

**SIEMENS**



MODULAR DESIGN FOR ALL APPLICATIONS

# Sensing with Position and Safety Switches

[siemens.com/sirius-position-switches](https://www.siemens.com/sirius-position-switches)

# Integrated and efficient safety chain

## Detecting

Which sensors can be connected?



SIRIUS 3SE5 position and 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

From detecting to evaluating and reacting.

Sensors and actuators work together perfectly to create the ideal conditions for complete safety chains with SIRIUS Safety. These chains are not only extremely reliable but are also much quicker and easier to set up.

An important element are the position and safety switches.

## Evaluating

How can you perform quick, flexible evaluation?

## Reacting

Which actuators can be connected?



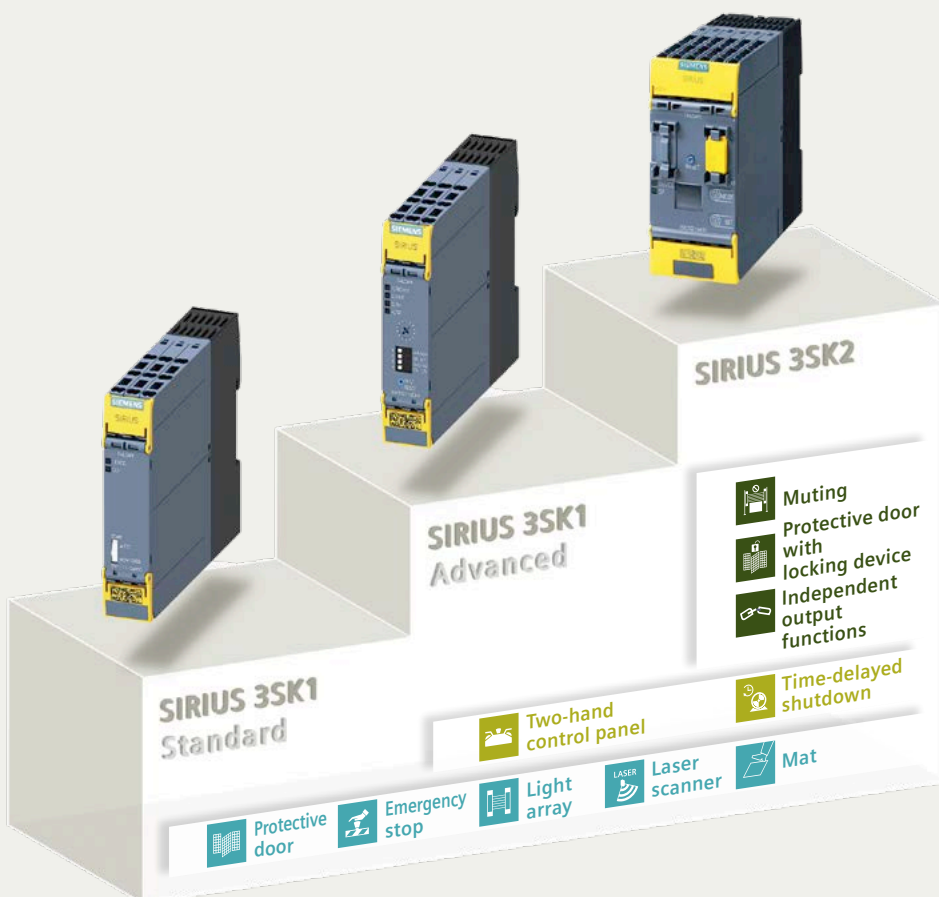
SIRIUS 3RT contactors



SIRIUS 3RA6 compact starters



SIRIUS 3RM1 motor starters

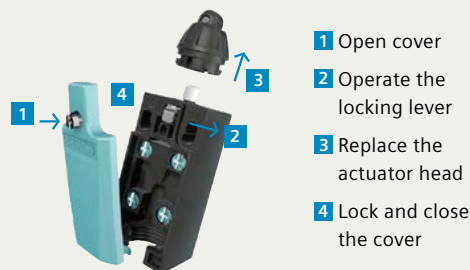


# SIRIUS position switches

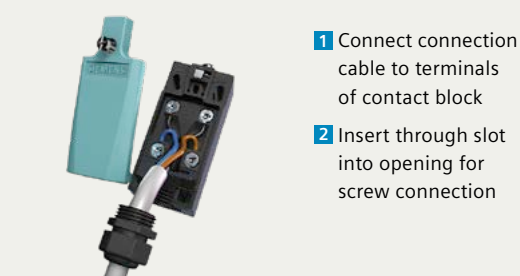
## Main advantages at a glance

- Reduced variance and stock-keeping costs due to modular design
- Plug-in design and a standardized interface simplify replacement and installation of the actuator heads
- All actuator heads can be rotated in 22.5° increments
- Quick-connect technology for plastic enclosures (31 mm) reduces mounting times by up to 25%
- Choice of connectors and rollers
- The entire ASIsafe electronics is integrated in a standard enclosure
- LED displays optionally available for all enclosures
- Higher degree of safety with redundant shutdown and additional signaling for versions with 3-pole contact blocks (enclosure dimensions as for 2-pole contact blocks)
- Versions with increased corrosion protection and for use down to -40°C

### Simple plug-in mounting



### Quick-connect technology



The modular design of the standard position switches saves time and increases flexibility during installation of a whole range of switch versions.

