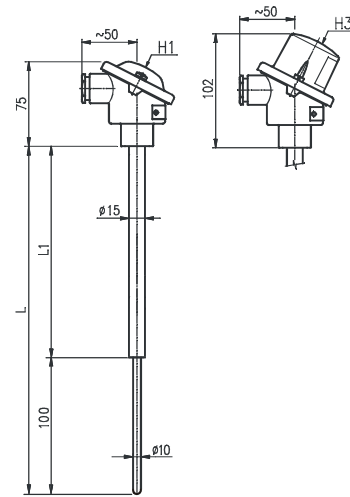


T1536

Straight Thermocouple Temperature Sensors with Ceramic Protective Tubes C799 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 +1600 °C (B), -40 to +1000 °C (K)
- Accuracy class 2 to 3 according to EN 60584-2
- Head form B according to DIN
- Protective tube material: C799 ceramics
- Selectable protective tube lengths
- Thermometer is fixed with shift weld-on flange or with fixing shift pipe union
- Housing IP 54, IP 65
- Optional headmounted programmable transmitter with output 4 to 20 mA, including circuit isolation version and II 1G EEx d IIC T1 ... T6 (ATEX)



Application

Straight thermocouple temperature sensors T1536 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 4 to 20 mA headmounted transmitter.

Description

A single or dual thermocouple type S, B or type K which is placed in one protective tube of C799 ceramics and connected to a terminal block inside the head form B 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 pipe union or by a flange.

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:

- 0 to +1300 °C (thermocouple S)
- +300 to +1600 °C (thermocouple B)
- 40 to +1000 °C (thermocouple K)

Output signal: linearized 4 to 20 mA ¹⁾

Dielectric Strength: 500 V eff

Materials:

- Head - Varnished Aluminium alloy
- Support tube - DIN 1.4541
- Protective tube - C799 ceramics

Typical Composition of C799 Ceramics:

99.5 % Al₂O₃

Housing: IP 54 or IP 65 (accordig to head)

Operation Conditions

Maximal Temperature of Head:

- 100 °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 lenght L: 180 ... 0.27 kg
- 250 ... 0.30 kg
- 355 ... 0.39 kg
- 500 ... 0.52 kg

b) with head H3 plus 0.05 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

Caution!

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

Working Temperature [°C]	1200	1400	1600
Velocity of shifting [mm/min]	200	60	20

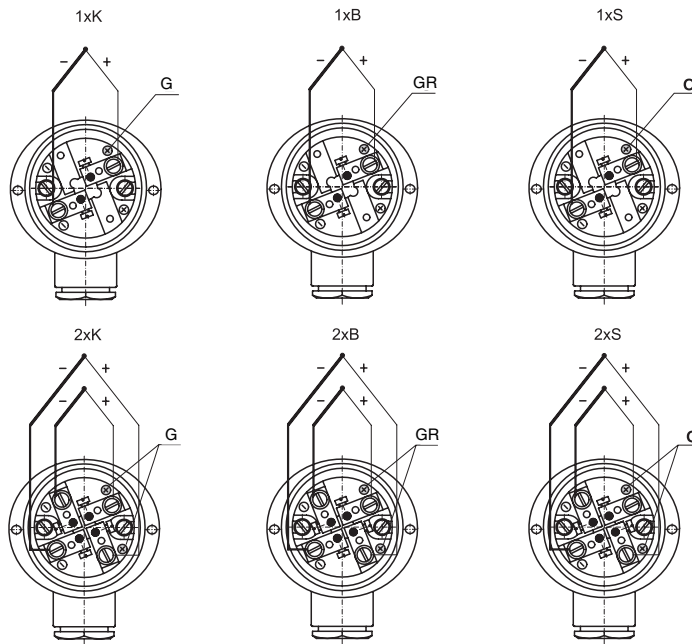
If it is impossible to provide recommended velocity of shifting, sensors have to be slowly and evenly pre-heating.

¹⁾... Only for sensor with transmitter

Straight Thermocouple Temperature Sensors T1536

Electrical Connections

G - green
GR- gray
O - orange



Type	Description		
T1536-6 →	Straight Thermocouple Temperature Sensors T1536		
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 +1600 °C	0.5 mm
68	2x"B" (PtRh30-PtRh6), Insulated, Isolated Junctions	+300 to +1600 °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 (for Thermocouple S, K Only)		
8 →	3 (for Thermocouple B Only)		
9	Other		
Code	Nominal Length L	Support Tube Length L1 [mm]	Mounting length EL [mm]
118	180	80	100 to 140
125 →	250	150	100 to 210
135	355	255	100 to 315
150	500	400	100 to 460
999	Other		
Code	Protective Tube		Material
O3 →	Outside Diameter D [mm]		C799 Ceramics (Al ₂ O ₃ 99,5%)
O9	Other		
Code	Support Tube		Material
N0 →	L1 Length		DIN 1.4541
N9	Other		
Code	Head		
H1 →	Al Alloy, Cable Outlet M20x1.5, Housing IP 55, with Terminal Board		
H3 ¹	Al Alloy, with High Cap for Mounting of Transmitter ∅ 44 mm into Cap, Cable Outlet M20x1.5, Housing IP 54, with Terminal Board		
H9	Other		
Code	OPTIONAL ACCESSORIES		
Code	Calibration		
KTE3	Sensor Calibration in Three Customer's Given Temperature Points (0 to +1100 °C)		
KTE9	Other		
Code	Fixing Shift Flange and Union		
P1 →	Fixing Shift Flange ∅ 15mm UP 02 (See Data Sheet No. 126)		
P3	Fixing Shift Pipe Union UPS 15 M27 (See Data Sheet No. 126)		
P9	Other		
Code	Transmitters		
P5310	Programmable Transmitter P5310 with Communication LHP, Base Accuracy 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)		
P5102EEEx	Intrinsically Safe Programmable Transmitter P5102 H11EEEx for Headmounting (See Data Sheet No. 451)		
P5201 →	Universal Programmable Transmitter P5201 H10 with Circuit Isolation for Headmounting (See Data Sheet No. 288)		
P5201EEEx	Intrinsically Safe Universal Programmable Transmitter P5201 H10EEEx 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: T1536-6 26 7 125 O3 N0 H1 P1 P5201 H10 R11 C2 RL 0 °C RH 350 °C EHL

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