



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
- Fieldbus interface AS-Interface (option)

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. 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	
Material	Body: PPS, stainless steel Cover: PC Sealing: EPDM
Power supply	24 VDC ±10% UL: NEC Class 2
Residual ripple	max. 10%
Setpoint setting	4 to 20mA (0 to 20mA adjustable via communication interface)
Output resistance	180 Ω
Control medium	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)
Ambient temperature	-10 °C to +55 °C
Pilot air ports	Threaded ports G1/8 stainless steel or push-in connector (tube Ø 6mm / 1/4")
Supply pressure	Low air flow rate: 0 to 7 bar ¹⁾ High air flow rate: 3 to 7 bar
Air input filter	Exchangeable (mesh aperture~0.1mm)
Actuator system	Actuator series ELEMENT 23XX Actuator series CLASSIC 27XX
Position detection module	Contact-free, wear-free
Stroke range valve spindle	3 to 45 mm
Installation	as required, preferably with actuator in upright position
Protection type	IP65 and IP67 acc. to EN 60529, Type 4X
Protection class	3 acc. to DIN EN 61140
Approvals	ATEX II cat. 3G/D cULus Cert. No. 238179
Ignition protection	II 3D Ex tc IIIC T135 °C Dc II 3G Ex nA IIC T4 Gc
Conformity	EMC directive 2014/30/EU
Options	Analogue position feedback, 4-20mA
Communication	AS-Interface (option, in preparation)

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

Technical data - cont.

Without filed bus communication	
Power supply	24 VDC +/- 10% UL: NEC Class 2
Risidual ripple	10%
Power consumption	< 3.5W
Electrical connection	
Multipole	M12 (8 pins), stainless steel
Cable gland	1xM16x1.5 (cable Ø5-10), terminal screws (1.5 mm ²)

Technical Data AS-interface - (Option)	
Profile	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
Programmed Information	see operating instructions
Power supply through bus line	29,5 to 31,6 VDC acc. to specification UL: NEC Class 2
Max. Current consumption	150 mA
Electrical connection	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**



Customised attachment to 3rd party actuators*

More info.

*: please see datasheet **8681/ELEMENT** 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	Pilot air ports threaded ports	Item no.	
Actuator series ELEMENT Type 23XX, size Ø70/90 mm					Standard	ATEX II cat. 3G/D
Low air capacity single-acting		M12 multipole		G1/8	227 405	265 046
			yes	G1/8	227 406	265 047
		Cable gland		G1/8	227 401	265 044
			yes	G1/8	227 402	265 045
	AS-Interface S-7.A.5	M12 connector /flat cable clip / 80cm cable	16 Bit via Bus	G1/8	239 615	265 043
Actuator series ELEMENT Type 23XX, size Ø130 mm						
High air capacity single-acting		M12 multipole		G1/8	227 426	265 059
			yes	G1/8	227 427	265 060
		Cable gland		G1/8	227 422	265 057
			yes	G1/8	227 423	265 058
	AS-Interface S-7.A.5	M12 connector /flat cable clip / 80cm cable	16 Bit via Bus	G1/8	239 616	265 056
Actuator series CLASSIC Type 27XX, size Ø80/100 mm						
Low air capacity single-acting		M12 multipole		G1/8	227 416	265 053
			yes	G1/8	227 417	265 054
		Cable gland		G1/8	227 411	265 051
			yes	G1/8	227 413	265 052
	AS-Interface S-7.A.5	M12 connector /flat cable clip / 80cm cable	16 Bit via Bus	G1/8	239 611	265 050
Actuator series CLASSIC Type 27XX, size Ø125/175/225 mm						
High air capacity single-acting		M12 multipole		G1/8	227 436	265 065
			yes	G1/8	227 437	265 066
		Cable gland		G1/8	227 432	265 063
			yes	G1/8	227 433	265 064
	AS-Interface S-7.A.5	M12 connector /flat cable clip / 80cm cable	16 Bit via Bus	G1/8	239 612	265 062

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)

