



AP 108

Temperature sensor suitable for measurement of liquid and gaseous media. It has a replaceable measuring insert adequate for various industrial applications. Replacement of the measuring insert does not cause the technological installation damage. Spring-loaded insert ensures an excellent connection with the bottom of the sensor thermowell. Temperature sensor has ATEX approval for application in hazardous area: II 2G Ex ia II AT6 with sheath 799; II 2D Ex iaD 21 T85°C

Specification

Temperature range / sensing element

0÷1500°C	S, R	class 2
400÷1600°C	B	class 3

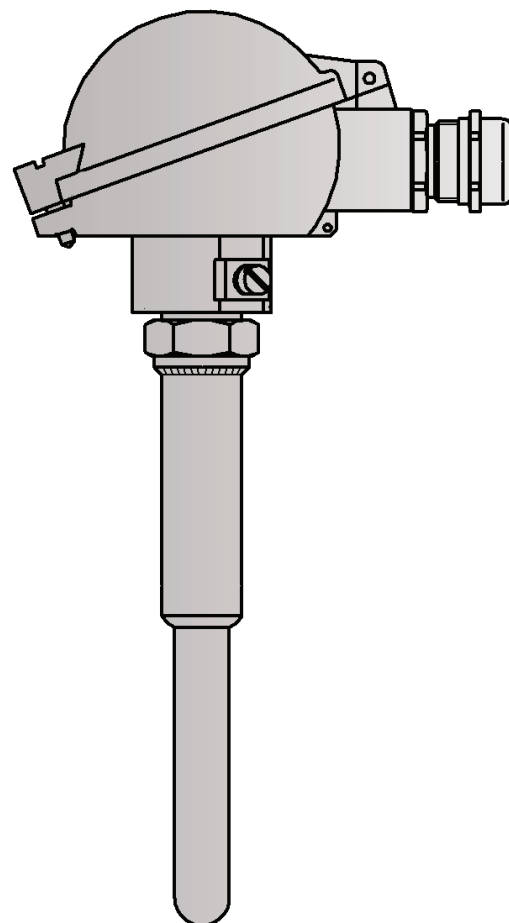
Sheath

- ceramic protection tube material: corundum 799 or silit
- heat resistant holding tube: 1.4841 (max. temperature 1100°C)
- steel - ceramic, L [mm]: 200÷2000

Connection head

- aluminium XE-DANA(S1-standard), XE-DAND(S2), XE-DANAW(W1), XE-DANDW(W2), IP65, operating temperature up to 100°C
- cable gland ATEX II GD IP65 (for cable 5÷10mm)

Other parameters acc. to requirements



Options

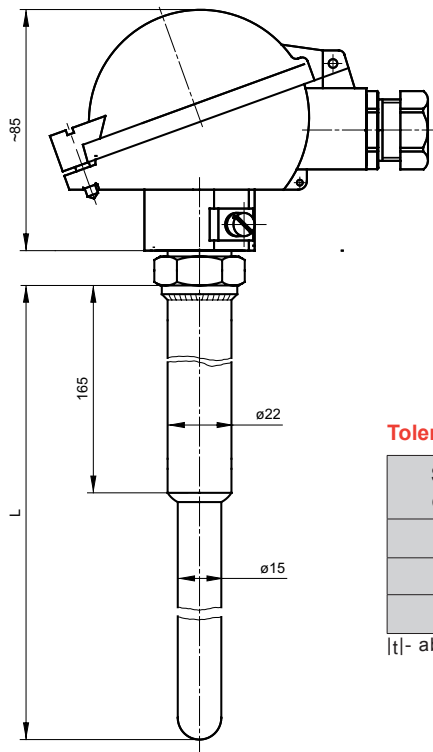
Temperature transmitter application

ATEX approved temperature transmitter with standard 4÷20mA output signal and with the HART communication protocol can be mounted in the connection head. Transmitter installation is carried out directly on the measuring insert (in place of a terminal block) or in the high cover connection head (solution used to enable installation of two transmitters).

Non-standard design

Immersion length, shape and material of the thermowell and the 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.



