

Safety Instructions

TR/TC6x

Ex d IIC T1...T6 Gb



Document: XA02108T
Safety instructions for electrical apparatus for explosion-
hazardous areas →  2

TR/TC6x

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Associated documentation

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

Technical Information:

- TI01029T (TR/TC61)
- TI00024T (TR/TC62)
- TI01030T (TR/TC63)
- TI01031T (TR/TC65)
- TI01032T (TR/TC66)

Supplementary documentation

Explosion-protection brochure: CP00021Z/11

The Explosion-protection brochure is available: In the download area of the Endress+Hauser website: www.endress.com → Download → Advanced → Documentation code: CP00021Z

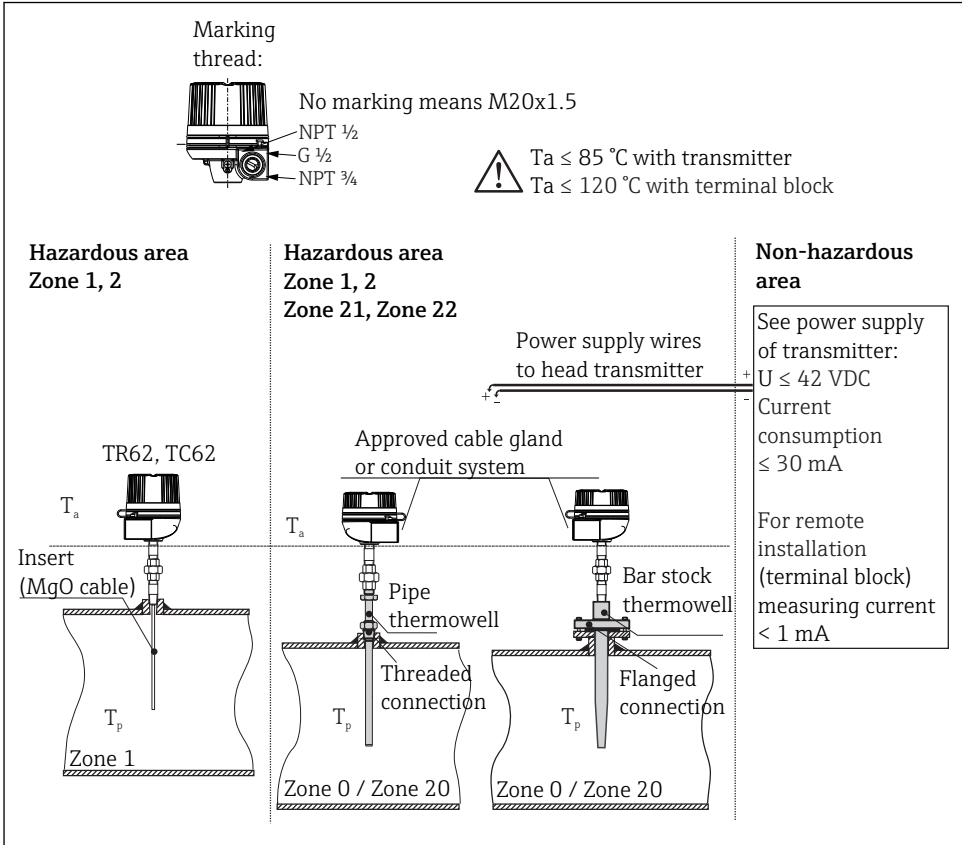
Certificates**Declaration of Conformity****NEPSI Certificate of conformity**

Certificate number: GYJ20.1294X

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

- GB3836.1-2010
- GB3836.2-2010

Safety instructions



Safety instructions: Installation

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. GBT 3836.15-2017/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 10.4 of GBT 3836.15-2017/IEC 60079-14, paragraph 16 of GB 3836.1-2010/IEC 60079-0, paragraph 13 of GB 3836.2-2010/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 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 $+70^{\circ}\text{C}$ use suitable heat-resisting cables or wires, cable entries and sealing facilities which can be applied for temperatures $+5\text{ K}$ above ambient temperature.
- 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.
- The cylindrical process connection joint has a minimal length of 13.9 mm, in which the maximum gap of 0.10 mm must be kept.
- Sensors for Tx6x with diameter $< 6\text{ mm}$ are to be mechanically protected by thermowell.
- Following sensor options of TR62 do not require a mechanical protection by a thermowell:
TR62-a b c d e f g h i
a = approval: F, R
e = Insert diameter; material: 3 (6 mm; MgO, 316L)
h = RTD; wire; measuring range; class; validity: A, B, C, F, G, 2, 3, 6 or 7
- Staff must meet the following conditions for mounting, electrical installation, commissioning and maintenance of the device:
 - Be suitably qualified for their role and the tasks they perform
 - Be trained in explosion protection
 - Be familiar with national regulations
- The external earth connection facility should be connected reliably.
- Suitable certified cable gland and blanking plug approved by ExTL according to GB 3836.1-2010 and GB 3836.2-2010 with Ex marking "Ex d II C Gb" shall be used and correctly installed; after installing, degree of protection of enclosure should be at least IP66/67 according to GB 4208-2008. The cable glands and blanking plugs to be used shall be suitable for the product working conditions.

