

# Proximity Sensors Capacitive Thermoplastic Polyester Housing Type EC, M30, AC

**TRIPLESIELD™**

**CARLO GAVAZZI**



- Featuring **TRIPLESIELD™** Sensor Protection
- Rated operational voltage: 20-250 VAC
- Adjustable sensing distance 2-16 mm or 4-25 mm
- Output: SCR
- Make and break switching function
- LED indication
- High noise immunity
- Flush and non-flush types
- Plug and Cable versions available
- DC versions in the same housing

## Product Description

Capacitive proximity switches with either sensing distance 16 mm flush mounted or 25 mm sensing distance non-flush mounted. 2-wire AC output with a switch for choosing NO and NC

switching. Grey M30 polyester housing with 2 m PVC cable or plug. Ideal for use in level and plastic machinery applications. Both types are available in metal housings.

## Ordering Key

**EC 3025 TBA P L-6**

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

## Type Selection

Housing diameter	Rated operating dist. (S <sub>n</sub> ) <sup>1)</sup>	Mounting	Ordering no. SCR, cable Make & break switching	Ordering no. SCR, plug Make & break switching
M30	16 mm	Flush (built-in)	EC 3016 TBAPL	EC 3016 TBAPL-6
M30	25 mm	Non-flush	EC 3025 TBAPL	EC 3025 TBAPL-6

<sup>1)</sup> Object: Grounded steel plate

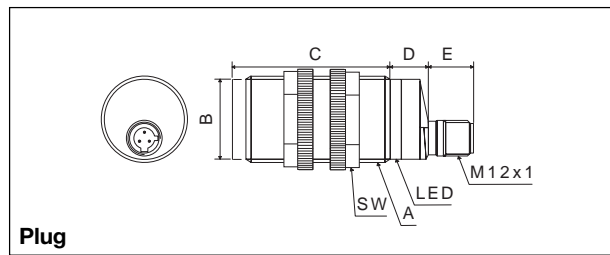
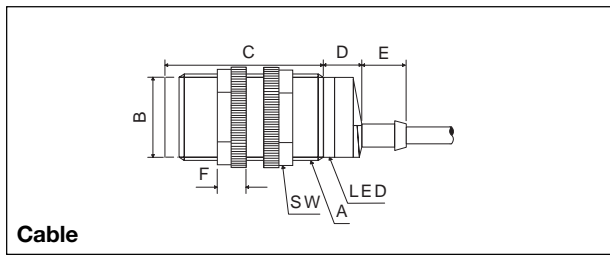
## Specifications

<b>Rated operating dist. (S<sub>n</sub>)</b> 3016:	2 to 16 mm factory set at 16 mm	<b>Power ON delay</b>	≤ 100 ms
3025:	4 to 25 mm factory set at 25 mm	<b>Frequency of operating cycles (f)</b>	10 Hz
<b>Sensitivity</b>	Adj. multiturn pot.meter	<b>Indication for output ON</b>	LED, yellow
<b>Effective operating dist. (S<sub>r</sub>)</b>	0.9 x S <sub>n</sub> ≤ S <sub>r</sub> ≤ 1.1 x S <sub>n</sub>	<b>Environment</b> Degree of protection	IP 67 (Nema 1, 3, 4, 6, 13)
<b>Usable operating dist. (S<sub>u</sub>)</b>	0.8 x S <sub>n</sub> ≤ S <sub>u</sub> ≤ 1.2 x S <sub>n</sub>	<b>Temperature</b> Operating temperature Storage temperature	-25° to +80°C (-13° to +176°F) -40° to +85°C (-40° to +185°F)
<b>Repeat accuracy (R)</b>	≤ 5%	<b>Housing material</b> Body Cable end Nuts	Grey, thermoplastic polyester Polyester Black reinforced nylon
<b>Hysteresis (H)</b>	4 to 20% of sensing distance	<b>Connection</b> Cable	Grey, 2 m, 2 x 0.5 mm <sup>2</sup> Oil proof, PVC
<b>Rated operational volt. (U<sub>B</sub>)</b>	20 to 250 VAC (ripple included)	Plug (-6) Cable for plug (-6)	M12 x 1 double keyed CON.-6A-series
<b>Ripple</b>	≤ 10%	<b>Weight (incl. nuts)</b>	<b>3016:</b> 140 g <b>3025:</b> 150 g
<b>Rated operational current (I<sub>a</sub>)</b> Continuous Short-time	≤ 500 mA < 2.5 A (max. 20 ms)	<b>Approvals</b>	UL, CSA
<b>Min. load current</b>	≤ 10 mA	<b>CE-marking</b>	Yes
<b>OFF-state current (I<sub>r</sub>)</b>	< 2.5 mA (@ 240 VAC) 1.7 mA (@ 120 VAC)		
<b>Voltage drop (U<sub>d</sub>)</b>	≤ 10 VAC (at loads ≥ 20 mA)		
<b>Protection</b>	Transients		

