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Safety Instructions
Temperature transmitter

iTEMP TMT181, TMT182, TMT187, TMT188

0Ex ia IIC T6...T4 Ga X

Document: XA01423T
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Endress+Hauser
People for Process Automation

Temperature transmitter

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Associated documentation

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

- TMT181: KA00141R/09/
- TMT182: KA00142R/09/
- TMT187, TMT188: KA00120R/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.00330/20

Affixing the certificate number certifies conformity with the following standards:

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

GOST IEC 60079-1-2011

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

GOST 31610.26-2012/IEC 60079-26:2006

Manufacturer address

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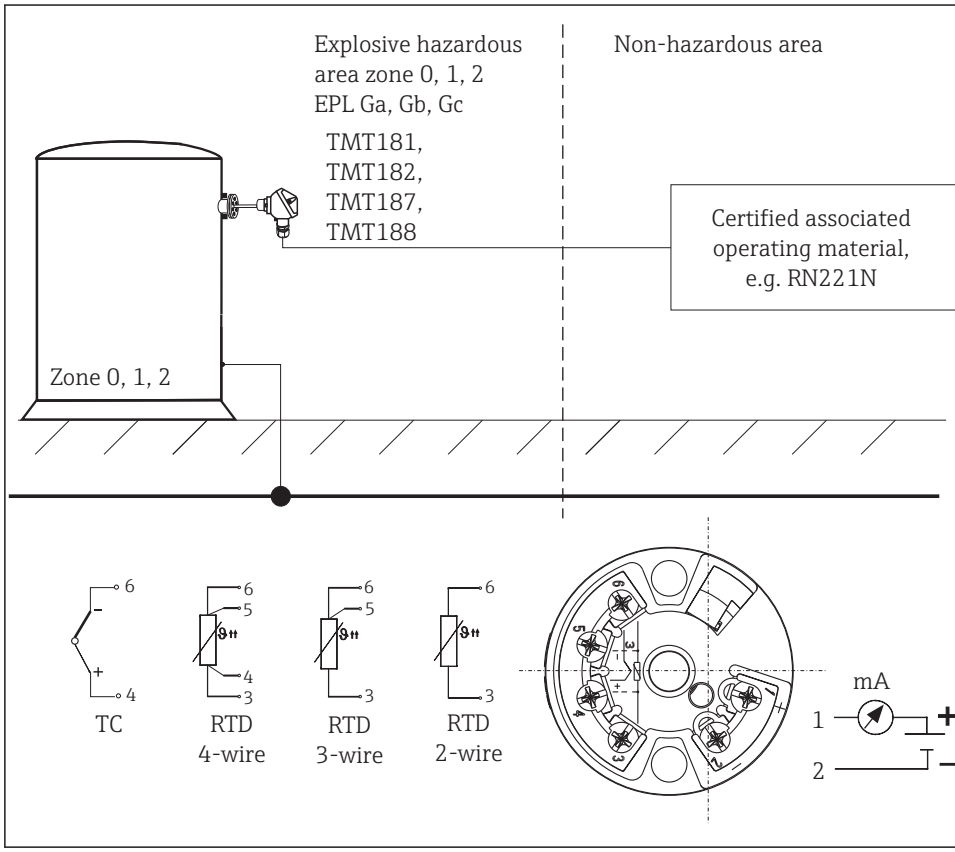
Safety instructions



Safety instructions: Installation

- Comply with the installation and safety instructions in the Operating Instructions.
- Install the device and route the cable according to the manufacturer's instructions and any other valid standards and regulations (e.g. GOST 30852.13-2002 (IEC 60079-14:1996)).
- Install the device only with power supply disconnected.
- When installing the head transmitter note that the housing ingress protection classification IP20 according to EN/IEC 60529 is upheld.
- 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.

- For TMT182: Unit set-up is also allowed in the Ex area using a certified handheld module, e.g. DXR375 or SFX100.
- Setting up the head transmitter (only TMT181 is possible) is only allowed to be done in a nonhazardous area.
  Instrumentation used for setting up must not exceed a voltage of Um = 30 V, this can, for example, be achieved by using battery powered laptops. Setting up with a mains powered PC Um = 253 V can only be done when using an approved adapter with barrier, e.g. TMT181A-VK.
- When interconnecting the rules and regulations for such intrinsically safe circuits must adhered to.
- The device (connection head) must be connected to the potential compensation cable.

Safety instructions: Zone 0

(These instructions are only valid if the unit is to be installed directly in the zone 0 (category 1)/EPL Ga.)

