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Price groups
PG 41B, 41H, 41L, 42C, 42F, 42J

11/2 **Introduction**

Safety relays
SIRIUS 3SK safety relays
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Basic units
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11/25 - SIRIUS 3SK2 basic units
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SIRIUS 3TK28 safety relays
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Overview

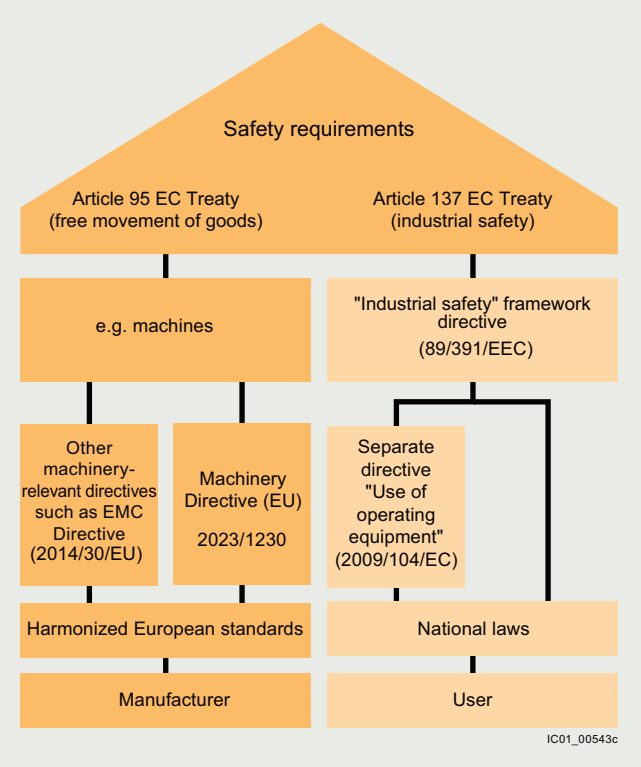
Functional safety of machines and plants – Basic safety requirements in the manufacturing industry

In order to protect people and the environment in many industrial applications in the manufacturing and process industries, machines and plants must meet fundamental safety requirements. The Machinery Directive applies in the EU. 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 realization 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, users in terms of industrial safety (Article 137).

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 consumers
- Differentiate between the requirements which must be met for 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
- Similar requirements apply in many other countries and markets



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.

Production automation is governed in particular by the following standards:

- IEC 62061 and
- ISO 13849-1

The IEC 62061 standard

The IEC 62061 standard "Safety of machinery – Functional safety of safety-related control systems" defines comprehensive requirements. It includes recommendations for the design, integration and validation of safety-related electrical, electronic and programmable electronic control systems (SRECS) for machines. 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.

Requirements with respect to the capacity of non-electrical – e.g. hydraulic, pneumatic, or electromechanical – safety-related control elements for machines are not specified by the standard.



Safety of machines and systems

The ISO 13849-1 standard

ISO 13849-1 "Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design" 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. ISO 13849-1 also provides 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 combining several safety-related parts to form a 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.

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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 portfolio offers you maximum safety.

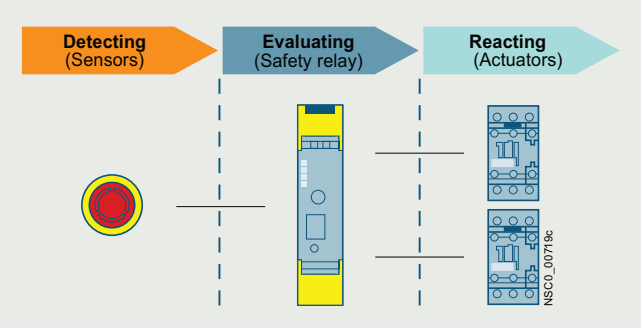
Safety Integrated is a unique, complete and consistent range of safety products covering all safety-related tasks – from detecting, evaluating and reacting, from switches and control systems to operating mechanisms (see graphic on page 11/4). Our products meet the safety requirements in force in industry, 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.

Designing a safety function

A safety chain normally comprises the following functions: detect, evaluate and react. In detail this means:

- Detect = the detection of a safety requirement with corresponding sensors, such as EMERGENCY STOP or position switches
- Evaluate = the detection of a safety requirement and the reliable initiation of a reaction, e.g. shutting down the enabling circuits
- React = shutting down the hazard using suitable motor switching devices such as contactors, fail-safe motor starters, or fail-safe soft starters



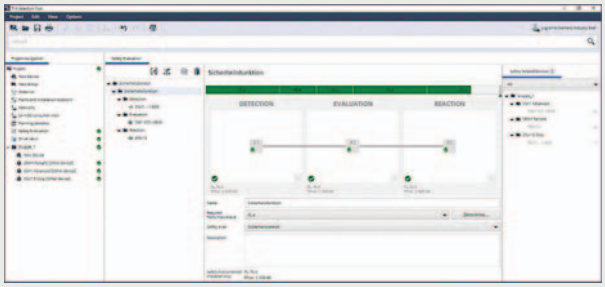
Possible configuration of a safety function

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 life cycle of safety-related systems and machines.

- A uniform, certified product range
- Courses on CE marking, risk assessment and standards, see www.siemens.com/sitrain
- For a collection of frequently required documents, see Safety Integrated - Safety in Factory Automation
- For application examples, see www.siemens.com/safety-selector
- Worldwide service and support, see https://support.industry.siemens.com

For more information, see www.siemens.com/safety-integrated.

Safety Evaluation in the TIA Selection Tool



Safety Evaluation

The safety evaluation for the IEC 62061 and ISO 13849-1 standards is performed quickly and easily, directly in the TIA Selection Tool. In addition to the fast and safe calculation of machine safety functions – from the definition of the system structure to the selection of components – this enables shared data management during all project phases. Take the next step in the digital design of machinery and equipment with Safety Evaluation in the TIA Selection Tool.

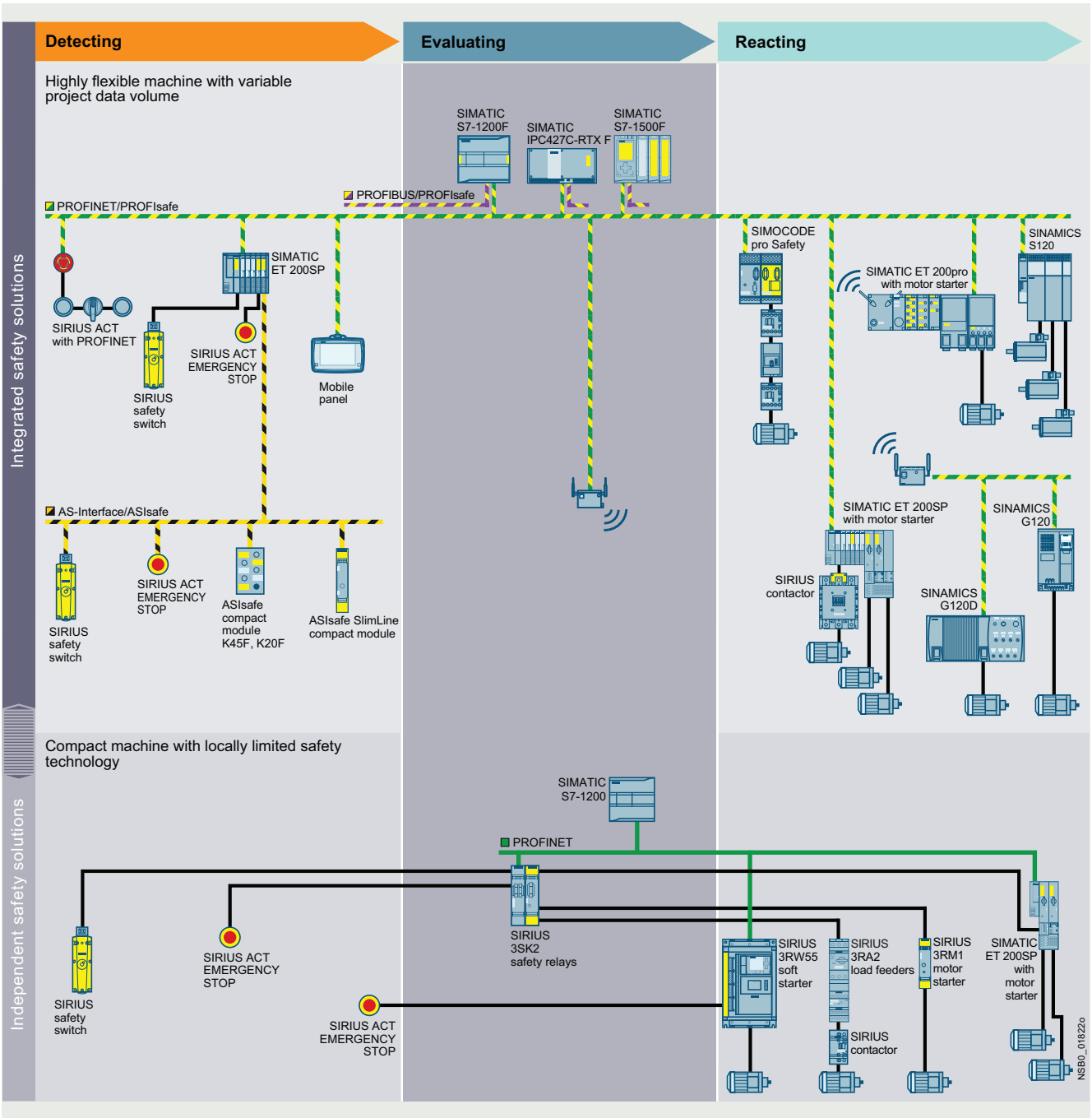
In addition, the functionalities of the proven Safety Evaluation Tool are still available. It determines the achieved safety integrity (SIL/PL) step-by-step. You receive the results as a standard-compliant report that can be integrated in the documentation as proof of safety.

Your advantages at a glance:

- Automatic calculation in accordance with current standards
- Fast results: Standard-compliant report
- Less time needed to evaluate the safety functions
- Fast access to the latest product data
- User-friendly archiving: Projects can be saved and called up again as required
- Selection menus for determining diagnostic coverage (DC) and common cause failures (CCF).
- Different operating cycles can be input when used in a 2-channel configuration
- Failure rate calculation

For more information, see www.siemens.com/safety-evaluation-tool.

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Safety Integrated

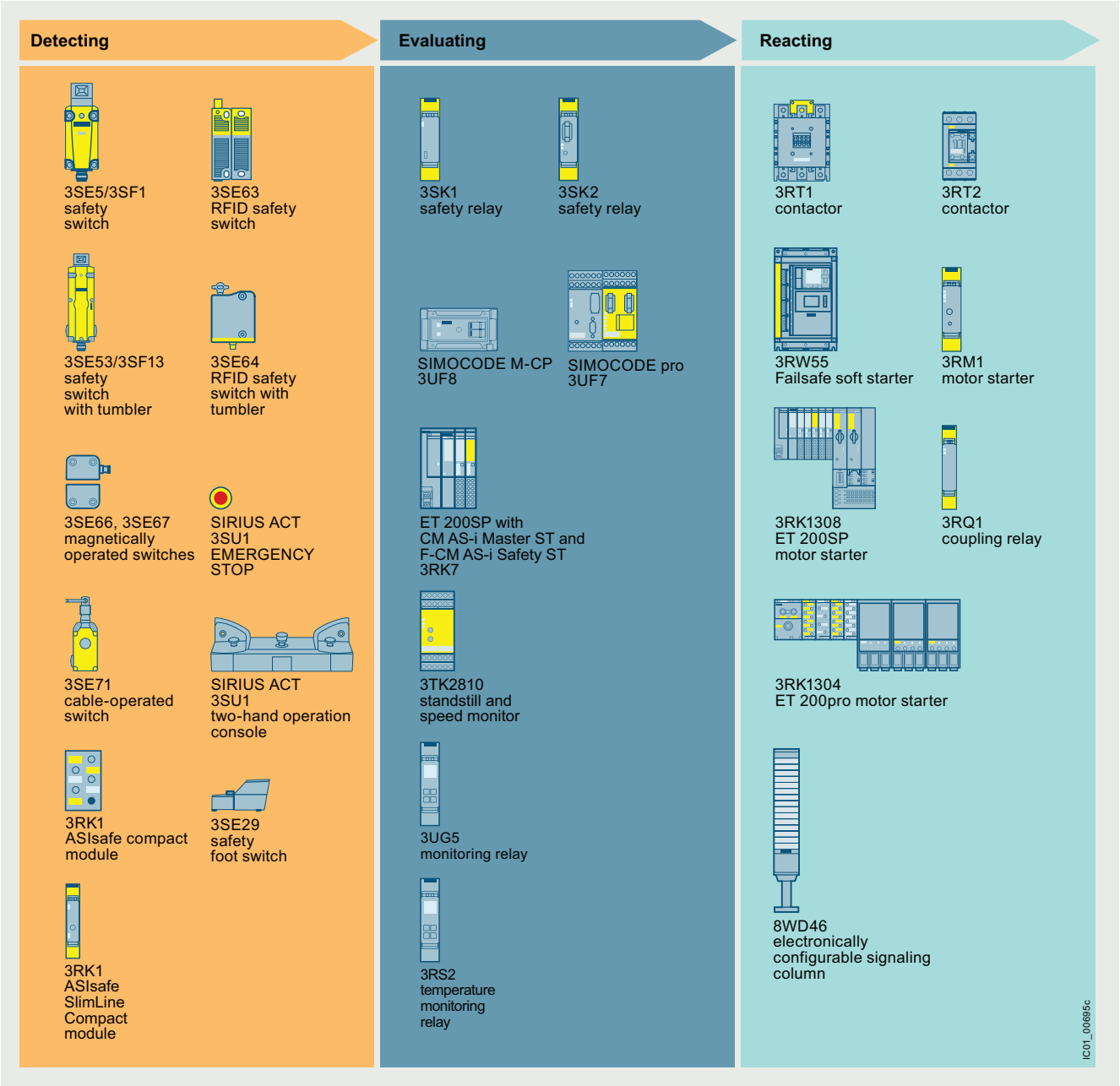
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SIRIUS Safety Integrated

Our SIRIUS Safety Integrated controls are a central element of the Siemens Safety Integrated concept. Whether for fail-safe detecting, commanding and signaling, monitoring and evaluating or starting and reliable shutting down – our SIRIUS Safety Integrated controls are experts at performing safety tasks in your plant.

