

Overview



SIPART PS100 with polycarbonate lid



SIPART PS100 in aluminum enclosure

The SIPART PS100 electropneumatic positioner is used to control the process valve or damper position of pneumatic linear or part-turn actuators. The SIPART PS100 regulates the process valve according to the setpoint.

Benefits

The SIPART PS100 positioners offer the following advantages:

- 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

Application

The SIPART PS100 is used in the following industry sectors:

- Valve manufacturing
- Chemical industry
- Power supply
- Paper
- Water and wastewater
- Food and beverages
- Pharmaceuticals

The SIPART PS100 can be utilized in applications with pneumatic actuators and a setpoint signal of 4 ... 20 mA.

Custom designs

Adaptation of your SIPART PS100 positioner to your own brand with standardized features:

- Individual aluminum enclosure color
- Customized company logo on the enclosure
- A combination of the above features
- Further adjustments on request

The technical functions of the PS100 are therefore not limited. All features and the standard delivery times remain the same.

In addition to three functions, which have been prepared for the adjustment, additional special functions are available on request. Please contact your sales representative for more information.

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Positioners

SIPART PS100

Design

The SIPART PS100 positioner comprises the following components:

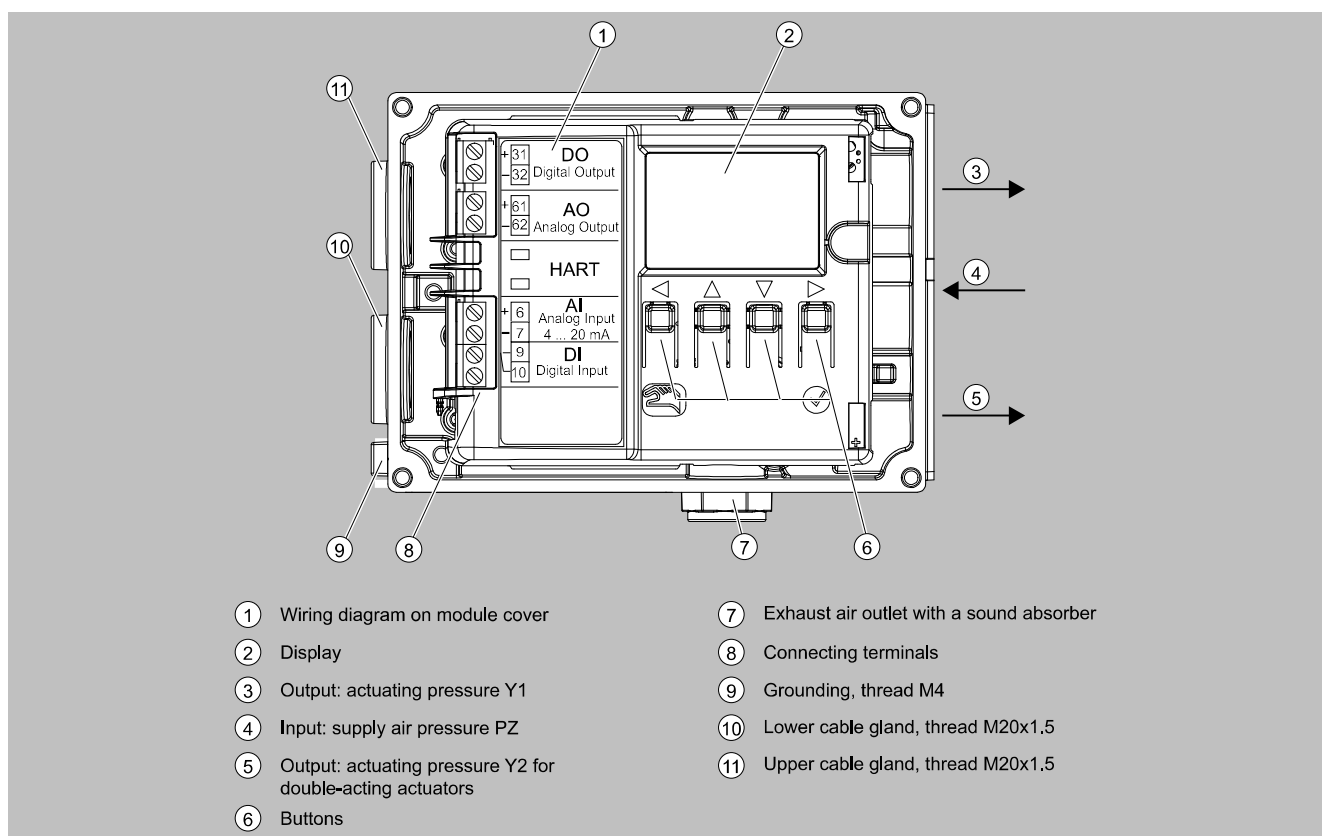
- Enclosure (base plate with lid)
- Electronics
- Wear-free, contact-free position detection
- Pneumatic block

