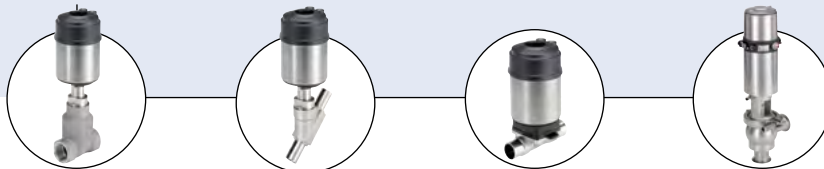


Digital electropneumatic positioner for the integrated mounting on process control valves



- Compact, robust stainless steel design
- Start-up by automatic Tune function
- Contact-free position sensor
- Integrated control air routing
- AS-Interface, IO-Link or Bürkert System bus (bÜS)

Type 8694 can be combined with...



Type 2301

Globe control valve

Type 2300

Angle-seat control valve

Type 2103

Diaphragm control valve

Hygienic process control valves

Compact positioner for integrated mounting on pneumatically operated process valves. Remote setpoint adjustment via a 4-20 mA signal or through fieldbus. A contact-free analog position sensor measures the position of the valve spindle. Simple installation through automatic tune function and setting through DIP-switch:

- Close tight function
- Characteristic curves selection
- Reversal of effective direction
- Switching manual /automatic operation
- Binary input

Additional parametrisation options are possible through DTM devices or Bürkert COMMUNICATOR software tool. A software interface can be used for, amongst others, linearisation of the operation characteristics by using free programmable fixed points. The valve position indication is shown through LED components. As an option an analogue position feedback can be integrated.

Technical Data	
Material	Body PPS, stainless steel Cover PC Sealing EPDM
Power supply	24 V DC ± 10 % UL: NEC Class 2
Residual ripple	max. 10 %
Setpoint setting	4 to 20 mA (0 to 20 mA adjustable via communication interface)
Output resistance	75 Ω
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)
Ambient temperature	-10 to + 60 °C
Pilot air ports	Threaded ports G 1/8 stainless steel or push-in connector (tube Ø 6 mm / 1/4")
Supply pressure	Low air flow rate 0 to 7 bar ¹⁾ High air flow rate 3 to 7 bar
Air input filter	Exchangeable (mesh aperture-0.1 mm)
Actuator system	Actuator series ELEMENT 23xx Low air flow rate : Ø Actuator 70 / 90 mm High air flow rate: Ø Actuator 130 mm
Position detection module	Contact-free, wear-free
Stroke range valve spindle	3 to 45 mm
Installation	as required, preferably with actuator in upright position
Protection type	IP65/IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard
Protection class	3 acc. to DIN EN 61140
Approvals	ATEX $\text{Ex tc IIIC T135 °C Dc} / \text{Ex II 3G Ex ec IIC T4 Gc}$ Certificate; BVS 14 ATEX E 008 X IECEX $\text{Ex tc IIIC T135 °C Dc} / \text{Ex ec IIC T4 Gc}$ Certificate; IECEX BVS 14.0009 X UL cULus Certificate; E238179
Ignition protection	II 3D Ex tc IIIC T135 °C Dc II 3G Ex ec IIC T4 Gc
Conformity	EMC directive 2014/30/EU
Options	Analogue position feedback, 4-20 mA
Fieldbus interface	AS-Interface, IO-Link, bÜS-Bürkert System Bus (based on CANopen)

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

Technical data - cont.

