

# Proximity Sensors Capacitive

## High Temperature

### Type ECH, M30



- For temperature applications, from -196°C to +180°C
- Sensor diameter: M30, teflon and stainless steel
- Adjustable sensing distance: 4 to 15 mm, factory set for 10 mm
- Power supply: 10 to 40 VDC
- Output: transistor NPN or PNP, make & break switching
- Protection: Reverse polarity, short-circuit, transients
- LED-indication for output ON
- Separate amplifier and sensor
- Plug connection

## Product Description

Capacitive proximity switch for non-flush mounting with NPN or PNP open collector output. The sensor is provided with a separate teflon sensor head in M30 for temperature application within the

range of -196°C and +180°C ambient temperature, e.g. plastic pellet/resin detection in plastic injection moulding machines and drying equipment, and detection of hot wax as used in e.g. car manufacturing.

## Ordering Key

**ECH 3010 PPA T-1**

Capacitive proximity switch  
Housing diameter  
Rated operating dist. (mm)  
Output type  
Housing material  
Connection type

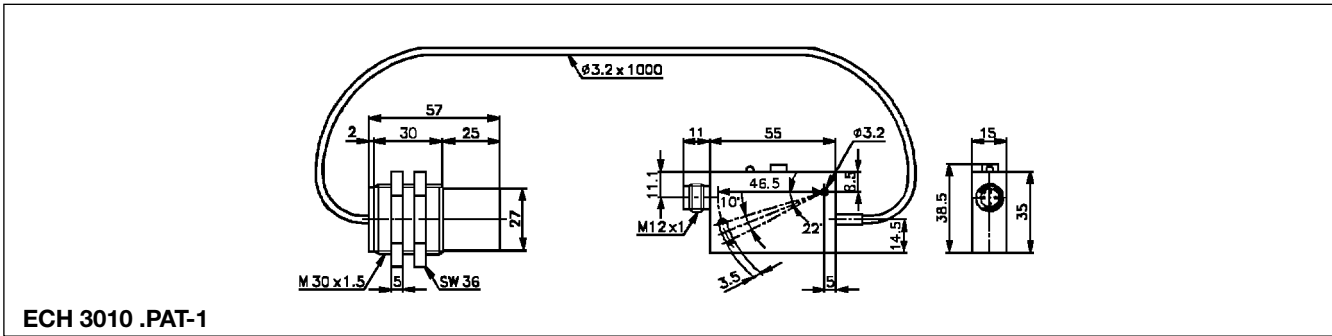
## Type Selection

Housing diameter	Rated operating dist. (S <sub>n</sub> )	Ordering no. NPN Make & break switching	Ordering no. PNP Make & break switching
M30	4 to 15 mm	ECH 3010 NPAT-1	ECH 3010 PPAT-1

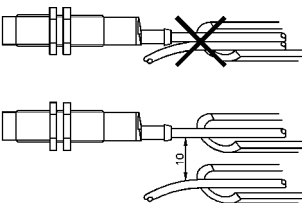
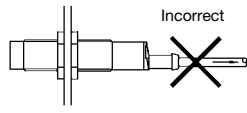
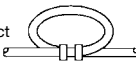
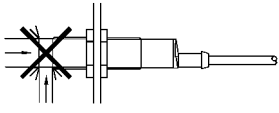
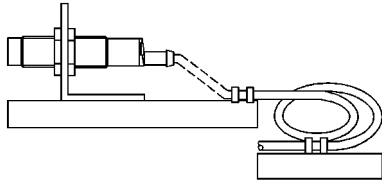
## Specifications