SIRIUS Safety Integrated uses fail-safe communication via standard fieldbus systems, such as 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.

Implementation of many typical safety applications, see Application Manual for SIRIUS Safety Integrated.



SIRIUS Safety Integrated

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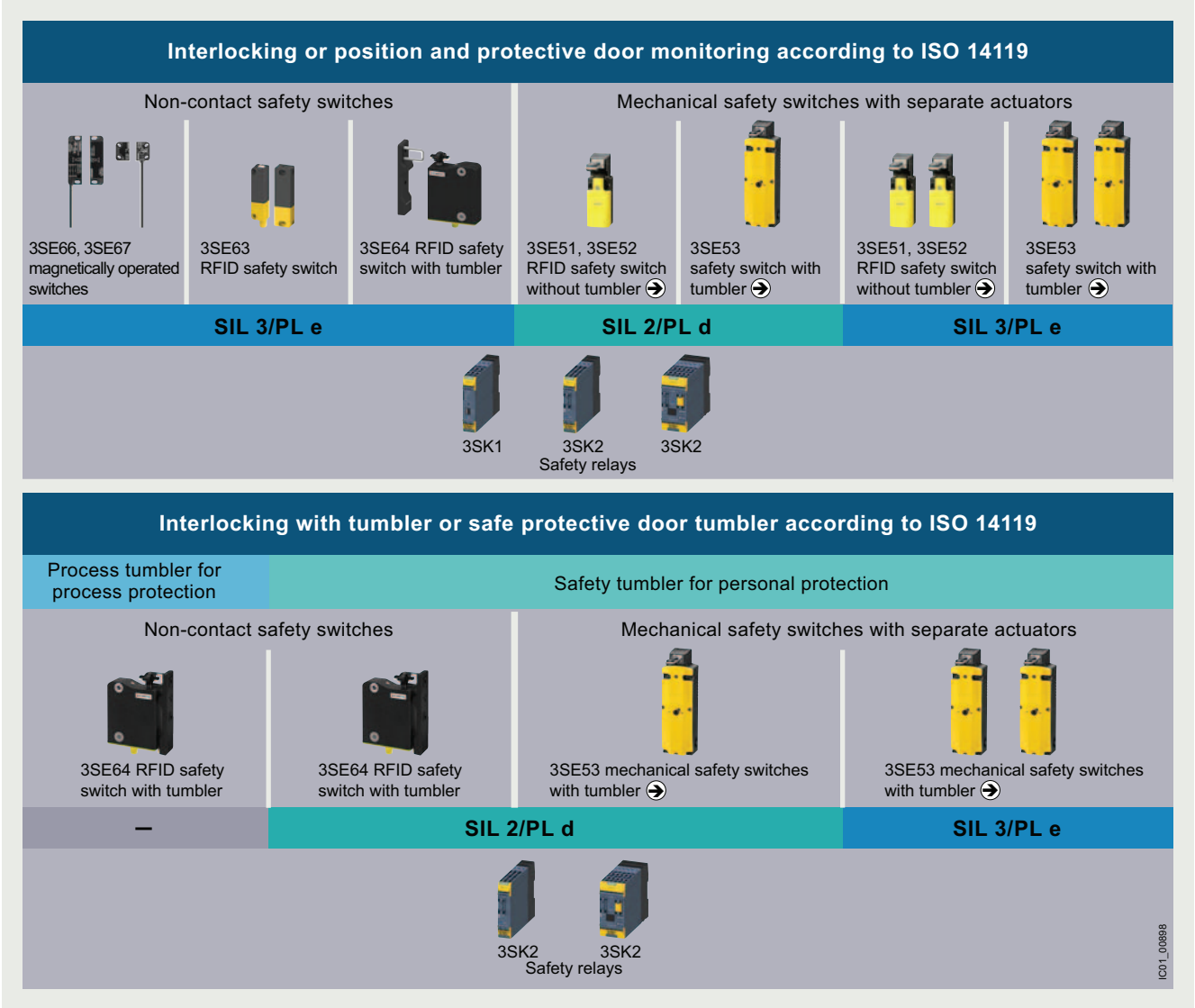
Introduction

Monitoring with safe evaluation devices from the 3SK series

The safe evaluation devices of the 3SK device series are perfectly suited for evaluating safety switches of the 3SE product family. These are not only suitable for simple position switches, but can also be used easily and without problems with non-contact position switches and switches with tumblers. The highest safety levels, SIL 3 according to IEC 62061 or PL e according to ISO 13849-1, can be achieved.

Movable guards must be equipped with an **interlocking** or an **interlocking with tumbler** (guard locking device). These are two different functions in machine safety:

- The **interlocking** is a safety switch that shuts down the machine as soon as the protective cover to which it is attached is opened, making it a safety function.
- The **tumbler** (guard locking device) does not have to be a safety function. It holds the protective cover closed until the dangerous movement has come to a standstill. It can be mounted in addition to the interlocking.



Monitoring with fail-safe evaluation units

Notes:

For more information, see FAQ article.
Safety switches, see page 12/1 onwards.
Monitoring with simple position switches, see page 12/10.

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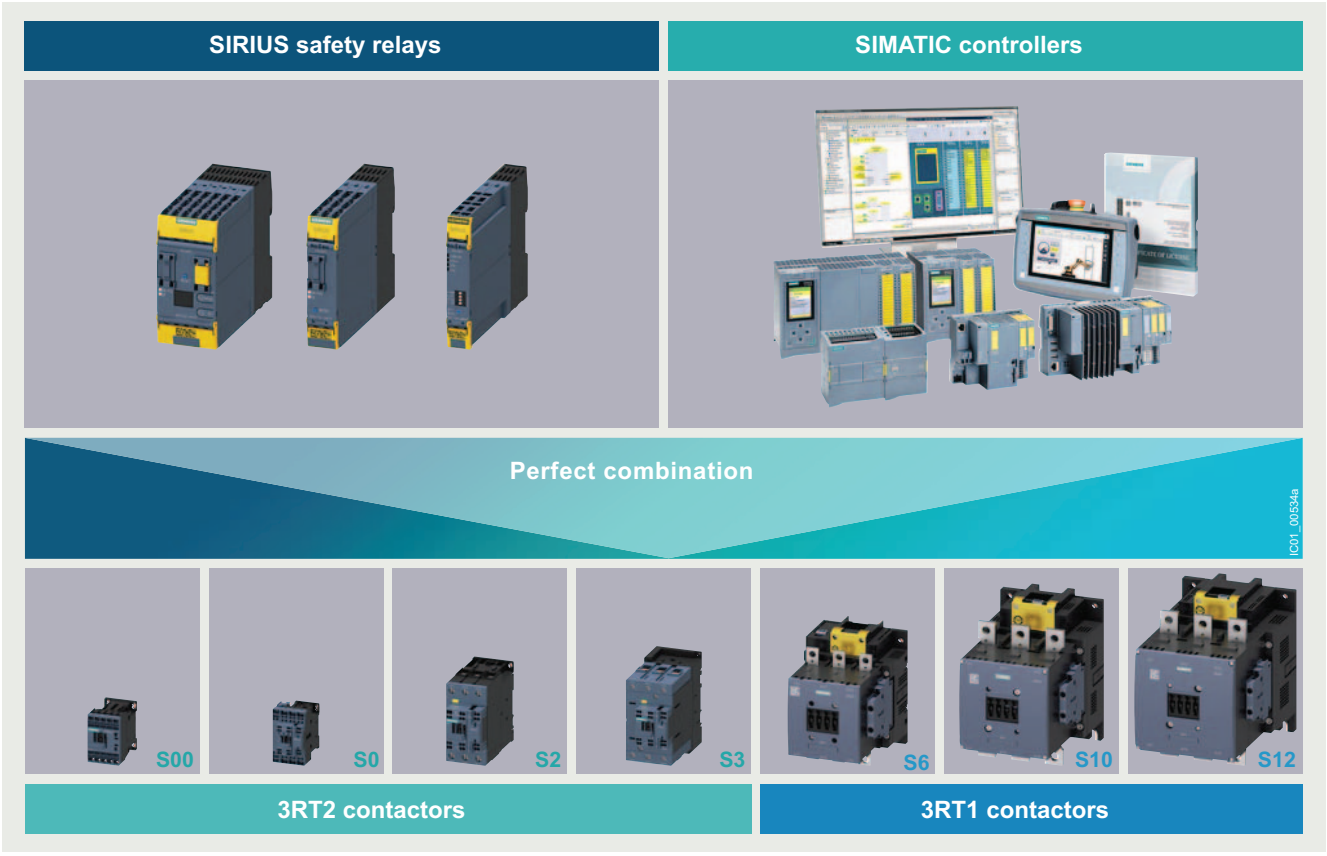
Using SIRIUS 3RT contactors with fail-safe controllers and safety relays

Safety relays and fail-safe controllers work perfectly with SIRIUS contactors optimized for safety application regardless of their size:

- In the low performance range with 3RT201 or 3RT202 contactors with DC operating mechanism
- In the medium performance range with 3RT203 or 3RT204 contactors with solid-state operating mechanism and fail-safe digital input
- In the high performance range with 3RT105, 3RT106 or 3RT107 contactors with solid-state operating mechanism and fail-safe digital input

They offer the following advantages:

- Reduced current load on the controller outputs
- Minimization of wear for mechanical relays on controllers or safety relays
- Coupling links between controllers and contactors are no longer required



Combination of SIRIUS 3RT contactors with fail-safe controllers and safety relays

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		Type	Page
SIRIUS Safety Integrated			
 3SK111	**3SK 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 (SIL 3 according to IEC 62061 or PL e according to ISO 13849-1) • Suitable for use all over the world through compliance with all globally established certifications		
	SIRIUS 3SK1 Standard basic units • Simple, compact devices for all important requirements for monitoring safety sensors and actuators	**3SK111**	11/23
 3SK112	SIRIUS 3SK1 Advanced basic units • Multifunctional series of safety relays with safe relay outputs, 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	**3SK112**	11/24
 3SK2	SIRIUS 3SK2 basic units • Series of safety relays that can be configured by software, with semiconductor outputs and independent output functions for: - EMERGENCY-STOP monitoring - Protective door monitoring - Protective door monitoring with tumbler - 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 - Muting - Communication via PROFINET (optional)	**3SK2**	11/25
 3SK121	Expansion units • 3RO and 4RO output expansions for SIRIUS 3SK1 Standard basic units, SIRIUS 3SK1 Advanced basic units and SIRIUS 3SK2 basic units • 3RQ1 output expansions up to SIL 3/PL e for SIRIUS 3SK1 Standard basic units, SIRIUS 3SK1 Advanced basic units and SIRIUS 3SK2 basic units • Input expansion for SIRIUS 3SK1 Advanced basic units • Power supply for SIRIUS 3SK1 Advanced basic units • Integration of 3RM1 motor starters possible and, therefore, simple integration of a main circuit component in a system configuration of the safety relays. There is no need for complex wiring between the safety evaluation unit and the actuator. • Expansion of the Standard device series by means of wiring • Expansion of the SIRIUS 3SK1 Advanced and SIRIUS 3SK2 device series by means of wiring or without wiring outlay by means of 3ZY12 device connectors	**3SK121, 3SK122, 3SK123**	11/27, 11/29
 3TK2810-1BA41	**3TK2810 safety relays** • Further modules of a consistent and cost-effective safety chain • Can be used for all safety applications thanks to compliance with the highest safety requirements (SIL 3 according to IEC 62061/IEC 61508 or PL e according to ISO 13849-1) • Suitable for use all over the world through compliance with all globally established certifications Safe standstill monitoring with 3TK2810-0 • Monitoring without external sensors • Universal use in applications possible Safe speed monitoring with 3TK2810-1 • Monitoring of speed with encoders and proximity switches possible • Easy diagnostics options via display • Integrated monitoring of a spring-locked protective door	**3TK2810**	11/34

