

T1537

Straight Thermocouple Temperature Sensors with Metal and Ceramic Protective Tubes C610 without/with Transmitters 4 to 20 mA

- Thermocouple "S", "B", "K" (wire \varnothing 0,5 or 1 mm)
- Measuring range 0 to +1300 °C ("S"), +300 to +1400 °C ("B"), -40 to +1000 °C ("K")
- Accuracy class 2 to 3 according to EN 60584-2
- Spherical head form A according to DIN
- Outside protective tube of stainless steel DIN 1.4841, X8CrTi25 or KANTHAL AF (DIN 1.4767)
- Inside protective tube of C610 ceramics
- Selectable protective tube length
- Mounting temperature sensor by means of Fixing Shift Pipe Union or Flange
- Housing IP 55
- Optional headmounted programmable transmitter with output 4 to 20 mA, including circuit isolation version and II 1G EEx ia IIC T4 ... T6 (ATEX) version

Application

Straight thermocouple temperature sensors T1537 are designed for remote measuring of temperature in furnaces, incinerating plants and the like. They are designed for mounting into furnace walls and other technologic plants. They can be supplied with or without a 4 to 20 mA headmounted transmitter.

Description

A single or dual thermocouple type "S", "B", "K" which is placed in inside protective tube (ceramics C610) and outside metal protective tube connected to a terminal board inside the spherical head form A according to DIN. There is made use of rise of thermoelectric voltage. Its size depends on a temperature difference between a measuring junction and a cold junction of the thermocouple.

With a version with a transmitter the thermoelectric voltage is converted to a unified linear current signal of 4 to 20 mA. The thermometer should be mounted by a fixing shift flange or fixing shift pipe union.

Technical Specifications

Thermocouple:

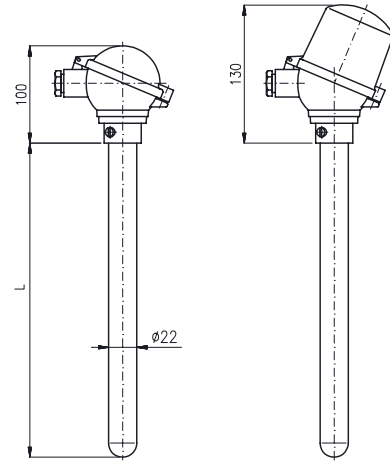
- "S" (PtRh10-Pt) accuracy class 2 according to EN 60584-2
- "B" (PtRh30-PtRh6) accuracy class 3 according to EN 60584-2
- "K" (NiCr-NiAl) accuracy class 2 according to EN 60584-2

Measuring Range:

- thermocouple "S" 0 to +1300 °C
- thermocouple "B" +300 to +1400 °C
- thermocouple "K" -40 to +1000 °C

Output signal: linearized 4 to 20 mA ¹⁾

Diameter of thermocouple: "S", "B" ... 0,5 mm
"K" ... 1 mm



Materials: Inside protective tube \varnothing 22x2
- stainless steel DIN 1.4541, X8CrTi25 or KANTHAL AF (DIN 1.4767)
Inside protective tube \varnothing 15x2,5 - ceramics C610
Capillary \varnothing 8,5/4x \varnothing 1,5 - ceramics C610
Head - aluminium alloy, varnished

Typical Composition of C610 Ceramics: 60 % Al_2O_3

Porosity of C610 Ceramics: No porosity

Housing: IP 55

Operation Conditions

Maximal Temperature of Head:

- 150 °C (without transmitter)
- 80 °C (with transmitter PT-031 and P3301)
- 85 °C (with transmitter P5102, P5201 and P5310)

Other Specifications

EMC (Electromagnetic Compatibility):

According to EN 61326-1:98 / A1:99

Weight:

- a) without transmitters with head H1:
Nominal length L: 500 ... 1.10 kg
700 ... 1.20 kg
800 ... 1.30 kg
1000 ... 1.80 kg
1400 ... 2.40 kg
1600 ... 2.70 kg
2000 ... 3.30 kg
- b) with head H2 plus 0.03 kg
- c) with transmitter PT-031 plus 0.02 kg
with transmitter P5102 plus 0.04 kg
with transmitter P5201 plus 0.05 kg
with transmitter P3301 plus 0.04 kg
with transmitter P5310 plus 0.04 kg

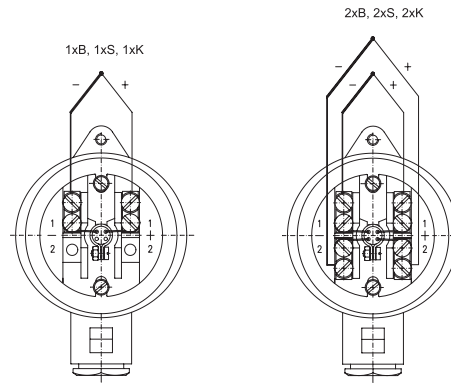
¹⁾... Only for sensor with transmitter

Straight Thermocouple Temperature Sensors T1537

Caution!

