



AP 108

Temperature sensor suitable for pipelines, pressure tanks and other devices used in food and pharmaceutical industry. This stainless steel sensor has National Institute of Hygiene (PZH) attestation.

### Specification

#### Temperature range / sensing element

-200+400°C	<b>Pt100</b>	class B
-40+400°C	<b>J, K</b>	class 2

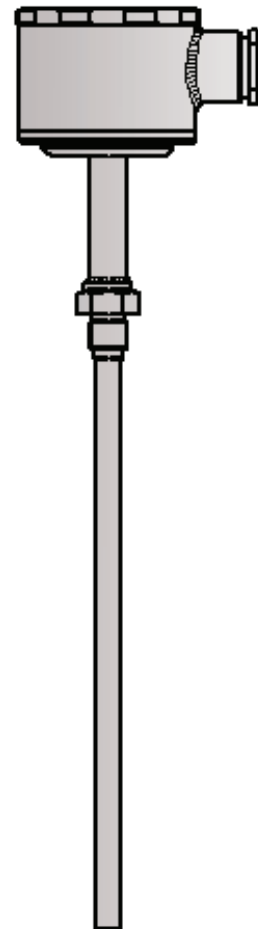
#### Thermowell

- material: steel 1.4541
- length L [mm]: 30÷1000
- threaded connector

#### Connection head

- BEG– material 1.4541, IP65 -40÷100°C

Other parameters acc. to requirements



### Options

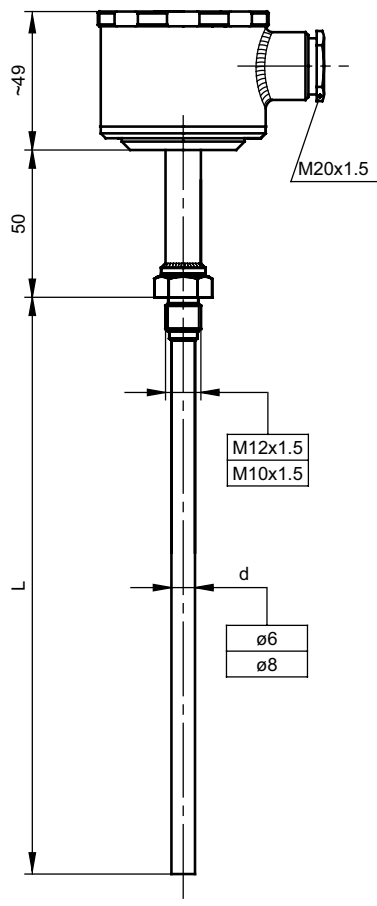
#### Temperature transmitter application

Temperature transmitter with standard 4÷20mA, 0÷10V output signals and with the HART or PROFIBUS communication protocols can be mounted in the connection head. Transmitter installation is carried out in place of a terminal block.

#### Non-standard design

Immersion length, process connection thread, shape and material of the thermowell and other parameters 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.**



### Standard length

Immersion length L [mm]
100
150
250
400

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

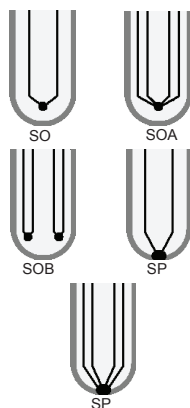
Sensor classes	Range of application [°C]	Formula for calculating acceptable deviations [°C]
AA	-50+250	$T = \pm(0,10 + 0,0017  t )$
A	-100+450	$T = \pm(0,15 + 0,002  t )$
B	-196+600	$T = \pm(0,3 + 0,005  t )$

|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	✓	✓

### Thermocouple hot junction types



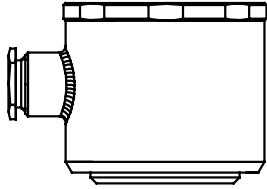
### Tolerance for thermocouple classes acc. to PN-EN 60584

Thermocouple type	Class 1		Class 2	
	Range of application [°C]	Tolerance [°C]	Range of application [°C]	Tolerance [°C]
<b>J</b> Fe-CuNi	from -40 to +375 from +375 to +750	±1,5 ±0,004  t	from -40 to +333 from +333 to +750	±2,5 ±0,0075  t
<b>K</b> NiCr-NiAl	from -40 to +375 from +375 to +1000	±1,5 ±0,004  t	from -40 to +333 from +333 to +1200	±2,5 ±0,0075  t

