

Type 8695

Control Head



Operating Instructions

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

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Control head Type 8695

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1 OPERATING INSTRUCTIONS

The operating instructions 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.

Failure to observe these instructions may result in hazardous situations.

- ▶ The operating instructions must be read and understood.

1.1 Symbols



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 serious injuries or death.



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.

- Failure to observe the warning may result in damage to the device or the equipment.



Indicates important additional information, tips and recommendations.



refers to information in these operating instructions or in other documentation.

- ▶ Designates an instruction to prevent risks.

→ Designates a procedure which you must carry out.

1.2 Definition of term / abbreviation

The term “device” used in these instructions always stands for the control head Type 8695.

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

2 AUTHORIZED USE

Non-authorized use of the control head Type 8695 may be a hazard 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.

- ▶ In the potentially explosion-risk area the control head Type 8695 may be used only according to the specification on the separate approval sticker. For use observe the additional instructions enclosed with the device together with safety instructions for the explosion-risk area.
- ▶ Devices without a separate approval sticker may not be used in a potentially explosive area.
- ▶ Do not expose the device to direct sunlight.
- ▶ Use according to the authorized data, operating conditions and conditions of use specified in the contract documents and operating instructions. These are described in the chapter entitled "[6 Technical data](#)".
- ▶ The device may be used only in conjunction with third-party devices and components recommended and authorized by Bürkert.
- ▶ In view of the large number of options for use, before installation, it is essential to study and if necessary to test whether the control head is suitable for the actual use planned.
- ▶ Correct transportation, correct storage and installation and careful use and maintenance are essential for reliable and faultless operation.
- ▶ Use the control head Type 8695 only as intended.

2.1 Restrictions

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

3 BASIC SAFETY INSTRUCTIONS

These safety instructions do not make allowance for any

- contingencies and events which may arise during the installation, operation and maintenance of the devices.
- local safety regulations – the operator is responsible for observing these regulations, also with reference to the installation personnel.



DANGER!

Risk of injury from high pressure in the equipment/device.

- ▶ Before working on equipment or device, switch off the pressure and deaerate/drain lines.

Risk of electric shock.

- ▶ Before working on equipment or device, switch off the power supply and secure to prevent reactivation.
- ▶ Observe applicable accident prevention and safety regulations for electrical equipment..

General hazardous situations.

To prevent injury, ensure:

- ▶ That the system cannot be activated unintentionally.
- ▶ Installation and repair work may be carried out by authorized technicians only and with the appropriate tools.
- ▶ After an interruption in the power supply or pneumatic supply, ensure that the process is restarted in a defined or controlled manner.
- ▶ The device may be operated only when in perfect condition and in consideration of the operating instructions.
- ▶ The general rules of technology apply to application planning and operation of the device.

To prevent damage to property on the device, ensure:

- ▶ Do not feed any aggressive or flammable media into the pilot air port.
- ▶ Do not feed any liquids into the pilot air port.
- ▶ When unscrewing and screwing in the body casing or the transparent cap, do not hold the actuator of the process valve but the connection housing of Type 8695.
- ▶ Do not put any loads on the body (e.g. by placing objects on it or standing on it).
- ▶ Do not make any external modifications to the device bodies. Do not paint the body parts or screws.

4 GENERAL INFORMATION

4.1 Contact address

Germany

Bürkert Fluid Control System
Sales Center
Chr.-Bürkert-Str. 13-17
D-74653 Ingelfingen
Tel. + 49 (0) 7940 - 10 91 111
Fax + 49 (0) 7940 - 10 91 448
E-mail: info@de.buerkert.com

International

Contact addresses can be found on the final pages of the printed operating instructions.

And also on the Internet at:

www.burkert.com

4.2 Warranty

The warranty is only valid if the control head Type 8695 is used as intended in accordance with the specified application conditions.

4.3 Trademarks

Brands and trademarks listed below are trademarks of the corresponding companies / associations / organizations

Loctite Henkel Loctite Deutschland GmbH

4.4 Information on the internet

The operating instructions and data sheets for Type 8695 can be found on the Internet at:

www.burkert.com

5 SYSTEM DESCRIPTION

5.1 Structure and function

The control head Type 8695 can control single or double-acting process valves.

The control head Type 8695 has been optimized for the integrated modular fitting of series 21xx process valves (Element) with actuator size $\varnothing 50$. Various expansion stages are possible thanks to the modular design.

For installation on the 20xx series (Classic) there is a special model which is described in chapter "5.1.2".

The valve position is recorded via a contactless, analog sensor element which automatically detects and saves the valve end positions by means of the teach function during start-up.

Option: Communication possible via AS-Interface and DeviceNet.

5.1.1 Control head for integrated installation on 21xx series (Element)

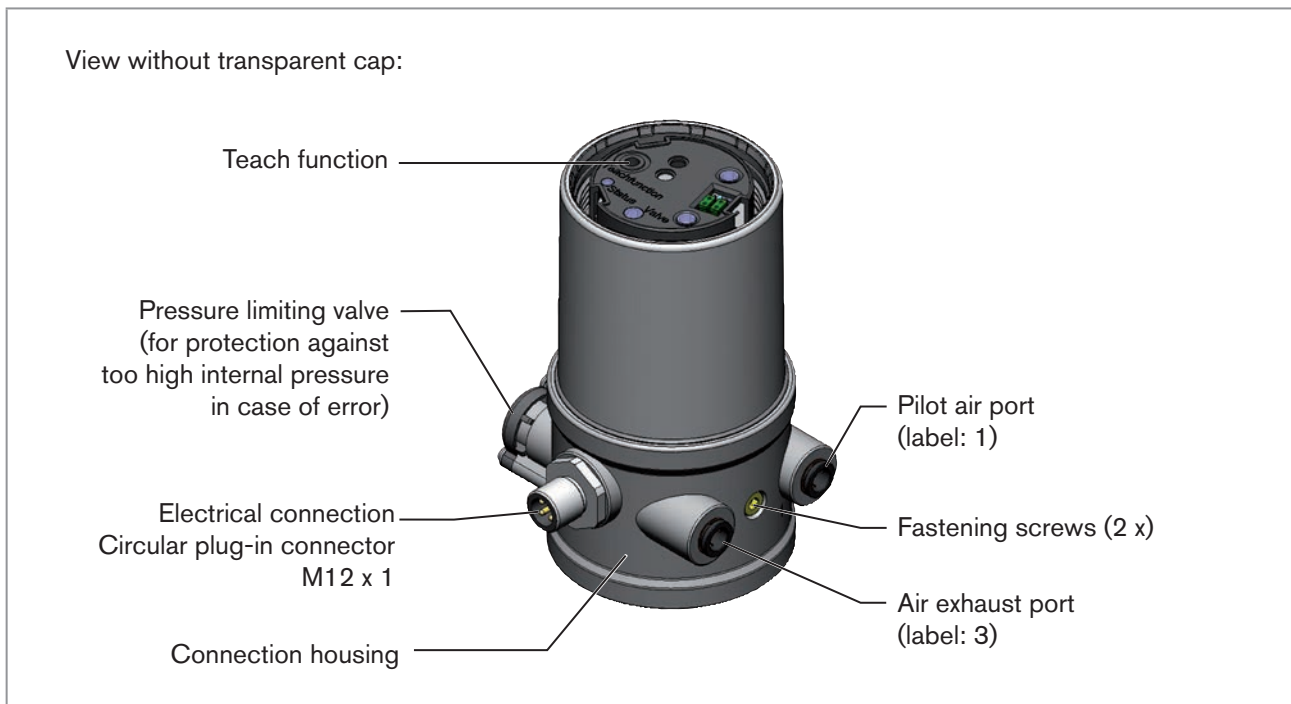


Figure 1: Structure and function

5.1.2 Model for control of process valves belonging to the 20xx series (Classic)

A special model enables the control head Type 8695 to be attached to process valves belonging to the 20xx series.

This model has a different pneumatic connection module so that the pilot air ports can be connected to the outside of the actuator (see "Figure 2").

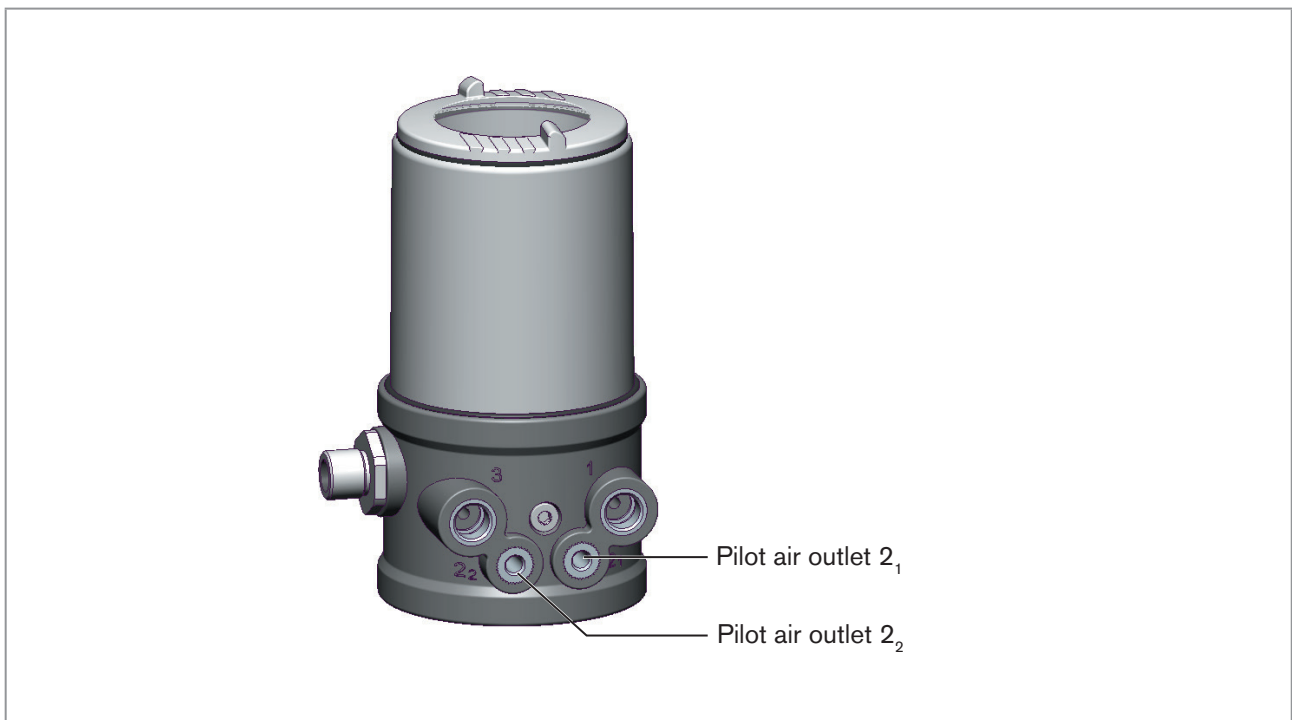


Figure 2: Model for control of process valves, 20xx series

6 TECHNICAL DATA

6.1 Conformity

In accordance with the EU Declaration of conformity, the control head Type 8695 is compliant with the EU Directives.

6.2 Standards

The applied standards on the basis of which compliance with the EU Directives is confirmed are listed in the EU-Type-Examination Certificate and/or the EU Declaration of Conformity.

6.3 Licenses

The product is approved for use in zone 2 and 22 in accordance with ATEX directive 2014/34/EU category 3GD.



Observe instructions on operation in an explosion-risk (Ex) area.
Observe the ATEX additional instructions.

The product is cULus approved. Instructions for use in the UL area see chapter [“6.8 Electrical data”](#).

6.4 Operating conditions



WARNING!

Solar radiation and temperature fluctuations may cause malfunctions or leaks.

- ▶ If the device is used outdoors, do not expose it unprotected to the weather conditions.
- ▶ Ensure that the permitted ambient temperature does not exceed the maximum value or drop below the minimum value.

Ambient temperature see type label

Degree of protection

Evaluated by the manufacturer:	Evaluated by UL:
IP65 / IP67 according to EN 60529 ¹⁾	UL Type 4x Rating ¹⁾

¹⁾ Only if cables, plugs and sockets have been connected correctly and in compliance with the exhaust air concept see chapter [“8 Pneumatic installation”](#).

6.5 Mechanical data

Dimensions	See data sheet	
Body material	exterior	PPS, PC, VA
	interior	PA6; ABS
Sealing material	exterior	EPDM / FKM

Stroke range of valve spindle	21xx series (Element) and 20xx series (Classic)	AS-Interface	2 – 25 mm
		24 V DC	2 – 35 mm
		DeviceNet	2 – 35 mm
	Third-party devices (modified guide element required)	AS-Interface	2 – 34 mm
		24 V DC	2 – 44 mm
		DeviceNet	2 – 44 mm

6.6 Type labels

6.6.1 Type label standard

Example:

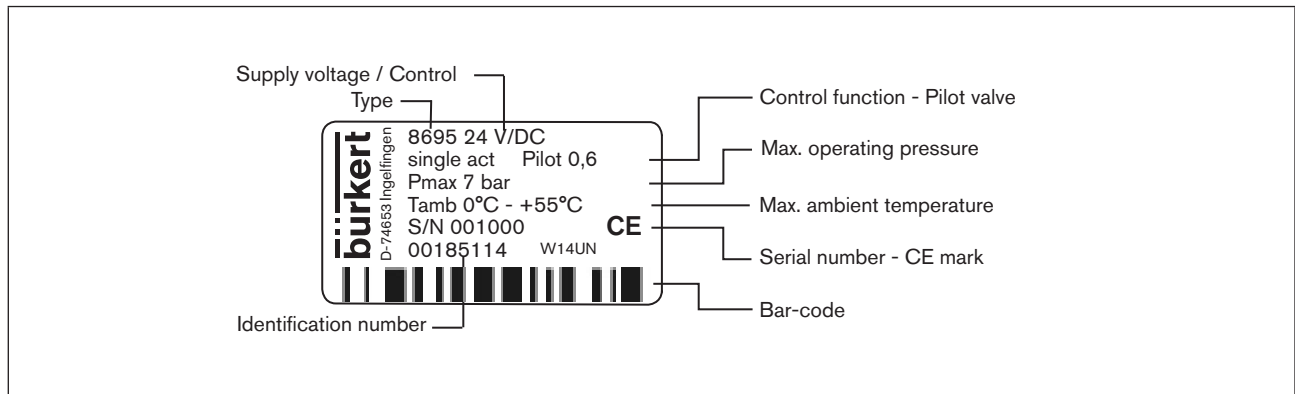


Figure 3: Type label (example)

6.6.2 UL type label

Example:

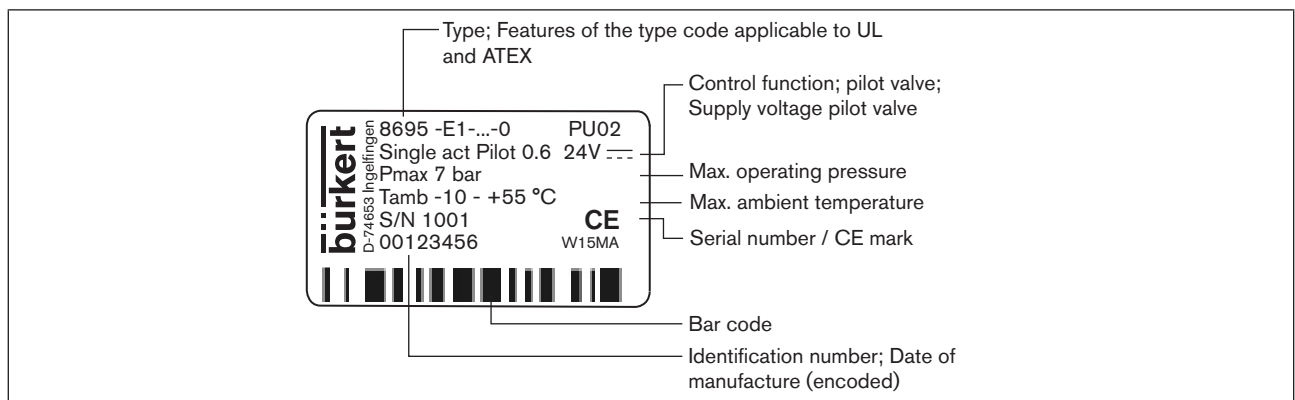


Figure 4: UL type label (example)

6.6.3 UL additional label

Example:

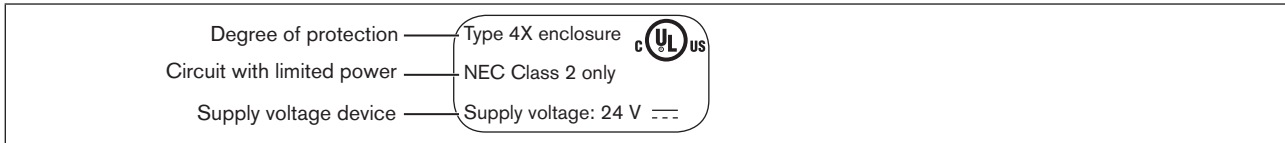


Figure 5: UL additional label (example)

6.7 Pneumatic data

Control medium		neutral gases, air Quality classes in accordance with ISO 8573-1
Dust content	Class 7	max. particle size 40 µm, max. particle density 10 mg/m ³
Water content	Class 3	max. pressure dew point - 20 °C or min. 10 °C below the lowest operating temperature
Oil content	Class X	max. 25 mg/m ³
Temperature range		-10 – +50 °C
Pressure range		3 – 7 bar
Air output of pilot valve		7 l _N / min (for aeration and deaeration) (Q _{Nn} - value according to definition for pressure drop from 7 to 6 bar absolute)
Connections	21xx (Element)	Plug-in hose connector Ø 6 mm / 1/4" Socket connection G 1/8
	20xx (Classic)	Socket connection G 1/8 with M5 connection for connecting to the actuator

6.8 Electrical data



WARNING!

