

Safety Instructions

iTEMP TMT142

HART®

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



iTEMP TMT142

HART®

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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: BA00191R
- Brief operating instructions: KA00222R
- Technical information: TI00107R

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

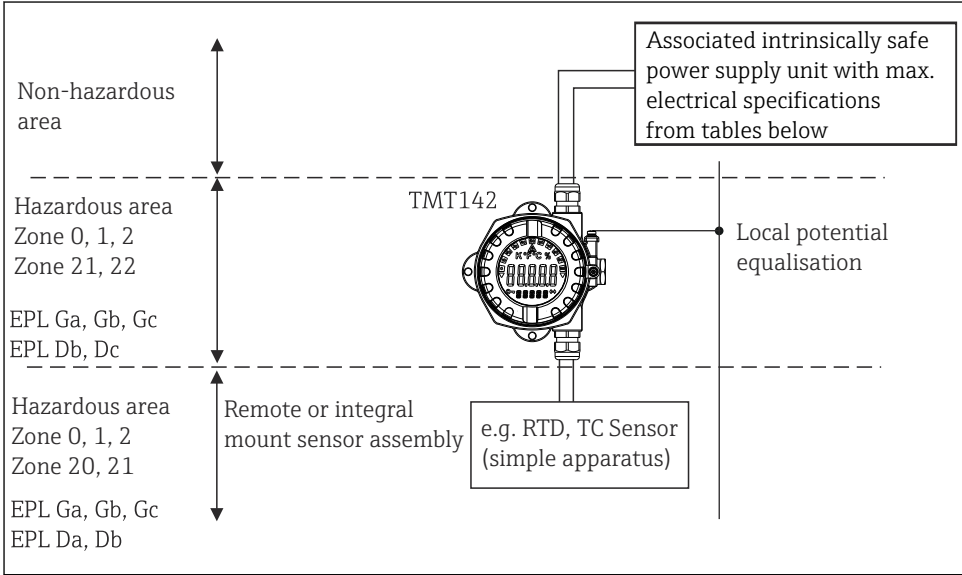
UKCA Declaration of Conformity

Declaration number: EC_00411

**Manufacturer
address**

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

Safety instructions:



A0048927

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 $T_a + 5\text{ K}$.
- 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:
 - $-20\text{ °C} \leq T_a \leq +60\text{ °C}$
 - $0.8\text{ bar} \leq p \leq 1.1\text{ bar}$
- 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 $T_{xx}\text{ °C}$, applicable to the maximum dust layer thickness of 5 mm, listed in the following table:

Type	Temperature class	Ambient temperature	Maximum surface temperature
TMT142 HART®	T6	$-40\text{ °C} \leq T_a \leq +55\text{ °C}$	T85 °C
	T5	$-40\text{ °C} \leq T_a \leq +70\text{ °C}$	T100 °C
	T4	$-40\text{ °C} \leq T_a \leq +85\text{ °C}$	T110 °C

Electrical connection data

Type	Electrical data									
TMT142 HART®	Supply (terminals + and -):	$U_i \leq 30 V_{DC}$ $I_i \leq 300 \text{ mA}$ $P_i \leq 1000 \text{ mW}$ $C_i \leq 5 \text{ nF}$ $L_i = 0$								
	Sensor circuit (terminals 1 to 6):	$U_o \leq 7.6 V_{DC}$ $I_o \leq 29.3 \text{ mA}$ $P_o \leq 55.6 \text{ mW}$								
	Maximum connection values:	<table> <tr> <td>Ex ia IIC / Ex ia IIIC</td> <td>$L_o = 40 \text{ mH}$</td> <td>$C_o = 10.4 \mu\text{F}$</td> </tr> <tr> <td>Ex ia IIB / Ex ia IIIB</td> <td>$L_o = 150 \text{ mH}$</td> <td>$C_o = 160 \mu\text{F}$</td> </tr> <tr> <td>Ex ia IIA / Ex ia IIIA</td> <td>$L_o = 300 \text{ mH}$</td> <td>$C_o = 1000 \mu\text{F}$</td> </tr> </table>	Ex ia IIC / Ex ia IIIC	$L_o = 40 \text{ mH}$	$C_o = 10.4 \mu\text{F}$	Ex ia IIB / Ex ia IIIB	$L_o = 150 \text{ mH}$	$C_o = 160 \mu\text{F}$	Ex ia IIA / Ex ia IIIA	$L_o = 300 \text{ mH}$
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Category	Type of protection (ATEX)	Type
II 1G	Ex ia IIC T6...T4 Ga	TMT142
II 2D	Ex ia IIIC T85 °C...T110 °C Db	

Type of protection (IEC)	Type
Ex ia IIC T6...T4 Ga	TMT142
Ex ia IIIC T85 °C...T110 °C Db	



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