



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEX BVS 19.0063X** Page 1 of 3 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of issue: 2019-12-11

Applicant: **KROHNE Pressure Solutions GmbH**
Gewerbepark Meißen 14
32423 Minden
Germany

Equipment: **Pressure transmitter type OPTIBAR PM 3050 and Differential pressure transmitter type OPTIBAR DP 3050**

Optional accessory:

Type of Protection: **Intrinsic Safety "i", Equipment Protection Level (EPL) Ga**

Marking: Ex ia IIC T1...T6¹⁾ Ga Ex ia IIIC T**¹⁾ °C Da
Ex ia IIC T1...T6¹⁾ Ga/Gb Ex ia IIIC T**¹⁾ °C Da/Db
Ex ia IIC T1...T6¹⁾ Gb Ex ia IIIC T**¹⁾ °C Db

¹⁾ Temperature tables:

The temperature class for EPL Ga and Gb as well as maximum surface temperature for EPL Da and Db shall be defined by the temperature tables under consideration of ambient temperature T_a and medium temperature T_{med} .

Approved for issue on behalf of the IECEx
Certification Body:

Dr Franz Eickhoff

Position:

Deputy Head of Certification Body

Signature:
(for printed version)

Date:

2019 - 12 - 11

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.



Certificate issued by:

DEKRA Testing and Certification GmbH
Certification Body
Dinnendahlstrasse 9
44809 Bochum
Germany

 **DEKRA**
On the safe side.



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Certificate No.: **IECEX BVS 19.0063X**

Page 2 of 3

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Manufacturer: **KROHNE Pressure Solutions GmbH**
Gewerbepark Meißen 14
32423 Minden
Germany

Additional
manufacturing
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEX Quality system requirements. This certificate is granted subject to the conditions as set out in IECEX Scheme Rules, IECEX 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-26:2014-10 Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga
Edition:3.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

DE/BVS/EXTR19.0075/00

Quality Assessment Report:

DE/BVS/QAR13.0005/06



IECEX Certificate of Conformity

Certificate No.: **IECEX BVS 19.0063X**

Page 3 of 3

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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Subject and Type

See Annex

Description

See Annex

Parameters

See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:

1 The permissible ambient temperature depends of medium temperature range, maximum surface temperature and on the temperature class, in which the apparatus shall be used.
The limits of the permissible temperature ranges may be restricted by the used O-ring material. The used O-ring material is included in the marking. The permissible temperature ranges in dependence of the material are included in the manufacturer's instructions.

2 The equipment has to be installed in such a way that any ignition hazards caused by impact or friction can be excluded.

3 The apparatus has to be installed and used in such a way that electrostatic charging from operation, maintenance or cleaning is excluded.

4 For use as Ga / Gb or Da / Db- apparatus:

For functional reasons, the partition wall (membrane) to the wetted area has a wall thickness < 1 mm. In the application, it has to be ensured, that an impairment of the separation wall e.g. by aggressive media or mechanical hazards is excluded.

For variants with capillary connections:

The capillary connections are designed to be connected to a capillary with diaphragm seal. The filling holes are intended to bring in a fill fluid.

To prevent a Zone entrainment from Zone 0, the diaphragm seal resp. the diaphragm seal and capillary have to be suitably designed. The pressure transfer system has to be technically tight. The filling hole has to be tightly sealed.

Annex:

