# MEMPRO Ex C

## Hydrostatic level transmitter
## ATEX EEx version

## INSTRUCTION MANUAL

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**Hydrostatic level transmitter**
**MEMPRO Ex C**
07-01-2008 592 M1 02 A

**MES**
**592-02/1**

## SAFETY PRECAUTIONS

• The device may only be connected to supply power, which is rated as specified in the technical features.
• Installation, initial start-up and maintenance may only be performed by trained personnel

## DESCRIPTION

The MEMPRO Ex C... measuring instrument operates in accordance with the Pitot static principle, i.e. the level signal is proportional to the hydrostatic pressure in a measuring tube plunged into the liquid. It is used for measuring fill-levels of flammable liquids. The device is approved for use in danger zone 0 for flammable media assigned to explosion group IIC. The MEMPRO Ex C... fill-level transmitter is used as a passive 2-pole device in intrinsically safe circuits. It converts the backpressure signal into a load independent current within a range of 4 to 20 mA.

## ATTENTION!

The fill-level measuring signal depends of the liquid density. For a density of less than 1 kg per Litre, the maximal output signal of 20 mA is first achieved at a fill level of greater than 1000 mm, or sooner at a density greater than 1.

## OPERATION LIMITS

The MEMPRO hydrostatic level transmitter could be restricted in its signal response because of some specific operating conditions.

• Media with high fluctuation of density: level measurement will correspond to the mean value of density you may consider.
• Media with high viscosity or sticky fluids.
• Media subject to excessive temperature fluctuations (ΔT >30°C)
• Degassing media

Consult us for further details.

## TECHNICAL FEATURES

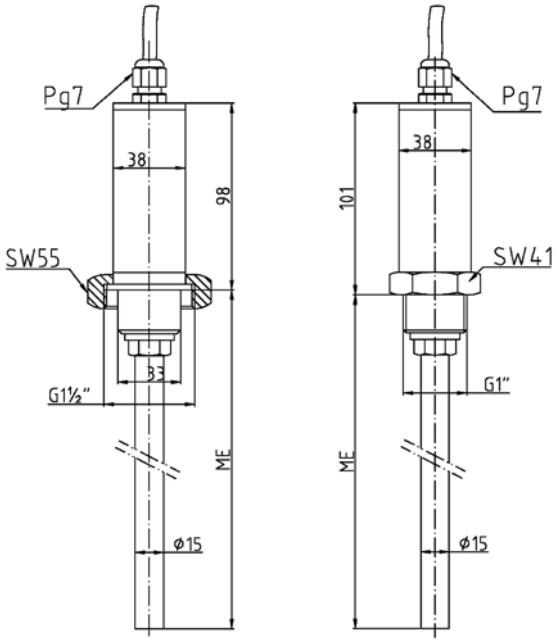
| | |
|---|---|
| Fill-level measuring range: | 0 to 1000 mm Water Column |
| Process interface: | G1" threaded connection<br>G1½ " sleeve nut |
| Output signal: | 4 to 20 mA |

**May only be connected to certified Intrinsically safe circuits**
Ui ≤ 30 V, Ii ≤ 300 mA, Pi ≤ 1.0 W
Use a dedicated buffer amplifier

| | |
|---|---|
| Ambient temperature: | Use in category 2: -20 to +70° C<br>Use in category 1/2: -20 to +55° C |
| Process pressure: | Atmospheric |
| Connector cable: | Special cable with shield<br>and pressure compensating tube |

**Attention!**
**Do not kink or pinch the cable**
**The pressure compensating tube is otherwise blocked, resulting in a distorted measuring signal.**

| | |
|---|---|
| EC Type Examination: | TÜV 04 ATEX 2420 |
| **CE Mark** | EMC directive (89/336/ECC)<br>• EN 50 081-1:1992<br>• EN 50 082-2:1995 |

