



## 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
- Analoge Feedback (option)

Type 8696 can be combined with...



**Type 2301**

Globe control valve,  
actuator ø 50 mm



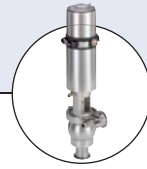
**Type 2300**

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. 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                    |  |
|-----------------------------------|--|
| <b>Material</b>                   |  |
| Body                              | PPS, stainless steel   |
| Cover                             | PC   |
| Sealing                           | EPDM   |
| <b>Power supply</b>               | 24 VDC +/- 10%<br>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, quality classes acc. to ISO 8573-1                       |
| Dust concentration                | Class 7 (<40µm particle size)  |
| Particle density                  | Class 5 (<10mg/m³)   |
| Pressure condensation point       | Class 3 (<-20°C)   |
| Oil concentration                 | Class X (<25mg/m³)   |
| <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 type</b>            | IP65 and IP67 acc. to EN 60529, Type 4X                                      |
| <b>Approvals</b>                  | ATEX II cat. 3G/D<br>cULus Cert. No. 238179                                  |
| <b>Ignition protection</b>        | II 3D Ex tc IIIC T135 °C Dc<br>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 acc. to DIN EN 61140   |
| <b>Conformity</b>                 | EMC directive 2014/30/EU   |
| <b>Options</b>                    | Analogue position feedback, 4-20mA   |

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

**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)

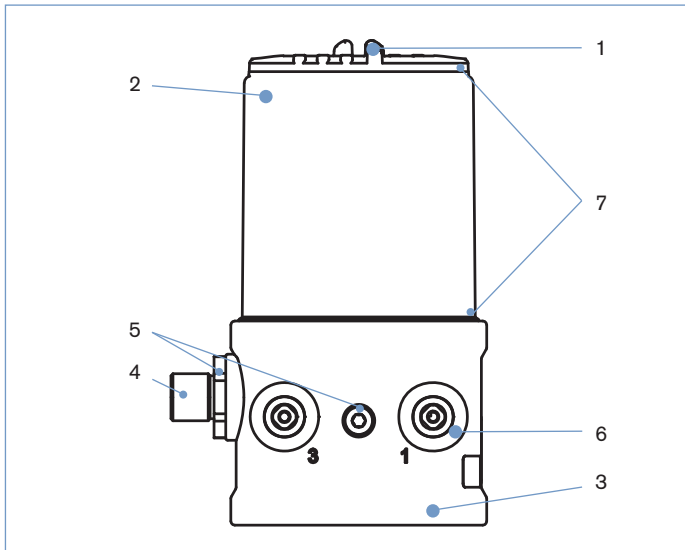
| Description                       | Actuator size | Control function | Item no. |
|-----------------------------------|---------------|------------------|----------|
| Adapter kit<br>ELEMENT Types 23XX | ø 50 mm       | A (NO), B (NC)   | 679 918  |

