Overview

SIPART PS2 electropneumatic positioner in aluminum enclosure

SIPART PS2 Ex d electropneumatic positioner, in flameproof aluminum enclosure with pressure gauge

SIPART PS2 in stainless steel enclosure with pressure gauge

The SIPART PS2 electropneumatic positioner is used to control the final control element of pneumatic linear or part-turn actuators. The electropneumatic positioner moves the actuator to a valve position corresponding to the setpoint. Additional function inputs can be used to block the valve or to set a safety position. A binary input is present as standard in the basic device for this purpose.

Benefits

SIPART PS2 positioners offer decisive advantages:

- Simple installation and automatic commissioning (self-adjustment of zero and span)
- Simple operation with:
  - Local operation (manual operation) and configuration of the device using three buttons and a user-friendly two-line display
  - Parameterization via SIMATIC PDM
- Very high-quality control thanks to an online adaptation procedure
- Negligible air consumption in stationary operation
- "Tight closing" function (ensures maximum positioning pressure on the valve seat)
- "Fail in place" function: Current position is retained on failure of auxiliary electrical power and/or pneumatic failure (does not apply in conjunction with SIL).
  Example: For an actuator with a volume of 8 liters, the typical position stability of a SIPART PS2 with "Fail in place" is 0.3% per hour.
- Numerous functions can be activated by simple configuring (e.g. characteristic curves and limits)
- Extensive diagnostic functions for valve and actuator
- Only one device version for linear and part-turn actuators
- Few moving parts, hence insensitive to vibrations
- External non-contacting sensor as option for extreme ambient conditions
- "Intelligent solenoid valve": Partial Stroke Test and solenoid valve function in a single device
- Partial Stroke Test e.g. for safety valves
- Full Stroke Test, Multi Step Response Test, Valve Performance Test for performance and maintenance evaluation of the valve
- Can also be operated with purified natural gas, carbon dioxide, nitrogen or noble gases
- SIL (Safety Integrity Level) 2

Application

The SIPART PS2 positioner is used, for example, in the following industries:

- Chemical/petrochemical
- Power stations
- Paper and glass
- Water, waste water
- Food and pharmaceuticals
- Offshore plants

The SIPART PS2 positioner can be used with all pneumatic actuators and is available for delivery:

- In various enclosure designs and various materials (polycarbonate, aluminum, and stainless steel)
- For non-hazardous applications
- For hazardous applications in the versions
  - Intrinsic safety type of protection
  - Flameproof enclosure type of protection
  - Non-sparking type of protection
  - Type of protection dust explosion protection by enclosure

and in the versions:

- With 0/4 ... 20 mA control with/without communication through HART signal
- With PROFIBUS PA communication interface
- With FOUNDATION Fieldbus (FF) communication interface

Explosion-proof versions

- Device with "intrinsic safety" type of protection for use in Zone 1, 2, 21, 22 or Class I, II, III/Division 1/Groups A-G
- Device with "dust explosion protection by enclosure" type of protection for use in Zone 21, 22 or Class II, III/Division 1/ Groups E-G
- Device with "non-sparking" type of protection for use in Zone 2 or Class I, Division 2, Groups A-D
- Device with "flameproof enclosure" type of protection for use in Zone 1 or Class I, Division 1, Groups A-D

Stainless steel enclosure for extreme ambient conditions

The SIPART PS2 is available in a stainless steel enclosure (with no window in the cover) for use in particularly aggressive environments (e.g. offshore operation, chlorine plants etc.). The device functions are the same as for the basic version.

Design

The SIPART PS2 positioner is a digital field device with a highly-integrated microcontroller.

The positioner consists of the following components:

- Enclosure and cover
- PCB with corresponding electronics with or without communication through HART 7
  or with electronics for communication according to
  - PROFIBUS PA specification, IEC 61158-2; bus-supplied device, or
  - FOUNDATION Fieldbus (FF) specification, IEC 61158-2, bus-supplied device
- Position detection system
- Terminal housing with screw terminals
- Valve manifold with piezoelectric valve precontrol

The valve manifold is located in the enclosure, the pneumatic connections for the inlet air and the positioning pressure on the right-hand side of the enclosure. A pressure gauge block and/or a safety solenoid valve can be connected there as options. The SIPART PS2 positioner is fitted to the linear or part-turn actuator using an appropriate mounting kit. The circuit board container in the casing provides slots for separately ordered boards with the following functions:

Position feedback module

- Position feedback as a two-wire signal 4 to 20 mA

Alarm module (3 outputs, 1 input)

- Signaling of two limits of the travel or angle by binary signals. The two limits can be set independently as maximum or minimum values.
- Output of an alarm if the setpoint position of the final control element is not reached in automatic mode or if a device/valve fault occurs.
- Second binary input for alarm signals of for triggering safety reactions, e.g. blocking function or safety position.

Limit signaling through slot-type initiators (SIA module)

Two limits can be signaled redundantly as NAMUR signals (EN 60947-5-6) by slot-type initiators. An alarm output is also integrated in the module (see "Alarm module").

Limit value signal via mechanical contacts (mechanical limit switch module)

Two limits can be signaled redundantly by switching contacts. An alarm output is also integrated in the module (see "Alarm module").

Valid for all modules described above:

All signals are electrically isolated from one another and from the basic unit. The outputs indicate self-signaling faults. The modules are easy to retrofit.

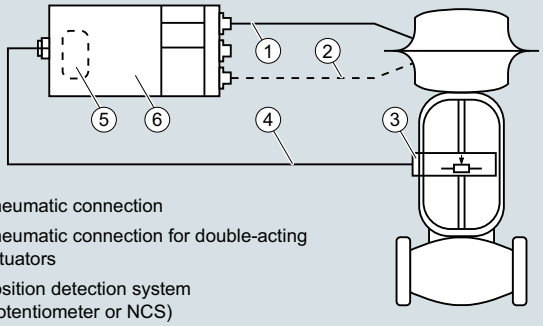
Separate mounting of position detection system and controller unit

The position detection system and controller unit can be connected separately for all casing versions of the SIPART PS2 (except flameproof design). Measurement of the stroke or angle is carried out directly on the actuator. The controller unit can then be fitted a certain distance away, e.g. on a mounting pipe or similar, and is connected to the position detection system by an electric cable and to the actuator by one or two pneumatic lines. Such a split design is frequently advantageous if the ambient conditions at the valve exceed the specified values for the positioner (e.g. strong vibrations).

The following can be used for measuring the stroke or angle:

- NCS sensor
- A commercially available potentiometer, e.g. for higher application temperatures or customer-specific applications

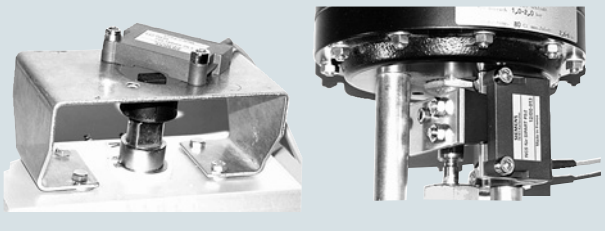
The use of potentiometers is recommended for very small linear actuators with a short valve stroke since, on the one hand, the space required by the potentiometer is very small and, on the other, the transmission characteristic is optimum for a small stroke.



1. Pneumatic connection
2. Pneumatic connection for double-acting actuators
3. Position detection system (potentiometer or NCS)
4. Electric cable
5. Retrofitted EMC filter module (in device)
6. SIPART PS2

Separate mounting of position detection system and controller unit

Non-contacting sensor (NCS)



NCS for part-turn actuator mounted with mounting console (6DR4004-.N.10, left) and for linear actuator ≤ 14 mm (0.55 inch) mounted with actuator-specific mounting solution (6DR4004-.N.20, right)

Function

Comprehensive monitoring functions

The SIPART PS2 has various monitoring functions with which changes on the actuator and valve can be detected and signaled if applicable when a selectable limit has been exceeded. This information may be important for diagnosis of the actuator or valve. The measuring data to be determined and monitored, some of whose limits can be adjusted, include:

- Travel integral
- Number of changes in direction
- Alarm counter
- Self-adjusting deadband
- Valve end limit position (e.g. for detection of valve seat wear or deposits)
- Operating hours (also according to temperature and travel ranges) as well as min./max. temperature
- Operating cycles of piezoelectric valves
- Valve positioning time
- Actuator leakages

At a glance with the Diagnostics Cockpit

With the Diagnostics Cockpit, the HART variants of the SIPART PS2 provide a straightforward way of getting started with the world of diagnostic capabilities. All relevant information (setpoint, actual value, control deviation, status of the diagnostic system, etc.) of the valve is available at a glance. Additional facts and details are just a few mouse clicks away from the Diagnostics Cockpit.

Status monitoring with 3-stage alarm concept

The intelligent electropneumatic SIPART PS2 positioner is equipped with additional monitoring functions. The status alarms derived from these monitoring functions signal active faults of the valve. The severity of these faults is graded using "traffic light signaling", symbolized by a wrench in the colors green, yellow and red (in SIMATIC PDM and Maintenance Station):

- Need for maintenance (green wrench)
- Urgent need for maintenance (yellow wrench)
- Imminent danger of valve failure or general failure (red wrench)

This allows users to put early measures into action before a serious valve or actuator fault occurs which could result in a system shutdown. The fact that a fault indication is signaled, such as the onset of a diaphragm break in the actuator or the progressive sluggishness of a valve, enables the user to ensure system reliability at any time by means of suitable maintenance strategies.

This three-stage alarm hierarchy also allows early detection and signaling of static friction of a packing box, wear of a valve plug/seat, or deposits or coatings on the fittings.

These fault indications can be output either line-conducted over the alarm outputs (see above) of the positioner (max. 3), or via communication over the HART or fieldbus interfaces. In this case, the HART, PROFIBUS and FF versions of SIPART PS2 permit a differentiation of the various fault indications, as well as a trend representation and histogram function of all key process variables with regard to the valve.

The device display also displays the graded maintenance requirements, complete with identification of the source of the fault.

Maintenance required for valve

The Full Stroke Test, Step Response Test, Multi Step Response Test and Valve Performance Test provide detailed information about the maintenance required of the valve. With the help of HART communication, you receive comprehensive test results and can identify the extent of the maintenance measures. In order to quantify the performance capability of valves, characteristic values such as step response times (T63, T86, user-selectable Txx), dead times, overshoot, hysteresis, errors of measurement, non-linearity, etc., are determined.

Functional safety according to SIL 2

The positioner is suitable for use on valves that satisfy the special requirements in terms of functional safety up to SIL 2 according to IEC 61508 or IEC 61511. The variants 6DR5.1.-0....-....-Z C20 are available for this.

These are single-acting positioners for mounting on pneumatic actuators with spring return.

The positioner vents the valve actuator on demand/in the event of a fault and puts the valve in the preset safety position.

This positioner meets the following requirement:

- Functional safety up to SIL 2 according to IEC 61508 or IEC 61511 for safe venting.

