

# Proximity Sensors Capacitive Thermoplastic Polyester Housing Type CA, M 30, 2-wire AC/DC

**TRIPLESIELD™**

**CARLO GAVAZZI**



- Featuring TRIPLESIELD™ Sensor Protection
- Temperature stability
- Humidity compensation circuit
- Adjustable sensing distance 2-16 mm or 2-25 mm
- Rated operational voltage: 20-250 VAC/DC
- Output: Power MOSFET
- Make and break switching function, selectable
- LED indication
- High noise immunity
- Flush and non-flush types
- Cable and plug versions available

## Product Description

Capacitive proximity switches with either sensing distance 16 mm flush mounted or 25 mm sensing distance non-flush mounted. 2-wire AC/DC output with a switch

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

## Ordering Key

**CA30CLF25CPM6**

Type: Cap. proximity switch	CA
Housing style	30
Housing size	CL
Housing material	F
Housing length	25
Detection principle	C
Sensing distance	P
Output type	M
Output configuration	6
Connection	

## Type Selection

Housing diameter	Rated operating dist. (S <sub>n</sub> ) <sup>1)</sup>	Mounting	Ordering no. Power MOSFET, cable Make & break switching	Ordering no. Power MOSFET, plug Make & break switching
M30 <sup>2)</sup>	16 mm	Flush (built-in)	CA30CLF16CP	CA30CLF16CPM6
M30	25 mm	Non-flush	CA30CLN25CP	CA30CLN25CPM6

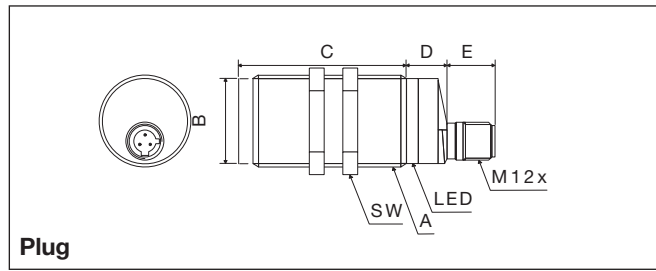
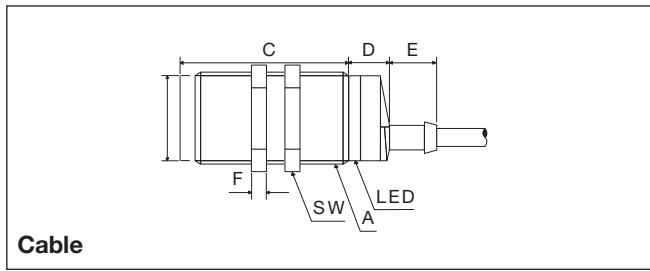
<sup>1)</sup> Object: Grounded steel plate

<sup>2)</sup> No humidity compensation

## Specifications

<b>Rated operating dist. (S<sub>n</sub>)</b> CA30CL.16CP.: CA30CL.25CP.:	2 to 16 mm (preset at 16 mm) 2 to 25 mm (preset at 25 mm)	<b>Protection</b>	Transients, reverse polarity
<b>Sensitivity</b>	Adj. multiturn pot.meter	<b>Power ON delay</b>	≤ 200 ms
<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>Freq. of operating cycles (f)</b>	10 Hz
<b>Usable operating dist. (S<sub>u</sub>)</b>	0.8 x S <sub>r</sub> ≤ S <sub>u</sub> < 1.2 x S <sub>r</sub>	<b>Indication for output ON</b>	LED, yellow
<b>Repeat accuracy (R)</b>	≤ 5%	<b>Environment</b>	Degree of protection
<b>Hysteresis (H)</b>	4 to 20% of sensing distance		IP 67 (Nema 1, 3, 4, 6, 13)
<b>Rated operational volt. (U<sub>B</sub>)</b>	20 to 250 VAC/DC (ripple included)	<b>Temperature (T<sub>A</sub>)</b>	Operating temperature
<b>Ripple</b>	≤ 10%		-25° to +80°C (-13° to +176°F)
<b>Rated operational current (I<sub>e</sub>)</b>		Storage temperature	-40° to +85°C (-40° to +185°F)
Continuous	≤ 250 mA DC @ T <sub>A</sub> ≤ 50°C ≤ 200 mA DC @ T <sub>A</sub> ≤ 80°C ≤ 350 mA AC @ T <sub>A</sub> ≤ 50°C ≤ 250 mA AC @ T <sub>A</sub> ≤ 80°C	<b>Housing material</b>	
Short-time	< 2.5 A (max. 20 ms)	Body	Grey, thermoplastic polyester
<b>Min. load current</b>	10 mA	Cable end	Polyester
<b>OFF-state current (I<sub>r</sub>)</b>	< 1.9 mA (@ 20-250 VAC) < 1.7 mA (@ 20-250 VDC)	Nuts	Black reinforced nylon
<b>Voltage drop (U<sub>d</sub>)</b>	≤ 5.5 VAC/DC @ I <sub>e max</sub>	<b>Connection</b>	
		Cable	Grey, 2 m, 2 x 0.5 mm <sup>2</sup> Oil proof, PVC
		Plug (-6)	M12 x 1 double keyed CON.-6A-series
		Cable for plug (-6)	
		<b>Weight (incl. nuts)</b>	CA30CL.16CP.: 140 g CA30CL.25CP.: 150 g
		<b>Approvals</b>	UL, CSA
		<b>CE-marking</b>	Yes

## Dimensions



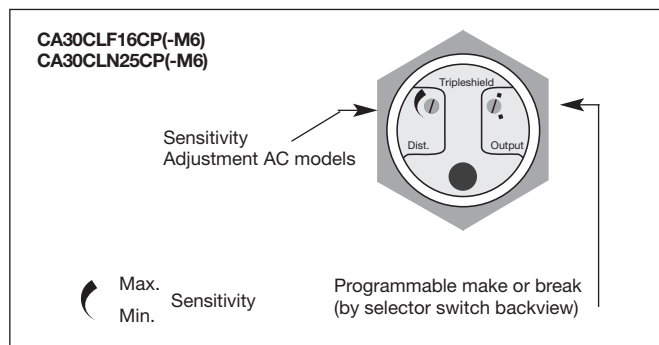
Type	A	B Ø mm	C mm	D mm	E mm	F mm	SW mm
CA30CLF16CP(-M6)	M 30 x 1.5 x 50	28	50	13.6	15.4	5	36
CA30CLN25CP(-M6)	M 30 x 1.5 x 50	28	62	13.6	15.4	5	36

## 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 **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.

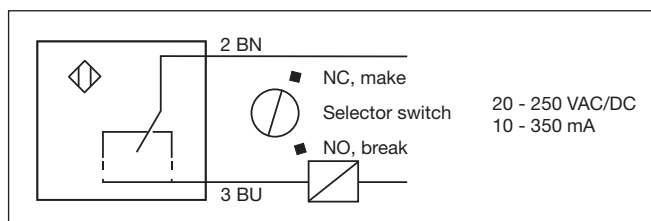
• **Packaging Industry**  
Package inspection for level or contents, dry goods, fruits and vegetables, dairy products.

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>Not correct</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 Diagram



## Delivery Contents

- Capacitive switch: CA30..CL...CP (-M6)
- 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".