

# TR65

## Explosion-proof Pt100 Thermometer

Safe monitoring of process temperatures in challenging applications e. g. in the Oil & Gas industry



More information and current pricing:

[www.es.endress.com/TR65](http://www.es.endress.com/TR65)

### Benefits:

- Types of protection for use in hazardous locations: Intrinsic safety (Ex i.a.), flameproof (Ex d), non-sparking (Ex nA)
- High degree of insert compatibility and design as per DIN 43772
- High degree of flexibility thanks to modular design with standard terminal heads as per DIN EN 50446 and customer-specific immersion lengths

### Specs at a glance

- **Accuracy** class A acc. to IEC 60751 class AA acc. to IEC 60751
- **Response time**  $t_{50} = 2\text{ s}$   $t_{90} = 5\text{ s}$
- **Max. process pressure (static)** at 20 °C: 80 bar (1.160 psi)
- **Operating temperature range** PT100 TF StrongSens: -50 °C ...500 °C (-58 °F ...932 °F) PT100 WW: -200 °C ...600 °C (-328 °F ...1.112 °F) PT100 TF: -50 °C ...400 °C (-58 °F ...752 °F)
- **Max. immersion length on request** up to 30.000,00 mm (1.181,10")

**Field of application:** The robust thermometer designed for use in demanding and safety relevant applications e.g. in the Chemical, Oil & Gas and Energy industry. An optional head transmitter with all common communication protocols makes the device ready to use with enhanced measurement accuracy and reliability compared to directly wired sensors. The sensor may be used in direct contact without thermowell or where the application requires it, spring load inside of a separate thermowell. Flexible configuration possible.

---

## Features and specifications

---

### Thermometer

**Measuring principle**

Resistance Temperature Detector

---

**Characteristic / Application**

metric style  
modular temperature assembly  
for heavy duty applications  
suitable for hazardous areas  
threaded process connection  
without neck

---

**Thermowell / protection tube**

without (not intended to use with thermowell)

---

**Insert / probe**

mineral insulated (MI), flexible

---

**Outer diameter protection tube / Insert**

3,0 mm (0,12")

6,0 mm (0,24")

---

**Max. immersion length on request**

up to 30.000,00 mm (1.181,10")

---

**Material protection tube/ thermowell**

1.4404 (316L)

---

**Process connection**

male thread:

NPT1/2"

NPT3/4"

M20x1,5

compression fitting:

NPT1/2"

NPT3/4"

---

---

**Thermometer****Tip shape**straight

---

**Surface roughness Ra**Not defined

---

**Operating temperature range**

PT100 TF StrongSens:

-50 °C ...500 °C

(-58 °F ...932 °F)

PT100 WW:

-200 °C ...600 °C

(-328 °F ...1.112 °F)

PT100 TF:

-50 °C ...400 °C

(-58 °F ...752 °F)

---

**Max. process pressure (static)**at 20 °C: 80 bar (1.160 psi)

---

**Accuracy**

class A acc. to IEC 60751

class AA acc. to IEC 60751

---

**Response time**t<sub>50</sub> = 2 st<sub>90</sub> = 5 s

---

**Integration head transmitter**yes (4 ... 20 mA; HART; PROFIBUS PA; FOUNDATION  
FIELDBUS)

---

## Thermometer

### Ex - approvals

ATEX II1/2D Ex ia IIIC,II1G Ex ia IIC T6  
ATEX II 2 GD Ex d IIC  
ATEX II 3 G Ex nA IIC T6, II3D  
IECEX Ex ia IIC T6 Ga/Gb  
IECEX Ex d IIC T6/T5/T4  
IECEX Ex d IIC T6/T5/T4, Ex tD A21  
EAC Ex ia IIC T6 Ga + DIP  
EAC Ex d IIC T6 Gb + DIP  
NEPSI Ex ia IIC T6, Ex iaD 20 T85-T450  
NEPSI Ex d IIC T6  
NEPSI Ex nA IIC T6  
Explosion proof

---

### Certification

Gost Metrology  
SIL (transmitter only)

---

More information [www.es.endress.com/TR65](http://www.es.endress.com/TR65)