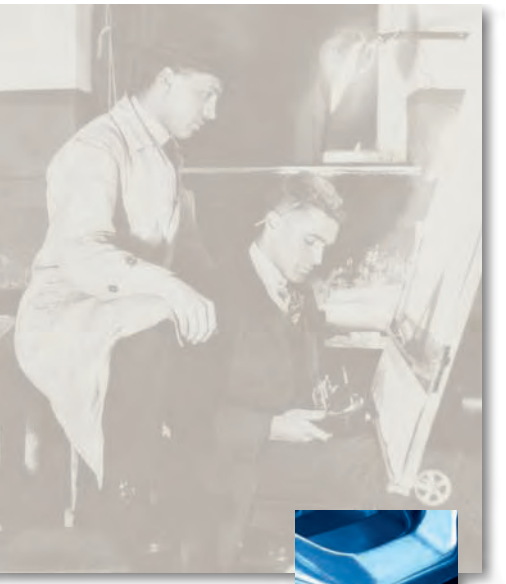
Position Switches

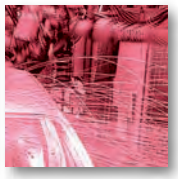
More than safety.

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

Contents

Position Switches

Accessories

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.

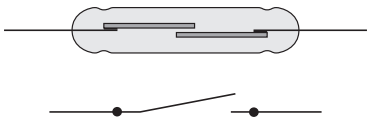
Precision single limit switches

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

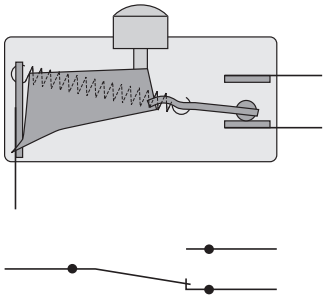
Reed contact

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.



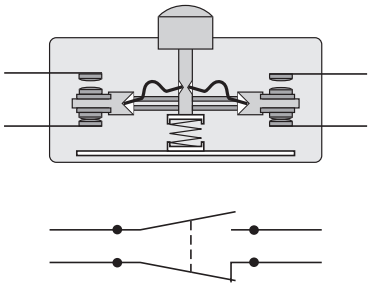
Changeover contact with snap-action function

Snap-action switching element [1] with single gap and three connections.
For series EGT with snap-action switch and series N01, NB01, SN01 with soldered connection.



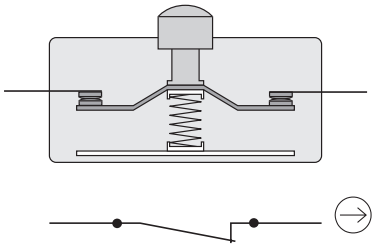
Snap-action switching element [1] with one NO contact and one NC contact

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.



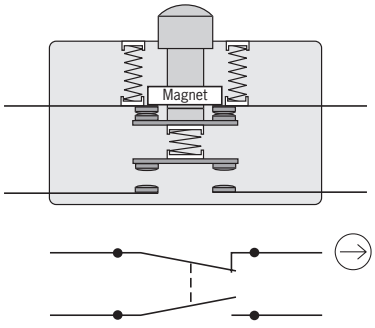
Safety switching element with slow-action switching element [2]

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 [1]

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.



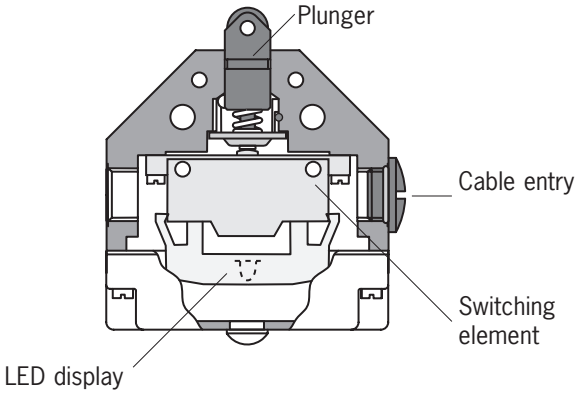
Positively driven position switches.
Safety switching elements marked with this symbol are not available as replacement switching elements.

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

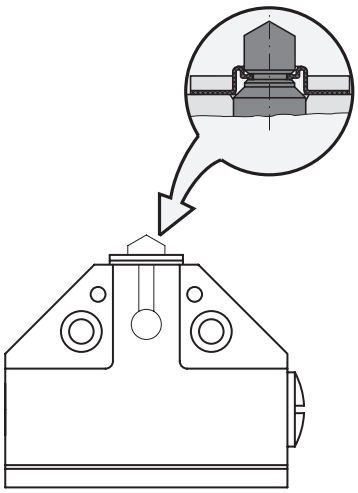
Design

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.



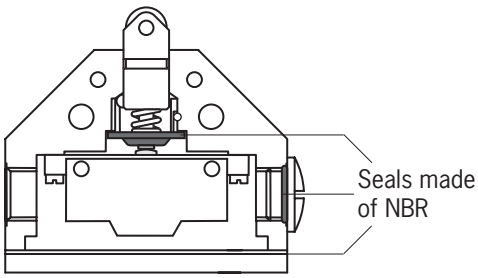
Exterior diaphragm

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.



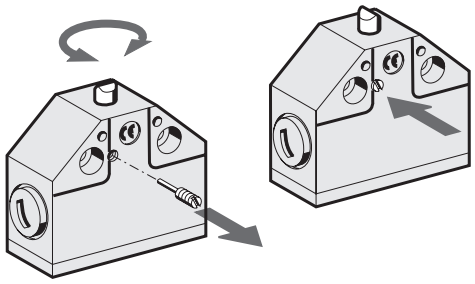
Seals

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.



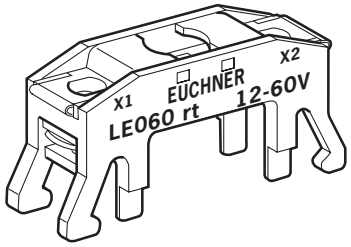
Adjustability

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°.



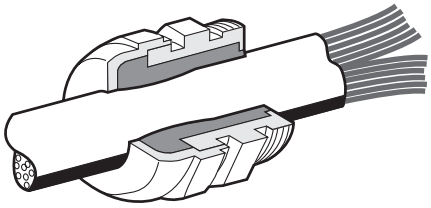
LED function display

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.

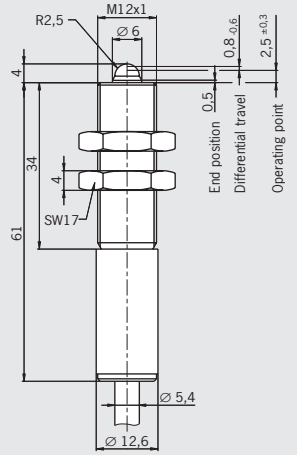


Single hole fixing limit switches

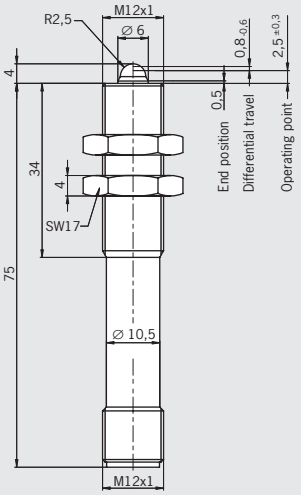
- **With reed contact and protective diode**
- **Plunger material stainless steel**
- **Any installation position**

Design EGT1, M12 x 1, dome plunger
Connection cable, double insulated

Dimension drawings



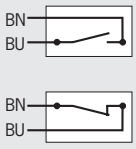
Design EGT1, M12 x 1, dome plunger
Plug connector M12 with PE connection

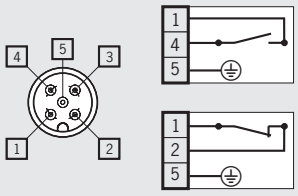


⚠ Never switch incandescent lamps. Not even for test purposes.

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

Wiring diagrams





Technical data

Housing material	sleeve		Plastic	Brass, nickel-plated
	threaded section		Stainless steel	Stainless steel
Degree of protection according to IEC 60529			IP 68	IP 67 Mating connector inserted and screwed tight
Ambient temperature		[°C]	25 [1]...+80	-25...+80
Approach speed, max.		[m/min]	8	8
Mechanical life	axial actuation		30 x 10^6 operating cycles	30 x 10^6 operating cycles
	radial actuation		1 x 10^6 operating cycles (dog 30°)	1 x 10^6 operating cycles (dog 30°)
Operating point accuracy [2]		[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_i		[V]	50 ⧈	50
Utilization category according to IEC 60947-5-1			AC-12 U_e 30 V I_e 0.3 A DC-13 U_e 24 V I_e 0.3 A	AC-12 U_e 30 V I_e 0.3 A DC-13 U_e 24 V I_e 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 mm²	Plug connector M12 [3]

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

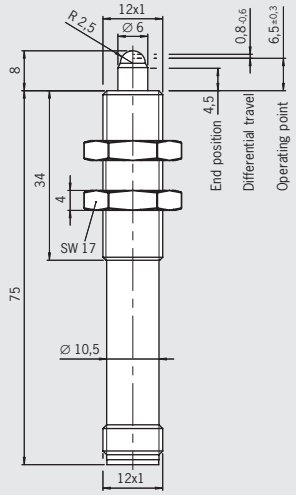
1 NO contact	Connection cable 2 m	On request	–
	Connection cable 5 m	**082 201** EGT12A5000	–
	Plug connector	–	**075 426** EGT12ASFM5
1 NC contact	Connection cable 2 m	On request	–
	Connection cable 5 m	**078 848** EGT12R5000	–
	Plug connector	–	**075 427** EGT12RSFM5

