



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 BVS 17.0065X issue No.: 0 Certificate history:

Status: Current

Date of Issue: 2017-09-08 Page 1 of 4

Applicant: ABB Automation Products GmbH
Schillerstraße 72
32425 Minden
Germany

Equipment: Temperature Sensor Process Industry type TSP3**-**.* ** ..** ** and Temperature
Optional accessory: Transmitter Fieldhousing type TTF300-**.* ** ..

Type of Protection: Equipment dust ignition protection by enclosure "t"

Marking: Type TSP3**-A3
Ex ta IIIC T_{see manual} Da
Ex ta/tb IIIC T_{see manual} Da/Db
Ambient temperature range see manual
Type TTF300-D5 and type TSP3**-D5
Ex tb IIIC T_{see manual} Db
-40 °C ≤ T_{amb} ≤ +85 °C

Approved for issue on behalf of the IECEx Certification Body: Jörg Koch

Position: Head of Certification Body

Signature:
(for printed version)

Date:

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](http://www.iecex.com).

Certificate issued by:

DEKRA EXAM GmbH
Dinnendahlstrasse 9
44809 Bochum
Germany

 **DEKRA**
On the safe side.



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Manufacturer: **ABB Automation Products GmbH**
Schillerstraße 72
32425 Minden
Germany

Additional 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 : 2011 Explosive atmospheres - Part 0: General requirements
Edition: 6.0

IEC 60079-31 : 2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition: 2

*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/BVS/ExTR17.0067/00](#)

Quality Assessment Report:

[DE/TUN/QAR11.0012/04](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Description

The Temperature Sensor Process Industry type TSP3**-* and the Temperature Transmitter Fieldhousing are used for measuring the temperature in containers in which granular or powdery materials are stored. The temperature sensor consists of a terminal box and a protection tube with measuring element (thermocouple or resistance thermometer). It is mounted in the wall of the container.

The control and evaluation electronic (transmitter) is located either in the terminal box or outside the hazardous area.

The Temperature Transmitter Fieldhousing Type TTF300-* consists of either a terminal box (AGL, AGLH, AGLHD, AGS, AGSH or AGSHD) or a field housing (AGSF, AGSFH AGLF, AGLFH, AGLFD or AGSFD) with the electronics inside.

Both the head-mounted as well as the field-mounted types can house two transmitters maximum.

Terminal box and field housing in the light metal and stainless steel versions are constructed in the same way. The light metal version is certified for gas in type of protection Flameproof Enclosure "d" (PTB Ex 99-19133, PTB Ex 01-11103).

Type TSP3**-A3 is only used in connection with the electronics type TTH200 not incorporating any normally arcing or sparking parts; Type TSP3**-D5 and type TTF300-D5 are used either with electronics type TTH200 or type TTH300.

The supply can be realised either by a power supply with intrinsically safe output circuit Ex ia IIB or Ex ia IIC or non-intrinsically safe. In case the supply is non-intrinsically safe the current will be limited by a series fuse with a rated current of 32 mA.

The output circuit of the transmitter (sensor circuit) is limited to a max. power of 0.5 W.

SPECIFIC CONDITIONS OF USE: YES as shown below:

In case the supply is non-intrinsically safe the current has to be limited by an upstream fuse with a rated current of 32 mA.



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EQUIPMENT(continued):

Subject and Type

See Annex

Parameters

See Annex



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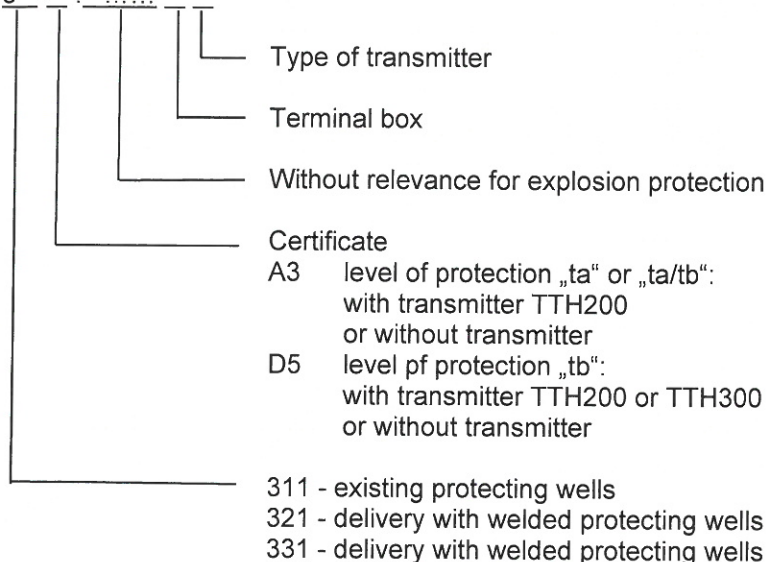


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Subject and Type

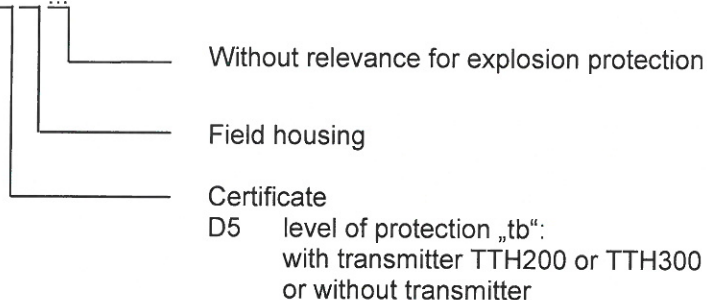
Temperature Sensor Process Industry

Type TSP3**-** **..... ** **



Temperature Transmitter Fieldhousing

Type TTF300-*** **...



