



AP 108

Temperature sensor suitable for measurement of movable or replaceable parts of machines and devices, e.g. bearings or injection moulds. Equipped with bayonet fitting that enables quick and easy installation in the measured element. Furthermore, the sensor has a spring that protects the flexible cable. The cap of the bayonet fitting can be easily moved across the spring enabling the adjustment of sensor immersion length.

Specification

Temperature range / sensing element

-40÷300°C	K, J	class 2	thermocouple solid wire
-40÷400°C	K, J	class 2	thermocouple stranded wire

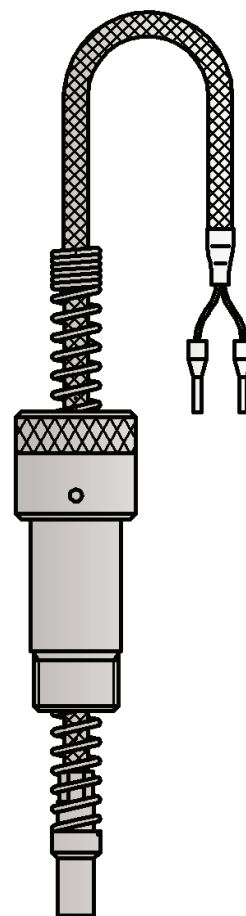
Sheath

- material: nickel-plated brass
- sheath length [mm]: 10 (standard)
- sheath tip: flat

Lead wire

- thermocouple solid wire $\varnothing 0,5\text{mm}$, fiberglass jacket filled with silicone, metal overbraid
- stranded wire $2 \times 0,22\text{mm}^2$, double fiberglass insulation, metal overbraid
- length L_p [mm]: 1,5 (standard)

Other parameters acc. to requirements



Options

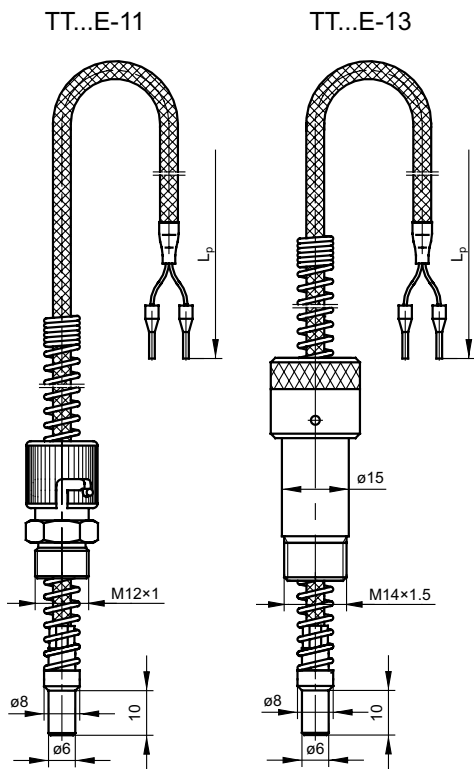
Temperature transmitter application

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

Process connection thread and other parameters can be customized per client request.

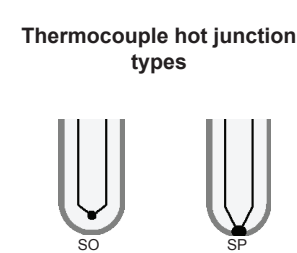
Calibrations performed by Limatherm Sensor Sp. z o.o. are confirmed with the Calibration Certificate of the Accredited Laboratory for Temperature Measurements.



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



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	x	x	x	✓	✓

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

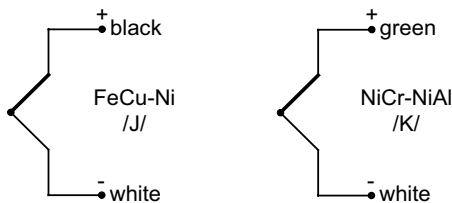
|t|- absolute value of temperature

Process connection type



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	J thermocouple Fe-CuNi /J/
	K thermocouple NiCr-NiAl /K/
Process connection type	
2	11 metric thread M12x1
	13 metric thread M14x1,5
	other parameters acc. to requirements
Lead wire type	
3	L stranded wire
	D solid wire
Thermocouple hot junction type	
4	SO insulated hot junction
	SP grounded hot junction
Lead wire length	
5	1,5 1,5m
	other parameters acc. to requirements

1 2 3 4 5
TT E - - - -

Ordering example: TTJE-11-D-SO-2 m sensor with thermocouple Fe-CuNi /J/, class 2, insulated hot junction, lead wire – solid wire ø0,5 mm, length L_p=2 m, bayonet fitting with threaded connector M12x1