

Operating Manual

Electronic pressure transmitters

UPA2-DMP331-EX
UPA2-DMP333-EX
UPA2-DMK331P-EX



READ THOROUGHLY BEFORE USING THE DEVICE KEEP FOR FUTURE REFERENCE

Barksdale GmbH Art.Nr. 923-2698, Index: C
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1. General and Safety-Related Information on this Operating Manual

This operating manual enables safe and proper handling of the product, and forms part of the device. It should be kept in close proximity to the place of use, accessible for staff members at any time.

All persons entrusted with the mounting, installation, putting into service, operation, maintenance, removal from service, and disposal of the device must have read and understood the operating manual and in particular the safety-related information.

The following documents are an important part of the operating manual:

- Data sheet
- Type-examination certificate

For specific data on the individual sensors, please refer to the respective data sheet.

Download it at www.barksdale.de or request it at info@barksdale.de – Tel.: +49 (0) 6035 949-0.

In addition, the applicable accident prevention regulations, safety requirements, and country-specific installation standards as well as the accepted engineering standards must be observed.

For the installation, maintenance and cleaning of the device, the relevant regulations and provisions on explosion protection (VDE0160, VDE 0165 and/or EN 60079-14) as well as the accident prevention regulations must absolutely be observed. The device was designed by applying the following standards:

UPA2-DMP / UPA2-DMK:
EN 60079-0:2012+A11:2013,
EN 60079-11:2012

1.1 Symbols Used

	- Type and source of danger - Measures to avoid the danger
Warning word	Meaning
	- Imminent danger! - Non-compliance will result in death or serious injury.
	- Possible danger! - Non-compliance may result in death or serious injury.
	- Hazardous situation! - Non-compliance may result in minor or moderate injury.

NOTE – draws attention to a possibly hazardous situation that may result in property damage in case of non-compliance.

- ✓ Precondition of an action

1.2 Staff Qualification

Qualified persons are persons that are familiar with the mounting, installation, putting into service, operation, maintenance, removal from service, and disposal of the product and have the appropriate qualification for their activity.

This includes persons that meet at least one of the following three requirements:

- They know the safety concepts of metrology and automation technology and are familiar therewith as project staff.
- They are operating staff of the measuring and automation systems and have been instructed in the handling of the systems. They are familiar with the operation of the devices and technologies described in this documentation.
- They are commissioning specialists or are employed in the service department, and have completed training that qualifies them for the repair of the system. In addition, they are authorized to put into operation, to ground, and to mark circuits and devices according to the safety engineering standards.

All work with this product must be carried out by qualified persons!

1.3 Intended Use

The devices are used to convert the physical parameter of pressure into an electric signal.

The **pressure transducers** are exclusively suited for measuring positive, negative and absolute pressures. The **screw-in probes** are exclusively suited to filling-level and process measuring technology.

A device has an explosion-protection approval if this was specified in the purchase order and confirmed in our order acknowledgement. In addition, the type plate includes a sign.

The user must check whether the device is suited for the selected use. In case of doubt, please contact our sales department (info@barksdale.de | Phone: +49 (0) 6035 949-0. Barksdale assumes no liability for any wrong selection and the consequences thereof!

The fluids that can be measured are gases and liquids that are compatible with the materials in contact with the fluids, described in the data sheet. For application, it must additionally be ensured that the fluid is compatible with the parts in contact with the fluid.

1.4 Limitation of Liability and Warranty

Failure to observe the instructions or technical regulations, improper use and use not as intended, and alteration of or damage to the device will result in the forfeiture of warranty and liability claims.

1.5 Safe Handling

NOTE – Treat the device with care both in the packed and unpacked condition!

NOTE – The device must not be altered or modified in any way.

NOTE – Do not throw or drop the device!

NOTE – Excessive dust accumulation (over 5 mm) and complete coverage with dust must be prevented!

The device is state-of-the-art and is operationally reliable. Residual hazards may originate from the device if it is used or operated improperly.

