



## Translation

# EC-Type Examination Certificate

(1)

(2)

### - Directive 94/9/EC -

Equipment and protective systems intended for use  
in potentially explosive atmospheres

(3)

### BVS 06 ATEX E 029

(4) **Equipment:** Temperature Sensor und Transmitter Type TSP\*\* and TTF 300\*\*

(5) **Manufacturer:** ABB Automation Products GmbH

(6) **Address:** 63755 Alzenau, Germany

(7) The design and construction of this equipment and any acceptable variation thereto are specified in the schedule to this type examination certificate.

(8) The certification body of EXAM BBG Prüf- und Zertifizier GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the test and assessment report BVS PP 06.2057 EG.

(9) The Essential Health and Safety Requirements are assured by compliance with:

EN 50281-1-1:1998 +A1 Dust explosion protection

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC.

Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment shall include the following:



**II 1D IP6X T** see 15.3.2

or

Type TSP\*\*\*-\*. \*.....\* \*



**II 1/2D IP6X T** see 15.3.2



**II 1D IP6X T 135 °C**

Type TTF...-\*\*

**EXAM BBG Prüf- und Zertifizier GmbH**

Bochum, dated 17. May 2006

Signed: Dr. Jockers

Signed: Dr. Eickhoff

Certification body

Special services unit

(13)

Appendix to

(14)

# EC-Type Examination Certificate

## BVS 06 ATEX E 029

 (15) 15.1 Subject and type

Temperature Sensor Process Industry Type TSP\*\*\*.\*.\*.....\*\*

type of transmitter

terminal box

without relevance for explosion protection

certificate

111 - existing protecting wells

311 - existing protecting wells

121 - delivery with welded protecting wells

321 - delivery with welded protecting wells

131 - delivery with drilled protecting wells

331 - delivery with welded protecting wells

Temperature Transmitter Fieldhousing Type TTF...\*\*

without relevance for explosion protection

field housing

certificate

without relevance for explosion protection

### 15.2 Description

The Temperature Sensor Process Industry Type TSP\*\*\*.\*.\*.....\*\* is 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 is located either in the terminal box or outside the hazardous area.

The supply can be realised either by a power supply with intrinsically safe output circuit EEx ia IIB or EEx 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 Temperature Transmitter Fieldhousing Type TTF\*\*\* serves the purpose to record, enforce and transfer thermal data used together with other transmitters.

It consists of either a terminal box of one of the following types: AGL, AGLH, AGLHD, AGS, AGSH or AGSHD respectively; or a field housing of one of the following types: AGSF, AGSFH, AGLF, AGLFH, AGLFD or AGSFD respectively 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 TTH\*\*\* temperature transmitter is used as non intrinsically safe and intrinsically safe version with EC-Type examination certificate. In case the supply is non-intrinsically safe the current will be limited by a series fuse with a rated current of 32 mA.

### 15.3 Parameters

#### 15.3.1 Electrical data

##### 15.3.1.1 Type TSP\*\*\*-\*.\*\*\*\*\* \*\*

Version with transmitter in type of protection Intrinsic Safety level of protection „ia“ built in or with external transmitter with measuring circuit in type of protection Intrinsic Safety „ia“.  
 The electrical parameters of the respective EC-Type Examination Certificate are relevant.  
 In case of one built in transmitter with or without display or two transmitters without display the max. power loss in the terminal box is 2.3 W (4.6 W).

##### 15.3.1.1.1 Intrinsically safe version

The electrical data  $U_0$ ,  $I_0$  and  $P_0$  of the intrinsic safe measuring circuit of the used transmitter shall not exceed the following input data of the measuring circuit of the sensor.

measuring circuit / sensor circuit	in type of protection Intrinsic Safety EEx ia IIB/IIC maximum values:
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$U_i$	=	30	V
$I_i$	=	101	mA
$P_i$	=	0,5	W
$L_i$	=	15	per meter
$C_i$	=	280	per meter

