

Type 8692, 8693 REV.2

Positioner / Process Controller

Quickstart



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

© Bürkert Werke GmbH & Co. KG 2017 - 2023

Quickstart 2301/05_EU-EN_00810577 / Original DE

1	THE QUICKSTART	4	9	OPERATING LEVELS	16
1.1	Definition of the term “device”	4	9.1	Switching between the operating levels.....	16
1.2	Symbols.....	5	10	INSTALLATION	17
2	AUTHORIZED USE	5	10.1	Installation of devices for the Ex area	17
3	BASIC SAFETY INSTRUCTIONS.....	6	10.2	Safety instructions.....	17
4	GENERAL INFORMATION	7	10.3	Installation on process valves, types 2103, 2300 and 2301	17
4.1	Contact address.....	7	10.4	Installation on process valves, series 26xx and 27xx..	19
4.2	Warranty	7	10.5	Installation on rotary actuators from third party manufacturers	21
4.3	Information on the Internet.....	7	10.6	Pneumatic connection.....	21
5	SYSTEM DESCRIPTION	7	11	ELECTRICAL INSTALLATION	22
5.1	Functions	8	11.1	Safety instructions.....	23
6	TECHNICAL DATA.....	9	11.2	Electrical installation with circular plug-in connector	23
6.1	Standards and directives.....	9	11.3	Electrical installation with cable gland	25
6.2	Approvals	9	12	START-UP.....	28
6.3	Operating conditions.....	9	12.1	Safety instructions.....	28
6.4	Type label	10	12.2	Start-up type 8692	28
6.5	Mechanische Daten.....	10	12.3	Start-up type 8693	30
6.6	Pneumatic data	10	13	ETHERNET/IP, PROFINET AND MODBUS TCP	33
6.7	Electrical data.....	11	13.1	Technical data	33
7	OPERATION	12	13.2	Electrical installation.....	33
7.1	Description of the operating and display elements...	12	14	BÜS OPTION.....	35
7.2	Function of the keys.....	13	14.1	Definition	35
8	OPERATING STATES	14	14.2	Electrical installation.....	35
8.1	Changing the operating state	14			
8.2	Displays in the AUTOMATIC operating state.....	15			
8.3	Mastercode	16			

15 PROFIBUS DPV1	36
15.1 Electrical installation.....	36
16 SAFETY END POSITIONS	39
17 REMOVAL OF TYPE 8692, 8693.....	40
17.1 Disconnecting the pneumatic connections	40
17.2 Disconnecting electrical connections.....	41
17.3 Removing type 8692, 8693	41
18 ACCESSORIES	42
18.1 Communications software.....	42
18.2 USB interface	42
19 PACKAGING, TRANSPORT, STORAGE	42
19.1 DISPOSAL	42

1 THE QUICKSTART

The quickstart contains the most important information and notes regarding the use of the device. A detailed description can be found in the operating instructions for type 8692/8693.

Keep the quickstart guide in a location which is easily accessible to every user and make it available to every new owner of the device.

Important Safety Information!

Read Quickstart carefully and thoroughly. Study in particular the chapters entitled “[Basic safety instructions](#)”, and “[Authorized use](#)”.

► Quickstart must be read and understood.



The operating instructions can be found on the Internet at:
country.burkert.com

1.1 Definition of the term “device”

In these instructions, the term “device” always refers to the type 8692/8693 REV.2.

1.2 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.



Important tips and recommendations.



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

- ▶ Designates an instruction to avoid a danger.

→ Designates a work step to be performed.

- ✓ Indicates a result.

2 AUTHORIZED USE

Incorrect use of the type 8692 and 8693 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.

- ▶ In a potentially explosive atmosphere, type 8692 and 8693 may be used only in accordance with the specification on the separate Ex rating plate. For the use, observe the ATEX manual with safety instructions for the Ex area.
- ▶ Devices without a separate Ex type label may not be used in a potentially explosive atmosphere.
- ▶ The device must not be exposed to direct sunlight.
- ▶ Do not remove the electronic module and display from the device.
- ▶ Pulsating direct voltage (rectified alternating voltage without smoothing) must not be used as operating voltage.
- ▶ During use observe the permitted data, the operating conditions and conditions of use specified in the contract documents and operating instructions, as described in chapter “6 Technical data” in this manual and in the valve manual for the respective pneumatically actuated valve.
- ▶ The device may be used only in conjunction with third-party devices and components recommended and authorised by Bürkert.
- ▶ In view of the wide range of possible application cases, check whether the device is suitable for the specific application case and check this out if required.
- ▶ Correct transportation, correct storage and installation and careful use and maintenance are essential for reliable and faultless operation.
- ▶ Use the type 8692 and 8693 only as intended.

3 BASIC SAFETY INSTRUCTIONS

These safety instructions do not make allowance for any

- Contingencies and events which may arise during the assembly, operation, and maintenance of the devices.
- Local safety regulations – the operator is responsible for observing these regulations, also in relation to the installation personnel.



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

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

Risk of electric shock.

- ▶ Before reaching into the device or the equipment, 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 injuries:

- ▶ Ensure that the system cannot be activated unintentionally.
- ▶ The device must only be operated when in a perfect condition and in consideration of the operating instructions.
- ▶ Installation and maintenance work may be carried out only by authorized technicians with the appropriate tools.

- ▶ After an interruption in the electrical or pneumatic supply, ensure that the process is restarted in a defined or controlled manner.
- ▶ The general rules of technology must be observed for application planning and operation of the device.

To prevent damage to the device:

- ▶ When unscrewing and screwing the housing jacket (with transparent cap) in, do not hold the actuator but the electrical connection housing of type 8692/8693.
- ▶ Do not supply the pilot air port with aggressive or flammable media or fluids.
- ▶ Do not physically stress the housing (e.g. by placing objects on it or standing on it).
- ▶ Do not make any external alterations to the housing of the device. Do not paint housing parts or screws.

NOTE

Electrostatic sensitive components/modules.

The device contains electronic components which react sensitively to electrostatic discharge (ESD). Contact with electrostatically charged persons or objects are hazardous to these components. In the worst case scenario, they will be destroyed immediately or will fail after start-up.

- ▶ Observe the requirements in accordance with DIN EN 61340-5-1 to minimize or avoid the possibility of damage caused by sudden electrostatic discharge.
- ▶ Do not touch electronic components while the operating voltage is switched on.

4 GENERAL INFORMATION

4.1 Contact address

Germany

Bürkert Fluid Control Systems
Christian-Bürkert-Str. 13-17
D-74653 Ingelfingen
E-mail: info@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 types 8692/8693 are used as intended in accordance with the specified application conditions.

4.3 Information on the Internet

The operating instructions and data sheets for types 8692/8693 can be found on the Internet at: www.burkert.com

5 SYSTEM DESCRIPTION

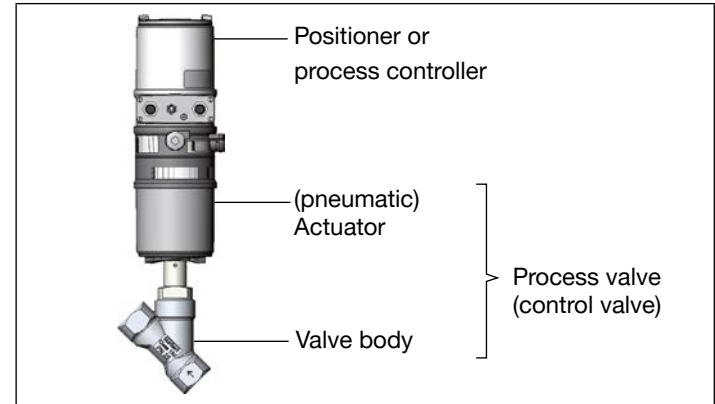


Fig. 1: Structure, type 8692/8693 with process valve

The positioner type 8692 and the process controller type 8693 are electropneumatic position controllers for pneumatically actuated control valves with single-acting or double-acting actuators.

Together with the pneumatic actuator the positioner and process controller form an optical and functional unit.

The control valve systems can be used for a wide range of control tasks in fluid technology and, depending on the application conditions, different process valves from the Bürkert range can be combined with the positioner or the process controller. Angle seat valves, straight seat valves, control valves, diaphragm or ball valves are suitable.

