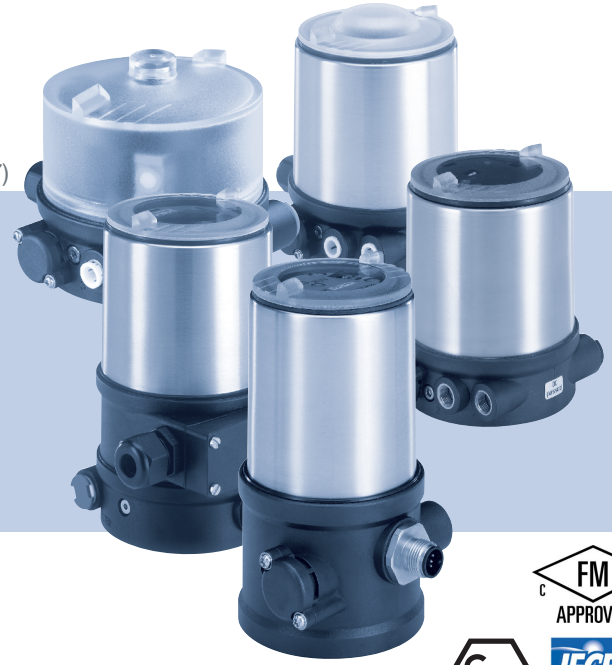
BVS 14 ATEX E 008 X / BVS 14 ATEX E 052 X
FM21US0106X / FM21CA0073X
FM26US0108X / FM26CA0024X
IECEx BVS 14.0009X / BVS 14.0035X

Types 8690, 8691, 8692, 8693, 8694, 8695, 8696, 8798

Control units with ATEX approval and FM approval (PR07)
Ansteuerungen mit ATEX-Zulassung und FM-Zulassung (PR07)
Unités de commande avec mode de protection ATEX et FM (PR07)



Additional Instructions

Zusatzanleitung
Instruction supplémentaire

MAN 1000223595 ML Version: OStatus: RL (released | freigegeben) printed: 11.11.2026

We reserve the right to make technical changes without notice.
Technische Änderungen vorbehalten.
Sous réserve de modifications techniques.

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Operating Instructions 2609/12_EU-ML_00810361 / Original DE

MAN 1000223595 ML Version: OStatus: RL (released | freigegeben) printed: 11.11.2026

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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.burkert.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
  - **Variants with PR03**
    Class I Zone 0 AEx/Ex ia IIC T* Ga and
    Class I Division 1 Groups A,B,C,D T*
  - **Variants with PR07**
    Class I Zone 2 AEx ec IIC T4 Gc IP54 and
    Class I Division 2 Groups A,B,C,D T4

  (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.

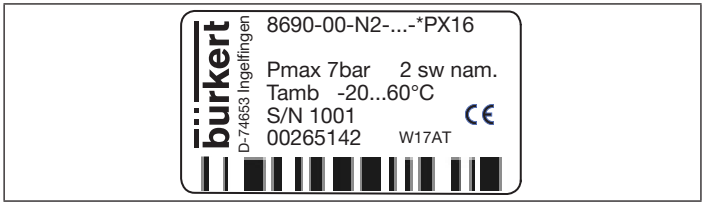


Fig. 1: Example of type label

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 a potentially explosive atmosphere.

- Ground body casing to visible stainless steel surface before start-up using the supplied clirclip (devices with visible stainless steel surface).
- Take suitable measures to ensure that no electrostatic discharges can build up in a potentially explosive atmosphere.
- Clean the device surface by gently wiping it with a damp or anti-static cloth only.

DANGER!

To prevent the risk of explosion, observe not only the safety instructions in the operating instructions for operation in a potentially explosive atmosphere, 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.
- 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 adapter kits. 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.
- Only suitable and separately certified cable glands shall be used.

