

# Temperature sensor TA14, Construction type 14, flange sensor, lateral 90° cable outlet



Measuring element/Measuring principle	Pt100/Pt1000 in 2-,3- oder 4-wire type
Temperature range (measuring tip)	Mesasuring tip: -40°C...250 °C Cable outlet: -40°C...120 °C (short time 150°C) Connection cable: -40°C...120 °C (short time 150°C)
Protection class	IP66/IP68
Mounting	Flange mounting
Material	Sensor tube: stainless steel Adapter: Aluminium anodized
Length	Standard: Immersion depth 75mm, 100mm (other lengths on request)



Temperature sensor TA14

## Application range

Temperature sensors of the TA14 series are especially designed for use in Transport technology for temperature measurement in traction motors, gear boxes, wheelset bearings and compressor- and air conditioning systems.

## Measuring principle

Temperature sensors of the TA14 series operate according to the measurement principle / with the measuring element Pt100/Pt1000 in 2-,3- oder 4-wire type.

## Functioning of platinum measuring elements

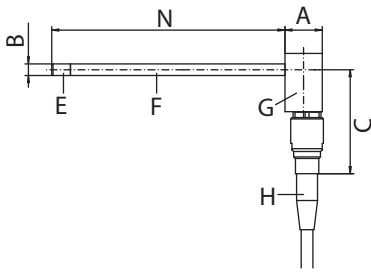
With this measurement principle the temperature-sensitive resistance value of the measuring element is acquired. For platinum measuring elements the electrical resistance increases with increasing temperature and decreases with decreasing temperature (temperature linear). Advantages of platinum measuring elements:

- accurate and reproducible thermoelectric characteristics
- nearly linear temperature characteristic
- easy to replace (no calibration necessary, corresponding to international standards, e. g. IEC 751 / DIN EN 60751)
- measurement is faster and more precise than with thermocouples

## Specific features

- Compact, robust and closed design
- Easy installation via flange mounting
- Available in different immersion depths
- Easy customisable sensor groups and cable assembly, optionally with insulation > 2kVAC
- As 2-, 3- or 4-wire type available
- Maintenance-free
- Weight optimised design; also available with 45° cable outlet (see TA17)

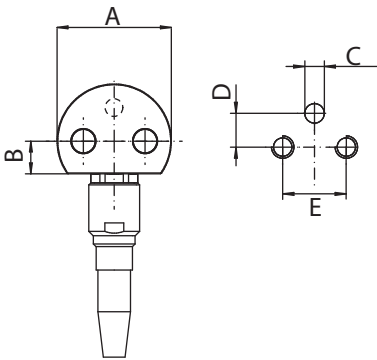
## Dimensions, connections and drawings



### Explanation to the illustration

N: Nominal length 75  $\pm 0.5$  mm  
 (other lengths on request)  
 A: Length 16 mm  
 B: Diameter  $\varnothing 5 \pm 0.5$  mm  
 C: Length 52.5  $\pm 2$  mm (with standard cable)

E: Stainless steel tube  
 F: Measuring tip nickel plated  
 G: Sensor head aluminium anodised  
 H: Bend protection



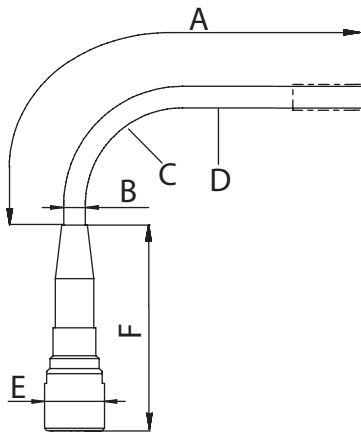
### Explanation to the illustration

A: Diameter  $\varnothing 31.5$  mm  
 B: Length 6 mm

Boreholes top view:  
 C: Diameter  $\varnothing 5.2$  H11 mm  
 D: Length 6 mm  
 E: Length 17  $\pm 0.2$  mm

