



## 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
- AS-Interface communication (option)
- Internal control air routing

Type 8694 can be combined with...



**Type 2301**  
Globe  
control valve



**Type 2300**  
Angle-seat  
control valve



**Type 2103**  
Diaphragm  
control valve



**Type 2702**  
Angle-seat  
control valve



Hygienic process  
control valves

Compact positioner for integrated mounting on pneumatically operated process valves. Remote setpoint adjustment via a 4-20 mA signal or through AS-Interface. Without intrinsic compressed air consumption during steady state.

A contact-free analog position 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.

Technical Data	
<b>Material</b>	
Body	PPS, stainless steel
Cover	PC
Sealing	EPDM
<b>Power supply</b>	24 VDC ±10%
<b>Residual ripple</b>	max. 10%
<b>Setpoint setting</b>	4 to 20mA (0 to 20mA adjustable via communication interface)
<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>	0 to +60°C
<b>Pilot air ports</b>	Threaded ports G1/8 stainless steel or Push-in connectors (Ø6mm and 1/4" tube)
<b>Supply pressure</b>	Low air flow rate 0 to 7 bar <sup>1)</sup> High air flow rate 3 to 7 bar
<b>Air input filter</b>	Exchangeable (mesh aperture~0.1mm)
<b>Actuator system</b>	
Actuator series ELEMENT 23XX	Low air flow rate : Ø Actuator 70 / 90 mm High air flow rate: Ø Actuator 130 mm
Actuator series CLASSIC 27XX	Low air flow rate : Ø Actuator 80 / 100 mm High air flow rate: Ø Actuator 125 / 175 / 225 mm
<b>Position detection module</b>	Contact-free, wear-free
<b>Stroke range valve spindle</b>	3 to 45 mm
<b>Installation</b>	as required, preferably with actuator in upright position
<b>Protection class</b>	IP65 and IP67 acc. to EN 60529
<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
<b>Communication</b>	AS-Interface (option, in preparation)

<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 - cont.**

<b>Without filed bus communication</b>	
<b>Power supply</b>	24 VDC +/- 10%
<b>Risidual ripple</b>	10%
<b>Power consumption</b>	< 3.5W
<b>Electrical connection</b>	M12 (8 pins), stainless steel
Multipole	
Cable gland	1xM16x1.5 (cable Ø5-10), terminal screws (1.5 mm <sup>2</sup> )
<b>Technical Data AS-interface - (Option)</b>	
<b>Profile</b>	S-7.3.4 Output: 16 Bit setpoint / Certificate no. 87301 acc. to Version 3.0 -7.A S.5 Output: 16 Bit setpoint; Input: 16 Bit feedback / Certificate no. 95401 acc. to version 3.0
<b>Programmed Information</b>	see operating instructions
<b>Power supply through bus line</b>	29,5 to 31,6 VDC acc. to specification
<b>Max. Current consumption</b>	150 mA
<b>Electrical connection</b>	M12x1, 4-pin stainless steel plug assembled to 80cm cable and flat cable clip

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

A complete **TopControl-Control valve system** consists of a TopControl Basic **Type 8694** and a process valve **Type 23XX or 27XX**. The following information is necessary for the selection of a complete control valve:

- **Item no.** of the Positioner TopControl Basic **Type 8694** without process valve, see ordering chart on p. 3
- **Item no.** of the desired process valve **Type 23XX or 27XX** (see separate datasheets, e.g. 2300, 2301 or 2702, 2712, 2730)
- **Note:** TopControl-Control valve system

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**

**8694 Positioner TopControl Basic**

**Required process valve, example**



**More info.**

2301  
Globe control  
valve



**More info.**

2702  
Angle-seat  
control valve



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



**Valve system  
Continuous ELEMENT  
Type 8802-GD-L  
2301 + 8694**



**Valve system  
Continuous Classic  
Type 8802-YC-L  
2702 + 8694**



**More info.**

**Customised attachment  
to 3rd party actuators\***

\*: please see datasheet **8681/ELE-MENT** installation kits to 3rd party process valves or contact your sales office for related drawings or individual engineering support]

