SIEMENS

Industrial controls

SIRIUS Product News

SIRIUS

Catalog News IC 10 N

Edition December 2012

Answers for industry.

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SIRIUS

Industrial Controls

SIRIUS Product News

Catalog News IC 10 N · December 2012

The products and systems listed in this catalog are manufactured/distributed using a certified quality management system which complies with EN ISO 9001 (for the Certificate Register Nos. see the Appendix to the catalog IC 10). The certificate is recognized in all IQNet countries.

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The products in this catalog can also be found in the electronic catalog CA 01,
Order No.
E86060-D4001-A510-D3-7600 (DVD)

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PEFC/04-31-0835

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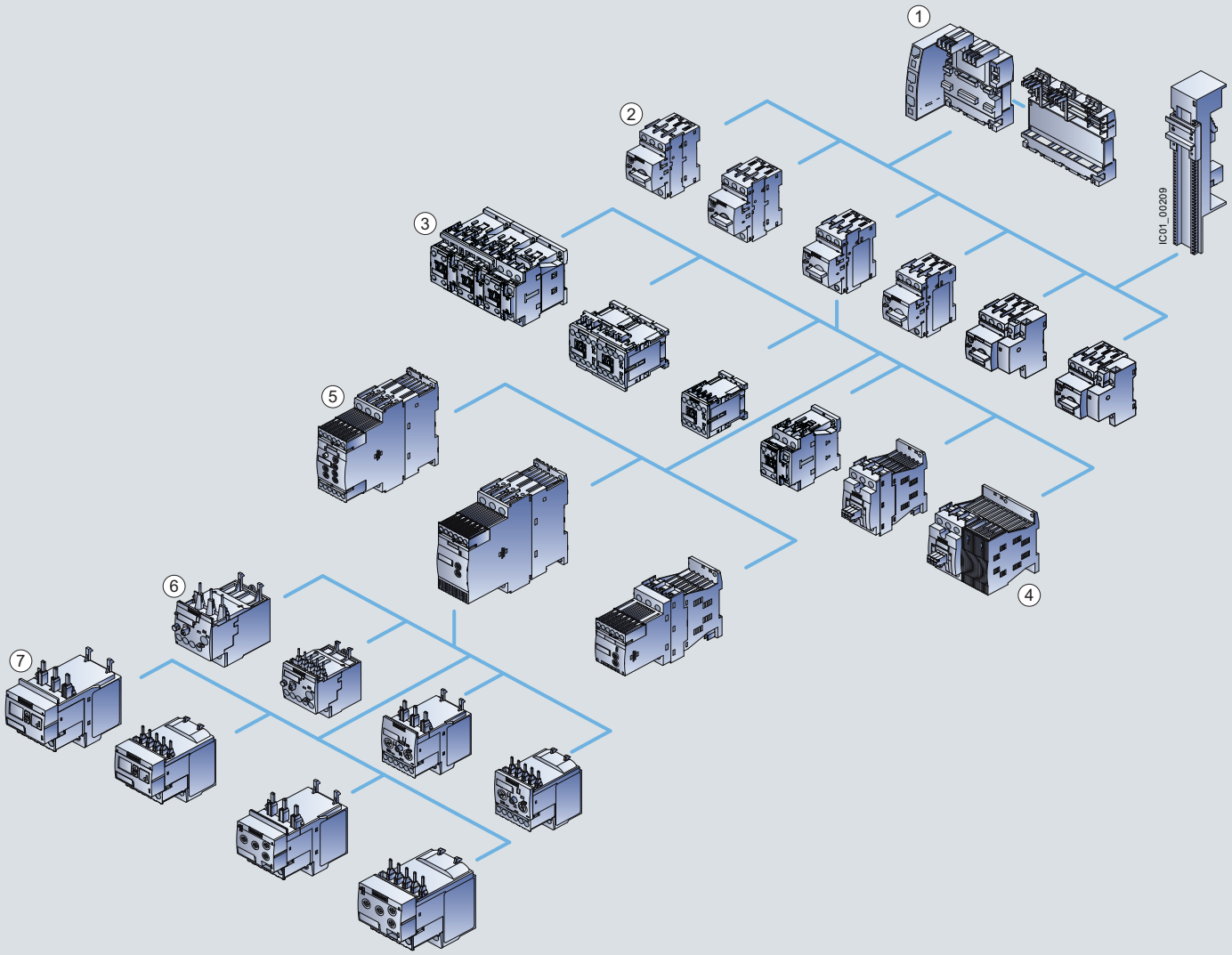

The SIRIUS Modular System.

All the devices offered by the SIRIUS modular system for the switching, starting, protecting and monitoring function areas are perfectly matched in terms of their electrical and mechanical properties to enable them to be easily configured to load feeders. You will find these devices in the following chapters of this catalog or of Catalog IC 10:

Introduction to the SIRIUS Modular System ..... Chapter 1

① 3RV29 Infeed Systems ..... Chapter 7

② 3RV2 Motor Starter Protectors ..... Chapter 7

③ 3RT2 Power Contactors ..... Chapter 3

3RA23/3RA24 Contactor Assemblies ..... Chapter 3

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3RT20 Coupling Contactors ..... Chapter 3

3TX7 / 3RS18 Coupling Relays ..... Chapter 5

3TG10 Miniature Contactors ..... Chapter 4

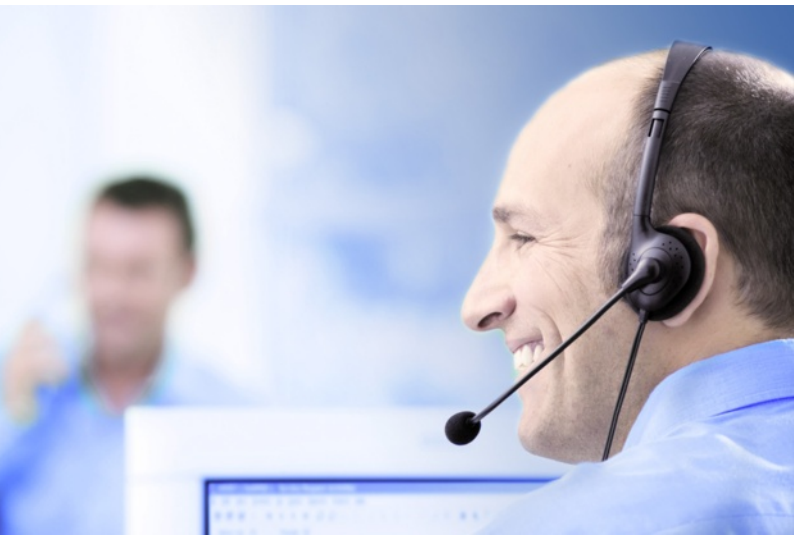
3RA27/3RA28 Function Modules ..... Chapter 3

④ 3RF34 Solid-State Contactors ..... Chapter 6

⑤ 3RW30/3RW40 Soft Starters ..... Chapter 6

⑥ 3RU2/3RB3 Overload Relays ..... Chapter 7

⑦ 3RR2 Current Monitoring Relays ..... Chapter 10



Technical Assistance.

Our Technical Assistance for Industrial Controls will help you with all technical enquiries concerning our products and systems – both before and after delivery.

Our experts will provide you with specialist support over the phone in connection with:

- Product selection
- Conversion from old to new codes
- Conversion from non-Siemens codes
- Special versions
- Special requirements
- Commissioning
- Operation

To ensure that you always speak with the right person, our telephone assistance system comes in two steps. In the first step we note your questions and forward them to the right contact person.

In the second step your personal contact then phones you back.

This way you receive an expert answer quickly and easily.

Contact data

Technical Assistance

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Fax: +49 (911) 895 5907

E-mail:
technical-assistance@siemens.com

Technical Support on the Internet

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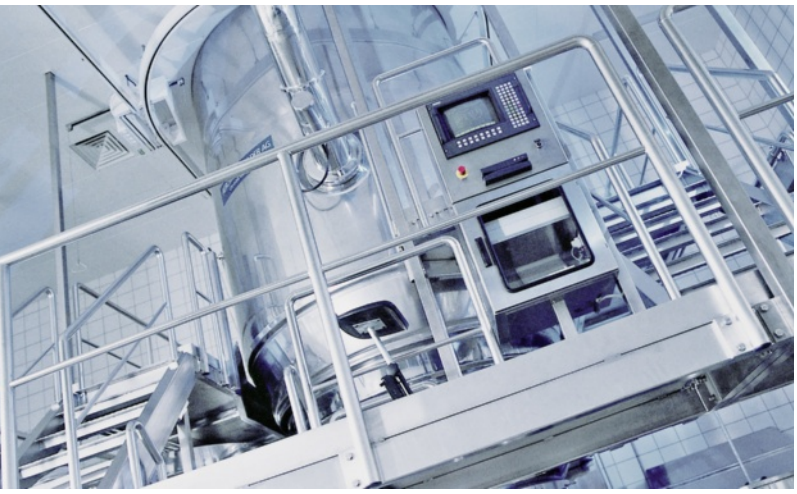

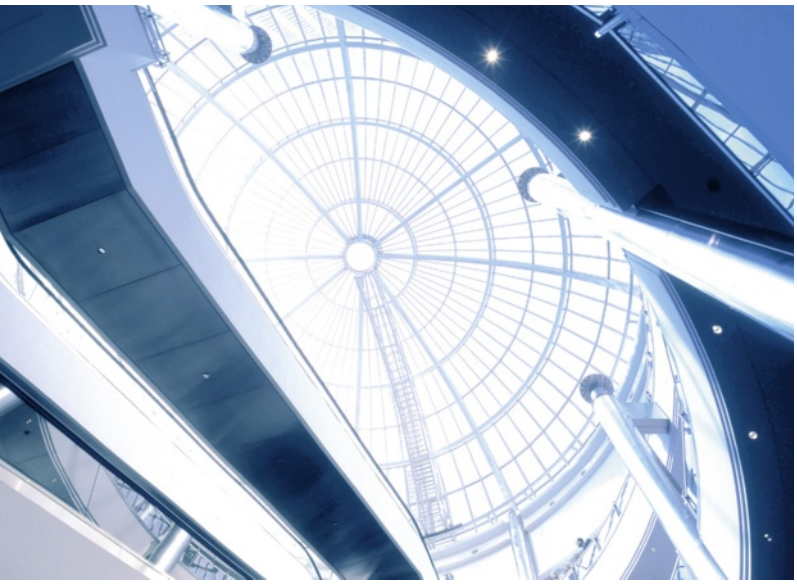

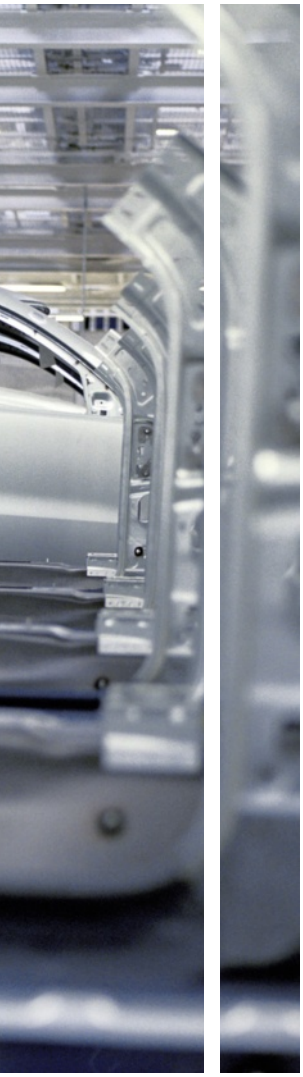

Answers for industry.

Siemens Industry answers the challenges in the manufacturing and the process industry as well as in the building automation business. Our drive and automation solutions based on Totally Integrated Automation (TIA) and Totally Integrated Power (TIP) are employed in all kinds of industry. In the manufacturing and the process industry. In industrial as well as in functional buildings.

Siemens offers automation, drive, and low-voltage switching technology as well as industrial software from standard products up to entire industry solutions. The industry software enables our industry customers to optimize the entire value chain – from product design and development through manufacture and sales up to after-sales service. Our electrical and mechanical components offer integrated technologies for the entire drive train – from couplings to gear units, from motors to control and drive solutions for all engineering industries. Our technology platform TIP offers robust solutions for power distribution.

The high quality of our products sets industry-wide benchmarks. High environmental aims are part of our eco-management, and we implement these aims consistently. Right from product design, possible effects on the environment are examined. Hence many of our products and systems are RoHS compliant (Restriction of Hazardous Substances). As a matter of course, our production sites are certified according to DIN EN ISO 14001, but to us, environmental protection also means most efficient utilization of valuable resources. The best example are our energy-efficient drives with energy savings up to 60 %.

Check out the opportunities our automation and drive solutions provide. And discover how you can sustainably enhance your competitive edge with us.

Notes

2/2 **Introduction**

AS-Interface
Masters
Masters for SIMATIC S7
2/13 - CM 1243-2 new
Power Supply Units and
Data Decoupling Modules
2/15 Data decoupling modules
for S7-1200 new

Introduction

Overview

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AS-Interface: ASIsafe			
	ASIsafe enables the integration of safety-oriented components in an AS-Interface network, for example: • EMERGENCY-STOP pushbuttons • Protective door switches • Safety light arrays The simple wiring of AS-Interface, which is a major advantage, is maintained.		
 3RK3 Modular safety System	**Modular Safety System (MSS)** Supplementing the service-proven concept of the safety monitors, the new 3RK3 Modular Safety System offers for example the following functions for ASIsafe: • Up to 50 enabling circuits including muting function • Expandable fail-safe and non-fail-safe inputs/outputs • Control of up to 12 ASIsafe outputs or 12 fail-safe independent switch-off groups • Memory module for parameters, e.g. for device replacement • Optional PROFIBUS interface for diagnostics and parameterization • Intuitive graphic parameterization and diagnostics software MSS ES • AS-i Power24V capability Your advantage: Easy to configure safety functions up to Category 4, PL e, SIL 3	**3RK3**	Catalog IC 10
 Safety monitor	**AS-Interface safety monitors** • For monitoring safe stations and for linking AS-Interface inputs and outputs • Ensures safe disconnection • Available with one or two release circuits with 2-channel configuration • All versions with removable screw terminals or spring-type terminals • All safety monitors in revised Version 3 with additional options • Filtering out of brief single-channel interruptions in the sensor circuit with the expanded safety monitor Version 3 • Expanded safety monitor with integrated safe slave for controlling a distributed safe AS-i output or for safe coupling a safe signal from one AS-i network to another AS-i network • Configuration software ASIMON V3 with graphic function diagram presentation Your advantage: Easy to configure safety functions up to Category 4, PL e, SIL 3	**3RK1**	Catalog IC 10
 K45F  S45F SlimLine module, safe AS-i output	**AS-Interface safety modules** • Complete portfolio of ASIsafe modules • For connection of safety switches with contacts (e.g. position switches) as well as solid-state safety sensors (ESPE) • Degree of protection IP65/IP67 or IP20 • Very compact dimensions, from 20 mm width • Up to four safe inputs per module • Up to one safe output per module • Standard outputs are available on the module in addition • Up to Category 4, PL e, SIL 3 Your advantage: Easy integration of safe signals, be it in the control cabinet or in the field	**3RK1**	Catalog IC 10
 Position switch	**SIRIUS 3SF1 mechanical safety switches for AS-Interface** • Plastic with degree of protection IP65 and metal with degree of protection IP66/IP67 • ASIsafe Electronics integrated in the enclosure, with low power consumption < 60 mA • Available with separate actuator and tumbler Your advantage: Conventional wiring of safety functions no longer required.	**3SF1**	Catalog IC 10, Ch. 12
 Cable-operated switches	**SIRIUS 3SF2 cable-operated switches for AS-Interface** • Degree of protection IP65 • Direct connection of cable-operated switches for detection of signals • Metal enclosures	**3SF2**	Catalog IC 10, Ch. 13

		Order No.	Page
AS-Interface: ASIsafe (continued)			
 EMERGENCY-STOP for mounting on front plate	**SIRIUS EMERGENCY-STOP mushroom pushbuttons for AS-Interface** • Degree of protection IP65/IP67 • EMERGENCY-STOP directly on AS-Interface using integrated modules • Metal or plastic version Your advantage: Easy direct connection of service-proven control elements to ASIsafe	**3SF5**	Catalog IC 10, Ch. 13
 F adapter	**AS-Interface F adapters for EMERGENCY-STOP devices** • Connection of an EMERGENCY-STOP device according to ISO 13850 to AS-Interface • Is snap-mounted from behind onto the EMERGENCY-STOP device (actuator) • Can be used up to Category 4, PL e, SIL 3 Your advantage: Easy direct connection of service-proven control elements to ASIsafe	**3SF5**	Catalog IC 10, Ch. 13
AS-Interface: Masters			
	The AS-Interface master connects SIMATIC control systems to AS-Interface. It automatically organizes the data traffic on the AS-Interface cable and sees not only to processing the signals but also to performing the parameter setting, monitoring and diagnostics functions.		
 CM 1243-2 for SIMATIC S7-1200	**Masters for SIMATIC S7** AS-Interface master connections: • CM 1243-2 for SIMATIC S7-1200 • CP 343-2P, CP343-2 for SIMATIC S7-300 and ET 200M • CP 243-2 for SIMATIC S7-200 Features: • Connection of up to 62 AS-Interface slaves • Connection of up to 496 digital inputs and 496 outputs per master or AS-Interface network • Integrated analog value transmission • Simple configuration by adopting the actual configuration on the AS-Interface network • Easy operation in the input/output address area of the SIMATIC S7 comparable to standard I/O modules • Monitoring of the control supply voltage on the AS-Interface shaped cable Your advantage: easy connection to SIMATIC control systems	**3RK7** **6GK7**	2/13 Catalog IC 10
 CP 343-2, CP 343-2P for SIMATIC S7-300			
 CP 243-2 for SIMATIC S7-200			

Introduction

	Order No.	Page
AS-Interface: Routers		
As an alternative to the CPs, it is also possible to use a link as AS-Interface master – at any position beneath the PROFIBUS DP or PROFINET IO.		
 DP/AS-i LINK Advanced  DP/AS-Interface Link 20E  DP/AS-i F-Link  IE/AS-i LINK PN IO		
Routers • Degree of protection IP20 • PROFIBUS slave or PROFINET IO device and AS-Interface master (single or double master in case of DP/AS-i LINK Advanced and IE/AS-i LINK PN IO) • Connection of up to 62 AS-Interface slaves per AS-Interface network • Connection of up to 496 digital inputs and 496 outputs per AS-i network, with doubling of the project data volume for double master versions • Integrated ground-fault monitoring (in case of DP/AS-i LINK Advanced and IE/AS-i LINK PN IO) • User-friendly local diagnostics and local start-up by means of a full graphic display and control keys or through a web interface with a standard browser (in case of DP/AS-i LINK Advanced and IE/AS-i LINK PN IO) • Integrated analog value transmission • Configuring and uploading of AS-Interface configuration in STEP 7 possible • User-friendly selection of AS-Interface slaves • Safety-orientated transition from ASIsafe to PROFIsafe also available as DP/AS-i F-Link Your advantage: Optimum transition to PROFIBUS or PROFINET, integrated in STEP 7	**3RK3** **6GK1**	Catalog IC 10 Catalog IC 10

		Order No.	Page
AS-Interface: Slaves			
	Slaves contain the AS-Interface electronics and connection options for sensors and actuators in the field and in the control cabinet. A total of up to 62 slaves can be connected to one bus. The slaves then exchange their data in cyclic mode with a control module (master).		
 K20 digital module	**I/O modules for use in the field, high degree of protection** Digital I/O modules IP67 - K60, K60R, K45 and K20 • Degree of protection IP65/IP67 or IP68/IP69K • Modules available with up to degree of protection IP68/IP69K • ATEX-certified modules available for Ex Zone 22 • Connection sockets in M8/M12 • Up to eight inputs and four outputs • A/B technology available • Contacting protected against polarity reversal • Standard rail mounting and wall mounting possible • Mounting of the module on the base plate using just one screw • Diagnostics LEDs Your advantage: Reduction of mounting and start-up times by up to 40 %	**3RK1, 3RK2**	Catalog IC 10
 K45 digital module			
 K60 digital module			
 K60 analog module	Analog I/O modules, IP67 - K60 • Degree of protection IP65/IP67 • Detects or transmits analog signals locally • 2-/4-channel • Input modules for up to four sensors with current signal, with voltage signal or with thermal resistor • Output modules for current or voltage • Fast analog modules available for higher access speeds Your advantage: Easy integration of analog values	**3RK1**	Catalog IC 10
 SlimLine	**I/O modules for operation in the control cabinet** • Degree of protection IP20 • No M12 plugs required for connection • Up to 16 inputs • Narrow design of the SlimLine modules with width from 22.5 mm • Removable, finger-safe terminal blocks that cannot be mixed up (SlimLine) • Flat design of the flat modules for small control cabinets and confined conditions • With screw or spring-type terminals • Standard rail mounting and wall mounting possible • Diagnostics LEDs Your advantage: Modules enable use in control cabinets and small local control boxes.	**3RG9, 3RK1**	Catalog IC 10
 F90 module			
 Flat module			

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AS-Interface: Slaves (continued)			
 Counter module	**Modules with special functions: Counter modules** • Degree of protection IP20 • For evaluation of pulses • With screw or spring-type terminals Your advantage: Evaluation of pulses which exceed even the clock frequency of AS-Interface	**3RK1**	Catalog IC 10
 Ground-fault detection module	**Modules with special functions: Ground-fault detection modules** • Degree of protection IP20 • Display using LEDs • Two signaling outputs Your advantage: Automatic diagnostics of ground faults on AS-Interface.	**3RK1**	Catalog IC 10
 Overvoltage protection module	**Modules with special functions: Overvoltage protection module** • Degree of protection IP67 • Discharge through ground cable with oil-proof outer sheath • Protection at transition of lightning protection zones Your advantage: The AS-Interface overvoltage protection module protects downstream AS-Interface devices or individual sections in AS-Interface networks from conducted overvoltages	**3RK1**	Catalog IC 10
 3RT20 1.-1B...-0CC0 contactor	**Contactors and contactor assemblies** Power contactors for switching motors and contactor assemblies • Notable reduction of wiring in the control circuit • Integrated mechanical interlocking • Prevention of wiring errors in the main circuit • Connection to AS-Interface through function modules	**3RT2, 3RA23, 3RA24**	Catalog IC 10, Ch. 3
 SIRIUS 3RA27 12... function module for AS-Interface	SIRIUS function modules for AS-Interface • For mounting onto SIRIUS 3RT2 contactors • Reduction of control current wiring through plug-in technology and integrated monitoring of circuit breaker/motor starter protector and contactor • Reduced space requirement in the control cabinet through fewer digital inputs and outputs in the control system • Easy configuring through operation of feeders instead of individual contactors • Enhanced operational reliability and quick wiring thanks to spring-type connections • Small number of variants by using identical modules for size S00 and S0 contactors Your advantage: Shortening of mounting and start-up times	**3RA27 12**	Catalog IC 10, Ch. 3
 3RA61 compact starter	**Motor starters for use in the control cabinet** SIRIUS 3RA6 compact starters, 3RA61 direct-on-line starters, 3RA62 reversing starters • Degree of protection IP20 • Very compact load feeders with the integrated functionality of a solid-state overload relay • As direct-on line or reversing starters for motors up to 15 kW/400 V • Easy expansion to form a communication-capable load feeder using AS-i add-on modules • On-site safe disconnection also possible using AS-i add-on modules • Standardized integration of the loads in higher-level control systems using AS-i Your advantage: Compact solution with minimum wiring overhead for actuating direct-on-line and reversing starters in the control cabinet	**3RA6**	Catalog IC 10, Ch. 8

		Order No.	Page
AS-Interface: Slaves (continued)			
 SIRIUS M200D motor starter	**Motor starters for use in the field, high degree of protection** SIRIUS M200D motor starters for AS-Interface • High degree of protection IP65 for cabinet-free construction • As direct-on line or reversing starters for motors up to 5.5 kW/400 V • Mechanical or electronic switching for high switching frequencies • Optionally with manual operation and brake control • Expanded diagnostics and parameterization possible through AS-Interface • Easy and consistent integration in STEP 7 through AS-Interface Your advantage: The correct solution for all simple applications in conveyor systems with spatially distributed drives	**3RK1**	Catalog IC 10, Ch. 9
 ECOFAST motor starters	ECOFAST motor starters • Degree of protection IP65/IP67 • Standardized interfaces according to ECOFAST Specification (complies with DESINA) • Mechanical or solid-state soft switching function • Optionally with AS-i interface for connecting the motor feeder to AS-Interface Your advantage: Less space required in the control cabinet, the starters can be installed near the motor or can be plugged on the motor.	**3RK1**	Catalog IC 10, Ch. 9
 SIRIUS MCU motor starter	SIRIUS MCU motor starters for AS-Interface • Degree of protection IP55 • Direct-on-line or reversing starters up to 5.5 kW at 400 V AC (50/60 Hz) • 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) Your advantage: Factory-wired motor starters in high degree of protection for use in the field.	**3RK1**	Catalog IC 10, Ch. 9
 Motor starter for AS-Interface, 24 V DC	Motor starters for AS-Interface, 24 V DC • Degree of protection IP65/IP67 • Direct-on-line starters, double starters or reversing starters • Up to 70 W • Quick stop function Your advantage: Simple motor starter in service-proven module design for 24 V DC motors	**3RK1**	Catalog IC 10, Ch. 9
	Commanding and signaling devices		
 Pushbuttons	SIRIUS 3SF5 pushbuttons and indicator lights • Modular construction according to individual requirements • Up to 6 signaling points • Metal and plastic version • Any change of equipment possible even after installation • Indicator lights with integrated LED Your advantage: Complete 3SB3 operating system with simple AS-Interface connection for your plant	**3SF58**	Catalog IC 10, Ch. 13
 Signaling column	8WD4 signaling columns • Many optical and acoustic elements can be combined • Up to three signaling elements can be connected using an adapter element • With LEDs or incandescent lamps Your advantage: Signaling columns for monitoring production sequences and for visual or acoustic warnings in emergency situations, with easy AS-Interface connection	**8WD4**	Catalog IC 10, Ch. 13
 Connection for LOGO!	**AS-Interface connection for LOGO!** • AS-Interface slave for the connection of LOGO! • Distributed controller functionality Your advantage: Distributed intelligence can be used on-site and can be connected to the control system through AS-Interface	**3RK1**	Catalog IC 10

Introduction

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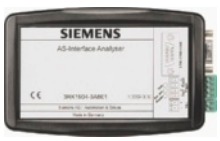
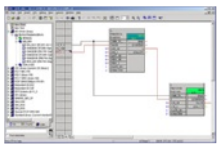
AS-Interface: Power supply units and data decoupling modules			
	AS-Interface power supply units generate a controlled direct voltage of 30 V DC with high stability and low residual ripple, and they come with integrated data decoupling. They are an integral component of the AS-Interface network and enable the simultaneous transmission of data and energy on one cable. In conjunction with data decoupling modules, AS-Interface can also be operated with standard power supply units.		
 IP20, 3 A	**AS-Interface power supply units** • With wide performance spectrum from 2.6 to 8 A • Degree of protection IP20 • Separation of data and energy by means of the integrated data decoupling • Certified for global use, e.g. UL/CSA 2.6 A version with output power restricted to max. 100 W (for use in NEC Class 2 circuits) • Integrated ground-fault and overload detection eliminate the need for additional components and make applications reliable • Diagnostics memory, remote indication and remote RESET allow fast detection of faults in the system • The ultra-wide input range enables single- and two-phase applications (8 A version) Your advantage: Optimum performance for each application	**3RX9**	Catalog IC 10
 IP20, 8 A			
 SITOP PSU100M, 24 V DC, 20 A	**24 V power supply units** Standard 24 V power supply units (SITOP) • Performance spectrum 2.5 A to 40 A • Overload and short-circuit proof in every performance class • Add-on modules for signaling, redundancy, buffering and UPS • Single-phase, two-phase and three-phase versions Your advantage: Economical alternatives in conjunction with data decoupling modules	**6EP**	Catalog IC 10, Ch. 15
 S22.5 data decoupling module	**S22.5 data decoupling modules** • Degree of protection IP20, narrow design 22.5 mm • Connection of several AS-i networks to one power supply unit • Single and double data decoupling • Operation with 24 V DC or 30 V DC Your advantage: Cost-effective installation of AS-i networks in conjunction with standard power supply units	**3RK1**	Catalog IC 10
 DCM 1271 data decoupling module	**DCM 1271 data decoupling module for SIMATIC S7-1200** • Simple data decoupling in IP20 design • Supply of several AS-i networks with a single power supply unit • Operation with 24 V DC or 30 V DC Your advantage: Cost-effective installation of AS-i networks in conjunction with standard power supply units in the form of a SIMATIC S7-1200 module	**3RK7**	2/15
AS-Interface: Transmission media			
	AS-Interface shaped cable for connection of network stations.		
 Shaped cable	**AS-Interface shaped cables** • No polarity reversal thanks to trapezoidal shape • Cables made of optimized material for different operating conditions • Special version according to UL Class 2 available Your advantage: Fast replacement and connection to AS-Interface by piercing method	**3RX9**	Catalog IC 10

		Order No.	Page
AS-Interface: System components and accessories			
	Accessories comprise tools for mounting, installation and operating as well as individual components.		
 Repeater  Extension plug	**Repeaters and extension plugs** • Repeaters for extending the AS-Interface cable by 100 m per repeater • Extension plug for extending the AS-Interface segment to max. 200 m • Parallel switching of several repeaters possible (star configuration option) • Maximum size increases (when combined) to more than 600 m • Easy mounting • IP67 module enclosure Your advantage: Lower infrastructure costs, more possibilities of use and greater freedom for plant planning.	**3RK1, 6GK1**	Catalog IC 10
 Addressing unit for AS-Interface V 3.0	**Addressing units** • Reading out and adjusting the slave address 0 to 31 or 1A to 31A, 1B to 31B, with automatic addressing aid and prevention of double addresses • Reading out the slave profile (IO, ID, ID2) and reading out and setting the ID1 code • Input/output test when commissioning the slaves, on all digital and analog slaves according to AS-Interface Specification V 3.0, including safe input slaves and complex CTT2 slaves • Display of the operational current in case of direct connection of an AS-i slave (measuring range from 0 to 150 mA) • Storage of complete network configurations (profiles of all slaves) to simplify the addressing Your advantage: Easiest way to address and test the slaves	**3RK1**	Catalog IC 10
 Analyzer	**AS-Interface analyzers** • Diagnostics units for completely checking the quality and function of an AS-Interface installation • Transmission of collected data through an RS-232 interface to a PC, evaluation by software • Easy and user-friendly operation • Automatically generated test logs • Advanced trigger functions enable exact analysis • Process data can be monitored online • In addition to digital I/O data it is possible to view analog values and safety slaves in data mode Your advantage: Preventative testing of an AS-Interface network is possible, recorded logs facilitate remote diagnostics.	**3RK1**	Catalog IC 10
 M12 sealing cap  Cable terminating piece	**Miscellaneous accessories** AS-Interface system manual, individual components such as sealing caps, cable adapters, distributors, M12 plugs and cables, etc.	**3RK2, 3RG7, 3RG9, 3RK1, 3RX9, 6ES7**	Catalog IC 10
AS-Interface: Software			
 AS-i function block library for PCS 7	**AS-Interface function block library for SIMATIC PCS 7** • Engineering software and runtime software • Easy connection of AS-Interface to PCS 7 • Engineering work reduced to positioning and connecting the function blocks in the CFC • With no additional configuring steps required for connection to the PCS 7 Maintenance Station, diagnostics for the AS-i system is optimally guaranteed Your advantage: Easy connection of AS-Interface to PCS 7, little engineering and configuration	**3ZS1**	Catalog IC 10, Ch. 14

Introduction

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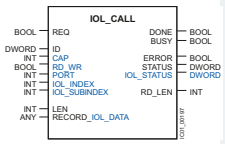
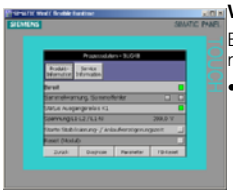
IO-Link		
 IO-Link family IO-Link is an open communication standard for sensors and actuators - defined by the Profibus User Organization (PNO). • Dynamic changing of sensor/actuator parameters directly by the PLC • Devices can be exchanged during operation, without a PC or programming device, through re-parameterization using the user program by means of a function block (FB) or parameter server • Fast commissioning thanks to central data storage • Consistent diagnostics information as far as the sensor/actuator level • Uniform and greatly reduced wiring of different sensors/actuators/controls Your advantage: Fast commissioning and flexible maintenance thanks to central data storage, less wiring work because no passive distributors are needed		Catalog IC 10
IO-Link: Masters		
 SIRIUS 4SI electronic module for ET 200S The IO-Link master modules form the heart of the IO-Link system. **IO-Link master modules for ET 200S** IO-Link 4SI electronic module • Up to 4 IO-Link devices (three-wire connection) can be connected • Up to 4 standard actuators/sensors (two-wire/three-wire connection) can be connected	**6ES7**	Catalog IC 10
SIRIUS 4SI electronic modules • Up to 16 SIRIUS controls can be connected with IO-Link (grouped) • Supports firmware update (STEP 7 V5.4 SP4 and higher).	**3RK1**	Catalog IC 10
 IO-Link master module for ET 200eco PN **IO-Link master modules for ET 200eco PN** • Up to 4 IO-Link devices (three-wire connection) can be connected • Up to 8 standard sensors (8 DI) and up to 4 standard actuators (4 DO) can be connected in addition. Your advantage: Easy connection to the control system in IP20 as well as in IP65/IP67	**6ES7**	Catalog IC 10
IO-Link: Input modules		
 IO-Link K20 module with four digital inputs IO-Link input modules make full use of the potential of IO-Link and economically are a more attractive solution than a direct sensor connection. **IO-Link K20 modules** • Four or eight digital inputs • Degree of protection IP65/IP67 • Connection sockets in M8/M12 • Contacting protected against polarity reversal Your advantage: Reduction of mounting and start-up times by up to 40 %	**3RK5**	Catalog IC 10

	Order No.	Page
IO-Link: Industrial Controls		
Starters and contactor assemblies for direct-on-line, reversing and wye-delta starting can be connected to IO-Link through function modules without any additional, complicated wiring.		
Contactors and contactor assemblies Power contactors for switching motors and contactor assemblies • Notable reduction of wiring in the control circuit • Integrated mechanical interlocking • Prevention of wiring errors in the main circuit	**3RT2, 3RA23, 3RA24**	Catalog IC 10, Ch. 3
 3RT20 1.-1B...-0CC0 contactor		
SIRIUS function modules for IO-Link • Connection of the communication-capable 3RT2, 3RA23, 3RA24 power contactors to IO-Link • Reduction of control current wiring through plug-in technology, feeder groups and integrated monitoring of circuit breaker/motor starter protector and contactor • Reduced space requirement in the control cabinet through fewer digital inputs and outputs in the control system • Simple user program thanks to operation of feeders instead of individual contactors • Enhanced operational reliability and quick wiring thanks to spring-type connections • Can be flexibly combined with many automation solutions using the open, standardized IO-Link wiring system • Small number of variants by using identical modules for size S00 and S0 contactors Your advantage: Shortening of mounting and start-up times	**3RA27 11**	Catalog IC 10, Ch. 3
 SIRIUS 3RA27 11 function module for IO-Link		
Overload relays SIRIUS 3RB24 solid-state overload relays for IO-Link • Diagnostics and current value transmission via IO-Link • Current measuring modules (3RB29) for current values from 0.3 to 630 A • Controlling direct-on-line, reversing and wye-delta starters via IO-Link in conjunction with contactors • Full motor protection through PTC connection Your advantage: Communication-capable overload relay enables remote diagnostics and preventative maintenance	**3RB24**	Catalog IC 10, Ch. 7
 SIRIUS 3RB24 overload relay		
Monitoring relays 3RR24 monitoring relays for IO-Link • Monitoring relays for mounting onto 3RT2 contactors • Parameterization and diagnostics via the display on the device or via IO-Link • Adjustable warning and switch-off limit values and on/tripping delay times • All current measured values available in the control system Your advantage: Communication-capable monitoring relay enables remote diagnostics and preventative maintenance	**3RR24**	Ch. 10
 SIRIUS 3RR24		
SIRIUS 3UG48 monitoring relays for stand-alone installation for IO-Link • Monitoring of - Network (3UG48 1) - Current (3UG48 2) - Voltage (3UG48 3) - Power factor (3UG48 4) - Speed (3UG48 5) • Parameterization and diagnostics via the display on the device or via IO-Link • Adjustable warning and switch-off limit values and on/tripping delay times • All current measured values available in the control system • Your advantage: Communication-capable monitoring relay enables remote diagnostics and preventative maintenance	**3UG48**	Catalog IC 10, Ch. 10
 SIRIUS 3UG48		
SIRIUS 3RS14, 3RS15 temperature monitoring relay for IO-Link • Measurement of the temperature of solids, liquids and gases • Use of resistance sensors (3RS14) or thermocouples (3RS15) • Parameterization and diagnostics via the display on the device or via IO-Link; adjustable warning and switch-off limit values and on/tripping delay times • All current measured values available in the control system • Your advantage: Independent monitoring easily linked to the control system	**3RS14, 3RS15**	Catalog IC 10, Ch. 10
 SIRIUS 3RS14, 3RS15		

Introduction

	Order No.	Page
IO-Link: RFID systems		
 RFID systems for IO-Link: SIMATIC RF210R, SIMATIC RF220R, SIMATIC RF260R (top)	**6GT2**	Catalog ID 10
SIMATIC RF200 RFID system in the HF range • SIMATIC RF210R, SIMATIC RF220R, SIMATIC RF260R products • Simple identification tasks (read-only), such as reading an ID number • No RFID-specific programming, ideal for those new to RFID • Simple connection via master modules for IO-Link, such as SIMATIC ET 200S and ET 200eco • Use with the tried and tested ISO 15693 transponders (MOBY D)		
IO-Link: IODD files		
IO-Link Device Description (IODD) files provide the device description for IO-Link • Comprehensive IODD catalog of SIEMENS IO-Link devices • Can be downloaded from http://support.automation.siemens.com/DE/view/en/29801139/133100		Ch. 2
IO-Link: Software		
 STEP 7 PCT		Catalog IC 10, Ch. 14
STEP 7 PCT Engineering software for configuring the IO-Link master modules for ET 200S and ET 200eco • Available as a standalone version or integrated into STEP 7 (Version 5.5 SP1 or later) • Retrieval of parameter and diagnostics data from the IO-Link devices connected to the master • Monitoring of the process image of the IO-Link devices • Open interface for importing further IODDs • Free-of-charge download from http://support.automation.siemens.com/DE/view/en/37936752		
 IO-Link Call function block		Catalog IC 10, Ch. 14
IO-Link Call function block STEP 7 function block for easy acyclical data exchange in the user program • Free-of-charge download from http://support.automation.siemens.com/DE/view/en/38487085		
 WinCC flexible template project		Catalog IC 10, Ch. 14
WinCC flexible template project Easy integration of IO-Link devices into the user program by using ready-made WinCC flexible templates • Free-of-charge download of the project from http://support.automation.siemens.com/DE/view/en/38006560		

Note:

	Screw terminals
	Spring-type terminals
	Combicon connectors (plug-in screw terminals)
	Fast Connect
	The terminals are indicated in the selection and ordering data by orange backgrounds.

Overview

CM 1243-2 communication module for S7-1200

The CM 1243-2 communication module is the AS-Interface master for the SIMATIC S7-1200 and has the following features:

- Connection of up to 62 AS-Interface slaves
- Integrated analog value transmission (Analog Profiles 7.3 and 7.4)
- Supports all AS-Interface master functions according to the AS-Interface Specification V3.0
- Indication of the operating state on the front of the device displayed via LED
- Display of operating mode, AS-Interface voltage faults, configuration faults and peripheral faults via LED behind the front flap
- Compact enclosure in the design of the SIMATIC S7-1200
- Suitable for AS-i power 24V: in combination with the optional DCM 1271 data decoupling module, a standard 24 V power supply unit can be used
- Configuration and diagnostics via the TIA Portal

Design

The CM 1243-2 communication module is positioned to the left of the S7-1200 CPU and linked to the S7-1200 via lateral contacts.

It has:

- Terminals for two AS-i cables (internally jumpered) via two screw terminals each respectively
- One terminal for connection to the functional ground
- LEDs for indication of the operating state and fault statuses of the connected slaves

The screw terminals (included in delivery) can be removed to facilitate installation.

Function

The CM 1243-2 supports all specified functions of the AS-Interface Specification V3.0.

The values of the digital AS-i slaves can be activated via the process image of the S7-1200. During configuration of the slaves in the TIA Portal, the values of the analog AS-i slaves can also be accessed via process image transfer.

It is also possible to exchange all data of the AS-i master and the connected AS-i slaves with the S7-1200 via the data record interface.

Changeover of the operating mode, automatic application of the slave configuration and the re-addressing of a connected AS-i slave can be implemented via the control panel of the CM 1243-2 in the TIA Portal.

The optional DCM 1271 data decoupling module has an integrated recognition unit for detecting ground faults on the AS-Interface cable. The integrated overload protection also disconnects the AS-Interface cable if the power required exceeds 4 A.

Notes on safety

The use of this product requires suitable protective measures (e.g. network segmentation for IT security among others) in order to ensure safe plant operation, see www.siemens.com/industrialsecurity.

Configuration

To configure CM 1243-2, you require STEP 7 V11+Service Pack 2 or higher.

You also require the hardware support package for the CM 1243-2, which can be obtained via Siemens Internet Service & Support.

The software enables user-friendly configuration and diagnostics of the AS-i master and any connected slaves.

Alternatively, you can also apply the AS-Interface ACTUAL configuration at the "touch of a button" via the control panel integrated in the TIA Portal/STEP 7.

Masters for SIMATIC S7
CM 1243-2

Benefits

- More flexibility and versatility in the use of SIMATIC S7-1200 as the result of a significant increase in the number of digital and analog inputs/outputs available
- Very easy configuration and diagnostics of the AS-Interface via STEP 7 V11 (TIA Portal)
- No need for the AS-i power supply unit with AS-i Power24V: The AS-Interface cable is fed through an existing DC 24 V PELV power supply unit. The AS-i DCM 1271 data decoupling module is required for decoupling, see page 2/15.
- LEDs for indication of fault statuses for fast diagnostics
- Monitoring of AS-Interface voltage facilitates diagnostics

Application

The CM 1243-2 is the AS-Interface master connection for the 12x CPUs of the SIMATIC S7-1200. Connection to the AS-Interface greatly increases the number of inputs and outputs available for S7-1200 (max. 496 DI / 496 DO on the AS-Interface per CM).

The integrated analog value processing also makes the analog values available at the AS-Interface for the S7-1200 (per CM up to 31 standard analog slaves, each with up to 4 channels, or up to 62 A/B analog slaves, each with up to 2 channels).

Selection and ordering data

	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
 3RK7 243-2AA30-0XB0	**CM 1243-2 communication modules** • AS-Interface masters for SIMATIC S7-1200 • corresponds to AS-Interface Specification V3.0; • Dimensions (W × H × D / mm): 30 × 100 × 75	A	**3RK7 243-2AA30-0XB0**		1	1 unit	42C
	Manual AS-i Master CM 1243-2 and AS-i data decoupling module DCM 1271 for SIMATIC S7-1200						
	German	C	**3ZX1 012-0RK71-1AB1**		1	1 unit	4N1
	English	C	**3ZX1 012-0RK71-1AC1**		1	1 unit	4N1

Accessories

	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	5-pole screw terminal for AS-i Master CM 1243-2 and AS-i DCM 1271 data decoupling module						
	• With screw terminals	▶	**3RK1 901-3MA00**		1	1 unit	42C

More information

The manuals are also available free of charge on the Internet, see
http://support.automation.siemens.com/WW/view/en/50414115/133300

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

Overview

DCM 1271 data decoupling module for SIMATIC S7-1200

Using the DCM 1271 data decoupling module, the AS-Interface network can also be supplied with 24 V DC or 30 V DC from a standard power supply unit and the transmission of data and power can be realized along one cable.

The DCM 1271 data decoupling module has the same enclosure design as the S7-1200 module and is therefore ideal for combining with the CM 1243-2 AS-i master.

Features of the DCM 1271 data decoupling module

- Design: S7-1200, 30 mm wide, degree of protection IP20
- Detachable terminals (included in delivery)
- Single data decoupling
- Supply of several AS-i networks with a single power supply unit
- Operation with 24 V DC or 30 V DC, grounded or non-grounded
- Current limiting at 4 A
- Integrated ground-fault detection
- Diagnostic LEDs for ground faults and overloads
- Signaling contact for ground-fault detection

Ground-fault detection

The integrated ground-fault detection works with a grounded and non-grounded supply: The connection of negative pole and ground (upstream from the data decoupling module) customary with 24 V DC power supplies is permitted. A ground connection against negative or positive pole on the AS-Interface network (behind the data decoupling module) is identified and reported via LED and a contact.

Benefits

- An existing standard power supply unit with 24 V DC or 30 V DC can be used for supplying AS-i networks
- The AS-Interface system can also be used in tightly budgeted applications because no AS-Interface power supply unit needs to be purchased
- Applications benefit in addition from the advantages of a modern bus system:
  - High level of standardization
  - Additional diagnostics and maintenance information
  - Faster commissioning

Application

The AS-Interface data decoupling module is designed for AS-Interface networks with 30 V supply or 24 V supply (AS-Interface Power24V).

Operation of an AS-i network with the data decoupling module and a 30 V DC standard power supply unit is technically equivalent to the use of an AS-Interface power supply unit and offers the service-proven features of AS-Interface for all applications.

AS-Interface Power24V uses a 24 V DC power supply unit in conjunction with the data decoupling module and is particularly suitable for

- Compact machines using AS-Interface input/output modules
- Applications in the control cabinet for AS-Interface integration of SIRIUS Innovations contactors and compact starters (3RT2 contactors through 3RA27 function modules or 3RA6 compact starters through AS-i 3RA69 add-on modules)

Note:

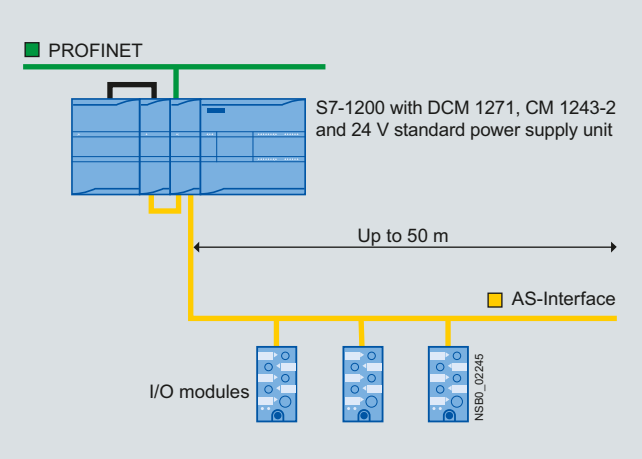
The length of an AS-i Power24V network is restricted to 50 m in order to limit the voltage drop along the cable.

AS-i masters, AS-i slaves and the sensors and actuators supplied through the AS-i cable must be designed for the reduced voltage. Sensors and actuators for the standard voltage range of 10 to 30 V can be supplied with sufficient voltage.

The power supply units with a rated output voltage of 24 V or 30 V must comply with the PELV (Protective Extra Low Voltage) or SELV (Safety Extra Low Voltage) standards, have a residual ripple of < 250 mVpp, and in the event of a fault must limit the output voltage to a maximum of 40 V. We recommend SITOP power supply units, see Catalog IC 10, Chapter 15 "Products for Specific Applications" → "Stabilized Power Supplies".

Please also continue to observe the requirements specified in the section "Extension of AS-i Power24V" for implementation of AS-i Power24V, see Catalog IC 10, Chapter 2.

Circuit example



Structure of an AS-i Power24V network with AS-Interface DCM 1271 data decoupling module

Data decoupling modules for S7-1200

Selection and ordering data

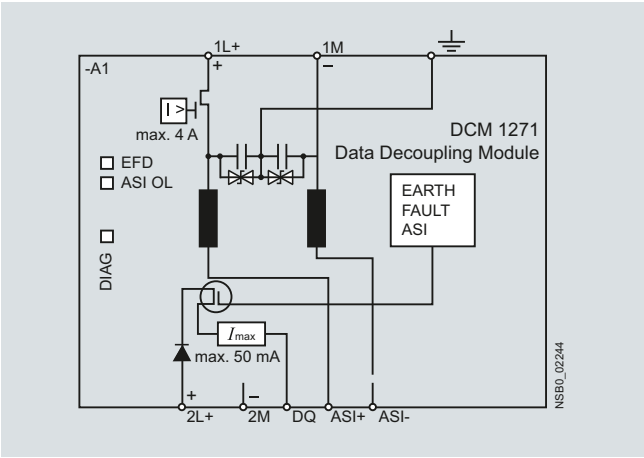
3RK7 271-1AA30-0AA0

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
DCM 1271 data decoupling module • Optional, for AS-i Power24V for use of a standard 24 V power supply unit • Dimensions (W × H × D / mm): 30 × 100 × 75	A	**3RK7 271-1AA30-0AA0**		1	1 unit	42C
Manual AS-i Master CM 1243-2 and AS-i data decoupling module DCM 1271 for SIMATIC S7-1200						
German	C	**3ZX1 012-0RK71-1AB1**		1	1 unit	4N1
English	C	**3ZX1 012-0RK71-1AC1**		1	1 unit	4N1

Accessories

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
5-pole screw terminal for AS-i Master CM 1243-2 and AS-i DCM 1271 data decoupling module						
• With screw terminals		**3RK1 901-3MA00**		1	1 unit	42C
3-pole screw terminal for AS-i DCM 1271 data decoupling module for connecting the power supply unit						
• With screw terminals		**3RK1 901-3MB00**		1	1 unit	42C

Circuit diagrams



DCM 1271 single data decoupling module

More information

The manuals are also available free of charge on the Internet, see
http://support.automation.siemens.com/WW/view/en/50414115/133300

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

Protection Equipment

7/2 **Introduction**

Motor Starter Protectors/ Circuit Breakers

SIRIUS 3RV2 Motor Starter Protectors up to 40 A

7/7 General data

7/9 For motor protection new

7/10 For starter combinations new

SIRIUS 3RV2 Circuit Breakers up to 40 A

7/11 For system protection according to UL 489/CSA C22.2 No. 5-02 new

7/12 For transformer protection according to UL 489/CSA C22.2 No.5-02 new

Introduction

Overview

Type		3RV20	3RV21	3RV23	3RV24	3RV27	3RV28
SIRIUS 3RV2 motor starter protectors up to 40 A							
Applications							
• System protection		✓[1]	✓[1]	--	--	✓	✓
• Motor protection		✓	--	--	--	--	--
• Motor protection with overload relay function		--	✓	--	--	--	--
• Starter combinations		--	--	✓	--	--	--
• Transformer protection		--	--	--	✓	✓	✓
Size		S00, S0	S00, S0	S00, S0	S00, S0	S00, S0	S00, S0
Rated current I_n							
• Size S00	A	up to 16	up to 16	up to 16	up to 16	up to 15	up to 15
• Size S0	A	up to 40	up to 32	up to 40	up to 25	up to 22	up to 22
Rated operational voltage U_e according to IEC	V	690 AC[2]	690 AC[2]	690 AC[2]	690 AC[2]	690 AC	690 AC
Rated frequency	Hz	50/60	50/60	50/60	50/60	50/60	50/60
Trip class		CLASS 10	CLASS 10	--	CLASS 10	--	--
Thermal overload releases	A A	0.11 ... 0.16 to 34 ... 40	0.11 ... 0.16 to 27 ... 32	Without[3]	0.11 ... 0.16 to 20 ... 25	0.16 ... 22 non-adjustable	0.16 ... 22 non-adjustable
Electronic release A multiple of the rated current		13 times	13 times	13 times	20 times	13 times	20 times
Short-circuit breaking capacity I_{cu} at 400 V AC	kA	20/55/100	55/100	20/55/100	55/100	[4]	[4]
Pages		7/9	Catalog IC 10	7/10	Catalog IC 10	7/11	7/12

Accessories												
For sizes	S00	S0	S00	S0	S00	S0	S00	S0	S00	S0	S00	S0
Auxiliary switches	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Signaling switches	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--	--
Undervoltage releases	✓	✓	--	--	✓	✓	✓	✓	✓	✓	✓	✓
Shunt releases	✓	✓	--	--	✓	✓	✓	✓	✓	✓	✓	✓
Isolator modules	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--	--
Insulated three-phase busbar system	✓	✓	--	--	✓	✓	✓	✓	--	--	--	--
Busbar adapters	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--	--
Door-coupling rotary operating mechanisms	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Link modules	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--	--
Enclosures for surface mounting	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--	--
Enclosures for flush mounting	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--	--
Front plates	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--	--
Infeed system	✓	✓	--	--	✓	✓	✓	✓	--	--	--	--
Terminal covers for ring terminal lug connections	✓[5]	✓[5]	--	--	--	--	--	--	--	--	--	--
Sealable scale covers for setting knobs	✓	✓	✓	✓	--	--	✓	✓	--	--	--	--
Pages	Catalog IC 10											

✓ Has this function or can use this accessory

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

[1] For symmetrical loading of the three phases.

