Operating Instructions
Precision Multiple Limit Switches GL, GS, SB, SN 8 mm

EUCHNER

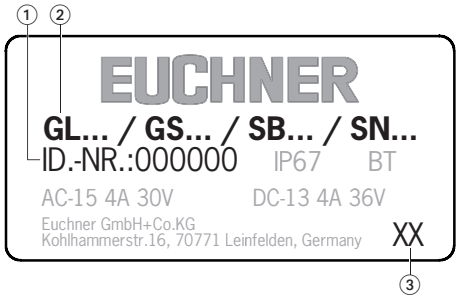
Scope

These operating instructions are valid for all GL, GS, SB, SN 8 mm. 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 Production code

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 (2076050)	(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 multiple limit switches are used for positioning and controlling machines and in 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

Precision multiple limit switches with switching elements ES 552, ES 592 and ES 614 (snap-action switching contacts not positively driven) must not be used in safety circuits.

Function

Precision multiple limit switches possess several switching elements arranged in a row.

The switching elements are actuated by means of plungers. Different plunger types and trip dogs are used depending on the application (operating point accuracy and approach speed).

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

Switching elements/terminal assignment

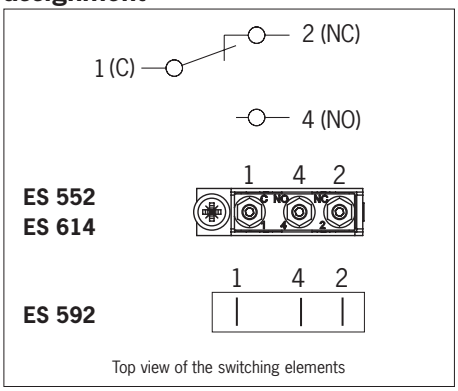


Fig. 1: Switching elements and terminal assignment

Mounting

NOTICE

Device damage due to improper mounting and unsuitable ambient conditions.

- Precision multiple limit switches must not be used as an end 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.

Fit precision multiple limit switches so that

- connecting cables and plug connectors are not damaged by moving parts of the machine
- sealing is ensured on cable entry through the base.

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!

Electrical connection

⚠ WARNING

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

- Open switch cover.
- Conductor cross-section 0.14 … 1.0 mm².
- For terminal assignment, see Fig. 1.
- Fit suitable cable gland with captive O-ring.
- Seal cable carefully. Sealing ring must be matched to the cable diameter.
- Tighten screws for connections to the switching element to 0.2 Nm.
- Close switch cover and tighten cover screws to 0.5 Nm.

Function test

Mechanical function test

- Actuate plunger and check the switching functions.

Electrical function test

- Check correct function sequence.

Service and inspection

No servicing is required. **Regular inspection** of the following is necessary to ensure trouble-free long-term operation:

- Correct switching function
- Secure mounting of components
- Precise adjustment of trip dogs in relation to multiple limit switch
- Dirt and wear
- Sealing of cable entry
- Loose cable connections

Exclusion of liability under the following circumstances:

- Incorrect use
- Non-compliance with safety regulations
- Installation and electrical connection not performed by authorized personnel
- Failure to perform functional checks.

Notes about UL requirements

The following information applies to devices with cable entry:

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

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:

EUCHNER GmbH + Co. KG
Kohlhammerstraße 16
70771 Leinfelden-Echterdingen

Service telephone:
+49 711 7597-500

E-mail:
support@euchner.de

Internet:
www.euchner.com

Technical data

Parameter		Value
Housing material		
Series	GL, GS	Sand-cast aluminum, anodized
	SB, SN	Die-cast aluminum, anodized
Plunger material		Stainless steel
Degree of protection		IP67
Mech. operating cycles		30 x 10^6
Actuation frequency		≤ 200 min^{-1}
Ambient temperature with switching element		
ES 552, ES 614		-5 … +80 °C
ES 592		-5 … +125 °C (manufacturer's data max. +140 °C)
Installation position		any
Approach speed, max.		
Plunger	Chisel D	20 m/min
	Roller R (slide bearing)	50 m/min
	Ball K	8 m/min
Approach speed, min.		0.01 m/min
Actuating force		≥ 15 N
Switching element		1 changeover contact
Switching principle		Snap-action switching contact
Switching hysteresis max.		0.1 mm
Contact material		
ES 552, ES 592		Silver
ES 614		Gold cross cut contacts
Connection		
ES 552, ES 614		Screw terminal
ES 592		Soldered connection
Tightening torque of screw terminal (hexagon socket, A/F 1.3 mm)		0.2 Nm
Conductor cross-section		0.14 … 1.0 mm^2
Rated impulse withstand voltage		U_{imp} = 2.5 kV
Rated insulation voltage		
with cable entry		U_i = 250 V
with plug connector		U_i = 50 V
Rated data for the switching elements		
ES 552		
Convent. thermal current I_{th}		6 A
Utilization category AC-15		230 V / 2 A
Utilization category DC-13		24 V / 2 A
Switching current, min., at switching voltage		10 mA DC 24 V
Short circuit protection		6 A gG
Mechanical life		Up to 10 x 10^6 operating cycles
ES 592		
Convent. thermal current I_{th}		3 A
Utilization category AC-15		230 V / 3 A
Utilization category DC-13		24 V / 1 A
Switching current, min., at switching voltage		10 mA DC 24 V
Short circuit protection		3 A gG
Mechanical life		5 x 10^5 operating cycles (manufacturer's data 5 x 10^6)
ES 614		
Convent. thermal current I_{th}		2 A
Utilization category DC-13		30 V / 1 A
Switching current, min., at switching voltage		1 mA DC 5 V
Short circuit protection		2 A gG
Mechanical life		Up to 10 x 10^6 operating cycles
Ideal application		1 mA; 5 V … 0.3 A; 30 V