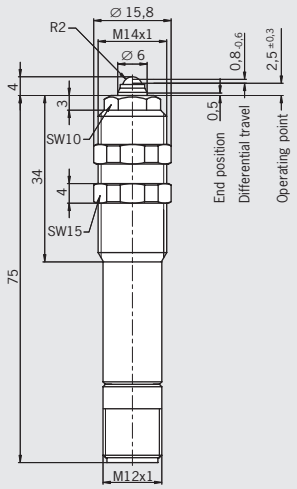
Design EGT12, M12 x 1, dome plunger
Plug connector M12, extended plunger

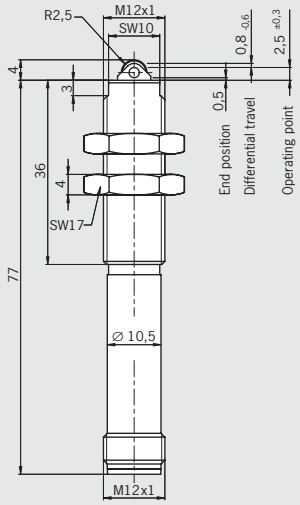
Design EGT11, M14 x 1, ball plunger
Plug connector M12 with PE connection

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

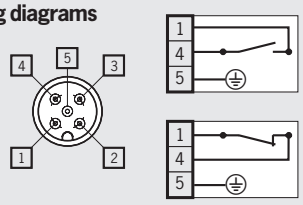
Dimension drawings

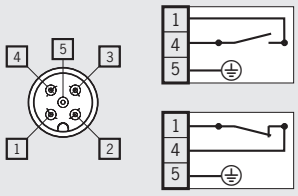


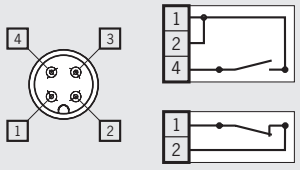




Wiring diagrams







Brass, nickel-plated	Brass, nickel-plated	Brass, nickel-plated
Stainless steel	Stainless steel	Stainless steel
IP 67 Mating connector inserted and screwed tight	IP 67 Mating connector inserted and screwed tight	IP 67 Mating connector inserted and screwed tight
-25...+80	-25...+80	-25...+80
5	60	20
5 x 10^6 operating cycles	30 x 10^6 operating cycles 5 x 10^6 operating cycles (dog 15°)	30 x 10^6 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_e 30 V I_e 0.3 A DC-13 U_e 24 V I_e 0.3 A	AC-12 U_e 30 V I_e 0.3 A DC-13 U_e 24 V I_e 0.3 A	AC-12 U_e 30 V I_e 0.3 A DC-13 U_e 24 V I_e 0.3 A
1	1	1
1	1	1
0.4	0.4	0.4
Plug connector M12 [3]	Plug connector M12 [3]	Plug connector M12 [3]

–	–	–
–	–	–
095 112 EGT12ASFM5C2083	**093 352** EGT11A2NSFM5	**078 483** EGT12ARSEM4C1888
–	–	–
–	–	–
–	**091 848** EGT11R2NSFM5	**079 139** EGT12RRSEM4C1888

Single hole fixing limit switches

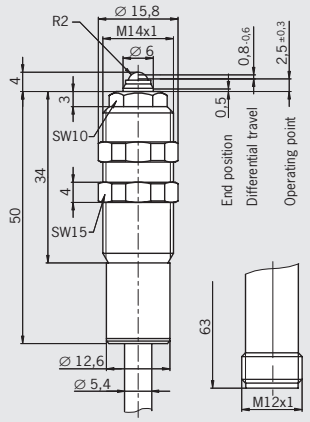
For mating connector with LED display

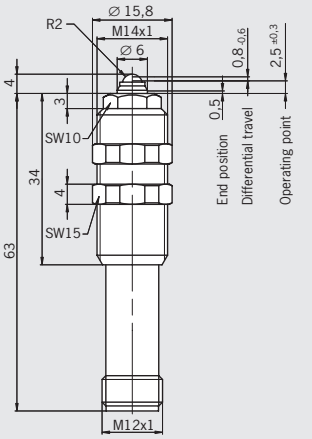
- **With reed contact**
- **Plunger material stainless steel**
- **Any installation position**

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

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

Dimension drawings

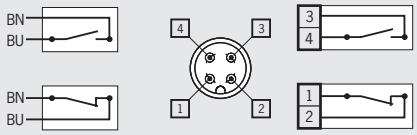


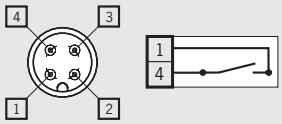


⚠ Never switch incandescent lamps. Not even for test purposes.

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

Wiring diagrams





Technical data

Housing material	sleeve	Plastic	Brass, nickel-plated	Brass, nickel-plated
	threaded section	Stainless steel		Stainless steel
Degree of protection according to IEC 60529		IP 68	IP 67 [4]	IP 67 Mating connector inserted and screwed tight
Ambient temperature	[°C]	-25 [1]...+80	-25...+80	-25...+80
Approach speed max.	[m/min]	8		8
Mechanical life (axial)		30 x 10^6 operating cycles		30 x 10^6 operating cycles
Operating point accuracy [2]	[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_i	[V]	250 ⧈	50	50
Utilization category according to IEC 60947-5-1		Ue 230 V Ie 0,03 A Ue 24 V Ie 0,3 A	U_e 30 V I_e 0,3 A U_e 24 V I_e 0,3 A	AC-12 U_e 30 V I_e 0.3 A DC-13 U_e 24 V I_e 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 mm², encapsulated	Plug connector M12 [3]	Plug connector M12 [3]

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.

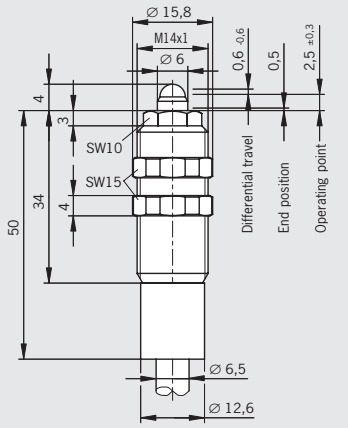
Ordering table

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

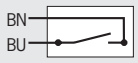
Made of high-quality stainless steel

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

Dimension drawings

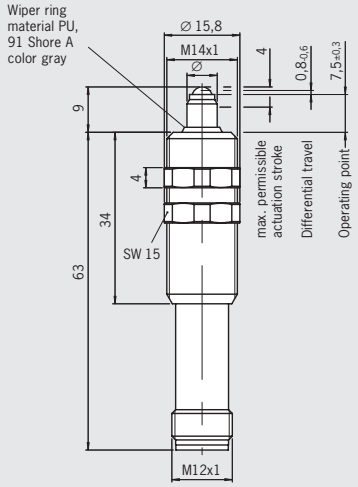


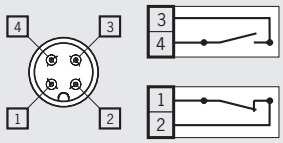
Wiring diagrams



With PU wiper ring

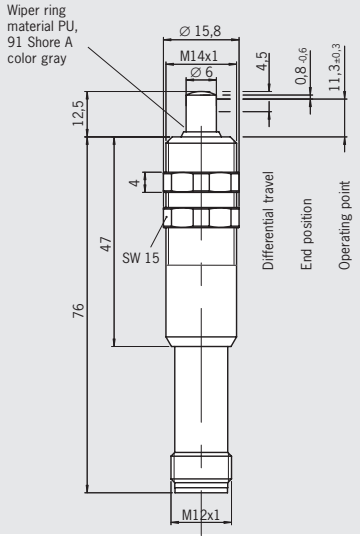
Design EGT1/4, M14 x 1, ball plunger
Plug connector M12

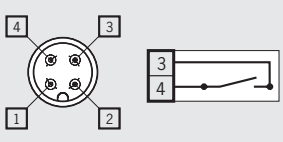




With PU wiper ring

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 Mating connector inserted and screwed tight	IP 67 Mating connector inserted and screwed tight
-25...+80	-25...+80	-25...+80
8	Approx. 16	8
30 x 10^6 operating cycles	5 x 10^6 operating cycles	5 x 10^6 operating cycles
± 0.01	± 0.01	± 0.01
Approx. 16	Approx. 16	Approx. 16
Reed contact	Reed contact	Reed contact
1 NO contact	1 NO contact or 1 NC contact	1 NO contact
Rhodium	Rhodium	Rhodium
50	50	50
AC-12 U_e 30 V I_e 0.3 A DC-13 U_e 24 V I_e 0.3 A	AC-12 U_e 30 V I_e 0.3 A DC-13 U_e 24 V I_e 0.3 A	AC-12 U_e 30 V I_e 0.3 A DC-13 U_e 24 V I_e 0.3 A
1	1	1
1	1	1
0.4	0.4	0.4
Hydrofirm cable 2x0.5 mm², encapsulated	Plug connector M12 [3]	Plug connector M12 [3]

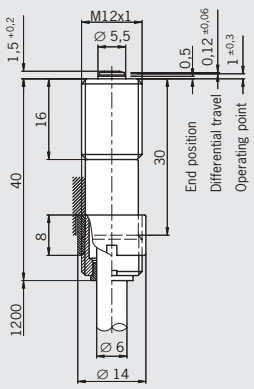
094 982 EGT1/4A2000C2079	–	–
–	–	–
–	**095 278** EGT1/4ASEM4C2088	**098 071** EGT1/4ASEM4C2137
–	–	–
–	–	–
–	–	–

Single hole fixing limit switches

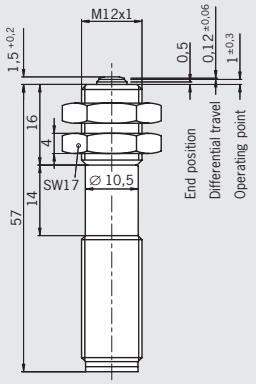
- **With snap-action switching element**
- **Plunger material stainless steel**
- **Any installation position**

