		
8 ... 32	15		

Notes:

The 3RA2 load feeders can be used for fuseless load feeders > 32 A up to 65 A. Load feeders in size S3 up to 100 A are available for self-assembly (see also page 8/4).

The SENTRON 3VL circuit breakers and the SIRIUS 3RT contactors can be used for fuseless load feeders > 100 A.

Operating conditions

The SIRIUS 3RA6 compact starters 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. Suitable covers must be provided for installation in dusty and damp locations.

The SIRIUS compact starters are generally designed to degree of protection IP20. The permissible ambient temperature during operation is -20 to +60 °C. The rated short-circuit current I_{cs} according to IEC 60947-6-2 is 53 kA at 400 V.

Note:

The maximum permissible short-circuit currents of the device versions for the various line system configuration and currents are available on request from Technical Assistance:

Tel.: +49 (0) 911-895-5900

Email: technical-assistance@siemens.com

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Overload tripping times

The tripping time in the event of overload can be set on the device to normal starting conditions (CLASS 10) and to heavy starting conditions (CLASS 20). As the breaker mechanism still remains closed after an overload, resetting is possible by either local manual reset or auto reset after three minutes cooling time.

With auto reset, there is no need to open the control cabinet.

Diagnostics options

The compact starter provides the following diagnostics options:

- With LEDs
 - Connection to the control voltage
 - Position of the main contacts
- With mechanical display
 - Tripping due to overload
 - Tripping due to short circuit
 - Tripping due to malfunction (end of service life reached because of worn switching contacts or a worn switching mechanism or faults in the control electronics)

These states can also be evaluated in the higher-level control system:

- With parallel wiring using the integrated auxiliary and signaling switches of the compact starter
- With AS-Interface or IO-Link in even greater detail using the respective communication interface

Four complement versions for 3RA61 and 3RA62 compact starters

- For standard mounting rail or screw fixing:
Basic version including 1 pair of main circuit terminals and 1 pair of control circuit terminals
- For standard mounting rail or screw fixing when using the AS-i add-on module:
without control circuit terminals because the AS-i add-on module is plugged on instead
- For use with the infeed system for 3RA6:
Without main circuit terminals because they are supplied with the infeed system and the expansion modules
- For use with the infeed system for 3RA6 and AS-i add-on module: Without terminal complement (also for reordering when replacing the compact starter)

The control circuit terminals are always required by the compact starters for IO-Link; the main circuit terminals depend on the use of the infeed system.

More components of the 3RA6

Apart from the control supply voltage, "Overload" (1 CO) and "Short circuit / Function fault" (1 NO) signaling contacts are already integrated into the 3RA61/3RA62 – and lockable via two 6-pole removable control circuit terminals. The 3RA61 has two auxiliary contacts (1 NO + 1 NC) for displaying the position of the main contacts. Unlike the 3RA61 direct-on-line starter, the 3RA62 reversing starter has one auxiliary contact (1 NO) per direction of rotation per main contact.

Available for the 3RA61 and 3RA64 direct-on-line starters is a slot for an optional auxiliary switch block (optionally 2 NO, 2 NC or 1 NO + 1 NC) and for the 3RA62 and 3RA65 reversing starters there are two slots (for auxiliary switch blocks, [see "Accessories" on page 8/72](#)).

Positively-driven operation of the auxiliary contacts

Positively-driven operation between individual auxiliary circuits exists for the compact starter in the version as a direct-on-line starter for parallel wiring (3RA61) between the auxiliary circuits of the NC contacts (NC 21-22) and the NO contacts (NO 13-14) in the basic unit.

In addition, the optional auxiliary switch block offers positively driven contacts in the 3RA6913-1A version, each with one normally closed contact and one normally open contact.

