Sensor module, Type 17-51P2-....

Operating instructions

Document No. 11-51P2-7D0001   Version: 17 May 2011/Rev. 0
Operating Instructions

Sensor-Module

Type: 17-51P2-....

Document no.: 11-51P2-7D0001
Version: 17. May 2011 / Rev. 0

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Reservation: Technical data subject to change without notice. Changes, errors and misprints may not be used as a basis for any claims for damages.
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<td>13.3</td>
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</table>
1 Safety

1.1 This Manual

It is essential to read and observe the contents of this documentation and this chapter in particular before you install and operate the sensor module unit. This manual contains the information required to use the control unit in accordance with its intended purpose. It is addressed to technically qualified personnel. Familiarity with and the technically perfect implementation of the safety instructions and warnings described in this manual are preconditions for safe installation and commissioning. The safety notes and warnings in this documentation are given in a general way and only qualified personnel will have the necessary specialised know-how to interpret and implement them correctly in specific individual cases.

This manual is an integral part of the scope of supply even if for logistical reasons it can be ordered and delivered separately. If you need any further information, please ask the BARTEC branch that is near you or responsible for your area.

Particularly important points in this documentation are marked with a warning symbol:

⚠️ DANGER
The DANGER sign draws attention to a DANGER which will lead to death or serious injury if not avoided.

⚠️ WARNING
WARNING draws attention to a danger which can lead to death or serious injury if it is not avoided.

⚠️ CAUTION
CAUTION draws attention to a danger which can lead to an injury if it is not avoided.

⚠️ ATTENTION
ATTENTION draws attention to measures which should be taken to prevent damage to property.

ℹ️ Note
Important instructions and information on effective, economical and environmentally compatible handling.
1.1.1 Languages

The original operating instructions were written in German. All other available languages are translations of the original operating instructions.

The operating instructions are available in various languages. They are enclosed with the product in the languages German, English, French, Italian, Spanish and Russian. If you require any other languages, please ask BARTEC or request them when placing the order.

1.2 Handling the Product

The product described in these operating instructions has been tested and left the factory in perfect condition as regards meeting safety requirements. To maintain this condition and ensure that this product operates perfectly and safely, use it only in the manner described by the manufacturer. Appropriate transportation, suitable storage and careful operation are also essential for the perfect and safe operation of this product.

The sensor module must be mounted properly and securely into the APEX control unit if it is to work perfectly and correctly.

1.3 Use in Accordance with the Intended Purpose

1.3.1 Exclusive Purpose

The sensor module serves exclusively as a controlling and monitoring device for pressurised enclosures and is intended for use in Explosion Group II, category 2G and Temperature Class T4 or T6.

The permissible operating data for the device being used must be observed.

1.3.2 Improper Use

Any other use is not in accordance with the intended purpose and can cause damage and accidents. The manufacturer will not be liable for any use beyond that of its exclusive intended purpose.

1.4 Operator’s Obligations

The operator undertakes to restrict permission to work on the sensor module to people who:

- are familiar with the basic regulations on safety and accident prevention and have been instructed in the use of the APEX control unit;
- have read and understood the documentation, the chapter on safety and the warnings.
- The owner/managing operator checks that the safety regulations and accident prevention rules applicable to the respective application are being observed.
1.5 Safety Instructions

1.5.1 General Safety Instructions

- Do not wipe devices with a dry cloth or clean them in a hazardous area!
- Do not open devices in a hazardous area.
- The general statutory regulations or directives relating to safety at work, accident prevention and environmental protection legislation must be observed, e.g. the German industrial health and safety ordinance (BetrSichV) or the applicable national ordinances.
- In view of the risk of dangerous electrostatic charging, wear appropriate clothing and footwear.
- Avoid the influence of heat that is higher or lower than the specified temperature range.
- Keep the devices away from moisture.

