

3SE3 2 SIGUARD Position Switches

Moulded-Plastic Enclosed



Description

Application

The function of position switches (limit switches) is to produce electrical signals corresponding to the positions by moving machinery.

The units are suitable for use in any climate.

The 3SE3 200 and 3SE3 210 position switches (limit switches) except 3SE3 2.0-8 can also be used in potentially explosive atmosphere EEx ia I confirming to certificate of conformity BVS No. B. 1015.

Specifications

IEC 60 947-5-1/EN 60 947-1 and VDE 0660 Part 200.

The 3SE3 2 switches can be used as safety position switches in control systems conforming to IEC 60 204-1/EN 60 204-1 and VDE 0113 Part 1.

Positive opening

The NC contacts of the switch are forced open mechanically by the plunger (positive opening). In order to ensure this positive opening, the position switch must be actuated in such a way that the nominal

stroke, see Pages 8/9 to 8/13 and 8/28 to 8/32, is substantially exceeded.

In addition to this, the NO contacts only close after the NC contacts have opened (exception: Slow action make-before-break-contacts). Furthermore, the 3SE3 200 position switches (limit-switches) comply in dimensions and functional dimensions with EN 50 047 and the 3SE3 230 position switches (limit-switches) comply in dimensions and functional dimensions with EN 50 041.

The safety requirements of "total insulation" are guaranteed by the use of plastic for the enclosure and thread.

The 3SE3 200 and 3SE3 210 moulded-plastic enclosed position switches meet the requirements of the accident prevention regulations of the Schweizerischen Unfallversicherungsgesellschaft (SUVA). The following actuator types have been approved:

Overtravel plunger 3SE3 2.0-.C	
Roller plunger	-.D
Roller lever	-.E
Angular roller lever	-.F
Roller crank	-.G
Overtravel plunger M18 × 1	-.L
Roller plunger M18 × 1	-.M

For use in safety circuits, the position switches (limit switches) must either be fixed on the 20 mm (40 mm) centres, be locked with a pin or fitted with a stop.

Design

The 3SE3 2 position switches (limit switches) are enclosed in a glassfibre reinforced flame-retardant moulded-plastic enclosure.

The position switches have one or two cable entries. The cable entry has a Pg 13.5 steel-conduit thread for glands acc. to DIN 46 320, sheet 1, thread lengths 6 mm (see also accessories on page 8/24).

All actuators can be retro-fitted or exchanged for another version. They can also be repositioned every 90° so that the switches can be operated from any of the four sides. The roller crank and rod actuators can be operated from both sides and be positioned from 10° to 10° on the actuating spindle. The rollers of the actuators are made from wear resistant plastic.

The position switches (limit switches) are available with snap-action contacts, slow-action contacts and slow-action make-before-break contacts.

Contact reliability

The movable switch contacts are double moving contacts. This increases the contact reliability even when the switch has to be operated with low voltages and currents, e. g. 5 V DC/1 mA. The switching point of the snap action contacts is independent of the switching corrosion.

The contact chamber is covered to prevent ingress of foreign bodies.

Technical data

Rated insulation voltage U_i	500 V					
Short circuit protection ¹⁾ DIAZED-fuse links	Utilisation category gL/gG 6 A, Characteristics quick response 10 A					
Mechanical endurance	30 × 10 ⁶ make-break operations (15 × 10 ⁶ für 3SE3 2.0-8.)					
Electrical endurance	10 × 10 ⁶ make-break operations with 3RH11, 3RT10 16, 3RT10 17, 3RT10 24 to 3RT10 26 (3TH4, 3TF40 to 3TF43) contactors					
	0.5 × 10 ⁶ make-break operations when interrupting I_e /AC-15 at 230 V					
for AC-15 duty	With DC the contact endurance depends not only on the breaking current but also on the voltage, the circuit endurance and the speed of switching. No generally valid information can be given.					
for DC-13 duty						
Rated operational voltage U_e	AC 500 V, over AC 380 V only for equal potential					
Conventional free-air thermal current I_{th}	10 A					
Rated operational current I_e	AC 40 to 60 Hz		DC			
	U_e V	I_e /AC-12 A	I_e /AC-15 A	U_e V	I_e /DC-12 A	I_e /DC-13 A
	24	10	10	24	10	10
	125	10	10	48	6	4
	230	10	6	110	4	1
	400	10	4	220	1	0.4
	500	10	3	440	0.5	0.2
Operating frequency	6 × 10 ³ make-break operations per hour with 3RH11, 3RT10 16, 3RT10 17, 3RT10 24 to 3RT10 26 (3TH4, 3TF40 to 3TF43) contactors					
Operating accuracy	0.05 mm for repeated switching, measured at the plunger					
Operating point	with snap-action contacts independent of contact wear constant throughout the life of the switch					
Cable entry	Pg 13.5					
Ambient temperature	-30 to +85 °C					
Degree of protection acc. to DIN VDE 0470 and IEC 60 529	IP 67 (IP 66 for 3SE3 230)					
Conductor cross-section	2 × 1.5 mm ² solid 2 × 2.5 mm ² finely stranded with end sleeves					
Mounting position	any					
Ⓢ, Ⓣ and Ⓜ ratings	Conventional thermal current		Rated voltage		Switching capacity	
3SE3 200, 3SE3 210	10 A		300 V		Heavy Duty, A 600/Q 600	

1) Without any welding acc. to DIN VDE 0660 Part 200.