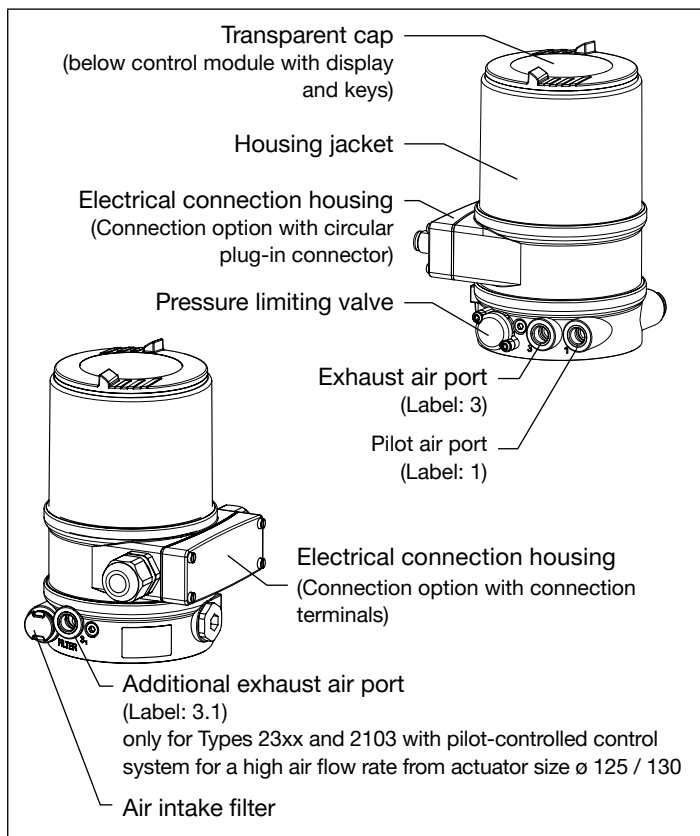


Fig. 2: Structure type 8692/8693

5.1 Functions

Type 8692 - Positioner (position controller)

The position of the actuator (stroke) is regulated according to the position set-point value. The position set-point value can be specified by an external standard signal (or via field bus).

Type 8693 - Process controller

The process controller is linked to a control circuit. The position set-point value of the valve is calculated from the process set-point value and the process actual value via the control parameters (PID controller). The process set-point value can be set by an external signal.

6 TECHNICAL DATA

6.1 Standards and directives

The device complies with the relevant EU harmonisation legislation. In addition, the device also complies with the requirements of the laws of the United Kingdom.

The harmonised standards that have been applied for the conformity assessment procedure are listed in the current version of the EU Declaration of Conformity/UK Declaration of Conformity.

6.2 Approvals

The product is approved for use in zone 2 and 22 in accordance with ATEX directive 94/9/EC category 3GD.



Observe instructions on operation in a potentially explosive atmosphere (Ex area). Observe the ATEX additional instructions.

The product is cULus approved. Instructions for use in the UL area see chapter [“6.7 Electrical data”](#).

6.3 Operating conditions



WARNUNG

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.
- ▶ The permitted ambient temperature may not exceed the maximum value or drop below the minimum value.

Ambient temperature:	The permitted temperature range is given on the type label of the device.
Degree of protection	
Evaluated by the manufacturer	IP65 / IP67 according to EN 60529 ²⁾
Evaluated by UL	UL type 4x Rating indoor only ²⁾
Operating altitude	up to 2000 m above sea level
Relative air humidity	max. 90% at 55 °C (non condensing)

2) only if cables, plugs and sockets have been connected correctly and in compliance with the exhaust air concept (see chapter [“10.6 Pneumatic connection”](#), page 21.)

6.4 Type label

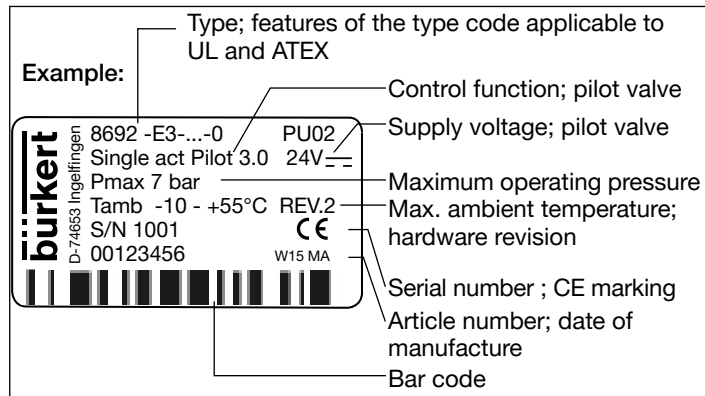


Fig. 3: Example of type label

6.4.1 UL additional label

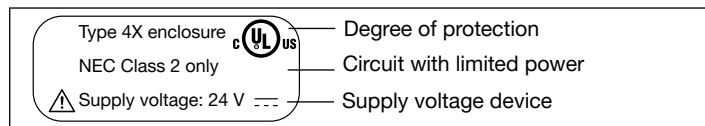


Fig. 4: UL additional label (example)

6.5 Mechanische Daten

Dimensions	see data sheet
Housing material	outside: PPS, PC, VA, interior: PA 6; ABS
Sealing material	NBR / EPDM
Stroke range valve spindle	3...45 mm

6.6 Pneumatic data

Control medium	Neutral gases, air Quality classes as per ISO 8573-1
Dust content	Quality class 7, max. particle size 40 µm, max. particle density 10 mg/m ³
Water content	Quality class 3, max. pressure dew point -20 °C (-4 °F) or min. 10°C (50 °F) below the lowest operating temperature
Oil content	Quality class X: max. 25 mg/m ³
Temperature range control medium	0...+50 °C (32...122 °F)
Pressure range control medium	3...7 bar (44...102 psi)

Air flow rate pilot valve	$7 I_N / \text{min}$ (for aeration and deaeration) $(Q_{Nn}$ - value according to definition for pressure drop from 7 to 6 bar absolute) optional: $130 I_N / \text{min}$ (for aeration and deaeration) (only single-acting connections)
Connections	Plug-in hose connector $\varnothing 6 \text{ mm}$ / $1/4"$ socket connection G1/8

6.7 Electrical data



WARNING

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

Protection class	III as per DIN EN 61140 (VDE 0140-1)	
Anschlüsse	Cable gland M16 x 1.5, size 22 (clamping area 5...10 mm) with connection terminals for cable cross-sections 0.14...1.5 mm ² (24 V DC) or circular plug-in connectors (M12 x 1) (24 V DC, PROFIBUS DPV1 EtherNet/ IP, PROFINET I/O, Modbus TCP)	
Pilot valve		
operating voltage	24 V DC \pm 10 %, max. residual ripple 10 %	
Power consumption	< 5 W	
Input data for actual	value signal	
4...20 mA	Input resistance	70 Ω
	Resolution	12 bit
Frequency	Measurement range	0...1000 Hz
	Input resistance	20 k Ω
	Resolution	1‰ of measurement value
	Input signal	> 300 mVss
	Waveform	Sine wave, square wave, triangle wave

Pt 100	Measurement range	-20...+220 °C (-4...+428 °F)
	Resolution	< 0.1 °C
	Measurement current	< 1 mA
Input data for set-point value signal		
0/4...20 mA	Input resistance	70 Ω
	Resolution	12 bit
0...5/10 V	Input resistance	22 kΩ
	Resolution	12 bit (only 11 bit for 0...5 V)
Analogue feedback		
max. current	10 mA (for voltage output 0...5/10 V)	
load	0...560 Ω (for current output 0/4...20 mA)	
Digital outputs	galvanically isolated, PNP	
current limitation	100 mA, output is clocked if overload occurs	
Digital input	PNP	
	0...5 V = logical "0", 10...30 V = logical "1"	
	inverted input reversed accordingly (input current < 6 mA)	
Communications interface	Connection to PC with USB bÜS interface set	
Communications software	Bürkert Communicator	

7 OPERATION

7.1 Description of the operating and display elements

Display elements of the process level:

X.CO Symbol for position control

P.CO Symbol for process control

AUTO Symbol for the AUTOMATIC operating state

Other symbols are displayed according to the activated functions. See operating instructions type 8692/8693 REV.2

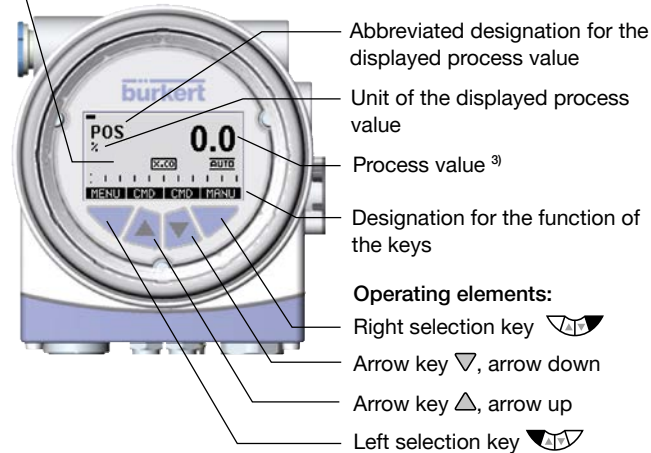


Fig. 5: Display elements of the process level; operating elements

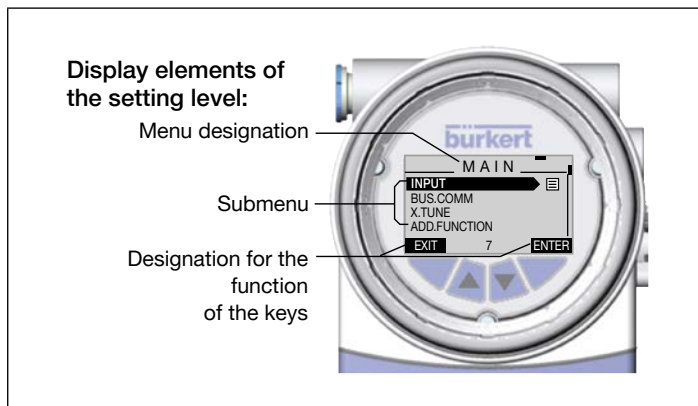


Fig. 6: Display elements of the setting level

The display is adjusted to the set functions and operating levels. In principle, a distinction can be made between the display view for the process level and the setting level.