Only circuits with limited power may be used for UL approved components according to "NEC Class 2".

6.8.1 Electrical data without bus control 24 V DC

Protection class	3 as per DIN EN 61140 (VDE 0140-1)
Connections	Circular plug-in connector (M12 x 1, 8-pole)
Pilot valve	
Operating voltage	24 V DC \pm 10% - max. residual ripple 10 %
Power input	max. 1 W
Output	max. 100 mA per output
Display	max. 20 mA per illustrated illuminated display (LED)

6.8.2 Electrical data with AS-Interface bus control

Protection class	3 as per DIN EN 61140 (VDE 0140-1)
Connections	Circular plug-in connector (M12 x 1, 4-pole)
Profile	S-B.A.E. (A/B slave, max. 62 slaves/master)
Operating voltage	29.5 V – 31.6 V DC (according to specification)
Outputs	
Max. switching capacity	1 W via AS-Interface
Watchdog function	integrated
Max. power consumption	120 mA
Power consumption input during normal operation (after current reduction; valve + 1 end position reached)	90 mA

6.8.3 Electrical data with DeviceNet bus control

Protection class	3 as per DIN EN 61140 (VDE 0140-1)
Connections	Circular plug-in connector (M12 x 1, 5-pole)
Operating voltage	11 V – 25 V
Max. power consumption	< 80 mA
Output	
Pull-in current	\leq 50 mA
Holding current	\leq 30 mA

7 INSTALLATION

7.1 Safety instructions



DANGER!

Risk of injury from high pressure in the equipment/device.

- ▶ Before working on equipment or device, switch off the pressure and deaerate/drain lines.

Risk of electric shock.

- ▶ Before working on equipment or device, switch off the power supply and secure to prevent reactivation.
- ▶ Observe applicable accident prevention and safety regulations for electrical equipment.



WARNING!

Risk of injury from improper installation.

- ▶ Installation may be carried out by authorized technicians only and with the appropriate tools.

Risk of injury from unintentional activation of the system and an uncontrolled restart.

- ▶ Secure system from unintentional activation.
- ▶ Following assembly, ensure a controlled restart.

7.2 Installation of the control head Type 8695 on process valves of series 21xx (Element)

NOTE!

When mounting on process valves with a welded body, follow the installation instructions in the operating instructions for the process valve.

Procedure:

1. Install switch spindle

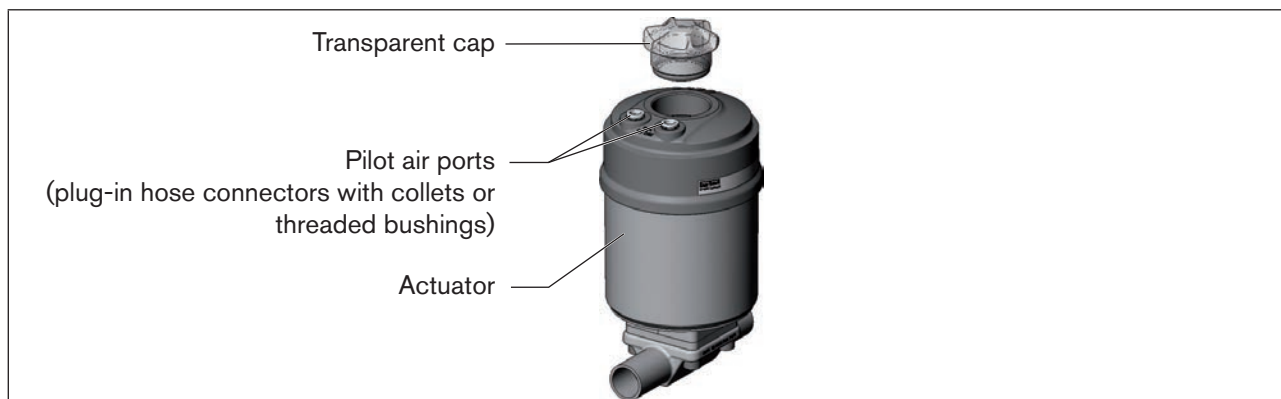


Figure 6: Installation of switch spindle (1), series 21xx

→ Unscrew the transparent cap on the actuator and unscrew the position display (yellow cap) on the spindle extension (if present).

→ For version with plug-in hose connector, remove the collets (white nozzles) from both pilot air ports (if present).

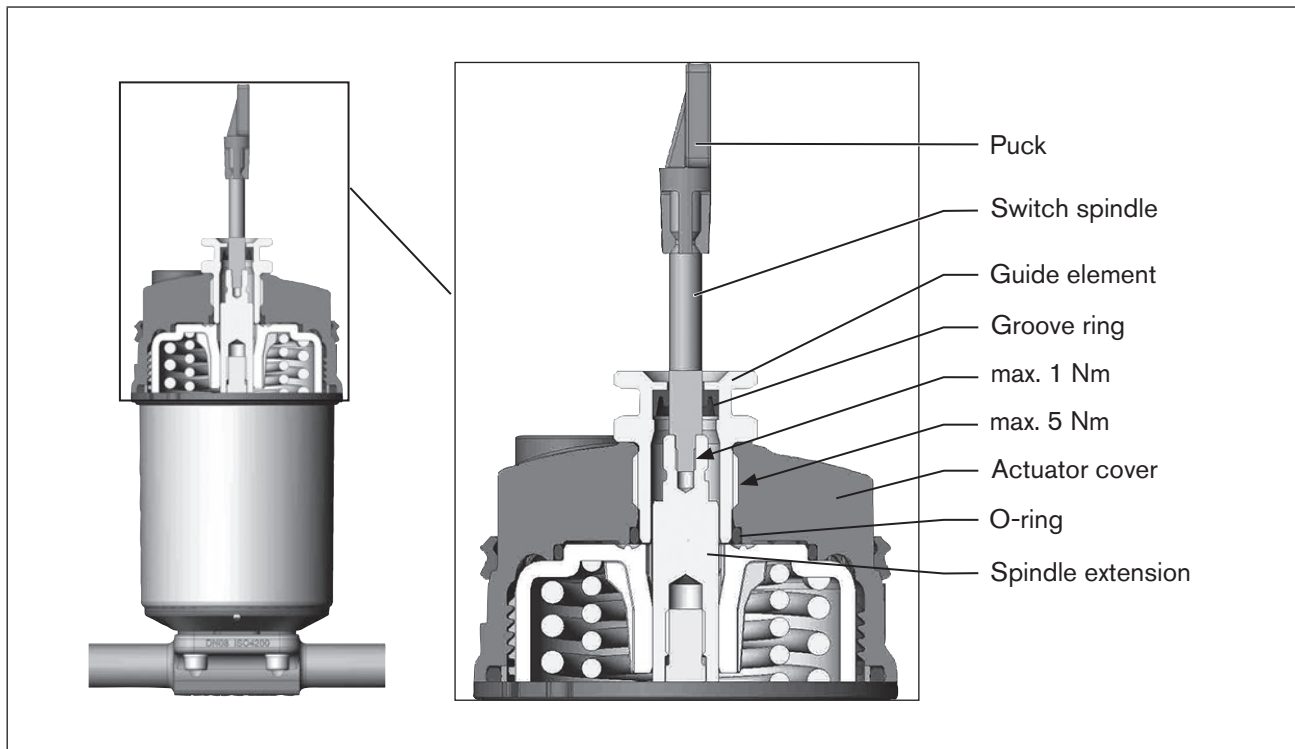


Figure 7: Installation of the switch spindle (2), series 21xx

NOTE!

Improper installation may damage the groove ring in the guide element.

The groove ring is already pre-assembled in the guide element and must be “locked into position” in the undercut.

- ▶ When installing the switch spindle, do not damage the groove ring.

→ Push the switch spindle through the guide element.

NOTE!

Screw locking paint may contaminate the groove ring.

- ▶ Do not apply any screw locking paint to the switch spindle.

→ To secure the switch spindle, apply some screw locking paint (Loctite 290) in the tapped bore of the spindle extension in the actuator.

→ Check that the O-ring is correctly positioned.

→ Screw the guide element to the actuator cover (maximum torque: 5 Nm).

→ Screw switch spindle onto the spindle extension. To do this, there is a slot on the upper side (maximum torque: 1 Nm).

→ Push puck onto the switch spindle and lock into position.

2. Install sealing rings

- Pull the form seal onto the actuator cover (smaller diameter points upwards).
- Check that the O-rings are correctly positioned in the pilot air ports.

! When the control head is being installed, the collets of the pilot air ports must not be fitted to the actuator.

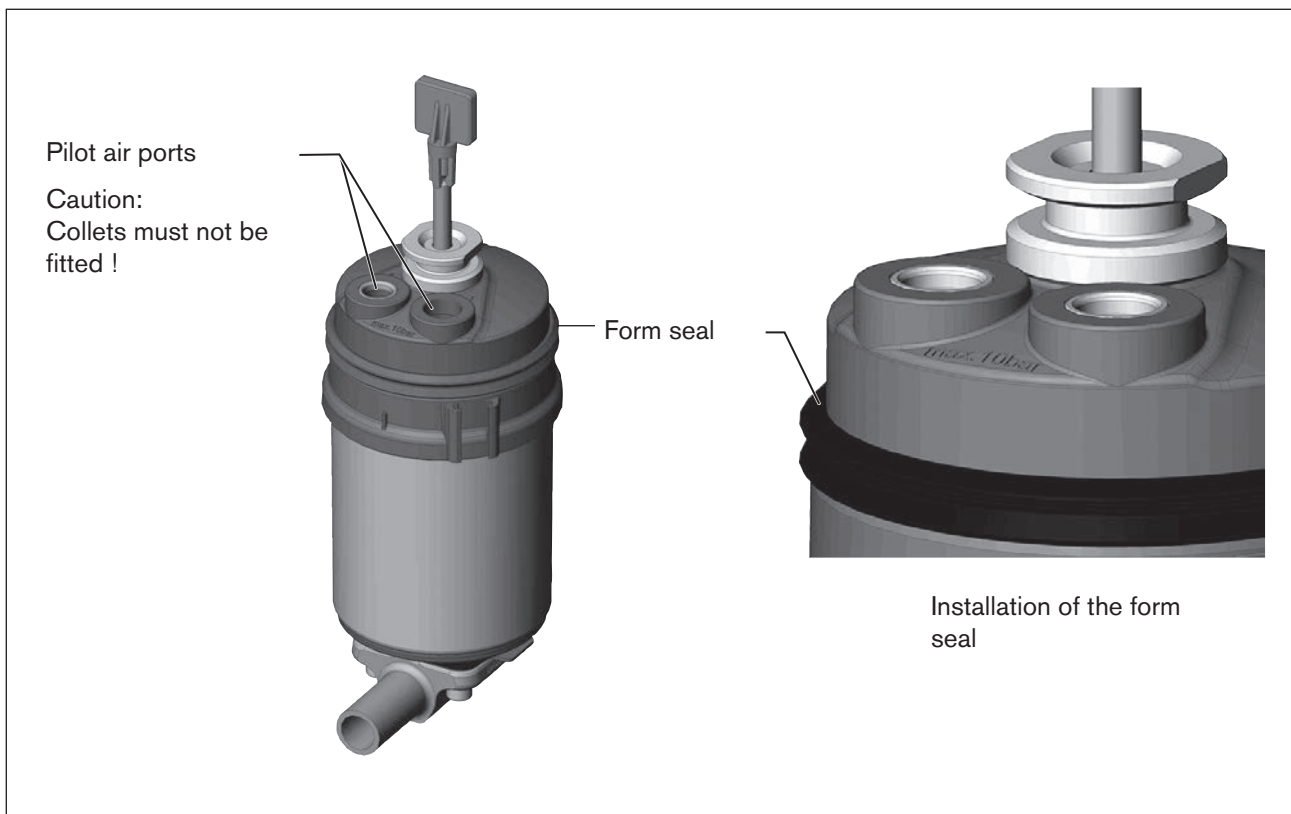


Figure 8: Installation of the sealing rings

3. Install control head

NOTE!

Damaged printed circuit board or malfunction.

- ▶ Ensure that the puck is situated flat on the guide rail.

→ Align the puck and the control head until

1. the puck can be inserted into the guide rail of the control head and
2. the connection pieces of the control head can be inserted into the pilot air ports of the actuator.

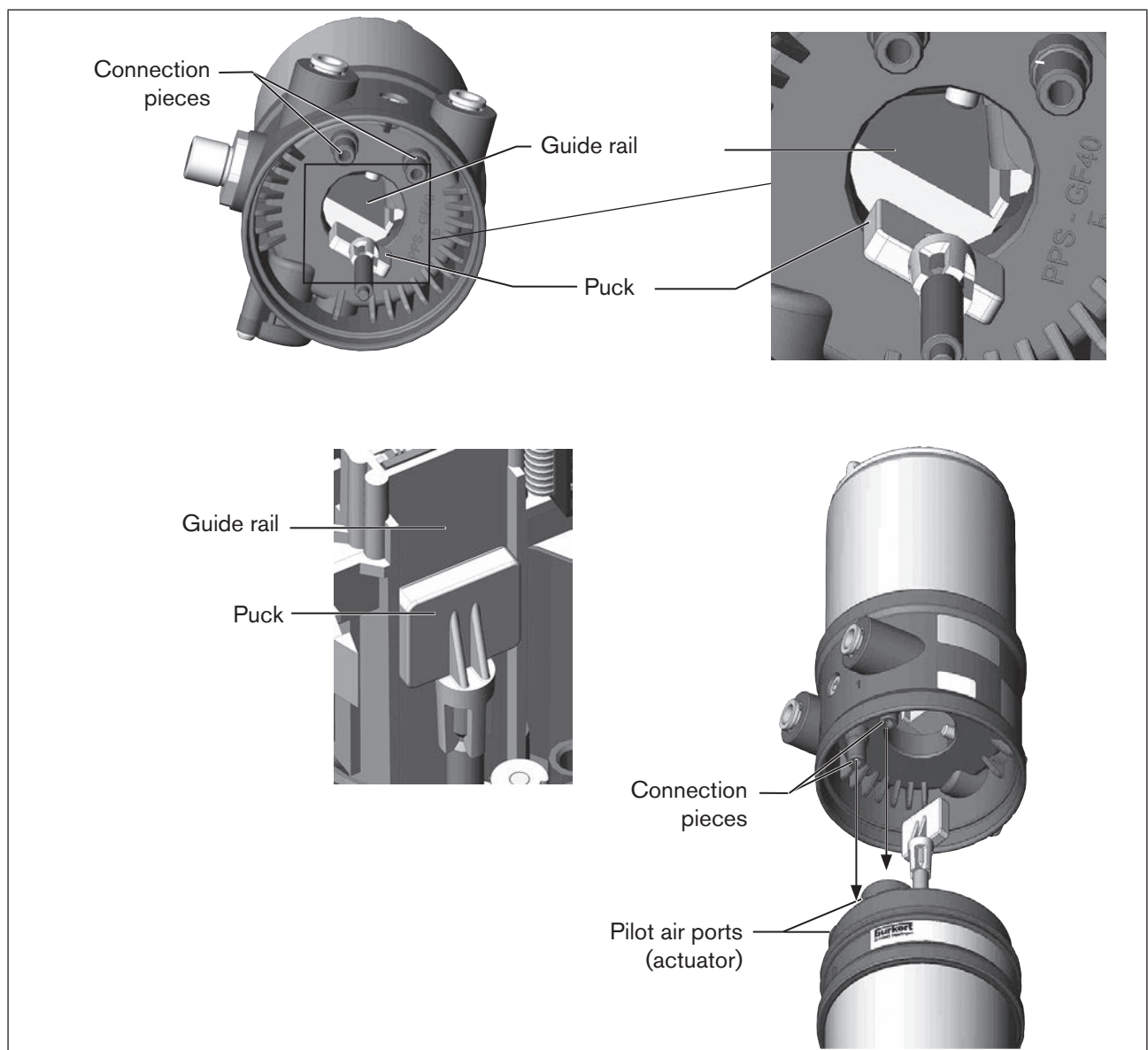


Figure 9: Aligning the puck and the connection pieces

→ Push the control head, without turning it, onto the actuator until no gap is visible on the form seal.

NOTE!

Too high torque when screwing in the fastening screw does not ensure degree of protection IP65 / IP67.

▶ The fastening screws may be tightened to a maximum torque of 1.5 Nm only.

→ Attach the control head to the actuator using the two side fastening screws. In doing so, tighten the screws only hand-tight (maximum torque: 1.5 Nm).

