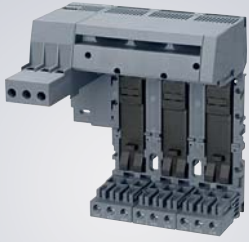


3RA6 Fuseless Compact Starters

Catalog News LV 1 N • January 2008



sirius

Related catalogs

Low-Voltage Controls and Distribution

SIRIUS · SENTRON · SIVACON

Order No.:

Catalog LV 1

E86060-K1002-A101-A7-7600

Technical Information incl. LV 1 T



Low-Voltage

Controls and Components
for Applications according to UL

Order no.:

E86060-K1816-A101-A1-7600

LV 16



Industrial Communication

Industrial Communication
for Automation and Drives

Order No.:

E86060-K6710-A101-B6-7600

E86060-K6710-A121-A2-7600

IK PI
IK PI N

SICUBE

System Cubicles and
Cubicle Air-Conditioning

Order No.:

E86060-K1920-A101-A3-7600

LV 50



SIDAC

Reactors and Filters

Order No.:

E86060-K2803-A101-A4-7600

LV 60



SIVACON 8PS

CD-K, BD01, BD2
Busbar Trunking Systems
up to 1250 A

Order No.:

E86060-K1870-A101-A3-7600

LV 70



Automation & Drives

The A&D Offline Mall

CD-ROM:

E86060-D4001-A110-C6-7600

DVD:

E86060-D4001-A510-C6-7600

CA 01



A&D Mall

Internet:

<http://www.siemens.com/automation/mall>


Catalog-PDF

Internet:

<http://www.automation.siemens.com/cd>


Contents

Systems • Controlgear: Contactors and contactor assemblies, solid-state switching devices • Protection equipment • Load feeders, motor starters and soft starters • Monitoring and control devices • Detecting devices • Commanding and signaling devices • Transformers • Power supplies • Planning and configuration with SIRIUS • Power Management System • SIVACON Power, distribution boards, busway and cubicle systems • SENTRON switching and protection devices for power distribution • Air circuit breakers, molded case circuit-breakers, switch disconnectors • Software for power distribution • BETA low-voltage circuit protection

SIRIUS 3RV17 and 3RV18 motor starter protectors according to UL 489 • SIVACON Components for 8US Distribution Systems according to UL 508A • SENTRON 3WL5 air circuit breakers/ non-automatic air circuit breakers according to UL 489/IEC • SENTRON 3VL Molded Case Circuit Breakers according to UL 489/IEC • ALPHA Devices according to UL Standard • BETA Devices according to UL standard

PROFINET/Industrial Ethernet • Industrial Mobile Communicaton • PROFIBUS to IEC 61158/EN 50170 • SIMATIC ET 200 distributed I/Os • AS-Interface to EN 50295/IEC 61158 • Remote operation with SINAUT Telecontrol • Routers • ECO-FAST system

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Commutating reactors for converters • Mains reactors for frequency converters • Iron-core output reactors • Ferrite output reactors • Iron-core smoothing reactors • Smoothing air-core reactors • Filter reactors • Application-specific reactors • Radio interference suppression filters • dv/dt filters • Sinewave filters

Busbar trunking systems, overview • CD-K system (25 A to 40 A) • BD01 system (40 A to 160 A) • BD2 system (160 A to 1250 A)

All Automation and Drives products, including those in the catalogs listed above.

All Automation and Drives products, including those in the catalogs listed above.

All catalogs for low-voltage controls and distribution can be downloaded as PDF files.

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Technical Assistance



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Low-Voltage Controls and Distribution SIRIUS · SENTRON · SIVACON

Catalog News
LV 1 N · 01/2008

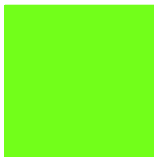
3RA6 Fuseless Compact Starters

Contact your local Siemens representative

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The products and systems listed in this catalog are manufactured using a certified quality management system which complies with EN ISO 9001 (for the Certificate Register No. see the Appendix). The TÜV certificate is recognized in all IQ Net countries.



SIEMENS

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Introduction

Siemens Automation and Drives. Welcome.
Sharpen your competitive edge. Totally Integrated Automation.
Integrated energy distribution from a single source. Totally Integrated Power.
Low-Voltage Controls and Distribution - The basis for progressive solutions.
SIRIUS Industrial Controls
Low-Voltage Power Distribution

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SIRIUS Safety Integrated
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Explanations

General information

Things you should know about Catalog News LV 1 N Load Feeders · 01/2008

Catalog News LV 1 N Load Feeders · 01/2008 is a supplement to the catalog LV 1 · 2008. The section „Catalog“ contains selection and order-relevant data for the 3RA6 Fuseless Compact Starters under the topic headings "Overview", "Benefits" as well as "Selection and ordering data".

For the Accessories and Infeed Systems of the 3RA6 the topics „Overview“ and „Selection and ordering data“ can be found as well.

The section „Technical specifications“ is omitted, as the applicable data can be found in the system manual at

www.siemens.com/compactstarter.

Delivery time (DT)

▶ Preferred type	Preferred types are available immediately from stock, i.e. are dispatched within 24 hours.
A 2 working days	
B 1 week	Normal quantities of the products are usually delivered within the specified time following receipt of your order at our branch.
C 3 weeks	
D 6 weeks	In exceptional cases, the actual delivery time may differ from that specified.
X On request	

The delivery times apply up to the ramp at Siemens AG (products ready for dispatch). The transport times depend on the destination and type of shipping. The standard transport time for Germany is 1 day.