When the operating voltage has been applied, the process level is displayed.





3) The process values which can be displayed in the AUTOMATIC operating state depend on type.


















A detailed description can be found in the operating instructions for type 8692/8693 REV.2.

7.2 Function of the keys

The function of the 4 keys in the control field differs depending on the operating state (AUTOMATIC or MANUAL) and operating level (process level or setting level).

The function of the keys is displayed in the gray text field which is above the key.

Function of the keys on the process level:			
Key	Function of the keys	Description of the function	Operating state
Arrow key 	OPN	Manual opening of the actuator	MANUAL
		Change the displayed value (e.g. POS-CMD-TEMP-...)	AUTOMATIC
Arrow key 	CLS	Manual closing of the actuator	MANUAL
		Change the displayed value (e.g. POS-CMD-TEMP-...)	AUTOMATIC
Selection key 	MENU	Change to the setting level Note: Press key for approx. 3 s.	AUTOMATIC or MANUAL
Selection key 	AUTO	Return to AUTOMATIC operating state	MANUAL
	MANUAL	Change to MANUAL operating state	AUTOMATIC

Function of the keys on the setting level:		
Key	Function of the keys	Description of the function
Arrow key 		Scroll up in the menus
		Increase numerical values
Arrow key 		Scroll down in the menus
		Decrease numerical values
		Change by one digit to the left; when entering numerical values
Selection key 	 (BACK)	Return to the process level
		Gradually return from a submenu option
		Leave a menu
		Stop a sequence
Selection key 		Select, activate or deactivate a menu option
		
		
		
	 (BACK)	Gradually return from a submenu option
		Start a sequence
		Stop a sequence

Tab. 1: Function of the keys


8 OPERATING STATES

Type 8692/8693 has 2 operating states: AUTOMATIC and MANUAL.

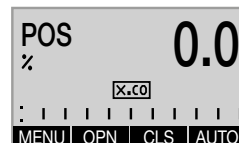
AUTOMATIC








In the AUTOMATIC operating state normal controlled operation is implemented.

(The symbol for AUTOMATIC  is shown on the display. (A bar runs along the upper edge of the display).)





MANUAL



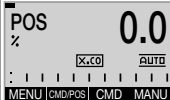
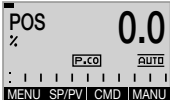
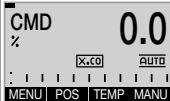
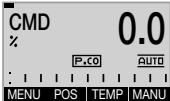
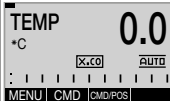
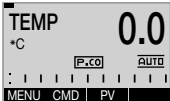
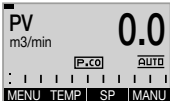

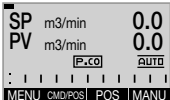
In the MANUAL operating state the valve can be manually opened or closed via the arrow keys   (key function  and ).


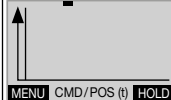

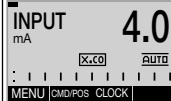



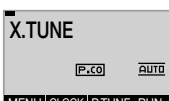
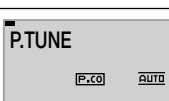
(The symbol for AUTOMATIC  is hidden. No bar running along the upper edge of the display).)

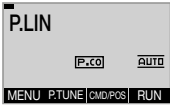
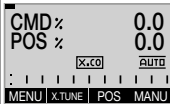
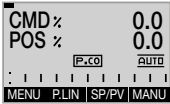
8.1 Changing the operating state

Change to MANUAL operating state (only available for process value display: POS, CMD, PV, SP)		Press 
Return to AUTOMATIC operating state		Press 

8.2 Displays in the AUTOMATIC operating state

Type 8692	Description of the display	Type 8693
	Actual position of the valve actuator (0...100%)	
	Set-point position of the valve actuator (0...100%)	
	Internal temperature in the housing of the type 8692/8693 (°C)	
	Process actual value	
	Process set-point value	
	Simultaneous display of the set-point position and the actual position of the valve actuator (0...100 %)	

Type 8692	Description of the display	Type 8693
	Graphical display of <i>SP</i> and <i>PV</i> with time axis	
	Graphical display of <i>POS</i> and <i>CMD</i> with time axis	
	Input signal for set-point position (0...5/10 V / 0/4...20 mA)	
	Time, weekday and date	
	Automatic adjustment of the positioner (position controller)	
	Automatic optimization of the process controller parameters	

Type 8692	Description of the display	Type 8693
	Automatic linearization of the process characteristics	
	Simultaneous display of the set-point position and the actual position of the valve actuator (0...100 %)	

8.3 Mastercode

Operation of the device can be locked via a freely selectable user code. In addition, there is a non-changeable master code with which you can perform all operator actions on the device. This 4-digit master code can be found on the last pages of the printed brief instructions which are enclosed with each device.

If required, cut out the code and keep it separate from these operating instructions.

9 OPERATING LEVELS

There is the process level and the setting level for the operation and setting of type 8692/8693.

Process level:

The running process is displayed and operated on this level.

Operating state: **AUTOMATIC** – Displaying the process data
MANUAL – Manually opening and closing the valve

Setting level:

The basic settings for the process are made on the setting level.

– Inputting the operating parameters

– Activating auxiliary functions



If the device is in the **AUTOMATIC** operating state when changing to the setting level, the process continues running during the setting.

9.1 Switching between the operating levels

Switch to the setting level as follows:



Select **MENU** and press for 3 seconds.



You are on the setting level.

Switch to the process level as follows:



Select **EXIT**.



You are on the process level.

10 INSTALLATION



Only for positioners and process controllers without pre-assembled process valve.

10.1 Installation of devices for the Ex area

When installing devices in the explosion-protected area, observe the „ATEX manual for use in the Ex area“ enclosed with the Ex-devices.

10.2 Safety instructions



DANGER

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

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

Risk of injury due to electrical shock.

- ▶ Before reaching into the device or the equipment, 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 assembly.

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

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

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

10.3 Installation on process valves, types 2103, 2300 and 2301

NOTE

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



The installation of the switch spindle and the form seal is described in the operating instructions for type 8692/8693. You can find the instructions on the Bürkert homepage.

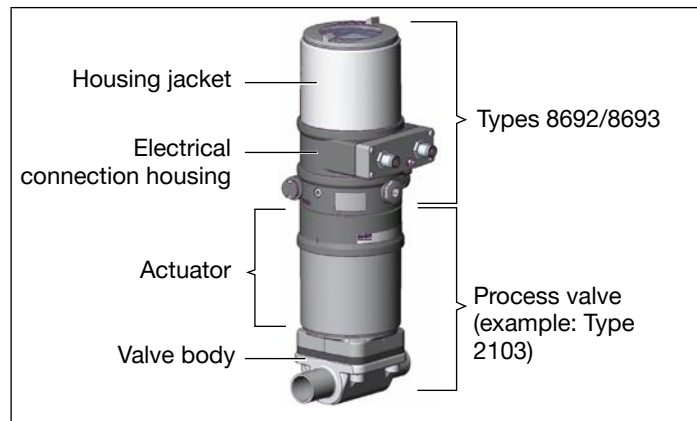


Fig. 7: Installation on process valve, example type 2301

! During the installation, the collets of the pilot air ports must not be fitted to the actuator.