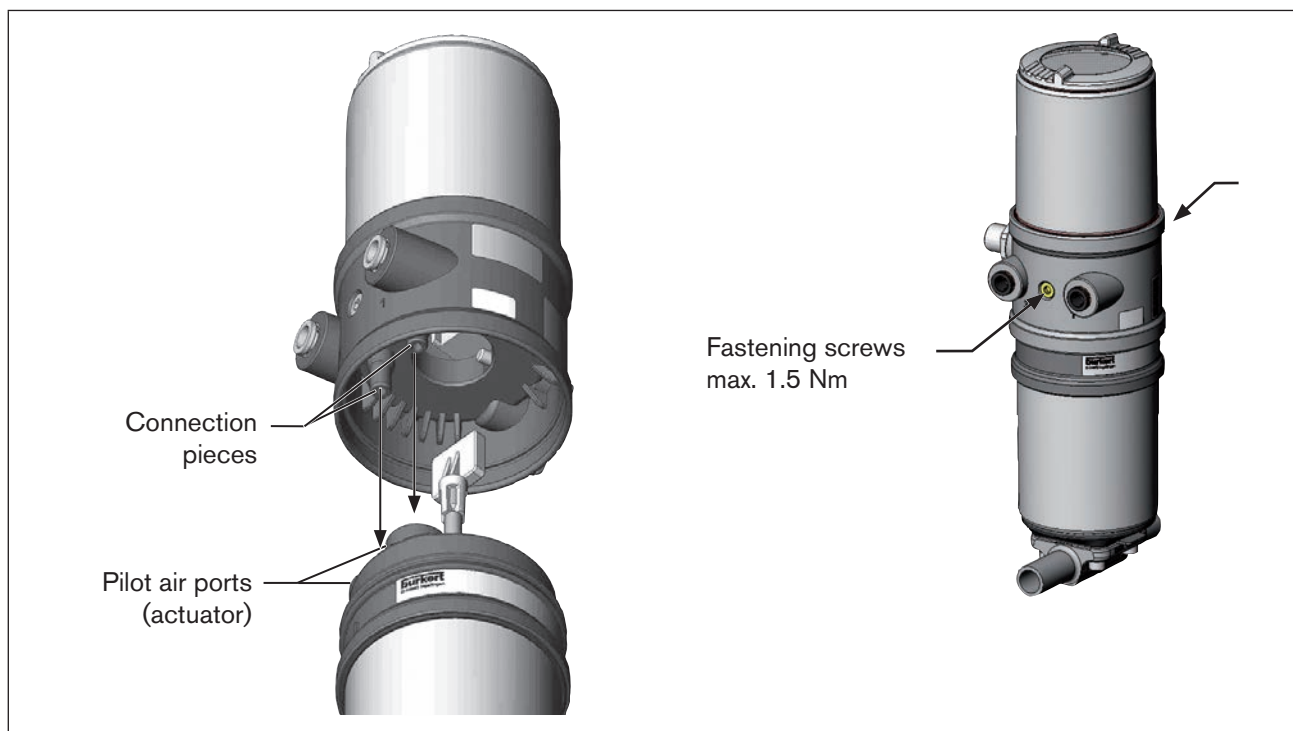


Figure 10: Installation of control head

7.3 Installation of the control head Type 8695 on process valves of series 20xx (Classic)

Procedure:

1. Install switch spindle

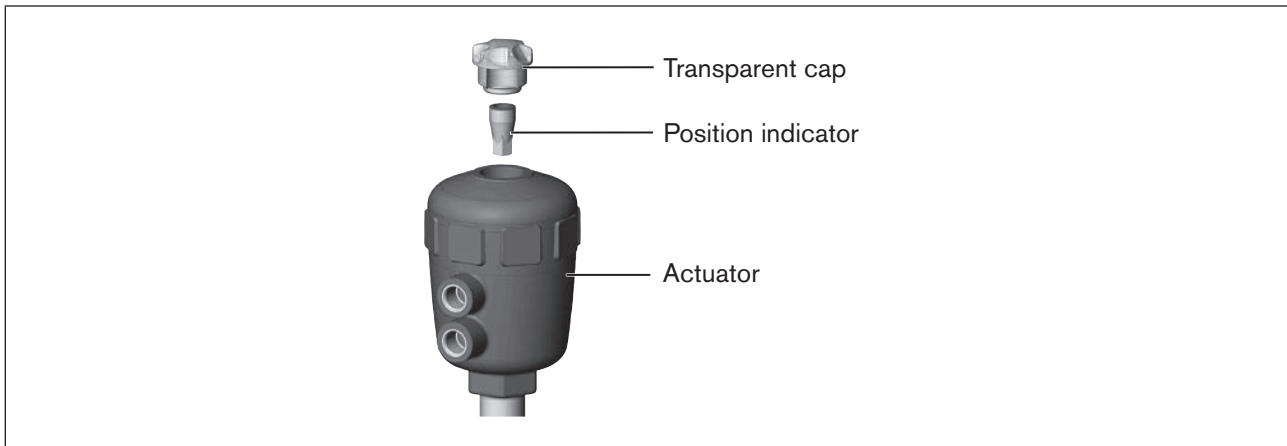


Figure 11: Installation of the switch spindle (1), series 20xx

→ Unscrew the transparent cap on the actuator.

→ Using a hexagon socket key, unscrew the orange/yellow position indicator from the inside of the actuator.

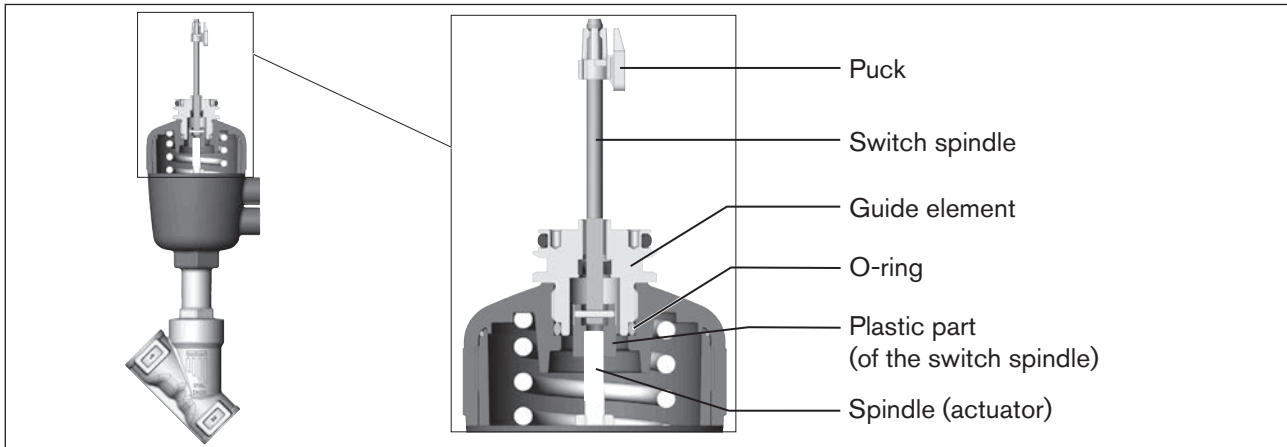


Figure 12: Installation of the switch spindle (2), series 20xx

→ Press the O-ring downwards into the cover of the actuator.

→ Manually screw the switch spindle (and the plugged-on guide element) together with the plastic part onto the spindle of the actuator, but do not tighten spindle yet.

→ Tighten the guide element with a face wrench²⁾ into the actuator cover (maximum torque: 8.0 Nm).

→ Tighten the switch spindle on the spindle of the actuator. To do this, there is a slot on the upper side (maximum torque: 1.0 Nm).

→ Push the puck onto the switch spindle until it engages.

2. Install control head

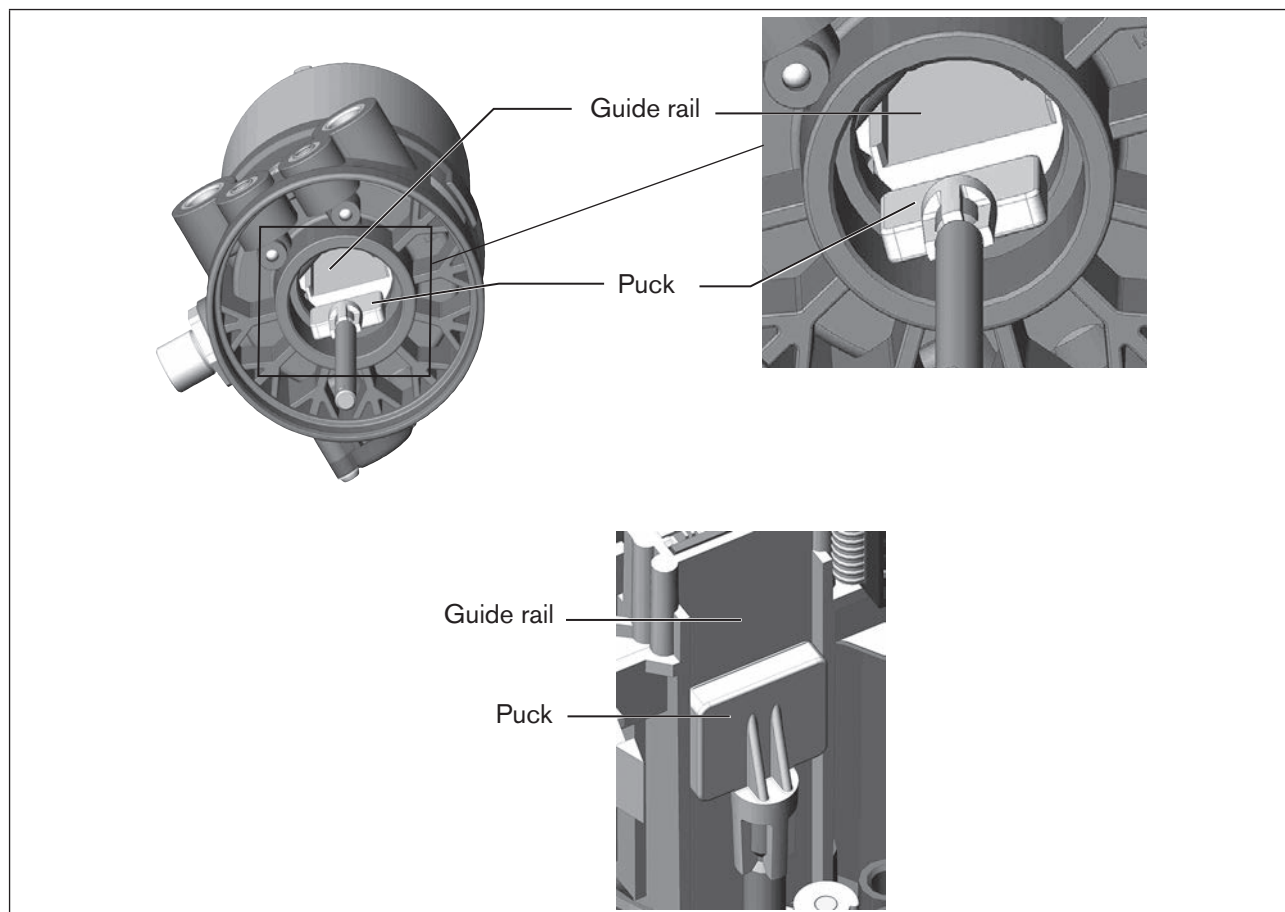


Figure 13: Aligning the puck, series 20xx

NOTE!

Damaged printed circuit board or malfunction.

- ▶ Ensure that the puck is situated flat on the guide rail.

→ Push the control head onto the actuator. The puck must be aligned in such a way that it is inserted into the guide rail of the control head.

→ Press the control head all the way down as far as the actuator and turn it into the required position.



Ensure that the pneumatic connections of the control head and those of the valve actuator are situated preferably vertically one above the other (see [“Figure 14: Installing the control head, series 20xx”](#)). If they are positioned differently, longer hoses may be required other than those supplied in the accessory kit.

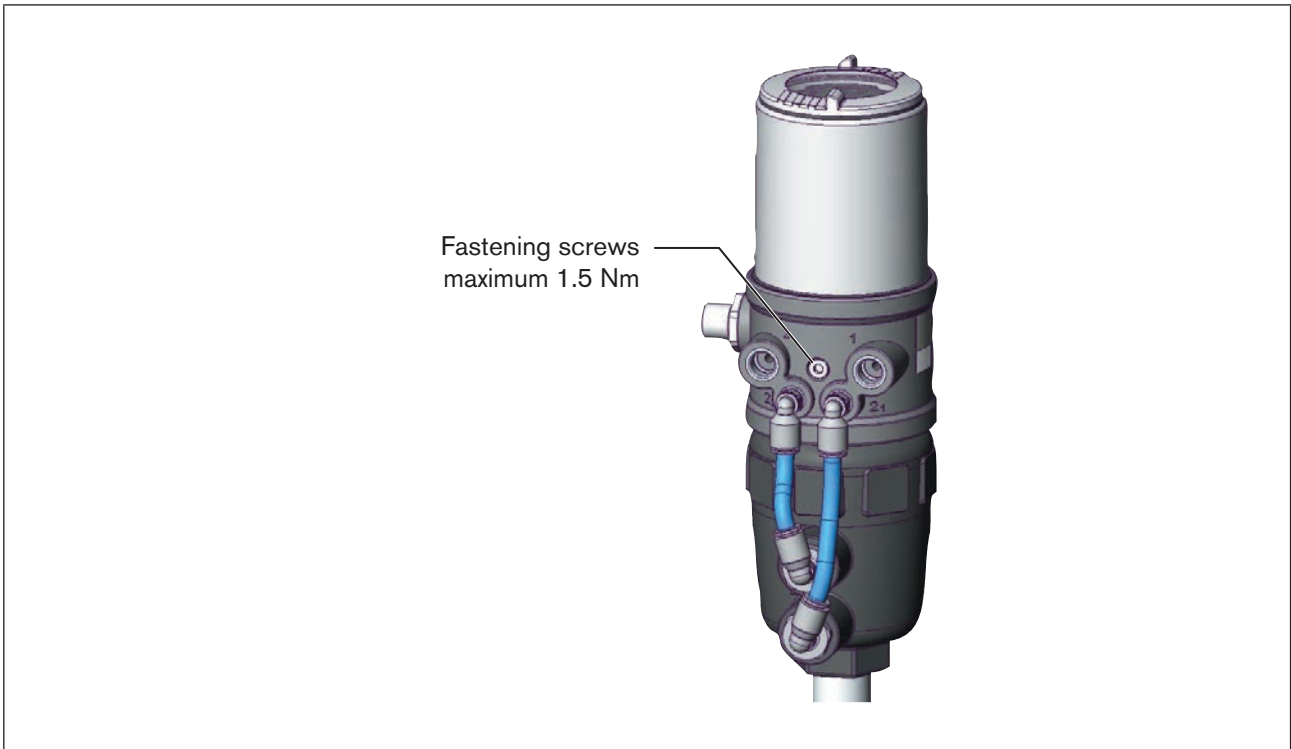


Figure 14: Installing the control head, series 20xx

NOTE!

Too high torque when screwing in the fastening screw does not ensure degree of protection IP65 / IP67.

- ▶ The fastening screws may be tightened to a maximum torque of 1.5 Nm only.

→ Attach the control head to the actuator using the two side fastening screws. In doing so, tighten the fastening screws hand-tight only (maximum torque: 1.5 Nm).

3. Install pneumatic connection between control head and actuator

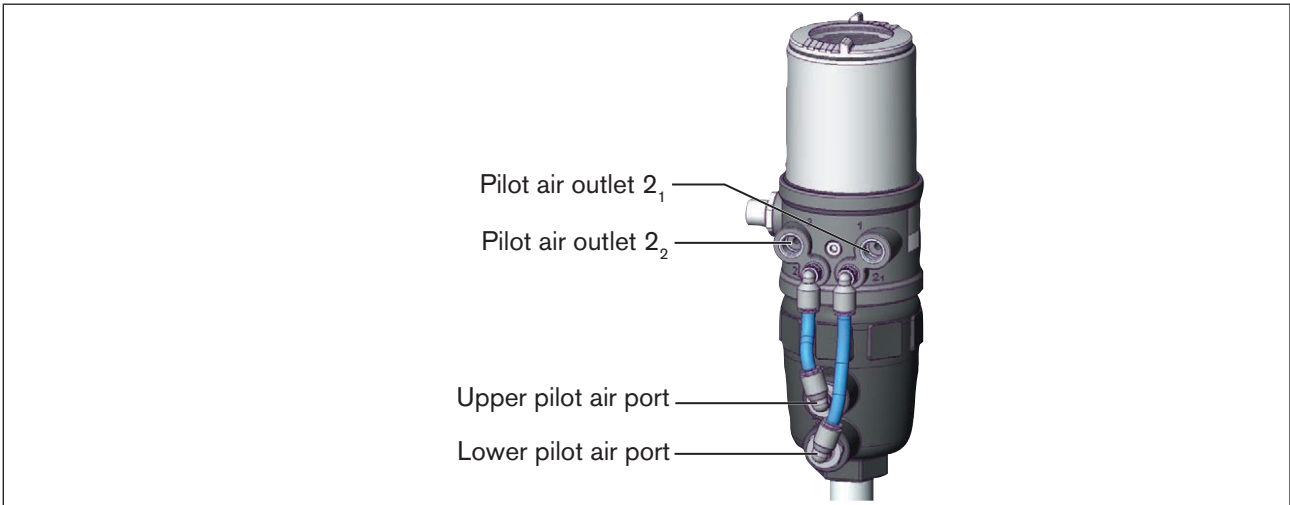


Figure 15: Installing the pneumatic connection between control head and actuator, series 20xx

- Screw the plug-in hose connectors onto the control head and the actuator.
- Using the hoses supplied in the accessory kit, make the pneumatic connection between the control head and actuator with the following [“Table 1: Pneumatic connection to actuator CFA and CFB”](#) or [“Table 2: Pneumatic connection to actuator CFI”](#).

NOTE!

Damage or malfunction due to ingress of dirt and moisture.

- ▶ To comply with degree of protection IP65 / IP67, connect the pilot air outlet (only for CFA or CFB) which is not required to the free pilot air port of the actuator or seal with a plug.



“In rest position” means that the pilot valves of the control head Type 8695 are isolated or not actuated.

Control function A (CFA)		
Process valve closed in rest position (by spring force)		
Control head	Pilot air outlet	
Actuator	Upper pilot air port Lower pilot air port	
or		
Control head	Pilot air outlet	
Actuator	Upper pilot air port Lower pilot air port	
Control function B (CFB)		
Process valve open in rest position (by spring force)		
Control head	Pilot air outlet	
Actuator	Upper pilot air port Lower pilot air port	
or		
Control head	Pilot air outlet	
Actuator	Upper pilot air port Lower pilot air port	

Table 1: Pneumatic connection to actuator CFA and CFB

Control function I (CFI)		
Process valve closed in rest position		
Control head	Pilot air outlet	
Actuator	Upper pilot air port	
	Lower pilot air port	
Process valve open in rest position		
Control head	Pilot air outlet	
Actuator	Upper pilot air port	
	Lower pilot air port	

Table 2: Pneumatic connection to actuator CFI



If the ambient air is humid, a hose can be connected between pilot air outlet 2_2 of the control head and the unconnected pilot air port of the actuator for control function A or control function B. As a result, the spring chamber of the actuator is supplied with dry air from the vent duct of the control head.