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

Dimension drawings

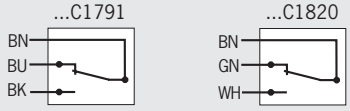


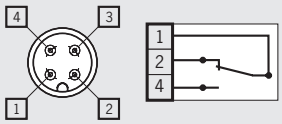
Design EGM12, M12 x 1, flat plunger
Plug connector M12



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

Wiring diagrams





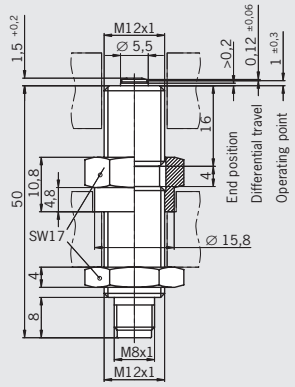
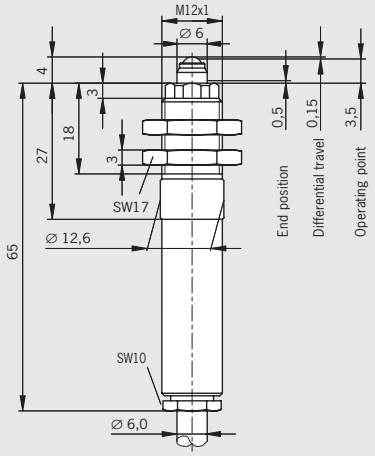
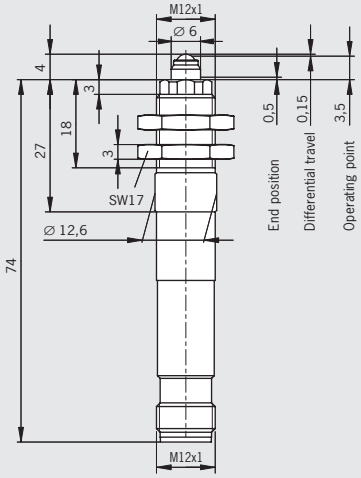
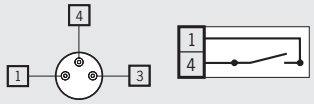
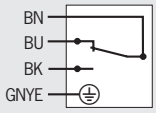
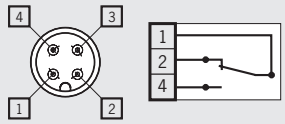
Technical data

Housing material		Stainless steel		Stainless steel	
Degree of protection according to IEC 60529		IP 65		IP 65 Mating connector inserted and screwed tight	
Ambient temperature	[°C]	-20 [1]...+80	-30...+80	-20 [1]...+80	-30...+85
Approach speed max. [m/min]		8		8	
Mechanical life (axial)		1 x 10^6 operating cycles		1 x 10^6 operating cycles	
Operating point accuracy [2]	[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_i	[V]	250 ⧈		50	
Rated impulse withstand voltage U_{imp}	[kV]	2.5		1.5	
Utilization category according to IEC 60947-5-1		AC-15 U_e 230 V I_e 0.5 A DC-13 U_e 24 V I_e 0.6 A		AC-15 U_e 50 V I_e 0.5 A DC-13 U_e 24 V I_e 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 mm²	Silicone cable 3x0.5 mm²	Plug connector M12 [3]	

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

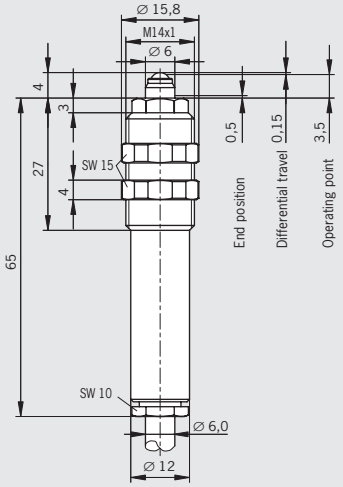
Design EGM12, M12 x 1, flat plunger Plug connector M8	**Design EGT1, M12 x 1, ball plunger** Connection cable with PE connection	**Design EGT1, M12 x 1, ball plunger** Plug connector M12
Dimension drawings		
		
Wiring diagrams		
		
Stainless steel	Brass, nickel-plated	Brass, nickel-plated
IP 65 Mating connector inserted and screwed tight	IP 67	IP 67 Mating connector inserted and screwed tight
-20...+85	-25 [1]...+80	-25...+80
8	8	8
1 x 10^6 operating cycles	1 x 10^6 operating cycles	1 x 10^6 operating cycles
± 0.01	± 0.01	± 0.01
Approx. 16	Approx. 20	Approx. 20
Snap-action switching element	Snap-action switching element	Snap-action switching element
1 NO contact	1 changeover contact	1 changeover contact
Silver alloy, gold-plated	Silver alloy, gold-plated	Silver alloy, gold-plated
50	250	50
1.5	2.5	2.5
AC-15 U_e 24 V I_e 0.5 A DC-13 U_e 24 V I_e 0.6 A	AC-15 U_e 230 V I_e 0.5 A DC-13 U_e 24 V I_e 0.6 A	AC-15 U_e 50 V I_e 0.5 A DC-13 U_e 24 V I_e 0.6 A
10	10	10
12	12	12
2	2	2
Plug connector M8 [3]	PUR cable 4 x 0.5 mm²	Plug connector M12 [3]
–	–	–
–	**092 695** EGT1M12-2000	–
–	–	–
–	**093 364** EGT1M12-5000	–
077 228 EGM12SAM3C1868	–	**093 365** EGT1M12SEM4

Single hole fixing limit switches

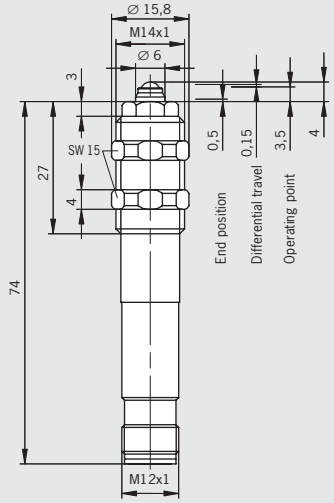
- **With snap-action switching element**
- **Plunger material stainless steel**
- **Any installation position**

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

Dimension drawings

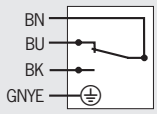


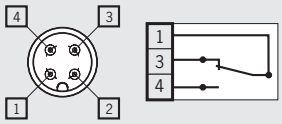
Design EGT1, M14 x 1, ball plunger
Plug connector M12



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

Wiring diagrams





Technical data

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 [1]...+80	-25...+80
Approach speed, max.	[m/min]	8	8
Mechanical life (axial)		1 x 10^6 operating cycles	1 x 10^6 operating cycles
Operating point accuracy [2]	[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_i	[V]	250	50
Rated impulse with stand voltage U_{imp}	[kV]	2.5	2.5
Utilization category according to IEC 60947-5-1		AC-15 U_e 230 V I_e 0.5 A DC-13 U_e 24 V I_e 0.6 A	AC-15 U_e 50 V I_e 0.5 A DC-13 U_e 24 V I_e 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 mm²	Plug connector M12 [3]

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.

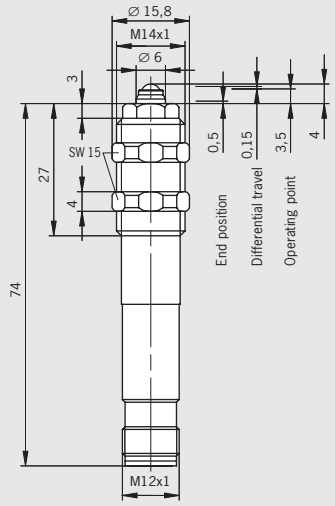
Ordering table

1 changeover contact	Connection cable 2 m	**001 732** EGT1-2000	–
	Connection cable 5 m	**001 733** EGT1-5000	–
	Plug connector	–	**019 727** EGT1SEM4

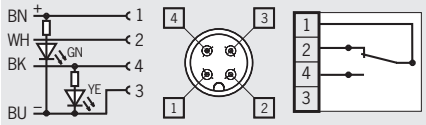
For plug connector with LED display

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

Dimension drawings

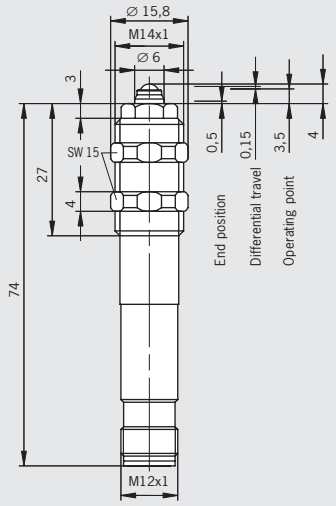


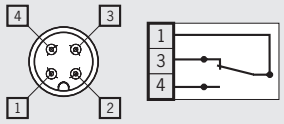
Wiring diagrams



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 Mating connector inserted and screwed tight	IP 67 Mating connector inserted and screwed tight
-25...+80	-5...+80
8	8
1 x 10^6 operating cycles	1 x 10^6 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_e 24 V I_e 0.6 A	AC-15 U_e 50 V I_e 0.5 A DC-13 U_e 24 V I_e 0.6 A
10	10
12	12
2	2
Plug connector M12 [3]	Plug connector M12 [3]

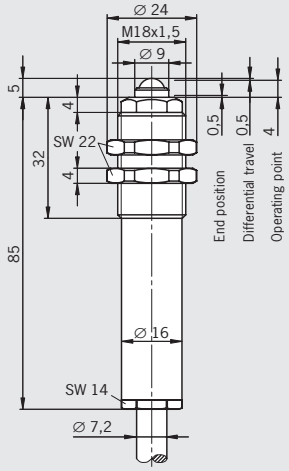
–	–
–	–
054 250 EGT1SEM4C1613	**077 347** EGT1SEM4C1832