**Ordering chart Type 8694 (other versions on request)**

Control function pilot valve system	Communication	Electrical connection	Analogue feedback	Item no.	
				Pilot air ports threaded G1/8"	Pilot air ports Push-in (tube Ø 6mm and 1/4")
<b>Actuator series ELEMENT types 23xx actuator size Ø70/90mm</b>					
Low air flow rate single acting	No	M12 connector	No	227 405	227 407
			Yes	227 406	227 408
	No	Cable gland	No	227 401	227 403
			Yes	227 402	227 404
	AS-Interface S-7.3.4	M12 / flat cable clip / 80cm cable	No	227 398	227 399
	AS-Interface S-7.A.5		16 Bit via bus	239 615	239 613
<b>Actuator series ELEMENT types 23xx actuator size Ø130mm</b>					
High air flow rate single acting	No	M12 connector	No	227 426	227 428
			Yes	227 427	227 429
	No	Cable gland	No	227 422	227 424
			Yes	227 423	227 425
	AS-Interface S-7.3.4	M12 / flat cable clip / 80cm cable	No	227 420	227 421
	AS-Interface S-7.A.5		16 Bit via bus	239 616	239 614
<b>Actuator series CLASSIC types 27xx actuator size Ø80/100mm</b>					
Low air flow rate single acting	No	M12 connector	No	227 416	227 418
			Yes	227 417	227 419
	No	Cable gland	No	227 411	227 414
			Yes	227 413	227 415
	AS-Interface S-7.3.4	M12 / flat cable clip / 80cm cable	No	227 409	227 410
	AS-Interface S-7.A.5		16 Bit via bus	239 611	239 609
<b>Actuator series CLASSIC types 27xx actuator size Ø125/175/225mm</b>					
High air flow rate single acting	No	M12 connector	No	227 436	227 438
			Yes	227 437	227 439
	No	Cable gland	No	227 432	227 434
			Yes	227 433	227 435
	AS-Interface S-7.3.4	M12 / flat cable clip / 80cm cable	No	227 430	227 431
	AS-Interface S-7.A.5		16 Bit via bus	239 612	239 610

**i Further versions on request**



**Approvals**

- CSA
- NEMA4X
- AS-Interface version with external power supply

**Ordering chart adapter kit (has to be ordered separately)**

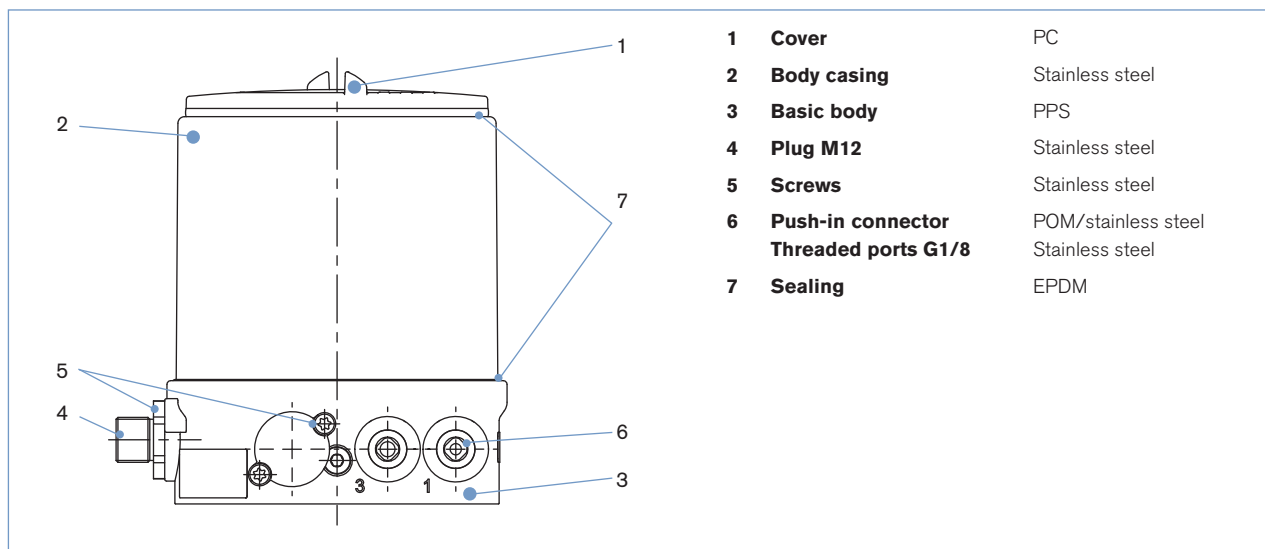
Description	Actuator size	Control function	Item no.
Adapter kit ELEMENT types 23xx	Ø70 / 90 / 130mm	universal	679 917
Adapter kit CLASSIC types 27xx	Ø80mm	universal	679 931
	Ø100mm	universal	679 932
	Ø125mm	A (NO), B (NC)	679 934
	Ø175/225mm	A (NO), B (NC)	679 935

