

[1] **EC-TYPE EXAMINATION CERTIFICATE**
according to Directive 94/9/EC, Annex III
(Translation)



[2] Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres, Directive 94/9/EC

[3] EC-Type Examination Certificate Number: **IBExU05ATEX1105 X**

[4] Equipment: Pressure measuring device type AX2 x|act nn...
AX2 XMP nn...

[5] Manufacturer: BD Sensors s.r.o.

[6] Address: Hradistska 817, CZ-687 08 Buchlovice

[7] The equipment mentioned in [4] and any acceptable variation thereto are specified in the schedule to this EC-Type Examination Certificate.

[8] IBExU Institut für Sicherheitstechnik GmbH, NOTIFIED BODY number 0637 in accordance with article 9 of the Council Directive 94/9/EC of 23th 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 intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in test report IB-05-3-190 of 3rd August 2005.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 50014:1997+A1+A2, EN 50020:2002 and EN 50284:1999.

[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 under [17] in the schedule to this EC-Type Examination Certificate.

[11] This EC-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this directive apply to the manufacture and supply of this equipment.

[12] The marking of the equipment mentioned in [4] shall include the following:

Ex II 1G, II 1/2G or II 2G EEx ia IIC/IIB T4
-25 °C ≤ T_a ≤ +70 °C

The validity of the marking for the type of protection goes by the marking table in test report.

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7 - D-09599 Freiberg
Tel.: +49 (0)3731 3805-0 - Fax: +49 (0)3731 23650

Authorised for certifications Explosion protection
By order

(Dr. Lösch)



- Seal-
(ID no. 0637)

Freiberg, 3rd August 2005

Certificates without signature and seal are not valid.
Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Schedule

[13]

Schedule

[14]

to the EC-TYPE EXAMINATION CERTIFICATE IBExU05ATEX1105 X

[15]

Description of equipment

The equipment series type AX2 x|act nn... and AX2 XMP nn... pressure transmitter represents more variously system-unit cover variants the piece. It serves in intrinsic safety electrical plants for the transformation of a pressure signal in a proportional electrical signal and have one a digital communication by means of HART-Protocol. It get Capacity ceramic and piezoresistive sensors set-in. The equipment are fitted with or without display and buttons.

Category 1 equipment

The sensor of the pressure measuring device may only operate in explosive atmospheres which requires equipment of Category 1, if there are atmospheric conditions (temperature from -20 °C to +60 °C pressure from 0.8 bar to 1.1 bar).

Category 1/2 equipment

The electronics case is installed areas in hazardous areas which require equipment of the Category 2. The process connection elements are built in into the partition wall which separates the areas, in which equipment of Category 2 or 1 are required. The sensor surface is set up in areas which require equipment of the Category 1.

Category 2 equipment

Capacity ceramic pressure transmitter with plastic pressure connections and with the smallest, at present practicable measurement range of 60 mbar, may be only used in areas, which require equipment of Category 2. They get the marking 2G.

Ambient temperature range

from -25 °C to +70 °C

Degree of protection:

better IP 54

AX2 x|act nn...

Supply and signal electric circuit in type of protection Intrinsic Satety EEx ia IIC
(Pin 1 and Pin 3)

U_i = 28 V

I_i = 93 mA

P_i = 660 mW

effective inner capacity

C_i = 54 nF

effective inner inductivity

L_i = 5 µH

AX2 XMP nn... (Aluminium case)

Supply and signal electric circuit in type of protection Intrinsic Satety EEx ia IIB
(CL 2 and CL 4)

U_i = 28 V

I_i = 93 mA

P_i = 660 mW

effective inner capacity

C_i = 27 nF

effective inner inductivity

L_i = 5 µH

AX2 XMP nn... (Steel case)

Supply and signal electric circuit in type of protection Intrinsic Satety EEx ia IIC
(CL 1 and CL 2)

U_i = 28 V

I_i = 93 mA

P_i = 660 mW

effective inner capacity

C_i = 54 nF

effective inner inductivity

L_i = 5 µH

[16]

Test report

The test results are recorded in detail in the test report IB-05-3-190 of 3rd August 2005.

Summary of the Test Result:

The Pressure measuring device type AX2 x|act nn... and AX2 XMP nn... fulfils the requirements of the type of protection Intrinsic Safety for an electrical apparatus for the Group II, depending on execution Explosion Group IIC or IIB and the Categories 1G, 1/2G or 2G.

[17] Special conditions

- The equipment designed with connector have to be installed in such a way, that the Degree of protection IP20, always will be kept.
- The safety and assembly notes contained in the operating instructions and the Ambient temperature range from -25 °C to +70 °C have to be observed.
- At pressure transmitter with the marking category 1/2 equipment, the sensor diaphragm serves as partition wall and has to be protected against mechanical damages.
- The isolation of the intrinsically circuit opposite the case is because of leakage flows in the blocking capacitors from the EMV-boards limited.

[18] Essential Health and Safety Requirements

Confirmed by norms (see [9]).

By order



(Dr. Lösch)

Freiberg, 3rd August 2005

[1] **1st Addition to
EC-TYPE EXAMINATION CERTIFICATE IBExU05ATEX1105 X
- Translation -**



[2] Equipment:
a) Title corresponding to IBExU05ATEX1105 X:

Pressure measuring device type AX2 x|act nn ...
AX2 XMP nn ...

b) Supplementary titles: Pressure measuring device type AX2 HMP331...

[3] Manufacturer: BD Sensors s.r.o.