Load Feeders and Motor Starters for Use in the Control Cabinet

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General data

Article No. scheme

Product versions		Article number							
Compact starters		3RA6	☐	☐	☐	–	☐	☐	☐
Product function	Direct-on-line starter	1	2	0					For motor standard output 0.09 ... 15 kW ¹⁾
	Reversing starter	2	5	0					For motor standard output 0.09 ... 15 kW ¹⁾
	Direct-on-line starter for IO-Link	4	0	0					For motor standard output 0.09 ... 15 kW ¹⁾
	Reversing starter for IO-Link	5	0	0					For motor standard output 0.09 ... 15 kW ¹⁾
	Infeed system	8							
	Accessories	9							
	• Auxiliary switches	1	☐						
	• Terminals	2	☐						
	• IO-Link accessories	3	☐						
	• Fixing elements	4	☐						
	• Control kit	5	☐						
Connection methods	No terminals						0		
	Screw terminals						1		
	Spring-type terminals						2		
Setting range	0.1 ... 0.4 A						A		
	0.32 ... 1.25 A						B		
	1 ... 4 A						C		
	3 ... 12 A						D		
	8 ... 32 A						E		
Rated control supply voltage	24 V DC						B	4	For direct-on-line/reversing starters for IO-Link
	24 V AC/DC						B	3	For direct-on-line/reversing starters
	110 ... 240 V AC/DC						P	3	For direct-on-line/reversing starters
Terminals complement variants	None						0		0 Without main and control circuit terminals
	1/1						2		2 With 1 pair of main circuit and 1 pair of control circuit terminals
	0/1						3		3 Without main circuit terminals, with 1 pair of control circuit terminals
	1/0						4		4 With 1 pair of main circuit terminals, without control circuit terminals
Special versions									
Example		3RA6	1	2	0	–	0	A	B 3 0

¹⁾ 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.

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.

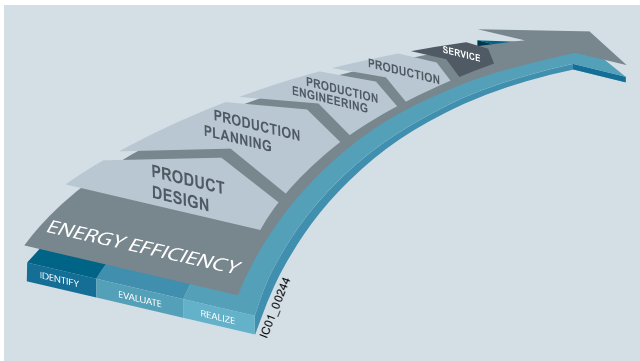
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General data

Benefits

Advantages through energy efficiency



Overview of the energy management process

We offer you a unique portfolio for industrial energy management, using an energy management system that helps to optimally define your energy needs. We split up our industrial energy management into three phases – identify, evaluate, and realize – and we support you with the appropriate hardware and software solutions in every process phase.

The innovative products of the SIRIUS industrial controls portfolio can also make a substantial contribution to a plant's energy efficiency (see www.siemens.com/sirius/energysaving).

With the 3RA6 compact starters, control cabinets heat up less because power losses have been minimized by operation:

- Lower intrinsic power loss (than comparable motor feeders with thermal overload trips) thanks to electronic current analysis
- Lower power losses (than conventional load feeders) because there is only one switching point for short circuit and operational switching
- Lower control circuit power losses (compared with conventional switching devices) as a result of electronic control of switching points
- Thanks to the above advantages, additional energy savings are possible because less cooling is required (and a more compact design is possible)

Product advantages

The SIRIUS 3RA6 compact starters offer a number of benefits:

- Compact design saves space in the control cabinet
- Little planning and assembly work and far less wiring thanks to a single complete unit with one article number
- Low variance and therefore low stock levels, with two wide voltage ranges and five wide setting ranges for the rated current
- High plant availability through integrated functionalities such as prevention of main contact welding and disconnection at end of service life
- Enhanced productivity through automatic device reset in case of overload and differentiated detection of overload and short circuit
- Easy checking of the wiring and testing of the motor direction prior to start-up thanks to optional control kits
- Speedy replacement of devices thanks to removable terminals with spring-type and screw connections in the main and control circuit
- Efficient power distribution through the related SIRIUS infeed system for 3RA6
- Direct connection of the motor feeder cable to the SIRIUS infeed system for 3RA6 thanks to integrated PE bar
- Connecting and looping through of incoming feeders up to a cross-section of 70 mm²
- When using the infeed system for 3RA6, possibility of directly connecting the motor cable without intermediate terminals
- Integration in Totally Integrated Automation thanks to the optional connection to AS-Interface or IO-Link

The SIRIUS 3RA6 compact starters create the basis for high-availability and future-proof machine concepts.



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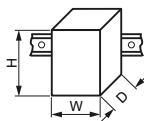
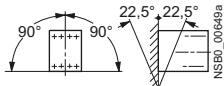
General data

Technical specifications

More information

Industry Mall, see www.siemens.com/product?3RA6
 System Manual, see <http://support.industry.siemens.com/cs/ww/en/view/27865747>.
 FAQs, see <https://support.industry.siemens.com/cs/ww/en/ps/16301/faq>

Note on security:
 In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens products and solutions represent only one component of such a concept.
 For more information about the subject of Industrial Security, see www.siemens.com/industrialsecurity.

Type			3RA61	3RA62	3RA64	3RA65
Size			S0			
Number of poles			3			
Mechanics and environment						
Mounting dimensions (W x H x D)						
- Screw terminals - Spring-type terminals						
		mm	45 x 170 x 165	90 x 170 x 165	45 x 170 x 165	90 x 170 x 165
		mm	45 x 191 x 165	90 x 191 x 165	45 x 191 x 165	90 x 191 x 165
Depth from standard mounting rail		mm	160			
Permissible ambient temperature		°C	-20 ... +70, restriction as from 60 depending on design			
During operation (for permissible operational current, see the following section "Electrical specifications")		°C	-55 ... +80			
- During storage - During transport		°C	-55 ... +80			
Permissible mounting position						
						
Shock resistance (sine-wave pulse)			a = 60 m/s ² = 6 g with 10 ms; for every 3 shocks in all axes			
Vibratory load			f = 4 ... 5.8 Hz; d = 15 mm; f = 5.8 ... 500 Hz; a = 20 m/s ² ; 10 cycles			
Degree of protection		Acc. to IEC 60947-1	IP20			
Installation altitude		m	Up to 2 000 above sea level without restriction			
Relative air humidity		%	10 ... 90			
Degree of pollution			3			
Electrical specifications						
Device standard			IEC 60947-6-2			
Maximum rated operational voltage U _e		V	690			
		V	400 at 3RA6250-E... and 3RA6500-E... (Reversing starter 32 A designs)			
Rated frequency		Hz	50/60			
Rated insulation voltage U _i (pollution degree 3)		V	690			
Rated impulse withstand voltage U _{imp}		kV	6			
Rated operational current I _e ¹⁾		A	0.4			
and setting range for overload release		A	1.25			
		A	4			
		A	12			
		A	32			
Permissible operational current of the compact starter ²⁾						
When several compact starters are mounted side-by-side in the infeed system for 3RA6 (for more details on the various design variants, see System Manual "SIRIUS 3RA6 Compact Feeders", https://support.industry.siemens.com/cs/ww/en/view/27865747)						
For a control cabinet inside temperature of +40 °C		%	100			
For a control cabinet inside temperature of +60 °C		%	80			
For a control cabinet inside temperature of +70 °C		%	60			
Trip class (CLASS)		Acc. to IEC 60947-4-1, EN 60947-4-1 (VDE 0660 Part 102)	10/20			
Overload function			1:4			
Ratio of lower to upper current mark						
Rated service short-circuit breaking capacity I _{CS} at 50/60 Hz, 400 V AC		kA	53			
Rated service short-circuit breaking capacity I _{CSIT} at 50/60 Hz 400/690 V AC in IT systems		kA	1.5			

¹⁾ For use of 3RA6 compact starters in conjunction with highly energy-efficient IE3/IE4 motors, please observe the information on dimensioning and configuring in the "Application Manual for Controls with IE3/IE4 Motors", see <https://support.industry.siemens.com/cs/ww/en/view/94770820>.