→ Aligning actuator with type 8692/8693:

1. Align the pilot air ports of the actuator with the connection pieces of type 8692/8693 (see "Fig. 8").

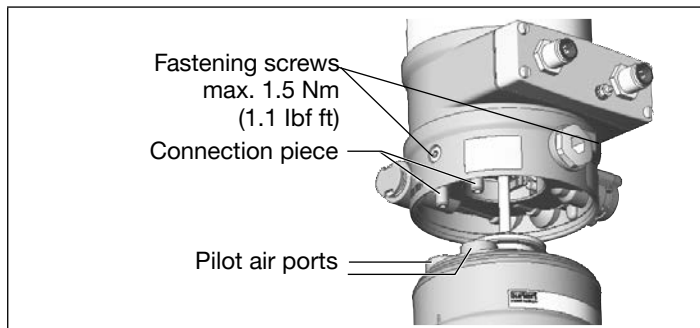


Fig. 8: Aligning the pilot air ports

2. Align the puck of the actuator with the guide rail of type 8692/8693 (see "Fig. 9")

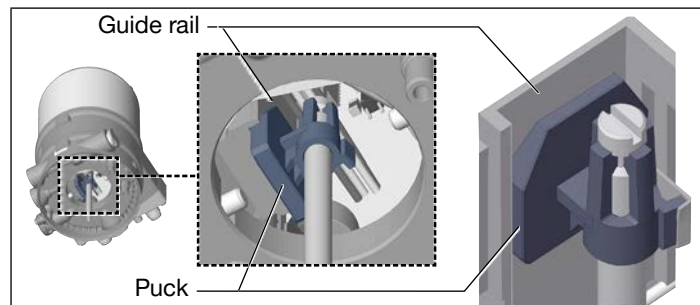


Fig. 9: Aligning the puck

NOTE

Damage to the PCB or malfunction.

- ▶ Ensure that the puck lies flat on the guide rail.

→ Push type 8692/8693 without turning it onto the actuator until no gap is visible on the form seal.

NOTE

To comply with the degree of protection IP65 / IP67, do not fasten the fastening screws too tightly.

- ▶ Maximum tightening torque: 1.5 Nm (1.1 lbf ft).

→ Attach type 8692/8693 to the actuator using the two side fastening screws. In doing so, tighten the screws only hand-tight (max. tightening torque: 1.5 Nm (1.1 lbf ft)).

10.4 Installation on process valves, series 26xx and 27xx



The installation of the switch spindle is described in the operating instructions for type 8692/8693. You can find the instructions on the Bürkert homepage.

- Place type 8692/8693 onto the actuator. In doing so, align the puck of the actuator with the guide rail of type 8692/8693 (see “Fig. 10”).

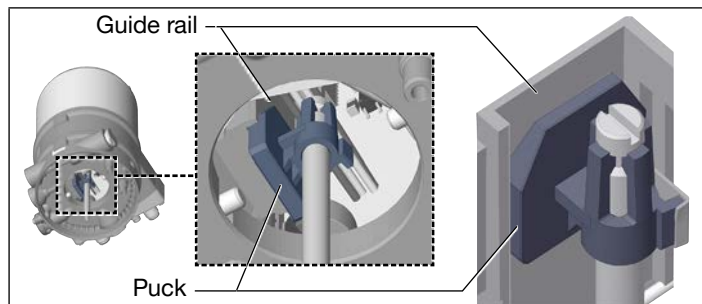


Fig. 10: Aligning the puck

NOTE

Damage to the PCB or malfunction.

- Ensure that the puck lies flat on the guide rail.

- Press type 8692/8693 all the way down as far as the actuator and turn it into the required position.



Ensure that the pneumatic connections of type 8692/8693 and those of the valve actuator are situated preferably vertically one above the other (see “Fig. 11”).

NOTE

To comply with the degree of protection IP65 / IP67, do not fasten the fastening screws too tightly.

- Maximum tightening torque: 1.5 Nm (1.1 lbf ft).

- Attach type 8692/8693 to the actuator using the two side fastening screws. In doing so, tighten the screws only hand-tight (max. tightening torque: 1.5 Nm (1.1 lbf ft)).

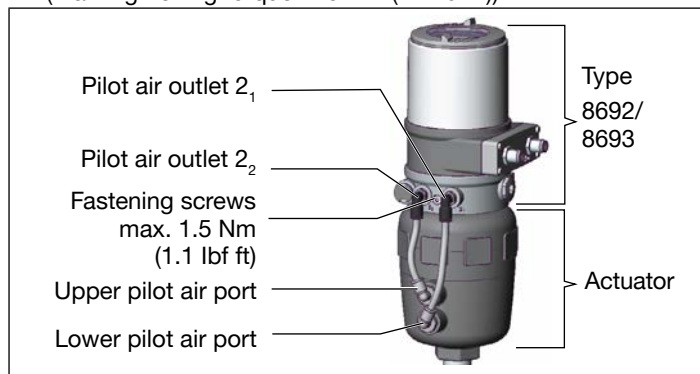


Fig. 11: Installation of the pneumatic connections, series 26xx and 27xx

- Observe the pneumatic connection that matches the desired control function. See “Tab. 2: Pneumatic connection to actuator”.

→ Establish the pneumatic connection between type 8692/8693 and the actuator.

NOTE

Damage or malfunction due to ingress of dirt and moisture.

- To comply with the degree of protection IP65 / IP67, connect the pilot air outlet 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 type 8692/8693 are isolated or not actuated.



If the ambient air is humid, a hose can be connected between pilot air outlet 2₂ of the positioner / process controller 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 type 8692/8693.

Control function		Pneumatic connection type 8692, 8693 with actuator	
		Pilot air outlet types 8692 and 8693	Pilot air port actuator
A	Process valve closed in rest position (by spring force)	2 ₁	lower pilot air port of the actuator
		2 ₂	should be connected to the upper pilot air port of the actuator
B	Process valve open in rest position (by spring force)	2 ₁	upper pilot air port of the actuator
		2 ₂	should be connected to the lower pilot air port of the actuator
I	Process valve closed in rest position	2 ₁	lower pilot air port of the actuator
		2 ₂	upper pilot air port of the actuator
	Process valve open in rest position	2 ₁	upper pilot air port of the actuator
		2 ₂	lower pilot air port of the actuator

Tab. 2: Pneumatic connection to actuator

10.5 Installation on rotary actuators from third party manufacturers

- The magnetic transmitter for the sensor must be assembled on the spindle adapter and the adapter kit must be assembled on the actuator (see adapter kit assembly instructions).
- Press the angle of rotation sensor into the sensor holder from above until it sits flush.

NOTE

Damage to the sensor cable.

- ▶ Ensure that the sensor cable is not damaged during assembly.

- Press down the device as far as the actuator.

NOTE

Damage or malfunction due to ingress of dirt or moisture.

To observe the degree of protection IP65 or IP67:

- ▶ Tighten fastening screws only with a tightening torque of max. 0.5 Nm.
- Attach the device to the actuator using both lateral fastening screws. In doing so, tighten the screws only lightly (maximum tightening torque: 0.5 Nm).

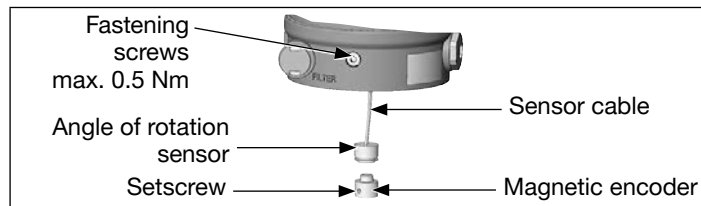


Fig. 12: Installation on rotary actuators

10.6 Pneumatic connection



DANGER

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

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



Observe the following for the proper functioning of the device:

- ▶ The installation must not cause back pressure to build up.
- ▶ To make the connection, select a hose with sufficient cross section.
- ▶ Design the exhaust air line in such a way that no water or other liquid can get into the device through the exhaust air port (3 or 3.1).

Exhaust air concept:

- ▶ In compliance with the degree of protection IP67, an exhaust air line must be installed in the dry area.
- ▶ **Always** maintain an applied control pressure of at least 0.5...1 bar above the pressure which is required to move the pneumatic actuator to its end position. This ensures that the control behavior is not negatively affected in the upper stroke range on account of too little pressure difference.
- ▶ During operation, keep the fluctuations of the control pressure as low as possible (max. $\pm 10\%$). If fluctuations are greater, the control parameters measured with the X.TUNE function are not optimum.

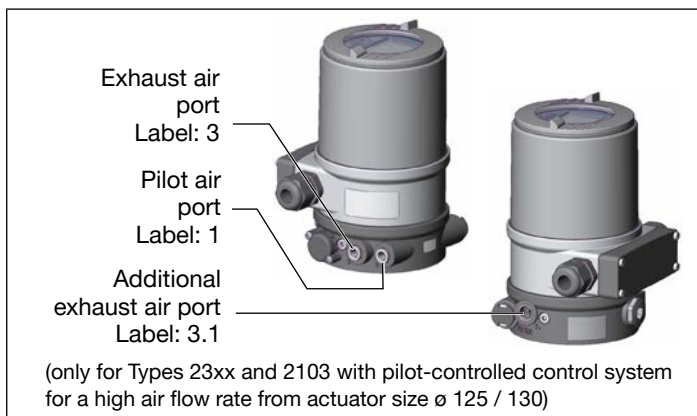


Fig. 13: Pneumatic connection

Procedure:

- Connect the control medium to the pilot air port (1) (3...7 bar; instrument air, free of oil, water and dust).
- Mount the exhaust air line or a silencer on the exhaust air port (3) and, if present, on the exhaust air port (3.1).

