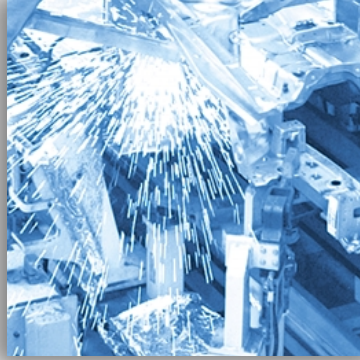


# Position Switches



More than safety.



**EUCHNER**

# More than safety.



Emil Euchner, the company's founder and inventor of the multiple limit switch, circa 1928.



## Around the world – the Swabian specialists in motion sequence control for mechanical and systems engineering.

EUCHNER's history began in 1940 with the establishment of an engineering office by Emil Euchner. Since that time, EUCHNER has been involved in the design and development of switchgear for controlling a wide variety of motion sequences in mechanical and systems engineering. In 1953, Emil Euchner founded EUCHNER + Co., a milestone in the company's history. In 1952, he developed the first multiple limit switch – to this day a symbol of the enterprising spirit of this family-owned company.

## Automation – Safety – ManMachine

Today, our products range from electromechanical and electronic components to complex system solutions. With this wide range of products we can provide the necessary technologies to offer the right solution for special requirements – regardless of whether these relate to reliable and precise positioning or to components and systems for safety engineering in the automation sector.

EUCHNER products are sold through a world-wide sales network of competent partners. With our closeness to the customer and the guarantee of reliable solutions throughout the globe, we enjoy the confidence of customers all over the world.

## Quality, reliability, precision

Quality, reliability and precision are the hallmarks of our corporate philosophy. They represent concepts and values to which we feel totally committed.

At EUCHNER, quality means that all our employees take personal responsibility for the company as a whole and, in particular, for their own field of work. This individual commitment to perfection results in products which are ideally tailored to the customers' needs and the requirements of the market. After all: our customers and their needs are the focus of all our efforts. Through efficient and effective use of resources, the promotion of personal initiative and courage in finding unusual solutions to the benefit of our customers, we ensure a high level of customer satisfaction. We familiarize ourselves with their needs, requirements and products and we learn from the experiences of our customers' own customers.

## EUCHNER – More than safety.



Quality – made by EUCHNER

## Position Switches



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## General information

### Single hole fixing limit switches with reed contact or snap-action switching element

EUCHNER single hole fixing limit switches are technically sophisticated control switches which have been proving their reliability, day in and day out, for decades in rough industrial applications.

These mechanically actuated single hole fixing limit switches are IP 67 rated and are entirely maintenance-free.

EUCHNER single hole fixing limit switches feature a thread on the upper part and can thus be inserted or screwed through the mounting hole either from the cable end or from the actuator end. Setting the position of the operating point opposite the part of the machine to be sensed is easy with this thread.

The compact overall size and the round type of construction allow installation directly at the sensing points. This feature dispenses with the complicated levers or linkages associated with a high level of design complexity and expense.



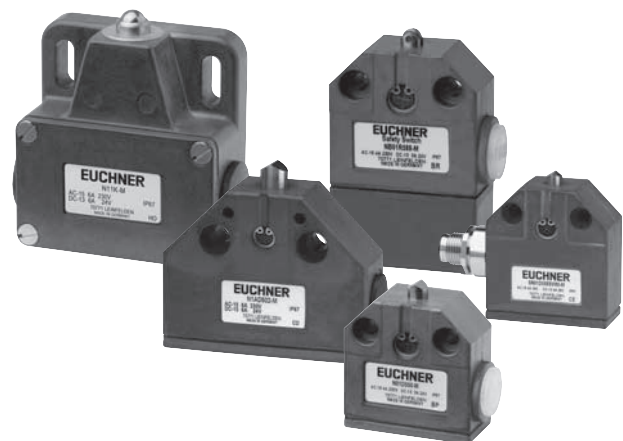
### Precision single limit switches

EUCHNER precision single limit switches are technically precise control switches which have been developed on the basis of practical requirements in close collaboration with machine tool manufacturers.

The use of high-quality materials, the interplay of sophisticated technology and practically oriented design guarantee operation under even the toughest conditions.

EUCHNER precision single limit switches are used for positioning and controlling machines and in industrial installations.

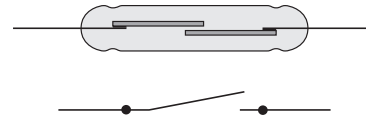
The different designs, with a choice of five different types of plunger, and easy conversion from longitudinal to transverse actuation offer the user a broad range of individual possible applications.



## Switching elements

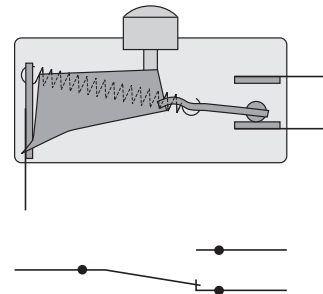
### Reed contact

The reed contact comprises two ferromagnetic contacts in a glass bulb. When the reed contact is placed in a magnetic field, the contacts adopt opposite polarities and are closed.  
For series EGT with reed contact.



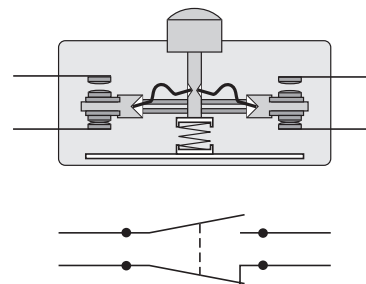
### Changeover contact with snap-action function

Snap-action switching element <sup>1)</sup> with single gap and three connections.  
For series EGT with snap-action switch and series N01, NB01, SN01 with soldered connection.



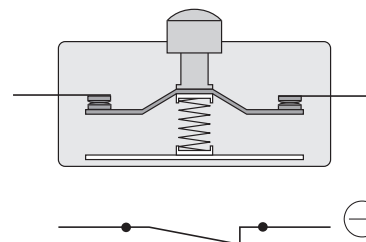
### Snap-action switching element <sup>1)</sup> with one NO contact and one NC contact

With double gap and electrically isolated switching bridge. The two moving contacts are electrically isolated from each other. Switching element with four connections.  
For series SN01 with soldered connection and series N1A, N10, N11.



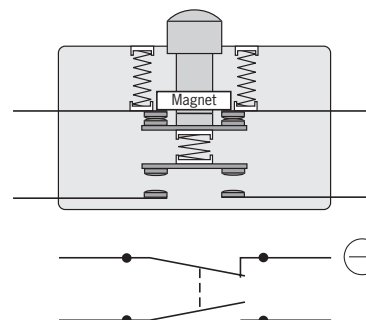
### Safety switching element with slow-action switching element <sup>2)</sup>

With one positively driven NC contact and double gap. Switching element with two connections.  
For use in single limit switches with safety function.  
For series NB01 with safety function and series N1A with safety function.



### Safety switching element with snap-action switching element <sup>1)</sup>

With one positively driven NC contact and one NO contact. Double gap and electrically isolated switching bridge. Switching element with four connections.  
For use in single limit switches with safety function.  
For series N1A with safety function.



Positively driven position switches.

**Safety switching elements marked with this symbol are not available as replacement switching elements.**

1) A snap-action switching element has a switching element which opens or closes regardless of its actuation speed.  
2) A slow-action switching element has a switching element which opens and closes depending on its actuation speed.

## Precision single limit switches

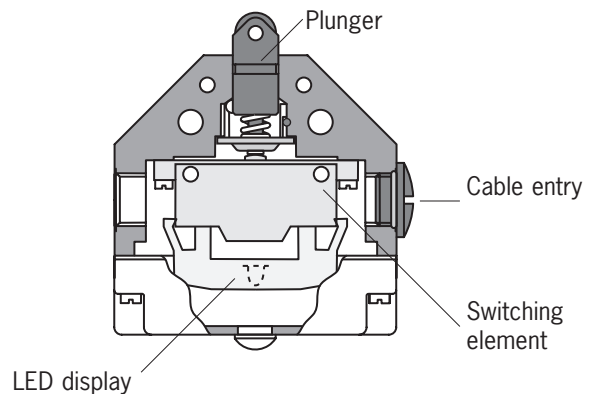
### Design

The die-cast aluminum housings for the EUCHNER precision single limit switches have been proven in even the harshest conditions with their high strength and resistance to corrosion.

They do not require a protective paint finish, but can be painted at any time without prior treatment.

Depending on the design, the hardened plungers made of stainless steel run precisely in either the anodic oxidized guide bore in the housing or in a sintered bronze sleeve.

These maintenance-free sliding elements make a key contribution to the reliability and correct operation of the switches. Even beyond the guaranteed mechanical life.

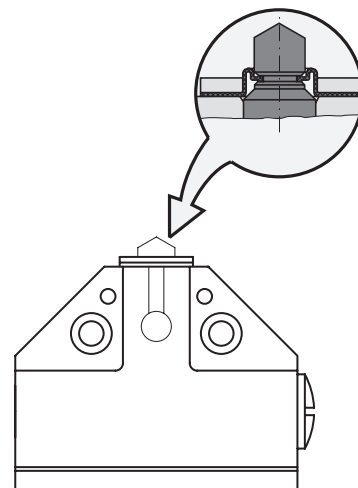


### Exterior diaphragm

To provide protection against resinous cooling lubricants and against the penetration of very small particles, e. g. saw dust, graphite and glass dust, a series with an exterior diaphragm is available.

The exterior diaphragm provides additional sealing of the plunger outside the housing.

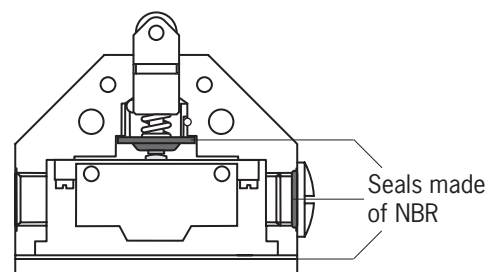
The plunger guides in the housing are thus reliably protected from the penetration of the cooling lubricant. Plunger sticking is prevented and the replacement of the switch or plunger is unnecessary. For technical data on this series see page 27.



### Seals

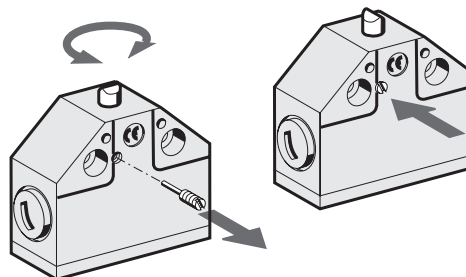
EUCHNER uses the high-quality and proven acrylonitrile-butadiene rubber (NBR) for all seals and sealed areas. This material is resistant to oils, greases, fuels, hydraulic fluids and most known cooling lubricants. Moreover, NBR possesses high mechanical rigidity over a wide temperature range and so it is perfectly suitable for the highly stressed diaphragm seal, which separates the plunger compartment and the interior of the switch.

The material of the diaphragm seal is a key criterion for the quality, mechanical life and precision of the EUCHNER precision multiple limit switches. The same material is used for the cover seal and the cable entry.



## Adjustability

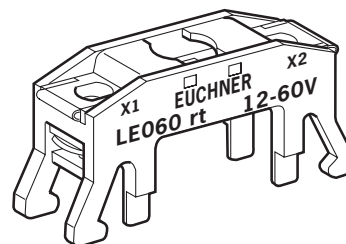
On the chisel plungers and the roller plungers (normal and extended) the approach direction can be changed by 90° at any time. After unscrewing the locking pin, the plunger can be rotated by 90°.



## LED function display

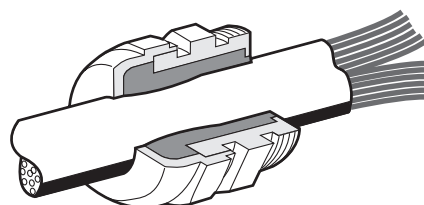
If required, the EUCHNER precision single limit switches of design N1A can be equipped with an LED function display (AC/DC 10 - 60 V or AC 110/230 V, color red).

Built-in electronic regulation ensures that the luminosity remains constant independent of the voltage applied.



## Cable connection

EUCHNER position switches are tested to degree of protection IP 67 in accordance with IEC 60529. In order to obtain this degree of protection, only high-quality metal cable glands with a captive sealing ring are used. A selection for different cable diameters is listed on page 32.





## Single hole fixing limit switches

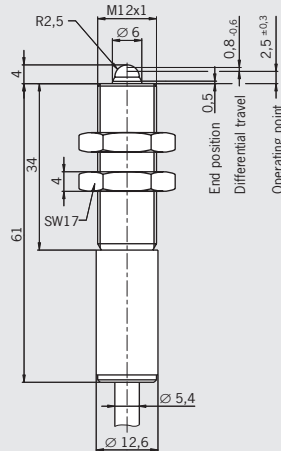
- ▶ With reed contact and protective diode
- ▶ Plunger material stainless steel
- ▶ Any installation position



### Design EGT1, M12 x 1, dome plunger

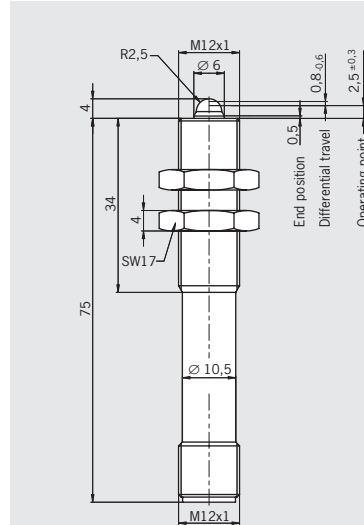
Connection cable, double insulated

#### Dimension drawings



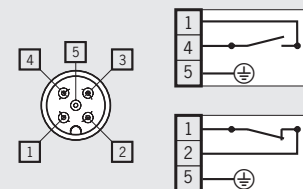
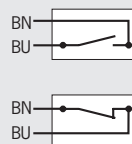
### Design EGT1, M12 x 1, dome plunger

Plug connector M12 with PE connection



⚠ Never switch incandescent lamps. Not even for test purposes.  
Single hole fixing limit switches must not be used as an end stop.

