

Head mounted Temperature Transmitter TTH200

Commissioning Instruction - EN

CI/TTH200-EN

03.2009

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1 Safety

1.1 General information and notes for the reader

Read these instructions carefully prior to installing and commissioning the device.

These instructions are an important part of the product and must be kept for later use.

These instructions are intended as an overview and do not contain detailed information on all designs for this product or every possible aspect of installation, operation and maintenance.

For additional information or in case specific problems occur that are not discussed in these instructions, contact the manufacturer.

The content of these instructions is neither part of any previous or existing agreement, promise or legal relationship nor is it intended to change the same.

This product is built based on state-of-the-art technology and is operationally safe. It has been tested and left the factory in a safe, maintenance-free state. The information in the manual must be observed and followed in order to maintain this state throughout the period of operation.

Modifications and repairs to the product may only be performed if expressly permitted by these instructions.

Only by observing all of the safety information and all safety/warning symbols in these instructions can optimum protection of both personnel and the environment, as well as safe and fault-free operation of the device, be ensured.

Information and symbols directly on the product must be observed. They may not be removed and must be fully legible at all times.

1.2 Intended use

To measure the temperature of fluid, pulpy or pasty substances and gases or resistance/voltage values.

The device is designed for use exclusively within the stated values on the name plate and in the technical specifications (see the "Specifications" chapter in the operating instructions or on the data sheet).

- The maximum operating temperature must not be exceeded.
- The permitted operating temperature must not be exceeded.
- The housing protection type must be observed.

1.3 Target groups and qualifications

Installation, commissioning, and maintenance of the product may only be performed by trained specialist personnel who have been authorized by the plant operator to do so. The specialist personnel must have read and understood the manual and comply with its instructions.

Prior to using corrosive and abrasive materials for measurement purposes, the operator must check the level of resistance of all parts coming into contact with the materials to be measured. ABB Automation Products GmbH will gladly support you in selecting the materials, but cannot accept any liability in doing so.

The operators must strictly observe the applicable national regulations with regards to installation, function tests, repairs, and maintenance of electrical products.

1.4 Warranty provisions

Using the device in a manner that does not fall within the scope of its intended use, disregarding this instruction, 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.

1.5 Plates and symbols

1.5.1 Safety/warning symbols, note symbols

**DANGER – <Serious damage to health / risk to life>**

This symbol in conjunction with the signal word "Danger" indicates an imminent danger. Failure to observe this safety information will result in death or severe injury.

**DANGER – <Serious damage to health / risk to life>**

This symbol in conjunction with the signal word "Danger" indicates an imminent electrical hazard. Failure to observe this safety information will result in death or severe injury.

**WARNING – <Bodily injury>**

This symbol in conjunction with the signal word "Warning" indicates a possibly dangerous situation. Failure to observe this safety information may result in death or severe injury.

**WARNING – <Bodily injury>**

This symbol in conjunction with the signal word "Warning" indicates a potential electrical hazard. Failure to observe this safety information may result in death or severe injury.

**CAUTION – <Minor injury>**

This symbol in conjunction with the signal word "Caution" indicates a possibly dangerous situation. Failure to observe this safety information may result in minor or moderate injury. This may also be used for property damage warnings.

**ATTENTION – <Property damage>!**

The symbol indicates a potentially damaging situation.

Failure to observe this safety information may result in damage to or destruction of the product and/or other system components.

**IMPORTANT (NOTICE)**

This symbol indicates operator tips, particularly useful information, or important information about the product or its further uses. It does not indicate a dangerous or damaging situation.

1.5.2 Name plate

The name plate is located on the transmitter housing.

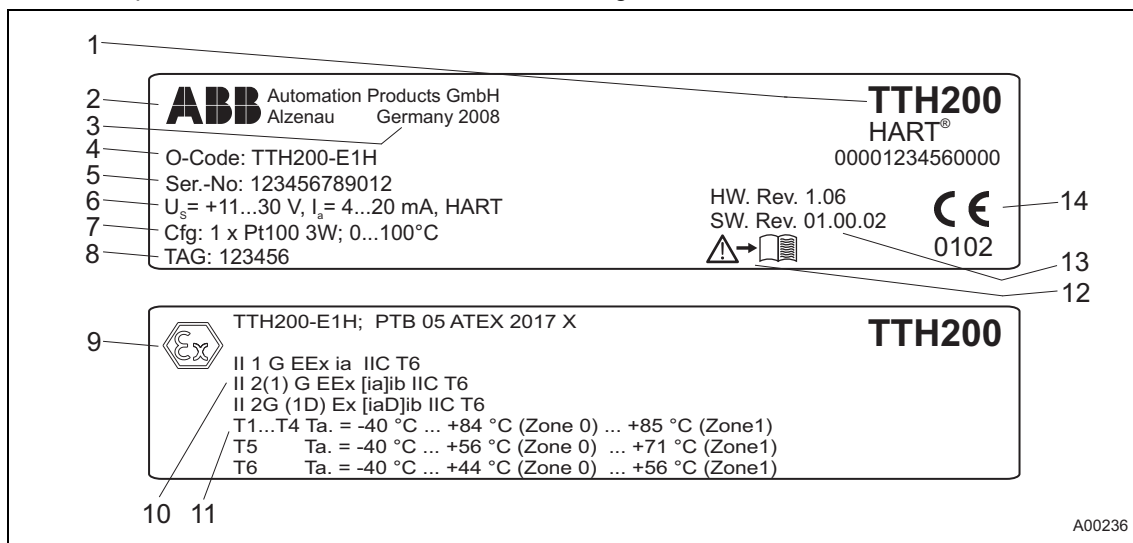


Fig. 1

- | | |
|-----------------------------------|---|
| 1 Model name | 10 Marking of explosion proof design (optional) |
| 2 Manufacturer of transmitter | 11 Temperature classes of explosion proof design (optional) |
| 3 Country and year of manufacture | 12 Refer to product documentation |
| 4 Order code | 13 Software revision number/hardware revision number |
| 5 Serial number | 14 CE mark (EC conformity) |
| 6 Technical data | |
| 7 Configuration | |
| 8 TAG number | |
| 9 Ex mark (optional) | |

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Important

The temperature range specified on the name plate (11) refers only to the permissible ambient temperature range for the transmitter and not to the measuring element used in the measuring inset.

