ABB MEASUREMENT & ANALYTICS | OPERATING INSTRUCTION

SensyTemp TSH200

Straight thermocouples

Measurement made easy

TSH210
TSH220

Introduction

Straight thermocouple for high temperature applications such as industrial furnaces or combustion and smelting processes. Communication via FOUNDATION Fieldbus, PROFIBUS PA, HART, 4 to 20 mA or directly via the sensor output

Additional Information

Additional documentation on SensyTemp TSH200 is available for download free of charge at www.abb.com/temperature.
Alternatively simply scan this code:

Table of contents

1 Safety

General information and instructions

These instructions are an important part of the product and must be retained for future reference.
Installation, commissioning, and maintenance of the product may only be performed by trained specialist personnel who have been authorized by the plant operator accordingly. The specialist personnel must have read and understood the manual and must comply with its instructions.
For additional information or if specific problems occur that are not discussed in these instructions, contact the manufacturer.
The content of these instructions is neither part of nor an amendment to any previous or existing agreement, promise or legal relationship.
Modifications and repairs to the product may only be performed if expressly permitted by these instructions.
Information and symbols on the product must be observed. These may not be removed and must be fully legible at all times.
The operating company must strictly observe the applicable national regulations relating to the installation, function testing, repair and maintenance of electrical products.

Warnings

The warnings in these instructions are structured as follows:

⚠ DANGER

The signal word '**DANGER**' indicates an imminent danger. Failure to observe this information will result in death or severe injury.

⚠ WARNING

The signal word '**WARNING**' indicates an imminent danger. Failure to observe this information may result in death or severe injury.

⚠ CAUTION

The signal word '**CAUTION**' indicates an imminent danger. Failure to observe this information may result in minor or moderate injury.

NOTICE

The signal word *'**NOTICE**'* indicates possible material damage.

Note

'**Note**' indicates useful or important information about the product.

… 1 Safety

Intended use

The temperature sensors are used for temperature measurement in a wide variety of high-temperature applications up to 1800 °C (3272 °F).
The device is designed for use exclusively within the values stated on the name plate and in the specification (see **Specification** in the operating instruction or data sheet).

- The maximum operating temperature may not be exceeded.
- The maximum ambient temperature may not be exceeded.
- The IP rating must be observed during operation.

Before using the devices with corrosive or abrasive measuring media, the owner must check the level of resistance of all wetted parts. ABB Automation Products GmbH will gladly support you in selecting the appropriate device, but cannot accept any liability in doing so.

When using measuring media, the following items need to be considered:

- Measuring media may only be used if, based on the state of the art or the operating experience of the user, it can be assured that the chemical and physical properties necessary for operational security of the materials of the wetted parts of the temperature sensor will not be adversely affected during the operating time.
- Measuring media with unknown properties or abrasive measuring media may only be used if the operator is able to perform regular and suitable tests to ensure the safe condition of the device

Improper use

The following are considered to be instances of improper use of the device:

- For use as a climbing aid, for example for mounting purposes.
- For use as a bracket for external loads, for example as a support for piping, etc.
- Material application, for example by painting over the housing, name plate or welding/soldering on parts.
- Material removal, for example by spot drilling the housing.

Warranty provisions

Using the device in a manner that does not fall within the scope of its intended use, disregarding this manual, using underqualified personnel, or making unauthorized alterations releases the manufacturer from liability for any resulting damage. This renders the manufacturer's warranty null and void.

