



SERIE PS100

Smart Positioner

DESCRIPTION

The PS100 electropneumatic positioners are used to control the valve or damper position of pneumatic linear or part turn actuators. The PS100 electropneumatic positioners regulates the process valve according to the setpoint.



APPLICATION

The PS100 positioner is used, for example, in the following industries:

Valve manufacturing

Chemicals industry

Paper and glass

Water and wastewater

Food and pharmaceuticals

FEATURES

- Fast commissioning at the push of a button
- Simple operation via the local display and four buttons
- Local display symbols according to NAMUR NE 107
- Negligible air consumption in stationary operation
- Setting the application profile based on predefined selection options, e.g. close tight valve, open/close valve, small valve
- Rapid response in end positions means short travel times and a close tight valve.
- Insensitive to oscillations (vibrations) and steam hammer
- Leakage compensation ensures a constant actual value and protects the actuator
- Only one device version for linear and part-turn actuators
- Consistent parameter assignment with HART communication
- Safe use in hazardous areas



TECHNICAL DATA

Design

The SIPART PS100 positioner comprises the following components:

- Enclosure (base plate with cover)
- Electronics
- Wear-free, contact-free position detection
- Pneumatic block

The pneumatic block is located in the enclosure, the pneumatic connections for the inlet air and the positioning pressure on the right-hand side of the enclosure. The electrical connections are located on the left-hand side of the enclosure.

The SIPART PS100 positioner is fitted to the relevant pneumatic linear or part-turn actuator using an appropriate mounting kit. The positioner shaft is located on the underside of the base plate. The positioner shaft is connected to the spindle of the linear actuator or the actuator shaft of the part-turn actuator using the mounting kit.

The electronics are available with the following options:

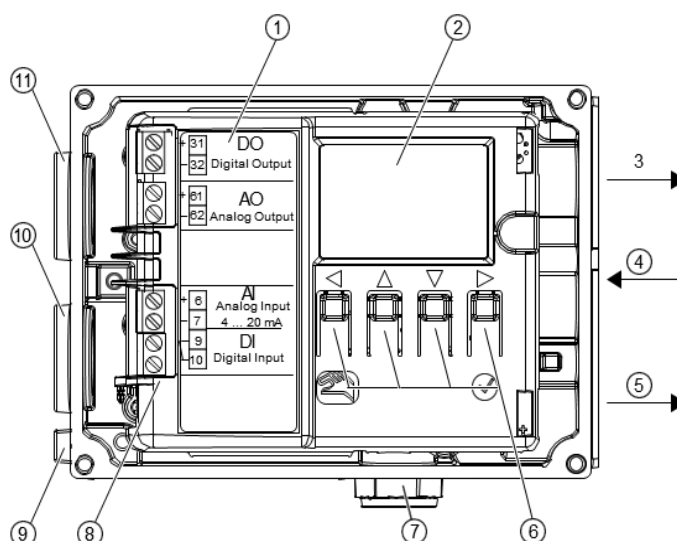
- Analog output (AO) 4 to 20 mA
The current position of the valve is converted into a 4 to 20 mA signal.
- Digital input and digital output (DI and DO)
Output of an alarm in the case of a control deviation or a device fault.
Approach of a defined value position, disabling of keys, blocking of valve by means of digital input.

Function

Local operation is performed using the built-in display and the four buttons. It enables, for example:

- Starting automatic commissioning with the press of a button
- Configuring the device
- Switching between the operating modes:
 - AUTO: The positioner controls the valve according to the analog input (AI) 4 to 20 mA
 - MANUAL: Valve movement with the middle keys

A hallmark of the SIPART PS100 is its own extremely low consumption of air. Thanks to the piezo technology, compressed air is only required to move the valve. In the controlled state, consumption of air is negligible.



1. Wiring diagram on module cover
2. Display
3. Output: Actuating pressure Y1
4. Input: Supply air PZ
5. Output: Actuating pressure Y2 for double-acting actuators
6. Buttons
7. Exhaust air outlet with a sound absorber
8. Connecting terminals
9. Grounding, thread M4
10. Lower cable gland, thread M20x1.5
11. Upper cable gland, thread M20x1.5



