

TEMPERATURE SENSORS FOR OUTDOOR USE WITH A METAL CONNECTION HEAD

099.09en

DESCRIPTION AND APPLICATION

These resistance-type sensors are intended for contact temperature measurement of gaseous substances outdoors or in industrial areas. 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

- metal central holder K110

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.



SPECIFICATIONS

Sensor type	NK 110	NK 111	NK 112	NK 310	NK 311
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	NK 113	PTK 110	PTK 210	PTK 310	HK 110
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

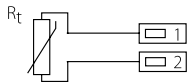
Sensor type	NK 510	Note
Type of sensing element	Pt 1000/3850	
Output signal	4 to 20 mA	
Measuring ranges	-30 to 60 °C 0 to 35 °C 0 to 100 °C 0 to 150 °C	ambient temperature around the connection head -30 to 70 °C
Measuring error	± 1 °C based on air flow speed	
Power supply (U)	11 to 30 V _{DC}	recommended value 24 V _{DC}
Load resistance	150 Ω for power supply 12 V 700 Ω for power supply 24 V	
Output signal - sensing element break	> 24 mA	
Output signal - sensing element short circuit	< 3.5 mA	

OTHER PARAMETERS

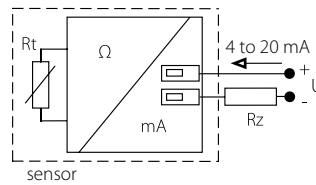
Accuracy class	Ni sensing elements: B class, $t = \pm (0.4 + 0.007t)$, for $t \geq 0$; $t = \pm (0.4 + 0.028 t)$, for $t \leq 0$ in °C; Pt sensing elements: B class according to EN 60751, $t = \pm (0.3 + 0.005 t)$ in °C NTC 20 kΩ: ± 1 °C for the range 0 to 70 °C
Sensing element connection	according to the wiring diagram
Standard length of the stem	for resistance output: 25 mm for output 4 to 20 mA: 50 mm
Time response	$\tau_{0.5} < 9$ s (air flow at 1 m.s ⁻¹)
Recommended wire cross section	0.35 to 1.5 mm ²
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25° ± 3 °C; humidity < 85 %
Ingress protection	IP 54 in accordance with EN 60529, as amended
Material of the stem	stainless steel DIN 1.4301
Type of connection head	LIMATHERM MA
Material of the connection head	aluminium alloy
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	0.2 kg

WIRING DIAGRAM

With a resistance-type output

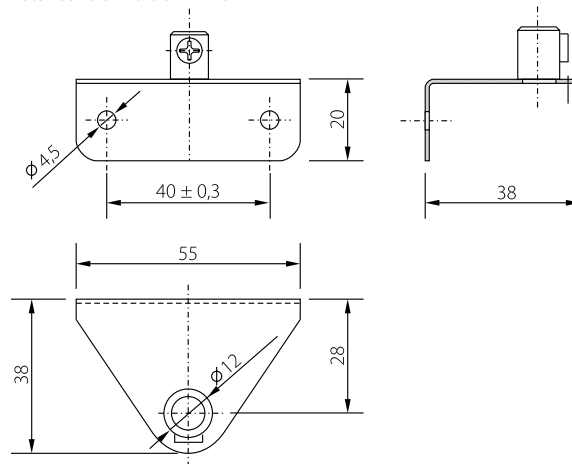
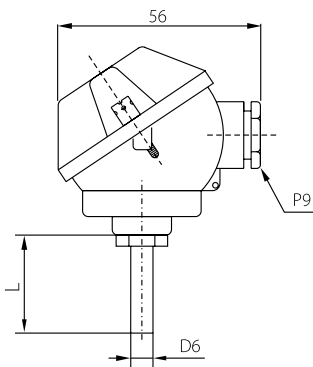


With a converter 4 to 20 mA



DIMENSIONAL DRAFT

Metal central holder K 110



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