1.5.2 Safety Instructions for Operation

Upkeep

- For electrical systems the relevant installation and operating regulations must be complied with (e.g. Directive 99/92/EC, Directive 94/9/EC, German industrial health and safety ordinance (BetrSichV), the applicable national ordinances IEC 60079-14 and the DIN VDE 0100 series)
- The disposal of this equipment must comply with the national regulations on the disposal of waste.

Maintenance

- Regular maintenance is not necessary if the device is operated correctly, in accordance with the installation instructions and environmental conditions. See Chapter on "Maintenance and Care".

Inspection

- Under IEC 60079-19 and EN 60079-17, the owner/managing operator of electrical installations in hazardous areas is obliged to have these installations checked by a qualified electrician to ensure that they are in a proper condition.

Repairs

- Repairs on explosion-protected operating equipment may be done only by authorised persons working in accordance with the latest developments in technology and using original spare parts. The relevant regulations must be observed.

Commissioning

- Before commissioning, check that all components and documents are there.
1.6 Standards Conformed To

The sensor module conforms to Directive 94/9/EC for devices and protective systems for use for their intended purpose in hazardous areas (ATEX Directive). Pursuant to this directive, the following standards serve as a basis for the sensor module:

<table>
<thead>
<tr>
<th>Standard</th>
<th>Designation</th>
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<tbody>
<tr>
<td>EN 60079-0:2006</td>
<td>Electrical apparatus for explosive gas atmospheres. Part 0: General Requirements</td>
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<tr>
<td>IEC 60079-0:2007-10 (Edition: 5)</td>
<td>Explosive Atmospheres - Part 0: General Requirements</td>
</tr>
<tr>
<td>EN 61000-6-2:2005</td>
<td>Electromagnetic Compatibility (EMC) - Part 6-2: Generic standards - Immunity for Industrial environments</td>
</tr>
<tr>
<td>EN 61000-6-4:2007</td>
<td>Electromagnetic Compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments</td>
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<tr>
<td>EN 50011:2009 class A</td>
<td>Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement</td>
</tr>
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</table>

1.7 Ex Protection Type and Certification

The following markings showing Ex protection and certification are affixed to the device:

<table>
<thead>
<tr>
<th>ATEX</th>
<th>IECEx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ex II 2G Ex ib IIC T4 bzw. T6 DMT 99 ATEX E 108 X</td>
<td>Ex ib IIC T4 / T6 IECEx BVS 09.0055X</td>
</tr>
</tbody>
</table>

1.7.1 Special conditions

The assembly or seal plate, to which the sensor module is fastened, must be electrostatically grounded. Without grounding can be done, if the sensor module built to the requirements of the EN 60079-0 into a metal housing or a housing that’s correspond.
1.8 Warranty

⚠️ WARNING

Risk of death or serious injury if the control is modified or converted without the manufacturer’s approval.

Explosion protection and the necessary stress tolerance and conformance to safety requirements of the design and production are no longer assured then.

➢ Before making any modifications or implementing any conversions, contact the manufacturer and obtain written approval.
➢ Use only original spare parts and original expendable parts.

ℹ️ Note

Scope of warranty

The manufacturer grants a complete guarantee only and exclusively for the spare parts ordered from the manufacturer.

As a basic rule, our “General Conditions of Sale and Delivery” apply. These are available to the owner/managing operator at the latest on formation of a contract. Guarantee and liability claims for personal injury and damage to property are excluded if they are due to one or more of the following reasons:

- use of the sensor module for a purpose other than that for which it is intended.
- incorrect installation, commissioning, operation and maintenance of the sensor module.
- non-compliance with the instructions in the manual with respect to transport, storage, assembly, commissioning, operation and maintenance.
- structural modifications to the sensor module without our prior authorization.
- inadequate monitoring of components that are subject to wear.
- repairs done incorrectly.
- disasters due to the effects of foreign matter or force majeure.