BVS_19_0063X_Krohne_Annex0.pdf



IECEX Certificate of Conformity

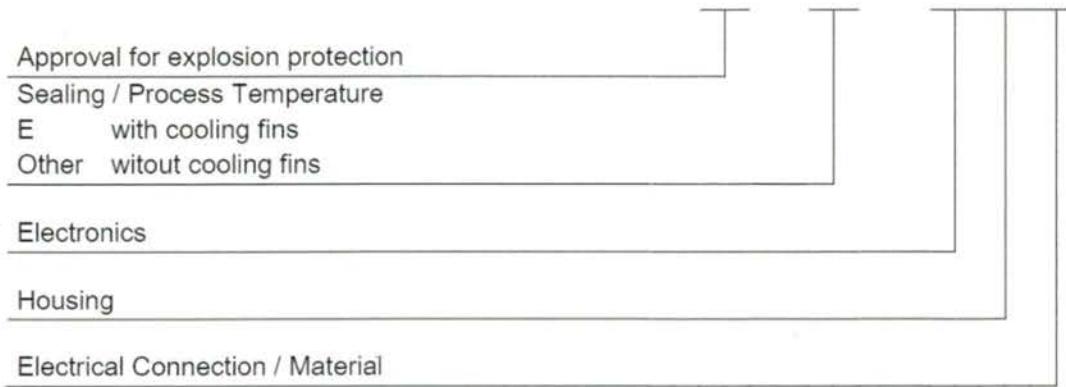


Certificate No.: IECEx BVS 19.0063X
Annex 0
Page 1 of 3

Subject and Type

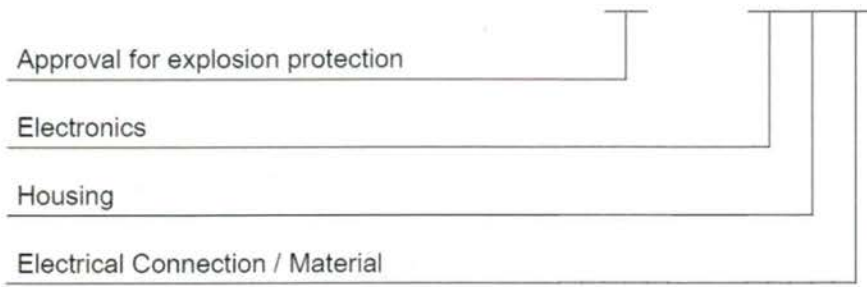
Pressure transmitter type OPTIBAR PM 3050

OPTIBAR PM 3050 VGKB * * ** * **** * * * *****



Differential pressure transmitter type OPTIBAR DP 3050

OPTIBAR DP 3050 VGKN * * ***** * * * *****



In the complete type denomination, the asterisks are replaced by literals and numbers to characterize different variants without relevance for explosion protection.

Description

The OPTIBAR PM 3050 consists of the Pressure meter body OPTIBAR P6000 or OPTIBAR PM61.***_, which is welded into a process connection. Both the sensor and the process connection are made of stainless steel.

The OPTIBAR DP 3050 consists of the Differential pressure meter body OPTIBAR DP7000, OPTIBAR DP7000.1 or OPTIBAR DP71.***_, which mounted between pressure caps using four screws. The process can be connected to the transmitter directly at the pressure caps or with use of diaphragm seals indirectly to the pressure caps.

From the sensor to the housing, the device is permanently connected by welding. The housing is a stainless steel housing with the option of selecting the cover with and without viewing window. For the connection is a standard cable gland or connector, as well as a pressure compensation element or alternatively a blind plug. The minimal requirements of IP protection class of at least IP 54 are fulfilled.

The enclosure contains an electronic insert, on which a display and adjustment module can be plugged and connected.

Certificate No.: IECEx BVS 19.0063X
Annex 0
Page 2 of 3

Listing of all used components:

| Subject and type | Certificate | Standards |
|---|---------------------------------------|--|
| Differential pressure meter body type OPTIBAR PM61.*** *G* ₋ and Pressure meter body type OPTIBAR DP71.*** G* ₋ . | IECEX BVS 13.0103U (incl. issue 3) | IEC 60079-0:2011 ¹⁾ IEC 60079-11:2011 IEC 60079-26:2014 |
| ADUM1442ARQZ Series Digital Isolators | IECEX SIR 16.0091U | IEC 60079-0:2011 ¹⁾ IEC 60079-11:2011 |

¹⁾No applicable technical differences

Parameters

1 Supply and signal circuit

Depending on the variant:

Connection via terminals 1 [+], 2 [-] resp.

