Safety is a SIRIUS business

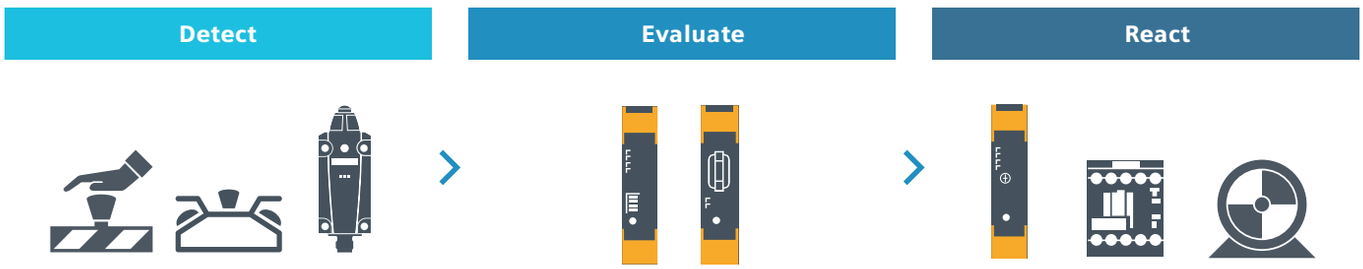
SIEMENS

Everything for **your safety**

Machines can be dangerous, and employees need to be protected from the associated hazards. At the same time, high system availability should allow the machines to remain cost-efficient. For these reasons, safety in automation technology is always a serious issue. That's why machine builders need simple solutions for safety technology that functions reliably. Siemens offers these solutions with its SIRIUS Safety products.

Detecting, evaluating and reacting – all from a single source
SIRIUS is the industrial switching technology from Siemens – and includes everything you need to easily implement a standardized and economical safety chain for common safety functions: from detecting to evaluating through to reacting.

SIRIUS 3SK plays a key role in this context. Local safety functions can be implemented very easily with the new family of safety relays. The way that they perfectly interact with sensors and actuators makes it possible to set up complete safety chains not only reliably but also in a manner that is significantly faster, simpler, and more cost-efficient. SIRIUS 3SK safety relays are of course certified according to IEC 62061 (SIL 3) and EN ISO 13849-1 (PLe). All this speaks in favor of switching to the new SIRIUS 3SK safety relays.



Machine safety has many facets – and is always a case for SIRIUS safety relays.

The slimline SIRIUS 3SK portfolio makes it possible to implement a wide range of safety applications with just a few device variants. Even with the 3SK1, the most common safety functions can be implemented quickly and easily – and more sophisticated ones can be made a reality with the new 3SK2 basic units, whose parameters can be set with software and which can also be connected to higher-level control systems via PROFINET.

The SIRIUS safety relay portfolio offers the optimal solution for every safety application.
Simple, modular, flexible

Hardware advantages at a glance
With SIRIUS 3SK1 safety relays, DIP switches can be used to easily set the parameters for safety functions.

Software benefits at a glance
SIRIUS 3SK2 safety relays can be used to create sophisticated safety applications using drag and drop. They also simplify commissioning and documentation.

SIRIUS 3SK1
flexible and cost-efficient

The SIRIUS 3SK1 safety relays are easy to use and feature variable functionality. They are particularly suitable for safety functions that require only a few sensors and a low number of outputs of the safety relay.

Benefits at a glance

- A standardized unit: seamless integration of SIRIUS 3RM1 motor starters
- More free space: fewer basic units and main circuit components
- Very compact: narrow mounting width and multifunctionality
- Less wiring: device connector for all devices and infeed system for SIRIUS 3RM1 motor starters

Simply safe: SIRIUS 3SK1
Flexibility and ease of use in the field: These are the features that set the SIRIUS 3SK1 apart. With the modular product range, each safety application can be implemented quickly, easily, and cost-effectively.

With the 3ZY12 device connectors, safety functions with several sensors and actuators can be quickly set up with the basic units 3SK1 Advanced or 3SK2. This reduces wiring requirements and prevents errors.

