



Certificado de Conformidade

Certificate of Compliance ♦ Certificado de Conformidad

Certificado N.º: TÜV 13.2466 X

Certificate No. ♦ Certificado N.º:

Revisão: 02

Review ♦ Revisión:

Válido até: 18/02/2020

Valid until ♦ Válido hasta:

Emitido em: 18/02/2017

Issued ♦ Emitido:

Produto:

Product ♦ Producto:

Temperature transducer

TTH 300-H1H..., TTH 200- H1H..., TTR 300- H1H..., TTR 200- H1H..., TTF 300- H1H... e TTF 350- H1H...

Solicitante:

Applicant ♦ Solicitante:

ABB LTDA.

**Rodovia Senador José Ermínio de Moraes, km 11 – Aparecidinha
18087-125 – Sorocaba – SP
CNPJ: 61.074.829/0087-01**

Fabricante:

Manufacturer ♦ Fabricante:

ABB AUTOMATION PRODUCTS GMBH

**Schillerstrasse 72
32425 Minden – Germany**

Fornecedor / Representante Legal:

Supplier / Legal Representative ♦ Proveedor / Representante Legal:

Not applicable.

Normas Técnicas / Regulamento:

Standards / Regulation ♦ Normas / Reglamento:

**ABNT NBR IEC 60079-0:2013,
ABNT NBR IEC 60079-11:2013,
ABNT NBR IEC 60079-26:2008,
ABNT NBR IEC 60079-27:2010,
INMETRO Administrative rule # 179 as of May 18th, 2010**

Esquema de Certificação:

Certification Scheme ♦ Esquema de Certificación:

Scheme 5 of product certification according to ISO / IEC Guide 67 with evaluation by type test and initial factory audit and evaluation of monitoring every 18 months with factory audit and tests.

Laboratório, N.º do Relatório de Ensaios e Data:

Laboratory, Test Report No. and Date ♦ Laboratorio, N.º del Informe de Prueba y Fecha:

Physikalisch-Technische Bundesanstalt

Test report #DE/PTB/ExTR09.0017/00 issued on March 4th, 2009

Test report #DE/PTB/ExTR11.0108/00 issued on December 15th, 2011

Test report #DE/PTB/ExTR09.0017/01 issued on June 25th, 2015

Relatório de Auditoria e Data:

Audit Report and Data ♦ Informe de Auditoría y Fecha:

Audit carried out on 23/08/2016 PO 562-16

Notas:

Notes ♦ Anotación:

"The validity of this Certificate of Compliance is related to fulfillment of the maintenance assessments and possible non conformities processing, according to OCP's orientation established into specific RAC. To confirm the current status of this Certificate of Compliance the INMETRO's products and services certified database shall be checked".

This certificate is related to offer 0621913.1 from november 28th, 2013

Igor Moreno

Gerente de Certificação - Electrical

"This document is composed of 07 pages and is valid when displayed with all your pages. Further information and notes are contained on subsequent pages."



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List of models

Marca <i>Brand ♦ Marca</i>	Modelo <i>Model ♦ Modelo</i>	Descrição <i>Description ♦ Descripción</i>	Código de Barras GTIN <i>GTIN Barcode ♦ Código de Barras GTIN</i>
ABB	TTH 300-H1H	Transdutor de temperatura TTH 300-... HART, analógico, versão Ex	Não informado
ABB	TTH 200-H1H	Transdutor de temperatura TTH 200-... HART analógico, versão Ex	Não informado
ABB	TTR 300-H1H	Sistema eletrônico do TTH 300-H1H montado em um invólucro com trilho de terminal	Não informado
ABB	TTR 200-H1 H1	Um sistema eletrônico do TTH 200-H1H montado em um invólucro com trilho de terminal	Não informado
ABB	TTR 200-H1 H2	Dois sistemas eletrônicos do TTH 200-H1H montado em um invólucro com trilho de terminal	Não informado
ABB	TTF 300-H1 A. H	TTH 300-H1H no interior de um invólucro com uma câmara (AGLF) sem visor	Não informado
ABB	TTF 300-H1 B. H	TTH 300-H1H no interior de um invólucro com uma câmara (AGSF) sem visor	Não informado
ABB	TTF 300-H1 C. H	TTH 300-H1H no interior de um invólucro com uma câmara (AGLFD) com visor LCD HMI tipo B	Não informado
ABB	TTF 300-H1 D. H	TTH 300-H1H no interior de um invólucro com uma câmara (AGSFD) com visor LCD HMI tipo B	Não informado
ABB	TTF 350-H1 N.H	TTH 300-H1H no interior de um invólucro com duas câmaras sem visor	Não informado
ABB	TTF 350-H1 R.H	TTH 300-H1H no interior de um invólucro com duas câmaras com visor LCD HMI tipo B	Não informado

Description:

In combination with sensors the temperature measurement transducers are used for the detection, amplification and transmission of measured values in intrinsically safe circuits. For some models, supply and communication are provided by means of an intrinsically safety fieldbus. Resistance thermometers, thermos-couples or other sensors with defined resistance or direct voltage quantities may be connected alternatively to the input.