3SE3 200 and 3SE3 210 SIGUARD Position Switches Moulded-Plastic Enclosed







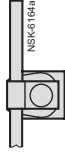



Selection and ordering data

2 contacts · Moving double-break contacts · Degree of protection IP 67 · EN 50 047

31 mm wide 50 mm wide



The actuators can be subsequently interchanged¹⁾

				3SE3 position switches with 2 slow-action contacts		3SE3 position switches with 2 slow-action contacts		3SE3 position switches with 2 slow-action contacts		Wght. app. kg
				Identification number 11 acc. to EN 50 013		Identification number 02 acc. to EN 50 013		Identification number 20 acc. to EN 50 013		
				Order No.		Order No.		Order No.		
				Price		Price		Price		
				1 unit		1 unit		1 unit		
				Preferred type						
	Overtravel plunger <i>B</i>	31	▶	→ 3SE3 200-0C	→ 3SE3 200-6C	→ 3SE3 200-7C	0.05			
	–	50		→ 3SE3 210-0C	–	–	0.06			
	Roller plunger ²⁾ <i>C</i>	31	▶	→ 3SE3 200-0D	→ 3SE3 200-6D	→ 3SE3 200-7D	0.06			
	–	50		→ 3SE3 210-0D	–	–	0.07			
	Roller lever <i>E</i>	31	▶	→ 3SE3 200-0E	→ 3SE3 200-6E	→ 3SE3 200-7E	0.06			
	–	50		→ 3SE3 210-0E	–	–	0.07			
	Angular roller lever	31	▶	→ 3SE3 200-0F	→ 3SE3 200-6F	3SE3 200-7F	0.06			
	–	50		→ 3SE3 210-0F	–	–	0.07			
	Roller crank ²⁾ <i>A</i>	31	▶	→ 3SE3 200-0G	→ 3SE3 200-6G	→ 3SE3 200-7G	0.07			
	• finely adjustable from 10° to 10°	–	50	→ 3SE3 210-0G	–	–	0.08			
	• adjustable length, finely adjustable from 10° to 10°	31		3SE3 200-0U	3SE3 200-6U	3SE3 200-7U	0.08			
	–	50		3SE3 210-0U	–	–	0.09			
	Rod actuator finely adjustable from 10° to 10°									
	• Moulded-plastic rod	–	31	3SE3 200-0W	3SE3 200-6W	3SE3 200-7W	0.08			
	–	50	3SE3 210-0W	–	–	0.09				
	• Aluminium rod	–	31	3SE3 200-0V	3SE3 200-6V	3SE3 200-7V	0.08			
–	50	3SE3 210-0V	–	–	0.09					
	• Spring rod	–	31	3SE3 200-0S	3SE3 200-6S	3SE3 200-7S	0.09			
	–	50	3SE3 210-0S	–	–	0.1				
	Overtravel plunger central fixing with M 18 x 1 thread	–	31	→ 3SE3 200-0L	→ 3SE3 200-6L	3SE3 200-7L	0.06			
	–	50	→ 3SE3 210-0L	–	–	0.07				
	Roller plunger central fixing with M 18 x 1 thread	–	31	→ 3SE3 200-0M	→ 3SE3 200-6M	3SE3 200-7M	0.06			
	–	50	→ 3SE3 210-0M	–	–	0.07				

See for special designs on page 8/8.
For operation, operating speed and travel, see pages 8/9 to 8/13.
For multi-unit packing, see Part 17.

→ Safety function according to IEC 60 947-5-1-3 and DIN VDE 0660 Part 200.
Design according to EN 50 047.

1) See page 8/8.
2) Special design for use in exceptionally dusty conditions (Actuator in degree of protection IP 65).

Order No. has to be modified as follows:
3SE3 2...-D in 3SE3 2...-XJ
3SE3 2...-G in 3SE3 2...-XG.

3SE3 200 and 3SE3 210 SIGUARD Position Switches

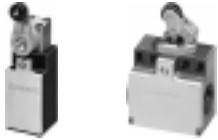
Moulded-Plastic Enclosed



Selection and ordering data

2 contacts · Moving double-break contacts · Degree of protection IP 67 · EN 50 047

31 mm wide 50 mm wide



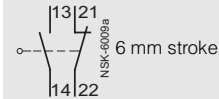
The actuators can be subsequently interchanged¹⁾.

Actuator type

Enclosure width

3SE3 position switches

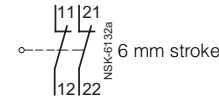
with 2 snap-action contacts



Identification number **11** acc. to EN 50 013

3SE3 position switches

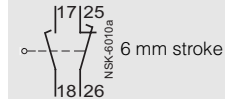
with 2 snap-action contacts



Identification number **02** acc. to EN 50 013










3SE3 position switches

with 2 slow-action make before-break contacts



Identification number **11** acc. to EN 50 013

Wght. app.