1.6 Transport safety information

Observe the following information:

- Do not expose the device to moisture during transport. Pack the device accordingly.
- Pack the device so that it is protected from vibration during transport, e.g. through air-cushioned packaging.

1.7 Safety information for electrical installation

The electrical connections may only be performed by authorized specialist personnel according to the electrical plans.

Comply with electrical connection information in the instruction. Otherwise, the electrical protection class can be affected.

The secure separation of contact-dangerous electrical circuits is only ensured when the connected devices fulfil the requirements of the DIN EN 61140 (VDE 0140 Part 1) (basic requirements for secure separation).

For secure separation, run the supply lines separated from contact-dangerous electrical circuits or additionally insulate them.

1.8 Safety information for commissioning

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

The connected lines must be checked for firm seating. Only firmly seated lines ensure full functionality.

1.9 Operating safety information

Before switching on, ensure that the specified environmental conditions in the “Technical Specifications” chapter and in the data sheet are complied with and that the power supply voltage corresponds with the voltage of the transmitter.

When there is a chance that safe operation is no longer possible, put the device out of operation and secure against unintended operation.

2 Use in potentially explosive atmospheres

Special regulations must be observed in potentially explosive atmospheres for the power supply, signal inputs/outputs and ground connection. The information relating specifically to explosion protection that appears within the individual sections must be observed.



Notice - Potential damage to parts

All parts must be installed in accordance with the manufacturer's specifications, as well as relevant standards and regulations.

Commissioning and operation must comply with EN 60079-14 (Installation of equipment in potentially explosive atmospheres).

2.1 Approvals

The approvals for use of the TTH200-E1H temperature transmitter in potentially explosive atmospheres can be found in the section of the operating instructions titled "Ex relevant specifications".

2.2 Housing degree of protection

The connection parts of the TTH200-E1H temperature transmitter and the HMI type AS LCD display must be installed so that a housing degree of protection type of at least IP 20 as per IEC 60529:1989 is achieved.

2.3 Electrostatic charging

When using the transmitter in Zone 0, please ensure that impermissible electrostatic charging of the TTH200-E1H temperature transmitter and the LCD display is prevented (observe the warnings on the device).

2.4 Grounding

If, for functional reasons, the intrinsically safe circuit needs to be grounded by means of connection to the equipotential bonding, it may only be grounded at one point.

2.5 Interconnection

If transmitters are operated in an intrinsically safe circuit, proof that the interconnection is intrinsically safe must be provided in accordance with DIN VDE 0165/Part 1 (EN 60079-25/2004 and IEC 60079-25/2003). An interconnection certificate must always be provided for intrinsically safe circuits.

2.6 Configuration

The TTH200-E1H transmitter can be configured in the potentially explosive atmosphere in compliance with the interconnection certificate, both directly in the potentially explosive atmosphere using approved handheld HART terminals and by coupling an Ex modem into the circuit outside the potentially explosive atmosphere.

2.7 Ex relevant specifications

See chapter „Ex relevant specifications“ in the operating instructions.

3 Mounting

3.1 Installation options

There are three options for mounting the transmitter in the temperature sensor heads:

- in the cover of the connection head (without springs)
- directly on the measuring inset (spring mounted)
- on a top hat rail

3.1.1 Installation in the cover of the connection head

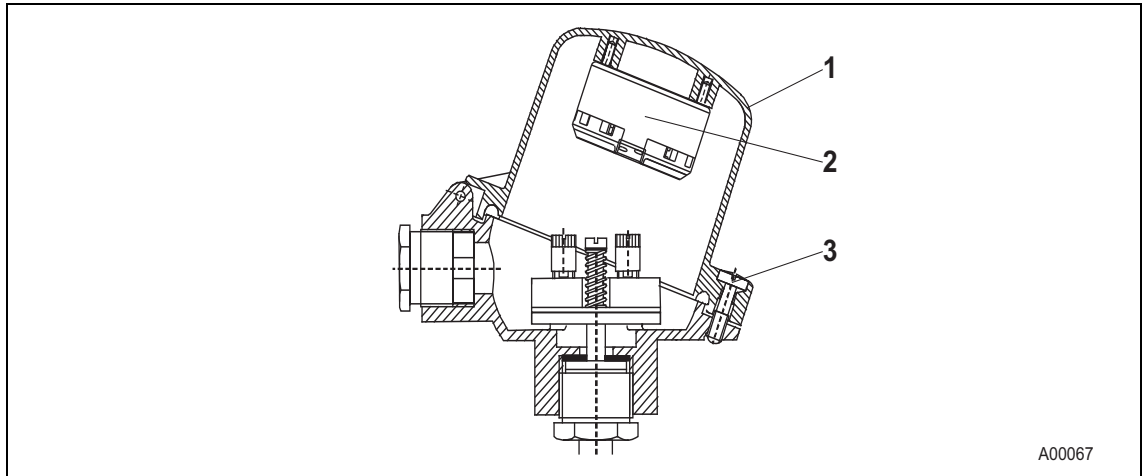


Fig. 2

1. Release the screw plug (3) for the cover of the connection head.
2. Open the cover (1).
3. Secure the transmitter (2) at the proper position on the cover, using the captive screws found in the transmitter.

