

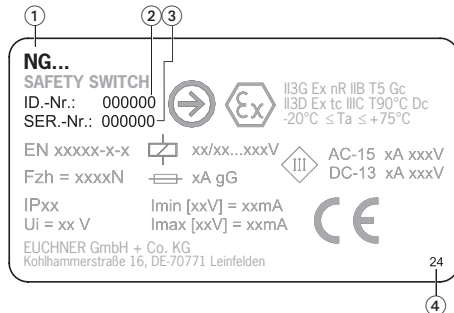
## Scope

These operating instructions are valid for all NG... These operating instructions, the document *Safety information* and any available data sheet form the complete user information for your device.

### Important!

Make sure to use the operating instructions valid for your product version. The version numbers can be found on the type label of your product. Please contact the EUCHNER service team if you have any questions.

## Safety switch type label



- ① Item designation
- ② Item number
- ③ Serial number
- ④ Year of manufacture

## Supplementary documents

The overall documentation for this device consists of the following documents:

Document title (document number)	Contents	
Safety information (2525460)	Basic safety information	
Operating instructions (2032310)	(this document)	
Declaration of conformity	Declaration of conformity	
Any additions to the operating instructions	Take any associated additions to the operating instructions or data sheets into account.	

### Important!

Always read all documents to gain a complete overview of safe installation, setup and use of the device. The documents can be downloaded from [www.euchner.com](http://www.euchner.com). For this purpose, enter the doc. no. or the order number for the device in the search box.

## Correct use

Position switches series NG are used for positioning and controlling machines and industrial installations. Correct use includes compliance with the relevant requirements for installation and operation, in particular

- ▶ EN IEC 60204-1
- ▶ EN ISO 12100

## Incorrect use

Position switches with switching element ES510 (snap-action switching contact not positively driven) must not be used in safety circuits.

## Function

Position switches series NG are used for positioning and controlling machines and industrial installations. The built-in switching element with snap-action function has an NO and an NC contact with double gap and electrically isolated switching bridge (direct opening travel 2 x 0.6 mm).

## Mounting

- ⚠ Mounting must be performed only by authorized personnel.
- ⚠ The position switches must not be used as a mechanical stop.
- ⚠ The specified IP degree of protection is applicable only if the housing screws, cable entries and plug connectors are properly tightened. Observe the tightening torques.

The actuator (arm) can be positively mounted to the actuating shaft.

The square drives on the actuator and actuating shaft must engage with each other (see Fig. 2a).

Continuously adjustable mounting is possible (interference fit, see Fig. 2b).

To ensure correct operation, the trip dogs must move the actuator at least 1 mm or 5° beyond the operating point (see Fig. 5 Travel diagrams).

Position switches must be attached and, if necessary, protected in such a way that predictable damage can be avoided.

It must be ensured that position switches are accessible for maintenance and function tests.

### Important!

- ▶ To prevent the actuating element from bouncing, the dog must run out gradually (see Fig. 1).

