BVS 14 ATEX E 008 X / BVS 14 ATEX E 052 X
Types 8690, 8691, 8692, 8693, 8694, 8695, 8696, 8798

Control units with ATEX approval
Ansteuerungen mit ATEX-Zulassung
Unités de commande avec mode de protection ATEX
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1 ADDITIONAL INSTRUCTIONS

The additional instructions for the use in potentially explosive environments describe the entire life cycle of the device. Keep these instructions in a location which is easily accessible to every user and make these instructions available to every new owner of the device.

Important safety information.
Read the additional instructions carefully and thoroughly. Study in particular the chapters entitled Particular safety instructions and Authorized use.
▶ The additional instructions must be read and understood.

The additional instructions describe safety instructions and information for the use of the control units in a potentially explosive environment.

All other descriptions and information can be found in the respective operating instructions of the devices.

The operating instructions can be found on the Internet at:
www.buerkert.com

1.1 Definition of terms / abbreviation

In these instructions, the term "device" always refers to the control units Type 8690, 8691, 8692, 8693, 8694, 8695, 8696 and 8798.

In these instructions, the abbreviation "Ex" always refers to "potentially explosive".

2 SYMBOLS

The following symbols are used in these instructions.

⚠️ DANGER!
 Warns of an immediate danger.
▶ Failure to observe the warning will result in a fatal or serious injury.

⚠️ WARNING!
 Warns of a potentially dangerous situation.
▶ Failure to observe the warning may result in a serious or fatal injury.

⚠️ CAUTION!
 Warns of a possible danger.
▶ Failure to observe this warning may result in a moderate or minor injury.

NOTE!
 Warns of damage to property.

⚠️ Important tips and recommendations.

📚 Refers to information in these instructions or in other documentation.
▶ Designates instructions for risk prevention.
→ Designates a procedure which you must carry out.
3 AUTHORIZED USE

Incorrect use of the control unit can be dangerous to people, nearby equipment and the environment.

- The device is designed to be mounted on pneumatic actuators of process valves for the control of media. The device was designed for the use in:
  - Type 8690 PX16
    Explosion group II, category 2G Ex ia, T* and explosion group II, category 2D Ex ia, IP64 T135°C
  - Type 8690 up to 8696 and 8798 PX03
    Explosion group II, category 3G Ex ec, T4 and explosion group II, category 3D Ex tc, T135°C
    (see information listed on the sticker for the approval).
- The device is mounted onto a pneumatic actuator of a process valve. The process valve and the actuator must have at least the Ex approval of the control unit.
- During use observe the admissible data, the operating conditions and conditions of use specified in the contract documents, operating instructions and on the type label
  - of the control unit and
  - the process valve.
- Use the device only in conjunction with third-party devices and components recommended and authorized by Bürkert.
- Correct transportation, storage and installation, as well as careful use and maintenance are essential for reliable and faultless operation.
- Use the device only for its intended purpose.

3.1 Restrictions

If exporting the system/device, observe any existing restrictions.

3.2 Identification (V code) PXxx

The identification (V code) PX03 or PX16 is on the type label of the device.

Fig. 1: Example of type label
4 PARTICULAR SAFETY INSTRUCTIONS

⚠️ DANGER!

Risk of explosion when removing the electric circular plug.
- Secure cable connections, which use circular plugs, with suitable locking clips.
  For example: EXCLIP, FA. Phoenix Contact, Type SAC-M12-EXCLIP-M, Art. no. 1558988 or Type SAC-M12-EXCLIP-F, Art. no. 1558991 or locking clips, FA. ESCHA locking clip M8 x 1, Art. no. 8040691 locking clip M12 x 1, Art. no. 8040501.
- Remove electric circular plug only after the power supply has been disconnected.

Risk of explosion when opening the device.
- Open device only when no Ex atmosphere is present.
- During the installation and setting of the proximity switches, no Ex atmosphere may be present.
- Prior to start-up, secure the transparent cap against being opened without tools by using the enclosed locking wire.