[2] With molded-plastic enclosure 500 V AC. DC applications see "Technical Specifications" → "DC Short-Circuit Breaking Capacity" in Catalog IC 10.

[3] For overload protection of the motors, appropriate overload relays must be used.

[4] According to UL 489 at 480 Y/277 V AC: 65 kA or 50 kA.

[5] Terminal covers are available for 3RV20 motor starter protectors for motor protection with ring terminal lug connection to ensure finger-safety.

Type		3RV10	3RV11	3RV13	3RV14	3RV16	3RV16	3RV17
SIRIUS 3RV1 motor starter protectors up to 100 A								
Applications								
• System protection		✓[1]	✓[1]	--	--	--	--	✓
• Motor protection		✓	--	--	--	--	--	--
• Motor protection with overload relay function		--	✓	--	--	--	--	--
• Starter combinations		--	--	✓	--	--	--	--
• Transformer protection		--	--	--	✓	--	--	✓
• Fuse monitoring		--	--	--	--	✓	--	--
• Voltage transformer circuit breakers for distance protection		--	--	--	--	--	✓	--
Size		S2, S3	S2, S3	S2, S3	S2	S00	S00	S3
Rated current I_n								
• Size S00	A	--	--	--	--	0,2	up to 3	--
• Size S2	A	up to 50	up to 50	up to 50	up to 40	--	--	--
• Size S3	A	up to 100	up to 100	up to 100	--		--	up to 70
Rated operational voltage U_e according to IEC	V	690 AC[2]	690 AC[2]	690 AC[2]	690 AC[2]	690 AC[2]	400 AC	690 AC
Rated frequency	Hz	50/60	50/60	50/60	50/60	50/60	$16^2/_3$ ... 60	50/60
Trip class		CLASS 10, 20	CLASS 10	--	CLASS 10	--	--	--
Thermal overload releases	A A	11 ... 16 to 80 ... 100	11 ... 16 to 80 ... 100	Without[3]	11 ... 16 to 28 ... 40	0,2	1.4 ... 3	10 ... 70 non-adjustable
Electronic release A multiple of the rated current		13 times	13 times	13 times	20 times	6 times	4 ... 7 times	13 times
Short-circuit breaking capacity I_{cu} at 400 V AC	kA	50/100	50/100	50/100	50/100	100	50	[4]
Pages		Catalog IC 10						
Accessories								
For sizes		S2 S3	S2 S3	S2 S3	S2	S00	S00	S3
Auxiliary switches		✓ ✓	✓ ✓	✓ ✓	✓	✓	✓	✓[5]
Signaling switches		✓ ✓	✓ ✓	✓ ✓	✓	--	--	--
Undervoltage releases		✓ ✓	-- --	✓ ✓	✓	--	--	✓
Shunt releases		✓ ✓	-- --	✓ ✓	✓	--	--	✓
Isolator modules		✓ --	✓ --	✓ --	✓	--	--	--
Insulated three-phase busbar system		✓ --	✓ --	✓ --	✓	--	--	--
Busbar adapters		✓ ✓	✓ ✓	✓ ✓	✓	--	--	--
Door-coupling rotary operating mechanisms		✓ ✓	✓ ✓	✓ ✓	✓	--	--	✓
Remote motorized operating mechanisms		✓ ✓	✓ ✓	✓ ✓	✓	--	--	--
Link modules		✓ ✓	✓ ✓	✓ ✓	✓	--	--	--
Enclosures for surface mounting		✓ --	✓ --	✓ --	✓	--	--	--
Front plates		✓ ✓	✓ ✓	✓ ✓	✓	--	--	--
Pages		Catalog IC 10						

✓ Has this function or can use this accessory

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

1) For symmetrical loading of the three phases.

2) With molded-plastic enclosure 500 V AC. DC applications see "Technical Specifications" → "DC Short-Circuit Breaking Capacity" in Catalog IC 10.

3) For overload protection of the motors, appropriate overload relays must be used.

4) According to UL 489
- at 480 Y/277 V AC: 65 kA;
- at 480 V AC: 65 kA (10 A to 30 A).

5) Only lateral auxiliary switches can be fitted.

Introduction

Type		3RV10			3RV13					
SIRIUS 3RV1 molded case motor starter protectors up to 800 A										
Applications										
• Motor protection		✓			--					
• Starter combinations		--			✓					
Switching capacity		Standard switching capacity			Standard switching capacity				Increased switching capacity	
Size		3RV10 63	3RV10 73	3RV10 83	3RV13 53	3RV13 63	3RV13 73	3RV13 83	3RV13 64	3RV13 74
Rated current I_n	A	100 ... 200	400	630	1 ... 32	100 ... 250	400, 630	630, 800	100 ... 250	400
Rated operational voltage U_e according to IEC	V	690 AC			690 AC					
Rated frequency	Hz	50/60			50/60					
Trip class		CLASS 10A, 10, 20, 30			--[1]					
Thermal overload releases	A A	40 ... 100 to 252 ... 630			Without[1]					
Electronic release A multiple of the rated current		Adjustable, 6 ... 13 times			Non-adjustable 1 ... 12.5 A: 13 times; Adjustable 20 A, 32 A: 6 ... 12 times	1 ... 10 times				
Short-circuit breaking capacity I_{cu} at 400 V AC	kA	120	120	100	85	120	120	100	200	200
Trip unit (release)		TU 4			TU 1: 1 ... 12.5 A; TU 2: 20 A, 32 A	TU 3				
Pages		Catalog IC 10								

Accessories										
For molded case motor starter protectors		3RV10 63	3RV10 73	3RV10 83	3RV13 53	3RV13 63	3RV13 73	3RV13 83	3RV13 64	3RV13 74
Auxiliary switches		✓	✓	✓	✓	✓	✓	✓	✓	✓
Undervoltage releases		✓	✓	✓	✓	✓	✓	✓	✓	✓
Shunt releases		✓	✓	✓	✓	✓	✓	✓	✓	✓
Rotary operating mechanisms		✓	✓	✓	✓	✓	✓	✓	✓	✓
Connection methods • Extended terminals on the front • Cable terminals on the front • Rear terminals		✓ ✓ ✓	✓ ✓ ✓	-- ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	-- ✓ ✓	✓ ✓ ✓	✓ ✓ ✓
Pages		Catalog IC 10								

✓ Has this function or can use this accessory

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

[1] For overload protection of the motors, appropriate overload relays must be used.

Type		3RU21	3RB30	3RB31
SIRIUS overload relays up to 40 A				
Applications				
• System protection		✓[1]	✓[1]	✓[1]
• Motor protection		✓	✓	✓
• Alternating current, three-phase		✓	✓	✓
• Alternating current, single-phase		✓	--	--
• Direct current		✓	--	--
Size of contactor		S00, S0	S00, S0	S00, S0
Rated operational current I_e				
• Size S00	A	up to 16	up to 16	up to 16
• Size S0	A	up to 40	up to 40	up to 40
Rated operational voltage U_e	V	690 AC	690 AC	690 AC
Rated frequency	Hz	50/60	50/60	50/60
Trip class		CLASS 10	CLASS 10, 20	CLASS 5, 10, 20, 30 adjustable
Thermal overload releases	A A	0.11 ... 0.16 to 34 ... 40	--	--
Electronic overload releases	A A	--	0.1 ... 0.4 to 10 ... 40	0.1 ... 0.4 to 10 ... 40
Rating for three-phase motor at 400 V AC	kW	0.04 ... 18.5	0.04 ... 18.5	0.04 ... 18.5
Pages		Catalog IC 10		

Accessories						
For sizes	S00	S0	S00	S0	S00	S0
Terminal supports for stand-alone assembly	✓	✓	✓	✓	✓	✓
Mechanical RESET	✓	✓	✓	✓	✓	✓
Cable releases for RESET	✓	✓	✓	✓	✓	✓
Electrical remote RESET	✓	✓	--	--	Integrated in the unit	
Terminal covers for ring terminal lug connections	✓[2]	✓[2]	--	--	--	--
Sealable covers for setting knobs	✓	✓	✓	✓	✓	✓
Pages	Catalog IC 10					

✓ Has this function or can use this accessory

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

[1] The units are responsible in the main circuit for overload protection of the assigned electrical loads (e.g. motors), feeder cable and other switching and protection devices in the respective load feeder.

[2] Terminal covers for ensuring finger-safe touch protection are available for 3RU21 overload relays with ring terminal lug connections for mounting onto contactors.

Introduction





Type		3RU11	3RB20	3RB21	3RB22, 3RB23	3RB24
SIRIUS overload relays up to 630 A						
Applications						
• System protection		✓[1]	✓[1]	✓[1]	✓[1]	
• Motor protection		✓	✓	✓	✓	
• Alternating current, three-phase		✓	✓	✓	✓	
• Alternating current, single-phase		✓	--	--	✓	
• Direct current		✓	--	--	--	
Size of contactor		S2, S3	S2 ... S12	S2 ... S12	S00 ... S12	
Rated operational current I_e						
• Sizes S00 and S0	A	--	--	--	Up to 25 and 45 mm width with current measuring module 3RB29 06-2BG1/3RB29 06-2DG1	
• Size S2	A	up to 50	up to 50	up to 50	Up to 100 and 55 mm width with current measuring module 3RB29 06-2JG1	
• Size S3	A	up to 100	up to 100	up to 100		
• Size S6	A	--	up to 200	up to 200	Up to 200 and 120 mm width with current measuring module 3RB29 56-2TH2/3RB29 56-2TG2	
• Size S10/S12	A	--	up to 630	up to 630	Up to 630 and 145 mm width with current measuring module 3RB29 66-2WH2	
• Size 14 (3TF68/3TF69)	A	--	--	--	Up to 820 with current measuring module 3RB29 06-2BG1 and transformer 3UF18 68-3GA00	
Rated operational voltage U_e	V	690/1 000 AC[2]	690/1 000 AC[3]	690/1 000 AC[3]	690/1 000 AC[4]	
Rated frequency	Hz	50/60	50/60	50/60	50/60	
Trip class		CLASS 10	CLASS 10, 20	CLASS 5, 10, 20, 30 adjustable	CLASS 5, 10, 20, 30 adjustable	
Thermal overload releases	A A	5.5 ... 8 to 80 ... 100	--	--	--	
Electronic overload releases	A A	--	6 ... 25 to 160 ... 630	6 ... 25 to 160 ... 630	0,3 ... 3 to 63 ... 630	
Rating for three-phase motor at 400 V AC	kW kW	3 to 45	3 ... 11 to 90 ... 450	3 ... 11 to 90 ... 450	0.09 ... 1.1 to 37 ... 450	
Pages		Catalog IC 10				

Accessories																	
For sizes	S2	S3	S2	S3	S6	S10/S12	S2	S3	S6	S10/S12	S00	S0	S2	S3	S6	S10/S12
Terminal supports for stand-alone assembly	✓	✓	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]
Mechanical RESET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--	--	--	--
Cable releases for RESET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	--	--	--	--	--	--
Electrical remote RESET	✓	✓	--	--	--	--	Integrated in the unit				Integrated in the unit					
Terminal covers	✓	✓	--	✓	✓	✓	--	✓	✓	✓	--	--	--	✓	✓	✓
Sealable covers for setting knobs	Integrated in the unit		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Operator panel for 3RB24 evaluation module	--	--	--	--	--	--	--	--	--	--	✓	✓	✓	✓	✓	✓
Pages	Catalog IC 10															

✓ Has this function or can use this accessory

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

[1] The units are responsible in the main circuit for overload protection of the assigned electrical loads (e.g. motors), feeder cable and other switching and protection devices in the respective load feeder.

[2] Size S3 up to 1 000 V AC.

[3] Size S2 (only with straight-through transformer), S3, S6, S10, S12 up to 1 000 V AC.

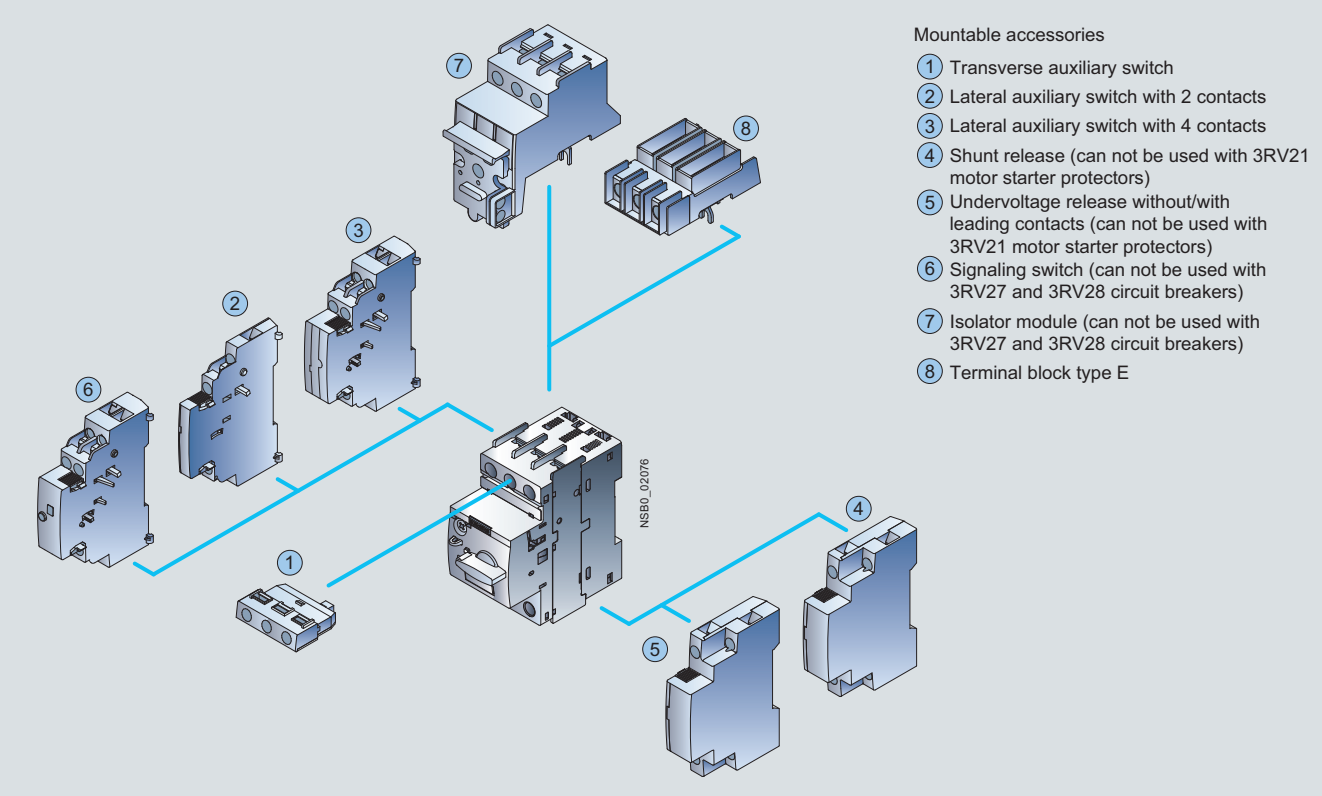
[4] With reference to the 3RB29 .6 current measuring modules.

[5] Stand-alone assembly without accessories is possible.

Overview

The following illustration shows our 3RV2 motor starter protector with the accessories which can be mounted for the sizes S00 and S0, see also "Introduction" → "Overview" on page 7/2.

Accessories see Catalog IC 10, Chapter 7.



Mountable accessories for SIRIUS 3RV2 motor starter protectors

SIRIUS motor starter protector with spring-type terminals, size S0 (left) and SIRIUS motor starter protector with screw terminals, size S00 (right)

The SIRIUS 3RV2 motor starter protectors are compact, current limiting motor starter protectors which are optimized for load feeders. The motor starter protectors are used for switching and protecting three-phase motors of up to 18.5 kW at 400 V AC and for other loads with rated currents of up to 40 A.

3RV1 motor starter protector sizes S2 and S3 up to 100 A see Catalog IC 10, Chapter 7.

Additions to the range in 2012

Size S0 for small rated currents from 1.6 to 12.5 A now with spring-type terminals:

- 3RV20 motor starter protectors for motor protection
- 3RV23 motor starter protectors for starter combinations

Circuit breakers with screw terminals according to UL 489 and CSA C22.2 No. 5-02 now in size S0:

- 3RV27 circuit breakers for system protection
- 3RV28 circuit breakers for transformer protection

Approval

3RV2 motor starter protectors are generally approved according to IEC and UL/CSA. 3RV2 motor starter protectors in sizes S00 and S0 are approved according to UL 508 as:

- "Manual Motor Controllers"
- "Manual Motor Controllers" for "Group Installations"
- "Manual Motor Controllers Suitable for Tab Conductor Protection in Group Installations"
- "Self-Protected Combination Motor Controllers (Type E)" Please note that for this approval the 3RV20 motor starter protectors must be equipped with additional feeder terminals. More information see "Accessories" in Catalog IC 10, Chapter 7.

Corresponding short-circuit values see the pages "Technical Specifications" in Catalog IC 10, Chapter 7.

3RV27 and 3RV28 are approved as circuit breakers according to UL 489; they are a special variant of the 3RV2 motor starter protectors.

General data

Type of construction

The 3RV2 motor starter protectors are available in two sizes:

- Size S00 - width 45 mm,
  max. rated current 16 A,
  at 400 V AC suitable for three-phase motors up to 7.5 kW
- Size S0 - width 45 mm,
  max. rated current 40 A,
  at 400 V AC suitable for three-phase motors up to 18.5 kW

3RV1 motor starter protector sizes S2 and S3 up to 100 A see Catalog IC 10, Chapter 7.

Circuit breakers acc. to UL 489

The 3RV27 and 3RV28 circuit breakers are available in two sizes:

- Size S00 – width 45 mm,
  max. rated current 15 A, at 480 Y/277 V AC
- Size S0 – width 45 mm,
  max. rated current 22 A, at 480 Y/277 V AC

3RV17 motor starter protectors size S3 up to 70 A see Catalog IC 10, Chapter 7.

Connection methods

The 3RV2 motor starter protectors can be supplied with screw terminals, spring-type terminals and ring terminal lug connections.

	Screw terminals
	Spring-type terminals
	Ring terminal lug connections
	The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds.

"Increased safety" type of protection EEx e according to ATEX directive 94/9/EC

The 3RV20 motor starter protectors for motor protection are suitable for the overload protection of explosion-proof motors with "increased safety" type of protection EEx e.

EC type test certificate for Category (2)G/D has been submitted. More details on request.

Order No. scheme

Digit of the Order No.	1st - 3rd	4th	5th	6th	7th		8th	9th	10th	11th	12th		13th	14th	15th	16th
	□□□	□	□	□	□	–	□	□	□	□	□	–	□	□	□	□
Motor starter protectors	**3 R V**															
SIRIUS 2nd generation		**2**														
Type of motor starter protector			□													
Size				□												
Breaking capacity					□											
Setting range for overload release							□	□								
Trip class (CLASS)									□							
Connection methods										□						
With or without auxiliary switch											□					
Special versions													□	□	□	□
Example	**3 R V**	**2**	**0**	**1**	**1**	**–**	**1**	**A**	**A**	**1**	**0**					

Note:

The Order No. scheme is presented here merely for information purposes and for better understanding of the logic behind the order numbers.

For your orders, please use the order numbers quoted in the catalog in the Selection and ordering data.

Application

Operating conditions

See Catalog IC 10, Chapter 7.

Possible uses

The 3RV2 motor starter protectors can be used:

- For short-circuit protection
- For motor protection (also with overload relay function)
- For system protection
- For short-circuit protection for starter combinations
- For transformer protection
- As main and EMERGENCY-STOP switches
- For operation in IT systems (IT networks)
- For switching of DC currents
- In areas subject to explosion hazard (ATEX)
- Approved as circuit breakers according to UL 489 (3RV27 and 3RV28)

For more information, see

- System manual "SIRIUS Innovations – System Overview", http://support.automation.siemens.com/WW/view/en/60317357
- Manual "SIRIUS Innovations – SIRIUS 3RV2 Motor Starter Protectors", http://support.automation.siemens.com/WW/view/en/60279172

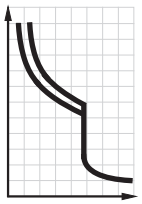
Technical specifications

See Catalog IC 10, Chapter 7.

Selection and ordering data

CLASS 10, without auxiliary switches[1)]

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41E



3RV20 11-0AA10

3RV20 11-0EA20

3RV20 21-4AA10

3RV20 21-4AA20

Rated current	Suitable for three-phase motors[2)] with *P*	Setting range for thermal overload release	Instantaneous overcurrent release	Short-circuit breaking capacity at 400 V AC	DT	Screw terminals	DT	Spring-type terminals
I_n			$I >$	I_{cu}		Order No. / Price per PU		Order No. / Price per PU
A	kW	A	A	kA				
Size S00								
0.16	0.04	0.11 ... 0.16	2.1	100	▶	**3RV20 11-0AA10**	▶	**3RV20 11-0AA20**
0.2	0.06	0.14 ... 0.2	2.6	100	▶	**3RV20 11-0BA10**	▶	**3RV20 11-0BA20**
0.25	0.06	0.18 ... 0.25	3.3	100	▶	**3RV20 11-0CA10**	▶	**3RV20 11-0CA20**
0.32	0.09	0.22 ... 0.32	4.2	100	▶	**3RV20 11-0DA10**	▶	**3RV20 11-0DA20**
0.4	0.09	0.28 ... 0.4	5.2	100	▶	**3RV20 11-0EA10**	▶	**3RV20 11-0EA20**
0.5	0.12	0.35 ... 0.5	6.5	100	▶	**3RV20 11-0FA10**	▶	**3RV20 11-0FA20**
0.63	0.18	0.45 ... 0.63	8.2	100	▶	**3RV20 11-0GA10**	▶	**3RV20 11-0GA20**
0.8	0.18	0.55 ... 0.8	10	100	▶	**3RV20 11-0HA10**	▶	**3RV20 11-0HA20**
1	0.25	0.7 ... 1	13	100	▶	**3RV20 11-0JA10**	▶	**3RV20 11-0JA20**
1.25	0.37	0.9 ... 1.25	16	100	▶	**3RV20 11-0KA10**	▶	**3RV20 11-0KA20**
1.6	0.55	1.1 ... 1.6	21	100	▶	**3RV20 11-1AA10**	▶	**3RV20 11-1AA20**
2	0.75	1.4 ... 2	26	100	▶	**3RV20 11-1BA10**	▶	**3RV20 11-1BA20**
2.5	0.75	1.8 ... 2.5	33	100	▶	**3RV20 11-1CA10**	▶	**3RV20 11-1CA20**
3.2	1.1	2.2 ... 3.2	42	100	▶	**3RV20 11-1DA10**	▶	**3RV20 11-1DA20**
4	1.5	2.8 ... 4	52	100	▶	**3RV20 11-1EA10**	▶	**3RV20 11-1EA20**
5	1.5	3.5 ... 5	65	100	▶	**3RV20 11-1FA10**	▶	**3RV20 11-1FA20**
6.3	2.2	4.5 ... 6.3	82	100	▶	**3RV20 11-1GA10**	▶	**3RV20 11-1GA20**
8	3	5.5 ... 8	104	100	▶	**3RV20 11-1HA10**	▶	**3RV20 11-1HA20**
10	4	7 ... 10	130	100	▶	**3RV20 11-1JA10**	▶	**3RV20 11-1JA20**
12.5	5.5	9 ... 12.5	163	100	▶	**3RV20 11-1KA10**	▶	**3RV20 11-1KA20**
16	7.5	11 ... 16	208	55	▶	**3RV20 11-4AA10**	▶	**3RV20 11-4AA20**
Size S0								
16	7.5	11 ... 16	208	55	▶	**3RV20 21-4AA10**	▶	**3RV20 21-4AA20**
20	7.5	14 ... 20	260	55	▶	**3RV20 21-4BA10**	▶	**3RV20 21-4BA20**
22	11	17 ... 22	286	55	▶	**3RV20 21-4CA10**	▶	**3RV20 21-4CA20**
25	11	20 ... 25	325	55	▶	**3RV20 21-4DA10**	▶	**3RV20 21-4DA20**
28	15	23 ... 28	364	55	▶	**3RV20 21-4NA10**	▶	**3RV20 21-4NA20**
32	15	27 ... 32	400	55	▶	**3RV20 21-4EA10**	▶	**3RV20 21-4EA20**
36[3)]	18.5	30 ... 36	432	20	▶	**3RV20 21-4PA10**		--
40[3)]	18.5	34 ... 40	480	20	▶	**3RV20 21-4FA10**		--
Motor starter protector size S0 for small rated currents [4)]								
1.6	0.55	1.1 ... 1.6	21	100	B	**3RV20 21-1AA10**	B	**3RV20 21-1AA20**
2	0.75	1.4 ... 2	26	100	B	**3RV20 21-1BA10**	B	**3RV20 21-1BA20**
2.5	0.75	1.8 ... 2.5	33	100	B	**3RV20 21-1CA10**	B	**3RV20 21-1CA20**
3.2	1.1	2.2 ... 3.2	42	100	B	**3RV20 21-1DA10**	B	**3RV20 21-1DA20**
4	1.5	2.8 ... 4	52	100	B	**3RV20 21-1EA10**	B	**3RV20 21-1EA20**
5	1.5	3.5 ... 5	65	100	B	**3RV20 21-1FA10**	B	**3RV20 21-1FA20**
6.3	2.2	4.5 ... 6.3	82	100	B	**3RV20 21-1GA10**	B	**3RV20 21-1GA20**
8	3	5.5 ... 8	104	100	B	**3RV20 21-1HA10**	B	**3RV20 21-1HA20**
10	4	7 ... 10	130	100	B	**3RV20 21-1JA10**	B	**3RV20 21-1JA20**
12.5	5.5	9 ... 12.5	163	100	B	**3RV20 21-1KA10**	B	**3RV20 21-1KA20**

1) The 3RV20 .1-..A.0 motor starter protectors up to 32 A are also available with ring terminal lug connection. The Order No. must be changed in the 11th position to **"4"**: e.g. 3RV20 11-0AA**4**0.

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

3) The devices must not be mounted side-by-side and they must not be assembled with link modules with contactors. A lateral clearance of 9 mm is required.

4) For customized applications requiring the use of size S0: e.g. feeders with type of coordination "2", larger conductor cross-sections for large cable lengths, etc.

Version with transverse auxiliary switch see Catalog IC 10.

Auxiliary switches and other accessories can be ordered separately (see "Accessories" in Catalog IC 10).

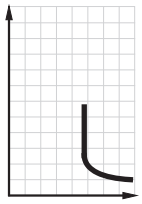
*** You can order this quantity or a multiple thereof.**
Illustrations similar

For starter combinations

Selection and ordering data

Without auxiliary switches

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41E



3RV23 11-4AC10

3RV23 11-0JC20

3RV23 21-4AC10

3RV23 21-4AC20

Rated current	Suitable for three-phase motors[1] with P	Thermal overload release[2]	Instantaneous overcurrent release	Short-circuit breaking capacity at 400 V AC	DT	Screw terminals	DT	Spring-type terminals
I_n			$I >$	I_{cu}		Order No. Price per PU		Order No. Price per PU
A	kW	A	A	kA				
Size S00								
0.16	0.04	Without	2.1	100	B	**3RV23 11-0AC10**	B	**3RV23 11-0AC20**
0.2	0.06	Without	2.6	100	B	**3RV23 11-0BC10**	B	**3RV23 11-0BC20**
0.25	0.06	Without	3.3	100	B	**3RV23 11-0CC10**	B	**3RV23 11-0CC20**
0.32	0.09	Without	4.2	100	B	**3RV23 11-0DC10**	B	**3RV23 11-0DC20**
0.4	0.09	Without	5.2	100	B	**3RV23 11-0EC10**	B	**3RV23 11-0EC20**
0.5	0.12	Without	6.5	100	B	**3RV23 11-0FC10**	B	**3RV23 11-0FC20**
0.63	0.18	Without	8.2	100	B	**3RV23 11-0GC10**	B	**3RV23 11-0GC20**
0.8	0.18	Without	10	100	B	**3RV23 11-0HC10**	B	**3RV23 11-0HC20**
1	0.25	Without	13	100	B	**3RV23 11-0JC10**	B	**3RV23 11-0JC20**
1.25	0.37	Without	16	100	B	**3RV23 11-0KC10**	B	**3RV23 11-0KC20**
1.6	0.55	Without	21	100	B	**3RV23 11-1AC10**	B	**3RV23 11-1AC20**
2	0.75	Without	26	100	B	**3RV23 11-1BC10**	B	**3RV23 11-1BC20**
2.5	0.75	Without	33	100	B	**3RV23 11-1CC10**	B	**3RV23 11-1CC20**
3.2	1.1	Without	42	100	B	**3RV23 11-1DC10**	B	**3RV23 11-1DC20**
4	1.5	Without	52	100	B	**3RV23 11-1EC10**	B	**3RV23 11-1EC20**
5	1.5	Without	65	100	B	**3RV23 11-1FC10**	B	**3RV23 11-1FC20**
6.3	2.2	Without	82	100	B	**3RV23 11-1GC10**	B	**3RV23 11-1GC20**
8	3	Without	104	100	B	**3RV23 11-1HC10**	B	**3RV23 11-1HC20**
10	4	Without	130	100	B	**3RV23 11-1JC10**	B	**3RV23 11-1JC20**
12.5	5.5	Without	163	100	B	**3RV23 11-1KC10**	B	**3RV23 11-1KC20**
16	7.5	Without	208	55	B	**3RV23 11-4AC10**	B	**3RV23 11-4AC20**
Size S0								
16	7.5	Without	208	55	B	**3RV23 21-4AC10**	B	**3RV23 21-4AC20**
20	7.5	Without	260	55	B	**3RV23 21-4BC10**	B	**3RV23 21-4BC20**
22	11	Without	286	55	B	**3RV23 21-4CC10**	B	**3RV23 21-4CC20**
25	11	Without	325	55	B	**3RV23 21-4DC10**	B	**3RV23 21-4DC20**
28	15	Without	364	55	B	**3RV23 21-4NC10**	B	**3RV23 21-4NC20**
32	15	Without	400	55	B	**3RV23 21-4EC10**	B	**3RV23 21-4EC20**
36[3]	18.5	Without	432	20	B	**3RV23 21-4PC10**		--
40[3]	18.5	Without	480	20	B	**3RV23 21-4FC10**		--
Motor starter protector size S0 for small rated currents [4]								
1.6	0.55	Without	21	100	B	**3RV23 21-1AC10**	B	**3RV23 21-1AC20**
2	0.75	Without	26	100	B	**3RV23 21-1BC10**	B	**3RV23 21-1BC20**
2.5	0.75	Without	33	100	B	**3RV23 21-1CC10**	B	**3RV23 21-1CC20**
3.2	1.1	Without	42	100	B	**3RV23 21-1DC10**	B	**3RV23 21-1DC20**
4	1.5	Without	52	100	B	**3RV23 21-1EC10**	B	**3RV23 21-1EC20**
5	1.5	Without	65	100	B	**3RV23 21-1FC10**	B	**3RV23 21-1FC20**
6.3	2.2	Without	82	100	B	**3RV23 21-1GC10**	B	**3RV23 21-1GC20**
8	3	Without	104	100	B	**3RV23 21-1HC10**	B	**3RV23 21-1HC20**
10	4	Without	130	100	B	**3RV23 21-1JC10**	B	**3RV23 21-1JC20**
12.5	5.5	Without	163	100	B	**3RV23 21-1KC10**	B	**3RV23 21-1KC20**

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

2) For overload protection of the motors, appropriate overload relays must be used.

3) The devices must not be mounted side-by-side and they must not be assembled with link modules with contactors. A lateral clearance of 9 mm is required.

4) For customized applications requiring the use of size S0: e.g. feeders with type of coordination "2", larger conductor cross-sections for large cable lengths, etc.

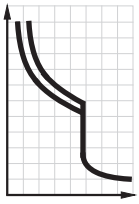
Auxiliary switches and other accessories can be ordered separately (see "Accessories" in Catalog IC 10).

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

Selection and ordering data

Without auxiliary switches

Circuit breakers for system protection and non-motor loads according to UL/CSA



3RV27 11-0AD10

Rated current[1]#	Thermal overload releases (non-adjustable)	Instantaneous overcurrent release	Short-circuit breaking capacity at 480 Y/277 V AC[2]	DT	Screw terminals		PU (UNIT, SET, M)	PS*	PG
I_n[1]		$I >$	I_{bc}		Order No.	Price per PU			
A	A	A	kA						
Size S00									
0.16	0.16	2.1	65	C	**3RV27 11-0AD10**		1	1 unit	41E
0.2	0.2	2.6	65	C	**3RV27 11-0BD10**		1	1 unit	41E
0.25	0.25	3.3	65	C	**3RV27 11-0CD10**		1	1 unit	41E
0.32	0.32	4.2	65	C	**3RV27 11-0DD10**		1	1 unit	41E
0.4	0.4	5.2	65	C	**3RV27 11-0ED10**		1	1 unit	41E
0.5	0.5	6.5	65	C	**3RV27 11-0FD10**		1	1 unit	41E
0.63	0.63	8.2	65	C	**3RV27 11-0GD10**		1	1 unit	41E
0.8	0.8	10	65	C	**3RV27 11-0HD10**		1	1 unit	41E
1	1	13	65	C	**3RV27 11-0JD10**		1	1 unit	41E
1.25	1.25	16	65	C	**3RV27 11-0KD10**		1	1 unit	41E
1.6	1.6	21	65	C	**3RV27 11-1AD10**		1	1 unit	41E
2	2	26	65	C	**3RV27 11-1BD10**		1	1 unit	41E
2.5	2.5	33	65	C	**3RV27 11-1CD10**		1	1 unit	41E
3.2	3.2	42	65	C	**3RV27 11-1DD10**		1	1 unit	41E
4	4	52	65	C	**3RV27 11-1ED10**		1	1 unit	41E
5	5	65	65	C	**3RV27 11-1FD10**		1	1 unit	41E
6.3	6.3	82	65	C	**3RV27 11-1GD10**		1	1 unit	41E
8	8	104	65	C	**3RV27 11-1HD10**		1	1 unit	41E
10	10	130	65	C	**3RV27 11-1JD10**		1	1 unit	41E
12.5	12.5	163	65	C	**3RV27 11-1KD10**		1	1 unit	41E
15	15	208	65	C	**3RV27 11-4AD10**		1	1 unit	41E
Size S0									
20	20	260	50	C	**3RV27 21-4BD10**		1	1 unit	41E
22	22	286	50	C	**3RV27 21-4CD10**		1	1 unit	41E

[1] Rated value 100 % according to UL 489 and IEC 60947-2 ("100 % rated breaker").

[2] Values for 600 Y/347 V AC see "System Manual for Industrial Controls – SIRIUS Innovations" → "Technical Specifications" → "Permissible rated data of devices approved for North America (UL/CSA)" → "3RV27 and 3RV28 Motor Starter Protectors as Circuit Breakers".

Lateral and transverse auxiliary switches can be ordered separately (see "Mountable accessories" in Catalog IC 10).

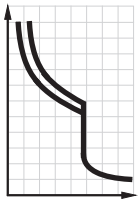
7

For transformer protection according to UL 489/CSA C22.2 No. 5-02

Selection and ordering data

Without auxiliary switches

Motor starter protectors for system and transformer protection according to UL/CSA, specially designed for transformers with high inrush current



3RV28 11-0AD10

Rated current[1] I_n[1]	Thermal overload releases (non-adjustable)	Instantaneous overcurrent release	Short-circuit breaking capacity at 480 Y/277 V AC[2] I_{bc}	DT	Screw terminals Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
A	A	A	kA						
Size S00									
0.16	0.16	3.3	65	C	**3RV28 11-0AD10**		1	1 unit	41E
0.2	0.2	4.2	65	C	**3RV28 11-0BD10**		1	1 unit	41E
0.25	0.25	5.2	65	C	**3RV28 11-0CD10**		1	1 unit	41E
0.32	0.32	6.5	65	C	**3RV28 11-0DD10**		1	1 unit	41E
0.4	0.4	8.2	65	C	**3RV28 11-0ED10**		1	1 unit	41E
0.5	0.5	10	65	C	**3RV28 11-0FD10**		1	1 unit	41E
0.63	0.63	13	65	C	**3RV28 11-0GD10**		1	1 unit	41E
0.8	0.8	16	65	C	**3RV28 11-0HD10**		1	1 unit	41E
1	1	21	65	C	**3RV28 11-0JD10**		1	1 unit	41E
1.25	1.25	26	65	C	**3RV28 11-0KD10**		1	1 unit	41E
1.6	1.6	33	65	C	**3RV28 11-1AD10**		1	1 unit	41E
2	2	42	65	C	**3RV28 11-1BD10**		1	1 unit	41E
2.5	2.5	52	65	C	**3RV28 11-1CD10**		1	1 unit	41E
3.2	3.2	65	65	C	**3RV28 11-1DD10**		1	1 unit	41E
4	4	82	65	C	**3RV28 11-1ED10**		1	1 unit	41E
5	5	104	65	C	**3RV28 11-1FD10**		1	1 unit	41E
6.3	6.3	130	65	C	**3RV28 11-1GD10**		1	1 unit	41E
8	8	163	65	C	**3RV28 11-1HD10**		1	1 unit	41E
10	10	208	65	C	**3RV28 11-1JD10**		1	1 unit	41E
12.5	12.5	260	65	C	**3RV28 11-1KD10**		1	1 unit	41E
15	15	286	65	C	**3RV28 11-4AD10**		1	1 unit	41E
Size S0									
20	20	325	50	C	**3RV28 21-4BD10**		1	1 unit	41E
22	22	364	50	C	**3RV28 21-4CD10**		1	1 unit	41E

[1] Rated value 100 % according to UL 489 and IEC 60947-2 ("100 % rated breaker").

[2] Values for 600 Y/347 V AC see "System Manual for Industrial Controls – SIRIUS Innovations" → "Technical Specifications" → "Permissible rated data of devices approved for North America (UL/CSA)" → "3RV27 and 3RV28 Motor Starter Protectors as Circuit Breakers".

Lateral and transverse auxiliary switches can be ordered separately (see "Mountable accessories" in Catalog IC 10).

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

Load Feeders and Motor Starters for Use in the Control Cabinet

8

8/2 **Introduction**

SIRIUS 3RA2 Load Feeders new

8/4 General data
3RA21 direct-on-line starters
8/5 for snapping onto standard mounting rails or for screw fixing
8/7 For 60 mm busbars
3RA22 reversing starters
8/9 for snapping onto standard mounting rails or for screw fixing
8/11 For 60 mm busbars

SIRIUS 3RM1 Motor Starters new

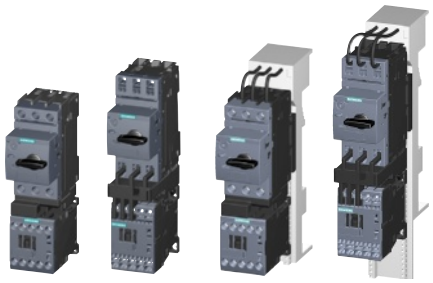
8/13 General data
8/17 3RM10 direct-on-line starters
8/18 3RM12 reversing starters
8/19 Accessories

ET 200S Motor Starters and Safety Motor Starters

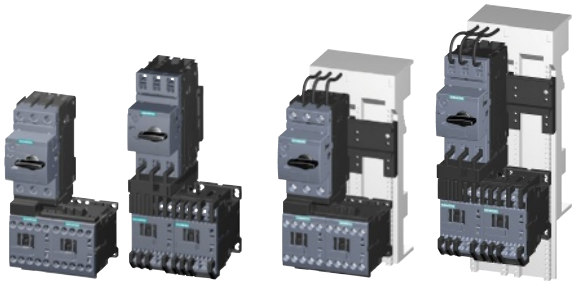
8/23 High Feature motor starters new
8/26 High Feature terminal modules

Introduction

Overview



3RA21 10



3RA22 10

3RA11 30

		Order No.	Page
SIRIUS 3RA2 load feeders			
	• The 3RA2 fuseless load feeders comprise the 3RV2 motor starter protector and the 3RT2 contactor. The motor starter protector and the contactor are pre-wired and mechanically and electrically connected using ready-to-use assembly kits (link modules, wiring kits and standard mounting rail or busbar adapters). • 2 sizes (S00, S0) • Available for direct-on-line starting or reversing operation as - complete units or - single devices for self-assembly • Available with screw terminals or spring-type terminals		
3RA21 direct-on-line starters for snapping onto standard mounting rails or for screw fixing	• Rated control supply voltage 50/60 Hz 230 V AC and 24 V DC	**3RA21**	8/5
3RA21 direct-on-line starters for 60 mm busbars	• Rated control supply voltage 50/60 Hz 230 V AC and 24 V DC	**3RA21**	8/7
3RA22 reversing starters for snapping onto standard mounting rails or for screw fixing	• Rated control supply voltage 50/60 Hz 230 V AC and 24 V DC	**3RA22**	8/9
3RA22 reversing starters for 60 mm busbars	• Rated control supply voltage 50/60 Hz 230 V AC and 24 V DC	**3RA22**	8/11
Accessories for 3RA2 direct-on-line and reversing starters			
SIRIUS 3RA1 load feeders			
	• The 3RA1 fuseless load feeders comprise the 3RV1 motor starter protector and the 3RT1 contactor. The motor starter protector and contactor are pre-wired and mechanically and electrically connected using ready-to-use assembly kits (link modules, wiring kits and standard mounting rail or busbar adapters). • 2 sizes (S2, S3) • Available for direct-on-line starting or reversing operation as - complete units or - single devices for self-assembly • Available with screw terminals		Catalog IC 10
3RA11 direct-on-line starters for snapping onto standard mounting rails or for screw fixing	• Rated control supply voltage 230 V AC, 50 Hz and 24 V DC for 35 mm standard mounting rail or for screw fixing	**3RA11 30**	
3RA11 direct-on-line starters for busbar systems	• Rated control supply voltage 230 V AC, 50 Hz and 24 V DC for 40 and 60 mm busbar systems	Only for self-assembly	
3RA12 reversing starters for snapping onto standard mounting rails or for screw fixing	• Rated control supply voltage 230 V AC, 50 Hz and 24 V DC for 35 mm standard mounting rail or for screw fixing	Only for self-assembly	
3RA12 reversing starters for busbar systems	• Rated control supply voltage 230 V AC, 50 Hz and 24 V DC for 40 and 60 mm busbar systems	Only for self-assembly	
Accessories for 3RA1 direct-on-line and reversing starters			

Central and compact starter solutions

Our range offers you many different possibilities for simple and practical starter solutions in the control cabinet. Features common to all our load feeders, compact starters and motor starters: Like all SIRIUS devices they are optimally coordinated with each other, have a very compact design and are particularly easy and quick to install and wire up.

In addition there is a seamless range of SIRIUS 3RW soft starters available for soft starting in the control cabinet (see Catalog IC 10, Chapter 6 "Soft Starters and Solid-State Switching Devices" → "SIRIUS 3RW Soft Starters").


3RA61


3RA62


3RA64


3RA65


3RA68


3RM12


3RK1 301

		Order No.	Page
SIRIUS 3RA6 compact starters			
	• Integrated functionality of a circuit breaker, contactor and solid-state overload relay and various functions of optional mountable accessories • Can be used for direct starting of standard three-phase motors up to 32 A		Catalog IC 10
3RA61 direct-on-line starters	• Up to 15 kW/400 V, weld-free, wide setting range, removable terminals	**3RA61**	
3RA62 reversing starters	• Up to 15 kW/400 V, weld-free, wide setting range, removable terminals	**3RA62**	
3RA64 direct-on-line starters for IO-Link	• Up to 15 kW/400 V, weld-free, wide setting range, removable terminals	**3RA64**	
3RA65 reversing starters for IO-Link	• Up to 15 kW/400 V, weld-free, wide setting range, removable terminals	**3RA65**	
Accessories for 3RA6 direct-on-line and reversing starters		**3RA69**	
Add-on modules for AS-Interface		**3RA69**	
Infeed systems for 3RA6	• Modular expandability, up to 100 A, terminals up to 70 mm^2	**3RA68**	
SIRIUS 3RM1 motor starters			
	• For switching three-phase motors up to 3 kW (at 400 V) and resistive loads up to 10 A at AC voltages up to 500 V under normal operating conditions • Space-saving design (22.5 mm wide)		
3RM10 direct-on-line starters	• Direct-on-line starting with solid-state overload relay	**3RM10**	8/17
3RM12 reversing starters	• Reversing functionality with solid-state overload relay	**3RM12**	8/18
Accessories for 3RM1 motor starters	• 3RM19 3-phase infeed system • Device connectors, push-in lugs for wall mounting, spare terminals for main and control circuits	**3RM19** **3ZY1**	8/19
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		
• Standard motor starters		**3RK1 301**	Catalog IC 10
• High Feature motor starters		**3RK1 301**	8/23
Power modules for ET 200S motor starters	• For infeed and monitoring the auxiliary voltages for motor starters	**3RK1 903-0BA00**	Catalog IC 10
ET 200S Failsafe motor starters	• High Feature direct-on-line and reversing starters	**3RK1 301**	
Terminal modules for ET 200S motor starters • Standard terminal modules • High Feature terminal modules • Failsafe terminal modules • Power module terminal modules • Safety modules local and PROFIsafe terminal modules	• Mechanical modules in which the motor starter and expansion modules are inserted	**3RK1 903**	
Safety modules local	• For safety category SIL 3 / PL e according to IEC 62061 or ISO 13849-1	**3RK1 903**	Catalog IC 10
Safety modules PROFIsafe	• Sensor and actuator assignment are freely configurable (distributed safety concept)	**3RK1 903**	
Accessories			
ET 200S – interface modules	• Interface modules - With CPU - With fail-safe CPU - Without CPU	**6ES7 6AG1**	
ET 200S – I/O modules	• Power modules, reserve modules, potential distributor modules, digital/analog electronic modules • Technology modules: SSI modules, 2 PULSE pulse generators, 1 STEP step module, positioning modules, counter modules, 1 SI interface module, SIWAREX CS, SIMAREX CF, terminal modules for power and electronic modules • 4 IQ-Sense and 8 IQ-Sense sensor modules	**6ES7 6AG1 7MH4**	
ET 200S – fail-safe I/O modules	• F power and F electronic modules, F terminal modules	**6ES7 6AG1**	
ET 200S – IO-Link master modules	• IO-Link 4SI and SIRIUS 4SI electronic modules	**6ES7 3RK1**	

General data

Overview

3RA2 fuseless load feeders

The 3RA2 fuseless load feeders comprise the 3RV2 motor starter protector and the 3RT2 electromechanical contactor.
The devices are electrically and mechanically connected using ready-to-use assembly kits (link modules, wiring kits and standard mounting rail or busbar adapters).

In the 3RA2 load feeder, the 3RV2 motor starter protector is responsible for overload and short-circuit protection. Back-up protective devices, such as melting fuses or limiters, are superfluous here, as the motor starter protector is short-circuit proof up to 150 kA at 400 V.

The 3RT2 contactor is particularly suitable for extremely complex switching tasks requiring the greatest endurance.

The 3RA2 load feeders are available with setting ranges from 0.14 to 32 A in sizes S00 and S0:

Size	Width Direct-on-line starters/reversing starters	Max. rated current $I_{n\ max}$	For three-phase motors up to
	mm	A	kW
S00	45/90	16	7.5
S0	45/90	32	15

The size of the 3RA2 load feeders is based on the size of the contactor:

Size 3RA2	S00	S0
Size of 3RV2 motor starter protector	S00	S00[1], S0
Size of 3RT2 contactor	S00	S0

[1] The combination of an S00 motor starter protector with an S0 contactor is possible only for screw terminal versions.

Behavior in the event of short-circuit

EN 60947-4-1 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 3RA2 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 component after a short-circuit has been cleared. The 3RA2 fuseless load feeder can resume operation without needing to be renewed. At most, welding of the contactor contacts is permissible if they can be disconnected easily without any significant deformation.

The types of coordination are indicated in the corresponding tables by the symbols shown on orange backgrounds.

Connection methods

For all 3RA2 feeders up to 32 A, spring-type connection is available as well as screw connection. To connect two devices with spring-type terminals there are plug-in connection modules for sizes S00 and S0 which enable very quick mounting of the feeders and a vibration-resistant assembly.

To connect a motor starter protector with screw terminals to a contactor with spring-type terminals there are special hybrid connection modules for the sizes S00 and S0.

Screw terminals

Spring-type terminals

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

Note:

Further information such as operating conditions, tripping times, accessories, communication by IO-Link see Catalog IC 10, Chapter 8.

3RA2 complete units

The 3RA2 fuseless load feeders can be ordered as preassembled complete units for direct-on-line starting (3RA21) or for reversing duty (3RA22) with screw or spring-type connection.

There are control supply voltages available of 50/60 Hz 230 V AC and 24 V DC.

A distinction is also made as to whether the feeder is mounted on a 35 mm standard mounting rail, on a flat surface using screws, or on a 60 mm busbar system.

3RA21 load feeders in the size S0 must be configured on standard mounting rail adapters if high vibration and shock loads (railways, power generation,...) are involved.

A vibration and shock kit is available for mounting on busbar adapters.

Customer assembly of fuseless and fused load feeders

See Catalog IC 10, Chapter 8.

Complete units instead of customer assembly (Product News 2012)

In the past, 3RA2 load feeders with spring-type terminals for size S0 in type of coordination "2" for motor currents from 3.6 to 11.5 A had to be assembled by the customer, now they are available as 3RA2 preassembled feeders.

As a result, around 500 preassembled 3RA2 combinations of these innovative 3RT2 controls and 3RV2 protective devices can be ordered for direct-on-line and reversing starting of standard three-phase motors up to 32 A (approx.15 kW/400 V).

Through customer assembly of the components 3RV2 and 3RT2 without link modules, the performance range can be extended to approx. 18.5 kW at 400 V.

The following pages present the complete range of load feeders with spring-type terminals.
For devices with screw terminals see Catalog IC 10, Chapter 8.

