

## Installation and Maintenance Rules for: Capacitive level gauges PFG-06

PFG-06 - PFG-06/TC - PFG-06/F

### STANDARD FEATURES

The PFG-06 level gauge is made in compliance with the regulations in force in the European Union and specifically with:

- Casing in LATIOMH 62-03 PD01 G/20. IP65 protection.
- Electrical construction in compliance with Directive 2013/35/EU on low-voltage electrical material and Directive 2014/30/EU on electromagnetic compatibility.
- Noise level measured in open field: zero.
- Envisaged power supplies: 110/220 V. 50/60 Hz - 24/48 V. 50/60 Hz - 24 V.c.c.
- Use contact capacity: 8 A. a 250 V.c.a.
- Operating temperature: from -20 to +70 °C.
- Maximum pressure: 1.1 bar.

### SAFETY RULES

All the appropriate safety precautions must be taken when electrically operated equipment is used, in order to reduce the risk of fire outbreaks, electric shock and injuries to people.

- Keep the work zone clean and orderly. Accidents are more likely to occur in untidy areas and environment.
- Before beginning to work make sure that the level gauge is in perfect condition. Damaged or broken parts must be repaired or replaced by competent personnel authorized by the Manufacturer.
- All verifications, inspections, cleaning and maintenance operations, part changes or replacements must be carried out with the level gauge disconnected and the plug removed from the power socket.
- It is absolutely forbidden for children, unauthorized and/or inexpert persons to touch or use the level gauge.
- Make sure that the electricity system complies with the laws in force. Make sure that the earthing is efficiently connected when the instrument is installed. Check to be sure that the power socket is suitable, that it complies with the laws in force and that it has a build in automatic protection circuit-breaker.
- The level gauge must never be stopped by detaching the plug from the power socket. Never use the cable to pull the plug from the socket.
- To screw or unscrew the lid, use a tool to be positioned between the proper dents to exercise the necessary strength.
- Periodically check to be sure that the cable is in a perfect condition and replace it if damage is discovered. This operation must only be carried out by competent and authorized persons. Only use cables of the permitted type and marked.
- Protect the cable from high temperatures, lubricants and sharp edges. Do not twist or knot the cable. Do not allow children or unauthorized persons to touch the cable when the instrument is plugged in.

### OPERATION

Operation of the capacitive level gauge PFG-06 is based on the capacity variation to which the sensor is subjected by immersion or when near any material, whether this is or is not a conductor, granular or in powder form.

The sensitivity regulation trimmer (Fig. 1) allow the response of the sensor to be adapted to the characteristic of the material to be checked. Turn clockwise to increase and counterclockwise to decrease the sensitivity.

The activation field sensor varies from 0 to 25 mm.

Led 1 and Led 2 on the power and wiring printed circuit board (Fig.1) indicate the commutation of the output contacts of the relays.

The wiring plate (Fig.2) placed on the inside of the level gauge lid, shows the position of the power connections and the resting position of the relays when not powered.

With power connection and a level of the material lower than the probe position of PFG-06, there is commutation of the R2 relay contacts, indicated by illumination of Led2.

When the level of the material raises enough to cover the probe, there is commutation on both relays contacts. Led 1 lights up indicating the commutation of the R1 relay contacts, while Led 2 turns off to indicate the de-energizing of R2 relay.

Fig. 3 sums up and illustrates the position of relays contacts when the level gauge is powered and in both cases of product presence or absence.

### INSTALLATION

Before proceeding with the installation operations, visually inspect PFG-06 in order to be sure that it has not been damaged during transport or the storage period. If this check reveals anything irregular, the PFG-06 must be sent to CAMLogic to be restored to efficiency.

CAMLogic level gauges can be installed, in chambers or silos, in any position, on the side or top. It is important to choose the position so that the device is not hit by the falling load, likewise taking care that the material can move freely all around the gauge.