Without fieldbus communication	
Power supply	24 V DC \pm 10 % UL: NEC Class 2
Risidual ripple	10 %
Power consumption	<3.5 W
Electrical connection	
Multipole	M12 (8 pin), stainless steel
Cable gland	M16 x 1.5 (cable \varnothing 5...10 mm) with screw terminals for cable cross-sections 0.14...1.5 mm ² .
With fieldbus communication; AS-Interface	
Profile	S-7.3.4 Output: 16 Bit setpoint / Certificate no. 87301 acc. to Version 3.0 S-7.A.5 Output: 16 Bit setpoint; Input: 16 Bit feedback / Certificate no. 95401 acc. to version 3.0
Programmed Information	see operating instructions
Power supply through bus line	29.5 to 31.6 V DC acc. to specification UL: NEC Class 2
Max. Current consumption	150 mA
Electrical connection	M12 x 1, 4 pin stainless steel plug assembled to 80 cm cable and flat cable clip
With digital communication; IO-Link	
IO-Link Specification	V1.1.2
SIO-Mode	no
VendorID	0x0078
DeviceID	0x0021F601
Transmission rate	COM 3 (230.4 kbit/s)
Data storage	yes
Max. cable length	20 m
Port class	B
Electrical connection	M12 x 1, 5 pin, A-coded
Operating voltage	18 to 30 V DC (acc. to specification)
Power supply	via IO-Link
Power consumption	
System supply (Pin 1+3)	max. 50 mA
Actuator supply (Pin 2+5)	max. 100 mA
With digital communication; Bürkert System bus (būS)	
Electrical connection	M12 x 1, 5 pin, A-coded
Operating voltage	18 to 30 V DC (acc. to specification)
Power consumption	max. 150 mA

Ordering information for ELEMENT TopControl control valve systems

A TopControl control valve system consists of a **BASIC positioner Type 8694** and an **ELEMENT control valve Type 23xx/2103**.

The following information is necessary for the selection of a complete system:

- **Article no.** of the BASIC TopControl positioner **Type 8694** (see ordering chart on p. 4)
- **Article no.** of the desired control valve **Type 23xx** (see separate datasheet 2300, 2301 2103)

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 of variations of control valve systems

BASIC positioner Type 8694

Pneumatic process control valves



Control valve system



**Control valve system
ELEMENT
Type 8802-GD-L
2301 + 8694**

**Control valve system
ELEMENT
Type 8802-YG-L
2300 + 8694**

**Control valve system
ELEMENT
Type 8802-DF-L
2103 + 8694**

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

More info.

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

Ordering chart Type 8694 (other versions on request)

Control function Pilot valve system	Communication	Electrical connection	Analogue feedback	Pilot air ports threaded ports	Article no.	
Actuator series ELEMENT Type 23xx, size Ø 70/90 mm					Standard	ATEX II Kat. 3G/D, IECEx
Low air capacity single-acting		M12 multipole	–	G 1/8	227405	265046
			yes	G 1/8	227406	265047
		Cable gland	–	G 1/8	227401	265044
			yes	G 1/8	227402	265045
	AS-Interface S-7.A.5	M12 connector /flat cable clip / 80 cm cable	16 Bit via Bus	G 1/8	239615	265043
	IO-Link	M12 multipole	via Bus	G 1/8	323232	– ^{1.)}
Bürkert system bus (bùS)	M12 multipole	via Bus	G 1/8	323236	– ^{1.)}	
Actuator series ELEMENT Type 23xx, size Ø 130 mm						
High air capacity single-acting		M12 multipole	–	G 1/8	227426	265059
			yes	G 1/8	227427	265060
		Cable gland	–	G 1/8	227422	265057
			yes	G 1/8	227423	265058
	AS-Interface S-7.A.5	M12 connector /flat cable clip / 80 cm cable	16 Bit via Bus	G 1/8	239616	265056
	IO-Link	M12 multipole	via Bus	G 1/8	323233	– ^{1.)}
Bürkert system bus (bùS)	M12 multipole	via Bus	G 1/8	323237	– ^{1.)}	

1.) ATEX/IECEx for IO-Link and bùS in preparation.

Note: Standard versions are UL approved.