#### Wiring diagrams



#### Technical data

Housing material	sleeve threaded section	Plastic Stainless steel	Brass, nickel-plated Stainless steel
Degree of protection according to IEC 60529		IP 68	IP 67 Mating connector inserted and screwed tight
Ambient temperature	[°C]	25 <sup>1)</sup> ...+80	-25...+80
Approach speed, max.	[m/min]	8	8
Mechanical life	axial actuation radial actuation	30 x 10 <sup>6</sup> operating cycles 1 x 10 <sup>6</sup> operating cycles (dog 30°)	30 x 10 <sup>6</sup> operating cycles 1 x 10 <sup>6</sup> operating cycles (dog 30°)
Operating point accuracy <sup>2)</sup>	[mm]	± 0.01	± 0.01
Actuating force (end position)	[N]	Approx. 16	Approx. 16
Switching element		Reed contact	Reed contact
Switching element		1 NO contact or 1 NC contact	1 NO contact or 1 NC contact
Contact material		Rhodium	Rhodium
Rated insulation voltage U <sub>i</sub>	[V]	50	50
Utilization category according to IEC 60947-5-1		AC-12 U <sub>e</sub> 30 V I <sub>e</sub> 0.3 A DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 0.3 A	AC-12 U <sub>e</sub> 30 V I <sub>e</sub> 0.3 A DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 0.3 A
Switching current, min., at 24 V	[mA]	1	1
Switching voltage, min.	[V DC]	1	1
Short circuit protection (control circuit fuse)	[A gG]	0.4	0.4
Type of connection		PUR cable 2 x 0.5 mm <sup>2</sup>	Plug connector M12 <sup>3)</sup>

1) Cable hard wired.

2) The reproducible operating point accuracy relates to axial actuation, after run-in of approx. 2000 operating cycles.

3) For mating connector see page 30 and 31.

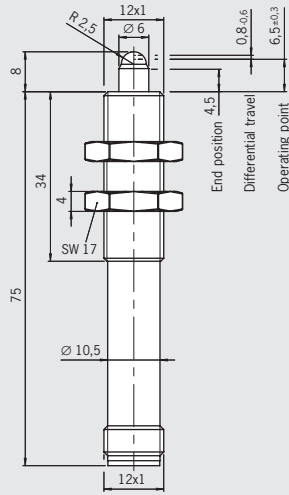
#### Ordering table

1 NO contact	Connection cable 2 m	On request	-
	Connection cable 5 m	<b>082 201</b> EGT12A5000	-
	Plug connector	-	<b>075 426</b> EGT12ASFM5
1 NC contact	Connection cable 2 m	On request	-
	Connection cable 5 m	<b>078 848</b> EGT12R5000	-
	Plug connector	-	<b>075 427</b> EGT12RSFM5

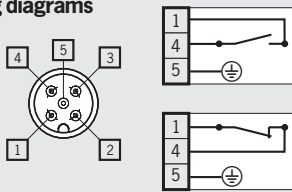


**Design EGT12, M12 x 1, dome plunger**  
Plug connector M12, extended plunger

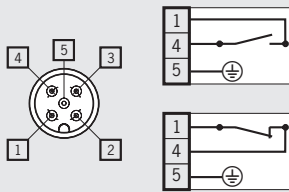
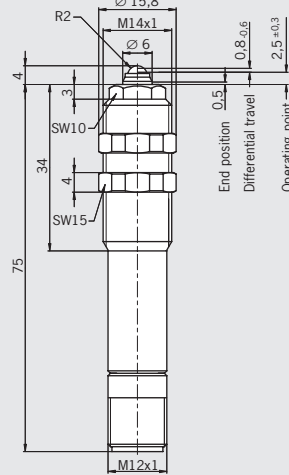
**Dimension drawings**



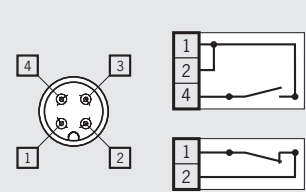
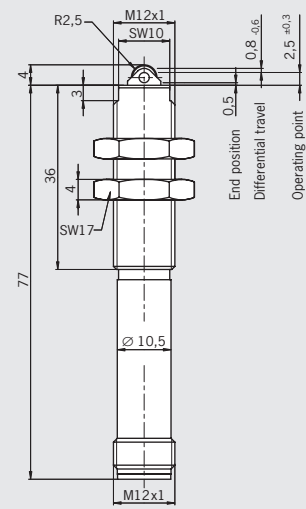
**Wiring diagrams**



**Design EGT11, M14 x 1, ball plunger**  
Plug connector M12 with PE connection



**Design EGT12, M12 x 1, roller plunger**  
Plug connector M12, double insulated



Brass, nickel-plated	Brass, nickel-plated	Brass, nickel-plated
Stainless steel	Stainless steel	Stainless steel
IP 67	IP 67	IP 67
Mating connector inserted and screwed tight	Mating connector inserted and screwed tight	Mating connector inserted and screwed tight
-25...+80	-25...+80	-25...+80
5	60	20
5 x 10 <sup>6</sup> operating cycles	30 x 10 <sup>6</sup> operating cycles 5 x 10 <sup>6</sup> operating cycles (dog 15°)	30 x 10 <sup>6</sup> operating cycles
± 0.01	± 0.01	± 0.01
Approx. 6	Approx. 3	Approx. 16
Reed contact	Reed contact	Reed contact
1 NO contact or 1 NC contact	1 NO contact or 1 NC contact	1 NO contact or 1 NC contact
Rhodium	Rhodium	Rhodium
50	50	50
AC-12 U <sub>e</sub> 30 V I <sub>e</sub> 0.3 A	AC-12 U <sub>e</sub> 30 V I <sub>e</sub> 0.3 A	AC-12 U <sub>e</sub> 30 V I <sub>e</sub> 0.3 A
DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 0.3 A	DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 0.3 A	DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 0.3 A
1	1	1
1	1	1
0.4	0.4	0.4
Plug connector M12 <sup>3)</sup>	Plug connector M12 <sup>3)</sup>	Plug connector M12 <sup>3)</sup>

-	-	-
-	-	-
<b>095 112</b> EGT12ASF5C2083	<b>093 352</b> EGT11A2NSFM5	<b>078 483</b> EGT12ARSEM4C1888
-	-	-
-	-	-
-	<b>091 848</b> EGT11R2NSFM5	<b>079 139</b> EGT12RRSEM4C1888

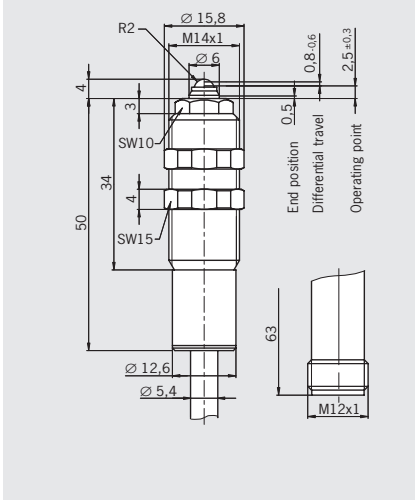
## Single hole fixing limit switches

- ▶ With reed contact
- ▶ Plunger material stainless steel
- ▶ Any installation position



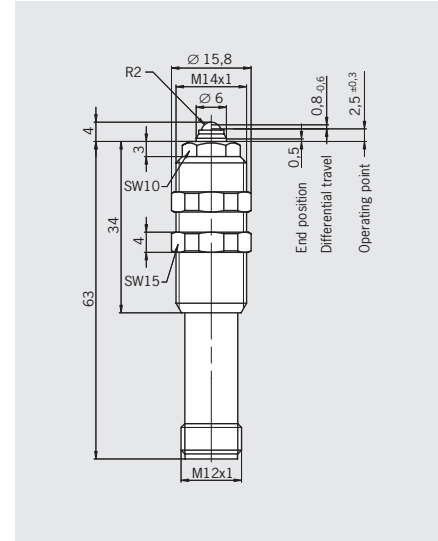
**Design EGT1/4, M14 x 1, ball plunger**  
Connection cable, double insulated/Plug connector M12

### Dimension drawings



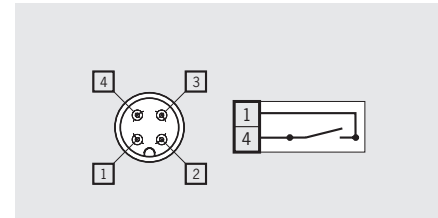
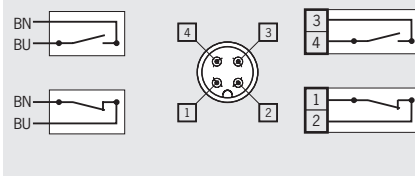
## For mating connector with LED display

**Design EGT1/4, M14 x 1, ball plunger**  
Plug connector M12



⚠ Never switch incandescent lamps. Not even for test purposes.  
Single hole fixing limit switches must not be used as an end stop.

### Wiring diagrams



### Technical data

Housing material	sleeve threaded section	Plastic	Brass, nickel-plated	Brass, nickel-plated
		Stainless steel		Stainless steel
Degree of protection according to IEC 60529		IP 68	IP 67 <sup>4)</sup>	IP 67 Mating connector inserted and screwed tight
Ambient temperature	[°C]	-25 <sup>1)</sup> ...+80	-25...+80	-25...+80
Approach speed max.	[m/min]	8		8
Mechanical life (axial)		30 x 10 <sup>6</sup> operating cycles		30 x 10 <sup>6</sup> operating cycles
Operating point accuracy <sup>2)</sup>	[mm]	± 0,01		± 0,01
Actuating force (end position)	[N]	Approx. 16 / 3 on request		Approx. 16 / 3 on request
Switching element		Reed contact		Reed contact
Switching element		1 NO contact or 1 NC contact		1 NO contact or 1 NC contact
Contact material		Rhodium		Rhodium
Rated insulation voltage U <sub>i</sub>	[V]	250 □	50	50
Utilization category according to IEC 60947-5-1		U <sub>e</sub> 230 V I <sub>e</sub> 0,03 A U <sub>e</sub> 24 V I <sub>e</sub> 0,3 A	U <sub>e</sub> 30 V I <sub>e</sub> 0,3 A U <sub>e</sub> 24 V I <sub>e</sub> 0,3 A	AC-12 U <sub>e</sub> 30 V I <sub>e</sub> 0,3 A DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 0,3 A
Switching current, min., at 24 V	[mA]	1		1
Switching voltage, min.	[V DC]	1		1
Short circuit protection (control circuit fuse)	[A gG]	0,4		0,4
Type of connection		PUR cable 2 x 0,5 mm <sup>2</sup> , encapsulated	Plug connector M12 <sup>3)</sup>	Plug connector M12 <sup>3)</sup>

1) Cable hard wired.

2) The reproducible operating point accuracy relates to axial actuation, after run-in of approx. 2000 operating cycles.

3) For mating connector see page 30 and 31.

4) Mating connector inserted and screwed tight.

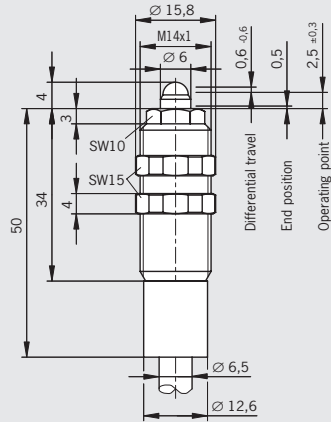
### Ordering table

1 NO contact	Connection cable 2 m	<b>001 366</b> EGT1/4A2000	-
	Connection cable 5 m	<b>001 368</b> EGT1/4A5000	-
	Plug connector	<b>033 976</b> EGT1/4ASEM4	<b>075 644</b> EGT1/4ASEM4C1802
1 NC contact	Connection cable 2 m	<b>001 371</b> EGT1/4R2000	-
	Connection cable 5 m	<b>001 372</b> EGT1/4R5000	-
	Plug connector	<b>033 982</b> EGT1/4RSEM4	-

## Made of high-quality stainless steel

**Design EGT1/4, M14 x 1, ball plunger**  
Connection cable, max. pressure 300 kPa

### Dimension drawings

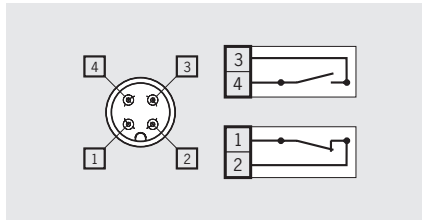
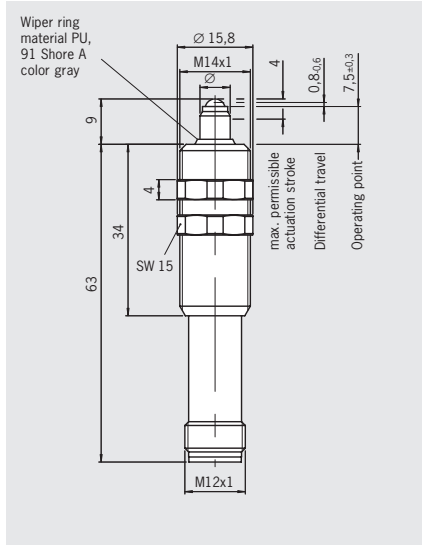


