XA00010R/09/EN/15.23-00
71606648
2023-03-13

Safety Instructions
iTEMP TMT181, TMT182, TMT187, TMT188

ATEX: Ex ia IIIC Dc
Ex tc IIIC Dc
Ex nA IIC Gc

Endress+Hauser
People for Process Automation

iTEMP TMT181, TMT182, TMT187, TMT188

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Associated documentation

All documentation is available on the Internet:
www.endress.com/Deviceviewer
(enter the serial number from the nameplate).

If not yet available, a translation into EU languages can be ordered.

To commission the device, please observe the Operating Instructions pertaining to the device:
www.endress.com/<product code>, e.g. TMT18x

Supplementary documentation

Explosion protection brochure: CP00021Z

The explosion protection brochure is available on the Internet:
www.endress.com/Downloads

Certificates and declarations

EU Declaration of Conformity

Declaration number: EC_00160 X

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

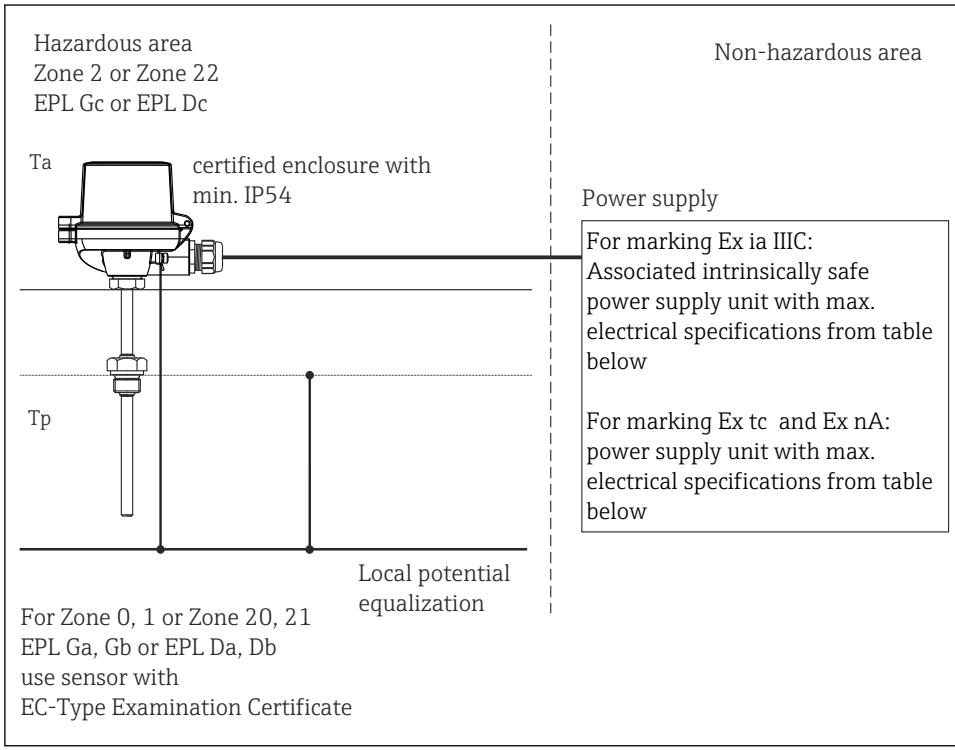
- EN IEC 60079-0: 2018
- EN 60079-11: 2012
- EN 60079-15: 2010
- EN 60079-31: 2014

The EU Declaration of Conformity is available on the Internet:
www.endress.com/Downloads

Manufacturer address

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

Safety instructions



1 Installation of the head transmitter

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).
- When operating the transmitter at an ambient temperature under −20 °C, use appropriate cables and cable entries permitted for this application.
- 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.

Safety instructions:

Dust ignition protection by intrinsic safety “i”

- In the case of Ex ia explosion protection, the power must be supplied with an associated electrical apparatus.
- Clean the housing regularly to avoid a layer of dust accumulating on the housing.

Safety instructions: Schedule of limitations

Due to the risk of discharge, the non-metallic parts of the equipment and of all non-metallic accessories have to be protected from electrostatic charging during installation and operation (e.g. only wipe with a damp cloth and do not expose to high voltage fields).

For type of protection Ex i:

Observe the Safety Instructions (XA00085R for TMT181, TMT187, TMT188 or XA00006R for TMT182 or XA00041R for TMT182 with advanced diagnostic) and connection values for intrinsically safe explosion protection with the designation: II1G Ex ia IIC T6.

For type of protection Ex nA:

- For use in the type of protection Ex nA, and for Zone 2 (EPL Gc) application, the transmitter TMT18x shall be installed completely inside an additional enclosure, providing a degree of protection of not less than IP54 according to EN/IEC 60079-0 and EN/IEC 60079-15. The ambient temperature within the end use enclosure shall not exceed the limits of the permissible ambient temperature range. Clearances, creepage distances, and separations as defined in EN/IEC 60079-15 must be considered for the installation.
- The end user shall ensure appropriate earthing of the metallic field housing (optional) and all metallic accessories if used (wall or pipe mounting accessories for the field housing and the DIN rail clip for the head transmitter) upon installation.
- These components does not have any surface that achieves a temperature greater than 135 °C/100 °C/85 °C with a 5K safety factor when operated under full load conditions at an ambient of range of 85 °C/70 °C/55 °C respectively.
- For full certification as an electrical equipment for use in EPL Gc the tests according to EN/IEC 60079-0 section 5.2 and 5.3 have to be carried out. Based on the test results a temperature class shall be assigned.