4.1 Special conditions of use

- The pneumatic control units have to be installed in such a way that electrostatic charging hazards can be excluded.
- Ensure that the transient protection has been set to a value which does not exceed 140 % of the measured peak voltage value at the supply connections of the device.
- The process valve may be connected via special attachment kits only. These are not part of this test report and must fulfill the relevant requirements of EN 60079-0, EN 60079-7 and EN 60079-31 and have at least housing degree of protection IP54 according to EN 60529.
- The pneumatic connections must be provided with suitable connection elements.
- Use the device only in an area with at least degree of soiling 2, as defined in IEC 60664-1.
- Cylindrical threads with less than 5 thread turns must be equipped with a seal to ensure housing protection. They must fulfill the relevant requirements of EN 60079-0, EN 60079-7 and EN 60079-31.
- For devices with a circular plug connection (multipole), the mating connector listed in chapter "4.5 Accessories for devices with circular plug connection" must be used for the device type used.
  The connectors have been subjected to tests representing a lower level of mechanical hazards and must be protected from mechanical impact > 4 J in the installation/application. The connectors are not suitable for outdoor ATEX use and must be installed in such a way that they are not exposed to intense UV radiation.
- If devices feature a circular plug connection (multipole), use a special locking clip which prevents the plug from being loosened without a tool.

Additional conditions of use for variants with PR07:

- A minimum degree of protection IP54 according to ANSI/IEC 60529 shall be ensured for the threaded electrical entry. Note: Variants with PR07(FM approval) do not include M12 plugs or cable entries. The entries are M16 threaded.

4.1.1 Safety instructions

For operation in a potentially explosive atmosphere 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 a potentially explosive atmosphere.

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

4.1.2 Media in potentially explosive atmosphere

If explosive media are used, this can result in additional explosion risks.

4.1.3 Actuators/valves in potentially explosive atmosphere

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 potentially explosive atmosphere