Actuator	EN 50 047	mm	3SE3 position switches with 2 snap-action contacts		3SE3 position switches with 2 snap-action contacts		3SE3 position switches with 2 slow-action make before-break contacts		kg
			Order No.	Price	Order No.	Price	Order No.	Price	
			Preferred type	1 unit		1 unit		1 unit	
 NSK-6158a	B	31	→ 3SE3 200-1C		→ 3SE3 200-8C		→ 3SE3 200-3C		0.05
		50	→ 3SE3 210-1C		→ 3SE3 210-8C		→ 3SE3 210-3C		0.06
 NSK-6159a	C	31	→ 3SE3 200-1D		→ 3SE3 200-8D		→ 3SE3 200-3D		0.06
		50	→ 3SE3 210-1D		→ 3SE3 210-8D		→ 3SE3 210-3D		0.07
 NSK-6160a	E	31	→ 3SE3 200-1E		→ 3SE3 200-8E		→ 3SE3 200-3E		0.06
		50	→ 3SE3 210-1E		→ 3SE3 210-8E		→ 3SE3 210-3E		0.07
 NSK-6161a		31	→ 3SE3 200-1F		→ 3SE3 200-8F		→ 3SE3 200-3F		0.06
		50	→ 3SE3 210-1F		→ 3SE3 210-8F		→ 3SE3 210-3F		0.07
 NSK-6162a	A	31	→ 3SE3 200-1G		→ 3SE3 200-8G		→ 3SE3 200-3G		0.07
		50	→ 3SE3 210-1G		→ 3SE3 210-8G		→ 3SE3 210-3G		0.08
		31	→ 3SE3 200-1U		→ 3SE3 200-8U		→ 3SE3 200-3U		0.08
		50	→ 3SE3 210-1U		→ 3SE3 210-8U		→ 3SE3 210-3U		0.09
 NSK-6163a									
		31	→ 3SE3 200-1W		→ 3SE3 200-8W		→ 3SE3 200-3W		0.08
		50	→ 3SE3 210-1W		→ 3SE3 210-8W		→ 3SE3 210-3W		0.09
		31	→ 3SE3 200-1V		→ 3SE3 200-8V		→ 3SE3 200-3V		0.08
		50	→ 3SE3 210-1V		→ 3SE3 210-8V		→ 3SE3 210-3V		0.09
		31	→ 3SE3 200-1S		→		→ 3SE3 200-3S		0.09
		50	→ 3SE3 210-1S		→		→ 3SE3 210-3S		0.1
 NSK-6164a		31	→ 3SE3 200-1R		→ 3SE3 200-8R		→		0.07
		50	→ 3SE3 210-1R		→		→		0.08
 NSK-6165a		31	→ 3SE3 200-1L		→		→ 3SE3 200-3L		0.06
		50	→ 3SE3 210-1L		→		→ 3SE3 210-3L		0.07
 NSK-6167a		31	→ 3SE3 200-1M		→		→ 3SE3 200-3M		0.06
		50	→ 3SE3 210-1M		→		→ 3SE3 210-3M		0.07

See for special designs on page 8/8.

See for operation, operating speed and travel, on pages 8/9 to 8/13.

For multi-unit packing, see Part 17.

→ Safety function according to IEC 60 947-5-1-3 and DIN VDE 0660 Part 200.

Design according to EN 50 047.

1) See page 8/8.

2) Special design for use in exceptionally dusty conditions (Actuator in degree of protection IP 65). Not valid for 3SE3 2.0-8.

Order No. has to be modified as follows:
3SE3 2.-.D in 3SE3 2.-.XJ
3SE3 2.-.G in 3SE3 2.-.XG.



3SE3 200 and 3SE3 210 SIGUARD Position Switches Moulded-Plastic Enclosed, with RESET

Selection and ordering data

Function

3SE3 2 position switches with integrated RESET must be manually reset following operation before restarting is possible again. The blue mechanical RESET button is on the switch itself.

Design

This switch series is offered in two enclosure widths: 31 mm to EN 50 047 and 56 mm. The housing is designed to the IP 66 degree of protection.

All types are equipped with two floating contacts (1 NC + 1 NO).

The NC contact complies with the requirements of positive opening in accordance with IEC 60 947-5-1 for protection against personal injury.

The position switches with RESET can be ordered with different actuator types:

- Overtravel plunger
- Roller plunger
- Roller lever
- Angular roller lever
- Roller crank

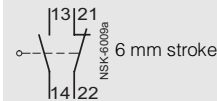
2 contacts · Moving double-break contacts · Degree of protection IP 66 · EN 50 047 · Special width 56 mm

31 mm wide



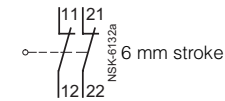
3SE3 position switches

with 2 slow-action contacts



3SE3 position switches

with 2 slow-action contacts



Enclosure width mm

Identification number **11** acc. to EN 50 013

Identification number **02** acc. to EN 50 013

Wght. app. kg

Order No.

Price

Order No.

Price

1 unit

1 unit

Actuator

Overtravel plunger



31

→ **3SE3 200-0CV12**

→ **3SE3 200-6CV12**

0.05

56

→ **3SE3 210-0CV12**

→ **3SE3 210-6CV12**

0.06

Roller plunger



31

→ **3SE3 200-0DV12**

→ **3SE3 200-6DV12**

0.06

56

→ **3SE3 210-0DV12**

→ **3SE3 210-6DV12**

0.07

Roller lever



31

→ **3SE3 200-0EV12**

→ **3SE3 200-6EV12**

0.06

56

→ **3SE3 210-0EV12**

→ **3SE3 210-6EV12**

0.07

Angular roller lever



31

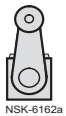
→ **3SE3 200-0FV12**

→ **3SE3 200-6FV12**

0.06

Roller crank

- finely adjustable



31

→ **3SE3 200-0GV12**

→ **3SE3 200-6GV12**

0.07

56

→ **3SE3 210-0GV12**

→ **3SE3 210-6GV12**

0.08

- adjustable length



31

3SE3 200-0UV12

3SE3 200-6UV12

0.08

For travel, see page 8/14.
For multi-unit packing, see Part 17.

Technical data

Rated insulation voltage U_i

500 V

Conventional thermal current I_{th}

10 A (IEC 60 947-5-1)

Short-circuit protection

Utilisation category gL/gG,
Characteristics quick response: 10 A

Mechanical endurance

1.0×10^6 make-break operations

Electrical endurance

0.5×10^6 make-break operations

→ Safety function according to IEC 60 947-5-1-3 and DIN VDE 0660 Part 200.

Design according to EN 50 047.