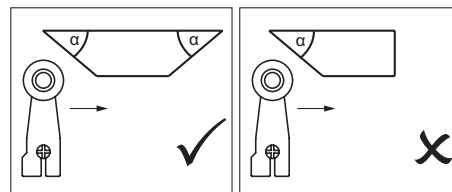


Fig. 1: Dog shape

### ▶ Adjustment options

#### Vertical actuator adjustment

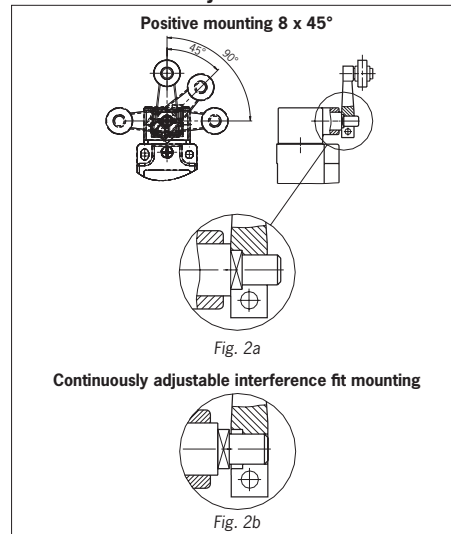


Fig. 2: Vertical actuator adjustment

## Horizontal adjustment 4 x 90°

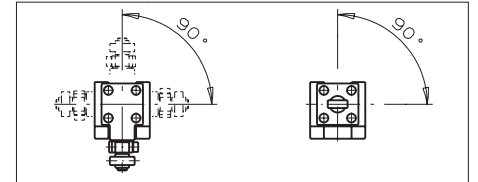


Fig. 3: Horizontal adjustment

## Changing the switching direction with lever arm actuation

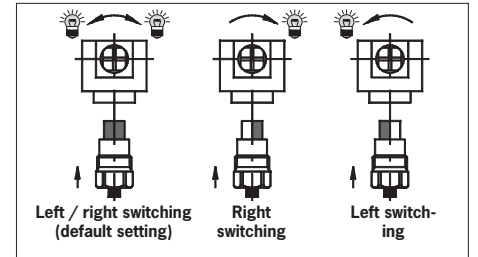


Fig. 4: Changing the switching direction

## Electrical connection

- ⚠ Electrical connection must be performed only by authorized personnel.
- ⚠ When choosing the insulation material and wire for the connections, pay attention to the over-temperature in the housing (depending on the operating conditions)!
- ⚠ Strip the insulation from the ends of the individual wires over a length of  $6^{\pm 1}$  mm to ensure a safe contact.

### ▶ Version NG1... (cable entry)

- ▶ Fit cable gland M20x1.5 with appropriate degree of protection.
- ▶ Conductor cross-section 0.34 ... 1.5 mm<sup>2</sup>.
- ▶ For terminal assignment, see Fig. 10.
- ▶ Tighten screws for connections to the switching elements to 1 Nm.
- ▶ Tighten screws for connections to the LED indicator to 0.5 Nm.
- ▶ Check that the cable entry is sealed.
- ▶ Close switch cover and tighten screws to 1.2 Nm.

### ▶ Version NG2... (plug connector SR6)

- ▶ Conductor cross-section 0.5 ... 1.5 mm<sup>2</sup>.
- ▶ For connector assignment, see Fig. 10a.

### ▶ Version NG2... (plug connector M12/SVM5)

- ▶ Conductor cross-section 0.34 mm<sup>2</sup>.
- ▶ For connector assignment, see Fig. 10b.

## Setup

### Function test

- ▶ Actuate plunger or lever arm and check the switching function.

## Inspection and service

No servicing is required.

Inspection of the following is necessary to ensure trouble-free long-term operation:

- ▶ Correct switching function
- ▶ Secure mounting of all components
- ▶ Damage, heavy contamination, dirt and wear
- ▶ Sealing of cable entry
- ▶ Loose cable connections or plug connectors.

## Exclusion of liability and warranty

In case of failure to comply with the conditions for correct use stated above, or if the safety regulations are not followed, or if any servicing is not performed as required, liability will be excluded and the warranty void.

## Notes about UL

### For NG2:

This device is intended to be used and applied with a Class 2 power supply or a Class 2 transformer in accordance with UL1310 or UL1585.

Connecting cables for position switches installed at the place of use must be separated from all moving and permanently installed cables and un-insulated active elements of other parts of the system that operate at a voltage of over 150 V. A constant clearance of 50.8 mm must be maintained. This does not apply if the moving cables are equipped with suitable insulation materials that possess an identical or higher dielectric strength compared to the other relevant parts of the system.

### For NG1:

This device is intended to be used and applied in accordance with the UL requirements with copper wire 60/75 °C.