TECHNICAL SPECIFICATION

Input Analog input (AI), terminals 6 and 7 - Nominal signal range - Minimum current to maintain operation - Maximum load voltage - Static destruction limit Digital input (DI), terminals 9 and 10 - Galvanic isolation - Signal state 0, floating contact open - Signal state 1, floating contact closed - Contact load		- Bumping (half-sine) according to IEC 60068-2-27 - Noise (controlled digitally) according to IEC 60068-2-64 Climatic class - Storage - Transport		150 m/s ² (492 ft/s ²), 6 ms, 1 000 shocks/axis 10 ... 200 Hz; 1 (m/s ²) ² /Hz (3.28 (ft/s ²) ² /Hz) 200 ... 500 Hz; 0.3 (m/s ²) ² /Hz (0.98 (ft/s ²) ² /Hz), 4 hours/axis According to IEC EN 60721-3 1K23, -40 ... +80 °C (-40 ... +176 °F) 2K13, -40 ... +80 °C (-40 ... +176 °F)
Output Analog output (AO), terminals 61 and 62 - Connection type - Nominal signal range - Fault current - Supply voltage U_{ih} - External load R_o [kΩ] - Resolution in relation to the nominal signal range - Transmission error in relation to the nominal signal range - Effect of ambient temperature - Maximum residual ripple - Galvanic isolation Digital output (DQ), terminals 31 and 32 - Maximum supply voltage U_{ih} - External current consumption "Conductive" state "Locked" state "Locked" is also the state if the device is faulty or analog input (AI) is =0 mA.		Pneumatic data Pneumatic operating medium - Operating pressure Air quality according to ISO 8573-1 - Solid particulate size and density - Pressure dew point - Oil content Flow rate - Aerate process drive - Supply pressure 4 bar (58 psi) - Supply pressure 6 bar (87 psi) - Depressurize process drive - Actuating pressure 4 bar (58 psi) - Actuating pressure 6 bar (87 psi) Leakage actuator chamber (positioner portion) Typical auxiliary power consumption in the controlled state Sound pressure		Compressed air, carbon dioxide (CO ₂), nitrogen (N ₂), noble gasses 1.4 ... 7 bar (20.3 ... 101.5 psi) Class 3 Class 3 (min. 20 K (36 °F) below ambient temperature) Class 3 7.1 Nm ³ /h (31.3 USgpm) 9.8 Nm ³ /h (43.1 USgpm) 13.7 Nm ³ /h (60.3 USgpm) 19.2 Nm ³ /h (84.5 USgpm) < 6 · 10 ⁻⁴ Nm ³ /h (0.0026 USgpm) 0.01 Nm ³ /h (0.044 US gpm) • L _{A eq} < 75 dB • L _{A max} < 80 dB
Operating conditions Ambient conditions for operation according to IEC 60068-2 Ambient temperature - Ambient temperature - Relative humidity Pollution degree according to IEC 61010-1 Overvoltage category according to IEC 61010-1 Degree of protection of enclosure - According to IEC 60529 - According to NEMA 250 Corrosion protection according to EN ISO 9227:2022 and EN ISO 12944:2017 6DR710 polycarbonate enclosure Vibration resistance - Harmonic oscillations (sine) according to IEC 60068-2-6		Structural design Supported actuator types - Linear actuator, range of stroke - Part-turn actuator, angle-of-rotation range Weight, positioner without accessories Material - Lid - Base plate - Gauge block - Pressure gauge		For indoor and outdoor use -20 ... +80 °C (-4 ... +176 °F) 0 ... 100% 2 II IP66 Type 4X C5-M medium durability 3.5 mm (0.14"), 2 ... 27 Hz, 3 cycles/axis, 98.1 m/s ² (321.84 ft/s ²), 27 ... 300 Hz, 3 cycles/axis

