Translation

1 # EU-Type Examination Certificate Supplement 3

**Change to Directive 2014/34/EU**

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

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

4 Product: **Temperature Sensor Process Industrie type TSP3**-* and Temperature Transmitter Fieldhousing type TTF300-***

5 Manufacturer: **ABB Automation Products GmbH**

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

7 This supplementary certificate extends EC-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.

8 DEKRA EXAM 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. PP 06.2057 EU.

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN 60079-0:2012 + A11:2013** **General requirements "**
**EN 60079-31:2014** **Protection by Enclosure "t"**

10 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.

11 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.

12 The marking of the product shall include the following:

Typ TSP3**-A3
⟨Ex⟩ **II 1D Ex ta IIIC T** see 15.3 **Da**
**II 1/2 D Ex ta/tb IIIC T** see 15.3 **Da/Db**
Typ TTF300-D5 und Typ TSP3**-D5
⟨Ex⟩ **II 2D Ex tb IIIC T** see 15.3 **Db**

DEKRA EXAM GmbH
Bochum, 2017-05-08

Signed: Jörg Koch
Certifier

Signed: Günther Schumann
Approver


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13 **Appendix**

14 **EU-Type Examination Certificate**

**BVS 06 ATEX E 029**
**Supplement 3**

15 **Product description**

15.1 **Subject and type**

Temperature Sensor Process Industry
type TSP3**-** **.....** **

- type of transmitter
- terminal box
- without relevance for explosion protection
- certificate
  A3 level of protection „ta“ or „ta/tb“:
  with transmitter TTH200
  or without transmitter
  D5 level pf protection „tb“:
  with transmitter TTH200 or TTH300
  or without transmitter
- 311 - existing protecting wells
  321 - delivery with welded protecting wells
  331 - delivery with welded protecting wells

Temperature Transmitter Fieldhousing type TTF300-** **...

- without relevance for explosion protection
- field housing
- certificate
  D5 level pf protection „tb“:
  with transmitter TTH200 or TTH300
  or without transmitter

15.2 **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).


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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.

Reasons for this supplement:

- Change to the directive 2014/34/EU
- Updating to the current standards
- Type TSP1**-* and type TTF350 are omitted
- Modification oft he type code
- Type TSP3**-A3 for level of protection "ta" resp. ""ta/tb"
- Type TTF300-D5 and type TSP3**-D5 for level of protection "tb".

## 15.3 Parameters

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<br>1.55 µF IIC | 1.05 µF | 8.75 µF IIB<br>1.55 µF IIC | 6.15 µF IIB<br>1.55 µF IIC |


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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<br>1.37 µF IIC |

15.3.1.2 Non-intrinsically safe supply

Supply voltage DC 42 V

Max. power loss measuring insert (sensor) ≤ 0.5 W

For external transmitter secured by an IEC fuse, non intrinsically safe max. power loss (2 transmitter or 1 transmitter + display) ≤ 3 W


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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. temperatu at the flange on the side of th terminal box | max. surface temperature at the terminal bo | 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<br>-40 °C...+200 °C*<br>-40 °C...+300 °C*<br>-40 °C...+400 °C* | 85 °C<br>164 °C<br>251 °C<br>346 °C | 120 °C | 133 °C<br>200 °C<br>300 °C<br>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<br>-40 °C...+200 °C*<br>-40 °C...+300 °C*<br>-40 °C...+400 °C* | 85 °C<br>164 °C<br>251 °C<br>346 °C | 133 °C**<br>150 °C *** | 133 °C<br>200 °C<br>300 °C<br>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<br>-40 °C...+200 °C<br>-40 °C...+200 °C<br>-40 °C...+200 °C | -40 °C... +85 °C<br>-40 °C...+200 °C<br>-40 °C...+300 °C<br>-40 °C...+400 °C | 85 °C<br>200 °C<br>251 °C<br>346 °C | 85 °C<br>200 °C<br>200 °C<br>200 °C | 133 °C<br>200 °C<br>300 °C<br>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 $-40\ °C \leq T_{amb} \leq +\ 85\ °C$

Maximum surface temperature T 135 °C

15.3.3 Degrees of protection according to EN 60529 IP 6X

16 **Report Number**

BVS PP 06.2057 EU, as of 2017-05-08

17 **Special Conditions for Use**

None


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## 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.

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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 EXAM GmbH
Bochum, dated 2017-05-08
BVS-Hk/Mu A 20130625

Certifier

Approver


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