3.1.2 Installation on the measuring inset

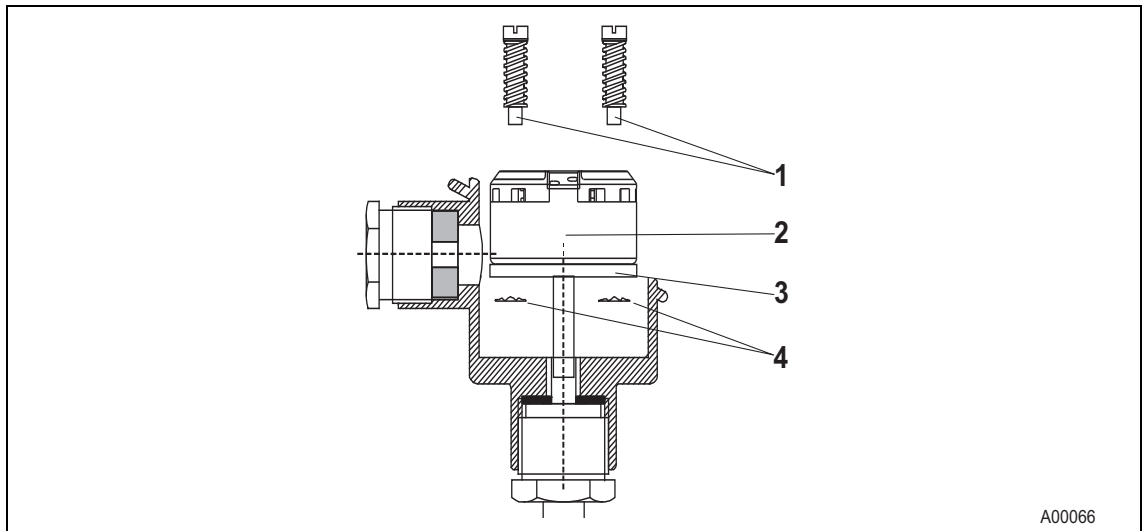


Fig. 3



Important

Before mounting the transmitter on the measuring inset, remove the ceramic block on the measuring inset and the captive screws in the transmitter.

To install the transmitter on the measuring inset, cambered toothed discs and the corresponding mounting screws are required; these must be ordered as separate accessories:

Measuring inset installation set (2 mounting screws, 2 springs, 2 toothed discs)

Order number: 215882

1. Remove the ceramic block from the measuring inset (3).
2. Remove the screws from the transmitter (2). Remove the sleeves from the screw holes and then remove the screws.
3. Insert new mounting screws (1) from above in the installation holes of the transmitter.
4. Place the cambered toothed discs (4) with curve facing upward on the downward protruding screw thread.
5. Connect the power supply cable to the transmitter according to connection diagram.
6. Place the transmitter in the housing on the measuring inset and secure it.



Important

The toothed discs between measuring inset and transmitter are straightened when the screws are tightened. This enables them to grip the mounting screws.

3.1.3 Installation on a top hat rail

When mounted on a top hat rail, the transmitter can be placed at a distance from the sensor in a housing that is suitable for the ambient conditions.

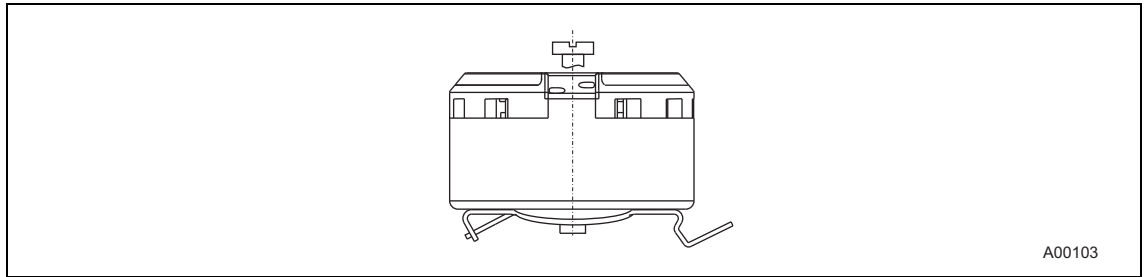


Fig. 4

3.2 Installing/Removing the optional LCD display

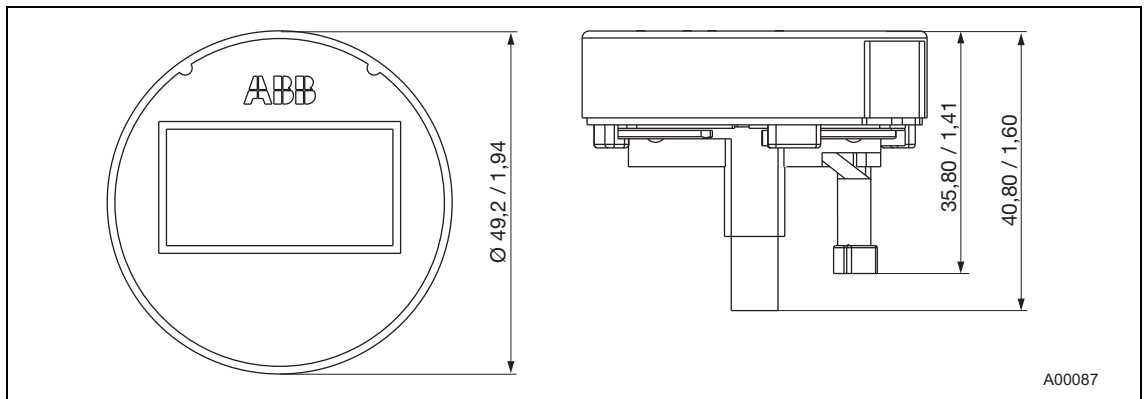


Fig. 5: HMI type AS LCD display

Thanks to the LCD display interface, the TTH200 can be operated freely with the HMI type AS LCD-display, enabling process data to be visualized.



Important

The LCD display with HMI type A configuration function, used with the TTx300 series, is not suitable for the TTH200.

The display must be removed to enable electrical connection of the sensor or the power supply:

- Carefully remove the LCD display from the transmitter inset. The LCD display is held firmly in place. You may have to use the tip of a screwdriver to pry the LCD display loose. Take care to avoid any mechanical damage.

No tools are required to insert the LCD display:

1. Carefully insert the guide pins for the LCD display in the guide holes of the transmitter inset. Make sure the black connection socket fits into the terminal on the transmitter inset.
2. Then press the LCD display in as far as it will go. Make sure that the guide pins and connection socket are fully inserted.

The position of the LCD display can be adjusted to suit the installation position of the transmitter, to ensure that the display is legible.

The LCD display has twelve positions that can be set in 30° increments.



Caution - Potential damage to parts

Make sure the flat ribbon cable does not get twisted or torn when rotating the LCD display.