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	Type	Page
SIRIUS Safety Integrated (continued)		
 K45F  SC17.5F	**3RK1**	From 2/25
AS-Interface safety modules • Complete portfolio of ASIsafe modules • For connection of safety switches with contacts (e.g. position switches) • Degree of protection IP65/IP67 or IP20 • Especially compact dimensions, with widths from 17.5 mm • Up to four safe inputs per module • Standard outputs are available on the module in addition • Up to SIL 3/PL e Your advantage: Easy integration of safe signals both in the control cabinet or in the field		
 CM AS-i Master ST and F-CM AS-i Safety ST	**6ES7, 3RK7**	From 2/28, from 2/33
CM AS-i Master ST and F-CM AS-i Safety ST for ET 200SP The CM AS-i Master ST and F-CM AS-i Safety ST modules are plugged into an ET 200SP configuration and connect an AS-i network, including safety-related inputs and outputs, with the controller. • Single, double and multiple masters possible • Per CM AS-i Master ST up to 496 DI/496 DQ/124 AI/124 AQ possible • Per F-CM AS-i Safety ST up to 31 safe input signals (2-channel)/16 safe output channels possible • Configuring in TIA Portal or STEP 7 (Classic) • System-wide safety programming of the F-CPU via SIMATIC Safety Advanced/Distributed Safety/F systems • Integrated diagnostics • No other programming tools required Your advantage: Modular connection of fail-safe AS-i networks with system-wide programming in SIMATIC and SINUMERIK controllers.		
 3RT203.-1S.30  3RT204.-1S.30		
SIRIUS 3RT contactors, 3-pole 18.5 to 55 kW • Solid-state operating mechanism with fail-safe digital input for safety-related applications up to SIL 2/PL c with one contactor or SIL 3/PL e with two contactors • 3RT20 only for motor loads • Version with auxiliary switch can be extended either on the front or on the side	**3RT20**	3/60
 3RT1...-.S.36		
55 to 250 kW or 690 A • Solid-state operating mechanism with fail-safe digital input for safety-related applications up to SIL 2/PL c with one contactor or SIL 3/PL e with two contactors • 3RT10 for motor loads or 3RT14 for weak or non-inductive loads • Version with removable lateral auxiliary switches or permanently mounted auxiliary switches	**3RT10, 3RT14**	3/62, 4/18
 3RQ1		
SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e • They are used for safe coupling up to SIL 3/PL e of control signals from and to a control system or as an output expansion for the SIRIUS 3SK safety relays. • Wide voltage ranges from 24 to 240 V AC/DC • All versions with real load contacts, also in the NC circuit • International standards and certifications including CE, UL/CSA, EAC, railway approvals, and more	**3RQ1**	From 5/21
 3RW55		
3RW55 Failsafe soft starters • 3RW55 soft starters for safety-related tripping • SIL 1/PL c without additional safety evaluation unit or contactor with direct wiring of an EMERGENCY STOP to F-DI • SIL 3/PL e with an additional contactor and safety evaluation unit or F-PLC • For motors up to 315 kW (at 400 V) in the standard (inline) circuit or 560 kW (at 400 V) in the inside-delta circuit	**3RW55**	From 6/39

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		Type	Page
SIRIUS Safety Integrated (continued)			
 3RM1	**3RM1 Failsafe motor starters** • Motor starters for safety-related tripping as 3RM11 direct-on-line starters or 3RM13 reversing starters • Compact devices with 22.5 mm width comprising combinations of relay contacts and power semiconductors (hybrid technology) and an electronic overload relay • 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 • Safety-related shutdown according to SIL 3 or PL e by shutting down the control supply voltage or control inputs possible without additional devices in the main circuit • Combination with 3SK safety relay through conventional wiring or 3ZY12 device connectors • Simple wiring and group shutdown with device connectors in assemblies; there is no further need for complex looping of the connecting cables	**3RM1**	From 8/115
 3RK1308-0CB00-0CP0	**ET 200SP fail-safe motor starters** • Fully integrated into the ET 200SP I/O system (including TIA Selection Tool and TIA Portal) • Fully pre-wired motor starters for switching and protecting any three-phase loads up to 5.5 kW from 48 V AC to 500 V AC • Less space required in the control cabinet (20 to 80%) as a result of greater functional density (direct-on-line and reversing starters in same width) • Longer service life and reduced heat losses thanks to hybrid technology • Self-assembling 32 A power bus, i.e. the load voltage is only fed in once for a group of motor starters • High degree of flexibility when it comes to safety applications via SIMATIC F-CPU or 3SK safety relays up to SIL 3 or PL e • Diagnostics capability for active monitoring of the switching and protection functions • Digital inputs can optionally be used via a 3DI/LC module	**3RK1**	From 8/106
 ET 200pro Safety	**ET 200pro Safety motor starters Solution** PROFIsafe Safety motor starters Solution are often found 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. It comprises: • PROFIsafe modules • Disconnecting modules • Standard motor starters • High Feature motor starters	**3RK1**	From 9/11
 SIMOCODE M-CP	**SIMOCODE M-CP motor management and control devices** • Flexible, compact motor management system for motors with constant speeds in the low-voltage performance range • Optimizes the connection between I&C and motor feeder, increases plant availability and allows significant savings to be made for installation, commissioning, operation and preventive maintenance of a system. • Multi-functional, electronic full motor protection which is independent of the automation system • Integrated voltage and power measurement instead of hardware for the motor control • Detailed operating, service and diagnostics data • Open, Ethernet-based communication via PROFINET IO. The devices are set by default to PROFINET IO communication as the fieldbus protocol and can be switched over to EtherNet/IP or Modbus TCP using the SIMOCODE ES software. • Safety-related function for shutting down motors via a 1-channel input that complies with SIL 1 according to IEC 61508	**3UF8**	From 10/5
 SIMOCODE pro V  SIMOCODE pro S	**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 via PROFIBUS DP, PROFINET/OPC UA, Modbus RTU or EtherNet/IP • Safety relay function for the fail-safe disconnection of motors up to SIL 3 according to IEC 62061/IEC 61508 or PL e according to 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 for when a fail-safe controller (F-CPU) creates the fail-safe signal for the disconnection	**3UF7**	From 10/15

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		Type	Page
SIRIUS Safety Integrated (continued)			
 3UG5	**3UG5 monitoring relays** • For electrical and mechanical quantities and the following functions: - Line monitoring relay (phase sequence and failure) - Monitoring of current and voltage, power factor, active current, power - Undershooting and/or overshooting of liquid levels or speed limits • Enable constant monitoring of all important characteristic quantities that provide information about the performance reliability of the plant • Direct, safe disconnection of the affected plant components up to SIL 1 according to IEC 62061/IEC 61508 or PL c according to ISO 13849-1 as well as alarms (e.g. by activating a warning lamp)	**3UG5**	From 10/72
 3RS2	**3RS2 temperature monitoring relays** • Relay for fail-safe monitoring of temperatures in solid, liquid and gaseous media • Direct, safe disconnection of the affected plant components up to SIL 1 according to IEC 62061/IEC 61508 or PL c according to ISO 13849-1 as well as alarms	**3RS2**	From 10/116
 3SE51	**3SE5 mechanical position switches** • Easy assembly thanks to modular design • Solid, rugged design • Special versions are easily generated and quickly available, also in combination with standard modules • With a 3SE51/3SE52 position switch, it is possible to achieve SIL 1 according to IEC 62061/IEC 61508 or PL c according to ISO 13849-1. • SIL 2/PL d or SIL 3/PL e can be achieved by using a second 3SE51/3SE53 position switch.	**3SE51, 3SE52**	From 12/5
 3SE53	**3SE5, 3SF1 mechanical safety switches** • With separate actuator, hinge switch, or separate actuator and tumbler • With a position switch, it is possible to achieve SIL 2 according to IEC 62061/IEC 61508 or PL d according to ISO 13849-1. • SIL 3 according to IEC 62061/IEC 61508 or PL e according to ISO 13849-1 can be achieved by using a second 3SE51 or 3SE52 position switch. • Version in various sizes made of metal or plastic • In the case of safety switches with tumbler, versions in the high degree of protection IP69 • Version with integrated ASIsafe electronics available for all enclosure designs	**3SE51, 3SE52, 3SE53** **3SF1**	From 12/56 From 12/101
 3SE66, 3SE67	**3SE6 non-contact safety switches** Magnetically operated switches • Small, compact, safe • Simple installation even in restricted spaces thanks to connector versions • Two safety contacts and one signaling contact enable simple diagnostics at the maximum safety level	**3SE66, 3SE67**	From 12/121
 3SE63	RFID safety switches • Long service life due to non-contact switching • Only one switch required for the maximum safety level SIL 3 according to IEC 62061/IEC 61508 or PL e according to ISO 13849-1 • Tamper protection better than with mechanical safety switches thanks to switches and actuators with individual coding • LED status display including threshold indication for door displacement • Degree of protection up to IP69 and resistance to cleaning products • Larger switching displacement than with mechanical switches; offers better mounting tolerance and sagging tolerance of the protective door	**3SE63**	From 12/128
 3SE64	RFID safety switches with tumbler In addition to the features mentioned above for 3SE63, the RFID safety switch with tumbler has other advantages: • 1 150 N locking force • Suitable for protection of persons and/or processes (closed-circuit or open-circuit principle) • 25 N/50 N latching force adjustment by rotating the star handle 180° • Guard locking possible from three sides (three directions of actuation) by means of a star handle • Assisted or escape release of guard locking • Actuator can be used for door stop (using damper)	**3SE64**	From 12/132

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		Type	Page
SIRIUS Safety Integrated (continued)			
 3SU14	**Command devices** SIRIUS ACT pushbuttons and indicator lights • Using a special F adapter, EMERGENCY-STOP devices according to ISO 13850 can be directly connected through the standard AS-Interface or PROFIsafe with safety-related communication. This F adapter/fail-safe interface module is snapped from the rear onto the EMERGENCY-STOP device, enabling the achievement of SIL 3 according to IEC 62061 or PL e according to ISO 13849-1. • Thanks to SIRIUS ACT with PROFINET, commanding and signaling devices can be connected directly via PROFINET to the controller and HMI devices – including with safety functions. Engineering and commissioning are simplified by the TIA Portal. • EMERGENCY-STOP devices for disconnecting plants in an emergency situation • With positive latching function according to ISO 13850 and SIL 3 according to IEC 62061 or PL e according to ISO 13849-1 • Various mushroom diameters (also illuminated), with lock, in plastic/metal, as individual or complete units, and in combination with 3SU1 enclosure or two-hand operation console. The 3SU1 enclosures are also optionally available with ASIsafe interface.	**3SU1**	From 13/6
 3SU1 with PROFINET			
 3SE7	**3SE71 cable-operated switches** • Control functions and EMERGENCY STOP always within reach • More safety over long distances of up to 2 x 100 m length • Easy release • Fail-safe applications with SIRIUS Safety Integrated • Status display directly on the switch • Signal display for long distances in innovative LED technology with visibility over 50 m • Cable-operated switches with latching according to ISO 13850 (EN 418) and full EMERGENCY-STOP function with positive-opening contacts • Quick and safe mounting using uniform mounting accessories • Versions with 1 NO/2 NC with yellow lid	**3SE71**	From 13/158
 3SE2924-3AA20	**3SE29 safety foot switches** • Are used wherever manual operation is not possible • With cover, IP65 metal enclosure • With interlocking function according to ISO 13850, manual release by pushbutton switch • With 2 NO + 2 NC, NO contacts close by momentary contact, positive-opening NC contacts with independent latching (safety function)	**3SE2924-3AA20**	From 13/165
 8WD46	**Electronically configurable 8WD46 signaling columns** • Compact and electronically modular design for flexible and versatile use • Flexible segment configuration through individually adjustable colors (multicolor LED), intensity and function (blinking, flashing, continuous or rotating light) • Adjustable tones and volume • Conventional signaling columns with configuration of the signaling columns via USB interface, with fast linking to the application through 8-pole M12 plug • Signaling columns for IO-Link configured via IO-Link interface (IODD) and fast linking to the application through 4-pole M12 plug	**8WD46**	From 13/167

11

Connection methods

The 3SK safety relays are available with screw or spring-loaded terminals (push-in).

The 3TK2810 safety relays are available with screw or spring-loaded terminals.

⊕	Screw terminals
⊞	Spring-loaded terminals, spring-loaded terminals (push-in)
	The connection method is indicated in the corresponding tables by the symbols shown on orange backgrounds.

3SK safety relays: Spring-loaded terminals (push-in) with TOP wiring

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

As with other spring-loaded 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-loaded terminals, in speed of assembly and disassembly and vibration-proof connection. There is no need for the checking and tightening required with screw terminals.

With the TOP wiring method, the wire inlet and terminals can be reached from the front. This helps to speed up the wiring process and eliminate wiring errors.



Video: SIRIUS spring-loaded terminals – Strong, flexible, safe, fast

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Overview



SIRIUS 3SK safety relays



Video: 3SK safety relays – Select the optimum device - precisely for your application

Note:

For more videos in the SiemensKnowledgeHub – YouTube, see www.youtube.com/@SiemensKnowledgeHub.