The pneumatic block is located in the enclosure, the pneumatic connections for the inlet air and the actuating 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 DQ)
 - Position limit monitoring.
 - Output of an alarm in the event of a control deviation or a device fault.
 - Approach of a defined process valve position, disabling of keys, blocking of valve process valve by means of digital input.
- HART communication on parameter assignment and information on the device status



SIPART PS100, enclosure with open lid

Function

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

- Starting automatic commissioning with the press of a button
- Configuring the device
- Switching between the operation 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. Compressed air is only required to move the valve. In the controlled state, consumption of air is negligible.

Positioners
SIPART PS100

Selection and ordering data

SIPART PS100 electropneumatic positioner without explosion protection										Article No. 6DR71	●	●	-	0	●	●	●	-	●	●	●	0
Click the article number for online configuration in the PIA Life Cycle Portal.																						
Enclosure material																						
Polycarbonate, lid with inspection window														0								
Aluminum, lid without inspection window														1								
Actuator type																						
For single-acting actuators														1								
For double-acting actuators														2								
Communication																						
2-wire, 4 ... 20 mA																	N					
2-wire, 4 ... 20 mA, HART																	A	N				
Device option 1																						
Without device option 1																		N				
With digital input (DI) and digital output (DQ)																		A				
Device option 2																						
Without device option 2																			0			
With analog output (AQ) 4 ... 20 mA																			1			
Thread of the lower cable entry/cable gland																						
M20 × 1.5/without cable gland																				0		
M20 × 1.5/with plastic cable gland																				1		
M20 × 1.5/with metal cable gland																				2		
½-14 NPT/without cable gland																				4		
Thread of the upper cable entry/cable gland																						
M20 × 1.5/with blanking plug																					0	
M20 × 1.5/with plastic cable gland																					1	
M20 × 1.5/with metal cable gland																					2	
½-14 NPT/without cable gland																					4	
Pneumatic thread																						
G¼																					A	
¼-18 NPT																					B	
Pneumatic accessories																						
Without gauge block																						A
Pressure gauge made of plastic, block made of aluminum																						C
Pressure gauge made of metal, block made of aluminum																						D
Gauge made of stainless steel, block made of stainless steel																						E

SIPART PS100 electropneumatic positioner with explosion protection										Article No. 6DR71	●	●	-	●	●	N	●	●	-	●	●	●	0
Click the article number for online configuration in the PIA Life Cycle Portal.																							
Enclosure material																							
Polycarbonate, lid with inspection window														0		1							
Aluminum, lid without inspection window														1									
Actuator type																							
For single-acting actuators														1									
For double-acting actuators														2									
Degree of protection																							
Ex i (ATEX, IECEx,...) SITRANS I200 output isolation amplifier sold separately (7NG4131-1AA00).																1							
Ex i; Ex e (ATEX, IECEx,...) SITRANS I200 output isolation amplifier sold separately (7NG4131-1AA00).																2							
Ex i; Ex e; Ex t (ATEX, IECEx,...) SITRANS I200 output isolation amplifier sold separately (7NG4131-1AA00).																3							
Communication																							
2-wire, 4 ... 20 mA																	N						
2-wire, 4 ... 20 mA, HART																	A						
Device option 2																							
Without device option 2																				0			
With analog output (AQ) 4 ... 20 mA SITRANS I100 isolating power supply sold separately (7NG4124-1AA00).																				1			

Selection and ordering data (continued)

SIPART PS100 electropneumatic positioner with explosion protection	Article No. 6DR71 ● ● - ● ● N ● ● - ● ● ● 0															
Thread of the lower cable entry/cable gland																
M20 × 1.5/without cable gland															0	
M20 × 1.5/with plastic cable gland															1	
M20 × 1.5/with metal cable gland															2	
½-14 NPT/without cable gland															4	
Thread of the upper cable entry/cable gland																
M20 × 1.5/with blanking plug															0	
M20 × 1.5/with plastic cable gland															1	
M20 × 1.5/with metal cable gland															2	
½-14 NPT/without cable gland															4	
Pneumatic thread																
G¼																A
¼-18 NPT																B
Pneumatic accessories																
Without gauge block																A
Pressure gauge made of plastic, block made of aluminum																C
Pressure gauge made of metal, block made of aluminum																D
Gauge made of stainless steel, block made of stainless steel																E