We guarantee the sensor module and its accessories for a period of 1 year starting on the date of delivery from the Bad Mergentheim factory. This guarantee covers all parts of the delivery and is restricted to the replacement free of charge or the repair of the defective parts in our Bad Mergentheim factory. As far as possible, the delivery packaging should be kept for this purpose. In the event of such a claim, the goods must be returned to us after written arrangement. The customer cannot claim to have the repairs done at the site of installation.
2 Product description

The sensor module is always a component of an Ex p control unit APEX. It serves to measure and display the system pressure levels and parameters. In addition, the system parameters in the Ex p control module can be changed by means of the sensor module. It can be mounted either inside the Ex p control unit APEX (“installation” variant) or externally onto the pressurized cabinet (“attachment” variant). There are also various variants in terms of measuring range.

2.1 Operation

Operating voltage is supplied to the sensor module by means of the Ex p control module. Three pressure sensors are accommodated in the sensor module for measuring the system pressure levels prevailing in the Ex p operating equipment, such as minimum pressure, positive pressure and differential pressure.

The measured pressure levels are processed in the Ex p control module and displayed on the LCD in the sensor module.

The following diagram shows the entire Ex p control unit APEX with its assemblies. The interaction between the assemblies can be seen in this diagram:

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<thead>
<tr>
<th>Item</th>
<th>Assembly</th>
</tr>
</thead>
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<tr>
<td>1</td>
<td>Pressure outlet device</td>
</tr>
<tr>
<td>2</td>
<td>Sensor module (pressure measurement)</td>
</tr>
<tr>
<td>3</td>
<td>Sensor module (electronics)</td>
</tr>
<tr>
<td>4</td>
<td>Control module</td>
</tr>
</tbody>
</table>
2.2 Sensor module - installation variant

This variant is intended for fitting into an Ex p control unit APEX.

2.3 Sensor module - attachment variant

This variant is intended for installation in wall of pressurized cabinet.
3 Mounting

The sensor module can be fitted into an Ex p control unit APEX or mounted into a wall of pressurized cabinet. The two assembly variants are described in the following.

3.1 Mounting the sensor module - installation variant

**ATTENTION**

Attention by use of a wrong type.
If you use a wrong type the control module can be damaged.

- Check type and variant.

The “installation” variant of the sensor module is always intended for replacing a defective sensor module in an Ex p control unit APEX since the Ex p control unit APEX is always delivered with a sensor module.

When replacing the sensor module in the Ex p control unit APEX, please proceed in accordance with the following instructions.

1. Open the APEX control unit

- Loosen the four cross-head screws at the corners of the enclosure and take the cover off the device.

2. Take the sensor module out

- Loosen the core wires on the control module (terminals 1 to 12).
- Pull the measuring hoses out of the quick plug-in connectors.
- Loosen the screws on the top right and bottom left of the sensor module.
- Pull the sensor module upwards and out.

3. Sensor module has been taken out

- The space for the sensor module is now free. The new sensor module can be fitted.
4. Mount the sensor module

- Insert the sensor module.
- Use the right top and left bottom screw to fasten the sensor module on the Ex p control unit APEX’s mounting plate.
- Insert the measuring hoses from the pressure monitor into the sensor module.

5. Connect core wires

- Connect the core wires (terminals 1 to 12).

3.2 Mounting the sensor module - attachment variant

**ATTENTION**

Attention by use of a wrong type.
If you use a wrong type the control module can be damaged.

- Check type and variant.

To assemble the sensor module, a cut-out is made in the wall of the pressurized cabinet (4), as described in the appendix. The mounting frames are used to fasten the sensor module in this cut-out.

4 threaded bolts M4 (1) are available for attaching the sensor module. The threaded bolts (2, 3) are provided for earthing the sensor module appropriately, whereby threaded bolt 2 serves to earth the mounting frame and threaded bolt 3 to earth the electronics.

The sensor module of the “attachment” variant is a remote version of sensor module and is mounted on the Ex p operating equipment. In this variant the Ex p control unit APEX is fitted inside the pressurized cabinet.

The assembly/disassembly and connection must be done in accordance with the following description.

