Operating Instructions
Precision Single Limit Switch N10/N11

EUCHNER

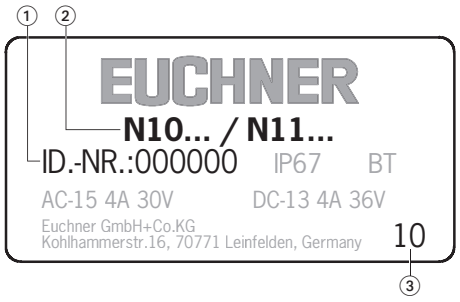
Scope

These operating instructions are valid for all N10/N11. 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 number
② Item designation
③ 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 (2501867)	(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. For this purpose, enter the doc. no. or the order number for the device in the search box.

Correct use

Precision single limit switches 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

Important!

- If a data sheet is included with the product, the information on the data sheet applies in case of discrepancies with the operating instructions.

Incorrect use

Precision single limit switches with switching element ES502V must not be used in safety circuits.

Function

Precision single limit switches are used for positioning and control applications in mechanical and systems engineering.

The switching element is actuated via a plunger. Different plungers and trip dogs are used depending on the application (operating point accuracy and approach speed) (see Fig. 3).

The plunger is actuated by trip dogs that are mounted with an interference fit in trip rails.

Mounting

NOTICE

Device damage due to improper mounting and unsuitable ambient conditions.

- Mounting must be performed only by authorized personnel.
- Switches and actuators must not be used as an end stop.
- Protect the switch against damage.
- 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.

Protection against environmental effects

Safety venting valves are used to equalize the pressure to protect against the pumping action of the plunger. They must not be sealed with paint.

- Mask plunger, plunger guide, safety venting valves and type label during painting work!

Changing the actuating direction

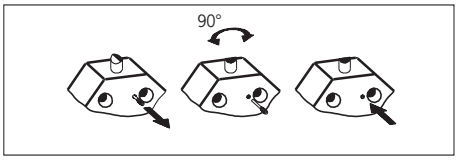


Fig. 1: Changing the actuating direction

1. Unscrew the locking screw.
2. Set the required direction.
3. Screw in the locking screw again.

Electrical connection

Important!

- Strip the insulation from the ends of the individual wires over a length of $6^{\pm 1}$ mm to ensure a safe contact.

1. Open switch cover.
2. Mount the cable gland with the appropriate degree of protection.
3. Connect and tighten the terminals (for terminal assignment, see Fig. 2).
4. Tighten screws for connections to the switching element to 0.5 Nm.
5. Check that the cable entry is sealed.
6. Close the switch cover and screw in place (tightening torque 0.5 Nm).

Function test

Mechanical function test

- The actuating element must move easily.
- Actuate plunger and check the switching functions.

Electrical function test

- Check correct function sequence.

Inspection and service

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

- Correct switching function
- Secure mounting of all components
- Precise adjustment of trip dogs in relation to single limit switch
- Damage, heavy contamination, dirt and wear
- Sealing of cable entry
- Loose cable connections

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.

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. 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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Germany

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+49 711 7597-500

E-mail:
support@euchner.de

Internet:
www.euchner.com

Technical data

Parameter		Value	
Housing material		Die-cast aluminum, anodized	
Plunger material		Stainless steel	
Degree of protection		IP67	
Mech. operating cycles		ES502V	30 x 10^6
Electrical life at DC13 24 V/100 mA		ES502V	20 x 10^6
Switching frequency		ES502V	300 min^{-1}
Ambient temperature		ES502V	-5 ... +80 °C
Installation position		any	
Approach speed, max.			
Plunger	Chisel D	40 m/min	
	Roller R (slide bearing)	80 m/min	
	Ball K	10 m/min	
	Extended roller	20 m/min	
Approach speed, min.		0.01 m/min	
Actuating force		≥ 20 N	
Switching element		1 NO + 1 NC contacts	
Switching principle		Snap-action switching contact	
Hysteresis		0.8 mm	
Contact material		Silver alloy	
Connection		Screw terminals	
Tightening torque of screw terminal		0.5 Nm (slot head screw)	
Conductor cross-section		0.5 ... 1.5 mm^2	
Rated insulation voltage		U_i = 250 V	
Rated impulse withstand voltage		U_{imp} = 2.5 kV	
Utilization category of switching element			
AC-12		230 V 16 A	
AC-15		230 V 10 A	
DC-13		24 V 6 A	
Switching current, min., at DC 24 V		20 mA	
Convent. thermal current I_{th}		10 A	
Short circuit protection (control circuit fuse)		16 A gG	

