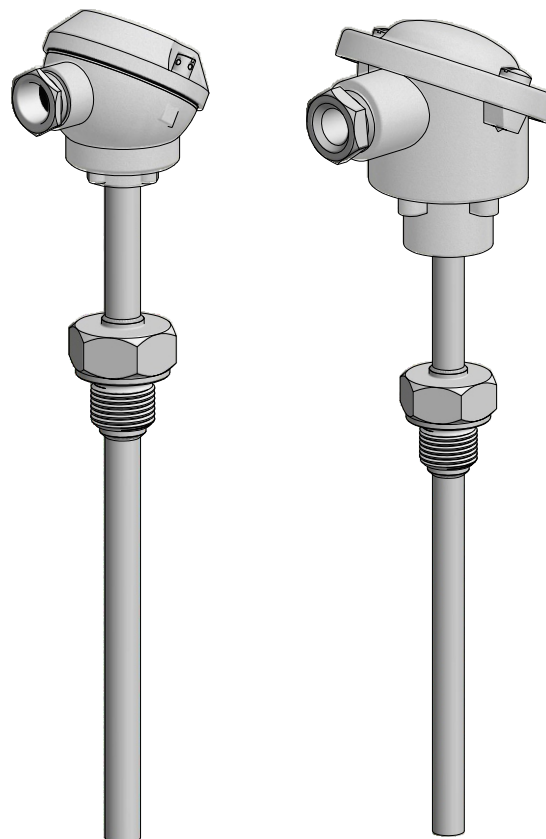


## Applications

- Measuring range: -50 .. +400°C
- Fine chemical industry
- General industrial services
- Light energy industry

## Features

- Single RTD
- Protection tube diameter:  $\varnothing 6 \div \varnothing 12$  mm
- Standard thermowell material: stainless steel 1H18N9T ( 1.4541 / AISI321 )\*
- Non-exchangeable measuring insert
- Temperature transmitter can be installed inside connection head of sensor (connection head type B, NA, DAN, BEG)
- Connection head with local LED display as an option (see model DANWdie-LED)



Sensor with connection head type MA

Sensor with connection head type B

The sensor consists of non-exchangeable measuring insert, outer protective tube with threaded process connection (thermowell) and aluminum connection head where mounting a temperature transmitter with 4-20 mA signal is possible (connection head type B, NA, DAN, BEG).

Miniature connection head type MA reduces a size of complete sensor construction to make possible installation in confined areas.

Insertion length, process connection, design of thermowell, connection head as well as type and number of sensors, accuracy can be selected individually for the respective application.