Operating frequency

1.8×10^3 make-break operations per hour

Cable entry

Pg 13.5

Conductor cross-section

$2 \times 1.5 \text{ mm}^2$ solid,
 $1 \times 1.5 \text{ mm}^2$ finely stranded with end sleeve

Ambient temperature

-30 to +85 °C

Degree of protection

IP 66

acc. to DIN VDE 0470 and IEC 60 529

3SE3 200 and 3SE3 210 SIGUARD Position Switches Moulded-Plastic Enclosed



Selection and ordering data

Special designs for 3SE3 200 and 3SE3 210²⁾ moulded-plastic enclosed position switches










Notes on ordering:	Design	Order code	Add. price	Design	Order code	Add. price
When ordering special designs suffix the Order No. with "-Z" and with the order code Example: 3SE3 200-1E-Z A17	Chlorine rubber membrane Higher resistance against: acids, ozone, sun rays and improved cold temperature flexibility	A17		Protection against overtravel of the plunger only for 3SE3 200-C and 3SE3 210-C	A12	
	with metal roller for position switches with roller plunger, roller lever, angular roller lever and roller crank	A16				
				with Teflon plunger only for 3SE3 200-1C and 3SE3 210-1C: optimized for lateral operation available with improved resistance to abrasion. The other operating mechanisms cannot be used with these position switches. Enclosure width		
				31 mm	Order No.	Price 1 unit
				50 mm	3SE3 200-1XH	
					3SE3 210-1XH	

Special designs for position switches with roller crank²⁾

Notes on ordering:	Design	Roller diameter	Order code	Add. price	Design	Roller diameter	Order code	Add. price
When ordering special designs suffix the Order No. with "-Z" and with the order code Example: 3SE3 200-1G-Z A21	Moulded-plastic roller for type 3SE3 200-.G, -.U, 3SE3 210-.G, -.U, 3SE3 230-.GW, -.U	30 mm	A20		Rubber roller 3SE3 230-.GW, -.U	50 mm	A23	
	3SE3 200-.G, -.U, 3SE3 210-.G, -.U	35 mm	A21					
	3SE3 230-.GW, -.U	50 mm	A22		Direct connection to AS-Interface for all switch types with Pg 13.5 screw gland (see page 8/22)		C01	

Actuators for position switches 3SE3 200 and 3SE3 210²⁾

The actuator heads can be subsequently replaced with other variants.¹⁾
The basic version is 3SE3 2.0-C overtravel plunger. The following listed actuator heads can be fitted to it.

		Actuator with fixing screws	Fig. No.	For position switches 3SE3 200-□□ 3SE3 210-□□	Order No.	Price 1 unit	Weight approx. kg
1	2	Roller plunger	1	-.D	3SX3 170		0.006
		Roller lever	2	-.E	3SX3 171		0.007
		Angular roller lever	3	-.F	3SX3 172		0.008
3	4	Roller crank					
		• finely adjustable from 10° to 10°	4	-.G	3SX3 173		0.018
		• adjustable length, finely adjustable from 10° to 10°	5	-.U	3SX3 174		0.03
5	6	Rod actuator finely adjustable from 10° to 10°					
		• Moulded-plastic rod	6	-.W	3SX3 175		0.033
		• Aluminium rod		-.V	3SX3 176		0.033
		• Spring rod		-.S	3SX3 177		0.033
7	8	Spring rod ³⁾	7	-.R	3SX3 178		0.02
		Overtravel plunger Central fixing with M 18 x 1 thread	8	-.L	3SX3 180		0.008
	9	Roller plunger Central fixing with M 18 x 1 thread	9	-.M	3SX3 181		0.008
							

1) Not for position switches with separate actuators and for position switches 3SE3 200-1XH, 3SE3 210-1XH.

2) Not valid for 3SE3 2.0-8.

3) Only for snap-action contacts.



3SE3 200 and 3SE3 210 SIGUARD Position Switches

Moulded-Plastic Enclosed

Operation, operating speed and travel of actuators

Operation by a bar		Switch blocks	Nominal travel and related terminals	Switch blocks	Nominal travel and related terminals
⊙	operating point acc. to EN 50 047	Internal circuit diagram	0-line reference line acc. to EN 50 047		
V _{max.}	max. operating speed	Terminal designation acc. to EN 50 013	S	reference line acc. to EN 50 047	
S	travel acc. to EN 50 047		■	contact closed	
H	travel difference		□	contact open	
→	direction of operation		*	operating point on return	
			**	positive opening to IEC 60 947-5-1-3	

Overtravel plunger

Form B

3SE3 200--C
3SE3 210--C

V_{max.} = 1 m/s

V_{max.} = 0.5 m/s

Minimum force required in direction of operation: 9 N

Slow-action contacts	along plunger axis	perpendicular to plunger axis	Switch blocks	Nominal travel
1 NO + 1 NC Identification number 11	NSK-6018b 16,5**	NSK-6019b 9,6**	NSK-6132a 2 NC	17,5
1 NO + 1 NC with make-before-break Identification number 11	NSK-6020b 16**	NSK-6021a 9,3	NSK-6133a 2 NO	16
Snap-action contacts				
1 NO + 1 NC Identification number 11	NSK-6017b 16,5	NSK-6017b 7,7*	NSK-6132a 2 NC	18,5*

Roller plunger

Form C

3SE3 200--D
3SE3 210--D

V_{max.} = 1 m/s

V_{max.} = 1 m/s

Minimum force required in direction of operation: 9 N

Slow-action contacts	along plunger axis	perpendicular to plunger axis	Switch blocks	Nominal travel
1 NO + 1 NC Identification number 11	NSK-6022b 27**	NSK-6019b 9,6**	NSK-6132a 2 NC	28
1 NO + 1 NC with make-before-break Identification number 11	NSK-6024b 26,5**	NSK-6021a 9,3	NSK-6133a 2 S	26,5
Snap-action contacts				
1 NO + 1 NC Identification number 11	NSK-6022b 27	NSK-6017b 7,7*	NSK-6132a 2 NC	18,5*

1) Not valid for 3SE3 2...-8.