### Wiring diagrams



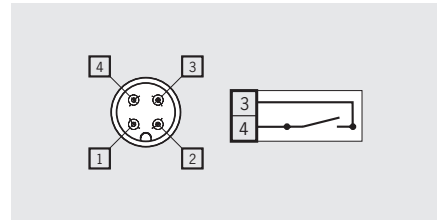
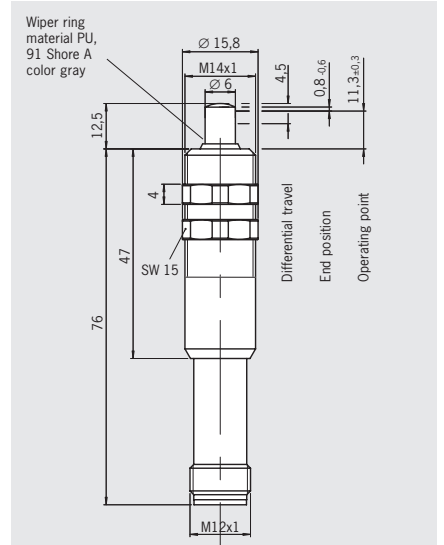
## With PU wiper ring

**Design EGT1/4, M14 x 1, ball plunger**  
Plug connector M12



## With PU wiper ring

**Design EGT1/4, M14 x 1, dome plunger**  
Plug connector M12



High-quality stainless steel	Brass, nickel-plated Stainless steel	Brass, nickel-plated Stainless steel
IP 68	IP 67	IP 67
-25...+80	Mating connector inserted and screwed tight	Mating connector inserted and screwed tight
8	-25...+80	-25...+80
30 x 10 <sup>6</sup> operating cycles	Approx. 16	8
± 0.01	5 x 10 <sup>6</sup> operating cycles	5 x 10 <sup>6</sup> operating cycles
Approx. 16	± 0.01	± 0.01
Reed contact	Approx. 16	Approx. 16
1 NO contact	Reed contact	Reed contact
Rhodium	1 NO contact or 1 NC contact	1 NO contact
50	Rhodium	Rhodium
AC-12 U <sub>e</sub> 30 V I <sub>e</sub> 0.3 A	50	50
DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 0.3 A	AC-12 U <sub>e</sub> 30 V I <sub>e</sub> 0.3 A	AC-12 U <sub>e</sub> 30 V I <sub>e</sub> 0.3 A
1	DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 0.3 A	DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 0.3 A
1	1	1
0.4	1	1
	0.4	0.4
Hydrofirm cable 2x0.5 mm <sup>2</sup> , encapsulated	Plug connector M12 <sup>3)</sup>	Plug connector M12 <sup>3)</sup>

<b>094 982</b> EGT1/4A2000C2079	-	-
-	-	-
-	<b>095 278</b> EGT1/4ASEM4C2088	<b>098 071</b> EGT1/4ASEM4C2137
-	-	-
-	-	-
-	-	-

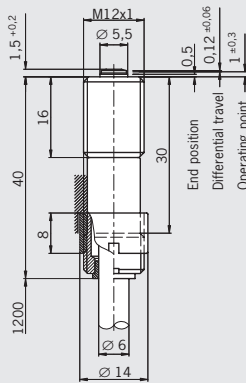
## Single hole fixing limit switches

- ▶ With snap-action switching element
- ▶ Plunger material stainless steel
- ▶ Any installation position

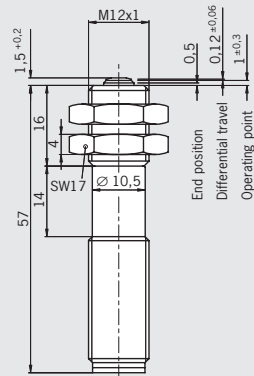


### Design EGM12, M12 x 1, flat plunger Connection cable, double insulated

#### Dimension drawings

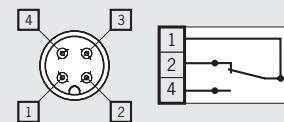
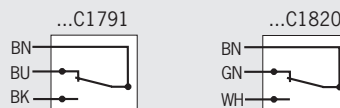


### Design EGM12, M12 x 1, flat plunger Plug connector M12



⚠ Single hole fixing limit switches must not be used as an end stop.

#### Wiring diagrams



#### Technical data

Housing material	Stainless steel		Stainless steel	
Degree of protection according to IEC 60529	IP 65		IP 65	
Ambient temperature [°C]	-20 <sup>1)</sup> ...+80	-30...+80	-20 <sup>1)</sup> ...+80	-30...+85
Approach speed max. [m/min]	8		8	
Mechanical life (axial)	1 x 10 <sup>6</sup> operating cycles		1 x 10 <sup>6</sup> operating cycles	
Operating point accuracy <sup>2)</sup> [mm]	± 0.01		± 0.01	
Actuating force (end position) [N]	Approx. 16		Approx. 16	
Switching element	Snap-action switching element		Snap-action switching element	
Switching element	1 changeover contact		1 changeover contact	
Contact material	Silver alloy, gold-plated		Silver alloy, gold-plated	
Rated insulation voltage U <sub>i</sub> [V]	250 $\square$		50	
Rated impulse withstand voltage U <sub>imp</sub> [kV]	2.5		1.5	
Utilization category according to IEC 60947-5-1	AC-15 U <sub>e</sub> 230 V I <sub>e</sub> 0.5 A DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 0.6 A		AC-15 U <sub>e</sub> 50 V I <sub>e</sub> 0.5 A DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 0.6 A	
Switching current, min., at 24 V [mA]	10		10	
Switching voltage, min. [V DC]	12		12	
Short circuit protection (control circuit fuse) [A gG]	2		2	
Type of connection	PUR cable 3x0.5 mm <sup>2</sup>	Silicone cable 3x0.5 mm <sup>2</sup>	Plug connector M12 <sup>3)</sup>	

1) Cable hard wired.

2) The reproducible operating point accuracy relates to axial actuation, after run-in of approx. 2000 operating cycles.

3) For mating connector see page 30 and 31.

#### Ordering table

		075 556	076 464		
		EGM12-1200C1791	EGM12-1200C1820		
1 changeover contact	Connection cable 1.2 m				-
	Connection cable 2 m	-	-		-
	Connection cable 4 m	076 154 EGM12-4000C1791	-		-
	Connection cable 5 m	-	-		-
	Plug connector	-	-	082 205 EGM12SEM4	093 733 EGM12SEM4C1820



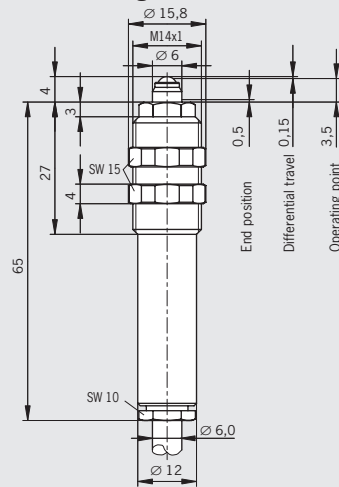
## Single hole fixing limit switches

- ▶ With snap-action switching element
- ▶ Plunger material stainless steel
- ▶ Any installation position

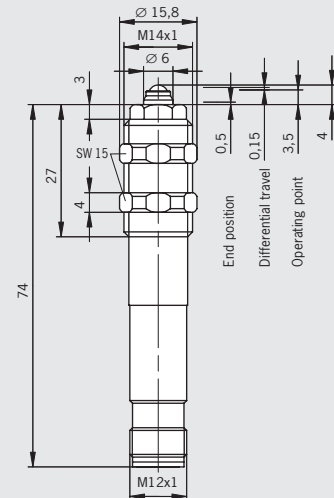


### Design EGT1, M14 x 1, ball plunger Connection cable with PE connection

#### Dimension drawings

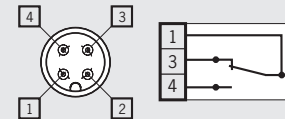
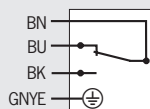


### Design EGT1, M14 x 1, ball plunger Plug connector M12



⚠ Single hole fixing limit switches must not be used as an end stop.

#### Wiring diagrams



#### Technical data

	Design EGT1, M14 x 1, ball plunger Connection cable with PE connection	Design EGT1, M14 x 1, ball plunger Plug connector M12
Housing material	Brass, nickel-plated	Brass, nickel-plated
Degree of protection according to IEC 60529	IP 67	IP 67 Mating connector inserted and screwed tight
Ambient temperature [°C]	-25 <sup>1)</sup> ...+80	-25...+80
Approach speed, max. [m/min]	8	8
Mechanical life (axial)	1 x 10 <sup>6</sup> operating cycles	1 x 10 <sup>6</sup> operating cycles
Operating point accuracy <sup>2)</sup> [mm]	± 0.01	± 0.01
Actuating force (end position) [N]	Approx. 20	Approx. 20
Switching element	Snap-action switching element	Snap-action switching element
Switching element	1 changeover contact	1 changeover contact
Contact material	Silver alloy, gold-plated	Silver alloy, gold-plated
Rated insulation voltage U <sub>i</sub> [V]	250	50
Rated impulse with stand voltage U <sub>imp</sub> [kV]	2.5	2.5
Utilization category according to IEC 60947-5-1	AC-15 U <sub>e</sub> 230 V I <sub>e</sub> 0.5 A DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 0.6 A	AC-15 U <sub>e</sub> 50 V I <sub>e</sub> 0.5 A DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 0.6 A
Switching current, min., at 24 V [mA]	10	10
Switching voltage, min. [V DC]	12	12
Short circuit protection (control circuit fuse) [A gG]	2	2
Type of connection	PUR cable 4 x 0.5 mm <sup>2</sup>	Plug connector M12 <sup>3)</sup>

1) Cable hard wired.

2) The reproducible operating point accuracy relates to axial actuation, after run-in of approx. 2000 operating cycles.

3) For mating connector see page 30 and 31.

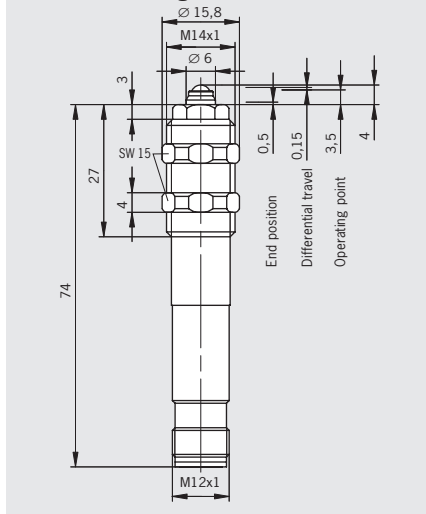
#### Ordering table

	Design EGT1, M14 x 1, ball plunger Connection cable with PE connection	Design EGT1, M14 x 1, ball plunger Plug connector M12
1 changeover contact	Connection cable 2 m	<b>001 732</b> EGT1-2000
	Connection cable 5 m	<b>001 733</b> EGT1-5000
	Plug connector	-
		<b>019 727</b> EGT1SEM4

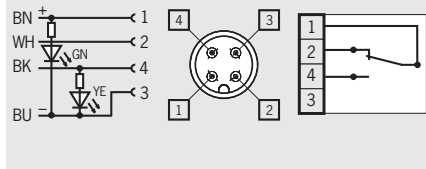
## For plug connector with LED display

**Design EGT1, M14 x 1, ball plunger**  
Plug connector M12

### Dimension drawings

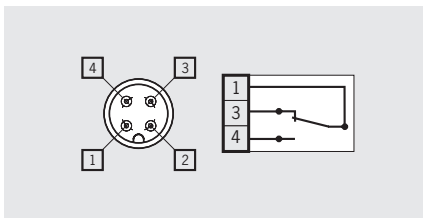
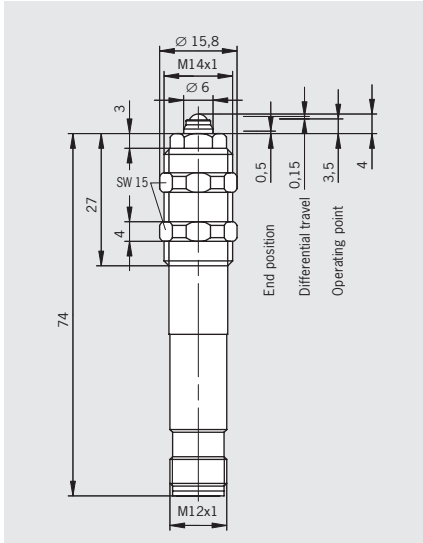


### Wiring diagrams



## Suitable for aggressive coolants, Diaphragm made out of Viton

**Design EGT1, M14 x 1, ball plunger**  
Plug connector M12



Brass, nickel-plated	Brass, nickel-plated
IP 67	IP 67
Mating connector inserted and screwed tight	Mating connector inserted and screwed tight
-25...+80	-5...+80
8	8
1 x 10 <sup>6</sup> operating cycles	1 x 10 <sup>6</sup> operating cycles
± 0.01	± 0.01
Approx. 20	Approx. 20
Snap-action switching element	Snap-action switching element
1 changeover contact	1 changeover contact
Silver alloy, gold-plated	Silver alloy, gold-plated
50	50
2.5	2.5
DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 0.6 A	AC-15 U <sub>e</sub> 50 V I <sub>e</sub> 0.5 A DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 0.6 A
10	10
12	12
2	2
Plug connector M12 <sup>3)</sup>	Plug connector M12 <sup>3)</sup>

-	-
-	-
<b>054 250</b> EGT1SEM4C1613	<b>077 347</b> EGT1SEM4C1832



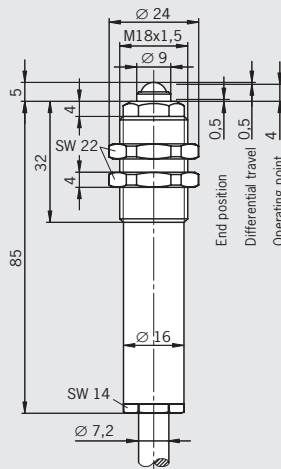
## Single hole fixing limit switches

- ▶ With snap-action switching element
- ▶ Plunger material stainless steel
- ▶ Any installation position

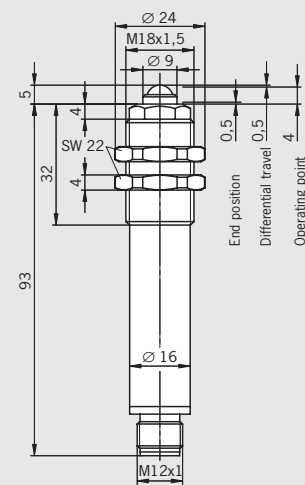


**Design EGT2, M18 x 1.5, ball plunger**  
Connection cable with PE connection

### Dimension drawings

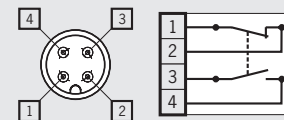
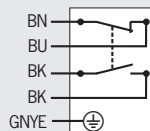


**Design EGT2, M18 x 1.5, ball plunger**  
Plug connector M12



⚠ Single hole fixing limit switches must not be used as an end stop.

