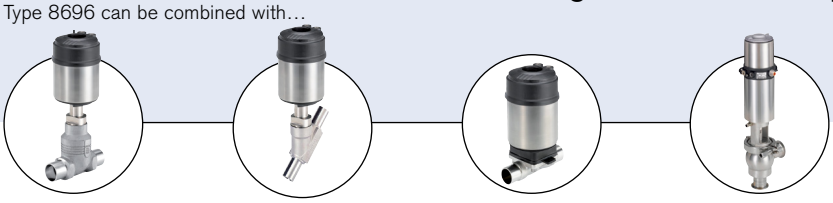
bürkert
FLUID CONTROL SYSTEMS

Digital electropneumatic positioner for the integrated mounting on process control valves

- Compact, robust stainless steel design
- Start-up by automatic Tune function
- Contact-free position sensor
- Integrated control air routing
- Analogue Feedback (option)

Type 8696 can be combined with…



Type 2301
Globe control valve

Type 2300
Angle-seat control valve

Type 2103
Diaphragm control valve

Hygienic process valves

Compact positioner for integrated mounting on pneumatically operated process valves. Remote setpoint adjustment via a 4-20 mA signal. A contact-free continuous sensor measures the position of the valve spindle. Simple installation through automatic tune function and setting through DIP-switch

- Close tight function,
- Characteristic curves selection,
- Reversal of effective direction,
- Switching manual /automatic operation,
- Binary input.

A software interface can be used for, amongst others, linearisation of the operation characteristics by using free programmable fixed points. The valve position indication is shown through LED components. As an option an analogue position feedback can be integrated.

Technical data	
Material	
Body	PPS, stainless steel
Cover	PC
Sealing	EPDM
Power supply	24 V DC ± 10 % UL: NEC Class 2
Residual ripple	max. 10 %
Setpoint setting	4-20 mA (default setting) / 0-20 mA
Output resistance	180 Ω
Control medium	neutral gases, air, quality classes acc. to ISO 8573-1
Dust concentration	Class 7 (< 40 µm particle size)
Particle density	Class 5 (< 10 mg/m³)
Pressure condensation point	Class 3 (<-20 °C)
Oil concentration	Class X (< 25 mg/m³)
Ambient temperature	-10 to +55 °C
Pilot air ports	Threaded ports G ⅛ stainless steel or push-in connector (tube Ø 6 mm / ¼")
Supply pressure	0 to 7 bar[1)]
Actuator system	for single-acting actuators
Actuator series 23xx/2103	Ø Actuator 50 mm
Position detection module	Contact-free, wear-free
Stroke range valve spindle	3 to 32 mm
Installation	as required, preferably with actuator in upright position
Protection type	IP65/IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard
Approvals	
ATEX	Ⓔx II 3D Ex tc IIIC T135 °C Dc / Ⓔx II 3G Ex ec IIC T4 Gc certificate; BVS 14 ATEX E 008 X
IECEx	Ex tc IIIC T135 °C Dc / Ex ec IIC T4 Gc certificate; IECEx BVS 14.0009 X
UL	cULus certificate; E238179
Ignition protection	II 3D Ex tc IIIC T135 °C Dc II 3G Ex ec IIC T4 Gc
Power consumption	< 3.5 W

[1)] The supply pressure has to be 0.5-1 bar above the minimum required pilot pressure for the valve actuator.

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Technical data, continued

Electrical connection Multipole connection	M12 (8-pins), stainless steel
Protection class	3 acc. to DIN EN 61140
Conformity	EMC directive 2014/30/EU
Options	Analogue position feedback, 4 - 20 mA

Ordering information for ELEMENT TopControl control valve systems

A TopControl control valve system consists of a **positioner BASIC Type 8691** and a **control valve ELEMENT Type 23xx or 2103**, actuator size 50 mm.

