

# Safety Instructions

## iTHERM TM411, iTHERM TM412

Modular RTD assemblies for hygienic applications

ATEX, IECEx: Ex ta/tb IIIC Txxx °C Da/Db





# iTHERM TM411, iTHERM TM412

Modular RTD assemblies for hygienic applications

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**About this document**

The document number of these Safety Instructions (XA) must match the information on the nameplate.

**Associated documentation**

All documentation is available on the Internet:

[www.endress.com/Deviceviewer](http://www.endress.com/Deviceviewer)

(enter the serial number from the nameplate).



If not yet available, a translation into EU languages can be ordered.

To commission the device, please observe the Operating Instructions pertaining to the device:

[www.endress.com/<product code>](http://www.endress.com/<product code>), e.g. TM411

**Supplementary documentation**

Explosion protection brochure: CP00021Z

The explosion protection brochure is available on the Internet:

[www.endress.com/Downloads](http://www.endress.com/Downloads)

**Certificates and declarations****IECEX certificate**

Certificate number: IECEX DEK 12.0019X

Affixing the certificate number certifies conformity with the following standards (depending on the device version)

- IEC 60079-0 : 2017
- IEC 60079-31 : 2013

**ATEX certificate**

Certificate number: DEKRA 12ATEX0085 X

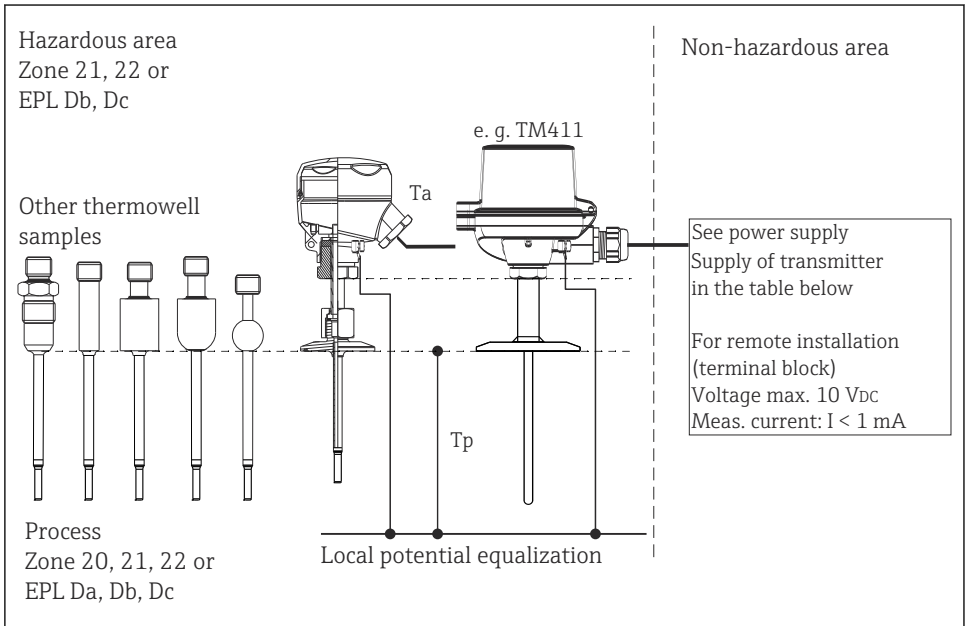
**EU Declaration of Conformity**

Declaration number: EC\_00188

**Manufacturer address**

Endress+Hauser Wetzler GmbH + Co. KG  
Obere Wank 1  
87484 Nesselwang, Germany

## Safety instructions



A0049153

### Safety Instructions: Installation of Dust ignition protection

- Comply with the installation and safety instructions in the Operating Instructions.
- Install the device according to the manufacturer's instructions and any other valid standards and regulations (e.g. EN/IEC 60079-14).
- Seal the cable entries tight with certified cable glands which have at least type of protection Ex tb suitable for Group IIIC (degree of protection IP6X).
- The provided cable glands according to option code are suitable ATEX/IECEX Ex-certified cable glands with a temperature range of  $-20$  to  $+95 \text{ }^\circ\text{C}$  and  $-20$  to  $+130 \text{ }^\circ\text{C}$  respectively.
- For operating the thermometer at an ambient temperature under  $-20 \text{ }^\circ\text{C}$ , appropriate cables, cable entries and sealing facilities permitted for this application must be used.
- The housing of thermometer must be connected to the potential matching line.
- For ambient temperatures higher than  $+70 \text{ }^\circ\text{C}$ , use suitable heat-resisting cables or wires, cable entries and sealing facilities for Ta  $+5 \text{ K}$  above surrounding.

 **WARNING**
**Explosive atmosphere**

- ▶ In an explosive atmosphere, do not open the device when voltage is supplied (ensure that the IP66/67 housing protection is maintained during operation).

**Safety instructions:**  
**Specific conditions of use**

For maximum surface temperature and ambient temperature range see certificate or table in manual.

**Temperature tables**

Type	Electrical Data	
iTHERM TM41x	TMT180/TMT181/TMT182: TMT31: TMT82: TMT84/TMT85: TMT86: TMT71/TMT72:  Remote installation:	max. 35 V <sub>DC</sub> , 23 mA max. 36 V <sub>DC</sub> , 23 mA max. 42 V <sub>DC</sub> , 23 mA max. 32 V <sub>DC</sub> , 12 mA max. 30 V <sub>DC</sub> , 0.7 W max. 36 V <sub>DC</sub> , 23 mA  Voltage max. 10 V <sub>DC</sub> Measuring current I < 1 mA

Category	Type of protection (ATEX/IECEx)	Type
II 1/2D	Ex ta/tb IIIC T85 °C...T450 °C Da/Db	iTHERM TM411, iTHERM TM412

*Permitted ambient temperatures:*

Type	Assembled head transmitter	Temperatur code	Ambient temperature (housing)
iTHERM TM41x	TMT18x TMT31 TMT8x, TMT7x	T85 °C	-40 °C ≤ Ta ≤ +65 °C
		T100 °C	-40 °C ≤ Ta ≤ +80 °C
		T135 °C	-40 °C ≤ Ta ≤ +85 °C
	without electronic (terminal block)	T85 °C	-50 °C ≤ Ta ≤ +70 °C
		T100 °C	-50 °C ≤ Ta ≤ +80 °C
		T135 °C	-50 °C ≤ Ta ≤ +120 °C
		T200 °C	-50 °C ≤ Ta ≤ +120 °C

Type	Assembled head transmitter	Temperatur code	Ambient temperature (housing)
		T300 °C	$-50\text{ °C} \leq T_a \leq +120\text{ °C}$
		T450 °C	$-50\text{ °C} \leq T_a \leq +120\text{ °C}$

Type	Process temperature range <sup>1)</sup>	Maximum surface temperature (sensor)
iTHERM TM41x	$-50\text{ °C} \leq T_a \leq +70\text{ °C}$	T85 °C
	$-50\text{ °C} \leq T_a \leq +80\text{ °C}$	T100 °C
	$-50\text{ °C} \leq T_a \leq +120\text{ °C}$	T135 °C
	$-50\text{ °C} \leq T_a \leq +185\text{ °C}$	T200 °C
	$-50\text{ °C} \leq T_a \leq +285\text{ °C}$	T300 °C
	$-50\text{ °C} \leq T_a \leq +435\text{ °C}$	T450 °C

1) Maximum process pressure see relevant Technical Information of the assembly



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[www.addresses.endress.com](http://www.addresses.endress.com)

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