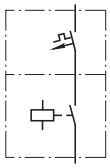
3RA21 direct-on-line starters for snapping onto standard mounting rails or for screw fixing

Selection and ordering data


3RA21 10


3RA21 20

Direct-on-line start



Rated control supply voltage 50/60 Hz 230 V AC for S00, 50 Hz 230 V AC for S0 With spring-type terminals

- Screw fixing with 2 push-in lugs each per load feeder is possible[1)]
- 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.
- Integrated auxiliary switches: Contactor size S00: 1 NO, contactor size S0: 1 NO + 1 NC

Size	Standard three-phase 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
	Standard output P	Motor current I (guide value)		Motor starter protector	+ Contactor	+ Link module		**Spring-type terminals** / **Configurator** / Order No.			Basic price per PU
	kW	A	A								
Type of coordination "2" at I_q = 150 kA at 400 V (compatible with type of coordination "1")				**3RV20**	**3RT20**	**3RA**		ToC 2			
S00	0.06	0.2	0.14 ... 0.2	11-0BA20	15-2AP01	29 11-2AA00	A	**3RA21 10-0BE15-1AP0**	1	1 unit	41D
	0.06	0.2	0.18 ... 0.25	11-0CA20			A	**3RA21 10-0CE15-1AP0**	1	1 unit	41D
	0.09	0.3	0.22 ... 0.32	11-0DA20			A	**3RA21 10-0DE15-1AP0**	1	1 unit	41D
	0.09	0.3	0.28 ... 0.4	11-0EA20			A	**3RA21 10-0EE15-1AP0**	1	1 unit	41D
	0.12	0.4	0.35 ... 0.5	11-0FA20			A	**3RA21 10-0FE15-1AP0**	1	1 unit	41D
	0.18	0.6	0.45 ... 0.63	11-0GA20			A	**3RA21 10-0GE15-1AP0**	1	1 unit	41D
	0.18	0.6	0.55 ... 0.8	11-0HA20			A	**3RA21 10-0HE15-1AP0**	1	1 unit	41D
	0.25	0.85	0.7 ... 1	11-0JA20			A	**3RA21 10-0JE15-1AP0**	1	1 unit	41D
	0.37	1.1	0.9 ... 1.25	11-0KA20			A	**3RA21 10-0KE15-1AP0**	1	1 unit	41D
	0.55	1.5	1.1 ... 1.6	11-1AA20			A	**3RA21 10-1AE15-1AP0**	1	1 unit	41D
	0.75	1.9	1.4 ... 2	11-1BA20			A	**3RA21 10-1BE15-1AP0**	1	1 unit	41D
	0.75	1.9	1.8 ... 2.5	11-1CA20			A	**3RA21 10-1CE15-1AP0**	1	1 unit	41D
	1.1	2.7	2.2 ... 3.2	11-1DA20			A	**3RA21 10-1DE15-1AP0**	1	1 unit	41D
	1.5	3.6	2.8 ... 4	11-1EA20			A	**3RA21 10-1EE15-1AP0**	1	1 unit	41D
S0	1.5	3.6	3.5 ... 5	21-1FA20	24-2AP00	29 21-2AA00	C	**3RA21 20-1FE24-0AP0**	1	1 unit	41D
	2.2	4.9	4.5 ... 6.3	21-1GA20			C	**3RA21 20-1GE24-0AP0**	1	1 unit	41D
	3	6.5	5.5 ... 8	21-1HA20			C	**3RA21 20-1HE24-0AP0**	1	1 unit	41D
	4	8.5	7 ... 10	21-1JA20			C	**3RA21 20-1JE24-0AP0**	1	1 unit	41D
	5.5	11.5	9 ... 12.5	21-1KA20			C	**3RA21 20-1KE24-0AP0**	1	1 unit	41D
	7.5	15.5	11 ... 16	21-4AA20	26-2AP00		A	**3RA21 20-4AE26-0AP0**	1	1 unit	41D
	7.5	15.5	14 ... 20	21-4BA20			B	**3RA21 20-4BE27-0AP0**	1	1 unit	41D
	11	22	17 ... 22	21-4CA20	27-2AP00		A	**3RA21 20-4CE27-0AP0**	1	1 unit	41D
	11	22	20 ... 25	21-4DA20			A	**3RA21 20-4DE27-0AP0**	1	1 unit	41D
	15	29	27 ... 32	21-4EA20			A	**3RA21 20-4EE27-0AP0**	1	1 unit	41D
Type of coordination "1" at I_q = 150 kA at 400 V (the motor starter protector is compatible with type of coordination "2")											
S00	For load feeders for lower outputs, see this table at type of coordination "2".							ToC 1			
	1.5	3.6	3.5 ... 5	11-1FA20	15-2AP01	29 11-2AA00	A	**3RA21 10-1FE15-1AP0**	1	1 unit	41D
	2.2	4.9	4.5 ... 6.3	11-1GA20			A	**3RA21 10-1GE15-1AP0**	1	1 unit	41D
	3	6.5	5.5 ... 8	11-1HA20			A	**3RA21 10-1HE15-1AP0**	1	1 unit	41D
	4	8.5	7 ... 10	11-1JA20	16-2AP01		A	**3RA21 10-1JE16-1AP0**	1	1 unit	41D
	5.5	11.5	9 ... 12.5	11-1KA20	17-2AP01		A	**3RA21 10-1KE17-1AP0**	1	1 unit	41D
	7.5	15.5	11 ... 16	11-4AA20	18-2AP01		A	**3RA21 10-4AE18-1AP0**	1	1 unit	41D

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

1) Push-in lugs see "Accessories" in Catalog IC 10, Chapter 8.

2) Auxiliary switches see "Accessories" in Catalog IC 10, Chapter 8.

3) The actual startup characteristics of the protected motor as well as its rated data are important selection factors here.

For Use in the Control Cabinet

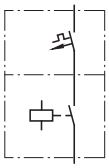
SIRIUS 3RA2 Load Feeders

3RA21 direct-on-line starters for snapping onto standard mounting rails or for screw fixing

3RA21 10

3RA21 20

Direct-on-line start



Rated control supply voltage 24 V DC
With spring-type terminals

- Screw fixing with 2 push-in lugs each per load feeder is possible[1)]
- 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.
- Integrated auxiliary switches:
  Contactor size S00: 1 NO,
  contactor size S0: 1 NO + 1 NC

Size	Standard three-phase 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
	Standard output *P*	Motor current *I* (guide value)		Motor starter protector	+ Contactor	+ Link module		Spring-type terminals / Configurator / Order No.	Basic price per PU		
	kW	A	A								
Type of coordination "2" at I_q = 150 kA at 400 V (compatible with type of coordination "1")				**3RV20**	**3RT20**	**3RA**		ToC 2			
S00	0.06	0.2	0.14 ... 0.2	11-0BA20	15-2BB41	29 11-2AA00	A	**3RA21 10-0BE15-1BB4**	1	1 unit	41D
	0.06	0.2	0.18 ... 0.25	11-0CA20			A	**3RA21 10-0CE15-1BB4**	1	1 unit	41D
	0.09	0.3	0.22 ... 0.32	11-0DA20			A	**3RA21 10-0DE15-1BB4**	1	1 unit	41D
	0.09	0.3	0.28 ... 0.4	11-0EA20			A	**3RA21 10-0EE15-1BB4**	1	1 unit	41D
	0.12	0.4	0.35 ... 0.5	11-0FA20			A	**3RA21 10-0FE15-1BB4**	1	1 unit	41D
	0.18	0.6	0.45 ... 0.63	11-0GA20			A	**3RA21 10-0GE15-1BB4**	1	1 unit	41D
	0.18	0.6	0.55 ... 0.8	11-0HA20			A	**3RA21 10-0HE15-1BB4**	1	1 unit	41D
	0.25	0.85	0.7 ... 1	11-0JA20			A	**3RA21 10-0JE15-1BB4**	1	1 unit	41D
	0.37	1.1	0.9 ... 1.25	11-0KA20			A	**3RA21 10-0KE15-1BB4**	1	1 unit	41D
	0.55	1.5	1.1 ... 1.6	11-1AA20			A	**3RA21 10-1AE15-1BB4**	1	1 unit	41D
	0.75	1.9	1.4 ... 2	11-1BA20			A	**3RA21 10-1BE15-1BB4**	1	1 unit	41D
	0.75	1.9	1.8 ... 2.5	11-1CA20			A	**3RA21 10-1CE15-1BB4**	1	1 unit	41D
	1.1	2.7	2.2 ... 3.2	11-1DA20			A	**3RA21 10-1DE15-1BB4**	1	1 unit	41D
	1.5	3.6	2.8 ... 4	11-1EA20			A	**3RA21 10-1EE15-1BB4**	1	1 unit	41D
S0	1.5	3.6	3.5 ... 5	21-1FA20	24-2BB40	29 21-2AA00	C	**3RA21 20-1FE24-0BB4**	1	1 unit	41D
	2.2	4.9	4.5 ... 6.3	21-1GA20			C	**3RA21 20-1GE24-0BB4**	1	1 unit	41D
	3	6.5	5.5 ... 8	21-1HA20			C	**3RA21 20-1HE24-0BB4**	1	1 unit	41D
	4	8.5	7 ... 10	21-1JA20			C	**3RA21 20-1JE24-0BB4**	1	1 unit	41D
	5.5	11.5	9 ... 12.5	21-1KA20			C	**3RA21 20-1KE24-0BB4**	1	1 unit	41D
	7.5	15.5	11 ... 16	21-4AA20	26-2BB40		A	**3RA21 20-4AE26-0BB4**	1	1 unit	41D
	7.5	15.5	14 ... 20	21-4BA20			B	**3RA21 20-4BE27-0BB4**	1	1 unit	41D
	11	22	17 ... 22	21-4CA20	27-2BB40		A	**3RA21 20-4CE27-0BB4**	1	1 unit	41D
	11	22	20 ... 25	21-4DA20			A	**3RA21 20-4DE27-0BB4**	1	1 unit	41D
	15	29	27 ... 32	21-4EA20			A	**3RA21 20-4EE27-0BB4**	1	1 unit	41D
Type of coordination "1" at I_q = 150 kA at 400 V (the motor starter protector is compatible with type of coordination "2")											
S00	For load feeders for lower outputs, see this table at type of coordination "2".							ToC 1			
	1.5	3.6	3.5 ... 5	11-1FA20	15-2BB41	29 11-2AA00	A	**3RA21 10-1FE15-1BB4**	1	1 unit	41D
	2.2	4.9	4.5 ... 6.3	11-1GA20			A	**3RA21 10-1GE15-1BB4**	1	1 unit	41D
	3	6.5	5.5 ... 8	11-1HA20			A	**3RA21 10-1HE15-1BB4**	1	1 unit	41D
	4	8.5	7 ... 10	11-1JA20	16-2BB41		A	**3RA21 10-1JE16-1BB4**	1	1 unit	41D
	5.5	11.5	9 ... 12.5	11-1KA20	17-2BB41		A	**3RA21 10-1KE17-1BB4**	1	1 unit	41D
	7.5	15.5	11 ... 16	11-4AA20	18-2BB40		A	**3RA21 10-4AE18-1BB4**	1	1 unit	41D

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

1) Push-in lugs see "Accessories" in Catalog IC 10, Chapter 8.

2) Auxiliary switches see "Accessories" in Catalog IC 10, Chapter 8.

3) The actual startup characteristics of the protected motor as well as its rated data are important selection factors here.

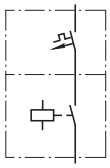
* You can order this quantity or a multiple thereof.
Illustrations similar

Selection and ordering data

3RA21 10

3RA21 20

Direct-on-line start



Rated control supply voltage 50/60 Hz 230 V AC for S00, 50 Hz 230 V AC for S0 With spring-type terminals

- With busbar adapter
- 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.
- Integrated auxiliary switches: Contactor size S00: 1 NO, contactor size S0: 1 NO + 1 NC

Size	Standard three-phase motor 4-pole at 400 V AC[2]		Setting range for thermal overload release	Consisting of the following single devices			DT	Fuseless load feeders		PU (UNIT, SET, M)	PS*	PG
	Standard output *P*	Motor current *I* (guide value)		Motor starter protector	+ Contactor	+ Link module + Busbar adapter		Spring-type terminals				
								Configurator				
								Order No.	Basic price per PU			
	kW	A	A									
Type of coordination "2" at I_q = 150 kA at 400 V (compatible with type of coordination "1")				3RV20	3RT20	3RA		ToC 2				
S00	0.06	0.2	0.14 ... 0.2	11-0BA20	15-2AP01	29 11-2AA00	A	**3RA21 10-0BH15-1AP0**		1	1 unit	41D
	0.06	0.2	0.18 ... 0.25	11-0CA20		+ 8US12 51-	A	**3RA21 10-0CH15-1AP0**		1	1 unit	41D
	0.09	0.3	0.22 ... 0.32	11-0DA20		5DT11	A	**3RA21 10-0DH15-1AP0**		1	1 unit	41D
	0.09	0.3	0.28 ... 0.4	11-0EA20			A	**3RA21 10-0EH15-1AP0**		1	1 unit	41D
	0.12	0.4	0.35 ... 0.5	11-0FA20			A	**3RA21 10-0FH15-1AP0**		1	1 unit	41D
	0.18	0.6	0.45 ... 0.63	11-0GA20			A	**3RA21 10-0GH15-1AP0**		1	1 unit	41D
	0.18	0.6	0.55 ... 0.8	11-0HA20			A	**3RA21 10-0HH15-1AP0**		1	1 unit	41D
	0.25	0.85	0.7 ... 1	11-0JA20			A	**3RA21 10-0JH15-1AP0**		1	1 unit	41D
	0.37	1.1	0.9 ... 1.25	11-0KA20			A	**3RA21 10-0KH15-1AP0**		1	1 unit	41D
	0.55	1.5	1.1 ... 1.6	11-1AA20			A	**3RA21 10-1AH15-1AP0**		1	1 unit	41D
	0.75	1.9	1.4 ... 2	11-1BA20			A	**3RA21 10-1BH15-1AP0**		1	1 unit	41D
	0.75	1.9	1.8 ... 2.5	11-1CA20			A	**3RA21 10-1CH15-1AP0**		1	1 unit	41D
	1.1	2.7	2.2 ... 3.2	11-1DA20			A	**3RA21 10-1DH15-1AP0**		1	1 unit	41D
	1.5	3.6	2.8 ... 4	11-1EA20			A	**3RA21 10-1EH15-1AP0**		1	1 unit	41D
S0	1.5	3.6	3.5 ... 5	21-1FA20	24-2AP00	29 21-2AA00	C	**3RA21 20-1FH24-0AP0**		1	1 unit	41D
	2.2	4.9	4.5 ... 6.3	21-1GA20		+ 8US12 51-	C	**3RA21 20-1GH24-0AP0**		1	1 unit	41D
	3	6.5	5.5 ... 8	21-1HA20		5NT11[3]	C	**3RA21 20-1HH24-0AP0**		1	1 unit	41D
	4	8.5	7 ... 10	21-1JA20			C	**3RA21 20-1JH24-0AP0**		1	1 unit	41D
	5.5	11.5	9 ... 12.5	21-1KA20			C	**3RA21 20-1KH24-0AP0**		1	1 unit	41D
	7.5	15.5	11 ... 16	21-4AA20	26-2AP00		A	**3RA21 20-4AH26-0AP0**		1	1 unit	41D
	7.5	15.5	14 ... 20	21-4BA20			B	**3RA21 20-4BH27-0AP0**		1	1 unit	41D
	11	22	17 ... 22	21-4CA20	27-2AP00		A	**3RA21 20-4CH27-0AP0**		1	1 unit	41D
	11	22	20 ... 25	21-4DA20			A	**3RA21 20-4DH27-0AP0**		1	1 unit	41D
	15	29	27 ... 32	21-4EA20			A	**3RA21 20-4EH27-0AP0**		1	1 unit	41D
Type of coordination "1" at I_q = 150 kA at 400 V (the motor starter protector is compatible with type of coordination "2")												
S00	For load feeders for lower outputs, see this table at type of coordination "2".							ToC 1				
	1.5	3.6	3.5 ... 5	11-1FA20	15-2AP01	29 11-2AA00	A	**3RA21 10-1FH15-1AP0**		1	1 unit	41D
	2.2	4.9	4.5 ... 6.3	11-1GA20		+ 8US12 51-	A	**3RA21 10-1GH15-1AP0**		1	1 unit	41D
	3	6.5	5.5 ... 8	11-1HA20		5DT11	A	**3RA21 10-1HH15-1AP0**		1	1 unit	41D
	4	8.5	7 ... 10	11-1JA20	16-2AP01		A	**3RA21 10-1JH16-1AP0**		1	1 unit	41D
	5.5	11.5	9 ... 12.5	11-1KA20	17-2AP01		A	**3RA21 10-1KH17-1AP0**		1	1 unit	41D
	7.5	15.5	11 ... 16	11-4AA20	18-2AP01		A	**3RA21 10-4AH18-1AP0**		1	1 unit	41D

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

1) Auxiliary switches see "Accessories" in Catalog IC 10, Chapter 8.

2) The actual startup characteristics of the protected motor as well as its rated data are important selection factors here.

3) A 3RA29 11-1CA00 spacer for height compensation on AC contactors size S0 with spring-type terminals is included in the scope of supply.

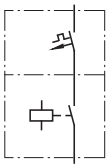
*** You can order this quantity or a multiple thereof.**
Illustrations similar

3RA21 direct-on-line starters for 60 mm busbars

3RA21 10

3RA21 20

Direct-on-line start



Rated control supply voltage 24 V DC
With spring-type terminals

- With busbar adapter
- 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.
- Integrated auxiliary switches: Contactor size S00: 1 NO, contactor size S0: 1 NO + 1 NC

Size	Standard three-phase motor 4-pole at 400 V AC[2]		Setting range for thermal overload release	Consisting of the following single devices			DT	Fuseless load feeders		PU (UNIT, SET, M)	PS*	PG
	Standard output P	Motor current I (guide value)		Motor starter protector	+ Contactor	+ Link module + Busbar adapter		Spring-type terminals				
								Configurator				
								Order No.	Basic price per PU			
	kW	A	A									
Type of coordination "2" at I_q = 150 kA at 400 V (compatible with type of coordination "1")												
				3RV20	3RT20	3RA		ToC 2				
S00	0.06	0.2	0.14 ... 0.2	11-0BA20	15-2BB41	29 11-2AA00	A	**3RA21 10-0BH15-1BB4**		1	1 unit	41D
	0.06	0.2	0.18 ... 0.25	11-0CA20		+ 8US12 51-	A	**3RA21 10-0CH15-1BB4**		1	1 unit	41D
	0.09	0.3	0.22 ... 0.32	11-0DA20		5DT11	A	**3RA21 10-0DH15-1BB4**		1	1 unit	41D
	0.09	0.3	0.28 ... 0.4	11-0EA20			A	**3RA21 10-0EH15-1BB4**		1	1 unit	41D
	0.12	0.4	0.35 ... 0.5	11-0FA20			A	**3RA21 10-0FH15-1BB4**		1	1 unit	41D
	0.18	0.6	0.45 ... 0.63	11-0GA20			A	**3RA21 10-0GH15-1BB4**		1	1 unit	41D
	0.18	0.6	0.55 ... 0.8	11-0HA20			A	**3RA21 10-0HH15-1BB4**		1	1 unit	41D
	0.25	0.85	0.7 ... 1	11-0JA20			A	**3RA21 10-0JH15-1BB4**		1	1 unit	41D
	0.37	1.1	0.9 ... 1.25	11-0KA20			A	**3RA21 10-0KH15-1BB4**		1	1 unit	41D
	0.55	1.5	1.1 ... 1.6	11-1AA20			A	**3RA21 10-1AH15-1BB4**		1	1 unit	41D
	0.75	1.9	1.4 ... 2	11-1BA20			A	**3RA21 10-1BH15-1BB4**		1	1 unit	41D
	0.75	1.9	1.8 ... 2.5	11-1CA20			A	**3RA21 10-1CH15-1BB4**		1	1 unit	41D
	1.1	2.7	2.2 ... 3.2	11-1DA20			A	**3RA21 10-1DH15-1BB4**		1	1 unit	41D
	1.5	3.6	2.8 ... 4	11-1EA20			A	**3RA21 10-1EH15-1BB4**		1	1 unit	41D
S0	1.5	3.6	3.5 ... 5	21-1FA20	24-2BB40	29 21-2AA00	C	**3RA21 20-1FH24-0BB4**		1	1 unit	41D
	2.2	4.9	4.5 ... 6.3	21-1GA20		+ 8US12 51-	C	**3RA21 20-1GH24-0BB4**		1	1 unit	41D
	3	6.5	5.5 ... 8	21-1HA20		5NT11	C	**3RA21 20-1HH24-0BB4**		1	1 unit	41D
	4	8.5	7 ... 10	21-1JA20			C	**3RA21 20-1JH24-0BB4**		1	1 unit	41D
	5.5	11.5	9 ... 12.5	21-1KA20			C	**3RA21 20-1KH24-0BB4**		1	1 unit	41D
	7.5	15.5	11 ... 16	21-4AA20	26-2BB40		A	**3RA21 20-4AH26-0BB4**		1	1 unit	41D
	7.5	15.5	14 ... 20	21-4BA20			B	**3RA21 20-4BH27-0BB4**		1	1 unit	41D
	11	22	17 ... 22	21-4CA20	27-2BB40		A	**3RA21 20-4CH27-0BB4**		1	1 unit	41D
	11	22	20 ... 25	21-4DA20			A	**3RA21 20-4DH27-0BB4**		1	1 unit	41D
	15	29	27 ... 32	21-4EA20			A	**3RA21 20-4EH27-0BB4**		1	1 unit	41D
Type of coordination "1" at I_q = 150 kA at 400 V (the motor starter protector is compatible with type of coordination "2")												
S00	For load feeders for lower outputs, see this table at type of coordination "2".							ToC 1				
	1.5	3.6	3.5 ... 5	11-1FA20	15-2BB41	29 11-2AA00	A	**3RA21 10-1FH15-1BB4**		1	1 unit	41D
	2.2	4.9	4.5 ... 6.3	11-1GA20		+ 8US12 51-	A	**3RA21 10-1GH15-1BB4**		1	1 unit	41D
	3	6.5	5.5 ... 8	11-1HA20		5DT11	A	**3RA21 10-1HH15-1BB4**		1	1 unit	41D
	4	8.5	7 ... 10	11-1JA20	16-2BB41		A	**3RA21 10-1JH16-1BB4**		1	1 unit	41D
	5.5	11.5	9 ... 12.5	11-1KA20	17-2BB41		A	**3RA21 10-1KH17-1BB4**		1	1 unit	41D
	7.5	15.5	11 ... 16	11-4AA20	18-2BB40		A	**3RA21 10-4AH18-1BB4**		1	1 unit	41D

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

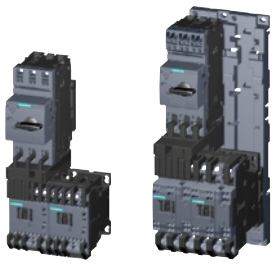
1) Auxiliary switches see "Accessories" in Catalog IC 10, Chapter 8.

2) The actual startup characteristics of the protected motor as well as its rated data are important selection factors here.

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

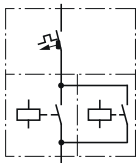
3RA22 reversing starters for snapping onto standard mounting rails or for screw fixing

Selection and ordering data



3RA22 10 3RA22 20

Reversing duty



Rated control supply voltage 50/60 Hz 230 V AC for S00, 50 Hz 230 V AC for S0 With spring-type terminals

- Screw fixing with 2 push-in lugs each per load feeder is possible [1]
- Without standard mounting rail adapter for size S00
- With 2 standard mounting rail adapters for size S0 for mechanical reinforcement (included in the scope of supply)
- 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.
- With the contactor S0, an integrated NO contact is still available for free use.

Size	Standard three-phase 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
	Standard output P	Motor current I (guide value)		Motor starter protector	+ 2 contactors	+ Link module + RH assembly kit [4]/ Wiring kit		Spring-type terminals / Configurator / Order No. / Basic price per PU			
	kW	A	A								
Type of coordination "2" at I_q = 150 kA at 400 V (compatible with type of coordination "1")				**3RV20**	**3RT20**	**3RA**		ToC 2			
S00	0.06	0.2	0.14 ... 0.2	11-0BA20	15-2AP02	29 11-2AA00	A	**3RA22 10-0BE15-2AP0**	1	1 unit	41D
	0.06	0.2	0.18 ... 0.25	11-0CA20		+ 29 13-2AA2	A	**3RA22 10-0CE15-2AP0**	1	1 unit	41D
	0.09	0.3	0.22 ... 0.32	11-0DA20			A	**3RA22 10-0DE15-2AP0**	1	1 unit	41D
	0.09	0.3	0.28 ... 0.4	11-0EA20			A	**3RA22 10-0EE15-2AP0**	1	1 unit	41D
	0.12	0.4	0.35 ... 0.5	11-0FA20			A	**3RA22 10-0FE15-2AP0**	1	1 unit	41D
	0.18	0.6	0.45 ... 0.63	11-0GA20			A	**3RA22 10-0GE15-2AP0**	1	1 unit	41D
	0.18	0.6	0.55 ... 0.8	11-0HA20			A	**3RA22 10-0HE15-2AP0**	1	1 unit	41D
	0.25	0.85	0.7 ... 1	11-0JA20			A	**3RA22 10-0JE15-2AP0**	1	1 unit	41D
	0.37	1.1	0.9 ... 1.25	11-0KA20			A	**3RA22 10-0KE15-2AP0**	1	1 unit	41D
	0.55	1.5	1.1 ... 1.6	11-1AA20			A	**3RA22 10-1AE15-2AP0**	1	1 unit	41D
	0.75	1.9	1.4 ... 2	11-1BA20			A	**3RA22 10-1BE15-2AP0**	1	1 unit	41D
	0.75	1.9	1.8 ... 2.5	11-1CA20			A	**3RA22 10-1CE15-2AP0**	1	1 unit	41D
	1.1	2.7	2.2 ... 3.2	11-1DA20			A	**3RA22 10-1DE15-2AP0**	1	1 unit	41D
	1.5	3.6	2.8 ... 4	11-1EA20			A	**3RA22 10-1EE15-2AP0**	1	1 unit	41D
S0	1.5	3.6	3.5 ... 5	21-1FA20	24-2AP00	29 21-2AA00	C	**3RA22 20-1FF24-0AP0**	1	1 unit	41D
	2.2	4.9	4.5 ... 6.3	21-1GA20		+ 29 23-1BB2 [5]	C	**3RA22 20-1GF24-0AP0**	1	1 unit	41D
	3	6.5	5.5 ... 8	21-1HA20			C	**3RA22 20-1HF24-0AP0**	1	1 unit	41D
	4	8.5	7 ... 10	21-1JA20			C	**3RA22 20-1JF24-0AP0**	1	1 unit	41D
	5.5	11.5	9 ... 12.5	21-1KA20			C	**3RA22 20-1KF24-0AP0**	1	1 unit	41D
	7.5	15.5	11 ... 16	21-4AA20	26-2AP00		A	**3RA22 20-4AF26-0AP0**	1	1 unit	41D
	7.5	15.5	14 ... 20	21-4BA20			B	**3RA22 20-4BF27-0AP0**	1	1 unit	41D
	11	22	17 ... 22	21-4CA20			A	**3RA22 20-4CF27-0AP0**	1	1 unit	41D
	11	22	20 ... 25	21-4DA20	27-2AP00		A	**3RA22 20-4DF27-0AP0**	1	1 unit	41D
	15	29	27 ... 32	21-4EA20			A	**3RA22 20-4EF27-0AP0**	1	1 unit	41D
Type of coordination "1" at I_q = 150 kA at 400 V (the motor starter protector is compatible with type of coordination "2")											
S00	For load feeders for lower outputs, see this table at type of coordination "2".							ToC 1			
S00	1.5	3.6	3.5 ... 5	11-1FA20	15-2AP02	29 11-2AA00	A	**3RA22 10-1FE15-2AP0**	1	1 unit	41D
	2.2	4.9	4.5 ... 6.3	11-1GA20		+ 29 13-2AA2	A	**3RA22 10-1GE15-2AP0**	1	1 unit	41D
	3	6.5	5.5 ... 8	11-1HA20			A	**3RA22 10-1HE15-2AP0**	1	1 unit	41D
	4	8.5	7 ... 10	11-1JA20	16-2AP02		A	**3RA22 10-1JE16-2AP0**	1	1 unit	41D
	5.5	11.5	9 ... 12.5	11-1KA20	17-2AP02		A	**3RA22 10-1KE17-2AP0**	1	1 unit	41D
	7.5	15.5	11 ... 16	11-4AA20	18-2AP02		A	**3RA22 10-4AE18-2AP0**	1	1 unit	41D

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

1) Push-in lugs see "Accessories" in Catalog IC 10, Chapter 8.

2) Auxiliary switches see "Accessories" in Catalog IC 10, Chapter 8.

3) The actual startup characteristics of the protected motor as well as its rated data are important selection factors here.

4) RH = assembly kit for reversing duty and standard rail mounting in size S0.

5) The RH assembly kit also includes the 3RA29 11-1CA00 spacer for height compensation on AC contactors size S0 with spring-type terminals.

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

For Use in the Control Cabinet

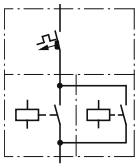
SIRIUS 3RA2 Load Feeders

3RA22 reversing starters for snapping onto standard mounting rails or for screw fixing

3RA22 10

3RA22 20

Reversing duty



Rated control supply voltage 24 V DC
With spring-type terminals

- Screw fixing with 2 push-in lugs each per load feeder is possible[1)]
- Without standard mounting rail adapter for size S00
- With 2 standard mounting rail adapters for size S0 for mechanical reinforcement (included in the scope of supply)
- 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.
- With the contactor S0, an integrated NO contact is still available for free use.

Size	Standard three-phase 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
	Standard output P	Motor current I (guide value)		Motor starter protector	+ 2 contactors	+ Link module + RH assembly kit[4)]/ Wiring kit		**Spring-type terminals**			
								Configurator			
								Order No.			
	kW	A	A					Basic price per PU			
Type of coordination "2" at I_q = 150 kA at 400 V (compatible with type of coordination "1")											
				3RV20	3RT20	3RA		ToC 2			
S00	0.06	0.2	0.14 ... 0.2	11-0BA20	15-2BB42	29 11-2AA00	A	**3RA22 10-0BE15-2BB4**	1	1 unit	41D
	0.06	0.2	0.18 ... 0.25	11-0CA20		+ 29 13-2AA2	A	**3RA22 10-0CE15-2BB4**	1	1 unit	41D
	0.09	0.3	0.22 ... 0.32	11-0DA20			A	**3RA22 10-0DE15-2BB4**	1	1 unit	41D
	0.09	0.3	0.28 ... 0.4	11-0EA20			A	**3RA22 10-0EE15-2BB4**	1	1 unit	41D
	0.12	0.4	0.35 ... 0.5	11-0FA20			A	**3RA22 10-0FE15-2BB4**	1	1 unit	41D
	0.18	0.6	0.45 ... 0.63	11-0GA20			A	**3RA22 10-0GE15-2BB4**	1	1 unit	41D
	0.18	0.6	0.55 ... 0.8	11-0HA20			A	**3RA22 10-0HE15-2BB4**	1	1 unit	41D
	0.25	0.85	0.7 ... 1	11-0JA20			A	**3RA22 10-0JE15-2BB4**	1	1 unit	41D
	0.37	1.1	0.9 ... 1.25	11-0KA20			A	**3RA22 10-0KE15-2BB4**	1	1 unit	41D
	0.55	1.5	1.1 ... 1.6	11-1AA20			A	**3RA22 10-1AE15-2BB4**	1	1 unit	41D
	0.75	1.9	1.4 ... 2	11-1BA20			A	**3RA22 10-1BE15-2BB4**	1	1 unit	41D
	0.75	1.9	1.8 ... 2.5	11-1CA20			A	**3RA22 10-1CE15-2BB4**	1	1 unit	41D
	1.1	2.7	2.2 ... 3.2	11-1DA20			A	**3RA22 10-1DE15-2BB4**	1	1 unit	41D
	1.5	3.6	2.8 ... 4	11-1EA20			A	**3RA22 10-1EE15-2BB4**	1	1 unit	41D
S0	1.5	3.6	3.5 ... 5	21-1FA20	24-2BB40	29 21-2AA00	C	**3RA22 20-1FF24-0BB4**	1	1 unit	41D
	2.2	4.9	4.5 ... 6.3	21-1GA20		+ 29 23-1BB2	C	**3RA22 20-1GF24-0BB4**	1	1 unit	41D
	3	6.5	5.5 ... 8	21-1HA20			C	**3RA22 20-1HF24-0BB4**	1	1 unit	41D
	4	8.5	7 ... 10	21-1JA20			C	**3RA22 20-1JF24-0BB4**	1	1 unit	41D
	5.5	11.5	9 ... 12.5	21-1KA20			C	**3RA22 20-1KF24-0BB4**	1	1 unit	41D
	7.5	15.5	11 ... 16	21-4AA20	26-2BB40		A	**3RA22 20-4AF26-0BB4**	1	1 unit	41D
	7.5	15.5	14 ... 20	21-4BA20			B	**3RA22 20-4BF27-0BB4**	1	1 unit	41D
	11	22	17 ... 22	21-4CA20	27-2BB40		A	**3RA22 20-4CF27-0BB4**	1	1 unit	41D
	11	22	20 ... 25	21-4DA20			A	**3RA22 20-4DF27-0BB4**	1	1 unit	41D
	15	29	27 ... 32	21-4EA20			A	**3RA22 20-4EF27-0BB4**	1	1 unit	41D
Type of coordination "1" at I_q = 150 kA at 400 V (the motor starter protector is compatible with type of coordination "2")											
S00	For load feeders for lower outputs, see this table at type of coordination "2".							ToC 1			
S00	1.5	3.6	3.5 ... 5	11-1FA20	15-2BB42	29 11-2AA00	A	**3RA22 10-1FE15-2BB4**	1	1 unit	41D
	2.2	4.9	4.5 ... 6.3	11-1GA20		+ 29 13-2AA2	A	**3RA22 10-1GE15-2BB4**	1	1 unit	41D
	3	6.5	5.5 ... 8	11-1HA20			A	**3RA22 10-1HE15-2BB4**	1	1 unit	41D
	4	8.5	7 ... 10	11-1JA20	16-2BB42		A	**3RA22 10-1JE16-2BB4**	1	1 unit	41D
	5.5	11.5	9 ... 12.5	11-1KA20	17-2BB42		A	**3RA22 10-1KE17-2BB4**	1	1 unit	41D
	7.5	15.5	11 ... 16	11-4AA20	18-2BB42		A	**3RA22 10-4AE18-2BB4**	1	1 unit	41D

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

1) Push-in lugs see "Accessories" in Catalog IC 10, Chapter 8.

2) Auxiliary switches see "Accessories" in Catalog IC 10, Chapter 8.

3) The actual startup characteristics of the protected motor as well as its rated data are important selection factors here.

4) RS = assembly kit for reversing duty and busbar mounting.

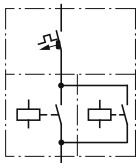
* You can order this quantity or a multiple thereof.
Illustrations similar

Selection and ordering data

3RA22 10

3RA22 20

Reversing duty



Rated control supply voltage 50/60 Hz 230 V AC for S00, 50 Hz 230 V AC for S0 With spring-type terminals

- With busbar adapter and device holder (included in the scope of supply)
- 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.
- With the contactor S0, an integrated NO contact is still available for free use.

Size	Standard three-phase motor 4-pole at 400 V AC[2]		Setting range for thermal overload release	**Consisting of the following single devices**			DT	**Fuseless load feeders**	PU (UNIT, SET, M)	PS*	PG
	Standard output *P*	Motor current *I* (guide value)		Motor starter protector	+ 2 contactors	+ Link module + RS assembly kit[3]/ Wiring kit		**Spring-type terminals**			
								Configurator			
								Order No.	Basic price per PU		
	kW	A	A								
Type of coordination "2" at I_q = 150 kA at 400 V (compatible with type of coordination "1")				**3RV20**	**3RT20**	**3RA**		ToC 2			
S00	0.06	0.2	0.14 ... 0.2	11-0BA20	15-2AP02	29 11-2AA00	A	**3RA22 10-0BH15-2AP0**	1	1 unit	41D
	0.06	0.2	0.18 ... 0.25	11-0CA20		+ 29 13-1DB2	A	**3RA22 10-0CH15-2AP0**	1	1 unit	41D
	0.09	0.3	0.22 ... 0.32	11-0DA20			A	**3RA22 10-0DH15-2AP0**	1	1 unit	41D
	0.09	0.3	0.28 ... 0.4	11-0EA20			A	**3RA22 10-0EH15-2AP0**	1	1 unit	41D
	0.12	0.4	0.35 ... 0.5	11-0FA20			A	**3RA22 10-0FH15-2AP0**	1	1 unit	41D
	0.18	0.6	0.45 ... 0.63	11-0GA20			A	**3RA22 10-0GH15-2AP0**	1	1 unit	41D
	0.18	0.6	0.55 ... 0.8	11-0HA20			A	**3RA22 10-0HH15-2AP0**	1	1 unit	41D
	0.25	0.85	0.7 ... 1	11-0JA20			A	**3RA22 10-0JH15-2AP0**	1	1 unit	41D
	0.37	1.1	0.9 ... 1.25	11-0KA20			A	**3RA22 10-0KH15-2AP0**	1	1 unit	41D
	0.55	1.5	1.1 ... 1.6	11-1AA20			A	**3RA22 10-1AH15-2AP0**	1	1 unit	41D
	0.75	1.9	1.4 ... 2	11-1BA20			A	**3RA22 10-1BH15-2AP0**	1	1 unit	41D
	0.75	1.9	1.8 ... 2.5	11-1CA20			A	**3RA22 10-1CH15-2AP0**	1	1 unit	41D
	1.1	2.7	2.2 ... 3.2	11-1DA20			A	**3RA22 10-1DH15-2AP0**	1	1 unit	41D
	1.5	3.6	2.8 ... 4	11-1EA20			A	**3RA22 10-1EH15-2AP0**	1	1 unit	41D
S0	1.5	3.6	3.5 ... 5	21-1FA20	24-2AP00	29 21-2AA00	C	**3RA22 20-1FH24-0AP0**	1	1 unit	41D
	2.2	4.9	4.5 ... 6.3	21-1GA20		+ 29 23-1DB2[4]	C	**3RA22 20-1GH24-0AP0**	1	1 unit	41D
	3	6.5	5.5 ... 8	21-1HA20			C	**3RA22 20-1HH24-0AP0**	1	1 unit	41D
	4	8.5	7 ... 10	21-1JA20			C	**3RA22 20-1JH24-0AP0**	1	1 unit	41D
	5.5	11.5	9 ... 12.5	21-1KA20			C	**3RA22 20-1KH24-0AP0**	1	1 unit	41D
	7.5	15.5	11 ... 16	21-4AA20	26-2AP00		A	**3RA22 20-4AH26-0AP0**	1	1 unit	41D
	7.5	15.5	14 ... 20	21-4BA20			B	**3RA22 20-4BH27-0AP0**	1	1 unit	41D
	11	22	17 ... 22	21-4CA20			A	**3RA22 20-4CH27-0AP0**	1	1 unit	41D
	11	22	20 ... 25	21-4DA20	27-2AP00		A	**3RA22 20-4DH27-0AP0**	1	1 unit	41D
	15	29	27 ... 32	21-4EA20			A	**3RA22 20-4EH27-0AP0**	1	1 unit	41D
Type of coordination "1" at I_q = 150 kA at 400 V (the motor starter protector is compatible with type of coordination "2")											
S00	For load feeders for lower outputs, see this table at type of coordination "2".							ToC 1			
S00	1.5	3.6	3.5 ... 5	11-1FA20	15-2AP02	29 11-2AA00	A	**3RA22 10-1FH15-2AP0**	1	1 unit	41D
	2.2	4.9	4.5 ... 6.3	11-1GA20		+ 29 13-1DB2	A	**3RA22 10-1GH15-2AP0**	1	1 unit	41D
	3	6.5	5.5 ... 8	11-1HA20			A	**3RA22 10-1HH15-2AP0**	1	1 unit	41D
	4	8.5	7 ... 10	11-1JA20	16-2AP02		A	**3RA22 10-1JH16-2AP0**	1	1 unit	41D
	5.5	11.5	9 ... 12.5	11-1KA20	17-2AP02		A	**3RA22 10-1KH17-2AP0**	1	1 unit	41D
	7.5	15.5	11 ... 16	11-4AA20	18-2AP02		A	**3RA22 10-4AH18-2AP0**	1	1 unit	41D

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

1) Auxiliary switches see "Accessories" in Catalog IC 10, Chapter 8.

2) The actual startup characteristics of the protected motor as well as its rated data are important selection factors here.

3) RS = assembly kit for reversing duty and busbar mounting.

4) The RS assembly kit also includes the 3RA29 11-1CA00 spacer for height compensation on AC contactors size S0 with spring-type terminals.

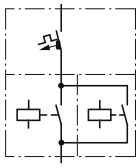
*** You can order this quantity or a multiple thereof.**
Illustrations similar

3RA22 reversing starters for 60 mm busbars

3RA22 10

3RA22 20

Reversing duty



Rated control supply voltage 24 V DC
With spring-type terminals

- With busbar adapter and device holder (included in the scope of supply)
- 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.
- With the contactor S0, an integrated NO contact is still available for free use.

Size	Standard three-phase motor 4-pole at 400 V AC[2]		Setting range for thermal overload release	Consisting of the following single devices			DT	Fuseless load feeders	PU (UNIT, SET, M)	PS*	PG
	Standard output P	Motor current I (guide value)		Motor starter protector	+ 2 contactors	+ Link module + RS assembly kit[3]/ Wiring kit		Spring-type terminals / Configurator / Order No.	Basic price per PU		
	kW	A	A								
Type of coordination "2" at I_q = 150 kA at 400 V (compatible with type of coordination "1")				**3RV20**	**3RT20**	**3RA**					
S00	0.06	0.2	0.14 ... 0.2	11-0BA20	15-2BB42	29 11-2AA00	A	**3RA22 10-0BH15-2BB4**	1	1 unit	41D
	0.06	0.2	0.18 ... 0.25	11-0CA20		+ 29 13-1DB2	A	**3RA22 10-0CH15-2BB4**	1	1 unit	41D
	0.09	0.3	0.22 ... 0.32	11-0DA20			A	**3RA22 10-0DH15-2BB4**	1	1 unit	41D
	0.09	0.3	0.28 ... 0.4	11-0EA20			A	**3RA22 10-0EH15-2BB4**	1	1 unit	41D
	0.12	0.4	0.35 ... 0.5	11-0FA20			A	**3RA22 10-0FH15-2BB4**	1	1 unit	41D
	0.18	0.6	0.45 ... 0.63	11-0GA20			A	**3RA22 10-0GH15-2BB4**	1	1 unit	41D
	0.18	0.6	0.55 ... 0.8	11-0HA20			A	**3RA22 10-0HH15-2BB4**	1	1 unit	41D
	0.25	0.85	0.7 ... 1	11-0JA20			A	**3RA22 10-0JH15-2BB4**	1	1 unit	41D
	0.37	1.1	0.9 ... 1.25	11-0KA20			A	**3RA22 10-0KH15-2BB4**	1	1 unit	41D
	0.55	1.5	1.1 ... 1.6	11-1AA20			A	**3RA22 10-1AH15-2BB4**	1	1 unit	41D
	0.75	1.9	1.4 ... 2	11-1BA20			A	**3RA22 10-1BH15-2BB4**	1	1 unit	41D
	0.75	1.9	1.8 ... 2.5	11-1CA20			A	**3RA22 10-1CH15-2BB4**	1	1 unit	41D
	1.1	2.7	2.2 ... 3.2	11-1DA20			A	**3RA22 10-1DH15-2BB4**	1	1 unit	41D
	1.5	3.6	2.8 ... 4	11-1EA20			A	**3RA22 10-1EH15-2BB4**	1	1 unit	41D
S0	1.5	3.6	3.5 ... 5	21-1FA20	24-2BB40	29 21-2AA00	C	**3RA22 20-1FH24-0BB4**	1	1 unit	41D
	2.2	4.9	4.5 ... 6.3	21-1GA20		+ 29 23-1DB2	C	**3RA22 20-1GH24-0BB4**	1	1 unit	41D
	3	6.5	5.5 ... 8	21-1HA20			C	**3RA22 20-1HH24-0BB4**	1	1 unit	41D
	4	8.5	7 ... 10	21-1JA20			C	**3RA22 20-1JH24-0BB4**	1	1 unit	41D
	5.5	11.5	9 ... 12.5	21-1KA20			C	**3RA22 20-1KH24-0BB4**	1	1 unit	41D
	7.5	15.5	11 ... 16	21-4AA20	26-2BB40		A	**3RA22 20-4AH26-0BB4**	1	1 unit	41D
	7.5	15.5	14 ... 20	21-4BA20			B	**3RA22 20-4BH27-0BB4**	1	1 unit	41D
	11	22	17 ... 22	21-4CA20	27-2BB40		A	**3RA22 20-4CH27-0BB4**	1	1 unit	41D
	11	22	20 ... 25	21-4DA20			A	**3RA22 20-4DH27-0BB4**	1	1 unit	41D
	15	29	27 ... 32	21-4EA20			A	**3RA22 20-4EH27-0BB4**	1	1 unit	41D
Type of coordination "1" at I_q = 150 kA at 400 V (the motor starter protector is compatible with type of coordination "2")											
S00	For load feeders for lower outputs, see this table at type of coordination "2".										
S00	1.5	3.6	3.5 ... 5	11-1FA20	15-2BB42	29 11-2AA00	A	**3RA22 10-1FH15-2BB4**	1	1 unit	41D
	2.2	4.9	4.5 ... 6.3	11-1GA20		+ 29 13-1DB2	A	**3RA22 10-1GH15-2BB4**	1	1 unit	41D
	3	6.5	5.5 ... 8	11-1HA20			A	**3RA22 10-1HH15-2BB4**	1	1 unit	41D
	4	8.5	7 ... 10	11-1JA20	16-2BB42		A	**3RA22 10-1JH16-2BB4**	1	1 unit	41D
	5.5	11.5	9 ... 12.5	11-1KA20	17-2BB42		A	**3RA22 10-1KH17-2BB4**	1	1 unit	41D
	7.5	15.5	11 ... 16	11-4AA20	18-2BB42		A	**3RA22 10-4AH18-2BB4**	1	1 unit	41D

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

1) Auxiliary switches see "Accessories" in Catalog IC 10, Chapter 8.

2) The actual startup characteristics of the protected motor as well as its rated data are important selection factors here.

3) RS = assembly kit for reversing duty and busbar mounting.

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

Overview

3RM12 motor starter with reversing functionality and electronic overload protection

SIRIUS 3RM1 motor starters are compact devices with a width of 22.5 mm, combining a large number of functions in a single enclosure. They consist of combinations of relay contacts, power semiconductors (hybrid technology), and a solid-state overload relay for operational switching of three-phase motors up to 3 kW (at 400 V) and resistive loads up to 10 A at AC voltages up to 500 V.

Feature	Value
Rated current (wide setting range of the electronic overload release)	0.1 ... 0.5 A 0.4 ... 2.0 A 1.6 ... 7.0 A (10 A)
Rated operational voltage	48 ... 500 V
Rated frequency	50/60 Hz
Rated control supply voltage	24 V DC, 110 V DC, 110 ... 230 V AC
Trip class	CLASS 10A

The 3RM1 motor starters with overload protection with wide setting range are offered as 3RM10 direct-on-line starters and 3RM12 reversing starters.

Hybrid technology

The 3RM1 motor starters combine the benefits of semiconductor technology and relay technology. This combination is also known as hybrid technology. The hybrid technology in the motor starter is characterized by the following features:

- The inrush current is is conducted briefly via the semiconductors.
  Advantage: protection of relay contacts, long service life due to low wear
- The uninterrupted current is conducted via relay contacts.
  Advantage: lower heat losses compared with the semiconductor.
- Shutdown is implemented again via the semiconductor.
  Advantage: the contacts are only slightly exposed to arcs, and this results in a longer service life.

Functional density/space requirement

The 3RM1 motor starters combine the functions direct/reversing starting and overload protection in a single device, without changing in size.

For simple applications (such as starting and reversing three-phase loads with overload protection), motor starter combinations of power contactors and a solid-state overload relay, for example, can be replaced by a 3RM1 device. The more functions are required, the more devices can be replaced. The surface area required for each motor starter in the control cabinet is reduced by values of 20 to 80%.

In the case of assemblies and grouped feeder units there are further advantages.

Wiring overhead

By combining various functions in a single device, wiring overhead is reduced. The greater the scope of functions, the greater the saving in wiring. Savings can be made in:

- mains supply line and motor feeder, and device connections in the main circuit
- wiring of the reversing contactor assembly in the main circuit, if required
- contact locking if there is a reversing contactor assembly in the control circuit
- control cables for coil terminals in the control circuit

These savings reduce the time required for the wiring itself, while at the same time reducing both the risk of wiring errors and the amount of testing required after control cabinets have been completed.

Configuration and stock keeping

The wide setting range of the electronic overload release (up to 1:5) reduces the cost of keeping stocks and the considerations involved in configuration where the actual motor current to be expected is concerned. Compared with protection equipment with thermal overload protection, only 3 versions are now required to cover a current range of 0.1 to 7 A with 3RM1, instead of 17 versions.

Connection methods

The 3RM1 is available with screw terminal or push-in terminal.

Push-in terminals are a form of spring-type connection allowing fast wiring without tools for rigid conductors or conductors equipped with end sleeves.

Fine-stranded or stranded conductors with no end finishing are wired using a screwdriver (with a 3.0 x 0.5 mm blade).

As with other spring-type terminals, a screwdriver is also required to release the conductor. The same tool as above can be used for this purpose.

The advantages of the push-in terminals are found, as with all spring-type terminals, in speed of assembly and disassembly and vibration-proof connection. There is no need for the checking and tightening required with screw terminals.

	Screw terminals
	Spring-type terminals
	The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds.

8

General data

Feedback to the control system

The electronic output in the 24 V DC control voltage version of the 3RM10 and 3RM12 motor starters allows the status of the connected motor to be reported to the higher-level control system. If the motor starter is controlled via inputs IN1 to 2, once the motor has been switched on and has started up correctly the output "OUT" is set.

Infeed system

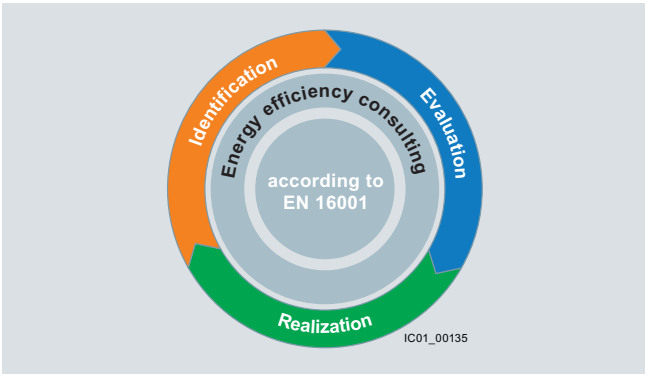
The 3RM19 infeed system available as an accessory for the main circuit with three-phase busbars allows fast, virtually error-free wiring of motor starters on the mains connection side and may reduce the number of short-circuit protective devices.

Order No. scheme

Digit of the Order No.	1st-3rd ❒❒❒	4th ❒	5th ❒	6th ❒	7th ❒	–	8th ❒	9th ❒	10th ❒	11th ❒	12th ❒
SIRIUS 3RM1 motor starter	**3RM**										
Generation (1)		❒									
Function (direct-on-line starter = 0, reversing starter = 2, accessories = 9			❒								
Setting range rated motor current (0.1 ... 0.5 A = 01, 0.4 ... 2.0 A = 02, 1.6 ... 7.0 A = 07)				❒	❒						
Connection type (screw terminal = 1, push-in spring-loaded terminal = 2)							❒				
Reserved (A)								❒			
Width (22.5 mm = A)									❒		
Rated control supply voltage (24 V DC = 0; 110 V DC, 110 V ... 230 V AC = 1)										❒	
Rated operational voltage (48 ... 500 V = 4)											❒
Example	**3RM**	**1**	**0**	**0**	**1**	**-**	**1**	**A**	**A**	**0**	**4**

Benefits

Advantages through energy efficiency



Overview of the energy management process

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

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

With 3RM1 motor starters, control cabinets warm up less because power losses have been reduced by operation:

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

Product advantages

The SIRIUS 3RM1 motor starters offer a number of benefits:

- Greater endurance and reduced heat losses thanks to hybrid technology
- Less space required in the control cabinet (20 to 80%) as a result of higher functional density
- Less wiring and testing required as a result of integrating several functions into a single device
- Lower costs for stock keeping and configuration as a result of the wide setting range of the electronic overload release (up to 1:5)
- Fast wiring without tools for rigid conductors or conductors equipped with end sleeves thanks to push-in spring-type connections
- Motor status feedback to the higher-level control system in the case of 3RM10 and 3RM12 motor starters in the 24 V DC version
- Virtually error-free wiring on the mains connection side and reduction in short-circuit protective devices by means of 3RM19 infeed system

Application

3RM1 motor starters are designed for applications in which small motors have to be connected in the most confined spaces.