1. Carefully turn the LCD display to the left to release it from its mount.
2. Use caution when positioning the LCD display.
3. Insert the LCD display back into the mount and turn it to the right until it snaps into place.

4 Electrical connection



Warning - Dangerous electrical current

The relevant guidelines must be observed during electrical installation. Connections must only be established in a dead-voltage state.

The transmitter has no switch-off elements. Therefore, overvoltage protection devices, lightning protection, or voltage disconnection options must be provided at the plant.

The power supply and signal are routed in the same line and must be implemented as a SELV or PELV circuit in accordance with the standard (standard version). For the Ex version, the guidelines stipulated by the Ex standard must be adhered to.

A check must be carried out as to whether the existing power supply corresponds to the specifications both on the name plate and in the technical specifications in the "Technical specifications" section or the data sheet.



Important

The signal cable wires must be provided with wire end sleeves.

The slotted screws of the connection terminals are tightened with a size 1 screwdriver (3.5 or 4 mm).

Electrical connection

4.1 Conductor material

- Power supply cable: flexible standard conductor material
- Maximum wire cross-section: 1.5 mm² (16 AWG)



Notice - Potential damage to parts

Using rigid conductor material may cause line breaks.

4.2 Electrical connections configuration

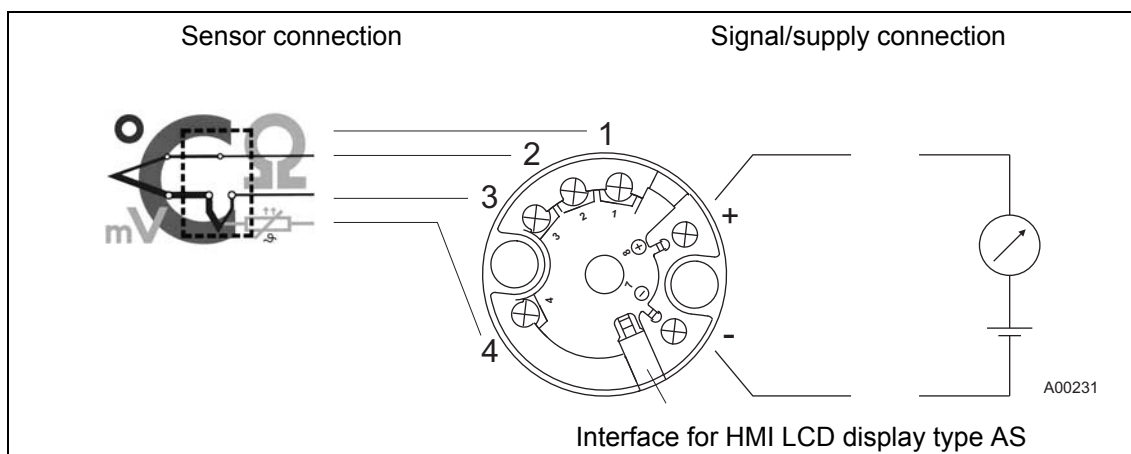


Fig. 6

4.3 Sensor connection

Depending on the sensor model, a variety of conductor materials can be used for sensor connections. The integrated internal reference junction makes it possible to directly connect thermal compensating cables.

For the solder terminal, a soldering tag is provided at each terminal.

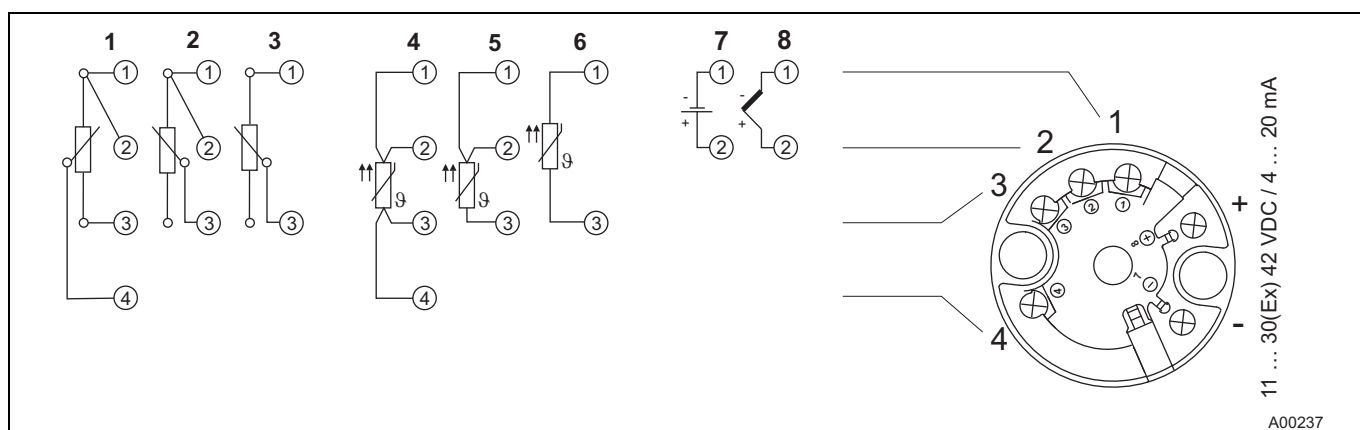


Fig. 7

- 1 Potentiometer, Four-wire circuit
- 2 Potentiometer, Three-wire circuit
- 3 Potentiometer, Two-wire circuit

