

Translation of the original instructions

Piezoelectric sensors

DAC XXX



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READ CAREFULLY PRIOR TO USE
RETAIN FOR FUTURE REFERENCE

ID: BA_DAC_E | Version: 06.2016.0

1 General information about these operating instructions

These operating instructions allow safe, appropriate use of the product.
 The operating instructions are part of the device and should be kept accessible to personnel at all times in the immediate vicinity of the installation location of the device.

Any person charged with setting up, commissioning, or operating the device must have read and understood the operating instructions, particularly the safety-related instructions.





The data sheet for the individual sensor is an important part of the operating instructions:

Specific data on individual sensors can be found in the corresponding data sheets.

If you do not have a data sheet, request one at:
 info@bdsensors.de | Tel: +49 (0) 9235 9811 0

Compliance with the applicable accident prevention regulations and safety regulations as well as with national installation standards and recognized codes of practice must also be ensured.

1.2 Symbols used

 Warning term	<ul style="list-style-type: none"> - Nature and source of danger - Measures to prevent danger
 DANGER	<ul style="list-style-type: none"> - Immediate danger! - Failure to observe will result in death or serious injury.
 WARNING	<ul style="list-style-type: none"> - Possible danger! - Failure to observe may result in death or serious injury.
 CAUTION	<ul style="list-style-type: none"> - Dangerous situation! - Failure to observe may result in slight or moderate injury.

NOTE – calls attention to a potentially dangerous situation that can result in property damage if not observed.

1.3 Qualification of personnel

Qualified persons are persons who are charged with setting up, installing, repairing, and operating the product and who are appropriately qualified for their tasks.


This includes persons who meet at least one of the following prerequisites:

- They are familiar with safety concepts in measurement and automation and they are charged with them as project personnel.
- They are operating personnel for measurement and automation systems and have been instructed in the use of the systems. They are charged with operating the devices and technologies described in this documentation.
- They are commissioners or assigned to service and have completed technical education that enables them to repair the system. They also have the authorization to commission, to ground, and to label electrical circuits and devices in accordance with the standards of safety engineering.

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

 WARNING	Risk of injury <ul style="list-style-type: none"> - Due to unintended use - Use the device as intended.
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The device may be used exclusively for measurement tasks and directly associated control tasks within the limits of use specified in the technical data. Any other use is considered unintended.

It is the responsibility of the user to check whether the device is suitable for the chosen application. If in doubt, please contact our sales office (info@bdsensors.de | Tel: +49 (0) 9235 9811 0). BD SENSORS cannot, however, assume any liability for an incorrect choice or any consequences arising from this!

Media that can be measured are gases or liquids that are compatible with the materials that contact the medium. These are described in the data sheet. Furthermore, it must be ensured in each individual case that the medium is compatible with the parts that come into contact with it.

1.7 Package contents

Check that all of the listed parts are included in the delivered package and have been supplied in accordance with your order:

- Device DAC XXX
- Protective caps
- User manual
- Data sheet

2. Product Identification

The model and serial number are marked on the device for identification purposes.

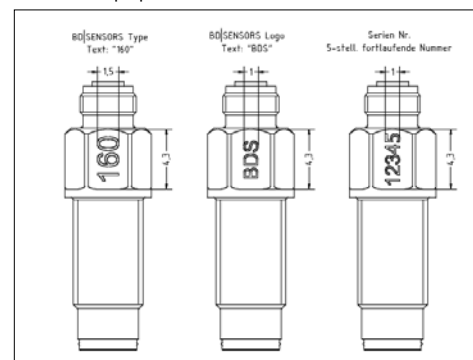




Fig. 1 Sensor markings

3. Warnings and safety instructions

 WARNING	Risk of injury <ul style="list-style-type: none"> - In case of use other than intended or suitable - Only qualified personnel may use and apply the sensors
 WARNING	Risk of injury <ul style="list-style-type: none"> - Internal or external arcing due to mechanical or thermal effects - Always use the sensor in conjunction with a charge amplifier.

NOTE– Use only certified or approved tools, accessories (e.g., thermal shields, cables, etc.) and appropriate resources for installation and commissioning.

NOTE– Repairs or modifications to the sensors and accessories may be performed only by the manufacturer, or by qualified personnel in discussion with the manufacturer.

NOTE– During operation, an expert must ensure that the test equipment and test object are not subjected to any conditions that could lead to property damage or personal injury.

NOTE– Do not throw the device.

NOTE– Measurement accuracy depends not only on the sensor itself, but also on a series of conditions that cannot be influenced by the manufacturer. Measurement results must therefore be interpreted by experts and reviewed for plausibility before additional steps or measures are defined on the basis of them.

4. Installation and operating

NOTE– Specific data on individual sensors can be found in the corresponding data sheets.

