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Brief Operating Instructions
iTHERM SurfaceLine TM611

Surface thermometer
Non-invasive RTD/TC thermometer with high measurement performance for demanding applications

These are Brief Operating Instructions; they do not replace the Operating Instructions included in the scope of supply. Detailed information can be found in the Operating Instructions and the additional documentation.

Available for all device versions via:
- Internet: www.endress.com/deviceviewer
- Smartphone/tablet: Endress+Hauser Operations app

Safety instructions

Manufacturer: Endress+Hauser Wetzer GmbH + Co. KG, Obere Wank 1, D-87484 Nesselwang or www.endress.com

Requirements for the personnel

The personnel must fulfill the following requirements for its tasks:
- Trained, qualified specialists must have a relevant qualification for this specific function and task.
- Are authorized by the plant owner/operator.
- Are familiar with federal/national regulations.
- Before starting work, read and understand the instructions in the manual and supplementary documentation as well as the certificates (depending on the application).
- Follow instructions and comply with basic conditions.

Intended use

The device described in this document is intended for non-invasive temperature measurement in industrial applications. Depending on the version, it can be configured as an industrial thermometer or cable thermometer and can be attached to the process by means of a coupling element. It is the responsibility of the operator to select the appropriate thermometer (RTD and TC) to ensure safe operation of the measuring point.

Incorrect use

The manufacturer is not liable for damage caused by improper or non-designated use. Use the device for non-invasive temperature measurement only.

Workplace safety

⚠ CAUTION

Extreme temperatures (hot and cold) can occur at the thermometer and in the terminal head. There is a risk of burning and damage to property.
- Wear appropriate protective equipment.

⚠ CAUTION

There is an the increased risk of electric shock if working on and with the device with wet hands:
- Wear appropriate protective equipment.

Operational safety

Damage to the device!
- Operate the device only if it is in proper technical condition, free from errors and faults.
- The operator is responsible for ensuring that the device is in good working order.

Hazardous area

To avoid danger to individuals or the facility when the device is used in the approval-related area (e.g. explosion protection or safety instrumented systems):
- Based on the technical data on the nameplate, check whether the ordered device is permitted for the intended use in the hazardous area. The nameplate can be found on the side of the device.
- Observe the specifications in the separate supplementary documentation included as an integral part of these instructions.

Electromagnetic compatibility

Depends on the iTEMP head transmitter used. See the technical documentation for the iTEMP transmitter in question.

Temperature

NOTICE

During operation, heat conduction or heat radiation may cause the temperature in the terminal head to rise.
- Exceeding the operating temperature of the transmitter or housing must be prevented using appropriate heat insulation or a suitably long extension neck.

Product safety

This measuring device is designed in accordance with good engineering practice to meet state-of-the-art safety requirements, has been tested, and left the factory in a condition in which it is safe to operate.

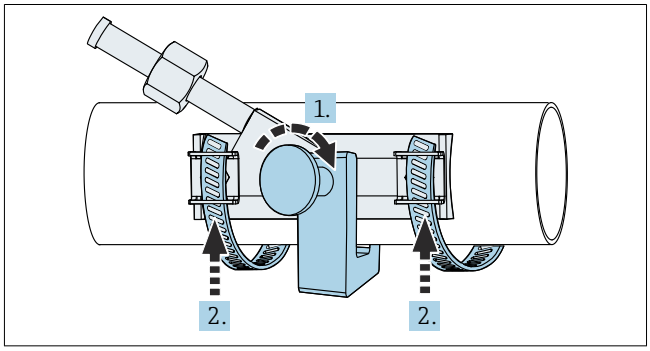
It meets general safety standards and legal requirements. It also complies with the EU directives listed in the device-specific EU Declaration of Conformity. The manufacturer confirms this by affixing the CE mark to the device.