More information

Homepage, see www.siemens.com/sirius-safety-relays

SiePortal, see www.siemens.com/product_catalog_siep?3SK

Topic page, see https://support.industry.siemens.com/cs/ww/en/view/109764311

TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=Sirius3SK

Conversion tool, see www.siemens.com/conversion-tool

SIRIUS Safety ES (TIA Portal) for 3SK2, see www.siemens.com/product_catalog_siep?3ZS1

SIRIUS Sim 3SK2 simulation tool, see https://support.industry.siemens.com/cs/ww/en/view/109763750

SIRIUS 3SK safety relays are the key elements of a consistent, cost-effective safety chain. Whether you need EMERGENCY-STOP functionality, protective door monitoring, light arrays, laser scanners or the protection of presses or punches – slimline SIRIUS safety relays enable all safety applications to be implemented in the best possible way in terms of engineering and price.

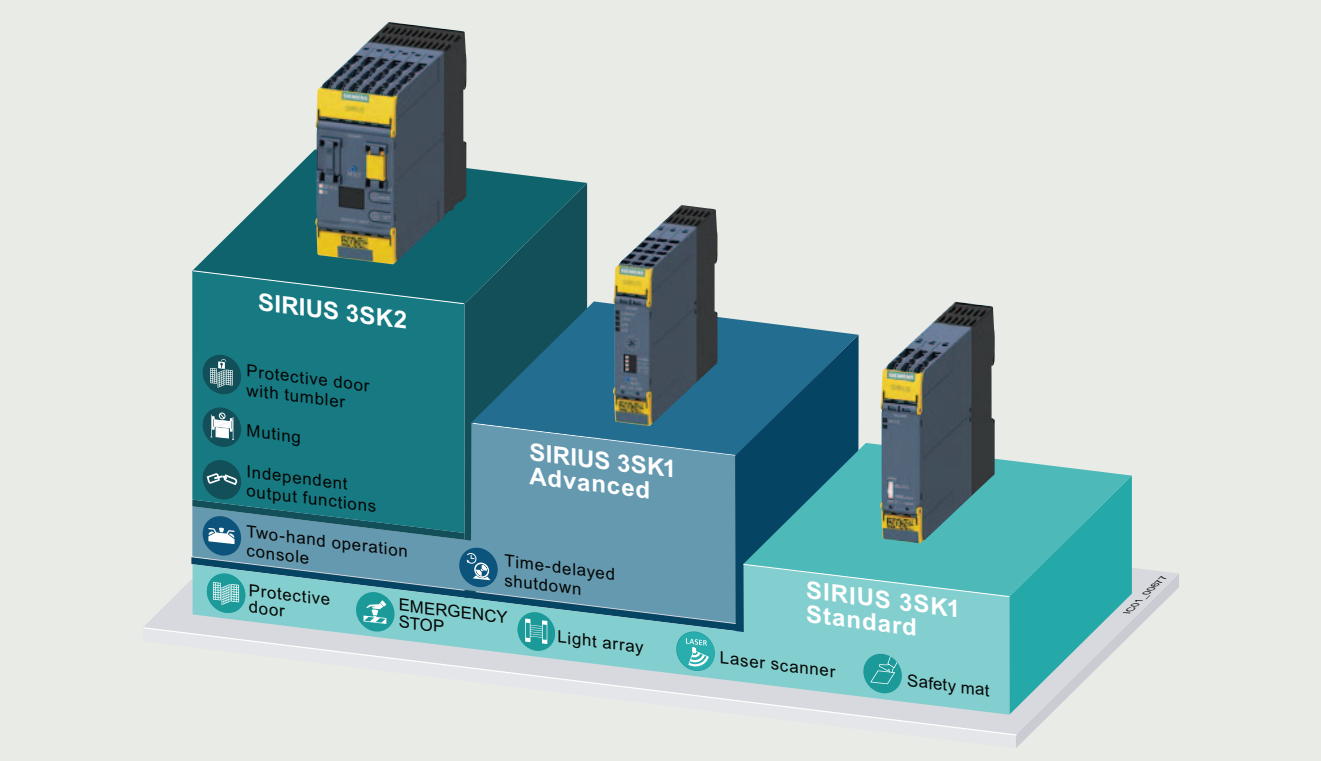
The following safety-related functions are available:

- Monitoring the safety functions of sensors
- Monitoring the sensor cables
- Monitoring the correct device function of the safety relays
- Monitoring the actuators in the shutdown circuit
- Safety-related disconnection when dangers arise

SIRIUS 3SK safety relays are approved for applications up to SIL 3 according to IEC 62061 or PL e according to ISO 13849-1.

A version with protective coating on the printed circuit board according to IPC-A-610 is available for use in harsh ambient conditions (other device versions are available on request).

Device series



SIRIUS 3SK device series

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General data

SIRIUS 3SK safety relays stand out due to their flexibility for both parameterization and system designs with several evaluation units. This reduces device variance, thus bringing advantages in terms of device selection and spare parts management. Optimized solutions when selecting components and reduced stock-keeping requirements are facilitated by a clearly structured component range. Device connectors are simply used for connecting most components. This considerably reduces the wiring effort and avoids possible errors.

3SK1 Standard basic units

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

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

3SK1 Advanced basic units

The 3SK1 Advanced basic units also offer:

- Universal application possibilities thanks to multifunctionality
- Time-delayed outputs
- Expansion of inputs and outputs

3SK2 basic units

The 3SK2 basic units also offer:

- Up to six fail-safe, independent shutdown functions
- Flexible in use thanks to software parameterization
- Powerful semiconductor outputs
- Convenient diagnostics using diagnostics display and configuration software
- Communication via PROFINET by means of a communications module

All three basic unit series can be supplemented with output expansions. These provide further fail-safe, potential-free relay contacts for controlling actuators. In addition, the 3RM1 Failsafe motor starters can also be integrated into the 3SK system (see page 11/17).

In the 3SK1 Advanced and 3SK2 device series, the output expansions are connected by means of device connectors, in the 3SK1 Standard series by means of wiring.

For the 3SK1 Advanced device series, there is also the possibility of supplementing the basic units with input expansions. Here too, the connection is made via device connectors. This means that no individual basic units need to be interconnected if more than one sensor is required in the safety application.

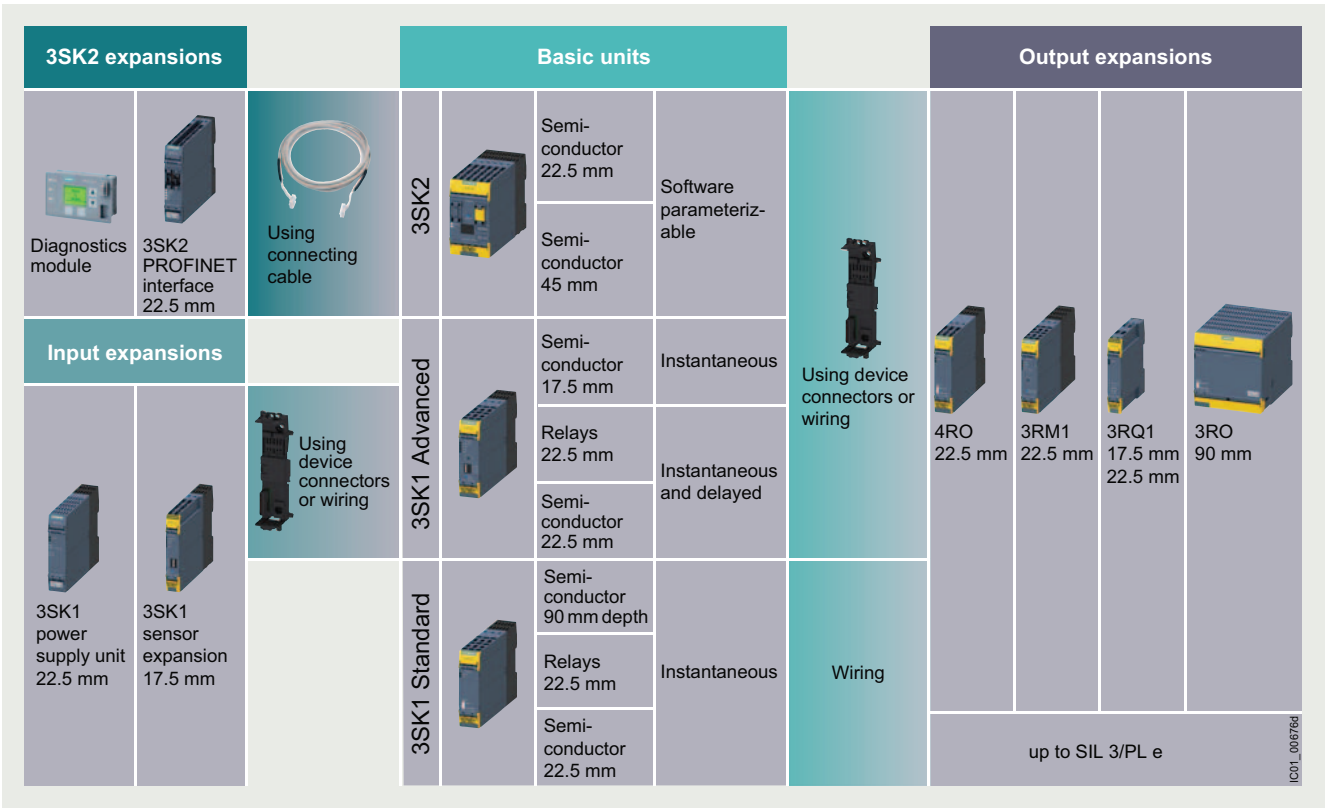
Since the 3SK1 Advanced device series comprises devices with 24 V DC operational voltage, a power supply is also available.

The 3SK2 device series can optionally be connected with a communications module via PROFINET to a control system, e.g. for diagnostics.

It is also possible to connect a diagnostics module to the 3SK2 system. This can be mounted in the control cabinet door, for example, and displays errors and diagnostics as well as configuration data quickly and clearly.

The 3SK1 Standard and Advanced and 3SK2 series are a high-quality replacement for the 3TK28 safety relays. In their narrower design, and equipped with greater functionality, they can replace every 3TK28 device. The only exception to this are the 3TK2810 devices.

The 3RQ1 force-guided coupling relays can be used as an output expansion for 3SK up to SIL 3/PL e. Connection is also possible with device connectors.



System overview

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Function overview of the 3SK device series

Type	3SK1 Standard basic units		3SK1 Advanced basic units		3SK2 basic units	
					22.5 mm	45 mm
	Safe relay outputs	Safe semiconductor outputs	Safe relay outputs	Safe semiconductor outputs	Safe semiconductor outputs	Safe semiconductor outputs
Sensors						
• Mechanical	✓	✓	✓	✓	✓	✓
• Non-floating	✓[1]	✓	✓	✓	✓	✓
• Antivalent	--	--	✓	✓	✓	✓
• Expandable	--	✓ by means of cascading	✓	✓	--	--
Inputs						
	2 x 1-channel, 1 x 2-channel	2 x 1-channel, 1 x 2-channel	2 x 1-channel, 1 x 2-channel	2 x 1-channel, 1 x 2-channel	Freely configurable: 10 x 1-channel, 5 x 2-channel	Freely configurable: 20 x 1-channel, 10 x 2-channel
Parameters						
• Start (auto/monitored)	✓	✓	✓	✓	A variety of functions can be set for each input/output by means of software parameterization.	
• Sensor connection, 2 x 1-channel/ 1 x 2-channel	✓ by means of wiring	✓	✓	✓		
• Cross-circuit detection	✓ by means of wiring	✓	✓	✓		
• Start-up test ON/OFF	--	✓	✓	✓		
• Monitoring of two-hand operator panels according to EN 574/ISO 13851	--	--	✓	✓		
• Safety mat	--	--	✓	✓		
Safe outputs						
• Instantaneous	✓	✓	✓	✓	Configurable	Configurable
• Time-delayed	--	--	✓	✓	Configurable	Configurable
• Expandable with safe relay outputs	✓ by means of wiring	✓ by means of wiring	✓	✓	✓	✓
• Independent	--	--	--	--	✓[2]	✓[3]
• Device connectors	--	--	✓	✓	✓	✓
Options						
• External memory module	--	--	--	--	--	✓
• Display on the device	--	--	--	--	--	✓
• External diagnostics module can be connected	--	--	--	--	✓	✓
Control supply voltage						
• 24 V DC	✓[4]	✓	✓	✓	✓	✓
• 110 ... 240 V AC/DC	✓	✓[5]	✓[6]	✓[6]	--	--