Main areas of use

- Conveyor systems
- Logistics systems
- Production machines
- Machine tools
- Small elevators

Standards and approvals

The motor starter complies with the following standards:

- IEC/EN 60947-4-2
- UL 508

Technical specifications

Type		3RM1
Mechanical components and environment		
Dimensions (W x H x D)		
• Width	mm	22.5
• Height	mm	100
• Depth	mm	136.5 (from the standard mounting rail) 141.6 (entire enclosure depth)
Ambient temperature		
• During operation	°C	-25 … +60
• During storage	°C	-40 … +70
• During transport	°C	-40 … +70
Installation altitude at height above sea level maximum	m	4 000
Shock resistance		6g/11 ms
Vibration resistance		1 ... 6 Hz, 15 mm; 20 m/s², 500 Hz
IP degree of protection		IP20
Mounting position		
Electromagnetic compatibility (EMC)		
Emitted interference		
• Conducted RF interference emission according to CISPR11		Class B for residential, business and commercial applications
• Non-conducted RF interference emission according to CISPR11		Class B for residential, business and commercial applications
Interference immunity		
• Electrostatic discharge according to IEC 61000-4-2		4 kV contact discharge / 8 kV air discharge
• Conducted interference injection as high frequency interference according to IEC 61000-4-6		10 V
• Conducted interference BURST according to IEC 61000-4-4		2 kV / 5 kHz
• Conducted interference - phase-to-ground SURGE according to IEC 61000-4-5		2 kV
• Conducted interference - phase-to-phase SURGE according to IEC 61000-4-5		1 kV

Type		3RM1 .01	3RM1 .02	3RM1 .07
Main circuit				
Rated operational voltage maximum	V	500		
Operating frequency				
• 1 rated value	Hz	50		
• 2 rated value	Hz	60		
Rated insulation voltage	V	600		
Rated impulse withstand voltage	kV	6		
Rated operational current at 400 V at AC	A	0.5	2	7
Active power loss, typical	W	0.02	0.3	3.3
Minimum load in % of I_M	%	20		
Adjustable current response value				
• of the inverse-time delayed overload release	A	0.1 … 0.5	0.4 … 2	1.6 … 7

General data

Type		3RM1 ...-.AA0.	3RM1 ...-.AA1.
Control circuits			
Type of voltage of the control supply voltage		DC	AC/DC
Control supply voltage 1			
• At DC	V	24	110
• At 50 Hz			
- At AC	V	--	110 … 230
Frequency of the control supply voltage			
• 1 rated value	Hz	--	50
• 2 rated value	Hz	--	60
Operating range factor of the control supply voltage rated value			
• At DC		0.8 … 1.25	0.85 … 1.1
• At 50 Hz			
- At AC		--	0.85 … 1.1
Control current	A	0.08	0.05
Input voltage at the digital input			
• At DC	V	24	110
• At AC	V	--	110 … 230
- Rated value			
Input voltage at the digital input with signal <1>			
• At DC	V	19.2 … 30	93 … 121
• At AC	V	--	93 … 253
Input current at the digital input with signal <1> typical	A	0.01	0.002

Type		3RM1...-1.	3RM1...-2.
Connection methods			
Connectable conductor cross-section for main contacts			
• Solid	mm^2	0.5 … 4	
• Finely stranded			
- With end sleeves	mm^2	0.5 … 2.5	
- Without end sleeves	mm^2	--	0.5 … 4
Connectable conductor cross-section for auxiliary contacts			
• Solid	mm^2	0.5 … 2.5	0.5 … 1.5
• Finely stranded			
- With end sleeves	mm^2	0.5 … 2.5	0.5 … 1
- Without end sleeves	mm^2	--	0.5 … 1.5
AWG number as coded connectable conductor cross-section			
• For main contacts		20 … 12	
• For auxiliary contacts		20 … 14	20 … 16

Note:

All the above technical specifications are relevant for selecting the motor starters. Details about installation conditions and the use of the motor starters, and particularly about the derating of the rated current, can be found in the manual (see Accessories) and the data sheets.

Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41D

3RM1 00.-1AA.4

3RM1 00.-2AA.4

Rating for three-phase motor at 400 V at 50 Hz at three-phase AC[1]	Current setting range of the inverse-time overload release	DT	Version of electrical connection/for main circuit screw terminal **Screw terminals** **Configurator**	Price per PU	DT	Version of electrical connection/for main circuit PUSH-IN terminal **Spring-type terminals** **Configurator**	Price per PU
kW	A		Order No.			Order No.	
3RM10 motor starter for direct-on-line start, with electronic overload protection							
Rated control supply voltage U_s = 24 V DC							
0 … 0.12	0.1 … 0.5	A	**3RM1001-1AA04**		A	**3RM1001-2AA04**	
0.09 … 0.75	0.4 … 2	A	**3RM1002-1AA04**		A	**3RM1002-2AA04**	
0.55 … 3	1.6 … 7	A	**3RM1007-1AA04**		A	**3RM1007-2AA04**	
Rated control supply voltage U_s = 110 ... 230 V AC 50/60 Hz; 110 V DC							
0 … 0.12	0.1 … 0.5	A	**3RM1001-1AA14**		A	**3RM1001-2AA14**	
0.09 … 0.75	0.4 … 2	A	**3RM1002-1AA14**		A	**3RM1002-2AA14**	
0.55 … 3	1.6 … 7	A	**3RM1007-1AA14**		A	**3RM1007-2AA14**	

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

[1] The actual startup characteristics of the motor as well as its rated data are important selection factors here.

8

3RM12 reversing starters

Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41D

3RM1 20.-1AA.4

3RM1 20.-2AA.4

Rating for three-phase motor at 400 V at 50 Hz at three-phase AC[1]	Current setting range of the inverse-time overload release	DT	Version of electrical connection/for main circuit screw terminal **Screw terminals** **Configurator**	Price per PU	DT	Version of electrical connection/for main circuit PUSH-IN terminal **Spring-type terminals** **Configurator**	Price per PU
kW	A		Order No.			Order No.	
3RM12 motor starter with reversing functionality and electronic overload protection							
Rated control supply voltage U_s = 24 V DC							
0 … 0.12	0.1 … 0.5	A	**3RM1201-1AA04**		A	**3RM1201-2AA04**	
0.09 … 0.75	0.4 … 2	A	**3RM1202-1AA04**		A	**3RM1202-2AA04**	
0.55 … 3	1.6 … 7	A	**3RM1207-1AA04**		A	**3RM1207-2AA04**	
Rated control supply voltage U_s = 110 ... 230 V AC 50/60 Hz; 110 V DC							
0 … 0.12	0.1 … 0.5	A	**3RM1201-1AA14**		A	**3RM1201-2AA14**	
0.09 … 0.75	0.4 … 2	A	**3RM1202-1AA14**		A	**3RM1202-2AA14**	
0.55 … 3	1.6 … 7	A	**3RM1207-1AA14**		A	**3RM1207-2AA14**	

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

[1] The actual startup characteristics of the motor as well as its rated data are important selection factors here.

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

Overview

Accessories for 3RM1 motor starters

The following accessories are available for the 3RM1 motor starter:

- Three-phase infeed system
- Device connectors
- Spare terminals for main and control circuits
  - With screw terminals
  - With push-in spring-type terminals
- Push-in lugs for wall mounting of the motor starters
- Sealable covers

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

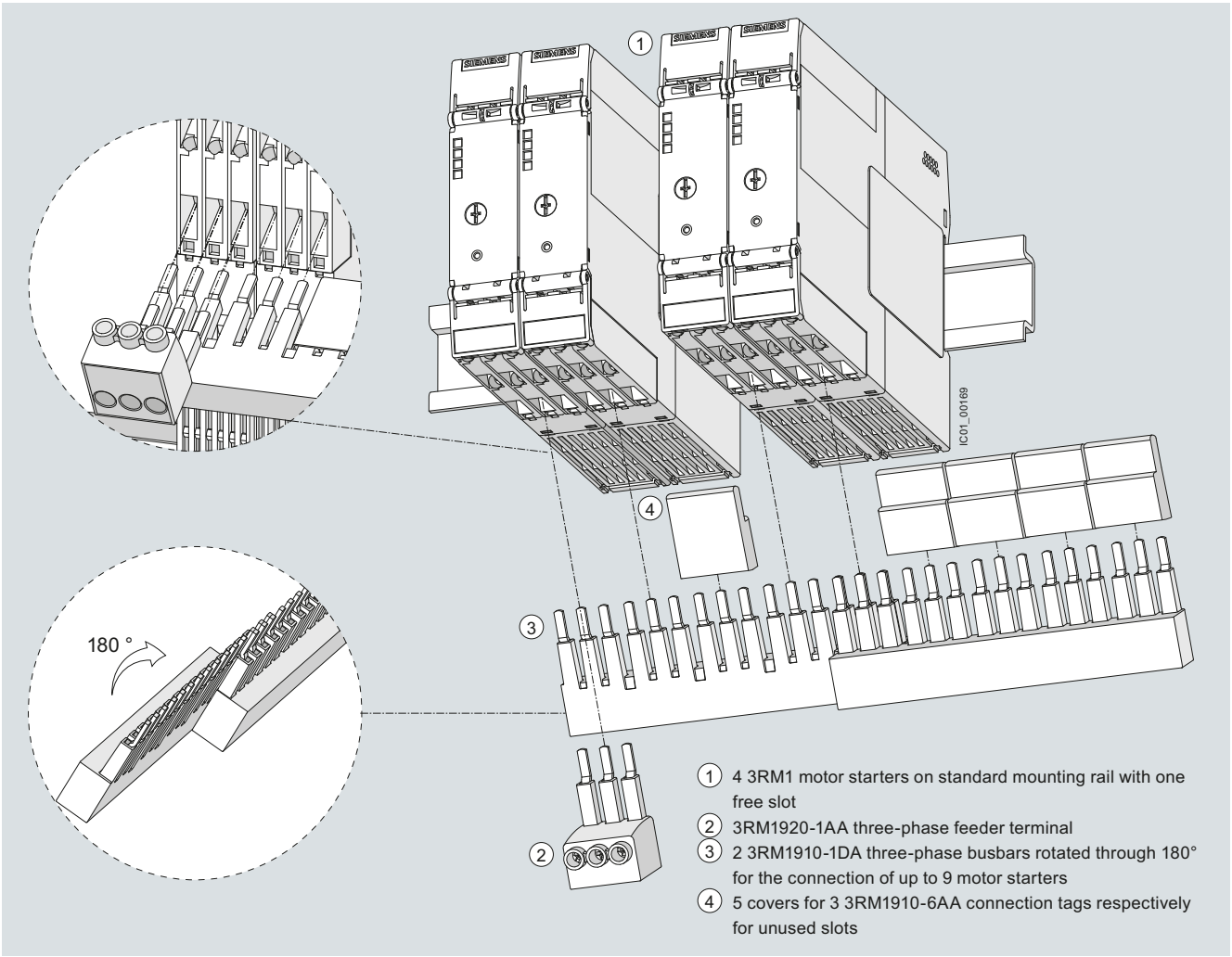
Special three-phase busbar systems can be used to provide a simple, time-saving and safe means of feeding two or more 3RM1 motor starters with screw terminals.

These busbars are available in three lengths, thus allowing 2, 3 or 5 motor starters (arranged side-by-side) to be connected at the same time. More than 5 devices can be connected by clamping the tags of an additional busbar rotated by 180° (e.g. 6 devices using one 5-pole busbar and one 2-pole busbar).

A single motor starter can be removed from the assembly without loosening the terminal screws of neighboring motor starters.

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

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



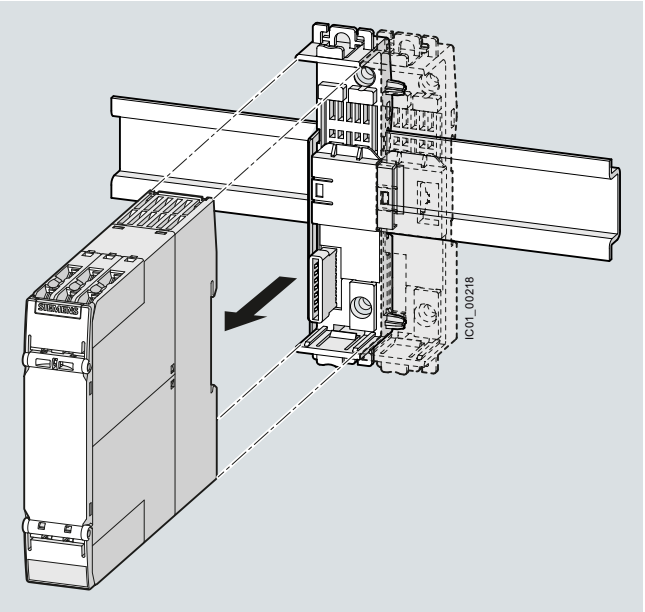
3RM19 infeed system with three-phase feeder terminal: In the above example, two three-phase busbars (5-pole busbars) rotated through 180° allow up to 9 3RM1 motor starters to be connected. Contact with the unused connection tags in unoccupied positions is prevented safely by the covers.

Accessories

Device connectors

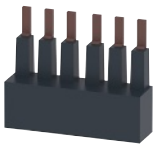
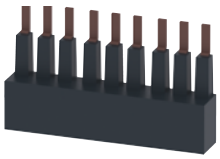
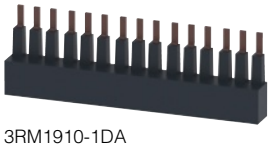
With the aid of device connectors snapped onto a TH 35 standard mounting rail or screwed to a flat mounting wall, several motor starters can be jointly supplied with control supply voltage. This requires the control supply voltage to be applied to the A1 and A2 terminals of only one motor starter.

The last motor starter in a row can be placed on a device termination connector. Flush termination of the installation is thus possible.



Device connectors snapped onto a standard mounting rail to allow the joint connection of the control supply voltage for 3RM1 motor starters.

Selection and ordering data

Product designation	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS	PG
3RM19 three-phase infeed system for 3RM1 with screw terminals						
 3RM1920-1AA **Three-phase feeder terminal**	A	**3RM1920-1AA**		1	1 unit	41D
Three-phase busbar systems						
 3RM1910-1AA • For 2 motor starters	A	**3RM1910-1AA**		1	1 unit	41D
 3RM1910-1BA • For 3 motor starters	A	**3RM1910-1BA**		1	1 unit	41D
 3RM1910-1DA • For 5 motor starters	A	**3RM1910-1DA**		1	1 unit	41D
 3RM1910-6AA **Covers** for connection tags of the three-phase busbars	A	**3RM1910-6AA**		1	1 unit	41D

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

	Product designation	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS	PG
	Device connectors for the electrical connection of SIRIUS devices in the industrial standard mounting rail enclosure						
 3ZY1212-2EA00	**Device connector type 2**, 7-pole, 22.5 mm	A	**3ZY1212-2EA00**		1	1 unit	41L
	Device daisy chain connector type 2, 7-pole, 22.5 mm	X	**3ZY1212-2AB00**		1	1 unit	41L
 3ZY1212-2FA00	**Device termination connectors type 2**, 7-pole, 22.5 mm	A	**3ZY1212-2FA00**		1	1 unit	41L
	Removable terminals for SIRIUS devices in the industrial standard mounting rail enclosure						
	Strip terminal, 2-pole						
 3ZY1122-1BA00	• Screw terminal, 1 x 4 mm²	A	**3ZY1122-1BA00**		1	6 units	41L
 3ZY1122-2BA00	• Push-in terminal, 1 x 4 mm²	A	**3ZY1122-2BA00**		1	6 units	41L
	Strip terminal, 3-pole						
 3ZY1131-1BA00	• Screw terminal, 1 x 2.5 mm²	A	**3ZY1131-1BA00**		1	6 units	41L
 3ZY1131-2BA00	• Push-in terminal, 1 x 2.5 mm²	A	**3ZY1131-2BA00**		1	6 units	41L

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

Accessories

	Product designation	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS	PG
Further accessories							
 3ZY1311-0AA00	**Push-in lugs for wall mounting** (2 lugs per motor starter are required, i.e. 1 PS is sufficient for 5 motor starters)	A	**3ZY1311-0AA00**		1	10 units	41L
3ZY1321-2AA00	**Sealable covers 22.5 mm**	A	**3ZY1321-2AA00**		1	5 units	41L
Documentation							
	Manual[1)] SIRIUS 3RM1 Motor Starters						
	• German		**3ZX1012-0RM10-2AB1**				
	• English		**3ZX1012-0RM10-2AC1**				
	• French		**3ZX1012-0RM10-2AD1**				
	• Spanish		**3ZX1012-0RM10-2AE1**				
	• Italian		**3ZX1012-0RM10-2AF1**				
	• Portuguese		**3ZX1012-0RM10-2AG1**				

1) The manual is also available as a PDF download; see www.siemens.com/industrial-controls/support ➞ "Industrial Controls" ➞ "Load Feeders and Motor Starters" ➞ "for Use in the Control Cabinet" ➞ "SIRIUS 3RM1 Motor Starters".

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

Overview

Innovation of the ET 200S High Feature motor starters

The ET 200S High Feature motor starters have undergone radical innovation and now support the acyclic services on PROFIBUS and PROFINET as well as PROFIenergy on PROFINET.

High-Feature motor starters are now:

- Even more flexible – flexible assignment of parameters
- Even better integrated in TIA (Totally Integrated Automation)
- Even more transparent – through comprehensive diagnostic data records
- Even more anticipatory – through maintenance functions
- Energy-efficient – through PROFIenergy

Basic functionality of the ET 200S motor starters

All versions of the ET 200S motor starters have the following functionality. The further specific functionality is described for the respective versions.

- Fully pre-wired motor starters for switching and protecting any AC loads up to 7.5 kW at 400 V AC and 500 V AC
- With self-assembling 40/50 A power bus, i. e. the load voltage is only fed once for a group of motor starters
- All control supply voltages connected only once, i.e. when modules are added they are automatically connected to the next module
- Hot swapping is permissible
- Inputs and outputs for activating and signaling the status have been integrated
- Control of the motor starter from the control system and extensive diagnostics status via the cyclic process image
- Diagnostics capability for active monitoring of the switching and protection functions
- The signal states in the process image of the motor starter provide information about protective devices (short circuit or overload), the switching states of contactor(s) or soft starters, and system faults.
- Interface for controlling an expansion module, e. g. brake control module xB1...xB4 for controlling mechanical brakes in three-phase motors for 24 V DC and 500 V DC.
- Brake control module xB5 and xB6 for 400 V AC
- Can be combined with safety technology for use in safety-related system components (IEC 62061 and ISO 13849-1).

Functionality of the High-Feature motor starters

- Direct-on-line, reversing or soft starter up to 7.5 kW
- With wide range in 3 setting ranges, with 0.3 to 3 A, 2.4 up to 8 A, 2.4 to 16 A available
- With combination of starter circuit breaker, electronic overload protection (parameterizable), and contactor or soft starter
- Power bus up to 50 A
- Upper and lower current limits for plant and process monitoring
- Motor stall protection, zero current detection and asymmetry detection integrated
- The current motor current is measured and transmitted for diagnostics in the cyclic process image
- Control of the motor starter from the control system and extensive diagnostics status via the cyclic process image
- Optional digital inputs available in the cyclic process image and flexibly assignable with functions for adaptation to all applications
- Integrated isolating function using starter circuit breakers
- Detection of the switching state of the starter circuit breaker via auxiliary switches and of the contactor via current evaluation

ET 200S High-Feature motor starter: DS1e-x direct-on-line starters

ET 200S High-Feature motor starter: Direct-on-line soft starter DSS1e-x

ET 200S High-Feature motor starter: RS1e-x reversing starters

- Local safety engineering possible (without failsafe kit in the case of the HF starter, because the function of the failsafe kit is already integrated)
- Front-mounting 2DI LC COM control module for another 2 parameterizable digital inputs

High Feature motor starters

- Optional "Motor Starter ES" software for easy commissioning and diagnostics (see Catalog IC 10, Chapter 14, "Planning, Configuration and Visualizing for SIRIUS")
- PROFIenergy capable
- Supplying the motor current in PROFIenergy format and shutting down in dead times
- Support of all DPV1 acyclic services on PROFIBUS and PROFINET
  - Changing of parameters during operation, e.g. the rated operational current
  - Reading and writing acyclic data for exact diagnostics of the unit or process and for analysis of the plant status

Selective protection concept for ET 200S High-Feature motor starters

As a result of the selective protection concept (separate tripping of short circuit and overload) with solid-state overload evaluation, 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 – hence little order variance and stock keeping
- All settings can be parameterized by bus – hence full TIA capability
- Separate signaling of overload and short circuit – enables selective diagnostics
- Overload can be acknowledged by remote reset – ideal for highly automated plants
- Current asymmetry monitoring – complete monitoring of the motor
- Stall protection – complete monitoring of the motor
- Emergency start function in case of overload – operation is possible in an emergency
- Current value transmission via bus – monitoring of the application
- Current limit monitoring
- Trip class can be parameterized – overload trip can be adapted to the application
- Type of coordination "2" – still functional after short circuit with magnitude of 50 kA
- Very high contact endurance

PROFIenergy for ET 200S High-Feature motor starters[1)]

Increasing energy prices, far-reaching ecological problems worldwide and the threat of climate change make it necessary for you to be more conscious about your use of energy.

Active and effective energy management is possible with PROFIenergy.

PROFIenergy is a manufacturer-independent profile on PROFINET, which can be used by all manufacturers, has been standardized by PNO[1)] and supports the shut-down of electrical devices during dead times and the read-out of measured values.

The ET 200S HF motor starter supplies the motor current in PROFIenergy format and switches off during dead times.

[1)] In the PNO (PROFIBUS Nutzerorganisation e. V. - PROFIBUS User Organization), manufacturers and users have come together to agree on the standardized communication technologies PROFIBUS and PROFINET.

Support of all acyclic services on PROFIBUS and PROFINET

Thanks to the acyclic services, the ET 200S HF motor starters now offer plenty of diagnostics data via data records. There are extensive new options for reading out data from the motor starter for device, system or process monitoring. The motor starter is equipped internally with three 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 on demand at any time 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. This enables process deviations to be monitored or commissioning to be optimized.

Statistical data or measured values make plant monitoring easy for the user.

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.

The Installation and Maintenance Functions (I&M) store, firstly, information (I&M) about the modules used in the motor starter and, secondly, data (I&M) that can be defined during configuration, e.g. location designations. I&M functions are used for for troubleshooting faults and localizing changes in hardware at a plant or checking the system configuration.

Supported data records:

- DS 0 S7-V1 system diagnostics (S7 diagnostics alarm)
- DS 72, 73, 75 logbooks, device faults, trips, events
- DS 92 device diagnostics
- DS 93 command
- DS 94 measured values
- DS 95 statistics
- DS 96 slave pointer
- DS 100 device identification
- DS 131 device parameters
- DS 134 maintenance
- DS 165 comment
- DS 226 PROFIenergy technology function
- DS 231 I&M 0 (= device identification)
- DS 232 I&M 1 (= equipment identifier)
- DS 233 I&M 2 (= installation)
- DS 234 I&M 3 (= description)

Device functions (firmware features)

See Catalog IC 10, Chapter 8.

Notes on safety

System networking requires suitable protective measures (e.g. network segmentation for IT security among others) in order to ensure safe plant operation.

More information about the subject of Industrial Security see www.siemens.com/industrialsecurity.

Technical specifications

		ET 200S Standard motor starters	ET 200S High-Feature motor starters	
		DS1-x, RS1-x	DS1e-x, RS1e-x	DSS1e-x
Mechanical components and environment				
Connectable motor starters for connection to ET 200S, max.[1]		42	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 positions	°C	Vertical, horizontal; with derating	Vertical, horizontal	
Weight				
• Direct-on-line/reversing starters incl. terminal module	kg	1.0/1.6	1.6/2.2	1
• Direct-on-line/reversing starters incl. terminal module PE/N	kg	1.1/1.8	1.7/2.3	1.1
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-sections				
• Solid	mm^2	2 x (1 ... 2.5)[2]; 2 x (2.5 ... 6)[2], according 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 protectors	Operating cycles	100 000		
• Contactors		30 million	10 million	--
• Contactor with safety functionality (F-Kit)		10 million	--	--
Electrical specifications				
Power consumption				
• From auxiliary circuit L+/M (U_1)	mA	Approx. 20	Approx. 40	
• From auxiliary circuit A1/A2 (U_2)	mA	Approx. 100	Approx. 1 700 (80 ms long), approx. 350 (after 80 ms)	Approx. 30
Rated operational current I_e for TM-D terminal modules	A	40	50	
Rated operational voltage U_e	V	400		
Approval according to IEC/EN (DIN VDE 0106-101 or IEC 61140)	V	Yes, up to 500		Yes, up to 480
Approval according to CSA and U_L	V	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		
Power of three-phase 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 according to IEC 61140	V	400		
Positively-driven operation of contactor relay (NC)		Yes		--
Trip class		CLASS 10	Parameterizable CLASS 5 (10A), 10, 15, 20	0.3 ... 3 A: CLASS 10/10A, parameterizable; 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 protectors	h	100 000		
• Contactors		See manual[3]		--
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[3]	
Induction protection		Already installed		

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.

3) http://support.automation.siemens.com/WW/view/en/6008567

High-Feature motor starters
High-Feature terminal modules

Selection and ordering data

High-Feature motor starters in fully innovated design (".-.AB4 starters") [1)]

	Setting range of the electronic release	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	A						
High-Feature motor starters, with diagnostics, solid-state overload protection, fuseless, expandable with brake control module							
 DS1e-x	***DS1e-x direct-on-line starters***						
	0.3 ... 3	A	**3RK1 301-0AB10-0AB4**		1	1 unit	42D
	2.4 ... 8	A	**3RK1 301-0BB10-0AB4**		1	1 unit	42D
	2.4 ... 16	A	**3RK1 301-0CB10-0AB4**		1	1 unit	42D
	RS1e-x reversing starters						
	0.3 ... 3	A	**3RK1 301-0AB10-1AB4**		1	1 unit	42D
	2.4 ... 8	A	**3RK1 301-0BB10-1AB4**		1	1 unit	42D
	2.4 ... 16	A	**3RK1 301-0CB10-1AB4**		1	1 unit	42D
	Direct-on-line soft starter DSS1e-x						
	0.3 ... 3	A	**3RK1 301-0AB20-0AB4**		1	1 unit	42D
	2.4 ... 8	A	**3RK1 301-0BB20-0AB4**		1	1 unit	42D
	2.4 ... 16	A	**3RK1 301-0CB20-0AB4**		1	1 unit	42D

[1)] When a device is replaced, the innovated motor starter will behave like the not yet innovated motor starter (".-.AA4 starter"), i.e. it will run in DPV0 mode.

Overview

Terminal module TM-DS, TM-RS

More information see also "General Data" → "Overview" → section "Power Supply through Terminal Modules" in Catalog IC 10.

- "–S32" version with incoming connection: 2 x 3 x 10 mm² screw terminals for power bus and motor feeder
- "-S31" version without incoming connection: 1 x 3 x 10 mm² screw terminals for motor feeder
- Optionally expandable with PE/N modules (see "Accessories" in Catalog IC 10, Chapter 8)

Technical specifications

See Catalog IC 10, Chapter 8.

Selection and ordering data

	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
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	42D
	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	42D
	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	42D
	TM-RS130-S31 **for RS1e-x reversing starters** Without incoming power bus connection	A	**3RK1 903-0AL10**		1	1 unit	42D

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

Monitoring and Control Devices

10

Introduction

10/2 **Introduction**

SIMOCODE 3UF Motor Management and Control Devices

SIMOCODE pro 3UF7

10/5 General data

10/14 Basic units new

10/16 Expansion modules

10/17 Fail-safe expansion modules new

10/18 Accessories

10/23 3UF18 current transformers for overload protection

SIRIUS 3RR Monitoring Relays

SIRIUS 3RR24 Monitoring Relays for Mounting onto 3RT2 Contactors for IO-Link new

10/24 General data

10/27 Current monitoring

Introduction

Overview

Type	SIMOCODE pro C	SIMOCODE pro V/ SIMOCODE pro V PROFINET	Page
SIMOCODE 3UF motor management and control devices			
Basic units	✓	✓	10/14
Current measuring modules	✓	✓	10/14
Current/voltage measuring modules	--	✓	10/14
Decoupling modules	--	✓	10/14
Operator panels	✓	✓	10/15
Operator panels with display	--	✓	10/15
Expansion modules	--	✓	10/16
Fail-safe expansion modules	--	✓	10/17
Current transformers	✓	✓	10/23
SIMOCODE ES 2007	✓	✓	10/21
SIMOCODE pro function block library for SIMATIC PCS 7	✓	✓	10/22

✓ Available
-- Not available

Type	Basic units	Expansion modules	Software	Page
LOGO! logic modules				
LOGO! Modular basic versions	✓	--	--	Catalog IC 10
SIPLUS LOGO! Modular basic versions[1]	✓	--	--	
LOGO! Modular pure versions	✓	--	--	
SIPLUS LOGO! Modular pure versions[1]	✓	--	--	
LOGO! Modular expansion modules	--	✓	--	
SIPLUS LOGO! Modular expansion modules[1]	--	✓	--	
LOGO! CM EIB/KNX communication modules	--	✓	--	
LOGO! CSM unmanaged	--	✓	--	
AS-Interface connection for LOGO!	--	✓	--	
LOGO!Contact	--	✓	--	
LOGO! Software	--	--	✓	

✓ Corresponds to
-- Does not correspond to

[1] Devices with extended temperature range and medial exposure




Type	3RP15	3RP20	7PV15	3RT19	Page
Timing relays					
Enclosures:				--	Catalog IC 10
• 17.5 mm industry and household equipment installation	--	--	✓	--	
• 22.5 mm industry	✓	--	--	--	
• 45 mm industry	--	✓	--	--	
• For contactor sizes S0 to S12	--	--	--	✓	
Monofunction	✓	✓	✓	✓	
Multifunction	✓	✓	✓	--	
Monovoltage	--	--	--	✓	
Combination voltage	✓	✓	✓	--	
Wide voltage range	✓	✓	✓	--	
Application:	--	--	--	--	
• Control systems and mechanical engineering	✓	✓	✓	✓	
• Infrastructure	--	--	✓	--	
• Mounting onto contactors	--	--	--	✓	

✓ Corresponds to or possible
-- Does not correspond to or not possible








Type	3UG45 1., 3UG46 1.	3UG46 3.	3RR21, 3RR22, 3UG46 21, 3UG46 22	3UG46 41	3UG46 24	3UG45 8.	3UG45 01	3UG46 51	Page
Monitoring relays									
Line monitoring	✓	--	--	--	--	--	--	--	Catalog IC 10
Voltage monitoring	--	✓	--	--	--	--	--	--	
Current monitoring	--	--	✓	--	--	--	--	--	
Power factor and active current monitoring	--	--	3RR22: ✓	✓		--	--	--	
Residual current monitoring	--	--	--	--	✓	--	--	--	
Insulation monitoring	--	--	--	--	--	✓	--	--	
Level monitoring	--	--	--	--	--	--	✓	--	
Speed monitoring	--	--	--	--	--	--	--	✓	

✓ Available
-- Not available






Type	3UG48 1.	3UG48 32	3RR24	3UG48 22	3UG48 41	3UG48 51	Page
Monitoring relays for IO-Link							
Line monitoring	✓	--		--	--	--	Catalog IC 10
Voltage monitoring	--	✓		--	--	--	
Current monitoring	--	--	✓	✓	--	--	10/27
Power factor and active current monitoring	--	--	✓	--	✓		10/27
Speed monitoring	--	--		--	--	✓	Catalog IC 10

✓ Available
-- Not available

Introduction




Type	3RS10, 3RS11, 3RS20, 3RS21	3RS14, 3RS15	3RN1	3RS17	Page
Temperature monitoring relays					
Temperature monitoring	✓	--	--	--	Catalog IC 10
Temperature monitoring relays for IO-Link					
Temperature monitoring for IO-Link	--	✓	--	--	Catalog IC 10
Thermistor motor protection					
Thermistor motor protection	--	--	✓	--	Catalog IC 10
Interface converters					
Interface converters	--	--	--	✓	Catalog IC 10

✓ Available
-- Not available

Connection methods

The monitoring and control devices are available with screw or spring-type terminals.

Screw terminals

Spring-type terminals

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

"Increased safety" type of protection EEx e/d according to ATEX directive 94/9/EC

The communication-capable, modularly designed SIMOCODE pro motor management system (SIRIUS Motor Management and Control Devices) protects motors of types of protection EEx e and EEx d in potentially explosive areas.

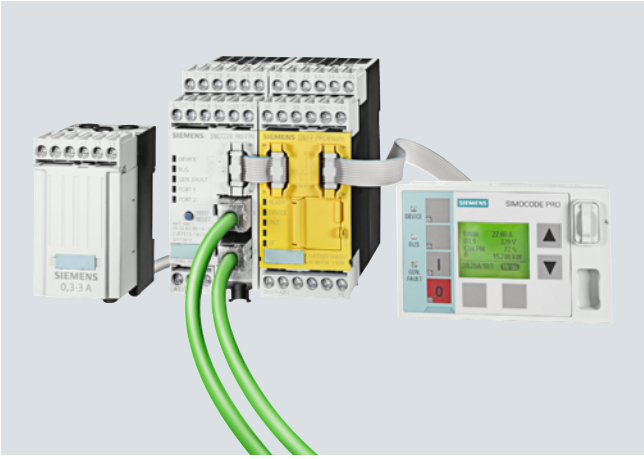
ATEX approval for operation in areas subject to explosion hazard

The SIRIUS 3RN1 thermistor motor protection relay for PTC sensors is certified according to ATEX Ex II (2) G and D for environments with explosive gas or dust loads.

The SIRIUS SIMOCODE pro 3UF7 motor management system is certified for the protection of motors in areas subject to explosion hazard according to

- ATEX Ex I (M2); equipment group I, category M2 (mining)
- ATEX Ex II (2) GD; equipment group II, category 2 in area GD

Overview



SIMOCODE pro V PROFINET with current/voltage measuring module, fail-safe expansion module and operator panel with display

SIMOCODE pro is a flexible, modular motor management system for motors with constant speeds in the low-voltage performance range. It optimizes the connection between I&C and motor feeder, increases plant availability and allows significant savings to be made for startup, operation and maintenance of a system.

When SIMOCODE pro is installed in the low-voltage switchboard, it is the intelligent interface between the higher-level automation system and the motor feeder and includes the following:

- Multi-functional, electronic full motor protection which is independent of the automation system
- Integrated control functions instead of hardware for the motor control
- Detailed operating, service and diagnostics data
- Open communication through PROFIBUS DP, PROFINET and OPC UA
- Safety relay function for the fail-safe disconnection of motors up to SIL 3 (IEC 61508, IEC 62061) or PL e with Category 4 (EN ISO 13849-1)
- SIMOCODE ES is the software package for SIMOCODE pro parameterization, start-up and diagnostics.

Two series

SIMOCODE pro is structured into two functionally tiered series:

- SIMOCODE pro C, as a compact system for direct-on-line starters and reversing starters or the actuation of a circuit breaker
- SIMOCODE pro V, as a variable system with all control functions and with the possibility of expanding the inputs, outputs and functions of the system at will using expansion modules

Expansion possibilities	SIMOCODE pro C	SIMOCODE pro V	
	Basic unit 1	Basic unit 2[1]	Basic unit 3 PROFINET
Operator panels	✓	✓	✓
Operator panels with display	--	✓	✓
Current measuring modules	✓	✓	✓
Current/voltage measuring modules	--	✓	✓
Decoupling modules	--	✓	✓
Expansion modules (max. 5):			
• Digital modules	--	2	2
• Fail-safe digital modules[2]	--	1	1
• Analog modules	--	1	2
• Ground-fault modules	--	1	1
• Temperature modules	--	1	2

✓ Available

-- Not available

[1] When an operator panel with display and/or a decoupling module is used, more restrictions on the number of expansion modules connectable per basic unit must be observed, see page 10/13.

[2] The fail-safe digital module can be used instead of one of the two digital modules.

Per feeder each system always comprises one basic unit and one separate current measuring module. The two modules are connected together electrically through the system interface with a connection cable and can be mounted mechanically connected as a unit (one behind the other) or separately (side by side). The motor current to be monitored is decisive only for the choice of the current measuring module.

An operator panel for mounting in the control cabinet door is optionally connectable through a second system interface on the basic unit. Both the current measuring module and the operator panel are electrically supplied by the basic unit through the connection cable. More inputs, outputs and functions can be added to basic unit 2 and basic unit 3 by means of optional expansion modules, thus supplementing the inputs and outputs already existing on the basic unit. With the DM-F Local and DM-F PROFIsafe fail-safe digital modules it is also possible to integrate the fail-safe disconnection of motors in the SIMOCODE pro V motor management system.

All modules are connected by connection cables. The connection cables are available in various lengths. The maximum distance between the modules (e.g. between the basic unit and the current measuring module) must not exceed 2.5 m. The total length of all the connection cables in a single system may be up to 3 m with basic unit 1. With basic units 2 and 3 the total length for each system interface may be up to 3 m.

General data

Order No. scheme

Digit of the Order No.	1st - 4th	5th	6th	7th		8th	9th	10th	11th	12th		13th
	□□□□	□	□	□	–	1	□	□	0	0	–	0
SIMOCODE pro motor management system	3 U F 7											
Type of unit/module		□										
Functional version of the unit/module			□	□								
Connection type of the current transformer							□					
Voltage version								□				
Example	3 U F 7	0	1	0	–	1	A	B	0	0	–	0

Note:

The Order No. scheme is presented here merely for information purposes and for better understanding of the logic behind the order numbers.

For your orders, please use the order numbers quoted in the catalog in the selection and ordering data.

Benefits

General customer benefits

- Integrating the whole motor feeder into the process control by means of PROFIBUS DP, PROFINET or OPC UA significantly reduces the wiring outlay between the motor feeder and the PLC
- Decentralization of the automated processes by means of configurable control and monitoring functions in the feeder saves resources in the automation system and ensures full functionality and protection of the feeder even if the I&C or bus system fails
- The acquisition and monitoring of operating, service and diagnostics data in the feeder and process control system increases plant availability as well as maintenance and service-friendliness
- The high degree of modularity allows users to perfectly implement their plant-specific requirements for each motor feeder
- The SIMOCODE pro system offers functionally graded and space-saving solutions for each customer application
- The replacement of the control circuit hardware with integrated control functions decreases the number of hardware components and wiring required and in this way limits stock keeping costs and potential wiring errors
- The use of electronic full motor protection permits better utilization of the motors and ensures long-term stability of the tripping characteristic and reliable tripping even after years of service

Multi-functional, electronic full motor protection for rated motor currents up to 820 A

SIMOCODE pro offers comprehensive protection of the motor feeder by means of a combination of different, multi-step and delayable protection and monitoring functions:

- Current-dependent electronic overload protection (CLASS 5 to 40)
- Thermistor motor protection
- Phase failure/unbalance protection
- Stall protection
- Monitoring of adjustable limit values for the motor current
- Voltage and power monitoring
- Monitoring of the power factor (motor idling/load shedding)
- Ground-fault monitoring
- Temperature monitoring, e.g. over PT100/PT1000
- Monitoring of operating hours, downtime and number of starts etc.

Recording of measuring curves

SIMOCODE pro can record measuring curves and is therefore able, for example, to present the progression of motor current during motor start-up.

Flexible motor control implemented with integrated control functions (instead of comprehensive hardware interlocks)

Many predefined motor control functions have already been integrated into SIMOCODE pro, including all necessary logic operations and interlocks:

- Overload relays
- Direct-on-line and reversing starters
- Wye/delta starters (also with direction reversal)
- Two speeds, motors with separate windings (pole-changing switch); also with direction reversal
- Two speeds, motors with separate Dahlander windings (also with direction reversal)
- Positioner actuation
- Solenoid valve actuation
- Actuation of a circuit breaker
- Soft starter actuation (also with direction reversal)

These control functions are predefined in SIMOCODE pro and can be freely assigned to the inputs and outputs of the device (including PROFIBUS/PROFINET).

These predefined control functions can also be flexibly adapted to each customized configuration of a motor feeder by means of freely configurable logic modules (truth tables, counters, timers, edge evaluation, etc.) and with the help of standard functions (power failure monitoring, emergency start, external faults, etc.), without additional auxiliary relays being necessary in the control circuit.

SIMOCODE pro eliminates the need for additional hardware and wiring in the control circuit which results in a high level of standardization of the motor feeder in terms of its design and circuit diagrams.

Detailed operating, service and diagnostics data

SIMOCODE pro makes different operating, service and diagnostics data available and helps to detect potential faults in time and to prevent them by means of preventative measures. In the event of a malfunction, a fault can be diagnosed, localized and rectified very quickly – there are no or very short downtimes.

Operating data

- Motor switching state derived from the current flow in the main circuit
- All phase currents
- All phase voltages and phase-to-phase voltages
- Active power, apparent power and power factor
- Phase unbalance and phase sequence
- Time to trip
- Motor temperature
- Remaining cooling time etc.

Service data

- Motor operating hours
- Motor stop times
- Number of motor starts
- Number of overload trips
- Interval for mandatory testing of the enabling circuits
- Energy consumed
- Internal comments stored in the device etc.

Diagnostics data

- Numerous detailed early warning and fault messages
- Internal device fault logging with time stamp
- Time stamping of freely selectable status, alarm or fault messages etc.

Easy operation and diagnostics

Operator panels

The operator panel is used to control the motor feeder and can replace all conventional pushbuttons and indicator lights to save space. It makes SIMOCODE pro or the feeder directly operable in the control cabinet. It features all the status LEDs available on the basic unit and externalizes the system interface for simple parameterization or diagnosis on a PC/PG.

Operator panels with display

As an alternative to the 3UF7 20 standard operator panel for SIMOCODE pro V there is also an operator panel with display: the 3UF7 21 is thus able in addition to indicate current measured values, operational and diagnostics data or status information of the motor feeder at the control cabinet. The pushbuttons of the operator panel can be used to control the motor. Also, when SIMOCODE pro V PROFINET is used it is possible to set parameters such as rated motor current, limit values, etc. directly using the operator panel with display.

Communications

SIMOCODE pro has either an integrated PROFIBUS DP interface (SUB-D or terminal connection) or a PROFINET interface (2 x RJ45).

Fail-safe disconnection through PROFIBUS or PROFINET with the PROFIsafe profile is also possible in conjunction with a fail-safe controller (F-CPU) and the DM-F PROFIsafe fail-safe digital module.

SIMOCODE pro for PROFIBUS

SIMOCODE pro for PROFIBUS supports for example:

- Cyclic services (DPV0) and acyclic services (DPV1)
- Extensive diagnostics and process alarms
- Time stamp with high timing precision (SIMATIC S7) for SIMOCODE pro V
- DPV1 communication after the Y-Link

SIMOCODE pro for PROFINET

SIMOCODE pro for PROFINET supports for example:

- Line and ring bus topology thanks to an integrated switch
- Media redundancy via MRP protocol
- Operating, service and diagnostics data via standard web browser
- OPC UA server for open communication with visualization and control system
- NTP-synchronized time
- Interval function and measured values for energy management via PROFIenergy
- Module exchange without PC memory module through proximity detection
- Extensive diagnostics and maintenance alarms

Notes on safety

For connection of an internal system to an external system, suitable protective measures must be taken to ensure safe operation of the plant (including IT security, e. g. network segmentation).

More information see www.siemens.com/industrialsecurity.

For SIMOCODE pro motor management and control devices with communication function see page 10/14 onwards.

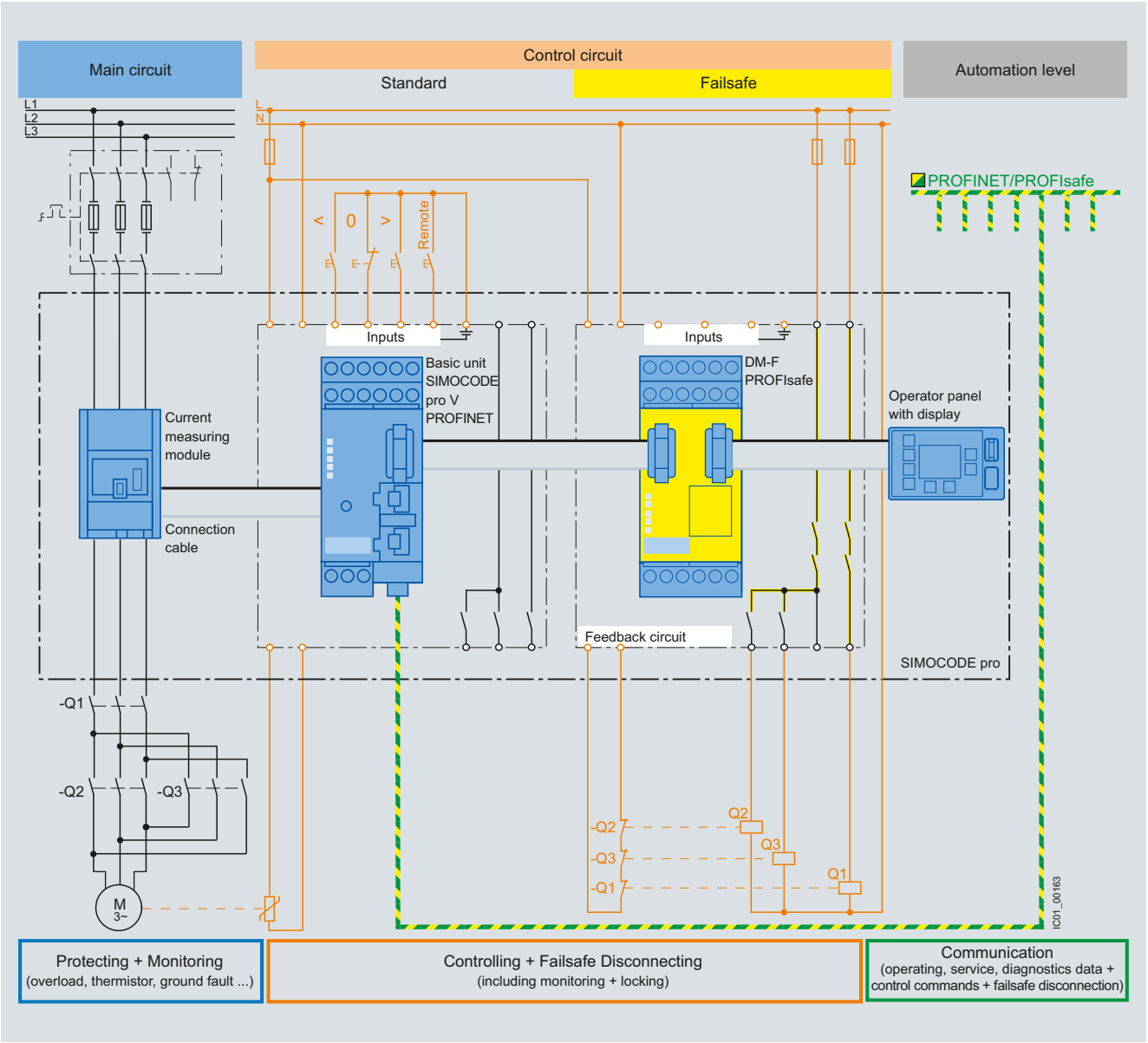
Accessories see page 10/18 onwards.

More information see Chapter 14 "Planning, Configuration and Visualizing for SIRIUS" or Industry Mall.

Autonomous operation

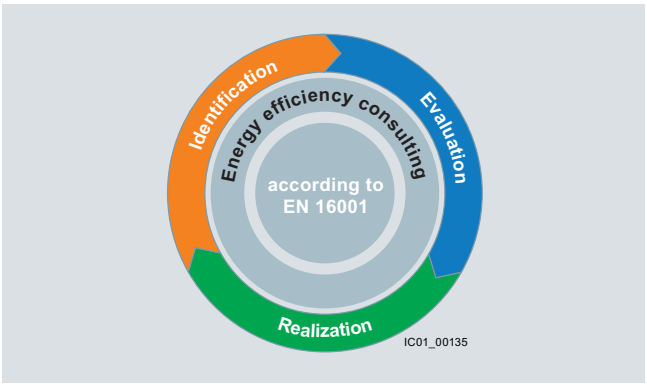
An essential feature of SIMOCODE pro is independent execution of all protection and control functions even if communication with the I&C system breaks down. If the bus or automation system fails, the full functionality of the feeder is ensured or a predefined response can be initiated, e.g. the feeder can be shut down in a controlled manner or certain configured control mechanisms can be performed (e.g. the direction of rotation can be reversed).

General data



SIMOCODE pro combines all essential functions, including safety functions, through PROFINET/PROFIsafe for the motor feeder

Advantages through energy efficiency



Overview of the energy management process

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

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

The SIMOCODE pro 3UF7 motor management system contributes to energy efficiency throughout the plant as follows:

- Energy consumption:
  Clear display of the energy consumption of a motor feeder or process element by means of the acquisition and transmission of all operating and consumption date, such as current, voltage, active and reactive power, energy consumption, motor temperature etc.
- Energy management:
  Evaluation of energy measured values (e.g. limit value monitoring) with exporting of local or central actions (= forwarding to higher-level)
- PROFIenergy:
  SIMOCODE pro V PROFINET supports the PROFIenergy functions. Reduced energy consumption thanks to automatic disconnection in the intervals and forwarding of the measured values for higher-level energy management systems.

Application

SIMOCODE pro is often used for automated processes where plant downtimes are very expensive (e.g. steel or cement industry) and where it is important to prevent plant downtimes through detailed operating, service and diagnostics data or to localize the fault very quickly in the event of a fault.

SIMOCODE pro is modular and space-saving and suited especially for operation in motor control centers in the process industry and for power plant technology.

Applications

Protection and control of motors in hazardous areas for types of protection EEx e/d according to ATEX guideline 94/9/EC

- With heavy starting (paper, cement, metal and water industries)
- In high-availability plants (chemical, oil, raw material processing industries, power plants)

Safety technology for SIMOCODE pro

The safe disconnection of motors, in the process industry in particular, is becoming increasingly important as a result of new and revised standards and requirements in the safety technology field.

With the DM-F Local and DM-F PROFIsafe fail-safe expansion modules it is easy to integrate functions for fail-safe disconnection into the SIMOCODE pro V motor management system while retaining service-proven concepts. The strict separation of safety functions and operational functions proves particularly advantageous for planning, configuring and construction. Seamless integration in the motor management system leads to greater transparency for diagnostics and during operation of the system.

Suitable components for this purpose are the DM-F Local and DM-F PROFIsafe fail-safe expansion modules, depending on the requirements:

- the DM-F Local fail-safe digital module for when direct assignment between a fail-safe hardware shutdown signal and a motor feeder is required, or
- the DM-F PROFIsafe fail-safe digital module for when a fail-safe controller (F-CPU) creates the signal for the disconnection and transmits it in a fail-safe manner through PROFIBUS/PROFIsafe or PROFINET/PROFIsafe to the motor management system

General data

Technical specifications

General data		
Type		**3UF7**
Permissible ambient temperature		
• During operation	°C	-25 ... +60 ; 3UF7 21: 0 ... +60
• During storage and transport	°C	-40 ... +80 ; 3UF7 21: -20 ... +70
Degree of protection acc. to IEC 60529		
• Measuring modules with busbar connection		IP00
• Operator panel (front) and door adapter (front) with cover		IP54
• Other components		IP20
Shock resistance (sine pulse)	*g*/ms	15/11
Mounting position		Any
Frequency	Hz	50/60 ± 5 %
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 kV	2 (power ports) 1 (signal ports)
• Conductor-related interference, high frequency acc. to IEC 61000-4-6	V	10
• Conductor-related interference, surge acc. to IEC 61000-4-5	kV kV	2 (line to earth); 3UF7 320-1AB, 3UF7 330-1AB: 1 (line to earth) 1 (line to line); 3UF7 320-1AB, 3UF7 330-1AB: 0.5 (line to line)
• Electrostatic discharge, ESD acc. to IEC 61000-4-2	kV kV	8 (air discharge) 6 (contact discharge); 3UF7 21: 4 (contact discharge)
• Field-related interference acc. to IEC 61000-4-3	V/m	10
Immunity to EMC acc. to IEC 60947-1		
• Conducted and radiated interference emission		DIN EN 55011/ DIN EN 55022 (CISPR 11/ CISPR 22) (corresponds to degree of severity A)
Protective separation acc. to IEC 60947-1		All circuits in SIMOCODE pro are safely separated from each other according to IEC 60947-1, i.e. they are designed with double creepage distances and clearances. In this context, compliance with the instructions in the test report "Safe Isolation" No.2668 is required.

Basic units			
Type		**3UF7 000-1AU00-0** **3UF7 010-1AU00-0** **3UF7 011-1AU00-0**	**3UF7 000-1AB00-0** **3UF7 010-1AB00-0** **3UF7 011-1AB00-0**
Control circuits			
Rated control supply voltage U_s acc. to IEC 61131-2		110 ... 240 AC/DC; 50/60 Hz	24 V DC
Operating range			
• Basic unit 1 (3UF7 000) and basic unit 2 (3UF7 010)		0.85 ... 1.1 x U_s	0.80 ... 1.2 × U_s
• Basic unit 3 (3UF7 011)			
- Operation		0.85 ... 1.1 x U_s	0.80 ... 1.2 × U_s
- Starting		0.85 ... 1.1 x U_s	0.85 ... 1.2 × U_s
Power consumption			
• Basic unit 1 (3UF7 000)		7 VA/5 W	5 W
• Basic unit 2 (3UF7 010) incl. two expansion modules connected to basic unit 2		10 VA/7 W	7 W
• Basic unit 3 (3UF7 011) incl. two expansion modules connected to basic unit 3		11 VA/8 W	8 W
Rated insulation voltage U_i	V	300 (at pollution degree 3)	
Rated impulse withstand voltage U_{imp}	kV	4	
Relay outputs			
• Number		3 monostable relay outputs	
• Specified short-circuit protection for auxiliary contacts (relay outputs)			
- Fuse links		6 A gG operational class; 10 A quick-response (IEC 60947-5-1)	
- Miniature circuit breakers		1.6 A, C characteristic (IEC 60947-5-1); 6 A, C characteristic (Ik < 500 A)	
• Rated uninterrupted current	A	6	
• Rated switching capacity			
- AC-15		6 A/24 V AC 6 A/120 V AC 3 A/230 V AC	
- DC-13		2 A/24 V DC 0.55 A/60 V DC 0.25 A/125 V DC	
Inputs (binary)		4 inputs supplied internally by the device electronics (with 24 V DC) and connected to a common potential	
Thermistor motor protection (binary PTC)			
• Summation cold resistance	kΩ	≤ 1.5	
• Response value	kΩ	3.4 ... 3.8	
• Return value	kΩ	1.5 ... 1.65	

Current measuring modules or current/voltage measuring modules

Type		3UF7 1.0	3UF7 1.1	3UF7 1.2	3UF7 1.3	3UF7 1.4
Main circuit						
Current setting I_e	A	0.3 ... 3	2.4 ... 25	10 ... 100	20 ... 200	63 ... 630
Rated insulation voltage U_i	V	690; 3UF7 103 and 3UF7 104: 1 000 (at pollution degree 3)				
Rated operational voltage U_e	V	690				
Rated impulse withstand voltage U_{imp}	kV	6; 3UF7 103 and 3UF7 104: 8				
Rated frequency	Hz	50/60				
Type of current		Three-phase current				
Short-circuit		Additional short-circuit protection is required in the main circuit				
Accuracy of current measurement (in the range of 1 x minimum current setting I_u to 8 x maximum current setting I_o)	%	±3				
Typical voltage measuring range						
• Phase-to-phase voltage/line-to-line voltage (e.g. $U_{L1\,L2}$)	V	110 ... 690				
• Phase voltage (e.g. $U_{L1\,N}$)	V	65 ... 400				
Accuracy						
• Voltage measurement (phase voltage U_L in the range 230 ... 400 V)	%	±3 (typical)				
• Power factor measurement (in the rated load range power factor = 0.4 ... 0.8)	%	±5 (typical)				
• Apparent power measurement (in the rated load range)	%	±5 (typical)				
Notes on voltage measurement						
• In insulated, high-resistance or asymmetrically grounded forms of power supply system and for single-phase systems		In these networks the current/voltage measuring module can be used only with an upstream decoupling module on the system interface.				
• Supply lines for voltage measurement		In the supply lines from the main circuit for voltage measurement of SIMOCODE pro it may be necessary to provide additional line protection!				

