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

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Safety instructions for electrical apparatus for explosion-hazardous areas → 3
# Omnigrad S TR/TC6x

RTD / TC Thermometer

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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)

Explosion-protection brochure: CP00021Z/11

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: НАНИО "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

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**WARNING**

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).
Thread marking: No marking means M20x1.5

Ta ≤ 85 °C with transmitter
Ta ≤ 120 °C with terminal block

Hazardous area
Zone 1, 2
TR62, TC62

Non-hazardous area

Zone 1, 2
Zone 21, Zone 22

6

NPT ¾
NPT ½
G ½

MgO cable insert
Pipe thermowell
Threaded connection
Bar stock thermowell
Flanged connection
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 °C, appropriate cables and cable entries permitted for this application must be used.

For ambient temperatures higher than +70 °C, use suitable heat-resistant 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.

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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 °C, use suitable heat-resistant 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 °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

<table>
<thead>
<tr>
<th>Type</th>
<th>Assembled head transmitter</th>
<th>Temperature class/code</th>
<th>Ambient temperature housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX6x</td>
<td>TMT18x TMT8x</td>
<td>T6/T85 °C</td>
<td>$-40 °C \leq T_a \leq +65 °C$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T5/T100 °C</td>
<td>$-40 °C \leq T_a \leq +80 °C$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T4/T135 °C</td>
<td>$-40 °C \leq T_a \leq +85 °C$</td>
</tr>
<tr>
<td></td>
<td>T6/T85 °C</td>
<td>$-50 °C \leq T_a \leq +70 °C$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T5/T100 °C</td>
<td>$-50 °C \leq T_a \leq +80 °C$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T4/T135 °C</td>
<td>$-50 °C \leq T_a \leq +120 °C$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T3/T200 °C</td>
<td>$-50 °C \leq T_a \leq +120 °C$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T2/T300 °C</td>
<td>$-50 °C \leq T_a \leq +120 °C$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T1/T450 °C</td>
<td>$-50 °C \leq T_a \leq +120 °C$</td>
<td></td>
</tr>
</tbody>
</table>

Electrical connection data

<table>
<thead>
<tr>
<th>Type</th>
<th>Electrical Data</th>
</tr>
</thead>
</table>
| TR61, TR62, TR63, TR65, TR66, TC61, TC62, TC63, TC65, TC66 | $U_h \leq 42 \, V_{DC}$  
Current consumption $\leq 30 \, mA$  
Remote installation:  
Measuring current $I \leq 1 \, mA$  

1) Maximum process pressure see relevant Technical Information
<table>
<thead>
<tr>
<th>Type of protection</th>
<th>Type</th>
</tr>
</thead>
</table>
| 1Exd 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 |