Proximity Sensors Capacitive Thermoplastic Polyester Housing Type CA, M18, DC

TRIPLESHIELD™

CARLO GAVAZZI



- Featuring ***TRIPLESHIELD***™ sensor protection
- Adjustable sensing distance 3-8 mm or 3-12 mm
- Rated operational voltage: 10-40 VDC
- Output: DC 200 mA, NPN or PNP
- Make and break switching function
- LED indication
- High noise immunity
- Flush and non-flush types
- Plug and cable versions

Product Description

Capacitive proximity switches with either sensing distance 8 mm flush mounted in metal or sensing distance 12 mm non-flush mounted. 4-wire DC output with both make (NO) and break (NC) switching. Grey M18 polyester housing with 2 m PVC cable or M12 plug. Ideal for use in level and plastic machinery applications.

Ordering Key

CA18CLN12NAM1

- **Capacitive proximity switch**
- **Housing style**
- **Housing size**
- **Housing material**
- **Housing length**
- **Detection principle**
- **Sensing distance**
- **Output type**
- **Output configuration**
- **Connection type**

Type Selection

Housing diameter	Rated operating dist. (S_n) [1]	Mounting	Ordering no. Transistor NPN/cable Make & break switching	Ordering no. Transistor NPN/plug Make & break switching	Ordering no. Transistor PNP/cable Make & break switching	Ordering no. Transistor PNP/plug Make & break switching
M18	8 mm	Flush (built-in)	**CA18CLF08NA**	**CA18CLF08NAM1**	**CA18CLF08PA**	**CA18CLF08PAM1**
M18	12 mm	Non-flush	**CA18CLN12NA**	**CA18CLN12NAM1**	**CA18CLN12PA**	**CA18CLN12PAM1**

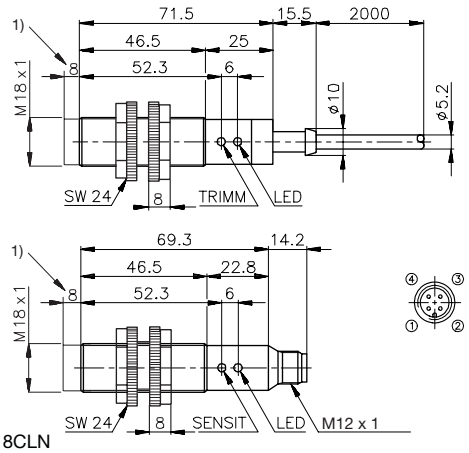
[1] Object: Grounded steel plate

Specifications

Rated operating dist. (S_n)	
CA18CLF08	3 to 8 mm factory set at 8 mm
CA18CLN12	3 to 12 mm factory set at 12 mm
Sensitivity	Adj. 270° turn pot. meter
Effective operation dist. (S_r)	$0.9 \times S_n \le S_r \le 1.1 \times S_n$
Usable operation dist. (S_u)	$0.8 \times S_r \le S_n \le 1.2 \times S_r$
Repeat accuracy (R)	≤ 5%
Hysteresis (H)	4 to 20% of sensing distance
Rated operational volt. (U_B)	10 to 40 VDC (ripple included)
Ripple	≤ 10%
Rated operational current (I_e)	
Continuous	≤ 200 mA
No-load supply current (I_o)	≤ 10 mA
Voltage drop (U_d)	≤ 2.5 VDC at max. load
Protection	Reverse polarity, short-circuit, transients
Frequency of operating cycles (f)	30 Hz

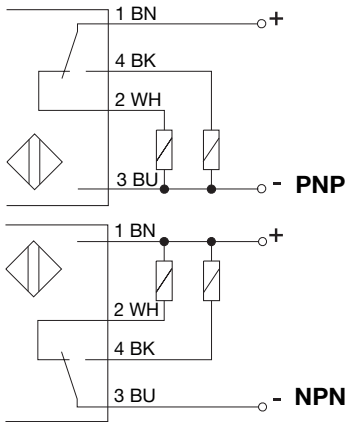
Indication for output ON	LED, yellow
Environment	
Degree of protection	IP 67 (Nema 1, 3, 4, 6, 13)
Temperature	
Operating temperature	-25° to +80°C (-13° to +176°F)
Storage temperature	-40° to +85°C (-40° to +185°F)
Housing material	
Body	Grey, thermoplastic polyester
Front	Grey, polyester
Cable end	Polyester
Nuts	Black, reinforced nylon
Connection	
Cable	Grey, 2 m, 4 x 0.34 mm^2 Oil proof PVC
Plug (M1)	M12 x 1
Cable for plug (M1)	CON.1A-series
Weight	
Cable version	110 g
Plug version	30 g
Approvals	UL, CSA
CE-marking	Yes

Dimensions



1) Note: Only CA18CLN

Wiring Diagrams

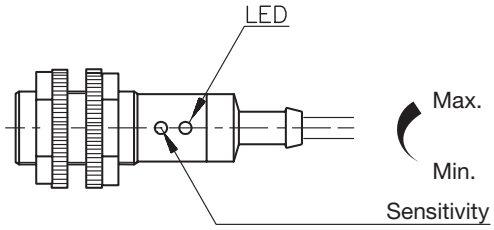


Adjustment Guide

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

CA18CL...



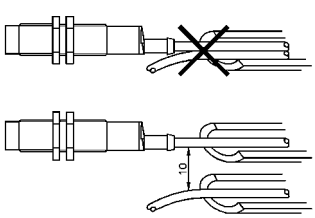
Installation Hints

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:

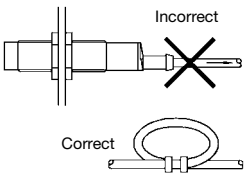
- **Plastic Industry**
  Resins, regrinds or moulded products.
- **Chemical Industry**
  Cleansers, fertilisers, liquid soaps, corrosives and petrochemicals.
- **Wood Industry**
  Saw dust, paper products, door and window frames.
- **Ceramic & Glass Industry**
  Raw material, clay or finished products, 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 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

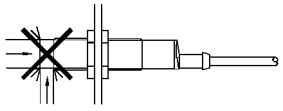


Relief of cable strain



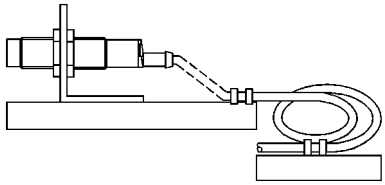
The cable should not be pulled

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

Delivery Contents

- Capacitive switch: CA18CL...
- Screw driver
- 2 nuts
- **Packaging:** Cardboard box
- Installation & Adjustment Guide

Accessories

- Plugs CON.1A-..series.

For further information refer to “Accessories”.

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