Temperature data:

For the permissible ambient temperature range depending on the temperature class and the respective equipment category reference is made to the following tables:

Equipment protection level EPL Ga:

Temperature class	T6	T5	T4, T3, T2 and T1
Permissible ambiente temperature range	$-50\text{ °C} \leq T_{amb} \leq +44\text{ °C}$	$-50\text{ °C} \leq T_{amb} \leq +56\text{ °C}$	$-50\text{ °C} \leq T_{amb} \leq +60\text{ °C}$

Equipment protection level EPL Gb:

Temperature class	T6	T5	T4, T3, T2 and T1
Permissible ambiente temperature range	$-50\text{ °C} \leq T_{amb} \leq +56\text{ °C}$	$-50\text{ °C} \leq T_{amb} \leq +71\text{ °C}$	$-50\text{ °C} \leq T_{amb} \leq +85\text{ °C}$



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Electrical parameters:

Types: TTH 300-H1H., TTR 300-H1H., TTF 300-H1 A.H., TTF 300-H1 B.H., TTF 300-H1 C.H., TTF 300-H1 D.H., TTF 350-H1 N.H e TTF 350-H1 R.H:

Supply circuit

(terminals "+" and "-" or "+", "11", "-")

Type of protection Ex ia IIB/IIC or Ex ib IIB/IIC, only for connection to a intrinsically safe circuit, with the following maximum values:

$U_i = 30 \text{ V}$

$I_i = 130 \text{ mA}$

$P_i = 0,8 \text{ W}$

$C_i = 0,57 \text{ nF}$

$L_i = 0,5 \text{ mH}$

Measuring circuit

(terminals 1, 2, 3, 4, 5, 6;

or 1, 2, 3, 4;

or 1.1, 1.2, 1.3, 1.4;

or 2.1, 2.2, 2.3, 2.4)

Type of protection Ex ia IIB/IIC, only for connection to a intrinsically safe circuit, with the following maximum values:

$U_o = 6,5 \text{ V}$

$I_o = 25 \text{ mA}$

$P_o = 38 \text{ mW}$

Linear characteristic

$C_i = 49 \text{ nF}$

$L_i = \text{negligibly}$

The maximum permissible external inductance and capacitance depend on the connected intrinsically safe circuit in the following manner:

Passive sensors:

Type of protection	Ex ia	
	IIC	IIB
L_o	5 mH	5 mH
C_o	1,55 μF	8,75 μF

Active sensors with the following maximum values:

$U_o = 1,2 \text{ V}$

$I_o = 50 \text{ mA}$

$P_o = 60 \text{ mW}$

Type of protection	Ex ia	
	IIC	IIB
L_o	5 mH	5 mH
C_o	1,05 μF	6,15 μF

Display / service interface

(plug connector)

Type of protection Ex ia IIB/IIC or Ex ib IIB/IIC only for connection to a intrinsically safe circuit, with the following maximum values:

$U_o = 6,2 \text{ V}$

$I_o = 65,2 \text{ mA}$

$P_o = 101 \text{ mW}$

Linear characteristic

$C_i = \text{negligibly}$

$L_i = \text{negligibly}$



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Type of protection	Ex ia / ib	
	IIC	IIB
L _o	5 mH	5 mH
C _o	1,40 µF	8,90 µF

Type: TTR 300-H1H..

Display / service interface
(plug connector)

Type of protection Ex ia IIB/IIC or Ex ib IIB/IIC, with the following maximum values:

U_o = 6,2 V

I_o = 65,2 mA

P_o = 101 mW

Linear characteristic

C_i = 30 nF

L_i = negligibly

Type of protection	Ex ia / ib	
	IIC	IIB
L _o	5 mH	5 mH
C _o	1,37 µF	8,87 µF

Typess: TTH 200-H1H..., TTR 200-H1 H1..., TTR 200-H1 H2:

Supply circuit

(terminals "+", "-";

or "+", "11", "-";

or "1.", "1.11", "1.-";

and "2.", "2.11", "2.-")

Type of protection Ex ia IIB/IIC or Ex ib IIB/IIC, only for connection to a intrinsically safe circuit, with the following maximum values:

U_i = 30 V

I_i = 130 mA

P_i = 0,8 W

C_i = 0,57 nF

L_i = 160 µH

Measuring circuit

(terminals 1, 2, 3, 4;

or 1, 2, 3, 4;

or 1.1, 1.2, 1.3, 1.4;

or 2.1, 2.2, 2.3, 2.4)

Type of protection Ex ia IIB/IIC or Ex ib IIB/IIC, with the following maximum values:

U_o = 6,5 V

I_o = 17,8 mA

P_o = 29 mW

Linear characteristic

C_i = 118 nF

L_i = negligibly



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The maximum permissible external inductance and capacitance depend on the connected intrinsically safe circuit in the following manner:

Passive sensors:

Type of protection	Ex ia	
	IIC	IIB
L _o	5 mH	5 mH
C _o	1,55 µF	8,75 µF

Active sensors with the following maximum values:

U_o = 1,2 V

I_o = 50 mA

P_o = 60 mW

Type of protection	Ex ia	
	IIC	IIB
L _o	5 mH	5 mH
C _o	1,05 µF	6,15 µF

Type: TTH 200-H1H..