ES502V

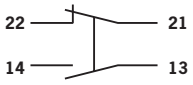

Illustration: switching element not actuated

Fig. 2: Switching element and terminal assignment

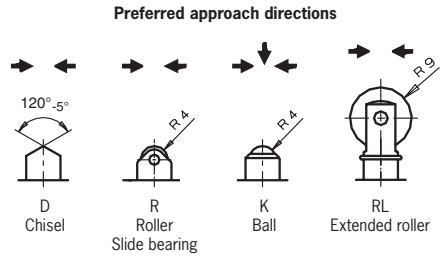

Fig. 3: Plungers and approach directions

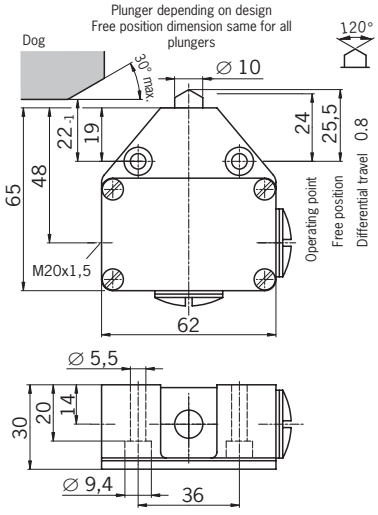

Fig. 4: Dimension drawing for N10

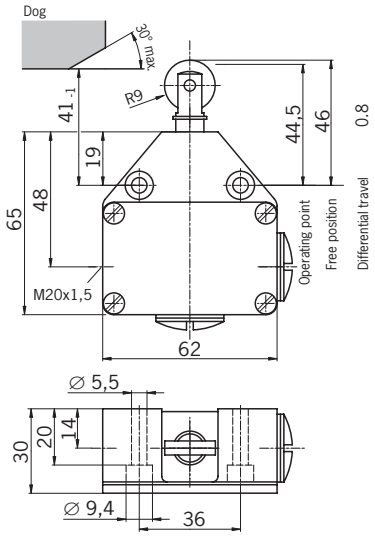

Fig. 5: Dimension drawing for N10 with extended roller plunger

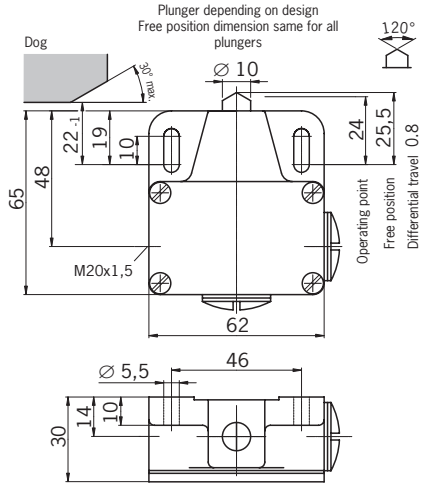

Fig. 6: Dimension drawing for N11

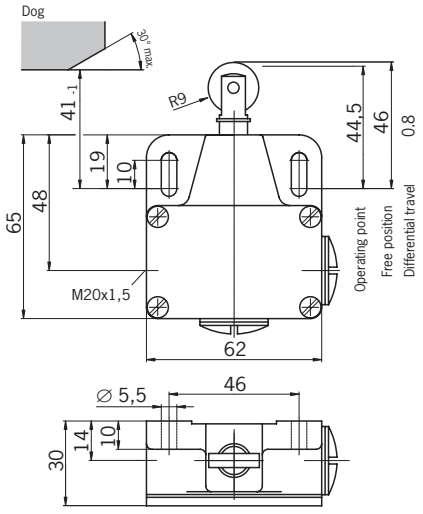

Fig. 7: Dimension drawing for N11 with extended roller plunger