Manufacturer’s address

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Measurement & Analytics
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Germany
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Customer service center
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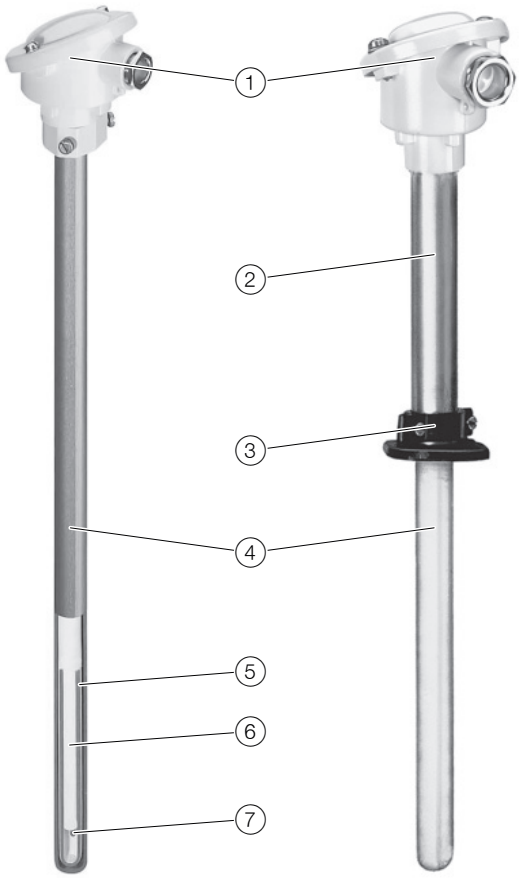
2 Design and function



1. Connection head with (optionally with transmitter)
2. Holding tube (for TSH220 only)
3. Process connection
4. Thermowell
5. Inner tube
6. Insulating rod
7. Thermocouple

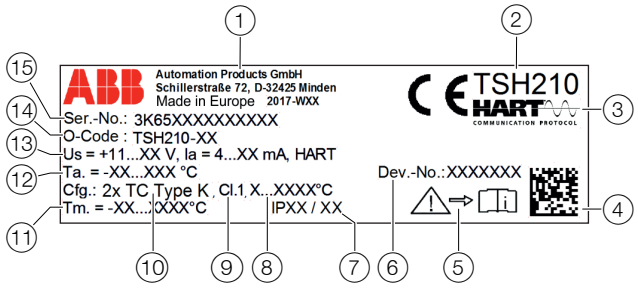
Figure 1: Temperature sensor design

Temperature sensors in the SensyTemp TSH200 series are used to record temperatures in high temperature applications (for example molten metal).
Temperature sensors can be equipped with or without a transmitter.
In temperature sensors without a transmitter, the thermal voltage of the thermocouple is further transmitted through the terminals in the connection head without conversion.
In temperature sensors with a transmitter, the temperature signal is converted into a scaled current or bus signal.
When the HART®, PROFIBUS® or FOUNDATION Fieldbus® communication standards are used, additional information is available. The transmission of scaled signals for process evaluation purposes is independent of distance and environmental influences.

More detailed functional descriptions and information concerning the required transmitters can be found in the relevant data sheets and operating instructions.

3 Product identification

Name plate



1. Manufacturer address, year – week of manufacture
2. Type designation / model
3. With integrated transmitter: communications protocol of the transmitter (HART®, FF, PB)
4. 2D barcode for serial number in accordance with order
5. 'Follow product documentation' symbol
6. 7-digit serial number of the device electronic unit of the optional transmitter (previous designation: serial number of the transmitter)
7. IP rating of housing

8 to 10 Temperature sensor without / with HART® transmitter:

8. Without transmitter: temperature range of the accuracy class, with HART transmitter: adjusted measuring range of the transmitter
9. Accuracy class
10. Type of thermocouple

8 to 10 temperature sensor with FOUNDATION Fieldbus® or PROFIBUS PA® transmitter: Ident_Number or DEVICE_ID

11. Measuring medium temperature range (process temperature)
12. Ambient temperature range (temperature at connection head)
13. Specification of the optional integrated transmitter (power supply, output current range, communication protocol)
14. Coding of the approvals of the device (in accordance with ordering information)
15. Serial number of the device (serial number in accordance with order)

Figure 2: Name plate (example)

Note
Optionally, an approval plate can be present as well.
The approval plate contains information concerning the corresponding approval, such as, for example Approval number, type designation in accordance with the approval or indicates a manufacturer declaration.