## Selection of basic switches

	Contacts	Plastic enclosure			Metal enclosure		
		31 mm width	40 mm width	50 mm width	31 mm width	40 mm width	56 mm width
→ Safety switch Positive opening operation according to IEC 60947-5-1							
Switching points according to ...	–	EN 50 047	EN 50 041	EN 50 047	EN 50 047	EN 50 041	EN 50 041
Mounting according to ...	–	EN 50 047	EN 50 041		EN 50 047	EN 50 041	
Degree of protection	–	IP65	IP66/IP67	IP66/IP67	IP66/IP67	IP66/IP67	IP66/IP67
Number of screw connections M20 x 1.5	–	1	1	2	1	1	3
Article number for basic switch with snap-action contacts	1NO/1NC	3SE5232-OCC05	3SE5132-OCA00	3SE5242-OCC05	3SE5212-OCC05	3SE5112-OCA00	3SE5122-OCA00
	1NO/2NC	3SE5232-OLC05	3SE5132-OLA00	3SE5242-OLC05	3SE5212-OLC05	3SE5112-OLA00	3SE5122-OLA00
Article number for basic switch with slow-action contacts	1NO/1NC	3SE5232-OBC05	3SE5132-OBA00	3SE5242-OBC05	3SE5212-OBC05	3SE5112-OBA00	3SE5122-OBA00
	1NO/2NC	3SE5232-OKC05	3SE5132-OKA00	3SE5242-OKC05	3SE5212-OKC05	3SE5112-OKA00	3SE5122-OKA00

# Complete units

Our position switches can be ordered in a modular design or as complete units – already fitted with an actuator head. You will find further versions, such as compact switches, non-encapsulated designs or switches for ambient temperatures down to  $-40^{\circ}\text{C}$  at: [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators)

## Plastic or metal enclosure 31 mm wide, according to EN 50 047, with snap-action contacts 1 NO/1NC



Article number, plastic	Article number, metal	Actuator	SR*	PR**
3SE5232-OCC05	3SE5212-OCC05	Rounded plunger + Teflon plunger	–	–
3SE5232-OHD03	3SE5212-OCD03	Roller plunger	–	X
3SE5232-OHE10	3SE5212-OCE10	Roller lever	–	X
3SE5232-OHF10	3SE5212-OCF10	Angular roller lever	–	X
3SE5232-OHK21	3SE5212-OCK21	Twist lever	–	X
3SE5232-OHK50	3SE5212-OCK50	Twist lever, infinitely adjustable length	–	X

