Digital electropneumatic Process Controller

8793

- Compact metal housing
- Graphic display with backlight
- Easy start-up of process controller and positioner
- Comprehensive range of additional software functions
- Mounting acc. to IEC 534-6/VDI VDE 3845

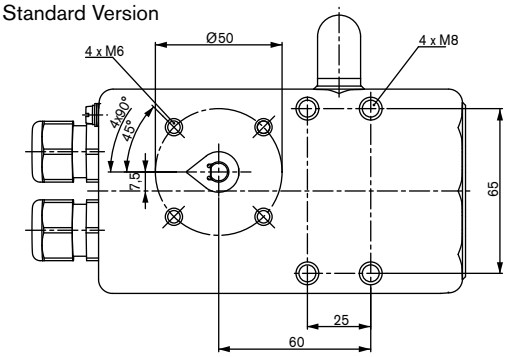
The robust and compact process controller is designed to standardisation acc. to IEC 534-6 or VDI/VDE 3845 for assembly with linear and rotary actuators. In addition, the remote version can be combined with Bürkert process control valves. The digital electropneumatic SideControl process controller can be operated by the usual current and voltage standard signals and can also be equipped with the Fieldbus interface PROFIBUS DPV1. Additional to the digital display the valve opening is signalled by a mechanical indicator element. 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 the variance comparison. Due to the analogue feedback all analogue values on the controlling level can be transferred. The parameterization of process controller and positioner can be carried out automatically.

Technical Data

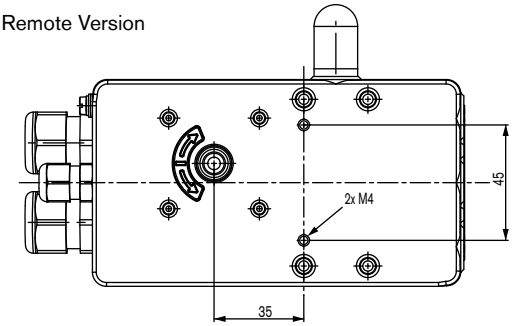
Material: Body Seal	Aluminium plastic-coated EPDM, NBR, FKM
Operating voltages	24 VDC +/-10%
Residual ripple	max. 10%
Setpoint setting	0/4 to 20 mA and 0 to 5/10 V
Input resistance	0/4 to 20 mA: 180 Ω 0 to 5/10 V: 19 kΩ
Input data for actual value signal **Setting 4 - 20 mA** **Frequency setting** **Setting Pt 100**	 180 Ω Input resistance / Resolution 12 bit 17 kΩ Input resistance, 0 - 1000 Hz / 1‰ o.R. measuring range, Input signal > 300 mV88 Signal form Sine, rectangle, triangle Measuring range -20 °C - +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 **Current limit**	2 Outputs (optional), galvanically isolated 100 mA, Output will be synchronised when overloaded
Control medium **Dust concentration** **Particle density** **Pressure condensation point** **Oil concentration**	Neutral gases, air DIN ISO 8573-1 Class 5 (<40 µm particle size) Class 5 (<10 mg/m³) Class 3 (<-20 °C) Class 5 (<25 mg/m³)

Envelope Dimensions [mm] (see datasheet for details)

Standard Version



Remote Version



Ambient temperature	0 °C to +60 °C
Pilot air ports	Threaded port G 1/4"
Supply pressure	1.4 to 7 bar [1]
Air input filter	Exchangeable (aperture size ~0.1 mm)
Pilot valve system **Air capacity**	Single and double-acting up to 150 l_N/min. 95 l_N/min (with 1.4 bar[2]) for aeration and ventilation 150 l_N/min (with 6 bar[2]) for aeration and ventilation (QNn = 100 lN/min (acc. to the definition with decrease in pressure from 7 to 6 bar absolute)
Position detection module	Potentiometer, max. angle 180°

[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

Technical Data (continued)

Technical data	
Stroke range valve spindle	Min. 30° on the rotary shaft, independent of lever
Installation	As required, display above or sideways
Type of protection	IP65 and IP67 acc. to EN 60529 (NEMA 4x in preparation)
Power consumption	< 5 W
Electrical connection	
Multi-pin connection	M12, 8-pin / 4-pin; M8, 4-pin
Cable gland	2xM20x1.5 (cable Ø 10 mm) on screw terminals (0.14-1.5 mm²)
Remote Version	1xM12x1.5 (cable Ø 3 to 6.5 mm)
Bus communication	Profibus DPV1 or DeviceNet (optional)
Inductive proximity switch	on request
Protection class	3 acc. to VDE 0580
Type of ignition protection	II 3 G nA II B T4 II 3 D tD A22 T135°
Conformity	EMC directive 2004/108/EC
CSA approval information	Class 3221 82-VALVES - Actuators - Certified to US standards
Product category code	Class 3221 02-VALVES - Actuators
Considered standards	CAN/CSA-C22 2 No. 139 UL 429
CSA trademark	C SP US