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

4.1.5 Adhesive signs for explosion-risk areas

Approval sticker for variants with V code PX16

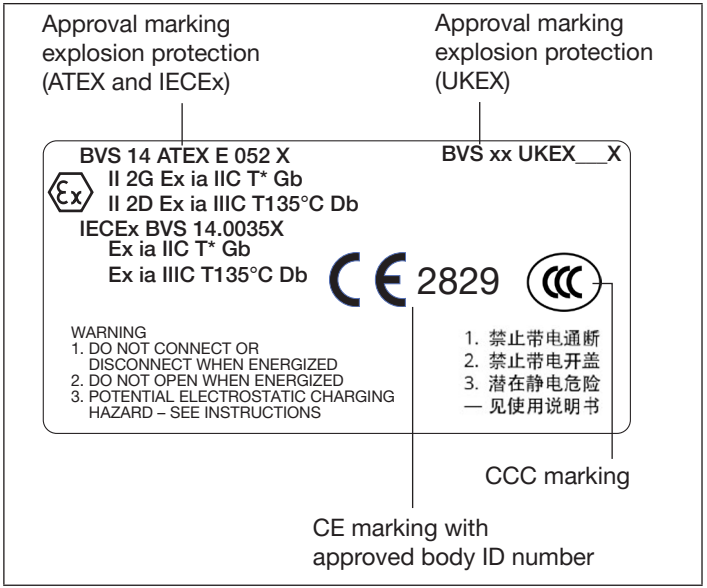


Fig. 2: Example approval sticker, variant PX16

Approval sticker for variants with V code PX03

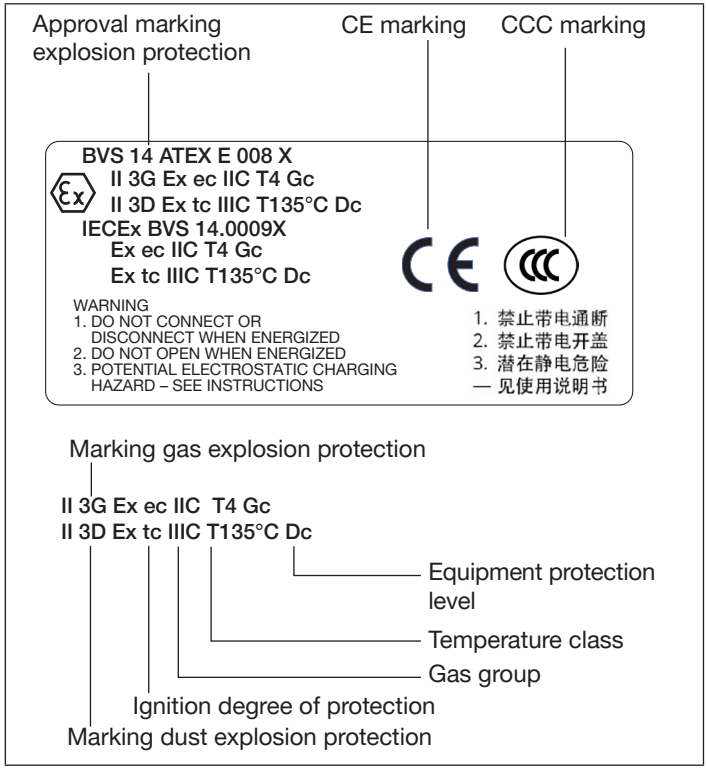


Fig. 3: Example approval sticker, variant PX03

Approval sticker for variants with V code PR03

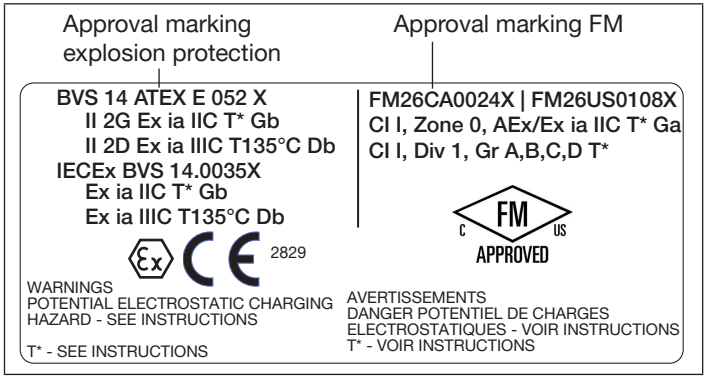


Fig. 4: Example approval sticker, variant PR03

Approval sticker for variants with V code PR07

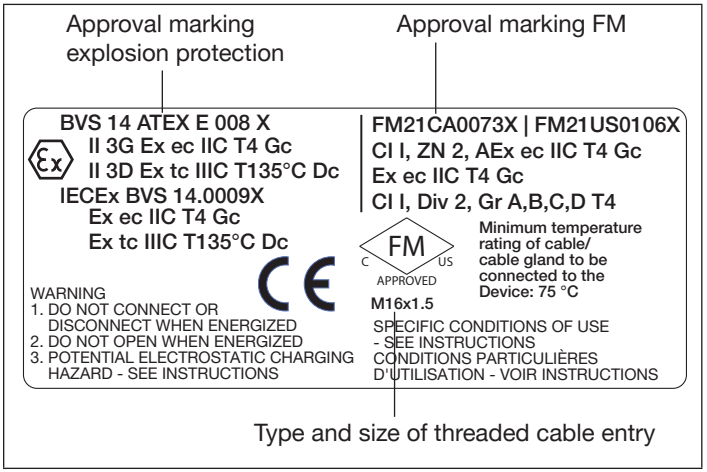


Fig. 5: Example approval sticker, variant PR07

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")

*) For variants with V code PR03 (FM26US0108X/ FM26CA0024X) please refer to control drawing section "Fig. 6" in this manual

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 (Ii)	60 mA
Max. allowable input power (Pi)	200 mW (T4) 130 mW (T6)
Max. inner capacitance (Ci)	250 nF
Max. inner inductance (Li)	350 µH

Electric circuit pilot valve

Pilot valve 1: Terminal 5 VALVE +
Terminal 6 GND

Max. allowable input voltage Ui and input current Ii
(use only value pairs that are displayed one below the other)

Voltage value [V] = Ui	15	18	20	22	25	28	30	35
Current value [A] = Ii	0.9	0.44	0.309	0.224	0.158	0.120	0.101	0.073

Tab. 1: Value pairs input voltage - input current

Max. inner capacitance (Ci)	negligible
Max. inner inductance (Li)	negligible

Max. allowable input power Pi

Max. allowable input pilot valve [mW]	Max. allowable input inductive proximity switch [mW]	Temperature class	Ambient temperature Type 8690
400	130	T6	45 °C
600			35 °C
400 – 1000	200	T4	55 °C

