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Safety Instructions
iTEMP TMT162

PROFIBUS® PA, FOUNDATION Fieldbus™

ATEX: II1G Ex ia IIC Ga, II2D Ex ia IIIC Db
IECEx: Ex ia IIC Ga, Ex ia IIIC Db

Safety instructions for electrical apparatus in explosion-hazardous areas

Endress+Hauser
People for Process Automation

iTEMP TMT162

PROFIBUS® PA, FOUNDATION Fieldbus™

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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:

HART®:
- Operating instructions: BA00132R
- Brief operating instructions: KA00250R
- Technical information: TI00086R

PROFIBUS® PA:
- Operating instructions: BA00275R
- Brief operating instructions: KA00276R
- Technical information: TI00086R

FOUNDATION Fieldbus™:
- Operating instructions: BA00224R
- Brief operating instructions: KA00189R
- Technical information: TI00086R

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 KEM 06.0038X

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

- IEC 60079-0 : 2017
- IEC 60079-11 : 2011

ATEX certificate

Certificate number: DEKRA 17ATEX0048 X

EU Declaration of Conformity

Declaration number: EC_00649

UKCA certificate

Certificate number: CML 21UKEX21005X

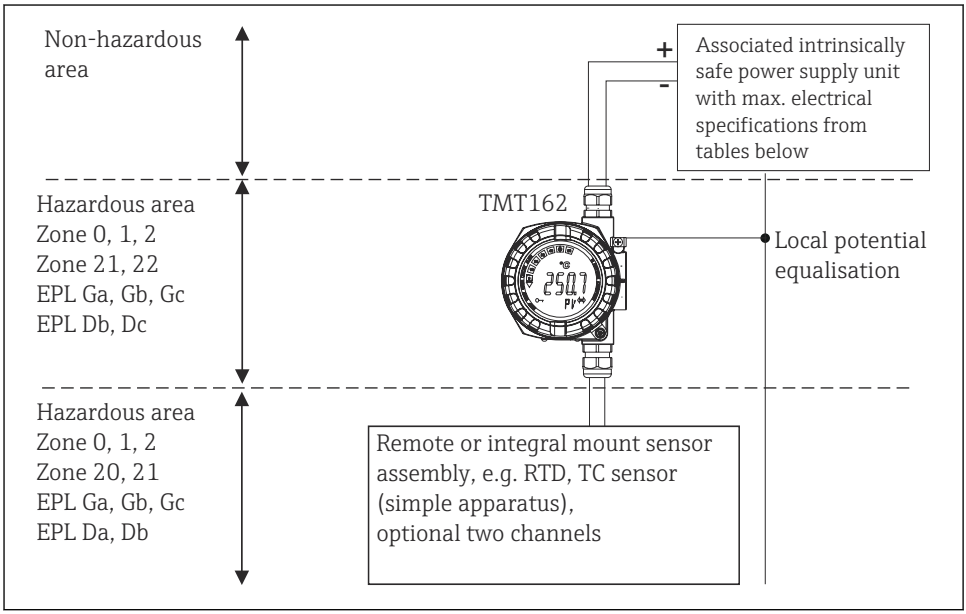
UKCA Declaration of Conformity

Declaration number: EC_00411

Manufacturer address

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

Safety instructions:



Safety instructions: Installation

- 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).
- Connect the device using suitable cable and wire entries of protection type **Intrinsic safety (Ex i)**.
- The type of protection changes as follows when the devices are connected to certified intrinsically safe circuits of Category ib: Ex ib IIC. When connecting an intrinsically safe ib circuit, do not operate the sensor at Zone 0.
- Continuous duty temperature of the cable Ta +5 K.
- To maintain the ingress protection of the housing IP66/67 install the housing cover and cable glands correctly.
- Close unused entry glands with sealing plugs.
- The pertinent guidelines must be observed when intrinsically safe circuits are connected together acc. EN/IEC 60079-14 (Proof of Intrinsic Safety).

