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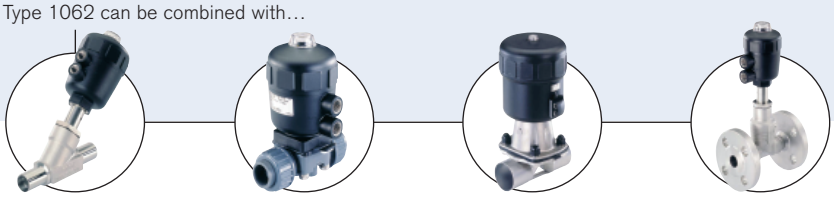
FLUID CONTROL SYSTEMS

Electrical position feedback for actuator sizes Ø 40-125 mm

- Simple installation, convertible or retrofittable
- Self-adjusting trip cam for “closed” position
- LEDs provide local operational status and position indication
- Compact IP65 enclosure
- Mechanical, inductive or Namur limit switches

Type 1062 can be combined with…



Type 2000
Angle seat valve

Type 2030
Plastic diaphragm valve

Type 2031
Diaphragm valve

Type 2012
Globe valve

The electrical position feedback is to be installed on a valve. Valve positions are remotely reported electrically according to switch type:
- open, closed (version with a limit switch) or
- open and closed (version with two switches or a double limit switch)

LEDs provide optical position indication (except with the inductive 2-wires version). Mechanical or inductive switches are housed in a compact splash-proof enclosure. The position indicator can be rotated 360° and is easily fitted to the valve.

Technical data	
Material	
Body / cover	PA6/PC
Seal (body/cover)	EPDM
PG11 cable gland	PA or PVDF
Guide piece	Brass or stainless steel
Spindle	Brass and stainless steel
Electrical connection	Terminal strip with cable screwing PG11, cable-Ø between 5 and 7 mm, wire profile max. 1 mm²
Ambient temperature	-20 to +60 °C (operation and storage)
Relative humidity	≤ 85%, not condensed
Protection class	IP65 with mounted and tightened connectors and tightly fixed electronic module cover
Approval	Limit switches acc. to VDE, IEC, UL, CSA, inductive limit switch in EExi (intrinsically safe) acc. to II 2 GD EEx ia II C T6, T5 or T4-T1
Mounting	on piston actuator with actuator size Ø 40-125 mm
Installation	As required

Mechanical limit switch (per limit switch)	
Number of limit switches	1 or 2
Output version	Change-over contact (open and /or closed) in silver or gold
Status	Open, closed or open/closed, supply voltage Control lamp (LED) : green, red, orange and electrical feedback
Power supply	12-48 V DC/AC 110/250 V DC/AC
Power consumption (per limit switch)	< 35 mA (48 V DC) < 8 mA (220 V AC)
Load current (per limit switch)	see table on next page
Voltage drop	Max. 1 V DC

Inductive limit switch with 3-wire technology	
Number of limit switches	1 or 2
Output version	normally open contact (PNP)
Status	Open, closed or open/closed, supply voltage Control lamp (LED): green, red, orange and electrical feedback
Power supply	10-30 V DC
Power consumption **(per limit switch)**	≤ 15 mA
Load current (per limit switch)	≤ 150 mA, per output

Inductive double limit switch with 4-wire technology	
Number of limit switches	1
Output version	normally open contact (PNP)
Status	Open and closed, supply voltage Control lamp (LED): green, red, orange and electrical feedback
Power supply	10-30 V DC
Power consumption	≤ 15 mA
Load current	≤ 150 mA, per output

NAMUR inductive double limit switch with 2-wire technology	
Number of limit switches	1
Output version	acc. to NAMUR
Status	Open and closed Control lamp (LED): red, orange and electrical feedback
Power supply	8 V DC through isolating barrier
Power consumption	≤ 1.2 mA (damped) > 2.1 mA (undamped)
Load current	not applicable

Electrical specification for mechanical switches

Voltage [V]	Maximum inductive load [A]	Maximium resistance load [A]
125/250 AC	8	8
24 DC	5	5
30 DC	2	5
50 DC	0.7	1
74 DC	0.25	0.6
125 DC	0.03	0.4
250 DC	0.02	0.25

Principle of operation

The duplication rod fitted with 2 cams moves when the valve opens or closes: the movement of a cam past the switch associated with it activates the latter.

When the switch is activated, the light, if there is one, comes on (or goes off on the NAMUR versions) and an electrical signal is transmitted remotely.

This signal is transmitted in accordance with the NAMUR standard on one version of the 1062 ATEX.

Target switch and cam for open valve

Target switch and cam for close valve

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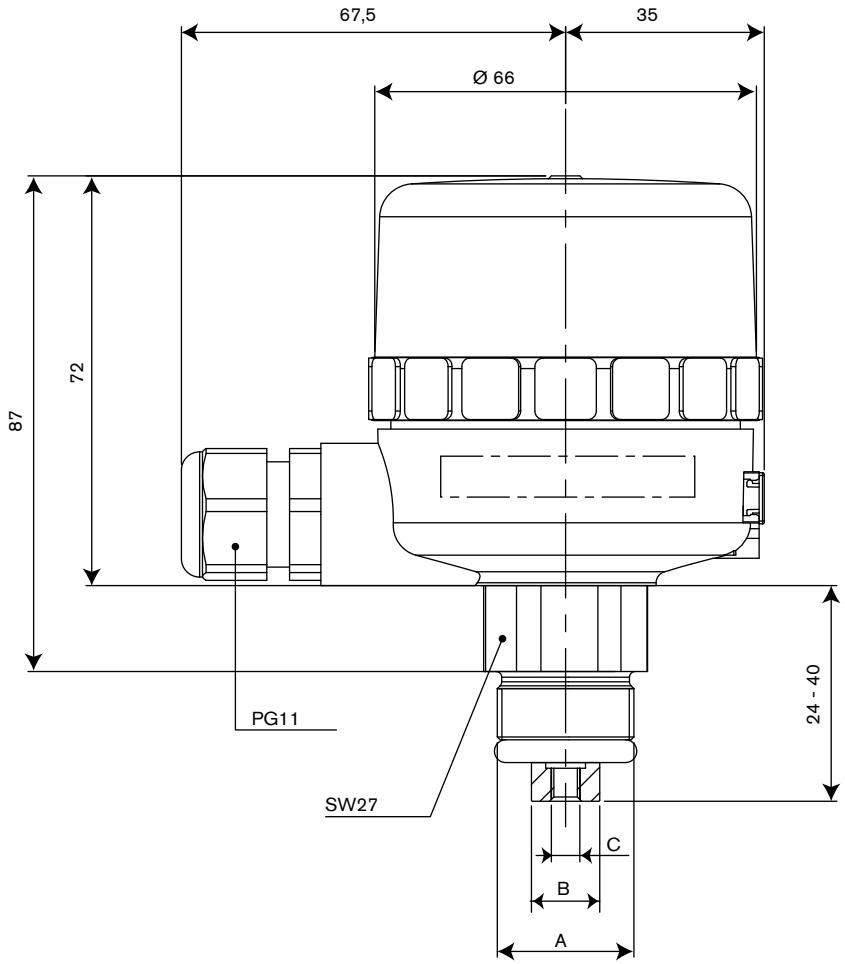
Dimensions [mm]



Actuator size	A	B	C
Ø 40	M24 x 1.5	12	M5
Ø 50, 63 and 80	M26 x 1.5	10	M6
Ø 100 and 125	M36 x 2	16	M10

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Ordering chart electrical position feedback Type 1062 (actuator size 40-125mm)

Feedback with mechanical switches (change-over contact for UC)

	for pneumatic stroke actuator			for pneumatic rotary actuator		
Status	Actuator size Ø [mm]	Item no. (12-48 V DC/AC)	Item no. (110-250 V DC/AC)	Actuator size Ø [mm]	Item no. (12-48 V DC/AC)	Item no. (110-250 V DC/AC)
closed	40	444 182	444 185	–	–	–
open	40	444 181	444 184	–	–	–
open/closed	40	444 183	444 186	–	–	–
closed	50-80	007 461	005 409	63	431 477	431 489
open	50-80	007 462	005 415	63	431 476	431 488
open/closed	50-80	007 463	005 416	63	431 478	431 490
closed	100-125	007 464	007 458	100	431 480	431 492
open	100-125	007 465	007 459	100	431 479	431 491
open/closed	100-125	007 466	007 460	100	431 481	431 493

Feedback with induction switches (normally open contacts for DC)

	for pneumatic stroke actuator				for pneumatic rotary actuator	
Status	Actuator size Ø [mm]	Item no. with 3-wire technology 10-30 V DC	Item no. double limit switch 10-30 V DC	Item no. double limit switch Namur (EExi) 8 V DC	Actuator size Ø [mm]	Item no. 10-30 V DC
closed	40	444 188	560 407	560 411	–	–
open	40	552 653			–	–
open/closed	40	444 189			–	–
closed	50-80	005 422	560 408	560 412	63	431 501
open	50-80	005 434			63	431 500
open/closed	50-80	005 461			63	431 502
closed	100-125	007 467	560 409	560 413	100	431 504
open	100-125	007 468			100	431 503
open/closed	100-125	007 469			100	431 505

Further versions on request

Electrical connection
4-pole M12 cable plug

Voltage
12-30 V DC; 48/110 V DC/AC (mechanical limit switch version)

Materials
PPS body and PSU cover
Mechanical limit switch with contact in gold

Additional
Inductive limit switch with output NPN

To find your nearest Bürkert facility, click on the orange box →

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

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Control Head for Process Valves with Multipole or Fieldbus

Control head, pneumatic connections

Control head, 5-pole DeviceNet connector and PG9 screwed cable gland

- Convenient control of pneumatically actuated process valves
- Compact unit comprising pilot valves, position feedback sensors and communication electronics
- Low response times owing to short hose connections
- Low installation effort and simple commissioning

Control head Type 1066 is designed for the convenient control of pneumatically actuated piston-controlled process valves. Integrated in the control head are electrical and pneumatic control components, position feedback sensors and optional intelligent communication electronics.

This allows the following functions to be realized:
- Piloting of process valves
  -single / double-acting
  -2 and 3-position actuator
  -additional synchronization for multi-function actuation
  -external pneumatic piloting
- Position feedback with up to 3 vertically adjustable inductive initiators or end position microswitches
- Electrical control of the control head optionally via multipole (parallel) or via bus connection (ASI and DeviceNet)
- Burst protection with pressure relief valve

For protection against unauthorized interference, the cover may be lead-sealed and provided with a self-tapping screw.

The control heads were developed for use in the food and pharmaceutical industries.

Technical Data	
Body material	PPE/PA
Cover material	PSU (transparent, bluish gray)
Sealing material	NBR
Media	unlubricated compressed air; neutral gases
Medium temperature	-10 to +50°C
Ambient temperature	-10 to +50°C
Fluid port connections	
Pressure/exhaust ports	G 1/4
Service ports	plug-on hose connector 6/4 or 1/4”
QNn value for air	110 l/min Type 6510 40 l/min Type 6106
Pressure range	2.5 to 7 bar
Response times	Type 6510/Type 6106
Opening	15/23 ms
Closing	10/21 ms
Stroke range	
Min.	2 mm
Max.	73 mm
Mounting position	any, but preferably with cover above; flanged to process valve
Mass	0.5 to 0.65 kg
Operating voltage	24 V DC Type 6510 24/110/230 V UC Type 6106 acc. field bus specifications

Solenoid valves	in control head
Type 6510	09 V DC
Type 6510	24 V DC
Type 6106	24/110/230 V UC
Current consumption	
Valve Type 6510	ca. 50 mA (1 W each)
Valve Type 6106	ca. 125/27/13 mA (3 W each)
Inductive initiator	max. 100 mA (external load) short-circuit proof
Electrical power loss	max. 5 W
Electrical connections	
Multipole	• 8-pole circular plug DIN 45326 • 8-pole terminal strip • 2x6-pole terminal strips
ASI-Bus	• insulation displacement connection for ASI flat cable, 1 m long • M12 plug and cable bushing, 2 m round cable
DeviceNet	• M12 flanged plug, 4-pole • 5-pole plug connector M12 acc. DeviceNet specification
Duty cycle	continuous rating (ED 100%)
Type of protection	IP67
Initiators	8 to 30 V / max. 100 mA
End position switches	max. 230 V UC / max. 1A

Flow rate:	
QNn value for air [l/min]	measured at +20°C, 6 bar pressure at valve inlet and 1 bar pressure difference
Pressure data [bar]	measured as overpressure to atmospheric
Response times [ms]	measured at valve outlet at 6 bar and +20°C
Opening	pressure build-up 0 to 90%
Closing	pressure decay 100 to 10%

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Possible configurations

Electrical control
- Multipole
- ASI (Actuator Sensor Interface) acc. ASI specification (energy supply via ASI line)
- DeviceNet
  -Group 2 Only Slave Device
  -MAC-ID and transfer rate can be set with DIP switches
  -Energy supply via DeviceNet line

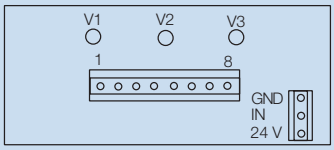
Configuration of control head
- Valves (0 to 3 pcs.)
  -Single-acting actuator (1 valve)
  -Double-acting actuator (2 valves)
  -Double-seat valve with common flow for both valve seats (CIP cleaning, 3 valves)

Position feedback
- Initiators (0 to 3 pcs.), third initiator may be connected internally or externally via terminal as per connection labelling “IN”
- End position microswitches (0 to 2 pcs.) for low-cost version; may be used internally only

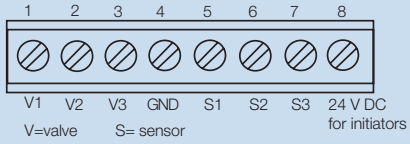
Control heads with multipole connectors (without communication)

Multipole connector with 8-pole terminal strip for 24 V DC (without communication)

Control head without cover, PG9 screwed cable gland, multipole, 8-pole terminal strip for 24 V DC



LED status indicator with 24 V DC multipole connector

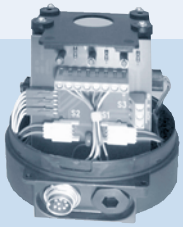


Connector configuration, internal terminal strip

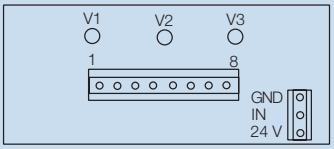
Features
- Electrical connection with 8-pole terminal strip
- PG9 screwed cable gland
- 0 to 3 valves type 6510
- Valves for 24 V DC
- 3 LEDs for valve status indication
- Up to 3 inductive initiators for position feedback

Note
The outputs from the initiators are pnp-plus switching and short-circuit proof.

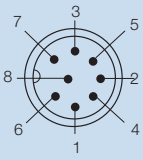
Multipole connector with 8-pole circular connector for 24 V DC (without communication)



Control head without cover, multipole, 8-pole circular connector for 24 V DC



LED status indicator with 24 V DC multipole connector



PIN configuration
1 Valve 2
2 +24 V DC for initiators
3 Initiator 2
4 Valve 1
5 Initiator 1
6 Valve 3
7 Initiator 3
8 GND (common ground)

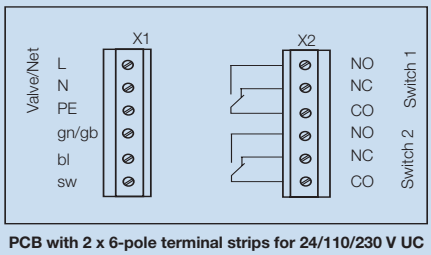
Front view of connector pins on control head; the solder connections lie behind

Features
- Electrical connection with 8-pole circular connector acc. DIN 45326
- 0 to 3 valves type 6510
- Valves for 24 V DC
- 3 LEDs for valve status indication
- Up to 3 inductive initiators for position feedback

Note
- The pins of the circular connector are connected in the factory to the internal terminal strip.
- The outputs from the initiators are pnp-plus switching and short-circuit proof.

