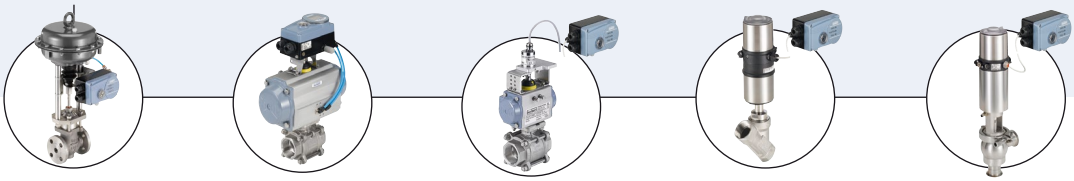
bürkert
FLUID CONTROL SYSTEMS

Digital electropneumatic positioner SideControl

- Compact and robust design
- Easy to start using tune function
- Dynamic positioning system with no air consumption in controlled state
- AS-Interface Fieldbus (optional)
- Mounting acc. to IEC 60534-6-1 / VDI VDE 3845 or Remote

Type 8791 BASIC can be combined with…



Yoke type actuators | **Rotary actuators** | **Rotary actuators with remote positioner** | **Process control valve with remote positioner** | **Hygienic process control valve with remote positioner**

The robust and compact positioner is designed to a standardisation acc. to IEC 534-6 or VDI/VDE 3845 for assembly with linear and rotary actuators. In addition, the remote version with the displacement position sensor can be combined with Bürkert process control valves The setpoint setting for the electropneumatic digital positioner SideControl BASIC occurs using a standard signal 4…20 mA or with AS-Interface as an option. In addition there is a binary input and an optional analogue feedback available. The valve opening is signalled by a mechanical indicator element and the device status is shown on three coloured LEDs. All the operational elements are found in the housing. The start-up happens automatically, and directly at the device the following functions can be activated through DIP switches:

- Close tight function
- Inversion of the operating direction of the setpoint signal
- Characteristic curves selection
- Switching - manual and automatic operation

Additional possibilities on configuration and parameter setting, for example, linearisation of the operation characteristics by using communications software which allows customised programming. The pilot valve system can be used equally for single and double-acting drives. It is characterised by a defined safety feature in case of failure of the electrical or pneumatic power supply and possesses an enormous air capacity range with pressure supply up to 7 bar.

Technical data	
Material	
Body	Aluminium plastic-coated
Seal	EPDM, NBR, FKM
Operating voltages	24 V DC +/- 10%
Residual ripple	max. 10%
Setpoint setting	4-20 mA (0-20 mA adjustable using configurations software)
Input resistance	0/4 to 20 mA: 180 Ω
Analogue feedback	(0-20 mA adjustable using configurations software) (max. Burden 560 Ω)
Binary input	0-5 V = log "0", 10-30 V = log "1"
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 (without Ex-Approval) 0 to +60 °C (with ATEX / IECEx-Approval)
Pilot air ports	Threaded ports G 1/4
Supply pressure	1.4 to 7 bar [1) 2)]
Air supply filter	Exchangeable (mesh aperture~0.1 mm)
Actuator system	Single and double-acting up to 150 l_N/min.
Air capacity	50 l_N/min (with 1.4 bar[2)]) for aeration and ventilation 150 l_N/min (with 6 bar[2)]) for aeration and ventilation (Q_{Nn} = 100 l_N/min (acc. to the definition with decrease in pressure from 7 to bar absolute)
Position detection module	Potentiometer max. angle 180°
Stroke range valve spindle	Min. 30° on the rotary shaft, depending on lever
Installation	As required, LEDs above or sideways
Type of protection	IP65/IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard
Power consumption	< 3.5 W
Electrical connection	
Multipole connection	M12, 8-pin
Cable gland	2x M20x1.5 (cable Ø 6-12 mm) on screw terminals (0.14-1.5 mm²)
Remote Version	1x M12x1.5 (cable Ø 3-6.5 mm)

[1)] The supply pressure has to be 0.5-1 bar above the minimum required pilot pressure for the valve actuator
[2)] Pressure values [bar]: Overpressure with respect to atmospheric pressure

continued on next page

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Technical data, continued

Technical data	
Protection class	III acc. to DIN EN 61140
Conformity	EMC directive 2014/30/EU
CSA approval information Product category code	 Class 3221 82-VALVES - Actuators - Certified to US standards Class 3221 02-VALVES - Actuators
Ex approvals **ATEX** **IECEx**	Ⓔx II 3G Ex ec ic IIC T4 Gc / Ⓔx II 3D Ex tc IIIC T135°C Dc Certificate; BVS 16 ATEX E 118 X Ex ec ic IIC T4 Gc / Ex tc IIIC T135°C Dc Certificate; IECEx BVS 16.0091 X
Considered standards	CAN/CSA-C22 2 No. 139 UL 429
CSA trademark	

Technical data - AS-interface (Option)	
Profile	S-7.3.4 Output: 16 Bit Set point/Certificate No. 87301 acc. to Version 3.0 S-7.A.5 Output: 16 Bit set point; Input: 16 Bit feedback/certificate No. 95401 acc. to Version 3.0
Programmed data	see instruction manual
Operating voltage over Bus connection	29,5 to 31,6 V DC acc. to AS-Interface specification
Max. current consumption	150 mA
Electrical connection	M12x1, 4-pin stainless steel connection assembled with 80 cm cable and flat cable clamp

Technical data - Linear Remote Position Sensor (ELEMENT)	
Electrical connection Cable gland Connection cable length	 1x M16x1.5 (cable Ø 5-10 mm) on terminal screws (0.14-1.5 mm²) 10 m
Operating voltage	24 V DC ± 10 %, UL: NEC Class 2
Power consumption	< 0.3 W
Sensor measurement range	3 to 45 mm (Stroke range valve spindle)
Actual position signal	digital (RS485)
Ambient temperature	-25 to +80 °C
Protection class	III acc. to DIN EN 61140
Type of protection	IP65 and IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard
Type of Ignition protection	II 3D Ex tc IIIC T135 °C Dc II 3G Ex nA IIC T4 Gc
Conformity	EMC directive 2014/30/EU
Approvals	cULus Certificate no. 238179

Technical data - rotative Remote postion Sensor (NAMUR)	
Electrical connection	2 m round cable (shielded)
Operating voltage	10 to 30 V DC
Power consumption	< 0.8 W
Sensor measurement range	0° to 360°
Actual position signal	digital (RS485)
Ambient temperature	-25 to +80 °C
Protection class	III acc. to DIN EN 61140
Type of protection	IP65 acc.to EN 60529
Conformity	EMC directive 2014/30/EU
Approvals	UL (cULus) Certificate no. E226909

Technical data - Position feedback with proximity switches (Accessory)	
Electrical connection	M12, 4-pin
Output function	3-wire, normally open contact, PNP
Operating voltage	10 to 30 V DC
Residual ripple	≤ 10% U_{ss}
DC rated current	≤ 100 mA
Type of protection	IP65 and IP67
Protection class	III acc. to DIN EN 61140
Conformity	EMC directive 2014/30/EU
Approvals	cCSAus

Note: The position feedback has two proximity switches which are independently adjustable via switch lugs.

Using a remote positioner the length of the control air pipes influences the dynamics and attainable accuracy of the position control loop. The length of the control air pipes therefore should be as short as possible.

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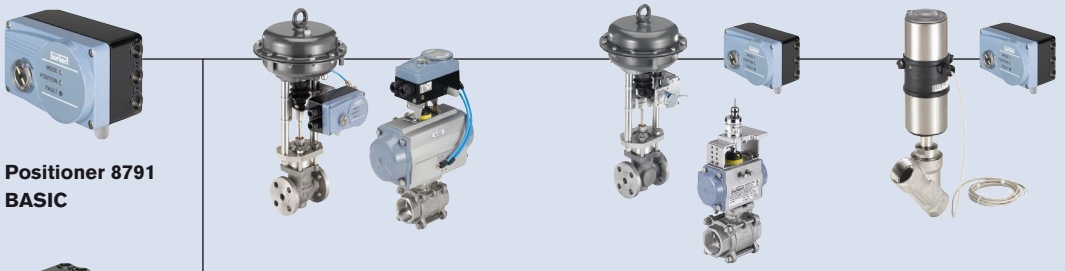
Example of assembly variations of positioner SideControl

Positioner SideControl Type 8791 BASIC



8791 NAMUR

8791 Remote

Positioner 8791 BASIC

Remote IP20*

Linear actuators IEC 60534-6-1

Rotary actuators VDI/VDE 3845 (IEC 60534-6-2)

Type 8805 + Type 8791 BASIC

Linear actuators IEC 60534-6-1

Rotary actuators VDI/VDE 3845 (IEC 60534-6-2)

Type 8798 Sensor Remote NAMUR + Type 8791 BASIC Remote

Control valve system

Type 2300 + Type 8798 Remote Position Sensor + Type 8791 BASIC Remote

*** Note:** Remote IP20 version exclusively for cabinet mounting

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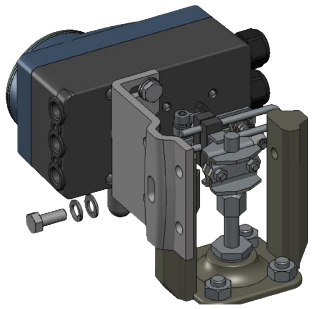
Assembly options

NAMUR Version

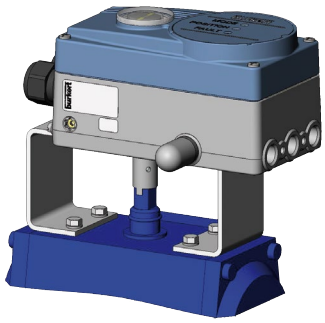
(Positioner with integrated position sensor, assembly acc. to NAMUR/IEC 60534-6-1 and VDI/VDE 3845 (IEC 60534-6-2))

Assembly on linear actuator



Description	Article no.
Adapter kit	787215

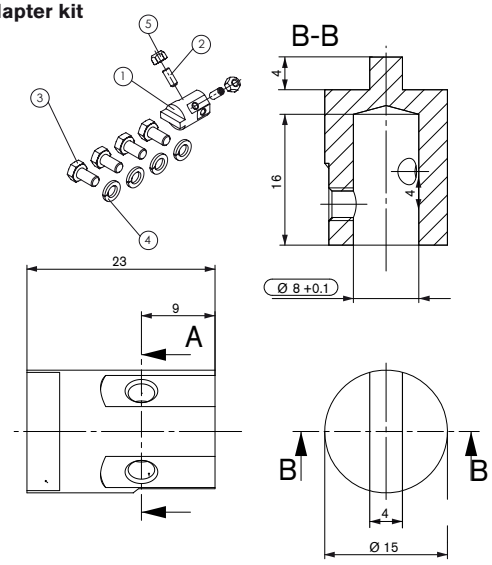
Assembly on rotary actuator



Description	Article no.
Adapter kit	787338
Assembly bridge	770294

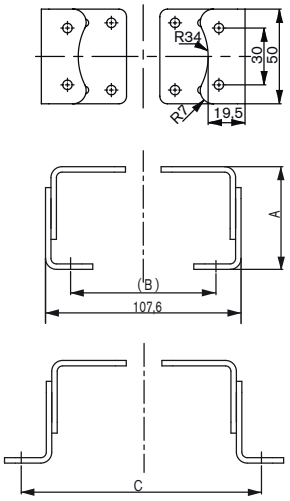
Dimensions [mm]

Adapter kit



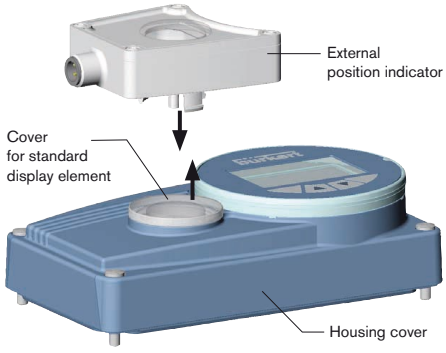
Actuator shaft height	A	B	C
20	46.5	80	-
30	56.5	80	130
50	76.5	-	130

Assembly bridge



Position feedback with proximity switches

(upgrade feature for SideControl BASIC)



Description	Article no.
Position feedback	677218

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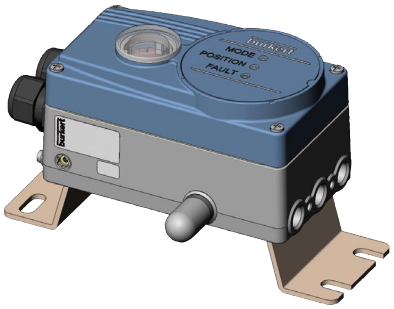
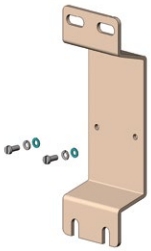
Assembly options *continued*

Remote version
(Remote positioner from actuator with displacement position)

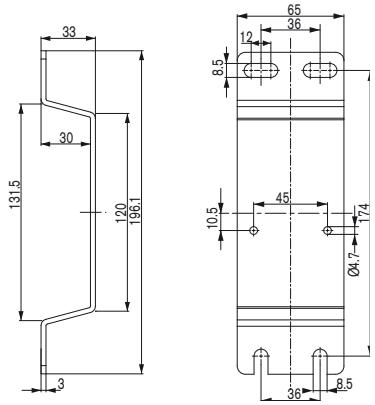
Assembly with accessory brackets





Description	Article no.
Assembly bracket for wall mounting	675715

Dimensions [mm]

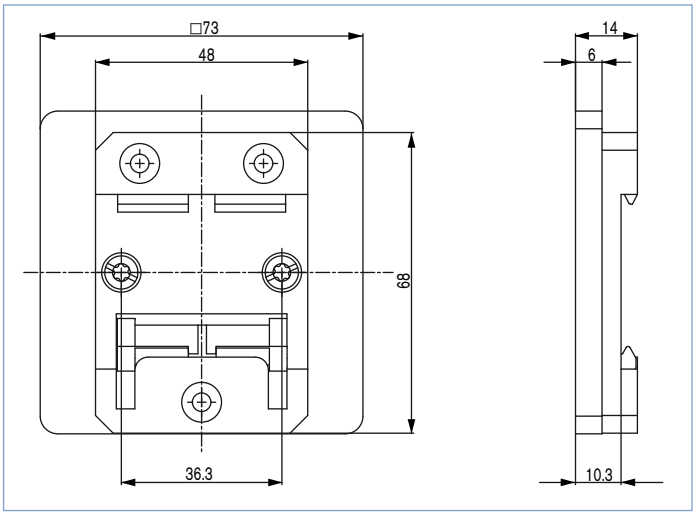


Assembly on DIN-Rail

The adapter can be turned every 90° on the DIN-Rail

Description	Article no.
DIN rail assembly kit	675702

Dimensions [mm]



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Assembly options *continued*

Remote version
(Remote positioner from actuator with displacement position sensor)

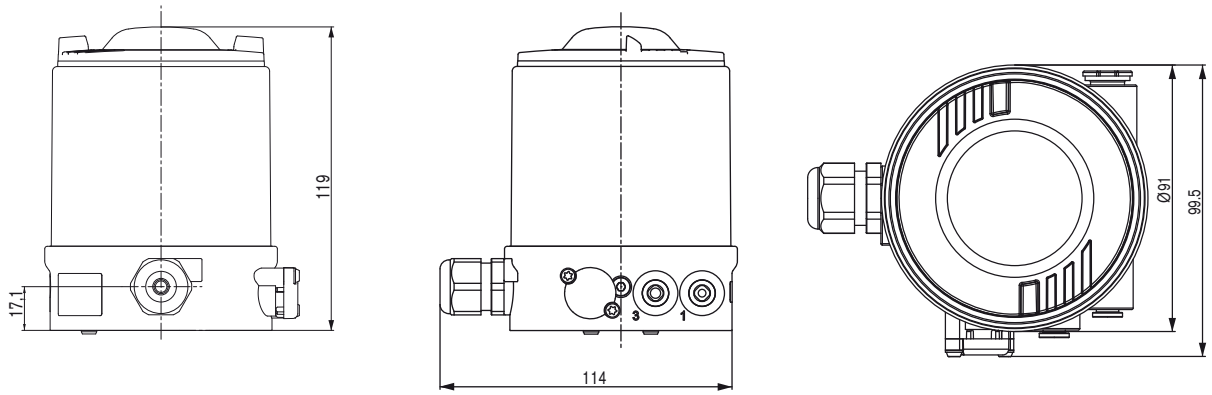
Type 8798

Description	Article no.	
	Standard	ATEX II 3 GD
Remote Position Sensor Control valves ELEMENT Types 23xx	212360	226860

Description	Article no.
Remote Position Sensor NAMUR	211536

Dimensions

Control valve ELEMENT Types 23xx



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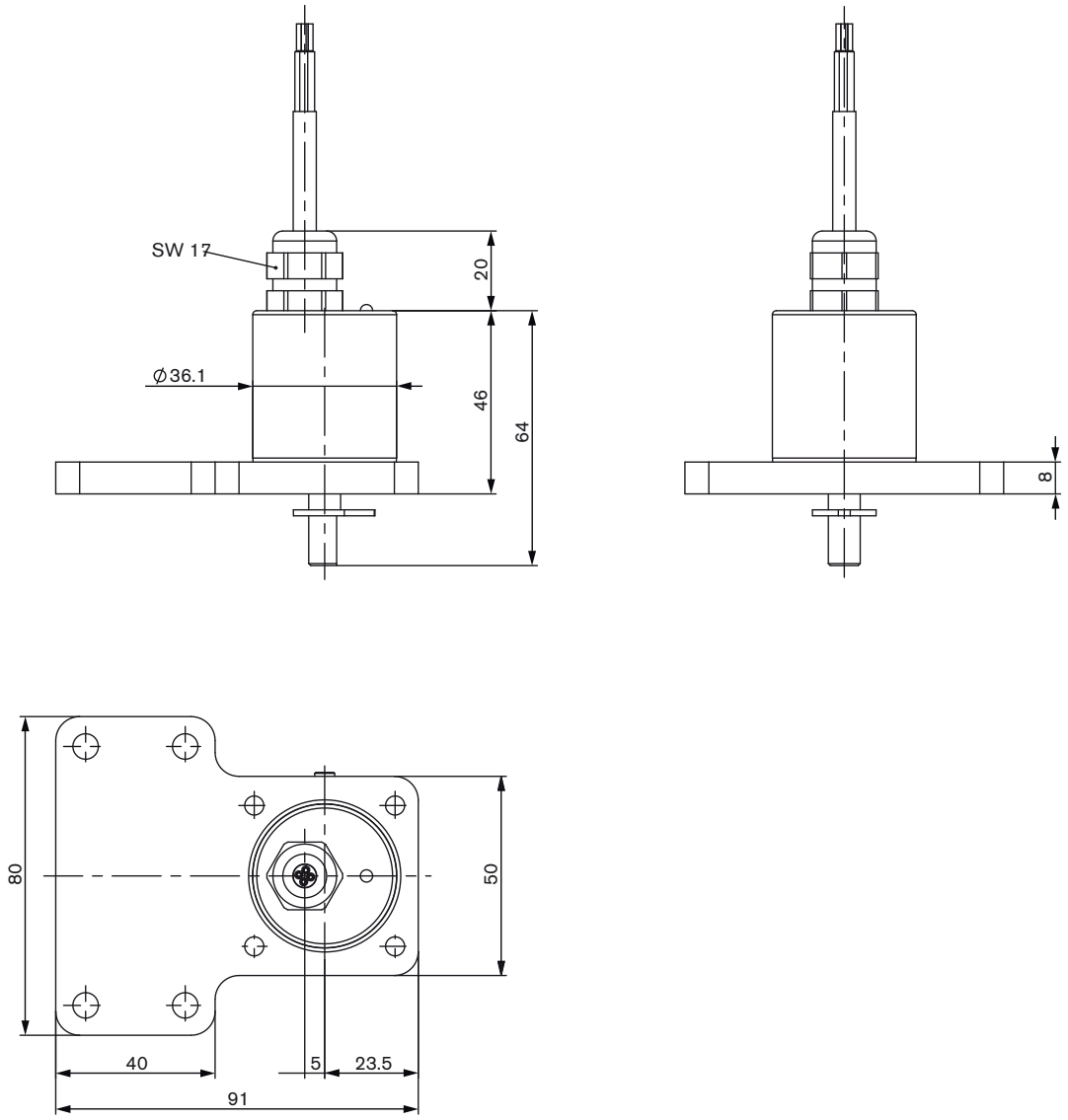
Dimensions

Mounting on control valves according to NAMUR (IEC 60534-6-1 / VDI/VDE 3845 (IEC 60534-6-2))



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Ordering Chart (further version on request)