Notice
The name plates displayed are examples. The device identification plates affixed to the device can differ from this representation.

Notice
The values specified on the name plate are maximum values and do not take process-related stress into consideration. This should be taken into consideration when working with the instruments.

4 Transport and storage

Unpacking the device

NOTE

Damage to the device due to improper handling!
Ceramic thermowells are fragile and be damaged due to improper handling.

- Handle the temperature sensor with caution and avoid any kind of mechanical shock or impulse.

Note the following items when unpacking the devices:

- Take special care when unpacking the devices to prevent any damage.
- Check the packing and packing material for accessories.
- For temperature sensors with flange, remove the transport lock in accordance with the accompanying instruction.

Inspection

Check the devices immediately after unpacking for possible damage that may have occurred from improper transport. Details of any damage that has occurred in transit must be recorded on the transport documents.
All claims for damages must be submitted to the shipper without delay and before installation.

Transporting the device

Observe the following instructions:

- Do not expose the device to humidity during transport. Pack the device accordingly.
- Pack the device so that it is protected against vibrations during transport, for example, by using air-cushioned packing.

Storage conditions

Bear the following points in mind when storing devices:

- Store the device in its original packing in a dry and dust-free place.
- The storage temperature should be in the range of −20 to 70°C (−4 to 158 °F).
- After longer periods of storage, check the gaskets and replace, if necessary, prior to use.
- In principle, the devices may be stored for an unlimited period. However, the warranty conditions stipulated in the order confirmation of the supplier apply.

Returning devices

For the return of devices, follow the instructions in **Returning devices** on page 16.

5 Installation

⚠ WARNING

Risk of injury due to process conditions.
The process conditions, for example high pressures and temperatures, toxic and aggressive measuring media, can give rise to hazards when working on the device.

- Before working on the device, make sure that the process conditions do not pose any hazards.
- If necessary, wear suited personal protective equipment when working on the device.
- Depressurize and empty the device / piping, allow to cool and purge if necessary.

NOTE

Damage to the device due to improper handling!
Ceramic thermowells are fragile and be damaged due to improper handling.

- Handle the temperature sensor with caution and avoid any kind of mechanical shock or impulse.

General information

- The temperature sensor (thermocouple) must have optimal contact with the measuring medium.
- The IP rating will no longer apply in the event of damage to the connection head or the threads, gaskets or cable glands on the connection head.
- The connection leads must be firmly connected to the terminals.
- The correct polarity must be ensured in the case of thermocouples.
- When installing temperature sensors in existing thermowells, make sure that the temperature sensor can be inserted easily. If this is not the case, the inside of the thermowell will need to be cleaned.
- When installing exchangeable measuring insets in existing thermowells, make sure that the measuring inset can be inserted easily. If this is not the case, the inside of the thermowell will need to be cleaned.
- The temperature sensor must be firmly and securely installed in a way that conforms to the requirements of the application process.
- Please take note of the sensor and circuit type specified.
- After clamping the connection leads using a suited tool (screwdriver, wrench), you must make sure that the connection heads are securely closed and sealed again. When doing this, make sure that the sealing rings of the connection heads are clean and undamaged.
- The gaskets should be selected and correctly installed in accordance with the requirements.
- In devices with flange process connections, evenly tighten the flange screws in a cross wise manner.

Installation instructions

Ambient temperature

Design	Ambient temperature
Connection head without transmitter and with suited cable gland	−40 to 120 °C (−40 to 248 °F):
Connection head with transmitter	−40 to 85 °C (−40 to 185 °F):

In specific applications, high temperature sensors are frequently subjected to higher temperatures at the connection head.
In temperature sensors with cable glands, the supplied cable gland (thread M20 × 1.5) is fitted with a silicon thrust collar instead of a rubber thrust collar.