### Wiring diagrams



### Technical data

	Brass, nickel-plated	Brass chromium plated
Housing material	Brass, nickel-plated	Brass chromium plated
Degree of protection according to IEC 60529	IP 67	IP 67 Mating connector inserted and screwed tight
Ambient temperature [°C]	-5...+60	-5...+60
Approach speed, max. [m/min]	10	10
Mechanical life	3 x 10 <sup>6</sup> operating cycles	3 x 10 <sup>6</sup> operating cycles
Operating point accuracy <sup>1)</sup> [mm]	± 0.01	± 0.01
Actuating force (end position) [N]	Approx. 24	Approx. 24
Switching element	Snap-action switching element	Snap-action switching element
Switching element	1 NC contact and 1 NO contact	1 NC contact and 1 NO contact
Contact material	Fine silver gold-plated	Fine silver gold-plated
Rated insulation voltage U <sub>i</sub> [V]	250	50
Rated impulse withstand voltage U <sub>imp</sub> [kV]	2.5	2.5
Utilization category according to IEC 60947-5-1	AC-15 U <sub>e</sub> 230 V I <sub>e</sub> 2 A DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 1 A	AC-15 U <sub>e</sub> 30 V I <sub>e</sub> 2 A DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 1 A
Switching current, min., at 24 V [mA]	10	10
Switching voltage, min. [V DC]	12	12
Short circuit protection (control circuit fuse) [A gG]	2	2
Type of connection	PUR cable 5 x 0.75 mm <sup>2</sup>	Plug connector M12 <sup>2)</sup>

1) The reproducible operating point accuracy relates to axial actuation, after run-in of approx. 2000 operating cycles.

2) For mating connector see page 30 and 31.

### Ordering table

1 NC contact + 1 NO contact	Connection cable 2 m	<b>001 864</b> EGT2-2000	-
	Connection cable 5 m	<b>001 865</b> EGT2-5000	-
	Plug connector	-	<b>052 504</b> EGT2SEM4

### Switch head can be used as end stop

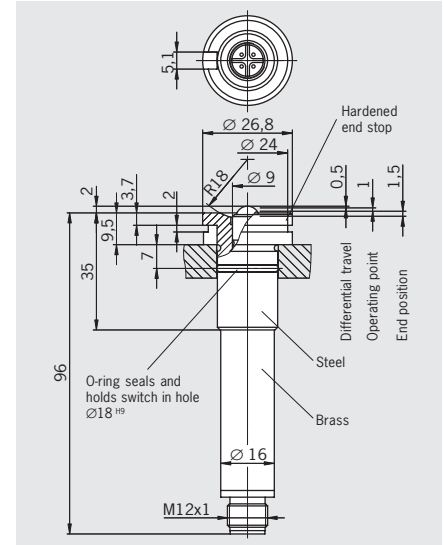
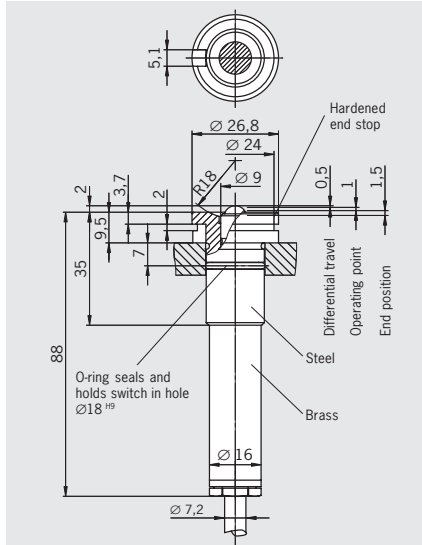
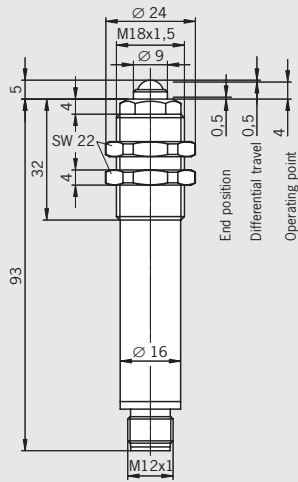
### Switch head can be used as end stop

**Design EGT2, M18 x 1.5, ball plunger**  
Plug connector M12 with PE connection

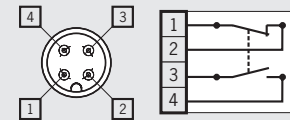
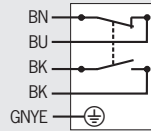
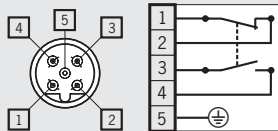
**Design EGT3, Ø 18 , ball plunger**  
Connection cable with PE connection

**Design EGT3, Ø18 , ball plunger**  
Plug connector M12

#### Dimension drawings



#### Wiring diagrams



Brass chromium plated	Steel/brass	Steel/brass
IP 67	IP 67	IP 67
Mating connector inserted and screwed tight		
-5...+60	-5...+60	-5...+60
10	Contact force max. 40 kN	Contact force max. 40 kN
3 x 10 <sup>6</sup> operating cycles	3 x 10 <sup>6</sup> operating cycles	3 x 10 <sup>6</sup> operating cycles
± 0.01	± 0.01	± 0.01
Approx. 24	Approx. 18	Approx. 18
Snap-action switching element	Snap-action switching element	Snap-action switching element
1 NC contact and 1 NO contact	1 NC contact and 1 NO contact	1 NC contact and 1 NO contact
Fine silver gold-plated	Fine silver gold-plated	Fine silver gold-plated
50	250	50
2.5	2.5	2.5
AC-15 U <sub>e</sub> 30 V I <sub>e</sub> 2 A	AC-15 U <sub>e</sub> 230 V I <sub>e</sub> 2 A	AC-15 U <sub>e</sub> 30 V I <sub>e</sub> 2 A
DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 1 A	DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 1 A	DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 1 A
10	10	10
12	12	12
2	2	2
Plug connector M12 <sup>2)</sup>	PUR cable 5 x 0.75 mm <sup>2</sup>	Plug connector M12 <sup>2)</sup>

-	<b>001 896</b> EGT3-2000	-
-	<b>001 897</b> EGT3-5000	-
<b>042 819</b> EGT2SEM5	-	<b>070 834</b> EGT3SEM4

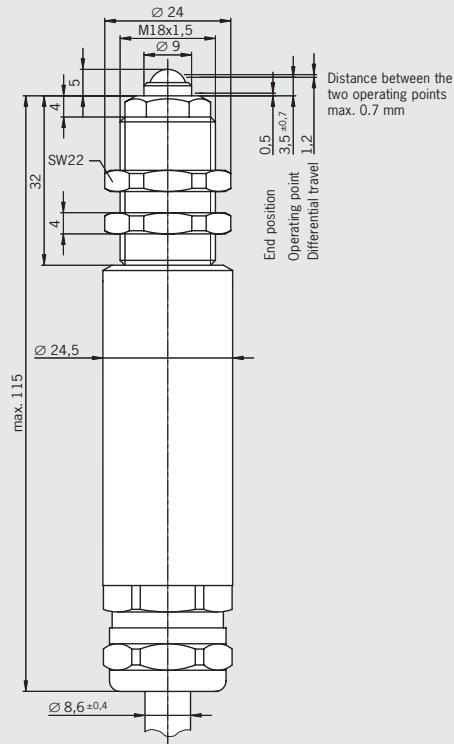
## Single hole fixing limit switches With 4 switching elements

- ▶ With snap-action switching element
- ▶ Plunger material stainless steel
- ▶ Any installation position



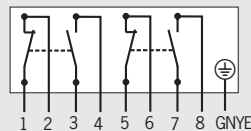
### Design EGT4, M18 x 1.5, ball plunger Connection cable, PE connection

#### Dimension drawings



⚠ Single hole fixing limit switches must not be used as an end stop.

#### Wiring diagrams



#### Technical data

Housing material	Brass, nickel-plated
Degree of protection according to IEC 60529	IP 67
Ambient temperature [°C]	-25 <sup>1)</sup> ...+70
Approach speed, max. [m/min]	10
Mechanical life	5 x 10 <sup>5</sup> operating cycles
Operating point accuracy <sup>2)</sup> [mm]	± 0.01
Actuating force (end position) [N]	Approx. 25
Switching element	Snap-action switching element
Switching element	2 NC contacts and 2 NO contacts
Contact material	Fine silver gold-plated
Rated insulation voltage U <sub>i</sub> [V]	250
Rated impulse withstand voltage U <sub>imp</sub> [kV]	2.5
Utilization category according to IEC 60947-5-1	AC-15 U <sub>e</sub> 230 V I <sub>e</sub> 2 A DC-13 U <sub>e</sub> 24 V I <sub>e</sub> 1 A
Switching current, min., at 24 V [mA]	10
Switching voltage, min. [V DC]	12
Short circuit protection (control circuit fuse) [A gG]	2
Type of connection	PUR cable 9 x 0.5 mm <sup>2</sup>

1) Cable hard wired.

2) The reproducible operating point accuracy relates to axial actuation, after run-in of approx. 2000 operating cycles.

#### Ordering table

1 NC contact + 1 NO contact	Connection cable 2 m	<b>094 339</b> EGT4-2000
	Connection cable 5 m	<b>092026</b> EGT4-5000
	Connection cable 10 m	<b>093 967</b> EGT4-10000

## Multiple clamping strip

- ▶ For single hole fixing limit switches EGT 12 / EGM 12
- ▶ Switch position as for multiple limit switches in accordance with DIN 43697
- ▶ For 2, 4 or 6 single hole fixing limit switches

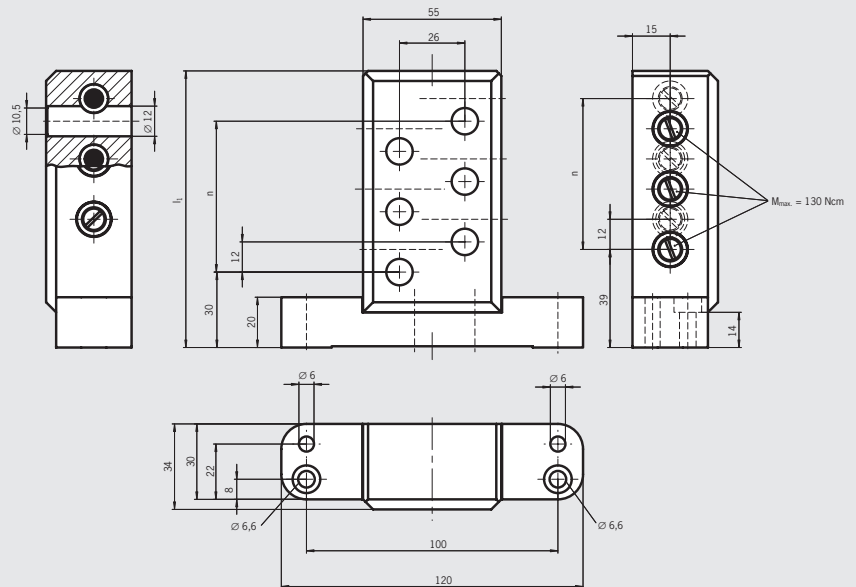


The multiple clamping strip is used for mounting several single hole fixing limit switches of design EGT 12 / EGM 12.

The robust actuator-sensor bracket with quick-action fastening system is mounted on an aluminum flange with fastening holes in accordance with DIN 43697.