1. Make a cut-out (when mounting for the first time)

Make a cut-out for the sensor module in the wall of pressurized enclosure. The drilling pattern for mounting the sensor module is provided as an appendix.
2. Mount the sensor module

Insert the sensor module with holding frame into the cut-out. Screw the sensor module on from the rear with 4 x M4 nuts plus retaining rings.

![Image of sensor module]

The lower middle dowel pin is intended for the earthing connection. Use an M4 nut to fasten the earthing connection to the dowel pin.

3. Connecting the sensor module's core wires

**NOTE**

For this purpose, use blue cable glands because the signals between the control module and the sensor module are "intrinsically safe".

Lay the connecting cable for the sensor module into the Ex p control unit APEX and clamps the individual veins from the cable after their numbering at the clamps 1 to 12 up.

4. Mounting the atmosphere connection

To enable the Ex p control unit APEX to measure the system pressure levels correctly, an atmospheric measuring point must be set for the internal fitting variant. All parts required for this are included in the scope of supply for the sensor module.

To fasten the atmospheric measuring point, a 9.3-mm-diameter borehole is made in the wall of the pressurised housing (3).

![Diagram of atmosphere connection]

The screw plug (1) with a 1-mm-diameter borehole and sealing ring (2) is inserted through the borehole and screwed in from the rear with a sleeve (4) and a sealing ring (2). On the opposite side of the sleeve, a quick plug-in connector (5) is screwed in to hold the measuring line. This is shown in the following diagram.
5. Connect the measuring hoses to the sensor module

Use one measuring hose to connect the sensor module to the pressure outlet device and another to connect it to the atmospheric connection. These measuring hoses are used to measure the volume flow during the purging procedure.
4 Connections

4.1 Pneumatic connections

For correct functioning when using an Ex p control unit APEX for internal installation, measuring lines must be laid between the atmospheric pressure, pressure monitor and the sensor module.

On the Ex p control unit APEX for external mounting, these measuring lines are connected as standard and the user does not need to produce them.

4.1.1 Pneumatische Signale des Sensor-Moduls

<table>
<thead>
<tr>
<th>Marking</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Atmosphere measurement (ambient pressure)</td>
</tr>
<tr>
<td>H</td>
<td>Measurement of pressure in the pressurized cabinet</td>
</tr>
<tr>
<td>L</td>
<td>Measurement after orifice in the pressure outlet device (flow)</td>
</tr>
</tbody>
</table>
4.2  Electrical connections

4.2.1  Rules for wiring to the APEX 2003 controller

⚠️ DANGER
Risk of fatal injury when enclosure covers are opened.
The cover on the APEX control unit must not be opened in a hazardous (potentially explosive) atmosphere!

- Before opening any lids on the enclosure, check the atmosphere for the presence of any explosive gases.

⚠️ ATTENTION
All core wires, including those not required, must be connected to a terminal.
Lay the wires only in the space between the shield and the connecting terminals. The wires must not jut out / protrude. There must not be any loose wires in the APEX control unit.

- Check the connections.

The following describes how to feed and connect cables to the APEX control unit:

Procedure:
- Loosen the fastening screws (4 screws) on the lid of the APEX control unit and take off the lid.
- Feed the supply, data and enable line through the cable glands into the Ex e junction box.
- Establish the electrical connections in accordance with the terminal assignment. Screw the terminals in securely with 0.4 - 0.6 Nm.
- Put the shields and earthing connections onto the shield bus.
- Use appropriate closures to seal cable glands that are not in use.
- Tighten cable glands with 3.0 Nm.
- Put the lid onto the APEX control unit and tighten the 4 fastening screws with 1.4 Nm.
4.2.2 Sensor module connection (terminals 1 to 12) - intrinsically safe -

In the Ex p control unit APEX for external mounting, the sensor module is integrated and connected in the controller as standard. For the Ex p control unit APEX variant for internal assembly the sensor module must be connected by the user.