Positioner SideControl Basic Type 8791

Assembly variations	Control function	Pilot valve system / Air capacity	Communication	Electrical connection	Binary input	Analogue feedback	ATEX II 3GD / IECEx	Article no.
NAMUR IEC 60534-6-1 VDI/VDE 3845 (IEC 60534-6-2)	single and double-acting	universal	no	Cable gland	yes	no		211521
					yes	yes		211522
					yes	no	yes	310303
					yes	yes	yes	310304
				Multipole	yes	no		211523
					yes	yes		211524
			AS-Interface		no	yes/16 bit		239617
					no	yes/16 bit	yes	310305

Assembly variations	ELEMENT Actuator size	Control function	Pilot valve system / Air capacity	Communication	Electrical connection	Binary input	Analogue feedback	ATEX II 3GD / IECEx	Article no.
Remote	Ø 70/90 mm	single-acting	low	no	Cable gland	yes	no		224868
						yes	yes		224869
	Ø 130 mm	single and double-acting	universal			yes	no		211531
						yes	yes		211532
Remote IP20	Ø 70/90 mm	single-acting	low			yes	no		234576
						yes	yes		234578
	Ø 130 mm	single and double-acting	universal			yes	no		211533
						yes	yes		211534

Assembly variations	Electrical connection	Article no.	
Remote Position Sensor		**Standard**	**ATEX II 3 GD/ IECEx**
ELEMENT Type 23xx	Cable gland - 10 m round cable	212360	226860
NAMUR (rotative)	Cable gland - 2 m round cable (max. extension 10 m)	211536	–

Further versions on request

Approvals
Remote Sensor ATEX Cat. 3

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Ordering chart for accessories

Description	Article no.
Accessories for SideControl BASIC NAMUR	
Assembly bridge VDI/VDE 3845 (IEC 60534-6-2), stainless steel	770294
Adapter kit VDI/VDE 3845 (IEC 60534-6-2), stainless steel	787338
Adapter kit linear actuators IEC 60534-6-1, stainless steel	787215
Position feedback with proximity switches (optional upgrade feature) [3]	677218

Accessories for SideControl BASIC Remote	
Bracket for wall mounting, stainless steel	675715
DIN rail assembly kit, Aluminium/stainless steel	675702
Adapter kit - remote sensor, ELEMENT Type 23xx control valves Actuator size Ø 70/90/130 mm	679917
Sensor Puck (replacement part)	682240

Standard Accessories	
USB Interface for serial communication	227093
M12 socket 8-pin with 5 m cable for power supply and input/output signals	919267
Silencer G 1/4" (spare part)	780780

* Related Communication software can be downloaded from www.buerkert.com (8791)

[3] External end position feedback for upgrading SideControl NAMUR

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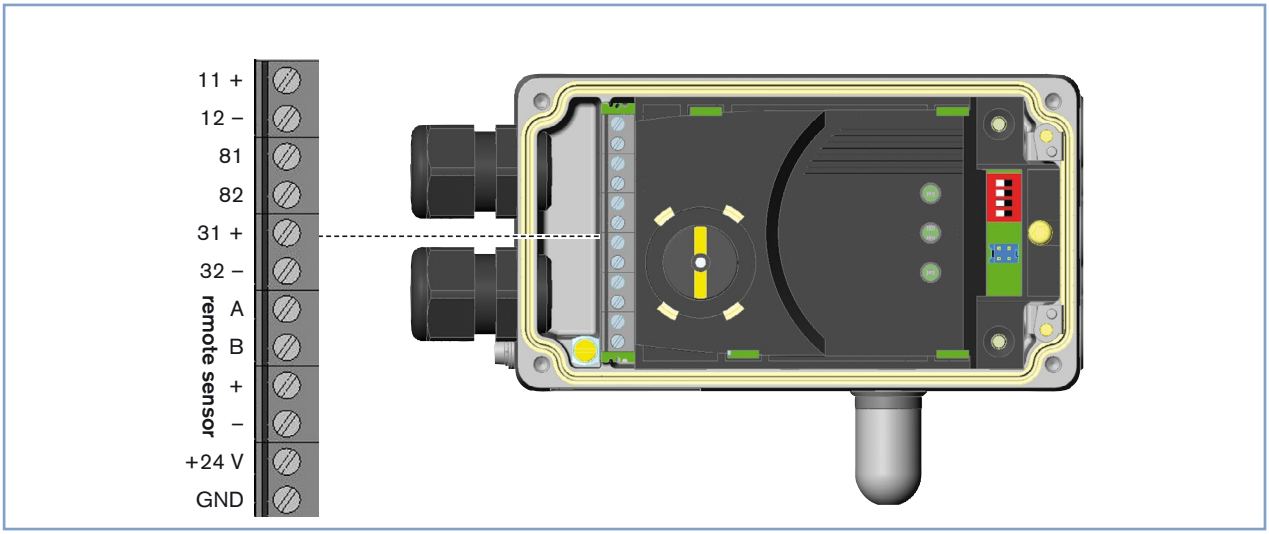
Connection options

Cable gland connection



Input signal

Terminal	Configuration	External Circuitry / signal level
11 +	Setpoint +	11 + ⟶ + (0/4 ... 20 mA) not galvanically isolated
12 –	Setpoint GND	12 – ⟶ GND
81 +	Binary input +	81 + ⟶ + ⟶ 0 ... 5 V (log. 0) / 10 ... 30 V (log. 1)
82 –	Binary input -	82 – ⟶ GND
+24 V	Operating voltages +	+24 V ⟶ 24 V DC ± 10 % max. residual ripple 10 %
GND	Operating voltages GND	GND ⟶

Output signal with optional analogue position feedback

Terminal	Configuration	External Circuitry / signal level
31 +	Analogue feedback +	31 + ⟶ + (0/4 ... 20 mA) not galvanically isolated
32 –	Analogue feedback GND	32 – ⟶ GND

Optional remote version in connection with remote positioner sensor Type 8798

Terminal		Configuration	External Circuitry / signal level	
Remote Sensor	A	Serial interface, A cable	A ⟶	A line
	B	Serial interface, B cable	B ⟶	B line
	+	Supply sensor +	S + ⟶	+
	-	Supply sensor -	S - ⟶	-

Remote Sensor Type 8798

For version without remote version: terminals A, B, +, - not connected

Remote sensor Type 8798

Terminal	Wire colour for cable type 1	Wire colour for cable type 2	Configuration	External Circuitry	
1	white	black	Supply Sensor -	1 ⟶	8791 or
2	brown		Supply Sensor +	2 ⟶	8792 / 8793
3	yellow	orange	Serial Interface, B line	3 ⟶	8791 or
4	green	red	Serial Interface, A line	4 ⟶	8792 / 8793

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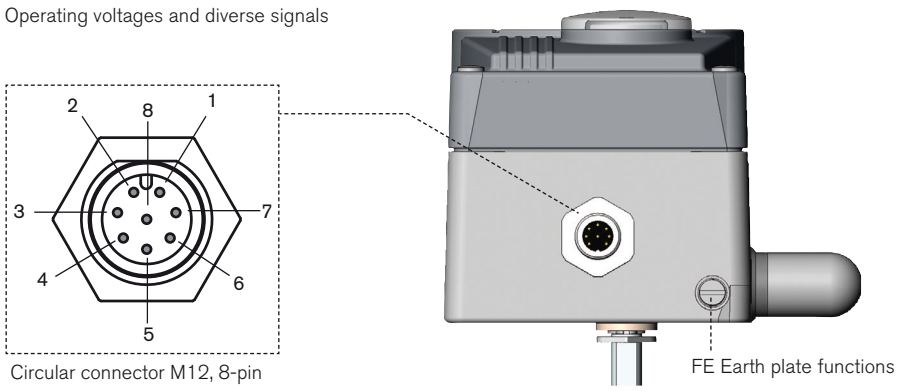
Connection options, *continued*

Multi-pin connection



Circular connector M12 - 8-pin (Input signal)

Pin	Wire colours*	Configuration	External Circuitry / signal level
1	white	Setpoint + (0/4-20 mA)	1 — + (0/4 -20 mA) not galvanically isolated
2	brown	Setpoint GND	2 — GND
5	grey	Binary Output	5 — + 0-5 V (log. 0) / 10-30 V (log. 1); obtained on Pin 3 (GND)
3	green	GND	3 — 24 V DC ± 10% max. Residual ripple 10%
4	yellow	+ 24 V	4

Circular connector M12 - 8-pin (analogue position feedback)

8	red	Analogue feedback +	8 — + (0/4 -20 mA) not galvanically isolated
7	blue	Analogue feedback GND	7 — GND

* The indicated wire colours refer to the connection cable, article no. 919061, available as an accessory

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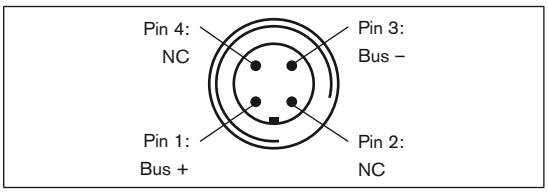
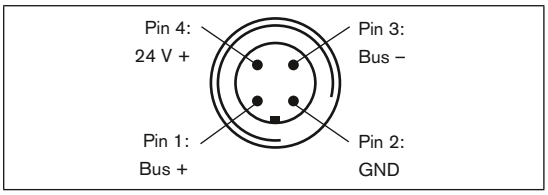
Connection options, *continued*

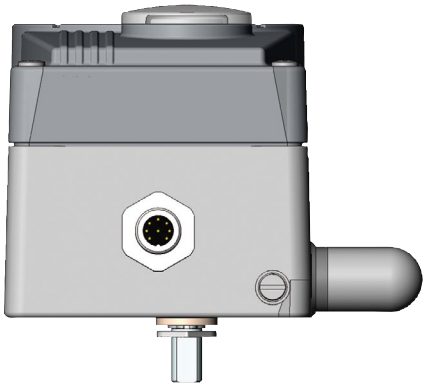
Electrical connection ASI M12 4-pin



Bus connection without external supply voltage



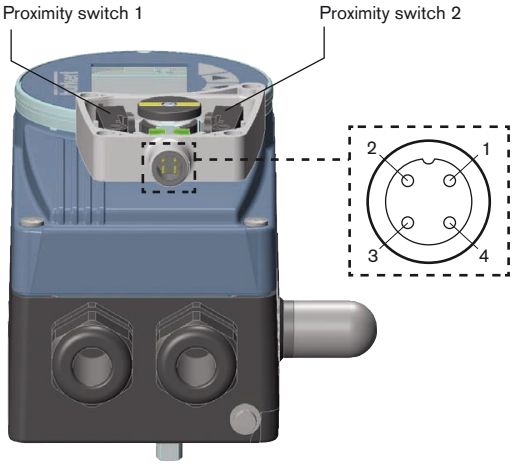
Bus connection with external supply voltage (optional)



Bus connection without external / with external supply voltage

Pin	Designation	Configuration
1	Bus +	AS Interface bus line +
2	NC or GND (optional)	not used or external supply voltage – (optional)
3	Bus –	AS Interface bus line –
4	NC or 24 V + (optional)	not used or external supply voltage + (optional)

Electrical connection Position feedback with proximity switches (accessory for upgrading)



Pin	Config.	External circuit /signal level
1	Supply 10 ... 30 V	+10 V ... +30 V — 1 10 ... 30 V
2	Switching output (NO) Proximity switch 1	+10 V ... +30 V — 2 Open / 10 ... 30 V
3	GND	GND — 3 GND
4	Switching output (NO) Proximity switch 2	+10 V ... +30 V — 4 Open / 10 ... 30 V

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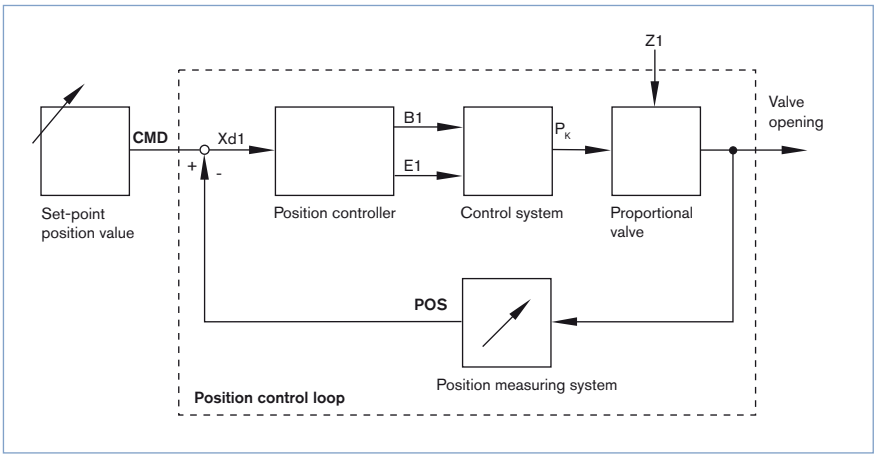
Signal flow plan

Position control loop



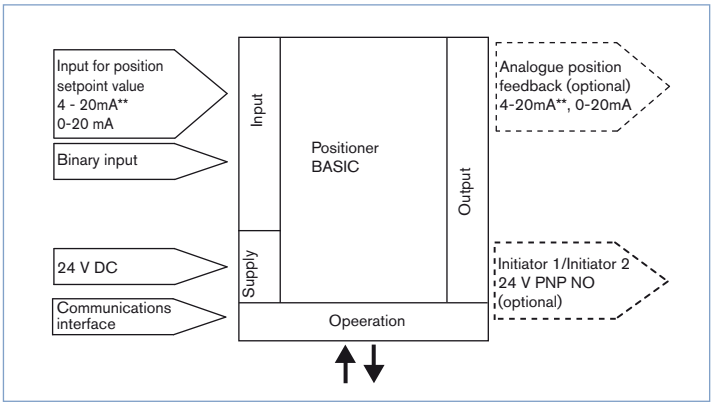
SideControl BASIC functions
- Automatic start of the control system
- Binary input (safety position)
- Analogue position feedback (optional)

DIP-Switch activated device
- Close tight function
- Inversion of the operating direction of the setpoint signal
- Linear characteristic curves selection or customised programming (software interface)
- Manual and automatic operation

Communications software with activatable and parameter driven functions
- Customised programming transmission characteristics
- Choices of setpoint signal
- Range splitting setpoint signal
- Limitation of valve stroke
- Limitation of operation speed
- Definition of the safety position
- Signal failure detection

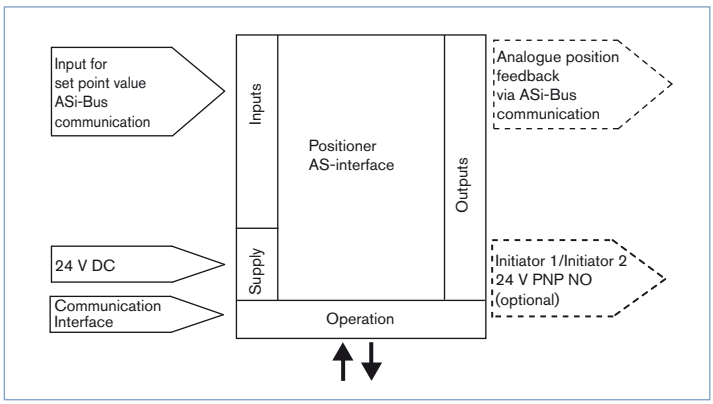
Schematic diagram of SideControl Type 8791 BASIC

without fieldbus interface



**Default setting

with AS-interface



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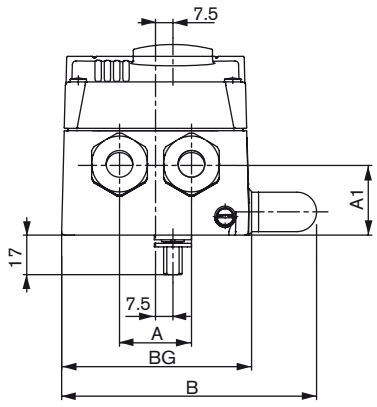
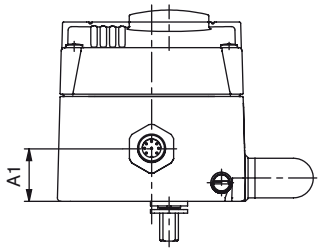
Dimensions [mm]

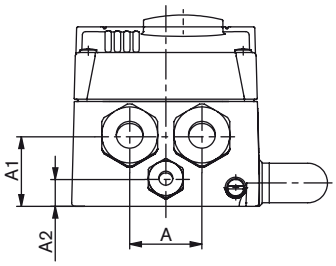
NAMUR version with Cable gland (standard)

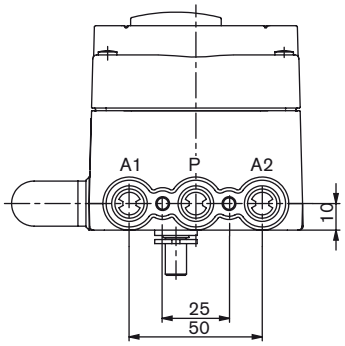


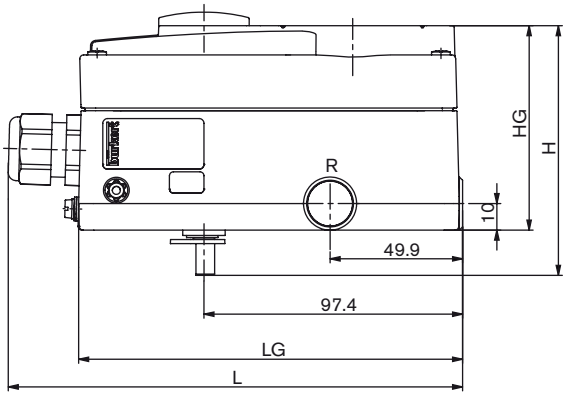
NAMUR version with Multipole

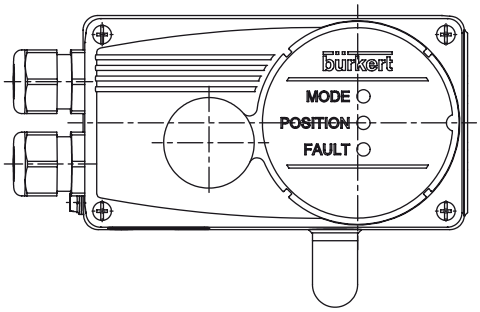


Remote version with cable gland









Description	LG	L	BG	B	HG	H	A	A1	A1
Standard	144.6	171.1	81.8	109.8	77	94.1	31	30	–
Remote	144.6	171.1	81.8	109.8	77	94.1	31	30	11.5
Multipole	144.6	171.1	81.8	109.8	77	94.1	-	22.5	–
Remote IP20	144.6	171.1	81.8	109.8	67	-	31	30	11.5

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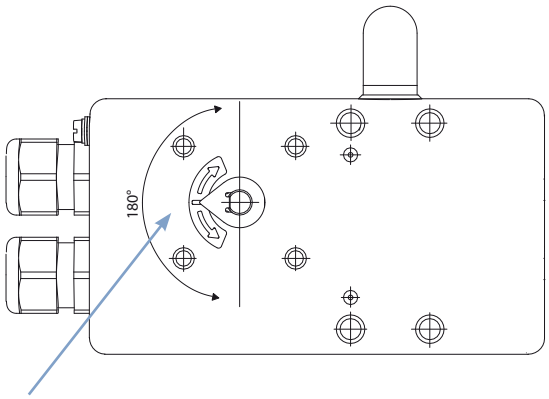
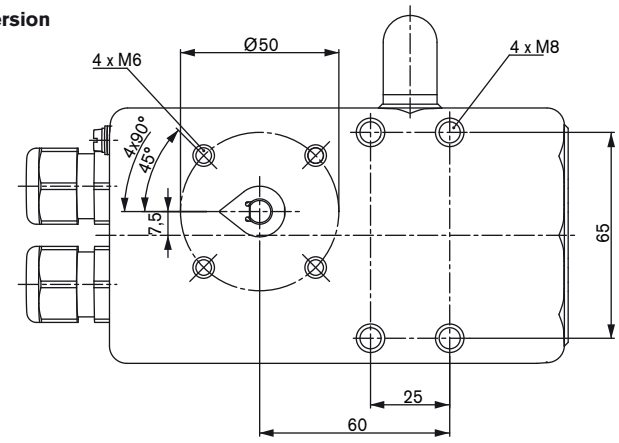
Dimensions [mm], continued



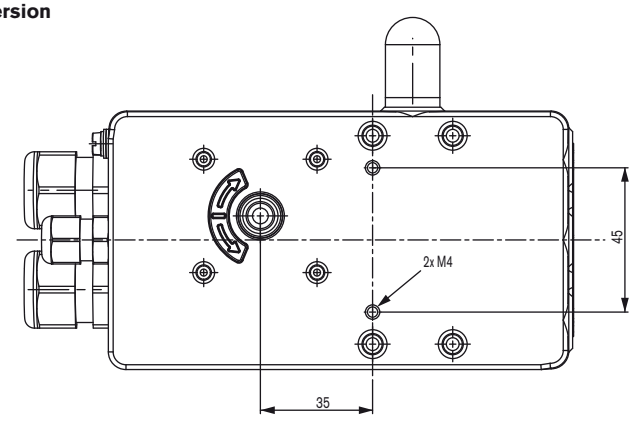
The rotation angle of the sensor must be within a range of 180°

With the valve open approx. 50%, the sensor indicator should be in this position.

