bürkert
FLUID CONTROL SYSTEMS

Control Head for the integrated mounting on process valves

- Compact stainless steel design
- Integrated analogue valve position registration (Teach function)
- Coloured illuminated status display
- Internal control air channel
- Fieldbus interface AS-Interface/DeviceNet (option)

Type 8691 can be combined with…

Type 2100
Angle-seat valve

Type 2101
Globe valve

Type 2103
Diaphragm valve

Type 2000
Angle-seat valve

Hygienic process valves

The 8691 control head is optimised for integrated mounting on the 21XX process valve series. The registration of the valve end position is done through a contact-free analog position sensor, which automatically recognises and saves the valve end position through the Teach function when starting up. The integrated pilot valve controls single or double-acting actuators. As an option a fieldbus interface, AS-Interface or DeviceNet, can be chosen.

The design of the control unit and the actuator enables an internal control air channel without external tubings. Besides the electrical position feedback signal the status of the device is shown directly on the control head itself through coloured powerful LEDs showing a clear visible valve position status, even under dirty or dark environments.

The housing is easy to clean and features proven electrical IP protection and chemically resistant materials for use in hygienic processing in food, beverage and pharmaceutical industries. Focused on wash down applications the IP rating is supported by a positive pressure inside the control head. Combined with Bürkert ELEMENT actuators the unique pilot valve system enables a compressed air recycling that avoids actuator chambers contamination from the environment.

Technical data	
Material	
Body	PPS, stainless steel
Cover	PC
Sealing	EPDM
Control medium	neutral gases, air DIN ISO 8573-1
Dust concentration	Class 5 (<40µm particle size)
Particle density	Class 5 (<10mg/m³)
Pressure condensation point	Class 3 (<-20°C)
Oil concentration	Class 5 (<25mg/m³)
Supply pressure	3 to 7 bar [1]
Air input filter	exchangeable
Mesh aperture	~0.1mm
Pilot air ports	Threaded ports G1/8 stainless steel or Push-in connectors (Ø6mm and 1/4" tube)
Position feedback	Analogue position sensor (contact-free) with teach function; switchpoint (PNP) (NPN on request)
Stroke range valve spindle	2,5 to 45 mm
Ambient temperature	0 to +55 °C
Installation	As required, preferably with actuator upright
Protection type	IP65 and IP67 according to EN 60529
Protection class	3 according to VDE 0580
Fieldbus communication	AS-Interface, DeviceNet
Conformity	according to CE in compliance with EMV2004/108/EG
Electrical connection	
Multipole	M12, 8-pins, M12 4-pins (AS-Interface), M12 5-pins (DeviceNet)
Cable gland	M16x1,5

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

Technical data, continued

Without fieldbus communication

Technical data	
Power supply	24 VDC ±10%
Residual ripple with DC	10%
Power consumption	< 2 W
Electrical connection Multipole Cable gland	 M12, 8-pole M16x1.5 (cable-Ø10mm), terminal screws (1.5mm²)

With fieldbus communication; AS-Interface

Technical data	
Profile	S-B.A.E. (A/B slave, max. 62 slaves/master) Certificate No. 77601 acc. to version 3.0
Power supply through bus line separated from bus signal	29.5 to 31.6 VDC according to specification on request
Power consumption **Units without external power supply** Max. power consumption Power consumption in normal operation (after current reduction; Valve + 1 end position achieved) **Units with external power supply** External power supply The power supply unit must contain one secured disconnection acc. to IEC 364-4-41 (PELV or SELV) Max. power consumption Max. power consumption from ASI	 120 mA 90 mA 24 V ±10% 55 mA (after power reduction ≤ 30 mA) 55 mA
Output Contact rating Watch-dog function	 ≤ 1W over AS-Interface integrated
Input Sensor operating voltage Ampacity Switching level High Input current High Input current Low	 24 V ±10% (over AS-Interface) ≤ 50 mA short-circuit-proof ≥ 10 V limited to 6,5 mA ≤ 1.5 mA
Electrical connection	M12 4-pins
Programming data	see operating instructions

With fieldbus communication; DeviceNet

Technical data	
Profile	Group 2 Only Slave Device; MAC-ID and transfer rate adjustable through DIP-switch
Power supply	11 to 25 VDC
Power consumption	≤ 80 mA
Output Inrush current Hold current	 ≤ 50 mA ≤ 30 mA
Input "0" "1"	 0 to 1.5 V ≥ 8 V
Electrical connection	M12-Micro Style - flange connector 5-pins (configuration according DeviceNet-specification)

