



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 01 ATEX 0064

(4) Equipment: **Pressure and Differential Pressure - Transducer type 20.0T. HART**

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

(6) Address: **Schillerstrasse 72, D-32425 Minden**

(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 0200112086.

(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

(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 ia IIC T6

Zertifizierungsstelle ZELM Ex

Dipl.-Ing. Harald Zelm



Braunschweig, June 28, 2001

Sheet 1/4

EC-type-examination Certificates without signature and stamp are not valid. The certificates may only be circulated without alteration. Extracts or alterations are subject to approval by the Prüf- und Zertifizierungsstelle ZELM Ex. In the case of dispute, the German text shall prevail.



SCHEDULE

(13)

(14) **EC-TYPE-EXAMINATION CERTIFICATE ZELM 01 ATEX 0064**

(15) Description of equipment

The Pressure, Differential Pressure Transducer is intended for use for conversion of physical quantities like pressure, differential pressure and temperature into an analogous electrical standard signal of a 4 ... 20 mA current loop inside the hazardous area.

The Pressure, Differential Pressure Transducer is mounted into a housing meeting the degree of protection IP \geq 65 according to EN 60529:1991.

The Pressure, Differential Pressure Transducer is allowed to be installed into the partition between the hazardous areas of category 1G and category 2G.

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

Maximum permissible ambient temperatures depending on the temperature class are shown in the following table:

Temperature class	lower limit of ambient temperature	upper limit of ambient temperature
T 4	-40 °C	+85 °C
T 5	-40 °C	+40 °C
T 6	-40 °C	+40 °C

Type of protection: Pressure and
Differential Pressure Transducer
type 20.0T. HART

II 1/2 G EEx ia IIC T6

For mounting at category 1G:

Transducer with measuring elements
without or with pressure sensor

**II 1/2 G EEx ia IIC T6
resp. EEx ib IIC T6**

Having the capacitive measuring element type 2020T. (HART) (\leq 400 mbar) and a supply with an intrinsically safe circuit EEx ib IIB/IIC the use is permitted for category 2G only.



Schedule to EC-TYPE-EXAMINATION CERTIFICATE_ZELM 01 ATEX 0064

Electrical data

Supply and signal circuit
(terminals signal +,-)

type of protection Intrinsic Safety EEx ib IIB/IIC resp. EEx ia IIB/IIC
for connection to supply units with maximum values:

II 1/2G EEx ia resp. ib IIC T4...T6
for temperature class T4

$$\begin{aligned}U_i &= 30 \text{ V} \\I_i &= 200 \text{ mA} \\P_i &= 0,8 \text{ W for T4 and } T_a = (-40...+85)^\circ\text{C} \\P_i &= 1,0 \text{ W for T4 and } T_a = (-40...+70)^\circ\text{C}\end{aligned}$$

for temperature class T5, T6

$$\begin{aligned}U_i &= 30 \text{ V} \\I_i &= 25 \text{ mA} \\P_i &= 0,5 \text{ W for T6 and } T_a = (-40...+40)^\circ\text{C} \\P_i &= 0,75\text{W for T5 and } T_a = (-40...+40)^\circ\text{C}\end{aligned}$$

effective internal capacitance $C_i \leq 10 \text{ nF}$
effective internal inductance is negligibly small

Temperature sensor circuit:
(supply terminals 12, 14)
(signal terminals 11, 13)

type of protection Intrinsic Safety EEx ia IIC
bzw. EEx ib IIC
for connection to passive intrinsically safe sensors only
maximum values:

$$\begin{aligned}U_o &= 10,6 \text{ V} \\I_o &= 1,5 \text{ mA} \\P_o &= 4 \text{ mW} \\C_o &= 2,3 \text{ }\mu\text{F} \\L_o &= 1 \text{ H}\end{aligned}$$

References:

The instruction manual / operation manual has to be considered.

Having the capacitive measuring element type 2020T. HART ($\leq 400 \text{ mbar}$) and a supply with an intrinsically safe circuit EEx ib IIB/IIC the use is permitted for category 2G only.