Multipole connector with 2 x 6-pole terminal strips; for 24/110/230 V UC (without communication)

Control head without cover, PG9 screwed cable gland, multipole, 2 x 6-pole terminal strips, for 24/110/230 V UC



PCB with 2 x 6-pole terminal strips for 24/110/230 V UC

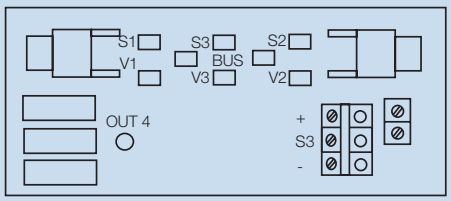
Features
- Electrical connection with 2 x 6-pole terminal strips
- PG9 screwed cable gland
- For 24/110/230 V UC
- 0 or 1 valve type 6106
- no status indication
- Up to 2 end position microswitches for position feedback

Control heads with bus connection (with communication)

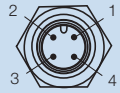
Control heads with ASI connection and different connections

Control head without cover, ASI standard version, with insulation displacement connector, PG9

Control head without cover, ASI special connection 2, M12 flanged connector, 4-pole, PG9 for sensor cable bushing from outside

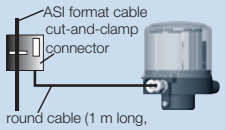


Visible part of ASI PCB

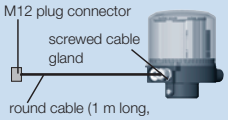


PIN configuration ASI
1 brown, ASI+
2 not used
3 blue, ASI-
4 not used

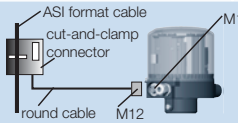
4-pole M12 flanged connector for ASI special connection 1 und 2, front view of connector pins on cable or control head; the solder connections lie behind



ASI connections with cut-and-clamp connector, screwed cable gland PG9, **standard version**



M12 plug connector, PG9 bushing, ASI special connection 1, 4-pole M12 plug connector (on request)



4-pole M12 flanged connector, ASI special connection 2 (on request)

Features
- 3 different electrical connections
- 1 to 3 valves type 6510
- Valves for 24 V DC
- 3 LEDs for valve status indication
- Up to 3 inductive initiators for position feedback
- 3 LEDs for initiator status indication
- 2 LEDs for bus/power status indication

Inputs: 3 sensors S1-S3, pnp-plus switching, power supply via AS interface (24 V +20%/-10%), short-circuit proof, current limited to 60 mA, switching level high ≥ 10 V, limited input current ≤ 6.5 mA, input current low signal ≤ 1.5 mA

Outputs: 3 valves V1-V3, max. 3 x 1 W, power reduction after ca. 100 ms, with integrated watchdog function

Programming data
- I/O code 7 hex (4 outputs and 4 inputs)
- ID code F hex (for bit allocation see operating instructions)
- Profile 7.F

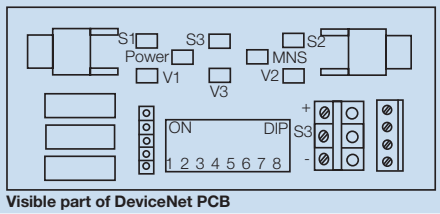
Note on data for the round cable
The round cable leading directly to the control head differs somewhat from the ASI standard in its electrical data. For this reason, on calculation of the max. permissible line length to ASI specification, a value 1.5 times the actual length should be used.

ASI length = 1.5 x actual length

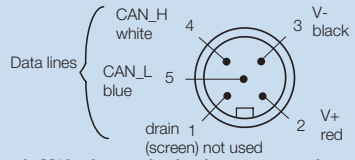
Control heads with DeviceNet connection and 5-pole circular plug connector

Control head without cover, 5-pole DeviceNet connector, PG9 for cable bushing from outside

Inputs: 3 sensors S1-S3, pnp-plus switching, power supply via DeviceNet line (11-25 V DC), switching level high signal ≥ 5 V, switching level low signal ≤ 1.5 V, trunk line to be terminated with 120 Ω resistor



Visible part of DeviceNet PCB



5-pole M12 micro-style circular connector, front view of connector pins on control head; the solder connections lie behind

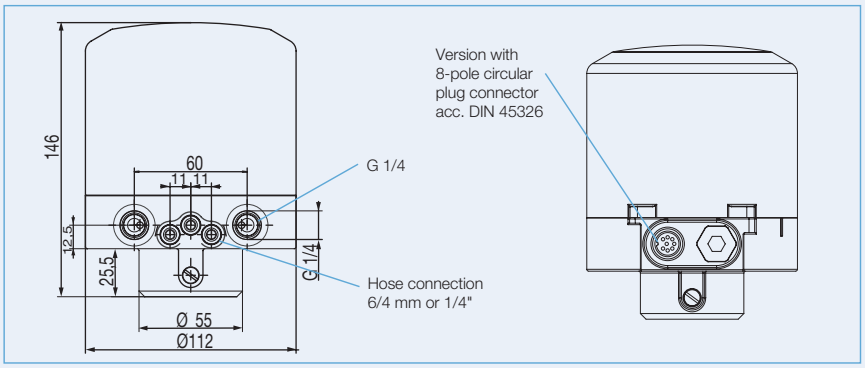
Features
- Electrical connection with 5-pole circular plug connector
- 1 to 3 valves type 6510
- Valves for 9 V DC
- 3 LEDs for valve status indication
- Up to 3 inductive initiators for position feedback
- 3 LEDs for initiator status indication
- 1 LED, single-colour, for power status indication
- 1 LED, two-colour, for MNS, display of different device statuses

Voltage supply 11 to 25 V DC, max. power loss 5 W when all valves are switched (3 x 1 W).

Configuration with 8 DIP switches
- DIP switches 1-6: DeviceNet address
- DIP switches 7 and 8: data transfer rate
- Read files BUE1066.EDS and BUE1066.ICO into configuration tool (from diskette supplied)

Connector configuration acc. DeviceNet specification

Dimensions [mm]



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Ordering table for control heads (other versions on request)

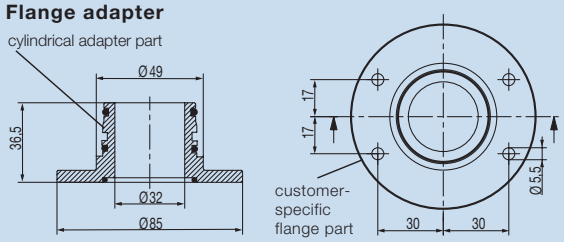
Version	No. of valves	Valve type; operating voltage of valve	No. of feedback sensors	Electrical connection on control head	Order-No.
Multipole	0	no valve	2 initiators	8-pole circular plug connector acc. DIN 45326	193 354
	1	Type 6510; 24 V DC			193 355
	2				193 356
	3				193 357
Multipole	0	no valve	2 initiators	8-pole terminal strip with PG9 screwed cable gland	193 358
	1	Type 6510; 24 V DC			193 359
	2				193 360
	3				193 361
Multipole	0	no valve	2 micro-switches	2 x 6-pole terminal strips with PG9 screwed cable gland	195 002
	1	Type 6106; 024 V UC			197 880
	1	Type 6106; 110 V UC			198 332
	1	Type 6106; 230 V UC			197 773
ASI Bus	1	Type 6510; 24 V DC	2 initiators	Cut-and-clamp connector, ASI round cable, 1 m long, PG9 bushing	193 362
	2				193 363
	3				193 364
DeviceNet	1	Type 6510; 9 V DC	2 initiators	Circular plug connector M12, 5-pole acc. DeviceNet specification	194 826
	2				194 828
	3				194 829

Assembly

To mount the control head on process valves from different manufacturers, an adapter with a customer-specific flange is required (flange adapter, see drawing). The cylindrical adapter part for the control head is Bürkert-specific. The customer-specific flange part must be adapted to the structural shape of the process valve. The two parts form a constructive unit. The drawing below illustrates an application for a specific process valve. Any position of installation may be used for the control head, but it is preferable to have the cover above (see also Operating Instructions for Type 1066).

On assembly of the control head, be sure to take care that the bores and cavities are self-emptying in order to avoid damage by residues from aggressive detergents.

Flange adapter



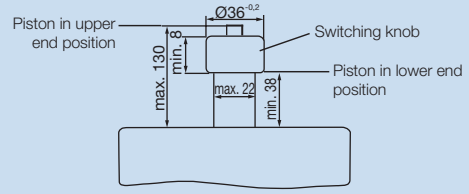
Note
On fabrication of the flange adapter oneself, the following must be kept to exactly:
- Number of sealing points
- Dimensions for O-ring seats
- Dimensional tolerances and
- Material specifications

▶ For this purpose, be sure to request a detailed dimensional drawing.

On assembly of the flange, centring on the middle axis is required. The max. permissible axial deviation is ± 0.1 mm. If this tolerance is exceeded, there is a risk that the initiators will not function.

Suggestion: use a special assembly sleeve.

Upper piston of the process valve



Note
The switching knob should preferably be made of ST37 (nickel plated or zinced). On use of stainless steel A2, the range of the initiators drops to 75% compared with ST37.

In the case of vigourous shocks, this can lead to faulty switching of the initiator.

Ordering table for accessories (other versions on request)

Version	Order-No.
Blanking-off plug in brass, G 1/4	780 142
Silencer in sintered bronze with hexagonal bolt, G 1/4	780 786

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

We reserve the right to make technical changes without notice.

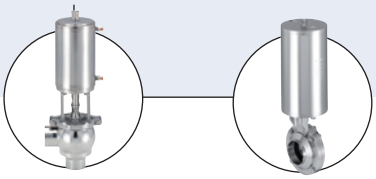
805-GB/ 4-0160

bürkert
FLUID CONTROL SYSTEMS

Control head for hygienic process valves

- Universal attachment for hygienic process valves
- Contactless position measurement system with 3 switching points (Teach-In function)
- Coloured status display
- Manual override operative with closed housing
- Communication AS-Interface, DeviceNet (option)

Type 8681 can be combined with...



Single seat valve
Double seat valve

Butterly valve
Ball valve

The type 8681 control head is optimised for decentralised automation of hygienic process valves. Thanks to its universal adapter it can be combined with all normal commercial butterfly valves, ball valves, single and double seated valves. With a decentralised automation concept, the control head takes over all pneumatic actuation, feedback and diagnostic functions up to and including field bus communication. 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.
Depending on the process valve type, up to 3 pneumatic actuator chambers can be controlled independently from each other. The switching speeds of both movement directions can be set separately. A built-in check valve prevents incorrect switching of process valve actuator chambers which could result from back-pressure.

The process valve switching positions are detected by an inductive, analogue position sensor and reported to the PLC system. Up to 3 switching points can be adjusted automatically by a Teach-In function. Additionally a fourth switching position can be read in and fed back via an external inductive proximity switch. The coloured status display signals the particular process valve switching position or indicates a diagnostic function such as maintenance required status or fault conditions.
The pilot valves are equipped with a manual override. If the device housing is closed, the patented magnetically encoded manual override tool can be used to open the process valve from the exterior. Bus communication is available with AS-interface or DeviceNet.

Technical data	
Material ▪ Body ▪ Cover ▪ Seal	 PA, PPO, VA PC CR, EPDM
▪ Control medium ▪ Dust concentration ▪ Particle density ▪ Pressure condensation point ▪ Oil concentration	neutral gases, air DIN ISO 8573-1 (filter 5 µm recommended) class 5 (<40 µm particle size) class 5 (<10 mg/m3) class 3 (<-20°C) class 5 (<25 mg/m3)
Supply pressure	2,5 ... 8 bar
Air capacity solenoid valve[1)] **(supply and exhaust air per solenoid valve adjustable)**	110lN/min - for pressurization and exhaust, lifting device 110lN/min - delivery condition 200lN/min - max. typical flow rate (throttle)
Pilot air ports ▪ Air inlet and outlet ▪ Service ports	 G 1/4 G 1/8
Position sensor ▪ Outlet current ▪ Stroke range ▪ Resolution ▪ Total error	non-contact Position Sensor , 3 self-regulated switching points PNP (Teach-In-function) closer (normally open), PNP-output short-circuit proof , with clocking short-circuit protection max. 100 mA per feedback signal 0 to 80 mm ≤ 0,1 mm ± 0,5 mm - when using a target for the dimensional drawing, material 1.4021 and a piston rod (Ø 22 mm, material 1.4301) (error refers to the reproducibility of a teach-position)
Ambient temperature	-10 to +55°C +5 to +55°C (ATEX II 3G Ex nA IIC T4; ATEX II 3G Ex tD A22 T135°C)
Installation	As required, preferably with actuator in upright position

[1)] QNn-value acc. to the definition with decrease in pressure from 7 to 6 bar absolute with 20°C.

Technical data, continued

Type of protection	IP 65/67 acc. to EN 60529
Protection class	3 (AS-Interface, 24 VDC, DeviceNet); 1 (120 VAC) acc. to DIN EN 61140
Fieldbus communication	AS-Interface, DeviceNet
EG-Conformity	EMV2004/108/EG; ATEX 94/9/EG
Ignition protection	ATEX II 3G Ex nA IIC T4 ATEX II 3G Ex tD A22 T135°C

Without fieldbus communication; 24VDC	
Operating voltages	12 to 28 VDC
Residual ripple with DC	max. 10 %
Power consumption	< 5 W (acc. to version and operating status see instruction manual)
Valve control inputs (Y1 - Y3) ▪ Signal level - active ▪ Signal level - inactive ▪ Impedance	 U > 10 V, max. 24 V DC + 10% U < 5 V U > 30 kOhm
Outputs / binary feedback signals ▪ Design ▪ Switchable output current ▪ Output voltage -active ▪ Output voltage -inactive	S1 out - S4 out Normally open contact, PNP output short-circuit proof with self-clocking short circuit protection max. 100 mA per feedback signal ≥ (operating voltage - 2 V) max. 1 V in unloaded state
Input / proximity switches (external initiator: S4 in) ▪ Power supply ▪ Current carrying capacity, sensor power supply ▪ Design ▪ Input current 1 signal ▪ Input voltage 1 signal ▪ Input current 0 signal ▪ Input voltage 0 signal	 Voltage present at control head - 10 % max. 90 mA short-circuit protection DC 2- and 3-conductor, NO or NC (factory setting NO), PNP output I_{Sensor} > 6.5 mA, limited internally to 10 mA U_{Sensor} > 10 V I_{Sensor} < 4 mA U_{Sensor} < 5 V
Electrical connection ▪ Multipole ▪ Cable gland	 M12 12-pin with cable 8 cm, 1 x M16 x 1.5 cable glands for external initiator (clamping range 3 ... 6 mm) M16 x 1.5 (cable-Ø 5 ... 10 mm, screw terminals 0.14 ... 1.5 mm2), 1 x M16 x 1.5 cable glands for external initiator (clamping range 3 ... 6 mm)

Without fieldbus communication; 120VAC	
Central power supply	110…130 V AC, 50/60 Hz
Power Consumption (stand by current	10 mA at 120 V AC
Valve control inputs (Y1 - Y3) ▪ Signal level - active ▪ Signal level - inactive ▪ Impedance	 U > 60 V AC U < 20 V AC > 40 kOhm
Outputs / binary feedback signals ▪ Design ▪ Switchable output current ▪ Output voltage -active ▪ Output voltage -inactive	S1 out - S3 out Normally open contact, L switching, short-circuit protection via automatically resetting fuse max. 50 mA per feedback signal ≥ (operating voltage - 2 V) max. 1 V in unloaded state
Input / proximity switches (external initiator: S4 in) ▪ Power supply ▪ Current carrying capacity, sensor power supply ▪ Design ▪ Input current 1 signal	 Voltage present at control head - $U_{Nominal}$ = 120 V AC, 50/60 Hz max. 0.7 DC 2- and 3-conductor, NO contact, L-switching I_{Sensor} < 2 mA
Electrical connection ▪ Cable gland	 M16 x 1.5 (cable-Ø 5 ... 10 mm, screw terminals 0.14 ... 1.5 mm2), 1 x M16 x 1.5 cable glands for external initiator (clamping range 3 ... 6 mm)

With fieldbus communication; AS-Interface	
Profil	S-7.A.E (A/B slave max. 62 slaves/master) S-7.F.F (max. 31 slaves/master)
Operating voltages ▪ above bus line ▪ from bus signal seperated	 as Specification reversible (Jumper)
Power consumption equipment without external power supply Max. Current consumption ▪ Current consumption in normal operation (acc. to reduction of electric current; valve + 1 end positon achieved) **Power consumption equipment with external power supply** ▪ The power supply unit must include a secure disconnect in accordance with IEC 364-4-41. It must conform to the SELV standard. The ground potential may not have an earth connection.	 240 mA (incl. external initiator with 90 mA) ≤ 150 mA 3 valves activated, 1 position feedback with LED display, no external initiator 19,2 V DC up to 31.6 V DC ≤ 100 mA 24 V DC ≤ 150 mA type.
Output ▪ Contact rating ▪ Watch-dog function	 0,8 W with AS-Interface, per Solenoid Valve (0,9 W Switch-on power) integrated
Input / proximity switches (externer Initiator: S4 in) ▪ Power supply ▪ Current carrying capacity, sensor power supply ▪ Design ▪ Input current 1 signal ▪ Input voltage 1 signal ▪ Input current 0 signal ▪ Input voltage 0 signal	 AS interface voltage present at control head - 10 % max. 30 mA short-circuit protection DC 2- and 3-conductor, NO or NC (factory setting NO), PNP output I_{Sensor} > 6,5 mA, limited internally to 10 mA U_{Sensor} > 10 V I_{Sensor} < 4 mA U_{Sensor} < 5 V
Electrical connection **(ASI flat cable clip at cable 80cm as standard)**	M12 4-pin at cable 8 cm (acc. 0.3 m cable length acc. to AS-Interface Specification) 1 x M 16 x 1.5 cable glands for external initiator clamping range 3 ... 6 mm. M12 4-pin at cable 80 cm (acc. 1.0 m cable length acc. to AS-Interface Specification) 1 x M 16 x 1.5 cable glands for external initiator clamping range 3 ... 6 mm.