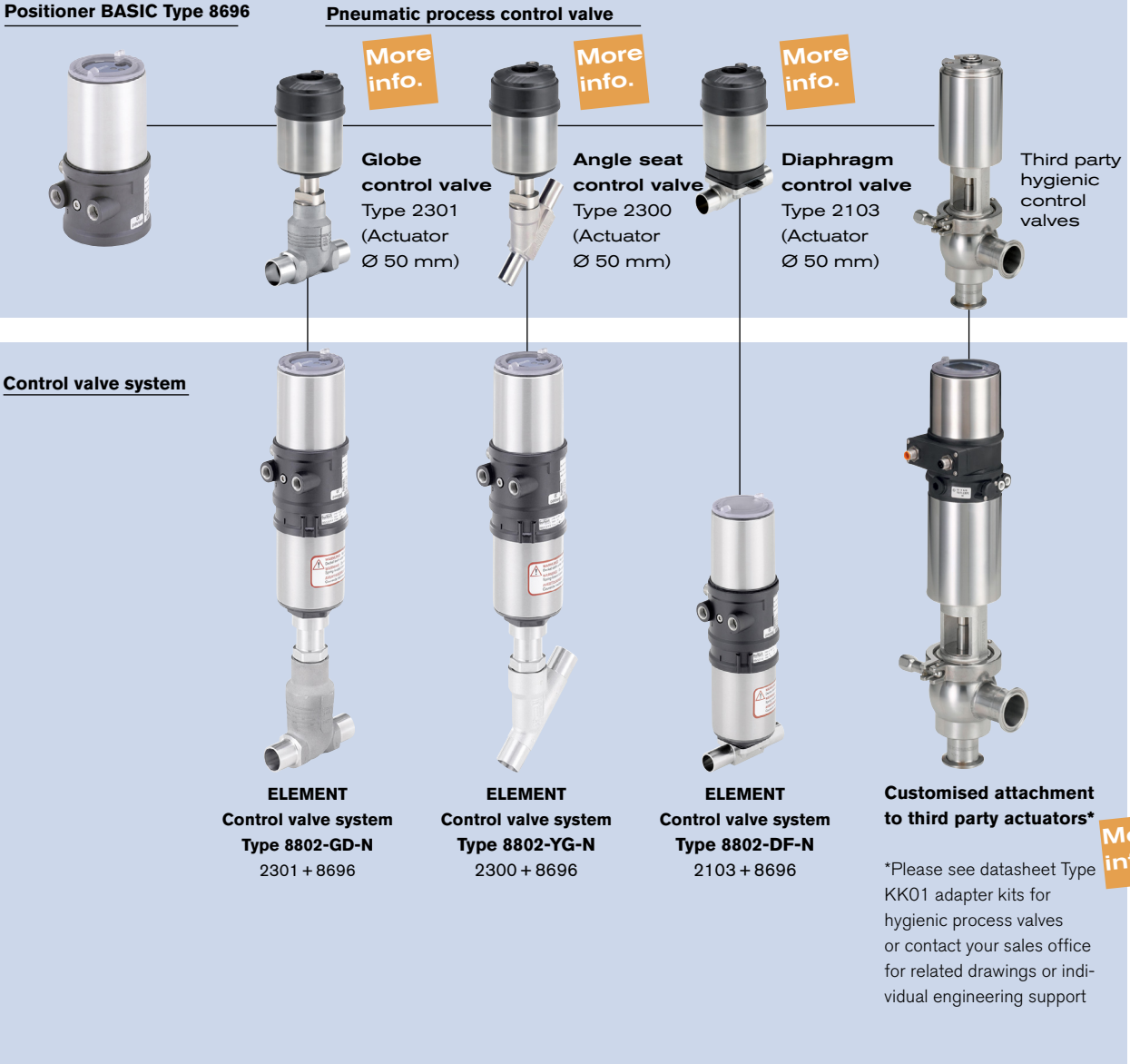
The following information is necessary for the selection of a complete control valve:

- **Article no.** of the TopControl positioner BASIC **Type 8696** (see ordering chart on p. 3)
- **Article no.** of the selected control valve **Type 23xx/2103** (see separate datasheets, e.g. 2300, 2301, 2103)

You order two components and receive a complete assembled and certified valve.

