CONTACT TEMPERATURE SENSORS WITH A CABLE

DESCRIPTION AND APPLICATION

These resistance-type sensors are intended for contact surface temperature measurement. The sensors, which are available including the fastening strap are suitable for temperature measurements on piping. The sensor dimmensions make it possible to place the sensor even under the pipe insulation. The standard operating temperature range is -30 to 130 °C. The proper sensing element is constructed to be isolated from the ambient influence. The sensors can be utilised for any control systems that are compatible with sensing element output signals or output signals quoted in the table of sensing element types. The sensors are designed to be operated in a chemically non-aggressive environment.

ACCESSORIES

- The thermal conductive paste up to 200 °C, 5g

DECLARATION, CERTIFICATES, CALIBRATION

Declaration of Conformity – in accordance with EN ISO/IEC 17050-1 standard as amended for sensors with resistance output.
Calibration – we perform standard calibration of resistance temperature sensors in accordance with EN ISO/IEC 17025 standard in the temperature range of the stated type of sensor.

SPECIFICATIONS

BASIC DATA

Sensor type	NS 150A	NS 151A	NS 152A	NS 350A	NS 351A
Type of sensing element	Ni 1000/5000	Ni 1000/6180	Ni 891	Ni 10000/5000	Ni 10000/6180
Measuring range	-30 to 130 °C				
Maximum measuring DC current	1 mA	1 mA	1 mA	0.3 mA	0.3 mA

Sensor type	NS 153A	PTS 150A	PTS 250A	PTS 350A	HS 150A
Type of sensing element	T1 = Ni 2226	PT 100/3850	PT 500/3850	PT 1000/3850	thermistor NTC 20 kΩ
Measuring range	-30 to 130 °C				
Maximum measuring DC current	0.7 mA	3 mA	1.5 mA	1 mA	10 mW *)

*) maximum power consumption

OTHER PARAMETERS

Accuracy class **)	Ni sensing elements: B class, $\Delta t = \pm (0.4 + 0.007t)$, for $t \geq 0$; $\Delta t = \pm (0.4 + 0.028\|t\|)$, for $t \leq 0$ in °C; Pt sensing elements: B class according to IEC 751, $\Delta t = \pm (0.3 + 0.005\|t\|)$ in °C NTC 20 kΩ: ± 1 °C for the range 0 to 70 °C
Sensor connection	according to the wiring diagram
Time response	Sensor type S 150A $T_{0.5} < 10$ sec, $T_{0.5} < 45$ sec (on smooth surface without paste)
Insulation resistance	> 200 MΩ at 500 V DC, 25° ± 3 °C; humidity < 85 %
Ingress protection	IP 65 according to EN 60 529
Material of the case	brass
Lead-in cable	shielded silicone 2 x 0.22 mm^2
Standard length of the cable	2, 5, 10 m
Material of the protection case	POLYAMID type S150A
Standard length of the strap	40 cm
Minimum diameter of a pipe	20 mm
Operating conditions	ambient temperature: -30 to 130 °C relative humidity: max. 85 % (at the ambient temperature 25 °C) atmospheric pressure: 87 to 107 kPa
Mass	approximately 0.15 kg

**) Regulated by immersing the sensor in a liquid, an error in method is not considered – the influence of the ambient temperature and environment, uneven surface, etc. In terms of two-wire connections, the impact of the resistance of the lead wire must be added. In a temperature of 20 °C, the impact of the lead resistance is 0.4 °C/1 m.

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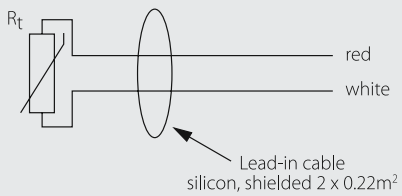
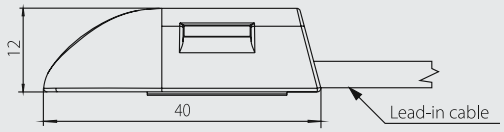
WIRING DIAGRAM



DIMENSIONAL DRAFT

NS 150A



SENSOR INSTALLATION AND SERVICING

By means of the strap the sensor is fixed to the piping in the location where the temperature should be measured. The lead-in cable is connected to the terminals according to the wiring diagram. After installing to the piping and connecting to the corresponding electrical measuring equipment the sensor is ready to use. The sensor does not require any special servicing and maintenance.

Recommendation: To ensure accuracy of measurement and fast response is recommended to use a thermal conductive paste or silicone vaseline on a surface.

CUSTOMER SPECIFIC MODIFICATIONS

REGARDING TO SENSORS MANUFACTURED IN A STANDARD VERSION THE FOLLOWING PARAMETERS CAN BE MODIFIED:

- option of encasing two sensors
- option of encasing non-standard temperature sensors (DALLAS, TSic, KTY, SMT, etc.)
- A class precision (with the exception of sensors Ni 10000/5000, Ni 10000/6180, T1 = Ni 2226, termistor NTC 20 kΩ)
- option of three- or four-wire connection
- various length of the fastening strap