If the temperature sensor is being installed or replaced in operation it is necessary to insert it into a furnace tube gradually (ca 20 cm / min) So as to prevent the ceramic protective tubes from cracking because of the heat stress caused by a rapid temperature change.

Electrical Connections



| Type | Description | | | |
|---|---|----------------------|-------------------|--|
| ◦ T1537-6 → | Straight Thermocouple Temperature Sensors T1537 | | | |
| Code | Thermocouple | Measuring Range | Diameter of Wires | |
| ◦ 26 → | 1x"S" (PtRh10-Pt), Insulated | 0 to +1300 °C | 0.5 mm | |
| ◦ 66 | 2x"S" (PtRh10-Pt), Insulated, Isolated Junctions | 0 to +1300 °C | 0.5 mm | |
| ◦ 28 | 1x"B" (PtRh30-PtRh6), Insulated | +300 to +1400 °C | 0.5 mm | |
| ◦ 68 | 2x"B" (PtRh30-PtRh6), Insulated, Isolated Junctions | +300 to +1400 °C | 0.5 mm | |
| ◦ 22 | 1x"K" (NiCr-NiAl), Insulated | -40 to +1000 °C | 1 mm | |
| ◦ 62 | 2x"K" (NiCr-NiAl), Insulated, Isolated Junctions | -40 to +1000 °C | 1 mm | |
| 99 | Other | | | |
| Code | Accuracy Class according to EN 60584-2 | | | |
| ◦ 7 → | 2 (Standard for Thermocouples S, K) | | | |
| ◦ 8 | 3 (for Thermocouple B Only) | | | |
| Code | Nominal Length L [mm] | | | |
| ◦ 150 | 500 | | | |
| ◦ 170 → | 700 | | | |
| ◦ 180 | 800 | | | |
| ◦ 210 | 1000 | | | |
| ◦ 214 | 1400 | | | |
| ◦ 216 | 1600 | | | |
| 216 | 2000 | | | |
| 999 | Other | | | |
| Protection Tubes | | | | |
| Code | Outside Tube Material | Inside Tube Material | T _{max} | |
| ◦ O1 → | 1.4841 | C610 Ceramics | 1100 °C | |
| ◦ O3 | X8CrTi25 | C610 Ceramics | 1100 °C | |
| O5 | KANTHAL AF (1.4767) | C610 Ceramics | 1400 °C | |
| O9 | Other | | | |
| Code | Head | | | |
| ◦ H1 → | Al Alloy, Cable Outlet M20x1.5, Housing IP 55, with Terminal Board | | | |
| ◦ H2 ¹ | Al Alloy, with High Cap for Mounting of Transmitter into Cap, Cable Outlet M20x1.5, Housing IP 55, with Terminal Board | | | |
| H9 | Other | | | |
| OPTIONAL ACCESSORIES | | | | |
| Code | Calibration | | | |
| ◦ KTE3 | Sensor Calibration in Three Customer's Given Temperature Points (0 to +1100 °C) | | | |
| KTE9 | Other | | | |
| Code | Fixing Flanges | | | |
| ◦ P1 → | Fixing Shift Flange UP03 (See Data Sheet No. 126) | | | |
| ◦ P2 | Fixing Shift Pipe Union UPS 22 M33 (See Data Sheet No. 126) | | | |
| P9 | Other | | | |
| Code | Transmitters for Headmounting | | | |
| • P5310 | Programmable Transmitter P5310 with LHP Communication, Base Accuracy up to 0.1 % from Set Range (See Data Sheet No. 824) | | | |
| • PT-031 | Programmable Transmitter for Thermoelectric Sensors PT-031, Base Accuracy 0,15 % from Input Range (See Data Sheet No. 471) | | | |
| • P5102 | Programmable Transmitter P5102 H11 for Headmounting (See Data Sheet No. 451) | | | |
| ◦ P5102EEx | Intrinsically Safe Programmable Transmitter P5102 H11EEx for Headmounting (See Data Sheet No. 451) | | | |
| • P5201 → | Universal Programmable Transmitter P5201 H10 with Circuit Isolation for Headmounting (See Data Sheet No. 288) | | | |
| ◦ P5201EEx | Intrinsically Safe Universal Programmable Transmitter P5201 H10EEx with Circuit Isolation for Headmounting (See Data Sheet No. 288) | | | |
| • P3301 | Universal Programmable Transmitter P3301 SMART with Circuit Isolation for Headmounting, HART Communication Interface (See Data Sheet No. 507) | | | |
| Example of Order: T1537-6 26 7 170 O1 H1 P1 P5201 H10 R11 C2 RL 0 °C RH 350 °C ECL | | | | |

• ... Ex Stock Version

◦ ... Marked Version can be Dispatched up to 10 Working Days

¹ ... Temperature of head with transmitter inside should not exceed 80 or 85 °C according to transmitter type.