7.4 Rotating the actuator module on process valves of series 2100, 2101, 2000 and 2012



The actuator module (control head and actuator) can be rotated for globe valves and angle-seat valves belonging to series 2100, 2101, 2000 and 2012 only.

The process valve must be in the open position for alignment of the actuator module.

The position of the ports can be aligned steplessly by rotating the actuator module (control head and actuator) through 360°.



Series 2100 and 2101:

Only the entire actuator module can be rotated. The control head cannot be rotated contrary to the actuator.

! DANGER!

Risk of injury from high pressure in the equipment/device.

- ▶ Before working on equipment or device, switch off the pressure and deaerate/drain lines.

Procedure:

- Clamp valve body in a holding device (only required if the process valve has not yet been installed).
- Control function A: Open process valve.

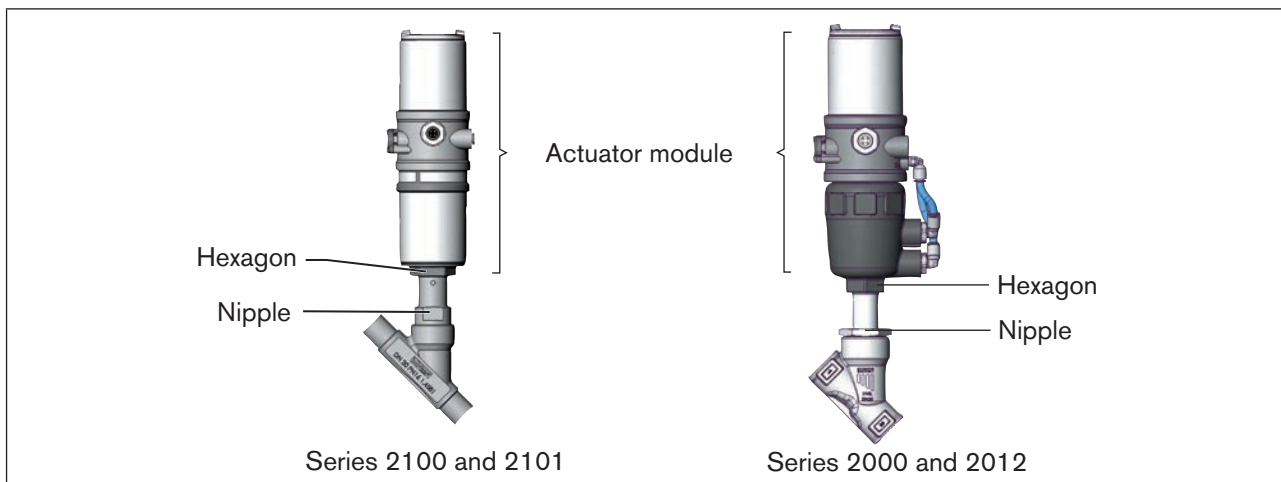


Figure 16: Rotating the actuator module

- Using a suitable open-end wrench, counter the wrench flat on the pipe.
- Place suitable open-end wrench on the hexagon of the actuator.

! WARNING!

Risk of injury from discharge of medium and pressure.

If the direction of rotation is wrong, the body interface may become detached.

- ▶ Rotate the actuator module counter-clockwise only (see “Figure 17”).

- Rotate counter-clockwise (as seen from below) to bring the actuator module into the required position.

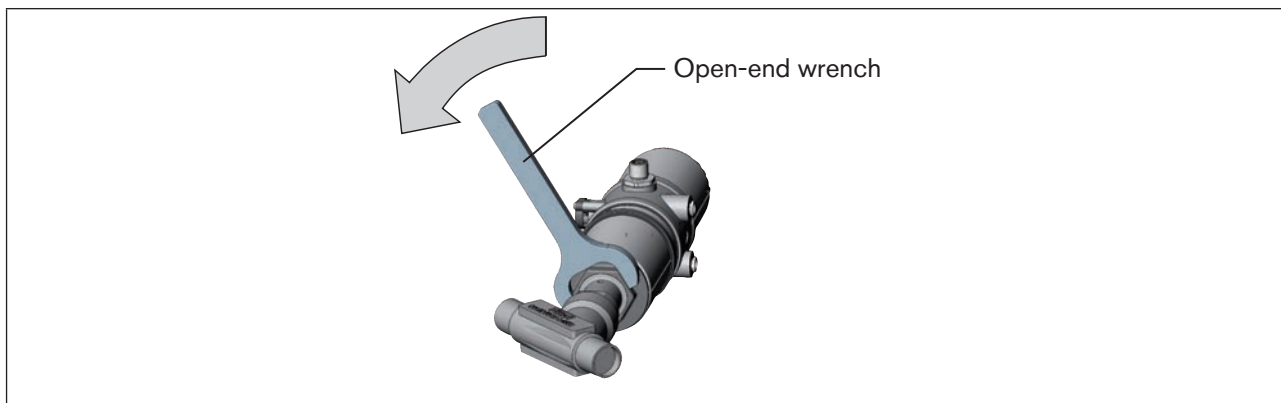


Figure 17: Rotating with open-end wrench

7.5 Rotating the control head for process valves belonging to series 20xx

If the connecting cables or hoses cannot be fitted properly following installation of the process valve, the control head can be rotated contrary to the actuator.

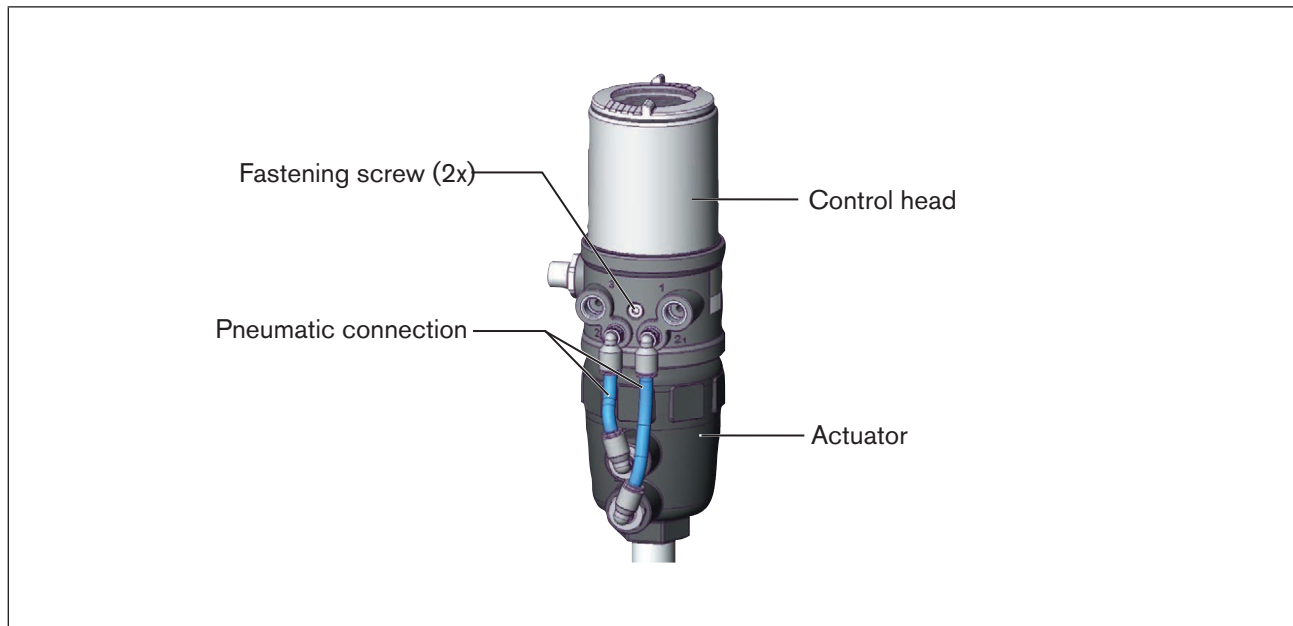


Figure 18: Rotating the control head, series 20xx

Procedure

- Loosen the pneumatic connection between the control head and the actuator.
- Loosen the fastening screws countersunk in the side of the body (hexagon socket wrench size 2.5).
- Rotate the control head into the required position.

NOTE!

Too high torque when screwing in the fastening screw does not ensure degree of protection IP65 / IP67.

- ▶ The fastening screws may be tightened to a maximum torque of 1.5 Nm only.

- Tighten the fastening screws hand-tight only (maximum torque: 1.5 Nm).
- Re-attach the pneumatic connections between the control head and the actuator. If required, use longer hoses.

8 PNEUMATIC INSTALLATION



DANGER!

Risk of injury from high pressure in the equipment/device.

- ▶ Before working on equipment or device, switch off the pressure and deaerate/drain lines.

Risk of electric shock.

- ▶ Before working on equipment or device, switch off the power supply and secure to prevent reactivation.
- ▶ Observe applicable accident prevention and safety regulations for electrical equipment.



WARNING!

Risk of injury from improper installation.

- ▶ Installation may be carried out by authorized technicians only and with the appropriate tools.

Risk of injury from unintentional activation of the system and an uncontrolled restart.

- ▶ Secure system from unintentional activation.
- ▶ Following installation, ensure a controlled restart.

Procedure:

- Connect the control medium to the pilot air port (1)
(3 – 7 bar; instrument air, free of oil, water and dust).
- Attach the exhaust airline or a silencer to the exhaust air port (3).



Important information for the problem-free functioning of the device:

- ▶ The installation must not cause back pressure to build up.
- ▶ Select a hose for the connection with an adequate cross-section.
- ▶ The exhaust air line must be designed in such a way that no water or other liquid can get into the device through the exhaust air port.

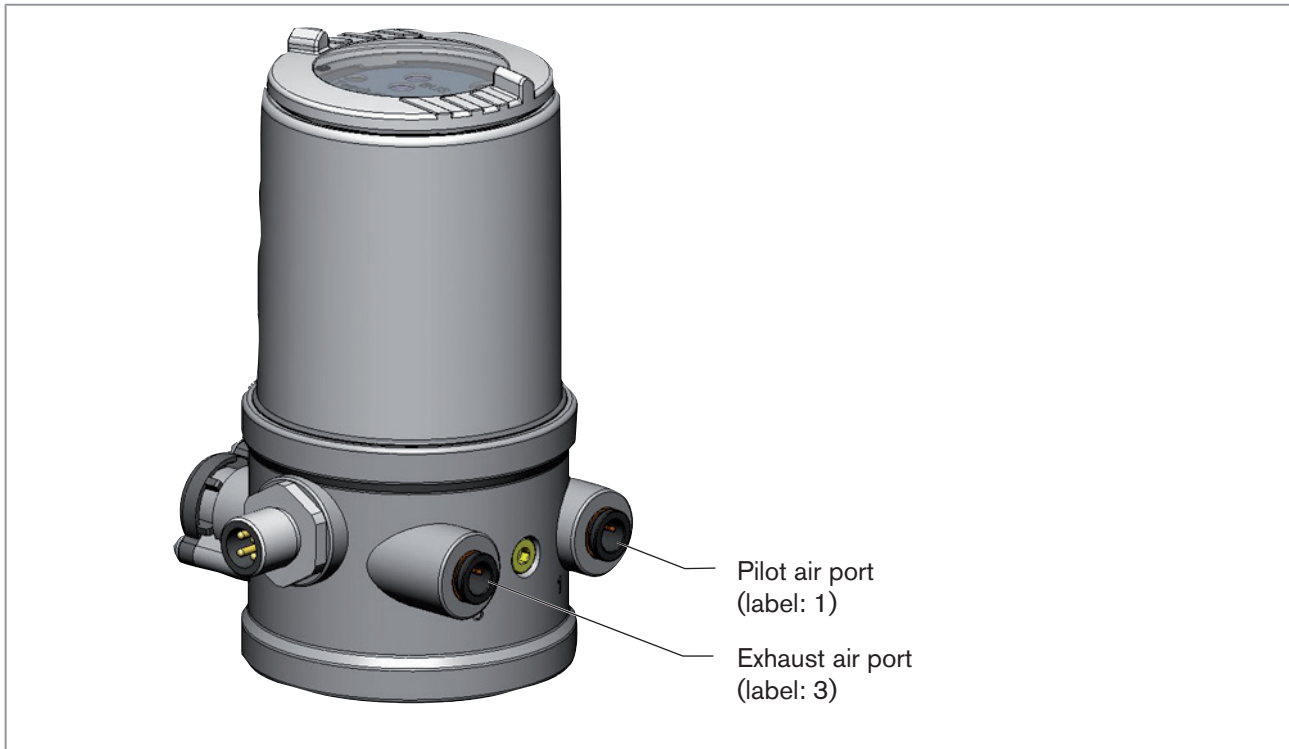


Figure 19: *Pneumatic connection*



Caution: (Air exhaust concept):

In compliance with degree of protection IP67, an air exhaust line must be installed in the dry area.

Keep the adjacent supply pressure **always** at least 0.5 – 1 bar above the pressure which is required to move the actuator to its end position.

9 ELECTRICAL INSTALLATION 24 V DC

The kind of connection is used for the electrical bonding of the control head:

- **Multi-pole**
with circular plug-in connector M12 x 1, 8-pole

9.1 Safety instructions



DANGER!

Risk of electric shock.

- ▶ Before working on equipment or device, switch off the power supply and secure to prevent reactivation.
- ▶ Observe applicable accident prevention and safety regulations for electrical equipment.



WARNING!

Risk of injury from improper installation.

- ▶ Installation may be carried out by authorized technicians only and with the appropriate tools.

Risk of injury from unintentional activation of the system and an uncontrolled restart.

- ▶ Secure system from unintentional activation.
- ▶ Following installation, ensure a controlled restart.

9.2 Electrical installation

Configuration circular plug (M12 x 1, 8-pole):

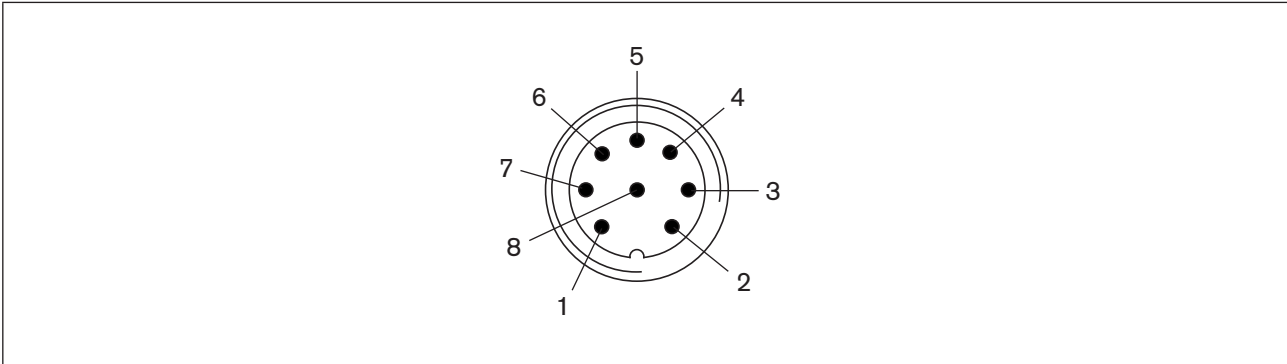


Figure 20: Circular plug M12 x 1, 8-pole

Pin	Wire color ³⁾	Designation	Configuration	External circuit / signal level
1	white	limit switch top	IN 1 (=Top)	
2	brown	limit switch bottom	IN 2 (=Bot)	
3	green	Supply voltage	GND	
4	yellow	Supply voltage +	24 V DC	
5	grey	Valve control unit +	Valve +	
6	pink	Valve control unit -	Valve -	
7		-	not used	
8		-	not used	

Table 3: Connection with circular plug-in connector

→ Connect the control head according to the table.

When the supply voltage is applied, the control head is operating.

→ To read in the end positions of the valve, start the teach function (see [“9.3 Teach function \(calibrating the end position\)”](#)).

³⁾ The indicated colors refer to the connecting cable available as an accessory (919061).

9.3 Teach function (calibrating the end position)

The teach function can be used to automatically determine and read in the end positions of the valve.



DANGER!

Risk of electric shock.

- ▶ Before working on equipment or device, switch off the power supply and secure to prevent reactivation.
- ▶ Observe applicable accident prevention and safety regulations for electrical equipment.



Necessary requirements:

Before you can actuate the teach function, you must

- mount the control head on the actuator,
- connect the supply voltage and
- connect the compressed-air supply.



DANGER!

Danger due to the valve position changing when the teach function is running.

When the teach function is running under operating pressure, there is an acute risk of injury.

- ▶ Never run the teach function while a process is running.
- ▶ Secure system from unintentional activation.

Procedure:

NOTE!

Breakage of the pneumatic connection pieces due to rotational impact.

- ▶ When unscrewing and screwing in the transparent cap, do not hold the actuator of the process valve but the connection housing.

→ Open the control head: turning the transparent cap anti-clockwise.

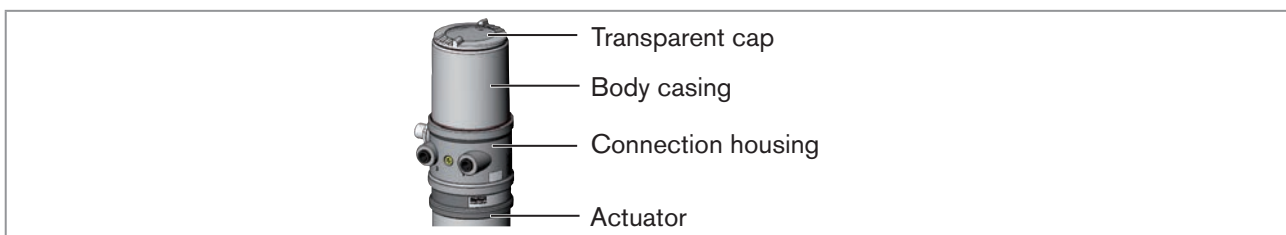


Figure 21: Open control head

→ The key in recess for actuating the Teach function keep pressed for approximately 5 seconds.