Parameters

1. Electrical data

- type TSP3**-A3 with built in transmitter type TTH 200-E1H.. (Rev 1.1) (acc. PTB 05 ATEX 2017 X) in type of protection Intrinsic Safety level of protection „ia or without built in transmitter
- type TSP3**-D5 with built in transmitter type TTH 200-E1H.. (Rev 1.1) or type TTH 300-E1H.. (Rev 1.07) (acc. PTB 05 ATEX 2017 X) in type of protection Intrinsic Safety level of protection „ia or without built in transmitter
- type TTF300-D5 with built in transmitter type TTH 200-E1H.. (Rev 1.1) or type TTH 300-E1H.. (Rev 1.07) (acc. PTB 05 ATEX 2017 X) in type of protection Intrinsic Safety level of protection „ia or without built in transmitter.

Maximum two transmitters without display or one transmitter with display can be built in.
The electrical parameters of the respective Certificate are relevant.



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- 1.1 Supplied by a power supply having an output circuit in type of protection
Intrinsic Safety Level of protection "ia"

Supply circuit:

	TTH 200-E1H..	TTH 300-E1H..
U_i	30 V	30 V
I_i	130 mA	130 mA
P_i	0.8 W	0.8 W
C_i	0.57 nF	0.57 nF
L_i	160 μ H	0.5 μ H

Measuring circuit (sensor):

	TTH 200-E1H..		TTH 300-E1H..	
	Pt100	Thermo couple	Pt100	Thermo couple
U_o	6.5 V	1.2 V	6.5 V	1.2 V
I_o	17.8 mA	50 mA	25 mA	50 mA
P_o	29 mW	60 mW	38 mW	60 mW
L_i	0	0	0	0
C_i	118 nF	0	49 nF	0
L_o	5 mH	5 mH	5 mH	5 mH
C_o	6.15 μ F IIB	1.05 μ F	8.75 μ F IIB	6.15 μ F IIB
	1.55 μ F IIC		1.55 μ F IIC	1.55 μ F IIC

In case of an externally located transmitter having a measuring circuit in type of protection Intrinsic Safety „ia“ the following input data of the measuring circuit of the sensor shall not be exceeded:

Measuring circuit (sensor)

in type of protection Intrinsic Safety Ex ia IIB/IIC
only for connection to a certified intrinsically safe circuit
maximum values:

U_i	=	30	V
I_i	=	101	mA
P_i	=	0.5	W
L_i	=	15	μ H per meter
C_i	=	280	pF per meter

Display- / service interface (socket):

	TTH 200-E1H.. / TTH 300-E1H..
	PT100
U_o	6.2 V
I_o	65.2 mA
P_o	101 mW
L_i	0
C_i	0
L_o	5 mH
C_o	8.87 μ F IIB
	1.37 μ F IIC



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1.2 Non-intrinsically safe supply

Supply voltage DC 42 V

Max. power loss measuring insert (sensor) $\leq$ 0.5 W
for external transmitter secured by an external IEC fuse (32 mA), non-intrinsically safe
max. power loss 2 transmitter or 1 transmitter + display $\leq$ 3 W

2. Thermal data

2.1 Type TSP3**-*

	Permitted ambient temperature at the terminal box	Permitted process temperature at the protection tube	Max. temperature at the flange on the side of the terminal box	Max. surface temperature at the terminal box	Max. surface temperature at the protection tube
Category 1D or Category 1/2D with built in transmitter in intrinsic safety "ia"	-40 °C...+85 °C	-40 °C... +85 °C -40 °C...+200 °C* -40 °C...+300 °C* -40 °C...+400 °C*	85 °C 164 °C 251 °C 346 °C	120 °C	133 °C 200 °C 300 °C 400 °C
Category 1D or Category 1/2D with built in transmitter secured by an external IEC fuse	-40 °C...+85 °C	-40 °C... +85 °C -40 °C...+200 °C* -40 °C...+300 °C* -40 °C...+400 °C*	85 °C 164 °C 251 °C 346 °C	133 °C** 150 °C ***	133 °C 200 °C 300 °C 400 °C
Category 1D or Category 1/2D measuring circuit in intrinsic safety "ia", transmitter extern or non-intrinsic safe with external IEC-fuse in the supply circuit of the external transmitter	-40 °C... +85 °C -40 °C...+200 °C -40 °C...+200 °C -40 °C...+200 °C	-40 °C... +85 °C -40 °C...+200 °C -40 °C...+300 °C -40 °C...+400 °C	85 °C 200 °C 251 °C 346 °C	85 °C 200 °C 200 °C 200 °C	133 °C 200 °C 300 °C 400 °C

* By adequate means the user avoids the max. permitted ambient temperature of 85 °C at the terminal box from being exceeded.

** Equipped with one transmitter with or without display

*** Equipped with two transmitters

2.2 Type TTF300-D5

Permitted ambient temperature range $-40\text{ °C} \leq T_{\text{amb}} \leq +85\text{ °C}$
Maximum surface temperature T135 °C

3. Degrees of protection according to IEC 60529

IP6X