1
2
3
4
5
6
7
8

3SE3 200 and 3SE3 210 SIGUARD Position Switches

Moulded-Plastic Enclosed



Operation, operating speed and travel of actuators 1)

Operation by a bar	Switch blocks	Nominal travel and related terminals	Switch blocks	Nominal travel and related terminals
<p>⊙ operating point acc. to EN 50 047</p> <p>v_{max} max. operating speed</p> <p>S travel acc. to EN 50 047</p> <p>H travel difference</p> <p>→ direction of operation</p>	<p>Internal circuit diagrams</p> <p>Terminal designation acc. to EN 50 013</p>	<p>0-line reference line acc. to EN 50 047</p> <p>S travel acc. to EN 50 047</p> <p>■ contact closed</p> <p>□ contact open</p> <p>* operating point on return</p> <p>** positive opening to IEC 60 947-5-1-3</p>		

Roller lever

Type E
3SE3 200--E
3SE3 210--E

$v_{max} = 1 \text{ m/s}$

Minimum force required in direction of operation: 9 N

Slow-action contacts

perpendicular to plunger axis

1 NO + 1 NC
NSK-6026b

Identification number 11

1 NO + 1 NC with make-before-break
NSK-6027b

Identification number 11

Snap-action contacts

1 NO + 1 NC
NSK-6025b

Identification number 11

Angular roller lever

Type C
3SE3 200--F
3SE3 210--F

$v_{max} = 1 \text{ m/s}$

The above example of approach is for 3SE3 200; this design is not possible for 3SE3 210.

Minimum force required in direction of operation: 9 N

Slow-action contacts

along plunger axis

1 NO + 1 NC
NSK-6023b

Identification number 11

1 NO + 1 NC with make-before-break
NSK-6030b

Identification number 11

Snap-action contacts

along plunger axis

1 NO + 1 NC
NSK-6028b

Identification number 11

2 NC
NSK-6132a

Identification number 02

2 NO
NSK-6133a

Identification number 20

Snap-action contacts

along plunger axis

2 NC
NSK-6132a

Identification number 02

1) Not valid for 3SE3 2..-8.



3SE3 200 and 3SE3 210 SIGUARD Position Switches

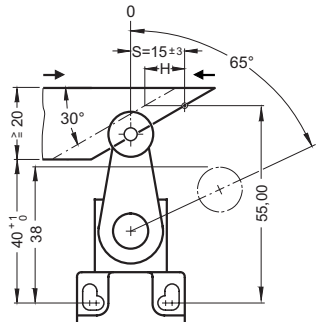
Moulded-Plastic Enclosed

Operation, operating speed and travel of actuators 1)

Operation by a bar	Switch blocks	Nominal travel and related terminals	Switch blocks	Nominal travel and related terminals
<p>⊙ operating point acc. to EN 50 047</p> <p>$v_{max.}$ max. operating speed</p> <p>S travel acc. to EN 50 047</p> <p>H travel difference</p> <p>→ direction of operation</p>	<p>Internal circuit diagrams</p> <p>Terminal-designation acc. to EN 50 013</p>	<p>0-line reference line acc. to EN 50 047</p> <p>S travel acc. to EN 50 047</p> <p>■ contact closed</p> <p>□ contact open</p> <p>* operating point on return</p> <p>** positive opening to IEC 60 947-5-1-3</p>		

Roller crank

Type A
finely adjustable from 10° to 10°
3SE3 200--G

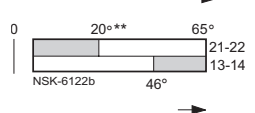
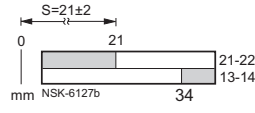
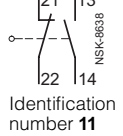


$v_{max.} = 1.5 \text{ m/s}$

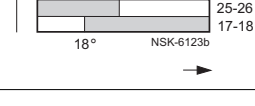
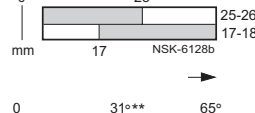
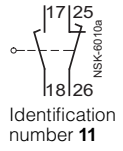
Minimum force required in direction of operation: 18 N

Slow-action contacts

perpendicular to plunger axis

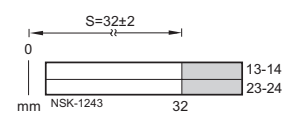
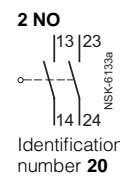
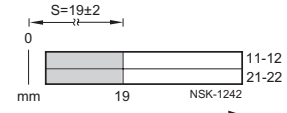
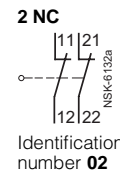


