XA02591T/09/EN/01.21-00
71552197
2021-12-20

Safety Instructions
Temperature transmitter

iTEMP TMT142B

0Ex ia IIC T6...T4 Ga X
Ex ia IIIC T85°C...T110°C Db X
1Ex db IIC T6...T4 Gb X
Ex tb IIIC T110°C Db X

Endress+Hauser
People for Process Automation

Temperature transmitter

iTEMP TMT142B

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Associated documentation

This document is an integral part of the following Operating Instructions:
TMT142B:
Operating Instructions: BA00191R/09
Brief Operating Instructions: KA00222R/09

The Operating Instructions which correspond to the device type apply.

Supplementary Documentation

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

EAC certificate of conformity according to TR CU 012/2011

The temperature transmitters meet the fundamental health and safety requirements for the design and construction of devices and protective systems intended for use in potentially explosive atmospheres.

Certification body: НАНИО "ЦСВЭ"

Certificate number: ЕАЭС RU C-DE.AA87.B.00686/21

Affixing the certificate number certifies conformity with the following standards:

GOST 31610.0-2014 (IEC 60079-0:2011)

GOST IEC 60079-1-2013

GOST 31610.11-2014 (IEC 60079-11:2011)

GOST IEC 60079-31:2013

Manufacturer address

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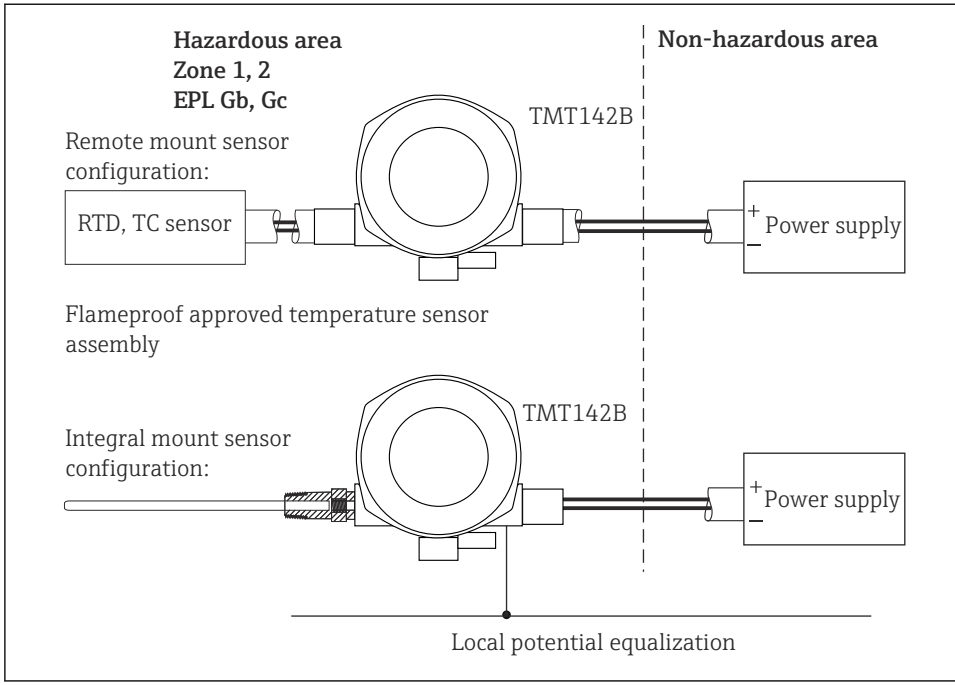
Safety instructions: Ex db



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. GOST 30852.13 (IEC 60079-14)).
- The housing of field transmitter must be connected to the potential matching line.
- Only the approved wire entries as specified in paragraph 10.3 of GOST 30852.13 (IEC 60079-14), paragraph 16 of GOST 52350.0 (IEC 60079-0), paragraph 13 of GOST 30852.1 (IEC 60079-1) must be used.
- For connection through a conduit entry approved for this purpose the associated sealing facility shall be mounted directly to the housing.
- Seal unused entry glands with approved sealing plugs that correspond to the type of protection.
- For operating the transmitter housing at an ambient temperature under −20 °C, appropriate cables and cable entries permitted for this application must be used.

- 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.
- During operation, the cover must be screwed all the way in and the cover's safety catch must be fastened.
- The remote or integral mounted temperature sensor must comply with the requirements according to GOST 30852.1 (IEC 60079-1).