##### 15.3.1.1.2 Non - intrinsically safe version

supply voltage	
for external transmitter secured by an IEC fuse, non - intrinsically safe)	42 V DC
max. power loss (2 transmitter or 1 transmitter + display)	≤ 3 W
max. power loss measuring insert (sensor)	≤ 0,5 W

##### 15.3.1.2 Type TTF...-\*\*.

Temperature transmitter type TTH\*\*\* in type of protection Intrinsic Safety built in  
 Level of protection “ia” supplied by a power supply having an output circuit in type of  
 protection Intrinsic Safety Level of protection “ia”

max. supply voltage	$U_i$	DC	30 V
max. input power	$P_i$		800 mW

### 15.3.2 Thermal data

#### 15.3.2.1 Type TSP\*\*\*-\*.\*\*\*\*\*

	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 external 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 TTF...-\*\*.

permitted ambient temperature range  
maximum surface temperature T

$$-40\text{ °C} \leq T_{\text{amb}} \leq +85\text{ °C}$$

$$135\text{ °C}$$

### 15.3.3 Degrees of protection according to EN 60529

IP 6X

(16) Test and assessment report  
BVS PP 06.2057EG as of 17.05.2006

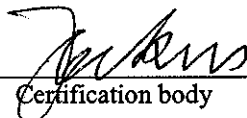
(17) Special conditions for safe use  
none

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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.

44809 Bochum, 17.05.2006  
BVS-Hk/Mi A 20060097

**EXAM BBG Prüf- und Zertifizier GmbH**

  
\_\_\_\_\_  
Certification body

  
\_\_\_\_\_  
Special services unit



## 1st Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

### to the EC-Type Examination Certificate BVS 06 ATEX E 029

**Equipment:** Temperature Sensor Process Industrie Type TSP\*\*\*.\*.....\* \*,  
Temperature Transmitter Fieldhousing Type TTF...-\*\*. and Temperature  
Transmitter Dual chamber Type TTF350-\*\*\*\*

**Manufacturer:** ABB Automation Products GmbH

**Address:** 63755 Alzenau, Germany

#### Description

The temperature transmitter Type TTF350-\*\*\*\* dual chamber is added.

The assessment of all types was done according to the standards EN 61241-0 and EN 61241-1.

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:

EN 61241-0:2006 General requirements

EN 61241-0:2004 Protection by enclosure „ID“

#### Subject and type

Temperature Sensor Process Industry Type TSP\*\*\*.\*.....\* \*

type of transmitter

terminal box

without relevance for explosion protection

certificate

111 - existing protecting wells

311 - existing protecting wells

121 - delivery with welded protecting wells

321 - delivery with welded protecting wells

131 - delivery with drilled protecting wells

331 - delivery with welded protecting wells

Temperature Transmitter Fieldhousing Type TTF...-\*\*.

without relevance for explosion protection

field housing

certificate

Temperature Transmitter Dual chamber Type TTF350-\*\*\*\*

H - HART

cable entry

N –without Display

R –with Display

certificate

The marking of the equipment shall include the following:



**II 1D Ex tD A20 IP66 T** see 15.3.2

**II 1/2D Ex tD A20/21 IP66 T** see 15.3.2



**II 1D Ex tD A20 IP6X T135 °C**

or

Type TSP\*\*\*-\*. \*.....\* \*

Type TTF...-\*\*.  
Type TTF350-\*\*\*\*

Special conditions for safe use

none

Test and assessment report

BVS PP 06.2057 EG as of 21.07.2008

**DEKRA EXAM GmbH**

Bochum dated 21. July 2008

Signed:

Migenda

Certification body

Signed:

Schumann

Special services unit

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.

44809 Bochum, 21. July 2008  
BVS-Hk / Her A 20070615

**DEKRA EXAM GmbH**

Migenda  
Certification body

Schumann  
Special services unit



Translation  
**2<sup>nd</sup> Supplement**

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

**to the EC-Type Examination Certificate  
BVS 06 ATEX E 029**

**Equipment:** Temperature Sensor Process Industry type TSP\*\*\*-\*.\*.....\* \*,  
Temperature Transmitter Field-housing type TTF...-\*\* and  
Transmitter Dual Chamber type TTF350-\*\*\*\*

**Manufacturer:** ABB Automation Products GmbH

**Address:** 63755 Alzenau, Germany

Description

For the complete module the enclosure covers have been modified according to the new design guideline of ABB. Additionally, the diameter of the window was enlarged at both the temperature sensor process industry type TSP\*\*\*-\*.\*.....\* \* and the temperature transmitter field-housing type TTF...-\*\*.