## Plastic or metal enclosure 40 mm wide, according to EN 50 041, with snap-action contacts 1 NO/1NC



Article number, plastic	Article number, metal	Actuator	SR*	PR**
3SE5132-OCB01	3SE5112-OCB01	Plain plunger, high-grade steel	–	–
3SE5132-OCC03	3SE5112-OCC02	Rounded plunger, high-grade steel	X	–
3SE5132-OCD05	3SE5112-OCD02	Roller plunger	X	–
3SE5132-OCE05	3SE5112-OCE01	Roller lever	–	X
3SE5132-OCF05	3SE5112-OCF01	Angular roller lever	–	X
3SE5132-OCJ01	3SE5112-OCH01	Twist lever	–	X
3SE5132-OCJ50	3SE5112-OCH50	Twist lever, infinitely adjustable length	–	X
3SE5132-OCJ80	3SE5112-OCH80	Rod actuator, aluminum	–	–
3SE5132-OCR01	3SE5112-OCR01	Spring rod	–	–

## Plastic enclosure 50 mm wide, switching points according to EN 50 047, with snap-action contacts 1 NO/1NC



Article number, plastic	Actuator	SR*	PR**
3SE5242-OCC05	Rounded plunger with Teflon plunger	–	–
3SE5242-OHD03	Roller plunger	X	–
3SE5242-OHE10	Roller lever	–	X
3SE5242-OHK21	Twist lever	–	X
3SE5242-OHK50	Twist lever, adjustable length	–	X

## Metal enclosure 56 mm wide, switching points according to EN 50 041, with snap-action contacts 1 NO/1NC



Article number, metal	Actuator	SR*	PR**
3SE5122-OCC02	Rounded plunger, high-grade steel	–	–
3SE5122-OCD02	Roller plunger	X	–
3SE5122-OCE01	Roller lever	–	X
3SE5122-OCH01	Twist lever	–	X
3SE5122-OCH50	Twist lever, infinitely adjustable length	–	X

 = positive opening

\* – =  
with  
high-grade  
steel roller

\*\* – =  
with  
plastic  
roller

# Mechanical safety switches with separate actuators

Safety switches with a separate actuator are used where the position of doors, covers or protective grilles must be monitored for safety reasons. 3SE5 safety switches with a separate actuator without a locking device have the same enclosures as the 3SE5 position switches (modular system).

Safety switches with a locking device 3SE53 are special safety-related devices which prevent an unforeseen or intentional opening of protective doors, protective grilles or other covers for as long as a dangerous situation is present (i.e. follow-on motion of the switched-off machine).

## Safety switch with separate actuator, 5 approach directions, without locking device



Article number, plastic	Article number, metal	Enclosure width / contact
3SE5232-0RV40	33SE5212-0RV40	31 mm / 1NC+1NO
3SE5232-0QV40	3SE5212-0QV40	31 mm / 2NC+1NO
3SE5132-0QV20	3SE5112-0QV10	40 mm / 2NC+1NO
3SE5242-0QV40	–	50 mm / 2NC+1NO
–	3SE5122-0QV10	56 mm / 2NC+1NO

## Safety switch with separate actuator, 5 approach directions, with locking device, position monitoring. Actuator: 1NO+2NC, magnet: 1NO+2NC



Article number, plastic	Article number, metal	Lock	Enclosure width
3SE5322-0SD21	3SE5312-0SD11	Spring-actuated lock, with auxiliary release	54 mm
3SE5322-0SE21	3SE5312-0SE11	Spring-actuated lock, with auxiliary release and lock	
3SE5322-0SB21	3SE5312-0SB11	Magnetic-force locked	

## Actuator



Article number	Version	Length of actuator
3SE5000-0AV01	Standard metal	75.6 mm
3SE5000-0AW11	Standard plastic (not for switches with locking device)	40 mm
3SE5000-0AV02	With vertical fixing	53 mm
3SE5000-0AV03	With transverse fixing	47 mm
3SE5000-0AV05	Universal radius actuator	77 mm