NOTE!

Breakage of the pneumatic connection pieces due to rotational impact.


- ▶ When unscrewing and screwing in the transparent cap, do not hold the actuator of the process valve but the connection housing.

Damage or malfunction due to penetration of dirt and humidity.

- ▶ To observe degree of protection IP65 / IP67, screw the transparent cap in all the way.

→ Close the device (assembly tool: 674078⁴⁾).

Key in recess for actuating the teach function (keep pressed for approximately 5 seconds)



Chronological description of the teach function:

- the bottom position is read in internally
- the pilot valve switches
- the actuator moves automatically to the top position
- the top position is read in internally
- the pilot valve is turned off
- the actuator moves back to the home position

Figure 22: Teach function

⁴⁾ The assembly tool (674078) is available from your Bürkert sales office.

9.4 Display and control elements 24 V DC

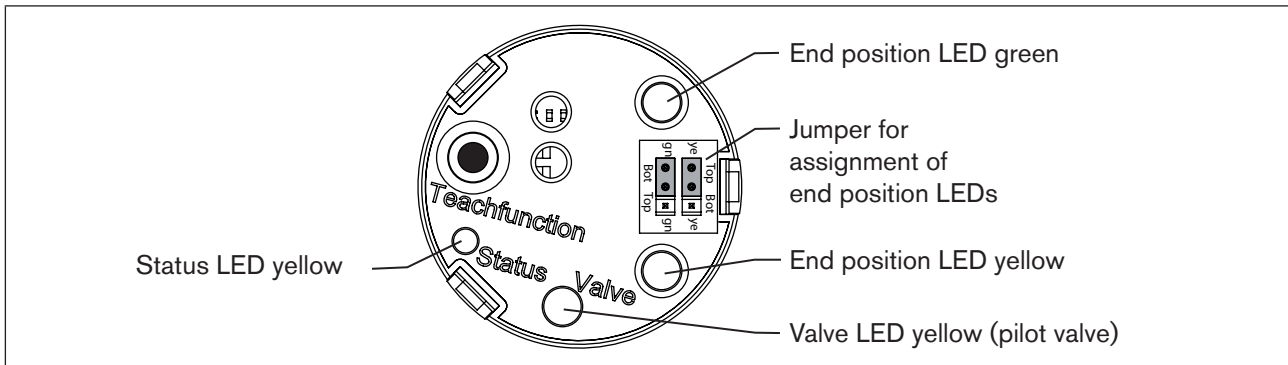


Figure 23: Description LED and Jumpers - 24 V DC

NOTE!

Breakage of the pneumatic connection pieces due to rotational impact.

- ▶ When unscrewing and screwing in the transparent cap, do not hold the actuator of the process valve but the connection housing.

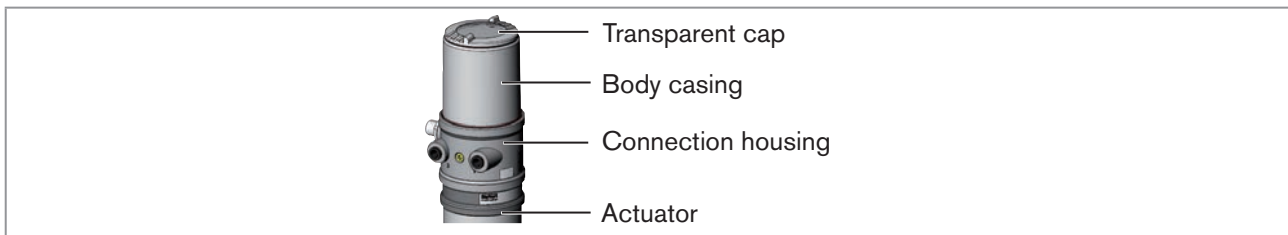


Figure 24: Open control head

NOTE!

Damage or malfunction due to penetration of dirt and humidity.

- ▶ To observe degree of protection IP65 / IP67, screw the transparent cap in all the way.

9.4.1 Status LED yellow

LED yellow	
flashing	Teach function is running
flickers	Puck not available → Insert puck

Table 4: Status LED yellow - 24 V DC

9.4.2 Valve LED yellow

The yellow LED (valve) indicates whether the pilot valve is actuated (LED is lit yellow).

9.4.3 End position LED green and yellow

Factory setting:

Color	Device status
green LED on	End position bottom
yellow LED on	End position top

Table 5: Assignment of end position LEDs - 24 V DC

9.4.4 Jumper function

You can set the color assignment of the end positions with the jumpers. You can indicate for each color whether it applies to the Top (end position top) or Bot (end position bottom).

9.4.5 Change assignment of the end position LEDs



DANGER!

Risk of electric shock.

- ▶ Before working on equipment or device, switch off the power supply and secure to prevent reactivation.
- ▶ Observe applicable accident prevention and safety regulations for electrical equipment.

Procedure:

NOTE!

Breakage of the pneumatic connection pieces due to rotational impact.

- ▶ When unscrewing and screwing in the transparent cap, do not hold the actuator of the process valve but the connection housing.

→ Open control head: turn the transparent cap anti-clockwise.

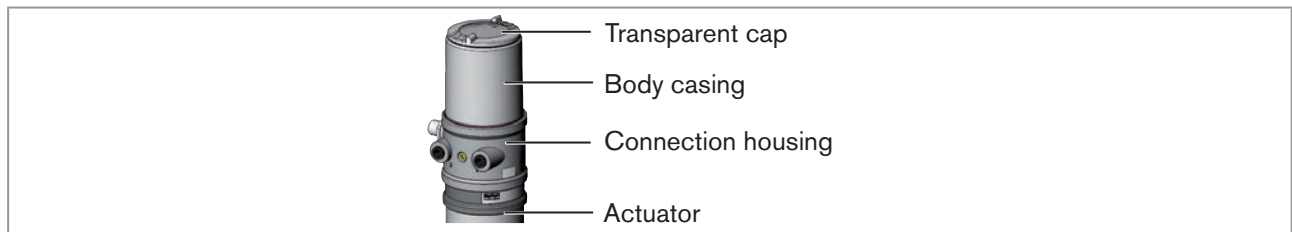


Figure 25: Open control head

→ Using the jumpers, assign the required color to the end position LEDs.

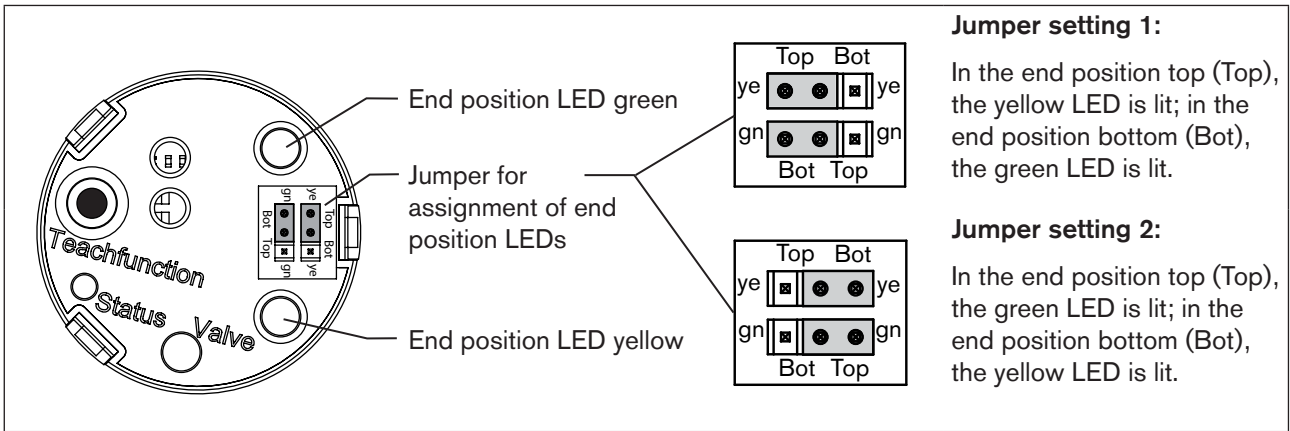


Figure 26: Description end position LEDs and Jumper - 24 V DC

NOTE!

Breakage of the pneumatic connection pieces due to rotational impact.

- ▶ When unscrewing and screwing in the transparent cap, do not hold the actuator of the process valve but the connection housing.

Damage or malfunction due to penetration of dirt and humidity.

- ▶ To observe degree of protection IP65 / IP67, screw the transparent cap in all the way.

→ Close the device (assembly tool: 674078⁵⁾).

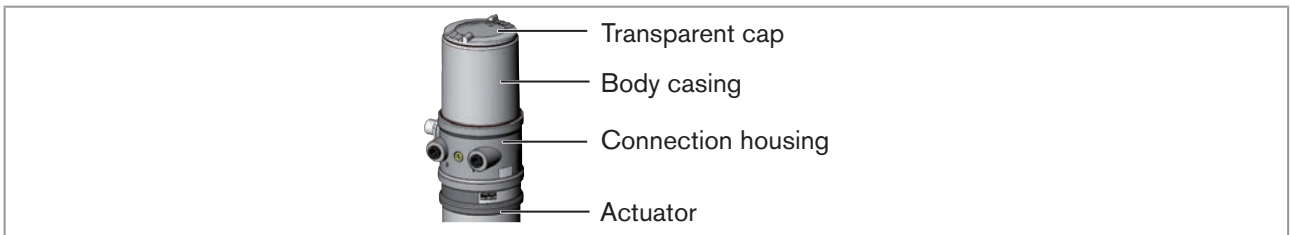


Figure 27: Close control head

⁵⁾ The assembly tool (674078) is available from your Bürkert sales office.

10 AS-INTERFACE INSTALLATION

10.1 AS-Interface connection

AS-Interface (Actuator Sensor Interface) is a field bus system which is used primarily for networking binary sensors and actuators (slaves) with a higher-level control (master).

Bus line

Unshielded two-wire line (AS-Interface line as AS-Interface cable harness) along which both information (data) and energy (supply voltage for the actuators and sensors) are transmitted.

Network topology

Freely selectable within wide limits, i.e. star, tree and line networks are possible. Further details are described in the AS-Interface specification (A/B slave model conforms to the version 3.0 specification).

10.2 Technical data for AS-Interface PCBs

Supply: via AS-Interface (24 V + 20 % / -10 %)

Outputs: 1 Valve Y1, max. 1 W, Power reduction after approx. 100 ms with integrated Watch-Dog function

Certification: Certificate no. 87301 after version 3.0

10.3 Programming data

I/O configuration	B hex
ID code	A hex (see below for bit configuration)
Extended ID code 1	7 hex
Extended ID code 2	E hex
Profile	S-B.A.E

Table 6: Programming data

Bit configuration

Data bit	D3	D2	D1	D0
Input	0 Top not reached	0 Bot not reached	–	–
	1 Top reached	1 Bot reached		
Output	–	–	not used	0 Pilot valve OFF
				1 Pilot valve ON
Parameter bit	P3	P2	P1	P0
Output	not used	not used	not used	“0” START Teach function “1” STOP Teach function

Table 7: Bit configuration

10.4 Electrical installation AS-Interface

10.4.1 Safety instructions



DANGER!

Risk of electric shock.

- ▶ Before working on equipment or device, switch off the power supply and secure to prevent reactivation.
- ▶ Observe applicable accident prevention and safety regulations for electrical equipment.



WARNING!

Risk of injury from improper installation.

- ▶ Installation may be carried out by authorized technicians only and with the appropriate tools.

Risk of injury from unintentional activation of the system and an uncontrolled restart.

- ▶ Secure system from unintentional activation.
- ▶ Following installation, ensure a controlled restart.

10.4.2 Connection with circular plug-in connector M12 x 1, 4-pole, male

→ Connect the control head according to the table.

Bus connection (circular plug M12 x 1, 4-pole, male)

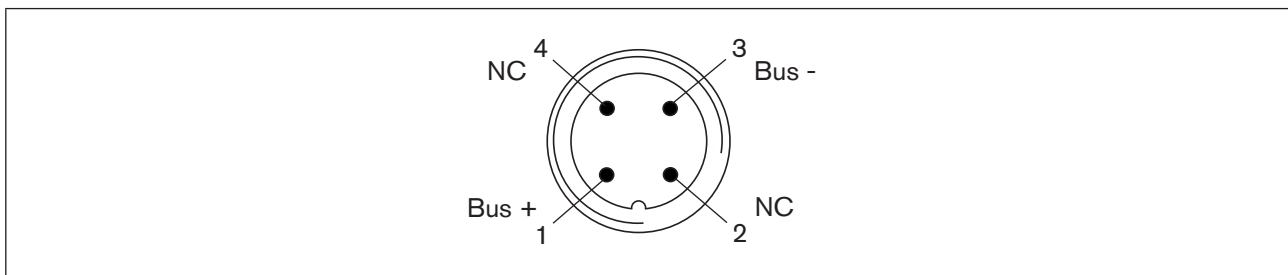


Figure 28: Circular plug M12 x1, 4-pole

Pin	Designation	Configuration
1	Bus +	AS-Interface bus line +
2	NC	not used
3	Bus -	AS-Interface bus line -
4	NC	not used

Table 8: Pin assignment of circular plug-in connector for AS-Interface

10.4.3 Connection with multi-pole cable and ribbon cable terminal

As an alternative to the bus connection model with 4-pole circular plug, there is the control head with multi-pole cable (M12 circular plug) and ribbon cable terminal. The wiring diagram of the circular plug corresponds to the bus connection of the M12 4-pole circular plug and can easily be connected to the ribbon cable terminal (see "Figure 30").



Figure 29: Control head 8695 with multi-pole cable and ribbon cable terminal

Handling the ribbon cable terminal

The multi-pole cable features a ribbon cable terminal - with M12 plug-in connector branch circuit - for AS-Interface cable harness. The ribbon cable terminal contacts the AS-Interface cable harness by means of penetration technology which allows installation by "clipping in" the AS-Interface cable harness without cutting and without removing insulation.

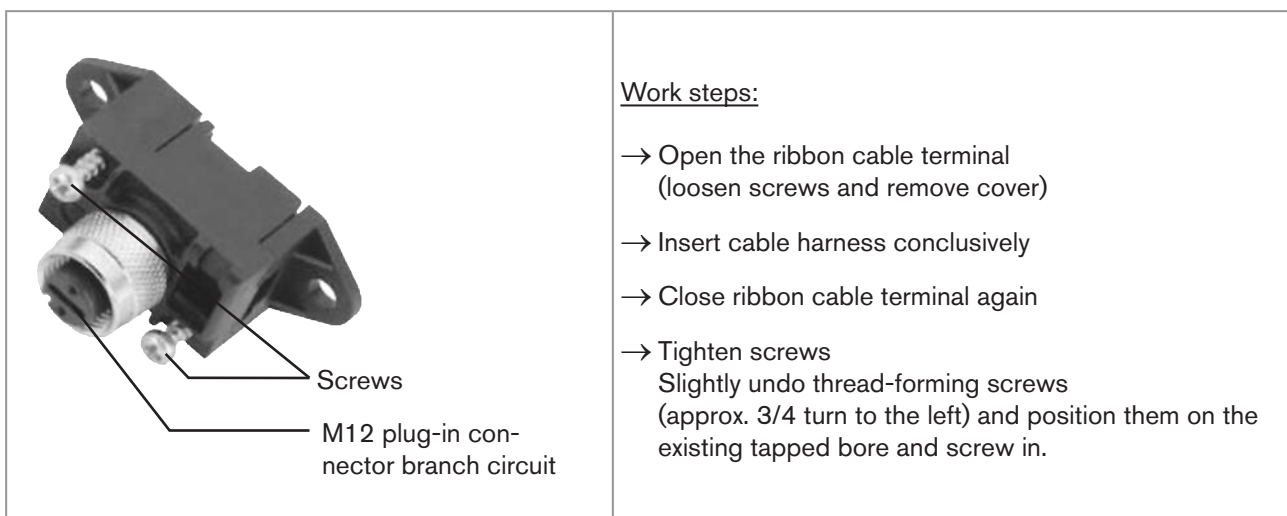


Figure 30: Ribbon cable terminal

10.5 Teach function (calibrating the end position)

The teach function can be used to automatically determine and read in the end positions of the valve.



For the bus variant AS-Interface, the teach function can also be started via the bus protocol.



DANGER!

Risk of electric shock.

- ▶ Before working on equipment or device, switch off the power supply and secure to prevent reactivation.
- ▶ Observe applicable accident prevention and safety regulations for electrical equipment.



Necessary requirements:

Before you can actuate the teach function, you must

- mount the control head on the actuator,
- connect the supply voltage and
- connect the compressed-air supply.



DANGER!

Danger due to the valve position changing when the teach function is running.

When the teach function is running under operating pressure, there is an acute risk of injury.

- ▶ Never run the teach function while a process is running.
- ▶ Secure system from unintentional activation.

Procedure:

NOTE!

Breakage of the pneumatic connection pieces due to rotational impact.

- ▶ When unscrewing and screwing in the transparent cap, do not hold the actuator of the process valve but the connection housing.

→ Open the control head: turning the transparent cap anti-clockwise.

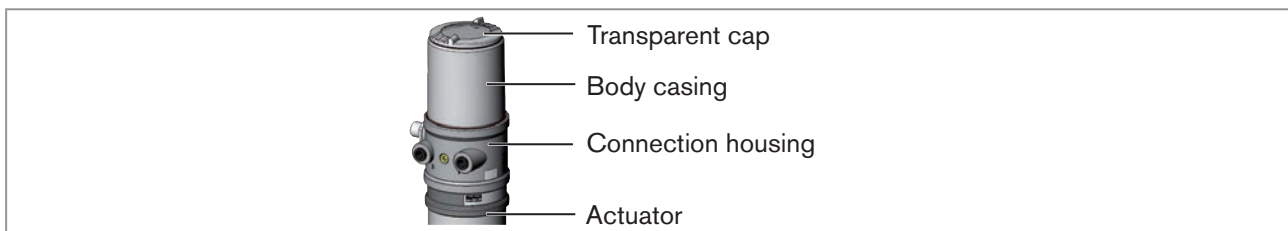



Figure 31: Open control head

→ The key in recess for actuating the teach function keep pressed for approximately 5 seconds.