Digital modules

Type		3UF7 3		
Control circuits				
Rated insulation voltage U_i	V	300 (at pollution degree 3)		
Rated impulse withstand voltage U_{imp}	kV	4		
Relay outputs				
• Number		2 monostable or bistable relay outputs (depending on the version)		
• Specified short-circuit protection for auxiliary contacts (relay outputs)				
- Fuse links		6 A gG operational class; 10 A quick-response (IEC 60947-5-1)		
- Miniature circuit breakers		1.6 A, C characteristic (IEC 60947-5-1); 6 A, C characteristic (Ik < 500 A)		
• Rated uninterrupted current	A	6		
• Rated switching capacity				
- AC-15		6 A/24 V AC	6 A/120 V AC	3 A/230 V AC
- DC-13		2 A/24 V DC	0.55 A/60 V DC	0.25 A/125 V DC
Inputs (binary)		4 inputs, electrically isolated, supplied externally with 24 V DC or 110 ... 240 V AC/DC depending on the version, connected to a common potential		

Ground-fault modules

Type		3UF7 5
Control circuits		
Connectable 3UL22 summation current transformer with rated fault currents I_N	A	0.3/0.5/1
• $I_{Ground\ fault} \leq 50\ \% I_N$		No tripping
• $I_{Ground\ fault} \geq 100\ \% I_N$		Tripping
Response delay (conversion time)	ms	300 ... 500, additionally delayable

Temperature modules

Type		3UF7 7			
Sensor circuit					
Typical sensor circuit					
• PT100	mA	1 (typical)			
• PT1000/KTY83/KTY84/NTC	mA	0.2 (typical)			
Open-circuit/short-circuit detection					
• Sensor type		PT100/PT1000	KTY83-110	KTY84	NTC
- Open circuit		✓	✓	✓	--
- Short-circuit		✓	✓	✓	✓
- Measuring range	°C	-50 ... +500	-50 ... +175	-40 ... +300	80 ... 160
Measuring accuracy at 20 °C ambient temperature (T20)	K	< ±2			
Deviation due to ambient temperature (in % of measuring range)	%	0.05 per K deviation from T20			
Conversion time	ms	500			
Connection type		Two- or three-wire connection			

✓ Detection possible

-- Detection not possible

General data

Analog modules

Type		3UF7 4
Control circuits		
Inputs		
• Channels		2 (passive)
• Parameterizable measuring ranges	mA	0/4 ... 20
• Shielding		Up to 30 m shield recommended, from 30 m shield required
• Max. input current (destruction limit)	mA	40
• Accuracy	%	±1
• Input resistance	Ω	50
• Conversion time	ms	150
• Resolution	bit	12
• Open-circuit detection		With measuring range 4 ... 20 mA
Output		
• Channels		1
• Parameterizable output range	mA	0/4 ... 20
• Shielding		Up to 30 m shield recommended, from 30 m shield required
• Max. voltage at output	V DC	30
• Accuracy	%	±1
• Max. output load	Ω	500
• Conversion time	ms	25
• Resolution	bit	12
• Short-circuit proof		Yes
Connection type		Two-wire connection
Electrical separation of inputs/output to the device electronics		No

Fail-safe digital modules

Type		3UF7 320-1AB00-0	3UF7 320-1AU00-0	3UF7 330-1AB00-0	3UF7 330-1AU00-0
Control circuits					
Rated control supply voltage U_s	V	24 DC	110 ... 240 AC/DC; 50/60 Hz	24 DC	110 ... 240 AC/DC; 50/60 Hz
Power consumption		3 W	9.5 VA/4.5 W	4 W	11 VA/5.5 W
Rated insulation voltage	V	300			
Rated impulse withstand voltage U_{imp}	kV	4			
Relay outputs					
• Number		2 relay enabling circuits, 2 relay outputs			
Version of the fuse link for short-circuit protection of the relay enabling circuit	A	4, gG operational class			
Rated uninterrupted current	A	5			
Rated switching capacity					
• At AC-15					
- At 24 V	A	3			
- At 120 V	A	3			
- At 240 V	A	1.5			
• At DC-13					
- At 24 V	A	4			
- At 60 V	A	0.55			
- At 125 V	A	0.22			
Inputs (binary)		5 (with internal power supply from the device electronics)			
Cable length					
• Between sensor/start signal and evaluation electronics	m	1 500			
• For further digital signals	m	300			
Safety data[1]					
SIL level max. according to IEC 61508		3			
Performance level PL according to EN ISO 13849-1		e			
Category according to EN ISO 13849-1		4			
Stop category according to EN 60204-1		0			
Probability of a dangerous failure (at 40 °C) for SIL 3 applications					
• Per hour (PFH_d) at a high demand rate according to IEC 62061	1/h	4.5×10^{-9}	4.6×10^{-9}	4.4×10^{-9}	4.4×10^{-9}
• On demand (PFD_{avg}) at a low demand rate according to IEC 61508		5.4×10^{-6}	5.5×10^{-6}	5.1×10^{-6}	5.2×10^{-6}
T1 value for proof-test interval or service life according to IEC 61508	a	20			

[1] More safety data see system manual "SIMOCODE pro Safety Fail-Safe Digital Modules", http://support.automation.siemens.com/WW/view/en/50564852.

More information

Configuration instructions when using an operator panel with display and/or a decoupling module with SIMOCODE pro V, basic unit 2

If you want to use an operator panel with display and/or a decoupling module in the SIMOCODE pro V system, then the following configuration instructions concerning the type and number of connectable expansion modules must be observed.

The following tables show the maximum possible configuration of the expansion modules for the various combinations.

The DM-F Local and DM-F PROFIsafe fail-safe expansion modules behave in this connection like digital modules for standard applications.

Use of an operator panel with display

Digital modules	Digital modules	Analog modules	Temperature modules	Ground-fault modules
Only operator panel with display for basic unit 2 (24 V DC or 110 ... 240 V AC/DC)				
Max. 4 expansion modules can be used				
Operator panel with display and current/voltage measurement with basic unit 2 (110 ... 240 V AC/DC)				
Max. 3 expansion modules can be used or:				
--	--	✓	✓	--

✓ Available
-- Not available

Use of a decoupling module (voltage measurement in insulated networks)

Digital modules	Digital modules	Analog modules	Temperature modules	Ground-fault modules
Basic units 2 (24 V DC)				
✓[1)]	✓[1)]	✓	✓	✓
Basic unit 2 (110 ... 240 V AC/DC)				
✓	✓	--	✓	✓
✓[1)]	✓[1)]	✓	✓	--
✓	--	✓	✓	--
✓	--	✓	--	✓

✓ Available
-- Not available
1) No bistable relay outputs and no more than 5 of 7 relay outputs active simultaneously (> 3 s).

Use of a decoupling module (voltage measurement in insulated networks) in combination with an operator panel with display

Digital modules	Digital modules	Analog modules	Temperature modules	Ground-fault modules
Basic units 2 (24 V DC)				
✓	--	✓	✓	✓
✓	✓	--	✓	✓
Basic unit 2 (110 ... 240 V AC/DC)				
✓[2)]	--	✓	✓	✓
✓	✓	--	--	--
✓[1)]	✓[1)]	✓[3)]	--	--
✓	--	--	✓	✓

✓ Available
-- Not available
1) No bistable relay outputs and no more than 5 of 7 relay outputs active simultaneously (> 3 s).
2) No bistable relay outputs and no more than 3 of 5 relay outputs active simultaneously (> 3 s).
3) Analog module output is not used.

Protective separation

All circuits in SIMOCODE pro are safely separated from each other according to IEC 60947-1, Annex N. That is, they are designed with double creepage distances and clearances. In the event of a fault, therefore, no parasitic voltages can be formed in neighboring circuits. The instructions of Test Report No. 2668 must be complied with.

Types of protection EEx e and EEx d

The overload protection and the thermistor motor protection of the SIMOCODE pro system comply with the requirements for overload protection of explosion-protected motors to the type of protection:
- EEx d "flameproof enclosure" e.g. according to IEC 60079-1
- EEx e "increased safety" e.g. according to IEC 60079-7

When using SIMOCODE pro devices with a 24 V DC control voltage, electrical separation must be ensured using a battery or a safety transformer according to IEC 61558-2-6.
EC type test certificate: BVS 06 ATEX F 001
Test report: BVS PP 05.2029 EG.

Selection data for type-tested assemblies/load feeders

Configuration tables according to type of coordination "1" or "2" can be found in the following manuals:
- Manual "Configuring SIRIUS", Order No.: 3ZX1012-0RA21-0AB0
- Manual "Configuring SIRIUS Innovations", Order No.: 3ZX1012-0RA21-1AB0
- System manual for SIMOCODE pro

System manual

The SIMOCODE pro system manual describes the motor management system and its functions in detail. It provides information on configuration, start-up, servicing and maintenance. A typical example of a reversing starter application is used to teach the user quickly and practically how to use the system. In addition to help on how to identify and rectify faults in the event of a malfunction, the manual also contains special information for servicing and maintenance. For selection of equipment and for planning, it is recommended to consult the system manual.

A detailed description of the DM-F Local and DM-F PROFIsafe fail-safe expansion modules is provided in the system manual "SIMOCODE pro Safety Fail-Safe Digital Modules", which can be downloaded from the Internet.

Internet

More information see www.siemens.com/simocode.

Basic units

Selection and ordering data

Version	Current setting	Width	DT	Screw terminals Order No.	PU (UNIT, SET, M)	PS*	PG Price per PU
	A	mm					
SIMOCODE pro							
 3UF7 000-1A.00-0	**SIMOCODE pro C, basic unit 1** PROFIBUS DP interface, 12 Mbit/s, RS 485 4 I/3 O freely assignable, input for thermistor connection, monostable relay outputs, rated control supply voltage U_s:						
	• 24 V DC		▶	**3UF7 000-1AB00-0**	1	1 unit	42J
	• 110 ... 240 V AC/DC		▶	**3UF7 000-1AU00-0**	1	1 unit	42J
 3UF7 010-1A.00-0	**SIMOCODE pro V, basic unit 2** PROFIBUS DP interface, 12 Mbit/s, RS 485 4 I/3 O freely assignable, input for thermistor connection, monostable relay outputs, can be expanded by expansion modules, rated control supply voltage U_s:						
	• 24 V DC		▶	**3UF7 010-1AB00-0**	1	1 unit	42J
	• 110 ... 240 V AC/DC		▶	**3UF7 010-1AU00-0**	1	1 unit	42J
 3UF7 011-1A.00-0	**SIMOCODE pro V PROFINET, basic unit 3[1)]** ETHERNET/PROFINET IO, OPC UA- server and web server, 100 Mbit/s, 2 x connection to bus through RJ45, 4 I/3 O freely assignable, input for thermistor connection, monostable relay outputs, can be expanded by expansion modules, rated control supply voltage U_s:						
	• 24 V DC		▶	**3UF7 011-1AB00-0**	1	1 unit	42J
	• 110 ... 240 V AC/DC		▶	**3UF7 011-1AU00-0**	1	1 unit	42J
 3UF7 100-1AA00-0	**Current measuring modules**						
	• Straight-through transformers	0.3 ... 3	45	▶	**3UF7 100-1AA00-0**	1	1 unit 42J
		2.4 ... 25	45	▶	**3UF7 101-1AA00-0**	1	1 unit 42J
		10 ... 100	55	▶	**3UF7 102-1AA00-0**	1	1 unit 42J
		20 ... 200	120	▶	**3UF7 103-1AA00-0**	1	1 unit 42J
	• Busbar connections	20 ... 200	120	▶	**3UF7 103-1BA00-0**	1	1 unit 42J
		63 ... 630	145	▶	**3UF7 104-1BA00-0**	1	1 unit 42J
 3UF7 110-1AA00-0	**Current/voltage measuring modules For SIMOCODE pro V** Voltage measuring up to 690 V if required in connection with a decoupling module						
	• Straight-through transformers	0.3 ... 3	45	▶	**3UF7 110-1AA00-0**	1	1 unit 42J
		2.4 ... 25	45	▶	**3UF7 111-1AA00-0**	1	1 unit 42J
		10 ... 100	55	▶	**3UF7 112-1AA00-0**	1	1 unit 42J
		20 ... 200	120	▶	**3UF7 113-1AA00-0**	1	1 unit 42J
	• Busbar connections	20 ... 200	120	▶	**3UF7 113-1BA00-0**	1	1 unit 42J
		63 ... 630	145	▶	**3UF7 114-1BA00-0**	1	1 unit 42J
 3UF7 150-1AA00-0	**Decoupling modules**						
	For connecting upstream from a current/voltage measuring module on the system interface when using voltage detection in insulated, high-resistance or asymmetrically grounded systems and in single-phase systems		A	**3UF7 150-1AA00-0**	1	1 unit	42J

[1)] When using an operator panel with display, the product version must be E07 or higher (from 08/2012).

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

Version	DT	Screw terminals Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
SIMOCODE pro (continued)						
 3UF7 200-1AA00-0						
Operator panels Installation in control cabinet door or front plate, for plugging into basic unit, 10 LEDs for status indication and user-assignable buttons for controlling the motor	►	**3UF7 200-1AA00-0**		1	1 unit	42J
 3UF7 210-1AA00-0						
Operator panel with display for SIMOCODE pro V Installation in control cabinet door or front plate, for plugging into basic unit 2 and basic unit 3, 7 LEDs for status indication and user-assignable buttons for controlling the motor, multilingual display, e.g. for indication of measured values, status information or fault messages	►	**3UF7 210-1AA00-0**		1	1 unit	42J

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

Expansion modules

Selection and ordering data

Version	DT	Screw terminals Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Expansion modules for SIMOCODE pro V						
With SIMOCODE pro V, it is possible to expand the type and number of inputs and outputs in steps. Each expansion module has two system interfaces on the front. Through the one system interface the expansion module is connected to the system interface of the SIMOCODE pro V using a connection cable; through the second system interface, further expansion modules or the operator panel can be connected. The power supply for the expansion modules is provided by the connection cable through basic unit 2 or basic unit 3. Note: Please order connection cable separately, see page 10/18.						
Digital modules Up to two digital modules can be used to add additional binary inputs and relay outputs to the basic unit. The input circuits of the digital modules are supplied from an external power supply. 4 binary inputs and 2 relay outputs, Up to 2 digital modules can be connected						
Relay outputs: Monostable; Input voltage: 24 V DC	▶	**3UF7 300-1AB00-0**		1	1 unit	42J
Relay outputs: Monostable; Input voltage: 110 ... 240 V AC/DC	▶	**3UF7 300-1AU00-0**		1	1 unit	42J
Relay outputs: Bistable; Input voltage: 24 V DC	▶	**3UF7 310-1AB00-0**		1	1 unit	42J
Relay outputs: Bistable; Input voltage: 110 ... 240 V AC/DC	▶	**3UF7 310-1AU00-0**		1	1 unit	42J
Analog modules Basic unit can be optionally expanded with analog inputs and outputs (0/4 ... 20 mA) by means of the analog module. 2 inputs (passive) for input and 1 output for output of 0/4 ... 20 mA signals, max. 1 analog module can be connected per basic unit 2 and max. 2 analog modules per basic unit 3	▶	**3UF7 400-1AA00-0**		1	1 unit	42J
Ground-fault modules Instead of ground-fault monitoring using the current measuring modules or current/voltage measuring modules, it may be necessary, especially in high-impedance grounded networks, to implement ground-fault monitoring for smaller ground fault currents using a summation current transformer. 1 input for connecting a 3UL22 summation current transformer, up to 1 ground-fault module can be connected Note: Related summation current transformers for rated fault currents 0.3 A, 0.5 A or 1 A see Catalog IC 10, Chapter 10.	▶	**3UF7 500-1AA00-0**		1	1 unit	42J
Temperature modules Independently of the thermistor motor protection of the basic units, up to 3 analog temperature sensors can be evaluated using a temperature module. Sensor types: PT100/PT1000, KTY83/KTY84 or NTC 3 inputs for connecting up to 3 analog temperature sensors, up to 1 temperature module can be connected per basic unit 2 and max. 2 temperature modules per basic unit 3	▶	**3UF7 700-1AA00-0**		1	1 unit	42J


3UF7 300-1AU00-0


3UF7 400-1AA00-0


3UF7 500-1AA00-0


3UF7 700-1AA00-0

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

Selection and ordering data

Version	DT	Screw terminals Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Fail-safe expansion modules for SIMOCODE pro V						
Thanks to the fail-safe expansion modules, SIMOCODE pro V can be expanded with the function of a safety relay for the fail-safe disconnection of motors. A maximum of 1 fail-safe digital module can be connected; it can be used instead of a digital module. The fail-safe expansion modules are equipped likewise with two system interfaces at the front for making the connection to other system components. Unlike other expansion modules, power is supplied to the modules through a separate terminal connection. Note: Please order connection cable separately, see page 10/18.						
DM-F Local fail-safe digital modules [1]						
For fail-safe disconnection using a hardware signal 2 relay enabling circuits, joint switching; 2 relay outputs, common potential disconnected fail-safe; inputs for sensor circuit, start signal, cascading and feedback circuit, safety function adjustable using DIP switches Rated control supply voltage U_S:						
• 24 V DC	▶	**3UF7 320-1AB00-0**		1	1 unit	42J
• 110 ... 240 V AC/DC	▶	**3UF7 320-1AU00-0**		1	1 unit	42J
DM-F PROFIsafe fail-safe digital modules [1]						
For fail-safe disconnection using PROFIBUS/PROFIsafe or PROFINET/PROFIsafe 2 relay enabling circuits, joint switching; 2 relay outputs, common potential disconnected fail-safe; 1 input for feedback circuit; 3 binary standard inputs Rated control supply voltage U_S:						
• 24 V DC	▶	**3UF7 330-1AB00-0**		1	1 unit	42J
• 110 ... 240 V AC/DC	▶	**3UF7 330-1AU00-0**		1	1 unit	42J


3UF7 320-1AB00-0


3UF7 330-1AB00-0

[1] Only possible with basic unit 2, product version E07 and higher (from 05/2011) or basic unit 3

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Accessories

Selection and ordering data

Version		DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Connection cables (essential accessory)							
 3UF7 932-0AA00-0	**Connection cables** In different lengths for connecting basic unit, current measuring module, current/voltage measuring module, operator panel or expansion modules or decoupling module						
	Flat, 0.025 m	▶	**3UF7 930-0AA00-0**		1	1 unit	42J
	Flat, 0.1 m	▶	**3UF7 931-0AA00-0**		1	1 unit	42J
	Flat, 0.3 m	▶	**3UF7 935-0AA00-0**		1	1 unit	42J
	Flat, 0.5 m	▶	**3UF7 932-0AA00-0**		1	1 unit	42J
	Round, 0.5 m	▶	**3UF7 932-0BA00-0**		1	1 unit	42J
	Round, 1.0 m	▶	**3UF7 937-0BA00-0**		1	1 unit	42J
	Round, 2.5 m	▶	**3UF7 933-0BA00-0**		1	1 unit	42J
PC cables and adapters							
 3UF7 940-0AA00-0	**PC cables** For connecting to the serial interface of a PC/PG, for communication with SIMOCODE pro through the system interface	▶	**3UF7 940-0AA00-0**		1	1 unit	42J
	USB PC cables For connecting to the USB interface of a PC/PG, for communication with SIMOCODE pro through the system interface	▶	**3UF7 941-0AA00-0**		1	1 unit	42J
	USB/serial adapters To connect an RS 232 PC cable to to the USB port of a PC, recommended for use in conjunction with SIMOCODE pro 3UF7	B	**3UF7 946-0AA00-0**		1	1 unit	42J
Memory modules	This enables transmission to a new system, e.g. when a device is replaced, without the need for additional aids or detailed knowledge of the device.						
 3UF7 900-0AA00-0	**Memory modules for SIMOCODE pro C and SIMOCODE pro V** For saving the complete parameter assignment of a SIMOCODE pro C or SIMOCODE pro V system	▶	**3UF7 900-0AA00-0**		1	1 unit	42J
	Memory modules for SIMOCODE pro V PROFINET For saving the complete parameter assignment of a SIMOCODE pro V PROFINET system	▶	**3UF7 901-0AA00-0**		1	1 unit	42J
Interface covers							
 3UF7 950-0AA00-0	**Interface covers** For system interface	▶	**3UF7 950-0AA00-0**		1	5 units	42J
Addressing plug							
 3UF7 910-0AA00-0	**Addressing plugs** For assigning the PROFIBUS address without using a PC/PG to SIMOCODE pro through the system interface	▶	**3UF7 910-0AA00-0**		1	1 unit	42J

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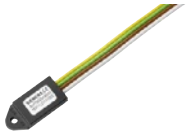
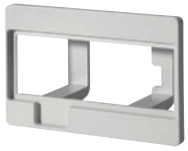
* You can order this quantity or a multiple thereof.
Illustrations similar

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Accessories for motor control center						
With the draw-out technology often used in motor control centers it is possible to integrate a SIMOCODE pro initialization module in the switchboard on a permanent basis. Feeder-related parameter and address data can then be permanently assigned to this feeder.						
 3UF7 902-0AA00-0 **Initialization modules**[1] For automatic parameter assignment of SIMOCODE pro V and SIMOCODE pro V PROFINET, for fixed-mounted installation in switchboards	▶	**3UF7 902-0AA00-0**		1	1 unit	42J
Y connection cables[1] For use in conjunction with the initialization module; connects the basic unit, current measuring module or current/voltage measuring module, and initialization module						
System interface length: 0.1 m; Open cable end: 1.0 m	▶	**3UF7 931-0CA00-0**		1	1 unit	42J
System interface length: 0.5 m; Open cable end: 1.0 m	▶	**3UF7 932-0CA00-0**		1	1 unit	42J
System interface length: 1.0 m; Open cable end: 1.0 m	▶	**3UF7 937-0CA00-0**		1	1 unit	42J
Door adapters						
 3UF7 920-0AA00-0 **Door adapters** For external connection of the system interface, e.g. outside a control cabinet	▶	**3UF7 920-0AA00-0**		1	1 unit	42J
Adapters for operator panel						
 3UF7 922-0AA00-0 **Adapters for operator panel** The adapter enables the smaller 3UF7 200 operator panel from SIMOCODE pro to be used in a front panel cutout in which previously, e.g. after a change of system, a larger 3UF5 2 operator panel from SIMOCODE-DP had been used; degree of protection IP54	▶	**3UF7 922-0AA00-0**		1	1 unit	42J
Labeling strips						
 3UF7 925-0AA02-0 **Labeling strips** • For pushbuttons of the 3UF7 20 operator panel	▶	**3UF7 925-0AA00-0**		100	400 units	42J
• For pushbuttons of the 3UF7 21 operator panel with display	▶	**3UF7 925-0AA01-0**		100	600 units	42J
• For LEDs of the 3UF7 20 operator panel	▶	**3UF7 925-0AA02-0**		100	1 200 units	42J
Note: Pre-punched labeling strips for user-specific printing using the free inscription software "SIRIUS Label Designer" on a laser printer. Note the software version! Download from www.siemens.com/simocode.						
Push-in lugs						
 3RB19 00-0B **Push-in lugs for screw fixing** e.g. on mounting plate, 2 units required per device						
• Can be used with 3UF7 1.0, 3UF7 1.1 and 3UF7 1.2	A	**3RB19 00-0B**		100	10 units	41F
• Can be used with 3UF7 0, 3UF7 3, 3UF7 4, 3UF7 5 and 3UF7 7	B	**3RP19 03**		1	10 units	41H

[1] Only possible with basic unit 2, product version E09 and higher (from 11/2012) or basic unit 3

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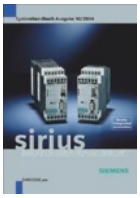
Accessories

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Terminal covers						
 3RT19 56-4EA1						
Covers for cable lugs and busbar connections						
• Length 100 mm, can be used for 3UF7 1.3-1BA00-0	▶	**3RT19 56-4EA1**		1	1 unit	41B
• Length 120 mm, can be used for 3UF7 1.4-1BA00-0	▶	**3RT19 66-4EA1**		1	1 unit	41B
Covers for box terminals						
• Length 25 mm, can be used for 3UF7 1.3-1BA00-0	▶	**3RT19 56-4EA2**		1	1 unit	41B
• Length 30 mm, can be used for 3UF7 1.4-1BA00-0	▶	**3RT19 66-4EA2**		1	1 unit	41B
 3RT19 56-4EA2						
Covers for screw terminals						
between contactor and current measuring module or current/voltage measuring module for direct mounting						
• Can be used for 3UF7 1.3-1BA00-0	▶	**3RT19 56-4EA3**		1	1 unit	41B
• Can be used for 3UF7 1.4-1BA00-0	▶	**3RT19 66-4EA3**		1	1 unit	41B
Box terminal blocks						
 3RT19 5.-4G						
Box terminal blocks						
For round and ribbon cables						
• Up to 70 mm^2, can be used for 3UF7 1.3-1BA00-0	▶	**3RT19 55-4G**		1	1 unit	41B
• Up to 120 mm^2, can be used for 3UF7 1.3-1BA00-0	▶	**3RT19 56-4G**		1	1 unit	41B
• Up to 240 mm^2, can be used for 3UF7 1.4-1BA00-0	▶	**3RT19 66-4G**		1	1 unit	41B
Bus termination modules						
Bus termination modules						
With separate control supply voltage for terminating the bus following the last unit on the bus line						
Supply voltage:						
• 115/230 V AC	C	**3UF1 900-1KA00**		1	1 unit	42J
• 24 V DC	C	**3UF1 900-1KB00**		1	1 unit	42J
System manuals						
 3UF7 970-0AA01-0						
System manuals "SIMOCODE pro"						
For the systems SIMOCODE pro C (basic unit 1) and SIMOCODE pro V (basic unit 2), with token fee						
Languages:						
• German	▶	**3UF7 970-0AA01-0**		1	1 unit	42J
• English	▶	**3UF7 970-0AA00-0**		1	1 unit	42J
• French	▶	**3UF7 970-0AA02-0**		1	1 unit	42J

Notes:

System manual "SIMOCODE pro" see http://support.automation.siemens.com/WW/view/en/20017780.

System manual "SIMOCODE pro V PROFINET" see http://support.automation.siemens.com/WW/view/en/61896631.

System manual "SIMOCODE pro Safety Fail-Safe Digital Modules"see http://support.automation.siemens.com/WW/view/en/50564852.

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

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
SIMOCODE ES 2007 Basic						
 3ZS1 312-4CC10-0YA5						
Floating license for one user Engineering software, type of delivery: on CD incl. electronic documentation, 3 languages (German/English/French), communication through system interface						
• License key on USB stick, Class A	►	**3ZS1 312-4CC10-0YA5**		1	1 unit	42J
• License key download, Class A	►	**3ZS1 312-4CE10-0YB5**		1	1 unit	42J
SIMOCODE ES 2007 Standard						
Floating license for one user Engineering software, type of delivery: on CD incl. electronic documentation, 3 languages (German/English/French), communication through system interface, integrated graphics editor						
• License key on USB stick, Class A	►	**3ZS1 312-5CC10-0YA5**		1	1 unit	42J
• License key download, Class A	►	**3ZS1 312-5CE10-0YB5**		1	1 unit	42J
Upgrade for SIMOCODE ES 2004 and later Floating license for one user, engineering software, type of delivery: on CD incl. electronic documentation, 3 languages (German/English/French), license key on USB stick, Class A, communication through system interface, integrated graphics editor	A	**3ZS1 312-5CC10-0YE5**		1	1 unit	42J
Powerpack for SIMOCODE ES 2007 Basic Floating license for one user, engineering software, license key on USB stick, Class A, 3 languages (German/English/French), communication through the system interface, integrated graphics editor	A	**3ZS1 312-5CC10-0YD5**		1	1 unit	42J
Software Update Service For 1 year with automatic extension, assuming the current software version is in use, engineering software, type of delivery: on CD incl. electronic documentation, communication through system interface, integrated graphics editor	►	**3ZS1 312-5CC10-0YL5**		1	1 unit	42J
SIMOCODE ES 2007 Premium						
Floating license for one user Engineering software, type of delivery: on CD incl. electronic documentation, 3 languages (German/English/French), communication through PROFIBUS/PROFINET or system interface, integrated graphics editor, STEP7 Object Manager						
• License key on USB stick, Class A	►	**3ZS1 312-6CC10-0YA5**		1	1 unit	42J
• License key download, Class A	►	**3ZS1 312-6CE10-0YB5**		1	1 unit	42J
Upgrade for SIMOCODE ES 2004 and later Floating license for one user, engineering software, type of delivery: on CD incl. electronic documentation, 3 languages (German/English/French), license key on USB stick, Class A, communication through PROFIBUS/PROFINET or system interface, integrated graphics editor, STEP7 Object Manager	A	**3ZS1 312-6CC10-0YE5**		1	1 unit	42J
Powerpack for SIMOCODE ES 2007 Standard Floating license for one user, engineering software, license key on USB stick, Class A, 3 languages (German/English/French), communication through PROFIBUS/PROFINET or the system interface, integrated graphics editor, STEP7 Object Manager	A	**3ZS1 312-6CC10-0YD5**		1	1 unit	42J
Software Update Service For 1 year with automatic extension, assuming the current software version is in use, engineering software, type of delivery: on CD incl. electronic documentation, communication through PROFIBUS/PROFINET or system interface, integrated graphics editor, STEP7 Object Manager	►	**3ZS1 312-6CC10-0YL5**		1	1 unit	42J

Notes:

Please order PC cable separately, see page 10/18.

More information see Chapter 14 "Planning, Configuration and Visualizing for SIRIUS" or Industry Mall.

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

Accessories

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
SIMOCODE pro Function Block Library for SIMATIC PCS 7						
 3UF7 982-0AA00-0						
Engineering software V7 For one engineering station (single license) including runtime software for execution of the AS modules in an automation system (single license), German/English/French Scope of supply: AS modules and faceplates for integrating SIMOCODE pro into the PCS 7 process control system, for PCS 7 version V 7.0/V 7.1 Type of delivery: Software and documentation on CD, one license for one engineering station, one license for one automation system	►	**3UF7 982-0AA10-0**		1	1 unit	42J
Runtime license V7 For execution of the AS modules in an automation system (single license) Required for using the AS modules of the engineering software V7 or the engineering software migration V7-V8 on an additional automation system within a plant Type of delivery: one license for one automation system, without software and documentation	►	**3UF7 982-0AA11-0**		1	1 unit	42J
Upgrade for PCS 7 function block library SIMOCODE pro, V 6.0 or V 6.1 to version SIMOCODE pro V 7.0/V 7.1 For one engineering station (single license) including runtime software for execution of the AS modules in an automation system (single license), German/English/French Scope of supply: AS modules and faceplates for integrating SIMOCODE pro into the PCS 7 process control system, for PCS 7 version V 7.0 or V 7.1 Type of delivery: Software and documentation on CD, one license for one engineering station, one license for one automation system	A	**3UF7 982-0AA13-0**		1	1 unit	42J
Engineering software migration V7-V8 For upgrading (migrating) an existing engineering software V7 of the SIMOCODE pro Function Block Library for PCS 7 Conditions of use: Availability of the engineering software V7 (license) of the SIMOCODE pro Function Block Library for PCS 7 for the PCS 7 version V 7.0 or V 7.1 The engineering software migration V7-V8 can be installed directly onto a system with PCS 7 version V 8.0; installation of the previous version is unnecessary. For one engineering station (single license) including runtime software for execution of the AS modules in an automation system (single license), German/English/French Scope of delivery: AS modules and faceplates for integrating SIMOCODE pro into the PCS 7 process control system, for PCS 7 version V 8.0 Type of delivery: software and documentation on CD, license for upgrading an existing license for one engineering station and a plant's assigned runtime licenses	►	**3UF7 982-0AA20-0**		1	1 unit	42J

Note:

More information see Chapter 14 "Planning, Configuration and Visualizing for SIRIUS" or Industry Mall.

Programming and Operating Manual SIMOCODE pro Library for PCS 7 see http://support.automation.siemens.com/WW/view/en/49963525.

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

Overview

The 3UF18 current transformers are protection transformers and are used for actuating overload relays. Protection transformers are designed to ensure proportional current transfer up to a multiple of the primary rated current. The 3UF18 current transformers convert the maximum current of the corresponding operating range into the standard signal of 1 A secondary.

Selection and ordering data

	Mounting type	Operating range A	DT	Screw terminals Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
For stand-alone installation								
 3UF18 43	Screw and snap-on mounting onto TH 35 standard mounting rail according to IEC 60715	0.25 … 2.5[1)]	C	**3UF18 43-1BA00**		1	1 unit	42J
		1.25 … 12.5[1)]	C	**3UF18 43-2AA00**		1	1 unit	42J
		2.5 … 25[1)]	C	**3UF18 43-2BA00**		1	1 unit	42J
		12.5 … 50	C	**3UF18 45-2CA00**		1	1 unit	42J
		16 … 65	C	**3UF18 47-2DA00**		1	1 unit	42J
		25 … 100	C	**3UF18 48-2EA00**		1	1 unit	42J
For mounting onto contactors and stand-alone installation								
 3UF18 68	Screw fixing	32 … 130	C	**3UF18 50-3AA00**		1	1 unit	42J
		50 … 200	C	**3UF18 52-3BA00**		1	1 unit	42J
		63 … 250	C	**3UF18 54-3CA00**		1	1 unit	42J
		100 … 400	C	**3UF18 56-3DA00**		1	1 unit	42J
		125 … 500	C	**3UF18 57-3EA00**		1	1 unit	42J
		160 … 630	C	**3UF18 68-3FA00**		1	1 unit	42J
		205 … 820	C	**3UF18 68-3GA00**		1	1 unit	42J

[1)] The following setting ranges for the protection of EEx e motors are applicable:
3UF18 43-1BA00, 0.25 ... 1.25 A;
3UF18 43-2AA00, 1.25 ... 6.3 A;
3UF18 43-2BA00, 2.5 ... 12.5 A.

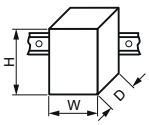
Accessories

	For contactor type	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Terminal covers							
 3TX7 466-0A	For transformer/contactor combinations and stand-alone installation for transformer (cover required per connection side)						
	3UF18 45	D	**3TX7 446-0A**		1	1 unit	41B
	3UF18 48	D	**3TX7 466-0A**		1	1 unit	41B
	3UF18 50, 3UF18 52	B	**3TX7 506-0A**		1	1 unit	41B
	3UF18 54 to 3UF18 57	B	**3TX7 536-0A**		1	2 units	41B
	3UF18 68-3FA00	B	**3TX7 686-0A**		1	1 unit	41B
	3UF18 68-3GA00	B	**3TX7 696-0A**		1	1 unit	41B
	For covering the screw terminal for direct mounting on contactor (one cover required per contactor/transformer combination)						
	3UF18 48	D	**3TX7 466-0B**		1	1 unit	41B
	3UF18 50, 3UF18 52	D	**3TX7 506-0B**		1	1 unit	41B
	3UF18 54 to 3UF18 57	D	**3TX7 536-0B**		1	1 unit	41B
	3UF18 68-3FA00	C	**3TX7 686-0B**		1	1 unit	41B
	3UF18 68-3GA00	C	**3TX7 696-0B**		1	1 unit	41B

SIRIUS 3RR24 Monitoring Relays for Mounting onto 3RT2 Contactors for IO-Link

General data

Overview

Features	3RR24	Benefits
General data		
Sizes Dimensions in mm (W x H x D) • Screw terminals • Spring-type terminals	 S00, S0 S00: 45 x 79 x 80, S0: 45 x 87 x 91 S00: 45 x 90 x 80, S0: 45 x 109 x 92	• Are coordinated with the dimensions, connections and technical characteristics of the other devices in the SIRIUS modular system (contactors, soft starters, etc.) • Permit the mounting of slim and compact load feeders in widths of 45 mm (S00 and S0) • Simplify configuration
Current range	S00: 1.6 ... 16 A S0: 4 ... 40 A	• Is adapted to the other devices in the SIRIUS modular system • Just one single version per size with a wide setting range enables easy configuration
Permissible ambient temperature		
During operation	-25 ... +60 °C	• Suitable for applications in the control cabinet, worldwide
Monitoring functions		
Current overshoot	✓ (Three-phase)	• Provides optimum current-independent protection of loads against excessive temperature rises due to overload • Enables detection of filter blockages or pumping against closed gate valves • Enables drawing conclusions about wear, poor lubrication or other maintenance-relevant phenomena
Current undershoot	✓ (Three-phase)	• Enables detection of overload due to a slipping or torn belt • Guarantees protection of pumps against dry running • Facilitates monitoring of the functions of resistive loads such as heaters • Permits energy savings through monitoring of no-load operation
Apparent current monitoring	✓ (selectable)	• Precision current monitoring especially in a motor's rated and upper torque range
Active current monitoring	✓ (selectable)	• Optimum current monitoring over a motor's entire torque range through the patented combination of power factor and apparent current monitoring
Range monitoring	✓ (Three-phase)	• Simultaneous monitoring of current overshoot and undershoot with a singe device
Phase failure, open circuit	✓ (Three-phase)	• Minimizes heating of three-phase motors during phase failure through immediate disconnection • Prevents operation of hoisting equipment with reduced load carrying capacity
Phase sequence monitoring	✓ (selectable)	• Prevents starting of motors, pumps or compressors in the wrong direction of rotation
Internal ground-fault detection (residual current monitoring)	✓ (selectable)	• Provides optimum protection of loads against high-resistance short circuits or ground faults due to moisture, condensed water, damage to the insulation material, etc. • Eliminates the need for additional single device • Saves space in the control cabinet • Reduces wiring outlay and costs
Blocking current monitoring	✓ (selectable)	• Minimizes heating of three-phase motors when blocked during operation through immediate disconnection • Minimizes mechanical loading of the system by acting as an electronic shear pin
Operating hours counter	✓	• gives the time during which there was a measurable current in at least 2 current paths • as an indicator for upcoming maintenance or replacement of machine and plant components
Operating cycles counter	✓	• is incremented by one each time a breaking operation is detected, in other words a transition from three-phase current flow to no measurable current flow • as an indicator for upcoming maintenance or replacement of contact blocks

✓ Available

SIRIUS 3RR24 Monitoring Relays for Mounting onto 3RT2 Contactors for IO-Link

Features	3RR24	Benefits
Features		
RESET function	✓	• Allows manual or automatic resetting of the relay • Resetting directly on the device, by switching the control supply voltage off and on or via IO-Link (remote RESET)
Starting delay time	0 ... 999.9 s	• Enables motor starting without evaluation of the starting current • Can be used for monitoring motors with lengthy start-up
Tripping delay time	0 ... 999.9 s	• Permits brief threshold value violations during operation • Prevents frequent warnings and disconnections with currents near the threshold values
Operating and indicating elements	Displays and buttons	• For setting the threshold values and delay times • For selectable functions • For quick and selective diagnostics • Displays for permanent display of measured values
Integrated contacts	1 CO contact, 1 semiconductor output (in SIO mode)	• Enable disconnection of the system or process when there is an irregularity • Can be used to output signals
Design of load feeders		
Short-circuit strength up to 100 kA at 690 V (in conjunction with the corresponding fuses or the corresponding motor starter protector)	✓	• Provides optimum protection of the loads and operating personnel in the event of short circuits due to insulation faults or faulty switching operations
Electrical and mechanical matching to 3RT2 contactors	✓	• Simplifies configuration • Reduces wiring outlay and costs • Enables stand-alone installation as well as space-saving direct mounting
Spring-type terminals for main circuit and auxiliary circuits	✓ (optional)	• Enables fast connections • Permits vibration-resistant connections • Enables maintenance-free connections
More features		
Suitable for single- and three-phase loads	✓	• Enables the monitoring of single-phase systems through parallel infeed at the contactor or looping the current through the three phase connections
Wide setting ranges	✓	• Reduce the number of variants • Minimize the configuration outlay and costs • Minimize storage overheads, storage costs, tied-up capital
Power supply	24 V DC	• Direct via IO-Link master or via an external auxiliary voltage independent of the IO-Link • Minimizes the configuring outlay and costs

✓ Available

SIRIUS 3RR24 Monitoring Relays for Mounting onto 3RT2 Contactors for IO-Link

General data

Possible ways of combining the 3RR24 monitoring relay with the 3RT2 contactor for IO-Link

Monitoring relays	Current range	**Contactors** (type, size, rating)	
		3RT20 1	**3RT20 2**
		S00	S0
Type	A	3/4/5.5/7.5 kW	5.5/7.5/11/15/18.5 kW
3RR24 41	1.6 ... 16	✓	With stand-alone assembly support
3RR24 42	4 ... 40	With stand-alone assembly support	✓

✓ Available

Order No. scheme

Digit of the Order No.	1st - 3rd	4th	5th	6th	7th		8th	9th	10th	11th	12th
	□□□	□	□	□	□	–	□	□	□	□	**0**
Monitoring relays	**3 R R**										
SIRIUS 2nd generation		**2**									
Type of setting			□								
Type of monitoring relay				□							
Size					□						
Connection methods							□				
Number and type of outputs								□			
Signal type of the control supply voltage									□	□	
Example	**3 R R**	**2**	**4**	**4**	**1**	**–**	**1**	**A**	**A**	**4**	**0**

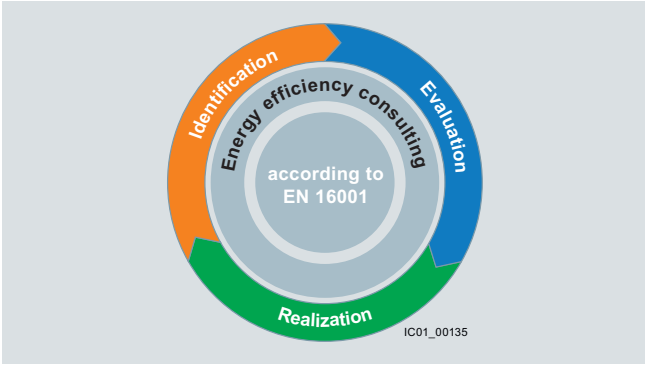
Note:

The Order No. scheme is presented here merely for information purposes and for better understanding of the logic behind the order numbers.

For your orders, please use the order numbers quoted in the catalog in the selection and ordering data.

Benefits

Advantages through energy efficiency



Overview of the energy management process

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

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

The 3RR2 monitoring relays make the following contribution to the energy efficiency of the plant as a whole:

- Shutdown in the event of no-load operation (e.g. pump no-load operation)
- Load shedding of predefined loads in the event of current overshoots

More information

Configuration manual "Configuring SIRIUS Innovations – Selection Data for Fuseless and Fused Load Feeders" see http://support.automation.siemens.com/WW/view/en/39714188.

System manual "Industrial Controls – SIRIUS Innovations"see http://support.automation.siemens.com/WW/view/en/39740306.

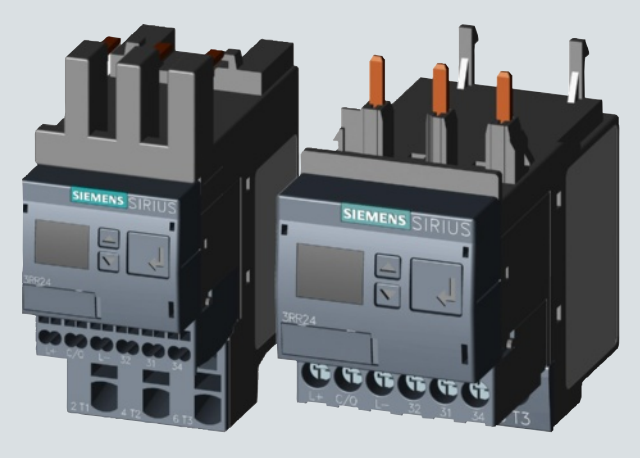
Manual "3UG48/3RR24 Monitoring Relays for IO-Link" see http://support.automation.siemens.com/WW/view/en/54375430.

Notes on safety

System networking requires suitable protective measures (e.g. network segmentation for IT security among others) in order to ensure safe plant operation.

More information about the subject of Industrial Security see www.siemens.com/industrialsecurity.

Overview



SIRIUS 3RR24 41 and 3RR24 42 current monitoring relays

The SIRIUS 3RR24 current monitoring relays for IO-Link are suitable for the load monitoring of motors or other loads. In three phases they monitor the rms value of AC currents for overshooting or undershooting of set threshold values.

Whereas apparent current monitoring is used above all in connection with the rated torque or in case of overload, the active current monitoring option, which is also selectable, can be used to observe and evaluate the load factor over a motor's entire torque range.

The 3RR24 current monitoring relays for IO-Link can be integrated directly in the feeder by mounting onto the 3RT2 contactor; separate wiring of the main circuit is therefore superfluous. No separate transformers are required.

For a line-oriented configuration or simultaneous use of an overload relay, terminal supports for stand-alone assembly are available for separate standard rail mounting.

The SIRIUS 3RR24 current monitoring relays for IO-Link also offer many other options based upon the monitoring functions of the conventional SIRIUS 3RR2 monitoring relays:

- Measured value transmission to a controller, incl. resolution and unit, may be parameterizable as to which value is cyclically transmitted
- Transmission of alarm flag to a controller
- Full diagnosis capability by inquiry as to the cause of the fault in the diagnosis data set
- Remote parameterization is also possible, in addition to or instead of local parameterization
- Rapid parameterization of the same devices by duplication of the parameterization in the controller
- Parameter transmission by upload to a controller by IO-Link call or by parameter server (if IO-Link master from IO-Link Specification V 1.1 and higher is used)
- Consistent central data storage in the event of parameter change locally or using a controller
- Automatic reparameterizing when devices are exchanged
- Blocking of local parameterization via IO-Link possible
- Faults are saved in parameterizable and non-volatile fashion to prevent an automatic start-up after voltage failure and make sure diagnosis data is not lost
- By connecting to the automation level there is the option of parameterizing the monitoring relay at any time using a display unit or displaying the measured values in a control room or locally at the machine/control cabinet.

Even without communication via IO-Link the devices continue to function fully autonomously:

- Parameterization can take place locally at the device, independently of a controller.
- In the event of failure or before the controller becomes available the monitoring relays work as long as the control supply voltage (24 V DC) is present.
- If the monitoring relays are operated without the controller, the 3RR24 monitoring relays for IO-Link have, thanks to the integrated SIO mode, an additional semiconductor output, which switches when the adjustable warning threshold is exceeded.

Thanks to the combination of autonomous monitoring relay function and integrated IO-Link communication, redundant sensors and/or analog signal converters – which previously took over the transmission of measured values to a controller, leading to considerable extra cost and wiring outlay – are no longer needed.

Because the output relays are still present, the monitoring relays increase the functional reliability of the system, since the controller can only fulfill the control tasks if the current measured values are available, whereas the output relays can also be used for the disconnection of the system if limit values that cannot be reached during operation are exceeded.

More information about the IO-Link communication system see Catalog IC 10, Chapter 2 "Industrial Communication".

Current monitoring

Benefits

- Can be directly mounted onto 3RT2 contactors and 3RA23 reversing contactor assemblies, i. e. no additional wiring outlay in the main circuit
- Optimally coordinated with the technical characteristics of the 3RT2 contactors
- No separate current transformer required
- Variably adjustable to overshoot, undershoot or range monitoring
- Freely configurable delay times and RESET response
- Display of ACTUAL value and status messages
- All versions with removable control current terminals
- All versions with screw or spring-type terminals
- Simple determination of the threshold values through direct reference to actually measured values for setpoint loading
- Range monitoring and selectable active current measurement mean that only one device for monitoring a motor is required along the entire torque curve
- In addition to current monitoring it is also possible to monitor for current unbalance, broken cables, phase failure, phase sequence, residual current and motor blocking.
- Integrated operating cycles counter and operating hours to support requirements-based maintenance of the monitored machine or application
- Simple cyclical transmission of the current measured values, relay switching states and events to a controller
- Remote parameterization
- Automatic reparameterizing when devices are exchanged
- Simple duplication of identical or similar parameterizations
- Reduction of control current wiring
- Elimination of testing costs and wiring errors
- Reduction of configuration work
- Integration in TIA means clear diagnostics if a fault occurs
- Cost saving and space saving in control cabinet due to the elimination of AI and IO modules as well as analog signal converters and duplicated sensors

Application

- Monitoring of current overshoot and undershoot
- Monitoring of open circuit
- Monitoring of no-load operation and load shedding, e.g. in the event of a torn V-belt or no-load operation of a pump
- Monitoring of overload, e.g. on pumps due to a contaminated filter system
- Monitoring of the functionality of electrical loads such as heaters
- Monitoring of wrong phase sequence on mobile equipment such as compressors or cranes
- Monitoring of high-impedance faults to ground, e.g. due to damaged insulation or moisture

The use of SIRIUS monitoring relays for IO-Link is particularly recommended for machines and plants in which these relays, in addition to their monitoring function, are to be connected to the automation level for the rapid, simple and fault-free provision of the current measured values and/or for remote parameterization.

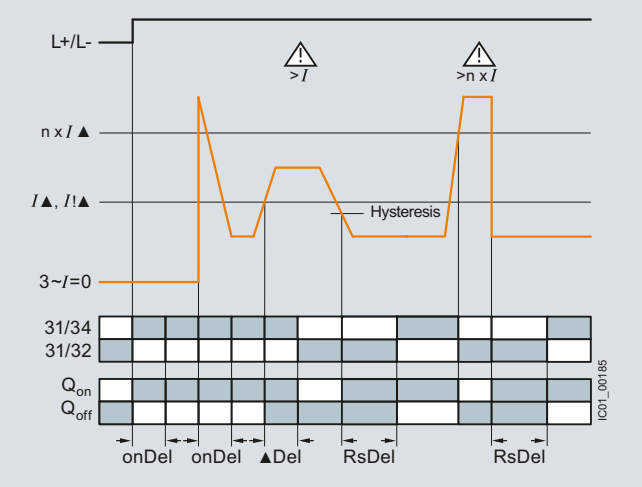
The monitoring relays can either relieve the controller of monitoring tasks or, as a second monitoring entity in parallel to and independent of the controller, increase the reliability in the process or in the system. In addition, the elimination of AI and IO modules allows the width of the controller to be reduced despite significantly expanded functionality.

