

3SE5, 3SE2 Position Switches

Hinge Switches

General data

Overview

3SE5 hinge switches have the same enclosures as the standard switches (modular system).



Hinge switches

Design

Enclosure sizes

The 3SE5 switches are available as complete units in two enclosure sizes:

- Molded-plastic enclosures according to EN 50047, 31 mm wide, IP65, 1 cable entry
- Metal enclosures according to EN 50047, 31 mm wide, IP66/IP67, 1 cable entry
- Plastic and metal enclosures according to EN 50041, 40 mm wide, IP66/IP67, 1 cable entry

Enclosure versions

Various basic versions can be selected for the enclosures:

- Available with two or three-pole switching elements designed as snap-action contacts
- Metal enclosures for explosion protection (ATEX) (see pages 9/77 and 9/81)
- AS-Interface version with integrated ASIsafe electronics for all enclosure designs (see page 9/97)

For a description of the basic switches see page 9/4.

Operating mechanism

The hinge switches are provided for mounting on hinges. The actuator head is included in the scope of supply. There are two versions:

- Operating mechanism with hollow shaft, inner diameter 8 mm, outer 12 mm
- Operating mechanism with solid shaft, diameter 10 mm

Benefits

The 3SE5 hinge switches differ from the previous series through the following new characteristics:

- All actuators can be turned around the axis in increments of 22.5° (see picture on page 9/5).
- The new three-pole contact block 1 NO + 2 NC is available for all enclosure sizes (see picture on page 9/5).
- The molded-plastic enclosure with a width of 31 mm has simple and fast wiring equipment which makes it possible to save from approx. 20 to 25 % of the time when connecting (see picture on page 9/5).
- The ASIsafe electric component is integrated for the versions with the AS-Interface connection (see page 9/82); an additional adapter is not required.

Application

The hinge switches are used in those areas where the position of swivelable protective devices such as doors or flaps must be monitored. The position of the doors and hinge switches is converted into electric signals with the switches. The switches allow shutdown and signaling without delay in the event of a small opening angle through the snap-action contacts with an operating angle of 10°.

Devices are available with enclosure versions to suit the particular ambient conditions. Different control tasks can be performed with the best contact blocks suited for the particular purpose. Dimensions and fixing points of the enclosures are in accordance with EN 50041 or EN 50047 standards.

The devices are suitable for use in any climate.

Standards

IEC 60947-5-1 or EN 60947-5-1.

The protective measure of "total insulation" by the molded-plastic enclosure is guaranteed by the use of molded-plastic screw-glands.

Safety position switches

For controls according to IEC 60204-1 or EN 60204-1 the devices can be used as a safety position switch. To secure position switches against changes in their position, keyed techniques must be employed on installation.

Safety circuits

IEC 60947-5-1 and EN 60947-5-1 require positive opening of the NC contacts, i.e. for the purposes of personal safety, the assured opening of NC contacts is expressly stipulated for the electrical equipment of machines in all safety circuits and marked according to IEC 60947-5-1 with the symbol .

Category 4 according to EN 954-1 can be attained with the 3SE5 hinge switches with  if the corresponding failsafe evaluation units are selected and correctly installed, e.g. the 3TK28 safety relays or matching devices from the ASIsafe, SIMATIC or SINUMERIK product ranges.

3SE5, 3SE2 Position Switches Hinge Switches

General data

Technical specifications

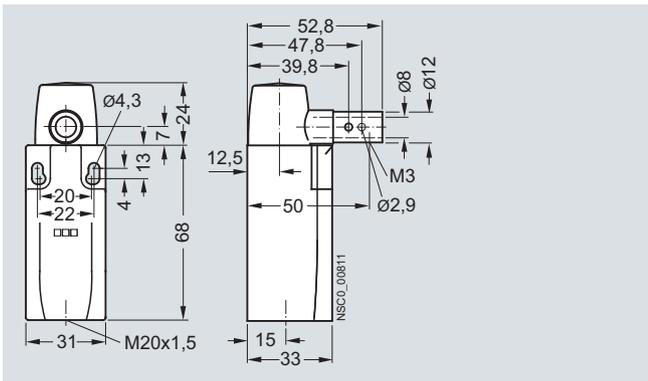
The technical specifications are the same as for the standard switches (see page 9/7).