Spacing 12 mm

Dimension drawings



## Ordering table

Article	Number of brackets	Dimension $l_1$ [mm]	Order No.
RGKB02N12	2	62	084 511
RGKB04N12	4	86	084 514
RGKB06N12	6	110	084 510

## Precision single limit switches

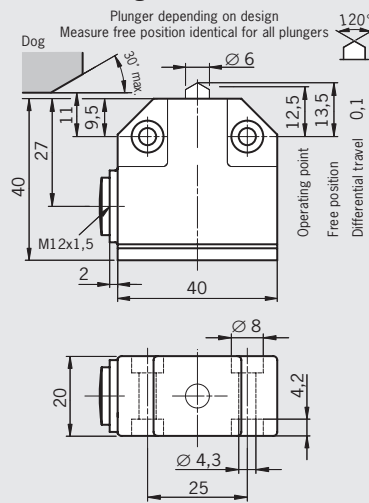
► Plunger material stainless steel

For temperatures up to 180 °C

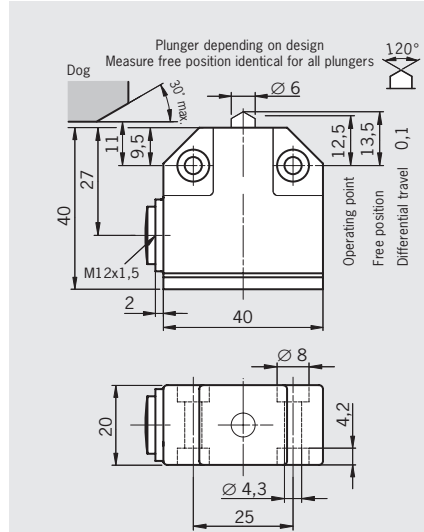


**Design N01**  
Cable entry M12 x 1.5

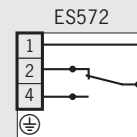
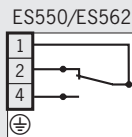
### Dimension drawings



**Design N01**  
Cable entry M12 x 1.5



### Wiring diagrams



### Technical data

Housing material	Die-cast aluminum, anodized			Die-cast aluminum, anodized		
Degree of protection according to IEC 60529	IP 67			IP 67		
Ambient temperature [°C]	-5...+80			-5...+180		
Plunger type	Chisel	Roller	Ball	Chisel	Roller	Ball
Operating point accuracy <sup>1)</sup> [mm]	± 0.02	± 0.05	± 0.03	± 0.02	± 0.05	± 0.03
Max. approach speed <sup>2)</sup> [m/min]	20	50	8	20	50	8
Approach speed, min. [m/min]	0.01			0.01		
Actuating force, max. [N]	15			15		
Switching element	<b>ES550</b>		<b>ES562</b>	<b>ES572</b>		
Switching element	1 changeover contact			1 changeover contact		
Switching principle	Snap-action switching element			Snap-action switching element		
Mechanical life	1 x 10 <sup>7</sup> operating cycles			1 x 10 <sup>7</sup> operating cycles		
Rated impulse withstand voltage U <sub>imp</sub> [kV]	2.5			2.5		
Rated insulation voltage U <sub>i</sub> [V]	250			250		
Utilization category according to IEC 60947-5-1	AC-15 U <sub>e</sub> 230V I <sub>e</sub> 2A DC-13 U <sub>e</sub> 24V I <sub>e</sub> 2A	DC-13 U <sub>e</sub> 30V I <sub>e</sub> 100mA		AC-15 U <sub>e</sub> 230V I <sub>e</sub> 4A DC-13 U <sub>e</sub> 24V I <sub>e</sub> 1A		
Contact material	Silver, gold-plated		Gold alloy	Fine silver		
Switching current, min. at [mA]	10		5	10		
Switching voltage [V DC]	24		5	24		
Short circuit protection (control circuit fuse) [A gG]	4		0.125	4		
Type of connection	Soldered connection, 1.0 mm <sup>2</sup> max.			Soldered connection, 1.0 mm <sup>2</sup> max.		

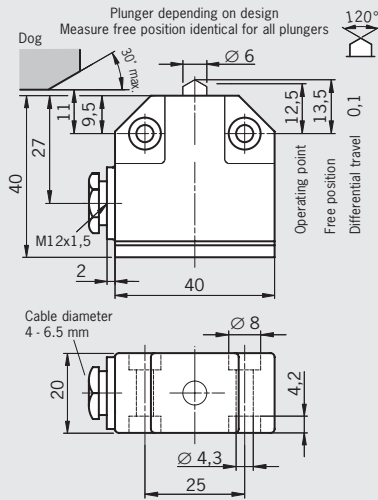
- 1) The reproducible operating point accuracy relates to axial actuation, after run-in of approx. 2000 operating cycles.
- 2) The approach speed applies for a trip dog approach angle of 30°, 100 mm long, hardened and ground.
- 3) All the plunger travel data relate to axial actuation. On the use of EUCHNER trip dogs, the travels at the trip rail double.
- 4) For mating connector see page 30 and 31.

### Ordering table

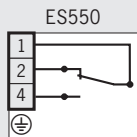
Plunger type	ES550	ES562	ES572
Chisel plunger	<b>084 902</b> N01D550-M	<b>087 151</b> N01D562-M	<b>087 162</b> N01D572-M
Roller plunger  R = 2.5 mm	<b>084 903</b> N01R550-M	<b>085 243</b> N01R562-M	<b>087 163</b> N01R572-M
Ball plunger	<b>084 904</b> N01K550-M	<b>087 152</b> N01K562-M	<b>087 164</b> N01K572-M

**Design N01**  
Cable gland M12 x 1.5

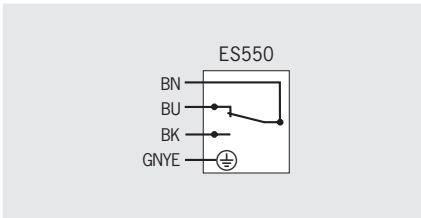
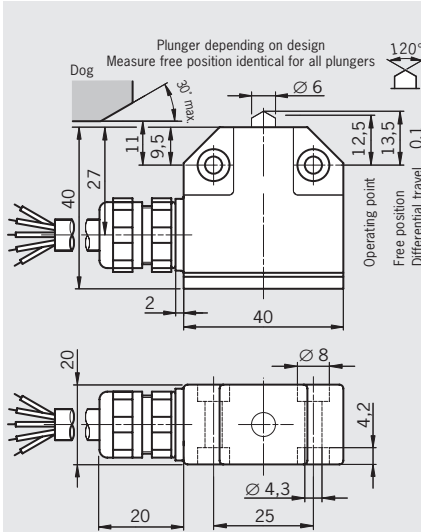
**Dimension drawings**



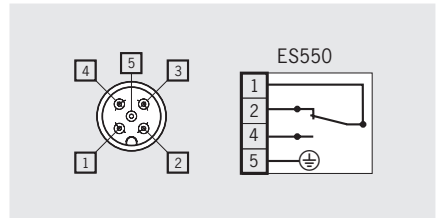
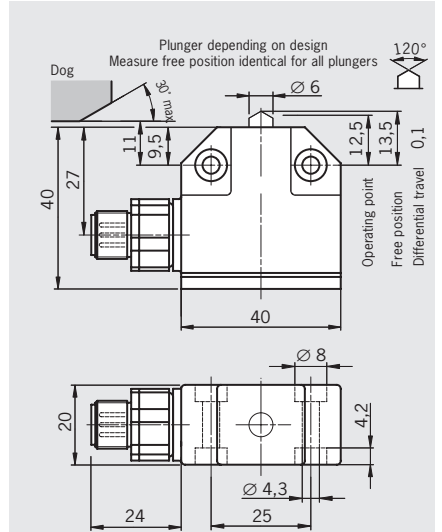
**Wiring diagrams**



**Design N01**  
Connection cable, length 5 m



**Design N01**  
M12 plug adjustable, 4-pin + PE



Die-cast aluminum, anodized			Die-cast aluminum, anodized			Die-cast aluminum, anodized		
IP 67			IP 67			IP 67		
-5...+80			-5...+80			-5...+80		
Chisel	Roller	Ball	Chisel	Roller	Ball	Chisel	Roller	Ball
± 0.02	± 0.05	± 0.03	± 0.02	± 0.05	± 0.03	± 0.02	± 0.05	± 0.03
20	50	8	20	50	8	20	50	8
0.01			0.01			0.01		
15			15			15		
<b>ES550</b>			<b>ES550</b>			<b>ES550</b>		<b>ES562</b>
1 changeover contact			1 changeover contact			1 changeover contact		
Snap-action switching element			Snap-action switching element			Snap-action switching element		
1 x 10 <sup>7</sup> operating cycles			1 x 10 <sup>7</sup> operating cycles			1 x 10 <sup>7</sup> operating cycles		
2.5			2.5			2.5		
250			250			50	50	
AC-15 U <sub>e</sub> 230V I <sub>e</sub> 2A			AC-15 U <sub>e</sub> 230V I <sub>e</sub> 2A			AC-15 U <sub>e</sub> 30V I <sub>e</sub> 2A	DC-13 U <sub>e</sub> 30V I <sub>e</sub> 100mA	
DC-13 U <sub>e</sub> 24V I <sub>e</sub> 2A			DC-13 U <sub>e</sub> 24V I <sub>e</sub> 2A			DC-13 U <sub>e</sub> 24V I <sub>e</sub> 3A		
Silver, gold-plated			Silver, gold-plated			Silver, gold-plated	Gold alloy	
10			10			10	5	
24			24			24	5	
4 A			4 A gG			4 A gG	0.125 gG	
Soldered connection, 1.0 mm <sup>2</sup> max.			PUR cable 4 x 0.5 mm <sup>2</sup>			Plug connector M12 <sup>4)</sup>		

ES550	ES550	ES550	ES562
<b>085 708</b> N01D550-MC2018	<b>088 978</b> N01D550X5000-M	<b>088 623</b> N01D550SVM5-M	-
<b>094 856</b> N01R550-MC2018	<b>088 982</b> N01R550X5000-M	<b>088 622</b> N01R550SVM5-M	<b>093 426</b> N01R562SVM5-M
<b>089 619</b> N01K550-MC2018	<b>088 986</b> N01K550X5000-M	<b>088 624</b> N01K550SVM5-M	-

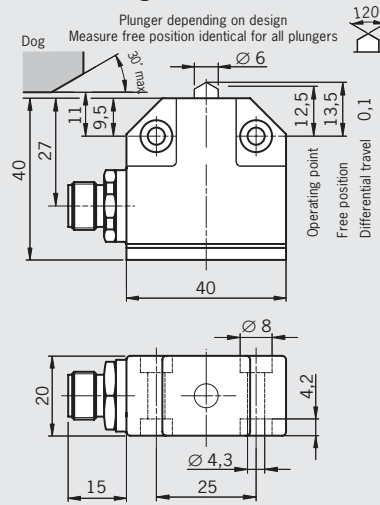
## Precision single limit switches

► Plunger material stainless steel

### For plug connector with LED display

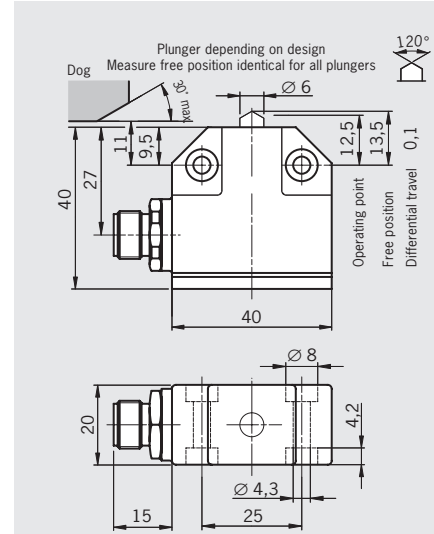
**Design N01**  
M12 plug, 4-pin

#### Dimension drawings



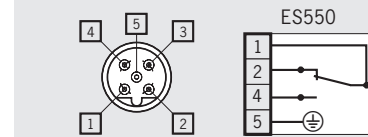
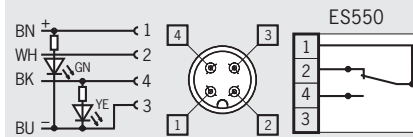
### For operating voltage 230 V

**Design N01**  
M12 plug, 4-pin + PE



⚠ To achieve the positively driven travel, the dimension (11.0.5) must be maintained by the trip dog. Actuation elements such as dog approach guides must be firmly mounted in accordance with EN 1088, i.e. riveted, welded or otherwise secured against becoming loose.

#### Wiring diagrams



#### Technical data

Housing material	Die-cast aluminum, anodized			Die-cast aluminum, anodized		
Degree of protection according to IEC 60529	IP 67			IP 67		
Ambient temperature [°C]	-5...+80			-5...+80		
Plunger type	Chisel	Roller	Ball	Chisel	Roller	Ball
Operating point accuracy <sup>1)</sup> [mm]	± 0.02	± 0.05	± 0.03	± 0.02	± 0.05	± 0.03
Max. approach speed <sup>2)</sup> [m/min]	20	50	8	20	50	8
Approach speed, min. [m/min]	0.01			0.01		
Actuating force, max. [N]	15			15		
Switching element	<b>ES550</b>			<b>ES550</b>		
Switching element	1 changeover contact			1 changeover contact		
Switching principle	Snap-action switching element			Snap-action switching element		
Mechanical life	1 x 10 <sup>7</sup> operating cycles			1 x 10 <sup>7</sup> operating cycles		
Rated impulse withstand voltage U <sub>imp</sub> [kV]	2.5			2.5		
Rated insulation voltage U <sub>i</sub> [V]	50			250		
Utilization category according to IEC 60947-5-1	DC-13 U <sub>e</sub> 24V I <sub>e</sub> 2A			AC-15 U <sub>e</sub> 230V I <sub>e</sub> 2A DC-13 U <sub>e</sub> 24V I <sub>e</sub> 2A		
Contact material	Silver, gold-plated			Silver, gold-plated		
Switching current, min. at [mA]	10			10		
Switching voltage [V DC]	24			24		
Short circuit protection (control circuit fuse) [A gG]	4			4		
Type of connection	Plug connector M12 <sup>4)</sup>			Plug connector M12, B-coded <sup>4)</sup>		




1) The reproducible operating point accuracy relates to axial actuation, after run-in of approx. 2000 operating cycles.