Mounting position

For high process temperatures, we recommend a vertical mounting position of the temperature sensor to protect against bending and prevent mechanical damage to the thermowell.
If the temperature sensor can only be mounted in a horizontal mounting position, the thermowell should be supported.

Mounting in installations at operating temperature

Ceramic thermowells are characterized by a high level of hardness and brittleness. If ceramic thermowells are exposed to temperature shock, they can crack due to internal stress in their grain structure.

For this reason, temperature sensors with ceramic thermowells may only be introduced gradually into the process:

Process temperature	Slide-in rate
≤ 1600 °C (≤ 2912 °F)	1 to 2 cm/min (0.4 to 0.8 in/min)
≤ 1200 °C (≤ 2192 °F)	10 to 20 cm/min (3.9 to 7.8 in/min)

Gas tightness
Gas-tight ceramic materials are typically only resistant to temperature changes on a limited basis. To reduce the risk of temperature shock and prevent the thermowell from subsequently bursting, temperature sensors with gas-tight ceramic thermowells must be heated before installation.

High temperature sensors are generally designed for use in pressureless processes.
When fastening the temperature sensor using limit stop flanges and counterflanges, a pressure of up to approx. 1 bar (14.50 psi) of gas tightness can be assumed with proper installation. Refer to EN 50446 in this regard.

Requirements for achieving the IP rating

The temperature sensor SensyTemp TSH200 can be supplied with a M20 × 1.5 or ½ in NPT thread.
When selecting the appropriate cable gland, the user must take suited measures to make sure that the required IP rating is achieved, the temperature range maintained and that the cable gland used is in accordance with the standard on which the present certificate is based.

To achieve the IP rating, the cable gland used must be approved for the cable diameter. In practice, you may find the specified IP rating can no longer be achieved if certain cables and lines are used in conjunction with the cable gland.
Deviations from the test conditions as set out in the IEC 60529 standard must be checked. Check the cables' concentricity, transposition, external hardness, sheath, and surface roughness.

The operating temperature range of the cable gland used must not be up-scaled.
Observe tightening torque in accordance with information in the data sheet / operating instruction of the cable gland used.

Please observe the following points:
- Only use cable glands in the specified clamping area.
- When using very soft cable types, do not use them in the lower clamping area.
- Only use round cables or cables with a slightly oval-shaped cross section.
- Frequent opening / closing is possible but may have a negative effect on the IP rating.
- If cables are demonstrating pronounced cold flow behavior, the cable glands will need to be retightened.
- Cables with VA wire mesh require special cable glands.

Electrical connections

Safety instructions for electrical installation

⚠ WARNING

Risk of injury due to live parts.
Improper work on the electrical connections can result in electric shock.
- Connect the device only with the power supply switched off.
- Observe the applicable standards and regulations for the electrical connection.

The electrical connection may only be established by authorized specialist personnel.
Notices on electrical connection in this instruction must be observed; otherwise, electric safety and the IP-rating may be adversely affected.
Safe isolation of electric circuits which are dangerous if touched is only guaranteed when the connected devices fulfill the requirements of EN 61140 (basic requirements for secure separation).
To ensure safe isolation, install supply lines so that they are separate from electrical circuits which are dangerous if touched, or implement additional isolation measures for them.

… 5 Installation

… Electrical connections

General

The following applies to devices with a transmitter:

- The power supply and signal are routed in the same conductor and should be implemented as a SELV or PELV circuit in accordance with the relevant standard (standard version).
- In devices for use in non-hazardous areas with intrinsically safe electronic units connected (for example Transmitters), guidelines in accordance with the Ex standard.
- The temperature sensor and transmitter do not have any kind of turn-off device, therefore over-current protective devices and lightning protection or voltage separation capacity must be provided in the installation.
- The power supply data must match the information on the name plate.
- The user is responsible for ensuring EMC-compliant cabling.