<b>Rated operational volt.</b> (U <sub>e</sub> ) (U <sub>B</sub> )	12 to 36 VDC 10 to 40 VDC (ripple incl.)	<b>Effective operating dist.</b> (l <sub>r</sub> )	0.9 x S <sub>n</sub> ≤ S <sub>r</sub> ≤ 1.1 x S <sub>n</sub>
<b>Ripple</b>	≤ 25%	<b>Usable operating dist.</b> (S <sub>u</sub> )	0.9 x S <sub>r</sub> ≤ S <sub>u</sub> ≤ 1.1 x S <sub>r</sub>
<b>No-load supply current</b> (I <sub>o</sub> )	≤ 12 mA	<b>Ambient temperature</b>	
<b>Rated operational current</b> (I <sub>e</sub> )	≤ 200 mA	Amplifier	
<b>OFF-state current</b> (I <sub>r</sub> )	≤ 100 µA	Operating	-25° to +70°C (-13° to +158°F)
<b>Voltage drop</b> (U <sub>d</sub> )	≤ 2.0 V	Storage	-30° to +80°C (-22° to +176°F)
<b>Protection</b>	Reverse polarity, short-circuit, transients	Sensor	
<b>Transient voltage</b>	≤ 1 kV/0.5 J (prepared)	Operating	-196° to +180°C (-321° to +356°F)
<b>Frequency of operating cycles</b> (f)	5 pulses per s	Storage	-196° to +180°C (-321° to +356°F)
<b>Indication for output ON</b>	LED, yellow	Cable	-55° to +200°C (-67° to +392°F)
<b>Rated operating dist.</b> (S <sub>n</sub> ) (adjustable)	4 to 15 mm factory set: 10 mm Reference object: Grounded steel plate. Other objects: Refer to "Reduction Factors", Technical information.	<b>Degree of protection</b>	IP 67 (Nema 1, 3, 4, 6, 13)
<b>Assured operating dist.</b> (S <sub>a</sub> )	0 < S <sub>a</sub> < 0.81 x S <sub>n</sub>	<b>Housing material</b>	
<b>Repeat accuracy</b> (R)	<10%	Amplifier	Yellow thermoplastic polyester
<b>Hysteresis</b> (H) (Differential travel)	1 to 20% of sensing distance	Sensor	Teflon
		Sensor thread	M30 x 1.5 stainless steel AISI 304
		<b>Cable</b> (Sensor)	1 m teflon (shielded)
		<b>Plug</b> (Amplifier)	CONH1A..
		<b>Weight</b>	
		Amplifier	45 g
		Sensor	90 g
		Nut	18 g
		<b>Tightening torque</b> (Sensor)	Max. 80 Nm

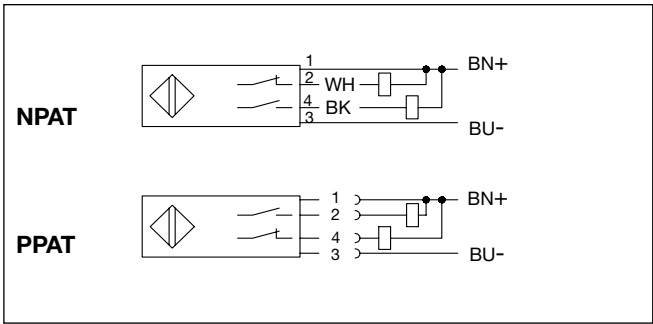
Dimensions



Installation Hints

<p>To avoid interference from inductive voltage/current peaks, separate the prox. switch power cables from any other power cables, e.g. motor, contactor or solenoid cables</p> 	<p>Relief of cable strain</p> <p>Incorrect</p>  <p>Correct</p>  <p>The cable should not be pulled</p>	<p>Protection of the sensing face</p>  <p>A proximity switch should not serve as mechanical stop</p>	<p>Switch mounted on mobile carrier</p>  <p>Any repetitive flexing of the cable should be avoided</p>
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Wiring Diagrams



Accessories

Refer to "Accessories",  
Technical information.

Delivery Content

- Proximity switch:  
ECH 3010...
- 2 nuts
- Screw driver
- Installation instructions
- Packaging: carton box