Endress+Hauser
People for Process Automation

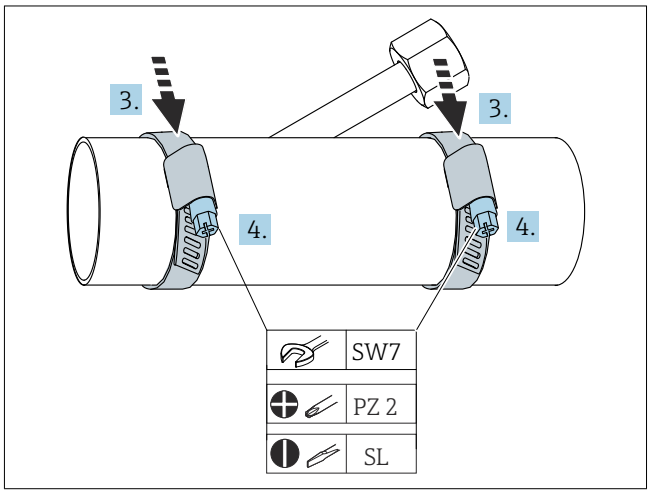
Mounting

Important ambient conditions

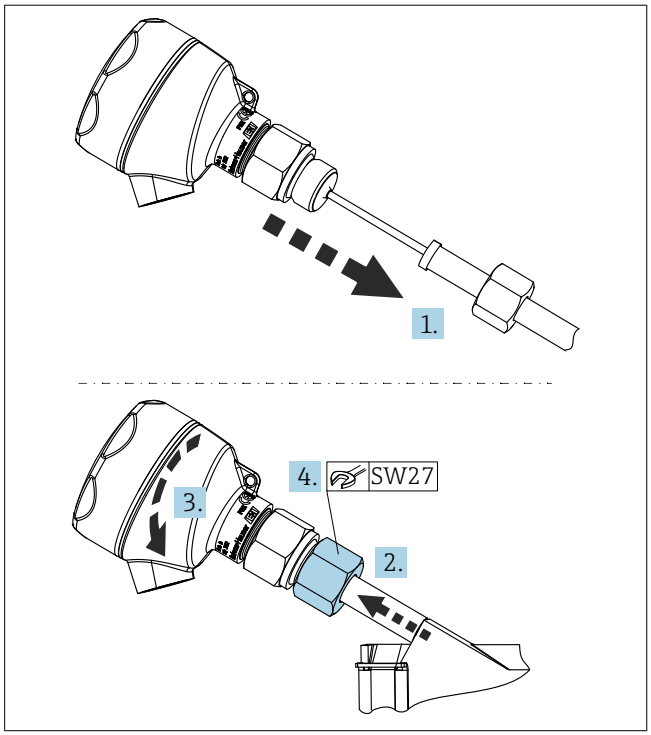
Ambient temperature range	With mounted iTEMP head transmitter: −40 to +85 °C (−40 to 185 °F)	Humidity	Max. rel. humidity: 95% acc. to IEC 60068-2-30
	With iTEMP head transmitter and display: −20 to 70 °C (−4 to 158 °F)		
Storage temperature	−40 to +85 °C (−40 to +185 °F)	Climate class	As per EN 60654-1, Class D
Pollution degree	2	Degree of protection	IP66. When installed, the degree of protection depends on the terminal head.
Altitude	≤ 2 000 m (6 561 ft)		



Tighten the hose clips with a maximum torque of 5 Nm (see item 4).



Tighten the union nut with a max. torque of 20 Nm (see item 4).



Electrical connection

NOTICE

- ESD - Electrostatic discharge. Protect the terminals from electrostatic discharge. Failure to observe this may result in the destruction or malfunction of parts of the electronics.

Connecting requirements

A Phillips screwdriver is required to wire the iTEMP head transmitter with screw terminals, e.g. Pozidriv Z1. The push-in terminal version can be wired without any tools.

The RTD or TC cable thermometers can be wired, e.g. to a separate DIN rail transmitter in the cabinet, without any tools.

CAUTION

Risk associated with the uncontrolled activation of processes!

- Switch off the supply voltage before connecting the device.

CAUTION

An incorrect connection compromises electrical safety!

- Switch off the supply voltage before connecting the device.

Please refer to the separate Ex documentation for all explosion protection data. The Ex documentation is supplied as standard with all devices approved for use in explosion hazardous areas.

Please refer to the technical documentation of the relevant iTEMP transmitter for information on electrical connection.

Connecting the measuring instrument

iTEMP head transmitter data [1)]

Supply voltage	U = max. 9 to 42 V_{DC}
Current consumption	I ≤ 23 mA

Proceed as follows to wire a mounted iTEMP head transmitter:

1. Open the cable gland and the housing cover on the terminal head or the field housing.
2. Feed the cables through the opening in the cable gland.
3. Connect the cables in accordance with the electrical connection of the specific iTEMP head transmitter (see Figures 1 and 2).
4. Tighten the cable gland again and close the housing cover.