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Schedule to EC-TYPE-EXAMINATION CERTIFICATE_ZELM 01 ATEX 0064

- (16) Report No.
ZELM Ex 0200112086
- (17) Special conditions for safe use
not applicable
- (18) Essential Health and Safety Requirements
met by standards

Zertifizierungsstelle ZELM Ex

Braunschweig, June 28, 2001


Dipl.-Ing. Harald Zelm



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EC-type-examination Certificates without signature and stamp are not valid. The certificates may only be circulated without alteration. Extracts or alterations are subject to approval by the Prüf- und Zertifizierungsstelle ZELM Ex. In the case of dispute, the German text shall prevail.



Prüf- und Zertifizierungsstelle

ZELM Ex



1. Supplement

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

to EC-type-examination Certificate

ZELM 01 ATEX 0064

(Translation)

Equipment: **Pressure and Differential Pressure - Transducer
type 20.0T. HART**

Manufacturer: **ABB Automation Products GmbH**

Address: **Schillerstrasse 72, D-32425 Minden**

Description of supplement

Some additional non-safety relevant components and alternatively applicable components have been fixed, changed or omitted for the Pressure, Differential Pressure Transducer type 20.0T. HART.

The type of protection will be in future:

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

The model code may also be in future:

type 263.. / 265.. / 267.. / 269.. HART

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

type of protection: **II 1/2 GD T 50°C EEx ia IIC T6 resp. II 1/2 GD T 95°C EEx ia IIC T4**

Pressure,
Differential Pressure Transducer
20.0T. HART resp. 26... HART **II 1/2 GD T 50°C EEx ia IIC T6**

For mounting at category 1G bzw. 1D:

Transducer with measuring elements **II 1/2 GD T 50°C EEx ia IIC T6**
without or with pressure sensor resp. **EEx ib IIC T6**

The capacitive measuring element type 2020T. resp. type 26.A. or 26.G. (≤ 400 mbar) and a supply with an intrinsically safe circuit EEx ib IIB/IIC must not be mounted into the separation wall between category 1G and category 2G.



1. Supplement of the EC-Type-Examination Certificate ZELM 01 ATEX 0064

The electrical data will be in future:

Supply and signal circuit
(terminals signal +, -)

type of protection Intrinsic Safety EEx ib IIB/IIC resp. EEx ia IIB/IIC
for connection to supply units with intrinsically safe circuits and
maximum values:

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

for temperature class T4 resp. T 95°C

$$\begin{aligned}U_i &= 30 \text{ V} \\I_i &= 200 \text{ mA} \\P_i &= 0,8 \text{ W for T4 and } T_a = (-40\dots+85)^\circ\text{C} \\P_i &= 1,0 \text{ W for T4 and } T_a = (-40\dots+70)^\circ\text{C}\end{aligned}$$

or

for temperature class T6 resp. T 50°C

$$P_i = 0,7 \text{ W for T6 and } T_a = (-40\dots+40)^\circ\text{C}$$

effective internal capacitance $C_i \leq 10 \text{ nF}$
effective internal inductance is negligibly small

Further electrical data of the different versions and the ambient temperature range remain unchanged.

The Pressure, Differential Pressure Transducer may be manufactured in future in accordance with this supplement.

References:

The instruction manual has to be observed. The permission of installation of the Pressure, Differential Pressure Transducer into the separation wall between hazardous areas of category 1G or 1D and category 2G or 2D is to be considered in particular.

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

Report No.