NAMUR Version



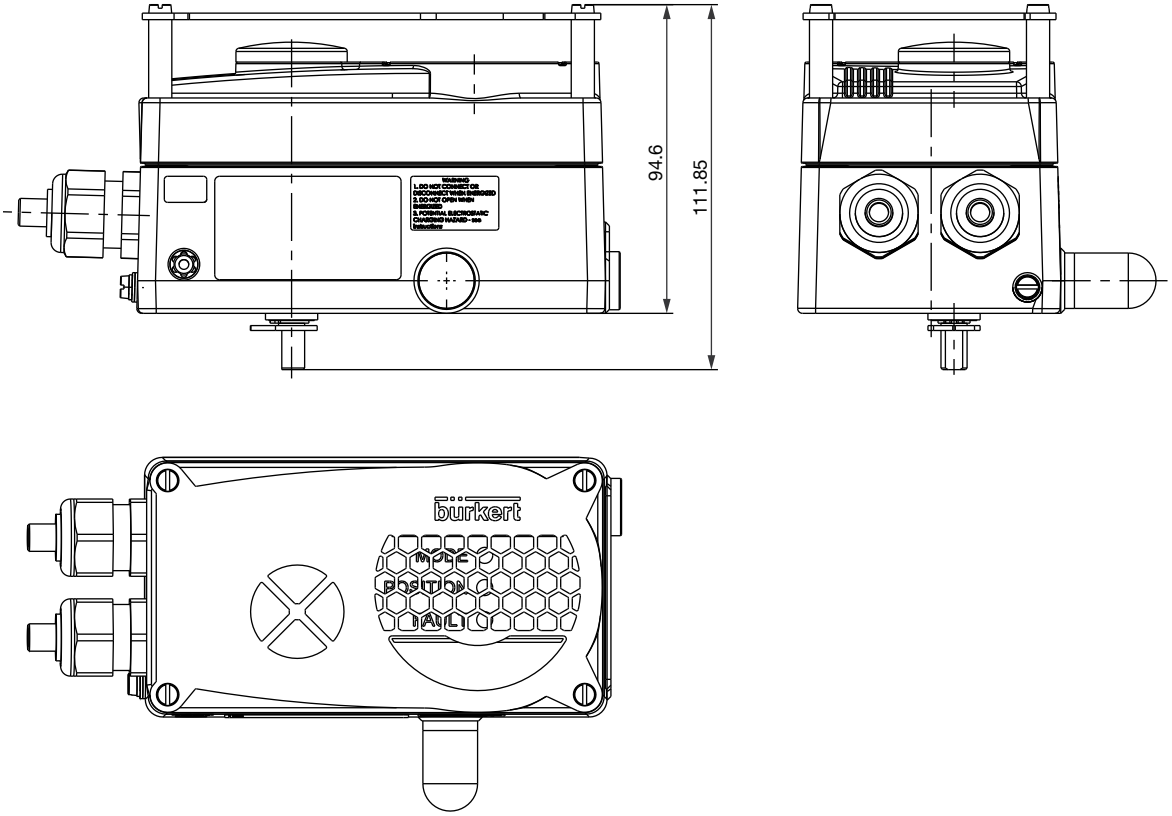
Remote version



DTS 1000123308 EN Version: J Status: RL (released | freigegeben | validé) printed: 15.03.2018

Dimensions [mm], continued

ATEX / IECEx version



DTS 1000123308 EN Version: J Status: RL (released | freigegeben | validé) printed: 15.03.2018

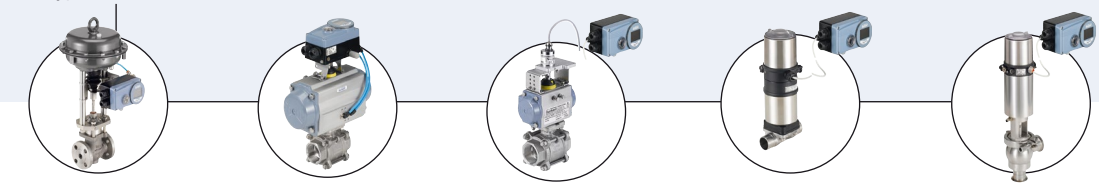
1803/10_EU-en_00895131

bürkert
FLUID CONTROL SYSTEMS

Digital electropneumatic Positioner SideControl

- Compact and robust design
- Easy to start using Tune function
- Integrated diagnostic functions for valve monitoring
- Dynamic positioning system with no air consumption in controlled state
- PROFIBUS DP-V1, DeviceNet, EtherNet/IP, PROFINET, Modbus TCP or büS (Bürkert System Bus)

Type 8792 can be combined with…



Yoke type actuators | **Rotary actuators** | **Rotary actuators with remote positioner** | **Process control valve with remote positioner** | **Hygienic process control valve with remote positioner**

The robust and compact positioner is designed to standardisation acc. to IEC 60534-6-1 or VDI/VDE 3845 (IEC 60534-6-2) for assembly with linear and rotary actuators. In addition, the remote version with the displacement position sensor can be combined with Bürkert process control valves. The digital electropneumatic positioner SideControl can be operated with the usual current and voltage standard signals and can also be equipped with the fieldbus interface. The Positioner is equipped with additional diagnostic functions to monitor the state of the valve. Through status signals, valve diagnostic messages are transmitted according to NAMUR NE 107 recommendations and recorded as history. With the diagnosis, the operating conditions of the control valve can be monitored. This allows planned maintenance and optimises plant availability. Operation occurs via the external operation and display module with a backlit graphical display. The user operation is very simple and clear, identical to the Bürkert positioner or process controller TopControl, Type 8692/8693. The pilot valve system can be used equally for single and double-acting actuators. It is characterised by a defined safety feature in case of failure of the electrical or pneumatic power supply and possesses an enormous air capacity range with pressure supply up to 7 bar.

Technical data	
Material Body Seal	 Aluminium plastic-coated EPDM, NBR, FKM
Operating voltages	24 V DC ±10 %
Residual ripple	Max. 10 %
Setpoint setting	0/4…20 mA and 0…5/10 V
Input resistance	0/4…20 mA: 180 Ω 0…5/10 V: 19 kΩ
Analogue feedback	4…20 mA, 0…20 mA 0…10 V, 0…5 V
Binary input	Galvanically isolated, 0…5 V = log "0", 10…30 V = log "1"
Binary output Current limit	2 Outputs (optional), galvanically separated 100 mA, Output will be synchronised when overloaded
Control medium Dust concentration Particle density Pressure condensation point Oil concentration	neutral gases, air, quality classes acc. to ISO 8573-1 Class 7 (<40 µm particle size) Class 5 (<10 mg/m³) Class 3 (<-20 °C) Class X (<25 mg/m³)
Ambient temperature	-10 to +60 °C (without Ex-Approval) 0 to +60 °C (with ATEX / IECEx-Approval)
Pilot air ports	Threaded ports G ¼
Supply pressure	1.4…7 bar[1) 2)]
Air supply filter	Exchangeable (aperture size ~0.1 mm)
Actuator system Air capacity	Single and double-acting to 150 l_N/min. 50 l_N/min (with 1.4 bar[2)]) for aeration and ventilation 150 l_N/min (with 6 bar[2)]) for aeration and ventilation (Q_{Nn} = 100 l_N/min (acc. to the definition with decrease in pressure from 7…6 bar absolute)
Position detection module	Potentiometer, max. angle 180°
Stroke range valve spindle	Min. 30° on the rotary shaft, depending on lever
Installation	As required, display above or sideways

[1)] The supply pressure has to be 0.5…1 bar above the minimum required pilot pressure for the valve actuator
[2)] Pressure specifications: Overpressure with respect to atmospheric pressure

continued on next page

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Technical data, continued

Technical data	
Type of protection	IP65/IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard
Power consumption	< 5 W
Electrical connection	
Multipole connection	M12, 8 pin/4 pin; M8, 4 pin
Cable gland	2x M20 × 1.5 (cable Ø 6 … 12 mm) on screw terminals (0.14 … 1.5 mm²)
Remote version	1x M12 × 1.5 (cable Ø 3 … 6.5 mm)
Bus communication	PROFIBUS DP-V1, DeviceNet, EtherNet/IP, PROFINET, Modbus TCP or büS (based on CANopen)
Protection class	III acc. to DIN EN 61140
Conformity	EMC directive 2014/30/EU
CSA approval information	
Product category code	Class 3221 82-VALVES - Actuators - Certified to US standards Class 3221 02-VALVES - Actuators
Considered standards	CAN/CSA-C22 2 No. 139 UL 429
CSA trademark	
Ex-Approval **ATEX**	Ⓔx II 3G Ex ec ic IIC T4 Gc / Ⓔx II 3D Ex tc IIIC T135 °C Dc Certificate; BVS 16 ATEX E 118 X
IECEx	Ex ec ic IIC T4 Gc / Ex tc IIIC T135 °C Dc Certificate; IECEx BVS 16.0091 X

Technical data - Linear Remote Position Sensor (ELEMENT)	
Electrical connection	
Cable gland	1x M16 × 1.5 (cable Ø 5 … 10 mm) on terminal screws (0.14 … 1.5 mm²)
Connection cable length	10 m
Operating voltage	24 V DC ±10 %
Power consumption	< 0.3 W
Sensor measurement range	3 … 45 mm (Stroke range valve spindle)
Actual position signal	digital (RS485)
Ambient temperature	-25 to +80 °C
Protection class	III acc. to DIN EN 61140
Type of protection	IP65 and IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard
Type of Ignition protection	II 3D Ex tc IIIC T135 °C Dc II 3G Ex nA IIC T4 Gc
Conformity	EMC directive 2014/30/EU
Approvals	cULus Certificate no. 238179

Technical data - rotative Remote Position Sensor (NAMUR)	
Electrical connection	2 m round cable (shielded)
Operating voltage	10 … 30 V DC
Residual ripple	< 0.8 W
Sensor measurement range	0° to 360°
Actual position signal	digital (RS485)
Ambient temperature	-25 to +80 °C
Protection class	III acc. to DIN EN 61140
Type of protection	IP65 acc. to EN 60529
Conformity	EMC directive 2014/30/EU
Approvals	UL (cULus) Certificate no. E226909

Technical data - Position feedback with proximity switches (Accessory)	
Electrical connection	M12, 4 pin
Output function	3-wire, normally open contact, PNP
Operating voltage	10 … 30 V DC
Residual ripple	≤ 10 % U_{ss}
DC rated current	≤ 100 mA
Type of protection	IP65 and IP67
Protection class	III acc. to DIN EN 61140
Conformity	EMC directive 2014/30/EU
Approvals	cCSAus

Note: The position feedback has two proximity switches which are independently adjustable via switch lugs.

Using a remote positioner the length of the control air pipes influences the dynamics and attainable accuracy of the position control loop. The length of the control air pipes therefore should be as short as possible.

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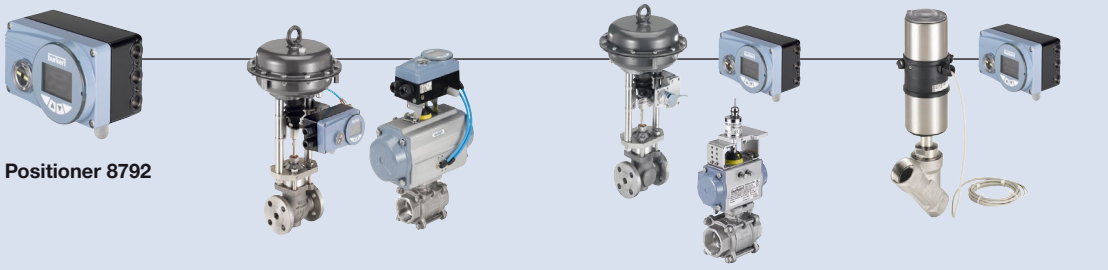
Example of assembly variations of positioner SideControl

Positioner SideControl Type 8792



Linear actuators IEC 60534-6-1	**Linear actuators IEC 60534-6-1**	**Control valve system**
Rotary actuators VDI/VDE 3845 (IEC 60534-6-2)	Rotary actuators VDI/VDE 3845 (IEC 60534-6-2)	Type 2300 + Type 8798 Remote Position Sensor + Type 8792 Remote
Type 8805 + Type 8792	Type 8798 Sensor Remote NAMUR + Type 8792 Remote	

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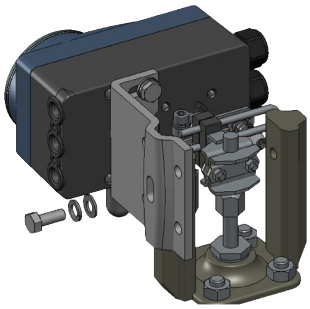
Assembly options

NAMUR Version

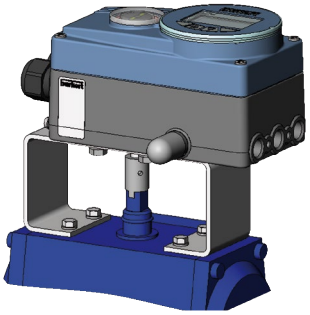
(Positioner with integrated position sensor, assembly acc. to NAMUR/IEC 60534-6-1 and VDI/VDE 3845 (IEC 60534-6-2))

Assembly on linear actuator



Description	Article no.
Adapter kit	787215

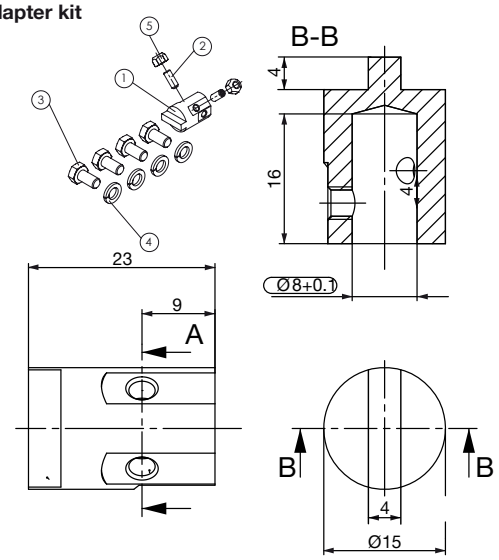
Assembly on rotary actuator



Description	Article no.
Adapter kit	787338
Assembly bridge	770294

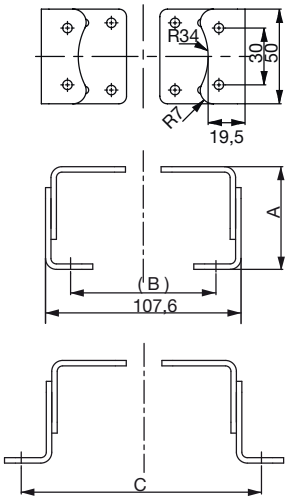
Dimensions [mm]

Adapter kit



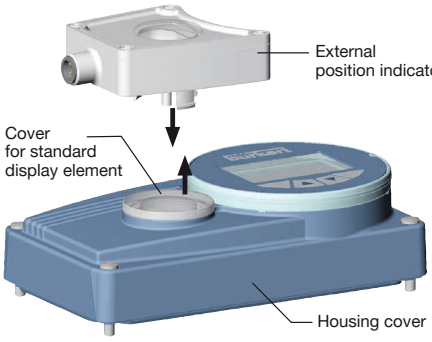
Actuator shaft height	A	B	C
20	46.5	80	-
30	56.5	80	130
50	76.5	-	130

Assembly bridge



Position feedback with proximity switches

(upgrade feature for SideControl NAMUR)



Connecting external position indicator

Description	Article no.
Position feedback	677218

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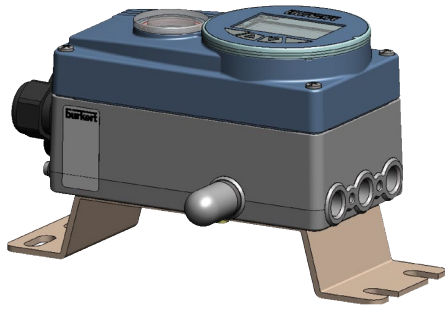
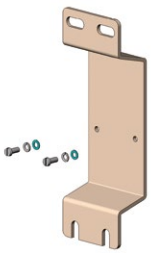
Assembly options *continued*

Remote version
(Displaced positioner with external remote position sensor)

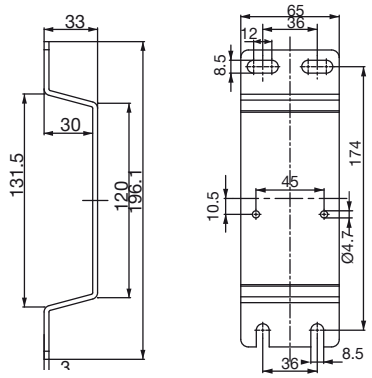
Assembly with accessory brackets



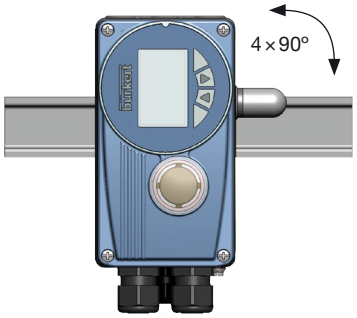


Description	Article no.
Assembly bracket for wall mounting	675715

Dimensions [mm]



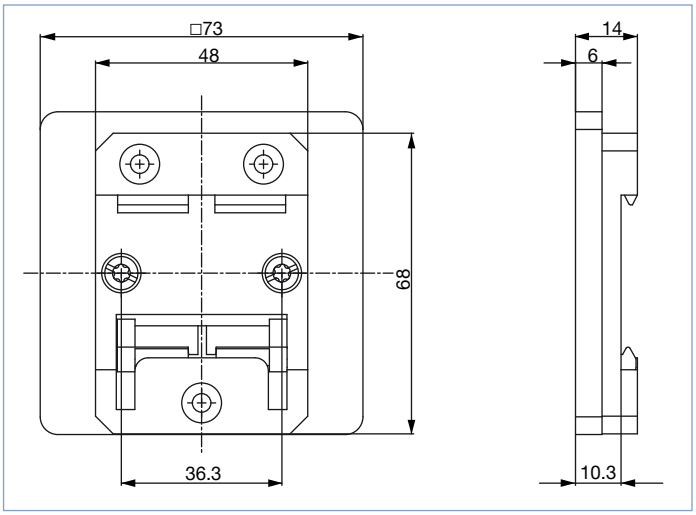
Assembly on DIN-Rail



The adapter can be turned every 90° on the DIN-Rail

Description	Article no.
DIN rail assembly kit	675702

Dimensions [mm]



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Assembly options *continued*

Remote version
(Remote position sensor for displaced positioner)

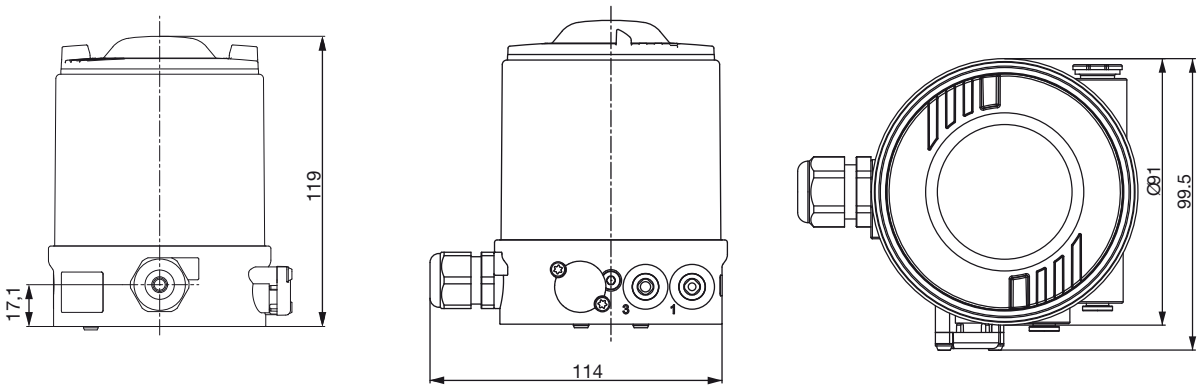
Type 8798

Description	Article no.	
	Standard	ATEX II 3 GD
Remote Position Sensor Mounting on control valves Type 23xx	212360	226860
Mounting on control valves Type 27xx	211535	226859