### Actuators for standard position switch 3SE5 in plastic version 31 mm and 50 mm according to EN 50 047

	Article number				
		with plastic roller	with high-grade steel roller		
Roller plunger	⊕	–	3SE5000-0AD03	3SE5000-0AD04	
Roller lever with	Metal lever	⊕	–	3SE5000-0AE10	3SE5000-0AE11
	High-grade steel lever	⊕	–	3SE5000-0AE12	3SE5000-0AE13
Angular roller lever with	Metal lever	⊕	–	3SE5000-0AF10	3SE5000-0AF11
	High-grade steel lever	⊕	–	3SE5000-0AF12	3SE5000-0AF13
Spring rod with plastic plunger 143 mm (only for switches with snap-action contacts)		3SE5000-0AR01	–	–	
Twist actuator +	⊕	+	3SE5000-0AK00	+	
Twist lever 21 mm with	Metal lever	⊕	–	3SE5000-0AA21	3SE5000-0AA22
	High-grade steel lever	⊕	–	3SE5000-0AA31	3SE5000-0AA32
Adjustable-length twist lever with	Metal lever, infinitely adjustable		–	3SE5000-0AA50	3SE5000-0AA51
	Metal lever with grid bores	⊕	–	3SE5000-0AA60	3SE5000-0AA61
Rod actuator in	Aluminum 200 mm	3SE5000-0AA80	–	–	
	Plastic 200 mm	3SE5000-0AA82	–	–	

### Actuators for standard position switches 3SE5, plastic version, 40 mm, according to EN 50 041

	Article number				
		with plastic roller	with high-grade steel roller		
Plain plunger	⊕	3SE5000-0AB01	–	–	
Roller plunger	⊕	–	3SE5000-0AD05	–	
Rounded plunger	⊕	3SE5000-0AC03	–	–	
Roller lever with metal lever	⊕	–	3SE5000-0AE05	–	
Angular roller lever with metal lever	⊕	–	3SE5000-0AF05	–	
Spring rod with plastic plunger 143 mm (only for switches with snap-action contacts)		3SE5000-0AR01	–	–	
Twist actuator +	⊕	+	3SE5000-0AH00	+	
Twist lever, 27 mm with	Metal lever	⊕	–	3SE5000-0AA01	3SE5000-0AA02
	High-grade steel lever	⊕	–	3SE5000-0AA11	3SE5000-0AA12
Adjustable-length twist lever with	Metal lever, infinitely adjustable		–	3SE5000-0AA50	3SE5000-0AA51
	Metal lever with grid bores	⊕	–	3SE5000-0AA60	3SE5000-0AA61
Rod actuator in	Aluminum 200 mm	3SE5000-0AA80	–	–	
	Plastic 200 mm	3SE5000-0AA82	–	–	

⊕ = positive opening



### Actuators for standard position switches 3SE5, metal version, 31 mm, according to EN 50 047

		Article number		
			with plastic roller	with high-grade steel roller
Plain plunger	↻	3SE5000-0AB01	-	-
Roller plunger	↻		3SE5000-0AD03	3SE5000-0AD04
Roller lever with	Metal lever	↻	3SE5000-0AE10	3SE5000-0AE11
	High-grade steel lever	↻	3SE5000-0AE12	3SE5000-0AE13
Angular roller lever with	Metal lever	↻	3SE5000-0AF10	3SE5000-0AF11
	High-grade steel lever	↻	3SE5000-0AF12	3SE5000-0AF13
Spring rod with plastic plunger 143 mm (only for switches with snap-action contacts)		3SE5000-0AR01	-	-
Twist actuator +	↻	+	3SE5000-0AK00 +	+
Twist lever, 27 mm with	Metal lever	↻	3SE5000-0AA21	3SE5000-0AA22
	High-grade steel lever	↻	3SE5000-0AA31	3SE5000-0AA32
Adjustable-length twist lever with	Metal lever, infinitely adjustable		3SE5000-0AA50	3SE5000-0AA51
	Metal lever with grid bores	↻	3SE5000-0AA60	3SE5000-0AA61
Rod actuator in	Aluminum 200 mm	3SE5000-0AA80	-	-
	Plastic 200 mm	3SE5000-0AA82	-	-