Ordering chart adapter kit (has to be ordered separately)

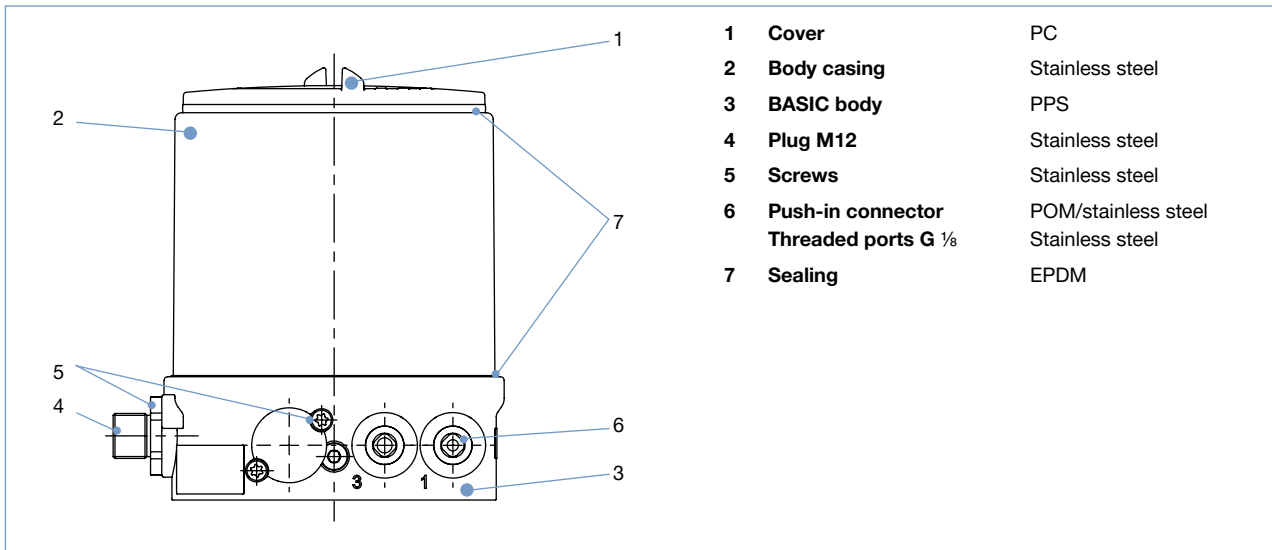
Description	Actuator size	Control function	Article no.
Adapter kit ELEMENT Types 23xx/2103	Ø 70 / 90 / 130 mm	universal	679917

for installation kits to 3rd party process valves please see datasheet 8681/ELEMENT or contact your sales office for related drawings or individual engineering support