Key in recess for actuating the teach function (keep pressed for approximately 5 seconds)



Chronological description of the teach function:

- the bottom position is read in internally
- the pilot valve switches
- the actuator moves automatically to the top position
- the top position is read in internally
- the pilot valve is turned off
- the actuator moves back to the home position

Figure 32: Teach function

NOTE!

Breakage of the pneumatic connection pieces due to rotational impact.

- ▶ When unscrewing and screwing in the transparent cap, do not hold the actuator of the process valve but the connection housing.

Damage or malfunction due to penetration of dirt and humidity.

- ▶ To observe degree of protection IP65 / IP67, screw the transparent cap in all the way.

→ Close the device (assembly tool: 674078⁶⁾).

Important:

When the teach function is activated the actuator cannot be actuated via the AS-Interface communication.

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⁶⁾ The assembly tool (674078) is available from your Bürkert sales office.

10.6 Display and control elements AS-Interface

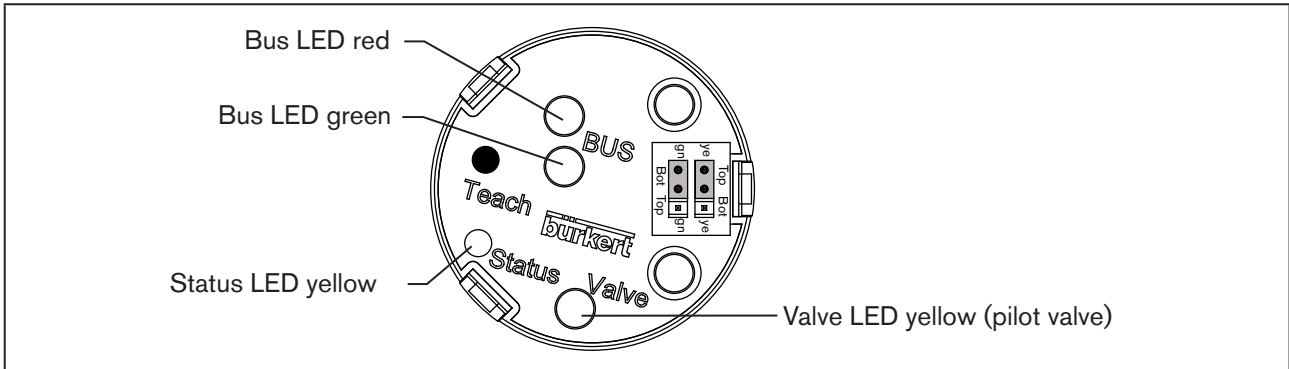


Figure 33: Description LED and Jumper - AS-Interface

NOTE!

Breakage of the pneumatic connection pieces due to rotational impact.

- ▶ When unscrewing and screwing in the transparent cap, do not hold the actuator of the process valve but the connection housing.

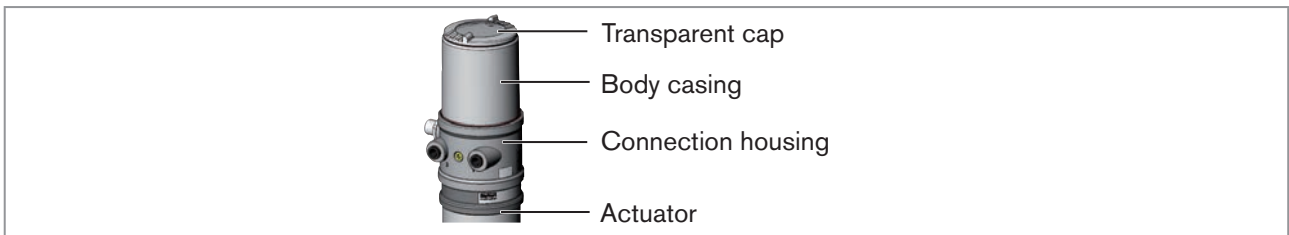


Figure 34: Open control head

NOTE!

Damage or malfunction due to penetration of dirt and humidity.

- ▶ To observe degree of protection IP65 / IP67, screw the transparent cap in all the way.

10.6.1 Status LED yellow

LED yellow	
flashing	Teach function is running
flickers	Puck PCB or puck not available → Insert puck PCB or puck.

Table 9: Status LED yellow - AS-Interface

10.6.2 Valve LED yellow

The yellow LED (valve) indicates whether the pilot valve is actuated (LED is lit yellow).

10.6.3 Bus LED red and green

The red and green LEDs (bus) indicate the bus status:

LED green	LED red	
off	off	POWER OFF
off	on	No data traffic (expired Watch Dog at slave address does not equal 0)
on	off	OK
flashing	on	Slave address equals 0
off	flashing	Sensor supply overloaded or external reset

Table 10: LED bus status - AS-Interface

10.6.4 End position LEDs

The end position is displayed optically by colored LEDs.

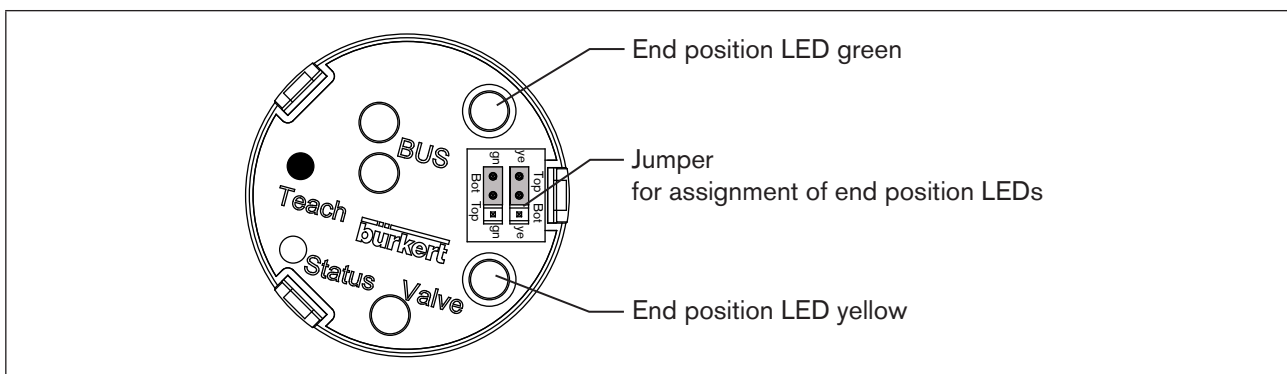


Figure 35: Description end position LEDs and Jumpers - AS-Interface

NOTE!

Breakage of the pneumatic connection pieces due to rotational impact.

- ▶ When unscrewing and screwing in the transparent cap, do not hold the actuator of the process valve but the connection housing.

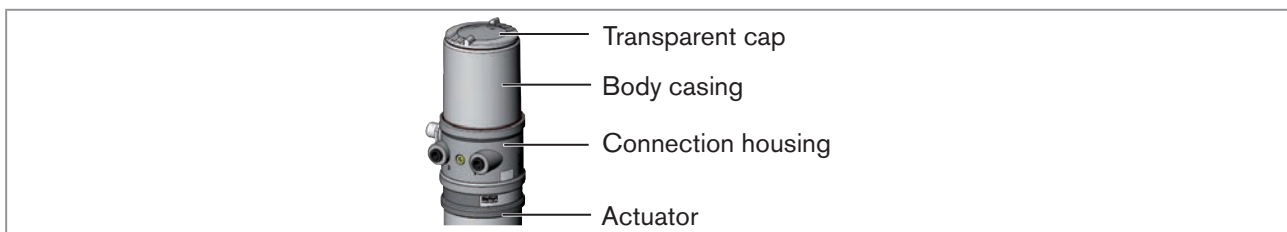


Figure 36: Open control head

NOTE!

Damage or malfunction due to penetration of dirt and humidity.

- ▶ To observe degree of protection IP65 / IP67, screw the transparent cap in all the way.

Factory setting:

Color	Device status
green LED on	End position bottom
yellow LED off	End position top

Table 11: Assignment of LEDs - AS-Interface

10.6.5 Jumper function

You can set the color assignment of the end positions with the jumpers.

You can indicate for each color whether it applies to the Top (end position top) or Bot (end position bottom).

10.6.6 Change assignment of the end position LEDs

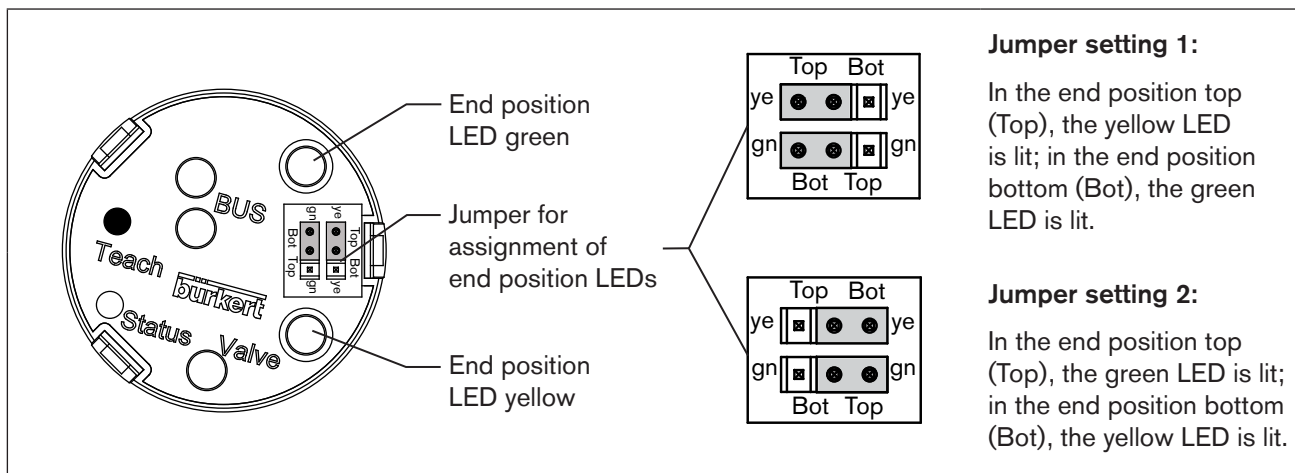


Figure 37: Assignment of the end position LED - AS-Interface

! DANGER!

Risk of electric shock.

- ▶ Before working on equipment or device, switch off the power supply and secure to prevent reactivation.
- ▶ Observe applicable accident prevention and safety regulations for electrical equipment.

Procedure:

NOTE!

Breakage of the pneumatic connection pieces due to rotational impact.

- ▶ When unscrewing and screwing in the transparent cap, do not hold the actuator of the process valve but the connection housing.

→ Open the control head: turning the transparent cap anti-clockwise.

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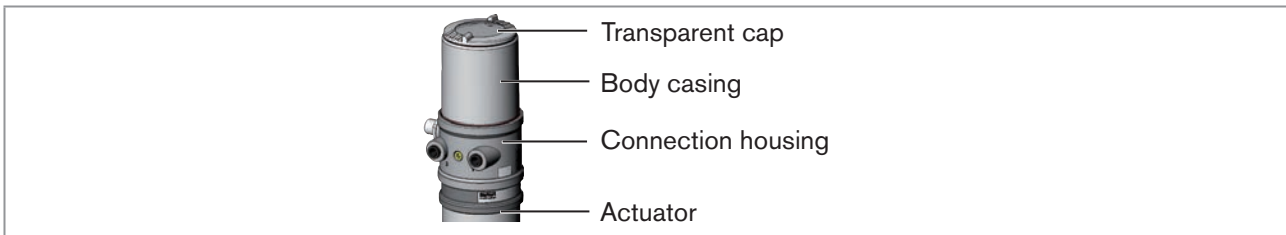


Figure 38: Open control head

→ Using the jumpers, assign the required color to the LEDs (see [“Figure 37: Assignment of the end position LED - AS-Interface”](#)).

NOTE!

Damage or malfunction due to penetration of dirt and humidity.

- ▶ To observe degree of protection IP65 / IP67, screw the transparent cap in all the way.

→ Close the device (assembly tool: 674078⁷⁾).

⁷⁾ The assembly tool (674078) is available from your Bürkert sales office.

11 DEVICENET INSTALLATION


11.1 Definition

- The DeviceNet is a field bus system which is based on the CAN protocol (Controller Area Network). It enables actuators and sensors (slaves) to be networked with higher-level controllers (master).
- The control head in the DeviceNet is a slave device according to the Predefined Master/Slave Connection Set stipulated in the DeviceNet specification. Polled I/O, Bit Strobed I/O and Change of State (COS) are supported as an I/O connection variant.
- With DeviceNet it is necessary to differentiate between cyclical or event-driven high-priority process messages (I/O Messages) and acyclical low-priority management messages (Explicit Messages).
- The protocol process conforms to the **DeviceNet specification Release 2.0**.

11.2 Technical data

EDS file	BUE8695.EDS
Icons	BUE8695.ICO
Baudrate	125 kbit/s, 250 kbit/s, 500 kbit/s (via DIP switches); Factory setting: 125 kbit/s
Address	0 – 63 (via DIP switches); Factory setting: 63
Process data	1 static input assembly (input: from the control head 8695 to the DeviceNet Master/Scanner) 1 static output assembly

11.3 Maximum line lengths

 The maximum total line length (sum of trunk lines and drop lines) of a network depends on the baudrate.

11.3.1 Total line length according to DeviceNet specification

Baudrate	Maximum total line length ⁸⁾	
	Thick cable	Thin cable
125 kbaud	500 m	100 m for all baudrates
250 kbaud	250 m	
500 kbaud	100 m	

Table 12: Total line length

⁸⁾ According to DeviceNet specification.
If a different cable type is used, lower maximum values apply.

11.3.2 Drop line length

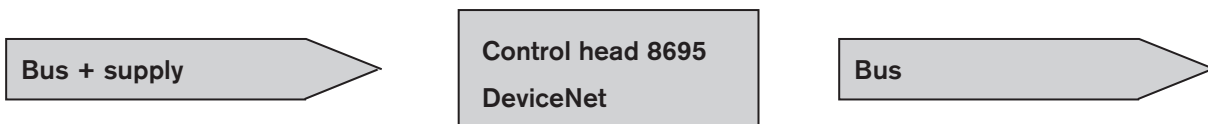
Baudrate	Length of the drop lines	
	Maximum length	Maximum total length in the network
125 kbaud	6 m for all baudrates	156 m
250 kbaud		78 m
500 kbaud		39 m

Table 13: Drop line length

11.4 Safety setting if the bus fails

If the bus fails, the pilot valve is switched to a programmable safety setting (default: pilot valve isolated). For configuration data see chapter entitled "[11.9 Configuring the control head](#)".

11.5 Interfaces



11.6 Electrical connection DeviceNet

The bus line is a 4-core cable with additional shielding which must conform to the DeviceNet specification. The cable transmits both information (data) and energy (supply voltage for low-power actuators and sensors).

11.6.1 Safety instructions

! DANGER!

Risk of electric shock.

- ▶ Before working on equipment or device, switch off the power supply and secure to prevent reactivation.
- ▶ Observe applicable accident prevention and safety regulations for electrical equipment.

! WARNING!

Risk of injury from improper installation.

- ▶ Installation may be carried out by authorized technicians only and with the appropriate tools.

Risk of injury from unintentional activation of the system and an uncontrolled restart.

- ▶ Secure system from unintentional activation.
- ▶ Following installation, ensure a controlled restart.

11.6.2 Display and control elements DeviceNet

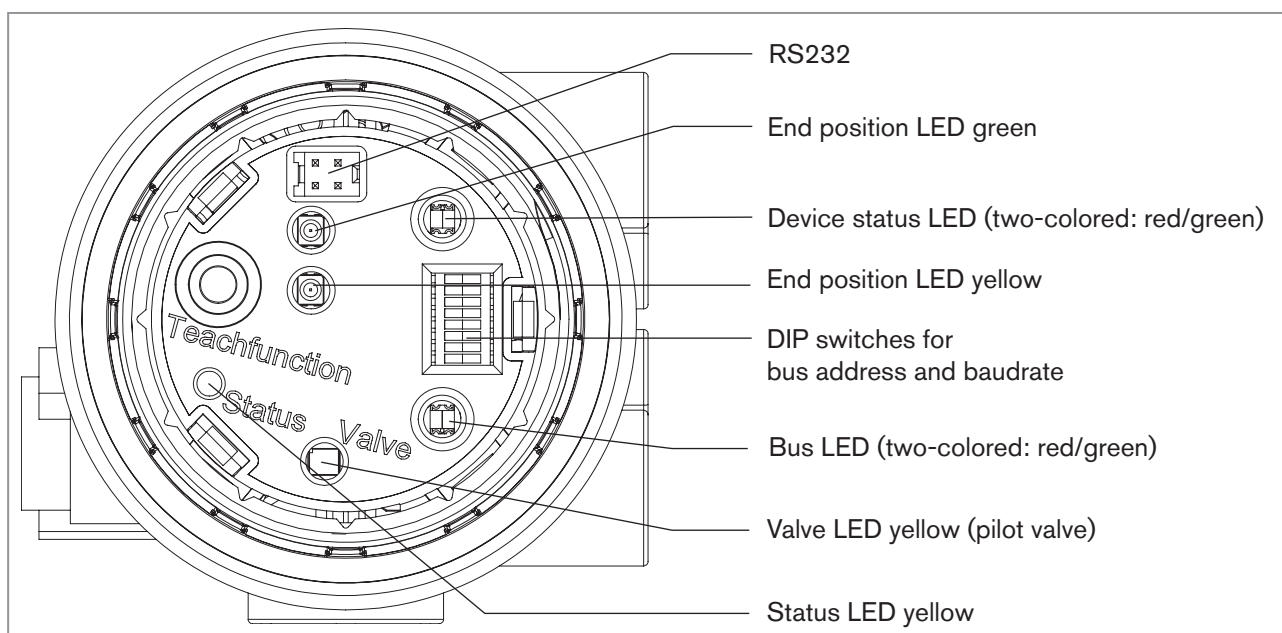


Figure 39: Display and control elements - DeviceNet

11.6.3 Bus connection (circular connector M12 x 1, 5-pole, male)

The control head features a 5-pole micro-style circular connector.

