




## TEMPERATURE SENSOR TYPE

### TP-Exi-461, TP-Exi-462, TP-Exi-463




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Temperature measurement in mining plants, gas and dust hazardous areas

ATEX designation **CE**  I M1 Ex ia I Ma  
**CE**  II 2G Ex ia IIC T6-T1 Gb  
**CE**  II 1D Ex ia IIIC T85°C Da

Temperature range -200°C...+550°C

Option - temperature transmitter

Sensor type	Atmosphere type	Temperature range	ATEX designation
TP-Exi-46X-XPX	mines	-20 ÷ 150°C	 I M1 Ex ia I Ma
	gases	-200 ÷ 550°C	 II 2G Ex ia IIC T6-T1 Gb
	dusts	-200 ÷ 550°C	 II 1D Ex ia IIIC T85 ÷ 550°C Da

These temperature sensors are recommended for temperature measurements in mines (sensor category M1) in explosive gases (sensor category 2 G) and dusts (sensor category 1 D).

The sensing element of the sensor is a Pt100 resistor placed in a flexible sheathed cable made of stainless steel 1.4541. Sheathed cable is made of copper-zirconium alloy (CuZr) wires insulated with highly compacted mineral powder (99% MgO) and metal sheath (casing) providing mechanical and chemical protection of wires and the Pt100 resistor.

This design allows for high flexibility, high mechanical resistance and short reaction time.

**Note: rigid end of the probe is 40 mm in length.**

An ATEX certified temperature transmitter which converts the measured values to a 4-20mA, 0-20mA or 0-10V (option) signal can be mounted in the connection head.

For each sensor an Instruction Manual, Warranty Card and Declaration of Conformity are supplied.

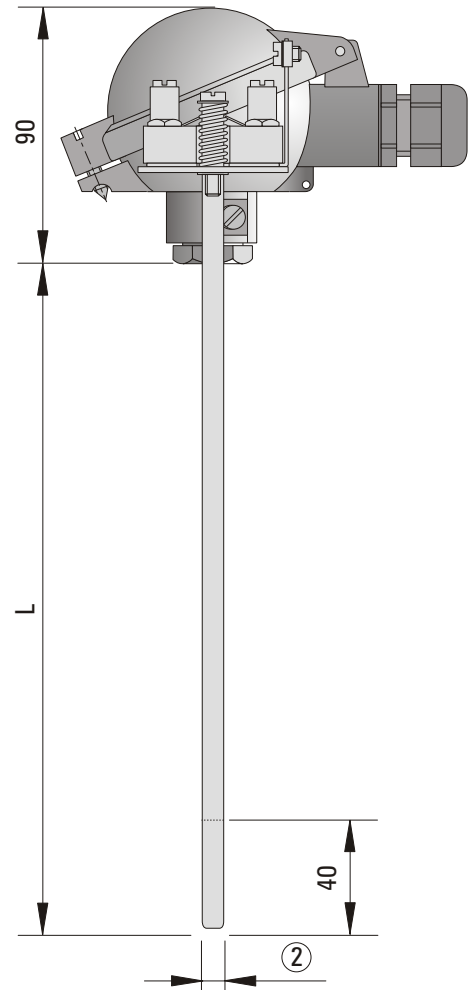
A free of charge Quality Certificate specifying the class of the sensor or payable Calibration Certificate for the specified temperature values is supplied on request.

## TECHNICAL DATA

Process connection	without or compression gland, stainless steel 1.4541 (option)
Protection sheath	Ø3, Ø5, Ø6mm, stainless steel 1.4541
Sensing element	Pt100, EN 60751 class B
Connection head and cable gland	head type XE-DANA, IP65, ATEX II 2GD cable gland ATEX II 2GD, IP65, for cable of outer diameter Ø6 ÷ Ø8mm head type XE-BE, IP65, ATEX I M2, operating temperature up to 100°C cable gland ATEX I M2, IP65, for cable of outer diameter Ø6 ÷ Ø12mm
Ambient temperature (Tamb)	-40°C +75°C
Response time	t <sub>90</sub> ca.10s (in water 0,2 m/s for Ø3mm), t <sub>90</sub> ca.40s (in water 0,2 m/s for Ø6mm)
Maximum operating pressure	0,1MPa
Temperature transmitter (option)	ATEX certified

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**(1) Basic version**

TP-Exi

**(2) Protection sheath**

461	Ø3mm
462	Ø5mm
463	Ø6mm

**(3) Sensing element**

1P2	1xPt100 2-wires
1P3	1xPt100 3-wires
1P4	1xPt100 4-wires
2P2	2xPt100 2-wires
2P3	2xPt100 3-wires

**(4) Length in mm (100 <math>L</math> <math>< 5000</math>)**

100	100 mm
150	150 mm
...	other length (by 50 mm)

**(5) ATEX designation**

mines	I M1 Ex ia I Ma
gases	II 2G Ex ia IIC T6 Gb
dusts	II 1D Ex ia IIIC T85°C Da

**(6) Additional accessories (option)**

0	without
KP	compression gland (type acc. to catalogue page)
T	ATEX certified temperature transmitter (parameters acc. to catalogue page)
class A	sensor class (other than basic)

**Ordering code:**

(1) (2) (3) (4) (5) (6)

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**Example:**

TP-Exi — 461 — 1P2 — 1200 — IM1ExialMa — 0

Additional accessories please specify at the end, for example KPM10x1-3, class A

The designer of the installation will be responsible for selecting a type of sensor and method of its implementation such that after installation, during extreme operating conditions, the temperature of the sensor's hottest surface is lower than the temperature class for a given substance (gas, mist, vapor).

The designer of the installation will be responsible for selecting a type of sensor and method of its implementation such that after installation, during extreme operating conditions, the temperature of the sensor's hottest surface is lower than 2/3 of the ignition temperature of dust cloud  $T_{ci}$  or ignition temperature of a 5-millimeter layer of dust  $T_{5mm}$  reduced by 75K.