



Digital electro-pneumatic positioner for integrated mounting on process control valves

- Compact and robust stainless steel design
- Easy start-up with automatic X-Tune function
- Contact-free position sensor
- Integrated pilot air duct with spring chamber aeration
- EtherNet/IP, PROFINET, Modbus TCP, PROFIBUS DP-V1 or Bürkert system bus (bÜS)

Product variants described in the data sheet may differ from the product presentation and description.

Can be combined with

	Type 2301 Pneumatically operated 2-way Globe Control Valve	►
	Type 2300 Pneumatically operated 2-way angle seat control valve ELEMENT	►
	Type 2103 2/2-way diaphragm valve with pneumatic stainless steel actuator (Type ELE- MENT) for decentralised automation	►

Type description

The compact positioner device Type 8692 is optimised for integrated mounting on the pneumatic actuators in the process valve series Type 23xx/2103 and is specially designed for the requirements of a hygienic process environment. The pilot air duct is integrated into the actuator without external piping. The easy operation and the selection of additional software functions are carried out either on a big graphic display with backlight and keypad or via the COMMUNICATOR.

The positioner registers the valve position without deterioration via a contact-free, analogue position sensor. The integrated diagnostics function are used to monitor control valve operating conditions. Valve diagnostic messages via status signals are issued in accordance with NE107 (NAMUR) and recorded as historical entries.

The housing is easy to clean and features proven IP protection and chemically resistant materials for use in hygienic processing in the food, beverage and pharmaceutical industries. Combined with Bürkert ELEMENT actuators, the pneumatic actuating system enables spring chamber aeration that avoids actuator chamber contamination from the environment.

1. General technical data

Product properties	
Dimensions	Further information can be found in chapter "4. Dimensions" on page 6.
Material	
Body	PPS, stainless steel
Seal	EPDM
Cover	PC
Operation	
Display	Graphic display with backlighting and intuitive menu navigation
Operating keys	Membrane keypad with 4 keys
Service interface	Connected to PC via USB connection
Configuration tool	Bürkert Communicator PACTware (only for device versions with PROFIBUS, resp. analogue version with serial interface)
Commissioning	
Initialisation positioner	Automatic by X.TUNE function (automatic adjustment of positioner)
Manual operation of pilot valve	In manual mode via push-button on control panel
Status display	
Display of device and valve status	LEDs (colours according to NAMUR), only for Ethernet and bÜS versions
Communication	
Fieldbus	EtherNet/IP, PROFINET, Modbus TCP, PROFIBUS DP-V1
Digital	Bürkert system bus (bÜS) (based on CANopen)
Performance data	
Position sensor	
Measuring principle	Inductive
Position detection module	Contactless analogue position sensor (wear-free)
Stroke range	
Valve spindle	3...45 mm
Electrical data	
Operating voltage	24 V DC $\pm$ 10 % UL: NEC Class 2
Residual ripple	Max.10 %
Power consumption	< 5 W
Protection class	III according to DIN EN 61140 (VDE 0140 - 1)
Input /Output	
Digital input	1 digital input, 0...5 V = log „0“, 10...30 V = log „1“
Digital output	2 digital outputs (optional), galvanically isolated
Current limitation	100 mA, in case of overload, the output is switched off and cyclically switched on again to check for still existing overload.
Analogue output	1 output (optional) 0/4...20 mA, 0...5/10 V
Input data setpoint	
Setpoint signal	
Setpoint setting	0/4...20 mA and 0...5/10 V
Input resistance	0/4...20 mA, 180 Ω 0...5/10 V, 19 k Ω
Electrical connection	
Multipole version	M12, 8-pin resp. 4-pin or 5-pin according to device version (see "5. Device/Process connections" on page 9)
Cable gland version	2x M16 $\times$ 1.5 (cable $\varnothing$ 5...10 mm) with terminals for cable cross-sections 0.14...1.5 mm ²

Pneumatic data

Control medium

Dust content	Class 7 (< 40 µm particle size)
Particle density	Class 5 (< 10 mg/m ³)
Pressure dew point	Class 3 (← 20 °C)
Oil content	Class X (< 25 mg/m ³)

Air supply filter

Mesh size	Exchangeable ~0.1 mm
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Supply pressure

Low air capacity	0...7 bar ¹⁾
High air capacity	3...7 bar
Pilot air port	Threaded port G 1/8, stainless steel

Positioning system

Low air capacity

Single-acting and double-acting	7 l _N /min for aeration and ventilation (Q _{Nn} value according to definition at pressure drop from 7 to 6 bar abs)
Actuator series/size	Type 23xx, Ø actuator 70/90 mm

