

Safety Instructions

iTHERM TM111, iTHERM TM131

TM111: Ex db IIC T1...T6 Gb

Ex tb IIIC T85 °C...T450 °C Db

TM131: Ex db IIC T1...T6 Ga/Gb

Ex ta IIIC T₂₀₀ T85 °C...T₂₀₀ T450 °C Da -
Process

Ex tb IIIC T85 °C...T450 °C Db - Enclosure



iTHERM TM111, iTHERM TM131

Table of contents

Associated documentation	3
Supplementary documentation	3
Manufacturer's certificates	3
Manufacturer address	3
Safety instructions	4
Safety instructions: Installation of protection flameproof	4
Safety instructions: Installation of Dust ignition protection	5
Safety instructions: Partition wall	6
Safety instructions: Specific conditions of use	6
Temperature tables	7
Electrical connection data	8

Associated documentation

To commission the device, please observe the Operating Instructions pertaining to the device:
www.endress.com/<product code>, e.g. TM111

Supplementary documentation

Explosion protection brochure: CP00021Z
The explosion protection brochure is available on the Internet:
www.endress.com/Downloads

Manufacturer's certificates**NEPSI certificate**

Certificate number: GYJ19.1378X

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

- GB 3836.1-2010
- GB 3836.2-2010
- GB 3836.4-2010
- GB 12476.1-2013
- GB 12476.5-2013

CCC Certificate of conformity

Certificate number:

202032231500504

202032231500505

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

- GB/T 3836.1-2021
- GB/T 3836.2-2021
- GB/T 3836.31-2021

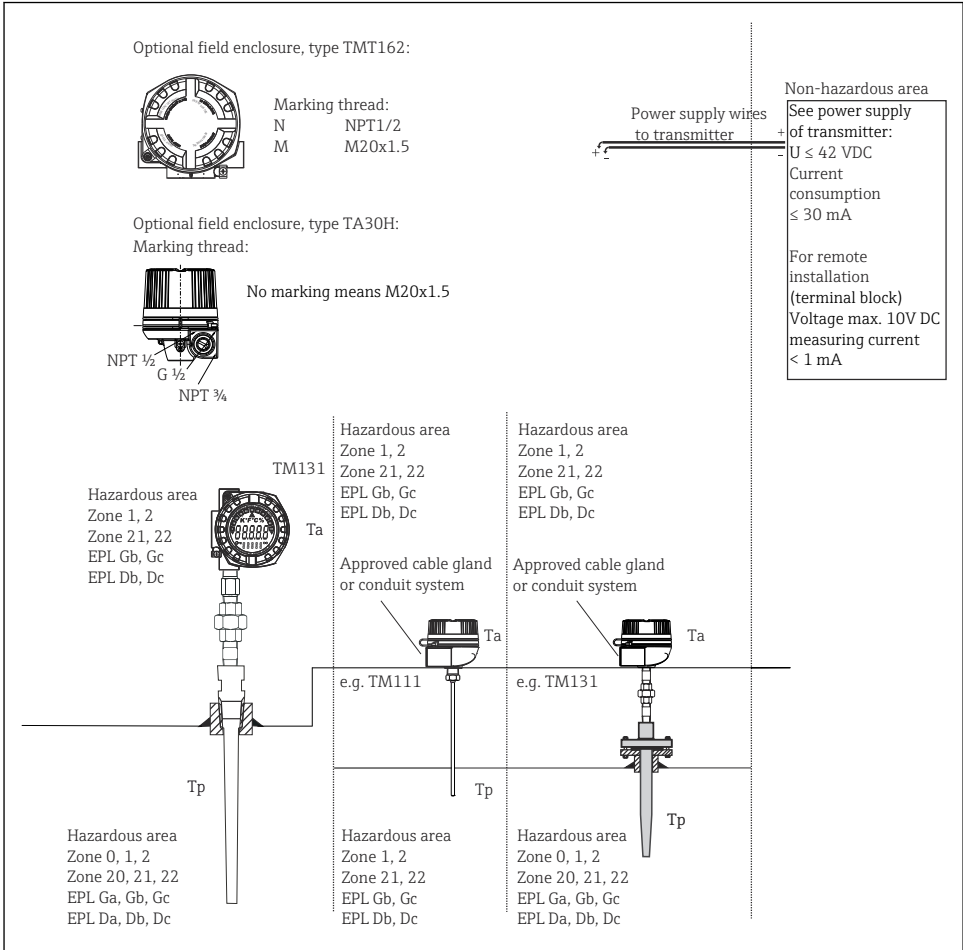


Please refer to NEPSI/CCC certificates for conditions of safe use.

Manufacturer address

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

Safety instructions



A0046875

Safety instructions: Installation of protection flameproof

- 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).
- The housing of the thermometer must be connected to the potential matching line.

- Only the approved wire entries as specified in paragraph 10 of IEC/EN 60079-14, paragraph 16 of IEC/EN 60079-0, paragraph 13 of IEC/EN 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 the cable entries with certified cable glands and or blanking elements which have at least type of protection Ex db and Ex tb suitable for Group IIC and IIIC (degree of protection IP6X).
- The maximum specified ambient temperature Ta at terminal head not be exceeded.
- For operating the thermometer housing at an ambient temperature under $-20\text{ }^{\circ}\text{C}$ appropriate cables and cable entries permitted for this application must be used.
- For ambient temperatures higher than $+70\text{ }^{\circ}\text{C}$, 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 thermometer 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.

