

# TEKNIC EUCHNER

Inductive Proximity Switches



TEKNIC EUCHNER is a joint venture between EUCHNER Germany and TEKNIC India. EUCHNER was founded in 1940 and TEKNIC in 1970. EUCHNER has been a pioneer in the field of multiple position switches. As early as 1952, the world's first multiple limit switch was produced by EUCHNER.

TEKNIC was started in 1970 and has pioneered the development of high quality electromechanical products ever since 1980. The joint venture TEKNIC EUCHNER was approved by the Government of India in 1989. The joint venture TEKNIC EUCHNER ELECTRONICS PVT LTD, established in Bangalore, with technology transfer from EUCHNER Germany, has started manufacturing a product range to start with inductive proximity switches, single and multiple limit switches with the intention to produce the full range of EUCHNER products. The buzzword is reliability, precision and quality backed by continual testing and maintenance of high quality with the aid of computer controlled inspection systems. The manufacturing facilities of TEKNIC EUCHNER are backed by a competent marketing set up and committed selling partners.



Manufacturing Works - Bangalore

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**Built for extreme conditions**

The TEKNIC EUCHNER Inductive Proximity Switches are solid state switching devices which require no physical contact to actuate them.

Used for control and positioning signals, they can be connected directly into conventional or electronic control systems. The need for such switching devices has increased in recent times as manufacturing plants, as well as machines in general have become more automated. The combination of high quality materials and advanced technology in the construction of these switches ensures a very high degree of precision and reliability under the most arduous conditions.

The main advantages for inductive proximity switches are :

exceptionally **long life** and **high switching speeds** (up to 5 million per hour) ;

**no-touch, zero, operation force** (no actuator or plunger required) ;

**wear and maintenance free operation** (solid state, no moving parts) ;

**bounce free signals** (no spurious signals through contact bounce) ;

**reliable switching under extreme conditions.**

**Fully waterproof** (insensitive to strong vibrations, dirty environments, rapid temperature changes).

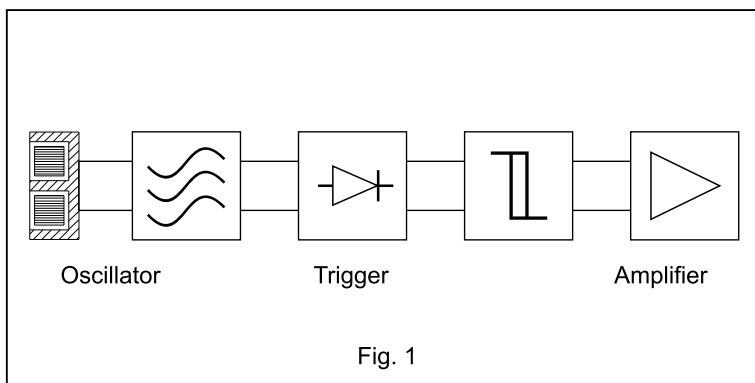
The following details in this catalogue include all dimensional and technical data describing in detail all the most interesting features of the TEKNIC EUCHNER range of inductive proximity switches. Please note for special applications TEKNIC EUCHNER are willing to develop switches to customer specifications subject to economical batch quantities.

**The Switch Concept.  
Design, Function and Definitions.**

**Design and Function. :** The electronic Inductive Proximity switch comprises of three principle Parts :

- 1) The oscillator. 2) A trigger stage and 3) amplifier stage (see figure 1)

The Oscillator generates, with its coil, a high frequency electromagnetic field of approximately spherical distribution. Any metallic object introduced into this field absorbs energy from the oscillator by induced eddy currents. This reduces the amplitude of the oscillations and this change triggers the out put stage. **This type of oscillator will respond to any type of metal.**



**Definitions :**

**Sensing Face. :** The sensing face of an inductive proximity switch is the surface from which the electromagnetic field radiates. The sensing faces of the TEKNIC EUCHNER inductive proximity switches are clearly marked with a system of colours or rings.

**Sensing Distances.**

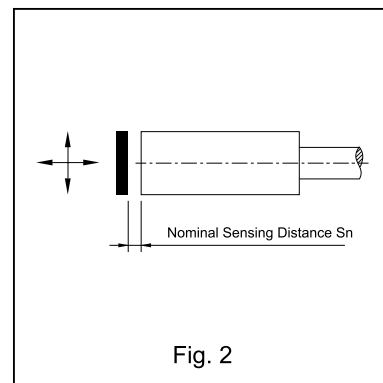
The **sensing distance** is the maximum distance between the target and the sensing face to be sure of obtaining a switching signal. This distance is measured using a square mild steel (St 37) target 1 mm in thickness. The sides of the square target should be equal to the diameter of the sensing face of the inductive proximity switch (EN 50 010).

The **Nominal sensing distance  $S_n$**  is a reference dimension only and does not take into account temperature or voltage variations.

The **Effective sensing distance  $S_r$**  is the distance measured at nominal voltage and ambient temperature. ( $0.9 S_n \leq S_r \leq 1.1 S_n$ )

The **Usable sensing distance  $S$**  measured within a given voltage and temperature range. ( $0.9 S_r \leq S \leq 1.1 S_r$ )

The **Working sensing distance** is every sensing distance which guarantees operation under given temperature and voltage conditions. This distance can be selected between 0 and the usable sensing distance.



**Reduction Factor.**

If the target of the inductive proximity switch is manufactured from a material other than mild steel (St 37) or if the target varies in thickness and area from the standard target, then the sensing distance will vary.

Material	Reduction Factor
Steel (St.37)	1.0
Brass	0.35...0.5
Copper	0.25...0.45
Aluminium	0.35...0.5
Stainless Steel	0.60...1.0

**Repeat Accuracy.**

The repeat accuracy is the reproduction accuracy between two successive operations under the same ambient conditions.

**Switch Hysteresis.**

The Switch hysteresis is the difference between the switch ON point, when the target approaches the sensing face of the inductive proximity switch and the switch OFF point, when the target moves away from the sensing face. (see fig.3). The graphs shown in figure 4 indicate the Switch ON and Switch OFF points of various switches when the target approaches the switch in a radial direction in relation with the axial distance of the target from the sensing face.

**Temperature Drift.**

The temperature drift is the change in switch point in m/K due to variations in ambient temperature conditions when all other conditions remain constant.

**Installation.**

The TEKNIC EUCHNER inductive proximity switches are suitable for **flush fitting** or **non-flush fitting**.

**Flush Fitting.** Inductive proximity switches intended for flush fitting are not affected by surrounding metal and can be installed immediately adjacent to metal surfaces. (see figure 5)

**Non-flush fitting.** Inductive proximity switches not intended for flush fitting can be affected by surrounding metal surfaces and must be installed with a metal free zone or non-damping material adjacent to the sensing face. (see figure 6)

**Important Fitting Instructions.**

Inductive proximity switches with threaded housings are clamped in position using two nuts. If these nuts are over tightened it is possible to damage the switch housing.

**For this reason care should be taken that tightening torques mentioned below should not be exceeded.**

Models	Max. Tightening Torque (Nm)
EGT08	12
EGT12	28
EGT18	40
EGT30	40

**The Inductive Proximity Switch in Practice  
Electrical Characteristics.**

**Voltages.**

The TEKNIC EUCHNER inductive proximity switches are designed for AC or DC operation. Refer to technical data in this catalogue for specific details of voltages ranges for the individual switch types.

**The operating voltage** is the voltage which can be used to operate the inductive proximity switch.

**Note :** Two wire proximity switches must only be used in series with the load.

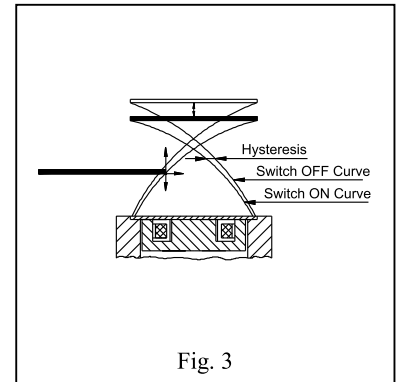


Fig. 3

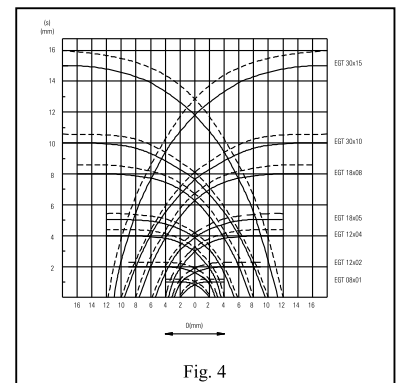


Fig. 4

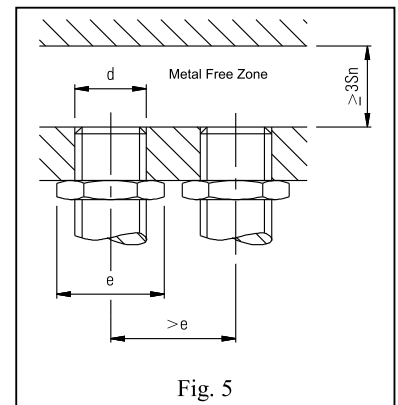


Fig. 5

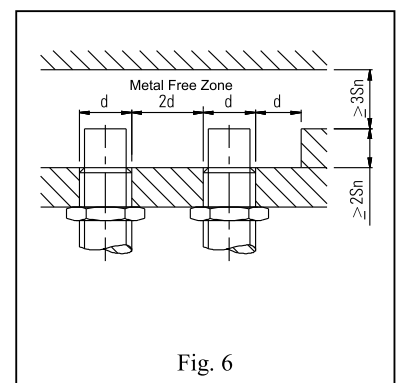


Fig. 6

The **Voltage Drop  $U_d$**  is the voltage measured between the energized output and the switched potential at the rated current  $I_a$  of the switch

## Ripple voltage.

The ripple voltage is the AC voltage  $U_{br}$  (peak to peak) superimposed on the mean DC voltage  $U$  expressed as a percentage. (see figure 7) The provision of smooth DC supply within 10% (to DIN 41755) maximum ripple is absolutely essential for effective operation DC switches. When using a single phase rectified supply the appropriate smoothing capacitor should be used.

$$U_{br}/U.100 \text{ [%]}$$

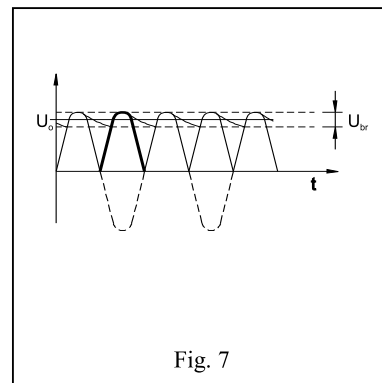


Fig. 7

## Currents.

The **Load Current  $I_a$**  is the maximum current at which the inductive proximity switch can be continuously operated.