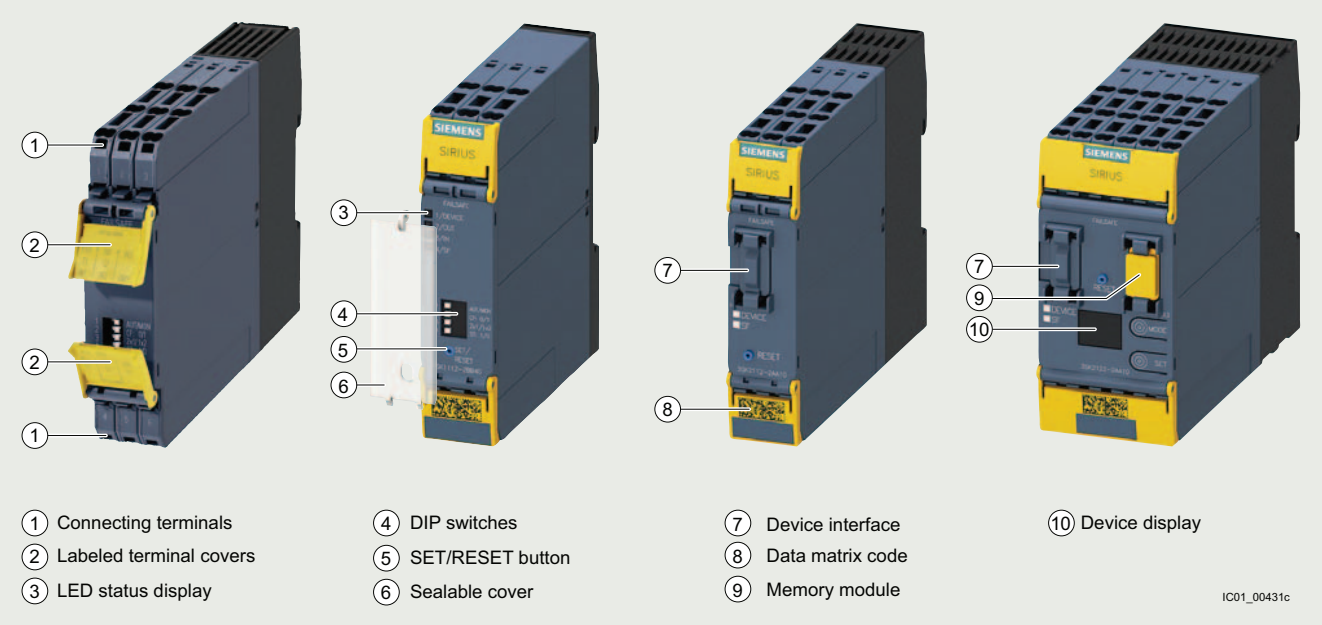
✓ Available
-- Not available

1) 24 V basic units only.
2) Up to four independent safe outputs, two of which via device connectors.
3) Up to six independent safe outputs, two of which via device connectors.
4) 24 V AC/DC.
5) Possible using 3SK1230 power supply by means of wiring.
6) Possible using 3SK1230 power supply via device connector.

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General data

Enclosure concept

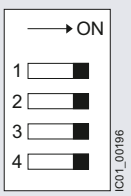


Innovative enclosure concept for SIRIUS 3SK safety relays

Parameter assignment

3SK112 and 3SK1112 with DIP switch

The 3SK112 and 3SK1112 safety relays are configurable safety relays. They are used as evaluation units for typical safety chains (detect, evaluate, react). A number of functions can be set using the DIP switches on the front. 3SK112 and 3SK1112 are therefore universally applicable.

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

3SK2 with software

The SIRIUS Safety ES (TIA Portal) software permits quick and easy parameterization, commissioning and diagnostics of SIRIUS 3SK2 safety relays.
Device configuration and device functionality can easily be created graphically directly on the PC and transferred to the switching device through a USB cable or an optional PROFINET interface.

Note:

SIRIUS Safety ES (TIA Portal), see page 14/24.

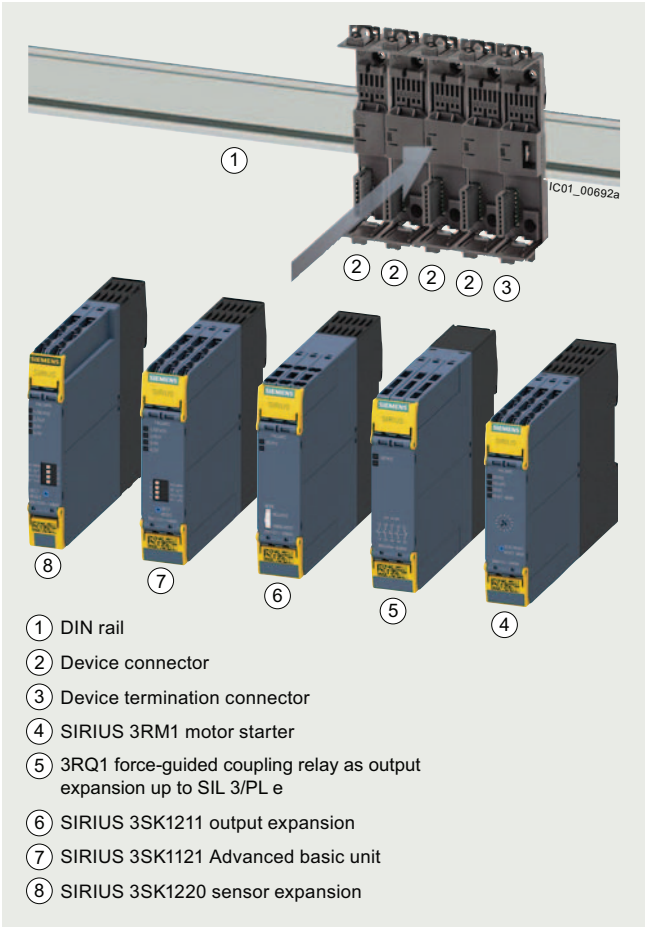
Communication

	 3SK2112, 22.5 mm	 3SK2122, 45 mm
PROFINET	✓	✓

✓ Available

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Optimum connection with device connectors



3RQ1 with 3SK1

In the case of 3SK1 Advanced basic units or 3SK2 basic units, the 3ZY12 device connectors allow safety functions involving several sensors and actuators to be constructed very quickly.

3RQ1 coupling relays as output expansion for 3SK

The SIRIUS 3RQ1 force-guided coupling relays in a modern titanium gray industrial enclosure are available in widths of 17.5 mm or 22.5 mm and can be used as an output expansion for SIRIUS 3SK safety relays.

They have Safety certification up to SIL 3 according to IEC 62061/IEC 61508 or PL e according to ISO 13849-1.

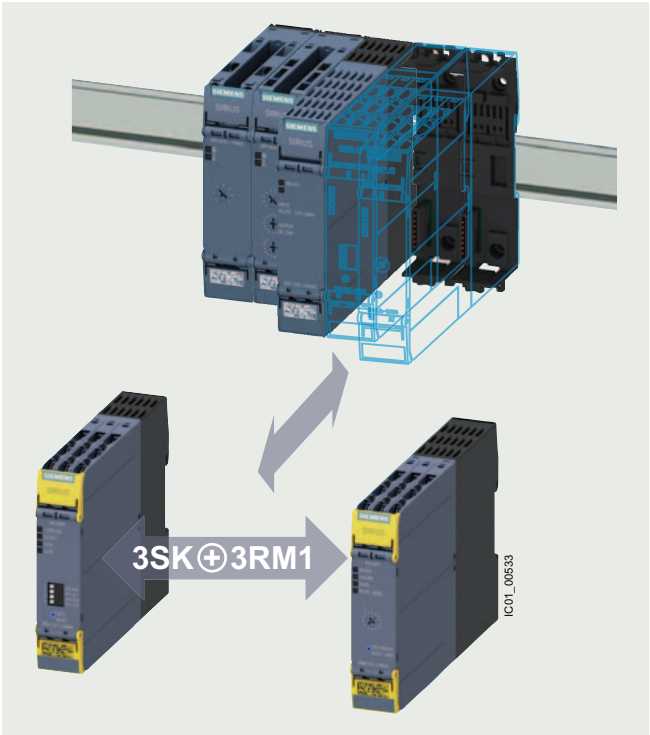
Versions with a wide range voltage input of 24 to 240 V AC/DC and an installation depth of 90 mm, and versions with 24 V DC and an installation depth of 120 mm for use with 3SK device connectors are available.

The series consists of devices with up to five outputs and can be supplied with screw or spring-loaded (push-in) terminals.

Note:

SIRIUS 3RQ1 coupling relays, see page 5/21.

Seamlessly integrated safety right through to the main circuit



Problem-free integration of functional safety into the main circuit through the simple combination of 3RM1 and 3SK1 devices

Functional safety in the main circuit needs to be both simple and flexible

The unique compatibility of hybrid 3RM1 fail-safe motor starters and 3SK safety relays means that integrated functional safety right through to the main circuit is no longer a problem.

Their compact design allows the motor starters to be installed to the right of the safety relay in a simple manner, just like an output expansion. The wiring of the safety-related signals to the relay can be performed simply, quickly and in an error-free manner using the device connector.

The ergonomically designed enclosure with removable terminals and terminal labeling in the hinged cover allows for the cables to be conveniently diagonally mounted from the front. Either screw or spring-loaded terminals with push-in technology are available.

Highlights

- Fail-safe disconnection of motors up to 3 kW
- Problem-free combination of fail-safe motor starters and safety relays
- End-to-end system, simple setup using device connectors
- Ergonomic enclosure

Note:

SIRIUS 3RM1 motor starters, see page 8/115.

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General data

Ordering notes for multi-unit packaging

SIRIUS 3SK safety relays can also be ordered in practical and environmentally friendly multi-unit packaging on request.

Multi-unit packaging with order code X90

When ordering products in multi-unit packaging, the article number of the product concerned must be supplemented with "**-Z**" and, in addition, the order code "**X90**" must be specified.

Ordering example:
3SK1111-2AB30-Z X90;
Order quantity 12 items → Packed number of items 12

For more information, see page 16/7.

Article number schemes

Product versions		Article number
3SK1 safety relays		**3SK1 □□□–□□□□□□–□□□□**
Device types	Basic unit	**1**
	Expansion unit	**2**
Device versions	3SK11: Standard; 3SK12: Output expansion	**1**
	3SK11: Advanced; 3SK12: Input expansion	**2**
Type of outputs	Relay outputs	**1**
	Semiconductor outputs	**2**
	Power outputs	**3**
Connection type	Screw terminals	**1**
	Spring-loaded terminals (push-in)	**2**
Control circuit/actuation	3SK11: 3 enabling circuits	**A**
	3SK11: 2 enabling circuits	**B**
	3SK11: 4 enabling circuits	**C**
Type of control supply voltage	3SK1213: 24 V AC, 50/60 Hz	**B 0**
	3SK1: 24 V AC/DC, 50/60 Hz	**B 3**
	3SK1: 24 V DC	**B 4**
	3SK1213: 115 V AC, 50/60 Hz	**J 2**
	3SK1213: 230 V AC, 50/60 Hz	**L 2**
	3SK1: 110 ... 240 V AC/DC, 50/60 Hz	**W 2**
Time delay	None	**0**
	0.05 ... 3 s	**1**
	0.5 ... 30 s	**2**
	5 ... 300 s	**4**
Versions	With protective coating on printed circuit board	**0 A X 0**
Example		**3SK1 1 1 1 – 1 A B 3 0**

Product versions		Article number
3SK2 safety relays		**3SK2 1 □ 2 – □ A A 1 0**
Device versions	10 F-DI, 2 F-DQ, width 22.5 mm	**1**
	20 F-DI, 4 F-DQ, width 45 mm	**2**
Connection type	Screw terminals	**1**
	Spring-loaded terminals (push-in)	**2**
Example		**3SK2 1 1 2 – 1 A A 1 0**

Product versions		Article number
3SK2 interface modules		**3SK2 5 1 1 – □ F A 1 0**
Connection type	Screw terminals	**1**
	Spring-loaded terminals (push-in)	**2**
Example		**3SK2 5 1 1 – 1 F A 1 0**

Note:

The article number schemes show an overview of product versions for better understanding of the logic behind the article numbers.

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

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Benefits

General

- Approved for all safety applications because of its compliance with the highest safety requirements (SIL 3/PL e)
- Universally usable thanks to adjustable parameters
- Usable worldwide thanks to globally valid certificates
- Compact SIRIUS design
- Device connectors with DIN-rail mounting for flexible connectability and expandability
- Removable terminals for greater plant availability
- Yellow terminal covers clearly identify the device as a safety component
- Sensor cable with a length of up to 2 000 m allows it to be used in extensive plants
- Can be used for installation altitudes up to 4 000 m
- Device versions with protective coating on printed circuit board

Relay outputs

- Different voltages can be switched through the floating contacts
- The relay contacts allow currents of up to 5 A at AC-15/DC-13 to be connected

Semiconductor outputs

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

Power outputs (3SK1213 output expansion)

- Different voltages can be switched through the floating contacts
- With the power relay contacts currents up to 10 A AC-15/6 A DC-13 can be switched
- High mechanical and electrical endurance
- Protective separation between safe outputs and electronics

Expansion option by adding the 3RM1 motor starter

SIRIUS 3SK safety relays are ideal for combining with the SIRIUS 3RM1 motor starters (see page 11/17).

Combinations are made by means of SIRIUS 3ZY12 device connectors (in combination with 3SK1 Advanced/3SK2) or conventional wiring (for all 3SK1 and 3SK2 basic units).

