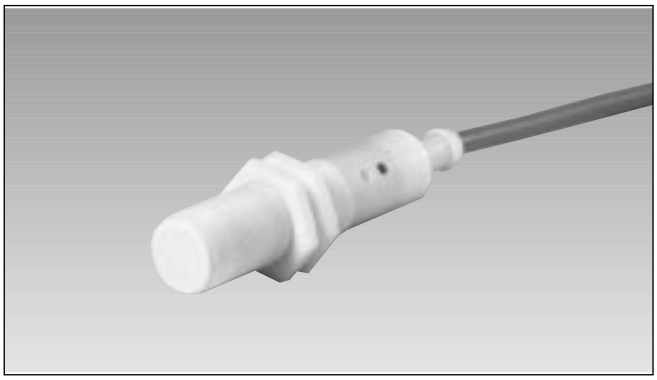
# Proximity Sensors Capacitive Teflon Housing Type CA, M18, DC

TRIPLESHIELD™

CARLO GAVAZZI



- **Featuring *TRIPLESHIELD*™ sensor protection**
- **Adjustable sensing distance 3-8 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 types**
- **Cable versions**

## Product Description

Capacitive proximity switches with sensing distance of 8 mm flush mounted in metal. 4-wire DC output with both make (NO) and break (NC) switching.

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

## Ordering Key

**CA18FLF08NA**

- **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) | **CA18FLF08NA** | **CA18FLF08PA** |

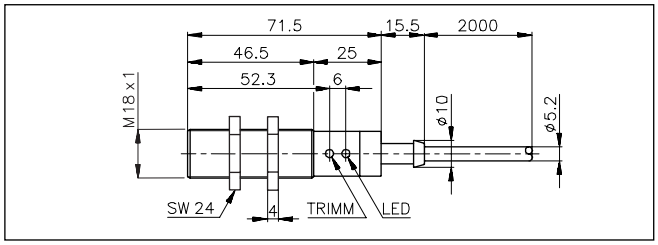
[1] Object: Grounded steel plate

## Specifications

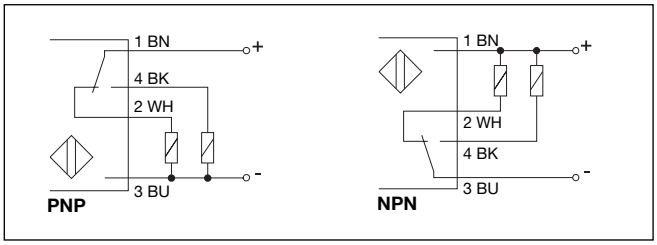
| | |
|---|---|
| **Rated operating dist.** ($S_n$)<br>CA18FLF08 | 3 to 8 mm<br>factory set at 8 mm |
| **Sensitivity** | Adj. 270° turn pot. meter |
| **Effective operation dist.** ($S_r$) | $0.9 \times S_n \leq S_r \leq 1.1 \times S_n$ |
| **Usable operation dist.** ($S_u$) | $0.8 \times S_r \leq S_n \leq 1.2 \times S_r$ |
| **Repeat accuracy** (R) | ≤ 5% |
| **Hysteresis** (H) | 4 to 20% of sensing distance |
| **Rated operational volt.** ($U_B$) | 10 to 40 VDC<br>(ripple included) |
| **Ripple** | ≤ 10% |
| **Rated operational current** ($I_e$)<br>Continuous | ≤ 200 mA |
| **No-load supply current** ($I_o$) | ≤ 10 mA |
| **Voltage drop** ($U_d$) | ≤ 2.5 VDC at max. load |
| **Protection** | Reverse polarity,<br>short-circuit, transients |
| **Frequency of operating cycles** (f) | 30 Hz |

| | |
|---|---|
| **Indication for output ON** | LED, yellow |
| **Environment**<br>Degree of protection | IP 67 (Nema 1, 3, 4, 6, 13) |
| **Temperature**<br>Operating temperature<br>Storage temperature | -25° to +60°C ( -13° to +140°F)<br>-40° to +65°C (-40° to +149°F) |
| **Housing material**<br>Body, front, nuts | Teflon |
| **Connection**<br>Cable | Grey, 2 m, 4 x 0.34 $mm^2$<br>Oil proof PVC |
| **Weight** | 110 g |
| **CE-marking** | Yes |

## Dimensions



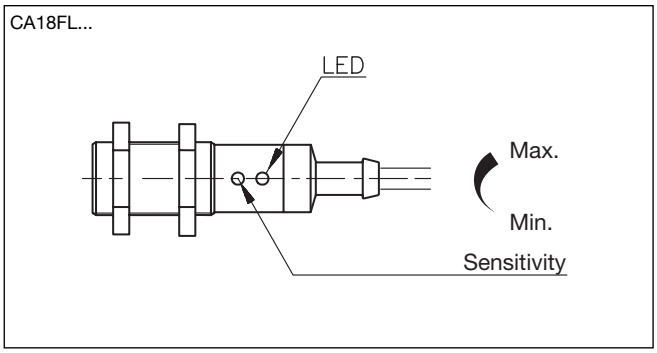

## Wiring Diagrams




## 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 *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.



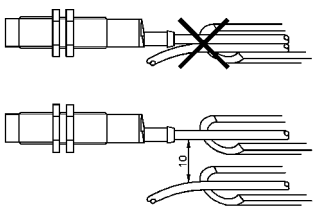

## Installation Hints

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:

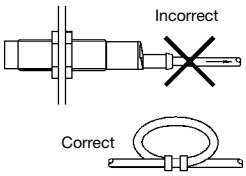
- **Plastic Industry**
  Resins, regrinds or moulded products.
- **Chemical Industry**
  Cleansers, fertilisers, liquid soaps, corrosives and petrochemicals.
- **Wood Industry**
  Saw dust, paper products, door and window frames.
- **Ceramic & Glass Industry**
  Raw material, clay or finished products,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

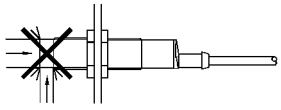



*Relief of cable strain*



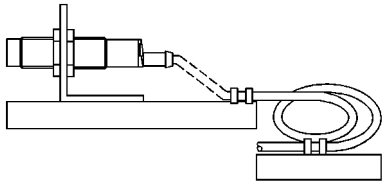

The cable should not be pulled

*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: CA18FL...
- Screw driver
- 2 nuts
- **Packaging:** Cardboard box
- Installation & Adjustment Guide