SIRIUS 3SK
Safety Relays

SIEMENS

Why **machine safety?**

In Europe and in many other regions, machine manufacturers and operators are required by law to ensure the safety of people, machinery and the environment.

What is safety?
Safety defines a state in which the risk of damage is reduced to a tolerable level, or which can be regarded as risk-free. Functional safety refers to the protection of people, machinery, and the environment.

Safety function:
A safety function describes the reaction of a machine/plant when a specific event occurs (e.g. opening of a protective door). Execution of the safety function is performed by a safety-related control system, which usually consists of three subsystems:

The following safety-oriented functions are available:

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

Machine manufacturers are obliged to perform a risk assessment to identify all the hazards associated with their machinery, to assess and evaluate the risks, and to design and construct their machinery taking such hazards into account. For most safety functions, the risk assessment requires safety level SIL 2 or SIL 3* or PL d or PL e**.

Save costs by avoiding damage
Possible cost traps:

- Production loss/machine downtimes during repair
- Replacement/repair of damaged machines
- Higher insurance premiums caused by accidents
- Fines/lawsuits after accidents/ sickness

Clear added benefit

- Legal certainty
- Increased export opportunities: fulfilling the requirements of the Machinery Directive is a prerequisite in many markets
- Increased productivity due to high machine availability
- Fewer industrial accidents and associated cost savings

SIRIUS 3SK1 safety relays comply to the most stringent requirements of IEC 61508 or IEC 62061 (SIL 3) as well as EN ISO 13849-1 (PL e) and therefore fulfill the latest safety standards. So move to the new generation of safety relays now.

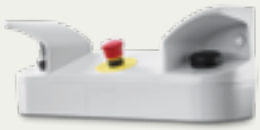
* according to IEC 62061 or IEC 61508 ** according to ISO 13849

Which sensors can be connected?

Mechanical and electronic sensors:

SIRIUS 3SE5 position/safety switches
SIRIUS 3SE6 non-contact safety switches

SIRIUS ACT EMERGENCY STOP 3SU18 command devices



SIRIUS ACT 3SU1 two-hand operation consoles

SIRIUS 3SE29/39 foot switches

SIRIUS 3SE7 cable-operated switches

Pressure-sensitive mats,
laser scanners and more

How can you perform quick, flexible evaluation?

Whereas regular 3SK1 safety applications can be quickly and simply expanded with inputs and outputs using innovative device connectors, demanding safety functions are now also easy to implement on the new 3SK2 devices with simple drag-and-drop parameterization.

SIRIUS 3SK1
Hardware benefits at a glance

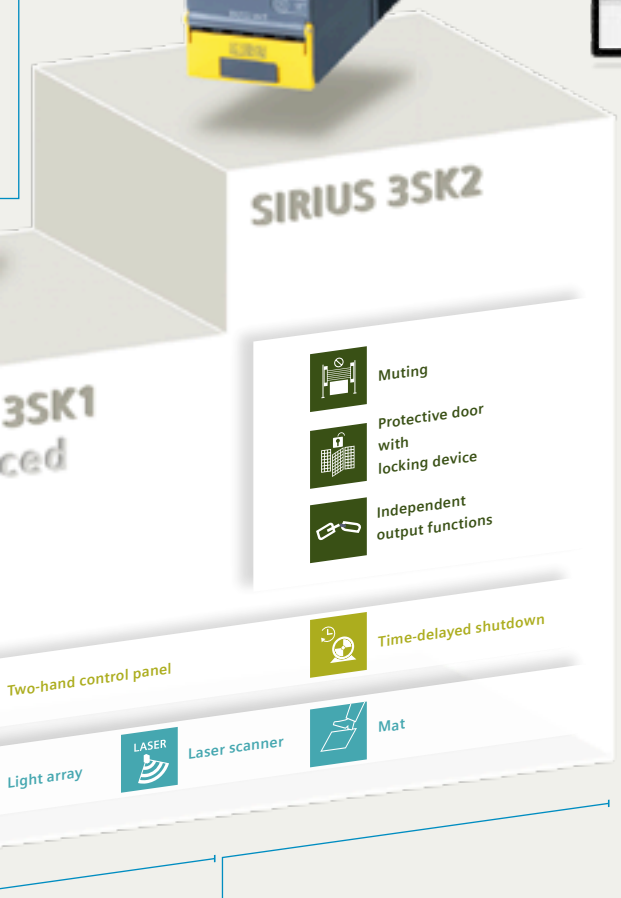
- Reduced product variety by bundling functions – with cost savings due to reduced stocks
- Slimline design and innovative award-winning enclosure concept – for more space in the control cabinet
- Screw-type and spring-loaded (push-in) connections available at the same price – for less wiring work
- Flexible expansion with modular product concept – for simple adaptation to new circumstances

uating

Reacting

OFF	ON
	• Start type • Cross-circuit detection • Sensor type • Testing at start

Engineering with SIRIUS Safety ES TIA



Which actuators can be connected?

