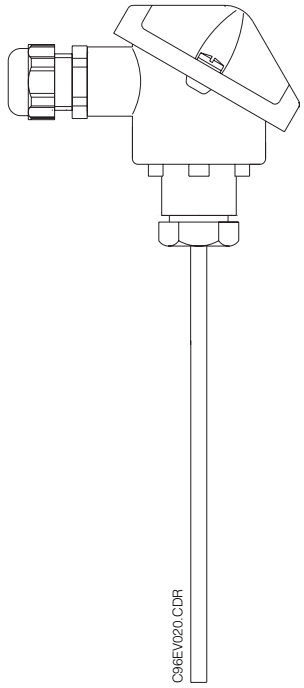
Technical
Information
TI 184T/02/en

RTD Thermometer
omnigrad TST42

Contact thermometer - Fast response
M.I. replaceable inset
requiring separate compression fitting



Description
TST42 RTD thermometer assembly includes a replaceable single or double Pt100 inset in mineral insulated cable, which can be selected between standard or glass type (for high vibration level application).
From the TET family, the inset is available either with flying leads for head transmitter mounting or with terminal block.
The terminal head can be selected from a wide choice of standard items (see the Order key or TA20 Technical Information for more details).

Application
TST42 is a contact RTD thermometer for liquids, solids and gases. It can be applied where pressure and temperature are not extreme and it is important to detect very fast temperature changes.

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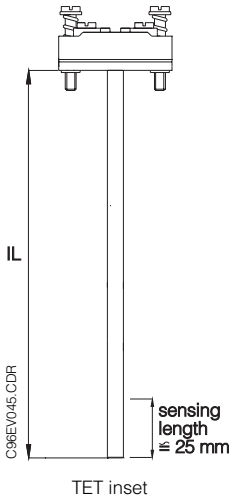
Technical data



TET inset

Mineral Insulated Replaceable Inset

Sensing element: Platinum resistance, 1 or 2 x Pt100 Ω at 0°C
Tolerances: class A or B to IEC 751, 1/3 DIN B
Wiring: 3 or 4 wire connections
Insulation resistance: ≥ 100 MΩ , test voltage 250 V at ambient temperature
Electrical connections: flying leads or terminal block

Model	Sheath diameter (mm)	RTD element type	Operating temperature (°C)	Response time values [1] (s)	
				T_{50}	T_{90}
TET100	6	standard	-50 ÷ +600	3.5	8
TET102	6	glass	-50 ÷ +400	3.5	8
TET105	3	standard	-50 ÷ +400	3	6
TET107	3	glass	-50 ÷ +400	3	6

Table A - Note **1** : according to IEC 751, in moving water at 0.4 m/s

Stem: mineral insulated cable
Sheath: AISI316L / W.1.4404
Replacement: inset length IL is calculated as follows
IL = ML + 40 mm

Connections

Connections to process: optional (to be ordered separately)
TA250 pocket with compression fitting (6 mm diam. only)
TA50 threaded compression fitting (3 or 6 mm diam.)
TA55 ball type sanitary fitting (6 mm diam. only)
TA60 flanged compression fitting (6 mm diam. only)
TA70 weld-in sanitary fitting (6 mm diam. only)

Terminal head

Version: refer to Order key
Protection class: typical IP55
Electrical connections: PG11, PG16, 1 or 2 x 1/2" NPT, 3/4" NPT
depending on head version

Built-in transmitter

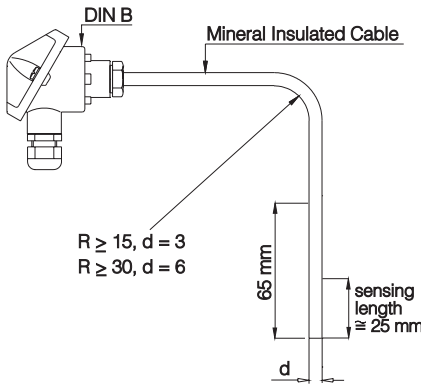
(*)	Features	Model
A	Transmitter 4-20mA, 0...+50°C	Analogue - Fixed range TMT137
B	Transmitter 4-20mA, 0...+100°C	
C	Transmitter 4-20mA, 0...+150°C	
D	Transmitter 4-20mA, 0...+200°C	
F	Analogue output without I/O isolation	PC Programmable TMD831
G	Analogue output with I/O isolation	
J	Hart, Analogue 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