Single hole fixing limit switches

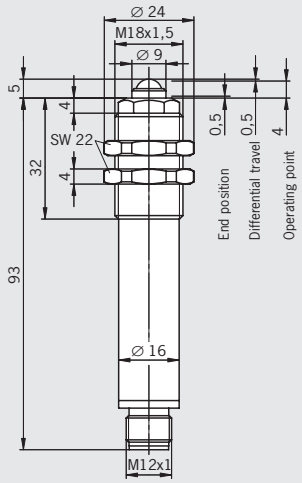
- **With snap-action switching element**
- **Plunger material stainless steel**
- **Any installation position**

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

Dimension drawings

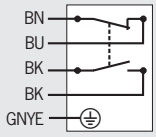


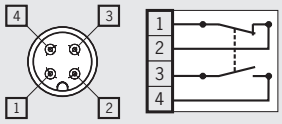
Design EGT2, M18 x 1.5, ball plunger
Plug connector M12



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

Wiring diagrams





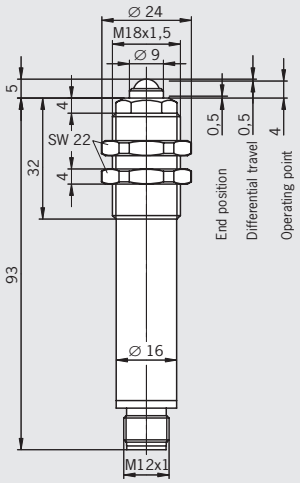
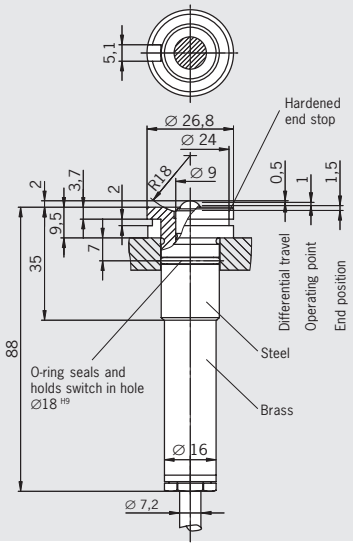
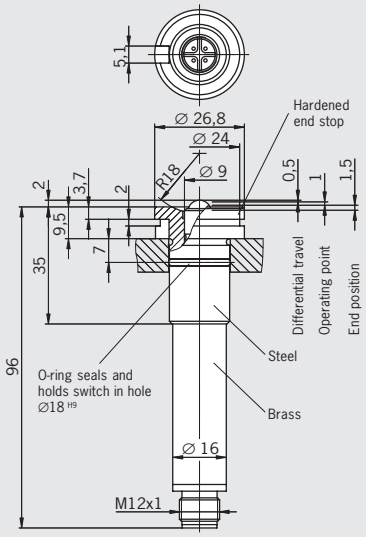
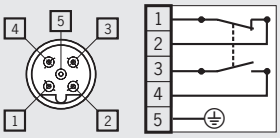
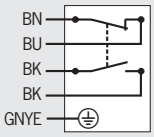
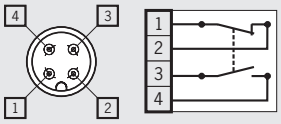
Technical data

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 10^6 operating cycles	3 x 10^6 operating cycles
Operating point accuracy [1]	[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_i	[V]	250	50
Rated impulse withstand voltage U_{imp}	[kV]	2.5	2.5
Utilization category according to IEC 60947-5-1		AC-15 U_e 230 V I_e 2 A DC-13 U_e 24 V I_e 1 A	AC-15 U_e 30 V I_e 2 A DC-13 U_e 24 V I_e 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 mm²	Plug connector M12 [2]

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	**001 864** EGT2-2000	–
	Connection cable 5 m	**001 865** EGT2-5000	–
	Plug connector	–	**052 504** 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, ∅ 18 , ball plunger** Connection cable with PE connection	**Design EGT3, ∅18 , ball plunger** Plug connector M12
Dimension drawings		
		
Wiring diagrams		
		
Brass chromium plated	Steel/brass	Steel/brass
IP 67 Mating connector inserted and screwed tight	IP 67	IP 67
-5...+60	-5...+60	-5...+60
10	Contact force max. 40 kN	Contact force max. 40 kN
3 x 10^6 operating cycles	3 x 10^6 operating cycles	3 x 10^6 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_e 30 V I_e 2 A DC-13 U_e 24 V I_e 1 A	AC-15 U_e 230 V I_e 2 A DC-13 U_e 24 V I_e 1 A	AC-15 U_e 30 V I_e 2 A DC-13 U_e 24 V I_e 1 A
10	10	10
12	12	12
2	2	2
Plug connector M12 [2]	PUR cable 5 x 0.75 mm²	Plug connector M12 [2]

–	**001 896** EGT3-2000	–
–	**001 897** EGT3-5000	–
042 819 EGT2SEM5	–	**070 834** EGT3SEM4

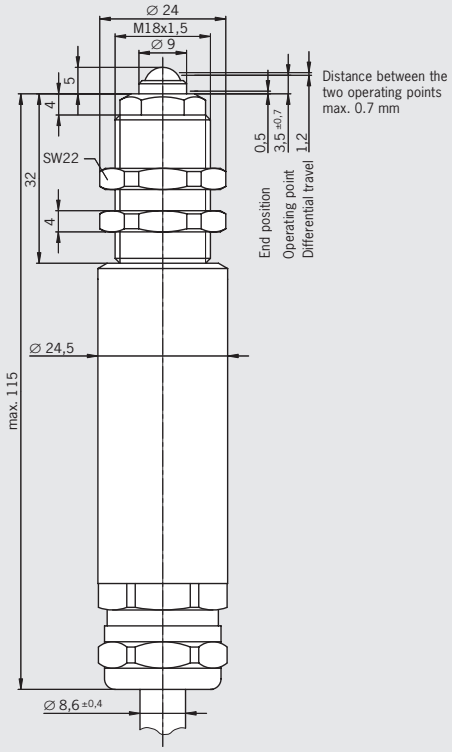
Single hole fixing limit switches

With 4 switching elements

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

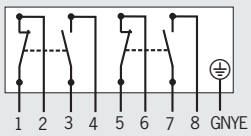
Design EGT4, M18 x 1.5, ball plunger
Connection cable, PE connection

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 [1]...+70
Approach speed, max.	[m/min]	10
Mechanical life		5 x 10^5 operating cycles
Operating point accuracy [2]	[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_i	[V]	250
Rated impulse withstand voltage U_{imp}	[kV]	2.5
Utilization category according to IEC 60947-5-1		AC-15 U_e 230 V I_e 2 A DC-13 U_e 24 V I_e 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 mm²

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	**094 339** EGT4-2000
	Connection cable 5 m	**092026** EGT4-5000
	Connection cable 10 m	**093 967** EGT4-10000

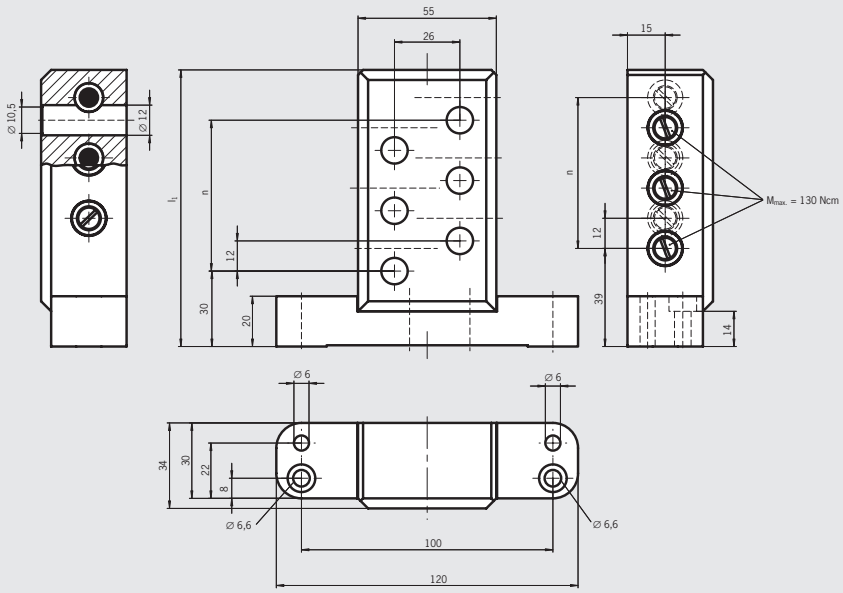
Multiple clamping strip

- **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

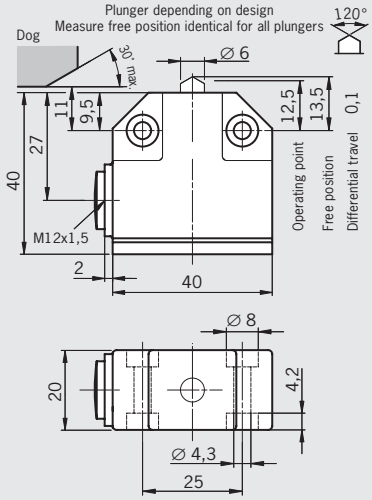
For temperatures up to 180 °C

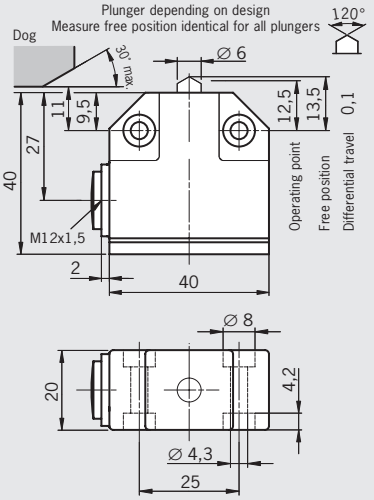
► **Plunger material stainless steel**

Design N01
Cable entry M12 x 1.5

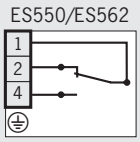
Design N01
Cable entry M12 x 1.5

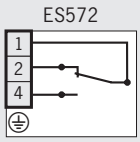
Dimension drawings





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 [1]	[mm]	± 0.02	± 0.05	± 0.03	± 0.02	± 0.05	± 0.03
Max. approach speed [2]	[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		**ES550**	**ES562**		**ES572**		
Switching element		1 changeover contact			1 changeover contact		
Switching principle		Snap-action switching element			Snap-action switching element		
Mechanical life		1 x 10^7 operating cycles			1 x 10^7 operating cycles		
Rated impulse withstand voltage U_{imp}	[kV]	2.5			2.5		
Rated insulation voltage U_i	[V]	250			250		
Utilization category according to IEC 60947-5-1		AC-15 U_e 230V I_e 2A DC-13 U_e 24V I_e 2A	DC-13 U_e 30V I_e 100mA		AC-15 U_e 230V I_e 4A DC-13 U_e 24V I_e 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 mm² max.			Soldered connection, 1.0 mm² max.		