SIPART PS 2 as "intelligent solenoid valve"

Open/close valves, safety valves in particular, are generally pneumatically controlled over a solenoid valve. If you use SIPART PS2 instead of this type of solenoid valve, the positioner performs two tasks in a single device (without extra wiring)

- Firstly, it switches the valve off on demand by venting the actuator ("Functional safety acc. to SIL 2" (see above))
- Secondly, it can perform a Partial Stroke Test at regular intervals (1 - 365 days), which prevents the blocking of the valve, e. g. due to corrosion or furring.

Because SIPART PS2 operates continuously in closed-loop control (e.g. 99% position) in this case, it also acts as a permanent test function for the pneumatic output circuit, which is not usually possible when using a solenoid valve.

Solenoid valves on control valves can also not normally be tested during operation. They are therefore not necessary when using SIPART PS 2 with a 4-wire connection system as the venting is carried out on demand by SIPART PS2. This means that on control valves, both the control function and the shut-off function can be carried out by a single device.

Configuring

In configuring mode, the SIPART PS2 positioner can be configured to requirements and includes the following settings:

- Input current range 0 to 20 mA or 4 to 20 mA
- Rising or falling characteristic curve at the setpoint input
- Positioning speed limit (setpoint ramp)
- Split-range operation; adjustable start-of-scale and full-scale values
- Response threshold (deadband); self-adjusting or fixed
- Direction of action; rising or falling output pressure with rising setpoint
- Limits (start-of-scale and full-scale values) of positioning range
- Limits (alarms) of the final control element position; minimum and maximum values
- Automatic "tight closing" (with adjustable response threshold)
- Stroke adjustment in accordance with the valve characteristic curve
- Function of binary inputs
- Function of alarm output, etc.

Configuration of the various SIPART PS2 versions is largely identical.

Technical specifications

SIPART PS2 (all versions)

Rated conditions	
Ambient conditions	For use indoors and outdoors.
Ambient temperature	In hazardous areas, observe the maximum permitted ambient temperature according to the temperature class.
• Permitted ambient temperature for operation[2)3)]	-30 ... +80 °C (-22 ... +176 °F)
• Altitude	2 000 m above sea level. At altitudes greater than 2 000 m above sea level, use a suitable power supply.
• Relative humidity	0 ... 100%
Degree of protection[1)]	IP66/type 4X
Corrosion protection according to EN ISO 9227:2012 and EN ISO 12944:1999	
• 6DR5..0 Polycarbonate enclosure	C5-M medium durability
• 6DR5..3 Aluminum enclosure and 6DR5..5 Aluminum enclosure, flameproof	C5-M medium durability
• 6DR5..2 Stainless steel enclosure and 6DR5..6 Stainless steel enclosure, flameproof	C5-M high durability
Mounting position	Any; pneumatic connections and exhaust opening not facing up in wet environment
Vibration resistance	
• Harmonic oscillations (sine) according to EN 60068-2-6/10.2008	3.5 mm (0.14"), 2 ... 27 Hz, 3 cycles/axis
	98.1 m/s² (321.84 ft/s²), 27 ... 300 Hz, 3 cycles/axis
• Bumping (half-sine) according to EN 60068-2-27/02.2010	150 m/s² (492 ft/s²), 6 ms, 1 000 shocks/axis
• Noise (digitally controlled) according to EN 60068-2-64/04.2009	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
• Recommended continuous duty range of the complete valve	≤ 30 m/s² (98.4 ft/s²) without resonance sharpness
Climatic class	According to IEC EN 60721-3
• Storage	1K5, but -40 … +80 °C (1K5, but -40 … +176 °F)
• Transport	2K4, but -40 … +80 °C (2K4, but -40 … +176 °F)
Pneumatic data	
Auxiliary power (inlet air)	Compressed air, carbon dioxide (CO_2), nitrogen (N), noble gases or cleaned natural gas
• Pressure[4)]	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
Unrestricted flow (DIN 1945)	
• Inlet air valve (ventilate actuator)[5)]	
- 2 bar; 0.1 KV (29 psi; 0.116 CV)	4.1 Nm³/h (18.1 USgpm)
- 4 bar; 0.1 KV (58 psi; 0.116 CV)	7.1 Nm³/h (31.3 USgpm)
- 6 bar; 0.1 KV (87 psi; 0.116 CV)	9.8 Nm³/h (43.1 USgpm)
• Exhaust valve (deaerate actuator for all versions except fail in place)[5)]	
- 2 bar; 0.2 KV (29 psi; 0.232 CV)	8.2 Nm³/h (36.1 USgpm)
- 4 bar; 0.2 KV (58 psi; 0.232 CV)	13.7 Nm³/h (60.3 USgpm)
- 6 bar; 0.2 KV (87 psi; 0.232 CV)	19.2 Nm³/h (84.5 USgpm)
• Exhaust valve (deaerate actuator for fail in place version)	
- 2 bar; 0.1 KV (29 psi; 0.116 CV)	4.3 Nm³/h (19.0 USgpm)
- 4 bar; 0.1 KV (58 psi; 0.116 CV)	7.3 Nm³/h (32.2 USgpm)
- 6 bar; 0.1 KV (87 psi; 0.116 CV)	9.8 Nm³/h (43.1 USgpm)
Restrictor ratio	Adjustable up to ∝: 1
Auxiliary power consumption in the controlled state	< 0.036 Nm³/h (0.158 USgpm)
Sound pressure	L_{Aeq} < 75 dB L_{Amax} < 80 dB
Sound pressure with installed Siemens booster	L_{Aeq} < 95 dB L_{Amax} < 98 dB
Design	
Mode of operation	
• Range of stroke (linear actuators)	3 ... 130 mm (0.12 ... 5.12 inch) Angle of rotation of the positioner shaft 16 ... 90°. Larger range of stroke on request.
• Angle of rotation range (part-turn actuators)	30 ... 100°
Mounting type	
• On linear actuators	Using mounting kit 6DR4004-8V and where necessary with an additional lever arm 6DR4004-8L on actuators according to IEC 60534-6-1 (NAMUR) with ribs, bars or flat face.
• On part-turn actuators	Using mounting kit 6DR4004-8D or TGX:16300-1556 on actuators with mounting plane according to VDI/VDE 3845 and IEC 60534-6-2: The actuator-specific mounting console must be ordered separately, see the selection and ordering data.
Weight, positioner without option modules or accessories	
• 6DR5..0 Glass-fiber reinforced polycarbonate enclosure	Approx. 0.9 kg (1.98 lb)
• 6DR5.11 Aluminum enclosure, only single-acting	Approx. 1.3 kg (2.86 lb)
• 6DR5..2 Stainless steel enclosure	Approx. 3.9 kg (8.6 lb)
• 6DR5..3 Aluminum enclosure	Approx. 1.6 kg (3.53 lb)
• 6DR5..5 Aluminum, flameproof	Approx. 5.2 kg (11.46 lb)
• 6DR5..6 Stainless steel enclosure, flameproof	Approx. 8.4 kg (18.5 lb)
Material	
• Enclosure	
- 6DR5..0 Polycarbonate	Glass-fiber reinforced polycarbonate (PC)
- 6DR5.11 Aluminum, only single-acting	GD AlSi12
- 6DR5..2 Stainless steel	Austenitic stainless steel 316 Cb, mat. no. 1.4581
- 6DR5..3 Aluminum	GD AlSi12
- 6DR5..5 Aluminum, flameproof, rugged	GK AlSi12
- 6DR5..6 Stainless steel, flameproof, rugged	Austenitic stainless steel 316 L, mat. no. 1.4409
• Pressure gauge block	Aluminum AlMgSi, anodized or stainless steel 316
Dimensions	See "Dimension drawings"
Device versions	
• In polycarbonate enclosure 6DR5..0	Single-acting and double-acting
• In aluminum enclosure 6DR5..1	Single-acting
• In aluminum enclosures 6DR5..3 and 6DR5..5	Single-acting and double-acting
• In stainless steel enclosures 6DR5..2 and 6DR5..6	Single-acting and double-acting
Pressure gauge	
• Degree of protection	
- Pressure gauge made of plastic	IP31
- Pressure gauge made of steel	IP44
- Pressure gauge made of stainless steel 316	IP54
• Vibration resistance	According to EN 837-1

Connections, electrical	
• Screw terminals	2.5 mm^2 AWG30-14
• Cable bushing	
- Without explosion protection as well as with Ex i	M20x1.5 or ½-14 NPT
- With explosion protection Ex d	Ex d-certified M20x1.5; ½-14 NPT or M25x1.5
Connections, pneumatic	Female thread G¼ or ¼-18 NPT
Controller	
Controller unit	
• Five-point switch	Adaptive
• Deadband	
- dEbA = Auto	Adaptive
- dEbA = 0.1 ... 10%	Can be set as fixed value
Analog-to-digital converter	
• Scan time	10 ms
• Resolution	≤ 0.05%
• Transmission error	≤ 0.2%
• Temperature influence effect	≤ 0.1%/10 K (≤ 0.1%/18 °F)
Certificates and approvals	
Classification according to pressure equipment directive (PED 2014/68/EU)	For gases of fluid group 1, complies with requirements of article 4, paragraph 3 (sound engineering practice SEP)
CE conformity	You can find the appropriate directives and standards, including the relevant versions, in the EC Declaration of Conformity on the Internet.
UL conformity	You can find the appropriate directives and standards, including the relevant versions, in the UL-CERTIFICATE OF COMPLIANCE on the Internet.
Explosion protection	
Explosion protection according to ATEX/IECEx	Depending on the device version; see "Explosion protection" section, page 5/14.
Natural gas as driving medium	For technical specifications using natural gas as driving medium, see operating instructions.

1) Max. impact energy 1 joule for enclosure with inspection window 6DR5..0 and 6DR5..1 or max. 2 joule for 6DR5..3.

2) At ≤ -10 °C (≤ 14 °F) the refresh rate of the display is limited. When using position feedback module, only T4 is permitted.

3) The following applies to order suffix (order code) -Z M40: -40 ... +80 °C (-40 ... +176 °F).

4) The following applies to fail in place double-acting: 3 ... 7 bar (43.5 ... 101.5 psi)

5) When using Ex d versions (6DR5..5-... and 6DR5..6-...), values are reduced by approximately 20%.

