iTHERM ModuLine TM111

Trend-setting, modular temperature sensor for direct installation without thermowell, designed for a wide range of industrial applications

Benefits:
- User-friendly and reliable from product selection to maintenance
- iTHERM inserts: globally unique, automated production. Full traceability and consistently high product quality for reliable measured values
- iTHERM QuickSens: fastest response times 1.5 s for optimum process control
- iTHERM StrongSens: unsurpassed vibration resistance (> 60g) for ultimate plant safety
- iTHERM TA30x: variety of terminal heads for easier handling and lower installation and maintenance costs
- 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** t90 starting at < 1,5 s QuickSens depending on configuration
- **Max. process pressure (static)** depending on the configuration
- **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: Our explosion-proof temperature sensor iTHERM ModuLine TM111 is ideal for a wide range of industrial applications and hazardous areas. Easy-to-use metric version with outstanding RTD or TC sensor technology. An optional head transmitter, with all common communication protocols – Bluetooth® technology for high measurement accuracy and reliability. It features vibration-resistant and fast-response sensor technology (iTHERM StrongSens and QuickSens).

Features and specifications

<table>
<thead>
<tr>
<th>Thermometer</th>
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<tr>
<td><strong>Measuring principle</strong></td>
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<tr>
<td>Resistance Temperature Detector</td>
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<tr>
<td><strong>Characteristic / Application</strong></td>
</tr>
<tr>
<td>metric style</td>
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<tr>
<td>universal range of application</td>
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<tr>
<td>suitable for hazardous areas</td>
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<tr>
<td>can be used with StrongSens, QuickSens insert</td>
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<tr>
<td>direct process contact</td>
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<tr>
<td><strong>Thermowell / protection tube</strong></td>
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<tr>
<td>without, direct process contact</td>
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<tr>
<td><strong>Insert / probe</strong></td>
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<tr>
<td>mineral insulated (MI), flexible</td>
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<tr>
<td><strong>Outer diameter protection tube / Insert</strong></td>
</tr>
<tr>
<td>Insert:</td>
</tr>
<tr>
<td>3,0 mm</td>
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<tr>
<td>6,0 mm</td>
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<tr>
<td><strong>Max. immersion length on request</strong></td>
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<tr>
<td>up to 4,500,0 mm (177°)</td>
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</table>
Thermometer

**Material protection tube/ thermowell**
- Insert Material:
  - 316L (1.4404)
  - Alloy 600 (2.4816)
  - Pyrosil

**Process connection**
- Thread:
  - G1/4, G1/2" 
  - NPT1/2", NPT3/4" 
  - M18x1.5, M20x1.5 
- Cap-nut:
  - G1/2", G3/4" 
- Compression fitting, also spring load:
  - NPT1/2", G1/2" 
- Weld-in adapter cylindrical or spherical

**Tip shape**
- straight

**Surface roughness Ra**
- < 1.6 μm (63.00 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

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
t90 starting at < 1,5 s QuickSens
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 (Transmitter)

More information [www.us.endress.com/TM111](http://www.us.endress.com/TM111)