Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

(1) # EC-TYPE-EXAMINATION CERTIFICATE

(Translation)

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 94/9/EC**

(3) EC-type-examination Certificate Number:

PTB 99 ATEX 1144

(4) Equipment: Product Line SensyTemp Ex d

(5) Manufacturer: ABB Automation Products

(6) Address: Borsigstraße 2, D-63755 Alzenau

(7) This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 9 of the Council Directive 94/9/EC 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 confidential report PTB Ex 99-19133.

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

EN 50014:1997 **EN 50018:1994** **EN 50284:1997** **EN 1127-1:1997**

(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 and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.

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

II 1/2 G EEx d IIC T4 resp.T5 resp. T6

Zertifizierungsstelle Explosionsschutz
By order

Braunschweig, December 6, 1999

Dr.-Ing. U. Klausmeyer
Regierungsdirektor

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 24

(13) # SCHEDULE

(14) ## EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 1144

(15) Description of equipment

The Sensy Temp Ex d product family comprises resistance thermometers and thermocouples with the required connection heads, types AGL, AGLH, and AGLHD. The product family also comprises field housings of types AGLF, AGLFH, and AGLFD.

The connection heads are to accommodate the thermocouples and resistance thermometers, as well as transducers and display elements.

The field housings only accommodate transducers and display elements.

The Flameproof Enclosure type of protection will only be produced when a – separately certified – screwed cable gland is properly mounted as specified in the standards shown on the cover sheet.

When an enclosed conduit is used for zone separation, the system may also be employed for measuring temperatures in zone 0. Only the measuring sensor may in connection with the conduit be employed in zone 0. The connection head and temperature sensor without separate conduit may only be employed in zone 1.

Maximum permissible operating temperatures for different maximum power ratings, and resultant temperature classes:

Max. perm. power P_{max}		W	2.0	4.0	6.0	8.0	10.0
Max. resultant heating rate		K	7	14	21	28	35
Temperature class			°C	°C	°C	°C	°C
T4	130	°C	123	116	109	102	95
T5	95	°C	88	81	74	67	60
T6	80	°C	73	66	59	52	45

Voltage rating U_B	60 V AC or 60 V DC
Max. power P_{max}	shown in above table
Fuse current rating	P_{max}/66 V

SCHEDULE TO EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 1144

(16) Test report PTB Ex 99-19133 (4 pages)

(17) Special conditions for safe use

none;

additional notes for safe operation:

For installation and operation of the housings, the specifications in the operating instructions shall be complied with. For zone-0 operation, conduits shall be used that are suited for zone separation in compliance with EN 50284:1997. For the maximum permissible media temperatures, reference shall be made to the tables included in the operating instructions.

(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.

Zertifizierungsstelle Explosionsschutz
By order:

Braunschweig, December 6, 1999

(signature) *L.S.*

Dr.-Ing. U. Klausmeyer
Regierungsdirektor

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

1st SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 1144

(Translation)

Equipment: Product family Sensy Temp Ex d

Marking: Ⓔx **II 1/2 G EEx d IIC T4 or T5 or T6**

Manufacturer: ABB Automation Products

Address: Borsigstrasse 2
63755 Alzenau, Germany

Description of supplements and modifications

Sylgard 567 sealing compound may optionally be used for fitting the glass panes in cover types AFGFD and AGLHD.

Test report: PTB Ex 01-11103

Zertifizierungsstelle Explosionsschutz
By order:

Braunschweig, July 9, 2001

(signature) *L.S.*

Dr.-Ing. U. Klausmeyer
Regierungsdirektor

4 pages, correct and complete as regards content.
By order:

Dr.-Ing. U. Klausmeyer
Regierungsdirektor

Braunschweig, February 10, 2004

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Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

2nd SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 1144

(Translation)

Equipment: Product family Sensy Temp Ex d

Marking:  **II 1/2 G EEx d IIC T1 - T6**

Manufacturer: ABB Automation Products GmbH

Address: Borsigstraße2, 63754 Alzenau, Germany

Description of supplements and modifications

The type name is changed to: TSP311-A5..... .xx
TSP321-A5..... .xx
TSP331-A5..... .xx
Temperature **S**ensor **P**rocess Industry
TTF300-E3.....
Temperature **T**ransmitter **F**ield housing

The technical data in approval certificate change as follows:

Max. adm. ambient temperature: -40 °C to 60 °C

Working temperatures:

	Temperature class	Max. working temperature *
Connecting head with base	T6	75 °C
	T5	90 °C
	T1-T4	125 °C
Connecting head with temperature transmitter	T6	67 °C
	T5	82 °C
	T1- T4	117 °C

* The working temperatures may be limited depending on the temperature resistance of the cable entries used.

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

2nd SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 1144

Technical data for temperature sensor:

Voltage:	< 60 V
Current:	< 2 mA
Output:	< 15 mW

Media temperatures:

	Temperature class	Max. adm. media temperature
Use in zone 0	T1	358 °C
	T2	238 °C
	T3	158 °C
	T4	106 °C
	T5	78 °C
	T6	66 °C
Use on zone 1	T1	438 °C
	T2	288 °C
	T3	193 °C
	T4	28 °C
	T5	3 °C
	T6	8 °C

Stainless steel may optionally be used as enclosure material for the connecting head. In addition, measuring inserts in the modifications with ∅ 3mm and ∅ 4.5mm, may be used. In all other respects, the design remains unchanged.

Applied standards

EN 50014:1997 + A1 + A2 **EN 50018:2000 + A1** **EN 50284:1997**

EN 1127-1:1997

Test report: PTB Ex 06-16197

Zertifizierungsstelle Explosionsschutz
By order:

Braunschweig, November 8, 2006

Dr.-Ing. [illegible]
Regierungsrat