High air capacity

Single acting	130 l _N /min for aeration and ventilation (Q _{Nn} value according to definition at pressure drop from 7 to 6 bar abs)
Actuator series/size	Type 23xx, Ø actuator 70/90/225 mm Type 27xx, Ø actuator 175/225 mm

Approvals and conformities

Explosion protection

Ignition protection class	II 3D Ex tc IIIC T135 °C Dc II 3G Ex ec IIC T4 Gc
ATEX	BVS 14 ATEX E 008 X II 3D Ex tc IIIC T135 °C Dc II 3G Ex ec IIC T4 Gc
IECEx	IECEx BVS 14.0009 X Ex tc IIIC T135 °C Dc Ex ec IIC T4 Gc

Further information can be found in chapter [“2.4. Explosion protection” on page 5.](#)

North America (USA/Canada)

UL Listed for the USA and Canada	cULus certificate: E238179 Further information can be found in chapter “2.5. North America (USA/Canada)” on page 5.
FM Explosion Protection	Increased Safety for Class I, Zone 2, AEx ec IIC T4 Gc hazardous (classified) locations, indoors and outdoors (IP54). Alternatively marked as Class I Division 2 Groups A, B, C, and D; T4. Further information can be found in chapter “2.5. North America (USA/Canada)” on page 5.

Others

China Compulsory Certification (CCC)	The products with Ex approval are suitable for import and use for hazardous applications in China. Further information can be found in chapter “2.6. Others” on page 5.
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Further information can be found in chapter [“2. Approvals and conformities” on page 5.](#)

Environment and installation

Operating conditions

Ambient temperature	-10...+55 °C
Degree of protection	IP65/IP67 according to EN 60529, 4X according to NEMA 250 Standard
Operating altitude	Up to 2000 m above sea level

Installation and mechanical data

Installation position	As required, preferably with actuator in upright position
Valve actuator (type, size)	ELEMENT Type 23xx (actuator size Ø70/90/130/225 mm) CLASSIC Type 27xx (actuator size Ø175/225 mm)
Adapter kit	Further information can be found in chapter “Adapter kits” on page 17.

1.) The supply pressure applied must be 0.5 to 1 bar above the minimum required pilot pressure of the valve actuator.

2. Approvals and conformities

2.1. General notes

- The approvals and conformities listed below must be stated when making enquiries. This is the only way to ensure that the product complies with all required specifications.
- Not all available versions can be supplied with the below mentioned approvals or conformities.

2.2. Conformity

In accordance with the Declaration of Conformity, the product is compliant with the EU Directives.

2.3. Standards

The applied standards which are used to demonstrate compliance with the EU Directives are listed in the EU-Type Examination Certificate and/or the EU Declaration of Conformity.

2.4. Explosion protection

Approval	Description
 	Optional: Explosion protection ATEX: BVS 14 ATEX E 008 X II 3D Ex tc IIIC T135 °C Dc II 3G Ex ec IIC T4 Gc IECEx: IECEx BVS 14.0009 X Ex tc IIIC T135 °C Dc Ex ec IIC T4 Gc

2.5. North America (USA/Canada)

Approval	Description
	Optional: UL Listed for the USA and Canada The products are UL Listed for the USA and Canada according to: • UL 61010-1 (ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL, AND LABORATORY USE – Part 1: General Requirements) • CAN/CSA-C22.2 No. 61010-1
	Optional: FM (Factory Mutual) – Explosion Protection Increased Safety for Class I, Zone 2, AEx ec IIC T4 Gc hazardous (classified) locations, indoors and outdoors (IP54). Alternatively marked as Class I Division 2 Groups A, B, C, and D; T4.

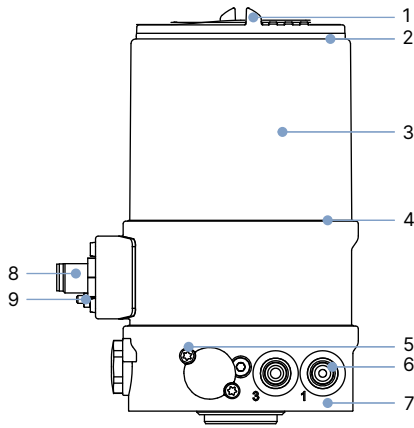
2.6. Others

China Compulsory Certification (CCC)

Conformity	Description
	Optional: China Compulsory Certification (CCC) The products with Ex approval are suitable for import and use for hazardous applications in China.