## Technical data

Parameter	Value						
Housing material	Anodized die-cast alloy						
Degree of protection	NG1... cable entry			NG2... plug connector SR6			
	IP67			IP65			
Mechanical life	30 x 10 <sup>6</sup> operating cycles						
Electrical life at DC13 24 V/100 mA	10 x 10 <sup>6</sup> operating cycles						
Ambient temperature	-25 ... +80 °C						
Degree of contamination	3 (industrial)						
Installation position	any						
Approach speed, max. [m/min]	HB	HS/SB/SM	VB	VS	RK	WO/KO/DO	RG/RS/RL/FO
	300	60	120	30	50	10	20
Approach speed, min. [m/min]	HB/HS		WO/KO/RS/RK/RL/DO		FO/VB/VS/SB/SM		
	0.1		0.01		0.5		
Actuation frequency	7,000/h (HB/HS = 10,000/h; FO = 6,000/h)						
Actuating force at 20 °C	15 N						
Contact material	Silver alloy, gold flashed						
	NG1...			NG2...			
Connection	Cable entry M20 x 1.5			Plug connector			
Conductor cross-section (flexible/rigid)	0.34 ... 1.5 mm <sup>2</sup> 0.34 ... 0.75 mm <sup>2</sup> with LED indicator			SR6: 0.5 ... 1.5 mm <sup>2</sup>			
	NG1...M/NG2...SR6			NZ2...SVM5			
Rated insulation voltage	U <sub>i</sub> = 250 V			U <sub>i</sub> = 50 V			
Rated impulse withstand voltage	U <sub>imp</sub> = 2.5 kV			U <sub>imp</sub> = 1.5 kV			
Conditional short-circuit current	100 A						
Operating voltage for optional LED indicator	L060 12 - 60 V AC/DC	L110 110 V AC ±15%	L220 230 V AC ±15%				
<b>Rated data switching element</b>	<b>ES510</b>						
Switching principle	Snap-action contact element						
Utilization category	Cable entry		Plug connector SR6 <sup>1)</sup>		Plug connector SVM5		
AC-12	I <sub>e</sub> 10 A	U <sub>e</sub> 230 V	-		-		
AC-15	I <sub>e</sub> 6 A	U <sub>e</sub> 230 V	I <sub>e</sub> 6 A	U <sub>e</sub> 230 V	I <sub>e</sub> 4 A	U <sub>e</sub> 30 V	
DC-13	I <sub>e</sub> 6 A	U <sub>e</sub> 24 V	I <sub>e</sub> 6 A	U <sub>e</sub> 24 V	I <sub>e</sub> 4 A	U <sub>e</sub> 24 V	
Short circuit protection (control circuit fuse) <sup>1)</sup>	See utilization category		6 A gG		4 A gG		
Conventional thermal current I <sub>th</sub> <sup>1)</sup>	See utilization category		6 A		4 A		
Switching current, min. at switching voltage	10 mA DC 24 V						
1) Limitation for NG2... at ambient temperature > 70 ... 80 °C							
	<b>NG2...SR6</b>						
Utilization category							
AC-15	I <sub>e</sub> 2 A	U <sub>e</sub> 230 V					
DC-13	I <sub>e</sub> 2 A	U <sub>e</sub> 24 V					
Short circuit protection (control circuit fuse)	2 A gG						
Conventional thermal current I <sub>th</sub>	2 A						

## Declaration of conformity

The product complies with the requirements according to

- Machinery Directive 2006/42/EC (until January 19, 2027)
- Machinery Regulation (EU) 2023/1230 (from January 20, 2027)

The EU declaration of conformity can be found at [www.euchner.com](http://www.euchner.com). Enter the order number of your device in the search box. The document is available under [Downloads](#).

## Service

If servicing is required, please contact:

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70771 Leinfelden-Echterdingen  
Germany

### Service telephone:

+49 711 7597-500

### E-mail:

support@euchner.de

### Internet:

[www.euchner.com](http://www.euchner.com)

