TE1 - Temperature System with Field Housing

Field housing in stainless steel

Wetted parts in acid-proof, stainless steel or PEEK

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

3A approval / FDA and EHEDG compliant

Process temperature -50...250°C

Pt100 sensors (single or duplex element)

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

Standard or fast response sensor tip

Process connection or surface mounted sensor

Optional transmitter (4...20 mA, HART, Profibus PA)

Defined weld-in position (gland or M12 position)

TE1x-4

Description

The TE1 Pt100 temperature measurement system has a stainless steel field housing in excellent finish.

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 surface mounted sensor is used in processes where media contact is unwanted. The sensor tip is spring loaded ensuring a tight connection with the weld-in sleeve, mounted flush in the tank wall.

The M12 process connection can be supplied with a PEEK cone for tightening (chuck cone). The FDA and 3A-approved PEEK material has very unique characteristica, such as high elasticity, non-floating and extremely resistant against abrasive and corrosive media. That makes it ideal for hygienic process applications.
The system can be supplied with one of four configurable temperature transmitters either with a standard 4...20 mA, 4...20 mA/HART® output or Profibus® PA interface.

The non-hygienic G1/2 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.

Baumer

Technical Data

Environmental conditions

Media temperature, std. -50...250°C, note {3}

Media, Surface mounted sensor -20...150°C

Ambient temperature -20...85°C
(or ambient temperature for the 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 ±1/3 x (0.3 + 0.005 x t) °C

1/1 DIN A ±(0.15 + 0.002 x t) °C

Disposal of product and packing

According to national laws or by returning to Baumer

Sensor tube, connection and housing

Material Stainless steel

Housing, ø55 mm W.1.4301 (AISI 304)

Wetted parts W1.4404 (AISI 316L)
Other materials upon request

PEEK (Poly Ethar Ethar Keton) -50...250°C ; FDA/3A approved

Media pressure Max. 16 bar

Time constant t_{50} Std. sensor tip:

(in water)

	ø6 mm	3.0 sec.
	ø4 mm	2.5 sec.
	ø3 mm	1.3 sec.
Surface mounted sensor tip (TE11-2)	ø6 mm	18.0 sec.

Vibrations IEC 68-2-6, GL test2

Mechanical tolerances ISO 2768-m

Approval 3A

Application photos, examples

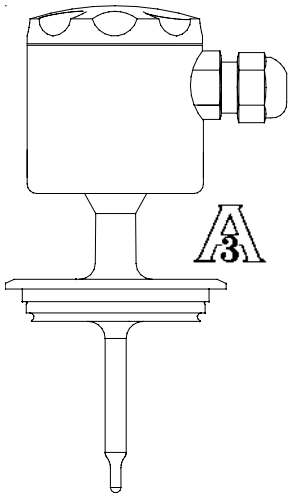
Surface mounted sensor tip

M12 male nipple,
hygienic connection

M12 male nipple, fast response tip
hygienic connection

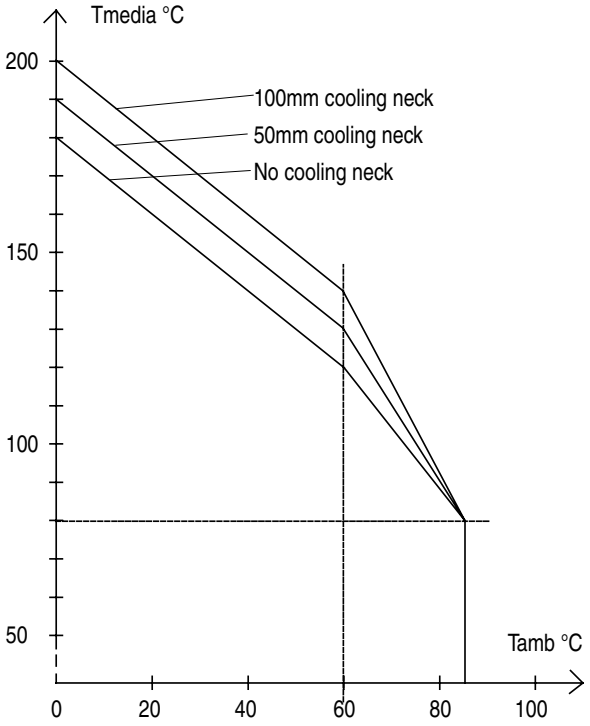
3A Approval

The TE1x-7/8/9/A versions are approved by 3A providing it is installed according to the guidelines given in the installation manual.
The 3A approved products fulfill the FDA demands and follow the EHEDG guidelines regarding design, materials and finishing.