Risk of explosion due to electrostatic discharge.
In the event of a sudden discharge from electrostatically charged devices or individuals, there is a risk of an explosion in the explosion-risk area.
- Ground body casing to visible stainless steel surface before start-up using the supplied circlip (devices with visible stainless steel surface).

⚠️ DANGER!

To prevent the risk of explosion, observe not only the safety instructions in the operating instructions for operation in the explosion-risk area, but also the following:
- Observe information on temperature class, ambient temperature, degree of protection and voltage on the approval sticker.
- Do not use devices in areas where there is gas or dust with a lower ignition temperature than indicated on the approval sticker.
- Installation, operation and maintenance may be performed by qualified technicians only.
- Observe the applicable safety regulations (also national safety regulations) as well as the general rules of technology for construction and operation.
- Do not repair the device yourself, but replace it with an equivalent device.
- Repairs may be performed by the manufacturer only.
- Do not expose the device to any mechanical and/or thermal loads which will exceed the limits described in the operating instructions.
- Use only cable and line entry points which have been approved for the respective application area and which have been screwed into place according to the associated installation instructions.
- The cable glands shall only be used for fixed installations.

- Take suitable measures to ensure that no electrostatic discharges can build up in the explosion-risk area.
- Clean the device surface by gently wiping it with a damp or anti-static cloth only.
4.1 Special conditions of use

- Close all unnecessary cable glands with lock screws approved for the explosions area.
- The required degree of protection (min. IP64) is only guaranteed in connection with suitable adaption sets. All pneumatic and electrical connections must be equipped with suitable connectors.
- To maintain the ignition protection type, all electrical plug-in connections must be connected.

4.1.1 Safety instructions

For operation in an explosion-risk area zone (gas) 1 and 2, the following applies:

⚠️ **DANGER!**

Risk of explosion caused by electrostatic charge.

In the event of a sudden discharge from electrostatically charged devices or individuals, there is a risk of an explosion in the explosion-risk area.

- Take suitable measures to ensure that no electrostatic discharges can build up in the explosion-risk area.
- Clean the device surface by gently wiping it with a damp or anti-static cloth only.

4.1.2 Media in explosion-risk areas

If explosive media are used, this can result in additional explosion risks.
4.1.3 Actuators / valves in explosion-risk areas

Use in an explosive atmosphere may be restricted by the actuators / valves. Observe the operating instructions of the actuators / valves.

4.1.4 Cleaning in explosion-risk areas

Check that any cleaning agents are approved for use in explosive atmospheres.

4.1.5 Adhesive signs for explosion-risk areas

Sign

Fig. 2: Sign

Approval sticker

Fig. 3: Example approval sticker
4.1.6  **Temperature ranges in explosion-risk areas**

**Ambient temperature**

Type 8690, 8691, 8692, 8693, 8695, 8696

- **PX03 (3GD ec/tc – with pilot valve)**
  -10 – +55 °C

- **PX03 (3GD ec/tc – without pilot valve)**
  -20 – +60 °C

Type 8694

- **PX03 (3GD ec/tc)**
  -10 – +60 °C

Type 8798

- **PX03 (3GD ec/tc)**
  -25 – +80 °C

Type 8690 Ex ia IIC/IIIC

see "Tab. 2"

4.1.7  **Electrical data PX16 (intrinsic safety)**

The device Type 8690 in ignition degree of protection intrinsic safety Ex ia IIC may be connected only to intrinsically safe electric circuits.

**Explosion group**

IIC

**Category**

ia

**Temperature class**

T* (see "Tab. 2")

The electric circuits have the following parameter:

**Electric circuit proximity switch**

- **Terminal 1 INI Top +**
- **Terminal 2 INI Top –**
- **Terminal 3 INI Bottom +**
- **Terminal 4 INI Bottom -**

Each:

- Max. allowable input voltage (Ui) 20 V
- Max. allowable input current (li) 60 mA
- Max. allowable input power (Pi) 200 mW (T4)
  130 mW (T6)
- Max. inner capacitance (Ci) 250 nF
- Max. inner inductance (Li) 350 µF
Electric circuit pilot valve