Technical specifications

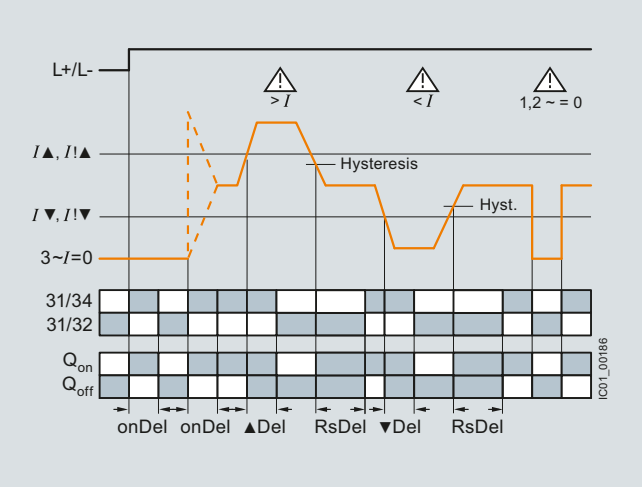
Function charts of 3RR24 for IO-Link, digitally adjustable

With the closed-circuit principle selected upon application of the control supply voltage

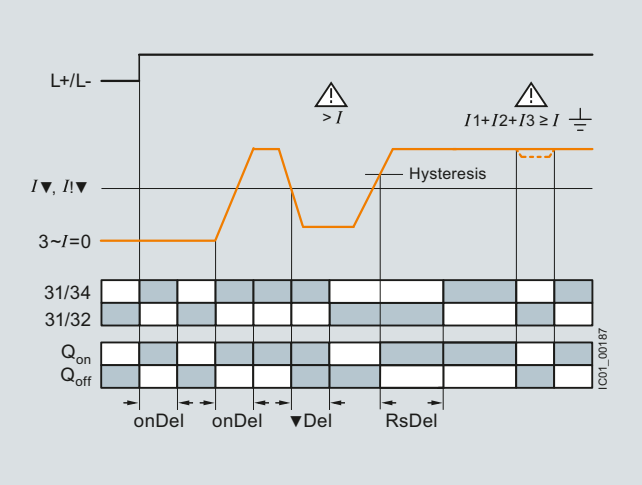
Current overshoot



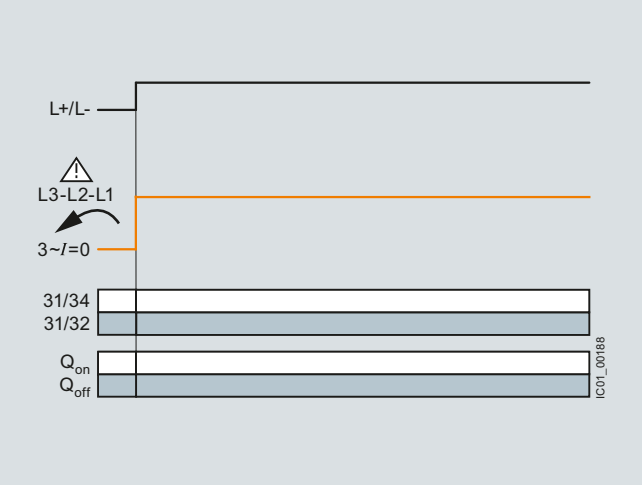
Range monitoring



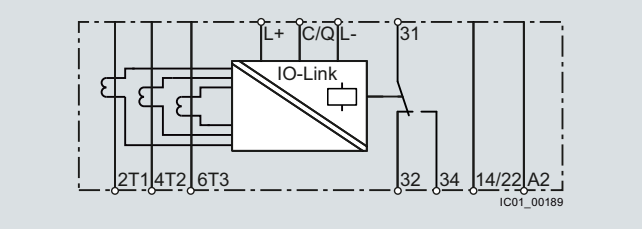
Current undershoot with residual current monitoring



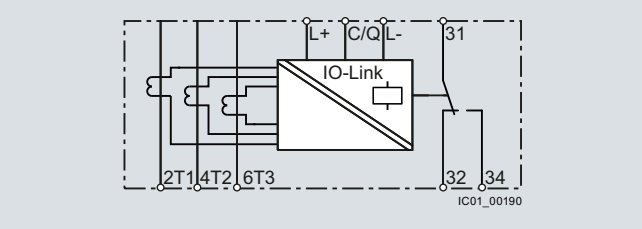
Phase sequence monitoring



Circuit diagrams



3RR24 41-1AA40



3RR24 41-2AA40, 3RR24 42-.AA40

Note:

It is not necessary to protect the measuring circuit for device protection. The protective device for line protection depends on the cross-section used.

SIRIUS 3RR24 Monitoring Relays for Mounting onto 3RT2 Contactors for IO-Link

Current monitoring

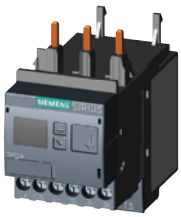
Selection and ordering data

SIRIUS 3RR24 current monitoring relays for IO-Link

- For load monitoring of motors or other loads
- Multi-phase monitoring of undercurrent and overcurrent
- Starting and tripping delay can be adjusted separately
- Tripping delay 0 to 999.9 s
- Auto or manual RESET

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41H

3RR24 41-1AA40



3RR24 42-1AA40

3RR24 41-2AA40

3RR24 42-2AA40

Size	Measuring range	Hysteresis	Control supply voltage U_s	DT	Screw terminals	DT	Spring-type terminals
					Order No. / Price per PU		Order No. / Price per PU
	A	A	V				
Digitally adjustable, LCD, open-circuit or closed-circuit principle, 1 CO, 1 semiconductor output (in SIO mode), 3-phase current monitoring, active current or apparent current monitoring, current unbalance monitoring, phase sequence monitoring, residual current monitoring, blocking current monitoring, operating hours counter, operating cycles counter, reclosing delay time 0 ... 999.9 min, start-up delay 0 ... 999.9 s, separate settings for warning and alarm thresholds							
S00	1.6 ... 16	0.1 ... 3	24 DC	A	**3RR24 41-1AA40**	A	**3RR24 41-2AA40**
S0	4 ... 40	0.1 ... 8	24 DC	A	**3RR24 42-1AA40**	A	**3RR24 42-2AA40**

Notes:

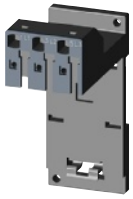
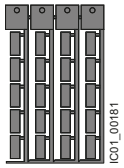
Devices required for the communication via IO-Link:

- Any controller that supports the IO-Link (e.g. ET200S with CPU or S7-300 plus ET200S distributed peripherals) see Catalog ST 70
- IO-Link master (IO-Link master 4SI IO-Link or 4SI SIRIUS interface module), which can connect all SIRIUS IO-Link devices to a controller, see Catalog IC 10, Chapter 2, "Industrial Communication"

Each monitoring relay requires an IO-Link channel.

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

Accessories

	Use	Version	Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Terminal supports for stand-alone assembly[1)]									
 3RU29 16-3AA01	For 3RR24	For separate mounting of the overload relays or monitoring relays; screw and snap-on mounting onto TH 35 standard mounting rail according to IEC 60715							
		Screw terminals							
		• Screw connection	S00	▶	**3RU29 16-3AA01**		1	1 unit	41F
			S0	▶	**3RU29 26-3AA01**		1	1 unit	41F
 3RU29 26-3AC01		**Spring-type terminals**							
		• Spring-type connection	S00	B	**3RU29 16-3AC01**		1	1 unit	41F
			S0	B	**3RU29 26-3AC01**		1	1 unit	41F
Blank inscription labels									
 3RT29 00-1SB20	For 3RR24	**Unit labeling plates[2)]** For SIRIUS devices							
		20 mm x 7 mm, titanium gray		D	**3RT29 00-1SB20**		100	340 units	41B
Sealable covers									
 3RR29 40	For 3RR24	**Sealable covers** for securing against unintentional or unauthorized adjustment of settings		A	**3RR29 40**		1	5 units	41H
Tools for opening spring-type terminals									
 3RA29 08-1A	For auxiliary circuit connections	**Screwdrivers** For all SIRIUS devices with spring-type terminals 3.0 mm x 0.5 mm, length approx. 200 mm, titanium gray/black, partially insulated		A	**3RA29 08-1A**		1	1 unit	41B
Manuals									
	For 3RR24	**System manual "SIRIUS Innovations - System Overview"**							
		• German		C	**3ZX1 012-0RA01-5AB1**		1	1 unit	4N1
		• English		C	**3ZX1 012-0RA01-5AC1**		1	1 unit	4N1
		Configuration Manual "Configuring SIRIUS Innovations – Selection Data for Fuseless and Fused Load Feeders"							
		• German		C	**3ZX1 012-0RA21-1AB0**		1	1 unit	4N1
		• English		C	**3ZX1 012-0RA21-1AC0**		1	1 unit	4N1
		Manual "3UG48/3RR24 Monitoring Relays for IO-Link"							
		• German		C	**3ZX1 012-0UG48-0AB1**		1	1 unit	4N1
		• English		C	**3ZX1 012-0UG48-0AC1**		1	1 unit	4N1

1) The accessories are identical to those of the 3RU21 thermal overload relays and the 3RB3 solid-state overload relays, see Catalog IC 10, Chapter 7, "Protection Equipment".

2) PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH see Catalog IC 10, Chapter 16, "Appendix" → "External Partners".

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

Notes

Safety Technology

11/2	**Introduction to Safety Technology**
	SIRIUS 3SK1 Safety Relays new
11/10	General data
	Basic units
11/16	- Standard basic units
11/17	- Advanced basic units
	Expansion units
11/18	- Output expansions
11/19	- Input expansions
11/20	Accessories
	SIRIUS 3RK3 Modular Safety System
11/22	General data
11/29	3RK31 central units new
11/30	3RK32, 3RK33 expansion modules
11/30	3RK35 interface modules
11/30	3RK36 operating and monitoring modules
11/31	Accessories

Introduction

Overview

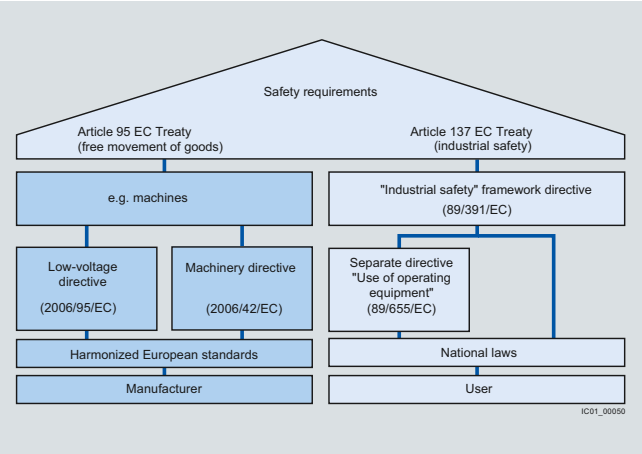
Functional safety of machines and plants – Basic safety requirements in the manufacturing industry

In order to protect people and the environment in many industrial applications in the manufacturing and process industries, machines and plants must meet the fundamental safety requirements of the EU Directives, particularly the Machinery Directive. In addition to design solutions, automation systems and components are also expected to perform safety-related tasks. This means that the life and health of people and the physical integrity of capital goods and the environment depend on the proper operation of these systems and components, on "functional safety".

With the introduction of the uniform European Single Market, national standards and regulations affecting the technical implementation of machines were consistently harmonized. This involved defining basic safety requirements which address, on the one hand, machine manufacturers in terms of the free movement of goods (Article 95) and, on the other hand, machine operators in terms of industrial safety (Article 137).

The EU directives:

- define requirements which must be met by plants and their operating companies in order to protect the health of people and the quality of the environment
- include standards for health & safety at work (minimum requirements)
- define product requirements (e.g. for machines) to protect the health and safety of the consumer
- differentiate between the requirements which must be met by the implementation of products in order to ensure the free movement of goods and the requirements which must be met for the use of products



Safety requirements imposed on machines and plants

Objective of the standards

It is the objective of safety technology to minimize as far as possible the hazards from technical facilities for people and the environment while restricting no more than absolutely necessary the scope of industrial production, the use of machines or the production of chemical products.

Factory automation is governed in particular by the following standards:

- IEC 61508 or IEC 62061 and
- EN ISO 13849-1

The IEC 62061 standard

The IEC 62061 standard "Safety of machines - Functional safety of electrical, electronic and programmable electronic control systems" defines comprehensive requirements. It includes recommendations for the development, integration and validation of safety-related electrical, electronic and programmable electronic control systems (SRECS) for machines. With the implementation of EN 62061, for the first time, one standard covers the entire safety chain, from the sensor to the actuator. The Safety Integrity Level, or SIL for short, is defined as the application parameter for this standard.

Performance capacity requirements for non-electric safety related control elements for machines – e.g. hydraulic, pneumatic, or electro-mechanical – are not regulated by the standard.

Safety of machines

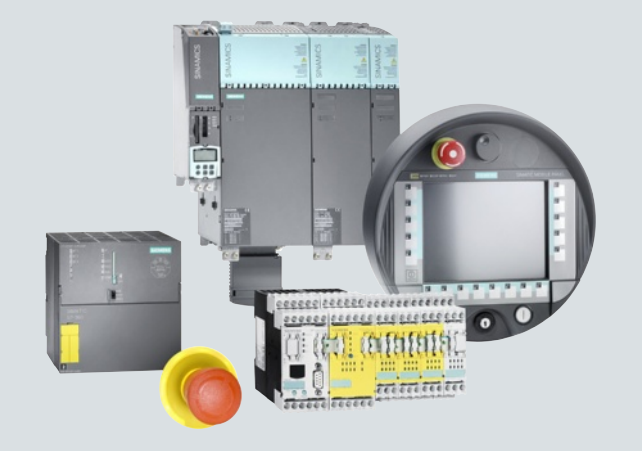
Standard EN ISO 13849-1

EN ISO 13849-1 "Safety of machines - Safety-related components of controls - Part 1: General principles" replaced EN 954-1 at the end of 2011. It considers the complete range of safety functions with all the devices which are involved in their performance. EN ISO 13849-1 also makes a quantitative analysis of the safety functions. The standard describes how to determine the performance level (PL) for safety-relevant parts of control systems on the basis of architectures specified for the intended service life.

When several safety-relevant parts are combined to form a single complete system, the standard explains how to determine the resulting PL. It can be applied to safety-related parts of control systems (SRP/CS) and all types of machines, regardless of the technology and energy used, e.g. electrical, hydraulic, pneumatic or mechanical.

Introduction

Safety Integrated – integrated safety technology from a single source



Safety Integrated

The following applies equally for machine manufacturers and the companies which operate their machines: Maximum possible safety for personnel and machines. The solution: our Safety Integrated concept based on Totally Integrated Automation. Whether for simple safety functions or highly complex tasks – our product range offers you maximum safety.

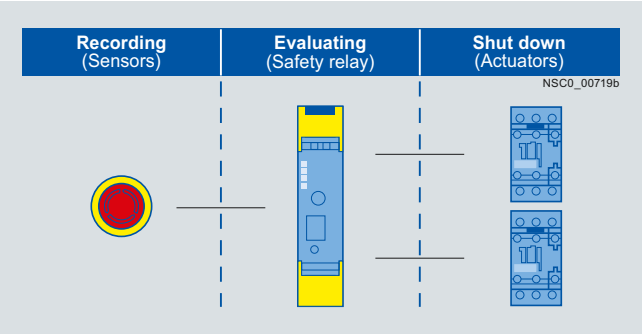
Safety Integrated is a unique, complete and consistent range of safety products covering all safety-related tasks – from sensing and evaluating to responding, from switches and control systems to operating mechanisms (see graphic on page 11/4). Our products meet the safety requirements in force in industry, including IEC, ISO, NFPA and UL, and are certified in accordance with the latest safety standards.

All Safety Integrated products or systems can be seamlessly integrated in the standard automation environment. They are therefore particularly flexible and economical, reduce engineering time, increase plant availability and enable practice-related machine operation.

Design of a safety function

A safety chain normally comprises the following functions: sensing, evaluating and responding. In detail this means:

- Sensing = the detection of a safety requirement, e.g. when an EMERGENCY-STOP is actuated or someone enters a hazardous area which is protected by sensors such as light arrays or laser scanners.
- Evaluating = the detection of a safety requirement and the reliable initiation of a reaction, e.g. shutting down the enabling circuits.
- Responding = responding to a hazard, e.g. shutting down a power supply via the downstream contactors.



Design of a safety function

What we offer

As a partner for all safety requirements, we not only support you with the respective safety-related products and systems, but also consistently provide you with the most current know-how on international standards and regulations. Machine manufacturers and plant managers are offered a comprehensive training portfolio as well as services for the entire lifecycle of safety-related systems and machines.

- A uniform, certified product range
- Courses on CE marking, risk assessment and standards see www.siemens.com/sitrain-safetyintegrated
- Worldwide service and support see http://support.automation.siemens.com
- More information see www.siemens.com/safety-integrated

Safety Evaluation Tool

Safety Evaluation Tool

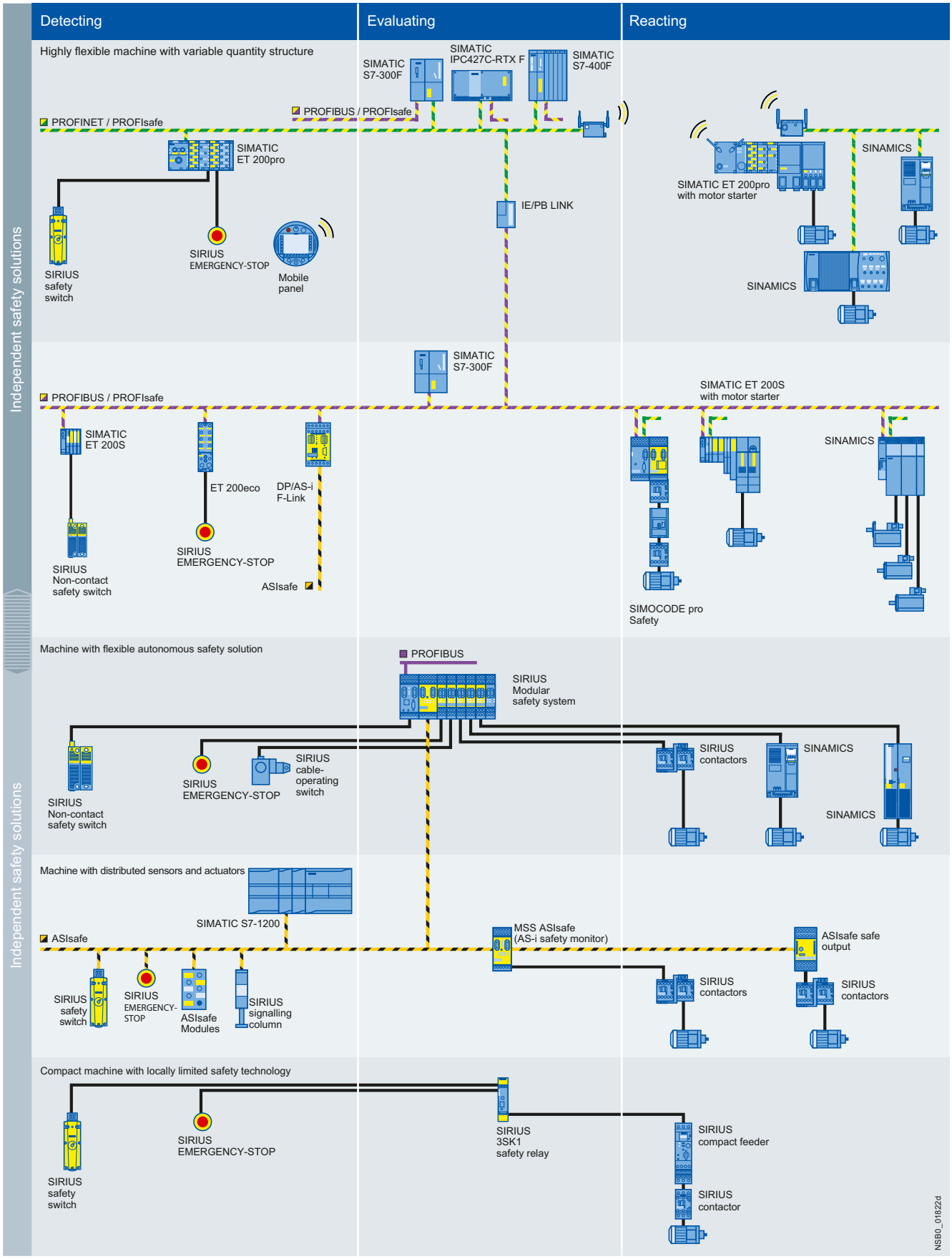
The Safety Evaluation Tool for the standards IEC 62061 and EN ISO 13849-1 guides you quickly and safely through all the calculation steps in implementing safety functions on a machine, from definition of the safety system structure through to selection of the components all the way to determination of the achieved safety integrity level (SIL/PL). You receive the results as a standards-compliant report that can be integrated in the documentation as proof of safety.

Benefits of the Safety Evaluation Tool to you:

- Less time needed to evaluate the safety functions
- Calculation in accordance with current standards
- User-friendly archiving: Projects can be saved and called up again as required
- Fast and easy handling: comprehensive, predefined libraries of examples
- Fast access to product data
- Selection aids for determining variables and specifying the system design
- Helpful documents which can be downloaded as PDFs
- The online tool can be used free of charge – you pay only the usual costs for accessing the Internet

More information see www.siemens.com/safety-evaluation-tool.

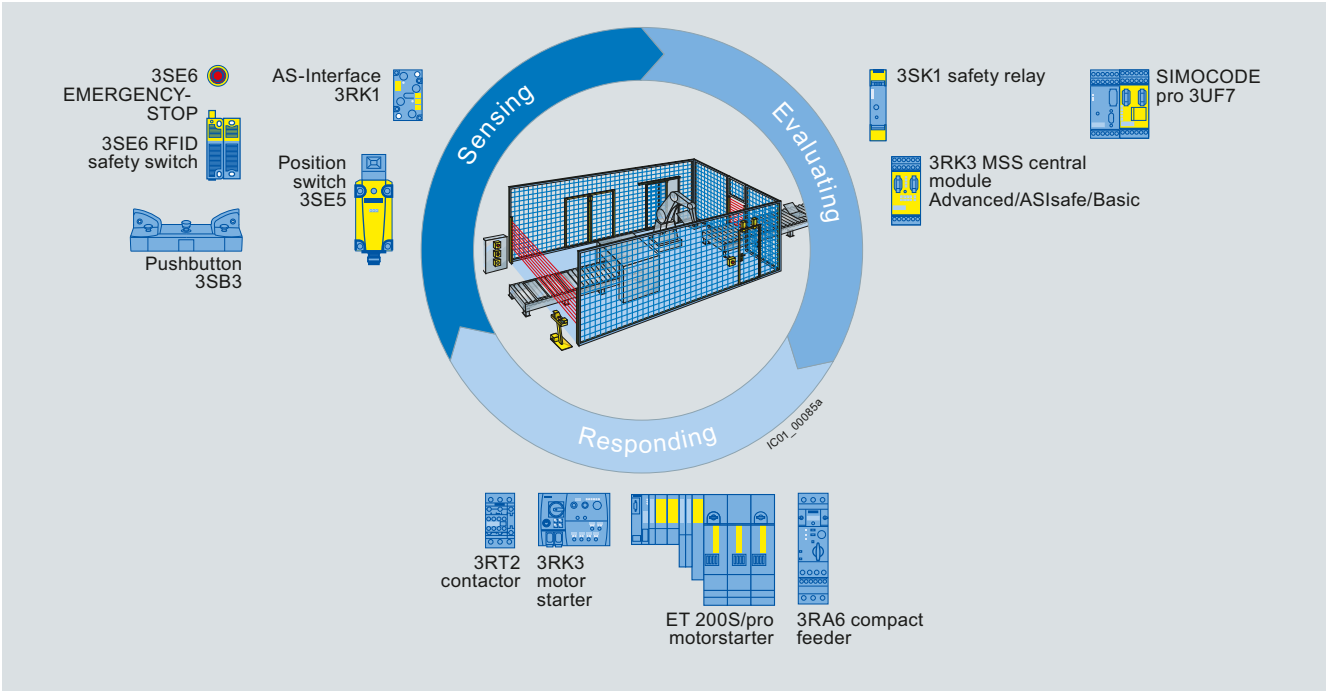
Introduction



SIRIUS Safety Integrated

Our SIRIUS Safety Integrated controls are a central element of the Siemens Safety Integrated concept. Whether for fail-safe sensing, commanding and reporting, monitoring and evaluating or starting and reliable disconnection - our SIRIUS Safety Integrated controls are expert at performing safety tasks in your plant.

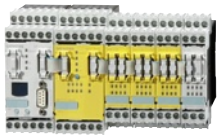
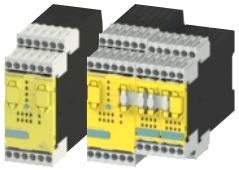
SIRIUS Safety Integrated uses fail-safe communication using standard fieldbus systems, e.g. ASIsafe via AS-Interface and PROFIsafe via PROFIBUS and PROFINET, to solve even networked safety tasks of greater complexity. This opens the door for flexible safety solutions for compact machines or large-scale plants.

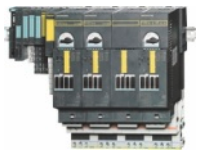
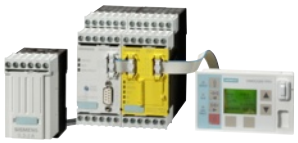


SIRIUS Safety Integrated

Introduction

		Order No.	Page
SIRIUS Safety Integrated			
 3SK1 11.	**3SK1 safety relays** • Key modules of a consistent and cost-effective safety chain • Can be used for all safety applications thanks to compliance with the highest safety requirements (PL e according to EN ISO 13849-1 or SIL 3 according to IEC 61508) • Suitable for use all over the world through compliance with all globally established certifications Standard basic units • Simple, compact devices for all important requirements for monitoring safety sensors and actuators	**3SK1 11**	11/16
 3SK1 12.	Advanced basic units • Multi-functional series of safety relays with relay enabling circuits, semiconductor outputs or time-delayed outputs for: - EMERGENCY-STOP monitoring - Protective door monitoring - Monitoring of non-floating sensors such as light arrays, laser scanners, etc. - Monitoring of two-hand operation consoles - Monitoring of equivalent (NC/NC) and antivalent (NO/NC) sensors • Setting by means of DIP switch	**3SK1 12**	11/17
 3SK1 21.	Expansion units • The 3RO and 4RO output expansions can be used for Standard and Advanced basic units • Input expansion for Advanced basic units • Power supply for Advanced basic units • Expansion of the Standard device series by means of wiring • Expansion of the Advanced device series by means of wiring or without wiring effort by means of 3ZY1 2 device connectors	**3SK1 21, 3SK1 22, 3SK1 23**	11/18, 11/19
 3TK28 26-2BB40	**3TK28 safety relays** • Key modules of a consistent and cost-effective safety chain • Can be used for all safety applications thanks to compliance with the highest safety requirements (PL e according to EN ISO 13849-1 or SIL 3 according to IEC 61508) • Suitable for use all over the world through compliance with all globally established certifications Safety relays with relay enabling circuits • Different voltages can be switched through the floating contacts • Inductive currents up to 5 A can be switched with relay contacts	**3TK28 2, 3TK28 3**	Catalog IC 10
 3TK28 41-1BB40	Safety relays with electronic enabling circuits • Wear-free • Suitable for operation in fast switching applications • Insensitive to vibrations and dirt • Good electrical endurance	**3TK28 4**	Catalog IC 10
 3TK28 10-1BA41	Safety relays with contactor relay enabling circuits • Different voltages can be switched through the floating contacts • Inductive currents up to 10 A can be switched with contactor relay enabling circuits • High mechanical and electrical endurance	**3TK28 5**	Catalog IC 10
	Safety relays with special functions Safe standstill monitoring with 3TK28 10-0 • Monitoring without external sensors • Universal use in applications possible 3TK28 10-1 safe speed monitoring • Monitoring of speed with encoders and proximity switches possible • Easy diagnostics options via display • Integrated monitoring of a spring-locked protective door	**3TK28 10**	Catalog IC 10

		Order No.	Page
SIRIUS Safety Integrated (continued)			
 3RK3	**3RK3 Modular Safety System (MSS)** • Freely configurable modular safety relays • Safety-oriented applications up to PL e according to ISO 13849-1 and SIL 3 according to IEC 62061 can be implemented • High flexibility and planning reliability thanks to a modular design • More space in the control cabinet and lower costs thanks to highly modular project data • More functionality and time savings thanks to a software-configurable system • Comprehensive diagnostics on-site with the MSS ES software • Improved plant diagnostics and higher plant availability thanks to exchange of data using PROFIBUS • Automatic creation of plant documentation with regard to MSS and software parameterization • Up to 9 expansion modules can be plugged in for standard I/Os and fail-safe I/Os – optionally solid-state or relay-based fail-safe outputs • Graphic parameterization of the logic, online diagnostics, and automatic creation of documentation using MSS ES • Consistent further development of the safety monitors with the Advanced and ASIsafe central units of the SIRIUS 3RK3 Modular Safety System (MSS) Additionally with AS-Interface (ASIsafe): • With MSS Advanced/ASIsafe up to 50 two-channel, fail-safe outputs (38 central outputs and 12 outputs via AS-i) • Safety-oriented and standard communication between multiple MSS devices and/or safety monitors • Distributed detection of sensors and disconnection of actuators through AS-Interface • Much more space is available without wiring outlay using AS-Interface • Ready-to-use function blocks (e.g. muting or protective door with interlocking) can also be used on AS-i	**3RK3**	11/22
 3RK3 MSS ASIsafe			
 Safety monitor	**AS-Interface safety monitors** • Monitoring of the safe stations and linking of safe AS-Interface inputs and outputs	**3RK1**	Catalog IC 10, Ch. 2
 ASi F-Link	**AS-i F-Link** • Monitoring the inputs of safety-oriented digital AS-i slaves (ASIsafe slaves) and forwarding of data through PROFIsafe • Supports all AS-Interface master functions according to the AS-Interface Specification V 3.0 • Local diagnostics using LEDs and display with control keys • Programming with Distributed Safety Version V5.4 SP1 or higher for SIMATIC S7-300F/416F • Programming with SAFETY INTEGRATED "SI-Basic" or "SI-COMFORT NCU" for SINUMERIK 840D pl/sl	**3RK3**	Catalog IC 10, Ch. 2
 K45F	**AS-Interface safety modules** • Complete portfolio of ASIsafe modules • Up to four safe inputs per module • Up to one safe output per module Advantage: Easy integration of safe signals in the control cabinet or in the field up to Category 4, Pl e, SIL 3	**3RK1**	Catalog IC 10, Ch. 2

		Order No.	Page
SIRIUS Safety Integrated (continued)			
 ET 200S Safety	**ET 200S Safety Motor Starter Solutions** The ET 200S Safety Motor Starter Solutions comprise: • Safety modules • Standard motor starters • High Feature motor starters • Failsafe motor starters ET 200S Safety Motor Starter Solutions Local Safety Motor Starter 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. ET 200S Safety Motor Starter Solutions PROFIsafe Safety Motor Starter 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 PROFINET or PROFIBUS bus systems with the PROFIsafe profile.	**3RK3**	Catalog IC 10, Ch. 8
 ET 200pro Safety	**ET 200pro Safety Motor Starter Solutions** The ET 200pro Safety Motor Starter Solutions comprise: • PROFIsafe modules • Safety repair switch modules • Disconnecting modules • Standard motor starters • High Feature motor starters ET 200pro Safety Motor Starter Solutions Local Safety Motor Starter 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. ET 200pro Safety Motor Starter Solutions PROFIsafe Safety Motor Starter 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 PROFINET or PROFIBUS bus systems with the PROFIsafe profile.	**3RK3**	Catalog IC 10, Ch. 9
 3UF7	**SIMOCODE pro motor management and control devices** • Flexible, modular motor management system for motors with constant speeds in the low-voltage range • Provides an intelligent interface between the higher-level automation system and the motor feeder • Multi-functional, electronic full motor protection which is independent of the automation system • Integrated control functions for the motor control • Detailed operating, service and diagnostics data • Open communication through PROFIBUS DP and PROFINET • Safety relay function for the fail-safe disconnection of motors up to SIL 3 (IEC 61508/IEC 62061) or PL e with Category 4 (EN ISO 13849-1) Fail-safe digital modules • DM-F Local for direct assignment between a fail-safe hardware shutdown signal and a motor feeder • DM-F PROFIsafe if a fail-safe controller (F-CPU) generates the fail-safe signal for the disconnection	**3UF7**	Ch.10
 3SE6 3	**Non-contact RFID safety switches** • Long service life due to non-contact switching • Only one switch required for the maximum safety level PL e or SIL 3 according to EN ISO 13849-1 and IEC 61508 • Safety circuits connected in series, with up to 31 devices • Higher tamper protection than with mechanical safety switches due to switches and actuators that can be individually coded • Version with optional 18 N magnetic catch • LED status display including threshold indication for door displacement • Degree of protection up to IP69 K and resistance to detergents • Larger switching displacement than mechanical switches; offers better mounting tolerance and sagging tolerance of the protective door • No time-consuming mechanical installation needed, resulting in shorter installation and adjustment times and reduced maintenance	**3SE6 3**	Catalog IC 10, Ch. 12

		Order No.	Page
SIRIUS Safety Integrated (continued)			
 3SE5	**Mechanical position switches** • Easy assembly thanks to modular design • Solid, rugged design • Special versions can be generated easily and are available quickly, also in combination with standard modules • With a 3SE51/3SE52 position switch it is possible to achieve Category 2 according to EN ISO 13849-1 or SIL 1 according to IEC 61508 • Categories 3 and 4 can be achieved by using a second 3SE5 1/3SE5 3 position switch	**3SE5 1, 3SE5 2**	Catalog IC 10, Ch. 12
 3SE5	**Mechanical safety switches** • With separate actuator, hinge switch, or separate actuator and interlocking • With a position switch it is possible to achieve Category 3 according to EN ISO 13849-1 or SIL 2 according to IEC 61508 • Category 4 according to EN ISO 13849-1 or SIL 3 according to IEC 61508 can be achieved by using a second 3SE5 1 or 3SE5 2 position switch • Version in various sizes made of metal or plastic • Integrated ASIsafe electronics for all enclosure designs	**3SE5 1, 3SE5 2, 3SE5 3**	Catalog IC 10, Ch.12
 3SB3/3SF5	**Command devices** • Using a special F adapter, EMERGENCY-STOP mushroom pushbuttons according to ISO 13850 can be directly connected through the standard AS-Interface with safety-oriented communication. This F adapter is snapped from the rear onto the EMERGENCY-STOP command device, enabling maximum performance level "e" according to EN ISO 13849-1 or SIL 3 according to IEC 62061 to be achieved.	**3SF5**	Catalog IC 10, Ch. 13
 3SB3	• EMERGENCY-STOP devices for disconnecting systems in an emergency situation • With positive latching function according to EN ISO 13850 and performance level "e" according to EN ISO 13849-1 or SIL 3 according to IEC 62061 • Various mushroom diameters, with lock, in plastic/metal, as individual or complete units and in combination with 3SB3 enclosure or two-hand operation console	**3SB3**	Catalog IC 10, Ch. 13
 3SE7	**Cable-operated switches** • Control functions and EMERGENCY-STOP are always within reach • More safety over long distances of up to 2 x 75 m length • Simple unlocking • Fail-safe applications with SIRIUS Safety Integrated • Status display directly on the switch • Signal display for large distances with innovative LED technology with visibility over 50 m • Pull switches with latching function according to ISO 13850 and full EMERGENCY-STOP function with positive-opening contacts • Quick and safe mounting using uniform mounting accessories • Versions with 1 NO contact/2 NC contacts with yellow lid	**3SE7**	Catalog IC 10, Ch. 13

Connection methods

The safety relays and the Modular Safety System are available with screw or spring-type terminals.

⊕	Screw terminals
⊞	Spring-type terminals (push-in)
	The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds.

Push-in connection method

Push-in connections are a form of spring-type terminals allowing fast wiring without tools for rigid conductors or conductors equipped with end sleeves.

As with other spring-type terminals, a screwdriver (with 3.0 x 0.5 mm blade) is required to disconnect the conductor. The same tool can also be used to wire finely-stranded or stranded conductors with no end finishing.

The advantages of the push-in terminals are found, as with all spring-type terminals, in speed of assembly and disassembly and vibration-proof connection. There is no need for the checking and tightening required with screw terminals.

General data

Overview

SIRIUS 3SK1 safety relays

SIRIUS 3SK1 safety relays are the key modules of a consistent, cost-effective safety chain. Whether you need EMERGENCY-STOP, protective door monitoring, light arrays, laser scanners or the protection of presses or punches – with the 22.5 mm wide SIRIUS safety relays every safety application can be implemented to optimum effect in terms of engineering and price.

The following safety-oriented functions are available:

- Monitoring the safety functions of sensors
- Monitoring the sensor leads
- Monitoring correct functioning of safety relays
- Monitoring the actuators in the shutdown circuit
- Safety-oriented disconnection when dangers arise

SIRIUS 3SK1 safety relays satisfy the most stringent requirements of IEC 61508/IEC 62061 (SIL 3) and EN ISO 13849-1 (PL e).

SIRIUS 3SK1 safety relays stand out on account of their flexibility in both parameterization and system configurations with several evaluation units. Optimized solutions when selecting components are facilitated by a clearly structured component range:

- Standard basic units
- Advanced basic units
- Output expansions
- Input expansions
- Accessories

The 3SK1 Standard basic units are characterized by the following features:

- Compact design
- Simple operation
- Relay and semiconductor outputs
- Economical solution

However, the 3SK1 Advanced basic units also offer the following:

- Universal application options thanks to multi-functionality
- Time-delayed outputs
- Expansion of inputs and outputs

In the case of Advanced basic units, the 3ZY1 device connector allows safety functions involving several sensors and actuators to be constructed very quickly.

The 3SK1 Standard and Advanced series are a high-quality replacement for the 3TK28 safety relays. In their slimmer design, and equipped with greater functionality, they can replace every 3TK28 device. The only exceptions are devices with special functions, such as 3TK28 26, 3TK28 45 and the 3TK28 10 devices. For a code conversion table from 3TK28 to 3SK1 see page 11/12.

Function overview of the 3SK1 series

Type	Standard basic units		Advanced basic units	
	Relay enabling circuits	Solid-state enabling circuits	Relay enabling circuits	Solid-state enabling circuits
Sensors				
• Mechanical	✓	✓	✓	✓
• Non-floating	✓	✓	✓	✓
• Antivalent	--	--	✓	✓
• Expandable	--	✓ by means of cascading	✓	✓
Parameters				
• Start (auto/monitored)	✓	✓	✓	✓
• Sensor connection 2 x 1-channel/ 1 x 2-channel	--	✓	✓	✓
• Cross-circuit detection	✓ by means of wiring	✓	✓	✓
• Start-up test ON/OFF	--	✓	✓	✓
• Monitoring of two-hand operation consoles	--	--	✓	✓
Enabling circuits				
• Instantaneous	✓	✓	✓	✓
• Delayed	--	--	✓	✓
• Expandable with relay enabling circuits	✓ by means of wiring	✓ by means of wiring	✓	✓
• Device connectors	--	--	✓	✓
Rated control supply voltage				
• 24 V DC	✓	✓	✓	✓
• 115 ... 240 V AC/DC	✓	--	✓[1)]	✓[1)]

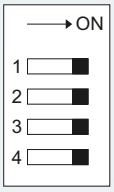
✓ Available

-- Not available

[1)] Possible using 3SK1 230 power supply via device connector.

3SK1 12 and 3SK1 112 safety relays with DIP switch

The 3SK1 12 and 3SK1 112 safety relays are configurable safety relays. They are used as evaluation units for the typical safety chain (detecting, evaluating, disconnecting). DIP switches on the front can be used to set many different functions. Thus the 3SK1 12 and 3SK1 112 can be used universally.

OFF	Diagram	DIP switch No.	ON
Autostart sensor input		1	Monitored start sensor input
Without cross-circuit detection		2	With cross-circuit detection
2 x single-channel sensor connection		3	1 x two-channel sensor connection
With start-up test		4	Without start-up test

Number of safe outputs

	Relay enabling circuits		Solid-state enabling circuits		3ZY1 device connec-tors
	Instanta-neous	Delayed	Instanta-neous	Delayed	
3SK1 Standard basic units					
3SK1 111	3	--	--	--	--
3SK1 112	--	--	2	--	--
3SK1 Advanced basic units					
3SK1 120	--	--	1	--	✓
3SK1 121-.AB40	3	--	--	--	✓
3SK1 121-.CB4.	2	2	--	--	✓
3SK1 122-.AB40	--	--	3	--	✓
3SK1 122-.CB4.	--	--	2	2	✓
3SK1 expansion units					
3SK1 211	4	--	--	--	✓
3SK1 213	3	--	--	--	✓

✓ Available

-- Not available

General data

Code conversion table

The table below lists the existing 3TK28 order numbers with the corresponding 3SK1 order numbers.

Order number 3TK28 basic units	Order number 3SK1 Standard basic units	Order number 3SK1 Advanced basic units
3TK28 20		
3TK28 20-1AJ20	3SK1 111-1AW20	3SK1 121-1AB40 + 3SK1 230-1AW20
3TK28 20-1AL20	3SK1 111-1AW20	3SK1 121-1AB40 + 3SK1 230-1AW20
3TK28 20-1CB30	3SK1 111-1AB30	3SK1 121-1AB40
3TK28 20-2AJ20	3SK1 111-2AW20	3SK1 121-2AB40 + 3SK1 230-2AW20
3TK28 20-2AL20	3SK1 111-2AW20	3SK1 121-2AB40 + 3SK1 230-2AW20
3TK28 20-2CB30	3SK1 111-2AB30	3SK1 121-2AB40
3TK28 21		
3TK28 21-1CB30	3SK1 111-1AB30	3SK1 121-1AB40
3TK28 21-2CB30	3SK1 111-2AB30	3SK1 121-2AB40
3TK28 22		
3TK28 22-1CB30	3SK1 111-1AB30	3SK1 121-1AB40
3TK28 22-2CB30	3SK1 111-2AB30	3SK1 121-2AB40
3TK28 23		
3TK28 23-1CB30	3SK1 111-1AB30	3SK1 121-1AB40
3TK28 23-2CB30	3SK1 111-2AB30	3SK1 121-2AB40
3TK28 24		
3TK28 24-1AJ20	3SK1 111-1AW20	3SK1 121-1AB40 + 3SK1 230-1AW20
3TK28 24-1AL20	3SK1 111-1AW20	3SK1 121-1AB40 + 3SK1 230-1AW20
3TK28 24-1BB40	3SK1 111-1AB30	3SK1 121-1AB40
3TK28 24-1CB30	3SK1 111-1AB30	3SK1 121-1AB40
3TK28 24-2AJ20	3SK1 111-2AW20	3SK1 121-2AB40 + 3SK1 230-2AW20
3TK28 24-2AL20	3SK1 111-2AW20	3SK1 121-2AB40 + 3SK1 230-2AW20
3TK28 24-2BB40	3SK1 111-2AB30	3SK1 121-2AB40
3TK28 24-2CB30	3SK1 111-2AB30	3SK1 121-2AB40
3TK28 25		
3TK28 25-1AB20	3SK1 111-1AW20	3SK1 121-1AB40 + 3SK1 230-1AW20
3TK28 25-1AJ20	3SK1 111-1AW20	3SK1 121-1AB40 + 3SK1 230-1AW20
3TK28 25-1AL20	3SK1 111-1AW20	3SK1 121-1AB40 + 3SK1 230-1AW20
3TK28 25-1BB40	3SK1 111-1AB30	3SK1 121-1AB40
3TK28 25-2AB20	3SK1 111-2AW20	3SK1 121-2AB40 + 3SK1 230-2AW20
3TK28 25-2AJ20	3SK1 111-2AW20	3SK1 121-2AB40 + 3SK1 230-2AW20
3TK28 25-2AL20	3SK1 111-2AW20	3SK1 121-2AB40 + 3SK1 230-2AW20
3TK28 25-2BB40	3SK1 111-2AB30	3SK1 121-2AB40
3TK28 27		
3TK28 27-1AB20	--	--
3TK28 27-1AB21	--	--
3TK28 27-1AJ20	--	3SK1 121-1CB42 + 3SK1 230-1AW20
3TK28 27-1AJ21	--	3SK1 121-1CB41 + 3SK1 230-1AW20
3TK28 27-1AL20	--	3SK1 121-1CB42 + 3SK1 230-1AW20
3TK28 27-1AL21	--	3SK1 121-1CB41 + 3SK1 230-1AW20
3TK28 27-1BB40	--	3SK1 121-1CB42
3TK28 27-1BB41	--	3SK1 121-1CB41
3TK28 27-2AB20	--	--
3TK28 27-2AB21	--	--
3TK28 27-2AJ20	--	3SK1 121-2CB42 + 3SK1 230-2AW20
3TK28 27-2AJ21	--	3SK1 121-2CB41 + 3SK1 230-2AW20
3TK28 27-2AL20	--	3SK1 121-2CB42 + 3SK1 230-2AW20
3TK28 27-2AL21	--	3SK1 121-2CB41 + 3SK1 230-2AW20
3TK28 27-2BB40	--	3SK1 121-2CB42
3TK28 27-2BB41	--	3SK1 121-2CB41

Order number 3TK28 basic units	Order number 3SK1 Standard basic units	Order number 3SK1 Advanced basic units
3TK28 28		
3TK28 28-1AB20	--	--
3TK28 28-1AB21	--	--
3TK28 28-1AJ20	--	3SK1 121-1CB42 + 3SK1 230-1AW20
3TK28 28-1AJ21	--	3SK1 121-1CB41 + 3SK1 230-1AW20
3TK28 28-1AL20	--	3SK1 121-1CB42 + 3SK1 230-1AW20
3TK28 28-1AL21	--	3SK1 121-1CB41 + 3SK1 230-1AW20
3TK28 28-1BB40	--	3SK1 121-1CB42
3TK28 28-1BB41	--	3SK1 121-1CB41
3TK28 28-2AB20	--	--
3TK28 28-2AB21	--	--
3TK28 28-2AJ20	--	3SK1 121-2CB42 + 3SK1 230-2AW20
3TK28 28-2AJ21	--	3SK1 121-2CB41 + 3SK1 230-2AW20
3TK28 28-2AL20	--	3SK1 121-2CB42 + 3SK1 230-2AW20
3TK28 28-2AL21	--	3SK1 121-2CB41 + 3SK1 230-2AW20
3TK28 28-2BB40	--	3SK1 121-2CB42
3TK28 30		
3TK28 30-1AJ20	3SK1 211-1BW20	3SK1 211-1BB40
3TK28 30-1AL20	3SK1 211-1BW20	3SK1 211-1BB40
3TK28 30-1CB30	3SK1 211-1BB40	3SK1 211-1BB40
3TK28 30-2AJ20	3SK1 211-2BW20	3SK1 211-2BB40
3TK28 30-2AL20	3SK1 211-2BW20	3SK1 211-2BB40
3TK28 30-2CB30	3SK1 211-2BB40	3SK1 211-2BB40
3TK28 34		
3TK28 34-1AB20	--	--
3TK28 34-1AJ20	--	3SK1 121-1AB40 + 3SK1 230-1AW20
3TK28 34-1AL20	--	3SK1 121-1AB40 + 3SK1 230-1AW20
3TK28 34-1BB40	--	3SK1 121-1AB40
3TK28 34-2AB20	--	--
3TK28 34-2AJ20	--	3SK1 121-2AB40 + 3SK1 230-2AW20
3TK28 34-2AL20	--	3SK1 121-2AB40 + 3SK1 230-2AW20
3TK28 34-2BB40	--	3SK1 121-2AB40
3TK28 40		
3TK28 40-1BB40	3SK1 112-1BB40	3SK1 122-1AB40
3TK28 40-2BB40	3SK1 112-2BB40	3SK1 122-2AB40
3TK28 41		
3TK28 41-1BB40	3SK1 112-1BB40	3SK1 122-1AB40
3TK28 41-2BB40	3SK1 112-2BB40	3SK1 122-2AB40
3TK28 42		
3TK28 42-1BB41	--	3SK1 122-1CB41
3TK28 42-1BB42	--	3SK1 122-1CB42
3TK28 42-1BB44	--	3SK1 122-1CB44
3TK28 42-2BB41	--	3SK1 122-2CB41
3TK28 42-2BB42	--	3SK1 122-2CB42
3TK28 42-2BB44	--	3SK1 122-2CB44
3TK28 50		
3TK28 50-1AJ20	3SK1 111-1AW20 + 3SK1 213-1AJ20	3SK1 120-1AB40 + 3SK1 213-1AB40
3TK28 50-1AL20	3SK1 111-1AW20 + 3SK1 213-1AL20	3SK1 120-1AB40 + 3SK1 213-1AB40
3TK28 50-1BB40	3SK1 111-1AB30 + 3SK1 213-1AB40	3SK1 120-1AB40 + 3SK1 213-1AB40
3TK28 50-2AJ20	3SK1 111-2AW20 + 3SK1 213-2AJ20	3SK1 120-2AB40 + 3SK1 213-2AB40
3TK28 50-2AL20	3SK1 111-2AW20 + 3SK1 213-2AL20	3SK1 120-2AB40 + 3SK1 213-2AB40
3TK28 50-2BB40	3SK1 111-2AB30 + 3SK1 213-2AB40	3SK1 120-2AB40 + 3SK1 213-2AB40

Order number 3TK28 basic units	Order number 3SK1 Standard basic units	Order number 3SK1 Advanced basic units
3TK28 51		
3TK28 51-1AJ20	3SK1 111-1AW20 + 3SK1 213-1AJ20	3SK1 120-1AB40 + 3SK1 213-1AB40
3TK28 51-1AL20	3SK1 111-1AW20 + 3SK1 213-1AL20	3SK1 120-1AB40 + 3SK1 213-1AB40
3TK28 51-1BB40	3SK1 111-1AB30 + 3SK1 213-1AB40	3SK1 120-1AB40 + 3SK1 213-1AB40
3TK28 51-2AJ20	3SK1 111-2AW20 + 3SK1 213-2AJ20	3SK1 120-2AB40 + 3SK1 213-2AB40
3TK28 51-2AL20	3SK1 111-2AW20 + 3SK1 213-2AL20	3SK1 120-2AB40 + 3SK1 213-2AB40
3TK28 51-2BB40	3SK1 111-2AB30 + 3SK1 213-2AB40	3SK1 120-2AB40 + 3SK1 213-2AB40
3TK28 52		
3TK28 52-1AL20	3SK1 111-1AW20 + 3SK1 213-1AL20	3SK1 120-1AB40 + 3SK1 213-1AB40
3TK28 52-1BB40	3SK1 111-1AB30 + 3SK1 213-1AB40	3SK1 120-1AB40 + 3SK1 213-1AB40
3TK28 52-2AL20	3SK1 111-2AW20 + 3SK1 213-2AL20	3SK1 120-2AB40 + 3SK1 213-2AB40
3TK28 52-2BB40	3SK1 111-2AB30 + 3SK1 213-2AB40	3SK1 120-2AB40 + 3SK1 213-2AB40

Order number 3TK28 basic units	Order number 3SK1 Standard basic units	Order number 3SK1 Advanced basic units
3TK28 53		
3TK28 53-1BB40	3SK1 111-1AB30 + 3SK1 213-1AB40	3SK1 120-1AB40 + 3SK1 213-1AB40
3TK28 53-2BB40	3SK1 111-2AB30 + 3SK1 213-2AB40	3SK1 120-2AB40 + 3SK1 213-2AB40
3TK28 56		
3TK28 56-1BB40	3SK1 213-1AB40	3SK1 213-1AB40
3TK28 56-2BB40	3SK1 213-2AB40	3SK1 213-2AB40
3TK28 57		
3TK28 57-1BB41	--	3SK1 213-1AB40 (delay as for basic unit)
3TK28 57-1BB42	--	3SK1 213-1AB40 (delay as for basic unit)
3TK28 57-1BB44	--	3SK1 213-1AB40 (delay as for basic unit)
3TK28 57-2BB41	--	3SK1 213-2AB40 (delay as for basic unit)
3TK28 57-2BB42	--	3SK1 213-2AB40 (delay as for basic unit)
3TK28 57-2BB44	--	3SK1 213-2AB40 (delay as for basic unit)

Order No. scheme

Digit of the Order No.	1st - 3rd ❒❒❒	4th ❒	5th ❒	6th ❒	7th ❒	–	8th ❒	9th **A**	10th ❒	11th ❒	12th ❒
Safety relays	**3SK**										
Generation		❒									
Device version			❒								
Device series				❒							
Type of outputs					❒						
Connection type							❒				
Rated control supply voltage									❒		
Type of rated control supply voltage										❒	
Time delay											❒
Example	**3SK**	**1**	**1**	**2**	**1**	**–**	**1**	**A**	**B**	**4**	**0**

Note:

The Order No. scheme is presented here merely for information purposes and for better understanding of the logic behind the order numbers.

For your orders, please use the order numbers quoted in the catalog in the selection and ordering data.

General data

Benefits

General

- Suitable for all safety applications because of its compliance with the highest safety requirements (SIL 3 PL e)
- Universal use thanks to adjustable parameters
- Worldwide use thanks to globally valid certificates
- Compact SIRIUS design
- Device connectors with standard rail mounting for flexible interconnectability and expandability
- Removable terminals for greater plant availability
- Yellow terminal covers clearly identify the device as a safety component.
- Sensor cable up to 2 000 m long allows it to be used in large-scale plants.

