



Level



Pressure



Flow



Temperature

Liquid  
Analysis

Registration

Systems  
Components

Services



Solutions

## Technical Information

# Easytemp<sup>®</sup> TSM487

Compact thermometer with screw-in thread  
for universal applications

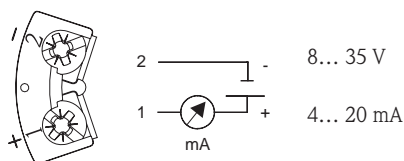


- Various measuring ranges selectable
- 2-wire technology, 4... 20 mA
- High accuracy of sensor and electronics
- Fiberglass insulated insert
- Replaceable electronics

<b>Measuring ranges (selectable):</b> <ul style="list-style-type: none"> <li>■ -30... +170 °C (-22... +338 °F)</li> <li>■ 0... +100 °C (32... +212 °F)</li> <li>■ 0... +200 °C (32... +392 °F)</li> </ul>	<b>Accuracy:</b> $\leq 0.08\%$ , Pt100 class A
	<b>Response time:</b> $\leq 3.5$ s ( $T_{50}$ ); $\leq 8$ s ( $T_{90}$ )
<b>Immersion lengths:</b> mm: 50, 100, 150, 250 (Ø 6) Inch: 2, 3.9, 5.9, 9.8 (Ø 0.24)	<b>Operating conditions:</b> 20 bar at +20 °C (290 PSI at +68 °F)

### Electrical connection

Supply voltage and current output



### Application

The TSM487 compact thermometer is used for universal applications. Preferred applications are in vessels or in pipes, where no high process pressures and no extreme temperatures appear.

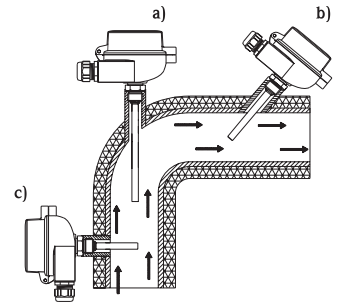
### Function

The compact thermometer assembly includes a fiberglass insulated insert which is protected by a thermowell with process connection G $\frac{1}{2}$ ". The terminal head is according to DIN 43729, form B, and is made of aluminum. 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

<b>TSM487</b>	<b>Compact thermometer TSM487, RTD</b> Head transmitter: TMT187; non-replaceable insert in fiberglass insulation with diameter 6 mm (0.24"), 1.4404/SS316L Sensing element: 1xPt100 class A 4-wire; process connection G $\frac{1}{2}$ "
<b>Immersion length</b>	
<b>A</b>	50 mm
<b>B</b>	100 mm
<b>C</b>	150 mm
<b>D</b>	250 mm
<b>Measuring range TMT187</b>	
<b>DD</b>	4... 20 mA; -30... 170 °C
<b>FE</b>	4... 20 mA; 0... 100 °C
<b>FH</b>	4... 20 mA; 0... 200 °C
<b>TSM487-</b>	← <b>order code</b>

# Easytemp® TSM487

## 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)
■ Accuracy	Class A acc. to IEC 751: -50... +250 °C
■ Wiring	4-wire connection, fiberglass insulated insert
■ Insulation resistance	≥ 100 MΩ, test voltage 250 V at ambient temperature
■ Response time	T <sub>50</sub> /3.5 s; T <sub>90</sub> /8 s; according to IEC 751
■ Operating conditions	20 bar at +20 °C (290 PSI at +68 °F)
■ Sheat material	SS 316L/1.4404

Process connection	
■ Shape	DIN 43772 form 2G
■ Material	SS 316L/1.4404
■ Thread	G½"

Terminal head	
■ Type	DIN 43729 form B
■ Protection class	IP66/68
■ Cable entry	M20x1.5
■ Material	Aluminum, polyester powder coated

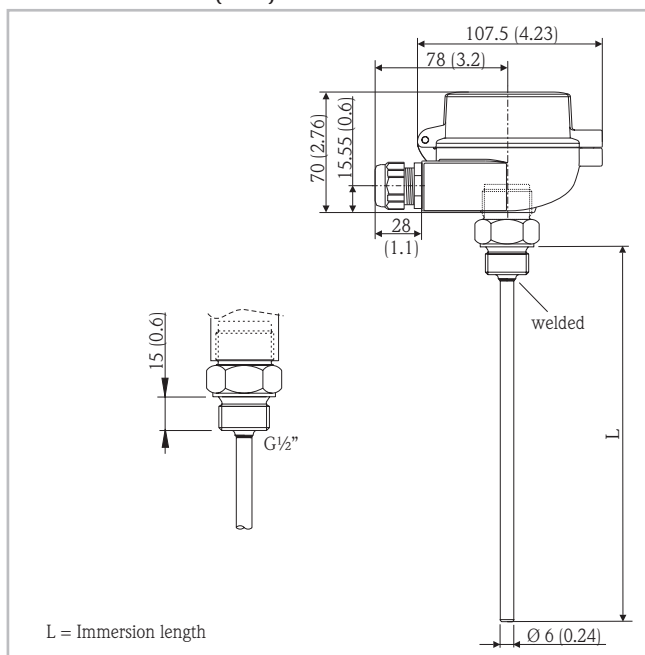
## Electronics (replaceable)

Output	
■ Output signal	4... 20 mA, temperature and resistance linear
■ Max. load	(V <sub>power supply</sub> - 8 V)/0.022 A
■ Min. current consumption	≤ 3.5 mA
■ Current limit	≤ 23 mA
■ Switch on delay	4 s (during power up I <sub>a</sub> = 3.8 mA)
■ Response time	1 s

Signal on alarm	
■ Under ranging	Linear drop to 3.8 mA
■ Over ranging	Linear rise to 20.5 mA
■ Sensor break/ Sensor short circuit	≥ 21 mA

Electrical connection	
■ Supply voltage	U <sub>b</sub> = 8... 35 V, reverse polarity protection
■ Galvanic isolation	U <sub>i</sub> = 3.75 kV
■ Residual ripple	U <sub>ss</sub> ≤ 5 V at U <sub>b</sub> ≥ 13 V, f <sub>max</sub> = 1 kHz
■ Reference operating conditions	Calibration temperature: +23 °C (73 °F) ± 5 K (9 °F)

## Dimensions in mm (inch)



## Electronics (replaceable)

Accuracy	
■ Influence of supply voltage	≤ ±0.01 %/V deviation from 24 V
■ Influence of load	≤ ±0.02 %/100 Ω
■ Temperature drift	T <sub>d</sub> = ±(15 ppm/K * max. meas. range + 50 ppm/K * preset meas. range) * Δθ
■ 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

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