When you click on the orange box "More info." below, you will come to our website for the resp. product where you can download the datasheet.

Example of variations of control valve systems



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Ordering chart Type 8696 (other versions on request)

Control function	Electrical connection	Analogue feedback	1 Binary input	Pilot air ports threaded ports	Article no.	
Actuator series ELEMENT Type 23xx, size Ø 50 mm (internal control air routing)					**Standard**	**ATEX II cat. 3G/D**
single-acting	M12 multipole		yes	G ⅛	227448	265082
		yes	yes	G ⅛	227449	265083
Mounting on 3rd party actuators (external control air routing)						
single-acting	M12 multipole		yes	G ⅛	223897	265084
		yes	yes	G ⅛	223898	265085

Note: All non-ATEX versions are UL approved.

i Further versions on request

› **Additional**
push-in pilot air ports (tube Ø 6 mm / ¼")

Ordering chart adapter kit (has to be ordered separately)

Description	Actuator size	Control function	Article no.
Adapter kit ELEMENT Types 23xx	Ø 50 mm	A (NO), B (NC)	679918

For installation kits to 3rd party process valves please see datasheet Type KK01 adapter kits for hygienic process valves or contact your sales office for related drawings or individual engineering support.

Ordering chart accessories

Description	Article no.
M12 socket 8 pin with 5 m cable for power supply and input/output signals	919267
Silencer G ⅛	780779
Silencer, push-in connector	902662
USB interface for serial communication	227093

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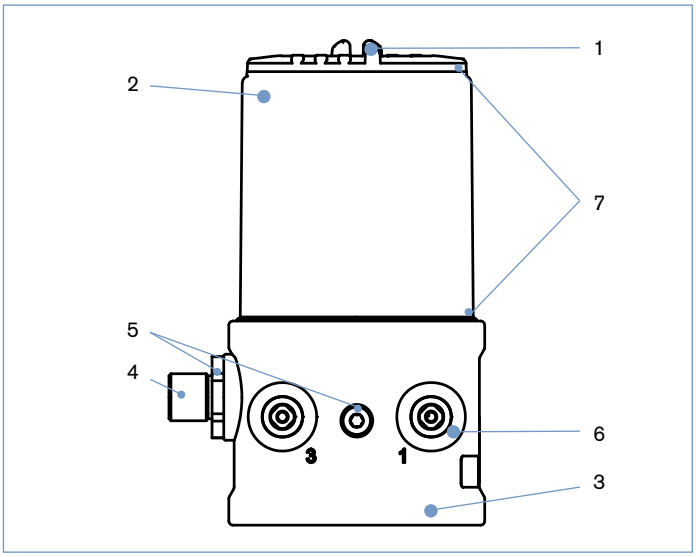
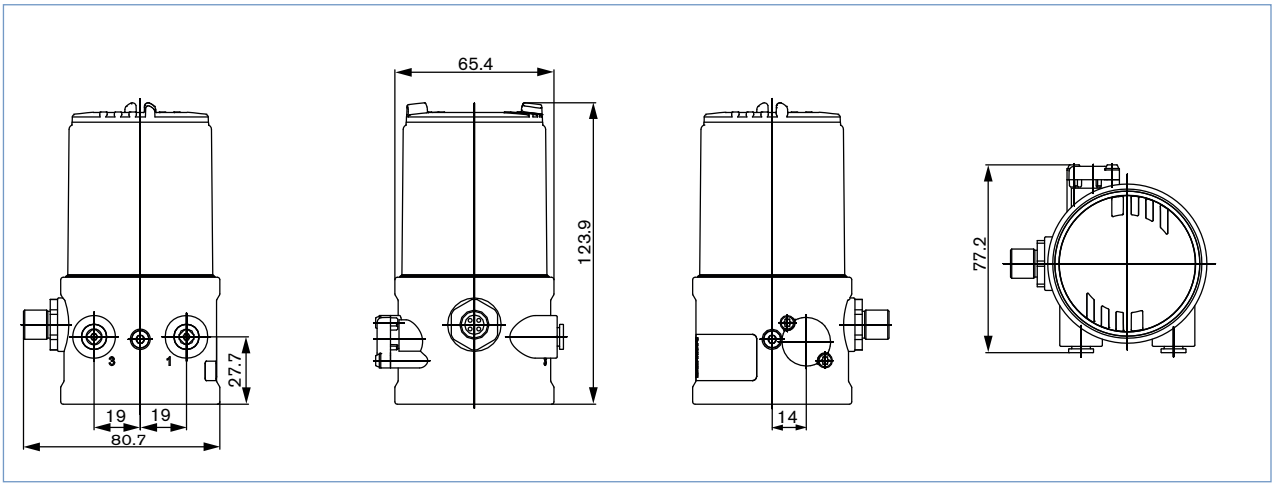
Materials



