1. General information

1.1 Information on the operating manual

The safety instructions and important operating and construction information on proper usage of the device. Read this operating manual carefully and make sure that you understand this before installing and using the device.

1.2符号和缩写

1.2.1 危险性符号 – 危险可能造成严重伤害,但不会造成死亡或重大伤害的符号。
1.2.2 警告符号 – 可能造成人身伤害或财产损失的符号。
1.2.3 注意符号 – 可能造成轻微伤害或小的财产损失的符号。

1.3 Table of contents

1.4 Technical data

1.5 Mechanical installation

1.6 General instructions

2. Product identification

The device can be identified by its manufacturer label and it provides the most important data, by the operating code the product can be clearly identified.

3. Mechanical installation

3.1 Installation steps for DIN 3852

3.2 Installation steps for NPT

3.3 Installation steps for DIN 3852

3.4 Installation steps for M27

3.5 Installation steps for M25

3.6 Installation steps for M22

3.7 Installation steps for M20

3.8 Installation steps for M18

3.9 Installation steps for M16

3.10 Installation steps for M14

3.11 Installation steps for M12

4. Electrical Installation

4.1 Protection against electrostatic charge hazards

4.2 Schematic circuit

4.3 Operating manual

4.4 Functional selection criteria for Zener barrier

10. Disposal

12. Declaration of conformity / CE

13. Specifications for IS-areas

1.1 Technical safety maximum values

- It is prohibited to open a device with field housings

- DANGER! Explosion hazard, with devices for oxygen, hydrogen and other reactive gases, without first determining if the protective housing is to be used as a special version for oxygen applications. You must observe the safety instructions (l. 1.1). If the code exists with ‘O2’ then the device must be used in oxygen environments.

- Ensure that the sealing of the taking off part is perfectly smooth and clean (R.3). Screw the device into the corresponding thread by hand.

- Tighten with a wrench (G1/4” approx. 5 Nm; G3/8” approx. 10 Nm; G1/2” approx. 20 Nm). The indicated tightening torques must not be exceeded!

3.4 Installation steps for EN 60775

- Use a suitable seal, corresponding to the medium and the pressure. (ex. a rubber O-ring)

- Ensure that the sealing of the taking off part is perfectly smooth and clean (R.3). Screw the device into the corresponding thread by hand.

- Tighten with a wrench (G1/4” approx. 5 Nm; G3/8” approx. 10 Nm; G1/2” approx. 20 Nm). The indicated tightening torques must not be exceeded!

3.5 Installation steps for M27

- Use a suitable seal (p. a. O-ring, etc.)

- Screw the device into the corresponding thread by hand.

- Tighten with a wrench (1/4” approx. 30 Nm; G1/2” approx. 50 Nm). The indicated tightening torques must not be exceeded!

3.6 Installation steps for M25

- Use a suitable seal (p. a. O-ring, etc.)

- Screw the device into the corresponding thread by hand.

- Tighten with a wrench (1/4” approx. 30 Nm; G1/2” approx. 50 Nm). The indicated tightening torques must not be exceeded!

3.7 Installation steps for M22

- Use a suitable seal (p. a. O-ring, etc.)

- Screw the device into the corresponding thread by hand.

- Tighten with a wrench (1/4” approx. 30 Nm; G1/2” approx. 50 Nm). The indicated tightening torques must not be exceeded!

3.8 Installation steps for M20

- Use a suitable seal (p. a. O-ring, etc.)

- Screw the device into the corresponding thread by hand.

- Tighten with a wrench (1/4” approx. 30 Nm; G1/2” approx. 50 Nm). The indicated tightening torques must not be exceeded!

3.9 Installation steps for M18

- Use a suitable seal (p. a. O-ring, etc.)

- Screw the device into the corresponding thread by hand.

- Tighten with a wrench (1/4” approx. 30 Nm; G1/2” approx. 50 Nm). The indicated tightening torques must not be exceeded!

3.10 Installation steps for M16

- Use a suitable seal (p. a. O-ring, etc.)

- Screw the device into the corresponding thread by hand.

- Tighten with a wrench (1/4” approx. 30 Nm; G1/2” approx. 50 Nm). The indicated tightening torques must not be exceeded!

3.11 Installation steps for M14

- Use a suitable seal (p. a. O-ring, etc.)

- Screw the device into the corresponding thread by hand.

- Tighten with a wrench (1/4” approx. 30 Nm; G1/2” approx. 50 Nm). The indicated tightening torques must not be exceeded!

3.12 Installation steps for M12

- Use a suitable seal (p. a. O-ring, etc.)

- Screw the device into the corresponding thread by hand.

- Tighten with a wrench (1/4” approx. 30 Nm; G1/2” approx. 50 Nm). The indicated tightening torques must not be exceeded!

3.13 Installation steps for M10

- Use a suitable seal (p. a. O-ring, etc.)

- Screw the device into the corresponding thread by hand.

- Tighten with a wrench (1/4” approx. 30 Nm; G1/2” approx. 50 Nm). The indicated tightening torques must not be exceeded!

3.14 Installation steps for M8

- Use a suitable seal (p. a. O-ring, etc.)

- Screw the device into the corresponding thread by hand.

- Tighten with a wrench (1/4” approx. 30 Nm; G1/2” approx. 50 Nm). The indicated tightening torques must not be exceeded!

3.15 Installation steps for M6

- Use a suitable seal (p. a. O-ring, etc.)

- Screw the device into the corresponding thread by hand.

- Tighten with a wrench (1/4” approx. 30 Nm; G1/2” approx. 50 Nm). The indicated tightening torques must not be exceeded!

3.16 Installation steps for M5

- Use a suitable seal (p. a. O-ring, etc.)

- Screw the device into the corresponding thread by hand.