With fieldbus communication; DeviceNet	
Electrical power supply	11 to 24V DC (acc. to specification)
Max. power consumption	200 mA at 24 V DC
Input / proximity switches (externer Initiator: S4 in) ▪ Power supply ▪ Current carrying capacity, sensor power supply ▪ Design ▪ Input current 1 signal ▪ Input voltage 1 signal ▪ Input current 0 signal ▪ Input voltage 0 signal	 via DeviceNet power supply - 10 % max. 30 mA DC 2- and 3-conductor, NO contact, PNP output I_{Sensor} > 6,5 mA, limited internally to 10 mA U_{Sensor} > 10 V I_{Sensor} < 4 mA U_{Sensor} < 5 V
Outputs (from master perspective) / solenoid valves ▪ Max. switching capacity ▪ Typ. continuous output ▪ Output reduction ▪ Pull-in current ▪ Holding current ▪ Operating mode ▪ Valve type	 1.0 W 0.8 W integrated via DeviceNet interface electronics 120 mA typ. at 24 V DC (3 valves) 100 mA typ. at 24 V DC (3 valves) Long-term operation (100% operation) 6524
Electrical connection ▪ Multipole	 M12 5-pin with cable 80 cm, 1 x M16 x 1.5 cable glands for external initiator (clamping range 3 ... 6 mm)

Technical data, continued

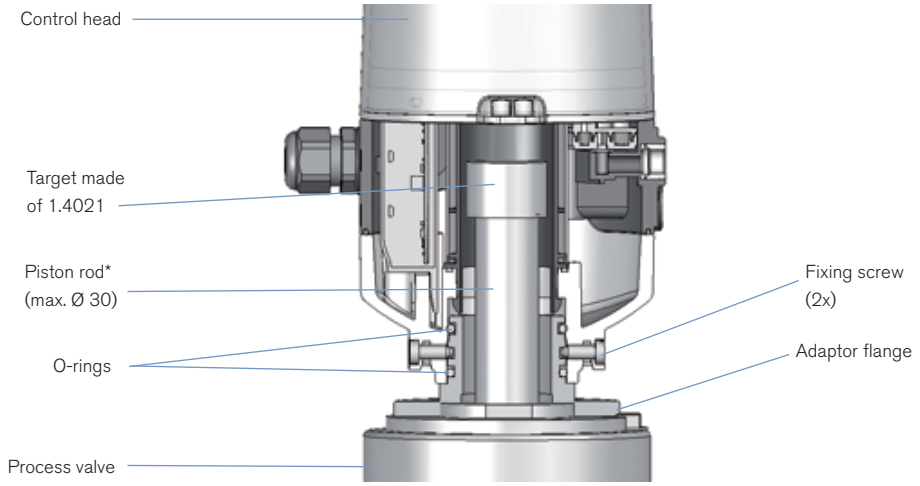
Bit configuration

Databit	D3	D2	D1	D0
Input	external initiator S4	position 3	position 2	position 1
Output	not configurated	solenoid valve 3	solenoid valve 2	solenoid valve 1
Parameterbit	**D3**	**D2**	**D1**	**D0**
Output	not configurated	not configurated	not configurated	not configurated

Programming data

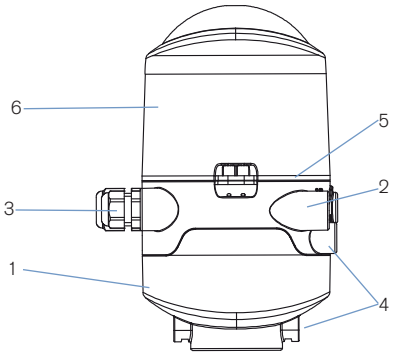
Databit	Programming data with 62 Slaves AS-Interface - apparat for A/B-Slave-adressing (standard device)	Programming data with 31 Slaves AS-Interface (optional)
E/A - configuration	7 hex (4 Inputs / 4 Outputs) see bit configuration chart	7 hex (4 Inputs / 4 Outputs) see bit configuration chart
ID-code	A hex	F hex
combinative ID-code 1	7 hex	(F hex)
combinative ID-code 2	E hex	(F hex)
profil	S-7.A.E	S-7.F.F

Flange for process valve



*Target and piston should not be made of ferromagnetic or material with high electrical conductivity (e.g. copper, aluminium). Stainless steels such as 1.4404 are suitable.

Materials

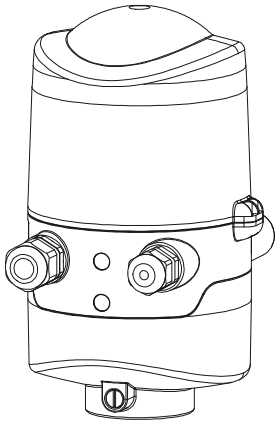


1 Housing lower part	PPO
2 Fluid part	PPO
3 Cable glands	PA
4 Screws / threaded port	VA
5 Seal	EPDM, CR
6 Cover	PC

Connections, continued

Without fieldbus communication 24VDC

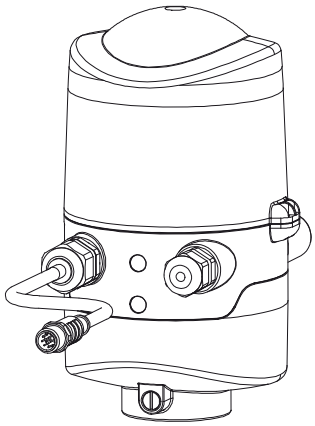
Cable glands



Connection left: Voltage, signals
Connection right: external initiator

Cable glands with multipol connection

Version with 12 pin plug (24 V)[1)]



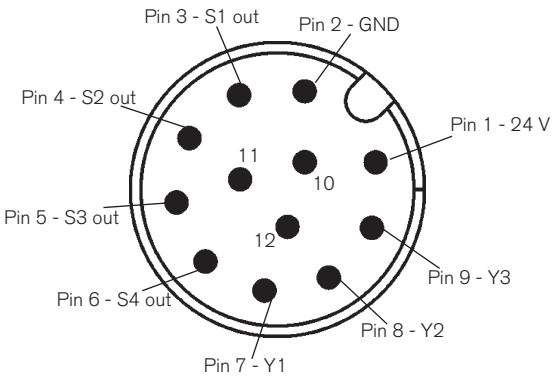
Connection left: Voltage, signals
Connection right: external initiator

[1)] M12 plug acc. IEC 61076-2-101, 12 pin at cable 8 cm

Multipol connection M12, 12-pin

In- and Outputsignal for superordinated control (SPS):

12-pin terminal M12 x 0,75 - male (acc. IEC 61076-2-101)

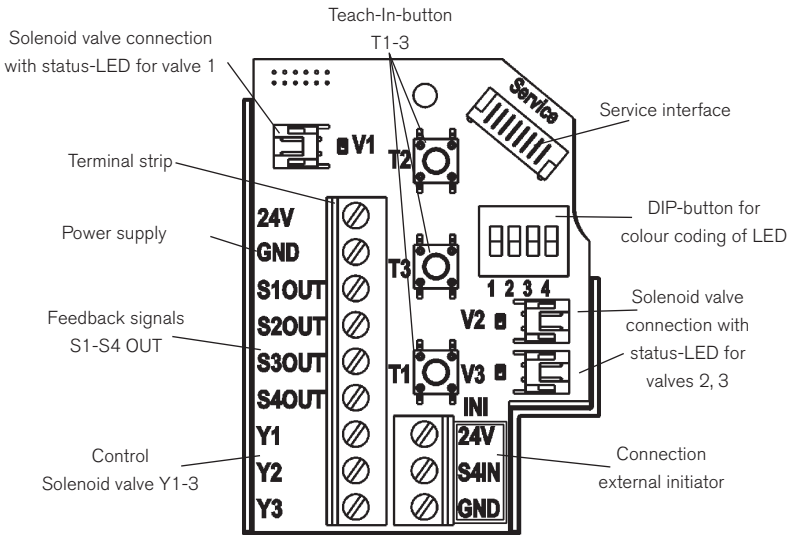


Pin	Description	Configuration
1	24 V	power supply 24 V
2	GND	GND
3	S1 out	Output position S1
4	S2 out	Output position S2
5	S3 out	Output position S3[1)]
6	S4 out	Output externer Initiator S4
7	Y1	Input Solenoid valve 1
8	Y2	Input Solenoid valve 2
9	Y3	Input Solenoid valve 3
10		not configurated
11		not configurated
12		not configurated

[1)] in ordering option “analog”, S3 out is a analog signal instead of a binary signal

Connections, continued

Without fieldbus communication 24VDC cable glands

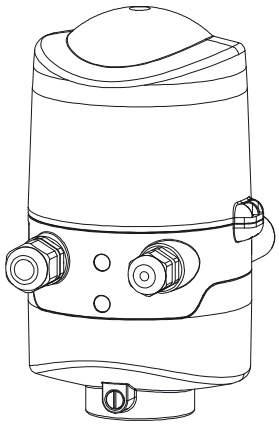


Description Terminal strip	Configuration
24 V	Power consumption 24 V
GND	GND
S1 OUT	Output position 1
S2 OUT	Output position 2
S3 OUT	Output position 3[1)]
S4 OUT	Output external initiator
Y1	Input Solenoid valve 1
Y2	Input Solenoid valve 2
Y3	Input Solenoid valve 3

[1)] in ordering option “analog”, S3 out is a analog signal instead of a binary signal

Description Terminal strip	Configuration
24 V	Power consumption 24 V for external initiator
S4 IN	Input external initiator
GND	GND external initiator

Without fieldbus communication 120VAC



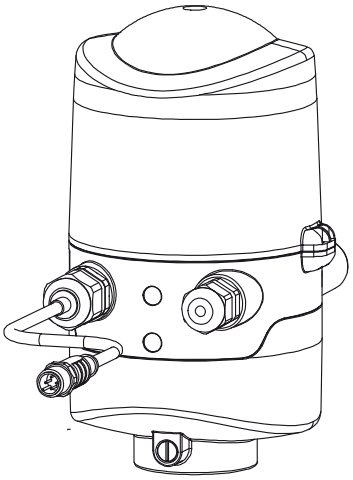
Connection left: voltage, signals
Connection right: external initiator

Description Terminal Strip 1	Configuration	
PE	Protection Earth - protective conductor	
L N	Power supply 120 V AC	live conductor neutral conductor
S1 OUT	Ouput position 1	
S2 OUT	Ouput position 2	
S3 OUT	Ouput position 3	
S4 OUT	Ouput external initiator	
Y1	Input solenoid valve 1	
Y2	Input solenoid valve 2	
Y3	Input solenoid valve 3	
Description Terminal Strip 2	**Configuration (external initiator)**	
L	Power supply - live conductor	
S4 IN	Input external initiator	
N	Power supply - neutral conductor	

Connections, continued

With fieldbus communication AS-Interface

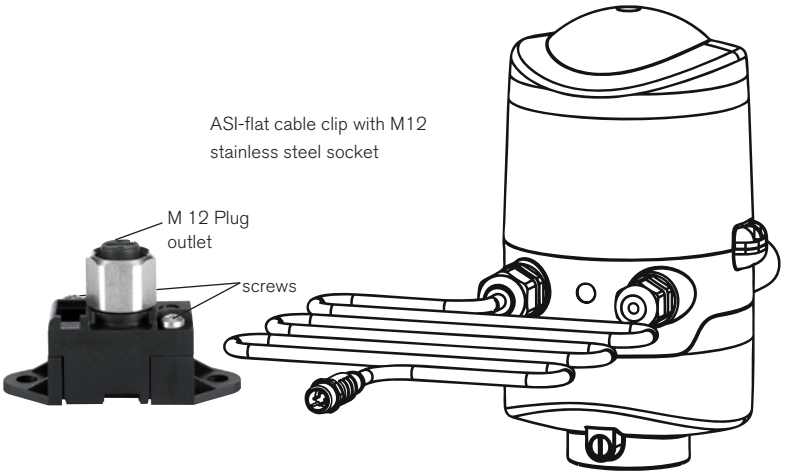
with multipol connection[1)]
(M12-plug acc. IEC 61076-2-101, 4-pin) at cable 8 cm



left: AS-Interface

right: external initiator

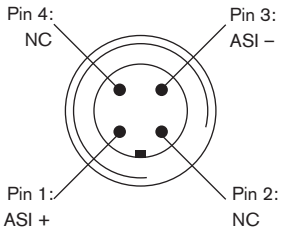
with multipol connection
(M12-plug acc. IEC 61076-2-101, 4-pin) with mounted flat cable clip at cable 80 cm



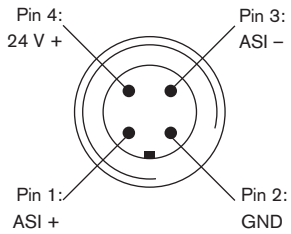
left: AS-Interface

right: external initiator

[1)]on request

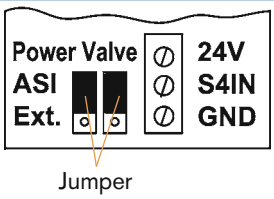
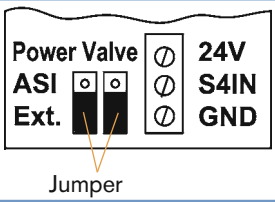


Fieldbus connection
Power consumption over Fieldbus



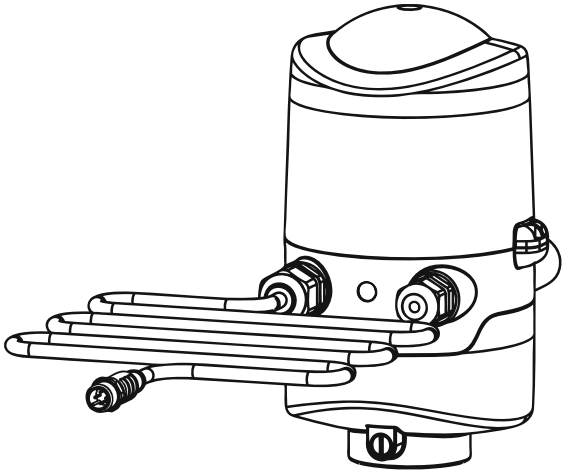
Fieldbus connection
with external Power consumption

Pin	Configuration (Consumption over Fieldbus)	Configuration (external Power consumption)	Wire colour
1	AS-Interface - ASI +	AS-Interface - ASI +	brown
2	not configurated	GND	white
3	AS-Interface - ASI -	AS-Interface - ASI -	blue
4	not configurated	24 V +	black