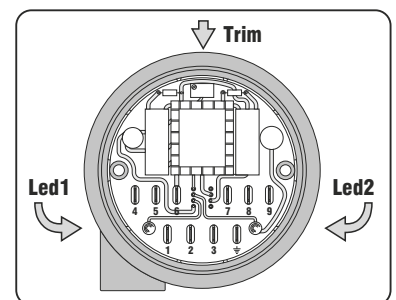


Fig.1

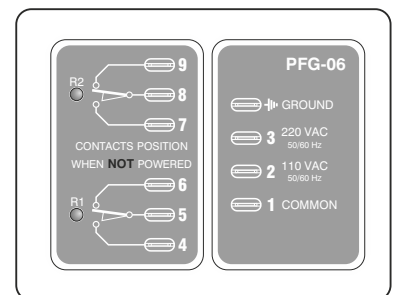


Fig.2

## ELECTRICAL WIRING

Diameters of 0.5 mm<sup>2</sup> to 1.5 mm<sup>2</sup> are sufficient for the connecting cables owing to the low current values applied. In any case the section must prevent the current density from exceeding 4 A/mm<sup>2</sup> in each conductor. The cross-section of the conductors must also be adequate in relation to the length of the cable used to avoid a drop in the voltage along the cable over the values prescribed by the regulations on the subject. One of the conductors is solely used for the earthing of the capacitive level gauge PFG-06. It is likewise recommended to use flexible cables with an adequate outside diameter for the cable entries used (not supplied) to ensure a perfect seal of the cable clamp on the power supply and signal carrying cable.

Use exclusively cable entries certified according to the directive 2014/34/EU Category 2 and EN 60079-31.

**CAUTION :** In the terminal board compartment, the connection for Faston type cable terminal whose position is marked by the symbol ⊕ on the printed circuit (Fig. 1) is used for the earthing of the level gauge. The yellow-green conductor (only green for the USA) of the power cable must be connected to this terminal.

The ground connection of the level gauge, through the yellow-green conductor, is compulsory.

- The external earthing has to be carried out by the installer.
- The equipment has to be protected against impact and electrostatic inside the silo.
- The user has to protect the equipment circuits with fuses against short circuit.
- The max. surface temperature considered is without dust and not safety distance.

Inside the cover there is the wiring plate (Fig. 2) which has printed on it the wiring diagram for the power supply and use of the level gauge.