For type of protection Ex t:

- For use in the type of protection Ex tc, and for Zone 22 (EPL Dc) application, the transmitter TMT18x shall be installed completely inside an additional enclosure, providing a degree of protection of not less than IP54 in event of non-conductive dust or IP6X in event of conductive dust according to EN/IEC 60079-0 and EN/IEC 60079-31. The ambient temperature within the end use enclosure shall not exceed the limits of the permissible ambient temperature range.
- The end user shall ensure appropriate earthing of the metallic field housing (optional) and all metallic accessories if used (wall or pipe mounting accessories for the field housing and the DIN rail clip for the head transmitter) upon installation.
- These components does not have any surface that achieves a temperature greater than 135 °C/100 °C/85 °C with a 5K safety factor when operated under full load conditions at an ambient of range of 85 °C/70 °C/55 °C respectively.
- For full certification as an electrical equipment for use in EPL Dc the tests according to EN/IEC 60079-0 section 5.2 and 5.3 have to be carried out. Based on the test results a temperature class shall be assigned.

⚠ WARNING

Explosive atmosphere

- ▶ In an explosive atmosphere, do not open the device when voltage is supplied (ensure that the required IP rating is maintained during operation).

Temperature tables

Type	Type of protection	Ambient temperature
TMT181 TMT187 TMT188 TMT182	Ex ia IIIC Dc	−40 °C ≤ Ta ≤ +85 °C
TMT181 TMT187 TMT188 TMT182	Ex tc IIIC Dc	−40 °C ≤ Ta ≤ +85 °C

Type	Type of protection	Ambient temperature
TMT181 TMT187 TMT188 TMT182	Ex nA IIC Gc	−40 °C ≤ Ta ≤ +85 °C

Electrical connection data

Type	Type of protection	Power supply (terminals 1+ and 2-)	Sensor circuit (terminals 3 to 6)	Max. connection values
TMT181 TMT187 TMT188	Ex ia IIIC Dc	$U_i \leq 30\ V_{DC}$ $I_i \leq 100\ mA$ $P_i \leq 760\ mW$ C_i = negligible small L_i = negligible small	$U_o \leq 8.2\ V_{DC}$ $I_o \leq 4.6\ mA$ $P_o \leq 9.35\ mW$	Ex ia IIIA $L_o = 8.5\ mH$ $C_o = 1900\ nF$ Ex ia IIIB $L_o = 8.5\ mH$ $C_o = 1900\ nF$ Ex ia IIIC $L_o = 8.5\ mH$ $C_o = 1900\ nF$
TMT181 TMT187 TMT188	Ex tc IIIC Dc Ex nA IIC Gc	$U_b = 8$ to $35\ V_{DC}$ Output: 4 to 20 mA Current consumption: ≤ 25 mA		
TMT182	Ex ia IIIC Dc	$U_i \leq 30\ V_{DC}$ $I_i \leq 100\ mA$ $P_i \leq 750\ mW$ C_i = negligible small L_i = negligible small	$U_o \leq 5\ V_{DC}$ $I_o \leq 5.4\ mA$ $P_o \leq 6.6\ mW$	Ex ia IIIA $L_o = 100\ mH$ $C_o = 9.9\ \mu F$ Ex ia IIIB $L_o = 100\ mH$ $C_o = 9.9\ \mu F$ Ex ia IIIC $L_o = 100\ mH$ $C_o = 9.9\ \mu F$
TMT182 [1)]	Ex ia IIIC Dc	$U_i \leq 30\ V_{DC}$ $I_i \leq 100\ mA$ $P_i \leq 800\ mW$ C_i = negligible small L_i = negligible small	$U_o \leq 5\ V_{DC}$ $I_o \leq 3.6\ mA$ $P_o \leq 4.5\ mW$	Ex ia IIIA $L_o = 100\ mH$ $C_o = 10\ \mu F$ Ex ia IIIB $L_o = 100\ mH$ $C_o = 10\ \mu F$ Ex ia IIIC $L_o = 100\ mH$ $C_o = 10\ \mu F$
TMT182	Ex tc IIIC Dc Ex nA IIC Gc	$U_b =$ 11.5 to $35\ V_{DC}$		

Type	Type of protection	Power supply (terminals 1+ and 2-)	Sensor circuit (terminals 3 to 6)	Max. connection values
		Output: 4 to 20 mA Current consumption: ≤ 23 mA		

1) TMT182 with the option advanced diagnostic

Category	Type of protection	Type
II 3D	Ex ia IIIC Dc	TMT181, TMT187, TMT188
II 3D	Ex tc IIIC Dc	TMT182
II 3G	Ex nA IIC Gc	

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