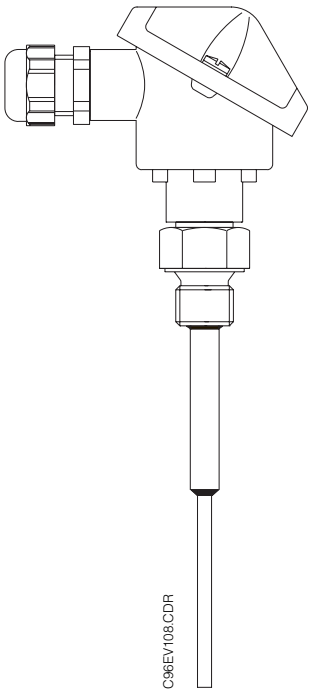
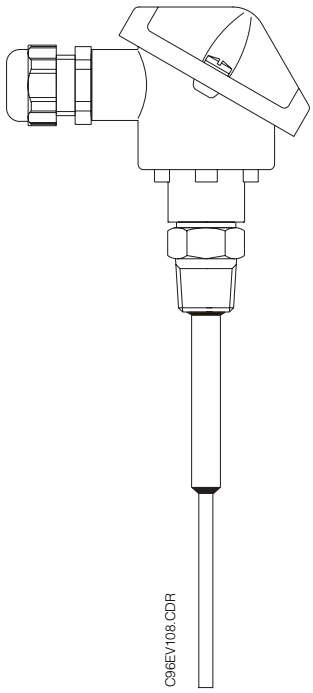
Technical
Information
TI 232T/02/en

RTD Thermometer
omnigrad TST41N

Contact thermometer - Fast response
M.I. cable
Threaded process connection
With TIG welded reinforcing tube



Gas & Metrical
Connection



NPT Connection

Description
TST41N RTD thermometer assembly is a resistance thermometer with threaded process connection and a very short response time. It includes a single or double Pt100 inset, in mineral insulated cable, directly in contact with the process, a TIG welded reinforcing tube, a terminal head and a threaded process connection.
The Pt100 inset is available either with flying leads for head transmitter mounting or with terminal block.
RTD can be selected between standard or glass type (for high vibration level application).
The reinforcing tube and the immersion lengths can be chosen according to process requirements.
A wide choice of standard threaded process connections and terminal heads is available; other versions can be ordered according to specifications.

Application
TST41N RTD thermometer is a general purpose assembly suitable for liquids and gases.

Quality made by
Endress+Hauser
ISO 9001

Endress+Hauser
Nothing beats know-how

Technical data

Mineral Insulated Inset (not replaceable)

Sensing element: Platinum resistance, 1 or 2 x Pt100 Ω at 0°C, standard or glass type

Tolerances: class A or B to IEC 751, 1/3 DIN B

Operating temperature:

Tip diameter (mm)	Pipe diameter (mm)	RTD element type	Operating temperature (°C)
6	9	standard	-50 ÷ +600
6	9	glass	-50 ÷ +400
3	6	standard	-50 ÷ +400
3	6	glass	-50 ÷ +400

Table A

Wiring: 3 or 4 wire connections

Insulation resistance: ≥ 100 MΩ , test voltage 250 V at ambient temperature

Electrical connections: flying leads or terminal block

Stem: mineral insulated cable

Sheath: AISI316L / W.1.4404

Standard diameter: 6 mm or 3 mm

Response time values: according to IEC 751, in moving water at 0.4 m/s

T_{50} = 3.5 s ; T_{90} = 8 s for Ø 6 mm

T_{50} = 3 s ; T_{90} = 6 s for Ø 3 mm

Reinforcing tube (pipe)

Standard diameter: 9 mm or 6 mm

Standard material: AISI316L / W.1.4404

Process connection:

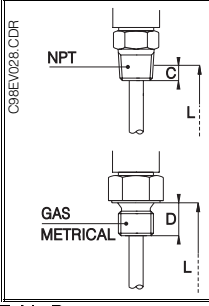
Engaging thread		Threaded	mm
	C	1/2" NPT	8
		3/4" NPT	8.5
		1" NPT	10
	D	G 1/2" DIN 43763	15
		G 1/2"	15
		G 3/4"	15
		G 1"	20
		M20 DIN 16179	14
		M27 x 2	19

Table B

Terminal head

Version: refer to Order key

Protection class: typical IP65

Electrical connections: PG11, PG16, M20 x 1.5 depending on head version

Built-in transmitter

(*)	Features	Model
A	Transmitter 4-20mA, 0...+50°C	Analogue - Fixed range TMT137
B	Transmitter 4-20mA, 0...+100°C	
C	Transmitter 4-20mA, 0...+150°C	
D	Transmitter 4-20mA, 0...+200°C	
F	Analogue output without I/O isolation	PC Programmable TMD831
G	Analogue output with I/O isolation	
J	Hart, Analogue with I/O isolation	Hart protocol - TMD832
L	Profibus-PA with I/O isolation	Fieldbus - TMD834
0	None	Others
1	Ordered separately	
9	Built-in transmitter as specified	
	Product designation for built-in transmitter	