Relay outputs

- Different voltages can be switched through the floating contacts
- Higher currents can be switched with relay contacts

Solid-state outputs

- Wear-free
- Suitable for operation in fast switching applications
- Insensitive to vibrations and dirt
- Good electrical endurance

Power outputs (3SK1 213 output expansion)

- Different voltages can be switched through the floating contacts
- The power relay contacts allow currents of up to 10 A AC-15/DC-13 to be connected
- High mechanical and electrical endurance
- Protective separation between enabling circuits and between enabling circuits and electronics

3ZY1 device connectors

Using 3ZY1 device connectors to combine devices reduces the time required to configure and wire the components. At the same time errors are avoided during wiring, and this considerably reduces the testing required for the fully-configured application.

Microprocessor systems

- Flexible use thanks to many different integrated functions
- Easy parameterization using DIP switches on the front
- High functional reliability based on extensive monitoring functions
- Operated by the machine control system
- Also connection of non-contact sensors (light arrays, light barriers etc.)

Configuration and stock keeping

Variable setting options by means of DIP switches, a wide voltage range and a special power supply unit reduce the cost of keeping stocks and the considerations involved in configuration where the evaluation units to be selected are concerned.

Spring-type terminal with push-in functionality

Push-in connections are a form of spring-type terminals allowing fast wiring without tools for rigid conductors or conductors equipped with end sleeves.

As with other spring-type terminals, a screwdriver (with 3.0 mm x 0.5 mm blade) is required to disconnect the conductor. The same tool can also be used to wire finely-stranded or stranded conductors with no end finishing.

The advantages of the push-in terminals are found, as with all spring-type terminals, in speed of assembly and disassembly and vibration-proof connection. There is no need for the checking and tightening required with screw terminals.

Application

SIRIUS 3SK1 safety relays are used mainly in autonomous safety applications which are not connected to a safety-oriented bus system. Their function here is to evaluate the sensors and the safety-oriented shutdown of hazards. Also they check and monitor the sensors, actuators and safety-oriented functions of the safety relay.

Technical specifications

Type		**3SK1 safety relays**
Dimensions • Width • Height • Depth	mm mm mm	 22.5 100 120
General technical specifications		
Ambient temperature • During operation • During storage	 °C °C	 -25 … +60 -40 … +80
Installation altitude above sea level, maximum	m	2 000
Air pressure according to SN 31205	hPa	900 … 1 060
Shock resistance		8 g / 11 ms
Vibration resistance according to IEC 60068-2-6		5 ... 500 Hz: 0.75 mm
IP degree of protection of the enclosure		IP20
Touch protection against electric shock		Finger-safe
Rated insulation voltage	V	300
Rated impulse withstand voltage	V	4 000
Safety integrity level (SIL) **for time-delayed enabling circuit** according to IEC 61508		SIL 3
Performance level (PL) **for time-delayed enabling circuit** according to ISO 13849-1		e
Electromagnetic compatibility (EMC) EMC emitted interference Certificate of suitability		 IEC 60947-5-1, class B Available soon

Standard basic units

Overview

3SK1 11 Standard basic units

The 3SK1 11 Standard basic units are characterized by simple, variable functionality. These devices are recommended for safety functions requiring only a few sensors and a small number of outputs on the safety relay.

Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41L

3SK1 111-1AB30

3SK1 112-1BB40

Rated control supply voltage U_s		DT	Screw terminals		DT	Spring-type terminals (push-in)	
At 50 Hz At AC	At DC		Order No.	Price per PU		Order No.	Price per PU
V	V						
Standard basic units with 3 relay enabling circuits							
24	24	A	**3SK1 111-1AB30**		A	**3SK1 111-2AB30**	
110 … 240	110 … 240	A	**3SK1 111-1AW20**		A	**3SK1 111-2AW20**	
Standard basic units with 2 safety-oriented semiconductor outputs							
--	24	A	**3SK1 112-1BB40**		A	**3SK1 112-2BB40**	

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

Overview

3SK1 12 Advanced basic units

The 3SK1 12 Advanced basic units form an innovative system landscape which allows even complex safety functions with large numbers of sensors and outputs to be configured using the device connectors. It is possible to increase both the number of inputs for sensors and the number of enabling circuits of the basic unit without the need for wiring between the devices.

Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41L

3SK1 121-1AB40

3SK1 122-1AB40

3SK1 122-1CB41

Rated control supply voltage U_s at DC	Adjustable off-delay time	Number of outputs				DT	Screw terminals		DT	Spring-type terminals (push-in)	
		Relay contacts		Semiconductor outputs			Order No.	Price per PU		Order No.	Price per PU
		Instantaneous	Delayed	Instantaneous	Delayed						
V	s										
Advanced basic units with relay outputs											
24	--	3	--	--	--	A	**3SK1 121-1AB40**		A	**3SK1 121-2AB40**	
24	0.05 … 3	2	2	--	--	A	**3SK1 121-1CB41**		B	**3SK1 121-2CB41**	
24	0,5 … 30	2	2	--	--	A	**3SK1 121-1CB42**		A	**3SK1 121-2CB42**	
24	5 … 300	2	2	--	--	B	**3SK1 121-1CB44**		B	**3SK1 121-2CB44**	
Advanced basic units with semiconductor outputs											
24	--	--	--	1	--	A	**3SK1 120-1AB40**		A	**3SK1 120-2AB40**	
24	--	--	--	3	--	A	**3SK1 122-1AB40**		A	**3SK1 122-2AB40**	
24	0.05 … 3	--	--	2	2	B	**3SK1 122-1CB41**		B	**3SK1 122-2CB41**	
24	0,5 … 30	--	--	2	2	A	**3SK1 122-1CB42**		A	**3SK1 122-2CB42**	
24	5 … 300	--	--	2	2	B	**3SK1 122-1CB44**		B	**3SK1 122-2CB44**	

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

Output expansions

Overview

3SK1 21 output expansion

The 3SK1 21 output expansions can be used for Standard and Advanced basic units.

3SK1 211 output expansion

The 3SK1 211 output expansion is used to expand the enabling circuits of a basic unit by adding another four enabling circuits. These enabling circuits have a switching capacity of AC-15 4 A at a switching voltage of 230 V. The devices can be connected to any 3SK1 basic unit by means of wiring. In addition the devices with a 24 V DC control supply voltage can also be connected to 3SK1 Advanced basic units by means of the 3ZY1 2 device connector.

3SK1 213 output expansion

The 3SK1 213 output expansion is used to expand the enabling circuits of a basic unit by adding three enabling circuits with high switching capacity. These enabling circuits have a switching capacity of AC-15 10 A at a switching voltage of 230 V. The devices can be connected to any 3SK1 basic unit by means of wiring. As with 3SK1 211, it is also possible to use the version with a control supply voltage of 24 V DC on the 3ZY1 2 device connector.

Note:

It is only possible to expand the Standard basic units by means of wiring. Advanced basic units can be expanded using the 3ZY1 2 device connector.

Benefits

- Perfect adaptation of the number of outputs
- Simple expansion of instantaneous and time-delayed outputs of Advanced basic units by means of device connector and slide switch on expansion module
- Expansion with power contacts for high AC-15/DC-13 currents in the control circuit
- No enabling circuit required in the evaluation unit to control the expansion modules
- No wiring of the feedback circuit to the expansion units
- Shorter installation times
- Less configuring and testing required

Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41L

3SK1 211-1BB00

3SK1 213-1AB40

Rated control supply voltage U_s		Number of outputs, switching instanta-neously	Switching capacity current		Suitability for use of 3ZY1 2 device connector	DT	Screw terminals	DT	Spring-type terminals (push-in)
At 50 Hz At AC	at DC		at AC-15 at 230 V	at DC-13 at 24 V			Order No. Price per PU		Order No. Price per PU
V	V		A	A					
4RO output expansions									
24	--	4	4	4	--	B	**3SK1 211-1BB00**	A	**3SK1 211-2BB00**
--	24	4	4	4	✓	A	**3SK1 211-1BB40**	A	**3SK1 211-2BB40**
110 ... 240	110 ... 240	4	4	4	--	A	**3SK1 211-1BW20**	B	**3SK1 211-2BW20**
3RO output expansions									
--	24	3	10	10	✓	A	**3SK1 213-1AB40**	A	**3SK1 213-2AB40**
115	--	3	10	10	--	B	**3SK1 213-1AJ20**	B	**3SK1 213-2AJ20**
230	--	3	10	10	--	B	**3SK1 213-1AL20**	B	**3SK1 213-2AL20**

✓ Available
-- Not available

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

Overview

3SK1 220 sensor expansion

With the input expansions

- 3SK1 220 sensor expansion
- 3SK1 230 power supply

the Advanced basic units can be made more flexible.

3SK1 220 input expansion

The 3SK1 220 input expansion allows additional sensors to be integrated easily and flexibly. The device monitors two 1-channel sensors or one 2-channel sensor, whatever their output technology (floating/single-ended).

3SK1 230 power supply

The 3SK1 230 power supply makes the 3SK1 devices universally usable, whatever control supply voltage is to be used.

Both devices can be combined with the 3SK1 12 basic units in the Advanced series without the need for wiring.

Note:

The 3SK1 220 sensor expansion can only be connected to the Advanced basic units by means of the 3ZY1 2 device connector.

Alongside the 3ZY1 2 device connector, the 3SK1 230 power supply can also be wired to act as a power supply for 3SK1 devices.

Benefits

- A wide voltage range of 110 ... 240 V AC/DC allows the devices to be used worldwide
- Low stock keeping due to low variance
- Flexible expansion of the number of sensors without the need for additional wiring between the devices
- Perfect adaptation of the number of inputs to suit the application
- Universally usable thanks to the wide range of adjustable parameters for sensor expansion (parameters as for Advanced basic units)

Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41L

3SK1 220-1AB40

3SK1 230-1AW20

Version	DT	Screw terminals Order No.	Price per PU	DT	Spring-type terminals (push-in) Order No.	Price per PU
3SK1 220 input expansions						
Sensor expansions For safety-oriented expansion of the Advanced basic units by adding a further two-channel sensor or two single-channel sensors Note: Can only be used in conjunction with 3ZY1 2 device connectors, see page 11/20.	A	**3SK1 220-1AB40**		A	**3SK1 220-2AB40**	
3SK1 230 power supplies						
Power supplies For supplying Advanced basic units via 3ZY1 2 device connectors at voltages of 110 ... 240 V AC/DC	A	**3SK1 230-1AW20**		A	**3SK1 230-2AW20**	

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

Accessories

Overview

The following accessories are available for SIRIUS 3SK1 safety relays:

- Device connectors
- Terminals
- Sealable covers
- Push-in lugs
- Adapters
- Connection cables
- Inscription labels
- Tools

Device connectors for 3SK1 12. and 3SK1 2..

The device connector allows several safety relays to be interconnected. The last device in a row is placed on a device termination connector. This closes the circuits that were configured with the connectors.

Device connectors are available in various versions specifically for the 3SK1 safety relays:

For type	Device connectors		Device termination connectors	
	3ZY1 212-1BA00 (type 1, width 17.5 mm)	**3ZY1 212-2BA00** (type 1, width 22.5 mm)	**3ZY1 212-2DA00** (type 1, width 22.5 mm)	**3ZY1 212-0FA01** (type 2, set for enclosure 45 mm)
3SK1 Advanced basic units				
3SK1 120	✓	--	--	--
3SK1 121	--	✓	✓	--
3SK1 122	--	✓	✓	--
Output expansions				
3SK1 211	--	✓	✓	--
3SK1 213	--	--	--	✓
Input expansions				
3SK1 220	✓	--	--	--
3SK1 230	--	✓	--	--

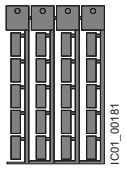
✓ Available

-- Not available

Selection and ordering data

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Device connectors for the electrical connection of SIRIUS devices in the industrial enclosure for fixing on TH 35 standard mounting rail						
 3ZY1 212-1BA00						
Device connectors						
• Type 1, 7-pole, 17.5 mm wide	A	**3ZY1 212-1BA00**		1	1 unit	41L
• Type 1, 7-pole, 22.5 mm wide	A	**3ZY1 212-2BA00**		1	1 unit	41L
• No function, width 22.5 mm	X	**3ZY1 210-2AA00**		1	1 unit	41L
 3ZY1 212-2DA00						
Device termination connectors						
• Type 1, 7-pole, 22.5 mm wide	A	**3ZY1 212-2DA00**		1	1 unit	41L
• Type 2, 7-pole, 22.5 mm wide	A	**3ZY1 212-2FA00**		1	1 unit	41L
Device termination connector set Type 2, 7-pole, width > 45 mm, comprising 3ZY1 212-2FA00 and 3ZY1 210-2AA00	A	**3ZY1 212-0FA01**		1	1 unit	41L
Terminals for SIRIUS devices in the industrial enclosure for fixing on TH 35 standard mounting rail						
 3ZY1 121-1BA00						
Removable terminals						
• 2-pole, screw terminals up to 2 x 1.5 mm² or 1 x 2.5 mm²	A	**3ZY1 121-1BA00**		1	6 units	41L
• 2-pole, screw terminals up to max. 2 x 2.5 mm² or 1 x 4 mm²	A	**3ZY1 122-1BA00**		1	6 units	41L
• 3-pole, screw terminals up to max. 2 x 1.5 mm² or 1 x 2.5 mm²	A	**3ZY1 131-1BA00**		1	6 units	41L
• 2-pole, push-in terminals up to max. 2 x 1.5 mm²	A	**3ZY1 121-2BA00**		1	6 units	41L
• 2-pole, push-in terminals up to max. 2 x 2.5 mm² or 1 x 4 mm²	A	**3ZY1 122-2BA00**		1	6 units	41L
• 3-pole, push-in terminals up to max. 2 x 1.5 mm²	A	**3ZY1 131-2BA00**		1	6 units	41L

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

	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Enclosure accessories							
3ZY1 321-2AA00	**Sealable covers**						
	• 17.5 mm (for 3SK1 120 and 3SK1 220)	A	**3ZY1 321-1AA00**		1	5 units	41L
	• 22.5 mm (for all 3SK1 devices other than 3SK1 120 and 3SK1 220)	A	**3ZY1 321-2AA00**		1	5 units	41L
 3ZY 1311-0AA00	**Push-in lugs** for wall mounting	A	**3ZY1 311-0AA00**		1	10 units	41L
Adapters and connection cables							
	Adapters for connecting encoders of type Siemens/Heidenhain						
 3TK28 10-1A	• 15-pole	A	**3TK28 10-1A**		1	1 unit	41L
 3TK28 10-1B	• 25-pole	A	**3TK28 10-1B**		1	1 unit	41L
 3TK28 10-0A	**Connection cables** for connecting the safety relay to the 3TK28 10-1A or 3TK28 10-1B adapter	C	**3TK28 10-0A**		1	1 unit	41L
Blank inscription labels							
 3RT29 00-1SB20	**Unit labeling plates** for SIRIUS devices 20 mm x 7 mm, titanium gray[1)]	D	**3RT29 00-1SB20**		100	340 units	41B
Tools for opening spring-type terminals							
 3RA29 08-1A	**Screwdrivers** for all SIRIUS devices with spring-type terminals; 3.0 mm x 0.5 mm; length approx. 200 mm; titanium gray/black, partially insulated		**Spring-type terminals**				
		A	**3RA29 08-1A**		1	1 unit	41B

1) PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH
see Catalog IC 10, Chapter 16, "Appendix" → "External Partners".

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

General data

Overview

SIRIUS 3RK3 Modular Safety System

The 3RK3 Modular Safety System (MSS) is a freely parameterizable modular safety relay. Depending on the external circuit version, safety-oriented applications up to Performance Level e according to EN ISO 13849-1 or SIL 3 according to IEC 62061 can be realized.

The modular safety relay enables the interconnection of several safety applications.

The comprehensive error and status diagnostics provides the possibility of finding errors in the system and localizing signals from sensors. Plant downtimes can be reduced as the result.

The MSS comprises the following system components:

- Central units
- Expansion modules
- Interface modules
- Diagnostics modules
- Parameterization software
- Accessories

Central units

MSS Basic

The 3RK3 Basic central unit is used wherever more than three safety functions need to be evaluated and the wiring parameterization of safety relays would involve great cost and effort. It reads in inputs, controls outputs and communicates through an interface module with higher-level control systems. An application's entire safety program is processed in the central unit. The 3RK3 Basic central unit is the lowest expansion level and fully functional on its own, without the optional expansion modules.

MSS Advanced

The 3RK3 Advanced central unit is the consistent expansion of the Basic central unit with the functionality of an AS-i safety monitor. In addition to having a larger volume of project data and scope of functionality, it can be integrated into AS-Interface and therefore makes use of the many different possibilities offered by this bus system. The function can be optionally activated in the central unit.

The service-proven insulation piercing method of AS-Interface enables not only the distributed expansion of the project data volume using safe AS-i outputs, safe AS-i sensors and other MSS Advanced or safety monitors (F cross traffic) but also a highly flexible adaptation of the application, e.g. very fast connection of AS-i outputs, LV HRC command devices, position switches with and without interlocking, or light arrays.

Safety-oriented disconnection using MSS or by distributed means using safe AS-i outputs and the formation of switch-off groups can be implemented very easily. The same applies for any subsequent modifications. They are now easily possible by re-addressing, i.e. re-wiring is no longer necessary.

The AS-i bus is connected directly to the central unit.

MSS ASIsafe

The MSS ASIsafe basic and MSS ASIsafe extended central units are a logical development of the AS-i safety monitors based on the 3RK3 Modular Safety System.

Like MSS Advanced, MSS ASIsafe detects – in a comparable way to the safety monitors – safe sensor technology on the AS-i bus and switches actuators off in a safety-oriented manner via a configurable safety logic. It stands out by virtue of its greater project data volume, wider range of functions and the possibility of increasing the the integrated I/O project data volume by means of expansion modules from the MSS system family. In this case the range of functions, such as the number and type of the logic elements that can be interconnected, is equivalent to that of MSS Advanced.

Expansion modules

With the optional expansion modules, both safety-related and standard, the system is flexibly adapted to the required safety applications.

Interface modules

The DP interface module is used for transferring diagnostics data and device status data to a higher-level PROFIBUS network, e.g. for purposes of visualization via HMI. When using the Basic central unit, 32-bit cyclic data can be exchanged with the control system. If an Advanced/ASIsafe central unit is used, the number is doubled to 64-bit cycle data. The acyclic calling of diagnostics data is possible with both central units.

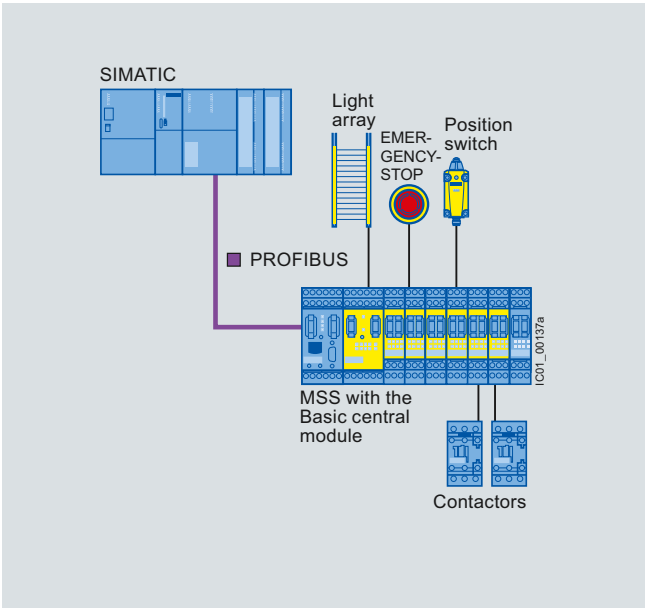
Diagnostics modules

Faults like a cross-circuit, for instance, are displayed directly on the diagnostic display. The fault is diagnosed directly in plain text by the detailed alarm message. The device is fully functional upon delivery. No programming is required.

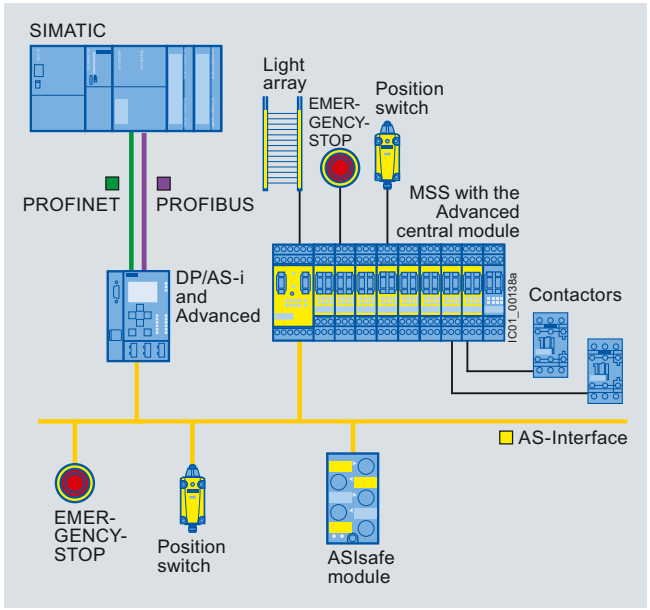
Parameterization software

Using the MSS ES graphical parameterization tool it is very easy to create the safety functions as well as their logical links on the PC. You can define disconnection ranges, ON-delays, OFF-delays and other dependent factors, for example.

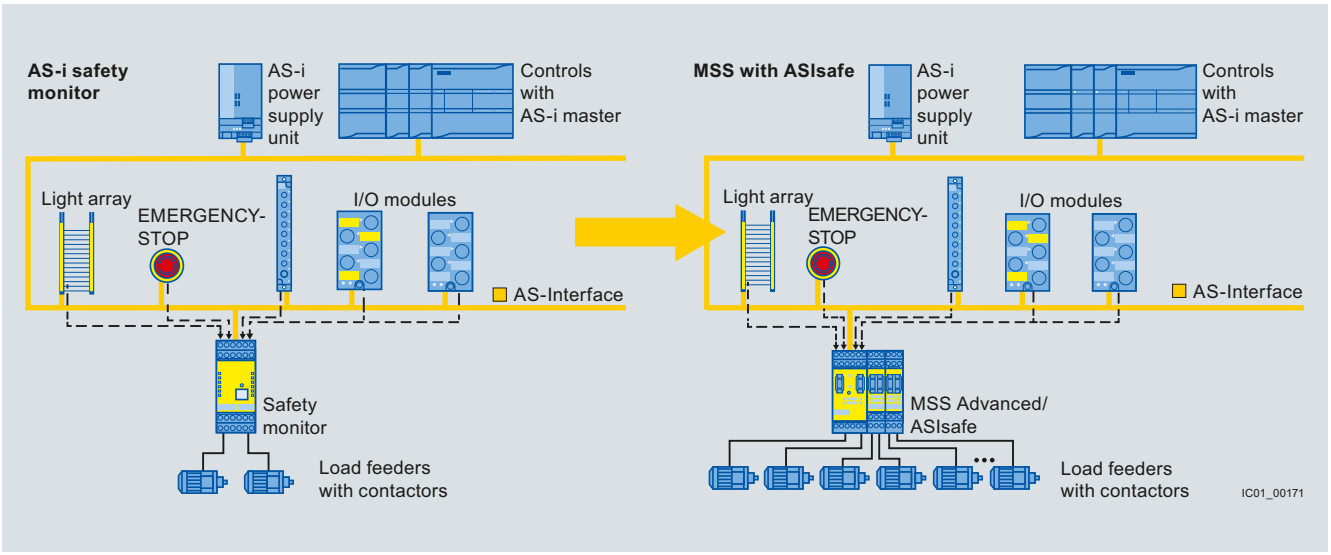
MSS ES also offers comprehensive functions for diagnostics and commissioning. Documentation of the MSS hardware layout and the parameterized logic is drawn up automatically.



System configuration with the Basic central unit

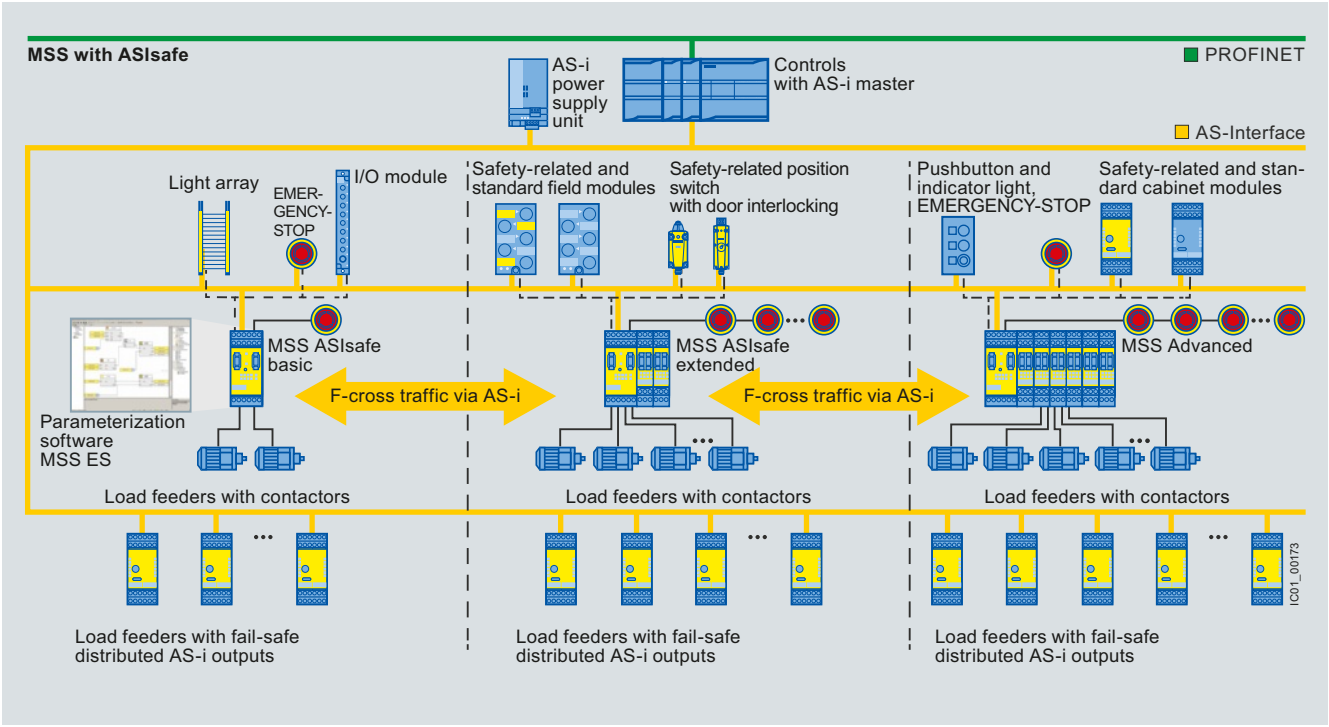


System configuration with the Advanced central unit



Further development of the system design: from the safety monitor to MSS Advanced/MSS ASIsafe

General data



MSS with ASIsafe

Order No. scheme

Digit of the Order No.	1st - 4th	5th	6th	7th		8th	9th	10th	11th	12th
	□□□□	□	□	□	–	□	□	□	□	□
Modular safety system	**3 R K 3**									
Device type		□								
Device type			□	□						
Connection type						□				
Communications							□	□	□	
Version										□
Example	**3 R K 3**	**1**	**1**	**1**	**–**	**1**	**A**	**A**	**1**	**0**

Note:

The Order No. scheme is presented here merely for information purposes and for better understanding of the logic behind the order numbers.

For your orders, please use the order numbers quoted in the catalog in the selection and ordering data.

Benefits

- More functionality and flexibility through freely configurable safety logic
- Suitable for all safety applications thanks to compliance with the highest safety standards in factory automation
- For use all over the world through compliance with all product-relevant, globally established certifications
- Modular hardware configuration
- Parameterization by means of software instead of wiring
- Removable terminals for greater plant availability
- Distributed collection from sensors and disconnection of actuators through AS-Interface
- All MSS ES logic functions are also usable for AS-Interface, e. g. muting, protective door with interlocking
- Up to 12 independent safe switch-off groups on the AS-i bus
- Volume of project data can be greatly increased by means of AS-Interface
- Up to 50 two-channel enabling circuits per system

Communication through PROFIBUS

The 3RK3 Modular Safety System can be connected to PROFIBUS through the DP interface and can exchange data with higher-level control systems.

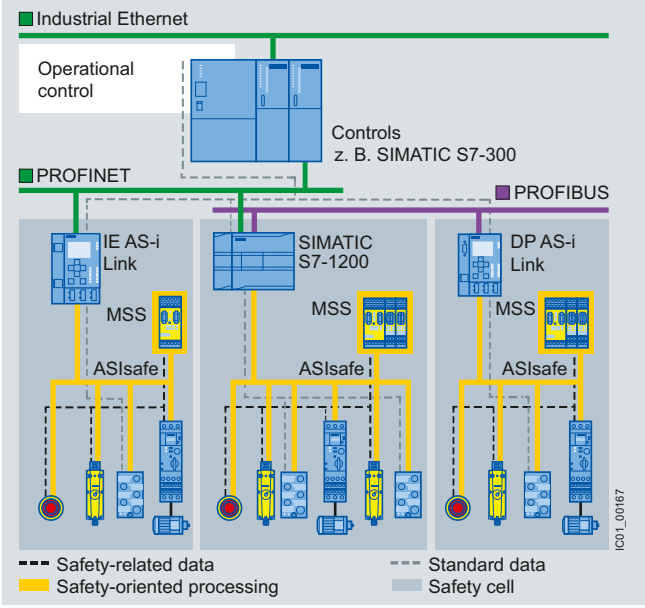
The MSS supports among other things:

- Baud rates up to 12 Mbit/s
- Automatic baud rate detection
- Cyclic services (DPV0) and acyclic services (DPV1)
- Exchange of 32-bit cyclic data with MSS Basic or 64-bit cyclic data with MSS Advanced/MSS ASIsafe
- Diagnostics using data record invocations

AS-Interface communication

The 3RK3 Modular Safety System can be integrated into AS-Interface with the Advanced and ASIsafe central units.

- MSS can read in up to 31 AS-i sensors
- Up to 12 preprocessed signals per MSS can be placed on the AS-i bus, e.g. for F-cross traffic or for disconnecting safe AS-i outputs
- Safe cross-traffic between MSS Advanced and MSS ASIsafe or with other AS-i safety monitors
- Standard signals, e.g. for acknowledgement, can also be placed on the bus



Integration of MSS into AS-Interface as ASIsafe Solution local

MSS with communication function see page 11/29 onwards.

Accessories see page 11/31 onwards.

For more information on AS-Interface with ASIsafe, see also Catalog IC 10, Chapter 2, "Industrial Communication".

For more information about MSS ES, see also Catalog IC 10, Chapter 14, "Parameter Assignment, Configuration and Visualization for SIRIUS".

General data

Application

The 3RK3 Modular Safety System can be used for all safety-oriented requirements in the manufacturing industry and offers the following safety functions:

	Symbol	MSS Basic	MSS Advanced, MSS ASIsafe
Monitoring functions			
Universal monitoring Evaluation of any binary signals from single-channel and two-channel sensors		--	✓
EMERGENCY-STOP Evaluation of EMERGENCY-STOP devices with positive-opening contacts		✓	✓
Safety shutdown mats Evaluation of safety shutdown mats with NC contacts and/or cross-circuit detection		✓	✓
Protective door monitoring Evaluation of protective door signals and/or protective flap signals		✓	✓
Protective door interlocking mechanism Evaluation of protective doors with interlocking and locking/unlocking of this device		--	✓
Enabling switches Evaluation of OK buttons with NO contact		✓	✓
Two-hand operator controls Evaluation of two-hand operation consoles		✓	✓
ESPE monitoring Evaluation of electro-sensitive protective equipment such as light arrays and laser scanners		✓	✓
Muting Short-time bridging of electro-sensitive protective equipment, 2/4 sensors in parallel, 4 sensors sequentially		--	✓
Operating mode selector switches Evaluation of operating mode selector switches with NO contacts		✓	✓
Monitoring of AS-i (AS-i 2F-DI) Logic element for monitoring of AS-i input slaves		--	✓

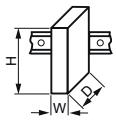
	Symbol	MSS Basic	MSS Advanced, MSS ASIsafe
Logic operation functions			
AND		✓	✓
OR		✓	✓
XOR		✓	✓
NAND		✓	✓
NOR		✓	✓
Negation		✓	✓
Flip-flop		✓	✓
Counter functions			
Counter 0 -> 1		✓	✓
Counter 1 -> 0		✓	✓
Counter 0 -> 1/1 -> 0		✓	✓
Timer functions			
With ON-delay		✓	✓
Passing make contact		✓	✓
With OFF-delay		✓	✓
Clock pulsing		✓	✓
Start functions			
Monitored start		✓	✓
Manual start		✓	✓
Output functions			
Standard output		✓	✓
F output		✓	✓
AS-i output function		--	✓
Status functions			
Element status		--	✓

✓ Available

-- Not available

Technical specifications

Central units and expansion modules

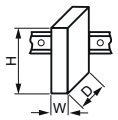
Type		Central units				Expansion modules						
		Basic	Advanced	ASIsafe basic	ASIsafe extended	4/8F-DI	2/4 F-DI 1/2 F-RO	2/4 F-DI 2F-DO	4/8 F-RO	4 F-DO	8 DI	8 DO
Dimensions (W x H x D)												
												
• Screw terminals	mm	45 x 111 x 124				22.5 x 111 x 124			45 x 111 x 124	22.5 x 111 x 124		
• Spring-type terminals	mm	45 x 113 x 124				22.5 x 113 x 124			45 x 113 x 124	22.5 x 113 x 124		
Device data												
Shock resistance (sine pulse)	*g*/ms	15/11										
Touch protection according to EN 50274 and IEC 60529		IP20										
Permissible mounting position		Vertical mounting surface (+10°/-10°), deviating mounting positions are permitted for reduced ambient temperature										
Minimum distances		For heat dissipation through convection from the devices 25 mm to the ventilation openings (top and bottom)										
Permissible ambient temperature												
• During operation	°C	-20 ... +60										
• During storage and transport	°C	-40 ... +85										
Number of sensor inputs (single-channel)												
• Fail-safe		--	--	2	4	8	4	4	--	--	--	--
• Not fail-safe		8	8	6	4	--	--	--	--	--	8	8
Number of test outputs		2	2	2	2	2	2	2	--	--	--	--
Number of outputs												
• Relay outputs												
- Single channel		--	--	--	--	--	2	--	8	--	--	--
- Two-channel		1	1	1	1	--	--	--	--	--	--	--
• Solid-state outputs												
- Single channel		--	--	--	--	--	--	--	--	--	--	8
- Two-channel		1	1	1	1	--	--	2	--	4	--	--
Weight	g	300	300	300	300	160	160	160	400	135	125	160
Installation altitude above sea level	m	2 000										
Environmental data												
EMC interference immunity		IEC 60947-5-1										
Vibrations												
• Frequency	Hz	5 ... 500										
• Amplitude	mm	0.75										
Climatic withstand capability		IEC 60068-2-78										
Electrical specifications												
Rated control supply voltage U_s according to IEC 61131-2	V	24 DC ±15 %[1]										
Operating range		0.85 ... 1.15 x U_s										
Rated insulation voltage U_i	V	300	300	300	300	50	300	50	300	50	50	50
Rated impulse voltage U_{imp}	kV	4	4	4	4	0,5	4	0,5	4	0,5	0,5	0,5
Total current consumption	mA	185	185	185	185	60	85	85	140	8	78	60
Rated power at U_s	W	4.5	4.5	4.5	4.5	1.5	2	2	3	4.8	1.9	1.5
Utilization categories acc. to IEC 60947-5-1 (relay outputs)												
• AC-15 at 230 V	A	2	2	2	2	--	2	--	2	--	--	--
• DC-13 at 24 V	A	1	1	1	1	--	1	--	1	--	--	--
(semiconductor outputs)												
• DC-13 at 24 V	A	1.5	1.5	1.5	1.5	--	--	1	--	2	--	0.5
Mechanical endurance During rated operation	Operating cycles (relay)	10 x 10^6	10 x 10^6	10 x 10^6	10 x 10^6	--	10 x 10^6	--	10 x 10^6	--	--	--

[1] Device current supply through a power supply unit acc. to IEC 60536 protection class (SELV or PELV).

General data

Type		Central units				Expansion modules						
		Basic	Advanced	ASIsafe basic	ASIsafe extended	4/8F-DI	2/4 F-DI 1/2 F-RO	2/4 F-DI 2F-DO	4/8 F-RO	4 F-DO	8 DI	8 DO
Electrical specifications (cont.)												
Switching frequency z for rated operational current	1/h	1 000	1 000	1 000	1 000	--	1 000	1 000	360	1 000	--	1 000
Conventional thermal current I_{th}	A	2/1.5	2/1.5	2/1.5	2/1.5	--	1	1	3	2	--	0.5
Protection for output contacts Fuse links LV HRC Type 3NA, DIAZED Type 5SB, NEOZED Type 5SE												
• Operational class gG	A	4	4	4	4	--	4	--	4	--	--	--
• Operational class quick response	A	6	6	6	6	--	6	--	6	--	--	--
Safety specifications												
Probability of a dangerous failure												
• Per hour (PFH_d)	1/h	5.14×10^{-9}	2.8×10^{-9}	2.8×10^{-9}	2.8×10^{-9}	1.89×10^{-9}	3.79×10^{-9}	2.7×10^{-9}	7.15×10^{-9}	3.18×10^{-9}	--	--
• On demand (PFD)	1/h	1.28×10^{-5}	1.7×10^{-4}	1.7×10^{-4}	1.7×10^{-4}	4.29×10^{-6}	5.85×10^{-6}	8.34×10^{-6}	4.36×10^{-5}	2.2×10^{-5}	--	--
Parameters for cables												
Line resistance	Ω	100	100	100	100	100	100	100	--	--	100	--
Cable length from terminal to terminal With Cu 1.5 mm^2 and 150 nF/km	m	1 000	1 000	1 000	1 000	1 000	1 000	1 000	--	--	1 000	--
Conductor capacity	nF	330	330	330	330	330	330	330	--	--	330	--

Interface and diagnostics modules

Type		Interface modules	Diagnostics modules
Dimensions (W x H x D) 			
• Screw terminals	mm	45 x 111 x 124	96 x 60 x 44
• Spring-type terminals	mm	45 x 113 x 124	--
Device data			
Shock resistance (sine pulse)	*g*/ms	15/11	
Touch protection according to EN 50274 and IEC 60529		IP20	
Permissible mounting position		Vertical mounting surface (+10°/-10°), deviating mounting positions are permitted for reduced ambient temperature	
Minimum distances		For heat dissipation through convection from the devices 25 mm to the ventilation openings (top and bottom)	
Permissible ambient temperature			
• During operation	°C	-20 ... +60	
• During storage and transport	°C	-40 ... +85	
Weight	g	270	90
Installation altitude above sea level	m	2 000	
Environmental data			
EMC interference immunity		IEC 60947-5-1	
Vibrations			
• Frequency	Hz	5 ... 500	
• Amplitude	mm	0.75	
Climatic withstand capability		IEC 60068-2-78	
Electrical specifications			
Rated control supply voltage U_s according to IEC 61131-2	V	24 DC ±15 %	24 DC ±15 % via connecting cable to the central unit
Operating range		0.85 ... 1.15 x U_s	
Rated insulation voltage U_i	V	50	
Rated impulse voltage U_{imp}	kV	0,5	
Total current consumption	mA	--	24
Rated power at U_s	W	--	0.6

More information

System manual "3RK3 Modular Safety System" see http://support.automation.siemens.com/WW/view/en/26493228.

Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42B

3RK3 111-1AA10

3RK3 121-1AC00
3RK3 122-1AC00
3RK3 131-1AC10

Version	DT	Screw terminals Order No.	Price per PU	DT	Spring-type terminals Order No.	Price per PU
Central units						
3RK3 Basic Central unit with safety-oriented inputs and outputs • 8 non-fail-safe inputs • 1 two-channel relay output • 1 two-channel solid-state output Max. 7 expansion modules can be connected Note: Memory module 3RK3 931-0AA00 is included in the scope of supply.	A	**3RK3 111-1AA10**		A	**3RK3 111-2AA10**	
3RK3 Advanced Central units for connecting to AS-Interface with safety-oriented inputs and outputs and extended scope of functions • 8 non-fail-safe inputs • 1 two-channel relay output • 1 two-channel solid-state output Max. 9 expansion modules can be connected Note: Memory module 3RK3 931-0AA00 is included in the scope of supply.	A	**3RK3 131-1AC10**		A	**3RK3 131-2AC10**	
3RK3 ASIsafe basic Central units for connecting to AS-Interface with safety-oriented inputs and outputs and extended scope of functions • 2 fail-safe inputs • 6 non-fail-safe inputs • 1 two-channel relay output • 1 two-channel solid-state output No expansion modules can be connected Note: Memory module 3RK3 931-0AA00 is included in the scope of supply.	A	**3RK3 121-1AC00**		A	**3RK3 121-2AC00**	
3RK3 ASIsafe extended Central units for connecting to AS-Interface with safety-oriented inputs and outputs and extended scope of functions • 4 fail-safe inputs • 4 non-fail-safe inputs • 1 two-channel relay output • 1 two-channel solid-state output Max. 2 expansion modules can be connected Note: Memory module 3RK3 931-0AA00 is included in the scope of supply.	A	**3RK3 122-1AC00**		A	**3RK3 122-2AC00**	

Note:

More information see Catalog IC 10, Chapter 2, "Industrial Communication" and on the Internet at www.siemens.com/sirius-mss.

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

Expansion modules, interface modules, operating and monitoring modules

Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42B

3RK3 211-1AA10
3RK3 221-1AA10
3RK3 231-1AA10
3RK3 242-1AA10

3RK3 251-1AA10

3RK3 311-1AA10
3RK3 321-1AA10

3RK3 511-1BA10

3RK3 611-3AA00

Version	DT	Screw terminals Order No.	Price per PU	DT	Spring-type terminals Order No.	Price per PU
Expansion modules						
4/8 F-DI Safety-related input modules • 8 inputs	A	**3RK3 211-1AA10**		A	**3RK3 211-2AA10**	
2/4 F-DI 1/2 F-RO Safety-related input/output modules • 4 inputs • 2 single-channel relay outputs	A	**3RK3 221-1AA10**		A	**3RK3 221-2AA10**	
2/4 F-DI 2F-DO Safety-related input/output modules • 4 inputs • 2 two-channel solid-state outputs	A	**3RK3 231-1AA10**		A	**3RK3 231-2AA10**	
4/8 F-RO Safety-oriented output modules • 8 single-channel relay outputs	A	**3RK3 251-1AA10**		A	**3RK3 251-2AA10**	
4 F-DO Safety-oriented output modules • 4 two-channel solid-state outputs	A	**3RK3 242-1AA10**		A	**3RK3 242-2AA10**	
8 DI Standard input module • 8 inputs	A	**3RK3 321-1AA10**		A	**3RK3 321-2AA10**	
8 DO Standard output module • 8 solid-state outputs	A	**3RK3 311-1AA10**		A	**3RK3 311-2AA10**	
Interface modules						
DP interface PROFIBUS DP interface, 12 Mbit/s, RS 485, 32-bit cyclic data exchange with Basic central unit or 64-bit with Advanced central unit, acyclic exchange of diagnostics data	A	**3RK3 511-1BA10**		A	**3RK3 511-2BA10**	
Operating and monitoring modules						
Diagnostics module	A	**3RK3 611-3AA00**			**--**	

Note:

Connection cable required, see page 11/31.

More information see Catalog IC 10, Chapter 2, "Industrial Communication" and on the Internet at www.siemens.com/sirius-mss.

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

Selection and ordering data

Version			DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Connection cables (essential accessory)								
Connection cables								
For connection of								
Central units with expansion modules or interface module	Diagnostics modules with central unit or interface module							
✓	✓	• Length 0.025 m (flat)	►	**3UF7 930-0AA00-0**		1	1 unit	42J
--	✓	• Length 0.1 m (flat)	►	**3UF7 931-0AA00-0**		1	1 unit	42J
--	✓	• Length 0.3 m (flat)	►	**3UF7 935-0AA00-0**		1	1 unit	42J
--	✓	• Length 0.5 m (flat)	►	**3UF7 932-0AA00-0**		1	1 unit	42J
--	✓	• Length 0.5 m (round)	►	**3UF7 932-0BA00-0**		1	1 unit	42J
--	✓	• Length 1.0 m (round)	►	**3UF7 937-0BA00-0**		1	1 unit	42J
--	✓	• Length 2.5 m (round)	►	**3UF7 933-0BA00-0**		1	1 unit	42J
PC cables and adapters								
PC cables			►	**3UF7 940-0AA00-0**		1	1 unit	42J
For connecting to the serial interface of a PC/PG, for communication with 3RK3 through the system interface								
USB PC cables			►	**3UF7 941-0AA00-0**		1	1 unit	42J
For connecting to the USB interface of a PC/PG, for communication with 3RK3 through the system interface, recommended for use in connection with 3RK3								
USB/serial adapters			B	**3UF7 946-0AA00-0**		1	1 unit	42J
For connecting the RS 232 PC cable to the USB interface of a PC								
Interface covers								
Interface covers			►	**3UF7 950-0AA00-0**		1	5 units	42J
For system interface								
Memory modules								
Memory modules			A	**3RK3 931-0AA00**		1	1 unit	42C
For backing up the complete parameterization of the 3RK3 Modular Safety System without a PC/PG through the system interface								
Door adapters								
Door adapters			►	**3UF7 920-0AA00-0**		1	1 unit	42J
For external connection of the system interface, e.g. outside a control cabinet								
Push-in lugs								
Push-in lugs for screw fixing								
e.g. on mounting plate, 2 units required per device								
Can be used for 3RK3			B	**3RP19 03**		1	10 units	41H
Manuals								
Manuals for the 3RK3 Modular Safety System (MSS)								
		• German	C	**3ZX1 012-0RK31-1AB1**		1	1 unit	4N1
		• English	C	**3ZX1 012-0RK31-1AC1**		1	1 unit	4N1

3UF7 932-0AA00-0

3UF7 940-0AA00-0

3UF7 950-0AA00-0

3RK3 931-0AA00

3UF7 920-0AA00-0

3RP19 03

✓ Available

-- Not available

More accessories see Catalog IC 10, Chapter 2 "Industrial Communication".

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

Illustrations similar

Accessories

Parameterization, startup and diagnostics software for 3RK3

- Runs under Windows XP Professional (Service Pack 2 or 3), Windows 7 32/64 Bit Professional/Ultimate/Enterprise (Service Pack 1)
- Delivered without PC cable (please order separately, see page 11/31)

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Modular Safety System ES 2008 Basic						
 3ZS1 314-4CC10-0YA5						
Floating license for one user Engineering software in limited-function version for diagnostics purposes, software and documentation on CD, 3 languages (German/English/French), communication through the system interface						
• License key on USB stick, Class A	A	**3ZS1 314-4CC10-0YA5**		1	1 unit	42B
• License key download, Class A	►	**3ZS1 314-4CE10-0YB5**		1	1 unit	42B
Modular Safety System ES 2008 Standard						
 3ZS1 314-5CC10-0YA5						
Floating license for one user Engineering software, software and documentation on CD, 3 languages (German/English/French), communication through system interface						
• License key on USB stick, Class A	B	**3ZS1 314-5CC10-0YA5**		1	1 unit	42B
• License key download, Class A	►	**3ZS1 314-5CE10-0YB5**		1	1 unit	42B
Powerpack for MSS ES 2008 Basic to Standard Floating license for one user, engineering software, license key on USB stick, Class A, 3 languages (German/English/French), communication through the system interface	A	**3ZS1 314-5CC10-0YD5**		1	1 unit	42B
Software Update Service For 1 year with automatic extension, assuming the current software version is in use, engineering software, software and documentation on CD, communication through the system interface	►	**3ZS1 314-5CC10-0YL5**		1	1 unit	42B
Modular Safety System ES 2008 Premium						
 3ZS1 314-6CC10-0YA5						
Floating license for one user Engineering software, software and documentation on CD, 3 languages (German/English/French), communication through PROFIBUS or the system interface, online diagnostics via PROFIBUS, creating, importing and exporting macros						
• License key on USB stick, Class A	B	**3ZS1 314-6CC10-0YA5**		1	1 unit	42B
• License key download, Class A	►	**3ZS1 314-6CE10-0YB5**		1	1 unit	42B
Powerpack for MSS ES 2008 Standard to Premium Floating license for one user, engineering software, license key on USB stick, Class A, 3 languages (German/English/French), communication through PROFIBUS or the system interface, online diagnostics via PROFIBUS, creating, importing and exporting macros	A	**3ZS1 314-6CC10-0YD5**		1	1 unit	42B
Software Update Service For 1 year with automatic extension, assuming the current software version is in use, engineering software, software and documentation on CD, communication through PROFIBUS or the system interface, online diagnostics via PROFIBUS, creating, importing and exporting macros	►	**3ZS1 314-6CC10-0YL5**		1	1 unit	42B

Note:

Description of the software versions see Catalog IC 10, Chapter 14, "Planning, Configuration and Visualizing for SIRIUS".

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

Products for Specific Requirements

15

15/2 **Introduction**

Stabilized Power Supplies

SITOP Power Supply

15/8 SITOP lite, single-phase new

15/9 SITOP smart, single-phase and three-phase new

15/10 SITOP modular, single-phase, two-phase and three-phase new

15/11 Expansion modules new

Heating Control Systems

SIPLUS HCS716I Heating Control Systems

15/13 General data

15/14 Racks new

Introduction

Overview

Single-phase transformers

4AM

4AT

Version	Rated power kVA	Rated input voltage V AC	Rated output voltage V AC	Protection class
Safety, Isolating, Control and Mains Transformers				
SIRIUS 4AM safety, mains and control transformers				
With one input voltage	0.063 ... 1.0	230 ± 5 %; 400 ± 5 %	24; 42	I
For European voltages	0.063 ... 1.0	400/230 ± 15 V	24; 42	I
In multi-voltage version	0.063 ... 1.0	550 ... 208; 600 ... 230	24	I
SIRIUS 4AM safety and mains transformers				
With one input voltage	0.025; 0.04	230 ± 5 %; 400 ± 5 %	24	I
SIRIUS 4AM, 4AT isolating, control and mains transformers				
4AM and 4AT with one input voltage	4AM: 0.063 ... 2.5; 4AT: 4 ... 10	230 ± 5 %; 400 ± 5 %; 440 ± 5 % 500 ± 5 %	110; 230 230	I
4AM with one input voltage without c UL us	4AM: 0.063 ... 2.5	660 ± 5 %	230	I
4AM in European voltage design	4AM: 0.063 ... 2.5	400/230 ± 15 V	2 × 115	I
4AM and 4AT in multi-voltage version	4AM: 0.063 ... 2.5; 4AT: 4 ... 10	550 ... 208; 600 ... 230	2 × 115	I
Page	Catalog IC 10			

For more products see Industry Mall and Interactive Catalog CA 01 or www.mdexx.com.

Three-phase transformers

4AP20

4AU

Version	Rated power kVA	Rated input voltage 3 V AC	Rated output voltage 3 V AC	Protection class
Safety, isolating, control and mains transformers				
SIRIUS 4AP, 4AU isolating, control and mains transformers				
4AP and 4AU in two-voltage version	0.63 ... 10	Y 500-400 /Δ 289-230	Y 400/Δ 230	I
4AP and 4AU in multi-voltage version	0.63 ... 16	Y 520 ... 360 /Δ 300 ... 208	Y 400/Δ 230	I
Page	Catalog IC 10			

[1] c UL us max. 600 V.

For more products see Industry Mall and Interactive Catalog CA 01 or www.mdexx.com.

Non-stabilized power supplies

						
		4AV21/23	**4AV20/22/24/26**	**4AV4**	**4AV3**	**4AV5**
Filtered for supply of electronic controls						
Ripple		< 5 %	< 5 %	< 5 %	< 5 %	< 5 %
Phases		1	1	1	3	3
Rated input voltage	V AC	115 ... 415	115 ... 415	230 ... 415	200 ... 600	400 ... 415
Rated output voltage according to IEC 61131-2 suitable for SIMATIC systems	V DC	24	24	24	24	24
Rated output current	A	1 ... 4.2	2.5 ... 18	1.5 ... 10	15 ... 180	25, 35
Connection		Screw terminals/ flat connectors	Screw terminals/ flat connectors	Screw terminals/ flat connectors	Screw terminals/ flat connectors	Screw terminals/ flat connectors
Mounting		Standard rail mounting	Screw and/or standard rail mounting	Screw and/or standard rail mounting	Screw mounting	Screw mounting
cULus approval at 60 °C		Yes	Yes	No	4AV30 ... 4AV35: Yes 4AV36, 4AV38: No	No
Page		Catalog IC 10				

			
		4AV98	**4AV96**
Unfiltered for supply of general loads			
Ripple		48.3 %	< 5 %
Phases		1	3
Rated input voltage	V AC	230 or 400	400
Rated output voltage	V DC	24	30-27-24
Rated output current/ rated power		50 ... 315 W	4 ... 25 A
Connection		Screw terminals/flat connectors	Screw terminals/flat connectors
Mounting		Screw mounting	Screw mounting
cULus approval		No	No
Page		Catalog IC 10	

For more products see Industry Mall and Interactive Catalog CA 01 or www.mdexx.com.

