


Safety Instructions

iTEMP TMT142 HART

ATEX: II1G Ex ia IIC T6...T4 Ga, II2D Ex ia IIIC
T85 °C...T110 °C Db
IECEX: Ex ia IIC T6...T4 Ga, Ex ia IIIC
T85 °C...T110 °C Db



Document: XA01958T
Safety instructions for electrical apparatus for explosion-
hazardous areas according to Directive 2014/34/EU (ATEX)
→  3

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.

Associated documentation

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

- Operating instructions: BA00191R
Brief operating instructions: KA00222R
- Technical Information: TI00107R

All documentation is available in:

- *W@M Device Viewer*: Enter the serial number from the nameplate in the (www.endress.com/deviceviewer): all data relating to the device and an overview of the Technical Documentation supplied with the device are displayed.
- *Endress+Hauser Operations App*: Enter the serial number on the nameplate or scan the 2-D matrix code (QR code) on the nameplate with the *Endress+Hauser Operations App*: all the information about the device and the technical documentation pertaining to the device is displayed.
- In the Download Area of the Endress+Hauser web site: www.endress.com → Download.

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 → Download → Advanced → Documentation code: CP00021Z

Certificates

Declaration of Conformity

Declaration number: EC_00605

IECEx Certificate

Certificate number: **EPS 17.0077 X**

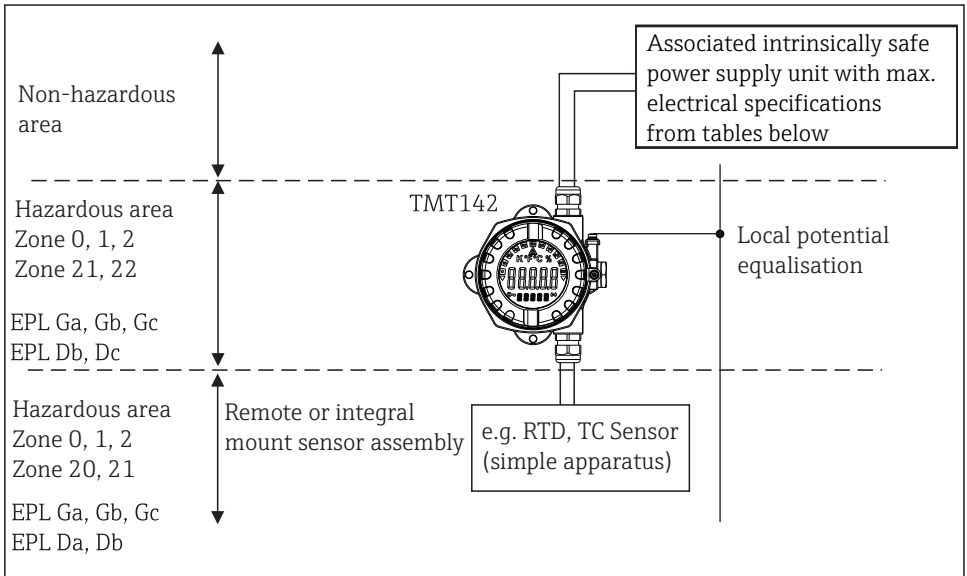
Affixing the certificate number certifies conformity with the following standards (depending on the device version).

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

Manufacturer address

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

Safety instructions



A0020429-EN

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. 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 $T_a +5$ 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. IEC/EN 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.

Safety instructions: Zone 0

- Only operate devices in potentially explosive vapour/air mixtures under atmospheric conditions:
 - $-50\text{ °C} \leq T_a \leq +60\text{ °C}$
 - $0.8\text{ bar} \leq p \leq 1.1\text{ bar}$
- 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 is may 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.

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	
		Zone 1 EPL Gb	Zone 0 EPL Ga
TMT142	T6	$-50\text{ °C} \leq T_a \leq +55\text{ °C}$	$-50\text{ °C} \leq T_a \leq +40\text{ °C}$
	T5	$-50\text{ °C} \leq T_a \leq +70\text{ °C}$	$-50\text{ °C} \leq T_a \leq +50\text{ °C}$
	T4	$-50\text{ °C} \leq T_a \leq +85\text{ °C}$	$-50\text{ °C} \leq T_a \leq +60\text{ °C}$

Type	Maximum surface temperature	Ambient temperature Zone 21 EPL Db
TMT142	T85 °C	$-40\text{ °C} \leq T_a \leq +55\text{ °C}$
	T100 °C	$-40\text{ °C} \leq T_a \leq +70\text{ °C}$
	T110 °C	$-40\text{ °C} \leq T_a \leq +85\text{ °C}$

**Electrical
connection data**

Type	Electrical data									
TMT142	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 4):	$U_o \leq 4.3 V_{DC}$ $I_o \leq 4.8 \text{ mA}$ $P_o \leq 5.2 \text{ mW}$								
	Maximum connection values:	<table> <tr> <td>Ex ia IIC</td> <td>$L_o = 40 \text{ mH}$</td> <td>$C_o = 10.4 \mu\text{F}$</td> </tr> <tr> <td>Ex ia IIB</td> <td>$L_o = 150 \text{ mH}$</td> <td>$C_o = 160 \mu\text{F}$</td> </tr> <tr> <td>Ex ia IIA</td> <td>$L_o = 300 \text{ mH}$</td> <td>$C_o = 1000 \mu\text{F}$</td> </tr> </table>	Ex ia IIC	$L_o = 40 \text{ mH}$	$C_o = 10.4 \mu\text{F}$	Ex ia IIB	$L_o = 150 \text{ mH}$	$C_o = 160 \mu\text{F}$	Ex ia IIA	$L_o = 300 \text{ mH}$
Ex ia IIC	$L_o = 40 \text{ mH}$	$C_o = 10.4 \mu\text{F}$								
Ex ia IIB	$L_o = 150 \text{ mH}$	$C_o = 160 \mu\text{F}$								
Ex ia IIA	$L_o = 300 \text{ mH}$	$C_o = 1000 \mu\text{F}$								

Category	Type of protection (ATEX/IECEX)	Type
II 1G	Ex ia IIC T6...T4 Ga	TMT142
II 2D	Ex ia IIIC T85 °C...T110 °C Db	



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