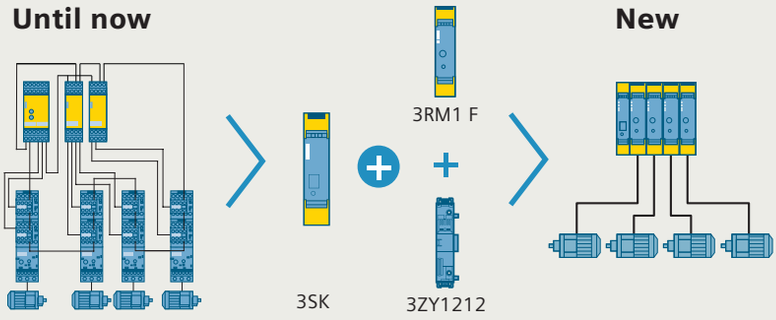
Expansions for SIRIUS 3SK1

Output expansion

Simply safe: SIRIUS 3RM1 fail-safe
Previously, the devices from the main circuit and the control circuit had to be installed separately and wired together in a complex process. SIRIUS 3SK brings these together for the first time. The fail-safe SIRIUS 3RM1 motor starters can now be seamlessly integrated into the control circuit using device connectors. That means you can safely switch motors up to 3 kW in the 3SK system. The fail-safe SIRIUS 3RM1 is available as a direct and reversing starter. In combination with the safety relays, it not only safely switches off motors but also protects the motors against overload. It also uses low-wear and energy-efficient hybrid switching technology.

Simply more outputs: SIRIUS 3SK1 RO
You need more outputs on the basic unit? Then extend the basic unit with 3RO and 4RO contact expansions. These have three or four relay outputs for switching currents of up to 5 or 10 A.

Simply connect: SIRIUS 3RQ1
Do you only need an isolated coupling between your 3SK assembly and your application? Then the positively driven 3RQ1 coupling relays are the right choice. They can be connected to the 3SK system without problems using the device connectors and make coupling with your application easy.



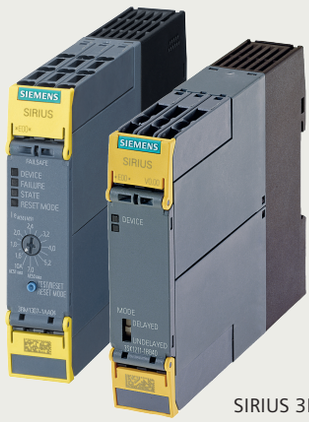
Input expansion

Simply extended: SIRIUS 3SK1 2 DI
You need more than one sensor? Then simply do without basic units in the 3SK1 Advanced device series. Instead of additional basic units, you only need an input expansion. This is simply plugged into the basic unit with the device connectors 3ZY12.

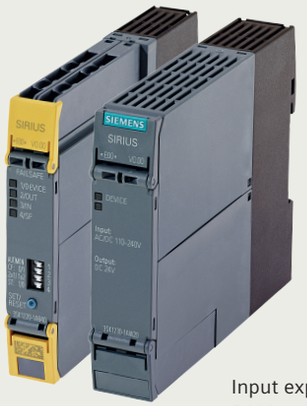
Simply supplied with power: SIRIUS 3SK1 power supply
The 24 V power supply provides voltage to 3SK1 setups with up to six components – whether basic units or input or output expansions. It covers all of the world's common control voltages from 110 to 240 V AC/DC. That means the safety relays can easily be used internationally.

Benefits at a glance

- Reduces the number of devices needed
- Reduces the amount of wiring – thus minimizing the potential for error
- Creates more space in the control cabinet



SIRIUS 3RM1 fail-safe motor starter and output expansion



Input expansion and 24 V power supply

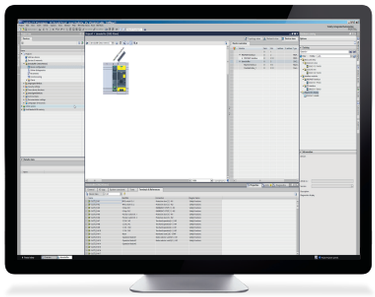
SIRIUS 3SK2
powerful and multifunctional

Despite their narrow mounting width, the 3SK2 safety relays feature a large number of inputs and outputs. They can thus be used to simply and efficiently implement demanding safety applications with several independent safety functions.

Simply advanced: SIRIUS 3SK2

SIRIUS 3SK2 safety relays are the logical further development of 3SK1 – and the first choice for more demanding safety applications.

- Maximum functionality in minimum space
- Wide range of inputs and outputs with narrow mounting widths
- Selective tripping by independent outputs
- Highly flexible: parameters can be set with simple software
- Greater cost-effectiveness and modularity: expandable with 3SK1 output expansions via device connectors (reduced wiring requirements)
- Individually selectable time functions
- Standardized unit: seamless integration of SIRIUS 3RM1 motor starters using device connectors
- Connection to PROFINET and PROFIBUS for easy setting of parameters, connection to the control level and for diagnostics.



