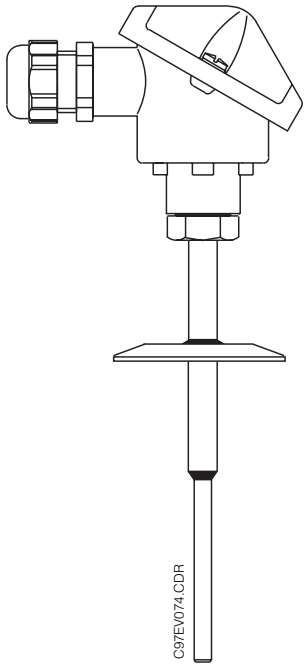
Technical
Information
TI 199T/02/en

RTD Thermometer
omnigrad TST44N

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



Description
TST44N RTD thermometer assembly is a resistance thermometer with sanitary process connection. 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 sanitary 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 sanitary process connections and terminal heads is available; other versions can be ordered according to specifications.

Application
TST44N RTD thermometer can be applied in food, pharmaceutical and cosmetic industries, breweries and dairies. It is specially designed for fast response applications in areas where sterile environments are present and specific connections are necessary.

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: sanitary - refer to Order key

Surface finishing polished wetted parts, Ra ≤ 1.5 µm

Terminal head

Version: refer to Order key
Protection class: typical IP55
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 B - Note *(*)* : refer to Order key

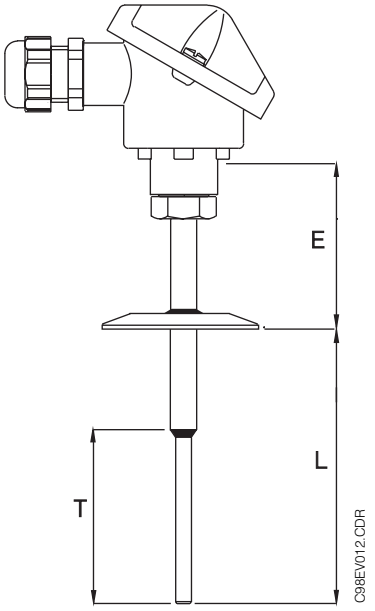
Order key

(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) Thermometer Calibration Certificate is issued for immersion length L ≥ 190 mm only

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



With Sanitary Connection

TST44N- RTD Thermometer - Contact type - Sanitary and Food connection
M.I. cable - Fast response - With TIG welded reinforcing tube

Process connection - material
See Table C

Extension length E
3 - 82 mm neck
8 - .... mm neck to specification (min.75mm-max.300mm)
9 - .... mm special neck length

Immersion length L *(1) (3)*
A - 50 mm
B - 90 mm
C - 145 mm
D - 160 mm
E - 220 mm
F - 120 mm
X - ..... mm length L to specification (min.40mm-max.700mm)
Y - ..... mm special length

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

Sensing tip length T *(4)*
A - 30 mm tip length
X - .... mm length to specification (min.30mm-max.500mm)
9 - .... mm special tip

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

RTD Class and type of construction
Standard RTD
B - RTD 1 Pt100, class B, 3 wires
D - RTD 2 Pt100, class B, 3 wires
E - RTD 1 Pt100, class B, 4 wires
H - RTD 1 Pt100, class A, 3 wires
L - RTD 2 Pt100, class A, 3 wires
M - RTD 1 Pt100, class A, 4 wires
P - RTD 1 Pt100, class 1/3 DIN, 3 wires
Q - RTD 2 Pt100, class 1/3 DIN, 3 wires
R - 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, IP55
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, IP55 *(2)*
F1 - TA20F: M24 bottom, PG16 Grey, IP55
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 B

TST44N-										Complete Order Code

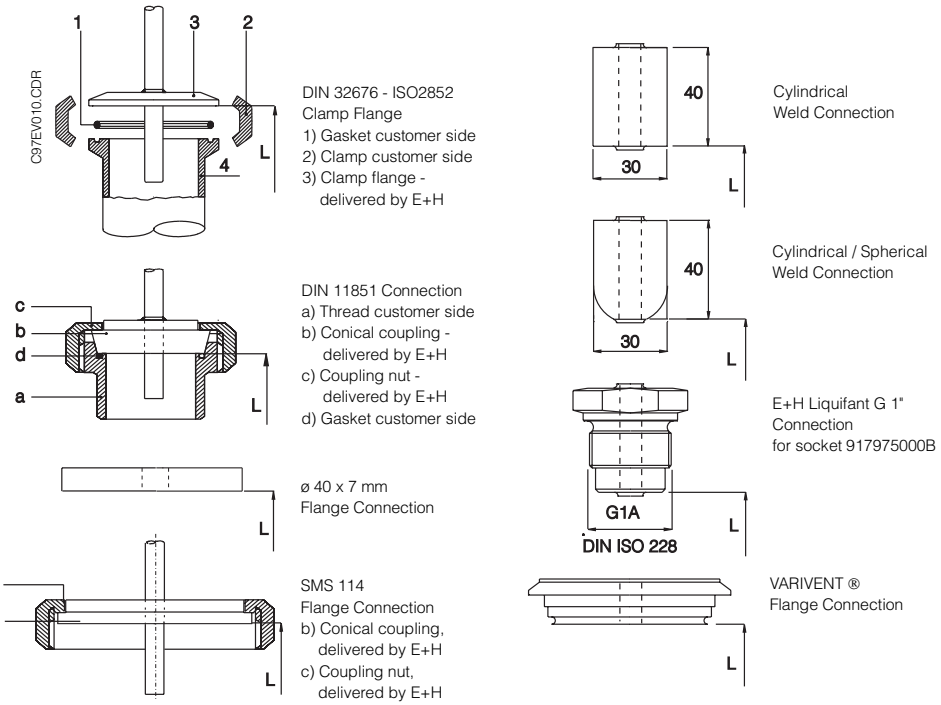
Order key (continued)

Process connection - material
BA - ISO2852 Clamp flange DN12/21.3 - AISI316L
BB - ISO2852 Clamp flange DN 25/38 - AISI316L
BC - ISO2852 Clamp flange DN 40/51 - AISI316L
CD - DIN11851 DN25 connection - AISI316L
CE - DIN11851 DN32 connection - AISI316L
CF - DIN11851 DN40 connection - AISI316L
CG - DIN11851 DN50 connection - AISI316L
DA - Welding connection: cylindrical ø 30 x 40 mm - AISI316L
DB - Welding connection: cylindrical / spherical ø 30 x 40 mm - AISI316L
EA - E+H Liquiphant G 1" for 917975000B - AISI316L
FA - Varivent ® DN50/40 - AISI316L
HA - ø 40 x 7 mm flange connection - AISI316
JD - SMS114 DN25 - AISI316
YY - Connection to specification

Product designation for process connection flange - material

Table C

Sanitary connections



DIN 32676 - ISO2852
Clamp Flange
1) Gasket customer side
2) Clamp customer side
3) Clamp flange -
delivered by E+H

DIN 11851 Connection
a) Thread customer side
b) Conical coupling -
delivered by E+H
c) Coupling nut -
delivered by E+H
d) Gasket customer side

ø 40 x 7 mm
Flange Connection

SMS 114
Flange Connection
b) Conical coupling,
delivered by E+H
c) Coupling nut,
delivered by E+H

Cylindrical
Weld Connection

Cylindrical / Spherical
Weld Connection

E+H Liquifant G 1"
Connection
for socket 917975000B

VARIVENT ®
Flange Connection

Supplementary Documentation

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

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05.98/MTM

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EHT/CV4.2