The sensor module for mounting in the Ex p operating equipment is equipped with a connection cable as standard. The wires are numbered 1 to 12 and must be connected, one by one, to terminals 1 to 12 in the Ex p control unit APEX on the control module.

4.2.3 Elektrische Signale des Sensormoduls

<table>
<thead>
<tr>
<th>Core</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Display control</td>
</tr>
<tr>
<td>2</td>
<td>Display control</td>
</tr>
<tr>
<td>3</td>
<td>Display control</td>
</tr>
<tr>
<td>4</td>
<td>“SET” button</td>
</tr>
<tr>
<td>5</td>
<td>“+” button</td>
</tr>
<tr>
<td>6</td>
<td>“-” button</td>
</tr>
<tr>
<td>7</td>
<td>Supply voltage DC 24V</td>
</tr>
<tr>
<td>8</td>
<td>Mass</td>
</tr>
<tr>
<td>9</td>
<td>“MIN B” pressure measurement</td>
</tr>
<tr>
<td>10</td>
<td>Mass</td>
</tr>
<tr>
<td>11</td>
<td>“DIFF A” pressure measurement</td>
</tr>
<tr>
<td>12</td>
<td>“MIN A” pressure measurement</td>
</tr>
<tr>
<td>PE</td>
<td>Earthing connection</td>
</tr>
</tbody>
</table>
5  Operation

To commission the Ex p control unit APEX correctly, follow the relevant operating instructions for the Ex p control unit APEX.

The sensor module serves to set parameters on the control module for the Ex p control unit APEX.

For this purpose there are 3 buttons on the sensor module. The functions of the individual buttons are explained in the following section.

5.1  Sensor module buttons

<table>
<thead>
<tr>
<th>Item</th>
<th>Designation</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Set button</td>
<td>to save parameters</td>
</tr>
<tr>
<td></td>
<td>- button</td>
<td>decreases levels and parameters gradually</td>
</tr>
<tr>
<td></td>
<td>+ button</td>
<td>increases values and parameters gradually</td>
</tr>
<tr>
<td>1</td>
<td>1st display line</td>
<td>Shows the “actual” values</td>
</tr>
<tr>
<td>2</td>
<td>2nd display line</td>
<td>Measured value/unit</td>
</tr>
<tr>
<td>3</td>
<td>3rd display line</td>
<td>Shows the “setpoint” levels</td>
</tr>
</tbody>
</table>

The (+), (-) and (SET) buttons are used for altering and saving the switching values selected with S 1.

Pressing the + or - button once changes the level by 0.1 mbar. The saved value is marked by “*”.

Setting the - S1 rotary switch to position 8 or 9 programs the functions of relays K 4 and K 5.
5.2 Changing values

The following describes how the parameters inside the Ex p control unit APEX can be adjusted. The internal pressure DP1 serves as an example here:

- Turn S 1 on the control module to position 0.
- Install the programming jumper between terminals 23 and 24.
- Press the + or - buttons on the sensor module to change the DP 1 value.
- The new value is saved by pressing “SET” on the sensor module, indicated by (*).
- Remove the jumper between terminals 23 and 24.
- Switch the Ex p control unit APEX off and on again by means of rotary switch S5.

Use the same procedure to change the switching values and functions of DIFF A (item 1) to K 5 (item 9).
6 Commissioning

<table>
<thead>
<tr>
<th>ACHTUNG</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACHTUNG</strong> Sachschäden durch Fehlerhafte Inbetriebnahme.</td>
</tr>
<tr>
<td>Durch Nichtbeachtung der Betriebsanleitung des Steuergerätes APEX ist eine Fehlbedienung möglich.</td>
</tr>
<tr>
<td>➢ Zugehörige Betriebsanleitung zum Steuergerät APEX zu beachten.</td>
</tr>
</tbody>
</table>

7 Operation

8 Maintenance and care

**Hinweis**

Do not use any aggressive, abrasive or dissolving detergents.

Check at regular intervals that the LCD display is functioning correctly.

