Operating Manual

BROSA Temperature Transducer, type 0401

English translation of German original operating manual

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1 General information

Read the operating instructions and the product-specific documents carefully before commissioning the sensor.

Make sure that the sensor is fully suitable for the applications in question.

Improper use or any use other than intended may result in a malfunction of the sensor or undesirable effects in your application. For this reason, installation, electrical connection, commissioning and maintenance of the sensor may only be carried out by trained personnel authorized by the plant operator.

We also expressly point out that any liability is excluded if instructions in this documentation are disregarded.

The specified properties apply exclusively in the unchanged delivery condition. Applicable standards and guidelines must be observed, especially when recoating.

Current certificates can be downloaded from the BROSA GmbH website.

Only the German version of this operating manual represents the original document.

1.1 Safety instructions – Explanation of symbols:

 WARNING! This symbol indicates dangers that can lead to personal injury and property damage!

2 Description of the BROSA temperature transducer

2.1 Structure and functionality

BROSA Type 0401 temperature transducers are typically used where temperatures need to be measured at elevated pressure.

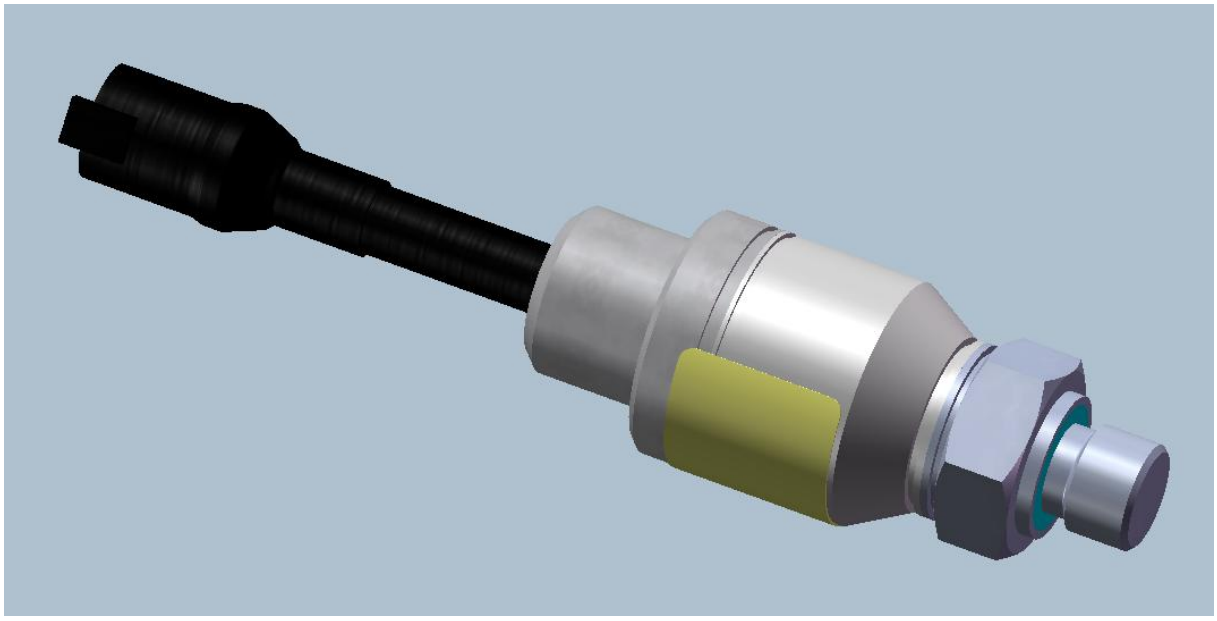

Figure 1: Temperature transducer

Use below a water surface is generally possible after testing and approval by BROSA.

Special requirements exist concerning the materials and surface coatings used as well as the watertightness and electrical connections.

Furthermore, there is a possibility that the measurement result would be influenced by the water pressure.

The electrical connection is made according to the pin assignment shown on the technical data sheet. The installation location must be chosen so that the sensor is mounted in a place where it is best protected against mechanical damage, strong vibrations and the influence of heat.

3 Advice on the safe handling of BROSA sensors

 WARNING! Non-compliance with the following instructions can lead to sensor damage and/or impairment of measurement results. The analysis of an erroneous measurement can result in personal injury or material damage.

 WARNING! Despite their sturdy design, BROSA sensors may not be used for any other than the intended purpose. With improper use, dangers to life and limb of the user or third parties and/or impairment of the device in which the sensor is implemented or other material assets can be caused.

3.1 Handling

 WARNING! BROSA sensors contain high-quality measurement electronics. Make sure they are handled carefully.

- BROSA sensors are delivered in transport-safe packaging. We recommend that you remove the sensors from the package immediately prior to installation.

