Load Feeders and Motor Starters

6

Technical Information

is available at
www.siemens.com/industrial-controls/support

under Product List:
- Technical specifications

under Entry List:
- Updates
- Downloads
- FAQ
- Manuals
- Characteristic curves
- Certificates

and at
www.siemens.com/industrial-controls/configurators
- Configurators

Note:
For safety characteristics for motor starters see "Appendix"
--> "Standards and approvals"
--> "Overview"

Introduction

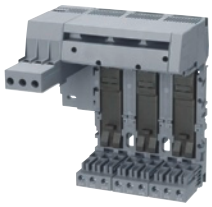
Overview


3RA11


3RA12


3RA61


3RA62


3RA68


3RK1 301

		Order No.	Page
For operation in the control cabinet			
SIRIUS 3RA1 load feeders			
	• The 3RA1 fuseless load feeders consist of the 3RV1 motor starter protector and the 3RT1 contactor. The motor starter protector and contactor are prewired and mechanically connected in pre-assembled assembly kits (link modules, wiring kits and standard mounting rail or busbar adapters). The motor starter protector and contactor are mechanically and electrically connected by means of the link module • 4 sizes (S00, S0, S2, S3) • Can be supplied for direct-on-line start or reversing duty as - complete unit or - single devices for self-assembly		
3RA11 direct-on-line starters for snapping onto standard mounting rails or for screw fixing	• Rated control supply voltage AC 50 Hz 230 V and 24 V DC for 35 mm standard mounting rail or screw fixing	**3RA11**	6/5
3RA11 direct-on-line starters for busbar systems	• Rated control supply voltage AC 50 Hz 230 V and 24 V DC for 40 mm and 60 mm busbar systems	**3RA11**	6/9
3RA12 reversing starters for snapping onto standard mounting rails or for screw fixing	• Rated control supply voltage AC 50 Hz 230 V and 24 V DC for 35 mm standard mounting rail or screw fixing	**3RA12**	6/13
3RA12 reversing starters for busbar systems	• Rated control supply voltage AC 50 Hz 230 V and 24 V DC for 40 mm and 60 mm busbar systems	**3RA12**	6/17
3RV19 infeed systems	• Convenient means of energy supply and distribution	**3RV19**	6/21
SIRIUS 3RA6 compact feeders			
	• Integrated functionality of a circuit breaker, contactor and solid-state overload relay and various functions of optional mountable accessories • Usable for direct starting of standard induction motors up to 32 A		
3RA61 direct-on-line starters	• Up to 15 kW/400 V, weld-free, wide setting range, removable terminals	**3RA61**	6/36
3RA62 reversing starters	• Up to 15 kW/400 V, weld-free, wide setting range, removable terminals	**3RA62**	6/37
3RA64 direct-on-line starters for IO-Link	• Up to 15 kW/400 V, weld-free, wide setting range, removable terminals	**3RA64**	6/38
3RA65 reversing starters for IO-Link	• Up to 15 kW/400 V, weld-free, wide setting range, removable terminals	**3RA65**	6/39
Accessories for 3RA6 direct-on-line and reversing starters		**3RA69**	6/40
Add-on modules for AS-Interface		**3RA69**	6/45
Infeed systems for 3RA6	• Modular expandability, up to 100 A, terminals up to 70 mm^2	**3RA68**	6/46
ET 200S motor starters and safety motor starters			
ET 200S motor starters	• Completely factory-wired motor starters for switching and protecting any AC loads, optionally as direct-on-line, reversing or soft starters		6/52
• Standard motor starters		**3RK1 301**	6/56
• High-Feature motor starters		**3RK1 301**	6/59
Power modules for ET 200S motor starters	• For supplying and monitoring the auxiliary voltages for motor starters	**3RK1 903-0BA00**	6/61
ET 200S Failsafe motor starters	• High-Feature direct-on-line and reversing starters	**3RK1 301**	6/63
Terminal modules for ET 200S motor starters	• Mechanical modules in which the motor starter and expansion modules are inserted	**3RK1 903**	
• Standard terminal modules			6/57
• High-Feature terminal modules			6/60
• Failsafe terminal modules			6/65
• Power module terminal modules			6/62
• Safety modules local and PROFIsafe terminal modules			6/74
Safety modules local	• For safety category 4 acc. to EN 954-1	**3RK1 903**	6/66
Safety modules PROFIsafe	• Sensor and actuator assignment are freely configurable (distributed safety concept)	**3RK1 903**	6/66
Interface/solid-state modules	• Interface modules, power modules, reserve modules, digital/analog solid-state modules, F power and F solid-state modules, F terminal modules, 4 IQ-Sense sensor module, SSI module, 1 STEP step module, positioning modules, counter modules, terminal modules for power and solid-state modules	**6ES7 1**	6/80

3RK1 304

3RK1 315

3RK1 322

3RK4 353

3RK4 320

3RE10

		Order No.	Page
For operation in the field, high degree of protection			
ET 200pro motor starters			
ET 200pro motor starters	• Motor starters, Standard and High-Feature	**3RK1 304**	6/99
Safety modules	• Isolator module and 400 V disconnecting module	**3RK1 304**	6/103
ET 200pro isolator modules	• With switch disconnector function for safe disconnection	**3RK1 304**	6/106
Accessories for ET 200pro motor starters	• Interface, expansion and power modules	**6ES7 1**	6/107
SIRIUS M200D motor starters			
	• Distributed motor starters up to 5.5 kW		
M200D AS-i Basic motor starters		**3RK1 315**	6/124
M200D AS-i Standard motor starters		**3RK1 325**	6/125
M200D communication modules for PROFIBUS		**3RK1 305**	6/130
M200D communication modules for PROFINET		**3RK1 335**	6/130
M200D motor starter modules		**3RK1 395**	6/130
Accessories	• Energy supply, motor cables, control cables		6/131
Compact starters for AS-Interface, 400 V AC			
	• Completely factory-wired load feeders with degree of protection IP65, designed for switching and protecting any type of AC loads, in particular standard induction motors in direct-on-line or reversing duty	**3RK1 322**	6/136
ECOFAST motor starters			
3RK1 3 ECOFAST motor starters	• Distributed motor starters for PROFIBUS and AS-Interface • Reversing starters and soft starters	**3RK1 303/323**	6/140
SIRIUS MCU motor starters			
MCU motor starters, locally controlled	• For autonomously controlled motors such as pumps, fans, etc.	**3RK4 353**	6/147
MCU motor starters, I/O-controlled	• Economical solution for controlling induction motors distributed in the field	**3RK4 340**	6/148
MCU motor starters for AS-Interface	• Controlling and scanning through the AS-i bus		
• Plastic enclosures, electromechanical		**3RK4 320**	6/149
• Metal enclosures, electromechanical		**3RK4 320**	6/150
• Metal enclosures, electronic		**3RK4 320**	6/152
3RE encapsulated starters			
	• The 3RE1 encapsulated starters are used for switching and for the inverse-time delayed protection of load feeders up to 22 kW at 400 V AC • The starters are available as direct-on-line starters for motors with a single direction of rotation and as reversing starters for motors with two directions of rotation		
3RE10 direct-on-line starters	• Molded-plastic enclosures, degree of protection IP65, including contactor	**3RE10**	6/155
3RE13 reversing starters	• Molded-plastic enclosures, degree of protection IP65, including contactor assembly	**3RE13**	6/155
Accessories	• Molded-plastic enclosure, degree of protection IP65, for direct-on-line and reversing starters	**3RE19**	6/155
Motor starters for AS-Interface, 24 V DC			
	• For the lowest performance range up to 70 W, 24 V DC motors and the associated sensor technology can also be directly and locally connected to AS-Interface quickly and easily. Three different versions are available: - Single direct-on-line starters - Double direct-on-line starters - Reversing starters	**3RK1 400-1**	6/156

General data

Overview

3RA1 fuseless load feeders

The 3RA1 fuseless load feeders consist of the 3RV1 motor starter protector and the 3RT1 contactor. Motor starter protectors and contactors are electrically and mechanically connected using pre-assembled assembly kits (link modules, wiring kits and standard mounting rail or busbar adapters).

As the 3RA1 fuseless load feeders are constructed from 3RV1 motor starter protectors and 3RT1 contactors, the same accessories can be used for the 3RA fuseless load feeders as for these motor starter protectors and contactors.

Pre-assembled assembly kits are available as accessories for the power spectrum up to 45 kW. The desired fuseless load feeder can thus be assembled quickly and economically by the customer. A time saving is also achieved in connection with switchgear acceptances, as – unlike with conventional wiring systems – there is no need to rectify possible wiring errors.

The 3RV1 motor starter protector is responsible for overload and short-circuit protection in the fuseless load feeder. Back-up protective devices, such as melting fuses or limiters, are superfluous here, as the motor starter protector is capable of withstanding short-circuits of up to 50 or 100 kA at 400 V.

The 3RT1 contactor is particularly suitable for extremely complex switching tasks requiring the greatest endurance.

The permissible ambient temperature is 60 °C with butt-mounting and without derating (70 °C possible subject to certain restrictions).

3RA1 fuseless load feeders are available for motors up to 45 kW at AC-3 and 400 V (grounded network) and setting ranges from 0.14 A to 100 A.

3RA1 fuseless load feeders are supplied in four different sizes:

Size	Width	Max. rated current $I_{n\ max}$	For induction motors up to
	mm	A	kW
S00	45	12	5.5
S0	45	25	11
S2	55	50	22
S3	70	100	45

The SENTRON 3VL circuit breakers and the SIRIUS 3RT contactors can be used for fuseless load feeders >100 A. The corresponding distances from grounded or live parts, as detailed in the technical specifications, must be observed.

More information and assignment tables for self-assembly combinations for 400 V, 440 V, 480 V, 500 V, 550 V and 690 V can be found in the brochure "SIRIUS Configuration: Selection Data for Load Feeders in Fuseless Designs",
Order No. E86060-T1815-A101-A2

or as a PDF file on the Internet at

www.siemens.com/industrial-controls/infomaterial

under the "Brochures" tab.

Operating conditions

3RA1 load feeders are climate-proof. 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.

Overload tripping times

All 3RA1 fuseless load feeders described here are designed for normal starting, in other words for overload tripping times of less than 10 s (CLASS 10). At rated-load operating temperature the tripping times are shorter, depending on the particular equipment and the setting range. The exact values can be derived from the tripping characteristics of the motor starter protectors.

Types of coordination

EN 60947-4-1 (VDE 0660 Part 102) and IEC 60947-4-1 make a distinction between two different types of coordination, which are designated type of coordination "1" and type of coordination "2". Any short-circuits that occur are cleared safely by both types of coordination. The only differences concern the extent of the damage caused to the device by a short-circuit.

ToC 1 Type of coordination "1"
The fuseless load feeder may be non-operational after a short-circuit has been cleared. Damage to the contactor or to the overload release is permissible. For 3RA1 load feeders, the motor starter protector itself always achieves type of coordination "2".

ToC 2 Type of coordination "2"
There must be no damage to the overload release or to any other components after a short-circuit has been cleared. The 3RA1 fuseless load feeder can resume operation without needing to be renewed. At most, it is permissible to weld the contactor contacts if they can be disconnected easily without any significant deformation.

These types of coordination are indicated in the selection and ordering data by orange backgrounds.

3RA11 direct-on-line starters for snapping onto standard mounting rails or for screw fixing

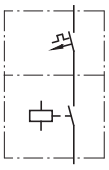
Selection and ordering data


3RA11 10


3RA11 20


3RA11 30

Direct-on-line start



Rated control supply voltage 50 Hz 230 V AC[1] *for 35 mm standard mounting rail or screw fixing*

- Motor starter protector and contactor are linked electrically and mechanically by means of a link module
- As from size S2 with standard mounting rail adapter[2] for mechanical reinforcement
- Auxiliary switches[3] on the motor starter protector and the contactor can be easily fitted due to the modular system (on contactor size S00: 1 NO integrated)

Size	Standard induction motor 4-pole at 400 V AC[4]		Setting range for thermal overload release	Consisting of the following single devices			DT	Fuseless load feeders		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Standard output P	Motor current I (guide value)		Motor starter protector	+ Contactor	+ Link module + Standard mounting rail adapter		Order No.	Price per PU				
	kW	A	A										kg
Type of coordination "2" at I_q = 50 kA/100 kA at 400 V (compatible with type of coordination "1")[5]				**3RV10**	**3RT10**	**3RA19**							
S00	0.06	0.2	0.14 ... 0.2	11-0BA10	15-1AP01	11-1AA00 +[6]	A	**3RA11 10-0BA15-1AP0**		1	1 unit	101	0.454
	0.06	0.2	0.18 ... 0.25	11-0CA10			A	**3RA11 10-0CA15-1AP0**		1	1 unit	101	0.450
	0.09	0.3	0.22 ... 0.32	11-0DA10			A	**3RA11 10-0DA15-1AP0**		1	1 unit	101	0.450
	0.09	0.3	0.28 ... 0.4	11-0EA10			A	**3RA11 10-0EA15-1AP0**		1	1 unit	101	0.452
	0.12	0.4	0.35 ... 0.5	11-0FA10			A	**3RA11 10-0FA15-1AP0**		1	1 unit	101	0.450
	0.18	0.6	0.45 ... 0.63	11-0GA10			A	**3RA11 10-0GA15-1AP0**		1	1 unit	101	0.448
	0.18	0.6	0.55 ... 0.8	11-0HA10			A	**3RA11 10-0HA15-1AP0**		1	1 unit	101	0.446
	0.25	0.85	0.7 ... 1	11-0JA10			A	**3RA11 10-0JA15-1AP0**		1	1 unit	101	0.451
	0.37	1.1	0.9 ... 1.25	11-0KA10			A	**3RA11 10-0KA15-1AP0**		1	1 unit	101	0.495
	0.55	1.5	1.1 ... 1.6	11-1AA10			A	**3RA11 10-1AA15-1AP0**		1	1 unit	101	0.502
	0.75	1.9	1.4 ... 2	11-1BA10			A	**3RA11 10-1BA15-1AP0**		1	1 unit	101	0.490
S0	0.75	1.9	1.8 ... 2.5	21-1CA10	24-1AP00	21-1AA00 +[6]	A	**3RA11 20-1CA24-0AP0**		1	1 unit	101	0.720
	1.1	2.7	2.2 ... 3.2	21-1DA10			A	**3RA11 20-1DA24-0AP0**		1	1 unit	101	0.720
	1.5	3.6	2.8 ... 4	21-1EA10			A	**3RA11 20-1EA24-0AP0**		1	1 unit	101	0.710
	1.5	3.6	3.5 ... 5	21-1FA10			A	**3RA11 20-1FA24-0AP0**		1	1 unit	101	0.723
	2.2	4.9	4.5 ... 6.3	21-1GA10			A	**3RA11 20-1GA24-0AP0**		1	1 unit	101	0.717
	3	6.5	5.5 ... 8	21-1HA10			A	**3RA11 20-1HA24-0AP0**		1	1 unit	101	0.730
	4	8.5	7 ... 10	21-1JA10	26-1AP00		A	**3RA11 20-1JA26-0AP0**		1	1 unit	101	0.720
	5.5	11.5	9 ... 12.5	21-1KA10			A	**3RA11 20-1KA26-0AP0**		1	1 unit	101	0.725
	7.5	15.5	11 ... 16	21-4AA10			A	**3RA11 20-4AA26-0AP0**		1	1 unit	101	0.720
	7.5	15.5	14 ... 20	21-4BA10			A	**3RA11 20-4BA26-0AP0**		1	1 unit	101	0.722
S2	11	22	18 ... 25	31-4DA10	34-1AP00	31-1AA00 +	A	**3RA11 30-4DB34-0AP0**		1	1 unit	101	2.070
	15	29	22 ... 32	31-4EA10			A	**3RA11 30-4EB34-0AP0**		1	1 unit	101	2.083
	18.5	35	28 ... 40	31-4FA10	35-1AP00	32-1AA00	A	**3RA11 30-4FB35-0AP0**		1	1 unit	101	2.126
	22	41	36 ... 45	31-4GA10	36-1AP00		A	**3RA11 30-4GB36-0AP0**		1	1 unit	101	2.130
	22	41	40 ... 50	31-4HA10			A	**3RA11 30-4HB36-0AP0**		1	1 unit	101	2.091
S3	30	55	45 ... 63	41-4JA10	44-1AP00	41-1AA00		Size S3 is only available for self-assembly.					
	37	66	57 ... 75	41-4KA10	45-1AP00	+							
	45	80	70 ... 90	41-4LA10	46-1AP00	42-1AA00							
	45	80	80 ... 100	41-4MA10									

1) Size S00 also suitable for 60 Hz.

2) Standard mounting rail adapter is also suitable for screw fixing.

3) For auxiliary switches, see Accessories for Direct-On-Line and Reversing Starters.

4) Selection depends on the concrete startup and rated data of the protected motor.

5) For load feeders with $I_q \geq 100$ kA see note on Technical Information on page 6/1.

6) Screw fixing with 1 push-in lug each per load feeder is possible (see "Accessories for Direct-On-Line and Reversing Starters").

* You can order this quantity or a multiple thereof.

SIRIUS 3RA1 Load Feeders

3RA11 direct-on-line starters for snapping onto standard mounting rails or for screw fixing

Size	Standard induction motor 4-pole at 400 V AC[1]		Setting range for thermal overload release	Consisting of the following single devices			DT	Fuseless load feeders		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Standard output P	Motor current I (guide value)		Motor starter protector	+ Contactor	+ Link module + Standard mounting rail adapter		Order No.	Price per PU				
	kW	A	A										kg
Type of coordination "1" at I_q = 50 kA at 400 V[2] (the motor starter protector is compatible with type of coordination "2")													
S00	0.75	1.9	1.4 ... 2					For load feeders for lower outputs, see the table above (type of coordination "2").					
				3RV10	**3RT10**	**3RA19**							
S00	0.75	1.9	1.8 ... 2.5	11-1CA10	15-1AP01	11-1AA00 +[3]	A	**3RA11 10-1CA15-1AP0**		1	1 unit	101	0.497
	1.1	2.7	2.2 ... 3.2	11-1DA10			A	**3RA11 10-1DA15-1AP0**		1	1 unit	101	0.498
	1.5	3.6	2.8 ... 4	11-1EA10			A	**3RA11 10-1EA15-1AP0**		1	1 unit	101	0.500
	1.5	3.6	3.5 ... 5	11-1FA10			A	**3RA11 10-1FA15-1AP0**		1	1 unit	101	0.501
	2.2	4.9	4.5 ... 6.3	11-1GA10			A	**3RA11 10-1GA15-1AP0**		1	1 unit	101	0.508
	3	6.5	5.5 ... 8	11-1HA10			A	**3RA11 10-1HA15-1AP0**		1	1 unit	101	0.508
	4	8.5	7 ... 10	11-1JA10	16-1AP01		A	**3RA11 10-1JA16-1AP0**		1	1 unit	101	0.493
	5.5	11.5	9 ... 12	11-1KA10	17-1AP01		A	**3RA11 10-1KA17-1AP0**		1	1 unit	101	0.500
S0	7.5	15.5	11 ... 16	21-4AA10	25-1AP00	21-1AA00 +[3]	A	**3RA11 20-4AA25-0AP0**		1	1 unit	101	0.729
	7.5	15.5	14 ... 20	21-4BA10			A	**3RA11 20-4BA25-0AP0**		1	1 unit	101	0.724
	11	22	17 ... 22	21-4CA10	26-1AP00		A	**3RA11 20-4CA26-0AP0**		1	1 unit	101	0.721
	11	22	18 ... 25	21-4DA10	26-1AP00		A	**3RA11 20-4DA26-0AP0**		1	1 unit	101	0.729
S2	15	29	22 ... 32					For load feeders for higher outputs, see the table above (type of coordination "2").					
	18.5	35	28 ... 40										
	22	41	36 ... 45										
			...										

1) Selection depends on the concrete startup and rated data of the protected motor.

2) For load feeders with $I_q \geq 100$ kA see note on Technical Information on page 6/1.

3) Screw fixing with 1 push-in lug each per load feeder is possible (see "Accessories for Direct-On-Line and Reversing Starters").

6

* You can order this quantity or a multiple thereof.

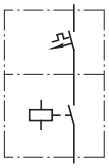
3RA11 direct-on-line starters for snapping onto standard mounting rails or for screw fixing


3RA11 10


3RA11 20


3RA11 30

Direct-on-line start



Rated control supply voltage 24 V DC
for 35 mm standard mounting rail or screw fixing

- Motor starter protector and contactor are linked electrically and mechanically by means of a link module
- As from size S2 with standard mounting rail adapter[1] for mechanical reinforcement
- Auxiliary switches[2] on the motor starter protector and the contactor can be easily fitted due to the modular system (on contactor size S00: 1 NO integrated)

Size	Standard induction motor 4-pole at 400 V AC[3]		Setting range for thermal overload release	Consisting of the following single devices			DT	Fuseless load feeders ToC 2		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Standard output P	Motor current I (guide value)		Motor starter protector	+ Contactor	+ Link module + Standard mounting rail adapter		Order No.	Price per PU				
	kW	A	A										kg
Type of coordination "2" at I_q = 50 kA/100 kA at 400 V (compatible with type of coordination "1")[4]													
				3RV10	**3RT10**	**3RA19**							
S00	0.06	0.2	0.14 ... 0.2	11-0BA10	15-1BB41	11-1AA00	A	**3RA11 10-0BA15-1BB4**		1	1 unit	101	0.510
	0.06	0.2	0.18 ... 0.25	11-0CA10		+[5]	A	**3RA11 10-0CA15-1BB4**		1	1 unit	101	0.512
	0.09	0.3	0.22 ... 0.32	11-0DA10			A	**3RA11 10-0DA15-1BB4**		1	1 unit	101	0.505
	0.09	0.3	0.28 ... 0.4	11-0EA10			A	**3RA11 10-0EA15-1BB4**		1	1 unit	101	0.508
	0.12	0.4	0.35 ... 0.5	11-0FA10			A	**3RA11 10-0FA15-1BB4**		1	1 unit	101	0.500
	0.18	0.6	0.45 ... 0.63	11-0GA10			A	**3RA11 10-0GA15-1BB4**		1	1 unit	101	0.505
	0.18	0.6	0.55 ... 0.8	11-0HA10			A	**3RA11 10-0HA15-1BB4**		1	1 unit	101	0.513
	0.25	0.85	0.7 ... 1	11-0JA10			A	**3RA11 10-0JA15-1BB4**		1	1 unit	101	0.508
	0.37	1.1	0.9 ... 1.25	11-0KA10			A	**3RA11 10-0KA15-1BB4**		1	1 unit	101	0.556
	0.55	1.5	1.1 ... 1.6	11-1AA10			A	**3RA11 10-1AA15-1BB4**		1	1 unit	101	0.553
	0.75	1.9	1.4 ... 2	11-1BA10			A	**3RA11 10-1BA15-1BB4**		1	1 unit	101	0.554
S0	0.75	1.9	1.8 ... 2.5	21-1CA10	24-1BB40	21-1BA00	A	**3RA11 20-1CA24-0BB4**		1	1 unit	101	0.947
	1.1	2.7	2.2 ... 3.2	21-1DA10		+[5]	A	**3RA11 20-1DA24-0BB4**		1	1 unit	101	0.940
	1.5	3.6	2.8 ... 4	21-1EA10			A	**3RA11 20-1EA24-0BB4**		1	1 unit	101	0.945
	1.5	3.6	3.5 ... 5	21-1FA10			A	**3RA11 20-1FA24-0BB4**		1	1 unit	101	0.951
	2.2	4.9	4.5 ... 6.3	21-1GA10			A	**3RA11 20-1GA24-0BB4**		1	1 unit	101	0.948
	3	6.5	5.5 ... 8	21-1HA10			A	**3RA11 20-1HA24-0BB4**		1	1 unit	101	0.960
	4	8.5	7 ... 10	21-1JA10	26-1BB40		A	**3RA11 20-1JA26-0BB4**		1	1 unit	101	0.951
	5.5	11.5	9 ... 12.5	21-1KA10			A	**3RA11 20-1KA26-0BB4**		1	1 unit	101	0.940
	7.5	15.5	11 ... 16	21-4AA10			A	**3RA11 20-4AA26-0BB4**		1	1 unit	101	0.959
	7.5	15.5	14 ... 20	21-4BA10			A	**3RA11 20-4BA26-0BB4**		1	1 unit	101	0.950
S2	11	22	18 ... 25	31-4DA10	34-1BB40	31-1BA00	A	**3RA11 30-4DB34-0BB4**		1	1 unit	101	2.700
	15	29	22 ... 32	31-4EA10		+	A	**3RA11 30-4EB34-0BB4**		1	1 unit	101	2.700
	18.5	35	28 ... 40	31-4FA10	35-1BB40	32-1AA00	A	**3RA11 30-4FB35-0BB4**		1	1 unit	101	2.730
	22	41	36 ... 45	31-4GA10	36-1BB40		A	**3RA11 30-4GB36-0BB4**		1	1 unit	101	2.699
	22	41	40 ... 50	31-4HA10			A	**3RA11 30-4HB36-0BB4**		1	1 unit	101	2.696
S3	30	55	45 ... 63	41-4JA10	44-1BB40	41-1BA00		Size S3 is only available for self-assembly.					
	37	66	57 ... 75	41-4KA10	45-1BB40	+							
	45	80	70 ... 90	41-4LA10	46-1BB40	42-1AA00							
	45	80	80 ... 100	41-4MA10									

1) Standard mounting rail adapter is also suitable for screw fixing.

2) For auxiliary switches, see Accessories for Direct-On-Line and Reversing Starters.

3) Selection depends on the concrete startup and rated data of the protected motor.

4) For load feeders with $I_q \geq 100$ kA see note on Technical Information on page 6/1.

5) Screw fixing with 1 push-in lug each per load feeder is possible (see "Accessories for Direct-On-Line and Reversing Starters").

* You can order this quantity or a multiple thereof.

SIRIUS 3RA1 Load Feeders

3RA11 direct-on-line starters for snapping onto standard mounting rails or for screw fixing

Size	Standard induction motor 4-pole at 400 V AC[1]		Setting range for thermal overload release	Consisting of the following single devices			DT	Fuseless load feeders		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Standard output P	Motor current I (guide value)		Motor starter protector	+ Contactor	+ Link module + Standard mounting rail adapter		Order No.	Price per PU				
	kW	A	A										kg
Type of coordination "1" at I_q = 50 kA at 400 V[2] (the motor starter protector is compatible with type of coordination "2")													
S00	0.75	1.9	1.4 ... 2					For load feeders for lower outputs, see the table above (type of coordination "2").					
				3RV10	**3RT10**	**3RA19**							
S00	0.75	1.9	1.8 ... 2.5	11-1CA10	15-1BB41	11-1AA00 +[3]	A	**3RA11 10-1CA15-1BB4**		1	1 unit	101	0.563
	1.1	2.7	2.2 ... 3.2	11-1DA10			A	**3RA11 10-1DA15-1BB4**		1	1 unit	101	0.555
	1.5	3.6	2.8 ... 4	11-1EA10			A	**3RA11 10-1EA15-1BB4**		1	1 unit	101	0.555
	1.5	3.6	3.5 ... 5	11-1FA10			A	**3RA11 10-1FA15-1BB4**		1	1 unit	101	0.567
	2.2	4.9	4.5 ... 6.3	11-1GA10			A	**3RA11 10-1GA15-1BB4**		1	1 unit	101	0.558
	3	6.5	5.5 ... 8	11-1HA10			A	**3RA11 10-1HA15-1BB4**		1	1 unit	101	0.560
	4	8.5	7 ... 10	11-1JA10	16-1BB41		A	**3RA11 10-1JA16-1BB4**		1	1 unit	101	0.555
	5.5	11.5	9 ... 12	11-1KA10	17-1BB41		A	**3RA11 10-1KA17-1BB4**		1	1 unit	101	0.560
S0	7.5	15.5	11 ... 16	21-4AA10	25-1BB40	21-1BA00 +[3]	A	**3RA11 20-4AA25-0BB4**		1	1 unit	101	0.960
	7.5	15.5	14 ... 20	21-4BA10			A	**3RA11 20-4BA25-0BB4**		1	1 unit	101	0.952
	11	22	17 ... 22	21-4CA10	26-1BB40		A	**3RA11 20-4CA26-0BB4**		1	1 unit	101	0.961
	11	22	18 ... 25	21-4DA10			A	**3RA11 20-4DA26-0BB4**		1	1 unit	101	0.960
S2	15	29	22 ... 32					For load feeders for higher outputs, see the table above (type of coordination "2").					
	18.5	35	28 ... 40										
	22	41	36 ... 45										
			...										

1) Selection depends on the concrete startup and rated data of the protected motor.

2) For load feeders with $I_q \geq 100$ kA see note on Technical Information on page 6/1.

3) Screw fixing with 1 push-in lug each per load feeder is possible (see "Accessories for Direct-On-Line and Reversing Starters").

6

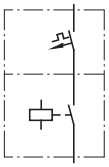
* You can order this quantity or a multiple thereof.

Selection and ordering data

3RA11 10

3RA11 20

Direct-on-line start



Rated control supply voltage 50 Hz 230 V AC[1] *for 40 and 60 mm busbar systems*

- Motor starter protector and contactor are linked electrically and mechanically by means of a link module
- Auxiliary switches[2] on the motor starter protector and the contactor can be easily fitted due to the modular system (on contactor size S00: 1 NO integrated)

Size	Standard induction motor 4-pole at 400 V AC[3]		Setting range for thermal overload release	Consisting of the following single devices			DT	Fuseless load feeders		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Standard output P	Motor current I (guide value)		Motor starter protector	+ Contactor	+ Link module + Busbar adapter		Order No.	Price per PU				
	kW	A	A										kg
Type of coordination "2" at I_q = 50 kA at 400 V (compatible with type of coordination "1")				**3RV10**	**3RT10**								
S00	0.06	0.2	0.14 … 0.2	11-0BA10	15-1AP01	3RA19 11-1AA00	A	**3RA11 10-0B☐15-1AP0**		1	1 unit	101	0.790
	0.06	0.2	0.18 … 0.25	11-0CA10		+	A	**3RA11 10-0C☐15-1AP0**		1	1 unit	101	0.702
	0.09	0.3	0.22 … 0.32	11-0DA10		40 mm	A	**3RA11 10-0D☐15-1AP0**		1	1 unit	101	0.675
	0.09	0.3	0.28 … 0.4	11-0EA10		8US10 51-5DM07	A	**3RA11 10-0E☐15-1AP0**		1	1 unit	101	0.670
	0.12	0.4	0.35 … 0.5	11-0FA10		or 60 mm	A	**3RA11 10-0F☐15-1AP0**		1	1 unit	101	0.680
	0.18	0.6	0.45 … 0.63	11-0GA10		8US12 51-5DM07	A	**3RA11 10-0G☐15-1AP0**		1	1 unit	101	0.670
	0.18	0.6	0.55 … 0.8	11-0HA10			A	**3RA11 10-0H☐15-1AP0**		1	1 unit	101	0.670
	0.25	0.85	0.7 … 1	11-0JA10			A	**3RA11 10-0J ☐15-1AP0**		1	1 unit	101	0.667
	0.37	1.1	0.9 … 1.25	11-0KA10			A	**3RA11 10-0K☐15-1AP0**		1	1 unit	101	0.715
	0.55	1.5	1.1 … 1.6	11-1AA10			A	**3RA11 10-1A☐15-1AP0**		1	1 unit	101	0.715
	0.75	1.9	1.4 … 2	11-1BA10			A	**3RA11 10-1B☐15-1AP0**		1	1 unit	101	0.715
S0	0.75	1.9	1.8 … 2.5	21-1CA10	24-1AP00	3RA19 21-1AA00	A	**3RA11 20-1C☐24-0AP0**		1	1 unit	101	0.939
	1.1	2.7	2.2 … 3.2	21-1DA10		+	A	**3RA11 20-1D☐24-0AP0**		1	1 unit	101	0.940
	1.5	3.6	2.8 … 4	21-1EA10		40 mm	A	**3RA11 20-1E ☐24-0AP0**		1	1 unit	101	0.940
	1.5	3.6	3.5 … 5	21-1FA10		8US10 51-5DM07	A	**3RA11 20-1F ☐24-0AP0**		1	1 unit	101	0.927
	2.2	4.9	4.5 … 6.3	21-1GA10		or 60 mm	A	**3RA11 20-1G☐24-0AP0**		1	1 unit	101	0.927
	3	6.5	5.5 … 8	21-1HA10		8US12 51-5DM07	A	**3RA11 20-1H☐24-0AP0**		1	1 unit	101	0.931
	4	8.5	7 … 10	21-1JA10	26-1AP00		A	**3RA11 20-1J ☐26-0AP0**		1	1 unit	101	0.935
	5.5	11.5	9 … 12.5	21-1KA10			A	**3RA11 20-1K☐26-0AP0**		1	1 unit	101	0.936
	7.5	15.5	11 … 16	21-4AA10			A	**3RA11 20-4A☐26-0AP0**		1	1 unit	101	0.940
	7.5	15.5	14 … 20	21-4BA10			A	**3RA11 20-4B☐26-0AP0**		1	1 unit	101	0.943
S2	11	22	18 ... 25	31-4DA10	34-1AP00	3RA19 31-1AA00		Size S2 is only available for self-assembly.					
	15	29	22 ... 32	31-4EA10		+							
	18.5	35	28 ... 40	31-4FA10	35-1AP00	40 mm							
	22	41	36 ... 45	31-4GA10	36-1AP00	8US10 61-5FP08							
	22	41	40 ... 50	31-4HA10		or 60 mm							
						8US12 61-5FP08							
S3	30	55	45 ... 63	41-4JA10	44-1AP00	3RA19 41-1AA00		For size S3, a busbar adapter is not necessary.					
	37	66	57 ... 75	41-4KA10	45-1AP00								
	45	80	70 ... 90	41-4LA10	46-1AP00								
	45	80	80 ... 100	41-4MA10									

Order No. supplement for busbar center-to-center clearance	
40 mm	**C**
60 mm	**D**

1) Size S00 also suitable for 60 Hz.

2) For auxiliary switches, see Accessories for Direct-On-Line and Reversing Starters.

3) Selection depends on the concrete startup and rated data of the protected motor.

* You can order this quantity or a multiple thereof.

3RA11 direct-on-line starters for busbar systems

Size	Standard induction motor 4-pole at 400 V AC[1]		Setting range for thermal overload release	Consisting of the following single devices			DT	Fuseless load feeders		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Standard output P	Motor current I (guide value)		Motor starter protector	+ Contactor	+ Link module + Busbar adapter		Order No.	Price per PU				
	kW	A	A										kg
Type of coordination "1" at I_q = 50 kA at 400 V (the motor starter protector is compatible with type of coordination "2")													
S00	0.75	1.9	1.4 ... 2					For load feeders for lower outputs, see the table above (type of coordination "2").					
				3RV10	**3RT10**								
S00	0.75	1.9	1.8 … 2.5	11-1CA10	15-1AP01	3RA19 11-1AA00	A	**3RA11 10-1C□15-1AP0**		1	1 unit	101	0.714
	1.1	2.7	2.2 … 3.2	11-1DA10		+	A	**3RA11 10-1D□15-1AP0**		1	1 unit	101	0.716
	1.5	3.6	2.8 … 4	11-1EA10		40 mm	A	**3RA11 10-1E□15-1AP0**		1	1 unit	101	0.715
	1.5	3.6	3.5 … 5	11-1FA10		8US10 51-5DM07	A	**3RA11 10-1F□15-1AP0**		1	1 unit	101	0.717
	2.2	4.9	4.5 … 6.3	11-1GA10		or 60 mm	A	**3RA11 10-1G□15-1AP0**		1	1 unit	101	0.502
	3	6.5	5.5 … 8	11-1HA10		8US12 51-5DM07	A	**3RA11 10-1H□15-1AP0**		1	1 unit	101	0.695
	4	8.5	7 … 10	11-1JA10	16-1AP01		A	**3RA11 10-1J□16-1AP0**		1	1 unit	101	0.650
	5.5	11.5	9 … 12	11-1KA10	17-1AP01		A	**3RA11 10-1K□17-1AP0**		1	1 unit	101	0.717
S0	7.5	15.5	11 … 16	21-4AA10	25-1AP00	3RA19 21-1AA00	A	**3RA11 20-4A□25-0AP0**		1	1 unit	101	0.940
	7.5	15.5	14 … 20	21-4BA10		+	A	**3RA11 20-4B□25-0AP0**		1	1 unit	101	0.939
	11	22	17 … 22	21-4CA10	26-1AP00	40 mm	A	**3RA11 20-4C□26-0AP0**		1	1 unit	101	0.935
	11	22	18 … 25	21-4DA10		8US10 51-5DM07 or 60 mm 8US12 51-5DM07	A	**3RA11 20-4D□26-0AP0**		1	1 unit	101	0.937
S2	15	29	22 ... 32					For load feeders for higher outputs, see the table above (type of coordination "2").					
	18.5	35	28 ... 40										
	22	41	36 ... 45										
			...										

Order No. supplement for busbar center-to-center clearance

40 mm	**C**
60 mm	**D**

[1] Selection depends on the concrete startup and rated data of the protected motor.

6

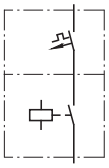
* You can order this quantity or a multiple thereof.

3RA11 direct-on-line starters for busbar systems

3RA11 10

3RA11 20

Direct-on-line start



Rated control supply voltage 24 V DC for 40 and 60 mm busbar systems

- Motor starter protector and contactor are linked electrically and mechanically by means of a link module
- Auxiliary switches[1] on the motor starter protector and the contactor can be easily fitted due to the modular system (on contactor size S00: 1 NO integrated)

Size	Standard induction motor 4-pole at 400 V AC[2]		Setting range for thermal overload release	Consisting of the following single devices			DT	Fuseless load feeders ToC 2		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Standard output P	Motor current I (guide value)		Motor starter protector	+ Contactor	+ Link module + Busbar adapter		Order No.	Price per PU				
	kW	A	A										kg
Type of coordination "2" at I_q = 50 kA at 400 V (compatible with type of coordination "1")													
				3RV10	**3RT10**								
S00	0.06	0.2	0.14 ... 0.2	11-0BA10	15-1BB41	3RA19 11-1AA00	A	**3RA11 10-0B□15-1BB4**		1	1 unit	101	0.730
	0.06	0.2	0.18 ... 0.25	11-0CA10		+	A	**3RA11 10-0C□15-1BB4**		1	1 unit	101	0.720
	0.09	0.3	0.22 ... 0.32	11-0DA10		40 mm	A	**3RA11 10-0D□15-1BB4**		1	1 unit	101	0.711
	0.09	0.3	0.28 ... 0.4	11-0EA10		8US10 51-5DM07	A	**3RA11 10-0E□15-1BB4**		1	1 unit	101	0.716
	0.12	0.4	0.35 ... 0.5	11-0FA10		or 60 mm	A	**3RA11 10-0F□15-1BB4**		1	1 unit	101	0.720
	0.18	0.6	0.45 ... 0.63	11-0GA10		8US12 51-5DM07	A	**3RA11 10-0G□15-1BB4**		1	1 unit	101	0.728
	0.18	0.6	0.55 ... 0.8	11-0HA10			A	**3RA11 10-0H□15-1BB4**		1	1 unit	101	0.714
	0.25	0.85	0.7 ... 1	11-0JA10			A	**3RA11 10-0J □15-1BB4**		1	1 unit	101	0.724
	0.37	1.1	0.9 ... 1.25	11-0KA10			A	**3RA11 10-0K□15-1BB4**		1	1 unit	101	0.780
	0.55	1.5	1.1 ... 1.6	11-1AA10			A	**3RA11 10-1A□15-1BB4**		1	1 unit	101	0.767
	0.75	1.9	1.4 ... 2	11-1BA10			A	**3RA11 10-1B□15-1BB4**		1	1 unit	101	0.764
S0	0.75	1.9	1.8 ... 2.5	21-1CA10	24-1BB40	3RA19 21-1BA00	A	**3RA11 20-1C□24-0BB4**		1	1 unit	101	1.158
	1.1	2.7	2.2 ... 3.2	21-1DA10		+	A	**3RA11 20-1D□24-0BB4**		1	1 unit	101	1.133
	1.5	3.6	2.8 ... 4	21-1EA10		40 mm	A	**3RA11 20-1E□24-0BB4**		1	1 unit	101	1.132
	1.5	3.6	3.5 ... 5	21-1FA10		8US10 51-5DM07	A	**3RA11 20-1F□24-0BB4**		1	1 unit	101	1.160
	2.2	4.9	4.5 ... 6.3	21-1GA10		or 60 mm	A	**3RA11 20-1G□24-0BB4**		1	1 unit	101	1.165
	3	6.5	5.5 ... 8	21-1HA10		8US12 51-5DM07	A	**3RA11 20-1H□24-0BB4**		1	1 unit	101	1.170
	4	8.5	7 ... 10	21-1JA10	26-1BB40		A	**3RA11 20-1J □26-0BB4**		1	1 unit	101	1.167
	5.5	11.5	9 ... 12.5	21-1KA10			A	**3RA11 20-1K□26-0BB4**		1	1 unit	101	1.163
	7.5	15.5	11 ... 16	21-4AA10			A	**3RA11 20-4A□26-0BB4**		1	1 unit	101	1.172
	7.5	15.5	14 ... 20	21-4BA10			A	**3RA11 20-4B□26-0BB4**		1	1 unit	101	1.168
S2	11	22	18 ... 25	31-4DA10	34-1BB40	3RA19 31-1BA00		Size S2 is only available for self-assembly.					
	15	29	22 ... 32	31-4EA10		+							
	18.5	35	28 ... 40	31-4FA10	35-1BB40	40 mm							
	22	41	36 ... 45	31-4GA10	36-1BB40	8US10 61-5FP08							
	22	41	40 ... 50	31-4HA10		or 60 mm							
						8US12 61-5FP08							
S3	30	55	45 ... 63	41-4JA10	44-1BB40	3RA19 41-1BA00		For size S3, a busbar adapter is not necessary.					
	37	66	57 ... 75	41-4KA10	45-1BB40	+							
	45	80	70 ... 90	41-4LA10	46-1BB40	not available							
	45	80	80 ... 100	41-4MA10									
Order No. supplement for busbar center-to-center clearance													
40 mm								**C**					
60 mm								**D**					

[1] For auxiliary switches, see Accessories for Direct-On-Line and Reversing Starters.

[2] Selection depends on the concrete startup and rated data of the protected motor.

*** You can order this quantity or a multiple thereof.**

3RA11 direct-on-line starters for busbar systems

Size	Standard induction motor 4-pole at 400 V AC[1]		Setting range for thermal overload release	Consisting of the following single devices			DT	Fuseless load feeders		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Standard output P	Motor current I (guide value)		Motor starter protector	+ Contactor	+ Link module + Busbar adapter		Order No.	Price per PU				
	kW	A	A										kg
Type of coordination "1" at I_q = 50 kA at 400 V (the motor starter protector is compatible with type of coordination "2")													
S00	0.75	1.9	1.4 ... 2					For load feeders for lower outputs, see the table above (type of coordination "2").					
				3RV10	**3RT10**								
S00	0.75	1.9	1.8 ... 2.5	11-1CA10	15-1BB41	3RA19 11-1AA00	A	**3RA11 10-1C□15-1BB4**		1	1 unit	101	0.784
	1.1	2.7	2.2 ... 3.2	11-1DA10		+	A	**3RA11 10-1D□15-1BB4**		1	1 unit	101	0.775
	1.5	3.6	2.8 ... 4	11-1EA10		40 mm	A	**3RA11 10-1E□15-1BB4**		1	1 unit	101	0.781
	1.5	3.6	3.5 ... 5	11-1FA10		8US10 51-5DM07	A	**3RA11 10-1F□15-1BB4**		1	1 unit	101	0.782
	2.2	4.9	4.5 ... 6.3	11-1GA10		or 60 mm	A	**3RA11 10-1G□15-1BB4**		1	1 unit	101	0.780
	3	6.5	5.5 ... 8	11-1HA10		8US12 51-5DM07	A	**3RA11 10-1H□15-1BB4**		1	1 unit	101	0.770
	4	8.5	7 ... 10	11-1JA10	16-1BB41		A	**3RA11 10-1J □16-1BB4**		1	1 unit	101	0.774
	5.5	11.5	9 ... 12	11-1KA10	17-1BB41		A	**3RA11 10-1K□17-1BB4**		1	1 unit	101	0.772
S0	7.5	15.5	11 ... 16	21-4AA10	25-1BB40	3RA19 21-1BA00	A	**3RA11 20-4A□25-0BB4**		1	1 unit	101	1.177
	7.5	15.5	14 ... 20	21-4BA10		+	A	**3RA11 20-4B□25-0BB4**		1	1 unit	101	1.163
	11	22	17 ... 22	21-4CA10	26-1BB40	40 mm	A	**3RA11 20-4C□26-0BB4**		1	1 unit	101	1.164
	11	22	18 ... 25	21-4DA10		8US10 51-5DM07	A	**3RA11 20-4D□26-0BB4**		1	1 unit	101	1.175
						or 60 mm 8US12 51-5DM07							
S2	15	29	22 ... 32					For load feeders for higher outputs, see the table above (type of coordination "2").					
	18.5	35	28 ... 40										
	22	41	36 ... 45										
			...										

Order No. supplement for busbar center-to-center clearance

40 mm **C**
60 mm **D**

[1] Selection depends on the concrete startup and rated data of the protected motor.

6

* You can order this quantity or a multiple thereof.

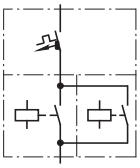
3RA12 reversing starters for snapping onto standard mounting rails or for screw fixing

Selection and ordering data

3RA12 10

3RA12 20

Reversing duty



Rated control supply voltage 50 Hz 230 V AC[1] for 35 mm standard mounting rail or screw fixing

- The motor starter protector and contactor are mechanically and electrically connected by means of the link module
- As from size S0 with standard mounting rail adapter[2] for mechanical reinforcement
- Auxiliary switches[3] on the motor starter protector and the contactor can be easily fitted due to the modular system
- Complete unit always with electrical and mechanical interlock

Size	Standard induction motor 4-pole at 400 V AC[4]		Setting range for thermal overload release	Consisting of the following single devices			DT	Fuseless load feeders ToC 2		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Standard output P	Motor current I (guide value)		Motor starter protector	+ 2 contactors	+ link module + assembly kit RH[2)5)]		Order No.	Price per PU				
	kW	A	A										kg
Type of coordination "2" at I_q = 50 kA/100 kA at 400 V (compatible with type of coordination "1")[6]				**3RV10**	**3RT10**	**3RA19**							
S00	0.06	0.2	0.14 ... 0.2	11-0BA10	15-1AP02	11-1AA00	A	**3RA12 10-0BA15-0AP0**		1	1 unit	101	0.717
	0.06	0.2	0.18 ... 0.25	11-0CA10		+	A	**3RA12 10-0CA15-0AP0**		1	1 unit	101	0.700
	0.09	0.3	0.22 ... 0.32	11-0DA10		13-2A[7]	A	**3RA12 10-0DA15-0AP0**		1	1 unit	101	0.700
	0.09	0.3	0.28 ... 0.4	11-0EA10			A	**3RA12 10-0EA15-0AP0**		1	1 unit	101	0.720
	0.12	0.4	0.35 ... 0.5	11-0FA10			A	**3RA12 10-0FA15-0AP0**		1	1 unit	101	0.708
	0.18	0.6	0.45 ... 0.63	11-0GA10			A	**3RA12 10-0GA15-0AP0**		1	1 unit	101	0.717
	0.18	0.6	0.55 ... 0.8	11-0HA10			A	**3RA12 10-0HA15-0AP0**		1	1 unit	101	0.710
	0.25	0.85	0.7 ... 1	11-0JA10			A	**3RA12 10-0JA15-0AP0**		1	1 unit	101	0.710
	0.37	1.1	0.9 ... 1.25	11-0KA10			A	**3RA12 10-0KA15-0AP0**		1	1 unit	101	0.755
	0.55	1.5	1.1 ... 1.6	11-1AA10			A	**3RA12 10-1AA15-0AP0**		1	1 unit	101	0.765
	0.75	1.9	1.4 ... 2	11-1BA10			A	**3RA12 10-1BA15-0AP0**		1	1 unit	101	0.765
S0	0.75	1.9	1.8 ... 2.5	21-1CA10	24-1AP00	21-1AA00	A	**3RA12 20-1CB24-0AP0**		1	1 unit	101	1.400
	1.1	2.7	2.2 ... 3.2	21-1DA10		+	A	**3RA12 20-1DB24-0AP0**		1	1 unit	101	1.394
	1.5	3.6	2.8 ... 4	21-1EA10		23-1B[8]	A	**3RA12 20-1EB24-0AP0**		1	1 unit	101	1.385
	1.5	3.6	3.5 ... 5	21-1FA10			A	**3RA12 20-1FB24-0AP0**		1	1 unit	101	1.387
	2.2	4.9	4.5 ... 6.3	21-1GA10			A	**3RA12 20-1GB24-0AP0**		1	1 unit	101	1.390
	3	6.5	5.5 ... 8	21-1HA10			A	**3RA12 20-1HB24-0AP0**		1	1 unit	101	1.389
	4	8.5	7 ... 10	21-1JA10	26-1AP00		A	**3RA12 20-1JB26-0AP0**		1	1 unit	101	1.389
	5.5	11.5	9 ... 12.5	21-1KA10			A	**3RA12 20-1KB26-0AP0**		1	1 unit	101	1.386
	7.5	15.5	11 ... 16	21-4AA10			A	**3RA12 20-4AB26-0AP0**		1	1 unit	101	1.408
	7.5	15.5	14 ... 20	21-4BA10			A	**3RA12 20-4BB26-0AP0**		1	1 unit	101	1.400
S2	11	22	18 ... 25	31-4DA10	34-1AP00	31-1AA00		Size S2 is only available for self-assembly.					
	15	29	22 ... 32	31-4EA10		+							
	18.5	35	28 ... 40	31-4FA10	35-1AP00	33-1B[8]							
	22	41	36 ... 45	31-4GA10	36-1AP00								
	22	41	40 ... 50	31-4HA10									
S3	30	55	45 ... 63	41-4JA10	44-1AP00	41-1AA00		Size S3 is only available for self-assembly.					
	37	66	57 ... 75	41-4KA10	45-1AP00	+							
	45	80	70 ... 90	41-4LA10	46-1AP00	43-1B[8]							
	45	80	80 ... 100	41-4MA10									

1) Size S00 also suitable for 60 Hz.

2) Assembly kit for standard mounting rail adapter also suitable for screw fixing.

3) For auxiliary switches, see Accessories for Direct-On-Line and Reversing Starters.

4) Selection depends on the concrete startup and rated data of the protected motor.

5) RH = Reversing duty for standard rail mounting.

6) For load feeders with $I_q \geq$ 100 kA see note on Technical Information on page 6/1.

7) Wiring kit necessary: for screw fixing with 1 push-in lug each per load feeder, see "Accessories for Direct-On-Line and Reversing Starters".

8) Mechanical locking device must be ordered separately (see "Accessories for Direct-On-Line and Reversing Starters").

* You can order this quantity or a multiple thereof.

3RA12 reversing starters for snapping onto standard mounting rails or for screw fixing

Size	Standard induction motor 4-pole at 400 V AC[1]		Setting range for thermal overload release	Consisting of the following single devices			DT	Fuseless load feeders	ToC 1	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Standard output P	Motor current I (guide value)		Motor starter protector	+ 2 contactors	+ link module + assembly kit RH[2)3)]		Order No.	Price per PU				
	kW	A	A										kg
Type of coordination "1" at I_q = 50 kA at 400 V[4] (the motor starter protector is compatible with type of coordination "2")													
S00	0.75	1.9	1.4 ... 2					For load feeders for lower outputs, see the table above (type of coordination "2").					
				3RV10	**3RT10**	**3RA19**							
S00	0.75	1.9	1.8 ... 2.5	11-1CA10	15-1AP02	11-1AA00	A	**3RA12 10-1CA15-0AP0**		1	1 unit	101	0.755
	1.1	2.7	2.2 ... 3.2	11-1DA10		+	A	**3RA12 10-1DA15-0AP0**		1	1 unit	101	0.760
	1.5	3.6	2.8 ... 4	11-1EA10		13-2A[5]	A	**3RA12 10-1EA15-0AP0**		1	1 unit	101	0.764
	1.5	3.6	3.5 ... 5	11-1FA10			A	**3RA12 10-1FA15-0AP0**		1	1 unit	101	0.766
	2.2	4.9	4.5 ... 6.3	11-1GA10			A	**3RA12 10-1GA15-0AP0**		1	1 unit	101	0.760
	3	6.5	5.5 ... 8	11-1HA10			A	**3RA12 10-1HA15-0AP0**		1	1 unit	101	0.755
	4	8.5	7 ... 10	11-1JA10	16-1AP02		A	**3RA12 10-1JA16-0AP0**		1	1 unit	101	0.761
	5.5	11.5	9 ... 12	11-1KA10	17-1AP02		A	**3RA12 10-1KA17-0AP0**		1	1 unit	101	0.760
S0	7.5	15.5	11 ... 16	21-4AA10	25-1AP00	21-1AA00	A	**3RA12 20-4AB25-0AP0**		1	1 unit	101	1.397
	7.5	15.5	14 ... 20	21-4BA10		+	A	**3RA12 20-4BB25-0AP0**		1	1 unit	101	1.385
	11	22	17 ... 22	21-4CA10	26-1AP00	23-1B[6]	A	**3RA12 20-4CB26-0AP0**		1	1 unit	101	1.400
	11	22	20 ... 25	21-4DA10			A	**3RA12 20-4DB26-0AP0**		1	1 unit	101	1.420
S2	15	29	22 ... 32					For load feeders for higher outputs, see the table above (type of coordination "2").					
	18.5	35	28 ... 40										
	22	41	36 ... 45										
			...										

1) Selection depends on the concrete startup and rated data of the protected motor.

2) Assembly kit for standard mounting rail adapter also suitable for screw fixing.

3) RH = Reversing duty for standard rail mounting.

4) For load feeders with $I_q \geq$ 100 kA see note on Technical Information on page 6/1.

5) Wiring kit necessary: for screw fixing with 1 push-in lug each per load feeder (see "Accessories for Direct-On-Line and Reversing Starters").

6) Mechanical locking device must be ordered separately (see "Accessories for Direct-On-Line and Reversing Starters").

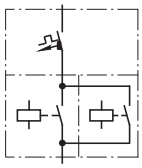
* You can order this quantity or a multiple thereof.

3RA12 reversing starters for snapping onto standard mounting rails or for screw fixing

3RA12 10

3RA12 20

Reversing duty



Rated control supply voltage 24 V DC
for 35 mm standard mounting rail or screw fixing

- The motor starter protector and contactor are mechanically and electrically connected by means of the link module
- As from size S0 with standard mounting rail adapter[1] for mechanical reinforcement
- Auxiliary switches[2] on the motor starter protector and the contactor can be easily fitted due to the modular system
- Complete unit always with electrical and mechanical interlock

Size	Standard induction motor 4-pole at 400 V AC[3]		Setting range for thermal overload release	Consisting of the following single devices			DT	Fuseless load feeders ToC 2		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Standard output P	Motor current I (guide value)		Motor starter protector	+ 2 contactors	+ Link module + Assembly kit RH[4]		Order No.	Price per PU				
	kW	A	A										kg
Type of coordination "2" at I_q = 50 kA/100 kA at 400 V (compatible with type of coordination "1")[5]				**3RV10**	**3RT10**	**3RA19**							
S00	0.06	0.2	0.14 ... 0.2	11-0BA10	15-1BB42	11-1AA00	A	**3RA12 10-0BA15-0BB4**		1	1 unit	101	0.832
	0.06	0.2	0.18 ... 0.25	11-0CA10		+	A	**3RA12 10-0CA15-0BB4**		1	1 unit	101	0.830
	0.09	0.3	0.22 ... 0.32	11-0DA10		13-2A[6]	A	**3RA12 10-0DA15-0BB4**		1	1 unit	101	0.826
	0.09	0.3	0.28 ... 0.4	11-0EA10			A	**3RA12 10-0EA15-0BB4**		1	1 unit	101	0.833
	0.12	0.4	0.35 ... 0.5	11-0FA10			A	**3RA12 10-0FA15-0BB4**		1	1 unit	101	0.824
	0.18	0.6	0.45 ... 0.63	11-0GA10			A	**3RA12 10-0GA15-0BB4**		1	1 unit	101	0.835
	0.18	0.6	0.55 ... 0.8	11-0HA10			A	**3RA12 10-0HA15-0BB4**		1	1 unit	101	0.830
	0.25	0.85	0.7 ... 1	11-0JA10			A	**3RA12 10-0JA15-0BB4**		1	1 unit	101	0.830
	0.37	1.1	0.9 ... 1.25	11-0KA10			A	**3RA12 10-0KA15-0BB4**		1	1 unit	101	0.878
	0.55	1.5	1.1 ... 1.6	11-1AA10			A	**3RA12 10-1AA15-0BB4**		1	1 unit	101	0.880
	0.75	1.9	1.4 ... 2	11-1BA10			A	**3RA12 10-1BA15-0BB4**		1	1 unit	101	0.875
S0	0.75	1.9	1.8 ... 2.5	21-1CA10	24-1BB40	21-1BA00	A	**3RA12 20-1CB24-0BB4**		1	1 unit	101	1.847
	1.1	2.7	2.2 ... 3.2	21-1DA10		+	A	**3RA12 20-1DB24-0BB4**		1	1 unit	101	1.855
	1.5	3.6	2.8 ... 4	21-1EA10		23-1B[7]	A	**3RA12 20-1EB24-0BB4**		1	1 unit	101	1.852
	1.5	3.6	3.5 ... 5	21-1FA10			A	**3RA12 20-1FB24-0BB4**		1	1 unit	101	1.856
	2.2	4.9	4.5 ... 6.3	21-1GA10			A	**3RA12 20-1GB24-0BB4**		1	1 unit	101	1.848
	3	6.5	5.5 ... 8	21-1HA10			A	**3RA12 20-1HB24-0BB4**		1	1 unit	101	1.851
	4	8.5	7 ... 10	21-1JA10	26-1BB40		A	**3RA12 20-1JB26-0BB4**		1	1 unit	101	1.854
	5.5	11.5	9 ... 12.5	21-1KA10			A	**3RA12 20-1KB26-0BB4**		1	1 unit	101	1.858
	7.5	15.5	11 ... 16	21-4AA10			A	**3RA12 20-4AB26-0BB4**		1	1 unit	101	1.863
	7.5	15.5	14 ... 20	21-4BA10			A	**3RA12 20-4BB26-0BB4**		1	1 unit	101	1.852
S2	11	22	18 ... 25	31-4DA10	34-1BB40	31-1BA00		Size S2 is only available for self-assembly.					
	15	29	22 ... 32	31-4EA10		+							
	18.5	35	28 ... 40	31-4FA10	35-1BB40	33-1B[7]							
	22	41	36 ... 45	31-4GA10	36-1BB40								
	22	41	40 ... 50	31-4HA10									
S3	30	55	45 ... 63	41-4JA10	44-1BB40	41-1BA00		Size S3 is only available for self-assembly.					
	37	66	57 ... 75	41-4KA10	45-1BB40	+							
	45	80	70 ... 90	41-4LA10	46-1BB40	43-1B[7]							
	45	80	80 ... 100	41-4MA10									

1) Assembly kit for standard mounting rail adapter also suitable for screw fixing.

2) For auxiliary switches, see Accessories for Direct-On-Line and Reversing Starters.

3) Selection depends on the concrete startup and rated data of the protected motor.

4) RH = Reversing duty for standard rail mounting.

5) For load feeders with $I_q \geq$ 100 kA see note on Technical Information on page 6/1.

6) Wiring kit necessary: screw fixing with 1 push-in lug each per load feeder is possible (see "Accessories for Direct-On-Line and Reversing Starters").

7) Mechanical locking device must be ordered separately (see "Accessories for Direct-On-Line and Reversing Starters").

*** You can order this quantity or a multiple thereof.**

3RA12 reversing starters for snapping onto standard mounting rails or for screw fixing

Size	Standard induction motor 4-pole at 400 V AC[1]		Setting range for thermal overload release	Consisting of the following single devices			DT	Fuseless load feeders	ToC 1	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Standard output P	Motor current I (guide value)		Motor starter protector	+ 2 contactors	+ Link module + Assembly kit RH[2)3)]		Order No.	Price per PU				
	kW	A	A										kg
Type of coordination "1" at I_q = 50 kA at 400 V[4] (the motor starter protector is compatible with type of coordination "2")													
S00	0.75	1.9	1.4 ... 2					For load feeders for lower outputs, see the table above (type of coordination "2").					
				3RV10	**3RT10**	**3RA19**							
S00	0.75	1.9	1.8 ... 2.5	11-1CA10	15-1BB42	11-1AA00	A	**3RA12 10-1CA15-0BB4**		1	1 unit	101	0.883
	1.1	2.7	2.2 ... 3.2	11-1DA10		+	A	**3RA12 10-1DA15-0BB4**		1	1 unit	101	0.882
	1.5	3.6	2.8 ... 4	11-1EA10		13-2A[5]	A	**3RA12 10-1EA15-0BB4**		1	1 unit	101	0.879
	1.5	3.6	3.5 ... 5	11-1FA10			A	**3RA12 10-1FA15-0BB4**		1	1 unit	101	0.881
	2.2	4.9	4.5 ... 6.3	11-1GA10			A	**3RA12 10-1GA15-0BB4**		1	1 unit	101	0.888
	3	6.5	5.5 ... 8	11-1HA10			A	**3RA12 10-1HA15-0BB4**		1	1 unit	101	0.890
	4	8.5	7 ... 10	11-1JA10	16-1BB42		A	**3RA12 10-1JA16-0BB4**		1	1 unit	101	0.882
	5.5	11.5	9 ... 12	11-1KA10	17-1BB42		A	**3RA12 10-1KA17-0BB4**		1	1 unit	101	0.872
S0	7.5	15.5	11 ... 16	21-4AA10	25-1BB40	21-1BA00	A	**3RA12 20-4AB25-0BB4**		1	1 unit	101	1.857
	7.5	15.5	14 ... 20	21-4BA10		+	A	**3RA12 20-4BB25-0BB4**		1	1 unit	101	1.853
	11	22	17 ... 22	21-4CA10	26-1BB40	23-1B[6]	A	**3RA12 20-4CB26-0BB4**		1	1 unit	101	1.858
	11	22	20 ... 25	21-4DA10			A	**3RA12 20-4DB26-0BB4**		1	1 unit	101	1.860
S2	15	29	22 ... 32					For load feeders for higher outputs, see the table above (type of coordination "2").					
	18.5	35	28 ... 40										
	22	41	36 ... 45										
			...										

1) Selection depends on the concrete startup and rated data of the protected motor.

2) Assembly kit for standard mounting rail adapter also suitable for screw fixing.

3) RH = Reversing duty for standard rail mounting.

4) For load feeders with $I_q \geq 100$ kA see note on Technical Information on page 6/1.

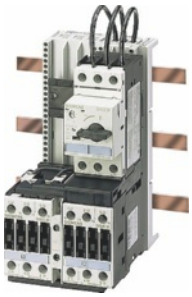
5) Wiring kit necessary: screw fixing with 1 push-in lug each per load feeder is possible (see "Accessories for Direct-On-Line and Reversing Starters").

6) Mechanical locking device must be ordered separately (see "Accessories for Direct-On-Line and Reversing Starters").

* You can order this quantity or a multiple thereof.

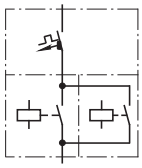
Selection and ordering data

3RA12 10



3RA12 20

Reversing duty



Rated control supply voltage 50 Hz 230 V AC[1] for 40 and 60 mm busbar systems

- The motor starter protector and contactor are mechanically and electrically connected by means of the link module
- Auxiliary switches[2] on the motor starter protector and the contactor can be easily fitted due to the modular system
- Complete unit always with electrical and mechanical interlock

Size	Standard induction motor 4-pole at 400 V AC[3]		Setting range for thermal overload release	Consisting of the following single devices			DT	Fuseless load feeders ToC 2		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Standard output P	Motor current I (guide value)		Motor starter protector	+ 2 contactors	+ Link module + Assembly kit RS[4]		Order No.	Price per PU				
	kW	A	A										kg
Type of coordination "2" at I_q = 50 kA at 400 V (compatible with type of coordination "1")				**3RV10**	**3RT10**	**3RA19**							
S00	0.06	0.2	0.14 ... 0.2	11-0BA10	15-1AP02	11-1AA00	A	**3RA12 10-0B☐15-0AP0**		1	1 unit	101	1.080
	0.06	0.2	0.18 ... 0.25	11-0CA10		+	A	**3RA12 10-0C☐15-0AP0**		1	1 unit	101	1.100
	0.09	0.3	0.22 ... 0.32	11-0DA10		40 mm	A	**3RA12 10-0D☐15-0AP0**		1	1 unit	101	1.100
	0.09	0.3	0.28 ... 0.4	11-0EA10		13-1C	A	**3RA12 10-0E☐15-0AP0**		1	1 unit	101	1.123
	0.12	0.4	0.35 ... 0.5	11-0FA10		or 60 mm	A	**3RA12 10-0F☐15-0AP0**		1	1 unit	101	1.050
	0.18	0.6	0.45 ... 0.63	11-0GA10		13-1D	A	**3RA12 10-0G☐15-0AP0**		1	1 unit	101	1.070
	0.18	0.6	0.55 ... 0.8	11-0HA10			A	**3RA12 10-0H☐15-0AP0**		1	1 unit	101	1.075
	0.25	0.85	0.7 ... 1	11-0JA10			A	**3RA12 10-0J ☐15-0AP0**		1	1 unit	101	1.058
	0.37	1.1	0.9 ... 1.25	11-0KA10			A	**3RA12 10-0K☐15-0AP0**		1	1 unit	101	1.103
	0.55	1.5	1.1 ... 1.6	11-1AA10			A	**3RA12 10-1A☐15-0AP0**		1	1 unit	101	1.104
	0.75	1.9	1.4 ... 2	11-1BA10			A	**3RA12 10-1B☐15-0AP0**		1	1 unit	101	1.111
S0	0.75	1.9	1.8 ... 2.5	21-1CA10	24-1AP00	21-1AA00	A	**3RA12 20-1C☐24-0AP0**		1	1 unit	101	1.512
	1.1	2.7	2.2 ... 3.2	21-1DA10		+	A	**3RA12 20-1D☐24-0AP0**		1	1 unit	101	1.548
	1.5	3.6	2.8 ... 4	21-1EA10		40 mm	A	**3RA12 20-1E☐24-0AP0**		1	1 unit	101	1.532
	1.5	3.6	3.5 ... 5	21-1FA10		23-1C[5]	A	**3RA12 20-1F☐24-0AP0**		1	1 unit	101	1.550
	2.2	4.9	4.5 ... 6.3	21-1GA10		or 60 mm	A	**3RA12 20-1G☐24-0AP0**		1	1 unit	101	1.558
	3	6.5	5.5 ... 8	21-1HA10		23-1D[5]	A	**3RA12 20-1H☐24-0AP0**		1	1 unit	101	1.545
	4	8.5	7 ... 10	21-1JA10	26-1AP00		A	**3RA12 20-1J ☐26-0AP0**		1	1 unit	101	1.557
	5.5	11.5	9 ... 12.5	21-1KA10			A	**3RA12 20-1K☐26-0AP0**		1	1 unit	101	1.575
	7.5	15.5	11 ... 16	21-4AA10			A	**3RA12 20-4A☐26-0AP0**		1	1 unit	101	1.549
	7.5	15.5	14 ... 20	21-4BA10			A	**3RA12 20-4B☐26-0AP0**		1	1 unit	101	1.544
S2	11	22	18 ... 25	31-4DA10	34-1AP00	31-1AA00		Size S2 is only available for self-assembly.					
	15	29	22 ... 32	31-4EA10		+							
	18.5	35	28 ... 40	31-4FA10	35-1AP00	40 mm							
	22	41	36 ... 45	31-4GA10	36-1AP00	33-1C[5]							
	22	41	40 ... 50	31-4HA10		or 60 mm							
						33-1D[5]							
S3	30	55	45 ... 63	41-4JA10	44-1AP00	41-1AA00		For size S3, a busbar adapter is not necessary.					
	37	66	57 ... 75	41-4KA10	45-1AP00	+							
	45	80	70 ... 90	41-4LA10	46-1AP00	not available							
	45	80	80 ... 100	41-4MA10									

Order No. supplement for busbar center-to-center clearance

40 mm	**C**
60 mm	**D**

1) Size S00 also suitable for 60 Hz.

2) For auxiliary switches, see Accessories for Direct-On-Line and Reversing Starters.

3) Selection depends on the concrete startup and rated data of the protected motor.

4) RS = Reversing duty for busbar systems.

5) Mechanical locking device must be ordered separately (see "Accessories for Direct-On-Line and Reversing Starters").

*** You can order this quantity or a multiple thereof.**

3RA12 reversing starters for busbar systems

Size	Standard induction motor 4-pole at 400 V AC[1]		Setting range for thermal overload release	Consisting of the following single devices			DT	Fuseless load feeders		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Standard output P	Motor current I (guide value)		Motor starter protector	+ 2 contactors	+ Link module + Assembly kit RS[2]		Order No.	Price per PU				
	kW	A	A										kg
Type of coordination "1" at I_q = 50 kA at 400 V (the motor starter protector is compatible with type of coordination "2")													
S00	0.75	1.9	1.4 ... 2					For load feeders for lower outputs, see the table above (type of coordination "2").					
				3RV10	**3RT10**	**3RA19**							
S00	0.75	1.9	1.8 ... 2.5	11-1CA10	15-1AP02	11-1AA00	A	**3RA12 10-1C□15-0AP0**		1	1 unit	101	1.115
	1.1	2.7	2.2 ... 3.2	11-1DA10		+	A	**3RA12 10-1D□15-0AP0**		1	1 unit	101	1.105
	1.5	3.6	2.8 ... 4	11-1EA10		40 mm	A	**3RA12 10-1E□15-0AP0**		1	1 unit	101	1.116
	1.5	3.6	3.5 ... 5	11-1FA10		13-1C	A	**3RA12 10-1F□15-0AP0**		1	1 unit	101	1.118
	2.2	4.9	4.5 ... 6.3	11-1GA10		or 60 mm	A	**3RA12 10-1G□15-0AP0**		1	1 unit	101	1.129
	3	6.5	5.5 ... 8	11-1HA10		13-1D	A	**3RA12 10-1H□15-0AP0**		1	1 unit	101	1.122
	4	8.5	7 ... 10	11-1JA10	16-1AP02		A	**3RA12 10-1J □16-0AP0**		1	1 unit	101	1.108
	5.5	11.5	9 ... 12	11-1KA10	17-1AP02		A	**3RA12 10-1K□17-0AP0**		1	1 unit	101	1.100
S0	7.5	15.5	11 ... 16	21-4AA10	25-1AP00	21-1AA00	A	**3RA12 20-4A□25-0AP0**		1	1 unit	101	1.600
	7.5	15.5	14 ... 20	21-4BA10		+	A	**3RA12 20-4B□25-0AP0**		1	1 unit	101	1.600
	11	22	17 ... 22	21-4CA10	26-1AP00	40 mm	A	**3RA12 20-4C□26-0AP0**		1	1 unit	101	1.570
	11	22	20 ... 25	21-4DA10		23-1C[3]	A	**3RA12 20-4D□26-0AP0**		1	1 unit	101	1.557
						or 60 mm 23-1D[3]							
S2	15	29	22 ... 32					For load feeders for higher outputs, see the table above (type of coordination "2").					
	18.5	35	28 ... 40										
	22	41	36 ... 45										
			...										

Order No. supplement for busbar center-to-center clearance

40 mm **C**
60 mm **D**

1) Selection depends on the concrete startup and rated data of the protected motor.

2) RS = Reversing duty for busbar systems.

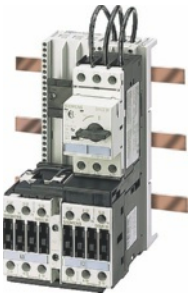
3) Mechanical locking device must be ordered separately (see "Accessories for Direct-On-Line and Reversing Starters").

6

* You can order this quantity or a multiple thereof.