[4] Address: Hradistska 817 1
687 08 Buchlovice
Czech Republic

[5] **Addition / Alteration**

The additions / alterations of the equipment stated under [2] b) compared to the equipment already certified comprise of:

- a) An expansion of the series of Pressure measuring devices around the type AX2 HMP331..., this one also authorized for the use in dust explosive areas.
- b) The equipment has another system-unit cover construction.
- c) The electrical connection is executed about a new connection board.

[6] **Test Report**

The explosion proof protection of the equipment stated under [2] b) is documented in the Test Report IB-05-3-384 from 24th March 2006. The test documents are component of the Test Report.

[7] **Test result**

IBExU certifies, that the equipment stated under [2] b) fulfills the in Annex II of the RL 94/9/EC fixed Essential Health and Safety Requirements by accordance with EN 50014:1997+A1+A2, EN 50020:2002 and EN 50281-1-1:1998.

The equipment stated under [2] b) fulfills the requirements of explosion protection for electrical equipment in type of protection Intrinsically safety 'ia', Explosion Group IIB, Temperature Class T4 respectively in Dust-type of protection by enclosure with a maximum surface temperature of maximum 85 °C for Equipment Group II, Category 1G respectively 1/2D.

The marking of the equipment stated under [2] b) shall include the following:

⊕ II 1G EEx ia IIB T4
⊕ II 1/2D IP 6X T 85 °C
-25 °C ≤ T_a ≤ +70 °C

[8] **Special conditions**

Besides the special conditions of the equipment certified till now the following is valid in addition:

At use of the HMP 331 in areas of the zone 21 or 22 high energetic loading up mechanisms have to be excluded at the outer surface of the pressure-measuring device (e.g. pneumatic particle transport) at the application.

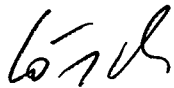
IBExU Institut für Sicherheitstechnik GmbH
An-Institut der TU Bergakademie Freiberg

This addition is only valid in connection with the EC-Type Examination Certificate
IBExU05ATEX1105 X of 03rd August 2005.

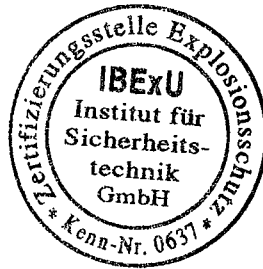
IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7 - 09599 Freiberg, Germany
☎ +49 (0) 3731 3805-0 - 📠 +49 (0) 3731 23650

Authorized for certifications
- Explosion protection -

By order



(Dr. Lösch)



- Seal -
(Identification No. 0637)

Freiberg, 28th March 2006

Certificates without signature and seal aren't valid.
Certificates may only be duplicated completely and unchanged.
In case of dispute, the German text shall prevail.



- [1] **2nd Addition to EC-TYPE EXAMINATION CERTIFICATE IBExU05ATEX1105 X**
according to Directive 94/9/EC, Annex III
- Translation -

- [2] Equipment:
a) Title corresponding to IBExU05ATEX1105 X:
Pressure measuring device
type AX2 x|act nn ..., AX2 XMP nn ... and AX2 HMP331...
- b) Supplementary titles: type AX2 LMP380-520 und AX2 XMD...

- [3] Manufacturer: BD SENSORS s.r.o.

- [4] Address: Hradistska 817
687 08 Buchlovice
Czech Republic

[5] **Addition / Alteration**

The additions / alterations of the equipment mentioned in [2] compared with the equipment already certified concern in detail:

- a) The pressure measuring devices are equipped alternatively with new electronic modules.
As a result changing the intrinsic safety values of the following:
effective inner capacity $C_i = 0 \text{ nF}$
effective inner inductivity $L_i = 0 \text{ }\mu\text{H}$
plus line inductivities $1 \text{ }\mu\text{H/m}$ and line capacities 160 pF/m (cable supplied by the manufacturer)
The supply connections have an inner capacity of max. 27 nF to the housing.
- b) Extension for two new types with another constructive design.
- c) The equipment fulfils also the requirements of the current standard EN 60079-0:2009.

[6] **Test Report**

The proof of the explosion protection of the equipment mentioned in [2] is documented in the Test Report IB-10-3-153 of 8 July 2011. The test documents are part of the Test Report.

[7] **Test result**

IBExU certifies that the equipment mentioned in [2] fulfils the Essential Health and Safety Requirements fixed in Annex II of the Directive 94/9/EC by compliance with EN 60079-0:2009, EN 60079-11:2007, EN 60079-26:2007 and EN 61241-11:2006.

The equipment stated under [2] fulfils the requirements of explosion protection for electrical equipment in type of protection Intrinsic safety 'ia', Explosion Group IIC/IIB, Temperature Class T4 for Equipment Group II, Category 1G, 1/2G or 2G as well as 1D.

The marking of the equipment stated under [2] happen in accordance with a marking table and must include one of the following:

⊕ II 1G Ex ia IIC T4 Ga, II 1/2G Ex ia IIC T4 Ga/Gb, or II 2G Ex ia IIB T4 Gb
⊕ II 1D Ex ia IIIC T85 °C Da

This addition is only valid in combination with the EC-Type Examination Certificate IBExU05ATEX1105 X of 3 August 2005 and their 1st Addition.

IBExU Institut für Sicherheitstechnik GmbH
An-Institut der TU Bergakademie Freiberg

The safety instructions are unchanged and have to be taken into account furthermore.

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7 - 09599 Freiberg, Germany
☎ +49 (0) 3731 3805-0 - ☎ +49 (0) 3731 23650

Authorized for certifications
- Explosion protection -

By order



(Dr. Wagner)



(Identification No. 0637)

Freiberg, 8 July 2011

Certificates without signature and seal aren't valid.
Certificates may only be duplicated completely and unchanged.
In case of dispute, the German text shall prevail.