Cable selection

When selecting the connection cable, observe the following points:

- Only use insulated cables and wires in which the test voltage between wire – ground, wire – shielding, and shielding – ground is at least 500 V AC.
- Provide cables with wire end ferrules.
- The cables used must fulfill the valid requirements with regards to strength and temperature for the particular application case.
- Install the cable in a manner that will rule out any mechanical damage.
- When using PROFIBUS® the design should be in accordance with EN 50170.
- When using FOUNDATION Fieldbus® the design should be in accordance with IEC 61158.

Conductor cross-section

The maximum connectible conductor cross-section is 1.5 mm^2 (15 AWG).

Connection to intrinsically safe circuits

⚠ DANGER

Explosion hazard due to improper installation!

An explosion hazard is present when installing the SensyTemp TSH200 temperature sensor in potentially explosive atmospheres.

- The SensyTemp TSH200 temperature sensor may only be installed and operated outside of potentially explosive atmospheres.

Note

- When connecting the temperature sensor to intrinsically safe circuits, please comply with the '**Manufacturer's declaration on connection to attested intrinsically safe circuits**'!
- When connecting temperature sensors with dual sensor elements (2 × thermocouple) to an intrinsically safe circuit, only a measuring loop may be connected!

If the SensyTemp TSH200 temperature sensors are operated in intrinsically safe circuits in Ex ia / Ex ib type of protection, proof that the interconnection is intrinsically safe must be provided in accordance with DIN VDE 0165/Part 1 (EN 60079-25 as well as IEC 60079-25).

The supply isolators / DCS inputs must feature intrinsically safe input circuits to eliminate hazards (spark formation).

In order to provide proof of intrinsic safety, the electrical limit value must be used as the basis for the EC-type examination certificates for the equipment (devices); this includes the capacitance and inductance values of the cables.

These requirements guarantee that operation of a SensyTemp TSH200 temperature sensor in an intrinsically safe circuit does not cancel its intrinsic safety.

The SensyTemp TSH200 temperature sensor which will be used in an intrinsically safe circuit shall be supplied with a '**Manufacturer's declaration on connection to attested intrinsically safe circuits**'.

If two transmitters are used for two intrinsically safe circuits, the sum of the values may not up-scale the maximum values specified in the operating instruction and the '**Manufacturer's declaration on connection to attested intrinsically safe circuits**'.

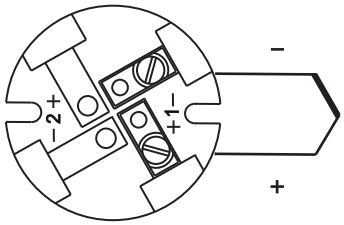
Electrical connections

The temperature sensors may be fitted with single or dual thermocouples.
When using the temperature sensors in intrinsically safe circuits, only attested transmitters with maximum electric values as specified in the operating instruction or the '**Manufacturer's declaration on connection to attested intrinsically safe circuits**' may be connected.

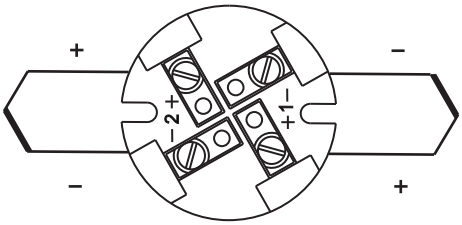
SensyTemp TSH210, AM and AMK designs – thermocouples K, J, N, L

SensyTemp TSH220, AK and AKK designs – thermocouples K, J, N, L

Single sensor



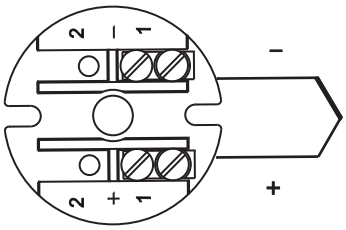
Double sensor



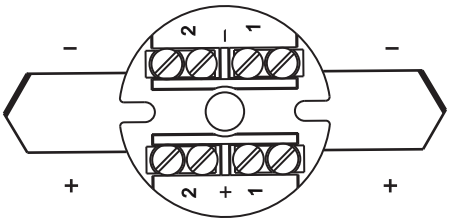
SensyTemp TSH210, AM and AMK designs – thermocouples R, S, B