The delivery times specified here represent the state of 10/2007. They are permanently optimized. Up-to-date information can be found at <http://www.siemens.com/automation/mall>.

Price units (PU)

The price unit defines the number of units, sets or meters to which the specified price and weight apply.

Packaging sizes (PS)

The packaging size defines the number, e.g. of units, sets or meters, for outer packaging. Only the quantity defined by the packaging size or a multiple thereof can be ordered!

For multi-unit packing and reusable packaging see [Appendix](#).

Price groups (PG)

Each product is assigned to a price group.

Weight

The defined weight in kg refers to the price unit (PU).

Dimensions

All dimensions in mm.

Explanations

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Order number index including export markings

Order No.	Export markings		Page
	ECCN	AL	
3R			
3RA61 20-0	N	N	6/4
3RA61 20-1A	N	N	6/4
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3RA61 20-1CB32	N	N	6/4
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3RA61 20-1CE	N	N	6/4
3RA61 20-1CP32	N	N	6/4
3RA61 20-1CP33	N	N	6/4
3RA61 20-1CP34	N	N	6/4
3RA61 20-1DB32	N	N	6/4
3RA61 20-1DB33	N	N	6/4
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3RA61 20-1DP32	N	N	6/4
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3RA69 2	N	N	6/8
3RA69 4	N	N	6/7
3RA69 5	N	N	6/7
3RA69 7	N	N	6/7
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3RK	N	N	6/7
3RV19 15-1	N	N	6/9
3RV19 15-5	N	N	6/9
3RV19 15-6	N	N	6/9
3RV19 17	N	N	6/16
3RV19 25	N	N	6/9
3RV19 26	N	N	6/10
3RV19 28	N	N	6/8
8U			
8US	on requ.		6/10
8W			
8WA	N	N	6/10, 6/16

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Load Feeders, Motor Starters and Soft Starters



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Technical Information

	Technical information about
	- Technical data
	- Manuals/Operating instructions
	- Characteristics
	- Certificates
	can be found at:
	www.siemens.de/lowvoltage/support
	and about Configurators at:
	www.siemens.de/lowvoltage/konfiguratoren

3RA6 Fuseless Compact Starters

General data

Overview

3RA6 fuseless compact starters and infeed system for 3RA6

Integrated functionality

The SIRIUS 3RA6 compact starters are a generation of innovative load feeders with the integrated functionality of a circuit breaker, contactor and solid-state overload relay. In addition, various functions of optional mountable accessories (auxiliary switches, surge suppressors) are already integrated in the SIRIUS compact starter.

Application

The SIRIUS compact starters can be used wherever standard induction motors up to 32 A (approx. 15 kW/400 V) are directly started.

Low equipment variance

Thanks to wide setting ranges for the rated current and wide voltage ranges, the equipment variance is greatly reduced compared to conventional load feeders.

Very high operational safety

No welding after a short-circuit release and defined shut-down when the end of service life is reached means that the SIRIUS compact starter achieves a very high level of operational safety otherwise possible only with considerable additional outlay. This sets it apart from devices with similar functionality.

Safe disconnection

The auxiliary switches of the 3RA6 compact starters are designed as mirror contacts. It is thus possible to use the devices for safe disconnection, e.g. emergency-stops, up to Category 2 (EN954-1) and together with other redundancy switching devices up to Category 3 or 4.

Communications integration through AS-Interface

To enable communications integration through AS-Interface there is an AS-i add-on module (also available as a version with two local inputs for safe disconnection) which can be mounted 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.

Permanent wiring / easy replacement

Using the SIRIUS infeed system for 3RA6 it is possible to carry out the wiring in advance without a compact starter needing 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.

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-loaded connections

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

Note:

For fast orientation with regard to the type of connection, different colored backgrounds are assigned to the Order No. and the price in the selection and ordering data:

- Products with screw connections appear on a green background.
- Products with spring-loaded connections appear on an orange background.
- Products with different connections on the incoming and outgoing side appear on a gray background.

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.

Types of infeed for the 3RA6 fuseless compact starters

On the whole four different infeed possibilities are available:

- Parallel wiring
- Use of 3-phase busbars (combination with SIRIUS circuit breakers and SIRIUS contactors possible)
- 8US busbar adapters
- SIRIUS infeed system for 3RA6

To comply with the clearance and creepage distances demanded according to UL508 there are the following infeed possibilities:

Type of infeed	Feeder terminal (according to UL 508, type E)	Order No.
Parallel wiring	Terminal for "Self-Protected Combination Motor Controller (Type E)"	3RV19 28-1H
3-phase busbars	3-phase infeed terminal for constructing "Type E Starters", UL 508	3RV19 25-5EB
Infeed system for 3RA6	Infeed on left, 50/70 mm ² , screw terminal with 3 sockets, outgoing terminal with screw/spring-loaded connections, including PE bar	3RA68 13-8AB (screw connection), 3RA68 13-8AC (spring-type connection)

SIRIUS 3RA6 compact starters

The SIRIUS 3RA6 compact starters are universal motor feeders according to IEC/EN 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 $I_q = 53$ kA, i.e. they are practically weld-free. They combine the functions of a circuit breaker, a contactor and a solid-state overload relay in a single enclosure and can be used wherever standard induction motors up to 32 A (up to approx. 15 kW at 400 V AC) are started directly. Direct-on-line and 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.