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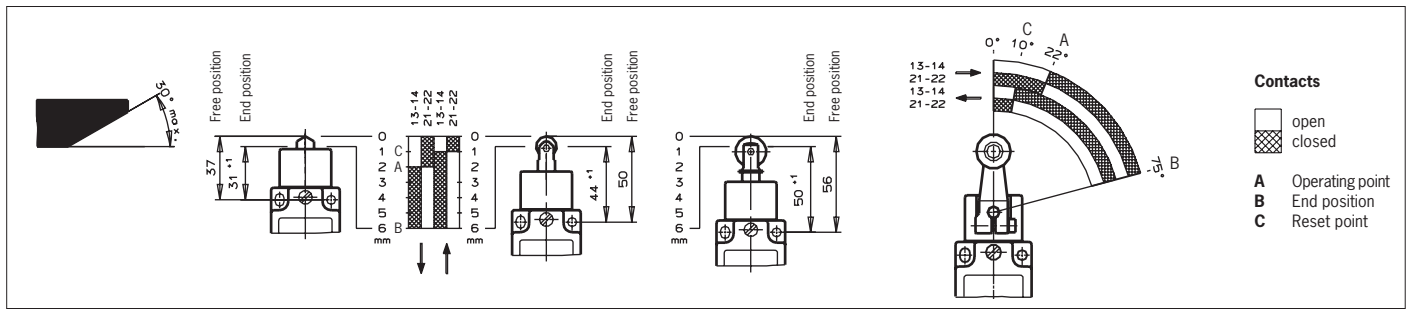