Power consumption of valves over Fieldbus	External Power consumption of valves
	

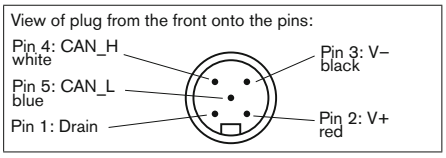
Connections, continued

With fieldbus communication DeviceNet



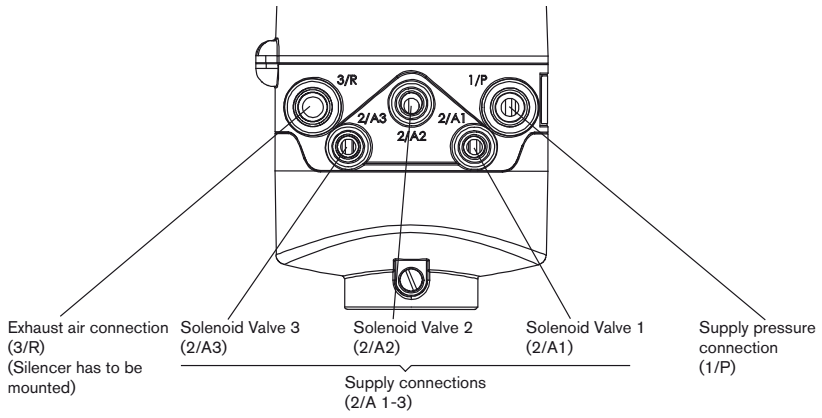
left connection: DeviceNet

right connection: external initiator



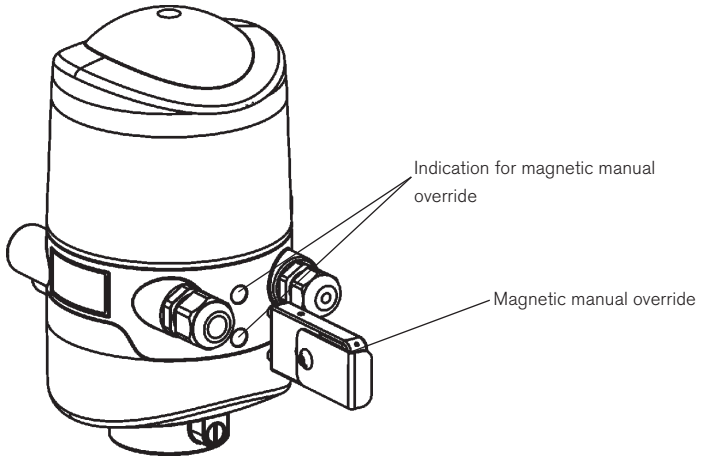
Pin	Signal	Wire colour
1	Drain	shield
2	V+	red
3	V-	black
4	CAN_H	white
5	CAN_L	blue

Pneumatic connection



Magnetic manual override

Activation / De-Activation Solenoid valve 1 (process valve maintenance)



Version	Item no.
Magnetic manual override	196 490

Ordering chart Control head type 8681 (other versions on request)

Communication	Supply voltage	Connection	ATEX zone 2/22 cat. 3	Number of solenoid valves	Feedback	Item no.
without	12 … 28 V DC	cable gland	without	0	3 int. + 1 ext.	196 410
			without	1	3 int. + 1 ext.	196 411
			without	2	3 int. + 1 ext.	196 412
			without	3	3 int. + 1 ext.	196 413
			with	1	3 int. + 1 ext.	196 415
	12 … 28 V DC	M12, 12-pin, cable 8 cm	without	0	3 int. + 1 ext.	196 420
			without	1	3 int. + 1 ext.	196 421
			without	2	3 int. + 1 ext.	196 422
			without	3	3 int. + 1 ext.	196 423
			with	1	3 int. + 1 ext.	196 425
	120 V AC	cable gland	without	0	3 int. + 1 ext.	196 470
			without	1	3 int. + 1 ext.	196 471
			without	2	3 int. + 1 ext.	196 472
			without	3	3 int. + 1 ext.	196 473
			with	1	3 int. + 1 ext.	196 475
AS-Interface (62 slaves)	29,5 … 31,6 V DC	version with ASI flat cable clip and cable 80 cm	without	0	3 int. + 1 ext.	196 430
			without	1	3 int. + 1 ext.	196 431
			without	2	3 int. + 1 ext.	196 432
			without	3	3 int. + 1 ext.	196 433
			with	1	3 int. + 1 ext.	196 435
DeviceNet	via Bus	M12, 5-pin, cable 80 cm	without	0	3 int. + 1 ext.	196 450
			without	1	3 int. + 1 ext.	196 451
			without	2	3 int. + 1 ext.	196 452
			without	3	3 int. + 1 ext.	196 453
			with	1	3 int. + 1 ext.	196 455

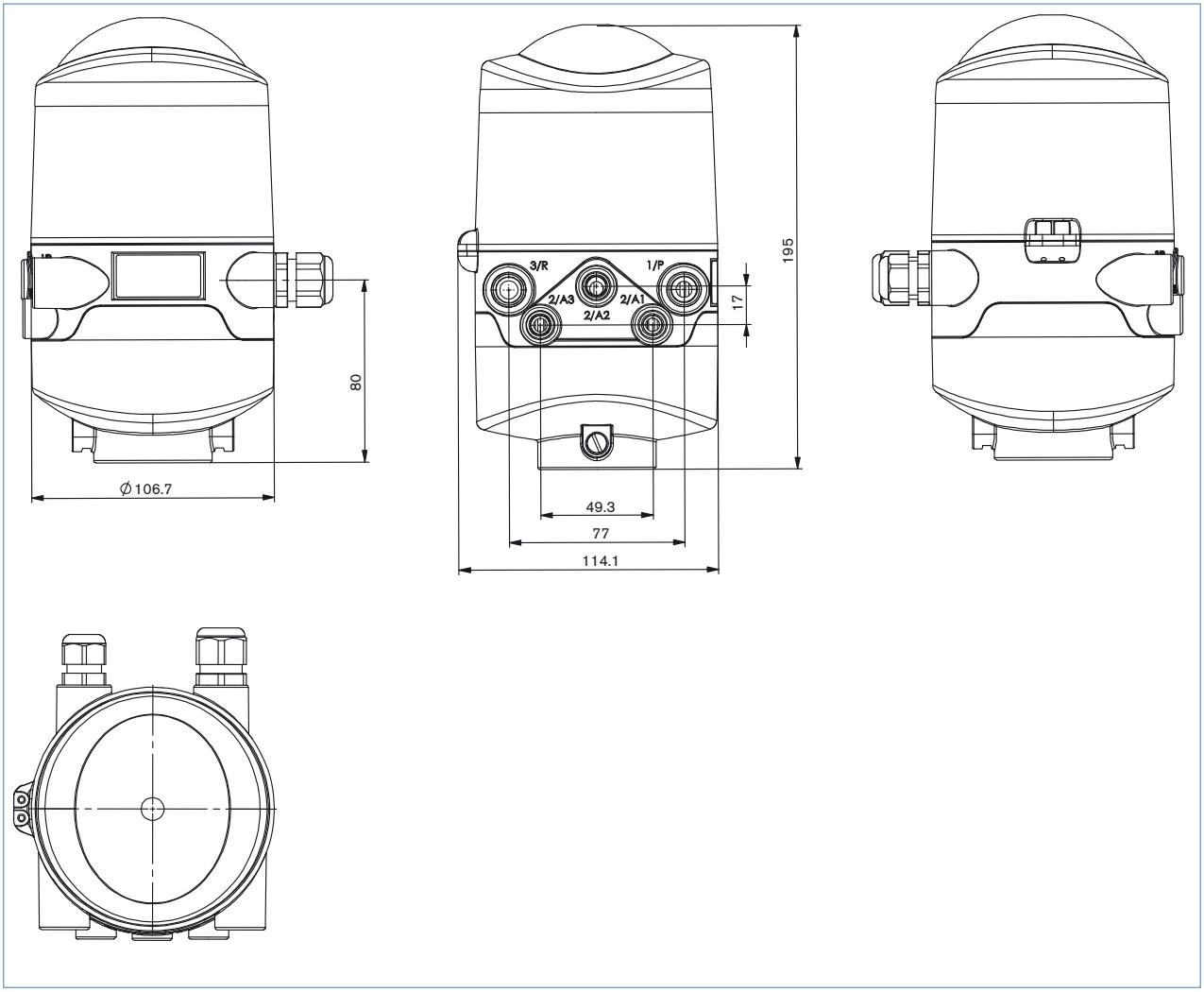
i Further versions on request

Additional
AS-Interface: connection M12 4-pin cable 8 cm
Analog (4...20 mA) instead of binary Feedback signal only 24 V version
AS-Interface (31 slaves)

Ordering chart for accessories

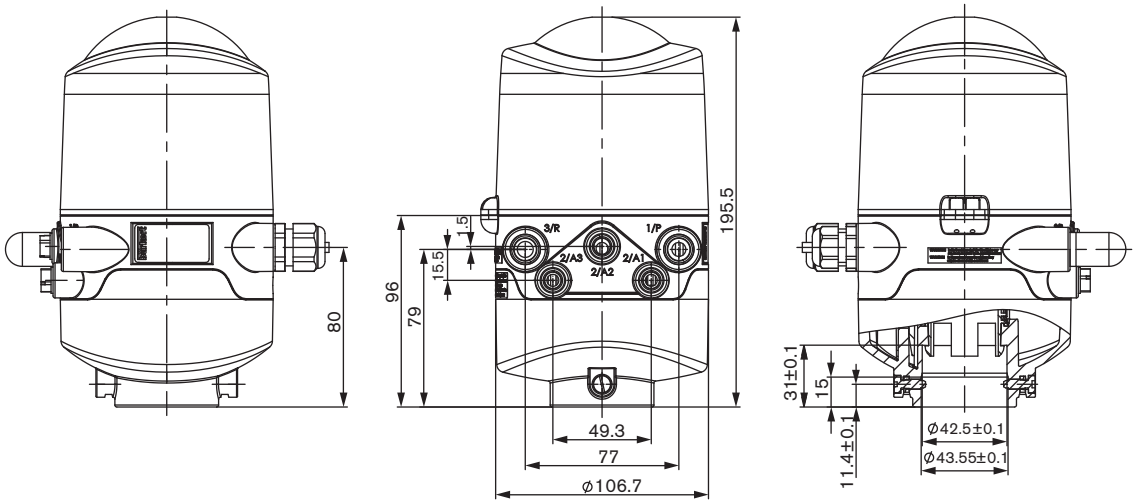
Version	Item no.
Silencer PE G 1/4 (spare part)	780 780
Blanking plugs PP G 1/8 (spare part)	770 901
Rotary push-in fitting, brass nickel-plated G 1/4 for Ø Tube 8/6	780 084
Rotary push-in fitting, brass nickel-plated G 1/8 for Ø Tube 6/4	780 082
Universal adaptor with O-ring	196 495
Position sensor target, stainless steel 1.4021	196 494
Magnetic tool for manual override	196 490
Cable 8 cm with 12 pin M12 plug for 24 V DC (spare part)	217 574
Cable 80 cm with 4 pin M12 plug for ASi (spare part)	217 572
Cable 8 cm with 4 pin M12 plug for ASi (spare part)	217 573
ASI- flat cable clip with stainless steel socket M12 (spare part)	799 646
Cable 80 cm with 5 pol M12 plug for DeviceNet (spare part)	218 187
USB adaptor kit PC communication	227 093
Bluetooth-adaptor kit smartphone-communication	196 497
Set of 20 lead seals; to impede toolless opening (spare part)	257 100

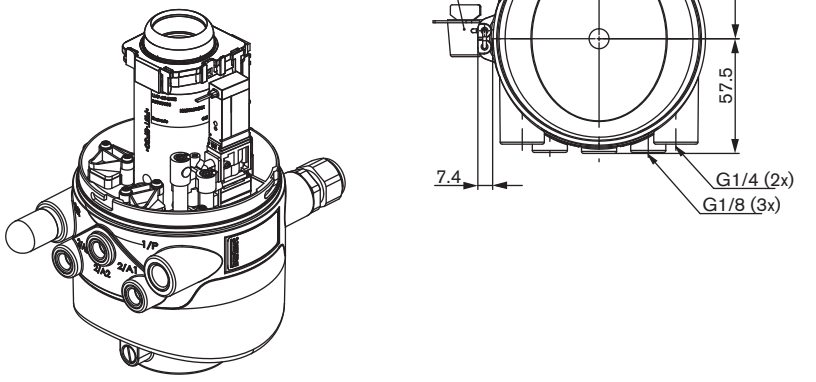
Dimensions [mm]



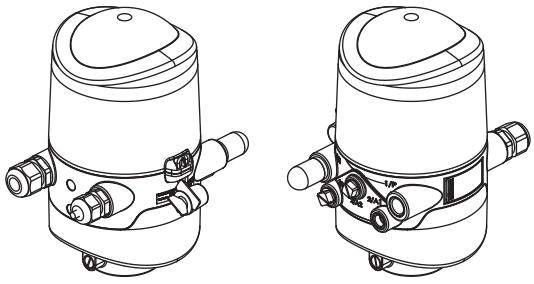
Dimensions [mm]

Feedback version (without pilot valves)



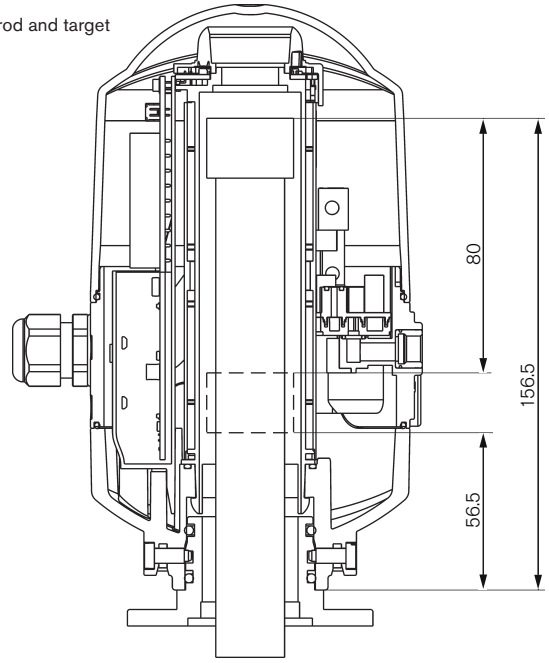


Ausführung: 1 bis 3 Ventile



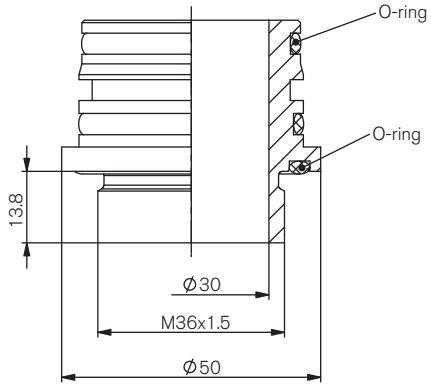
Dimensions [mm], continued

Measuring range of piston rod and target



Dimensions [mm], accessory

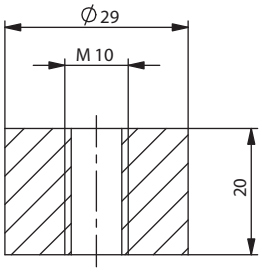
196 495
Universal VA-flange with O-ring

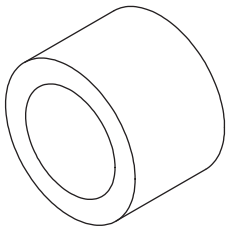


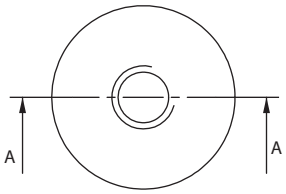
Manufacturing a customized flange adapter requires detailed drawing to ensure the control head functions and seals proper.

Version	Item no.
Universal VA flange with O-ring	196 495
Target for type 8681 (1.4021)	196 494

196 494
Target for type 8681 (1.4021)







M 1 : 1

To find your nearest Bürkert facility, click on the orange box →

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

Subject to alteration.

bürkert
FLUID CONTROL SYSTEMS

Pneumatic Control/Feedback

- Compact design
- Integrated pilot valve with manual override
- Internal control air routing
- Bright LED position indicator
- Automatic end position adjustment

Type 8697 can be combined with...

Type 2100
Angle seat valve

Type 2101
Globe seat valve

Type 2103
Diaphragm valve

Type 2000
Angle seat valve

The pneumatic control unit Type 8697 is optimised for integrated mounting on the ELEMENT 21XX process valve and CLASSIC 20xx series. Mechanical or inductive limit switches register the position of the valve. The integrated pilot valve controls single-acting actuators.