## Cable and protection hoses

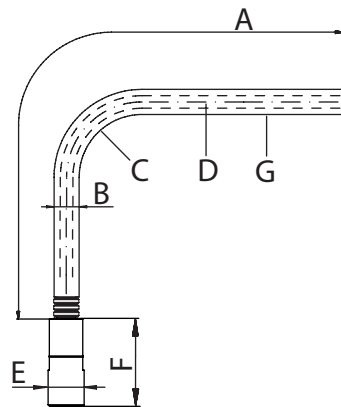
### Cable standard (without protection hose)



### Explanation to the illustration

A: Length (see type code)  
 B: Diameter  $\varnothing 5 \pm 0.5$  mm  
 C: Min. bending radius R25 min.  
 D: Cable halogen-free, 0.33 mm<sup>2</sup> / 0.34 mm<sup>2</sup>  
 E: Diameter  $\varnothing 14$  mm  
 F: Length 26  $\pm 2$  mm

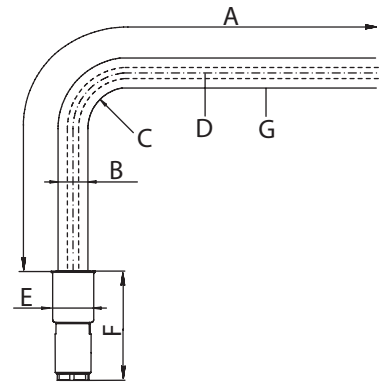
### Cable with polyamide protection hose



### Explanation to the illustration

A: Length (see type code)  
 B: Diameter  $\varnothing 10 \pm 0.5$  mm  
 C: Min. bending radius R25 min.  
 D: Cable halogen-free, 0.33 mm<sup>2</sup> / 0.34 mm<sup>2</sup>  
 E: Diameter  $\varnothing 14$  mm  
 F: Length 36  $\pm 2$  mm  
 G: Protection hose polyamide PMA-PCST

### Cable with special protection hose



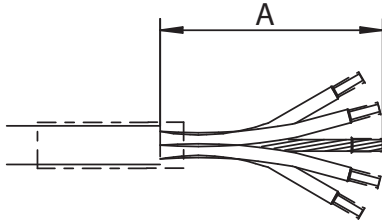
### Explanation to the illustration

A: Length (see type code)  
 B: Diameter  $\varnothing 13.4 \pm 0.7$  mm  
 C: Min. bending radius R40 min.  
 D: Cable halogen-free, 0.33 mm<sup>2</sup> / 0.34 mm<sup>2</sup>  
 E: Diameter  $\varnothing 15$  mm  
 F: Length 33  $\pm 2$  mm  
 G: Protection hose textile-reinforced (Eaton GH585)

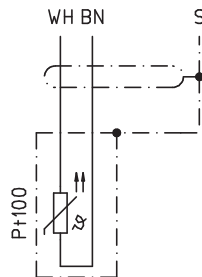
**Connections**

Standard connection is a cable end (see next Fig.). Other customised connections (e. g. plug connectors, terminal box, etc.) are available on request. Also available combined with other sensors in one sensor group (cable harness for temperature and/or speed).

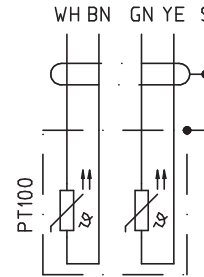
**Cable end**



**2-wire type**



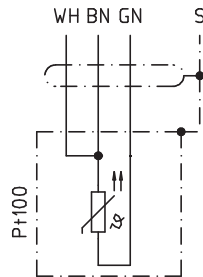
**2 x Pt100 as 2-wire type**



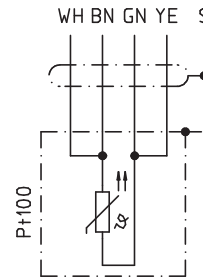
**Explanation to the illustration**

A: wire length 80 ±10 mm

**3-wire type**



**4-wire type**



## Technical Data

Electrical connection	
Measuring current	Recommended 2.5 mA; max. 10mA (note self heating)
Connection	Fixed connection cable, 0.33 mm <sup>2</sup> shielded, halogen-free (other on request)
Recommended cable length	≤ 100 m
Cross section used	Standard: 0.33 mm <sup>2</sup>
Output channels / Sensor elements	1 or 2 (see type code)

