CZAKI THERMO-PRODUCT
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TEMPERATURE SENSOR TYPE
TP-Exi-431, TP-Exi-432, TP-Exi-433, TP-Exi-434

☐ Temperature measurement in mines, gas and dust hazardous areas

☐ ATEX designation
CE Ex I M1 Ex ia I Ma
CE Ex II 2G Ex ia IIC T6-T1 Gb
CE Ex II 1D Ex ia IIIC T85÷700°C Da

☐ Temperature range
-40°C...+700°C (J)
-40°C...+1100°C (K)
-40°C...+1250°C (N)

☐ Option - temperature transmitter

Sensor type	Atmosphere type	Temperature range	ATEX designation
TP-Exi-43X-XJ	mines	-20÷150°C	Ex I M1 Ex ia I Ma
	gases	-40÷700°C	Ex II 2G Ex ia IIC T6-T1 Gb
	dusts	-40÷700°C	Ex II 1D Ex ia IIIC T85÷700°C Da
TP-Exi-43X-XK	mines	-20÷150°C	Ex I M1 Ex ia I Ma
	gases	-40÷1100°C	Ex II 2G Ex ia IIC T6-T1 Gb
	dusts	-40÷1100°C	Ex II 1D Ex ia IIIC T85÷1100°C Da
TP-Exi-43X-XN	mines	-20÷150°C	Ex I M1 Ex ia I Ma
	gases	-40÷1250°C	Ex II 2G Ex ia IIC T6-T1 Gb
	dusts	-40÷1250°C	Ex II 1D Ex ia IIIC T85÷1250°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, thermocouple type J, K and N is sheathed thermocouple in a flexible Inconel 600 casing (J, K) or in the case of type N Nicrobell.
Sheathed thermocouples are made using thermoelectric wires insulated with highly compacted mineral powder (99% MgO) and a metal sheath (casing) providing mechanical and chemical protection of thermocouple wires and measuring junction.
This design allows for high flexibility, high mechanical resistance and short reaction time.
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, Ø4,5, Ø6, Ø8mm, Inconel 600 (J, K), Nicrobell (N)		
Sensing element	J (Fe-CuNi)	insulated	EN 60584 class 1
	K (NiCr-NiAl)	insulated	EN 60584 class 1
	N (NiCrSi-NiSi)	insulated	EN 60584 class 1
Connection head and cable gland	head type XE-DANA, IP65, ATEX II 2GD		
	cable gland ATEX II GD, 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_{09} ca.3s (in water 0,2 m/s for Ø3mm), t_{09} ca.14s (in water 0,2 m./s for Ø8mm)		
Maximum operating pressure	0,1MPa		
Temperature transmitter (option)	ATEX certified		

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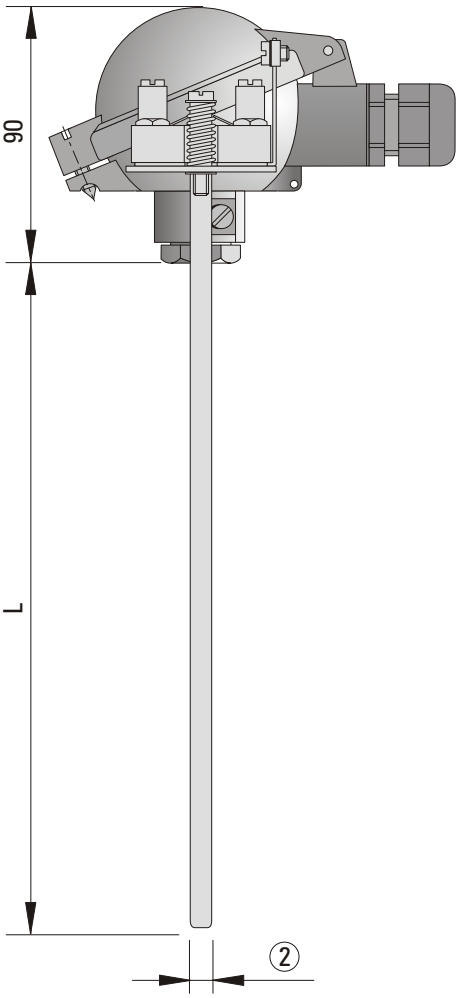
Temperature sensor type TP-Exi-431, TP-Exi-432, TP-Exi-433, TP-Exi-434



(1) Basic version
TP-Exi

(2) Protection sheath

431	Ø3,0mm
432	Ø4,5mm
433	Ø6,0mm
434	Ø8,0mm

(3) Sensing element

1J	1xJ (1 x Fe-CuNi)
1K	1xK (1 x NiCr-NiAl)
1N	1xN (1 x NiCrSi-NiSi)
2J	2xJ (2 x Fe-CuNi)
2K	2xK (2 x NiCr-NiAl)
2N	2xN (2 x NiCrSi-NiSi)

(4) Length in mm (100<L<5000)

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)

Ordering code:	**(1)**		**(2)**		**(3)**		**(4)**		**(5)**		**(6)**
		—		—		—		—		—	
Example:	**TP-Exi**	—	**431**	—	**1P2**	—	**1200**	—	**IM1ExialMa**	—	**0**

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

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_{cl} or ignition temperature of a 5-millimeter layer of dust T_{5mm} reduced by 75K.