3. Materials

3.1. Material specifications

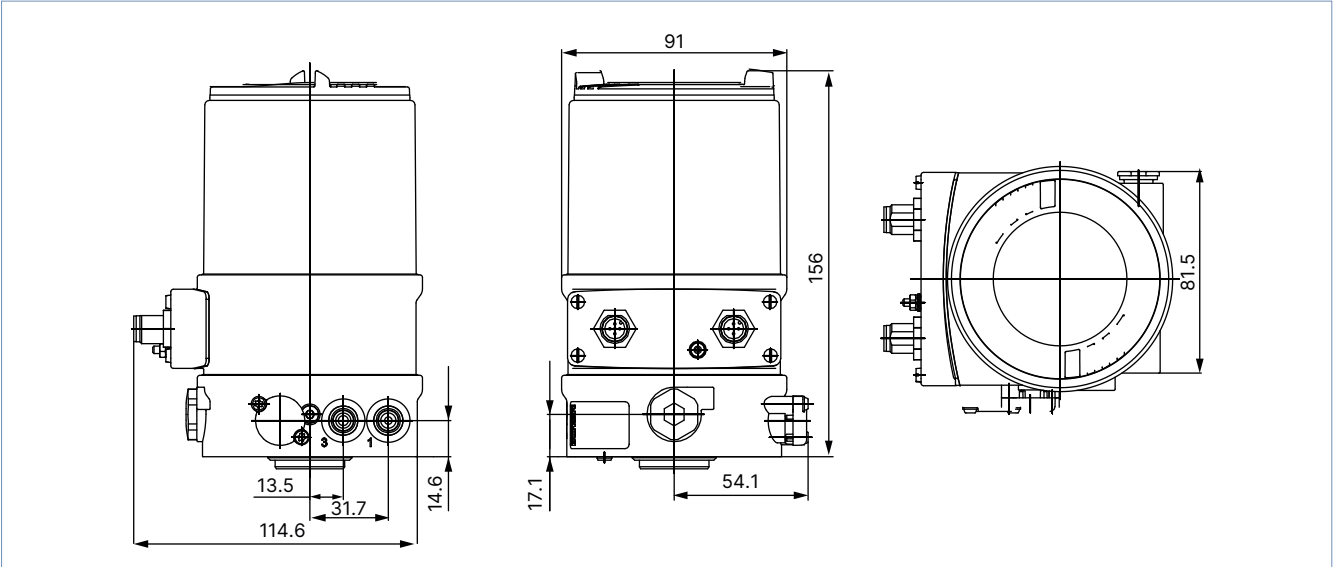


No.	Element	Material
1	Cover	PC
2	Seal	EPDM
3	Body casing	Stainless steel
4	Seal	EPDM
5	Screws	Stainless steel
6	Push-in connector	POM/stainless steel
	Threaded port G 1/8	Stainless steel
7	Basic housing	PPS
8	M12 plug connector	Stainless steel
9	Screws	Stainless steel

