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Safety Instructions
iTHERM SurfaceLine TM611

Ex db IIC T6…T1 Gb
Ex tb IIIC T85 °C…T450 °C Db

Endress+Hauser
People for Process Automation

iTHERM SurfaceLine TM611

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About this document

The document number of these Safety Instructions (XA) must match the information on the nameplate.

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. iTHERM TM611

Supplementary documentation

Explosion protection brochure: CP00021Z

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

Certificates and declarations

Korean certificate

Certificate number:

Ex db: 25-KA4BO-0320X

Ex tb: 25-KA4BO-0321X

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

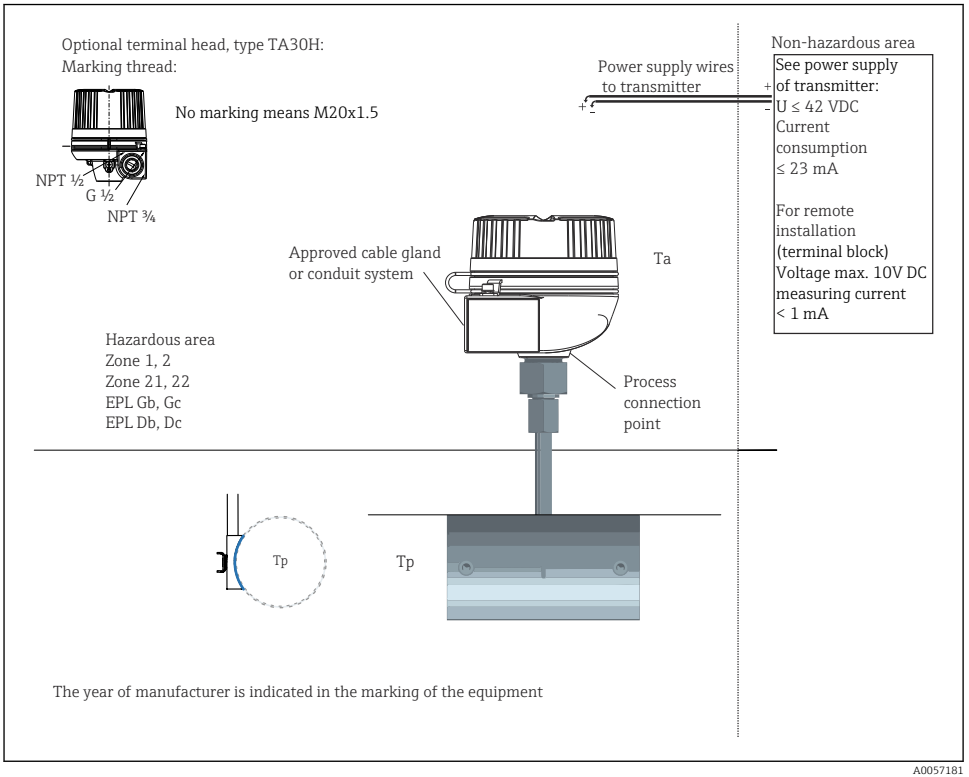
Protect Device Safety Certification Notice No. 2021-22

Please refer to Korean certificates for conditions of safe use.

Manufacturer address

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

Safety instructions



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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 °C appropriate cables and cable entries permitted for this application must be used.
- For ambient temperatures higher than +65 °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 and maintained 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
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⚠ WARNING

Potentially explosive atmospheres

▶ Do not open the electrical connection of the supply circuit when energized if there is a potentially 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).
- 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.
- The housing of the thermometer must be connected to the potential matching line.
- For ambient temperatures higher than +65 °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: Specific conditions of use

- The flameproof joints are not intended to be repaired.
- 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 coupling element does not exceed the service temperature range for following option:

TM611-a b c d.....

d	Material coupling element	Service temperature range
xx	1.4404	−50 to +450 °C
xx	AlSi 1MgMn	−50 to +150 °C
YY	1.4529, 2.4816, 2.4819	−50 to +450 °C
YY	1.4547	−20 to +400 °C
YY	1.4539	−50 to +425 °C
YY	1.4462	−30 to +300 °C
YY	1.4410	−35 to +260 °C

- Temperature assemblies with flying leads (type iTHERM TM611 suffix code h = 0A) shall be provided with a round transmitter of max. 2.2 W with a main diameter not exceeding 45 mm and a sensor signal of max 10 V_{DC} and 1 mA.
- iTHERM TM611 temperature sensor is to be protected by its provided coupling element, type TT611.