### Actuators for standard position switches 3SE5, metal version, 40 mm and 56 mm, according to EN 50 041

		Article number		
			with plastic roller	with high-grade steel roller
Plain plunger	↻	3SE5000-0AB01	-	-
Rounded plunger with overtravel, high-grade steel	↻	3SE5000-0AC02	-	-
Roller plunger, with overtravel	↻	-	-	3SE5000-0AD02
Roller lever with	Metal lever	↻	3SE5000-0AE01	3SE5000-0AE02
	High-grade steel lever	↻	3SE5000-0AE03	3SE5000-0AE04
Angular roller lever with	Metal lever	↻	3SE5000-0AF01	3SE5000-0AF02
	High-grade steel lever	↻	3SE5000-0AF03	3SE5000-0AF04
Spring rod with plastic plunger 143 mm (only for switches with snap-action contacts)		3SE5000-0AR01	-	-
Twist actuator +	↻	+	3SE5000-0AH00 +	+
Twist lever, 27 mm with	Metal lever	↻	3SE5000-0AA01	3SE5000-0AA02
	High-grade steel lever	↻	3SE5000-0AA11	3SE5000-0AA12
Adjustable-length twist lever with	Metal lever, infinitely adjustable		3SE5000-0AA50	3SE5000-0AA51
	Metal lever with grid bores	↻	3SE5000-0AA60	3SE5000-0AA61
Rod actuator in	Aluminum 200 mm	3SE5000-0AA80	-	-
	Plastic 200 mm	3SE5000-0AA82	-	-

↻ = positive opening



# Non-contact safety switches

The SIRIUS 3SE63 RFID safety switches without tumbler and magnetically-operated switches and the 3SE64 RFID safety switches with tumbler and magnetically-operated switches leave no room for tampering. They conform to market safety requirements with maximum tamper resistance according to ISO 14119 as well as safety requirements according to SIL 3 (IEC 62061/IEC 61508) or PL e (ISO 13849-1) for monitoring the positions of movable protective devices.

In the case of protective door tumblers, 3SE64 RFID safety switches provide reliable protection against dangerous follow-on motion and are suitable for protecting both people and processes. The unique rotating shaft and hub operating principle makes it possible to pull the protective door shut (latch force can be set to 25 N or 50 N) to an almost backlash-free end position with a simultaneous tumbler that even serves as a door stop, eliminating the need for an additional door stop.



**Non-contact RFID safety switches:** An RFID safety switch consists of a coded RFID switch with an 8-pole M12 connection plug and an identical RFID actuator.

	Article number	Description
RFID safety switches rectangular, 25 x 91 mm *	3SE6315-0BB01	Family coded
	3SE6315-0BB02	Individually coded, multiple teach-in capability
	3SE6315-0BB03	Individually coded, single teach-in
Actuator rectangular, 25 x 91 mm	3SE6310-0BC01	Standard



**Non-contact RFID safety switches with tumbler, locking force 1150N:** An RFID safety switch with tumbler consists of a coded RFID switch with an 8-pole M12 connector plug and RFID actuator.

	Article number	Description
RFID safety switch with tumbler *	3SE6415-1BB01	Closed-circuit principle, family coded
	3SE6415-1BB02	Closed-circuit principle, individually coded, multiple teach-in capability
	3SE6415-1AB01	Open-circuit principle, family coded
	3SE6415-1AB02	Open-circuit principle, individually coded, multiple teach-in capability
Actuator	3SE640-1AC01	Standard

\*Connection cable for both types of safety switches available in 3, 5, 10 and 15 meters




**Non-contact magnetically operated safety switch:** A magnetically operated switch comprises a coded switching magnet and an identical contact block (sensor unit). The switches use reed contacts as mechanical contacts.

	Article number	Description
Magnetically operated switch, contact block 25x88 mm	3SE6604-2BA	With cable 3 m, 1NO+1NC
	3SE6604-2BA01	With M8 plug, 4-pole, 1NO+1NC
	3SE6604-2BA10	With cable 10 m, 1NO+1NC
	3SE6605-2BA	With cable 3 m, 1NO+1NC
	3SE6605-2BA01	With M8 plug, 4-pole, 1NO+1NC
	3SE6614-4CA01	With M8 plug, 4-pole, 1NO+1NC, LED
	Actuator, switching magnet (coded), 25 x 88 mm	3SE6704-2BA
3SE6714-2BA		For 3SE661* versions
Magnetically operated switch, contact block 25x33 mm	3SE6605-3BA	With cable 3 m, 1NO+1NC
	3SE6605-3BA05	With cable 5 m, 1NO+1NC
	3SE6605-3BA10	With cable 10 m, 1NO+1NC
	3SE6616-3CA01	With 8 mm latching connection, 6-pin connector, 1NO+1NC+1NC <sup>1)</sup>
	3SE6617-3CA01	With 8 mm latching connection, 6-pin connector, 1NO+1NC+1NC <sup>1)</sup>
Actuator, switching magnet (coded), 25 x 33 mm	3SE6627-3CA04	With cable 3 m, 2NC+1NC <sup>1)</sup>
	3SE6704-3BA	For 3SE660* versions
	3SE6714-3CA	For 3SE661*/3SE662* versions
Connection cable	3SX5601-3GA05	5 m, M8 socket, 4-pole
	3SX5601-4GA05	5 m, socket 8 mm, latching connection 6-pole