The **Inrush Current  $I_k$**  is the maximum current which can flow, from the moment that the switch is on, for a specified time.

The **No-load Current** is the current consumed by the switch at the maximum operating voltage without there being any external load current.

The **Residual Current  $I_r$**  is the current which flows through the load even when the switch is in its blocked state. In practice this is only to be considered for two wire switches.

**Holding Current  $I_H$**  is the least current necessary to ensure correct functioning of an actuated 2 Wire switch.

## Switch frequency.

The Switch frequency is the maximum number of switching functions per second. The method of measurement must conform to EN 50010. Refer to the technical data in this catalogue which indicates the maximum switching frequencies for each individual type of switch.

## The methods of protection.

The TEKNIC EUCHNER inductive proximity switches have an environmental protection to IP67 to DIN 40050. The following methods protection ensure particularly reliable operation for all users of TEKNIC EUCHNER inductive proximity switches.

**The short circuit protection.** Switches with built-in short circuit and overload protection are protected against damage to the output stage. Pulsed short circuit protection is used in which the output transistor is switched OFF and ON in quick succession. This enables the switch to function normally on removal of the short circuit condition.

**Reverse polarity protection.** The inductive proximity switches are protected against damage due to inverted supply line connection.

**The transient voltage protection.** The TEKNIC EUCHNER inductive proximity switches are protection against damage caused by supply line transient voltages. In order to prevent unusually high transient voltages which can destroy the switch or activate the short circuit protection, **the supply line should be separated from cables which carry high currents for motors, clutches and magnets**. If in doubt, please contact our technical personnel.

## Power Supply.

The provision of a smoothed D.C. operating voltage with a maximum ripple of 10% is essential for the effective operation of D.C. proximity switches. The circuit shown in figure 8 is a suggestion for loads up to 1000mA.

Load Current (mA)	C rating in F
200	1000
500	2200
1000	4700

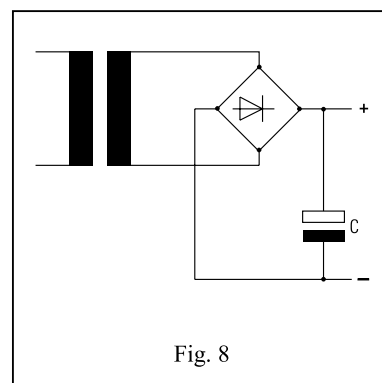


Fig. 8

**Testing Suggestions :** When testing inductive proximity switches, normal filament lamps must never be used without an additional series resistor. This is important because when a filament lamp is cold it has a very low resistance and hence a high inrush current. This can destroy the proximity switch. We recommend for testing a voltmeter or preferably an oscilloscope.

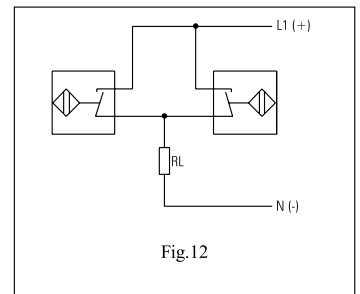
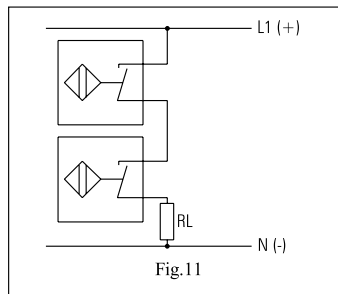
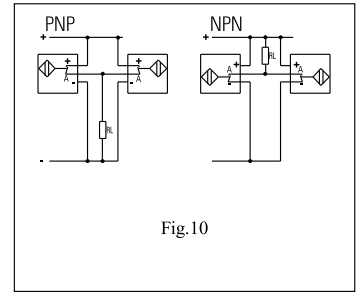
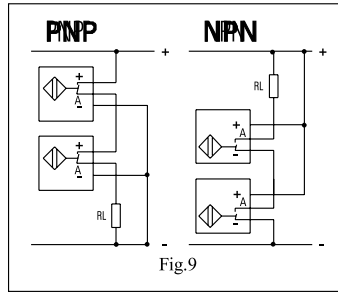
Series and Parallel Connection of Proximity Switches :

**Series Connection of 3 and 4 Wire DC switches (AND Logic) :** Used when it is necessary to obtain two or more corresponding signals before an action is carried out. It is necessary to take into account the voltage drop  $U_d$  present at the output of each switch which will reduce the voltage available at the load correspondingly.(see fig.9)

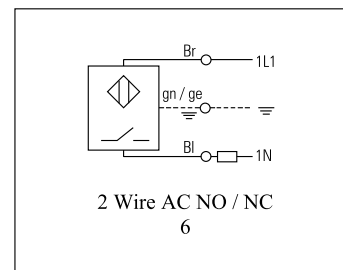
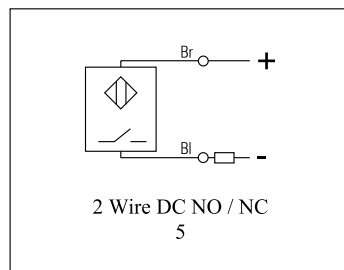
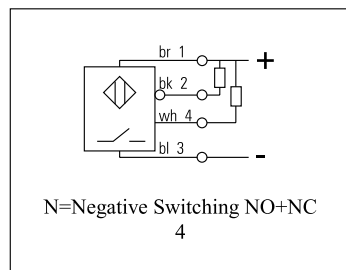
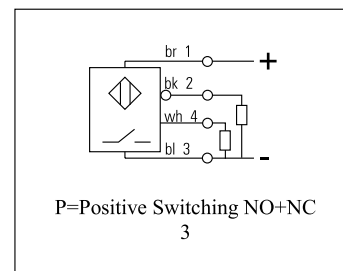
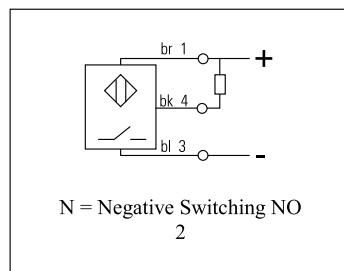
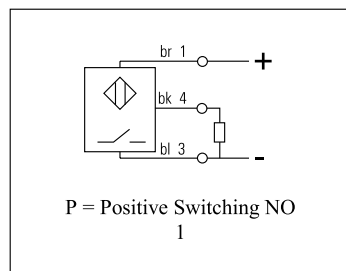
**Parallel Connection of 3 and 4 Wire DC switches (OR Logic) :** Used when any one of the switches are required to activate the load. (see fig.10)

**Series Connection of 2 Wire AC and DC switches (AND Logic) :** see note above for Series connection of 3 and 4 wire switches.(see fig.11)

**Parallel Connection of 2 Wire AC and DC switches (OR Logic) :** It is necessary to take into account the cumulative no-load currents of each of the switches which would flow through the Load in the unactuated condition of the switch. This could under circumstances trigger of the load without actually operating the switch.(see fig.12)



Connection Diagrams .



<b>Cylindrical Housing M8 x 1</b> <b>EGT Version</b> <b>3 Wire D.C.</b> <b>Standard Switching Distance</b>				
	Technical Data	Type : EGT08X01		Type : EGT08X1,5
	DC Operating Voltage		DC Operating Voltage	
Housing Material	Stainless Steel		Stainless Steel	
Environmental Protection	IP67		IP67	
Mounting Position	Optional		Optional	
Operating Temperature (deg.C)	-25 to +70		-25 to +70	
Connection	Encapsulated Oil Resistant Cable		Encapsulated Oil Resistant Cable	
Cable Length (mm)	2000 or 5000		2000 or 5000	
Conductor Cross Section (mm <sup>2</sup> )	0.14		0.14	
Sensing Distance Sn (mm)	Flush Fitting = 1		Flush Fitting = 1.5	
Switch Point Hysteresis H (mm) ≤	0.15		0.2	
Repeat Accuracy (mm) ≤	0.05		0.1	
Operating Voltage (V)	10-30		10-30	
Operating Voltage Ripple (%) ≤	10		10	
Load Current Ia (mA) max	250		250	
Residual Current Ir (mA) ≤	0.001		0.001	
No-Load Current (mA) ≤	11		11	
Voltage Drop Ud (V) ≤	1.3		1.3	
Internal Resistance Ri (KΩ)	10		10	
Temperature Drift S (µm/K) ≤	± 3		± 3	
Switching Frequency (Hz)	2000		2000	
Output Polarity	PNP		NPN	
Output Function	A=NO		A=NO	
Connection Diagram	1		2	
Short Circuit Protection	yes		yes	
Status Indication	LED ( see ordering code)		LED ( see ordering code)	

<b>Cylindrical Housing M8 x 1</b> <b>EGT Version</b> <b>3 Wire D.C.</b> <b>Standard Switching Distance</b>				
	Technical Data	Type : EGT08X01-SEM4		Type : EGT08X1,5-SEM4
	DC Operating Voltage		DC Operating Voltage	
Housing Material	Stainless Steel		Stainless Steel	
Environmental Protection	IP67		IP67	
Mounting Position	Optional		Optional	
Operating Temperature (deg.C)	-25 to +70		-25 to +70	
Connection	Plug and Socket		Plug and Socket	
Cable Length (mm)	-		-	
Conductor Cross Section (mm <sup>2</sup> )	-		-	
Sensing Distance Sn (mm)	Flush Fitting = 1		Flush Fitting = 1.5	
Switch Point Hysteresis H (mm) ≤	0.15		0.2	
Repeat Accuracy (mm) ≤	0.05		0.1	
Operating Voltage (V)	10-30		10-30	
Operating Voltage Ripple (%) ≤	10		10	
Load Current Ia (mA) max	250		250	
Residual Current Ir (mA) ≤	0.001		0.001	
No-Load Current (mA) ≤	11		11	
Voltage Drop Ud (V) ≤	1.3		1.3	
Internal Resistance Ri (KΩ)	10		10	
Temperature Drift S (µm/K) ≤	± 3		± 3	
Switching Frequency (Hz)	2000		2000	
Output Polarity	PNP		NPN	
Output Function	A=NO		A=NO	
Connection Diagram	1		2	
Short Circuit Protection	yes		yes	
Status Indication	LED ( see ordering code)		LED ( see ordering code)	



