

Membrane level indicator

MFD-B0

Operating instructions



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- Read and follow these safety instructions first and take notice of the operating instructions.



Special conditions and instructions for safe application

1. The installation, maintenance, initial operation, removal and repair have to be controlled resp. checked by an “authorized person” for explosion protection.
2. Comply with the local and statutory requirements and/or the VDE 0100.
3. Take notice of the temperature specifications at the data plate.
4. A fuse (with max. 4A) has to be connected in series to the voltage supply.
5. Protect the signal contact from voltage peaks when inductive loads are connected.
6. As soon as the device will be brought into the explosion hazardous area it has to be mounted immediately at the pre-caused place and a cable has to be brought into the cable gland.
7. Using the device in ambient temperatures $> +60\text{ °C}$, the applied connection cables have to be made for temperatures of min. $+80\text{ °C}$.
8. Please check if the cable gland have loosened during on the mounting or at the transport. When it is loosened, it has to be fitted again with a torsional force of 3.75 Nm.
9. To secure the type of protection, the screw nut of the cable gland has to be fixed at the installation with a torsional force of min. 2.7 Nm.
ATTENTION! If it will be fastened too strong, the IP-protection can be affected.
10. The earth connection of the device has to be installed in such a way that mechanical damage will be excluded.
11. The device may put into operation with built-in cap-sealing and when it is closed, only.
12. Switch off the power supply, before opening the device. (touchdangerous voltage)
13. Depending on the bulk goods characteristics and the wear, the carrier has to define resp. to find out in which intervals the membrane of the level indicator has to be checked for leakage to keep the type of protection (Dust-proof). This inspection has to be repeated regularly. If there is a fault, the membrane has to be replaced with a new membrane.
14. Take notice of the requirements of DIN EN 60079-14, DIN EN 60079-17 and DIN EN 1127-1, especially regarding the dust deposits and temperatures and follow the pertinent rules and regulations.
15. Clean the device with a moist towel only. Don't use any pointed objects or solvents.

Operating instructions

1. Description

1.1 Intended use

The level indicator observes the filling level as a limit switch in silos and vessels. It can be used as full, demand and empty indicator for dusty and powdery, granulated and grainy bulk goods with a max. grain size up to 30 mm and with a bulk density of 0.3 t/m³ ... 2.5 t/m³.

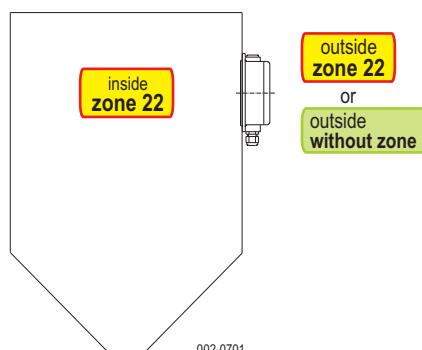
1.2 Function

The bulk goods presses with its weight against the double membrane. A tappet directly transfers the pressure from the membranes to the switch. When the bulk goods are decreasing, pressure is taken off the membranes and the switch will be interconnected.

1.3 Technical data

Manufacturer	MOLLET Füllstandtechnik GmbH
Address	Industriepark RIO 103 74706 Osterburken
Name	Membrane level indicator
Type	MFD-B0
Equipment group	II
Matter group	Dust D
Category	3D
Temperature range	Ta -20 °C ... +70 °C
Signal contact	change-over contact, potentialfree
Capacity of the contact	Contact 4 A / 250 V AC
Switching voltage	24 V ... 250 V AC or 12 V ... 125 V DC
Sensitivity	60 g ... 200 g adjustable
Response delay	none
Cable connection	Scrwe M4
Cable entry	Cable gland M20x1.5
Type of protection	IP IP65 acc. to DIN EN 60529
Overpressure safety	up to 5 bar
Weight	0.73 kg
Maintenance	none
Mounting position	any position