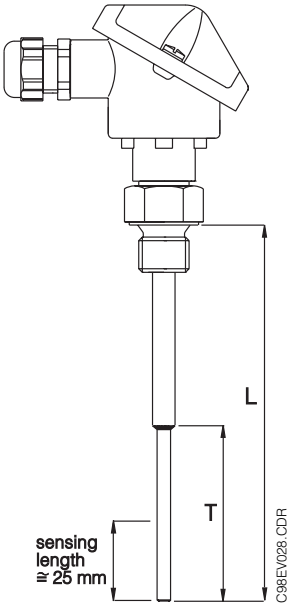
Table C - Note *(*)* : refer to Order key

Order key

(1) For a correct temperature measurement the thermometer immersion length L must be 20 times the inset diameter in order to eliminate thermal drift due to process connection heat dissipation.
Shorter immersion lengths can be supplied but the thermometer requires an external (process connection, extension and connection head) thermal insulation.

(2) Contemporary selection of terminal block and built-in transmitter is allowed with TA20D head only.

(3) Sensing tip size according to combination with pipe diameter: see Table A.



TST41N - RTD Thermometer - Contact type - Fast response
M.I. cable - Threaded connection - With TIG welded reinforcing tube

Immersion length L *(1)*
C - 120 mm
D - 160 mm
F - 250 mm
G - 310 mm
K - 400 mm
M - 580 mm
X - ..... mm length L to specification (min.70mm-max.4000mm)
Y - ..... mm special length

Pipe material and size
P - AISI316L / W.1.4404 - Ø 9 mm
R - AISI316L / W.1.4404 - Ø 6 mm
Y - Pipe and diameter to specification

Process connection
BE - AISI316Ti / W.1.4571 - G 1/2" standard DIN
BT - AISI316Ti / W.1.4571 - M27 x 2
BZ - AISI316Ti / W.1.4571 - M20x1.5
DD - AISI316L / W.1.4404 - G 1/2"
DF - AISI316L / W.1.4404 - G 3/4"
DH - AISI316L / W.1.4404 - G 1"
DN - AISI316L / W.1.4404 - 1/2" NPT
DP - AISI316L / W.1.4404 - 3/4" NPT
DQ - AISI316L / W.1.4404 - 1" NPT
YY - Process connection to specification

Sensing tip length T *(3)*
1 - 30 mm tip length
8 - .... mm length to specification (min.30mm-max.3900mm)
9 - .... mm special tip

Electrical connections
2 - Flying leads
3 - Terminal block *(2)*

RTD Class and type of construction

Standard RTD
B - standard RTD 1 Pt100, class B, 3 wires
D - standard RTD 2 Pt100, class B, 3 wires
E - standard RTD 1 Pt100, class B, 4 wires
H - standard RTD 1 Pt100, class A, 3 wires
L - standard RTD 2 Pt100, class A, 3 wires
M- standard RTD 1 Pt100, class A, 4 wires
P - standard RTD 1 Pt100, class 1/3 DIN, 3 wires
Q - standard RTD 2 Pt100, class 1/3 DIN, 3 wires
R - standard RTD 1 Pt100, class 1/3 DIN, 4 wires

Glass RTD
0 - glass RTD 1 Pt100, class B, 3 wires
1 - glass RTD 2 Pt100, class B, 3 wires
2 - glass RTD 1 Pt100, class B, 4 wires
3 - glass RTD 1 Pt100, class A, 3 wires
4 - glass RTD 2 Pt100, class A, 3 wires
5 - glass RTD 1 Pt100, class A, 4 wires
6 - glass RTD 1 Pt100, class 1/3 DIN, 3 wires
7 - glass RTD 2 Pt100, class 1/3 DIN, 3 wires
8 - glass RTD 1 Pt100, class 1/3 DIN, 4 wires
Y - RTD class and type to specification

Head type
AA - TA20A: M24 bottom, M20x1.5 conduit, IP65
A1 - TA20A: M24 bottom, PG16 Grey, IP65
A3 - TA20A: M24 bottom, PG16 Grey, IP68
B1 - TA20B: M24 bottom, PG16 Grey, IP55
C1 - TA20C: M24 bottom, PG16 Grey, IP65
D1 - TA20D: M24 bottom, PG16 Grey, IP65 *(2)*
F1 - TA20F: M24 bottom, PG16 Grey, IP65
U1 - TA20U: M24 bottom, PG16 Blue, IP65
X3 - TA20X: M24 bottom, AISI316L, PG11, IP65
YY - Special as specified

Built-in transmitter *(2)*
Analogue, µP-PCP, Hart protocol or Profibus-PA type available: see Table C

TST41N-									Complete Order Code

Supplementary Documentation

- ☐ TA20 terminal heads
  Technical Information TI072T/02/en
- ☐ TST General Information
  Technical Information TI088T/02/en

Export Division

Endress+Hauser
Instruments International
GmbH + Co.
P.O. Box 2222
D-79574 Weil am Rhein
Germany
Tel. (07621) 975-02
Tx 7-73-926
Fax (07621) 9-75-345

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Nothing beats know-how

11.98/MTM

TI 232T/02/en/11.98
EHT/CV4.2