Description	Article no.
Remote Position Sensor NAMUR	211536

Dimensions

For mounting on Control valves ELEMENT Types 23xx



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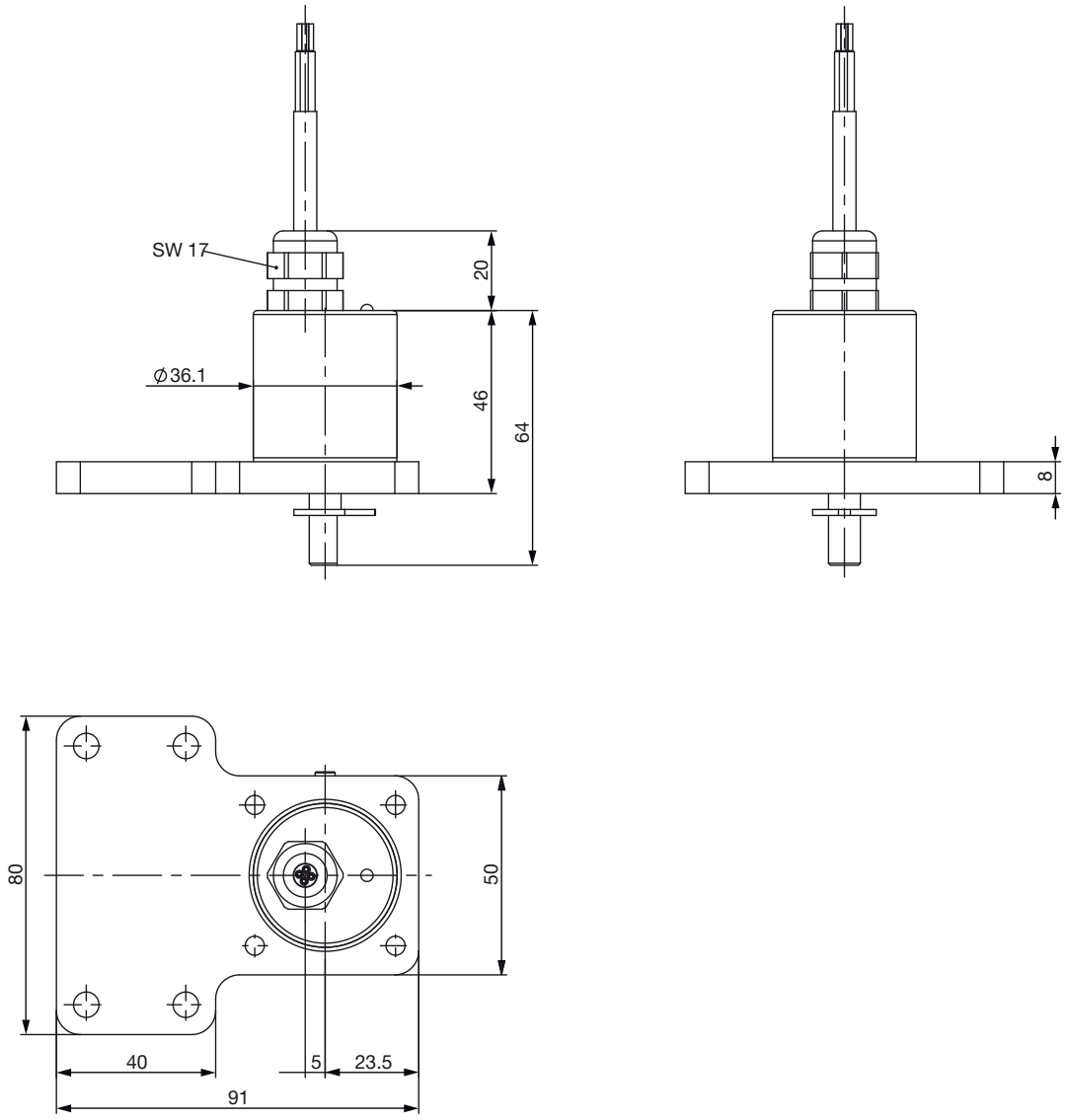
Dimensions

Mounting on control valves according to NAMUR (IEC 60534-6-1 / VDI/VDE 3845 (IEC 60534-6-2))



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Ordering Chart (further version on request)

Positioner SideControl Type 8792 NAMUR version

NAMUR IEC 60534-6-1 VDI/VDE 3845 (IEC 60534-6-2)

Communication	Electrical connection	Analogue feedback	2 Binary outputs	Diagnostic functions[3)]	cCSAus	ATEX II 3 GD / IECEx	Article no.
Single and double-acting, universal air capacity							
without fieldbus communication	Cable gland	no	no		yes		206610
		no	yes	yes	yes		206612
		yes	yes	yes	yes		206611
		yes	yes	yes		yes	310306
	Multipole	no	no		yes		206613
		no	yes	yes	yes		206615
		yes	yes	yes	yes		206614
PROFIBUS DP-V1	Multipole	via Bus	no		yes		206616
		via Bus	no			yes	310308
		via Bus	yes	yes		yes	310309
		via Bus	yes	yes	yes		206617
DeviceNet	Multipole	no	no		yes		239094
		no	yes	yes		yes	239095
EtherNet/IP	Multipole	via Bus	no	yes			317932*
		via Bus	yes	yes			317933*
		via Bus	no	yes		yes	317938*
		via Bus	yes	yes		yes	317939*
PROFINET	Multipole	via Bus	no	yes			317942
		via Bus	yes	yes			317943
		via Bus	no	yes		yes	317948*
		via Bus	yes	yes		yes	317949*
Modbus TCP	Multipole	via Bus	no	yes			317952
		via Bus	yes	yes			317953
		via Bus	no	yes		yes	317958*
		via Bus	yes	yes		yes	317959*
büS - Bürkert System Bus	Multipole	via Bus	no	yes			317962
		via Bus	yes	yes			317963
		via Bus	no	yes		yes	317968*
		via Bus	yes	yes		yes	317969*

Positioner SideControl Type 8792 remote version

Communication	Electrical connection	Analogue feedback	2 Binary outputs	Diagnostic functions[3)]	cCSAus	ATEX II 3 GD / IECEx	Article no.
Single-acting with low air capacity for actuator series Type 23xx (Ø 70/90 mm)							
without fieldbus communication	Cable gland	yes	yes	yes	yes		224870
		no	yes	yes	yes		224871
EtherNet/IP	Multipole	via Bus	yes	yes			317936*
PROFINET		via Bus	yes	yes			317946
Modbus TCP		via Bus	yes	yes			317956
büS - Bürkert System Bus		via Bus	yes	yes			317966
Single and double-acting with universal air capacity for actuator series Type 23xx (Ø 130 mm) and 27xx (Ø 175/225 mm)							
without fieldbus communication	Cable gland	no	no		yes		206623
		yes	yes	yes	yes		206624
		no	yes	yes	yes		206625
		yes	yes	yes		yes	310310
EtherNet/IP	Multipole	via Bus	yes	yes			317935*
PROFINET		via Bus	yes	yes			317945
Modbus TCP		via Bus	yes	yes			317955
büS - Bürkert System Bus		via Bus	yes	yes			317965

[3)] see additional software functions parametrisable diagnostic functions on page 13

* in preparation

Note: cCSAus approval in preparation for device versions with EtherNet/IP, PROFINET, Modbus TCP and büS

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Ordering Chart, continued

Remote Position Sensor for SideControl Type 8792 remote version

Assembly variations	Electrical connection	cULus	ATEX II 3 GD / IECEx	Article no.
Control valve Type 23xx	Cable gland - 10 m round cable	yes	no	212360
	Cable gland - 10 m round cable	no	yes	226860
Control valve Type 27xx	Cable gland - 10 m round cable	yes	no	211535
	Cable gland - 10 m round cable	no	yes	226859
NAMUR (rotative)	Cable gland - 2 m round cable (max. extension 10 m)	yes	no	211536

Ordering chart for accessories

Description	Article no.
Accessories for SideControl NAMUR	
Assembly bridge VDI/VDE 3845 (IEC 60534-6-2), stainless steel	770294
Adapter kit VDI/VDE 3845 (IEC 60534-6-2), stainless steel	787338
Adapter kit linear actuators IEC 60534-6-1, stainless steel	787215
Position feedback with proximity switches (optional upgrade feature) [3]	677218
Accessories for SideControl Remote	
Bracket for wall mounting, stainless steel	675715
DIN rail assembly kit, Aluminium/stainless steel	675702
Adapter kit - remote sensor control valves Type 23xx Actuator size Ø 70/90/130 mm	679917
Adapter kit - remote sensor control valves Type 27xx Actuator size Ø 175 / 225 mm	679945
Sensor Puck (replacement part)	682240
Standard Accessories	
M12 socket 8 pin with 5 m cable for power supply and input/output signals	919267
M8 plug 4 pin for binary outputs, with solder joints	917131
USB büS-Interface Set (büS-Stick + connection cable with M12 plug + conection cable M12 on micro USB for the büS service interface) to connect with PC-Tool Bürkert Communicator (only for device versions with EtherNet/IP, PROFINET, Modbus TCP and büS - Bürkert System Bus)	772551
büS cable extension M12, length 1 m	772404
büS cable extension M12, length 3 m	772405
büS cable extension M12, length 5 m	772406
büS cable extension M12, length 10 m	772407
SIM card	291773
Silencer G ¼" (replacement part)	780780
Sensor puck (replacement part)	682240
USB interface for serial communication (only for device versions with PROFIBUS / DeviceNet or without fieldbus communication)	227093
Software Bürkert Communicator	http://www.buerkert.de/de/type/8920

* Related Communication software can be downloaded from www.buerkert.com (8792)

[3] External end position feedback for upgrading SideControl NAMUR

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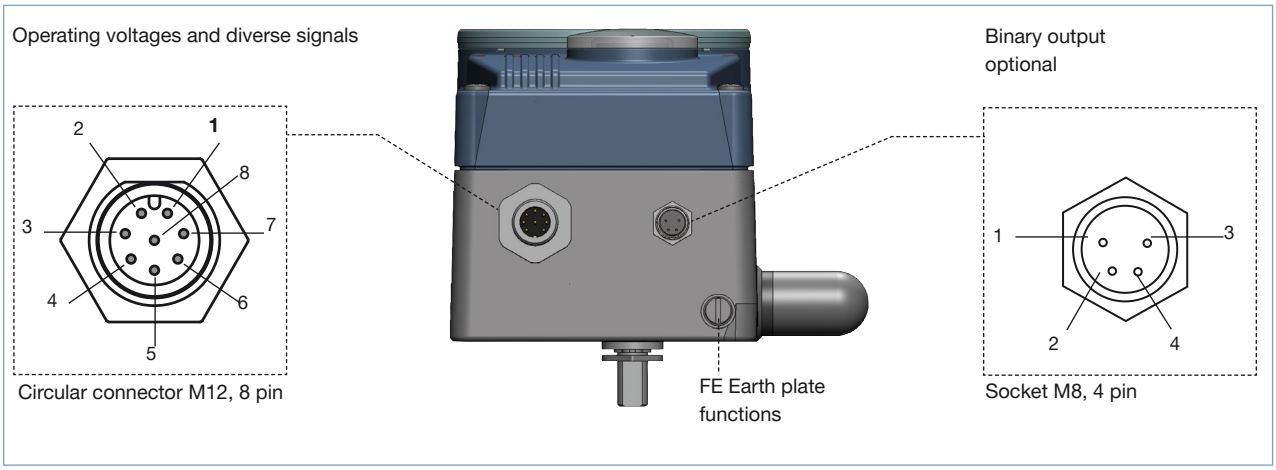
Connection options

Multi-pin connection



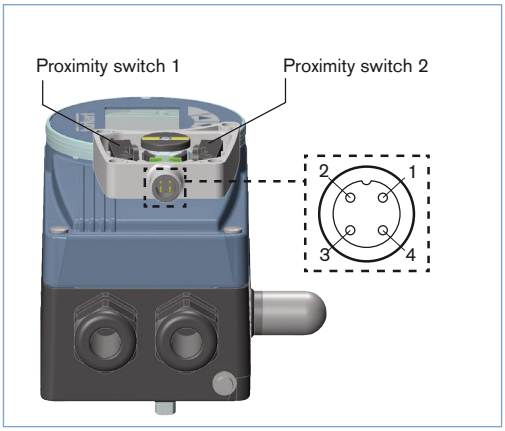
Circular connector M12, 8 pin (Setpoint)

Pin	Configuration	External Circuitry / signal level	
1	Setpoint + (0/4 … 20 mA or 0 … 5/10 V)	1	+ (4 … 20 mA or 0 … 10 V) Complete galvanically separated
2	Setpoint GND	2	GND
3	GND	3	24 V DC ±10 % Max. Residual ripple 10 %
4	+24 V	4	
5	Binary input +	5	+ 0 … 5 V (log. 0) 10 … 30 V (log. 1)
6	Binary input GND	6	GND
Optional analogue feedback			
8	Analogue feedback +	8	+ (0/4 … 20 mA or 0 … 5/10 V,) Complete galvanically separated
7	Analogue feedback GND	7	GND

Socket M8, 4 pin (only with Binary Output Option)

Pin	Configuration	External Circuitry / signal level	
1	Binary Output 1	1	24 V / 0 V, NC / NO relative to operating voltage GND (terminal GND)
2	Binary Output 2	2	24 V / 0 V, NC / NO relative to operating voltage GND (terminal GND)
3	Binary Output GND	3	GND

Electrical connection Position feedback with proximity switches (accessory for upgrading)



Pin	Config.	External circuit /signal level		
1	Supply 10 ... 30 V	+10 V ... +30 V	1	10 ... 30 V
2	Switching output (NO) Proximity switch 1	+10 V ... +30 V	2	Open / 10 ... 30 V
3	GND	GND	3	GND
4	Switching output (NO) Proximity switch 2	+10 V ... +30 V	4	Open / 10 ... 30 V

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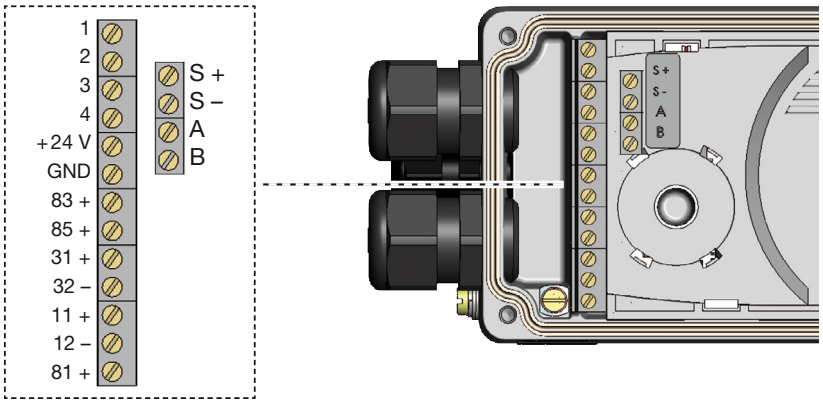
Connection options, continued

Cable gland connection



Terminal	Configuration	External Circuitry / signal level
11 +	Setpoint +	11 + ——— + (4 … 20 mA or 0 … 10 V) Complete galvanically separated
12 –	Setpoint GND	12 – ——— GND
81 +	Binary input +	81 + ——— + → 05 V (log. 0) / 10 V (log. 1) Obtained at GND operating voltages (GND clamps)
+24 V	Operating voltages +	+24 V ——— 24 V DC ±10 %
GND	Operating voltages GND	GND ——— max. Residual ripple 10 %

Terminals 1, 2, 3, 4: not connected

Optional Analogue feedback / Binary Output

Terminal	Configuration	External Circuitry / signal level
83 +	Binary Output 1	83 + ——— 24 V / 0 V, NC / NO Obtained at GND operating voltages (GND clamps)
85 +	Binary Output 2	85 + ——— 24 V / 0 V, NC / NO Obtained at GND operating voltages (GND clamps)
31 +	Analogue feedback +	31 + ———→ + (0/4 … 20 mA or 0 … 5/10 V) Complete galvanically separated
32 –	Analogue feedback GND	32 – ———→ GND

Terminal 1, 2, 3, 4 : NC

Optional remote version in connection with remote positioner sensor Type 8798

Terminal		Configuration	External Circuitry / signal level	
Remote Sensor	A	Serial interface, A cable	A ———	A line
	B	Serial interface, B cable	B ———	B line
	S +	Supply sensor +	S + ———	+
	S -	Supply sensor -	S - ———	-

Remote Sensor Type 8798

For version without remote version: terminals A, B, +, - not connected

Remote sensor Type 8798

Terminal	Wire colour for cable type 1	2	Configuration	External Circuitry	
1	white	black	Supply Sensor -	1 ———	8791 or
2	brown		Supply Sensor +	2 ———	8792 / 8793
3	yellow	orange	Serial Interface, B line	3 ———→	8791 or
4	green	red	Serial Interface, A line	4 ———→	8792 / 8793

Terminal 1, 2, 3, 4 : NC

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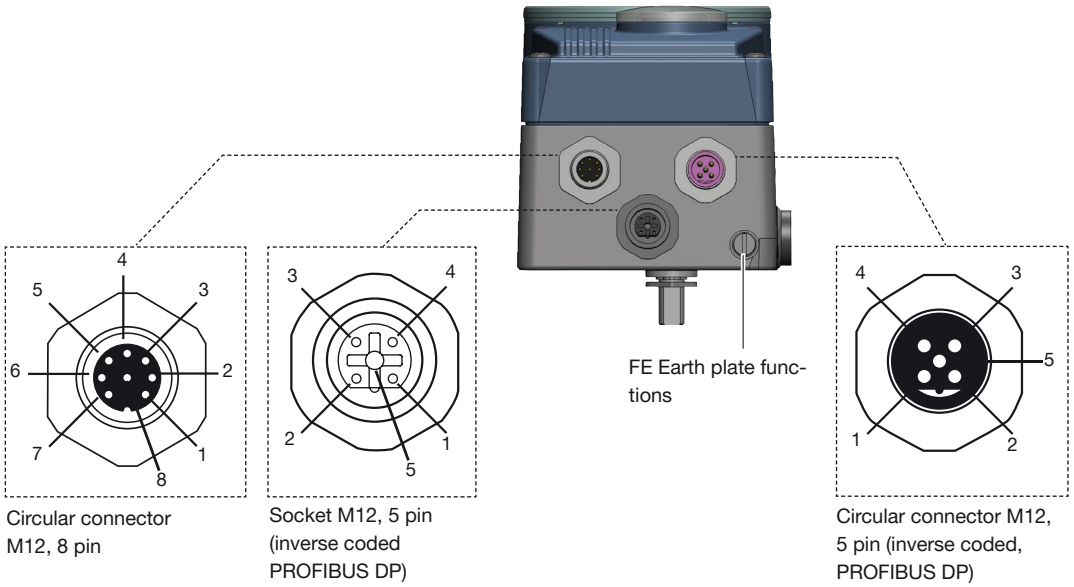
Connection options, continued

Connection PROFIBUS DP



Circular connector M12, 8 pin

Socket M12, 5 pin (inverse coded PROFIBUS DP)

Circular connector M12, 5 pin (inverse coded, PROFIBUS DP)

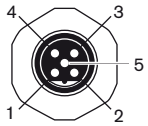
Operating voltage - circular connector M12, 8 pin

Pin	Configuration	External Circuitry / signal level
1	Not configured	
2	Not configured	
3	GND	3 — 24 V DC ±10 %
4	+24 V	4 — max. Residual ripple 10 %
5	Binary input +	
6	Binary input –	
7	Binary Output 1 (oriented at Pin 3)	
8	Binary Output 2 (oriented at Pin 3)	

Fieldbus connection - socket/circular connector M12, 5 pin

Pin	Configuration	External Circuitry / signal level
1	VP+5	Load resistance supply
2	RxD/TxD-N	Receive and send information -N, A Circuitry
3	DGND	Information transfer potential (measured to 5 V)
4	RxD/TxD-P	Receive and send information -P, B Circuitry
5	Shield	Shield / protective earth

Fieldbus connection DeviceNet - M12, 5 pin circular connector

Pin	Signal	Colour	Configuration
1	Shielding	Not used	
2	V+	Not used	
3	V-	Not used	
4	CAN H	White	
5	CAN L	Blue	

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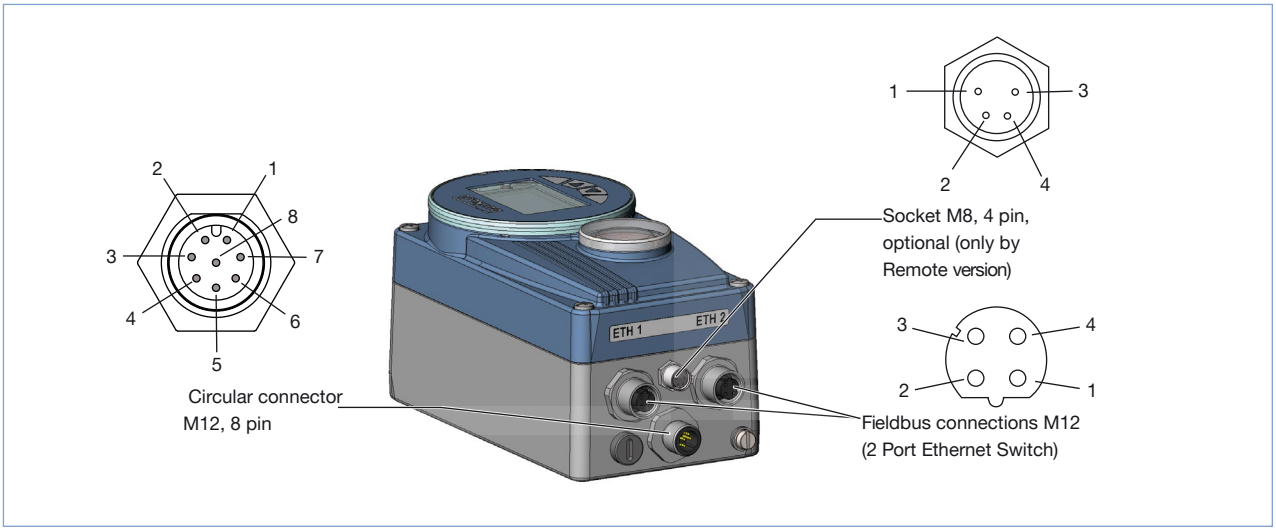
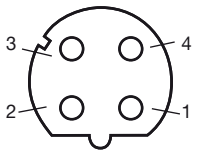
EtherNet/IP, PROFINET, Modbus TCP connection