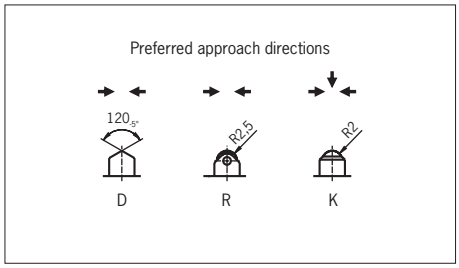
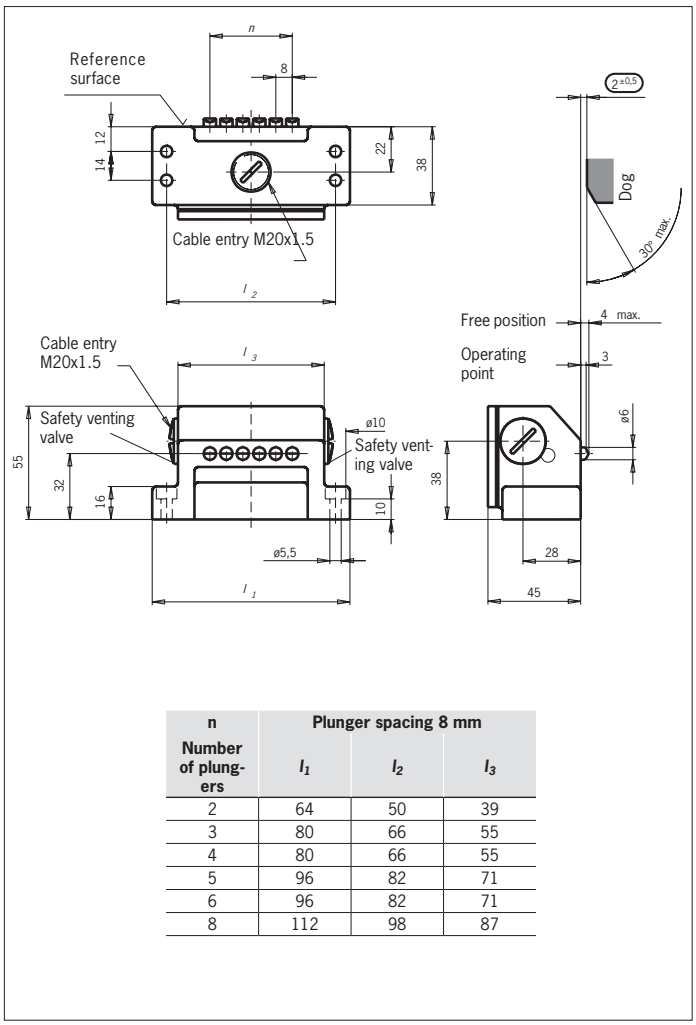
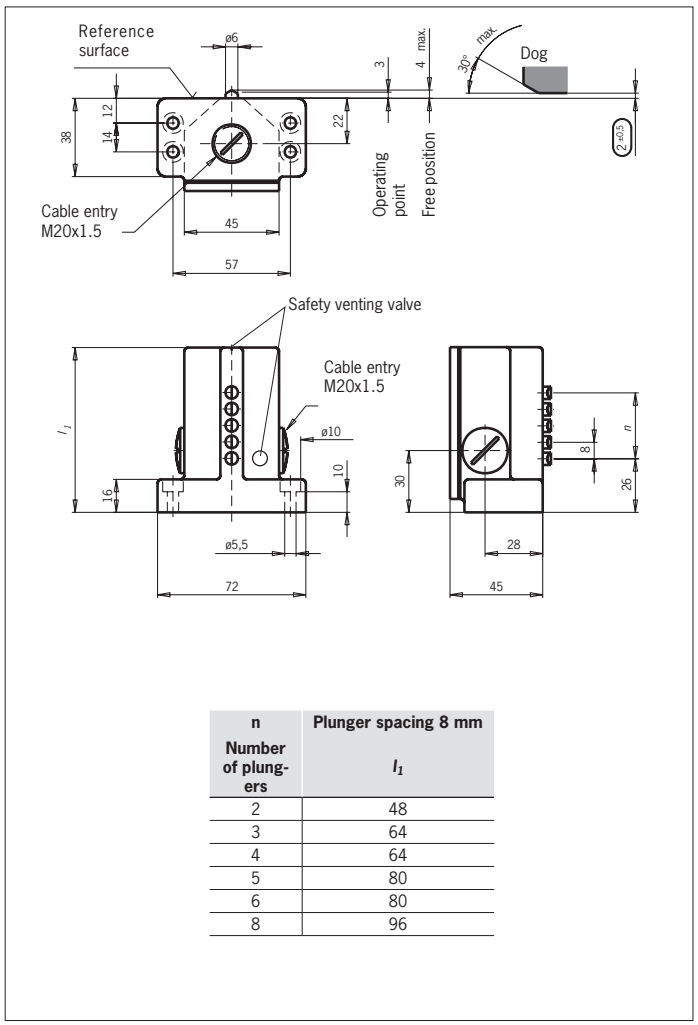


Fig. 2: Plungers and approach directions



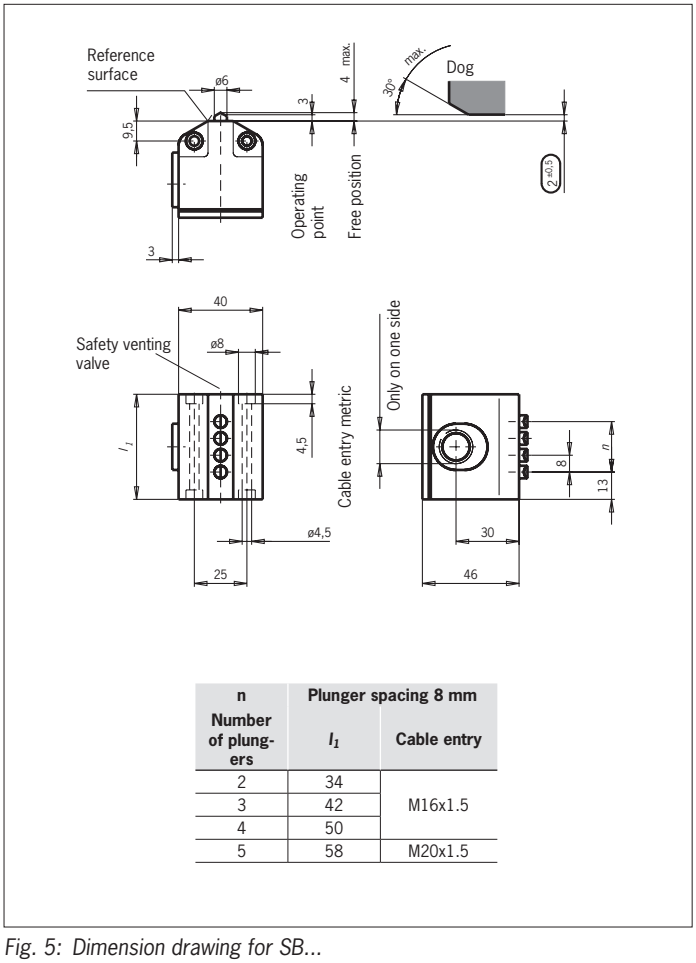
n	Plunger spacing 8 mm		
Number of plunger	l_1	l_2	l_3
2	64	50	39
3	80	66	55
4	80	66	55
5	96	82	71
6	96	82	71
8	112	98	87

