

## Installation and Maintenance Rules for: Membrane level gauges MN-03

### MN-03, MN-03/V

#### STANDARD FEATURES

The membrane level gauge **MN-03** is built in compliance with the regulations in force in the European Union and specifically with:

- Die-cast aluminium casing UNI 5076. IP65 protection.
- Use contact capacity: 10 A. a 250 V.c.a.
- Operating temperature: from -20 to +60 °C.
- **MN-03** with rubber membrane, max. temp. inside storage bin 60°C.
- **MN-03/V** with Viton membrane, max. temp. inside storage bin 80°C.

#### PACKING

The membrane level gauge **MN-03** can be supplied in single packing multiple packing or palletized. To handle the supply, if palletized, use a fork-lift truck or transpallet. In the case of single packing, the weight is under 5 Kg and can be handled manually.

If the level gauge has to be stored for a long time (up to two years at most), the storage environment must have an ambient temperature of no less than +5°C with relative humidity no higher than 60%.

#### 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 persons.

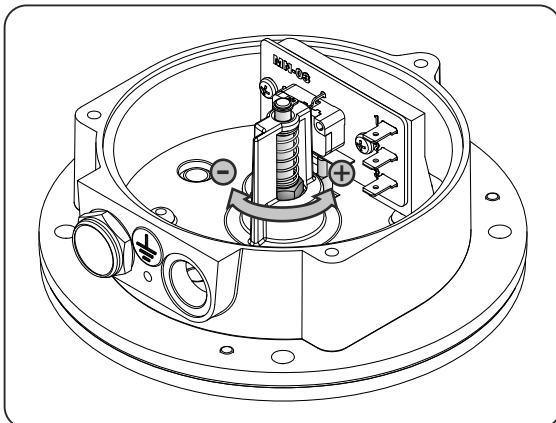
- Keep the work zone clean and orderly. Accidents are more likely to occur in untidy areas and environments.
- Before beginning to work, make sure that the level gauge is in perfect condition. Damaged or broken parts must be repaired or replaced by competent personnel authorized by the Manufacturer.
- All verifications, inspections, cleaning and maintenance operations, part changes and replacements must be carried out with the level gauge disconnected.
- It is absolutely forbidden for children, unauthorized and/or inexperienced persons to touch or use the level gauge.
- Make sure that the earthing is efficiently connected when the instrument is installed.
- Periodically check to be sure that the cable is in a perfect condition and replace it if any damage is discovered. This operation must be carried out only by competent and authorized personnel. Only use extension cables of the permitted type, and marked.
- Protect the cable against high temperatures, lubricants and sharp edges. Do not twist or knot the cable.
- Do not allow children or unauthorized personnel to touch the cable.

#### DESCRIPTION

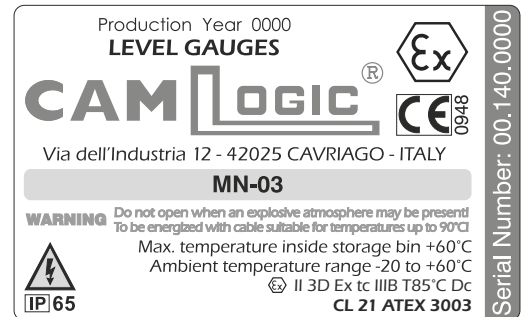
Membrane level gauge **MN-03** operates safely and reliably and are used to check and automate conveying system with storage silo.

Their operation is based on the transmission of pressure to which the membrane is subject by a powdery or granular product.

The pressure applied to the membrane activates a microswitch with switch contacts (Pic. 1). The tension of the membrane, thus the actuation force of the microswitch, can be adjusted by varying the compression of the internal spring (Pic. 2).



Pic. 2



Pic. 1

The membrane level gauge **MN-03** can be used slanted up to 45° from the vertical position. Therefore it should be installed on the vertical walls of the silo or container.

The device is provided with a pressure filter that ensures the right atmospheric balance inside the casing. The filter allows air from the outside environment to pass inside the casing, thus preventing the formation of pressures that could obstruct the movement of the membrane and, consequently, the operation of the microswitch.

#### INSTALLATION

The level gauge is mounted on the external wall of the silo by means of a counterflange whose size corresponds to the dimensions of the **MN-03** (see REFERENCE FIGURES).

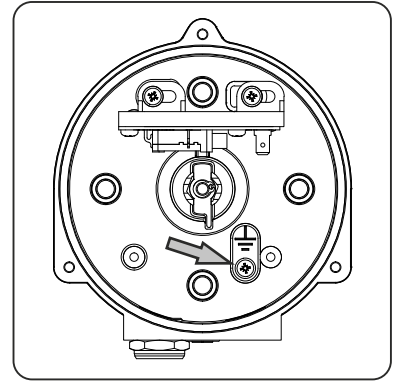
## ELECTRICAL WIRING

The conductors forming the signal carrying cable connected to the microswitch (Pic. 1) must have an adequate cross-section so that the current density, in each conductors, is no higher than  $4A/mm^2$ . One of these is used only for the earthing of the level gauge. The cross-section of the conductors must also be adequate in relation to the overall length of the cable used to avoid drop in voltage along it, over the values prescribed by the regulations on the subject.

