

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: -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 75 mm, 100 mm (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

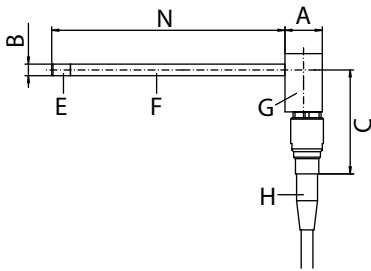
With this measuring principle the temperature-sensitive resistance value of the measuring element is acquired. For platinum measuring elements the electrical resistance increases with increasing temperature and decreases with decreasing temperature (temperature linear). Advantages of platinum measuring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

- 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

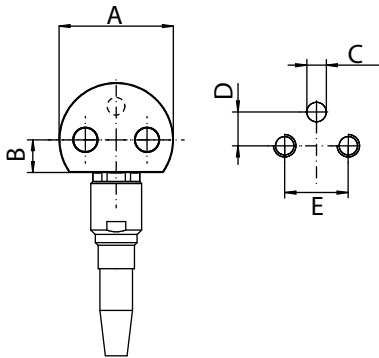
- Compact, robust and closed design
- Easy installation via flange mounting
- Available in different immersion depths
- Easy customisable sensor groups and cable assembly, optionally with insulation > 2kVAC
- As 2-, 3- or 4-wire type available
- Maintenance-free
- Weight optimised design; also available 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: $\varnothing 5_{\pm 0.05}$ mm
 C: Length $52.5_{\pm 2}$ mm (with standard cable)
 E: Measuring tip nickel plated
 F: Stainless steel tube
 G: Sensor head aluminium anodised
 H: Bend protection



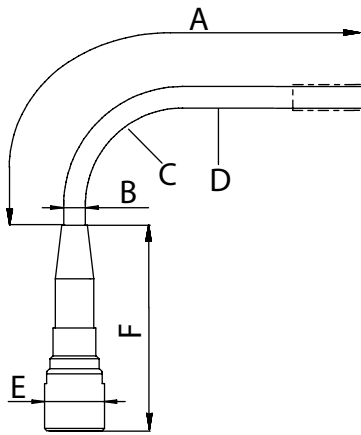
Explanation to the illustration

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

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

Cable and protection hoses

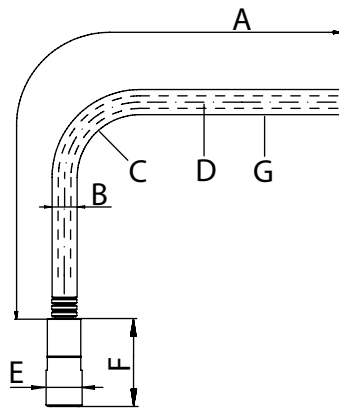
Cable standard (without protective tubing)



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, $0.33 \text{ mm}^2 / 0.34 \text{ mm}^2$
 E: Diameter $\varnothing 14$ mm
 F: Length $26_{\pm 2}$ mm

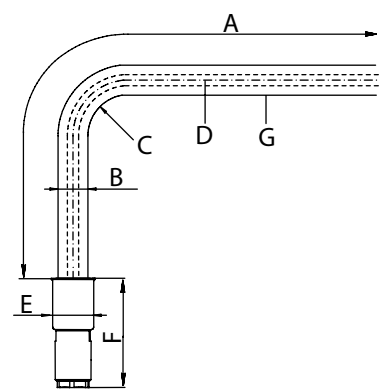
Cable with polyamide protective tubing



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, $0.33 \text{ mm}^2 / 0.34 \text{ mm}^2$
 E: Diameter $\varnothing 14$ mm
 F: Length $36_{\pm 2}$ mm
 G: Protection hose polyamide PMA-PCST

Cable with special protective tubing



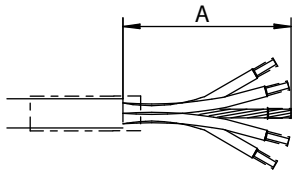
Explanation to the illustration

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

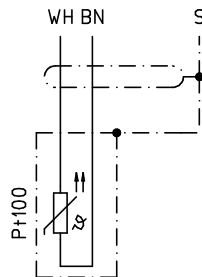
Connections

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).

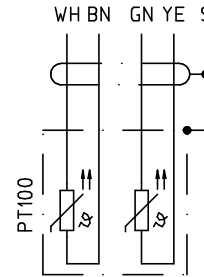
Cable end



2-wire type



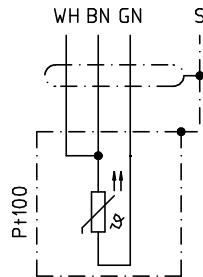
2 x Pt100 as 2-wire type



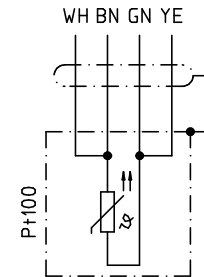
Explanation to the illustration

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 ² shielded, halogen-free (other on request)
Recommended cable length	≤ 100 m
Cross section used	Standard: 0.33 mm ²
Output channels / Sensor elements	1 or 2 (see type code)

Signal acquisition	
Measuring principle	Pt100/Pt1000 in 2-,3- or 4-wire type
Temperature range	Measuring tip: -40°C...250 °C Cable outlet: -40...120 °C (short time 150°C) Connection cable: -40...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...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 ² @ 6 ms
Insulation voltage	500 VAC, 50 Hz @ 1 min
Isolation resistance	>200MΩ @ 500V/DC
Fire protection class	EN45545, DIN5510, NF F 16-101
Applied standards	EN50155, DIN EN 60571

Mechanical quantities	
Material	Measuring tip: Brass nickel-plated Sensor tube: stainless steel Adapter: Aluminium anodized
Mounting	Flange mounting
Immersion depth	75 mm, 100 mm (other lengths on request)
Installation position	Any (note possible liquid inlet)
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										
TA	P	1	14	-14	11	-X	05	-L3	S0	Example: TAP114-1411-X05-L3S0
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										
Measuring principle/ P	P	Pt100								
	PT	Pt1000								
Number of measuring elements	1	One measuring element								
	2	Two measuring elements								
Construction type	14	Flange sensor, lateral 90° cable outlet								
	141	Flange sensor, lateral 90° cable outlet, increased insulation resistance								
Nominal length N (immersion depth)	14	75 mm								
	15	100 mm								
		Customised lengths on request								
Sensor tube diameter	06	Ø 12 mm								
	11	Ø 05 mm								
Electrical Connection		Customised diameters from 4... 12 mm on request								
	-X	Standard cable end (without protection hose)								
	-XP	Cable end with polyamide protection hose								
	-XGS	Cable end with special protection hose (steel mesh)								
	-XGT	Cable end with special protection hose (textile-reinforced)								
Sheath length	05	Sheath length 2.0 m, halogen-free								
	07	Sheath length 5.0 m, halogen-free								
	09	Sheath length 10.0 m, halogen-free								
Wire type design		Without code means 2-wire								
	L3	3-wire type								
	L4	4-wire type								
Shielding		Without code: Shielding is attached to the sensor housing								
	S0	Shielding is not attached to the sensor housing								
TA										Example: TAP114-1406-XGT05