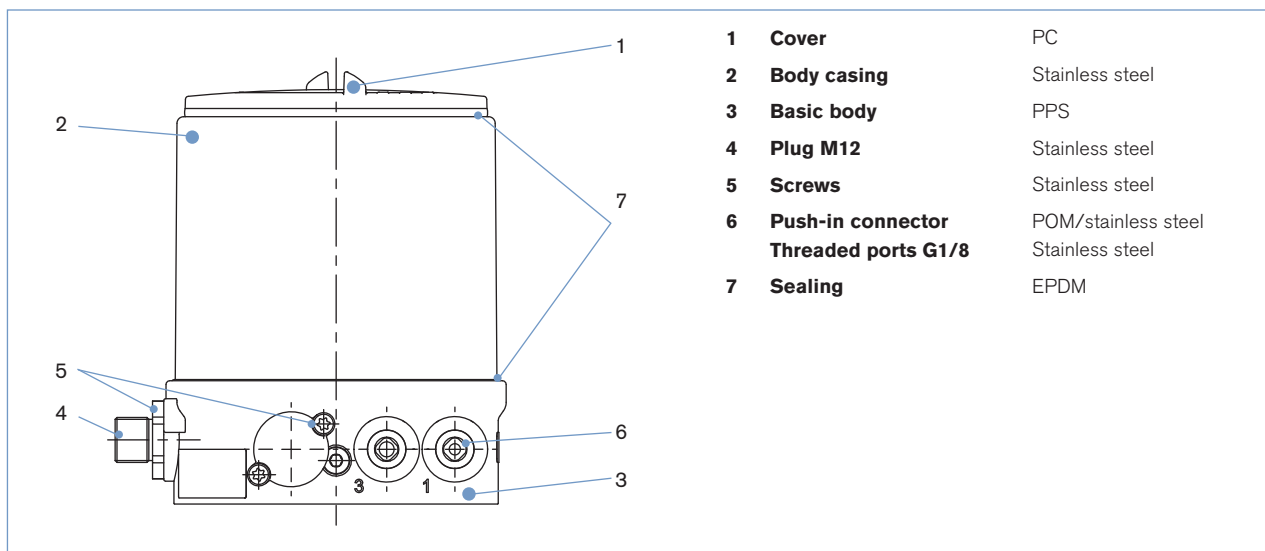
Description	Actuator size	Control function	Item no.
Adapter kit ELEMENT Types 23XX	Ø70 / 90 / 130mm	universal	679 917
Adapter kit CLASSIC Types 27XX	Ø80mm	universal	679 931
	Ø100mm	universal	679 932
	Ø125mm	A (NO), B (NC)	679 934
	Ø175/225mm	A (NO), B (NC)	679 935