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**

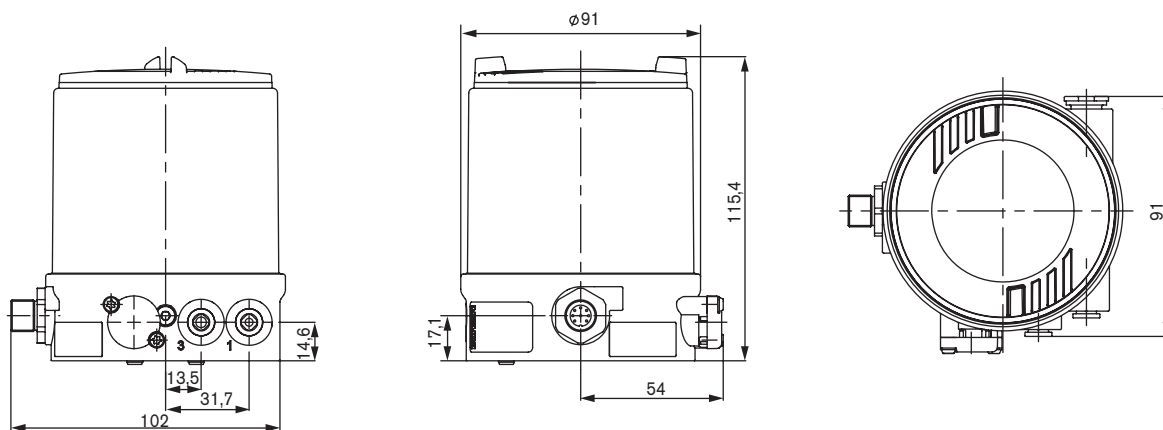
Description	Item no.
M12 socket, 8-pins, 2m assembled cable	919 061
M12 socket, 8-pins, 5m assembled cable	919 267
Silencer G1/8	780 779
Silencer, push-in connector	902 662
Sensor puck (spare part)	682 240
USB interface for serial communication	227 093

