

Safety Instructions

Omnigrad S TR/TC6x

RTD / TC Thermometer

1Ex d IIC T6...T1 Gb X

Ex tb IIIC 85 °C...450 °C Da X

Ga/Gb Ex d IIC T6...T1 X

Ex ta/tb IIIC 85 °C...450 °C Da/Db X



Document: XA01450T

Safety instructions for electrical apparatus for explosion-hazardous areas →  3

Omnigrad S TR/TC6x

RTD / TC Thermometer

Table of contents

Associated documentation	4
Supplementary Documentation	4
EAC certificate of conformity	4
Manufacturer address	4
Safety Instructions: General	4
Safety Instructions: Installation of protection flameproof	5
Safety Instructions: Installation of Dust ignition protection	6
Safety Instructions: Special conditions	7
Temperature tables	7
Electrical connection data	7

Associated documentation

This document is an integral part of the following instructions:

Technical Information:

- TI01029T/09 (TR/TC61)
- TI01024T/09 (TR/TC62)
- TI01030T/09 (TR/TC63)
- TI01031T/09 (TR/TC65)
- TI01032T/09 (TR/TC66)

Supplementary Documentation

Explosion-protection brochure:
CP00021Z/11

EAC certificate of conformity

The RTD/TC inserts and cable thermometers meet the fundamental health and safety requirements for the design and construction of devices and protective systems intended for use in potentially explosive atmospheres in accordance with TR CU 012/2011.

Certification body: НАННО "ЦСВЭ"

Certificate number: EAЭС RU C-DE.AA87.B.00331/20

Affixing the certificate number certifies conformity with the following standards:

GOST IEC 60079-1-2011

GOST IEC 60079-31-2013

GOST 31610.26-2012 /IEC 60079-26:2006

Manufacturer address

Endress+Hauser Wetzer GmbH + Co KG

Obere Wank 1

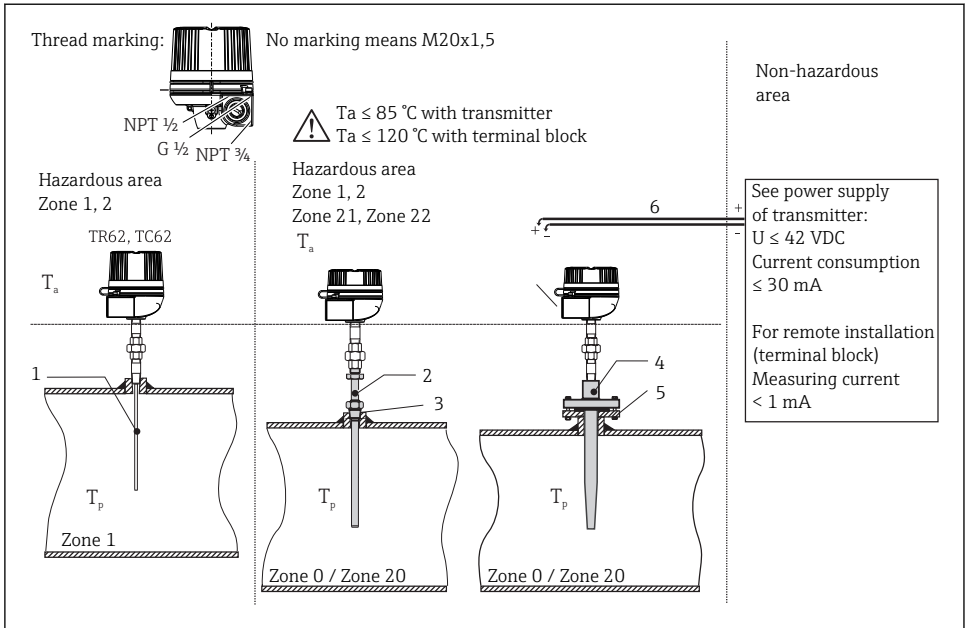
D-87484 Nesselwang

Germany

Phone: +49 (0)8361 308 0

Safety Instructions: General**Explosive atmosphere**

- ▶ In an explosive atmosphere, do not open the device when voltage is supplied (ensure that the IP67 housing protection is maintained during operation).



A0031669-EN

- 1 MgO cable insert
- 2 Pipe thermowell
- 3 Threaded connection
- 4 Bar stock thermowell
- 5 Flanged connection
- 6 Power supply wires to head transmitter

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. GOST 30852.13, 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 GOST 1330.13-99, IEC 60079-14, paragraph 16 of GOST 31610.0, IEC 60079-0, paragraph 13 of GOST 51330.1-99 (GOST 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 $-20\text{ }^{\circ}\text{C}$, 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.
- 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 smaller than 6 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

⚠ 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. GOST 30852.13, 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 $+70\text{ }^{\circ}\text{C}$, 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 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 $120\text{ }^\circ\text{C}$.
- In order to 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.

Temperature tables*Permitted ambient temperatures*

Type	Assembled head transmitter	Temperature class/code	Ambient temperature housing
TX6x	TMT18x TMT8x	T6/T85 °C	$-40\text{ }^\circ\text{C} \leq T_a \leq +65\text{ }^\circ\text{C}$
		T5/T100 °C	$-40\text{ }^\circ\text{C} \leq T_a \leq +80\text{ }^\circ\text{C}$
		T4/T135 °C	$-40\text{ }^\circ\text{C} \leq T_a \leq +85\text{ }^\circ\text{C}$
	without electronic or terminal block	T6/T85 °C	$-50\text{ }^\circ\text{C} \leq T_a \leq +70\text{ }^\circ\text{C}$
		T5/T100 °C	$-50\text{ }^\circ\text{C} \leq T_a \leq +80\text{ }^\circ\text{C}$
		T4/T135 °C	$-50\text{ }^\circ\text{C} \leq T_a \leq +120\text{ }^\circ\text{C}$
		T3/T200 °C	$-50\text{ }^\circ\text{C} \leq T_a \leq +120\text{ }^\circ\text{C}$
		T2/T300 °C	$-50\text{ }^\circ\text{C} \leq T_a \leq +120\text{ }^\circ\text{C}$
T1/T450 °C	$-50\text{ }^\circ\text{C} \leq T_a \leq +120\text{ }^\circ\text{C}$		

Type	Process temperature range ¹⁾	Temperature class / Maximum surface temperature sensor
TX6x	$-50\text{ }^\circ\text{C} \leq T_p \leq +70\text{ }^\circ\text{C}$	T6/T85 °C
	$-50\text{ }^\circ\text{C} \leq T_p \leq +80\text{ }^\circ\text{C}$	T5/T100 °C
	$-50\text{ }^\circ\text{C} \leq T_p \leq +120\text{ }^\circ\text{C}$	T4/T135 °C
	$-50\text{ }^\circ\text{C} \leq T_p \leq +185\text{ }^\circ\text{C}$	T3/T200 °C
	$-50\text{ }^\circ\text{C} \leq T_p \leq +285\text{ }^\circ\text{C}$	T2/T300 °C
	$-50\text{ }^\circ\text{C} \leq T_p \leq +435\text{ }^\circ\text{C}$	T1/T450 °C

1) Maximum process pressure see relevant Technical Information

Electrical connection data

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

Type of protection	Type
1Ex d IIC T6...T1 Gb X Ex tb IIIC 85 °C...450 °C Da X Ga/Gb Ex d IIC T6...T1 X Ex ta/tb IIIC 85 °C...450 °C Da/Db X	TR61, TR62, TR63, TR65, TR66, TC61, TC62, TC63, TC65, TC66

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