Signal acquisition	
Measuring element/Measuring principle	Pt100/Pt1000 in 2-,3- oder 4-wire type
Temperature range (measuring tip)	Measuring tip: -40°C...250 °C Cable outlet: -40°C... 120 °C (short time 150°C) Connection cable: -40°C... 120 °C (short time 150°C)
Accuracy / Tolerance class	DIN EN 60571: class B (other classes on request)
Transmission behaviour	Temperature linear
Response time	In water >0.2 m/s: t 0.5 = 5 s / t 0.9 = 12 s

Environmental influences	
Storage temperature	-40°C... 120 °C
Protection class	IP66/IP68
Vibration resistance	DIN EN 61373: 30 g eff. @ 20 ... 500 Hz (Random)
Shock resistance	DIN EN 61373: 1.000 m/s <sup>2</sup> @ 6 ms
Insulation voltage	500 VAC, 50 Hz @ 1 min
Isolation resistance	>200MΩ @ 500V/DC
Fire protection class	EN45545, DIN5510, NF F 16-101
Approvals / Standards	EN50155, DIN EN 60571

Mechanical quantities	
Material	Measuring tip: Brass nickel-plated Sensor tube: stainless steel Adapter: Aluminium anodized
Mounting	Flange mounting
Length	Standard: Immersion depth 75mm, 100mm (other lengths on request)
Installation position	Any
Weight	Depending on connection: approx. 300 g with 2 m cable (special protection hose) and connector HAN 3 HPR

Other	
Approvals	CE

## Type code

Type code structure										
<b>TA</b>	<b>P</b>	<b>1</b>	<b>14</b>	<b>-14</b>	<b>11</b>	<b>-X</b>	<b>05</b>	<b>-L3</b>	<b>S0</b>	<b>Example: TAP114-1411-X05-L3S0</b>
		Measuring principle / Measuring elements								
		Number of measuring elements								
		Construction type								
		Nominal length N (immersion depth)								
		Sensor tube diameter								
		Electrical connection								
		Cable length								
		Wire type design								
		Shielding								
Type code type TA14										
<b>Measuring principle/ P</b>		Pt100								
<b>Measuring elements PT</b>		Pt1000								
<b>Number of measuring elements</b>	<b>1</b>	One measuring element								
	<b>2</b>	Two measuring elements								
<b>Construction type</b>	<b>14</b>	Flange sensor, lateral 90° cable outlet								
	<b>141</b>	Flange sensor, lateral 90° cable outlet, increased insulation resistance								
<b>Nominal length N (immersion depth)</b>	<b>14</b>	75 mm								
	<b>15</b>	100 mm								
		Customised lengths on request								
<b>Sensor tube diameter</b>	<b>06</b>	Ø 12 mm								
	<b>11</b>	Ø 05 mm								
<b>Electrical Connection</b>		Customised diameters from 4...12 mm on request								
	<b>-X</b>	Standard cable end (without protection hose)								
	<b>-XP</b>	Cable end with polyamide protection hose								
	<b>-XGS</b>	Cable end with special protection hose (steel mesh)								
	<b>-XGT</b>	Cable end with special protection hose (textile-reinforced)								
<b>Sheath length</b>	<b>05</b>	Sheath length 2.0 m, halogen-free								
	<b>07</b>	Sheath length 5.0 m, halogen-free								
	<b>09</b>	Sheath length 10.0 m, halogen-free								
<b>Wire type design</b>	__	Without code means 2-wire								
	<b>L3</b>	3-wire type								
	<b>L4</b>	4-wire type								
<b>Shielding</b>	__	Without code: Shielding is attached to the sensor housing								
	<b>S0</b>	Shielding is not attached to the sensor housing								
<b>TA</b>										<b>Example: TAP114-1406-XGT05</b>