Capacitive Level Detector for Plastic & Rubber Thermoplastic Polyester Housing Types CA, M18, M30, DC, Teach-in

TRIPLESHIELD™

CARLO GAVAZZI



- **Primary designed for plastic and rubber applicatioins**
- **For liquid and dry bulk material detection**
- **Featuring *TRIPLESHIELD*™ Sensor Protection**
- **Teach-in of sensing distance via push-button or COM-input**
- **Automatic detection of NPN or PNP load**
- **Selectable make or break switching by means of Teach-in function**
- **Protection: Short-circuit, transients and reverse polarity**
- **Humidity compensation**
- **Alarm output for unsafe operation or heavy dirt build-up on sensing surface**
- **5 years of warranty**

Product Description

Capacitive level detector with specialized and optimized features for level detection in plastic and rubber applications.
The adjustment is easy to change by means of the single-step teach-in function. The sensing face (flush mounted) can withstand temperatures up to 120°C.
3-wire DC output with selectable make (NO) or break (NC) switching and NPN Alarm. Grey polyester housing with 2 m PVC cable or M12 plug.

Ordering Key

CA18CLL12BPM1

- **Capacitive proximity switch**
- **Housing diameter (mm)**
- **Housing material**
- **Housing length**
- **Detection principle**
- **Rated operating dist. (mm)**
- **Output type**
- **Output configuration**
- **Connection type**

Type Selection

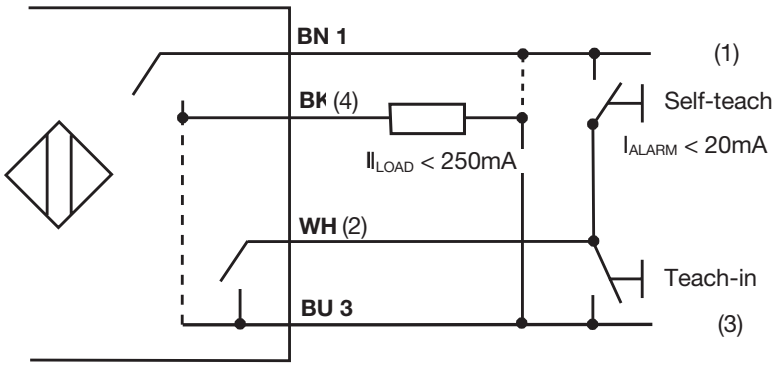
Housing diameter	Ordering no. Cable	Ordering no. Plug
M18	**CA18CLL12BP**	**CA18CLL12BPM1**
M 30	**CA30CLL30BP**	**CA30CLL30BPM1**

Specifications

Sensitivity	Adjustable (Teach-in)
Repeat accuracy (R)	≤ 5%
Hysteresis (H)	5 - 10%
Rated operational volt. (U_B)	10 to 40 VDC (ripple incl.)
Ripple	≤ 10%
Rated operational current (I_e)	≤ 250 mA (continuous)
No-load supply current (I_o)	≤ 12 mA
Voltage drop (U_d)	≤ 2.5 VDC @ max. load
Protection	Short-circuit, reverse polarity, transients
***TRIPLESHIELD*™ protection-EMC**	
IEC 1000-4-2/EN 61000-4-2	30 kV
IEC 1000-4-3/EN 61000-4-3	> 15 V/m
IEC 1000-4-4/EN 61000-4-4	3 kV
IEC 1000-4-6/EN 61000-4-6	> 10 V_{rms}
Frequency of operating cycles (f)	5 Hz
Indication	
For output ON	LED, yellow
For safe/unsafe	LED, green

Environment	
Degree of protection	IP 68
Operating temperature	-20° to +85°C (-4° to +185°F)
Max. temperature on sensing face	120°C (248°F)
Storage temperature	-40° to +85°C (-40° to +185°F)
Housing material	
Body	Grey, thermoplastic polyester
Cable end	Polyester, softened
Nuts	Black, PA12 Grilamid
Connection	
Cable	Grey, 2 m, 4 x 0.25 mm² Oil proof, PVC
Plug (M1)	M12 x 1
Cable for plug (M1)	CON.1A-series
Weight	
Cable version - M18 / M30	110 g/160 g
Plug version - M18 / M 30	30 g/70 g
Approvals	UL, CSA
CE-marking	Yes

Wiring Diagram



The PNP- or NPN-load will be automatically detected.

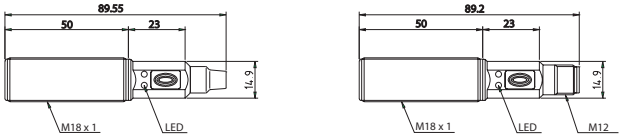
By means of the teach-in wire, the functions described in the Teach-in Guide can be set up.

It is possible to “teach-in” several sensors at the same time by connecting the WH-wires in parallel to the common ”-” supply.