Example TE1x-A

Temperature Curve

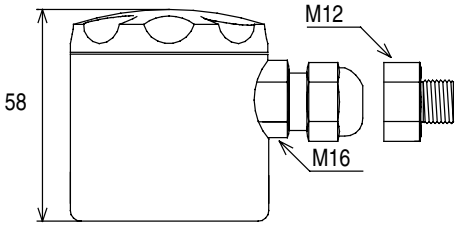


Ordering Details - TE1 Temperature Sensor with Field Housing

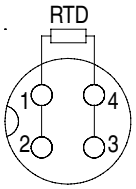
			TE1x	xxxx	xxxx	xxxx
Sensor tip		**4´ digit**				
Not specified			0			
Normal response sensor tip, ø6 mm			1			
Fast response sensor tip, ø4 mm, Note {3} {9}			2			
Fast response sensor tip, ø3 mm, Note {3} {9}			3			
As customer specification			S			
Process Connection, note {4}	**Approval**	**5´ digit**				
Sensor tube without thread				1		
Surface mounted sensor tip, ø6 x 9mm sensor tip				2		
G1/2A Male nipple, ISO 228/1				3		
G1/2A Male nipple, Hygienic, ISO 228/1				4		
M12 x 1.5 Male nipple, Hygienic, ISO 228/1				5		
M12 x 1.5 Male nipple, Hygienic, PEEK cone, 5 x 3 mm sensor tip (Order: TE10-6xxx-xxxx-0000)				6		
3A/DN38 hygienic connection	3A			7		
Clamp ISO 2852, DN38	3A			8		
Clamp ISO 2852, DN51	3A			9		
GEA Varivent, ø84	3A			A		
As customer specification				S		
Sensor tube dimension		**6´ digit**				
ø6 mm x 1 mm, AISI 316L					1	
As customer specification					S	
Sensor element		**7´ digit**				
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	
Sensor insert type		**8´ digit**				
Sensor tube with embedded sensor element, 2-wire						1
As customer specification						S
Cooling neck		**9´ digit**				
No cooling neck					0	
Cooling neck, 50 mm, Note {5}					1	
Cooling neck, 100 mm, Note {5}					2	
Electrical connection		**10´ digit**				
M12 plug, 4 pole					1	
Gland M16, plastic					2	
Gland M16, nickel plated brass					4	
Gland M16, nickel plated brass, with earth connection terminal					5	
As customer specification					S	
Terminal block or transmitter		**11´ digit**				
Terminal block						1
Transmitter, Note {11}						2
Certificates		**12´ digit**				
Not specified					0	
Material 3.1 (EN 10204)					1	
Calibration certificate					2	
Material 3.1 (EN 10204) and calibration certificate					3	
Sensor tube length (L)		**13...16´ digit**				
Length in mm. Observe max. lengths and special sensors						xxxx

Dimensional Drawings

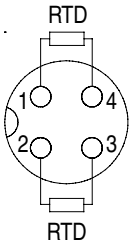
[mm]



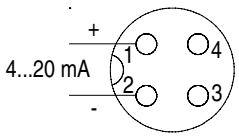
Stainless steel housing, ø55 mm



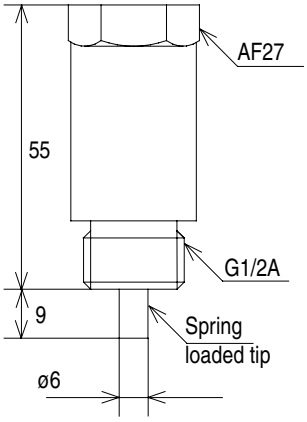
M12 plug,
single element



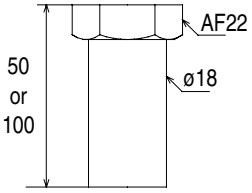
M12 plug,
duplex element



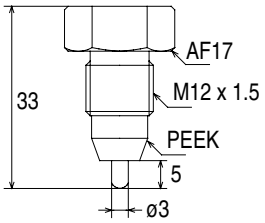
M12 plug,
integrated transmitter



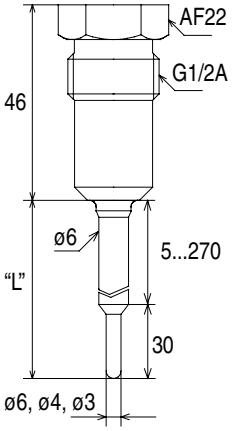
Surface mounted sensor
(welding part PM200)



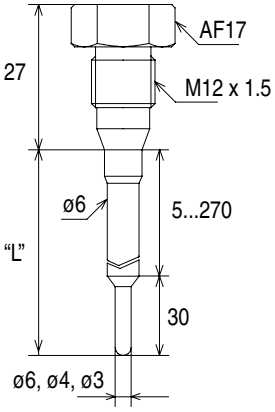
Integrated cooling neck



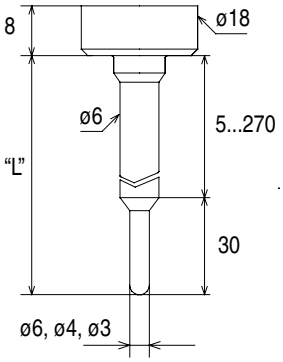
M12 male nipple
with PEEK cone



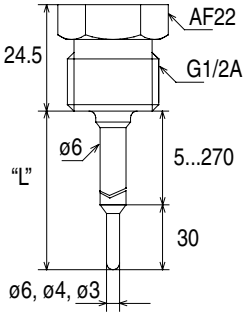
G1/2A male nipple, hygienic
(welding part PM020)



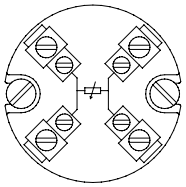
M12 male nipple, hygienic
(welding part PM031)



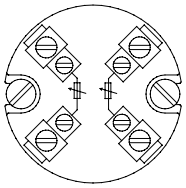
Sensor tube without thread



G1/2A male nipple



Terminal block, ceramic
Single element



Terminal block, ceramic
Duplex element

Notes

{3} Sensor tube length 35...300 mm. Refer to drawings.
{4} Welding part is not included.
{5} A cooling neck is neccessary for an insulated tank or if the ambient temperature at the housing exceeds the max. temperature for head and/or transmitter. Refer to the curve.
{9} Single, 2-wire sensor element only.
{11} Please specify FlexTop transmitter type and configuration.