

TEMPERATURE SENSORS WITH A CABLE AND PLASTIC CASE



TR 160, TR 161 and TR 162

DESCRIPTION AND APPLICATION

Temperature sensors TR 160, TR 161 and TR 162 are intended for temperature measurements of solid, loose ground, gaseous and liquid materials. The ingress protection of the sensors is IP 67 according to EN 60 529 standard. The sensors have the polyamid case with diameter 6, 8 or 10 mm in which the own sensing element is hermetically encapsulated.

All types of thin layer resistance-type sensing elements made by company SENSIT s.r.o. (Ni 1000, Ni 891, T1 = Ni 2226, Pt 100, Pt 500, Pt 1000, NTC 20 kΩ) and also others (NTC and PTC thermistors, KTY, DALLAS 18B20 and others) can be used. The wiring of the sensors is standardly 2-wire.

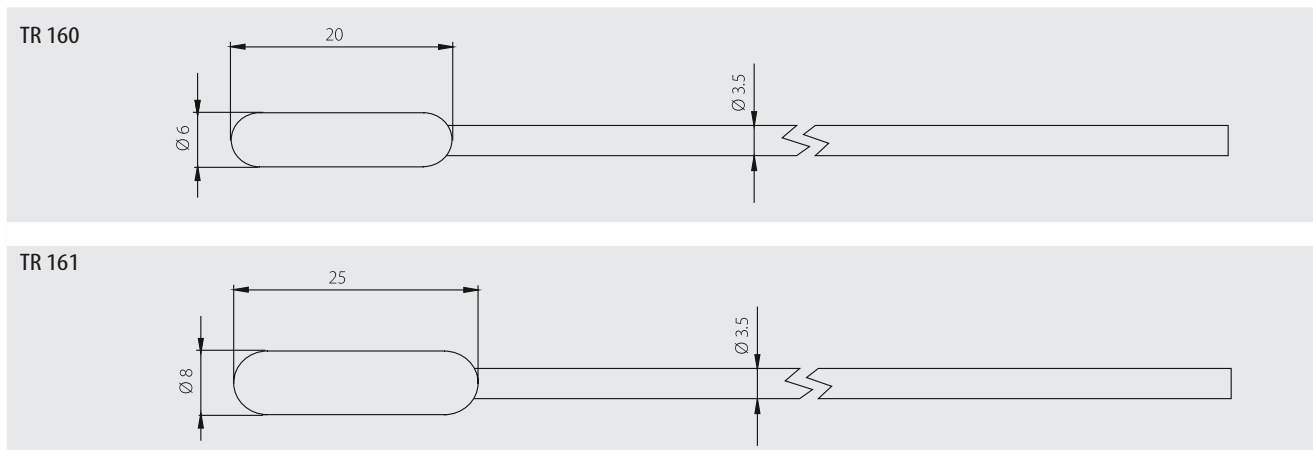
Material of the case has especially high resistivity to motor-car oils.



SPECIFICATIONS

Type of sensing element	Resistance temperature sensing element – Pt 100/3850, Pt 500/3850, Pt 1000/3850, Ni 1000/5000, Ni 1000/6180, Ni 10000/5000, Ni 10000/6180, T1 = Ni 2226, Ni 891, NTC Thermocouple temperature sensing element – TCK, TCJ, TCT Special temperature sensing elements – KTY, SMT 160, DALLAS, TSic, etc.
Accuracy class of individual sensors	Ni sensing elements: class B, $\Delta t = \pm (0.4 + 0.007t)$, for $t \geq 0$; $\Delta t = \pm (0.4 + 0.028 t)$, for $t \leq 0$ in °C; Pt sensing elements: class B in accordance with IEC 751, $\Delta t = \pm (0.3 + 0.005 t)$ in °C NTC 20 kΩ: ± 1 °C at a range of 0 to 70 °C KTY: ± 1 % at 25 °C NTC: ± 1 %, 3 %, 5 % at 25 °C (according to type) TC: class 2 in accordance with IEC 584-2 DS18B20: ± 0.5 °C for -10 up to 80 °C SMT 160-30: ± 0.7 °C TSic: according to type
Measuring range	-40 to 105 °C (according to the sensing element)
Ingress protection	IP 67 according to EN 60 529
Time response	$\tau_{0.5} \leq 12$ s, $\tau_{0.9} \leq 32$ s (in streaming water at 0.4 m.s ⁻¹)
Sensor connection	standardly 2-wire
Material of the case	on the base of polyamid
Length/diameter of the case	20 mm / 6 mm; 25 mm / 8 mm; 25 mm / 10 mm
Lead-in cable	FLRYWYW 2 x 0.35 mm ² PVC non shielded up to 105 °C; $R_v = 0.105$ Ω/m LiYY 2 x 0.25 mm ² PVC non shielded up to 80 °C; $R_v = 0.254$ Ω/m LiYCY 2 x 0.14 mm ² PVC non shielded up to 80 °C; $R_v = 0.14$ Ω/m

DIMENSIONAL DRAFT



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CUSTOMER SPECIFIC MODIFICATIONS

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

- 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