Fieldbus connections M12 D-coded

Connections for EtherNet/IP takes placeover circular connector M12, 4 pin D-coded



Pin 1	Transmit +
Pin 2	Receive +
Pin 3	Transmit –
Pin 4	Receive –

Operating system - circular connector M12, 8 pin

Pin	Configuration	Device side	External circuitry / signal level
1	not allocated		
2	not allocated		
Operating voltage			
3	GND	3	24 V DC ± 10 %
4	+ 24 V	4	max. residual ripple 10%
Input signals (e.g. SPS)			
5	Binary input +	5 +	0...5 V (log.0)
6	Binary input -		10...30 V (log.1)
		6	GND (identical to pin 3)
Output signal (e.g. SPS) - (Only used for binary output option)			
7	Binary output 1 (correlated to pin 3)	7	0...24 V
8	Binary output 2 (correlated to pin 3)	8	0...24 V

Connection of the digital, non-contact displacement transducer, Type 8798

Pin	Configuration	Device side	External circuitry
1	Sensor power supply +	S +	+
2	Sensor power supply –	S –	–
3	Serial interface, A-line	A	A-line
4	Serial interface, B-line	B	A-line

Remote Sensor
Type 8798
digital

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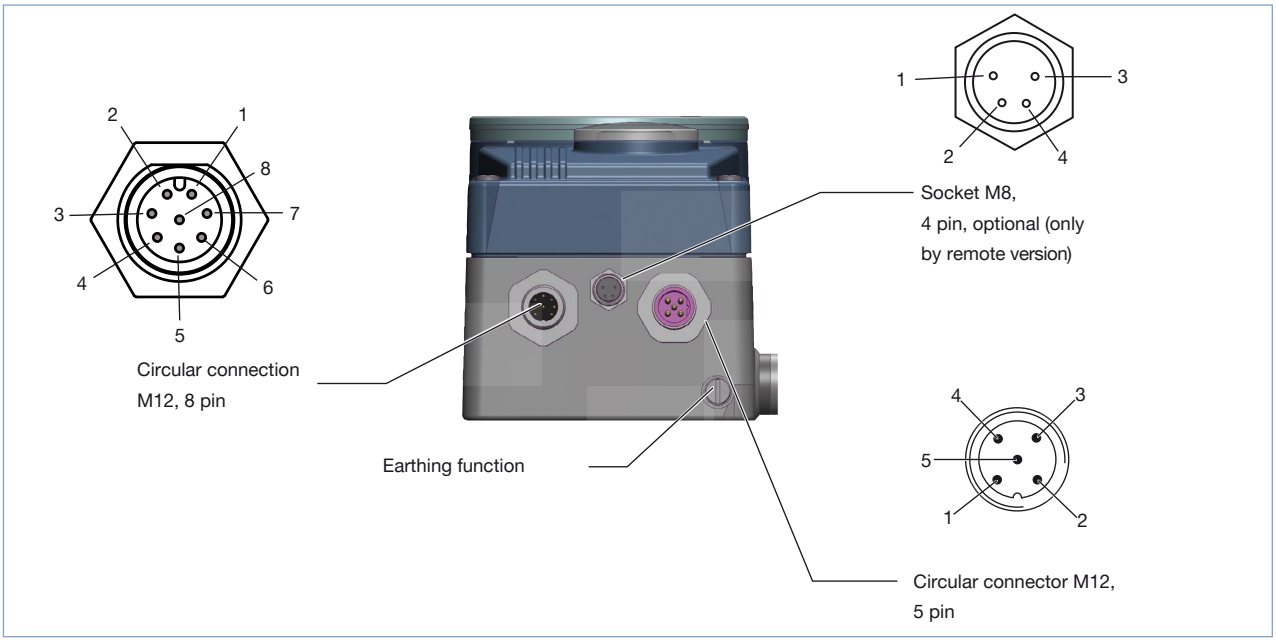
Anschluss büS (Bürkert System Bus)



Fieldbus connection- circular connection M12x1, 5 pin

Pin	Wire colour	Configuration
1	CAN-Schield / Shielding	CAN-Schield / Shielding
2	not allocated	
3	Black	Black GND / CAN_GND
4	White	White CAN_H
5	Blue	Blue CAN_L

Operating voltage - circular connections M12, 8 pin

Pin	Configuration	Device side	External circuitry / signal level
1	not allocated		
2	not allocated		
Operating voltage			
3	GND	3	24 V DC ± 10 %
4	+ 24 V	4	max. residual ripple 10%
Input signal (e.g. SPS)			
5	Binary input +	5 +	0...5 V (log.0)
6	Binary input -		10...30 V (log.1)
		6	GND (identical to pin 3)
Output signal (e.g. SPS) - (Nur belegt bei Option Binärausgang)			
7	Binary output 1 (correlated to pin 3)	7	0...24 V
8	Binary output 2 (correlated to pin 3)	8	0...24 V

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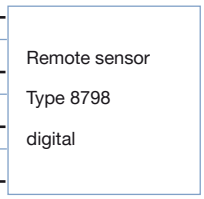
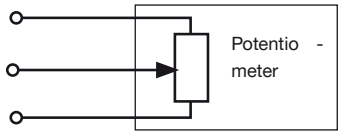
Connection of digital remote position sensor Type 8798 - Socket M8, 4 pin (optional)

Pin	Configuration	Device side	External circuitry
1	Sensor power supply +	S +	+
2	Sensor power supply -	S –	–
3	Serial interface, A-line	A	A-line
4	Serial interface, B-line	B	B-line



Connection of analogue remote position sensor - Socket M8, 4 pin (optional)

Pin	Configuration	Device side	External circuitry
1	Potentiometer 1	1	
2	Sliding contact 2	2	
3	Potentiometer 3	3	
4	not allocated		



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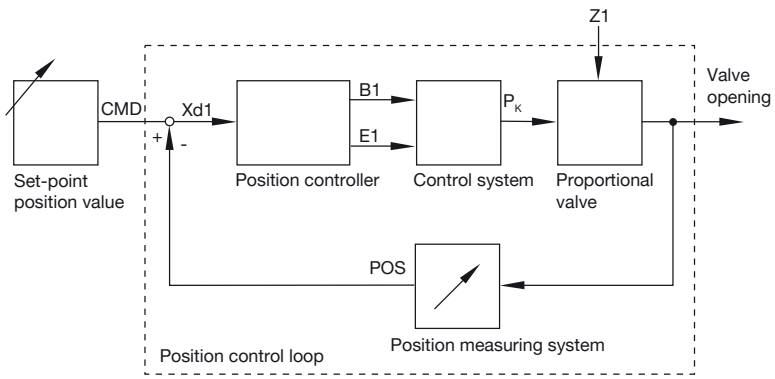
Signal flow plan

Position control loop



Additional software options of the SideControl positioner Type 8792 (extract)

- Automatic start of the control system
- Automatic or manual characteristics curves selection
- Setting of the seal and the maximum stroke threshold respectively
- Parameterisation of the positioner
- Limitation of the stroke range
- Limitation of the manipulating speed
- Setting of the moving direction
- Configuration of the binary input
- Signal range splitting on several controllers
- Configuration of analogue or 2 binary outputs
- Signal fault detection
- Safety position
- Code protection
- Contrast inversion of the display
- Parametisable diagnostic functions* / Binary output (option)
  - – Operating-hours counter
  - – Path accumulator
  - – Position monitoring
  - – Graphical display of the dwell time density and movement range
  - – Monitoring of the mechanical end positions in the armature

*You will find more diagnostic functions with a detailed description in the operating manual for Type 8792/93

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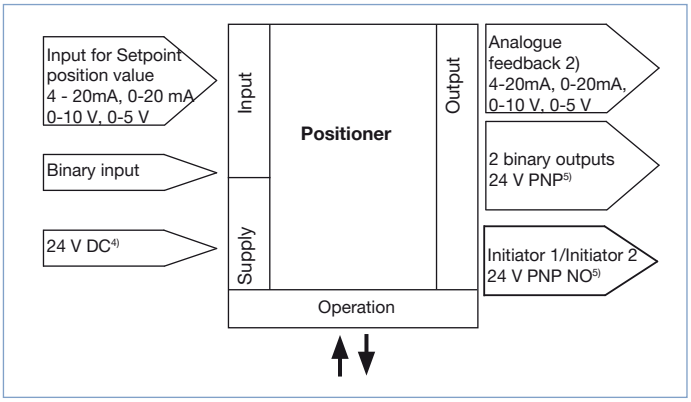
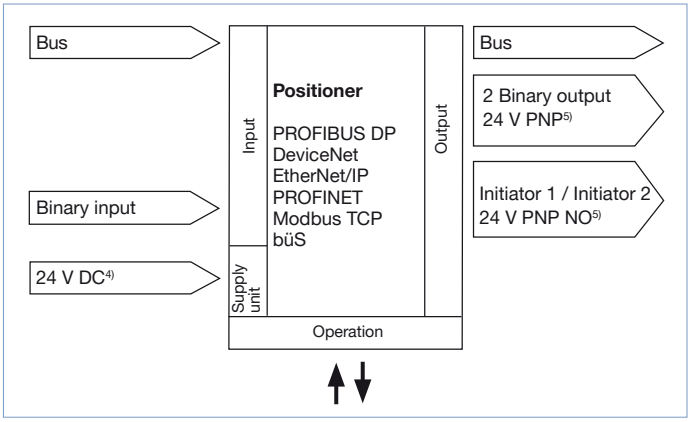
Schematic diagram of SideControl, Type 8792

Without Fieldbus interface



With PROFIBUS DP, DeviceNet, EtherNet/IP, PROFINET, Modbus TCP and büS - Bürkert System Bus



4) The operating voltage is supplied with a 3-wire unit independent from the setpoint signal

5) Alternative options

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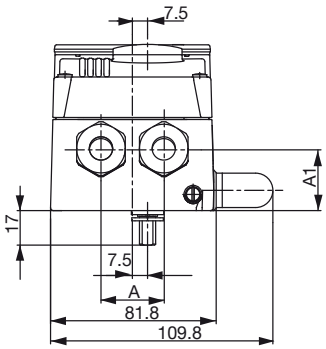
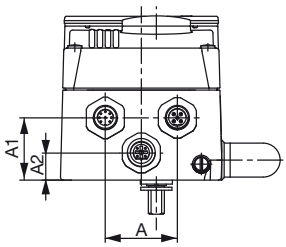
Dimensions [mm]

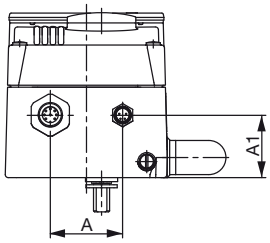
NAMUR version
Cable gland (standard)



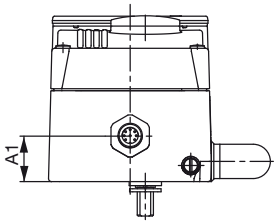
NAMUR version
PROFIBUS DP Multipole



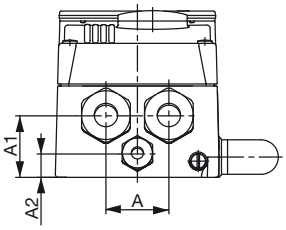
NAMUR version
Multipole with Binary outputs

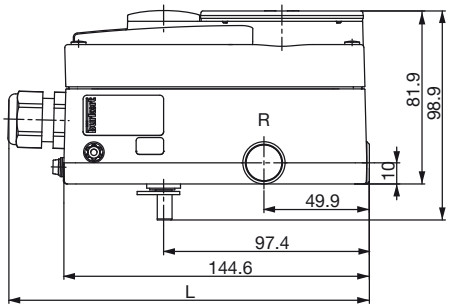


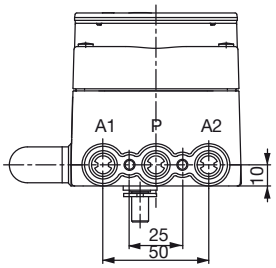
NAMUR version
Multipole

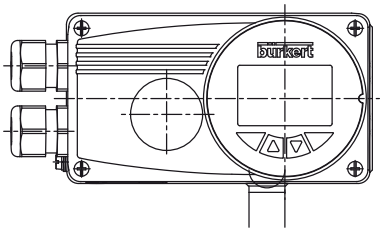


Remote version
cable gland









Description	L	A	A1	A2
Standard	171.1	31	30	–
PROFIBUS DP	157.8	36	31	13.5
Multipole Bin. OUT	157.6	36	31	–
Mulitpole	157.4	-	22.5	–
Remote	171.1	31	30	11.5

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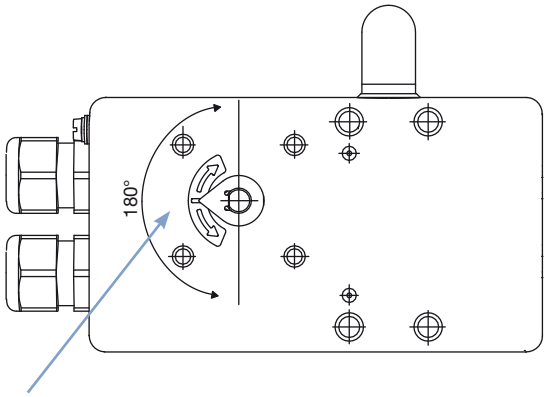
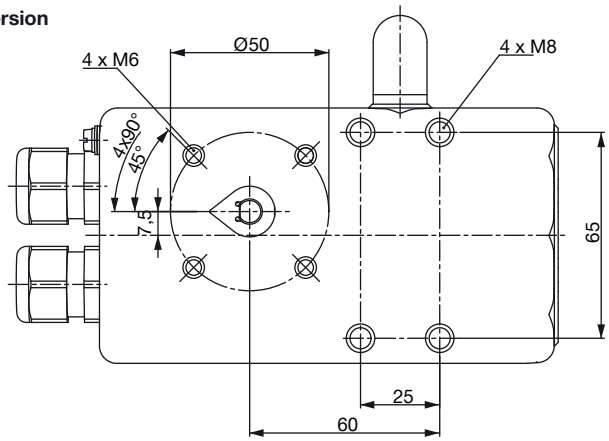
Dimensions [mm], continued



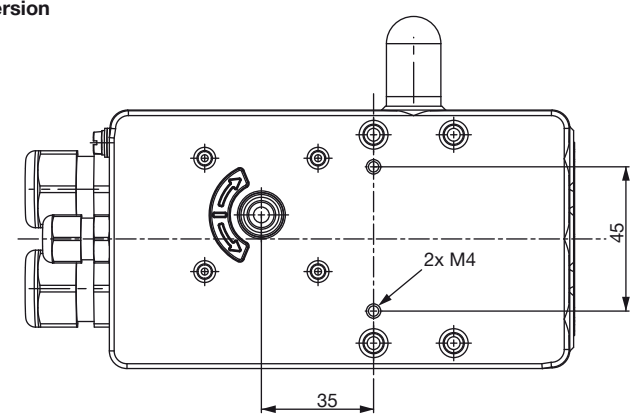
The rotation angle of the sensor must be within a range of 180°

With the valve open approx. 50 %, the sensor indicator should be in this position.

Standard Version



Remote version



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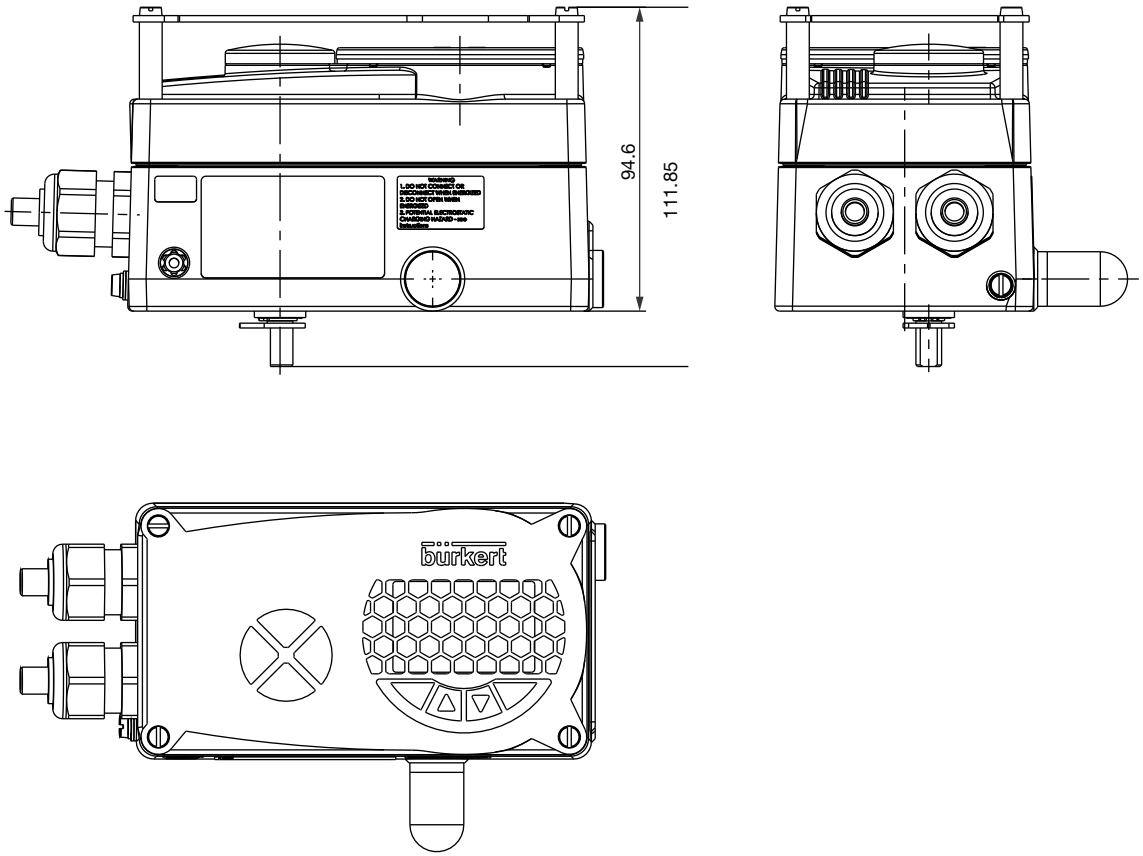
Dimensions [mm], continued

ATEX / IECEx version



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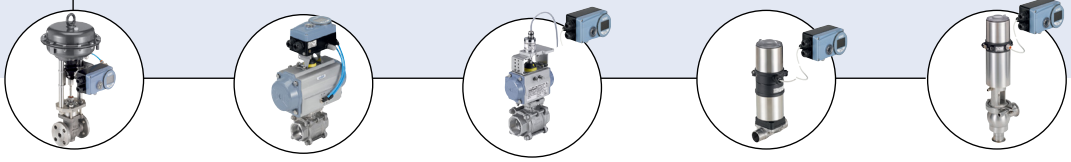
bürkert
FLUID CONTROL SYSTEMS

Digital electropneumatic Process Controller SideControl

- Compact and robust design
- Easy Start-up using Tune function of the Positioner and Process controller
- Integrated diagnostic functions for valve monitoring
- Dynamic positioning system with no air consumption in controlled state
- PROFIBUS DP-V1, DeviceNet, EtherNet/IP, PROFINET, Modbus TCP or büS (Bürkert System Bus)

Type 8793 can be combined with…



Yoke type actuators | **Rotary actuators** | **Rotary actuators with remote positioner** | **Process control valve with remote positioner** | **Hygienic process control valve with remote positioner**

The digital process controller Type 8793 is designed to standardization acc. to IEC 60534–6–1 or VDI/VDE 3845 (IEC 60534–6–2) for assembly with linear and rotary actuators. In addition, the remote version can be combined with Bürkert process control valves. The process controller can be operated by the usual current and voltage standard signals and can also be equipped with the fieldbus interface. The actual process value is directly supplied to the device as 4-20 mA, PT100 or as frequency signal. The process controller calculates the position setpoint for the subordinated positioner through variance comparison. The parameterization of process controller can be carried out automatically via Tune function. The handling is easily done either on a graphic display with keypad or via COMMUNICATOR. The process controller is equipped with diagnostic functions to monitor the state of the valve. With the diagnostics, the operating conditions of the control valve can be monitored. This allows planned maintenance and optimizes plant availability. The pilot valve system can be used equally for single and double acting actuators. It is characterized by a defined safety feature in case of failure of the electrical or pneumatic power and possesses an enormous air capacity range with pressure supply up to 7 bar.