ZELM Ex 0050212107

Special conditions for safe use

not applicable



Prüf- und Zertifizierungsstelle

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1. Supplement of the EC-Type-Examination Certificate ZELM 01 ATEX 0064

Essential Health and Safety Requirements

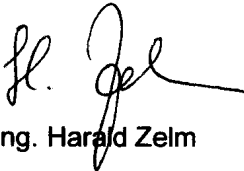
met by adherence to the standards

**EN 50 014: 1997+A1+A2
EN 50281-1-1:1998**

EN 50 020: 1994

EN 50 284: 1999

Zertifizierungsstelle ZELM Ex


Dipl.-Ing. Harald Zelm



Braunschweig, March 06, 2002



Prüf- und Zertifizierungsstelle

ZELM Ex



2. Supplement

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

to EC-type-examination Certificate

ZELM 01 ATEX 0064

(Translation)

Equipment: Pressure and Differential Pressure - Transducer
type 20.0T. HART

Manufacturer: ABB Automation Products GmbH

Address: Schillerstrasse 72, D-32425 Minden

Description of supplement

Some additional components for overvoltage protection have been fixed for the Pressure, Differential Pressure Transducer type 20.0T. HART and type 263.. / 265.. / 267.. / 269.. HART respectively. The diaphragm may be alternatively fitted with a protective coating having a maximum thickness of 0.2 mm.

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

The Pressure, Differential Pressure Transducer may be manufactured in future in accordance with this supplement.

References:

The instruction manual has to be observed. The permission of installation of the Pressure, Differential Pressure Transducer into the separation wall between hazardous areas of category 1G or 1D and category 2G or 2D is to be considered in particular.

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

For the use of coated diaphragms in dust atmosphere the reference for creeping rod brush discharge is to be considered in particular.

Report No.

ZELM Ex 0540212141

Special conditions for safe use

not applicable

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Prüf- und Zertifizierungsstelle

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2. Supplement of the EC-Type-Examination Certificate ZELM 01 ATEX 0064

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 50 284: 1999

Zertifizierungsstelle **ZELM Ex**


Dipl.-Ing. Harald Zelm



Braunschweig, September 10, 2002



Prüf- und Zertifizierungsstelle

ZELM Ex



3. Supplement

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

to EC-type-examination Certificate

ZELM 01 ATEX 0064

Equipment: **Pressure and Differential Pressure - Transducer
type 20.0T. HART**

Manufacturer: **ABB Automation Products GmbH**

Address: **Schillerstrasse 72, D-32425 Minden**

Description of supplement

The 3. Supplement to EC-type-examination-Certificate concerns in particular the inner assembly including PCB-layout modifications.

The technical data, the marking and the references given in the EC-type-examination-Certificate remain unchanged.

The Pressure, Differential Pressure Transducer may be manufactured in future in accordance with this supplement.

Report No.

ZELM Ex 1520612514


Special conditions for safe use

not applicable

Essential Health and Safety Requirements

The essential Health and Safety Requirements are fulfilled further on through accordance with the standards which are mentioned in the EC-type-examination-Certificate.

Zertifizierungsstelle ZELM Ex


Dipl.-Ing. Harald Zelm



Braunschweig, February 11, 2007

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ZELM Ex



4. Supplement

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

ZELM 01 ATEX 0064

Equipment: **Pressure and Differential Pressure - Transducer
type 20.0T.HART**

Manufacturer: **ABB Automation Products GmbH**

Address: **D-32425 Minden**

Description of supplement

The 4. Supplement to EC-type-examination Certificate concerns in particular the inner construction without essential changes of the printed circuit board layout.

The technical data, the marking and the references mentioned in the EC-type-examination Certificate remain unchanged.

Report No.

ZELM Ex 0750712535

Special conditions for safe use

not applicable

Essential Health and Safety Requirements

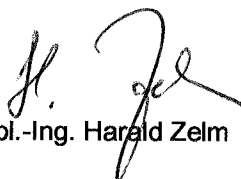
The essential health and safety requirements are fulfilled further on by adherence to the standards:

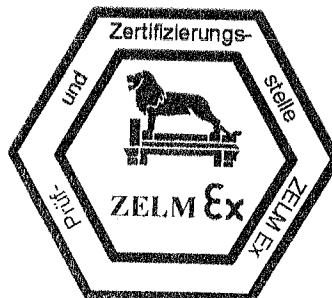
EN 50014:1997+A1+A2

EN 50020:2002

EN 50284:1999

Zertifizierungsstelle ZELM Ex


Dipl.-Ing. Harald Zelm



Braunschweig, June 20, 2007

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