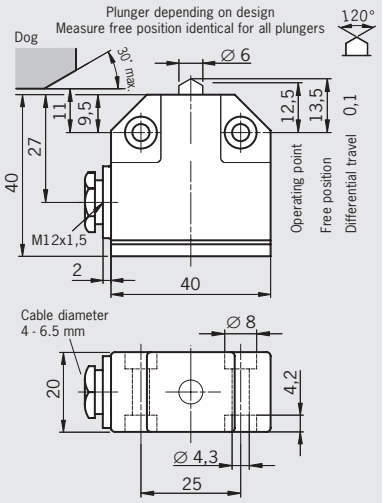
1) The reproducible operating point accuracy relates to axial actuation, after run-in of approx. 2000 operating cycles.
2) The approach speed applies for a trip dog approach angle of 30°, 100 mm long, hardened and ground.
3) All the plunger travel data relate to axial actuation. On the use of EUCHNER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

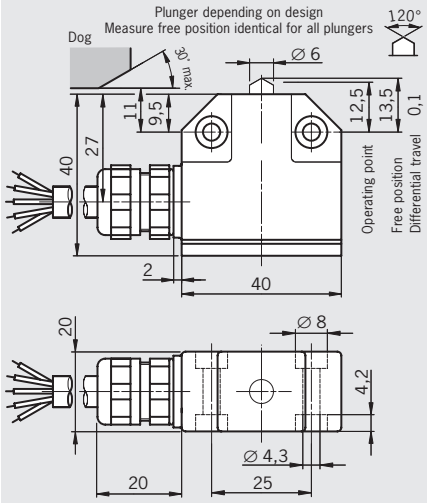
Ordering table

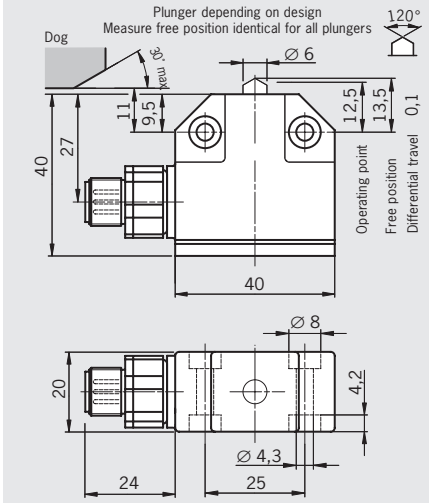
Plunger type		**ES550**	**ES562**	**ES572**
Chisel plunger		**084 902** N01D550-M	**087 151** N01D562-M	**087 162** N01D572-M
Roller plunger	R = 2.5 mm	**084 903** N01R550-M	**085 243** N01R562-M	**087 163** N01R572-M
Ball plunger		**084 904** N01K550-M	**087 152** N01K562-M	**087 164** N01K572-M

Design N01 Cable gland M12 x 1.5	**Design N01** Connection cable, length 5 m	**Design N01** M12 plug adjustable, 4-pin + PE

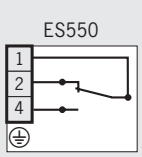
Dimension drawings

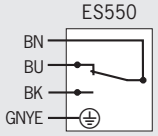


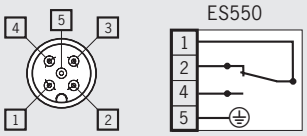




Wiring diagrams







Die-cast aluminum, anodized			Die-cast aluminum, anodized	Die-cast aluminum, anodized		
IP 67			IP 67	IP 67 Mating connector inserted and screwed tight		
-5...+80			-5...+80	-5...+80		
Chisel	Roller	Ball	Chisel	Chisel	Roller	Ball
± 0.02	± 0.05	± 0.03	± 0.02	± 0.02	± 0.05	± 0.03
20	50	8	20	20	50	8
0.01			0.01	0.01		
15			15	15		
ES550			**ES550**	**ES550**	**ES562**	
1 changeover contact			1 changeover contact	1 changeover contact		
Snap-action switching element			Snap-action switching element	Snap-action switching element		
1 x 10^7 operating cycles			1 x 10^7 operating cycles	1 x 10^7 operating cycles		
2.5			2.5	2.5		
250			250	50	50	
AC-15 U_e 230V I_e 2A			AC-15 U_e 230V I_e 2A	AC-15 U_e 30V I_e 2A	DC-13 U_e 30V I_e 100mA	
DC-13 U_e 24V I_e 2A			DC-13 U_e 24V I_e 2A	DC-13 U_e 24V I_e 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 mm² max.			PUR cable 4 x 0.5 mm²	Plug connector M12 [4]		

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

Precision single limit switches

For plug connector with LED display

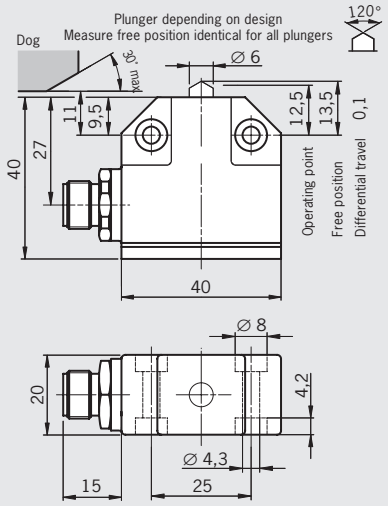
For operating voltage 230 V

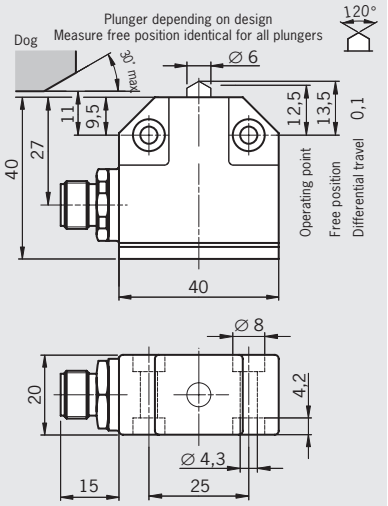
► **Plunger material stainless steel**

Design N01
M12 plug, 4-pin

Design N01
M12 plug, 4-pin + PE

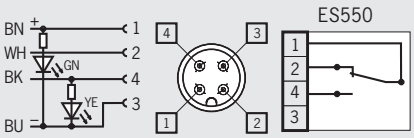
Dimension drawings

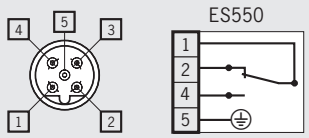




⚠ To achieve the positively driven travel, the dimension (11-0,5) must be maintained by the trip dog. Actuation elements such as dog approach guides must be firmly mounted in accordance with EN 1088, i.e. riveted, welded or otherwise secured against becoming loose.

Wiring diagrams





Technical data

Housing material		Die-cast aluminum, anodized			Die-cast aluminum, anodized		
Degree of protection according to IEC 60529		IP 67 Mating connector inserted and screwed tight			IP 67 Mating connector inserted and screwed tight		
Ambient temperature	[°C]	-5...+80			-5...+80		
Plunger type		Chisel	Roller	Ball	Chisel	Roller	Ball
Operating point accuracy [1]	[mm]	± 0.02	± 0.05	± 0.03	± 0.02	± 0.05	± 0.03
Max. approach speed [2]	[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		**ES550**			**ES550**		
Switching element		1 changeover contact			1 changeover contact		
Switching principle		Snap-action switching element			Snap-action switching element		
Mechanical life		1 x 10^7 operating cycles			1 x 10^7 operating cycles		
Rated impulse withstand voltage U_{imp}	[kV]	2.5			2.5		
Rated insulation voltage U_i	[V]	50			250		
Utilization category according to IEC 60947-5-1		DC-13 U_e 24V I_e 2A			AC-15 U_e 230V I_e 2A DC-13 U_e 24V I_e 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 [4]			Plug connector M12, B-coded [4]		

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.

