



AP 108

Temperature sensor suitable for measurement primarily in heat-treating furnaces, boiler houses, etc. This sensor has double protection tube: inner ceramic and outer made of heat resistant steel.

## Specification

### Temperature range / sensing element

-40÷1200°C      **S, R, K**      class 2

### Protection tube

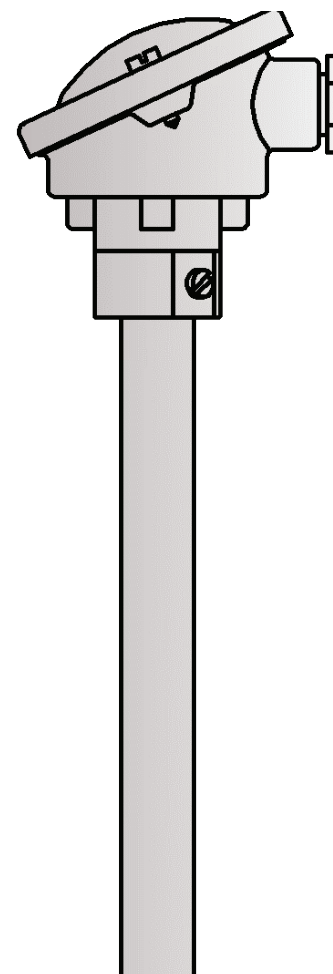
- outer steel tube material:
  - material: steel 1.4841, max. temp. 1150°C
  - material: steel 1.4762, max. temp. 1200°C
  - material: steel 15Cr25T, max. temp. 1000°C
- inner ceramic tube material: mullite 610, ø15mm
- length L [mm]: 300÷2000

### Thermocouple wire diameter

- ø2mm for K
- ø0,35mm or ø0,5 for R i S

### Connection head

- AA, IP53, -40÷100 °C



Other parameters acc. to requirements

## Options

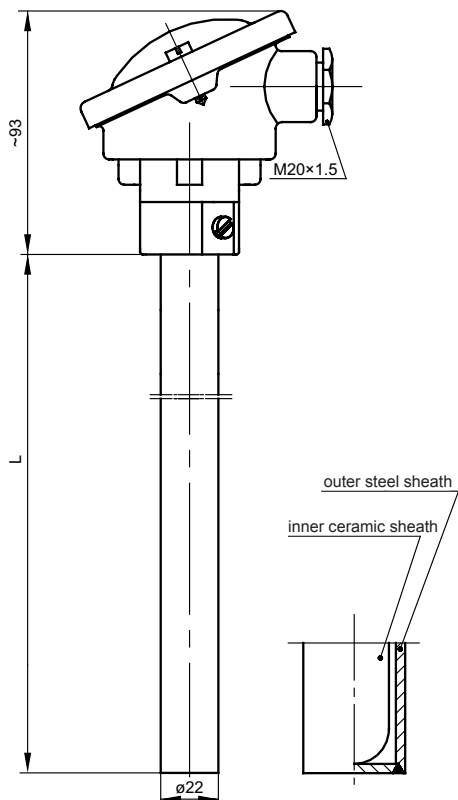
### Temperature transmitter application

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 the high cover connection head.

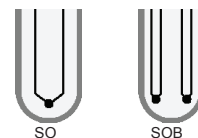
### Non-standard design

Immersion length, shape and material of the sheath, connection head type 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.**



Thermocouple hot junction types



Standard length

Immersion length L [mm]
500
710
1000
1400
2000

Tolerance for thermocouple classes acc. to PN-EN 60584

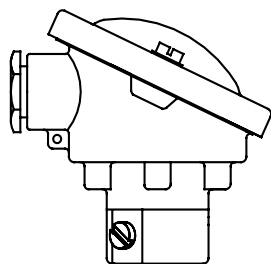
Thermocouple type	Class 1		Class 2	
	Range of application [°C]	Tolerance [°C]	Range of application [°C]	Tolerance [°C]
<b>K</b> NiCr-NiAl	from -40 to +375 from +375 to +1000	±1,5 ±0,004  t	from -40 to +333 from +333 to +1200	±2,5 ±0,0075  t
<b>R</b> PtRh13-Pt <b>S</b> PtRh10-Pt	from 0 to +1100 from +1100 to +1600	±1 ±(1 + 0,003 ( t  - 1100))	from 0 to +600 from +600 to +1600	±1,5 ±0,0025  t