1.6 Safety-Related Maximum Values

UPA2-DMP-.../ UPA2-DMK-...:

$U_i = 28 \text{ V}$; $I_i = 93 \text{ mA}$; $P_i = 660 \text{ mW}$; $C_i \approx 0 \text{ nF}$;
 $L_i \approx 0 \text{ }\mu\text{H}$; 27 nF opposite GND; plus cable inductances of $1 \text{ }\mu\text{H/m}$ and cable capacities of 160 pF/m (for cable by factory)
Application in zone 0: (p_{atm} 0.8 bar up to 1.1. bar): -20 ... 60 °C
Application in zone 1: -20 ... 65 °C

1.7 Scope of Delivery

Check that all parts listed in the scope of delivery are included free of damage, and have been delivered according to your purchase order:

- Pressure transducer or screw-in probe
- for mech. connections to DIN 3852: O-ring (premounted)
- this operating manual
- in case of SIL2 design option: functional safety manual, safety data sheet

1.8 UL Approval (for Devices with UL Marking)

The UL approval was effected by applying the US standards, which also conform to the applicable Canadian standards on safety.

Observe the following points so that the device meets the requirements of the UL approval:

- The transducer must be operated via a supply with energy limitation (acc. to UL 61010) or an NEC Class 2 energy supply.
- Maximum operating range: see data sheet

2. Product Identification

The device can be identified by means of the type plate with order code. The most important data can be gathered therefrom.

NOTE – The type plate must not be removed!

The labeling of devices with Ex approval must include the following information

UPA2-DMP/ UPA2-DMK:
EG-Baumusterprüfbescheinigung IBExU11ATEX1077 X

Metallic connection: II 1G Ex ia IIC T4 Ga
II 1D Ex ia IIC T85 °C Da

3. Mounting

3.1 Mounting and Safety Instructions

	Danger of death from electric shock or explosion - Explosion hazard, airborne parts, leaking fluid, electric shock - Always mount the device in a depressurized and de-energized condition! - Do not install the device while there is a risk of explosion.
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NOTE – The technical data listed in the EC type-examination certificate are binding. Download these by accessing www.barksdale.de or request them by e-mail or phone: info@barksdale.de | Tel.: +49 (0) 6035 949-0

NOTE – Make sure that the entire interconnection of intrinsically safe components remains intrinsically safe. The owner-operator is responsible for the intrinsic safety of the overall system (entire circuitry).

NOTE – If there is increased risk of damage to the device by lightning strike or overvoltage, increased lightning protection must additionally be provided!

NOTE – Treat any unprotected diaphragm with utmost care; this can be damaged very easily.

NOTES – for mounting outdoors or in a moist environment:

- Connect the device electrically straightaway after mounting or prevent moisture penetration, e.g. by a suitable protective cap. (The protection rating specified on the data sheet applies to the connected device.)
- Select the mounting position such that splashed and condensed water can drain off. Stationary liquid on sealing surfaces must be excluded!
- If the device has a cable outlet, the outgoing cable must be routed downwards. If the cable needs to be routed upwards, this must be done in an initially downward curve.
- Mount the device such that it is protected from direct solar radiation. In the most unfavorable case, direct solar radiation leads to the exceeding of the permissible operating temperature. This must be excluded if the device is used in any explosion-hazardous area!
- A device with gauge reference in the housing (small hole next to the electrical connection) must be mounted such that the gauge reference is protected against dirt and humidity. If the transducer is exposed to liquid admission, the gauge reference will be blocked, and the equalization of air pressure will be prevented. In this condition, a precise measurement is impossible and damage to the transducer may occur.
- Provide for a cooling section if the device is used in a steam line.

NOTE – When installing the device, avoid high mechanical stresses on the pressure port! This will result in a shift of the characteristic curve or to damage, in particular in case of very small pressure ranges and devices with a pressure connection/port made of plastic.

NOTE – In hydraulic systems, arrange the device such that the pressure port points upwards. (venting)

NOTE – If the device is installed with the pressure port pointing upwards, ensure that no liquid drains off on the device. This could result in humidity and dirt blocking the gauge reference in the housing, and could lead to malfunctions. If necessary, dust and dirt must be removed from the edge of the screwed joint of the electrical connection.