Use a damp cloth to clean the front plate regularly or as required.

<table>
<thead>
<tr>
<th>Item</th>
<th>Test point</th>
<th>Commissioning OK</th>
<th>Main-tenance OK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Visual inspection for damage to the enclosure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Mounting of the sensor module in accordance with the operating instructions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Inspection or establishment of the equipotential bonding of the Ex p enclosure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Inspection of the wiring in accordance with the relevant directives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Test for correct functioning</td>
<td></td>
<td></td>
</tr>
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</table>
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<table>
<thead>
<tr>
<th>Fault</th>
<th>Possible cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>No display</td>
<td>Ex p control unit APEX not switched on</td>
<td>Check that the Ex p control unit APEX is functioning correctly.</td>
</tr>
<tr>
<td>Display shows incorrect values</td>
<td>Pressure sensor defective</td>
<td>Service by BARTEC GmbH</td>
</tr>
<tr>
<td>Button not functioning</td>
<td>Button defective</td>
<td>Replace sensor module</td>
</tr>
</tbody>
</table>
## 10 Technical data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>17-51P2-..../....</td>
</tr>
<tr>
<td>Type of protection</td>
<td>Ex ib IIC T4 or T6</td>
</tr>
<tr>
<td>Area of use</td>
<td>Ex II 2G</td>
</tr>
<tr>
<td>Measuring range</td>
<td>0…25, 300, 1000 mbar</td>
</tr>
<tr>
<td>Supply circuit (wires 7 and 8)</td>
<td></td>
</tr>
<tr>
<td>- Voltage</td>
<td>DC 30V</td>
</tr>
<tr>
<td>- effective internal capacitance</td>
<td>50 nF</td>
</tr>
<tr>
<td>- effective internal inductance</td>
<td>negligible</td>
</tr>
<tr>
<td>Supply circuit LCD (wires 1 and 10)</td>
<td></td>
</tr>
<tr>
<td>- Voltage</td>
<td>DC 7.5 V</td>
</tr>
<tr>
<td>- Amperage</td>
<td>10 mA</td>
</tr>
<tr>
<td>- Power</td>
<td>20 mW</td>
</tr>
<tr>
<td>- effective internal capacitance</td>
<td>negligible</td>
</tr>
<tr>
<td>- effective internal inductance</td>
<td>negligible</td>
</tr>
<tr>
<td>Signal circuits (wires 2-6 and 9,11 and 12)</td>
<td></td>
</tr>
<tr>
<td>- Voltage</td>
<td>DC 7.5V</td>
</tr>
<tr>
<td>- effective internal capacitance</td>
<td>1 µF</td>
</tr>
<tr>
<td>- effective internal inductance</td>
<td>negligible</td>
</tr>
<tr>
<td>Combined supply and signal circuits</td>
<td>250 mA</td>
</tr>
<tr>
<td>- maximum total amperage</td>
<td>1.2 W</td>
</tr>
<tr>
<td>Permissible ambient temperatures</td>
<td>T_a: -20°C to +60°C</td>
</tr>
<tr>
<td>Dimensions</td>
<td></td>
</tr>
<tr>
<td>- internal</td>
<td>70 x 70 x 60 mm [L x W x D]</td>
</tr>
<tr>
<td>- external</td>
<td>95 x 95 x 85 mm [L x W x D]</td>
</tr>
<tr>
<td>Weight</td>
<td></td>
</tr>
<tr>
<td>- internal</td>
<td>approx. 200 g</td>
</tr>
<tr>
<td>- external</td>
<td>approx. 500 g</td>
</tr>
<tr>
<td>Type of protection</td>
<td></td>
</tr>
<tr>
<td>- back</td>
<td>min. IP20 after mounting</td>
</tr>
<tr>
<td>- front</td>
<td>min. IP54 after mounting</td>
</tr>
</tbody>
</table>
## Order numbers