<sup>1)</sup> Signaling contact

# SIRIUS Position and Safety Switches

## Detecting

 Positive opening operation as per IEC 60947-5-1, positive drive, necessary in safety applications

### Mechanical position and safety switches

Standard/compact  
3SE51/3SE52/3SE54  
3SF1 AS-i variant



Safety hinge  
3SE51/3SE52  
3SF1 AS-i variant



### Safety switches with separate

without tumbler  
3SE51/3SE52  
3SF1 AS-i variant



#### Design type

1

1

2

#### Tampering protection

(Acc. to DIN EN ISO 14119, TÜV certificate)

low,  
actuator head uncoded

low,  
shaft uncoded

low,  
3D-coded actuator

#### Maximum safety

Safety Integrity Level SIL (IEC 62061/  
IEC 61508)/Performance-Level PL  
(ISO 13849-1)

With 1x switch

With 2x switches  
(enabling individual switch combinations)

Monitoring of  
1 NO contact

Monitoring of  
2 NO contacts or  
1 NO and 1 NC  
contact

Monitoring of  
1 NO contact

Monitoring of  
2 NO contacts or  
1 NO and 1 NC  
contact

Monitoring of  
1 NO contact

Monitoring of  
2 NO contacts or  
1 NO and 1 NC  
contact

SIL 1/PL c

SIL 1/PL c

SIL 1/PL c

SIL 2/PL d

SIL 1/PL c

SIL 2/PL d

SIL 3/PL e

SIL 3/PL e

SIL 3/PL e

SIL 3/PL e

SIL 3/PL e

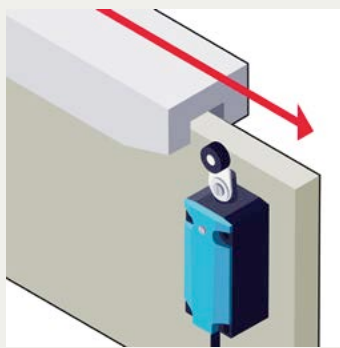
SIL 3/PL e

#### Application examples

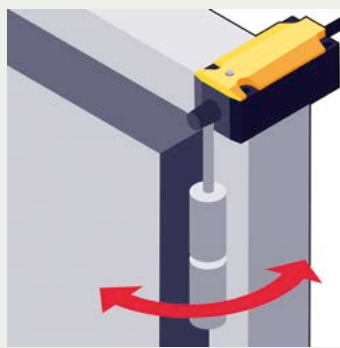
With the position and safety switches  
almost all requirements in the industry  
can be met.

Various application examples e.g. for  
guard door monitoring can be found here:

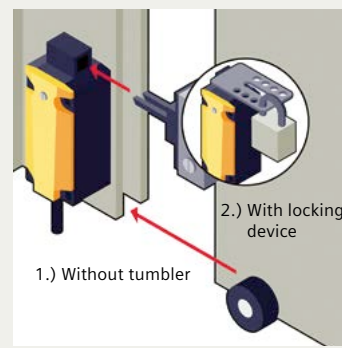
[support.industry.siemens.com/cs/ww/en/ps/16403/ae](http://support.industry.siemens.com/cs/ww/en/ps/16403/ae)



Position switch with twist lever:  
Detection of positions and end positions  
of moving machine and system parts, such  
as e.g. conveyor belts and assembly lines



Pivoting doors and flaps, with fixed  
positive connection between switch and  
door hinge, switching angle 10°



