



The addresses of our distribution partners are listed on our homepage [www.barksdale.de](http://www.barksdale.de) It is possible to download data sheets, operating manuals, and certificates, as well.

## 1. General information

### 1.1 Information on the operating manual

This operating manual contains important information on proper usage of the device. Read this operating manual carefully before installing and starting up the pressure measuring device.

Adhere to the safety notes and operating instructions which are given in the operating manual. Additionally applicable regulations regarding occupational safety, accident prevention as well as national installation standards and engineering rules must be complied with!

For the installation, maintenance and cleaning of the device, you must absolutely observe the relevant regulations and stipulations on explosion protection (VDE 0160, VDE 0165 and EN60079-0:2012+A11:2013, EN60079-11:2012) as well as the occupational safety provisions.

This operating manual is part of the device, must be kept nearest its location, always accessible to all employees.

This operating manual is copyrighted. The contents of this operating manual reflect the version available at the time of printing. It has been issued to our best knowledge. However, errors may have occurred. Barksdale GmbH is not liable for any incorrect statements and their effects.

– Technical modifications reserved –

## 1.2 Symbols used

	- Nature and source of danger - Measures to prevent danger
<b>Warning term</b>	
<b>Warnwort</b>	<b>Meaning</b>
	- Immediate danger! - Failure to observe <b>will result</b> in death or serious injury.
	- Possible danger! - Failure to observe <b>may result</b> in death or serious injury.
	- Dangerous situation! - Failure to observe <b>may result</b> in slight or moderate injury.

NOTE – tips and information to ensure a failure-free operation

### 1.3 Qualification of personnel

Installation, commissioning, operation, maintenance, decommissioning and disposal may be carried out only by appropriately qualified specialist personnel.

Work on electrical components must be performed only by a qualified electrician and in accordance with the applicable regulations and guidelines

### 1.4 Limitation of liability and warranty

Failure to follow the instructions or observe technical regulations, improper use or use of the device in a manner other than that intended, or alteration or damage to the device will void the warranty and invalidate claims for liability.

### 1.5 Intended use

- The hydrostatic probes BLP1 have been designed especially for shipbuilding and offshore applications with rough environmental and operation conditions. The probes are suitable for level measurement of fluids or pasty media in open tanks, containers, or reservoirs. As medium all fluids can be used which are compatible with the materials of housing, sealing and cable. Based on a rugged and reliable capacitive ceramic sensor the probe is qualified for measuring small filling heights with high accuracy. Typical areas of use are ballast tanks, fuel and oil tanks as well as service and waste water tanks. The probes as standard complies with the requirements of Germanischer Lloyd (GL) and Det Norske Veritas (DNV). The certificates are available for download on our homepage:  
<http://www.barksdale.de/en/download/certificates>
- This operating manual applies to devices with explosion protection approval and is intended for the use in IS-areas. A device has an explosion protection approval if this has been specified in the purchase order and confirmed in our order confirmation. In addition, the manufacturing label contains the -symbol.
- It is the operator's responsibility to check and verify the suitability of the device for the intended application. If any doubts remain, please contact our sales department in order to ensure proper usage. Barksdale GmbH is not liable for any incorrect selections and their effects!
- The probe has to be used according to the area of application specified above! In addition it has to be ensured, that this medium is compatible with the media wetted parts.
- The technical data listed in the current data sheet are engaging and must be complied with. If the data sheet is not available, please order or download it from our homepage.  
<http://www.barksdale.de/en/download/datasheets>

	<b>Danger through incorrect use</b> - In order to avoid accidents, use the device only in accordance with its intended use!
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## 1.6 Safety technical maximum values

supply and signal circuit:

BLP1

$U_i = 28 \text{ V}$ ;  $I_i = 93 \text{ mA}$ ;  $P_i = 660 \text{ mW}$ ;  $C_i = 105 \text{ nF}$ ;  
 $L_i = 5 \mu\text{H}$ ; 140 nF opposite GND; plus cable inductivities  
1  $\mu\text{H/m}$  and cable capacities 160 pF/m (for cable by factory)

permissible temperatures for environment:

BLP1:

application in zone 0 ( $p_{\text{atm}}$  0.8 bar up to 1.1 bar):  
-20 ... 60 °C  
application in zone 1 and higher: -25 ... 70 °C

### 1.7 Package contents

Please verify that all listed parts are undamaged included in the delivery and check for consistency specified in your order:

- hydrostatic probe
- this operating manual

## 2. Product identification

The device can be identified by its manufacturing label. It provides the most important data. By the ordering code the product can be clearly identified.