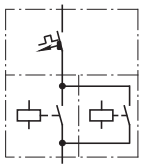
3RA12 reversing starters for busbar systems

3RA12 10



3RA12 20

Reversing duty



Rated control supply voltage 24 V DC for 40 and 60 mm busbar systems

- The motor starter protector and contactor are mechanically and electrically connected by means of the link module
- Auxiliary switches[1] on the motor starter protector and the contactor can be easily fitted due to the modular system
- Complete unit always with electrical and mechanical interlock

Size	Standard induction motor 4-pole at 400 V AC[2]		Setting range for thermal overload release	Consisting of the following single devices			DT	Fuseless load feeders ToC 2		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Standard output P	Motor current I (guide value)		Motor starter protector	+ 2 contactors	+ Link module + Assembly kit RS[3]		Order No.	Price per PU				
	kW	A	A										kg
Type of coordination "2" at I_q = 50 kA at 400 V (compatible with type of coordination "1")				**3RV10**	**3RT10**	**3RA19**							
S00	0.06	0.2	0.14 ... 0.2	11-0BA10	15-1BB42	11-1AA00	A	**3RA12 10-0B☐15-0BB4**		1	1 unit	101	1.195
	0.06	0.2	0.18 ... 0.25	11-0CA10		+	A	**3RA12 10-0C☐15-0BB4**		1	1 unit	101	1.234
	0.09	0.3	0.22 ... 0.32	11-0DA10		40 mm	A	**3RA12 10-0D☐15-0BB4**		1	1 unit	101	1.223
	0.09	0.3	0.28 ... 0.4	11-0EA10		13-1C	A	**3RA12 10-0E☐15-0BB4**		1	1 unit	101	1.185
	0.12	0.4	0.35 ... 0.5	11-0FA10		or 60 mm	A	**3RA12 10-0F☐15-0BB4**		1	1 unit	101	1.190
	0.18	0.6	0.45 ... 0.63	11-0GA10		13-1D	A	**3RA12 10-0G☐15-0BB4**		1	1 unit	101	1.195
	0.18	0.6	0.55 ... 0.8	11-0HA10			A	**3RA12 10-0H☐15-0BB4**		1	1 unit	101	1.190
	0.25	0.85	0.7 ... 1	11-0JA10			A	**3RA12 10-0J ☐15-0BB4**		1	1 unit	101	1.197
	0.37	1.1	0.9 ... 1.25	11-0KA10			A	**3RA12 10-0K☐15-0BB4**		1	1 unit	101	1.160
	0.55	1.5	1.1 ... 1.6	11-1AA10			A	**3RA12 10-1A☐15-0BB4**		1	1 unit	101	1.246
	0.75	1.9	1.4 ... 2	11-1BA10			A	**3RA12 10-1B☐15-0BB4**		1	1 unit	101	1.233
S0	0.75	1.9	1.8 ... 2.5	21-1CA10	24-1BB40	21-1BA00	A	**3RA12 20-1C☐24-0BB4**		1	1 unit	101	1.985
	1.1	2.7	2.2 ... 3.2	21-1DA10		+	A	**3RA12 20-1D☐24-0BB4**		1	1 unit	101	2.017
	1.5	3.6	2.8 ... 4	21-1EA10		40 mm	A	**3RA12 20-1E☐24-0BB4**		1	1 unit	101	1.998
	1.5	3.6	3.5 ... 5	21-1FA10		23-1C[4]	A	**3RA12 20-1F☐24-0BB4**		1	1 unit	101	2.013
	2.2	4.9	4.5 ... 6.3	21-1GA10		or 60 mm	A	**3RA12 20-1G☐24-0BB4**		1	1 unit	101	2.018
	3	6.5	5.5 ... 8	21-1HA10		23-1D[4]	A	**3RA12 20-1H☐24-0BB4**		1	1 unit	101	2.003
	4	8.5	7 ... 10	21-1JA10	26-1BB40		A	**3RA12 20-1J ☐26-0BB4**		1	1 unit	101	2.013
	5.5	11.5	9 ... 12.5	21-1KA10			A	**3RA12 20-1K☐26-0BB4**		1	1 unit	101	2.017
	7.5	15.5	11 ... 16	21-4AA10			A	**3RA12 20-4A☐26-0BB4**		1	1 unit	101	2.010
	7.5	15.5	14 ... 20	21-4BA10			A	**3RA12 20-4B☐26-0BB4**		1	1 unit	101	2.002
S2	11	22	18 ... 25	31-4DA10	34-1BB40	31-1BA00		Size S2 is only available for self-assembly.					
	15	29	22 ... 32	31-4EA10		+							
	18.5	35	28 ... 40	31-4FA10	35-1BB40	40 mm							
	22	41	36 ... 45	31-4GA10	36-1BB40	33-1C[4]							
	22	41	40 ... 50	31-4HA10		or 60 mm							
						33-1D[4]							
S3	30	55	45 ... 63	41-4JA10	44-1BB40	41-1BA00		For size S3, a busbar adapter is not necessary.					
	37	66	57 ... 75	41-4KA10	45-1BB40	+							
	45	80	70 ... 90	41-4LA10	46-1BB40	not available							
	45	80	80 ... 100	41-4MA10									

Order No. supplement for busbar center-to-center clearance

40 mm	**C**
60 mm	**D**

1) For auxiliary switches, see Accessories for Direct-On-Line and Reversing Starters.

2) Selection depends on the concrete startup and rated data of the protected motor.

3) RS = Reversing duty for busbar systems.

4) Mechanical locking device must be ordered separately (see "Accessories for Direct-On-Line and Reversing Starters").

*** You can order this quantity or a multiple thereof.**

3RA12 reversing starters for busbar systems

Size	Standard induction motor 4-pole at 400 V AC[1]		Setting range for thermal overload release	Consisting of the following single devices			DT	Fuseless load feeders		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Standard output P	Motor current I (guide value)		Motor starter protector	+ 2 contactors	+ Link module + Assembly kit RS[2]		Order No.	Price per PU				
	kW	A	A										kg
Type of coordination "1" at I_q = 50 kA at 400 V (the motor starter protector is compatible with type of coordination "2")													
S00	0.75	1.9	1.4 ... 2					For load feeders for lower outputs, see the table above (type of coordination "2").					
				3RV10	**3RT10**	**3RA19**							
S00	0.75	1.9	1.8 ... 2.5	11-1CA10	15-1BB42	11-1AA00	A	**3RA12 10-1C□15-0BB4**		1	1 unit	101	1.233
	1.1	2.7	2.2 ... 3.2	11-1DA10		+	A	**3RA12 10-1D□15-0BB4**		1	1 unit	101	1.240
	1.5	3.6	2.8 ... 4	11-1EA10		40 mm	A	**3RA12 10-1E□15-0BB4**		1	1 unit	101	1.265
	1.5	3.6	3.5 ... 5	11-1FA10		13-1C	A	**3RA12 10-1F□15-0BB4**		1	1 unit	101	1.245
	2.2	4.9	4.5 ... 6.3	11-1GA10		or 60 mm	A	**3RA12 10-1G□15-0BB4**		1	1 unit	101	1.240
	3	6.5	5.5 ... 8	11-1HA10		13-1D	A	**3RA12 10-1H□15-0BB4**		1	1 unit	101	1.233
	4	8.5	7 ... 10	11-1JA10	16-1BB42		A	**3RA12 10-1J□16-0BB4**		1	1 unit	101	1.242
	5.5	11.5	9 ... 12	11-1KA10	17-1BB42		A	**3RA12 10-1K□17-0BB4**		1	1 unit	101	1.210
S0	7.5	15.5	11 ... 16	21-4AA10	25-1BB40	21-1BA00	A	**3RA12 20-4A□25-0BB4**		1	1 unit	101	2.100
	7.5	15.5	14 ... 20	21-4BA10		+	A	**3RA12 20-4B□25-0BB4**		1	1 unit	101	2.100
	11	22	17 ... 22	21-4CA10	26-1BB40	40 mm	A	**3RA12 20-4C□26-0BB4**		1	1 unit	101	2.023
	11	22	20 ... 25	21-4DA10		23-1C[3]	A	**3RA12 20-4D□26-0BB4**		1	1 unit	101	2.018
						or 60 mm 23-1D[3]							
S2	15	29	22 ... 32					For load feeders for higher outputs, see the table above (type of coordination "2").					
	18.5	35	28 ... 40										
	22	41	36 ... 45										
			...										

Order No. supplement for busbar center-to-center clearance

40 mm **C**
60 mm **D**

1) Selection depends on the concrete startup and rated data of the protected motor.

2) RS = Reversing duty for busbar systems.

3) Mechanical locking device must be ordered separately (see "Accessories for Direct-On-Line and Reversing Starters").

6

* You can order this quantity or a multiple thereof.

Selection and ordering data

	For circuit breakers Size	For contactors Size	Version		DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Motor starter protectors[1]											
			Auxiliary switches								
 3RV19 01-1E	S00 ...S3	--	Transverse	1 CO	▶	**3RV19 01-1D**		1	1 unit	101	0.015
			Transverse	1 NO + 1 NC	▶	**3RV19 01-1E**		1	1 unit	101	0.018
 3RV19 01-1A	S00 ...S3	--	Laterally mountable	1 NO + 1 NC	▶	**3RV19 01-1A**		1	1 unit	101	0.045
 3RV19 02-1...	S00 ...S3	--	**Undervoltage releases** AC 50 Hz 230 V		▶	**3RV19 02-1AP0**		1	1 unit	101	0.131
	S00 ...S3	--	**Shunt releases** AC 50 Hz 230 V		▶	**3RV19 02-1DP0**		1	1 unit	101	0.130
Contactors[2]											
			Snap-on auxiliary switch blocks								
			Connection from below								
 3RH19 11-1BA..	--	S00	1-pole	1 NO	▶	**3RH19 11-1BA10**		1	1 unit	101	0.015
				1 NC	▶	**3RH19 11-1BA01**		1	1 unit	101	0.015
	--	S00	2-pole	1 NO + 1 NC	▶	**3RH19 11-1MA11**		1	1 unit	101	0.045
				2 NO	▶	**3RH19 11-1MA20**		1	1 unit	101	0.045
	--	S0 ... S3		1 NO + 1 NC	▶	**3RH19 21-1MA11**		1	1 unit	101	0.075
				2 NO	▶	**3RH19 21-1MA20**		1	1 unit	101	0.075
				2 NC	▶	**3RH19 21-1MA02**		1	1 unit	101	0.075
			Connection from 2 sides								
 3RH19 11-1F...	--	S00	4-pole	2 NO + 2 NC	▶	**3RH19 11-1FA22**		1	1 unit	101	0.060
	--	S0 ... S3	1-pole	1 NO	▶	**3RH19 21-1CA10**		1	1 unit	101	0.020
				1 NC	▶	**3RH19 21-1CA01**		1	1 unit	101	0.020
	--	S0 ... S3	4-pole	2 NO + 2 NC	▶	**3RH19 21-1FA22**		1	1 unit	101	0.075

[1] See also "Protection Equipment: 3RV Motor Starter Protectors.

[2] See also "Controls: Contactors and Contactor Assemblies.

6

* You can order this quantity or a multiple thereof.

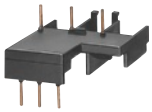
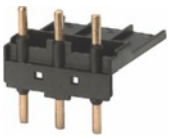
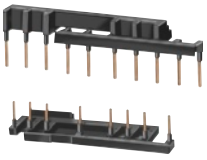
Accessories for 3RA1 direct-on-line and reversing starters

	For contactors	Version	Rated control supply voltage U_s [1]	DT	Order No. [2]	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Type									kg
Surge suppressors without LED										
 3RT19 16-1DG00	Size S00									
		For plugging onto the front side of the contactors with and without auxiliary switch blocks								
	3RT1.	**Varistors**	24 ... 48 V AC 24 ... 70 V DC	▶	**3RT19 16-1BB00**		1	1 unit	101	0.010
			127 ... 240 V AC 150 ... 250 V DC	A	**3RT19 16-1BD00**		1	1 unit	101	0.010
	3RT1.	**RC elements**	24 ... 48 V AC 24 ... 70 V DC	▶	**3RT19 16-1CB00**		1	1 unit	101	0.010
			127 ... 240 V AC 150 ... 250 V DC	▶	**3RT19 16-1CD00**		1	1 unit	101	0.010
	3RT1.	**Noise suppression diodes**	12 ... 250 V DC	▶	**3RT19 16-1DG00**		1	1 unit	101	0.010
	3RT1.	**Diode assemblies** (diode and Zener diode) for DC operation and short break times	12 ... 250 V DC	▶	**3RT19 16-1EH00**		1	1 unit	101	0.010
 3RT19 26-1B.00	Size S0									
		For fitting onto the coil terminals at top or bottom								
	3RT10 2	**Varistors**	24 ... 48 V AC 24 ... 70 V DC	▶	**3RT19 26-1BB00**		1	1 unit	101	0.025
			127 ... 240 V AC 150 ... 250 V DC	▶	**3RT19 26-1BD00**		1	1 unit	101	0.025
	3RT10 2	**RC elements**	24 ... 48 V AC 24 ... 70 V DC	▶	**3RT19 26-1CB00**		1	1 unit	101	0.025
			127 ... 240 V AC 150 ... 250 V DC	▶	**3RT19 26-1CD00**		1	1 unit	101	0.025
	3RT10 2	**Diode assemblies** For DC operation and short break times								
		• Can be plugged in at bottom	24 V DC	▶	**3RT19 26-1TR00**		1	1 unit	101	0.025
			30 ... 250 V DC	A	**3RT19 26-1TS00**		1	1 unit	101	0.025
	Sizes S2 and S3									
		For fitting onto the coil terminals at top or bottom								
	3RT10 3, 3RT10 4	**Varistors**	24 V ... 48 V AC 24 ... 70 V DC	▶	**3RT19 26-1BB00**		1	1 unit	101	0.025
			127 V ... 240 V AC 150 ... 250 V DC	▶	**3RT19 26-1BD00**		1	1 unit	101	0.025
 3RT19 36-1C.00	3RT10 3, 3RT10 4	**RC elements**	24 ... 48 V AC 24 ... 70 V DC	▶	**3RT19 36-1CB00**		1	1 unit	101	0.040
			127 ... 240 V AC 150 ... 250 V DC	▶	**3RT19 36-1CD00**		1	1 unit	101	0.040
	3RT10 3, 3RT10 4	**Diode assemblies** For DC operation and short break times								
		• Can be plugged in at bottom	24 V DC	▶	**3RT19 36-1TR00**		1	1 unit	101	0.025
			30 ... 250 V DC	B	**3RT19 36-1TS00**		1	1 unit	101	0.025

[1] Can be used for AC operation for 50/60 Hz. Please inquire about further voltages.

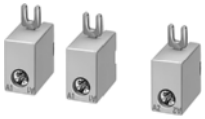
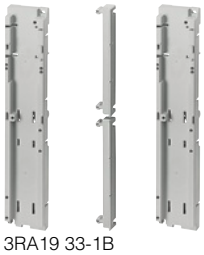
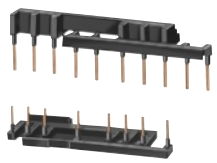
[2] For packs of 10 or 5 units **"-Z"** and order code **"X90"** must be added to the Order No.

* You can order this quantity or a multiple thereof.

	For motor starter protectors Size	For contactors Size	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Link modules										
 3RA19 11-1A			Electrical and mechanical link between motor starter protector and contactor.							
			Single-unit packaging							
			Actuating voltage of contactor							
	S00	S00	AC and DC	▶	**3RA19 11-1AA00**		1	1 unit	101	0.027
	S0	S00		▶	**3RA19 21-1DA00**		1	1 unit	101	0.028
 3RA19 21-1A	S0	S0	AC	▶	**3RA19 21-1AA00**		1	1 unit	101	0.037
	S2	S2		▶	**3RA19 31-1AA00**		1	1 unit	101	0.042
	S3	S3		▶	**3RA19 41-1AA00**		1	1 unit	101	0.090
	S0	S0	DC	▶	**3RA19 21-1BA00**		1	1 unit	101	0.039
	S2	S2		▶	**3RA19 31-1BA00**		1	1 unit	101	0.043
	S3	S3		▶	**3RA19 41-1BA00**		1	1 unit	101	0.089
			Multi-unit packaging							
			Actuating voltage of contactor							
 3RA19 31-1A	S00	S00	AC and DC	▶	**3RA19 11-1A**		1	10 units	101	0.019
	S0	S00		▶	**3RA19 21-1D**		1	10 units	101	0.021
	S0	S0	AC	▶	**3RA19 21-1A**		1	10 units	101	0.028
	S2	S2		▶	**3RA19 31-1A**		1	5 units	101	0.033
	S3	S3		▶	**3RA19 41-1A**		1	5 units	101	0.072
	S0	S0	DC	▶	**3RA19 21-1B**		1	10 units	101	0.030
	S2	S2		▶	**3RA19 31-1B**		1	5 units	101	0.034
	S3	S3		▶	**3RA19 41-1B**		1	5 units	101	0.073
Hybrid link modules										
	Screw terminals	Cage Clamp terminals	Electrical and mechanical connection between motor starter protector with screw terminals and contactor with Cage Clamp terminals							
			Single-unit packaging							
 3RA19 21-2FA00			Actuating voltage of contactor							
	S00	S00	AC and DC	▶	**3RA19 11-2FA00**		1	1 unit	101	0.038
	S0	S00		▶	**3RA19 21-2FA00**		1	1 unit	101	0.028
			Multi-unit packaging							
			Actuating voltage of contactor							
	S00	S00	AC and DC	▶	**3RA19 11-2F**		1	10 units	101	0.031
	S0	S00		▶	**3RA19 21-2F**		1	10 units	101	0.030
Wiring kits										
 3RA19 13-2A			**Reversing duty**							
	--	S00	Electrical and mechanical link for reversing contactors. Can be combined with link module. For size S00: optionally with integrated electrical and mechanical locking. For sizes S0 to S3: mechanical locking device must be ordered separately.	▶	**3RA19 13-2A**		1	1 unit	101	0.040
		S0		▶	**3RA19 23-2A**		1	1 unit	101	0.060
		S2		▶	**3RA19 33-2A**		1	1 unit	101	0.120
		S3		▶	**3RA19 43-2A**		1	1 unit	101	0.300
			Wye-delta starting							
	--	S00	Electrical and mechanical link for three contactors of same size	▶	**3RA19 13-2B**		1	1 unit	101	0.050
		S0		▶	**3RA19 23-2B**		1	1 unit	101	0.060
		S2		▶	**3RA19 33-2B**		1	1 unit	101	0.070
		S3		▶	**3RA19 43-2B**		1	1 unit	101	0.160
Connection modules for contactors with screw terminals										
			Size S00, S0							
 3RT19 26-4RD01			**Adapters for contactors** Ambient temperature $T_{u\,max.}$ = 60 °C							
	--	S00	Size S00, rated operational current I_e at AC-3/400 V: 20 A	B	**3RT19 16-4RD01**		1	1 unit	101	0.020
	--	S0	Size S0, rated operational current I_e at AC-3/400 V: 25 A	B	**3RT19 26-4RD01**		1	1 unit	101	0.200
 3RT19 00-4RE01	--	S00, S0	**Plugs for contactors** Size S00, S0	B	**3RT19 00-4RE01**		1	1 unit	101	0.025

* You can order this quantity or a multiple thereof.

Accessories
for 3RA1 direct-on-line and reversing starters

	For motor starter protectors Size	For contactors Size	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Mechanical interlocks										
 3RA19 24-2B	--	S0, S2, S3	For reversing contactors, laterally mountable with 1 auxiliary contact (1 NC) each per contactor.	▶	**3RA19 24-2B**		1	1 unit	101	0.060
Coil repeat terminals										
 3RA19 23-3B	--	S0, S2, S3	For A1 and A2 of the reversing contactors (one set contains 10 x A1 and 5 x A2)	B	**3RA19 23-3B**		1	1 unit	101	0.080
Standard mounting rail adapters										
	Single-unit packaging									
 3RA19 32 3RA19 22	S00, S0	S00, S0	For mechanical fixing of	▶	**3RA19 22-1AA00**		1	1 unit	101	0.104
	S2	S2	motor starter protector and	▶	**3RA19 32-1AA00**		1	1 unit	101	0.202
	S3	S3	contactor; for snapping onto standard mounting rail or for screw fixing	▶	**3RA19 42-1AA00**		1	1 unit	101	0.264
	Multi-unit packaging									
	S00, S0	S00, S0	For mechanical fixing of	▶	**3RA19 22-1A**		1	5 units	101	0.095
	S2	S2	motor starter protector and	▶	**3RA19 32-1A**		1	5 units	101	0.187
	S3	S3	contactor; for snapping onto standard mounting rail or for screw fixing	▶	**3RA19 42-1A**		1	5 units	101	0.238
Side modules										
 3RA19 02	S00 ...S3	S00 ...S3	For standard mounting rail adapters 10 mm wide, 96 mm long, for widening standard mounting rail adapters. For sizes S00 to S2: 2 units required. For size S3: 3 units required.	▶	**3RA19 02-1B**		1	10 units	101	0.009
Assembly kits (RH) for reversing duty for standard mounting rails										
 3RA19 33-1B	S0	S0	Also suitable for screw fixing.	A	**3RA19 23-1B**		1	1 unit	101	0.288
	S2	S2	Consisting of:	A	**3RA19 33-1B**		1	1 unit	101	0.557
	S3	S3	Wiring kit, standard mounting rail adapters, side modules. Link modules to be ordered separately. Mechanical locking device also to be ordered separately.	A	**3RA19 43-1B**		1	1 unit	101	0.818
										

* You can order this quantity or a multiple thereof.

	For motor starter protectors	For contactors	Version	Busbar center-to-center clearance mm	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Size	Size									kg
Accessories, adapters and link modules for Cage Clamp terminals											
 3RA19 11-2A + 8US10 51-5CM47	S00	--	**Link modules, Cage Clamp** Electrical connection between motor starter protector and contactor (1 pack = 10 units)	--	▶	**3RA19 11-2A**		1	10 units	101	0.016
	S00	--	**Link modules, Cage Clamp with mechanical connections** Mechanical and electrical connection between motor starter protector and contactor (1 pack = 10 units)	--	▶	**3RA19 11-2E**		1	10 units	101	0.028
		--	**Standard mounting rail adapters** For Cage Clamp with 2 standard mounting rails, one is movable, 45 mm wide	--	▶	**3RA19 22-1L**		1	5 units	101	0.413
 3RA19 11-2E		--	**Busbar adapters** 45 mm wide, 182 mm long, adapted for Cage Clamp motor starter protectors. If there is an additional contactor, a further standard mounting rail must be fitted.	40	▶	**8US10 51-5CM47**		1	1 unit	143	0.193
		--		60	▶	**8US12 51-5CM47**		1	1 unit	143	0.190
		--	**Standard mounting rails 35 mm** Plastic incl. fixing screws (1 pack = 10 units)	--	A	**8US19 98-7CA15**		1	10 units	143	0.009
Push-in lugs for screw fixing											
 3RB19 00-0B	S00, S0	--	For 3RV1 motor starter protectors: 2 units each required, for 3RA1 fuseless load feeders: 1 unit each required, for AS-Interface switching device holder: 2 units each required (1 pack = 10 units)	--	A	**3RB19 00-0B**		100	10 units	101	0.100
Busbar adapters											
 8US12 51-5DM07	S00, S0	S00, S0	45 mm wide, 182 mm long for busbars	40	▶	**8US10 51-5DM07**		1	1 unit	143	0.184
				60	▶	**8US12 51-5DM07**		1	1 unit	143	0.183
	S2	S2	55 mm wide, 242 mm long including screw and spacer	40	▶	**8US10 61-5FP08**		1	1 unit	143	0.308
				60	▶	**8US12 61-5FP08**		1	1 unit	143	0.292
Device holders											
 8US12 50-5AM00	S00, S0	S00, S0	With standard mounting rail, without connecting cables 45 mm wide, 182 mm long for busbars	40	▶	**8US10 50-5AM00**		1	1 unit	143	0.182
				60	▶	**8US12 50-5AM00**		1	1 unit	143	0.158
	S0	S0	55 mm wide, 182 mm long	40	▶	**8US10 60-5AM00**		1	1 unit	143	0.197
				60	▶	**8US12 60-5AM00**		1	1 unit	143	0.202
	S2	S2	55 mm wide, 242 mm long including screw and spacer	60	▶	**8US12 60-5AP00**		1	1 unit	143	0.243

* You can order this quantity or a multiple thereof.

Accessories for 3RA1 direct-on-line and reversing starters

	For motor starter protectors Size	For contactors Size	Version	Busbar center-to-center clearance mm	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Side modules											
 8US19 98-2BM00	--	--	Including connecting wedges for widening busbar adapters or switching device holders, 13.5 mm wide, 182 mm long		A	**8US19 98-2BM00**		1	4 units	143	0.036
Assembly kits (RS) for reversing duty for 40 mm and 60 mm busbar systems											
	S00, S0	S00	Consisting of wiring kit, busbar adapter, device holder, and side module. Link modules and mechanical locking devices to be ordered separately. Only for size S00 is mechanical locking always included.	40	A	**3RA19 13-1C**		1	1 unit	101	0.433
	S0	S0			A	**3RA19 23-1C**		1	1 unit	101	0.472
	S00, S0	S00		60	A	**3RA19 13-1D**		1	1 unit	101	0.431
	S0	S0			A	**3RA19 23-1D**		1	1 unit	101	0.475
	S2	S2			A	**3RA19 33-1D**		1	1 unit	101	0.743
Connecting wedges											
 8US19 98-1AA00	--	--	For mechanical linking of busbar adapters and switching device holders or of standard mounting rail adapters (2 units per combination) (1 pack = 100 units)		▶	**8US19 98-1AA00**		100	100 units	143	0.100
Load-side terminal strips, separable											
 8US12 51-5DM07 with 8US19 98-8AM07	S00, S0	S00, S0	Light gray with carrier for mounting onto busbar adapter 45 mm wide, 91 mm long 3 x 2.5 mm² plug-in terminals, 400 V 4 x 1.5 mm² plug -in terminals, 250 V		A	**8US19 98-8AM07**		1	1 unit	143	0.061
Spacers											
 8US19 98-1BA00	--	S00, S0	Fixes the load feeder onto the busbar adapter (1 pack = 100 units)		▶	**8US19 98-1BA00**		100	100 units	143	0.100
Screw holders											
 8US19 98-1CA00	--	S00, S0	Allows additional fixing of the feeder with screws (1 pack = 20 units)		B	**8US19 98-1CA00**		100	20 units	143	0.100

6

* You can order this quantity or a multiple thereof.

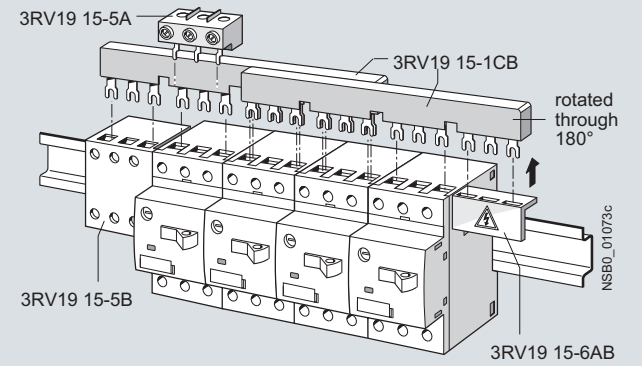
Overview

Insulated three-phase busbar systems

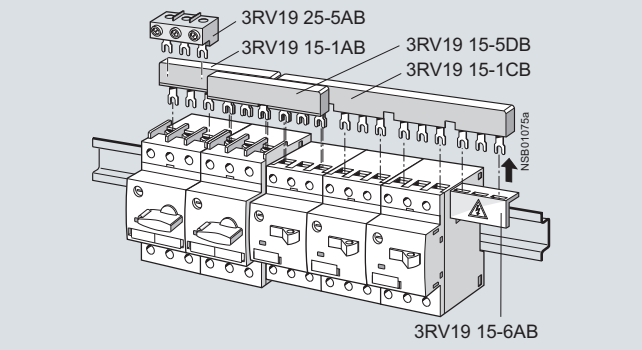
Three-phase busbar systems provide an easy, time-saving and clearly arranged means of feeding 3RA1 load feeders with screw terminals. Different versions are available for sizes S00, S0 and S2 and can also be used for the various different types of motor starter protectors.

The busbars are suitable for between 2 and 5 feeders. However, any kind of extension is possible by clamping the tags of an additional busbar (rotated by 180°) underneath the terminals of the respective last motor starter protector.

A combination of feeders of different sizes is possible only with sizes S00 and S0. Connecting pieces are available for this purpose. The motor starter protectors are supplied by appropriate feeder terminals.



Three-phase busbar system, size S00



Three-phase busbar system, with example for combining sizes S00 and S0

The three-phase busbar systems are finger-safe. They are designed for any short-circuit stress which can occur at the output side of connected motor starter protectors.

The three-phase busbar systems can also be used to construct "Type E Starters" of size S0 or S2 according to UL/CSA. Special feeder terminals must be used for this purpose however.

For selection and ordering data see Chapter 5 "Protection Equipment, 3RV Motor Starter Protectors up to 100 A, Busbar Accessories".

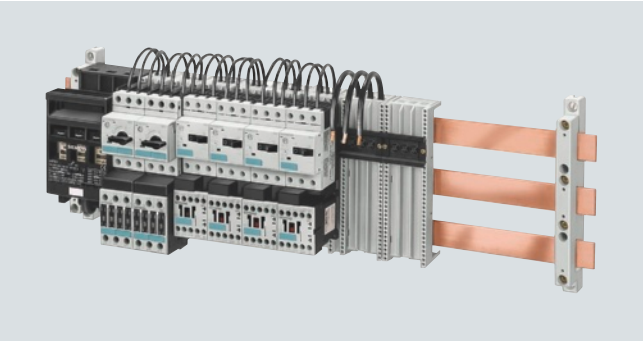
Busbar adapters for 40 mm and 60 mm systems

The load feeders are mounted directly with the aid of busbar adapters on busbar systems with 40 mm and 60 mm center-to-center clearance in order to save space and to reduce infeed times and costs.

Busbar adapters for busbar systems with 40 mm center-to-center clearance are suitable for copper busbars with a width of 12 mm to 15 mm, while those with 60 mm center-to-center clearance are suitable for copper busbars with a width of 12 mm to 30 mm. The busbars can be 4 to 5 mm or 10 mm thick.

The feeders 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 selection and ordering data see Chapter 5 "Protection Equipment, 3RV Motor Starter Protectors up to 100 A, Busbar Accessories".



SIRIUS motor starter protectors and load feeders with busbar adapters snapped onto busbars

SIRIUS 3RV19 infeed systems

The 3RV19 infeed system is a convenient means of energy supply and distribution for a group of several motor starter protectors or complete load feeders with a screw or spring-type connection up to size S0.

The system is based on a basic module complete with a lateral incoming unit (three-phase busbar with infeed) which has two slots.

Expansion modules are available for extending the system (three-phase busbars for system expansion).

SIRIUS 3RV19 infeed systems with three 3RA1110 load feeders and two 3RA1120 load feeders

For the 3RV19 infeed system see Chapter 5 "Protection Equipment"

General data

Overview

3RA6 fuseless compact feeders and infeed system for 3RA6

Integrated functionality

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

Application

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

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

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 reliability

Through the high short-circuit breaking capacity and defined shut-down when the end of service life is reached means that the SIRIUS compact feeder 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 of the 3RA6 compact feeders are designed as mirror contacts. It is thus possible to use the devices for safe disconnection, e. g. emergency-stops, up to Category 2 (EN 954-1) 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 available in several versions for mounting instead of the control circuit terminals on the SIRIUS compact feeder.

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 4 compact feeders 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 IO-Link connection enables a high density of information in the local range.

The diagnostics data of the process collected by the 3RA6 compact feeder, e. g. short-circuit, end of service life, limit position etc., are not only indicated on the compact feeder 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 feeder with IO-Link from the control cabinet door.

Permanent wiring/easy replacement

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

A compact feeder 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 feeder.

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 mm^2 and connecting the motor cable directly without additional intermediate terminals.

Screw and spring-type connections

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

	Screw connection
	Spring-type connection
	The terminals are indicated in the selection and ordering data by 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 feeders and matching infeed.

Types of infeed for the 3RA6 fuseless compact feeders

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

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

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

SIRIUS 3RA6 compact feeders

The SIRIUS 3RA6 compact feeders 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 feeders are available with 5 current setting ranges and 3 control voltage ranges:

Width of direct-on-line starter	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:

The 3RA1 load feeders can be used for fuseless load feeders > 32 A up to 100 A.

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 feeders 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 feeders are generally designed to degree of protection IP20. The permissible ambient temperature during operation is -20 ... +60 °C.

The limited short-circuit current based on IEC/EN 60947-6-2 is 53 kA at 400 V.

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 auto reset after 3 minutes cooling time.

With autoreset there is no need to open the control cabinet.

Diagnostics options

The compact feeder provides the following diagnostics options:
- With LEDs:
  - Connection to the actuating 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 feeder.

Four complement variants for 3RA6 compact feeders

- 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 feeder)

General data

Benefits

The SIRIUS 3RA6 compact feeders 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-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 incoming feeders up to a cross-section of 70 mm^2
- 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 feeders create the basis for high-availability and future-proof machine concepts.

More information

Type			3RA61	3RA62	3RA64	3RA65
Size			S0			
Number of poles			3			
General data						
Device standard			IEC/EN 60947-6-2			
Max. rated current $I_{n\,max}$	0.1 ... 0.4 A	A	0.4			
(= max. rated operational current I_e)	0.32 ...1.25 A	A	1.25			
for the respective setting range	1 ... 4 A	A	4			
	4 ... 12 A	A	12			
	8 ... 32 A	A	32			
Permissible ambient temperature						
• During operation	Acc. to IEC/EN 60721-3-3	°C	-20 ... +60, with restriction up to +70			
• For installation in SIRIUS infeed system for 3RA6		°C	-20 ... +40			
• During storage	IEC/EN 60732-3-1	°C	-55 ... +80			
• During transport	IEC/EN 60721-3-2	°C	-55 ... +80			
Permissible rated current of the compact feeder, when several compact feeders are mounted side-by-side on a vertical standard mounting rail or in the infeed system for 3RA6						
• For a control cabinet inside temperature of	+40 °C	%	100			
• For a control cabinet inside temperature of	+60 °C	%	80			
Relative air humidity		%	10 ... 90			
Installation altitude		m	Up to 2000 above sea level without restriction			
Rated frequency		Hz	50/60			
Rated insulation voltage U_i (pollution degree 3)		V	690			
Rated impulse withstand voltage U_{imp}		kV	6			
Trip class (CLASS)	Acc. to IEC 60947-4-1, EN 60947-4-1 (VDE 0660 Part 102)		10/20			
Rated short-circuit current I_q at AC 50/60 Hz 400 V	Acc. to IEC 60947-4-1, EN 60947-4-1 (VDE 0660 Part 102)	kA	53 kA			
Types of coordination	Acc. to IEC 60947-6-2, EN 60947-6-2 (VDE 0660 Part 102)		Continuously			
Power loss $P_{v\,max}$ of all main current paths	Up to 0.4 A	mW	2			
Dependent on the rated current I_n	0.32 ... 1.25 A	mW	19.1			
(upper setting range)	1 ... 4 A	W	0.2			
	3 ... 12 A	W	0.7			
	8 ... 32 A	W	2.3			
Electrical endurance in operating cycles	At $I_e = 0.9\ I_n$		1.520.000			
Max. switching frequency	AC-41	1/h	750			
	AC-43	1/h	250			
	AC-44	1/h	15			
Drive losses						
Active power	At 24 V					
	• Up to 12 A	W	2.7			
	• 8 ... 32 A	W	2.95			
	At 42 ... 70 V					
	• Up to 12 A	W	2.5			
	• 8 ... 32 A	W	3.0			
	At 110 ... 240 V					
	• Up to 12 A	W	3.4			
	• 8 ... 32 A	W	3.8			
Overload function						
Ratio of lower to upper current mark			1:4			
Shock resistance (sine-wave pulse)			a = 60 m/s^2 = 6g with 10 ms; for every 3 shocks in all axes			
Vibratory load			f =1 ... 6 Hz; d =15 mm 10 cycles f =150 Hz; a = 2 g			
Degree of protection	Acc. to IEC 60947-1		IP20			
Touch protection	Acc. to DIN VDE 0106, Part 100		Finger-safe			
Isolating features of the compact feeder	Acc. to IEC/EN 60947-3		Yes			
Main and EMERGENCY-STOP switch characteristics of the compact feeder and accessories	Acc. to IEC/EN 60204		Yes			

General data

Type Size Number of poles			3RA61 S0 3	3RA62	3RA64	3RA65
General data						
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			
Conductor-related interference	BURST acc. to IEC 61000-4-4	kV	4			
Conductor-related interference	SURGE acc. to IEC 61000-4-5					
• Conductor - Ground		kV	4			
• Conductor - Conductor		kV	1			
Electrostatic discharge	Acc. to IEC 61000-4-2	kV	8			
ESD		kV	6			
Field-related interference	Acc. to IEC 61000-4-3	V/m	10			
Auxiliary switches						
• Integrated						
- Position of the main contacts			1 NO + 1 NC	2 NO	1 NO + 1 NC	2 NO
- Overload/short-circuit signal			1 CO/1 NO			
• Expandable						
- Position of the main contacts			2 NO, 2 NC, 1 NO + 1 NC			
Surge suppressor			Integrated (Varistor)			
Pollution degree			3			
Depth from standard mounting rail		mm	160			
Electromagnetic operating mechanisms						
Actuating voltage		V	24 AC/DC			
		V	42 ... 70 AC/DC			
		V	110 ... 240 AC/DC			
Frequency	At AC	Hz	50/60 (±5%)			
Operating range			0.7 ... 1.25 U_s			
No-load switching frequency		1/h	3600			
Make-time		ms	max. 70			
Break-time		ms	max. 120			
Max. pick-up current at 24 V DC	At 12 A	mA	250			
	At 32 A	mA	350			
Max. hold current at 24 V DC	At 12 A	mA	100			
	At 32 A	mA	150			
Max. pick-up power at 24 V DC	At 12 A	W	6.0			
	At 32 A	W	8.4			
Max. hold power at 24 V DC	At 12 A	W	2.4			
	At 32 A	W	3.6			
Hold current and hold power valid for 24 V operating range						
24 V, AC operation						
• Up to 12 A						
Hold current		mA	132			
Active power		W	2.7			
Apparent power		VA	3.15			
• 8 ... 32 A						
Hold current		mA	144			
Active power		W	3.0			
Apparent power		VA	3.45			
24 V, DC operation[1]						
• Up to 12 A						
Hold current		mA	100			
Active power		W	2.45			
Apparent power		VA	2.75			
• 8 ... 32 A						
Hold current		mA	116			
Active power		W	2.8			
Apparent power		VA	3.3			

[1] Differences between active power and apparent power result from the clocked coil excitation (displacement reactive work).

Type			3RA61	3RA62	3RA64	3RA65
Size			S0			
Number of poles			3			
Electromagnetic operating mechanisms						
Hold current and hold power valid for operating range 42 V ... 70 V						
	42 V, AC operation					
	• Up to 12 A					
Hold current		mA	75			
Active power		W	2.35			
Apparent power		VA	3.2			
	• 8 ... 32 A					
Hold current		mA	84			
Active power		W	2.7			
Apparent power		VA	3.6			
	42 V, DC operation[1)]					
	• Up to 12 A					
Hold current		mA	55			
Active power		W	2.3			
Apparent power		VA	2.7			
	• 8 ... 32 A					
Hold current		mA	63			
Active power		W	2.7			
Apparent power		VA	3.35			
	70 V, AC operation					
	• Up to 12 A					
Hold current		mA	54			
Active power		W	2.5			
Apparent power		VA	3.8			
	• 8 ... 32 A					
Hold current		mA	58.5			
Active power		W	2.7			
Apparent power		VA	4			
	70 V, DC operation[1)]					
	• Up to 12 A					
Hold current		mA	33			
Active power		W	2.35			
Apparent power		VA	2.9			
	• 8 ... 32 A					
Hold current		mA	37			
Active power		W	2.6			
Apparent power		VA	3.0			
Hold current and hold power valid for operating range 110 ... 240 V						
	110 V, AC operation					
	• Up to 12 A					
Hold current		mA	38			
Active power		W	2.8			
Apparent power		VA	4.2			
	• 8 ... 32 A					
Hold current		mA	42.5			
Active power		W	3.2			
Apparent power		VA	4.7			
	110 V, DC operation[1)]					
	• Up to 12 A					
Hold current		mA	22.5			
Active power		W	2.5			
Apparent power		VA	3.75			
	• 8 ... 32 A					
Hold current		mA	25.5			
Active power		W	2.9			
Apparent power		VA	4.65			
	240 V, AC operation					
	• Up to 12 A					
Hold current		mA	36			
Active power		W	3.6			
Apparent power		VA	8.8			
	• 8 ... 32 A					
Hold current		mA	39			
Active power		W	3.9			
Apparent power		VA	9.3			
	240 V, DC operation[1)]					
	• Up to 12 A					
Hold current		mA	12.5			
Active power		W	3.0			
Apparent power		VA	6.35			
	• 8 ... 32 A					
Hold current		mA	14			
Active power		W	3.35			
Apparent power		VA	6.55			

[1)] Differences between active power and apparent power result from the clocked coil excitation (displacement reactive work).

General data

Type			**3RA61**	**3RA62**	**3RA64**	**3RA65**
Size			**S0**			
Number of poles			**3**			
Electromagnetic operating mechanisms						
Switching capacity 400 V		kA	53			
Switching capacity at 690 V		kA	3			
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						
• Mechanical endurance			10.000.000	2 x 10.000.000	3.000.000	2 x 3.000.000
• Electrical endurance	At I_e = 0.9 x I_n		1.520.000	2 x 1.520.000	1.520.000	2 x 1.520.000
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**					
	• At U_e = 230 V	A	6			
	• At U_e = 400 V	A	3			
	• At U_e = 289/500 V	A	2			
	• At U_e = 400/690 V	A	1			
	DC-13					
	• At U_e = 24 V	A	6			
	• At U_e = 60 V	A	0.9			
	• At U_e = 125 V	A	0.55			
	• At U_e = 250 V	A	0.27			
• Internal auxiliary switch	**AC-15**					
	• At U_e = 230 V	A	6			
	• At U_e = 400 V	A	3			
	• At U_e = 289/500 V	A	2			
	• At U_e = 400/690 V	A	1			
	DC-13					
	• At U_e = 24 V	A	10			
	• At U_e = 60 V	A	2			
	• At U_e = 125 V	A	1			
	• At U_e = 250 V	A	0.27			
	• At U_e = 480 V	A	0.1			
• Signaling switches	**AC-15**					
	• At U_e = 230 V	A	3			
	• At U_e = 400 V	A	1			
	DC-13					
	• At U_e = 24 V	A	2			
	• At U_e = 250 V	A	0.11			

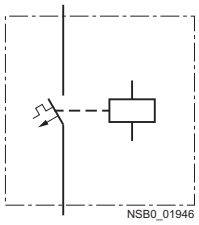
Type			**3RA61**	**3RA62**	**3RA64**	**3RA65**
Size			**S0**			
Number of poles			**3**			
External auxiliary switch blocks, internal auxiliary switches						
Endurance in operating cycles						
• Mechanical endurance			10,000,000		3,000,000	
• Electrical endurance	**AC-15, 230 V**					
	• At 6 A		200,000			
	• At 3 A		500,000			
	• At 1A		2,000,000			
	• At 0.3 A		10,000,000			
	DC-13, 24 V					
	• At 6 A		30,000			
	• At 3 A		100,000			
	• At 0.5A		2,000,000			
	• At 0.2 A		10,000,000			
	DC-13, 110 V					
	• At 1 A		40,000			
	• At 0.55 A		100,000			
	• At 0.3 A		300,000			
	• At 0.1 A		2,000,000			
	• At 0.04 A		10,000,000			
	DC-13, 220 V					
	• At 0.3 A		110,000			
	• At 0.1 A		650,000			
	• At 0.05 A		2,000,000			
	• At 0.018 A		10,000,000			
Contact stability	At 17 V and 5 mA	Operating cycles	1 incorrect switching operation per 100,000,000			
Short-circuit protection						
• Short-circuit current $I_K \leq 1.1$ kA	Fuse links gL/gG NEOZED 5SE, DIAZED 5SB, LV HRC 3NA	A	10			
• Short-circuit current $I_K < 400$ A	Miniature circuit breaker up to 230 V with C characteristic	A	10			
Signaling switches						
Endurance in operating cycles						
• Mechanical endurance			20,000			
• Electrical endurance AC-15	At 230 V and 3 A		6050			
Contact stability	At 17 V and 5 mA	Operating cycles	1 incorrect switching operation per 100,000,000			
Short-circuit protection						
• Short-circuit current $I_K \leq 1.1$ kA	Fuse links gL/gG NEOZED 5SE, DIAZED 5SB, LV HRC 3NA	A	6			
• Short-circuit current $I_K < 400$ A	Miniature circuit breaker up to 230 V with C characteristic	A	6			
Overload (short-circuit current $I_K \leq 1.1$ kA)	Fuse links gL/gG NEOZED 5SE, DIAZED 5SB, LV HRC 3NA	A	4			

Selection and ordering data

3RA61 20-1CB32

3RA61 20-2EB32

Direct-on-line start



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

Standard induction motor 4-pole at 400 V AC[1] Standard output *P*	Setting range for solid-state overload release	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
kW	A							kg
3RA61 direct-on-line starters								
0.09	0.1 ...0.4	C	**3RA61 20-□A□3□**		1	1 unit	121	1.355
0.37	0.32 ... 1.25	A	**3RA61 20-□B□3□**		1	1 unit	121	1.355
1.5	1 ... 4	A	**3RA61 20-□C□3□**		1	1 unit	121	1.355
5.5	3 ... 12	A	**3RA61 20-□D□3□**		1	1 unit	121	1.379
15	8 ... 32	A	**3RA61 20-□E□3□**		1	1 unit	121	1.396

				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	**0**		**0**	Δ
• With screw terminals	**1**			None
• With spring-type terminals	**2**			x
Order No. supplement for rated control supply voltage				
• 24 V AC/DC (for combining with AS-i add-on module)		**B**		None
• 42 ... 70 V AC/DC		**E**		None
• 110 ... 240 V AC/DC		**P**		None
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			**2**	None
• For use with the infeed system for 3RA6 without main circuit terminals (with control circuit terminals)			**3**	Δ For screw terminals Δ For spring-type terminals
• For standard mounting rail or screw mounting when using the AS-i add-on module without control circuit terminals (with main circuit terminals)			**4**	Δ For screw terminals Δ For spring-type terminals

Δ = Price reduction

x = Additional price

1) Selection depends on the concrete startup and rated data of the protected motor.

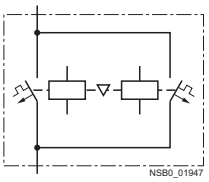
* You can order this quantity or a multiple thereof.

Selection and ordering data

3RA62 50-1CP32

3RA62 50-2DP32

Reversing duty



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

Standard induction motor 4-pole at 400 V AC[1] Standard output *P*	Setting range for solid-state overload release	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
kW	A							kg
3RA62 reversing starters								
0.09	0.1 ...0.4	C	**3RA62 50-□A□3□**		1	1 unit	121	2.341
0.37	0.32 ... 1.25	C	**3RA62 50-□B□3□**		1	1 unit	121	2.341
1.5	1 ... 4	A	**3RA62 50-□C□3□**		1	1 unit	121	2.341
5.5	3 ... 12	A	**3RA62 50-□D□3□**		1	1 unit	121	2.357
15	8 ... 32	C	**3RA62 50-□E□3□**		1	1 unit	121	2.405

				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	**0**		**0**	Δ
• With screw terminals	**1**			None
• With spring-type terminals	**2**			x
Order No. supplement for rated control supply voltage				
• 24 V AC/DC (for combining with AS-i add-on module)		**B**		None
• 42 ... 70 V AC/DC		**E**		None
• 110 ... 240 V AC/DC		**P**		None
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			**2**	None
• For use with the infeed system for 3RA6 without main circuit terminals (with control circuit terminals)			**3**	Δ For screw terminals Δ For spring-type terminals
• For standard mounting rail or screw mounting when using the AS-i add-on module without control circuit terminals (with main circuit terminals)			**4**	Δ For screw terminals Δ For spring-type terminals

Δ = Price reduction

x = Additional price

[1] Selection depends on the concrete startup and rated data of the protected motor.

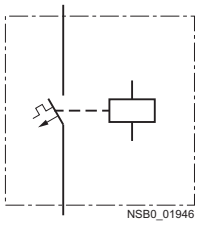
* You can order this quantity or a multiple thereof.

3RA64, 3RA65 compact feeders for IO-Link
3RA64 direct-on-line starters

Selection and ordering data

3RA64. with 3RA6911-1A auxiliary switch block

Direct-on-line start



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

Standard induction motor 4-pole at 400 V AC[1)] Standard output *P*	Setting range for solid-state overload release	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
kW	A							kg
3RA64 direct-on-line starters with IO-Link Rated control supply voltage 24 V DC								
0.09	0.1 ...0.4	B	**3RA64 00-□AB4□**		1	1 unit	121	1.300
0.37	0.32 ... 1.25	B	**3RA64 00-□BB4□**		1	1 unit	121	1.300
1.5	1 ... 4	B	**3RA64 00-□CB4□**		1	1 unit	121	1.300
5.5	3 ... 12	B	**3RA64 00-□DB4□**		1	1 unit	121	1.300
15	8 ... 32	B	**3RA64 00-□EB4□**		1	1 unit	121	1.300

			Additional price/Price reduction
Order No. supplement for connection type			
• With screw terminals	**1**		None
• With spring-type terminals	**2**		x
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		**2**	None
• For use with the infeed system for 3RA6 without main circuit terminals (with control circuit terminals)		**3**	Δ For screw terminals Δ For spring-type terminals

Δ = Price reduction

x = Additional price

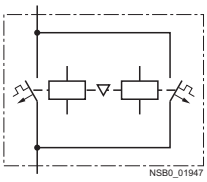
1) Selection depends on the concrete startup and rated data of the protected motor.

* You can order this quantity or a multiple thereof.

Selection and ordering data

3RA65. with 3RA6911-1A
auxiliary switch block

Reversing duty



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

Standard induction motor 4-pole at 400 V AC[1] Standard output *P*	Setting range for solid-state overload release	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
kW	A							kg
3RA65 reversing starters with IO-Link Rated control supply voltage 24 V DC								
0.09	0.1 ...0.4	B	**3RA65 00-□AB4□**		1	1 unit	121	2.300
0.37	0.32 ... 1.25	B	**3RA65 00-□BB4□**		1	1 unit	121	2.300
1.5	1 ... 4	B	**3RA65 00-□CB4□**		1	1 unit	121	2.300
5.5	3 ... 12	B	**3RA65 00-□DB4□**		1	1 unit	121	2.300
15	8 ... 32	B	**3RA65 00-□EB4□**		1	1 unit	121	2.300

			Additional price/Price reduction
Order No. supplement for connection type			
• With screw terminals	**1**		None
• With spring-type terminals	**2**		x
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		**2**	None
• For use with the infeed system for 3RA6 without main circuit terminals (with control circuit terminals)		**3**	Δ For screw terminals Δ For spring-type terminals

Δ = Price reduction

x = Additional price

1) Selection depends on the concrete startup and rated data of the protected motor.

6

* You can order this quantity or a multiple thereof.

Accessories

Overview

Accessories for SIRIUS 3RA6 compact feeders

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

- AS-i add-on module: see AS-Interface Add-On Modules for 3RA6
- 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 feeder. 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 fixing the compact feeder, including push-in lugs
- Main conductor terminal: available with screw and spring-type 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 three-phase busbar systems

The three-phase busbars can be used as an easy, time-saving and clearly arranged means of feeding SIRIUS 3RA6 compact feeders with screw connection. Motor starter protector 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 motor starter protectors are supplied by appropriate feeder terminals. Special feeder terminals are required for constructing "Type E Starters" according to UL/CSA.

The three-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 feeders or motor starter protectors.

Busbar adapters for 60 mm systems

The compact feeders 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 feeders 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 Chapter 17, "8US Busbar Systems --> 60 mm Busbar System".

Accessories for operation with closed control cabinet doors

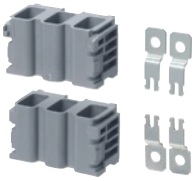
Door-coupling rotary operating mechanisms for standard and emergency-stop applications are available for operating the compact feeder with closed control cabinet doors.

Accessories for SIRIUS 3RA6 compact feeders in IO-Link version

The following accessories are available specially for the 3RA64, 3RA65 compact feeders:

- Additional connection cables for side-by-side mounting of up to 4 compact feeders
- Operator panel for local control and diagnostics of up to 4 compact feeders coupled to each other

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 feeders								
 3RA69 50-0A	**Control kits** For mechanical actuation of the compact feeder	A	**3RA69 50-0A**		1	1 unit	121	0.004
 3RA69 40-0A	**Adapters for screw fixing the compact feeder** (set including push-in lugs) Direct-on-line starters require 1 set, reversing starters 2 sets.	A	**3RA69 40-0A**		1	1 unit	121	0.152
			Screw terminals					
 3RA6911-1A	**Auxiliary switch blocks for compact feeders**							
	• 2 NO	A	**3RA69 11-1A**		1	1 unit	121	0.018
	• 2 NC	A	**3RA69 12-1A**		1	1 unit	121	0.018
	• 1 NO +1 NC	A	**3RA69 13-1A**		1	1 unit	121	0.018
 3RA6920-1A	**Main circuit terminals** (incoming and outgoing side)	A	**3RA69 20-1A**		1	1 unit	121	0.038
	Control circuit terminals							
	• For 3RA61	A	**3RA69 20-1B**		1	1 unit	121	0.042
	• For 3RA62	A	**3RA69 20-1C**		1	1 unit	121	0.042
	• For 3RA64	A	**3RA69 20-1D**		1	1 unit	121	0.021
	• For 3RA65	A	**3RA69 20-1E**		1	1 unit	121	0.042
			Spring-type connection					
 3RA6911-2A	**Auxiliary switch blocks for compact feeders**							
	• 2 NO	A	**3RA69 11-2A**		1	1 unit	121	0.018
	• 2 NC	A	**3RA69 12-2A**		1	1 unit	121	0.018
	• 1 NO + 1 NC	A	**3RA69 13-2A**		1	1 unit	121	0.018
 3RA6920-2A	**Main circuit terminals** (incoming and outgoing side)	A	**3RA69 20-2A**		1	1 unit	121	0.049
	Control circuit terminals							
	• For 3RA61	A	**3RA69 20-2B**		1	1 unit	121	0.036
	• For 3RA62	A	**3RA69 20-2C**		1	1 unit	121	0.036
	• For 3RA64	A	**3RA69 20-2D**		1	1 unit	121	0.018
	• For 3RA65	A	**3RA69 20-2E**		1	1 unit	121	0.036

* You can order this quantity or a multiple thereof.

Accessories

Type	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Accessories especially for 3RA64, 3RA65 compact feeders with IO-Link							
 3RA69 31-0A **Additional connection cable (flat) for side-by-side mounting of up to 4 compact feeders** (5 units each per pack)							
• 14-pole, 8 mm[1]	A	**3RA69 31-0A**		1	5 units	121	0.007
• 10-pole, 8 mm[2]	A	**3RA69 32-0A**		1	5 units	121	0.007
• 10-pole, 200 mm[2]	A	**3RA69 33-0B**		1	5 units	121	0.012
• 14-pole, 200 mm	A	**3RA69 33-0C**		1	5 units	121	0.014
 3RA69 35-0A **Operator panel for compact feeder** (incl. enabling module and blanking cover)	A	**3RA69 35-0A**		1	1 unit	121	0.052
Enabling module	A	**3RA69 36-0A**		1	1 unit	121	0.002
Blanking covers (5 units each per pack)	A	**3RA69 36-0B**		1	5 units	121	0.001
Connection cable (round) for connecting the operator panel 10-pole, 2000 mm	A	**3RA69 33-0A**		1	1 unit	121	0.114

[1] Is included in the scope of supply of the SIRIUS 3RA6 compact feeder in IO-Link version.

[2] 10-pole connection cables are required for EMERGENCY-STOP group concepts.

Type	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Terminals for "Self-Protected Combination Motor Controllers (Type E)" acc. to UL 508 for infeed through parallel wiring with compact feeders							
 3RV19 28-1H Note: UL 508 demands 1-inch clearance and 2-inch creepage distance at line side for "Combination Motor Controller Type E". 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** For extended clearance and creepage distances (1 and 2 inch)	►	**3RV19 28-1H**		1	1 unit	101	0.083

Number of compact feeders and motor starter protectors that can be connected Without lateral accessories	Modular spacing mm	Rated current I_n at 690 V A	For motor starter protectors Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Three-phase busbars for infeed with 3RA6										
 3RV19 15-1AB For feeding several compact feeders and/or motor starter protectors with screw terminals, mounted side by side on standard mounting rails, insulated, with touch protection.										
2	45	63	S0[1]	►	**3RV19 15-1AB**		1	1 unit	101	0.044
 3RV19 15-1BB 3	45	63	S0[1]	►	**3RV19 15-1BB**		1	1 unit	101	0.071
4	45	63	S0[1]	►	**3RV19 15-1CB**		1	1 unit	101	0.099
 3RV19 15-1CB 5	45	63	S0[1]	►	**3RV19 15-1DB**		1	1 unit	101	0.124
 3RV19 15-1DB										

[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 the compact feeders to circuit breakers size S00.

* You can order this quantity or a multiple thereof.

	Version	Modular spacing	For motor starter protectors Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		mm								kg
Connecting piece for three-phase busbars										
 3RV19 15-5DB	For connecting compact feeders (left) and motor starter protectors size S00 (right)	45	S00	►	**3RV19 15-5DB**		1	1 unit	101	0.042
Covers for connection tags of the three-phase busbars										
 3RV19 15-6AB	Touch protection for empty positions		S00, S0	►	**3RV19 15-6AB**		1	10 units	101	0.003

	Conductor cross-section: Solid or stranded	Conductor cross-section: Finely stranded with end sleeve	Conductor cross-section: AWG cables, solid or stranded	For compact feeders and circuit breakers Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	mm^2	mm^2	AWG								kg
Three-phase feeder terminals for three-phase busbars											
	Connection from top										
 3RV19 25-5AB	2.5 ... 25	4 ... 16	12-4	S0	►	**3RV19 25-5AB**		1	1 unit	101	0.041
	Connection from below[1]										
 3RV19 15-5B	2.5 ... 25	4 ... 16	12-4	S00, S0	►	**3RV19 15-5B**		1	1 unit	101	0.110
Three-phase feeder terminals for constructing "Type E Starters" according to UL 508 for three-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.

	Type	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
								kg
Busbar adapters for 60 mm systems								
 8US12 11-1NS10	For flat copper profiles according to DIN 46433 Width: 12 ... 30 mm Thickness: 4 ... 5 mm or 10 mm	►	**8US12 11-1NS10**		1	1 unit	143	0.337
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**		1	1 unit	143	0.239

* You can order this quantity or a multiple thereof.

Accessories

Type	Color of handle	Version of extension shaft	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		mm							kg
Door-coupling rotary operating mechanisms for operating the compact feeder with closed control cabinet doors									
The door-coupling rotary operating mechanisms consist of a knob, a coupling driver and a 130/330 mm long extension shaft (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

3RV19 26-0B

Version	Size/Color	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
								kg
Tools for spring-type connections								
			Spring-type connection					
Screwdrivers								
3.5 mm x 0.5 mm, suitable for a max. conductor cross-section of 2.5 mm^2	Length approx. 175 mm; green	C	**8WA2 803**		1	1 unit	041	0.024

8WA2 803

Type	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
							kg
Documentation							
System manual							
• German: SIRIUS Kompaktabzweig und Zubehör	X	**3RA69 91-0A**		1	1 unit	121	0.460
• English: SIRIUS Compact Starter and Accessories	X	**3RA69 92-0A**		1	1 unit	121	0.460

6

* You can order this quantity or a multiple thereof.

Overview

The following add-on modules are available for communication of the 3RA6 compact feeder with the control system using AS-Interface:

- AS-i add-on module
- AS-i add-on module with two local inputs
- AS-i add-on module with two free external inputs
- AS-i add-on module with one free external input and one free external output
- AS-i add-on module with two free external outputs

The AS-i add-on modules can be combined only in connection with compact feeders with a rated control supply voltage of 24 V AC/DC.

- Addressing unit for addressing the AS-i add-on module

Selection and ordering data

	Type	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
AS-i add-on modules								
 3RA69 70-3A	**AS-i add-on module** For communication of the compact feeder with the control system using AS-Interface	A	**3RA69 70-3A**		1	1 unit	121	0.045
	AS-i add-on module with two local inputs For safe disconnection through local safety relays, e. g. cable-operated switches	A	**3RA69 70-3B**		1	1 unit	121	0.045
	AS-i add-on module with two free external inputs Replaces the digital standard inputs "Motor On" and "Group warning"	A	**3RA69 70-3C**		1	1 unit	121	0.045
	AS-i add-on module with one free external input and one free external output Replaces the digital standard input "Group warning"	A	**3RA69 70-3D**		1	1 unit	121	0.045
	AS-i add-on module with two free external outputs Only for direct-on-line starters Replaces the digital standard output "Motor left"	A	**3RA69 70-3E**		1	1 unit	121	0.045
 3RK19 04-2AB01	**Addressing units for AS-i add-on modules** • For active AS-Interface modules, intelligent sensors and actuators • Acc. to AS-Interface Version 2.1 • Including expanded addressing mode • Scope of supply - 1 addressing unit - 1 operating manual (German, English, French, Spanish, Italian) - 1 addressing cable (1.5 m, with jack plug)	►	**3RK19 04-2AB01**		1	1 unit	121	0.540

6

* You can order this quantity or a multiple thereof.

Infeed systems for 3RA6

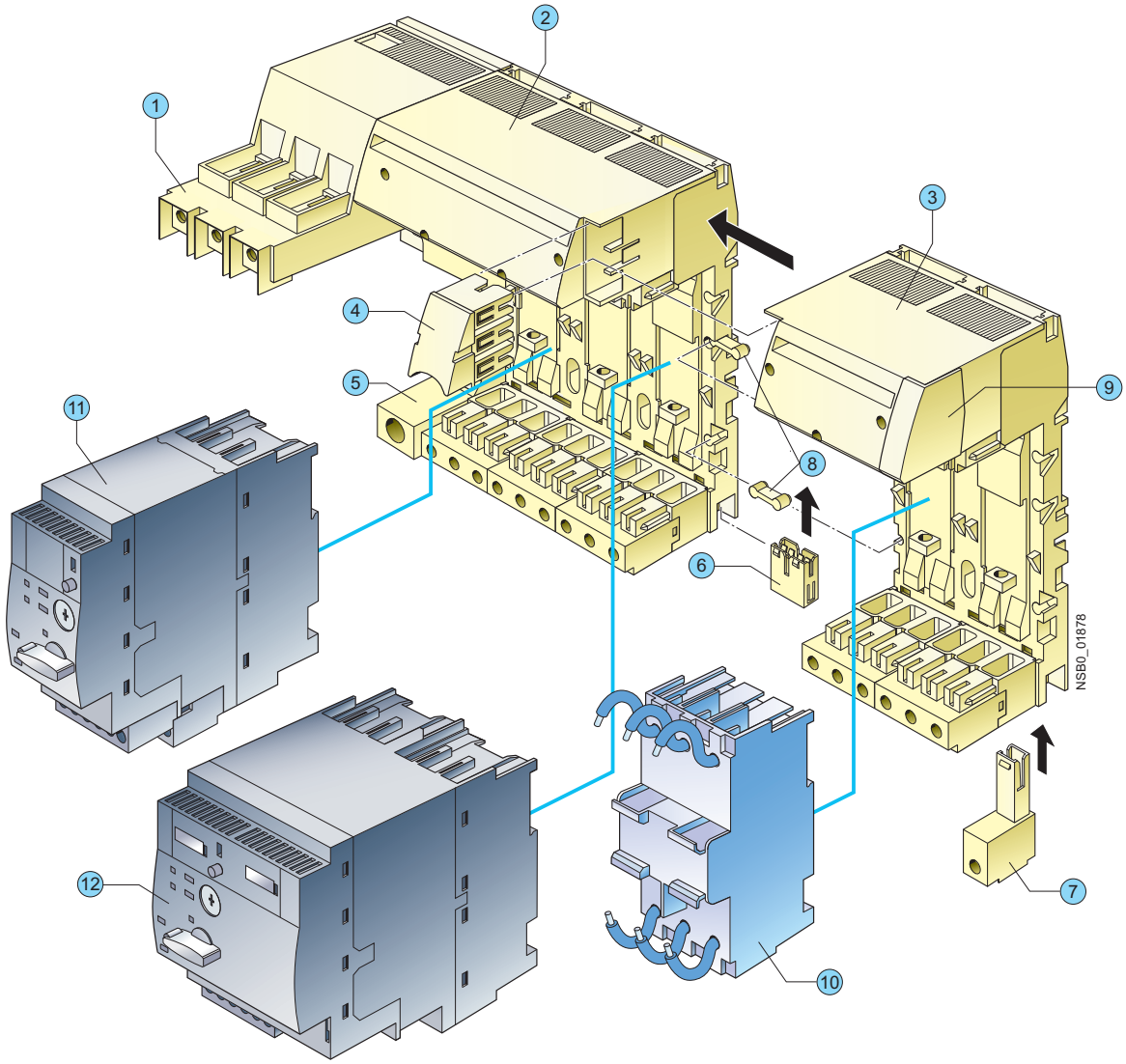
Overview

The infeed system for 3RA6 compact feeders enables far less wiring in the main circuit and, thanks to the easy exchangeability of the compact feeders, 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 feeder needing to be connected at the same time. As the result of the removable terminals in the main circuit, compact feeders 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 feeders is designed for summation currents up to 100 A with a maximum conductor cross-section of up to 70 mm^2 on the feeder terminal block.

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



① Feeder terminal
② Three-socket expansion modules
③ Two-socket expansion modules
④ Expansion plug
⑤ PE infeeds
⑥ PE expansion plug
⑦ PE pick-off
⑧ Connecting wedges
⑨ End covers
⑩ 45 mm adapter for SIRIUS motor starter protector size S0
⑪ 3RA61 direct-on-line starter
⑫ 3RA62 reversing starter

Infeed systems for 3RA6

① Infeed

The three-phase infeed is available with screw connection (25/35 mm^2 up to 63 A or 50/70 mm^2 up to 100 A) and spring-type connection (25/35 mm^2 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 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-type connection complete with 2 end covers.

② Three-socket expansion modules

The expansion module with 3 sockets for compact feeders 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 2 connecting wedges 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 feeders (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 (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-type connection (35 mm^2) 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-type connection (6/10 mm^2). It is snapped into the infeed system from below.

⑧ Connecting wedges

Two connecting wedges are used to hold together 2 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 motor starter protectors

SIRIUS motor starter protectors size S0 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, 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 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 plug	63

In a row of several expansion modules, the maximum rated operational current from the 2nd expansion module to the end of the row is 63 A.

Proposal for upstream short-circuit protection devices

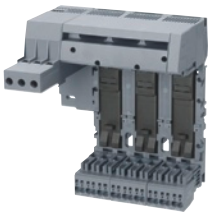
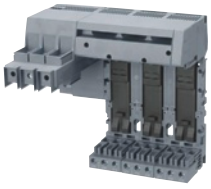
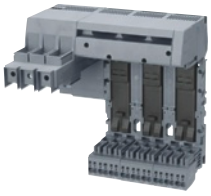
The following short-circuit data apply for the components of the infeed system for 3RA6:

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		
2.5 ... 35	$I_{d,max}$ = 19 kA, I^2t = 440 kA^{2}s	**3RV10 41-4JA10**
Short-circuit protection for infeed block (50 mm²/70 mm²) with screw connection		
2.5 ... 70	$I_{d,max}$ = approx. 22 kA	**3RV10 41-4MA10**
Short-circuit protection for infeed block with spring-type connection		
4	$I_{d,max}$ = 9.5 kA, I^2t = 85 kA^{2}s	**3RV10 21-4DA10**
6	$I_{d,max}$ = 12.5 kA, I^2t = 140 kA^{2}s	**3RV10 31-4EA10**
10	$I_{d,max}$ = 15 kA, I^2t = 180 kA^{2}s	**3RV10 31-4HA10**
16 / 25	$I_{d,max}$ = 19 kA, I^2t = 440 kA^{2}s	**3RV10 41-4JA10**
Short-circuit protection for terminal block		
1.5	$I_{d,max}$ = 7.5 kA	**5SY...** [1]
2.5	$I_{d,max}$ = 9.5 kA	
4	$I_{d,max}$ = 9.5 kA	
6	$I_{d,max}$ = 12.5 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 according to EN 60439-1 Section 7.5.5.1.2.

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
Three-phase infeeds and expansion modules								
 3RA68 12-8AB	**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	A	**3RA68 12-8AB**		1	1 unit	121	0.957
 3RA68 12-8AC	**Infeed with screw connection 25/35 mm² on left** with permanently fitted **3-socket expansion module with spring-type 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	A	**3RA68 12-8AC**		1	1 unit	121	0.990
 3RA68 13-8AB	**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	A	**3RA68 13-8AB**		1	1 unit	121	1.146
 3RA68 13-8AC	**Infeed with screw connection 50/70 mm² on left** with permanently fitted **3-socket expansion module with spring-type 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	A	**3RA68 13-8AC**		1	1 unit	121	1.179
 3RA68 30-5AC	**Infeed with spring-type connection 25/35 mm² on left or on right** up to 63 A	A	**3RA68 30-5AC**		1	1 unit	121	0.283

* You can order this quantity or a multiple thereof.

Expansion modules

	Type		Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
			Screw terminals					
 3RA68 22-0AB	**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 Expansion plug and 2 connecting wedges are included in the scope of supply.	A	**3RA68 22-0AB**		1	1 unit	121	0.505
 3RA68 23-0AB	**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 Expansion plug and 2 connecting wedges are included in the scope of supply.	A	**3RA68 23-0AB**		1	1 unit	121	0.717
			Spring-type connection					
 3RA68 22-0AC	**2-socket expansion modules with 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 are included in the scope of supply.	A	**3RA68 22-0AC**		1	1 unit	121	0.527
 3RA68 23-0AC	**3-socket expansion modules with 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 are included in the scope of supply.	A	**3RA68 23-0AC**		1	1 unit	121	0.750

* You can order this quantity or a multiple thereof.

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								
 3RA68 60-6AB			**Screw terminals**					
	PE infeeds 25/35 mm² with screw connection	A	**3RA68 60-6AB**		1	1 unit	121	0.060
 3RA68 60-5AC			**Spring-type connection**					
	PE infeeds 25/35 mm² with spring-type connection	A	**3RA68 60-5AC**		1	1 unit	121	0.070
 3RA68 70-4AB			**Screw terminals**					
	PE pick-offs 6/10 mm² with screw connection	A	**3RA68 70-4AB**		1	1 unit	121	0.019
 3RA68 70-3AC			**Spring-type connection**					
	PE pick-offs 6/10 mm² with spring-type connection	A	**3RA68 70-3AC**		1	1 unit	121	0.017
 3RA68 90-0EA	**PE expansion plugs**	A	**3RA68 90-0EA**		1	1 unit	121	0.008
 3RA68 90-1AB	**Expansion plugs** between 2 expansion modules Is included in the scope of supply of the expansion modules.	A	**3RA68 90-1AB**		1	1 unit	121	0.029
 3RA68 90-1AA	**Expansion plugs for SIRIUS 3RV19 infeed system** Connects infeed system for 3RA6 to 3RV19 infeed system	A	**3RA68 90-1AA**		1	1 unit	121	0.079

6

* You can order this quantity or a multiple thereof.