3RA6 fuseless compact starters are available with 5 current setting ranges and 3 control voltage ranges:

3RA6 Fuseless Compact Starters

General data

Overall width of direct-on-line starter	Overall width of reversing starter	Current setting range	At 400 V AC for induction motors up to
mm	mm	A	kW
45	90	0.1 ... 0.4	0.09
45	90	0.32 ... 1.25	0.37
45	90	1 ... 4	1.5
45	90	3 ... 12	5.5
45	90	8 ... 32	15

The 3 control voltage ranges are:

- 24 V AC/DC
- 42 ... 70 V AC/DC
- 110 ... 240 V AC/DC

Note:

Up to 100 A the 3RA1 load feeders can be used for fuseless load feeders > 32 A.

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

For information see the Catalogs LV 1 and LV 1 T.

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 ... +60 °C.

The maximum rated operational voltage is 690 V and the limit short-circuit current is 53 kA.

Note:

More technical specifications can be found in the system manual at

www.siemens.com/compactstarter.

Overload tripping times

The overload tripping time can be set on the device to less than 10 s (CLASS 10) and less than 20 s (CLASS 20 for heavy starting). As the breaker mechanism still remains closed after an overload, resetting is possible by either local manual reset or autoreset after 3 minutes cooling time.

With autoreset 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 indication:
 - 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 be evaluated in addition in the higher-level control system by means of the integrated auxiliary switches and signaling switches of the compact starter.

Four complement variants for 3RA6 compact starters

- For standard mounting rail or screw mounting: basic version including 1 pair of main circuit terminals and 1 pair of control circuit terminals
- For standard mounting rail or screw mounting 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)

Benefits

The SIRIUS 3RA6 compact starters offer a number of advantages, the most important being:

- 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 order number
- Little variance through 3 wide voltage ranges and 5 wide setting ranges for the rated current mean low stock levels
- High plant availability through integrated functionalities such as prevention of main contact welding and shut-down at end of service life
- Greater 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-loaded 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 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

3RA6 Fuseless Compact Starters

3RA61, 3RA62 Compact Starters

3RA61 direct-on-line starters

Selection and ordering data

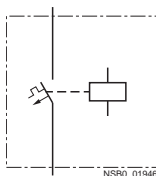


3RA61 20-1CB32



3RA61 20-2EB32

Direct start



A set of 3RA69 40-0A adapters is required for screw mounting.

Standard induction motor 4-pole at 400 V AC ¹⁾	Setting range for solid-state overload release	DT ²⁾	Compact starter		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
			Order No.	Price per PU				
Standard output <i>P</i>								
kW	A							kg
According to IEC/EN 60947-6-2 no welding of contactor contacts at $I_q = 53$ kA at 400 V								
0.09	0.1 ... 0.4		3RA61 20-A□□3□		1	1 unit	101	1.3
0.37	0.32 ... 1.25		3RA61 20-B□□3□		1	1 unit	101	1.3
1.5	1 ... 4		3RA61 20-C□□3□		1	1 unit	101	1.3
5.5	3 ... 12		3RA61 20-D□□3□		1	1 unit	101	1.3
15	8 ... 32		3RA61 20-E□□3□		1	1 unit	101	1.3

Additional price/
Price reduction

Order No. supplement for connection type

- Without terminals
for use with the infeed system for 3RA6 and the AS-i add-on module
- With screw terminals
- With spring-loaded terminals

0	0	x
1		Without
2		x

Order No. supplement for rated control supply voltage

- 24 V AC/DC
- 42 ... 70 V AC/DC
- 110 ... 240 V AC/DC

B	Without
E	Without
P	Without

Order No. supplement for complement variant

- For standard mounting rail or screw mounting:
Basic version including 1 pair of main circuit terminals and 1 pair of control circuit terminals
- For use with the infeed system for 3RA6
without main circuit terminals (with control circuit terminals)
- For standard mounting rail or screw mounting when using
the AS-i add-on module
without control circuit terminals (with main circuit terminals)

2	Without
3	x For screw terminals x For spring-loaded terminals
4	x For screw terminals x For spring-loaded terminals

¹⁾ Selection depends on the concrete start-up and rated data of the protected motor.

²⁾ Delivery time class is dependent on connection type, rated control supply voltage and complement: preliminary C or X, later as a rule A or B.

x = additional price

3RA6 Fuseless Compact Starters

3RA61, 3RA62 Compact Starters

3RA62 reversing starters

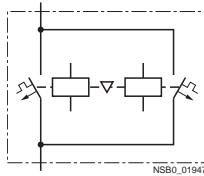
Selection and ordering data




3RA62 50-1CP32

3RA62 50-2DP32

Reversing duty



Two sets of 3RA69 40-0A adapters are required for screw mounting.