Technical data	
Material: Body	Aluminium plastic-coated
Seal	EPDM, NBR, FKM
Operating voltages	24 V DC ±10 %
Residual ripple	max. 10 %
Setpoint setting	0/4…20 mA and 0…5/10 V
Input resistance	0/4…20 mA: 180 Ω 0…5/10 V: 19 kΩ
Input data for actual value signal	
Setting 4…20 mA	180 Ω Input resistance / Resolution 12 bit
Frequency setting	17 kΩ Input resistance, 0…1000 Hz / 1 ‰ o.R.. measuring range, Input signal >300 mV_{ss}
Setting Pt 100	Signal form Sine, rectangle, triangle Measuring range -20…+220 °C, Resolution <0.1 °C, M
Analogue feedback	4…20 mA, 0…20 mA 0…10 V, 0…5 V
Binary input	galvanically isolated, 0…5 V = log "0", 10…30 V = log "1"
Binary Output	2 Outputs (optional), galvanically isolated
Current limit	100 mA, Output will be synchronised when overloaded
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 (without Ex-Approval) 0 to +60 °C (with ATEX / IECEx-Approval)
Pilot air ports	Threaded port G ¼
Supply pressure	1.4…7 bar[1) 2)]
Air input filter	Exchangeable (aperture size ~0.1 mm)
Pilot valve system	Single and double-acting up to 150 l_N/min.
Air capacity	50 l_N/min (with 1.4 bar[2)]) for aeration and ventilation 150 l_N/min (with 6 bar[2)]) for aeration and ventilation (Q_{Nn} = 100 l_N/min (acc. to the definition with decrease in pressure from 7…6 bar absolute)

[1)] The supply pressure has to be 0.5…1 bar above the minimum required pilot pressure for the valve actuator
[2)] Pressure specifications: Overpressure with respect to atmospheric pressure

continued on next page

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Technical data, continued

Technical data	
Position detection module	Potentiometer, max. angle 180°
Stroke range valve spindle	Min. 30° on the rotary shaft, independent of lever
Installation	As required, display above or sideways
Type of protection	IP65/IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard
Power consumption	< 5 W
Electrical connection	
Multi-pin connection	M12, 8 pin / 4 pin; M8, 4 pin
Cable gland	2x M20 × 1.5 (cable Ø 6 … 12 mm) on screw terminals (0.14 … 1.5 mm²)
Remote Version	1x M12 × 1.5 (cable Ø 3 … 6.5 mm)
Bus communication	PROFIBUS DP-V1, DeviceNet, EtherNet/IP, PROFINET, Modbus TCP or büS (basiert auf CANopen)
Protection class	III acc. to DIN EN 61140
Conformity	EMC directive 2014/30/EU
CSA approval information	
Product category code	Class 3221 82-VALVES - Actuators - Certified to US standards Class 3221 02-VALVES - Actuators
Considered standards	CAN/CSA-C22 2 No. 139 UL 429
CSA trademark	c SA us
Ex-Approval ATEX	II 3G Ex ec ic IIC T4 Gc / II 3D Ex tc IIIC T135 °C Dc Certificate; BVS 16 ATEX E 118 X
IECEx	Ex ec ic IIC T4 Gc / Ex tc IIIC T135 °C Dc Certificate; IECEx BVS 16.0091 X

Technical data - Linear Remote Position Sensor (ELEMENT)	
Electrical connection	
Cable gland	1xM16 × 1.5 (cable Ø 5 … 10 mm) on terminal screws (0.14 … 1.5 mm²)
Connection cable length	10 m
Operating voltage	24 V DC ± 10 %
Power consumption	< 0.3 W
Sensor measurement range	3 … 45 mm (Stroke range valve spindle)
Actual position signal	digital (RS485)
Ambient temperature	-25 to +80 °C
Protection class	III acc. to DIN EN 61140
Type of protection	IP65 and IP67 acc. to EN 60529, 4X acc. to NEMA 250 standard
Type of Ignition protection	II 3D Ex tc IIIC T135 °C Dc II 3G Ex nA IIC T4 Gc
Conformity	EMC directive 2014/30/EU
Approvals	cULus Certificate no. 238 179

Technical data - rotative Remote Position Sensor (NAMUR)	
Electrical connection	2 m round cable (shielded)
Operating voltage	10 … 30 V DC
Residual ripple	< 0.8 W
Sensor measurement range	0° to 360°
Actual position signal	digital (RS485)
Ambient temperature	-25 to +80 °C
Protection class	III acc. to DIN EN 61140
Type of protection	IP65 acc. to EN 60529
Conformity	EMC directive 2014/30/EU
Approvals	UL (cULus) Certificate no. E226909

Technical data - Position feedback with proximity switches (Accessory)	
Electrical connection	M12, 4 pin
Output function	3-wire, normally open contact, PNP
Operating voltage	10 … 30 V DC
Residual ripple	≤ 10 % U_{ss}
DC rated current	≤ 100 mA
Type of protection	IP65 and IP67
Protection class	III acc. to DIN EN 61140
Conformity	EMC directive 2014/30/EU
Approvals	cCSAus

Note: The position feedback has two proximity switches which are independently adjustable via switch lugs.

Using a remote positioner the length of the control air pipes influences the dynamics and attainable accuracy of the position control loop. The length of the control air pipes therefore should be as short as possible.

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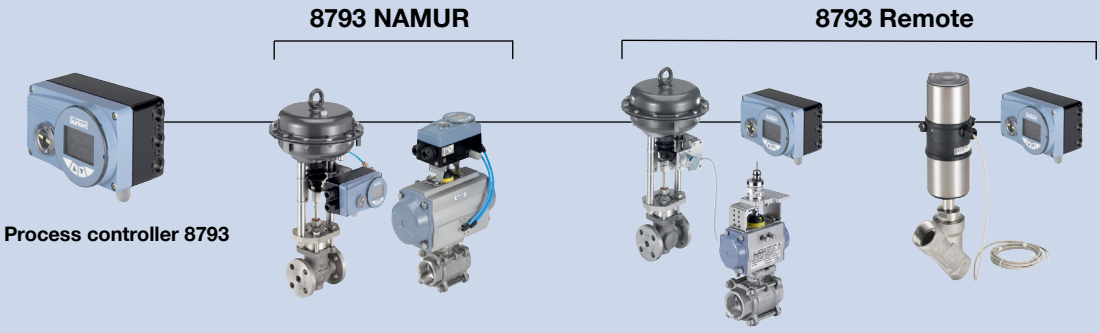
Example for assembly variations of process controller SideControl

Process controller SideControl Type 8793



Linear actuators IEC 60534–6–1 **Rotary actuators VDI/VDE 3845 (IEC 60534–6–2)** **Type 8805 + Type 8793**	**Linear actuators IEC 60534–6–1** **Rotary actuators VDI/VDE 3845 (IEC 60534–6–2)** Type 8798 Sensor Remote NAMUR + Type 8793 Remote	Control valve system Type 2300 + Type 8798 Remote Position Sensor + Type 8793 Remote

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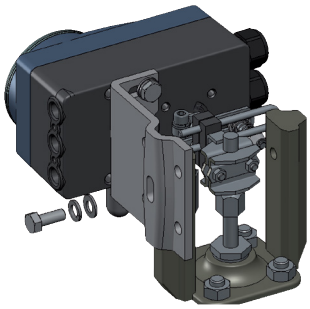
Assembly options

NAMUR Version

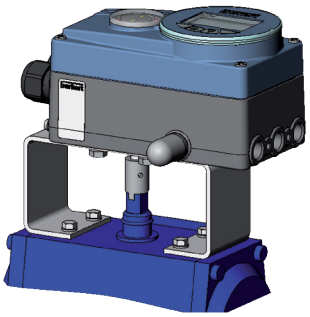
(Positioner with integrated position sensor, assembly acc. to NAMUR/IEC 60534–6–1 and VDI/VDE 3845 (IEC 60534–6–2))

Assembly on linear actuator



Description	Article no.
Adapter kit	787215

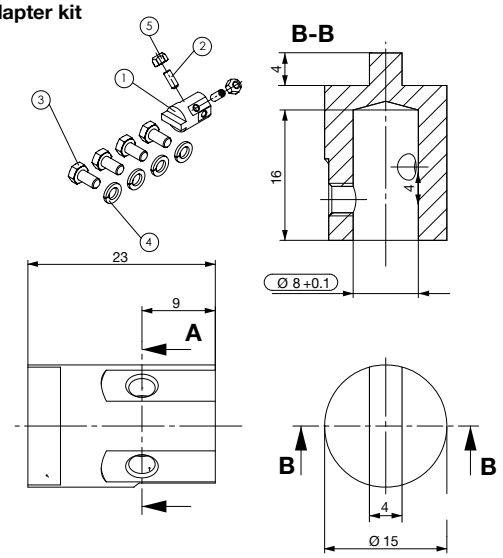
Assembly on rotary actuator



Description	Article no.
Adapter kit	787338
Assembly bridge	770294

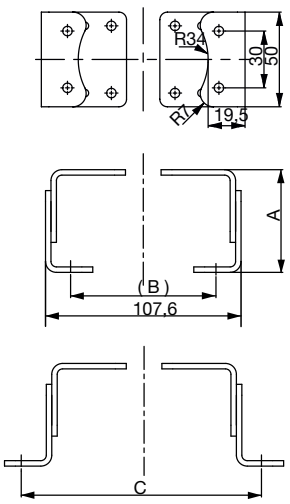
Dimensions [mm]

Adapter kit



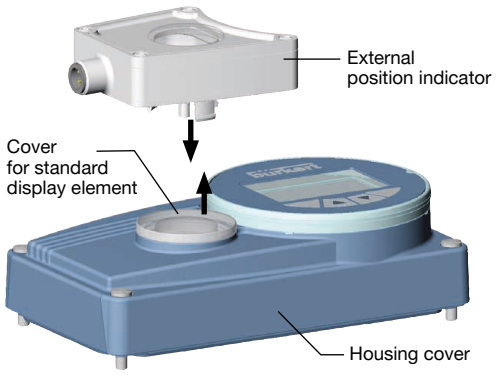
Actuator shaft height	A	B	C
20	46.5	80	-
30	56.5	80	130
50	76.5	-	130

Assembly bridge



Position feedback with proximity switches

(upgrade feature for SideControl NAMUR)



Description	Article no.
Position feedback	677218

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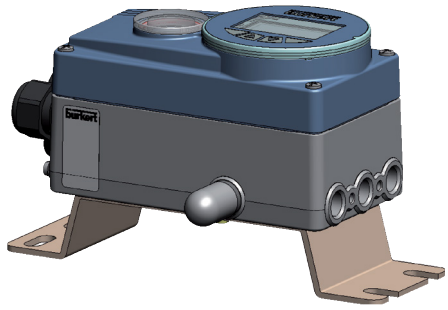
Assembly options *continued*

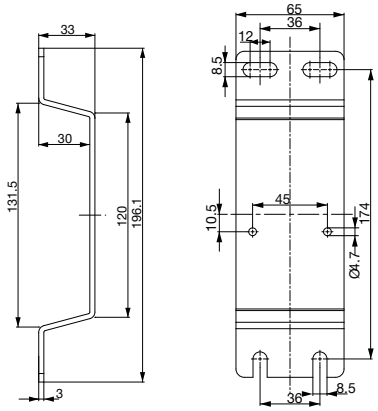
Remote Version
(Displaced positioner with external remote position sensor)

Assembly with accessory brackets

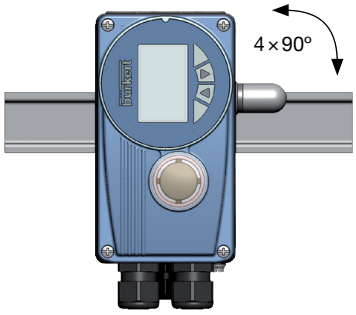


Description	Article no.
Assembly bracket for wall mounting	675715

Dimensions [mm]



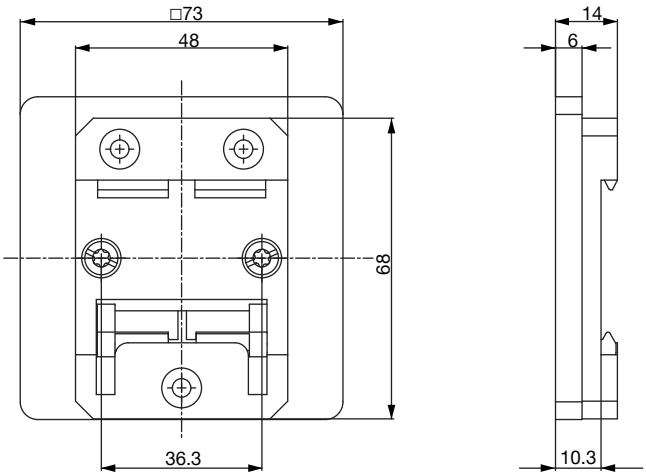
Assembly on DIN-Rail



The adapter can be turned every 90° on the DIN-Rail

Description	Article no.
DIN rail assembly kit	675702

Dimensions [mm]



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Assembly options *continued*

Remote Version
(Remote position sensor for displaced positioner)

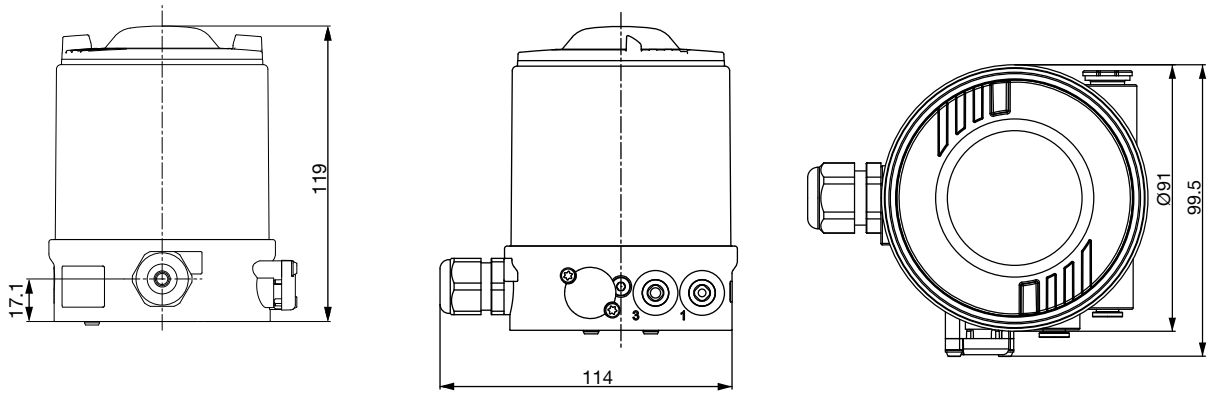
Type 8798

Description	Article no.	
	Standard	ATEX II 3 GD
Remote Position Sensor Mounting on control valves Type 23xx	212360	226860
Mounting on control valves Type 27xx	211535	226859

Description	Article no.
Remote Position Sensor NAMUR	211536

Dimensions

For mounting on Control valves ELEMENT Types 23xx



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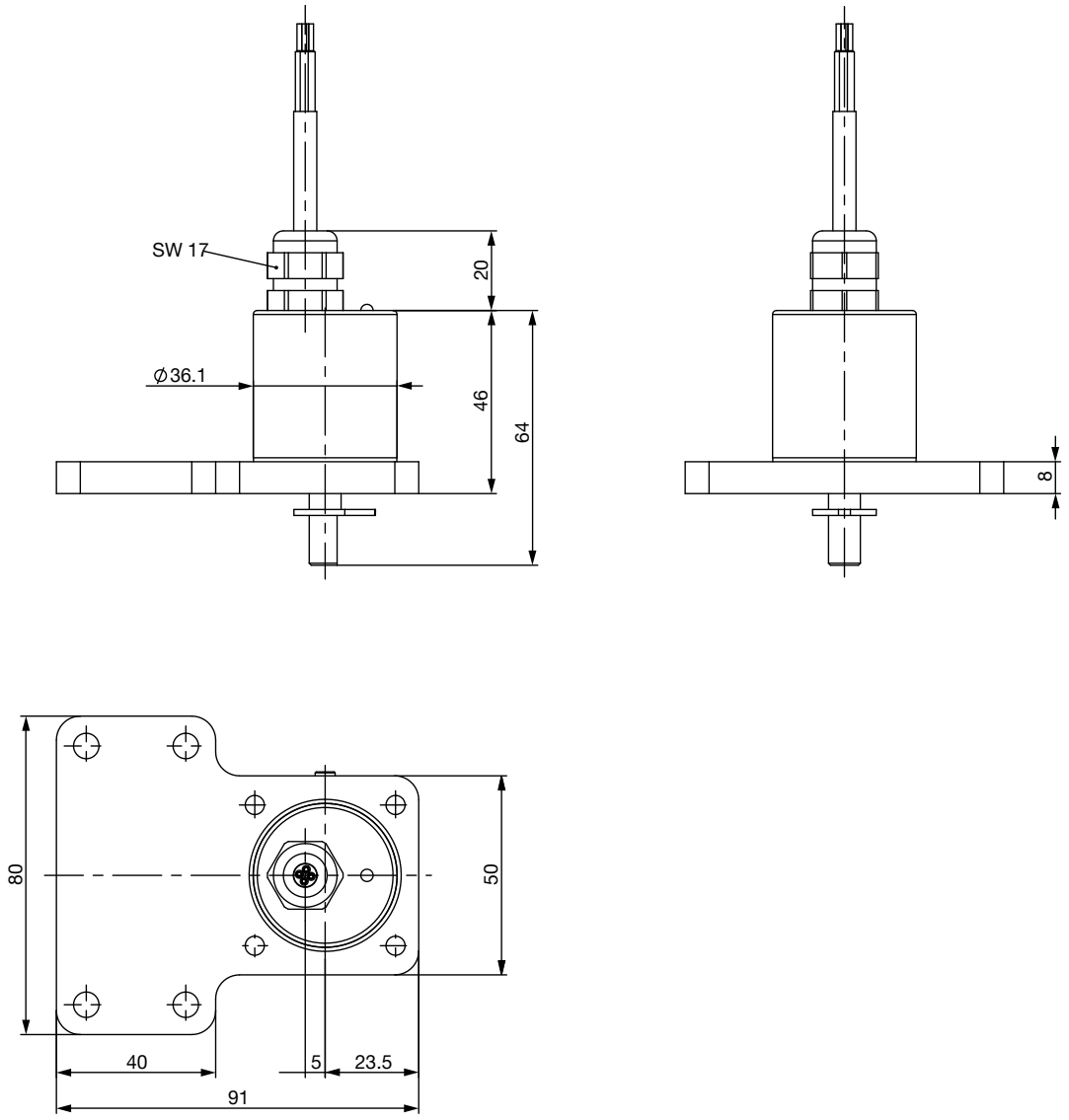
Dimensions

Mounting on control valves according to NAMUR (IEC 60534–6–1 / VDI/VDE 3845 (IEC 60534–6–2))



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Ordering Chart (further version on request)

Process controller SideControl Type 8793 NAMUR version

NAMUR IEC 534–6 VDI/VDE 3845

Communication	Electrical connection	Analogue feedback	2 Binary outputs	Diagnostic functions[3)]	cCSAus	ATEX II 3 GD / IECEx	Article no.
Single and double-acting with universal air capacity							
without fieldbus communication	Cable gland	no	no		yes		206593
		no	yes	yes	yes		206595
		yes	yes	yes	yes		206594
		yes	yes	yes		yes	310312
		no	yes	yes		yes	310313
	Multipole	no	no		yes		206596
		no	yes	yes	yes		206599
		yes	yes	yes	yes		206598
PROFIBUS DP-V1	Multipole	via Bus	no		yes		206600
		via Bus	yes	yes	yes		206601
DeviceNet	Multipole	no	no		yes		239097
		no	yes	yes	yes		239098
EtherNet/IP	Multipole	via Bus	no	yes			317930 *
		via Bus	yes	yes			317931 *
PROFINET	Multipole	via Bus	no	yes			317940
		via Bus	yes	yes			317941
Modbus TCP	Multipole	via Bus	no	yes			317950
		via Bus	yes	yes			317951
büS - Bürkert System Bus	Multipole	via Bus	no	yes			317960
		via Bus	yes	yes			317961