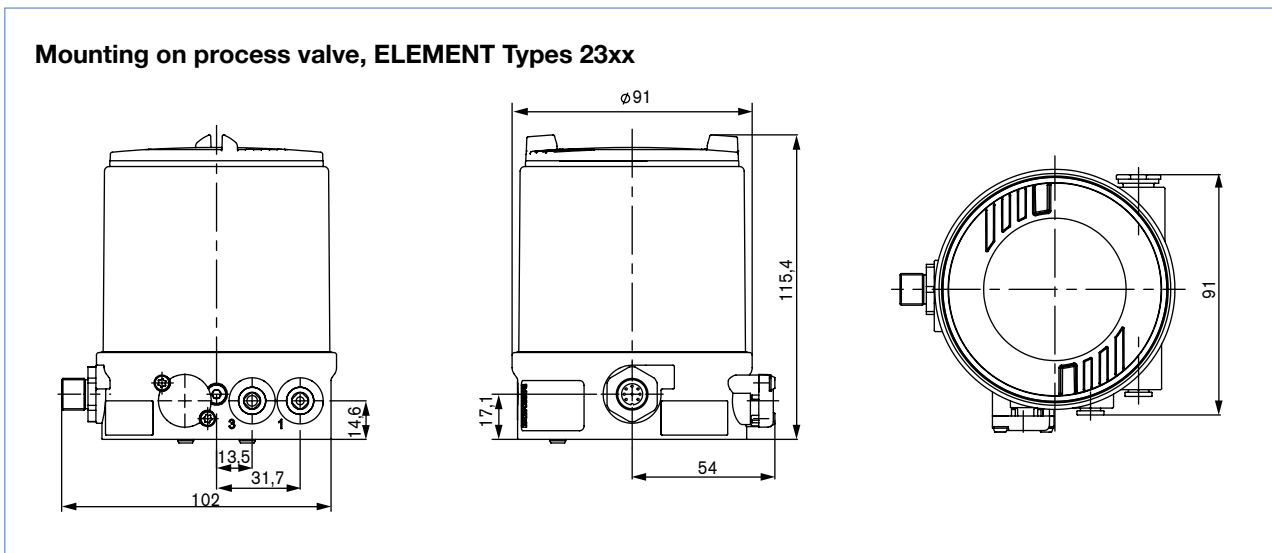
Ordering chart accessories

Description	Article no.
M12 socket 8 pin with 5 m cable for power supply and input/output signals	919267
ASI flat cable clip with stainless steel socket M12 (spare part)	799646
USB bùS-Interface Set (bùS Stick + connecting cable with M12 connector + connecting cable M12 to micro USB for bùS service interface) for connecting to the PC tool Bürkert Communicator	772551
bùS cable extension M12, length 1 m	772404
bùS cable extension M12, length 3 m	772405
bùS cable extension M12, length 5 m	772406
bùS cable extension M12, length 10 m	772407
Silencer G 1/8	780779
Sensor puck (spare part)	682240
Bürkert Communicator Software	http://www.burkert.com

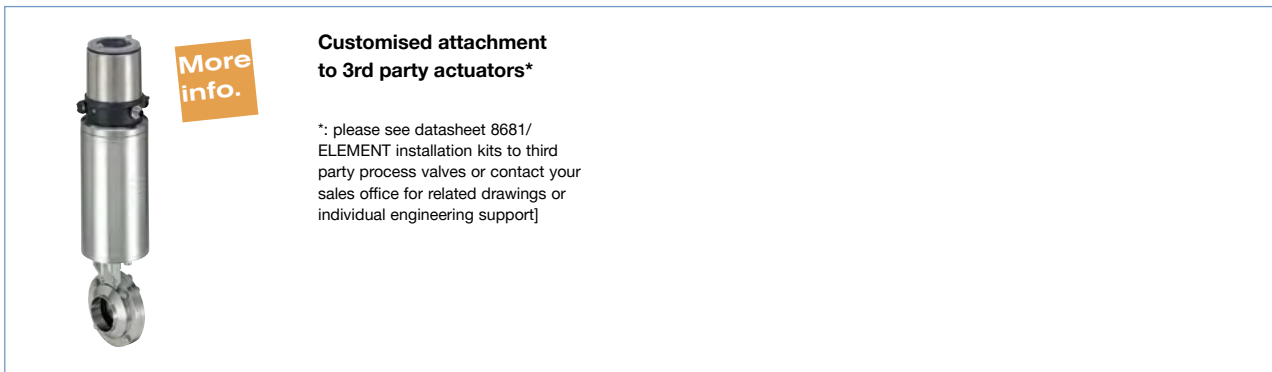
Materials



Dimensions [mm]



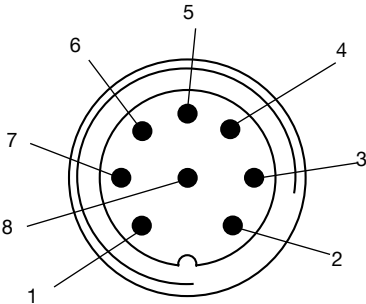
Mounting on third party hygienic process valves



Connection options

Without fieldbus communication 24 V DC

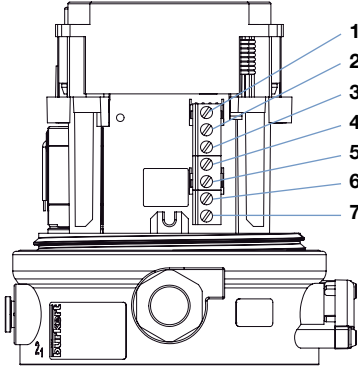
Multipole connection M12, 8-pin



Pin	Configuration
1	Setpoint + (0/4 - 20 mA)
2	Setpoint GND
3	Operating voltage GND
4	Operating voltage +24 V DC
5	Binary input +
6	Binary input GND
7	Analogue position feedback GND
8	Analogue position feedback +