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

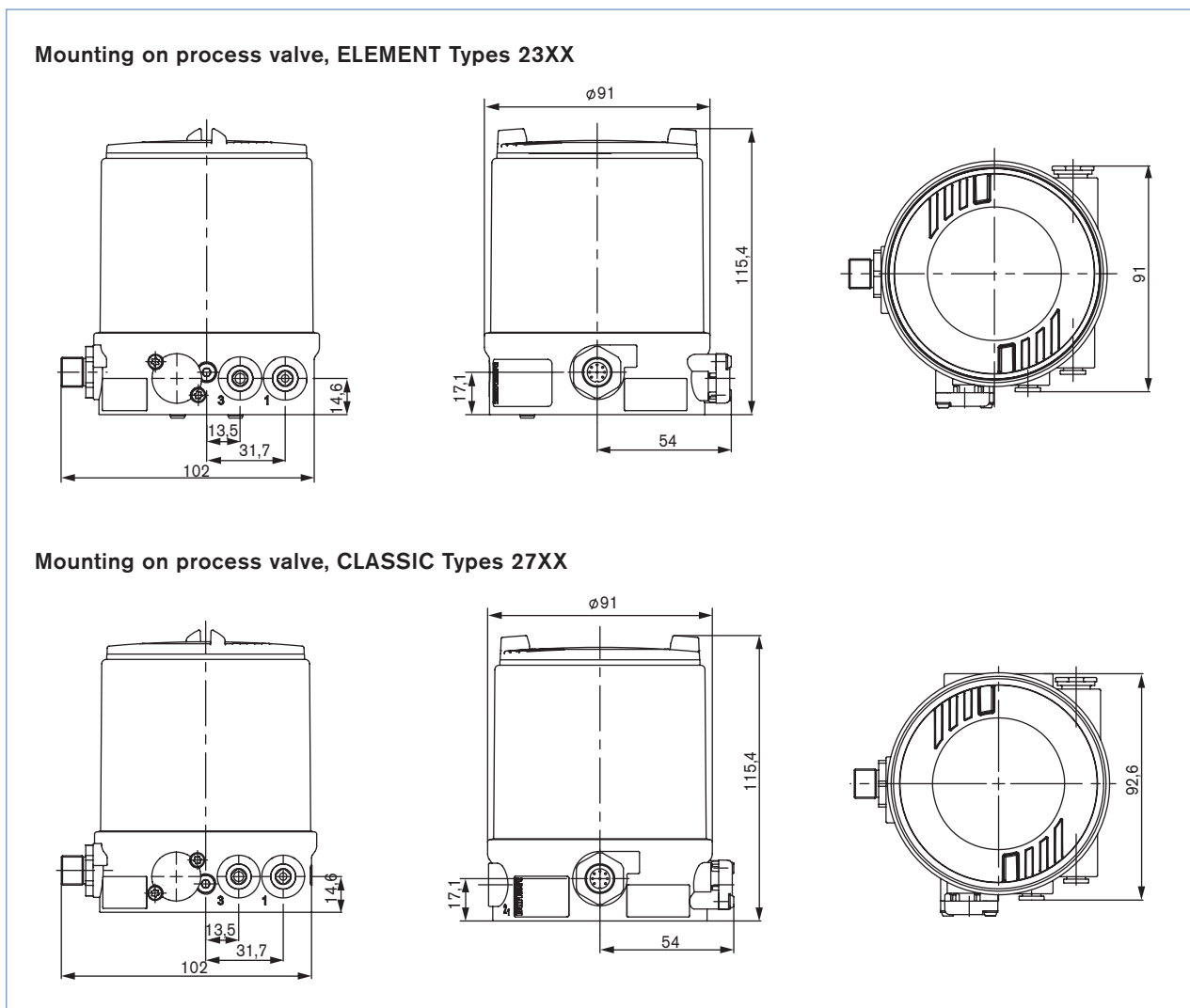
Ordering chart accessories

Description	Item no.
M12 socket, 8-pins, 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 third party hygienic process valves

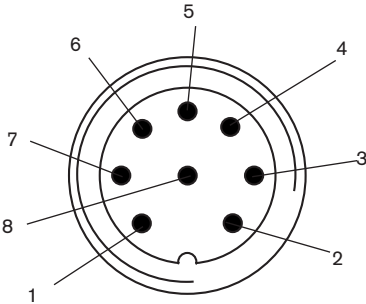


**Customised attachment
to 3rd party actuators***

*: 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]

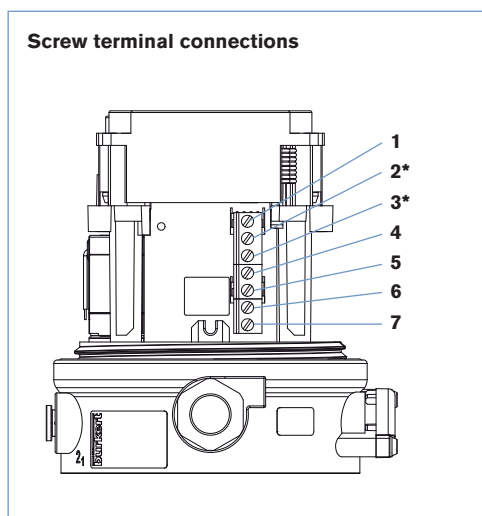
Connection options

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



* Option only

Input signal

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

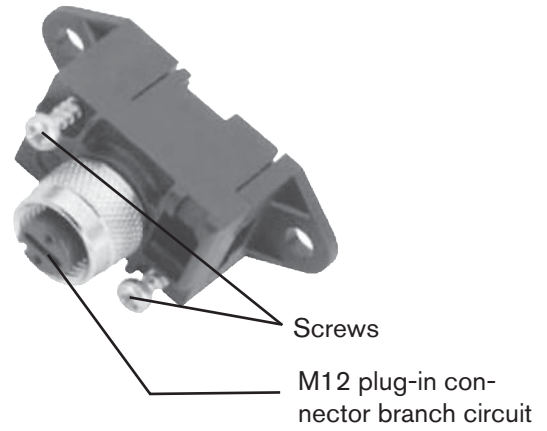
Output signal with analogue feedback option

Pin	Configuration
2	Analogue feedback +
3	Analogue feedback GND

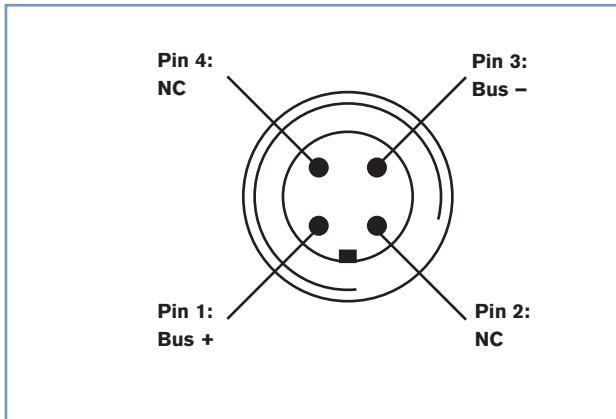
Connection options (cont.)