- 4 RTD, Four-wire circuit
- 5 RTD, Three-wire circuit
- 6 RTD, Two-wire circuit

- 7 Voltage measurement
- 8 Thermocouple

4.4 Standard application

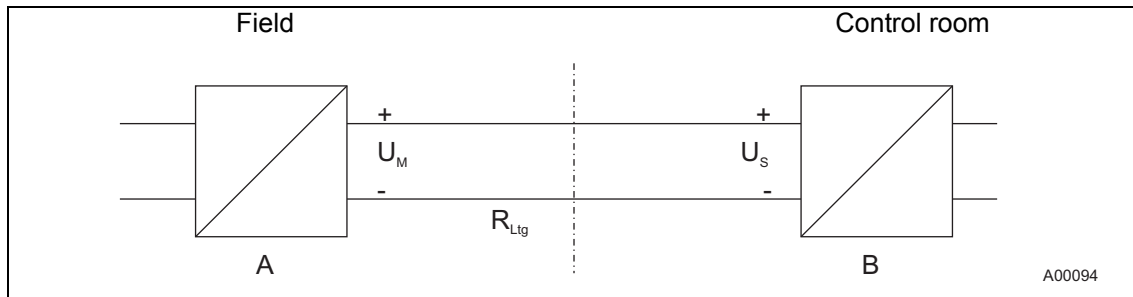


Fig. 8

A Transmitter

B Supply isolator/PLC input with supply

When connecting these components, observe the following condition:

$$U_{Mmin} \leq U_{Smin} + 0.02 A \times R_{Ltg}$$

Where:

- U_{Mmin} : Minimum operating voltage of transmitter
- U_{Smin} : Minimum supply voltage of repeater supply isolator / PLC input
- R_{Ltg} : Line resistance between transmitter and supply isolator

For HART functionality, use supply isolators or PLC input cards with HART mark. If this is not possible, the interconnection must have a resistance $\geq 250 \Omega$ ($< 1100 \Omega$).

The signal line can be connected with or without ground. When connecting the ground (minus side), make sure that only one side of the contact is connected to the equipotential bonding system.

4.5 Standard application with HART functionality

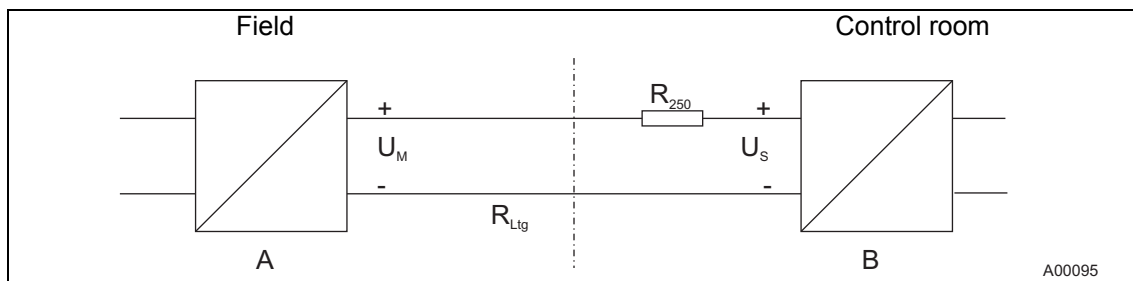


Fig. 9

A Transmitter

B Supply isolator/PLC input with supply

Adding resistance R_{250} increases the minimum supply voltage:

$$U_{Mmin} \leq U_{Smin} + 0.02 A \times (R_{Ltg} + R_{250})$$

Where:

- U_{Mmin} : Minimum operating voltage of transmitter
- U_{Smin} : Minimum supply voltage of repeater supply isolator / PLC input
- R_{Ltg} : Line resistance between transmitter and supply isolator
- R_{250} : Resistance for HART functionality

4.6 Electrical interconnection in explosion hazardous areas

Depending on the safety requirements, special interconnections are required for use in explosion hazardous areas.

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Important

Observe the "Ex relevant specifications" chapter (see data sheet or operating instructions).

Intrinsic safety

The supply isolators/PLC inputs must feature intrinsically safe input protection circuits in order to eliminate hazards (spark formation). The interconnection must be inspected. In order to provide proof of intrinsic safety, the electrical limit values must be used as the basis for the EC type-examination test certificates of the equipment (devices); this includes the capacitance and inductance values of the cables. Proof of intrinsic safety is said to have been provided if the following conditions are fulfilled when a comparison is carried out in relation to the limit values of the equipment:

Transmitter (intrinsically safe equipment)		Supply isolator/PLC input (related equipment)
U_i	\geq	U_o
I_i	\geq	I_o
P_i	\geq	P_o
$L_i + L_c$ (cable)	\leq	L_o
$C_i + C_c$ (cable)	\leq	C_o

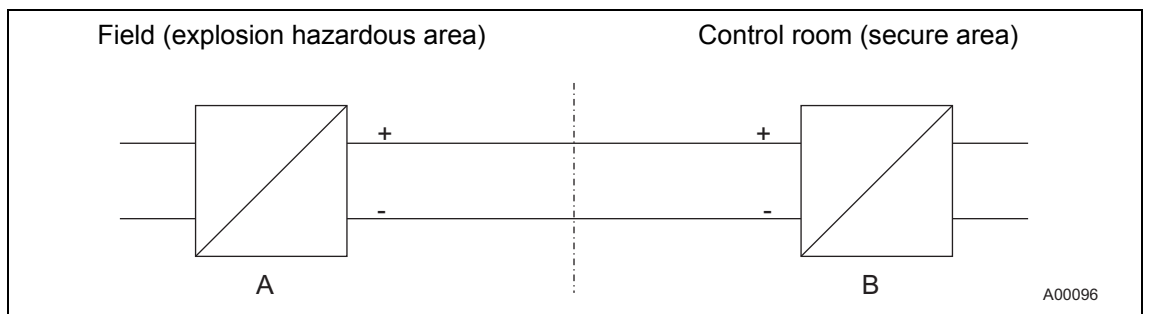


Fig. 10

A Transmitter

B Supply isolator/PLC input with supply

4.6.1 Installation in explosion hazardous areas

Transmitters can be installed in all kinds of industrial sectors. Explosion hazardous areas are divided into zones, meaning that a wide range of different instruments are also required. The Ex relevant specifications are stipulated in the section titled " Ex relevant specifications ".