Technical specifications

SIPART PS2 with and without HART

	Basic electronics without explosion protection	Basic electronics with explosion protection Ex d	Basic electronics with explosion protection "ia"	Basic electronics with explosion protection "ic", "ec", "t"
Electrical specifications				
Current input I_W				
• Rated signal range		0/4 ... 20 mA		
• Test voltage		840 V DC, 1 s		
• Binary input BIN1 (terminals 9/10; electrically connected to the basic device)		Suitable only for floating contact; max. contact load < 5 µA at 3 V		
2-wire connection (terminals 6/8) 6DR50.. and 6DR53.. without HART 6DR51.. and 6DR52.. with HART				
Current to maintain the auxiliary power supply		≥ 3.6 mA		
Required load voltage U_B (corresponds to Ω at 20 mA)				
• Without HART (6DR50..)				
- Typical	6.36 V (= 318 Ω)	6.36 V (= 318 Ω)	7.8 V (= 390 Ω)	7.8 V (= 390 Ω)
- Max.	6.48 V (= 324 Ω)	6.48 V (= 324 Ω)	8.3 V (= 415 Ω)	8.3 V (= 415 Ω)
• Without HART (6DR53..)				
- Typical	7.9 V (= 395 Ω)	-	-	-
- Max.	8.4 V (= 420 Ω)	-	-	-
• With HART (6DR51..)				
- Typical	6.6 V (= 330 Ω)	6.6 V (= 330 Ω)	-	-
- Max.	6.72 V (= 336 Ω)	6.72 V (= 336 Ω)	-	-
• With HART (6DR52..)				
- Typical	-	8.4 V (= 420 Ω)	8.4 V (= 420 Ω)	8.4 V (= 420 Ω)
- Max.	-	8.8 V (= 440 Ω)	8.8 V (= 440 Ω)	8.8 V (= 440 Ω)
• Static destruction limit	± 40 mA	± 40 mA	-	-
Effective internal capacitance C_i				
• Without HART	-	-	11 nF	"ic": 11 nF
• With HART	-	-	11 nF	"ic": 11 nF
Effective internal inductance L_i				
• Without HART	-	-	209 µH	"ic": 209 µH
• With HART	-	-	312 µH	"ic": 312 µH
For connecting to circuits with the following peak values	-	-	U_i = 30 V I_i = 100 mA P_i = 1 W	"ic": U_i = 30 V I_i = 100 mA "ec"/"t": $U_n \leq$ 30 V $I_n \leq$ 100 mA
3-/4-wire connection (terminals 2/4 and 6/8) 6DR52.. with HART, explosion-proof 6DR53.. without HART, non-explosion-proof				
Load voltage at 20 mA	≤ 0.2 V (= 10 Ω)	≤ 0.2 V (= 10 Ω)	≤ 1 V (= 50 Ω)	≤ 1 V (= 50 Ω)
Auxiliary power U_{Aux}	18 ... 35 V DC	18 ... 35 V DC	18 ... 30 V DC	18 ... 30 V DC
Current consumption I_H		(U_{Aux} -7.5 V)/2.4 kΩ [mA]		
Effective internal capacitance C_i	-	-	22 nF	22 nF
Effective internal inductance L_i	-	-	0.12 mH	0.12 mH
For connecting to circuits with the following peak values	-	-	U_i = 30 V I_i = 100 mA P_i = 1 W	"ic": U_i = 30 V I_i = 100 mA "ec"/"t": $U_n \leq$ 30 V $I_n \leq$ 100 mA
Electrical isolation	Between U_{Aux} and I_W	Between U_{Aux} and I_W	Between U_{Aux} and I_W (2 intrinsically safe circuits)	Between U_{Aux} and I_W
HART communication				
HART version	7			
PC parameterization software	SIMATIC PDM; supports all device objects. The software is not included in the scope of delivery.			

Pressure sensors 6DR51.. -Z P01	**Basic electronics without explosion protection**
Current input I_W	
• Rated signal range	0/4 ... 20 mA
• Test voltage	840 V DC, 1 s
• Digital input DI1 (terminals 9/10; electrically connected to the basic device)	Suitable only for floating contact; max. contact load < 5 µA at 3 V
Current to maintain the auxiliary power supply	≥ 3.6 mA
Required load voltage U_B (corresponds to Ω at 20 mA)	9.4 V (= 470 Ω)
Static destruction limit	± 30 V
Effective internal capacitance C_i	-
Effective internal inductance L_i	-
For connecting to circuits with the following peak values	-

Technical specifications

SIPART PS2 with PROFIBUS PA/with FOUNDATION Fieldbus

	Basic electronics without explosion protection	Basic electronics with explosion protection Ex d	Basic electronics with explosion protection "ia"	Basic electronics with explosion protection "ic", "ec", "t"
Electrical specifications				
Auxiliary power supply, bus circuit		Bus-supplied		
Bus voltage	9 ... 32 V	9 ... 32 V	9 ... 24 V	9 ... 32 V
For connecting to circuits with the following peak values				
• Bus connection with FISCO supply unit			U_i = 17.5 V I_i = 380 mA P_i = 5.32 W	"ic": U_i = 17.5 V I_i = 570 mA "ec"/"t": $U_n \leq$ 32 V
• Bus connection with barrier			U_i = 24 V I_i = 250 mA P_i = 1.2 W	"ic": U_i = 32 V "ec"/"t": $U_n \leq$ 32 V
Effective internal capacitance C_i	-	-	Negligibly small	Negligibly small
Effective internal inductance L_i	-	-	8 µH	"ic": 8 µH
Current consumption		11.5 mA ± 10%		
Additional fault current		0 mA		
Safety shutdown can be activated with "jumper" (terminals 81/82)		Electrically isolated from bus circuit and binary input		
• Input resistance		> 20 kΩ		
• Signal state "0" (shutdown active)		0 ... 4.5 V or unconnected		
• Signal state "1" (shutdown not active)		13 ... 30 V		
For connecting to power supply with the following peak values			U_i = 30 V I_i = 100 mA P_i = 1 W	"ec": U_n = ≤ 30 V I_n = ≤ 100 mA "ic": U_i = 30 V I_i = 100 mA
Effective internal capacitance and inductance	-	-	Negligibly small	Negligibly small
Binary input BI1 for PROFIBUS (terminals 9/10); electrically connected to the bus circuit)		Jumpered or connection to switching contact. Suitable only for floating contact; max. contact load < 5 µA at 3 V		
Electrical isolation				
• For basic device without explosion protection and for basic device with Ex d		Electrical isolation between basic device and the input for safety shutdown, as well as the outputs of the option modules		
• For basic device Ex "ia"		The basic device and the input to the safety shutdown, as well as the outputs of the option modules, are separate, intrinsically safe circuits.		
• For basic device Ex "ic", "nA", "t"		Electrical isolation between basic device and the input for safety shutdown, as well as the outputs of the option modules		
Test voltage		840 V DC, 1 s		
PROFIBUS PA communication				
Communication		Layers 1 and 2 according to PROFIBUS PA, transmission technology according to IEC 61158-2; slave function; layer 7 (protocol layer) according to PROFIBUS DP, EN 50170 standard with the extended PROFIBUS functions (all data acyclic, manipulated variable, feedbacks and status also cyclic)		
C2 connections		Four connections to master class 2 are supported; automatic connection setup 60 s after break in communication		
Device profile		PROFIBUS PA profile B, version 3.02, more than 150 objects		
Response time to master message		Typically 10 ms		
Device address		126 (when delivered)		
PC parameterization software		SIMATIC PDM; supports all device objects. The software is not included in the scope of delivery.		
FOUNDATION Fieldbus communication				
Communications group and class		According to technical specification of the Fieldbus Foundation for H1 communication		
Function blocks/functions		Group 3, Class 31PS (Publisher Subscriber) 1 Resource Block (RB2) 1 Analog Output Function Block (AO) 1 PID Function Block (PID) 1 Transducer Block (Standard Advanced Positioner Valve) Link Active Scheduler (LAS) function		
Execution times of the blocks		AO: 30 ms PID: 40 ms		
Physical layer profile		123, 511		
FF registration		Tested with ITK 6.0		
Device address		22 (when delivered)		

Option modules

Alarm module / digital I/O module (DIO)	**Without explosion protection or suitable for use in the SIPART PS2 Ex d**	**With explosion protection "ia"**	**With explosion protection "ic", "ec", "t"**
	6DR4004-8A	**6DR4004-6A**	**6DR4004-6A**
3 binary output circuits		•Alarm output A1: Terminals 41 and 42 •Alarm output A2: Terminals 51 and 52 •Alarm output: Terminals 31 and 32	
• Auxiliary power U_{Aux}	≤ 35 V and the current consumption is to be limited to < 25 mA	-	-
• Signal state			
- High (not addressed)	Conductive, R = 1 kΩ, +3/-1% *)	≥ 2.1 mA	≥ 2.1 mA
- Low *) (addressed)	Blocked, I_R < 60 µA	≤ 1.2 mA	≤ 1.2 mA
*) Low is also the status when the basic device is faulty or is without auxiliary electrical power supply.	*) When used in the flameproof enclosure the current consumption must be limited to 10 mA per output.	Switching threshold with supply to EN 60947-5-6: U_{Aux} = 8.2 V, R_i = 1 kΩ	Switching threshold with supply to EN 60947-5-6: U_{Aux} = 8.2 V, R_i = 1 kΩ
• For connecting to circuits with the following peak values	-	U_i = 15 V I_i = 25 mA P_i = 64 mW	"ic": U_i = 15 V I_i = 25 mA "ec"/"t": U_n ≤ 15 V
Effective internal capacitance C_i	-	5.2 nF	5.2 nF
Effective internal inductance L_i	-	Negligibly small	Negligibly small
1 binary input circuit	Binary input BI2: Terminals 11 and 12, terminals 21 and 22 (jumper)		
• Electrically connected to the basic device			
- Signal state 0		Floating contact, open	
- Signal state 1		Floating contact, closed	
- Contact load		3 V, 5 µA	
• Electrically isolated from the basic device			
- Signal state 0		≤ 4.5 V or open	
- Signal state 1		≥ 13 V	
- Natural resistance		≥ 25 kΩ	
• Static destruction limit	± 35 V	-	-
• Connecting to circuits with the following peak values	-	U_i = 25.2 V	"ic": U_i = 25.2 V "ec"/"t": U_n ≤ 25.5 V
Effective internal capacitance C_i	-	Negligibly small	Negligibly small
Effective internal inductance L_i	-	Negligibly small	Negligibly small
Electrical isolation	The 3 outputs, the input BI2 and the basic device are electrically isolated from each other		
Test voltage	840 V DC, 1 s		

Position feedback module / analog output module (AOM)	**Without explosion protection or suitable for use in the SIPART PS2 Ex d**	**With explosion protection "ia"**	**With explosion protection "ic", "ec", "t"**
	6DR4004-8J	**6DR4004-6J**	**6DR4004-6J**
DC output for position feedback			
1 current output: Terminals 61 and 62		2-wire connection	
Rated signal range		4 ... 20 mA, short-circuit-proof	
Total operating range		3.6 ... 20.5 mA	
Auxiliary power U_{Aux}	+12 ... +35 V	+12 ... +30 V	+12 ... +30 V
External load R_B [kΩ]		≤ (U_{Aux} [V] – 12 V)/I [mA]	
Transmission error		≤ 0.3%	
Temperature influence effect		≤ 0.1%/10 K (≤ 0.1%/18 °F)	
Resolution		≤ 0.1%	
Residual ripple		≤ 1%	
For connecting to circuits with the following peak values	-	U_i = 30 V I_i = 100 mA P_i = 1 W	"ic": U_i = 30 V I_i = 100 mA "ec"/"t": U_n ≤ 30 V I_n ≤ 100 mA P_n ≤ 1 W
Effective internal capacitance C_i	-	11 nF	11 nF
Effective internal inductance L_i	-	Negligibly small	Negligibly small
Electrical isolation	Electrically isolated from the alarm option and safely isolated from the basic device		
Test voltage	840 V DC, 1 s		