Process controller SideControl Type 8793 remote version

Communication	Electrical connection	Analogue feedback	2 Binary outputs	Diagnostic functions[3)]	cCSAus	ATEX II 3 GD / IECEx	Article no.
Single-acting with low air capacity for actuator series Type 23xx (Ø 70/90 mm)							
without fieldbus communication	Cable gland	no	no		yes		226828
		no	yes	yes	yes		224873
		yes	yes	yes	yes		224872
EtherNet/IP	Multipole	via Bus	yes	yes			317937 *
PROFINET		via Bus	yes	yes			317947
Modbus TCP		via Bus	yes	yes			317957
büS - Bürkert System Bus		via Bus	yes	yes			317967
Single and double-acting with universal air capacity for actuator series Type 23xx (Ø 130 mm) and 27xx (Ø 175/225 mm)							
without fieldbus communication	Cable gland	no	no		yes		206607
		yes	yes	yes	yes		206608
		no	yes	yes	yes		206609
		yes	yes	yes		yes	310314
EtherNet/IP	Multipole	via Bus	yes	yes			317934 *
PROFINET		via Bus	yes	yes			317944
Modbus TCP		via Bus	yes	yes			317954
büS - Bürkert System Bus		via Bus	yes	yes			317964

[3)] see additional software functions parametrisable diagnostic functions

* in preparation

Note: cCSAus approval in preparation for device versions with EtherNet/IP, PROFINET, Modbus TCP und büS

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Ordering chart continued

Remote Position Sensor for SideControl Type 8793 remote version

Assembly variations	Electrical connection	cULus	ATEX II 3 GD / IECEx	Article no.
Remote Position Sensor				
Control valve Type 23xx	Cable gland - 10 m round cable	yes	no	212360
	Cable gland - 10 m round cable	no	yes	226860
Control valve Type 27xx	Cable gland - 10 m round cable	yes	no	211535
	Cable gland - 10 m round cable	no	yes	226859
NAMUR (rotative)	Cable gland - 2 m round cable (max. extension 10 m)	yes	no	211536

Ordering chart for accessories

Description	Article no.
Accessories for SideControl BASIC NAMUR	
Assembly bridge VDI/VDE 3845 (IEC 60534–6–2), stainless steel	770294
Adapter kit VDI/VDE 3845 (IEC 60534–6–2) stainless steel	787338
Adapter kit linear actuators IEC 60534–6–1 stainless steel	787215
Position feedback with proximity switches (optional upgrade feature) [3]	677218

Accessories for SideControl BASIC Remote	
Bracket for wall mounting, stainless steel	675715
DIN rail assembly kit Aluminium/stainless steel	675702
Adapter kit - remote sensor, control valves Type 23xx Actuator size Ø 70/90/130 mm	679917
Adapter kit - remote sensor, control valves Type 27xx Actuator size Ø 175 / 225 mm	679945
Sensor Puck (replacement part)	682240

Standard Accessories	
M12 socket 8 pin with 5 m cable for power supply and input/output signals	919267
M8 plug 4 pin for binary outputs, with solder joints	917131
M8 socket 4 pin with 5 m cable for process actual value from sensor	264602
M8 plug 4 pin for binary outputs, with solder joints	917131
USB büS-Interface Set (büS-Stick + connection cable with M12 plug + conection cable M12 on micro USB for the büS service interface) to connect with PC-Tool Bürkert Communicator (only for device versions with EtherNet/IP, PROFINET, Modbus TCP and büS - Bürkert System Bus)	772551
büS cable extension M12, length 1 m	772404
büS cable extension M12, length 3 m	772405
büS cable extension M12, length 5 m	772406
büS cable extension M12, length 10 m	772407
SIM card	291773
Silencer G ¼" (replacement part)	780780
Sensor puck (replacement part)	682240
USB interface for serial communication (only for device versions with PROFIBUS / DeviceNet or without fieldbus communication)	227093
Software Bürkert Communicator	http://www.buerkert.de/de/type/8920

* Related Communication software can be downloaded from www.buerkert.com (8793)

[3] External end position feedback for upgrading SideControl NAMUR

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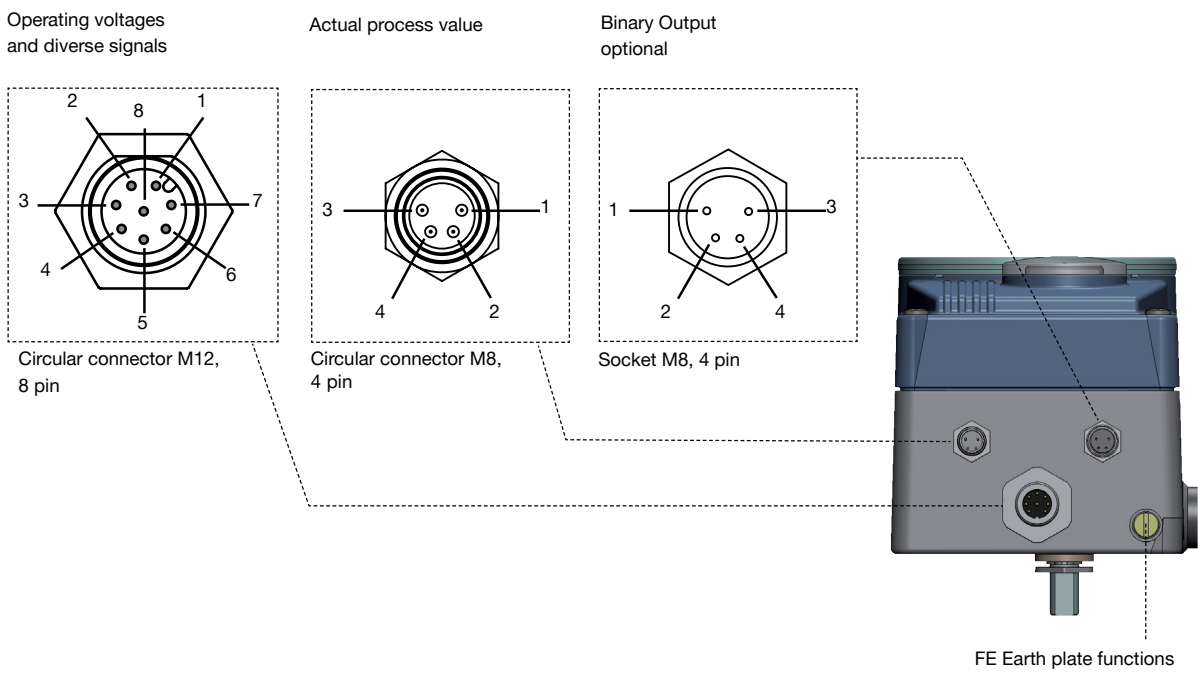
Connection options

Multi-pin connection



Circular connector M12…8 pin (Setpoint)

Pin	Configuration	External Circuitry / signal level	
1	Setpoint + (0/4…20 mA or 0…5/10 V)	1	+ (0/4…20 mA or 0…5/10 V) Completely galvanically separated
2	Setpoint GND	2	GND
3	GND	3	24 V DC ±10 % max. residual ripple 10 %
4	+24 V	4	
5	Binary input +	5	+ 0…5 V (log. 0) 10…30 V (log. 1)
6	Binary input GND	6	GND

Optional analogue feedback

8	Analogue feedback +	8	+ (0/4…20 mA or 0…5/10 V) Completely galvanically separated
7	Analogue feedback GND	7	GND

Socket M8, 4 pin (only with optional Binary Output)

Pin	Configuration	External Circuitry / signal level	
1	Binary output 1	1	24 V / 0 V, NC / NO relative to operating voltage GND (terminal GND)
2	Binary output 2	2	24 V / 0 V, NC / NO relative to operating voltage GND (terminal GND)
3	Binary Output GND	3	GND

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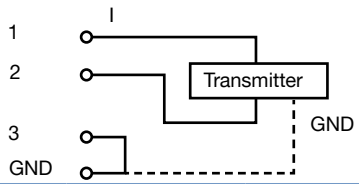
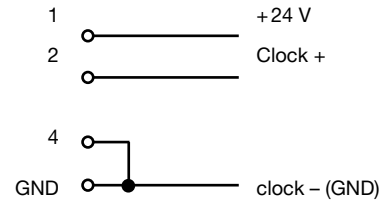
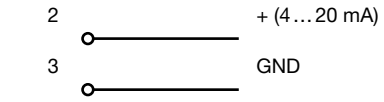
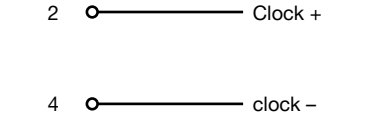
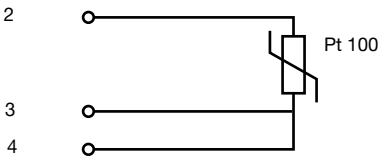
Connection options

Multi-pin connection, *continued*

Plug assignments of the process actual value input (M8 circular plug)

Input type*	Terminal		Configuration	External Circuitry
4…20 mA - internally supplied	Actual process value	1	+24 V transmitter input	
		2	Output from transmitter	
		3	Bridge after GND (GND from 3-conductor transmitter)	
		4	Not used	
	GND		GND	
Frequency - internally supplied	Actual process value	1	+24 V sensor supply	
		2	Clock input +	
		3	Not used	
		4	Clock input –	
	GND		GND	
4…20 mA	Actual process value	1	Not used	
		2	Process actual +	
		3	Process actual –	
		4	Not used	
Frequency - externally supplied	Actual process value	1	Not used	
		2	Clock input +	
		3	Not used	
		4	Clock input –	
Pt 100 (see note below)	Actual process value	1	Not used	
		2	Process actual 1 (power supply)	
		3	Process actual 3 (GND)	
		4	Process actual 2 (compensation)	

*adjustable through Software

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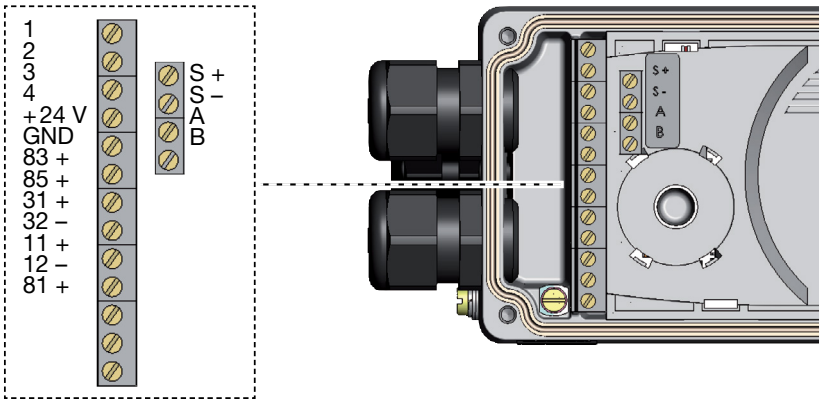
Connection options, continued

Cable gland connection



Terminal	Configuration	External Circuitry / signal level
11 + 12 –	Setpoint + Setpoint GND	11 + ——— + (0/4…20 mA or 0…5 / 10 V) Complete galvanic separation 12 – ——— GND
81 +	Binary input +	81 + ——— + 0…5 V (log. 0) / 10…30 V (log. 1) Obtained at GND operating voltages (GND clamps)
+24 V GND	Operating voltages + Operating voltages GND	+24 V ——— 24 V DC ±10 % GND ——— Max. residual ripple 10 %

Optional analogue feedback / binary output

Terminal	Configuration	External Circuitry / signal level
83 +	Binary output 1	83 + ——— 24 V / 0 V, NC / NO obtained at GND operating voltages (GND clamps)
85 +	Binary output 2	85 + ——— 24 V / 0 V, NC / NO obtained at GND operating voltages (GND clamps)
31 +	Analogue feedback +	31 + ——→ + (0/4…20 mA or 0…5/10 V) completely galvanically isolated,
32 –	Analogue feedback GND	32 – ——→ GND

Optional remote version in connection with remote positioner sensor Type 8798

Terminal		Configuration	External Circuitry / signal level	
Remote Sensor	A	Serial interface, A cable	A ———	A line
	B	Serial interface, B cable	B ———	B line
	S +	Supply sensor +	S + ———	+
	S -	Supply sensor -	S - ———	-

Remote Sensor Type 8798

For version without remote version: terminals A, B, +, - not connected

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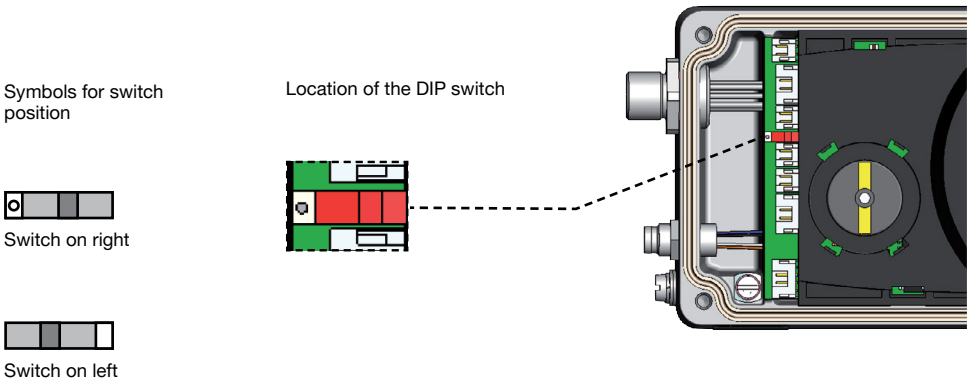
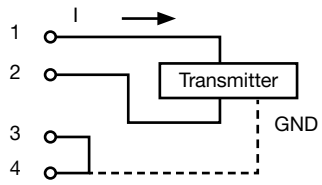
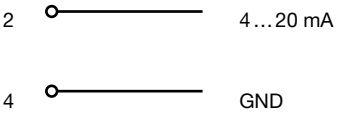
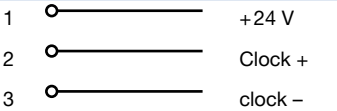
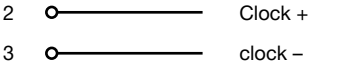
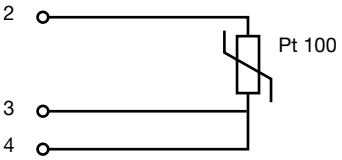
Connection options, continued

Cable gland connection



Input type*	Pin	Configuration	DIP switch	External Circuitry
4…20 mA - internally supplied	1 2 3 4	+24 V Transmitter supply Output from transmitter GND Bridge after GND (GND from 3-conductor transmitter)	Switch on left	
4…20 mA - externally supplied	1 2 3 4	Not used Process actual + Not used Process actual –	Switch on right	
Frequency - internally supplied	1 2 3 4	+24 V sensor supply Clock input + Clock input – (GND) Not used	Switch on left	
Frequency - externally supplied	1 2 3 4	Not used Clock input + Clock input – Not used	Switch on right	
Pt 100 (see note below)	1 2 3 4	Not used Process actual 1 (power supply) Process actual 3 (GND) Process actual 2 (compensation)	Switch on right	

*adjustable through Software

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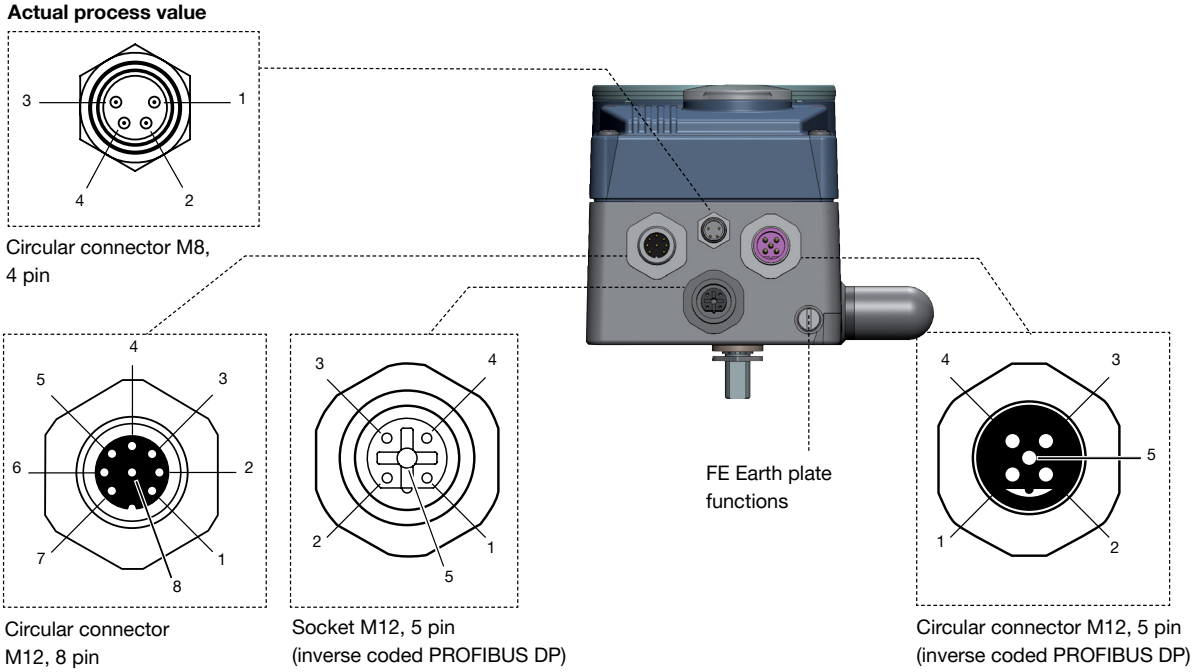
Connection options, continued

PROFIBUS DP connection



Operating voltages - circular connector M12, 8 pin

Pin	Configuration	External Circuitry / signal level
1	Not used	
2	Not used	
3	GND	3 — 24 V DC ±10 %
4	+24 V	4 — max. residual ripple 10 %
5	Binary input +	
6	Binary input –	
7	Binary output 1 (oriented at Pin[3])	
8	Binary output 2 (oriented at Pin[3])	

Fieldbus connection - socket/circular connector M12, 5 pin

Pin	Configuration	External Circuitry / signal level
1	VP+5	Load resistance supply
2	RxD/TxD-N	Receive and send information -N, A Circuitry
3	DGND	Information transfer potential (measured to 5 V)
4	RxD/TxD-P	Receive and send information -N, A Circuitry
5	Shield	Shield / protective earth

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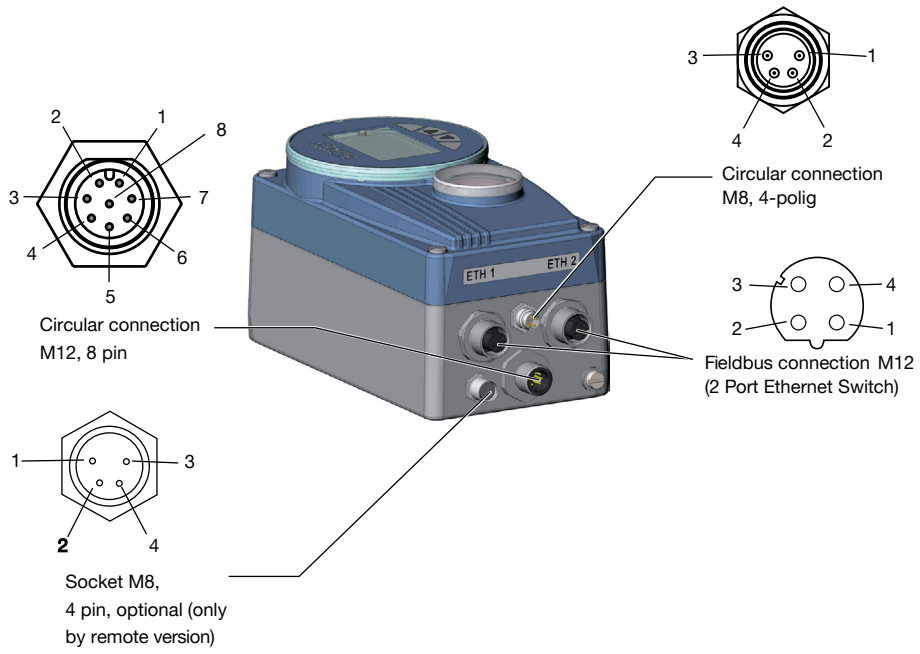
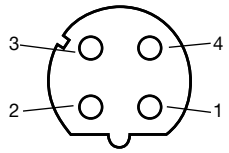
EtherNet/IP, PROFINET, Modbus TCP connection



Fieldbus connections M12 D-coded

Connections for EtherNet/IP takes placeover circular connector M12, 4 pin D-coded



Pin 1	Transmit +
Pin 2	Receive +
Pin 3	Transmit –
Pin 4	Receive –

Operating system - circular connector M12, 8 pin

Pin	Configuration	Device side	External circuitry / signal level
1	not allocated		
2	not allocated		
Operating voltage			
3	GND	3	24 V DC ± 10 %
4	+ 24 V	4	max. residual ripple 10%
Input signals (e.g. SPS)			
5	Binary input +	5 +	0...5 V (log.0)
6	Binary input -		10...30 V (log.1)
		6	GND (identical to pin 3)
Output signal (e.g. SPS) - (Only used for binary output option)			
7	Binary output 1 (correlated to pin 3)	7	0...24 V
8	Binary output 2 (correlated to pin 3)	8	0...24 V

