

Operating instructions
Temperature sensor
TM45x1

GB

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1 Preliminary note

You will find instructions, technical data, approvals and further information using the QR code on the unit / packaging or at www.ifm.com.

1.1 Symbols used

- ✓ Requirement
- ▶ Instructions
- ▷ Reaction, result
- [...] Designation of keys, buttons or indications
- Cross-reference
-  Important note
Non-compliance may result in malfunction or interference.
-  Information
Supplementary note

1.2 Warnings used



CAUTION

Warning of personal injury

- ▷ Slight reversible injuries may result.

2 Safety instructions

- The unit described is a subcomponent for integration into a system.
 - The system architect is responsible for the safety of the system.
 - The system architect undertakes to perform a risk assessment and to create documentation in accordance with legal and normative requirements to be provided to the operator and user of the system. This documentation must contain all necessary information and safety instructions for the operator, the user and, if applicable, for any service personnel authorised by the architect of the system.
- Read this document before setting up the product and keep it during the entire service life.
- The product must be suitable for the corresponding applications and environmental conditions without any restrictions.
- Only use the product for its intended purpose (→ Intended use).
- Only use the product for permissible media.
- If the operating instructions or the technical data are not adhered to, personal injury and/or damage to property may occur.
- The manufacturer assumes no liability or warranty for any consequences caused by tampering with the product or incorrect use by the operator.
- Installation, electrical connection, set-up, operation and maintenance of the product must be carried out by qualified personnel authorised by the machine operator.
- Protect units and cables against damage.

3 Intended use

The unit detects the medium temperature of liquid and gaseous media.

4 Installation



CAUTION

During installation or in case of mechanical failure, high pressure or hot media can leak from the system.

- ▷ Risk of injury caused by pressure or burns.
- ▶ Ensure that the system is free of pressure during installation.
- ▶ Ensure that no media can leak at the mounting location during installation.



Sensors with process connection Clamp:

- ▶ Secure the device with a bracket (Clamp counterpart).

4.1 Use in hygienic areas according to EHEDG



In case welded adapters are used, the food contact surface must be smooth (surface roughness $R_a < 0.8 \mu\text{m}$) and the welding has to be done according to EHEDG Guideline 9 and 35.



The sensor is suited for CIP (clean in place) when installed correctly.

- ▶ Observe the application limits (temperature and material resistance) according to the data sheet.
- ▶ Ensure that the installation of the unit in the system complies with EHEDG.
- ▶ Use self-draining installation.
- ▶ Only use process adapters permitted according to EHEDG with special seals required by the EHEDG position paper.
- ▶ For any structures in a tank, direct water jet cleaning must be possible. Cleaning of dead spaces must be possible.

4.2 Using the welding adapter / welding thermowell

General notes on the welding operation:

- ▶ The welding operation is to be carried out by qualified personnel according to state-of-the-art technology.
- ▶ Use materials and welding operations that are suitable for the housing material.
- ▶ Keep the surfaces free from any contamination.
- ▶ Ensure the careful preparation of the components.

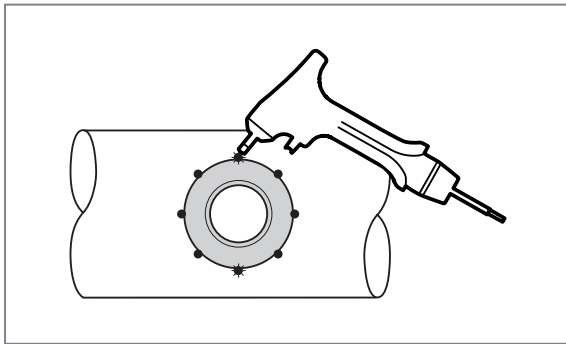
Welding operation:

Fig. 1: Applying the fixing points

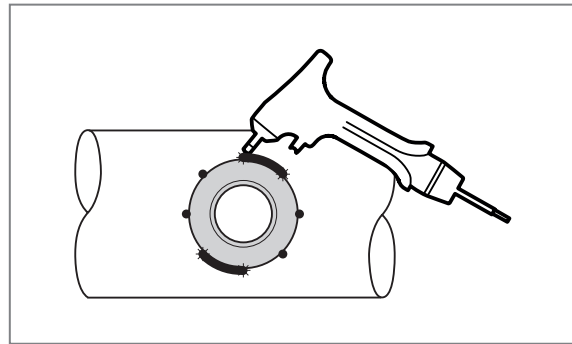


Fig. 2: Applying the welding seams

- ▶ Apply the fixing points of the welding thermowell at equal distance (crosswise) with a sufficient adhesive force.
- ▶ Apply the welding seams between the fixing points opposite each other.
- ▶ Ensure sufficient intervals between the individual welding operations to avoid glowing through or warping of the welding thermowell due to overheating.

After completion of the welding operation:

- ▶ Let the workpiece cool down.
- ▶ Slightly grease the thread using a lubricating paste which is suitable and approved for the application.
- ▶ Screw the sensor into the adapter and tighten. Tightening torque: 30...50 Nm.

5 Electrical connection



The unit must be connected by a qualified electrician. Voltage supply according to EN50178, SELV, PELV.

- ▶ Disconnect power.
- ▶ Connect the unit as follows:

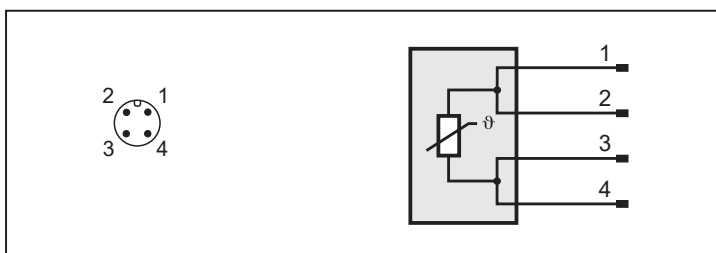


Fig. 3: Wiring diagram (colours in accordance with DIN EN 60947-5-2)

- | | | | |
|----|------------|----|------------|
| 1: | BN (brown) | 2: | WH (white) |
| 3: | BU (blue) | 4: | BK (black) |

6 Maintenance, repair and disposal

The operation of the unit is maintenance-free.

Only the manufacturer is allowed to repair the unit.

- ▶ After use dispose of the device in an environmentally friendly way in accordance with the applicable national regulations.
- ▶ Define regular calibration intervals according to the process requirements.