Operating Instructions

for

Resistance Thermometers for Harsh Operational and Ambient Conditions

Model: TNK

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Manufactured and sold by:

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2. Note

into operation. Follow the instructions precisely as described herein.
The instruction manuals on our website www.kobold.com are always for currently manufactured version of our products. Due to technical changes, the instruction manuals available online may not always correspond to the product version you have purchased. If you need an instruction manual that corresponds to the purchased product version, you can request it from us free of charge by email (info.de@kobold.com) in PDF format, specifying the relevant invoice number and serial number. If you wish, the operating instructions can also be sent to you by post in paper form against an applicable postage fee.

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

The devices are only to be used, maintained and serviced by persons familiar with these operating instructions and in accordance with local regulations applying to Health & Safety and prevention of accidents.

When used in machines, the measuring unit should be used only when the machines fulfil the EC machinery directive.

3. Instrument inspection

Instruments are inspected before shipping and sent out in perfect condition.
Should damage to a device be visible, we recommend a thorough inspection of the delivery packaging. In case of damage, please inform your parcel service / forwarding agent immediately, since they are responsible for damages during transit.

Scope of delivery:
The standard delivery includes:

- Resistance thermometer model: TNK

4. Regulation use

Any use of the resistance thermometer, model: TNK, which exceeds the manufacturer's specification, may invalidate its warranty. Therefore, any resulting damage is not the responsibility of the manufacturer. The user assumes all risk for such usage.

5. Operation

Resistance thermometers are electric temperature measuring transducers which, when used in conjunction with the corresponding evaluation devices, display and regulate temperatures. They contain temperature-dependent measurement resistors that are housed in one of the valves adapted for this purpose.
TNK resistance thermometers are specially designed for use in shipbuilding and mechanical engineering and meet the high demands for robustness, reliability, impact resistance, shock and vibration resistance; particularly suitable for temperature measurements on diesel engines.
The resistance thermometer sensor is made of brass, saltwater-resistant bronze or stainless steel. The connecting head is made of saltwater resistant aluminum and is available with various cable inlets. The sensor can be built onto the machine or into the pipeline using different threaded nipples or clamp screws.
The measurement resistors can be replaced without having to remove the valve. For more critical applications, the sensor can also be used as a dual precision resistor.

6. Mechanical connection

Before installation:

- Remove all transportation locks and ensure that there are no packaging materials left in the unit.
- Ensure that the permissible max. operating pressure and operating temperature for the unit are not being exceeded (see technical data).

During installation:

- Install the resistance thermometer in the system at zero potential.
- Protect the measurement sensor from mechanical damage during the process
- Seal the mounting thread or the mounting flange with appropriate sealant.
- If possible, at this point, a check should be carried out after the mechanical installation, to determine if the connecting fittings are completely sealed.
- If the resistance thermometer is mounted in an exposed location, the connecting head should be protected from exterior damage.

7. Electrical connection

Warning! Ensure that the voltage values in your system correspond to the voltage values for the measurement unit.

The electrical connection should only be carried out by competent staff with the relevant expertise.

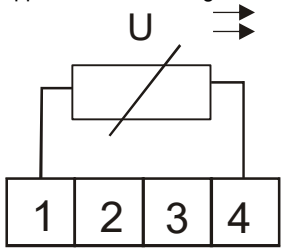
Choose a suitable cable for the electrical connection:

Version TNK-...P:	Cable diameter 5-10 mm
Version TNK-...M:	according to DIN 89280 with internal thread M18x1.5 for cables with a cap, diameter: 8-10.5 mm (For shipping use)
Version TNK-...M:	according to VG 88812 with internal thread M18x1.5 for cables with a cap, diameter: 11.5-12.5 mm (For military use)

Circuit diagram for plug-in socket

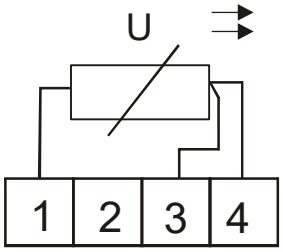
2 conductor (TNK-1xxx xx x2x)

The conductor resistance is read as a measurement error approx. 30 m and longer



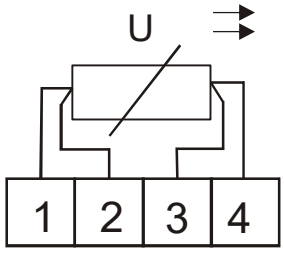
3 conductor (TNK-1xxx xx x3x)

Measurement deviations can arise from a cable length of

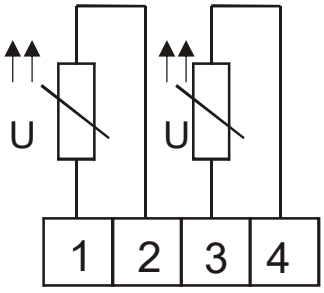


4 conductor (TNK-1xxx xx x4x)

The internal conductor resistance of the connecting wires **B(D)2x)** can be ignored



2x 2 conductor (TNK-1xxx xx 2(6)2x)
2x 2 conductor (TNK-1xxx xx



We recommend connection to suitable transmitter/evaluation devices (see brochure Z2)

8. Maintenance

The resistance thermometers do not require maintenance.
The measurement inserts are interchangeable with the resistance sensors.

9. Technical Information

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

10. Order Codes

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

11. Dimensions

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

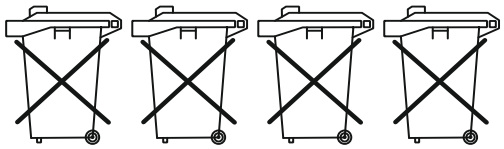
12. Disposal

Note!

- Avoid environmental damage caused by media-contaminated parts
- Dispose of the device and packaging in an environmentally friendly manner
- Comply with applicable national and international disposal regulations and environmental regulations.

Batteries

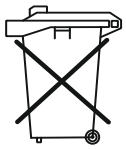
Batteries containing pollutants are marked with a sign consisting of a crossed-out garbage can and the chemical symbol (Cd, Hg, Li or Pb) of the heavy metal that is decisive for the classification as containing pollutants:



Cd[1] Hg[2] Pb[3] Li[4]

1. „Cd" stands for cadmium
2. „Hg" stands for mercury
3. „Pb" stands for lead
4. „Li" stands for lithium

Electrical and electronic equipment



13. EU Declaration of Conformance

We, KOBOLD Messring GmbH, Nordring 22-24, 65719 Hofheim, Germany, declare under our sole responsibility that the product:

Resistance Thermometer **Model: TNK-...**

to which this declaration relates is in conformity with the following EU directives stated below:

2011/65/EU **RoHS** (category 9)
2015/863/EU Delegated Directive (RoHS III)

Also, the following standards are fulfilled:

EN IEC 63000:2018 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Hofheim, 10 October 2023

H. Volz
General Manager

J. Burke
Compliance Manager

14. UK Declaration of Conformity

We, KOBOLD Messring GmbH, Nordring 22-24, 65719 Hofheim, Germany, declare under our sole responsibility that the product:

Resistance Thermometer **Model: TNK-...**

to which this declaration relates is in conformity with the following UK directives stated below:

S.I. 2012/3032 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

Also, the following standards are fulfilled:

BS EN IEC 63000:2018
Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

Hofheim, 10 October 2023

H. Volz
General Manager

J. Burke
Compliance Manager