



Prüf- und Zertifizierungsstelle

ZELM Ex



(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:

ZELM 04 ATEX 0202 X

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

(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 0200417270.

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

EN 50 014: 1997+A1+A2
EN 50 281-1-1: 1998

EN 50 020:1994
EN 1127-1: 1997

EN 50 018: 2000
EN 50 284: 1999

(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.

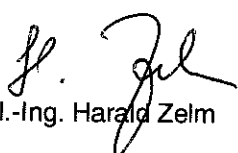
(11) This EC-type-examination Certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. 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**
or **II 1/2 GD EEx d IIC T6 IP67 T85°C**

Zertifizierungsstelle **ZELM Ex**


Dipl.-Ing. Harald Zelm



Braunschweig, April 15, 2004

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Prüf- und Zertifizierungsstelle

ZELM Ex



SCHEDULE

(13)

(14) **EC-TYPE-EXAMINATION CERTIFICATE ZELM 04 ATEX 0202 X**

(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 analogous electrical standard signal of a 4 ... 20 mA current loop and digital communication according to the HART protocol in the hazardous area.

Depending on the measurement range and the amount of pressure, an inductive, capacitive or a piezoresistive sensors are used for pressure and absolute pressure transmitters. All types of sensors contain a mechanical separation element and are equipped with a flameproof device.

The 2600T series Pressure Transmitters are intrinsically safe and have got an enclosure with the flameproof protection concept "EEx d". From this fact results the possibility to apply these devices either in accordance with the intrinsic safety or with the flameproof type of protection in the hazardous area.

The customer decides on the protection concept of the device and according to this decision the marking on the safety marking plate should be done.

The Pressure Transmitters 2600T Series are also allowed to be installed into the separation wall between the hazardous areas of the category 1 and the category 2. In this case the Transmitter itself is installed into the hazardous area of the category 2.

The maximum permissible ambient temperature is: $-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$.

For Transmitters used in accordance with the flameproof type of protection the maximum permissible ambient temperature is: $-40\text{ }^{\circ}\text{C}$ to $+75\text{ }^{\circ}\text{C}$.

Degree of protection: IP 67 according to EN 60529:1991

Model code

2600T Series HART Pressure Transmitters

Model 262... or 264...

Instead of the dots of the model code, another letters or digits combinations will be stated, which describe several variations and versions of the equipment.

Electrical data

1. Use in accordance with the intrinsic safety type of protection "ia"

Supply and
signal circuit
(terminals signal +, -)

for connection to approved intrinsically safe circuits with following maximum values:

$$U_i = 30\text{ V}$$



Schedule to EC-TYPE-EXAMINATION CERTIFICATE ZELM 04 ATEX 0202 X

I_i , P_i , max. ambient temperature, the temperature class and max. surface temperature of the enclosure for "Dust" atmosphere, these values are to be taken from the subsequent table:

Temperature class	lower limit of ambient temperature	upper limit of ambient temperature	max. surface temperature for Dust atmosphere	max. I_i [mA]	max. P_i [W]
T4	- 40 °C	+ 85 °C	95 °C	100	0,75
T4	- 40 °C	+ 70 °C	95 °C	160	1
T5	- 40 °C	+ 40 °C	50 °C	100	0,75
T6	- 40 °C	+ 40 °C	50 °C	50	0,4

effective internal capacitance is negligibly small
resp. $C_i = 13$ nF with output meter
effective internal inductance is negligibly small
resp. $L_i = 0,22$ mH with output meter

or

2. Use in accordance with the flameproof type of protection „d“

Rated values:

$$U = 42 \text{ V}$$

$$P = 2 \text{ W}$$

(16) Report No.

ZELM Ex 0200417270

(17) Special conditions for safe use

1. The Pressure Transmitters meet requirements of both alternative protection concepts: the intrinsic safety and the flameproof therefore the electrical parameters, applications and arrangement conditions applying for each of these both types of protection have to be considered.
2. Before installation of the Transmitter, the customer decides on its use either in accordance with the intrinsic safety "EEx ia" or with the flameproof "EEx d" type of protection and signs his choose on the safety label. This marking should be made permanent (e.g. with the letter embossing tool) and it should consider specific ambient conditions, e.g. chemical corrosion.



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Schedule to EC-TYPE-EXAMINATION CERTIFICATE ZELM 04 ATEX 0202 X

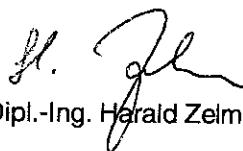
The selected protection concept is allowed to be changed only by manufacturer after anew satisfactory evaluation.

3. The connection of cables and conduits to the Transmitter as well as the blind stops of unused openings shall be made in accordance with requirements of the selected type of protection and must be certified for this protection concept. Additionally, for use in accordance with the intrinsic safety type of protection these components have to fulfilled requirements of the standards EN 50014 and EN 50281-1-1 and for use in accordance with the flameproof type of protection also requirements of the standard EN 50018.
4. 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 67 must be ensured in regard to the enclosure and the cable entry fitting.
5. The Pressure Transmitter is allowed to be installed in such chemical atmosphere where sufficient permanence of its isolating diaphragm is guaranteed (consider operating instruction).