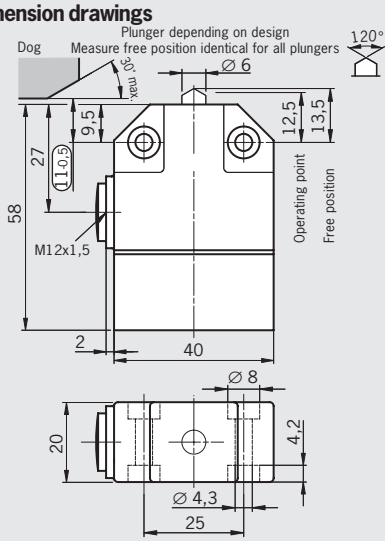
Ordering table

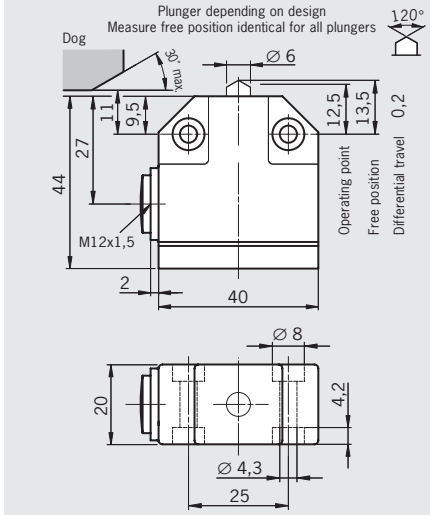
Plunger type			ES550	ES550
Chisel plunger			**091 003** N01D550-MC1526	–
Roller plunger		R = 2.5 mm	**091 001** N01R550-MC1526	**091 257** N01R550SEM5-M
Ball plunger			**091 002** N01K550-MC1526	–

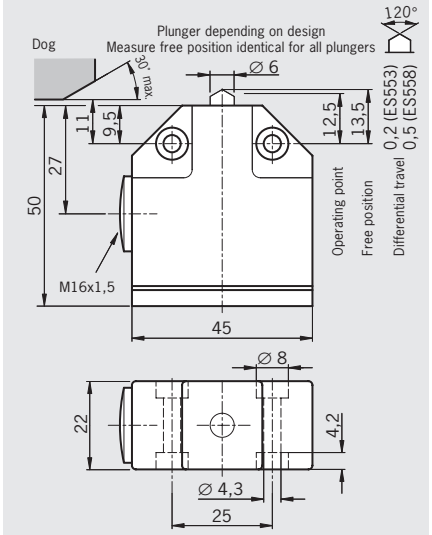
With safety switching element

Design NB01 Cable entry M12 x 1.5	**Design NB01** Cable entry M12 x 1.5	**Design SN01** Cable entry M16 x 1.5

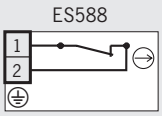
Dimension drawings

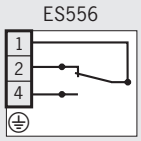


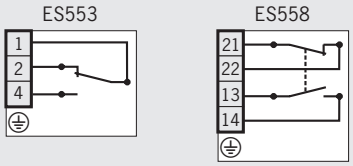




Wiring diagrams







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		
ES588		**ES556**			**ES553**	**ES558**	
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 10^7 operating cycles		1 x 10^7 operating cycles			1 x 10^7 operating cycles		
2.5		2.5			2.5		
250		250			250		
AC-15 U_e 230V I_e 4A		AC-15 U_e 230V I_e 2A			AC-15 U_e 230V I_e 2A	AC-15 U_e 230V I_e 4A	
DC-13 U_e 24V I_e 3A		DC-13 U_e 24V I_e 2A			DC-13 U_e 24V I_e 2A	DC-13 U_e 24V I_e 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 mm² max.		Screw terminal, 1.0 mm² max.			Screw terminal, 1.0 mm², max.	soldered connection, 1.0 mm², max.	

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

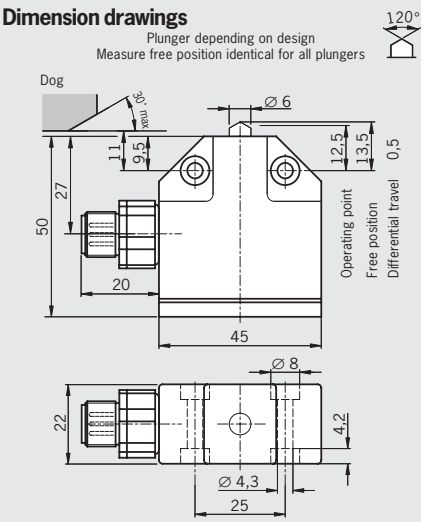
Precision single limit switches

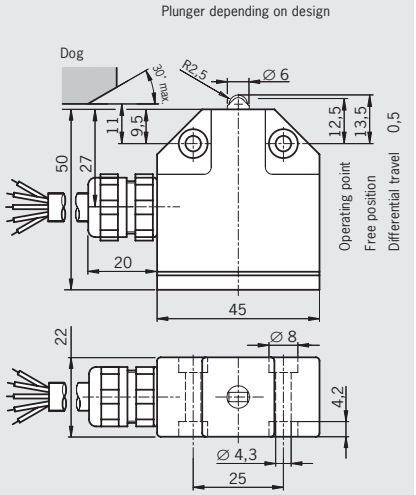
▶ **Plunger material stainless steel**

Design SN01
M12 plug, 4-pin + PE

Design SN01
Connection cable, length 2 m

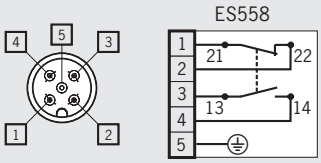
Dimension drawings

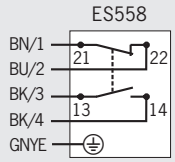




⚠ To achieve the positively driven travel, the dimension (12-0,5) must be maintained by the trip dog. Actuation elements such as dog approach guides must be firmly mounted in accordance with EN 1088, i.e. riveted, welded or otherwise secured against becoming loose.

Wiring diagrams





Technical data

Housing material		Die-cast aluminum, anodized			Die-cast aluminum, anodized
Degree of protection according to IEC 60529		IP 67 Mating connector inserted and screwed tight			IP 67
Ambient temperature	[°C]	-5...+80			-5...+80
Plunger type		Chisel	Roller	Ball	Roller
Operating point accuracy [1]	[mm]	± 0.02	± 0.05	± 0.03	± 0.05
Max. approach speed [2]	[m/min]	20	50	8	50
Approach speed, min.	[m/min]	0.01			0.01
Actuating force, max.	[N]	15			15
Switching element		**ES558**			**ES558**
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 10^7 operating cycles			1 x 10^7 operating cycles
Rated impulse withstand voltage U_{imp}	[kV]	2.5			2.5
Rated insulation voltage U_i	[V]	30			250
Utilization category according to IEC 60947-5-1		AC-15 U_e 36V I_e 4A DC-13 U_e 24V I_e 3A			AC-15 U_e 230V I_e 4A DC-13 U_e 24V I_e 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 [6]			PUR cable 5 x 0.5 mm²

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		**088 625** SN01D558SVM5-M	–
Roller plunger	SN01: R = 2.5 mm N1A: R = 4.0 mm	**088 626** SN01R558SVM5-M	**090 515** SN01R558X2000-M
Ball plunger		**088 627** SN01K558SVM5-M	–
Dome plunger		–	–

With safety switching element

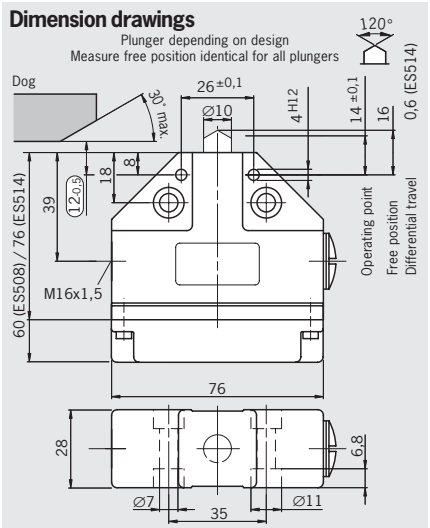
With safety switching element

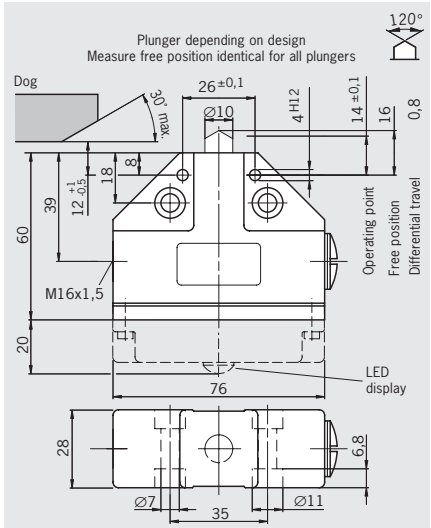
Design N1A
Cable entry M16 x 1.5

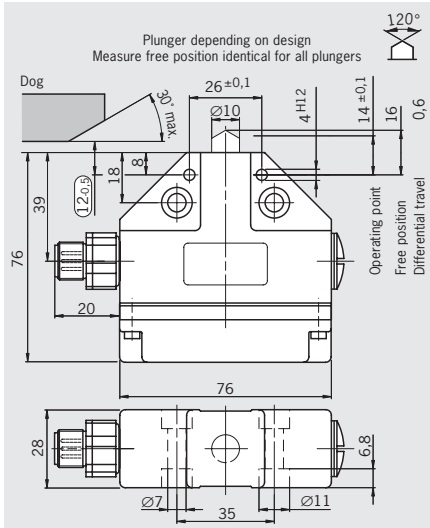
Design N1A
Cable entry M16 x 1.5

Design N1A
M12 plug, 4-pin + PE

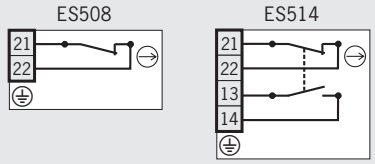
Dimension drawings

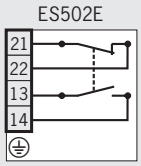


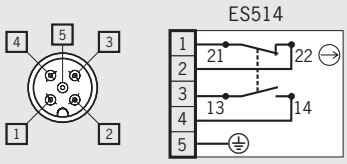




Wiring diagrams







Die-cast aluminum, anodized			Die-cast aluminum, anodized			Die-cast aluminum, anodized		
IP 67			IP 67			IP 67 Mating connector inserted and screwed tight		
-25...+80			-5...+80			-25...+80		
Chisel	Roller	Dome	Chisel	Roller [4]	Ball	Chisel	Roller	Dome
± 0.002	± 0.01	± 0.002	± 0.002	± 0.01	± 0.01	± 0.002	± 0.01	± 0.002
40	80	10	40	80	10	40	80	10
0.01			0.01			0.01		
≥ 15	≥ 30		≥ 20			≥ 30		
ES508 [5]	**ES514**		**ES502E** [5]			**ES514**		
1 NC contact	1 NO + 1 NC		1 NO contact + 1 NC contact			1 NO contact + 1 NC contact		
Slow-action switching	Snap-action switching		Snap-action switching element			Snap-action switching element		
30 x 10^6 operating cycles	1 x 10^6 operating cycles		30 x 10^6 operating cycles			1 x 10^6 operating cycles		
2.5			2.5			2.5		
250			250			30		
AC-15 U_e 230V I_e 6A DC-13 U_e 24V I_e 6A	AC-15 U_e 230V I_e 2.5A DC-13 U_e 24V I_e 6A		AC-12 U_e 230V I_e 10A / AC-15 U_e 230V I_e 6A DC-13 U_e 24V I_e 6A			AC-15 U_e 36V I_e 2.5A DC-13 U_e 24V I_e 4A		
Silver, gold-plated			Silver, gold-plated			Silver, gold-plated		
10	5		10			5		
24	24		24			24		
10			10			4		
Screw terminal 0.34 ... 1.5 mm²			Screw terminal 0.34 ... 1.5 mm²			Plug connector M12 [6]		

4) Version with bearing for high speeds and long travel distances on request.
5) Version with LED function display AC/DC 10-60V or AC 110/230 V on request.
6) For mating connector see page 30 and 31.

