

EX Instructions

A Pt100-sensor in a resistance thermometer is a simple electrical equipment per section 5.7 of EN 60079-11:2012. It is not covered by the EU directive 2014/34/EU (ATEX). The requirements of EN 60079-11 are fulfilled.

Marking

Ex ia IIC T1...T6 Gb

- BG: Ако не разбирате указанията за безопасност, можете да изискате превод на вашия език.
- CZ: Pokud těmto bezpečnostním pokynům nerozumíte, můžete si vyžádat jejich překlad do vašeho jazyka.
- DA: Hvis du ikke forstår sikkerhedshenvisningerne, kan du forespørge en oversættelse i dit sprog.
- DE: Wenn Sie diese Sicherheitshinweise nicht verstehen, können Sie eine Übersetzung in Ihrer Landessprache anfordern.
- EL: Εάν δεν καταλαβαίνετε αυτές τις υποδείξεις ασφαλείας, μπορείτε να ζητήσετε μια μετάφραση στη μητρική σας γλώσσα.
- ES: Si no entiende estas indicaciones de seguridad, puede solicitar una traducción en su idioma.
- ET: Kui need ohutusnõuded ei ole teile arusaadavad, võite tellida meilt tõlke oma keelde.
- FI: Jos et ymmärrä näitä turvaohjeita, voi pyytää ne lähetettäväksi omalle kielellesi käännettynä.
- FR: Si vous ne comprenez pas les consignes de sécurité, vous pouvez faire la demande d'une traduction dans votre langue.
- HU: Amennyiben nem érti ezeket a biztonsági utasításokat, akkor kérheti ezeknek az Ön nyelvére lefordított változatát.
- IT: Nel caso non capite queste avvertenze di sicurezza, ne potete richiedere una traduzione nella vs. lingua.
- LT: Jei nesuprantate šių saugos reikalavimų, galite užsisakyti jų vertimą į Jūsų kalbą.
- LV: Ja jūs nesaprotat šos drošības norādījumus, jūs varat pieprasīt tulkojumu jūsu valodā.
- NL: Indien u deze veiligheidsinstructies niet begrijpt, kunt u een vertaling in uw eigen taal aanvragen.
- PL: Jeżeli niniejsze przepisy bezpieczeństwa są niezrozumiałe, można poprosić o tłumaczenie we własnym języku.
- PT: Se não compreender os avisos de segurança, pode solicitar uma tradução no seu idioma.
- RO: Dacă nu înțelegeți aceste instrucțiuni de siguranță puteți cere traducerea acestora în limba dvs.
- SK: Ak ste nepochopili bezpečnostné pokyny, môžete si vyžádať preklad do svojho jazyka.
- SL: Če teh navodil ne razumete, lahko zahtevate prevod v Vaš jezik.
- SV: Om du inte förstår den här säkerhetsanvisningen kan du begära att få en översättning till ditt språk.

1 General Safety Notes

The installation, set up, service or disassembly of this device must only be done by trained, qualified personnel using suitable equipment and authorized to do so.



Warning

Media can escape if unsuitable devices are used or if the installation is not correct.

Danger of severe injury or damage

- Ensure that the device is suitable for the process and undamaged.

Measuring devices in explosive environments must be installed and commissioned by competent personnel that are familiar with the specialties of explosion protection. Modifications or damage of devices or electrical connections might negatively influence the operating safety or the ex-proofing.

Observe the regulations and standards for erection and operation of electrical installations in explosive atmospheres as well as the installation and safety notes in the corresponding operation instructions.

Avoid electrostatic charge on plastic surfaces, if present.

2 Installation and Commissioning

Ensure that the device is suitable for the intended application with respect to temperature range, pressure range, medium compatibility and process connection.

2.1 Mechanical Installation

Before starting operation, check the process connection carefully for leaks under pressure.

Use gaskets, if required, that are suitable for the process connection and resistant to the media.

Run the Pt100 through the associated compression fittings.

The fittings have to be tightened with a torque of 4...5 Nm.

2.2 Electrical Connection

Complete the mechanical installation before you connect the device electrically.
Set up all electrical connections while the voltage supply is switched off.

| Pt100 | ws | ws | rt | rt |
|---------|----|----|----|----|
| Pt100 1 | 4 | 3 | 2 | 1 |
| Pt100 2 | 8 | 7 | 6 | 5 |
| Pt100 3 | 12 | 11 | 10 | 9 |

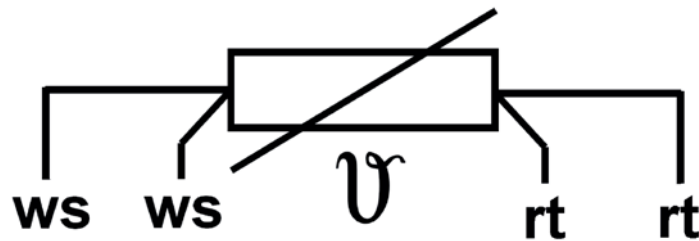


Figure 1: Electrical connection

3 Requirements for intrinsically safe supply

Connect the Pt100 measuring inserts to certified, intrinsically safe power circuit.

Permissible maximum values:

$$U_i \leq 30 \text{ V}$$

$$P_i \leq 200 \text{ mW}$$

Depending on the length of the measuring insert added to the length of the connecting cable, the following effective internal capacitances and inductances result according to EN 60079-14: 2014 section 16.2.2.2:

$$C_i \leq 200 \text{ pF/m}$$

$$L_i \leq 1 \text{ } \mu\text{H/m}$$

For example:

| Total length of measuring insert and connecting cable | C_i | L_i |
|---|--------|------------------|
| 6 m | 1,2 nF | 6 μH |
| 8 m | 1,6 nF | 8 μH |
| 10 m | 2,0 nF | 10 μH |
| 16 m | 3,2 nF | 16 μH |
| 25 m | 5,0 nF | 25 μH |

4 Permissible media and ambient temperatures

| Class | Permissible maximum media temperature depending on the electrical power supplied to the Pt100 | | | | | | Permissible ambient temperature |
|-------|---|--------|--------|--------|--------|--------|---------------------------------|
| | 10 mW | 20 mW | 50 mW | 100 mW | 150 mW | 200 mW | |
| T1 | 437 °C | 435 °C | 429 °C | 419 °C | 408 °C | 398 °C | -55...60 °C |
| T2 | 287 °C | 285 °C | 279 °C | 269 °C | 258 °C | 248 °C | |
| T3 | 192 °C | 190 °C | 184 °C | 174 °C | 163 °C | 153 °C | |
| T4 | 127 °C | 125 °C | 119 °C | 109 °C | 98 °C | 88 °C | |
| T5 | 92 °C | 90 °C | 84 °C | 74 °C | 63 °C | 53 °C | |
| T6 | 77 °C | 75 °C | 69 °C | 59 °C | 48 °C | 38 °C | -55...55 °C |

The permissible media and ambient temperatures depend on the device type and its configuration as documented in the data sheet as well as the ignition temperature of the explosive atmosphere. Consider both aspects! The permissible range lies between the lowest value of the upper limit and the highest value of the lower limit.

5 Additional Requirements

In the event of the media temperature deviating from the ambient temperature, the definition of the ambient temperature range or the temperature class is based solely on the connection components. Take into particular account the influence of the media temperature on the temperature of the thermometer or measuring insert is in operation.

Ensure that the temperature of the connecting head or the connecting components is not influenced by the media temperature by taking appropriate measures, for example, by choosing an appropriate pipe length.