


**KTR 156/R**

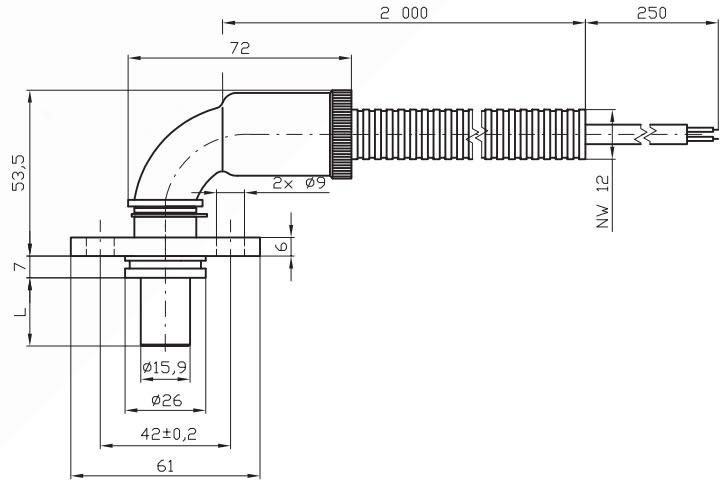
Temperature measurement of axle bearings



Z017.7a



temperature


**DESCRIPTION AND APPLICATION**

The KTR 156/R resistance temperature sensor is designed to measure temperature of solid substances. In the application segment of Railway Vehicles, it is intended to measure temperature of carriage axle bearings. The sensor configuration is depended on achieving the required resistance of the entire structure, in particular against vibrations and shocks.

The temperature range is  $-40\text{ }^{\circ}\text{C}$  to  $120\text{ }^{\circ}\text{C}$  and these limits must not be exceeded even for a brief period. The sensors can be used for any control systems compatible with types of sensing elements listed in the table of technical parameters. The sensor meets ingress protection IP 68 (1 bar) according to EN 60529 standard, as amended.

The sensor is intended for operation in chemically non-aggressive environment.

**TESTS, DECLARATION, CALIBRATIONS**

The **type tests** are carried out by a notified body according to **EN 50155** standard, as amended Railway applications – Electronic equipment used on rolling stock, Art. 12.2.9, 12.2.11

- Insulation test in accordance with **EN 50155**, as amended
- Shock and Vibration tests in accordance with **EN 61373**, as amended

The product meets parameters in accordance with **EN 45545-2**, as amended Fire protection on railway vehicles - Part 2: Requirements for fire behavior of materials and components. The materials also meet the requirements of the **NFPA 130** fire safety standard, as amended.

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	KTR 156/R
Type of sensing element	all types
Temperature range	$-40\text{ }^{\circ}\text{C}$ to $120\text{ }^{\circ}\text{C}$ (the measuring range can be extended – see the modifications)
Ingress protection	IP 68 (1 bar) in accordance with EN 60529
Case dimension	$15.9 \pm 0.05\text{ mm}$
Length of case L	10 to 100 mm
Case material	stainless steel DIN 1.4301
Lead-in cable	RADOX shielded $2 \times 0.5\text{ mm}^2$ RADOX shielded $4 \times 0.5\text{ mm}^2$
Wire resistance	$0.07\ \Omega$ for 1 m of cable for 2-wire connection
Protection tube	PMAFLEX PCST-12B.50, could be different
Insulation resistance	$> 200\ \text{M}\Omega$ at $500\ \text{V}_{\text{DC}}$ , $25\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$ , humidity $< 80\%$
Shock and vibration tests	category 3 in accordance with EN 61373
Insulation test	$4\ \text{kV}_{\text{DC}}$ for time 1 minute in accordance with EN 50155
Mean working life $\approx$ MTTF *	$1.95 \times 10^6\ \text{hrs}$

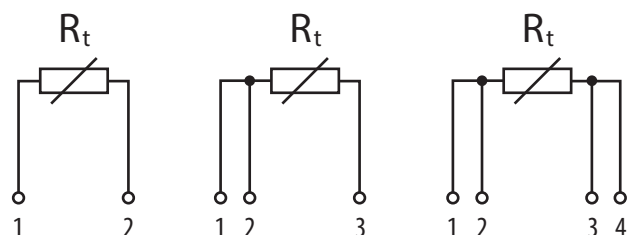
\* Under the environmental and operational conditions specified in approved testing methodology.

**WIRING DIAGRAM**

■ 2wire

■ 3wire

■ 4wire



## MODIFICATIONS ↓

FOR STANDARD MANUFACTURED SENSORS, IT IS POSSIBLE TO MODIFY THE FOLLOWING PARAMETERS:

- variable stem design – length L
- A class precision (with the exception Ni 10000/5000, Ni 10000/6180, T1 = Ni 2226, NTC 20 kΩ)
- possibility of encasing non-standard temperature sensors (DALLAS, TSiC, KTY, SMT, etc.)

**In case of change cable to silicone shielded 2 x 0.56 mm<sup>2</sup> (does not meet standard EN 45545-2) applies:**

- temperature range -50 °C to 150 °C (the measuring range can be extended – see the modifications)

## SENSOR INSTALLATION ↓

1. Place the sensor on the surface to be measured and attached by means of two screws of suitable length.
2. Connect the wires of the lead-in cable to the evaluation unit according the wiring diagram.  
**The lead-in cable shielding is not conductively connected with the external housing of the sensor or with the sensing element.**
3. Provide fixing the cable and the protective tube so as to prevent their free movement during measuring process.
4. After installation and connection to the consequential electrical measuring device, the sensor is ready for operation.  
**The sensor does not require any special manipulation or maintenance.**



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