Technical Information

Easytemp® TSM187
Compact thermometer with screw-in thread for challenging applications

Application
The TSM187 compact thermometer range covers a wide variety of market needs worldwide. Typical application can be found in the chemical and pharmaceutical industry, food, water and waste water and power plants. Preferred applications are in vessels or in pipes, where requirements are short response time mechanical strength.

Function
The compact thermometer assembly includes a replaceable insert in mineral insulated cable which is protected by a thermowell with process connection G½". The terminal head is according to DIN 43729, form B, and is thermally uncoupled by a extension neck. The built-in head transmitter converts the resistance value into a temperature linear 4...20 mA analog output signal.

Application example
Pipe installation:
a) at elbows, against the flow
b) in smaller pipes, leant against the flow
c) perpendicular to the flow

Ordering information

<table>
<thead>
<tr>
<th>TSM187</th>
<th>Compact thermometer TSM187, RTD</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Head transmitter: TMT187; replaceable mineral (MgO) insulated insert with diameter 6 mm (0.24&quot;), 1.4404/SS316L. Sensor type: 1xPt100 class A 4-wire; process connection G½&quot;</td>
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<tr>
<th>Immersion length</th>
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<tr>
<td>A 120 mm</td>
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<tr>
<td>B 160 mm</td>
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<tr>
<td>C 250 mm</td>
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<td>D 400 mm</td>
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<tr>
<th>Measuring range TMT187</th>
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<tr>
<td>DD 4...20 mA; -30...170 °C</td>
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<tr>
<td>FE 4...20 mA; 0...100 °C</td>
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<tr>
<td>FH 4...20 mA; 0...200 °C</td>
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<tr>
<td>FI 4...20 mA; 0...300 °C</td>
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<tr>
<th>TSM187-</th>
<th>order code</th>
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Measuring ranges (selectable):
-30...+170 °C (-22...+338 °F)
0...+100 °C (32...+212 °F)
0...+200 °C (32...+392 °F)
0...+300 °C (32...+572 °F)

Immersion lengths:
mm: 120, 160, 250, 400 (Ø 9)  
Inch: 4.7, 6.3, 9.9, 15.8 (Ø 0.35)

Operating conditions:
40 bar at +20 °C  
(725 PSI at +68 °F)
1 bar at +400 °C  
(14.5 PSI at +752 °F)

Electrical connection
Supply voltage and current output

![Electrical connection diagram]

Accuracy:
≤ 0.08%, Pt100 class A

Response time:
≤ 18 s (T₉₀); ≤ 55 s (Tₚ₀)
Easytemp® TSM187

Technical data

**Sensor**
- Sensing element: Platinum resistance element, 1x Pt100 (100 Ω at 0 °C)
- Measuring range: -30...170 °C (-22...338 °F), 0...100 °C (32...212 °F), 0...200 °C (32...392 °F), 0...300 °C (32...572 °F)
- Accuracy: Class A acc. to IEC 751: -50...+250 °C
- Wiring: 4-wire connection, MgO isolated
- Insulation resistance: ≥ 100 MΩ, test voltage 250 V at ambient temperature
- Sheat diameter: 6 mm (0.24")
- Response time: T<sub>50</sub>/18 s; T<sub>90</sub>/55 s; according to IEC 751
- Operating conditions: 50 bar at +20 °C (725 PSI at +68 °F)

**Thermowell**
- Shape: DIN 43772 form 2G
- Diameter: 9 mm (0.36")
- Material: SS 316Ti/1.4571

**Process connection**
- Shape: DIN 43772 form 2G
- Material: SS 316Ti/1.4571
- Thread: G½"

**Terminal head**
- Type: DIN 43729 form B
- Protection class: IP 66/68
- Cable entry: M20x1.5
- Material: Aluminum, polyester powder coated

**Electronics (replaceable)**
- Electrical connection:
  - Supply voltage: U<sub>s</sub> = 8...35 V, reverse polarity protection
  - Galvanic isolation: U = 3.75 kV
  - Residual ripple: U<sub>n</sub> ≤ 5 V at U<sub>s</sub> ≥ 13 V, f<sub>max</sub> = 1 kHz
  - Influence of supply voltage: ±0.01 %/V deviation from 24 V
  - Influence of load: ±0.02 %/100 Ω
  - Temperature drift: T<sub>drift</sub> = ±(15 ppm/K * max. meas. range + 50 ppm/K * preset meas. range) * ΔT
  - Pt100: 0.2 K or 0.08 %
- Environment conditions:
  - Ambient temperature: -40...+85 °C (-58...+185 °F)
  - Climate class: As per IEC 60 654-1, class C
  - Shock and vibration resistance: 4g / 2 to 150 Hz as per IEC 60 068-2-6
- EMC:
  - Shock resistance and interference emission as per IEC 61326 and NAMUR NE 21

**Dimensions in mm (inch)**

**Electronics (replaceable)**

**Instruments International**

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