Roller door or position monitoring  
of grilles or doors

## Evaluating

### SIMATIC ET 200SP



[siemens.com/et200sp](http://siemens.com/et200sp)

### SIRIUS 3SK safety relays



[siemens.com/safety-relays](http://siemens.com/safety-relays)

### SIMATIC controller



[siemens.com/simatic-safety](http://siemens.com/simatic-safety)

**actuator**

with tumbler  
3SE53  
3SF1 AS-i variant

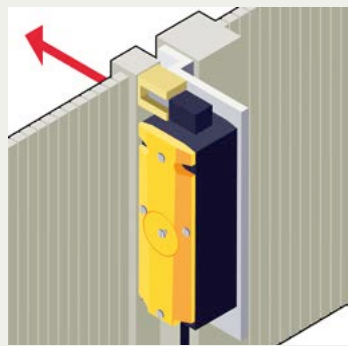


2  
low,  
3D-coded actuator

Monitoring of  
1 NO contact      Monitoring of  
2 NO contacts or  
1 NO and 1 NC  
contact

SIL 1/PL c      SIL 2/PL d

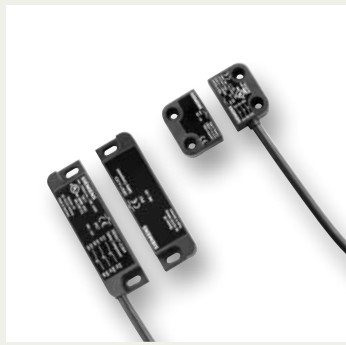
SIL 3/PL e      SIL 3/PL e



Additional interlocking requirement, e.g. in the working area of a robot system: Shutdown of machines requires closed safety doors with tumbler guarding

**Non-contact safety switches**

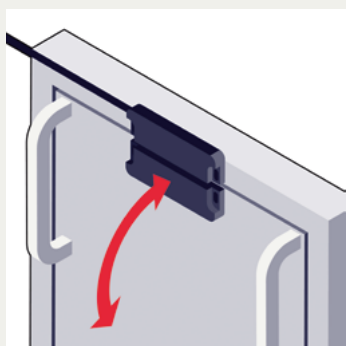
Magnet safety switches  
3SE66/3SE67



4  
low,  
coded switching magnet

Monitoring of 2 NO contacts  
or 1 NO and 1 NC contact

SIL 3/PL e



Monitoring of maintenance flaps (hoods, doors, grilles), especially suitable for confined spaces

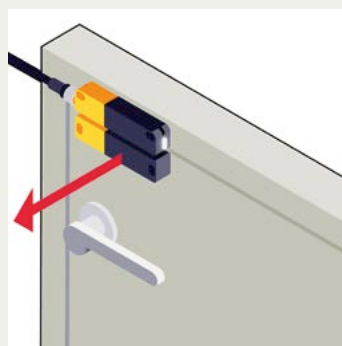
RFID safety switches  
3SE63



4  
low or high (to choose),  
coded RFID security switches

Self-monitoring with 2 electronic  
OSSD safety outputs

SIL 3/PL e



Monitoring of swing doors, flaps, hoods, grilles, vibration-proof and robust IP69, large switching interval

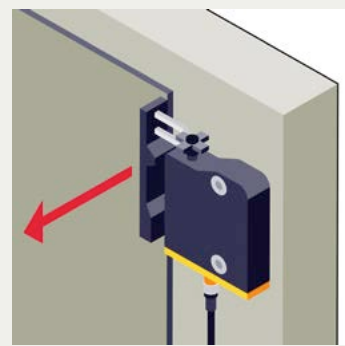
RFID safety switches  
with tumbler 3SE64



4  
low or high (to choose),  
coded RFID security switches

Self-monitoring with 2 electronic  
OSSD safety outputs

SIL 3/PL e



Interlocking requirement for rotating, laterally movable or removable safety guards IP69, with latching, optimized hygiene standard with simultaneous highest personnel and process protection

Application manual  
SIRIUS Safety Integrated

Download  
here



Technical information and support are available at

[siemens.com/SIOS](https://www.siemens.com/SIOS)

or in the Industry Online Support App.



Available for Android and iOS



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