Pilot valve 1: Terminal 5 VALVE +
Terminal 6 GND

Max. allowable input voltage $U_i$ and input current $I_i$
(Use only value pairs that are displayed one below the other)

<table>
<thead>
<tr>
<th>Voltage value $[V] = U_i$</th>
<th>15</th>
<th>18</th>
<th>20</th>
<th>22</th>
<th>25</th>
<th>28</th>
<th>30</th>
<th>35</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current value $[A] = I_i$</td>
<td>0.9</td>
<td>0.44</td>
<td>0.309</td>
<td>0.224</td>
<td>0.158</td>
<td>0.120</td>
<td>0.101</td>
<td>0.073</td>
</tr>
</tbody>
</table>

Tab. 1: Value pairs input voltage - input current

- Max. inner capacitance $(C_i)$: negligible
- Max. inner inductance $(L_i)$: negligible

Max. allowable input power $P_i$

<table>
<thead>
<tr>
<th>Max. allowable output pilot valve [mW]</th>
<th>Max. allowable output inductive proximity switch [mW]</th>
<th>Temperature class</th>
<th>Ambient temperature Type 8690</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>130</td>
<td>T6</td>
<td>45 °C</td>
</tr>
<tr>
<td>600</td>
<td></td>
<td></td>
<td>35 °C</td>
</tr>
<tr>
<td>400 – 1000</td>
<td>200</td>
<td>T4</td>
<td>55 °C</td>
</tr>
</tbody>
</table>

Tab. 2: Ambient temperature as a function of output and temperature class

4.2 Installation of locking wire and grounding of body casing

⚠️ DANGER!

Risk of explosion when opening the device.

- Open device only when no Ex atmosphere is present.
- Prior to start-up, secure the transparent cap against being opened without tools by using the enclosed locking wire.

Fig. 4: Installation locking wire Type 8690
Particular safety instructions

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- Transparent cap
- Body casing
- Locking wire
- Fastening element for devices with body casing
- Circlip
- Screw
- Cable shoe

**Fig. 5:** Installation locking wire and grounding

**Procedure:**

→ Mount screw, circlip and fastening element.
→ Push locking wire through the bore of the transparent cap.
→ Push locking wire through fastening element and pull it tight.
→ Tighten screw on the fastening element and clamp locking wire.

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**DANGER!**

**Risk of explosion due to electrostatic discharge.**

- Ground the metal surface of devices which have a body casing made of stainless steel (Type 8691, 8692, 8693, 8694, 8695, 8696, 8798).

→ Use a suitable cable shoe for grounding.

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**4.3 Adaption set - installation note**

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**DANGER!**

**Risk of explosion if incorrect adaption set is used.**

- Only use suitable adaption set.

The degree of protection required for ignition degree of protection intrinsic safety "i", is only guaranteed in connection with suitable adaption sets.
Tab. 3: Attachment and adaption set

The order designations for the adaption sets can be found in the “Order table adaption sets” in the data sheet for the respective device.

Types 8690, 8691, 8692, 8693, 8694, 8798
Attachment FA03

Fig. 6: Attachment FA03
Attachment FA03 for adaption set of the ELEMENT series

Attachment FA05
Attachment FA05 for adaption set of the Classic series with pilot valve

Attachment FA05
Attachment FA05 for adaption set of the Classic series without pilot valve

Fig. 7: Attachment FA05
Types 8695 and 8696
Attachment FA03

Fig. 8: Attachment FA03

Attachment FA03
for adaption set of the ELEMENT series

Attachment FA05
for adaption set of the Classic series with pilot valve

Attachment FA05
for adaption set of the Classic series without pilot valve

Fig. 9: Attachment FA05
4.4  Explosion protection approval

The explosion protection approval is only valid if you use the modules and components authorized by Bürkert, as described in these operating instructions.

If you make unauthorized changes to the system, the modules or components, the explosion protection approval will be terminated.

EC-type examination certificates

BVS 14 ATEX E 008 X and
IECEEx BVS 14.0009X and
BVS 14 ATEX E 052 X and
IECEEx BVS 14.0035X

were issued by

DEKRA EXAM GmbH
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The PTB (CE0102) audits the manufacture.