Cable gland connection

Screw terminal connections



* Option only

Input signal

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

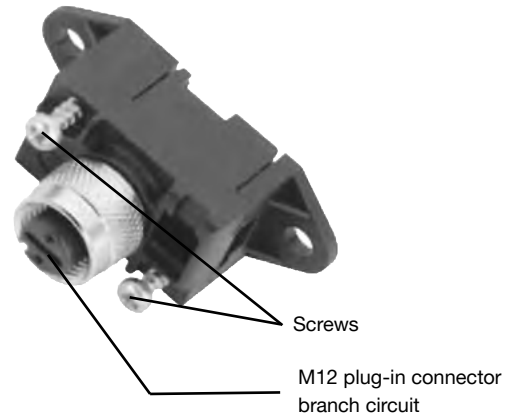
Output signal with analogue feedback option

Pin	Configuration
2	Analogue feedback +
3	Analogue feedback GND

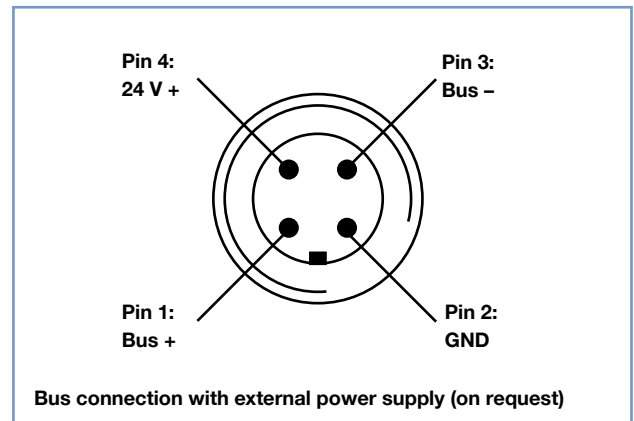
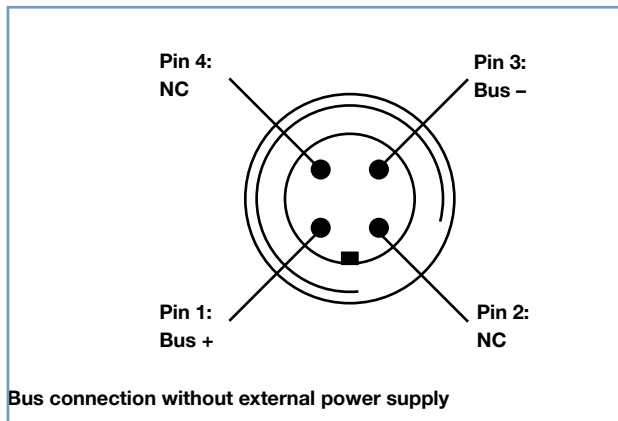
Connection options (cont.)

Connection AS-Interface

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



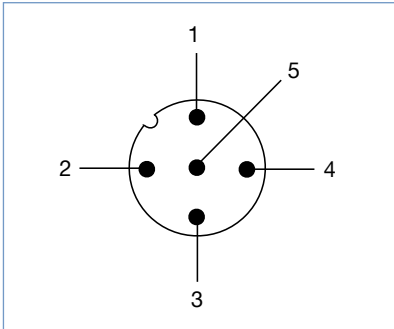
Plug layout: from front looking at the pins, the solder is behind



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

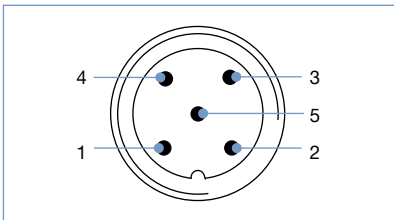
Connection options (cont.)