Configuration

Enclosure width 31 mm

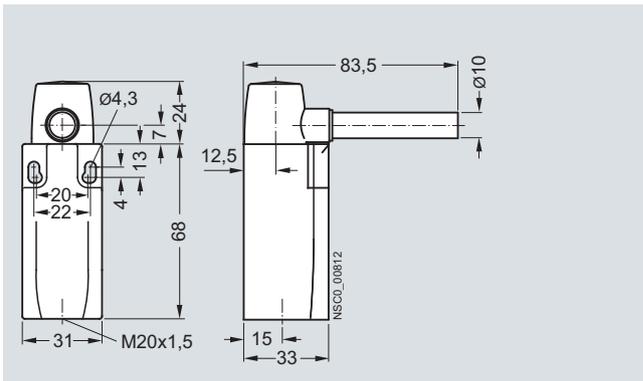
With hollow shaft

3SE5 212-0.U21, 3SE5 232-0.U21



With solid shaft

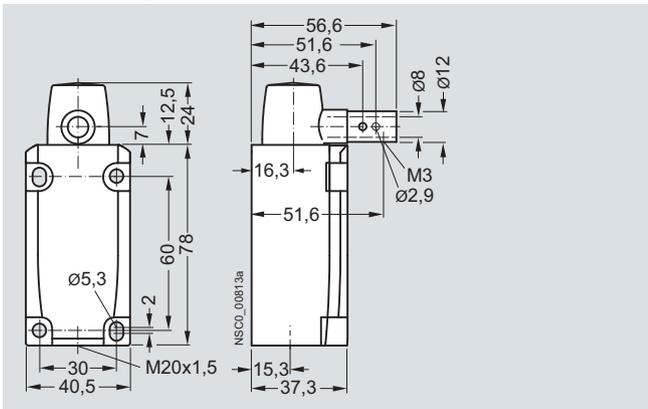
3SE5 212-0.U22, 3SE5 232-0.U22



Enclosure width 40 mm

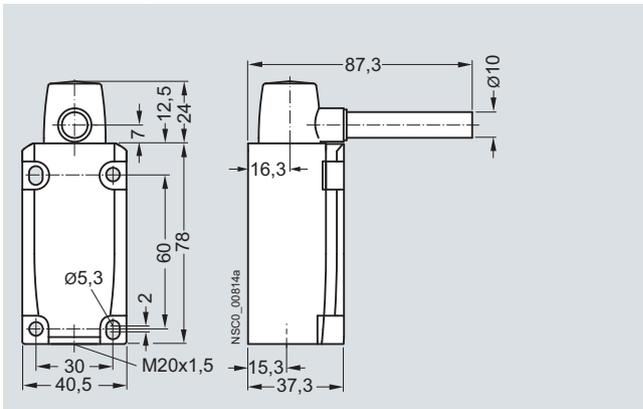
With hollow shaft

3SE5 112-0.U21, 3SE5 132-0.U21



With solid shaft

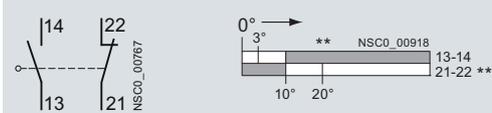
3SE5 112-0.U22, 3SE5 132-0.U22



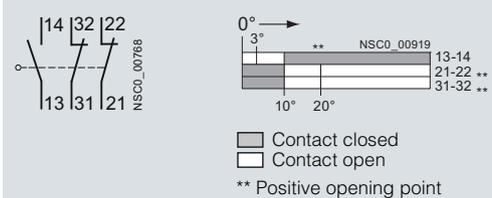
Operating travel of the shaft

Snap-action contacts

1 NO + 1 NC, Ident. No. 11



1 NO + 2 NC, Ident. No. 12



3SE5, 3SE2 Position Switches

Hinge Switches

3SE5, molded-plastic enclosures
Enclosure width 31 mm / 40 mm

Selection and ordering data

Complete units

2 or 3 contacts · Degree of protection IP65 (31 mm) or IP67/IP68 (40 mm) · Cable entry M20 × 1.5

Version	Snap-action contacts	DT	Complete units	PU (UNIT, SET, M)	PS*	PG
			<input type="checkbox"/>			
			Order No.	Price per PU		

Plastic enclosures · Enclosure width 31 mm according to EN 50047

	With hollow shaft						
	Operating angle 10°	1 NO + 1 NC	⊕ B	3SE5232-0HU21	1	1 unit	102
	Operating angle 10°	1 NO + 2 NC	⊕ B	3SE5232-0LU21	1	1 unit	102
	With solid shaft						
	Operating angle 10°	1 NO + 1 NC	⊕ B	3SE5232-0HU22	1	1 unit	102
	Operating angle 10°	1 NO + 2 NC	⊕ B	3SE5232-0LU22	1	1 unit	102

With hollow shaft

With solid shaft

Plastic enclosures · Enclosure width 40 mm according to EN 50041

	With hollow shaft					
	Operating angle 10°	1 NO + 2 NC	⊕ B	3SE5132-0LU21	1	1 unit
	With solid shaft					
	Operating angle 10°	1 NO + 2 NC	⊕ B	3SE5132-0LU22	1	1 unit

With hollow shaft

With solid shaft

⊕ Positive opening according to IEC 60947-5-1, Appendix K.