1 NO + 1 NC with make-before-break



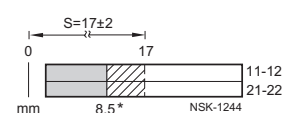
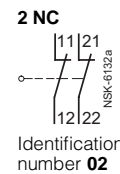
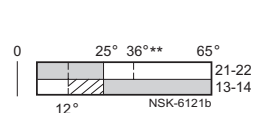
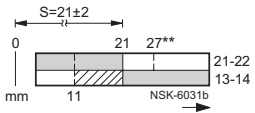
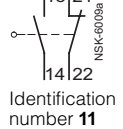
Slow-action contacts

perpendicular to plunger axis



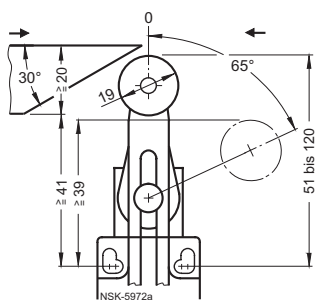
Snap-action contacts

perpendicular to plunger axis



Roller crank

Adjustable length, finely adjustable from 10° to 10°
3SE3 200--U
3SE3 210--U

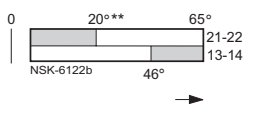
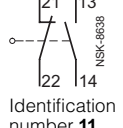


$v_{max.} = 1.5 \text{ m/s}$

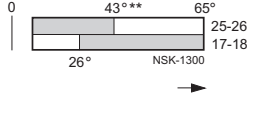
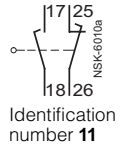
Minimum force required in direction of operation: 18 N

Slow-action contacts

perpendicular to plunger axis

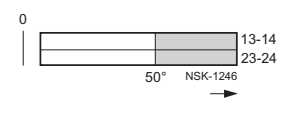
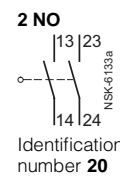
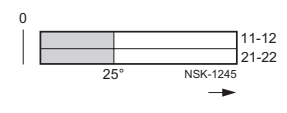
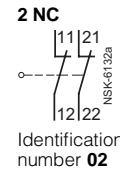


1 NO + 1 NC with make-before-break



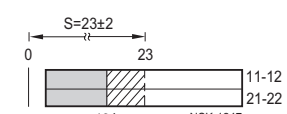
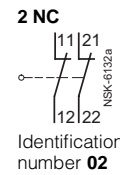
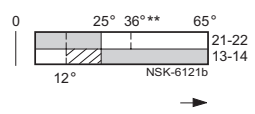
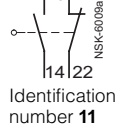
Slow-action contacts

perpendicular to plunger axis



Snap-action contacts

perpendicular to plunger axis



1) Not valid for 3SE3 2..-8.

3SE3 200 and 3SE3 210 SIGUARD Position Switches

Moulded-Plastic Enclosed



Operation, operating speed and travel of actuators 1)

Operation by a bar	Switch blocks	Nominal travel and related terminals	Switch blocks	Nominal travel and related terminals
v_{max} : max. operating speed →: direction of operation	Internal circuit diagram Terminal designation acc. to EN 50 013	0-line reference line acc. to EN 50 047 ■ contact closed □ contact open * operating point on return		

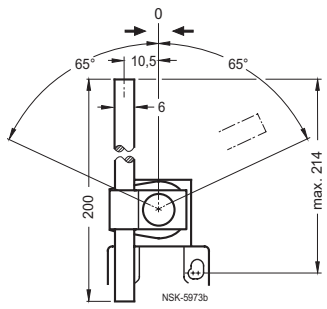
Rod actuator

finely adjustable from 10° to 10°

3SE3 200--W
3SE3 210--W
(Moulded-plastic rod)

3SE3 200--V
3SE3 210--V
(Aluminium rod)

3SE3 200--S
3SE3 210--S
(Spring rod)

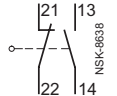


$v_{max} = 1.5 \text{ m/s}$

Minimum force required in direction of operation: 18 N

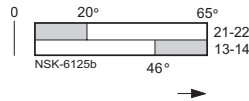
Slow-action contacts

1 NO + 1 NC

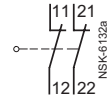


Identification number **11**

in direction of rotation

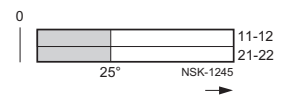


2 NC

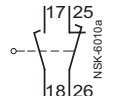


Identification number **02**

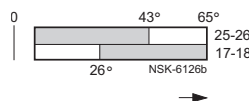
in direction of rotation



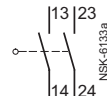
1 NO + 1 NC with make-before-break



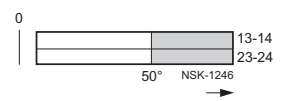
Identification number **11**



2 NO

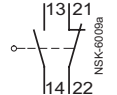


Identification number **20**

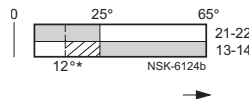


Snap-action contacts

1 NO + 1 NC

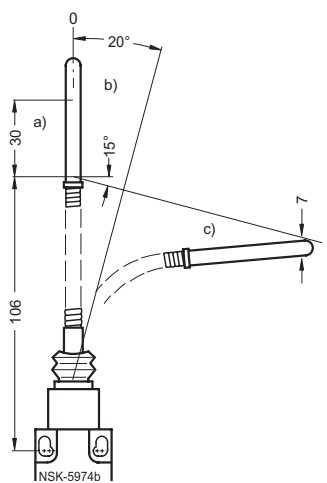


Identification number **11**



Spring rod

3SE3 200-1R
3SE3 210-1R



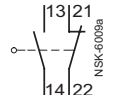
- a) approach area
- b) minimum deflection in operation (to ensure reliable switching)
- c) maximum deflection in operation (to prevent damage)

$v_{max} = 1 \text{ m/s}$

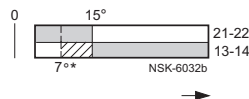
Minimum force required in direction of operation: 9 N

Snap-action contacts

1 NO + 1 NC



Identification number **11**



1) Not valid for 3SE3 2.-8.



