Level | Pressure | Flow | Temperature | Liquid Analysis | Registration | Systems Components | Services | Solutions

Technical Information

Easytemp® TSM487

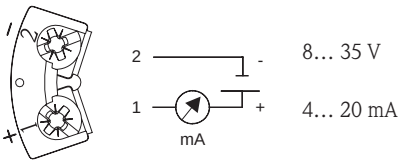
Compact thermometer with screw-in thread for universal applications

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

Measuring ranges (selectable): ■ -30... +170 °C (-22... +338 °F) ■ 0... +100 °C (32... +212 °F) ■ 0... +200 °C (32... +392 °F)	**Accuracy:** ≤ 0.08%, Pt100 class A **Response time:** ≤ 3.5 s (T_{50}); ≤ 8 s (T_{90})
Immersion lengths: mm: 50, 100, 150, 250 (Ø 6) Inch: 2, 3.9, 5.9, 9.8 (Ø 0.24)	**Operating conditions:** 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 G½". 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.

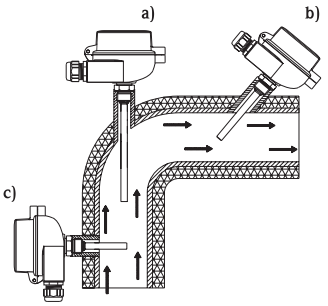
Application example

Pipe installation:

a) at elbows, against the flow

b) in smaller pipes, leant against the flow

c) perpendicular to the flow



Ordering information

TSM487	**Compact thermometer TSM487, RTD** 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 G½"		
	Immersion length		
	A	50 mm	
	B	100 mm	
	C	150 mm	
	D	250 mm	
		Measuring range TMT187	
		DD	4... 20 mA; -30... 170 °C
		FE	4... 20 mA; 0... 100 °C
		FH	4... 20 mA; 0... 200 °C
TSM487-			⇐ **order code**

TI149R/09/en
71095370

Endress+Hauser

People for Process Automation

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_{50}/3.5 s; T_{90}/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	($V_{power\ supply}$ -8 V)/0.022 A
Min. current consumption	≤ 3.5 mA
Current limit	≤ 23 mA
Switch on delay	4 s (during power up I_a= 3.8 mA)
Response time	1s

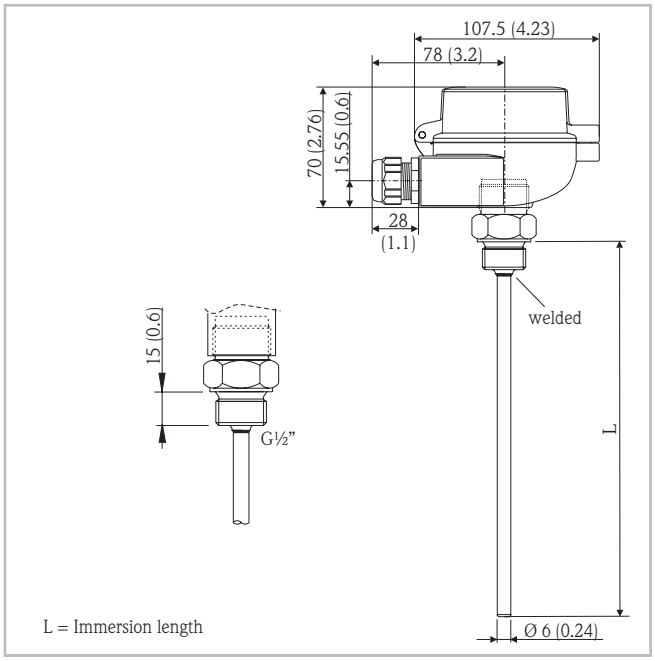
Signal on alarm

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_b = 8... 35 V, reverse polarity protection
Galvanic isolation	Û = 3.75 kV
Residual ripple	U_{ss} ≤ 5 V at U_b ≥ 13 V, $f_{max.}$ = 1kHz
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_d= ±(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

Instruments International

Endress+Hauser
Instruments International AG
Kaegenstrasse 2
4153 Reinach
Switzerland

Tel.+41 61 715 81 00
Fax+41 61 715 25 00
www.endress.com
info@ii.endress.com

Endress+Hauser

People for Process Automation

TI149R/09/en/03.09
71095370
CDR X3