Technical specifications/Option modules

SIA module / inductive limit switches (ILS)	Without Ex protection	With explosion protection "ia"	With explosion protection "ic", "ec", "t"
	6DR4004-8G	6DR4004-6G	6DR4004-6G
Limit transmitter with slot-type initiators and alarm output			
2 slot-type initiators		•Binary output (limit transmitter) A1: Terminals 41 and 42 •Binary output (limit transmitter) A2: Terminals 51 and 52	
• Connection		2-wire system acc. to EN 60947-5-6 (NAMUR), for switching amplifier to be connected on load side	
• Signal state High (not addressed)		> 2.1 mA	
• Signal state Low (addressed)		< 1.2 mA	
• 2 slot-type initiators		Type SJ2-SN	
• Function		NC (normally closed) contact	
• Connecting to circuits with the following peak values	Rated voltage 8 V current consumption: ≥ 3 mA (limit value not addressed), ≤ 1 mA (limit value addressed)	U_i = 15 V I_i = 25 mA P_i = 64 mW	"ic": U_i = 15 V I_i = 25 mA "ec": U_n ≤ 15 V P_n ≤ 64 mW
Effective internal capacitance C_i	-	161 nF	161 nF
Effective internal inductance L_i	-	120 µH	120 µH
1 alarm output		Binary output: Terminals 31 and 32	
• Connection		On switching amplifier according to EN 60947-5-6: (NAMUR), U_{Aux} = 8.2 V, R_i = 1 kΩ	
• Signal state High (not addressed)	R = 1.1 kΩ	> 2.1 mA	> 2.1 mA
• Signal state Low (addressed)	R = 10 kΩ	< 1.2 mA	< 1.2 mA
• Auxiliary power U_{Aux}	U_{Aux} ≤ 35 V DC I ≤ 20 mA	-	-
• Connecting to circuits with the following peak values	-	U_i = 15 V I_i = 25 mA P_i = 64 mW	"ic"/"nL": U_i = 15 V I_i = 25 mA "ec": U_n ≤ 15 V P_n ≤ 64 mW
Effective internal capacitance C_i	-	5.2 nF	5.2 nF
Effective internal inductance L_i	-	Negligibly small	Negligibly small
Electrical isolation		The 3 outputs are electrically isolated from the basic device.	
Test voltage		840 V DC, 1 s	

Mechanical limit switch (MLS) module	Without Ex protection 6DR4004-8K	With explosion protection "ia" 6DR4004-6K	With explosion protection "ic", "t" 6DR4004-6K
Limit transmitter with mechanical switching contacts			
2 limit value contacts		•Binary output A1: Terminals 41 and 42 •Binary output A2: Terminals 51 and 52	
• Max. switching current AC/DC	4 A	-	-
• For connecting to circuits with the following peak values	-	U_i = 30 V I_i = 100 mA P_i = 750 mW	"ic": U_i = 30 V I_i = 100 mA "t": U_n = 30 V I_n = 100 mA
Effective internal capacitance C_i	-	Negligibly small	Negligibly small
Effective internal inductance L_i	-	Negligibly small	Negligibly small
• Max. switching voltage AC/DC	250 V/24 V	30 V DC	30 V DC
1 alarm output		Binary output: Terminals 31 and 32	
• Connection	On switching amplifier according to EN 60947-5-6: (NAMUR), U_{Aux} = 8.2 V, R_i = 1 kΩ		-
• Signal state High (not addressed)	R = 1.1 kΩ	> 2.1 mA	> 2.1 mA
• Signal state Low (addressed)	R = 10 kΩ	< 1.2 mA	< 1.2 mA
• Auxiliary power	U_{Aux} ≤ 35 V DC I ≤ 20 mA	-	-
• Connecting to circuits with the following peak values	-	U_i = 15 V I_i = 25 mA P_i = 64 mW	"ic": U_i = 15 V I_i = 25 mA "t": U_n = 15 V I_n = 25 mA
Effective internal capacitance C_i	-	5.2 nF	5.2 nF
Effective internal inductance L_i	-	Negligibly small	Negligibly small
Electrical isolation		The 3 outputs are electrically isolated from the basic device.	
Test voltage		3150 V DC, 2 s	
Rated conditions altitude	Max. 2 000 m above sea level At altitudes greater than 2 000 m above sea level, use a suitable power supply	-	-

EMC filter module / analog input module (AIM)	**Without Ex protection**	**With explosion protection Ex "ia", "ic"**	**With explosion protection Ex "ec", "t"**
	6DR4004-8F	**6DR4004-6F**	**6DR4004-6F**
	The EMC filter module type 6DR4004-6F and -8F is required to connect contactless, external position detection, e.g. NCS module or an external position detection system with potentiometer type 6DR4004-1ES or with internal NCS module 6DR4004-2ES to -4ES. For devices with explosion protection, other types of potentiometers with a resistance value of 3 kΩ, 5 kΩ or 10 kΩ can be connected. For devices without explosion protection, signals between 0/4 ... 20 mA or 0 ... 10 V can additionally be processed.		
R-potentiometer			
• Peak values when powered by the base unit with PA (6DR55) or with FF communication (6DR56)	U_{max} = 5 V	U_o = 5 V I_o = 75 mA static I_o = 160 mA momentary P_o = 120 mW C_o = 1 µF L_o = 1 mH	U_{max} = 5 V
• Peak values when supplied by other basic devices (6DR50/1/2/3/9)	U_{max} = 5 V	U_o = 5 V I_o = 100 mA P_o = 33 mW C_o = 1 µF L_o = 1 mH	U_{max} = 5 V
Signal 20 mA			
• Rated signal range	0 ... 20 mA	-	-
• Internal load R_B	200 Ω	-	-
• Static destruction limit	40 mA	-	-
Signal 10 V			
• Rated signal range	0 ... 10 V	-	-
• Internal resistance R_i	25 kΩ	-	-
• Static destruction limit	20 V	-	-
Supply and signal circuits	Electrically connected to the basic device		

NCS sensor	**Without Ex protection**	**With explosion protection "ia"**	**With explosion protection "ic", "ec"**
Position range			
• Linear actuator 6DR4004-.N.20	3 ... 14 mm (0.12 ... 0.55")		
• Linear actuator 6DR4004-.N.30	10 ... 130 mm (0.39 ... 5.12"); up to 200 mm (7.87") on request		
• Part-turn actuator	30 ... 100°		
Linearity for NCS sensor and for internal NCS module 6DR4004-5L/-5LE (after correction by means of positioner)	± 1%		
Hysteresis for NCS sensor and for internal NCS module 6DR4004-5L/-5LE	± 0.2%		
Temperature influence (range: Rotation angle 120° or stroke 14 mm)	≤ 0.1%/10 K (≤ 0.1%/18 °F) for -20 ... +90 °C (-4 ... +194 °F) ≤ 0.2%/10 K (≤ 0.2%/18 °F) for -40 ... -20 °C (-40 ... -4 °F)		
Climatic class	According to IEC EN 60721-3		
• Storage	1K5, but -40 … +90 °C (1K5, but -40 … +194 °F)		
• Transport	2K4, but -40 … +90 °C (2K4, but -40 … +194 °F)		
Continuous working temperature	-40 °C … +90 °C (-40 °F ... +194 °F)	-	-
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/s² (321.84 ft/s²), 27 ... 300 Hz, 3 cycles/axis		
• Bumping according to IEC 60068-2-29	300 m/s² (984 ft/s²), 6 ms, 4 000 shocks/axis		
Degree of protection	IP68/type 4X		
For connecting to circuits with the following peak values	-	U_i = 5 V I_i = 160 mA P_i = 120 mW	U_i = 5 V
Effective internal capacitance C_i	-	110 nF + 110 nF per meter of connecting cable	110 nF + 110 nF per meter of connecting cable
Effective internal inductance L_i	-	270 µH + 6.53 µH per meter of connecting cable	270 µH + 6.53 µH per meter of connecting cable
Explosion protection according to ATEX/IECEx	-	Intrinsic safety "ia": II 2 G Ex ia IIC T6/T4 Gb	Intrinsic safety "ic": II 3 G Ex ic IIC T6/T4 Gc Non-sparking "ec": II 3 G Ex ec IIC T6/T4 Gc
Explosion protection according to FM	-	Intrinsic safety "ia": IS, Class I, Division 1, ABCD IS, Class I, Zone 1, AEx ib, IIC	Non-sparking "ec"/"nA": NI, Class I, Division 2, ABCD NI, Class I, Zone 2, AEx ec, IIC
Permissible ambient temperature			
• ATEX/IECEx	-	T4: -40 ... +90 °C (-40 ... +194 °F) T6: -40 ... +70 °C (-40 ... +158 °F)	
• FM/CSA	-	T4: -40 ... +85 °C (-40 ... +185 °F) T6: -40 ... +70 °C (-40 ... +158 °F)	

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Technical specifications/Explosion protection

Explosion protection

1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-				
6	D	R	5	*a*	*y*	*b*	-	0	*c*	*d*	*e*	*f*	-	*g*	*	*	*h*	-	*Z*	*j*	*j*	*j*

Upper row: Order position of Article No.; lower line in color: Article No. with variable positions

6DR5ayb-	0cdef-	g**h-	Z jjj
a (version) = 0, 2, 5, 6 y (actuator) = 1, 2 b (enclosure) = 0, 1, 2, 3	c (explosion protection) = E, D, F, G, K d (thread) = G, N, M, P, R, S e (limit monitor) = 0, 1, 2, 3, 9 f (option module) = 0, 1, 2, 3	g = 0, 2, 6, 7, 8 h (pressure gauge block) = 0, 1, 2, 3, 4, 9	jjj (-Z order code) = = A20, A40, C20, D53, D54, D55, D56, D57, F01, K**, L1A, M40,R**, S**, Y** * = any character

Type of protection 6DR5ayb-*cdef-g*Ah-Zjjj	Ex marking ATEX/IECEx	Ex marking FM-CSA
Intrinsic safety • For c = E and b = 0	II 3 G Ex ic IIC T6/T4 Gc	Cl I Zn 1 AEx ib IIC Gb Cl I Zn 1 Ex ib IIC Gb IS Cl I Div 1 Gp A-D
Flameproof enclosure and dust explosion protection by enclosure • For c = E and b = 5, 6	II 2 G Ex db IIC T6/T4 Gb II 2 D Ex tb IIIC T100°C Db	FM Cl I Zn 1 AEx db IIC Gb XP Cl I Div 1 Gp A-D CSA Cl I Zn 1 Ex db IIC Gb XP Cl I Div 1 Gp C-D FM + CSA Zn 21 AEx tb IIIC T100°C Db Zn 21 Ex tb IIIC T100°C Db DIP Cl II, III Div 1 Gp E-G
Intrinsic safety • For c = E and b = 1, 2, 3	II 2 G Ex ia IIC T6/T4 Gb II 3 G Ex ic IIC T6/T4 Gc II 2 D Ex ia IIIC T130°C Db	Cl I Zn 1 AEx ib IIC Gb Cl I Zn 1 Ex ib IIC Gb Zn 21 AEx ib IIIC, T130°C Db Zn 21 Ex ib IIIC, T130°C Db IS Cl I, II, III Div 1 Gp A-G
Increased safety (non-incendive NI) • For c = G and b = 1, 2, 3, 5, 6	II 3 G Ex ec IIC T6/T4 Gc	Cl I Zn 2 AEx nA IIC Gc Cl I Zn 2 Ex nA IIC Gc NI Cl I Div 2 Gp A-D
Increased safety (non-incendive NI) and dust explosion protection by enclosure • For c = D and b = 1, 2, 3	II 2 D Ex tb IIIC T100°C Db II 3 G Ex ec IIC T6/T4 Gc	DIP: Zn 21 AEx tb IIIC T100°C Db Zn 21 Ex tb IIIC T100°C Db DIP Cl II, III Div 1 Gp E-G NI: Cl I Zn 2 AEx nA IIC Gc Cl I Zn 2 Ex nA IIC Gc NI Cl I Div 2 Gp A-D