Connection of the digital, non-contact displacement transducer, Type 8798

Pin	Configuration	Device side	External circuitry
1	Sensor power supply +	S +	+
2	Sensor power supply –	S –	–
3	Serial interface, A-line	A	A-line
4	Serial interface, B-line	B	A-line

Remote Sensor
Type 8798
digital

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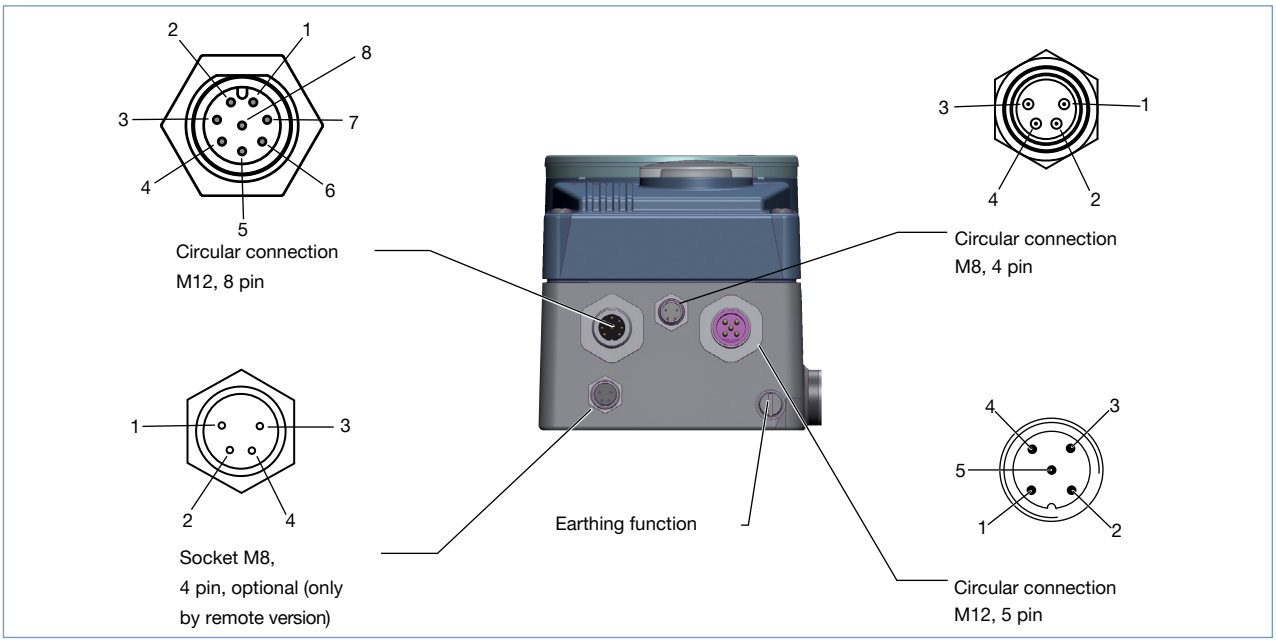
büS connection (Bürkert System Bus)



Fieldbus connection- circular connection M12x1, 5 pin

Pin	Wire colour	Configuration
1	CAN-Schield / Shielding	CAN-Schield / Shielding
2	not allocated	
3	Black	Black GND / CAN_GND
4	White	White CAN_H
5	Blue	Blue CAN_L

Operating voltage - circular connections M12, 8 pin

Pin	Configuration	Device side	External circuitry / signal level
1	not allocated		
2	not allocated		
Operating voltage			
3	GND	3	24 V DC ± 10 %
4	+ 24 V	4	max. residual ripple 10%
Input signal (e.g. SPS)			
5	Binary input +	5 +	0...5 V (log.0)
6	Binary input -		10...30 V (log.1)
		6	GND (identical to pin 3)
Output signal (e.g. SPS) - (Nur belegt bei Option Binärausgang)			
7	Binary output 1 (correlated to pin 3)	7	0...24 V
8	Binary output 2 (correlated to pin 3)	8	0...24 V

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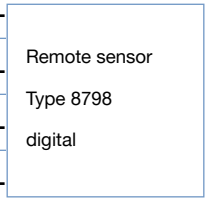
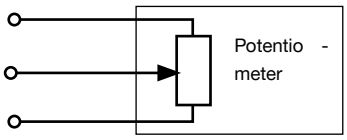
Connection of digital remote position sensor Type 8798 - Socket M8, 4 pin (optional)

Pin	Configuration	Device side	External circuitry
1	Sensor power supply +	S +	+
2	Sensor power supply -	S –	–
3	Serial interface, A-line	A	A-line
4	Serial interface, B-line	B	B-line



Connection of analogue remote position sensor - Socket M8, 4 pin (optional)

Pin	Configuration	Device side	External circuitry
1	Potentiometer 1	1	
2	Sliding contact 2	2	
3	Potentiometer 3	3	
4	not allocated		

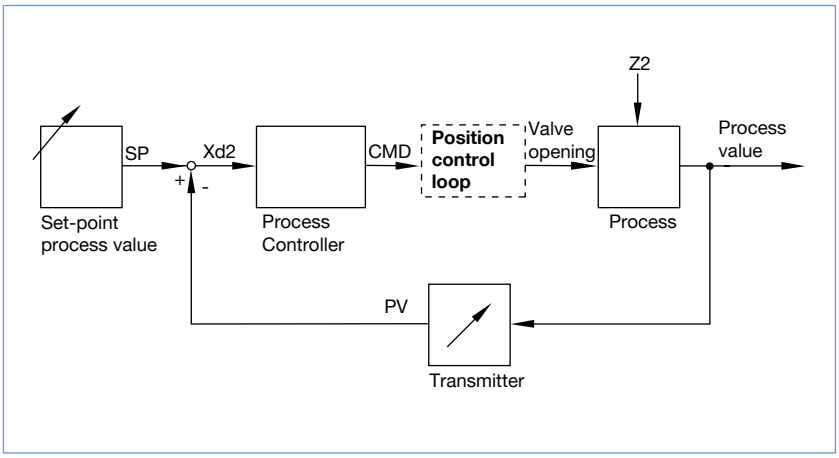


Circular plug M8, 4 pin - process actual value (for Type 8793)

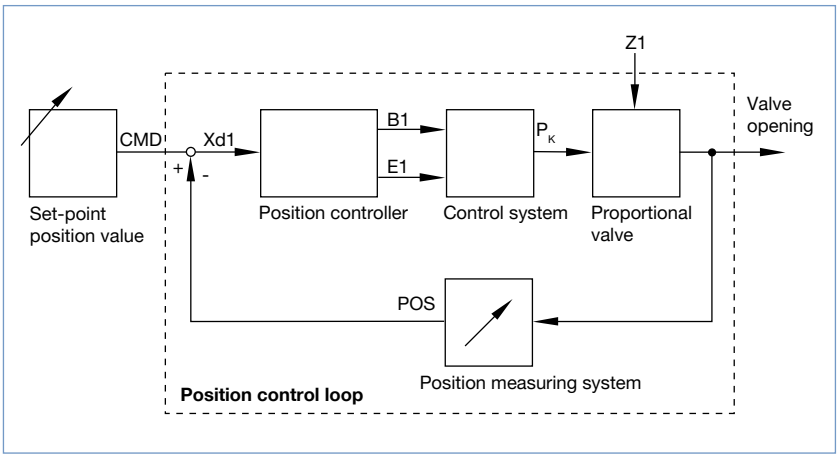
Input type*	Pin	Wire colour **	Configuration	DIP-Switch***	Device side	External Circuitry
4...20 mA - internal supply	1	brown	+24 V supply transmitter	switch left	1	Transmitter
	2	white	output form transmitter		2	
	3	blue	GND (identical with GND operating voltage		3	GND
	4	black	bridge acc. to GND (Pin 3)		4	
4...20 mA - external supply	1	brown	not allocated	switch right		
	2	white	process value +		2	4...20 mA
	3	blue	not allocated			
	4	black	process value –		4	GND 4...20 mA
Frequency - internal supply	1	brown	+24 V supply to sensor	switch left	1	+24 V
	2	white	measured input +		2	measured +
	3	blue	measured input – (GND)		3	measured – GND (identical with GND operating voltage)
	4	black	not allocated			

Signal flow plan

Process control loop



Position control loop



Additional software options of the process controller SideControl Type 8793 (extract)

- Automatic start of the control system
- Automatic parameterisation of the process control loop
- Automatic or manual characteristics curves selection
- Setting of the seal and the maximum stroke threshold respectively
- Parameterisation of the positioner
- Manual parameterisation of process controller
- Limitation of the stroke range
- Limitation of the manipulating speed
- Setting of the moving direction
- Configuration of the binary input
- Signal range splitting on several controllers
- Configuration of analogue or 2 binary outputs
- Signal fault detection
- Safety position
- Code protection
- Contrast inversion of the display
- Parametisable diagnostic functions* / Binary output (option)
  - Operating-hours counter
  - Path accumulator
  - Position monitoring
  - Process actual value monitoring
  - Graphical display of the dwell time density and movement range
  - Monitoring of the mechanical end positions in the armature

* You will find more diagnostic functions with a detailed description in the operating manual for Type 8792/93

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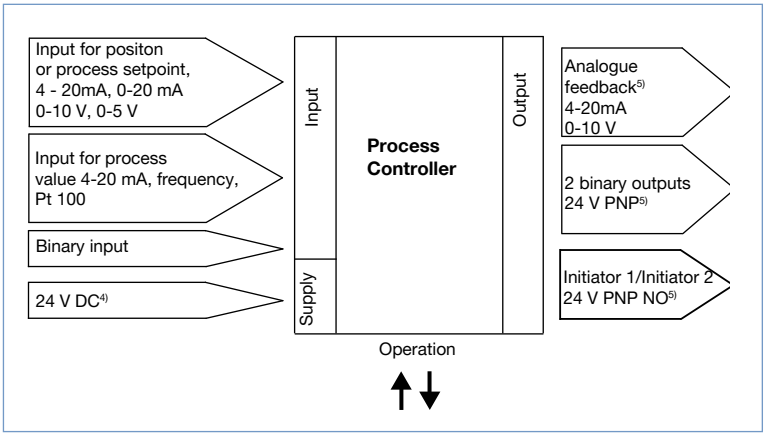
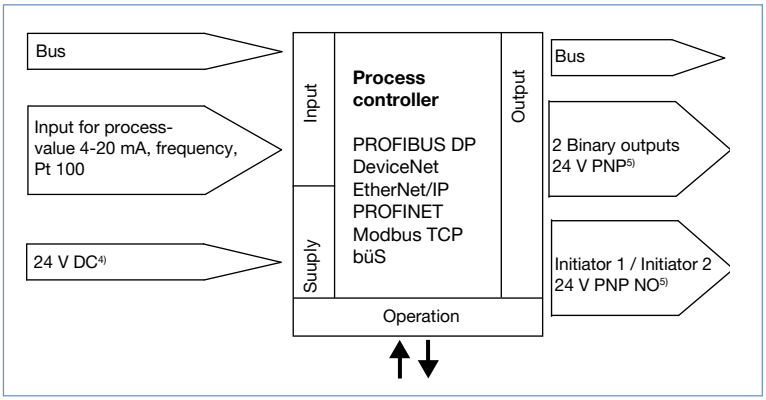
Schematic diagram of SideControl, Type 8793

Without fieldbus interface



Mit PROFIBUS DP, DeviceNet, EtherNet/IP, PROFINET, Modbus TCP and büS - Bürkert System Bus



4) The operating voltage is supplied with a 3-wire unit independent from the setpoint signal
5) Alternative options

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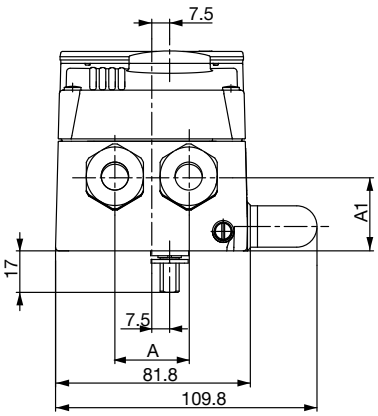
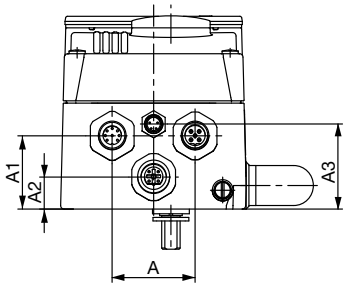
Dimensions [mm]

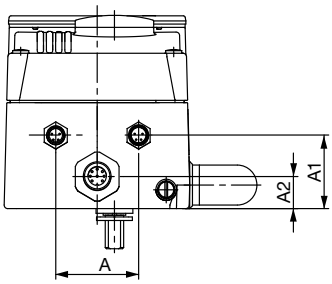
NAMUR version
Cable gland (standard)



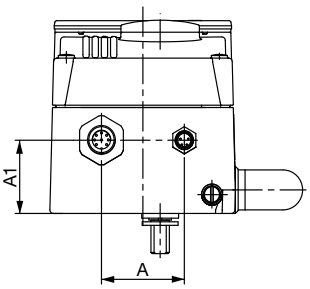
NAMUR version
PROFIBUS DP Multipole



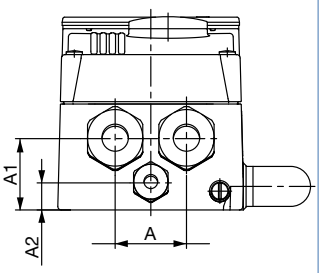
NAMUR version
Multipole with Binary outputs

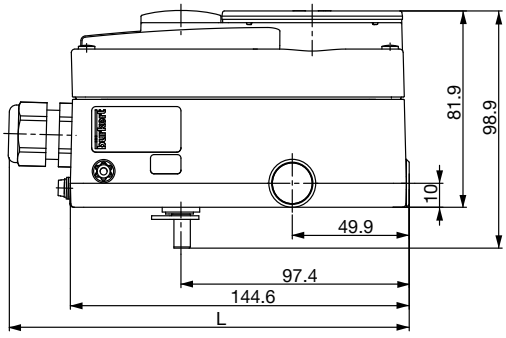


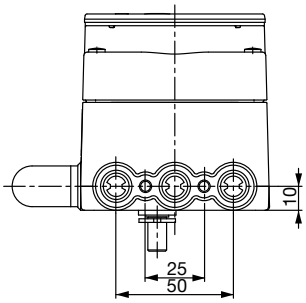
NAMUR version
Multipole

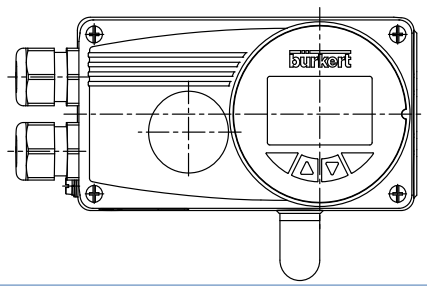


Remote version
cable gland









Description	L	A	A1	A2	A3
Standard	171.1	31	30	–	–
PROFIBUS DP	157.8	36	31	13.5	36.1
Multi-pin binary output	157.6	36	31	13.5	–
Multi-pin	157.6	36	31	–	–
Remote	171.1	31	30	11.5	–

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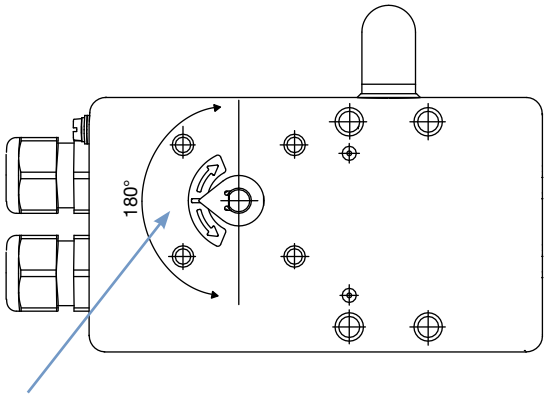
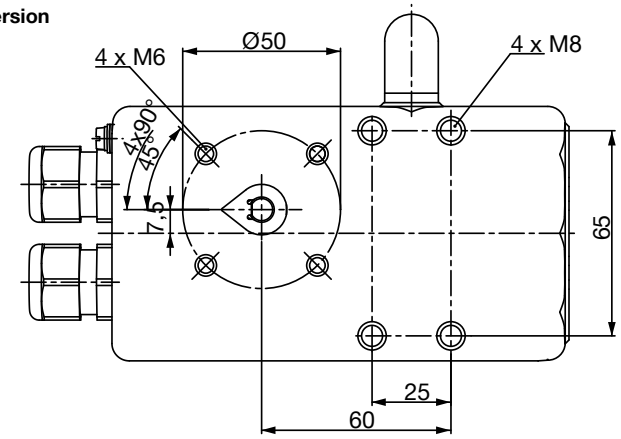
Dimensions [mm]



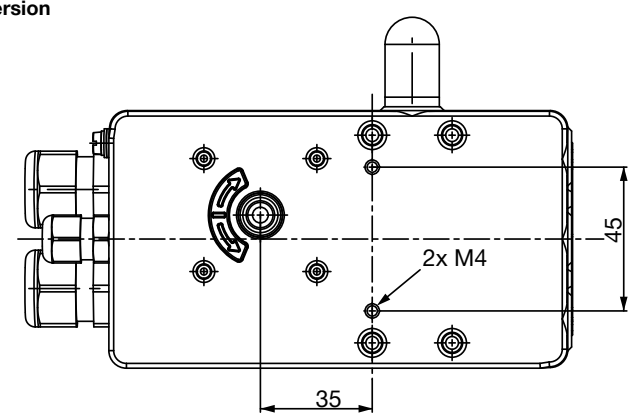
The rotation angle of the sensor must be within a range of 180°

With the valve open approx. 50 %, the sensor indicator should be in this position.

NAMUR Version



Remote Version



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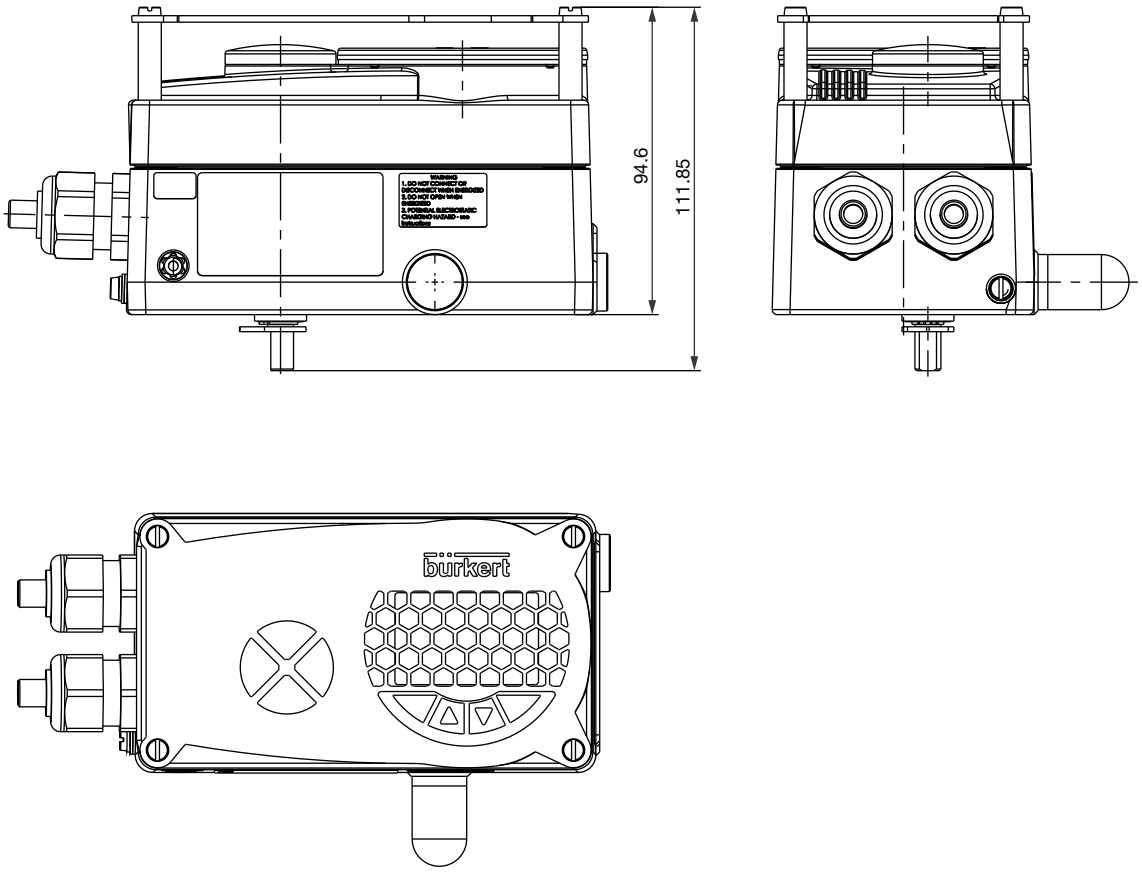
Dimensions [mm], continued

ATEX / IECEx version



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