Operating Instructions

for

Bimetal Temperature Switch

Model: TWS

We don't accept warranty and liability claims neither upon this publication nor in case of improper treatment of the described products.

The document may contain technical inaccuracies and typographical errors. The content will be revised on a regular basis. These changes will be implemented in later versions. The described products can be improved and changed at any time without prior notice.

1. Contents

Manufactured and sold by:

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Internet: www.kobold.com

2. Note

Please read these operating instructions before unpacking and putting the unit 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:
- Bimetal Temperature Switch model: TWS

4. Regulation Use

Any use of the device, 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. Operating Principle

TWS model devices are used to monitor the temperature of liquids. The temperature switches are delivered with a preset temperature switching value with N/O or N/C contacts. Only liquids to which the thermostat materials are resistant should be monitored.

The switching element in the model TWS is a thermal time-delay switch. Two strips of metal with different coefficients of thermal expansion are rolled together in the switch. When temperature is applied the bimetal reed bends and thus opens/closes the contact. The switching function is current-independent.

6. Use in Hazardous Areas

6.1 General

TWS is not suitable for use in Hazardous areas.

7. Mechanical Connection

Before installation:

- Make sure that the desired TWS switching temperature and switching function corresponds with your plant requirements. The TWS data is to be found on the metal nameplate (OFF = N/C contact, ON = N/O contact at the specified temperature).
- Ensure that the permitted maximum operating pressures for the temperature switches are not exceeded.

Installation:

- The TWS is installed in different thread size fitting. Seal the connection threads with sealing tape or a flat gasket.
- Chose the installation position so that the sensor tipis always immersed in the liquid, thus optimising the heat exchange between medium and temperature switch.
- Please note that solid deposits in soiled media may cause thermal insulation and thus inaccuracies.
- If possible,after mechanical installation, check that the joint connection pipe fitting is sealed.

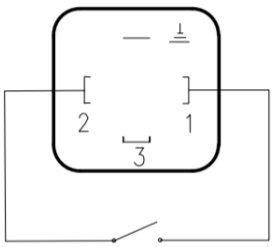
8. Electrical Connection

Important! Ensure that voltage and current values in your plant do not exceed the temperature switch values.

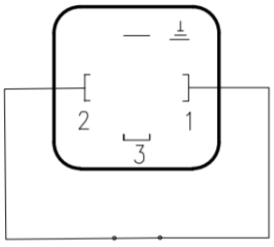
- Make sure that electrical supply lines are de-energized.
- Undo the retaining screw from the plug cap and remove the cap from the plug socket.
- Install the supply line in the plug cap according to the wiring diagram below.
- Mount the connector on the contact base and fasten with the retaining screw.

The device is ready for operation when you have connected your external devices to the limit output.

Contacts TWS-D

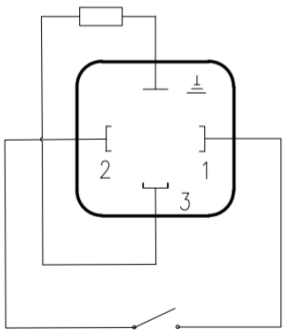


T1: N/O



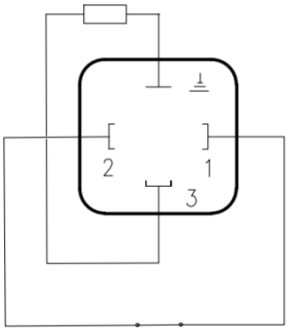
T1: N/C

PT100/PT1000/
T2(N/O,N/C)



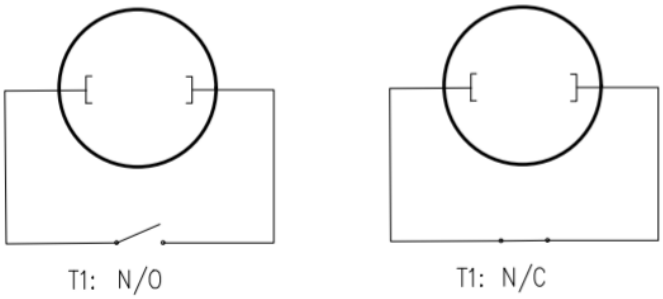
T1: N/O

PT100/PT1000/
T2(N/O,N/C)