2) The approach speed applies for a trip dog approach angle of 30°, 100 mm long, hardened and ground.

3) All the plunger travel data relate to axial actuation. On the use of EUCHNER trip dogs, the travels at the trip rail double.

4) For mating connector see page 30 and 31.

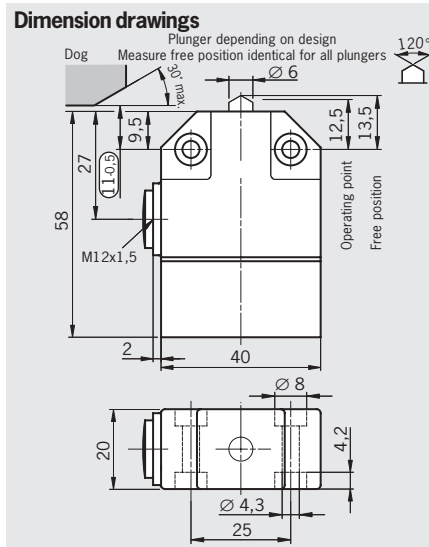
#### Ordering table

Plunger type	ES550	ES550
Chisel plunger 	<b>091 003</b> N01D550-MC1526	-
Roller plunger  R = 2.5 mm	<b>091 001</b> N01R550-MC1526	<b>091 257</b> N01R550SEM5-M
Ball plunger 	<b>091 002</b> N01K550-MC1526	-

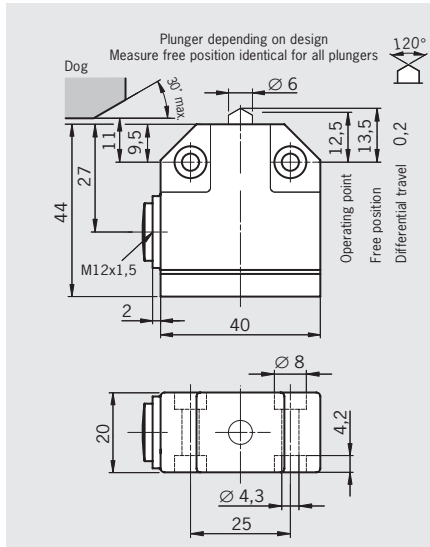


## With safety switching element

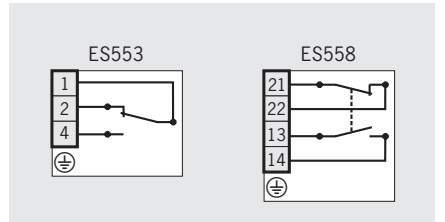
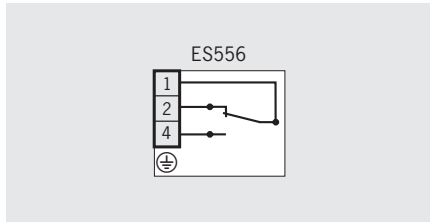
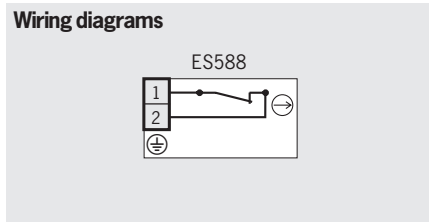
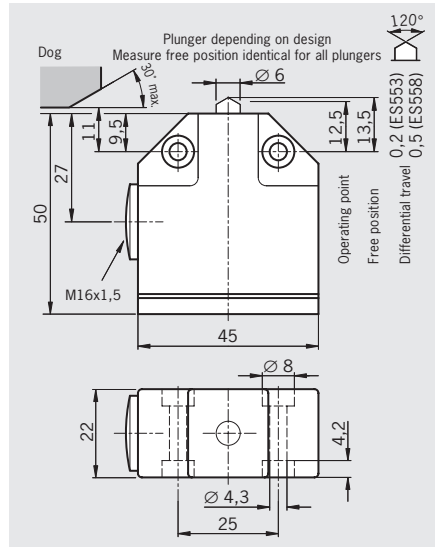
### Design NB01 Cable entry M12 x 1.5



### Design NB01 Cable entry M12 x 1.5



### Design SN01 Cable entry M16 x 1.5



Die-cast aluminum, anodized		Die-cast aluminum, anodized			Die-cast aluminum, anodized		
IP 67		IP 67			IP 67		
-25...+60		-5...+80			-5...+80		
Chisel	Roller	Chisel	Roller	Ball	Chisel	Roller	Ball
± 0.02	± 0.05	± 0.02	± 0.05	± 0.03	± 0.02	± 0.05	± 0.03
20	50	20	50	8	20	50	8
0.01		0.01			0.01		
15		15			15		
<b>ES588</b>		<b>ES556</b>			<b>ES553</b>		<b>ES558</b>
1 NC contact ⊖		1 changeover contact			1 changeover contact		1 NO + 1 NC
Slow-action switching element		Snap-action switching element			Snap-action switching element		
1 x 10 <sup>7</sup> operating cycles		1 x 10 <sup>7</sup> operating cycles			1 x 10 <sup>7</sup> operating cycles		
2.5		2.5			2.5		
250		250			250		
AC-15 U <sub>e</sub> 230V I <sub>e</sub> 4A		AC-15 U <sub>e</sub> 230V I <sub>e</sub> 2A			AC-15 U <sub>e</sub> 230V I <sub>e</sub> 2A		AC-15 U <sub>e</sub> 230V I <sub>e</sub> 4A
DC-13 U <sub>e</sub> 24V I <sub>e</sub> 3A		DC-13 U <sub>e</sub> 24V I <sub>e</sub> 2A			DC-13 U <sub>e</sub> 24V I <sub>e</sub> 2A		DC-13 U <sub>e</sub> 24V I <sub>e</sub> 3A
Fine silver		Silver, gold-plated			Silver, gold-plated		Silver
1		-			-		10
5		-			-		5
10		4			4 A gG		4 A gG
Screw terminal, 1.0 mm <sup>2</sup> max.		Screw terminal, 1.0 mm <sup>2</sup> max.			Screw terminal, 1.0 mm <sup>2</sup> , max.		soldered connection, 1.0 mm <sup>2</sup> , max.

ES588	ES556	ES553	ES558
<b>088 584</b> NB01D588-M	<b>085 245</b> NB01D556-M	<b>085 252</b> SN01D553-M	<b>085 260</b> SN01D558-M
<b>088 583</b> NB01R588-M	<b>085 246</b> NB01R556-M	<b>085 253</b> SN01R553-M	<b>085 261</b> SN01R558-M
-	<b>085 247</b> NB01K556-M	<b>085 254</b> SN01K553-M	<b>085 262</b> SN01K558-M

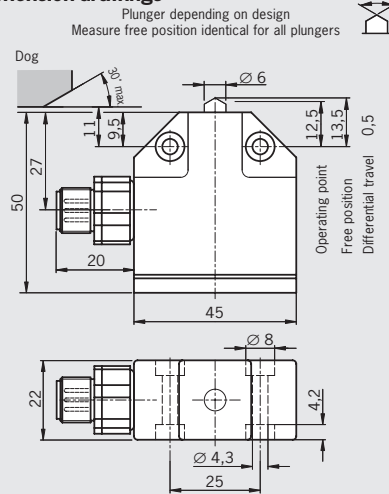
## Precision single limit switches

► Plunger material stainless steel



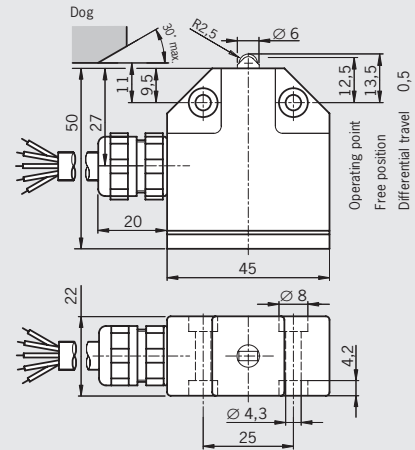
**Design SN01**  
M12 plug, 4-pin + PE

### Dimension drawings



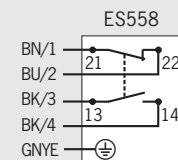
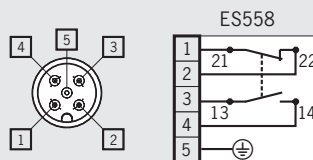
**Design SN01**  
Connection cable, length 2 m

Plunger depending on design



⚠ To achieve the positively driven travel, the dimension (120.5) must be maintained by the trip dog. Actuation elements such as dog approach guides must be firmly mounted in accordance with EN 1088, i.e. riveted, welded or otherwise secured against becoming loose.

### Wiring diagrams



### Technical data

Housing material	Die-cast aluminum, anodized			Die-cast aluminum, anodized
Degree of protection according to IEC 60529	IP 67 Mating connector inserted and screwed tight			IP 67
Ambient temperature [°C]	-5...+80			-5...+80
Plunger type	Chisel	Roller	Ball	Roller
Operating point accuracy <sup>1)</sup> [mm]	± 0.02	± 0.05	± 0.03	± 0.05
Max. approach speed <sup>2)</sup> [m/min]	20	50	8	50
Approach speed, min. [m/min]	0.01			0.01
Actuating force, max. [N]	15			15
Switching element	<b>ES558</b>			<b>ES558</b>
Switching element	1 NO contact + 1 NC contact			1 NO contact + 1 NC contact
Switching principle	Snap-action switching element			Snap-action switching element
Mechanical life	1 x 10 <sup>7</sup> operating cycles			1 x 10 <sup>7</sup> operating cycles
Rated impulse withstand voltage U <sub>imp</sub> [kV]	2.5			2.5
Rated insulation voltage U <sub>i</sub> [V]	30			250
Utilization category according to IEC 60947-5-1	AC-15 U <sub>e</sub> 36V I <sub>e</sub> 4A DC-13 U <sub>e</sub> 24V I <sub>e</sub> 3A			AC-15 U <sub>e</sub> 230V I <sub>e</sub> 4A DC-13 U <sub>e</sub> 24V I <sub>e</sub> 3A
Contact material	Silver			Silver
Switching current, min. at [mA]	10			10
Switching voltage [V DC]	5			5
Short circuit protection (control circuit fuse) [A gG]	4			4
Type of connection	Plug connector M12 <sup>6)</sup>			PUR cable 5 x 0.5 mm <sup>2</sup>

1) The reproducible operating point accuracy relates to axial actuation, after run-in of approx. 2000 operating cycles.

2) The approach speed applies for a trip dog approach angle of 30°, 100 mm long, hardened and ground.

3) All the plunger travel data relate to axial actuation. On the use of EUCHNER trip dogs, the travels at the trip rail double.

### Ordering table

Plunger type	ES558	ES558
Chisel plunger	<b>088 625</b> SN01D558SVM5-M	-
Roller plunger  SN01: R = 2.5 mm N1A: R = 4.0 mm	<b>088 626</b> SN01R558SVM5-M	<b>090 515</b> SN01R558X2000-M
Ball plunger	<b>088 627</b> SN01K558SVM5-M	-
Dome plunger	-	-



## Precision single limit switches

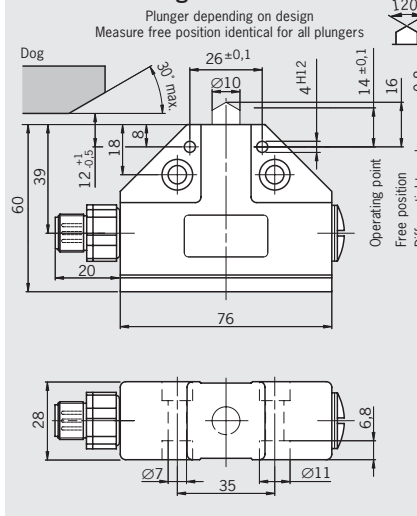
► Plunger material stainless steel

## For plug connectors with LED display

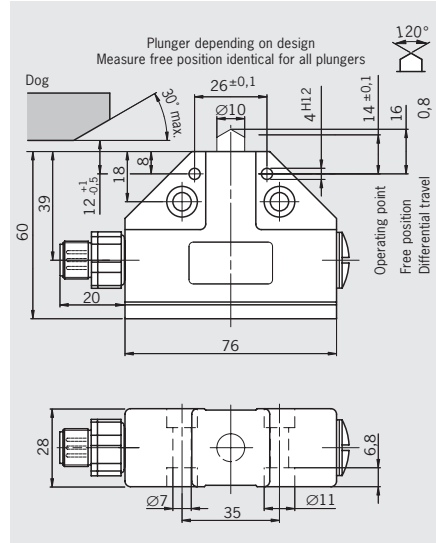


**Design N1A**  
M12 plug, 4-pin + PE

### Dimension drawings

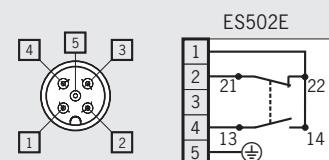
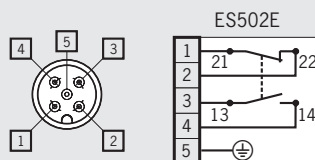


**Design N1A**  
M12 plug, 4-pin + PE



⚠ To achieve the positively driven travel, the dimension  $\varnothing 10.5$  must be maintained by the trip dog. Actuation elements such as dog approach guides must be firmly mounted in accordance with EN 1088, i.e. riveted, welded or otherwise secured against becoming loose.