! The manufacturing label must not be removed from the device!

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

**BLP1:**  
EU-TYPE EXAMINATION CERTIFICATE  
**IBExU10ATEX1142 X**

Marking: **II 1G Ex ia IIB T4 Ga**

## 3. Mechanical installation

### 3.1 Mounting and safety instructions

	<b>Danger of death from electric shock or explosion</b> - Always mount the device in a depressurized and de-energized condition! - Install equipotential bonding along the entire length of the line, both inside and outside the explosion hard area. - Do not install the device while there is a risk of explosion.
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- The technical data listed in the EC type-examination certificate are engaging and must absolutely be complied with. If the certificate is not available, please order or download it from our homepage:  
<http://www.barksdale.de/en/download/certificates>
- Working on supplied (active) parts, except for intrinsically safe circuits, is principally prohibited during an explosion hazard.
- Make sure that an equipotential bonding is in place for the entire course of the line, both inside and outside the intrinsic area.
- In case of increased danger of lightning strike or damage by overvoltage, a stronger lightning protection should be planned.
- Observe the limiting values specified in the EC type-examination certificate. (Capacitance and inductance of the connection cable are not included in the values.)
- Make sure that the entire interconnection of intrinsically safe components remains intrinsically safe. The operator is responsible for the intrinsic safety of the overall system (installation of intrinsic parts).
- Do not mount the device in a pneumatic flow rate!
- The probe must be installed in such a way that rubbing or impact of the sensor head (sensor element), e. g. against a tank wall, is prevented. It is also important to consider the operating conditions such as flow conditions. This applies especially to probes with cable outlet and devices with a pipe extension with a length of more than 2.8 m
- Excessive dust deposits (over 5 mm) and a complete dust covering must be avoided for screw-in and flange versions!

Handle this high-sensitive electronic precision measuring device with care, both in packed and unpacked condition!

There are no modifications/changes to be made on the device.

Do not throw the package/device!

To avoid damaging the diaphragm, remove packaging and protective cap directly before starting assembly. The delivered protective cap has to be stored! Place the protective cap on the pressure port again immediately after disassembling.

Handle the unprotected diaphragm very carefully - it is very sensitive and may be easily damaged.

Do not use any force when installing the device to prevent damage of the device and the plant!

When placing the probe into operation or after maintenance work, the probe has to be submerged slowly into the medium! A rough immersion into the medium can damage or destroy the diaphragm.

For installations outdoor and in damp areas following these instructions for screw-in and flange versions:

- Choose an assembly position, which allows the flow-off of splashed water and condensation.
- Turn the outgoing cable downwards. If the cable has to be turned upwards, then point it downward so the moisture can drain.
- Install the device in such a way that it is protected from direct solar irradiation. Direct solar irradiation can lead to the permissible operating temperature being overstepped in the worst case. This is prohibited for applications in IS-areas!

Take note for screw-in and flange transmitter that no assembly stress occurs at the pressure port, since this may cause a shifting of the characteristic curve.

In hydraulic systems, position the device in such a way that the pressure port points upward (ventilation).

Provide a cooling line when using the device in steam piping.

### 3.2 General installation steps

- Carefully remove the pressure measuring device from the package and dispose of the package properly.
- Go ahead as detailed in the specific instructions below.

### 3.3 Installation steps for probe

- Install the device according to your demands.
- Usually, the probe is delivered without mounting accessories. But Barksdale GmbH offers different accessories on request e.g. mounting clamp, terminal clamp or mounting flange.
- Do not use freely suspended probes with an FEP cable if effects due to highly charging processes are expected.

### 3.4 Installation steps for flange transmitter

- Please ensure that the mounting thread is clean and free of damage.
- Check to ensure that the O-ring fits properly in the groove.
- Screw in the mounting thread of the transmitter in the transmitter flange.
- Next, tighten it by an open-end wrench. (approx. 25 Nm)
- Install the flange according to your demands.
- If a new transmitter flange is needed, it can be ordered from Barksdale GmbH.

