

TEMPERATURE SENSOR WITH STEM AND DISPLAY



DESCRIPTION AND APPLICATION

These resistance temperature sensors with display and stem are designed for contact temperature measurements of liquid or gaseous substances. The temperature sensor-central holder combination is suitable for temperature measurements in air condition ducts. The temperature sensor-thermowell combination is suitable for temperature measurements in tubing. The temperature sensing element is located in a stainless steel stem of length of 70 – 420 mm. The plastic head of the temperature sensor with display is equipped with a cable grommet or a connector. The measured temperature is indicated on the 4-digit display located under the transparent cap of the head. The temperature sensors with display can be used for any control systems compatible with output signals listed in the table of technical parameters.

The maximum temperature range for current loop setting of the temperature sensors with display is -50 to 150 °C. Within this range, the required operating temperature ranges may be programmed, while the minimum difference between the lower and upper limit of the temperature range is 10 °C. The maximum temperature around the head is -30 to 70 °C and must not be exceeded even for a brief period. The temperature sensors with display meet ingress protection IP 65 according to EN 60 529. The temperature sensors with display are easy to be installed thanks to the unique design of "S-head" made by SENSIT s.r.o.

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 the metal cases.



TEMPERATURE SENSORS WITH A CONNECTION HEAD

ACCESSORIES

- central plastic holder – it is part of the sensor
- stainless steel thermowell JS 130
- metal central holder K120
- for the version with connector: led-in connector ELKA 4012
- connection cable with the straight-type RKT connector or with the rectangular-type RKWT connector
- screw with collet or cutting rings – if different lengths of stem immersion of temperature sensor are set

DECLARATION, CERTIFICATES, CALIBRATION

EU Declaration of Conformity – according to Act 22/1997 Coll. on technical requirements on products as amended.

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 SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard) or in an Accredited laboratory.

SPECIFICATIONS

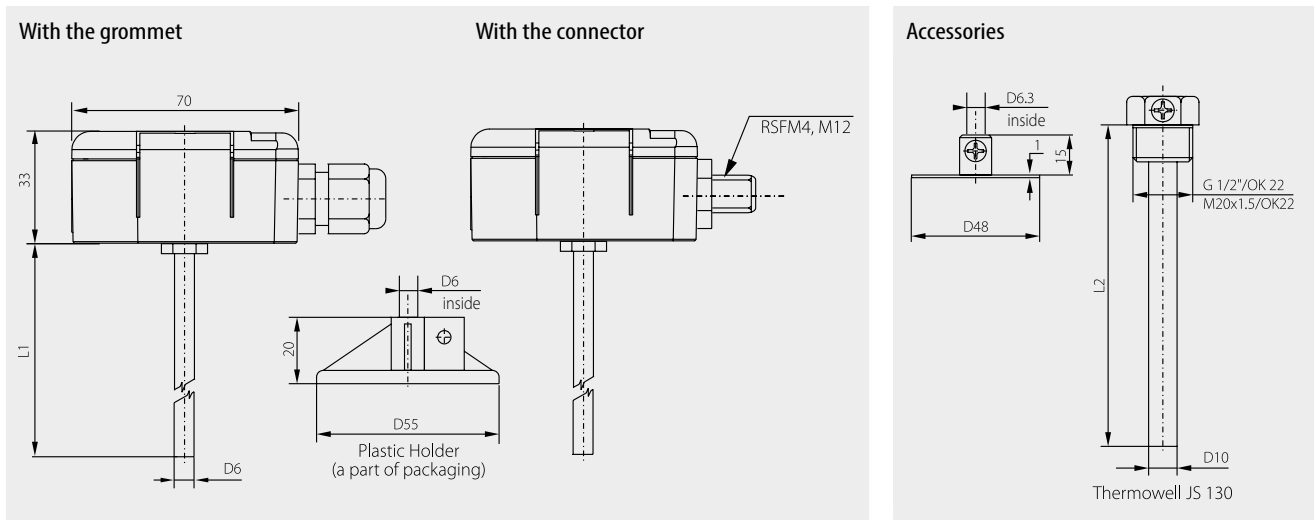
| Sensor type (K – with a connector) | NSD 520 NSD 520K | NSD 720 NSD 720K |
|--|---|---------------------|
| Output signal | 4 to 20 mA | 0 to 10 V |
| Type of sensing element | Pt 1000/3850, accuracy class B ($\pm 0,3 + 0,005 \times t $) in °C | |
| Measuring range | adjustable | |
| Maximum temperature range | -50 to 150 °C | |
| Measuring error | 0,8 % from the range, at least 0,5 °C | |
| Display screen | 4-digit LED, character dimension 7,62 x 4,22 mm | |
| Supply voltage U | 15 to 30 V DC | |
| Nominal voltage U _n | 24 V | |
| Load resistance | > 50(U - 14)Ω | > 50 kΩ |
| Current / voltage when the sensor is interrupted | > 24 mA | > 12 V |
| Current / voltage when the sensor is short-circuited | < 3 mA | ~ 0 V |
| Material of the head | POLYAMIDE | |
| Dimension of the head | 70 x 63 x 34 mm | |
| Wire cross-section | 0,35 to 1,5 mm ² | |
| Ingress protection | IP 65 in accordance with EN 60 529 | |
| Cable connection | through the grommet M 16 x 1,5 / through the connector LUMBERG M12 | |
| Ambient temperature around the head | -30 to 70 °C | |
| Electric strength | 500 V / 50 Hz in accordance with EN 60 730-1 | |

