

# Proximity Sensors Capacitive Thermoplastic Polyester Housing Type EC, M 30, AC

**TRIPLESIELD™**

**CARLO GAVAZZI**



- Featuring **TRIPLESIELD™** Sensor Protection
- Adjustable sensing distance 2-16 mm or 4-25 mm
- Rated operational voltage: 20-265 VAC
- Output: SCR
- Make and break switching function
- LED indication
- High noise immunity
- Both 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 in metal or 25 mm sensing distance non-flush mounted. 2-wire AC output with a

switch for choosing NO and NC switching. Grey M 30 polyester housing with 2 m PUR cable or plug. Ideal for use in level and plastic machinery applications.

## Ordering Key **EC 3025 TBA P L-6**

Type: Capacitive proximity switch	EC
Housing diameter (mm)	30
Rated operating dist. (mm)	25
Output type	TBA
Housing material	P
Housing type	L
Connection type	6

## 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 (build-in)	<b>EC 3016 TBAPL</b>	<b>EC 3016 TBAPL-6</b>
M30	25 mm	Non-flush	<b>EC 3025 TBAPL</b>	<b>EC 3025 TBAPL-6</b>

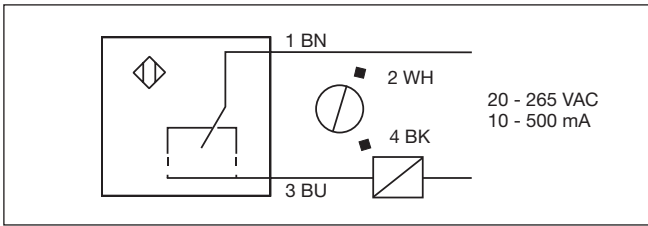
<sup>1)</sup> Object: Grounded steel plate

## Specifications

<b>Rated operational volt. (U<sub>b</sub>)</b>	20 to 265 VAC (ripple included)	<b>EMC ratings</b>	Acc. to EN 50 082-2
<b>Ripple</b>	≤ 10%	ENV 50 140 RF Electromagnetic field AM, 80-1000 MHz, Level 3	10 V/m
<b>Rated operational current (I<sub>e</sub>)</b>		ENV 50 204 RF Electromagnetic field PM, 80-900 MHz, Level 3	10 V/m
Continuous	≤ 500 mA	EN 61000-4-2 ESD	
Short-time	< 2.5 A (max. 20 ms)	Contact discharge, Level 4	8 kV
<b>Min. load current</b>	≤ 10 mA	Air discharge, Level 4	17 kV
<b>OFF-state current (I<sub>r</sub>)</b>	< 2.5 mA (@ 240 VAC) 1.7 mA (@ 120 VAC)	ENV 50 141 RF Common mode	
<b>Voltage drop (U<sub>d</sub>)</b>	≤ 10 VAC (at loads ≥ 20 mA)	EN 61000-4-4 Fast transient	
<b>Power ON delay</b>	≤ 100 ms	Rep. freq. 5 kHz, Level 3	2 kV
<b>Frequency of operating cycles (f)</b>	25 Hz	IEC 60947-5-2 Surges common mode, Gen. Imp. 500E, Level 3	2.5 kV
<b>Indication for output ON</b>	LED, yellow	<b>Environment</b>	
<b>Rated operating dist. (S<sub>n</sub>) (adjustable)</b>	<b>3016:</b> 2 to 16 mm factory set at 16 mm <b>3025:</b> 4 to 25 mm factory set at 25 mm	Degree of protection	IP 67 (Nema 1, 3, 4, 6, 13)
<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>	Operating temperature	-25° to +80°C (-13° to +176°F)
<b>Usable operating dist. (S<sub>u</sub>)</b>	0.8 x S <sub>r</sub> ≤ S <sub>n</sub> < 1.2 x S <sub>r</sub>	Storage temperature	-40° to +85°C (-40° to +185°F)
<b>Repeat accuracy (R)</b>	≤ 5%	<b>Housing material</b>	Grey thermoplastic polyester
<b>Hysteresis (H)</b>	4 to 20% of sensing distance	<b>Cable</b>	2 m, 2 x 0.5 mm <sup>2</sup> grey PUR, oil proof
		<b>Plug (-6)</b>	M12 x 1 double keyed CONH-1A-series
		<b>Weight (incl. nuts)</b>	<b>3016:</b> 140 g <b>3025:</b> 150 g



## Wiring Diagrams



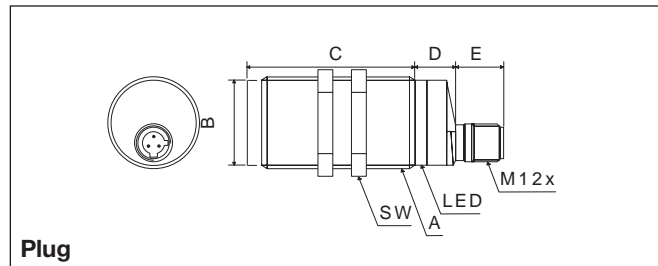
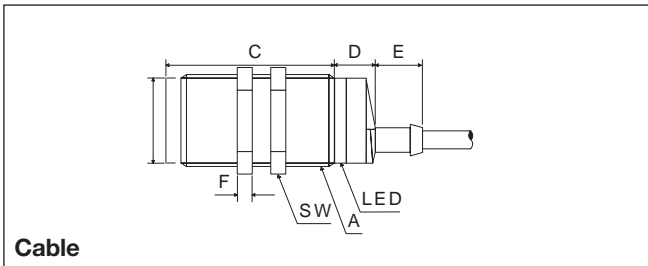
## Delivery Contents

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

## Accessories

- Plugs CONH6A.. serie, please refer to "Accessories."

## Dimensions



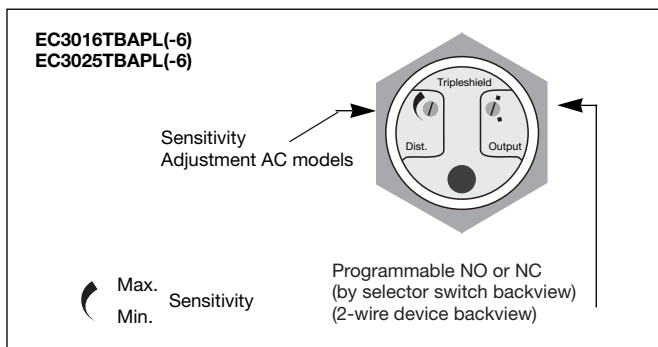
Type	A	B Ø mm	C mm	D mm	E mm	F mm	SW mm
EC 3016TBAPL(-6)	M 30 x 1.5 x 50	28	50	13.6	15.4	5	36
EC 3025TBAPL(-6)	M 30 x 1.5 x 50	28	62	13.6	15.4	5	36

## 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 *TRIP-LESHIELD™* 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 mould-  
ed products.

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