²⁾ Details about installation conditions and the use of the compact starters, and particularly about the derating of the rated current, can be found in the System Manual "SIRIUS Compact Starters and Accessories".

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Type			3RA61	3RA62	3RA64	3RA65
Size			S0			
Number of poles			3			
Electrical specifications (continued)						
Power loss $P_{V \max}$ of all main current paths	0.4 A	mW	10			
Dependent on rated current I_e	1.25 A	mW	100			
(upper setting range)	4 A	W	1			
	12 A	W	1.8			
	32 A	W	5.4			
Max. switching frequency	AC-41	1/h	750			
	AC-43	1/h	250			
	AC-44	1/h	15			
No-load switching frequency		1/h	3 600		3 600, depending on the IO-Link communication time	
Touch protection	Acc. to DIN VDE 0106, Part 100		Finger-safe			
Isolating features of the compact starter	Acc. to IEC 60947-3		✓			
			Isolation is assured only by moving the actuator into the "OFF" position.			
Main and EMERGENCY-STOP switch characteristics of the compact starter and accessories	Acc. to IEC 60204		✓			
Protective separation	Acc. to IEC 60947-2					
Control circuit to auxiliary circuit						
• Horizontal standard mounting rail		V	Up to 400			
• Other mounting position		V	Up to 250			
Auxiliary circuit to auxiliary circuit						
• Horizontal standard mounting rail		V	Up to 400			
• Other mounting position		V	Up to 250			
Main circuit to auxiliary circuit						
• Any mounting position		V	Up to 400			
EMC interference immunity	Acc. to IEC 60947-1		Corresponds to degree of severity 3			
Conducted interference	BURST acc. to IEC 61000-4-4					
• In the main circuit		kV	4		4	
• In the auxiliary circuit		kV	3		2	
Conducted interference	SURGE acc. to IEC 61000-4-5					
• In the main circuit						
- Conductor - Ground		kV	4		2	
- Conductor - Conductor		kV	2		1	
• In the auxiliary circuit						
- Conductor - Ground		kV	2		0.5 ¹⁾	
- Conductor - Conductor		kV	1		0.5 ¹⁾	
Auxiliary switches						
• Integrated						
- Position of the main contacts			1 NO + 1 NC	2 NO	1 NO + 1 NC	2 NO
- Overload/short circuit and malfunction signal			1 CO/1 NO			
• Expandable						
- Position of the main contacts			2 NO, 2 NC, 1 NO + 1 NC			
Surge suppressors			Integrated (varistor)			
Electromagnetic operating mechanisms						
Control voltage		V	24 AC/DC		24 DC	
		V	110 ... 240 AC/DC		--	
Frequency	At AC	Hz	50/60 (± 5 %)			
Operating range			0.7 ... 1.25 U_s		0.85 ... 1.2 U_s	
No-load switching frequency		1/h	3 600			
Line protection	At 10 kA	mm ²	2.5			
	At 50 kA	mm ²	4			
Shock resistance						
• Breaker mechanism OFF		g	25			
• Breaker mechanism ON		g	15			
Normal switching duty						
Making capacity			12 x I_n			
Breaking capacity			10 x I_n			
Switching capacity dependent on rated current	Up to 12 A	kW	5.5			
	Up to 32 A	kW	15			
Endurance in operating cycles						
• Electrical endurance	At $I_e = 0.9 \times I_n$ and 400 V		3 ... 10 000 000	2 x 3 ... 10 000 000	3 000 000	2 x 1 500 000

✓ Function available

¹⁾ To maintain maximum interference immunity in a harsh electromagnetic environment, additional overvoltage protection should be provided in the control circuit. The 5SD7432-4 plug-in surge arrester with remote signaling, for instance, is suitable. See Catalog LV 10.