<b>Cylindrical Housing M12 x 1</b> <b>EGT Version</b> <b>3 / 4 Wire D.C.</b> <b>Standard Switching Distance</b>								
	Technical Data	Type : EGT12X02		Type : EGT12X04				
Housing Material	Brass Nickel Plated		Brass Nickel Plated					
Environmental Protection	IP67		IP67					
Mounting Position	Optional		Optional					
Operating Temperature (deg.C)	-25 to +70		-25 to +70					
Connection	Encapsulated Oil Resistant Cable		Encapsulated Oil Resistant Cable					
Cable Length (mm)	2000 or 5000		2000 or 5000					
Conductor Cross Section (mm <sup>2</sup> )	0.34		0.34					
Sensing Distance Sn (mm)	Flush Fitting = 2		Non-Flush Fitting = 4					
Switch Point Hysteresis H (mm) ≤	0.2		0.6					
Repeat Accuracy (mm) ≤	0.1		0.3					
Operating Voltage (V)	10-30		10-30					
Operating Voltage Ripple (%) ≤	10		10					
Load Current Ia (mA) max	250		250					
Residual Current Ir (mA) ≤	0.001		0.001					
No-Load Current (mA) ≤	15		15					
Voltage Drop Ud (V) ≤	2.5		2.5					
Internal Resistance Ri (KΩ)	4.7		4.7					
Temperature Drift S (µm/K) ≤	± 4		± 8					
Switching Frequency (Hz)	1000		1000					
Output Polarity	PNP		NPN					
Output Function	A=NO	U=NO+NC	A=NO	U=NO+NC	A=NO	U=NO+NC	A=NO	U=NO+NC
Connection Diagram	1	3	2	4	1	3	2	4
Short Circuit Protection	yes	yes	yes	yes	yes	yes	yes	yes
Status Indication	LED ( see ordering code)				LED ( see ordering code)			

<b>Cylindrical Housing M12 x 1</b> <b>EGT Version</b> <b>3 / 4 Wire D.C.</b> <b>Standard Switching Distance</b>								
	Technical Data	Type : EGT12X02-SEM4		Type : EGT12X04-SEM4				
Housing Material	Brass Nickel Plated		Brass Nickel Plated					
Environmental Protection	IP67		IP67					
Mounting Position	Optional		Optional					
Operating Temperature (deg.C)	-25 to +70		-25 to +70					
Connection	Plug and Socket		Plug and Socket					
Cable Length (mm)	-		-					
Conductor Cross Section (mm <sup>2</sup> )	-		-					
Sensing Distance Sn (mm)	Flush Fitting = 2		Non-Flush Fitting = 4					
Switch Point Hysteresis H (mm) ≤	0.2		0.6					
Repeat Accuracy (mm) ≤	0.1		0.3					
Operating Voltage (V)	10-30		10-30					
Operating Voltage Ripple (%) ≤	10		10					
Load Current Ia (mA) max	250		250					
Residual Current Ir (mA) ≤	0.001		0.001					
No-Load Current (mA) ≤	15		15					
Voltage Drop Ud (V) ≤	2.5		2.5					
Internal Resistance Ri (KΩ)	4.7		4.7					
Temperature Drift S (µm/K) ≤	± 4		± 8					
Switching Frequency (Hz)	1000		1000					
Output Polarity	PNP		NPN					
Output Function	A=NO	U=NO+NC	A=NO	U=NO+NC	A=NO	U=NO+NC	A=NO	U=NO+NC
Connection Diagram	1	3	2	4	1	3	2	4
Short Circuit Protection	yes	yes	yes	yes	yes	yes	yes	yes
Status Indication	LED ( see ordering code)				LED ( see ordering code)			

<b>Cylindrical Housing M12 x 1</b> <b>EGT Version</b> <b>3 Wire D.C.</b> <b>Extended Switching Distance</b>																		
Technical Data	Type : EGT12B04																	
	DC Operating Voltage																	
Housing Material	Brass Nickel Plated																	
Environmental Protection	IP67																	
Mounting Position	Optional																	
Operating Temperature (deg.C)	-25 to +70																	
Connection	Encapsulated Oil Resistant Cable																	
Cable Length (mm)	2000 or 5000																	
Conductor Cross Section (mm <sup>2</sup> )	0.34																	
Sensing Distance Sn (mm)	Flush Fitting = 4																	
Switch Point Hysteresis H (mm) ≤	0.4																	
Repeat Accuracy (mm) ≤	0.2																	
Operating Voltage (V)	10-30																	
Operating Voltage Ripple (%) ≤	10																	
Load Current Ia (mA) max	200																	
Residual Current Ir (mA) ≤	0.001																	
No-Load Current (mA) ≤	15																	
Voltage Drop Ud (V) ≤	2.5																	
Internal Resistance Ri (KΩ)	4.7																	
Temperature Drift S (µm/K) ≤	± 8																	
Switching Frequency (Hz)	1000																	
Output Polarity	<table border="1"> <thead> <tr> <th colspan="2">PNP</th> <th colspan="2">NPN</th> </tr> <tr> <th>A=NO</th> <th>U=NO+NC</th> <th>A=NO</th> <th>U=NO+NC</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>3</td> <td>2</td> <td>4</td> </tr> <tr> <td>yes</td> <td>yes</td> <td>yes</td> <td>yes</td> </tr> </tbody> </table>		PNP		NPN		A=NO	U=NO+NC	A=NO	U=NO+NC	1	3	2	4	yes	yes	yes	yes
PNP		NPN																
A=NO	U=NO+NC	A=NO	U=NO+NC															
1	3	2	4															
yes	yes	yes	yes															
Output Function																		
Connection Diagram																		
Short Circuit Protection																		
Status Indication	LED ( see ordering code)																	

<b>Cylindrical Housing M12 x 1</b> <b>EGT Version</b> <b>3 Wire D.C.</b> <b>Extended Switching Distance</b>																		
Technical Data	Type : EGT12B04-SEM4																	
	DC Operating Voltage																	
Housing Material	Brass Nickel Plated																	
Environmental Protection	IP67																	
Mounting Position	Optional																	
Operating Temperature (deg.C)	-25 to +70																	
Connection	Plug and Socket																	
Cable Length (mm)	-																	
Conductor Cross Section (mm <sup>2</sup> )	-																	
Sensing Distance Sn (mm)	Flush Fitting = 4																	
Switch Point Hysteresis H (mm) ≤	0.4																	
Repeat Accuracy (mm) ≤	0.2																	
Operating Voltage (V)	10-30																	
Operating Voltage Ripple (%) ≤	10																	
Load Current Ia (mA) max	200																	
Residual Current Ir (mA) ≤	0.001																	
No-Load Current (mA) ≤	15																	
Voltage Drop Ud (V) ≤	2.5																	
Internal Resistance Ri (KΩ)	4.7																	
Temperature Drift S (µm/K) ≤	± 8																	
Switching Frequency (Hz)	1000																	
Output Polarity	<table border="1"> <thead> <tr> <th colspan="2">PNP</th> <th colspan="2">NPN</th> </tr> <tr> <th>A=NO</th> <th>U=NO+NC</th> <th>A=NO</th> <th>U=NO+NC</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>3</td> <td>2</td> <td>4</td> </tr> <tr> <td>yes</td> <td>yes</td> <td>yes</td> <td>yes</td> </tr> </tbody> </table>		PNP		NPN		A=NO	U=NO+NC	A=NO	U=NO+NC	1	3	2	4	yes	yes	yes	yes
PNP		NPN																
A=NO	U=NO+NC	A=NO	U=NO+NC															
1	3	2	4															
yes	yes	yes	yes															
Output Function																		
Connection Diagram																		
Short Circuit Protection																		
Status Indication	LED ( see ordering code)																	

<b>Cylindrical Housing M12 x 1</b> <b>EGT Version</b> <b>2 Wire D.C.</b> <b>Standard Switching Distance</b>				
	Technical Data	Type : EGT12X02-AD/RD		Type : EGT12X04-AD/RD
	DC Operating Voltage		DC Operating Voltage	
Housing Material	Brass Nickel Plated		Brass Nickel Plated	
Environmental Protection	IP67		IP67	
Mounting Position	Optional		Optional	
Operating Temperature (deg.C)	-25 to +70		-25 to +70	
Connection	Encapsulated Oil Resistant Cable		Encapsulated Oil Resistant Cable	
Cable Length (mm)	2000 or 5000		2000 or 5000	
Conductor Cross Section (mm <sup>2</sup> )	0.34		0.34	
Sensing Distance Sn (mm)	Flush Fitting = 2		Non-Flush Fitting = 4	
Switch Point Hysteresis H (mm) ≤	0.2		0.6	
Repeat Accuracy (mm) ≤	0.1		0.3	
Operating Voltage (V)	10-30		10-30	
Operating Voltage Ripple (%) ≤	10		10	
Load Current Ia (mA) max	200		200	
Residual Current Ir (mA) ≤	1.0		1.0	
Holding Current Im (mA) ≥	4		4	
Voltage Drop Ud (V) ≤	7.5		7.5	
Internal Resistance Ri (KΩ)	-		-	
Temperature Drift S (μm/K) ≤	± 4		± 8	
Switching Frequency (Hz)	400		400	
Output Polarity	-		-	
Output Function	A=NO	R=NC	A=NO	R=NC
Connection Diagram	5	5	5	5
Short Circuit Protection	yes	yes	yes	yes
Status Indication	LED ( see ordering code)		LED ( see ordering code)	