(18) Essential Health and Safety Requirements

met by standards

Zertifizierungsstelle ZELM Ex


Dipl.-Ing. Herald Zelm



Braunschweig, April 15, 2004



Prüf- und Zertifizierungsstelle ZELM Ex



1. Supplement

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

ZELM 04 ATEX 0202 X

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

Description of supplement

The 1. Supplement to EC-type-examination Certificate was necessary concerning changes of the circuit design. Furthermore the equipment is extended by an optional version of the housing cover. The explosion protection is not affected by these changes. The type of protection, the electrical data and all further data as well as the special conditions remain unchanged and also apply to this 1. Supplement. The 2600T Series Pressure Transmitter HART may be manufactured in future in consideration of this Supplement.

References:

The instruction manual has to be observed.

Report No.

ZELM Ex 1290417338

Essential Health and Safety Requirements

met by adherence to the standards

EN 50 014: 1997+A1+A2
EN 50 281-1-1: 1998

EN 50 020:1994
EN 1127-1: 1997

EN 50 018: 2000
EN 50 284: 1999

Zertifizierungsstelle **ZELM Ex**



Braunschweig, April 19, 2005


Dipl.-Ing. Harald Zelm

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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 04 ATEX 0202 X

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

Description of supplement

The 2. Supplement to EC-type-examination Certificate concerns the safety label of the equipment. The explosion protection is not affected by these changes.

The type of protection, the electrical data and all further data as well as the special conditions remain unchanged and also apply to this 2. Supplement.

The 2600T Series Pressure Transmitter HART may be manufactured in future in consideration of this Supplement.

References:

The instruction manual has to be observed.

Report No.

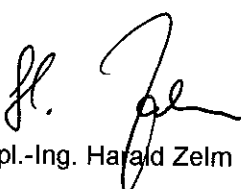
ZELM Ex 0170617445

Essential Health and Safety Requirements

The essential Health and Safety Requirements are still fulfilled by compliance with standards mentioned in the EC-type-examination Certificate.

Zertifizierungsstelle ZELM Ex

Braunschweig, March 15, 2006


Dipl.-Ing. Harald Zelm



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3. Supplement

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

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to EC-type-examination Certificate

ZELM 04 ATEX 0202 X

Equipment: **2600T Series Pressure Transmitters, HART**

Manufacturer: **ABB SACE SpA**

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

Description of supplement

The 3rd supplement concerns modifications of the internal construction of the 2600T Series Pressure Transmitters, HART, the examination of the equipment on compliance with the actual standards, and the change of the manufacturers name.

The actual manufacturer name is as follows:

ABB SpA

The type of protection / marking of the equipment changes as follows:



**II 1 G Ex ia IIC T4, T5, T6 bzw.
II 1/2 G Ex ia IIC T4, T5, T6 bzw.
II 1 D Ex iaD 20 T50°C bzw. T85°C bzw.
II 1/2 D Ex iaD 21 T50°C bzw. T85°C bzw.
II 1/2 G Ex d IIC T4, T5, T6 bzw.
II 1/2 D Ex tD A21 IP67 T85°C**

The electrical Data, and the permissible ambient temperature range changes as follows:

Marking „Ex d“ resp. „Ex td“:

$U_i = 42 \text{ V dc}$
 $P_i = 2 \text{ W}$
 $-40^\circ\text{C} < T_a < 75^\circ\text{C}$

Marking „Ex ia“ resp. „Ex iaD“:

$U_i = 30 \text{ V dc}$
 T_{amb} , I_i und P_i see following table

temperature class	max. surface temperature for dust atmosphere	lower limit of ambient temperature	upper limit of ambient temperature	max. I_i [mA]	max. P_i [W]
T4	T95 °C	- 40 °C	+ 85 °C	100	0,75
T4	T95 °C	- 40 °C	+ 70 °C	160	1
T5	T50 °C	- 40 °C	+ 40 °C	100	0,75
T6	T50 °C	- 40 °C	+ 40 °C	50	0,4

**3. Supplement
to EC-type-examination Certificate ZELM 04 ATEX 0202 X**

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The special conditions for safe use changes as follows:

1. The Pressure Transmitters meet requirements of both alternative protection concepts: the intrinsic safety and the flameproof therefore the electrical parameters, applications and arrangement conditions applying for each of these both types of protection have to be considered.
2. Before installation of the Transmitter, the customer decides on its use either in accordance with the intrinsic safety "Ex ia" or with the flameproof "Ex d" type of protection and signs his choice on the safety label. This marking should be made permanent (e.g. with the letter embossing tool) and it should consider specific ambient conditions, e.g. chemical corrosion. The selected protection concept is allowed to be changed only by manufacturer after a new satisfactory evaluation.
3. Depending on the type of protection appropriate cable glands resp. fasteners with a separate EC-Type-Examination certificate must be used. For use in accordance with the type of protections intrinsic safety "Ex iaD" or protection by enclosure "Ex tD" these components have to fulfil the requirements of standards EN 61241-0:2006 and EN 61241-1:2004. For use in accordance with the flameproof type of protection the requirements of the standards EN 60079-0:2006 and EN 60079-1:2007 must be fulfilled.
4. 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 67 must be ensured in regard to the enclosure and the cable entry fitting.
5. The Pressure Transmitter is allowed to be installed in such chemical atmosphere where sufficient permanence of its isolating diaphragm is guaranteed (consider operating instruction).

Report No.

ZELM Ex 1840919805

Essential Health and Safety Requirements

The essential health and safety requirements are still fulfilled by compliance with the following Standards:

EN 60079-0:2006	EN 60079-1:2007	EN 60079-11:2007
EN 60079-26:2007	EN 61241-0:2006	EN 61241-1:2004
EN 61241-11:2006		

Braunschweig, 01.12.2010

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