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Type		3RA6120-□B3., 3RA6250-□B3. □ = A, B, C or D Rated operational current ≤ 12 A				3RA6120-EB3., 3RA6250-EB3. Rated operational current 32 A			
Rated control supply voltage	V	24 AC		24 DC		24 AC		24 DC	
Inrush peak current	A	0.59		0.47		0.59		0.47	
Hold current	A	0.13		0.12		0.17		0.14	
Closed	W	2.8		2.9		3.5		3.1	
Operating times, typical									
• On	ms	< 160		< 140		< 160		< 140	
• Off	ms	< 35		< 35		< 30		< 30	
Type		3RA6 20-□P3., 3RA6250-□P3. □ = A, B, C or D Rated operational current ≤ 12 A				3RA6120-EP3., 3RA6250-EP3. Rated operational current 32 A			
Rated control supply voltage	V	110 AC		240 AC		110 DC		240 DC	
Inrush peak current	A	0.24		0.40		0.17		0.29	
Hold current	A	0.06		0.08		0.03		0.02	
Closed	W	3.8		6		3.1		5.1	
Operating times, typical									
• On	ms	< 160		< 140		< 150		< 140	
• Off	ms	< 50		< 80		< 50		< 70	
Type		3RA6400-□B4., 3RA6500-□B4. □ = A, B, C or D Rated operational current ≤ 12A				3RA6400-EB4., 3RA6500-EB4. Rated operational current 32 A			
Rated control supply voltage	V	24 DC				24 DC			
Inrush peak current	A	0.39				0.53			
Hold current	A	0.13				0.15			
Closed	W	2.9				3.4			
Operating times, typical ¹⁾									
• On	ms	< 140				< 140			
• Off	ms	< 35				< 30			

¹⁾ Plus IO-Link communication

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General data

Type			3RA61	3RA62	3RA64	3RA65
Size			S0			
Number of poles			3			
Control circuit						
Rated operational voltage						
• External auxiliary switch block	V		400/690			
• Internal auxiliary switch	V		400/690			
• Short-circuit signaling switch	V		400			
• Overload signaling switch	V		400			
Switching capacity						
• External auxiliary switch block	AC-15					
	• Up to $U_e = 230$ V	A	6			
	• Up to $U_e = 400$ V	A	3			
	• Up to $U_e = 289/500$ V	A	2			
	• Up to $U_e = 400/690$ V	A	1			
	DC-13					
	• Up to $U_e = 24$ V	A	6			
	• Up to $U_e = 60$ V	A	0.9			
	• Up to $U_e = 125$ V	A	0.55			
	• Up to $U_e = 250$ V	A	0.27			
• Internal auxiliary switch	AC-15					
	• Up to $U_e = 230$ V	A	6			
	• Up to $U_e = 400$ V	A	3			
	• Up to $U_e = 289/500$ V	A	2			
	• Up to $U_e = 400/690$ V	A	1			
	DC-13					
	• Up to $U_e = 24$ V	A	10			
	• Up to $U_e = 60$ V	A	2			
	• Up to $U_e = 125$ V	A	1			
	• Up to $U_e = 250$ V	A	0.27			
	• Up to $U_e = 480$ V	A	0.1			
• Signaling switch	AC-15					
	• Up to $U_e = 230$ V	A	3			
	• Up to $U_e = 400$ V	A	1			
	DC-13					
	• Up to $U_e = 24$ V	A	2			
	• Up to $U_e = 250$ V	A	0.11			
External auxiliary switch blocks, internal auxiliary switches						
Endurance in operating cycles						
• Mechanical endurance			10 000 000		3 000 000	
• Electrical endurance	AC-15, 230 V					
	• Up to 6 A		200 000			
	• Up to 3 A		500 000			
	• Up to 1 A		2 000 000			
	• Up to 0.3 A		10 000 000			
	DC-13, 24 V					
	• Up to 6 A		30 000			
	• Up to 3 A		100 000			
	• Up to 0.5 A		2 000 000			
	• Up to 0.2 A		10 000 000			
	DC-13, 110 V					
	• Up to 1 A		40 000			
	• Up to 0.55 A		100 000			
	• Up to 0.3 A		300 000			
	• Up to 0.1 A		2 000 000			
	• Up to 0.04 A		10 000 000			
	DC-13, 220 V					
	• Up to 0.3 A		110 000			
	• Up to 0.1 A		650 000			
	• Up to 0.05 A		2 000 000			
	• Up to 0.018 A		10 000 000			
Contact reliability	At 17 V and 5 mA	Operating cycles	1 faulty switching operation per 100 000 000			
Short-circuit protection						
• Short-circuit current $I_K \leq 1.1$ kA	Fuse links, operational class gG	A	10			
	- NEOZED Type 5SE					
	- DIAZED Type 5SB					
	- LV HRC Type 3NA					
• Short-circuit current $I_K < 400$ A	Miniature circuit breaker up to 230 V with C characteristic	A	10			