Specifications are subject to change without notice (20.08.01)



## Dimensions



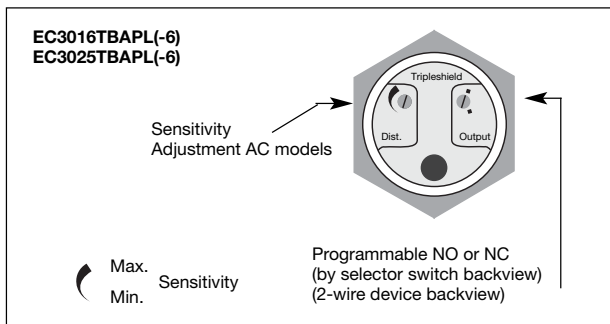
Type	A	B Ø mm	C mm	D mm	E mm	F mm	SW mm
EC 3016TBAPL(-6)	M30 x 1.5 x 50	28	50	13.6	15.4	10	36
EC 3025TBAPL(-6)	M30 x 1.5 x 50	28	62	13.6	15.4	10	36

## Adjustment Guide

The environments in which capacitive sensors are installed can often be unstable regarding temperature, humidity, object distance and industrial (noise) interference. Because of this, Carlo Gavazzi offers as standard features in all *TRIPLESIELD™* capacitive sensors a user-friendly sensitivity adjustment instead of having a fixed sensing range, extended sensing range to accom-

modate mechanically demanding areas, temperature stability to ensure minimum need for adjusting sensitivity if temperature varies and high immunity to electromagnetic interference (EMI).

**Note:**  
Sensors are factory set (default) to maximum rated sensing range.



## Installation Hints

Capacitive sensors have the unique ability to detect almost all materials, either in liquid or solid form. Capacitive sensors can detect metallic as well as non-metallic objects, however, their traditional use is for non-metallic materials such as:

- **Plastic Industry**  
Resins, regrinds or moulded products.

- **Chemical Industry**  
Cleansers, fertilisers, liquid soaps, corrosives and petrochemicals.

- **Wood Industry**  
Saw dust, paper products, door and window frames.

- **Ceramic & Glass Industry**  
Raw material, clay or finished products, bottles.

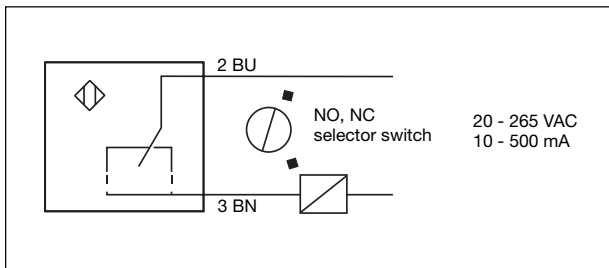
- **Packaging Industry**  
Package inspection for level or contents, dry goods, fruits and vegetables, dairy products.

Materials are detected due to their dielectric constant. The bigger the size of an object, the higher the density of material, the better or easier it is to detect the object. Nominal sensing distance for a capaci-

tive sensor is referenced to a grounded metal plate (ST37). For additional information regarding dielectric ratings of materials please refer to Technical Information.

<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>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 Diagram



## Delivery Contents

- Capacitive switch: EC 30.. TBAPL(-6)
- Screw driver
- 2 nuts
- **Packaging:** Cardboard box
- Installation & Adjustment Guide (MAN CAP ENG/GER)

## Accessories

- Plugs CONH6A.. serie.
- For further information please refer to "Accessories."