- Explosive moisture/air mixtures are only allowed to occur under atmospheric conditions.
  - −20 °C ≤ Ta ≤ +60 °C
  - 0.8 bar ≤ p ≤ 1.1 bar
    If there is no explosive mixture present or the additional measures according to GOST 31438.1-2011 (EN 1127-1:2007) are upheld the unit can also be operated outside the atmospheric conditions according to the manufacturers specification.
- The restricted ambient temperatures as per GOST 31438.1-2011 (EN 1127-1:2007) 6.4.2 must be observed (see table).
- The power circuit to be supplied must meet the specifications for explosion protection Ex ia IIC (GOST 30852.13-2002 (IEC 60079-14:1996) 12.3).
- The devices can only be used in fluids if the process-wetted materials are sufficiently resistant to such fluids.
- If the entire device is operated in Zone 0/EPL Ga, the compatibility of the device materials with the fluids has to be ensured. (Housing: polycarbonate (PC), potting: polyurethane (PUR)).
- The temperature transmitter must be installed in such a way that electrostatic charge cannot occur, e.g. installation in grounded metallic head or grounded housing.

Temperature tables

Type	Temperature class	Ambient temperature Zone 1, 2	Ambient temperature Zone 0
TMT181, TMT187, TMT188	T6	Ta = −40 to +55 °C	Ta = −20 to +40 °C
	T5	Ta = −40 to +70 °C	Ta = −20 to +50 °C
	T4	Ta = −40 to +85 °C	Ta = −20 to +60 °C

Type (order code)	Temperature class	Ambient temperature Zone 1, 2	Ambient temperature Zone 0
TMT182-VxxxA/B/K (without advanced diagnostic)	T6	−40 °C ≤ Ta ≤ +55 °C	−20 °C ≤ Ta ≤ +40 °C
	T5	−40 °C ≤ Ta ≤ +70 °C	−20 °C ≤ Ta ≤ +50 °C
	T4	−40 °C ≤ Ta ≤ +85 °C	−20 °C ≤ Ta ≤ +60 °C
TMT182-VxxxC/D/L (with advanced diagnostic)	T6	−40 °C ≤ Ta ≤ +55 °C	−20 °C ≤ Ta ≤ +40 °C
	T5	−40 °C ≤ Ta ≤ +70 °C	−20 °C ≤ Ta ≤ +50 °C
	T4	−40 °C ≤ Ta ≤ +85 °C	−20 °C ≤ Ta ≤ +60 °C

Electrical connection data

Type	Electrical data		
TMT181, TMT187, TMT188	Power supply set (terminals 1 and 2)	Ui ≤ 30 V_{DC}	
		Ii ≤ 100 mA	
		Pi ≤ 750 mW	
		Ci = negligible low	
		Li = negligible low	
	Sensor circuit (terminals 3 to 6)	Uo ≤ 8.2 V_{DC}	
		Io ≤ 4.6 mA	
		Po ≤ 9.35 mW	
	Max. connection values		
	Ex ia IIC	Lo = 4.5 mH	Co = 974 nF
	Ex ia IIB	Lo = 8.5 mH	Co = 1 900 nF

Type (order code)	Electrical data	
TMT182-VxxxA/B/K (without advanced diagnostic)	Supply	
	(terminal 1 and 2)	Ui ≤ 30 V_{DC}
		Ii ≤ 100 mA
		Pi ≤ 750 mW
		Ci = negligible low
		Li = negligible low
	Sensor circuit	
	(terminal 3 to 6)	Uo ≤ 5 V_{DC}
		Io ≤ 5.4 mA
		Po ≤ 6.6 mW
		Ci = negligible low

Type (order code)	Electrical data		
		Li = negligible low	
	Max. connection values		
	Ex ia IIC	Lo = 100 mH	Co = 2 µF
	Ex ia IIB	Lo = 100 mH	Co = 9.9 µF
	Ex ia IIA	Lo = 100 mH	Co = 9.9 µF

Type (order code)	Electrical data		
TMT182-VxxxC/D/L (with advanced diagnostic)	Supply		
	(terminal + and -)	Ui ≤ 30 V_{DC}	
		Ii ≤ 100 mA	
		Pi ≤ 800 mW	
		Ci = negligible low	
		Li = negligible low	
	Sensor circuit		
	(terminal 3 to 6)	Uo ≤ 5 V_{DC}	
		Io ≤ 3.6 mA	
		Po ≤ 4.5 mW	
		Ci = negligible low	
		Li = negligible low	
	Max. connection values		
	Ex ia IIC	Lo = 100 mH	Co = 2.1 µF
	Ex ia IIB	Lo = 100 mH	Co = 10 µF
	Ex ia IIA	Lo = 100 mH	Co = 15 µF

Type of protection

Type of protection (EAC)	Type
0Ex ia IIC T6...T4 Ga X	iTEMP TMT181, TMT182, TMT187, TMT188

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