Standard induction motor 4-pole at 400 V AC ¹⁾	Setting range for solid-state overload release 	DT ²⁾	Compact starter		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
			Order No.	Price per PU				
Standard output <i>P</i>								
kW	A							kg
According to IEC/EN 60947-6-2 no welding of contactor contacts at $I_q = 53$ kA at 400 V								
0.09	0.1 ... 0.4		3RA62 50-A□□□	192.—	1	1 unit	101	2.3
0.37	0.32 ... 1.25		3RA62 50-B□□□	194.—	1	1 unit	101	2.3
1.5	1 ... 4		3RA62 50-C□□□	205.—	1	1 unit	101	2.3
5.5	3 ... 12		3RA62 50-D□□□	228.—	1	1 unit	101	2.3
15	8 ... 32		3RA62 50-E□□□	296.—	1	1 unit	101	2.3

*Additional price/
Price reduction*

Order No. supplement for connection type

- Without terminals
for use with the infeed system for 3RA6 and the AS-i add-on module
- With screw terminals
- With spring-loaded terminals

0

0

x

1

Without

2

x

Order No. supplement for rated control supply voltage

- 24 V AC/DC
- 42 ... 70 V AC/DC
- 110 ... 240 V AC/DC

B

Without

E

Without

P

Without

Order No. supplement for complement variant

- For standard mounting rail or screw mounting:
Basic version including 1 pair of main circuit terminals and 1 pair of control circuit terminals
- For use with the infeed system for 3RA6
without main circuit terminals (with control circuit terminals)
- For standard mounting rail or screw mounting when using
the AS-i add-on module
without control circuit terminals (with main circuit terminals)

2

Without

3

x For screw terminals
x For spring-loaded terminals

4

x For screw terminals
x For spring-loaded terminals

¹⁾ Selection depends on the concrete start-up and rated data of the protected motor.

²⁾ Delivery time class is dependent on connection type, rated control supply voltage and complement: preliminary C or X, later as a rule A or B.

x = additional price

3RA6 Fuseless Compact Starters

Accessories

For 3RA6 direct-on-line and reversing starters

Overview

Accessories for SIRIUS 3RA6 compact starters

The following accessories are available specially for the 3RA6 compact starters:

- AS-i add-on module: For communication of the compact starter with the control system using AS-Interface; also available as a version with two local inputs for safe disconnection
- Addressing unit for addressing the AS-i add-on module
- External auxiliary switch blocks: Snap-on auxiliary switch as versions 2 NO, 2 NC and 1 NO + 1 NC with screw or spring-type connections; the contacts of the auxiliary switch block open and close jointly with the main contacts of the compact starter. The NC contacts are designed as mirror contacts.
- Control kit: aid for manually closing the main contacts in order to check the wiring and motor direction under conditions of short-circuit protection
- Adapter for screw mounting the compact starter, including push-in lugs
- Main conductor terminal: available with screw and spring-loaded connection

Accessories for parallel wiring

The terminal block for "Self-Protected Combination Motor Controller", type E is available for complying with the clearance and creepage distances demanded according to UL 508.

Accessories for infeed using 3-phase busbar systems

The 3-phase busbars can be used as an easy, time-saving and clearly arranged means of feeding SIRIUS 3RA6 compact starters with screw connection. Circuit breaker sizes S00 and S0 can also be integrated.

The busbars are suitable for between 2 and 5 devices. However, any kind of extension up to a maximum summation current of 63 A is possible by clamping the tags of an additional busbar (rotated by 180°) underneath the terminals of the respective last circuit breaker.

A connecting piece is required for the combination with circuit breaker size S00. The circuit breakers are supplied by appropriate feeder terminals. Special feeder terminals are required for constructing "Type E Starters" according to UL/CSA.

The 3-phase busbar systems are finger-safe but empty connection tags must be fitted with covers. They are designed for any short-circuit stress which can occur at the output side of connected SIRIUS 3RA6 compact starters or circuit breakers.

Busbar adapters for 60 mm systems

The compact starters are mounted directly with the aid of busbar adapters on busbar systems with 60 mm center-to-center clearance in order to save space and to reduce infeed times and costs. These feeders are suitable for copper busbars with a width from 12 to 30 mm. The busbars can be 4 to 5 mm or 10 mm thick.

The 8US busbar system can be loaded with a maximum summation current of 630 A.

The "reversing starter" version requires a device holder along side the busbar adapter for lateral mounting.

The compact starters are snapped onto the adapter and connected on the line side. This prepared unit is then plugged directly onto the busbar system, and is thus connected both mechanically and electrically at the same time.

For more accessories such as incoming and outgoing terminals, flat copper profiles etc., see LV1, Chapter 14, "8US Busbar Systems, 60 mm Busbar System".

Accessories for operation with closed control cabinet doors





Door-coupling rotary operating mechanisms for standard and emergency-stop applications are available for operating the compact starter with closed control cabinet doors.

