



AP 108

Temperature sensor suitable for surface measurement. Hot junction has bigger surface of heat reception because of the connected copper plate or eyelet. This improves sensor contact with the surface.

Specification

Temperature range / sensing element

-40÷400°C K, J class 2

Sheath

- TTJ/KE-86 cable tip with eyelet, clamped hot junction, surface mounting with M4 or M5 screw
- TTJ/KE-87 flat square or round plate, brazed hot junction

Lead wire

- stranded thermocouple wire: 2x0,22mm₂
- fiberglass insulation, metal overbraid
- length L_p [m]: 1,5 (standard)

Other parameters acc. to requirements

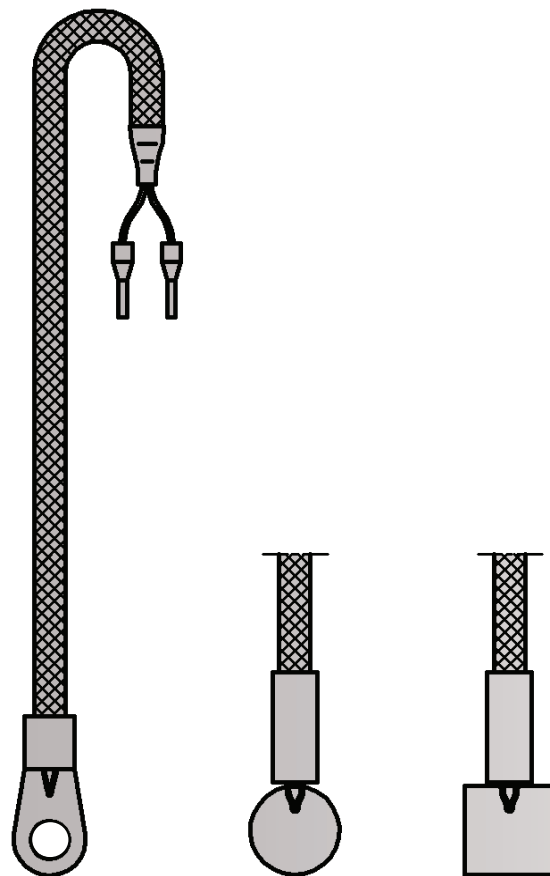
Options

Temperature transmitter application

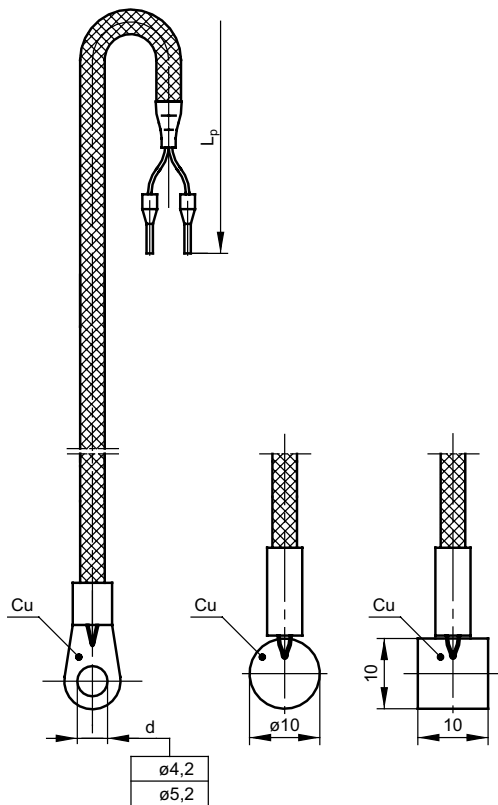
Temperature transmitter with standard 4÷20mA, 0÷10V output signals and with the HART or PROFIBUS communication protocols can be installed in the control cabinet.

Non-standard design

Immersion length, diameter and material of the sheath, and measuring insert 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.



