

TEMPERATURE SENSORS WITH METAL CONNECTION HEAD AND STEM FOR EXPLOSIVE ENVIRONMENT

017.03en

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. By combining it with a centre holder or thermowell supplied as accessories, the sensor can be used for measuring temperature in air conditioning ducts and pipes. 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.



ACCESSORIES

- stainless steel thermowell JS 130
- metal central holder K 120 – for use in air – conditioning ducts
- metal holder K 110C – for mounting to a wall
- screw with collet or cutting rings – if different lengths of stem immersion of the temperature sensor are set

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 120EX | NK 121EX | NK 122EX | NK 320EX | NK 321EX |
|---------------------------|--------------|--------------|----------|---------------|---------------|
| Type of sensing element | Ni 1000/5000 | Ni 1000/6180 | Ni 891 | Ni 10000/5000 | Ni 10000/6180 |
| Measuring range in ZONE 2 | -30 to 80 °C | | | | |
| Max. DC measuring current | 1 mA | 1 mA | 1 mA | 0.3 mA | 0.3 mA |

| Sensor type | NK 123EX | PTK 120EX | PTK 220EX | PTK 320EX | HK 120EX |
|------------------------------|--------------|-------------|-------------|--------------|---------------------|
| Type of sensing element | T1 = Ni 2226 | Pt 100/3850 | Pt 500/3850 | Pt 1000/3850 | termistor NTC 20 kΩ |
| Measuring range in ZONE 2 | -30 to 80 °C | | | | |
| Maximum measuring DC current | 0.7 mA | 3 mA | 1.5 mA | 1 mA | 1 mW *) |

*) maximum power consumption

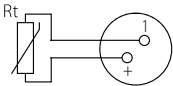
| | |
|--------------------------|---|
| Measuring range | in ZONE 2: -30 °C ≤ Ta ≤ 80 °C |
| Sensor connection | 2wire, 3wire, 4wire |
| Recommended power supply | from a PELV or SELV source maximum input power 2mW |
| Time response | in accordance with EN 60751, as amended (in flowing water > 0,2 m.s ⁻¹), - for case diameter 4 mm: τ _{0.5} ≤ 4 s, τ _{0.9} ≤ 10 s - for case diameter 6 mm: τ _{0.5} ≤ 9 s, τ _{0.9} ≤ 20 s - for case diameter 8 mm: τ _{0.5} ≤ 14 s, τ _{0.9} ≤ 35 s - for case diameter 10 mm: τ _{0.5} ≤ 25 s, τ _{0.9} ≤ 60 s |

OTHER PARAMETERS

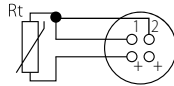
| | |
|------------------------------------|--|
| Insulation resistance | > 200 M Ω at 500 V _{DC} , 25 °C \pm 3 °C, relative humidity < 80 % |
| Electric strength | 1000 V _{DC} for 1s, 25 °C \pm 5°C, max. < 80 % |
| Ingress protection | IP 66 in accordance with EN 60529, as amended |
| Terminal board type | ceramic, recommended cross-section of the wires 0.5 to 1.0 mm ² |
| Material of the connection head | aluminum |
| Dimension of the connection head | 83 x 83 mm |
| Temperature resistance of the head | -30 to 90 °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: 70, 120, 180, 240 mm other diameters: 70, 120, 180, 240, 300, 340 and 400 mm |
| Wire resistance | 0.254 Ω / 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

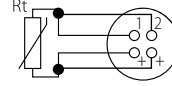
Two-wire



Three-wire



Four-wire



DIMENSIONAL DRAFT

