

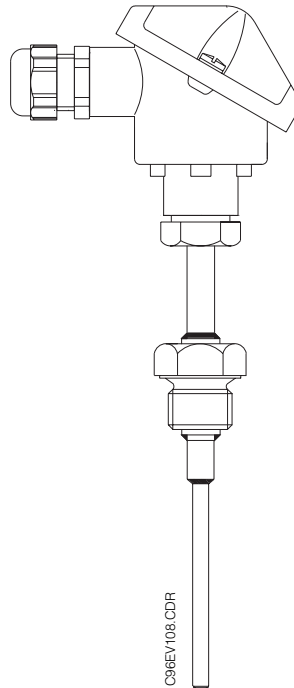
RTD Thermometer *omnigrad TST40N*

Contact thermometer - Fast response

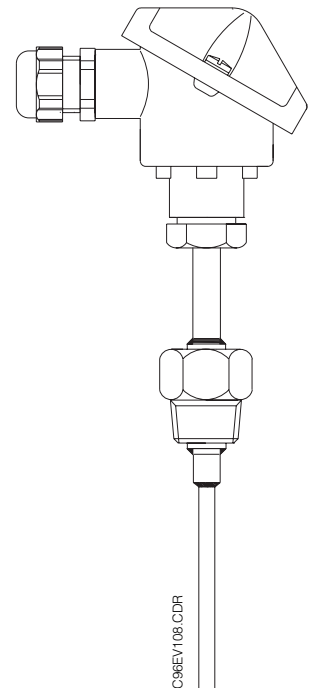
M.I. cable

Threaded process connection and extension neck

With TIG welded reinforcing tube



Gas & Metrical
Connection



NPT Connection

Description

TST40N 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, the immersion and extension 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

TST40N RTD thermometer is a general purpose assembly suitable for liquids and gases.



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: $\geq 100 \text{ M}\Omega$, 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
 $T_{50} = 3.5 \text{ s}$; $T_{90} = 8 \text{ s}$ for $\varnothing 6 \text{ mm}$
 $T_{50} = 3 \text{ s}$; $T_{90} = 6 \text{ s}$ for $\varnothing 3 \text{ mm}$

Reinforcing tube (pipe)

Standard diameter: 9 mm or 6 mm
 Standard material: AISI316L / W.1.4404

Process connection:

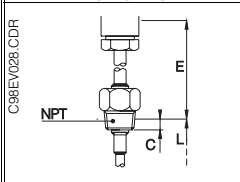
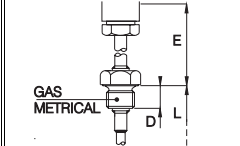
| Engaging thread | Threaded | mm | |
|--|----------|------------------|------|
|  NPT | C | 1/2" NPT | 8 |
| | | 3/4" NPT | 8.5 |
| | | 1" NPT | 10 |
|  GAS METRICAL | D | G 1/2" DIN 43763 | 15 |
| | | G 1/2" | 20 |
| | | G 3/4" | 20 |
| | | G 1" DIN 43763 | 31.5 |
| | | G 1" | 25 |
| | | M20 DIN 16179 | 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

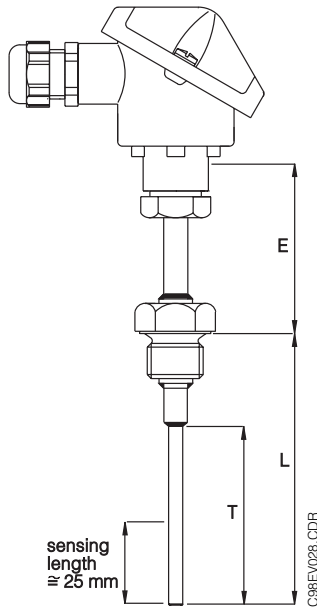
Order key

(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.



TST40N - RTD Thermometer - Contact type - Fast response M.I. cable - Threaded connection and extension neck With TIG welded reinforcing tube

Process connection

- BG - AISI316Ti / W.1.4571 - M20 x 1,5
- BH - AISI316Ti / W.1.4571 - G 1/2" standard DIN
- BJ - AISI316Ti / W.1.4571 - G 1" standard DIN
- BT - AISI316Ti / W.1.4571 - M27 x 2
- CA - AISI316L / W.1.4404 - G 1/2"
- CB - AISI316L / W.1.4404 - G 3/4"
- CC - AISI316L / W.1.4404 - G 1"
- CD - AISI316L / W.1.4404 - 1/2" NPT
- CE - AISI316L / W.1.4404 - 3/4" NPT
- CF - AISI316L / W.1.4404 - 1" NPT
- YY - Process connection to specification

Extension length E

- 3 - 82 mm neck
- 8 - mm neck to specification (min.60mm-max.300mm)
- 9 - mm special neck length

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

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, IP65
- 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

TST40N- [] [] [] [] [] [] [] [] [] Complete Order Code

Supplementary Documentation

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

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