SensyTemp TSH220, AK and AKK designs – Thermocouples R, S, B

Single sensor



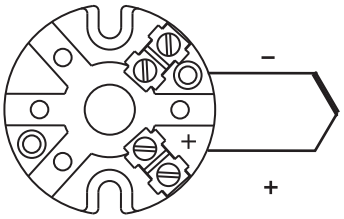
Double sensor



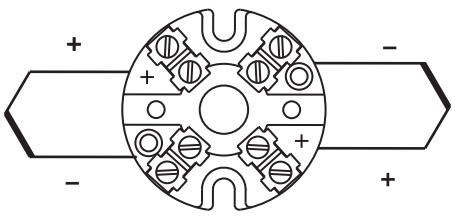
SensyTemp TSH210, BM and BMK designs – thermocouples K, J, N, L, R, S, B

SensyTemp TSH220, BK designs – thermocouples K, J, N, L, R, S, B

Single sensor



Double sensor



… 5 Installation

… Electrical connections

Connection on the device

Temperature sensor without integrated transmitter

Use a suited compensating cable to connect the temperature sensor without integrated transmitter!

1. Switch off the temperature sensor power supply.
2. Open the connection head. Observe the cool down time!
3. Connect the positive wire of the compensating cable with the terminal on the transmitter marked “+” and the negative wire of the compensating cable with the terminal marked ‘–’.
4. Establish a grounding connection if necessary.
5. The screws must be fastened tight and proper contact guaranteed.
6. Tightly close the connection head.

Temperature sensor with integrated transmitter

In temperature sensors with integrated transmitters, the sensor is already connected to the transmitter at the factory.
Connection of the transmitter is described in the appropriate corresponding operating instruction. The technical data of the selected transmitter must be complied with.

For Fieldbus applications, please comply with the installation recommendations 10/63-0.40 (PROFIBUS PA®) and 10/63-0.50 (FOUNDATION Fieldbus®)!

The operating instruction for the selected transmitter is included in the delivery.
Alternatively, all documentation is available for download free of charge at www.abb.com/temperature.

6 Commissioning

General

The device is immediately ready for operation after mounting and installation of the connections. Default parameters are set at the factory.

Checks prior to commissioning

Note
Detailed information on operating the transmitter is available in the operating instruction of the transmitter.

The following points must be checked before commissioning the device:

- The proper mounting and sealing of thermowells or protective sleeves.
- The potential equalization line must be connected.
- The electric specifications must comply with the specified values.
- Assembly and electrical connection must be conducted professionally in accordance with **Installation** on page 8.

7 Diagnosis / Troubleshooting

Quick diagnosis

Perform quick tests of thermocouples as well as the associated measuring loops before they are installed.

Required instruments

- Millivolt measuring device
- Resistance measuring device or resistance bridge
- Insulation measuring device with a test voltage of 60 to 100 V
  (all measurements at room temperature)

Diagnostics

Check continuity and insulation at room temperature:

A thermocouple is regarded as functioning correctly when R < 20 Ω (wire > 0.5 mm Ø).
The value depends on the wire cross section and the length.
Insulation resistance R_{isol} = 100 MΩ
(for an insulated thermocouple).

Heating of the thermocouples to approx. 200 to 400 °C (approx. 400 to 750 °F) without temperature control allows for further conclusions to be drawn about interruptions, reversed polarity, excessively low insulation resistance, etc.

Note
The accuracy of temperature sensors according to the ISO 9000 requirements can only be checked by comparison with a reference element. In most cases, deinstallation and test in a test oven are necessary.

… 7 Diagnosis / Troubleshooting

Malfunctions

The entire temperature measurement circuit should be tested routinely. The table below contains the most important errors together with their possible causes and suggestions for how to remedy them.