3SE3 200 and 3SE3 210 SIGUARD Position Switches

Moulded-Plastic Enclosed

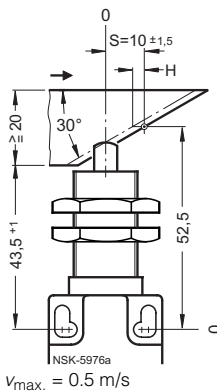
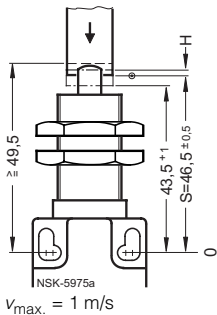
Operation, operating speed and travel of actuators¹⁾

Operation by a bar	Switch blocks	Nominal travel and related terminals	Switch blocks	Nominal travel and related terminals
<p>⊙ operating point acc. to EN 50 047</p> <p>$v_{max.}$ max. operating speed</p> <p>S travel acc. to EN 50 047</p> <p>H travel difference</p> <p>→ direction of operation</p>	<p>Internal circuit diagrams</p> <p>Terminal designation acc. to EN 50 013</p>	<p>0-line reference line acc. to EN 50 047</p> <p>S travel acc. to EN 50 047</p> <p>■ contact closed</p> <p>□ contact open</p> <p>* operating point on return</p> <p>** positive opening to IEC 60 947-5-1-3</p>		

Overtravel plunger

Central fixing with M 18

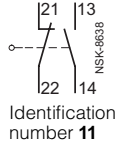
3SE3 200-L
3SE3 210-L



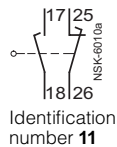
Minimum force required in direction of operation: 9 N

Slow-action contacts

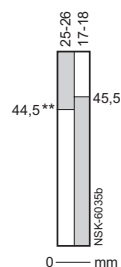
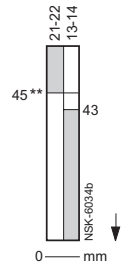
1 NO + 1 NC



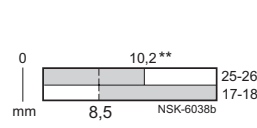
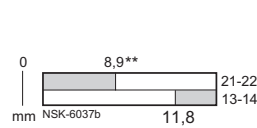
1 NO + 1 NC with make-before-break



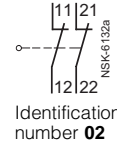
along plunger axis



perpendicular to plunger axis



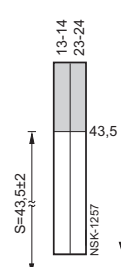
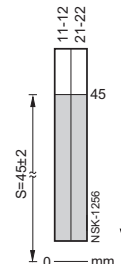
2 NC



2 NO

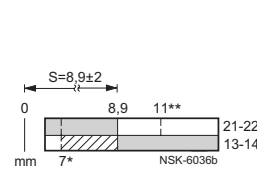
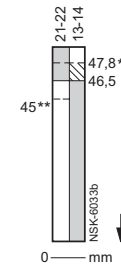
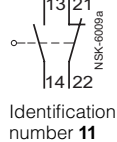


along plunger axis



Snap-action contacts

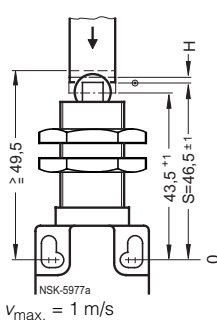
1 NO + 1 NC



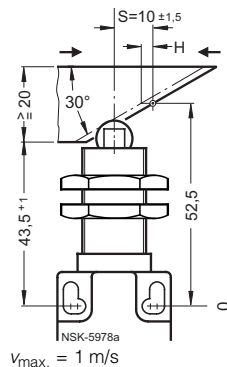
Roller plunger

Central fixing with M18 thread

3SE3 200-M
3SE3 210-M



Minimum force required in direction of operation: 9 N



Minimum force required in direction of operation: 9 N

Switch blocks and nominal travel see overtravel plunger


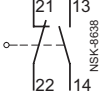
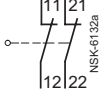
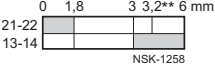
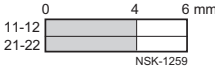
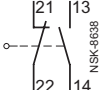
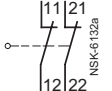
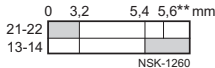
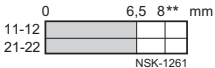
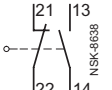
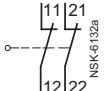
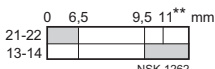
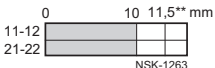
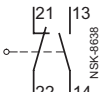
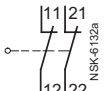
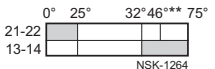
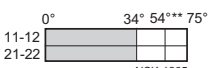
1) Not valid for 3SE3 2...-8.