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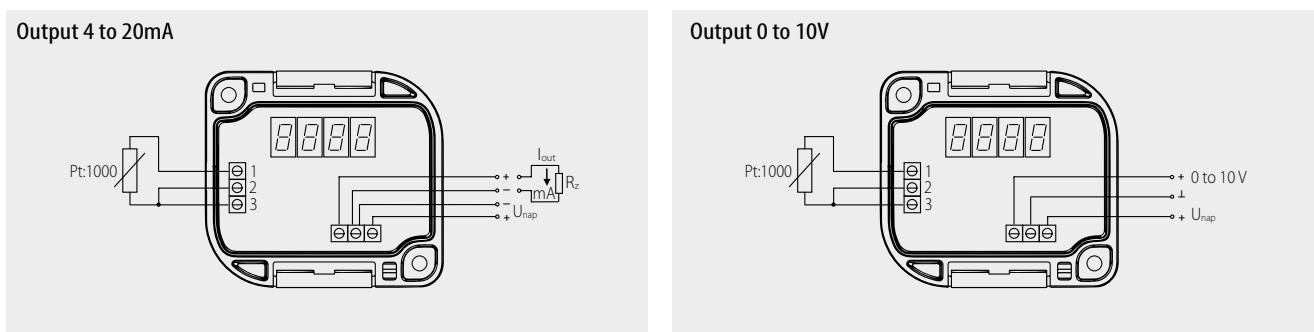
OTHER PARAMETERS

| | |
|-----------------------|---|
| Length of the stem | 70, 120, 180, 240, 300, 360 and 420 mm |
| Diameter of the stem | 6 ^{+0.2} mm |
| Material of the stem | stainless steel DIN 1.4301 |
| Insulation resistance | > 200 MΩ at 500 V DC, 25° ± 3°C, relative humidity < 85 % |
| Max measurement range | -50 to 150 °C by using a sensor with a longer stem of 60 mm, the upper limit of allowable temperature can be extended up to 250 °C |

DIMENSIONAL DRAFT



WIRING DIAGRAM



SENSOR INSTALLATION AND SERVICING

Before connecting the supply lead-in cable, lift off the lid of the plastic connection head by means of a flat screwdriver, which will be gradually engaged in to the one's and second groove in the lid and its misalignment will release the lid. The lead-in cable is connected according to the wiring diagram through the loosened grommet. **Tighten the gland to ensure the tightness after connecting power cable.** Temperature sensor according to its variant install into measured place. Install temperature sensor according to its variant into measured place:

NSD 520 – place the selected accessories (centre holder or thermowell) into the point of temperature measurement, then insert the sensor into the holder or up to the thermowell bottom and fasten it with a screw. The holes for the holder mounting are to be drilled according to the attached template, on which the hole diameters are indicated

NSD 720 – place the selected accessories (centre holder or thermowell) into the point of temperature measurement, then insert the sensor into the holder or up to the thermowell bottom and fasten it with a screw. The holes for the holder mounting are to be drilled according to the attached template, on which the hole diameters are indicated

After installing the sensor, close the head by placing the cap. **The holds on the plastic head must to click into the original position.** After installing and connecting the sensor to the appropriate evaluating electrical equipment, the sensor is ready to use. The sensor does not require any special attendance or maintenance. **The work position is adjustable; however, the bushing is recommended not to direct up, the supply cable is recommended to guide to the bushing from the bottom.**