

Translation

EU-Type Examination Certificate Supplement 4

Equipment intended for use in potentially explosive atmospheres
Directive 2014/34/EU

EU-Type Examination Certificate Number: **BVS 06 ATEX E 029 X**

Product: **Temperature Sensor Process Industry type TSP3**-* and Temperature Transmitter Field housing type TTF300-***

Manufacturer: **ABB AG**

Address: **Schillerstraße 72, 32425 Minden, Germany**

This supplementary certificate extends EU-Type Examination Certificate No. BVS 06 ATEX E 029 to apply to products designed and constructed in accordance with the specification set out in the appendix of the said certificate but having any acceptable variations specified in the appendix to this certificate and the documents referred to therein.

DEKRA Testing and Certification GmbH, Notified Body number 0158, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential Report No. BVS PP 06.2057 EU.

The Essential Health and Safety Requirements are assured in consideration of:



EN IEC 60079-0:2018
EN 60079-31:2014

General requirements
Protection by Enclosure "t"

If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Special Conditions for Use specified in the appendix to this certificate.

This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

The marking of the product shall include the following:

Type TSP3**-A3
 **II 1D Ex ta IIIC T** see 15.3 **Da**
II 1/2 D Ex ta/tb IIIC T see 15.3 **Da/Db**
Type TTF300-D5 and Type TSP3**-D5
 **II 2D Ex tb IIIC T** see 15.3 **Db**

DEKRA Testing and Certification GmbH
Bochum, 2022-03-31

Signed: Jörg-Timm Kilisch

Managing Director

13 **Appendix**

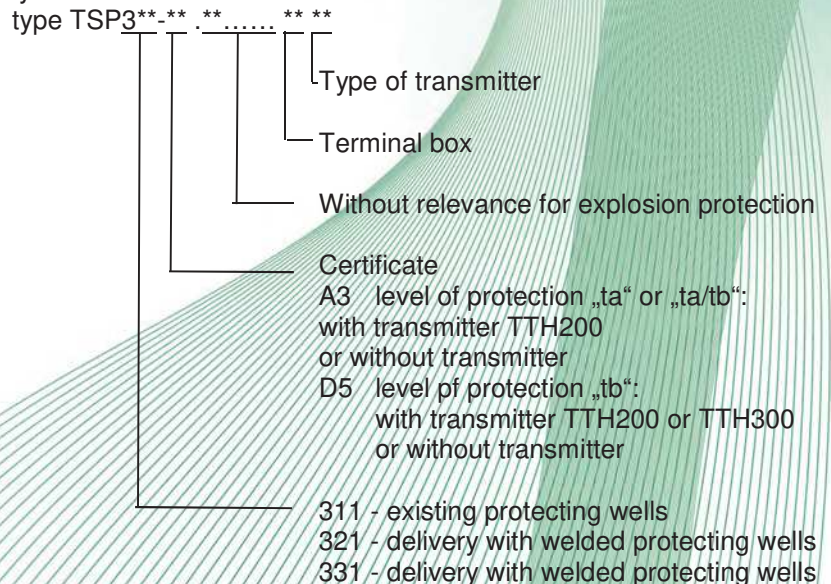
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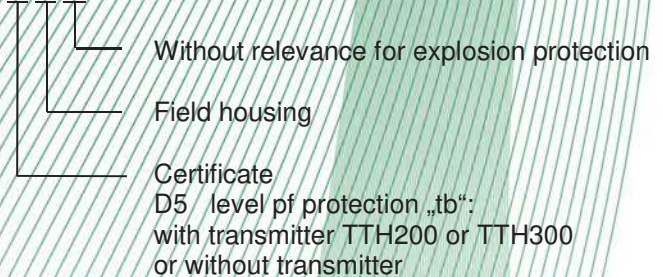
15 **Product description**

15.1 **Subject and type**

Temperature Sensor Process Industry



Temperature Transmitter Field housing type TTF300**-*



15.2 **Description**

The Temperature Sensor Process Industry type TSP3**-* and the Temperature Transmitter Field housing 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 Field housing 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 for built in as well as for externally arranged transmitters 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.

Reasons for this supplement:

- Updating to the current version of EN IEC 60079-0:2018
- Change of manufacturer's name in ABB AG
- A special condition for safe use is added and due to that a "X" in the certificate

15.3.1 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 EC-Type Examination Certificate are relevant.

15.3.1.1 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 µH	0.5 µH

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 µF IIB 1.55 µF IIC	1.05 µF	8.75 µF IIB 1.55 µF IIC	6.15 µF IIB 1.55 µF 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 µH 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 µF IIB 1.37 µF IIC

15.3.1.2 Non-intrinsically safe supply

Supply voltage	DC 42 V
For external transmitter secured by an IEC fuse, non-intrinsically safe	
max. power loss (2 transmitter or 1 transmitter + display)	≤ 3 W
Max. power loss measuring insert (sensor)	≤ 0.5 W

15.3.2 Thermal data
15.3.2.1 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 (T ₂₀₀)	Max. surface temperature at the protection tube (T ₂₀₀)
Category 1D or Category ½D 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 ½D 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 ½D 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

15.3.2.2 Type TTF300-D5

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

Maximum surface temperature T₂₀₀ 135 °C

15.3.3 Degrees of protection according to EN 60529 IP 6X

16 Report Number

BVS PP 06.2057 EU, as of 31.03.2022

17 Special Conditions for Use

In case the supply is non-intrinsically safe the current will be limited by a series fuse with a rated current of 32 mA.

18 Essential Health and Safety Requirements

The Essential Health and Safety Requirements are covered by the standards listed under item 9.

19 Drawings and Documents

Drawings and documents are listed in the confidential report.

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA Testing and Certification GmbH
Bochum, 2022-03-31
BVS-Hk/MGR A20171132



Managing Director