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

Control drawing 8690

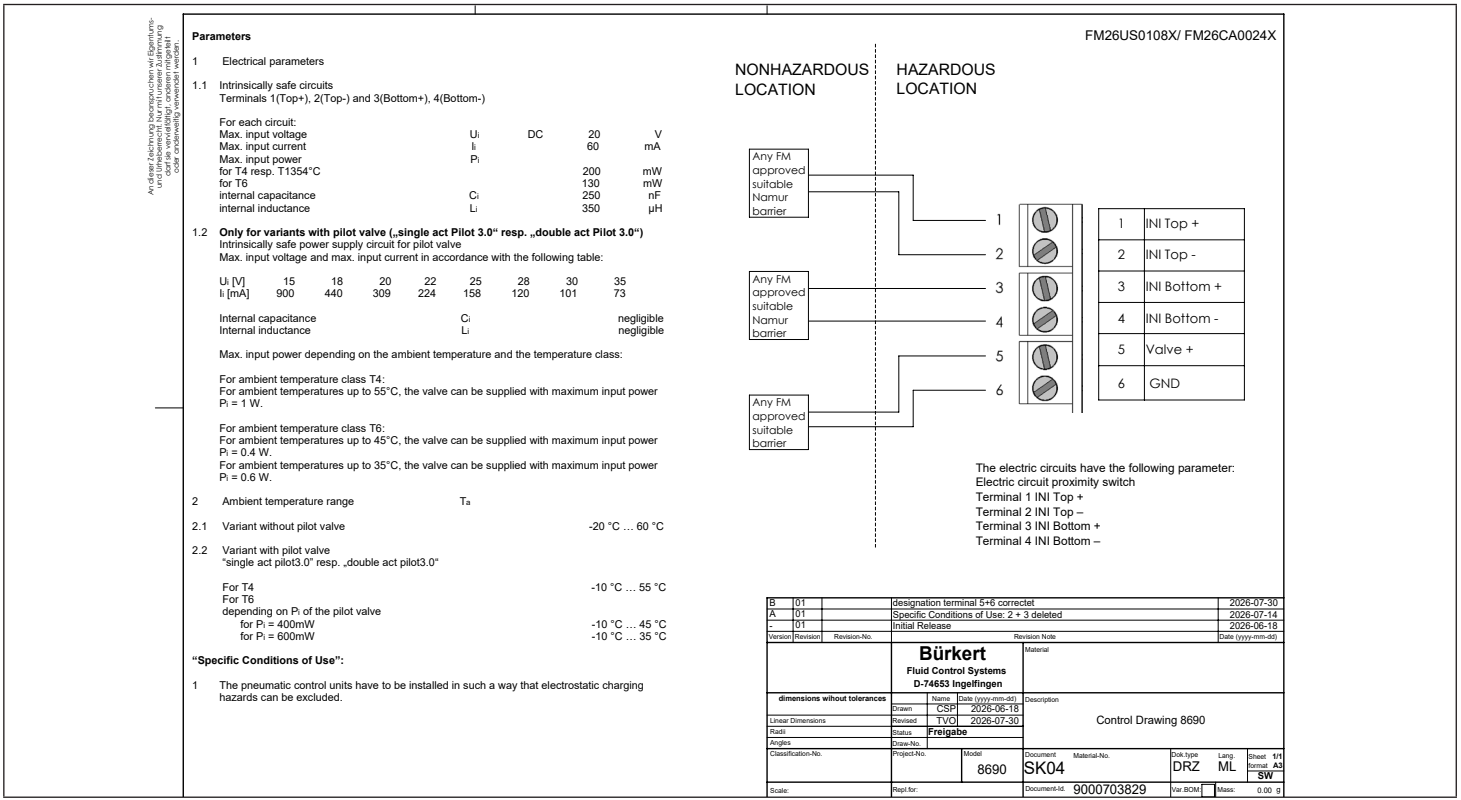


Fig. 6: Control drawing 8690

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.