Type of protection 6DR5ayb-*cdef-g*Ah-Zjjj	**Ex marking ATEX/IECEx**	**Ex marking FM-CSA**
Intrinsic safety, increased safety (non-incendive NI) and dust explosion protection by enclosure		
• For c = K and b = 1, 2, 3, 5, 6 • 6DR4004-1ES External position transmitter (potentiometer) • 6DR4004-2ES External position transmitter (NCS)	II 2 G Ex ia IIC T6/T4 Gb II 3 G Ex ic IIC T6/T4 Gc II 2 D Ex ia IIIC T130°C Db II 2 D Ex tb IIIC T100°C Db II 3 G Ex ec IIC T6/T4 Gc	IS: Cl I Zn 1 AEx ib IIC Gb Cl I Zn 1 Ex ib IIC Gb Zn 21 AEx ib IIIC, T130°C Db Zn 21 Ex ib IIIC, T130°C Db IS Cl I, II, III Div 1 Gp A-G NI: Cl I Zn 2 AEx nA IIC Gc Cl I Zn 2 Ex nA IIC Gc NI Cl I Div 2 Gp A-D DIP: Zn 21 AEx tb IIIC T100°C Db Zn 21 Ex tb IIIC T100°C Db DIP Cl II, III Div 1 Gp E-G
Intrinsic safety and increased safety (non-incendive NI)		
• For c = F and b = 1, 2, 3, 5, 6 • 6DR4004-6N**-0-*** Non-contacting sensor (NCS)	II 2 G Ex ia IIC T6/T4 Gb II 3 G Ex ic IIC T6/T4 Gc II 2 D Ex ia IIIC T130°C Db II 3 G Ex ec IIC T6/T4 Gc	IS: Cl I Zn 1 AEx ib IIC Gb Cl I Zn 1 Ex ib IIC Gb Zn 21 AEx ib IIIC T130°C Db Zn 21 Ex ib IIIC T130°C Db IS Cl I, II, III Div 1 Gp A-G NI: Cl I Zn 2 AEx nA IIC Gc Cl I Zn 2 Ex nA IIC Gc NI Cl I Div 2 Gp A-D

Maximum permissible ambient temperature ranges	**Temperature class T4**	**Temperature class T6**
Positioners		
• 6DR5ayb-0cdef-g*Ah-Z jjj	-30 °C ≤ Ta ≤ +80 °C	-30 °C ≤Ta ≤ +50 °C
• 6DR5ayb-0cdef-g*Ah-Z M40	-40 °C ≤ Ta ≤ +80 °C	-40 °C ≤Ta ≤ +50 °C
• 6DR5ayb-0cdef-g*Ah-Z jjj for a = 0, 2 and f = 0, 2	-30 °C ≤ Ta ≤ +80 °C	-30 °C ≤Ta ≤ +60 °C
• 6DR5ayb-0cdef-g*Ah-Z M40 for a = 0, 2 and f = 0, 2	-40 °C ≤ Ta ≤ +80 °C	-40 °C ≤Ta ≤ +60 °C
Position feedback module / analog output module (AOM)		
• Installed: 6DR5ayb-0cdef-g.Ah-Z ... for f = 1, 3 • Can be retrofitted 6DR4004-6J	-30 °C ≤ Ta ≤ +80 °C	-
• Installed and can be retrofitted: 6DR5ayb-0cdef-g*Ah-Z M40 for f = 1, 3	-40 °C ≤ Ta ≤ +80 °C	-
Position detection systems		
• Non-contacting sensor (NCS) 6DR4004-6N**-0-***	-40 °C ≤ Ta ≤ +90 °C	-40 °C ≤Ta ≤ +70 °C
• External position transmitter (potentiometer) 6DR4004-1ES	-40 °C ≤ Ta ≤ +90 °C	-40 °C ≤Ta ≤ +60 °C
• External position transmitter (NCS) 6DR4004-2ES	-40 °C ≤ Ta ≤ +90 °C	-40 °C ≤Ta ≤ +50 °C

Technical specifications

Booster

Rated conditions	
Climatic class	According to IEC EN 60721-3
• Storage	1K5, but -40 … +80 °C (1K5, but -40 … +176 °F)
• Transport	2K4, but -40 … +80 °C (2K4, but -40 … +176 °F)
Vibration resistance	
• Harmonic oscillations	According to ISA-S75.13
• Bumping (half-sine) according to EN 60068-2-27/02.2010	150 m/s² (492 ft/s²), 6 ms, 1 000 shocks/axis
Design	
Weight booster, single-acting	
• Booster, single-acting, polycarbonate, with positioner	4.0 kg (8.8 lb)
• Booster, single-acting, polycarbonate, installation kit only	2.9 kg (6.5 lb)
• Booster, single-acting with flameproof enclosure, with positioner	7.9 kg (17.4 lb)
• Booster, single-acting with flameproof enclosure, installation kit only	3.3 kg (7.3 lb)
Weight booster, double-acting	
• Polycarbonate enclosure, with positioner	
• Polycarbonate enclosure, with positioner	5.3 kg (11.7 lb)
• Polycarbonate enclosure, installation kit only	4.3 kg (9.4 lb)
• Flameproof enclosure, with positioner	9.3 kg (20.5 lb)
• Flameproof enclosure, installation kit only	4.7 kg (10.4 lb)
Connections	
• Pneumatic	½-14 NPT or G½
• Pressure gauge	¼-18 NPT or G1/8
Pneumatic data	
Auxiliary power (inlet air)	Compressed air, carbon dioxide (CO_2), nitrogen (N), noble gases or cleaned natural gas
• Pressure	1.4 ... 7 bar (20.3 ... 101.5 psi)
• Inlet air	According to ISO 8573-1
• Air consumption	1.2 x 10^{-2} Nm^3/h (0.007SCFM)
Pressure gauge	Thread ¼-18 NPT or G½ with stainless steel enclosure MPa, bar, psi Degree of protection IP66
Flow capacity	Cv 2.0

Selection and ordering data

	Article No.	Order code
SIPART PS2 electropneumatic positioner ↗	**6DR5**	
	- 0 - 0 A	

↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

Version		
2-wire (4 to 20 mA)		
• Without HART	**0**	
• With HART, non-explosion-proof	**1**	
2-/3-/4-wire (0/4 to 20 mA)		
• With HART, explosion-proof	**2**	
• Without HART, non-explosion-proof	**3**	
PROFIBUS PA connection	**5**	
FOUNDATION Fieldbus terminal	**6**	
Without basic electronics	**9**	
For actuator		
Single-acting	**1**	
Double-acting	**2**	
Enclosure		
Polycarbonate[5]	**0**	
Aluminum, only single-acting	**1 1**	
Stainless steel, without inspection window	**2**	
Aluminum	**3**	
Type of protection (Ex)		
None	**N**	
Increased safety (Ex e), dust explosion protection by enclosure (Ex t)[1]	**D**	
Intrinsic safety (Ex i)	**E**	
Intrinsic safety (Ex i), increased safety (Ex e)[2]	**F**	
Increased safety (Ex e)[2]	**G**	
Intrinsic safety (Ex i), increased safety (Ex e), dust explosion protection by enclosure (Ex t)[1]	**K**	
Connection thread electrical/pneumatic		
M20x1.5/G¼	**G**	
½-14 NPT / ¼-18 NPT	**N**	
M20x1.5/¼-18 NPT	**M**	
½-14 NPT / G¼	**P**	
M12 device plug (A coding) / G¼[3]	**R**	
M12 device plug (A coding), ¼-18 NPT[3]	**S**	
Limit monitor Installed, incl. 2nd cable gland		
None	**0**	
Alarm module; electronic	**1**	
SIA module; slot-type initiators	**2**	
Mechanical limit switch module (mechanical switching contacts)[4]	**3**	
Internal NCS module, internal position detection by means of a potentiometer is not included and can be ordered through -Z K11 if needed.	**9**	**L 1 A**

	Article No.	Order code
SIPART PS2 electropneumatic positioner	**6DR5**	
	- 0 - 0 A	

Option modules Installed, incl. 2nd cable gland		
None	**0**	
Position feedback module for position feedback (4 ... 20 mA)	**1**	
EMC filter module for external position sensor in SIPART PS2 enclosure, NCS sensor and external position detection by means of a third-party potentiometer, internal position detection by means of a potentiometer is not included and can be ordered through -Z K11 if needed.	**2**	
Position feedback module and EMC filter module for external position sensor, internal position detection by means of a potentiometer is not included and can be ordered through -Z K11 if needed.	**3**	
Brief instructions		
English/German/Chinese	**A**	
French/Italian/Spanish	**B**	
Mounted pressure gauge block		
None	**0**	
Pressure gauge made of plastic IP31		
• Block made of aluminum, single-acting, G¼, scaled in MPa and bar	**1**	
• Block made of aluminum, double-acting, G¼, scaled in MPa and bar	**2**	
• Block made of aluminum, single-acting, ¼-18 NPT, scaled in MPa and psi	**3**	
• Block made of aluminum, double-acting, ¼-18 NPT, scaled in MPa and psi	**4**	
Pressure gauge made of steel IP44		
• Block made of aluminum, single-acting, G¼, scaled in MPa, bar, psi	**9**	**R 1 A**
• Block made of aluminum, double-acting, G¼, scaled in MPa, bar, psi	**9**	**R 2 A**
• Block made of aluminum, single-acting,¼-18 NPT, scaled in MPa, bar, psi	**9**	**R 1 B**
• Block made of aluminum, double-acting, ¼-18 NPT, scaled in MPa, bar, psi	**9**	**R 2 B**
Pressure gauge made of stainless steel 316 IP54		
• Block made of stainless steel 316, single-acting, G¼, scaled in MPa, bar, psi	**9**	**R 1 C**
• Block made of stainless steel 316, double-acting, G¼, scaled in MPa, bar, psi	**9**	**R 2 C**
• Block made of stainless steel 316, single-acting, ¼-18 NPT, scaled in MPa, bar, psi	**9**	**R 1 D**
• Block made of stainless steel 316, double-acting, ¼-18 NPT, scaled in MPa, bar, psi	**9**	**R 2 D**

Selection and ordering data

	Article No.	Order code
SIPART PS2 electropneumatic positioner 	**6DR5** - 0 ■■■■ - 0 **A** ■	■■■
Mounted booster		
Single-acting, aluminum, G½		**9 R 1 J**
Double-acting, aluminum, G½		**9 R 2 J**
Single-acting, aluminum, ½-14 NPT		**9 R 1 K**
Double-acting, aluminum, ½-14 NPT		**9 R 2 K**

1) Enclosure: Aluminum single-acting 6DR5..1 or stainless steel 6DR5..2, in both cases without inspection window in the cover. Aluminum, single-acting and double-acting 6DR5..3; impact energy max. 2 joule.