- Tighten with a wrench (1/4” approx. 30 Nm; G1/2” approx. 50 Nm). The indicated tightening torques must not be exceeded!

3.17 Installation steps for M4

- Use a suitable seal (p. a. O-ring, etc.)

- Screw the device into the corresponding thread by hand.

- Tighten with a wrench (1/4” approx. 30 Nm; G1/2” approx. 50 Nm). The indicated tightening torques must not be exceeded!

3.18 Installation steps for M3

- Use a suitable seal (p. a. O-ring, etc.)

- Screw the device into the corresponding thread by hand.

- Tighten with a wrench (1/4” approx. 30 Nm; G1/2” approx. 50 Nm). The indicated tightening torques must not be exceeded!
### 9. Service / Repair

#### 9.1 Recalibration

During the life-time of a transmitter, the value of offset and span may drift. As a consequence, a deviating signal value in relation 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 further high system accuracy.

#### 9.2 Return

Before every return of your device, whether for recalibration, decalcification, modifications or repair, it has to be cleaned carefully and packed stack-packed. You have to enclose a notice of return with detailed description when sending the device. If your device came in contact with harmful substances, the declaration of decontamination is additionally required. Appropriate forms can be downloaded from our homepage www.bdsensors.com. Should you dispatch a device without a declaration of decontamination and if there are any doubts in our service department regarding the use of the device, this device will not be started and an appropriate declaration is sent.

If the device came in contact with hazardous substances, certain precautions have to be complied with for purification!

#### 9.3 Disposal

The device must be disposed according to the European Directives 2002/96/EG and 2003/108/EG (on waste electrical and electronic equipment) Waste of electrical and electronic equipment may not be disposed by domestic refuse! Please note for devices with ISO 4400 plug and cable socket, that the socket has to be mounted properly to ensure the ingress protection mentioned in the data sheet. Please check if the delivered seal is placed between plug and cable socket. After connecting the cable to the cable socket on the device by using the screws.

On devices with field housings, the terminal clamps are situated under the metal cap. To install the device electrically, the cap must be screwed off. Before the cover is screwed on again, the o-ring and the sealing surfaces on the housing have to be checked for damages and if necessary to be changed! Afterwards screw the metal cap on again, the o-ring and the sealing surfaces have to be checked for damages and if necessary to be changed! Afterwards screw the metal cap on again.

### 13. Explanation for the certificate

To item [12] of the EC type-examination “The marking of the equipment mentioned in [4] must include one of the following details.”

**Equipment group**

<table>
<thead>
<tr>
<th>Explosion protection</th>
<th>E</th>
<th>II B</th>
<th>II C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>H</td>
<td>IIC</td>
<td>IIC</td>
</tr>
<tr>
<td></td>
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<td>IIC</td>
<td>IIC</td>
</tr>
</tbody>
</table>

**Equipment category**

<table>
<thead>
<tr>
<th>Zone 0 – Gase, vapor, gas</th>
<th>Zone 1 – Gase, vapor, gas</th>
<th>Zone 20 – Dust</th>
<th>Zone 21 – Dust</th>
</tr>
</thead>
<tbody>
<tr>
<td>1G</td>
<td>2G</td>
<td>1D</td>
<td>2D</td>
</tr>
</tbody>
</table>

**Zone**

- Zone 1: dust
- Zone 20: inflammable dust
- Zone 0: explosive gases and vapors
- Zone 11: explosive dust
- Zone 12: explosive gas
- Zone 21: dust explosive
- Zone 22: dust explosive
- Zone 23: dust explosive
- Zone 24: dust explosive

### 14. Error handling

**DANGER!** Working on supplied (active) parts, except for intrinsically safe circuits, is principally prohibited during an explosion hazard. Additionally, the operator is obliged to observe the information concerning operation and maintenance work on the warning signs possibly affixed to the device. Improper action and opening can damage the device. Therefore repairs on the device may only be executed by the manufacturer!

If you detect an error, please try to follow the table and send the device to our service address for repair.

**WARNING!** Before start-up, the device has to be cleaned carefully and packed stack-packed.

Please note for devices with ISO 4400 plug and cable socket, that the socket has to be mounted properly to ensure the ingress protection mentioned in the data sheet. Please check if the delivered seal is placed between plug and cable socket. After connecting the cable to the cable socket on the device by using the screws.

For devices with cable gland as well as cable socket, you have to make sure that the external diameter of the used cable is within the allowed stopping range. Moreover you have to ensure that it lies in the cable gland firmly and safely.

For the installation of a device with cable outlet following bending radii have to be complied with:

- 15mm cable diameter: dynamic application 12-fold cable diameter with ventilation tube:
- static installation: 10-fold cable diameter dynamic application 20-fold cable diameter with ventilation tube:

Please note for devices with ISO 4400 plug and cable socket, that the socket has to be mounted properly to ensure the ingress protection mentioned in the data sheet. Please check if the delivered seal is placed between plug and cable socket. After connecting the cable to the cable socket on the device by using the screws.

On devices with field housings, the terminal clamps are situated under the metal cap. To install the device electrically, the cap must be screwed off. Before the cover is screwed on again, the o-ring and the sealing surfaces on the housing have to be checked for damages and if necessary to be changed! Afterwards screw the metal cap on again, the o-ring and the sealing surfaces have to be checked for damages and if necessary to be changed! Afterwards screw the metal cap on again.

For the installation of a device with cable outlet following bending radii have to be complied with:

- 15mm cable diameter: dynamic application 12-fold cable diameter with ventilation tube:
- static installation: 10-fold cable diameter dynamic application 20-fold cable diameter with ventilation tube:

www.bdsensors.com. Additionally, the operational safety is confirmed by the CE sign on the manufacturing label.