

T1527

Straight Thermocouple Temperature Sensors with Ceramic Protective Tubes C530/C610 without/with Transmitters 4 to 20 mA

- Thermocouple K (wire \varnothing 2 or 3 mm)
- Measuring range -40 to +1200 °C
- Accuracy class 2 according to EN 60584-2
- Spherical head form A according to DIN
- Two protective tube of C530 and C610 ceramics
- Selectable protective tube lengths
- Thermometer is fixed with shift weld-on flange
- Housing IP 55
- 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 T1526 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

Single or double wire thermocouple of „K“ type is placed in insulating beads and in two protective pipes of ceramics C530 and C610 and connected to a terminal block 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 pipe union or by a flange.

Technical Specifications

Thermocouple:

type K (NiCr-NiAl) accuracy class 2 according to EN 60584-2

Measuring Range: -40 to +1200 °C

Output signal: linearized 4 to 20 mA ¹⁾

Dielectric Strength: 500 V eff

Diameters of Wires:

- \varnothing 3 mm (single thermocouples)
- \varnothing 2 mm (double thermocouple K)

Materials:

- Head - Varnished Aluminium alloy
- Support tube \varnothing 32x2 - Varnished carbon steel
- Outside protective tube \varnothing 26x4 - C530 ceramics
- Inside protective tube \varnothing 15x2.5 - C610 ceramics
- Insulation tube of T/C \varnothing 8.5x1.5 - C610 ceramics

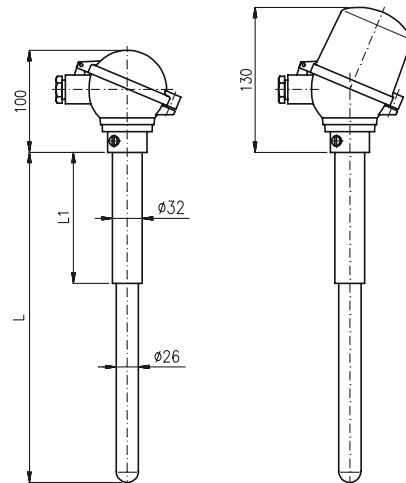
Typical Composition of C610 Ceramics:

- C530 73 to 75 % Al_2O_3
- C610 60 % Al_2O_3

Porosity of C610 Ceramics:

- C530 2 μ m
- C610 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 ... 1.40 kg
- 710 ... 1.60 kg
- 800 ... 1.70 kg
- 1000 ... 2.20 kg
- 1400 ... 2.80 kg
- 1600 ... 3.00 kg
- 2000 ... 3.10 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

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	1500
Velocity of shifting [mm/min]	50	20	15

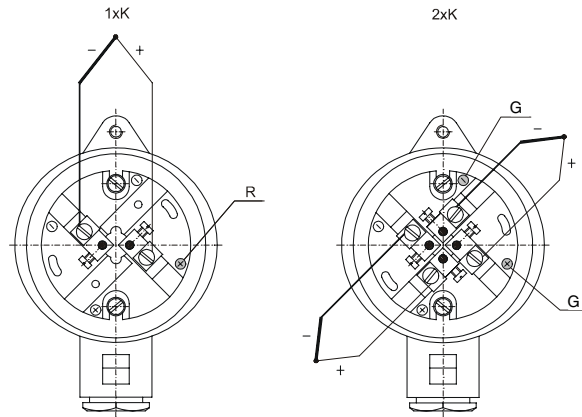
If it is impossible to provide recommended velocity of shifting, sensors have to be slowly and evenly pre-heating.

¹⁾... Only for sensor with transmitter

Straight Thermocouple Temperature Sensors T1527

Electrical Connections

R - red
G - green



Type	Description		
◦ T1527-6 →	Straight Thermocouple Temperature Sensors T1527		
Code	Thermocouple	Measuring Range	Diameter of wires
◦ 22 →	1x"K" (NiCr-NiAl), Insulated	-40 to +1200 °C	3 mm
◦ 62	2x"K" (NiCr-NiAl), Insulated, Isolated Junctions	-40 to +1200 °C	2 mm
◦ 99	Other		
Code	Accuracy Class according to EN 60584-2		
◦ 7 →	2		
Code	Nominal Length L		
◦ 150	500		
◦ 171 →	710		
◦ 180	800		
◦ 210	1000		
◦ 214	1400		
◦ 216	1600		
◦ 220	2000		
◦ 999	Other		
Code	Protective Tube	Material	
Code	Outside Diameter x Wall Thickness [mm]		
◦ O1 →	∅ 26x4 / ∅ 15x2.5	C530 Ceramics / C610 Ceramics	
◦ O9	Other		
Code	Support Tube	Material	
Code	L1 Length		
◦ N0 →	200 (Standard for Lengths 500, 710 and 800 mm)	Varnished Carbon Steel	
◦ N1	400 (Standard for Lengths 1000, 1400, 1600 and 2000 mm)	Varnished Carbon Steel	
◦ N9	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		
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		
◦ P1 →	Fixing Shift Flange UP 04 (See Data Sheet No. 126)		
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)		
◦ 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: T1527-6 22 7 171 O1 N0 H2 P1 P5201 H10 R11 C2 RL 0 °C RH 350 °C ECL			

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

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