Intrinsically Safe Temperature Sensor: iTHERM ModuLine TM131

Trend-setting, highly modular and intrinsically safe RTD or TC thermometer – for a wide range of industrial applications

Benefits:
- Second process barrier with failure indication offering valuable health status information
- iTHERM QuickSens: fastest response times 1.5 s for optimum process control
- iTHERM StrongSens: unsurpassed vibration resistance (> 60g) for ultimate plant safety
- iTHERM QuickNeck: cost and time savings thanks to simple, tool-free recalibration
- Bluetooth® connectivity (optional)
- International certification: explosion protection according to ATEX, IECEx, CSA C/US and NEPSI

Specs at a glance
- **Accuracy** Class AA acc. to IEC 60751 Class A acc. to IEC 60751 Class B acc. to IEC 60751 Class special or standard acc. to ASTM E230 Class 1 or 2 acc. to IEC 60584-2
- **Response time** fastest response time with thermowell t90 starting at below 10 s depending on configuration
- **Max. process pressure (static)** depending on the configuration up to 100 bar
- **Operating temperature range** PT100 TF StrongSens: -50 °C ...500 °C (-58 °F ...932 °F) PT100 QuickSensTF: -50 °C ...200 °C (-58 °F ...392 °F) PT100 WW: -200 °C ...600 °C (-328 °F ...1.112 °F) PT100 TF: -50 °C ...400 °C (-58 °F ...752 °F) Typ K: max. 1.100 °C (max. 2.012 °F) Typ J: max. 800 °C (max. 1.472 °F) Typ N: max. 1.100 °C (max. 2.012 °F)
Field of application: Intrinsically safe temperature sensor (RTD / TC assembly) with manufactured thermowell or for use with existing thermowell. An optional head transmitter with all common communication protocols – Bluetooth® technology inclusive – and special features like iTHERM QuickNeck for tool-free, easy recalibration, vibration-resistant and fast-response sensor and thermowell technology (iTHERM StrongSens, QuickSens) as well as hazardous area approvals ensure enhanced measurement accuracy and reliability.

Features and specifications

### Thermometer

- **Measuring principle**
  Resistance Temperature Detector

- **Characteristic / Application**
  - metric style
  - modular temperature assembly
  - universal range of application
  - suitable for hazardous areas
  - with neck or QuickNeck
  - incl. thermowell / protection tube (metal) or to be installed into thermowell
  - can be used with StrongSens, QuickSens insert for fast response times

- **Thermowell / protection tube**
  - welded protection tube or to be used with thermowell

- **Insert / probe**
  - mineral insulated (MI), flexible

- **Max. immersion length on request** up to 4,500,0 mm (177")
**Thermometer**

**Outer diameter protection tube / Insert**

Thermowell:
- 9x1,25 mm
- 11x2 mm
- 12x2,5 mm
- 14x2 mm
- 16x3,5
- 1/4" SCH80
- 1/2" SCH80
- 1/2" SCH40

**Max. immersion length on request**
up to 4.500,0 mm (177’’)

**Material protection tube/ thermowell**

- 316 (1.4401)
- 316L (1.4404)
- 316Ti (1.4571)
- Alloy 600 (2.4816)
- Alloy C276 (2.4819)
- Alloy 446 (1.4749)
- Alloy 321 (1.4541)
- Sheath PTFE
- Sheath Tantal
Thermometer

**Process connection**

Male thread:
- G3/8, G1/2", G3/4", G1"
- NPT1/2", NPT3/4", NPT 1"
- M14x1.5, M18x1.5, M20x1.5, M27x2, M33x2
- R1/2", R3/4"

Female thread:
- M20x1.5, M24x1.5
- NPT1/2"

Cap-nut:
- M20x1.5, G1/2", G3/4"

Compression fitting:
- NPT1/2", G1/2", G1"

Flange:
- DN15 PN40 B1, C
- DN25 PN20, PN40, PN100 B1, B2, C
- DN40 PN40 B1
- DN50 PN40 B1
- ASME 1" 150 RF
- ASME 1" 300 RF
- ASME 1 1/2" 150 RF
- ASME 2" 150 RF
- ASME 2" 300 RF

**Tip shape**

- straight
- reduced
- tapered
- optimized for quick response times

**Surface roughness Ra**

< 0.76 μm (0.03 μin)
Thermometer

**Operating temperature range**

PT100 TF StrongSens:
-50 °C ... 500 °C
(-58 °F ... 932 °F)

PT100 QuickSens TF:
-50 °C ... 200 °C
(-58 °F ... 392 °F)

PT100 WW:
-200 °C ... 600 °C
(-328 °F ... 1,112 °F)

PT100 TF:
-50 °C ... 400 °C
(-58 °F ... 752 °F)

Typ K:
max. 1,100 °C
(max. 2,012 °F)

Typ J:
max. 800 °C
(max. 1,472 °F)

Typ N:
max. 1,100 °C
(max. 2,012 °F)

**Max. process pressure (static)**

depending on the configuration up to 100 bar

**Accuracy**

Class AA acc. to IEC 60751

Class A acc. to IEC 60751

Class B acc. to IEC 60751

Class special or standard acc. to ASTM E230

Class 1 or 2 acc. to IEC 60584-2

**Response time**

fastest response time with thermowell t90 starting at below 10 s
depending on configuration
### Thermometer

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

**Ex - approvals**
- ATEX
- ATEX IECEx
- NEPSI
- IECEx
- EAC Ex
- CSA C/US
- INMETRO

**Certification**
- SIL, MID, DNV/GL