<table>
<thead>
<tr>
<th>Type</th>
<th>Measuring range [mbar]</th>
<th>internal</th>
<th>external</th>
<th>T4</th>
<th>T6</th>
<th>Assembly</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-51P2-1100</td>
<td>0 – 25</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17-51P2-1200</td>
<td>0 – 300</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17-51P2-1300</td>
<td>0 – 1000</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>17-51P2-2100</td>
<td>0 – 25</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>17-51P2-2200</td>
<td>0 – 300</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>17-51P1-2300</td>
<td>0 – 1000</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>17-51P2-3100</td>
<td>0 – 25</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>17-51P2-3200</td>
<td>0 – 300</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>17-51P2-3300</td>
<td>0 – 1000</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>17-51P2-4100</td>
<td>0 – 25</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>17-51P2-4200</td>
<td>0 – 300</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>17-51P1-4300</td>
<td>0 – 1000</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
12 Appendix

12.1 Drilling pattern for the sensor module
13 Declaration of Conformity and Approval

13.1 Declaration of EC Conformity

Erklärung der Konformität
Declaration of Conformity
Attestation de conformité

BARTEC GmbH
Max-Eyth-Straße 16
97980 Bad Mergentheim
Germany

N° 11-51P2-7C0001

Wir erklären in alleiniger Verantwortung, dass das Produkt 17-51P2-****
sowie die in dieser Erklärung genannten Anforderungen der folgenden Richtlinien (RL) entsprechen.

ATEX-Richtlinie 94/9/EG
EMV-Richtlinie 2004/108/EG
und mit folgenden Normen oder normativen Dokumenten übereinstimmen:
EN 60079-0:2009
EN 60079-11:2007

Sensor Module
Sensor-Modul
module capteur

17-51P2-****
to which this declaration relates is in accordance with the provision of the following directives (D)
and is in conformity with the following standards or other normative documents

EN 61000-6-2:2005
EN 61000-6-4:2007
EN 55011:2009 Klasse A

Kennzeichnung
Marking
Marquage

ATEX-Directive 94/9/EC
EMC-Directive 2004/108/EC
ATEX-Directive 94/9/CE
CEM-Directive 2004/108/CE

Verfahren der EG-Baumusterprüfung / Benannte Stelle
DMT 99 ATEX E 108 X
0155, DEKRA EXAM, Dinnendahlstrasse 9, 44809 Bochum, D

ppa. Ewald Warmuth
Geschäftsführung / General Manager

Bad Mergentheim, den 05.10.2008

Technical data subject to change without notice. Version: Revision 0/May 2011

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13.2  EC Type Examination Certificate

1st Supplement
(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate
DMT 99 ATEX E 108 X

Equipment: Sensor Module type 17-51P2-****/***
Manufacturer: BARTEC GmbH
Address: 97980 Bad Mergentheim, Germany

Description
The circuitry can be modified slightly and the module has been tested in accordance with the standards EN 60079-**.

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:
EN 60079-0:2009  General requirements
EN 60079-11:2007  Intrinsic safety

The marking of the equipment shall include the following:
- II 2G Ex ib IIC T4  for types 17-51P2-1-****/*** and 17-51P2-2-****/***
- II 2G Ex ib IIC T6  for types 17-51P2-3-****/*** and 17-51P2-4-****/***

Special conditions for safe use
1. The mounting plate or cover plate should be connected to ground or should be installed in a separate housing.
2. The protection of the single wire of Type 17*-51P2-1-****/*** and 17*-51P2-3-****/*** should be guaranteed.
Test and assessment report
BVS PP 99.2105 EG as of 02.11.2009

DEKRA EXAM GmbH
Bochum, dated 02. November 2009

Signed: Dr. Eickhoff
Certification body

Signed: Ruhm
Special services unit

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

44809 Bochum, 02. November 2009
BVS-Schul/Her A 20090798

DEKRA EXAM GmbH

Certification body

Special services unit
13.3 IECEx Certificate

IECEx Certificate
of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx BVS 09.0055X
Status: Current
Data of Issue: 2009-11-11
Applicant: BARTEC GmbH
Max-Eyth-Strasse 16,
97980 Bad Mergentheim
Germany

Electrical Apparatus: Sensor module type 17-51P2-********
Optional accessory:

Type of Protection: protection by intrinsic safety "T"

Marking: Ex ib IIC T4 or Ex ib IIC T6

Approved for issue on behalf of the IECEx Certification Body: Pilar Mijangos
Position: Deputy Head of Certification Body
Signature: (for printed version)
Date: 14.11.2009

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 the Official IECEx Website.