Installation

Bending radius

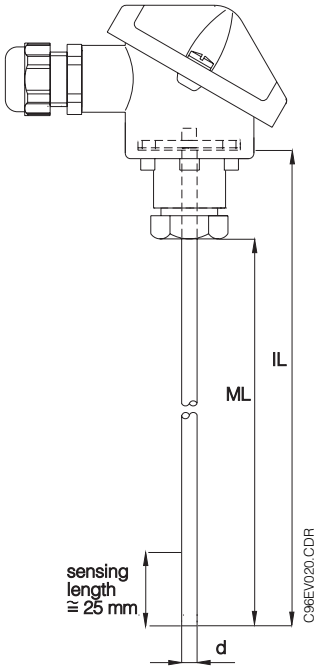
The allowed bending radius R for mineral insulated cables is ≥ 15 mm for 3 mm diameters and ≥ 30 mm for 6 mm diameters (DIN 43721).
The not bendable length is ~ 30 mm for 3 mm diameter and ~ 65 mm for 6 mm diameter.



Order key

- Each TST42 RTD thermometer assembly may be used in conjunction with TA50, TA55, TA60 or TA70 fitting, or alternatively with TA250 pocket.
- For a correct temperature measurement the thermometer immersion length 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 and connection head) thermal insulation.
- For inset replacement see Technical data.
- *(2)* When combined with TA250 pocket, ML of TST42 must be 50mm longer than TA250 insertion length L.

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



TST42- RTD Thermometer - Contact thermometer - Fast response
M.I. replaceable inset - Requiring separate compression fitting

Process immersion length ML *(2)*
A - 120 mm
B - 175 mm
C - 235 mm
D - 275 mm
E - 335 mm
F - 365 mm
G - 425 mm
H - 485 mm
K - 515 mm
L - 615 mm
M - 695 mm
P - 785 mm
X - ..... mm length to specification (min.50mm-max.5000mm)
Y - ..... mm special length

Sheath diameter
1 - d = 3 mm (only with TA20B head type)
3 - d = 6 mm

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

RTD Class and type of construction

TET100 & TET105 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

TET102 & TET107 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
A1 - TA20A: M24 bottom, PG16 Grey, IP55
A2 - TA20A: M24 bottom, 1/2" NPT, IP55
B1 - TA20B: M24 bottom, PG16 Grey, IP55
C1 - TA20C: M24 bottom, PG16 Grey, IP65
C2 - TA20C: M24 bottom, 1/2" NPT, IP65
C3 - TA20C: M24 bottom, 3/4" NPT, IP65
C4 - TA20C: M24 bottom, double 1/2" NPT, IP65
C5 - TA20C: M24 bottom, PG16 Blue, IP65
C6 - TA20C: M24 bottom, 1/2" NPT, IP65
C7 - TA20C: M24 bottom, 3/4" NPT, IP65
C8 - TA20C: M24 bottom, double 1/2" NPT, IP65
D1 - TA20D: M24 bottom, PG16 Grey, IP55 *(3)*
D2 - TA20D: M24 bottom, 1/2" NPT conduit, IP55 *(3)*
E1 - TA20E: M24 bottom, PG16 Grey, IP55
F1 - TA20F: M24 bottom, PG16 Grey, IP55
P1 - TA20P: M24 bottom, PG16 Grey, IP55
P2 - TA20P: M24 bottom, 1/2" NPT, IP55
W1- TA20W: M24 bottom, PG16 Grey, IP65
W2- TA20W: M24 bottom, 1/2" NPT, IP55
X3 - TA20X: M24 bottom, AISI316L, PG11, IP65
YY - Special as specified

Built-in transmitter *(3)*
Analogue, µP-PCP, Hart protocol or
Profibus-PA type available: see Table B

TST42-							Complete Order Code

Supplementary Documentation

- ☐ TET100 ∅ 6 mm M.I. inset
  Technical Information TI071T/02/en
- ☐ TET102 ∅ 6 mm M.I. inset
  Technical Information TI140T/02/en
- ☐ TET105 ∅ 3 mm M.I. inset
  Technical Information TI103T/02/en
- ☐ TET107 ∅ 3 mm M.I. inset
  Technical Information TI141T/02/en
- ☐ TA20 terminal heads
  Technical Information TI072T/02/en
- ☐ TA fittings
  Technical Information TI091T/02/en
- ☐ TA250 pocket with compression fitting
  Technical Information TI097T/02/en

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06.98/MTM

TI184T/02/en/06.98
EHT/CV4.2