Prüf- und Zertifizierungsstelle

ZELM Ex

(1) # EC-TYPE-EXAMINATION CERTIFICATE

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

(3) EC-TYPE-EXAMINATION CERTIFICATE Number:

ZELM 03 ATEX 0126

(4) Equipment: **2600T Series Pressure Transmitters, Foundation Fieldbus**

(5) Manufacturer: **ABB SACE SpA.**

(6) Address: **Via Statale 113, 22016 Lenno (Como), Italy**

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

(8) The Prüf- und Zertifizierungsstelle ZELM Ex, notified body No. 0820 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 ZELM Ex 0220217163.

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

EN 50 014: 1997+A1+A2 **EN 50 020: 1994** **EN 50 284: 1999**
EN 50 281-1-1: 1998 **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, examination and tests of the specified equipment or protective system in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this Certificate.

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

II 1 GD T 50°C EEx ia IIC T6 resp. II 1 GD T 95°C EEx ia IIC T4
or
II 1/2 GD T 50°C EEx ia IIC T6 resp. II 1/2 GD T 95°C EEx ia IIC T4

Zertifizierungsstelle **ZELM Ex**

Dipl.-Ing. Harald Zelm

Zertifizierungsstelle ZELM Ex ZELM Ex Prüf- und

Braunschweig, April 30, 2003

Prüf- und Zertifizierungsstelle ZELM Ex • Siekgraben 56 • D-38124 Braunschweig

(13) # SCHEDULE

(14) **EC-TYPE-EXAMINATION CERTIFICATE ZELM 03 ATEX 0126**

(15) Description of equipment

The 2600T series Pressure Transmitters is used for measurement and conversion of the physical quantities pressure above atmospheric and differential pressure absolute pressure into an electrical standard signal of digital communication in accordance with the FOUNDATION FIELDBUS protocol in the hazardous area. It may be equipped containing one or two displays.

The attached pressure works on the ceramic measuring sensor or the silicon measuring sensor or the inductive sensor.

The Pressure Transmitter is mounted into a housing meeting the degree of protection ≥ IP 65 according to EN 60529:1991 – for dust including the cable entry fittings.

The Pressure Transmitter is allowed to be directly installed into the hazardous area of category 1G resp. 1D or into the separation wall between the hazardous areas of category 1G or 1D and category 2G or 2D.

The operating conditions for service with flammable measuring mixtures – which are non-explosive - and higher pressures are to be taken from the instruction manual and operation manual respectively.

The maximum permissible ambient temperature is – 40 °C to + 85 °C.

The model code will be:

type 262.. / 264.. F or 3

Instead of the points of the model code other letter- or numerial- combinations will be stated, which are describing several variations and versions of the equipment.

Electrical data

Supply and signal circuit (terminals signal +,-)

type of protection Intrinsic Safety EEx ib IIC or EEx ia IIC
for connection to supply units with intrinsically safe circuits "ia" and
II 1 GD T 50°C EEx ia IIC T6 resp. II 1 GD T 95°C EEx ia IIC T4
or
for connection to supply units with intrinsically safe circuits "ib" or "ia"
and **II 1/2 GD T 50°C EEx ib or ia IIC T6** respectively
II 1/2 GD T 95°C EEx ib or ia IIC T4

having rectangular or trapezoidal characteristics in accordance with the FISCO model and the following maximum values:

EEx ia IIC T4...T6	U_i =	17,5 V
	I_i =	360 mA
	P_i =	2,52 W
EEx ia IIB T4...T6	U_i =	17,5 V
	I_i =	380 mA
	P_i =	5,32 W

effective internal inductance ≤ 10 µH
effective internal capacitance ≤ 5 nF

Schedule to EC-TYPE-EXAMINATION CERTIFICATE ZELM 03 ATEX 0126

Temperature class	lower limit of ambient temperature	upper limit of ambient temperature
T4 resp. T 95 °C	- 40 °C	+ 85 °C
T5 resp. T 95 °C	- 40 °C	+ 40 °C
T6 resp. T 50 °C	- 40 °C	+ 40 °C

Degree of protection at least IP 65 according to EN 60529:1991

References:

The instruction manual has to be considered, in particular the maximum thickness of dust layers permitted for the hazardous area of category 1D and the sufficient equipotential bonding and grounding and the overvoltage protection.

For the use in dust atmosphere the degree of protection ≥ IP 65 must be ensured in regard to the enclosure and the cable entry fitting.

Having the capacitive measuring element type 26.A. or 26.G. (≤ 400 mbar) and a supply with an intrinsically safe circuit EEx ib IIC the use is not permitted for category 1GD or 1/2 GD respectively.

(16) Report No.

ZELM Ex 0220217163

(17) Special conditions for safe use

not applicable

(18) Essential Health and Safety Requirements

met by standards

Zertifizierungsstelle **ZELM Ex**

Dipl.-Ing. Harald Zelm

Braunschweig, April 30, 2003

Prüf- und Zertifizierungsstelle ZELM Ex • Siekgraben 56 • D-38124 Braunschweig

Prüf- und Zertifizierungsstelle

ZELM Ex

1. Supplement

(Supplement according to EC-Directive 94/9 Annex III letter 6)

to EC-type-examination Certificate

ZELM 03 ATEX 0126

Equipment:	**2600T Series Pressure Transmitter, Foundation Fieldbus**
Manufacturer:	**ABB SACE SpA.**
Address:	**Via Statale 113, 22016 Lenno (Como), Italien**

Description of supplement

The equipment is extended by an optional version of the housing cover.

