IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx PTB 09.0014X issue No.:1

Certificate history:
Issue No. 1 (2009-5-4)
Issue No. 0 (2009-3-4)

Status: **Current**

Date of Issue: **2009-05-04** Page 1 of 5

Applicant: **ABB Automation Products GmbH**
Borsigstraße 2
63754 Alzenau
Germany
Germany

Electrical Apparatus: **Temperature measuring transducer TTH 300-H1H..., TTH 200-H1H..., TTR 300-H1H..., TTR 200-H1H..., TTF 300-H1H..., TTF 350-H1H...**

Optional accessory:

Type of Protection: **General requirements, Intrinsic Safety**

Marking: **Ex ia IIC T6**
resp.
Ex [ia] ib IIC T6
resp.
Ex [iaD] ib IIC T6

Approved for issue on behalf of the IECEx Certification Body: Dr.-Ing. U. Johannsmeyer

Position: Head of Department "Intrinsic Safety and Safety of Systems"

Signature:
(for printed version)

Date: 2009-05-07

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

Physikalisch-Technische Bundesanstalt (PTB)
Bundesallee 100
38116 Braunschweig
Germany

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Manufacturer: **ABB Automation Products GmbH**
Borsigstraße 2
63754 Alzenau
Germany
Germany

Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:
The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2004 Edition: 4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-11 : 2006 Edition: 5	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

DE/PTB/ExTR09.0017/00

Quality Assessment Report:
DE/PTB/QAR07.0003/01

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

In combination with sensors the temperature measuring transducers of type TTH 300-Ex are used for the detection, amplification and transmission of measured values in intrinsically safe circuits. Resistance thermometers, thermo-couples or other sensors with defined resistance or direct voltage quantities may be connected alternatively to the input.

Therefore the IECEx certificate comprises the temperature measuring transducers according to the following type code:

TTH 300-H1H.. : temperature measuring transducer TTH 300-.... analog HART, Ex-version
TTH 200-H1H.. : temperature measuring transducer TTH 200-.... analog HART, Ex-version
TTR 300-H1 H : Electronics system of TTH 300-H1H.. casted inside of a mounting rail enclosure
TTR 200-H1 H : Electronics system of TTH 200-H1H.. casted inside of a mounting rail enclosure
TTF 300-H1 A.H : TTH 300-H1H.. in single-chamber housing (AGLF) / without display
TTF 300-H1 B.H : TTH 300-H1H.. in single-chamber housing (AGSF) / without display
TTF 300-H1 C.H : TTH 300-H1H.. in single-chamber housing (AGLFD) /with LCD display HMI type A
TTF 300-H1 D.H : TTH 300-H1H.. in single-chamber housing (AGSFD) /with LCD display HMI type A
TTF 350-H1 N.H : TTH 300-H1H.. in dual-chamber housing / without display
TTF 350-H1 R.H : TTH 300-H1H.. in dual-chamber housing / with LCD-display HMI type B

CONDITIONS OF CERTIFICATION: YES as shown below:

1. The connection facilities of the temperature measuring transducer, type TTH 300-H1H.. / TTH 200- H1H.. shall be installed as such, that the degree of protection IP 20 according to IEC 60529:1989 is fulfilled as a minimum.
2. Inadmissible electrostatic charge of the plastic housing of the temperature measuring transducers, types TTH 300-H1H../ TTH 200-H1H.. as well as TTR 300-H1 H/ TTR 200-H1 H shall be avoided. A warning label affixed on the equipment shall point to this risc.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

The type code was changed from TTxx0-E1H... to TTxx0-H1H... .
The bold character "E" marks the ATEX version of this particular type of temperature measuring transducer.
The bold character "H" marks the IECEx version of this particular type of temperature measuring transducer.
Both versions differ from each other only with respect to their labelling.

Since this change is only formal there is no new ExTR issued.

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Additional information:

For electrical data reference is made to the annex IECExPTB0900141.pdf.

Annexe: IECExPTB0900141.pdf

Electrical data

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

Application as category-1-equipment:

temperature class	T6	T5	T4, T3, T2, T1
permissible ambient temperature range	-50 °C...+44 °C	-50 °C...+56 °C	-50 °C...+60 °C

Application as category-2-equipment:

temperature class	T6	T5	T4, T3, T2, T1
permissible ambient temperature range	-50 °C...+56 °C	-50 °C...+71 °C	-50 °C...+85 °C

Temperature measuring transducer: **TTH 300-H1H.. ; TTH 200-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 ; TTF 350-H1 R.H ;**

Supply circuit ..... type of protection Intrinsic Safety Ex ia IIB / IIC
(terminals "+" and "-") or Ex ib IIB / IIC
only for connection to certified intrinsically safe circuits
Maximum input values:
U_i = 30 V
I_i = 130 mA
P_i = 0.8 W

C_i ≈ 5 nF
L_i ≈ 0.5 mH

Measuring circuit ..... type of protection Intrinsic Safety Ex ia IIC or Ex ia IIB
(terminals 1, 2, 3, 4, 5 and 6) with the following maximum values:
U_o = 6.5 V
I_o = 25 mA
P_o = 38 mW
linear characteristic
C_i = 49 nF
L_i ≈ 0

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

Passive transmitters:

type of protection	Ex ia	
	IIC	IIB
L_o	5 mH	5 mH
C_o	1.55 µF	8.75 µF

Active transmitters 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

Display / service interface (plug connector) ..... type of protection Intrinsic Safety — 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 ≈ 0
L_i ≈ 0

type of protection	Ex ia / ib	
	IIC	IIB
L_o	5 mH	5 mH
C_o	1.4 µF	8.9 µF

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

Temperature measuring transducer: **TTR 300-H1 H; TTR 200-H1 H**

Supply circuit (terminals "+", "11" and "-") ..... type of protection Intrinsic Safety — Ex ia IIB / IIC
or — Ex ib IIB / IIC
only for connection to certified intrinsically safe circuits
Maximum input values:
U_i = 30 V
I_i = 130 mA
P_i = 0.8 W

C_i ≈ 5 nF
L_i ≈ 0.5 mH

Measuring circuit (terminals 1, 2, 3, 4, 5 and 6) ..... type of protection Intrinsic Safety — Ex ia IIC or Ex ia IIB
with the following maximum values:
U_o = 6.5 V
I_o = 25 mA
P_o = 38 mW
linear characteristic
C_i = 49 nF
L_i ≈ 0

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

Passive transmitters:

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	IIC	IIB
L_o	5 mH	5 mH
C_o	1.55 µF	8.75 µF

Active transmitters with the following maximum values:

U_o = 1.2 V
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type of protection	Ex ia	
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L_o	5 mH	5 mH
C_o	1.05 µF	6.15 µF

Display / service interface (plug connector) ..... type of protection Intrinsic Safety 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 ≈ 0
L_i ≈ 0

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