The design of the control unit and the actuator enables an internal control air routing without external tubings. Besides the electrical position feedback signal the status of the device is shown directly on the control head itself via LEDs.

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. 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
Cover	PC
Sealing	EPDM
Operating voltage *	
Pilot valve	24 V DC ±10% - residual ripple 10%, consumption 1 W
Micro switch	24V Version: 0 – 48 V AC/DC, max. 2A 230V Version: 50 – 250 V AC/DC, max. 2 A
Initiator	10 to 30 V DC - max.100 mA per initiator
Control medium	neutral gases, air quality class DIN ISO 8573-1
Dust concentration	Class 5: max. particle size 40 µm
Particle density	Class 5: max. particle density 10 mg/m³
Pressure condensation point	Class 3: max. -20 °C or min. 10 °C below the lowest operating temperature
Oil concentration	Class 5: max. 25 mg/m³
Supply pressure	3 to 7 bar [1]
Pilot air ports	Threaded ports G 1/8 or push-in connector (tube Ø 6 mm / 1/4")
Position feedback	2x micro switch (0 – 48 V AC/DC, max. 2A) 2x micro switch (50 – 250 V AC/DC, max. 2 A) 2x initiator (24 V DC), PNP shutter 3-wire 2x initiator NAMUR (8,2 V DC) (2-wire) 2x initiator (24 V DC), Schließer (2-wire)
Stroke range valve spindle	2 to 36 mm
Ambient temperature	
with/without pilot valve	0 to +55°C (II 3D Ex tc IIIC T135°C Dc, II 3G Ex nA IIC T4 Gc)
with/without pilot valve	0 to +55°C (II 2D Ex ia IIIC T135°C Db IP64, II 2G Ex ia IIC T4 Gb)
with pilot valve	-10 to +55°C (without ATEX or for II 2G Ex ia IIC T4 Gb)
without pilot valve	-20 to +60°C (without ATEX or for II 2G Ex ia IIC T4 Gb)
Installation	as required, preferably with actuator in upright position
Protection category	IP65 and IP67 according to EN 60529, Type 4X
Protection class	3 according to VDE 0580
Conformity	according to CE in compliance with EMV 2004/108/EG
Ignition protection	II 3D Ex tc IIIC T135°C Dc II 3G Ex nA IIC T4 Gc II 2D Ex ia IIIC T135°C Db IP64 II 2G Ex ia IIC T4 Gb
Approval	cULus certificate no. E238179
Electrical connection	
Multipole	M12, 8-pole
Cable gland	M16x1.5 SW22 (cable diameter 4 -8 mm), terminal screws 0.14 bis 1.5 mm²

* Supply voltage according to UL NEC Class 2 for versions with cULus approval.

[1] The supply pressure has to be 0.5 - 1 bar above the minimum required pilot pressure for the valve actuator.

Ordering information for process valve system with integrated pneumatic control unit

A complete process valve system consists of a pneumatic control unit Type 8697 and a process valve Type ELEMENT 21xx or CLASSIC 20xx.
The following information is necessary for the selection of a complete system:

- **Item no.** of the desired pneumatic control unit **Type 8697** (see Ordering chart)
- **Item no.** of the selected process valve **Type 21xx or Type 20xx**

If you order two components, you 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 for process valve systems

Pneumatic Control Unit Type 8697

Desired process valve, example

More info.

2100
Angle-seat valve

More info.

2103
Diaphragm valve

More info.

2000
Angle-seat valve

Complete process valve system

Process valve system
On/Off ELEMENT
Type 8801-YE-U
2100+8697

Process valve system
On/Off ELEMENT
Type 8801-DF-U
2103+8697

Process valve system
On/Off Classic
Type 8801-YA-U
2000+8697

Ordering chart (other versions on request)

End position feedback										Item no.	
Inductive Switch 3-wire PNP	Inductive Switch 2-wire NAMUR	Inductive Switch 2-wire 24V DC	Micro Switch 24V DC	Micro Switch 50-250V AC/DC	Electrical connection	ATEX / IECEx Cat. 3D/G Zone 22/2 [2]	ATEX / IECEx Cat. 2D/G Zone 21/1 [3]	ATEX/ IECEX Cat. 2G Zone 1 [4]	cULus	Pilot air ports threaded ports	Actuator series ELEMENT Type 21xx	Actuator series CLASSIC Types 20xx
Pneumatic Control Unit (pilot valve 3/2-way, single acting NO/NC)												
2					Cable gland				yes	G1/8	248 816	na
2									yes	G1/8 / M5	na	248 829
2						yes				G1/8	255 847	na
2						yes				G1/8 / M5	na	255 853
2					M12 connector	yes				G1/8	255 849	na
2						yes				G1/8 / M5	na	255 855
2									yes	G1/8	248 818	na
2									yes	G1/8 / M5	na	248 830
	2				Cable gland		yes			G1/8	248 822	na
	2						yes			G1/8 / M5	na	248 832
	2							yes		G1/8	255 862	na
	2							yes		G1/8 / M5	na	255 864
		2							yes	G1/8	248 814	na
		2							yes	G1/8 / M5	na	248 828
		2				yes				G1/8	255 845	na
		2				yes				G1/8 / M5	na	255 852
Without end position feedback					M12 Multipole				yes	G1/8	260 278	na
					Cable gland				yes	G1/8	260 279	na
						yes				G1/8	260 280	na
Feedback (without pilot valve)												
2					Cable gland				yes	G1/8	248 812	na
2									yes	without	na	248 827
2						yes				G1/8	255 843	na
2						yes				without	na	255 851
2					M12 connector	yes				G1/8	255 857	na
2						yes				without	na	255 858
2									yes	G1/8	250 471	na
2									yes	without	na	250 472
	2				Cable gland		yes			G1/8	248 820	na
	2						yes			without	na	248 831
	2							yes		G1/8	255 860	na
	2							yes		without	na	255 863
		2							yes	G1/8	248 810	na
		2							yes	without	na	248 826
		2				yes				G1/8	255 841	na
		2				yes				without	na	255 850
			2						yes	G1/8	248 824	na
			2						yes	without	na	248 833
				2					yes	G1/8	248 808	na
				2					yes	without	na	248 825

Note: cULus only valid for versions without ATEX approval

[2] II 3D Ex tc IIIC T135 / II 3G Ex nA IIC T4 Gc
[3] II 2D Ex ia IIIC T135°C Db IP64 / II 2G Ex ia IIC T4 Gb
[4] II 2G Ex ia IIC T4 Gb

Further versions on request

Approvals
FM

Additional
Feedback switchpoint NPN-coded
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 21xx	Pneumatic Control Unit / Feedback	Ø50mm	single acting / universal	682 259
Adapter kit CLASSIC Types 20xx	Pneumatic Control Unit	Ø40mm	single acting	698 573
	Pneumatic Control Unit	Ø50mm Seat valve types 2000 / 2012	single acting	682 255
	Pneumatic Control Unit	Ø50mm Diaphragm valve types 2030 / 2031	single acting	682 258
	Pneumatic Control Unit	Ø63mm [5]	single acting	682 256
	Feedback	Ø40mm	universal	698 573
	Feedback	Ø50/63/80mm	universal	682 264
	Feedback	Ø100/125mm	universal	682 265
	Feedback	Ø175/225mm	universal	684 944

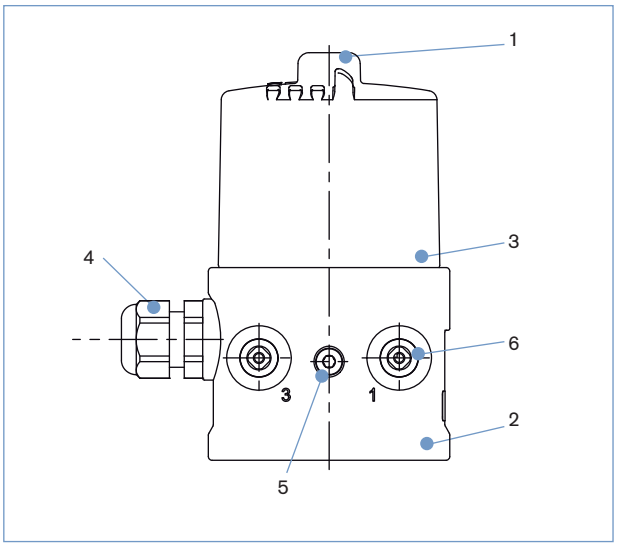
For installation kits to 3rd party process valves please see datasheet "Installation Kits for hygienic process valves" or contact your sales office for related drawings or individual engineering support

[5] When combining actuator size Ø 63 mm with 8697 CLASSIC reduced switching dynamics should be expected. Please choose Type 8690 for shorter response times.

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
Stroke limitation actuator CLASSIC Ø50/63mm	689 353
Stroke limitation actuator CLASSIC Ø80mm	689 354
Stroke limitation actuator CLASSIC Ø100/125mm	689 355

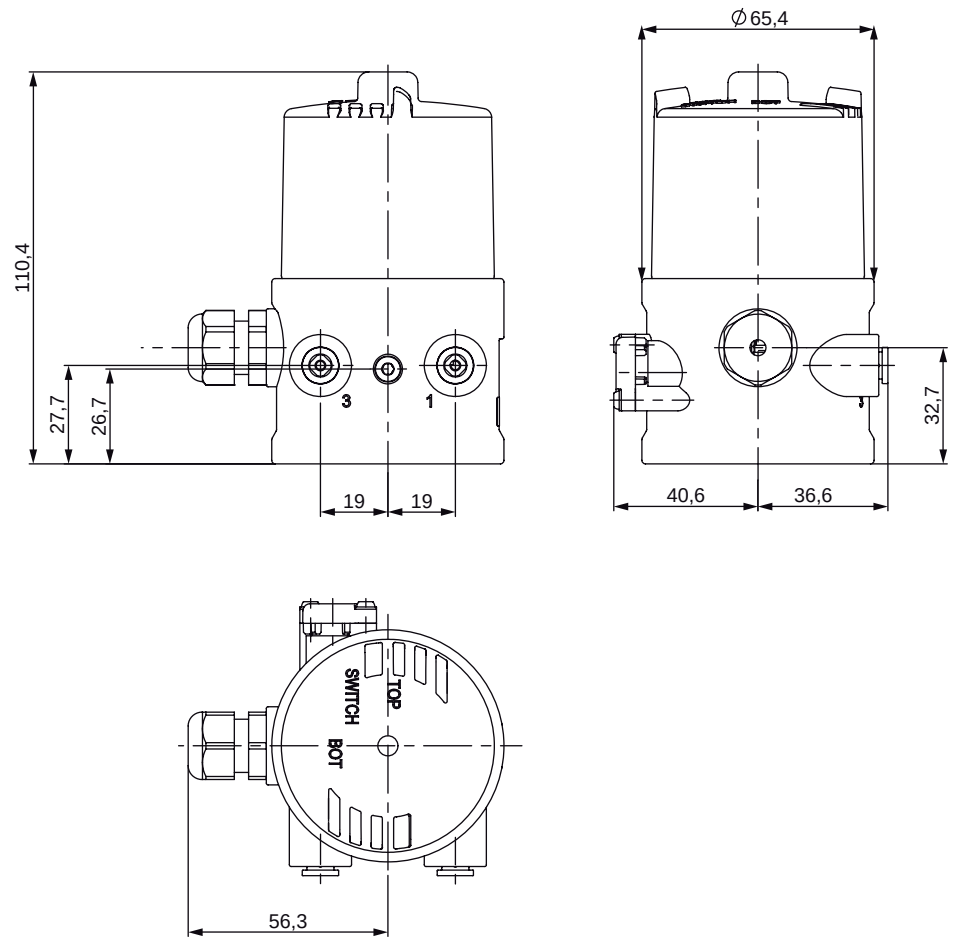
Materials



1	Transparent cap	PC
2	Basic body	PPS
3	Sealing	EPDM
4	Cable gland Plug M12	PA Brass nickel plated
5	Screws	Stainless steel
6	Push-in connector Threaded ports G1/8	POM / stainless steel stainless steel

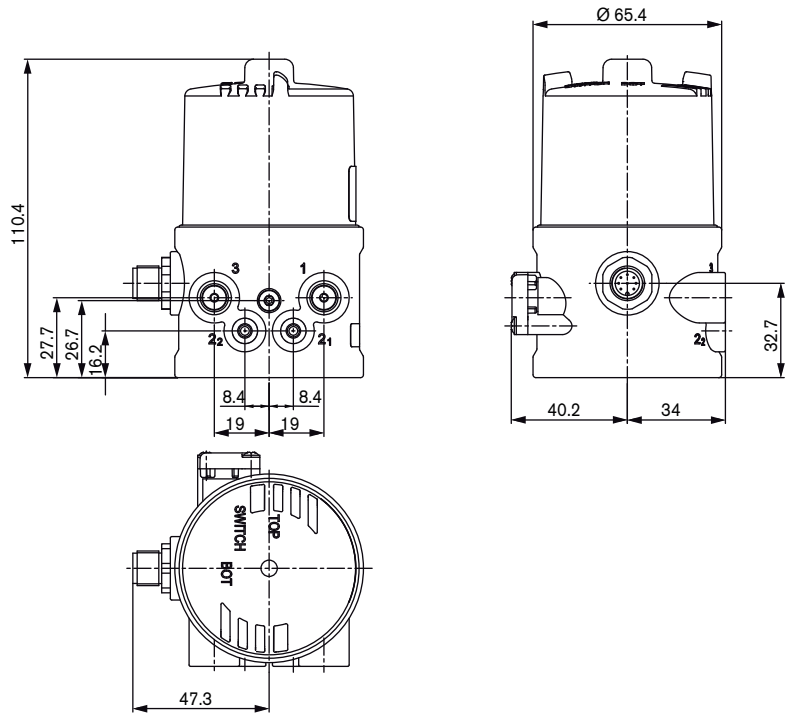
Dimensions [mm]

Pneumatic Control Unit/Feedback for mounting on process valve ELEMENT Types 21xx

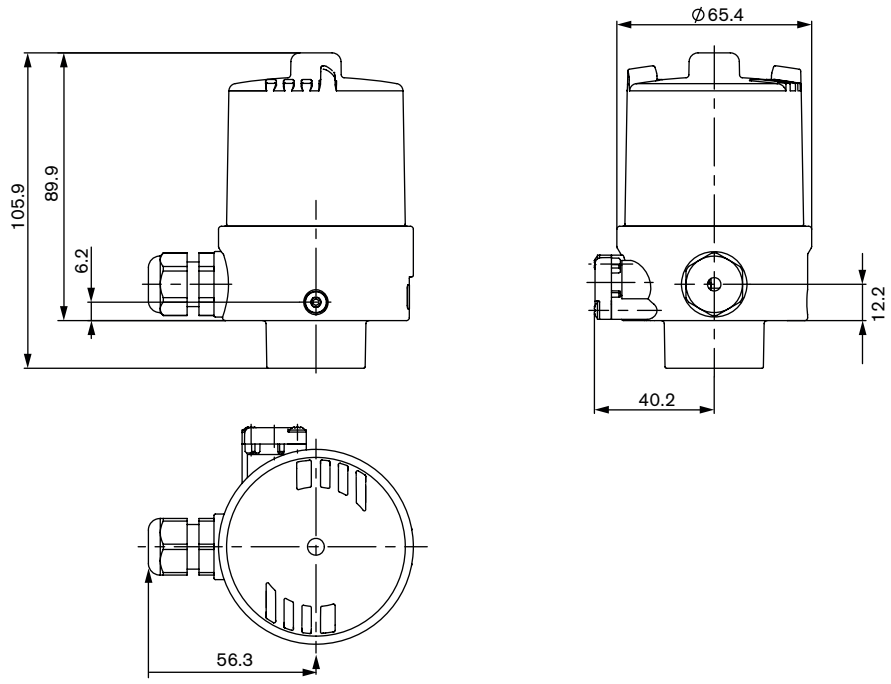


Dimensions [mm]