The type of protection, the electrical data and all further data of the Pressure Transmitters remain unchanged.

The Pressure Transmitter Series 2600T Foundation Fieldbus may be applied in future in accordance with this supplement.

References:

The instruction manual has to be observed.

Report No.

ZELM Ex 0010417390

Special conditions for safe use

not applicable

Essential Health and Safety Requirements

met by adherence to the standards

EN 50 014: 1997+A1+A2 **EN 50 020: 1994** **EN 50 284: 1999**
EN 50281-1-1:1998 **EN 1127-1:1997**

Zertifizierungsstelle **ZELM Ex**

Dipl.-Ing. Harald Zelm

Zertifizierungsstelle ZELM Ex

Braunschweig, April 29, 2005

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Prüf- und Zertifizierungsstelle

ZELM Ex

2. Supplement

(Supplement according to EC-Directive 94/9 Annex III letter 6)

to EC-type-examination Certificate

ZELM 03 ATEX 0126

Equipment:	**2600T Series Pressure Transmitter, Foundation Fieldbus**
Manufacturer:	**ABB SACE SpA**
Address:	**Via Statale 113, 22016 Lenno (Como), Italien**

Description of supplement

The microprocessor of the equipment is replaced by a new, more powerful version. Further, several not safety relevant components was added to the equipment. The explosion protection is not affected by these changes.

The type of protection, the electrical data and all further data of the Pressure Transmitters remain unchanged.

The Pressure Transmitter Series 2600T Foundation Fieldbus may be manufactured in future in accordance with this supplement.

References:

The instruction manual has to be observed.

Report No.

ZELM Ex 1380517426

Special conditions for safe use

not applicable

Essential Health and Safety Requirements

met by adherence to the standards

EN 50 014: 1997+A1+A2
EN 50281-1-1:1998
EN 50 020: 1994
EN 1127-1:1997
EN 50 284: 1999

Zertifizierungsstelle **ZELM Ex**

Braunschweig, November 10, 2005

Dipl.-Ing. Harald Zelm

Zertifizierungsstelle ZELM Ex

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3. Supplement

(Supplement according to EC-Directive 94/9 Annex III letter 6)

ZELM ex

to EC-type-examination Certificate

ZELM 03 ATEX 0126

Equipment:	**2600T Series Pressure Transmitter, Foundation Fieldbus**
Manufacturer:	**ABB SACE SpA.**
Address:	**Via Statale 113, 22016 Lenno (Como), Italien**

Description of supplement

The 3rd Supplement concerns changes in the internal construction, the compliance to the actual standards and the change of the manufacturers name.

The marking changes as follows:

II 1 G Ex ia IIC T4, T5, T6 resp.
II 1/2 G Ex ia IIC T4, T5, T6 resp.
II 1 D Ex iaD 20 T50°C resp. T85°C resp.
II 1/2 D Ex iaD 21 T50°C resp. T85°C

The electrical data are in future as follows:

Electrical data

Supply and signal circuit (terminals signal +,-)

in type of protection Intrinsic Safety Ex ib IIC or Ex ia IIC
for connection to supply units with intrinsically safe circuits "ia"
and **II 1 G Ex ia IIC T4, T5, T6** or **II 1 D Ex iaD 20 T50°C resp. T85°C**
or
for connection to supply units with intrinsically safe circuits "ib"
or "ia" and **II 1/2 G Ex ia resp. ib IIC T4, T5, T6 or II 1/2 D Ex iaD resp. ibD A21 T50°C resp. T95°C**

with rectangular or trapezoidal characteristic according the FISCO model an with the following maximum values:

Ex ia IIC T4...T6	U_i	=	17,5	V
	I_i	=	380	mA
	P_i	=	5,32	W
Ex ia IIB T4...T6	U_i	=	17,5	V
	I_i	=	380	mA
	P_i	=	5,32	W
effective internal inductance		≤	10	µH
effective internal capacitance		≤	5	nF

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Temperature class	lower limit of ambient temperature	upper limit of ambient temperature
T4 resp. T 95 °C	- 40 °C	+ 85 °C
T5 resp. T 95 °C	- 40 °C	+ 40 °C
T6 resp. T 50 °C	- 40 °C	+ 40 °C

References

The instruction manual has to be considered, in particular the maximum thickness of dust layers permitted for the hazardous area of category 1D and the sufficient equipotential bonding and grounding and the overvoltage protection.

For the use in dust atmosphere the degree of protection ≥ IP 65 must be ensured for the enclosure and the cable entry fitting.

Having the capacitive measuring element type 26.A. or 26.G. (≤ 400 mbar) and a supply with an intrinsically safe circuit Ex ib IIC the use is not permitted for category 1G or 1D or 1/2 G or 1/2D respectively.

Report No.:

ZELM Ex 1830919818

Special conditions for safe use

not applicable

Essential Health and Safety Requirements

The essential Health and Safety requirements are further met by adherence to the following standards:

EN 60079-0:2009
EN 60079-11:2007
EN 60079-26:2007
EN 60079-27:2008
EN 61241-0:2006
EN 61241-11:2006
EN 1127-1:2008

Braunschweig, 2011-04-07

ZELM ex

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