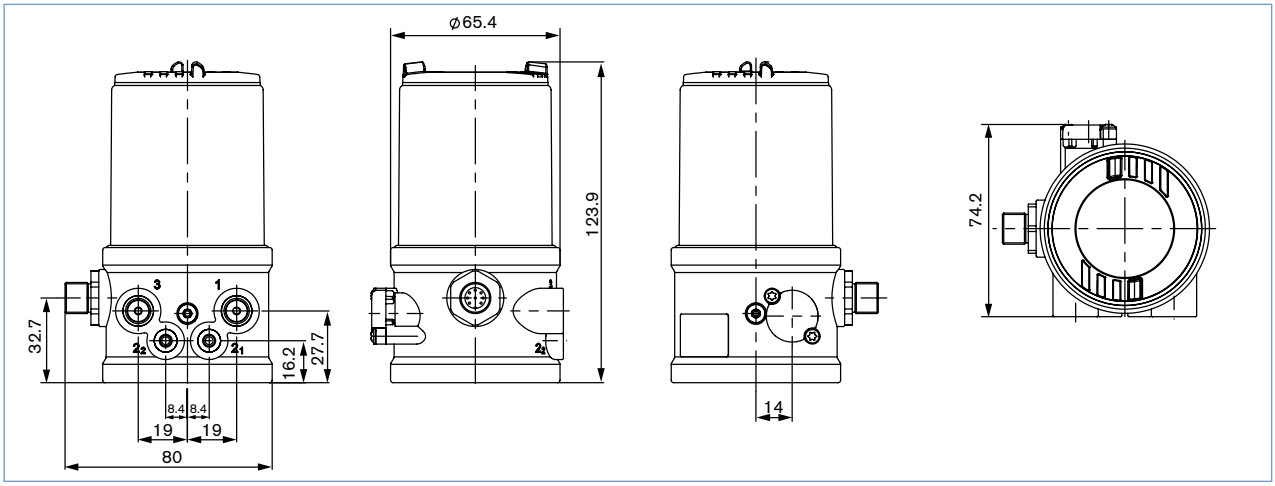
1	**Cover**	PC
2	**Body casing**	Stainless steel
3	**BASIC body**	PPS
4	**Plug M12**	Stainless steel
5	**Screws**	Stainless steel
6	**Push-in connector** **Threaded ports G ⅛**	POM/stainless steel Stainless steel
7	**Sealing**	EPDM

Dimensions [mm]

Mounting on ELEMENT process control valves, Type 23xx / 2103 (internal control air routing to actuator)



