

TEMPERATURE SENSORS WITH METAL CONNECTION HEAD AND STEM WITH FAST RESPONSE FOR EXPLOSIVE ENVIRONMENT

018.03en

DESCRIPTION AND APPLICATION

Resistance temperature sensors are designed for contact temperature measurement of liquid and gaseous substances. They operate on the principle of dependency of the change of resistance of the sensor and the change of temperature. Resistance temperature sensors are not able to create sparks, electric arcs or high surface temperatures and the maximum permitted DC input power for the sensor is 2mW. The standard temperature range for using of the sensor in ZONE 2 is -30°C to 80°C, which corresponds to temperature class T6, and it must not be exceeded even for a brief period in areas with the risk of explosion. The stem design allows the use of sensors for direct temperature measurement in pipelines and at the same time it provides a fast sensor response to changes in temperature compared to sensors with a thermowell.

The sensors are designed to be operated in a chemically non-aggressive environment, the use must be chosen with regard to temperature resistance of the head and chemical resistance of the case and head of the sensor.

DECLARATION, CERTIFICATES, CALIBRATION

Manufacturer provides **EU Declaration of Conformity**.

Calibration – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in an Accredited laboratory.



SPECIFICATIONS

Sensor type	NK 160EX	NK 161EX	NK 162EX
Type of sensing element	Ni 1000/5000	Ni 1000/6180	Ni 891
Measuring range in ZONE 2	-30 to 80 °C		
Max. DC measuring current	1 mA	1 mA	1 mA

Sensor type	PTK 160EX	PTK 260EX	PTK 360EX	HK 160EX
Type of sensing element	Pt 100/3850	Pt 500/3850	Pt 1000/3850	termistor NTC 20 kΩ
Measuring range in ZONE 2	-30 to 80 °C			
Max. DC measuring current	3 mA	1.5 mA	1 mA	1 mW *)

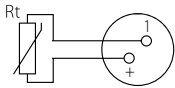
*) maximum power consumption

OTHER PARAMETERS

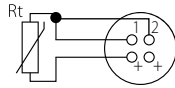
Measuring range	in ZONE 2: $-30\text{ °C} \leq T_a \leq 80\text{ °C}$
Sensor connection	2wire, 3wire, 4wire
Recommended power supply	from a PELV or SELV source maximum input power 2mW
Time response	in accordance with EN 60751, as amended (in flowing water $> 0,2\text{ m.s}^{-1}$), - for case diameter 4 mm: $\tau_{0,5} \leq 4\text{ s}$, $\tau_{0,9} \leq 10\text{ s}$ - for case diameter 6 mm: $\tau_{0,5} \leq 9\text{ s}$, $\tau_{0,9} \leq 20\text{ s}$ - for case diameter 8 mm: $\tau_{0,5} \leq 14\text{ s}$, $\tau_{0,9} \leq 35\text{ s}$ - for case diameter 10 mm: $\tau_{0,5} \leq 25\text{ s}$, $\tau_{0,9} \leq 60\text{ s}$
Insulation resistance	$> 200\text{ M}\Omega$ at 500 V DC, $25\text{ °C} \pm 3\text{ °C}$, relative humidity $< 80\%$
Electric strength	1000 V DC for 1s, $25\text{ °C} \pm 5\text{ °C}$, relative humidity $< 80\%$
Ingress protection	IP 66 in accordance with EN 60529, as amended
Terminal board type	ceramic, recommended cross-section of the wires $0.5\text{ to }1.0\text{ mm}^2$
Material of the connection head	aluminum
Dimension of the connection head	83 x 83 mm
Temperature resistance of the head	$-30\text{ to }90\text{ °C}$
Material of the stem	stainless steel DIN 1.4301, 1.4404 or 1.4571
Diameter of the stem D	4 mm, 6 mm, 8 mm, 10 mm
Standard length of stem L	diameter 4 mm: 50, 100, 160, 220 mm other diameters: 50, 100, 160, 220, 280, 340 and 400 mm
Standard thread types	G 1/2" and M20x1.5
Wire resistance	$0.254\ \Omega / \text{m}$ (two-wire connection)
Maximum operating pressure	with stem diameter 4 mm - 2.5 MPa with stem diameter 6 to 10 mm - 6.3 MPa
Weight min	0.4 kg

WIRING DIAGRAM

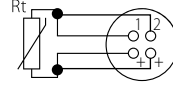
Two-wire



Three-wire



Four-wire



DIMENSIONAL DRAFT