2) Enclosure: Aluminum; impact energy max. 2 joule on inspection window for enclosure 6DR5..1 or 6DR5..3.

3) M12 device plug mounted and electrically connected for version 6DR50.., 6DR55.. and 6DR56..
M12 device plug mounted for version 6DR50.., 6DR51.., 6DR52.. and 6DR53..
Not for type of protection "Dust explosion protection by enclosure" 6DR5...-0D... and 6DR5...-0K...

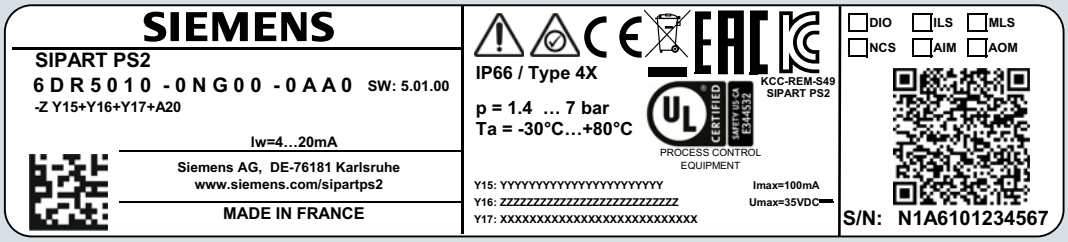
4) Not for "non-sparking" type of protection

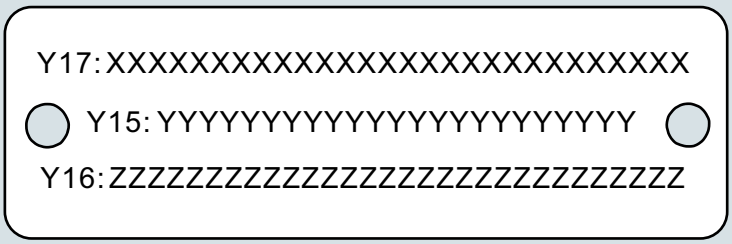
5) Only in type of protection intrinsic safety "Ex i"

Options	Order code
Append suffix "**-Z**" to Article No., add order code and plain text.	
Version with stainless steel sound absorbers Standard with stainless steel enclosure	**A40**
Functional safety (SIL 2) for 6DR5.1. only (single-acting positioner) Device suitable for use according to IEC 61508 and IEC 61511	**C20**
M12 device plug (D coding) For the following option modules:	
For position feedback module	**D53**
For position detection system	**D54**
For alarm module	**D55**
For SIA module	**D56**
For mechanical limit switch module, can only be ordered in connection with option module	**D57**
Fail in place Holding function on failure of auxiliary electrical power and/or pneumatic failure	**F01**
Optimized control behavior for small drives[1]	**K10**
Additional position detection by means of a potentiometer	**K11**
Pneumatic terminal strip made of stainless steel 316	**K18**
OPOS adapter with interface VDI/VDE 3847 Blanketing, only for single-acting, not for flameproof enclosures	**K20**
Operation with natural gas Device is designed for natural gas, exhaust air (natural gas) cannot be dissipated collectedly	**K50**
Permitted ambient temperature during operation -40 ... 80 °C (-40 ... +176 °F) For 6DR5.11, 6DR5..2, 6DR5..3 (without inspection window)	**M40**
Premium diagnostics for 6DR51.3* Monitoring of inlet air pressure (PZ)	**P01**
Marine approval	
DNV GL	**S10**
LR (Lloyds Register)	**S11**
BV (Bureau Veritas)	**S12**
ABS (American Bureau of Shipping)	**S14**
KR (Korean Register of Shipping)	**S15**
CCS (China Classification Society)	**S16**
TAG plate made of stainless steel, 3-line Text line 1: Plain text from Y17 Text line 2: Plain text from Y15 Text line 3: Plain text from Y16	**A20**
Measuring point description Input field: Max. 16 characters for HART, max. 32 characters for PROFIBUS PA, FOUNDATION Fieldbus and 4 ... 20 mA; specify in plain text	**Y15**
Measuring point text Input field: Max. 24 characters for HART, max. 32 characters for PROFIBUS PA, FOUNDATION Fieldbus and 4 ... 20 mA; specify in plain text	**Y16**
Measuring point number (TAG no.) Input field: Max. 32 characters; specify in plain text	**Y17**
Preset bus address Input field: Specify in plain text (for 6DR55.. and 6DR56.. only)	**Y25**
Customer-specific parameter setting Input field: Specify in plain text	**Y30**
Special version Input field: Specify order number from PVR clarification in plain text	**Y99**

1) Not for following options: 6DR5..1 and 6DR5..2; C20; F01.

Rating plate and TAG plate made of stainless steel





Selection and ordering data

	Article No.	Order code
SIPART PS2 electropneumatic positioner, in flameproof enclosure ↗	**6DR5** - 0 - 0 **A**	

↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

Version	
2-wire (4 to 20 mA)	
• Without HART	**0**
• With HART	**1**
2-/3-/4-wire (0/4 to 20 mA)	
• With HART	**2**
• Without HART	**3**
PROFIBUS PA connection	**5**
FOUNDATION Fieldbus terminal	**6**
For actuator	
Single-acting	**1**
Double-acting	**2**
Enclosure	
Aluminum, flameproof	**5**
Stainless steel, 316L, flameproof	**6**
Type of protection (Ex)	
None	**N**
Flameproof enclosure (Ex d), dust explosion protection by enclosure (Ex t)	**E**
Intrinsic safety (Ex i), increased safety (Ex e)	**F**
Increased safety (Ex e)	**G**
Intrinsic safety (Ex i), increased safety (Ex e), dust explosion protection by enclosure (Ex t)	**K**
Connection thread electrical/pneumatic	
M20x1.5/G¼	**G**
½-14 NPT / ¼-18 NPT	**N**
M20x1.5/¼-18 NPT	**M**
½-14 NPT / G¼	**P**
M25x1.5/G¼	**Q**
Limit monitor Installed	
None	**0**
Alarm module; electronic	**1**
Internal NCS module (6DR4004-5L.), internal position detection by means of a potentiometer is not included and can be ordered through -Z K11 if needed.	**9** **L1A**

	Article No.	Order code
SIPART PS2 electropneumatic positioner, in flameproof enclosure	**6DR5** - 0 - 0 **A**	

Option modules Installed	
None	**0**
Position feedback module for position feedback (4 ... 20 mA)	**1**
EMC filter module for external position sensor, internal position detection by means of a potentiometer is not included and can be ordered through -Z K11 if needed.	**2**
Position feedback module and EMC filter module for external position sensor, internal position detection by means of a potentiometer is not included and can be ordered through -Z K11 if needed.	**3**
Brief instructions	
English/German/Chinese	**A**
French/Italian/Spanish	**B**
Mounted pressure gauge block	
None	**0**
Pressure gauge made of plastic IP31	
• Block made of aluminum, single-acting, G¼, scaled in MPa and bar	**1**
• Block made of aluminum, double-acting, G¼, scaled in MPa and bar	**2**
• Block made of aluminum, single-acting, ¼-18 NPT, scaled in MPa and psi	**3**
• Block made of aluminum, double-acting, ¼-18 NPT, scaled in MPa and psi	**4**
Pressure gauge made of steel IP44	
• Block made of aluminum, single-acting, G¼, scaled in MPa, bar, psi	**9** **R1A**
• Block made of aluminum, double-acting, G¼, scaled in MPa, bar, psi	**9** **R2A**
• Block made of aluminum, single-acting,¼-18 NPT, scaled in MPa, bar, psi	**9** **R1B**
• Block made of aluminum, double-acting, ¼-18 NPT, scaled in MPa, bar, psi	**9** **R2B**
Pressure gauge made of stainless steel 316 IP54	
• Block made of stainless steel 316, single-acting, G¼, scaled in MPa, bar, psi	**9** **R1C**
• Block made of stainless steel 316, double-acting, G¼, scaled in MPa, bar, psi	**9** **R2C**
• Block made of stainless steel 316, single-acting, ¼-18 NPT, scaled in MPa, bar, psi	**9** **R1D**
• Block made of stainless steel 316, double-acting, ¼-18 NPT, scaled in MPa, bar, psi	**9** **R2D**
Mounted booster	
Single-acting, aluminum, G½	**9** **R1P**
Double-acting, aluminum, G½	**9** **R2P**
Single-acting, aluminum, ½-14 NPT	**9** **R1Q**
Double-acting, aluminum, ½-14 NPT	**9** **R2Q**

Options	Order code
Append suffix "**-Z**" to Article No., add order code and plain text.	
Functional safety (SIL 2) for 6DR5.1. only (single-acting positioner) Device suitable for use according to IEC 61508 and IEC 61511	**C20**
Fail in place Holding function on failure of auxiliary electrical power and/or pneumatic failure	**F01**
Optimized control behavior for small drives[1]**.**	**K10**
Pneumatic terminal strip made of stainless steel 316	**K18**
Operation with natural gas Device is designed for natural gas, exhaust air (natural gas) can be dissipated collectedly	**K50**
Permitted ambient temperature during operation -40 ... 80 °C (-40 ... +176 °F) For 6DR5.11, 6DR5..2, 6DR5..3 (without inspection window)	**M40**
Marine approval	
DNV GL	**S10**
LR (Lloyds Register)	**S11**
BV (Bureau Veritas)	**S12**
ABS (American Bureau of Shipping)	**S14**
KR (Korean Register of Shipping)	**S15**
CCS (China Classification Society)	**S16**
TAG plate made of stainless steel, 3-line Input fields Text line 1: Plain text from Y17 Text line 2: Plain text from Y15 Text line 3: Plain text from Y16	**A20**
Measuring point description Input field: Max. 16 characters for HART, max. 32 characters for PROFIBUS PA, FOUNDATION Fieldbus and 4 ... 20 mA; specify in plain text	**Y15**
Measuring point text Input field: Max. 24 characters for HART, max. 32 characters for PROFIBUS PA, FOUNDATION Fieldbus and 4 ... 20 mA; specify in plain text	**Y16**
Measuring point number (TAG no.) Input field: Max. 32 characters; specify in plain text	**Y17**
Preset bus address Input field: Specify in plain text (for 6DR55.. and 6DR56.. only)	**Y25**
Special version Input field: Specify order number from PVR clarification in plain text	**Y99**

[1] Not for following options: 6DR5..1 and 6DR5..2; C20; F01.

