



AP 108

Temperature sensor suitable for measurement of pipes and shafts. Rigid (pipe) sheath is joined to radiator enhancing the area of heat reception. Sensor has a band clamp that enables permanent radiator installation on pipe or shaft. Temperature sensor has ATEX approval for application in hazardous area:

II 2G Ex ia IIC T6
II 2D Ex ia IIIC T85°C

Specification

Temperature range / sensing element

-40÷400°C **Pt100** class B

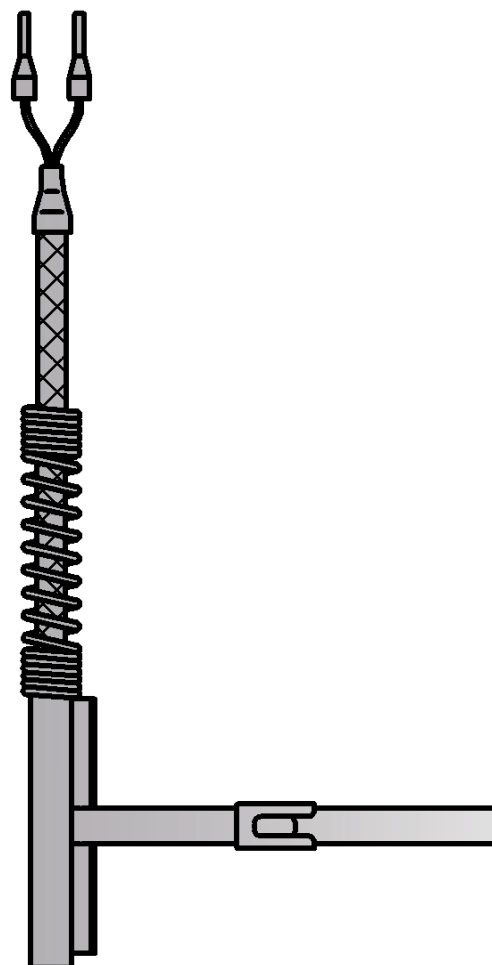
Sheath

- material brass, length L[mm]: 48
- radiator enhancing surface of heat reception
- band clamp for mounting on a pipeline DN 15÷200mm

Lead wire

- Ws: stranded wire 0,22mm² with fiberglass insulation, metal overbraid
- Si: stranded wire 0,22mm² with silicone insulation
- lead wire length L_p 1,5m (standard)
- Cu wire resistance ~0,14 Ω/m = ~0,36°C

Other parameters acc. to requirements

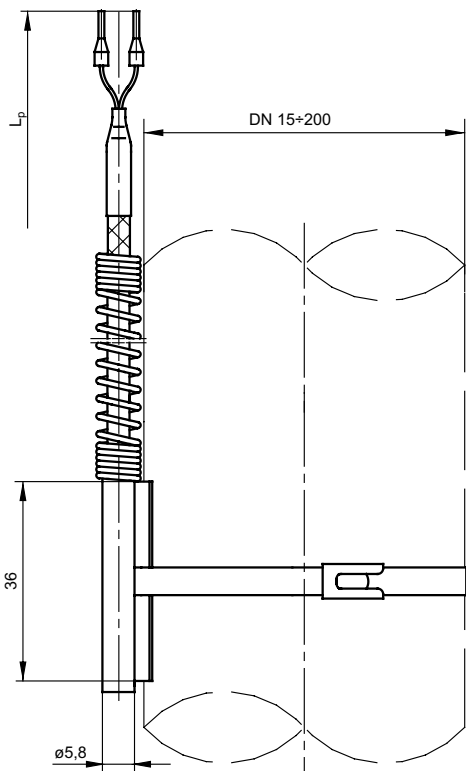


Options

Non-standard design

Lead wire length can be customized per client request.

Calibrations performed by Limatherm Sensor Sp. z o.o. are confirmed with the Calibration Certificate of the Accredited Laboratory for Temperature Measurements.



Compensation / thermocouple wire insulations

Insulation material	Operating temperature range [°C]	Properties
PCW (PCV)	-10÷105	Applied in mild environmental conditions. Waterproof and flexible.
Yc- polyvinyl chloride	-10÷105	Applied in mild environmental conditions. Waterproof and flexible.
FEP-teflon	-50÷200	Resistant to oils, acids and other aggressive liquids. Good flexibility.
Si-silicone	-50÷180	Waterproof, flexible. Applied in high humidity conditions.
Ws-fiberglass	-60÷400	Good resistance to high temperature Low resistance to liquid penetration.

Notes: Additionally, copper or steel braids/shields are used on wires to prevent electrical noises, Increasing, at the same time, wire insulation resistance to mechanical damages. In case of longer wire lengths grounding may be needed to minimize the noise in measurement circuit

Tolerance for classes of sensors with resistors Pt acc. to PN-EN 60751

Sensor classes	Range of application [°C]	Formula for calculating acceptable deviations [°C]
AA	-50÷250	$T = \pm(0,10 + 0,0017 t)$
A	-100÷450	$T = \pm(0,15 + 0,002 t)$
B	-196÷600	$T = \pm(0,3 + 0,005 t)$

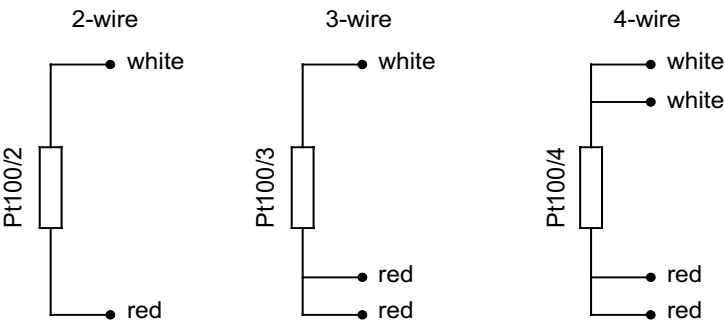
|t|- absolute value of temperature

Measurement circuit

1 x Pt100			2 x Pt100			1 x TC	2 x TC
2-wire	3-wire	4-wire	2-wire	3-wire	4-wire	2-wire	2-wire
✓	✓	✓	✓	✓	x	x	x

Connection schemes

Pt100 (thermometric resistor)



Cable types and colours acc. to the norm

EU	D	GB	F	USA
Thermocouple J type				
Thermocouple K type				

Product code

1	<input type="text"/>	Insulation type	
		Ws	fiberglass
		Si	silicone
2	<input type="text"/>	other parameters acc. to requirements	
		Resistor type	
		Pt500	Pt500
3	<input type="text"/>	other parameters acc. to requirements	
		Accuracy	
		A or B	for resistor Pt
4	<input type="text"/>	Measurement circuit	
		2	2 - wire
		3	3 - wire
		4	4 - wire
5	<input type="text"/>	Lead wire length	
		1,5	1,5m
		other parameters acc. to requirements	

TOPE-244Exi

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1

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2

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3

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4

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5

Ordering example: **TOPE-244Exi-Ws-Pt100-B-3-1,5m** single RTD sensor with Pt100, class B, 3-wire connection, with band clamp for mounting on a pipe DN 15÷200, fiberglass insulated lead wire length Lp=1,5m