**Materials**

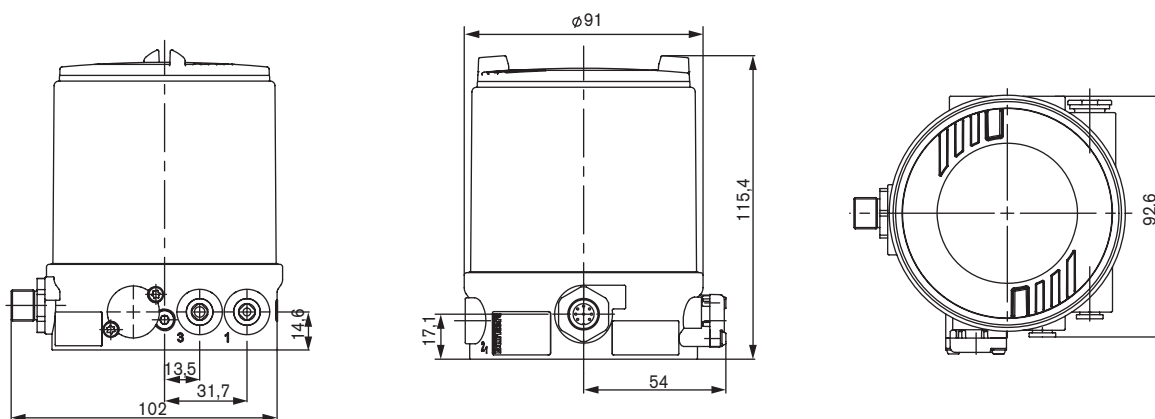


**Dimensions [mm]**

**Mounting on process valve, ELEMENT Types 23xx**



**Mounting on process valve, CLASSIC Types 27xx**



**Mounting on third party hygienic process valves**

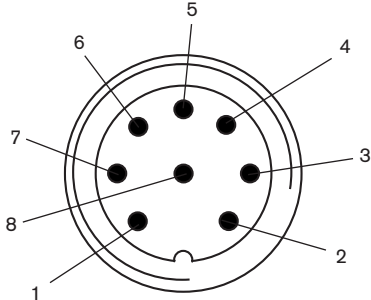


**Customised attachment  
to 3rd party actuators\***

\*: please see datasheet 8681/ELE-  
MENT installation kits to third party  
process valves or contact your sales  
office for related drawings or individual  
engineering support]

**Connection options**

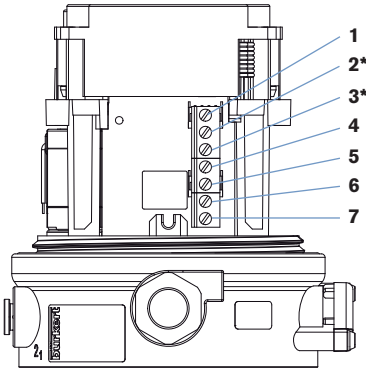
**Multipole connection**



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 +

**Connection cable gland**

**Screw terminal connections**



\* Option only

**Input signal**

Pin	Configuration
4	Setpoint +
5	Setpoint GND
1	Binary input +
6	Power supply +
7	Power supply GND

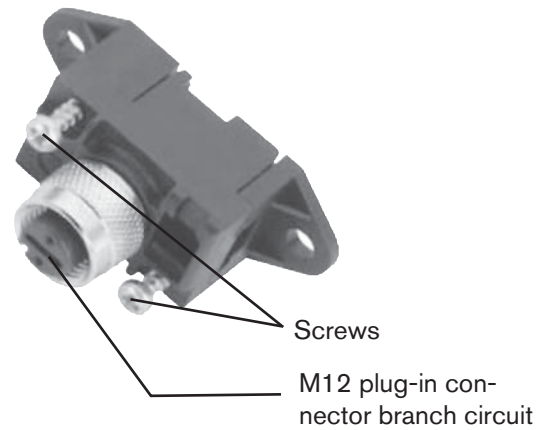
**Output signal with analogue feedback option**

Pin	Configuration
2	Analogue feedback +
3	Analogue feedback GND

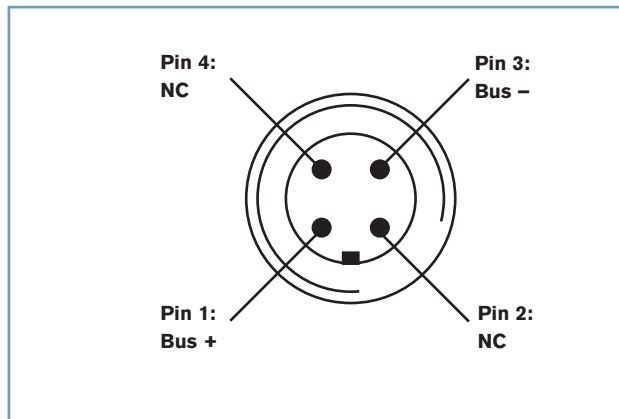
**Connection options (cont.)**

**Connection AS-Interface**

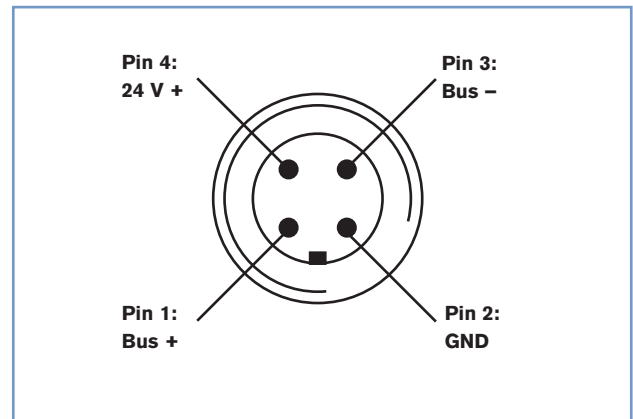
M12 4-pin plug assembled to 80cm cable and flat cable clip