Selection and ordering data

Accessories

	Article No.
NCS sensor ↗ For contact-free position detection (not for Ex d version)	**6DR4004-** ■ **N** ■■ **0**
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	
Explosion protection	
Non-explosion-proof	**8**
In type of protection • Intrinsic safety • Non-sparking	**6**
Cable length	
6 m (19.68 ft)	**N**
20 m (65.67 ft)	**P**
40 m (131.23 ft)	**R**
Actuator type	
For part-turn actuators, glass fiber-reinforced polyester magnet holders[1]	**1**
For linear actuators up to 14 mm (0.55 inch)[2]	**2**
For linear actuators > 14 ... 130 mm (0.55 ... 5.12 inch)[3]	**3**
For part-turn actuators, anodized aluminum magnet holders[1]	**4**

1) Fitted with mounting console, available for order separately as accessory.

2) Mounted with individual mounting solution. Only a NAMUR mounting bracket can be used as mounting base (order separately as accessory).

3) Mounted with NAMUR interface. Article No. either 6DR4004-8V or 6DR4004-8V + 6DR4004-8L depending on stroke range. Or mounted without NAMUR interface, individual mounting solution. Article No. 6DR4004-8VK or 6DR4004-8VL can be used as the basis for the individual mounting solution depending on the stroke range.

Accessories	Article No.
External position detection systems	
Aluminum enclosure with potentiometer, without electronics, without pneumatic block, for separate mounting of position detection on actuator. SIPART PS2 externally mounted in protected area (not Ex d). Condition: SIPART PS2 with integrated analog input module (AIM) as order option or for retrofit with 6DR4004-6F/-8F with NSC.	**6DR4004-1ES**
Aluminum enclosure with non-contacting position detection (NCS), without electronics, without pneumatic block, for separate mounting of position detection on actuator. SIPART PS2 externally mounted in protected area (not Ex d). Condition: SIPART PS2 with integrated analog input module (AIM) as order option or for retrofit with 6DR4004-6F/-8F with NSC, ILS.	**6DR4004-2ES**
Aluminum enclosure with non-contacting position detection (NCS) and inductive limit switches (ILS), without electronics, without pneumatic block, for separate mounting of position detection on actuator. SIPART PS2 externally mounted in protected area (not Ex d). Condition: SIPART PS2 with integrated analog input module (AIM) as order option or for retrofit with 6DR4004-6F/-8F with NSC, MLS.	**6DR4004-3ES**
Aluminum enclosure with non-contacting position detection (NCS) and mechanical limit switches (MLS), without electronics, without pneumatic block, for separate mounting of position detection on actuator. SIPART PS2 externally mounted in protected area (not Ex d). Condition: SIPART PS2 with integrated analog input module (AIM) as order option or for retrofit with 6DR4004-6F/-8F.	**6DR4004-4ES**
Alarm module / digital I/O module (DIO)	
Ex	**6DR4004-6A**
nEx[1]	**6DR4004-8A**
EMC filter module / analog input module (AIM)	
Ex	**6DR4004-6F**
nEx[1]	**6DR4004-8F**
SIA module / inductive limit switches (ILS)	
Ex	**6DR4004-6G**
nEx[1]	**6DR4004-8G**
Position feedback module / analog output module (AOM)	
Ex	**6DR4004-6J**
nEx[1]	**6DR4004-8J**
Mechanical limit switch (MLS) modules	
Ex	**6DR4004-6K**
nEx[1]	**6DR4004-8K**
Internal NCS module	
For non-contacting position detection, for installation in the positioner enclosure	
• Without explosion protection	**6DR4004-5L**
• With explosion protection	**6DR4004-5LE**

Accessories	Article No.
Pressure gauge block with	
2 plastic IP31 pressure gauges, aluminum block, single-acting G¼, scaled in MPa and bar	**6DR4004-1M**
3 plastic IP31 pressure gauges, aluminum block, double-acting G¼, scaled in MPa and bar	**6DR4004-2M**
2 plastic IP31 pressure gauges, aluminum block, single-acting ¼-18 NPT, scaled in MPa and psi	**6DR4004-1MN**
3 plastic IP31 pressure gauges, aluminum block, double-acting ¼-18 NPT, scaled in MPa and psi	**6DR4004-2MN**
2 steel IP44 pressure gauges, aluminum block, single-acting G¼, scaled in MPa, bar, psi	**6DR4004-1P**
3 steel IP44 pressure gauges, aluminum block, double-acting G¼, scaled in MPa, bar, psi	**6DR4004-2P**
2 steel IP44 pressure gauges, aluminum block, single-acting ¼-18 NPT, scaled in MPa, bar, psi	**6DR4004-1PN**
3 steel IP44 pressure gauges, aluminum block, double-acting ¼-18 NPT, scaled in MPa, bar, psi	**6DR4004-2PN**
2 stainless steel 316 IP54 pressure gauges, stainless steel 316 block, single-acting G¼, scaled in MPa, bar, psi	**6DR4004-1Q**
3 stainless steel 316 IP54 pressure gauges, stainless steel 316 block, double-acting G¼, scaled in MPa, bar, psi	**6DR4004-2Q**
2 stainless steel 316 IP54 pressure gauges, stainless steel 316 block, single-acting ¼-18 NPT, scaled in MPa, bar, psi	**6DR4004-1QN**
3 stainless steel 316 IP54 pressure gauges, stainless steel 316 block, double-acting ¼-18 NPT, scaled in MPa, bar, psi	**6DR4004-2QN**
Pneumatic terminal strip made of stainless steel 316 To replace the pneumatic terminal strip made of aluminum	
Single-acting with G¼	**6DR4004-1R**
Double-acting with G¼	**6DR4004-2R**
Single-acting with ¼-18 NPT	**6DR4004-1RN**
Double-acting with ¼-18 NPT	**6DR4004-2RN**
Overvoltage protection	
Overvoltage protection up to 6 kV for 2-wire, M20 x 1.5	**6DR4004-1LP**
Overvoltage protection up to 6 kV for 3-wire, M20 x 1.5	**6DR4004-2LP**
Overvoltage protection up to 6 kV for 4-wire, M20 x 1.5	**6DR4004-3LP**
Overvoltage protection up to 6 kV for PA/FF, M20 x 1.5	**6DR4004-4LP**
Booster	
Single-acting, aluminum, G½, 6DR5..0/2/3	**6DR4004-1RJ**
Double-acting, aluminum, G½, 6DR5..0/2/3	**6DR4004-2RJ**
Single-acting, aluminum, ½-14 NPT, 6DR5..0/2/3	**6DR4004-1RK**
Double-acting, aluminum, ½-14 NPT, 6DR5..0/2/3	**6DR4004-2RK**
Single-acting, aluminum, G½, 6DR5..5	**6DR4004-1RP**
Double-acting, aluminum, G½, 6DR5..5	**6DR4004-2RP**
Single-acting, aluminum, ½-14 NPT, 6DR5..5	**6DR4004-1RQ**
Double-acting, aluminum, ½-14 NPT, 6DR5..5	**6DR4004-2RQ**
Vent pneumatic block	
With IP44 pressure gauge, double-acting, aluminum, G¼	**6DR4004-2RE**
With IP44 pressure gauge, double-acting, aluminum, ¼-18 NPT	**6DR4004-2RF**

Accessories	Article No.
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**
SIPART PS2 console for NAMUR installation on part-turn actuators	
• 80 x 30 x 20 mm	**6DR4004-1D**
• 80 x 30 x 30 mm	**6DR4004-2D**
• 130 x 30 x 30 mm	**6DR4004-3D**
• 130 x 30 x 50 mm	**6DR4004-4D**
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 Rack, sizes R1, R1A, R2 and R2A	**TGX:16152-328**
Masoneilan Camflex II	**TGX:16152-350**
Fisher 1051/1052/1061, sizes 30, 40, 60 to 70	**TGX:16152-364**
Fisher 1051/1052, size 33	**TGX:16152-348**
Mounting kit for NAMUR linear actuators	
NAMUR linear actuator mounting kit with short lever arm (2 ... 35 mm (0.08 ... 1.38 inch))	**6DR4004-8V**
Lever arm for strokes of 35 ... 130 mm (1.38 ... 5.12 inch) without NAMUR mounting bracket	**6DR4004-8L**
Reduced mounting kit (as for 6DR4004-8V but without fixing angle and U-bracket), with short lever with up to 35 mm (1.38 inch) stroke	**6DR4004-8VK**
Reduced mounting kit (as for 6DR4004-8V but without fixing angle and U-bracket), with long lever > 35 mm (1.38 inch) stroke	**6DR4004-8VL**
Roll and disk made of stainless steel 316 for replacement of the Teflon roll and aluminum disk in the 6DR4004-8, -8VK and -8VL mounting kits for NAMUR linear actuators	**6DR4004-3N**
Two terminal blocks made of stainless steel 316 for replacement of the aluminum terminal blocks in the 6DR4004-8V, -8VK and -8VL mounting kits for NAMUR linear actuators	**6DR4004-3M**
Mounting kit for other linear actuators	
MASONEILAN type 87/88	**TGX:16152-1210**
MASONEILAN type 37/38, all sizes	**TGX:16152-1215**
Fisher type 657/667, sizes 30 ... 80	**TGX:16152-900**
Samson actuator type 3277 Yoke dimension = 101 mm (integrated connection without tube), not for Ex d	**6DR4004-8S**
OPOS interface according to VDI/VDE 3847	
OPOS adapter with interface VDI/VDE 3847, blanketing, not for flameproof enclosures	**6DR4004-5PB**
Connection block For safety solenoid valve with extended mounting flange according to NAMUR	
For mounting according to IEC 534-6	**6DR4004-1B**
For SAMSON actuator (integrated mounting), see above[2)]	**6DR4004-1C**

Selection and ordering data

Accessories	Article No.
Documentation The entire documentation is available for download free-of-charge in various languages at: http://www.siemens.com/processinstrumentation/documentation	
SIPART PS2 Compact Operating Instructions	
• English, French, German, Spanish, Italian, Dutch	**A5E03436620**
• Estonian, Latvian, Lithuanian, Polish, Romanian, Croatian	**A5E03436655**
• Bulgarian, Czech, Finnish, Slovakian, Slovenian	**A5E03436664**
• Danish, Greek, Portuguese, Swedish, Hungarian	**A5E03436683**
SITRANS I100 isolating power supply HART (see "SITRANS I supply units and isolation amplifiers")	
With 24 V DC auxiliary power	**7NG4124-0AA00**
SITRANS I200 output isolator HART (see "SITRANS I supply units and isolation amplifiers")	
With 24 V DC auxiliary power	**7NG4131-0AA00**
HART modem for connecting to PC or laptop	
With USB interface	**7MF4997-1DB**