Infeed systems for 3RA6

	Type	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
			Screw terminals					
 3RA68 90-0BA	**45 mm adapters for SIRIUS motor starter protectors** Size S0 with screw connection	A	**3RA68 90-0BA**		1	1 unit	121	0.152
			Spring-type connection					
 3RV19 17-5D	**Terminal blocks** With spring-type connection for integration of single-phase, two-phase and three-phase external components	A	**3RV19 17-5D**		1	1 unit	101	0.050

	Version	Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Tools for spring-type connections									
				Spring-type connection					
 8WA2 803	**Screwdrivers** 3.5 mm x 0.5 mm, suitable for a max. conductor cross-section of 2.5 mm^2	Length approx. 175 mm; green	C	**8WA2 803**		1	1 unit	041	0.024

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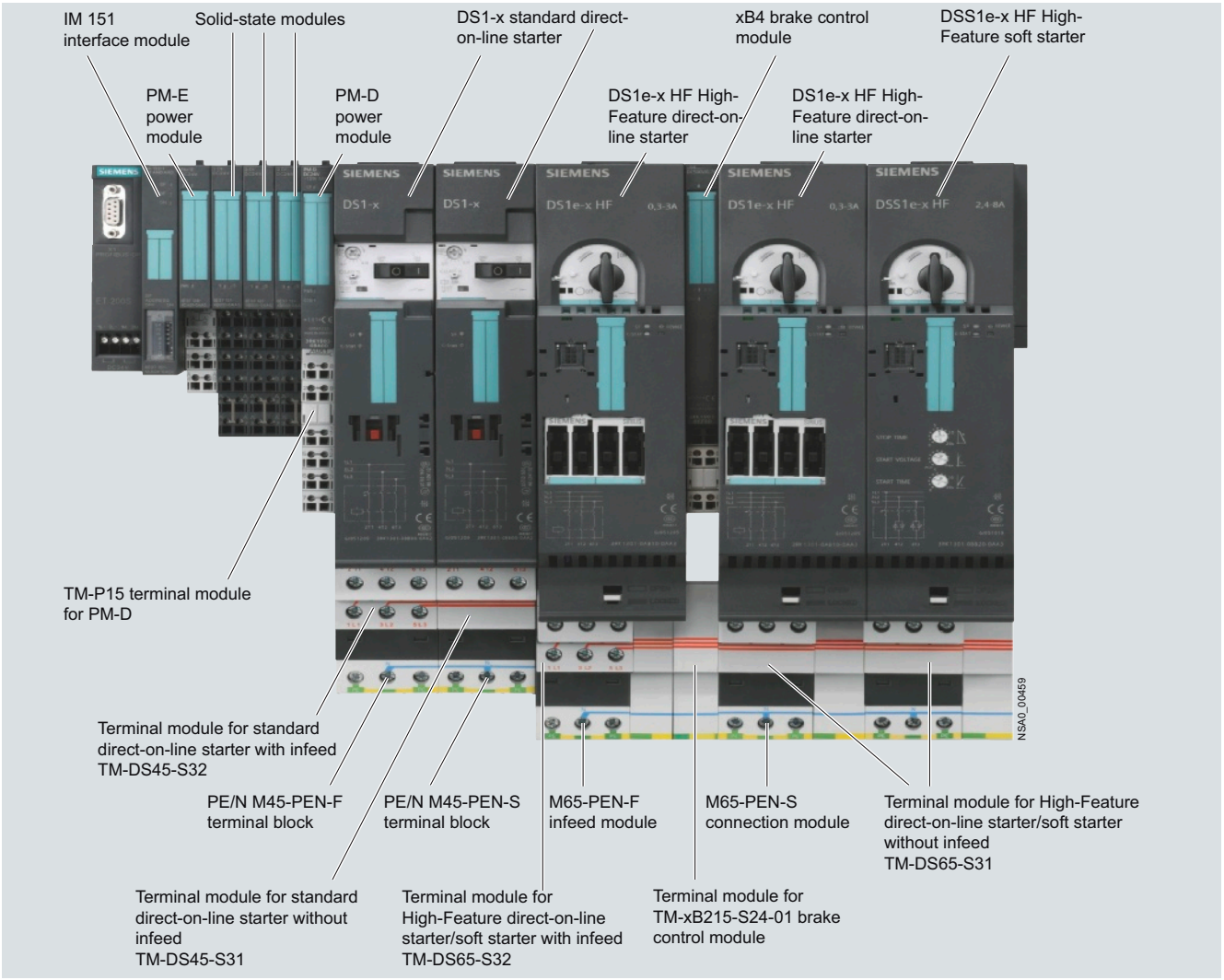
* You can order this quantity or a multiple thereof.

General data

Overview

ET 200S motor starters

- Completely factory-wired motor starters for switching and protecting any AC loads
- Can be used as a direct-on-line, reversing or soft starter
- Standard motor starter with motor starter protector and contactor assembly up to 5.5 kW
- High-Feature motor starter with a combination comprising a starter protector, solid-state overload protection and contactor or soft starter up to 7.5 kW
- With self-assembling 40/50 A power bus, i. e. the load voltage is only supplied once for a group of motor starters
- Hot swapping is permissible
- Inputs and outputs for activating and signaling the statistics have been integrated
- Diagnostics capability for active monitoring of the switching and protection functions
- Can be combined with expansion modules: Brake control module for controlling electromechanical brakes in induction motors and with two optional inputs for special functions (for quick stop with the Standard motor starter and for parameterizable special functions with the High-Feature motor starter)
- For combining with safety technology for use in safety-related system components (EN 954-1).



Interplay of ET 200S motor starter components

With the ET 200S motor starters, any AC loads can be protected and switched. The communications interface makes them ideal for operation in distributed control cabinets or control enclosures.

As the motor starters are completely factory-wired, power control cabinets can be assembled far more quickly and compactly. Configuration is made easier by the fine modular structure. When using the ET 200S motor starters, the list of parts per load feeder is reduced to two main items: The passive terminal module and the motor starter. This makes the ET 200S ideal for modular machine concepts as well.

All ET 200S motor starters are set up without fuses. Contactors and soft starters are activated through the integrated outputs. If a brake control module is arranged next to a motor starter, its solid-state brake switch is operated by an output of the motor starter. This module must always be arranged next to the motor starter on the right-hand side. The inputs of the motor starters evaluate the signal states of the protective devices (short-circuit or overload), the switching states of contactor(s) or soft starters, and system faults.

The motor starter protector signaling is freely programmable with regard to group fault signals (group fault at motor starter protector "Off" / group fault signal at motor starter protector "Off" only in case of "On" command from the motor starter).

Expansions are easily possible through the subsequent adding of terminal modules. With their modular terminal design (10 mm²) the latter also do away with the distribution wiring otherwise required. Through the permanent wiring and the hot swapping function (disconnection and connection during operation) a motor starter can be replaced within seconds if necessary. The motor starters are therefore recommendable in particular for applications with special demands on availability.

The possibility of expanding the motor starters with brake control modules xB1-xB4 means that motors with 24 V DC brakes (xB1, xB3) as well as motors with 500 V DC brakes (xB2, xB4) can be controlled. The 24 V DC brakes have an external supply and can be vented independently of the switching state of the motor starter. By contrast the 500 V DC brakes mostly have a direct supply from the terminal board of the motor through a rectifier module and therefore cannot be vented when the motor starter is switched off. These brakes cannot be used in combination with the DSS1e-x motor starter (soft starter).

The outputs of the brake control modules can be used alternatively for other purposes, e. g. for controlling DC valves. With two locally acting inputs optionally available on the brake control modules (xB3, xB4) and another two on the control module of the High-Feature motor starter it is possible to realize autonomous special functions which work independently of the bus and the higher-level control system, e. g. as a quick stop on gate valve controls. In parallel with this, the states of these inputs are signaled to the control system.

As the result of the selective protection concept with solid-state overload evaluation and the use of SIRIUS switchgear size S0, additional advantages are realized on the High-Feature motor starters – advantages which soon make themselves positively felt particularly in manufacturing processes with high plant stoppage costs:

- Only two versions up to 7.5 kW
- All settings can be parameterized by bus
- Separate overload and short-circuit signals
- Overload can be acknowledged by remote reset
- Current unbalance monitoring
- Stall protection
- Emergency start function in the event of overload
- Current value transmission by bus
- Current limit monitoring
- Class 10 or 20 can be parameterized
- Type of coordination "2" (still functional after short-circuit with magnitude of 50 kA)
- Very high contact endurance

Power is supplied through the terminal modules for motor starters. While the auxiliary voltages must be fed in once through the PM-D or PM-DFx power module, which is to be plugged in on the left side of the first motor starter, the load voltage must be fed in at the first TM-xxxxS32 terminal module (on the left) of a motor starter. The other TM-xxxxS31 terminal modules are automatically supplied as well through the integrated power bus when they are mounted side by side.

If the power bus is utilized to its full capacity of 40 A (Standard motor starters) or 50 A (High-Feature motor starters), a new supply is fed in through an additional TM-xxxxS32 terminal module. This also applies when transferring from a Standard motor starter to a High-Feature motor starter and vice versa. In this case, however, no PM-D power module must be placed in between.

Terminal modules for motor starters

- Mechanical modules in which the motor starter and expansion modules are inserted
- For constructing the permanent wiring and self-assembling voltage bus
- For connecting the motor connection cables
- Positive-locking connection to ensure enhanced vibration resistance

Terminal modules are purely mechanical components for accommodating the ET 200S peripherals. The self-assembling voltage buses integrated in the terminal modules reduce wiring outlay to the single infeed. All modules following on the right are automatically supplied upon plugging the terminal modules together. The robust design and keyed connection technology enables use in harsh industrial conditions.

Terminal modules for TM-DS and TM-RS motor starters

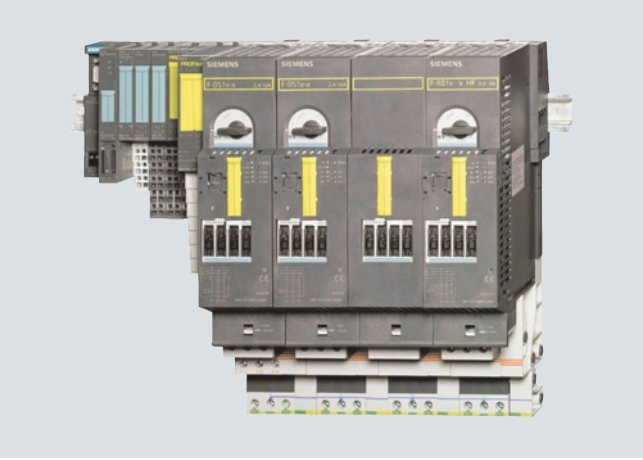
The TM-DS and TM-RS terminal modules are available in various versions for the Standard motor starters and the High-Feature motor starters. The terminal modules with the suffix "-S32" have connection terminals for feeding into the integrated 40 A/50 A power bus and connection terminals for the motor connection cable. They are mounted at the beginning (left) of a power bus segment.

The terminal modules with the suffix "-S31" have only connection terminals for the motor connection cable. These terminal modules follow on the right after a "-S32" terminal module. To configure a new load group, another "-S32" terminal module is plugged in. All connection terminals of the terminal modules for motor starters are equipped with strong 10 mm² terminals. The "-S32" terminal modules are supplied with three caps for closing the power bus contacts on the final terminal module of a segment.

Terminal module for power module

- Connection by means of screw terminals
- Light colored enclosure for visual distinction
- Always before the first TM-DS/TM-RS

ET 200S Safety motor starters Solutions local/PROFIsafe



The ET 200S Safety motor starter Solutions are preferred in all production and process automation fields in which the enhancement of plant availability and flexibility plays a key role.

- **Safety motor starters Solutions local** are preferred from the safety technology point of view for locally restricted safety applications. These motor starters are not dependent on a safe control system.
- **Safety motor starters Solutions PROFIsafe** are often found by contrast in safety applications of the more complex type that are interlinked. In this case a safe control system is used with the bus systems PROFINET or PROFIBUS with the PROFIsafe profile.

The ET 200S Safety motor starters Solutions comprise:

- Safety modules
- Standard motor starters
- High-Feature motor starters
- Failsafe motor starters

General data

With the ET 200S Safety motor starters Solutions there is no complicated and hence cost-intensive configuring and wiring outlay compared to the conventional safety technology. The ET 200S Safety motor starter Solutions are designed for Category 4 according to EN 954-1 or SIL 3 IEC 61508.

They enable the use of safety-oriented direct-on-line starters or reversing starters in the SIMATIC ET 200S distributed peripherals system on PROFINET or PROFIBUS. The fine modular architecture of the system permits optimum imaging of machine or plant applications.

Within an ET 200S station the Safety motor starter Solutions can also be combined with Standard motor starters or High-Feature motor starters without safety functions or the SIMATIC ET 200S FC frequency converter up to max. 4 kW up to Category 3 according to EN 954-1 or SIL 2 according to IEC 61508.

The "SIMATIC ET 200 Configurator" software can be found in Catalog CA 01 on CD or DVD. You can also download the "SIMATIC ET 200 Configurator" software from the Internet under:

www.siemens.com/sirius-starting

www.siemens.com/et200s-motorstarter

Note:
For safety characteristics for motor starters, see "Appendix" --> "Standards and Approvals" --> "Overview"

Motor Starter ES software

The Motor Starter ES software is used the for parameterization, monitoring, diagnostics and testing of motor starters.
See Chapter 12 "Planning, Configuration and Visualizing for SIRIUS".

More information

ET 200S motor starters

		Motor starters Standard DS1-x, RS1-x	Motor starters High-Feature DS1e-x, RS1e-x	Motor starters High-Feature DSS1e-x
Mechanics and environment				
Motor starters for connection to ET 200S, max.[1]		42	17	17
Mounting dimensions (W x H x D)				
• Direct-on-line starters	mm	45 x (265 + 45) x (120 + 27); (45: PE/N module; 27: Auxiliary switch contactor from F-Kit)	65 x (290 + 45) x (150 + 23); (45: PE/N module; 23: Control module)	
• Reversing starters	mm	90 x (265 + 45) x (120 + 27); (45: PE/N module; 27: Auxiliary switch contactor from F-Kit)	130 x (290 + 45) x (150 + 23); (45: PE/N module; 23: Control module)	
Permissible ambient temperature				
• During operation	°C	0 ... +60, from +40 with derating	0 ... +60 With horizontal mounting up to +40	
• During storage	°C	-40 ... +70	-40 ... +70	
• Permissible mounting position	°C	Vertical, horizontal With derating	Vertical, horizontal	
Vibration resistance acc. to IEC 60068, Part 2-6	g	2		
Shock resistance acc. to IEC 60068, Part 2-27	g/ms	Square 5/11		
Conductor cross-section				
• Solid	mm^2	2 x (1 ... 2.5)[2]; 2 x (2.5 ... 6)[2], acc. to IEC 60947: max. 1 x 10		
• Finely stranded with end sleeve	mm^2	2 x (1 ... 2.5)[2]; 2 x (2.5 ... 6)[2]		
• AWG cables, solid or stranded	AWG	2 x (14 ...10)		
Degree of protection		IP20, finger-safe (this also applies to terminal modules on a dismounted motor starter)		
Mechanical endurance				
• Motor starter protector	Operating cycles	100000		
• Contactor		30 million	10 million	--
• Contactor with safety functionality (F-Kit)		10 million	--	--

[1] Additional limits: Process image, max. design width 2 m.

[2] If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in the range specified. If identical cross-sections are used, this restriction does not apply.

		Motor starters Standard DS1-x, RS1-x	Motor starters High-Feature DS1e-x, RS1e-x	Motor starters High-Feature DSS1e-x
Electrical specifications				
Power consumption				
• From auxiliary circuit L+/M (U_1)	mA	Approx. 20	Approx. 40	Approx. 40
• From auxiliary circuit A1/A2 (U_2)	mA	Approx. 100	Approx. 1700 (80 ms long) Approx. 350 (after 80 ms)	Approx. 30
Rated operational current for TM-D terminal modules I_e	A	40	50	50
Rated operational voltage U_e	V	400		
Approval to DIN VDE 0106 Part 101	V	Yes, up to 500	Yes, up to 500	Yes, up to 480
CSA approval and U_L	V	Yes, up to 600	Yes, up to 600	Yes, up to 480
Rated operational current I_e for motor starters				
• AC-1/2/3 at 60 °C				
- At 400 V	A	12	16	3 / 8 / 16
- At 500 V	A	9	11	--
• AC-4 at 60 °C				
- At 400 V	A	4.1	9	--
Rated short-circuit breaking capacity	kA	50 at 400 V		
Rating of induction motors at 500 V	kW	5.5	7.5	
Utilization categories		AC-1, AC-2, AC-3, AC-4		
Protective separation between main and auxiliary circuits	V	400, acc. to DIN VDE 0106, Part 101		
Positively-driven operation of contactor relay (NC)		Yes	Yes	--
Trip class		Class 10	Class 10/20, can be parameterized	0.3 ... 3 A: Class 10/10A, can be parameterized 2.4 ... 8 A: Class 10A 2.4 ... 16 A: Class 10A
Type of coordination		Up to 1.6 A: 2 Up to 12 A: 1	Up to 16 A: 2	Up to 16 A: 1
Electrical endurance				
• Motor starter protector	h	100000		
• Contactor		See manual	See manual	--
Permissible switching frequency with a starting time t_A = 0.1 s and a relative ON period t_{OP} = 50 %	1/h	< 80	See manual	
Induction protection		Already installed		
Device functions				
Stall protection		No	Yes, 8 x I_e / 1 s	
Motor starter protector signaling		Yes	Parameterizable: always / only in case of "On" commands	
Overload warning		No, only tripping	Yes	
Emergency start function		No	Yes	
Number of outputs		4	16	16
Number of inputs		4	16	16
Address area required per module				
• With summary	bit	4	--	--
• Without summary	byte	1	2	2
Diagnostics functions				
• Group fault "SF"		Red LED		
• Switching state "C-STAT"		Red/green/yellow LED		
• Device state "DEVICE"		--	Red/green/yellow LED	
Configurable through PROFIBUS DP		Yes		
Auxiliary switch for enabling circuit of the ET 200S safety technology already integrated (up to max. category 4 EN 954-1)		No, F-Kit required	Yes	No (max. Category 1 attainable)
Setting options for soft starters (locally on the device)				
• Starting time	s	--	--	0 ... 20
• Starting voltage	%	--	--	30 ... 100 of U_e
• Ramp-down time	s	--	--	0 ... 20
Process image		3I/3O	8I/5O + 6I motor current	9I/5O + 6I motor current
Diagnostics using PROFIBUS		Yes, see manual		

Standard motor starters

Selection and ordering data

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
							kg
Standard motor starters, with diagnostics, electromechanical, fuseless, expandable with brake control module							
DS1-x direct-on-line starters							
Motor rating of induction motor 4-pole at 400 V AC, standard output P	*Setting range of the electronic release*						
kW	A						
< 0.06	0.14 ... 0.20	A	**3RK1 301-0BB00-0AA2**	1	1 unit	121	0.922
0.06	0.18 ... 0.25	A	**3RK1 301-0CB00-0AA2**	1	1 unit	121	0.923
0.09	0.22 ... 0.32	A	**3RK1 301-0DB00-0AA2**	1	1 unit	121	0.919
0.10	0.28 ... 0.40	A	**3RK1 301-0EB00-0AA2**	1	1 unit	121	0.925
0.12	0.35 ... 0.50	A	**3RK1 301-0FB00-0AA2**	1	1 unit	121	0.929
0.18	0.45 ... 0.63	A	**3RK1 301-0GB00-0AA2**	1	1 unit	121	0.922
0.21	0.55 ... 0.80	A	**3RK1 301-0HB00-0AA2**	1	1 unit	121	0.928
0.25	0.70 ... 1.00	A	**3RK1 301-0JB00-0AA2**	1	1 unit	121	0.923
0.37	0.90 ... 1.25	A	**3RK1 301-0KB00-0AA2**	1	1 unit	121	0.971
0.55	1.1 ... 1.6	A	**3RK1 301-1AB00-0AA2**	1	1 unit	121	0.970
0.75	1.4 ... 2.0	A	**3RK1 301-1BB00-0AA2**	1	1 unit	121	0.968
0.90	1.8 ... 2.5	A	**3RK1 301-1CB00-0AA2**	1	1 unit	121	0.972
1.1	2.2 ... 3.2	A	**3RK1 301-1DB00-0AA2**	1	1 unit	121	0.976
1.5	2.8 ... 4.0	A	**3RK1 301-1EB00-0AA2**	1	1 unit	121	0.974
1.9	3.5 ... 5.0	A	**3RK1 301-1FB00-0AA2**	1	1 unit	121	0.973
2.2	4.5 ... 6.3	A	**3RK1 301-1GB00-0AA2**	1	1 unit	121	0.989
3.0	5.5 ... 8.0	A	**3RK1 301-1HB00-0AA2**	1	1 unit	121	0.969
4.0	7 ... 10	A	**3RK1 301-1JB00-0AA2**	1	1 unit	121	0.971
5.5	9 ... 12	A	**3RK1 301-1KB00-0AA2**	1	1 unit	121	0.966

DS1-x

RS1-x reversing starters

kW	A						
< 0.06	0.14 ... 0.20	A	**3RK1 301-0BB00-1AA2**	1	1 unit	121	1.342
0.06	0.18 ... 0.25	A	**3RK1 301-0CB00-1AA2**	1	1 unit	121	1.360
0.09	0.22 ... 0.32	A	**3RK1 301-0DB00-1AA2**	1	1 unit	121	1.365
0.10	0.28 ... 0.40	A	**3RK1 301-0EB00-1AA2**	1	1 unit	121	1.320
0.12	0.35 ... 0.50	A	**3RK1 301-0FB00-1AA2**	1	1 unit	121	1.326
0.18	0.45 ... 0.63	A	**3RK1 301-0GB00-1AA2**	1	1 unit	121	1.318
0.21	0.55 ... 0.80	A	**3RK1 301-0HB00-1AA2**	1	1 unit	121	1.341
0.25	0.70 ... 1.00	A	**3RK1 301-0JB00-1AA2**	1	1 unit	121	1.336
0.37	0.90 ... 1.25	A	**3RK1 301-0KB00-1AA2**	1	1 unit	121	1.390
0.55	1.1 ... 1.6	A	**3RK1 301-1AB00-1AA2**	1	1 unit	121	1.390
0.75	1.4 ... 2.0	A	**3RK1 301-1BB00-1AA2**	1	1 unit	121	1.388
0.90	1.8 ... 2.5	A	**3RK1 301-1CB00-1AA2**	1	1 unit	121	1.370
1.1	2.2 ... 3.2	A	**3RK1 301-1DB00-1AA2**	1	1 unit	121	1.372
1.5	2.8 ... 4.0	A	**3RK1 301-1EB00-1AA2**	1	1 unit	121	1.384
1.9	3.5 ... 5.0	A	**3RK1 301-1FB00-1AA2**	1	1 unit	121	1.370
2.2	4.5 ... 6.3	A	**3RK1 301-1GB00-1AA2**	1	1 unit	121	1.394
3.0	5.5 ... 8.0	A	**3RK1 301-1HB00-1AA2**	1	1 unit	121	1.374
4.0	7 ... 10	A	**3RK1 301-1JB00-1AA2**	1	1 unit	121	1.370
5.5	9 ... 12	A	**3RK1 301-1KB00-1AA2**	1	1 unit	121	1.390

RS1-x

* You can order this quantity or a multiple thereof.

Overview

TM-DS, TM-RS

- "–S32" version with supply terminals: 2 x 3 x 10 mm² screw terminals for power bus and motor feeder
- "–S31" version without supply terminals: 1 x 3 x 10 mm² screw terminals for motor feeder
- Optionally expandable with PE/N modules (see Accessories)
- Applies only to Standard motor starters: For applications with high motor currents (> 6.3 A) or high ambient temperatures (> 40 °C) it is recommended to use the DM-V15 distance module (see Accessories) between two DS1-x motor starters

Selection and ordering data

	Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Terminal modules for Standard motor starters								
 3RK1 903-0AB00	• **TM-DS45-S32** **for DS1-x direct-on-line starters** with incoming power bus connection including three caps for terminating the power bus	A	**3RK1 903-0AB00**		1	1 unit	121	0.376
 3RK1 903-0AB10	• **TM-DS45-S31** **for DS1-x direct-on-line starters** without incoming power bus connection	A	**3RK1 903-0AB10**		1	1 unit	121	0.374
 3RK1 903-0AC00	• **TM-RS90-S32** **for RS1-x reversing starters** with incoming power bus connection including three caps for terminating the power bus	A	**3RK1 903-0AC00**		1	1 unit	121	0.498
	• **TM-RS90-S31** **for RS1-x reversing starters** without incoming power bus connection	A	**3RK1 903-0AC10**		1	1 unit	121	0.618

6

* You can order this quantity or a multiple thereof.

Standard terminal modules

More information

TM-DS45 and TM-DS65/TM-FDS65 terminal module

		TM-DS45	TM-DS65/TM-FDS65
Dimensions			
• Mounting dimensions (W x H x D)	mm	45 x 264 x 100	65 x 290 x 100
• Height with PE/N terminal block	mm	306	332
• Depth with motor starter	mm	127	150
• Depth with motor starter and F-Kit (safety technology)	mm	152	--
• Depth with motor starter and 2DI control module	mm	--	173
Rated voltages, currents and frequencies for the power bus			
• Rated insulation voltage U_i	V	690	
• Rated operational voltage U_e	V	500 AC	
• Rated impulse withstand voltage U_{imp}	kV	6	
• Rated operational current I_e	A	40	50
• Rated frequency	Hz	50/60	
Conductor cross-sections			
• Solid	mm^2	2 x (1 ... 2.5)[1] or 2 x (2.5 ... 6)[1]	
• Finely stranded with end sleeve	mm^2	1 x 10 or 2 x (1 ... 2.5)[1] or 2 x (2.5 ... 6)[1] acc. to IEC 60947	
• AWG cables, solid or stranded	AWG	2 x (14 ... 10)	
• With additional three-phase feeder terminal if required			
- Solid or stranded	mm^2	1 x 2.5 ... 25	
- Finely stranded with end sleeve	mm^2	1 x 2.5 ... 25	
- AWG cables, solid or stranded	AWG	1 x 12 ... 4	
Wiring			
• Required tool		Standard screwdriver size 2 and Pozidriv 2	
• Tightening torque	Nm	2.0 ... 2.5	

1) If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in the range specified. If identical cross-sections are used, this restriction does not apply.

TM-RS90 and TM-RS130/TM-FRS130 terminal module

		TM-RS90	TM-RS130/TM-FRS130
Dimensions			
• Mounting dimensions (W x H x D)	mm	90 x 264 x 100	130 x 290 x 100
• Height with PE/N	mm	306	332
• Depth with motor starter	mm	127	150
• Depth with motor starter and F-Kit (safety technology)	mm	152	--
• Depth with motor starter and 2DI control module	mm	--	173
Rated voltages, currents and frequencies for the power bus			
• Rated insulation voltage U_i	V	690	
• Rated operational voltage U_e	V	500 AC	
• Rated impulse withstand voltage U_{imp}	kV	6	
• Rated operational current I_e	A	40	50
• Rated frequency	Hz	50/60	
Conductor cross-sections			
• Solid	mm^2	2 x (1 ... 2.5)[1] or 2 x (2.5 ... 6)[1]	
• Finely stranded with end sleeve	mm^2	1 x 10 or 2 x (1 ... 2.5)[1] or 2 x (2.5 ... 6)[1] acc. to IEC 60947	
• AWG cables, solid or stranded	AWG	2 x (14 ... 10)	
• With additional three-phase feeder terminal if required			
- Solid or stranded	mm^2	1 x 2.5 ... 25	
- Finely stranded with end sleeve	mm^2	1 x 2.5 ... 25	
- AWG cables, solid or stranded	AWG	1 x 12 ... 4	
Wiring			
• Required tool		Standard screwdriver size 2 and Pozidriv 2	
• Tightening torque	Nm	2.0 ... 2.5	

1) If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in the range specified. If identical cross-sections are used, this restriction does not apply.

Selection and ordering data

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
High-Feature motor starters, with diagnostics, solid-state overload protection, fuseless, expandable with brake control module							
 DS1e-x							
DS1e-x direct-on-line starters with switch interface							
Setting range of the electronic release in A							
0.3 ... 3	A	**3RK1 301-0AB10-0AA4**		1	1 unit	121	1.340
2.4 ... 8	A	**3RK1 301-0BB10-0AA4**		1	1 unit	121	1.327
2.4 ... 16	A	**3RK1 301-0CB10-0AA4**		1	1 unit	121	1.330
RS1e-x reversing starters							
Setting range of the electronic release in A							
0.3 ... 3	A	**3RK1 301-0AB10-1AA4**		1	1 unit	121	1.950
2.4 ... 8	A	**3RK1 301-0BB10-1AA4**		1	1 unit	121	1.940
2.4 ... 16	A	**3RK1 301-0CB10-1AA4**		1	1 unit	121	1.943
DSS1e-x soft starters							
Setting range of the electronic release in A							
0.3 ... 3	A	**3RK1 301-0AB20-0AA4**		1	1 unit	121	1.168
2.4 ... 8	A	**3RK1 301-0BB20-0AA4**		1	1 unit	121	1.195
2.4 ... 16	A	**3RK1 301-0CB20-0AA4**		1	1 unit	121	1.198

* You can order this quantity or a multiple thereof.

High-Feature terminal modules

Overview

TM-DS, TM-RS

- "–S32" version with supply terminals: 2 x 3 x 10 mm² screw terminals for power bus and motor feeder
- "–S31" version without supply terminals: 1 x 3 x 10 mm² screw terminals for motor feeder
- Optionally expandable with PE/N modules (see Accessories)

Selection and ordering data

	Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Terminal modules for High-Feature motor starters								
 3RK1 903-0AK00	• **TM-DS65-S32 for DS1e-x and DSS1e-x direct-on-line starters** with incoming power bus connection including three caps for terminating the power bus	A	**3RK1 903-0AK00**		1	1 unit	121	0.473
	• **TM-DS65-S31 for DS1e-x and DSS1e-x direct-on-line starters** without incoming power bus connection	A	**3RK1 903-0AK10**		1	1 unit	121	0.472
	• **TM-RS130-S32 for RS1e-x reversing starters** with incoming power bus connection including three caps for terminating the power bus	A	**3RK1 903-0AL00**		1	1 unit	121	0.787
	• **TM-RS130-S31 for RS1e-x reversing starters** without incoming power bus connection	A	**3RK1 903-0AL10**		1	1 unit	121	0.847

More information

See "More Information" on "Standard Terminal Modules"

* You can order this quantity or a multiple thereof.

Overview

- Disconnection of a complete group of motor starters is possible without any additional outlay (safety category 1 according to ISO 13849-1)
- PM-D power modules are plugged onto the TM-P15 terminal modules. (A PM-D power module must be followed by at least one motor starter or one frequency converter.)

Application

PM-D power modules are used for monitoring the two 24 V DC auxiliary voltages for the group of motor starters following on the right or for supplying power to the group of frequency converters following on the right. The voltage is fed in through TM-D terminal modules to the self-assembling potential bars.

A voltage failure is signaled through PROFIBUS diagnostics to the higher-level master. Additional LEDs inform locally about the status of the auxiliary voltages.

The separation of auxiliary voltages for signal checkback and power section actuation enables the entire group to be shut down while maintaining the diagnostics capability.

Selection and ordering data

	Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Power Modules								
 3RK1 903-0BA00	**PM-D power modules** for 24 V DC with diagnostics	A	**3RK1 903-0BA00**		1	1 unit	121	0.071

More information

		PM-D power modules 3RK1 903-0BA00
Rated control supply voltage U_s up to 60 °C	V	20.4 ... 28
Rated operational current I_e		
• Recommended short-circuit protection	A	10
• Melting fuse	A	10
• Miniature circuit breakers	A	10, tripping characteristic B
Power consumption from the backplane bus	mA	≤ 10
Supplying		
• Motor starters		Yes
• Frequency converters		Yes
• Motor starters for safety technology		No
• Solid-state modules		No
• Ex(i) modules		No
Alarms		None
Diagnostics functions		Yes
• System fault/device fault		Red "SF" LED
• Monitoring the supply voltage for solid-state modules U_1		Green "PWR" LED
• Monitoring the supply voltage for contactors U_2		Green "CON" LED
• Diagnostics information can be read out		Yes
Conductor cross-sections		
• Flexible with end sleeve	mm^2	1.5
• Rigid	mm^2	2.5
Mounting dimensions (W x H x D)	mm	15 x 195.5 x 117.5

* You can order this quantity or a multiple thereof.

Power module terminal modules

Overview

Terminal modules for power modules

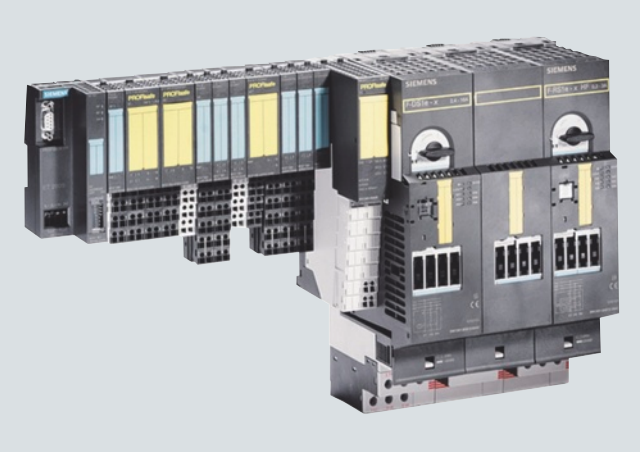
For supplying load and sensor voltage to the self-assembling potential bars of the Standard motor starters, High-Feature motor starters and frequency converters. Power modules for voltage monitoring are plugged onto TM-P modules. TM-P modules can be used any number of times within the ET 200S. A power module must always be plugged upstream from the first motor starter/frequency converter.

Selection and ordering data

	Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Terminal modules for power modules								
 3RK1 903-0AA00	**TM-P15 S27-01 terminal modules** for PM-D power module	A	**3RK1 903-0AA00**		1	1 unit	121	0.224

* You can order this quantity or a multiple thereof.

Overview



The Failsafe motor starter has been developed on the basis of the High-Feature motor starter. It differs in that, in addition to a motor starter protector and contactor assembly, a safe solid-state evaluation circuit is installed for error detection purposes which makes the motor starter failsafe.

If the contactor to be switched fails in an EMERGENCY-STOP case, the evaluation electronics detects a fault and opens the motor starter protector in the motor starter through a shunt release in a failsafe manner. The second redundant shutdown component is therefore no longer a main contactor, as is generally the case, but the motor starter protector installed in the motor.

All functions of the High-Feature starters are already integrated.

The new failsafe motor starters are characterized by easy, space-saving assembly as well as minimal wiring outlay. Like the High-Feature starters, the Failsafe motor starters have a switching capacity of up to 7.5 kW (16 A) which is achieved with just two motor starter versions. Another important feature is the high availability due to the high short-circuit strength (type of coordination "2").

Benefits

Advantages over conventional safety technology

- Significant savings in components (less hardware)
- Less mounting and installation work
- Motor starters are failsafe and offer high availability

Application

Use

The Failsafe motor starter is predestined for use in combination with PROFIsafe (see figure *ET 200S Safety Motor Starter Solution PROFIsafe with Failsafe motor starters* on page 6/70). Another field of application is in combination with ASIsafe or safety relays (see example 2 on page 6/68 *Failsafe Motor Starters with ASIsafe and 3TK28*).

High degree of flexibility with safety technology

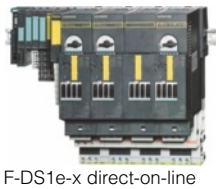
PROFIsafe solution with PM-D F PROFIsafe

In EMERGENCY-STOP applications, the Failsafe motor starters are selectively switched off through the upstream PM-D F PROFIsafe safety module. For each safety module, six switch-off groups can be formed. In the first delivery stage, the failsafe freely-programmable logic of the SIMATIC controller is used to interface with the relevant Failsafe sensor technology. The interface between PROFIsafe and installations that use conventional safety technologies is implemented through the F-CM Failsafe contact multiplier with four floating contacts.

Solution local with PM-D FX1

Failsafe motor starters with safety relay (Version 1) or ASIsafe (version 2, see example 2 on page 6/68):
Signals with relevance for safety can be input to ET 200S through a PM-D F X1 infeed terminal module through the enabling circuits of the AS-i Safety Monitor or the safety relay to control the Failsafe motor starters which then selectively switch off the downstream motors.

Selection and ordering data

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
ET 200S Failsafe motor starters							
 F-DS1e-x direct-on-line starters							
F-DS1e-x direct-on-line starters Failsafe direct-on-line starters up to 7.5 kW at 400 V AC Mechanically switching Solid-state UE protection							
• 0.3 ... 3 A	A	**3RK1 301-0AB13-0AA4**		1	1 unit	121	1.693
• 2.4 ... 8 A	A	**3RK1 301-0BB13-0AA4**		1	1 unit	121	1.717
• 2.4 ... 16 A	A	**3RK1 301-0CB13-0AA4**		1	1 unit	121	1.673
F-RS1e-x reversing starters Failsafe reversing starters up to 7.5 kW at 400 V AC Mechanically switching Solid-state UE protection, fuseless							
• 0.3 ... 3 A	A	**3RK1 301-0AB13-1AA4**		1	1 unit	121	2.517
• 2.4 ... 8 A	A	**3RK1 301-0BB13-1AA4**		1	1 unit	121	2.576
• 2.4 ... 16 A	A	**3RK1 301-0CB13-1AA4**		1	1 unit	121	2.513

* You can order this quantity or a multiple thereof.

More information

F-DS1e-x direct-on-line starter/F-RS1e-x reversing starter

			Direct-on-line starters	Reversing starters
Dimensions				
Dimensions (W x H x D)		mm	65 x 290 x 150 (incl. terminal module)	130 x 290 x 150 (incl. terminal module)
Height with PE/N module		mm	332	
Depth with 2DI control module (not safe)		mm	173	
Module-specific specifications				
Type of coordination			Type 2 up to $I_e \leq 16$ A at 400 V	
Internal power supply			U1 (from PM-D F/PM-DF X1)	
Maximum achievable safety class				
• Acc. to IEC 61508			SIL 3	
• Acc. to DIN VDE 0801			Shutdown class 6 (AK6)	
• Acc. to ENh EN 954-1			Category 4	
Safety characteristics				
Low demand	PFD_{AVG} (10a)			
• Test interval 3 months			3.5×10^{-5}	
• Test interval 6 months			8.0×10^{-5}	
High demand/continuous mode	PFH			
• Test interval 3 months		1/h	8.1×10^{-10}	
• Test interval 6 months		1/h	1.8×10^{-9}	
Proof-test interval		Years	10	
Voltages, currents, potentials				
Switching capacity			Up to 7.5 kW at 400 V AC in three setting ranges:	
		A	0.3 ... 3	
		A	2.4 ... 8	
		A	2.4 ... 16	
Status, alarms, diagnostics				
Status display			SF, DEVICE and C-STAT, SG1 ... SG6	
Diagnostics functions				
Group fault display			Red LED (SF)	
Diagnostics information can be read out			Available	
Control circuit				
Rated operational voltage for electronics U_1		V	DC 24 (DC 20.4 ... 28.8)	DC 24 (DC 21.6 ... 26.4)
Reverse polarity protection for electronics U_1			Yes	
Rated operational voltage for contactor U_2		V	24 DC (20.4 ... 28.8 V DC)	
Reverse polarity protection for contactor U_2			Yes	
Power consumption				
• From electronics supply U_1		mA	Approx. 40	Approx. 100
• From contactor supply U_2				
- Pickup		A	1.7 (for 80 ms)	--
- Hold		mA	max. 350	--
• From SG1 up to 6				
- Pickup		mA	250 (for 200 ms)	
- Hold		mA	max. 55	
• Test function of the shunt release/starter protector (50 ms) from U_1		A	Approx. 1.5	
• From the backplane bus		mA	Approx. 20	
Main circuit				
Rated operational voltage U_e				
• Acc. to DIN VDE 0106, Part 1014, IEC 60947-1, EN 60947-1		V	500 AC	
• Protective separation between main and auxiliary circuits		V	400	
• UL, CSA		V	600 AC	
Rated insulation voltage U_i		V	500 AC	
Rated impulse withstand voltage U_{imp}		kV	6	
Rated frequency		Hz	50/60	

Selection and ordering data

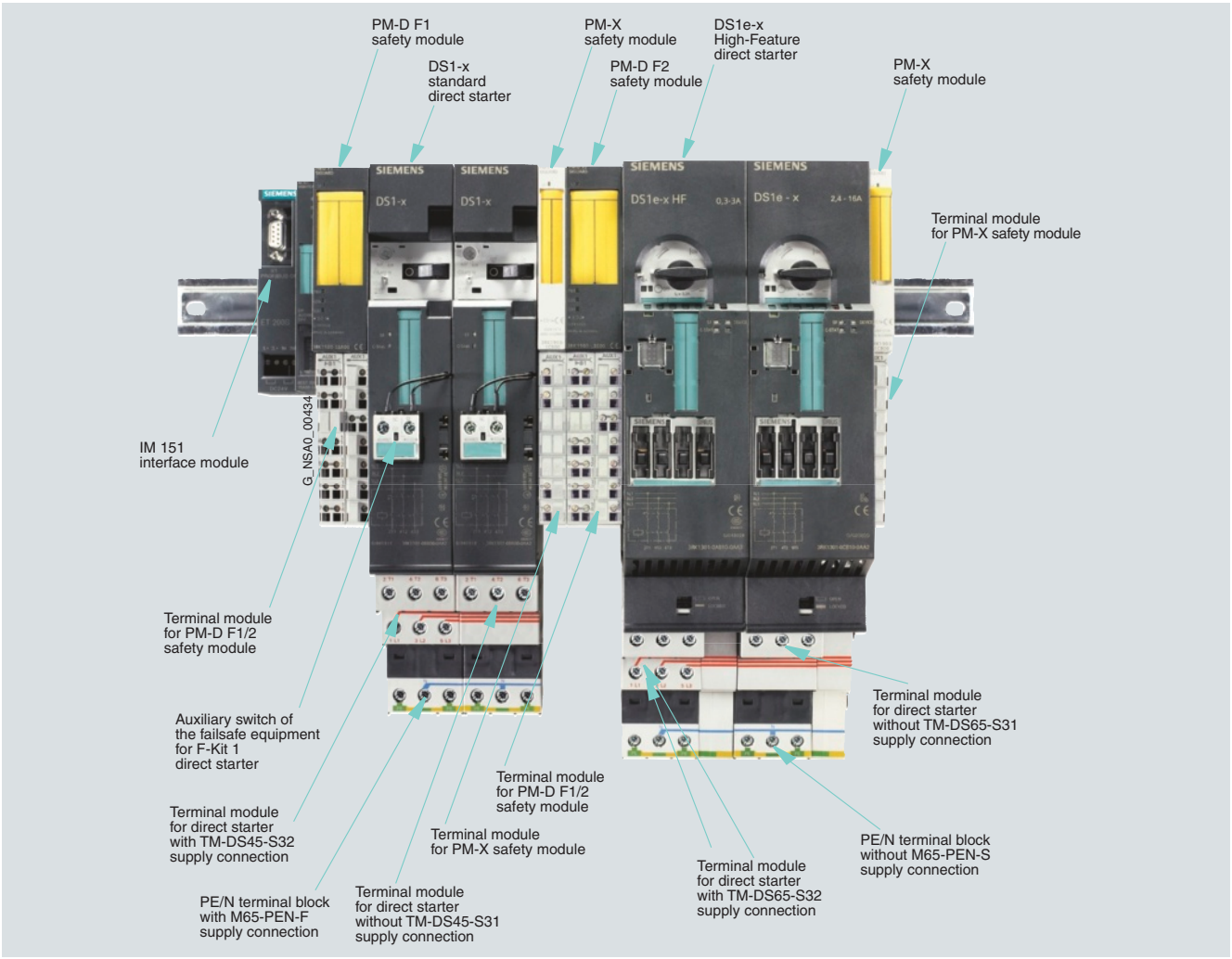
Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Terminal modules for Failsafe motor starters							
TM-FDS65-S32-01/S31-01 terminal modules for F-DS1e-x direct-on-line starters with coding							
• With incoming power bus connection (TM-FDS65-S32-01)	A	**3RK1 903-3AC00**		1	1 unit	121	0.471
• Without incoming power bus connection (TM-FDS65-S31-01)	A	**3RK1 903-3AC10**		1	1 unit	121	0.473
TM-FRS130-S32-01/S31-01 terminal modules for F-RS1e-x reversing starter with coding							
• With incoming power bus connection (TM-FRS130-S32-01)	A	**3RK1 903-3AD00**		1	1 unit	121	0.807
• Without incoming power bus connection (TM-FRS130-S31-01)	A	**3RK1 903-3AD10**		1	1 unit	121	0.848

* You can order this quantity or a multiple thereof.

Safety Modules local and PROFIsafe

Overview

Safety modules local



Interplay of ET 200S Safety motor starters Solutions local components

PM-D F1 safety module

Safety motor starters Solutions local

With the Safety motor starters Solutions local it is easy to configure several safety circuits. The safety sensors are connected directly and locally to the safety modules. These safety modules perform the work of the otherwise obligatory safety relays and safely shut down the downstream motor starters in accordance with the function selected. The crosslinks required for this are already integrated in the system and need no additional wiring. All signals from the safety modules are automatically relayed as diagnostic signals, e. g. in the event of crossover in the EMERGENCY-STOP circuit.

The highest safety category 4 according to EN 954-1 can be obtained with Safety motor starters Solutions local. They can thus be used for evaluation of EMERGENCY-STOP circuits or for monitoring protective doors and also for time-delayed disconnections. With the contact multiplier the safety-relevant signals can also be made available to external systems.

All standard safety applications can be covered through combination of different TM-PF30 terminal modules. Needless to say, ET 200S motor starters can also be used in conjunction with external safety relays or with ASIsafe.

Use of the PM-DFX1 safety module: The PM-DFX1 safety module is used for feeding in 1 to 6 switch-off groups. The infeed voltage can be switched using 1 to 6 external safety shutdown devices (either ASIsafe monitors or 3TK28 safety relays). This safety module is used in applications with external safety shutdown devices where there is a need for the fully selective safety shutdown of failsafe motor starters/frequency converters (see example 2 on page 6/68).

With the Safety motor starters Solutions local, up to 80 % of wiring is saved compared to conventional safety technology with local safetyapplications.

The safety module evaluates the signal state of the connected safety sensors and, using the integrated safety relays, shuts down the group(s) of downstream motor starters. The shutdown function is monitored by the module, and the auxiliary voltages likewise.

Safety-relevant system signals, e. g. due to an actuated EMERGENCY-STOP switch or a missing auxiliary voltage, are automatically generated and notified to the interface module. The latter assigns an unambiguous ID to the fault. Using the PROFIBUS DP diagnostics module, faults of this type can be identified and localized without a great deal of programming work.

- For use of Standard, High-Feature or Failsafe motor starters in systems with safety categories 2 to 4 (according to ISO 13849-1)
- No complex wiring for conventional safety technology
- Can also be used in combination with external safety relays
- Can also be used to activate external safety systems
- Safety module available for function-monitored and automatic starting
- Safety module available for stop category 0 and 1
- Safety module for monitoring the auxiliary voltages for motor starters
- Safety modules can be plugged into the TM-PF30 terminal modules

PM-D F1/F2/F3/F4/F5 safety modules

- PM-D F1/F2/F3/F4 safety modules monitor auxiliary voltages and contain the complete functionality of a safety relay:
  - PM-D F1
    For evaluation of EMERGENCY-STOP circuits with the "monitored start" function.
  - PM-D F2
    For monitoring of protective doors with the "automatic start" function.
  - PM-D F3
    Expansion to PM-D F1/F2 for time-delayed disconnection.
  - PM-D F4
    For expansion of safety circuits with other ET 200S motor starters, e. g. in a different line.
  - PM-D F5
    Transmits the status from PM-D F1 ... 4 through four floating enabling circuits to external safety equipment (contact multiplier)
- The PM-D F1 and PM-D F2 modules can be combined with the PM-D F3 or PM-D F4 modules.
- A PM-D F5 can be positioned at any point between a PM-D F1 ... 4 and a PM-X.
- Safety modules monitor the U1 and U2 auxiliary voltages. A voltage failure is relayed as a diagnostic signal over the bus.
  - No additional PM-D safety module is required when the safety modules are used.
  - Each safety circuit, beginning with a PM-D F1 ... 4, must be terminated with one PM-X each.

Terminal modules for (TM-PF30) safety module

For supplying load and sensor voltage to the potential bars of the motor starters, and for connection of the 2-channel sensor circuit (e. g. EMERGENCY-STOP pushbutton) and a reset button. Different terminal modules are available for the configuring of separate safety circuits or for the cascading of safety circuits, and for applications with time-delayed disconnection.

Terminal modules for (TM-X) safety module

For connection of an external infeed contactor (2nd shutdown possibility). With terminals for contactor coil and feedback contact. Is always required to terminate a group of safety-oriented motor starters.

Failsafe Kit

The Failsafe Kit (F-Kit) must be added to each Standard motor starter in a safety segment in order to monitor the switching function.

F-Kit 1 supplements the DS1-x direct-on-line starter, F-Kit 2 the RS1-x reversing starter.

The F-Kits are comprised of:

- Contact supports for the terminal modules
- One or two auxiliary switch blocks for the contactor/contactors of the motor starter
- Connecting cables

High-Feature motor starters and their terminal modules come as standard with the functionality of the F-Kits integrated.

Safety Modules local and PROFIsafe

Components needed for applications with safety requirement

Components needed	Safety category acc. to EN 954-1			
	1	2	3	4
PM-D	X	--	--	--
PM-D F1/-F2/-F4	--	X	X	X
PM-D F3	--	X	X	--
F-Kit 1/2	--	X[1)]	X[1)]	X[1)]
PM-X	--	X	X	X
PM-DFX1	--	X	X	X
External infeed contactor	--	--	X	X

1) F-Kit needed only for Standard motor starter; already integrated in High-Feature motor starter.

Possible combinations of safety and terminal modules

Terminal modules	PM-D F1	PM-D F2	PM-D F3	PM-D F4	PM-D F5	PM-X	PM-DFX1	FCM
TM-PF30 S47-B0	X	X	--	--	--	--	--	--
TM-PF30 S47-B1	X	X	--	--	--	--	--	--
TM-PF30 S47-C0	--	--	X	X	--	--	--	--
TM-PF30 S47-C1	--	--	X	X	--	--	--	--
TM-PF30 S47-D0	--	--	--	--	X	--	--	--
TM-X15 S27-01	--	--	--	--	--	X	--	--
TM-PFX30 S47-G0	--	--	--	--	--	--	X	--
TM-PFX30 S47-G1	--	--	--	--	--	--	X	--
TM-FCM30 S47	--	--	--	--	--	--	--	X

Examples

The diverse possible uses of the Safety motor starters Solutions local are presented in the manual SIMATIC ET 200S motor starters in the context of typical sample applications.

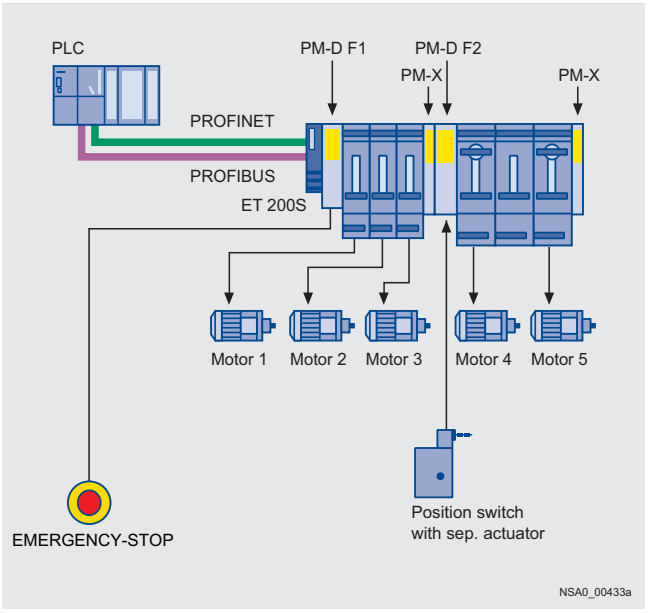
Safety functional examples for easy, quick and low-cost implementations of applications with Safety motor starters Solutions local are available on the Internet:

You can find more information on the Internet at:

www.siemens.com/sirius-starting

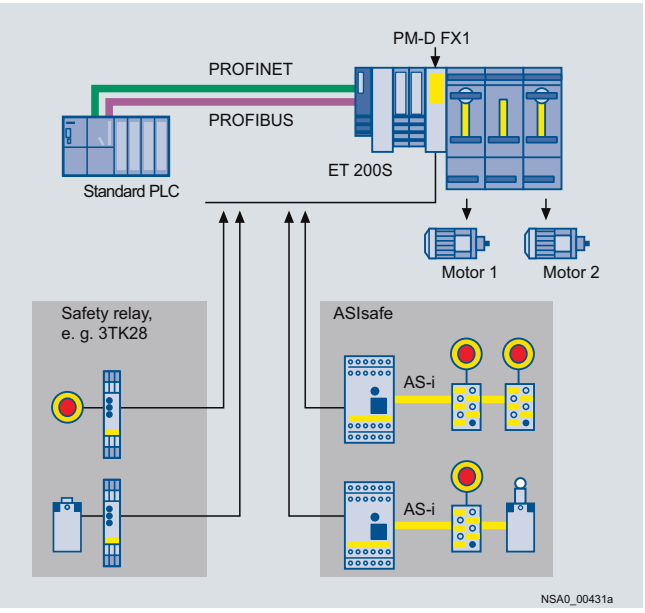
www.siemens.com/et200s-motorstarter

Example 1:



ET 200S Safety motor starters Solutions local with 2 safety circuits (= switch-off groups), Standard motor starters and High-Feature motor starters.

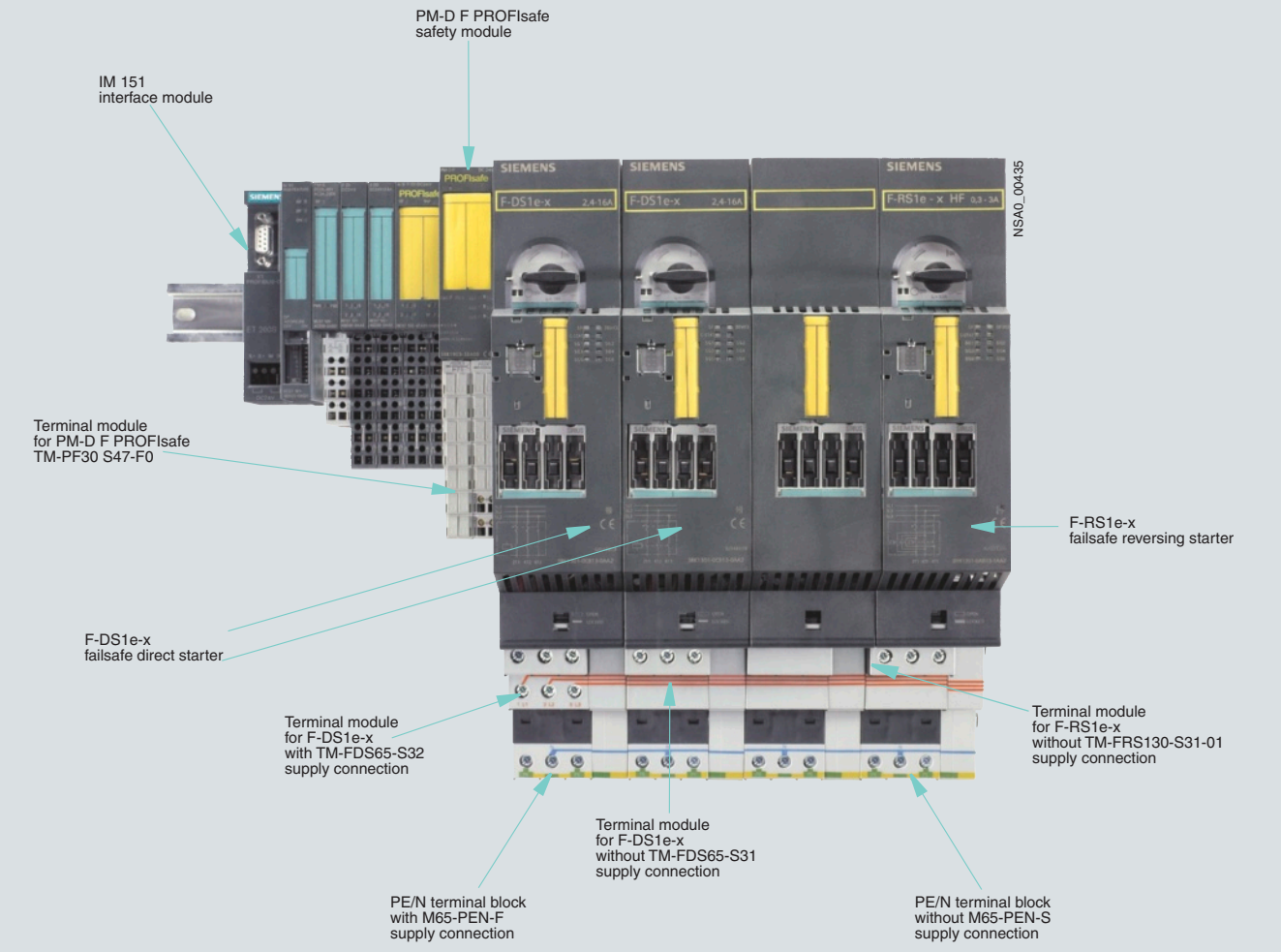
Example 2:



ET 200S Safety motor starters Solutions local with 2 external safety combinations (= safety relays or ASIsafe monitors) and with Failsafe motor starters (PM-DFX1 application).
2 of the 6 available safe switch-off groups are used.

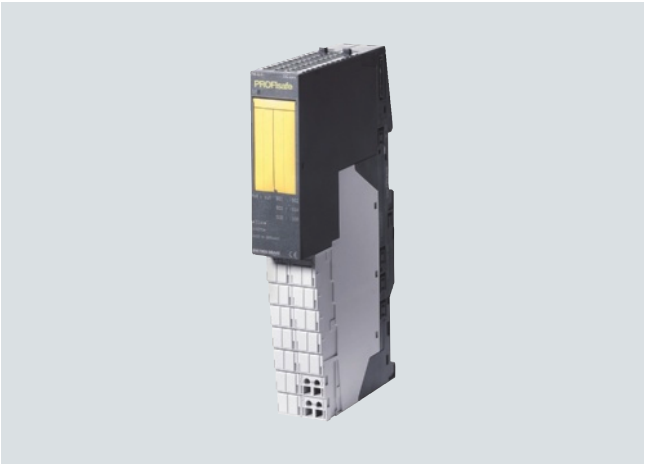
Signals with relevance for safety can be input to ET 200S through a PM-DFX1 infeed terminal module through the enabling circuits of the ASIsafe monitor or the safety relay to control the Failsafe motor starters which then selectively switch off the downstream motors.

Safety modules PROFIsafe



Interplay of ET 200S Safety motor starter Solutions PROFIsafe components

Safety motor starters Solutions PROFIsafe



PM-D F PROFIsafe with TM-PF30 S47-F0 terminal module

Sensor and actuator assignment are freely configurable within the framework of the distributed safety concept:

The logic of the safety functions is implemented by software. Safety-oriented PROFIsafe communication and the use of a safety-oriented control system are required.

Integration of the safety technology in the standard automation is realized through a single bus system (see Advantages of PROFIsafe), using PROFIBUS as well as PROFINET.

- For the use of Failsafe motor starters in plants with safety category 2 to 4 according to EN 954-1 and SIL 2 and 3 according to IEC 61508. The use of Standard or High-Feature motor starters is also possible with certain assemblies
- High flexibility (any assignment of sensors to motor starters using the PLC)
- Full selectivity of disconnection of the Failsafe motor starters
- No complex wiring for conventional safety technology, e. g. no infeed contactors even in the highest safety category
- Can also be used to activate external safety systems through F-CM contact multipliers
- Safety module available for any safety function
- Safety module available for stop category 0 and 1
- Safety module for monitoring the auxiliary voltages for motor starters
- Safety modules can be plugged into the TM-PF30 terminal modules

Safety Modules local and PROFIsafe

High degree of flexibility with safety technology
Failsafe motor starters for PROFIsafe:
In EMERGENCY-STOP applications, the Failsafe motor starters are selectively switched off through the upstream PM-D F PROFIsafe safety module. For each safety module, six switch-off groups can be formed. In the first delivery stage, the failsafe freely-programmable logic of the SIMATIC controller is used to interface with the relevant Failsafe sensor technology. The interface between PROFIsafe and installations that use conventional safety technologies is implemented through the F-CM Failsafe contact multiplier with four floating contacts.

Example:

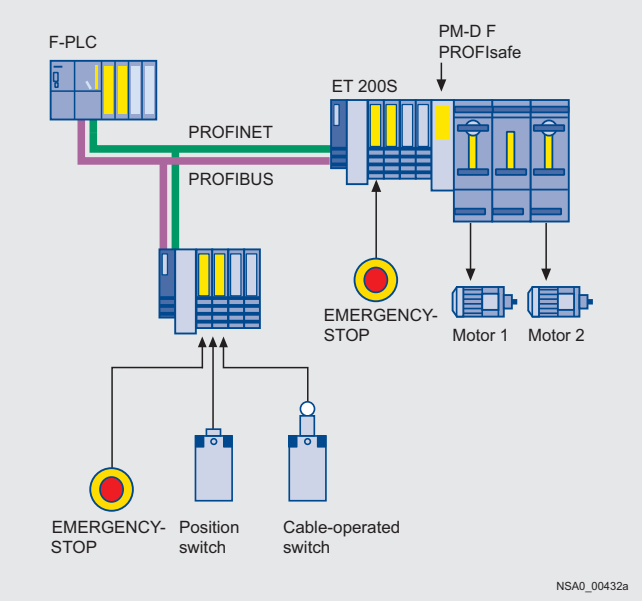
The diverse possible uses of the Safety motor starter Solutions PROFIsafe are presented in the manual SIMATIC ET 200S Motor Starters in the context of typical sample applications.

Safety functional examples for easy, quick and low-cost implementations of applications with Safety motor starters Solutions PROFIsafe are available on the Internet:

You can find more information on the Internet at:

www.siemens.com/sirius-starting

www.siemens.com/et200s-motorstarter



ET 200S Safety motor starters Solutions PROFIsafe with Failsafe motor starters and fully selective disconnection (PM-DF PROFIsafe application)

Within an ET 200S station the Failsafe motor starters are assigned to one of 6 safety segments. For plants with distributed configuration the shutdown signals of these safety segments are preferably issued by a higher-level, safety-oriented control system through PROFIsafe. This permits the greatest flexibility for assigning the motor starters to different safety circuits.

Alternatively, an ET 200S F-CPU can also be used for control purposes.

If a safety-oriented SIMATIC CPU is used, the ET 200S is available as a safety-oriented peripheral. Nevertheless, in such a station it is possible to configure conventional motor starters and input/output modules mixed with modules with safety functions.

Thanks to the PROFIsafe profile, the safety functions are available in the complete network, which means that the Safety motor starter Solutions PROFIsafe enable the selective disconnection of a Failsafe motor starters or the disconnection of a group of Standard and High-Feature motor starters regardless of where and on which peripheral station the safe control devices were connected. As such, this solution provides an unprecedented level of flexibility and reduction of wiring for applications in widespread plants or with a sporadic demand for changes in the assignment of safety segments.

The Safety motor starter Solutions PROFIsafe are ideally suited for safety concepts with category 2 to 4 according to EN 954-1 or up to SIL 3 according to IEC 61508.

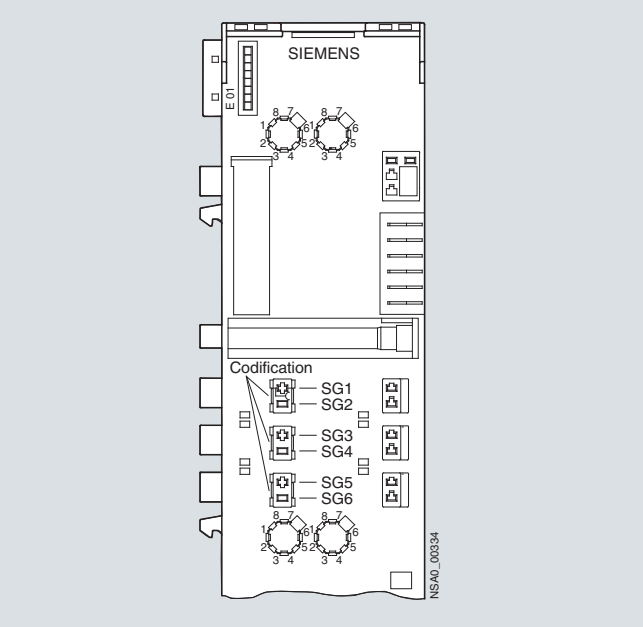
Each safety module switches up to 6 switch-off groups for Failsafe motor starters/frequency converters.

PM-D F PROFIsafe safety modules

The PM-D F PROFIsafe safety module receives the shutdown signal from the interface module of the ET 200S and safely switches off 1 to 6 switch-off groups. This safety module is used in PROFIsafe applications where there is a need for the selective safety shutdown of Failsafe motor starters/frequency converters.

The terminal assignment of the terminal modules for safe motor starters corresponds to the terminal assignment of the 45 and 65 mm terminal modules. The terminal modules for safe motor starters have a coding module in addition. This enables the safe motor starter to be assigned to one of the six switch-off groups.

The terminal module contains three coding elements which fully cover the three coding openings in the terminal module. The labeled coding element contains (in the chamber marked with the dash) the busbar tap; the non-labeled coding elements are used only to cover the coding openings. Switch-off group 1 (AG1 or SG1) is coded in the as-delivered state. The coding can be changed to switch-off group 2 by releasing the coding element and turning it through 180°. Changing the coding to switch-off group 3 is possible by exchanging the labeled and blank coding elements. In this case the dash on the labeled coding element must correlate with the dash of the required switch-off group (symbolized busbar).



The Failsafe motor starters are assigned to one of the six possible switch-off groups.

Selection and ordering data

	Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Safety modules local								
 3RK1 903-3DA00	**PM-D F1** With diagnostics Safety module for EMERGENCY-STOP application Monitored start	A	**3RK1 903-1BA00**		1	1 unit	121	0.216
	PM-D F2 With diagnostics Safety module for protective door monitoring Automatic start	A	**3RK1 903-1BB00**		1	1 unit	121	0.218
	PM-D F3 With diagnostics Safety module for expanding PM-D F1/2 for another voltage group Time-delayed 0 to 15 s	A	**3RK1 903-1BD00**		1	1 unit	121	0.209
	PM-D F4 With diagnostics Safety module for expanding PM-D F1/2 for another voltage group	A	**3RK1 903-1BC00**		1	1 unit	121	0.225
	PM-D F5 With diagnostics Safety module for expanding PM-D F1 ... 4 with four floating enabling circuits Contact multipliers	A	**3RK1 903-1BE00**		1	1 unit	121	0.222
	PM-D FX1 With diagnostics Infeed terminal module for supply of 1 to 6 switch-off groups	A	**3RK1 903-3DA00**		1	1 unit	121	0.123
	FC-M contact multipliers With 4 safe floating contacts	A	**3RK1 903-3CA00**		1	1 unit	121	0.223
Safety modules PROFIsafe								
	PM-D F PROFIsafe safety modules For PROFIBUS and PROFINET For Failsafe motor starters For Failsafe contact multipliers With six switch-off groups (SG1 to SG6)	A	**3RK1 903-3BA01**		1	1 unit	121	0.139
	F-CM contact multipliers With 4 safe floating contacts	A	**3RK1 903-3CA00**		1	1 unit	121	0.223

More information

PM-D F1, F2, F3, F4 and F5 safety modules		
Mechanical endurance	Operating cycles	10×10^6
Electrical endurance		200 000 with I_e
Utilization categories		DC-13
Control times		
• Minimum command duration	ms	200
• Recovery time	s	< 1
• Off-delay	ms	30
Control circuit U_1		
• Rated control supply voltage U_S	V	24 DC
• Operating range DC up to 60 °C		0.85 ... 1.2 x U_s
• Power consumption	W	2.4
• Recommended short-circuit protection		(gG) gL 2 A
• Output OUT+/OUT- for control of expansion modules		24 V DC/ < 50 mA (PTC fuse)
Switched auxiliary circuit U_2		
• Rated control supply voltage U_S	V	24 DC
• Operating range DC up to 60 °C		0.85 ... 1.2 x U_s
• Rated operational current I_e (DC 13 ... 24 V)	A	4
• Uninterrupted thermal current I_{th}	A	5
Recommended short-circuit protection for enabling and signaling circuits		Fuse links: NH type 3NA, DIAZED type 5SB, NEOZED type 5SE Operational class (gG) gL 6 A
Supplying		
• Motor starters		Yes
• Solid-state modules		No
• Ex(i) modules		No
• BG certification		Yes
• UL-, CSA certification		Yes
Cable length for EMERGENCY-STOP and ON pushbuttons	m	max. 1000
Mounting dimensions (W x H x D)	mm	30 x 196.5 x 117.5 (incl. terminal module)
Enabling circuits with PM-D F5		4 (floating)

* You can order this quantity or a multiple thereof.

PM-D FX1 safety module (infeed terminal module)		
Dimensions		
Mounting dimensions (W x H x D)	mm	30 x 196.5 x 117.5 (incl. terminal module)
Module-specific specifications		
Ambient temperature	°C	0 ... +60
Degree of protection		IP20
Maximum achievable safety classes		
• IEC 62508		SIL 3
• DIN V 19250		Shutdown class 5 and 6
• EN 954-1		Category 4
Safety characteristics		
Proof-test interval		10 years
Voltages, currents, potentials		
Rated control supply voltage U_s	V	21.6 ... 26.4 DC up to 60 °C
Rated operational current I_e	A	6 Internal protection with 7 A melting fuse (quick)
Recommended upstream short-circuit protection	A	Melting fuse gL/gG 6.3
Supplying		
• Failsafe motor starters		Yes
• Failsafe frequency converters		Yes
• Solid-state modules		No
• Ex[i] modules		No
Power consumption		
• From the backplane bus	mA	≤ 10
• From U_1	mA	≤ 35
• From SGx	mA	≤ 15
Status, alarms, diagnostics		
Alarms		None
Diagnostics functions		
• Group fault/device fault		Red "SF" LED
• Monitoring the control supply voltage for solid-state modules U1 (PWR)		Green PWR LED
• Monitoring of six switch-off groups		Green LED SG1 ... SG6
• Diagnostics information can be read out		Yes
Standards, approvals		
• TÜV		Yes
• UL-, CSA certification		Yes

F-CM contact multipliers		
Dimensions		
Dimensions (W x H x D)	mm	30 x 196.5 x 117.5 (incl. terminal module)
Module-specific specifications		
Number of relay outputs		4 (4 x 1-channel or 2 x 2-channel safe coupling/contact multiplication)
Internal power supply for bar		U1 (from PM-D F/PM-D FX1)
Maximum achievable safety class		
• Acc. to IEC 61508		SIL3
• Acc. to DIN VDE 0801		AK 6
• Acc. to EN 954		Cat. 4
Voltages, currents, potentials		
Switching capacity of the relay outputs		Utilization category DC-13 (I_e/U_e): 1.5 A / 24 V
Electrical separation		
• Between outputs and backplane bus		Yes
• Between outputs and power supply		Yes
• Between outputs		Yes
• Between outputs/power supply and shield		Yes
Status, alarms, diagnostics		
Status display		PWR and STAT
Alarms: Diagnostics alarm		None
Diagnostics functions		Yes
• Group fault display		Red LED (SF)
• Diagnostics information can be read out		Available
• Monitoring the control supply voltage for solid-state modules U_1 (PWR)		Green PWR LED
• Monitoring the switching state of the enabling circuit		Red/green STAT LED

PM-D F PROFIsafe safety modules		
Dimensions		
Dimensions (W x H x D)	mm	30 x 196.5 x 117.5 (incl. terminal module)
Module-specific specifications		
Number of outputs, source input		6 switch-off groups (safety group 1 ... 6)
Internal power supply for bar		U1
Assigned address range		
• In PAE	byte	5
• In PAA	byte	5
Maximum achievable safety class		
• Acc. to IEC 61508		SIL3
• Acc. to DIN VDE 0801		AK 6
• Acc. to EN 954		Cat. 4
Voltages, currents, potentials		
Control supply voltage	V	24 DC
Electrical separation		
• Between outputs and backplane bus		Yes
• Between outputs and power supply		No
• Between outputs		No
• Between outputs/power supply and shield		Yes
Status, alarms, diagnostics		
Status display		Green LED per SG Green LED for electronics supply Green LED for load voltage
Alarms: Diagnostics alarm		"TO"
Diagnostics functions		
• Group fault display		Red LED (SF)
• Diagnostics information can be read out		Available
Settings		
Module address		Diverse: 1. Using a safety-oriented parameter in the parameterization message frame over the backplane bus 2. Using the 10-pole DIL switch (binary-coded) on the left side of the module The received address is then compared with the DIL switch setting

Overview

Terminal modules for safety modules

For supplying load and sensor voltage to the self-assembling potential bars of the Standard motor starters, High-Feature motor starters and frequency converters. Safety modules for voltage monitoring are plugged onto TM-P modules. TM-P modules can be used any number of times within the ET 200S. A safety module must always be plugged upstream from the first motor starter.