Technical data - Linear Remote Position Sensor (ELEMENT, CLASSIC)	
Electrical connection	
Cable gland	1xM16x1.5 (cable Ø 5-10 mm) on terminal screws (0.14-1.5 mm²)
Connection cable length	10 m
Operating voltage	24V DC ± 10 %
Power consumption	< 0.3 W
Sensor measurement range	3 to 45 mm (Stroke range valve spindle)
Actual position signal	digital (RS485)
Ambient temperature	-25 °C to +80 °C
Protection class	3 acc. to VDE 0580
Type of protection	IP65 and IP67 acc. to EN 60529 (NEMA 4x in preparation)
Type of Ignition protection	II 3D Ex tc IIIC T135 °C Dc II 3G Ex nA IIC T4 Gc
Conformity	EMC directive 2004/108/EC
Approvals	cCSAus

Technical data - rotative Remote Position Sensor (NAMUR)	
Electrical connection	2 m round cable (shielded)
Operating voltage	10 to 30V DC
Residual ripple	< 0.8W
Sensor measurement range	0° to 360°
Actual position signal	digital (RS485)
Ambient temperature	-25 °C to +80 °C
Protection class	3 acc. to VDE 0580
Type of protection	IP65 acc. to EN 60529
Conformity	EMC directive 2004/108/EC
Approvals	UL (cULus) Certificate no. E226909

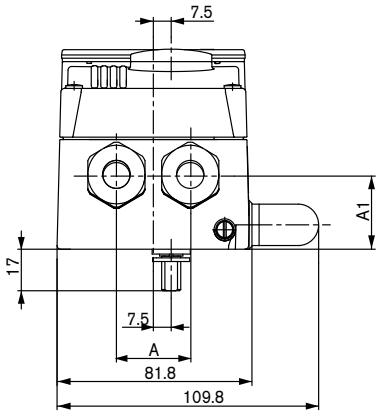
Technical data - Position feedback with proximity switches (Accessory)	
Electrical connection	M12, 4-pin
Output function	3-wire, normally open contact, PNP
Operating voltage	10 to 30 V DC
Residual ripple	≤ 10% Uss
DC rated current	≤ 100 mA
Type of protection	IP65 and IP67
Protection class	3 acc. to VDE 0580
Conformity	EMC directive 2004/108/EC
Approvals	cCSAus

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

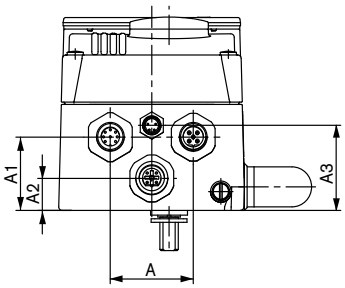
Using a remote positioner the length of the control air pipes influences the dynamics and attainable accuracy of the position control loop. The length of the control air pipes therefore should be as short as possible.

Dimensions [mm]

Standard version

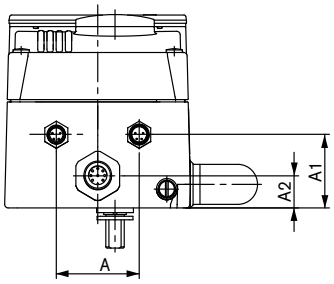


NAMUR Profibus Multipol version

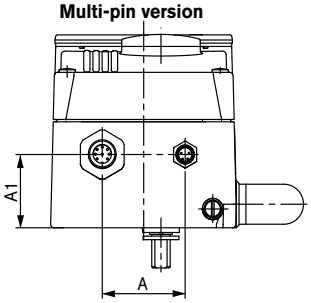


Description	A	A1	A2	A3
NAMUR version	31	30	–	–
NAMUR Profibus Multi-pin	36	31	13.5	36.1
NAMUR Multi-pin with binary output	36	31	13.5	–
NAMUR Multi-pin	36	31	–	–
Remote version	31	30	11.5	–