With digital communication IO-Link



Pin	Designation	Assignment	
1	L +	24 V DC	System supply
2	P24	24 V DC	Actuator supply
3	L -	0 V (GND)	System supply
4	Q/C	IO-Link	
5	M24	0 V (GND)	Actuator supply

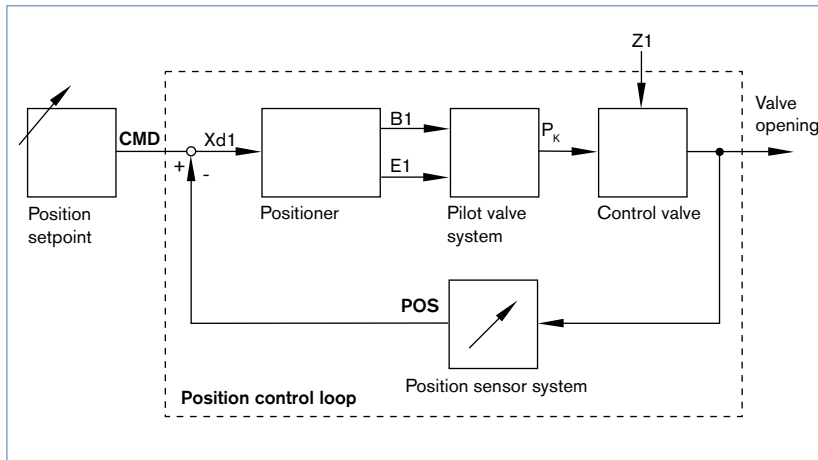
With digital communication Bürkert System bus (bùS)



Pin	Wire colour	Assignment
1	CAN plate/shielding	CAN plate/shielding
2	red	+24 V DC \pm 10%, max. residual ripple 10%
3	black	GND / CAN_GND
4	white	CAN_H
5	blue	CAN_L

Signal flow diagram

Position control loop

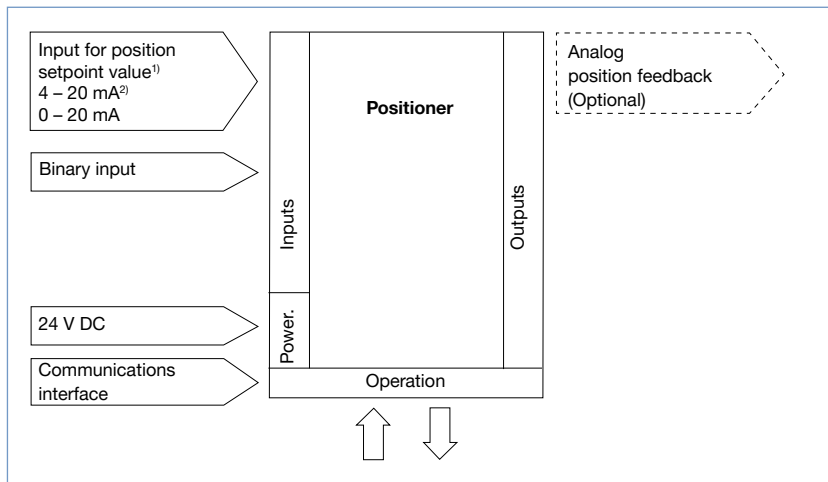


TopControl BASIC functions

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

Schematic diagram of the TopControl BASIC

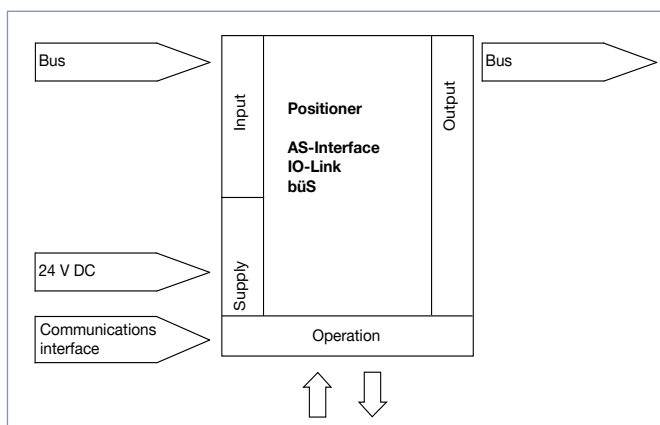
Without fieldbus interface



¹⁾ or optional bus connection AS interface

²⁾ Default setting

With AS-Interface, IO-Link and Bürkert System bus (büS)



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

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

Subject to alteration.
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