- The mass of the sensor is to be observed when selecting appropriate handling equipment and/or lifting gear.

- BROSA sensors must be secured against falling. Do not throw sensors!

- Use as a tool (e.g., impact, slotting or lever tool) is not permitted; it can cause damage to the sensor and thus falsify the measurement results.

3.2 Installation and commissioning

3.2.1 General information

We recommend taking the following actions in the given order using the “four-eye principle”.

a) Checking the sensor-measuring point assignment: It must be ensured that the

sensor to be installed is designed for use at the intended measuring point. For this purpose, check information on the technical datasheet and the nameplate, in

particular the item or the identification number and the measuring range, against the data of the measuring point.

⚠ WARNING! A sensor not designed for the particular measuring point must not be installed.

b) Inspection of the sensor for intactness and function: It must be ensured that the sensor to be incorporated is free of damage of any kind.

⚠ WARNING! A damaged sensor must not be installed!

c) Installation of the sensor in the measuring point:
The sensor is to be installed according to the offer drawing and is to be aligned on the intended contact surface.

⚠ WARNING! The sensor must not be driven in or aligned using impact tools!

After alignment, which may be necessary depending on the sensor type, the sensor must be secured against movement and rotation using the elements provided for this purpose.

⚠ WARNING! A misaligned sensor leads to erroneous measurement results!

d) Establishment of electrical connection: The elements on the sensor for the electrical connection are to be connected to the power supply, the earth connection if necessary, and the evaluation system of the device. In doing so, the information given on the nameplate for plug or cable assignment and, if applicable the installation guidelines of the cable, are to be observed.

⚠ WARNING! An incorrect or incomplete electrical connection impairs or prevents measurement.

e) Functional check: After completed mechanical (see c) and electric (see d) installation, load on the sensor is to be applied over the entire measuring range; the output measurement signals are to be subjected to a plausibility check.

⚠ WARNING! If due to unusual events (e.g., deformation or unusual noise), measurement results are considered implausible or there is suspicion that the sensor is malfunctioning for any other reason, it must not be put into operation.

3.3 Operation and maintenance

3.3.1 Operation

BROSA sensors are self-acting, no tools are required for operation. Direct manual intervention by the operator is not necessary, therefore there are no requirements for the operator's protective equipment during use. Nonetheless, the relevant specifications for the device in which the sensor is implemented must be observed.

BROSA sensors do not emit airborne sound emissions or electromagnetic radiation.

BROSA sensors may only be operated within the parameters and characteristics given in the technical data sheets and recorded on the nameplate. Among others, these are: These are, among others:

- Temperature range
- Pressure range
- Permissible supply voltage
- Electrical protection class

Inductive or capacitive coupling to the sensor connection cable(s) can falsify the measurement result and must therefore be avoided. Couplings of this type can, for example, arise through unfavourable cable routing (parallel high voltage power lines, frequency converters, transformers, motors, incorrect grounding/shielding, or similar).

When performing electric welding work near the sensor, disconnect and insulate all connections. It must be ensured that no welding current flows via the sensor.

 ATTENTION! Operation outside the specified parameters or contrary to the existing properties or use not in accordance with the intended purpose can damage the sensor and lead to its failure or result in incorrect measurement results.

3.3.2 Maintenance

BROSA sensors operate maintenance-free. As a preventive measure, each sensor must be checked regularly for proper condition. The intervals between tests depend on the intensity of use and must be determined by the end user.

A test includes the following items:

- Visual inspection for damage to the measuring body and wiring as well as contamination.
- Function test/plausibility check

The causes of existing errors are to be identified and remedied. If the test indicates an improper sensor state, it must be taken out of operation. If a malfunction or damage is detected on the sensor, it must be sent to the manufacturer's factory for diagnosis and, if necessary, repaired.

 WARNING! The sensor may only be repaired at the factory. Intervention (e.g., opening, mechanical processing and the like) done by parties other than the manufacturer means the safe operation of the sensor is no longer ensured and voids the warranty.

3.4 Disassembly

We recommend performing the following actions in the order given.

a) Disconnecting the electrical connection
b) Removal of the sensor

3.5 Disposal

If the end of the service life is reached, the sensor is to be disposed of in an environmentally friendly way. Since the non-metallic components are a small proportion compared to the mass of the sensor, it can be recycled as a whole as scrap steel.

If the sensor is stored before final disposal, an appropriate storage location is to be selected which prevents harmful substances from entering the environment. If necessary, the sensor must be cleaned.

 WARNING! BROSA sensors contain traces of environmentally hazardous substances. This is also true of the impurities created during use. Contamination of the environment by these substances is to be prevented.