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)
- With ATEX II cat. 3G/D approval

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 Cover Sealing	PPS, stainless steel PC EPDM
Control medium Dust concentration Particle density Pressure condensation point Oil concentration	neutral gases, air DIN ISO 8573-1 Class 5 (<40µm particle size) Class 5 (<10mg/m³) Class 3 (<-20°C) Class 5 (<25mg/m³)
Supply pressure	3 to 7 bar [1]
Air input filter Mesh aperture	exchangeable ~0.1mm
Pilot air ports	Threaded ports G1/8, stainless steel or push-in connector (tube Ø 6mm or 1/4")
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 with pilot valve Without pilot valve	 -10 to +55 °C -20 to +60 °C
Installation	As required, preferably with actuator upright
Protection type	IP65 and IP67 according to EN 60529, Type 4X
Protection class	3 according to VDE 0580
Fieldbus communication	AS-Interface, DeviceNet
Conformity	according to CE in compliance with EMV2004/108/EG
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
Electrical connection Multipole Cable gland	 M12, 8-pins, M12 4-pins (AS-Interface), M12 5-pins (DeviceNet) M16x1,5

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

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Technical data, continued

Without fieldbus communication

Technical data	
Power supply	24 VDC ±10% UL: NEC Class 2
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, UL: NEC Class 2 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 UL: NEC Class 2
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)

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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

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Ordering chart Type 8691 (other versions on request)

Communi-cation	Electrical connection	Control function	Pilot air ports threaded ports	Item no.	
Actuator series ELEMENT Type 21xx process valves				**Standard**	**ATEX II cat. 3G/D**
AS-Interface S-B.A.E	M12 multipole	single-acting	G1/8	227 254	264 988
		double-acting	G1/8	227 240	264 975
	M12 connector / flat cable clip / 80cm cable	single-acting	G1/8	227 258	264 990
		double-acting	G1/8	227 244	264 977
DeviceNet	M12 multipole	single-acting	G1/8	227 255	264 989
		double-acting	G1/8	227 241	264 976
	M12 multipole	single-acting	G1/8	227 262	264 992
		double-acting	G1/8	227 248	264 979
			G1/8	246 211	264 972
	Cable gland	single-acting	G1/8	227 260	264 991
		double-acting	G1/8	227 246	264 978
			G1/8	264 943	264 971
Actuator series CLASSIC Type 20xx process valves					
AS-Interface S-B.A.E	M12 multipole	single-acting	G1/8	227 265	264 993
		double-acting	G1/8	227 250	264 982
	M12 connector / flat cable clip / 80cm cable	single-acting	G1/8	237 659	264 995
		double-acting	G1/8	264 981	264 985
DeviceNet	M12 multipole	single-acting	G1/8	227 266	264 994
		double-acting	G1/8	227 251	264 983
	M12 multipole	single-acting	G1/8	227 272	264 997
		double-acting	G1/8	264 980	264 987
				265 937	264 974
	Cable gland			238 078	264 973
		single-acting	G1/8	227 270	264 996
		double-acting	G1/8	227 252	264 986

Note: All non-ATEX versions are UL approved.

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 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

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Ordering chart accessories

Description	Item no.
M12 socket, 8-pins, 5m assembled cable	919 267
M12 socket, 4-pins, 5m assebled cable	918 038
M12 socket, 5-pins, 5m assembled cable	264 606
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

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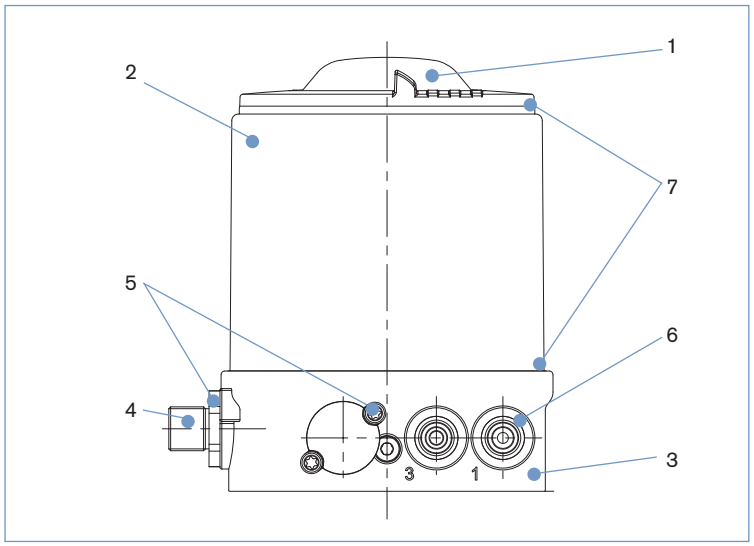
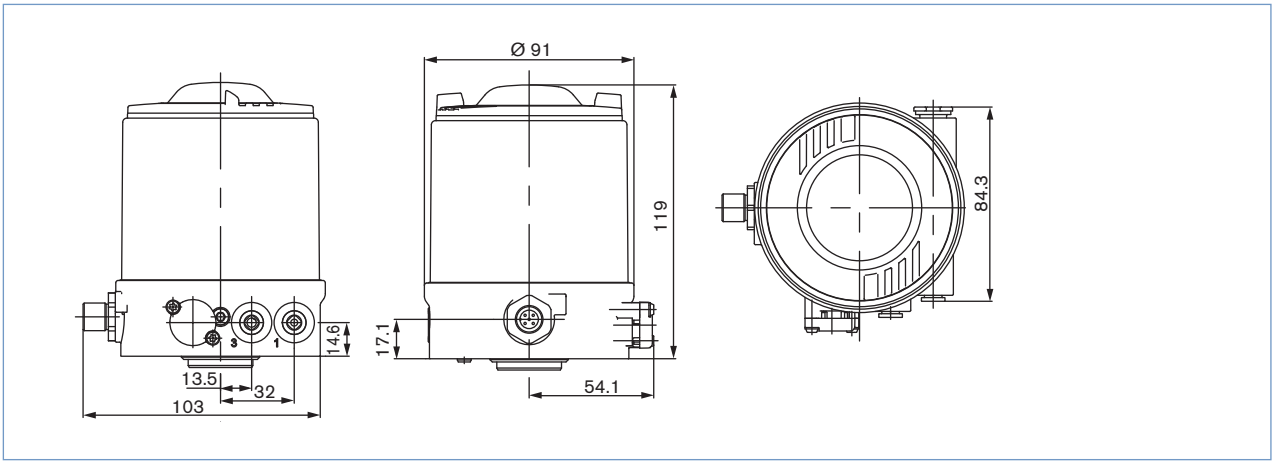
Materials