4.6.2 Zone 0

Transmitter design: II 1 G Ex ia IIC T6

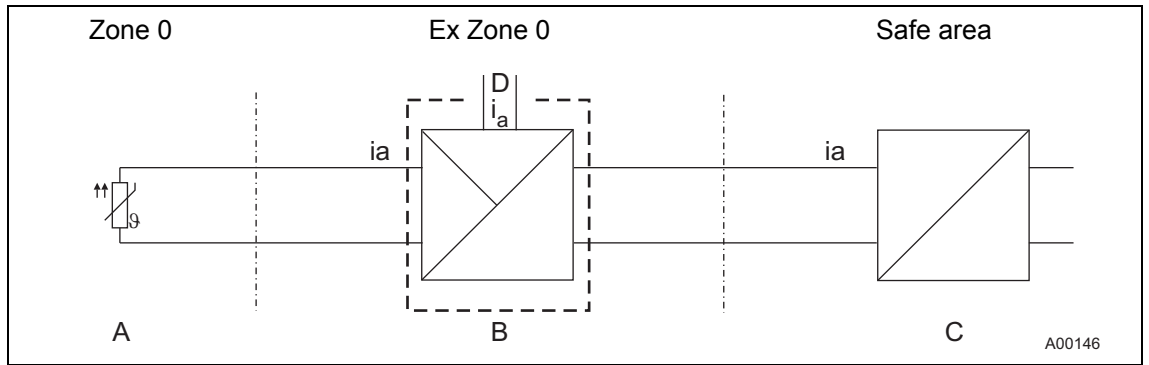


Fig. 11

- | | | | |
|---|--|---|---------------------------------------|
| A | Sensor | C | Supply isolator [Ex ia] |
| B | Transmitter in housing with IP 20 degree of protection | D | Interface for HMI LCD Display type AS |

For instruments in Zone 0, the transmitter must be installed in a suitable housing with IP 20 degree of protection. The input for the supply isolator must have an [Ex ia] design.

When using the transmitter in Zone 0, you must ensure that impermissible electrostatic charging of the temperature transmitter is prevented (observe the warnings on the device).

The user must ensure that sensor instrumentation meets the requirements of applicable Ex standards.

4.6.3 Zone 1 (0)

Transmitter design: II 2 (1) G Ex [ia] ib IIC T6

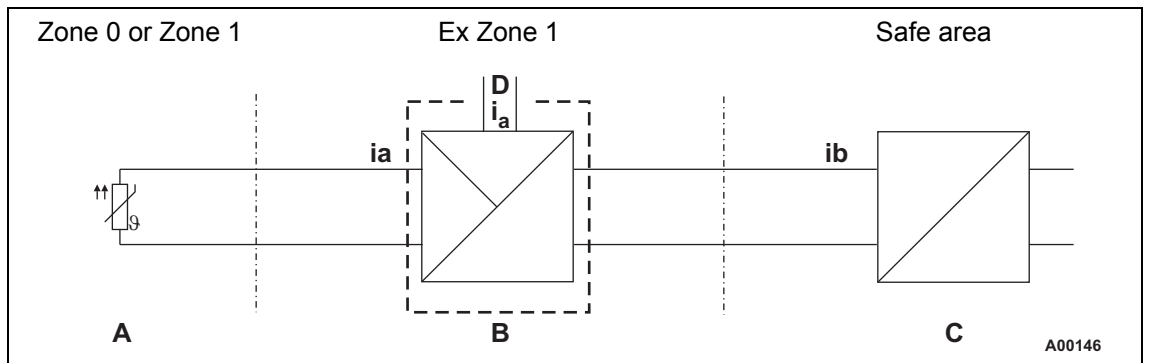


Fig. 12

- | | | | |
|---|--|---|---------------------------------------|
| A | Sensor | C | Supply isolator [Ex ib] |
| B | Transmitter in housing with IP 20 degree of protection | D | Interface for HMI LCD Display type AS |

For instruments in Zone 1, the transmitter must be installed in a suitable housing with IP 20 degree of protection. The input for the supply isolator must have an [Ex ib] design.

The user must ensure that sensor instrumentation meets the requirements of applicable Ex standards. It can be installed in Zone 1 or Zone 0.

4.6.4 Zone 1 (20)

Transmitter design: II 2 G (1D) Ex [iaD] ib IIC T6

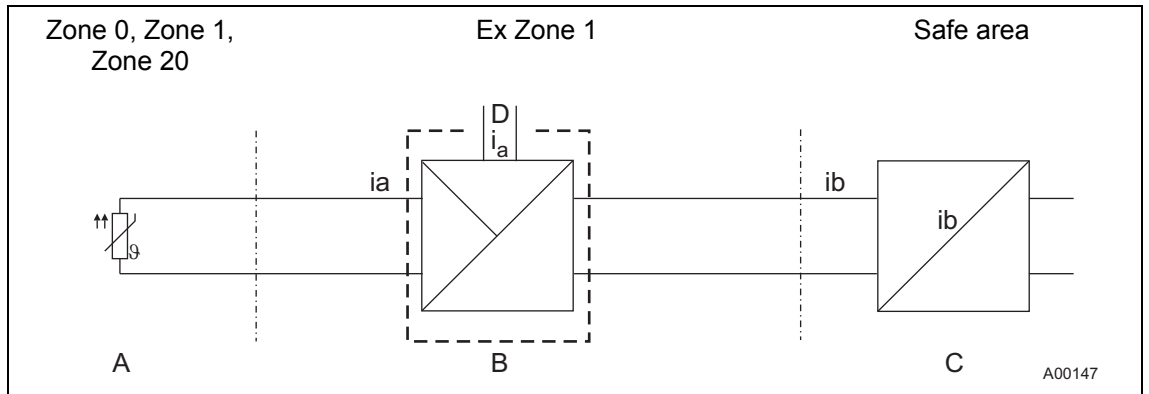


Fig. 13

- A Sensor
- B Transmitter in housing with IP 20 degree of protection
- C Supply isolator [Ex ib]
- D Interface for HMI LCD Display type AS

For instruments in Zone 1, the transmitter must be installed in a suitable housing with IP 20 degree of protection. The input for the supply isolator must have an [Ex ib] design.

The user must ensure that sensor instrumentation meets the requirements of applicable Ex standards. It can be installed in Zone 0, Zone 1, or Zone 20.