Different safety circuits can be functionally separated or else cascaded using different terminal modules. Each group in such a case must be terminated with a PM-X connection module.

TM-PF30 S47-B1

The terminal module is always positioned at the beginning of a safety segment and accommodates the PM-DF1 safety module for EMERGENCY-STOP applications or the PM-DF2 safety module for protective door monitorings. The 24 V control supply voltages for the electronics (U1) and those for supplying the contactors (U2) of the motor starters must be connected along with the 2-channel connection of the safety sensors (e. g. EMERGENCY-STOP pushbuttons) to this terminal module. Connections for the ON button (enabling) and safe output of the safety module are available in addition.

TM-PF30 S47-B0

The terminal module is used to cascade lower level safety segments and accommodates the PM-DF1 safety module for EMERGENCY-STOP applications or the PM-DF2 safety module for protective door monitorings. No other auxiliary voltage has to be connected to this terminal module. The supply comes from the preceding PM-DF1 or PM-DF2 module over the potential bars of the terminal modules. Once the potential of the preceding safety module is disconnected, this sub-potential also has no voltage.

TM-PF30 S47-C1

The terminal module is always positioned at the beginning of a safety segment expansion in a new station, e. g. at an interlace point. It accommodates the PM-D F3 safety module for time-delayed shutdown or the PM-D F4 safety module for direct shutdown in separately located ET 200S stations. The 24 V control supply voltages for the electronics (U1) and those for supplying the contactors (U2) are fed in new.
The shutdown command from an upstream ET 200S station is received through a safe input. Separate terminals are available to connect the feedback circuit to the upstream ET 200S station. No safety sensors can be connected to this terminal module.

TM-PF30 S47-C0

The terminal module is used to cascade lower level safety segments and accommodates the PM-D F3 safety module for time-delayed shutdown or the PM-D F4 safety module. Only the U2 control supply voltage for the contactors must be connected to this terminal module. The U1 supply comes from the preceding safety module (sub-potential group) over the potential bars of the terminal modules. No safety sensors can be connected to this terminal module.

TM-PF30 S47-D0

The terminal module is used to accommodate the PM-D F5 safety module. On this terminal module, safe signals can be relayed to external systems through four groups, each with two safety relay contacts configured with redundancy. The terminal module must always be positioned between one of the above mentioned terminal modules and a terminal module for the TM-X connection module. No safety sensors can be connected to this terminal module.

Terminal modules for connection modules (TM-X)

For connection of an external infeed contactor (second shutdown option) for category 3 and 4. The connection module is plugged on the right alongside the last motor starter of a safety segment. On the TM-X terminal module there are the terminals for connecting the positively driven NC contact of the contactors as well as the terminals for connecting the contactor coil. If no contactor with redundant switching is required, e. g. for category 2 (EN 954-1), the feedback circuit has to be closed at these terminals with a jumper. In applications with external safety relays it is also used instead of the safety module as interface to the external safety relay.

Selection and ordering data


3RK1 903-1AA00

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Terminal modules for Safety modules local							
Terminal modules							
TM-PF30 S47-B1 For PM-D F1/2 Safety Modules With infeed U1/U2 and sensor connection	A	**3RK1 903-1AA00**		1	1 unit	121	0.408
TM-PF30 S47-B0 For PM-D F1/2 Safety Modules With sensor connection	A	**3RK1 903-1AA10**		1	1 unit	121	0.393
TM-PF30 S47-C1 For PM-D F3/4 Safety Modules With infeed U1/U2 and control input IN+/IN-	A	**3RK1 903-1AC00**		1	1 unit	121	0.399
TM-PF30 S47-C0 For PM-D F3/4 Safety Modules With infeed U2	A	**3RK1 903-1AC10**		1	1 unit	121	0.378
TM-PF30 S47-D0 For PM-D F5 Safety Modules	A	**3RK1 903-1AD10**		1	1 unit	121	0.400
TM-X15 S27-01 For PM-X Safety Module	A	**3RK1 903-1AB00**		1	1 unit	121	0.201
TM-P15-S27-01 terminal modules For PM-D power module	A	**3RK1 903-0AA00**		1	1 unit	121	0.224
TM-PFX30 S47-G0/G1 terminal modules For PM-D F X1 Safety modules (infeed terminal modules)							
• Infeed left (TM-PFX30 S47-G0)	A	**3RK1 903-3AE10**		1	1 unit	121	0.408
• Infeed center (TM-PFX30 S47-G1)	A	**3RK1 903-3AE00**		1	1 unit	121	0.405
TM-FCM30 S47-F01 terminal modules For F-CM contact multipliers	A	**3RK1 903-3AB10**		1	1 unit	121	0.410
Terminal modules for Safety modules PROFIsafe							
TM-PF30 S47-F0 terminal modules For PM-D F PROFIsafe safety modules	A	**3RK1 903-3AA00**		1	1 unit	121	0.360
TM-FCM30 S47-F01 terminal modules For F-CM contact multipliers	A	**3RK1 903-3AB10**		1	1 unit	121	0.410

More information

TM-PFX30 S47/TM-PF30 S47 terminal modules		
Dimensions		
Mounting dimensions (W x H x D)	mm	30 x 196.5 x 102
Depth with power module	mm	117.5
Insulation voltages and rated currents		
Insulation voltage	V	500
Rated operational voltage	V	24 DC
Rated operational current	A	10
Conductor cross-sections		
Solid	mm^2	1 x (0.14 ... 2.5) acc. to IEC 60947 1 x (2.5
Finely stranded with end sleeve	mm^2	1 x (0.14 ... 1.5) acc. to IEC 60947
AWG cables, solid or stranded	AWG	1 x (18 ... 22)
Wiring		
Required tool		Standard screwdriver size 1
Tightening torque	Nm	0.4 ... 0.7

* You can order this quantity or a multiple thereof.

Accessories

Overview

Accessories for Standard motor starters

Control kits

The control kit for the Standard motor starter provides the possibility of testing the motor during start-up or service by actuating the motor starter protector. Using the control kit with the motor starter protector tripped, the contactor is mechanically locked in ON position.

Control unit

With the control unit the contactor coils of the Standard motor starter can be directly controlled using 24 V DC. The motor starter can thus be started as normal using a local control point without PLC or bus.

Note:
The control unit cannot be used in combination with the safety technology or a brake control module.

DM-V15 distance module

- Passive module without bus connection and terminals
- Does not need a separate terminal module
- Follows a TM-DS45 or TM-RS90 or TM-xB if required
- Does not need to be taken into account when configuring the GSD file

The distance module is available for applications with high motor currents or high ambient temperatures involving Standard motor starters. It can be used to the right and left of a DS1-x direct-online starter or to the right of an xB1-4 brake module in order to improve heat removal to the side. The distance module is a completely passive module and does not need to be taken into account with regard to the control system during configuration. Details of the distance module can be found in the manual "SIMATIC ET 200S". If you have any queries concerning the use of the distance module, contact Technical Support for Siemens Low-Voltage Controls and Distribution (Fax: +49(0)911/895-5907).

Accessories for High-Feature motor starters

2DI 24 V DC COM control module

The 2DI 24 V DC COM control module is plugged onto the interface on the front of the motor starter. The module provides two inputs which can receive signals from the process and be assigned directly to the starter.

The functionality can be selected from a list of various control functions as part of the PROFIBUS parameterization. Local control point, emergency start and quick stop, for example, are available as functions. The signal levels can also be parameterized (NO/NC). For more extensive control functions the two inputs of a xB3 or x4 brake control module, which is plugged in alongside on the right, can be integrated in addition. The signal states of all inputs are transmitted in parallel with the internal use to the higher-level control system.

When a motor starter is replaced, the parameterization is automatically transmitted by download to the new starter. The inputs on the motor starter ensure autonomous operation, e. g. in the event of PLC failure, on the one hand and short response times through direct processing in the starter on the other hand. Another advantage results from the direct assignment of functions to modular machine concepts.

The 2DI 24 V DC COM control module has in addition a PC interface for connecting the Switch ES Motor Starter parameterization and diagnostics software (Version 2.0 and higher). The module works solely on High-Feature motor starters with ES Motor Starter interface. The Logo!-PC cable is used as connecting cable between the 2DI 24 V DC COM control module and the High-Feature motor starter.

Accessories for Standard and High-Feature motor starters

PE/N bridge module

PE/N bridge modules are used to bridge gaps in the PE/N bus which are caused, for example, by using brake control modules, PM-D(F) power modules or PM-X connection modules. If a bridge module is used, the supply must not be fed in anew. They are available in widths of 15 and 30 mm.

L1/L2/L3 bridge module

The L1/L2/L3 bridge modules are used to bridge gaps in the power bus (see above). They are available in widths of 15 and 30 mm.

Brake control module

for motors with mechanical brake

Terminal modules for brake control modules

The TM-xB terminal modules are used to accommodate the xB1, xB2, xB3 and xB4 brake control modules. The TM-xB terminal module must always follow directly after a terminal module for Standard motor starters, High-Feature motor starters or frequency converters as control of the solid-state braking switch is provided through an output of the motor starter/frequency converter. The xB215 terminal modules for the brake control modules have not only the terminals for connecting the cable for the motor brake but also the terminals of the two local acting inputs. These local inputs are not evaluated by a frequency converter; for this reason the xB215 terminal module may be plugged in only downstream from a motor starter.

Accessories for Standard, High Feature, Failsafe motor starters

PE/N terminal blocks

The PE/N terminal block is required for direct connection of the protective conductor in the motor cable without intermediate terminals. It is plugged together with the terminal module for motor starters or frequency converters before the latter is mounted on the standard mounting rail. With two PE terminals and one N terminal the "-F" version is connected to the "-S32" terminal modules for motor starters or frequency converters. The "-S" version is combined with the "-S31" terminal module. The "F" terminal modules are delivered with two caps for closing the PE/N bus contacts on the final terminal block of a segment. The modules for the Standard motor starters have a width of 45 mm and the modules for the High-Feature motor starters and frequency converters have a width of 65 mm.

There is no electrical connection between the terminals of the PE/N terminal block and the integrated shielding of the frequency converter. The PE/N terminal block must therefore not be used for the shielding of the motor cable.

Selection and ordering data

	Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Accessories for Standard motor starters								
 3RK1 903-0CA00	**Control kits** for manually operating the contactor contacts during start-up and servicing (one set contains five control kits)	A	**3RK1 903-0CA00**		1	1 unit	121	0.015
 3RK1 903-0CG00	**Control units** for direct contactor control (manual control) 24 V DC	A	**3RK1 903-0CG00**		1	1 unit	121	0.038
 3RK1 903-0CD00	**DM-V15 distance modules for DS1-x direct-on-line starters with high temperatures or high current loading** 15 mm wide	A	**3RK1 903-0CD00**		1	1 unit	121	0.128
 3RK1 903-2AA00	**PE/N M45-PEN-F terminal blocks** 45 mm wide including two caps in combination with TM-DS45-S32 / TM-RS90-S32	A	**3RK1 903-2AA00**		1	1 unit	121	0.077
 3RK1 903-2AA10	**PE/N M45-PEN-S terminal blocks** 45 mm wide in combination with TM-DS45-S31 / TM-RS90-S31	A	**3RK1 903-2AA10**		1	1 unit	121	0.087
Accessories for High-Feature motor starters								
 3RK1 903-0CH20	**Control modules 2DI DC 24 V COM** Digital input module with 2 inputs (cable length up to 100 m) for local motor starter functions for mounting onto the front of motor starters, operational voltage 24 V DC (supplied from U_1), short-circuit proof, floating contact with serial interface for connecting ES motor starters, connected using LOGO!-PC cable	A	**3RK1 903-0CH20**		1	1 unit	121	0.025
	LOGO! PC cables for connecting the High-Feature motor starter with ES interface switch to a PC	A	**6ED1 057-1AA00-0BA0**		1	1 unit	200	0.168
 3RK1 922-3BA00	**Hand-held devices** for ET 200S High-Feature motor starter, (also for ET 200pro and ECOFAST), for local operation. A serial interface cable must be ordered separately.	B	**3RK1 922-3BA00**		1	1 unit	121	0.130

* You can order this quantity or a multiple thereof.

Accessories

	Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
	M65-PEN-F terminal blocks 65 mm wide including two caps in combination with TM-DS65-S32 / TM-RS130-S32	A	**3RK1 903-2AC00**		1	1 unit	121	0.093
	M65-PEN-S terminal blocks 65 mm wide in combination with TM-DS65-S31 / TM-RS130-S31	A	**3RK1 903-2AC10**		1	1 unit	121	0.099
Accessories for Standard / High-Feature motor starters								
 3RK1 903-0AH00	**M15-PEN bridge modules** 15 mm wide for bridging a 15 mm module	A	**3RK1 903-0AH00**		1	1 unit	121	0.019
 3RK1 903-0AJ00	**M30-PEN bridge modules** 30 mm wide for bridging a 30 mm module	A	**3RK1 903-0AJ00**		1	1 unit	121	0.032
 3RK1 903-0AE00	**M15-L123 bridge modules** 15 mm wide for bridging a 15 mm module	A	**3RK1 903-0AE00**		1	1 unit	121	0.027
 3RK1 903-0AF00	**M30-L123 bridge modules** 30 mm wide for bridging a 30 mm module	A	**3RK1 903-0AF00**		1	1 unit	121	0.046
 3RK1 903-0CB00	**Brake control modules** for motors with mechanical brakes							
	• **xB1 for motor starters** 24 V DC/4 A	A	**3RK1 903-0CB00**		1	1 unit	121	0.106
	• **xB2 for motor starters** 500 V D/0.7 A	A	**3RK1 903-0CC00**		1	1 unit	121	0.109
	• **xB3 for motor starters** 24 V DC / 4 A / 2 DI 24 V DC local control with diagnostics with two inputs	A	**3RK1 903-0CE00**		1	1 unit	121	0.110
	• **xB4 for motor starters** 500 V DC / 0.7 A / 2 DI 24 V DC local control with diagnostics with two inputs	A	**3RK1 903-0CF00**		1	1 unit	121	0.114
	Terminal modules for brake control modules							
	• **TM-xB15 S24-01** for xB1 or xB2	A	**3RK1 903-0AG00**		1	1 unit	121	0.174
	• **TM-xB215 S24-01** for xB3 or xB4	A	**3RK1 903-0AG01**		1	1 unit	121	0.188
Accessories for Failsafe motor starters								
	PE/N **M65-PEN-F terminal blocks** With incoming connection, with caps	A	**3RK1 903-2AC00**		1	1 unit	121	0.093
	M65-PEN-S **terminal blocks** without incoming connection	A	**3RK1 903-2AC10**		1	1 unit	121	0.099

* You can order this quantity or a multiple thereof.

	Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Accessories for power modules								
	Color coding plates 6 x 200 color coding plates for terminal modules One set contains 10 strips of 20 color coding plates per color							
	• White	X	**6ES7 193-4LA10-0AA0**			1 unit	2F0	0.038
	• Yellow	X	**6ES7 193-4LB10-0AA0**			1 unit	2F0	0.038
	• Yellow and green	X	**6ES7 193-4LC10-0AA0**			1 unit	2F0	0.037
	• Red	X	**6ES7 193-4LD10-0AA0**			1 unit	2F0	0.038
	• Blue	X	**6ES7 193-4LF10-0AA0**			1 unit	2F0	0.038
	• Brown	X	**6ES7 193-4LG10-0AA0**			1 unit	2F0	0.036
Accessories for Safety modules local								
 3RK1 903-1CA00	**PM-X safety modules** With diagnostics Modules for connecting a safety group and for connecting an external infeed contactor or for connecting to an external safety circuit	A	**3RK1 903-1CB00**		1	1 unit	121	0.068
	F-Kit 1 Failsafe equipment for DS1-x[1] Standard motor starters	A	**3RK1 903-1CA00**		1	1 unit	121	0.030
 3RK1 903-1CA01	**F-Kit 2** Failsafe equipment for RS1-x[1] Standard motor starters	A	**3RK1 903-1CA01**		1	1 unit	121	0.056

[1] The function of the Failsafe-Kit is already integrated into High-Feature motor starters.

More information

ET 200S motor starters

		Brake control module XB1	Brake control module XB3	Brake control module XB2	Brake control module XB4
Dimensions (W x H x D)	mm	15 x 196.5 x 125.5 including terminal module on 7.5 mm standard mounting rail			
Number of assigned outputs for the (left-hand) motor starter		1			
Rated operational voltage	V	24 DC		500 DC (min. 100)	
Power supply		Externally through terminal module		From brake rectifier through terminal module	
Rated operational current	A	4		0.7	
Reverse polarity protection		No, in the event of polarity reversal the brake is released and the overload/short-circuit protection is not effective			
Overload/short-circuit protection		Yes, solid-state			
Conductor cross-section of the terminal module for the brake control module	mm^2	1 x 2.5 without end sleeve 1 x 1.5 with end sleeve			
Number of outputs		0	1 (used internally)	0	1 (used internally)
Number of inputs		0	2	0	2
Address area required per module					
• With summary		0	2 bits	0	2 bits
• Without summary		0	1 byte	0	1 byte
Diagnostics functions					
• Group fault "SF"		Red LED			
• Switching state for brake "STAT"		Yellow LED			
• Inputs 1 and 5		--	Green LED	--	Green LED
Parameters (default values underlined)					
• Brake overload diagnostics		--	Disable/Enable	--	Disable/Enable
• Input delay	ms	--	0 / 0.1 / 0.5 / 3 / 15	--	0 / 0.1 / 0.5 / 3 / 15
Module width	mm	15			

* You can order this quantity or a multiple thereof.

Interface/solid-state modules

Selection and ordering data

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
IM 151-1 interface modules							
IM 151-1 BASIC interface modules For ET 200S; transmission rates up to 12 Mbit/s; up to 12 power, solid-state and motor starter modules can be connected; connection to bus through 9-pole Sub-D including bus termination module	A	**6ES7151-1CA00-0AB0**		1	1 unit	250	0.169
IM 151-1 COMPACT 32 DI 24 V DC interface modules For ET 200S; transmission rates up to 12 Mbit/s; 32 digital inputs, up to 12 power, solid-state and motor starter modules can be connected; connection to bus through 9-pole Sub-D including bus termination module	A	**6ES7151-1CA00-1BL0**		1	1 unit	250	0.291
IM 151-1 COMPACT 16 DI DC 24 V / 16 DO 24 V/0.5 A interface modules For ET 200S; transmission rates up to 12 Mbit/s; 16 digital inputs and 16 digital outputs, up to 12 power, solid-state and motor starter modules can be connected; connection to bus through 9-pole Sub-D including bus termination module	A	**6ES7151-1CA00-3BL0**		1	1 unit	250	0.294
IM 151-1 STANDARD interface modules For ET 200S; transmission rates up to 12 Mbit/s; data volume of 244 bytes each for inputs and outputs; up to 63 power, solid-state and motor starter modules can be connected; connection to bus through 9-pole Sub-D including bus termination module	A	**6ES7151-1AA05-0AB0**		1	1 unit	250	0.172
IM 151-1 FO STANDARD interface modules For ET 200S; transmission rates up to 12 Mbit/s; data volume of 128 bytes each for inputs and outputs; up to 63 power, solid-state and motor starter modules can be connected; connection to bus using integrated fiber-optic cable including bus termination module	A	**6ES7151-1AB02-0AB0**		1	1 unit	250	0.192
IM 151-1 HIGH FEATURE interface modules For ET 200S; transmission rates up to 12 Mbit/s; data volume of 244 bytes each for inputs and outputs; up to 63 modules can be connected; connection of PROFIsafe modules, isochrone mode (clocked operation); connection to bus through 9-pole Sub-D including bus termination module	A	**6ES7151-1BA02-0AB0**		1	1 unit	250	0.172
Accessories							
TM-C120S terminal modules Terminal module for ET 200S COMPACT, screw terminals	A	**6ES7 193-4DL10-0AA0**		1	1 unit	250	0.492
TM-C120C terminal modules Terminal module for ET 200S COMPACT, spring-type terminals	A	**6ES7 193-4DL00-0AA0**		1	1 unit	250	0.390
TE-U120S4x10 additional terminals Additional terminal for TM-C120x terminal modules of ET 200S COMPACT; screw terminals for 3-conductor connection; please order two for 4-conductor connection. Can also be plugged into TM-E/TM-P if the same height of the terminal modules exists over a width of at least 120 mm	A	**6ES7 193-4FL10-0AA0**		1	1 unit	250	0.205
TE-U120C4x10 additional terminals Additional terminal for TM-C120x terminal modules of ET 200S COMPACT; spring-type terminals for 3-conductor connection; please order two for 4-conductor connection. Can also be plugged into TM-E/TM-P if the same height of the terminal modules exists over a width of at least 120 mm	A	**6ES7 193-4FL00-0AA0**		1	1 unit	250	0.159
Manuals for ET 200S distributed I/O system Can be downloaded as a PDF file from the Internet: www.siemens.com/simatic-docu							
SIMATIC Manual Collection Electronic manuals on DVD, several languages: S7-200, TD 200, S7-300, M7-300, C7, S7-400, M7-400, STEP 7, Engineering Tools, Runtime Software, SIMATIC DP (Distributed I/O), SIMATIC HMI (Human Machine Interface), SIMATIC NET (Industrial Communication)	A	**6ES7 998-8XC01-8YE0**		1	1 unit	230	0.099
SIMATIC Manual Collection – Update service for 1 year Scope of supply: The current DVD S7 Manual Collection as well as the three subsequent updates	C	**6ES7 998-8XC01-8YE2**		1	1 unit	230	0.400
PROFIBUS DP interface RS485 bus connectors With 90° cable feeder for FastConnect connections, max. transmission rate 12 Mbit/s							
• Without PG interface	A	**6ES7 972-0BA52-0XA0**		1	1 unit	250	0.044
• With PG interface	A	**6ES7 972-0BB52-0XA0**		1	1 unit	250	0.049
100 Simplex connectors For plastic fiber-optic cable including 5 polishing sets	A	**6GK1 901-0FB00-0AA0**		1	1 set	5K2	0.124
50 plug-in adapters each for 2 Simplex connectors	A	**6ES7 195-1BE00-0XA0**		1	1 unit	250	0.115
Inscription sheets in A4 format (10 units) Each sheet contains 60 labeling strips for I/O modules and 20 labeling strips for interface modules.							
• Petrol	A	**6ES7 193-4BH00-0AA0**		1	1 unit	250	0.241
• Red	A	**6ES7 193-4BD00-0AA0**		1	1 unit	250	0.225
• Yellow	A	**6ES7 193-4BB00-0AA0**		1	1 unit	250	0.225
• Light beige	A	**6ES7 193-4BA00-0AA0**		1	1 unit	250	0.226

* You can order this quantity or a multiple thereof.

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
IM 151-1 interface modules (continued)							
Inscription sheets in A4 format (10 units) Can be used for ET 200S COMPACT. Each sheet contains 10 labeling strips							
• Beige	A	**6ES7 193-4BA10-0AA0**		1	1 unit	250	0.234
• Yellow	A	**6ES7 193-4BB10-0AA0**		1	1 unit	250	0.229
• Red	A	**6ES7 193-4BD10-0AA0**		1	1 unit	250	0.228
• Petrol	A	**6ES7 193-4BH10-0AA0**		1	1 unit	250	0.232
Termination modules As spare part for ET 200S	A	**6ES7 193-4JA00-0AA0**		1	1 unit	250	0.026
Power supply plugs Spare parts; for connection to control supply voltage 24 V DC							
• With push-in terminals	A	**6ES7 193-4JB00-0AA0**		1	1 unit	250	0.045
• With screw terminals	A	**6ES7 193-4JB50-0AA0**		1	1 unit	250	0.027
SIMATIC S5, 35 mm standard mounting rails							
• 483 mm long for 19" cabinets	A	**6ES5 710-8MA11**		1	1 unit	250	0.440
• 530 mm long for 600 mm cabinets	A	**6ES5 710-8MA21**		1	1 unit	250	0.466
• 830 mm long for 900 mm cabinets	A	**6ES5 710-8MA31**		1	1 unit	250	0.820
• Length 2 m	A	**6ES5 710-8MA41**		1	1 unit	250	1.930
SIPLUS IM 151-1 interface modules (extended temperature range)							
SIPLUS IM 151-1 STANDARD interface modules (extended temperature range and medial load) For ET 200S; transmission rates up to 12 Mbit/s; data volume of 244 bytes each for inputs and outputs; up to 63 power, solid-state and motor starter modules can be connected; connection to bus through 9-pole Sub-D including bus termination module	X	**6AG1 151-1AA04-2AB0**		1	1 unit	471	0.186
SIPLUS IM 151-1 HIGH FEATURE interface modules (extended temperature range and medial load) For ET 200S; transmission rates up to 12 Mbit/s; data volume of 244 bytes each for inputs and outputs; up to 63 modules can be connected; connection of PROFIsafe modules, isochrone mode (clocked operation); connection to bus through 9-pole Sub-D including bus termination module	D	**6AG1 151-1BA02-2AB0**		1	1 unit	471	0.180
Accessories		For ordering data see IM 151-1 interface modules					
IM 151-3 PN interface modules							
IM 151-3 PN interface modules For ET 200S; transmission rates up to 100 Mbit/s; data volume dependent on number of modules mounted, up to 63 modules can be connected, connection to bus through RJ45	A	**6ES7 151-3AA23-0AB0**		1	1 unit	250	0.199
IM 151-3 PN PROFINET High Feature interface modules For ET 200S; transmission rates up to 100 Mbit/s; up to 63 modules with max. width of 2 m can be connected, connection to bus through RJ45, including termination module	A	**6ES7 151-3BA23-0AB0**		1	1 unit	250	0.199
IM 151-3 FO interface modules For ET 200S; with 2 PROFINET fiberoptic interfaces and integrated 2-port switch, up to 63 modules up to 2 m wide can be connected, including bus termination module	A	**6ES7 151-3BB23-0AB0**		1	1 unit	250	0.241
Accessories							
Industrial Ethernet FC RJ45 Plug 90 RJ45 plug-in connector for Industrial Ethernet, with robust metal enclosure and integrated cutting and clamping contacts for connection of Industrial Ethernet FC installation cables; with 90° cable feeder							
• 1 unit	A	**6GK1 901-1BB20-2AA0**		1	1 unit	5K2	0.030
• 10 units	A	**6GK1 901-1BB20-2AB0**		1	1 unit	5K2	0.300
• 50 units	A	**6GK1 901-1BB20-2AE0**		1	1 unit	5K2	1.500
Industrial Ethernet Fast Connect installation cables							
• Fast Connect standard cables	A	**6XV1 840-2AH10**		1	1 M	5K2	0.068
• Fast Connect trailing cables	A	**6XV1 840-3AH10**		1	1 M	5K2	0.055
• Fast Connect marine cables	A	**6XV1 840-4AH10**		1	1 M	5K2	0.055
Termination kits							
• SC RJ POF Plug Termination kit for local mounting of SC RJ connectors, comprising insulation stripping tool, kevlar shears, microscope, abrasive paper and support	A	**6GK1 900-0ML00-0AA0**		1	1 unit	5K2	3.400
• IE SC RJ POF Plug Threaded connectors for local mounting on POF fiber-optic cables (1 pack = 20 units)	A	**6GK1 900-0MB00-0AC0**		1	1 unit	5K2	0.320
• IE SC RJ Refill Set POF Refill set for SC RJ POF Plug termination kit, comprising abrasive paper and disk (set of 5)	A	**6GK1 900-0MN00-0AA0**		1	1 unit	5K2	0.150
• SC RJ PCF Plug Termination kit for local mounting of SC RJ connectors, comprising insulation stripping tool, buffer insulation stripping tool, kevlar shears, fiber cleaver, microscope	A	**6GK1 900-0NL00-0AA0**		1	1 unit	5K2	3.400
• Industrial Ethernet SC RJ PCF Plug Threaded connectors for local mounting on PCF fiber-optic cables (1 pack = 10 units)	A	**6GK1 900-0NB00-0AC0**		1	1 unit	5K2	0.200
Industrial Ethernet Fast Connect stripping tools	A	**6GK1 901-1GA00**		1	1 unit	5K2	0.100

* You can order this quantity or a multiple thereof.

Interface/solid-state modules

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
IM 151-3 PN interface modules (continued)							
MMC 64 Kbyte[1)] For storing the unit's name	A	**6ES7 953-8LF20-0AA0**		1	1 unit	230	0.012
MMC 128 Kbyte[1)] For storing the unit's name	A	**6ES7 953-8LG11-0AA0**		1	1 unit	230	0.012
MMC 512 Kbyte[1)] For storing the unit's name	A	**6ES7 953-8LJ20-0AA0**		1	1 unit	230	0.012
MMC 2 MByte[1)] For storing the unit's name and/or the firmware update	A	**6ES7 953-8LL20-0AA0**		1	1 unit	230	0.012
MMC 4 MByte[1)] For storing the unit's name and/or the firmware update	A	**6ES7 953-8LM20-0AA0**		1	1 unit	230	0.012
MMC 8 MByte[1)] For storing the unit's name and/or the firmware update	A	**6ES7 953-8LP20-0AA0**		1	1 unit	230	0.013
Manuals for ET 200S distributed I/O system Can be downloaded as a PDF file from the Internet: www.siemens.com/simatic-docu							
SIMATIC Manual Collection Electronic manuals on DVD, several languages: S7-200, TD 200, S7-300, M7-300, C7, S7-400, M7-400, STEP 7, Engineering Tools, Runtime Software, SIMATIC DP (Distributed I/O), SIMATIC HMI (Human Machine Interface), SIMATIC NET (Industrial Communication)	A	**6ES7 998-8XC01-8YE0**		1	1 unit	230	0.099
SIMATIC Manual Collection – Update service for 1 year Scope of supply: The current DVD S7 Manual Collection as well as the three subsequent updates	C	**6ES7 998-8XC01-8YE2**		1	1 unit	230	0.400
Inscription sheets in A4 format (10 units) Each sheet contains 60 labeling strips for I/O modules and 20 labeling strips for interface modules.							
• Petrol	A	**6ES7 193-4BH00-0AA0**		1	1 unit	250	0.241
• Red	A	**6ES7 193-4BD00-0AA0**		1	1 unit	250	0.225
• Yellow	A	**6ES7 193-4BB00-0AA0**		1	1 unit	250	0.225
• Light beige	A	**6ES7 193-4BA00-0AA0**		1	1 unit	250	0.226
Termination modules As spare part for ET 200S	A	**6ES7 193-4JA00-0AA0**		1	1 unit	250	0.026
Power supply plugs Spare parts; for connection to control supply voltage 24 V DC							
• With push-in terminals	A	**6ES7 193-4JB00-0AA0**		1	1 unit	250	0.045
• With screw terminals	A	**6ES7 193-4JB50-0AA0**		1	1 unit	250	0.027
35 mm standard mounting rails							
• 483 mm long for 19" cabinets	A	**6ES5 710-8MA11**		1	1 unit	250	0.440
• 530 mm long for 600 mm cabinets	A	**6ES5 710-8MA21**		1	1 unit	250	0.466
• 830 mm long for 900 mm cabinets	A	**6ES5 710-8MA31**		1	1 unit	250	0.820
• Length 2 m	A	**6ES5 710-8MA41**		1	1 unit	250	1.930
Industrial Ethernet switches Managed Industrial Ethernet switches; isochronous real-time, LED diagnostics, error signaling contacts with SET button, redundant power supply							
• SCALANCE X202-2P IRT 2 x 10/100 Mbit/s RJ45 ports, 2 x 100 Mbit/s POF/PCF SC RJ	D	**6GK5 202-2BH00-2BA3**		1	1 unit	5N2	1.007
• SCALANCE X201-3P IRT 1 x 10/100 Mbit/s RJ45 ports, 3 x 100 Mbit/s POF/PCF SC RJ	A	**6GK5 201-3BH00-2BA3**		1	1 unit	5N2	1.030
• SCALANCE X200-4P IRT 4 x 100 Mbit/s POF/PCF SC RJ	A	**6GK5 200-4AH00-2BA3**		1	1 unit	5N2	1.035
SIPLUS IM 151-3 PN interface modules (extended temperature range)							
SIPLUS IM 151-3 PN interface modules (extended temperature range and medial load) For ET 200S; transmission rates up to 100 Mbit/s; data volume dependent on number of modules mounted, up to 63 modules can be connected, connection to bus through RJ45	D	**6AG1 151-3AA22-2AB0**		1	1 unit	471	0.188
Accessories		For ordering data see IM 151-3PN interface modules					

[1)] For operation of the IM 151-3, an MMC is essential.

* You can order this quantity or a multiple thereof.

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
IM 151-7 CPU interface modules							
IM 151-7 CPU FO (48 K) interface modules including termination module	A	**6ES7 151-7AB00-0AB0**		1	1 unit	250	0.252
IM 151-7 CPU (96 K) interface modules including termination module	A	**6ES7 151-7AA20-0AB0**		1	1 unit	250	0.242
Accessories							
MMC 64 Kbyte[1] for program backups	A	**6ES7 953-8LF20-0AA0**		1	1 unit	230	0.012
MMC 128 Kbyte[1] For program backups	A	**6ES7 953-8LG11-0AA0**		1	1 unit	230	0.012
MMC 512 Kbyte[1] For program backups	A	**6ES7 953-8LJ20-0AA0**		1	1 unit	230	0.012
MMC 2 MByte[1] For program backups and/or the firmware update	A	**6ES7 953-8LL20-0AA0**		1	1 unit	230	0.012
MMC 4 MByte[1] For program backups	A	**6ES7 953-8LM20-0AA0**		1	1 unit	230	0.012
MMC 8 MByte[1] For program backups	A	**6ES7 953-8LP20-0AA0**		1	1 unit	230	0.013
External Prommer For e. g. MMC with USB interface	A	**6ES7 792-0AA00-0XA0**		1	1 unit	260	1.200
PG with integrated MMC interface		**On req.**					
Inscription sheets in A4 format (10 units) Each sheet contains 60 labeling strips for I/O modules and 20 labeling strips for interface modules.							
• Petrol	A	**6ES7 193-4BH00-0AA0**		1	1 unit	250	0.241
• Red	A	**6ES7 193-4BD00-0AA0**		1	1 unit	250	0.225
• Yellow	A	**6ES7 193-4BB00-0AA0**		1	1 unit	250	0.225
• Light beige	A	**6ES7 193-4BA00-0AA0**		1	1 unit	250	0.226
Manuals for ET 200S distributed I/O system Can be downloaded as a PDF file from the Internet: www.siemens.com/simatic-docu							
Termination modules As spare part for ET 200S	A	**6ES7 193-4JA00-0AA0**		1	1 unit	250	0.026
SIMATIC S5, 35 mm standard mounting rails							
• 483 mm long for 19" cabinets	A	**6ES5 710-8MA11**		1	1 unit	250	0.440
• 530 mm long for 600 mm cabinets	A	**6ES5 710-8MA21**		1	1 unit	250	0.466
• 830 mm long for 900 mm cabinets	A	**6ES5 710-8MA31**		1	1 unit	250	0.820
• Length 2 m	A	**6ES5 710-8MA41**		1	1 unit	250	1.930
IM 151-8 PN/DP CPU interface modules							
IM 151-8 PN/DP CPU interface modules (128 K)	A	**6ES7 151-8AB00-0AB0**		1	1 unit	250	0.379
Accessories							
MMC 64 Kbyte[1] For program backups	A	**6ES7 953-8LF20-0AA0**		1	1 unit	230	0.012
MMC 128 Kbyte[1] For program backups	A	**6ES7 953-8LG11-0AA0**		1	1 unit	230	0.012
MMC 512 Kbyte[1] For program backups	A	**6ES7 953-8LJ20-0AA0**		1	1 unit	230	0.012
MMC 2 MByte[1] For program backups and/or the firmware update	A	**6ES7 953-8LL20-0AA0**		1	1 unit	230	0.012
MMC 4 MByte[1] For program backups	A	**6ES7 953-8LM20-0AA0**		1	1 unit	230	0.012
MMC 8 MByte[1] For program backups	A	**6ES7 953-8LP20-0AA0**		1	1 unit	230	0.013
External Prommer For e. g. MMC with USB interface	A	**6ES7 792-0AA00-0XA0**		1	1 unit	260	1.200
PG with integrated MMC interface		**On req.**					
Inscription sheets in A4 format (10 units) Each sheet contains 60 labeling strips for I/O modules and 20 labeling strips for interface modules.							
• Petrol	A	**6ES7 193-4BH00-0AA0**		1	1 unit	250	0.241
• Red	A	**6ES7 193-4BD00-0AA0**		1	1 unit	250	0.225
• Yellow	A	**6ES7 193-4BB00-0AA0**		1	1 unit	250	0.225
• Light beige	A	**6ES7 193-4BA00-0AA0**		1	1 unit	250	0.226
Manuals for ET 200S distributed I/O system Can be downloaded as a PDF file from the Internet: www.siemens.com/simatic-docu							

[1] For operation of the CPU, an MMC is essential.

* You can order this quantity or a multiple thereof.

Interface/solid-state modules

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
IM 151-8 PN/DP CPU interface modules (continued)							
Termination modules As spare part for ET 200S	A	**6ES7 193-4JA00-0AA0**		1	1 unit	250	0.026
SIMATIC S5, 35 mm standard mounting rails							
• 483 mm long for 19" cabinets	A	**6ES5 710-8MA11**		1	1 unit	250	0.440
• 530 mm long for 600 mm cabinets	A	**6ES5 710-8MA21**		1	1 unit	250	0.466
• 830 mm long for 900 mm cabinets	A	**6ES5 710-8MA31**		1	1 unit	250	0.820
• Length 2 m	A	**6ES5 710-8MA41**		1	1 unit	250	1.930
Industrial Ethernet FC RJ45 Plug 180 RJ45 plug-in connector for Industrial Ethernet, with robust metal enclosure and integrated cutting and clamping contacts for connection of Industrial Ethernet FC installation cables; with 180° cable feeder							
• 1 unit	A	**6GK1 901-1BB10-2AA0**		1	1 unit	5K2	0.030
• 10 units	A	**6GK1 901-1BB10-2AB0**		1	1 unit	5K2	0.300
• 50 units	A	**6GK1 901-1BB10-2AE0**		1	1 unit	5K2	1.500
Industrial Ethernet Fast Connect installation cables							
• Fast Connect standard cables	A	**6XV1 840-2AH10**		1	1 M	5K2	0.068
• Fast Connect trailing cables	A	**6XV1 840-3AH10**		1	1 M	5K2	0.055
• Fast Connect marine cables	A	**6XV1 840-4AH10**		1	1 M	5K2	0.055
Industrial Ethernet Fast Connect stripping tools	A	**6GK1 901-1GA00**		1	1 unit	5K2	0.100
Master interface modules for IM 151-7(8) CPU/ IM 151-7 F-CPU interface modules							
Master interface modules for IM 151-7 CPU/IM 151-7 F-CPU interface modules	A	**6ES7 138-4HA00-0AB0**		1	1 unit	250	0.122
Accessories							
Inscription sheets in A4 format (10 units) Each sheet contains 60 labeling strips for I/O modules and 20 labeling strips for interface modules.							
• Petrol	A	**6ES7 193-4BH00-0AA0**		1	1 unit	250	0.241
• Red	A	**6ES7 193-4BD00-0AA0**		1	1 unit	250	0.225
• Yellow	A	**6ES7 193-4BB00-0AA0**		1	1 unit	250	0.225
• Light beige	A	**6ES7 193-4BA00-0AA0**		1	1 unit	250	0.226
Manuals for ET 200S distributed I/O system Can be downloaded as a PDF file from the Internet: www.siemens.com/simatic-docu							
IM 151-7 F-CPU interface modules							
IM 151-7 F-CPU interface modules For constructing a failsafe automation system	A	**6ES7 151-7FA20-0AB0**		1	1 unit	241	0.241
Accessories							
Distributed Safety V5.4 programming tools Task: Configuration software for configuring failsafe user programs for SIMATIC S7-300F, S7-400F and ET 200S Requirements: STEP 7 V5.3 SP3 and higher							
• Floating license	A	**6ES7 833-1FC02-0YA5**		1	1 unit	241	0.257
• Software Update Service	B	**6ES7 833-1FC00-0YX2**		1	1 unit	241	0.300
Distributed Safety upgrade from V5.x to V5.3; floating license for 1 user	B	**6ES7 833-1FC02-0YE5**		1	1 unit	241	0.257
MMC 64 Kbyte For program backups	A	**6ES7 953-8LF20-0AA0**		1	1 unit	230	0.012
MMC 128 Kbyte For program backups	A	**6ES7 953-8LG11-0AA0**		1	1 unit	230	0.012
MMC 512 Kbyte For program backups	A	**6ES7 953-8LJ20-0AA0**		1	1 unit	230	0.012
MMC 2 MByte For program backups and/or the firmware update	A	**6ES7 953-8LL20-0AA0**		1	1 unit	230	0.012
MMC 4 MByte For program backups	A	**6ES7 953-8LM20-0AA0**		1	1 unit	230	0.012
External Prommer For MMC with USB interface	A	**6ES7 792-0AA00-0XA0**		1	1 unit	260	1.200
Termination modules As spare part for ET 200S	A	**6ES7 193-4JA00-0AA0**		1	1 unit	250	0.026
SIMATIC S5, 35 mm standard mounting rails							
• 483 mm long for 19" cabinets	A	**6ES5 710-8MA11**		1	1 unit	250	0.440
• 530 mm long for 600 mm cabinets	A	**6ES5 710-8MA21**		1	1 unit	250	0.466
• 830 mm long for 900 mm cabinets	A	**6ES5 710-8MA31**		1	1 unit	250	0.820
• Length 2 m	A	**6ES5 710-8MA41**		1	1 unit	250	1.930
SIPLUS IM 151-7 F-CPU interface modules (extended temperature range)							
SIPLUS IM 151-7 F-CPU interface modules For constructing a failsafe automation system (extended temperature range and medial load)	D	**6AG1 151-7FA20-2AB0**		1	1 unit	473	0.247
Accessories		For ordering data see IM 151-7 F-CPU interface modules					

* You can order this quantity or a multiple thereof.

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
IM 151-8F PN/DP CPU interface modules							
IM 151-8F PN/DP CPU interface modules (192 K) including termination module	A	**6ES7 151-8FB00-0AB0**		1	1 unit	241	0.380
Accessories							
Distributed Safety V5.4 programming tools Task: Configuration software for configuring failsafe user programs for SIMATIC S7-300F, S7-400F and ET 200S Requirements: STEP 7 V5.3 SP3 and higher							
• Floating license	A	**6ES7 833-1FC02-0YA5**		1	1 unit	241	0.257
• Software Update Service	B	**6ES7 833-1FC00-0YX2**		1	1 unit	241	0.300
Distributed Safety upgrade From V5.3 to V5.4; floating license for 1 user	B	**6ES7 833-1FC02-0YE5**		1	1 unit	241	0.257
MMC 64 Kbyte[1)] For program backups	A	**6ES7 953-8LF20-0AA0**		1	1 unit	230	0.012
MMC 128 Kbyte[1)] For program backups	A	**6ES7 953-8LG11-0AA0**		1	1 unit	230	0.012
MMC 512 Kbyte[1)] For program backups	A	**6ES7 953-8LJ20-0AA0**		1	1 unit	230	0.012
MMC 2 MByte[1)] For program backups and/or the firmware update	A	**6ES7 953-8LL20-0AA0**		1	1 unit	230	0.012
MMC 4 MByte[1)] For program backups	A	**6ES7 953-8LM20-0AA0**		1	1 unit	230	0.012
MMC 8 MByte[1)] For program backups	A	**6ES7 953-8LP20-0AA0**		1	1 unit	230	0.013
External Prommer For e. g. MMC with USB interface	A	**6ES7 792-0AA00-0XA0**		1	1 unit	260	1.200
PG with integrated MMC interface		**On req.**					
Inscription sheets in A4 format (10 units) Each sheet contains 60 labeling strips for I/O modules and 20 labeling strips for interface modules.							
• Petrol	A	**6ES7 193-4BH00-0AA0**		1	1 unit	250	0.241
• Red	A	**6ES7 193-4BD00-0AA0**		1	1 unit	250	0.225
• Yellow	A	**6ES7 193-4BB00-0AA0**		1	1 unit	250	0.225
• Light beige	A	**6ES7 193-4BA00-0AA0**		1	1 unit	250	0.226
Manuals for ET 200S distributed I/O system Can be downloaded as a PDF file from the Internet: www.siemens.com/simatic-docu							
Termination modules As spare part for ET 200S	A	**6ES7 193-4JA00-0AA0**		1	1 unit	250	0.026
SIMATIC S5, 35 mm standard mounting rails							
• 483 mm long for 19" cabinets	A	**6ES5 710-8MA11**		1	1 unit	250	0.440
• 530 mm long for 600 mm cabinets	A	**6ES5 710-8MA21**		1	1 unit	250	0.466
• 830 mm long for 900 mm cabinets	A	**6ES5 710-8MA31**		1	1 unit	250	0.820
• Length 2 m	A	**6ES5 710-8MA41**		1	1 unit	250	1.930
Industrial Ethernet FC RJ45 Plug 180 RJ45 plug-in connector for Industrial Ethernet, with robust metal enclosure and integrated cutting and clamping contacts for connection of Industrial Ethernet FC installation cables; with 180° cable feeder							
• 1 unit	A	**6GK1 901-1BB10-2AA0**		1	1 unit	5K2	0.030
• 10 units	A	**6GK1 901-1BB10-2AB0**		1	1 unit	5K2	0.300
• 50 units	A	**6GK1 901-1BB10-2AE0**		1	1 unit	5K2	1.500
Industrial Ethernet Fast Connect installation cables							
• Fast Connect standard cables	A	**6XV1 840-2AH10**		1	1 M	5K2	0.068
• Fast Connect trailing cables	A	**6XV1 840-3AH10**		1	1 M	5K2	0.055
• Fast Connect marine cables	A	**6XV1 840-4AH10**		1	1 M	5K2	0.055
Industrial Ethernet Fast Connect stripping tools	A	**6GK1 901-1GA00**		1	1 unit	5K2	0.100

1) For operation of the CPU, an MMC is essential.

* You can order this quantity or a multiple thereof.

Interface/solid-state modules

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
PM-E power modules for solid-state modules							
PM-E power modules 24 V DC [1] For solid-state modules, with diagnostics	A	**6ES7 138-4CA01-0AA0**		1	1 unit	250	0.040
PM-E power modules 24 to 48 V DC For solid-state modules, with diagnostics, with status bit "Load voltage available"	A	**6ES7 138-4CA50-0AB0**		1	1 unit	250	0.041
PM-E power modules 24 to 48 V DC, 42 to 230 V AC For solid-state modules, with diagnostics and fuse	A	**6ES7 138-4CB11-0AB0**		1	1 unit	250	0.043
Accessories							
Inscription sheets in A4 format (10 units) Each sheet contains 60 labeling strips for I/O modules and 20 labeling strips for interface modules.							
• Petrol	A	**6ES7 193-4BH00-0AA0**		1	1 unit	250	0.241
• Red	A	**6ES7 193-4BD00-0AA0**		1	1 unit	250	0.225
• Yellow	A	**6ES7 193-4BB00-0AA0**		1	1 unit	250	0.225
• Light beige	A	**6ES7 193-4BA00-0AA0**		1	1 unit	250	0.226
SIPLUS PM-E power modules for solid-state modules (extended temperature range)							
SIPLUS PM-E power modules (extended temperature range and medial load)							
PM-E power modules 24 V DC [1] For solid-state modules, with diagnostics	D	**6AG1 138-4CA01-2AA0**		1	1 unit	471	0.040
PM-E power modules 24 to 48 V DC For solid-state modules, with diagnostics, with status bit "Load voltage available"	D	**6AG1 138-4CA50-2AB0**		1	1 unit	471	0.041
PM-E power modules 24 to 48 V DC, 24 to 230 V AC For solid-state modules, with diagnostics and fuse	C	**6AG1 138-4CB11-2AB0**		1	1 unit	471	0.045
Accessories		For ordering data see power modules for PM-E solid-state modules					
Reserve modules							
Reserve modules for ET 200S For reserving space in unused slots							
• 15 mm width (5 units)	A	**6ES7 138-4AA01-0AA0**		1	1 unit	250	0.135
• 30 mm width (1 unit)	A	**6ES7 138-4AA11-0AA0**		1	1 unit	250	0.042
Potential distributor modules							
Potential distributor modules for ET 200S For supplying the load voltage to additional terminals, 15 mm wide, 1 unit	A	**6ES7138-4FD00-0AA0**		1	1 unit	250	0.039
Accessories for inscription							
Inscription sheets in A4 format (10 units) Each sheet contains 60 labeling strips for I/O modules and 20 labeling strips for interface modules.							
• Petrol	A	**6ES7 193-4BH00-0AA0**		1	1 unit	250	0.241
• Red	A	**6ES7 193-4BD00-0AA0**		1	1 unit	250	0.225
• Yellow	A	**6ES7 193-4BB00-0AA0**		1	1 unit	250	0.225
• Light beige	A	**6ES7 193-4BA00-0AA0**		1	1 unit	250	0.226

[1] For all solid-state and technology modules except 2 DI 120 V AC/2 DI 230 V AC/2 DO 120/230 V AC.

* You can order this quantity or a multiple thereof.

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Digital solid-state modules							
Digital input modules							
Order unit 5 units							
• 2 DI 24 V DC Standard	A	**6ES7 131-4BB01-0AA0**		1	1 unit	250	0.175
• 2 DI 24 V DC High Feature	A	**6ES7 131-4BB01-0AB0**		1	1 unit	250	0.177
• 4 DI 24 V DC Standard	A	**6ES7 131-4BD01-0AA0**		1	1 unit	250	0.176
• 4 DI 24 V DC High Feature	A	**6ES7 131-4BD01-0AB0**		1	1 unit	250	0.182
• 2 DI 120 V AC	A	**6ES7 131-4EB00-0AB0**		1	1 unit	250	0.175
• 2 DI 230 V AC	A	**6ES7 131-4FB00-0AB0**		1	1 unit	250	0.175
• 4 DI 24 ... 48 V	A	**6ES7 131-4CD00-0AB0**		1	1 unit	250	0.195
• 4 DI 24 V DC SOURCE INPUT	A	**6ES7 131-4BD51-0AA0**		1	1 unit	250	0.176
Order unit 1 unit							
• 4 DI 24 V DC NAMUR	A	**6ES7 131-4RD00-0AB0**		1	1 unit	250	0.045
• 8 DI 24 V DC Standard	A	**6ES7 131-4BF00-0AA0**		1	1 unit	250	0.042
• 8 DI 24 V DC Standard SOURCE INPUT	A	**6ES7 131-4BF50-0AA0**		1	1 unit	250	0.043
Digital output modules							
Order unit 5 units							
• 2 DO 24 V DC/0.5 A Standard	A	**6ES7 132-4BB01-0AA0**		1	1 unit	250	0.179
• 2 DO 24 V DC/0.5 A High Feature	A	**6ES7 132-4BB01-0AB0**		1	1 unit	250	0.182
• 2 DO 24 V DC/2 A Standard	A	**6ES7 132-4BB31-0AA0**		1	1 unit	250	0.183
• 2 DO 24 V DC/2 A High Feature	A	**6ES7 132-4BB31-0AB0**		1	1 unit	250	0.193
• 4 DO 24 V DC/0.5A Standard	A	**6ES7 132-4BD02-0AA0**		1	1 unit	250	0.181
• 4 DO 24 V DC/0.5 A Standard SOURCE OUTPUT	A	**6ES7 132-4BD50-0AA0**		1	1 unit	250	0.185
• 4 DO 24 V DC/2 A Standard	A	**6ES7 132-4BD32-0AA0**		1	1 unit	250	0.186
• 2 DO 24 V to 230 V AC /1 A	A	**6ES7 132-4FB01-0AB0**		1	1 unit	250	0.199
• 2 DO 24 V DC to 230 V AC/5 A relay, NO contact	A	**6ES7 132-4HB01-0AB0**		1	1 unit	250	0.217
• 2 DO 24 ... 48 V DC to 230 V AC/5 A relays, CO	A	**6ES7 132-4HB10-0AB0**		1	1 unit	250	0.228
Order unit 1 unit							
• 8 DO 24 V DC/0.5 A Standard	A	**6ES7 132-4BF00-0AA0**		1	1 unit	250	0.044
• 8 DO 24 V DC/0.5 A Standard SOURCE OUTPUT	A	**6ES7 132-4BF50-0AA0**		1	1 unit	250	0.044
• 2 DO 24 ... 48 V/5 A, 24 ... 230 V AC/5 A relays, CO	A	**6ES7 132-4HB50-0AB0**		1	1 unit	250	0.055
Accessories							
Inscription sheets in A4 format (10 units) Each sheet contains 60 labeling strips for I/O modules and 20 labeling strips for interface modules.							
• Petrol	A	**6ES7 193-4BH00-0AA0**		1	1 unit	250	0.241
• Red	A	**6ES7 193-4BD00-0AA0**		1	1 unit	250	0.225
• Yellow	A	**6ES7 193-4BB00-0AA0**		1	1 unit	250	0.225
• Light beige	A	**6ES7 193-4BA00-0AA0**		1	1 unit	250	0.226
SIPLUS digital solid-state modules (extended temperature range)							
SIPLUS digital input modules (extended temperature range and medial load)							
Order unit 5 units							
• 4 DI 24 V DC Standard	D	**6AG1 131-4BD01-2AA0**		1	1 unit	471	0.180
• 8 DI 24 V DC Standard	D	**6AG1 131-4BF00-7AA0**		1	1 unit	471	0.042
SIPLUS digital output modules (extended temperature range and medial load)							
Order unit 5 units							
• 2 DO 24 V DC/0.5 A High-Feature	D	**6AG1 132-4BB01-2AB0**		1	1 unit	471	0.187
• 2 DO 24 V DC/2 A High Feature	D	**6AG1 132-4BB31-7AB0**		1	1 unit	471	0.198
• 4 DO 24 V DC/0.5 A Standard	X	**6AG1 132-4BD01-2AA0**		1	1 unit	473	0.187
• 4 DO 24 V DC/0.5 A Standard	D	**6AG1 132-4BD02-7AA0**		1	1 unit	471	0.184
• 4 DO 24 V DC/2 A Standard	D	**6AG1 132-4BD32-2AA0**		1	1 unit	471	0.189
• 2 DO 24 V DC to 230 V AC/5 A relay, NO	D	**6AG1 132-4HB01-2AB0**		1	1 unit	471	0.218
• 2 DO 24 ... V DC to 230 V AC/5 A relay, CO	D	**6AG1 132-4HB10-2AB0**		1	1 unit	471	0.200
Order unit 1 unit							
• 8 DO 24 V DC/5 A Standard		**6AG1 132-4BF00-0AA0**					
Accessories		For ordering data see digital solid-state modules					

* You can order this quantity or a multiple thereof.

Interface/solid-state modules

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Analog solid-state modules							
Analog input modules Order unit 1 unit							
• 2 AI U Standard	A	**6ES7 134-4FB01-0AB0**		1	1 unit	250	0.044
• 2 AI U High Speed	A	**6ES7 134-4FB52-0AB0**		1	1 unit	250	0.057
• 2 AI U High Feature	A	**6ES7 134-4LB02-0AB0**		1	1 unit	250	0.056
• 2 AI I Standard 2-wire	A	**6ES7 134-4GB01-0AB0**		1	1 unit	250	0.044
• 2 AI I High Speed 2-wire	A	**6ES7 134-4GB52-0AB0**		1	1 unit	250	0.057
• 2 AI I Standard 4-wire	A	**6ES7 134-4GB11-0AB0**		1	1 unit	250	0.044
• 2 AI High Speed 1-4 wire	A	**6ES7 134-4GB62-0AB0**		1	1 unit	250	0.057
• 2 AI I High Feature 2/4-wire (15 bits + sign)	A	**6ES7 134-4MB02-0AB0**		1	1 unit	250	0.046
• 2 AI RTD Standard	A	**6ES7 134-4JB51-0AB0**		1	1 unit	250	0.044
• 2 AI TC Standard	A	**6ES7 134-4JB01-0AB0**		1	1 unit	250	0.045
• 2 AI RTD High Feature	A	**6ES7 134-4NB51-0AB0**		1	1 unit	250	0.045
• 2 AI TC High Feature	A	**6ES7 134-4NB01-0AB0**		1	1 unit	250	0.046
• 4 AI Standard 2-wire	A	**6ES7 134-4GD00-0AB0**		1	1 unit	250	0.045
Analog output modules Order unit 1 unit							
• 2 AO U Standard	A	**6ES7 135-4FB01-0AB0**		1	1 unit	250	0.046
• 2 AO U High Speed	A	**6ES7 135-4FB52-0AB0**		1	1 unit	250	0.058
• 2 AO U High Feature	A	**6ES7 135-4LB02-0AB0**		1	1 unit	250	0.045
• 2 AO I Standard	A	**6ES7 135-4GB01-0AB0**		1	1 unit	250	0.045
• 2 AO I High Speed	A	**6ES7 135-4GB52-0AB0**		1	1 unit	250	0.059
• 2 AO I High Feature	A	**6ES7 135-4MB02-0AB0**		1	1 unit	250	0.045
Accessories for inscription							
Inscription sheets in A4 format (10 units) Each sheet contains 60 labeling strips for I/O modules and 20 labeling strips for interface modules.							
• Petrol	A	**6ES7 193-4BH00-0AA0**		1	1 unit	250	0.241
• Red	A	**6ES7 193-4BD00-0AA0**		1	1 unit	250	0.225
• Yellow	A	**6ES7 193-4BB00-0AA0**		1	1 unit	250	0.225
• Light beige	A	**6ES7 193-4BA00-0AA0**		1	1 unit	250	0.226
Accessories for system-integrated shield connections							
Shield attachments Order unit 5 units For plugging into TM-E and TM-P	A	**6ES7 193-4GA00-0AA0**		1	1 unit	250	0.044
Shield terminals Order unit 5 units For busbars 3 × 10 mm	A	**6ES7 193-4GB00-0AA0**		1	1 unit	250	0.062
Ground connection terminals Order unit 1 unit For conductor cross-sections up to 25 mm^2	C	**8WA2 868**		1	50 unit(s)	041	0.014
Busbars 3 x 10 mm Order unit 1 unit	A	**8WA2 842**		1	1 unit	041	0.267
SIPLUS analog solid-state modules (extended temperature range)							
SIPLUS anolog input modules (extended temperature range and medial load)							
• 2 AI I Standard 2-wire	D	**6AG1 134-4GB01-2AB0**		1	1 unit	471	0.045
• 2 AI I Standard 4-wire	D	**6AG1 134-4GB11-2AB0**		1	1 unit	471	0.045
• 2 AI High Speed 2-wire	D	**6AG1 134-4GB52-2AB0**		1	1 unit	471	0.060
• 2 AI RTD Standard	D	**6AG1 134-4JB50-2AB0**		1	1 unit	471	0.047
Accessories		For ordering data see analog solid-state modules					

* You can order this quantity or a multiple thereof.

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
PM-E F PROFIsafe F power modules							
PM-E F pm PROFIsafe 24 V DC power modules For the safe disconnection of digital output modules	A	**6ES7 138-4CF03-0AB0**		1	1 unit	241	0.099
PM-E F pp PROFIsafe 24 V DC power modules For the safe disconnection of digital output modules	A	**6ES7 138-4CF42-0AB0**		1	1 unit	241	0.094
Accessories							
IM 151-1 HIGH FEATURE interface modules For ET 200S; transmission rates up to 12 Mbit/s; data volume of 244 bytes each for inputs and outputs; up to 63 modules can be connected; connection of PROFIsafe modules, isochrone mode (clocked operation); connection to bus through 9-pole Sub-D including bus termination module	A	**6ES7151-1BA02-0AB0**		1	1 unit	250	0.172
IM 151-3 PN HF interface modules For ET 200S; transmission rates up to 100 Mbit/s; up to 63 I/O modules up to 2 m width can be connected; 2 x connection to bus with RJ45 plug, including bus termination module	A	**6ES7 151-3BA23-0AB0**		1	1 unit	250	0.199
IM 151-3 PN FO interface modules For ET 200S; 2 PROFINET fiberoptic interfaces, integrated 2-port switch, up to 63 I/O modules up to 2 m wide can be connected, including bus termination module		**6ES7151-1BB23-0AB0**					
Terminal modules for power modules							
TM-P30S44-A0 Order unit: 1 unit 7 × 2 terminals, termination onto AUX1 rail, AUX1 disconnected through to the left, screw terminals for PM-E F PROFIsafe	A	**6ES7 193-4CK20-0AA0**		1	1 unit	241	0.131
TM-P30C44-A0 Order unit: 1 unit 7 × 2 terminals, termination onto AUX1 rail, AUX1 disconnected through to the left, spring-type terminals for PM-E F PROFIsafe	A	**6ES7 193-4CK30-0AA0**		1	1 unit	241	0.114
Distributed Safety V5.4 programming tools *Task:* Configuration software for configuring failsafe user programs for SIMATIC S7-300F, S7-400F and ET 200S *Requirement:* STEP 7 V5.3 SP3 and higher							
• Floating license	A	**6ES7 833-1FC02-0YA5**		1	1 unit	241	0.257
• Software Update Service	B	**6ES7 833-1FC00-0YX2**		1	1 unit	241	0.300
Distributed Safety upgrade from V5.x to V5.3; floating license for 1 user	B	**6ES7 833-1FC02-0YE5**		1	1 unit	241	0.257
SIMATIC Manual Collection Manuals on DVD-ROM, five languages: S7-200/300/400, C7, LOGO!, SIMATIC DP, PC, PG, STEP 7, Engineering Software, Runtime Software, PCS 7, SIMATIC HMI, SIMATIC NET	A	**6ES7 998-8XC01-8YE0**		1	1 unit	230	0.099
SIMATIC Manual Collection update service for 1 year	C	**6ES7 998-8XC01-8YE2**		1	1 unit	230	0.400
F solid-state modules							
4/8 F-DI PROFIsafe 24 V DC solid-state modules 30 mm width, up to Category 4 (EN 954-1)	A	**6ES7 138-4FA04-0AB0**		1	1 unit	241	0.090
4 F-DO PROFIsafe 24 V DC/2 A solid-state modules 30 mm width, up to Category 4 (EN 954-1)	A	**6ES7 138-4FB03-0AB0**		1	1 unit	241	0.094
4 F-DI / 3 F-DO PROFIsafe 24 V DC/2 A solid-state modules 30 mm width, up to Category 3 (EN 954-1) / SIL 2 (IEC 62061)	A	**6ES7 138-4FC01-0AB0**		1	1 unit	241	0.083
Accessories							
Terminal modules for solid-state modules		See F terminal modules					
IM151-1 High-Feature interface modules For ET200S; transmission rates up to 12 Mbit/s; up to 63 modules can be connected, with isochrone mode, connection to bus through 9-pole Sub-D, including termination module	A	**6ES7 151-1BA02-0AB0**		1	1 unit	250	0.172
IM151-3 PN HF interface modules For ET 200S; transmission rates up to 100 Mbit/s; up to 63 I/O modules up to 2 m width can be connected; 2 x connection to bus with RJ45 plug, including bus termination module	A	**6ES7 151-3BA23-0AB0**		1	1 unit	250	0.199
IM151-3 PN FO interface modules For ET 200S; 2 PROFINET fiberoptic interfaces, integrated 2-port switch, up to 63 I/O modules up to 2 m wide can be connected, including bus termination module		**6ES7 151-1BB23-0AB0**					
Distributed Safety V5.4 programming tools *Task:* Configuration software for configuring failsafe user programs for SIMATIC S7-300F, S7-400F and ET 200S *Requirement:* STEP 7 V5.3 SP3 and higher							
• Floating license	A	**6ES7 833-1FC02-0YA5**		1	1 unit	241	0.257
• Software Update Service	B	**6ES7 833-1FC00-0YX2**		1	1 unit	241	0.300
Distributed Safety upgrade from V5.x to V5.3; floating license for 1 user	B	**6ES7 833-1FC02-0YE5**		1	1 unit	241	0.257

* You can order this quantity or a multiple thereof.

Interface/solid-state modules

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
F solid-state modules (continued)							
SIMATIC Manual Collection Electronic manuals on DVD, several languages: S7-200, TD 200, S7-300, M7-300, C7, S7-400, M7-400, STEP 7, Engineering Tools, Runtime Software, SIMATIC DP (Distributed I/O), SIMATIC HMI (Human Machine Interface), SIMATIC NET (Industrial Communication)	A	**6ES7 998-8XC01-8YE0**		1	1 unit	230	0.099
SIMATIC Manual Collection – Update service for 1 year Scope of supply: The current DVD S7 Manual Collection as well as the three subsequent updates	C	**6ES7 998-8XC01-8YE2**		1	1 unit	230	0.400
SIPLUS F solid-state modules (extended temperature range)							
SIPLUS F solid-state modules (extended temperature range and medial load)							
4/8 F-DI PROFIsafe 24 V DC solid-state modules 30 mm width, up to Category 4 (EN 954-1)	X	**6AG1 138-4FA03-2AB0**		1	1 unit	471	0.090
4 F-DO PROFIsafe 24 V DC/2 A solid-state modules 30 mm width, up to Category 4 (EN 954-1)	X	**6AG1 138-4FB02-2AB0**		1	1 unit	471	0.100
Accessories		For ordering data see F solid-state modules					
RELAY F solid-state modules							
1 F-RO 24 V DC/5A 24 V..230 AC/5A solid-state modules	A	**6ES7 138-4FR00-0AA0**		1	1 unit	241	0.106
Accessories							
Terminal modules for solid-state modules		See F terminal modules					
IM151-1 High-Feature interface modules For ET200S; transmission rates up to 12 Mbit/s; up to 63 modules can be connected, with isochrone mode, connection to bus through 9-pole Sub-D, including termination module	A	**6ES7 151-1BA02-0AB0**		1	1 unit	250	0.172
IM151-3 PN HF interface modules For ET 200S; transmission rates up to 100 Mbit/s; up to 63 I/O modules up to 2 m width can be connected; 2 x connection to bus with RJ45 plug, including bus termination module	A	**6ES7 151-3BA23-0AB0**		1	1 unit	250	0.199
IM151-3 PN FO interface modules For ET 200S; 2 PROFINET fiberoptic interfaces, integrated 2-port switch, up to 63 I/O modules up to 2 m wide can be connected, including bus termination module		**6ES7 151-1BB23-0AB0**					
Distributed Safety V5.4 programming tools *Task:* Configuration software for configuring failsafe user programs for SIMATIC S7-300F, S7-400F and ET 200S *Requirement:* STEP 7 V5.3 SP3 and higher							
• Floating license • Software Update Service	A B	**6ES7 833-1FC02-0YA5** **6ES7 833-1FC00-0YX2**		1 1	1 unit 1 unit	241 241	0.257 0.300
Distributed Safety upgrade from V5.x to V5.3; floating license for 1 user	B	**6ES7 833-1FC02-0YE5**		1	1 unit	241	0.257
SIMATIC Manual Collection Electronic manuals on DVD, several languages: S7-200, TD 200, S7-300, M7-300, C7, S7-400, M7-400, STEP 7, Engineering Tools, Runtime Software, SIMATIC DP (Distributed I/O), SIMATIC HMI (Human Machine Interface), SIMATIC NET (Industrial Communication)	A	**6ES7 998-8XC01-8YE0**		1	1 unit	230	0.099
SIMATIC Manual Collection – Update service for 1 year Scope of supply: The current DVD S7 Manual Collection as well as the three subsequent updates	C	**6ES7 998-8XC01-8YE2**		1	1 unit	230	0.400
F terminal modules							
F terminal modules for power modules							
TM-P15S23-A1 Order unit: 1 unit 2 x 3 terminals, termination onto AUX1 rail, AUX1 connected through to the left, screw terminals	A	**6ES7 193-4CC20-0AA0**		1	1 unit	250	0.070
TM-P15C23-A1 Order unit: 1 unit 2 x 3 terminals, termination onto AUX1 rail, AUX1 connected through to the left, spring-type terminals	A	**6ES7 193-4CC30-0AA0**		1	1 unit	250	0.063
TM-P15N23-A1 Order unit: 1 unit 2 x 3 terminals, termination onto AUX1 rail, AUX1 connected through to the left, FastConnect	A	**6ES7 193-4CC70-0AA0**		1	1 unit	250	0.081

* You can order this quantity or a multiple thereof.

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
F terminal modules (continued)							
TM-P15S23-A0 Order unit: 1 unit 2 x 3 terminals, termination onto AUX1 rail, AUX1 disconnected through to the left, screw terminals	A	**6ES7 193-4CD20-0AA0**		1	1 unit	250	0.070
TM-P15C23-A0 Order unit: 1 unit 2 x 3 terminals, termination onto AUX1 rail, AUX1 disconnected through to the left, spring-type terminals	A	**6ES7 193-4CD30-0AA0**		1	1 unit	250	0.063
TM-P15N23-A0 Order unit: 1 unit 2 x 3 terminals, termination onto AUX1 rail, AUX1 interrupted to the left, FastConnect	A	**6ES7 193-4CD70-0AA0**		1	1 unit	250	0.081
TM-P15S22-01 Order unit: 1 unit 2 x 2 terminals, no termination onto AUX1 rail, AUX1 connected through to the left, screw terminals	A	**6ES7 193-4CE00-0AA0**		1	1 unit	250	0.066
TM-P15C22-01 Order unit: 1 unit 2 x 2 terminals, no termination onto AUX1 rail, AUX1 connected through to the left, spring-type terminals	A	**6ES7 193-4CE10-0AA0**		1	1 unit	250	0.058
TM-P15N22-01 Order unit: 1 unit 2 x 2 terminals, no termination onto AUX1 rail, AUX1 connected through to the left, FastConnect	A	**6ES7 193-4CE60-0AA0**		1	1 unit	250	0.071
TM-P30S44-A0 Order unit: 1 unit 7 x 2 terminals, termination onto AUX1 rail, AUX1 disconnected through to the left, screw terminals for PM-E F PROFIsafe	A	**6ES7 193-4CK20-0AA0**		1	1 unit	241	0.131
TM-P30C44-A0 Order unit: 1 unit 7 x 2 terminals, termination onto AUX1 rail, AUX1 disconnected through to the left, spring-type terminals for PM-E F PROFIsafe	A	**6ES7 193-4CK30-0AA0**		1	1 unit	241	0.114
F terminal modules for solid-state modules							
TM-E30S44-01 Order unit: 1 unit 4 x 4 terminals, no termination onto AUX1 rail, AUX1 connected through to the left, screw terminals	A	**6ES7 193-4CG20-0AA0**		1	1 unit	250	0.146
TM-E30C44-01 Order unit: 1 unit 4 x 4 terminals, no termination onto AUX1 rail, AUX1 connected through to the left, spring-type terminals	A	**6ES7 193-4CG30-0AA0**		1	1 unit	250	0.128
TM-E30S46-A1 Order unit: 1 unit 4 x 6 terminals, termination onto AUX1 rail, AUX1 connected through to the left, screw terminals	A	**6ES7 193-4CF40-0AA0**		1	1 unit	250	0.185
TM-E30C46-A1 Order unit: 1 unit 4 x 6 terminals, termination onto AUX1 rail, AUX1 connected through to the left, spring-type terminals	A	**6ES7 193-4CF50-0AA0**		1	1 unit	250	0.147
Accessories							
Color coding plates Order unit: 200 units for TM-P, TM-E							
• White	A	**6ES7 193-4LA20-0AA0**		1	1 unit	250	0.025
• Yellow	A	**6ES7 193-4LB20-0AA0**		1	1 unit	250	0.027
• Yellow and green	A	**6ES7 193-4LC20-0AA0**		1	1 unit	250	0.024
• Red	A	**6ES7 193-4LD20-0AA0**		1	1 unit	250	0.023
• Blue	A	**6ES7 193-4LF20-0AA0**		1	1 unit	250	0.025
• Brown	A	**6ES7 193-4LG20-0AA0**		1	1 unit	250	0.025
• Turquoise	A	**6ES7 193-4LH20-0AA0**		1	1 unit	250	0.026
Ground connection terminals Order unit 1 unit For conductor cross-sections up to 25 mm^2	C	**8WA2 868**		1	50 units	041	0.014
Busbars 3 x 10 mm Order unit 1 unit	A	**8WA2 842**		1	1 unit	041	0.267
Inscription labels, with inscription Order unit: 1 set							
• 200 units for slot numbering (1 to 20) 10 ×	A	**8WA8 861-0AB**		100	200 units	041	0.080
• 200 units for slot numbering (1 to 40) 5 ×	A	**8WA8 861-0AC**		100	200 units	041	0.080
• 200 units for slot numbering (1 to 64) 1 ×, (1 to 68) 2 ×	C	**8WA8 861-0DA**		100	200 units	041	0.080
Inscription labels, blank 200 units for slot numbering	A	**8WA8 848-2AY**		100	100 units	041	0.080

* You can order this quantity or a multiple thereof.