NOTE – Do not remove the packaging or protective caps of the device until shortly before the mounting procedure, in order to exclude any damage to the diaphragm and the threads!

Protective caps must be kept! Dispose of the packaging properly!

NOTE – The specified tightening torques must not be exceeded!

3.2 Mounting Steps for Connections According to DIN 3852

NOTE – Do not use any additional sealing material such as tow, hemp or Teflon tape!

- ✓ The O-ring is undamaged and seated in the designated groove.
 - ✓ The sealing face of the mating component has a flawless surface. (R_Z 3.2)
- 1 Screw the device into the mating thread by hand.
 - 2 Devices with a wrench flat must be tightened using a suitable open-end wrench.
Wrench flat made of steel:
G1/4": approx. 5 Nm; G1/2": approx. 10 Nm;
G3/4": approx. 15 Nm; G1": approx. 20 Nm
Wrench flat made of plastic:
max. 3 Nm
 - 3 Devices equipped with a knurled ring:
only tighten by hand

3.3 Mounting Steps for Connections According to EN 837

- ✓ A suitable seal for the measured fluid and the pressure to be measured is available. (e.g. a copper seal)
- ✓ The sealing face of the mating component has a flawless surface. (RZ 6.3)

- 1 Screw the device into the mating thread by hand.
- 2 Then tighten it using an open-end wrench: G1/4": approx. 20 Nm; G1/2": approx. 50 Nm

4. Electrical Connection

4.1 Connection and Safety Instructions

	Danger of death from electric shock or explosion - Explosion hazard if the operating voltage is too high (max. 28VDC)! - Always mount the device in a depressurized and de-energized condition! - Do not install the device while there is a risk of explosion. - Operate the device only within the specification! (data sheet)
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- ✓ The limit values listed in the EC type-examination certificate are observed. (Capacity and inductance of the connection cable are not included in the values.)
- ✓ The supply corresponds to protection class II. (protective insulation)
- ✓ The transducer is operated via a supply with energy limitation (acc. to UL 61010) or an NEC Class 2 energy supply.

NOTE – If the device is equipped with a cable gland or cable box, it must be ensured that the outer diameter of the line used is within the permissible clamping range. (cable gland M12x1.5 cable Ø 3 – 6.5 mm, cable box ISO 4400 cable Ø 4.5 – 10 mm). Additionally it must be ensured that this is seated firmly and gaplessly in the cable gland!

NOTE – Use a shielded and twisted multicore cable for the electrical connection.

NOTE – When devices with ISO 4400 or Buccaneer connector are used, the cable box must be properly mounted so that the protection rating specified on the data sheet is ensured! Ensure that the seal supplied is installed between the connector and the cable box. After connecting the cable, attach the cable box to the device by means of the screw.

NOTE – On a device equipped with field housing, the connection terminals are located underneath the housing cover. The cover must be screwed off in order to connect the device electrically. Before the cover is screwed on again, the O-ring and sealing surface on the housing must be checked for damage and, if necessary, replaced! Then screw on the cover by hand and make sure that the field housing is tightly closed again.

4.2 Conditions for the Explosion-Hazardous Area

Danger generated by electrostatic charging

	Danger of death from explosions - Explosion hazard due to spark formation from electrostatic charging of plastic components. - For devices with a cable outlet, the cable must be installed tightly. - Do not clean the device and, if applicable, the connection cable, in a dry state! Use a moist cloth, for example.
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The following warning sign is affixed on devices with plastic components.

	Attention Plastic part – There is a danger of electrostatic charge.
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Fig. 2: Warning sign

NOTE – The warning sign must not be removed from the device!

Overvoltage protection

If the pressure transducer is used as a Category 1 G piece of equipment, a suitable overvoltage protector must be installed upstream (refer to the German Ordinance on Industrial Health [BetRSichV] and EN60079-14).