- Any maintenance shall be performed only when the warning of “Keep tight while the circuit is alive” is observed.
- The user shall not change the configuration in order to maintain/ensure the explosion protection performance of the equipment. Any change may impair safety.
- For installation, use and maintenance of this product, the end user shall observe the instruction manual and the following standards:
 - GB 50257-2014 “Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering”.
 - GB 3836.13-2013 “Explosive atmospheres-Part 13: Equipment repair, overhaul and reclamation”.
 - GB/T 3836.15-2017 “Explosive atmospheres- Part 15: Electrical installations design, selection and erection”.
 - GB/T 3836.16-2017 “Explosive atmospheres- Part 16: Electrical installations inspection and maintenance”.

WARNING

Explosive atmosphere

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

Safety instructions: Installation

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. GB/T3836.15-2017/IEC 60079-14).
- Seal the cable entries tight with certified cable glands (min. IP6X) IP6X according to IEC 60529.
- The housing of the thermometer must be connected to the potential matching line.
- For ambient temperatures higher than +70 °C use suitable heat-resisting cables or wires, cable entries and sealing facilities which can be applied for temperatures +5 K above ambient temperature.

WARNING

Explosive atmosphere

- ▶ In an explosive atmosphere, do not open the device when voltage is supplied (ensure that the IP 66/67 housing protection is maintained during operation).

Safety instructions:

Special conditions

- The ambient temperature T_a at the process connection on the enclosure may not exceed $+120\text{ °C}$.
- For assure that the temperature assembly has a degree of protection of at least IP66/67 the user has to provide a thermowell or equivalent component at the process side.
- For information on the dimensions of the flameproof joints contact the manufacturer.
- Temperature sensors with diameters smaller than 6 mm shall be mechanically protected by the thermowell.

Temperature tables

Permitted ambient temperatures

Type	Assembled head transmitter	Temperature class/code	Ambient temperature housing
Tx6x	TMT18x TMT8x	T6/T85 °C	$-40\text{ °C} \leq T_a \leq +65\text{ °C}$
		T5/T100 °C	$-40\text{ °C} \leq T_a \leq +80\text{ °C}$
		T4/T135 °C	$-40\text{ °C} \leq T_a \leq +85\text{ °C}$
	Without electronics or terminal block	T6/T85 °C	$-50\text{ °C} \leq T_a \leq +70\text{ °C}$
		T5/T100 °C	$-50\text{ °C} \leq T_a \leq +80\text{ °C}$
		T4/T135 °C	$-50\text{ °C} \leq T_a \leq +120\text{ °C}$
		T3/T200 °C	$-50\text{ °C} \leq T_a \leq +120\text{ °C}$
		T2/T300 °C	$-50\text{ °C} \leq T_a \leq +120\text{ °C}$
		T1/T450 °C	$-50\text{ °C} \leq T_a \leq +120\text{ °C}$

Type	Process temperature range ¹⁾	Temperature class / Maximum surface temperature sensor
Tx6x	$-50\text{ °C} \leq T_p \leq +70\text{ °C}$	T6/T85 °C
	$-50\text{ °C} \leq T_p \leq +80\text{ °C}$	T5/T100 °C
	$-50\text{ °C} \leq T_p \leq +120\text{ °C}$	T4/T135 °C
	$-50\text{ °C} \leq T_p \leq +185\text{ °C}$	T3/T200 °C
	$-50\text{ °C} \leq T_p \leq +285\text{ °C}$	T2/T300 °C
	$-50\text{ °C} \leq T_p \leq +435\text{ °C}$	T1/T450 °C

1) Maximum process pressure see relevant Technical information

**Electrical
connection data**

Type	Electrical data
TR61, TR62, TR63, TR65, TR66	$U_b \leq 42 V_{DC}$ Current consumption $\leq 30 \text{ mA}$
TC61, TC62, TC63, TC65, TC66	Remote installation: Measuring current $I < 1 \text{ mA}$



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