Options	Order code
Add "-Z" to article number, specify order code and plain text	
TAG plate made of stainless steel, 3-line	A20
Input fields	
Text line 1: plain text from Y15	
Text line 2: plain text from Y16	
Text line 3: plain text from Y17	
Version with stainless steel sound absorbers	A40
Explosion protection (Japan)	E29
EN 10204 certificate type 2.1	C35
DNV (Det Norske Veritas)	S10
Measuring point description	Y15
Input field: Max. 16 characters; specify in plain text	
Measuring point text	Y16
Input field: Max. 24 characters; specify in plain text	
Measuring point number (TAG no.)	Y17
Input field: Max. 32 characters; specify in plain text	

Accessories	Article No.
Bluetooth adapter and assembly kit PS100	7MP3210-0AA01
Gauge block	
With pressure gauges made of plastic IP31 (MPa, bar)	
• Block made of aluminum, single-acting, G¼	6DR4004-1M
• Block made of aluminum, double-acting, G¼	6DR4004-2M
With pressure gauges made of plastic IP31 (MPa, psi)	
• Block made of aluminum, single-acting, ¼-18 NPT	6DR4004-1MN
• Block made of aluminum, double-acting, ¼-18 NPT	6DR4004-2MN
With gauges made of metal IP44 (MPa, bar, psi)	
• Block made of aluminum, single-acting, G¼	6DR4004-1P
• Block made of aluminum, double-acting, G¼	6DR4004-2P
• Block made of aluminum, single-acting, ¼-18 NPT	6DR4004-1PN
• Block made of aluminum, double-acting, ¼-18 NPT	6DR4004-2PN

Accessories	Article No.
With pressure gauges made of stainless steel 316 IP54 (MPa, bar, psi)	
• Block made of stainless steel 316, single-acting, G¼	6DR4004-1Q
• Block made of stainless steel 316, double-acting, G¼	6DR4004-2Q
• Block made of stainless steel 316, single-acting, ¼-18 NPT	6DR4004-1QN
• Block made of stainless steel 316, double-acting, ¼-18 NPT	6DR4004-2QN
Venting gauge block	
Depressurizing of Y2 on compressed air failure with pressure gauges made of metal IP44 (MPa, bar, psi). The double-acting actuator with springs moves into the safety position.	
• Block made of aluminum, double-acting, G¼	6DR4004-2RE
• Block made of aluminum, double-acting, ¼-18 NPT	6DR4004-2RF
Booster (Cv = 2)	
Aluminum with gauges made of metal IP44 (MPa, bar, psi)	
• Single-acting, G½	6DR4004-1RJ
• Double-acting, G½	6DR4004-2RJ
• Single-acting, ½-14 NPT	6DR4004-1RK
• Double-acting, ½-14 NPT	6DR4004-2RK
Mounting kit for NAMUR part-turn actuators	
VDI/VDE 3845, with plastic coupling wheel, without mounting console	6DR4004-8D
VDI/VDE 3845, with stainless steel coupling, without mounting console	TGX:16300-1556
Console for mounting on NAMUR part-turn actuators VDI/VDE 3845	
• 80 × 30 × 20 mm (3.15 × 1.18 × 0.79 inches)	6DR4004-1D
• 80 × 30 × 30 mm (3.15 × 1.18 × 1.18 inches)	6DR4004-2D
• 130 × 30 × 30 mm (5.12 × 1.18 × 1.18 inches)	6DR4004-3D
• 130 × 30 × 50 mm (5.12 × 1.18 × 1.97 inches)	6DR4004-4D

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Selection and ordering data (continued)

Accessories	Article No.
Mounting kit for other part-turn actuators The following mounting consoles can be used together with the NAMUR part-turn actuator mounting kit 6DR4004-8D. SPX (DEZURIK) Power Rac, sizes R1, R1A, R2 and R2A Masoneilan Camflex II Fisher 1051/1052/1061, to 30, 40, 60 to 70 Fisher 1051/1052, size 33	 TGX:16152-328 TGX:16152-350 TGX:16152-364 TGX:16152-348
Mounting kit for NAMUR linear actuators NAMUR-linear actuator with short lever (2 ... 35 mm (0.08 ... 1.38 inches)) Lever arm for strokes of 35 ... 130 mm (1.38 ... 5.12 inches) without NAMUR mounting bracket	 6DR4004-8V 6DR4004-8L