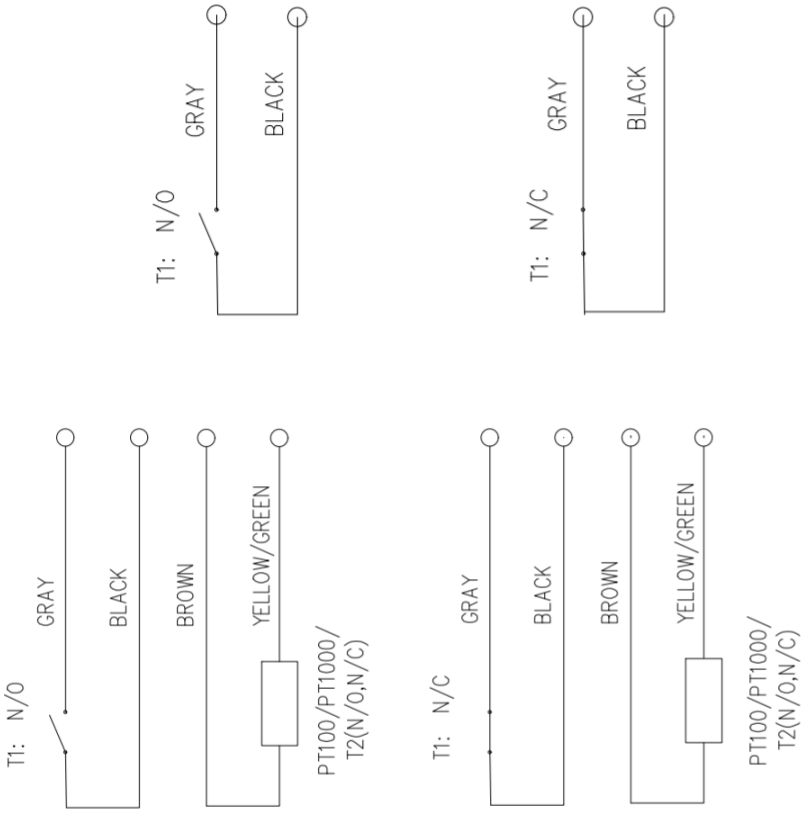


T1: N/C

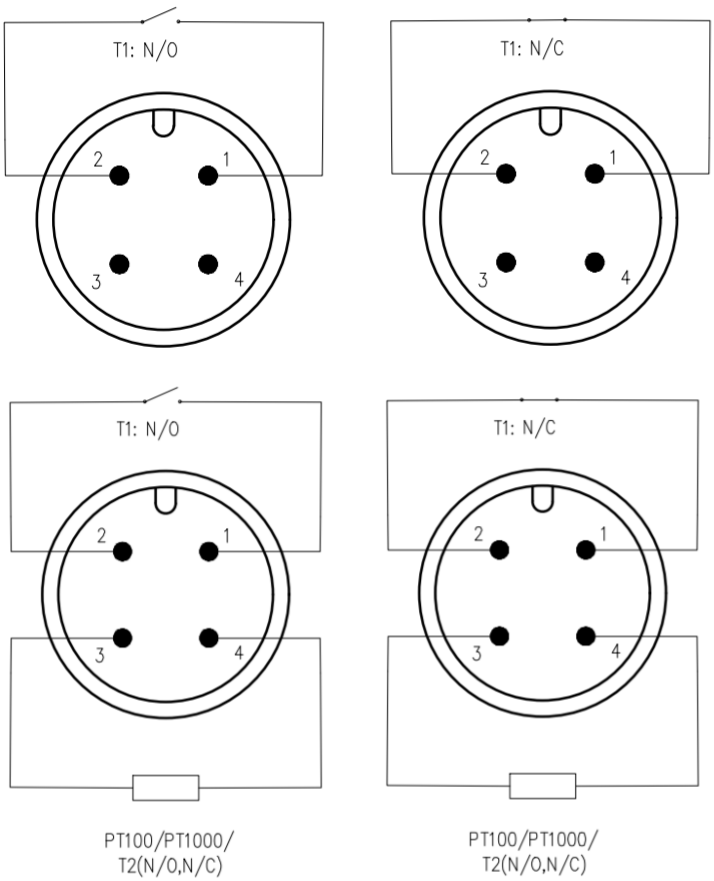
Contacts TWS-F



Contacts TWS-V & TWS-K



Contacts TWS-M



Break contact (N/C)
The contact opens when the temperature rises and the switching value has been reached or exceeded. It closes again when the temperature falls below the limit valueless the switching hysteresis.

Make contact (N/O)
The contact closes when the temperature rises and the switching value has been reached or exceeded. It opens again when the temperature falls below the limit valueless the switching hysteresis.

Hysteresis
Hysteresis is the difference between make and break points, which are at different temperatures. The hysteresis of mode TWS-F/K/V/D is about 15 to 30 K below the switching temperature. The hysteresis of mode TWS-M is about 15 to 45 K below the switching temperature.

Example: For TWS-F1 . . 050 . . . . .
Contact opens at 50 °C ± 5 °C
Contact closes at approximately 20 ~35 °C

Note: Temperature switches with low switching temperatures, when used at high ambient temperatures, are only reset when the switch is cooled to below the ambient temperature.

9. Maintenance

The TWS requires no maintenance if the measured medium is clean. Dirt deposits can cause inaccuracies or a malfunction. Depending on the degree of soiling of your medium, we recommend that the devices are checked at regular intervals.

10. Technical Information

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

11. Order Codes

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

12. Dimensions

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

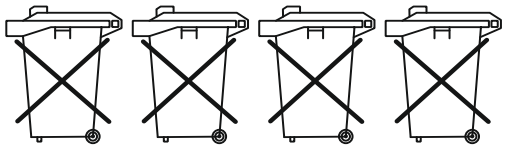
13. Disposal

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

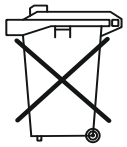
Batteries containing pollutants are marked with a sign consisting of a crossed-out garbage can and the chemical symbol (Cd, Hg, Li or Pb) of the heavy metal that is decisive for the classification as containing pollutants:



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



14. EU Declaration of Conformance

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

Temperature Switch **Model: TWS-...**

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

2014/35/EU	**Low Voltage Directive**
2011/65/EU	**RoHS** (category 9)
2015/863/EU	Delegated Directive (RoHS III)

Also, the following standards are fulfilled:

EN 61010-1:2010+A1:2019+A1:2019/AC:2019
Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements

EN 60529:2014
Degrees of protection provided by enclosures (IP Code)

EN 60730-1:2016+A1:2019
Automatic electrical controls - Part 1: General requirements

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

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J. Burke
Compliance Manager