Failure	Cause	Repair
Measuring signal fault	• Electrical/magnetic interspersion	• At least 0.5 m (20 in) distance between the impulse lines with parallel installation. • Electrostatic shielding via on one point grounded foil/netting. • Twist wires (pairs) against magnetic interspersion. • Right angle intersecting of impulse lines with interfering power cables. • Use of transmitters.
	• Ground loops	• Only one grounding point in measuring loop or 'floating' measuring system (not grounded).
	• Approval of insulation resistance	• Humidity has possibly penetrated into the thermometer or the measuring inset; dry if necessary and reseal. • Replace measuring inset. • Check whether the thermometer is thermally overloaded.
Response times too long, incorrect signals	Incorrect installation location: • In a dead zone • Affected by a heat source	• Select installation location so that the medium can transfer its temperature to the thermometer undisturbed.
	Incorrect installation method: • Insufficient immersion depth • Too much heat dissipation	• Immersion depth for **liquid** measuring media: approx. 'temperature-sensitive length + 6 × d' • Immersion depth for **gaseous** measuring media: approx. 'temperature-sensitive length + 10 × d' (d = outer thermowell diameter). • Guarantee thermal contacts, above all for surface measurements, through appropriate contact surfaces and / or thermal conducting material
	• Thermowell too thick • Thermowell hole too large	• Select the smallest thermowell possible for the process. • Initial approximation of response time proportional to the cross-section or volume of the thermometer, depending on the heat transfer values and air gaps in the structure. The latter with heat-conductive paste.
	• Deposits on the thermowell	• Remove during inspections. • If possible, select a different thermowell or another installation location.
Interruptions in the thermometer	• Vibration	• Reinforced springs on the measuring inset. • Reduce the installation length. • Relocation of the measuring point (if possible). • Special design of measuring inset and thermowell.
Heavily corroded thermowell	• Composition of the medium not as assumed or has changed • Improper thermowell material selected	• Check medium. • Possibly analyze the defective thermowell and then select a better suited material. • Use additional surface protection. • Under certain circumstances, the thermowell may have to be replaced regularly as a wear part.

Failures in thermocouples

Failure	Cause	Repair
Fluctuating temperature indication in an otherwise problem-free thermocouple measuring loop structure	Reference junction temperature or voltage not constant	• Temperature or supply voltage must be maintained at a constant level. • Full value incorporated into measurements for non-precious metal thermocouples; only approx. half the value incorporated for precious metal thermocouples.
Temperature indication values deviate significantly from table values for thermocouples	• Incorrect material combinations • Poor electric contact. - Parasitic voltages (thermal voltage, conductive voltage) • Incorrect compensating cable	• Check thermocouples and conductors for: - correct pairing. - correct compensating cable. - correct polarity. • permissible ambient temperature at connection head.

8 Maintenance / Repair

Safety instructions

⚠ WARNING

Risk of injury due to process conditions.
The process conditions, for example high pressures and temperatures, toxic and aggressive measuring media, can give rise to hazards when working on the device.

- Before working on the device, make sure that the process conditions do not pose any hazards.
- If necessary, wear suited personal protective equipment when working on the device.
- Depressurize and empty the device / piping, allow to cool and purge if necessary.

NOTE

Damage to the device due to improper handling!
Ceramic thermowells are fragile and be damaged due to improper handling.

- Handle the temperature sensor with caution and avoid any kind of mechanical shock or impulse.

Spare parts

Repair and maintenance activities may only be performed by authorized customer service personnel.
When replacing or repairing individual components, use original spare parts.

Long-term stability

The long-term stability of the SensyTemp TSH200 temperature sensors and exchangeable measuring insets depends largely on the operating conditions.
It is not possible to provide information on this that can be applied in a general sense.
We recommend that you recalibrate the measuring insets at regular intervals.
Depending on process requirements (e.g., increased accuracy, system availability, safety) and in applications with above-average stress levels (strong vibrations, frequent and rapid temperature changes, etc.), the time periods may have to be shortened significantly.