<b>Cylindrical Housing M12 x 1</b> <b>EGT Version</b> <b>2 Wire D.C.</b> <b>Standard Switching Distance</b>				
	Technical Data	Type : EGT12X02-SEM4-AD/RD		Type : EGT12X04-SEM4-AD/RD
	DC Operating Voltage		DC Operating Voltage	
Housing Material	Brass Nickel Plated		Brass Nickel Plated	
Environmental Protection	IP67		IP67	
Mounting Position	Optional		Optional	
Operating Temperature (deg.C)	-25 to +70		-25 to +70	
Connection	Plug and Socket		Plug and Socket	
Cable Length (mm)	-		-	
Conductor Cross Section (mm <sup>2</sup> )	-		-	
Sensing Distance Sn (mm)	Flush Fitting = 2		Non-Flush Fitting = 4	
Switch Point Hysteresis H (mm) ≤	0.2		0.6	
Repeat Accuracy (mm) ≤	0.1		0.3	
Operating Voltage (V)	10-30		10-30	
Operating Voltage Ripple (%) ≤	10		10	
Load Current Ia (mA) max	200		200	
Residual Current Ir (mA) ≤	1.0		1.0	
Holding Current Im (mA) ≥	4		4	
Voltage Drop Ud (V) ≤	7.5		7.5	
Internal Resistance Ri (KΩ)	-		-	
Temperature Drift S (μm/K) ≤	± 4		± 8	
Switching Frequency (Hz)	400		400	
Output Polarity	-		-	
Output Function	A=NO	R=NC	A=NO	R=NC
Connection Diagram	5	5	5	5
Short Circuit Protection	yes	yes	yes	yes
Status Indication	LED ( see ordering code)		LED ( see ordering code)	

<p><b>Cylindrical Housing M12 x 1</b>  <b>EGT Version</b>  <b>2 Wire A.C.</b>  <b>Standard Switching Distance</b></p>		
<p>Technical Data</p>	<p>Type : EGT12X02AW</p>	<p>Type : EGT12X04AW</p>
<p>Housing Material</p>	<p>AC Operating Voltage</p>	<p>AC Operating Voltage</p>
<p>Environmental Protection</p>	<p>Brass Nickel Plated</p>	<p>Brass Nickel Plated</p>
<p>Mounting Position</p>	<p>IP67</p>	<p>IP67</p>
<p>Operating Temperature (deg.C)</p>	<p>Optional</p>	<p>Optional</p>
<p>Connection</p>	<p>-25 to +70</p>	<p>-25 to +70</p>
<p>Cable Length (mm)</p>	<p>Encapsulated Oil Resistant Cable</p>	<p>Encapsulated Oil Resistant Cable</p>
<p>Conductor Cross Section (mm<sup>2</sup>)</p>	<p>2000 or 5000</p>	<p>2000 or 5000</p>
<p>Sensing Distance Sn (mm)</p>	<p>0.5</p>	<p>0.5</p>
<p>Switch Point Hysteresis H (mm) ≤</p>	<p>Flush Fitting = 2</p>	<p>Non-Flush Fitting = 4</p>
<p>Repeat Accuracy (mm) ≤</p>	<p>0.4</p>	<p>0.6</p>
<p>Operating Voltage (V)</p>	<p>0.1</p>	<p>0.4</p>
<p>Load Current Ia (mA) max</p>	<p>90-250</p>	<p>90-250</p>
<p>Inrush Current Ik (A) 20 ms</p>	<p>250</p>	<p>250</p>
<p>Residual Current Ir (mA) ≤</p>	<p>1.5</p>	<p>1.5</p>
<p>Holding Current Ih (mA) ≥</p>	<p>3</p>	<p>3</p>
<p>Voltage Drop Ud (V) ≤</p>	<p>10</p>	<p>10</p>
<p>Internal Resistance Ri (KΩ)</p>	<p>9 (90-250 V)</p>	<p>9 (90-250 V)</p>
<p>Temperature Drift S (µm/K) ≤</p>	<p>-</p>	<p>-</p>
<p>Switching Frequency (Hz)</p>	<p>± 4</p>	<p>± 8</p>
<p>Output Polarity</p>	<p>10</p>	<p>10</p>
<p>Output Function</p>	<p>-</p>	<p>-</p>
<p>Connection Diagram</p>	<p>A=NO    R=NC</p>	<p>A=NO    R=NC</p>
<p>Short Circuit Protection</p>	<p>6    6</p>	<p>6    6</p>
<p>Status Indication</p>	<p>no    no</p>	<p>no    no</p>
<p></p>	<p>LED ( see ordering code)</p>	<p>LED ( see ordering code)</p>

<p><b>Cylindrical Housing M12 x 1</b>  <b>EGT Version</b>  <b>2 Wire A.C.</b>  <b>Standard Switching Distance</b></p>		
<p>Technical Data</p>		
<p>Housing Material</p>		
<p>Environmental Protection</p>		
<p>Mounting Position</p>		
<p>Operating Temperature (deg.C)</p>		
<p>Connection</p>		
<p>Cable Length (mm)</p>		
<p>Conductor Cross Section (mm<sup>2</sup>)</p>		
<p>Sensing Distance Sn (mm)</p>		
<p>Switch Point Hysteresis H (mm) ≤</p>		
<p>Repeat Accuracy (mm) ≤</p>		
<p>Operating Voltage (V)</p>		
<p>Load Current Ia (mA) max</p>		
<p>Inrush Current Ik (A) 20 ms</p>		
<p>Residual Current Ir (mA) ≤</p>		
<p>Holding Current Ih (mA) ≥</p>		
<p>Voltage Drop Ud (V) ≤</p>		
<p>Internal Resistance Ri (KΩ)</p>		
<p>Temperature Drift S (µm/K) ≤</p>		
<p>Switching Frequency (Hz)</p>		
<p>Output Polarity</p>		
<p>Output Function</p>		
<p>Connection Diagram</p>		
<p>Short Circuit Protection</p>		
<p>Status Indication</p>		<p>LED ( see ordering code)</p>

<b>Cylindrical Housing M18 x 1</b> <b>EGT Version</b> <b>3 / 4 Wire D.C.</b> <b>Standard Switching Distance</b>		
	<b>Technical Data</b> Type : EGT18X05	<b>Technical Data</b> Type : EGT18X08
<b>Housing Material</b>	DC Operating Voltage	DC Operating Voltage
<b>Environmental Protection</b>	Brass Nickel Plated	Brass Nickel Plated
<b>Mounting Position</b>	IP67	IP67
<b>Operating Temperature (deg.C)</b>	Optional	Optional
<b>Connection</b>	-25 to +70	-25 to +70
<b>Cable Length (mm)</b>	Encapsulated Oil Resistant Cable	Encapsulated Oil Resistant Cable
<b>Conductor Cross Section (mm<sup>2</sup>)</b>	2000 or 5000	2000 or 5000
<b>Sensing Distance Sn (mm)</b>	0.34	0.34
<b>Switch Point Hysteresis H (mm) ≤</b>	Flush Fitting = 5	Non-Flush Fitting = 8
<b>Repeat Accuracy (mm) ≤</b>	0.5	0.8
<b>Operating Voltage (V)</b>	0.2	0.4
<b>Operating Voltage Ripple (%) ≤</b>	10-30	10-30
<b>Load Current Ia (mA) max</b>	10	10
<b>Residual Current Ir (mA) ≤</b>	250	250
<b>No-Load Current (mA) ≤</b>	0.001	0.001
<b>Voltage Drop Ud (V) ≤</b>	15	15
<b>Internal Resistance Ri (KΩ)</b>	2.5	2.5
<b>Temperature Drift S (μm/K) ≤</b>	4.7	4.7
<b>Switching Frequency (Hz)</b>	± 10	± 16
<b>Output Polarity</b>	500	500
<b>Output Function</b>	PNP	NPN
<b>Connection Diagram</b>	A=NO, U=NO+NC	A=NO, U=NO+NC
<b>Short Circuit Protection</b>	yes, yes, yes, yes	yes, yes, yes, yes
<b>Status Indication</b>	LED ( see ordering code)	LED ( see ordering code)

<b>Cylindrical Housing M18 x 1</b> <b>EGT Version</b> <b>3 / 4 Wire D.C.</b> <b>Standard Switching Distance</b>		
	<b>Technical Data</b> Type : EGT18X05-SEM4	<b>Technical Data</b> Type : EGT18X08-SEM4
<b>Housing Material</b>	DC Operating Voltage	DC Operating Voltage
<b>Environmental Protection</b>	Brass Nickel Plated	Brass Nickel Plated
<b>Mounting Position</b>	IP67	IP67
<b>Operating Temperature (deg.C)</b>	Optional	Optional
<b>Connection</b>	-25 to +70	-25 to +70
<b>Cable Length (mm)</b>	Plug and Socket	Plug and Socket
<b>Conductor Cross Section (mm<sup>2</sup>)</b>	-	-
<b>Sensing Distance Sn (mm)</b>	50	50
<b>Switch Point Hysteresis H (mm) ≤</b>	Flush Fitting = 5	Non-Flush Fitting = 8
<b>Repeat Accuracy (mm) ≤</b>	0.5	0.8
<b>Operating Voltage (V)</b>	0.2	0.4
<b>Operating Voltage Ripple (%) ≤</b>	10-30	10-30
<b>Load Current Ia (mA) max</b>	10	10
<b>Residual Current Ir (mA) ≤</b>	250	250
<b>No-Load Current (mA) ≤</b>	0.001	0.001
<b>Voltage Drop Ud (V) ≤</b>	15	15
<b>Internal Resistance Ri (KΩ)</b>	2.5	2.5
<b>Temperature Drift S (μm/K) ≤</b>	4.7	4.7
<b>Switching Frequency (Hz)</b>	± 10	± 16
<b>Output Polarity</b>	500	500
<b>Output Function</b>	PNP	NPN
<b>Connection Diagram</b>	A=NO, U=NO+NC	A=NO, U=NO+NC
<b>Short Circuit Protection</b>	yes, yes, yes, yes	yes, yes, yes, yes
<b>Status Indication</b>	LED ( see ordering code)	LED ( see ordering code)



<b>Cylindrical Housing M18 x 1</b> <b>EGT Version</b> <b>2 Wire D.C.</b> <b>Standard Switching Distance</b>				
	Technical Data	Type : EGT18X05-AD/RD		Type : EGT18X08-AD/RD
Housing Material	Brass Nickel Plated		Brass Nickel Plated	
Environmental Protection	IP67		IP67	
Mounting Position	Optional		Optional	
Operating Temperature (deg.C)	-25 to +70		-25 to +70	
Connection	Encapsulated Oil Resistant Cable		Encapsulated Oil Resistant Cable	
Cable Length (mm)	2000 or 5000		2000 or 5000	
Conductor Cross Section (mm <sup>2</sup> )	0.34		0.34	
Sensing Distance Sn (mm)	Flush Fitting = 5		Non-Flush Fitting = 8	
Switch Point Hysteresis H (mm) ≤	0.5		0.8	
Repeat Accuracy (mm) ≤	0.2		0.4	
Operating Voltage (V)	10-30		10-30	
Operating Voltage Ripple (%) ≤	10		10	
Load Current Ia (mA) max	200		200	
Residual Current Ir (mA) ≤	1.0		1.0	
Holding Current Im (mA) ≥	4		4	
Voltage Drop Ud (V) ≤	7.5		7.5	
Internal Resistance Ri (KΩ)	-		-	
Temperature Drift S (µm/K) ≤	± 10		± 16	
Switching Frequency (Hz)	200		200	
Output Polarity				
Output Function	A=NO	R=NC	A=NO	R=NC
Connection Diagram	5	5	5	5
Short Circuit Protection	yes	yes	yes	yes
Status Indication	LED ( see ordering code)		LED ( see ordering code)	

