

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

TRIPLESIELD™

CARLO GAVAZZI



- Featuring **TRIPLESIELD™** 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

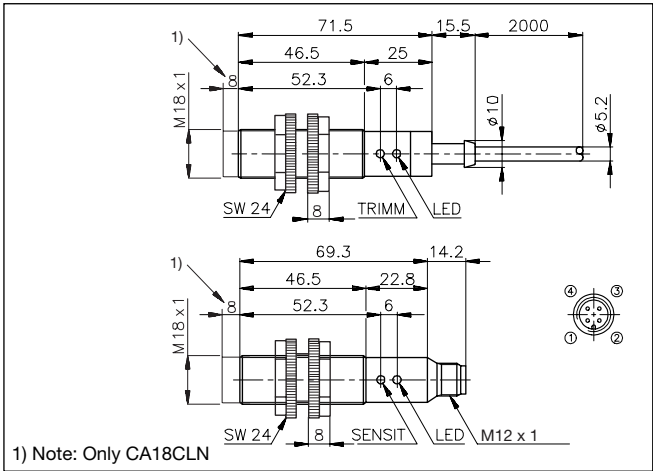
¹⁾ Object: Grounded steel plate

Specifications

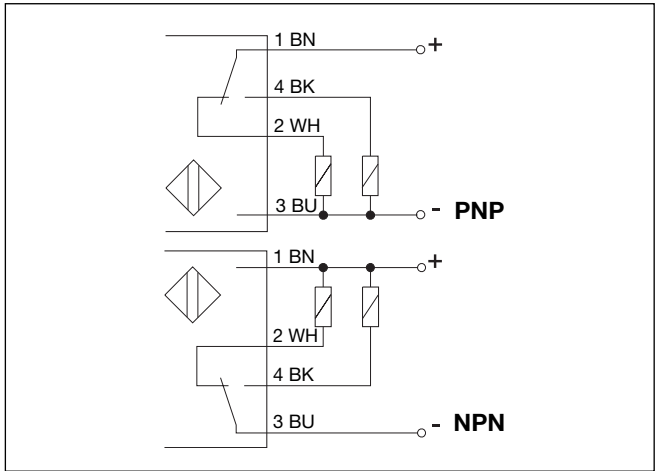
Rated operating dist. (S_n) CA18CLF08	3 to 8 mm factory set at 8 mm	Indication for output ON	LED, yellow
CA18CLN12	3 to 12 mm factory set at 12 mm	Environment	
Sensitivity	Adj. 270° turn pot. meter	Degree of protection	IP 67 (Nema 1, 3, 4, 6, 13)
Effective operation dist. (S_e)	$0.9 \times S_n \leq S_r \leq 1.1 \times S_n$	Temperature	
Usable operation dist. (S_u)	$0.8 \times S_r \leq S_n \leq 1.2 \times S_r$	Operating temperature	-25° to +80°C (-13° to +176°F)
Repeat accuracy (R)	≤ 5%	Storage temperature	-40° to +85°C (-40° to +185°F)
Hysteresis (H)	4 to 20% of sensing distance	Housing material	
Rated operational volt. (U_B)	10 to 40 VDC (ripple included)	Body	Grey, thermoplastic polyester
Ripple	≤ 10%	Front	Grey, polyester
Rated operational current (I_o) Continuous	≤ 200 mA	Cable end	Polyester
No-load supply current (I_o)	≤ 10 mA	Nuts	Black, reinforced nylon
Voltage drop (U_d)	≤ 2.5 VDC at max. load	Connection	
Protection	Reverse polarity, short-circuit, transients	Cable	Grey, 2 m, 4 x 0.34 mm ² Oil proof PVC
Frequency of operating cycles (f)	30 Hz	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



Wiring Diagrams

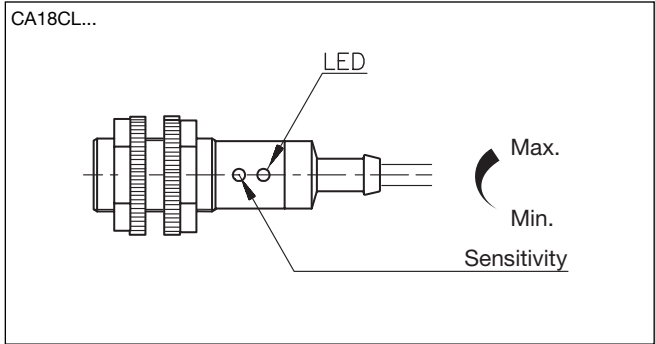


Adjustment Guide

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 *TRIP-LESHIELD™* capacitive sensors a user-friendly sensitivity adjustment instead of having a fixed sensing range, extended sensing range to accom-

modate 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.

- **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 capaci-

tive 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
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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”.