Interface/solid-state modules

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
4 IQ-Sense and 8 IQ-Sense sensor modules							
4 IQ-Sense sensor modules	A	**6ES7 138-4GA00-0AB0**		1	1 unit	250	0.204
8 x IQ-Sense sensor modules	A	**6ES7 338-7XF00-0AB0**		1	1 unit	230	0.241
Sensors For connecting to the 4 IQ-Sense sensor module							
• Diffuse sensor, type C40 IQ-Sense	▶	**3SF7 240-3JQ00**		1	1 unit	574	0.170
• Diffuse sensor, type K80 IQ-Sense	▶	**3SF7 210-3JQ00**		1	1 unit	574	0.101
• Retroflective sensor, type C40 IQ-Sense	▶	**3SF7 241-3JQ00**		1	1 unit	574	0.170
• Retroflective sensor, type K80 IQ-Sense	▶	**3SF7 211-3JQ00**		1	1 unit	574	0.096
• Diffuse sensor with background suppression, type K80 IQ-Sense	A	**3SF7 214-3JQ00**		1	1 unit	574	0.101
• M18 IQ-Sense ultrasonic sensors Detection range 5 to 30 cm	C	**3SF6 232-3JA00**		1	1 unit	574	0.076
• M18 IQ-Sense ultrasonic sensors Detection range 15 to 100 cm	C	**3SF6 233-3JA00**		1	1 unit	574	0.075
SSI modules							
SSI modules For the connection of absolute encoders with SSI interface	A	**6ES7 138-4DB03-0AB0**		1	1 unit	250	0.047
Accessories							
Inscription sheets in A4 format (10 units) Each sheet contains 60 labeling strips for I/O modules and 20 labeling strips for interface modules.							
• Petrol	A	**6ES7 193-4BH00-0AA0**		1	1 unit	250	0.241
• Red	A	**6ES7 193-4BD00-0AA0**		1	1 unit	250	0.225
• Yellow	A	**6ES7 193-4BB00-0AA0**		1	1 unit	250	0.225
• Light beige	A	**6ES7 193-4BA00-0AA0**		1	1 unit	250	0.226
Signal cables Assembled for SSI absolute encoders 6FX2001-5, without Sub-D connector, UL/DESINA	B	**6FX5 002-2CC12-....**		1	1 unit	701	0.460
2 PULSE pulse generators							
2PULSE pulse generators and timer modules For ET 200S	A	**6ES7 138-4DD00-0AB0**		1	1 unit	250	0.050
Accessories							
Inscription sheets in A4 format (10 units) Each sheet contains 60 labeling strips for I/O modules and 20 labeling strips for interface modules.							
• Petrol	A	**6ES7 193-4BH00-0AA0**		1	1 unit	250	0.241
• Red	A	**6ES7 193-4BD00-0AA0**		1	1 unit	250	0.225
• Yellow	A	**6ES7 193-4BB00-0AA0**		1	1 unit	250	0.225
• Light beige	A	**6ES7 193-4BA00-0AA0**		1	1 unit	250	0.226
1STEP step modules							
1STEP step modules For simple positioning tasks with stepper motor axes	A	**6ES7 138-4DC00-0AB0**		1	1 unit	250	0.046
Accessories							
Inscription sheets in A4 format (10 units) Each sheet contains 60 labeling strips for I/O modules and 20 labeling strips for interface modules.							
• Petrol	A	**6ES7 193-4BH00-0AA0**		1	1 unit	250	0.241
• Red	A	**6ES7 193-4BD00-0AA0**		1	1 unit	250	0.225
• Yellow	A	**6ES7 193-4BB00-0AA0**		1	1 unit	250	0.225
• Light beige	A	**6ES7 193-4BA00-0AA0**		1	1 unit	250	0.226
SIMOSTEP stepper motors		see ST 70 Catalog					
Power sections for stepper motors FM STEPDRIVE		see ST 70 Catalog					
1POS U positioning modules							
1POS U positioning modules Single-channel positioning module for ET 200S for positioning of adjusting and operating axes	A	**6ES7 138-4DL00-0AB0**		1	1 unit	250	0.081

* You can order this quantity or a multiple thereof.

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
1 COUNT 24 V/100 kHz counter modules							
1 COUNT 24 V/100 kHz counter modules For universal counting and measuring tasks with ET 200S	A	**6ES7 138-4DA04-0AB0**		1	1 unit	250	0.048
Accessories							
Inscription sheets in A4 format (10 units) Each sheet contains 60 labeling strips for I/O modules and 20 labeling strips for interface modules.							
• Petrol	A	**6ES7 193-4BH00-0AA0**		1	1 unit	250	0.241
• Red	A	**6ES7 193-4BD00-0AA0**		1	1 unit	250	0.225
• Yellow	A	**6ES7 193-4BB00-0AA0**		1	1 unit	250	0.225
• Light beige	A	**6ES7 193-4BA00-0AA0**		1	1 unit	250	0.226
Shield attachments For TM-P and TM-E terminal modules, as support for busbar 3 x 10 mm, 5 units	A	**6ES7 193-4GA00-0AA0**		1	1 unit	250	0.044
Shield terminals For connection of braided shields to busbars, 5 units	A	**6ES7 193-4GB00-0AA0**		1	1 unit	250	0.062
SIMODRIVE sensor incremental encoders Mountable sensor, optically incremental with HTL level, operational voltage 10 – 30 V		**6FX2 001-4....**					
Signal cables Assembled, for HTL and TTL sensors, without Sub-D connector, UL/DESINA	B	**6FX5 002-2CA12-....**		1	1 unit	701	0.110
1 COUNT 24 V/100 kHz counter modules (extended temperature range)							
1 COUNT 24 V/100 kHz counter modules For universal counting and measuring tasks with ET 200S	D	**6AG1 138-4DA04-2AB0**		1	1 unit	471	0.054
Accessories		For ordering data see 1 COUNT 24 V/100 kHz counter module					
1 COUNT 5 V/500 kHz counter modules							
1 COUNT 5 V/500 kHz counter modules For universal counting and measuring tasks with ET 200S	A	**6ES7 138-4DE02-0AB0**		1	1 unit	250	0.078
Accessories							
Inscription sheets in A4 format (10 units) Each sheet contains 60 labeling strips for I/O modules and 20 labeling strips for interface modules.							
• Petrol	A	**6ES7 193-4BH00-0AA0**		1	1 unit	250	0.241
• Red	A	**6ES7 193-4BD00-0AA0**		1	1 unit	250	0.225
• Yellow	A	**6ES7 193-4BB00-0AA0**		1	1 unit	250	0.225
• Light beige	A	**6ES7 193-4BA00-0AA0**		1	1 unit	250	0.226
Shield attachments For TM-P and TM-E terminal modules, as support for busbar 3 x 10 mm, 5 units	A	**6ES7 193-4GA00-0AA0**		1	1 unit	250	0.044
Shield terminals For connection of braided shields to busbars, 5 units	A	**6ES7 193-4GB00-0AA0**		1	1 unit	250	0.062
SIMODRIVE incremental encoders With RS 422 (TTL), operational voltage 10 – 30 V		**6FX2 001-2....**					
Signal cables Assembled, for HTL and TTL sensors, without Sub-D connector, UL/DESINA	B	**6FX5 002-2CA12-....**		1	1 unit	701	0.110
1 SI interface modules							
1SI interface modules							
• ASCII and 3964(R) protocol	A	**6ES7 138-4DF01-0AB0**		1	1 unit	250	0.047
• Modbus and USS protocol	A	**6ES7 138-4DF11-0AB0**		1	1 unit	250	0.047
Accessories							
TM-E15S 26-A1 terminal modules Order unit 5 units	A	**6ES7 193-4CA40-0AA0**		1	1 unit	250	0.471
TM-E15C26-A1 terminal modules Order unit 5 units	A	**6ES7 193-4CA50-0AA0**		1	1 unit	250	0.397
TM-E15N24-A1 terminal modules Order unit 5 units	A	**6ES7 193-4CA80-0AA0**		1	1 unit	250	0.549
TM-E15S24-01 terminal modules Order unit 5 units	A	**6ES7 193-4CB20-0AA0**		1	1 unit	250	0.408
TM-E15C24-01 terminal modules Order unit 5 units	A	**6ES7 193-4CB30-0AA0**		1	1 unit	250	0.333
TM-E15N24-01 terminal modules Order unit 5 units	A	**6ES7 193-4CB70-0AA0**		1	1 unit	250	0.431

* You can order this quantity or a multiple thereof.

Interface/solid-state modules

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
SIWAREX CS							
SIWAREX CS Weighing electronics for weighers in SIMATIC ET 200S	B	**7MH4910-0AA01**		1	1 unit	816	0.093
SIWAREX CS manuals • In various languages Free download from: www.siemens.com/weighingtechnology							
SIWAREX CS "Getting started" Sample software for a simple introduction to programming weighers in STEP 7. Free download from: www.siemens.com/weighingtechnology							
SIWAREX CS configuration package on CD-ROM for SIMATIC S7, Version V5.4 and higher • SIWATOOL CS software for weigher calibration (in various languages) • Manuals on CD (in various languages) • SIWAREX CD "Getting started"	C	**7MH4910-0AK01**		1	1 unit	816	0.216
SIWATOOL connection cables from SIWAREX U/CS with serial PC interface, for 9-pole PC interfaces (RS 232), length 3 m	C	**7MH4607-8CA**		1	1 unit	815	0.250
***Installation materials** (essential)*							
Terminal modules TM-E 30 mm wide (required for each SIWAREX module)	A	**6ES7193-4CG20-0AA0** or compatible		1	1 unit	250	0.146
Shield attachments Contents 5 units, sufficient for 5 cables	A	**6ES7193-4GA00-0AA0**		1	1 unit	250	0.044
Shield connection terminals Contents: 5 units, sufficient for 5 cables *Note:* One shield connection terminal is required for • Weigher connection and • The TTY interface or • RS 232 interface	A	**6ES7193-4GB00-0AA0**		1	1 unit	250	0.062
N busbars, galvanized 3 x 10 mm, 1 m long	A	**8WA2 842**		1	1 unit	041	0.267
Feeder terminals for N busbar	C	**8WA2868**		1	50 units	041	0.014
Remote displays (optional) The digital remote displays can be connected directly through the TTY interface to the SIWAREX CS. Usable remote display: S102 *Siebert Industrieelektronik GmbH* *Postfach 1180* *D-66565 Eppelborn* *Tel.: +49(0)6806/980-0* *Fax: +49(0)6806/980-999* *Internet: www.siebert.de* Detailed information is available from the manufacturer.							
Accessories							
SIWAREX JB connection boxes, aluminium enclosure For parallel switching of up to 4 weigh-cells and for connecting several connection boxes	C	**7MH4710-1BA**		1	1 unit	815	1.520
SIWAREX JB connection boxes, high-grade steel enclosure For parallel switching of up to 4 weigh-cells	D	**7MH4710-1EA**		1	1 unit	815	1.203
Ex-Interface, type SIWAREX Pi with UL and FM approval, but **without ATEX approval** For the inherently safe connection of weigh-cells, Suitable for the weigher modules SIWAREX U, CS, MS, FTA, FTC and M. Use in the EU is not possible.	D	**7MH4710-5AA**		1	1 unit	815	2.850
SIWAREX Pi Ex-Interface manuals	X	**C71000-T5974-C29**		1	1 unit	815	0.058
Ex-Interface, type SIWAREX IS with ATEX approval, but **without UL and FM approval** For the inherently safe connection of weigh-cells, including manual, Suitable for the weigher modules SIWAREX U, CS, MS, FTA, FTC, M and CF, use in the EU is possible.							
• With short-circuit current < DC 199 mA	C	**7MH4710-5BA**		1	1 unit	815	0.500
• With short-circuit current < DC 137 mA	C	**7MH4710-5CA**		1	1 unit	815	0.500

* You can order this quantity or a multiple thereof.

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
SIWAREX CS (continued)							
Cables (optional)							
Cables Li2Y 1 x 2 x 0.75 ST + 2 x (2 x 0.34 ST) – CY, sheath color orange For connecting SIWAREX U, CS, MS, FTA, FTC, M and CF to the connection and distribution box (JB), extension box (EB) or Ex-Interface (Ex-I) and between two JBs, for local laying, occasional bending is possible, 10.8 mm external diameter, for ambient temperature -40 to +80 °C	C	**7MH4702-8AG**		1	1 M	815	0.142
Cables Li2Y 1 x 2 x 0.75 ST + 2 x (2 x 0.34 ST) – CY, sheath color blue Connecting of connection and distribution box (JB) or extension box (EB) in hazardous areas and Ex-Interface (Ex-I), for local laying, occasional bending is possible, blue PVC insulating covering, approx. 10.8 mm external diameter, for ambient temperature -40 to +80 °C	C	**7MH4702-8AF**		1	1 M	815	0.160
Cables LiYCY 4 x 2 x 0.25 mm² For TTY (switch 2 core pairs each in parallel), for connecting a remote indication	C	**7MH4407-8BD0**		1	1 M	815	0.080
SIWAREX CF							
SIWAREX CF Force measuring module for DMS sensors in SIMATIC ET 200S (SIWAREX CF configuration package not required)	C	**7MH4920-0AA01**		1	1 unit	816	0.093
SIWAREX CF manuals • German, English Free download from: www.siemens.com/weighingtechnology							
SIWAREX CF "Getting started" Sample software for a simple introduction to programming in STEP 7. Free download from: www.siemens.com/weighingtechnology							
Installation materials (essential)							
Terminal modules TM-E 30 mm wide (required for each SIWAREX module)	A	**6ES7193-4CG20-0AA0** or compatible		1	1 unit	250	0.146
Shield attachments Contents 5 units, sufficient for 5 cables	A	**6ES7193-4GA00-0AA0**		1	1 unit	250	0.044
Shield connection terminals Contents: 5 units, sufficient for 5 cables One shield connection terminal is required for each sensor cable	A	**6ES7193-4GB00-0AA0**		1	1 unit	250	0.062
N busbars, galvanized 3 x 10 mm, 1.5 m long	A	**8WA2 842**		1	1 unit	041	0.267
Feeder terminals for N busbar	C	**8WA2868**		1	50 units	041	0.014
Accessories							
SIWAREX EB extension boxes For extending sensor cables	C	**7MH4710-2AA**		1	1 unit	815	0.500
Ex-Interface, type SIWAREX IS with ATEX approval, but **without UL and FM approval** For the inherently safe connection of weigh-cells, including manual, Suitable for the weigher modules SIWAREX U, CS, MS, FTA, FTC, M and CF, use in the EU is possible.							
• With short-circuit current < DC 199 mA	C	**7MH4710-5BA**		1	1 unit	815	0.500
• With short-circuit current < DC 137 mA	C	**7MH4710-5CA**		1	1 unit	815	0.500
Cables (optional)							
Cables Li2Y 1 x 2 x 0.75 ST + 2 x (2 x 0.34 ST) – CY, sheath color orange For connecting SIWAREX U, CS, MS, FTA, FTC, M and CF to the connection and distribution box (JB), extension box (EB) or Ex-Interface (Ex-I) and between two JBs, for local laying, occasional bending is possible, 10.8 mm external diameter, for ambient temperature -40 to +80 °C	C	**7MH4702-8AG**		1	1 M	815	0.142
Terminal modules for power- and solid-state modules							
TM-P terminal modules for PM-E power modules							
TM-P15S23-A1 Order unit: 1 unit 2 × 3 terminals, termination onto AUX1 rail, AUX1 connected through to the left, screw terminals	A	**6ES7 193-4CC20-0AA0**		1	1 unit	250	0.070
TM-P15C23-A1 Order unit: 1 unit 2 × 3 terminals, termination onto AUX1 rail, AUX1 connected through to the left, spring-type terminals	A	**6ES7 193-4CC30-0AA0**		1	1 unit	250	0.063
TM-P15N23-A1 Order unit: 1 unit 2 × 3 terminals, termination onto AUX1 rail, AUX1 connected through to the left, FastConnect	A	**6ES7 193-4CC70-0AA0**		1	1 unit	250	0.081

* You can order this quantity or a multiple thereof.

Interface/solid-state modules

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Terminal modules for power and solid-state modules (continued)							
TM-P15S23-A0 Order unit: 1 unit 2 × 3 terminals, termination onto AUX1 rail, AUX1 disconnected through to the left, screw terminals	A	**6ES7 193-4CD20-0AA0**		1	1 unit	250	0.070
TM-P15C23-A0 Order unit: 1 unit 2 × 3 terminals, termination onto AUX1 rail, AUX1 disconnected through to the left, spring-type terminals	A	**6ES7 193-4CD30-0AA0**		1	1 unit	250	0.063
TM-P15N23-A0 Order unit: 1 unit 2 × 3 terminals, termination onto AUX1 rail, AUX1 disconnected through to the left, FastConnect	A	**6ES7 193-4CD70-0AA0**		1	1 unit	250	0.081
TM-P15S22-01 Order unit: 1 unit 2 × 2 terminals, no termination onto AUX1 rail, AUX1 connected through to the left, screw terminals	A	**6ES7 193-4CE00-0AA0**		1	1 unit	250	0.066
TM-P15C22-01 Order unit: 1 unit 2 × 2 terminals, no termination onto AUX1 rail, AUX1 connected through to the left, spring-type terminals	A	**6ES7 193-4CE10-0AA0**		1	1 unit	250	0.058
TM-P15N22-01 Order unit: 1 unit 2 × 2 terminals, no termination onto AUX1 rail, AUX1 connected through to the left, FastConnect	A	**6ES7 193-4CE60-0AA0**		1	1 unit	250	0.071
TM-P30S44-A0 Order unit: 1 unit 7 × 2 terminals, termination onto AUX1 rail, AUX1 disconnected through to the left, screw terminals for PM-E F PROFIsafe	A	**6ES7 193-4CK20-0AA0**		1	1 unit	241	0.131
TM-P30C44-A0 Order unit: 1 unit 7 × 2 terminals, termination onto AUX1 rail, AUX1 disconnected through to the left, spring-type terminals for PM-E F PROFIsafe	A	**6ES7 193-4CK30-0AA0**		1	1 unit	241	0.114
TM-E terminal modules for solid-state modules[1)]							
TM-E15S24-A1 Order unit: 5 units 2 × 4 terminals, termination onto AUX1 rail, AUX1 connected through to the left, screw terminals	A	**6ES7 193-4CA20-0AA0**		1	1 unit	250	0.381
TM-E15C24-A1 Order unit: 5 units 2 × 4 terminals, termination onto AUX1 rail, AUX1 connected through to the left, spring-type terminals	A	**6ES7 193-4CA30-0AA0**		1	1 unit	250	0.324
TM-E15S24-01 Order unit: 5 units 2 × 4 terminals, no termination onto AUX1 rail, AUX1 connected through to the left, screw terminals	A	**6ES7 193-4CB20-0AA0**		1	1 unit	250	0.408
TM-E15C24-01 Order unit: 5 units 2 × 4 terminals, no termination onto AUX1 rail, AUX1 connected through to the left, spring-type terminals	A	**6ES7 193-4CB30-0AA0**		1	1 unit	250	0.333
TM-E15S23-01 Order unit: 5 units 2 × 3 terminals, no termination onto AUX1 rail, AUX1 connected through to the left, screw terminals	A	**6ES7 193-4CB00-0AA0**		1	1 unit	250	0.330
TM-E15C23-01 Order unit: 5 units 2 × 3 terminals, no termination onto AUX1 rail, AUX1 connected through to the left, spring-type terminals	A	**6ES7 193-4CB10-0AA0**		1	1 unit	250	0.290
TM-E15N23-01 Order unit: 5 units 2 × 3 terminals, no termination onto AUX1 rail, AUX1 connected through to the left, FastConnect	A	**6ES7 193-4CB60-0AA0**		1	1 unit	250	0.376
TM-E15N24-01 Order unit: 5 units 2 × 4 terminals, no termination onto AUX1 rail, AUX1 connected through to the left, FastConnect	A	**6ES7 193-4CB70-0AA0**		1	1 unit	250	0.431
TM-E15S26-A1 Order unit: 5 units 2 × 6 terminals, termination onto AUX1 rail, AUX1 connected through to the left, screw terminals	A	**6ES7 193-4CA40-0AA0**		1	1 unit	250	0.471
TM-E15C26-A1 Order unit: 5 units 2 × 6 terminals, termination onto AUX1 rail, AUX1 connected through to the left, spring-type terminals	A	**6ES7 193-4CA50-0AA0**		1	1 unit	250	0.397

[1)] Note for selecting suitable TM-E and TM-P configuration aids.

* You can order this quantity or a multiple thereof.

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Terminal modules for power and solid-state modules (continued)							
TM-E terminal modules for solid-state modules[1] *(continued)*							
TM-E15N24-A1 Order unit: 5 units 2 × 4 terminals, termination onto AUX1 rail, AUX1 connected through to the left, FastConnect	A	**6ES7 193-4CA70-0AA0**		1	1 unit	250	0.422
TM-E15N26-A1 Order unit: 5 units 2 × 6 terminals, termination onto AUX1 rail, AUX1 connected through to the left, FastConnect	A	**6ES7 193-4CA80-0AA0**		1	1 unit	250	0.549
TM-E30S44-01 Order unit: 1 unit 4 × 4 terminals, no termination onto AUX1 rail, AUX1 connected through to the left, screw terminals	A	**6ES7 193-4CG20-0AA0**		1	1 unit	250	0.146
TM-E30C44-01 Order unit: 1 unit 4 × 4 terminals, no termination onto AUX1 rail, AUX1 connected through to the left, spring-type terminals	A	**6ES7 193-4CG30-0AA0**		1	1 unit	250	0.128
TM-E30S46-A1 Order unit: 1 unit 4 × 6 terminals, termination onto AUX1 rail, AUX1 connected through to the left, screw terminals	A	**6ES7 193-4CF40-0AA0**		1	1 unit	250	0.185
TM-E30C46-A1 Order unit: 1 unit 4 × 6 terminals, termination onto AUX1 rail, AUX1 connected through to the left, spring-type terminals	A	**6ES7 193-4CF50-0AA0**		1	1 unit	250	0.147
TM-E15S24-AT Order unit: 1 unit for internal temperature compensation for 2 AI TC High Feature, screw terminals	A	**6ES7 193-4CL20-0AA0**		1	1 unit	250	0.074
TM-E15C24-AT Order unit: 1 unit for internal temperature compensation for 2 AI TC High Feature, spring-type terminals	A	**6ES7 193-4CL30-0AA0**		1	1 unit	250	0.069
Accessories for shield connection							
Shield attachments Order unit: 5 units, for plugging into TM-E and TM-P	A	**6ES7 193-4GA00-0AA0**		1	1 unit	250	0.044
Shield terminals Order unit: 5 units, for busbars 3 × 10 mm	A	**6ES7 193-4GB00-0AA0**		1	1 unit	250	0.062
Ground connection terminals Order unit: 1 unit, for conductor cross-sections up to 25 mm^2	C	**8WA2 868**		1	50 units	041	0.014
Busbars 3 x 10 mm Order unit 1 unit	A	**8WA2 842**		1	1 unit	041	0.267
Accessories for coding							
Color coding plates Order unit: 200 units for TM-P, TM-E							
• White	A	**6ES7 193-4LA20-0AA0**		1	1 unit	250	0.025
• Yellow	A	**6ES7 193-4LB20-0AA0**		1	1 unit	250	0.027
• Yellow and green	A	**6ES7 193-4LC20-0AA0**		1	1 unit	250	0.024
• Red	A	**6ES7 193-4LD20-0AA0**		1	1 unit	250	0.023
• Blue	A	**6ES7 193-4LF20-0AA0**		1	1 unit	250	0.025
• Brown	A	**6ES7 193-4LG20-0AA0**		1	1 unit	250	0.025
• Turquoise	A	**6ES7 193-4LH20-0AA0**		1	1 unit	250	0.026
Inscription labels, with inscription Order unit: 1 set							
• 200 units for slot numbering (1 to 20) 10 ×	A	**8WA8 861-0AB**		100	200 units	041	0.080
• 200 units for slot numbering (1 to 40) 5 ×	A	**8WA8 861-0AC**		100	200 units	041	0.080
• 200 units for slot numbering (1 to 64) 1 ×, (1 to 68) 2 ×	C	**8WA8 861-0DA**		100	200 units	041	0.080
Inscription labels, blank 200 units for slot numbering	A	**8WA8 848-2AY**		100	100 units	041	0.080

[1] Note for selecting suitable TM-E and TM-P configuration aids.

* You can order this quantity or a multiple thereof.

Interface/solid-state modules

Version	DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Terminal modules for SIPLUS power and solid-state modules (extended temperature range)							
TM-P terminal modules for PM-E power modules (extended temperature range and medial load)							
TM-P15S23-A0 Order unit: 1 unit 2 x 3 terminals, termination onto AUX1 rail, AUX1 disconnected through to the left, screw terminals	D	**6AG1 193-4CD20-2AA0**		1	1 unit	471	0.077
TM-P15C23-A0 Order unit: 1 unit 2 x 3 terminals, termination onto AUX1 rail, AUX1 disconnected through to the left, spring-type terminals	C	**6AG1 193-4CD30-2AA0**		1	1 unit	473	0.070
TM-E terminal modules for solid-state modules (extended temperature range and medial load)							
TM-E15C24-A1 Order unit: 5 units 2 x 4 terminals, termination onto AUX1 rail, AUX1 disconnected through to the left, spring-type terminals	D	**6AG1 193-4CA30-2AA0**		1	1 unit	473	0.060
TM-E15S26-A1 Order unit: 5 units 2 x 6 terminals, terminal connections with termination onto AUX1 rail, AUX1 connected through, screw terminals	D	**6AG1 193-4CA40-2AA0**		1	1 unit	471	0.480
TM-E15C26-A1 Order unit: 5 units 2 x 6 terminals, termination onto AUX1 rail, AUX1 disconnected through to the left, spring-type terminals	D	**6AG1 193-4CA50-2AA0**		1	1 unit	473	0.440
TM-E15C24-A1 Order unit: 5 units 2 x 4 terminals, terminal connections with termination onto AUX1 rail, AUX1 connected through, spring-type terminals	D	**6AG1 193-4CB30-2AA0**		1	1 unit	471	0.300
TM-E30C44-01 Order unit: 1 unit 4 x 4 terminals, no termination onto AUX1 rail, AUX1 connected through to the left, spring-type terminals	D	**6AG1 193-4CG30-2AA0**		1	1 unit	471	0.120
TM-E15C24-AT Order unit: 1 unit for internal temperature compensation for 2 AI TC High Feature, spring-type terminals	D	**6AG1 193-4CL30-2AA0**		1	1 unit	471	0.064
Accessories for shield connection		For ordering data see terminal modules for power and solid-state modules					

* You can order this quantity or a multiple thereof.

Overview

Motor starters

- Only two versions up to 5.5 kW
- All settings can be parameterized by bus
- Comprehensive diagnostic signals
- Overload can be acknowledged by remote reset
- Current unbalance monitoring
- Stall protection
- Emergency start function in the event of overload
- Current value transmission by bus
- Current limit monitoring
- Direct-on-line or reversing starters
- Power bus can be plugged in using the new HAN Q4/2 plug-in connectors
- Conductor cross-sections up to 6 x 4 mm^2
- 25 A per segment
  (power looped through using jumper plug)
- In the Standard and High Feature versions
  (with 4 DI onBoard)
- Electromechanical switching and electronic switching
- Electronic starter for direct activation or with integrated smooth-starter function
- Supplied with 400 V AC brake contact as an option

Isolator modules

The isolator module with switch disconnector function is used for safe disconnection of the 400 V operational voltage during repair work in the plant and provides an integrated group fusing function (i. e. additional group short-circuit protection for all subsequently supplied motor starters).

Depending on the power distribution concept, all stations can be equipped with an isolator module as an option.

Safety applications

Safety local isolator module

With the Safety local modules
- Safety local isolator module and
- 400 V disconnecting module

it is possible to achieve safety category 4/SIL 3 with an appropriate connection.

Safety Solution PROFIsafe

With the Safety PROFIsafe modules
- F-Switch and
- 400 V disconnecting modules

it is also possible to achieve safety category 4/SIL 3 with an appropriate connection.

Motor Starter ES software

The Motor Starter ES software is used the for parameterization, monitoring, diagnostics and testing of motor starters.
See Chapter "Planning and Configuration with SIRIUS".

Benefits

ET 200pro motor starters provide the following advantages:
- High flexibility thanks to a modular and compact design
- Little variance among all motor starter versions (2 units up to 5.5 kW)
- Extensive parameterization using STEP 7 HW-Config
- Increase of plant availability through fast replacement of units (easy mounting and plug-in technology)
- Extensive diagnostics and information for preventive maintenance
- Parameterizable inputs for local control functions (High Feature)
- Cabinet-free construction thanks to high degree of protection IP65

Application

With the ET 200pro motor starters, any AC loads can be protected and switched. They are an integral part of ET 200pro and have the high degree of protection IP65. This makes them ideal for operation in modular, distributed peripherals without control cabinets or control enclosures.

The ET 200pro motor starters are available both with mechanical as well as electronic contacts.

The ET 200pro electromechanical starters are offered as direct (DSe/DSe) and reversing starters (RSe/RSe) in the High Feature version with the following equipment:
- 4 digital inputs
- Device versions with or without control for externally fed brakes with 400 V AC
- With expanded parameterization capabilities.

The ET 200pro electronic starters are offered as direct (DSe/DSe) and reversing starters (RSe/RSe) in the High-Feature version with the following equipment:
- 4 digital inputs
- With soft-start and smooth ramp-down function
- With the deactivated smooth start function as an electronic starter for applications with a high level of switching frequency
- Device versions with or without control for externally fed brakes with 400 V AC
- With expanded parameterization capabilities.

As the result of the protection concept with solid-state overload evaluation and the use of SIRIUS controls size S00, additional advantages are realized on the standard and High Feature motor starters - advantages which soon make themselves positively felt particularly in manufacturing processes with high plant stoppage costs:
- Configuration is made easier by the fine modular structure. When using the ET 200pro motor starters, the list of parts per load feeder is reduced to two main units: the bus module and the motor starter. This makes the ET 200pro ideal for modular machine concepts or solutions for conveying systems and in machine-tool building.
- Expansions are easily possible through the subsequent adding of modules. The innovative plug-in technology also does away with the wiring needed up to now. Through the hot swapping function (disconnection and connection during operation) a motor starter can be replaced within seconds if necessary, without having to shut down the ET 200pro station and with it the process in the plant. The motor starters are therefore recommendable in particular for applications with special demands on availability. Storage costs are optimized in addition by the low level of variance (2 units up to 5.5 kW).

Motor starters, Standard and High-Feature

The ordering option for motor starters with a 400 V AC brake output provides the possibility of controlling motors with 400 V AC brakes. With four locally acting inputs available on the High-Feature motor starter it is possible to realize autonomous special functions which work independently of the bus and the higher-level control system, e. g. as a quick stop on gate valve controls or limit position disconnectors. In parallel with this, the states of these inputs are signaled to the control system.

When using the optional isolator module with switch disconnector and group fusing function for the ET 200pro, the 400 V supply of the motor starters can be switched on and off directly in the field, i. e. locally.

The Motor Starter ES software is available for the parameterization and diagnostics.
See Chapter "Planning and Configuration with SIRIUS".

Selection and ordering data

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Standard motor starters, mechanical Motor protection: thermal model							
 DSe Standard							
DSe direct-on-line starters[1]							
• Without brake output	A	**3RK1 304-5□S40-4AA0**		1	1 unit	121	1.728
• With brake output 400 V AC	C	**3RK1 304-5□S40-4AA3**		1	1 unit	121	1.728
RSe reversing starters[1]							
• Without brake output	A	**3RK1 304-5□S40-5AA0**		1	1 unit	121	1.728
• With brake output 400 V AC	A	**3RK1 304-5□S40-5AA3**		1	1 unit	121	1.728
High-Feature motor starters Motor protection: thermal model							
 RSe High-Feature							
DSe direct-on-line starters[1]							
• Without brake output and with 4 inputs	C	**3RK1 304-5□S40-2AA0**		1	1 unit	121	1.728
• With brake output 400 V AC and 4 inputs	A	**3RK1 304-5□S40-2AA3**		1	1 unit	121	1.728
RSe reversing starters[1]							
• Without brake output and with 4 inputs	C	**3RK1 304-5□S40-3AA0**		1	1 unit	121	1.728
• With brake output 400 V AC and 4 inputs	A	**3RK1 304-5□S40-3AA3**		1	1 unit	121	1.728
Additional price			Additional price per PU				
Setting range of rated operational current							
• 0.15 ... 2.0 A		**K**	None				
• 1.5 ... 12.0 A		**L**	x				
High-Feature motor starters[3], solid-state Full motor protection, comprising thermal motor protection and thermistor motor protection							
 sRSSte High-Feature							
sDSSte/sDSte direct-on-line starters[1][3]							
• Without brake output and with 4 inputs	A	**3RK1 304-5□S70-2AA0**		1	1 unit	121	1.700
• With brake output 400 V AC and 4 inputs	A	**3RK1 304-5□S70-2AA3**		1	1 unit	121	1.700
sRSSte/sRSte reversing starters[1][3]							
• Without brake output and with 4 inputs	A	**3RK1 304-5□S70-3AA0**		1	1 unit	121	1.875
• With brake output 400 V AC and 4 inputs	A	**3RK1 304-5□S70-3AA3**		1	1 unit	121	1.875
Additional price			Additional price per PU				
Setting range of rated operational current							
• 0.15 ... 2.0 A		**K**	None				
• 1.5 ... 12.0 A		**L**	x				

x = Additional price

1) Only functions when used together with the backplane bus module and the wide module rack. The backplane bus module and the wide module rack must be ordered separately (see "Accessories for ET 200pro motor starters").

2) Delivery time class A for setting range of rated operational current 0.15 ... 2.0 A

3) The solid-state motor starters can be used not only as solid-state motors starters with a high level of switching frequency but also as fully fledged soft starters for soft starting and smooth ramp-down. The changeover from motor starter to soft starter takes place through reparameterization in HW Config.
Depending on the settings, this results in the following current ranges:
- Parameterization as solid-state starter: 0.15 ... 2 A and 1.5 ... 9 A (4 kW)
- Parameterization as soft starter: 0.15 ... 2 A and 1.5 ... 12 A (5.5 kW).

*** You can order this quantity or a multiple thereof.**

More information

		Standard motor starters	High-Feature motor starters	
		Mechanically switching without inputs	Mechanically switching with inputs	Mechanically switching with inputs and soft starter function
Technology designation[4]		DSe, RSe	DSe, RSe	sDSSte, sDSte, sRSSte, sRSte
Mechanics and environment				
Motor starters that can be connected to ET 200pro or modules with width of 110 mm		max. 8		
Mounting dimensions (W x H x D)				
• Direct-on-line starter and reversing starter	mm	110 x 230 x 150		110 x 230 x 160
Permissible ambient temperature				
• During operation	°C	-25 ... +55, from +40 with derating		
• During storage	°C	-40 ... +70		
Permissible mounting positions		Vertical, horizontal		
Vibration resistance acc. to IEC 60068, Part 2-6		2 *g*		
Shock resistance acc. to IEC 60068, Part 2-27		Half-sine 15 *g*/11 ms		
Degree of protection		IP65		
Pollution degree		3, IEC 60664 (IEC 61131)		
Electrical specifications				
Power consumption at 24 V DC				
• From auxiliary circuit L+/M (U1)	mA	Approx. 40		
• From auxiliary circuit A1/A2 (U2)	mA	Approx. 200		
Rated operational current for power bus I_e	A	25		
Rated operational voltage U_e	V AC	400		
• Approval acc. to EN 60947-1, Appendix N	V AC	Up to 400		Up to 400
• Approval acc. to CSA and UL	V AC	Up to 600		Up to 480
Approval				
• DIN VDE 0106, Part 101	V	Up to 400		Up to 480
• CSA and UL approval	V	Up to 600		Up to 480
Conductor cross-sections				
• Incoming energy supply	mm^2	Max. 6 x 4		
Touch protection		Finger-safe		
Rated impulse withstand voltage U_{imp}	kV	6		
Rated insulation voltage U_i	V	400		
Rated operational current for starters I_e				
• AC-1/2/3 at 40 °C				
- at 400 V	A	0.15 ... 2.0/1.5 ... 12.0		0.15 ... 2.0/1.5 ... 12.0[1]
- at 500 V	A	0.15 ... 2.0/1.5 ... 9.0		
• AC-4 at 40 °C				
- at 400 V	A	0.15 ... 2.0/1.5 ... 4.0		
Rated short-circuit breaking capacity	kA	100 at 400 V		
Type of coordination acc. to IEC 60947-4-1		1		
Power of induction motors at 400 V	kW	max. 5.5		Max. 5.5/4[2]
Utilization categories		AC-1, AC-2, AC-3, AC-4		AC-53a[3] (max. 9 A with deactivated soft star function up to CLASS 10)
Protective separation between main and auxiliary circuits	V	400, acc. to EN 60947-1, Appendix N		
Endurance of contactor				
• Mechanical		30 million operating cycles		--
• Electrical		Up to 10 million operating cycles; dependent on the current loading (see Manual)		--
Reliable switching frequency		Dependent on the current loading, motor starting time and relative ON period (see Manual)		
Operating times at 0.85 ... 1.1 x U_e				
• Closing delay	ms	11 ... 50		--
• Opening delay	ms	5 ... 45		--

1) **Caution!**
With deactivated soft starter control function the the permissible rated operational current is reduced to 9 A up to CLASS 10.

2) With parameterization as electronic starter max. 4 kW.

3) 8-hour operation.

4) DS ... direct-on-line starter
RS ... Reversing starters
DSS . Direct-on-line soft starters
RSS . Reversing soft starters
e ..... Motor protection (electronic)
te ..... full motor protection (thermal + electronic)
s ..... electronic switching with semiconductor

Motor starters, Standard and High-Feature

		Standard motor starters	High-Feature motor starters	
		DSe, RSe	DSe, RSe	sDSSte, sDSte, sRSSte, sRSte
Device functions				
Parameterizable rated operational current		Yes		
Parameterizable current limit values		No	Yes, 2 limit values	
Parameterizable response in case of current limit violation		No	Yes	
Zero current monitoring		Yes		
Parameterizable response in case of zero current violation		Yes		
Parameterizable current unbalance limit		No, fixed limit value (30 % x I_e)	Yes, 30 % ... 60 % x I_e	
Parameterizable response in case of unbalance limit violation		Yes		
Motor blocking monitoring		No	Yes	
Parameterizable blocking current limit		No	Yes, 150 % ... 1000 % x I_e	
Parameterizable blocking time limit	s	No	Yes, 1 ... 5	
Current value transmission		Yes		
Group warning diagnostics		No	Yes, parameterizable	
Group diagnostics		Yes, parameterizable		
Emergency start		Yes		
Digital inputs		No	Yes, 4 inputs	
• Parameterizable input signal		No	Yes, latching/ non-latching	
• Parameterizable input level		No	Yes, NC contacts/NO contacts	
• Parameterizable input signal delay	ms	No	Yes, 10 ... 80	
• Parameterizable input signal extension	ms	No	Yes, 0 ... 200	
• Parameterizable input control actions		No	Yes, 12 different actions	
400 V brake output		Yes, ordering option		
Parameterizable brake enabling delay	s	Yes, -2.5 ... 2.5		
Parameterizable holding time of the brake during stopping	s	Yes, 0 ... 25		
Parameterizable start-up type		No		Yes
Parameterizable ramp-down time		No		Yes
Parameterizable starting voltage		No		Yes
Parameterizable stopping voltage		No		Yes
Local device interface		Yes		
Firmware update		Yes, by trained personnel		
Thermal motor model		Yes		
Parameterizable trip class		No, CLASS 10 fixed	Yes, CLASS 5, 10, 15, 20	
Parameterizable response in case of overload of thermal motor model		No	Yes, 3 possible states	
Advance warning limit for motor heating	%	No	Yes, parameterizable 0 ... 95	
Advance warning limit time-related trip reserve	s	No	Yes, parameterizable 0 ... 500	
Parameterizable recovery time	min	No	Yes, 1 ... 30	
Parameterizable protection against voltage failure		No, permanently integrated	Yes	
Reversing start function		Yes, ordering option		
Parameterizable interlock time for reversing starters		No, 150 ms fixed	Yes, 0 ... 60 s	
Integrated logbook functions		Yes, 3 device logbooks		
Integrated statistics data memory		Yes		
Parameterizable response in case of CPU / master stop		Yes		
Device indications				
• Group fault		SF LED (red)		
• Switching state		STATE LED (red, yellow, green)		
• Device status		DEVICE LED (red, yellow, green)		
• Digital inputs		No	IN 1 ... IN 4, LED	

Overview

Safety local isolator modules

The Safety local isolator module is a repair switch with integrated safety evaluation functions that can be parameterized using DIP switches.

It is used for:
- Connection of a 1 or 2-channel EMERGENCY-STOP circuit up to category 3-4/SIL 3 (protective door or EMERGENCY-STOP pushbuttons) and parameterizable start behavior
- Control of the 400 V disconnecting module by means of a safety rail signal

400 V disconnecting modules

The 400 V disconnecting module enables the safe disconnection of the operational voltage of 400 V up to Category 3-4/SIL 3. For operation in a Safety Solution local application it functions only in combination with the Safety local isolator module.

For operation in a Safety PROFIsafe application it functions only in combination with the F-Switch.

F-Switch

Fail-safe digital inputs/outputs in degree of protection IP65/66/67 for near-machine, cabinet-free use.

Fail-safe digital inputs

- For the failsafe reading in of sensor information (1-/2-channel)
- Including integrated evaluation for 2v2 signals
- Internal sensor supplies (incl. testing) available

Fail-safe digital outputs

- 3 failsafe PP-switching outputs for safe switching of the backplane bus bars

The F-Switch is certified up to Cat. 4 (EN 954-1) and up to SIL 3 (IEC 61508) and has detailed diagnostics.

It supports PROFIsafe in PROFIBUS configurations as well as in PROFINET configurations.

Note:
For safety characteristics for motor starters, see "Appendix" --> "Standards and Approvals" --> "Overview"

Application

Safety local isolator module

The Safety local isolator module features the same functions as a standard isolator module with an additional local safety function.

The Safety local isolator module contains a 3TK28 41 module and is equipped with M12 terminals for the connection of external safety components.

Terminals 1 and 2 can be used to connect either 1-channel or 2-channel EMERGENCY-STOP circuits or protective door circuits (IN 1, IN 2).

For monitored starts, an external START switch can be connected to terminal 3.

The required safety functions can be set using 2 slide switches located under the left M12 opening.

In the event of an EMERGENCY-STOP, the Safety local isolator module trips the downstream 400 V disconnecting module. This safely isolates the 400 V circuit up to Cat. 4/SIL 3.

In combination with the 400 V disconnecting module, the Safety local isolator module can be used for safety applications up to Cat. 4/SIL 3 according to EN 954-1.

400 V disconnecting modules

The 400 V disconnecting module can be used together with the Safety local isolator module for local safety applications and together with the F-Switch for PROFIsafe safety applications.

It contains two contactors connected in series for safety-oriented disconnection of the main circuit.

The auxiliary circuit supply of the device is over a safety power rail in the backplane bus module.

The 400 V disconnecting module can be used together with the Safety local isolator module or with the F-Switch for safety applications up to Cat. 4/SIL 3 according to EN 954-1.

F-Switch

The F-Switch is a failsafe solid-state module for PROFIsafe safety applications. It has two failsafe inputs and outputs for safe switching of the
24 V supply over backplane bus bars. In combination with the 400 V disconnecting module it can be used in PROFIsafe applications for the failsafe disconnection of ET 200pro motor starters up to Cat. 4/SIL 3.

Selection and ordering data

	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
ET 200pro safety modules								
 3RK1 304-0HS00-7AA0	**Safety local isolator modules**[1)2)] Rated operational current 16 A	C	**3RK1 304-0HS00-7AA0**		1	1 unit	121	1.728
 3RK1 304-0HS00-8AA0	**400 V disconnecting modules**[3)4)] Rated operational current 25 A	C	**3RK1 304-0HS00-8AA0**		1	1 unit	121	1.728
 6ES7 148-1FS00-0AB0	**F-Switch PROFIsafe** 24 V DC, including bus module Connection module to be ordered separately	A	**6ES7 148-4FS00-0AB0**		1	1 unit	241	0.200
	Connection modules for F-Switch 24 V DC	A	**6ES7 194-4DA00-0AA0**		1	1 unit	241	0.364

1) The Safety local isolator module only functions when used together with the 400 V disconnecting module.

2) Only in combination with the special backplane bus module for the Safety local isolator module (see "Accessories for ET 200pro motor starters").

3) The 400 V disconnecting module only functions when used together with the Safety local isolator module or with the F-Switch.

4) Only functions when used together with the backplane bus module and the wide module rack. The backplane bus module and the wide module rack must be ordered separately (see "Accessories for ET 200pro motor starters").

* You can order this quantity or a multiple thereof.

More information

		Safety local isolator modules	400 V disconnecting modules
General data			
Mounting dimensions (W x H x D) in mm • Direct-on-line starter and reversing starter	mm	110 x 230 x 170	110 x 230 x 150
Permissible ambient temperature • During operation • During storage	°C °C	-25 ... +55 -40 ... +70	
Permissible mounting positions		Any	
Vibration resistance to IEC 60068, Part 2-6		2 *g*	
Shock resistance to IEC 60068 Part 2-27		Half-sine 15 *g*/11 ms	
Power consumption • From auxiliary circuit L+/M (U1) • From auxiliary circuit A1/A2 (U2)	mA	Approx. 20 --	
Rated operational current for power bus I_e	A	25	
Rated operational voltage U_e	V	400	
Approval to DIN VDE 0106, Part 101	V	Up to 500	
CSA and UL approval	V	Up to 600	
Conductor cross-sections Incoming energy supply	mm^2	Max. 6 x 4	
Degree of protection		IP65	
Touch protection		Finger-safe	
Pollution degree		3, IEC 60664 (IEC 61131)	
Rated impulse withstand voltage U_{imp}	kV	6	
Rated insulation voltage U_i	V	400	
Rated operational current for starter I_e • AC-1/2/3 at 40 °C - at 400 V - at 500 V	 A A	 16 16	 25 25
Rated short-circuit breaking capacity	kA	50 at 400 V	
Type of coordination to IEC 60947-4-1		2	
Protective separation between main and auxiliary circuits	V	400, acc. to DIN VDE 0106, Part 101	
Operating times at 0.85 ... 1.1 x U_e • Closing delay • Opening delay	 ms ms	 -- --	 25 ... 100 7 ... 10
Device functions • Group diagnostics		Yes, parameterizable	
Device indications • Group fault		SF LED (red)	

ET 200pro isolator modules

Overview

The isolator module with integrated group fusing function (i. e. additional group short-circuit protection for all subsequently supplied motor starters) and switch disconnector function is used for safe disconnection of the 400 V operational voltage in the plant.

Depending on the power distribution concept, all stations can be equipped with an isolator module as an option.

The isolator module is available in addition in a safety version. See Safety local Isolator Modules.

Benefits

The following properties apply to the isolator module:
- Increase of plant availability through fast replacement of units (easy mounting and plug-in technology)
- Cabinet-free construction thanks to high degree of protection IP65

Selection and ordering data

	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
ET 200pro isolator modules, mechanical								
 3RK1 304-0HS00-6AA0	**Isolator modules**[1] Rated operational current 25 A	A	**3RK1 304-0HS00-6AA0**		1	1 unit	121	1.728
 3RK1 304-0HS00-7AA0	**Safety local isolator modules**[2)3)] Rated operational current 16 A	C	**3RK1 304-0HS00-7AA0**		1	1 unit	121	1.728

1) Only functions when used together with the corresponding backplane bus module 110 mm and the wide module rack. The backplane bus module and the wide module rack must be ordered separately (see "Accessories for ET 200pro motor starters").

2) The Safety local isolator module only functions when used together with the 400 V disconnecting module.

3) Only in combination with the special backplane bus module for the Safety local isolator module (see "Accessories for ET 200pro motor starters").

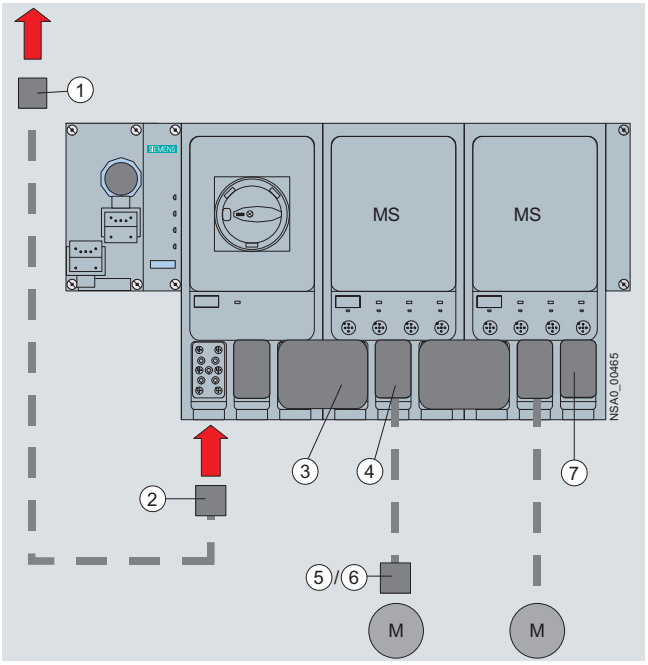
More information

		Isolator modules
General data		
Mounting dimensions (W x H x D) • Direct-on-line starter and reversing starter	mm	110 x 230 x 170
Permissible ambient temperature • During operation • During storage	°C °C	-25 ... +55 -40 ... +70
Permissible mounting positions		Any
Vibration resistance acc. to IEC 60068, Part 2-6		2 *g*
Shock resistance acc. to IEC 60068, Part 2-27		Half-sine 15 *g*/11 ms
Power consumption • From auxiliary circuit L+/M (U1) • From auxiliary circuit A1/A2 (U2)	mA	Approx. 20 --
Rated operational current for power bus I_e	A	25
Rated operational voltage U_e	V	400
Approvals acc. to • DIN VDE 0106, Part 101 • CSA and UL	V V	Up to 500 Up to 600
Conductor cross-sections • Incoming energy supply	mm^2	Max. 6 x 4
Degree of protection		IP65

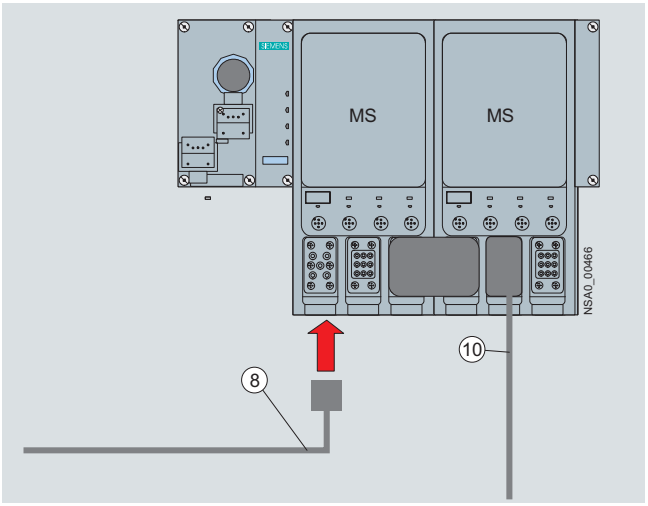
		Isolator modules
Touch protection		Finger-safe
Pollution degree		3, IEC 60664 (IEC 61131)
Rated impulse withstand voltage U_{imp}	kV	6
Rated insulation voltage U_i	V	400
Rated operational current for starters I_e • AC-1/2/3 at 40 °C - at 400 V - at 500 V	 A A	 25 25
Rated short-circuit breaking capacity	kA	50 at 400 V
Type of coordination to IEC 60947-4-1		2
Protective separation between main and auxiliary circuits	V	400, acc. to DIN VDE 0106, Part 101
Device functions • Group diagnostics		Yes, parameterizable
Device indications • Group fault		SF LED (red)

* You can order this quantity or a multiple thereof.

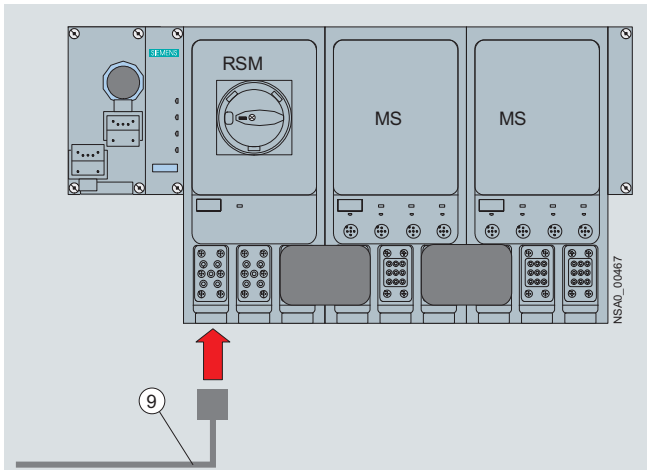
Overview



Basic design of an ET 200pro motor starter



Infeed on the ET 200pro motor starter



Infeed on the RSM isolator module

Legend:

① Power feeder plug (see page 6/108)
② Power connection plug (see page 6/108)
③ Power jumper plug (see page 6/108)
④ Motor connection plug (see page 6/108)
⑤ Motor plug (see page 6/108)
⑤ Motor plug with EMC suppressor circuit (see page 6/108)
⑦ Power loop-through plug (see page 6/108)
⑧ Power connection cable (see page 6/108)
⑨ Power connection cable for isolator modules (see page 6/108)
⑩ Motor cable (see page 6/109)

Accessories for ET 200pro motor starters

Selection and ordering data

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
ET 200pro accessories							
① **Power feeder plugs** Connector set for energy supply, e. g. for connecting to T terminal connectors, comprising a coupling enclosure, straight outgoing feeder (with bracket), pin insert for HAN Q4/2, incl. gland							
• 5 male contacts 2.5 mm²	B	**3RK1 911-2BS60**		1	1 unit	121	0.100
• 5 male contacts 4 mm²	B	**3RK1 911-2BS20**		1	1 unit	121	0.100
• 5 male contacts 6 mm²	B	**3RK1 911-2BS40**		1	1 unit	121	0.100
② **Power connection plugs** Connector set for energy supply for connection to ET 200pro motor starters/ET 200pro isolator modules, comprising a cable-end connector hood, angled outgoing feeder, female insert for HAN Q4/2, incl. gland							
• 5 female contacts 2.5 mm²	C	**3RK1 911-2BE50**		1	1 unit	121	0.200
• 5 female contacts 4 mm²	B	**3RK1 911-2BE10**		1	1 unit	121	0.200
• 5 female contacts 6 mm²	B	**3RK1 911-2BE30**		1	1 unit	121	0.200
③ **Power jumper plugs**	B	**3RK1 922-2BQ00**		1	1 unit	121	0.330
④ **Motor connection plugs** Connector set for motor cable for connection to ET 200pro motor starters, comprising a cable-end connector hood, angled outgoing feeder, pin insert for HAN Q8/0, incl. gland							
• 8 male contacts 1.5 mm²	B	**3RK1 902-0CE00**		1	1 unit	121	0.064
• 6 male contacts 2.5 mm²	B	**3RK1 902-0CC00**		1	1 unit	121	0.059
⑤ **Motor plugs** Connector set for motor cable for connection to motors, comprising a cable-end connector hood, straight outgoing feeder, female insert for HAN 10e, incl. star jumper, incl. gland							
• 7 female contacts 1.5 mm²	C	**3RK1 911-2BM21**		1	1 set	121	0.240
• 7 female contacts 2.5 mm²	C	**3RK1 911-2BM22**		1	1 set	121	0.240
⑥ **Motor plugs with EMC suppressor circuit** Connector set for motor cable for connection to motors, comprising a cable-end connector hood, straight outgoing feeder, female insert for HAN 10e with EMC suppressor circuit, incl. star jumper, incl. gland							
• 7 female contacts 1.5 mm²	C	**3RK1 911-2BL21**		1	1 set	121	0.270
• 7 female contacts 2.5 mm²	C	**3RK1 911-2BL22**		1	1 set	121	0.270
⑦ **Power loop-through plugs** Connector set for power loop-through for connection to ET 200pro motor starters/ET 200pro isolator module, comprising a cable-end connector hood, angled outgoing feeder, pin insert for HAN Q4/2, incl. gland							
• 4 male contacts 2.5 mm²	B	**3RK1 911-2BF50**		1	1 unit	121	0.110
• 4 male contacts 4 mm²	B	**3RK1 911-2BF10**		1	1 unit	121	0.300
⑧ **Power connection cables, assembled at one end** Power connection cable for ET 200pro motor starters, ECOFAST, open at one end, for HAN Q4/2, angled, insert turned at isolator module end, 4 x 4 mm²							
• Length 1.5 m	B	**3RK1 911-0DB13**		1	1 set	121	0.590
• Length 5.0 m	B	**3RK1 911-0DB33**		1	1 set	121	1.800
⑨ **Power connection cables for isolator modules, assembled at one end** Power connection cable for ET 200pro isolator modules,open at one end, for HAN Q4/2, angled, insert turned at isolator module end, 4 x 4 mm²							
• Length 1.5 m	C	**3RK1 911-0DF13**		1	1 set	121	0.590
• Length 5.0 m	C	**3RK1 911-0DF33**		1	1 set	121	1.800

* You can order this quantity or a multiple thereof.

Accessories for ET 200pro motor starters

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
⑩ **Motor cables, assembled at one end** open at one end, HAN Q8, angled, length 5 m							
• Motor cable for motor without brake, for ET 200pro, ET 200X, AS-i Compact, 4 x 1.5 mm^2	C	**3RK1 911-0EB31**		1	1 set	121	0.800
• Motor cable for motor with brake, for ET 200pro, 6 x 1.5 mm^2	C	**3RK1 911-0ED31**		1	1 set	121	1.150

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under "Distributed Field Installation System" technology

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Module racks, wide[1]							
• Length 500 mm	A	**6ES7 194-4GB00-0AA0**		1	1 unit	250	2.400
• Length 1000 mm	A	**6ES7 194-4GB60-0AA0**		1	1 unit	250	4.800
• Length 2000 mm	A	**6ES7 194-4GB20-0AA0**		1	1 unit	250	9.700
Module racks, wide, compact[1]							
• Length 500 mm	A	**6ES7 194-4GD00-0AA0**		1	1 unit	250	2.536
• Length 1000 mm	A	**6ES7 194-4GD10-0AA0**		1	1 unit	250	5.040
• Length 2000 mm	A	**6ES7 194-4GD20-0AA0**		1	1 unit	250	10.040
Backplane bus modules 110 mm[2]	B	**3RK1 922-2BA00**		1	1 unit	121	0.330
Backplane bus modules for Safety local isolator modules	B	**3RK1 922-2BA01**		1	1 unit	121	0.330
RS 232 interface cables	B	**3RK1 922-2BP00**		1	1 unit	121	0.330
Hand-held devices for ET 200pro motor starter, (also for ET 200S High Feature and ECOFAST), for local operation. A serial interface cable must be ordered separately.	B	**3RK1 922-3BA00**		1	1 unit	121	0.130
Sealing caps (for power supply) (1 pack contains 10 units)	B	**3RK1 902-0CJ00**		1	10 units	121	0.093
Dismantling tools for HAN Q4/2	C	**3RK1 902-0AB00**		1	1 unit	121	0.024
Crimping tools for pins/sockets 4 mm^2 and 6 mm^2	C	**3RK1 902-0CW00**		1	1 unit	121	0.620
Crimping tools for male contacts and sockets up to 4.0 mm^2 (HAN Q8/0)	B	**3RK1 902-0CT00**		1	1 unit	121	0.644
Dismantling tools for male contacts and sockets (HAN Q8/0)	B	**3RK1 902-0AJ00**		1	1 unit	121	0.047
M12 sealing caps For sealing unused input and output sockets (one set contains ten sealing caps)	►	**3RX9 802-0AA00**		100	10 units	121	0.100


3RK1 922-3BA00

1) The wide module rack can accommodate all ET 200pro motor starters and any optional modules (isolator module, Safety local isolator module and 400 V disconnecting module).

2) The backplane bus module is a prerequisite for operation of the ET 200pro motor starters and the optional modules.

* You can order this quantity or a multiple thereof.

Components for ET 200pro

Selection and ordering data

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Interface modules IM 154-1 and IM 154-2							
IM154-1 interface modules For ET 200pro; for communication between ET 200pro and higher-level masters over PROFIBUS DP	A	**6ES7 154-1AA00-0AB0**		1	1 unit	250	0.411
IM154-2 High-Feature interface modules For ET 200pro; for communication between ET 200pro and higher-level masters over PROFIBUS DP; support of PROFIsafe	A	**6ES7 154-2AA00-0AB0**		1	1 unit	250	0.411
Accessories							
CM IM DP ECOFAST connection modules For connection of PROFIBUS DP and 24 V power supply to PROFIBUS interface modules, two ECOFAST Cu connections	A	**6ES7 194-4AA00-0AA0**		1	1 unit	250	0.226
CM IM DP Direct connection modules For direct connection of PROFIBUS DP and 24 V power supply to PROFIBUS interface modules, up to six M20 screwed cable glands	A	**6ES7 194-4AC00-0AA0**		1	1 unit	250	0.338
CM IM DP M12 7/8" connection modules For connection of PROFIBUS DP and 24 V power supply to PROFIBUS interface modules, 2 x M12 and 2 x 7/8"	A	**6ES7 194-4AD00-0AA0**		1	1 unit	250	0.461
Accessories for CM IM DP ECOFAST							
PROFIBUS ECOFAST hybrid cables, assembled With 2 ECOFAST connectors, trailing cable with 2 x Cu 0.64 mm^2 and 4 x Cu 1.5 mm^2							
• Length 1.5 m	A	**6XV1 830-7BH15**		1	1 unit	5K2	0.400
• Length 3.0 m	A	**6XV1 830-7BH30**		1	1 unit	5K2	0.535
• Length 5.0 m	A	**6XV1 830-7BH50**		1	1 unit	5K2	0.880
• Length 10 m	A	**6XV1 830-7BN10**		1	1 unit	5K2	1.600
• Length 15 m	A	**6XV1 830-7BN15**		1	1 unit	5K2	2.155
• Length 20 m	A	**6XV1 830-7BN20**		1	1 unit	5K2	2.870
• Length 25 m	A	**6XV1 830-7BN25**		1	1 unit	5K2	3.640
• Length 30 m	A	**6XV1 830-7BN30**		1	1 unit	5K2	4.410
• Length 35 m	A	**6XV1 830-7BN35**		1	1 unit	5K2	5.180
• Length 40 m	A	**6XV1 830-7BN40**		1	1 unit	5K2	5.950
• Length 45 m	A	**6XV1 830-7BN45**		1	1 unit	5K2	6.720
• Length 50 m	A	**6XV1 830-7BN50**		1	1 unit	5K2	7.490
PROFIBUS ECOFAST GP hybrid cables, assembled With 2 ECOFAST connectors, trailing cable with 2 x Cu 0.64 mm^2 and 4 x Cu 1.5 mm^2							
• Length 1.5 m	A	**6XV1 860-3PH15**		1	1 unit	5K2	0.400
• Length 3.0 m	A	**6XV1 860-3PH30**		1	1 unit	5K2	0.750
• Length 5.0 m	A	**6XV1 860-3PH50**		1	1 unit	5K2	0.870
• Length 10 m	A	**6XV1 860-3PN10**		1	1 unit	5K2	1.640
• Length 15 m	A	**6XV1 860-3PN15**		1	1 unit	5K2	2.410
• Length 20 m	A	**6XV1 860-3PN20**		1	1 unit	5K2	3.180
• Length 25 m	A	**6XV1 860-3PN25**		1	1 unit	5K2	3.950
• Length 30 m	A	**6XV1 860-3PN30**		1	1 unit	5K2	4.720
• Length 35 m	A	**6XV1 860-3PN35**		1	1 unit	5K2	5.490
• Length 40 m	A	**6XV1 860-3PN40**		1	1 unit	5K2	6.160
• Length 45 m	A	**6XV1 860-3PN45**		1	1 unit	5K2	6.930
• Length 50 m	A	**6XV1 860-3PN50**		1	1 unit	5K2	7.700
PROFIBUS ECOFAST hybrid cables, non-assembled Trailing cable with 2 x Cu 0.64 mm^2 and 4 x Cu 1.5 mm^2							
• Length 50 m	A	**6XV1 830-7AN50**		1	1 unit	5K2	7.700
• Length 100 m	A	**6XV1 830-7AT10**		1	1 unit	5K2	15.400
PROFIBUS ECOFAST GP hybrid cables, non-assembled Trailing cable with 2 x Cu 0.64 mm^2 and 4 x Cu 1.5 mm^2							
• Length 50 m	B	**6XV1 860-4PN50**		1	1 unit	5K2	7.700
• Length 100 m	A	**6XV1 860-4PT10**		1	1 unit	5K2	15.400
PROFIBUS ECOFAST hybrid connectors 180 ECOFAST Cu, 2 x Cu, 4 x 1.5 mm^2, HANBRID connectors							
• With pin insert, pack of 5	A	**6GK1 905-0CA00**		1	1 unit	5K2	0.212
• With female insert, pack of 5	A	**6GK1 905-0CB00**		1	1 unit	5K2	0.215
PROFIBUS ECOFAST hybrid connectors, angled ECOFAST Cu, 2 x Cu, 4 x 1.5 mm^2, HANBRID connectors							
• With pin insert, pack of 5	A	**6GK1 905-0CC00**		1	1 unit	5K2	0.247
• With female insert, pack of 5	A	**6GK1 905-0CD00**		1	1 unit	5K2	0.247
ECOFAST covers for protection of unused bus connections on ET 200pro; pack of 10 units per packing unit	A	**6ES7 194-1JB10-0XA0**		1	1 unit	2F0	0.051

* You can order this quantity or a multiple thereof.

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
IM 154-1 and IM 154-2 interface modules (continued)							
Accessories for CM IM DP Direct							
PROFIBUS trailing cables max. acceleration 4 m/s², at least 3000000 bending cycles, bending radius at least 60 mm, 2-core, shielded, sold by the meter, minimum order quantity 20 m, maximum order quantity 1000 m	A	**6XV1 830-3EH10**		1	1 M	5K2	0.072
PROFIBUS FC Food bus cables with PE outer sheath for operation in the food and beverage industry, 2-core, shielded, sold by the meter, minimum order quantity 20 m, maximum order quantity 1000 m	A	**6XV1 830-0GH10**		1	1 M	5K2	0.069
PROFIBUS FC Robust bus cables with PUR outer sheath for operation in environments exposed to chemicals and mechanical loads, 2-core, shielded, sold by the meter, minimum order quantity 20 m, maximum order quantity 1000 m	A	**6XV1 830-0JH10**		1	1 M	5K2	0.075
Power cables 5-core, 5 x 1.5 mm², trailing, sold by the meter, minimum order quantity 20 m, maximum order quantity 1000 m	A	**6XV1 830-8AH10**		1	1 M	5K2	0.149
Accessories for CM IM DP M12 7/8"							
PROFIBUS M12 connecting cables Preassembled with two M12 plugs, 5-pole							
• Length 1.5 m	A	**6XV1 830-3DH15**		1	1 unit	5K2	0.150
• Length 2.0 m	A	**6XV1 830-3DH20**		1	1 unit	5K2	0.195
• Length 3.0 m	A	**6XV1 830-3DH30**		1	1 unit	5K2	0.294
• Length 5.0 m	A	**6XV1 830-3DH50**		1	1 unit	5K2	0.434
• Length 10 m	A	**6XV1 830-3DN10**		1	1 unit	5K2	0.837
• Length 15 m	A	**6XV1 830-3DN15**		1	1 unit	5K2	1.245
7/8" connecting cables for power supply 5-core, 5 x 1.5 mm², trailing, preassembled with two 7/8" plugs, 5-pole							
• Length 1.5 m	A	**6XV1 822-5BH15**		1	1 unit	5K2	0.328
• Length 2.0 m	A	**6XV1 822-5BH20**		1	1 unit	5K2	0.408
• Length 3.0 m	A	**6XV1 822-5BH30**		1	1 unit	5K2	0.570
• Length 5.0 m	A	**6XV1 822-5BH50**		1	1 unit	5K2	0.923
• Length 10 m	A	**6XV1 822-5BN10**		1	1 unit	5K2	1.769
• Length 15 m	A	**6XV1 822-5BN15**		1	1 unit	5K2	2.540
M12 connectors for ET 200eco, with axial cable feeder							
• With pin insert, pack of 5	A	**6GK1 905-0EA00**		1	1 unit	5K2	0.251
• With female insert, pack of 5	A	**6GK1 905-0EB00**		1	1 unit	5K2	0.268
7/8" connectors for ET 200eco, with axial cable feeder							
• With pin insert, pack of 5	A	**6GK1 905-0FA00**		1	1 unit	5K2	0.265
• With female insert, pack of 5	A	**6GK1 905-0FB00**		1	1 unit	5K2	0.250
M12 sealing caps for protection of unused M12 terminals on ET 200pro	►	**3RX9 802-0AA00**		100	10 units	121	0.100
7/8" sealing caps for protection of unused 7/8" terminals on ET 200pro; pack of 10 units per packing unit	A	**6ES7 194-3JA00-0AA0**		1	1 unit	250	0.037
General accessories							
ET 200pro module carriers							
• Narrow, for interface, solid-state and power modules							
- 500 mm	A	**6ES7 194-4GA00-0AA0**		1	1 unit	250	1.578
- 1000 mm	A	**6ES7 194-4GA60-0AA0**		1	1 unit	250	3.160
- 2000 mm, can be cut to size	A	**6ES7 194-4GA20-0AA0**		1	1 unit	250	6.369
• Compact, for interface, solid-state and power modules							
- 500 mm	A	**6ES7 194-4GC70-0AA0**		1	1 unit	250	1.600
- 1000 mm	A	**6ES7 194-4GC60-0AA0**		1	1 unit	250	3.220
- 2000 mm, can be cut to size	A	**6ES7 194-4GC20-0AA0**		1	1 unit	250	6.580
• Wide, for interface, solid-state, power modules and motor starters							
- 500 mm	A	**6ES7 194-4GB00-0AA0**		1	1 unit	250	2.400
- 1000 mm	A	**6ES7 194-4GB60-0AA0**		1	1 unit	250	4.800
- 2000 mm, can be cut to size	A	**6ES7 194-4GB20-0AA0**		1	1 unit	250	9.700
• Wide, compact, for I/O modules and motor starters							
- 500 mm	A	**6ES7 194-4GD00-0AA0**		1	1 unit	250	2.536
- 1000 mm	A	**6ES7 194-4GD10-0AA0**		1	1 unit	250	5.040
- 2000 mm	A	**6ES7 194-4GD20-0AA0**		1	1 unit	250	10.040
Spare fuses 12.5 A quick, for interface and power modules, pack of 10	A	**6ES7 194-4HB00-0AA0**		1	1 unit	250	0.012

* You can order this quantity or a multiple thereof.