Accessories/spare parts

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
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Actuator heads

	With hollow shaft					
	Operating angle 10°		B	3SE5000-0AU21	1	1 unit
	With solid shaft					
	Operating angle 10°		B	3SE5000-0AU22	1	1 unit

With hollow shaft

With solid shaft

With solid shaft

Note:

The respective actuators are included in the scope of supply for the complete units.

3SE5, 3SE2 Position Switches

Hinge Switches

3SE5, metal enclosures
Enclosure width 31 mm / 40 mm

Selection and ordering data

Complete units

3 contacts · Degree of protection IP66/IP67 · Cable entry M20 × 1.5

Version	Snap-action contacts	DT	Complete units	Price per PU	PU (UNIT, SET, M)	PS*	PG
			<input type="checkbox"/>				
			Order No.	Price per PU			

Metal enclosures • Enclosure width 31 mm according to EN 50047

	With hollow shaft						
	Operating angle 10°	1 NO + 2 NC	⊕ B	3SE5212-0LU21		1	1 unit 102
With hollow shaft							
	With solid shaft						
	Operating angle 10°	1 NO + 2 NC	⊕ B	3SE5212-0LU22		1	1 unit 102
With solid shaft							

Metal enclosures • Enclosure width 40 mm according to EN 50041

	With hollow shaft						
	Operating angle 10°	1 NO + 2 NC	⊕ B	3SE5112-0LU21		1	1 unit 102
With hollow shaft							
	With solid shaft						
	Operating angle 10°	1 NO + 2 NC	⊕ B	3SE5112-0LU22		1	1 unit 102
With solid shaft							

⊕ Positive opening according to IEC 60947-5-1, Appendix K.

Accessories/spare parts

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
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Actuator heads

	With hollow shaft					
	Operating angle 10°	B	3SE5000-0AU21		1	1 unit 102
With hollow shaft						
	With solid shaft					
	Operating angle 10°	B	3SE5000-0AU22		1	1 unit 102
With solid shaft						

Note:

The respective actuators are included in the scope of supply for the complete units.

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

3SE5, 3SE2 Position Switches

Hinge Switches

3SE2, molded-plastic enclosures With integrated hinge

Overview

The 3SE2 283 hinge switches are particularly suitable for use in doors and flaps of machines that must be closed to ensure the safety of operating personnel. Their thin profile and compact design allow them to be directly mounted on a hinged protective cover and the stable frame.

Benefits

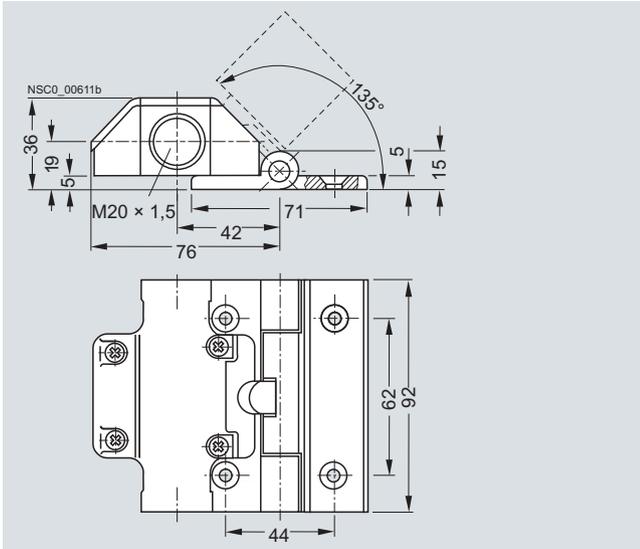
- Easy mounting through use of versions with integrated hinge
- Versions with small operating angle of 4°
- Protection against personal injury provided by positively driven NC contacts according to IEC 60947-5-1
- Simultaneous shutdown and reporting by 1 NO + 2 NC contacts