3RA6 Fuseless Compact Starters

Accessories

For 3RA6 direct-on-line and reversing starters

Selection and ordering data

Type	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Accessories specially for 3RA6 compact starters							
 <p>3RA69 70-3A</p>		AS-i add-on modules for compact starters ▶ For communication of the compact starter with the control system using AS-Interface			1	1 unit	101 0.045
		AS-i add-on modules with two local inputs for safe disconnection ▶			1	1 unit	101 0.045
 <p>3RK19 04-2AB01</p>		Addressing units for AS-i add-on modules ▶ <ul style="list-style-type: none"> For active AS-Interface modules, intelligent sensors and actuators According to AS-Interface Version 2.1 Including expanded addressing mode Scope of supply <ul style="list-style-type: none"> - 1 addressing unit - 1 operating manual (German, English, French, Spanish, Italian) - 1 addressing cable (1.5 m, with jack plug) 			1	1 unit	121 0.540
 <p>3RA69 50-0A</p>		Control kits ▶ For mechanical actuation of the compact starter			1	1 unit	101 0.004
 <p>3RA69 40-0A</p>	A	Adapters for screw mounting the compact starter (set including push-in lugs) Direct-on-line starters require 1 set, reversing starters 2 sets.			1	1 unit	101 0.152

* You can order this quantity or a multiple thereof.

3RA6 Fuseless Compact Starters

Accessories

For 3RA6 direct-on-line and reversing starters

Type	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
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Accessories specially for 3RA6 compact starters with screw connection

Auxiliary switch blocks for compact starters



3RA6911-1A

2 NO	A	3RA69 11-1A	1	1 unit	101	0.018
2 NC	A	3RA69 12-1A	1	1 unit	101	0.018
1 NO + 1 NC	A	3RA69 13-1A	1	1 unit	101	0.018

Main circuit terminals (incoming and outgoing side)



3RA6920-1A

		3RA69 20-1A	1	2 units	101	0.038
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Accessories specially for 3RA6 compact starters with spring-loaded connection

Auxiliary switch blocks for compact starters



3RA6911-2A

2 NO	A	3RA69 11-2A	1	1 unit	101	0.018
2 NC	A	3RA69 12-2A	1	1 unit	101	0.018
1 NO + 1 NC	A	3RA69 13-2A	1	1 unit	101	0.018

Main circuit terminals (incoming and outgoing side)



3RA6920-2A

		3RA69 20-2A	1	2 units	101	0.049
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Type	For circuit breakers size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
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Terminals for "Self-Protected Combination Motor Controllers (Type E)" according to UL 508 for infeed through parallel wiring with compact starters



3RV19 28-1H

Note: UL 508 demands for "Combination Motor Controller Type E" 1-inch clearance and 2-inch creepage distance at line side. Terminal blocks are not required for use according to CSA. With size S0, these terminal blocks cannot be used in combination with 3RV19.5 three-phase busbars.

Terminal blocks type E

S0		3RV19 28-1H	1	1 unit	101	0.083
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For extended clearance and creepage distances (1 and 2 inch)





3RA6 Fuseless Compact Starters

Accessories

For 3RA6 direct-on-line and reversing starters

Number of compact starters and circuit breakers that can be connected without lateral accessories	Modular spacing mm	Rated current I_n at 690 V A	For circuit breakers size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
										kg

3-phase busbars for infeed with 3RA6

 3RV19 15-1AB  3RV19 15-1BB  3RV19 15-1CB  3RV19 15-1DB	For feeding several compact starters and circuit breakers with screw terminals, mounted side by side on standard mounting rails, insulated, with touch protection.										
	2	45	63	S00, S0 ¹⁾	▶	3RV19 15-1AB		1	1 unit	101	0.044
	3			S00, S0 ¹⁾	▶	3RV19 15-1BB		1	1 unit	101	0.071
	4			S00, S0 ¹⁾	▶	3RV19 15-1CB		1	1 unit	101	0.099
	5			S00, S0 ¹⁾	▶	3RV19 15-1DB		1	1 unit	101	0.124

¹⁾ Not suitable for 3RV11 motor starter protectors with overload relay function. Common clamping of S00 and S0 motor starter protectors is not possible, due to the different modular spacings and terminal heights. The 3RV19 15-5DB connecting piece is available for connecting busbars from size S0 to size S00.

Version	Modular spacing mm	For circuit breakers size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
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Connecting pieces for 3-phase busbars



 3RV19 15-5DB	For connecting 3-phase busbars for compact starters and circuit breakers of size S0 (left) to size S00 (right)	45	S00, S0	▶	3RV19 15-5DB		1	1 unit	101	0.042
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Covers for connection tags of the 3-phase busbars

 3RV19 15-6AB	Touch protection for empty positions		S00, S0	▶	3RV19 15-6AB		1	10 units	101	0.003
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Conductor cross-section Solid or stranded	Finely stranded with end sleeve	AWG cables, solid or stranded	For compact starters and circuit breakers size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
										kg

3-phase line-side terminals for 3-phase busbars

 3RV19 25-5AB  3RV19 15-5B	Connection from top										
	2.5 ... 25	4 ... 16	12-4	S0	▶	3RV19 25-5AB		1	1 unit	101	0.041
	Connection from below¹⁾										
	2.5 ... 25	4 ... 16	12-4	S00, S0	▶	3RV19 15-5B		1	1 unit	101	0.110

3-phase line-side terminals for constructing "Type E Starters" according to UL 508 for 3-phase busbars

Connection from top										
2.5 ... 25	4 ... 16	10-4	S0	C	3RV19 25-5EB		1	1 unit	101	0.055

¹⁾ This terminal is connected in place of a switch, please take the space requirement into account.