The following configuration conforms to the DeviceNet specification.

Pin	1	2	3	4	5
Signal	Shielding	V +	V -	CAN_H	CAN_L

Table 14: Pin assignment circular plug-in connector DeviceNet

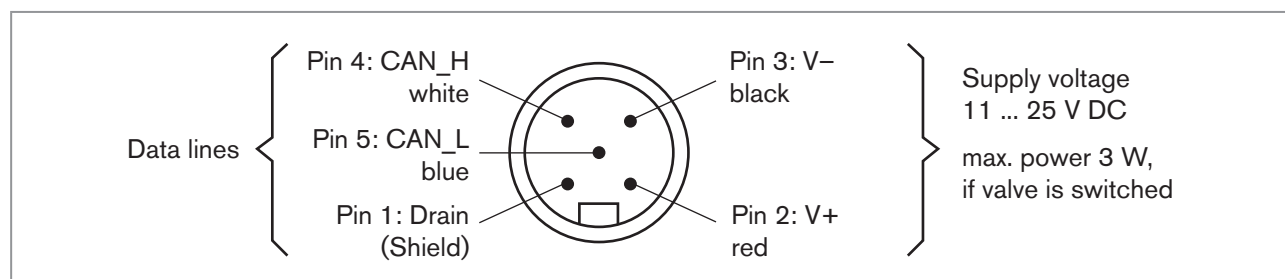


Figure 40: View of plug from the front onto the pins, the soldered connections are behind

11.7 Terminating circuit for DeviceNet systems

When installing a DeviceNet system, ensure that the terminating circuit of the data lines is correct.

The circuit prevents the occurrence of interference caused by signals reflected onto the data lines.

The trunk line must be terminated at both ends with resistors of 120 Ω each and 1/4 W power loss (see "Figure 41: Network topology - DeviceNet").

11.8 Network topology of a DeviceNet system

Line with a trunk line and several drop lines.

Trunk lines and drop lines consist of identical material (see "Figure 41").

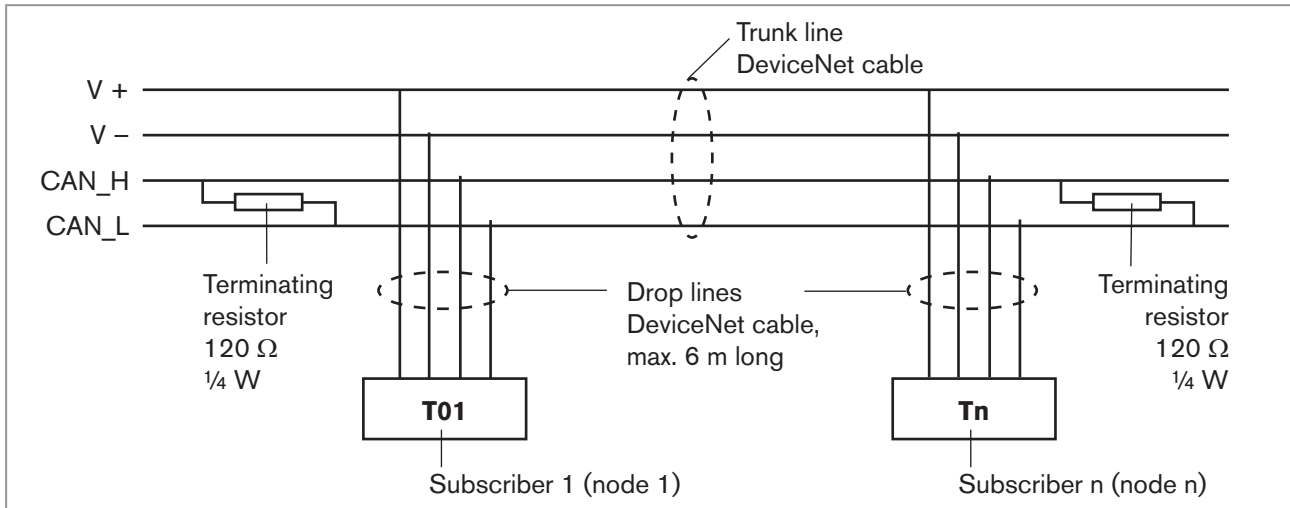


Figure 41: Network topology - DeviceNet

11.9 Configuring the control head

11.9.1 DIP switches

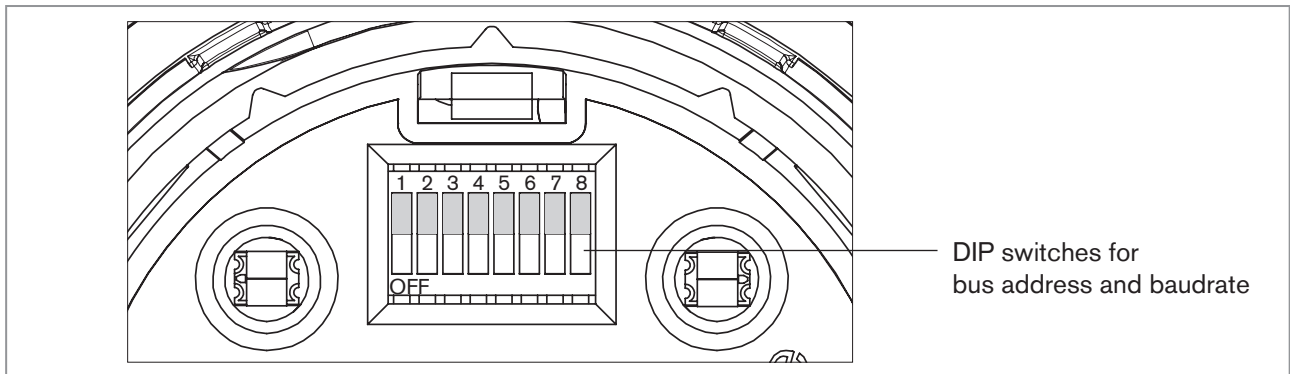


Figure 42: DIP switches - DeviceNet

8 DIP switches are available for configuration:

- DIP switches 1 to 6 for the DeviceNet address
- DIP switches 7 to 8 for the baudrate

! DANGER!

Risk of electric shock.

- ▶ Before working on equipment or device, switch off the power supply and secure to prevent reactivation.
- ▶ Observe applicable accident prevention and safety regulations for electrical equipment.

Procedure:

NOTE!

Breakage of the pneumatic connection pieces due to rotational impact.

- ▶ When unscrewing and screwing in the transparent cap, do not hold the actuator of the process valve but the connection housing.

→ Open the control head: turning the transparent cap anti-clockwise.

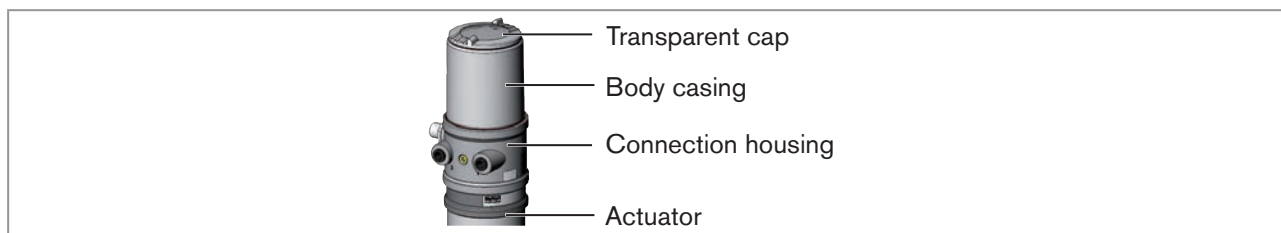


Figure 43: Open control head

→ Set the DIP switches according to the following tables.

NOTE!

Damage or malfunction due to penetration of dirt and humidity.

- ▶ To observe degree of protection IP65 / IP67, screw the transparent cap in all the way.

→ Close the device (assembly tool: 674078⁹⁾).

Settings of the DeviceNet address

MAC ID - Medium Access Control Identifier:

[DIP 1=off=0 / DIP 1=on=1 / MAC ID=DIP 1*2⁰+DIP 2*2¹+...+DIP 6*2⁵]

DIP 1 [20=1]	DIP 2 [21=2]	DIP 3 [22=4]	DIP 4 [23=8]	DIP 5 [24=16]	DIP 6 [25=32]	MAC ID
off	off	off	off	off	off	0
on	off	off	off	off	off	1
off	on	off	off	off	off	2
...
off	on	on	on	on	on	62
on	on	on	on	on	on	63

Table 15: Settings of the DeviceNet address

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⁹⁾ The assembly tool (674078) is available from your Bürkert sales office.

Setting the baudrate

Adjusting the control head to the baudrate of the network.

DIP 7	DIP 8	Baudrate
off	off	125 kbaud
on	off	250 kbaud
off	on	500 kbaud
on	on	not permitted

Table 16: Setting the baudrate



Please note: If the settings are changed by actuating the DIP switches, this change will not take effect until the device is restarted.

For a restart

- briefly disconnect the control head from the power supply and reconnect or
- switch the power supply off/on or
- transmit an appropriate reset message.

11.10 Configuration of the process data

To transmit process data via an I/O connection, 1 static input and 1 static output assembly can be selected. These assemblies contain selected attributes combined into one object so that process data can be transmitted collectively via an I/O connection.

Process data can be accessed

- cyclically in the connection variants “Polled I/O” and “Bitstrobed I/O”, with “Change of state”, if input values change, or
- acyclically via Explicit Messages.

The access path for acyclical access is:

```
class 4
instance 1
attribute 3
```

With the *Get_Attribute_Single* service the input data can be accessed acyclically for reading.

With the *Set_Attribute_Single* service the output data can be accessed acyclically for writing.

1 data byte for inputs:
(sensors or initiators)

Bit	Sensor	Value assignment
Bit 0	End position	0 Bot not reached 1 Bot reached
Bit 1	End position	0 Top not reached 1 Top reached
Bit 2...	not used	0 always
Bit 7		

Table 17: data byte for inputs

1 data byte for outputs:
(actuators or valves)

Bit	Solenoid valve	Value assignment
Bit 0	Y1	0 Pilot valve OFF 1 Pilot valve ON
Bit 1...	not used	0 always
Bit 7		

Table 18: data byte for outputs

11.11 Configuration of the safety position of pilot valves for bus error

If a bus fault occurs, the bus LED may assume the “Green flashing”, “Red flashing” or “Red” status. (For a description see [“Status of the bus LED”, page 58](#))

The valve safety position and safety module attributes can be used to configure the pilot valve in the event of a bus fault. If a bus fault occurs, the configuration data of the pilot valves can be accessed acyclically via Explicit Messages.

- The *Get_Attribute_Single* service stands for a read access of the configuration data.
- The *Set_Attribute_Single* service stands for a write access of the configuration data.

1 data byte for safety mode:
(Attribute address: class 150, instance 1, attributes 7)

Bit	Mode	Value assignment
Bit 0	Characteristics in event of bus fault	0 Output safety position 1 Retain last valve position
Bit 1...7	not used	0 always

Table 19: data byte for safety mode

1 data byte for valve safety position:
(Attribute address: class 150, instance 1, attributes 6)

Bit	Solenoid valve	Value assignment
Bit 0	Y1 (Pilot valve 1)	0 Pilot valve 1 OFF 1 Pilot valve 1 ON
Bit 1...	not used	0 always
Bit 7		

Table 20: data byte for valve safety position

11.12 Teach function (calibrating the end position)

The teach function can be used to automatically determine and read in the end positions of the actuator.



For the bus variant DeviceNet, the teach function can also be started via the bus protocol as well as the communicator software (see [“11.12.1 Starting the teach function”](#)).



DANGER!

Risk of electric shock.

- ▶ Before working on equipment or device, switch off the power supply and secure to prevent reactivation.
- ▶ Observe applicable accident prevention and safety regulations for electrical equipment.



Necessary requirements:

Before you can actuate the each function, you must

- mount the control head on the actuator,
- connect the supply voltage and
- connect the compressed-air supply.

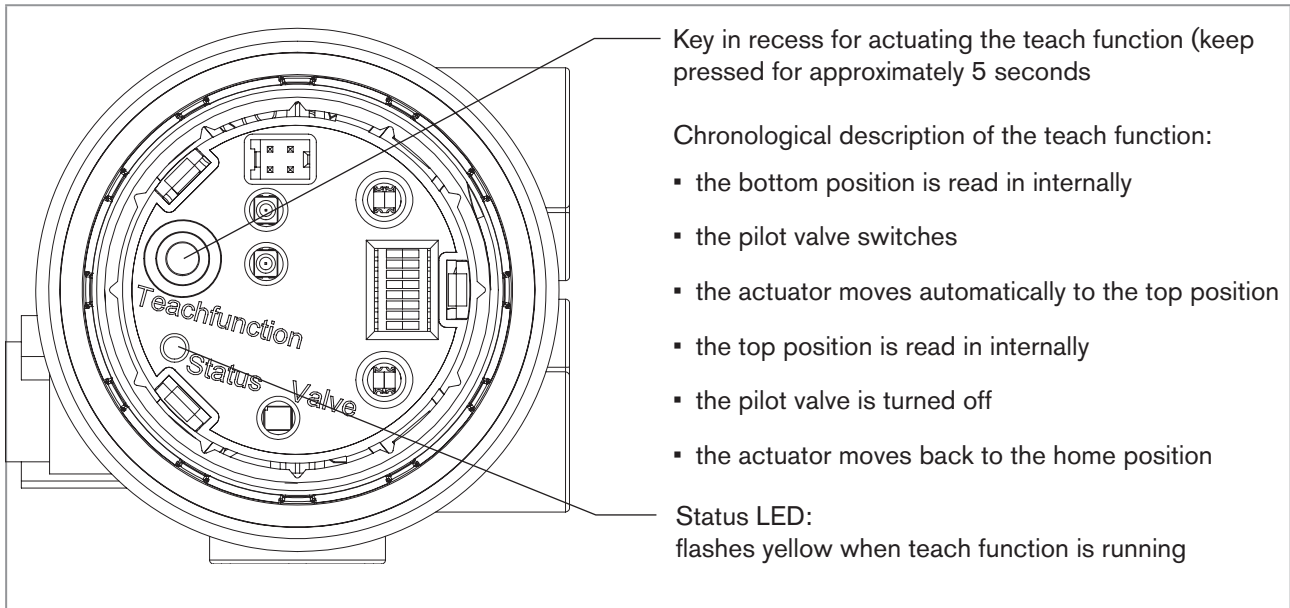


Figure 44: Teach function



DANGER!

Danger due to the valve position changing when the teach function is running.

When the teach function is running under operating pressure, there is an acute risk of injury.

- ▶ Never run the teach function while a process is running.
- ▶ Secure system from unintentional activation.

Procedure:

NOTE!

Breakage of the pneumatic connection pieces due to rotational impact.

- ▶ When unscrewing and screwing in the transparent cap, do not hold the actuator of the process valve but the connection housing.

→ Open the control head: turning the transparent cap anti-clockwise.

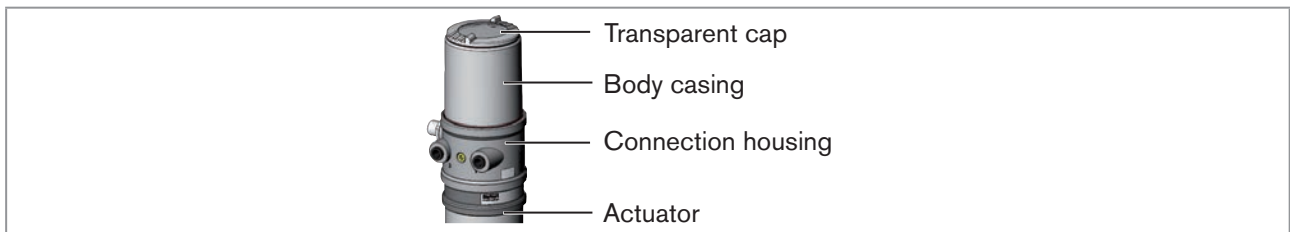


Figure 45: Open control head

→ The key in recess for actuating the teach function keep pressed for approximately 5 seconds.

NOTE!

Breakage of the pneumatic connection pieces due to rotational impact.

- ▶ When unscrewing and screwing in the transparent cap, do not hold the actuator of the process valve but the connection housing.

Damage or malfunction due to penetration of dirt and humidity.

- ▶ To observe degree of protection IP65 / IP67, screw the transparent cap in all the way.

→ Close the device (assembly tool: 674078¹⁰⁾).

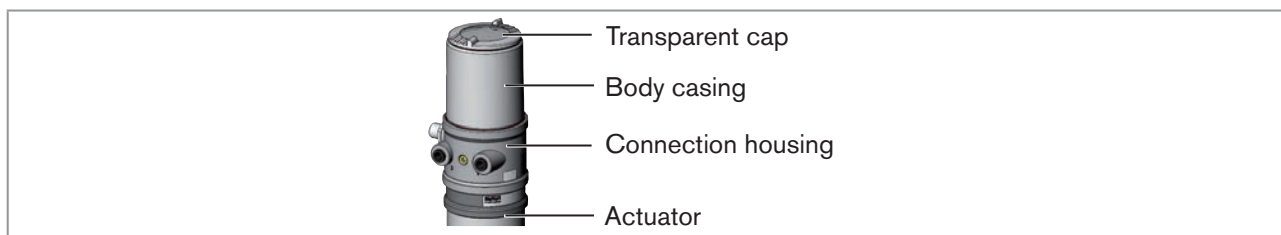


Figure 46: Control head



When the teach function is activated the actuator cannot be actuated via the DeviceNet communication.

