

Resistance Thermometers for the Installation into Thermowells

With neck tube, replaceable measuring insert

TPtHrA
TPtHrAT

Application

The resistance thermometer models TPtHrA and TPtHrAT are designed for the installation into solid drilled or fabricated thermometer thermowells (e.g. according to DIN 43 772). Without thermowell, this version must not be applied in pressurised media.

For both models, we offer various connection heads and measuring resistors according to DIN EN 60 751. In addition, model TPtHrAT is available with several fitted transmitters with analogue or digital output.

Standard Versions

Measuring Element

Platinum thin-film measuring resistor Pt100 according to DIN EN 60 751 in 2-, 3- or 4-wire connection as single or dual measuring resistor

Operating Temperature Range¹⁾

-200 °C to +600 °C (-328 °F to +1112 °F)

Ambient Temperature Ranges²⁾

Model TPtHrA: -40 °C to +100 °C (-40 °F to +212 °F)

Model TPtHrAT: -40 °C to +85 °C (-40 °F to +185 °F)

Accuracy

Class AA, A or B according to DIN EN 60 751

Measuring Insert

According to DIN 43 735

Spring-loaded in the connection head

Spring travel approximately 7 mm (0.28")

Insertion tube made of sheathed, mineral insulated cable

Sheath Material

Material: stainless steel 316L (1.4404)

Insulation: MgO

Measuring Insert Diameter

dF: $3^{+0.05}$ or $6^{+0.06}$ mm ($0.12^{+0.002}$ or $0.24^{+0.0024}$ ")

Neck Tube

Material: stainless steel 316Ti (1.4571)

Standard length h: 120 mm (4.7")

Process Connection

Various thread spigots (E4.1) or union nuts (E3)

Connection Heads

Types B, BUZ, BUZ-H, BUZ-H-W, BEG, NS or GG

Degree of Protection (DIN EN 60 529)

IP65 (when mounted in a thermowell)

Output Signal

Model TPtHrA: resistance according to DIN EN 60 751

Model TPtHrAT: 4...20 mA, HART® or PROFIBUS® PA/
FOUNDATION™ Fieldbus



Ordering Information

See page 4

Special Versions (Upon Request)

- Measuring insert diameter 4,5 or 8 mm (0.18 or 0.31")
- Other basic values (e.g. Pt500, Pt1000) and limited tolerances (e.g. 1/2 cl. B, 1/2 cl. B)
- Measuring resistor wire-wound in ceramic -200 °C to +800 °C (-328 °F to +1472 °F)
- Special sheath materials
- Other head-mount transmitters, also with voltage output
- Version for the subsequent mounting of transmitters
- Other connection heads
- Higher degree of protection up to IP68
- Other connection threads

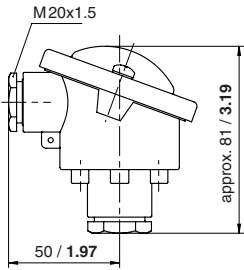
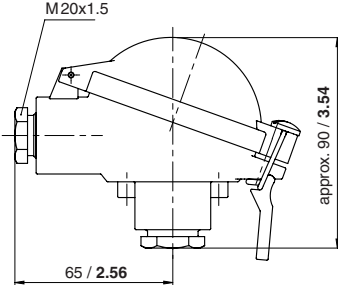
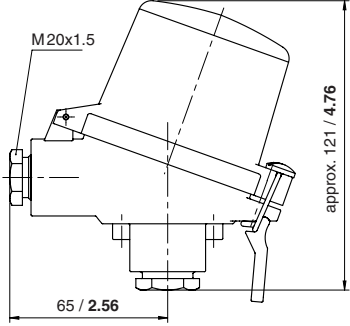
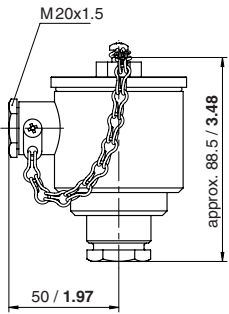
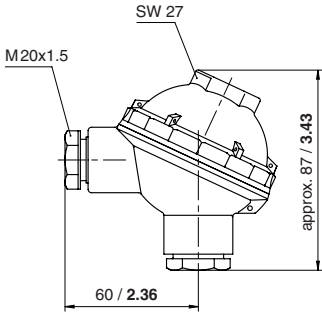
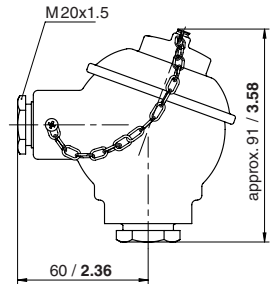
Accessories