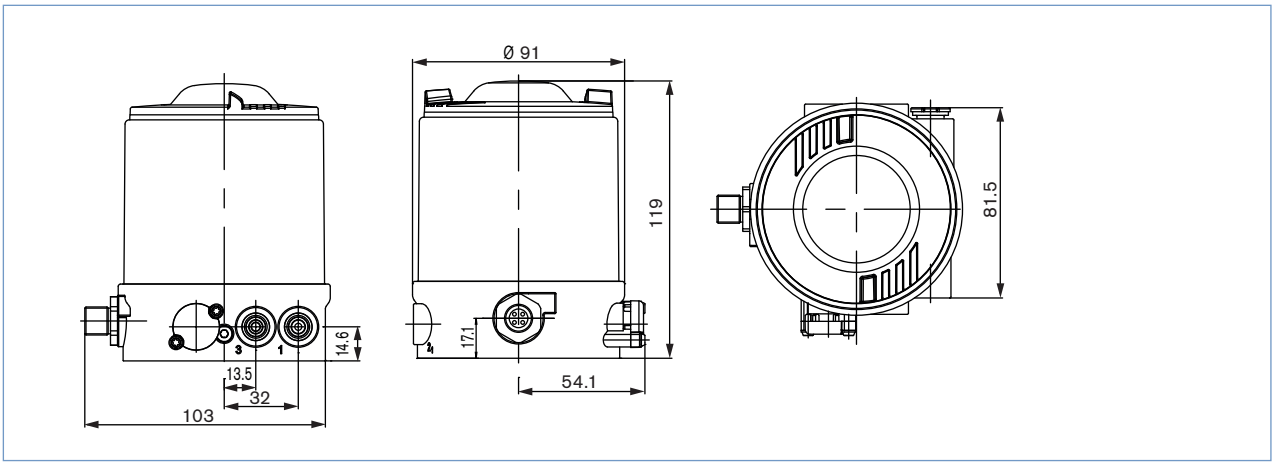
1	Cover	PC
2	Housing	Stainless steel
3	Basic body	PPS
4	Plug M12	Stainless steel
5	Screws	Stainless steel
6	Push-in connector Threaded ports G1/8	POM/Stainless steel Stainless steel
7	Sealing	EPDM

Dimensions [mm]

Mounting on process valve ELEMENT Types 21XX



Mounting on process valve CLASSIC Types 20XX



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Mounting on 3rd party hygienic process valves

More info.

Type 8681

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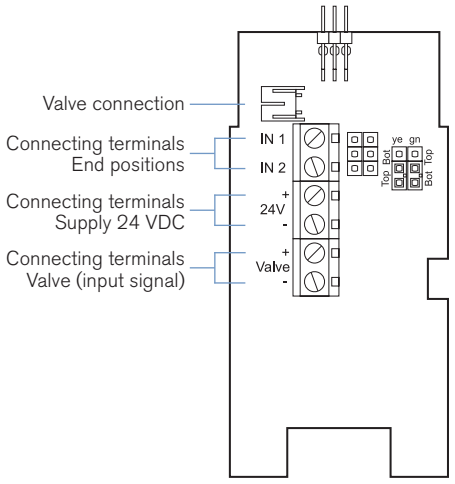
Connection options

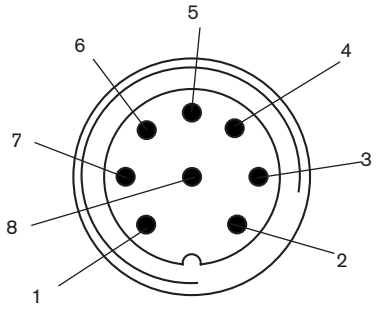
Without fieldbus communication

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

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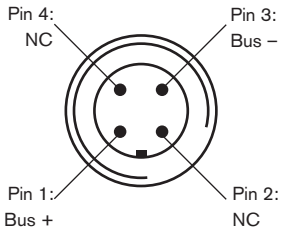
Connection options, continued

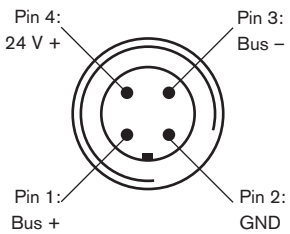
With fieldbus communication AS-Interface

Version with Multipole fitting connector

AS-Interface M12 4-pins

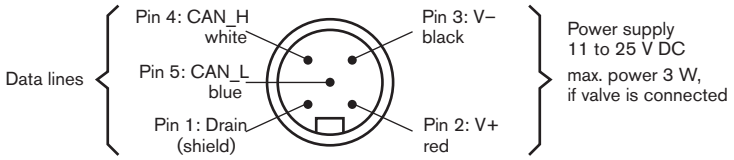


AS-Interface M12 4-pins, external supply



Version with flat cable clip

With fieldbus communication DeviceNet



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