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

TRIPLESHIELD™

CARLO GAVAZZI



- Featuring TRIPLESHIELD™ 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

CA30CLN25CPM6

- **Type: Cap. proximity switch**
- **Housing style**
- **Housing size**
- **Housing material**
- **Housing length**
- **Detection principle**
- **Sensing distance**
- **Output type**
- **Output configuration**
- **Connection**

Type Selection

Housing diameter	Rated operating dist. (S_n) [1]	Mounting	Ordering no. Power MOSFET, cable Make & break switching	Ordering no. Power MOSFET, plug Make & break switching
M30 [2]	16 mm	Flush (built-in)	**CA30CLF16CP**	**CA30CLF16CPM6**
M30	25 mm	Non-flush	**CA30CLN25CP**	**CA30CLN25CPM6**

[1] Object: Grounded steel plate

[2] No humidity compensation

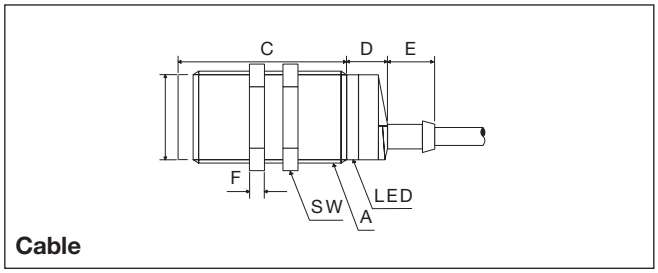
Specifications

Rated operating dist. (S_n)	
CA30CL.16CP..:	2 to 16 mm (preset at 16 mm)
CA30CL.25CP..:	2 to 25 mm (preset at 25 mm)
Sensitivity	Adj. multiturn pot.meter
Effective operating dist. (S_r)	0.9 x $S_n \le S_r \le$ 1.1 x S
Usable operating dist. (S_u)	0.8 x $S_r \le S_n >$ 1.2 x S_r
Repeat accuracy (R)	≤ 5%
Hysteresis (H)	4 to 20% of sensing distance
Rated operational volt. (U_B)	20 to 250 VAC/DC (ripple included)
Ripple	≤ 10%
Rated operational current (I_e)	
Continuous	≤ 250 mA DC @ $T_A \le$ 50°C ≤ 200 mA DC @ $T_A \le$ 80°C ≤ 350 mA AC @ $T_A \le$ 50°C ≤ 250 mA AC @ $T_A \le$ 80°C
Short-time	< 2.5 A (max. 20 ms)
Min. load current	10 mA
OFF-state current (I_r)	< 1.9 mA (@ 20-250 VAC) < 1.7 mA (@ 20-250 VDC)
Voltage drop (U_d)	≤ 5.5 VAC/DC @ $I_{e\,max}$
Protection	Transients, reverse polarity
Power ON delay	≤ 200 ms
Freq. of operating cycles (f)	10 Hz
Indication for output ON	LED, yellow
Environment	
Degree of protection	IP 67 (Nema 1, 3, 4, 6, 13)
Temperature (T_A)	
Operating temperature	-25° to +80°C (-13° to +176°F)
Storage temperature	-40° to +85°C (-40° to +185°F)
Housing material	
Body	Grey, thermoplastic polyester
Cable end	Polyester
Nuts	Black reinforced nylon
Connection	
Cable	Grey, 2 m, 2 x 0.5 mm² Oil proof, PVC
Plug (-6)	M12 x 1 double keyed
Cable for plug (-6)	CON.6A-.. series
Weight (incl. nuts)	**CA30CL.16CP..:** 140 g **CA30CL.25CP..:** 150 g
Approvals	UL, CSA
CE-marking	Yes

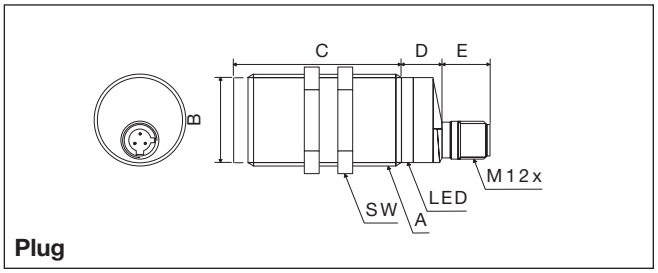
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Dimensions



Cable



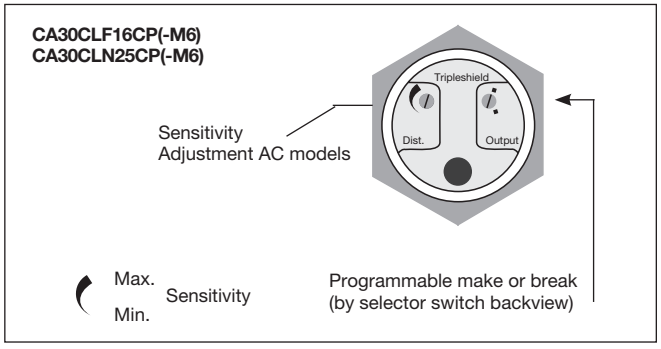
Plug

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 *TRIPLESHIELD*™ capacitive sensors a user-friendly sensitivity adjustment instead of having a fixed sensing range, extended sensing range to accommodate mechanically demanding areas, temperature stability to ensure minimum need for adjusting sensitivity if temperature varies and high immunity to electromagnetic interference (EMI).

Note:
The sensors are factory set (default) to maximum rated sensing range.



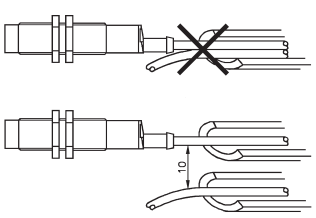
Installation Hints

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:

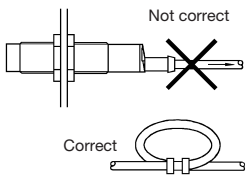
- **Plastic Industry**
  Resins, regrinds or moulded products.
- **Chemical Industry**
  Cleansers, fertilisers, liquid soaps, corrosives and pe-trochemicals.
- **Wood Industry**
  Saw dust, paper products, door and window frames.
- **Ceramic & Glass Industry**
  Raw material, clay or finished products, 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 capacitive sensor is referenced to a grounded metal plate (ST37). For additional information regarding dielectric ratings of materials please refer to Technical Information.

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

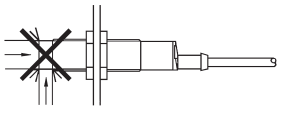


Relief of cable strain



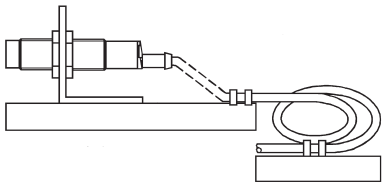
The cable should not be pulled

Protection of the sensing face



A proximity switch should not serve as mechanical stop

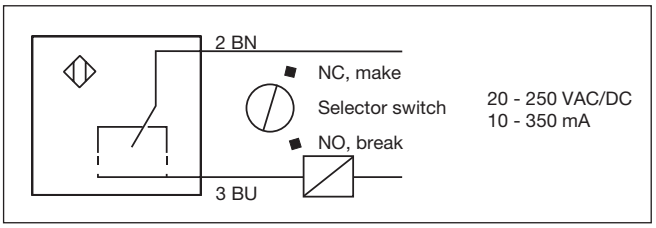
Switch mounted on mobile carrier



Any repetitive flexing of the cable should be avoided

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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 CON.6A-.. series.
For further information please refer to “Accessories”.

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