Introduction

Stabilized power supplies

					
		6EP1 SITOP lite	**6EP1 SITOP compact**	**6EP1 LOGO!Power**	**6EP1 SITOP smart**
SITOP power supplies					
Phases		1	1	1	1, 3
Rated input voltage	V	120 / 230 AC	100 ... 230 AC	100 ... 240 AC	120/230 AC, 3 AC 400 ... 500
Rated output voltage	V DC	24	24, 12	5, 12, 15, 24	24
Rated output current	A	2.5 ... 10	0.6 ... 6.5	1.3 ... 6.3	2.5 ... 40
Connection		Screw terminal connection	Screw terminal connection	Screw terminal connection	Screw terminal connection
Mounting		Standard rail mounting	Standard rail mounting	Standard rail mounting	Standard rail mounting
Approval		UL, cUL	UL, cUL	UL, cUL	UL, cUL
Page		15/8	Catalog IC 10	Catalog IC 10	15/9

					
		6EP1 SITOP modular	**6EP1 Special designs, special uses**	**6EP1 Expansion modules**	**6EP1 Uninterruptible power supplies 24 V DC**
SITOP power supplies					
Phases		1, 2, 3	1	1	1
Rated input voltage	V	120/230 ... 500 AC, 120/230 AC, 3 AC 400 ... 500; 600 DC	120 / 230 AC	24 DC	24 DC
Rated output voltage	V DC	24, 48	3 ... 52	U_e – approx. 0.5, U_e – approx. 1	24
Rated output current	A	5 ... 40	10	3.5 ... 10, 40, 4 x 3, 4 x 10	6 ... 40
Connection		Screw terminal connection	Screw terminal connection	Screw terminal connection	Screw terminal connection
Mounting		Standard rail mounting	Standard rail mounting	Standard rail mounting	Standard rail mounting (except: wall mounting with SITOP UPS500P)
Approval		UL, cUL	UL, cUL	NEC Class 2, UL, cUL	UL, cUL
Page		15/10	Catalog IC 10	15/11, 15/12	Catalog IC 10

For more power supply products see catalog KT 10.1 or www.siemens.com/sitop.

For more information about SIPLUS extreme see www.siemens.com/siplus-extreme.

Heating control systems

HCS716I

HCS724I

HCS300I

SIPLUS HCS716I heating control systems

- The central solution for power outputs up to 2.3 kW
- Four rack versions for up to 4 or 12 power output modules
- Communication with higher-level control system through PROFIBUS DP
- Three different power output modules available
- Compact design: 192 power channels on only 0.2 m^2
- Zero-point switching Triacs
- Protection of the outputs with miniatures fuses in fuse holders
- Easy connection of heat emitters by means of plugs
- Network supply through terminals or plugs
- Diagnostics functions for detecting external and internal faults

Pages 15/13 to 15/16

SIPLUS HCS724I heating control systems

- The central solution for power outputs up to 4 kW
- ZA724I central interface for up to 16 power output modules
- Communication with higher-level control system through PROFIBUS DP
- Three different power output modules available, including one for controlling solid-state switching relays (SSR)
- Compact design: 384 power channels on only 0.4 m^2
- Zero-point switching Triacs
- Protection of the outputs with miniature fuses in fuse holders which can be reached from the front
- Easy connection of heat emitters by means of plugs
- Network supply through busbar system at the front
- Optional mains voltage measuring module for mains voltage compensation
- Extensive diagnostics functions for detecting external and internal faults

Catalog IC 10

SIPLUS HCS300I heating control systems

- The central or distributed temperature control solution
- Basic unit for communicating with higher-level control system through PROFIBUS DP
- DM digital modules with six outputs
- TM temperature modules with four temperature inputs for Pt100/Pt1000 and thermocouples type J/K/L
- Three current measuring modules with measuring ranges of 2.5 ... 25 A, 10 ... 100 A and 20 ... 200 A
- Three current/voltage measuring modules with measuring ranges of 2.5 ... 25 A, 10 ... 100 A, 20 ... 200 A and voltages up to 690 V
- Optional TCP 3000 temperature control software available for SIMATIC

Catalog IC 10

For more information see Industry Mall or www.siemens.com/siplus-hcs.

Introduction

Automatic door controllers

SIDOOR AT12 elevator door drive

SIDOOR AT40 elevator door drive

SIDOOR ATD400V elevator door drive

for elevators

SIDOOR AT12 elevator door drive

- The SIDOOR AT12 controller is a door control system for the operation of sliding doors.
- 120 kg max. dynamic door weight
- 1-button operation for the entire commissioning process
- Integrated switch-mode power supply – hence low installation costs
- Transformerless system – hence 80 % lower weight
- Communication interfaces: CANopen, USB via USB adapter, RS 485 – hence easy system integration
- Automatic door weight detection – hence stable drive characteristics and reduced service costs
- SIDOOR user software (included in the software kit) enables user-friendly operation and detailed diagnosis.

Catalog IC 10

SIDOOR AT40 elevator door drive

- The SIDOOR AT40 controller is a door control system for the horizontal and vertical operation of sliding doors. It is available with either a relay module or CAN module as communication interface.
- 400 kg max. dynamic door weight
- 1-button operation for the entire commissioning process
- Flexible motor management – three motor types for different power requirements
- Application-optimized power supply unit
- Communication interfaces: CANopen (optional), USB via USB adapter, RS 485 – hence easy system integration
- Emergency power module 24 V DC
- Automatic door weight detection – hence stable drive characteristics and reduced service costs
- IP54 motor protection (IP40 for gear unit) as standard for 180 to 400 kg motor versions
- SIDOOR user software (included in the software kit) enables user-friendly operation and detailed diagnosis.

Catalog IC 10

SIDOOR ATD400V elevator door drive

- The SIDOOR ATD400V controller is a door control system with an integrated relay module for the operation of rising doors and roller shutters for elevators.
- 400 kg max. dynamic door weight
- 1-button operation for the entire commissioning process
- Application-optimized power supply unit
- Communication interfaces: USB via USB adapter, RS 485
- Emergency power module 24 V DC
- Automatic door weight detection – hence stable drive characteristics and reduced service costs
- IP54 motor protection (IP40 for gear unit) as standard for 400 kg motor versions
- SIDOOR user software (included in the software kit) enables user-friendly operation and detailed diagnosis.

Catalog IC 10

For more information see Industry Mall or www.siemens.com/sidoor.

Condition monitoring systems

	SIPLUS CMS1000	SIPLUS CMS2000	SIPLUS CMS4000
Monitoring			
• of motors, generators, fans, pumps, etc.	✓	✓	✓
- For imbalance, misalignment, roller bearings	✓	✓	✓
Analysis methods			
Parameters			
• Bearing monitoring: DKW, based on K(t) according to VDI 3832	✓	✓	✓
• Vibration monitoring: RMS based on DIN ISO 10816-3	✓	✓	✓
• CREST factor, etc. application-specific parameters	--	--	✓
Vibration analysis			
• Parameterizable	--	✓	--
• Configurable	--	--	✓
• FFT, envelope curve, fingerprint comparison, trend analysis	--	✓	✓
• Orbit analysis, free configuration of other analysis methods	--	--	✓
Monitoring functions			
• Adjustable limit values for DKW and RMS: Warning and alarm	✓	✓	✓
• Adjustable alarm ranges for frequency spectrums	--	✓	✓
• Limit value monitoring of analog values	--	✓	✓
• Temperature monitoring	--	✓	✓
• Creation of own monitoring algorithms	--	--	✓
Recording functions			
• Raw data recording: Manually or event-triggered, snapshot of the FFT, characteristic values, long-term trend recording	--	✓	✓
• Black box for process data	--	--	✓
Visualization			
• Traffic light status display via binary outputs	✓	✓	--
• Local display	✓	--	--
• With the help of Firefox web browser (registered trademark of Mozilla)	--	✓	--
• Software SIPLUS CMS X-Tools	--	--	✓
Pages	Catalog IC 10	Catalog IC 10	See Industry Mall or www.siemens.com/siplus-cms

✓ Has this function

-- Does not have this function

For more information see Industry Mall or www.siemens.com/siplus-cms.

Electrical charging components

	SIPLUS ECC1000 (CM-100)	SIPLUS ECC2000 (CM-230)	SIPLUS ECC8000 (SYS-101A, SYS-102A, SYS-202A)
Version	Charging controllers for installing AC electric vehicle charging stations according to IEC 61851	Charging controllers for installing AC electric vehicle charging stations according to IEC 61851 with Ethernet connection	Function units (factory-wired and ready to install), comprising a charging controller and load feeder for installing electric vehicle charging stations according to IEC 61851
Pages	Catalog IC 10		

For more information see Industry Mall or www.siemens.com/siplus-ecc.

Stabilized Power Supplies

SITOP Power Supply

SITOP lite, single-phase

Overview

The SITOP lite range of power supplies is designed for standard requirements in industrial environments and offers all important functions at a favorable price, of course without compromising quality and the proverbial SITOP reliability. The wide-range input with manual switchover supports connection to a variety of single-phase supply systems. Thanks to the slim design, the primary switched power supplies require little space on the standard mounting rail, and their excellent efficiency ensures low thermal losses in the control cabinet. Short-circuit and overload protection as well as UL approval for export ensure problem-free use.

- 24 V/2.5 A, 5 A and 10 A for industrial applications with basic requirements
- Single-phase wide-range input with manual switchover
- Narrow width
- Excellent efficiency
- Green LED for "24 V o.k."
- Can be switched in parallel
- No lateral installation clearances required
- Ambient temperature range of 0 °C to 60 °C (from 45 °C with derating)
- Cooling through natural convection
- Short-circuit and overload protection
- Certified acc. to UL

Selection and ordering data

	Version	Input Rated voltage $U_{e\ Rated}$	Output Rated voltage $U_{a\ Rated}$	Rated current $I_{a\ Rated}$	Dimensions (W x H x D) mm	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
24 V power supplies											
 6EP1 332-1LB00	**2.5 A**	120/230 V AC (93 ... .132 V AC/ 187 ... 264 V AC)	24 V DC ±3 %	2.5 A	32.5 x 125 x 125	A	**6EP1 332-1LB00**		1	1 unit	582
 6EP1 333-1LB00	**5 A**	120/230 V AC (93 ... .132 V AC/ 187 ... 264 V AC)	24 V DC ±3 %	5 A	50 x 125 x 125	A	**6EP1 333-1LB00**		1	1 unit	582
 6EP1 334-1LB00	**10 A**	120/230 V AC (93 ... .132 V AC/ 187 ... 264 V AC)	24 V DC ±3 %	10 A	70 x 125 x 125	A	**6EP1 334-1LB00**		1	1 unit	582

For more units and versions see Catalog KT 10.1.

* You can order this quantity or a multiple thereof.

Overview

Small in size, big in performance. SITOP smart requires little room on the standard mounting rail and offers high functionality at an attractive price. With its good-natured overload behavior, even loads with a high inrush current can be smoothly switched on. If required, 50 % extra power can be supplied for a duration of 5 s. In addition, the 24 V versions will permanently supply 120 % of the rated power provided the ambient temperature does not exceed 45 °C.

- For 24 V standard applications up to 40 A
- Compact design for small mounting area, no lateral clearance required
- Easy standard rail mounting
- Smooth switching on of loads with high inrush current such as DC/DC converters and motors
- More performance thanks to permanent 120 % of rated power up to an ambient temperature of 45 °C (24 V versions)
- Large setting range for the output voltage, using potentiometers which are easy to reach from the front
- Parallel switching option to increase performance
- Extensive certifications according to UL, CSA, GL (Germanischer Lloyd) and ATEX directives (Atmosphère Explosible)
- For universal use – in industry and public low-voltage systems – worldwide
- Can be combined with SITOP expansion modules and the uninterruptible power supplies (24 V versions)
- Versions for use in severe ambient conditions (SIPLUS extreme)

Selection and ordering data

	Version	Input Rated voltage $U_{e\ Rated}$	Output Rated voltage $U_{a\ Rated}$	Rated current $I_{a\ Rated}$	Dimensions (W x H x D) mm	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
24 V power supplies											
	Limitation of input current harmonics according to IEC 61000-3-2										
 6EP1 332-2BA20	**2.5 A**	120/230 V AC (85 ... 132 V AC/ 170 ... 264 V AC)	24 V DC ±3 %	2.5 A	32.5 x 125 x 125	A	**6EP1 332-2BA20**		1	1 unit	582
 6EP1 333-2BA20	**5 A**	120/230 V AC (85 ... 132 V AC/ 170 ... 264 V AC)	24 V DC ±3 %	5 A	50 x 125 x 125	A	**6EP1 333-2BA20**		1	1 unit	582
 6EP1 334-2BA20, 6AG1334-2BA01-4AA0	**10 A**	120/230 V AC (85 ... 132 V AC/ 170 ... 264 V AC)	24 V DC ±3 %	10 A	70 x 125 x 125						
	• SITOP smart					A	**6EP1 334-2BA20**		1	1 unit	582
	• SIPLUS extreme for use in severe ambient conditions (corrosive gases, salt spray, condensation, dust, biologically active substances, except fauna)					D	**6AG1334-2BA01-4AA0**		1	1 unit	471
 6EP1 336-2BA10	**20 A**	120/230 V AC (85 ... 132 V AC/ 176 ... 264 V AC)	24 V DC ±3 %	20 A	115 x 145 x 150	A	**6EP1 336-2BA10**		1	1 unit	582
 6EP1 434-2BA10	**10 A**	3 AC 400 ... 500 V (3 AC 340 ... 550 V)	24 V DC ±3 %	10 A	90 x 145 x 150	A	**6EP1 434-2BA10**		1	1 unit	582
 6EP1 436-2BA10	**20 A**	3 AC 400 ... 500 V (3 AC 340 ... 550 V)	24 V DC ±3 %	20 A	90 x 145 x 150						
	• SITOP smart					A	**6EP1 436-2BA10**		1	1 unit	582
	• SIPLUS extreme for medial exposure, temperature range -25 ... +70 °C					D	**6AG1436-2BA10-7AA0**		1	1 unit	471
 6EP1 437-2BA20	**40 A**	3 AC 400 ... 500 V (3 AC 360 ... 550 V)	24 V DC ±3 %	40 A	150 x 145 x 150	A	**6EP1 437-2BA20**		1	1 unit	582

For more units and versions see Catalog KT 10.1.

For more information about SIPLUS extreme see www.siemens.com/siplus-extreme.

* You can order this quantity or a multiple thereof.

SITOP modular, single-, two- and three-phase

Overview

Compact basic units for single-phase, two-phase or three-phase connections and output currents from 5 A to 40 A form the basis of the SITOP modular stabilized supplies. Depending on the requirements, SITOP expansion modules can be connected in addition.

The compact design of the primary switched power supply requires only a small mounting surface. The rugged metal enclosure is also suitable for the harshest industrial applications. The standard mounting rail fixture is made likewise of metal. Mounting is therefore fast, easy and vibration-proof. Reliability and quality are further characteristics of the electronic design.

The large input voltage range and the international certifications enable operation in virtually any network worldwide. The single-phase basic units 5 A and 10A have an ultra-wide input range up to 550 V, which even enables connection to two phases.

- Rugged metal enclosure for standard rail mounting
- High efficiency up to 96 %
- 3-way status LED

New in 2012

The robust SITOP PSU400M 6EP1 536-3AA00 DC/DC converter is characterized by a wide DC input range from 200 V to 900 V, which permits connection to a variety of DC networks and battery systems. On the DC link of frequency-controlled drive systems, the efficient power supply enables a cost-efficient mains failure concept by using the braking energy to maintain the 24 V supply.

- Wide range input for direct voltages from 200 V to 900 V
- High efficiency up to 96 %
- Compact size with just 96 mm width
- 50 % extra power for connection of loads with a high power requirement
- Integrated signaling contact "24 V DC o.k."
- 3-way status LED
- Large ambient temperature range from -25 °C to +70 °C
- Certified acc. to UL

Selection and ordering data

Version	Input Rated voltage $U_{e\ Rated}$	Output Rated voltage $U_{a\ Rated}$	Rated current $I_{a\ Rated}$	Dimensions (W x H x D) mm	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
24 V power supplies										
20 A	600 V DC (200 ... 900 V DC) Starting from 400 V DC	24 V DC ±3 %	20 A	90 x 125 x 125	A	**6EP1 536-3AA00**		1	1 unit	581

6EP1 536-3AA00

For more units and versions see Catalog KT 10.1.

For more information about SIPLUS extreme see www.siemens.com/siplus-extreme.

* You can order this quantity or a multiple thereof.

Overview

The SITOP expansion modules offer further functions:

The signaling module can be snapped onto the side of the 6EP1 ...-3BA00 basic unit; with floating signaling contacts "Output voltage OK" and "Ready OK"; with signal input for remote ON/OFF switching of the basic unit.

The SITOP PSE202U redundancy module uses diodes to disconnect two SITOP stabilized power supplies in parallel mode. If a power supply fails, the 24 V supply is reliably maintained. Module 24 V/NEC Class 2 can also be used to limit the output power to 100 VA in accordance with NEC Class 2.

- 24 V/10 A for the disconnection of two power supplies up to 5 A or one power supply up to 10 A per redundancy module
- 24 V/NEC Class 2 disconnects and limits the output to the Class 2 Limit (100 VA) of two power supplies from 5 A to 40 A
- Floating relay contact
- Green LED for signaling "Infeed 1 and 2 o.k."
- Switching threshold adjustable from 20 V to 25 V

The two SITOP PSE200U selectivity modules and the SITOP select diagnostics module are used in combination with 24 V power supplies for distributing the load current among up to four current branches per module and for monitoring the individual partial currents. Overloads or short circuits in individual branches are selectively switched off and the remaining load current paths remain unaffected. Individually adjustable rated current, LED, group alarm contact or signaling interface for channel-specific evaluation via SIMATIC S7 function block, standard rail mounting.

The buffer module bridges mains interruptions in the range of seconds. Buffer time 200 ms at 40 A, up to 1.6 s at 5 A load current. Multiplication possible through parallel circuit, maximum buffer time 10 s.

Versions for use in severe ambient conditions (SIPLUS extreme) are available.

Selection and ordering data

	Input Rated voltage $U_{e\ Rated}$	Output Rated voltage $U_{a\ Rated}$	Rated current $I_{a\ Rated}$	Dimensions (W × H × D) mm	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Signaling modules										
 6EP1 961-3BA10, 6AG1961-3BA10-.AA0	--	--	--	25 × 125 × 125						
	• SITOP signaling modules				►	**6EP1 961-3BA10**		1	1 unit	581
	• SIPLUS extreme									
	- For use in severe ambient conditions (corrosive gases, salt spray, condensation, dust, biologically active substances, except fauna) and in the extended temperature range -25 ... +70 °C				D	**6AG1961-3BA10-7AA0**		1	1 unit	471
	- With hard gold-plated contacts				D	**6AG1961-3BA10-6AA0**		1	1 unit	471
SITOP PSE202U redundancy modules										
 6EP1 964-2BA00	24 V DC (19 ... 29 V DC)	U_e – approx. 0.5 V	10 A	30 × 80 × 100	A	**6EP1 964-2BA00**		1	1 unit	588
 6EP1 962-2BA00	24 V DC (19 ... 29 V DC)	U_e – approx. 0.5 V	3.5 A (NEC Class 2)	30 × 80 × 100	A	**6EP1 962-2BA00**		1	1 unit	588
 6EP1 961-3BA21, 6AG1961-3BA21-.AX0	24 V DC (24 ... 28.8 V DC)	U_e – approx. 0.5 V	20 A	70 × 125 × 125						
	• SITOP redundancy modules				A	**6EP1 961-3BA21**		1	1 unit	588
	• SIPLUS extreme									
	- For use in severe ambient conditions (corrosive gases, salt spray, condensation, dust, biologically active substances, except fauna)				D	**6AG1961-3BA21-4AX0**		1	1 unit	471
	- and in the extended temperature range: -40 ... +70 °C				D	**6AG1961-3BA21-7AX0**		1	1 unit	471

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* You can order this quantity or a multiple thereof.

Expansion modules

	Input Rated voltage $U_{e\ Rated}$	Output Rated voltage $U_{a\ Rated}$	Rated current $I_{a\ Rated}$	Dimensions (W × H × D) mm	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
SITOP PSE200U selectivity modules										
 6EP1 961-2BA11, 6EP1 961-2BA21	24 V DC (22 ... 30 V DC)	--	4 x 3 A (0.5 ... 3 A)	72 × 80 × 72	A	**6EP1 961-2BA11**		1	1 unit	586
	24 V DC (22 ... 30 V DC)	--	4 x 10 A (3 ... 10 A)	72 × 80 × 72	A	**6EP1 961-2BA21**		1	1 unit	586
SITOP PSE200U selectivity modules with signaling interface										
 6EP1 961-2BA31, 6EP1 961-2BA41	24 V DC (22 ... 30 V DC)	--	4 x 3 A (0.5 ... 3 A)	72 × 80 × 72	D	**6EP1 961-2BA31**		1	1 unit	586
	24 V DC (22 ... 30 V DC)	--	4 x 10 A (3 ... 10 A)	72 × 80 × 72	D	**6EP1 961-2BA41**		1	1 unit	586
SITOP select diagnostics modules										
 6EP1 961-2BA00	24 V DC (22 .. 30 V DC)	--	4 x 10 A (2 ... 10 A)	72 × 90 × 90	►	**6EP1 961-2BA00**		1	1 unit	586
Buffer modules										
 6EP1 961-3BA01, 6AG1961-3BA01-7AA0	24 V DC (24 .. 28.8 V DC)	U_e – approx. 1 V	40 A	70 × 125 × 125						
	• SITOP buffer modules				A	**6EP1 961-3BA01**		1	1 unit	588
	• SIPLUS extreme for use in severe ambient conditions (corrosive gases, salt spray, condensation, dust, biologically active substances, except fauna) and in the extended temperature range -25 ... +70 °C				D	**6AG1961-3BA01-7AA0**		1	1 unit	471

For more units and versions see Catalog KT 10.1.

For more information about SIPLUS extreme see www.siemens.com/siplus-extreme.

* You can order this quantity or a multiple thereof.

Overview

SIPLUS HCS716I heating control systems

The SIPLUS HCS716I heating control system was developed as a cost-optimized controller of heat emitter arrays in thermoforming machines. It is suitable for all generally available radiation devices such as quartz, quartz material, ceramic, halogen and infrared radiation devices.

The SIPLUS HCS716I can be used wherever low-cost, resistive loads of small to medium output require switching in an industrial environment.

The SIPLUS HCS716I range is comprised of four racks and three power output modules.

Application

The SIPLUS HCS716I heating control system is used, for example, to switch the small and medium output heat emitter arrays in thermoforming machines, drying ovens and packaging machines.

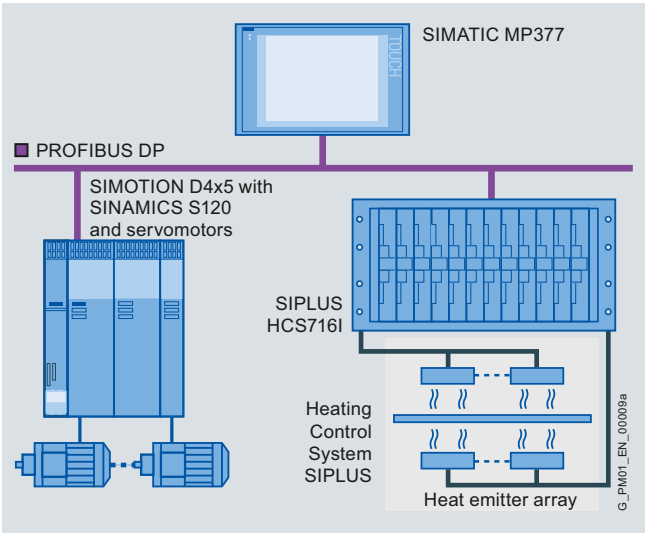
The SIPLUS HCS716I is a distributed I/O unit (slave) that communicates over the PROFIBUS DP fieldbus with a higher-level control system (master) such as SIMATIC S7/SIMOTION.

Design

The main components of the SIPLUS HCS716I heating control system are:

- 19" rack with bus PCB for accommodating up to 4 or up to 12 power output modules as well as a control module and CPU
- Power output modules in double-height Eurocard format with 8/16 output channels
- Fan unit with one or three fans (option)
- Communication over PROFIBUS DP, e.g. with SIMOTION, SIMATIC S7, or industrial PC
- Plug-in card system on the front

Integration



Application example with SIMOTION, SINAMICS and SIPLUS HCS716I

Technical specifications

See Catalog IC 10.

More information

For more product details see the operating instructions "SIPLUS HCS716I Heating Control System", http://support.automation.siemens.com/WW/view/en/50695867.

For more information see Industry Mall or www.siemens.com/siplus-hcs.

Racks

Overview

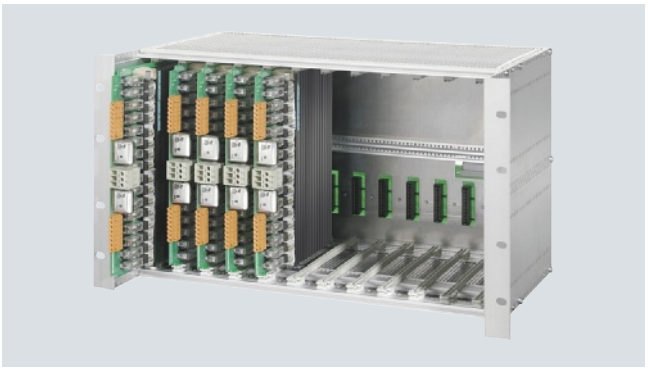
The rack is the mechanical framework of the SIPLUS HCS716I and contains all the modules required to control the power outputs.

Four different versions are available:

- Rack hinged frame
- Rack mounting frame
- Rack mounting frame without flange
- Rack mounting frame, slim-line version and expansion frame, slim-line version

Rack hinged frame

The CPU module and the control module are at the rear of the rack. This rack is suitable for installation in a hinged frame.



Rack hinged frame 6BK1700-2AA00-0AA1

Rack mounting frame

The CPU module and the control module are on the right-hand side of the rack. This rack is suitable for direct installation in a control cabinet.

Rack mounting frame 6BK1700-2AA10-0AA1

Rack mounting frame without flange

The CPU module and the control module are again on the right-hand side of the rack. This rack is suitable for installation in a control cabinet. In contrast to the mounting frame rack, this version has no mounting bracket (flange) at the front.

Rack mounting frame without flange 6BK1700-2AA70-0AA0

New in 2012

Rack mounting frame, slim-line version and expansion frame, slim-line version

The CPU module and the control module are again on the right-hand side of the rack. This rack is suitable for installation in a control cabinet. It accommodates up to four power output modules and can be extended with the expansion frame to take a further four power output modules. The expansion frame is mounted on the left of the mounting frame, slim-line version, and is connected to it by a cable.

A fan unit is also available as an addition. It is fitted to the rack mounting frame, slim-line version, and to the expansion frame, slim-line version, from underneath.

Rack mounting frame slim-line version 6BK1700-2AA80-0AA0 (right), and expansion frame slim-line version 6BK1700-3AA00-0AA0 (left), with fan units 6BK1700-2GA10-0AA0 attached below

Fan units 6BK1700-2GA10-0AA0

Benefits

Performance features

- Accommodation of up to 4 or up to 12 power output modules LA716, LA716I or LA716I HP
- Communication through PROFIBUS DP interface

Design

- 19" rack:
  - Backplane panel for CPU module, control module and bus module
  - Mountings for 4 or 12 power output modules
  - Partition as cover when slots are not all populated
- CPU module with PROFIBUS interface module
- Control module
  - Power supply for the modules of the heating control system
  - Decoding for controlling the power output modules
- Bus module
  - Contains 4 or 12 direct plug-in connectors for connecting the control module to the power output modules
- Heat dissipation possible with optional fan units

Function

Communications

- PROFIBUS DP
  - Import of the parameter settings from the higher-level control system
  - Transfer of the diagnostics information to the higher-level controller
- Internal system bus via bus PCB
- Controlling and monitoring up to 192 power channels

Performance features

- Calculation of the emitter manipulated variables of the power output channels
- Setpoint values can be adjusted in 1 % increments from 0 % to 100 %.

Diagnostics

- Evaluating the diagnostics information of the connected power output modules
- Automatic detection of the mains frequency

Forced ventilation

Depending on the switching capacity and ambient temperature, the rack may have to be force-ventilated. Fan units for this purpose are available as optional accessories (see page 15/16).

For detailed information see the operating instructions "SIPLUS HCS716I Heating Control System", http://support.automation.siemens.com/WW/view/en/50695867.

Technical specifications

Control supply voltage		
Input voltage		
• Rated value	V AC	230
• Permissible range	V AC	187 ... 264
Frequency		
• Rated value	Hz	50/60
• Permissible range	Hz	47 ... 63
Non-periodic overvoltage (according to IEC 60204-1)		
• Limit value		2 x U_{rated}
• Duration (single pulse)	ms	1.5
• Rise/fall time		500 ns ... 500 µs
Brief voltage interruption (initial state: lower limit of rated voltage = 187 V)		
• Interruption time, max.	ms	20
• Recovery time, min.	s	1
• Events per hour, max.		10
Power consumption of the control electronics, max.	W	15
Total switching capacity for racks at $T_u \leq 45$ °C, max. (the total switching capacity depends on the power output module used, flow rate > 2 m/s)		
• Rack hinged frame, mounting frame and mounting frame without flange, each with 12 power output modules		
- Without ventilation	kW	67
- With ventilation	kW	176
• Rack mounting frame, slim-line version, with 4 power output modules		
- Without ventilation	kW	22
- With ventilation	kW	59
• Rack mounting frame slim-line version with 4 power output modules and expansion frame slim-line version, with four power output modules		
- Without ventilation	kW	45
- With ventilation	kW	117
Mechanical data		
Degree of protection		
• For device		IP00
• For control cabinet		At least IP20
Protection class for control cabinet		IEC 61140 protection class I
Dimensions (W x H x D)		
• Rack hinged frame	mm	483 x 266 x 350
• Rack mounting frame	mm	510 x 310 x 330
• Rack mounting frame without flange	mm	510 x 310 x 290
• Rack mounting frame, slim-line version	mm	203 x 310 x 287
• Rack expansion frame, slim-line version, for rack mounting frame, slim-line version	mm	203 x 310 x 287
• Fan unit for rack mounting frame, slim-line version and expansion frame, slim-line version	mm	198 x 85 x 221

Racks

Selection and ordering data

	Number of slots	Type of power output connectable	Interface version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Rack hinged frame									
 6BK1700-2AA00-0AA1	12	LA716 / LA716I / LA716I HP	PROFIBUS DP	C	**6BK1700-2AA00-0AA1**		1	1 unit	477
Rack mounting frame									
 6BK1700-2AA10-0AA1	12	LA716 / LA716I / LA716I HP	PROFIBUS DP	C	**6BK1700-2AA10-0AA1**		1	1 unit	477
Rack mounting frame without flange									
 6BK1700-2AA70-0AA0	12	LA716 / LA716I / LA716I HP	PROFIBUS DP	C	**6BK1700-2AA70-0AA0**		1	1 unit	477
Rack mounting frame, slim-line version									
 6BK1700-3AA00-0AA0 (left) with 6BK1700-2AA80-0AA0 (right) with fan units attached below	**Mounting frame, slim-line version**								
	4	LA716 / LA716I / LA716I HP	PROFIBUS DP	C	**6BK1700-2AA80-0AA0**		1	1 unit	477
	Expansion frame, slim-line version								
	4	LA716 / LA716I / LA716I HP	PROFIBUS DP	C	**6BK1700-3AA00-0AA0**		1	1 unit	477

Accessories

	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
For rack hinged frame, rack mounting frame and rack mounting frame without flange							
	Fan units • 230 V AC with three fans • 115 … 230 V AC/24 V DC with three fans and speed monitoring These are fitted to the racks from below.		On request [1)] On request [1)]				
For rack mounting frame, slim-line version and expansion frame, slim-line version							
 6BK1700-2GA10-0AA0	**Fan unit** • 230 V AC with one fan This is attached from below to the rack mounting frame, slim-line version and to the expansion frame, slim-line version.	C	**6BK1700-2GA10-0AA0**		1	1 unit	477

[1)] Fan units for the rack hinged frames, rack mounting frames and rack mounting frames without flange are available from: HEITEC AG Eckental-Eschenau see www.heitec.de.

More information

For more information see Industry Mall or www.siemens.com/siplus-hcs.

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

Appendix

16/2 **Ordering notes**

16/3 **Further documentation**

16/5 **Standards and approvals**

Online Services

16/6 Information and Ordering in the Internet and on DVD

16/7 Social Media, Mobile Media

16/8 **Subject index**

16/9 **Order No. index**

16/18 **Conditions of sale and delivery**

Ordering notes

Things you should know about Catalog IC 10 N

	Catalog IC 10 N contains all selection and order-relevant data.	
Delivery time class (DT)		
► Preferred type A 1 or 2 working days B 3 to 5 working days C 6 to 15 working days D 16 to 30 working days X On request	Preferred types are available immediately from stock, i.e. are dispatched within 24 hours. Normal quantities of the products are usually delivered within the specified time following receipt of your order at our branch. In exceptional cases, the actual delivery time may differ from that specified.	The delivery times apply up to the ramp at Siemens AG (products ready for dispatch). The transport times depend on the destination and type of shipping. The standard transport time for Germany is 1 day. The delivery time classes specified here represent the state of 10/2012. They are permanently optimized. For more up-to-the-minute information, please visit our site at www.siemens.com/sirius/mall.
Price units (PU)		
	The price unit defines the number of units, sets or meters to which the specified price applies.	
Packaging sizes (PS)		
	The packaging size defines the number, e.g. of units, sets or meters, for outer packaging. Only the quantity defined by the packaging size or a multiple thereof can be ordered.	For multi-unit packing and reusable packaging see Catalog IC 10, Chapter 16, "Appendix".
Price groups (PG)		
	Each product is assigned to a price group.	
Dimensions		
	All dimensions in mm.	

Symbols

In Catalog IC 10 N you will find the symbols and their explanations listed alongside.

They are used in conjunction with an orange background to mark and highlight special selection criteria (e.g. connections, types of coordination, etc.).

Connections	Combicon connection
	Insulation piercing method
	Straight-through transformers
	Fast Connect
	Spring-type terminals
	Flat connectors
	Solder pin connections
	Ring terminal lug connections
	Busbar connections
	Screw terminals
Types of coordination	Type of coordination "1"
	Type of coordination "2"
Support function	Configurator in the Industry Mall

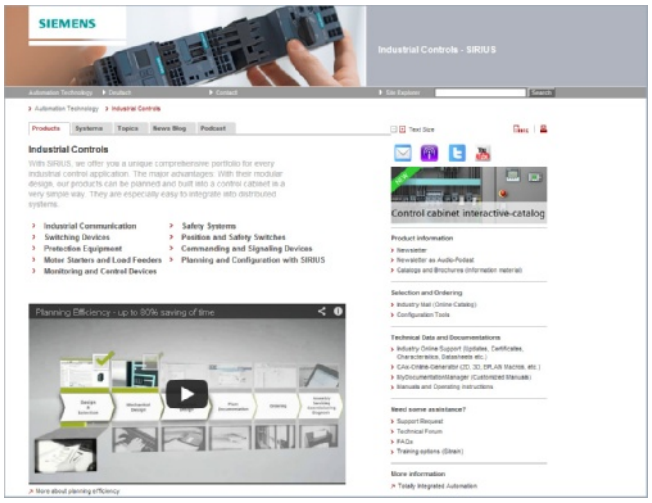
Ordering special versions

For ordering products that differ from the versions listed in the catalog, the order number specified in the catalog must be supplemented with **"–Z"**; the required features must be specified by means of the alphanumeric order codes or in plain text.

Small orders

When small orders are placed, the costs associated with order processing are greater than the order value. We recommend therefore that you combine several small orders. Where this is not possible, we unfortunately have to charge a processing supplement of € 20.-- to cover our costs for order processing and invoicing for all orders with a net goods value of less than € 250.--.

Overview



Industrial Controls

We regard product support as just as important as the products and systems themselves.

Visit our site on the Internet for a comprehensive range of material on SIRIUS Industrial Controls, such as

- Overview of the entire product portfolio
- Always up to date with Newsletters, Podcasts, Blogs and Twitter
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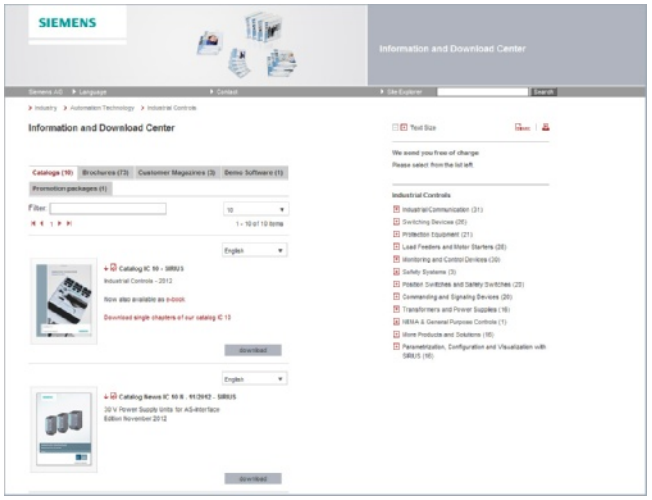
- Access to contact persons in more than 190 countries
- Operating instructions and manuals for direct download

and much, much more - all conveniently and easily accessible at:

www.siemens.com/sirius



Information and download center

You will find information material such as catalogs, customer magazines, brochures and trial versions of software for Industrial Controls on the Internet at:

www.siemens.com/sirius/infocenter

You can order the available documents or download them in popular file formats (PDF, ZIP) from this site.

Further documentation

Manual package SIRIUS Innovations – Modular System

This manual package contains all important SIRIUS Innovations manuals. You can either download the individual manuals or order a print version of the manual package with Order No. 3ZX1 012-0RA00-1AB1. For the English version of the manual package please use Order No. 3ZX1 012-0RA00-1AC1. To download the individual manuals in one of the available foreign languages, use the corresponding link in the table and then switch over the website to the language you require.

Products	Manual / title	Order No.	Download from
SIRIUS Innovations System Overview	System manual "SIRIUS Innovations – System Overview"	3ZX1012-0RA01-5AB1	http://support.automation.siemens.com/WW/view/en/60311318
Contactors and Contactor Assemblies 3RT2, 3RH2 and 3RA23/24	Manual "SIRIUS Innovations - SIRIUS 3RT2 Contactors/Contactor Assemblies"	3ZX1012-0RT20-5AB1	http://support.automation.siemens.com/WW/view/en/60306557
Solid-State Switching Devices 3RF34	Manual "SIRIUS Innovations – SIRIUS 3RF34 Solid-State Switching Devices"	3ZX1012-0RF34-5AB1	http://support.automation.siemens.com/WW/view/en/60298187
Soft Starters 3RW	Manual "SIRIUS 3RW30/3RW40 Soft Starters"	3ZX1012-0RW30-1AB1	http://support.automation.siemens.com/WW/view/en/38752095
	Manual "SIRIUS 3RW44 Soft Starters"	3ZX1012-0RW44-1AB1	http://support.automation.siemens.com/WW/view/en/21772518
Motor Starter Protectors 3RV2	Manual "SIRIUS Innovations – SIRIUS 3RV2 Motor Starter Protectors"	3ZX1012-0RV20-5AB1	http://support.automation.siemens.com/WW/view/en/60279172
Overload Relays 3RU2, 3RB30/31	Manual "SIRIUS Innovations – SIRIUS 3RU2/3RB3 Overload Relays"	3ZX1012-0RU20-5AB1	http://support.automation.siemens.com/WW/view/en/60298164
Solid-State Overload Relays 3RB24	Manual "3RB24 Solid-State Overload Relays for IO-Link"	3ZX1012-0RB24-0AB0	http://support.automation.siemens.com/WW/view/en/46165627
Monitoring Relays 3UG4/3RR2	Manual "3UG4/3RR2 Monitoring Relays"	3ZX1012-0UG40-0AB0	http://support.automation.siemens.com/WW/view/en/54397927
Monitoring Relays 3UG48/3RR24	Manual "3UG48/3RR24 Monitoring Relays for IO-Link"	3ZX1012-0UG48-0AB1	http://support.automation.siemens.com/WW/view/en/54375430
Temperature Monitoring Relays 3RS1/3RS2	Manual "Temperature Monitoring Relays 3RS1/3RS2"	3ZX1012-0RS10-1AB1	http://support.automation.siemens.com/WW/view/en/54999309
Temperature Monitoring Relays 3RS14/3RS15	Manual "Temperature Monitoring Relays 3RS14/3RS15 for IO-Link"	3ZX1012-0RS14-0AB0	http://support.automation.siemens.com/WW/view/en/54375463
Load Feeders 3RA21/22	Manual "SIRIUS Innovations - SIRIUS 3RA21/22 Load Feeders"	3ZX1012-0RA21-5AB1	http://support.automation.siemens.com/WW/view/en/60284351
Compact Starters 3RA6	System manual "SIRIUS 3RA6 Compact Starters"	3RA6991-0A	http://support.automation.siemens.com/WW/view/en/27865747
Motor Starters 3RM1	Manual "SIRIUS 3RM1 Motor Starters"	3ZX1012-0RM10-2AB1	http://support.automation.siemens.com/WW/view/en/66295730
Function Modules 3RA27 for connection to the higher-level control system	Manual "SIRIUS Function Modules for AS-Interface"	3ZX1012-0RA27-0AB0	http://support.automation.siemens.com/WW/view/en/39318922
	Manual "SIRIUS Function Modules for IO-Link"	3ZX1012-0RA27-1AB1	http://support.automation.siemens.com/WW/view/en/39319600
Function Modules 3RA28 for mounting on contactors	Manual "SIRIUS Innovations - SIRIUS 3RA28 Function Modules for Mounting on 3RT2 Contactors"	3ZX1012-0RA28-5AB1	http://support.automation.siemens.com/WW/view/en/60279150
Electronic Modules 4SI SIRIUS	Manual "ET 200S Distributed I/O – SIRIUS 4SI Electronic Modules (3RK1005-0LB00-0AA0)"	3ZX1012-0LB00-0AA0	http://support.automation.siemens.com/WW/view/en/37856470
Selection data for load feeders	Configuration manual "Configuring SIRIUS Innovations – Selection Data for Fuseless and Fused Load Feeders"	3ZX1012-0RA21-1AB0	http://support.automation.siemens.com/WW/view/en/39714188
	Configuration manual "Configuring SIRIUS Innovations UL Selection Data for Fuseless and Fused Load Feeders"	3ZX1012-0RA21-3AB0	http://support.automation.siemens.com/WW/view/en/53433538

Approvals, test certificates, characteristic curves

An overview of the certificates available for Industrial Control products along with more technical documentation can be consulted daily on the Internet at:

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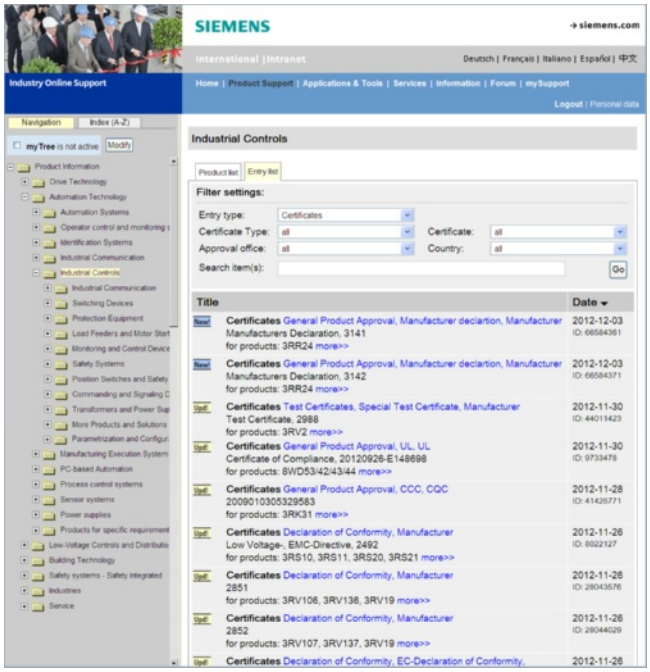
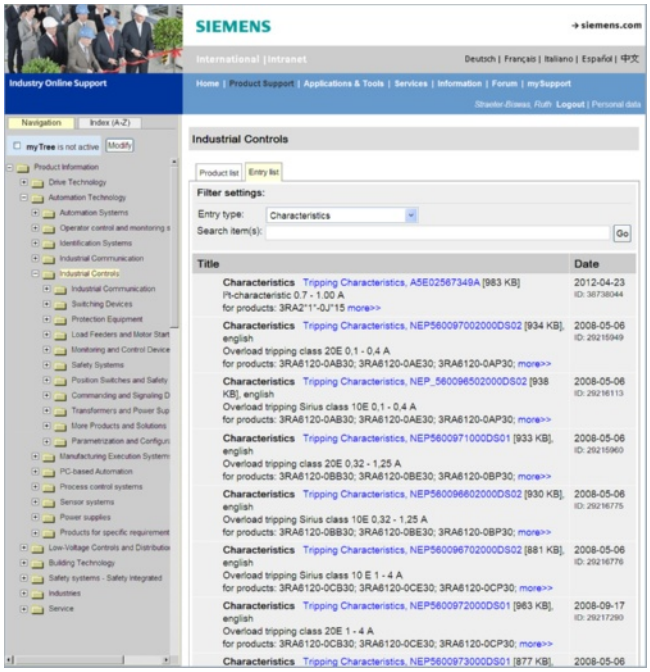


Product support: Approvals/certificates



Product support: Characteristic curves

See also Catalog IC 10, Chapter 16, "Appendix".

Safety characteristics

See Catalog IC 10, Chapter 16, "Appendix".

CE mark

Manufacturers of products which fall within the subject area to which EC directives apply must identify their products, operating instructions or packaging with a CE mark of conformity.

By attaching the CE mark, the manufacturer confirms that the product conforms to the relevant basic requirements of all directives applicable to the product. The mark of conformity is a mandatory requirement for putting products into circulation throughout the EC.

All the products in this catalog are in conformance with the EC directives and bear the CE mark of conformity.

- Low-voltage directive
- EMC directive
- Machinery directive
- Ex protection directive

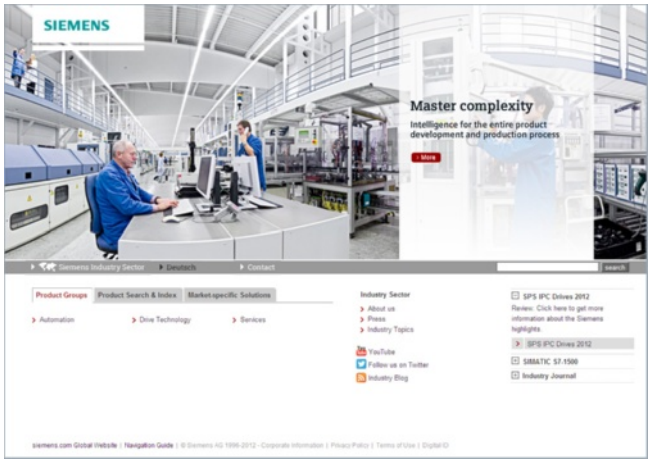
The CE mark: CE.

Certificate of the AS-International Association for AS-Interface products

AS-Interface products are tested and certified by the AS-International Association. The products have been tested in an accredited test laboratory according to testing guidelines.

Information and Ordering in the Internet and on DVD

Siemens Industry Automation and Drive Technologies in the WWW



A detailed knowledge of the range of products and services available is essential when planning and configuring automation systems. It goes without saying that this information must always be fully up-to-date.

Siemens Industry Automation and Drive Technologies has therefore built up a comprehensive range of information in the World Wide Web, which offers quick and easy access to all data required.

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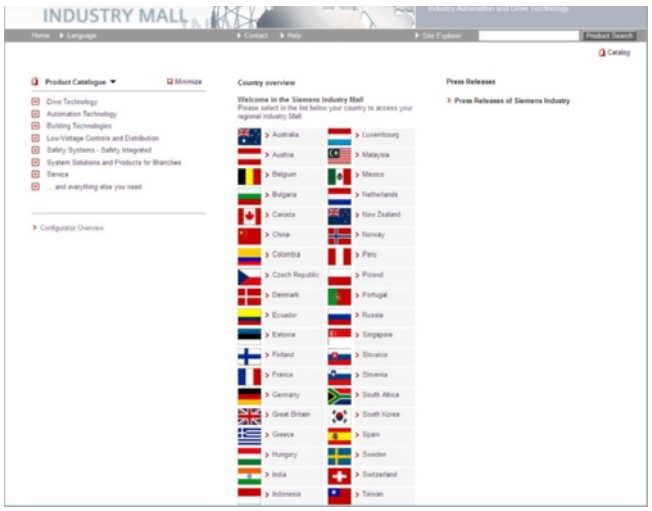

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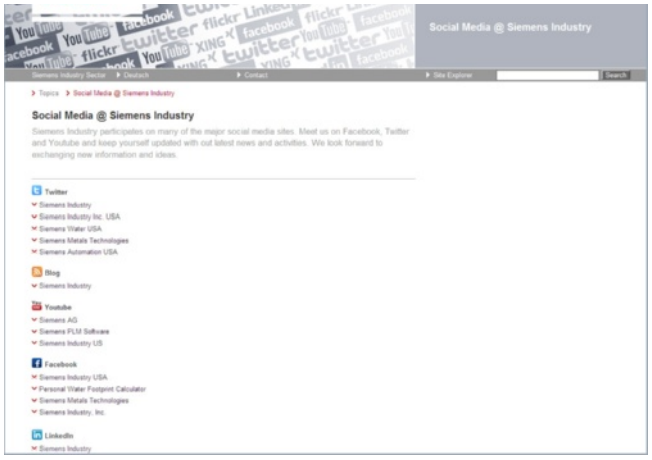

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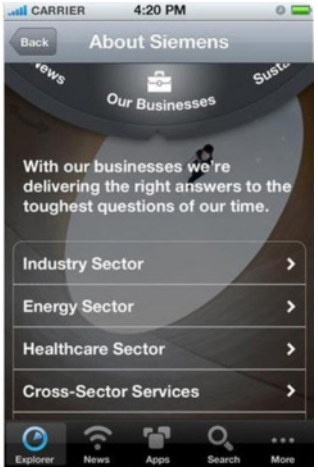

We are also constantly expanding our offering of cross-platform apps for smartphones and tablets. You will find the current Siemens apps at your app store.

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Appendix

Notes

Notes

Conditions of sale and delivery

1. General Provisions

By using this catalog you can acquire hardware and software products described therein from Siemens AG subject to the following Terms and Conditions of Sale and Delivery (hereinafter referred to as "T&C"). Please note that the scope, the quality and the conditions for supplies and services, including software products, by any Siemens entity having a registered office outside Germany, shall be subject exclusively to the General Terms and Conditions of the respective Siemens entity. The following T&C apply exclusively for orders placed with Siemens Aktiengesellschaft, Germany.

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For customers with a seat or registered office in Germany, the following applies subordinate to the T&C:

- the "General Terms of Payment"[1] and,
- for software products, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or Registered Office in Germany"[1] and,
- for other supplies and services, the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"[1].

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For customers with a seat or registered office outside Germany, the following applies subordinate to the T&C:

- the "General Terms of Payment"[1] and,
- for software products, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or Registered Office outside of Germany"[1] and
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Prices are subject to change without prior notice. We will charget the prices valid at the time of delivery.

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An exact explanation of the metal factor can be downloaded at:

www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf

To calculate the surcharge (except in the cases of dysprosium and neodym), the official price from the day prior to that on which the order was received or the release order was effected is used.

To calculate the surcharge applicable to dysprosium and neodym ("rare earths"), the corresponding three-month basic average price in the quarter prior to that in which the order was received or the release order was effected is used with a one-month buffer (details on the calculation can be found in the explanation of the metal factor).

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The dimensions are in mm. In Germany, according to the German law on units in measuring technology, data in inches apply only to devices for export.

Illustrations are not binding.

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Errors excepted and subject to change without prior notice.

[1] The text of the Terms and Conditions of Siemens AG can be downloaded at www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf

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