4. Dimensions

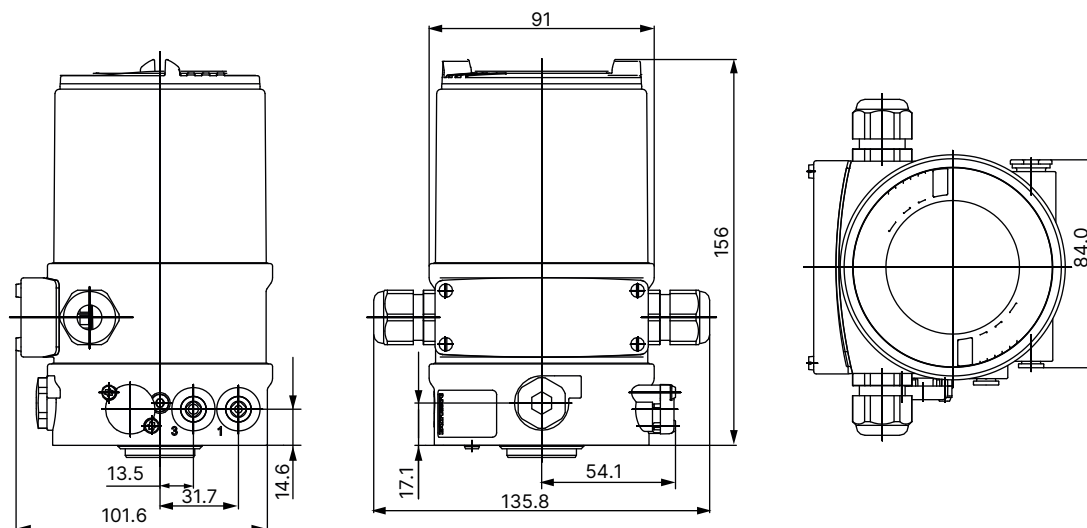
4.1. Multipole version

Note:
Dimensions in mm



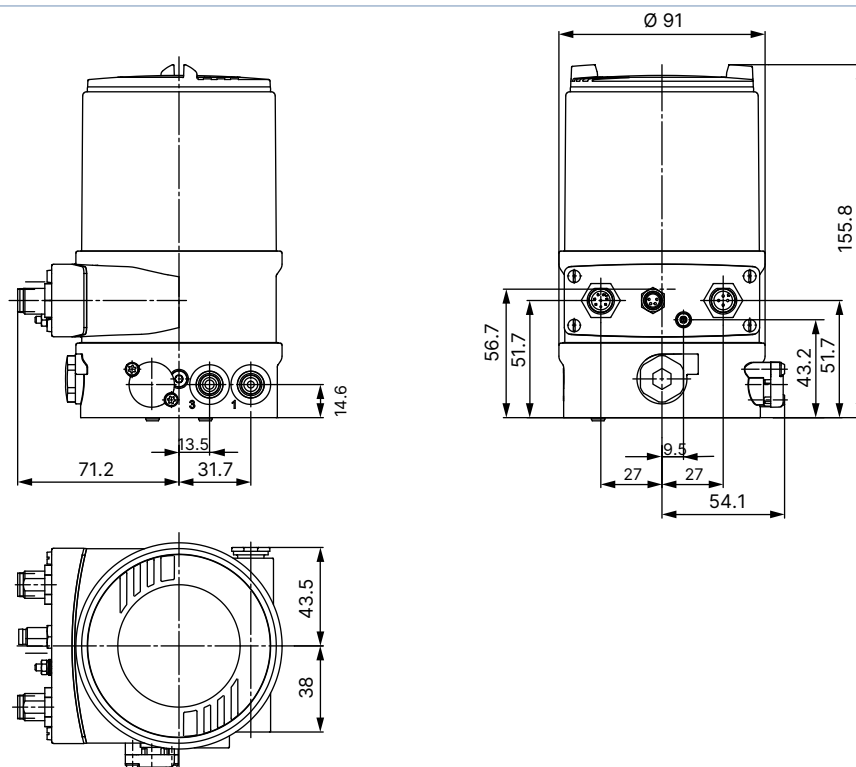
Note:

Dimensions in mm



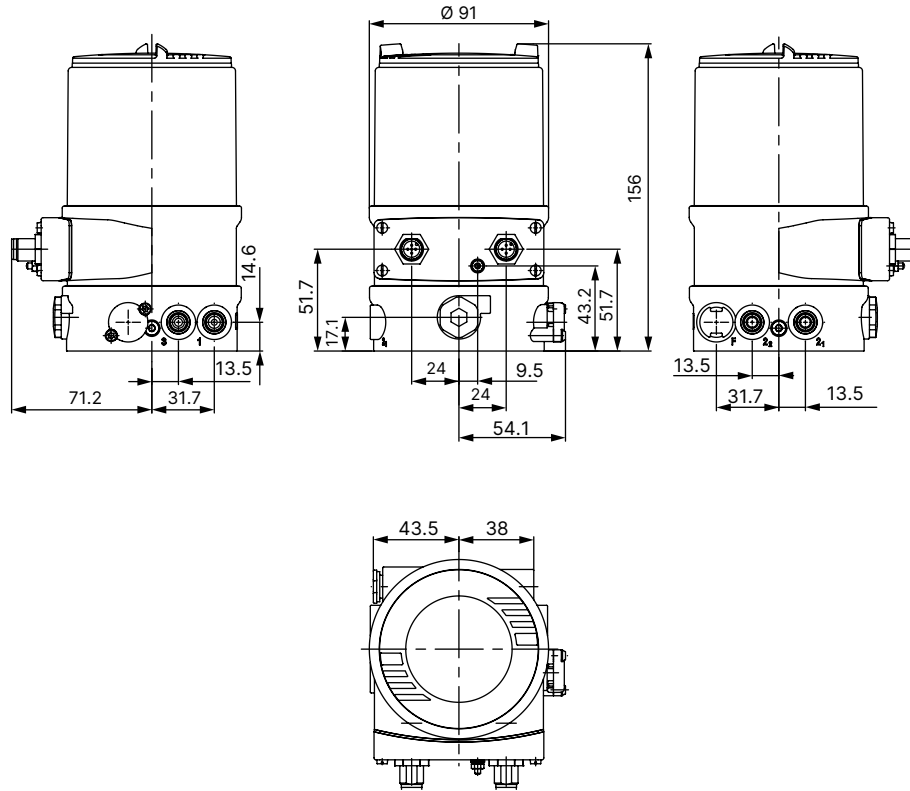
Note:

Dimensions in mm



4.4. Mounting on control valves of actuator series Type 27xx , actuator size 175/225 mm**Note:**

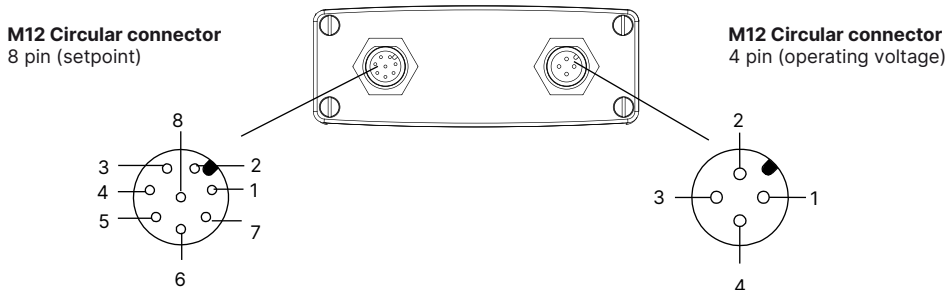
Dimensions in mm



5. Device/Process connections

5.1. Electrical connections

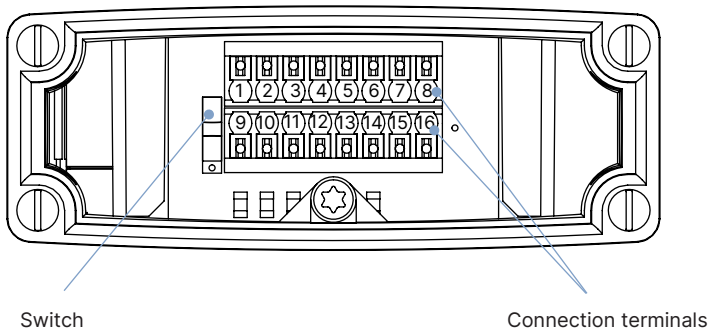
Multipole connection



M12 circular plug, 8-pin (setpoint)		M12 circular plug, 8-pin (input/output signal) ^{1.)}		M12 circular plug, 4-pin (operating voltage)	
Pin	Pin assignment	Pin	Pin assignment	Pin	Pin assignment
7	Setpoint GND	1	Digital input +	1	Operating voltage + 24 V DC
8	Setpoint + (0/4...20 mA/0...5/10 V)	2	Digital output GND	2	Not assigned
		3	Digital output 2	3	Operating voltage GND
		4	Digital output 1	4	Not assigned
		5	Analogue feedback GND		
		6	Analogue feedback +		

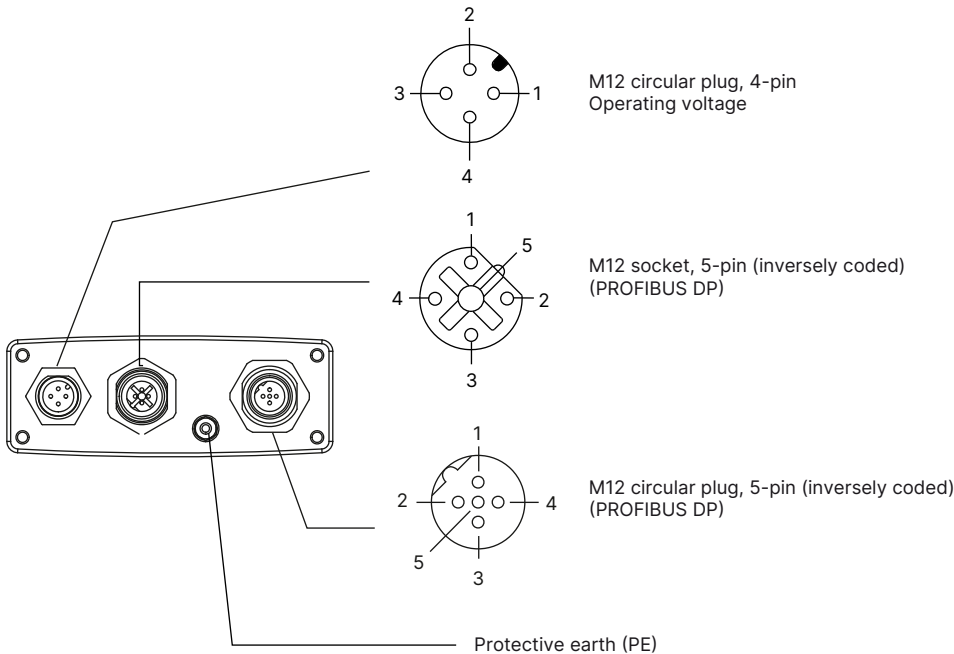
1.) With the options analogue feedback or digital output