Control Unit for mounting on process valve CLASSIC Types 20xx

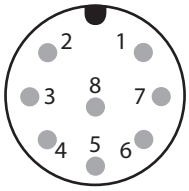


Feedback for mounting on process valve CLASSIC Types 20xx



Connection options

Multipole, plug M12 8-pins

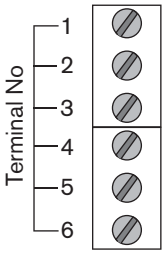


Plug configuration with 3-wire inductive switch, 24 V DC

Pin no.	Wire colour [6]	Configuration	External circuit
1	white	INI Bottom OUT Output 1	1 Output 1(24 V)
2	brown	INI Top OUT Output 2	2 Output 2 (24 V)
3	green	INI - (GND) Supply	3 GND
4	yellow	INI + (24 V DC) Supply	4 +24 V DC
5	grey	Valve control 0/24 V	5 0/24 V DC ±10%
6	pink	Valve control GND	6 Residual ripple 10%

[6] The indicated colours refer to the connecting cable available as an accessory (919 061)

Cable gland , M16 x 1.5 (cable-ø 10 mm), terminal screws (1.5 mm²)



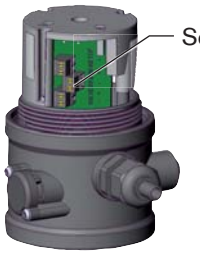
Port configuration with micro switch, 24 V DC / 250 V AC/DC

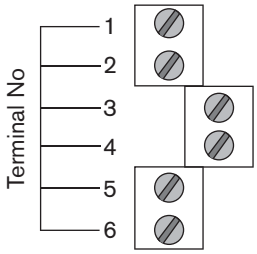
Terminal	Configuration	External circuit
1	Micro switch top	1 NO
2		2 NC
3		3 Joint connection
4	Micro switch bottom	4 NO
5		5 NC
6		6 Joint connection

Port configuration with 3-wire inductive switch, 24 V DC

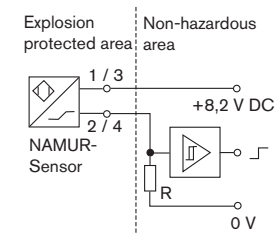
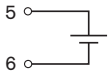
Terminal	Configuration	External circuit
1	INI + (24 V DC) Supply	1 +24 V DC
2	INI GND Supply	2 GND
3	INI Top OUT Output 1	3 Output 1
4	INI Bottom OUT Output 2	4 Output 2
5	Valve control 0/24 V DC	5 0/24 V DC ±10%
6	Valve control GND	6 Residual ripple 10%

Port configuration with 2-wire inductive proximity switches

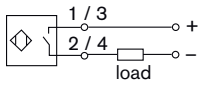
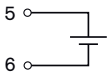




2-wire inductive proximity switches (NAMUR)

Terminal	Configuration	External circuit
1	INI Top +	 7)
2	INI Top -	
3	INI Bottom +	
4	INI Bottom -	
5	Valve control +	 8)
6	Valve control GND	

2-wire inductive proximity switches, 24 V

Terminal	Configuration	External circuit
1	INI Top +	
2	INI Top -	
3	INI Bottom +	
4	INI Bottom -	
5	Valve control +	
6	Valve control GND	

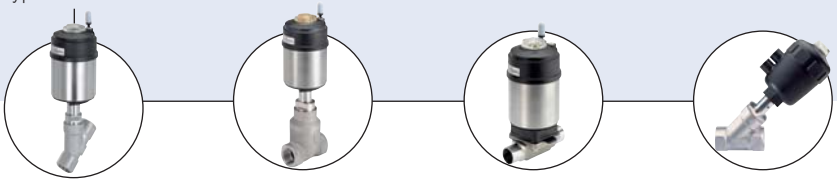
[7] (Acc. to NAMUR recommendation). Please note the prototype test certificate from Turck KEMA 02 ATEX 1090X
[8] Barrier signal, see PTB 07 ATEX 2048

bürkert
FLUID CONTROL SYSTEMS

Pneumatic Control Unit for the integrated mounting on process valves

- Compact design
- Integrated pilot valve with manual override
- Integrated control air routing
- Visual position indicator
- With ATEX II cat. 3G/D and cat. 2D/G approval

Type 8690 can be combined with...



Type 2100
Angle seat valve

Type 2101
Globe valve

Type 2103
Diaphragm valve

Type 2000
Angle seat valve

The pneumatic control unit Type 8690 is optimized for integrated mounting on the 21XX process valve series. Mechanical or inductive limit switches register the position of the valve. The integrated pilot valve controls single or double-acting actuators.

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 Unit itself.

The housing is easy to clean and features proven IP protection and chemically resistant materials for use in hygienic processing, in food, beverage and pharmaceutical industries. 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
Cover	PC
Sealing	EPDM
Operating voltage *	
Pilot valve	24 V DC ±10 % residual ripple 10 % DC Consumption 1W
Micro switch	max. 24 VDC, max. 2A
Initiator	10 to 24 VDC, max. 100mA ext. load per initiator According to Fieldbus specification
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)
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 connector (tube Ø 6 mm or 1/4")
Position feedback	1 or 2x micro switch (24 VDC) 1 or 2x initiator 3-wires (24 VDC) 1 or 2x initiator NAMUR (8 VDC) (ATEX II 2G Ex ia IIC T6)
Stroke range valve spindle	
Micro switch	7 to 28 mm
Initiator	2 to 28 mm
Ambient temperature	
with pilot valve	-10 to +55 °C
Without pilot valve	-20 to +60 °C
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
Conformity	EMC directive 2014/30/EU
Approvals	ATEX II cat. 3G/D and cat. 2D/G cULus Cert. No. 238179
Ignition protection:	II 3D Ex tc IIIC T135°C Dc II 3G Ex nA IIC T4 Gc II 2G Ex ia IIC T* Gb II 2D Ex ia IIIC T135°C Db IP64
Electrical connection	
Multipole	M12, 8-pole
Cable gland	M16x1,5 (cable-ø10mm), screw terminals (1,5mm²)

* Supply voltage according to UL NEC Class 2 for versions with cULus approval.

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

Ordering information for process valve system with integrated pneumatic control unit

A complete process valve system consists of a pneumatic control unit Type 8690 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 pneumatic control unit **Type 8690** (see Ordering chart on p. 3)
- **Item no.** of the selected 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.

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 for process valve systems

Pneumatic control unit Type 8690

Desired process valve, example

Mehr Infos

2100
Angle seat valve

Mehr Infos

2103
Diaphragm valve

Mehr Infos

2000
Angle seat valve

Complete process valve system

Valve system On/Off ELEMENT Type 8801-YE-K 2100 + 8690

Valve system On/Off ELEMENT Type 8801-DF-K 2103+8690

Valve system On/Off CLAS-SIC Type 8801-YA-K 2000 + 8690

Ordering chart pneumatic control unit Type 8690 (other versions on request)

End position feedback			Electrical connection	Control function	Pilot air ports threaded ports	Item no.		
Inductive switch 24 VDC PNP	Inductive switch NAMUR 2-wire 8V DC Ex ia IIC T6	Micro switch 24V DC				Standard	ATEX II cat. 3G/D	ATEX II cat. 2G/D
Actuator series ELEMENT Type 21XX process valves								
2			M12 multipole	single-acting	G1/8	227 222	264 968	
2				double-acting	G1/8	264 939	264 957	
2					G1/8	227 190	264 949	
2			Cable gland	single-acting	G1/8	227 220	264 967	
2				double-acting	G1/8	264 941	264 956	
2					G1/8	227 189	264 948	
1			M12 multipole	single-acting	G1/8	227 218	264 964	
1				double-acting	G1/8	264 940	264 953	
1					G1/8	265 151	264 945	
1			Cable gland	single-acting	G1/8	227 216	264 963	
1				double-acting	G1/8	264 942	264 952	
1					G1/8	265 154	264 944	
	2			single-acting	G1/8			265 143
	2			double-acting	G1/8			265 144
	2				G1/8			265 142
		2	M12 multipole	single-acting	G1/8	227 234		
		1			G1/8	227 230		
		2	Cable gland	single-acting	G1/8	227 232		
		2			G1/8	227 195		
without end position feedback			Cable gland	single-acting	G1/8	225 883	264 961	
				double-acting	G1/8	265 156	265 935	
Actuator series CLASSIC Type 20XX process valves								
2			M12 multipole	single-acting	G1/8	227 226	264 970	
2				double-acting	G1/8	265 148	264 959	
2						227 193	264 951	
2			Cable gland	single-acting	G1/8	227 224	264 969	
2				double-acting	G1/8	227 207	264 958	
2						227 192	264 950	
1			M12 multipole	single-acting	G1/8	265 149	264 966	
1				double-acting	G1/8	265 150	264 955	
1						228 286	264 947	
1			Cable gland	single-acting	G1/8	265 152	264 965	
1				double-acting	G1/8	265 153	264 954	
1						227 188	264 946	
	2			single-acting	G1/8			265 146
	2			double-acting	G1/8			265 147
	2							265 145
		2	M12 multipole	single-acting	G1/8	227 238		
		2				227 200		
		1				228 282		
		2	Cable gland	single-acting	G1/8	227 236		
		2		double-acting	G1/8	227 213		
		2				227 198		
without end position feedback			Cable gland	single-acting		265 936	264 962	

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")

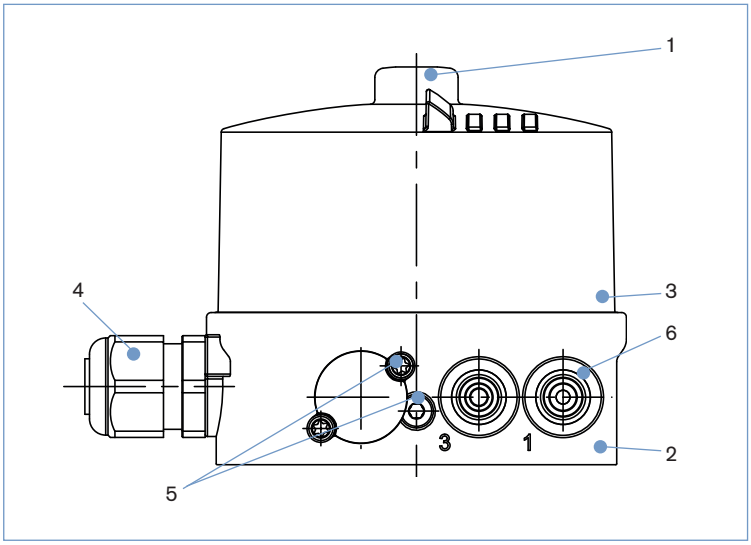
Ordering chart adapter kit (has to be ordered separately)

Description	Actuator size	Control function	Item no.
Adapter kit ELEMENT Type 21XX	Ø70/90/130 mm	Universal	665 720
Adapter kit CLASSIC Type 20XX	Ø63 mm	Universal	673 262
		feedback (without pilot valve)	677 203
	Ø80 mm	universal	673 263
		feedback (without pilot valve)	677 204
	Ø100 mm	Universal	673 264
		feedback (without pilot valve)	677 205
	Ø125 mm	Universal	674 513
		feedback (without pilot valve)	677 205
	Ø175/225 mm	Universal	see Control Unit, Type 8691
		feedback (without pilot valve)	see Control Unit, Type 8697

Accessories

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

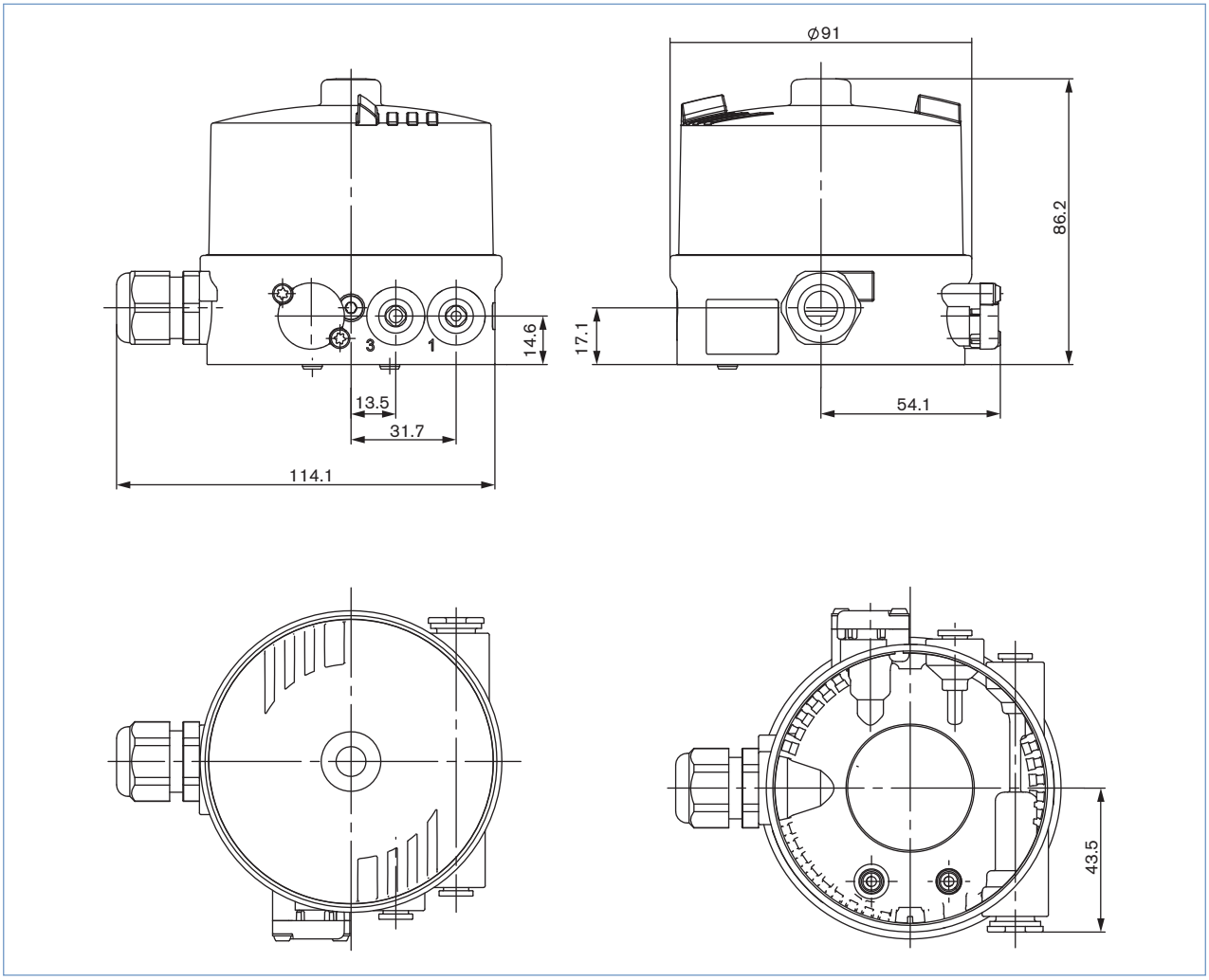
Materials



1	**Transparent cap**	PC
2	**Basic body**	PPS
3	**Sealing**	EPDM
4	**Cable connection**	PA
	Plug	M12 Stainless steel
5	**Screws**	Stainless steel
6	**Push-in connector**	POM/Stainless steel
	Threaded ports G1/8	Stainless steel