This makes a group shutdown very easy in assemblies. The wiring, and ultimately the shutting down of the control supply voltage for the expansion components in EMERGENCY-STOP situations, is performed via the device connector. There is no further need for complex looping of the connecting cables between the safety relay and the motor starters.

The 3RM1 motor starter combines 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 in the case of motorized loads is conducted briefly via the semiconductors. Advantages include protection of the relay contacts and a long service life due to low wear.
- The uninterrupted current is conducted via relay contacts. Advantages include lower heat losses compared with the semiconductor.
- Shutdown is implemented again via the semiconductor. The contacts are only slightly exposed to arcs, and this results in a longer service life.
- Integrated overload protection

Expansion option with 3RQ1 coupling relay

SIRIUS 3SK safety relays are ideal for combining with the SIRIUS 3RQ1 coupling relays (see page 11/17). Combinations are made by means of SIRIUS 3ZY12 device connectors or wiring.

3ZY12 device connectors

Using 3ZY12 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-assembled application.

Configuration and stock-keeping

Variable setting options by means of DIP switches or software, a wide voltage range (3SK1111) and a special power supply unit (3SK1 only) reduce the cost of stock-keeping, along with the configuration considerations of which evaluation unit should be selected.

Communication

The 3SK2 safety relays can be easily integrated in the overall application via PROFINET using optionally available interface modules.

This provides the following advantages:

- Exchange of signals and information with the plant controller
- Read-out and visualization of diagnostics information of the safety relay via the controller supports troubleshooting and reduces plant downtimes
- Access with the Safety ES engineering software via the fieldbus for parameterization, commissioning and diagnostics

Simulation

The SIRIUS Sim simulation tool for 3SK2 (see page 11/25) can be used to quickly and easily test configurations that have been created without real devices. The configurations thus created can then be loaded directly into the real devices. Time and costs for engineering are thus reduced.

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General data

Application

3SK1 safety relays

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

Suitable for use in harsh ambient conditions

Versions with protective coating on the printed circuit board according to IPC-A-610 are available for use in environments that are exposed to dust, condensation, rapid temperature changes and corrosion. These are intended for applications in rail systems, agriculture, mining, woodworking, etc.

Note:

Other device versions with protective coating on the printed circuit board are available on request.

3SK2 safety relays

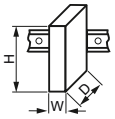
SIRIUS 3SK2 safety relays are used primarily in autonomous, more complex safety applications for which the functional scope of the 3SK1 devices is no longer sufficient, such as in the implementation of independent shutdown functions or integration into higher-level control systems for diagnostics via fieldbus. Their function here is to evaluate the sensors and initiate safety-related tripping in the event of hazards. Also they check and monitor the sensors, actuators and safety-related functions of the safety relay.

Technical specifications

More information	
Equipment Manual 3SK1, see https://support.industry.siemens.com/cs/ww/en/view/67585885	Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16382/td
Equipment Manual 3SK2, see https://support.industry.siemens.com/cs/ww/en/view/109444336	FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16382/faq

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SIRIUS 3SK1 safety relays

Article number		3SK1111-.AB30, 3SK1211-.BB00, 3SK1211-.BB40	3SK1111-2AB30-0AX0	3SK1111-.AW20, 3SK1121-.AB40, 3SK1121-.CB41, 3SK1121-.CB42, 3SK1121-.CB44, 3SK1211-.BW20	3SK1112-.BB40	3SK1120-.AB40, 3SK1220-.AB40	3SK1122-.AB40, 3SK1122-.CB41, 3SK1122-.CB42, 3SK1122-.CB44	3SK1213-.AB40, 3SK1213-.AJ20, 3SK1213-.AL20
General data								
Width x height x depth 	mm	22.5 x 100 x 121.6			22.5 x 100 x 91.6	17.5 x 100 x 121.6	22.5 x 100 x 121.6	90 x 100 x 121.6
Ambient temperature								
• During operation	°C	-25 ... +60						
• During storage	°C	-40 ... +80						
Installation altitude at height above sea level, maximum	m	4 000; Derating, see Product announcement						
Air pressure according to SN 31205	kPa	90 ... 106						
Shock resistance		10 *g*/11 ms						5 *g*/10 ms
Vibration resistance according to IEC 60068-2-6		5 ... 500 Hz: 0.75 mm						
Degree of protection IP of the enclosure		IP20						
Touch protection against electric shock		Finger-safe						
Protective coating on printed circuit board		No	Yes; according to IPC-A-610	No				
Insulation voltage, rated value	V	300			50			300
Impulse withstand voltage, rated value	V	4 000			800			4 000
Safety Integrity Level (SIL) according to IEC 62061		SIL 3						
Performance Level (PL) according to ISO 13849-1		PL e						
T1 value for proof test interval or service duration according to IEC 61508	y	20						
Electromagnetic interference emission		IEC 60947-5-1, class B		IEC 60947-5-1, class A				IEC 60947-5-1, class B
Certificate of suitability								
• UL approval		Yes						
• TÜV approval		Yes						

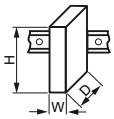
Article number		3SK1111-.AB30, 3SK1111-.AW20, 3SK1111-.AB30-0AX0, 3SK1121-.AB40, 3SK1211-.BB00, 3SK1211-.BB40, 3SK1211-.BW20	3SK1112-.BB40, 3SK1122-.AB40, 3SK1122-.CB41, 3SK1122-.CB42, 3SK1122-.CB44	3SK1120-.AB40	3SK1121-.CB41, 3SK1121-.CB42, 3SK1121-.CB44	3SK1213-.AB40, 3SK1213-.AJ20, 3SK1213-.AL20
Switching capacity current of the NO contacts of the relay outputs						
• At AC-15 at 230 V	A	5	--		3	10
• At DC-13 at 24 V	A	5	--		3	6
Switching capacity current of the semiconductor outputs at DC-13 at 24 V	A	--	2	0.5	--	

Article number		3SK1111-.AB30, 3SK1211-.BB00, 3SK1211-.BB40, 3SK1211-.BW20	3SK1111-.AW20	3SK1112-.BB40, 3SK1220-.AB40	3SK1120-.AB40, 3SK1122-.AB40	3SK1121-.AB40	3SK1121-.CB41, 3SK1121-.CB42, 3SK1121-.CB44	3SK1122-.CB41, 3SK1122-.CB42, 3SK1122-.CB44	3SK1213-.AB40, 3SK1213-.AJ20, 3SK1213-.AL20
PFHD in high demand mode according to IEC 2061	1/h	1.7×10^{-9}	1.5×10^{-9}	1.0×10^{-9}	1.3×10^{-9}	2.5×10^{-9}	3.7×10^{-9}	1.5×10^{-9}	1.0×10^{-9}
PFDavg in low demand mode according to IEC 61508		1.0×10^{-6}		7.0×10^{-6}					1.0×10^{-6}

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General data

SIRIUS 3SK2 safety relays

Article number		3SK2112-.AA10	3SK2122-.AA10	3SK2511-.FA10
General data				
Width x height x depth 	mm	22.5 x 100 x 124.5	45 x 100 x 124.5	22.5 x 100 x 124.5
Ambient temperature				
• During operation	°C	-25 ... +60		
• During storage	°C	-40 ... +80		-40 ... +85
Installation altitude at height above sea level, maximum	m	4 000; Derating, see Product announcement		
Air pressure according to SN 31205	kPa	90 ... 106		
Shock resistance		15 *g*/11 ms		
Vibration resistance according to IEC 60068-2-6		5 ... 500 Hz: 0.75 mm		
Degree of protection IP of the enclosure		IP20		
Touch protection against electric shock		Finger-safe		
Insulation voltage, rated value	V	50		
Impulse withstand voltage, rated value	V	800		
Electromagnetic interference emission according to IEC 60947-1		Class A		
Certificate of suitability				
• UL approval		Yes		
• TÜV approval		Yes		

Article number		3SK2112-.AA10	3SK2122-.AA10
Safety Integrity Level (SIL) according to IEC 62061		SIL 3	
Performance Level (PL) according to ISO 13849-1		PL e	
T1 value for proof test interval or service duration according to IEC 61508	y	20	
Switching capacity current of the semiconductor outputs at DC-13 at 24 V	A	4	
PFHD in high demand mode according to EN 62061	1/h	1.0×10^{-8}	1.2×10^{-8}
PFDavg in low demand mode according to IEC 61508		1.5×10^{-5}	1.8×10^{-5}

Article number		3SK2511-.FA10
Transmission type for Industrial Ethernet		PROFINET with 100 Mbps full duplex (100BASE-TX)
Number of interfaces according to PROFINET		1
Type of interface Ethernet interface		Yes
Type of interface 1 RJ45 (Ethernet)		Yes
PROFINET Conformance Class		B
Netload class according to PROFINET		1
Volume of cyclic user data for PROFINET IO		
• For outputs	bit	64
• For inputs	bit	64

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Overview



3SK111 Standard basic units

The 3SK111 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.

Note:

Use of device connectors not possible.

Selection and ordering data

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

Multi-unit packaging, see page 16/7.



3SK1111-1AB30



3SK1111-1AW20



3SK1112-1BB40

Control supply voltage			Number of outputs as contacting contact block			as contactless semiconductor contact block			Protective coating on printed circuit board	Screw terminals		Spring-loaded terminals (push-in)	
at AC		at DC	as NO contact		as NC contact for signaling function, instantaneous switching	safety-related		for signaling function, instantaneous switching		Article No.	Price per PU	Article No.	Price per PU
at 50 Hz	at 60 Hz		instantaneous switching	delayed switching		instantaneous switching	delayed switching						
V	V	V											
Standard basic units													
24	24	24	3	0	1	--	--	--	No	**3SK1111-1AB30**		**3SK1111-2AB30**	
									Yes	**--**		**3SK1111-2AB30-0AX0**	
110 … 240	110 … 240	110 … 240	3	0	1	--	--	--	No	**3SK1111-1AW20**		**3SK1111-2AW20**	
--	--	24	--	--	--	2	0	1	No	**3SK1112-1BB40**		**3SK1112-2BB40**	

Note:

Other device versions with protective coating on the printed circuit board are available on request.

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

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Overview



3SK112 Advanced basic units

The 3SK112 Advanced basic units form an innovative system landscape that allows even complex safety functions with large numbers of sensors and outputs to be built up using the device connectors. It is possible to increase both the number of inputs for sensors and the number of safe outputs of the basic unit without the need for wiring outlay between the devices.

Note:

Use of device connectors possible.

Selection and ordering data

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

Multi-unit packaging, see page 16/7.



3SK1121-1AB40



3SK1120-1AB40



3SK1122-1AB40



3SK1122-1CB

Control supply voltage at DC	Number of outputs as contacting contact block: as NO contact: instantaneous switching	as NO contact: delayed switching	as NC contact for signaling function, instantaneous switching	as contactless semiconductor contact block: safety-related: instantaneous switching	safety-related: delayed switching	for signaling function, instantaneous switching	Adjustable OFF-delay time	Screw terminals: Article No.	Screw terminals: Price per PU	Spring-loaded terminals (push-in): Article No.	Spring-loaded terminals (push-in): Price per PU
V							s				
Advanced basic units											
24	3	0	1	--	--	--	--	**3SK1121-1AB40**		**3SK1121-2AB40**	
	2	2	0	--	--	--	0.05 ... 3	**3SK1121-1CB41**		**3SK1121-2CB41**	
							0.5 ... 30	**3SK1121-1CB42**		**3SK1121-2CB42**	
							5 ... 300	**3SK1121-1CB44**		**3SK1121-2CB44**	
24	--	--	--	1	0	0	--	**3SK1120-1AB40**		**3SK1120-2AB40**	
				3	0	1	--	**3SK1122-1AB40**		**3SK1122-2AB40**	
				2	2	0	0.05 ... 3	**3SK1122-1CB41**		**3SK1122-2CB41**	
							0.5 ... 30	**3SK1122-1CB42**		**3SK1122-2CB42**	
							5 ... 300	**3SK1122-1CB44**		**3SK1122-2CB44**	

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

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Overview



3SK2 basic units

The 3SK2 basic units have a large number of inputs and outputs within a narrow width. In addition, demanding safety applications can be implemented simply with several independent safety functions. Flexible application options are enabled by powerful semiconductor outputs, as well as by expandability with additional 3SK output expansions and 3RM1 Failsafe motor starters using device connectors. Flexible time functions and diagnostics options are available.

The 3SK2 basic units can be easily integrated in control systems by means of optional communications modules for the purpose of diagnostics or access via software, for example. Furthermore, system states and fault diagnostics can be displayed easily and more rapidly on site using the diagnostics module for installation in the control cabinet front.