Standard length

Immersion length L [mm]
500
710
1000
1400

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

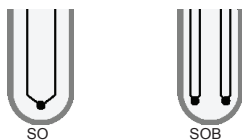
1 x Pt100			2 x Pt100			1 x TC	2 x TC
2-wire	3-wire	4-wire	2-wire	3-wire	4-wire	2-wire	2-wire
✓	✓	✓	✓	✓	x	✓	✓

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	$\pm 1,5$ $\pm 0,004 t $	from -40 to +333 from +333 to +750	$\pm 2,5$ $\pm 0,0075 t $
K NiCr-NiAl	from -40 to +375 from +375 to +1000	$\pm 1,5$ $\pm 0,004 t $	from -40 to +333 from +333 to +1200	$\pm 2,5$ $\pm 0,0075 t $

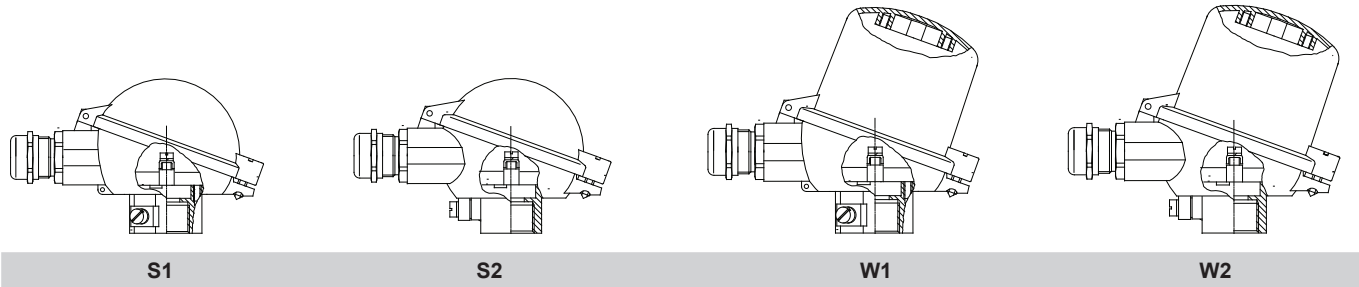
|t| - absolute value of temperature

Thermocouple hot junction types



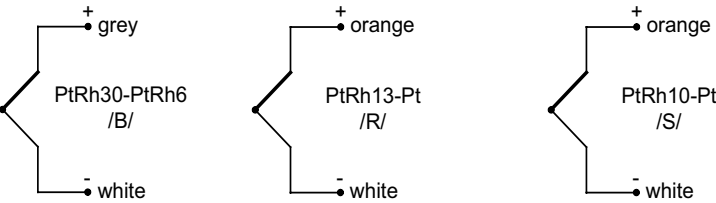
Connection head types

Connection head type S1 in standard.
Possibility to mount the connection head of different type.

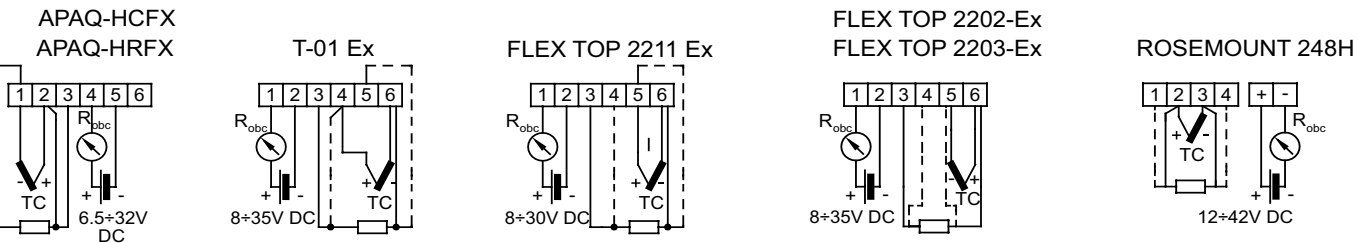


Connection schemes

TC (thermocouple)



Transmitters



Product code

Sensor version	
no designation	without transmitter
AP	with transmitter
no designation	single
2	double
Thermocouple type	
S	thermocouple Pt Rh10-Pt /S/
R	thermocouple Pt Rh13-Pt /R/
B	thermocouple Pt Rh30-Pt Rh6 /B/
Connection head type	
S1, S2, W1, W2	(standard S1)

4		Sheath length	
		500	500mm
		710	710mm
		1000	1000mm
		1400	1400mm
		other parameters acc. to requirements	
5		Sheath diameter	
		15	ø15mm - corundum 799 protection tube
		25	ø25mm - silit protection tube
			other parameters acc. to requirements
6		Accuracy	
		1 or 2	for R, S
		2 or 3	for B
7		Transmitter type (optionally)	
		FT2211	head mounted FT2211 transmitter
			other parameters acc. to requirements
8		Temperature range of transmitter	
		(0÷100°C)	transmitter configured for temperature range 0÷100°C
			other parameters acc. to requirements

1	2	3	4	5	6	7	8
	TT	C-22Exi	-		-		-

Ordering example: **2TTSC-22Exi-S2-1000-2** sensor with thermocouple S, class 2, ceramic protection tube length L=1000mm, XE-DANA connection head with two cable glands