## 3.5 Installation steps for screw-in transmitter

- Please ensure that the mounting thread is clean and free of damage.
- Check to ensure that the O-ring fits properly in the groove.
- Ensure that the sealing surface of the taking part e.g. welding socket is perfectly smooth and clean.
- Screw the device in the corresponding thread by hand.
- Next, tighten it by an open-end wrench. (approx. 25 Nm;)

## 3.6 Removing the protection cap (for probe)

For the protection of the diaphragm, some of the probes have a plugged-on protection cap. If the device shall be used in high-viscosity media such as sludge, a removal of the cap before start-up is necessary. Thus, the sensor becomes flush and the medium will attain quickly to the diaphragm.

If it is necessary for your application to remove the protection cap, this has to be done with utmost care. To prevent a damage of the diaphragm, please follow the instructions below:

### Removal by hand

- Hold the probe in a way that the protection cap points upwards.
- Hold the probe with one hand on the sensor section (1).
- Remove the protection cap (2) with the other hand.

### Removal with a tool (recommended)

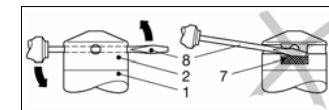


Fig.2 removal of protection cap

- Hold the probe in a way that the protection cap points upwards.
- Slide a small tool such as a screwdriver (8) straight through two opposite drill holes in the protective cap (2).
- Lever it off by moving up the handle of the screwdriver.
- Make sure that the sensor (7) under the protection cap will not be damaged!

## 4. Special regulations for IS-areas

### 4.1 Protection against electrostatic charge hazards

	<b>Danger of death from explosion</b> - Explosion hazard due to spark formation from electrostatic charging of plastic components! - If devices are equipped with a cable outlet, the connection cable routing must be fixed. - 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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Different types of the device partially consist of chargeable plastic components. These are, in particular, the carrying and connection cables, terminal boxes as well as housing enclosures. A potential electrostatic charge presents the danger of spark generation and ignition. An electrostatic charge must therefore be absolutely prevented.

The following warning sign is, if applicable, attached to the probe. It points once more to the hazard of electrostatic charging.

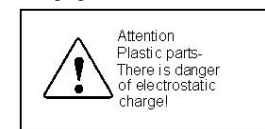


Fig. 3 warning sign

- ! The warning sign must not be removed from the device!

## 4.2 Overvoltage protection

If the probe is used as electrical equipment of category 1 G, then a suitable overvoltage protection device must be connected in series (attend the valid regulations for operating safety as well as EN60079-14).

## 4.3 Schematic circuit

The operation of an intrinsically safe probe in intrinsic safe areas requires special care when selecting the necessary Zener barrier or transmitter repeater devices to allow the utilization of the device's properties to the full extent. The following diagram shows a typical arrangement of power supply, Zener barrier and probe.

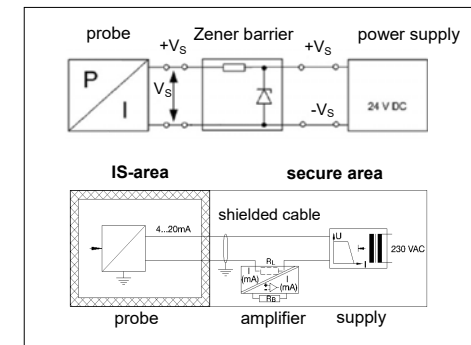


Fig. 4 Circuit diagrams

! Please pay attention to item (17) of the type examination certificate, which stipulates special conditions for intrinsically safe operation.

## 4.4 Exemplary circuit description

The supply voltage of e.g. 24 V<sub>DC</sub> provided by the power supply is led across the Zener barrier. The Zener barrier contains series resistances and breakdown diodes as protective components. Subsequently, the operating voltage is applied to the transmitter and, depending on the pressure, a particular signal current flows.