- Thermowells, see data sheets 8.8110 ff.
- Transmitters for rail mounting
- Digital displays for switch panel mounting or wall mounting
- Connection cables
- For models with thermowell form 2, 2G and 2F according to DIN 43 772 see data sheet 8531

¹⁾ for accuracy class AA, the operating temperature range is reduced to -70 °C to +550 °C (-94 °F to +1022 °F)

²⁾ permissible operating and storage temperature at the connection head

Connection Heads, Dimensional Data (mm/inches)

Connection Heads			
	Head B	Head BUZ	Head BUZ-H ¹⁾ , BUZ-H-W
Material:	die-cast aluminum	die-cast aluminum	die-cast aluminum
Lid:	flanged lid with screws	hinged lid	BUZ-H: high lid, hinged BUZ-H-W: high lid with LED display
Degree of protection:	IP65	IP65	IP65
No. of transmitters:	1	1	2
Max. installation dimensions:	Ø 44 x 21 mm (1.73 x 0.82")	Ø 45 x 40 mm (1.77 x 1.57")	lid Ø 60 x 40 mm (2.36 x 1.57") base Ø 45 x 16 mm (1.77 x 0.63")
			
	Head BEG	Head NS	Head GG
Material:	stainless steel 1.4401	plastic polyphenylene oxide	grey cast iron
Lid:	screw-on lid	screw-on lid	screw-on lid
Degree of protection:	IP65	IP65	IP65
No. of transmitters:	1	1	1
Max. installation dimensions:	Ø 45 x 20 mm (1.77 x 0.79")	Ø 42 x 14 mm (1.65 x 0.55")	Ø 42 x 20 mm (1.65 x 0.79")
			

¹⁾ For connection head BUZ-H, the transmitter is fitted in the lid and the measuring insert is assembled with ceramic terminal block. Moreover, the head BUZ-H offers the possibility of installing two transmitters.

Process Connections, Dimensional Data (mm/inches)

Dimensional Data

Process connections: Thread spigot (E4.1)

Measuring insert \varnothing dF: 3 or 6 mm (0.12 or 0.24")

Installation length L: 30 – 2000 mm (1.18 – 78.74")¹⁾

Neck tube length h: 120 mm (4.72")²⁾

Measuring insert length: L + h + 35 mm (1.38")³⁾

Connection thread:

G	SW	i	d6
G ½B (½" BSP)	27 1.06	14 0.55	12 0.47
M14x1.5	19 0.75	12 0.47	12 0.47
M18x1.5	24 0.94	14 0.55	12 0.47
M20x1.5	27 1.06	14 0.55	12 0.47

Union nut (E3)

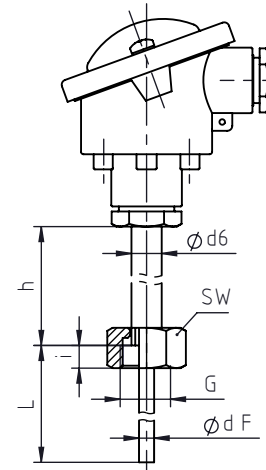
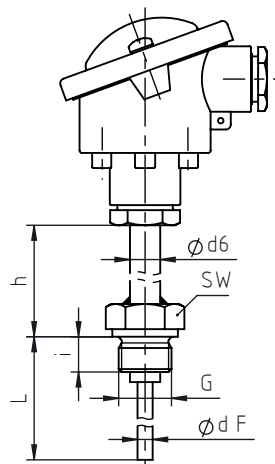
3 or 6 mm (0.12 or 0.24")