Technical specifications

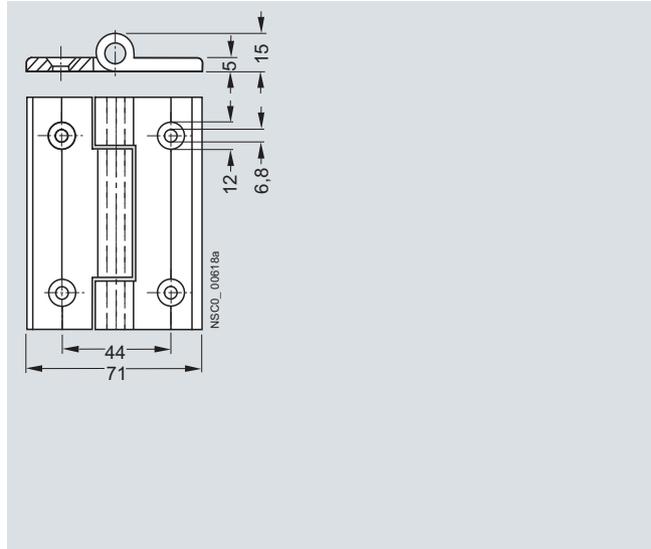
Type	3SE2 283	
Rated insulation voltage U_i	V	250
Conventional thermal current I_{th}	A	2.5
Rated operational current I_o		
• At AC-15, 120 V	A	4.2
• At AC-15, 250 V	A	2
• At DC-13, 24 V	A	1
Min. make-break capacity	> 5 V / 1 mA	
Short-circuit protection		
• Operational class gG	A	2
Mechanical endurance	> 1×10^6 operating cycles	
Switching frequency	1200 operating cycles/hour	
Positive opening	2 mm after opening point	
Enclosure material	Plastic	
Degree of protection	IP65	
Ambient temperature	°C	-25 ... +65
Shock resistance	30 g/18 ms	
Resistance to vibrations	20 g/10 ... 200 Hz	
Cable entry	2 × (M20 × 1.5)	
Screw terminals	0.5 ... 1.5 mm ² /AWG 15	

Configuration

3SE2 283-GA.3 hinge switch with hinge



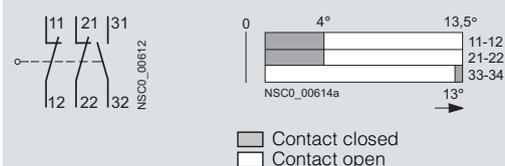
3SX3 225 additional hinge



Operating travel of the hinge

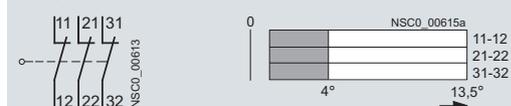
Slow-action contacts

1 NO + 2 NC, Ident. No. 12



Slow-action contacts

3 NC, Ident. No. 03



3SE5, 3SE2 Position Switches

Hinge Switches

**3SE2, molded-plastic enclosures
With integrated hinge**

Selection and ordering data

3 contacts · Degree of protection IP65 · Cable entry 2 × (M20 × 1.5)

Version	Slow-action contacts	DT	Complete units	<input type="checkbox"/>	PU (UNIT, SET, M)	PS*	PG
			Order No.	Price per PU			

Molded-plastic enclosures with integrated hinge



3SE2 283

With integrated hinge

(Delivery includes additional hinge and fixing accessories)

• Aluminum hinge

- Operating angle 4°	1 NO + 2 NC	⊕ A	3SE2283-0GA43	1	1 unit	102
- Operating angle 4°	3 NC	⊕ B	3SE2283-6GA43	1	1 unit	102
- Operating angle 8°	1 NO + 2 NC	⊕ C	3SE2283-0GA53	1	1 unit	102
- Operating angle 8°	3 NC	⊕ C	3SE2283-6GA53	1	1 unit	102

• High-grade steel hinge

- Operating angle 4°	1 NO + 2 NC	⊕ B	3SE2283-0GA44	1	1 unit	102
- Operating angle 4°	3 NC	⊕ C	3SE2283-6GA44	1	1 unit	102

⊕ Positive opening according to IEC 60947-5-1, Appendix K.

Accessories/spare parts

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
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Accessories



3SX3 225

Additional hinges

(delivered with fixing accessories)

• Made of aluminum	⊕ D	3SX3225	1	1 unit	102
• Made of high-grade steel	⊕ D	3SX3231	1	1 unit	102