<b>Cylindrical Housing M18 x 1</b> <b>EGT Version</b> <b>2 Wire D.C.</b> <b>Standard Switching Distance</b>				
	Technical Data	Type : EGT18X05-SEM4-AD/RD		Type : EGT18X08-SEM4-AD/RD
Housing Material	Brass Nickel Plated		Brass Nickel Plated	
Environmental Protection	IP67		IP67	
Mounting Position	Optional		Optional	
Operating Temperature (deg.C)	-25 to +70		-25 to +70	
Connection	Plug and Socket		Plug and Socket	
Cable Length (mm)	-		-	
Conductor Cross Section (mm <sup>2</sup> )	-		-	
Sensing Distance Sn (mm)	Flush Fitting = 5		Non-Flush Fitting = 8	
Switch Point Hysteresis H (mm) ≤	0.5		0.8	
Repeat Accuracy (mm) ≤	0.2		0.4	
Operating Voltage (V)	10-30		10-30	
Operating Voltage Ripple (%) ≤	10		10	
Load Current Ia (mA) max	200		200	
Residual Current Ir (mA) ≤	1.0		1.0	
Holding Current Im (mA) ≥	4		4	
Voltage Drop Ud (V) ≤	7.5		7.5	
Internal Resistance Ri (KΩ)	-		-	
Temperature Drift S (µm/K) ≤	± 10		± 16	
Switching Frequency (Hz)	200		200	
Output Polarity				
Output Function	A=NO	R=NC	A=NO	R=NC
Connection Diagram	5	5	5	5
Short Circuit Protection	yes	yes	yes	yes
Status Indication	LED ( see ordering code)		LED ( see ordering code)	

<p><b>Cylindrical Housing M18 x 1</b>  <b>EGT Version</b>  <b>2 Wire A.C.</b>  <b>Standard Switching Distance</b></p>		
<p>Technical Data</p>	<p>Type : EGT18X05 AW / RW</p>	<p>Type : EGT18X08 AW / RW</p>
<p>Housing Material</p>	<p>AC Operating Voltage</p>	<p>AC Operating Voltage</p>
<p>Environmental Protection</p>	<p>Brass Nickel Plated</p>	<p>Brass Nickel Plated</p>
<p>Mounting Position</p>	<p>IP67</p>	<p>IP67</p>
<p>Operating Temperature (deg.C)</p>	<p>Optional</p>	<p>Optional</p>
<p>Connection</p>	<p>-25 to +70</p>	<p>-25 to +70</p>
<p>Cable Length (mm)</p>	<p>Encapsulated Oil Resistant Cable</p>	<p>Encapsulated Oil Resistant Cable</p>
<p>Conductor Cross Section (mm<sup>2</sup>)</p>	<p>2000 or 5000</p>	<p>2000 or 5000</p>
<p>Sensing Distance Sn (mm)</p>	<p>0.5</p>	<p>0.5</p>
<p>Switch Point Hysteresis H (mm) ≤</p>	<p>Flush Fitting = 5</p>	<p>Non-Flush Fitting = 8</p>
<p>Repeat Accuracy (mm) ≤</p>	<p>0.5</p>	<p>0.8</p>
<p>Operating Voltage (V)</p>	<p>0.2</p>	<p>0.4</p>
<p>Load Current Ia (mA) max</p>	<p>90-250</p>	<p>90-250</p>
<p>Inrush Current Ik (A) 20 ms</p>	<p>250</p>	<p>250</p>
<p>Residual Current Ir (mA) ≤</p>	<p>1.5</p>	<p>1.5</p>
<p>Holding Current Ih (mA) ≥</p>	<p>3</p>	<p>3</p>
<p>Voltage Drop Ud (V) ≤</p>	<p>10</p>	<p>10</p>
<p>Internal Resistance Ri (KΩ)</p>	<p>9 (90-250 V)</p>	<p>9 (90-250 V)</p>
<p>Temperature Drift S (µm/K) ≤</p>	<p>-</p>	<p>-</p>
<p>Switching Frequency (Hz)</p>	<p>± 10</p>	<p>± 16</p>
<p>Output Polarity</p>	<p>10</p>	<p>10</p>
<p>Output Function</p>	<p>-</p>	<p>-</p>
<p>Connection Diagram</p>	<p>A=NO    R=NC</p>	<p>A=NO    R=NC</p>
<p>Short Circuit Protection</p>	<p>6    6</p>	<p>6    6</p>
<p>Status Indication</p>	<p>no    no</p>	<p>no    no</p>
<p></p>	<p>LED ( see ordering code)</p>	<p>LED ( see ordering code)</p>

<p><b>Cylindrical Housing M18 x 1</b>  <b>EGT Version</b>  <b>2 Wire A.C.</b>  <b>Standard Switching Distance</b></p>		
<p>Technical Data</p>		
<p>Housing Material</p>		
<p>Environmental Protection</p>		
<p>Mounting Position</p>		
<p>Operating Temperature (deg.C)</p>		
<p>Connection</p>		
<p>Cable Length (mm)</p>		
<p>Conductor Cross Section (mm<sup>2</sup>)</p>		
<p>Sensing Distance Sn (mm)</p>		
<p>Switch Point Hysteresis H (mm) ≤</p>		
<p>Repeat Accuracy (mm) ≤</p>		
<p>Operating Voltage (V)</p>		
<p>Load Current Ia (mA) max</p>		
<p>Inrush Current Ik (A) 20 ms</p>		
<p>Residual Current Ir (mA) ≤</p>		
<p>Holding Current Ih (mA) ≥</p>		
<p>Voltage Drop Ud (V) ≤</p>		
<p>Internal Resistance Ri (KΩ)</p>		
<p>Temperature Drift S (µm/K) ≤</p>		
<p>Switching Frequency (Hz)</p>		
<p>Output Polarity</p>		
<p>Output Function</p>		
<p>Connection Diagram</p>		
<p>Short Circuit Protection</p>		
<p>Status Indication</p>		





<p><b>Cylindrical Housing M30 x 1.5</b>  <b>EGT Version</b>  <b>2 Wire A.C.</b>  <b>Standard Switching Distance</b></p>		
<p>Technical Data</p>	<p>Type : EGT30X10 AW / RW</p>	<p>Type : EGT30X15 AW / RW</p>
<p>Housing Material</p>	<p>AC Operating Voltage</p>	<p>AC Operating Voltage</p>
<p>Environmental Protection</p>	<p>Brass Nickel Plated</p>	<p>Brass Nickel Plated</p>
<p>Mounting Position</p>	<p>IP67</p>	<p>IP67</p>
<p>Operating Temperature (deg.C)</p>	<p>Optional</p>	<p>Optional</p>
<p>Connection</p>	<p>-25 to +70</p>	<p>-25 to +70</p>
<p>Cable Length (mm)</p>	<p>Encapsulated Oil Resistant Cable</p>	<p>Encapsulated Oil Resistant Cable</p>
<p>Conductor Cross Section (mm<sup>2</sup>)</p>	<p>2000 or 5000</p>	<p>2000 or 5000</p>
<p>Sensing Distance S<sub>n</sub> (mm)</p>	<p>0.5</p>	<p>0.5</p>
<p>Switch Point Hysteresis H (mm) ≤</p>	<p>Flush Fitting = 10</p>	<p>Non-Flush Fitting = 15</p>
<p>Repeat Accuracy (mm) ≤</p>	<p>1.0</p>	<p>1.5</p>
<p>Operating Voltage (V)</p>	<p>0.3</p>	<p>0.5</p>
<p>Load Current I<sub>a</sub> (mA) max</p>	<p>90-250</p>	<p>90-250</p>
<p>Inrush Current I<sub>k</sub> (A) 20 ms</p>	<p>250</p>	<p>250</p>
<p>Residual Current I<sub>r</sub> (mA) ≤</p>	<p>1.5</p>	<p>1.5</p>
<p>Holding Current I<sub>h</sub> (mA) ≤</p>	<p>3</p>	<p>3</p>
<p>Voltage Drop U<sub>d</sub> (V) ≤</p>	<p>10</p>	<p>10</p>
<p>Internal Resistance R<sub>i</sub> (KΩ)</p>	<p>9 (90-250 V)</p>	<p>9 (90-250 V)</p>
<p>Temperature Drift S (μm/K) ≤</p>	<p>-</p>	<p>-</p>
<p>Switching Frequency (Hz)</p>	<p>± 20</p>	<p>± 30</p>
<p>Output Polarity</p>	<p>10</p>	<p>10</p>
<p>Output Function</p>	<p>A=NO    R=NC</p>	<p>A=NO    R=NC</p>
<p>Connection Diagram</p>	<p>6    6</p>	<p>6    6</p>
<p>Short Circuit Protection</p>	<p>no    no</p>	<p>no    no</p>
<p>Status Indication</p>	<p>LED ( see ordering code)</p>	<p>LED ( see ordering code)</p>