¹⁰⁾ The assembly tool (674078) is available from your Bürkert sales office.

11.12.1 Starting the teach function



DANGER!

Danger due to the valve position changing when the teach function is running.

When the teach function is running under operating pressure, there is an acute risk of injury.

- ▶ Never run the teach function while a process is running.
- ▶ Secure system from unintentional activation.

The teach function can be started and read out via the “*Teach function*” attribute.

User 2 can receive information through the read out:

- firstly he is informed whether the teach function is completed.
- after the teach function is completed, the result of the function can be read out.

Access occurs acyclically via Explicit Messages with the *Set_Attribute_Single* (write access) service and the *Get_Attribute_Single* service (read access).

1 data byte for teach function:

(Attribute address: class 150, instance 1, attributes 8)

Set_Attribute_Single:

Bit	Mode	Value assignment
Bit 0	Teach function	0 Start teach function
Bit 1	not used	– (only read access permitted)
Bit 2...7	not used	0 always

Table 21: *Set_Attribute_Single*

Get_Attribute_Single:

Bit	Mode	Value assignment
Bit 0	Teach function	0 Teach function is running 1 Teach function is completed
Bit 1	Result of teach function (available after end of teach function)	0 Teach function successfully completed 1 Teach function defective
Bit 2...7	not used	0 always

Table 22: *Get_Attribute_Single*

11.13 Display elements DeviceNet

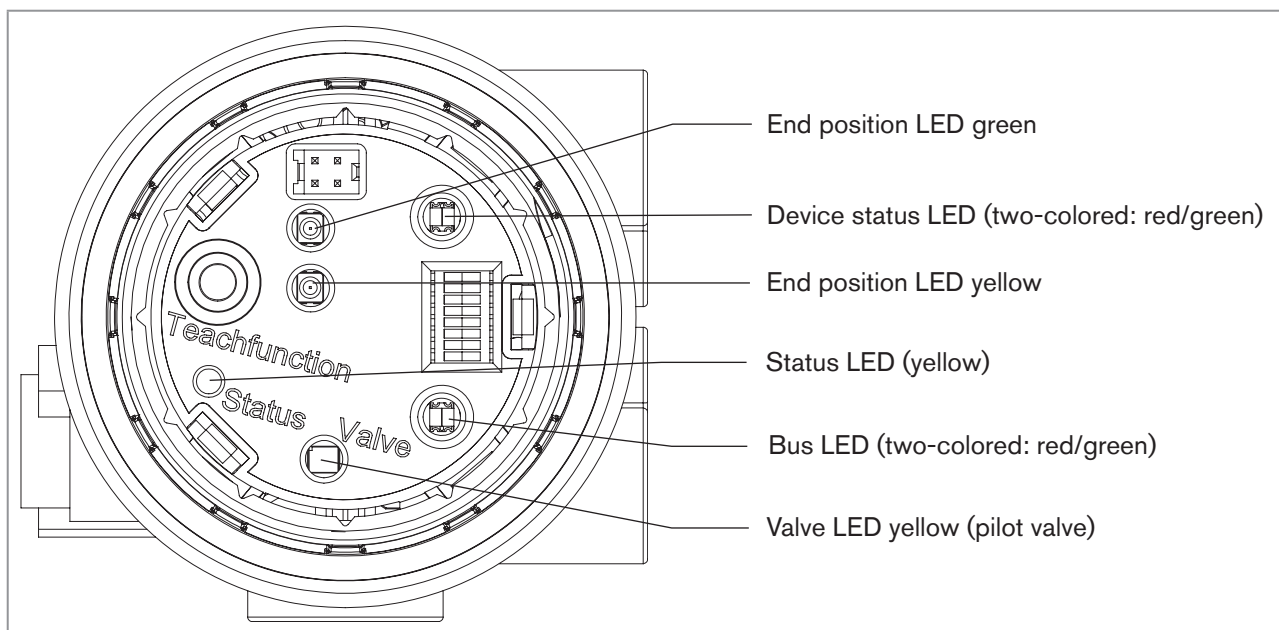


Figure 47: Display elements - DeviceNet

NOTE!

Breakage of the pneumatic connection pieces due to rotational impact.

- ▶ When unscrewing and screwing in the transparent cap, do not hold the actuator of the process valve but the connection housing.

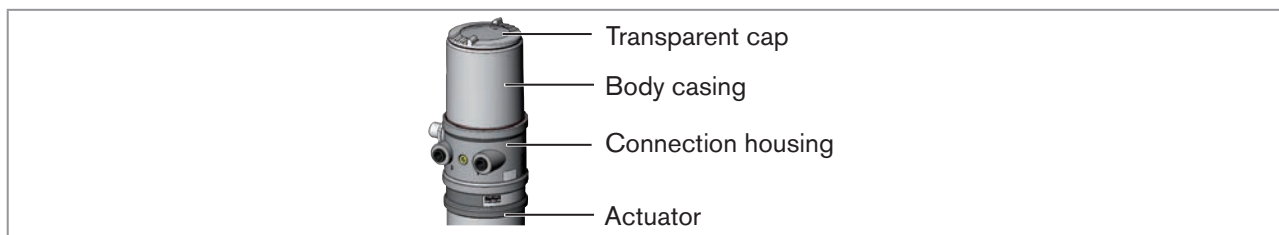


Figure 48: Open control head

NOTE!

Damage or malfunction due to penetration of dirt and humidity.

- ▶ To observe degree of protection IP65 / IP67, screw the transparent cap in all the way.

11.13.1 Device status LED and bus LED

Function test of the device status LED and bus LED

When voltage has been applied (connection of the network line), the following function test is run for the two-colored device status LED and bus LED:

- LED is briefly lit green (approx. 1/4 sec)
- LED is briefly lit red (approx. 1/4 sec)
- LED off

Then another function test is run during which the LEDs light up briefly

When the test is complete, the status LEDs indicate the device statuses which are described in the following table.

Status of the bus LED

LED	Device status	Explanation	Troubleshooting
Off	No power supply / not online	<ul style="list-style-type: none"> ▪ Device is not supplied with voltage ▪ Device has still not ended Duplicate MAC ID Test (test lasts approx. 2 sec) ▪ Device cannot end Duplicate MAC ID Test. 	<ul style="list-style-type: none"> ▪ Connect other devices, if the device is the only network subscriber, ▪ replace device ▪ Check baud rate ▪ check bus connection
Green	Online, connection to master exists	<ul style="list-style-type: none"> ▪ Normal operating status with established connection to the master 	
Flashes green	Online, without connection to master	<ul style="list-style-type: none"> ▪ Normal operating status without established connection to the master 	
Flashes red	Connection time-Out	<ul style="list-style-type: none"> ▪ One or more I/O connections are in Time-Out state 	<ul style="list-style-type: none"> ▪ New connection establishment by master to ensure that the I/O data is transmitted cyclically.
Red	Critical fault	<ul style="list-style-type: none"> ▪ Another device with the same MAC ID address is in the circuit ▪ No bus connection due to communication problems 	<ul style="list-style-type: none"> ▪ Check baud rate ▪ If required, replace device

Table 23: Status of the bus LED

Status of the device status LED

LED	Device status	Explanation
Off	No supply	<ul style="list-style-type: none"> ▪ Device is not supplied with voltage
Green	Device is working	<ul style="list-style-type: none"> ▪ Normal operating status

Table 24: Status of the device status LED

11.13.2 End position LEDs

The end positions are displayed optically by colored LEDs.

The following functions are shown as standard

Color	Device status
green end position LED on	End position bottom
yellow end position LED on	End position top

Table 25: Assignment of the end position LEDs - DeviceNet

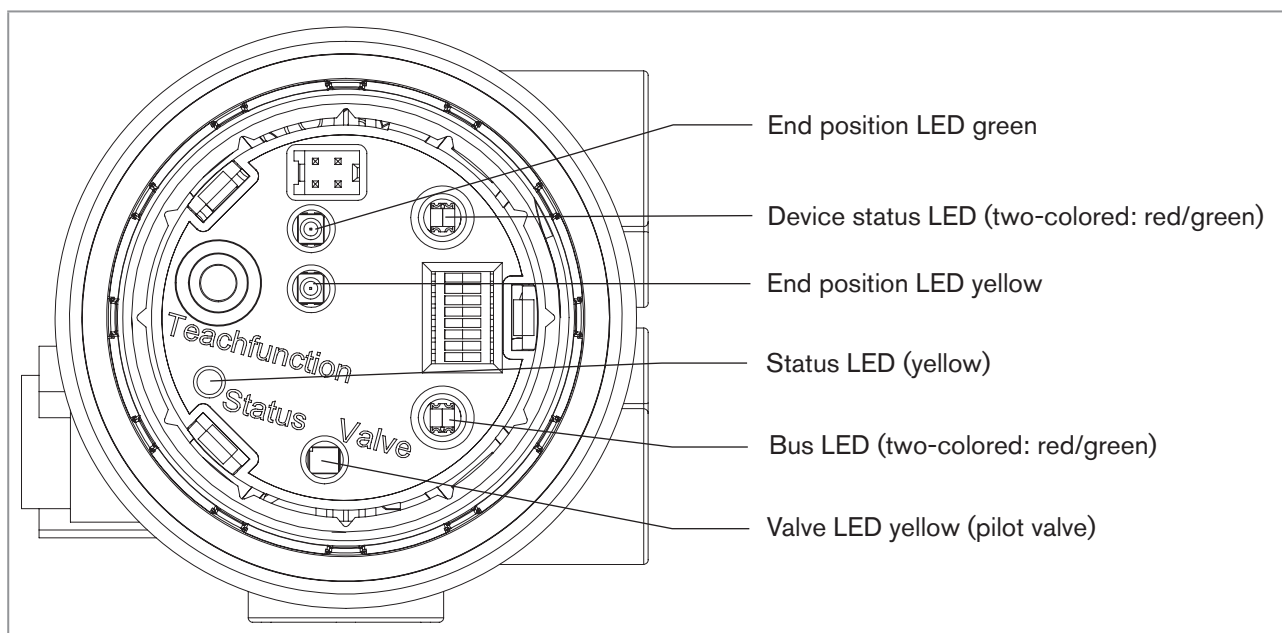


Figure 49: Display elements - DeviceNet

11.13.3 Status LED yellow

LED yellow	
flashing	Teach function is running
flickers	Puck not available → Insert puck

Table 26: Status LED yellow - DeviceNet

11.13.4 Valve LED yellow

The yellow valve LED indicates whether the pilot valve is actuated (LED is lit yellow).

12 SAFETY POSITIONS

Safety positions after failure of the electrical or pneumatic auxiliary power:

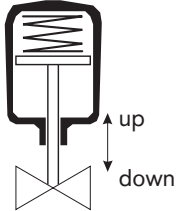
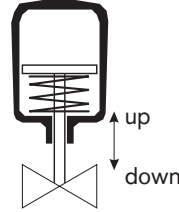
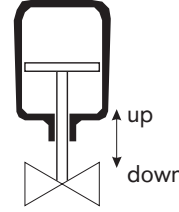
Actuator system	Designation	Safety positions after failure of the auxiliary power	
		electrical	pneumatic
	single-acting Control function A	down	down
	single-acting Control function B	up	up
	double-acting Control function B	down	not defined

Table 27: Safety Positions

13 MAINTENANCE

The control head Type 8695 is maintenance-free when operated according to the instructions in this manual.

14 DISASSEMBLY

14.1 Safety instructions



DANGER!

Risk of injury from high pressure in the equipment/device.

- ▶ Before working on equipment or device, switch off the pressure and deaerate/drain lines.

Risk of electric shock.

- ▶ Before working on equipment or device, switch off the power supply and secure to prevent reactivation.
- ▶ Observe applicable accident prevention and safety regulations for electrical equipment.



WARNING!

Risk of injury from improper disassembly.

- ▶ Disassembly may be carried out by authorized technicians only and with the appropriate tools.

Risk of injury from unintentional activation of the system and an uncontrolled restart.

- ▶ Secure system from unintentional activation.
- ▶ Following disassembly, ensure a controlled restart.

14.2 Disassembly the control head

Procedure:

1. Pneumatic connection



DANGER!

Risk of injury from high pressure in the equipment/device.

- ▶ Before working on equipment or device, switch off the pressure and deaerate/drain lines.

→ Loosen the pneumatic connection.

→ 20xx series:
Loosen the pneumatic connection to the actuator.

2. Electrical connection



DANGER!

Risk of electric shock.

- ▶ Before working on equipment or device, switch off the power supply and secure to prevent reactivation.
- ▶ Observe applicable accident prevention and safety regulations for electrical equipment.

→ Loosen the circular plug-in connector.

3. Mechanical connection

→ Loosen the fastening screws.

→ Remove the control head upwards.

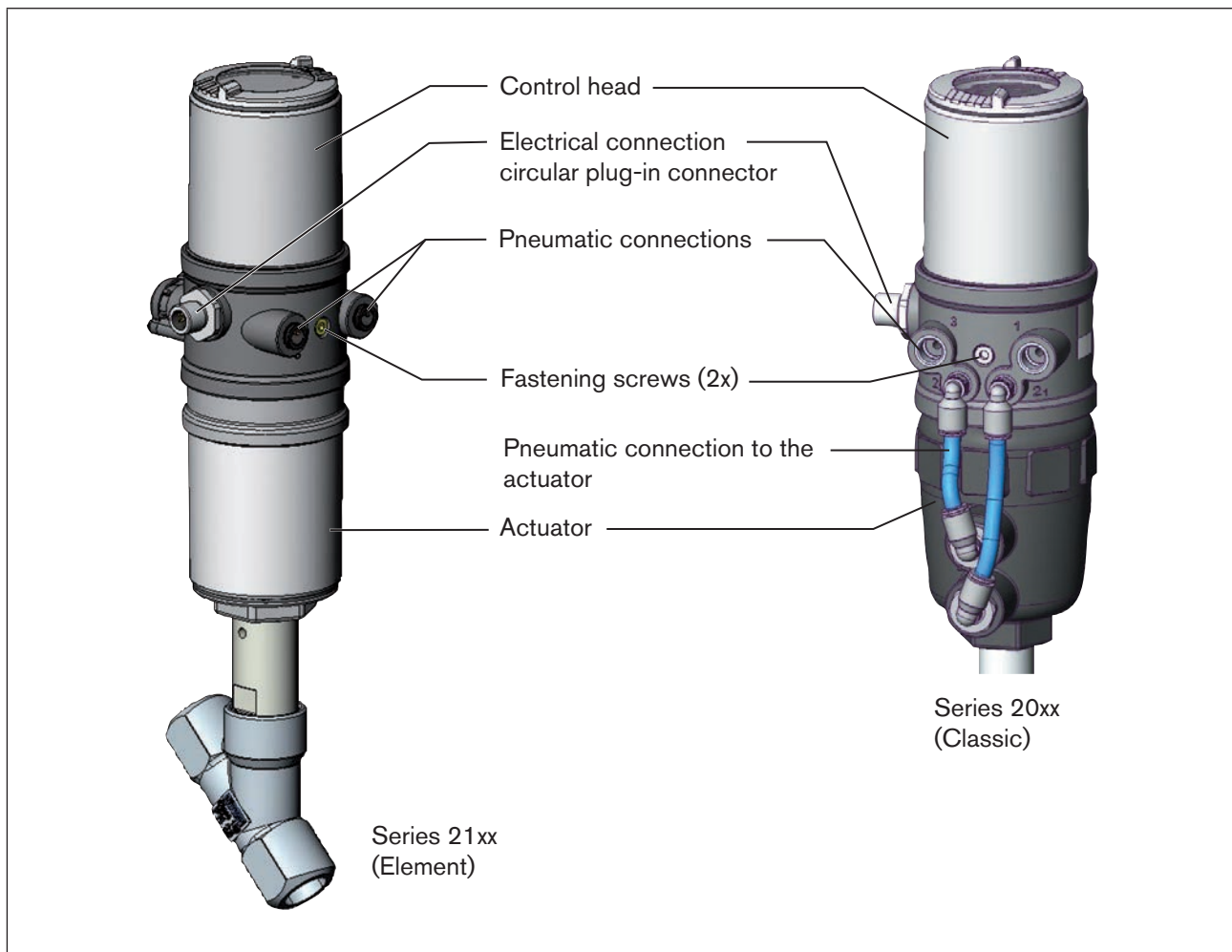


Figure 50: Disassembly the control head

15 ACCESSORIES

Designation	Order no.
Connection cable M12 x 1, 8-pole	919061
Assembly tool	674078
USB adapter for connection to a PC in conjunction with an extension cable	227093
Communicator	Information at www.burkert.com

Table 28: Accessories

15.1 Communications software

The PC operating program “Communicator” is designed for communication with the devices Type 8695 with bus control via DeviceNet. Devices constructed since April 2014 support the full range of functions. If you have any questions regarding compatibility, please contact the Bürkert Sales Center.



A detailed description and precise schedule of the procedure for the installation and operation of the software can be found in the associated documentation.

15.2 USB interface

The PC requires an USB interface for communication with the devices as well as an additional adapter with interface driver (see “Table 28: Accessories”).

The data transfer must be according to HART specification.

15.3 Download

Download the software at: www.burkert.com

16 PACKAGING AND TRANSPORT

NOTE!

Transport damages.

Inadequately protected equipment may be damaged during transport.

- ▶ During transportation protect the device against wet and dirt in shock-resistant packaging.
- ▶ Avoid the effects of heat and cold which could result in temperatures above or below the permitted storage temperature.

17 STORAGE

NOTE!

Incorrect storage may damage the device.

- ▶ Store the device in a dry and dust-free location.
- ▶ Storage temperature -20 – +65°C.

18 DISPOSAL

→ Dispose of the device and packaging in an environmentally friendly manner.

NOTE!

Damage to the environment caused by device components contaminated with media.

- ▶ Observe the relevant disposal and environmental protection regulations.



Note:

Observe national waste disposal regulations.

