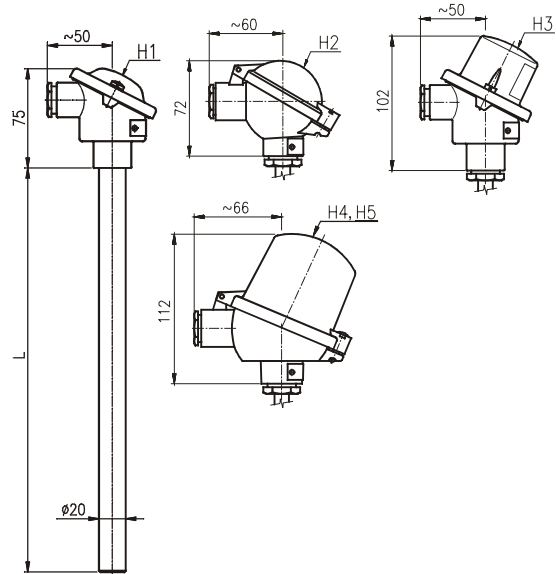


T1505

Straight Thermocouple Temperature Sensors without/with Transmitters 4 to 20 mA

- Thermocouple J, K (wire \varnothing 2 or 3 mm)
- Measuring range -40 to +800 °C ("J"), -40 to +1100 °C ("K")
- Accuracy class 2 according to EN 60584-2
- Head form B according to DIN
- Protective tube materials: stainless steel DIN 1.4541, DIN 1.4845
- Selectable protective tube length
- Thermometer is fixed 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 ia IIC T4 ... T6 (ATEX) version



Application

Straight thermocouple temperature sensors T1505 are designed for remote measuring of temperature in furnaces, incinerating plants and the like. They can be supplied with or without 4 to 20 mA headmounted transmitter.

Description

A single or double thermocouple type J or type K which is placed in the metal protective tube in the insulating beads 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.

Technical Specifications

Thermocouple:

J, K, accuracy class 2 according to EN 60584-2

Measuring Range:

-40 to +800 °C (thermocouple J)
-40 to +1100 °C (thermocouple K)

Output signal: linearized 4 to 20 mA ¹⁾

Dielectric Strength: 500 V eff

Diameters of Wires:

Single thermocouple - \varnothing 3 mm
Double thermocouple - \varnothing 2 mm

Materials:

Head - Aluminium alloy
Protective tube - Stainless steel DIN 1.4541 (up to 800 °C)
- Stainless steel DIN 1.4845 („K“)
Insulating beads - C610 ceramics

Housing:

IP 54 or IP 65 (according to head)

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: 400 ... 0.90 kg
500 ... 1.00 kg
650 ... 1.20 kg
800 ... 1.50 kg
1000 ... 1.80 kg
1250 ... 2.10 kg
1600 ... 2.70 kg
2000 ... 3.30 kg

b) with head H2 plus 0.04 kg

H3 plus 0.05 kg

H4, H5 plus 0.20 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

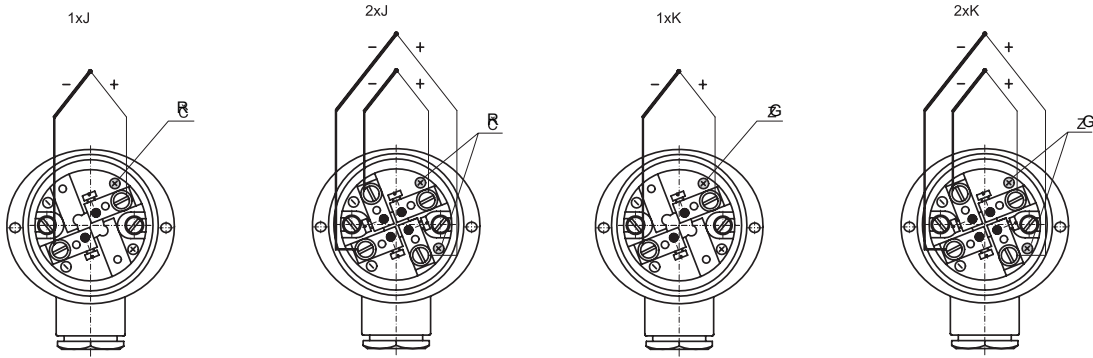
with transmitter P5310 plus 0.04 kg

¹⁾ ... Only for sensor with transmitter

Straight Thermocouple Temperature Sensors „J“ and „K“ T1505 without/with Transmitters