4.6.5 Zone 2

Transmitter design: II 3 G Ex nA II T6

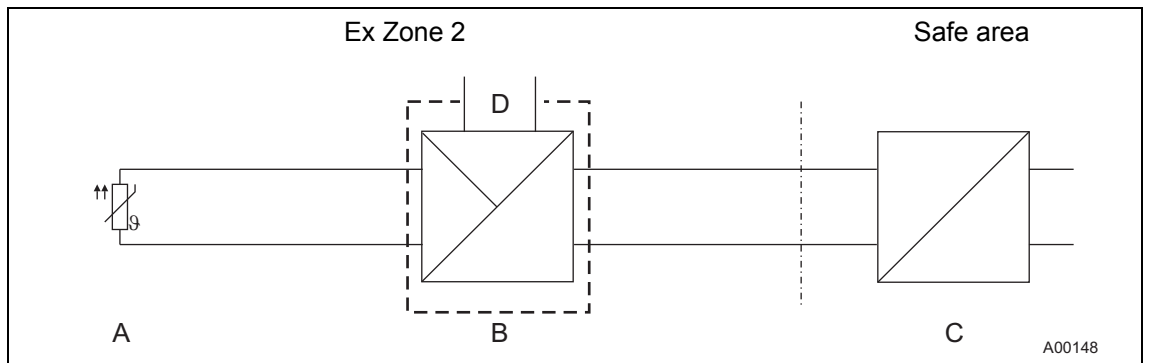


Fig. 14

- A Sensor
- B Transmitter in housing with IP 54 degree of protection
- C Supply isolator
- D Interface for HMI LCD Display type AS

For instruments in Zone 2, the transmitter must be installed in a suitable housing with a degree of protection of at least IP 54.

In the event of a disturbance, it must be ensured that the supply voltage cannot exceed the normal voltage by more than 40 %.

5 Ex relevant specifications

5.1 TTH200-E1, Intrinsic Safety ATEX

Explosion protection

The TTH200 complies with the requirements of ATEX directive 94/9/EC
Approved for use in Zone 0

Designation

II 1G EEx ia IIC T6 (Zone 0)
II 2 (1) G EEx [ia] ib IIC T6 (Zone 1 [0])
II 2 G (1D) Ex [iaD] ib IIC T6 (Zone 1 [20])

EC type-examination certificate PTB 05 ATEX 2017 X

5.2 TTH200-H1, Intrinsic Safety IECEx

Explosion protection

Approved for use in Zone 0.

Designation

Ex ia IIC T6 (Zone 0)
Ex [ia] ib IIC T6 (Zone 1 [0])
Ex [iaD] ib IIC T6 (Zone 1 [20])

For further information, see certificate

5.3 Safety specifications for Intrinsic Safety ATEX / IECEx

Temperature table

Temperature class	Permissible ambient temperature range	
	Device category 1 use	Device category 2 use
T6	-50 ... 44 °C (-58 ... 111.2 °F)	-50 ... 56 °C (-58 ... 132.8 °F)
T5	-50 ... 56 °C (-58 ... 132.8 °F)	-50 ... 71 °C (-58 ... 159.8 °F)
T4, T3, T2, T1	-50 ... 60 °C (-58 ... 140.0 °F)	-50 ... 85 °C (-58 ... 185.0 °F)

Protection type Intrinsic Safety Ex ia IIC (Part 1)

	Supply circuit	Measurement current circuit / passive transducer (RTD)
Max. voltage	$U_i = 30 \text{ V}$	$U_o = 6.5 \text{ V}$
Short circuit current	$I_i = 130 \text{ mA}$	$I_o = 25 \text{ mA}$
Max. power	$P_i = 0.8 \text{ W}$	$P_o = 38 \text{ mW}$
Internal inductance	$L_i = 0.5 \text{ mH}$	$L_i = 0 \text{ mH}$
Internal capacitance	$C_i = 5 \text{ nF}$	$C_i = 49 \text{ nF}$
Maximum permissible external inductance		$L_o = 5 \text{ mH}$
Maximum permissible external capacitance		$C_o = 1.55 \text{ }\mu\text{F}$

Protection type Intrinsic Safety Ex ia IIC (Part 2)

	Measurement current circuit / active transducer (TC)	Display interface
Max. voltage	$U_o = 1,2 \text{ V}$	$U_o = 6,2 \text{ V}$
Short circuit current	$I_o = 50 \text{ mA}$	$I_o = 65,2 \text{ mA}$
Max. power	$P_o = 60 \text{ mW}$	$P_o = 101 \text{ mW}$
Internal inductance	$L_i = 0 \text{ mH}$	$L_i = 0 \text{ mH}$
Internal capacitance	$C_i = 49 \text{ nF}$	$C_i = 0 \text{ nF}$
Maximum permissible external inductance	$L_o = 5 \text{ mH}$	$L_o = 5 \text{ mH}$
Maximum permissible external capacitance	$C_o = 1.05 \text{ }\mu\text{F}$	$C_o = 1.4 \text{ }\mu\text{F}$

5.4 TTH200-E2, Non-Sparking ATEX

Explosion protection

The TTH200 complies with the requirements of ATEX directive 94/9/EC
Approved for use in Zone 2.

Designation

II 3G EEx nA II T6

ABB manufacturer's declaration in accordance with ATEX directive

Temperature table

Temperature class	Device category 2 use
T6	-50 ... 56 °C (-58 ... 132.8 °F)
T5	-50 ... 71 °C (-58 ... 159.8 °F)
T4	-50 ... 85 °C (-58 ... 185.0 °F)

5.5 TTH200-L1, Intrinsically Safe FM

Class I, Div. 1 + 2, Groups A, B, C, D
Class I, Zone 0, AEx ia IIC T6
Control drawing: TTH200-L1H

5.6 TTH200-L2, Non-Incendive FM

Class I, Div. 2, Groups A, B, C, D
Control drawing: TTH200-L2H

5.7 TTH200-R1, Intrinsically Safe CSA

Class I, Div. 1 + 2, Groups A, B, C, D
Class I, Zone 0, Ex ia Group IIC T6
Control drawing: TTH200-R1H

5.8 TTH200-R2, Non-Incendive CSA

Class I, Div. 2, Groups A, B, C, D
Control drawing: TTH200-R2H (1)
Control drawing: TTH200-R2H (2) (no conduit)

6 HMI LCD display type AS

6.1 Ex relevant specifications

6.1.1 Intrinsic Safety ATEX

Explosion protection

Approved for use in Zone 0.