Single-channel measurement chain with charge amplifier:

Example:

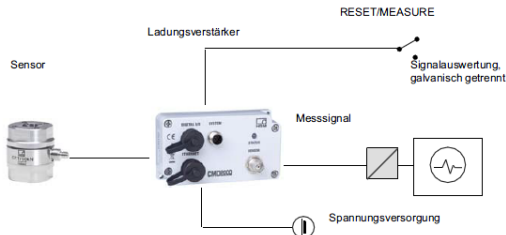


Figure 2 Measurement chain with charge amplifier

- Always store the sensors in a dry place, together with the provided silica gel, if needed.
- In order to ensure sensor insulation, the plug must be kept clean and dry.
- Plug contacts must be protected against corrosion and corrosive gases.
- The sensor membranes must be protected against mechanical effects. Scratches or deformities on the membrane can irreversibly degrade the measurement accuracy.
- The sensors must not be exposed to any conditions (pressure, force, temperature, acceleration, or strain) beyond their specified working range.
- The sensors must be installed such that no undesired artifacts can influence the measurement (e.g., standing waves, noise.)
- Prior to installation, the mounting hardware must be checked for appropriate dimensions and general condition.
- All dimensions, tolerances, and roughness of the sensor mount can be found in the corresponding data sheets and must be followed.
- Seals, sealing surfaces, and threads on the sensor and the sensor mount must be free of visible defects.
- The sensor must be connected to the measured medium via the surfaces intended for this purpose (membranes, pressure pads, etc.)
- Any frictional connection not defined by correct installation and operation of the sensor must be avoided.

- If sensors are modified or adapted after installation, such as the pressure pad and protective sleeve for injection molding applications, then undesired deformation or shear forces must be avoided. Any wear debris from modifications must be removed and must not get between the pad and the sleeve. The same applies for low-viscosity injection molding, which can also cause additional frictional contact between the pad and sleeve.
- Sensors emit heat through the threads and seals, so these must allow conductive transfer and undesired heat inputs must be avoided.
- For water-cooled sensors, care must be taken that the cooling is switched on and running reliably prior to commissioning the motor, test bench, or the like. Use only distilled water in order to prevent scale buildup. Use only the intended seals.
- When using flame protection, take note that the thermodynamic precision and protection of the sensor are only improved if it is free of deposits such as soot and other particles. For these reasons, it is recommended that flame protection be cleaned regularly and fundamentally not used with diesel engines.
- The sensors must be mounted using torque wrenches in compliance with the torque indicated in the data sheet.
- For pressure measurements, the leak tightness of the sensor installation must be checked before commissioning the system. Any differences in thermal expansion coefficients of the sensor, the seal, and the mount must be considered.
- It must be ensured that no moving parts can come into contact with the sensor or cable.
- Cables must be strain-relieved and routed with appropriate bend radii. If the sensor is mounted on moving parts, then the cable must be freely able to compensate for the motion.
- Mechanical and electromagnetic loads on the cable must be avoided and the temperature must be within the permissible range.
- Cables must not be shortened or repaired.
- Shielded sensors must be used with appropriate amplifiers. If the shielding is not grounded, electrical interference signals could falsify the measurement.
- Route cables at a sufficient distance from power cables.

5. Decommissioning

 WARNING	Risk of injury <ul style="list-style-type: none"> - In case of use other than intended or suitable - Installation to be performed only by technical personnel
 DANGER	Danger to life <ul style="list-style-type: none"> - Projectile parts, escaping medium, electrical shock - Remove the device only when the machine is depressurized and the power supply has been switched off!
 Caution	Risk of injury <ul style="list-style-type: none"> - From aggressive media. - Wear suitable protective clothing, e.g. gloves, goggles.

NOTE – After removal, mechanical connections must be covered with protective caps.

6. Maintenance

 WARNING	Risk of injury <ul style="list-style-type: none"> - Incorrect maintenance can cause damage - Maintenance must be performed by qualified personnel - Wear suitable protective clothing, e.g. gloves, goggles.
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The device is, in principle, maintenance free.

Do not remove contaminants such as soot mechanically; instead, use a basic cleaning fluid suitable for the material in question.

NOTE– Incorrect cleaning can result in irreparable damage to the measuring cell. For this reason, you should never use sharp objects or compressed air to clean the diaphragm.

7. Servicing/Repair

Return

For any return, such as for repair, clean the device carefully and package it to prevent damage. The device must be accompanied by a notice of return giving a detailed description of the fault. If your device has come into contact with pollutants, then a notice of decontamination will also be needed. You can find the relevant templates on our website. Download them from www.bdsensors.de or request them from: info@bdsensors.de | Tel: +49 (0) 9235 9811 0

If you send in your device without a notice of decontamination and doubts with regard to the medium used should arise in our service department, repair work will commence only once an appropriate notice has been received.

8. Disposal

 WARNING	Risk of injury <ul style="list-style-type: none"> - From hazardous materials - Disposal only by technical personnel - Wear suitable protective clothing, e.g. gloves, goggles.
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The device must be disposed of in accordance with European Directives 2012/19/EC (Waste Electrical and Electronic Equipment). Waste electrical products may not be disposed of with household waste!

NOTE – Dispose of the device properly.

9. Guarantee Conditions

The guarantee conditions are subject to the statutory warranty period of 24 months, starting from the date of dispatch. No warranty claims will be accepted if the device has been used improperly, modified or damaged. The warranty does not cover damaged diaphragms. Warranty cover also excludes any claims for defects that have arisen as a result of normal wear.