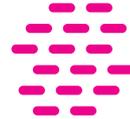




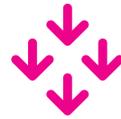
temperature



humidity



CO₂



atm. pressure



VOC

Sensors For Railway Vehicles

EN 61373

EN 50121-3-2

EN 50155

EN 45545-2



extend your senses

STANDARD TEMPERATURE SENSORS FOR RAILWAY VEHICLES

Technical parameters

- Passive output – resistance:
Pt 100/3850, Pt 500/3850, Pt 1000/3850,
Ni 1000/5000, Ni 1000/6180, Ni 10000/5000, Ni 10000/6180,
Ni 2226 = T1, Ni 891, NTC, PTC
KTY, SMT 160 etc.
2 x measuring element, etc.
- Active output: 4 to 20 mA, 0 to 10 V
- Digital output: RS 485 (MODBUS), CAN (CAN protocol),
DALLAS (DS18B20), TSiC (ZACwire)
- Maximal measuring range:
Temperature sensors with a cable
– with RADOX cable -40 to 120 °C
– with different cable type -50 to 400 °C (acc. the sensor type)
Temperature sensors with a connection head -50 to 150 °C
- Ingress protection: up to IP 68 (acc. the sensor type)
- Stem or measuring case material:
standardly stainless steel DIN 1.4301, brass, dural, stainless
steel DIN 1.4571 and others acc. to customer's requirement
- Cables: RADOX (fire-retardant cable), Silicone, Teflon
- Connexion of cable temperature sensors:
2wire, 3wire, 4wire
- Threads: standardly G 1/2", G 1/4", M 10 x 1, M 10 x 1,5
etc. acc. to application

TYPE TESTS

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

- Electromagnetic Compatibility
in accordance with **EN 50121-3-2**, as amended
- Insulation test
in accordance with **EN 50155**, as amended
- Shock and Vibrations test
in accordance with **EN 61373**, as amended

Products 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.

↓ TEMPERATURE SENSORS WITH PLASTIC CONNECTION HEAD

(KNS 100, KNS 110A, KNS 120)



↓ UNIVERSAL CABLE TEMPERATURE SENSORS WITH SMOOTH CASE

(KTG 12, KTG 3, KTG 8/R, KTG 68/R)



↓ UNIVERSAL CABLE TEMPERATURE SENSORS WITH THREAD

(KTG 6/R, KTG 2/R, KTR 030A/R, KTR 028A/R)



↓ UNIVERSAL CONTACT CABLE TEMPERATURE SENSORS

(KTR 141, KTR 026D, KTR 026H)



↓ UNIVERSAL TEMPERATURE SENSORS WITH CONNECTOR

(KTR 021, KTR 021V, KTR 021A)



SPECIAL TEMPERATURE SENSORS FOR RAILWAY VEHICLES

KTR 156/R



Temperature measurement of axle bearings as a basis for indicating the possibility of destruction by seizure

KTR 167/R



Temperature measurement of axle bearings as a basis for indicating the possibility of destruction by seizure

KTR 069/R



Temperature measurement of cooling air in traction motors of shunting locomotives

KTR 164/R



Temperature measurement of traction converter systems of electric locomotives and units

KTR 149



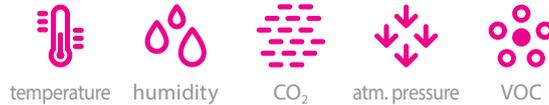
Part of the heating control of turnouts

KTR 107



Substitute temperature measurement of electrical resistors of electrodynamic brakes

COMBINED SENSORS



Technical parameters

- Design: for interiors and exteriors, air-conditioning ducts
- Output: 4 to 20 mA, 0 to 10 V, RS 485, CAN protocol
- Measuring range of relative humidity: 0 to 100 % RH
- Measuring range of CO₂: 400 to 5000 ppm
- Measuring range of VOC (IAQ index): 0 to 500
- Maximal temperature measuring range: -40 °C to 125 °C acc. to sensor type
- Possible to choose a sensor version with various combinations of measured quantities (combination of two to five measured quantities)



TEMPERATURE SWITCHES

↓ ELECTRONIC TEMPERATURE SWITCHES / Technical parameters

- Design on a DIN bar
- Input: Pt 100/3850, Pt 1000/3850, Ni 1000/6180
- Hysteresis: adjustable
- Maximal measuring range: -50 °C to 400 °C
- Power supply: 12/24 V or 230 V/50 Hz (according to the sensor type)
- Output: relay, RS 4857
- Standards: EN 61373, EN 50121-3-2, EN 50155, EN 45545-2 (possible also NFPA 130)



↓ BIMETALLIC TEMPERATURE SWITCHES / Technical parameters

- Switch off / switch on temperature from 70 °C to 180 °C
- Design: with a smooth stem, with a thread
- Contact design: normally open / normally closed

CONVERTERS

Temperature – Current / Temp. – Voltage / Temp. – RS 485 / Temp. – CAN protocol

- Output: 4 to 20 mA, 0 to 10 V, RS 485, CAN protocol
- Power supply: 11 to 30 V DC (according type)
- Standard measuring range: -30 °C to 60 °C, 0 °C to 35 °C, 0 °C to 100 °C, 0 °C to 150 °C, 0 °C to 200 °C, 0 °C to 400 °C; possibility of custom setting of the measuring range
- Design: on a DIN bar, wall-mounted version
- Standards: EN 50155, EN 50121-3-2, EN 61373, EN 45545-2, (possible also NFPA 130)





temperature



humidity



CO₂



atm. pressure



VOC



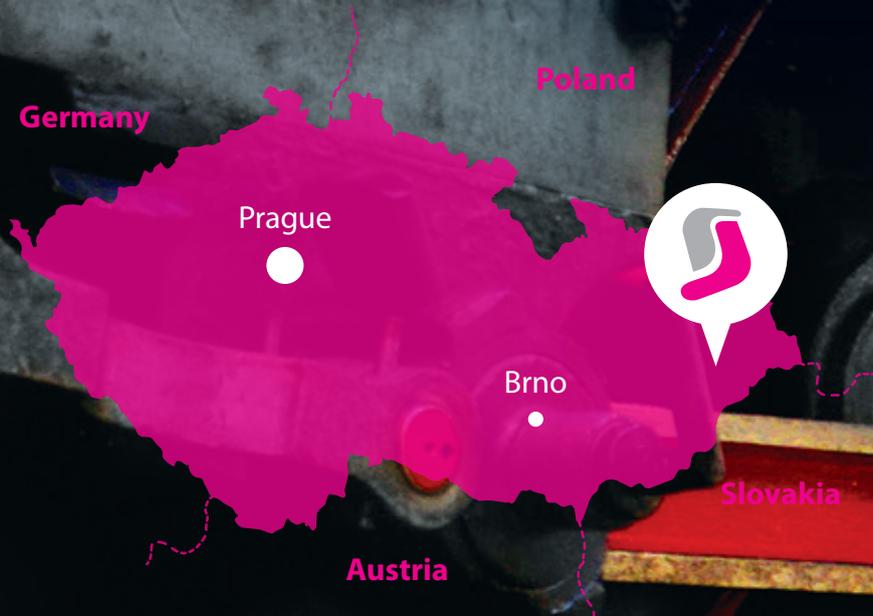
level



flow



position



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