# 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** |

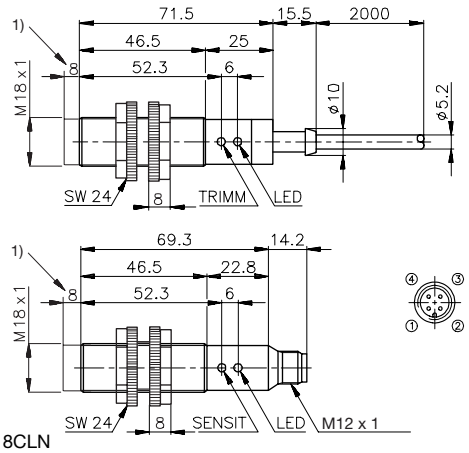
[1] Object: Grounded steel plate

## Specifications

| | |
|---|---|
| **Rated operating dist.** ($S_n$) | |
| CA18CLF08 | 3 to 8 mm<br>factory set at 8 mm |
| CA18CLN12 | 3 to 12 mm<br>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,<br>short-circuit, transients |
| **Frequency of operating cycles** (f) | 30 Hz |

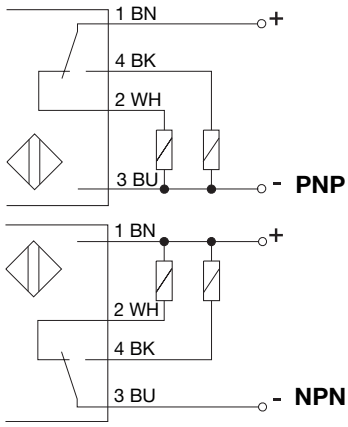
| | |
|---|---|
| **Indication for output ON** | LED, yellow |
| **Environment** | |
| Degree of protection | IP 67 (Nema 1, 3, 4, 6, 13) |
| **Temperature** | |
| Operating temperature | -25° to +80°C ( -13° to +176°F) |
| Storage temperature | -40° to +85°C (-40° to +185°F) |
| **Housing material** | |
| Body | Grey, thermoplastic polyester |
| Front | Grey, polyester |
| Cable end | Polyester |
| Nuts | Black, reinforced nylon |
| **Connection** | |
| Cable | Grey, 2 m, 4 x 0.34 $mm^2$<br>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

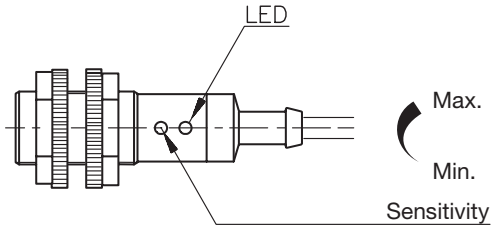



## Adjustment Guide

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...



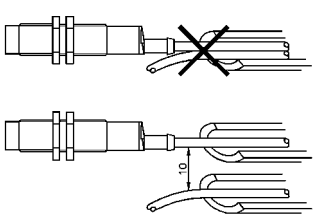

## Installation Hints

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:

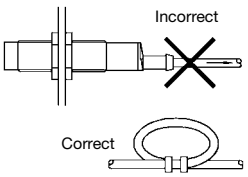
- **Plastic Industry**
  Resins, regrinds or moulded products.
- **Chemical Industry**
  Cleansers, fertilisers, liquid soaps, corrosives and petrochemicals.
- **Wood Industry**
  Saw dust, paper products, door and window frames.
- **Ceramic & Glass Industry**
  Raw material, clay or finished products,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

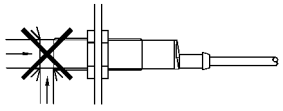



*Relief of cable strain*



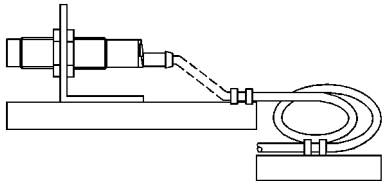

The cable should not be pulled

*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”.

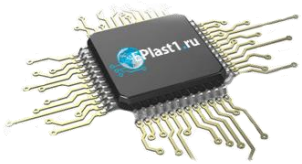
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**Как с нами связаться**

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