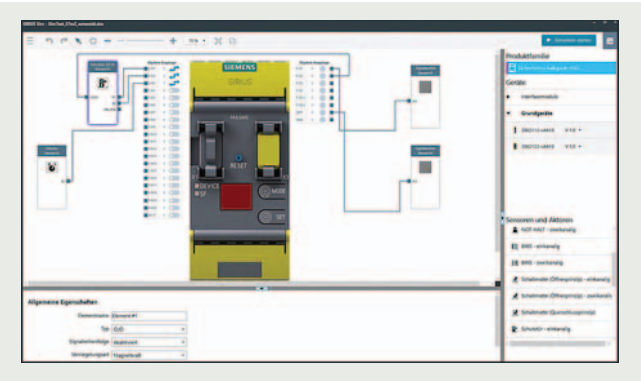
The 22.5 mm wide version of the 3SK2 basic units has 10 x 1-channel (5 x 2-channel) inputs, while the 45 mm wide 3SK2 version comes with 20 x 1-channel (10 x 2-channel) inputs.

Note:

For series applications, pre-programmed memory modules with customer-specific configurations can also be created. Please contact your responsible sales partner for this purpose.

We are offering new HMI faceplates with a uniform design for SIRIUS 3SK2. They provide a well-structured overview of all the disconnection and element diagnostics, see https://support.industry.siemens.com/cs/ww/en/view/109818076.

SIRIUS Sim 3SK2



SIRIUS Sim 3SK2

The SIRIUS 3SK2 simulation tool can be used to quickly and easily test functions and configurations in an office environment. These configurations can then be loaded directly into real devices. Time and costs for engineering are reduced.

SIRIUS Sim 3SK2 is available free of charge as a download, see https://support.industry.siemens.com/cs/ww/en/view/109763750.

Note:

For more information, see page 14/27 onwards.

Starter kits



3SK2941 starter kit

Starter kits are cost-effective complete packages for the simple creation of complex safety applications.

The 3SK2941-2AA11 basic starter kit includes:

- 3SK2112-2AA10 basic unit, 22.5 mm wide, with spring-loaded terminals (push-in)
- SIRIUS Safety ES (TIA Portal) Basic software for configuration, commissioning, operation and diagnostics available as a free download
- USB PC cable for easy transmission of the configuration to the device by means of USB

The 3SK2942-2AA11 PROFINET starter kit includes:

- 3SK2122-2AA10 basic unit, 45 mm wide, with spring-loaded terminals (push-in)
- PROFINET 3SK2511-2FA10 interface module, 22.5 mm wide, with spring-loaded terminals (push-in)
- SIRIUS Safety ES (TIA Portal) Professional
- Required cables

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Selection and ordering data

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



3SK2112



3SK2122

Control supply voltage at DC	Number of outputs as contactless semiconductor contact block: safety-related 2-channel	non-safety-related	Number of outputs to the device connector, safety-related	Width	Screw terminals: Article No.	Price per PU	Spring-loaded terminals (push-in): Article No.	Price per PU
V				mm				
Basic units								
24	2	1	2	22.5	**3SK2112-1AA10**		**3SK2112-2AA10**	
	4	2	2	45	**3SK2122-1AA10**		**3SK2122-2AA10**	

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

3SK2 multi-unit packaging, see page 16/7.



3SK2511-1FA10

Application	Width	Screw terminals: Article No.	Price per PU	Spring-loaded terminals (push-in): Article No.	Price per PU
	mm				
Interface modules					
For connecting 3SK2 safety relays via PROFINET	22.5	**3SK2511-1FA10**		**3SK2511-2FA10**	

Note:

The 3UF7930-0AA00-0 connecting cable is not included in the scope of supply and must be ordered separately, see page 11/31.

Product version	Spring-loaded terminals (push-in): Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Basic starter kits					
Comprise 3SK2112-2AA10 basic unit, SIRIUS Safety ES (TIA Portal) as a free download and 3UF7941-0AA00-0 USB PC cable	**3SK2941-2AA11**		1	1 unit	41L
PROFINET starter kits					
Comprise 3SK2122-2AA10 basic unit, PROFINET 3SK2511-2FA10 interface module, SIRIUS Safety ES (TIA Portal) Professional and required cables	**3SK2942-2AA11**		1	1 unit	41L

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

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Overview



3SK121 output expansion

The 3SK121 and 3RQ1 output expansions can be used for expanding all 3SK basic units.

3SK1211 output expansion (up to SIL 3/PL e)

The 3SK1211 output expansion is used to expand the safe outputs of a basic unit by adding another four safe outputs. These outputs have a switching capacity of AC-15 5 A at a switching voltage of 230 V. The devices can be connected to any 3SK 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 and 3SK2 basic units by means of the 3ZY12 device connectors.

3SK1213 output expansion (up to SIL 3/PL e)

The 3SK1213 output expansion is used to expand the safe outputs of a basic unit by adding three safe outputs with high switching capacity. These outputs have a switching capacity of AC-15 10 A at a switching voltage of 230 V. The devices can be connected to any 3SK basic unit by means of wiring. As with the 3SK1211, the devices with a 24 V DC control supply voltage can also be connected to 3SK1 Advanced and 3SK2 basic units by means of the 3ZY12 device connectors.

3RQ1 output expansion (up to SIL 2/PL c or SIL 3/PL e)

The 3RQ1 force-guided coupling relays serve as an output expansion up to SIL 2/PL c or SIL 3/PL e (depending on the version) and can be connected to all 3SK basic units by wiring and to all 3SK1 Advanced and 3SK2 basic units by using the 3ZY12 device connector. They have a switching capacity of AC-15 5 A (like 3SK1211) at a switching voltage of 230 V and are available in widths of 17.5 mm and 22.5 mm. Furthermore, they have NC contacts with a switching capacity of AC-15 for direct switching of loads, e.g. for anti-parallel switching or signaling, see page 5/21.

Note:

It is only possible to expand the Standard basic units by means of wiring. Advanced basic units and 3SK2 basic units can be expanded using the 3ZY12 device connector.

Benefits

- Perfect adaptation of the number of outputs
- Simple expansion of instantaneous and time-delayed safe outputs of the Advanced basic units using device connectors
- When using the device connector, the outputs on the terminals of the basic unit can still be used
- Two further freely configurable shutdown functions on 3SK2 basic units when using device connectors
- Cost-effective multiplication of outputs up to SIL 2/PL c or SIL 3/PL e with 3RQ1
- Expansion with power contacts for high AC-15/DC-13 currents in the control circuit
- No wiring of the feedback circuit to the basic units is required when using device connectors
- Shorter installation times
- Less configuring and testing required

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Selection and ordering data

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

3SK1211 multi-unit packaging, see page 16/7.



3SK1211-1BB40



3SK1213-1AB40

Control supply voltage			Number of outputs as contacting contact block			Suitable for use with 3ZY12 device connector	**Screw terminals**		**Spring-loaded terminals (push-in)**	
at AC		at DC	as NO contact		as NC contact					
at 50 Hz	at 60 Hz		instantaneous switching	delayed switching	instantaneous switching for feedback circuit		Article No.	Price per PU	Article No.	Price per PU
V	V	V								
Output expansions										
24	24	--	4	0	1	No	**3SK1211-1BB00**		**3SK1211-2BB00**	
--	--	24	4	0	1	Yes	**3SK1211-1BB40**		**3SK1211-2BB40**	
110 ... 240	110 ... 240	110 ... 240	4	0	1	No	**3SK1211-1BW20**		**3SK1211-2BW20**	
--	--	24	3	0	1	Yes	**3SK1213-1AB40**		**3SK1213-2AB40**	
115	115	--	3	0	1	No	**3SK1213-1AJ20**		**3SK1213-2AJ20**	
230	230	--	3	0	1	No	**3SK1213-1AL20**		**3SK1213-2AL20**	

Note:

The 3RQ1 force-guided coupling relays can also be used as an output expansion for 3SK and have safety levels up to SIL 2/PL c or SIL 3/PL e, see page 5/21.

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

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Overview



3SK1220 sensor expansion

With the input expansions

- 3SK1220 sensor expansion
- 3SK1230 power supply

the 3SK1 Advanced basic units can be made more flexible.

3SK1220 sensor expansion

The 3SK1220 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/non-floating).

Note:

The 3SK1220 sensor expansion can only be connected to the 3SK1 Advanced basic units by means of the 3ZY12 device connector, see page 11/30.

3SK1230 power supply

The 3SK1230 power supply makes the 3SK1 devices universally usable, whatever control supply voltage is to be used.

Note:

Alongside the 3ZY12 device connector, the 3SK1230 power supply can also be wired to act as a power supply for 3SK1 devices.

Benefits

- A wide voltage range of 110 to 240 V AC/DC allows the devices to be used worldwide
- Low stock-keeping due to little 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
- Universal use thanks to the wide range of adjustable parameters for sensor expansion (parameters as for 3SK1 Advanced basic units)

Selection and ordering data

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

Multi-unit packaging, see page 16/7.



3SK1220-1AB40



3SK1230-1AW20

Product version	Screw terminals		Spring-loaded terminals (push-in)	
	Article No.	Price per PU	Article No.	Price per PU
Sensor expansions				
For safety-related expansion of the 3SK1 Advanced basic units by an additional 2-channel sensor or two 1-channel sensors	**3SK1220-1AB40**		**3SK1220-2AB40**	
Power supplies				
For supplying 3SK1 Advanced basic units via 3ZY12 device connectors at voltages of 110 ... 240 V AC/DC	**3SK1230-1AW20**		**3SK1230-2AW20**	

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

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Accessories

Overview

Numerous accessories are available for 3SK, such as device connectors, terminals, cables, adapters, covers, memory and diagnostics modules or software.

Note:

The last device in a system setup, i.e. the device on the far right, requires a device termination connector.

Device connectors for 3SK112., 3SK12.. and 3SK2

With the device connector, several devices of the 3SK/3RM1/3RQ1 system can be connected together.
Use of device connectors not possible with 3SK1 Standard.

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

For type	Device connectors				Device termination connectors		
	3ZY1212-1BA00 (for 3SK1/3RQ1, width 17.5 mm)	**3ZY1212-2BA00** (for 3SK1/3RQ1, width 22.5 mm)	**3ZY1212-2GA00** (for 3SK2, width 22.5 mm)	**3ZY1212-4GA01** (for 3SK2, width 45 mm)	**3ZY1212-1DA00** (for 3RQ1, width 17.5 mm)	**3ZY1212-2DA00** (for 3SK1/3RQ1, width 22.5 mm)	**3ZY1212-0FA01** (for 3SK1, set for enclosures ≥ 45 mm)
3SK1 Advanced basic units							
3SK1120	✓	--	--	--	--	--	--
3SK1121	--	✓	--	--	--	✓	--
3SK1122	--	✓	--	--	--	✓	--
3SK2 basic units							
3SK2112	--	--	✓	--	--	--	--
3SK2122	--	--	--	✓	--	--	--
Output expansions							
3SK1211	--	✓	--	--	--	✓	--
3SK1213	--	--	--	--	--	--	✓
3RQ1, 17.5 mm	✓	--	--	--	✓	--	--
3RQ1, 22.5 mm	--	✓	--	--	--	✓	--
Input expansions							
3SK1220	✓	--	--	--	--	--	--
3SK1230	--	✓	--	--	--	--	--

✓ Available
-- Not available

Removable terminals for 3SK

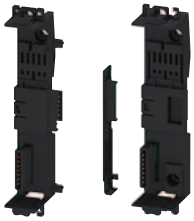
The following removable terminals are available for the 3SK safety relays for pre-wiring of the terminals in the control cabinet, or for replacing terminals:

For type	Removable terminals			
	Screw terminals		Spring-loaded terminals (push-in)	
	2-pole 3ZY1121-1BA00	**3-pole 3ZY1131-1BA00**	**2-pole 3ZY1121-2BA00**	**3-pole 3ZY1131-2BA00**
3SK1 basic units				
3SK1111	--	✓	--	✓
3SK1112	✓	--	✓	--
3SK1120	--	✓	--	✓
3SK1121	--	✓	--	✓
3SK1122	✓ bottom	✓ top	✓ bottom	✓ top
3SK2 basic units				
3SK2112	--	✓	--	✓
3SK2122	--	✓[1)]	--	✓[1)]
Output expansions				
3SK1211	✓	--	✓	--
3SK1213	--	--	--	--
Input expansions				
3SK1220	--	✓ top	--	✓ top
3SK1230	✓ bottom	--	✓ bottom	--

✓ Available
-- Not available
[1)] Two sets of terminals are required for 3SK2122.