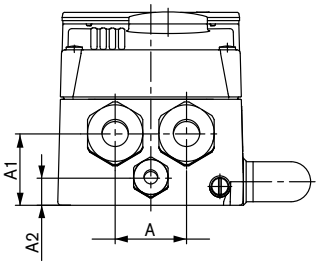
NAMUR Multi-pin with binary output



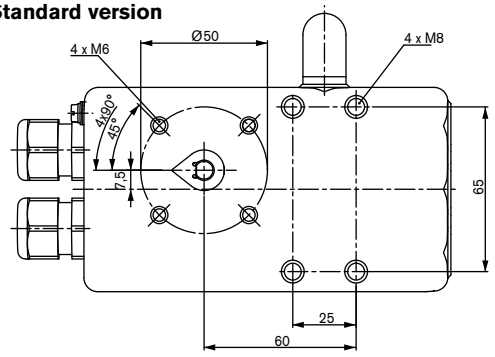
NAMUR Multi-pin version



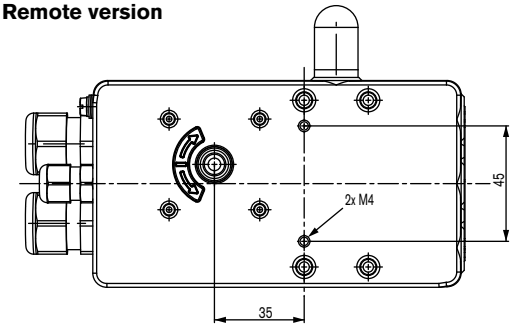
Remote version



Standard version

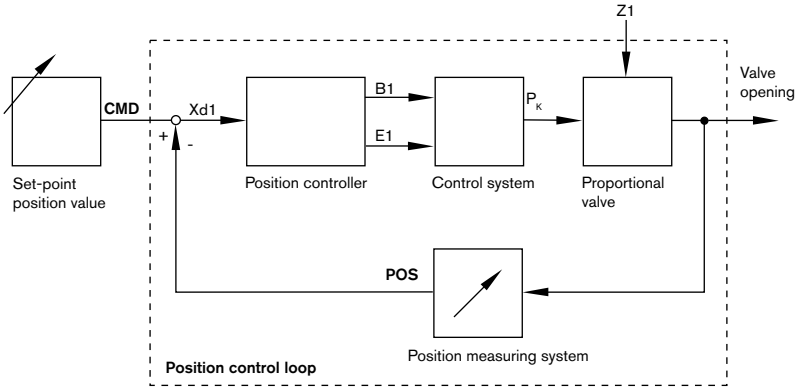


Remote version

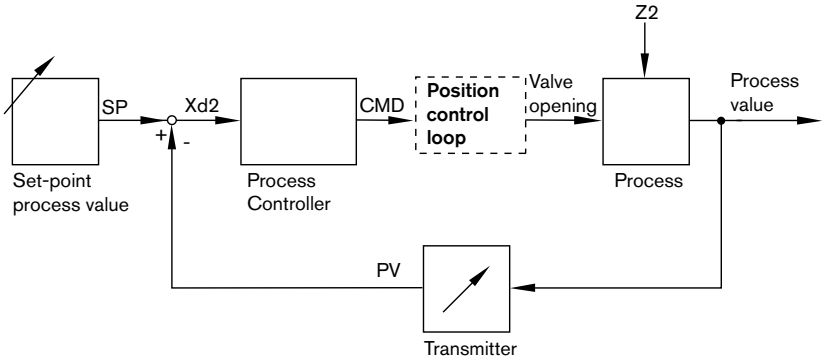


Signal flow plan

Position control loop

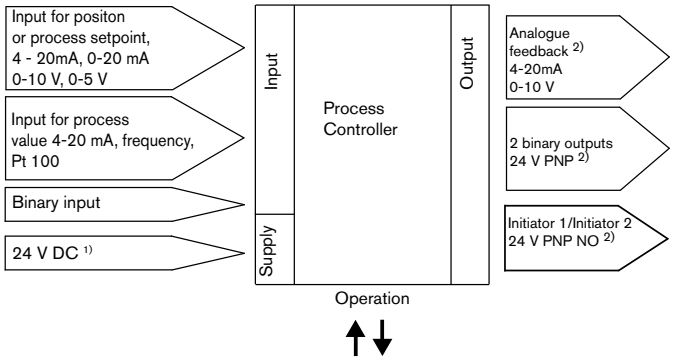


Process control loop

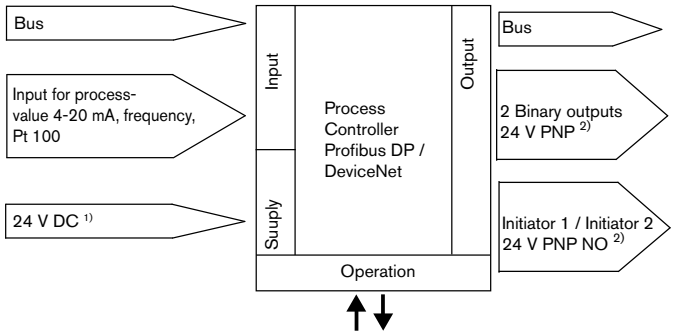


Schematic diagram of Type 8793

without Fieldbus interface



With Profibus DP / DeviceNet



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

Note: For assembly options please see Type 8791