3SE3 200 and 3SE3 210 SIGUARD Position Switches

Moulded-Plastic Enclosed, with RESET



Travel of actuators










Actuator	Switch blocks	Nominal travel and related terminals
	Internal circuit diagrams Terminal designation acc. to EN 50 013	0-line reference line acc. to EN 50 047  ** positive opening to IEC 60 947-5-1-3
Overtravel plunger 3SE3 2.0–.CV12	Slow-action contacts 1 NO + 1 NC  Identification number 11 2 NC  Identification number 02	 NSK-1258  NSK-1259
Roller plunger 3SE3 2.0–.DV12	Slow-action contacts 1 NO + 1 NC  Identification number 11 2 NC  Identification number 02	 NSK-1260  NSK-1261
Roller lever, angular roller lever 3SE3 2.0–.EV12, 3SE3 2.0–.FV12	Slow-action contacts 1 NO + 1 NC  Identification number 11 2 NC  Identification number 02	 NSK-1262  NSK-1263
Roller crank 3SE3 2.0–.GV12, 3SE3 2.0–.UV12	Slow-action contacts 1 NO + 1 NC  Identification number 11 2 NC  Identification number 02	 NSK-1264  NSK-1265



3SE3 230 SIGUARD Position Switches Moulded-Plastic Enclosed

Selection and ordering data

2 contacts · Moving double-break contacts · Degree of protection IP 66 · EN 50 041

40 mm wide  The actuators can be subsequently interchanged ¹⁾				3SE3 position switches with 2 slow-action contacts	3SE3 position switches with 2 slow-action contacts	3SE3 position switches with 2 slow-action contacts	Wgt app. kg		
		Actuator type	Fig. No.	Identification number 11 acc. to EN 50 013 Switch block 3SE3 000-0A	Identification number 02 acc. to EN 50 013 Switch block 3SE3 000-6A	Identification number 20 acc. to EN 50 013 Switch block 3SE3 000-7A			
Actuator		EN 50 041		Order No.	Price 1 unit	Order No.	Price 1 unit	Order No.	Price 1 unit
<p>1  NSK-6168a</p> <p>2  NSK-6169a</p> <p>3  NSK-6170a</p> <p>4  NSK-6152a</p>	<i>Overtravel plunger</i>	<i>B</i>	1	→ 3SE3 230-0C		→ 3SE3 230-6C		3SE3 230-7C	0.11
	<i>Roller plunger</i>	<i>C</i>	2	→ 3SE3 230-0D		→ 3SE3 230-6D		3SE3 230-7D	0.12
	<i>Roller lever</i>	–	3	→ 3SE3 230-0E		→ 3SE3 230-6E		3SE3 230-7E	0.13
	<i>Angular roller lever</i> Actuator made from moulded plastic	–	4	→ 3SE3 230-0F		→ 3SE3 230-6F		3SE3 230-7F	0.14
	<i>Roller crank</i> • finely adjustable from 10° to 10°	<i>A</i>	5	→ 3SE3 230-0GW		→ 3SE3 230-6GW		3SE3 230-7GW	0.14
	• adjustable length, finely adjustable from 10° to 10°	–	6	3SE3 230-0U		3SE3 230-6U		3SE3 230-7U	0.14
	<i>Rod actuator</i> • Moulded plastic rod • Aluminium rod	<i>D</i>	7	3SE3 230-0W 3SE3 230-0V		3SE3 230-6W 3SE3 230-6V		3SE3 230-7W 3SE3 230-7V	0.14 0.14
<p>5  NSK-6171a</p> <p>6  NSK-6163a</p> <p>7  NSK-6164a</p> <p>8  NSK-6165a</p>	<i>Overtravel plunger</i>	<i>B</i>	1	→ 3SE3 230-1C		→ 3SE3 230-8C		3SE3 230-3C	0.11
	<i>Roller plunger</i>	<i>C</i>	2	→ 3SE3 230-1D		→ 3SE3 230-8D		3SE3 230-3D	0.12
	<i>Roller lever</i>	–	3	→ 3SE3 230-1E		→ 3SE3 230-8E		3SE3 230-3E	0.13
	<i>Angular roller lever</i> Actuator made from moulded plastic	–	4	→ 3SE3 230-1F		→ 3SE3 230-8F		3SE3 230-3F	0.14
	<i>Roller crank</i> • finely adjustable from 10° to 10°	<i>A</i>	5	→ 3SE3 230-1GW		→ 3SE3 230-8G		3SE3 230-3GW	0.14
	• adjustable length, finely adjustable from 10° to 10°	–	6	3SE3 230-1U		3SE3 230-8U		–	0.14
	<i>Rod actuator</i> • Moulded plastic rod • Aluminium rod	<i>D</i>	7	3SE3 230-1W 3SE3 230-1V		3SE3 230-8W 3SE3 230-8V		–	0.14 0.14
	<i>Spring rod</i>	–	8	3SE3 230-1R		3SE3 230-8R		–	0.14

The switch has the same construction as the 3SE3 120-... metal-enclosed switch detailed on pages 8/18 and 8/19.
See for operation, operating speed and travel or angle on pages 8/28 to 8/32.
For multi-unit packing, see Part 17.

→ Safety function according to IEC 60 947-5-1-3 and DIN VDE 0660 Part 200.

 Design according to EN 50 041.

1) See on page 8/16.









3SE3 230 SIGUARD Position Switches

Moulded-Plastic Enclosed



Selection and ordering data

Actuator heads for 3SE3 230 position switches¹⁾
 The actuator heads can be subsequently exchanged.

	Operating mechanism with fixing screws and gasket	For 3SE3 230-□□ position switches	Order No.	Price	Weight approx.
				1 unit	kg
	Overtravel plunger	-C	3SX3 160		0.008
	Roller plunger	-D	3SX3 161		0.009
	Roller lever	-E	3SX3 164		0.045
	Angular roller lever	-F	3SX3 168		0.045
	Roller crank	-GW	3SX3 167		0.025
	• adjustable length	-U	3SX3 163		0.05
	Rod actuator adjustable length	-V	3SX3 165		0.05
	• with aluminium rod • with moulded-plastic rod	-W	3SX3 166		0.05
	Spring rod ²⁾ (different lengths on request)	-1R	3SX3 210		0.05

1) Not valid for 3SE3 230-8.
 2) Not valid for snap-action contacts.