

Safety Instructions

iTHERM TM411, TM412

Modular RTD assemblies for hygienic applications

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

Safety instructions for electrical apparatus in
explosion-hazardous areas



iTHERM TM411, TM412

Modular RTD assemblies for hygienic applications

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About this document



This document has been translated into several languages. Legally determined is solely the English source text.

The document translated into EU languages is available:

- In the download area of the Endress+Hauser website:
www.endress.com -> Downloads -> Manuals and Datasheets -> Type: Ex Safety Instruction (XA) -> Text Search: ...
- In the Device Viewer: www.endress.com -> Product tools -> Access device specific information -> Check device features



If not yet available, the document can be ordered.

Associated documentation

This document is an integral part of the following Operating Instructions:

- Operating Instructions: BA02023T
- Technical Information:
 - TM411: TI01038T
 - TM412: TI01057T

Supplementary documentation

Explosion-protection brochure: CP00021Z/11

The Explosion-protection brochure is available:

- In the download area of the Endress+Hauser website:
www.endress.com -> Downloads -> Brochures and Catalogs -> Text Search: CP00021Z
- On the CD for devices with CD-based documentation

**Manufacturer's
certificates****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

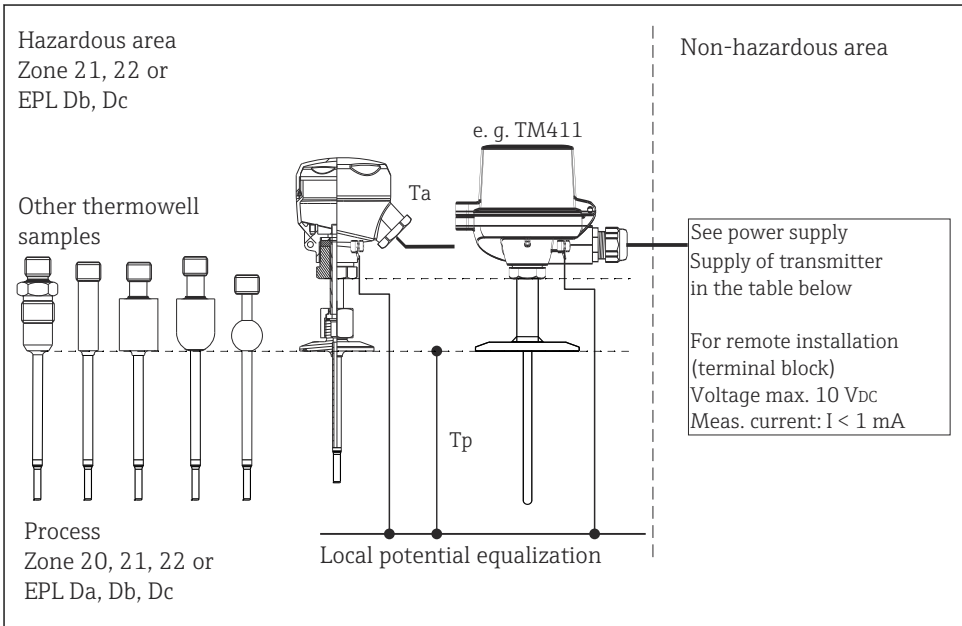
EU Declaration of Conformity

Declaration number: EC_00188

**Manufacturer
address**

Endress+Hauser Wetzer 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 $+95$ °C and -20 to $+130$ °C respectively.
- For operating the thermometer at an ambient temperature under -20 °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 $+70$ °C, use suitable heat-resisting cables or wires, cable entries and sealing facilities for Ta $+5$ 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:
Special conditions

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

Temperature tables

Type	Electrical Data	
iTHERM TM411, TM412	TMT180/TMT181/TMT182: TMT82: TMT84/TMT85: TMT71/TMT72: Remote installation:	max. 35 V _{DC} , 23 mA max. 42 V _{DC} , 23 mA max. 35 V _{DC} , 12 mA max. 36 V _{DC} , 23 mA Voltage max. 10 V _{DC} Measuring current I < 1 mA

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

Type of protection (IEC)	Type
Ex ta/tb IIIC T85 °C...T450 °C Da/Db	iTHERM TM411, TM412

Permitted ambient temperatures:

Type	Assembled head transmitter	Temperatur code	Ambient temperature (housing)
iTHERM TM411, TM412	TMT18x 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 °C ≤ Ta ≤ +120 °C
		T450 °C	-50 °C ≤ Ta ≤ +120 °C

Type	Process temperature range ¹⁾	Maximum surface temperature (sensor)
iTHERM TM411, TM412	-50 °C ≤ Ta ≤ +70 °C	T85 °C
	-50 °C ≤ Ta ≤ +80 °C	T100 °C
	-50 °C ≤ Ta ≤ +120 °C	T135 °C
	-50 °C ≤ Ta ≤ +185 °C	T200 °C
	-50 °C ≤ Ta ≤ +285 °C	T300 °C
	-50 °C ≤ Ta ≤ +435 °C	T450 °C

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



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