Schematic circuit design

The operation of an intrinsically safe device in the explosion-hazardous area requires special care when selecting the required Zener barrier or transmitter repeater devices so that the device properties can be utilized to the full extent. The following diagram shows a typical arrangement consisting of power pack, Zener barrier and screw-in probe or transducer.

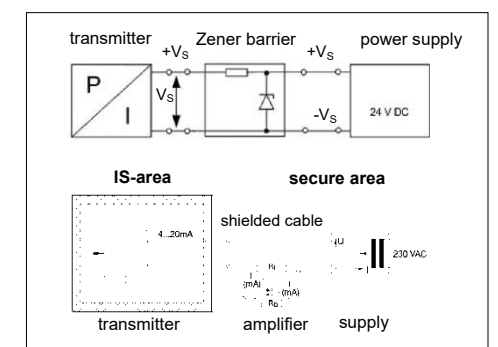



Fig. 3 circuit diagrams

NOTE – Observe item (17) of the type-examination certificate which specifies special conditions for intrinsically safe operation.

Exemplary circuit description

The supply voltage of e.g. 24 V_{DC} provided by the power pack is led through the Zener barrier. The Zener barrier contains series resistors and Zener diodes as protective components. The operating voltage is applied to the device by the Zener barrier and, depending on the pressure, a particular signal current will flow.

 DANGER	Danger of death from explosion - Operation of intrinsically safe devices as zone-0 equipment only with ungrounded and galvanically isolated power supply.
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Selection criteria for Zener barriers and power supplies

The minimum supply voltage U_{B min} of the device must not be undercut; the minimum supply voltage is defined in the product-specific data sheet under "Output signal / auxiliary energy". When using a galvanically isolated power supply with linear limitation, it must be taken into account that the terminal voltage of the device will decrease because of the linear limitation, as with a Zener barrier. Furthermore, account must be taken of the fact that a certain voltage drop will also occur on an optionally used signal isolation amplifier, whereby the operating voltage of the transducer will decrease additionally.

Test criteria for the selection of the Zener barrier

In order not to undercut U_{B min} it is important to check which minimum supply voltage is available at full-level modulation of the device. The full-level modulation, that is, a maximum and nominal output signal (20 mA), is achieved by applying the maximum physical input signal (pressure).

Usually the specifications of the Zener barrier will provide an answer as to the selection of the barrier. However, the value can also be determined by calculation. If a maximum signal current of 0.02 A is assumed, a certain voltage drop on the series resistor of the Zener barrier follows in accordance with Ohm's law. This voltage drop must be subtracted from the voltage of the power pack, in order to reach the terminal voltage applied to the device in the full-level modulation state. If this voltage is less than the minimum supply voltage, either another barrier or a higher supply voltage must be selected.

NOTE – When selecting the ballasts, the maximum operating conditions according to the type-examination certificate must be observed. When assessing the ballasts, refer to their current data sheets to ensure that the entire interconnection of intrinsically safe components will remain intrinsically safe.

Calculation example for the selection of the Zener barrier

The nominal voltage of the power pack (supply) upstream of the Zener barrier is 24 V_{DC} ± 5 %.

From this follows:
 - maximum supply voltage:
 $V_{Sup\ max} = 24\ V * 1.05 = 25.2\ V$

- minimum supply voltage:
 $V_{Sup\ min} = 24\ V * 0.95 = 22.8\ V$

The series resistor of the Zener barrier is specified with 295 Ohms. The following values remain to be calculated:

- Voltage drop at the barrier (at full-level modulation):
 $V_{ab\ barrier} = 295\ \Omega * 0.02\ A = 5.9\ V$

- Terminal voltage of the device with Zener barrier:
 $V_{kl} = V_{Sup\ min} - V_{ab\ barrier} = 22.8\ V - 5.9\ V = 16.9\ V$

Condition:
 $V_{kl} \geq V_{kl\ min}$

Result:
 The terminal voltage of the device with Zener barrier amounts to 16.9 V and is thus higher than the device's minimum supply voltage which is 12 V_{DC}. This means that the Zener barrier was correctly selected with respect to the supply voltage.