	<b>Danger of death from explosion</b> - Operation of intrinsically safe devices as zon-0 equipment only with ungrounded and galvanically isolated power supply.
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## 4.5 Functional selection criteria for Zener barriers and galvanic power supply

The minimum supply voltage  $V_{S \text{ min}}$  of the transmitter must not fall short since a correct function of the device can otherwise not be guaranteed. The minimum supply voltage has been defined in the respective product-specific data sheet under "Output signal / supply".

When using a galvanically insulated amplifier with linear bonding, note that the terminal voltage of the transmitter will decrease like it does with a Zener barrier. Furthermore, you have to note that the supply will additionally decrease with an optionally used signal amplifier.

## 4.6 Test criteria for the selection of the Zener barrier

In order not to fall below  $V_{S \text{ min}}$ , it is important to verify which minimum supply voltage is available at full level control of the transmitter. The full level control, i.e. a maximum or nominal output signal (20 mA), can be reached by applying the maximum physical input signal (pressure).

The technical data of the barrier will usually provide the information needed for the selection of the Zener barrier. However, the value can also be calculated. If a maximum signal current of 0.02 A is assumed, then – according to Ohm's law – a particular voltage drop will result from the series resistance of the Zener barrier. This voltage drop is subtracted by the voltage of the power supply and as a result, the terminal voltage is obtained which is applied on the transmitter at full level control. If this voltage is smaller than the minimum supply voltage, another barrier or a higher supply voltage should be chosen.

When selecting the supplied devices / Zener barrier, the maximum operating conditions according to the EC type-examination certificate must be observed. When assessing these, refer to their current data sheets to ensure that the entire interconnection of intrinsically safe components remains intrinsically safe.

#### 4.7 Calculation example for the selection of the Zener barrier

The nominal voltage of the power supply in front of the Zener barrier is  $24 V_{DC} \pm 5\%$ . This results in:

- greatest supply voltage:  $V_{Sup,max} = 24 V * 1.05 = 25.2 V$
- smallest supply voltage:  $V_{Sup,min} = 24 V * 0.95 = 22.8 V$

The series resistance of the Zener barrier is listed with 295 ohm. The following values must still be calculated:

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

- Terminal voltage at the transmitter with Zener barrier:  
 $V_{KI} = V_{Sup,min} - V_{ab,barrier} = 22.8 V - 5.9 V = 16.9 V$

- Minimum supply voltage of the transmitter (according to data sheet):  
 $V_{KI,min} = 12 V_{DC}$  (corresponding to  $V_{B,min}$ )

Condition:

$$V_{KI} \geq V_{KI,min}$$



Result:

The terminal voltage of the probe with Zener barrier lies at 16.9 V and is therefore higher than the minimum supply voltage of the probe which lies at 12 V<sub>DC</sub>. This means, the Zener barrier has been selected correctly regarding the supply voltage.

- ☞ Note that no line resistances have been listed in this calculation. However, these will lead to an additional voltage drop that must be taken into account.

#### 5. Electrical Installation

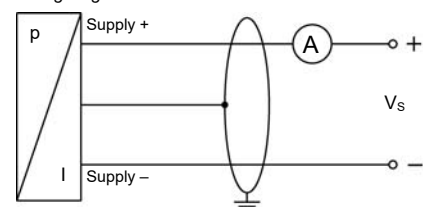
Establish the electrical connection of the device according to the technical data shown on the manufacturing label, the following table and the wiring diagram.

	<b>Danger of death from electric shock</b> - Switch off the power supply before installing the device!
	<b>Danger of death from explosion</b> - Risk of explosion if the operating voltage is too high (max. 28 V <sub>DC</sub> ) - Connect the device as describe in the user manual

Pin configuration:

Electrical connection	Cable colours (DIN 47100)
Supply +	white
Supply -	brown
Shield	yellow / green

Wiring diagram:



- ☞ A minimum static bending radius has to be complied with. For static installation use the 10-fold cable diameter, for dynamic applications use the 20-fold diameter.


- ☞ Prevent the damage or removal of the PTFE filter which is fixed over the end of the air tube on devices with cable outlet and integrated air tube.

- ☞ For a clear identification, the intrinsically safe cables are marked with light blue shrink tubing (over the cable insulation). If the cable has to be modified (e.g. shortened) and the marking at the cable end has been lost in the process, it must be restored (for example, by marking it again with light blue shrink tubing or an appropriate identification sign).