Electrical Connections

R - red
G - green



Type	Description		
◦ T1505-6 →	Straight Thermocouple Temperature Sensors		
Code	Thermocouple	Measuring Range	Diameter of wires [mm]
◦ 21 →	1x"J" (Fe-CuNi), Insulated	-40 to +800 °C	3
◦ 61	2x"J" (Fe-CuNi), Insulated, Unisolated Junctions	-40 to +800 °C	2
◦ 22	1x"K" (NiCr-NiAl), Insulated	-40 to +1100 °C	3
◦ 62	2x"K" (NiCr-NiAl), Insulated, Unisolated Junctions	-40 to +1100 °C	2
Code	Accuracy Class according to EN 60584-2		
◦ 7 →	2		
Code	Nominal Length L [mm]		
◦ 140 →	400		
◦ 150	500		
◦ 165	650		
◦ 180	800		
◦ 210	1000		
◦ 212	1250		
◦ 216	1600		
◦ 220	2000		
◦ 999	Other		
Code	Protective Tube - Outside Diameter [mm]	Material	
◦ O1 →	Ø20x3 (standard for thermocouple "K")	Stainless Steel DIN 1.4845 (up to 1100 °C Only)	
◦ O3	Ø20x3 (standard for thermocouple "J")	Stainless Steel DIN 1.4541 (up to 800 °C Only)	
◦ O9	Other		
Code	Head		
◦ H1	Al Alloy, Cable Outlet M20x1.5, Housing IP 54, with Terminal Board		
◦ H2	Al Alloy, Cable Outlet M20x1.5, Housing IP 65, with Terminal Board		
◦ H3 →	Al Alloy, with High Cap for Mounting of Transmitter Ø 44 mm into Cap, Cable Outlet M20x1.5, Housing IP 54, with Terminal Board		
◦ H4	Al Alloy, with High Cap for Mounting of Transmitter up to Ø 62 mm and High 50 mm, Span of Mounting Bolts 33 mm, Cable Outlet M20x1.5, Housing IP 65, with Terminal Board		
H5	Al Alloy, with High Cap for Mounting of Transmitter up to Ø 62 mm and High 50 mm, Span of Mounting Bolts 33 mm, Cable Outlet M20x1.5, Housing IP 65, with Terminal Board, Outside and Inside Ground Clamp		
H9	Other		
Code	OPTIONAL ACCESSORIES		
Code	Fixing Flanges		
◦ P1 →	Fixing Shift Pipe Union UPS 20 M30 (See Data Sheet No. 126)		
◦ P9	Other		
Code	Spray Protection Tube	Tmax (with Spray)	
X1	Polyamide PA 11	100 °C (Depend on Measurement Medium)	
X2	E-CTFE "Halar"	170 °C (Depend on Measurement Medium)	
X4	ETFE "Hyflon"	130 °C (Depend on Measurement Medium)	
X8	Corundum Spray for Intense Abrasive Medium		
X9	Other		
Code	Calibration		
◦ KTE3	Sensor Calibration in Three Customer's Given Temperature Points (0 to +1100 °C)		
◦ KTE9	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 H10, Base Accuracy to 0.07 % from Set Range (See Data Sheet No. 451)		
◦ P5102EEx	Intrinsically Safe Programmable Transmitter P5102 H10EEx, Base Accuracy to 0.07 % from Set Range (See Data Sheet No. 451)		
• P5201	Universal Programmable Transmitter P5201 H10 with Circuit Isolation, Base Accuracy to 0.05 % from Set Range (See Data Sheet No. 288)		
◦ P5201EEx	Intrinsically Safe Universal Programmable Transmitter P5201 H10EEx with Circuit Isolation, Base Accuracy to 0.05 % from Set Range (See Data Sheet No. 288)		
• P3301	Universal Programmable Transmitter P3301 SMART with Circuit Isolation, Base Accuracy to 0.065 % from Set Range HART Communication Interface (See Data Sheet No. 507)		

Example of Order: T1505-6 21 7 140 O1 H3 P1 P5201 H10 RL 0 °C RH 650 °C ECL

◦ ... Ex Stock Version

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