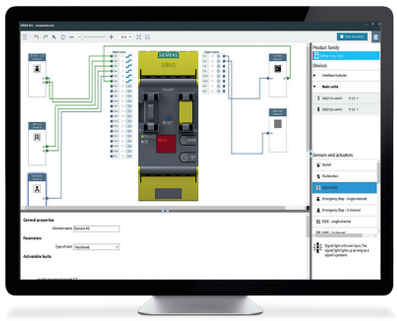
Simple and convenient: SIRIUS Safety ES TIA

Want to set parameters for sophisticated safety functions but lack the programming knowledge? With the SIRIUS Safety ES TIA engineering software, parameterization is carried out simply using drag and drop, with prefabricated and certified modules. In addition, logic and safety applications are easy to implement. And at the same time, you can enjoy all the benefits of the TIA Portal, such as engineering several devices or entire systems in a single TIA project. That saves you the need to input recurring entries and settings multiple times. Using the library function you can save applications or parts of applications you need to access repeatedly, and import them directly from there into the relevant device configuration.

› Download the Basic Version of SIRIUS Safety ES TIA free of charge from: https://support.industry.siemens.com/cs/ww/en/view/109793090

Benefits at a glance

- Parameters easily set using drag and drop
- Comprehensive user support for configuration, commissioning, and documentation through consistency checks, online diagnostics, forcing, and configuration documentation
- Seamless engineering thanks to integration into the TIA Portal



Simply clever: simulate applications offline

With the free 3SK2 Simulator, you can get to know the full scope of functions of 3SK2 with ready-made applications and create and test configurations in advance, allowing you to easily find the right device for your application. This results in significant time and cost savings in engineering, since no actual components are required and the applications can be adapted quickly and easily.

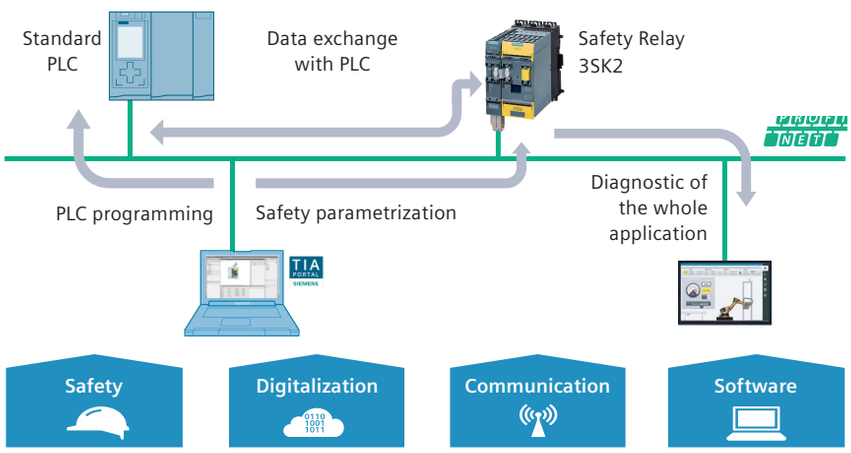
Fast on-site diagnostics and more

With the 3SK2 diagnostic display, you can quickly and easily determine the causes of faults and system states without any programming. Moreover, configuration information can be displayed for validation purposes. In addition, the 3SK2 diagnostic display offers the option of storing up to two complete configurations – when devices are being replaced or for easy replication and setting of parameters.

› Download 3SK2 Simulator here:
https://support.industry.siemens.com/cs/ww/en/view/109763750

SIRIUS Sim and Safety ES TIA take 3SK2 to a new level in automation

The combination of SIRIUS Safety ES and SIRIUS Sim 3SK2 results in totally new digitalization opportunities for 3SK2 safety relays. Not only the 3SK2 devices: The entire application is also configured in the TIA Portal. With the integrated interface to SIRIUS Sim, it's possible to test the function and parameterization of the 3SK2 directly on a digital twin in the simulator, entirely without real devices, sensors, or actuators.



The next step in the digitalization of safety relays:
SIRIUS Sim
SIRIUS Sim offers you totally new opportunities when working with safety relays. It autonomously simulates not only the entire safety relay, including diagnostic performance and malfunctions, but also the sensor and actuator technology needed for the application, including simulation of error conditions.

In addition, the SIRIUS Sim has a store of completed applications it can use to simulate the functionality of the 3SK2 with no need for actual devices.

The SIRIUS Sim is also available not only for the 3SK2, but also for the 3RW55 soft starter, including fail-safe versions.