11 ELECTRICAL INSTALLATION

There are 2 connection options for type 8692/8693:

- Multi-pole with circular plug-in connector
- Cable gland with connection terminals

Signal values

Operating voltage:	24 V DC
Set-point value (process/position controller):	0...20 mA; 4...20 mA 0...5 V; 0...10 V
Actual value (only process controller):	4...20 mA; frequency; Pt 100

11.1 Safety instructions



DANGER

Risk of injury due to electrical shock.

- ▶ Before reaching into the system, 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 uncontrolled restart.

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



Using the 4...20 mA set-point value input

If several devices of type 8692, 8693 are connected in series and the power supply to a device in this series connection fails, the input of the failed device becomes highly resistive. As a result, the 4...20 mA standard signal fails. In this case please contact Bürkert Service directly.

Minimum temperature rating of the cable to be connected to the field wiring terminals: 75 °C

11.2 Electrical installation with circular plug-in connector

Procedure:

→ Connect type 8692/8693 according to the tables.

When the operating voltage is applied, type 8692/8693 is operating.

→ Now make the required basic settings and adjustments for the positioner/process controller. For description see Chapter [“12.2 Start-up type 8692”](#), page 28.

Designation of the circular plug-in connectors:

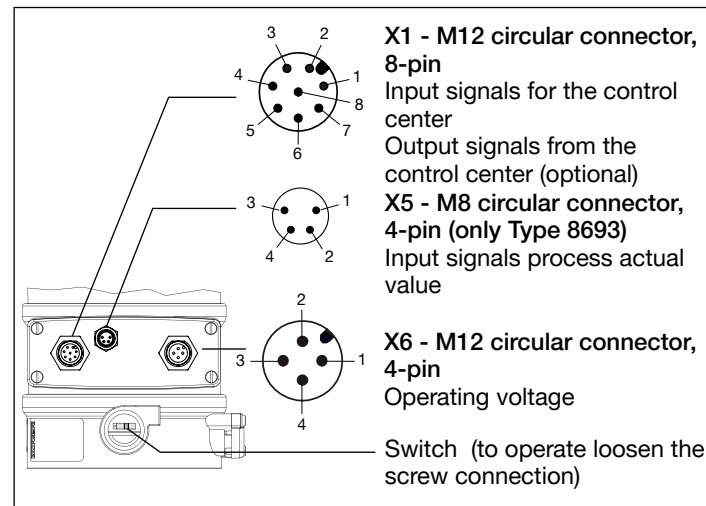


Fig. 14: Electrical connection with 24 V DC circular plug-in connector

X1 - M12 circular connector, 8-pin

Pin	Wire color*	Assignment
Input signals of the control centre (e.g. PLC)		
1	white	Digital input +
8	red	Set-point value + (0/4...20 mA / 0...5/10 V)
7	blue	Set-point value GND
Output signals to the control centre (e.g. PLC) (required for analogue output and/or binary output option only)		
2	brown	Digital outputs GND
3	green	Digital output 2
4	yellow	Digital output 1
5	grey	Analogue position feedback GND
6	pink	Analogue position feedback +
* The indicated colors refer to the connection cable available as an accessory (919061).		






Tab. 3: X1 - M12 circular connector, 8-pin

X6 - M12 circular connector, 4-pin

Pin	Wire color*	Assignment
1	brown	Operating voltage + 24 V DC
2	Not assigned	
3	blue	Operating voltage GND
4	Not assigned	
* The indicated colors refer to the connection cable available as an accessory (918038).		

Tab. 4: X6 - M12 circular connector, 4-pin (operating voltage)

**X5 - M8 circular connector, 4-pin -
(for type 8693 only)**

Input type*	Pin	Assignment	Switch **
4...20 mA - internally supplied	1	+24 V transmitter power supply	 Switch on left
	2	Output from transmitter	
	3	GND (identical to GND operating voltage)	
	4	Bridge to GND (GND from 3-conductor transmitter)	
4...20 mA - externally supplied	1	Not assigned	 Switch on right
	2	Process actual +	
	3	Not assigned	
	4	Process actual –	
Frequency - internally supplied	1	+24 V sensor power supply	 Switch on left
	2	Clock input +	
	3	Clock input – (GND)	
	4	Not assigned	
Frequency - externally supplied	1	Not assigned	 Switch on right
	2	Clock input +	
	3	Clock input –	
	4	Not assigned	
Pt 100 (see infor- mation below)	1	Not assigned	 Switch on right
	2	Process actual 1 (power supply)	
	3	Process actual 3 (GND)	
	4	Process actual 2 (compensation)	

* Adjustable via software (see operating instructions type 8692/8693 REV.2 “Setting the input signal”).

** Position of the switch, see “Fig. 15: Cable gland connection”.

Tab. 5: X5 - M8 circular plug, 4-pin, input signals process actual value



For reasons of wire resistance compensation, connect the Pt 100 sensor via 3 wires.
Bridge Pin 3 and Pin 4 on the sensor.

11.2.1 Switch position (only type 8693)

For the “internally supplied” input type, the GND signal of the process actual value must be connected to the GND signal of the operating voltage. A bridge is established internally between both GND signals using the “left” switch position.

Supplied	Assignment	Switch position
Internally supplied	GND process actual value equal to GND operating voltage	Switch on left
Externally supplied	GND process actual value electrically isolated from GND operating voltage	Switch on right

Tab. 6: Switch position



The description EtherNet/IP, PROFINET and Modbus TCP, option bÜS, PROFIBUS DPV1 can be found in chapter “13”, “14”, und “15”.

11.3 Electrical installation with cable gland



WARNING

Risk of injury from improper installation.

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

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

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



DANGER

Risk of injury due to electric shock.

- ▶ Before reaching into the system, switch off the power supply and secure to prevent reactivation.
- ▶ Observe the applicable accident prevention regulations and safety regulations for electrical equipment.

Procedure:

- Loosen the 4 screws of the connection cover and remove the cover. The connection terminals are now accessible.
- Push the cables through the cable gland.
- Connect the wires. The terminal assignment can be found in the tables below.
- Tighten the union nut of the cable gland (tightening torque approx. 1.5 Nm (1.1 lbf ft)).

- Place the connection cover with inserted seal onto the electrical connection housing and tighten cross-wise (tightening torque max. 0.7 Nm (0.5 lbf ft)).

NOTE

Damage or malfunction due to ingress of dirt and moisture.

To comply with the degree of protection IP65 / IP67:

- ▶ Close all unused cable glands with dummy plugs.
- ▶ Tighten the union nut on the cable gland.
Tightening torque depends on cable size or dummy plug approx. 1.5 Nm (1.1 lbf ft).
- ▶ Only screw on connection cover with the seal inserted.
Tightening torque max. 0.7 Nm (0.5 lbf ft).

When the operating voltage is applied, type 8692, 8693 is operating.

- Now make the required basic settings and adjustments for the position controller and process controller.
The procedure is described in chapter [“12 Start-up”](#).

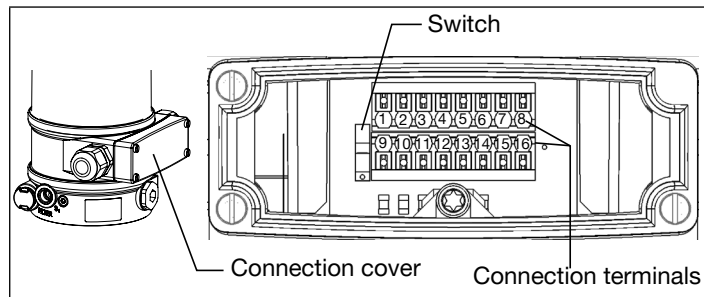


Fig. 15: Cable gland connection

11.3.1 Input signals from the control center (e.g. PLC)

Terminal	Assignment
6	Digital input +
7	Set-point value GND
8	Set-point value +
13	Not assigned
14	Digital input GND





Tab. 7: Terminal assignment; input signals of the control center


11.3.2 Output signals to the control center (e.g. PLC)

Terminal	Assignment
1	Analogue position feedback GND
2	Analogue position feedback +
3	Digital output GND
4	Digital output 2
5	Digital output 1

Tab. 8: Terminal assignment; output signals to the control center

11.3.3 Process actual value input (for type 8693 only)

Input type*	Terminal	Assignment	Switch **
4...20 mA - internally supplied	9	GND (identical to GND operating voltage)	 Switch below
	10	Bridge after GND (GND from 3-conductor transmitter)	
	11	Output from transmitter	
	12	+24 V transmitter power supply	
4...20 mA - externally supplied	9	Not assigned	 Switch above
	10	Process actual -	
	11	Process actual +	
	12	Not assigned	
Frequency - internally supplied	9	Clock input - (GND)	 Switch below
	10	Not assigned	
	11	Clock input +	
	12	+24 V sensor power supply	
Frequency - externally supplied	9	Clock input -	 Switch above
	10	Not assigned	
	11	Clock input +	
	12	Not assigned	

Input type*	Terminal	Assignment	Switch **	
Pt 100 *** (see note)	9	Process actual 3 (GND)		Switch above
	10	Process actual 2 (compensation)		
	11	Process actual 1 (power supply)		
	12	Not assigned		

* Adjustable via software
(see Operating Instructions type 8692/8693 REV.2).