Cable gland



Terminal	Pin assignment
1	Analogue feedback GND
2	Analogue feedback +
3	Digital output GND
4	Digital output 2
5	Digital output 1
6	Digital input +
7	Setpoint GND
8	Setpoint +
9	Not assigned
10	Not assigned
11	Not assigned
12	Not assigned
13	Not assigned
14	Digital input GND
15	Operating voltage GND
16	Operating voltage + 24 V

PROFIBUS DP connection



Socket/M12 circular plug, 5-pin - fieldbus connection

Pin	Pin assignment
1	VP+ 5
2	RxD/TxD-N
3	DGND
4	RxD/TxD-P
5	Not assigned
Thread	Shielding/protective earth

M12 circular plug, 4-pin - operating voltage

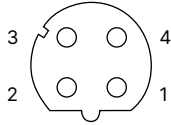
Pin	Wire colour ^{1.)}	Pin assignment
1	Brown	+ 24 V
2	–	Not assigned
3	Blue	GND
4	–	Not assigned

1.) The wire colours indicated refer to the connection cable available as an accessory with the Article no. 918038.

EtherNet/IP, PROFINET, Modbus TCP connection



M12 fieldbus connection, D-coded

Pin	Belegung	Anschlussbild
1	Transmit +	
2	Receive +	
3	Transmit –	
4	Receive –	

M12 circular plug, 4-pin, operating voltage

Pin	Wire colour ^{1.)}	Pin assignment
1	Brown	Operating voltage + 24 V DC
2	–	Not assigned
3	Blue	Operating voltage GND
4	–	Not assigned

1.) The specified wire colours refer to the connection cable which is available as an accessory with Article no. 918038.

Bürkert system bus (büS) connection



M12 circular plug × 1, 5-pin, büS connection

Pin	Wire colour	Pin assignment
1	CAN shielding	CAN shielding
2	–	Not assigned
3	Black	GND/CAN_GND
4	White	CAN_H
5	Blue	CAN_L

M12 circular plug, 4-pin, operating voltage

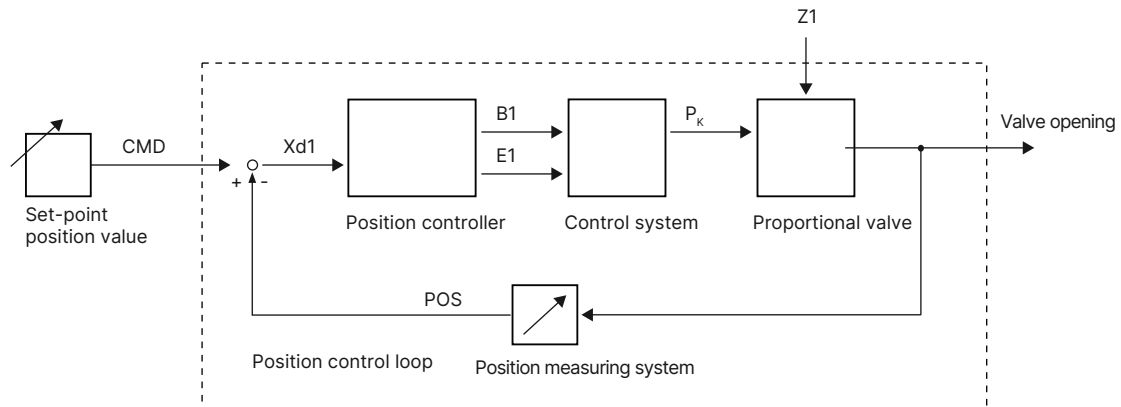
Pin	Wire colour ^{1.)}	Pin assignment
1	Brown	Operating voltage + 24 V DC
2	–	Not assigned
3	Blue	Operating voltage GND
4	–	Not assigned

1.) The specified wire colours refer to the connection cable which is available as an accessory with Article no. 918038.

6. Performance specifications

6.1. Signal flow diagram

Position control loop



Additional software options of the TopControl Type 8692 (extract)

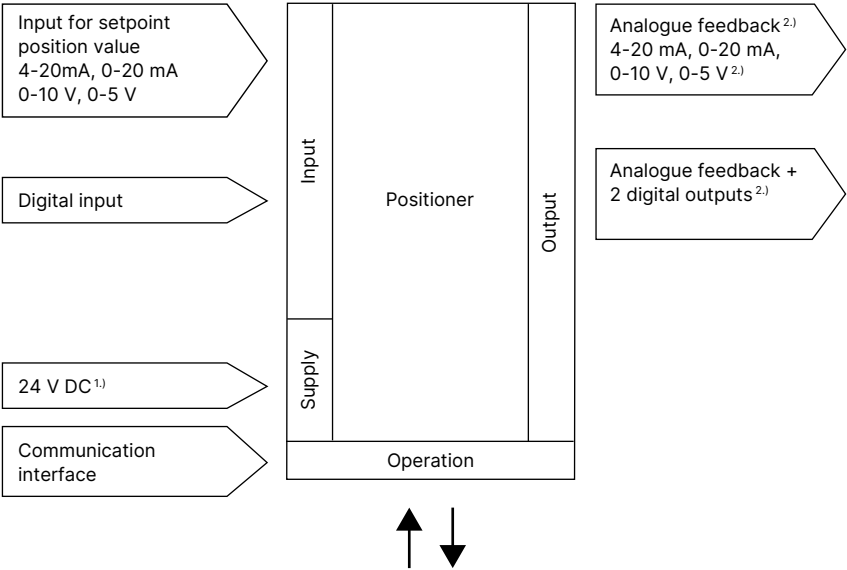
Automatic commissioning of control valve system