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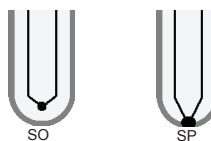
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Compensation / thermocouple wire insulations

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

Thermocouple hot junction types



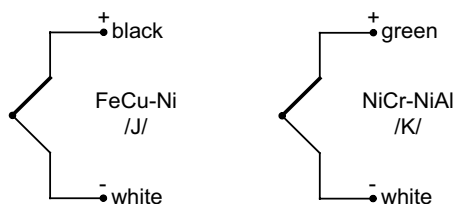
Tolerance for thermocouple classes acc. to PN-EN 60584

Thermocouple type	Class 1		Class 2	
	Range of application [°C]	Tolerance [°C]	Range of application [°C]	Tolerance [°C]
J 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
K 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

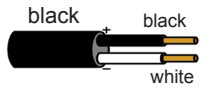
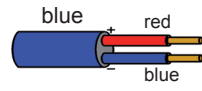
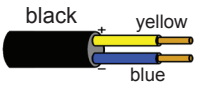
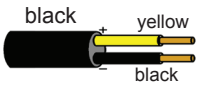
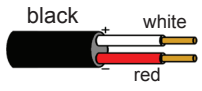
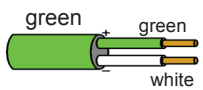
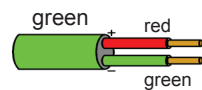
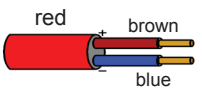
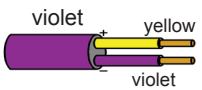
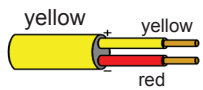
|t| - absolute value of temperature

Connection schemes

TC (thermocouple)



Cable types and colours acc. to the norm

EU	D	GB	F	USA
Thermocouple J type				
				
Thermocouple K type				
				

Product code

Sensing element											
1	<input style="width: 100%;" type="text"/>										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">J</td> <td>thermocouple Fe-CuNi /J/</td> </tr> <tr> <td>K</td> <td>thermocouple NiCr-NiAl /K/</td> </tr> </table>	J	thermocouple Fe-CuNi /J/	K	thermocouple NiCr-NiAl /K/						
J	thermocouple Fe-CuNi /J/										
K	thermocouple NiCr-NiAl /K/										
Constructional version											
2	<input style="width: 100%;" type="text"/>										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">6</td> <td>with eyelet tip</td> </tr> <tr> <td>7</td> <td>with flat tip</td> </tr> </table>	6	with eyelet tip	7	with flat tip						
6	with eyelet tip										
7	with flat tip										
Mounting type / round plate diameter / square plate diameter											
3	<input style="width: 100%;" type="text"/>										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">4</td> <td>M4 screw</td> </tr> <tr> <td>5</td> <td>M5 screw</td> </tr> <tr> <td>10</td> <td>round plate diameter 10mm</td> </tr> <tr> <td>10x10</td> <td>square dimensions 10x10mm</td> </tr> <tr> <td></td> <td>other parameters acc. to requirements</td> </tr> </table>	4	M4 screw	5	M5 screw	10	round plate diameter 10mm	10x10	square dimensions 10x10mm		other parameters acc. to requirements
4	M4 screw										
5	M5 screw										
10	round plate diameter 10mm										
10x10	square dimensions 10x10mm										
	other parameters acc. to requirements										
Accuracy											
4	<input style="width: 100%;" type="text"/>										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">1 or 2</td> <td>for thermocouple</td> </tr> </table>	1 or 2	for thermocouple								
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Lead wire length											
5	<input style="width: 100%;" type="text"/>										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">1,5</td> <td>1,5m</td> </tr> <tr> <td></td> <td>other parameters acc. to requirements</td> </tr> </table>	1,5	1,5m		other parameters acc. to requirements						
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	other parameters acc. to requirements										

1 2 3 4 5

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Ordering example:

TTJE-86-5-2 m sensor with thermocouple Fe-CuNi /J/, class 2, mounted with M5 screw, lead wire $L_p=2m$

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