Load Feeders and Motor Starters for Use in the Control Cabinet

SIRIUS 3RA6 Compact Starters

General data

Type				3RA61	3RA62	3RA64	3RA65
Size				S0			
Number of poles				3			
Signaling switches							
Endurance in operating cycles							
• Mechanical endurance				20 000			
• Electrical endurance AC-15				6 050			
Contact reliability				At 230 V and 3 A			
				At 17 V and 5 mA	Operating cycles	1 incorrect switching operation per 100 000 000	
Short-circuit protection							
• Short-circuit current $I_K \leq 1.1 \text{ kA}$				Fuse links, operational class gG - NEOZED Type 5SE - DIAZED Type 5SB - LV HRC Type 3NA	A	6	
• Short-circuit current $I_K < 400 \text{ A}$				Miniature circuit breaker up to 230 V with C characteristic	A	6	
Overload (short-circuit current $I_K \leq 1.1 \text{ kA}$)				Fuse links, operational class gG - NEOZED Type 5SE - DIAZED Type 5SB - LV HRC Type 3NA	A	4	

Load Feeders and Motor Starters for Use in the Control Cabinet

SIRIUS 3RA6 Compact Starters

Infeed system for 3RA6

In addition, the integrated PE bar means it is optionally possible to connect the motor cable directly to the infeed system without additional intermediate terminals. The infeed system for 3RA6 compact starters is designed for summation currents up to 100 A with a maximum conductor cross-section of up to 70 mm² on the infeed terminal block.

The infeed system can be mounted on a standard mounting rail or flat surfaces.

① Infeed

The three-phase infeed is available as a screw-type infeed (25/35 mm² up to 63 A or 50/70 mm² up to 100 A) and as a spring-loaded infeed (25/35 mm² up to 63 A).

The infeed with spring-type terminal can be fitted on the left as well on as the right to an expansion module.

The infeed with screw terminal is supplied only with a 3-socket expansion module and permanently fitted on the left side.

The screw-type infeeds enable connection of the main conductors (L1, L2, L3) either from above or from below.

The screw-type infeed is supplied complete with one end cover, the spring-loaded infeed complete with two end covers.

② 3-socket expansion module

The expansion module with three sockets for compact starters is available with screw connection and with spring-type connection.

Expansion modules enable the infeed system to be expanded and can be fitted to each other in any number.

Two expansion modules are held together with the help of two connecting wedges and one expansion plug. These assembly parts are included in the scope of supply of the respective expansion module.

When the infeed system for 3RA6 is used, the compact starters (plug-in modules) are easily assembled and disassembled even when live.

