

[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: **IBExU15ATEX1067 X**

[4] Equipment: **Pressure transmitter**
Type DX4B-LMK 387, DX4B-LMK 487 and DX4B-DMK 387

[5] Manufacturer: **BD SENSORS s.r.o.**

[6] Address: **Hradistska 817
687 08 Buchlovice
CZECH REPUBLIC**

[7] The design of the equipment mentioned under [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 23 March 1994, certifies that the under [4] mentioned 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 test results are recorded in the test report IB-13-3-074 of 3 December 2015.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 60079-0:2012+A11:2013 and EN 60079-11:2012.

[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:

Stainless steel or titanium enclosure:	II 1G Ex ia IIC T4 Ga
	II 1D Ex ia IIIC T135 °C Da
PVDF or PP enclosure:	II 2G Ex ia IIC T4 Gb
	II 2D Ex ia IIIC T135 °C Db

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Authorised for certifications Explosion protection

Freiberg, 3 December 2015

By order

(Dipl.-Ing. Willamowski)

Schedule



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.

[13] **Schedule**

[14] **to the EC-TYPE EXAMINATION CERTIFICATE IBExU15ATEX1067 X**

[15] **Description of equipment**

The devices DX4B-LMK 387, DX4B-LMK 487 and DX4B-DMK 387 represent pressure transmitter or submersible probe in stainless steel, titanium or plastic enclosure. The devices are intended for use in potentially hazardous areas, where Category 1G, 1D, 2G or 2D devices required. They are supplied by an intrinsically safe power supply of the Category „ia“.

Variants:

DX4B-LMK 387 and DX4B-LMK 487 - submersible probe
DX4B-DMK 387 - pressure transmitter

Technical Data

Ambient temperature range -25 °C to +65 °C

supply electric circuit in type of protection intrinsic safety Ex ia IIC
(supply + and -) U_i 28 V DC

I_i 93 mA

P_i 660 mW

effective inner capacity C_i 49.2 nF (LMK), 13.2 nF (DMK)

effective inner inductivity L_i negligible

plus line inductivities 1 μ H/m and line capacities 160 pF/m (cable supplied by the manufacturer)
The supply connections have an inner capacity of max. 100 nF on the submersible probe (LMK) and 27 nF on the pressure transmitter (DMK) to the housing.

[16] **Test report**

The test results are explained in detail in the test report IB-13-3-074. The test documents are part of the test report and listed there.

Summary of the test results:

The pressure transmitter DX4B-LMK 387, DX4B-LMK 487 and DX4B-DMK 387 fulfil the requirements of type of protection intrinsic safety ‚ia‘ for an electrical equipment of the Equipment Group II, Category 1G and 1D or 2G and 2D, explosion Group IIC or IIIC and temperature Class T4 or max. surface temperature 135 °C.

[17] **Special conditions**

- For hydrostatic probes made of titanium impact and friction sparks are to be avoided by contact with other bodies and objects.
- The equipment designed with connector have to be installed in such a way that the degree of protection IP 20 is always kept.
- The safety and assembly instructions contained in the operating instruction and the ambient temperature range $-25\text{ °C} \leq T_a \leq +65\text{ °C}$ have to be taken into account.
- The device may be operated in explosive atmospheres which requires equipment of Category 1 only when there are atmospheric conditions (temperature of -20 °C to $+60\text{ °C}$, pressure of 0.8 bar to 1.1 bar).

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

Confirmed by compliance with standards (see [9]).

By order

Freiberg, 3 December 2015

(Dipl.-Ing. Willamowski)

[1] **EU-TYPE EXAMINATION CERTIFICATE - Translation**



[2] Equipment or protective systems
intended for use in potentially explosive atmospheres, Directive 2014/34/EU

[3] EU-type examination certificate number **IBExU15ATEX1067 X** | Issue 1

[4] Product: **Pressure transmitter**
Type: DX4B LMK 387(H), DX4B LMK 487(H) and DX4B DMK 387

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

[6] Address: Hradistska 817
687 08 Buchlovice
CZECH REPUBLIC

[7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] IBExU Institut für Sicherheitstechnik GmbH, Notified Body number 0637 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential test report IB-17-3-0082.