Seamless engineering of 3SK2 devices thanks to Safety ES TIA

- Free basic license
- Efficient and intuitive solution for all automation tasks
- Fast engineering thanks to a clear representation of device functions and parameters
- Convenient diagnostic functions
- Simple approval process
- Interface to SIRIUS Sim
- Perfect overview with terminals and references
- Maximum data transparency
- Migration of existing projects

Safety is a SIRIUS business: More than just evaluation

The products of the SIRIUS Safety portfolio are part of Safety Integrated. The resulting advantage for users is enormous, because everything fits together here.

Products

ET 200SP motor starter
Switching motors – safety integrated
The SIMATIC ET 200SP decentralized I/O system stands for innovative and highly flexible switchgear control. With the Safety variant of the ET 200SP motor starter up to 5.5 kW, safety is always integrated. Whether controlling or switching, starting or monitoring, you can rely on ET 200SP. Thanks to its high-performance and compact design, you save even more space in the control cabinet and benefit from versatile functionality in the control of your system.

Find out more

SIRIUS ACT with PROFINET
Connecting an emergency stop to the control system – more efficient than ever before
When it comes to communication, SIRIUS ACT performs exceptionally: In addition to the standard wiring, you can also connect the command and signaling devices (e.g., the emergency stop control device) directly to the control system – in the field or control cabinet, via PROFINET or PROFIsafe. This reduces your wiring effort, thus minimizing sources of error. In addition, you gain more flexibility when it comes to changes.

Find out more

3SE position and safety switches
Detecting hazards – absolutely reliably
SIRIUS sensing devices precisely detect motion sequences around machines and systems in almost any application. Whether for position detection, motion limitation of certain machine parts, or in safety circuits: Our sensing devices have command over the large variety of information in the field, even under the harshest conditions. For seamless monitoring, we also offer a comprehensive range of non-contact sensors.

Find out more

3TK2810 speed and standstill monitors
Monitoring motors
SIRIUS 3TK2810 carries out continuous standstill and speed monitoring in machines and systems. Using simple parameterization and constant diagnostics, troubleshooting can be carried out quickly at any time – often before any associated system standstill has occurred.

Find out more

Services & Support

Safety Evaluation Tool
Checking safety engineering – online
The Safety Evaluation Tool for standards IEC 62061 and ISO 13849-1 takes you directly to your goal. This TÜV-approved online tool helps you to quickly and reliably evaluate the safety functions of your machine.

Find out more

Training
Continuing education – from trainers with first-hand knowledge
Siemens offers you a comprehensive range of training courses – from basic knowledge to expert know-how in functional safety.

Find out more

Safety application manual S.I.A.M.
Know-how for building applications
Using simple wiring examples, S.I.A.M. provides you with insight into the fundamental safety requirements in the production industry.

Find out more

Selection and ordering data

SIRIUS 3SK1 Standard and Advanced
SIRIUS 3SK2 basic unit

	Inputs	Outputs	Delayed	Voltage	Item number	Optional device connector
SIRIUS 3SK1 Standard	2 F-DI	3 F-RQ	–	110 – 240 V AC/DC	3SK1111-☐AW20	–
	2 F-DI	3 F-RQ	–	24 V AC/DC	3SK1111-☐AB30	–
	3 F-DI	2 F-DQ	–	24 V DC	3SK1112-☐BB40	–
SIRIUS 3SK1 Advanced	3 F-DI	3 F-RQ	–	24 V DC	3SK1121-☐AB40	3ZY1212-2BA00 or 3ZY1212-2DA00
	3 F-DI	2 F-RQ	2 F-RQ		3SK1121-☐CB4☐	
	3 F-DI	1 F-DQ	–		3SK1120-☐AB40	3ZY1212-1BA00
	3 F-DI	3 F-DQ	–		3SK1122-☐AB40	3ZY1212-2BA00 or 3ZY1212-2DA00
	3 F-DI	2 F-DQ	2 F-DQ		3SK1122-☐CB4☐	
SIRIUS 3SK2 basic unit	10 F-DI	2 F-DQ	Individual time functions	24 V DC	3SK2112-☐AA10	ZY1212-2GA00
	20 F-DI	4 F-DQ			3SK2122-☐AA10	3ZY1212-4GA01