** The switch is situated under the connection cover
(see “Fig. 15: Cable gland connection”).

Tab. 9: Terminal assignment; process actual value input (for type 8693 only)



*** For reasons of wire resistance compensation, connect the Pt 100 sensor via 3 wires. Always bridge terminal 9 and terminal 10 on the sensor.

11.3.4 Terminal assignment: Operating voltage

Terminal	Assignment	On the device side	External circuit / signal level
16	Operating voltage +24V		24 V DC \pm 10 % max. residual ripple 10 %
15	Operating voltage GND		

Tab. 10: Terminal assignment; operating voltage

When the operating voltage is applied, type 8692, 8693 is operating.

→ Now make the required basic settings and adjustments for the position controller/process controller. For a description see chapter “12 Start-up”.

11.3.5 Switch position (only type 8693)

For the “internally supplied” input type, the GND signal of the process actual value must be connected to the GND signal of the operating voltage. A bridge is established internally between both GND signals using the “left” switch position.

Supplied	Assignment	Switch position
Internally supplied	GND process actual value equal to GND operating voltage	Switch on left
Externally supplied	GND process actual value electrically isolated from GND operating voltage	Switch on right

Tab. 11: Switch position

12 START-UP



A detailed description of the start-up and operating procedures can be found at our homepage in the operating instructions for type 8692/8693.

12.1 Safety instructions



WARNING

Risk of injury from improper operation.

Improper operation may result in injuries as well as damage to the device and the area around it.

- Before start-up, ensure that the operating personnel are familiar with and completely understand the contents of the operating instructions.
- Observe the safety instructions and intended use.
- Only adequately trained personnel may start up the equipment/the device.

12.2 Start-up type 8692

12.2.1 Specifying the basic settings



The basic settings are made on the setting level. To switch from the process level to the setting level, press the **MENU** key for approx. 3 seconds.








For starting up you must specify the following basic settings:

- Setting the input signal (*INPUT*)
- Automatic adjustment of the position controller (*X.TUNE*)

Setting the input signal (INPUT)

This setting is used to select the input signal for the set-point value.

Set the input signal as follows:

-  Press **MENU** for 3 s. Switching from process level ⇒ setting level.
-  Select **INPUT**.
-  Select **ENTER**. The possible input signals for **INPUT** are displayed.
-  Select input signal (4...20 mA, 0...20 mA, ...).
-  Select **SELECT**. The selected input signal is now marked by a filled circle ●.
-  Select **EXIT**.
Return to the main menu (MAIN).
-  Select **EXIT**. Switching from setting level ⇒ process level.
- ✓ You have entered the operating mode of the valve actuator.

Automatic adjustment of the position controller to the operating conditions (X.TUNE)



WARNING

Danger due to the valve position changing when the *X.TUNE* function is running.

When the *X.TUNE* function is run under operating pressure, there is an acute risk of injury.

- ▶ Never run *X.TUNE* while the process is running.
- ▶ Secure system against unintentional activation.


NOTE

An incorrect supply pressure or incorrectly connected operating medium pressure may cause the controller to be wrongly adjusted.


- ▶ Run *X.TUNE* in each case at the supply pressure available in subsequent operation (= pneumatic auxiliary power).
- ▶ Run the *X.TUNE* function preferably **without** operating medium pressure to exclude interference due to flow forces.

For starting up you must specify the following basic settings:

- Setting the input signal (*INPUT*)
- Automatic adjustment of the position controller (*X.TUNE*)
- Adjustment of the controller parameters for the position controller. Optimization occurs according to the criteria of the shortest possible transient time with simultaneous freedom from overshoot.

 To stop *X.TUNE*, press the left or right selection key **STOP**.

Automatically adjust the position controller as follows:

→  Press **MENU** for 3 s. Switching from process level ⇒ setting level.


→  Select *X.TUNE*.

→  Hold down **RUN** as long as countdown (5 ...) is running.


During the automatic adjustment messages are displayed indicating the progress of the *X.TUNE* (e.g. “*TUNE* #1....”).

When the automatic adjustment ends, the message “*TUNE ready*”³⁾ is indicated.

→ Press any key. Return to the main menu (MAIN).

→  Select **EXIT**. Switching from setting level ⇒ process level.

✓ You have automatically adjusted the position controller.

 You must exit the main menu by pressing the left selection key **EXIT** before the modified data is saved in the memory (EEPROM).

12.3 Start-up type 8693

To operate the position controller as a process controller, implement the following steps:


1. Setting up the position controller:


Description see “12.2.1 Specifying the basic settings”.


2. Setting up the process controller:

→ Add the auxiliary function *P.CONTROL* to the main menu (MAIN) using the configuration menu (*ADD.FUNCTION*).

Activate the process controller as follows:


→  Press **MENU** for 3 s. Switching from process level ⇒ setting level.

→  Select *ADD.FUNCTION*.

→  Select **ENTER**. The possible auxiliary functions are displayed.

→  Select *P.CONTROL*.

→  Select **ENTER**. *P.CONTROL* is now marked by a cross ☒.

→  Select **EXIT**. Acknowledgment and simultaneous return to the main menu (MAIN).

P.CONTROL is now activated and incorporated into the main menu.





✓ You have activated the process controller.

3) “*TUNE err/break*” if a fault occurs.







12.3.1 Basic settings of the process controller

- In the main menu (MAIN) select the *P.CONTROL* function and implement the basic settings

Set up the process controller as follows:

-  Press **MENU** for 3 s. Switching from process level ⇒ setting level.
 - ▲ / ▼ Select *P.CONTROL*. Selection in the main menu (MAIN).
 -  Select **ENTER**. The submenu options for the basic setting are displayed.
 - ▲ / ▼ Select *SETUP*.
 -  Select **ENTER**. The menu for setting up the process controller is displayed.
Setup is described in the operating instructions in chapter [“15.2 SETUP – Setting up the process controller”](#).
 -  Select **EXIT**. Return to *P.CONTROL*.
- ✓ You have set up the process controller.

Parameterize the process controller as follows:

-  Press **MENU** for 3 s. Switching from process level ⇒ setting level.
 - ▲ / ▼ Select *P.CONTROL*. Selection in the main menu (MAIN).
 -  Select **ENTER**. The submenu options for the basic setting are displayed.
 - ▲ / ▼ Select *PID.PARAMETER*.
 -  Select **ENTER**. The menu for parameterizing the process controller is displayed.
Parameterization is described in the operating instructions in chapter [“15.3 PID.PARAMETER – Parameterization of the process controller”](#).
 -  Select **EXIT**. Return to *P.CONTROL*.
 -  Select **EXIT**. Return to the main menu (MAIN).
 -  Select **EXIT**. Switching from setting level ⇒ process level.
- ✓ You have parameterized the process controller.

P.CONTROL - settings:

PID.PARAMETER	Parameterization of the process controller
DBND 0,1 %	Insensitivity range (dead band) of the PID process controller
KP 0,00	Amplification factor of the process controller
TN 0,5	Reset time
TV 0,0	Hold-back time
X0 0,0 %	Operating point
FILTER 0	Filtering of the process actual value input
SETUP	Setting up the process controller
PV-INPUT	Indication of the signal type for process actual value
PV-SCALE	Scaling the process controller
SP-INPUT	Type of the set-point value default (internal or external)
SP-SCALE*	Scaling the position controller (for external set-point value default only)
P.CO-INIT	Enables a smooth switchover between operating states AUTOMATIC and MANUAL

Tab. 12: Basic settings of the process controller

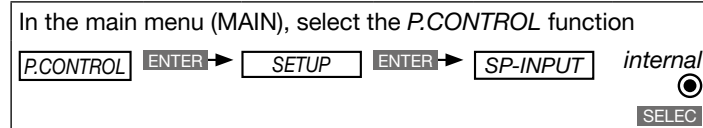


The parameter settings can be created automatically with the help of the *P.TUNE* function (description see "operating instructions for type 8692/8693").