Components for ET 200pro

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
IM 154-1 and IM 154-2 interface modules (continued)							
General accessories (continued)							
Technical product specifications for CAX applications, one off license	A	**6ES7 991-0CD01-0YX0**		1	1 unit	266	0.200
SIMATIC Manual Collection Electronic manuals on DVD, several languages: S7-200, TD 200, S7-300, M7-300, C7, S7-400, M7-400, STEP 7, Engineering Tools, Runtime Software, SIMATIC DP (Distributed I/O), SIMATIC HMI (Human Machine Interface), SIMATIC NET (Industrial Communication)	A	**6ES7 998-8XC01-8YE0**		1	1 unit	230	0.099
SIMATIC Manual Collection – Update service for 1 year Scope of supply: The current DVD S7 Manual Collection as well as the three subsequent updates	C	**6ES7 998-8XC01-8YE2**		1	1 unit	230	0.400
IM 154-4 PN interface modules							
IM 154-4 PN High-Feature interface modules for communication between ET 200pro and higher-level controller over PROFINET IO; support of PROFIsafe	A	**6ES7 154-4AB10-0AB0**		1	1 unit	250	0.539
Accessories							
CM IM PN M12 connection modules, 7/8" For connection of PROFINET PN and 24 V power supply to PROFINET interface modules, 2 x M12 and 2 x 7/8"	A	**6ES7 194-4AJ00-0AA0**		1	1 unit	250	0.617
CM IM PN 2xRJ45 connection modules For connection of PROFINET PN and 24 V power supply to PROFINET interface modules, 2 x RJ45 and 2 x push-pull power connectors	A	**6ES7 194-4AF00-0AA0**		1	1 unit	250	0.374
CM IM PN 2xSCRJ FO connection modules For connection of PROFINET PN and 24 V power supply to PROFINET interface modules, 2 x SCRJ FO and 2 x push-pull power connectors	A	**6ES7 194-4AG00-0AA0**		1	1 unit	250	0.380
M12 sealing caps for protection of unused M12 terminals on ET 200pro	►	**3RX9 802-0AA00**		100	10 units	121	0.100
IE M12 connecting cables Preassembled with two M12 plugs, up to max. 85 m							
• Length 0.3 m	A	**6XV1 870-8AE30**		1	1 unit	5K2	0.060
• Length 0.5 m	A	**6XV1 870-8AE50**		1	1 unit	5K2	0.065
• Length 1.0 m	A	**6XV1 870-8AH10**		1	1 unit	5K2	0.101
• Length 1.5 m	A	**6XV1 870-8AH15**		1	1 unit	5K2	0.150
• Length 2.0 m	A	**6XV1 870-8AH20**		1	1 unit	5K2	0.180
• Length 3.0 m	A	**6XV1 870-8AH30**		1	1 unit	5K2	0.250
• Length 5.0 m	A	**6XV1 870-8AH50**		1	1 unit	5K2	0.390
• Length 10 m	A	**6XV1 870-8AN10**		1	1 unit	5K2	0.740
• Length 15 m	A	**6XV1 870-8AN15**		1	1 unit	5K2	1.100
• For more special lengths with 90° or 180° cable feeder www.support.automation.siemens.com/WW/view/en/26999294							
7/8" connecting cables for power supply 5-core, 5 x 1.5 mm^2, trailing, preassembled with two 7/8" plugs, 5-pole							
• Length 1.5 m	A	**6XV1 822-5BH15**		1	1 unit	5K2	0.328
• Length 2.0 m	A	**6XV1 822-5BH20**		1	1 unit	5K2	0.408
• Length 3.0 m	A	**6XV1 822-5BH30**		1	1 unit	5K2	0.570
• Length 5.0 m	A	**6XV1 822-5BH50**		1	1 unit	5K2	0.923
• Length 10 m	A	**6XV1 822-5BN10**		1	1 unit	5K2	1.769
• Length 15 m	A	**6XV1 822-5BN15**		1	1 unit	5K2	2.540
• For more special lengths with 90° or 180° cable feeder www.support.automation.siemens.com/WW/view/en/26999294							
Power cables 5-core, 5 x 1.5 mm^2, trailing, sold by the meter, minimum order quantity 20 m, maximum order quantity 1000 m	A	**6XV1 830-8AH10**		1	1 M	5K2	0.149
7/8" connectors for ET 200eco, with axial cable feeder							
• With pin insert, pack of 5	A	**6GK1 905-0FA00**		1	1 unit	5K2	0.265
• With female insert, pack of 5	A	**6GK1 905-0FB00**		1	1 unit	5K2	0.250
7/8" Power T-Tap Power T piece with two 7/8" female inserts and one 7/8" pin insert, pack of 5	A	**6GK1 905-0FC00**		1	1 unit	5K2	0.600

* You can order this quantity or a multiple thereof.

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
IM 154-4 PN interface modules (continued)							
Industrial Ethernet Fast Connect installation cables							
• **IE FC TP Standard Cable GP 2 x 2**; sold by the meter, delivery unit max. 1000 m, minimum order quantity 20 m	A	**6XV1 840-2AH10**		1	1 M	5K2	0.068
• **IE FC TP Trailing Cable 2 x 2**; sold by the meter, delivery unit max. 1000 m, minimum order quantity 20 m	A	**6XV1 840-3AH10**		1	1 M	5K2	0.055
• **IE FC TP Trailing Cable GP 2 x 2**; sold by the meter, delivery unit max. 1000 m, minimum order quantity 20 m	A	**6XV1 870-2D**		1	1 M	5K2	0.068
• **IE TP Torsion Cable GP 2 x 2**; sold by the meter, delivery unit max. 1000 m, minimum order quantity 20 m	A	**6XV1 870-2F**		1	1 M	5K2	0.060
• **IE FC TP Marine Cable 2 x 2**; sold by the meter, delivery unit max. 1000 m, minimum order quantity 20 m	A	**6XV1 840-4AH10**		1	1 M	5K2	0.055
IE RJ45 Plug PRO RJ45 plug-in connector for field assembly in degree of protection IP65/67, plastic enclosure, insulation displacement method, for SCALANCE X-200IRT PRO and ET200pro: 1 pack = 1 unit	A	**6GK1 901-1BB10-6AA0**		1	1 unit	5K2	0.037
IE SC RJ POF Plug PRO SC RJ- plug-in connector for field assembly for POF fibers in degree of protection IP65/67, plastic enclosure, for SCALANCE X-200IRT PRO and ET200pro 1 pack = 1 unit	A	**6GK1 900-0MB00-6AA0**		1	1 unit	5K2	0.020
IE SC RJ PCF Plug PRO SC RJ- plug-in connector for field assembly for PCF fibers in degree of protection IP65/67, plastic enclosure, for SCALANCE X-200IRT PRO 1 pack = 1 unit	A	**6GK1 900-0NB00-6AA0**		1	1 unit	5K2	0.020
Power Plug PRO 5-pole power plug-in connector for field assembly for 2 x 24 V power supply in degree of protection IP65/67, plastic enclosure, for SCALANCE X-200IRT PRO and ET200 pro 1 pack = 1 unit	A	**6GK1 907-0AB10-6AA0**		1	1 unit	5K2	0.420
IE M12 Plug PRO M12 plug-in connector (D-coded) for field assembly, metal enclosure, quick-connect technology, for SCALANCE X208PRO and IM 154-4 PN							
• 1 unit	A	**6GK1 901-0DB10-6AA0**		1	1 unit	5K2	0.030
• 8 units	A	**6GK1 901-0DB10-6AA8**		1	1 unit	5K2	0.300
IE Panel Feedthrough Control cabinet gland for transition from M12 connection method (D-coded, IP65) to RJ45 connection method (IP20) 1 pack = 5 units	A	**6GK1 901-0DM20-2AA5**		1	1 unit	5K2	0.030
General accessories							
ET 200pro module carriers							
• Narrow, for interface, solid-state and power modules							
- 500 mm	A	**6ES7 194-4GA00-0AA0**		1	1 unit	250	1.578
- 1000 mm	A	**6ES7 194-4GA60-0AA0**		1	1 unit	250	3.160
- 2000 mm, can be cut to size	A	**6ES7 194-4GA20-0AA0**		1	1 unit	250	6.369
• Compact, for interface, solid-state and power modules							
- 500 mm	A	**6ES7 194-4GC70-0AA0**		1	1 unit	250	1.600
- 1000 mm	A	**6ES7 194-4GC60-0AA0**		1	1 unit	250	3.220
- 2000 mm, can be cut to size	A	**6ES7 194-4GC20-0AA0**		1	1 unit	250	6.580
• Wide, for interface, solid-state, power modules and motor starters							
- 500 mm	A	**6ES7 194-4GB00-0AA0**		1	1 unit	250	2.400
- 1000 mm	A	**6ES7 194-4GB60-0AA0**		1	1 unit	250	4.800
- 2000 mm, can be cut to size	A	**6ES7 194-4GB20-0AA0**		1	1 unit	250	9.700
• Wide, for I/O modules and motor starters							
- 500 mm	A	**6ES7 194-4GD00-0AA0**		1	1 unit	250	2.536
- 1000 mm	A	**6ES7 194-4GD10-0AA0**		1	1 unit	250	5.040
- 2000 mm	A	**6ES7 194-4GD20-0AA0**		1	1 unit	250	10.040
Spare fuses 12.5 A quick, for interface and power modules, pack of 10	A	**6ES7 194-4HB00-0AA0**		1	1 unit	250	0.012
SIMATIC Manual Collection Electronic manuals on DVD, several languages: S7-200, TD 200, S7-300, M7-300, C7, S7-400, M7-400, STEP 7, Engineering Tools, Runtime Software, SIMATIC DP (Distributed I/O), SIMATIC HMI (Human Machine Interface), SIMATIC NET (Industrial Communication)	A	**6ES7 998-8XC01-8YE0**		1	1 unit	230	0.099
SIMATIC Manual Collection – Update service for 1 year Scope of supply: The current DVD S7 Manual Collection as well as the three subsequent updates	C	**6ES7 998-8XC01-8YE2**		1	1 unit	230	0.400

* You can order this quantity or a multiple thereof.

Components for ET 200pro

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
IM 154-6 PN IWLAN interface modules							
IM 154-6 PN IWLAN interface modules For communication between ET 200pro and a higher-level PROFINET IO controller via Industrial Wireless LAN (IWLAN) networks for 2.4 GHz or 5 GHz with data rates up to 54 Mbit/s	A	**6ES7154-6AB00-0AB0**		1	1 unit	250	1.195
Accessories							
MMC 64 Kbyte[1)] for program backups	A	**6ES7 953-8LF20-0AA0**		1	1 unit	230	0.012
MMC 128 Kbyte[1)] for program backups	A	**6ES7 953-8LG11-0AA0**		1	1 unit	230	0.012
MMC 512 Kbyte[1)] for program backups	A	**6ES7 953-8LJ20-0AA0**		1	1 unit	230	0.012
PROFINET IWLAN aerials for IM154-6 IWLAN With omnidirectional characteristic, R-SMA plugs, pack of 2	A	**6ES7194-4MA00-0AA0**		1	1 unit	250	0.050
IWLAN termination impedance TI 795-1R 50 ohm terminating resistor for 2nd R-SMA aerial socket when using a SCALANCE W-700 radio interface with only 1 aerial	A	**6GK5795-1TR10-0AA6**		1	1 unit	5W1	1.000
Power cables 5-core, 5 x 1.5 mm^2, trailing, sold by the meter, minimum order quantity 20 m, maximum order quantity 1000 m	A	**6XV1 830-8AH10**		1	1 M	5K2	0.149
7/8" connecting cables for power supply 5-core, 5 x 1.5 mm^2, trailing, preassembled with two 7/8" plugs, 5-pole							
• Length 1.5 m	A	**6XV1 822-5BH15**		1	1 unit	5K2	0.328
• Length 2.0 m	A	**6XV1 822-5BH20**		1	1 unit	5K2	0.408
• Length 3.0 m	A	**6XV1 822-5BH30**		1	1 unit	5K2	0.570
• Length 5.0 m	A	**6XV1 822-5BH50**		1	1 unit	5K2	0.923
• Length 10 m	A	**6XV1 822-5BN10**		1	1 unit	5K2	1.769
• Length 15 m	A	**6XV1 822-5BN15**		1	1 unit	5K2	2.540
7/8" connectors with axial cable feeder to the ET200 field assembly Female inserts	A	**6GK1905-0FB00**		1	1 unit	5K2	0.250
Industrial Ethernet TP Cord RJ45/RJ45 TP cable 4x2 with two RJ45 plugs							
• Length 0.5 m	A	**6XV1870-3QE50**		1	1 unit	5K2	0.039
• Length 1 m	A	**6XV1870-3QH10**		1	1 unit	5K2	0.052
• Length 2 m	A	**6XV1870-3QH20**		1	1 unit	5K2	0.114
• Length 6 m	A	**6XV1870-3QH60**		1	1 unit	5K2	0.217
• Length 10 m	A	**6XV1870-3QN10**		1	1 unit	5K2	0.349
Industrial Ethernet TP XP Cord RJ45/RJ45 Crossed TP cable 4x2 with two RJ45 plugs							
• Length 0.5 m	A	**6XV1870-3RE50**		1	1 unit	5K2	0.048
• Length 1 m	A	**6XV1870-3RH10**		1	1 unit	5K2	0.056
• Length 2 m	A	**6XV1870-3RH20**		1	1 unit	5K2	0.093
• Length 6 m	A	**6XV1870-3RH60**		1	1 unit	5K2	0.225
• Length 10 m	A	**6XV1870-3RN10**		1	1 unit	5K2	0.357
Industrial Ethernet RJ45 Plug Pro Push-pull IP65 plug for local fitting to TP cables 2x2 (pack of 1 duplex plug)	A	**6GK1901-1BB10-6AA0**		1	1 unit	5K2	0.037
Labels 20 x 7, pastel turquoise, pack of 340	C	**3RT1 900-1SB20**		100	340 units	101	0.200
ET 200pro module carriers							
• Narrow, for interface, solid-state and power modules							
- 500 mm	A	**6ES7 194-4GA00-0AA0**		1	1 unit	250	1.578
- 1000 mm	A	**6ES7 194-4GA60-0AA0**		1	1 unit	250	3.160
- 2000 mm, can be cut to size	A	**6ES7 194-4GA20-0AA0**		1	1 unit	250	6.369
• Compact, for interface, solid-state and power modules							
- 500 mm	A	**6ES7 194-4GC70-0AA0**		1	1 unit	250	1.600
- 1000 mm	A	**6ES7 194-4GC60-0AA0**		1	1 unit	250	3.220
- 2000 mm, can be cut to size	A	**6ES7 194-4GC20-0AA0**		1	1 unit	250	6.580
• Wide, for interface, solid-state, power modules and motor starters							
- 500 mm	A	**6ES7 194-4GB00-0AA0**		1	1 unit	250	2.400
- 1000 mm	A	**6ES7 194-4GB60-0AA0**		1	1 unit	250	4.800
- 2000 mm, can be cut to size	A	**6ES7 194-4GB20-0AA0**		1	1 unit	250	9.700
• Wide, compact, for I/O modules and motor starters							
- 500 mm	A	**6ES7 194-4GD00-0AA0**		1	1 unit	250	2.536
- 1000 mm	A	**6ES7 194-4GD10-0AA0**		1	1 unit	250	5.040
- 2000 mm	A	**6ES7 194-4GD20-0AA0**		1	1 unit	250	10.040
Spare fuses, 12.5 A quick For interface and power modules (pack of 10)	A	**6ES7 194-4HB00-0AA0**		1	1 unit	250	0.012

[1)] A micro memory card is needed to operate the CPU.

* You can order this quantity or a multiple thereof.

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
IM 154-8 PN/DP CPU interface modules							
IM 154-8 PN/DP CPU interface modules PROFINET IO Controller for operating distributed I/Os on PROFINET, with integrated PLC functionality	A	**6ES7 154-8AB00-0AB0**		1	1 unit	250	0.602
Accessories							
MMC 64 Kbyte[1)] for program backups	A	**6ES7 953-8LF20-0AA0**		1	1 unit	230	0.012
MMC 128 Kbyte[1)] for program backups	A	**6ES7 953-8LG11-0AA0**		1	1 unit	230	0.012
MMC 512 Kbyte[1)] for program backups	A	**6ES7 953-8LJ20-0AA0**		1	1 unit	230	0.012
MMC 2 MByte[1)] for program backups and/or the firmware update	A	**6ES7 953-8LL20-0AA0**		1	1 unit	230	0.012
MMC 4 MByte[1)] for program backups	A	**6ES7 953-8LM20-0AA0**		1	1 unit	230	0.012
MMC 8 MByte[1)] for program backups	A	**6ES7 953-8LP20-0AA0**		1	1 unit	230	0.013
Connection modules for CPU IM154-8 PN/DP, with 4 x M12 and 2 x 7/8", for connection of PROFINET and PROFIBUS DP	A	**6ES7 194-4AN00-0AA0**		1	1 unit	250	0.622
SCALANCE X-200 Industrial Ethernet switches With integrated SNMP access, web diagnostics, copper cable diagnostics and PROFINET diagostics, SCALANCE X208PRO for configuring line, star and ring structures, in degree of protection IP65, with eight 10/100 Mbit/s M12 ports, including eleven M12 dust covers	A	**6GK5 208-0HA00-2AA6**		1	1 unit	5N2	1.281
Industrial Ethernet FC RJ45 Plug 180 RJ45 plug-in connector for Industrial Ethernet, with robust metal enclosure and integrated cutting and clamping contacts for connection of Industrial Ethernet FC installation cables; with 180° cable feeder							
• 1 unit	A	**6GK1 901-1BB10-2AA0**		1	1 unit	5K2	0.030
• 10 units	A	**6GK1 901-1BB10-2AB0**		1	1 unit	5K2	0.300
• 50 units	A	**6GK1 901-1BB20-2AE0**		1	1 unit	5K2	1.500
Industrial Ethernet Fast Connect installation cables							
• Fast Connect standard cables	A	**6XV1 840-2AH10**		1	1 M	5K2	0.068
• Fast Connect trailing cables	A	**6XV1 840-3AH10**		1	1 M	5K2	0.055
• Fast Connect marine cables	A	**6XV1 840-4AH10**		1	1 M	5K2	0.055
Industrial Ethernet Fast Connect Stripping tools	A	**6GK1 901-1GA00**		1	1 unit	5K2	0.100
IE connecting cables M12-180/M12-180 Factory-fitted IE FC TP trailing cables GP 2 x 2 (PROFINET type C) with two 4-pole M12 plugs (4-pole, D-coded), degree of protection IP65/IP67, length:							
• 0.3 m	A	**6XV1 870-8AE30**		1	1 unit	5K2	0.060
• 0.5 m	A	**6XV1 870-8AE50**		1	1 unit	5K2	0.065
• 1.0 m	A	**6XV1 870-8AH10**		1	1 unit	5K2	0.101
• 1.5 m	A	**6XV1 870-8AH15**		1	1 unit	5K2	0.150
• 2.0 m	A	**6XV1 870-8AH20**		1	1 unit	5K2	0.180
• 3.0 m	A	**6XV1 870-8AH30**		1	1 unit	5K2	0.250
• 5.0 m	A	**6XV1 870-8AH50**		1	1 unit	5K2	0.390
• 10 m	A	**6XV1 870-8AN10**		1	1 unit	5K2	0.740
• 15 m	A	**6XV1 870-8AN15**		1	1 unit	5K2	1.100
IE M12 Plug PRO M12 plug-in connector (D-coded) for field assembly, metal enclosure, quick-connect technology, for SCALANCE X208PRO and IM 154-4 PN							
• 1 unit	A	**6GK1 901-0DB10-6AA0**		1	1 unit	5K2	0.030
• 8 units	A	**6GK1 901-0DB10-6AA8**		1	1 unit	5K2	0.300
IE Panel Feedthrough							
Control cabinet gland for transition from M12 connection method (D-coded, IP65/IP67) to RJ45 connection method (IP20), 1 pack = 5 units	A	**6GK1 901-0DM20-2AA5**		1	1 unit	5K2	0.030

[1)] For operation of the CPU, an MMC is essential.

* You can order this quantity or a multiple thereof.

Components for ET 200pro

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
EM 141 and EM 142 digital expansion modules							
8 DI digital input modules 24 V DC, with module diagnostics, including bus module. Connection module to be ordered separately.	A	**6ES7 141-4BF00-0AA0**		1	1 unit	250	0.175
8 DI High-Feature digital input modules 24 V DC, with channel diagnostics, including bus module Connection module to be ordered separately.	A	**6ES7 141-4BF00-0AB0**		1	1 unit	250	0.185
4 DO digital output modules 24 V DC, 2 A, with module diagnostics, including bus module. Connection module to be ordered separately.	A	**6ES7 142-4BD00-0AA0**		1	1 unit	250	0.177
4 DO High-Feature digital output modules 24 V DC, 2 A, with channel diagnostics, including bus module. Connection module to be ordered separately.	A	**6ES7 142-4BD00-0AB0**		1	1 unit	250	0.186
8 DO digital output modules 24 V DC, 0.5 A, with module diagnostics, including bus module. Connection module to be ordered separately.	A	**6ES7 142-4BF00-0AA0**		1	1 unit	250	0.181
Accessories							
CM IO 4 x M12 connection modules 4 M12 sockets for connection of digital or analog sensors of actuators to ET 200pro	A	**6ES7 194-4CA00-0AA0**		1	1 unit	250	0.351
CM IO 4 x M12 Invers connection modules 4 M12 sockets for connection of digital actuators to ET 200pro (4 DO and 4 DO HF); 2 x M12 with single assignment, 2 x M12 with double assigment	A	**6ES7 194-4CA50-0AA0**		1	1 unit	250	0.349
CM IO 8 x M12 connection modules 8 M12 sockets for connection of digital sensors or actuators to ET 200pro	A	**6ES7 194-4CB00-0AA0**		1	1 unit	250	0.358
CM IO 8 x M8 connection modules 8 M8 sockets for connection of digital sensors or actuators to ET 200pro	A	**6ES7 194-4EB00-0AA0**		1	1 unit	250	0.363
CM IO 2 x M12 connection modules 2 M12 8-pole sockets; to be used with: EM 8DI 24 V DC and 8 DO 24 V DC/0.5 A	A	**6ES7 194-4FB00-0AA0**		1	1 unit	250	0.156
CM IO 1 x M23 connection modules 1 M23 socket, to be used with: EM 8 DI 24 V DC and 8 DO 24 V DC/0.5 A	A	**6ES7 194-4FA00-0AA0**		1	1 unit	250	0.198
Module labeling plates for color coding of CM IOs in the colors white, red, blue and green; pack of 100	A	**6ES7 194-4HA00-0AA0**		1	1 unit	250	0.088
M12 sealing caps for protection of unused M12 terminals on ET 200pro	►	**3RX9 802-0AA00**		100	10 units	121	0.100
Labels 20 x 7, pastel turquoise, pack of 340	C	**3RT1 900-1SB20**		100	340 units	101	0.200
M12 plugs, for field assembly 5-pole, for connecting digital sensors and actuators	A	**3RX8 000-0CD55**		1	1 unit	574	0.023
M12 connecting cables With PUR sheath, for connecting digital sensors and actuators, preassembled, with box and plug at both ends							
• 3 x 0.34 mm^2, fixed lengths							
- 1 m	A	**3RX8 000-0GF32-1AB0**		1	1 unit	574	0.052
- 1.5 m	A	**3RX8 000-0GF32-1AB5**		1	1 unit	574	0.066
• 4 x 0.34 mm^2, fixed lengths							
- 0.6 m	A	**3RX8 000-0GF42-1AB0**		1	1 unit	574	0.060
- 1 m	A	**3RX8 000-0CC44-1AF0**		1	1 unit	574	0.172
- 1.5 m	A	**3RX8 000-0GF42-1AB5**		1	1 unit	574	0.078
EM 144 and EM 145 analog expansion modules							
4AI U analog input modules High-Feature, ±10 V; ±5 V; 0 to 10 V; 1 to 5 V, channel diagnostics, including bus module. Connection module to be ordered separately.	A	**6ES7 144-4FF00-0AB0**		1	1 unit	250	0.182
4AI I analog input modules High-Feature, ±20 mA; 0 to 20 mA; 4 to 20 mA, channel diagnostics, including bus module. Connection module to be ordered separately.	A	**6ES7 144-4GF00-0AB0**		1	1 unit	250	0.185
4AI RTD analog input modules High-Feature; resistors: 150, 300, 600 and 3000 Ohm; resistance thermometers: Pt100, 200, 500, 1000, Ni100, 120, 200, 500 and 1000; channel diagnostics, including bus module. Connection module to be ordered separately.	A	**6ES7 144-4JF00-0AB0**		1	1 unit	250	0.182
4AO U analog output modules High-Feature, ±10 V; 0 to 10 V; 1 to 5 V, channel diagnostics, including bus module. Connection module to be ordered separately.	A	**6ES7 145-4FF00-0AB0**		1	1 unit	250	0.188
4AO I analog output modules High-Feature, ±20 mA; 0 to 20 mA; 4 to 20 mA, channel diagnostics, including bus module. Connection module to be ordered separately.	A	**6ES7 145-4GF00-0AB0**		1	1 unit	250	0.188

* You can order this quantity or a multiple thereof.

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
EM 144 and EM 145 analog expansion modules (continued)							
Accessories							
CM IO 4 x M12 connection modules 4 M12 sockets for connection of digital or analog sensors of actuators to ET 200pro	A	**6ES7 194-4CA00-0AA0**		1	1 unit	250	0.351
Module labeling plates for color coding of CM IOs in the colors white, red, blue and green; pack of 100	A	**6ES7 194-4HA00-0AA0**		1	1 unit	250	0.088
M12 sealing caps for protection of unused M12 terminals on ET 200pro	►	**3RX9 802-0AA00**		100	10 units	121	0.100
Failsafe digital expansion modules							
8/16 F-DI PROFIsafe failsafe digital input modules 24 V DC, including bus module. Connection module to be ordered separately.	A	**6ES7 148-4FA00-0AB0**		1	1 unit	241	0.311
4/8 F-DI, 4 F-DO 2 A failsafe digital input/output modules 24 V DC, including bus module. Connection module to be ordered separately.	A	**6ES7 148-4FC00-0AB0**		1	1 unit	241	0.319
F-Switch PROFIsafe Three failsafe PP-switching outputs for safe switching of the backplane bus bars (2L+, F0, F1); two fail-safe digital inputs, 45 mm; usable up to Cat. 4 (EN 954)/SIL3 (IEC 61508)	A	**6ES7 148-4FS00-0AB0**		1	1 unit	241	0.200
Accessories							
Connection modules for the 4/8 F-DI/4 -DO, 24 V DC/2 A failsafe solid-state module	A	**6ES7 194-4DC00-0AA0**		1	1 unit	241	0.597
Connection modules for the 8/16 F-DI, 24 V DC/2 A failsafe solid-state module	A	**6ES7 194-4DD00-0AA0**		1	1 unit	241	0.583
IM154-2 High-Feature interface modules for the ET 200pro, including termination module	A	**6ES7 154-2AA00-0AB0**		1	1 unit	250	0.411
PROFINET IM154-4 PN interface modules including termination module	A	**6ES7 154-4AB00-0AB0**		1	1 unit	2F0	0.590
M12 sealing caps for protection of unused M12 terminals on ET 200pro	►	**3RX9 802-0AA00**		100	10 units	121	0.100
M12 plugs, for field assembly 5-pole, for connecting digital sensors and actuators	A	**3RX8 000-0CD55**		1	1 unit	574	0.023
M12 connecting cables With PUR sheath, for connecting digital sensors and actuators, preassembled, with box and plug at both ends							
• 3 x 0.34 mm^2, fixed lengths							
- 1 m	A	**3RX8 000-0GF32-1AB0**		1	1 unit	574	0.052
- 1.5 m	A	**3RX8 000-0GF32-1AB5**		1	1 unit	574	0.066
• 4 x 0.34 mm^2, fixed lengths							
- 0.6 m	A	**3RX8 000-0GF42-1AB0**		1	1 unit	574	0.060
- 1 m	A	**3RX8 000-0CC44-1AF0**		1	1 unit	574	0.172
- 1.5 m	A	**3RX8 000-0GF42-1AB5**		1	1 unit	574	0.078
PM-E power modules							
PM-E power modules 24 V DC for resupply and group formation of the 24 V DC load voltage for solid-state modules within an ET 200pro station.	A	**6ES7148-4CA00-0AA0**		1	1 unit	250	0.172
Accessories							
CM PM-E ECOFAST connection modules for resupply of 24 V load voltage, one ECOFAST Cu terminal	A	**6ES7 194-4BA00-0AA0**		1	1 unit	250	0.153
CM PM-E Direct connection modules for resupply of 24 V load voltage, up to two M20 screwed cable glands	A	**6ES7 194-4BC00-0AA0**		1	1 unit	250	0.196
CM PM-E 7/8" connection modules For resupply of 24 V load voltage, 1 x 7/8"	A	**6ES7 194-4BD00-0AA0**		1	1 unit	250	0.158
CM PM-E PP connection modules For resupply of 24 V load voltage, 2 x push-pull, with spare fuse	A	**6ES7 194-4BE00-0AA0**		1	1 unit	250	0.162
Spare fuses 12.5 A quick, for interface and power modules, pack of 10	A	**6ES7 194-4HB00-0AA0**		1	1 unit	250	0.012
PROFIBUS FC Food bus cables with PE outer sheath for operation in the food and beverage industry, 2-core, shielded, sold by the meter, minimum order quantity 20 m, length of cable 1000 m	A	**6XV1 830-0GH10**		1	1 M	5K2	0.069
PROFIBUS FC Robust bus cables With PUR outer sheath for operation in environments exposed to chemicals and mechanical loads, 2-core, shielded, sold by the meter, minimum order quantity 20 m, length of cable 1000 m	A	**6XV1 830-0JH10**		1	1 M	5K2	0.075

* You can order this quantity or a multiple thereof.

Components for ET 200pro

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
PM-E power modules (continued)							
PROFIBUS FC trailing cables Minimum bending radius approx. 60 mm, 2-core, shielded, sold by the meter, minimum order quantity 20 m, length of cable 1000 m	A	**6XV1 830-3EH10**		1	1 M	5K2	0.072
Accessories for CM PM-E Direct							
Power cables 5-core, 5 x 1.5 mm^2, trailing, sold by the meter, minimum order quantity 20 m, maximum order quantity 1000 m	A	**6XV1 830-8AH10**		1	1 M	5K2	0.149
Accessories for CM PM-E 7/8"							
7/8" connecting cables for power supply 5-core, 5 x 1.5 mm^2, trailing, preassembled with two 7/8" plugs, 5-pole							
• Length 1.5 m	A	**6XV1 822-5BH15**		1	1 unit	5K2	0.328
• Length 2.0 m	A	**6XV1 822-5BH20**		1	1 unit	5K2	0.408
• Length 3.0 m	A	**6XV1 822-5BH30**		1	1 unit	5K2	0.570
• Length 5.0 m	A	**6XV1 822-5BH50**		1	1 unit	5K2	0.923
• Length 10 m	A	**6XV1 822-5BN10**		1	1 unit	5K2	1.769
• Length 15 m	A	**6XV1 822-5BN15**		1	1 unit	5K2	2.540
7/8" connectors with axial cable feeder							
• With pin insert, pack of 5	A	**6GK1 905-0FA00**		1	1 unit	5K2	0.265
• With female insert, pack of 5	A	**6GK1 905-0FB00**		1	1 unit	5K2	0.250
PM-O power modules							
PM-O DC 2 x 24 V power modules For tapping the 24 V load voltage 2L+ and the solid-state/sensor supply voltage 1L+ within an ET 200pro station.	A	**6ES7 148-4CA60-0AA0**		1	1 unit	250	0.183
Accessories							
CM PM-O PP connection modules For tapping 24 V load voltage and solid-state/sensor supply voltage, 2 x push-pull plug-in connectors	A	**6ES7 194-4BH00-0AA0**		1	1 unit	250	0.148
ET 200pro pneumatic interfaces							
EM 148-P pneumatic interfaces							
• DO 16 x P/CPV 10 for direct connection of the FESTO valve terminals CPV 10 16 DO x P	A	**6ES7 148-4EA00-0AA0**		1	1 unit	250	0.481
• DO 16 x P/CPV 14 for direct connection of the FESTO valve terminals CPV 14 16 DO x P	A	**6ES7 148-4EB00-0AA0**		1	1 unit	250	0.642
• FESTO valve terminals CPV 10		Obtainable from: Festo (see Appendix –> External Partners)					
• FESTO valve terminals CPV 14		Obtainable from: Festo (see Appendix –> External Partners)					
ET 200pro FC frequency converters							
ET 200pro FC frequency converters 3 AC 380 ... 480 V, +10/-10 % 47 ... 63 Hz Overload: 150 %, 60 s, 200 %, 3 s Rating: 1.1 kW (0 °C ... 55 °C) 1.5 kW (0 °C ... 45 °C)							
• ET 200pro FC Standard frequency converters	A	**6SL3235-0TE21-1RB0**		1	1 unit	337	4.000
• ET 200pro FC frequency converters with integrated safety functions	A	**6SL3235-0TE21-1SB0**		1	1 unit	337	4.000
Accessories							
Backplane bus modules for accommodating the frequency converter	A	**6SL3260-2TA00-0AA0**		1	1 unit	337	0.450

* You can order this quantity or a multiple thereof.

Overview

The intelligent, highly flexible SIRIUS M200D motor starters for distributed configurations are designed to start, monitor and protect motors and loads up to 5.5 kW.

They are available in four versions:

M200D AS-i Basic	M200D AS-i Standard	M200D PROFIBUS	M200D PROFINET
Motor control with AS-i Communication		PROFIBUS	PROFINET
Mechanical or electronic switching			
✔	✔	✔	✔
Electronic switching with soft starter functionality			
--	✔	✔	✔

Basic functionality

All M200D motor starter versions have the following functions:

- Available as direct-on-line and reversing starters in a rugged design
- Electromechanical or solid-state switching version
- Little variance – only 2 device versions up to 5.5 kW thanks to wide range setting
- All versions have the same enclosure dimensions
- Degree of protection IP65
- Quick and failsafe wiring of system and motor cables using ISO 23570 plug-in connector technology (Q4/2 and Q8/0)
- Robust and widely used M12 connection method for the digital inputs and outputs
- Integrated feeder connector monitoring
- Full motor protection through overload protection and a temperature sensor (PTC, TC)
- Short-circuit and overload protection integrated
- Integrated repair switch lockable with 3 locks (multi-level service)
- Uniform wiring to the G110D/G120D frequency converters and to the ET200pro distributed peripherals system
- Extensive diagnostics concept using LEDs
- Optional integrated manual on-site controller with key-operated switch (ordering option)
- Optional brake control with voltages of 180 V DC (no rectifier needed in the motor) or 230/400 V AC (ordering options)

Benefits

M200D motor starters provide the following advantages for customers:

- High plant availability through plug-in capability of the main circuit, communication and IOs – relevant for installing and replacing devices
- Cabinet-free construction and near-motor installation thanks to the high degree of protection IP65
- The motor starters record the actual current flow for the parameterizable electronic motor overload protection. Reliable messages concerning the overranging or underranging of setpoint values for comprehensive motor protection. All motor protection functions can be defined by simple parameterization
- Low stock levels and low order costs through a wide setting range for the electronic motor protection of 1:10 (only 2 device versions up to 5.5 kW)
- The integrated wide range for the current enables a single device to cover numerous standard motors of different sizes
- Comprehensive offering of accessories, including ready-assembled cables
- The M200D motor starters can be installed with a few manual steps The integrated plug-in technology enables far lower wiring outlay:
  preassembled cables can be plugged directly onto the motor starter module
- Easy and user-friendly installation because all versions have the same enclosure dimensions
- Fast and user-friendly commissioning using an optional manual on-site controller
- Increase of process speed through integrated functions such as "Quick-Stop" and "Disable Quick-Stop", e. g. at points and crossings
- Optional manual on-site controller with momentary-contact and latching operation for easier start-up and easier service

Application

The high degree of protection IP65 makes the M200D motor starters suitable in particular for use on extensive conveying systems such as are found in mail sorting centers, airports, automotive factories and the packing industry.

For simple operating mechanism tasks, particularly in conveyor applications, the new SINAMICS G110D frequency converter series with a performance range from 0.75 kW to 7.5 kW and degree of protection IP65 is the ideal partner for the M200D motor starters. The SINAMICS G110D frequency converters permit continuous speed control of three-phase asynchronous motors and meet the requirements of conveyor applications with frequency control (for more information see Catalog D 11.1).

M200D Motor Starters for AS-Interface

Overview

For motor control using AS-Interface there are the following M200D motor starter versions: SIRIUS M200D AS-i Basic and SIRIUS M200D AS-i Standard.(For details of basic functionality see M200D Motor Starters, General Data.)

SIRIUS M200D AS-i Basic

Functionality

- Easy and fast on-site start-up through parameterization of local setting elements (DIP switches) and rotary coding switches for adjusting the rated operational current. The rotary coding switch has an OFF position for deactivating the overload protection with the help of the thermal motor model when using a temperature sensor.

Communication

- AS-i communication with A/B addressing according to Spec V2.1
- The AS-i bus is connected cost-effectively using an M12 connection on the device. Of the 4 digital inputs, 2 are contained in the process image and can therefore be used in the PLC program. The other 2 inputs are locally effective and permanently assigned with functions.
- The LEDs can provide comprehensive diagnostics of the device on the spot. In addition to diagnostics using the PAE process image, the device can create up to 15 different diagnostic signals per slave. The message with the highest priority can be read out through the AS-i communication. This is yet another new development which distinguishes the M200D AS-i Basic motor starter from the rest of the market and adds innovative technology, maximum availability and transparency to the system.

SIRIUS M200D AS-i Standard

The intelligent, highly flexible M200D AS-i Standard motor starters in A/B technology are designed to start and protect motors and loads up to 5.5 kW. They are available in direct-on-line or reversing starter variants, in a mechanical version and also an electronic version (the latter with soft start function).

The M200D AS-i Standard motor starter is the most functional member of the SIRIUS motor starter family in the high degree of protection IP65 for AS-i Communication. Consistency with other products of the SIRIUS M200D motor starter range and with the frequency converter and ET200pro peripherals system is assured.

Functionality

- AS-i communication with A/B addressing according to Spec 3.0
- Electronic version also with soft start function
- AS-i slave profile 7.A.E / 7.A.5 with process image 6E/4A
- Full TIA integration: All digital inputs and outputs exist in the cyclic process image and are visible through AS-i, providing maximum flexibility and best adaptability to the application
- Additionally expanded diagnostics using data record through AS-i bus
- Complete plant monitoring using statistics data record and current value monitoring by means of data records
- Parameterization through AS-i bus with the help of data records or an expanded process image from the user program
- Control of the motor starter using a command data record from the user program
- Flexible assignment of the digital inputs and outputs with all available assignable input actions
- Parameterization using Motor Starter ES at the local interface (ordering option for start-up software)
- Diagnostics with the help of Motor Starter ES (ordering option for start-up software)

Mounting and installation

The M200D motor starters can be installed with a few manual steps. The integrated plug-in technology enables far lower wiring outlay. Connecting cables can be plugged directly onto the motor starter module. Swapping of the connecting wires and malfunctions within the plant are prevented by preassembled cables. The AS-i bus is connected cost-effectively using an M12 connection on the device. All versions have identical enclosure dimensions for easier system design and conversion.

Parameterization and configuration

The particularly robust M200D AS-i Standard motor starter is characterized by numerous functions which can be flexibly parameterized. It enables highly flexible parameterization through the AS-i bus using data records from the user program as well as user-friendly local parameterization using the Motor Starter ES start-up software through the local point-to-point interface.

Functions can be flexibly assigned to the digital inputs and outputs, adapting them to all possible conveyor applications. All motor protection functions, limit values and reactions can be defined by parameterization. The AS-i Standard is unique. In its 6E/4A process image the motor starter sends all 4 digital inputs and the digital output via the process image to the PLC in cyclic mode. System configuration and system documentation are facilitated not least by a number of CAX data.

Operation

The new motor starter generation is characterized by high functionality, maximum flexibility and the highest level of automation.

All digital inputs and outputs exist in the cyclic process image. All limit values for monitoring functions and their reactions are parameterizable and therefore adaptable to the application. The motor starters record the actual current flow. Evaluating the current of the parameterizable solid-state overload protection increases the availability of the drives, as do reliable messages concerning the overranging or underranging of setpoint values.

Diagnostics and maintenance

The M200D sets new standards for diagnostics. In addition to diagnostics using the PAE process image and diagnostics by "parameter echo" (up to 15 different diagnostic signals per slave can be read out via AS-i Communication), the possibility of reading out diagnostic data records is unique on the market.

The AS-i Standard is recommended in particular for expansive and highly automated plant parts because the possibility of monitoring devices and systems with data records (statistical data, measured values and device diagnostics) provides an in-depth view of the plant from the control room, guaranteeing the monitoring process and increasing plant availability.

The integrated maintenance timer can be used to implement preventative maintenance and avoid plant downtimes through look-ahead servicing.

Local on-site control of a drive is possible using the ordering option with integrated manual operation. This is yet another new development which distinguishes the M200D AS-i Standard motor starter from the rest of the market and adds innovative technology, maximum availability and transparency to the plant.

	SIRIUS M200D AS-i Basic	SIRIUS M200D AS-i Standard
Device functions (software features)		
Slave on the bus		
Fieldbus	✔ AS-i	
Slave type	✔ A/B acc. to Spec 2.1	✔ A/B acc. to Spec 3.0
Profile	✔ 7.A.E	✔ 7.A.E & 7.A.5
Number of assigned AS-i addresses on the bus	✔ 1	✔ 2
Number of stations per AS-i master	✔ Maximum 62 devices	✔ Maximum 31 devices
AS-i master profile	✔ M3 and higher	✔ M4 and higher
Parameterization		
DIP switches	✔	--
Potentiometer for rated operational current	✔	--
ES Motor Starter	--	✔
Data records through AS-i	--	✔
Diagnostics		
Diagnostics through parameter channel	✔	
Acyclic through data records	--	✔
Expanded process image PAE 4 bytes	--	✔
Process image		
Process image	✔ 4E/3A	✔ 6E/4A
Data channels		
Local optical interface (manual on-site)	✔	
AS-i bus	✔	
Motor Starter ES through local interface	--	✔
Motor Starter ES through bus	--	
Data records[1] (acyclic)		
Parameterization	--	✔
Diagnostics	--	✔
Measured values	--	✔
Statistics	--	✔
Commands	--	✔
Inputs		
Number	✔ 4	
• Of these in the process image	✔ 2 through AS-i	✔ 4 through AS-i
Input action	✔ Permanently assigned functions, see manual	✔ Parameterizable: Flexible
Quick-Stop	✔ Permanent function: latching, edge-triggered	✔ Parameterizable function: latching (edge-triggered), non-latching (level-triggered)
Outputs		
Number	✔ 1	
Output action	✔ Permanent function: assigned with group fault	✔ Parameterizable: Function, see manual
Brake output		
180 V DC / 230/400 V AC / none	✔	
Motor protection		
Overload protection	✔ Electronic, wide range 1:10	
Short-circuit protection	✔	
Full motor protection	✔	
Temperature sensor	✔ Parameterizable using DIP switches: PTC or Thermoclick or deactivated	✔ Parameterizable using ES Motor Starter, data record: PTC or Thermoclick or deactivated

✔ Function is available; -- Function is not available.

1) The data records are a reduced selection compared with PROFIBUS/PROFINET

M200D Motor Starters for AS-Interface

	SIRIUS M200D AS-i Basic	SIRIUS M200D AS-i Standard
Device functions (software features)		
Device functions		
Repair switch	✔	
Current limit monitoring bottom	--	✔ Parameterizable
Current limit monitoring top	--	✔ Parameterizable
Zero current detection	✔ Permanent function: disconnection, less than 18.75 % of the rated operational current I_e	✔ Parameterizable
Blocking current	✔ Permanent function: Starting up of the motor: tripping limit at 800 % of the rated operational current I_e for 10 s Active operation: threshold for tripping "blocking current" at 400 % of the rated operational current I_e	✔ Parameterizable
Unbalance	✔ Permanent function: at 30 % of the rated operational current I_e (only mechanical MS)	✔ Parameterizable
Load type	✔ Permanent function: three-phase	✔ Parameterizable: single- and three-phase
Shutdown class	✔ Parameterizable using DIP switches: Class 10 / deactivated	Parameterizable using ES Motor Starter, data record: Class 5, 10, 15, 20
Protection against voltage failure	✔	✔ Parameterizable: Activated/deactivated
Soft starter control function		
Soft start function	--	✔
Bypass function	--	✔ Only electronic version

✔ Function is available; -- Function is not available.

Application

The M200D AS-i Standard is particularly suitable for highly automated conveyor applications which require the monitoring of devices and systems in order to prevent or limit plant downtimes.The functions of the motor starter or its interfaces can be parameterized, enabling fine-tuning of the motor starter in the application and therefore the greatest flexibility.

More information

Type		M200D Motor Starters			
		AS-i Basic electromechanical switching	AS-i Basic electronic switching	AS-i Standard electromechanical switching	AS-i Standard electronic switching
Technology designation[1]		DSte / RSte	sDSte / sRSte	DSte / RSte	sDSSte / sRSSte
Mechanics and environment					
Mounting dimensions (W x H x D)	mm	294 x 215 x 159			
Permissible ambient temperature					
• During operation	°C	-25 ... +55			
• During storage	°C	-40 ... +70			
Weight	g	2880 / 3130	3220 / 3420	2880 / 3130	3220 / 3420
Permissible mounting positions		Vertical, horizontal, lying			
Vibration resistance acc. to IEC 60068 Part 2-6		2 *g*			
Shock resistance					
• Acc. to IEC 60068 Part 2-27		12 *g*/11 ms half-sine			
• Without influencing the contact position		9.8 *g*/5 ms or 5.9 *g*/10 ms			
Degree of protection acc. to IEC 529		IP65			
Installation height					
• Up to 1000 m		No derating			
• Up to 2000 m		1 % per 100 m			
Cooling		Convection			
Protection class IEC 536 (VDE 0106-1)		1			
Electrical specifications					
Control circuit					
Operational voltage U_{As-i}	V DC	26.5 ... 31.6			
Control supply voltage U_{aux}	V DC	20.4 ... 28.8			
Power consumption from AS-i (incl. 200 mA sensor supply)	mA	<300			
Power consumption from U_{aux} (without digital output)					
• Max.	mA	155	15 (direct-on-line)/175 (reversing)	155	15 (direct-on-line)/175 (reversing)
• Typ.	mA	75	10 (direct-on-line)/75 (reversing)	75	10 (direct-on-line)/75 (reversing)
Main circuit					
Maximum power of induction motors at 400 V AC	kW	5.5	4	5.5	5.5
Rated operational voltage U_e					
• Approval acc. to EN 60947-1	V AC	400 (50/60 Hz)			
• Approval acc. to UL and CSA	V AC	600 (50/60 Hz)			480 (50/60 Hz)
• Rated operational current range	A	0.15 ... 2 / 1.5 ...12	--	0.15 ... 2 / 1.5 ...12	--
• Rated operational current range for soft start	A	--			0.15 ... 2 / 1.5 ...12
• Rated operational current range for direct start	A	--	0.15 - 2 /1.5 - 9	--	0.15 - 2 /1.5 - 9
Rated operational current for starter I_e at 400 V AC					
• 400 V - AC-1 / 2 / 3	A	12	--	12	--
• 500 V - AC-1 / 2 / 3	A	9	--	9	--
• 400 V - AC-4	A	4	--	4	--
• 400 V AC53a	A	--	9	--	12 for soft starting 9 for direct-in-line starting
Mechanical endurance of contactor		30 million operating cycles	--	30 million operating cycles	--
Trip class		Class 10		CLASS 5, 10, 15, 20	
Type of coordination acc. to IEC 60947-4-1		1 (2 for device variant 2A)	1	1 (2 for device variant 2A)	1
Reliable switching frequency		See manual			
Rated ultimate short-circuit breaking capacity I_q					
• At 400 V AC	kA	50			
• At 500 V AC	kA	50[2]	20[2]	50	20[2]
Short-circuit protection					
• At I_{emax} = 2 A		Integrated, 2 x13 I_e = 26 A			
• At I_{emax} = 9 /12 A		Integrated, 2 x13 I_e = 208 A			
Brake version (option)					
Designation		400 V/230 V AC	180 V DC	400 V/230 V AC	180 V DC
Operational voltage	V	400 / 230 AC	DC 180	400 / 230 AC	DC 180
Uninterrupted current	A	< 0.5	< 0.8	< 0.5	< 0.8
Short-circuit protection		Yes, 1 A melting fuse			

[1] DS ... direct-on-line starter
RS ... reversing starter
te ..... full motor protection (thermal + electronic)
s ..... electronic switching with semiconductor

[2] Only systems with grounded neutral point permitted

Selection and ordering data

M200D AS-i Basic without manual on-site operation

M200D AS-i Basic with manual on-site operation

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Electromechanical starters (with integrated protection)							
	C	**3RK1 315-6□S41-□AA□**		1	1 unit	121	2.6 ... 3.1
Setting range for rated operational current / A			*Additional price*				
• 0.15 ... 2		**K**	None				
• 1.5 ... 12		**L**	x				
Direct-on-line starters/reversing starters							
• Direct-on-line starters		**0**	None				
• Reversing starters		**1**	x				
• Direct-on-line starters with manual local operation		**2**	x				
• Reversing starters with manual local operation		**3**	x.				
Brake control							
• Without brake control		**0**	None				
• Brake control (400 V AC)		**3**	x				
• Brake control (180 V DC)		**5**	x				
Electronic starters (with thyristors)							
	C	**3RK1 315-6□S71-□AA□**		1	1 unit	121	2.6 ... 3.4
Setting range for rated operational current / A			*Additional price*				
• 0.15 ... 2		**K**	None				
• 1.5 ... 9		**N**	x				
Direct-on-line starters/reversing starters							
• Direct-on-line starters		**0**	None				
• Reversing starters		**1**	x				
• Direct-on-line starters with manual local operation		**2**	x				
• Reversing starters with manual local operation		**3**	x				
Brake control							
• Without brake control		**0**	None				
• Brake control (230/400 V AC)		**3**	x				
• Brake control (180 V DC)		**5**	x				

x = Additional price

* You can order this quantity or a multiple thereof.

Selection and ordering data

M200D AS-i Standard

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Electromechanical starters (with integrated protection)							
	C	**3RK1 325-6□S41-□AA□**		1	1 unit	121	2.6 ... 3.1
Setting range for rated operational current / A			*Additional price*				
• 0.15 ... 2		**K**	None				
• 1.5 ... 12		**L**	x				
Direct-on-line starters/reversing starters							
• Direct-on-line starters		**0**	None				
• Reversing starters		**1**	x				
• Direct-on-line starters with manual local operation		**2**	x				
• Reversing starters with manual local operation		**3**	x				
Brake control							
• Without brake control		**0**	None				
• Brake control (400 V AC)		**3**	x				
• Brake control (180 V DC)		**5**	x				
Electronic starters (with thyristors)							
	C	**3RK1 325-6□S71-□AA□**		1	1 unit	121	2.6 ... 3.4
Setting range for rated operational current / A			*Additional price*				
• 0.15 ... 2		**K**	None				
• 1.5 ... 12		**L**	x				
Direct-on-line starters/reversing starters							
• Direct-on-line starters		**0**	None				
• Reversing starters		**1**	x				
• Direct-on-line starters with manual local operation		**2**	x				
• Reversing starters with manual local operation		**3**	x				
Brake control							
• Without brake control		**0**	None				
• Brake control (230/400 V AC)		**3**	x				
• Brake control (180 V DC)		**5**	x				

x = Additional price

* You can order this quantity or a multiple thereof.

M200D motor starters for PROFIBUS / PROFINET

Overview

The intelligent, highly flexible M200D PROFIBUS / PROFINET motor starters are the most functional motor starters of the SIRIUS motor starter family in the high degree of protection IP65 for PROFIBUS / PROFINET communication.

They start and protect motors and loads up to 5.5 kW. Direct-online and reversing starter variants are available, in a mechanical version and also an electronic version (the latter with soft start function).

The particularly robust M200D PROFIBUS / PROFINET motor starters are characterized by numerous functions which can be flexibly parameterized. Their modular design comprises a motor starter module and a communication module.

The M200D PROFINET motor starters enable TIA-integrated parameterization through PROFINET from STEP7 - in familiar, user-friendly manner with the same look-and-feel as PROFIBUS.

Functionality

- For basic functionality see M200D Motor Starters, General Data
- Electronic version also with soft start function
- Robust and widely used M12 connection method for the digital inputs and outputs and the PROFIBUS/PROFINET bus connection
- All four digital inputs and two digital outputs exist in the cyclic process image. This provides complete transparency of the process on the control level
- Full TIA integration: All digital inputs and outputs exist in the cyclic process image and are visible through the bus, providing maximum flexibility and best adaptability to the application
- Flexible assignment of the digital inputs and outputs with all available assignable input actions
- Extensive diagnostics concept using LEDs and through the bus with the TIA-conform mechanisms
- Expanded diagnostics using data records
- Complete plant monitoring using statistics data record and current value monitoring by means of data records
- Parameterization through PROFIBUS / PROFINET bus with the help of data records from the user program
- Control of the motor starter using a command data record from the user program
- Removable modular control unit – fixed wiring on the control unit means faster replacement of devices and therefore lower costs because only one device needs to be replaced
- Parameterization in Step7 HW Config using Motor Starter ES (ordering option for start-up software)
- Start-up and diagnostics with the help of Motor Starter ES (ordering option for start-up software)
- Trace function through Motor Starter ES for optimized start-up and tracking of process and device values

Only with PROFINET IO:

- Just one bus system from the MES level to the devices - no routers
- More stations on the bus and possible configuration of flexible bus structures
- Automatic re-parameterization in case of device replacement thanks to proximity detection
- Wireless integration of plant segments in difficult environments using WLAN
- Easier expansion of the system thanks to a higher number of stations on the bus and elimination of terminating resistors

M200D motor starter modules for PROFIBUS / PROFINET (without communication module)

M200D communication modules for PROFIBUS

M200D communication modules for PROFINET

Mounting and installation

The M200D PROFINET / PROFINET motor starter is comprised of a communication module and a motor starter module. Only the motor starter module has to be replaced therefore when replacing devices. This saves time and money. The communication module remains as an active station on the bus and all other system components continue running. This prevents downtimes.

The integrated plug-in technology enables far lower wiring outlay: Connecting cables can be plugged directly onto the motor starter module. The PROFINET bus is connected cost-effectively using an M12 connection on the device. All versions have identical enclosure dimensions for easier system design and conversion.

Parameterization and configuration

All motor protection functions, limit values and reactions can be defined by parameterization.

The user has several user-friendly options for the parameterization. In addition to parameterization directly from STEP 7, which also permits automatic re-parameterization in case of device replacement, it is possible to use the user-friendly Motor Starter ES start-up software. By connecting a programming device directly to PROFIBUS / PROFINET and the Motor Starter ES start-up software, the devices can also be conveniently programmed from a central point through the bus. Also, parameters can be changed during operation from the user program using the data record mechanism so that the function of the motor starter is adapted to the process when required. With the help of a PC and the Motor Starter ES software it is also possible to perform the parameterization through the local point-to-point interface on-site.

Functions can be flexibly assigned to the digital inputs and outputs, adapting them to all possible conveyor applications. All digital inputs and outputs exist in the cyclic process image. All limit values for monitoring functions and their reactions are parameterizable and therefore adaptable to the application. Consistency with other products of the SIRIUS M200D motor starter range and with the frequency converter and ET200pro peripherals system is assured.

Only with the M200D PROFINET motor starter

Thanks to the integrated proximity detection, the device name does not need to be issued manually when a device is replaced. The name is issued automatically by the neighboring devices which note the "names" of the devices in their proximity. No additional start-up measures are required therefore when replacing a device.

The new motor starter generation is characterized by high functionality, maximum flexibility and the highest level of automation. The PROFINET is recommended in particular for expansive and highly automated system components because the possibility of monitoring devices and systems with data records (statistical data, measured values and device diagnostics) guarantees an in-depth view of the plant from the control room and therefore increases plant availability.

Operation

The motor starters record the actual current flow. Evaluating the current of the parameterizable solid-state overload protection increases the availability of the drives, as do reliable messages concerning the overranging or underranging of setpoint values.

Diagnostics and maintenance

Diagnostics is provided through numerous mechanisms - and can be used as the customer prefers.

The motor starter has TIA diagnostics capability, i. e. detection of a fault automatically triggers a diagnostics alarm which in the case of a SIMATIC controller calls up the diagnostics OB. The fault can be evaluated as usual in the user program.

The M200D motor starter offers a large variety of diagnostics data through data records. Its functionality is without equal on the market. There are extensive options for reading out data from the motor starter for monitoring devices, systems or processes.

The motor starter is equipped internally with 3 logbooks for device faults, motor starter trips and events, which are issued with a time stamp. These logbooks can be read out of the motor starter at any time in the form of data records and provide the plant operator with plenty of information about the state of his plant and process which he can use to carry out improvements.

With the slave pointer and statistical data functions it is possible to read out, for example, the maximum internal current values or the number of motor starter connection operations for plant monitoring purposes. This enables process deviations to be monitored or commissioning to be optimized. The user can draw conclusions about the actual load conditions of the devices in his process and on this basis can optimize his plant maintenance intervals.

The device diagnostics data record contains details of all the states of the motor starter, the device configuration and the communication as a basis for central device and plant monitoring.

Installation and maintenance functions (I&M) save information concerning the module used in the motor starter as well as data which the user can define during the configuration, e. g. position IDs. I&M functions are used to rectify faults or to locate hardware changes in a plant or to check the system configuration. Reordering a device is particularly easy as the result.

The integrated maintenance timer can be used to implement preventative maintenance and avoid plant downtimes through look-ahead servicing.

Another new feature is the integrated TRACE function with the Motor Starter ES software. It can be used to record measured values as a function of time following a trigger event. This enables process flows to be recorded and their timing optimized.

Local control of a drive is possible using the ordering option with integrated manual operation. This is yet another new development which distinguishes the M200D PROFIBUS / PROFINET motor starter from the rest of the market and adds innovative technology, maximum availability and transparency to the system.

M200D motor starters for PROFIBUS / PROFINET

	SIRIUS M200D PROFIBUS	SIRIUS M200D PROFINET
Device functions (software features)		
Slave on the bus		
Fieldbus	✔ PROFIBUS to M12	✔ PROFINET to M12
Adjustable number of stations	✔ 1 125	✔ 1 ... 128 with CPU 315, 317 1 ... 256 with CPU 319
Parameterization		
DIP switches	✔ For address setting and terminating resistor	--
ES Motor Starter	✔ Through bus, optical interface	
PROFIBUS / PROFINET data records	✔	
From STEP 7 / HW config	✔	
Diagnostics		
Acyclic through data records	✔	
Support of diagnostics alarm	✔	
Process image		
Process image	✔ 2Byte PAE/ 2Byte PAA	
Data channels		
Local optical interface (manual on-site)	✔	
Through Motor Starter ES local interface	✔	
Using Motor Starter ES through bus	✔	
Data records (acyclic)		
Parameterization	✔ Using DS 131 (DS = data record)	
Diagnostics	✔ Device-specific DS 92	
Measured values	✔ Measured values DS 94	
Statistics	✔ Statistical data DS 95	
Commands	✔ Using DS 93	
Slave pointer	✔ Slave pointer DS 96	
Logbook	✔ Using Motor Starter ES and data records: Device faults DS 72, tripping operation DS 73, events DS 75	
Device identification	✔ Using DS 100	
I&M data	✔ Using DS 231 ... 234	✔ Using data records 0xAFF0 ... 0xAFF3
Inputs		
Number	✔ 4	
• Of these in the process image	✔ 4	
Input action	✔ Parameterizable: Flexibly assignable action (see manual)	
Quick-Stop	✔ Parameterizable: Latching, non-latching	
Outputs		
Number	✔ 2	
• Of these in the process image	✔ 2	
Output action	✔ Parameterizable: Flexibly assignable action (see manual)	
Brake output		
180 V DC / 230/400 V AC / none	✔	
Motor protection		
Overload protection	✔ Electronic, wide range 1:10	
Short-circuit protection	✔	
Full motor protection	✔	
Temperature sensor	✔ Parameterizable using ES Motor Starter, data record: PTC or Thermoclick or deactivated	

✔ Function is available; -- Function is not available.

	SIRIUS M200D PROFIBUS	SIRIUS M200D PROFINET
Device functions (software features)		
Device functions		
Repair switch	✔	
Current limit monitoring bottom	✔ Parameterizable	
Current limit monitoring top	✔ Parameterizable	
Zero current detection	✔ Parameterizable: tripping, warning	
Blocking current	✔ Parameterizable	
Unbalance	✔ Parameterizable	
Load type	✔ Parameterizable: single- and three-phase	
Shutdown class	✔ Parameterizable using ES Motor Starter, data record: Class 5, 10, 15, 20	
Protection against voltage failure	✔ Parameterizable: Activated/deactivated	
Soft starter control function		
Soft start function	✔	
Bypass function	✔ Only electronic version	

✔ Function is available; -- Function is not available.

Application

The M200D PROFIBUS / PROFINET motor starters are particularly suitable for fully TIA-integrated, highly automated conveyor applications which meet all needs with regard to the monitoring of devices and systems and preventative maintenance. Adaptability of the motor starter functions and maximum flexibility of the device enable a broad range of application without any limits. The PROFINET-specific expansions are the best assurance of a future-proof investment.

Selection and ordering data

M200D PROFIBUS / PROFINET
without communication module

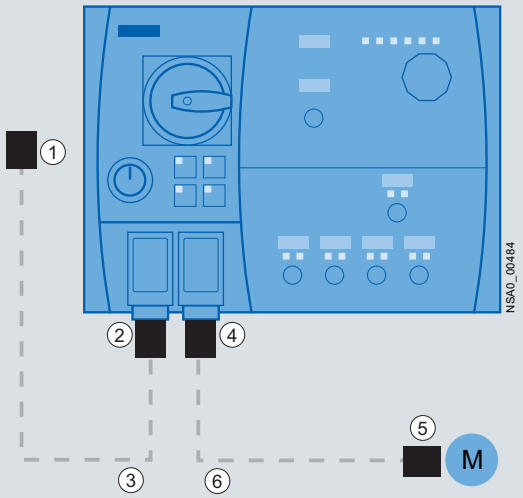
M200D PROFIBUS

M200D PROFINET

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
M200D communication modules for PROFIBUS							
Communication modules for PROFIBUS M12 termination 7/8 inch	C	**3RK1 305-0AS01-0AA0**		1	1 unit	121	0.300
M200D communication modules for PROFINET							
Communication modules for PROFINET M12 termination 7/8 inch	C	**3RK1 335-0AS01-0AA0**		1	1 unit	121	0.300
Electromechanical starters (with integrated protection)							
	C	**3RK1 395-6□S41-□AD□**		1	1 unit	121	2.3
Setting range for rated operational current / A			*Additional price*				
• 0.15 ... 2		**K**	None				
• 1.5 ... 12		**L**	On req.				
Direct-on-line starters/reversing starters							
• Direct-on-line starters		**0**	None				
• Reversing starters		**1**	On req.				
• Direct-on-line starters with manual local operation		**2**	On req.				
• Reversing starters with manual local operation		**3**	On req.				
Brake control							
• Without brake control		**0**	None				
• Brake control (400 V AC)		**3**	On req.				
• Brake control (180 V DC)		**5**	On req.				
Electronic starters (with thyristors)							
	C	**3RK1 395-6□S71-□AD□**		1	1 unit	121	2.3
Setting range for rated operational current / A			*Additional price*				
• 0.15 ... 2		**K**	None				
• 1.5 ... 12		**L**	On req.				
Direct-on-line starters/reversing starters							
• Direct-on-line starters		**0**	None				
• Reversing starters		**1**	On req.				
• Direct-on-line starters with manual local operation		**2**	On req.				
• Reversing starters with manual local operation		**3**	On req.				
Brake control							
• Without brake control		**0**	None				
• Brake control (230/400 V AC)		**3**	On req.				
• Brake control (180 V DC)		**5**	On req.				

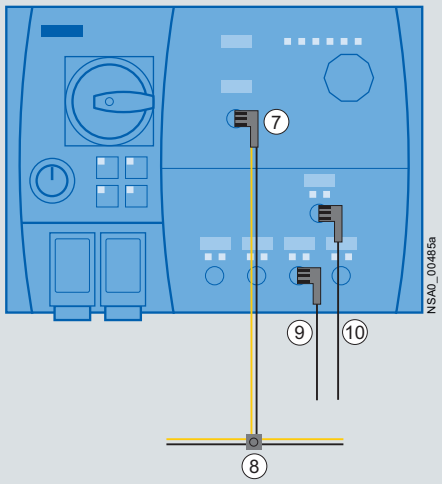
* You can order this quantity or a multiple thereof.

Overview



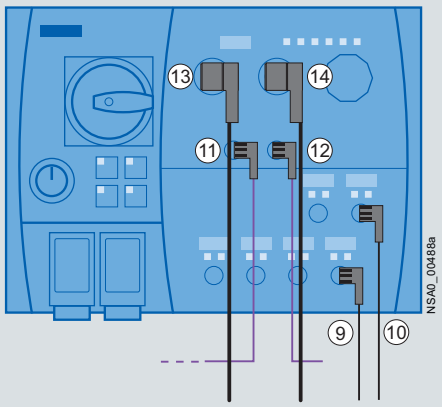
1 Power feeder plug
2 Power connection plug
3 Incoming energy supply cable
4 Motor connection plug
5 Motor plug
6 Motor cable

Power and motor connection on the M200D motor starter (in this example: M200D for AS-i)



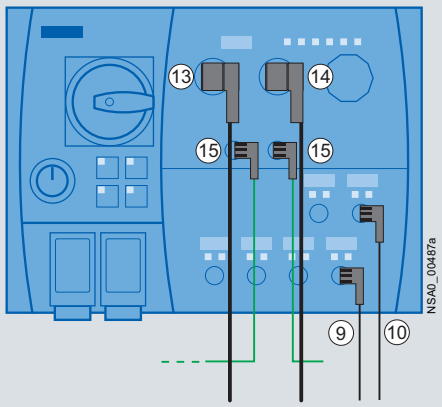
7 Connection for motor control with AS-i communication
8 AS-Interface M12 feeder
9 Connection for digital input (IO communication, 5-pole)
10 Connection for digital output (IO communication, 4 or 5-pole)

Communication connection using AS-Interface and digital inputs and outputs



9 Connection for digital input (IO communication, 5-pole)
10 Connection for digital output (IO communication, 4- or 5-pole)
11 PROFIBUS connection (input)
12 PROFIBUS connection (loop)
13 Connection for 24 V supply (infeed)
14 Connection for 24 V supply (loop)

Communication connection using PROFIBUS and digital inputs and outputs



9 Connection for digital input (IO communication, 5-pole)
10 Connection for digital output (IO communication, 4- or 5-pole)
13 Connection for 24 V supply (infeed)
14 Connection for 24 V supply (loop)
15 Connection with PROFINET (input on the left, loop on the right)

Communication connection using PROFINET and digital inputs and outputs

Accessories

Selection and ordering data

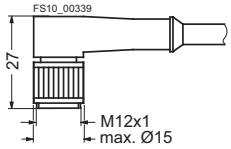
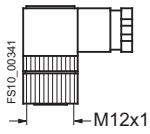
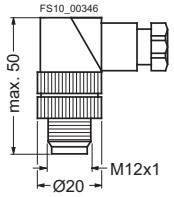
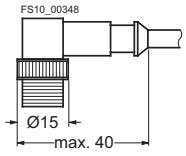
The accessories listed below represent a basic selection.

More connection technology products can be found at our "Siemens Solution Partners" and in the catalogs IK PI and FS 10.

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Mountable accessories							
M200D protective brackets	B	**3RK1 911-3BA00**		1	1 unit	121	0.225
Incoming energy supply							
① **Power feeder plugs** Connector set for energy supply, e. g. for connecting to T terminal connectors, comprising a coupling enclosure, straight outgoing feeder (with bracket), pin insert for HAN Q4/2, incl. gland							
• 5 male contacts 2.5 mm²	B	**3RK1 911-2BS60**		1	1 unit	121	0.100
• 5 male contacts 4 mm²	B	**3RK1 911-2BS20**		1	1 unit	121	0.100
• 5 male contacts 6 mm²	B	**3RK1 911-2BS40**		1	1 unit	121	0.100
② **Power connection plugs** Connector set for energy supply for connection to M200D motor starters, comprising a cable-end connector hood, angular outgoing feeder, female insert for HAN Q4/2, incl. gland							
• 5 female contacts 2.5 mm², 2 female contacts 0.5 mm²	C	**3RK1 911-2BE50**		1	1 unit	121	0.200
• 5 female contacts 4 mm², 2 female contacts 0.5 mm²	B	**3RK1 911-2BE10**		1	1 unit	121	0.200
• 5 female contacts 6 mm², 2 female contacts 0.5 mm²	B	**3RK1 911-2BE30**		1	1 unit	121	0.200
② + ③ **Power connection cable** Assembled at one end with "N" and jumper pin 11 and 12 for plug monitoring, with HAN Q4/2, angular; open at one end; 5 x 4 mm²							
• Length 1.5 m	B	**3RK1 911-0DC13**		1	1 set	121	0.590
• Length 5.0 m	X	**3RK1 911-0DC33**		1	1 set	121	0.590
Motor cables							
④ **Motor connection plugs** Connector set for motor cable for connection to M200D motor starters, comprising a cable-end connector hood, angular outgoing feeder, pin insert for HAN Q8/0, incl. gland							
• 8 male contacts 1.5 mm²	B	**3RK1 902-0CE00**		1	1 unit	121	0.064
• 6 male contacts 2.5 mm²	B	**3RK1 902-0CC00**		1	1 unit	121	0.059
⑤ **Motor plugs** Connector set for motor cable for connection to motors, comprising a cable-end connector hood, straight outgoing feeder, female insert for HAN 10e, incl. star jumper, incl. gland							
• 7 female contacts 1.5 mm²	C	**3RK1 911-2BM21**		1	1 set	121	0.240
• 7 female contacts 2.5 mm²	C	**3RK1 911-2BM22**		1	1 set	121	0.240
④ + ⑥ **Motor cables, assembled at one end** Open at one end, HAN Q8/0, angled, length 5 m							
• Motor cables for motor without brake, for M200D, 4 x 1.5 mm²	C	**3RK1 911-0EB31**		1	1 set	121	0.800
• Motor cables for motor with brake control 400 V AC or 180 V DC, 6 x 1.5 mm²	C	**3RK1 911-0ED31**		1	1 set	121	1.150
• Motor cables for motor with brake control 230 V AC and thermistor, 8 x 1.5 mm²	B	**3RK1 911-0EE31**		1	1 set	121	1.150

6

* You can order this quantity or a multiple thereof.

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Motor control with AS-i communication[1)]							
 3RX8 000-0CC42-1AF0							
⑦ **Control cables, assembled at one end** Open at one end, angular M12 cable boxes for screw fixing, degree of protection IP67, 4-pole, 4 x 0.34 mm²							
• Cable length 5 m	A	**3RX8 000-0CC42-1AF0**		1	1 unit	574	0.180
 3RX8 000-0CC45							
⑦ **Coupling boxes with terminal compartment, can be pre-assembled** Open at one end, angular M12 cable boxes for screw fixing, degree of protection IP67, 4-pole, 4 x 0.34 mm²	A	**3RX8 000-0CC45**		1	1 unit	574	0.015
 3RK1 901-1NR21							
⑧ **AS-Interface M12 feeder**							
For flat cable: AS-i / U_{aux}; For: M12 socket; Cable length: --; Cable end in feeder: Not available	A	**3RK1 901-1NR20**		1	1 unit	121	0.060
For flat cable: AS-i / U_{aux}; For: M12 cable box; Cable length: 1 m; Cable end in feeder: Not available	A	**3RK1 901-1NR21**		1	1 unit	121	0.070
For flat cable: AS-i / U_{aux}; For: M12 cable box; Cable length: 2 m; Cable end in feeder: Not available	A	**3RK1 901-1NR22**		1	1 unit	121	0.100
 3RK1 901-1MN00							
Cable terminating pieces For sealing of open cable ends (shaped AS-Interface cable) in IP67	►	**3RK1 901-1MN00**		1	10 units	121	0.085
Motor control with IO communication[1)]							
 3RX8 000-0CE55							
⑩ **Angular M12 coupler plugs** Degree of protection IP 67, 5-pole, for extension cable (metal screw cap) with terminal compartment, cable let-through max. 6 mm	A	**3RX8 000-0CE55**		1	1 unit	574	0.023
 3RX8 000-0CC42-1AF0							
⑩ **Control cables, assembled at one end** Angular M12 cable plugs, degree of protection IP67, 4 x 0.34 mm² (metal screw cap)							
• Length 5 m	A	**3RX8 000-0CE42-1AF0**		1	1 unit	574	0.169
• Length 10 m	A	**3RX8 000-0CE42-1AL0**		1	1 unit	574	0.335
⑨, ⑩ **Control cables, assembled at one end** Angular M12 cable plugs, 5-pole							
• PUR cables 1.5 m	C	**3RX8 000-1CE52-1AB5**		1	1 unit	574	0.195
• PUR cables 5 m	C	**3RX8 000-1CE52-1AF0**		1	1 unit	574	0.195
• PUR cables 10 m	C	**3RX8 000-1CE52-1AL0**		1	1 unit	574	0.195

[1)] For more plug-in connections see Catalogs FS 10 and IK PI.

