

Thermocouples for Tube Surface Measurement

TTeO
TTeOT

Application

The thermocouple models TTeO and TTeOT are equipped with a stainless steel support prism for mounting to pipelines for surface temperature measurement. There is no replaceable measuring insert available for this construction type.

For both models, we offer various connection heads and thermocouple materials according to DIN EN 60 584. In addition, model TTeOT is available with several fitted transmitters with analogue or digital output.

Standard Versions

Measuring Element

Thermocouple types K, N, J and S according to DIN EN 60 584 as single or dual element

Operating Temperature Ranges

Type K (NiCr-Ni): -40 °C to +1175 °C (-40 °F to +2147 °F)¹⁾
Type N (NiCrSi-NiSi): -40 °C to +1175 °C (-40 °F to +2147 °F)¹⁾
Type J (Fe-CuNi): -40 °C to +750 °C (-40 °F to +1382 °F)
Type S (Pt10Rh-Pt): 0 °C to +1175 °C (+32 °F to +2147 °F)¹⁾

Ambient Temperature Ranges²⁾

Model TTeO: -40 °C to +100 °C (-40 °F to +212 °F)
Model TTeOT: -40 °C to +85 °C (-40 °F to +185 °F)

Accuracy

Class 1 according to DIN EN 60 584

Tolerance value³⁾ J, K, N: +1.5 °C or 0.004 · |t|

for type J in the range: -40 °C to +750 °C (-40 °F to +1382 °F)

for type K, N in the range: -40 °C to +1000 °C (-40 °F to +1832 °F)

Tolerance value³⁾ S: +1.0 °C or (1+(t-1100)·0.003) °C

in the entire operating temperature range

Temperature Sensor

Made of sheathed, mineral insulated cable

For fixation on tube surfaces via stainless steel tightening strap

For a precise measurement, the temperature sensor should be enclosed by the insulating material

Sheath material: Inconel 600 (2.4816) for type K, N, S
1.4401 for type J

Insulation: MgO

Connection Heads

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

Degree of Protection (DIN EN 60 529)

IP65 (connection head)⁴⁾

Output Signal

Model TTeO: thermoelectric voltage according to
DIN EN 60 584

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



Ordering Information

See page 3

Special Versions (Upon Request)

- Other thermocouples
- 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

Accessories

- Transmitters for rail mounting
- Digital displays for switch panel mounting or wall mounting
- Compensating cables and extension cables

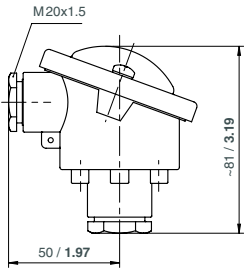
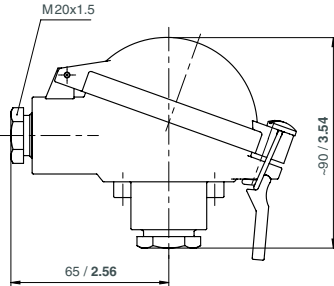
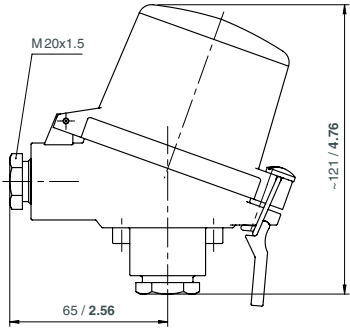
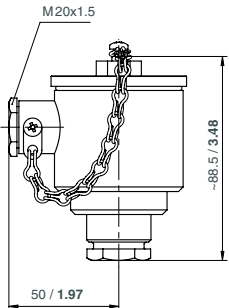
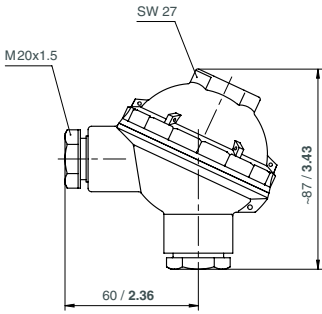
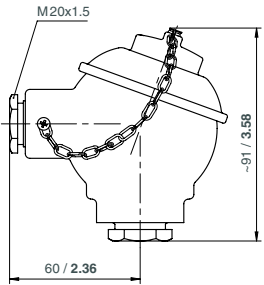
¹⁾ application range limited due to the sheath material Inconel 600

²⁾ permissible operating and storage temperature at the connection head

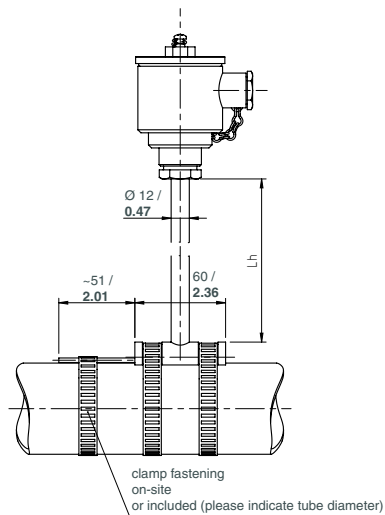
³⁾ whichever value is higher

⁴⁾ The degree of protection at the temperature sensor depends on its installation beneath the tube insulation.

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")
			

Dimensional Data



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.

Ordering Information

Basic Model:		Thermocouple for Tube Surface Measurement	TTeO
Transmitter:	without		without code letter
	with fitted transmitter		T
Thermocouple:	type K, NiCr-Ni		K
	type N, NiCrSi-NiSi		N
	type J, Fe-CuNi		J
	type S, Pt10Rh-Pt		S
No. of thermocouples:	1		1
	2		2
Connection head:	type B, aluminum, with screws		B
	type BUZ, aluminum, hinged lid		BUZ
	type BUZ-H, aluminum, high lid		BUZ-H
	type BUZ-H-W, aluminum, high lid with LED display		BUZ-H-W
	type BEG, stainless steel, screw-on lid		BEG
	type NS, polyphenylene oxide, screw-on lid		NS
	type GG, grey cast iron, screw-on lid		GG
Neck tube:	Lh = 120 mm, other lengths upon request		Lh = 120 mm
Version:	with tightening strap		MS
	tightening strap provided by the customer		SB
Tightening strap length:	in mm	e.g.	500 mm
With fitted transmitter:	TT5334: 4...20 mA		5334-A, 5334-B
	TT5337: 4...20 mA + HART 7		5337-A, 5337-D
	TT5350: PROFIBUS® PA/FOUNDATION™ Fieldbus		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:	instrument tag	stainless steel plate 12 x 55 mm (0.47 x 2.17")	
		sticker on the case	

Example: TTeOT, K, 1, B, Lh = 120 mm, MS, 500 mm, 5334-A, 0 °C to +250 °C

Special Versions: Please describe your requirements in cleartext!