3RA6 Fuseless Compact Starters

Accessories

For 3RA6 direct-on-line and reversing starters

Type	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
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Busbar adapters for 60 mm systems



For flat copper profiles according to DIN 46433
Width: 12 ... 30 mm
Thickness: 4 ... 5 mm or 10 mm

8US12 11-1NS10

8US12 11-1NS10

Device holders for lateral mounting along side the busbar adapter for 60 mm systems



8US12 50-1AA10

Required in addition to the busbar adapter for mounting a reversing starter

8US12 50-1AA10

Type	Color of handle	Version of extension shaft mm	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
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Door-coupling rotary operating mechanisms for operating the compact starter with closed control cabinet doors



3RV19 26-0B

The door-coupling rotary operating mechanisms consist of a knob, a coupling driver and an extension shaft of 130/330 mm in length (5 mm x 5 mm). The door-coupling rotary operating mechanisms are designed to degree of protection IP65. The door interlocking prevents accidental opening of the control cabinet door in the ON position of the motor starter protector. The OFF position can be locked with up to 3 padlocks.

Door-coupling rotary operating mechanisms

Black

130



3RV19 26-0B

1

1 unit

101

0.111

EMERGENCY-STOP door-coupling rotary operating mechanisms

Red/
Yellow

130



3RV19 26-0C

1

1 unit

101

0.110

Version	Size/Color	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
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Tools for spring-loaded terminals



8WA2 803

Screwdrivers

3.5 mm x 0.5 mm, suitable for a max. conductor cross-section of 2.5 mm²

Length approx. 175 mm; green

A

8WA2 803

1

1 unit

041

0.024

Type	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
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Documentation

System manuals

- German: SIRIUS compact starter and accessories
- English: SIRIUS compact starter and accessories

3RA69 91-0A

1

1 unit

101

0,460

3RA69 92-0A

1

1 unit

101

0,460

* You can order this quantity or a multiple thereof.

3RA6 Fuseless Compact Starters

Infeed Systems

Infeed systems for 3RA6

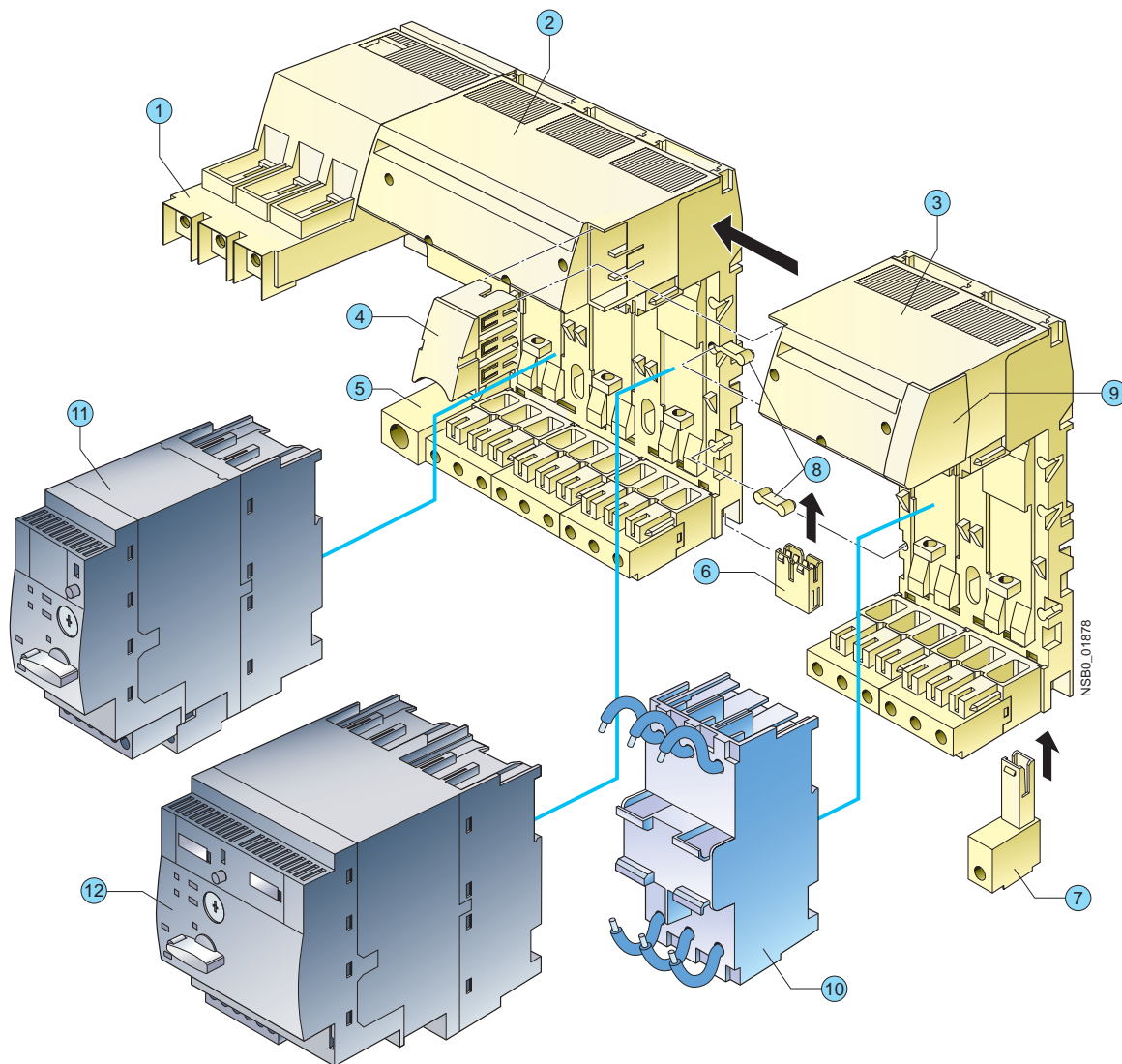
Overview

The infeed system for 3RA6 compact starters enables far less wiring in the main circuit and, thanks to the easy exchangeability of the compact starters, reduces the usual downtimes for maintenance work during the plant's operating phase.