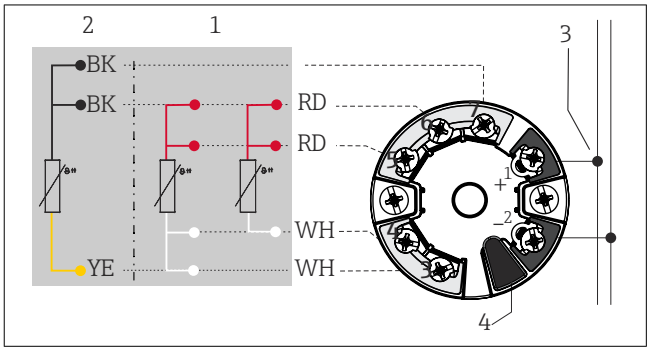
Proceed as follows to wire the cable thermometer:

- Connect the cables as per the electrical connection of the relevant cable thermometer (see Figures 3 and 4).

Terminal assignment of iTEMP head transmitter

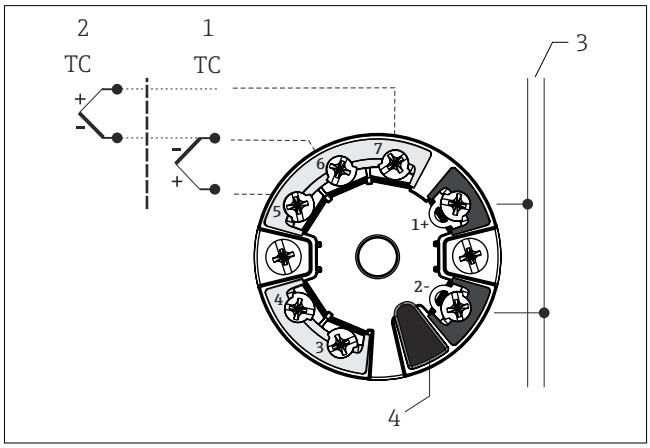
iTEMP TMT82 with HART® protocol as an example

Refer to the technical documentation of the specific device for information on terminal assignment of other configurable iTEMP transmitters.



1 *Head-mounted iTEMP TMT8x transmitter (dual sensor input)*

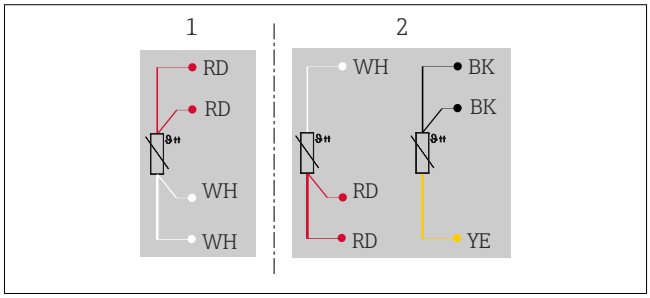
1 *Sensor input 1, RTD, 4- and 3-wire*
2 *Sensor input 2, RTD, 3-wire*
3 *Fieldbus connection and power supply*
4 *Display connection*



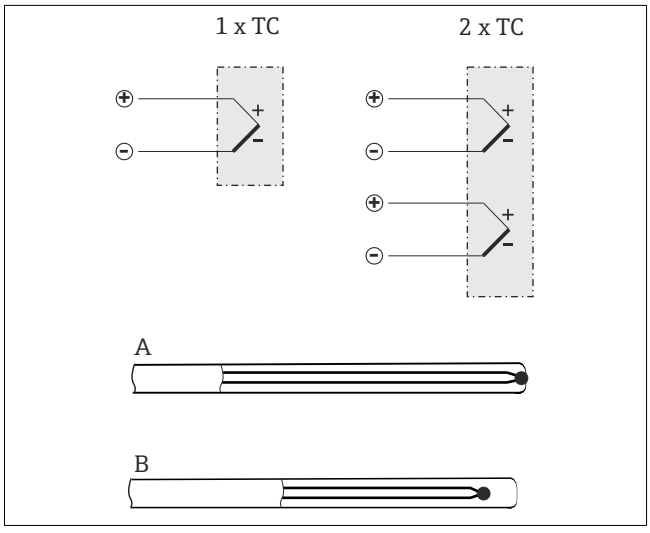
2 *Head-mounted iTEMP TMT8x transmitter (dual sensor input)*

1 *Sensor input 1*
2 *Sensor input 2*
3 *Fieldbus connection and power supply*
4 *Display connection*

Wiring diagram for RTD and TC cable thermometers



3 *RTD connection*



4 *TC connection*

1) Maximum values for all selectable iTEMP head transmitters.