NOTE – Please note that no line resistances have been listed in this calculation. These lead additionally to a voltage drop that must be taken into account.

4.3 Electrical Installation

Connect the device electrically according to the information specified on the type plate, the following table, and the connection circuit diagram.

Pin configuration:

Electrical connections	ISO 4400	Binder 723 (5-pin)	M12x1 (4-pin)
Supply +	1	3	1
Supply -	2	4	2
Shield	ground contact	5	4

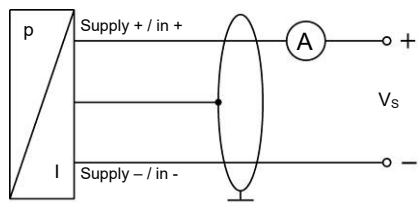



Fig. 4: Wiring diagram



5. Commissioning

 DANGER	Danger of death from explosion - Explosion hazard if the operating voltage is too high (max. 28 VDC.) - Operate the device only within the specification! (according to data sheet)
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- ✓ The device has been installed properly
- ✓ The device does not have any visible defect
- ✓ The device is operated within the specification. (see data sheet and EC type-examination certificate)

In case of highly precise devices with an accuracy of 0.1 % FSO, a microcontroller-controlled electronic system is used for signal processing. This electronic system is used for signal improvement. Due to the principle, the processing of measured values requires a longer time than with purely analog sensors, which only comprise amplification circuitry. Due to the longer processing time, the output signal follows the measured value not continuously but in jumps. In case of relatively stable and slowly changing measured values, this property plays a minor role. Compare this with the information on the adjusting time in the data sheet.

6. Maintenance

 DANGER	Danger of death - From airborne parts, leaking fluids, electric shock - Always service the device in a depressurized and de-energized condition!
 WARNING	Danger of injury from aggressive fluids or pollutants - Depending on the measured medium, this may constitute a danger to the operator. - Wear suitable protective clothing, e.g. gloves, safety goggles.



In principle, the device requires no maintenance. If necessary, clean the housing of the device using a moist cloth and a non-aggressive cleaning solution.

Cleaning of the diaphragm:
 Deposits or contamination may occur on the diaphragm in case of certain fluids. It is recommended to establish appropriate maintenance intervals for checking purposes.

Clean the diaphragm cautiously using a non-aggressive cleaning solution and a soft paintbrush or sponge. If the diaphragm is calcified, it is recommended to have the decalcification performed by Barksdale. Please note the chapter "Service/Repair" with regard to this.

NOTE – Wrong cleaning may damage the measuring cell beyond repair. Do not use any sharp or pointed item, or compressed air to clean the diaphragm.

7. Troubleshooting

 DANGER	Danger of death - From airborne parts, leaking fluids, electric shock - If malfunctions cannot be resolved, put the device out of service and proceed according to sections 8 and 10!
 DANGER	Danger of death from explosion - As a matter of principle, work on energized parts, except for intrinsically safe circuits, is prohibited while there is an explosion hazard.

In case of malfunction, it must be checked whether the device has been correctly installed mechanically and electrically. Use the following table to analyze the cause and resolve the malfunction, if possible.

Fault: no output signal	
Possible cause	Fault detection / remedy
connected incorrectly	Checking of connections
Conductor/wire breakage	Checking of all line connections.
Defective measuring device (signal input)	Checking of ammeter (miniature fuse) or of analog input of your signal processing unit



Fault: analog output signal too low/small	
Possible cause	Fault detection / remedy
Load resistance too high	Checking of load resistance (value)
Supply voltage too low	Checking of power pack output voltage
Defective energy supply	Checking of the power pack and the supply voltage being applied to the device

Fault: slight shift of the output signal	
Possible cause	Fault detection / remedy
Diaphragm of measuring cell is severely contaminated	Cleaning using a non-aggressive cleaning solution and soft paintbrush or sponge
Diaphragm of measuring cell is calcified or crusted	Recommendation: Have the decalcification or cleaning performed by Barksdale