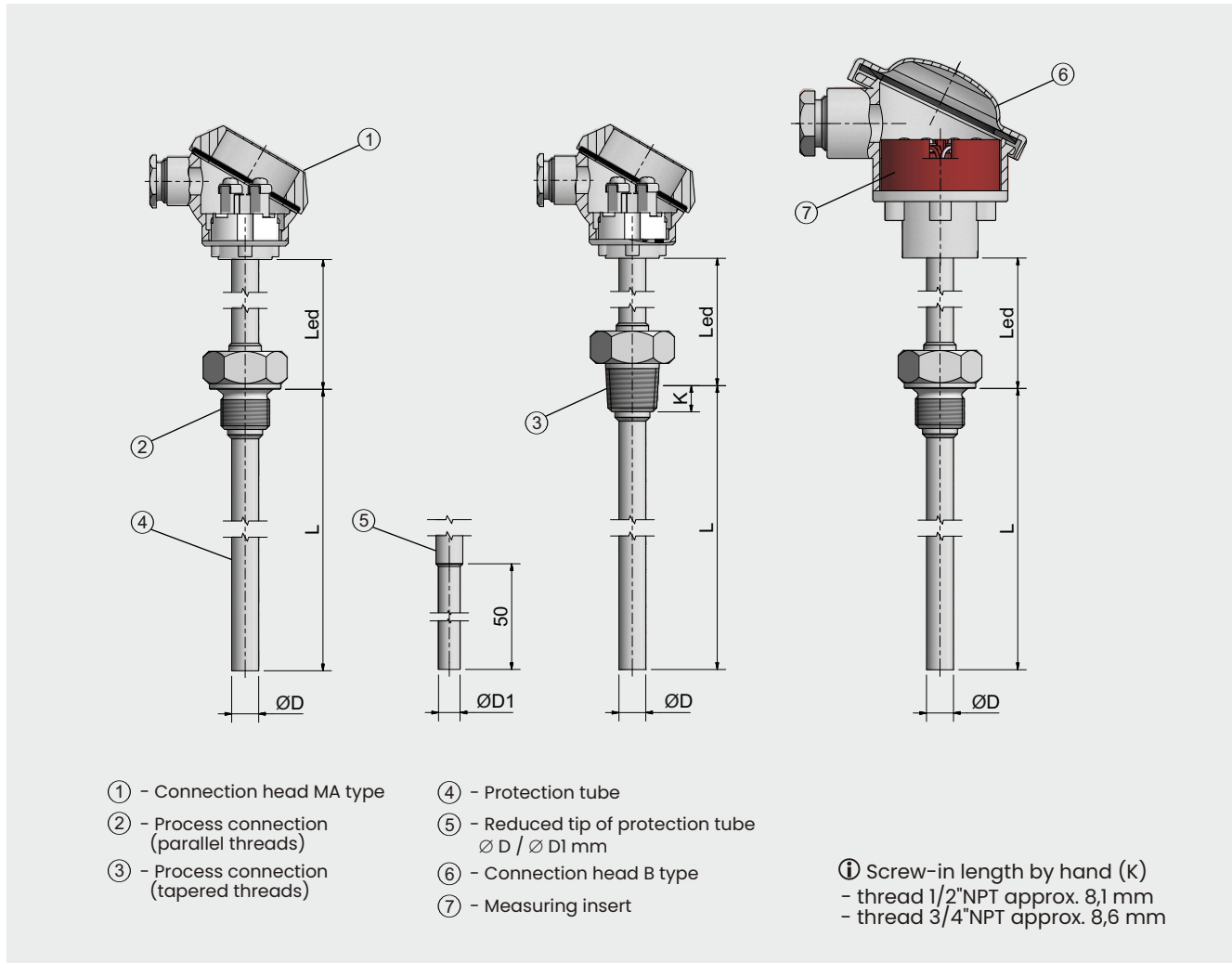
## Other versions

This data sheet contains only small part of our supplies program of resistance thermometers with non-exchangeable measuring insert.

Upon the customer's request, other versions can also be delivered.

\* other materials, see: "Thermowell materials"

## Designs



## Connection line

Protection tube [mm]	Connection line		
	1 x Pt100		
	2 - wire	3 - wire	4 - wire
Ø6 Ø8 Ø9 Ø10 Ø12	✓	✓	✓

## Tolerance class

Platinum Class A ( $\pm 0.15^\circ\text{C}$  in temp.  $0^\circ\text{C}$ )  
Class B ( $\pm 0.30^\circ\text{C}$  in temp.  $0^\circ\text{C}$ )

PN-EN 60751 standards defines the formulas for calculating acceptable measure tolerance.

Class of tolerance	Tolerance $^\circ\text{C}$
A	$\pm 0.15 + (0.002 \times  t )$
B	$\pm 0.30 + (0.005 \times  t )$

## Measuring range

From  $-50^\circ\text{C}$  to  $+400^\circ\text{C}$

## Max pressure (at $100^\circ\text{C}$ )

Admissible pressure of application for max. speed of flow of steam 25 m/s and water 3 m/s. Thermowell standard diameter  $\varnothing 9$  mm.