Connection via plug

| | | | | |
|--------------------------------|-------|----|------|----|
| Maximum input voltage | U_i | DC | 30 | V |
| Maximum input current | I_i | | 130 | mA |
| Maximum input power | P_i | | 1000 | mW |
| Effective internal capacitance | C_i | | 1.1 | nF |
| Effective internal inductance | L_i | | 118 | μH |

2 Thermal parameters

2.1 Medium / Ambient temperature range

| OPTIBAR PM 3050 & OPTIBAR DP 3050 | | | |
|-----------------------------------|-----------------------------|------------------------------------|---------------|
| Temperature class | Maximum surface temperature | Medium / Ambient temperature range | |
| | | Group IIC | Group IIIC |
| T1 ... T3 | 200 °C | -40 ... 85 °C | -40 ... 85 °C |
| T4 | 135 °C | -40 ... 80 °C | -40 ... 80 °C |
| T5 ... T6 | 85 °C | -40 ... 36.5 °C | -40 ... 55 °C |

Certificate No.: IECEx BVS 19.0063X
Annex 0
 Page 3 of 3

2.2 The relationship between maximum ambient, medium temperatures, temperature class and maximum surface temperature:

| OPTIBAR PM 3050 VGKB ****E***_ | | | |
|--------------------------------|-----------------------------|--------------------------|---------------------------|
| Temperature class | Maximum surface temperature | Medium temperature range | Ambient temperature range |
| T1 ... T3 | 69 °C | -40 ... 150 °C | -40 ... 40 °C |
| | 89 °C | -40 ... 150 °C | -40 ... 60 °C |
| | 103 °C | -40 ... 94 °C | -40 ... 74 °C |
| T4 | 69 °C | -40 ... 135 °C | -40 ... 40 °C |
| | 89 °C | -40 ... 135 °C | -40 ... 60 °C |
| | 99 °C | -40 ... 119 °C | -40 ... 70 °C |
| T5 ... T6 | 54 °C | -40 ... 61 °C | -40 ... 25 °C |
| | 65 °C | -40 ... 36.5 °C | -40 ... 36.5 °C |

| OPTIBAR PM 3050 VGKB ****_***_ | | | |
|--------------------------------|-----------------------------|--------------------------|---------------------------|
| Temperature class | Maximum surface temperature | Medium temperature range | Ambient temperature range |
| T1 ... T3 | 69 °C | -40 ... 105 °C | -40 ... 40 °C |
| | 89 °C | -40 ... 105 °C | -40 ... 60 °C |
| | 103 °C | -40 ... 86 °C | -40 ... 74 °C |
| T4 | 69 °C | -40 ... 105 °C | -40 ... 40 °C |
| | 89 °C | -40 ... 105 °C | -40 ... 60 °C |
| | 99 °C | -40 ... 98 °C | -40 ... 70 °C |
| T5 ... T6 | 54 °C | -40 ... 70 °C | -40 ... 25 °C |
| | 65 °C | -40 ... 36.5 °C | -40 ... 36.5 °C |

| OPTIBAR DP 3050 VGKN ***_ | | | |
|---------------------------|-----------------------------|--------------------------|---------------------------|
| Temperature class | Maximum surface temperature | Medium temperature range | Ambient temperature range |
| T1 ... T3 | 69 °C | -40 ... 105 °C | -40 ... 40 °C |
| | 89 °C | -40 ... 96 °C | -40 ... 60 °C |
| | 103 °C | -40 ... 75 °C | -40 ... 74 °C |
| T4 | 69 °C | -40 ... 105 °C | -40 ... 40 °C |
| | 89 °C | -40 ... 96 °C | -40 ... 60 °C |
| | 99 °C | -40 ... 81 °C | -40 ... 70 °C |
| T5 ... T6 | 54 °C | -40 ... 54 °C | -40 ... 25 °C |
| | 65 °C | -40 ... 36.5 °C | -40 ... 36.5 °C |