### Wiring diagrams



### Technical data

Housing material	Die-cast aluminum, anodized			Die-cast aluminum, anodized		
Degree of protection according to IEC 60529	IP 67			IP 67		
Ambient temperature [°C]	-5...+80			-5...+80		
Plunger type	Chisel	Roller	Ball	Chisel	Roller	Ball
Operating point accuracy <sup>1)</sup> [mm]	± 0.002	± 0.01	± 0.01	± 0.002	± 0.01	± 0.01
Max. approach speed <sup>2)</sup> [m/min]	40	80	10	40	80	10
Approach speed, min. [m/min]	0.01			0.01		
Actuating force, max. [N]	≥ 20			≥ 20		
Switching element	<b>ES502E</b>			<b>ES502E</b>		
Switching element	1 NO contact + 1 NC contact			1 NO contact + 1 NC contact		
Switching principle	Snap-action switching element			Snap-action switching element		
Mechanical life	30 x 10 <sup>6</sup> operating cycles			30 x 10 <sup>6</sup> operating cycles		
Rated impulse withstand voltage U <sub>imp</sub> [kV]	2.5			2.5		
Rated insulation voltage U <sub>i</sub> [V]	50			50		
Utilization category according to IEC 60947-5-1	AC-15 U <sub>e</sub> 30V I <sub>e</sub> 4A DC-13 U <sub>e</sub> 24V I <sub>e</sub> 4A			AC-15 U <sub>e</sub> 30V I <sub>e</sub> 4A DC-13 U <sub>e</sub> 24V I <sub>e</sub> 4A		
Contact material	Silver, gold-plated			Silver, gold-plated		
Switching current, min. at [mA]	10			10		
Switching voltage [V DC]	24			24		
Short circuit protection (control circuit fuse) [A gG]	4			4		
Type of connection	Plug connector M12 <sup>5)</sup>			Plug connector M12 <sup>5)</sup>		

1) The reproducible operating point accuracy relates to axial actuation, after run-in of approx. 2000 operating cycles.

2) The approach speed applies for a trip dog approach angle of 30°, 100 mm long, hardened and ground.

3) All the plunger travel data relate to axial actuation. On the use of EUCHNER trip dogs, the travels at the trip rail double.

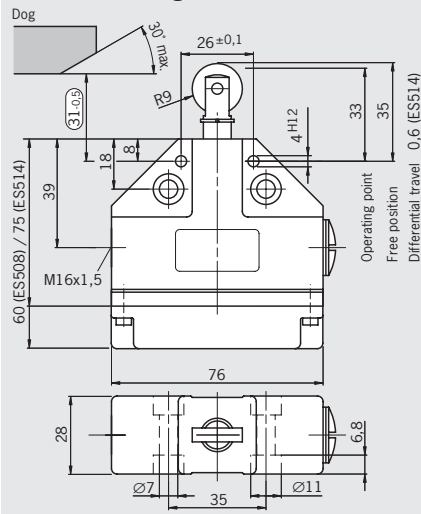
### Ordering table

Plunger type	ES502E	ES502E
Chisel plunger	<b>087 487</b> N1AD502SVM5-M	<b>091 471</b> N1AD502SVM5-MC1883
Roller plunger  N1A: R = 4.0 mm N1A...AM: R = 2.5 mm	<b>087 488</b> N1AR502SVM5-M	on request N1AR502SVM5-MC1883
Ball plunger	<b>087 489</b> N1AK502SVM5-M	<b>087 496</b> N1AK502SVM5-MC1883
Extended roller plunger	-	-

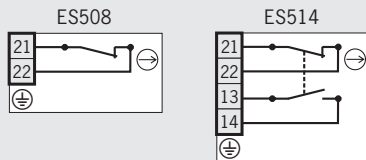
## With safety switching element

### Design N1A, extended roller plunger Cable entry M16 x 1.5

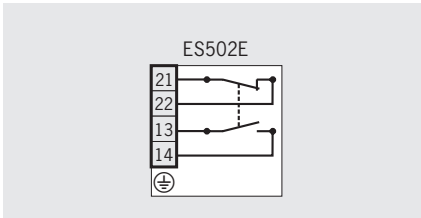
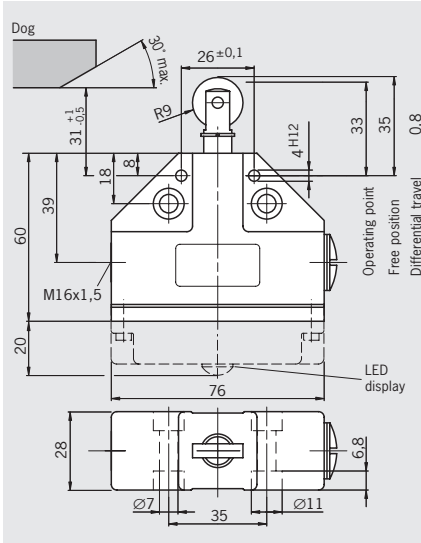
#### Dimension drawings



#### Wiring diagrams

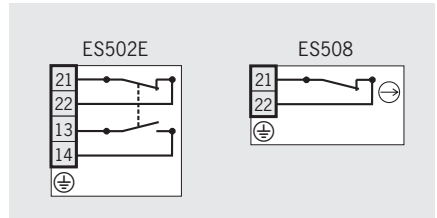
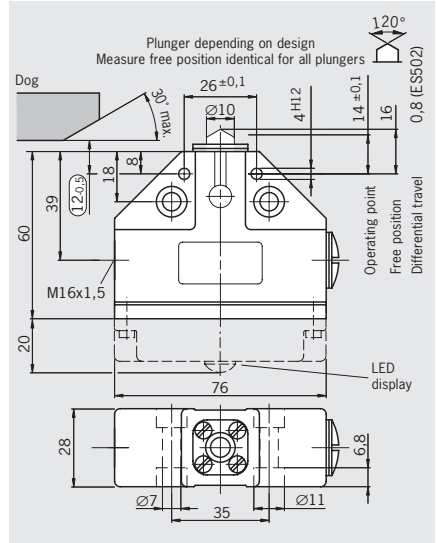


### Design N1A, extended roller plunger Cable entry M16 x 1.5



## With exterior diaphragm

### Design N1A Cable entry M16 x 1.5



Die-cast aluminum, anodized		Die-cast aluminum, anodized		Die-cast aluminum, anodized		
IP 67		IP 67		IP 67		
-25...+80		-5...+80		-5...+80 (ES502E)		-25...+80 (ES508)
Extended roller		Extended roller		Chisel	Roller	Ball
0.1		0.1		± 0.002	± 0.01	± 0.01
20		20		40	80	10
0.01		0.01		0.01		
≥ 15	≥ 30	≥ 20		≥ 20	≥ 15	
<b>ES508</b>	<b>ES514</b>	<b>ES502E</b> <sup>4)</sup>		<b>ES502E</b>	<b>ES508</b>	
1 NC ⊖	1 NO + 1 NC ⊖	1 NO contact + 1 NC contact		1 NO + 1 NC		1 NC ⊖
Slow-action switching	Snap-action switching	Snap-action switching element		Snap-action switching	Slow-action switching	
30 x 10 <sup>6</sup> operating cycles	1 x 10 <sup>6</sup> operating cycles	30 x 10 <sup>6</sup> operating cycles		30 x 10 <sup>6</sup> operating cycles		
2.5		2.5		2.5		
250		250		250		
AC-15 U <sub>e</sub> 230V I <sub>e</sub> 6A DC-13 U <sub>e</sub> 24V I <sub>e</sub> 6A	AC-15 U <sub>e</sub> 230V I <sub>e</sub> 2.5A DC-13 U <sub>e</sub> 24V I <sub>e</sub> 6A	AC-12 U <sub>e</sub> 230V I <sub>e</sub> 10A AC-15 U <sub>e</sub> 230V I <sub>e</sub> 6A DC-13 U <sub>e</sub> 24V I <sub>e</sub> 6A		AC-12 U <sub>e</sub> 230V I <sub>e</sub> 10A AC-15 U <sub>e</sub> 230V I <sub>e</sub> 6A DC-13 U <sub>e</sub> 24V I <sub>e</sub> 6A	AC-15 U <sub>e</sub> 230V I <sub>e</sub> 6A DC-13 U <sub>e</sub> 24V I <sub>e</sub> 6A	
Silver, gold-plated		Silver, gold-plated		Silver, gold-plated		
10	5	10		10		
24	24	24		24		
10		10		10		
Screw terminal 0.34 ... 1.5 mm <sup>2</sup>		Screw terminal 0.34 ... 1.5 mm <sup>2</sup>		Screw terminal 0.34 ... 1.5 mm <sup>2</sup>		

4) Version with LED function display AC/DC 10-60V or AC 110/230 V on request.

5) For mating connector see 30 and 31.

ES508	ES514	ES502E	ES502E	ES508
-	-	-	<b>090 542</b> N1AD502AM-M	<b>090 546</b> N1AD508AM-M
-	-	-	<b>090 541</b> N1AR502AM-M	<b>090 547</b> N1AR508AM-M
-	-	-	<b>091 059</b> N1AK502AM-M	-
<b>087 147</b> N1ARL508-M	<b>087 204</b> N1ARL514-M	<b>083 848</b> N1ARL502-M	-	-

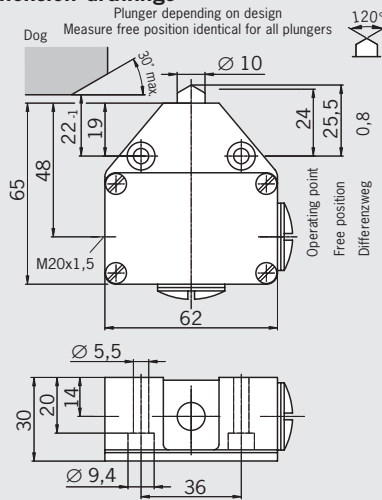
## Precision single limit switches

► Plunger material stainless steel

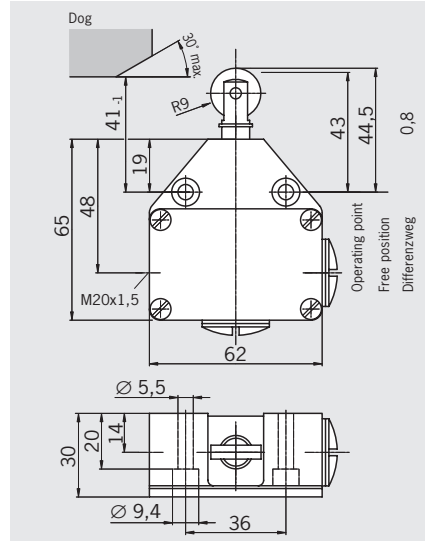


**Design N10**  
Cable entry M20 x 1.5

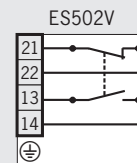
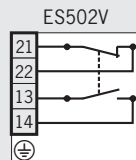
### Dimension drawings



**Design N10, extended roller plunger**  
Cable entry M20 x 1.5



### Wiring diagrams



### Technical data





Housing material	Die-cast aluminum, anodized			Die-cast aluminum, anodized
Degree of protection according to IEC 60529	IP 67			IP 67
Ambient temperature [°C]	-5...+80			-5...+80
Plunger type	Chisel	Roller	Ball	Extended roller
Operating point accuracy <sup>1)</sup> [mm]	± 0.002	± 0.01	± 0.01	± 0.1
Max. approach speed <sup>2)</sup> [m/min]	40	80	10	20
Approach speed, min. [m/min]	0.01			0.01
Actuating force, max. [N]	≥ 20			≥ 20
Switching element	<b>ES502V</b>			<b>ES502V</b>
Switching element	1 NO contact + 1 NC contact			1 NO contact + 1 NC contact
Switching principle	Snap-action switching element			Snap-action switching element
Mechanical life	30 x 10 <sup>6</sup> operating cycles			30 x 10 <sup>6</sup> operating cycles
Rated impulse withstand voltage U <sub>imp</sub> [kV]	2.5			2.5
Rated insulation voltage U <sub>i</sub> [V]	250			250
Utilization category according to IEC 60947-5-1	AC-12 U <sub>e</sub> 230V I <sub>e</sub> 16A/AC-15 U <sub>e</sub> 230V I <sub>e</sub> 10A DC-13 U <sub>e</sub> 24V I <sub>e</sub> 6A			AC-12 U <sub>e</sub> 230V I <sub>e</sub> 16A/AC-15 U <sub>e</sub> 230V I <sub>e</sub> 10A DC-13 U <sub>e</sub> 24V I <sub>e</sub> 6A
Contact material	Silver, gold-plated			Silver, gold-plated
Switching current, min. at [mA]	20			20
Switching voltage [V DC]	24			24
Short circuit protection (control circuit fuse) [A gG]	16			16
Type of connection	Screw terminal, 1.5 mm <sup>2</sup> max.			Screw terminal, 1.5 mm <sup>2</sup> max.

1) The reproducible operating point accuracy relates to axial actuation, after run-in of approx. 2000 operating cycles.

2) The approach speed applies for a trip dog approach angle of 30°, 100 mm long, hardened and ground.

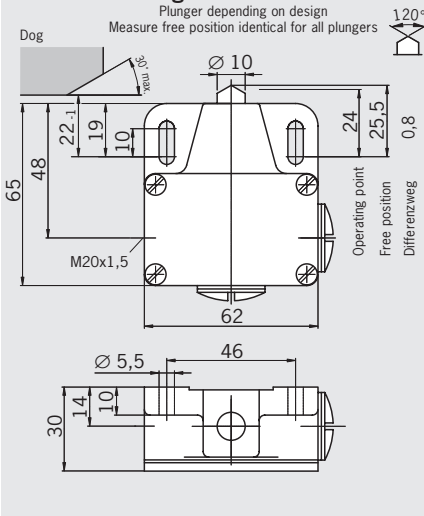
3) All the plunger travel data relate to axial actuation. On the use of EUCHNER trip dogs, the travels at the trip rail double.

