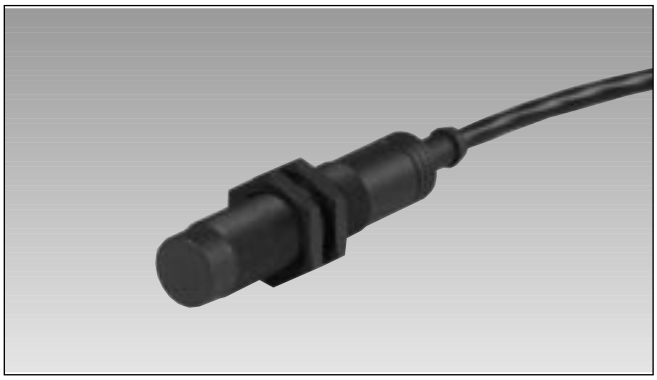
Proximity Sensors Capacitive Polypropylene Housing Type CA, M18, DC

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**
- **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.

Black M18 polypropylene housing with 2 m cable. Ideal for use in level applications in chemical, semi-conductor and food & beverage industries.

Ordering Key

CA18HLN08NA

- **Type**
- **Housing style**
- **Housing size**
- **Housing material**
- **Housing length**
- **Detection principle**
- **Sensing distance**
- **Output type**
- **Output configuration**

Type Selection

Housing diameter	Rated operating dist. (S_n) [1]	Mounting	Ordering no. Transistor NPN Make & break switching	Ordering no. Transistor PNP Make & break switching
M18	8 mm	Flush (built-in)	**CA18HLF08NA**	**CA18HLF08PA**
M18	12 mm	Non-flush	**CA18HLN12NA**	**CA18HLN12PA**

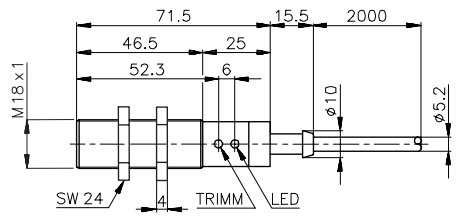
[1] Object: Grounded steel plate

Specifications

Rated operating dist. (S_n)	
CA18HLF08	3 to 8 mm factory set at 8 mm
CA18HLN12	3 to 12 mm factory set at 12 mm
Sensitivity	Adj. 270° turn pot. meter
Effective operation dist. (S_r)	$0.9 \times S_n \leq S_r \leq 1.1 \times S_n$
Usable operation dist. (S_u)	$0.8 \times S_r \leq S_n \leq 1.2 \times S_r$
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

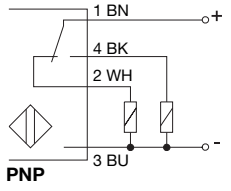
Frequency of operating cycles (f)	30 Hz
Indication for output ON	LED, yellow
Environment	
Degree of protection	IP 67 (Nema 1, 3, 4, 6, 13)
Temperature	
Operating temperature	-25° to +80°C (-13° to +176°F)
Storage temperature	-40° to +85°C (-40° to +185°F)
Housing material	
Body, front, nuts	Black polypropylene
Connection	
Cable	Black, 2 m, 4 x 0.34 mm^2 Polypropylene
Weight	110 g
CE-marking	Yes

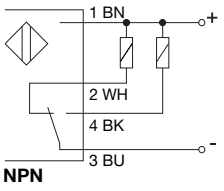
Dimensions



1) Note: Only CA18HLN

Wiring Diagrams



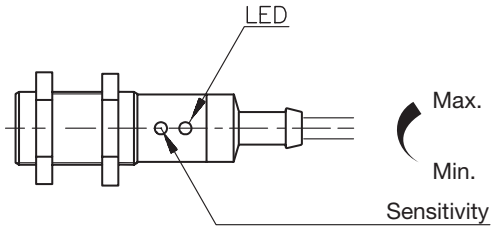


Adjustment Guide

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.

CA18HL...



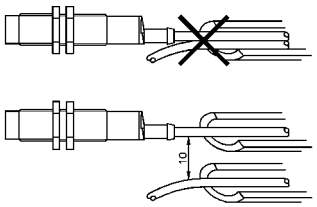
Installation Hints

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:

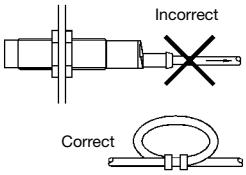
- **Chemical Industry**
  Cleansers, fertilisers, liquid soaps, corrosives and petrochemicals.
- **Semi-conductor Industry**
- **Food & Beverage**
- **Packaging Industry**
  Package inspection for level or contents, dry goods, fruits and vegetables, dairy products.

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



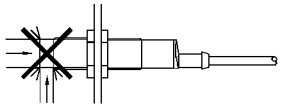
Relief of cable strain



Bending radius ≥ 7.5 cm

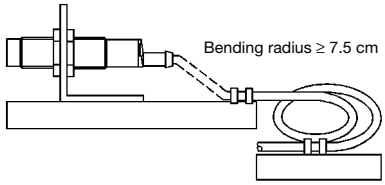
The cable should not be pulled

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: CA18HL...
- Screw driver
- 2 nuts
- **Packaging:** Cardboard box
- Installation & Adjustment Guide