Ordering information for process valve system with integrated control head

A complete process valve system consists of a Control Head Type 8691 and a process valve Type 21xx or 20xx.
The following information is necessary for the selection of a complete system:
- **Item no.** of the desired Control Head **Type 8691** (see ordering chart on p. 4)
- **Item no.** of the desired process valve **Type 21xx or Type 20xx**
(see separate datasheet for e.g. Types 2100, 2101, 2103 and 2000, 2012, 2031)

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 process valve systems

Control Head Type 8691

Desired process valve, example

Complete process valve system

Process valve system On/Off ELEMENT Type 8801-YE-H 2100+8691

Process valve system On/Off Classic Type 8801-YA-H 2000+8691

Customised attachment to third party actuators*

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

Ordering chart Type 8691 (other versions on request)

Communi-cation	Electrical connection	Control function pilot valve system	Pilot air ports	Position feedback	Item no.	
					Actuator series ELEMENT Types 21xx	Actua-tor series CLASSIC types 20xx
AS-Interface S-B.A.E	M12 connector	Single acting (NO/NC)	threaded ports G1/8	2 switching points	227 254	227 265
		Single acting (NO/NC)	Push-in (tube Ø 6mm and 1/4")	2 switching points	227 256	227 267
		Double acting (springless)	threaded ports G1/8	2 switching points	227 240	227 250
		Double acting (springless)	Push-in (tube Ø 6mm and 1/4")	2 switching points	227 242	*
	M12 / flat cable clip / 80cm cable	Single acting (NO/NC)	threaded ports G1/8	2 switching points	227 258	237 659
		Single acting (NO/NC)	Push-in (tube Ø 6mm and 1/4")	2 switching points	227 259	227 269
		Double acting (springless)	threaded ports G1/8	2 switching points	227 244	*
		Double acting (springless)	Push-in (tube Ø 6mm and 1/4")	2 switching points	227 245	*
DeviceNet	M12 connector	Single acting (NO/NC)	threaded ports G1/8	2 switching points	227 255	227 266
		Single acting (NO/NC)	Push-in (tube Ø 6mm and 1/4")	2 switching points	227 257	227 268
		Double acting (springless)	threaded ports G1/8	2 switching points	227 241	227 251
		Double acting (springless)	Push-in (tube Ø 6mm and 1/4")	2 switching points	227 243	*
Without	M12 connector	Single acting (NO/NC)	threaded ports G1/8	2 switching points	227 262	227 272
		Single acting (NO/NC)	Push-in (tube Ø 6mm and 1/4")	2 switching points	227 263	227 273
		Double acting (springless)	threaded ports G1/8	2 switching points	227 248	*
		Double acting (springless)	Push-in (tube Ø 6mm and 1/4")	2 switching points	227 249	*
		without	threaded ports G1/8	2 switching points	246 211	238 078
		without	Push-in (tube Ø 6mm and 1/4")	2 switching points	240 963	*
		without	without	2 switching points	na	238 078
	Cable gland	Single acting (NO/NC)	threaded ports G1/8	2 switching points	227 260	227 270
		Single acting (NO/NC)	Push-in (tube Ø 6mm and 1/4")	2 switching points	227 261	227 271
		Double acting (springless)	threaded ports G1/8	2 switching points	227 246	227 252
		Double acting (springless)	Push-in (tube Ø 6mm and 1/4")	2 switching points	227 247	227 253
		without	Push-in (tube Ø 6mm and 1/4")	2 switching points	227 114	*

* on request

Further versions on request

Approvals
CSA
NEMA4X

Additional
AS-Interface version S-B.F.F (31 nodes)
AS-Interface version with external power supply
Switchpoint NPN-coded

Ordering chart adapter kit (has to be ordered separately)