SIRIUS 3RT contactors

SIRIUS 3RA6 compact starters

SIRIUS 3SK2
Software benefits at a glance

- Easy setup of complex safety applications with drag-and-drop
- Efficient commissioning using test mode, forcing and extensive diagnostics
- Faster preparation of documentation
- Seamless engineering thanks to integration into the TIA Portal

SIRIUS 3RM1 motor starters

SIRIUS 3SK1 (selection)	Time delay	Rated control supply voltage	Enabling circuits	Signaling circuits	Screw terminals Article No.	Spring-loaded terminals (push-in) Article No.
		Standard basic units				
With relay outputs	–	24 V AC/DC	3	1	3SK1111-1AB30	3SK1111-2AB30
	–	110 – 240 V AC/DC	3	1	3SK1111-1AW20	3SK1111-2AW20
With semiconductor outputs	–	2 F-DQ	2	1	3SK1112-1BB40	3SK1112-2BB40
		Advanced basic units				
With relay outputs	–	24 V DC	3	1	3SK1121-1AB40	3SK1121-2AB40
	0.05 to 3 s	24 V DC	2/2 tv	–	3SK1121-1CB41	3SK1121-2CB41
	0.5 to 30 s	24 V DC	2/2 tv	–	3SK1121-1CB42	3SK1121-2CB42
	5 – 300 s	24 V DC	2/2 tv	–	3SK1121-1CB44	3SK1121-2CB44
With semiconductor outputs	–	24 V DC	1	–	3SK1120-1AB40	3SK1120-2AB40
	–	24 V DC	3	1	3SK1122-1AB40	3SK1122-2AB40
	0.05 to 3 s	24 V DC	2/2 tv	–	3SK1122-1CB41	3SK1122-2CB41
	0.5 to 30 s	24 V DC	2/2 tv	–	3SK1122-1CB42	3SK1122-2CB42
	5 – 300 s	24 V DC	2/2 tv	–	3SK1122-1CB44	3SK1122-2CB44
		Input expansion module 17.5 mm				
Expansion of advanced basic units by adding a 2-channel sensor or two single-channel sensors	–	24 V DC	–	–	3SK1220-1AB40	3SK1220-2AB40
		Output expansion module 22.5 mm				
With relay outputs	–	24 V DC	4	1	3SK1211-1BB40	3SK1211-2BB40
3RQ1 coupling relays	–	24 V DC	1	1	3RQ1200-1EB-00	3RQ1200-2EB-00

SIRIUS 3SK2	Screw terminals Article No.	Spring-loaded terminals (push-in) Article No.	STARTER KIT	
SIRIUS 3SK2 safety relay, width 45 mm	3SK2122-1AA10	3SK2122-2AA10		3SK2941-2AA11 Contains 3SK2112-2AA10 basic unit and 3UF7941-0AA00-0 USB PC cable
SIRIUS 3SK2 safety relay, width 22.5 mm	3SK2112-1AA10	3SK2112-2AA10		

Accessories	Article No.	Description
USB PC cable	3UF7941-0AA00-0	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
SIRIUS Safety ES software	3ZS1326-2C*10-0Y*5	for configuring, commissioning, operating and diagnosing of 3SK2 * Different product and license variants
Device connector 17.5 mm	3ZY1212-1BA00	for saving on wiring for advanced basic units, input or output expansion module **3SK1**
Device connector 22.5 mm	3ZY1212-2BA00	
Device termination connector 22.5 mm	3ZY1212-2DA00	
Device connector 22.5 mm	3ZY1212-2GA00	for saving on wiring for advanced basic units, input or output expansion module **3SK2**
Device connector 45 mm	3ZY1212-4GA01	

Find out more:
siemens.com/safety-relays

Download link for free version of Safety ES TIA:
https://support.industry.siemens.com/cs/ww/en/view/109793090

Play it safe with SIRIUS 3SK:
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.

Technical information and support are available at www.siemens.com/SIOS or in the Industry Online Support App.

SIRIUS 3SK – at a glance

Follow us on:
www.twitter.com/siemensindustry
www.youtube.com/siemens

Available for Android and iOs

Published by
Siemens AG

Smart Infrastructure
Electrical Products
Werner-von-Siemens-Str. 48–50
92224 Amberg, Germany

For the U.S. published by
Siemens Industry Inc.

100 Technology Drive
Alpharetta, GA 30005
United States

Article No.: SIEP-B10103-00-7600 (effective 06/2021)