Designation

II 1G Ex ia IIC T6

EC type-examination certificate PTB 05 ATEX 2079 X

6.1.2 Intrinsic Safety IECEx

Explosion protection

Approved for use in Zone 0.

Designation

Ex ia IIC T6

For further information, see certificate

6.1.3 Safety specifications for Intrinsic Safety ATEX / IECEx

Temperature table

Temperature class	Permissible ambient temperature range	
	Device category 1 use	Device category 2 use
T6	-40 ... 44 °C (-40 ... 111.2 °F)	-40 ... 56 °C (-40 ... 132.8 °F)
T5	-40 ... 56 °C (-40 ... 132.8 °F)	-40 ... 71 °C (-40 ... 159.8 °F)
T4	-40 ... 60 °C (-40 ... 140 °F)	-40 ... 85 °C (-40 ... 185 °F)

Protection type intrinsic safety Ex ia IIC

	Supply circuit
Max. voltage	$U_i = 9 \text{ V}$
Short circuit current	$I_i = 65.2 \text{ mA}$
Max. power	$P_i = 101 \text{ W}$
Internal inductance	$L_i = 0 \text{ mH}$
Internal capacitance	$C_i = 0 \text{ nF}$

6.1.4 Intrinsically Safe FM

I.S. Class I Div 1 and Div 2, Group: A, B, C, D or

I.S. Class I Zone 0 AEx ia IIC T*

Temp. Ident: T6 $T_{amb} 56 \text{ °C}$, T4 $T_{amb} 85 \text{ °C}$

$U_i / V_{max} = 9 \text{ V}$, $I_i / I_{max} < 65.2 \text{ mA}$, $P_i = 101 \text{ mW}$

$C_i = 0,4 \text{ }\mu\text{F}$; $L_i = 0$

Control Drawing: SAP_214 748

6.1.5 Non-Incendive FM

N.I. Class I Div 2, Group: A, B, C, D or

Ex nL IIC T*, Class I Zone 2

Temp. Ident: T6 $T_{amb} 60 \text{ °C}$, T4 $T_{amb} 85 \text{ °C}$

$U_i / V_{max} = 9 \text{ V}$, $I_i / I_{max} < 65,2 \text{ mA}$, $P_i = 101 \text{ mW}$

$C_i = 0,4 \text{ }\mu\text{F}$; $L_i = 0$

Control Drawing: SAP_214 751

6.1.6 Intrinsically Safe CSA

I.S. Class I Div 1 and Div 2; Group: A, B, C, D or

I.S. Zone 0 Ex ia IIC T*

*Temp. Ident T6 $T_{amb} 56 \text{ °C}$, T4 $T_{amb} 85 \text{ °C}$

$U_i / V_{max} = 9 \text{ V}$, $I_i / I_{max} < 65,2 \text{ mA}$; $P_i = 101 \text{ mW}$

$C_i < 0,4 \text{ }\mu\text{F}$; $L_i = 0$

Control Drawing: SAP_214 799

6.1.7 Non-Incendive CSA

N.I. Class I Div 2, Group: A, B, C, D or

Ex nL IIC T*, Class I Zone 2

*Temp. Ident T6, $T_{amb} 60 \text{ °C}$, T4 $T_{amb} 85 \text{ °C}$

$U_i / V_{max} = 9 \text{ V}$, $I_i / I_{max} < 65,2 \text{ mA}$, $P_i = 101 \text{ mW}$

$C_i < 0,4 \text{ }\mu\text{F}$; $L_i = 0$






Control Drawing: SAP_214 750

7 Appendix

7.1 Additional documents

- Operating Instruction (OI/TTH200)
- Data Sheet (DS/TTH200)

7.2 Approvals and certifications

CE mark		<p>The version of the meter in your possession meets the requirements of the following European directives:</p> <ul style="list-style-type: none"> - EMC directive 89/336/EEC - ATEX directive 94/9/EC
Explosion Protection	   	<p>Identification for intended use in potentially explosive atmospheres according to:</p> <ul style="list-style-type: none"> - ATEX directive - IEC standards - FM Approvals (US) - CSA International (Canada)



Important

All documentation, declarations of conformity, and certificates are available in ABB's download area.

www.abb.com/temperature



EG-Konformitätserklärung EC-Certificate of Compliance

ABB Automation Products GmbH
Borsigstr. 2
D-63755 Alzenau
Germany

Erklärt, dass die Produkte der
Geräteart:

Declare that the products of device type:

Temperatur Messumformer
Temperature Transmitter

Modell- / Typebezeichnung:
Model- / type name:

TTH200

Produktnummer:
Product number:

TTH200-.H

Konform zu EG-Richtlinien:
Conform to EC-directives:

94/9/EG (ATEX)
89/336/EWG (EMV/EMC)

EG-Baumusterprüfbescheinigung:
EC-Type examination certificate:

PTB 05 ATEX 2017 X

Relevante Normen:
Related Standards:

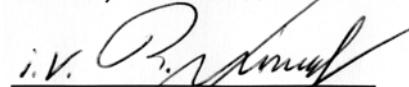
EN61326-1: 2006
EN 60079-0: 2004, EN60079-11:2006
EN 60079-26: 2007, EN 60079-15: 2003

Qualitätssicherung Produktion
Anerkennung:
Production Quality notification:

PTB 99 ATEX -Q004-...

entspricht.
complies.

Alzenau, 08 December 2008


i.V. Reiner Laurinat
Leiter Qualitätsmanagement
Quality Manager


i.A. Harald Müller
Leiter Hardwareentwicklung
R&D Manager Hardware

ABB Automation Products GmbH

ABB has Sales & Customer Support expertise in over 100 countries worldwide.

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The Company's policy is one of continuous product improvement and the right is reserved to modify the information contained herein without notice.

Printed in the Fed. Rep. of Germany (03.2009)

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3KXT231002R4401



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