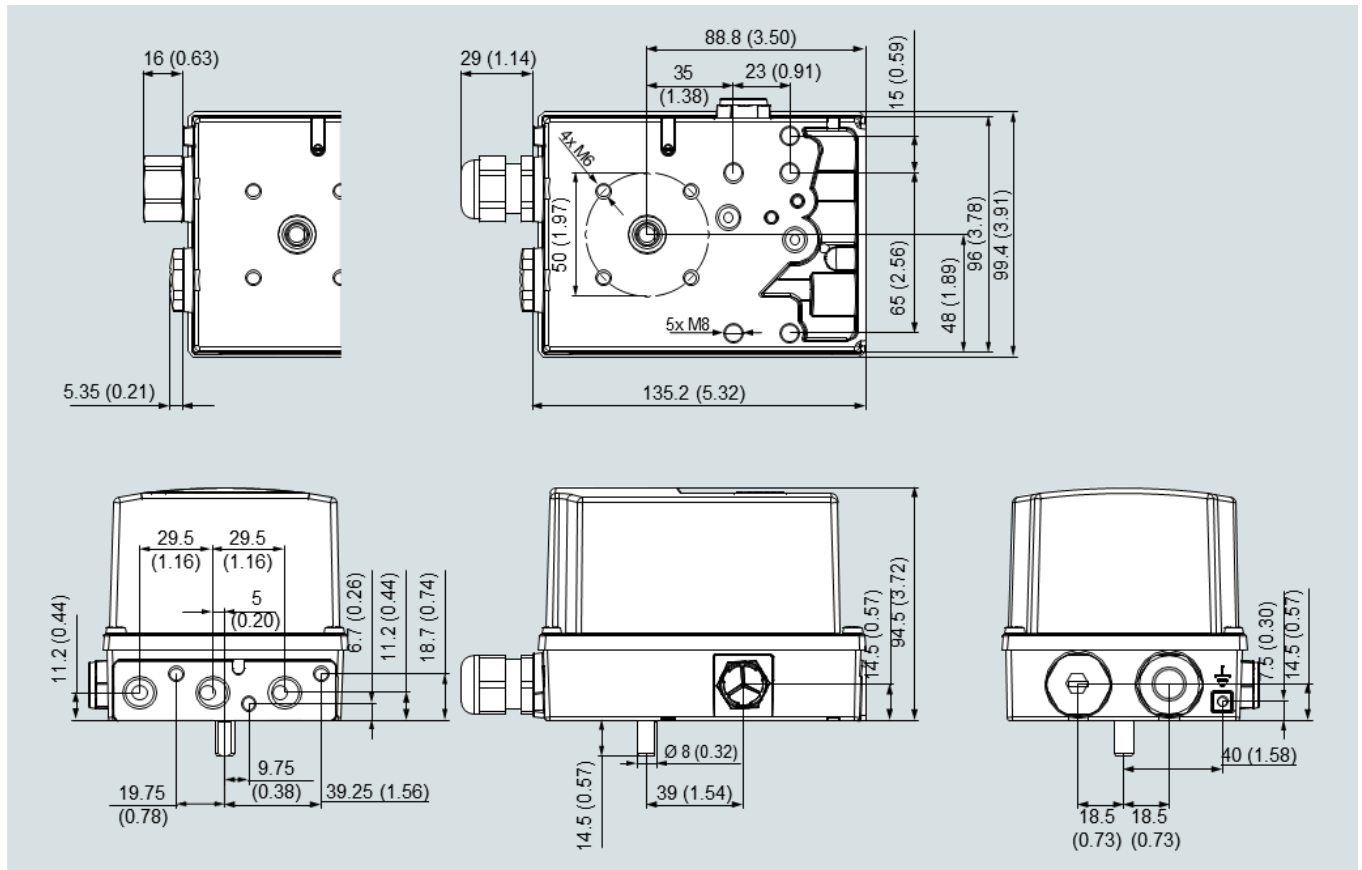


TECHNICAL SPECIFICATION

• M20 cable gland, plastic	4 Nm (3 ft lb)
• M20 cable gland, metal	6 Nm (4.4 ft lb)
• ½-14 NPT cable gland, metal	15 Nm (11.1 ft lb)
• ½-14 NPT cable gland, metal in the NPT adapter	68 Nm (50 ft lb)
IMPORTANT: To avoid damage to the device, the NPT adapter must be held in place while the NPT gland is screwed into the NPT adapter.	
• Union nut made of plastic	2.5 Nm (1.8 ft lb)
• Union nut made of metal	4 Nm (3 ft lb)
• Gauge block fixing screws	6 Nm (4.4 ft lb)
Pressure gauge	
• Degree of protection	
- Plastic pressure gauge, mechanics brass	IP31
- Metal pressure gauge, mechanics brass nickel-plated	IP44
- Stainless steel pressure gauge, mechanics stainless steel 316L	IP54
Connections, electrical	
• Screw terminals	2.5 mm² AWG30-14
• Cable bushing	M20x1.5 or ½-14 NPT with NPT adapter
Connections, pneumatic	G¼ or ¼-18 NPT
Controller	
Controller unit	
• Five-point switch	Adaptive
• Deadband	
- Adjustable maximum value	±0.1 ... 3%, plus hysteresis (half of the deadband, but at least 0.2%)
- Minimization of the maximum value	Always active
Analog input (AI), terminals 6 and 7	
• Sampling interval	50 ms
• Resolution	0.05%
Position detection	
• Sampling interval	10 ms
• Resolution at 10 mm stroke	0.1%
• Temperature influence effect	0.1%/10 K (0.1%/18 °F)
Certificates and approvals	
DoC compliance	You can find the appropriate directives and standards, including the relevant versions, in the Declaration of Conformity on the internet.
UL conformity	The SIPART PS100 has documented compliance with the safety requirements in the USA and Canada. These are UL classified, recognized and listed.
Explosion protection	You can find details on explosion protection in the compact operating instructions and the explosion protection certificates.



DIMENSIONAL DRAWINGS



Non-flameproof enclosure, dimensions in mm (inch)



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OMC S.p.A.

Via Mestre, 9/11 - 20063 - Cernusco sul Naviglio (MI) - ITALY

Tel.: (+39) 02.95.28.468 - Fax: (+39) 02.95.21.495 - info@omcvalves.com - www.omcvalves.com