Fault: large shift of the output signal	
Possible cause	Fault detection / remedy
Diaphragm of measuring cell is damaged (caused by overpressure or mechanically)	Checking of diaphragm; when damaged, send the device to Barksdale for repair

Fault: wrong or no output signal	
Possible cause	Fault detection / remedy
Cable damaged mechanically, thermally or chemically	Checking of cable; pitting corrosion on the stainless-steel housing as a result of damage on cable; when damaged, send the device to Barksdale for repair

8. Removal from Service

 DANGER	Danger of death - From airborne parts, leaking fluids, electric shock - Disassemble the device in a depressurized and de-energized condition!
 WARNING	Danger of injury from aggressive media or pollutants - Depending on the measured medium, this may constitute a danger to the operator. - Wear suitable protective clothing, e.g. gloves, goggles.

NOTE – After dismounting, mechanical connections must be fitted with protective caps.

9. Service/Repair


Information on service / repair:

- www.barksdale.de
- info@barksdale.de

9.1 Recalibration

The offset value or range value may shift during the life of the device. In this case, a deviating signal value in relation to the set lower or upper measuring range value is output. If one of these two phenomena occurs after extended use, a recalibration in the factory is recommended. Please note the chapter "Service/Repair" with regard to this.


9.2 Return

 WARNING	Danger of injury from aggressive media or pollutants - Depending on the measured medium, this may constitute a danger to the operator - Wear suitable protective clothing, e.g. gloves, goggles
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For every return shipment, whether for recalibration, decalcification, alteration or repair, the device must be cleaned thoroughly and packed in a break-proof manner. A return declaration with a detailed fault description must be added to the defective device. If your device has come into contact with pollutants, the return form with the declaration of decontamination is required. Appropriate templates can be found on our homepage. Download these by accessing www.barksdale.de or request them by e-mail or phone: info@barksdale.de | Tel.: +49 (0) 6035 949-0

In case of doubt regarding the fluid used, devices without a declaration of decontamination will only be examined after receipt of an appropriate declaration.

10. Disposal

 WARNING	Danger of injury from aggressive media or pollutants - Depending on the measured medium, this may constitute a danger to the operator - Wear suitable protective clothing, e.g. gloves, goggles
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The device must be disposed of according to the European Directive 2012/19/EU (waste electrical and electronic equipment). Waste equipment must not be disposed of in household waste!

NOTE – Dispose of the device properly!



11. Warranty Terms



The warranty terms are subject to the legal warranty period of 24 months, valid from the date of delivery. If the device is used improperly, modified or damaged, we will rule out any warranty claim. A damaged diaphragm will not be accepted as a warranty case. Likewise, there shall be no entitlement to services or parts provided under warranty if the defects have arisen due to normal wear and tear.

12. EU Declaration of Conformity / CE

Barksdale GmbH hereby declares its sole responsibility that the products mentioned above comply with the Directives and standards listed.