12.3.2 Manually changing the process set-point value

Procedure:

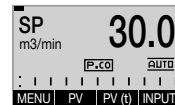
1. Set the set-point value default on the setting level:



→ Use the **EXIT** key (press 4 x) to return to the process level.

2. On the process level, manually change the process set-point value:

→ Use the arrow keys Δ ∇ to select the display for the process set-point value (SP).



→ Press the key **INPUT**.

→ Insert process set-point value (as shown on the right-hand image)

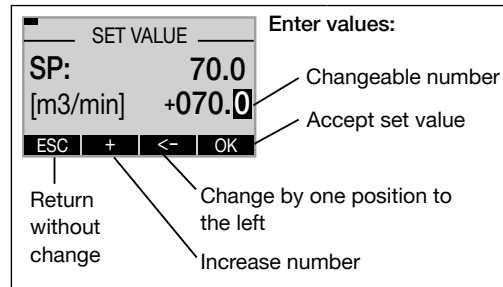


Fig. 16: Enter values

13 ETHERNET/IP, PROFINET AND MODBUS TCP

The quickstart describes only the electrical installation of type 8692, 8693 and the specification of the basic settings.



The settings for the bus communication via the BUS.COMM menu are described in the operating instructions of type 8692, 8693.

13.1 Technical data

Network speed	10/100 mbps
Auto negotiation	Yes
Switch function	Yes
Network diagnostics	Yes, via fault telegram
MAC-ID	Individual identification number, stored in the module and on the outside of the device (see type label)
Device name Ethernet (factory settings)	Positioner / process controller (name can be changed)

13.2 Electrical installation



DANGER

Risk of injury due to electric shock.

- Before reaching into the system, switch off the power supply and secure to prevent reactivation.
- Observe the applicable accident prevention regulations 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 uncontrolled restart.

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

Procedure:

→ Connect type 8692, 8693 according to the tables.

A setscrew with nut is located on the electrical connection housing for connection of the functional earth.

→ Connect setscrew to a suitable grounding point. To guarantee electromagnetic compatibility (EMC), ensure that the cable is as short as possible (max. 30 cm, Ø 1.5 mm²).

When the operating voltage is applied, type 8692, 8693 is operating.

→ Now make the required basic settings and adjustments for the position controller/process controller. See chapter "[12 Start-up](#)".

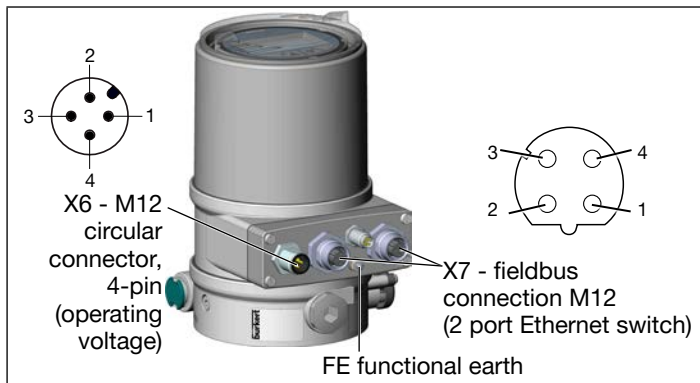


Fig. 17: Field bus connection

The EtherNet/IP is connected with an M12 circular plug-in connector, 4-pin D-coded.

X7 - M12 field bus connection D-coded:

	Pin 1	Transmit +
	Pin 2	Receive +
	Pin 3	Transmit -
	Pin 4	Receive -

Tab. 13: Electrical assignment EtherNet/IP

X6 - M12 circular connector, 4-pin:

Pin	Wire color*	Assignment
1	brown	Operating voltage + 24 V DC
2	Not assigned	
3	blue	Operating voltage GND
4	Not assigned	

* The indicated colors refer to the connection cable available as an accessory (918038).

Tab. 14: X6 - M12 circular connector, 4-pin (operating voltage)

NOTE

To ensure electromagnetic compatibility (EMC), use a shielded Ethernet cable. Ground the cable shield on both sides, on each of the connected devices. For the grounding use a short line (max. 1 m) with a cross-section of at least 1.5 mm².

14 BÜS OPTION

14.1 Definition

bÜS is a field bus which is based on CANopen with additional functionality for networking several devices.

14.2 Electrical installation



DANGER

Risk of injury due to electric shock.

- ▶ Before reaching into the system, switch off the power supply and secure to prevent reactivation.
- ▶ Observe the applicable accident prevention regulations 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 uncontrolled restart.

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

Procedure:

→ Connect type 8692, 8693 according to the tables.

A setscrew with nut is located on the electrical connection housing for connection of the functional earth.

→ Connect setscrew to a suitable grounding point. To guarantee electromagnetic compatibility (EMC), ensure that the cable is as short as possible (max. 30 cm, Ø 1.5 mm²).

When the operating voltage is applied, type 8692, 8693 is operating.

→ Now make the required basic settings and adjustments for the position controller/process controller. See chapter “12 Start-up”.

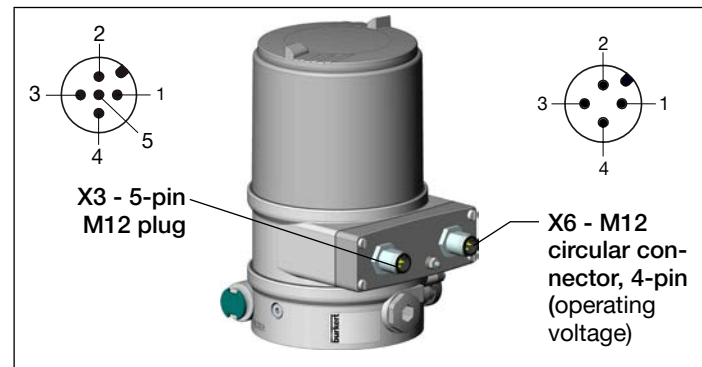


Fig. 18: Electrical connection (example type 8693)

X3 - circular plug-in connector M12x1, 5-pin, male:

Pin	Wire color	Assignment
1	CAN shield	CAN shield
2	Not assigned	
3	Black	Black GND / CAN_GND
4	White	White CAN_H
5	Blue	Blue CAN_L

Tab. 15: Connection of the circular plug-in connector

X6 - M12 circular connector, 4-pin:

Pin	Wire color*	Assignment
1	brown	Operating voltage + 24 V DC
2	Not assigned	
3	blue	Operating voltage GND
4	Not assigned	

* The indicated colors refer to the connection cable available as an accessory (918038).

Tab. 16: X6 - M12 circular connector, 4-pin (operating voltage)



Electrical installation with or without bÜS network:

To be able to use the bÜS network (CAN interface), a 5-pin circular connector and a shielded 5-wire cable must be used.

15 PROFIBUS DPV1

The quickstart describes only the electrical installation of type 8692, 8693 and the specification of the basic settings.



The settings for the bus communication via the BUS. COMM menu are described in the operating instructions of type 8692, 8693.

15.1 Electrical installation



DANGER

Risk of injury due to electric shock.

- Before reaching into the system, switch off the power supply and secure to prevent reactivation.
- Observe the applicable accident prevention regulations 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 uncontrolled restart.

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

Procedure:

- Connect type 8692, 8693 according to the tables.
- A setscrew with nut is located on the electrical connection housing for connection of the functional earth.
- Connect setscrew to a suitable grounding point. To guarantee electromagnetic compatibility (EMC), ensure that the cable is as short as possible (max. 30 cm, Ø 1.5 mm²).
- When the operating voltage is applied, type 8692, 8693 is operating.
- Now make the required basic settings and adjustments for the position controller/process controller. See chapter ["12 Start-up"](#).