[9] Compliance with the essential health and safety requirements has been assured by compliance with: EN 60079-0:2018, EN 60079-11:2012
Except in respect of those requirements listed at item [18] of the schedule.

[10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the specific conditions of use specified in the schedule to this certificate.

[11] This EU-type examination certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

[12] The identification of the product must include the following, depending on the type and housing:

LMK 387(H) and LMK 487(H):	II 1G Ex ia IIB T4 Ga
DMK 387, metal enclosure:	II 1G Ex ia IIC T4 Ga
DMK 387, PVDF or PP enclosure:	II 2G Ex ia IIC T4 Gb
All types and variants:	II 1D Ex ia IIIC T135 °C Da

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By order

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Freiberg, 2018-08-06

[13] **Schedule**

[14] **Certificate number IBExU15ATEX1067 X | Issue 1**

[15] **Description of product**

The devices DX4B LMK 387(H), DX4B LMK 487(H) and DX4B DMK 387 represent pressure transmitter or submersible probe in stainless steel, titanium or plastic enclosure. The submersible probes can be equipped with an optional 3L temperature sensor. The devices are intended for use in potentially hazardous areas, where Category 1G, 2G or 1D devices required. They are supplied by an intrinsically safe power supply of the Category „ia“.

Variants:

DX4B LMK 387 and DX4B LMK 487	- submersible probe (Pt100 optional)
DX4B LMK 387 H and DX4B LMK 487 H	- submersible probe with other electronic (Pt100 optional)
DX4B DMK 387	- pressure transmitter

Technical data

Ambient temperature range: -25 °C to +65 °C

Electrical data

supply electric circuit in type of protection intrinsic safety Ex ia IIC or IIB

(supply + and -)	U _i 28 V DC
	I _i 93 mA
	P _i 660 mW
effective inner capacity	C _i 49.2 nF (LMK 387, LMK 487)
	C _i 14 nF (LMK 387 H, LMK 487 H und DMK 387)
effective inner inductivity	L _i negligible

Pt100-circuit in type of protection intrinsic safety Ex ia IIC

(3-wire circuit)	U _i 30 V DC
	I _i 54 mA
	P _i 405 mW
effective inner capacity	C _i negligible
effective inner inductivity	L _i negligible

plus line inductivities 1 µH/m and line capacities 160 pF/m (cable supplied by the manufacturer)

The supply connections have an inner capacity of max. 100 nF on the submersible probe (LMK 387, LMK 487) and 27 nF on the submersible probe (LMK 387 H, LMK 487 H) and on the pressure transmitter (DMK 387) to the housing.

Variations compared to the basic certificate:

- *Modification of the previously approved electronic circuit board of immersion probes resulting in a change in the explosion group from IIC to IIB.*
- *In the variants marked "H", a new electronic circuit board is used.*
- *In addition, a device option with integrated PT100 is added to the immersion probes.*
- *The devices complies with the requirements of the current standards.*

[16] **Test report**

The test results are recorded in the confidential test report IB-17-3-0082 of 2018-08-06.

The test documents are part of the test report and they are listed there.

Summary of the test results

The pressure transmitter DX4B LMK 387(H), DX4B LMK 487(H) and DX4B DMK 387 fulfil the requirements of type of protection intrinsic safety ‚ia‘ for an electrical equipment of the Equipment Group II, Category 1G and 2G or 1D, explosion Group IIC, IIB or IIIC and temperature Class T4 or max. surface temperature 135 °C.

[17] Specific conditions of use

- For hydrostatic probes made of titanium impact and friction sparks are to be avoided by contact with other bodies and objects.
- The equipment designed with connector have to be installed in such a way that the degree of protection IP 20 is always kept.
- The safety and assembly instructions contained in the operating instruction and the ambient temperature range $-25\text{ °C} \leq T_a \leq +65\text{ °C}$ have to be taken into account.
- The device may be operated in explosive atmospheres which requires equipment of Category 1 only when there are atmospheric conditions (temperature of -20 °C to $+60\text{ °C}$, pressure of 0.8 bar to 1.1 bar).

[18] Essential health and safety requirements

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item [9], the following are considered relevant to this product, and conformity is demonstrated in the test report: none

[19] Drawings and Documents

The documents are listed in the test report.

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By order


Dipl.-Ing. Willamowski

Freiberg, 2018-08-06