The temperature transmitter dual chamber type TTF350-\*\*\*\* is now available with windows of either 10mm or 6mm thickness. The mounting of the window is not affected by these.

The materials used regarding window, sealing mass or gasket rings remain unchanged.

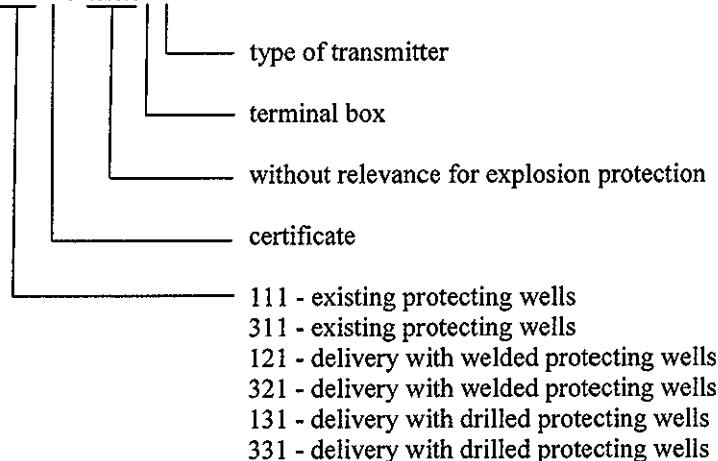
The thermal and electrical parameters defined remain unchanged.

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:

EN 61241-0:2006 General requirements  
EN 61241-1:2004 Protection by enclosures 'tD'

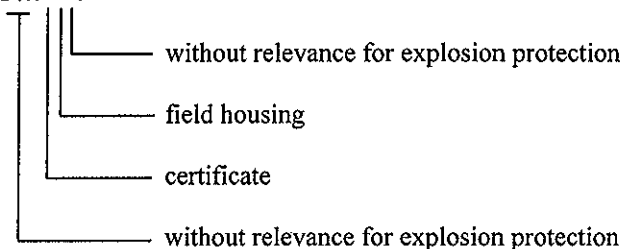
Subject and type

Temperature Sensor Process Industry type TSP\*\*\*-\*.\*.....\* \*

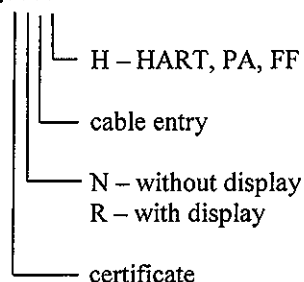






Temperature Transmitter Field-housing type TTF...-\*\*.



Temperature Transmitter Dual Chamber type TTF350-\*\*\*\*



The marking of the equipment shall include the following:

	<b>II 1D Ex tD A20 IP66 T</b> <small>see 15.3.2</small>	resp.	<b>Type TSP***-*. *.....* *</b>
	<b>II 1/2D Ex tD A20/21 IP66 T</b> <small>see 15.3.2</small>		
	<b>II 1D Ex tD A20 IP66 T135°C</b>		<b>Type TTF...-**.</b> <b>Type TTF350-****</b>

Special conditions for safe use

None

Test and assessment report

BVS PP 06.2057 EG as of 22.09.2010

**DEKRA EXAM GmbH**

Bochum, dated 22<sup>nd</sup> September 2010

Signed: Simanski

Signed: Dr. Eickhoff

\_\_\_\_\_  
Certification body


\_\_\_\_\_  
Special services unit

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.

44809 Bochum, 14.10.2010

BVS-Yil/Ar E 1694/10

**DEKRA EXAM GmbH**

  
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Certification body

  
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Special services unit