

[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: **IBExU05ATEX1069 X**
- [4] Equipment: Pressure measuring device type DX4 XXX_NNN
- [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-05-3-029/1 of 13th July 2005.
- [9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 50014:1997+A1-A2, EN 50020:2002, EN 50284:1999 and EN 50281-1-1:1998+A1.
- [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:

⊕ II 1G, II 1/2G or II 2G EEx ia IIC/IIB T4
⊕ II 1D, II 1/2D or II 2D IP 6X T 85 °C
-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
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Tel.: 00493731 3805-0 - Fax: 00493731 23650

Authorised for certifications Explosion protection

By order

(Dr. Lösch)



- Seal -
(ID no. 0637)

Freiberg, 14th July 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 IBExU05ATEX1069 X**

[15] **Description of equipment**

The equipment series type DX4 XXX_NNN pressure transmitter, screwed probes and immersion probes represent 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.

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 with the cable connection 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

Screwed probes with plastic housings 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 66

Supply and signal electric circuit in type of protection Intrinsic Safety EEx ia IIC/IIB	
Circuit diagram (XS1 and XS2)	$U_i = 28 \text{ V}$

$I_i = 93 \text{ mA}$

$P_i = 660 \text{ mW}$

effective inner capacity	$C_i = 27 \text{ nF}$
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effective inner inductivity	$L_i = 5 \text{ } \mu\text{H}$
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plus cable inductivities 1 $\mu\text{H/m}$ and cable capacities 100 pF/m

[16] **Test report**

The test results are recorded in detail in the test report IB-05-3-092/1 of 13th July 2005.

Summary of the Test Result:

The Pressure measuring device type DX4 XXX_NNN 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 as well as requirements of Dust Explosion Protection.

[17] **Special conditions**


- The equipment designed with connector have to be installed in such a way, that the Degree of protection IP20, respectively IP6X at explosive dust atmosphere, always will be kept.
- At pressure measuring devices with cable protection of corrugated pipe, the ground clamp at the coupling has to be connected with the equipotential bonding.
- The safety and assembly notes contained in the operating instructions have to be observed.
- At screwed probes with the marking category 1/2 equipment, the sensor diaphragm serves as partition wall and has to be protected against mechanical damages.

[18] **Essential Health and Safety Requirements**

Confirmed by norms (see [9]).

By order

Freiberg, 14th July 2005


(Dr. Lösch)



[1] **1st Addition to
EC-TYPE EXAMINATION CERTIFICATE IBExU05ATEX1069 X
- Translation -**

[2] Equipment: Pressure measuring device
type DX4 XXX_NNN

[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 stated under [2] compared to the equipment already certified comprise of:

- a) An shortening of the enclosure at the dive probes of Type DX4 LMK 358, ... LMK 381, ... LMK 382 and ... LMK 457 and the application one an other EMV-Platine,
- b) The Pressure measuring device type ... LMK 351 is additional built by in a high-grade steel field housing.
- c) In the Pressure measuring device type ... LMK 351 can be used optional the modules ASM 405 and ASM 400.

[6] **Test Report**

The explosion proof protection of the equipment stated under [2] is documented in the Test Report IB-06-3-268 from 20th September 2006. The test documents are component of the Test Report.

[7] **Test result**

IBExU certifies, that the equipment stated under [2] 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] fulfills the requirements of explosion protection for electrical equipment in type of protection Intrinsically safety 'ia', Explosion Group IIC/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, 1/2G or 2G respectively 1D, 1/2D or 2D.

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

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

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

**This addition is only valid in connection with the EC-Type Examination Certificate
IBExU05ATEX1069 X of 14th July 2005.**

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Authorized for certifications
- Explosion protection -

By order

(Dr. Lösch)



- Seal -
(Identification No. 0637)

Freiberg, 21st September 2006

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[1] **2nd Addition to
EC-TYPE EXAMINATION CERTIFICATE IBExU05ATEX1069 X
- Translation -**

[2] Equipment: Pressure measuring device
type DX4 XXX_NNN

[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 stated under [2] compared to the equipment already certified comprise in particular:

- a) The use of another EMV-board in the dive probe of Type DX4 LMK 457.
- b) The increase the inner capacity of dive probe of Type DX4 LMK 457 to $C_1 = 147 \text{ nF}$.

[6] **Test Report**



The proof of explosion protection of the equipment stated under [2] is documented in the Test Report IB-07-3-332 of 11th December 2007. The test documents are part of the Test Report.

[7] **Test result**

IBExU certifies, that the equipment stated under [2] fulfills the in Annex II of the Directive 94/9/EC fixed Essential Health and Safety Requirements.

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

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

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

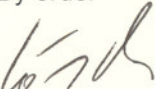
The validity of the marking for the types of protection goes by the marking table in the Test Report.

This addition is only valid in combination with the EC-Type Examination Certificate IBExU05ATEX1069 X of 14th July 2005 and the 1st Addition of 22nd September 2006.

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Freiberg, 11th December 2007

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



[1] **3rd Addition to**
EC-TYPE EXAMINATION CERTIFICATE IBExU05ATEX1069 X
according to Directive 94/9/EC, Annex III

- Translation -

[2] Equipment: Pressure measuring device
type DX4 XXX_NNN

[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) Alternatively use of measuring cell DSK 701 C
- b) Alternatively equipping of non safety-relevant parts for example varistors.
- c) The equipment fulfils also the requirements of the current standard series EN 60079:2009.

[6] **Test Report**

The proof of the explosion protection of the equipment mentioned in [2] is documented in the Test Report IB-10-3-154 of 10 November 2010. 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 und EN 61241-11:2006.

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

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

II 1G, II 1/2G bzw. II 2G Ex ia IIC/IIB T4 Ga, Ga/Gb bzw. Gb
 II 1D Ex iaD 20 T 85 °C
-25 °C ≤ T_a ≤ +70 °C

The validity of the marking for the types of protection goes by the marking table in the Test Report.

This addition is only valid in combination with the EC-Type Examination Certificate IBExU05ATEX1069 X of 14th July 2005 and there additions.

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

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Authorized for certifications
- Explosion protection -

By order

(Dr. Wagner)



(Identification No. 0637)

Freiberg, 10 November 2010

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