The infeed system provides the possibility of completely prewiring the main circuit without a compact starter needing to be connected at the same time. As the result of the removable terminals in the main circuit, compact starters can be integrated in an infeed system in easy manner (without the use of tools).

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 70 mm² conductor cross-section on the feeder terminal block.

The infeed system can be mounted on a standard mounting rail, a 60 mm busbar system or flat surfaces.



- ① Feeder terminal
- ② Three-socket expansion module
- ③ Two-socket expansion module
- ④ Expansion plug
- ⑤ PE infeed
- ⑥ PE expansion plug

- ⑦ PE pick-off
- ⑧ Connecting plates
- ⑨ End cover
- ⑩ 45 mm adapter for SIRIUS motor starter protector size S00/S0
- ⑪ 3RA61 direct-on-line starter
- ⑫ 3RA62 reversing starter

3RA6 Fuseless Compact Starters Infeed Systems

Infeed systems for 3RA6

① Infeed

The 3-phase infeed is available with screw connection (25/35 mm² up to 63 A or 50/70 mm² up to 100 A) and spring-loaded connection (25/35 mm² up to 63 A).

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

The infeed with screw connection is supplied complete with 1 end cover, the infeed with spring-load connection complete with 2 end covers.

② Three-socket expansion modules

The expansion module with 3 sockets for compact starters is available with screw connection and with spring-loaded 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 2 connecting plates and 1 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 mounted and removed even when live.

Optional possibilities:

- PE connection on motor outgoing side
- Outfeed for external auxiliary devices
- Connection to 3RV19 infeed system
- Integration of SIRIUS motor starter protectors size S00 and S0 in mixed constructions (using 3RA68 90-0BA adapter)

③ Two-socket expansion modules

If only 2 instead of 3 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 infeeds

This module enables a PE cable to be connected.

The PE infeed can be ordered with screw connection and spring-loaded connection (35 mm²) and can be fitted on the right or left to 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-loaded connection (6/10 mm²). It is snapped into the infeed system from below.

⑧ Connecting plates

Two connecting plates are used to hold together 2 expansion blocks.

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 motor starter protectors

SIRIUS motor starter protectors size S0/S00 with screw connection can be fitted to the adapter, enabling them to be plugged into the infeed system.

Terminal blocks

Using the terminal block the 3 phases can be fed out of the system; this means that single-phase, 2-phase and 3-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 3RV19 infeed systems

After the end cover is pulled out, the expansion plug for the SIRIUS 3RV19 infeed system can be plugged onto an expansion module. It connects the infeed system for 3RA6 with the SIRIUS 3RV19 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
Infeed with screw connection 50/70 mm ²	100
Infeed with screw connection 25/35 mm ²	63
Infeed with spring-type connection 25/35 mm ²	63
Expansion plugs	63

In a row of several expansion blocks, the maximum rated operational current from the 2nd expansion block 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:

Conductor cross-section mm ²	Inscriptions	Proposal for upstream short-circuit protection device
Short-circuit protection for infeed block (25 mm² / 35 mm²) with screw connection		
0.75 ... 35	$I_{d,max} = 19 \text{ kA}$, $I^2t = 440 \text{ kA}^2\text{s}$	3RV10 41-4JA10
Short-circuit protection for infeed block (50 mm² / 70mm²) with screw connection		
2.5 ... 70	$I_{d,max} = \text{approx. } 22 \text{ kA}$	3RV10 42-4MA10
Short-circuit protection for infeed block with spring-loaded connection		
4	$I_{d,max} = 9.5 \text{ kA}$, $I^2t = 85 \text{ kA}^2\text{s}$	3RV10 21-4DA10
6	$I_{d,max} = 12.5 \text{ kA}$, $I^2t = 140 \text{ kA}^2\text{s}$	3RV10 31-4EA10
10	$I_{d,max} = 15 \text{ kA}$, $I^2t = 180 \text{ kA}^2\text{s}$	3RV10 31-4HA10
16 / 25	$I_{d,max} = 19 \text{ kA}$, $I^2t = 440 \text{ kA}^2\text{s}$	3RV10 42-4JA10
Short-circuit protection for terminal block		
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 resistant according to EN 60439-1 Section 7.5.5.1.2.