30 – 2000 mm (1.18 – 78.74")¹⁾

120 mm (4.72")²⁾

L + h + 35 mm (1.38")³⁾

G	SW	i	d6
G ½B (½" BSP)	27 1.06	10 0.39	12 0.47
G ¾B (¾" BSP)	32 1.26	12 0.47	12 0.47
M18x1.5	27 1.06	10 0.39	12 0.47
M20x1.5	32 1.26	12 0.47	12 0.47
M27x2	32 1.26	12 0.47	12 0.47



Process connection: Thread spigot conical (E4.1)

Measuring insert \varnothing dF: 3 or 6 mm (0.12 or 0.24")

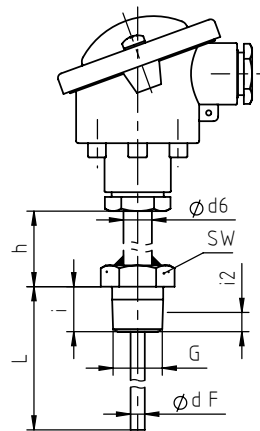
Installation length L: 30 – 2000 mm (1.18 – 78.74")¹⁾

Neck tube length h: 120 mm (4.72")²⁾

Measuring insert length: L + h + 35 mm (1.38")⁴⁾

Connection thread:

G	SW	i	d6	i2
½" NPT	27 1.06	19 0.75	12 0.47	8.13 0.32



¹⁾ For lengths exceeding 2000 mm, the measuring insert is supplied as coil.

²⁾ Other lengths are available upon request. The minimum length is 20 mm.

³⁾ The measuring insert length should be selected according to DIN 43 735 so that the installation dimension (L) is 3 ± 1 mm longer than the drilling depth of the thermowell.

⁴⁾ The measuring insert length should be selected according to DIN 43 735 so that the installation dimension (L - i + i2) is 3 ± 1 mm longer than the drilling depth of the thermowell. Please also note our technical information sheet T08-000-032.

Ordering Information

Basic Model:	Resistance Thermometer for the Installation into Thermowells	TPtHrA
Transmitter:	without with fitted transmitter	without code letter T
Measuring resistor:	Pt100 DIN EN 60 751, class AA Pt100 DIN EN 60 751, class A Pt100 DIN EN 60 751, class B	AA A B
No. of measuring resistors:	1 2 ¹⁾	1 2
Connection method:	2-wire connection ²⁾ 3-wire connection 4-wire connection ¹⁾	2L 3L 4L
Measuring insert Ø dF:	3 mm (0.12") 6 mm (0.24")	dF = 3 mm dF = 6 mm
Connection head:	type B, aluminum, with screws type BUZ, aluminum, hinged lid type BUZ-H, aluminum, high lid type BUZ-H-W, aluminum, high lid with LED display type BEG, stainless steel, screw-on lid type NS, polyphenylene oxide, screw-on lid type GG, grey cast iron, screw-on lid	B BUZ BUZ-H BUZ-H-W BEG NS GG
Process connection:	thread spigot union nut	E4.1 E3
Connection thread:	see page 3	e.g. G ½ B
Installation length:	L in mm	e.g. L = 100 mm
With fitted transmitter:	TT5331: 4...20 mA TT5333: 4...20 mA ³⁾ TT5337: 4...20 mA + HART 7 TT5350: PROFIBUS® PA/FOUNDATION™ Fieldbus	5331-A, 5331-D 5333-A, 5333-D 5337-A, 5337-D 5350-A, 5350-B
Measuring range:	scaling of the 4...20 mA signal to the temperature range	e.g. 0 °C to +250 °C
Options:	crimped-on tube sleeve 50 mm Ø 8 mm (0.31") (1.97") for alignment to the internal thermowell diameter neck tube length h other lengths, min. 20 mm (0.79") instrument tag stainless steel plate 12 x 55 mm (0.47 x 2.17") sticker on the case	

Example: TPtHrAT, B, 1, 3L, dF = 6 mm, BUZ, E4.1, G ½ B, L = 500 mm, 5333-A, 0 °C to +250 °C

Special Versions: Please describe your requirements in cleartext!

¹⁾ For the dual measuring resistor, a 4-wire connection is not applicable.

²⁾ Only applicable for accuracy class B.

³⁾ Only 3-wire connection applicable.