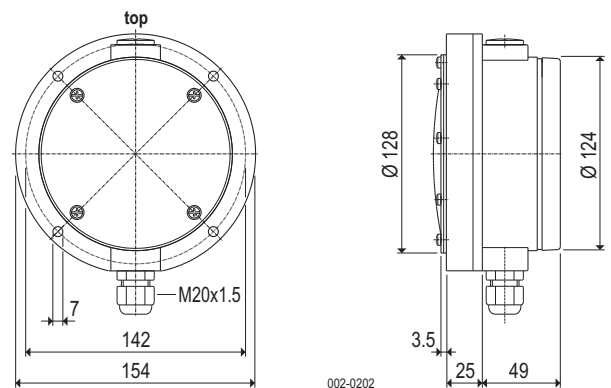
1.4 Approved zones



1.5 Materials

Housing	GFK (glass-fibre reinforced plastics)	
Type	Membrane	Mounting ring
MFD-NN	= NBR	Steel, galvanized
MFD-VN	= VITON	Steel, galvanized
MFD-NE	= NBR	Stainless steel 1.4301 / 304
MFD-VE	= VITON	Stainless steel 1.4301 / 304

1.6 Dimensions



2. Installation

2.1 Preparation

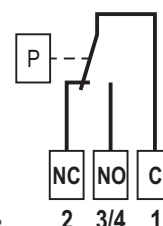
- Check the membrane of visual transport damage.
- Read and follow the safety instructions and the operating instructions, before handling with the device !

2.2 Mounting in the vessel

- The level indicator has to be mounted always with the cable entry downwards.
- Position the level indicator with the gasket at the provided flange and fix it with 4 washers and screws M6.

2.3 Electrical connection

Circuit diagram



2.4 Cable gland

The cable gland will be delivered together with the gasket sheet. Therefore the housing is protected from entry of dust and soil, while the transport and storing outside of the explosion hazardous areas (Ex zones). As soon as the device will be brought into the explosion hazardous area:

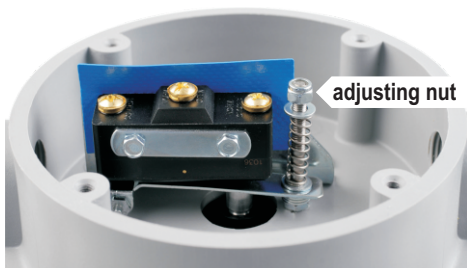
- It has to be mounted immediately at the pre-caused place and a cable has to be brought into the cable gland.
- Check if the cable gland or locking screw have got loose while the mounting or the transport. When it is loosened, it has to be fitted again with a torsional force of 3.75 Nm.
- After contraction of the cable and after electrical connection, the cap nut of the gland has to be fitted with a torsional force of min. 2.7 Nm.

ATTENTION!

The IP-protection can be impaired when the cap nut will be fastened too strong.

3. Commissioning

- Put the level indicator into operation only, if the installation and the electrical connection have been done correctly.
- The level indicator is presetted at sensitive.
- With the adjusting nut the device can be adjustable insensitive. Clockwise insensitive.



4. Utilization

4.1 Normal operation

- Use the level indicator in its intended application only.
- The level indicator is provided for use in silos or vessels with pressureless operation.
- Comply with the specifications on the data plate. Check the membrane of the level indicator, when the permissible temperature of bulk goods was exceeded or was fallen short off.
- Damaged devices have to put out of operation immediately.

4.2 Inexpert handling

- Ignoring of the safety instructions and the operating instructions.
- Not intended use.
- Mounting of spare parts which are no original parts.
- Violation against applicable law and standards.

5. Maintenance and servicing

5.1 General informations

- Do maintenance work only, if the silo or the vessel is empty and if there is no overpressure or vacuum.
- Use original spare parts only.

5.2 Maintenance

- Inspect in regular intervals if there is any wear or abrasion at the membrane. Define the control intervals, depending on the characteristics of the bulk goods.
- In case of damage or abrasion, replace the membrane immediately with a new membrane.

5.3 Servicing

- Damaged parts have immediately replaced with similar.
- Until the complete reconstruction of the proper function, the level indicator must not be used any more.