Accessories	Article No.
Reduced mounting kit (as for 6DR4004-8V but without fixing angle and U-bracket), with short lever with up to 35 mm (1.38 inches) stroke	6DR4004-8VK
Reduced mounting kit (as for 6DR4004-8V but without fixing angle and U-bracket), with long lever > 35 mm (1.38 inches) stroke	6DR4004-8VL
Tapered roller made of stainless steel 316 for replacing the tapered roller made of plastic in the mounting kits 6DR4004-8V, -8VK, -8VL	6DR4004-3N
Terminal blocks made of stainless steel 316 for replacement of the aluminum terminal blocks in the 6DR4004-8V, -8VK and -8VL mounting kits	6DR4004-3M
Mounting kit for other linear actuators MASONEILAN type 87/88 MASONEILAN type 37/38, all sizes Fisher type 657/667, size 30 ... 80	 TGX:16152-1210 TGX:16152-1215 TGX:16152-900
Interface according to VDI/VDE 3847 Interface according to VDI/VDE 3847 for single and double-acting, CATS-equipped (Clean Air To Spring) on single-acting, not for flameproof enclosure	6DR4004-5PB

Scope of delivery for positioner
1 SIPART PS100 positioner as ordered

Technical specifications

SIPART PS100	
Input	
Analog input (AI), terminals 6 and 7	
• Nominal signal range	4 ... 20 mA
• Minimum current to maintain operation	3.8 mA
• Maximum load voltage	6.5 V (corresponds to 325 Ω at 20 mA)
• Static destruction limit	± 40 mA
• Type of communication	HART 7
Digital input (DI), terminals 9 and 10	
• Galvanic isolation	Electrically connected to analog input Galvanically isolated from the outputs
• Signal state 0, floating contact open	> 300 kΩ
• Signal state 1, floating contact closed	< 3 kΩ
• Contact load	Suitable only for floating contact; max. contact load < 20 μA, 3 V
Output	
Analog output (AO), terminals 61 and 62	
• Connection type	2-wire connection
• Nominal signal range	4 ... 20 mA
• Fault current	< 3.6 mA
• Supply voltage U_{H1}	12 ... 30 V
• External load R_{E1} [kΩ]	$\leq (U_{H1} [V] \cdot 12 V) / I_{O1} [mA]$
• Resolution in relation to the nominal signal range	0.05%
• Transmission error in relation to the nominal signal range	± 0.3%
• Effect of ambient temperature	± 0.1%/10K
• Maximum residual ripple	± 0.5%
• Galvanic isolation	Galvanically isolated from the other electrical inputs and outputs
Digital output (DQ), terminals 31 and 32	
• Maximum supply voltage U_{H1}	35 V
• External current consumption	To be limited to 50 mA
• "Conductive" state	<ul style="list-style-type: none"> • Permissible rated current 50 mA • Maximum terminal voltage 3 V • Overload-proof
• "Locked" state	I < 60 μA
• "Locked" is also the state if the device is faulty or analog input (AI) is = 0 mA.	
Operating conditions	
Ambient conditions for operation according to IEC 60068-2	
Ambient temperature	
• Ambient temperature	-20 ... +80 °C (-4 ... +176 °F)
• Relative humidity	0 ... 100%
Pollution degree according to IEC 61010-1	
• Pollution degree	2
Overvoltage category according to IEC 61010-1	
• Overvoltage category	II
Degree of protection of enclosure	
• According to IEC 60529	IP66
• According to NEMA 250	Type 4X
Corrosion protection according to EN ISO 9227:2022 and EN ISO 12944:2017	
• 6DR710 polycarbonate enclosure	C5-M medium durability
• 6DR711 aluminum enclosure	C5-M medium durability
Vibration resistance	
• Harmonic oscillations (sine) according to IEC 60068-2-6	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 specifications (continued)