- Automatic or manual characteristic curves selection
- Setting of seal and maximum stroke threshold, respectively
- Parameterisation of positioner
- Limitation of stroke range
- Limitation of positioning speed
- Setting direction of movement
- Configuration of digital input
- Signal range splitting on several controllers
- Configuration of 1 analogue or 2 digital outputs
- Signal fault detection
- Safety position
- Code protection
- Contrast inversion of display
- Parameterisable diagnostic functions¹⁾/digital output (option)
 - Operating hours counter
 - Path accumulator
 - Position monitoring
 - Graphical display of dwell time density and movement range
 - Monitoring of mechanical end positions in the armature
 - Direction-reversal counter
 - Temperature monitoring

1.) Further diagnostic functions with detailed description can be found in the **operating instructions Type 8692** ►

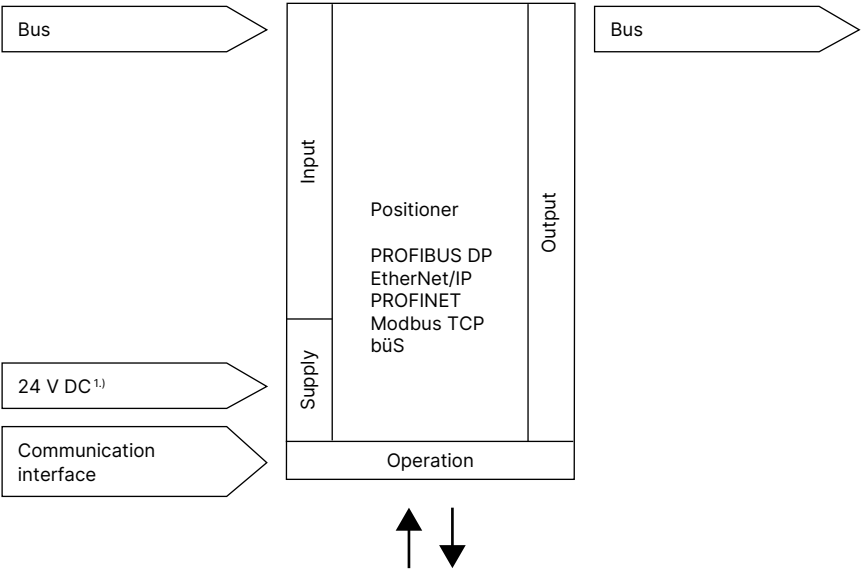
6.2. Interface diagram

Version without fieldbus communication



Version with fieldbus communication

With PROFIBUS DP, EtherNet/IP, PROFINET, Modbus TCP and Bürkert system bus (büs)



1.) The operating voltage is supplied with a 3-wire unit independent from the setpoint signal
2.) Alternative options

7. Product installation

7.1. Combination options with pneumatic process valves

Note:

A complete **TopControl control valve system Type 8692** and an **ELEMENT control valve Type 23xx** resp. **Type 2103**.

The following information is required to select a complete system:

- **Article no.** of the desired **positioner TopControl**, see **data sheet Type 8692**
- **Article no.** of the desired **control valve Type 23xx/2103**, see **data sheet Type 2301 ▶, Type 2300 ▶ and Type 2103 ▶**

You order two components and receive a completely assembled and tested valve.

Example of variations of the control valve system



1.) See data sheet **Adaptations for third-party actuators Type KK01 ▶** or contact the appropriate Bürkert sales office.

8.3. Ordering chart

Note:

All standard versions are UL-approved.

