



## Digital electropneumatic Positioner for the integrated mounting on process control valves

- Digital smart positioner
- Automatic teach function
- Contact-free position sensor
- Compact stainless steel design
- Analogue feedback (option)
- Internal control air routing
- With ATEX II cat. 3G/D approval

Type 8696 can be combined with...



**Type 2301**

Globe control valve,  
actuator ø 50 mm



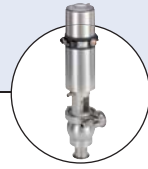
**Type 2300**

Angle-seat control  
valve, actuator  
ø 50 mm



**Type 2103**

Diaphragm control  
valve, actuator  
ø 50 mm



Hygienic process  
valves

Compact positioner for integrated mounting on pneumatically operated process valves. Remote setpoint adjustment via a 4-20 mA signal. Pilot valve system without intrinsic compressed air consumption during steady state.

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

Additional parametrisation options are possible through DTM devices.

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.

<sup>1)</sup> The supply pressure has to be 0,5 - 1 bar above the minimum required pilot pressure for the valve actuator.

Technical data	
<b>Material</b>	
Body	PPS, stainless steel
Cover	PC
Sealing	EPDM
<b>Power supply</b>	24 VDC +/- 10% UL: NEC Class 2
<b>Residual ripple</b>	max. 10%
<b>Setpoint setting</b>	4 - 20mA (default setting) / 0 - 20mA
<b>Output resistance</b>	180 Ω
<b>Control medium</b>	neutral gases, air DIN ISO 8573-1
Dust concentration	Class 5 (<40µm particle size)
Particle density	Class 5 (<10mg/m <sup>3</sup> )
Pressure condensation point	Class 3 (<-20°C)
Oil concentration	Class 5 (<25mg/m <sup>3</sup> )
<b>Ambient temperature</b>	-10 to +55°C
<b>Pilot air ports</b>	Threaded ports G1/8 stainless steel or push-in connector (tube Ø 6mm / 1/4")
<b>Supply pressure</b>	0 to 7 bar <sup>1)</sup>
<b>Actuator system</b>	for single-acting actuators Actuator series 23XX/2103 ø Actuator 50 mm
<b>Position detection module</b>	Contact-free, wear-free
<b>Stroke range valve spindle</b>	3 to 32 mm
<b>Installation</b>	as required, preferably with actuator in upright position
<b>Protection class</b>	IP65 and IP67 acc. to EN 60529, Type 4X
<b>Approvals</b>	ATEX II cat. 3G/D cULus Cert. No. 238179
<b>Ignition protection</b>	II 3D Ex tc IIIC T135 °C Dc II 3G Ex nA IIC T4 Gc
<b>Power consumption</b>	< 3.5 W
<b>Electrical connection</b>	
Multipole connection	M12 (8-pins), stainless steel
<b>Protection class</b>	3 according to VDE 0580
<b>Conformity</b>	CE acc. to EMV2004/108/EG
<b>Options</b>	Analogue position feedback, 4-20mA

**Ordering information for TopControl-Control valve systems**

A complete TopControl-Control valve system consists of a TopControl Basic Type 8696 and a process valve Type 23XX or 2103 actuator size  $\varnothing$  50 mm. The following information is necessary for the selection of a complete control valve:

- **Item no.** of the Positioner TopControl Basic **Type 8696** without process valve, see ordering chart on p. 3
- **Item no.** of the selected process valve **Type 23XX/2103 actuator size  $\varnothing$  50 mm** (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 valves**

**8696 Positioner TopControl Basic**

**Required process valve, example**



More info.

2301  
Globe Control Valve  
Actuator  
 $\varnothing$  50 mm



More info.

2300  
Angle-Seat Control Valve  
Actuator  
 $\varnothing$  50 mm



Third party  
hygienic  
control  
valves

**Complete control valve  
with required body and  
port connection**



**Valve system  
Continuous ELEMENT  
Type 8802-GD-N  
2301 + 8696**



**Valve system  
Continuous ELEMENT  
Type 8802-YG-N  
2300 + 8696**



**Customised attachment  
to third party actuators\***

\*Please see datasheet 8681/ELEMENT installation kits to 3rd party process valves or contact your sales office for related drawings or individual engineering support]

More info.

