

# 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

**CA 18 HLF 08 NA**

Type	CA
Housing style	18
Housing size	HLF
Housing material	08
Housing length	NA
Detection principle	
Sensing distance	
Output type	
Output configuration	

## Type Selection

Housing diameter	Rated operating dist. (S <sub>n</sub> ) <sup>1)</sup>	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

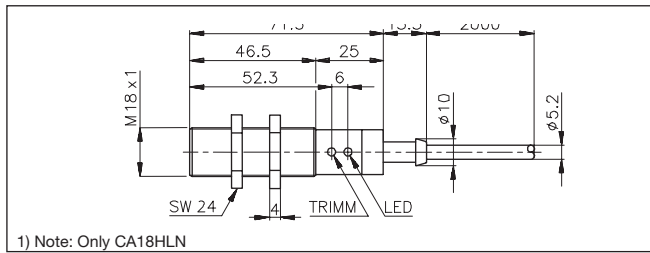
<sup>1)</sup> Object: Grounded steel plate

## Specifications

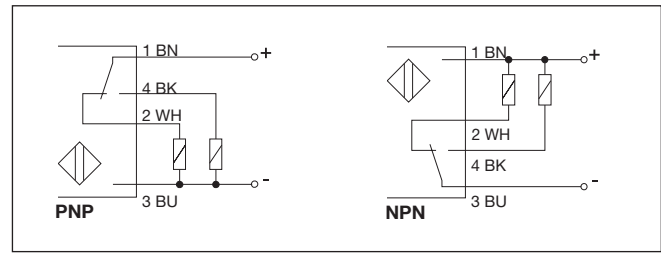
<b>Rated operating dist. (S<sub>n</sub>)</b> CA18HLF08	3 to 8 mm factory set at 8 mm	<b>Frequency of operating cycles (f)</b>	30 Hz
CA18HLN12	3 to 12 mm factory set at 12 mm	<b>Indication for output ON</b>	LED, yellow
<b>Sensitivity</b>	Adj. 270° turn pot. meter	<b>Environment</b> Degree of protection	IP 67 (Nema 1, 3, 4, 6, 13)
<b>Effective operation 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>Temperature</b> Operating temperature Storage temperature	-25° to +80°C (-13° to +176°F) -40° to +85°C (-40° to +185°F)
<b>Usable operation 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>Housing material</b> Body, front, nuts	Black polypropylene
<b>Repeat accuracy (R)</b>	≤ 5%	<b>Connection</b> Cable	Black, 2 m, 4 x 0.34 mm <sup>2</sup> Polypropylene
<b>Hysteresis (H)</b>	4 to 20% of sensing distance	<b>Weight</b>	110 g
<b>Rated operational volt. (U<sub>B</sub>)</b>	10 to 40 VDC (ripple included)	<b>CE-marking</b>	Yes
<b>Ripple</b>	≤ 10%		
<b>Rated operational current (I<sub>e</sub>)</b> Continuous	≤ 200 mA		
<b>No-load supply current (I<sub>o</sub>)</b>	≤ 10 mA		
<b>Voltage drop (U<sub>d</sub>)</b>	≤ 2.5 VDC at max. load		
<b>Protection</b>	Reverse polarity, short-circuit, transients		



## Dimensions



## Wiring Diagrams

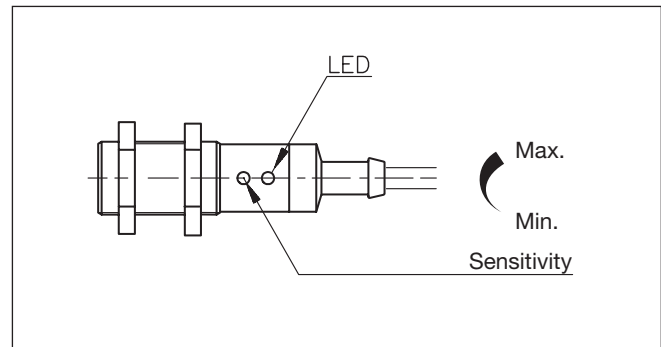


## Adjustment Guide

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 TRIPLESIELD™ 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.



## 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.

<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>Bending radius <math>\geq 7.5</math> cm 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>Bending radius <math>\geq 7.5</math> cm Any repetitive flexing of the cable should be avoided</p>
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## Delivery Contents

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