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.

Temperature assemblies with RTD temperature sensors			
Electrical connection [1]	Temperature class/ Maximum surface temperature	Ambient temperature range	Process temperature range
			Insert diameter 3 mm
Type iTHERM TM611			
Terminal block (1A) [2]	T6/T85 °C	−50 to +70 °C	−50 to +55 °C
	T5/T100 °C	−50 to +80 °C	−50 to +70 °C
	T4/T135 °C	−50 to +120 °C	−50 to +105 °C
	T3/T200 °C	−50 to +120 °C	−50 to +170 °C
	T2/T300 °C	−50 to +120 °C	−50 to +265 °C
	T1/T450 °C	−50 to +120 °C	−50 to +415 °C
Type iTHERM TM611			
Flying leads (0A) Transmitter iTEMP TMT31 (2H, 2I) iTEMP TMT71 (2C) iTEMP TMT72 (3A) iTEMP TMT82 (3C, 3D, 3F, 3I) iTEMP TMT84 (5A) iTEMP TMT85 (4A) iTEMP TMT86 (6B, 6C)	T6/T85 °C	−40 to +65 °C	−50 to +55 °C
	T5/T100 °C	−40 to +80 °C	−50 to +70 °C
	T4/T135 °C	−40 to +85 °C	−50 to +105 °C
	T3/T200 °C	−40 to +85 °C	−50 to +170 °C
	T2/T300 °C	−40 to +85 °C	−50 to +265 °C
	T1/T450 °C	−40 to +85 °C	−50 to +415 °C

1) iTHERM TM611 suffix code j
2) in an enclosure with a blind cover; iTHERM TM611 suffix code k = A1, D1, H1, H3.

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.

Temperature assemblies with thermocouple temperature sensors			
Electrical connection [1]	Temperature class/ Maximum surface temperature	Ambient temperature range	Process temperature range
Type iTHERM TM611			
Terminal block (1A) [2]	T6/T85 °C	−50 to +70 °C	−50 to +85 °C
	T5/T100 °C	−50 to +80 °C	−50 to +100 °C

Temperature assemblies with thermocouple temperature sensors			
Electrical connection [1]	**Temperature class/ Maximum surface temperature**	**Ambient temperature range**	**Process temperature range**
	T4/T135 °C	−50 to +120 °C	−50 to +135 °C
	T3/T200 °C	−50 to +120 °C	−50 to +200 °C
	T2/T300 °C	−50 to +120 °C	−50 to +300 °C
	T1/T450 °C	−50 to +120 °C	−50 to +450 °C
Type iTHERM TM611			
Flying leads (0A) Transmitter iTEMP TMT71 (2C) iTEMP TMT72 (3A) iTEMP TMT82 (3C, 3D, 3F, 3I) iTEMP TMT84 (5A) iTEMP TMT85 (4A) iTEMP TMT86 (6B, 6C)	T6/T85 °C	−40 to +65 °C	−50 to +85 °C
	T5/T100 °C	−40 to +80 °C	−50 to +100 °C
	T4/T135 °C	−40 to +85 °C	−50 to +135 °C
	T3/T200 °C	−40 to +85 °C	−50 to +200 °C
	T2/T300 °C	−40 to +85 °C	−50 to +300 °C
	T1/T450 °C	−40 to +85 °C	−50 to +450 °C

1) iTHERM TM611 suffix code j
2) in an enclosure with a blind cover; iTHERM TM611 suffix code k = A1, D1, H1, H3.

Electrical connection data

Type	Electrical data
iTHERM TM611	$U_b \leq 42\ V_{DC}$ Current consumption ≤ 23 mA Remote installation: Voltage max. 10 V_{DC} Measuring current I < 1 mA

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