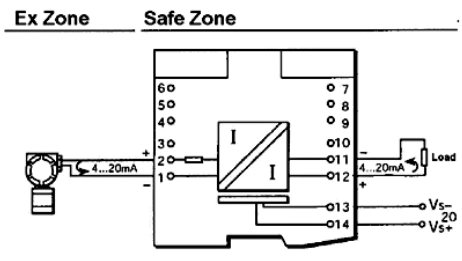



**G1½ " sleeve nut** **G 1" threaded connection**

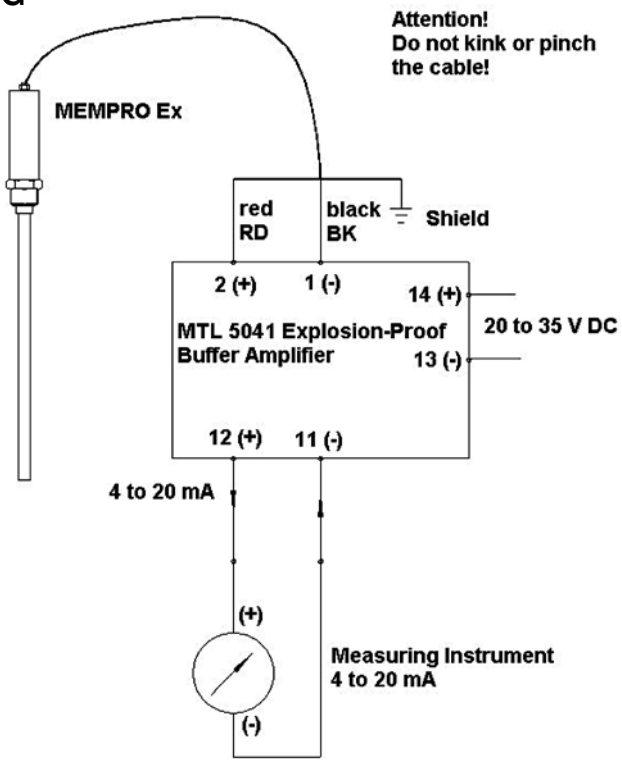
## ACCESSORIES

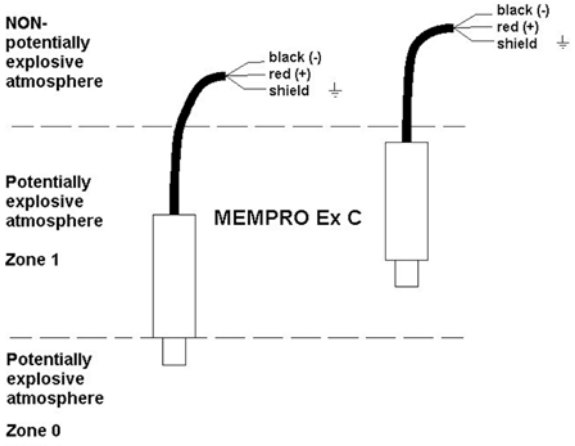
On request, we can provide a power supply unit for Measuring Transducer:
- Conventional 4-20 mA, 2-wire measuring transducer
- With isolated DC power in potentially explosive atmospheres
- With measuring signal transfer from the loop to another isolated circuit used to actuate a load in the safe zone.

Consult us for further details.



## WIRING




**Safety Precautions for Electrical Equipment for Potentially Explosive Atmospheres**

Identification in accordance with directive **94/9/EC:**

CE 0032 Ex II 1/2 G

- Device group II
- Device category: Sensor category 1 / housing category 2
- For explosive mixtures of air and combustible gases, vapours or mists

CE 0032 Ex II 2 G

- Device group II
- Device category 2
- For explosive mixtures of air and combustible gases, vapours or mists

**Applications:**

| Device category | Combustible mixtures of gas and air (G) |
|---|---|
| Category 1 | Zone 0, 1 or 2 |
| Category 2 | Zone 1 or 2 |
| Category 3 | Zone 2 |

**Identification of type of protection:** EEx ia IIC T6

- Explosion-proof electrical equipment per European standard
- Type of protection
- Equipment group
- Temperature class

**Use in Zone 1**

| Protection Type | Ambient T° Range | Electrical Data |
|---|---|---|
| II 2 G EEx ia IIC T6 | -20°C ≤Ta ≤+70°C | Ui ≤ 30 V DC, Ii ≤ 300 mA, Pi ≤ 1 W<br>Sensor: Ci ≤ 3 nF, Li = 0<br>Sensor with connected cable:<br>Ci ≤ 160 pF/m, Li ≤ 1 µH/m |

**Use in Zone 0**

| Protection Type | Ambient T° Range | Electrical Data |
|---|---|---|
| II 1/2 G EEx ia IIC T6 | -20°C ≤Ta ≤+55°C | Ui ≤ 30 V DC, Ii ≤ 300 mA, Pi ≤ 1 W<br>Sensor: Ci ≤ 3 nF, Li = 0<br>Sensor with connected cable:<br>Ci ≤ 160 pF/m, Li ≤ 1 µH/m |

## OBSERVE THE FOLLOWING INSTALLATION INSTRUCTIONS

1) Adhere to all installation instructions and safety precautions included in the operating instructions.
2) Install in compliance with manufacturer's instructions and all applicable standards and regulations.
3) May only be used in media to which components which meet the media are resistant.
4) Avoid sparks, which result from friction and impact (secure equipment against oscillation).
5) If the measuring instrument is connected to a category ib intrinsically safe circuit assigned to explosion group IIC or IIB, the type of protection is changed to the following: EEx ib IIC T6 or EEx ib IIB T6.
6) Sensor capacitance and length-dependent cable capacitance and cable inductance must be taken into consideration when connecting the intrinsically safe circuit.
7) Use shielded cable only, and earth equipment via the cable shield.
8) The intrinsically safe circuit is earth-free, and is laid out with a dielectric strength of 500 VRMS to earth. If the cable is shortened, lay out the lead wires and shield such that this dielectric strength value is assured.
9) Avoid electrostatic charging of the sensor cable (e.g. do not rub dry, mount outside of the filling current).

### SAFETY PRECAUTION FOR ZONE 0

Devices in potentially explosive vapour-air mixtures may only be operated under atmospheric conditions: -20°C ≤ Ta ≤ +55°C – 0.8 bar ≤ p ≤ 1.1 bar. If no potentially explosive mixtures are present, or if additional measures have been implemented in accordance with EN 1127-1, these devices may also be operated under other than atmospheric conditions according to the respective manufacturer's specification.

## MAINTENANCE

The MEMPRO Ex C fill-level transmitter is **maintenance-free** if used for its intended purpose.
If used in sticky, adhesive liquids, the measuring tube must be inspected at regular intervals and cleaned if necessary.