Length L	Max. pressure of application
160 mm	6.4 MPa
250 mm	4.9 MPa
< 400 mm	2.0 MPa

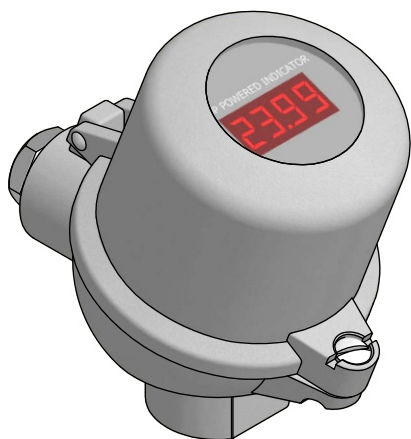
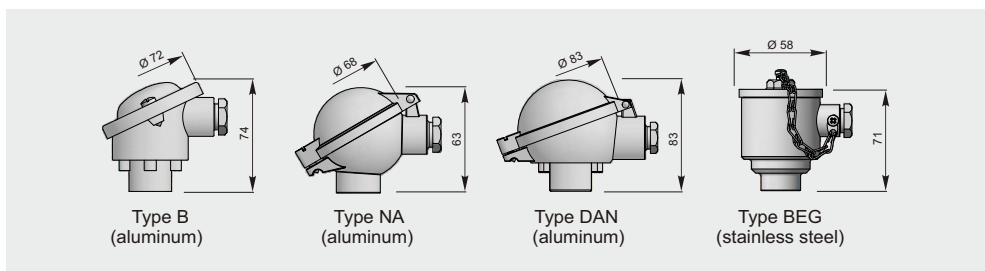
### Response time

Average response time at mixed water 0.4 m/s (acc. to DIN EN 60751), at temperature change from 23 to 33°C.

Diameter of protection tube	Response time
Ø6 mm	$t_{50} = 12 \text{ s}$
	$t_{90} = 55 \text{ s}$
Ø8 mm	$t_{50} = 20 \text{ s}$
	$t_{90} = 85 \text{ s}$
Ø10 mm	$t_{50} = 35 \text{ s}$
	$t_{90} = 100 \text{ s}$

### Connection heads

This sensor can be fitted with one of the following connection heads. For more information about the connection heads see section "Accessories".



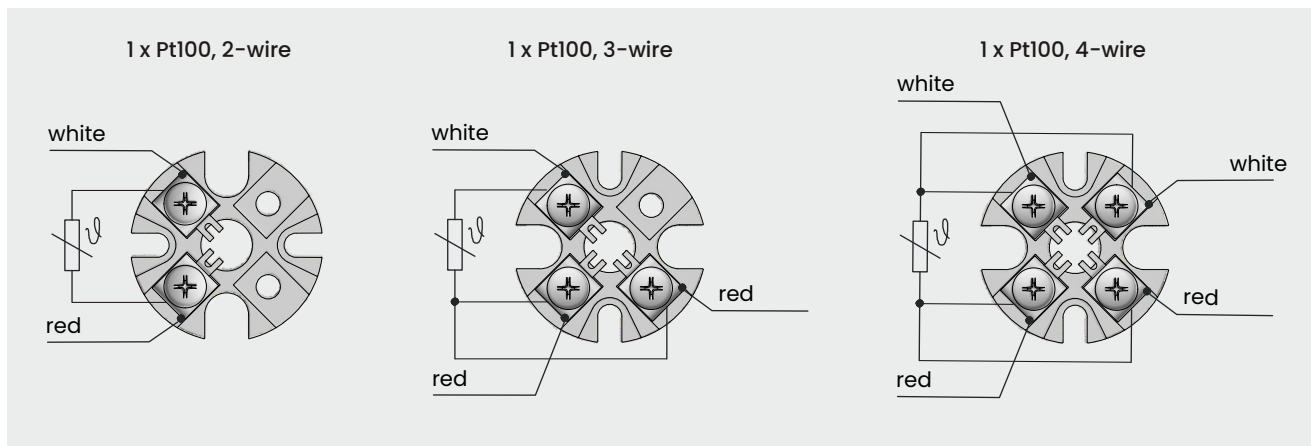
### Connection head DANWdie with local LED display

The display is mounted in connection head cover with glass window which allows preview of measuring temperature. 4 digits with a height of 9.5 millimeter ensure clear reading of values.