Certificate issued by:

DEKRA EXAM GmbH
Dinnendahlstrasse 9
44809 Bochum
Germany

Technical data subject to change without notice.
Version: Revision 0/May 2011
IECEx Certificate of Conformity

Certificate No.: IECEx BV5.0555
Date of issue: 2009-11-11
Issue No.: 0

Manufacturer: BARTEC GmbH
Max-Eyth-Strasse 16,
97480 Bad Mergentheim
Germany

Manufacturing location(s):
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 electrical apparatus 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 : 2007-10 Explosive atmospheres - Part 0: Equipment - General requirements
Edition: 5
IEC 60079-11 : 2006 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety “i”
Edition: 5

This Certificate does not indicate compliance with electrical 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/BV5/EXTR09.005400

Quality Assessment Report:
DE/UNI/AR06.0017/00
IECEx Certificate of Conformity

Certificate No.: IECEx BVS:09.0055X
Date of Issue: 2009-11-11
Issue No.: 0

Schedule

General product information:
Type 17.51P2-****** serves as Control- and Display device for pressure measuring, transformation of pressure signals into proportional electrical signals, input of parameters, visual display of data and transfer of data to superior devices. It consists of a plastic enclosure with mounting plate or cover plate and internal fixed assemblies.
Type 17.51P2-3******* and 17.51P2-4******* are completely moulded. There are pneumatic hose connectors outside the enclosure which can be made out of metal or plastic. The electrical connection could be single wires (Type 17.51P2-1******* and 17.51P2-2*******), or one cable (Type 17.51P2-2******* and 17.51P2-4*******).

Electrical parameters
1 Power supply circuit (wires no. 7 and 8)
   voltage
   effective internal capacitance
   effective internal inductance
   Ul DC 30 V
   Cl 50 nF
   Li negligible

2 Power supply circuit 2 LCD (wires no. 1 and 10)
   voltage
   effective internal capacitance
   effective internal inductance
   Ul DC 7.5 V
   Cl 19 mA
   Li negligible

3 Signal circuit (wires 2, 6 and 9, 11 and 12)
   voltage
   effective internal capacitance
   effective internal inductance
   Ul DC 7.5 V
   Cl 15 µF
   Li negligible

4 Power supply and signal circuits connected
   Maximum sum of current 250 mA
   maximum sum of power 1.2 W

5 Ambient temperature range Ta - 20 °C up to + 60 °C

CONDITIONS OF CERTIFICATION: YES as shown below:
The mounting plate or cover plate should be connected to the ground or should be installed in a separate housing. The protection of the single wire of Type 17.51P2-1******* and 17.51P2-3******* should be guaranteed.

Type Code
See Annex

Annex B: BVS_06_0055X_Bartec_Annex.pdf
IECEx Certificate of Conformity

Certificate No.: IECEx BV5 09.0055X
Annex
Page 1 of 1

Type Code:

Instead of the *** in the complete denomination letters or numerals will be inserted which characterize modifications:

Type 17-51P2-*****

Numerals and letters without influence on explosion protection

Numerical for pressure range
1 = 0 to 25 mbar
2 = 0 to 300 mbar
3 = 0 to 1000 mbar

Numerical for mounting
1 = standard, temperature class T4
2 = front panel, temperature class T4
3 = standard, temperature class T6
4 = front panel, temperature class T6
BARTEC protects people and the environment by the safety of components, systems and plants.