Connection AS-Interface

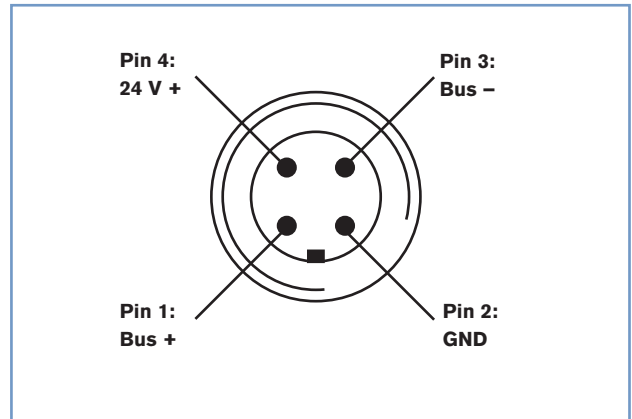
M12 4-pin plug assembled to 80cm cable and flat cable clip



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



Bus connection without external power supply

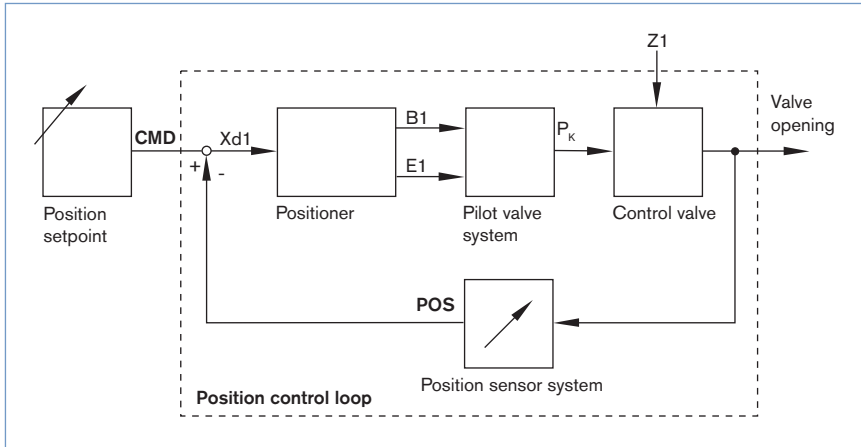


Bus connection with external power supply (on request)

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

Signal flow diagram

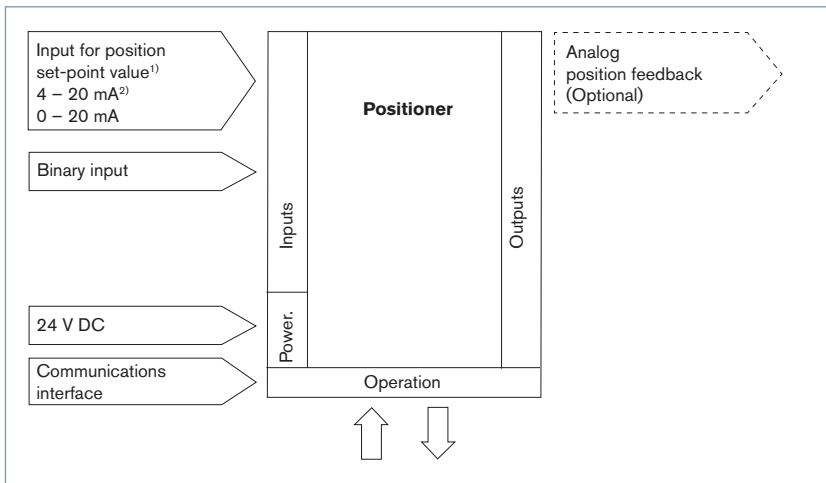
Position control loop



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



¹⁾ or optional bus connection AS interface
²⁾ Default setting

DTS 1000110879 EN Version: H Status: RL (released | freigegeben | valide) printed: 04.05.2016

To find your nearest Bürkert facility, click on the orange box → www.burkert.com

In case of special application conditions, please consult for advice.

Subject to alteration.
© Christian Bürkert GmbH & Co. KG

1602/8_EU-en_00895044