Display / service interface
(plug connector)

Type of protection Ex ia IIB/IIC or Ex ib IIB/IIC, with the following maximum values:

U_o = 6,2 V

I_o = 65,2 mA

P_o = 101 mW

Linear characteristic

C_i = negligibly

L_i = negligibly

Type of protection	Ex ia / ib	
	IIC	IIB
L _o	5 mH	5 mH
C _o	1,4 µF	8,9 µF

Types: TTR 200-H1 H1.., TTR 200-H1 H2..

Display / service interface
(plug connector)

Type of protection Ex ia IIB/IIC or Ex ib IIB/IIC, with the following maximum values:

U_o = 6,2 V

I_o = 65,2 mA

P_o = 101 mW

Linear characteristic

C_i = 30 nF

L_i = negligibly



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Type of protection	Ex ia / ib	
	IIC	IIB
L _o	5 mH	5 mH
C _o	1,37 µF	8,87 µF

The measuring circuit is safety electrically isolated from the supply circuit and the display/service interface up to a peak value of the total voltage of 30 V.

Testing and analysis performed:

The testing and analysis performed are described in technical report # TÜV 13.2466.

Technical Documentation:

Documento	Páginas	Descrição	Rev.	Data
-	1	INMETRO Signs	-	-
CI/TTF300-X1	212	Manual de instrução TTF300	F	06/2016
CI/TTH200-X1	164	Manual de instrução TTH200	A	07/2016
CI/TTH300-X1	164	Manual de instrução TTH300	D	06/2016
CI/TTR200-X1	164	Manual de instrução TTR200	B	07/2016

Marking:

The temperature transducer types, TTH 300-H1H..., TTH 200-H1H..., TTR 300-H1H..., TTR 200-H1H..., TTF 300-H1H..., TTF 350-H1H... was approved in the tests and analysis, in accordance to the applicable standards and they shall have the following marking, taking into account, the item "Remarks".

Ex ia IIC T6...T1 Ga
Ex ib [ia Ga] IIC T6...T1 Gb
Ex ib [ia IIIC Da] IIC T6...T1 Gb

Remarks:

- The certificate number has the letter X to indicate the following restriction for use:
The temperature transducer, type TTH 300-H1H... / TTH 200-H1H... shall be installed as such, that the degree of protection IP20 according to area equipment protection level.
Inadmissible electrostatic charge of the plastic housing of the temperature measuring transducers, types TTH 300-H1H.. / TTH 200-H1H.. / TTR 300-H1H / TTR 200-H1H shall be avoided. A warning label affixed on the equipment shall point to this risk.
When the temperature measuring transducers of types TTF 300-H1 A.H / TTF 300-H1 C.H / TTF 350-H1 N.H / TTF 350-H1 R.H, are applied according to EPL "Ga", these shall be installed such that they are protected against heavy impact or friction.
- This certificate is valid for the products with the same model and type number according to the prototype tested. Any modification in the project, as well as the use of components apart from those defined by the product documentation, without previous authorization from TÜV Rheinland, will invalid this certificate.
- It is manufacturer responsibility to assure that the manufactured products are in accordance to the tested prototype specification, through of visual, dimensional inspections and routine testing.



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- The products must bear, on the external surface and in a visible place, the conformity marking and the technical characteristics in accordance to the standards ABNT NBR IEC 60079-0 / ABNT NBR IEC 60079-11 / ABNT NBR IEC 60079-26 / ABNT NBR IEC 60079-27 / IEC 61241-11 and Regulation on Conformity Assessment, attached to INMETRO administrative rule # 179, issued on May 18th, 2010. This marking must be legible and durable, taking into account, all possible chemical corrosion.
- The activities of installation, inspection, maintenance, repair, overhaul and recovery of products are the user's responsibility and must be performed in accordance with the requirements of current technical standards and the manufacturer's recommendations.

Natureza das Revisões / Data

Nature of Reviews/Date ♦

Naturaleza de las Revisiones / Fecha

Review 00:

Review 01:

Review 02:

February 18th, 2014 – Initial Certification;

August 19th, 2014 – Marking correction;

May 24th, 2017 – Revalidation.



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