⚠ WARNING

Explosive atmosphere

- ▶ Do not open the electrical connection of the power supply circuit under voltage in an explosive atmosphere.

**Safety instructions:
Installation of
Dust ignition
protection**

- 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).
- Seal the cable entries tight with certified cable which have at least type of protection Ex tb suitable for Group IIIC (degree of protection IP6X).
- The housing of the thermometer must be connected to the potential matching line.
- For ambient temperatures higher than $+70\text{ }^{\circ}\text{C}$, use suitable heat-resisting cables or wires, cable entries and sealing facilities for Ta +5 K above surrounding.

⚠ WARNING

Explosive atmosphere

- ▶ In an explosive atmosphere, do not open the device when voltage is supplied (ensure that the IP6x housing protection is maintained during operation).

**Safety
instructions:
Partition wall**

- The provided thermowells are out of materials AISI316/W.1.4401, AISI316L/W.1.4404, AISI 316Ti/1.4571, Hastelloy® C-276, Alloy 600 or AISI446/W.1.4762.
- Install the thermometer in a partition wall which is in compliance with IEC/EN 60079-26 in reference to its ultimate application.
- Use only thermowells out of materials complying with IEC/EN 60079-0 chapter 8.3 (e.g. AISI316/W.1.4401, AISI316L/W.1.4404, AISI 316Ti/1.4571...).

**Safety
instructions:
Specific
conditions of use**

- The flameproof joints are not intended to be repaired.
- TM111 temperature sensors with a diameter smaller than 6 mm shall be protected by a thermowell.
- TM111 temperature sensors with suffix code f = D, E or F shall be protected by a thermowell.
- TMT131 temperature sensors shall always be protected by a thermowell.
- It shall be verified, taking into account the worst case process and ambient temperatures,
 - that the temperature of the enclosure at the process connection point does not exceed the ambient temperature range of the assembly and
 - the temperature of the optionally used RBFF1NS union does not exceed the service temperature range of -50 to +150 °C for following option:

TM131-a b c.....

c Thermometer Design:

M Nipple-union connection NPT½"

N Nipple-union-nipple connection NPT½"

- Install only head transmitters not exceeding a maximum power dissipation of 2.2W with a temperature input rating not exceeding 10 V_{DC} and 1 mA.
- For assure that the temperature assembly has a degree of protection of IP6X the user shall provide a thermowell or equivalent component at the process side.

Temperature tables

The relation between the type, electrical connection, temperature class, maximum surface temperature, ambient temperature range and process temperature range is shown in the following table.

Type	Electrical connection ¹⁾	Temperature class/Maximum surface temperature	Ambient temperature range	Process temperature range Insert diameter 3 mm, 6 mm dual	Process temperature range Insert diameter 6 mm		
TM111 TM131	Terminal block (1A) ²⁾	T6/T85 °C	-50 to +70 °C	-50 to +55 °C	-50 to +68 °C		
		T5/T100 °C	-50 to +80 °C	-50 to +70 °C	-50 to +83 °C		
		T4/T135 °C	-50 to +120 °C	-50 to +105 °C	-50 to +118 °C		
		T3/T200 °C	-50 to +120 °C	-50 to +170 °C	-50 to +183 °C		
		T2/T300 °C	-50 to +120 °C	-50 to +265 °C	-50 to +278 °C		
		T1/T450 °C	-50 to +120 °C	-50 to +415 °C	-50 to +428 °C		
	Flying leads (0A) or Transmitter TMT71 (2C) TMT72 (3A) TMT82 (3C, 3D, 3F) TMT84 (5A) TMT85 (4A) TMT180 (2A, 2B) TMT131 (2H, 2I) TMT86 (6B, 6C)	T6/T85 °C	-40 to +65 °C	-50 to +55 °C	-50 to +68 °C		
		T5/T100 °C	-40 to +80 °C	-50 to +70 °C	-50 to +83 °C		
		T4/T135 °C	-40 to +85 °C	-50 to +105 °C	-50 to +118 °C		
		T3/T200 °C	-40 to +85 °C	-50 to +170 °C	-50 to +183 °C		
		T2/T300 °C	-40 to +85 °C	-50 to +265 °C	-50 to +278 °C		
		T1/T450 °C	-40 to +85 °C	-50 to +415 °C	-50 to +428 °C		
		TM131	Transmitter TMT162 (2D, 2E, 2F, 2G, 4B, 4C, 5B, 5C) TMT142 (7A)	T6/T85 °C	-40 to +55 °C	-50 to +55 °C	-50 to +68 °C
				T5/T100 °C	-40 to +70 °C	-50 to +70 °C	-50 to +83 °C
T4/T135 °C	-40 to +80 °C			-50 to +105 °C	-50 to +118 °C		
T3/T200 °C	-40 to +80 °C			-50 to +170 °C	-50 to +183 °C		
T2/T300 °C	-40 to +80 °C			-50 to +265 °C	-50 to +278 °C		
T1/T450 °C	-40 to +80 °C			-50 to +415 °C	-50 to +428 °C		

1) TM111 suffix code h, TM131 suffix code l.

2) in an enclosure with a blind cover; TM111 suffix code i / TM131 suffix code m = A1, D1, H1, H3.



Transmitters are not in the scope of CCC. For detail information:
www.endress.com.

**Electrical
connection data**

Type	Electrical data
TM111 TM131	$U_b \leq 42 V_{DC}$ Current consumption $\leq 30 \text{ mA}$ Remote installation: Voltage max. $10 V_{DC}$ Measuring current $I < 1 \text{ mA}$



71613180

www.addresses.endress.com