Optional possibilities:

- PE connection on motor outgoing side
- Outfeed for external auxiliary devices
- Connection to 3RV29 infeed system
- Integration of SIRIUS 3RV1 and 3RV2 motor starter protectors size S0 up to 25 A (using 3RA6890-0BA adapter)

③ 2-socket expansion module

If only two instead of three additional sockets are required, then the 2-socket expansion module is the right choice. It has the same functionality as the 3-socket expansion module.

④ Expansion plug

Two expansion modules can be connected together using the expansion plug. Flexible expansion of the infeed system is thus possible.

⑤ PE infeed

This module enables a PE cable to be connected.

The PE infeed can be ordered with screw connection and spring-type connection (35 mm²) and can be fitted on the left or right of the expansion block.

⑥ PE expansion plug

The PE expansion plug is inserted from below and enables two PE bars to be connected.

⑦ PE pick-off

The PE pick-off is available with screw connection and spring-type connection (6/10 mm²). It is snapped into the infeed system from below.

⑧ Connecting wedges

Two connecting wedges are used to hold together two expansion modules.

⑨ End covers

On the last expansion module of a row, the socket provided for the expansion plug can be covered by inserting the end cover.

⑩ 45 mm adapters for SIRIUS 3RV1/3RV2 motor starter protectors

SIRIUS 3RV1 and 3RV2 motor starter protectors size S0 with screw connection can be fitted to the adapter, enabling them to be plugged into the infeed system.

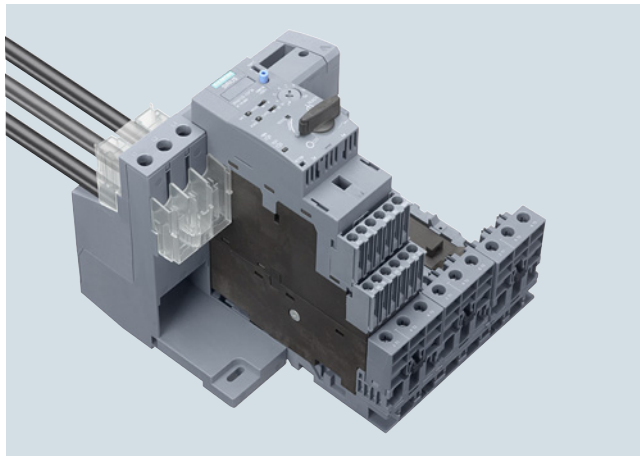
IP20 terminal covers for increasing finger-safety

Universally configured terminal covers are available for the 25/35 mm² and 50/70 mm² three-phase screw-type infeeds:

- 3RA6880-2AB terminal covers for screw-type infeeds 25/35 mm² (3RA6812-8AB/AC)
- 3RA6880-3AB terminal covers for screw-type infeeds 50/70 mm² (3RA6813-8AB/AC)

The terminal covers can be used in two ways on the infeed terminals of the screw-type infeeds 25/35 mm² and 50/70 mm² (see illustration):

- If the terminals are connected, the cables are also covered:
 - by approx. 14 mm with the 3RA6880-2AB
 - by approx. 18 mm with the 3RA6880-3AB
- On clamping points without connected cables, the covers can be turned once and then pushed over the clamping points for finger-safe covering of the metal parts.



Use of the 3RA6880-2AB terminal cover on the screw-type infeed 25/35 mm² (3RA6812-8AB/AC). The upper cover increases the finger-safety for the connected conductors. The identical lower cover is turned for use and prevents touching of the voltage-carrying metal parts of the infeed terminal. For better recognition, the covers are shown as transparent in this illustration and not in their original color.

Load Feeders and Motor Starters for Use in the Control Cabinet

SIRIUS 3RA6 Compact Starters

Infeed system for 3RA6

Terminal blocks

Using the terminal block the three phases can be fed out of the system; this means that single-phase, two-phase and three-phase components can also be integrated in the system.

After the end cover is pulled out, the terminal block can be plugged onto an expansion module.