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  |

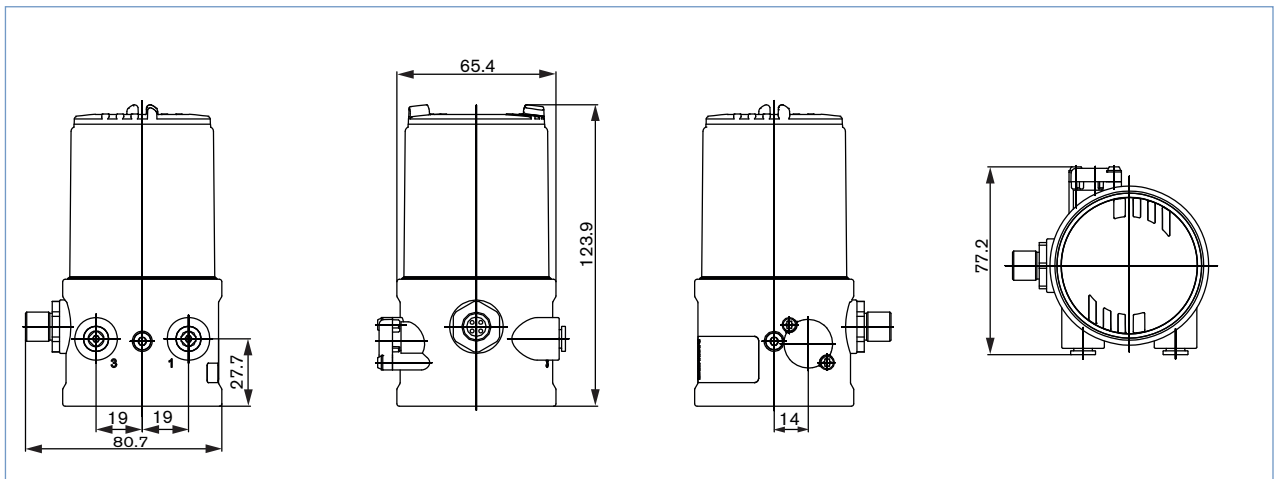
**Materials**



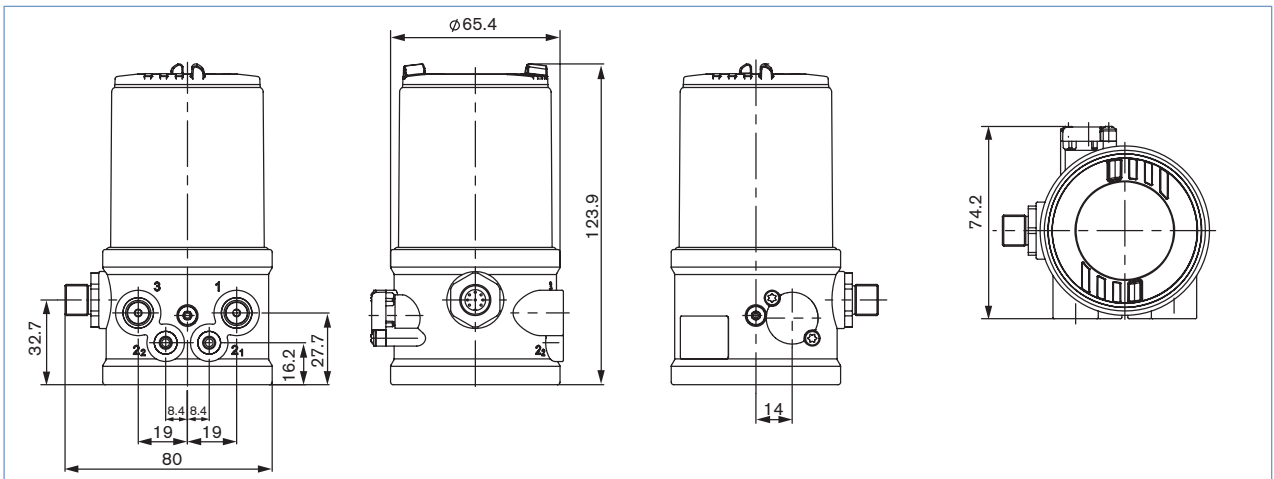
|                            |                     |
|----------------------------|---------------------|
| <b>1 Cover</b>             | PC                  |
| <b>2 Body casing</b>       | Stainless steel     |
| <b>3 Basic body</b>        | PPS                 |
| <b>4 Plug M12</b>          | Stainless 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)**

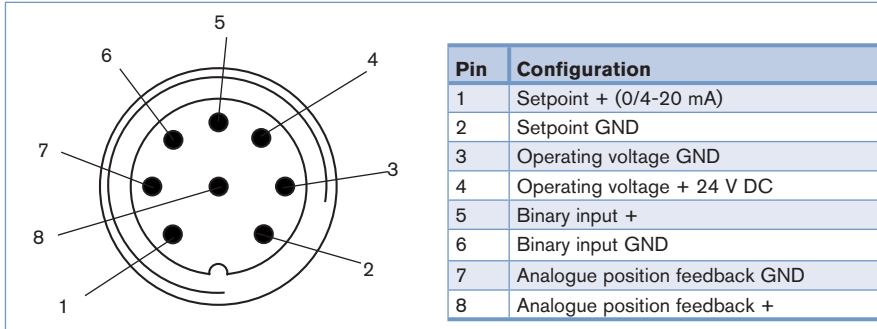


**Mounting on hygienic process valves with external air routing**



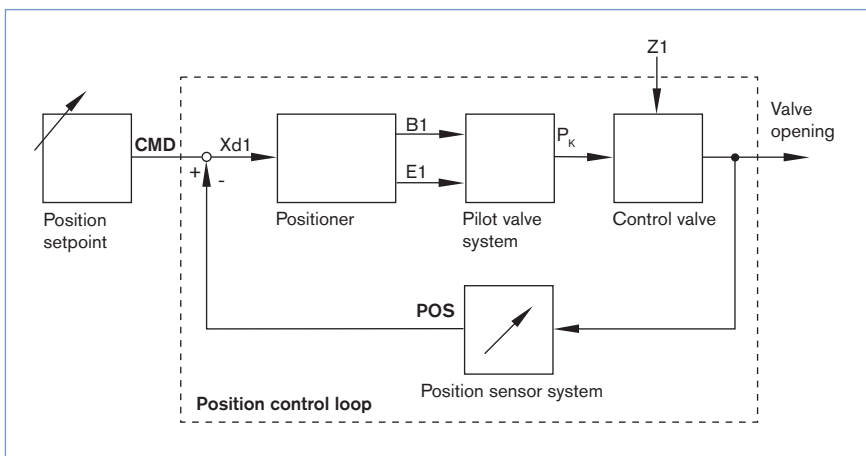
## Connection Multipole

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)

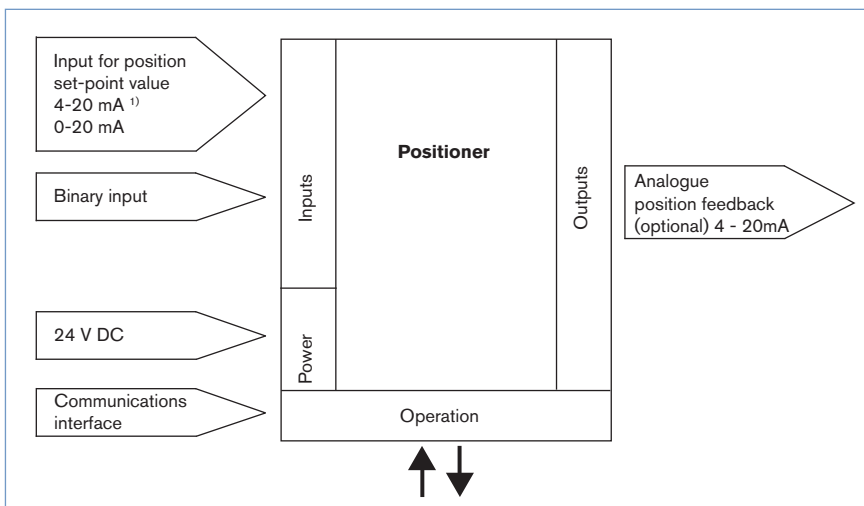
### DIP-Switch activated device

- 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