<p><b>Cylindrical Housing M30 x 1.5</b>  <b>EGT Version</b>  <b>2 Wire D.C.</b>  <b>Standard Switching Distance</b></p>		
<p>Technical Data</p>	<p>Type : EGT30X10 AD / RD</p>	<p>Type : EGT30X15 AD / RD</p>
<p>Housing Material</p>	<p>DC Operating Voltage</p>	<p>DC Operating Voltage</p>
<p>Environmental Protection</p>	<p>Brass Nickel Plated</p>	<p>Brass Nickel Plated</p>
<p>Mounting Position</p>	<p>IP67</p>	<p>IP67</p>
<p>Operating Temperature (deg.C)</p>	<p>Optional</p>	<p>Optional</p>
<p>Connection</p>	<p>-25 to +70</p>	<p>-25 to +70</p>
<p>Cable Length (mm)</p>	<p>Encapsulated Oil Resistant Cable</p>	<p>Encapsulated Oil Resistant Cable</p>
<p>Conductor Cross Section (mm<sup>2</sup>)</p>	<p>2000 or 5000</p>	<p>2000 or 5000</p>
<p>Sensing Distance S<sub>n</sub> (mm)</p>	<p>0.34</p>	<p>0.34</p>
<p>Switch Point Hysteresis H (mm) ≤</p>	<p>Flush Fitting = 10</p>	<p>Non-Flush Fitting = 15</p>
<p>Repeat Accuracy (mm) ≤</p>	<p>1.0</p>	<p>1.5</p>
<p>Operating Voltage (V)</p>	<p>0.3</p>	<p>1.0</p>
<p>Operating Voltage Ripple (%) ≤</p>	<p>10-30</p>	<p>10-30</p>
<p>Load Current I<sub>a</sub> (mA) max</p>	<p>10</p>	<p>10</p>
<p>Residual Current I<sub>r</sub> (mA) ≤</p>	<p>200</p>	<p>200</p>
<p>Holding Current I<sub>m</sub> (mA) ≤</p>	<p>4</p>	<p>4</p>
<p>Voltage Drop U<sub>d</sub> (V) ≤</p>	<p>4.5</p>	<p>4.5</p>
<p>Internal Resistance R<sub>i</sub> (KΩ)</p>	<p>-</p>	<p>-</p>
<p>Temperature Drift S (μm/K) ≤</p>	<p>± 20</p>	<p>± 30</p>
<p>Switching Frequency (Hz)</p>	<p>200</p>	<p>200</p>
<p>Output Polarity</p>	<p>A=NO    R=NC</p>	<p>A=NO    R=NC</p>
<p>Output Function</p>	<p>5    5</p>	<p>5    5</p>
<p>Connection Diagram</p>	<p>yes    yes</p>	<p>yes    yes</p>
<p>Short Circuit Protection</p>	<p>LED ( see ordering code)</p>	<p>LED ( see ordering code)</p>

<b>Cylindrical Housing M8 x 1</b> <b>EGL Version</b> <b>3 Wire D.C.</b> <b>Standard Switching Distance</b>				
	Type : EGL08X01		Type : EGL08X1,5	
Technical Data	DC Operating Voltage		DC Operating Voltage	
Housing Material	Stainless Steel		Stainless Steel	
Environmental Protection	IP67		IP67	
Mounting Position	Optional		Optional	
Operating Temperature (deg.C)	-25 to +70		-25 to +70	
Connection	Encapsulated Oil Resistant Cable		Encapsulated Oil Resistant Cable	
Cable Length (mm)	2000 or 5000		2000 or 5000	
Conductor Cross Section (mm <sup>2</sup> )	0.14		0.14	
Sensing Distance Sn (mm)	Flush Fitting = 1		Flush Fitting = 1.5	
Switch Point Hysteresis H (mm) ≤	0.15		0.2	
Repeat Accuracy (mm) ≤	0.05		0.1	
Operating Voltage (V)	10-30		10-30	
Operating Voltage Ripple (%) ≤	10		10	
Load Current Ia (mA) max	250		250	
Residual Current Ir (mA) ≤	0.001		0.001	
No-Load Current (mA) ≤	11		11	
Voltage Drop Ud (V) ≤	1.3		1.3	
Internal Resistance Ri (KΩ)	10		10	
Temperature Drift S (µm/K) ≤	± 3		± 3	
Switching Frequency (Hz)	2000		2000	
Output Polarity	PNP		NPN	
Output Function	A=NO		A=NO	
Connection Diagram	1		2	
Short Circuit Protection	yes		yes	
Status Indication	LED ( see ordering code)		LED ( see ordering code)	

<b>Cylindrical Housing M8 x 1</b> <b>EGL Version</b> <b>3 Wire D.C.</b> <b>Standard Switching Distance</b>				
	Type : EGL08X01-SEM3		Type : EGL08X1,5-SEM3	
Technical Data	DC Operating Voltage		DC Operating Voltage	
Housing Material	Stainless Steel		Stainless Steel	
Environmental Protection	IP67		IP67	
Mounting Position	Optional		Optional	
Operating Temperature (deg.C)	-25 to +70		-25 to +70	
Connection	Plug and Socket		Plug and Socket	
Cable Length (mm)	-		-	
Conductor Cross Section (mm <sup>2</sup> )	-		-	
Sensing Distance Sn (mm)	Flush Fitting = 1		Flush Fitting = 1.5	
Switch Point Hysteresis H (mm) ≤	0.15		0.2	
Repeat Accuracy (mm) ≤	0.05		0.1	
Operating Voltage (V)	10-30		10-30	
Operating Voltage Ripple (%) ≤	10		10	
Load Current Ia (mA) max	250		250	
Residual Current Ir (mA) ≤	0.001		0.001	
No-Load Current (mA) ≤	11		11	
Voltage Drop Ud (V) ≤	1.3		1.3	
Internal Resistance Ri (KΩ)	10		10	
Temperature Drift S (µm/K) ≤	± 3		± 3	
Switching Frequency (Hz)	2000		2000	
Output Polarity	PNP		NPN	
Output Function	A=NO		A=NO	
Connection Diagram	1		2	
Short Circuit Protection	yes		yes	
Status Indication	LED ( see ordering code)		LED ( see ordering code)	

<b>Cylindrical Housing M12 x 1</b> <b>EGL Version</b> <b>3 Wire D.C.</b> <b>Standard Switching Distance</b>								
	Technical Data	Type : EGL12X02		Type : EGL12X04				
Housing Material	Brass Nickel Plated		Brass Nickel Plated					
Environmental Protection	IP67		IP67					
Mounting Position	Optional		Optional					
Operating Temperature (deg.C)	-25 to +70		-25 to +70					
Connection	Encapsulated Oil Resistant Cable		Encapsulated Oil Resistant Cable					
Cable Length (mm)	2000 or 5000		2000 or 5000					
Conductor Cross Section (mm <sup>2</sup> )	0.34		0.34					
Sensing Distance Sn (mm)	Flush Fitting = 2		Non-Flush Fitting = 4					
Switch Point Hysteresis H (mm) ≤	0.2		0.6					
Repeat Accuracy (mm) ≤	0.1		0.3					
Operating Voltage (V)	10-30		10-30					
Operating Voltage Ripple (%) ≤	10		10					
Load Current Ia (mA) max	250		250					
Residual Current Ir (mA) ≤	0.001		0.001					
No-Load Current (mA) ≤	15		15					
Voltage Drop Ud (V) ≤	2.5		2.5					
Internal Resistance Ri (KΩ)	4.7		4.7					
Temperature Drift S (µm/K) ≤	± 4		± 8					
Switching Frequency (Hz)	1000		1000					
Output Polarity	PNP		NPN					
Output Function	A=NO	U=NO+NC	A=NO	U=NO+NC	A=NO	U=NO+NC	A=NO	U=NO+NC
Connection Diagram	1	3	2	4	1	3	2	4
Short Circuit Protection	yes	yes	yes	yes	yes	yes	yes	yes
Status Indication	LED ( see ordering code)				LED ( see ordering code)			

<b>Cylindrical Housing M12 x 1</b> <b>EGL Version</b> <b>3 Wire D.C.</b> <b>Standard Switching Distance</b>								
	Technical Data	Type : EGL12X02-SEM4		Type : EGL12X04-SEM4				
Housing Material	Brass Nickel Plated		Brass Nickel Plated					
Environmental Protection	IP67		IP67					
Mounting Position	Optional		Optional					
Operating Temperature (deg.C)	-25 to +70		-25 to +70					
Connection	Plug and Socket		Plug and Socket					
Cable Length (mm)	-		-					
Conductor Cross Section (mm <sup>2</sup> )	-		-					
Sensing Distance Sn (mm)	Flush Fitting = 2		Non-Flush Fitting = 4					
Switch Point Hysteresis H (mm) ≤	0.2		0.6					
Repeat Accuracy (mm) ≤	0.1		0.3					
Operating Voltage (V)	10-30		10-30					
Operating Voltage Ripple (%) ≤	10		10					
Load Current Ia (mA) max	250		250					
Residual Current Ir (mA) ≤	0.001		0.001					
No-Load Current (mA) ≤	15		15					
Voltage Drop Ud (V) ≤	2.5		2.5					
Internal Resistance Ri (KΩ)	4.7		4.7					
Temperature Drift S (µm/K) ≤	± 4		± 8					
Switching Frequency (Hz)	1000		1000					
Output Polarity	PNP		NPN					
Output Function	A=NO	U=NO+NC	A=NO	U=NO+NC	A=NO	U=NO+NC	A=NO	U=NO+NC
Connection Diagram	1	3	2	4	1	3	2	4
Short Circuit Protection	yes	yes	yes	yes	yes	yes	yes	yes
Status Indication	LED ( see ordering code)				LED ( see ordering code)			

<b>Cylindrical Housing M12 x 1</b> <b>EGL Version</b> <b>2 Wire D.C.</b> <b>Standard Switching Distance</b>				
	Technical Data	Type : EGL12X02-AD/RD		Type : EGL12X04-AD/RD
	DC Operating Voltage		DC Operating Voltage	
Housing Material	Brass Nickel Plated		Brass Nickel Plated	
Environmental Protection	IP67		IP67	
Mounting Position	Optional		Optional	
Operating Temperature (deg.C)	-25 to +70		-25 to +70	
Connection	Encapsulated Oil Resistant Cable		Encapsulated Oil Resistant Cable	
Cable Length (mm)	2000 or 5000		2000 or 5000	
Conductor Cross Section (mm <sup>2</sup> )	0.34		0.34	
Sensing Distance Sn (mm)	Flush Fitting = 2		Non-Flush Fitting = 4	
Switch Point Hysteresis H (mm) ≤	0.2		0.6	
Repeat Accuracy (mm) ≤	0.1		0.3	
Operating Voltage (V)	10-30		10-30	
Operating Voltage Ripple (%) ≤	10		10	
Load Current Ia (mA) max	200		200	
Residual Current Ir (mA) ≤	1.0		1.0	
Holding Current Im (mA) ≥	4		4	
Voltage Drop Ud (V) ≤	7.5		7.5	
Internal Resistance Ri (KΩ)	-		-	
Temperature Drift S (µm/K) ≤	± 4		± 8	
Switching Frequency (Hz)	400		400	
Output Polarity	-		-	
Output Function	A=NO	R=NC	A=NO	R=NC
Connection Diagram	5	5	5	5
Short Circuit Protection	yes	yes	yes	yes
Status Indication	LED ( see ordering code)		LED ( see ordering code)	