Programming of measure range can be performed via three buttons placed on the back of display panel.

Mounted temperature transmitter 4..20mA on measuring insert is necessary for proper use. It also works with temperature transmitters with HART® protocol.

### Electrical connection on Ceramic Block (Ceramic block of connection head type MA)



## Ordering code

1                    2                    3                    4                    5                    6                    7                    8                    9                    10  
 TOPGN-55 -  -  -  -  -  -  -  -  -  -

1	<input type="text"/>	<b>Resistance element</b>			
			1 x Pt100		
		AP	1 x Pt100, with installed transmitter 4..20 mA*		
		APW	1 x Pt100, with installed transmitter 4..20 mA and local LED display**		
* available only with connection head B, NA, DAN, BEG ** available only with connection head DANWdie					
2	<input type="text"/>	<b>Connection head</b>			
		MA	Type MA	Aluminum	Cable gland: M16x1.5 IP54
		B	Type B	Aluminum	Cable gland: M20x1.5 IP65
		NA	Type NA	Aluminum	Cable gland: M20x1.5 IP65
		DAN	Type DAN	Aluminum	Cable gland: M20x1.5 IP65
		BEG	Type BEG	Stainless steel	Cable gland: M20x1.5 IP65
		DANWdie	Type DANWdie	Aluminum	Cable gland: M20x1.5 IP65
3	<input type="text"/>	<b>Length L</b>			
		100	100 mm		
		150	150 mm		
		200	200 mm		
		xxx	other, please specify		
4	<input type="text"/>	<b>Length of neck Led</b>			
		100	neck length Led = 100 mm		
		150	neck length Led = 150 mm		
		200	neck length Led = 200 mm		
5	<input type="text"/>	<b>Protection tube diameter ØD</b>			
		6	Ø6 mm		
		9	Ø9 mm		
		9/6	Ø9 mm with reduced tip Ø6 mm		
		xxx	other, please specify		
6	<input type="text"/>	<b>Process connection</b>			
		M18x1.5	M18x1.5		
		M20x1.5	M20x1.5		
		G1/2"	G1/2"		
		xxx	other, please specify		
7	<input type="text"/>	<b>Tolerance</b>			
		A	Class A acc. to PN-EN 60751 / IEC 751 (available only for platinum sensing element)		
		B	Class B acc. to PN-EN 60751 / IEC 751 / DIN43760 / GOST 6651-94		
		1/3B	Class 1/3B DIN		
8	<input type="text"/>	<b>Connection line</b>			
		2	2-wire (available only in B tolerance class)		
		3	3-wire		
		4	4-wire		
9	<input type="text"/>	<b>Measuring range of temperature transmitter</b>			
		0..100	input signal for 4..20mA: 0..100°C		
		xxx	other, please specify		
10	<input type="text"/>	<b>Type of temperature transmitter</b>			
		PR5333A	Output signal 4..20 mA		
		PR5335A	Output signal 4..20 mA, with HART® communication protocol		
		PR5350A	Output signal Profibus® PA / Foundation Fieldbus		
		xxx	other, please specify		

## Example

TOPGN55-MA-100-150-8-M20x1.5-A-3

Sensor 1xPt100, connection head type MA, thermowell length L=100mm, length of neck Led=150mm, protection tube diameter Ø8 mm, threaded process connection M20x1.5, thermowell made out of stainless steel 1.4541, tolerance A, connection line 3-wire

APTOPGN55-B-150-100-12/10-G1/2"-B-2-(0..+100)°C-PR5333A

Sensor 1xPt100, connection head type B, thermowell length L=150mm, length of neck Led=100mm, protection tube diameter Ø12 mm with reduced tip Ø10 mm on length of 50mm, threaded process connection G1/2", thermowell made out of stainless steel 1.4541, tolerance B, connection line 2-wire, output signal 4..20mA: 0..100°C, temperature transmitter PR5333A