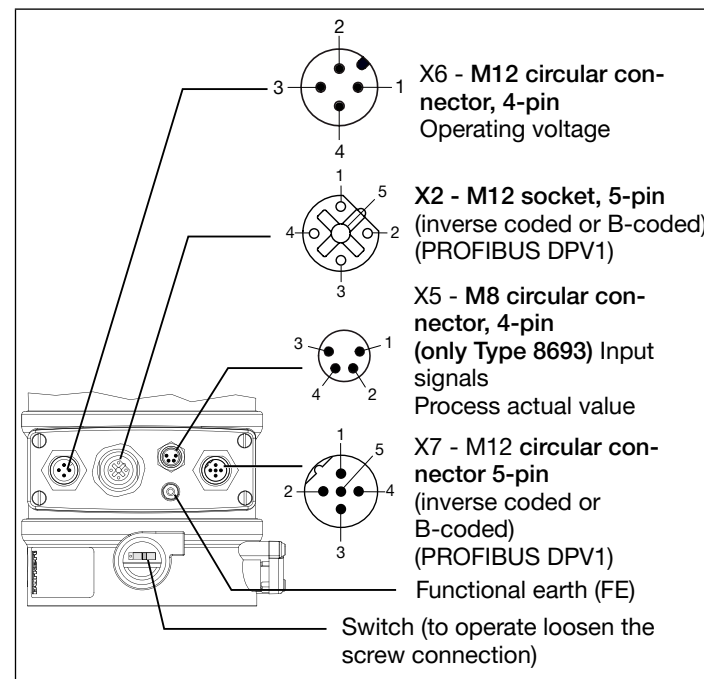


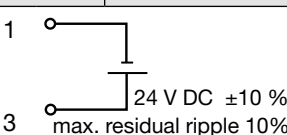
Fig. 19: Electrical connection PROFIBUS DPV1, type 8692/8693

X2, X7 - M12 socket/circular connector, 5-pin (bus connection)

Pin	Configuration	External circuit / Signal level
1	VP+5	Supply the terminating resistors
2	RxD/TxD-N	Received/transmitted data -N, A-line
3	DGND	Data transmission potential (earth to 5 V)
4	RxD/TxD-P	Received/transmitted data -P, B-line
5	Not assigned	

Tab. 17: X2, X7 - M12 socket/circular connector, 5-pin - bus connection, PROFIBUS DPV1






X6 - M12 circular connector, 4-pin (operating voltage)

Pin	Wire color*	Configuration	On the device side	External circuit / Signal level
1	brown	+24 V	 <p>24 V DC ±10 % max. residual ripple 10%</p>	
2		Not assigned		
3	blue	GND		
4		Not assigned		

* The indicated wire colours refer to the connection cable, part no. 918038, available as an accessory.

Tab. 18: X6 - M12 circular connector, 4-pin (operating voltage)

X5 - M8 circular connector, 4-pin - (for type 8693 only)

Input type*	Pin	Assignment	Switch **
4...20 mA - internally supplied	1	+24 V transmitter power supply	 <p>Switch on left</p>
	2	Output from transmitter	
	3	GND (identical to GND operating voltage)	
	4	Bridge to GND (GND from 3-conductor transmitter)	
4...20 mA - externally supplied	1	Not assigned	 <p>Switch on right</p>
	2	Process actual +	
	3	Not assigned	
	4	Process actual -	
Frequency - internally supplied	1	+24 V sensor power supply	 <p>Switch on left</p>
	2	Clock input +	
	3	Clock input - (GND)	
	4	Not assigned	
Frequency - externally supplied	1	Not assigned	 <p>Switch on right</p>
	2	Clock input +	
	3	Clock input -	
	4	Not assigned	
Pt 100 (see information below)	1	Not assigned	 <p>Switch on right</p>
	2	Process actual 1 (power supply)	
	3	Process actual 3 (GND)	
	4	Process actual 2 (compensation)	

* Adjustable via software (see operating instructions type 8692/8693 REV.2 "Setting the input signal").
** Position of the switch, see "Fig. 15: Cable gland connection".

Tab. 19: X5 - M8 circular plug, 4-pin, input signals process actual value



For reasons of wire resistance compensation, connect the Pt 100 sensor via 3 wires.
Bridge Pin 3 and Pin 4 on the sensor.

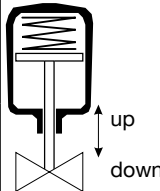
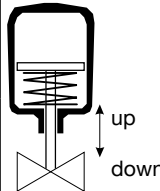
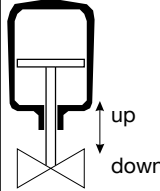
15.1.1 Switch position (only type 8693)

For the “internally supplied” input type, the GND signal of the process actual value must be connected to the GND signal of the operating voltage. A bridge is established internally between both GND signals using the “left” switch position.

Supplied	Assignment	Switch position
Internally supplied	GND process actual value equal to GND operating voltage	Switch on left
Externally supplied	GND process actual value electrically isolated from GND operating voltage	Switch on right

Tab. 20: Switch position

16 SAFETY END POSITIONS

Actuator system	Designation	Safety end positions after failure of the	
		electrical auxiliary power	pneumatic auxiliary power
	single-acting Control function A	down	control system for high air flow rate (DN 2,5): down
			control system for low air flow rate (DN 0,6): not defined
	single-acting control function B	up	control system for high air flow rate (DN 2,5): up
			control system for low air flow rate (DN 0,6): not defined
	double-acting Control function I	down / up (depending on the installation of the pneumatic connection)	not defined

Tab. 21: Safety end positions

17 REMOVAL OF TYPE 8692, 8693



WARNING

Risk of injury from improper disassembly.

- Removal may be carried out by authorized technicians only and using the appropriate tools.

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

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

Sequence:

1. Remove the pneumatic connections.
2. Disconnect the electrical connection.
3. Remove type 8692, 8693.

17.1 Disconnecting the pneumatic connections



DANGER

Risk of injury from high pressure.

- Before loosening lines and valves, turn off the pressure and vent the lines.

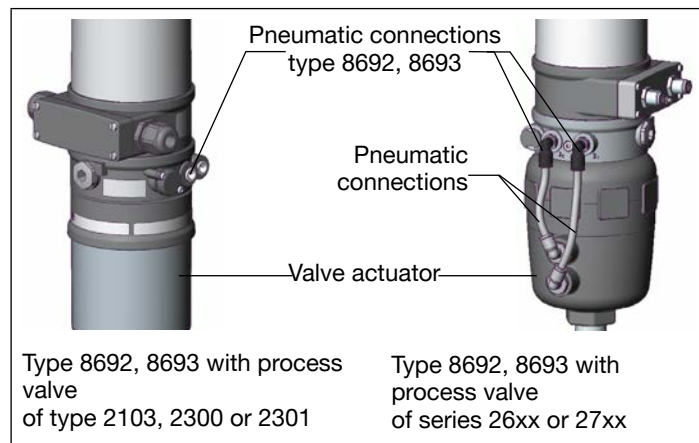


Fig. 20: Removing the pneumatic connections

→ Disconnect the pneumatic connections to type 8692, 8693.

For process valves belonging to series 26xx and 27xx:

→ Disconnect the pneumatic connections to the actuator.

17.2 Disconnecting electrical connections



DANGER

Risk of injury due to electric shock.

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

Connection with circular plug-in connector



Electrical connection housing

Connection with connection terminals



Connection cover

Fig. 21: Disconnecting electrical connections

Connection with circular plug-in connector:

- Remove circular plug-in connector.

Connection with connection terminals:

- Loosen the 4 screws of the connection cover and remove the cover.
- Loosen the connection terminals and pull out the cables.

17.3 Removing type 8692, 8693

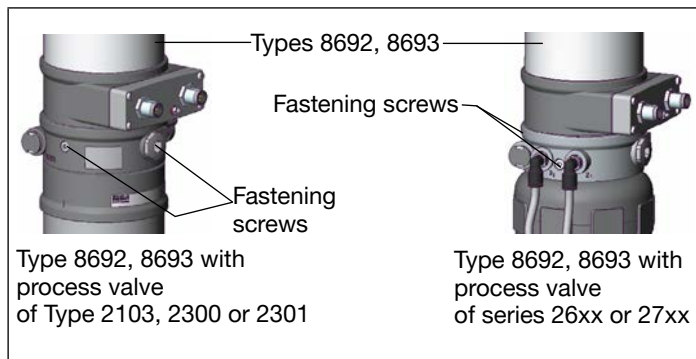


Fig. 22: Disconnecting electrical connections

- Release the fastening screws.
- Remove type 8692, 8693.

18 ACCESSORIES

18.1 Communications software

The PC software Bürkert-Communicator is designed for communication with Bürkert devices.



A detailed description for installing and operating the PC software can be found in the associated operating instructions.

Download the software from: country.burkert.com

18.2 USB interface

To communicate with the devices, the PC requires a USB interface and the USB büS interface set available as an accessory.

USB büS interface set	
büS standard set (büS stick + 0.7 m cable with M12 plug)	Order no. 772551
büS adapter for büS service interface (M12 to büS service interface micro USB)	Order no. 773254

Fig. 23: Components USB büS interface set

The data transfer must be according to CANopen specification.



Information on type 8692, 8693 can be found on the Internet at country.burkert.com

- Additional accessories (in the operating instructions)

19 PACKAGING, TRANSPORT, STORAGE

NOTE

Transportschäden.

Inadequately protected devices may be damaged during transportation.

- ▶ Protect the device against moisture and dirt in shock-resistant packaging during transportation.
- ▶ Prevent the temperature from exceeding or dropping below the permitted storage temperature.

Incorrect storage may damage the device.

- ▶ Store the device in a dry and dust-free location.
- ▶ Storage temperature: -20...+65 °C (-40...158 °F).

19.1 DISPOSAL



- ▶ Follow national regulations regarding disposal and the environment.
- ▶ Collect electrical and electronic devices separately and dispose of them as special waste.

Further information country.burkert.com.

www.burkert.com