<b>Cylindrical Housing M12 x 1</b> <b>EGL Version</b> <b>2 Wire D.C.</b> <b>Standard Switching Distance</b>				
	Technical Data	Type : EGL12X02-SEM4-AD/RD		Type : EGL12X04-SEM4-AD/RD
	DC Operating Voltage		DC Operating Voltage	
Housing Material	Brass Nickel Plated		Brass Nickel Plated	
Environmental Protection	IP67		IP67	
Mounting Position	Optional		Optional	
Operating Temperature (deg.C)	-25 to +70		-25 to +70	
Connection	Plug and Socket		Plug and Socket	
Cable Length (mm)	-		-	
Conductor Cross Section (mm <sup>2</sup> )	-		-	
Sensing Distance Sn (mm)	Flush Fitting = 2		Non-Flush Fitting = 4	
Switch Point Hysteresis H (mm) ≤	0.2		0.6	
Repeat Accuracy (mm) ≤	0.1		0.3	
Operating Voltage (V)	10-30		10-30	
Operating Voltage Ripple (%) ≤	10		10	
Load Current Ia (mA) max	200		200	
Residual Current Ir (mA) ≤	1.0		1.0	
Holding Current Im (mA) ≥	4		4	
Voltage Drop Ud (V) ≤	7.5		7.5	
Internal Resistance Ri (KΩ)	-		-	
Temperature Drift S (µm/K) ≤	± 4		± 8	
Switching Frequency (Hz)	400		400	
Output Polarity	-		-	
Output Function	A=NO	R=NC	A=NO	R=NC
Connection Diagram	5	5	5	5
Short Circuit Protection	yes	yes	yes	yes
Status Indication	LED ( see ordering code)		LED ( see ordering code)	

<b>Cylindrical Housing M18 x 1</b> <b>EGL Version</b> <b>3 Wire D.C.</b> <b>Standard Switching Distance</b>				
	Technical Data	Type : EGL18X05		Type : EGL18X08
Housing Material	Brass Nickel Plated		Brass Nickel Plated	
Environmental Protection	IP67		IP67	
Mounting Position	Optional		Optional	
Operating Temperature (deg.C)	-25 to +70		-25 to +70	
Connection	Encapsulated Oil Resistant Cable		Encapsulated Oil Resistant Cable	
Cable Length (mm)	2000 or 5000		2000 or 5000	
Conductor Cross Section (mm <sup>2</sup> )	0.34		0.34	
Sensing Distance Sn (mm)	Flush Fitting = 5		Non-Flush Fitting = 8	
Switch Point Hysteresis H (mm) ≤	0.5		0.8	
Repeat Accuracy (mm) ≤	0.2		0.4	
Operating Voltage (V)	10-30		10-30	
Operating Voltage Ripple (%) ≤	10		10	
Load Current Ia (mA) max	250		250	
Residual Current Ir (mA) ≤	0.001		0.001	
No-Load Current (mA) ≤	15		15	
Voltage Drop Ud (V) ≤	2.5		2.5	
Internal Resistance Ri (KΩ)	4.7		4.7	
Temperature Drift S (µm/K) ≤	± 10		± 16	
Switching Frequency (Hz)	500		500	
Output Polarity	PNP		NPN	
Output Function	A=NO	U=NO+NC	A=NO	U=NO+NC
Connection Diagram	1	3	2	4
Short Circuit Protection	yes	yes	yes	yes
Status Indication	LED ( see ordering code)		LED ( see ordering code)	

<b>Cylindrical Housing M18 x 1</b> <b>EGL Version</b> <b>3 Wire D.C.</b> <b>Standard Switching Distance</b>				
	Technical Data	Type : EGL18X05-SEM4		Type : EGL18X08-SEM4
Housing Material	Brass Nickel Plated		Brass Nickel Plated	
Environmental Protection	IP67		IP67	
Mounting Position	Optional		Optional	
Operating Temperature (deg.C)	-25 to +70		-25 to +70	
Connection	Plug and Socket		Plug and Socket	
Cable Length (mm)	-		-	
Conductor Cross Section (mm <sup>2</sup> )	-		-	
Sensing Distance Sn (mm)	Flush Fitting = 5		Non-Flush Fitting = 8	
Switch Point Hysteresis H (mm) ≤	0.5		0.8	
Repeat Accuracy (mm) ≤	0.2		0.4	
Operating Voltage (V)	10-30		10-30	
Operating Voltage Ripple (%) ≤	10		10	
Load Current Ia (mA) max	250		250	
Residual Current Ir (mA) ≤	0.001		0.001	
No-Load Current (mA) ≤	15		15	
Voltage Drop Ud (V) ≤	2.5		2.5	
Internal Resistance Ri (KΩ)	4.7		4.7	
Temperature Drift S (µm/K) ≤	± 10		± 16	
Switching Frequency (Hz)	500		500	
Output Polarity	PNP		NPN	
Output Function	A=NO	U=NO+NC	A=NO	U=NO+NC
Connection Diagram	1	3	2	4
Short Circuit Protection	yes	yes	yes	yes
Status Indication	LED ( see ordering code)		LED ( see ordering code)	

<b>Cylindrical Housing M18 x 1</b> <b>EGL Version</b> <b>2 Wire D.C.</b> <b>Standard Switching Distance</b>				
	Type : EGL18X05-AD/RD		Type : EGL18X08-AD/RD	
Technical Data	DC Operating Voltage		DC Operating Voltage	
Housing Material	Brass Nickel Plated		Brass Nickel Plated	
Environmental Protection	IP67		IP67	
Mounting Position	Optional		Optional	
Operating Temperature (deg.C)	-25 to +70		-25 to +70	
Connection	Encapsulated Oil Resistant Cable		Encapsulated Oil Resistant Cable	
Cable Length (mm)	2000 or 5000		2000 or 5000	
Conductor Cross Section (mm <sup>2</sup> )	0.34		0.34	
Sensing Distance Sn (mm)	Flush Fitting = 5		Non-Flush Fitting = 8	
Switch Point Hysteresis H (mm) ≤	0.5		0.8	
Repeat Accuracy (mm) ≤	0.2		0.4	
Operating Voltage (V)	10-30		10-30	
Operating Voltage Ripple (%) ≤	10		10	
Load Current Ia (mA) max	200		200	
Residual Current Ir (mA) ≤	1.0		1.0	
Holding Current Im (mA) ≥	4		4	
Voltage Drop Ud (V) ≤	7.5		7.5	
Internal Resistance Ri (KΩ)	-		-	
Temperature Drift S (µm/K) ≤	± 10		± 16	
Switching Frequency (Hz)	200		200	
Output Polarity				
Output Function	A=NO	R=NC	A=NO	R=NC
Connection Diagram	5	5	5	5
Short Circuit Protection	yes	yes	yes	yes
Status Indication	LED ( see ordering code)		LED ( see ordering code)	

<b>Cylindrical Housing M18 x 1</b> <b>EGL Version</b> <b>2 Wire D.C.</b> <b>Standard Switching Distance</b>				
	Type : EGL18X05-SEM4-AD/RD		Type : EGL18X08-SEM4-AD/RD	
Technical Data	DC Operating Voltage		DC Operating Voltage	
Housing Material	Brass Nickel Plated		Brass Nickel Plated	
Environmental Protection	IP67		IP67	
Mounting Position	Optional		Optional	
Operating Temperature (deg.C)	-25 to +70		-25 to +70	
Connection	Plug and Socket		Plug and Socket	
Cable Length (mm)	-		-	
Conductor Cross Section (mm <sup>2</sup> )	-		-	
Sensing Distance Sn (mm)	Flush Fitting = 5		Non-Flush Fitting = 8	
Switch Point Hysteresis H (mm) ≤	0.5		0.8	
Repeat Accuracy (mm) ≤	0.2		0.4	
Operating Voltage (V)	10-30		10-30	
Operating Voltage Ripple (%) ≤	10		10	
Load Current Ia (mA) max	200		200	
Residual Current Ir (mA) ≤	1.0		1.0	
Holding Current Im (mA) ≥	4		4	
Voltage Drop Ud (V) ≤	7.5		7.5	
Internal Resistance Ri (KΩ)	-		-	
Temperature Drift S (µm/K) ≤	± 10		± 16	
Switching Frequency (Hz)	200		200	
Output Polarity				
Output Function	A=NO	R=NC	A=NO	R=NC
Connection Diagram	5	5	5	5
Short Circuit Protection	yes	yes	yes	yes
Status Indication	LED ( see ordering code)		LED ( see ordering code)	







<b>Cylindrical Housing M30 x 1.5</b> <b>EGL Version</b> <b>3 Wire D.C.</b> <b>Standard Switching Distance</b>								
	Technical Data	Type : EGL30X10		Type : EGL30X15				
Housing Material	Brass Nickel Plated		Brass Nickel Plated					
Environmental Protection	IP67		IP67					
Mounting Position	Optional		Optional					
Operating Temperature (deg.C)	-25 to +70		-25 to +70					
Connection	Encapsulated Oil Resistant Cable		Encapsulated Oil Resistant Cable					
Cable Length (mm)	2000 or 5000		2000 or 5000					
Conductor Cross Section (mm <sup>2</sup> )	0.34		0.34					
Sensing Distance Sn (mm)	Flush Fitting = 10		Non-Flush Fitting = 15					
Switch Point Hysteresis H (mm) ≤	1.0		1.5					
Repeat Accuracy (mm) ≤	0.5		1.0					
Operating Voltage (V)	10-30		10-30					
Operating Voltage Ripple (%) ≤	10		10					
Load Current Ia (mA) max	250		250					
Residual Current Ir (mA) ≤	0.001		0.001					
No-Load Current (mA) ≤	15		15					
Voltage Drop Ud (V) ≤	2.5		2.5					
Internal Resistance Ri (KΩ)	4.7		4.7					
Temperature Drift S (µm/K) ≤	± 20		± 30					
Switching Frequency (Hz)	300		300					
Output Polarity	PNP		NPN					
Output Function	A=NO	U=NO+NC	A=NO	U=NO+NC	A=NO	U=NO+NC	A=NO	U=NO+NC
Connection Diagram	1	3	2	4	1	3	2	4
Short Circuit Protection	yes	yes	yes	yes	yes	yes	yes	yes
Status Indication	LED ( see ordering code)				LED ( see ordering code)			