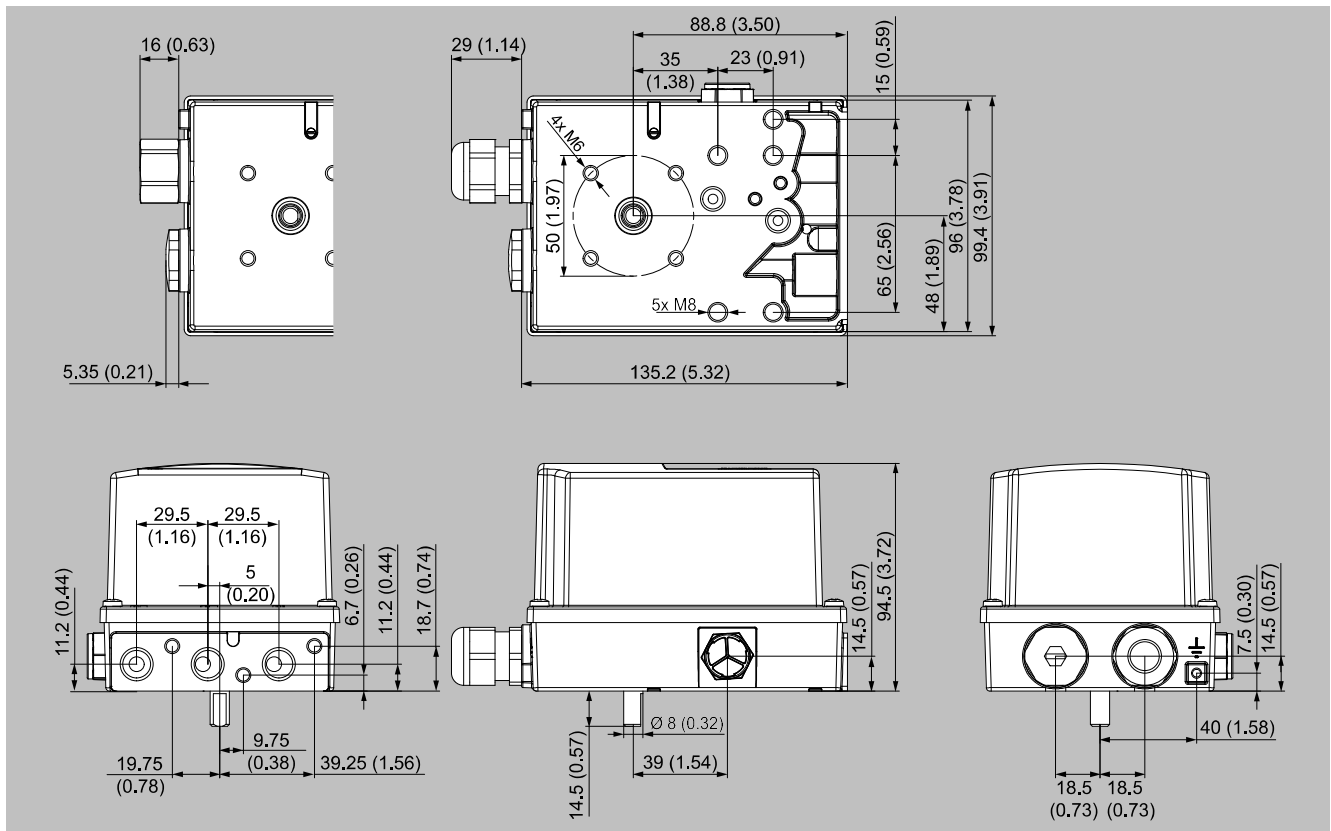
SIPART PS100	
• Bumping (half-sine) according to IEC 60068-2-27	150 m/s ² (492 ft/s ²), 6 ms, 1 000 shocks/axis
• Noise (controlled digitally) according to IEC 60068-2-64	10 ... 200 Hz; 1 (m/s ²)/Hz (3.28 (ft/s ²)/Hz) 200 ... 500 Hz; 0.3 (m/s ²)/Hz (0.98 (ft/s ²)/Hz), 4 hours/axis
Climatic class	
• Storage	According to IEC EN 60721-3 1K23, -40 ... +80 °C (-40 ... +176 °F)
• Transport	2K13, -40 ... +80 °C (-40 ... +176 °F)
Pneumatic data	
Pneumatic operating medium	
Compressed air, carbon dioxide (CO ₂), nitrogen (N ₂), noble gases	
• Operating pressure	1.4 ... 7 bar (20.3 ... 101.5 psi)
Air quality according to ISO 8573-1	
• Solid particulate size and density	Class 3
• Pressure dew point	Class 3 (min. 20 K (36 °F) below ambient temperature)
• Oil content	Class 3
Flow rate	
• Aerate process drive	
- Supply pressure 4 bar (58 psi)	7.1 Nm ³ /h (31.3 USgpm)
- Supply pressure 6 bar (87 psi)	9.8 Nm ³ /h (43.1 USgpm)
• Depressurize process drive	
- Actuating pressure 4 bar (58 psi)	13.7 Nm ³ /h (60.3 USgpm)
- Actuating pressure 6 bar (87 psi)	19.2 Nm ³ /h (84.5 USgpm)
Leakage actuator chamber (positioner portion)	< 6 · 10 ⁻⁴ Nm ³ /h (0.0026 USgpm)
Typical auxiliary power consumption in the controlled state	0.01 Nm ³ /h (0.044 US gpm)
Sound pressure	
	<ul style="list-style-type: none"> • $L_{Aeq} < 75$ dB • $L_{Amax} < 80$ dB
Structural design	
Supported actuator types	
• Linear actuator, range of stroke	10 ... 130 mm (0.39 ... 5.12")
• Part-turn actuator, angle-of-rotation range	10 ... 100°
Weight, positioner without accessories	
• Weight	Approx. 1.0 kg (2.20 lbs)
Material	
• Lid	<ul style="list-style-type: none"> • Aluminum • Polycarbonate
• Base plate	Aluminum
• Gauge block	Aluminum, anodized or stainless steel 316
• Pressure gauge	<ul style="list-style-type: none"> • Plastic, mechanics brass • Stainless steel, mechanics brass nickel-plated • Stainless steel, mechanics stainless steel 316
Torques	
• Lid fixing screws	1.5 Nm (1.1 ft lb)
• Part-turn actuator fixing screws DIN 933 M6x12-A2	5 Nm (3.7 ft lb)
• Linear actuator fixing screws DIN 933 M8x16-A2	12 Nm (8.9 ft lb)
• Gland pneumatic G ¹ / ₄	15 Nm (11.1 ft lb)
• Gland pneumatic ¹ / ₄ -18 NPT	
- Without sealant	12 Nm (8.9 ft lb)
- With sealant	6 Nm (4.4 ft lb)