Ordering chart Type 8696 (other versions on request)

Control function	Electrical connection	Analogue feedback	1 Binary input	Pilot air ports threaded ports	Item no.	
<b>Actuator series ELEMENT Type 23xx, size Ø 50mm (internal control air routing)</b>					<b>Standard</b>	<b>ATEX II cat. 3G/D</b>
single-acting	M12 multipole		yes	G1/8	227 448	265 082
		yes	yes	G1/8	227 449	265 083
<b>Mounting on 3rd party actuators (external control air routing)</b>						
single-acting	M12 multipole		yes	G1/8	223 897	265 084
		yes	yes	G1/8	223 898	265 085

**Note:** All non-ATEX versions are UL approved.

**i Further versions on request**



**Approvals**  
FM



**Additional**  
push-in pilot air ports (tube Ø 6mm / 1/4")

Ordering chart adapter kit (has to be ordered separately)

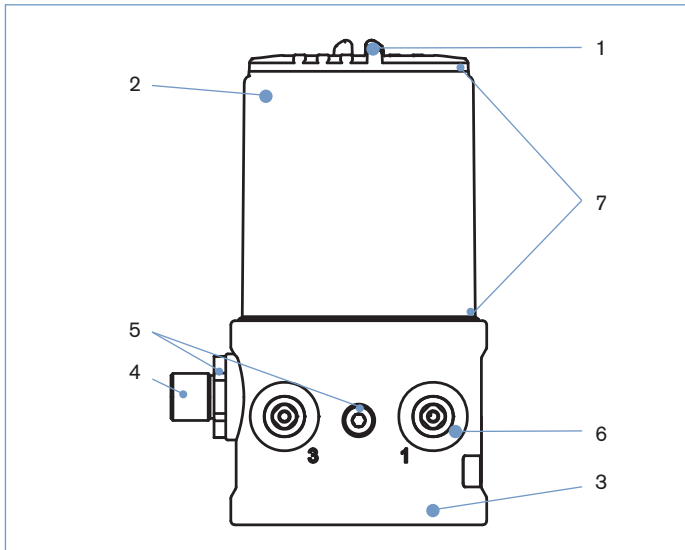
Description	Actuator size	Control function	Item no.
Adapter kit ELEMENT Types 23xx	ø 50 mm	A (NO), B (NC)	679 918

For installation kits to 3rd party process valves please see datasheet 8681/ELEMENT or contact your sales office for related drawings or individual engineering support

Ordering chart accessories

Description	Item no.
M12 socket, 8-pins, 5m assembled cable	919 267
Silencer G1/8	780 779
Silencer, push-in connector	902 662
USB interface for serial communication	227 093

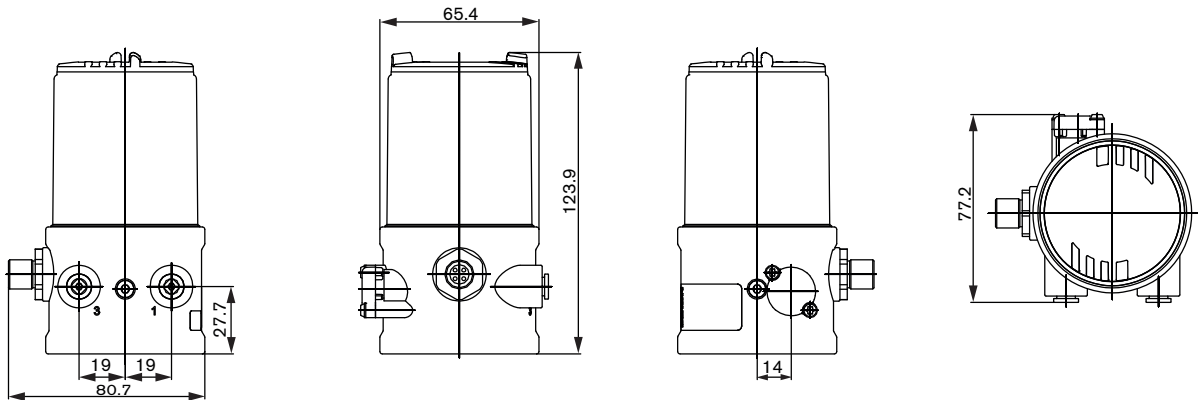
Materials



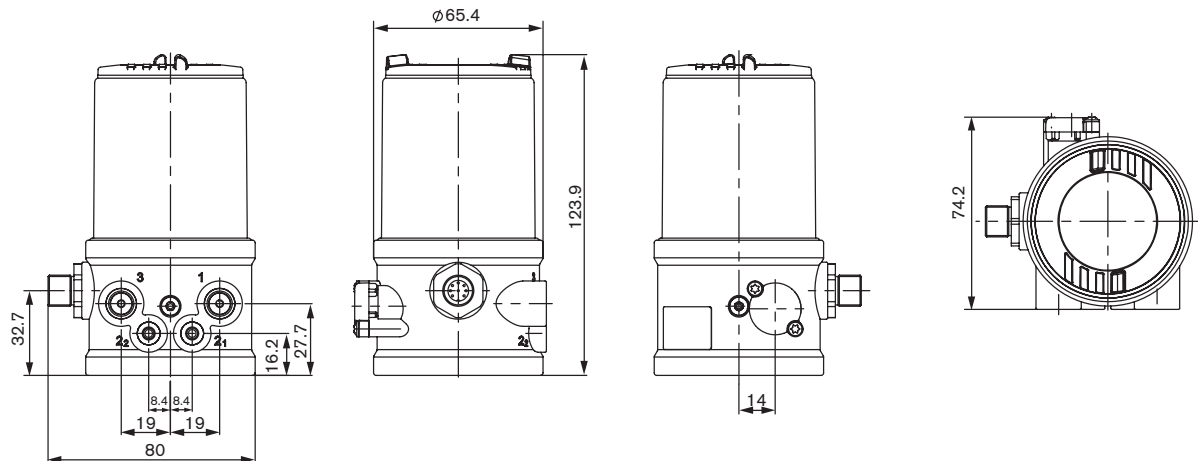
<b>1 Cover</b>	PC
<b>2 Body casing</b>	Stainless steel
<b>3 Basic body</b>	PPS
<b>4 Plug M12</b>	Stainless steel
<b>5 Screws</b>	Stainless steel
<b>6 Push-in connector</b>	POM/stainless steel
<b>Threaded ports G1/8</b>	Stainless steel
<b>7 Sealing</b>	EPDM

