

# TE2 - Pt100 Temperature Sensors

Case in stainless steel

Wetted parts in acid-proof, stainless steel or PEEK

Maintenance-free, hygienic, conical tightening metal-to-metal or metal-to-PEEK

EHEDG approval

Process temperature -50...250°C

Pt100 sensors, 2-wire (single or duplex element)

DIN A or B (1/1 or 1/3) elements

Standard or fast response sensor tip

Integrated temperature transmitter (Option)

Industrial M12 plug

Defined weld-in position (M12 plug position)



## Description

The TE2 Pt100 temperature sensor system has a stainless steel case with a build-in plug.

All models can be supplied as a "small, smart sensor" with an integrated, fixed-range temperature transmitter with a 4...20 mA output.

The system complies standard industrial process connections as well as hygienic connections with high cleanability and bacteria tightness.

Fast response sensor tips ensures accurate measurements. Standard DIN A or B, single or double elements connected via 2-, 3- or 4 wires can be supplied according to customers wishes.

The M12 process connection can be supplied with a PEEK cone for tightening (chuck cone). The FDA-approved PEEK material has very unique characteristics, such as high elasticity, non-floating and extremely resistant against abrasive and corrosive media. That makes it ideal for hygienic process applications.

The non-hygienic process connections are used in the general industry such as measurements on water and steam whereas the hygienic connections are ideal in CIP systems, breweries, dairies and in the pharmaceutical industry.

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made to measure



## Technical Data

### Environmental conditions

Media temperature, std.	-50...250°C, note {3}
Ambient temperature	-20...85°C (sensor)
Ambient temperature	-20...60°C (integrated transmitter)
Humidity	< 100% RH, condensing
Protection class	IP 67

### Sensor element

Sensor type	Pt100, Class A or B
Accuracy	DIN/EN/IEC 60751
1/3 DIN B:	$\pm 1/3 \times (0.3 + 0.005 \times t) \text{ } ^\circ\text{C}$
1/1 DIN A:	$\pm (0.15 + 0.002 \times t) \text{ } ^\circ\text{C}$

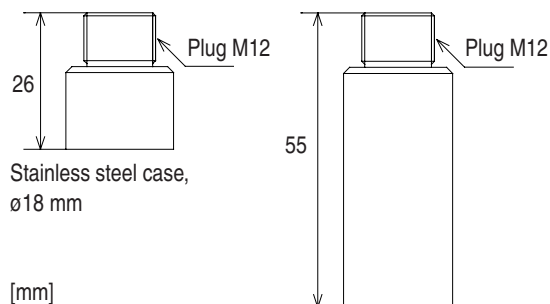
### Sensor tube, connection and case

Material	Stainless steel
Case, $\phi 18 \text{ mm}$	W.1.4301 (AISI 304)
Wetted parts	W.1.4404 (AISI 316L)
	Other materials upon request
PEEK (Poly Aethar Aethar Keton) -50...250°C, FDA approved	
Media pressure	Max. 16 bar
Time constant $t_{50}$ (in water)	Sensor tip: $\phi 6 \text{ mm}$ 3.0 sec. $\phi 4 \text{ mm}$ 2.5 sec. $\phi 3 \text{ mm}$ 1.3 sec.
Mechanical tolerances	ISO 2768-m

### Disposal of product and packing

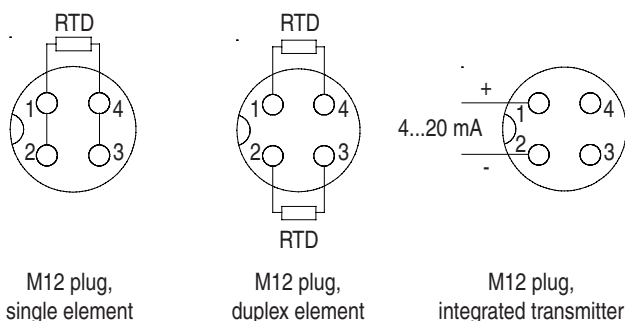
According to national laws or by returning to Bourdon-Haenni

## Dimensional Drawings - Mounting Details



Stainless steel case,  $\phi 18 \text{ mm}$

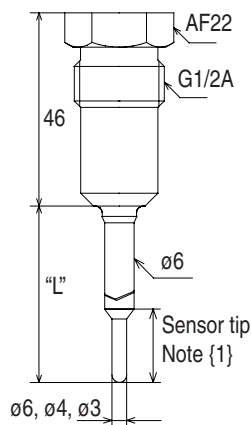
Stainless steel case,  $\phi 18 \text{ mm}$  with integrated temperature transmitter