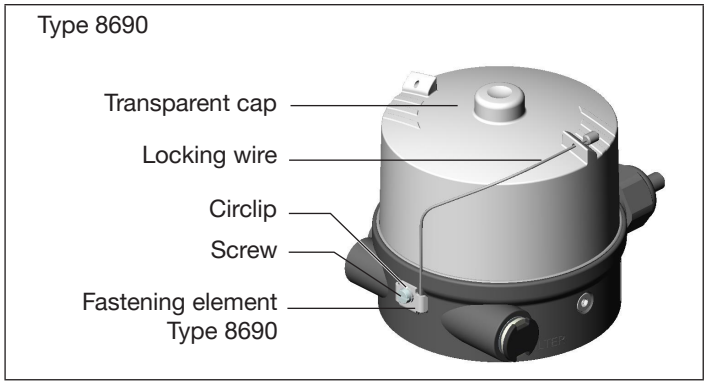


Fig. 7: Installation locking wire Type 8690

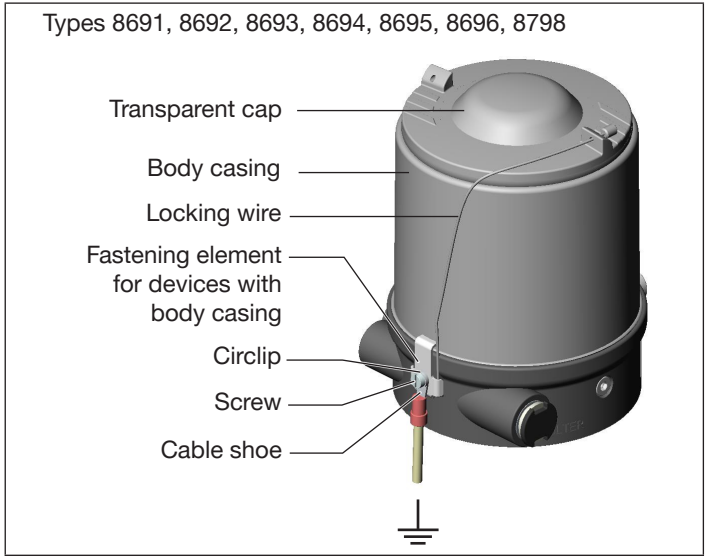


Fig. 8: Installation locking wire and grounding

Procedure:

→ Mount screw, clirclip 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.

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.

4.3 Adapter kit - installation note

DANGER!

Risk of explosion if incorrect adapter kit is used.

- Only use suitable adapter kit.

The degree of protection required for ignition degree of protection intrinsic safety "i", is only guaranteed in connection with suitable adapter kit.

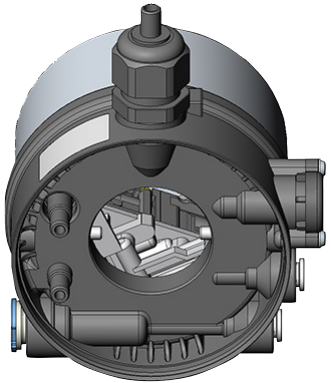
Attachment	Adapter kit series
FA03	ELEMENT
FA05	Classic

Tab. 3: Attachment and adapter kit

The order designations for the adapter kits can be found in the "Order table adapter kits" in the data sheet for the respective device.

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

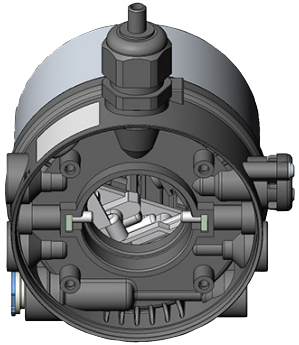
Attachment FA03



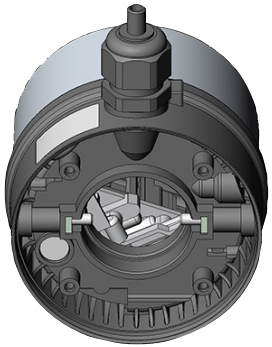
Attachment FA03
for adapter kit of the ELEMENT series

Fig. 9: Attachment FA03

Attachment FA05



Attachment FA05
for adapter kit of the Classic series with pilot valve



Attachment FA05
for adapter kit of the Classic series without pilot valve

Fig. 10: Attachment FA05

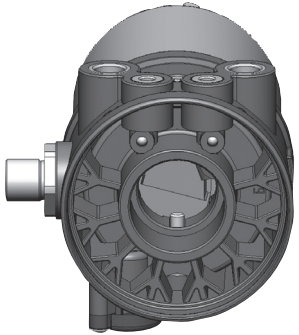
Types 8695 and 8696

Attachment FA03

Attachment FA03
for adapter kit of the ELEMENT series

Fig. 11: Attachment FA03

Attachment FA05



Attachment FA05
for adapter kit of the Classic series with pilot valve

Attachment FA05
for adapter kit of the Classic series without pilot valve

Fig. 12: Attachment FA05

4.4 Installation instructions for cable types with cable end connector

Cabel type 2…4:

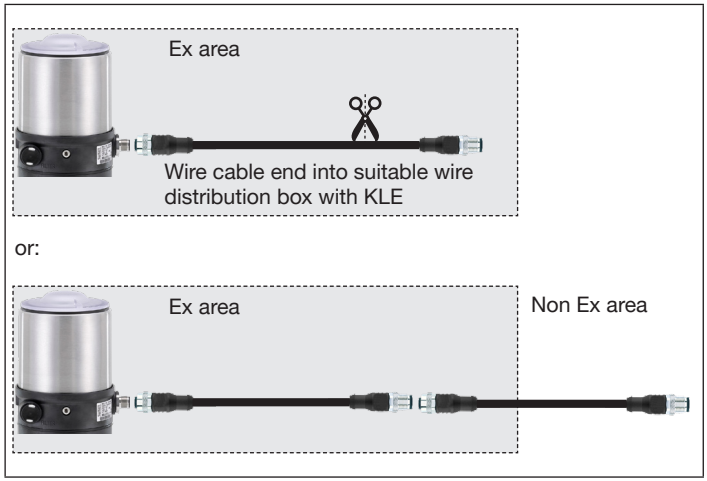


Fig. 13: Installation cabel type 2…4

Cabel type 5 (Industrial Ethernet):

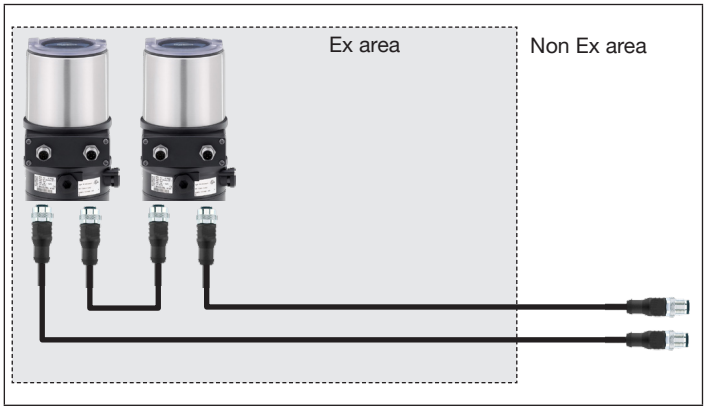


Fig. 14: Installation cabel type 5

4.5 Accessories for devices with circular plug connection

Use device type	Variant	Assignment (signal/supply)	Cabel type
Type 8690	without fieldbus communication	All signals	1

Use device type	Variant	Assignment (signal/supply)	Cabel type
Type 8691, 8694, 8695, 8696	without fieldbus communication	All signals	1
	with AS-Interface or IO-Link Port Class A and B	Supply and bus	2
	with CANopen/büS	Supply and bus	3
Type 8692	without fieldbus communication	PLC signals	1
		Supply	2
	with CANopen/büS	Supply	2
		Bus	3
	with PROFIBUS DP	Supply	2
		Bus IN (plug)	4
		Optional: Bus OUT (socket)	4
	with EtherNet/IP, PROFINET, Modbus TCP	Supply	2
		Bus Port 1	5
		Optional: Bus Port 2	5

Tab. 4: Cabel type

Cabel type	Designation	Cable length	Article number
1	PUR connection cable with socket, straight, M12 x 1, A-coded, 8-pin, open cable end	10 m	20067626
2	PUR connection cable with socket, straight, M12 x 1, A-coded, 5-pin, protected for CANopen/büS, cable end with plug	2 m	20067627
		10 m	20067628
3	PUR connection cable with socket, straight, M12 x 1, A-coded, 5-pin, protected for CANopen/büS, cable end with plug	1 m	20067629
		5 m	20067630
4	PUR connection cable with socket, straight, M12 x 1, B-coded, 5-pin, protected for PROFIBUS, cable end with plug	5 m	20067631
5	PUR connection cable with socket, straight, M12 x 1, D-coded, 4-pin, protected for Industrial Ethernet, cable end with plug	5 m	20067632

Tab. 5: Connection cable

4.6 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
IECEx BVS 14.0009X and

BVS 14 ATEX E 052 X and
IECEx BVS 14.0035X

were issued by

DEKRA EXAM GmbH
Dinnendahlstraße 9
D-44809 Bochum

Production is audited (CE 2829) by: Fiditas CE 2829
Ulica Slavka Tomerlina 44
10361 Zagreb-Sesvete
Hrvatska/Croatia

The Hazardous Locations certificates

FM21CA0073X / FM21US0106X

FM26US0108X / FM26CA0024X

were issued by

FM Approvals LLC. 1151 Boston-Providence

Turnpike, Norwood, MA 02062 USA

This product is subject to review by the Shanghai Inspection and Testing Institute of Instruments and Automation Systems Co., Ltd. (SITIIAS), has been CCC certified to comply with requirements of national explosion-proof series standard (GB/T 3836.2021-Explosive Atmospheres).

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