Plug layout: from front looking at the pins, the solder is behind



**Bus connection without external power supply**



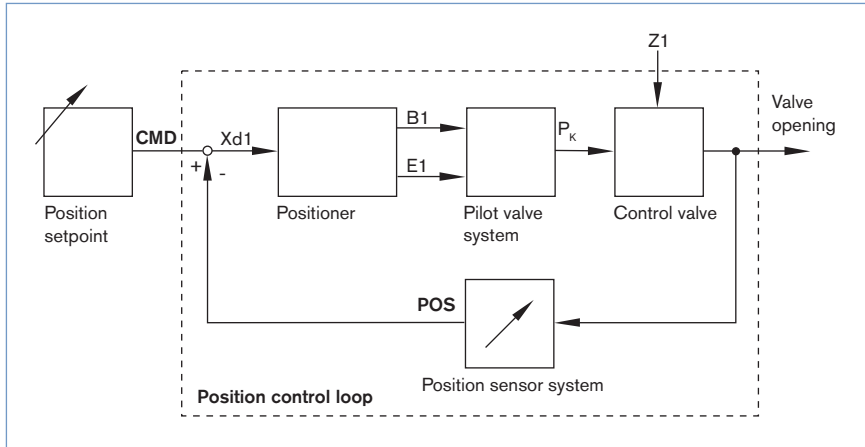
**Bus connection with external power supply (on request)**

Pin	Designation
1	Bus +
2	NC or GND (optional)
3	Bus -
4	NC or 24 V + (optional)



**Signal flow diagram**

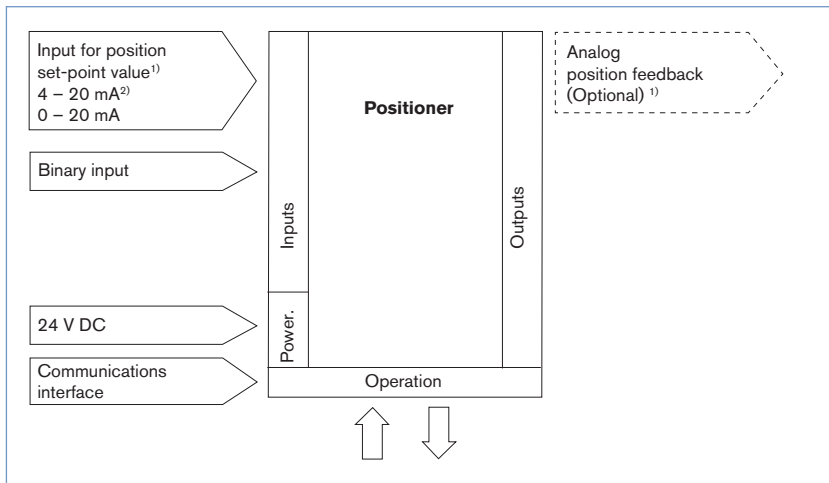
**Position control loop**



**TopControl Basic functions**

- X.Tune function for automatic start-up
- Linear
- Close-tight function
- Reversal
- Switching
- Binary input
- Parametrisation of the device through PactWare/DTM main functions:
  - Setpoint value selection (0/4-20 mA)
  - Position controller parametrisation
  - Programmable stroke range limit
  - Limitation of opening/closing time
  - Safety position definition
  - Signal error detection
  - Binary input configuration
  - Analogue output configuration position setpoint/feedback
  - Setting setpoint/actuator direction (rise/fall)
  - Reset device

**Schematic diagram of the TopControl Basic**



<sup>1)</sup> or optional bus connection AS interface  
<sup>2)</sup> Default setting