

Issued by NMI Certin B.V.

In accordance with

- WELMEC 8.8, 2017 “Guide on the General and Administrative Aspects of the Voluntary System of Modular Evaluation of Measuring instruments”;
- OIML R117-1 Edition 2007 (E) “Dynamic measuring systems for liquids other than water”.
- EN 12405-1 2005+A2 2010 “Gas meters – Conversion devices – Part 1: volume conversion”.

Producer

ABB AG
Schillerstraße 72
32425 Minden
Germany

Measuring instrument

A **temperature transducer** for connecting one or two 4 wire Pt100 temperature probes intended to be used as a part of a measuring instrument.

Type designation	:	TTH300
Software version	:	Version: 01.03.00, dated 1 December 2015 Checksum: 0x46c9
OIML R117-1 Accuracy class	:	0,3
OIML R117-1 Environment classes	:	H3 / M3 / E2
EN12405 Accuracy	:	0,1 % of reading
EN12405 Environmental classes	:	M2 / E2 Humidity: condensing.
Temperature range ambient	:	-40 °C / +85 °C

Further properties and test results are described in the annexes:

- Description TC11002 revision 2;
- Documentation folder TC11002-3.

Initially issued 12 April 2017.

Remark

This revision replaces the previous revision.
The documentation folder replaces the documentation folder.

Issuing Authority

NMI Certin B.V., Notified Body number 0122
15 May 2023

Certification Board

NMI Certin B.V.
Thijsseweg 11
2629 JA Delft
The Netherlands
T +31 88 636 2332
certin@nmi.nl
www.nmi.nl

This document is issued under the provision that no liability is accepted and that the producer shall indemnify third-party liability.

Reproduction of the complete document only is permitted.

This document is digitally signed and sealed. The digital signature can be verified in the blue ribbon at the top of the electronic version of this certificate.

1 General information about the temperature transducer

All properties of the instrument, whether mentioned or not, shall not be in conflict with the legislation.

This Parts Certificate is the positive result of the applied voluntary, modular approach, for a component of a measuring instrument, as described in WELMEC 8.8.

The complete measuring instrument must be covered by relevant metrological certification that is valid in the country where the instrument is put into use.

Two temperature sensors can be connected to the transducer. The transmitter can determine the difference between the two temperatures, and the mean of the two temperatures. However that is not within the scope of this Parts Certificate.

The temperature transducer is not equipped with an indicating device.

Furthermore the next additional conditions, depending on the field of application, apply.

- 1) For application in non-interruptible measuring systems for liquid and for gas, using the 4 .. 20 mA output signal, with the transducer powered by an external power supply, a provision should be available to guarantee that the power supply is permanently available and undisturbed (UPS).
 In this application the HART communication cannot be used.
- 2) For applications in a measuring system for liquid on road vehicles, using the HART communication, with the transmitter powered by the on board battery, the transducer can be used with the Hart-output signal only in interruptible systems. In practice, a measuring system for liquid on road vehicles always is an interruptible system.



1.1 Essential parts

1.1.1 Hardware components

part	documentation
TTX board	11002/0-01; 11002/0-02; 11002/2-01; 11002/3-01;

1.2 Essential characteristics

1.2.1 Measuring range -50 °C ... +150 °C.

1.2.2 Software

Version: 01.03.00, dated 1 December 2015
Checksum: 0x46c9

The software fulfils the WELMEC 7.2 revision 2015 chapter P and the extensions T, I2 and I5. Chapter U and the extensions L, S, D and the other I extensions do not apply. The software version can be made visible on the display of a connected hand held HART terminal or on the display of a device where the temperature transmitter is connected to. That device must be able to show the requested information. The checksum is inscribed on the name plate, but can also be made visible with a special tool that on request can be made available by ABB.

1.2.3 Measurement results, parameters and other information can be indicated on a hand held HART terminal or on a PC with suitable interface program or on the display of a device where the temperature transmitter is connected to. That device must be able to show the requested information.