- The electrical apparatus must be integrated into the local potential equalization.
- When connecting two independent sensors make sure that the potential equalisation cables are at the same potential.
- The circuits of the transmitter are isolated from its enclosure in conformance with EN/IEC 60079-11 chapter 6.3.13.

Safety instructions: Zone 0

- Only operate devices in potentially explosive vapour/air mixtures under atmospheric conditions:
  - -20 °C ≤ Ta ≤ +60 °C
  - 0.8 bar ≤ p ≤ 1.1 bar
- If no potentially explosive mixtures are present, or if additional protective measures have been taken, according to EN 1127-1, the transmitters may be operated under other atmospheric conditions in accordance with the manufacturer's specifications.
- Associated apparatus with galvanic isolation between the intrinsically safe and non-intrinsically safe circuits are preferred.

Safety instructions: Specific conditions of use

- Unit must not be used when hybrid mixtures (gas, dust, air) are present.
- The temperature transmitter must be installed so, that even in the event of rare incidents, an ignition source due to impact or friction between the enclosure and iron/steel is excluded.
- Use for integral temperature sensors only approved sensors certified for category 1D or 2D marked not less than II1/2D Ex ia IIIC T110 °C Da/Db or II2D Ex ia IIIC T110 °C Db for use in Zone 20 or Zone 21.
- Use for remote temperature sensors only approved sensors certified for category 2D marked not less than II2D Ex ia IIIC T110 °C Db for use in Zone 21.
- When the optional non-conductive coating is applied the risk from electrostatic discharge shall be minimized.

Temperature tables

The ambient temperature range is depending on temperature class and maximum temperature of the enclosure Txx˚C, applicable to the maximum dust layer thickness of 5 mm, listed in the following table:

Type	Temperature class	Ambient temperature	Maximum surface temperature
TMT162 - HART® - PROFIBUS® PA - FOUNDATION Fieldbus™	T6	−40 °C ≤ Ta ≤ +55 °C	T85 °C
	T5	−40 °C ≤ Ta ≤ +70 °C	T100 °C
	T4	−40 °C ≤ Ta ≤ +85 °C	T110 °C

Electrical connection data

Type	Electrical data		
TMT162 HART®	Supply (terminals + and -):	Ui ≤ 30 V_{DC} Ii ≤ 300 mA Pi ≤ 1 000 mW Ci ≤ 5 nF Li = 0	
	Sensor circuit (terminals 1 to 6):	Uo ≤ 7.6 V_{DC} Io ≤ 29.3 mA Po ≤ 55.6 mW	
	Maximum connection values: Ex ia IIC Ex ia IIB / Ex ia IIIC/IIIB/IIIA Ex ia IIA	 Lo = 40 mH Lo = 150 mH Lo = 300 mH	 Co = 10.4 µF Co = 160 µF Co = 1 000 µF

Type	Electrical data			
TMT162 - PROFIBUS® PA - FOUNDATION Fieldbus™	Supply (terminals + and -):	Ui ≤ 17.5 V_{DC} Ii ≤ 500 mA Pi ≤ 5.32 mW Ci ≤ 5 nF Li = 10 µH	or	Ui ≤ 24 V_{DC} Ii ≤ 250 mA Pi ≤ 1.2 W
	Applicable for connection to a Fieldbus system according to FISCO-model			
	Sensor circuit (terminals 1 to 6):	Uo ≤ 8.6 V_{DC} Io ≤ 26.9 mA Po ≤ 57.6 mW		
	Maximum connection values: Ex ia IIC Ex ia IIB / Ex ia IIIC/IIIB/ IIIA Ex ia IIA	 Lo = 48 mH Lo = 180 mH Lo = 380 mH		 Co = 6.2 µF Co = 55 µF Co = 1 000 µF

Category	Type of protection (ATEX)	Type
II 1G	Ex ia IIC T6…T4 Ga	TMT162
II 2D	Ex ia IIIC T85 °C…T110 °C Db	

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