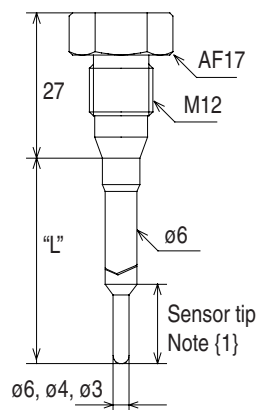
M12 plug, single element

M12 plug, duplex element

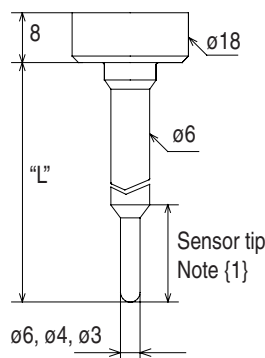
M12 plug, integrated transmitter



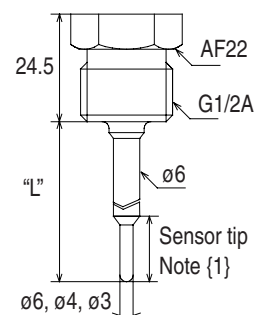
G1/2A male nipple, hygienic (welding part PM020)



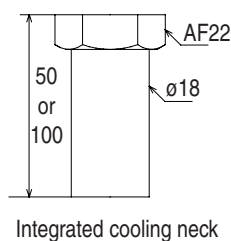
M12 male nipple, hygienic (welding part PM031)



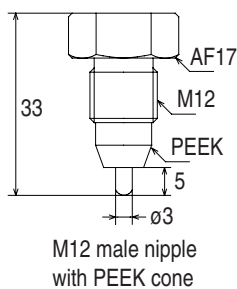
Sensor tube without thread



G1/2A male nipple

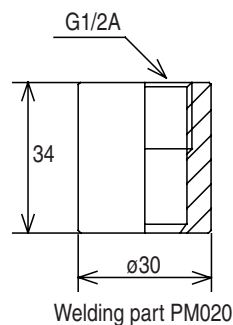


Integrated cooling neck

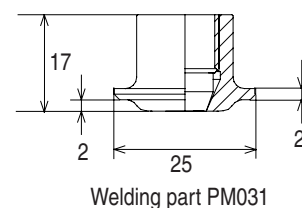


M12 male nipple with PEEK cone

### Accessories - examples



Welding part PM020



Welding part PM031

Refer to the "Accessories, Universal" data sheet for further accessories

## Ordering Details - TE2 Series Temperature Sensor/Transmitter

	TE2x	x	xxxx	xxxx
<b>Sensor tip</b>	<b>4' digit</b>			
Normal response sensor tip, 6 mm	1			
Fast response sensor tip, 4 mm, Note {1}	2			
Fast response sensor tip, 3 mm, Note {1}	3			
As customer specification	S			
<b>Process Connection, Note {2}</b>	<b>5' digit</b>			
Sensor tube without thread	1			
G1/2A Male nipple, ISO 228/1	3			
G1/2A Male nipple, Hygienic, ISO 228/1	4			
M12 Male nipple, Hygienic, ISO 228/1	5			
M12 Male nipple, Hygienic, PEEK cone, 5 x 3 mm sensor tip	6			
As customer specification	S			
<b>Sensor element</b>	<b>6' digit</b>			
Pt100, 1/3 DIN B, single, specified accuracy 0...150°C			3	
Pt100, 1/3 DIN B, duplex, specified accuracy 0...150°C			4	
Pt100, 1/1 DIN A, single, specified accuracy -20...150°C			7	
Pt100, 1/1 DIN A, duplex, specified accuracy -20...150°C			8	
As customer specification			S	
<b>Cooling neck</b>	<b>7' digit</b>			
No cooling neck			0	
Cooling neck, 50 mm, Note {3}			1	
Cooling neck, 100 mm, Note {3}			2	
<b>Electrical connection</b>	<b>8' digit</b>			
M12 plug, 4 pole			1	
M12 plug, 4 pole, integrated temperature transmitter {4}			2	
As customer specification			S	
<b>Certificates</b>	<b>9' digit</b>			
Not specified			0	
Material 3.1.b (EN 10204)			1	
Calibration certificate			2	
Material 3.1.b (EN 10204) and calibration certificate			3	
<b>Sensor tube length (L)</b>	<b>10...13' digit</b>			<b>xxxx</b>
Length in mm. Observe max. lengths and special sensors				

### Notes:

- {1} Sensor tip 4 mm and 3 mm: Single, 2-wire sensor element only.  
Max. sensor tube length 300 mm. Max. sensor tip length 30 mm
- {2} Welding part is not included
- {3} Cooling neck is necessary if the ambient temperature at the housing exceeds the max. temperatures for head and/or transmitter, or for an insulated tank.
- {4} Specify measuring range

## Technical Data for the Integrated Temperature Transmitter

### Input and output

Fixed measuring ranges	-10...40°C ; 0...50°C ; 0...100°C ; 0...150°C
Accuracy	0.1% of full range
Supply range	8...28 Vdc
Output	4...20 mA, 2-wire
EMC	EN 61000

### Environmental conditions

Ambient temperature	-20...60°C
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## Application photos, examples



TE2x-1

No thread



TE2x-3x2

G1/2A, non-hygienic  
Integrated temperature transmitter



TE2x-4

G1/2A male nipple,  
hygienic connection



TE2x-5

M12 male nipple,  
hygienic connection



TE2x-6

PEEK  
cone

M12 male nipple, fast response tip  
hygienic connection

## Accessories and replaceable process connections for TE2

Please refer to "Accessories, universal" data sheet

UK/2004-10-01 This data sheet may only be reproduced in full.