Expansion plug for SIRIUS 3RV29 infeed systems

After the end cover is pulled out, the expansion plug for the SIRIUS 3RV29 infeed system can be plugged onto an expansion module. It connects the infeed system for 3RA6 compact starters with the SIRIUS 3RV29 infeed system.

Maximum rated operational current

The following maximum rated operational currents apply for the components of the infeed system for 3RA6:

Component	Maximum rated operational current A
Screw-type infeed 50/70 mm ²	100
Screw-type infeed 25/35 mm ²	63
Spring-loaded infeed 25/35 mm ²	63
Expansion plug	63

With side-by-side mounting of several expansion modules, the maximum rated operational current from the second expansion module to the end of the row is 63 A.

Proposal for upstream short-circuit protection devices

The following short-circuit data apply for the components of the infeed system for 3RA6 compact starters:

Conductor cross-section mm ²	Maximum let-through current $I_{d, max}$ and current integral I^2t	Proposal for upstream short-circuit protection device
Short-circuit protection for 3RA681..8A, screw-type infeed (25/35 mm² and 50/70 mm²)		
2.5 ... 35, 2.5 ... 70	$I_{d, max} < 21 \text{ kA}$, $I^2t = 530 \text{ kA}^2\text{s}$	3RV1041-4MA10 (NH gG 3NA3; 315 A)
Short-circuit protection for spring-loaded infeed 25/35 mm², 3RA6830-5AC		
4	$I_{d, max} < 9.5 \text{ kA}$, $I^2t = 85 \text{ kA}^2\text{s}$	3RV1021-4DA10
6	$I_{d, max} < 12.5 \text{ kA}$, $I^2t = 140 \text{ kA}^2\text{s}$	3RV1031-4EA10
10	$I_{d, max} < 15 \text{ kA}$, $I^2t = 180 \text{ kA}^2\text{s}$	3RV1031-4HA10
16/25	$I_{d, max} < 19 \text{ kA}$, $I^2t = 440 \text{ kA}^2\text{s}$	3RV1041-4JA10
35	$I_{d, max} < 21 \text{ kA}$, $I^2t = 530 \text{ kA}^2\text{s}$	3RV1041-4MA10 (NH gG 3NA3; 315 A)
Short-circuit protection for terminal block, 3RV2917-5D		
1.5	$I_{d, max} < 7.5 \text{ kA}$	5SY... 1)
2.5	$I_{d, max} < 9.5 \text{ kA}$	
4	$I_{d, max} < 9.5 \text{ kA}$	
6	$I_{d, max} < 12.5 \text{ kA}$	

1) To prevent the possibility of short circuits, the cables on the terminal block must be installed so that they are short-circuit proof.

Load Feeders and Motor Starters for Use in the Control Cabinet

SIRIUS 3RA6 Compact Starters

Infeed system for 3RA6

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

Expansion modules



3RA6822-0AB

Two-socket expansion modules**With screw or spring-type connection and integrated PE bar**

With 2 sockets for 2 direct-on-line starters or 1 reversing starter

Expansion plug and 2 connecting wedges included in the scope of supply.

• Screw terminals



2

3RA6822-0AB

1

1 unit

42F



3RA6822-0AC

• Spring-type terminals



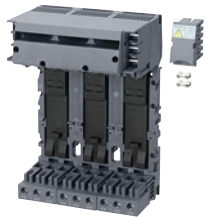
2

3RA6822-0AC

1

1 unit

42F



3RA6823-0AB

Three-socket expansion modules**With screw or spring-type connection and integrated PE bar**

With 3 sockets for 3 direct-on-line starters or 1 direct-on-line starter and 1 reversing starter

Expansion plug and 2 connecting wedges included in the scope of supply.

• Screw terminals



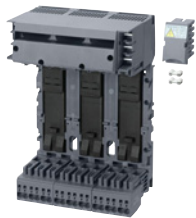
2

3RA6823-0AB

1

1 unit

42F



3RA6823-0AC

• Spring-type terminals



2

3RA6823-0AC

1

1 unit

42F