Dimensions [mm]

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

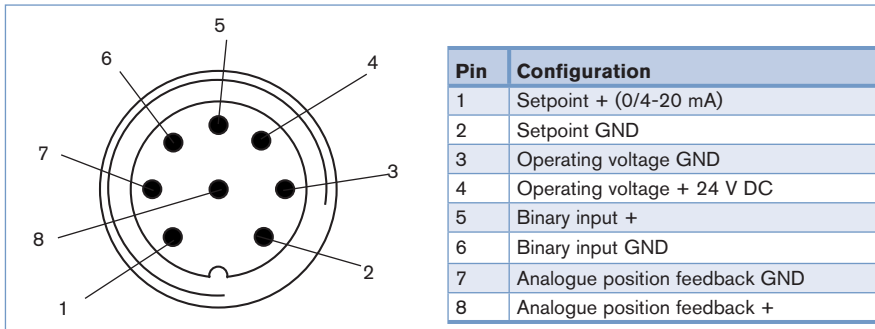


Mounting on CLASSIC process control valves, Type 27xx (external control air routing)



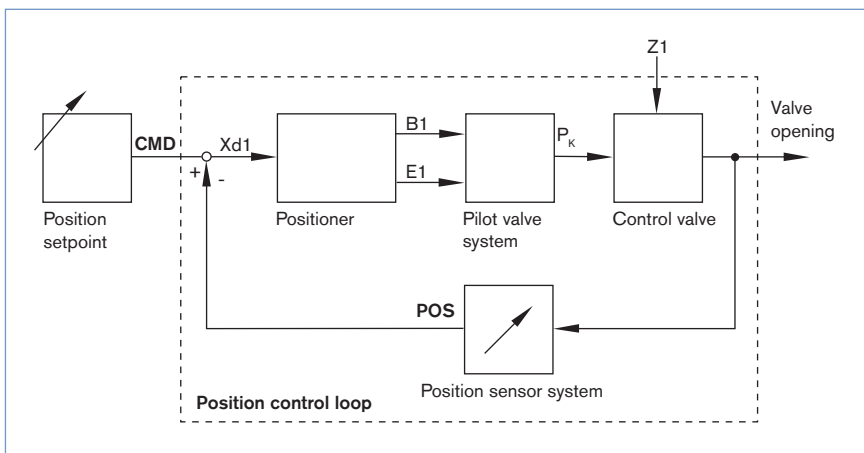
**Connection Multipole**

Circular connector M12 - 8-pins



**Signal flow diagram**

Position control loop



**TopControl Basic functions**

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

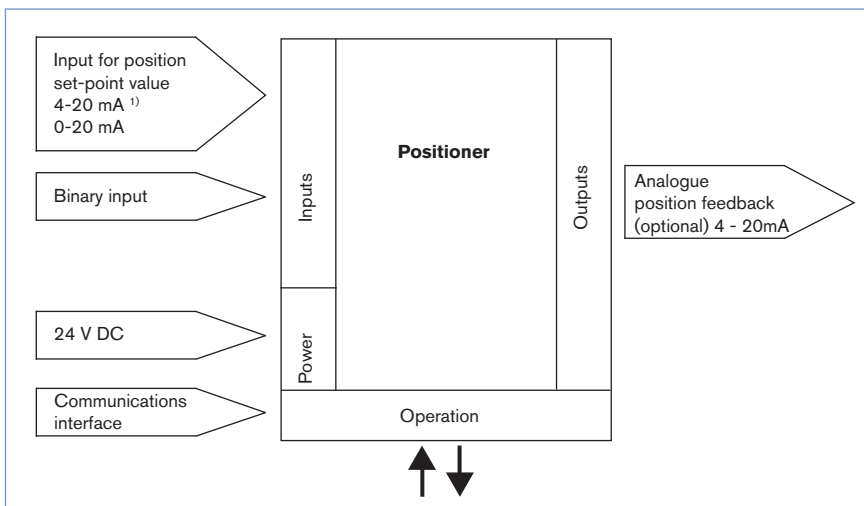
**DIP-Switch activated device**

- 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**



<sup>1)</sup> Default setting

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