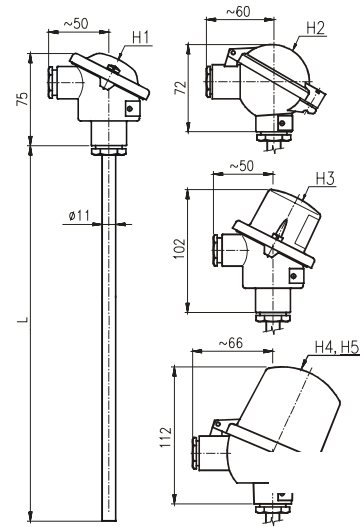


# T1028

## Straight Resistance Temperature Sensors up 180 °C without/with Transmitters 4 to 20 mA

- Measuring resistor Pt100, Pt500 and Pt1000
- Measuring range -40 to +180 °C
- Accuracy class A, B according to EN 60751
- Head form B according to DIN
- Protective tube material: stainless steel DIN 1.4541
- Selectable protective tube length
- Mounting temperature sensor by means of 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 resistance temperature sensors T1028 are intended for remote temperature measurement of flowing liquid as well as gaseous media in pipelines, tanks etc. Temperature sensors can be supplied with or without 4 to 20 mA headmounted transmitters.

### Description

A sensor of the thermometer is one or two measuring resistors which are placed in the stem and connected through an inside wiring to a terminal board inside the head form B according to DIN. There is made use of sensor resistance-temperature dependence. With a version with a transmitter the resistance signal is converted to a unified linear current signal of 4 to 20 mA.

The thermometer should be mounted on piping by a fixing shift pipe union into a straight or an oblique welded-on piece.

### Technical Specifications

#### Measuring Resistor:

1xPt100, 1xPt500, Pt1000 accuracy class A, B according to EN 60751, four-wire inside wiring  
 2xPt100, 1xPt500, Pt1000 accuracy class B according to EN 60751, two-wire inside wiring

**Measuring Range:** -40 to +180 °C

#### Measuring Current <sup>1)</sup>:

Pt100 0.3 to 1 mA  
 PT500 0.1 to 0.7 mA  
 Pt1000 0.1 to 0.3 mA

**Output signal:** linearized 4 to 20 mA <sup>2)</sup>

**Dielectric Strength:** 500 V eff

#### Electrical insulation resistance:

min. 100 MΩ according to EN 60751, for temperature (25 ±10)°C, max. 80 % relative humidity

**Response time:** 15s

**Materials:** Head - Aluminium alloy  
 Stem - Stainless steel DIN 1.4541  
 Inside wiring - Cu

**Housing:** IP 54, IP 65 (according to head)

### Operation conditions

#### Maximal Temperature of Head:

100 °C (without transmitter)  
 80 °C (with transmitter PT-011 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: 100 ... 0.65 kg  
 160 ... 0.70 kg  
 250 ... 0.75 kg  
 400 ... 0.80 kg  
 630 ... 0.95 kg

b) with head H2 plus 0.04 kg

H3 plus 0.05 kg  
 H4, H5 plus 0.20 kg

c) with transmitter PT-011 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

<sup>1)</sup>... Only for sensor without transmitter

<sup>2)</sup>... Only for sensor with transmitter

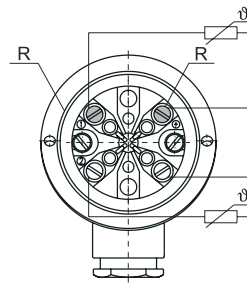
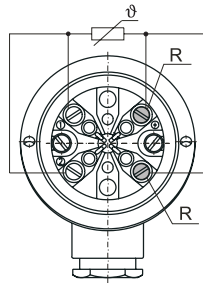
# Straight Resistance Temperature Sensors T1028

## Electrical Connections

R - red

1xPt100, 1x Pt500, 1x1000, 4-wire

2xPt100, 2x Pt500, 2x1000, 2-wire



Type	Description	
◦ T1028-6 →	<b>Straight Resistance Temperature Sensors with Protective Tube</b>	
<b>Code</b>	<b>Temperature Sensor</b>	<b>Measuring Range</b>
◦ 01 →	1xPt100, Four-wire Inside Wiring	-40 to +180 °C
02	1xPt500, Four-wire Inside Wiring	-40 to +180 °C
◦ 03	1xPt1000, Four-wire Inside Wiring	-40 to +180 °C
04	2xPt100, Two-wire Inside Wiring	-40 to +180 °C
05	2xPt500, Two-wire Inside Wiring	-40 to +180 °C
◦ 06	2xPt1000, Two-wire Inside Wiring	-40 to +180 °C
99	Other	
<b>Code</b>	<b>Accuracy Class according to EN 60751</b>	
◦ 1 →	B	
2	A (for Sensors with Four-wire Inside Wiring Only)	
<b>Code</b>	<b>Nominal Length L</b>	
◦ 120 →	200	
◦ 126	260	
◦ 135	350	
◦ 150	500	
◦ 173	730	
◦ 190	900	
999	Other	
<b>Code</b>	<b>Protection Tube</b>	<b>Material</b>
◦ O1 →	Outside Diameter x Wall Thickness [mm]	Stainless Steel DIN 1.4541
O9	Other	
<b>Code</b>	<b>Head</b>	
◦ 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 ∅ 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 ∅ 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 ∅ 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	
<b>Code</b>	<b>OPTIONAL ACCESSORIES</b>	
<b>Code</b>	<b>Fixing Flanges</b>	
◦ P1 →	Fixing Shift Flange UP01 with Counterflange (See Data Sheet No. 126)	
P9	Other	
<b>Code</b>	<b>Spray Protection Tube</b>	<b>T<sub>max</sub> (with Spray)</b>
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	
<b>Code</b>	<b>Calibration</b>	
◦ KTE3	Sensor Calibration in Three Customer's Given Temperature Points (0 to +180 °C)	
KTE9	Other	
<b>Code</b>	<b>Transmitters for Headmounting</b>	
• P5310	Programmable Transmitter P5310 with LHP Communication, Input Accuracy up to 0.1 % from Set Range (See Data Sheet No. 824)	
• PT-011	Programmable Transmitter for Resistance Sensors PT-011, Base Accuracy 0,15 % from Input Range (See Data Sheet No. 471)	
• P5102	Programmable Transmitter P5102 H11, Base Accuracy to 0,07 % from set Range (See Data Sheet No. 451)	
◦ P5102EEEx	Intrinsically Safe Programmable Transmitter P5102 H11EEEx, 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)	
◦ P5201EEEx	Intrinsically Safe Universal Programmable Transmitter P5201 H10EEEx 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)	
<b>Example of Order: T1028-6 03 1 150 O1 H3 P1 P5201 H10 R13 C3 RL 0 °C RH 100 °C ECL</b>		

• ... Ex Stock Version

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