### Ordering table

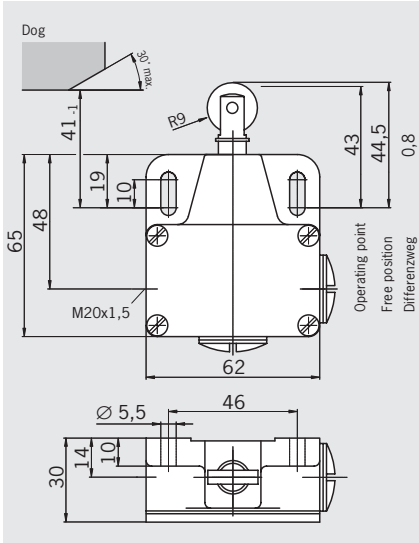
Plunger type	ES502V	ES502V
Chisel plunger 	<b>086 293</b> N10D-M	-
Roller plunger 	<b>086 294</b> N10R-M	-
Ball plunger 	<b>088 589</b> N10K-M	-
Extended roller plunger 	-	<b>088 587</b> N10RL-M

## Design N11 Cable entry M20 x 1.5

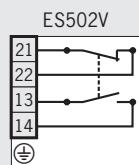
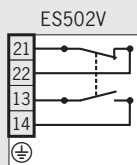
### Dimension drawings



## Design N11, extended roller plunger Cable entry M20 x 1.5



### Wiring diagrams



Die-cast aluminum, anodized			Die-cast aluminum, anodized		
IP 67			IP 67		
-5...+80			-5...+80		
Chisel	Roller	Ball	Extended roller		
± 0.002	± 0.01	± 0.01	± 0.1		
40	80	10	20		
0.01			0.01		
≥ 20			≥ 20		
<b>ES502V</b>			<b>ES502V</b>		
1 NO contact + 1 NC contact			1 NO contact + 1 NC contact		
Snap-action switching element			Snap-action switching element		
30 x 10 <sup>6</sup> operating cycles			30 x 10 <sup>6</sup> operating cycles		
2.5			2.5		
250			250		
AC-12 U <sub>e</sub> 230V I <sub>e</sub> 16A/AC-15 U <sub>e</sub> 230V I <sub>e</sub> 10A			AC-12 U <sub>e</sub> 230V I <sub>e</sub> 16A/AC-15 U <sub>e</sub> 230V I <sub>e</sub> 10A		
DC-13 U <sub>e</sub> 24V I <sub>e</sub> 6A			DC-13 U <sub>e</sub> 24V I <sub>e</sub> 6A		
Silver, gold-plated			Silver, gold-plated		
20			20		
24			24		
16			16		
Screw terminal, 1.5 mm <sup>2</sup> max.			Screw terminal, 1.5 mm <sup>2</sup> max.		

<b>ES502V</b>	<b>ES502V</b>
<b>086 298</b> N11D-M	-
<b>086 313</b> N11R-M	-
<b>088 585</b> N11K-M	-
-	<b>086 299</b> N11RL-M



## Round plug connectors

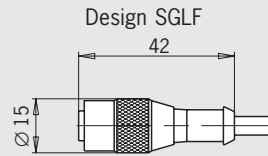
- ▶ Straight design and right-angle plug
- ▶ Screw connection
- ▶ Sprayed PUR cable
- ▶ 4- and 5-pin



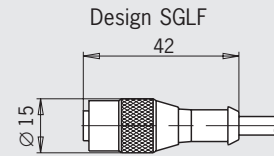
### Straight plug connector M12 4-pin / 4-pin + PE

### Straight plug connector M12, coded 4-pin + PE

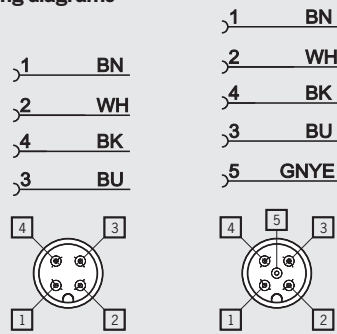
#### Dimension drawings



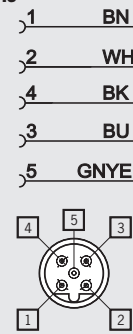
#### Dimension drawings



#### Wiring diagrams



#### Wiring diagrams



### Technical data

	4	4+PE	4+PE
Number of pins	4	4+PE	4+PE
Housing material	TPU self-extinguishing		TPU self-extinguishing
Grip	TPU self-extinguishing		TPU self-extinguishing
Contact carrier	TPU self-extinguishing		TPU self-extinguishing
Cable material	PVC, halogen-free, flame retardant		PVC, halogen-free, flame retardant
Sheath color	Orange		Orange
Degree of protection according to IEC 60529 (inserted and screwed tight)	IP 67		IP 67
Ambient temperature [°C]	-25 ... +80		-25 ... +90
Contact material	CuSn nickel-plated, 0.3 µm gold-plated		CuSn nickel-plated, 0.8 µm gold-plated
Conductor cross-section [mm²]	4 x 0.34	5 x 0.5	4 x 0.34 / 1 x 0.5
Cable diameter [mm]	6		5
Contact resistance [mW]	≤ 5		≤ 5
Test voltage (60 s) [kV eff]	2	1.5	2
Rated voltage [V]	AC 250/DC 300		AC 250/DC 300
Rated current [A]	4		4

### Ordering table

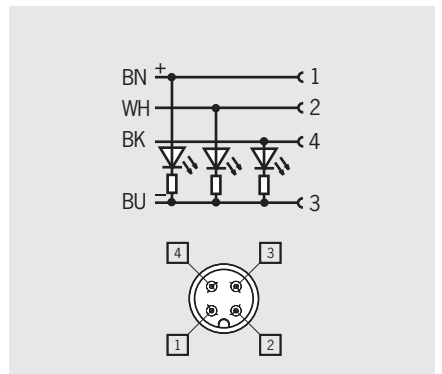
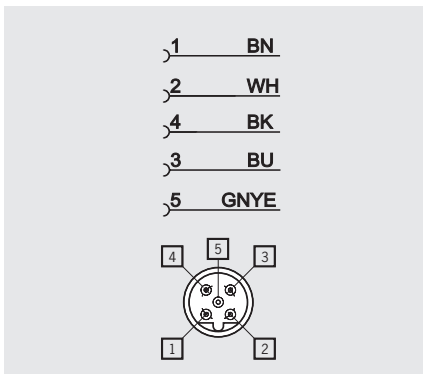
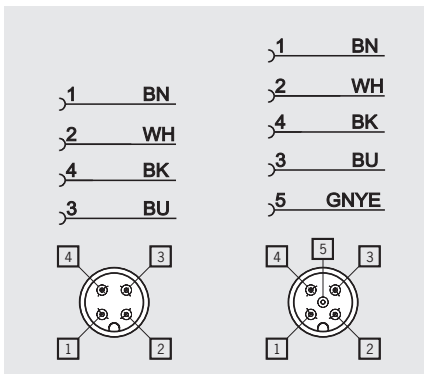
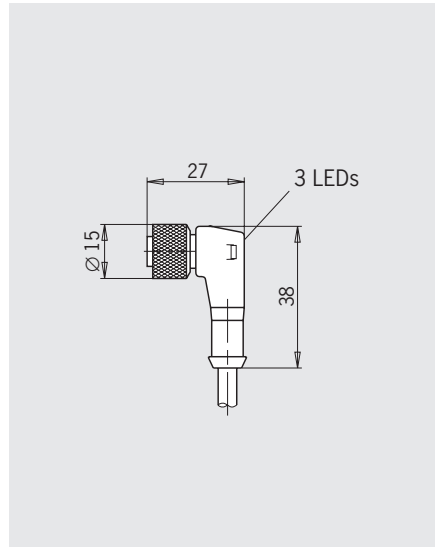
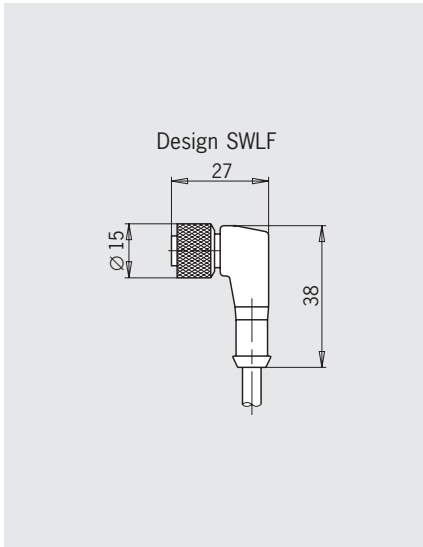
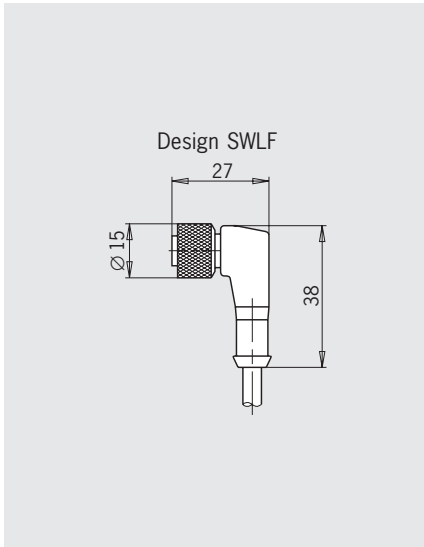
	035 613 SGLF4-5000P	073 461 SGLF5-5000P	045 524 SGLF5PE-5000
Plug connector M12, without LED, Connection cable 5 m PUR			
Plug connector M12, with 2 LEDs, Connection cable 5 m PUR	-	-	-



**Right-angle plug connector M12**  
4-pin / 4-pin + PE

**Right-angle plug connector M12, coded**  
4-pin + PE

**Plug connector M12 with 3 LEDs**  
4-pin

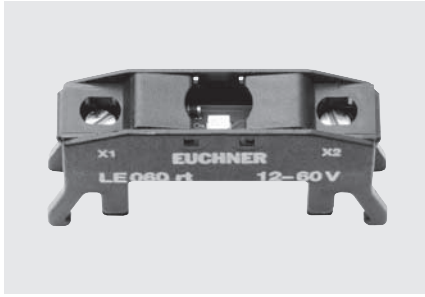


4		4+PE	4+PE	4
TPU self-extinguishing		TPU self-extinguishing	TPU self-extinguishing	TPU self-extinguishing
TPU self-extinguishing		TPU self-extinguishing	TPU self-extinguishing	TPU self-extinguishing
PVC, halogen-free, flame retardant		PVC, halogen-free, flame retardant	PVC, halogen-free, flame retardant	PVC, halogen-free, flame retardant
Orange		Orange	Orange	Orange
IP 67		IP 67	IP 67	IP 67
-25 ... +80		-25 ... +90	-25 ... +90	-25 ... +80
CuSn nickel-plated, 0.3 µm gold-plated		CuSn nickel-plated, 0.8 µm gold-plated	CuSn nickel-plated, 0.8 µm gold-plated	CuSn nickel-plated, 0.3 µm gold-plated
4 x 0.34	5 x 0.5	5 x 0.5	5 x 0.5	4 x 0.34
6	5	5	5	5
≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
2	1.5	2	2	-
AC 250/DC 300	AC 30/DC 36	AC 250/DC 300	AC 250/DC 300	DC 10 ... 30
4	4	4	4	4

<b>035 618</b> SWLF4-5000P	<b>073 462</b> SWLF5-5000P	<b>045 523</b> SWLF5PE-5000	-
-	-	-	<b>041 091</b> SWLF4P-5000P

## LED function display

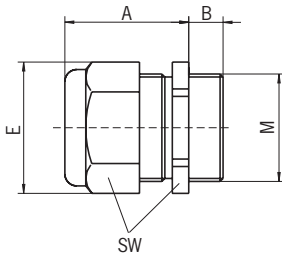
On request, versions with voltage ranges AC 110/230 V are available.



Operating voltage [V]	Color	Article	Order No.
AC/DC 12 - 60	Red	LE 060 rt	<b>035 495</b>
	Green	LE 060 gr	<b>035 496</b>
	Yellow	LE 060 ge	<b>035 497</b>

## Cable glands

Material nickel-plated brass, degree of protection IP 67



Article	Metric thread M	Cable outer diameter [mm]	A [mm]	B [mm]	E [mm]	SW [mm]	Order No.
EKVM12/04	M12 x 1.5	4 - 6.5	20	5	15.5	14	<b>086 327</b>
EKVM16/04	M16 x 1.5	4 - 6.5	20	6	20	18	<b>086 328</b>
EKVM16/06	M16 x 1.5	6.5 - 9.5	20	6	20	18	<b>086 330</b>
EKVM20/06	M20 x 1.5	6.5 - 9.5	20	6	24.4	22	<b>077 683</b>

## Additional products

### Trip rails / trip dogs

#### U-trip rails

enable the trip dogs to be adjusted from the switch side. The trips dogs can be installed and adjusted quickly and easily in any location.

#### U-trip dogs

are designed for usage in U-trip rails. They have an expansion plate clamp and enable precise adjustment, even when the limit switch is activated.

#### G-trip rails

enable the trip dogs to be adjusted from the side opposite the switch. They are made of steel and are protected from corrosion by a special surface treatment. Trip rails can be ordered pre-assembled or as a component for self-assembly.

#### G-trip dogs

are designed for use in G-trip rails. The trip dogs are clamped in the trip rail by a hexagon socket head screw with spring washer. This washer locks the trip dog in place even when the trip rail is in a vertical position and allows precise adjustment.





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