<b>Cylindrical Housing M30 x 1.5</b> <b>EGL Version</b> <b>3 Wire D.C.</b> <b>Standard Switching Distance</b>								
	Technical Data	Type : EGL30X10-SEM4		Type : EGL30X15-SEM4				
Housing Material	Brass Nickel Plated		Brass Nickel Plated					
Environmental Protection	IP67		IP67					
Mounting Position	Optional		Optional					
Operating Temperature (deg.C)	-25 to +70		-25 to +70					
Connection	Plug and Socket		Plug and Socket					
Cable Length (mm)	-		-					
Conductor Cross Section (mm <sup>2</sup> )	-		-					
Sensing Distance Sn (mm)	Flush Fitting = 10		Non-Flush Fitting = 15					
Switch Point Hysteresis H (mm) ≤	1.0		1.5					
Repeat Accuracy (mm) ≤	0.5		1.0					
Operating Voltage (V)	10-30		10-30					
Operating Voltage Ripple (%) ≤	10		10					
Load Current Ia (mA) max	250		250					
Residual Current Ir (mA) ≤	0.001		0.001					
No-Load Current (mA) ≤	15		15					
Voltage Drop Ud (V) ≤	2.5		2.5					
Internal Resistance Ri (KΩ)	4.7		4.7					
Temperature Drift S (µm/K) ≤	± 20		± 30					
Switching Frequency (Hz)	300		300					
Output Polarity	PNP		NPN					
Output Function	A=NO	U=NO+NC	A=NO	U=NO+NC	A=NO	U=NO+NC	A=NO	U=NO+NC
Connection Diagram	1	3	2	4	1	3	2	4
Short Circuit Protection	yes	yes	yes	yes	yes	yes	yes	yes
Status Indication	LED ( see ordering code)				LED ( see ordering code)			

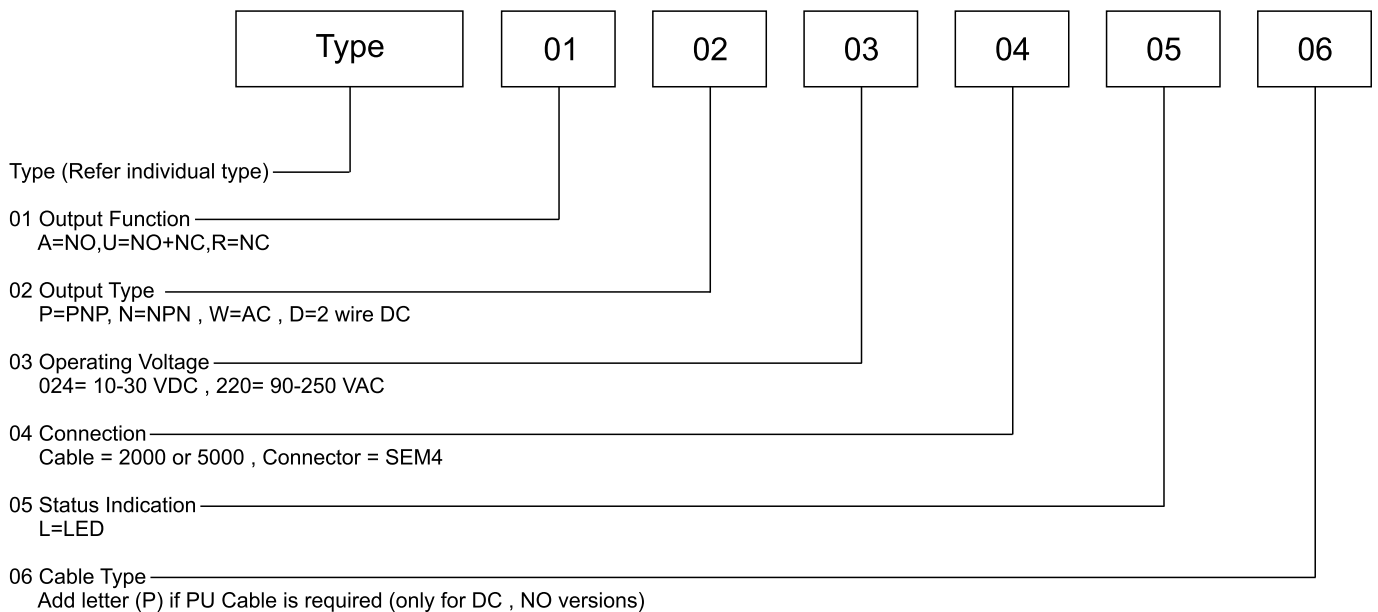


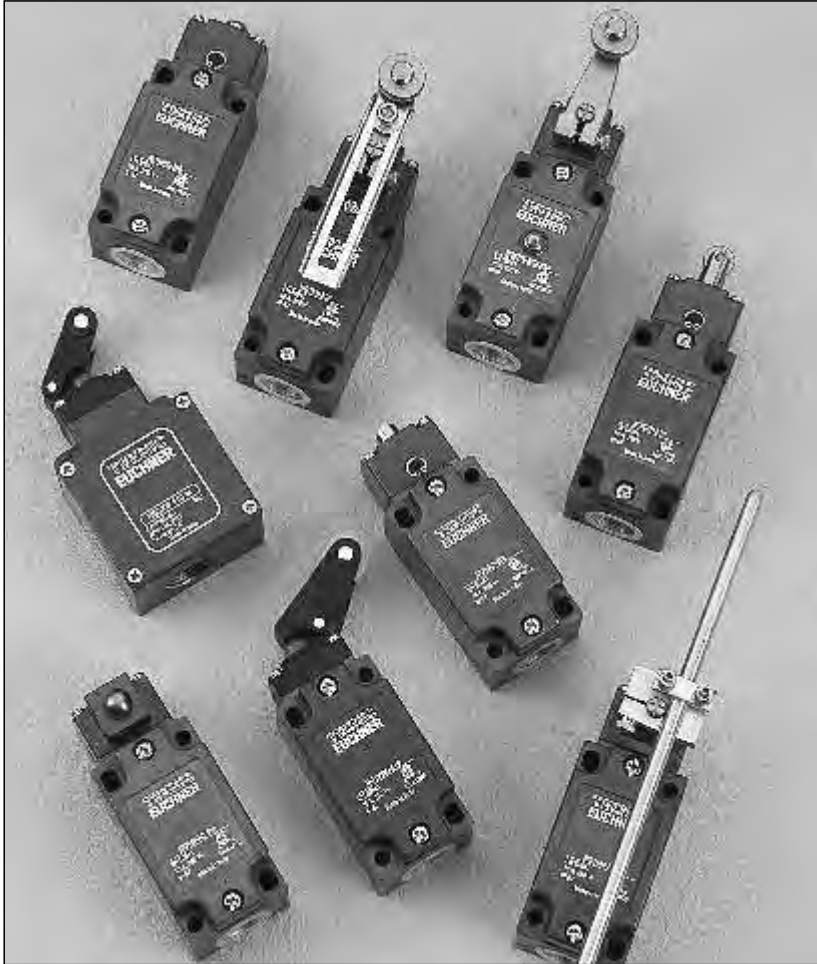


Connection Plug	<p>NO PNP / NPN</p>	<p>NO+NC , PNP/NPN</p>	<p>NO PNP / NPN</p>	<p>NO+NC , PNP/NPN</p>
	Technical Data	SBF		
Indication	-		-	
Environmental Protection	IP67		IP67	
Output Function	NO / NO+NC		NO / NO+NC	
Output Polarity	PNP / NPN		PNP / NPN	
Cable Length (mm)	2000	5000	2000	5000
Ordering Code	SBF3A-2000	SBF3A-5000	SGF3A-2000	SGF3A-5000
	SBF4U-2000	SBF4U-5000	SGF4U-2000	SGF4U-5000
	SBF4 WITHOUT CABLE		SGF4 WITHOUT CABLE	

Connection Plug	<p>NO PNP / NPN</p>	<p>NO , PNP</p>
	Technical Data	SWLF/SWTF
Indication	-	LED
Environmental Protection	IP67	
Output Function	NO	
Output Polarity	PNP / NPN	
Cable Length (mm)	2000	5000
Ordering Code	SWLF3A-2000	SWLF3A-5000
	SWTF3A-2000P	SWTF3A-5000P
	SWLF3AP-2000P	SWLF3AP-5000P

Ordering Code for Inductive Proximity Switches



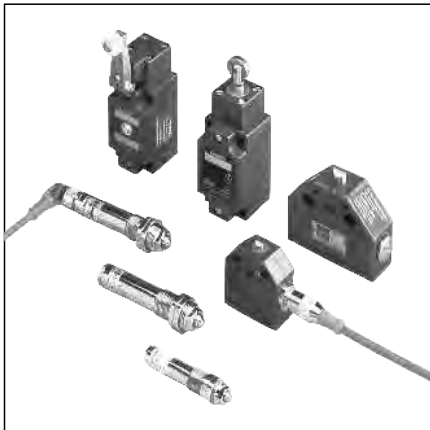


Single Limit Switches



Multiple Limit Switches

### Precision Single-hole fixing / Single Limit Switches



Control & positioning Switches.

### Precision Single / Multiple Limit Switches



Switches used for positioning & control of machines & Industrial Installation.

### Angular Position Transducers



Precise digital positioning devices for detecting rotary / linear displacement. Both absolute as well as incremental type of transducers available.

### Safety Switches Category II TZ & NZ



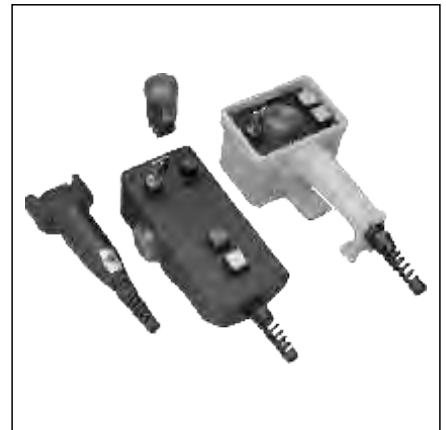
Safety devices for monitoring moveable guards on CNC machine tools.

### Safety Switches Category II TP & NP



Safety devices in plastic construction for monitoring moveable guards on CNC machine tools,

### Enabling Switches



Manually operated control devices for use in hazardous areas of machine & equipment.

### Joysticks



Switches used to control circuits in machines & equipment with commands to operate in several directions.

### Handwheels



Electronic HKD Handwheel devices, with universal pulse generator for manual positioning of axis.

### Hand-held Controllers



Controllers used to make machine operations easier & safer with handwheels.

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