- ☞ For the electrical connection a shielded and twisted multicore cable has to be used.

- ☞ Devices with TPE-cable:
  - application in water with a temperature >70 °C destroys the cable
  - applications at media temperatures >70 °C have to be clarified with Barksdale GmbH.

#### 6. Initial start-up


	<b>Danger of death from electric shock</b> - Explosion hazard if the operation voltage is too high (max. 28 V <sub>DC</sub> ) - Operate the device only within the specification! (data sheet)
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- ☞ WARNING! Before start-up, the user has to check for proper installation and for any visible defects.

- ☞ WARNING! The device can be started and operated by authorized personnel only, who have read and understood the operating manual!

- ☞ WARNING! The device has to be used within the technical specifications, only (compare the data in the data sheet and the EC type-examination certificate)!


#### 7. Placing out of service


	<b>Danger of death</b> - From airborne parts, leaking fluids, electric shock - Disassemble the device in a depressurized and de-energized condition!
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	<b>Danger of injury from aggressive media</b> - 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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- ☞ WARNING! When dismantling the device, it must always be done in the depressurized and currentless condition! Check also if the medium has to be drained off before dismantling!

#### 8. Maintenance

	<b>Danger of death</b> - From airborne parts, leaking fluids, electric shock - Always service the device in a depressurized and de-energized condition!
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	<b>Danger of injury from aggressive fluids or pollutants</b> - 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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In principle, this device is maintenance-free. If desired, the housing of the device can be cleaned when switched off using a damp cloth and non-aggressive cleaning solutions.

Depending on the measuring medium, however, the diaphragm may be polluted or coated with deposit. If the medium is known for such tendencies, the user has to set appropriate cleaning intervals. After placing the device out of service correctly, the diaphragm can usually be cleaned carefully with a non-aggressive cleaning solution and a soft brush or sponge. If the diaphragm is calcified, it is recommended to send the device to Barksdale GmbH for decalcification. Please read therefore the chapter "Repair" below.


- ☞ A false cleaning of the device can cause an irreparable damage on the diaphragm. Therefore never use pointed objects or pressured air for cleaning the diaphragm. Service / Repair

#### 9. Service/Repair

##### 9.1 Recalibration


During the life-time of a probe, the value of offset and span may shift. As a consequence, a deviating signal value in reference to the nominal pressure range starting point or end point may be transmitted. If one of these two phenomena occurs after prolonged use, a recalibration is recommended to ensure furthermore high accuracy.

##### 9.2 Return

	<b>Danger of injury from aggressive fluids or pollutants</b> - 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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By returning your device, whether for recalibration, decalcification, modifications or repair, it is necessary to send us the product together with a Notice of Return which you can download under: <http://www.barksdale.de/en/download/>

#### 10. Disposal

	<b>Danger of injury from aggressive fluids or pollutants</b> - 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 according to the European Directives 2012/19/EG and 2003/108/EG (on waste electrical and electronic equipment) Waste of electrical and electronic equipment may not be disposed by domestic refuse!




#### 11. Warranty conditions


The warranty conditions are subject to the legal warranty period of 24 months from the date of delivery. In case of improper use, modifications of or damages to the device, we do not accept warranty claims. Damaged diaphragms will also not be accepted. Furthermore, defects due to normal wear are not subject to warranty services.

#### 12. Declaration of conformity / CE

The delivered device fulfils all legal requirements. The applied directives, harmonised standards and documents are listed in the EC declaration of conformity, which is available online at: <http://www.barksdale.de/en/download/certificates>. Additionally, the operational safety is confirmed by the CE sign on the manufacturing label.