3RA6 Fuseless Compact Starters

Infeed Systems

Infeed systems for 3RA6
Selection and ordering data





Type	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
3-phase infeeds and expansion modules						
 <p>Infeed with screw connection 25/35 mm² on left with permanently fitted 3-socket expansion module with screw connection on outgoing side and integrated PE bar Expansion module with 3 sockets for 3 direct-on-line starters or 1 direct-on-line starter and 1 reversing starter</p>	3RA68 12-8AB		1	1 unit	101	0.957
<p>3RA68 12-8AB</p>  <p>Infeed with screw connection 25/35 mm² on left with permanently fitted 3-socket expansion module with spring-loaded connection on outgoing side and integrated PE bar Expansion module with 3 sockets for 3 direct-on-line starters or 1 direct-on-line starter and 1 reversing starter</p>	3RA68 12-8AC		1	1 unit	101	0.957
<p>3RA68 12-8AC</p>  <p>Infeed with screw connection 50/70 mm² on left with permanently fitted 3-socket expansion module with screw connection on outgoing side and integrated PE bar Expansion module with 3 sockets for 3 direct-on-line starters or 1 direct-on-line starter and 1 reversing starter suitable for UL duty according to UL 508 Type E</p>	3RA68 13-8AB		1	1 unit	101	1.146
<p>3RA68 13-8AB</p>  <p>Infeed with screw connection 50/70 mm² on left with permanently fitted 3-socket expansion module with spring-loaded connection on outgoing side and integrated PE bar Expansion module with 3 sockets for 3 direct-on-line starters or 1 direct-on-line starter and 1 reversing starter suitable for UL duty according to UL 508 Type E</p>	3RA68 13-8AC		1	1 unit	101	1.146
<p>3RA68 13-8AC</p>  <p>Infeed with spring-type connection 25/35 mm² on left or on right up to 63 A</p>	3RA68 30-5AC		1	1 unit	101	0.283
<p>3RA68 30-5AC</p>						

* You can order this quantity or a multiple thereof.

3RA6 Fuseless Compact Starters

Infeed Systems

Infeed systems for 3RA6

Type	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Expansion modules						
 <p>2-socket expansion modules with screw connection and integrated PE bar with 2 sockets for 2 direct-on-line starters or 1 reversing starter</p> <p>Expansion plug and 2 connecting plates are included in the scope of supply.</p> <p>3RA68 22-0AB</p>	▶ 3RA68 22-0AB		1	1 unit	101	0.505
 <p>3-socket expansion modules with screw connection and integrated PE bar with 3 sockets for 3 direct-on-line starters or 1 direct-on-line starter and 1 reversing starter</p> <p>Expansion plug and 2 connecting plates are included in the scope of supply.</p> <p>3RA68 23-0AB</p>	▶ 3RA68 23-0AB		1	1 unit	101	0.717
 <p>2-socket expansion modules with spring-loaded connection and integrated PE bar with 2 sockets for 2 direct-on-line starters or 1 reversing starter</p> <p>Expansion plug and 2 connecting plates are included in the scope of supply.</p> <p>3RA68 22-0AC</p>	▶ 3RA68 22-0AC		1	1 unit	101	0.527
 <p>3-socket expansion modules with spring-loaded connection and integrated PE bar with 3 sockets for 3 direct-on-line starters or 1 direct-on-line starter and 1 reversing starter</p> <p>Expansion plug and 2 connecting plates are included in the scope of supply.</p> <p>3RA68 23-0AC</p>	▶ 3RA68 23-0AC		1	1 unit	101	0.750

3RA6 Fuseless Compact Starters

Infeed Systems

Infeed systems for 3RA6



Type	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Accessories for infeed systems for 3RA6							
		PE infeed 25/35 mm² with screw connection ▶		3RA68 60-6AB	1	1 unit	101 0.060
3RA68 60-6AB							
		PE infeed 25/35 mm² with spring-loaded connection ▶		3RA68 60-5AC	1	1 unit	101 0.070
3RA68 60-5AC							
		PE pick-off 6/10 mm² with screw connection ▶		3RA68 70-4AB	1	1 unit	101 0.019
3RA68 70-4AB							
		PE pick-off 6/10 mm² with spring-loaded connection ▶		3RA68 70-3AC	1	1 unit	101 0.017
3RA68 70-3AC							
		PE expansion plug ▶		3RA68 90-0EA	1	5 units	101 0.008
3RA68 90-0EA							
		Expansion plug between 2 expansion modules ▶ Is included in the scope of supply of the expansion modules.		3RA68 90-1AB	1	1 unit	101 0.029
3RA68 90-1AB							
		Expansion plug for SIRIUS 3RV19 infeed system ▶ Connects infeed system for 3RA6 to 3RV19 infeed system		3RA68 90-1AA	1	1 unit	101 0.079
3RA68 90-1AA							

* You can order this quantity or a multiple thereof.

3RA6 Fuseless Compact Starters

Infeed Systems

Infeed systems for 3RA6


Type	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
 <p>45 mm adapters for SIRIUS circuit breakers Size S0/S00 with screw connection</p>		3RA68 90-0BA		1	1 unit	101	0.152
 <p>Terminal blocks With spring-type connection for integration of single-phase, 2-phase and 3-phase components</p>	A	3RV19 17-5D		1	1 unit	101	0.050

3RA68 90-0BA

3RV19 17-5D

Version	Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
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Tools for spring-loaded terminals

 <p>Screwdrivers 3.5 mm x 0.5 mm, suitable for a max. conductor cross-section of 2.5 mm²</p>	Length approx. 175 mm; green	A	8WA2 803		1	1 unit	041	0.024
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8WA2 803

Conditions of sale and delivery Export regulations

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