

TEMPERATURE SENSORS WITH MAGNETIC FIXING

004.06en



TEMPERATURE SENSORS WITH A CONNECTION HEAD

DESCRIPTION AND APPLICATION

The sensors are intended for contact temperature measurements of ferromagnetic materials. The contact with measuring surface is provided by springing of the measuring surface. The plastic connection head is provided with a cable outlet ending (the terminal board is placed in the connection head) or a connector. The standard operating temperature range is -30 to 100 °C. 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

- lead-in connector CONEC 43-00092
- connection cable with the straight-type RKT connector or with the rectangular-type RKWT connector.

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



Cable sensors with magnetic fixing are a possible alternative to the S 190 line of sensors.



SPECIFICATIONS

Sensor type (K – with connector)	NS 190 NS 190K	NS 191 NS 191K	NS 192 NS 192K	NS 390 NS 390K	NS 391 NS 391K
Type of sensing element	Ni 1000/5000	Ni 1000/6180	Ni 891	Ni 10000/5000	Ni 10000/6180
Measuring range	-30 to 100 °C				
Maximum measuring DC current	1 mA	1 mA	1 mA	0.3 mA	0.3 mA

Sensor type (K – with connector)	NS 193 NS 193K	PTS 190 PTS 190K	PTS 290 PTS 290K	PTS 390 PTS 390K	HS 190 HS 190K
Type of sensing element	T1 = Ni 2226	Pt 100/3850	Pt 500/3850	Pt 1000/3850	thermistor NTC 20 kΩ
Measuring range	-30 to 100 °C				
Maximum measuring DC current	0.7 mA	3 mA	1.5 mA	1 mA	1 mW *)

*) maximum power consumption

Sensor type (K – with connector)	NS 590 NS 590K	NS 790 NS 790K	Note
Type of sensing element	Pt 1000/3850	Pt 1000/3850	
Output signal	4 to 20 mA	0 to 10 V	
Measuring ranges	-30 to 60 °C 0 to 35 °C 0 to 100 °C 0 to 150 °C	-30 to 60 °C 0 to 35 °C 0 to 100 °C 0 to 150 °C	ambient temperature around the connection head -30 to 70 °C
Power supply (U)	11 to 30 V _{DC}	15 to 30 V _{DC}	recommended value 24 V _{DC}
Load resistance	150 Ω for power supply 12 V 700 Ω for power supply 24 V	> 10 kΩ	
Output signal - sensing element break	> 24 mA	> 10.5 V	
Output signal - sensing element short circuit	< 3.5 mA	~ 0 V	

**)According to the customer's requirement, it is possible to provide a customized measuring range from -40 to 150 °C; the minimum span of the range must be 35 °C (e.g. -20 to 15 °C; -30 to 80 °C)

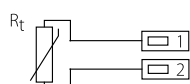
OTHER PARAMETERS

Accuracy class	Ni sensing elements B class, $t = \pm (0.4 + 0.007t)$, for $t \geq 0$; $t = \pm (0.4 + 0.028 t)$, for $t \leq 0$ in °C; Pt sensing elements B class according to EN 60 751, $t = \pm (0.3 + 0.005 t)$ in °C NTC 20 kΩ: ± 1 °C for the range 0 to 70 °C
Measuring error for NS 590 and NS 790	< 0.6 % of the measuring range, minimum 0.5 °C
Sensor connection	according to the wiring diagram
Measuring surface diameter	19 mm
Measuring surface pressure	5 N
Adhesive power of the sensor	60 N
Recommended wire cross section - sensors with the grommet	0.35 to 1.5 mm ²
Type of connector in the head - sensors with connector	RSFM4 - Lumberg
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25° ± 3 °C; humidity < 85 %
Ingress protection	IP 52 in accordance with EN 60529, as amended
Material of the head	LEXAN 500RS
Operating conditions	ambient temperature: -30 to 100 °C; -30 to 70 °C with a converter, relative humidity: max. 100 % (at the ambient temperature 25 °C), atmospheric pressure: 70 to 107 kPa
Weight approximately	0.1 kg (NS 590, NS 790); 0.08 kg (passive)

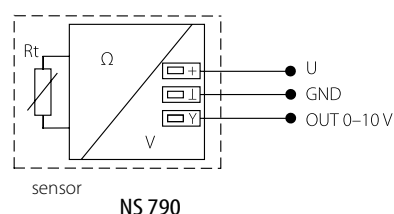
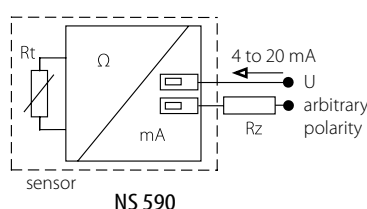
WIRING DIAGRAM

SENSORS WITH THE GROMMET:

With resistance output

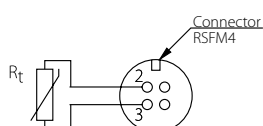


With a converter

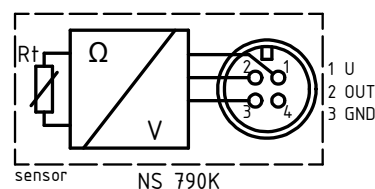
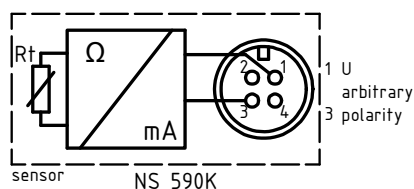


SENSORS WITH THE GROMMET:

With resistance output

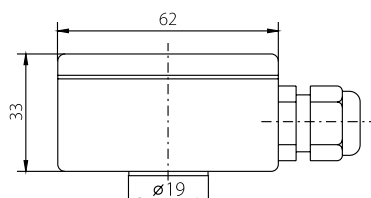


With converter

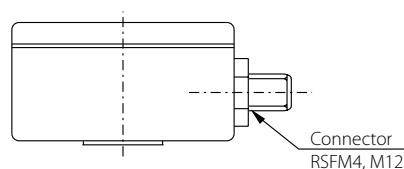


DIMENSIONAL DRAFT

Sensors with the grommet



Sensors with the connector



MODIFICATION AND CUSTOMIZATION

- option of encasing two sensing elements
- option of encasing non-standard temperature sensors (DALLAS, TSic, KTY, SMT, etc.)
- accuracy class A (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
- possibility of providing custom temperature ranges for temperature sensors with converter