|t|- absolute value of temperature

### Connection head types

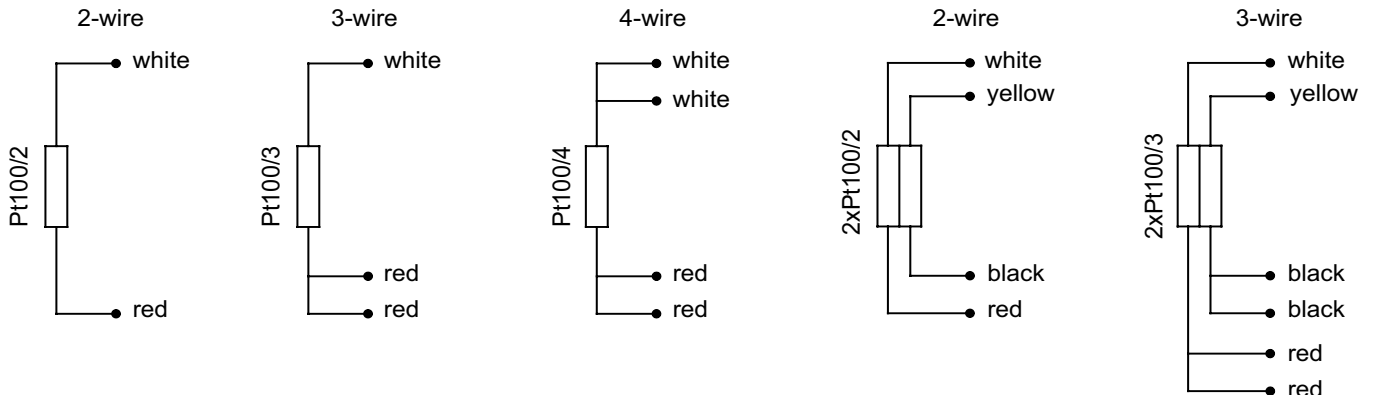
Connection head type MBEG in standard.



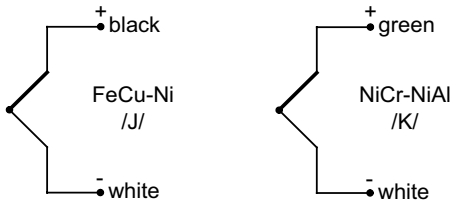
MBEG

### Connection schemes

#### Pt100 (thermometric resistor)

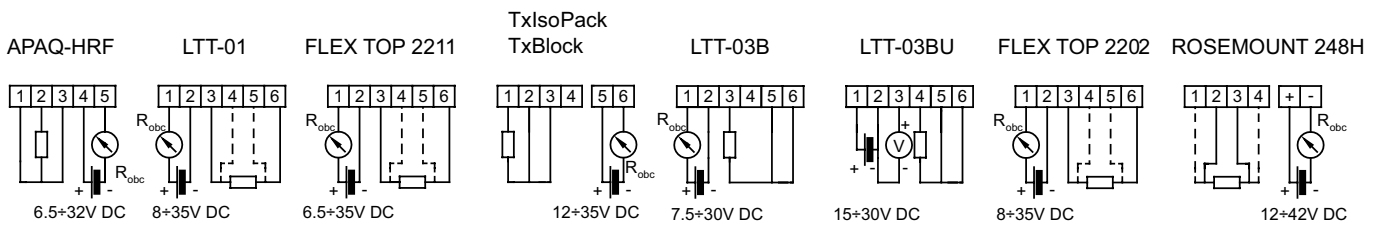


#### TC (thermocouple)



In double sensors one of thermocouples is additionally marked out.

#### Transmitters



**Product code**

		<b>Sensor version</b>	
		<b>no designation</b>	single with pipe insert
		<b>2</b>	double with pipe insert
1	<input style="width: 30px; height: 15px;" type="text"/>	<b>AP</b>	with transmitter
		<b>Sensing element</b>	
		<b>OP</b>	resistor Pt
		<b>TJ</b>	thermocouple Fe-CuNi /J/
2	<input style="width: 30px; height: 15px;" type="text"/>	<b>TK</b>	thermocouple NiCr-NiAl /K/
		<b>Sheath length</b>	
		<b>100</b>	100mm
		<b>150</b>	150mm
		<b>250</b>	250mm
		<b>400</b>	400mm
3	<input style="width: 30px; height: 15px;" type="text"/>		other parameters acc. to requirements
		<b>Sheath diameter</b>	
		<b>6</b>	ø6mm
		<b>8</b>	ø8mm
4	<input style="width: 30px; height: 15px;" type="text"/>		other parameters acc. to requirements
		<b>Thread dimension</b>	
		<b>M10x1</b>	metric thread M10x1
5	<input style="width: 30px; height: 15px;" type="text"/>		other parameters acc. to requirements
		<b>Accuracy</b>	
		<b>A or B</b>	for measuring resistor
6	<input style="width: 30px; height: 15px;" type="text"/>	<b>1 or 2</b>	for thermocouple
		<b>Measurement circuit (for resistor) or hot junction type (for thermocouple)</b>	
		<b>2</b>	2 - wire
		<b>3</b>	3 - wire
		<b>4</b>	4 - wire
		<b>SO</b>	insulated hot junction
		<b>SP</b>	grounded hot junction
7	<input style="width: 30px; height: 15px;" type="text"/>	<b>SOA</b>	one hot junction for two thermocouples insulated form the sheath
		<b>Transmitter type (optionally)</b>	
		<b>Tx</b>	head mounted transmitter TxBlock
8	<input style="width: 30px; height: 15px;" type="text"/>		other parameters acc. to requirements
		<b>Temperature range of transmitter</b>	
		<b>(0÷100°C)</b>	transmitter configured for temperature range 0÷100°C
9	<input style="width: 30px; height: 15px;" type="text"/>		other parameters acc. to requirements

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GNS
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**Ordering example:**      **TTJGNS-500-8-M20x1,5-2** sensor with thermocouple Fe-CuNi /J/, class 2, thermowell diameter 8 mm, thermowell length L=500 mm, with threaded fitting M20x1,5