Fig. 5: Travel diagrams

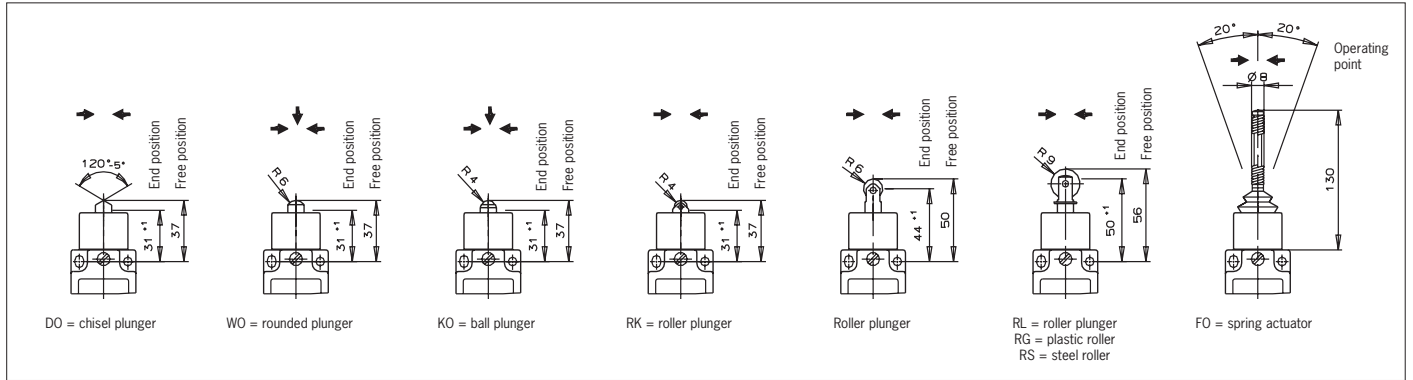


Fig. 6: Actuators and approach directions

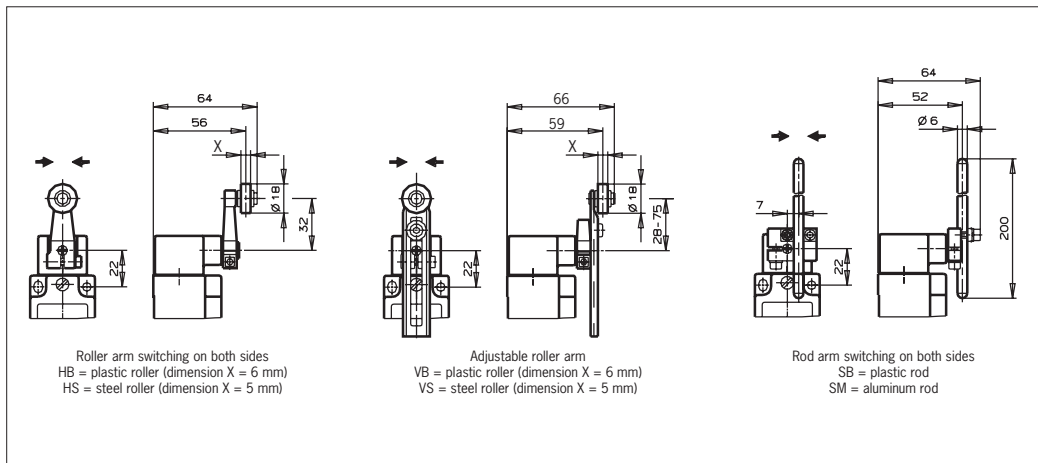


Fig. 7: Actuators and approach directions

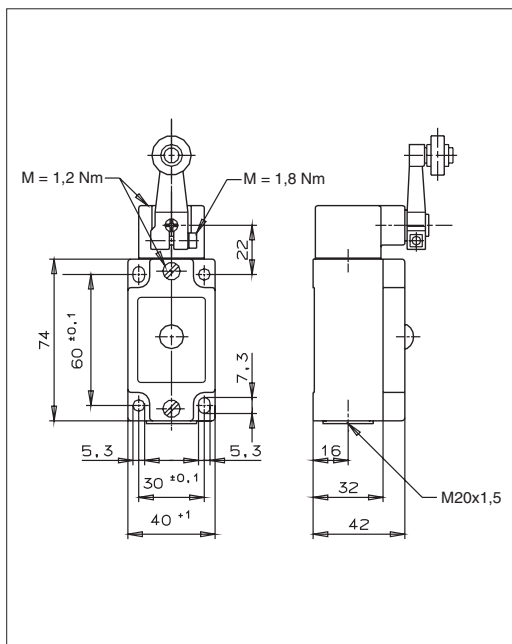


Fig. 8: Dimension drawing for NG1H... with cable entry

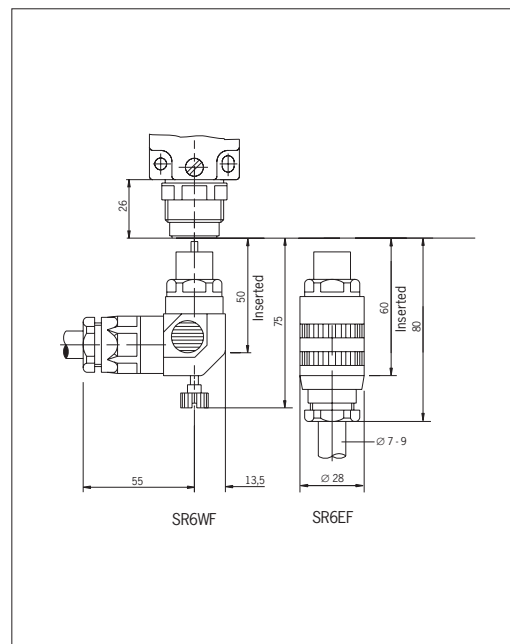


Fig. 9: Dimension drawing for NG2... with plug connector SR6

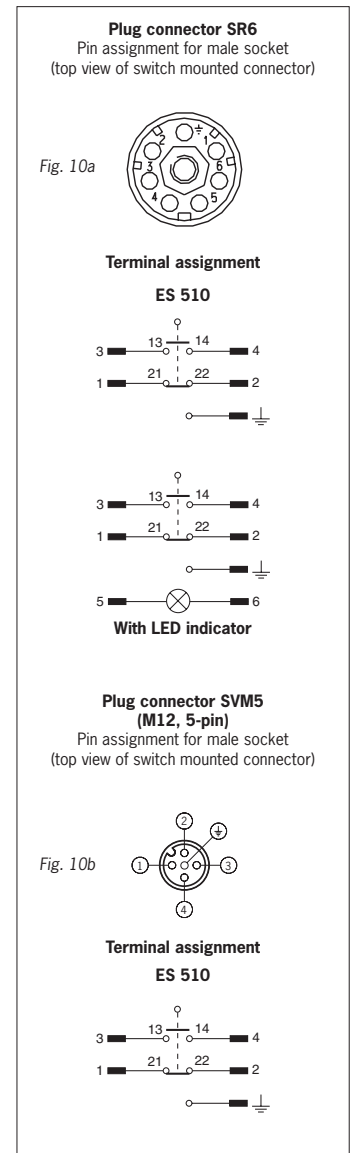


Fig. 10: Switching elements and connector assignment