Circuit function Pilot valve system	Communication	Electrical connection	Analogue feedback 0/4...20 mA	Analogue feedback 0/4...20 mA + 2 digital outputs	Diagnostic function ^{1.)}	Digital input	Pilot air ports threaded connection	Article no.	
								Standard	ATEX II Cat. 3G/D, IECEx, CCC ^{2.)}
Actuator series Type 23xx, actuator size Ø 70/90 mm									
Low air capacity single-acting	Without fieldbus communication	Cable gland	–	–	–	Yes	G 1/8	306913	306982
			–	Yes	Yes	Yes	G 1/8	307005	306983
		M12 plug connector	–	–	–	Yes	G 1/8	307012	307095
			–	Yes	Yes	Yes	G 1/8	307123	307096
		PROFIBUS DP-V1	Via bus	–	–	–	G 1/8	233348	265019
		EtherNet/IP	Via bus	–	Yes	–	G 1/8	306849	306847
		PROFINET	Via bus	–	Yes	–	G 1/8	306854	306851
		Modbus TCP	Via bus	–	Yes	–	G 1/8	306859	306856
Bürkert system bus (bÜS)	Via bus	–	Yes	–	G 1/8	306863	306861		
Low air capacity double-acting	Without fieldbus communication	Cable gland	–	–	–	Yes	G 1/8	306905	306977
			–	Yes	Yes	Yes	G 1/8	307006	306978
		M12 plug connector	–	–	–	Yes	G 1/8	307124	307091
			–	Yes	Yes	Yes	G 1/8	307125	307092
		PROFIBUS DP-V1	Via bus	–	–	–	G 1/8	265172	265004
		Actuator series Type 23xx, actuator size Ø 130/225 mm							
High air capacity single-acting	Without fieldbus communication	Cable gland	–	–	–	Yes	G 1/8	306922	306986
			–	Yes	Yes	Yes	G 1/8	307007	306987
		M12 plug connector	–	–	–	Yes	G 1/8	307084	307099
			–	Yes	Yes	Yes	G 1/8	307126	307100
		PROFIBUS DP-V1	Via bus	–	–	–	G 1/8	233349	265033
		EtherNet/IP	Via bus	–	Yes	–	G 1/8	306850	306848
		PROFINET	Via bus	–	Yes	–	G 1/8	306855	306853
		Modbus TCP	Via bus	–	Yes	–	G 1/8	306860	306857
Bürkert system bus (bÜS)	Via bus	–	Yes	–	G 1/8	306864	306862		
Actuator series Type 27xx, actuator size Ø 175/225 mm									
High air capacity single-acting	Without fieldbus communication	Cable gland	–	–	–	Yes	G 1/8	306925	306988
			–	Yes	Yes	Yes	G 1/8	306927	306989
		M12 plug connector	–	–	–	Yes	G 1/8	307041	307101
			–	Yes	Yes	Yes	G 1/8	307043	307102
		PROFIBUS DP-V1	Via bus	–	–	–	G 1/8	233350	265041
		EtherNet/IP	Via bus	–	Yes	–	G 1/8	313266	313265
		PROFINET	Via bus	–	Yes	–	G 1/8	313269	313268
		Modbus TCP	Via bus	–	Yes	–	G 1/8	313271	313270
Bürkert system bus (bÜS)	Via bus	–	Yes	–	G 1/8	313274	313272		

1.) See "Additional software options of the TopControl Type 8692 (extract)" on page 12

2.) CCC (China Compulsory Certificate) for device versions with Ex approval

Further versions on request


Additional

EtherNet/IP, PROFINET, Modbus TCP and Bürkert system bus (bÜS): double-acting versions with low air capacity

8.4. Ordering chart accessories

Standard accessories

Note:

Must be ordered separately.

Description	Article no.
M12 circular socket with cable, 8-pin, cable length: 5 m, for input and output signals	919267 
M12 circular socket with cable, 4-pin, cable length: 5 m, for power supply (without communication)	918038 
Silencer G 1/8	780779 
USB interface for serial communication	227093 
USB bÜS interface set 2 (Type 8923) for connection to the Bürkert Communicator software: including bÜS stick, connection cable to M12 plug, M12 connection cable on micro USB for the bÜS service interface and Y distributor, cable length: 0.7 m	772551 
bÜS cable extension, M12, cable length: 1 m	772404 
bÜS cable extension, M12, cable length: 3 m	772405 
bÜS cable extension, M12, cable length: 5 m	772406 
bÜS cable extension, M12, cable length: 10 m	772407 
Sensor puck (spare part)	682240 
Software Bürkert Communicator	Type 8920 

Adapter kits

Note:

Must be ordered separately.

Adapter kits for third-party actuators can be found in the **data sheet Adaptation for third-party actuators Type KK01**  or contact the appropriate Bürkert sales office.

Description	Actuator size	Control function	Article no.
Attachment kit for Type 21xx/23xx actuator series	Ø 70/90/130 mm	Universal	679917 
Attachment kit for Type 21xx/23xx actuator series	Ø 225 mm	Universal	60025906 
Attachment kit for Type 27xx actuator series	Ø 175/225 mm	A (NO), B (NC)	679935 