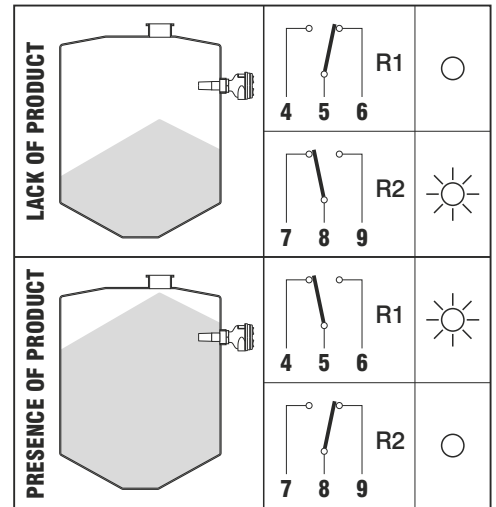
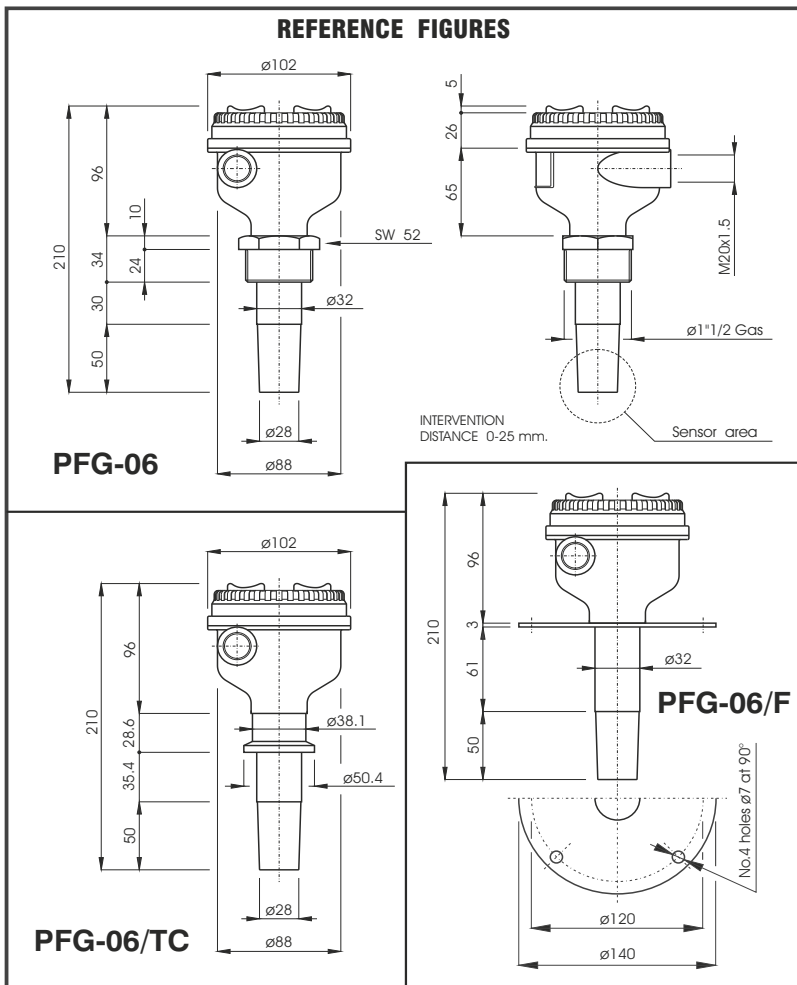


Fig.3



Always check that the mains voltage and frequency correspond to those given on the plate of the level gauge before powering it. The power cable must be fixed to the main by a qualified installer in compliance with the current safety standards in merit.

For electric connections to the terminal use Faston cable terminals (6.3 x 0.8 mm.).

## MAINTENANCE

Capacitive level gauge PFG-06 needs no routine maintenance.

## WARRANTY

CAMLogic, in addition to the terms of the supply contract, guarantees its products for a period of twenty-four (24) months from the date of shipment.

This warranty is expressed only in the repair or replacement free of charge of parts that, after careful examination by the Manufacturer, turn out to be defective.

Warranty, excluding all liability for direct or indirect damage, is considered to be restricted to only defects in materials and has no effect if the parts returned turn out to have been anyhow dismantled, tampered with or repaired by anyone other than the Manufacturer.

Warranty likewise excludes damage deriving from negligence, carelessness, bad or improper use of the level gauge, or from bad handling by the operator and faulty installation.

Moreover, warranty is forfeit if non-genuine spare parts have been used.

A returned level gauge, even if under warranty, must be shipped carriage free.

## EU DECLARATION OF CONFORMITY

The manufacturer **CAMLogic** declares under its own responsibility that the product **PFG-06/.** answers to the requisites of the European Directive 2014/34/EU in consideration of the standards: EN IEC 60079-0:2018, EN 60079-31:2014.

Marking: - The permitted ambient temperature range from -20 to +70 °C. Notified corporate body that releases the examination TÜV ITALIA. Certificate number TÜV IT 13 ATEX 071.

Corporate body entrusted of the periodic overseeing TÜV ITALIA.

*Instructions Manual No. 01701 25.12 - Rev. 01* All the informations contained in this manual are confidential and no part of it may be disclosed without written authorization from **CAMLogic**.

This manual, even after the sale of the level gauge, is lent and remains the property of the Manufacturer.