ABB offers its customers the possibility for cost-effective and high-precision recalibration at our calibration lab in Minden accredited by the German Accreditation Body - DAkkS.

Returning devices

Use the original packaging or a secure transport container of an appropriate type if you need to return the device for repair or recalibration purposes.
Fill out the return form (see **Return form** on page 18) and include this with the device.
In accordance with the EU Directive governing hazardous materials, the owner of hazardous waste is responsible for its disposal or must observe the following regulations for shipping purposes:
All devices delivered to ABB must be free from any hazardous materials (acids, alkalis, solvents, etc.).

Please contact Customer Center Service acc. to page 4 for nearest service location.

9 Recycling and disposal

Dismounting

⚠ WARNING

Risk of injury due to process conditions.
The process conditions, for example high pressures and temperatures, toxic and aggressive measuring media, can give rise to hazards when dismantling the device.

- If necessary, wear suited personal protective equipment during disassembly.
- Before disassembly, make sure that the process conditions do not pose any safety risks.
- Depressurize and empty the device / piping, allow to cool and purge if necessary.

Bear the following points in mind when dismantling the device:

- Switch off the power supply.
- Disconnect electrical connections.
- Allow the device / piping to cool and depressurize and empty. Collect any escaping medium and dispose of it in accordance with environmental guidelines.
- Use suited tools to disassemble the device, taking the weight of the device into consideration.
- If the device is to be used at another location, the device should preferably be packaged in its original packing so that it cannot be damaged.
- Observe the notices in **Returning devices** on page 16.

Disposal

Note

Products that are marked with the adjacent symbol may **not** be disposed of as unsorted municipal waste (domestic waste).
They should be disposed of through separate collection of electric and electronic devices.

This product and its packaging are manufactured from materials that can be recycled by specialist recycling companies.

Bear the following points in mind when disposing of them:

- As of 8/15/2018, this product will be under the open scope of the WEEE Directive 2012/19/EU and relevant national laws (for example, ElektroG - Electrical Equipment Act - in Germany).
- The product must be supplied to a specialist recycling company. Do not use municipal waste collection points. These may be used for privately used products only in accordance with WEEE Directive 2012/19/EU.
- If there is no possibility to dispose of the old equipment properly, our Service can take care of its pick-up and disposal for a fee.

10 Specification

Note
The device data sheet is available in the ABB download area at www.abb.com/temperature.

11 Additional documents

Note
All documentation, declarations of conformity, and certificates are available in ABB's download area.
www.abb.com/temperature

Trademarks

HART is a registered trademark of FieldComm Group, Austin, Texas, USA

® PROFIBUS and PROFIBUS PA are registered trademarks of PROFIBUS & PROFINET International (PI)

FOUNDATION Fieldbus is a registered trademark of FieldComm Group, Austin, Texas, USA.

12 Appendix

Return form

Statement on the contamination of devices and components

Repair and/or maintenance work will only be performed on devices and components if a statement form has been completed and submitted.
Otherwise, the device/component returned may be rejected. This statement form may only be completed and signed by authorized specialist personnel employed by the operator.

Customer details:

Company:

Address:

Contact person: Telephone:

Fax: Email:

Device details:

Type: Serial no.:

Reason for the return/description of the defect:

Was this device used in conjunction with substances which pose a threat or risk to health?

☐ Yes ☐ No

If yes, which type of contamination (please place an X next to the applicable items):

☐ biological ☐ corrosive / irritating ☐ combustible (highly / extremely combustible)

☐ toxic ☐ explosive ☐ other toxic substances

☐ radioactive

Which substances have come into contact with the device?

1.

2.

3.

We hereby state that the devices/components shipped have been cleaned and are free from any dangerous or poisonous substances.

Town/city, date Signature and company stamp

Notes

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3KXT141001R4201

OI/TSH200-EN Rev. A 07.2018