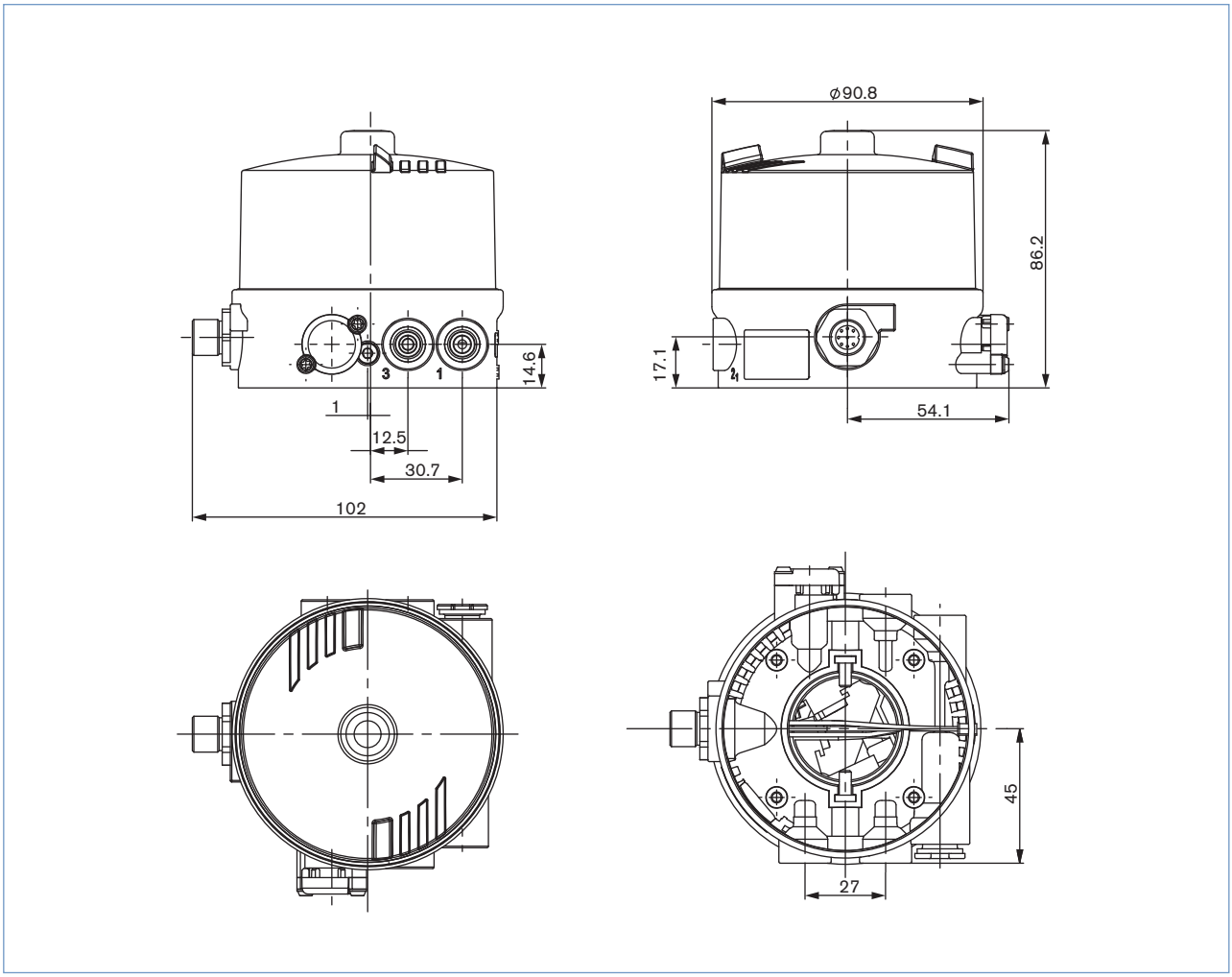
Dimensions [mm]

Mounting on process valve, ELEMENT Type 21XX



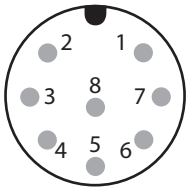
Dimensions [mm]

Mounting on process valve, CLASSIC Type 20XX



Connection options

Multipole, plug M12 8-pins



Plug configuration 24 V with micro switch

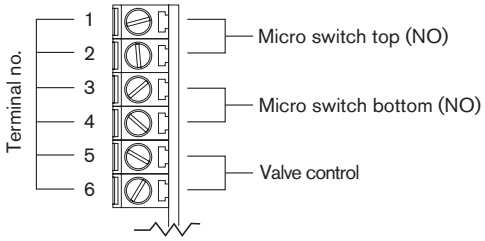
Pin no.	Configuration	External Circuitry
1	Micro switch top (NO)	Micro switch top (NO)
3		Micro switch top (NO)
2	Micro switch bottom (NO)	Micro switch bottom (NO)
4		Micro switch bottom (NO)
5	Valve control 0/24 V	0/24 V DC ± 10 % Residual ripple 10 %
6	Valve control GND	
7	Not configured	
8	Not configured	

Plug configuration with initiator

Pin no.	Configuration		
1	INI 1	OUT	Output
2	INI 2	OUT	Output
3	INI -	(GND)	Supply
4	INI +	(24 V DC)	Supply
5	Valve control	0 / 24 V DC	
6	Valve control	GND	

Cable gland

M16 x 1,5 (cable-ø 10 mm), screw terminals (1,5 mm²)



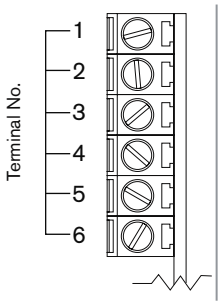
Port configuration 24 V with micro switch

Pin no.	Configuration	External Circuitry
1	Micro switch top (NO)	1 Micro switch top (NO)
2		2 Micro switch top (NO)
3	Micro switch bottom (NO)	3 Micro switch bottom (NO)
4		4 Micro switch bottom (NO)
5	Valve control 0/24 V	5 0/24 V DC ± 10 % Residual ripple 10 %
6	Valve control GND	6

Port configuration with initiator

Clamp no.	Configuration		
1	INI -	(GND)	Supply
2	INI 1	OUT	Output
3	INI 2	OUT	Output
4	INI +	(24 V DC)	Supply
5	Valve control	0 / 24 V DC	
6	Valve control	GND	

Port configuration with 2-Wire inductive proximity switches NAMUR



Clamp no.	Configuration	External Switching
1	INI Top +	Ex protection area / non-explosive area 1 / 3 +8,2 V DC 2 / 4 NAMUR-Sensor R 0 V 1)
2	INI Top -	
3	INI Bottom +	
4	INI Bottom -	
5	Valve control +	5 6 2)
6	Valve control GND	

Tab. 4: Pin Assignment with 2 Wire initiator

[1] (acc. to Namur recommendation) also note the certificate of Fa. Turck KEMA 02 ATEX 1090X

[2] Signal from barriers see PTB 07 ATEX 2048

bürkert
FLUID CONTROL SYSTEMS

Control Head for the integrated mounting on process valves

- Contact-free inductive valve position registration (Teach function)
- Coloured illuminated status display
- Integrated control air routing
- Fieldbus AS-Interface or 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 Control Head Type 8691 is optimized 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 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, quality classes acc. to ISO 8573-1 Class 7 (<40µm particle size) Class 5 (<10mg/m³) Class 3 (<-20°C) Class X (<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 acc. to DIN EN 61140
Fieldbus communication	AS-Interface, DeviceNet
Conformity	EMC directive 2014/30/EU
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.

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)

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 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)

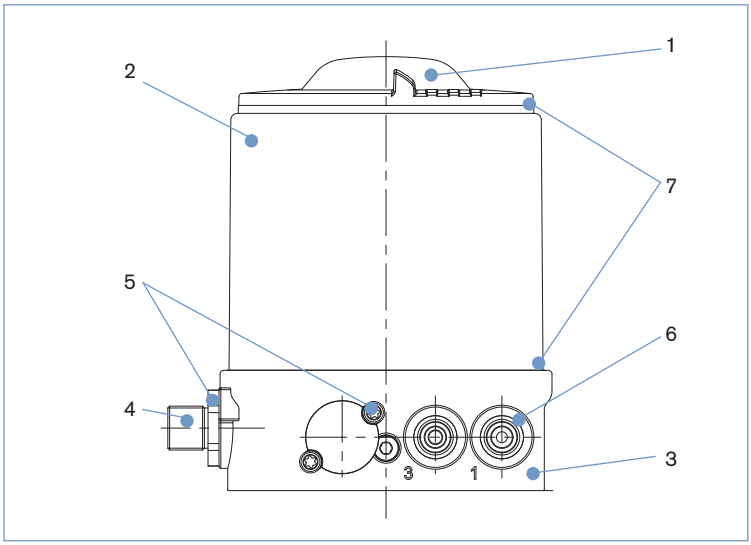
Description	Actuator size	Control function	Item no.
Adapter kit ELEMENT Type 21XX	Ø70 / 90 / 130mm	universal	679 917
Adapter kit CLASSIC Types 20XX	Ø63 mm	universal	679 921
		8691 feedback (without pilot valve)	679 937
	Ø80 mm	universal	679 922
		8691 feedback (without pilot valve)	679 938
	Ø100 mm	universal	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, 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

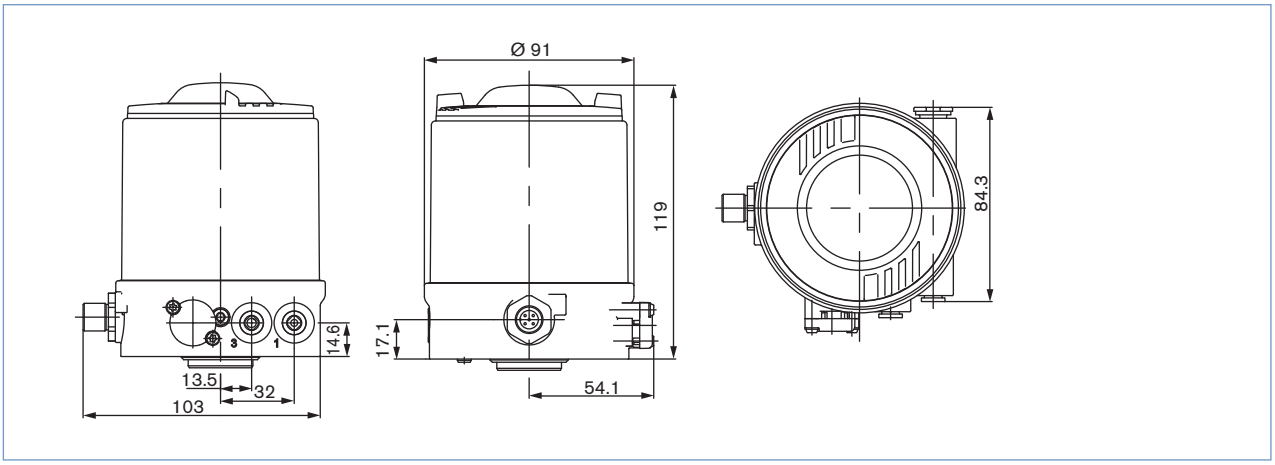
Materials



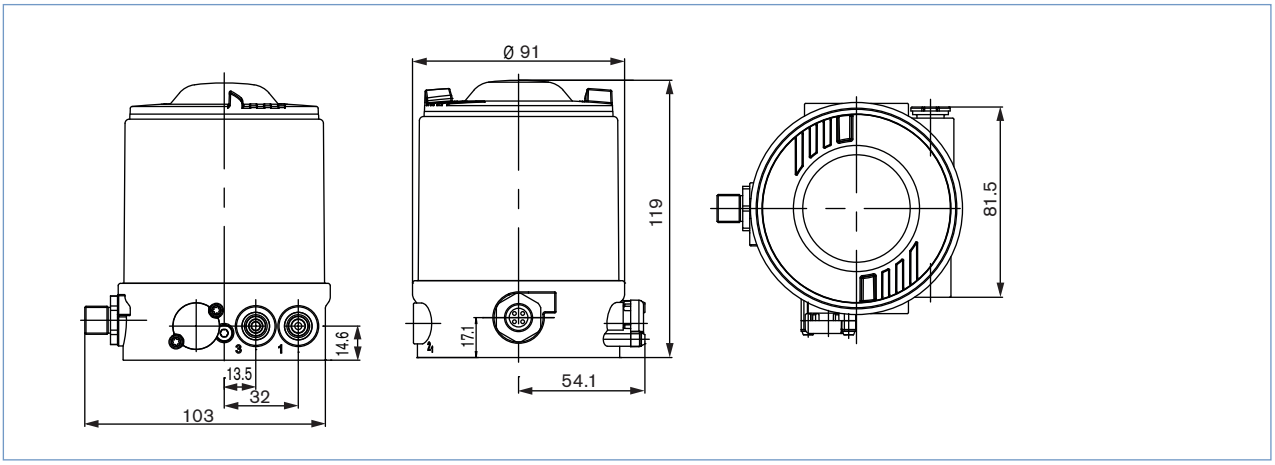
1	**Cover**	PC
2	**Housing**	Stainless steel
3	**Basic body**	PPS
4	**Plug M12**	Stainless steel
5	**Screws**	Stainless steel
6	**Push-in connector** **Threaded ports G1/8**	POM/Stainless steel Stainless steel
7	**Sealing**	EPDM

Dimensions [mm]

Mounting on process valve ELEMENT Types 21XX



Mounting on process valve CLASSIC Types 20XX



Mounting on 3rd party hygienic process valves

More info.

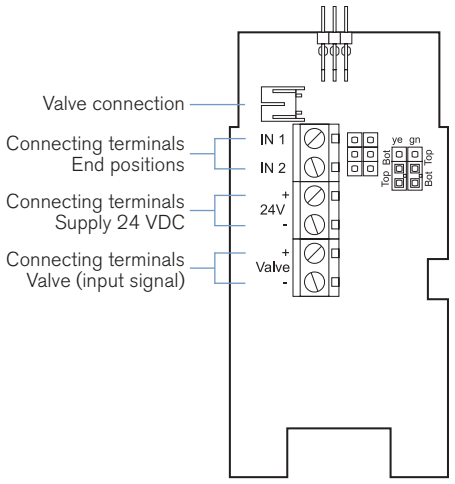
Type 8681

*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

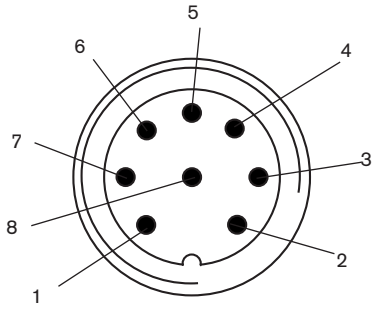
Without fieldbus communication

Cable gland



24 V DC

Multipole connection M12, 8-pins



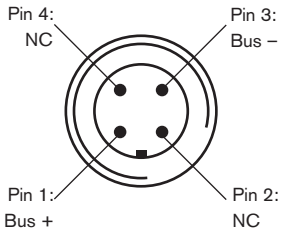
Pin	Description	Configuration
1	Limit switch 1	IN 1 / TOP
2	Limit switch 2	IN 2 / BOTTOM
3	Power supply	GND
4	Operating voltage +	24 V DC
5	Valve control +	Valve +
6	Valve control -	Valve
7	n.a.	not assigned
8	n.a.	not assigned

Connection options, continued

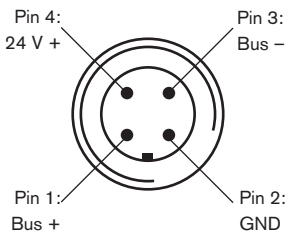
With fieldbus communication AS-Interface

Version with Multipole fitting connector

AS-Interface M12 4-pins

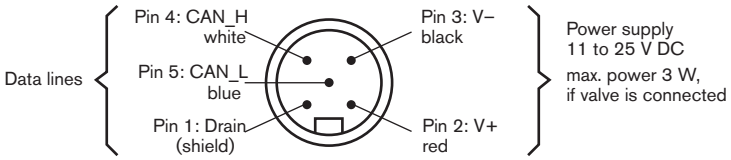


AS-Interface M12 4-pins, external supply



Version with flat cable clip

With fieldbus communication DeviceNet



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bürkert
FLUID CONTROL SYSTEMS

Control Head for the integrated mounting on process valves

- Contact-free inductive valve position registration (Teach function)
- Coloured illuminated status display
- Internal control air routing
- Fieldbus AS-Interface or DeviceNet (option)
- With ATEX II cat. 3G/D approval

Type 8695 can be combined with…

Type 2101
Globe valve
actuator ø 50 mm

Type 2100
Angle-seat valve
actuator ø 50 mm

Type 2103
Diaphragm valve
actuator ø 50 mm

Type 2000

Hygienic process valves

The control head Type 8695 is optimized for integrated mounting on the 21XX process valve series with smaller actuator sizes. The registration of the valve 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.

The design of the control unit and the actuator is specially designed for the requirements of a hygienic process environment and 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 LEDs showing a clear visible valve position status. As an option a fieldbus interface, AS-Interface, can be chosen.