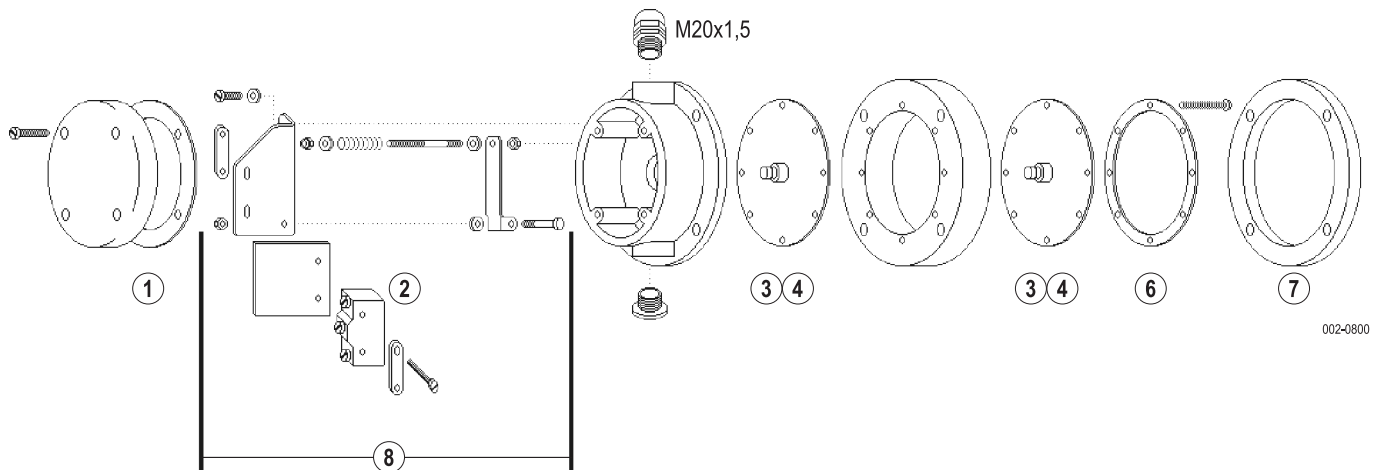
6. Storage

- Store the level indicator dry and dust-free.
- Protect the membrane against pointed objects and ultraviolet radiation.

7. Disposal

- The level indicator can be recycled.
- The disposal applies to the valid environmental guidelines according to the location of the carrier and the local manufacturing conditions.

Single parts



Item	Reference	Order code	Material
1	Cap seal	MF-DS001	NBR
2	Switch	BZ-2R-A2	
3	Tappet	MF-WE001	Aluminium
4	Membrane N . Membrane V .	MF-MB-NR MF-MB-VI	NBR VITON
6	Mounting ring . N Mounting ring . E	MF-HR-ST MF-HR-VA	Steel, galvanized Stainless steel 304
7	Gasket	MF-FD-NR	NBR foam
8	Spare part kit incl. switch	MF-EP001	

EU-Konformitätserklärung EU-Declaration of Conformity

Wir/We

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erklären in alleiniger Verantwortung, dass das Produkt:
declares under our sole responsibility, that the product:

Membran-Füllstand-Grenzscharter / Membrane limit switch
Membran-Füllstandanzeiger / Membrane level indicator



Typ/Type **MFB...** und/and **MFD...**

den folgenden Europäischen Richtlinien entspricht:
conforms with the following European directives:

Niederspannungsrichtlinie **Low voltage directive** **2014/35/EU**

Angewandte harmonisierte Normen oder normative Dokumente:
Applied harmonized standards or normative documents:

DIN EN 61010-1:2011 **DIN EN 60529:2014**

Und die Geräte mit  - Kennzeichnung entsprechen zusätzlich der folgenden Europäischen Richtlinie:
And the devices with  - marking conform additional with the following European directive:

ATEX-Richtlinie **ATEX directive** **2014/34/EU**

Angewandte harmonisierte Normen oder normative Dokumente:
Applied harmonized standards or normative documents:

DIN EN IEC 60079-0:2019 **DIN EN 60079-31:2014**

Qualitätssicherung:
Quality assurance:

TÜV NORD CERT GmbH, 30159 Hannover (0044)

Osterburken, den 10.01.2020



Wolfgang Hageleit
Geschäftsführer / managing director

Diese Erklärung darf nur unverändert weiterverbreitet werden.
This declaration is only allowed to hand out in unchanged form.