* You can order this quantity or a multiple thereof.

Accessories

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Motor control with PROFIBUS							
Plugs M12 for screw fixing, angled, B coded, no terminating resistor							
• ⑪ 5 female contacts	C	**3RK1 902-1DA00**		1	1 unit	121	0.100
• ⑫ 5 male contacts	C	**3RK1 902-1BA00**		1	1 unit	121	0.100
Control cables, assembled at one end M12 for screw fixing, angled, B coded, no terminating resistor							
• ⑪ 5 female contacts, 3 m	B	**3RK1 902-1GB30**		1	1 unit	121	0.100
• ⑪ 5 female contacts, 5 m	B	**3RK1 902-1GB50**		1	1 unit	121	0.100
• ⑪ 5 female contacts, 10 m	B	**3RK1 902-1GC10**		1	1 unit	121	0.100
⑪ ⑫ **Control cables, assembled at both ends** M12 for screw fixing, angled, 5-pole, B coded, no terminating resistor							
• 3.0 m	B	**3RK1 902-1NB30**		1	1 unit	121	0.100
• 5.0 m	B	**3RK1 902-1NB50**		1	1 unit	121	0.100
• 10.0 m	B	**3RK1 902-1NC10**		1	1 unit	121	0.100
Motor control with PROFINET							
⑮ **Plugs** M12 for screw fixing, angled, D coded, • 4 male contacts	B	**3RK1 902-2DA00**		1	1 unit	121	0.100
⑮ **Control cables, assembled at one end** M12 for screw fixing, angled, D coded,							
• 4 male contacts, 3.0 m	B	**3RK1 902-2HB30**		1	1 unit	121	0.100
• 4 male contacts, 5.0 m	B	**3RK1 902-2HB50**					
• 4 male contacts, 10.0 m	B	**3RK1 902-2HC10**		1	1 unit	121	0.100
⑮ **Control cables, assembled at both ends** M12 for screw fixing, angled at both ends, 4-pole, D coded, male contacts at both ends							
• 3.0 m	B	**3RK1 902-2NB30**		1	1 unit	121	0.100
• 5.0 m	B	**3RK1 902-2NB50**		1	1 unit	121	0.100
• 10.0 m	B	**3RK1 902-2NC10**		1	1 unit	121	0.100
Connection for 24 V supply to M200D PROFIBUS / PROFINET							
Plugs On M200D, 7/8″ for screw fixing, angled, 1.5 mm^2							
• ⑬ 5 female contacts	B	**3RK1 902-3DA00**		1	1 unit	121	0.100
• ⑭ 5 male contacts	B	**3RK1 902-3BA00**		1	1 unit	121	0.100
⑬ **Supply lines, assembled at one end** 7/8″ for screw fixing, angled, 1.5 mm^2							
• 5 female contacts, 3.0 m	B	**3RK1 902-3GB30**		1	1 unit	121	0.100
• 5 female contacts, 5.0 m	B	**3RK1 902-3GB50**					
• 5 female contacts, 10.0 m	B	**3RK1 902-3GC10**		1	1 unit	121	0.100
⑬ ⑭ **Supply lines, assembled at both ends** 7/8″ for screw fixing, angled at both ends, 5-pole, 1.5 mm^2							
• 3.0 m	B	**3RK1 902-3NB30**		1	1 unit	121	0.100
• 5.0 m	B	**3RK1 902-3NB50**					
• 10.0 m	B	**3RK1 902-3NC10**		1	1 unit	121	0.100
Further accessories							
PROFIBUS trailing cables Max. acceleration 4 m/s^2, at least 3000000 bending cycles, bending radius at least 60 mm, 2-core, shielded, sold by the meter, minimum order quantity 20 m, maximum order quantity 1000 m	A	**6XV1 830-3EH10**		1	1 M	5K2	0.072
PROFIBUS FC Food bus cables With PE outer sheath for operation in the food and beverage industry, 2-core, shielded, sold by the meter, minimum order quantity 20 m, maximum order quantity 1000 m	A	**6XV1 830-0GH10**		1	1 M	5K2	0.069
PROFIBUS FC Robust bus cables With PUR outer sheath for operation in environments exposed to chemicals and mechanical loads, 2-core, shielded, sold by the meter, minimum order quantity 20 m, maximum order quantity 1000 m	A	**6XV1 830-0JH10**		1	1 M	5K2	0.075
Power cables 5-core, 5 x 1.5 mm^2, trailing, sold by the meter, minimum order quantity 20 m, maximum order quantity 1000 m	A	**6XV1 830-8AH10**		1	1 M	5K2	0.149

* You can order this quantity or a multiple thereof.

	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
More accessories (continued)								
	PROFINET IE FC TP Standard Cable GP 2 x 2 sold by the meter	A	**6XV1 840-2AH10**		1	1 M	5K2	0.068
	PROFINET IE FC TP Trailing Cable 2 x 2 sold by the meter	A	**6XV1 840-3AH10**		1	1 M	5K2	0.055
	PROFINET IE FC TP Trailing Cable GP 2 x 2 sold by the meter	A	**6XV1 870-2D**		1	1 M	5K2	0.068
	PROFINET IE FC TP Torsion Cable 2 x 2 sold by the meter	A	**6XV1 870-2F**		1	1 M	5K2	0.060
	PROFINET IE FC TP Marine Cable, 4-core sold by the meter	A	**6XV1 840-4AH10**		1	1 M	5K2	0.055

Solution Partner
Automation
SIEMENS

More connection technology products can be found at our "Siemens Solution Partners" www.siemens.com/automation/partnerfinder under the technology heading "Distributed Field Installation System"

More accessories (continued)								
 3RK1 922-3BA00	**Hand-held devices** for ET 200pro motor starter, (also for M200D, ET 200S High Feature and ECOFAST), for local operation. A serial interface cable must be ordered separately.	B	**3RK1 922-3BA00**		1	1 unit	121	0.130
 3RK19 04-2AB01	**Addressing units for AS-i add-on modules** • For active AS-Interface modules, intelligent sensors and actuators • Acc. to AS-Interface Version 2.1 • Including expanded addressing mode • Scope of supply - 1 addressing unit - 1 operating manual (German, English, French, Spanish, Italian) - 1 addressing cable (1.5 m, with jack plug)	►	**3RK19 04-2AB01**		1	1 unit	121	0.540
 3RX8 000-0GF32-1AB5	**M12 addressing cables to M12** • Standard M12 cable for addressing slaves with M12 connection, e. g. K60R modules • When using the current version of the 3RK1 904-2AB01 addressing unit • 1.5 m	A	**3RX8 000-0GF32-1AB5**		1	1 unit	574	0.066
	Dismantling tools for HAN Q4/2	C	**3RK1 902-0AB00**		1	1 unit	121	0.024
	Crimping tools for pins/sockets 4 mm² and 6 mm²	C	**3RK1 902-0CW00**		1	1 unit	121	0.620
	Crimping tools for male contacts and sockets up to 4.0 mm² (HAN Q8/0)	B	**3RK1 902-0CT00**		1	1 unit	121	0.644
	Dismantling tools for male contacts and sockets (HAN Q8/0)	B	**3RK1 902-0AJ00**		1	1 unit	121	0.047
	USB interface cables, 2.5 m	A	**6SL3555-0PA00-2AA0**		1	1 unit	346	0.150
	7/8″Sealing caps	A	**6ES7194-3JA00-0AA0**		1	1 unit	250	0.037
 3RK1 901-1KA00	**AS-Interface sealing caps M12** For sealing unused input and output sockets – not for M12-AS-i connections (one set contains 10 sealing caps)	►	**3RK1 901-1KA00**		100	10 units	121	0.100
	RS 232 interface cables	B	**3RK1 922-2BP00**		1	1 unit	121	0.330

6

* You can order this quantity or a multiple thereof.

General data

Overview

The AS-Interface compact starter is a load feeder with degree of protection IP65, which is fully prewired inside, for switching and protecting any AC loads up to 5.5 kW at 400/500 V AC (electromechanical compact starter) or up to 2.2 kW (solid-state compact starter) – mostly standard induction motors in direct start and reversing duty. It consists either of an electromechanical controlgear assembly or a solid-state overload protection and motor starter protector switching unit. The overload or short-circuit protection is located below a sealable, transparent cover and is therefore available for diagnostics. Two LEDs are provided to the left of the cover for diagnostics purposes for the AS-Interface and the auxiliary power.

It is not possible for live parts to be touched even when the cover is open. The contacts are activated through the integrated outputs. The status of the device is scanned through the inputs, e. g. feedbacks from the auxiliary contacts of the motor starter protector and contactor(s). A further input is used to detect the operating mode of the optional hand-held device. The three power connectors are used to feed and loop through to the load supply voltage (power bus) and to connect to the load itself. Prefabricated power supply cables can be used to connect compact starters which are directly adjacent to each other. Prefabricated power supply lines can be used to connect compact starters which are directly adjacent to each other. The maximum number of starters that can be supplied with one power supply lead is limited by the maximum permissible summation current (up to max. 4 mm^2 corresponds to ~ 35 A).

DS/RS compact starters (electromechanical)

The electromechanical compact starters consist of a conventional controlgear assembly with a SIRIUS motor starter protector for protection against short-circuits and overloading and SIRIUS contactor(s) for normal switching. The advantages of the electromechanical starters are the reliable electrical protective separation during disconnection and tripping, the integrated fuseless protection against short-circuits and the favorable price. What is more, direct currents can also be switched with the electromechanical starters.

Configuring note:
In the case of temperature-critical applications, we recommend operation in the lower setting range of the motor starter protector.

EDS/ERS compact starters (solid-state)

The solid-state compact starters EDS (direct-on-line starter) and ERS (reversing starter) consist of a solid-state overload relay and a solid-state motor starter protector switching unit.

The advantages of these solid-state compact starters are the broad limits within which the overload protection can be adjusted (the performance range up to 2.2 kW at 400/500 V AC is covered with just 2 versions), the fact that the motor starter protector units are non-wearing, current measurement (used for monitoring the energy connector), emergency operation in the event of an overload as well as remote resetting via the AS-Interface after overload tripping.

The ERS compact starter is designed for direct start in reversing duty. The solid-state overload protection and the shutdown response in the event of overload can be adjusted directly at the device.

Version with brake contact

All compact starters are available optionally with a separately activated brake contact for electrically operated motor brakes. For externally fed motor brakes, 24 V DC is supplied jointly with the load voltage through the power connector on -X1. It is looped through via -X3 for supplying the next compact starter on -X1. The 24 V DC supply for the brakes is only linked in those devices equipped with a brake contact. At the project configuration stage, it is important to ensure that these starters are located alongside each other.

All compact starters can be ordered with a brake contact for 24 V DC, for 500 V DC, or for 400 V AC.

Hand-held device

The hand-held device enables the compact starter to be operated locally and autonomously, providing that the auxiliary voltage supply is connected. Thus, assuming that the automation level is functioning correctly, local switching operations can be carried out in addition to normal manual operations in the event of a programmable controller / bus system failure (emergency mode) or during test runs before commissioning, e. g. for testing the direction of rotation of the motor. The hand-held device can be connected to the compact starter by means of a connecting cable through a socket underneath the transparent cover.

Spare inputs

The compact starters are also equipped with two spare inputs.

The M12 socket is a "Y" connector. The signal inputs are applied to PIN 2 and 4. In this manner, it is possible, for example, to connect an optical proximity switch that supplies a signal and the "contamination" alarm.

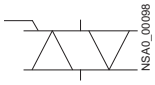
A "T" adapter can be used to split the signal inputs onto two M12 sockets. Compact starters modified in this way offer additional advantages. At no extra cost, it is possible to save AS-i addresses, reduce the space requirement and to build up logical groupings.

ECOFAST specification

The compact starters are throughout with standardized interfaces for data and energy according to the ECOFAST specification:

For ECOFAST, the field and power bus technology for distributed configurations in IP65, see "Energy Communication Field Installation System" on page 6/158.

Selection and ordering data

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Compact starters							
 3RK1 322 **EDS compact starters** solid-state direct-on-line starter with two spare digital inputs	B	**3RK1 322-□□S12-0AA□**		1	1 unit	121	1.690
ERS compact starters solid-state reversing starter with two spare digital inputs	B	**3RK1 322-□□S12-1AA□**		1	1 unit	121	1.840
Order No. supplement for *Induction motor 4-pole at 400 V AC Standard output P* *kW* / *Setting range of the electronic release* *A*			Additional price				
0.18 ... 0.8 / 0.6 ... 2.18		**0A**	None				
0.75 ... 2.2 / 2.0 ... 5.95		**0B**	None				
							
 3RK1 322 **DS compact starters** electromechanical direct-on-line starter, with two spare digital inputs	B	**3RK1 322-□□S02-0AA□**		1	1 unit	121	1.807
RS compact starters electromechanical reversing starter, with two spare digital inputs	B	**3RK1 322-□□S02-1AA□**		1	1 unit	121	2.067
Order No. supplement for *Induction motor 4-pole at 400 V AC Standard output P* *kW* / *Setting range of the electronic release* *A*			Additional price				
<0.06 / 0.14 ... 0.20		**0B**	None				
0.06 / 0.18 ... 0.25		**0C**	None				
0.09 / 0.22 ... 0.32		**0D**	None				
0.10 / 0.28 ... 0.40		**0E**	None				
0.12 / 0.35 ... 0.50		**0F**	None				
0.18 / 0.45 ... 0.63		**0G**	None				
0.21 / 0.55 ... 0.80		**0H**	None				
0.25 / 0.70 ... 1.0		**0J**	None				
0.37 / 0.9 ... 1.25		**0K**	None				
0.55 / 1.1 ... 1.6		**1A**	None				
0.75 / 1.4 ... 2.0		**1B**	None				
0.90 / 1.8 ... 2.5		**1C**	None				
1.1 / 2.2 ... 3.2		**1D**	None				
1.5 / 2.8 ... 4.0		**1E**	None				
1.9 / 3.5 ... 5.0		**1F**	None				
2.2 / 4.5 ... 6.3		**1G**	None				
3.0 / 5.5 ... 8.0		**1H**	None				
4.0 / 7.0 ... 10		**1J**	None				
5.5 / 9.0 ... 12		**1K**	None				
Additional price							
Standard version		**0**	None				
Version with brake contact for 24 V DC/3 A externally-fed brakes		**1**	x				
Version with brake contact for 400 V AC/0.5 A infeed for brake rectifier		**3**	x				
Version with brake contact for DC-side switching of the brakes with 500 V DC/0.2 A		**4**	x				
Accessories for 24 V DC, M12 plugs							
 6ES7 194-1KA01-0XA0 **M12 coupler plugs** for connecting actuators or sensors 5-pole	A	**3RX8 000-0CD55**		1	1 unit	574	0.023
M12 angular coupler plugs for connecting actuators or sensors 5-pole	A	**3RX8 000-0CE55**		1	1 unit	574	0.023
M12 Y-shaped coupler plugs for connecting two sensors with a single cable 5-pole	A	**6ES7 194-1KA01-0XA0**		1	1 unit	250	0.046
M12 sealing caps for closing unused input or output sockets	►	**3RX9 802-0AA00**		100	10 units	121	0.100

x = Additonal price

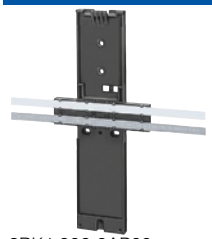
* You can order this quantity or a multiple thereof.

General data

	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Accessories for AS-Interface compact starters (Han Q 8/0)								
 3RK1 902-0CA00	**Connector sets for energy supply, 9-pole** Comprising 1 connector enclosure with Pg16 gland Female insert, 9-pole 6 female contacts							
	• Suitable for cable 4 × 2.5 mm², 6 × 2.5 mm²	B	**3RK1 902-0CA00**		1	1 unit	121	0.057
	• Suitable for cable 4 × 4 mm²/6 × 4 mm²	B	**3RK1 902-0CB00**		1	1 unit	121	0.055
 3RK1 902-0CC00	**Connector sets for power loop-through connection, 9-pole** comprising 1 connector enclosure with Pg16 gland 1 pin insert, 9-pole 6 male contacts							
	• Suitable for cable 4 × 2.5 mm²/6 × 2.5 mm²	B	**3RK1 902-0CC00**		1	1 unit	121	0.059
	• Suitable for cable 4 × 4 mm²/6 × 4 mm²	B	**3RK1 902-0CD00**		1	1 unit	121	0.055
	Connector sets for motor connections, 1.5 mm², 9-pole comprising 1 connector enclosure with Pg16 gland 1 pin insert, 9-pole 8 male contacts 1.5 mm²	B	**3RK1 902-0CE00**		1	1 unit	121	0.064
 3RK1 902-0AH00	**Sealing caps** for 9-pole power socket (-X3)							
	• One set contains one unit	B	**3RK1 902-0CK00**		1	1 unit	121	0.012
	• One set contains ten units	B	**3RK1 902-0CJ00**		1	10 units	121	0.093
	Power supply cables 9-pole							
	• 6 × 4 mm², 0.12 m long	B	**3RK1 902-0CH00**		1	1 unit	121	0.206
	• 4 × 4 mm², 0.12 m long	B	**3RK1 902-0CG00**		1	1 unit	121	0.165
	Motor connection cables, 4 x 1.5 mm² with power connector, 9-pole							
	• Length: 3 m	B	**3RK1 902-0CM00**		1	1 unit	121	0.432
	• Length: 5 m	B	**3RK1 902-0CP00**		1	1 unit	121	0.620
	• Length: 10 m	B	**3RK1 902-0CQ00**		1	1 unit	121	1.278
	Motor connection cables, 6 x 1.5 mm² with power connector, 9-pole							
	• Length: 3 m	B	**3RK1 902-0CN00**		1	1 unit	121	0.696
	• Length: 5 m	B	**3RK1 902-0CR00**		1	1 unit	121	1.110
	• Length: 10 m	B	**3RK1 902-0CS00**		1	1 unit	121	1.840
	Crimping tools							
	• For male and female contacts 1.5 ... 2.5 mm²	B	**3RK1 902-0AH00**		1	1 unit	121	0.576
	• For male and female contacts 1.5 ... 4 mm²	B	**3RK1 902-0CT00**		1	1 unit	121	0.644
	Dismantling tools for disassembling male and female contacts in 9-pole inserts	B	**3RK1 902-0AJ00**		1	1 unit	121	0.047

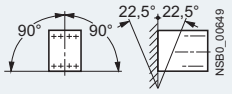
Solution Partner
Automation
SIEMENS

More connection technology products can be found at our "Siemens Solution Partners" www.siemens.com/automation/partnerfinder under "Distributed Field Installation System" technology

Miscellaneous accessories								
 3RK1 902-0AP00	**Manuals for AS-Interface compact starters** English, German	A	**3RK1 702-2GB10-2AA0**		1	1 unit	192	0.439
	Mounting plates for compact starters for accommodating the shaped cable for AS-Interface line and auxiliary supply	A	**3RK1 902-0AP00**		1	1 unit	121	0.119
	Sealing sets for mounting plates for sealing the enclosure at the end of a spur line	A	**3RK1 902-0AR00**		100	5 units	121	0.100
 3RK1 902-0AM00	**Hand-held devices for start-up** with 0.5 m connecting cable and plug	B	**3RK1 902-0AM00**		1	1 unit	121	0.217

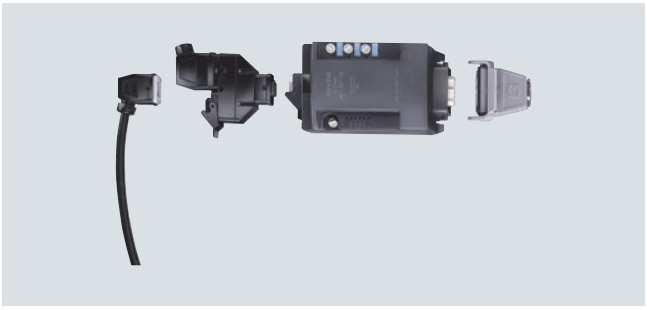
* You can order this quantity or a multiple thereof.

More information

		DS/RS	EDS/ERS
Degree of protection		IP65 (with closed connection elements and cover)	
Material		Thermoplast (glass-fiber reinforced)	
Color		Anthracite RAL 7016	
Cover		Latching, sealable	
Dimensions (W x H x D)	mm	120 × 265 × 134	
Temperature range			
• Operating temperature	°C	-25 ... +55 (note derating: see manual)	
• Storage temperature	°C	-40 ... +70	
Permissible mounting positions		 Important: Acc. to DIN 43602 Start command "I" at the right or top	
Shock resistance			
Rectangular pulse	g/ms g/ms	2/unlimited, 10/5 or 5/10	
Sine pulse	g/ms g/ms	2/unlimited, 8/10 or 15/5	
External power supply			
For output supply (contactor control) **Rated operational voltage U_e**	V DC	24 (PELV – must be grounded)	
For electronics and inputs (feedback of controlgear states) **using AS-Interface data line**	V DC	26.5 ... 31.6 (acc. to AS-Interface specification)	
AS-Interface power consumption	mA	max. 100	
Power consumption U_{aux}	mA	Approx. 170	
Watchdog function (disconnects outputs in the event of AS-Interface fault)		Built-in	
Diagnostics			
Using AS-Interface		Feedback from motor starter protectors and contactor(s) through positively driven auxiliary contacts and separate inputs	
Through LED on the enclosure		Auxiliary voltage applied AS-Interface communication OK AS-Interface communication faulty Station address = 0 (module not addressed)	
Through LED on the hand-held device		On or Clockwise or Counterclockwise	
Main circuit			
Rated operational voltage	V AC	500 acc. to DIN VDE 0106 Part 1014, 600 acc. to CSA and UL	
Safe isolation between main and auxiliary circuits (acc. to DIN VDE 0106, Part 101)	V	Up to 400	--
Rated power	kW	5.5	2.2
Permissible operating modes		Uninterrupted duty, temporary duty, periodic duty, periodic intermittent duty (50 % relative ON period at 80 1/h at 5.5 A)	
Permissible switching frequency with a starting time t_A = 0.1 s and a relative ON period t_{OP} = 50 %	1/h	≤ 80	≤ 600
Trip class		Class 10	
Conductor cross-sections of power connector for infeed/feeder/9-pole loop	mm^2	≤ 4, AWG (15 ... 11)	
Max. permissible current through power connector (dependent on cable cross-section)			
• T_u = 60 °C	A A A	30 (4 mm^2), AWG (11); 20 (2.5 mm^2), AWG (15); 12 (1.5 mm^2), AWG (13)	
• T_u = 40 °C	A A A	35 (4 mm^2), AWG (11); 25 (2.5 mm^2), AWG (15); 15 (1.5 mm^2), AWG (13)	
Short-circuit strength of the starter combination	kA	65 (acc. to type of coordination "1")	100
Electrical endurance of the motor starter protector element under load I_a (AC-3)	Operating cycles	See endurance characteristic curves of the 3RT10 contactors	≥ 10 million

General data

Overview



Distributed motor starters are used for switching and protecting loads locally. Versions with graded functional scope and with different installation possibilities ensure that both the functional requirements of the process and the constructional boundary conditions of the machine or installation are taken into account.

The following are available
- Single devices for geographically distributed motors and
- Isolated solutions (ET 200pro) for operating mechanisms installed close together.

ECOFAST motor starters are available as reversing starters (mechanical switching) and reversing soft starters (electronic switching), in each case for PROFIBUS DP and AS-Interface.

The ECOFAST motor starters can be installed close to the motor or mounted on the motor.

Brake contacts are available as an option for the starters. Two or four integrated digital contacts enable sensors to be scanned locally.

All starters are equipped throughout with standardized interfaces for data and energy according to the ECOFAST specification:
- HanBrid for PROFIBUS DP and insulation piercing method for AS-Interface
- Han Q4/2 for the power supply
- Han 10 E for motor connection

The starters can be connected using T units for data and T terminal connectors for power to prevent interruption.

For ECOFAST, the field and power bus technology for distributed configurations in IP65, see "Energy Communication Field Installation System" on page 6/158.

The 3RK1 922-3BA00 hand-held device is available for local operation (see Accessories on page 6/76).

Detailed technical specifications of the ECOFAST motor starters can be found in the manual "ECOFAST Motor Starters".

Motor Starter ES software

The Motor Starter ES software is used the for parameterization, monitoring, diagnostics and testing of motor starters.
See Chapter "Planning and Configuration with SIRIUS".

Selection and ordering data

Fieldbus interface	Operating function	Motor protection	Setting range/ performance range	Brake output	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
											kg
PROFIBUS DP	Mechanical	Thermistor	0.3 ... 9 A/4 kW[1])	No	B	**3RK1 303-2AS54-1AA0**		1	1 unit	121	1.592
				400 V AC	B	**3RK1 303-2AS54-1AA3**		1	1 unit	121	1.580
		Thermal motor model	0.3 ... 3 A/1.1 kW	No	B	**3RK1 303-5BS44-3AA0**		1	1 unit	121	1.635
				400 V AC	B	**3RK1 303-5BS44-3AA3**		1	1 unit	121	1.645
			2.4 ... 9 A/4 kW	No	B	**3RK1 303-5CS44-3AA0**		1	1 unit	121	1.625
				400 V AC	B	**3RK1 303-5CS44-3AA3**		1	1 unit	121	1.647
	Electronic, soft	Full motor protection	0.3 ... 3 A/1.1 kW	No	B	**3RK1 303-6BS74-3AA0**		1	1 unit	121	2.170
				400 V AC	B	**3RK1 303-6BS74-3AA3**		1	1 unit	121	2.225
			2.4 ... 12 A/5.5 kW	No	B	**3RK1 303-6DS74-3AA0**		1	1 unit	121	2.245
				400 V AC	B	**3RK1 303-6DS74-3AA3**		1	1 unit	121	2.138
AS-Interface	Mechanical	Thermistor	0.3 ... 9 A/4 kW[1])	No	B	**3RK1 323-2AS54-1AA0**		1	1 unit	121	1.538
				400 V AC	B	**3RK1 323-2AS54-1AA3**		1	1 unit	121	1.560
		Thermal motor model	0.3 ... 3 A/1.1 kW	No	B	**3RK1 323-5BS44-3AA0**		1	1 unit	121	1.603
				400 V AC	B	**3RK1 323-5BS44-3AA3**		1	1 unit	121	1.633
			2.4 ... 9 A/4 kW	No	B	**3RK1 323-5CS44-3AA0**		1	1 unit	121	1.607
				400 V AC	B	**3RK1 323-5CS44-3AA3**		1	1 unit	121	1.637
	Electronic, soft	Full motor protection	0.3 ... 3 A/1.1 kW	No	B	**3RK1 323-6BS74-3AA0**		1	1 unit	121	2.120
				400 V AC	B	**3RK1 323-6BS74-3AA3**		1	1 unit	121	2.185
			2.4 ... 12 A/5.5 kW	No	B	**3RK1 323-6DS74-3AA0**		1	1 unit	121	2.119
				400 V AC	B	**3RK1 323-6DS74-3AA3**		1	1 unit	121	2.220

[1]) The range from 0.3 ... 9 A is fixed and cannot be set or modified manually.

* You can order this quantity or a multiple thereof.

More information

		3RK1 3 ECOFAST motor starters
General data		
Mounting dimensions (W x H x D)		
• Reversing starters	mm	130 x 250 x 91
• Reversing soft starters	mm	130 x 250 x 107
Location		On the plant
• Wall mounting		Near the motor
• Mounting directly on the motor		Motor plugged on
Mounting position		Any
Degree of protection		IP65
Protection class		
Acc. to IEC 536 (VDE 0106-1)		1, supply with protective extra-low voltage
Cooling		Convection, no addition cooling necessary
Weight		
• Reversing starters	kg	1.4
• Reversing soft starters	kg	1.9
Permissible ambient temperature		
• Operation	°C	-20 ... +40; condensation not permitted!
- Reversing and reversing soft starters up to max. +55 °C		Over 40 °C: Reduction of I_e by 1.5 %/K
• Storage/transport	°C	-40 ... +80
Relative air humidity	%	5 ... 95; condensation not permitted!
Installation altitude, max.		2000 m; above 1000 m: Reduction of I_e by 1 %/100 m
Vibratory load		f = 5 ... 26 Hz; d = 0.75 mm: 10 cycles f = 26 ... 150 Hz; a = 2 *g*
Shock		a = 150 m/s^2 (15 *g*) with 11 ms, for every 3 shocks in all axes (=18)
ESD		
• Air discharge, acc. to IEC 1000-4-2, degree of severity 3	kV	8
• Contact discharge	kV	6
Electromagnetic fields	V/m	10
IEC 1000-4-3, degree of severity 3		
BURST		
• Control supply voltage, IEC 1000-4-4, degree of severity 3	kV/kHz	2/5
• Data lines	kV/kHz	1/5
• Process lines	kV/kHz	2/5
Emitted interference, acc. to EN 55011		Limit value class A

		Unswitched voltage 24 V DC (AS-i)	Switched voltage 24 V DC (AUX PWR)
Auxiliary power			
External auxiliary power			
• PROFIBUS DP	V DC	20.4 ... 28.8 standard power supply unit acc. to DIN 19240	
• AS-Interface	V DC	23.0 ... 31.5 (AS-i)	20.4 ... 28.8 standard power supply unit acc. to DIN 19240 (PELV must be grounded)
Power consumption			
• Typical, inputs not connected	mA	80 (PROFIBUS DP)	--
	mA	60 (AS-Interface)	--
• Typical, switching element (contactor) activated	mA	--	75
• Typical, switching element (contactor) deactivated	mA	--	15
• Typical, with Duo reversing soft starters	mA	--	110
Pole reversal protection		Yes	
Short-circuit protection/overload protection		Yes Multifuse 0.5 A, self-restoring fuse Reset by Power-OFF	
Undervoltage detection (USP)	V DC	< 17	
Voltage failure bridging	ms	≤ 20, (device is not affected)	
Insulation voltage	V DC	500 between the auxiliary voltages and PE	

General data

		3RK1 3 ECOFAST motor starters
Digital inputs		
Input voltage	V DC	20.4 ... 28.8
Power consumption • Typical, per input	 mA	 7
Sensor supply	mA	max. 200
Brake output 400 V AC		
Voltage range • Tolerance	V AC %	200 ... 460 ± 10
Current carrying capacity • AC-15	 mA	 500
Short-circuit protection Melting fuse, I_{Cu} = 1 kA	 A	 aM 1/500 V AC
Primary power		
Rated operational voltage	V AC	400
Tripping times acc. to IEC 60947-4-1 at 7.2 times I_e • Class 10 • Class 20 • Class 30	 s s s	 8, acc. to standard 4 ... 10 16 24
Rated insulation voltage acc. to IEC 60947-1	V AC	500
Rated impulse voltage acc. to IEC 60947-1	kV	4
Safe isolation between auxiliary and primary power	V AC	300
Frequency • Tolerance	Hz %	50 ... 60 ± 10
ON period	%	100
Utilization category		1 (device destroyed after short-circuit)

		3RK1 3 ECOFAST motor starters		
		Mechanical switching	**Solid-state switching of reversing soft starters**	
Operational voltage • Tolerance	V AC %	200 ... 460; three-phase ±10	200 ... 460; three-phase ±10	
Operational current			**Performance class** **3**	 **6**
• Class 10 • Class 20 • Class 30	A A A	0.3 ... 9 0.3 ... 7.3 0.3 ... 6.7	0.3 ... 3 0.3 ... 3 0.3 ... 3	2.4 ... 12 2.4 ... 7.3 2.4 ... 6.7
Switching capacity • AC-3 • AC-53 • AC-4	 A A A	 9.0 -- 6.5	 -- 3 (0.3 ... 3) 3 (0.3 ... 3)	 12 (2.4 ... 12)[1] 12 (2.4 ... 12)[1]
Switching load		Three-phase with contactor	Two-phase with thyristors	
Max. heat sink temperature	°C	--	+80[2]	
Short-circuit protection Melting fuse	 A	I_{Cu} = 120 kA aM 16/500 V AC	I_{Cu} = 120 kA aM 16/500 V AC	
Endurance of the switching element		See manual		

1) Max. 9 A when soft starter control function is deactivated.

2) The heat sink temperature is monitored; switch-off occurs if the maximum value is exceeded.

Overview

3RK43 53-3.R58-0BA0

3RK43 40-3.R51-.BA0

3RK43 20-3.R51-.BA0

3RK43 20-3.Q54-.BA.

3RK43 20-5.Q64-.BA.

Portfolio of the SIRIUS 3RK43 MCU motor starter family

The SIRIUS MCU motor starter family (MCU = Motor Control Unit) rounds off the bottom end of the SIRIUS motor starter range.

This series of motor starters in a high degree of protection is a system solution for the cabinet-free controlling of AC loads in the field.

The MCU product range extends from the I/O-controlled motor starter – controlled using inputs and outputs from a central sub-distribution board – in a plastic enclosure for simple applications to motor starters with AS-i communication in a rugged metal enclosure for demanding tasks.

The MCU motor starters are completely pre-wired inside, have a high degree of protection and are designed for switching and protecting any AC loads. They are mostly used on standard induction motors in direct or reversing duty up to 5.5 kW at 400/500 V AC (electromechanical switching) and 400/460 V AC (electronic switching).

The motor and short-circuit protection integrated in the MCUs consists either of an electromechanical controlgear assembly or solid-state overload protection and a motor starter protector unit for short-circuit protection.

MCUs with metal enclosure are designed for the switching of induction motors. Integrated control of the electrically operated motor brake with a braking voltage of 230 V AC or 400 V AC is a standard feature. The braking voltage is routed to the motor over the motor cable.

SIRIUS MCU motor starters have the following main features:

- Direct-on-line or reversing starters
- Up to 5.5 kW
- Plastic or metal enclosure
- Electromechanical or electronic switching
- With brake control 230 V AC or 400 V AC
- Integrated lockable repair switch
- Short-circuit protection with SIRIUS 3RV motor starter protector
- Overload protection with thermal release (bimetal) or solid-state overload relay with wide range setting
- Power and load connection by means of an M screw
- Main power loop possible (daisy chain; max. 2 x 6 mm^2)
- Robust and widely used M12 connection method for the AS-i bus connection and the digital inputs and outputs (on the MCU with metal enclosure)
- The LEDs (for AS-i bus connection) can provide comprehensive diagnostics of the device on the spot.

Locally controlled MCU motor starters in a plastic enclosure

These motor starters are designed for the autonomous operation of any AC loads – preferably induction motors.

Only the infeed needs to be connected (no bus connection or any other connection to a controller).

The motor is protected against short-circuits (50 kA) and overloads (thermal overload release) by the integrated motor starter protector. Similarly, there are no additional measures needed for these functions (e. g. back-up fuses).

These motor starters have a key-operated switch "MAN-0-AUTO" for selecting Manual, 0 or Automatic mode and preventing unauthorized changes of operating mode.

In automatic mode the motor can be controlled automatically by connected sensors (level, temperature or pressure switches). The reversing starter is designed in addition with connections for 2 sensors so a reversal of direction is possible in accordance with these sensors. On the reversing starter the controls with interlock are pre-wired.

In manual mode a selector button is used by the operator for switching on, switching off and changing the direction of rotation.

I/O-controlled MCU motor starters in a plastic enclosure

These motor starters offer an economical solution for controlling induction motors distributed in the field.

The internal controls (contactors) are operated by external control with 24 V DC.

On the reversing starter the controls with interlock are pre-wired.

The status of the circuit breaker can be queried through its floating changeover contact. The status can adopt the following positions: activated - the contact is closed - and deactivated or tripped - the contact is open (I/O control).

MCU motor starters with AS-i bus connection in a plastic enclosure

This motor starter version offers an economical solution for controlling and monitoring conveyor belts, pumps, fans or compressors.

On this MCU the control commands and the status queries are sent over the AS-i bus. The yellow cable (bus) and the black AS-i cable for 24 V DC AUX are connected through an M12 plug.

The transparent enclosure top permits monitoring of the status LEDs. These MCUs come completely pre-wired inside.

MCU motor starters with AS-i bus connection in a metal enclosure for electromechanical or electronic switching

These MCUs with their rugged metal enclosure in degree of protection IP54 are ideal in particular for controlling and monitoring induction motors in harsh ambient conditions such as are often found in conveyor systems.

A special feature of this version is the manual local operation of the motor starter.

The key-operated switch "MAN-0-AUTO" for selecting Manual, 0 or Automatic mode prevents unauthorized changes of operating mode. In automatic mode the MCU is controlled through the AS-i bus.

General data

In manual mode a selector button is used for switching on, switching off and changing the direction of rotation.

The status/diagnostics LEDs fitted to the cover indicate the current operating state of the motor starter.

Unlike the electromechanical starter, the solid-state motor starter has wear-free solid-state switching devices which guarantee a high switching frequency.

Another highlight of the electronic switching version is the solid-state overload relay for motor protection, which has a wide setting range for the motor current.

3RK43 53-3.R58-0BA0

3RK43 40-3.R51-.BA0

3RK43 20-3.R51-.BA0

3RK43 20-3.Q54-.BA.

3RK43 20-5.Q64-.BA.

Type	SIRIUS MCU Motor Starters				
	Locally controlled Plastic enclosures Electromechanical Switching	I/O-controlled Plastic enclosures Electromechanical Switching	For AS-Interface Plastic enclosures Electromechanical Switching	For AS-Interface Metal enclosures Electromechanical Switching	For AS-Interface Metal enclosures Electronic Switching
Device functions (software features)					
Slave on the bus					
Fieldbus	--		✔ AS-i		
Bus connection	--		✔ M12		
Slave type	--		✔ AS-i Spec 2.0	✔ A/B acc. to Spec 2.1	
Profile	--		✔ 3.0.F	✔ 7.A.0	
Number of assigned AS-i addresses on the bus	--		✔ 1		
Number of stations	--		✔ Max. 31 devices	✔ Max. 62 devices	
Diagnostics					
LEDs	--		✔		
Process image					
Process image	--		✔ 2I/2O	✔ 4E/3A	
Data channels					
Manual local operation	✔	--		✔	
Inputs					
Number	✔ 1 on the direct-on-line starter 2 on the reversing starter	--	✔ 1	✔ 2	
• Of these in the process image	--		✔ DI1	✔ DI2 / DI3	
Connection	✔ Screw terminal, internal	--	✔ Screw terminal, internal	✔ M12 - A coded	
Input signal	✔ NO contact	--	✔ Switching contact or 2-wire Bero	✔ Switching contact or 2/3-wire Bero	
Input level	✔ 230 V AC	--	✔ AS-i +		
Outputs					
Number	--		✔ 1 on the direct-on-line starter 0 on the reversing starter	✔ 1	
• Of these in the process image	--		✔ DO1	✔ DO2	
Connection	--		✔ Screw terminal, internal	✔ M12 - A coded	
Output level	--		✔ Relay contact, floating	✔ AUX-PWR+ (24 V DC)	
Motor protection					
Overload protection	✔ Thermal overload releases				✔ Electronic overload releases Wide range
Short-circuit protection	✔				
Auto reset	--				✔
Temperature sensor	--			✔ TC (Thermoclick)	
Device functions					
Response when repair switch is tripped	Floating contact		✔ Signal through AS-i		
Plug monitoring	--			Possible (with plug option)	

✔ Function is available; -- Function is not available.

Benefits

- High degree of protection, namely IP55 on MCU motor starters in a plastic enclosure and IP54 on motor starters in a metal enclosure, enables distributed configurations in the field and saves space in the control cabinet
- Comprehensive motor protection thanks to integrated overload and short-circuit protection with SIRIUS 3RV motor starter protectors or integrated solid-state overload relays (solid-state starters)
- Wide range version (motor current) through solid-state overload relay
- Controlled stopping through braking control for motor brake
- Cable connection by means of economical M screw (optionally with plug-in connection)
- Easy installation for AS-i and external auxiliary voltage (24 V DC)
- Status/diagnostics displays with built-in LEDs
- Manual operation: An integrated key-operated switch "MAN-0-AUTO" and a selector button for switching on, switching off and changing the direction of rotation for control purposes during commissioning or maintenance
- Easy and user-friendly control and monitoring through AS-Interface bus communication
- Robust and widely used M12 connection method for digital inputs and outputs to connect I/O stations and the AS-i bus connection increase flexibility and prevent errors in the system configuration.

Application

Main areas of use

Controlled by I/Os and AS-i bus:

- Airports
- Automotive industry
- Intralogistics

Locally controlled

- Industrial, commercial and agricultural applications (for autonomously controlled motors such as pumps, fans, etc.)

General data

More information

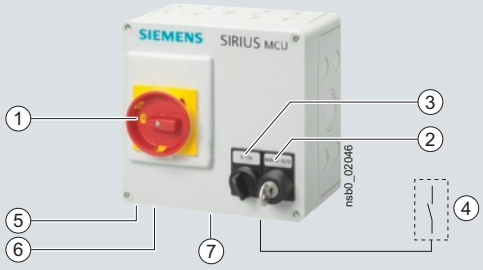
Type		SIRIUS MCU Motor Starters				
		Locally controlled	I/O-controlled	For AS-Interface	For AS-Interface	For AS-Interface
		Plastic enclosures	Plastic enclosures	Plastic enclosures	Metal enclosures	Metal enclosures
		Electromechanical Switching	Electromechanical Switching	Electromechanical Switching	Electromechanical Switching	Electronic Switching
Mechanics and environment						
Mounting dimensions (W x H x D)	mm	182 x 220 x 145			245 x 215 x 205	
Permissible ambient temperature • During operation	°C	-25 ... +35			-25 ... +50 max. +65 with reduction	
Weight	g	1300	1200	1500 / 1800	5800	6400
Permissible mounting positions	°	On the wall 360, inclination ±30			On the wall 360, inclination ±20	
Degree of protection acc. to IEC 529		IP54	IP55		IP54	
Cooling		Convection				
Electrical specifications						
Control circuit						
Operational voltage U_{As-i}	V DC	--		26.5 ... 31.6		
Control supply voltage U_{aux}	V DC	--		20.4 ... 26.4	20.4 ... 28.8	
Control supply voltage	V	AC 230, from inside	20.4 ... 26.4	--		
Power consumption from AS-i (incl. 200 mA sensor supply)	mA	--		≤ 250	≤ 270	
Main circuit						
Rating for induction motor at 400 V, 50 Hz, AC-3		See "Selection and Ordering Data"				
Incoming energy supply		M screw				
Motor feeder		M screw				
Rated operational current for starter I_e at 400 V AC		See "Selection and Ordering Data"				
Trip class		Class 10				
Type of coordination acc. to IEC 60947-4-1		1				
Short-circuit breaking capacity I_{cu} at 400 V AC	kA	50				
Brake version						
Operational voltage	V AC	--			400 or 230	
Uninterrupted current		--			Max. 5 % of I_e	
Short-circuit protection		--			Integrated	

MCU motor starters, locally controlled
Plastic enclosures, electromechanical switching

Overview

MCU, locally controlled, plastic enclosure

- For manual and automatic mode
- Direct-on-line or reversing starters up to 12 A at 400 V AC (50/60 Hz)
- Main control switch (red/yellow)
- Lockable with padlocks (max. 3 units)
- Integrated overload and short-circuit protection with SIRIUS 3RV motor starter protectors Class 10 with short-circuit breaking capacity I_{CU} = 50 kA at 400 V AC
- Overload protection with thermal release (bimetal)
- Plastic enclosures
- Degree of protection IP54
- Cable connections by means of M screws
- Main power loop possible (daisy chain; max. 2 x 6 mm^2)
- Key-operated switch for manual/automatic mode (MAN-0-AUTO)
- In manual mode the user can operate the motor with the knob-operated control switch using the ON function (0-ON) on the direct-on-line starter or the Forwards/Reverse function (Rev-0-For) on the reversing starter.
- Automatic mode: Through connection of one sensor on the direct-on-line starter or 2 sensors on the reversing starter for e. g. temperature, pressure, level etc., the motor can be controlled in automatic mode by the connected sensors.
- 4 x M20 glands enclosed

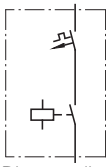
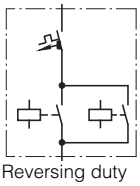


(1) Main switch
(2) Key-operated switch manual/automatic mode
(3) Knob-operated switch manual mode
(4) External sensor
(5) Main energy supply by means of M screws (max. 6 mm^2)
(6) Power loop-through connection possible (daisy chain)
(7) Load outgoing feeder by means of M screws

(Feeder positions only examples - feeders can be laid in all directions)

MCU, locally controlled, plastic enclosure, for manual and automatic mode

Selection and ordering data

Rated current I_e	Suitable for induction motors[1] with P	Setting range Thermal overload release	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
A	kW	A							kg
Direct-on-line starters									
 Direct-on-line start									
1	0.25	0.7 ... 1	C	**3RK43 53-3CR58-0BA0**		1	1 unit	121	1.300
1.25	0.37	0.9 ... 1.25	C	**3RK43 53-3DR58-0BA0**		1	1 unit	121	1.300
1.6	0.55	1.1 ... 1.6	C	**3RK43 53-3ER58-0BA0**		1	1 unit	121	1.300
2	0.75	1.4 ... 2	C	**3RK43 53-3FR58-0BA0**		1	1 unit	121	1.300
3.2	1.10	2.2 ... 3.2	C	**3RK43 53-3HR58-0BA0**		1	1 unit	121	1.300
4	1.50	2.8 ... 4	C	**3RK43 53-3JR58-0BA0**		1	1 unit	121	1.300
6.3	2.20	4.5 ... 6.3	C	**3RK43 53-3LR58-0BA0**		1	1 unit	121	1.300
8	3.00	5.5 ... 8	C	**3RK43 53-3MR58-0BA0**		1	1 unit	121	1.300
10	4.00	7 ... 10	C	**3RK43 53-3NR58-0BA0**		1	1 unit	121	1.300
12.5	5.50	9 ... 12.5	C	**3RK43 53-3PR58-0BA0**		1	1 unit	121	1.300
Reversing starters									
 Reversing duty									
1	0.25	0.7 ... 1	C	**3RK43 53-3CR58-1BA0**		1	1 unit	121	1.300
1.25	0.37	0.9 ... 1.25	C	**3RK43 53-3DR58-1BA0**		1	1 unit	121	1.300
1.6	0.55	1.1 ... 1.6	C	**3RK43 53-3ER58-1BA0**		1	1 unit	121	1.300
2	0.75	1.4 ... 2	C	**3RK43 53-3FR58-1BA0**		1	1 unit	121	1.300
3.2	1.10	2.2 ... 3.2	C	**3RK43 53-3HR58-1BA0**		1	1 unit	121	1.300
4	1.50	2.8 ... 4	C	**3RK43 53-3JR58-1BA0**		1	1 unit	121	1.300
6.3	2.20	4.5 ... 6.3	C	**3RK43 53-3LR58-1BA0**		1	1 unit	121	1.300
8	3.00	5.5 ... 8	C	**3RK43 53-3MR58-1BA0**		1	1 unit	121	1.300
10	4.00	7 ... 10	C	**3RK43 53-3NR58-1BA0**		1	1 unit	121	1.300
12.5	5.50	9 ... 12.5	C	**3RK43 53-3PR58-1BA0**		1	1 unit	121	1.300

[1] Guide value for 4-pole standard motors at AC 50 Hz 400 V. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

* You can order this quantity or a multiple thereof.

MCU motor starters, I/O-controlled
Plastic enclosures, electromechanical switching

Overview

MCU, I/O-controlled, plastic enclosure

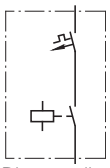
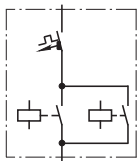
- Direct-on-line or reversing starters up to 12 A at 400 V AC (50/60 Hz)
- Repair switches (black/gray) lockable with padlocks (max. 3 units)
- Integrated overload and short-circuit protection with SIRIUS 3RV motor starter protectors Class 10 with short-circuit breaking capacity I_{CU} = 50 kA at 400 V AC
- Overload protection with thermal release (bimetal)
- Plastic enclosures
- Degree of protection IP55
- Cable connections by means of M screws
- Main power loop possible (daisy chain; max. 2 x 6 mm²)
- Control circuit: I/O-wiring; control inputs 24 V DC
- 4 x M20 glands enclosed

(1) Main control switch / repair switch
(2) Control inputs (24 V DC)
(3) Load outgoing feeder through M screw
(4) Main incoming power supply through M screw (max. 6 mm²)
(5) Main power loop possible (daisy chain)

(position of outgoing units as example – outgoing units are possible on all sides)

MCU, I/O-controlled, plastic enclosure

Selection and ordering data

	Rated current I_e	Suitable for induction motors[1] with P	Setting range Thermal overload release	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	A	kW	A							kg
Direct-on-line starters										
 Direct-on-line start	0.63	0.18	0.45 ... 0.63	C	**3RK43 40-3AR51-0BA0**		1	1 unit	121	1.200
	0.8	0.18	0.55 ... 0.8	C	**3RK43 40-3BR51-0BA0**		1	1 unit	121	1.200
	1	0.25	0.7 ... 1	C	**3RK43 40-3CR51-0BA0**		1	1 unit	121	1.200
	1.25	0.37	0.9 ... 1.25	C	**3RK43 40-3DR51-0BA0**		1	1 unit	121	1.200
	1.6	0.55	1.1 ... 1.6	C	**3RK43 40-3ER51-0BA0**		1	1 unit	121	1.200
	2	0.75	1.4 ... 2	C	**3RK43 40-3FR51-0BA0**		1	1 unit	121	1.200
	2.5	0.75	1.8 ... 2.5	C	**3RK43 40-3GR51-0BA0**		1	1 unit	121	1.200
	3.2	1.10	2.2 ... 3.2	C	**3RK43 40-3HR51-0BA0**		1	1 unit	121	1.200
	4	1.50	2.8 ... 4	C	**3RK43 40-3JR51-0BA0**		1	1 unit	121	1.200
	5	1.50	3.5 ... 5	C	**3RK43 40-3KR51-0BA0**		1	1 unit	121	1.200
	6.3	2.20	4.5 ... 6.3	C	**3RK43 40-3LR51-0BA0**		1	1 unit	121	1.200
	8	3.00	5.5 ... 8	C	**3RK43 40-3MR51-0BA0**		1	1 unit	121	1.200
	10	4.00	7 ... 10	C	**3RK43 40-3NR51-0BA0**		1	1 unit	121	1.200
	12.5	5.50	9 ... 12.5	C	**3RK43 40-3PR51-0BA0**		1	1 unit	121	1.200
Reversing starters										
 Reversing duty	0.63	0.18	0.45 ... 0.63	C	**3RK43 40-3AR51-1BA0**		1	1 unit	121	1.200
	0.8	0.18	0.55 ... 0.8	C	**3RK43 40-3BR51-1BA0**		1	1 unit	121	1.200
	1	0.25	0.7 ... 1	C	**3RK43 40-3CR51-1BA0**		1	1 unit	121	1.200
	1.25	0.37	0.9 ... 1.25	C	**3RK43 40-3DR51-1BA0**		1	1 unit	121	1.200
	1.6	0.55	1.1 ... 1.6	C	**3RK43 40-3ER51-1BA0**		1	1 unit	121	1.200
	2	0.75	1.4 ... 2	C	**3RK43 40-3FR51-1BA0**		1	1 unit	121	1.200
	2.5	0.75	1.8 ... 2.5	C	**3RK43 40-3GR51-1BA0**		1	1 unit	121	1.200
	3.2	1.10	2.2 ... 3.2	C	**3RK43 40-3HR51-1BA0**		1	1 unit	121	1.200
	4	1.50	2.8 ... 4	C	**3RK43 40-3JR51-1BA0**		1	1 unit	121	1.200
	5	1.50	3.5 ... 5	C	**3RK43 40-3KR51-1BA0**		1	1 unit	121	1.200
	6.3	2.20	4.5 ... 6.3	C	**3RK43 40-3LR51-1BA0**		1	1 unit	121	1.200
	8	3.00	5.5 ... 8	C	**3RK43 40-3MR51-1BA0**		1	1 unit	121	1.200
	10	4.00	7 ... 10	C	**3RK43 40-3NR51-1BA0**		1	1 unit	121	1.200
	12.5	5.50	9 ... 12.5	C	**3RK43 40-3PR51-1BA0**		1	1 unit	121	1.200

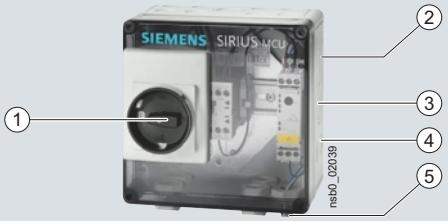
[1] Guide value for 4-pole standard motors at AC 50 Hz 400 V. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

* You can order this quantity or a multiple thereof.

Overview

MCU for AS-i, plastic enclosure

- Direct-on-line or reversing starters up to 12 A at 400 V AC (50/60 Hz)
- Repair switches (black/gray) lockable with padlocks (max. 3 units)
- Integrated overload and short-circuit protection with SIRIUS 3RV motor starter protectors Class 10 with short-circuit breaking capacity I_{CU} = 50 kA at 400 V AC
- Overload protection with thermal release (bimetal)
- Transparent plastic enclosure with LED status displays for monitoring the AS-i status
- Degree of protection IP55
- Cable connections by means of M screws
- Main power loop possible (daisy chain; max. 2 x 6 mm²)
- AS-Interface through M12 plug-in terminal
- 4 x M20 glands enclosed
- Communication: AS-Interface 2I/2O (standard slaves)



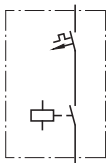
(1) Main control switch / repair switch
(2) Load outgoing feeder through M screw
(3) Main incoming power supply through M screw (max. 6 mm²)
(4) Main power loop possible (daisy chain)
(5) AS-i communication / U_{aux} (24 V DC) through M12 plug

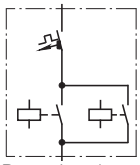
(position of outgoing units as example – outgoing units are possible on all sides)

MCU for AS-i, plastic enclosure

Selection and ordering data

Rated current I_e	Suitable for induction motors[1] with P	Setting range Thermal overload release	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
A	kW	A							kg
Direct-on-line starters									
0.63	0.18	0.45 ... 0.63	C	**3RK43 20-3AR51-0BA0**		1	1 unit	121	1.500
0.8	0.18	0.55 ... 0.8	C	**3RK43 20-3BR51-0BA0**		1	1 unit	121	1.500
1	0.25	0.7 ... 1	C	**3RK43 20-3CR51-0BA0**		1	1 unit	121	1.500
1.25	0.37	0.9 ... 1.25	C	**3RK43 20-3DR51-0BA0**		1	1 unit	121	1.500
1.6	0.55	1.1 ... 1.6	C	**3RK43 20-3ER51-0BA0**		1	1 unit	121	1.500
2	0.75	1.4 ... 2	C	**3RK43 20-3FR51-0BA0**		1	1 unit	121	1.500
2.5	0.75	1.8 ... 2.5	C	**3RK43 20-3GR51-0BA0**		1	1 unit	121	1.500
3.2	1.10	2.2 ... 3.2	C	**3RK43 20-3HR51-0BA0**		1	1 unit	121	1.500
4	1.50	2.8 ... 4	C	**3RK43 20-3JR51-0BA0**		1	1 unit	121	1.500
5	1.50	3.5 ... 5	C	**3RK43 20-3KR51-0BA0**		1	1 unit	121	1.500
6.3	2.20	4.5 ... 6.3	C	**3RK43 20-3LR51-0BA0**		1	1 unit	121	1.500
8	3.00	5.5 ... 8	C	**3RK43 20-3MR51-0BA0**		1	1 unit	121	1.500
10	4.00	7 ... 10	C	**3RK43 20-3NR51-0BA0**		1	1 unit	121	1.500
12.5	5.50	9 ... 12.5	C	**3RK43 20-3PR51-0BA0**		1	1 unit	121	1.500
Reversing starters									
0.63	0.18	0.45 ... 0.63	C	**3RK43 20-3AR51-1BA0**		1	1 unit	121	1.800
0.8	0.18	0.55 ... 0.8	C	**3RK43 20-3BR51-1BA0**		1	1 unit	121	1.800
1	0.25	0.7 ... 1	C	**3RK43 20-3CR51-1BA0**		1	1 unit	121	1.800
1.25	0.37	0.9 ... 1.25	C	**3RK43 20-3DR51-1BA0**		1	1 unit	121	1.800
1.6	0.55	1.1 ... 1.6	C	**3RK43 20-3ER51-1BA0**		1	1 unit	121	1.800
2	0.75	1.4 ... 2	C	**3RK43 20-3FR51-1BA0**		1	1 unit	121	1.800
2.5	0.75	1.8 ... 2.5	C	**3RK43 20-3GR51-1BA0**		1	1 unit	121	1.800
3.2	1.10	2.2 ... 3.2	C	**3RK43 20-3HR51-1BA0**		1	1 unit	121	1.800
4	1.50	2.8 ... 4	C	**3RK43 20-3JR51-1BA0**		1	1 unit	121	1.800
5	1.50	3.5 ... 5	C	**3RK43 20-3KR51-1BA0**		1	1 unit	121	1.800
6.3	2.20	4.5 ... 6.3	C	**3RK43 20-3LR51-1BA0**		1	1 unit	121	1.800
8	3.00	5.5 ... 8	C	**3RK43 20-3MR51-1BA0**		1	1 unit	121	1.800
10	4.00	7 ... 10	C	**3RK43 20-3NR51-1BA0**		1	1 unit	121	1.800
12.5	5.50	9 ... 12.5	C	**3RK43 20-3PR51-1BA0**		1	1 unit	121	1.800


Direct-on-line start


Reversing duty

[1] Guide value for 4-pole standard motors at AC 50 Hz 400 V. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

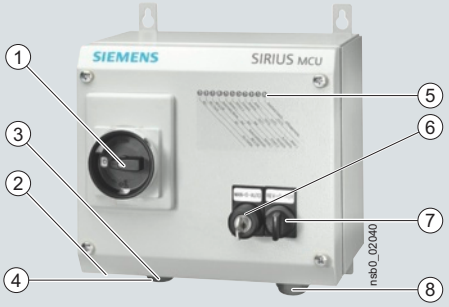
* You can order this quantity or a multiple thereof.

MCU motor starters for AS-Interface
Metal enclosures, electromechanical switching

Overview

MCU for AS-i, metal enclosure, electromechanical

- Direct-on-line or reversing starters up to 12 A
- Repair switches (black/gray) lockable with padlocks (max. 3 units)
- Short-circuit protection with SIRIUS 3RV motor starter protectors Class 10 with short-circuit breaking capacity I_{cu} = 50 kA at 400 V AC
- Overload protection with thermal release (bimetal)
- Manual operation and key-operated switch for operating mode selection
- LED status display of the operating states
- Metal enclosures
- Degree of protection IP54
- Switched brake control 400 V or 230 V
- Cable connections by means of M screws
- Main power loop possible (daisy chain; max. 2 x 6 mm^2)
- 2 x M25 glands
- 1 x M12 plug for AS-i/auxiliary voltage (24 V DC)
- 2 × M12 socket for connection of 2 sensors
- 1 × M12 socket for connection of one actuator
- Communication: AS-Interface 4I/3O (slaves in A/B technology can be addressed)

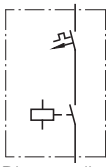


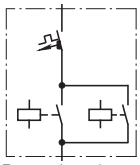
1. Main control switch / repair switch
2. Main incoming power supply (400 V AC) through M screw
3. AS-i communication / U_{aux} (24 V DC) through M12 plug
4. 2 sensor inputs (M12 socket), 1 actuator output (M12 socket)
5. LED status displays of the operating states
6. Key-operated switch: Manual-0-Auto
7. Manual operation: ON/OFF or Left-0-Right (selector button)
8. Load outgoing feeder through M screw

MCU for AS-i, metal enclosure, electromechanical switching

Selection and ordering data

Rated current I_e	Suitable for induction motors[1] with P	Setting range Thermal overload release	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
A	kW	A							kg
Direct-on-line starters									
0.63	0.18	0.45 ... 0.63	C	**3RK43 20-3AQ54- 0BA□**		1	1 unit	121	5.900
0.8	0.18	0.55 ... 0.8	C	**3RK43 20-3BQ54- 0BA□**		1	1 unit	121	5.900
1	0.25	0.7 ... 1	C	**3RK43 20-3CQ54- 0BA□**		1	1 unit	121	5.900
1.25	0.37	0.9 ... 1.25	C	**3RK43 20-3DQ54- 0BA□**		1	1 unit	121	5.900
1.6	0.55	1.1 ... 1.6	C	**3RK43 20-3EQ54- 0BA□**		1	1 unit	121	5.900
2	0.75	1.4 ... 2	C	**3RK43 20-3FQ54- 0BA□**		1	1 unit	121	5.900
2.5	0.75	1.8 ... 2.5	C	**3RK43 20-3GQ54- 0BA□**		1	1 unit	121	5.900
3.2	1.10	2.2 ... 3.2	C	**3RK43 20-3HQ54- 0BA□**		1	1 unit	121	5.900
4	1.50	2.8 ... 4	C	**3RK43 20-3JQ54- 0BA□**		1	1 unit	121	5.900
5	1.50	3.5 ... 5	C	**3RK43 20-3KQ54- 0BA□**		1	1 unit	121	5.900
6.3	2.20	4.5 ... 6.3	C	**3RK43 20-3LQ54- 0BA□**		1	1 unit	121	5.900
8	3.00	5.5 ... 8	C	**3RK43 20-3MQ54- 0BA□**		1	1 unit	121	5.900
10	4.00	7 ... 10	C	**3RK43 20-3NQ54- 0BA□**		1	1 unit	121	5.900
12.5	5.50	9 ... 12.5	C	**3RK43 20-3PQ54- 0BA□**		1	1 unit	121	5.900
Brake control / V					*Additional price*				
• 230					**2** None				
• 400					**3** None				
Reversing starters									
0.63	0.18	0.45 ... 0.63	C	**3RK43 20-3AQ54- 1BA□**		1	1 unit	121	6.600
0.8	0.18	0.55 ... 0.8	C	**3RK43 20-3BQ54- 1BA□**		1	1 unit	121	6.600
1	0.25	0.7 ... 1	C	**3RK43 20-3CQ54- 1BA□**		1	1 unit	121	6.600
1.25	0.37	0.9 ... 1.25	C	**3RK43 20-3DQ54- 1BA□**		1	1 unit	121	6.600
1.6	0.55	1.1 ... 1.6	C	**3RK43 20-3EQ54- 1BA□**		1	1 unit	121	6.600
2	0.75	1.4 ... 2	C	**3RK43 20-3FQ54- 1BA□**		1	1 unit	121	6.600
2.5	0.75	1.8 ... 2.5	C	**3RK43 20-3GQ54- 1BA□**		1	1 unit	121	6.600
3.2	1.10	2.2 ... 3.2	C	**3RK43 20-3HQ54- 1BA□**		1	1 unit	121	6.600
4	1.50	2.8 ... 4	C	**3RK43 20-3JQ54- 1BA□**		1	1 unit	121	6.600
5	1.50	3.5 ... 5	C	**3RK43 20-3KQ54- 1BA□**		1	1 unit	121	6.600
6.3	2.20	4.5 ... 6.3	C	**3RK43 20-3LQ54- 1BA□**		1	1 unit	121	6.600
8	3.00	5.5 ... 8	C	**3RK43 20-3MQ54- 1BA□**		1	1 unit	121	6.600
10	4.00	7 ... 10	C	**3RK43 20-3NQ54- 1BA□**		1	1 unit	121	6.600
12.5	5.50	9 ... 12.5	C	**3RK43 20-3PQ54- 1BA□**		1	1 unit	121	6.600
Brake control / V					*Additional price*				
• 230					**2** None				
• 400					**3** None				


Direct-on-line start


Reversing duty

[1] Guide value for 4-pole standard motors at AC 50 Hz 400 V. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

6

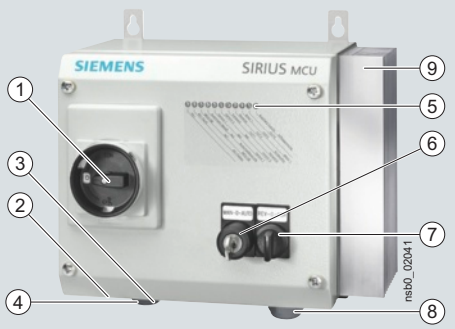
* You can order this quantity or a multiple thereof.

MCU motor starters for AS-Interface
Metal enclosures, electronic switching

Overview

MCU for AS-i, metal enclosure, electronic

- Direct-on-line or reversing starters up to 12 A
- Switching frequency up to 3600/h
- Repair switches (black/gray) lockable with padlocks (max. 3 units)
- Short-circuit protection with SIRIUS 3RV motor starter protector
- Overload protection with solid-state overload relay
- Manual operation and key-operated switch for operating mode selection
- LED status display of the operating states
- Metal enclosures
- Degree of protection IP54
- Switched brake control 400 V or 230 V
- Cable connections by means of M screws
- Main power loop possible (daisy chain; max. 2 x 6 mm^2)
- 2 x M25 glands
- 1 x M12 plug for AS-i/auxiliary voltage (24 V DC)
- 2 × M12 plugs for connection of 2 sensors
- 1 × M12 socket for connection of one actuator
- Communication: AS-Interface 4I/3O (slaves in A/B technology can be addressed)

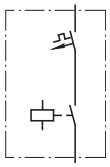


1 Main control switch / repair switch
2 Main incoming power supply (400 V AC) through M screw
3 AS-i communication / U_{aux} (24 V DC) through M12 plug
4 2 sensor inputs (M12 socket), 1 actuator output (M12 socket)
5 LED status displays of the operating states
6 Key-operated switch: Manual-0-Auto
7 Manual operation: ON/OFF or Left-0-Right (selector button)
8 Load outgoing feeder through M screw
9 Heat sink

MCU for AS-i, metal enclosure, electronic switching

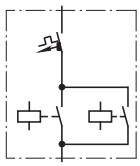
Selection and ordering data

Rating for induction motor Rated value[1]	Set current value of the inverse-time delayed overload release I_e	Brake control	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
kW	A	V							kg
Direct-on-line starters									
0.12 … 0.37	0.32 … 1.25	230	C	**3RK43 20-5DQ64-0BA2**		1	1 unit	121	6.400
0.55 … 1.5	1 … 4	230	C	**3RK43 20-5JQ64-0BA2**		1	1 unit	121	6.400
1.1 … 5.5	3 … 12	230	C	**3RK43 20-5PQ64-0BA2**		1	1 unit	121	6.400
0.12 … 0.37	0.32 … 1.25	400	C	**3RK43 20-5DQ64-0BA3**		1	1 unit	121	6.600
0.55 … 1.5	1 … 4	400	C	**3RK43 20-5JQ64-0BA3**		1	1 unit	121	6.400
1.1 … 5.5	3 … 12	400	C	**3RK43 20-5PQ64-0BA3**		1	1 unit	121	6.400



Direct-on-line start

Reversing starters									
0.12 … 0.37	0.32 … 1.25	230	C	**3RK43 20-5DQ64-1BA2**		1	1 unit	121	6.600
0.55 … 1.5	1 … 4	230	C	**3RK43 20-5JQ64-1BA2**		1	1 unit	121	6.600
1.1 … 5.5	3 … 12	230	C	**3RK43 20-5PQ64-1BA2**		1	1 unit	121	6.600
0.12 … 0.37	0.32 … 1.25	400	C	**3RK43 20-5DQ64-1BA3**		1	1 unit	121	6.600
0.55 … 1.5	1 … 4	400	C	**3RK43 20-5JQ64-1BA3**		1	1 unit	121	6.600
1.1 … 5.5	3 … 12	400	C	**3RK43 20-5PQ64-1BA3**		1	1 unit	121	6.600



Reversing duty

[1] Guide value for 4-pole standard motors at AC 50 Hz 400 V. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

* You can order this quantity or a multiple thereof.

Overview

The MCU motor starters are equipped with standardized interfaces for data and energy (option).

For field and power bus technology for distributed configurations in a high degree of protection, see also "Energy Communication Field Installation System" on page 6/158.

Connection technology products coordinated with the SIRIUS MCU motor starters can be found at our "Siemens Solution Partners" www.siemens.com/automation/partnerfinder under "Distributed Field Installation System" technology.

General data

Overview

The 3RE1 encapsulated starters are available as direct-on-line starters and as reversing starters.

Direct-on-line starters

The direct-on-line starters are available in three sizes:

- Size **S00** is suitable for induction motors up to 5.5 kW with 400 V AC and a maximum rated motor current of 12 A. The starters are available in the following two versions:
  - Molded-plastic enclosure for direct-on-line starters including contactor – in this case the overload relay must be selected and ordered according to the rated motor current.
  - Molded-plastic enclosure for direct-on-line starters (without contactor) – in this case the contactor and overload relay must be selected and ordered separately.
- Size **S0** is suitable for induction motors up to 11 kW with 400 V AC and a maximum rated motor current of 25 A. The starters are available in the following two versions:
  - Molded-plastic enclosure for direct-on-line starters including contactor – in this case the overload relay must be selected and ordered according to the rated motor current.
  - Molded-plastic enclosure for direct-on-line starters (without contactor) – in this case the contactor, auxiliary switch and overload relay must be selected and ordered separately.
- Size **S2** is suitable for induction motors up to 22 kW with 400 V AC and a maximum rated motor current of 50 A. The starters are available in the following versions:
  - Molded-plastic enclosure for direct-on-line starters (without contactor) – in this case the contactor, auxiliary switch and overload relay must be selected and ordered separately.

Reversing starters

The reversing starters are available in two sizes:

- Size **S00** is suitable for induction motors up to 5.5 kW with 400 V AC and a maximum rated motor current of 12 A. The starters are available in the following two versions:
  - Molded-plastic enclosure for reversing starters including contactor assembly – in this case the overload relay must be selected and ordered according to the rated motor current.
  - Molded-plastic enclosure for reversing starters (without contactor assembly) – in this case the contactor assembly, auxiliary switch and overload relay must be selected and ordered separately.
- Size **S0** is suitable for induction motors up to 11 kW with 400 V AC and a maximum rated motor current of 25 A. The starters are available in the following versions:
  - Molded-plastic enclosure for direct-on-line starters (without contactor assembly) – in this case the contactor assembly, auxiliary switch and overload relay must be selected and ordered separately.

Benefits

The 3RE1 encapsulated starters are enclosed with a high degree of protection (IP65) and are used for the switching and inverse-time delayed protection of loads. They are ideally suited for implementation directly at the machine.

Application

The 3RE1 encapsulated starters are used for switching and for the inverse-time delayed protection of load feeders up to 22 kW at 400 V AC.

The starters are available as direct-on-line starters for motors with a single direction of rotation and as reversing starters for motors with two directions of rotation.