The housing is easy to clean and features proven IP protection and chemically resistant materials for use in hygienic processing in food, beverage and pharmaceutical industries. 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, quality classes acc. to ISO 8573-1
Dust concentration	Class 7 (<40 µm particle size)
Particle density	Class 5 (<10 mg/m³)
Pressure condensation point	Class 3 (<-20 °C)
Oil concentration	Class X (<25 mg/m³)
Supply pressure	0 to 7 bar [1]
Actuator system	for single or double-acting actuators
Actuator series 21XX	actuator ø 50 mm
Pilot air ports	Threaded ports G1/8 stainless steel or push-in connector (tube Ø 6mm / 1/4")
Position feedback	Analog position sensor (contact-free) with autotune switchpoint (PNP) (NPN on request)
Stroke range valve spindle	2,5 to 32 mm
Ambient temperature	
with pilot valve	-10 to +55 °C
Without pilot valve	-20 to +60 °C
Installation	as required, preferably with actuator in upright position
Protection type	IP 65/67 according 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
Fieldbus communication (option)	AS-Interface / DeviceNet
Conformity	EMC directive 2014/30/EU

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

DTS 1000110880 EN Version: I Status: RL (released | freigegeben | validé) printed: 04.03.2016

Technical data, continued

Without fieldbus communication

Technical data	
Power supply	24 VDC ±10% UL: NEC Class 2
Residual ripple with DC	10%
Power consumption	< 2W
Electrical connection Multipole	 M12, 8-pole
Output	max. 100 mA per output

With fieldbus communication; AS-Interface

Technical data	
Profile	S-B.A.E. (A/B slave, max. 62 slaves/master) Certificate No. 87301 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)	 120 mA 90 mA
Output Contact rating Watch-dog function	 ≤ 1W over AS-Interface integrated
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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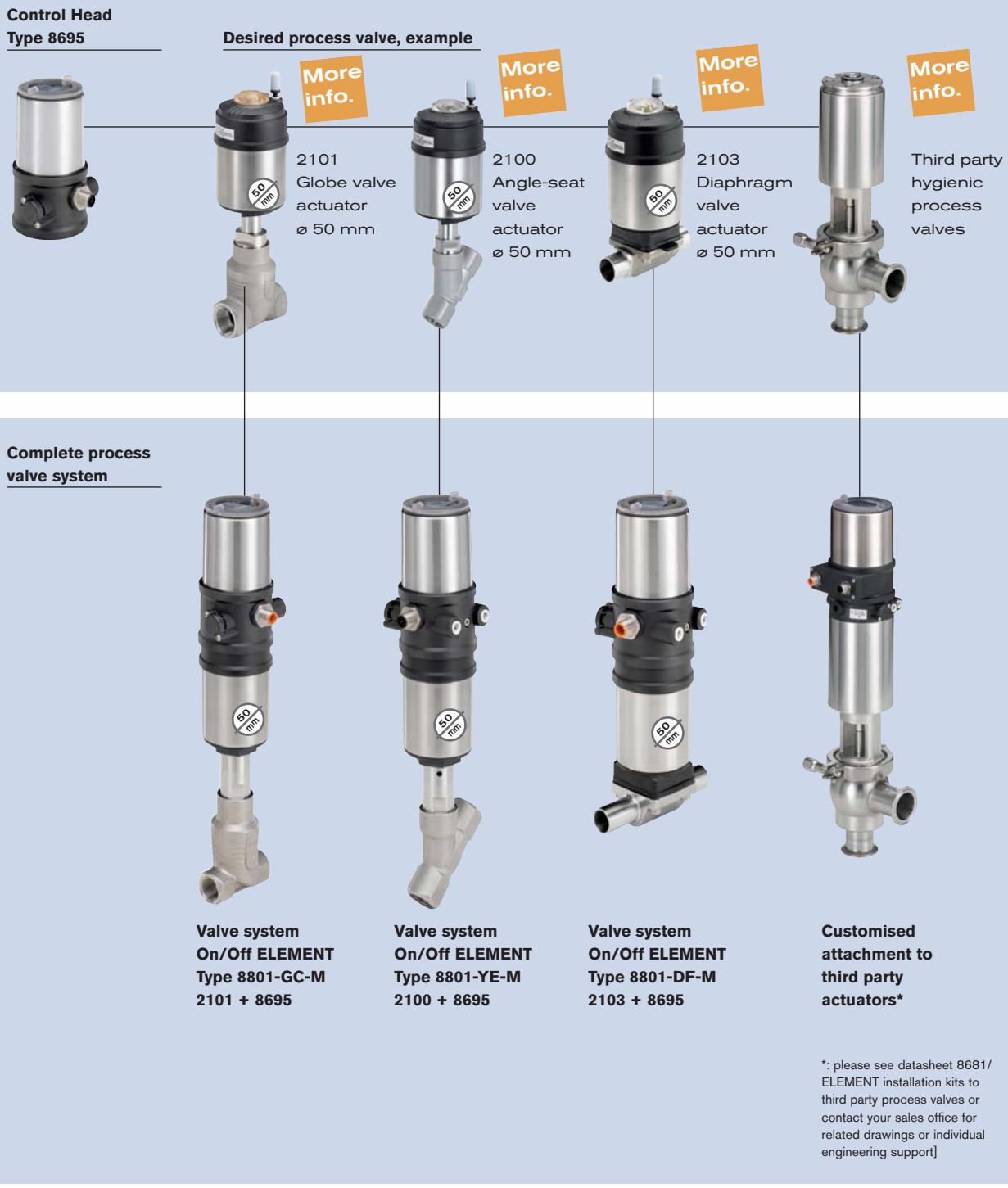
Ordering information for process valve system with integrated control head

A complete process valve system consists of a Control Head Type 8695 and a process valve Type 21XX.
The following information is necessary for the selection of a complete system:
- **Item no.** of the desired control head **Type 8695** (see ordering chart on p. 4)
- **Item no.** of the desired process valve **Type 21XX**
(see separate datasheet e.g. Type 2100, 2101, 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 for process valve systems



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

DTS 1000110880 EN Version: I Status: RL (released | freigegeben | validé) printed: 04.03.2016

Ordering chart Control Head Type 8695 (other versions on request)

Electrical connection	Kommuni-kation	Control function	Pilot air ports threaded ports	Item no.	
Actuator series ELEMENT Type 21XX process valves				**Standard**	**ATEX II cat. 3G/D**
M12 multipole	AS-Interface S-B.A.E	single-acting	G1/8	227 444	265 075
		double-acting	G1/8	227 440	265 069
	DeviceNet	single-acting	G1/8	238 724	265 076
		double-acting	G1/8	265 081	265 070
		single-acting	G1/8	227 446	265 077
		double-acting	G1/8	227 442	265 071
			G1/8	234 246	265 067
Actuator series CLASSIC Type 20XX Prozessventile					
M12 multipole	AS-Interface S-B.A.E	single-acting	G1/8	223 896	265 078
		double-acting	G1/8	223 906	265 072
	DeviceNet	single-acting	G1/8	238 726	265 079
		double-acting	G1/8	238 727	265 073
		single-acting	G1/8	223 895	265 080
		double-acting	G1/8	223 905	265 074
				265 938	265 068

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 Types 21XX	Ø50 mm	universal	679 918
Adapter kit CLASSIC Types 20XX	Ø40 mm	universal	683 057
Adapter kit CLASSIC Types 20XX Globe and angle seat valves 2012/2000 Diaphragm valve 2030/2031	Ø50 mm	universal	 683 058 683 059
Adapter kit CLASSIC Types 20XX	Ø63 mm [1]	universal	683 060

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

[1] When combining actuator size Ø 63 mm with 8695 CLASSIC reduced switching dynamics should be expected. Please choose Type 8691 for shorter response times.

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
Silencer G1/8	780 779
Silencer, push-in connector	902 662
Sensor puck (spare part)	677 245

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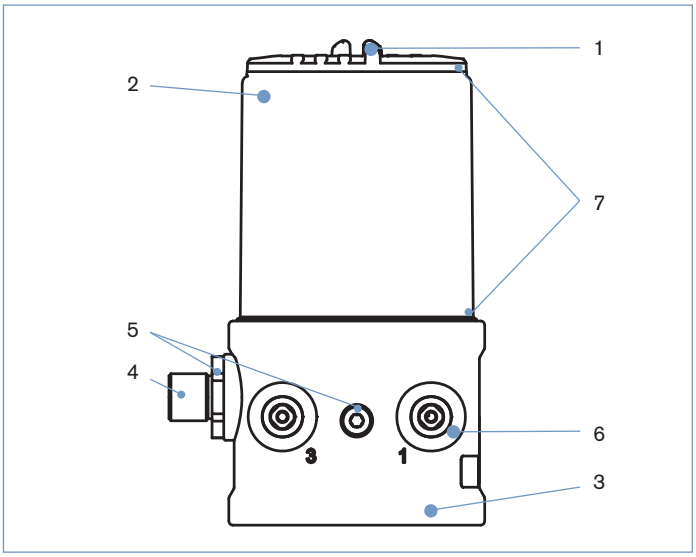
Materials



1	**Cover**	PC
2	**Body casing**	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

Mounting on third party hygienic process valves

More info.

*: 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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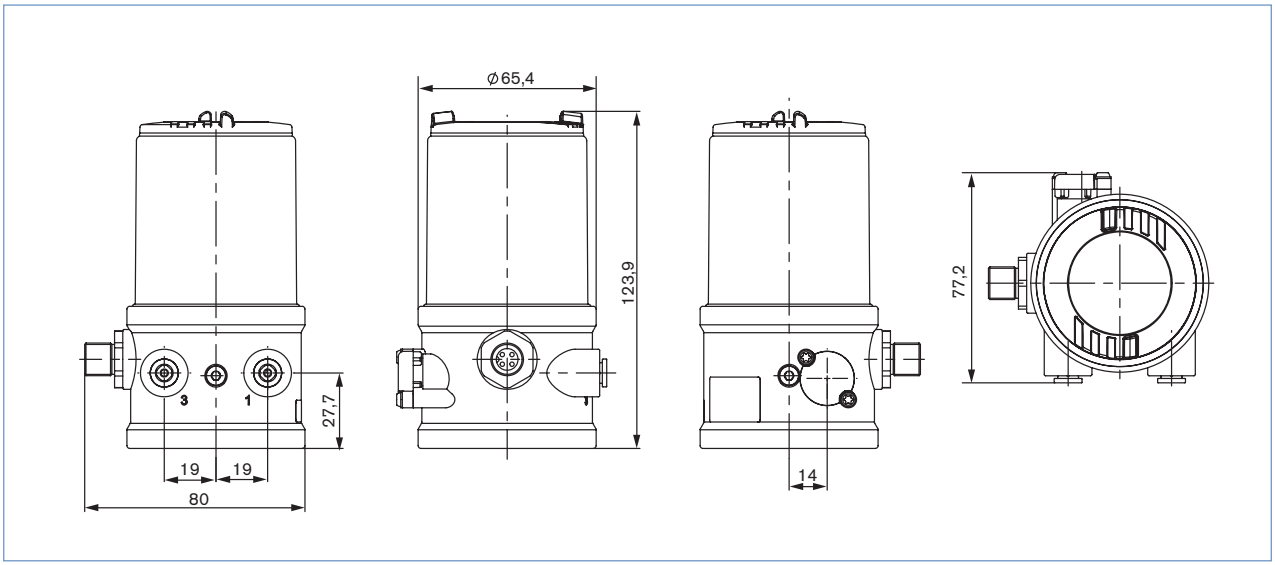
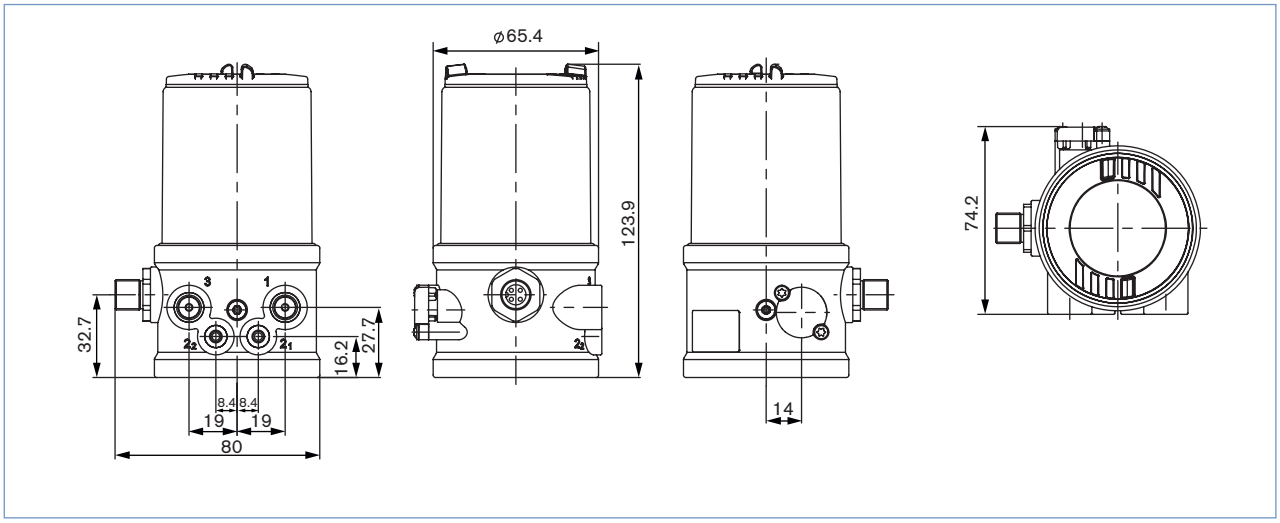
Dimensions [mm]

Mounting on process valve ELEMENT Types 21XX



Mounting on process valve CLASSIC Types 20XX



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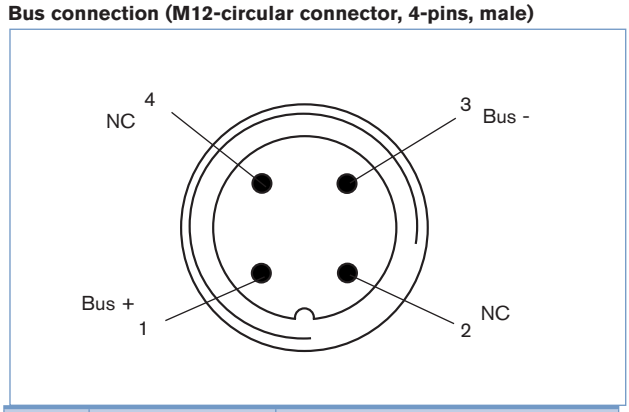
Electrical installation

AS-Interface

Multipole connection AS-Interface

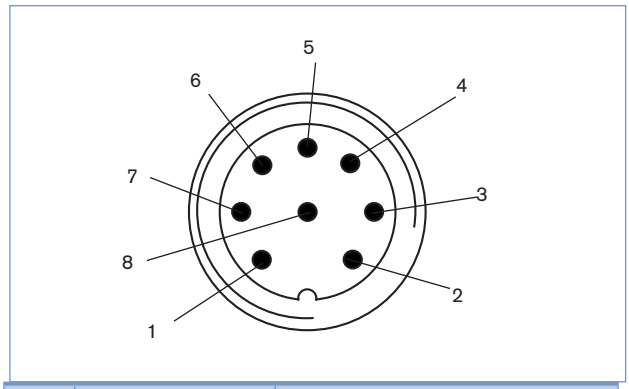
Bus connection (M12-circular connector, 4-pins, male)



Pin	Description	Configuration
1	Bus +	bus line AS-Interface +
2	NC	not assigned
3	Bus -	bus line AS-Interface -
4	NC	not assigned

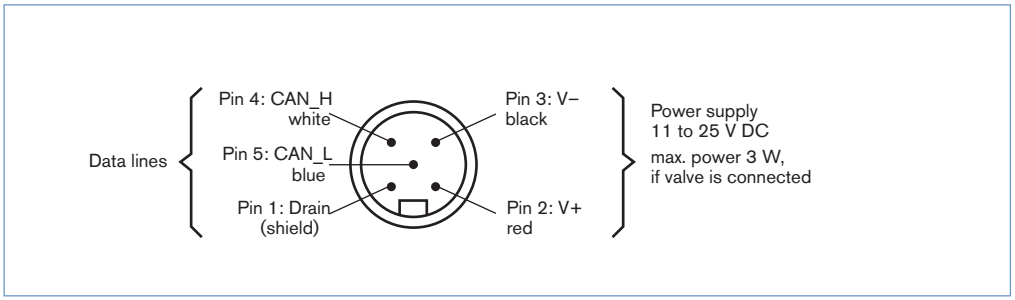
24 V DC

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

With fieldbus communication DeviceNet



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