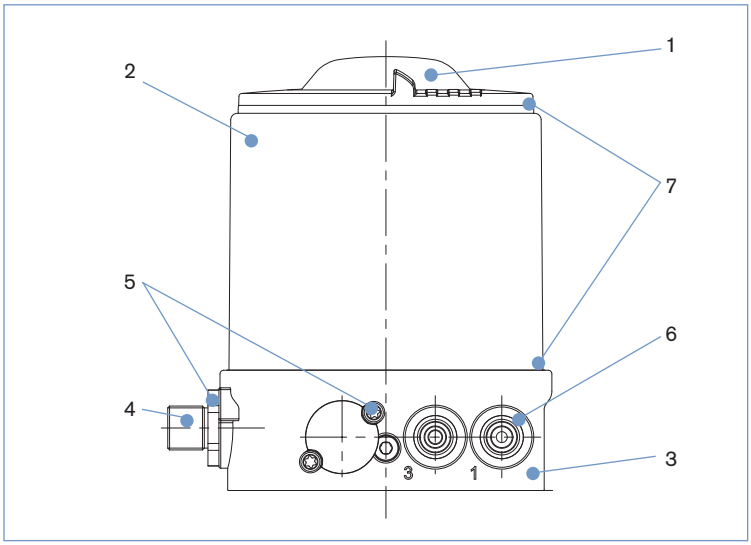
Description	Actuator size	Control function	Item no.
Adapter kit ELEMENT Typ 21xx	Ø70 / 90 / 130mm	universal	679 917
Adapter kit CLASSIC types 20xx	Ø63 mm	universal	679 921
		8691 feedback (without pilot valve)	679 937
	Ø80 mm	universal	679 922
		8691 feedback (without pilot valve)	679 938
	Ø100 mm	universal	679 923
		8691 feedback (without pilot valve)	679 939
	Ø125 mm	universal	679 924
		8691 feedback (without pilot valve)	679 939
	Ø175/225 mm	universal	679 925
		8691 feedback (without pilot valve)	679 940

For installation kits to 3rd party process valves please see datasheet installation kits for hygienic process valves 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
M12 socket, 4-pins, 5m assebled cable	918 038
M12 socket, 5-pins, 2m assembled cable	438 680
ASI flat cable clip with stainless steel socket M12 (spare part)	799 646
Silencer G1/8	780 779
Silencer, push-in connector	902 662
Sensor puck (spare part)	682 240