It is likewise recommended to use flexible cables with an adequate outside diameter for the fair-leads used (not supplied), to ensure a perfect seal of the cable clamp on the signal carrying cable.

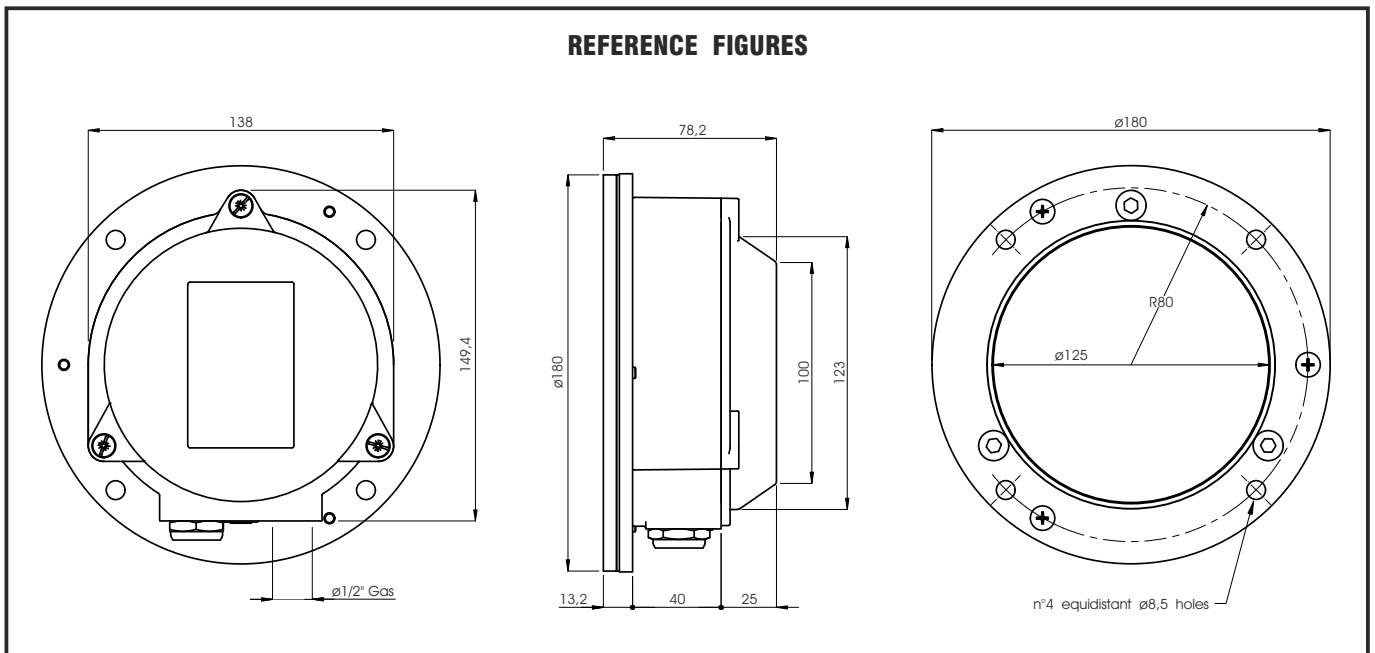
For connections to the microswitch terminals use eyelet cable terminals.

The membrane level gauge **MN-03** has two 1/2" Gas cable inputs. If one of these is not used, it must be closed with the supplied PVC plug.



Pic.3

**CAUTION:** there is a screw inside the casing, near the right-hand cable input, whose position is marked by the ground symbol (Pic. 3), and it is used for the earthing of the membrane level gauge. This screw must be connected to the yellow-green conductor (only green for the USA) of the signal carrying cable. The ground connection of the membrane level gauge, through the yellow-green conductor, is compulsory.



## MAINTENANCE

CAMLogic membrane level gauge **MN-03** needs no routine maintenance.

A possible extraordinary maintenance is limited to the replacement of parts that have deteriorated through use.

## GARANZIA

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 membrane level gauge, or from bad handling by the operator and faulty installation.

Warranty is moreover forfeit if non-genuine spare parts have been used.

A returned membrane level gauge **MN-03**, even if under warranty, must be shipped carriage free.

## EU DECLARATION OF CONFORMITY

The manufacturer **CAMLogic** declares, under its own responsibility, that the product **MN-03/**. answers to the requisites of the European Directive 2014/34/EU. Declaration of Conformity: **0600\_009\_0\_rev0**.

Marking:  II 3D Ex tc IIIB T85°C Dc

The application zone is the 22.

*Instructions Manual No. 00122 12.04 - Rev. 00* All the informations contained in this manual is 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.