|t|- absolute value of temperature

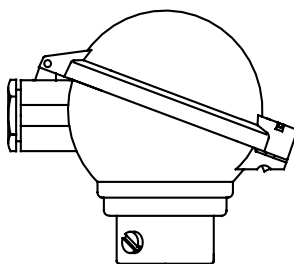
### Connection head types

Connection head type AA in standard.

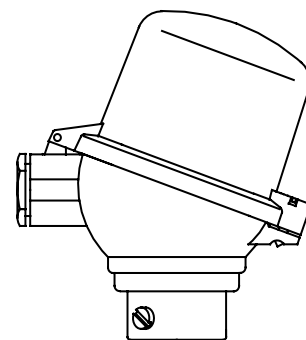
Possibility to mount the connection head of different type.



AA



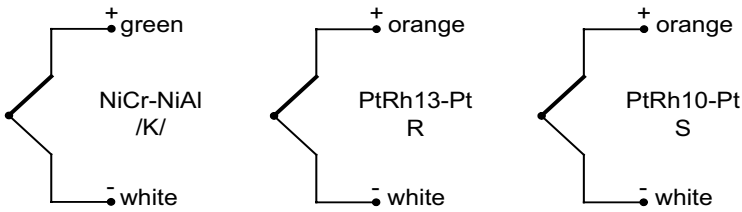
DA



DAW

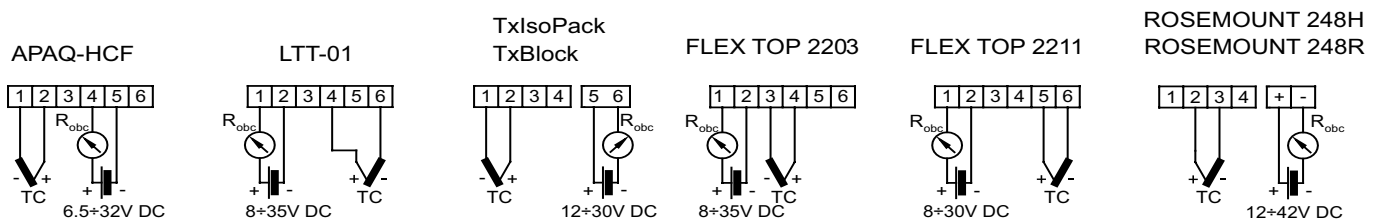
### Connection schemes

#### TC (thermocouple)



In double sensors one of thermocouples is additionally marked out.

#### Transmitters



### Product code

Sensor version		
1	no designation	single
	2	double
	AP	with transmitter
Sensing element		
2	S	thermocouple S
	R	thermocouple R
	K	thermocouple K
Thermowell length		
3	500	500mm
	710	710mm
	1000	1000mm
	1400	1400mm
	2000	2000mm
		other parameters acc. to requirements
Accuracy		
4	1 or 2	for thermocouple
Platinum wire diameter		
5	0,35	∅0,35mm
	0,5	∅0,5mm
Transmitter type (optionally)		
6	Tx	head mounted TxBlock transmitter
		other parameters acc. to requirements
Temperature range of transmitter		
7	(0÷1200°C)	transmitter configured for temperature range 0÷1200°C
		other parameters acc. to requirements



**Ordering example:**      **TTSCU-22-1000-2-0,5-1.4841** single sensor with thermocouple PtRh10-Pt /S/, class 2, platinum wire diameter 0,5 mm, with steel-ceramic sheath ø22/15 mm, length L=1000 mm, material 1.4841