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Selection and ordering data

Version	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Device connectors for the electrical connection of SIRIUS devices in the industrial DIN-rail enclosure					
 3ZY1212 -1BA00 3ZY1212 -2DA00					
Device connectors for 3SK1/3RQ1					
• Width 17.5 mm	**3ZY1212-1BA00**		1	1 unit	41L
• Width 22.5 mm	**3ZY1212-2BA00**		1	1 unit	41L
Device connectors for 3SK2					
• Width 22.5 mm	**3ZY1212-2GA00**		1	1 unit	41L
• Width 45 mm	**3ZY1212-4GA01**		1	1 unit	41L
Device connector for 3RM1					
• Width 22.5 mm	**3ZY1212-2EA00**		1	1 unit	41L
Device termination connectors					
• For 3SK1/3RQ1, width 22.5 mm	**3ZY1212-2DA00**		1	1 unit	41L
• For 3RQ1, width 17.5 mm	**3ZY1212-1DA00**		1	1 unit	41L
• For 3RM1, width 22.5 mm	**3ZY1212-2FA00**		1	1 unit	41L
Note: Positions of the slide switch, see Equipment Manual 3SK1.					
Device daisy chain connector For 3SK/3RQ1/3RM1, 24 V DC, 22.5 mm, for implementation of distances between devices according to the installation guidelines	**3ZY1212-2AB00**		1	1 unit	41L
Device connector For height adjustment for devices without electrical connection via device connector, with a width of 22.5 mm or greater	**3ZY1210-2AA00**		1	1 unit	41L
Device termination connector set For 3SK1213, width > 45 mm, comprising 3ZY1212-2FA00 and 3ZY1210-2AA00	**3ZY1212-0FA01**		1	1 unit	41L
Terminals for SIRIUS devices in the industrial DIN-rail enclosure					
 3ZY1121-2BA00					
Removable terminals, without inscription	**Screw terminals**				
• Screw terminals up to 2 x 1.5 mm² or 1 x 2.5 mm²					
- 2-pole	**3ZY1121-1BA00**		1	6 units	41L
- 3-pole[1]	**3ZY1131-1BA00**		1	6 units	41L
- 4-pole	**3ZY1141-1BA00**		1	6 units	41L
	Spring-loaded terminals (push-in)				
• Push-in terminals up to 2 x 1.5 mm²					
- 2-pole	**3ZY1121-2BA00**		1	6 units	41L
- 3-pole[1]	**3ZY1131-2BA00**		1	6 units	41L
- 4-pole	**3ZY1141-2BA00**		1	6 units	41L
PC cables for 3SK2 (essential accessories)					
 3UF7941-0AA00-0					
USB PC cable For connecting to the USB interface of a PC/PG, for communication with 3SK2 through the system interface, recommended for use in connection with 3SK2	**3UF7941-0AA00-0**		1	1 unit	42J
Connecting cables for 3SK2 (essential accessories for diagnostics/interface modules)					
 3UF7932-0AA00-0					

For connecting diagnostics/interface modules to 3SK2 basic unit

Central unit with interface module	Diagnostics module with central unit or interface module	Length				
✓	--	• 0.025 m (flat)	**3UF7930-0AA00-0**	1	1 unit	42J
--	✓	• 0.1 m (flat)	**3UF7931-0AA00-0**	1	1 unit	42J
--	✓	• 0.15 m (flat)	**3UF7934-0AA00-0**	1	1 unit	42J
--	✓	• 0.3 m (flat)	**3UF7935-0AA00-0**	1	1 unit	42J
--	✓	• 0.5 m (flat)	**3UF7932-0AA00-0**	1	1 unit	42J
--	✓	• 0.5 m (round)	**3UF7932-0BA00-0**	1	1 unit	42J
--	✓	• 1.0 m (round)	**3UF7937-0BA00-0**	1	1 unit	42J
--	✓	• 2.5 m (round)	**3UF7933-0BA00-0**	1	1 unit	42J

[1] For 3SK2122 two terminal sets are required.

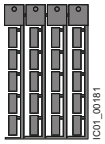
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Accessories

	Version	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Operating and monitoring modules for 3SK2						
 3SK2611-3AA00	**Diagnostics module** For direct display of errors, e.g. of cross-circuits Note: The 3RK3611-3AA00 MSS diagnostics module cannot be operated on the 3SK2 devices.	**3SK2611-3AA00**		1	1 unit	41L
Door adapters for 3SK2						
 3UF7920-0AA00-0	For external connection of the system interface, e.g. outside a control cabinet	**3UF7920-0AA00-0**		1	1 unit	42J
Interface covers for 3SK2						
 3RA6936-0B	For system interface, titanium gray	**3RA6936-0B**		1	5 units	42F
Memory modules for 3SK2						
 3RK3931-0AA00	For backing up the complete parameterization of the 3SK2 safety system without a PC/PG through the system interface	**3RK3931-0AA00**		1	1 unit	42C
Software for 3SK2						
 3ZS1326	**SIRIUS Safety ES (TIA Portal)** NEW Software for configuration, commissioning, operation and diagnostics of 3SK2, see page 14/24 onwards or www.siemens.com/product_catalog_siep?3ZS1					
	SIRIUS Sim 3SK2 Available free of charge as a download for simulating configurations, see page 14/27 onwards or https://support.industry.siemens.com/cs/ww/en/view/109763750					
Accessories for enclosures						
 3ZY1321-2AA00	**Sealing covers** • 17.5 mm (for 3SK1120 and 3SK1220) • 22.5 mm (for all 3SK1 devices except 3SK1120 and 3SK1220)	**3ZY1321-1AA00** **3ZY1321-2AA00**		1 1	5 units 5 units	41L 41L
 3ZY1311-0AA00	**Push-in lugs for wall mounting** (two lugs are required per device)	**3ZY1311-0AA00**		1	10 units	41L
 3ZY1440-1AA00	**Coding pins** For removable terminals of SIRIUS devices in the industrial DIN-rail enclosure; enable the mechanical coding of terminals	**3ZY1440-1AA00**		1	12 units	41L

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

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	Version	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Accessories for enclosures (continued)						
 3ZY1450-1AB00   3ZY1450-1BB00	**Hinged covers** Replacement covers, without terminal labeling • Titanium gray					
	- 22.5 mm wide (for 3SK1230, 3SK2511)	**3ZY1450-1AB00**		1	5 units	41L
	• Yellow					
	- 17.5 mm wide (for 3SK1220, 3SK1120)	**3ZY1450-1BA00**		1	5 units	41L
	- 22.5 mm wide (for 3SK1211, 3SK2112, 3SK11 except 3SK1120)	**3ZY1450-1BB00**		1	5 units	41L
	- 45 mm wide (for 3SK2122)	**3ZY1450-1BC00**		1	5 units	41L
Blank labels						
 3RT2900-1SB20	**Unit labeling plates**[1] For SIRIUS devices					
	• 10 mm x 7 mm, titanium gray	**3RT2900-1SB10**		100	816 units	41B
	• 20 mm x 7 mm, titanium gray	**3RT2900-1SB20**		100	340 units	41B
Tools for opening spring-loaded terminals						
 3RA2908-1A	**Screwdriver** For all SIRIUS devices with spring-loaded terminals	**Spring-loaded terminals (push-in)**				
	Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated	**3RA2908-1A**		1	1 unit	41B

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH, see page 16/18.

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

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With special functions

Overview



SIRIUS 3TK2810 safety relays

More information

Homepage, see www.siemens.com/sirius-monitor
SiePortal, see www.siemens.com/product_catalog_siep?3TK28

3TK2810-0 standstill monitors

The standstill monitor increases safety in hazardous areas. Without a sensor, it detects motor stoppage from the residual magnetization of the rotating motor. When an adjustable threshold value is undershot, it uses its outputs to allow access to hazardous areas, for example by unlocking a protective door.

3TK2810-1 speed monitors

The speed monitor combines two safety functions in one unit by continuously monitoring machines and plants for standstill and speed.

Through simple parameterization and permanent diagnostics on the display, faults can be quickly remedied at any time – often before they cause plant downtimes.

In addition to standstill and speed monitoring, the unit also features an integrated monitoring function of a spring-locked protective door. Therefore, an additional evaluation unit is not needed. In addition, it can be protected against unwanted changes by the optionally activatable parameterization lock.

Article number scheme

Product versions		Article number
Safety relays with special functions		**3TK2810 – □ □ A □ □ – □ □ □ □**
Device type	Standstill monitor	**0**
	Speed monitor for NPN/PNP proximity switches and encoders	**1**
Type of control supply voltage	24 V DC	**B**
	230 V AC, 50/60 Hz	**G**
	400 V AC, 50/60 Hz	**J**
	120 ... 240 V AC/DC; 50/60 Hz	**K**
Time delay	0.2 ... 6 s (standstill)	**0**
	0 ... 999 s (release delay)	**4**
Connection type	Screw terminals	**1**
	Spring-loaded terminals	**2**
Version	Speed monitor for NAMUR proximity switches and encoders	**0 A A 0**
Example		**3TK2810 – 0 B A 0 1**

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

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

Benefits

3TK2810-0 standstill monitors

- No additional sensors required
- Signaling of faults with diagnostics display
- Standstill time can be set
- Unit can be used with frequency converters

3TK2810-1 speed monitors

- Menu-prompted, easy parameterization
- Direct diagnostics on the display means shorter downtimes thanks to early fault detection
- Integrated protective door monitoring means greater safety because access to the plant is allowed only in the safe state
- Suitable for all standard sensors, i.e. high flexibility

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Technical specifications

More information

Operating Instructions 3TK2810-0, see
https://support.industry.siemens.com/cs/ww/en/view/25437254
Equipment Manual 3TK2810-1, see
https://support.industry.siemens.com/cs/ww/en/view/43707376
Technical specifications, see
https://support.industry.siemens.com/cs/ww/en/ps/16391/td
FAQs, see
https://support.industry.siemens.com/cs/ww/en/ps/16391/faq

Type	3TK2810-0 standstill monitors	3TK2810-1 speed monitors
Sensors		
• Inputs	3	4
• Electronic	--	3
• With contacts	--	1
• Without sensors (measuring inputs)	3	--
• Magnetically operated switches (Reed contacts)	--	--
Safety mats	--	--
Start		
• Auto	3	3
• Monitored	--	3
Cascading input 24 V DC	--	--
Key-operated switches	--	--
Enabling circuit, floating		
• Stop category 0	3 NO + 1 NC	2
• Stop category 1	--	--
Enabling circuit, electronic		
• Stop category 0	--	--
• Stop category 1	--	--

Type	3TK2810-0 standstill monitors	3TK2810-1 speed monitors
Signaling outputs		
• Floating	1 CO	--
• Electronic	2	2
Standards	IEC 60204-1, ISO 12100, ISO 13849-1, IEC 62061/IEC 61508	IEC 60947-5-1, ISO 13849-1, IEC 60204-1, IEC 62061/IEC 61508
Test certificates	TÜV, UL, CSA	TÜV, UL, CSA
Safety Integrity Level (SIL)		
• according to IEC 62061	SIL 3	SIL 3
• according to IEC 61508	SIL 3	SIL 3
Performance Level (PL) according to ISO 13849-1	PL e	PL e
Probability of a dangerous failure per hour (PFH_d)	1.5 x 10^{-8} 1/h	3.38 x 10^{-9} 1/h

✓ Available
-- Not available

Selection and ordering data

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



3TK2810-0BA01



3TK2810-1BA41

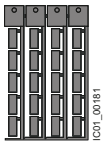
Rated control supply voltage U_s	Times	Screw terminals		Spring-loaded terminals	
		Article No.	Price per PU	Article No.	Price per PU
V	s				
Standstill monitors					
3TK2810-0					
• 24 DC	0.2 ... 6 (standstill)	**3TK2810-0BA01**		**3TK2810-0BA02**	
• 230 AC	0.2 ... 6 (standstill)	**3TK2810-0GA01**		**3TK2810-0GA02**	
• 400 AC	0.2 ... 6 (standstill)	**3TK2810-0JA01**		**3TK2810-0JA02**	
Speed monitors					
3TK2810-1 for NPN/PNP proximity switches and encoders					
• 24 DC	0 ... 999 (release delay)	**3TK2810-1BA41**		**3TK2810-1BA42**	
• 120 ... 240 AC/DC	0 ... 999 (release delay)	**3TK2810-1KA41**		**3TK2810-1KA42**	
3TK2810-1 for NAMUR proximity switches and encoders					
• 24 DC	0 ... 999 (release delay)	**3TK2810-1BA41-0AA0**		**3TK2810-1BA42-0AA0**	
• 120 ... 240 AC/DC	0 ... 999 (release delay)	**3TK2810-1KA41-0AA0**		**3TK2810-1KA42-0AA0**	

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

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Accessories

Selection and ordering data

	Use	Version	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Accessories for enclosures							
 3RP1902	For 3TK28	**Sealable covers** For securing against unauthorized adjustment of setting knobs	**3RP1902**		1	5 units	41H
 3RP1903	For 3TK28	**Push-in lugs** For screw fixing, 2 units are required for each device	**3RP1903**		1	10 units	41H
Adapters and connecting cables for speed monitors							
 3TK2810-1A	For 3TK2810-1	**Adapters** For connecting encoders of type Siemens/Heidenhain • 15-pole	**3TK2810-1A**		1	1 unit	41L
 3TK2810-1B		• 25-pole	**3TK2810-1B**		1	1 unit	41L
 3TK2810-0A	For 3TK2810-1	**Connecting cable** For connecting the speed monitor to the 3TK2810-1A or 3TK2810-1B adapter	**3TK2810-0A**		1	1 unit	41L
Blank labels							
 3RT2900-1SB20	For SIRIUS devices	**Unit labeling plates** 20 mm x 7 mm, titanium gray[1)]	**3RT2900-1SB20**		100	340 units	41B
Tools for opening spring-loaded terminals							
 3RA2908-1A	For auxiliary circuit connections	**Screwdriver** For all SIRIUS devices with spring-loaded terminals Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated	**Spring-loaded terminals** **3RA2908-1A**		1	1 unit	41B

[1)] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH, see page 16/18.

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