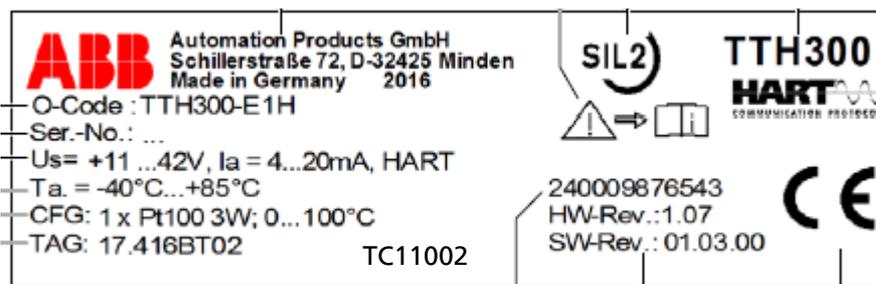
Measurement results can also be indicated on a connected instrument, for instance a calculating and indicating device. In this case communication is achieved with the HART protocol or with a 4 ... 20 mA signal.

In case of alarm situations the TTH300 sends a higher than high or a lower than low current to the connected device. The user select whether a higher than high or a lower than low current is applied.

1.3 Essential shapes

- 1.3.1 The nameplate(s) on the temperature transducer is bearing at least, good legible, the following information:
 name of the producer;
 type;
 serial number and year of manufacture;
 Parts certificate no. TC11002;
 temperature minimum and maximum values t_{\min} and t_{\max} ;
 ambient temperature range;
 the 4-20 mA output range.

Example of a name plate:

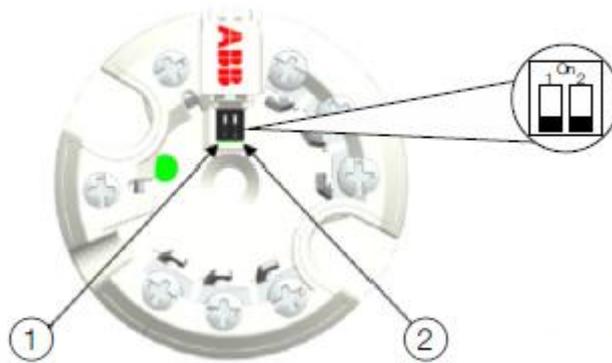


1.4 Conditional parts

- 1.4.1 Housing
 The temperature transmitter has sufficient tensile strength.

1.4.2 W&M parameters

Weights & Measures parameters can be changed after setting DIP switch 1 to OFF.
 After setting the parameters DIP switch 1 must be set to ON.



① DIP-Switch 1 ② DIP-Switch 2

Parameters can be set with the buttons on the front and with the HART remote terminal.

Parameter	setting
Device config / Input sensor 1	4 wire Pt100
Device config / Input sensor 2	4 wire Pt100
Device config / Measured range	Minimum and maximum temperature value for 4 mA and 20 mA.
Device config / Measured range / Unit	°C or K
Device config / Damping	Depending on the application damping may be set to a specific value.
Communication / HART address	Correct address.
Apply Lower Range / Apply Upper Range	Lower range value and upper range value (at 4 mA and 20 mA).
Calibrate Analog output	Trimmed value for 4 mA and 20 mA.

For information about the parameters see the user manual, documentation 11002/0-03.

2 Seals

After the installation and configuration, the DIP switch 1 must be put into the “write-protection” position and then the covering lid must be closed en sealed against opening, for instance with a seal sticker over the lid.

Often the TTH300 is used within a metal cover, as shown below:



In this case the W&M Sealing can be realized by sealing the cover against opening.

3 Conditions for Conformity Assessment

- The temperature probe must be constructed in accordance with the Description.
- Other parties may use this Parts Certificate without the written permission of the owner of this Parts Certificate.

4 Reports

An overview of the performed tests is given in Evaluation Report ER11002 revision 2 issued together with this Parts Certificate.