#### 13. Error handling

	<b>Danger of death</b> - From airborne parts, leaking fluids, electric shock - If malfunctions cannot be re-solved, put the device out of service and proceed according to sections 7 up to 12
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	<b>Danger of death from explosion</b> - As a matter of principle, work on energized parts, except for intrinsically safe circuits, is prohibited while there is an explosion hazard. - Additionally, the operator is obligated to observe the information concerning operation and maintenance work on the warning signs possibly affixed to the device.
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Malfunction	Possible cause	Error detection / corrective
no output signal	wrong connected	inspect the connection
	line break	inspect all line connections necessary to supply the device (including the connector plugs)
	defective amperemeter (signal input)	inspect the amperemeter (fine-wire fuse) or the analogue input of the PLC
analogue output signal too low	load resistance too high	verify the value of the load resistance
	supply voltage too low	verify the output voltage of the power supply
small shift of output signal	defective energy supply	inspect the power supply and the applied supply voltage at the device careful cleaning with non-aggressive cleaning solution and a soft brush or sponge; incorrect cleaning can cause irreparable damages on diaphragm or seals
	diaphragm is highly contaminated	if possible, it is recommended to send the device to Barksdale GmbH for decalcification or cleaning
large shift of output signal	diaphragm is calcified or coated with deposit	check the diaphragm; if it is damaged, please send the device to Barksdale GmbH for repair
wrong or no output signal	diaphragm is damaged (caused by overpressure or manually)	check the diaphragm; if it is damaged, please send the device to Barksdale GmbH for repair
wrong or no output signal	manually, thermal or chemically damaged cable	check the cable; a possible consequence of a damaged cable is pitting corrosion on the stainless steel housing; if you determine this please return the device to Barksdale GmbH for repair

## 14. EU-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 IBExU10ATEX1142 X   Issue 1	
[4] Product: Pressure measuring device Type: BLP1	
[5] Manufacturer: Barksdale GmbH	
[6] Address: Dom - Assenheimer Str. 27 81203 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-19-3-0019.	
[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:  <b>Ex II 1G Ex ia IIB T4 Ga</b>	
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
By order	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.
Dipl.-Ing. Willamowski	- Seal - (Notified Body number 0637) Freiberg, 2019-08-12
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IBExU Institut für Sicherheitstechnik GmbH An-Institut der TU Bergakademie Freiberg											
[13] Schedule											
[14] Certificate number IBExU10ATEX1142 X   Issue 1											
[15] Description of product	The pressure measuring device type BLP1 is a level sonde in the high-grade steel enclosure with fixed cable connection. The equipment is intended for use in potentially hazardous areas, where category 1G devices are required.										
Technical Data	Ambient temperature range: -25 °C to +70 °C										
Electrical Data	Supply electric circuit in type of protection Intrinsic Safety Ex ia IIC (+ and -) <table border="0"> <tr><td>Ui</td><td>28 V DC</td></tr> <tr><td>Ii</td><td>93 mA</td></tr> <tr><td>Pi</td><td>860 mW</td></tr> <tr><td>Ci</td><td>105 nF</td></tr> <tr><td>Li</td><td>5 µH</td></tr> </table> effective inner capacity plus line inductivities 1 µH/m and line capacities 160 pF/m (cable supplied by the manufacturer)  The supply connections have an internal capacity of max. 140 nF to the housing.  Variations compared to the previous editions of this certificate:  Variation 1 The device fulfills the requirements of the standards EN 60079-0: 2012+A11:2013 and EN 60079-11:2012.  Variation 2 The company name has been changed.	Ui	28 V DC	Ii	93 mA	Pi	860 mW	Ci	105 nF	Li	5 µH
Ui	28 V DC										
Ii	93 mA										
Pi	860 mW										
Ci	105 nF										
Li	5 µH										
[16] Test report	The test results are recorded in the confidential test report IB-18-3-0019 of 2019-08-09.  The test documents are part of the test report and they are listed there.  Summary of the test results The Pressure measuring devices type BLP1 fulfills the requirements of type of protection Intrinsic safety 'ia' on an electrical device for Equipment Group II Category 1G, explosion group IIB and temperature class T4.										
[17] Specific conditions of use	- The safety and assembly instructions contained in the operating instruction and the ambient temperature range -25 °C ≤ T <sub>a</sub> ≤ +70 °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 °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										
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IBExU Institut für Sicherheitstechnik GmbH An-Institut der TU Bergakademie Freiberg	
[19] Drawings and Documents	The documents are listed in the test report.
IBExU Institut für Sicherheitstechnik GmbH Fuchsmühlenweg 7 09599 Freiberg, GERMANY	
By order	
Dipl.-Ing. Willamowski	Freiberg, 2019-08-12
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