ES508	ES514	ES502E	ES514
083 886 N1AD508-M	**083 849** N1AD514-M	**079 265** N1AD502-M	**087 603** N1AD514SVM5-M
083 887 N1AR508-M	**078 487** N1AR514-M	**078 485** N1AR502-M	**087 604** N1AR514SVM5-M
–	–	**083 847** N1AK502-M	–
087 205 N1AW508-M	**083 850** N1AW514-M	–	**090743** N1AW514SVM5-M

Precision single limit switches

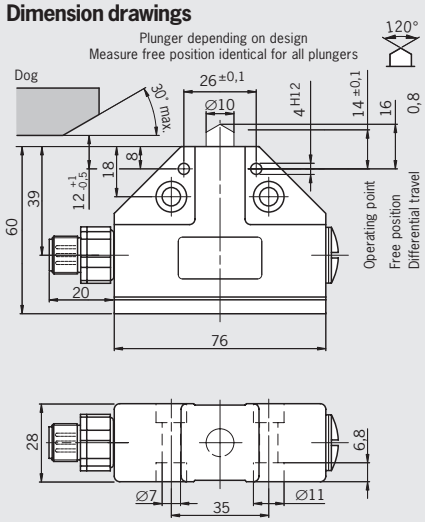
For plug connectors with LED display

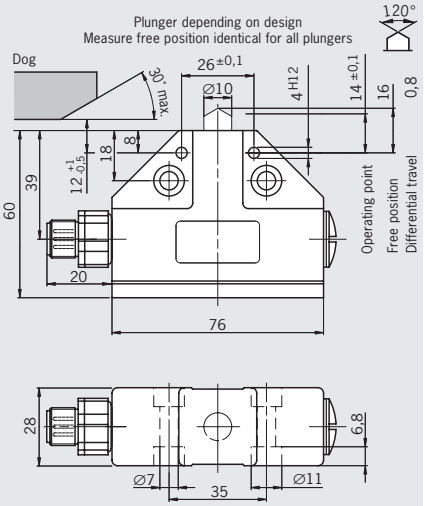
- **Plunger material stainless steel**

Design N1A
M12 plug, 4-pin + PE

Design N1A
M12 plug, 4-pin + PE

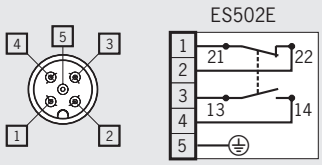
Dimension drawings

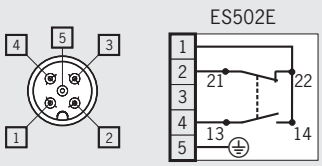




⚠ To achieve the positively driven travel, the dimension (31-0,5) must be maintained by the trip dog. Actuation elements such as dog approach guides must be firmly mounted in accordance with EN 1088, i.e. riveted, welded or otherwise secured against becoming loose.

Wiring diagrams





Technical data

Housing material		Die-cast aluminum, anodized			Die-cast aluminum, anodized		
Degree of protection according to IEC 60529		IP 67 Mating connector inserted and screwed tight			IP 67 Mating connector inserted and screwed tight		
Ambient temperature	[°C]	-5...+80			-5...+80		
Plunger type		Chisel	Roller	Ball	Chisel	Roller	Ball
Operating point accuracy [1]	[mm]	± 0.002	± 0.01	± 0.01	± 0.002	± 0.01	± 0.01
Max. approach speed [2]	[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		**ES502E**			**ES502E**		
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 10^6 operating cycles			30 x 10^6 operating cycles		
Rated impulse withstand voltage U_{imp}	[kV]	2.5			2.5		
Rated insulation voltage U_i	[V]	50			50		
Utilization category according to IEC 60947-5-1		AC-15 Ue 30V Ie 4A DC-13 Ue 24V Ie 4A			AC-15 Ue 30V Ie 4A DC-13 Ue 24V Ie 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 [5]			Plug connector M12 [5]		

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		**087 487** N1AD502SVM5-M	**091 471** N1AD502SVM5-MC1883
Roller plunger	N1A: R = 4.0 mm N1A...AM: R = 2.5 mm	**087 488** N1AR502SVM5-M	on request N1AR502SVM5-MC1883
Ball plunger		**087 489** N1AK502SVM5-M	**087 496** N1AK502SVM5-MC1883
Extended roller plunger		–	–

With safety switching element

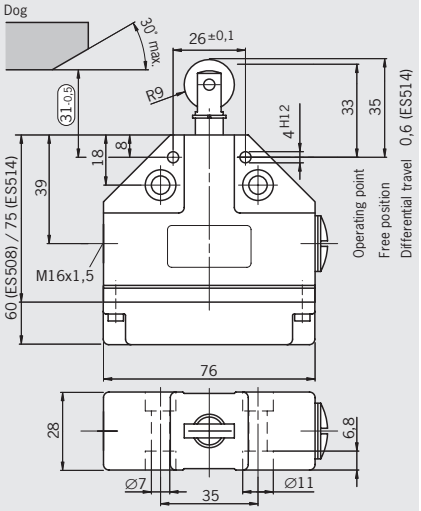
With exterior diaphragm

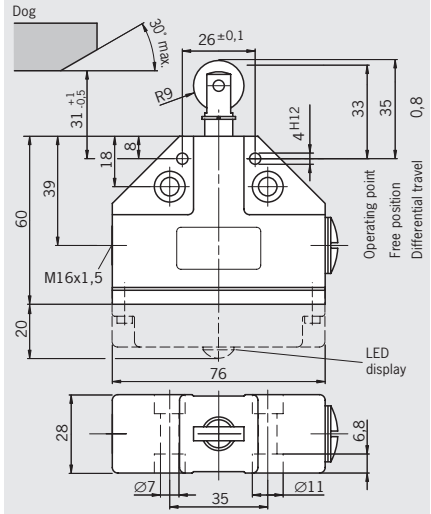
Design N1A, extended roller plunger
Cable entry M16 x 1.5

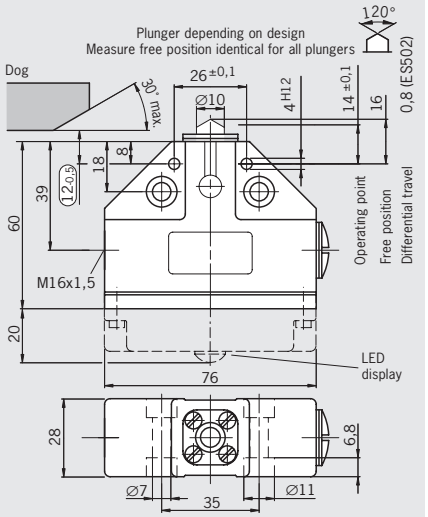
Design N1A, extended roller plunger
Cable entry M16 x 1.5

Design N1A
Cable entry M16 x 1.5

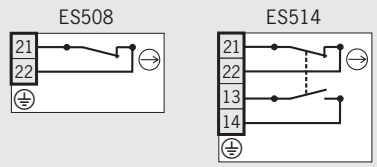
Dimension drawings

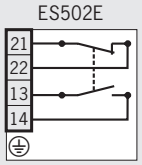


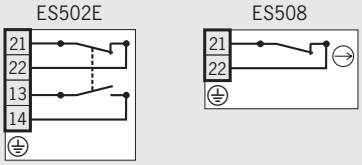




Wiring diagrams







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
ES508	**ES514**	**ES502E** [4]	**ES502E**		**ES508**
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 10^6 operating cycles	1 x 10^6 operating cycles	30 x 10^6 operating cycles	30 x 10^6 operating cycles		
2.5		2.5	2.5		
250		250	250		
AC-15 U_e 230V I_e 6A DC-13 U_e 24V I_e 6A	AC-15 U_e 230V I_e 2.5A DC-13 U_e 24V I_e 6A	AC-12 U_e 230V I_e 10A AC-15 U_e 230V I_e 6A DC-13 U_e 24V I_e 6A	AC-12 U_e 230V I_e 10A AC-15 U_e 230V I_e 6A DC-13 U_e 24V I_e 6A		AC-15 U_e 230V I_e 6A DC-13 U_e 24V I_e 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 mm²		Screw terminal 0.34 ... 1.5 mm²	Screw terminal 0.34 ... 1.5 mm²		

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.