Fig. 3: Dimension drawing for GL...



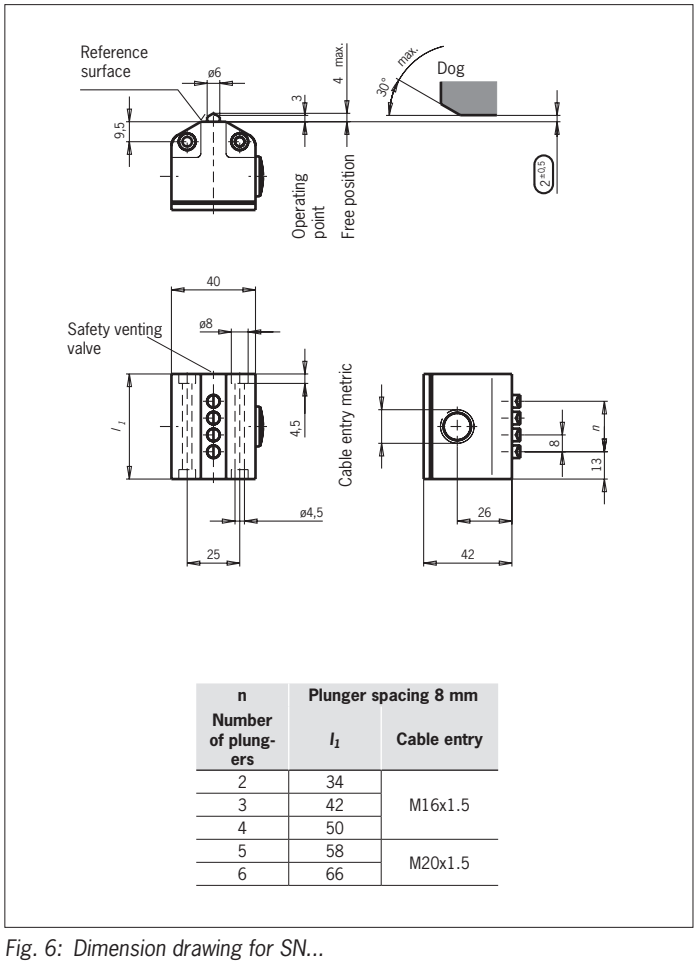
n	Plunger spacing 8 mm
Number of plunger	l_1
2	48
3	64
4	64
5	80
6	80
8	96

Fig. 4: Dimension drawing for GS...



n	Plunger spacing 8 mm	
Number of plunger	l_1	Cable entry
2	34	M16x1.5
3	42	
4	50	
5	58	M20x1.5

Fig. 5: Dimension drawing for SB...



n	Plunger spacing 8 mm	
Number of plunger	l_1	Cable entry
2	34	M16x1.5
3	42	
4	50	
5	58	M20x1.5
6	66	

Fig. 6: Dimension drawing for SN...