Positioners
SIPART PS100

Technical specifications (continued)

SIPART PS100	
<ul style="list-style-type: none">• M20 cable gland, plastic• M20 cable gland, metal• ½-14 NPT cable gland, metal• ½-14 NPT cable gland, metal in the NPT adapter	<p>4 Nm (3 ft lb)</p> <p>6 Nm (4.4 ft lb)</p> <p>15 Nm (11.1 ft lb)</p> <p>68 Nm (50 ft lb)</p>
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.	
<ul style="list-style-type: none">• Union nut made of plastic• Union nut made of metal• Gauge block fixing screws	<p>2.5 Nm (1.8 ft lb)</p> <p>4 Nm (3 ft lb)</p> <p>6 Nm (4.4 ft lb)</p>
Pressure gauge	
<ul style="list-style-type: none">• Degree of protection- Plastic pressure gauge, mechanics brass- Metal pressure gauge, mechanics brass nickel-plated- Stainless steel pressure gauge, mechanics stainless steel 316L	<p>IP31</p> <p>IP44</p> <p>IP54</p>
Connections, electrical	
<ul style="list-style-type: none">• Screw terminals• Cable bushing	<p>2.5 mm² AWG30-14</p> <p>M20x1.5 or ½-14 NPT with NPT adapter</p>
Connections, pneumatic	
G¼ or ¼-18 NPT	
Controller	
Controller unit	
<ul style="list-style-type: none">• Five-point switch• Deadband- Adjustable maximum value- Minimization of the maximum value	<p>Adaptive</p> <p>± 0.1 ... 3%, plus hysteresis (half of the deadband, but at least 0.2%)</p> <p>Always active</p>
Analog input (AI), terminals 6 and 7	
<ul style="list-style-type: none">• Sampling interval• Resolution	<p>50 ms</p> <p>0.05%</p>
Position detection	
<ul style="list-style-type: none">• Sampling interval• Resolution at 10 mm stroke• Temperature influence effect	<p>10 ms</p> <p>0.1%</p> <p>0.1%/10 K (0.1%/18 °F)</p>
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)

More information

Documentation and certificates

All documentation and all available certificates are available free of charge in multiple languages through the QR code below:



Special designs

On request

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