Selection and ordering data

Size	Rated data Utilization category AC-2/AC-3 T_u: up to + 35 °C		Rated control supply voltage U_s		DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Operational current I_e at 400 V	Output of induction motors at 400 V/50 Hz				Order No. Price per PU				
	A	kW	V	At Hz						kg
Direct-on-line starters including contactor										
S00	12	5.5	230 AC	50 / 60	B	**3RE10 10-8XC17-0AP0**	1	1 unit	101	0.510
			400 AC	50 / 60	B	**3RE10 10-8XC17-0AV0**	1	1 unit	101	0.510
S0	17	7.5	230 AC	50	B	**3RE10 20-8XC25-0AP0**	1	1 unit	101	0.830
			400 AC	50	B	**3RE10 20-8XC25-0AV0**	1	1 unit	101	0.810
	25	11	230 AC	50	B	**3RE10 20-8XC26-0AP0**	1	1 unit	101	0.830
			400 AC	50	B	**3RE10 20-8XC26-0AV0**	1	1 unit	101	0.810


3RE10 10

Reversing starters including contactor assembly

S00	12	5.5	230 AC	50 / 60	B	**3RE13 10-8XC17-0AP0**	1	1 unit	101	1.000
			400 AC	50 / 60	B	**3RE13 10-8XC17-0AV0**	1	1 unit	101	2.460


3RE13 10

Version	For contactor overload relays	DT	Order No. Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Size						kg
Enclosures for direct-on-line starters							
Molded-plastic enclosures for surface mounting							
Degree of protection IP65, with actuators, with metric cable gland							
• With PE terminal	S00	B	**3RE19 13-1CB1**	1	1 unit	101	0.320
• With N and PE terminals	S0	B	**3RE19 23-1CB2**	1	1 unit	101	0.450
• With N and PE terminals	S2	B	**3RE19 33-1CB3**	1	1 unit	101	1.000


3RE19 23-1CB2

Enclosures for reversing starters

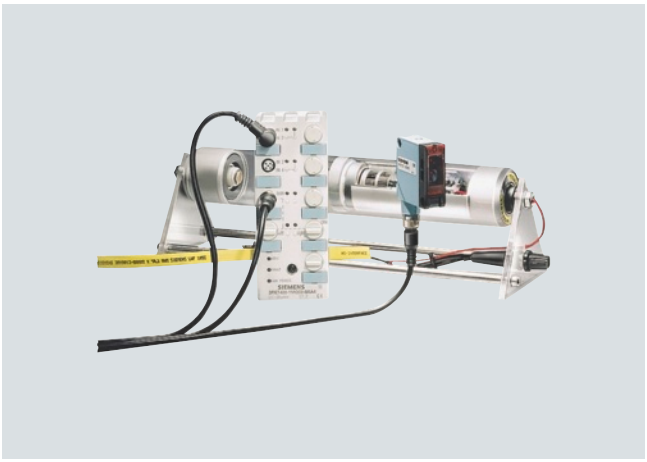
Molded-plastic enclosures for surface mounting							
Degree of protection IP65, with actuators, with metric cable gland							
• With N and PE terminals	S00/S0	B	**3RE19 13-2CB3**	1	1 unit	101	1.020


3RE19 23-2CB3

* You can order this quantity or a multiple thereof.

General data

Overview



Connection of an actuator roller with integrated DC motor to an AS-Interface 24 V DC motor starter

With the K60 AS-Interface 24 V DC motor starters for the low-end performance range up to 70 W, it is now possible to connect 24 V DC motors and the associated sensors directly to the AS-Interface quickly and easily.

Three different versions are available:

- Single direct-on-line starters (without brake and reversible quick-stop function)
- Double direct-on-line starters (with brake and reversible quick-stop function)
- Reversing starters (with brake and reversible quick-stop function)

DC motors are connected to the module using M12 plug-in connections. The sensors and the module electronics can be supplied from the yellow AS-Interface cable. An auxiliary voltage (24 V DC) is only required for supplying the outputs, which can be provided via the black AS-Interface cable.

Quick-stop function

All AS-Interface 24 V DC motor starters feature a quick-stop function which can be switched on and off as required using a switch integrated into the module. The quick-stop function allows a connected motor to be disconnected immediately using an applied sensor signal (High). The switch for the quick-stop function is located alongside the input sockets and is protected by an M12 sealing cap.

Brake

The double direct-on-line starter and the single reversing starter versions feature an integrated permanently set brake function, i. e. as soon as the output signal is set to "0", the motor is braked.

Start-up using integrated buttons

Buttons integrated into the module (below the output sockets) can be used to set the motor used. The buttons are protected by an M12 sealing cap.

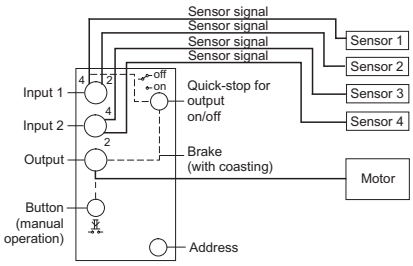
Note:
Concerning double and reversing starters: *If an input with the quick-stop function receives a "High" signal, the corresponding output (e. g. quick-stop input 1 –> output 1) is switched off within the device (the motor is braked). The manual key function (Key 1/2) for local operation is only permitted to be used during "CPU Stop" in the higher-level PLC.*

Note:
Concerning single direct-on-line starters: *If an input with the quick-stop function receives a "High" signal, the corresponding output (e. g. quick-stop input 1 –> output 1) is switched off within the device (the motor runs down without being braked). The manual key function (Key 1) for local operation is only permitted to be used during "CPU Stop" in the higher-level PLC.*

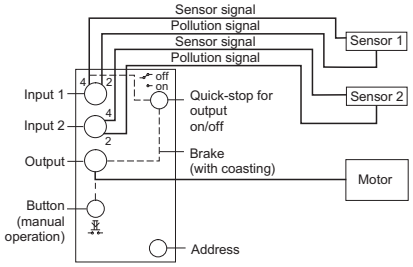
Applications

Single direct starter without brake
(with adjustable quick-stop function)

1st possibility: Connection to a maximum of four sensors without pollution indication

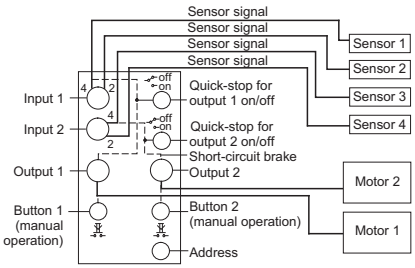


2nd possibility: Connection to a maximum of two sensors with pollution indication

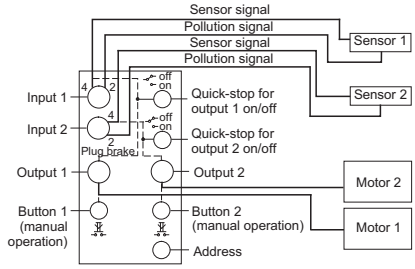


Double direct starter with brake
(with adjustable quick-stop function)

1st possibility: Connection to a maximum of four sensors without pollution indication

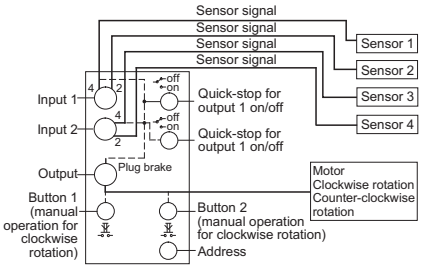


2nd possibility: Connection to a maximum of two sensors with pollution indication

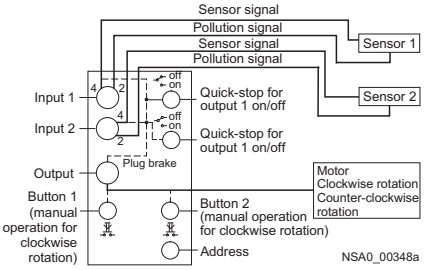


Single reversing starter with brake
(with adjustable quick-stop function)

1st possibility: Connection to a maximum of four sensors without pollution indication



2nd possibility: Connection to a maximum of two sensors with pollution indication



Selection and ordering data

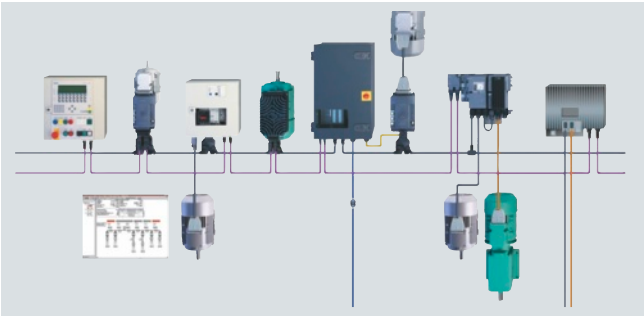
	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Motor starters								
 3RK1 400-1MQ01-0AA4	**Single direct-on-line starters**[1)] 4 inputs 1 output Quick-stop function	C	**3RK1 400-1NQ01-0AA4**		1	1 unit	121	0.205
	Double direct-on-line starters[1)] 4 inputs 2 outputs Quick-stop function	B	**3RK1 400-1MQ01-0AA4**		1	1 unit	121	0.208
	Single reversing starters[1)] 4 inputs 1 output Quick-stop function	C	**3RK1 400-1MQ03-0AA4**		1	1 unit	121	0.218
Accessories								
 3RK1 901-0CA00	**K60 mounting plates** Suitable for all K60 compact modules							
	• Wall mounting	►	**3RK1 901-0CA00**		1	1 unit	121	0.065
	• Standard rail mounting	►	**3RK1 901-0CB01**		1	1 unit	121	0.095
 3RK1 901-1KA00	**AS-Interface sealing caps M12** For free M12 sockets	►	**3RK1 901-1KA00**		100	10 units	121	0.100
 3RK1 901-1KA01	**AS-Interface sealing caps M12, tamper-proof** For free M12 sockets	A	**3RK1 901-1KA01**		100	10 units	121	0.100
 3RK1 902-0AR00	**Sealing sets** • For K60 mounting plate and standard distributor • Cannot be used for K45 mounting plate • Set contains one straight and one shaped seal	A	**3RK1 902-0AR00**		100	5 units	121	0.100

[1)] Modules supplied without mounting plate.

* You can order this quantity or a multiple thereof.

General data

Overview



Modern field and power bus technologies open up countless possibilities and unprecedented savings potential.

ECOFAST (Energy and Communication Field Installation System) connects the components of an automation system (such as switching and and control devices, I/O stations, motors and geared motors) using a uniform, standardized connection method for data and power.

ECOFAST is a solution for decentralization outside the control cabinet, with standardized connection methods for all components on a distributed installation basis, consistent for PROFIBUS DP and AS-Interface. ECOFAST sets standards in equipping machines and plants for automation, low-voltage controlgear and drives. ECOFAST is centered on the extensive decentralization and modularization of installations, combined with comprehensive diagnostics down to the component level.

Modern field and power bus technologies open up new possibilities for machinery and plant engineering. Solutions of distributed design are flexible and can be adapted to the various requirements of industrial automation.

This gives rise to advantages in terms of overall process costs. The standardized distributed installation technology with a high degree of protection (IP65) produces savings during

- Configuration
- Wiring
- Mounting
- Start-up
- Operation

Features

- ECOFAST is a solution for a wide range of automation, drive and installation components with a high degree of protection.
- All interfaces on ECOFAST comply with the ISO 23570 standard.
- With ECOFAST, power and information are distributed and transmitted in a line.
- Parameters and control and diagnostics functionality are transmitted through PROFIBUS or AS-Interface for fast operation start-ups and troubleshooting.
- A configuring tool for the energy supply system improves the configuration appreciably.
- A parameterizing tool provides user-friendly support with entering all the motor starter data.
- ECOFAST connects the components of an automation system using a uniform, standardized connection method for data and power in accordance with ISO 23570.

Shorter time frames

With ECOFAST it is possible to shorten the time frames for the tendering, planning and configuring of machines and plants:

- Modular planning of machines and plants
- Compiling tenders from ready-made modules
- Faster construction and mounting
- Cabinet-free construction with a high degree of protection
- Use of prefabricated and tested function units
- Faster mounting on site
- Smaller plant footprints

Fast and smooth start-up

ECOFAST enables the fast and smooth start-up of automation and drive systems:

- Minimization of error sources through standardized interfaces and plug-in connectors
- Extensive diagnostics on the device and though the bus
- Improved EMC through direct coupling of switching unit and drive

High plant availability

ECOFAST maintains a high level of plant availability:

- Reduction of downtimes thanks to the speedy and safe exchange of devices
- No interruption of the power and field bus while devices are being exchanged
- Automatic parameterizing when devices are exchanged
- Extensive status and diagnostics information
- Transmission of operating parameters (e. g. current values or status messages)

Components connected by ECOFAST

- Switchgear and control devices (direct-on-line starters, reversing starters, soft starters, frequency converters)
  - For near-motor or motor-mounted installation
  - As a stand-alone device or as an island solution
- I/O stations
- Motors and geared motors

Effective connection is provided by:

- Installation components (cables, connectors etc. for communication and power)
- Configuration and parameterization software

Configuring tool ECOFAST ES and parameterizing tool Motor Starter ES

The two software tools, ECOFAST ES and Motor Starter ES, support configuration and parameterization in the ECOFAST system.

ECOFAST ES is a user-friendly and powerful configuring tool for configuring the supply system and for testing the plant.

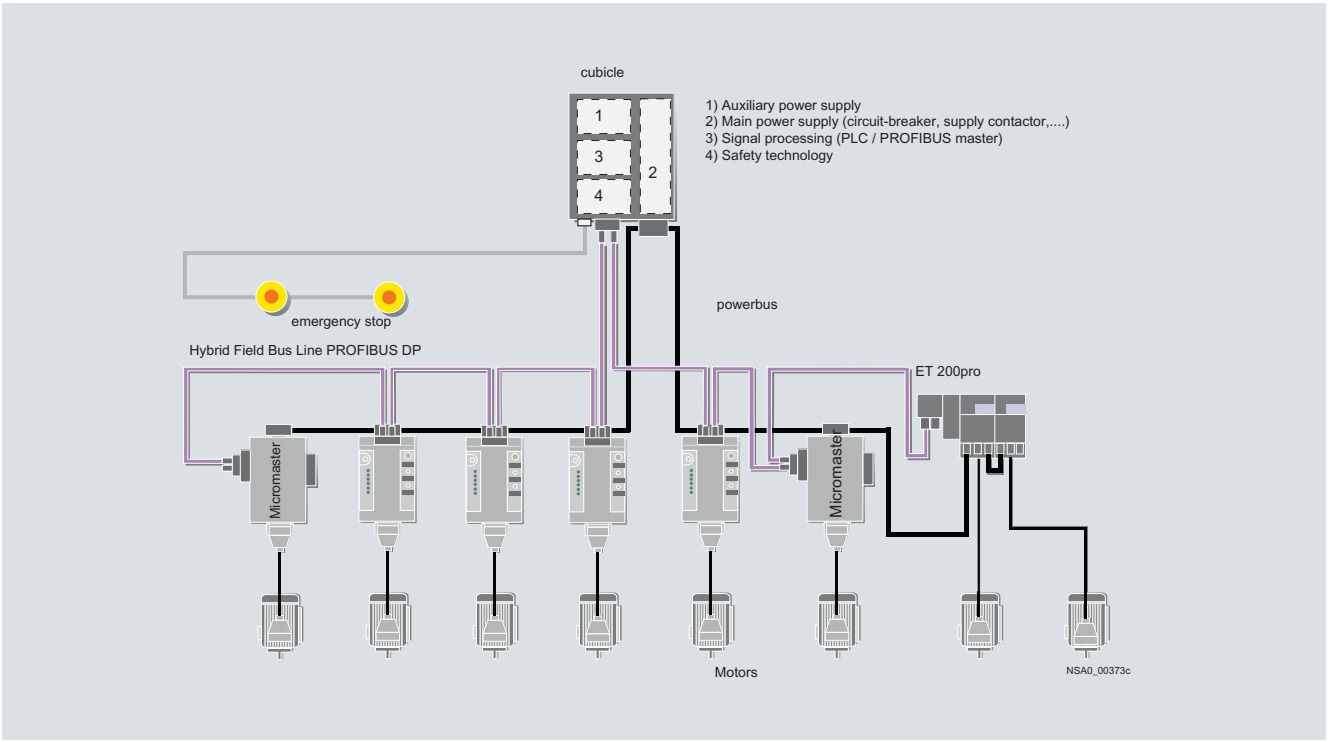
Motor Starter ES is a tool for parameterizing and diagnosing the motor starters (stand-alone devices) in the ECOFAST system.

The ECOFAST network topology

The following network hardware is integrated:

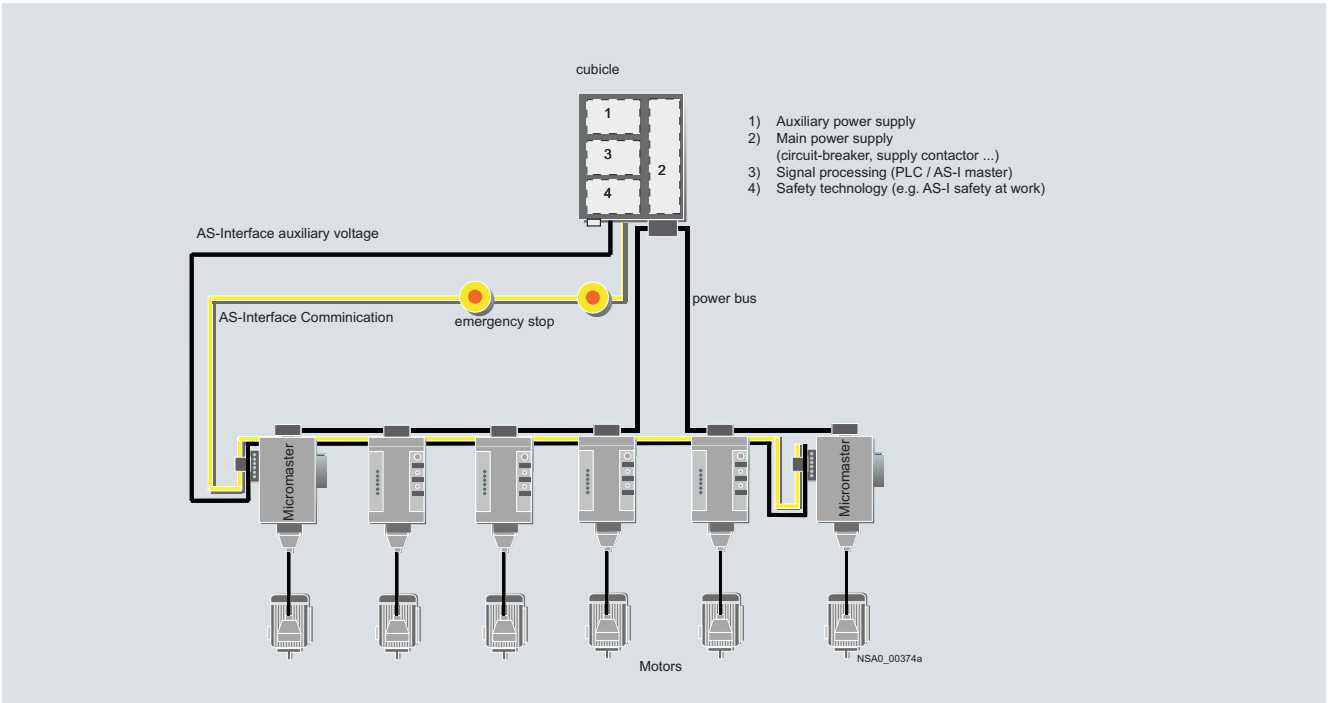
- Power cable 2.5 mm^2 / 4 mm^2 / 6 mm^2 with/without Han Q4/2 power T / double-T clamping connector
- Han-Brid data cable with integrated auxiliary voltage of 2 x 24 V and PROFIBUS DP protocol in copper and FO cable technology
- AS-Interface cable with insulation piercing method and integrated auxiliary voltage

PROFIBUS DP



PROFIBUS DP network topology

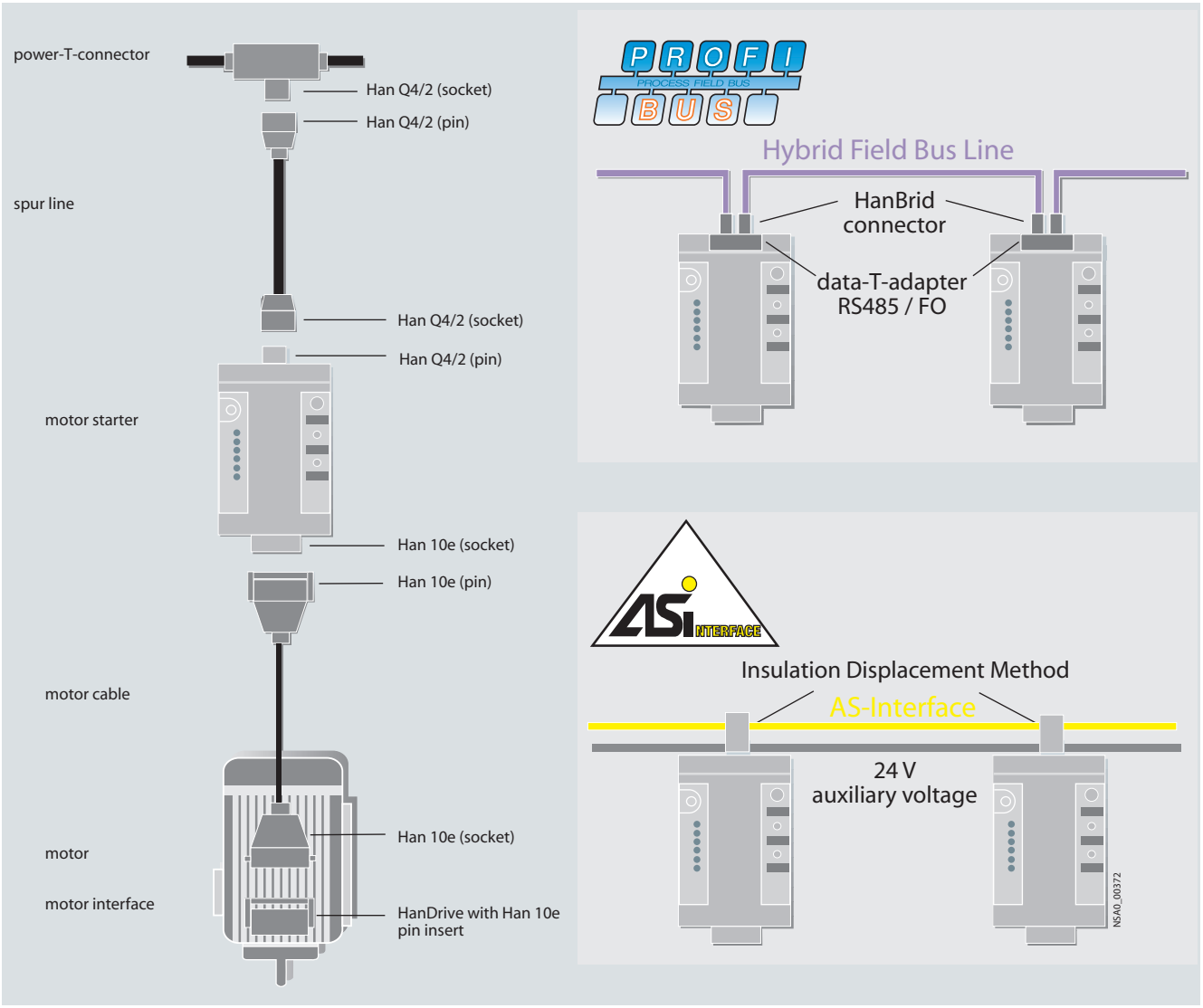
AS-Interface



AS-Interface network topology

General data

Interface overview



Schematic interface overview (power bus on left, communication bus on right)

All interfaces for communication and power are standardized and comply with the ISO 23570 standard.

Communication through PROFIBUS DP

- Hybrid cable for PROFIBUS DP (switched and non-switched auxiliary voltage)
- Connection through HanBrid plug-in connectors
- Transmission media: RS 485 or FO
- Data T piece for interruption-free operation (with RS 485)

Communication through AS-Interface

Connection by insulation piercing method

Power bus

- Shock-hazard-protected connection method
- Connection through HanQ4/2 connector
- Power T / double-T clamping connector for interruption-free operation

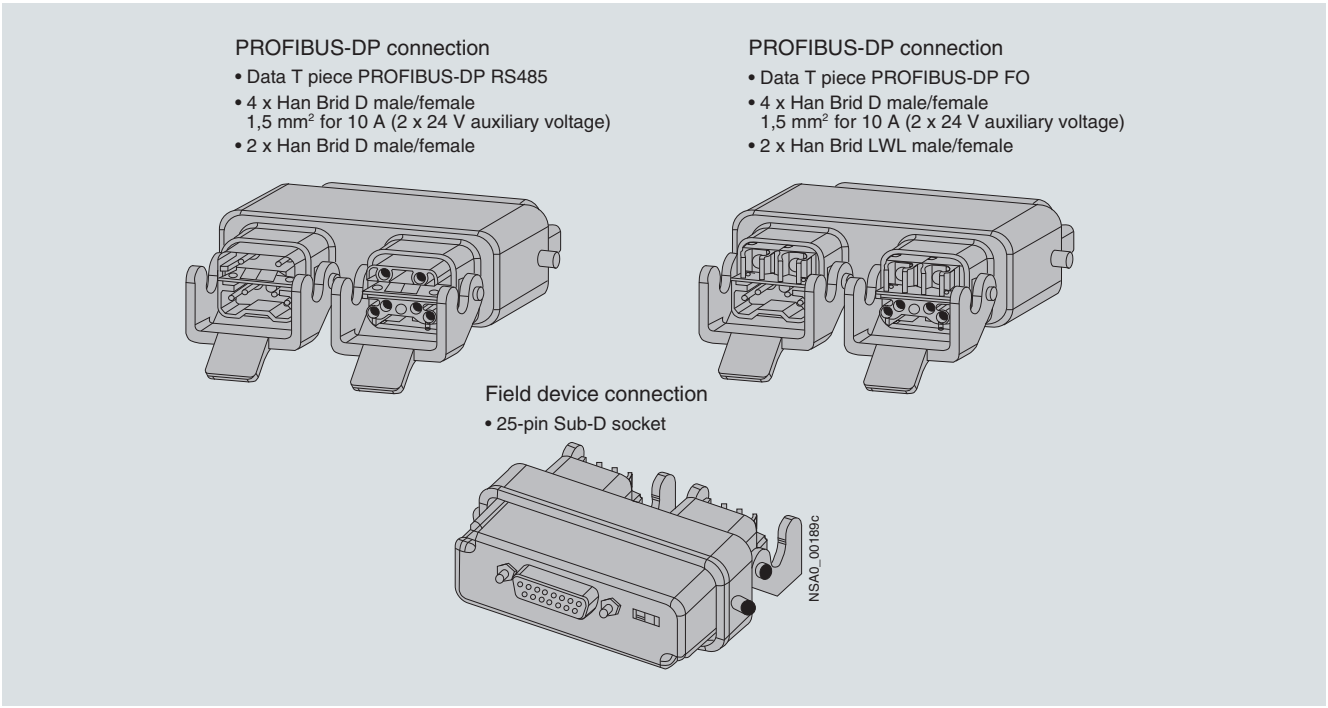
Motor connection

- Connection through Han10e plug-in connector on the switching device (for ET 200pro/M200D in Han Q8 version)
- Connection through HanDrive/10e connector on the motor
- Motor connection cable in shielded or non-shielded version: Use of a frequency converter requires EMC shielding

Actuators/sensors

Connection through M12 circular connectors

The data T pieces



Data T piece

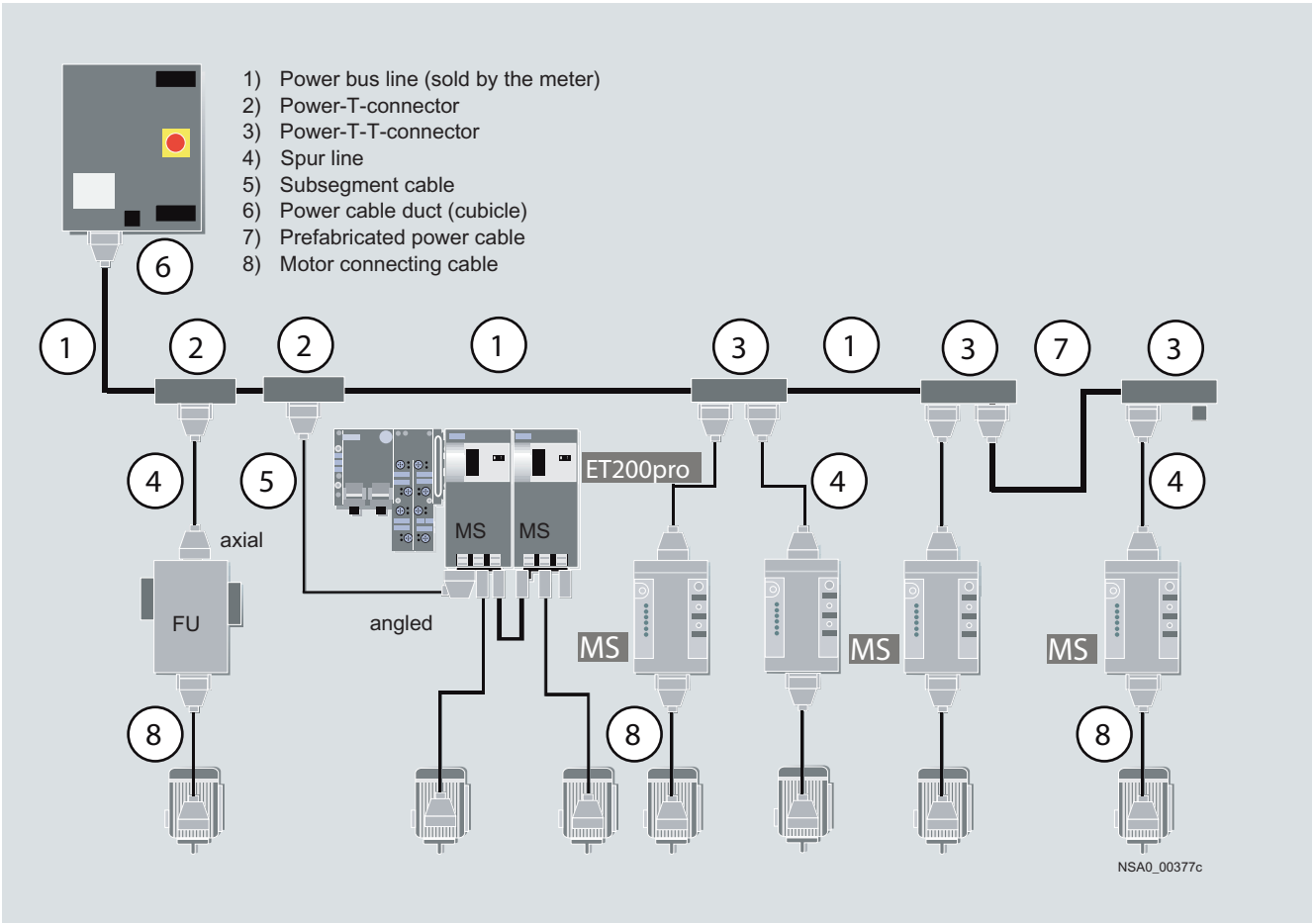
Data T pieces connect individual field devices to PROFIBUS DP. The data T pieces define the transmission medium (FO or RS 485) for the field device. The field device itself is neutral with regard to the transmission method.

There are two T pieces in the ECOFAST system:

- Data T piece for PROFIBUS DP with cable cable (PROFIBUS DP RS 485) and 2 x 24 V auxiliary voltage (switched and non-switched)
- Data T piece for PROFIBUS DP with optical cable (PROFIBUS DP FO) and 2 x 24 V auxiliary voltage (switched and non-switched)

General data

Power T / double-T clamping connector design variants



Power T / double-T clamping connector design variants

Power T / double-T clamping connectors connect the components of an automation system to the power bus. The power bus is not interrupted when the components are detached.

① Non-assembled power cables, see page 6/164

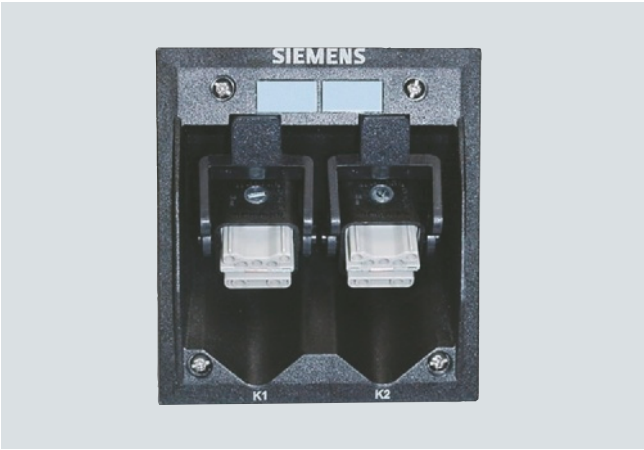
② Power T terminal connectors, see page 6/165

③ Power T-T terminal connectors, see page 6/165

④ Assembled power cables, see page 6/164

⑧ Motor connection cables, see page 6/166

Overview



Copper hybrid field bus connection (socket/socket) for the infeed

Hybrid field bus connections are designed as control cabinet glands. They are the interface between the control cabinet (IP20) and the field (IP65). They are also used to jointly route PROFIBUS DP and the auxiliary voltages into the hybrid field bus cable.

Hybrid field bus connections are available in different versions (active/passive):

- Glands for RS485 transmission systems
- Glands with RS485/FO converters

The field side is connected using HanBrid plug-in connectors. The two-channel version (2 HanBrid) enables the simple integration of IP20 devices in the control box or site box into the ECOFAST system.

The version with fast-connect connections for PROFIBUS in Cu/Cu technology shortens the mounting time appreciably.

Infeed:

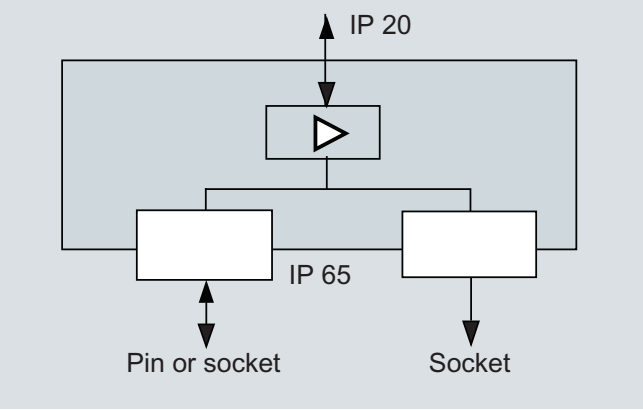
The auxiliary power is fed into the field from the IP20 side.

Looping:

The auxiliary power comes from the field (IP65).

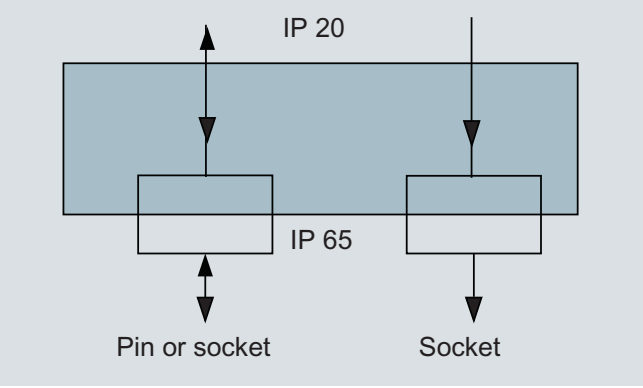
Characteristics of the active glands (with repeater function):

- Control cabinet gland from IP20 to IP65
- After switching on, the baud rate is detected automatically and is retained up to a voltage reset / LED yellow.
- Signal regeneration between segment 1 (IP20 side) and segment 2 (IP65 side):



Characteristics of the passive glands:

- Control cabinet gland from IP20 to IP65



Selection and ordering data

Link type / function	Connection IP65	Connection IP20 (PROFIBUS)		Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Hybrid field bus connections									
Passive									
• Cu/Cu, for feeding in (control cabinet, P&C module)	Socket/socket	Direct connection	B	**3RK1 911-1AA22**		1	1 unit	121	0.265
• Cu/Cu, for feeding in (control cabinet, P&C module)	Socket/socket	PROFIBUS Fast Connect bus connector	B	**3RK1 911-1AF22**		1	1 unit	121	0.270
• Cu/Cu, for looping through (local switchbox)	Pin/socket	Direct connection	B	**3RK1 911-1AA32**		1	1 unit	121	0.256
• Cu/Cu, for looping through (local switchbox)	Pin/socket	PROFIBUS Fast Connect bus connector	B	**3RK1 911-1AF32**		1	1 unit	121	0.270
Active (repeater)									
• Cu/Cu, for feeding in (control cabinet, P&C module)	Socket/socket	9-pole Sub D socket	B	**3RK1 911-1AH22**		1	1 unit	121	0.270
• Cu/Cu, for looping through (local switchbox)	Pin/socket	9-pole Sub D socket	B	**3RK1 911-1AH32**		1	1 unit	121	0.270
• Cu/FOC, for feeding in (control cabinet, P&C module)	Socket/socket	9-pole Sub D socket	B	**3RK1 911-1AG22**		1	1 unit	121	0.270
• FOC/Cu, for looping through (local switchbox)	Pin/socket	9-pole Sub D socket	B	**3RK1 911-1AG32**		1	1 unit	121	0.270

* You can order this quantity or a multiple thereof.

Overview

The power cables supply 400 V to 600 V AC to the switching devices and loads in the ECOFAST system. The power is distributed in a line like a power bus.

Power cables are available pre-assembled

- in various versions
- with different cross-sections and number of cores
- in various lengths

The power bus is routed with the spur lines to the switching device.

Selection and ordering data

Cross-section	Fixed length	Any length[1)]	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
mm^2	m	m							kg
① Power bus cables, non-assembled									
5 x 4	20	--	C	**3RK1911-0AG60**		1	1 unit	121	20.000
	50	--	C	**3RK1911-0AG70**		1	1 unit	121	40.000
	100	--	C	**3RK1911-0AG80**		1	1 unit	121	60.000
5 x 6	20	--	C	**3RK1911-0AH60**		1	1 unit	121	25.000
	50	--	C	**3RK1911-0AH70**		1	1 unit	121	50.000
	100	--	C	**3RK1911-0AH80**		1	1 unit	121	100.000
Power cables (new), preassembled									
④ Spur line/connection of switching devices/motor starters both ends with Han Q4/2 (pin/socket), axial cable routing									
5 x 4	--	< 3	C	**3RK1 911-0CP21**		1	1 unit	121	1.150
	--	> 3.1 to < 5	C	**3RK1 911-0CP31**		1	1 unit	121	1.500
	--	> 5.1 to < 10	C	**3RK1 911-0CP41**		1	1 unit	121	2.000
	--	> 10.1 to < 15	C	**3RK1 911-0CP51**		1	1 unit	121	0.300
5 x 6	--	< 3	C	**3RK1 911-0CP22**		1	1 unit	121	1.150
	--	> 3.1 to < 5	C	**3RK1 911-0CP32**		1	1 unit	121	1.500
	--	> 5.1 to < 10	C	**3RK1 911-0CP42**		1	1 unit	121	2.000
	--	> 10.1 to < 15	C	**3RK1 911-0CP52**		1	1 unit	121	2.000

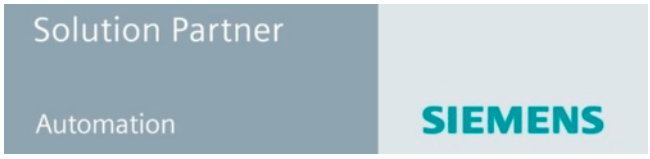
1) When ordering, specify the length as well (example: length = 7.50 m). Orders possible for minimum 10 cm module widths.

Enclosures	Usage	Contacts	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
									kg
Connector set for energy supply HAN Q4/2 2.5 mm^2 / 4 mm^2 / 6 mm^2, comprising:									
• Angled, e. g. for energy supply on motor starter									
One cable-end connector hood with PG 16	One female insert	5 female contacts 2.5 mm^2	C	**3RK1 911-2BE50**		1	1 unit	121	0.200
One cable-end connector hood with PG 16	One female insert	5 female contacts 4 mm^2	B	**3RK1 911-2BE10**		1	1 unit	121	0.200
One cable-end connector hood with PG 16	One female insert	5 female contacts 6 mm^2	B	**3RK1 911-2BE30**		1	1 unit	121	0.200
• Straight e. g. for energy supply on motor starter									
One cable-end connector hood with PG 16	One female insert	5 female contacts 2.5 mm^2	B	**3RK1 911-2BR50**		1	1 unit	121	0.100
One cable-end connector hood with PG 16	One female insert	5 female contacts 4 mm^2	B	**3RK1 911-2BR10**		1	1 unit	121	0.100
One cable-end connector hood with PG 16	One female insert	5 female contacts 6 mm^2	B	**3RK1 911-2BR30**		1	1 unit	121	0.100
Connector set for power loop-through connection HanQ4/2									
2.5 mm^2 / 4 mm^2 / 6 mm^2, comprising:									
• Angled e. g. for connection P&CM									
One coupling enclosure with PG 16	One pin insert	5 male contacts 2.5 mm^2	C	**3RK1 911-2BF60**		1	1 unit	121	0.200
One coupling enclosure with PG 16	One pin insert	5 male contacts 4 mm^2	B	**3RK1 911-2BF20**		1	1 unit	121	0.300
One coupling enclosure with PG 16	One pin insert	5 male contacts 6 mm^2	B	**3RK1 911-2BF40**		1	1 unit	121	0.200
• Straight e. g. for connection on power T terminal connector									
One coupling enclosure with PG 16	One pin insert	5 male contacts 2.5 mm^2	B	**3RK1 911-2BS60**		1	1 unit	121	0.100
One coupling enclosure with PG 16	One pin insert	5 male contacts 4 mm^2	B	**3RK1 911-2BS20**		1	1 unit	121	0.100
One coupling enclosure with PG 16	One pin insert	5 male contacts 6 mm^2	B	**3RK1 911-2BS40**		1	1 unit	121	0.100
Control cabinet gland HanQ4/2 e. g. for installation in control cabinets or local switchboxes			C	**3RK1 911-1BF00**		1	1 unit	121	2.000

* You can order this quantity or a multiple thereof.

Enclosures	Usage	Contacts	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
② **Power T terminal connectors**									
For 400 V AC for connection of feeders (e. g. motor starters) by means of standard round cable at any point of the power bus, by insulation displacement connection									
Use of preassembled bus segments									
• 2.5 mm² / 4 mm²			B	**3RK1 911-2BF01**		1	1 unit	121	0.330
• 4 mm² / 6 mm²			B	**3RK1 911-2BF02**		1	1 unit	121	0.300
③ **Power double-T terminal connectors**									
For 400 V AC for connection of feeders (e. g. motor starters) by means of standard round cable at any point of the power bus, by insulation displacement connection									
• Use of preassembled bus segments									
• Connection of two motor starters possible									
• 4 mm² / 6 mm²			B	**3RK1 911-2BG02**		1	1 unit	121	0.300
Gasket set (comprising 2 seals)									
For power T / power double T terminal connector									
• For power cables with Ø 10 to 13 mm			B	**3RK1 911-5BA00**		1	1 unit	121	0.035
• For power cables with Ø 13 to 16 mm			B	**3RK1 911-5BA10**		1	1 unit	121	0.032
• For power cables with Ø 16 to 19 mm			B	**3RK1 911-5BA20**		1	1 unit	121	0.029
• For power cables with Ø 19 to 22 mm			B	**3RK1 911-5BA30**		1	1 unit	121	0.024
• Blanking plugs			B	**3RK1 911-5BA50**		1	1 unit	121	0.020

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Communication							
Data T piece For 2 x 24 V auxiliary voltage (switched and not switched) and PROFIBUS DP							
• For Cu RS485	B	**3RK1 911-2AG00**		1	1 unit	121	0.122
• For FOC	B	**3RK1 911-2AH00**		1	1 unit	121	0.120
Addressing plugs For setting the PROFIBUS DP address	A	**6ES7 194-1KB00-0XA0**		1	1 unit	250	0.032
ECOFAST bus termination plug-in connectors For PROFIBUS DP							
• Pack of 1	A	**6GK1 905-0DA10**		1	1 unit	5K2	0.036
• Pack of 5	A	**6GK1 905-0DA00**		1	1 unit	5K2	0.180
Mounting							
Mounting plate for ECOFAST Retaining bracket on the motor for fixing the mounted motor starter	B	**3RK1 911-3AA00**		1	1 unit	121	0.246
Miscellaneous accessories							
Crimping tools For male and female contacts							
• 1.5 and 2.5 mm²	B	**3RK1 902-0AH00**		1	1 unit	121	0.576
• 1.5, 2.5 and 4 mm²	B	**3RK1 902-0CT00**		1	1 unit	121	0.644
Dismantling tools For male and female contacts for 9-pole inserts (e. g. HAN Q8)	B	**3RK1 902-0AJ00**		1	1 unit	121	0.047
Sealing caps For power socket connectors							
• One unit per pack	B	**3RK1 902-0CK00**		1	1 unit	121	0.012
• Ten units per pack	B	**3RK1 902-0CJ00**		1	10 units	121	0.093
Interface cable For transmitting the configuration data on an ECOFAST starters with AS-Interface for connecting a programming device/PC with MOTORSTARTER ES to an ECOFAST starter	B	**3RK1 911-0BN20**		1	1 unit	121	0.162
Test plug set For testing the motor starters without communication connection (manual operation)	B	**3RK1 911-2AM00**		1	1 unit	121	0.044



More connection technology products can be found at our "Siemens Solution Partners" under the "Distributed Field Installation System" technology.

More information can be found on the Internet at www.siemens.com/automation/partnerfinder

* You can order this quantity or a multiple thereof.

Motor connection cables

Overview

Motor connection cables provide connection of the motor with the equipment (ECOFAST starters / frequency converters / stand-alone devices). They are available pre-assembled

- in various versions,
- with different numbers of cores,
- in different lengths and
- in shielded and unshielded versions.

Selection and ordering data

Cross-section	Fixed length	Any length[1)]	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
mm^2	m	m							kg
⑧ **Motor connection cables**									
• Preassembled at both ends with Han 10e (pin/socket), unshielded									
11 x 1.5	1.5	--	C	**3RK1 911-0BK10**		1	1 unit	121	1.107
	--	< 2.9	C	**3RK1 911-0CK20**		1	1 unit	121	1.200
	3	--	C	**3RK1 911-0BK20**		1	1 unit	121	1.680
	--	> 3.1 to < 4.9	C	**3RK1 911-0CK30**		1	1 unit	121	1.200
	5	--	C	**3RK1 911-0BK30**		1	1 unit	121	2.204
7 x 1.5	1.5	--	C	**3RK1 911-0BH10**		1	1 unit	121	0.770
	--	< 2.9	C	**3RK1 911-0CH20**		1	1 unit	121	0.880
	3	--	C	**3RK1 911-0BH20**		1	1 unit	121	1.030
	--	> 3.1 to < 4.9	C	**3RK1 911-0CH30**		1	1 unit	121	1.200
	5	--	C	**3RK1 911-0BH30**		1	1 unit	121	2.204
• Preassembled at both ends with Han 10e (pin/socket), shielded									
4 x 2.5	1.5	--	B	**3RK1 911-0BU10**		1	1 unit	121	1.181
4 x 0.75	--	< 2.9	C	**3RK1 911-0CU20**		1	1 unit	121	1.200
new	3	--	B	**3RK1 911-0BU20**		1	1 unit	121	1.638
	--	> 3.1 to < 4.9	C	**3RK1 911-0CU30**		1	1 unit	121	1.200
	5	--	B	**3RK1 911-0BU30**		1	1 unit	121	2.266
• Preassembled at one end with Han 10e (pin), unshielded									
11 x 1.5	1.5	--	C	**3RK1 911-0BJ10**		1	1 unit	121	0.794
	--	< 2.9	C	**3RK1 911-0CJ20**		1	1 unit	121	1.200
	3	--	C	**3RK1 911-0BJ20**		1	1 unit	121	1.230
	--	> 3.1 to < 4.9	C	**3RK1 911-0CJ30**		1	1 unit	121	1.200
	5	--	C	**3RK1 911-0BJ30**		1	1 unit	121	1.730
7 x 1.5	1.5	--	C	**3RK1 911-0BG10**		1	1 unit	121	0.560
	--	< 2.9	C	**3RK1 911-0CG20**		1	1 unit	121	1.200
	3	--	C	**3RK1 911-0BG20**		1	1 unit	121	0.840
	--	> 3.1 to < 4.9	C	**3RK1 911-0CG30**		1	1 unit	121	1.200
	5	--	C	**3RK1 911-0BG30**		1	1 unit	121	1.219
• Preassembled at one end with Han 10e (pin), shielded									
4 x 2.5	1.5	--	B	**3RK1 911-0BV10**		1	1 unit	121	0.844
4 x 0.75	--	< 2.9	C	**3RK1 911-0CV20**		1	1 unit	121	1.200
	3	--	B	**3RK1 911-0BV20**		1	1 unit	121	1.320
	--	> 3.1 to < 4.9	C	**3RK1 911-0CV30**		1	1 unit	121	1.200
	5	--	B	**3RK1 911-0BV30**		1	1 unit	121	1.923
• Non-assembled									
4 x 2.5	20	--	B	**3RK1 911-0BW60**		1	1 unit	121	6.250
4 x 0.75	50	--	B	**3RK1 911-0BW70**		1	1 unit	121	15.500
	100	--	B	**3RK1 911-0BW80**		1	1 unit	121	31.500

1) When ordering, specify the length as well (example: length = 7.50 m).
Orders possible for minimum 10 cm module widths.

Enclosures	Usage	Contacts	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
									kg
Connector set for motor connection Han 10e									
• Unshielded									
One coupling enclosure with PG 13, low	One pin insert	6 male contacts 1.5 mm^2	B	**3RK1 911-2BK00**		1	1 unit	121	0.236
One coupling enclosure with PG 21, high	One pin insert	6 male contacts 1.5 mm^2	B	**3RK1 911-2BL00**		1	1 unit	121	0.330
Connection on motor									
One cable-end connector hood with PG 16, low	One female insert	6 female contacts 1.5 mm^2	B	**3RK1 911-2BM00**		1	1 unit	121	0.225
One cable-end connector hood with PG 21, high	One female insert	6 female contacts 1.5 mm^2	B	**3RK1 911-2BN00**		1	1 unit	121	0.325
• Shielded									
Outgoing feeder on motor starter									
One coupling enclosure with M25	One pin insert	7 male contacts 3 × 2.5 mm^2 + 4 × 0.75 mm^2	B	**3RK1 911-2BL10**		1	1 unit	121	0.337
Connection on motor including star bridge									
One cable-end connector hood with M25	One female insert	7 female contacts 3 × 2.5 mm^2+4 × 0.75 mm^2	B	**3RK1 911-2BN10**		1	1 unit	121	0.300

* You can order this quantity or a multiple thereof.

ECOFAST bus cables

Overview

All equipment running in the ECOFAST system are connected to the PROFIBUS DP with the bus cables.

The bus cable is configured as a hybrid cable and contains:

- PROFIBUS DP in Cu-RS 485;
- Four additional copper cores for the transmission of the 24 V DC voltage:
  - 24 V DC, not switched (for electronics and inputs)
  - 24 V DC, switched (for outputs, can be switched off, e. g. on EMERGENCY-STOP)

The ECOFAST hybrid cables are available by the meter or in pre-assembled lengths with ECOFAST connectors (Han Brid) and sockets.

Benefits

- Savings in wiring, installation, commissioning and during operation through the standardized connection method (copper or FO) with a high degree of protection (IP65)
- With ECOFAST it is possible to shorten the time frames for the tendering, planning and configuring of machines and plants
- ECOFAST enables the fast and smooth start-up of automation and drive systems
- Minimization of error sources through standardized interfaces and plug-in connectors
- ECOFAST maintains a high level of plant availability: No interruption of the power and field bus while devices are being exchanged.

Selection and ordering data

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
PROFIBUS ECOFAST Hybrid Cable – copper							
Trailing cable (PUR sheath) with two copper cables, shielded, for PROFIBUS DP and four copper cores with 1.5 mm²							
Sold by the meter Delivery unit max. 1000 m, minimum order quantity 20 m	A	**6XV1 830-7AH10**		1	1 M	5K2	0.141
Non-assembled							
• 20 m	A	**6XV1 830-7AN20**		1	1 unit	5K2	3.080
• 50 m	A	**6XV1 830-7AN50**		1	1 unit	5K2	7.700
• 100 m	A	**6XV1 830-7AT10**		1	1 unit	5K2	15.400
Pre-assembled							
With ECOFAST connectors and socket, fixed length							
• 0.5 m	A	**6XV1 830-7BH05**		1	1 unit	5K2	0.250
• 1.0 m	A	**6XV1 830-7BH10**		1	1 unit	5K2	0.325
• 1.5 m	A	**6XV1 830-7BH15**		1	1 unit	5K2	0.400
• 3 m	A	**6XV1 830-7BH30**		1	1 unit	5K2	0.535
• 5 m	A	**6XV1 830-7BH50**		1	1 unit	5K2	0.880
• 10 m	A	**6XV1 830-7BN10**		1	1 unit	5K2	1.600
• 15 m	A	**6XV1 830-7BN15**		1	1 unit	5K2	2.155
• 20 m	A	**6XV1 830-7BN20**		1	1 unit	5K2	2.870
• 25 m	A	**6XV1 830-7BN25**		1	1 unit	5K2	3.640
• 30 m	A	**6XV1 830-7BN30**		1	1 unit	5K2	4.410
• 35 m	A	**6XV1 830-7BN35**		1	1 unit	5K2	5.180
• 40 m	A	**6XV1 830-7BN40**		1	1 unit	5K2	5.950
• 45 m	A	**6XV1 830-7BN45**		1	1 unit	5K2	6.720
• 50 m	A	**6XV1 830-7BN50**		1	1 unit	5K2	7.490
With two ECOFAST connectors, variable length[1)]							

1) Can be ordered from your local representative.

* You can order this quantity or a multiple thereof.

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
PROFIBUS ECOFAST Hybrid Cable GP							
Trailing cable with 4 x Cu and 2 x Cu, shielded with UL approval							
Sold by the meter Delivery unit max. 1000 m, minimum order quantity 20 m	B	**6XV1 860-2P**		1	1 M	5K2	0.154
Non-assembled							
• 20 m	A	**6XV1 860-4PN20**		1	1 unit	5K2	3.080
• 50 m	B	**6XV1 860-4PN50**		1	1 unit	5K2	7.700
• 100 m	A	**6XV1 860-4PT10**		1	1 unit	5K2	15.400
Assembled							
With ECOFAST connector and socket							
• 0.5 m	A	**6XV1 860-3PH05**		1	1 unit	5K2	0.230
• 1 m	A	**6XV1 860-3PH10**		1	1 unit	5K2	0.290
• 1.5 m	A	**6XV1 860-3PH15**		1	1 unit	5K2	0.400
• 3 m	A	**6XV1 860-3PH30**		1	1 unit	5K2	0.750
• 5 m	A	**6XV1 860-3PH50**		1	1 unit	5K2	0.870
• 10 m	A	**6XV1 860-3PN10**		1	1 unit	5K2	1.640
• 15 m	A	**6XV1 860-3PN15**		1	1 unit	5K2	2.410
• 20 m	A	**6XV1 860-3PN20**		1	1 unit	5K2	3.180
• 25 m	A	**6XV1 860-3PN25**		1	1 unit	5K2	3.950
• 30 m	A	**6XV1 860-3PN30**		1	1 unit	5K2	4.720
• 35 m	A	**6XV1 860-3PN35**		1	1 unit	5K2	5.490
• 40 m	A	**6XV1 860-3PN40**		1	1 unit	5K2	6.160
• 45 m	A	**6XV1 860-3PN45**		1	1 unit	5K2	6.930
• 50 m	A	**6XV1 860-3PN50**		1	1 unit	5K2	7.700
Additional components							
PROFIBUS copper bus connector							
With 2 x Cu shielded and 4 x Cu 1.5 mm^2; contact type: POF, Han D for 24 V; Tool: Crimping tool, polishing set; 5 units; with mounting instructions							
• With pin insert	A	**6GK1 905-0CA00**		1	1 unit	5K2	0.212
• With female insert	A	**6GK1 905-0CB00**		1	1 unit	5K2	0.215
PROFIBUS ECOFAST Hybrid Plug, angled;							
With 2 x Cu shielded and 4 x Cu 1.5 mm^2; 5 units; with mounting instructions							
• Pin insert	A	**6GK1 905-0CC00**		1	1 unit	5K2	0.247
• Female inserts	A	**6GK1 905-0CD00**		1	1 unit	5K2	0.247
ECOFAST Terminating Plug							
Bus termination plug-in connector for PROFIBUS DP; with 2 x Cu and 4 x Cu 1.5 mm^2; pin insert, integrated terminating resistors							
• Pack of 1	A	**6GK1 905-0DA10**		1	1 unit	5K2	0.036
• Pack of 5	A	**6GK1 905-0DA00**		1	1 unit	5K2	0.180
Data T piece							
For 2 x 24 V auxiliary voltage (switched and not switched) and PROFIBUS DP							
• For Cu RS485	B	**3RK1 911-2AG00**		1	1 unit	121	0.122
• For FOC	B	**3RK1 911-2AH00**		1	1 unit	121	0.120
Addressing plugs	A	**6ES7 194-1KB00-0XA0**		1	1 unit	250	0.032
for setting the PROFIBUS DP address							

* You can order this quantity or a multiple thereof.

More information

Order No.		6XV1 830-7AH10	6XV1 860-2P
Type		**PROFIBUS ECOFAST hybrid cables – copper**	**PROFIBUS ECOFAST Hybrid Cable GP**
Suitability for use		Connection for ECOFAST stations	Connection for ECOFAST stations
Cable designation		02Y (ST)C 1 x 2 x 0.65/2.56- 150 LI LIH-Z 11Y 4 x 1 x 1.5 VI FRNC	02Y (ST)C 1 x 2 x 0.65/2.56 -150 LI LIY-Z Y 4 x 1 x 1.5 VI
Electrical specifications			
Damping dimension per length			
• At 16 MHz	dB/km	49	49
• At 4 MHz	dB/km	25	25
• At 9.6 MHz	dB/km	3	3
Shaft resistance			
• At 9.6 kHz	Ω	270	270
• At 38.4 kHz	Ω	185	185
• At 3 MHz ... 20 MHz	Ω	150	150
• Rated value	Ω	150	150
Symmetrical tolerance of the shaft resistance			
• At 3 MHz ... 20 MHz	Ω	+/- 15	+/- 15
• At 38.4 kHz	Ω	+/- 18.5	+/- 18.5
• At 9.6 MHz	Ω	+/- 27	+/- 27
Maximum loop resistance per length	Ω/km	138	138
Maximum shield resistance per length	Ω/km	15	15
Capacity per length at 1 kHz	nF/km	30	30
RMS value of operational voltage	V	100	100
Uninterrupted current of power cores	A	12	12
Mechanical specifications			
Cable sheath			
• Material		PUR	PVC
• External diameter	mm	11	11
• Color		Violet	Violet
Power core			
• Conductor cross-section	mm^2	1.5	1.5
• Color of core insulation		Black	Black
Ambient temperature			
• During mounting	°C	-40 … +60	-30 … +80
• During operating phase	°C	-40 … +60	-30 … +80
• During storage	°C	-40 … +60	-30 … +80
• During transport	°C	-40 … +60	-30 … +80
Bending radius			
• With single bend	mm	38	77
• With several bends	mm	85	110
Number of bending cycles		5000000	1000000 [1]
Weight per length	kg/km	150	154
Fire behavior		IEC 60332-1	IEC 60332-3-24 Category C
Chemical resistance			
• To mineral oil		Conditionally resistant	Conditionally resistant
• to grease		Conditionally resistant	Conditionally resistant
Radiological resistance to UV radiation resistance		No	Yes
Product feature			
• Halogen-free		Yes	No
• Silicone-free		Yes	Yes
UL listing at 300 V rating		No	Yes / CM, CL3, SunRes, OilRes
UL style at 600 V rating		No	Yes

[1] At bending radius 15 x D

Supplementary components for the SIMATIC NET cabling range can be ordered from your local representative.
Technical consulting is available at:
J. Hertlein
Tel.: +49 (0) 911/750 44 65
Fax: +49 (0) 911/750 99 91
E-mail: juergen.hertlein@siemens.com

Connection technology acc. to ISO 23570 and ECOFAST, Communication connection technol.

ECOFAST Fiber Optic Hybrid Cable

Overview

- Electrical separation of DP units
- Protection of the transmission path against electromagnetic faults
- Up to 50 m cable length with plastic optical conductor
- Robust FOC, designed for industrial applications
- Hybrid cable for joint transmission of data and power supply

The robust and trailing hybrid cable contains two plastic optical conductor for data transmission and four copper leads (1.5 mm^2) for the power supply of DESINA[1] stations.

[1] DESINA is the trademark for **DE**centralized (distributed) and **s**tandardized **IN**stall**A**tion technology on machine tools. Sold by the meter without inner sheath; not suitable for assembly in the field.

Benefits

get Designed for Industry

- Savings in wiring, installation, commissioning and during operation through the standardized connection method (copper or FO) with a high degree of protection (IP65)
- With ECOFAST it is possible to shorten the time frames for the tendering, planning and configuring of machines and plants:
- ECOFAST enables the fast and smooth start-up of automation and drive systems
- Minimization of error sources through standardized interfaces and plug-in connectors
- ECOFAST maintains a high level of plant availability: No interruption of the power and field bus while devices are being exchanged.

Application

The ECOFAST Fiber Optic Hybrid Cable from SIMATIC NET is used for setting up optical PROFIBUS DP networks indoors. It is particularly suitable for the connection of DESINA components installed near the machine and is easy to assemble on site. The maximum cable length between two DP units is 50 m.

Selection and ordering data

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
ECOFAST Fiber Optic Hybrid Cable (DESINA-compatible)							
Trailing cable with 2 plastic optical conductors and 4 copper cores, 1.5 mm^2 only for operation in DESINA-compatible devices							
Sold by the meter	A	**6XV1 830-6CH10**		1	1 M	5K2	0.135
Delivery unit max. 1000 m, minimum order quantity 20 m							
Non-assembled							
• 20 m	A	**6XV1 830-6CN20**		1	1 unit	5K2	2.700
• 50 m	A	**6XV1 830-6CN50**		1	1 unit	5K2	6.750
• 100 m	A	**6XV1 830-6CT10**		1	1 unit	5K2	13.500
Pre-assembled							
With 2 DESINA connectors							
• 1.5 m	A	**6XV1 830-6DH15**		1	1 unit	5K2	0.400
• 3 m	A	**6XV1 830-6DH30**		1	1 unit	5K2	0.535
• 5 m	A	**6XV1 830-6DH50**		1	1 unit	5K2	0.805
• 10 m	A	**6XV1 830-6DN10**		1	1 unit	5K2	1.480
• 15 m	A	**6XV1 830-6DN15**		1	1 unit	5K2	2.155
ECOFAST Fiber Optic Hybrid Plug 180, DESINA-compatible (ECOFAST FOC)							
2 x FO; 4 x 1.5 mm^2 Cu							
• With pin insert (Hanbrid connectors)	A	**6GK1 905-0BA00**		1	1 unit	5K2	0.181
• With female insert (Hanbrid connectors)	A	**6GK1 905-0BB00**		1	1 unit	5K2	0.182
Manual for PROFIBUS networks							
Paper version							
Network architecture, configuring, network components, mounting							
• German	C	**6GK1 970-5CA20-0AA0**		1	1 unit	5DK	1.188
• English	C	**6GK1 970-5CA20-0AA1**		1	1 unit	5DK	1.190
SIMATIC NET Manual Collection							
Electronic manuals for communication systems, protocols, products; on DVD; German/English	B	**6GK1 975-1AA00-3AA0**		1	1 unit	5DK	0.018

* You can order this quantity or a multiple thereof.

More information

Order No.		**6XV1 830-6CH10**
Type		**ECOFAST Fiber Optic Hybrid Cable (DESINA-compatible)**
Suitability for use		DESINA-compatible devices, e. g. for ET 200X
Cable designation of the ECOFAST Hybrid Cable		I-(ZN) J-V4Y 11Y2S 980/1000+4x1.5
Version of the assembled FO cable		Sold by the meter, can be assembled locally with DESINA connectors or pre-assembled with two DESINA connectors
Electrical specifications		
Damping dimension per length at 660 nm maximum	dB/km	280
Operational voltage rated value	V	300
Uninterrupted current of power cores	A	10
Mechanical specifications		
Number of electrical cores		4
Number of conductors of the FO cable		2
Version of the FO conductor fiber		Step index fiber
Material		
• Of the FO fiber core		Polymethylmethacrylate (PMMA)
• Of the FO fiber sheath		Fluorinated special polymer
• Of the sheath of the FO cable		PUR
• Ofof the sheath of the FO core		PA
Color		
• Of the sheath of the FO core		Black, orange
• Of core insulation of the power cores		Black
• Of the sheath of the hybrid cable		Violet
Diameter of the FO fiber core	µm	980
Conductor cross-section of the power cores	mm^2	1.5
External diameter		
• Of the FO fiber sheath	µm	1000 µm
• Of the sheath of the cable	mm	10.6
• Of the sheath of the FO core	mm	2.2
- Lower deviation	mm	2.19
- Upper deviation	mm	2.21
Weight per length	kg/km	146
Maximum permitted short-term tensile loading	N	60
Short-term shear force per length	N/m	1000
Bending radius with several bends with minimum permitted tensile loading	mm	110
Ambient temperature		
• During operating phase	°C	-20 … +60
• During storage	°C	-20 … +60
• During transport	°C	-20 … +60
• During mounting	°C	-5 … +50
• In the short-circuit on the conductor	°C	+160 (max. 5 seconds)
Chemical resistance		
• To ASTM oil 2		Conditionally resistant
• To grease		Conditionally resistant
• To water		Conditionally resistant
Radiological resistance to UV radiation resistance		No
Fire behavior		IEC 60332-1
Verification of suitability UL approval		No
Product feature		
• Halogen-free		No
• Silicone-free		Yes

Supplementary components for the SIMATIC NET cabling range can be ordered from your local representative.
Technical consulting is available at:
J. Hertlein
Tel.: +49 (0) 911/750 44 65
Fax: +49 (0) 911/750 99 91
E-mail: juergen.hertlein@siemens.com

AS-Interface shaped cables

Overview

The actuator-sensor interface - the networking system used for the lowest field area - is characterized by very easy mounting and installation. A new connection method was developed specially for AS-Interface.

The stations are connected using the AS-Interface cable. This two-wire AS-Interface cable has a trapezoidal shape, thus ruling out polarity reversal.

Connection is effected by the insulation piercing method. In other words, male contacts pierce the shaped AS-Interface cable and make reliable contact with the two wires. Cutting to length and stripping are superfluous. Consequently, AS-Interface stations (e. g. I/O modules, intelligent devices) can be connected in the shortest possible time and exchanging devices is quick.

To enable use in the most varied ambient conditions (e. g. in an oily environment), the AS-Interface cable is available in different materials (rubber, TPE, PUR).

For special applications it is also possible to use an unshielded standard round cable H05VV-F 2x 1.5 mm^2 according to AS-i Specification. With AS-Interface, data and power for the sensors (e. g. BERO proximity switches) and actuators (e. g. indicator lights) are transmitted over the yellow AS-Interface cable.

The black cable must be used for actuators with a 24 V DC supply (e. g. solenoid valves) and a high power requirement.

Suitable for operation in tow chains

The use of the AS-Interface shaped cables with TPE and PUR outer sheath was checked in a tow chain test with the following conditions:

Chain length	m	6
Travel	m	10
Bending radius	mm	75
Travel speed	m/s	4
Acceleration	m/s^2	4
Number of cycles		10 million
Duration of test		approx. 3 years (11000 cycles per day)

After termination of the 10 million cycles only slight wear was visible due to the lugs of the tow chain. No damage to the cores and core insulation could be detected.

Note:
When using a tow chain the cables must be installed free from tensile forces. On no account may the cables be twisted, but must be routed flat through the tow chain.

Selection and ordering data

Material	Color	Quantity	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
AS-Interface shaped cables									
Rubber	Yellow (AS-Interface)	100-m roll	▶	**3RX9 010-0AA00**		1	1 unit	121	7.148
		1-km drum	B	**3RX9 012-0AA00**		1	1 unit	121	80.000
	Black (24 V DC)	100-m roll	▶	**3RX9 020-0AA00**		1	1 unit	121	7.092
		1-km drum	B	**3RX9 022-0AA00**		1	1 unit	121	80.000
TPE	Yellow (AS-Interface)	100-m roll	▶	**3RX9 013-0AA00**		1	1 unit	121	6.627
		1-km drum	B	**3RX9 014-0AA00**		1	1 unit	121	78.000
	Black (24 V DC)	100-m roll	▶	**3RX9 023-0AA00**		1	1 unit	121	6.459
		1-km drum	B	**3RX9 024-0AA00**		1	1 unit	121	69.666
TPE special version[1)]	Yellow (AS-Interface)	100-m roll	C	**3RX9 017-0AA00**		1	1 unit	121	6.900
	Black (24 V DC)	100-m roll	C	**3RX9 027-0AA00**		1	1 unit	121	6.984
PUR	Yellow (AS-Interface)	100-m roll	▶	**3RX9 015-0AA00**		1	1 unit	121	6.131
		1-km drum	B	**3RX9 016-0AA00**		1	1 unit	121	69.100
	Black (24 V DC)	100-m roll	▶	**3RX9 025-0AA00**		1	1 unit	121	6.323
		1-km drum	B	**3RX9 026-0AA00**		1	1 unit	121	200.000

1) Special version acc. to UL Class

* You can order this quantity or a multiple thereof.

ECOFAST selection module

Overview

The selection module enables the selective shutdown of feeders on the power bus, e. g. for servicing purposes. The module is equipped accordingly with a lockable switch (repair switch). In addition it provides line protection for cross sectional transitions on the power bus and can be used for increasing the size of the power bus segments.

Spectrum:

- Modules with 8, 16 and 25 A rated current
- With feedback contact through M12 plug
- Generally with 6 mm^2 wiring

Selection and ordering data

Connection value	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
A							kg
Selection module For the selective switch-off of feeders with maintenance switching function for line protection for cross-sectional transitions and for increasing the segment size with feedback contact M12							
• 8	B	**3RK1 911-4AB08**		1	1 unit	121	1.700
• 16	B	**3RK1 911-4AB16**		1	1 unit	121	1.700
• 25	B	**3RK1 911-4AB25**		1	1 unit	121	1.700

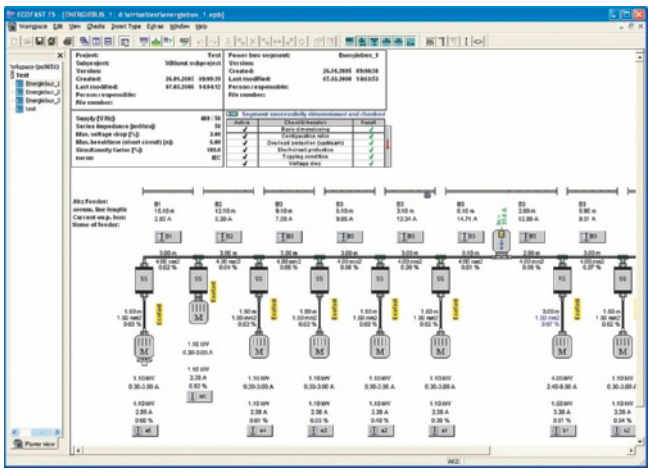
6

* You can order this quantity or a multiple thereof.

Software
ECOFAST ES, Motor Starter ES

Overview

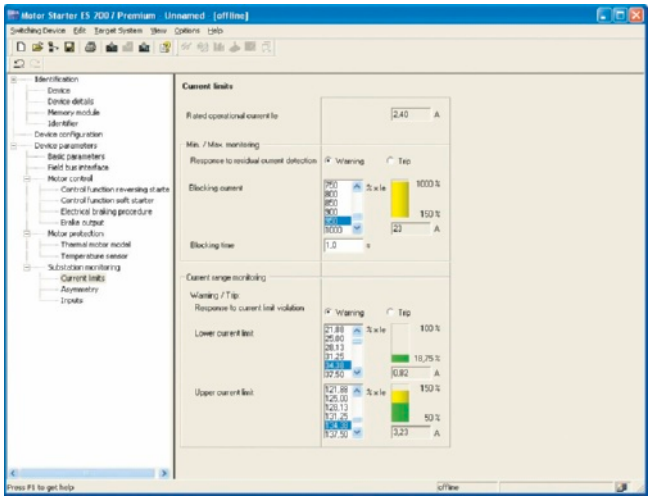
ECOFAST ES configuring tool



ECOFAST ES for configuring, calculating and documenting of applications

Detailed specifications of the ECOFAST ES configuring tool are available in Chapter 12 "Planning, Configuration and Visualizing for SIRIUS".

Motor Starter ES



Motor Starter ES for parameterization, monitoring, diagnostics and testing of motor starters

Detailed specifications of the Motor Starter ES tool are available in Chapter 12 "Planning, Configuration and Visualizing for SIRIUS".