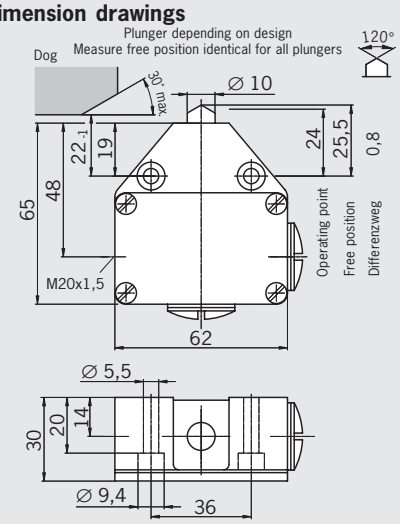
ES508	ES514	ES502E	ES502E	ES508
–	–	–	**090 542** N1AD502AM-M	**090 546** N1AD508AM-M
–	–	–	**090 541** N1AR502AM-M	**090 547** N1AR508AM-M
–	–	–	**091 059** N1AK502AM-M	–
087 147 N1ARL508-M	**087 204** N1ARL514-M	**083 848** N1ARL502-M	–	–

Precision single limit switches

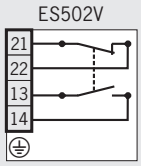
► **Plunger material stainless steel**

Design N10
Cable entry M20 x 1.5

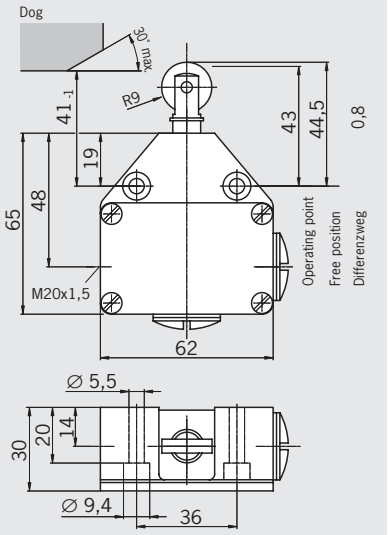
Dimension drawings

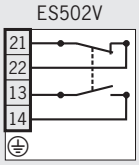


Wiring diagrams



Design N10, extended roller plunger
Cable entry M20 x 1.5





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 [1]	[mm]	± 0.002	± 0.01	± 0.01	± 0.1
Max. approach speed [2]	[m/min]	40	80	10	20
Approach speed, min.	[m/min]	0.01			0.01
Actuating force, max.	[N]	≥ 20			≥ 20
Switching element		**ES502V**			**ES502V**
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 10^6 operating cycles			30 x 10^6 operating cycles
Rated impulse withstand voltage U_{imp}	[kV]	2.5			2.5
Rated insulation voltage U_i	[V]	250			250
Utilization category according to IEC 60947-5-1		AC-12 U_e 230V I_e 16A/AC-15 U_e 230V I_e 10A DC-13 U_e 24V I_e 6A			AC-12 U_e 230V I_e 16A/AC-15 U_e 230V I_e 10A DC-13 U_e 24V I_e 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 mm² max.			Screw terminal, 1.5 mm² 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.

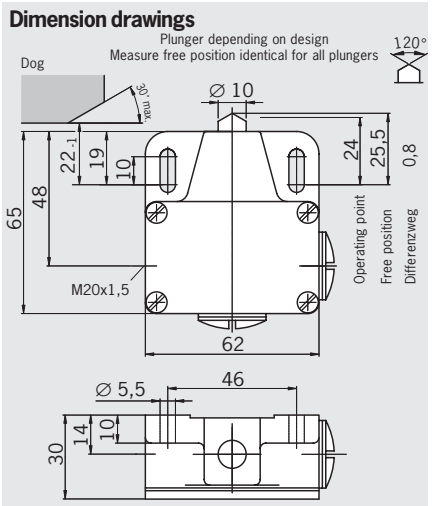
Ordering table

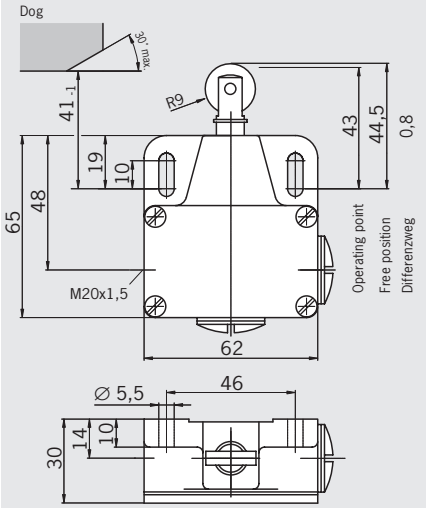
Plunger type	ES502V	ES502V
Chisel plunger	**086 293** N10D-M	–
Roller plunger	**086 294** N10R-M	–
Ball plunger	**088 589** N10K-M	–
Extended roller plunger	–	**088 587** N10RL-M

Design N11
Cable entry M20 x 1.5

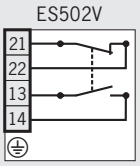
Design N11, extended roller plunger
Cable entry M20 x 1.5

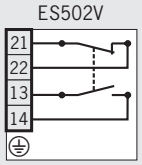
Dimension drawings





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
ES502V			**ES502V**
1 NO contact + 1 NC contact			1 NO contact + 1 NC contact
Snap-action switching element			Snap-action switching element
30 x 10^6 operating cycles			30 x 10^6 operating cycles
2.5			2.5
250			250
AC-12 U_e 230V I_e 16A/AC-15 U_e 230V I_e 10A DC-13 U_e 24V I_e 6A			AC-12 U_e 230V I_e 16A/AC-15 U_e 230V I_e 10A DC-13 U_e 24V I_e 6A
Silver, gold-plated			Silver, gold-plated
20			20
24			24
16			16
Screw terminal, 1.5 mm² max.			Screw terminal, 1.5 mm² max.

ES502V	ES502V
086 298 N11D-M	–
086 313 N11R-M	–
088 585 N11K-M	–
–	**086 299** N11RL-M

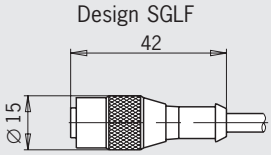
Round plug connectors

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

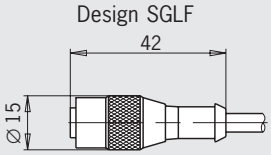
Straight plug connector M12
4-pin / 4-pin + PE

Straight plug connector M12, coded
4-pin + PE

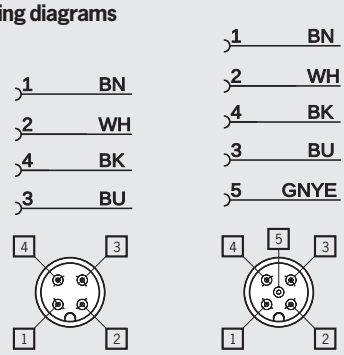
Dimension drawings



Dimension drawings



Wiring diagrams



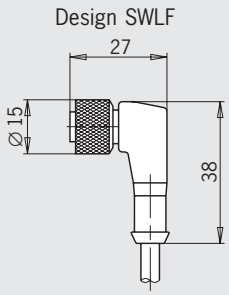
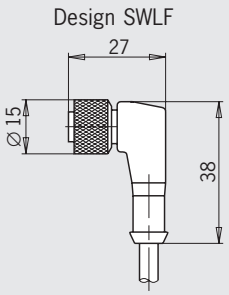
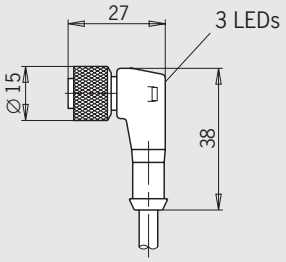
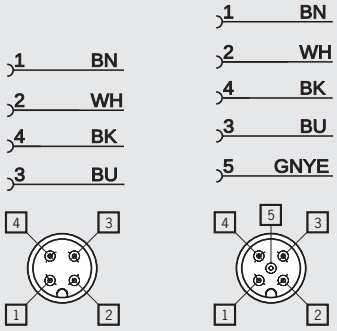
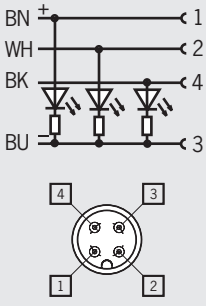
Wiring diagrams

Technical data

Number of pins		4	4+PE	4+PE
Housing material Grip Contact carrier		TPU self-extinguishing TPU self-extinguishing		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 30/DC 36	AC 250/DC 300
Rated current	[A]	4		4

Ordering table

Plug connector M12, without LED, Connection cable 5 m PUR	**035 613** SGLF4-5000P	**073 461** SGLF5-5000P	**045 524** SGLF5PE-5000
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
PVC, halogen-free, flame retardant		PVC, halogen-free, flame retardant	PVC, halogen-free, flame retardant
Orange		Orange	Orange
IP 67		IP 67	IP 67
-25 ... +80		-25 ... +90	-25 ... +80
CuSn nickel-plated, 0.3 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	4 x 0.34
6		5	5
≤ 5		≤ 5	≤ 5
2	1.5	2	–
AC 250/DC 300	AC 30/DC 36	AC 250/DC 300	DC 10 ... 30
4		4	4

035 618 SWLF4-5000P	**073 462** SWLF5-5000P	**045 523** SWLF5PE-5000	–
–	–	–	**041 091** SWLF4P-5000P

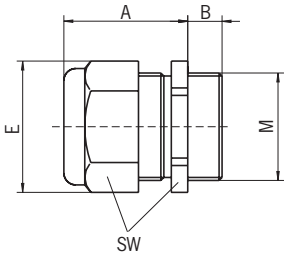
LED function display

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	**035 495**
	Green	LE 060 gr	**035 496**
	Yellow	LE 060 ge	**035 497**

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	**086 327**
EKVM16/04	M16 x 1.5	4 - 6.5	20	6	20	18	**086 328**
EKVM16/06	M16 x 1.5	6.5 - 9.5	20	6	20	18	**086 330**
EKVM20/06	M20 x 1.5	6.5 - 9.5	20	6	24.4	22	**077 683**

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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