SIEMENS
Ingenuity for life

**SIRIUS 3SK
Safety Relays**

**The quick and easy way to
productive systems**

**SIRIUS
Monitor**

siemens.com/safety-relays

Why machine safety?

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

Why does machine safety play such an important role in the latest safety standards?

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.

DETECTING	EVALUATING	REACTING
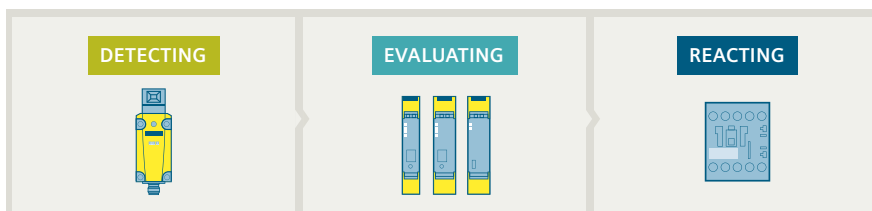
* according to IEC 62061 or IEC 61508   ** according to ISO 13849

DETECTING

Which sensors can be connected?

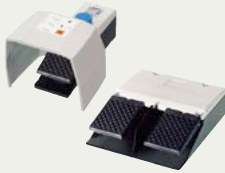Mechanical and electronic sensors:

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

EVALUATING

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.
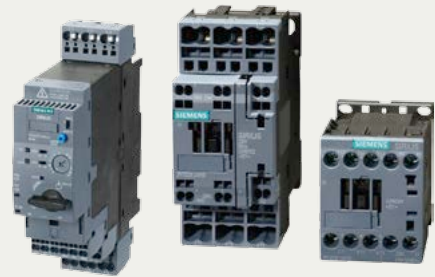

SIRIUS Advanced

SIRIUS 3SK1 Standard

Protective door

Emergency stop

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

	OFF	ON
		Sensor input / start type
		Cross-circuit detection
		Sensor connection
		Testing at start

SIRIUS 3SK2

3SK1 ced

Protective door with locking device

Muting

Indep. output functions

Two-hand control panel

Time-delayed shutdown

Light array

Laser scanner

Mat

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

REACTING

Which actuators can be connected?

SIRIUS 3RT contactors

SIRIUS 3RA6 compact starters

SIRIUS 3RM1 motor starters

SIRIUS 3SK1 (selection)

	Time delay	Rated control supply voltage	Enabling circuits	Signaling circuits	Article No. Screw terminals ⊕	Article No. Spring-loaded terminals (push-in) ⊞
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	–	24 V DC	2	1	3SK1112-1BB40	3SK1112-2BB40
Advanced basic units						
With relay outputs	–	24 V DC	3	1	3SK1121-1AB40	3SK1121-2AB40
	0.05–3 s	24 V DC	2/2 tv	–	3SK1121-1CB41	3SK1121-2CB41
	0.5–30 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
	0.5–30 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 4RO 22.5 mm						
With relay outputs	–	24 V DC	4	1	3SK1211-1BB40	3SK1211-2BB40

SIRIUS 3SK2

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

Accessories

Article No.	Description
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
3ZS1316-.C.10-0Y.5	SIRIUS Safety ES software for configuring, commissioning, operating and diagnosing of 3SK2 and 3RK3

Device connectors for saving on wiring for advanced basic units, input or output expansion module 3SK1	
Device connector 17.5 mm	3ZY1212-1BA00
Device connector 22.5 mm	3ZY1212-2BA00
Device termination connector 22.5 mm	3ZY1212-2DA00
Device connectors for saving wiring for advanced basic units, input or output expansion module 3SK2	
Device connector 22.5 mm	3ZY1212-2GA00
Device connector 45 mm	3ZY1212-4GA01

Find out more:
siemens.com/safety-relays

**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

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Security information
In order to protect plants, systems, machines and networks against
cyber threats, it is necessary to implement – and continuously maintain –
a holistic, state-of-the-art industrial security concept. Siemens' products
and solutions constitute one element of such a concept. For additional
information on industrial security measures that may be implemented,
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