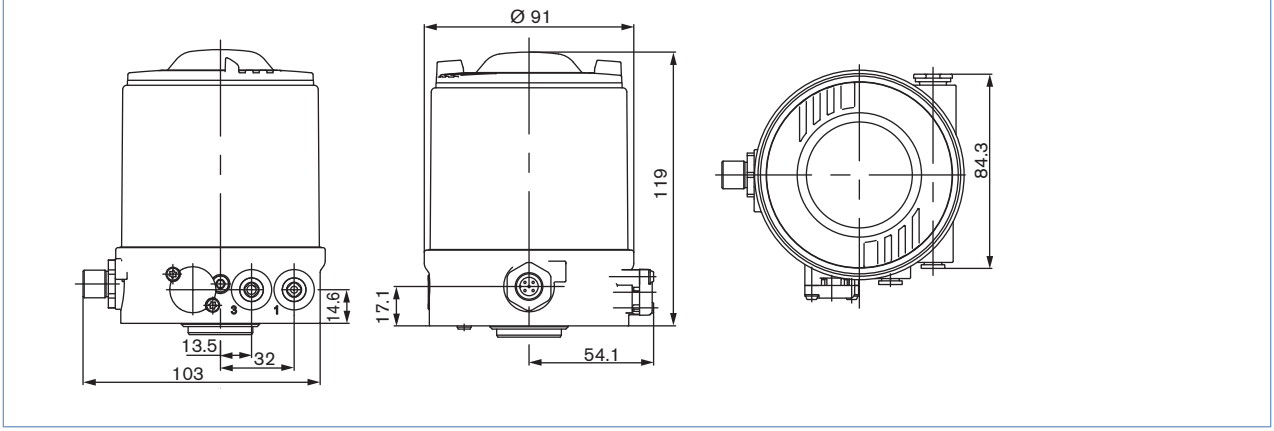
Materials



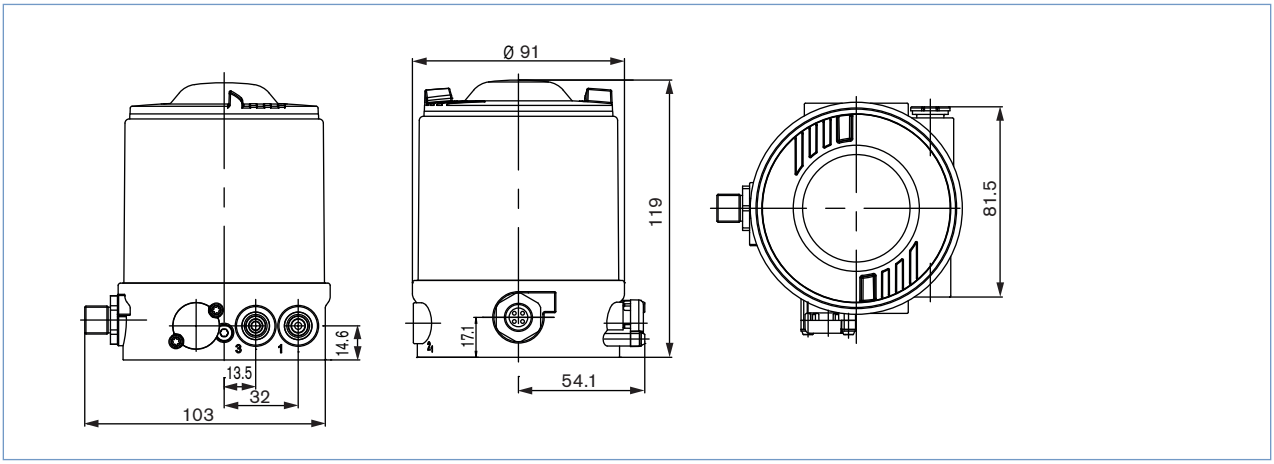
1	Cover	PC
2	Housing	St. st.
3	Basic body	PPS
4	Plug M12	St. st.
5	Screws	St. st.
6	Push-in connector Threaded ports G1/8	POM/St. st. St. st.
7	Sealing	EPDM

Dimensions [mm]

Mounting on process valve ELEMENT Types 21XX



Mounting on process valve CLASSIC Types 20XX



Mounting on 3rd party hygienic process valves

More info.

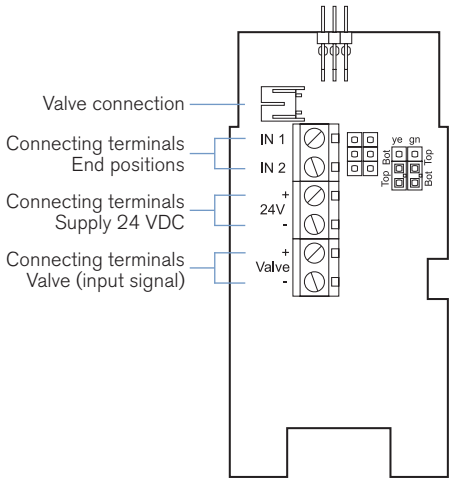
Type 8681

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

Connection options

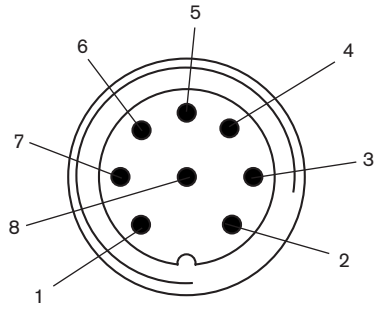
Without fieldbus communication

Cable gland



24 V DC

Multipole connection M12, 8-pins



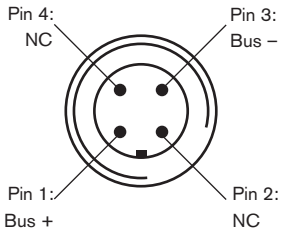
Pin	Description	Configuration
1	Limit switch 1	IN 1 / TOP
2	Limit switch 2	IN 2 / BOTTOM
3	Power supply	GND
4	Operating voltage +	24 V DC
5	Valve control +	Valve +
6	Valve control -	Valve
7	n.a.	not assigned
8	n.a.	not assigned

Connection options, continued

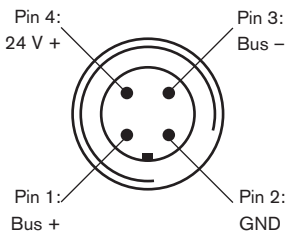
With fieldbus communication AS-Interface

Version with Multipole fitting connector

AS-Interface M12 4-pins



AS-Interface M12 4-pins, external supply



Version with flat cable clip

With fieldbus communication DeviceNet