Safety instructions: Special conditions

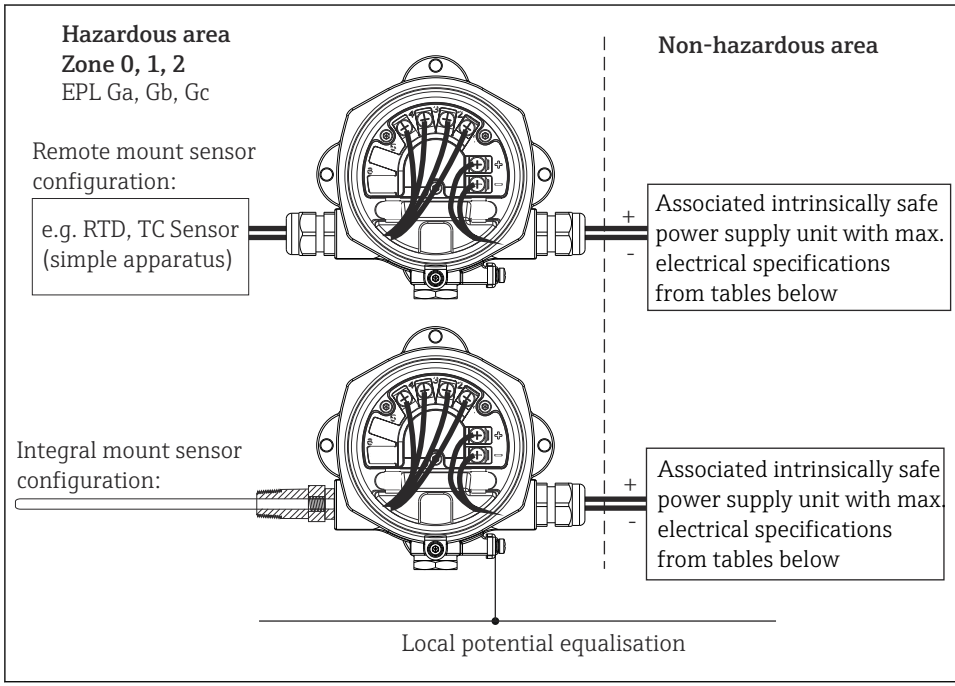
NOTICE

Explosive atmosphere

► Do not open the electrical connection of the power supply circuit in an explosive atmosphere.

- The flameproof joints are not intended to be repaired.
- Use for integral temperature sensors only approved sensors certified for EPL Ga marked not less than Ex db IIC T6...T4 Ga/Gb for use in Zone 0.
- Use for remote temperature sensors only approved sensors certified for EPL Gb marked not less than Ex db IIC T6...T4 Gb for use in Zone 1.
- The temperature class specified for the certified temperature sensor shall be taken into account.
- 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.

Safety instructions: Ex ia



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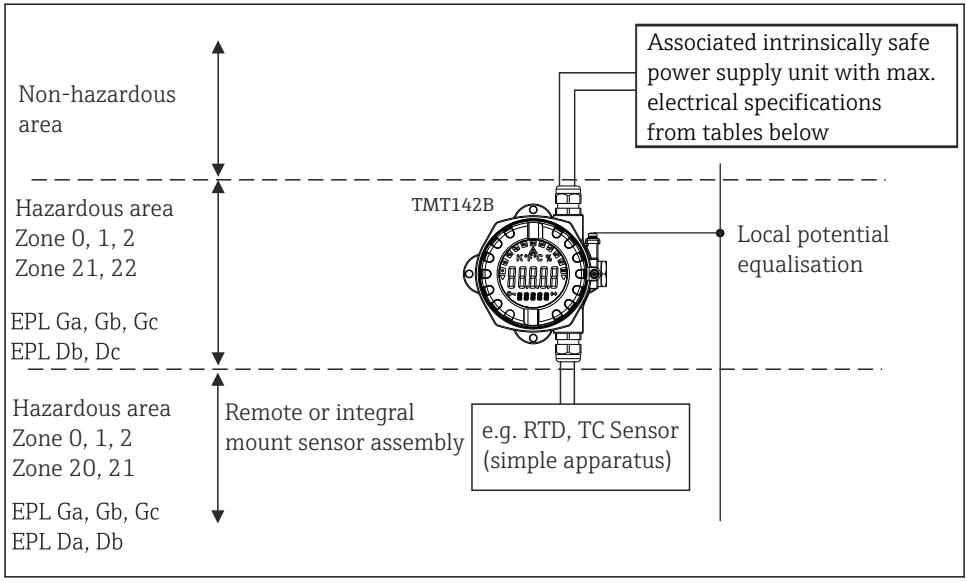

Safety instructions: Installation

- 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 GOST 30852.13 (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. GOST 30852.13 (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.

Safety instructions: Zone 0

- Only operate devices in potentially explosive vapour/air mixtures under atmospheric conditions:
  - -50 °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 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 EPL Da or Db marked not less than Ex ia IIIC T110 °C Da/Db or Ex ia IIIC T110 °C Db for use in Zone 20 or Zone 21.
- Use for remote temperature sensors only approved sensors certified for EPL Db marked not less than 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 Txx°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
TMT142B	T6	−50 °C ≤ Ta ≤ +55 °C	−50 °C ≤ Ta ≤ +40 °C
	T5	−50 °C ≤ Ta ≤ +70 °C	−50 °C ≤ Ta ≤ +50 °C
	T4	−50 °C ≤ Ta ≤ +85 °C	−50 °C ≤ Ta ≤ +60 °C

Type	Maximum surface temperature	Ambient temperature Zone 21 EPL Db
TMT142B	T85 °C	−40 °C ≤ Ta ≤ +55 °C
	T100 °C	−40 °C ≤ Ta ≤ +70 °C
	T110 °C	−40 °C ≤ Ta ≤ +85 °C

Electrical connection data

Type	Electrical data		
TMT142B	Supply (terminals + and -):	$U_i \leq 30\ V_{DC}$ $I_i \leq 300$ mA $P_i \leq 1000$ mW $C_i \leq 5$ nF $L_i = 0$	
	Sensor circuit (terminals 1 to 4):	$U_o \leq 4.3\ V_{DC}$ $I_o \leq 4.8$ mA $P_o \leq 5.2$ mW	
	Maximum connection values: Ex ia IIC Ex ia IIB Ex ia IIA	 $L_o = 40$ mH $L_o = 150$ mH $L_o = 300$ mH	 $C_o = 10.4$ µF $C_o = 160$ µF $C_o = 1000$ µF

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