IBEXU11ATEX1077 X
 EN 60079-0:2012+A11:2013,
 EN 60079-11:2012

Notified body / ID number: IBEXU Institut für Sicherheit GmbH / 0637

Barksdale CONTROL PRODUCTS	
Barksdale GmbH Dorn-Assenheimer Str. 27 D-61203 Reichelsheim Tel.: +49 - 60 35 - 9 49-0 Fax: +49 - 60 35 - 9 49-111 e-mail: info@barksdale.de www.barksdale.de	
EU-Declaration of Conformity IBEXU11ATEX1077 X Issue 1 We hereby declare in our sole responsibility, that the Product: Electronic Pressure Transmitter Type: UPA2-DMP331-EX, UPA2-DMP333-EX, UPA2-DMK331P-EX which are subject of this declaration, are in conformity with the following standards or normative documents. 2014/34/EU. Equipment and protective systems intended for use in potentially explosive atmosphere. EN 60079-0 : 2012 + A11 :2013 EN 60079-11 : 2012 Our Quality Management System according to DIN EN ISO 9001: 2008 is approved and monitored by TÜV-SÜD and we are certified according to 2014/34/EU by TÜV NORD CERT GmbH & Co. KG, Am Tüv 1, D-30519 Hannover Approval no.: TÜV 08 ATEX 554512 Q No. of notified body: CE 0044 Document no.: 923-2737, Rev.: A, PCO no.: 19/019	EU-Konformitätserklärung IBEXU11ATEX1077 X Ausgabe 1 Wir erklären in alleiniger Verantwortung, dass die Produkte: Elektronischer Druckaufnehmer Typ: UPA2-DMP331-EX, UPA2-DMP333-EX, UPA2-DMK331P-EX auf die sich diese Erklärung bezieht, mit den folgenden Normen oder normativen Dokumenten übereinstimmen. 2014/34/EU. Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen. EN 60079-0 : 2012 + A11 :2013 EN 60079-11 : 2012 Wir haben ein Qualitätsmanagementsystem gemäß DIN EN ISO 9001: 2008, welches durch den TÜV-SÜD überprüft wird und sind zertifiziert nach 2014/34/EU durch den TÜV NORD CERT GmbH & Co. KG, Am Tüv 1, D-30519 Hannover Zertifikatsnummer: TÜV 08 ATEX 554512 Q Nummer der benannten Stelle: CE 0044 Dokument Nr.: 923-2737, Rev.: A, PCO Nr.: 19/019
Barksdale GmbH  Michael Weileder Managing Director	Reichelsheim, 28-Januar-2019  Pascal Choquet Engineering Manager

13. Type examination certificate

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



- [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 **IBExU11ATEX1077 X** | Issue 2
- [4] Product: **Pressure measuring device**
Type: UPA2-DMP33*-EX and UPA2-DMK331P-EX
- [5] Manufacturer: Barksdale GmbH
- [6] Address: Dorn - Assenheimer Str. 27
61203 Reichelsheim
GERMANY
- [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-19-3-0015.
- [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 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 marking of the product shall include the following:

ⒺII 1G Ex ia IIC T4 Ga
ⒺII 1D Ex ia IIIC T85 °C Da

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7
09599 Freiberg, GERMANY

Tel: + 49 (0) 37 31 / 38 05 0
Fax: + 49 (0) 37 31 / 38 05 10

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.

Freiberg, 2019-08-12

By order
Dipl.-Ing. Willamowski



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

- [13] **Schedule**
- [14] **Certificate number IBExU11ATEX1077 X** | Issue 2
- [15] **Description of product**
The Pressure measuring device UPA2-DMP33*-EX and UPA2-DMK331P-Ex are electronic transducers in stainless steel enclosure with different pressure ports. As measuring cell and evaluation electronic serves separately approved electronic modules. The devices are intended for use in potentially hazardous areas, where Category 1G or 1D devices are required. They are supplied by an intrinsically safe power supply of the Category „ia“.
- Technical Data**
Ambient temperature range: -20 °C to +70 °C
- Electrical Data**
Supply electric circuit in type of protection Intrinsic Safety Ex ia IIC (+ and -)
Ui 28 V DC
Ii 93 mA
Pi 660 mW
Ci negligible
Li negligible
- effective inner capacity
effective inner inductivity
Li negligible
- The supply connections have an internal capacity of max. 27 nF to the housing.
- Variations compared to the previous editions of this certificate:*
- Variation 1*
The type UPA2-DMK331P-EX was added again as part of this approval.
- [16] **Test report**
The test results are recorded in the confidential test report IB-18-3-0015 of 2019-08-08. The test documents are part of the test report and they are listed there.
- Summary of the test results*
The Pressure measuring devices UPA2-DMP33*-EX and UPA2-DMK331P-EX fulfill the requirements of type of protection Intrinsic safety „ia“ on an electrical device for Equipment Group II Category 1G or 1D.
- [17] **Specific conditions of use**
- The equipment designed with connector has 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 $-20\text{ °C} \leq T_a \leq +70\text{ °C}$ have to be taken into account.
 - The device may be operated in explosive atmospheres which require 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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