Connection type:
Screw terminal — 1
Spring-loaded connection — 2

Adjustable off-delay:
1 — 0.05 – 3 s
2 — 0.5 to 30 s
4 — 5.0 – 300 s

SIRIUS 3RQ1 coupling relays

Rated control supply voltage U_s	Operating range for rated control supply voltage	W x H x D	Contact type	Safety level	Item number	Optional device connector
24 V DC	0.8 ... 1.1	17.5 x 90 x 120 mm	1 NO contact, 1 NC contact	SIL 2 / PL c	3RQ1000-☐EB00	3ZY1212-1BA00 or 3ZY1212-1DA00
		17.5 x 90 x 120 mm	2 NO contacts, 1 NC contact	SIL 2 / PL c	3RQ1000-☐GB00	
		22.5 x 90 x 120 mm	2 NO contacts, 2 NC contacts	SIL 2 / PL c	3RQ1000-☐HB00	3ZY1212-2BA00 or 3ZY1212-2DA00
		22.5 x 90 x 120 mm	4 NO contacts, 1 NC contact	SIL 2 / PL c	3RQ1000-☐LB00	
		17.5 x 90 x 120 mm	1 NO contact, 1 NC contact	SIL 3 / PL e	3RQ1200-☐EB00	3ZY1212-1BA00 or 3ZY1212-1DA00

Connection type:
Screw terminal — 1
Spring-loaded connection — 2

Accessories for SIRIUS 3SK series

SIRIUS 3SK	Inputs	Outputs	Voltage	Item number	Optional device connector	3SK1 Standard	3SK1 Advanced	3SK2
Sensor expansion	2 F-DI	–	–	3SK1220-☐AB40	3ZY1212-1BA00	–	yes	–
Output expansion	–	4 F-RQ with 5 A	24 V AC	3SK1211-☐BB00	–	yes	yes*	yes*
			24 V DC	3SK1211-☐BB40	ZY1212-2BA00 or 3ZY1212-2DA00			
			110 – 240 V AC/DC	3SK1211-☐BW20	–			
	–	3 F-RQ with 10 A	24 V DC	3SK1213-☐AB40	3ZY1212-0FA01			
			115 V AC	3SK1213-☐AJ20	–			
			230 V AC	3SK1213-☐AL20				
Sensor expansion	–	–	110 – 240 V AC/DC	3SK1230-☐AW20	3ZY1212-2BA00	hard-wired	yes	–

* Only 24 V DC devices

Connection type:
Screw terminal — 1
Spring-loaded connection — 2

Motorstarter SIRIUS 3RM1 Failsafe

Setting range for electronic overload release	Voltage	Direct starter Item number	Reversing starter Item number	Optional device connector
0.1 ... 0.5 A	24 V DC	3RM1101-☐AA04	3RM1301-☐AA04	3ZY1212-2EA00 or 3ZY1212-2FA00
0.4 ... 2.0 A		3RM1102-☐AA04	3RM1302-☐AA04	
1.6 ... 7.0 A		3RM1107-☐AA04	3RM1307-☐AA04	

Connection type: Screw terminal 1
Spring-loaded connection 2
Screw terminal for main circuit and spring-loaded connection for control circuit 3

Diagnostic display for 3SK2

		Item number
Diagnostics display		3SK2611-3AA00
Connection cable	1 m	3UF7937-0BA00-0
	2.5 m	3UF7933-0BA00-0

Software and accessories for 3SK2

	Item number
SIRIUS Safety ES TIA	3ZS1326-2C*10-0Y*5
USB-PC-Kabel	3UF7941-0AA00-0
Memory module	3RK3931-0AA00

Safety ES V17 license variants

Software (DVD) + License Key (USB Stick)	3ZS1326-2CC10-0YA5
Software and License Key Download	3ZS1326-2CE10-0YB5
Upgrade for SIRIUS Safety ES	3ZS1326-2CE10-0YE5

› **www.siemens.com/sirius/support**

Starter Kits

	Item number
SIRIUS 3SK2 basic unit (10 F-DI/2 F-DQ) **+ USB cable for PC**	3SK2941-2AA11
SIRIUS 3SK2 basic unit (20 F-DI/4 F-DQ) **+ SIRIUS 3SK25 PN Interface + SIRIUS Safety ES TIA Professional**	3SK2942-2AA11

Communication modules for 3SK2

		Item number
DP interface	–	3RK3511-☐BA10
PROFINET interface	–	3SK2511-☐FA10
Connection cable	2.5 cm	3UF7930-0AA00-0

Connection type: Screw terminal 1
Spring-loaded connection 2

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Learn more:
siemens.com/safety-relays

Play it safe with SIRIUS safety relays:

Discover the flexible ways to use them. Find out for yourself how easy it is to set parameters. Easily implement efficient and economical safety chains throughout your installations.

SIRIUS 3SK – at a glance!

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