

DESCRIPTION AND APPLICATION

These sensors are intended to measure the surface temperature by contact method. The sensor S 150 consists of a metallic housing which is located in protective case made of materials SILIKON and SILAMID and of a supply cable. The sensor S 150A in new design consists of a metallic housing which is located in protective case made of POLYAMID and of a supply cable. The metal case is made of brass. This sensor type meets the ingress protection requirements IP 65 according to EN 60 529 standard.

They are available including a fastening strap and a closure, thus enabling to measure the surface temperature of pipings. The sensor dimensions make it possible to place the sensor even under the pipe insulation. Thanks to its design, the proper sensing element is separated from the ambient influence. The sensor can be used for all control systems that are compatible with sensing elements quoted in the table of specifications.

The standard operating temperature range is -30 °C to 130 °C.

These sensors are intended for operating in a chemically non-aggressive environment.



version S150



version S150A

SPECIFICATIONS

BASIC DATA

Sensor type	NS 150 NS 150A	NS 151 NS 151A	NS 152 NS 152A	NS 350 NS 350A	NS 351 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

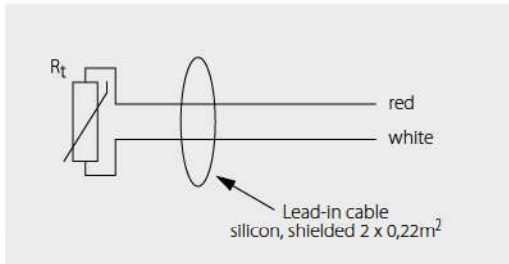
Sensor type	NS 153 NS 153A	PTS 150 PTS 150A	PTS 250 PTS 250A	PTS 350 PTS 350A	HS 150 HS 150A
Type of sensing element	Ni 2226	PT 100/3850	PT 500/3850	PT 1000/3850	thermistor NTC 20 kΩ
Measuring range	-30 to 130 °C				
Maximum measuring DC current	0,7 mA	3 mA	1,5 mA	1 mA	10 mW *)

*) maximum power consumption

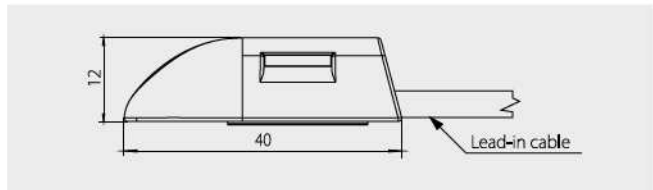
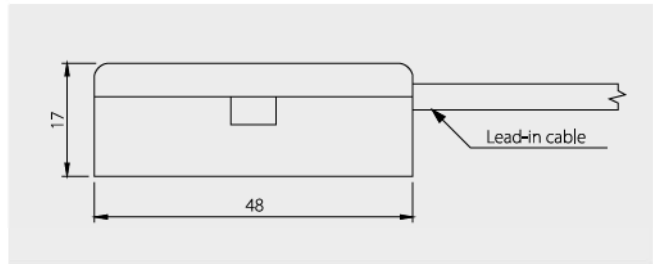
OTHER PARAMETERS:

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 150 $\tau_{0,5} < 13$ sec, $\tau_{0,9} < 140$ sec (on smooth surface without paste) Sensor type S 150A $\tau_{0,5} < 10$ sec, $\tau_{0,5} < 45$ 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 423223.31
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	SILIKON and SILAMID type S150; 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

WIRING DIAGRAM



DIMENSIONAL DRAFT



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:

- change of the sensor's cable length
- A class of accuracy (except for the sensing elements Ni 10000/5000, Ni 10000/6180, Ni 2226, and the thermistor NTC 20 kΩ)
- length variations of the band

HOW TO ORDER

Contact temperature sensors with the cable 2 0 0 0 B B 0 0 0 0 0 G G A

Ni 1000/5000 (N1), class B	0	1
Ni 1000/5000 (N1), class A	0	2
Ni 1000/6180 (N1A), class B	0	3
Ni 1000/6180 (N1A), class A	0	4
Pt 100/3850, class B	0	6
Pt 100/3850, class A	0	7
Pt 500/3850, class B	0	9
Pt 500/3850, class A	1	0
Pt 1000/3850, class B	1	1
Pt 1000/3850, class A	1	2
Ni 891	1	4
NTC 20 kΩ	1	5
Ni 2226	1	6
Ni 10000/5000 (N10), class B	1	7
Ni 10000/6180 (N10A), class B	1	8

Cable length	2 m	0	2
	5 m	0	5
	10 m	1	0

The letter "A" is for type S150A

WHEN ORDERING GOODS, THE FOLLOWING DATA ARE REQUIRED:

Required data	Example
Product type	NS 150
Cable length	5 m

The accuracy class is the B class if not stated otherwise.

DELIVERY

The sensors are packed in boxes one by one.

Each delivery consists of the following parts, if not agreed otherwise with the customer: fastening strap, 40 cm long, with closure
Together with the product can be provided: calibration sheet.