Mounting on hygienic process valves from external supplier



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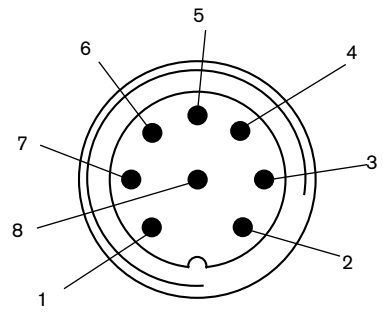
Connection Multipole

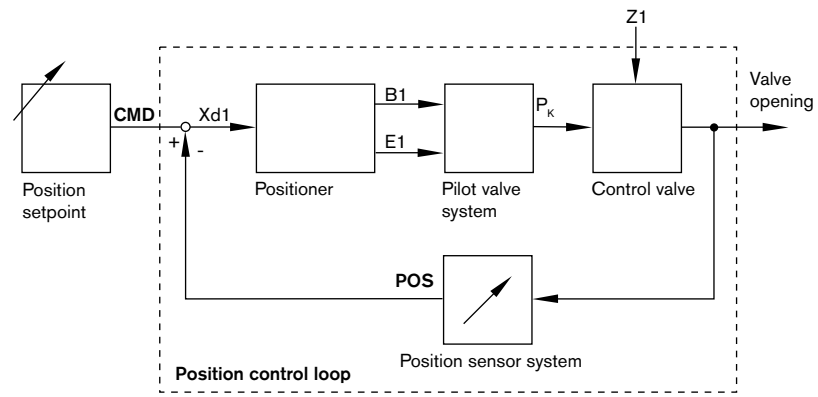
Circular connector M12 - 8-pins



Pin	Configuration
1	Setpoint + (0/4 - 20 mA)
2	Setpoint GND
3	Operating voltage GND
4	Operating voltage + 24 V DC
5	Binary input +
6	Binary input GND
7	Analogue position feedback GND
8	Analogue position feedback +

Signal flow diagram

Position control loop

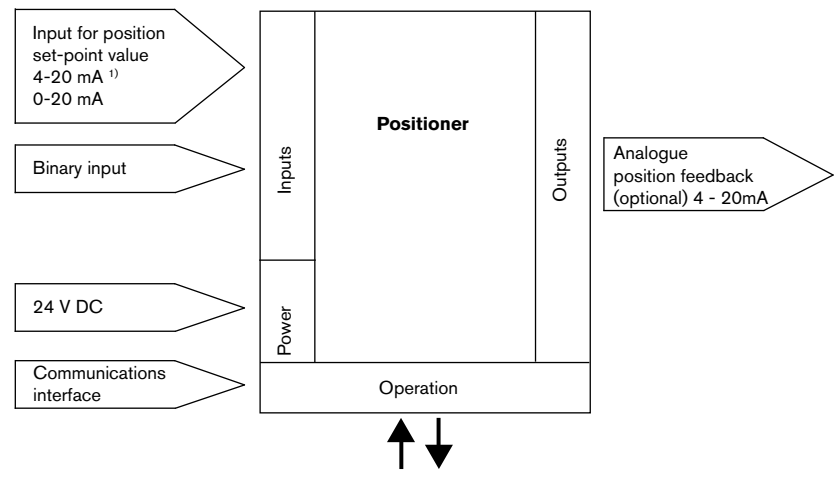


TopControl BASIC functions
- Automatic start of the control system
- Binary input (safety position)
- Analogue position feedback (optional)

DIP-Switch activated device
- Close-tight function
- Inversion of the operating direction of the setpoint signal
- Linear characteristic curves selection or customised programming (software interface)
- Manual and automatic operation

Communications software with activatable and parameter driven functions
- Customised programming transmission characteristics
- Choices of setpoint signal
- Range splitting setpoint signal
- Limitation of the valve stroke
- Limitation of the operation speed.
- Definition of the safety position
- Signal failure detection

Schematic diagram of the TopControl BASIC



1) Default setting

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