(#): Plug connections

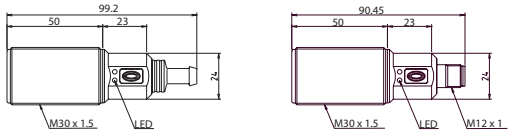
Dimensions

CA18



Cable **Plug**

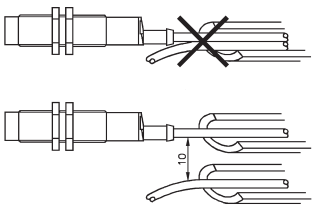
CA30



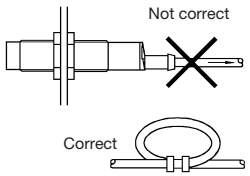
Cable **Plug**

Installation Hints

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

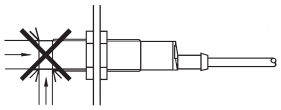


Relief of cable strain



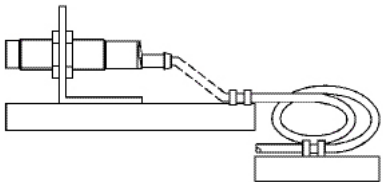
The cable should not be pulled

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: CA..CLL..BP..
- **Packaging:** Cardboard box
- Installation & Adjustment Guide (MAN CAP ENG/GER)

Accessories

- Plugs CON.1A.. series.

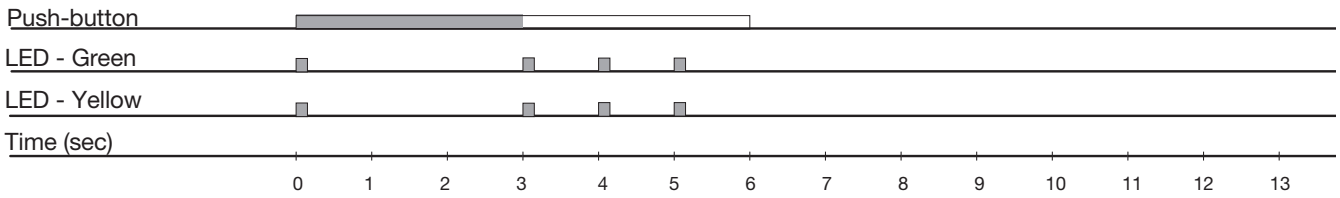
For further information, please refer to “Accessories.

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Teach-in Guide

Adjustment - wall
No target present - tank empty

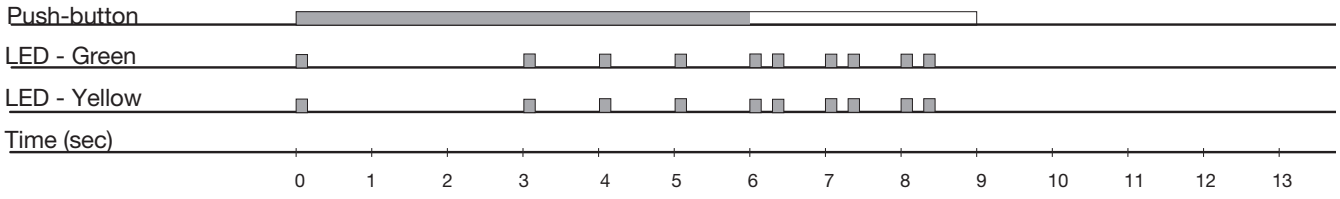
Press push-button >3 seconds until LEDs are flashing once per second. The surroundings will be calibrated when the push-button is released during the following 3 seconds



The sensor will calculate a switch-point by itself. No further calibration is needed.

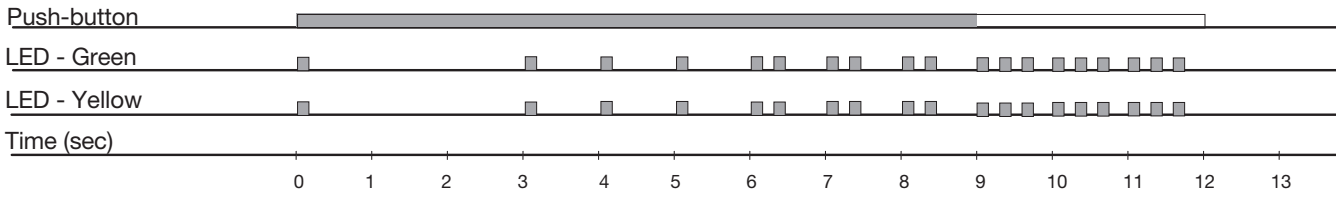
Adjustment - object
Target present - tank full

The self-calculated switch-point can be changed by means of the Teach-in function for ”Target present”.
Press push-button >6 seconds until LEDs are flashing twice per second. The object will be calibrated when the push-button is released during the following 3 seconds



Adjustment - NO - NC

Press push-button >9 sec. until LEDs are flashing three times per second. The status of NO-NC will toggle when the push-button is released during the following 3 seconds



Releasing the push-button after 12 sec. will reset the sensor to factory settings.