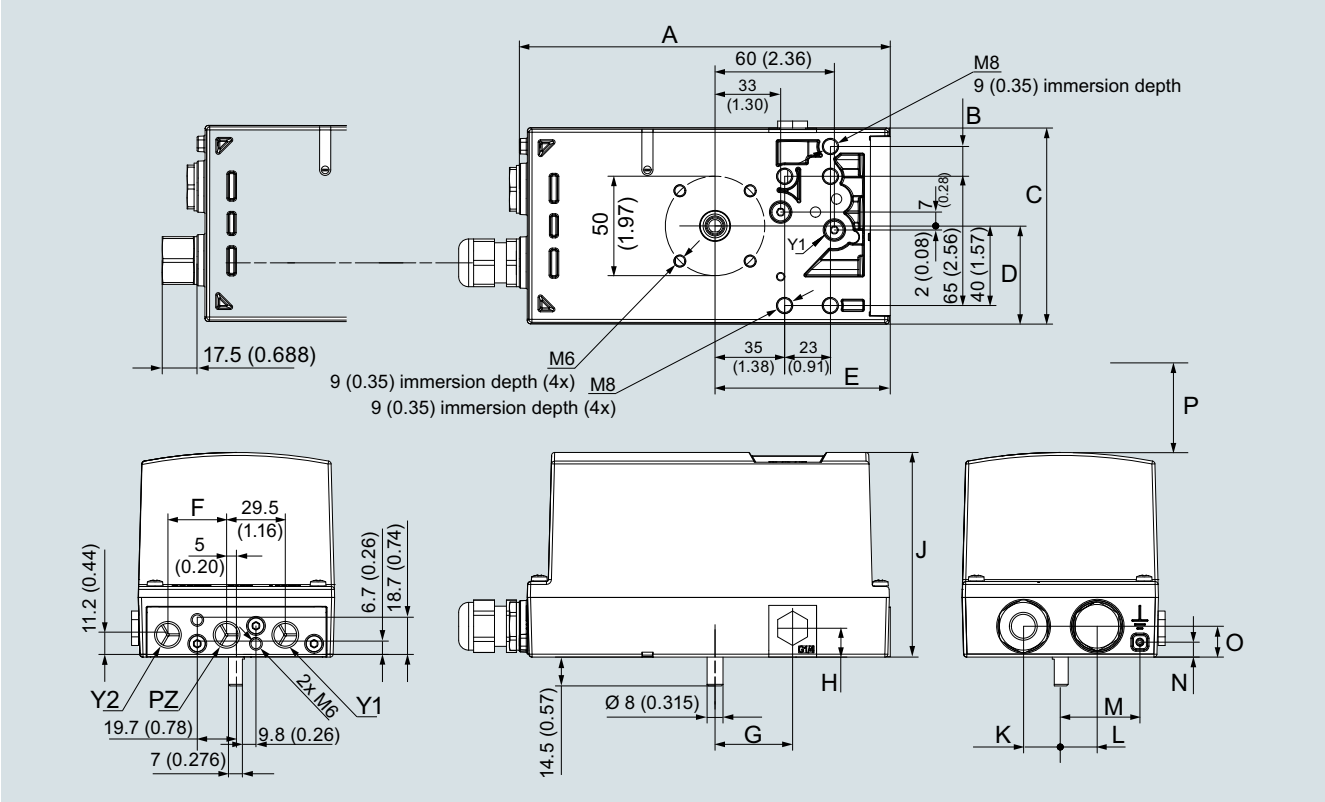
1) nEx = Non-explosion-proof device version

2) Only together with 6DR4004-8S

Scope of delivery for positioner

- 1 SIPART PS2 positioner as ordered
- 1 DVD with the complete documentation for all versions and accessories
- Getting Started "SIPART PS2 – Operation – a concise overview"

Dimensional drawings



SIPART PS2, non-flameproof enclosure, dimensions in mm (inch)

Value	6DR5..0		6DR5..1	6DR5..2	6DR5..3	
	G¼	¼-18 NPT			G¼	¼-18 NPT
A	184.5 (7.26)	186.5 (7.34)	185 (7.28)	186.5 (7.34)	186.5 (7.34)	188.5 (7.42)
B	-		-	15 (0.59)	-	
C	95 (3.74)		84 (3.31)	99 (3.90)	98.6 (3.88)	
D	48 (1.89)		34.5 (1.36)	49.5 (1.95)	48.6 (1.91)	
E	88.5 (3.48)		88.8 (3.50)	88.5 (3.48)	88.8 (3.50)	
F[1)]	29.5 (1.16)		-	29.5 (1.16)	29.5 (1.16)	
G	39 (1.54)		44 (1.73)	39 (1.54)	39 (1.54)	
H	14.5 (0.57)		16 (0.63)	16 (0.63)	14.5 (0.57)	
J	96.6 (3.80)		96.6 (3.80)	98.5 (3.88)	103 (4.06)	
K	18.5 (0.73)		22 (0.87)	18.5 (0.73)	18.5 (0.73)	
L	18.5 (0.73)		7 (0.23)	18.5 (0.73)	18.5 (0.73)	
M	-		26.5	41.5	40	
N	-		7.5	7.5	7.5	
O	14.5 (0.57)		14.5 (0.57)	14.5 (0.57)	15.5 (0.61)	
P	> 150 (5.91) Adhere to this minimum clearance P for service and maintenance above the cover.					

[1)] Dimension applies only to double-acting drives

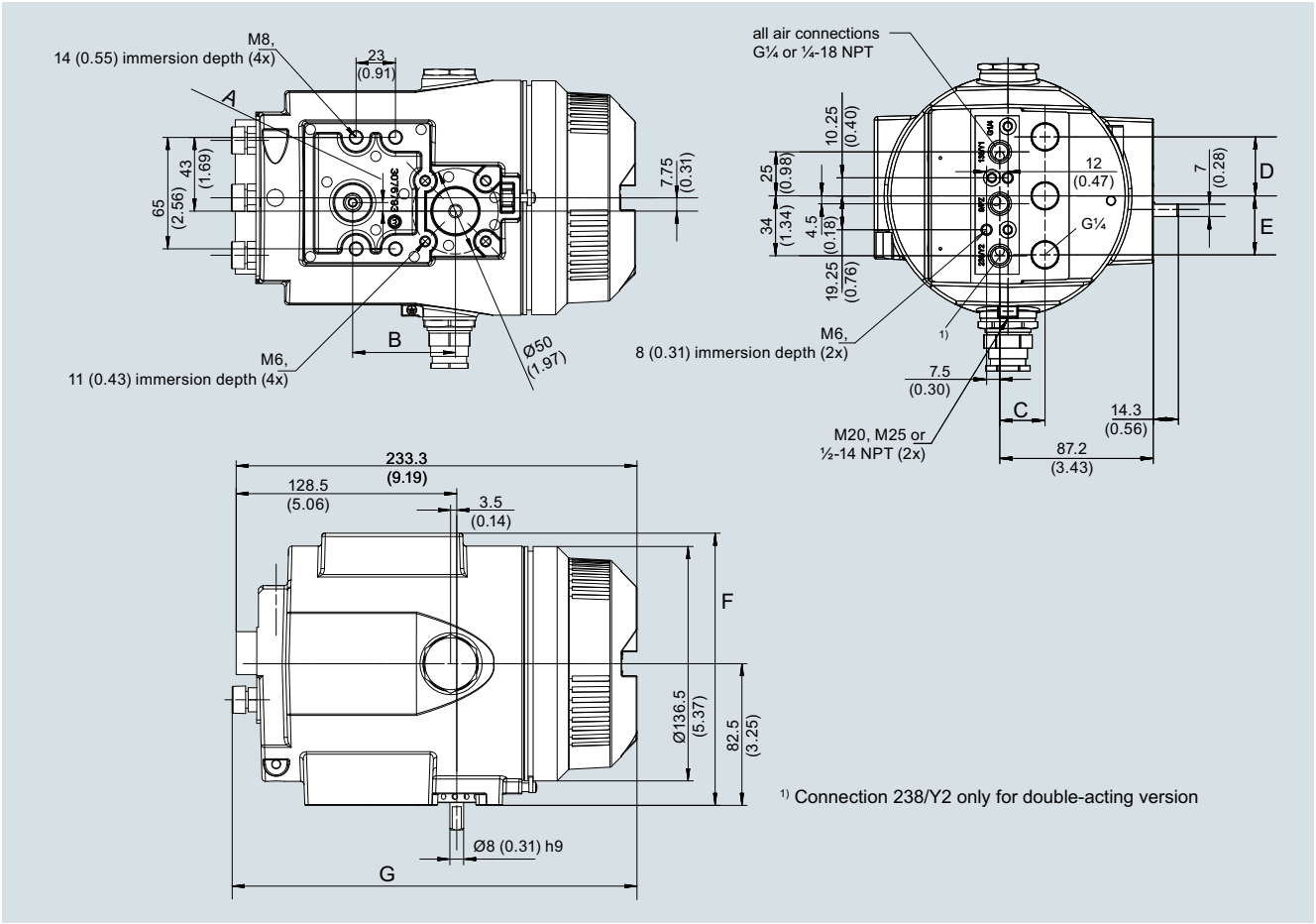
6DR5..0 Polycarbonate enclosure; dimensions with pneumatic connection G¼ or ¼-18 NPT

6DR5.11 Aluminum enclosure, only single-acting

6DR5..2 Stainless steel enclosure, without inspection window

6DR5..3 Aluminum enclosure; dimensions with pneumatic connection G¼ or ¼-18 NPT

Dimensional drawings

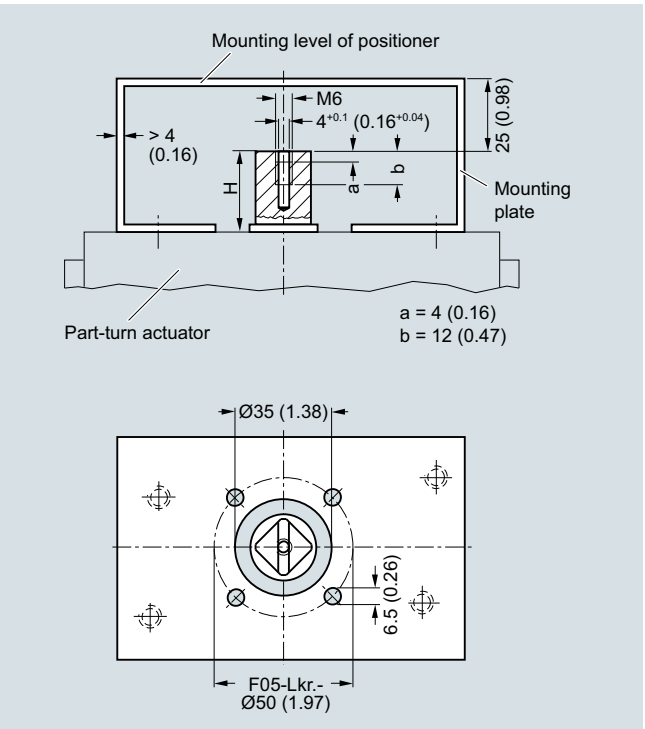


SIPART PS2, flameproof enclosure, dimensions in mm (inch)

Value	6DR5..5	6DR5..6
A	5 (0.2)	-
B	60 (2.36)	-
C	25.7 (1.01)	21.7 (0.85)
D	33.5 (1.32)	25 (0.99)
E	33.5 (1.32)	-
F	158.5 (6.24)	160 (6.3)
G	235.3 (9.26)	227.6 (8.96)

6DR5..5 Aluminum enclosure, flameproof;
dimensions with pneumatic connection G¼ or ¼-18 NPT

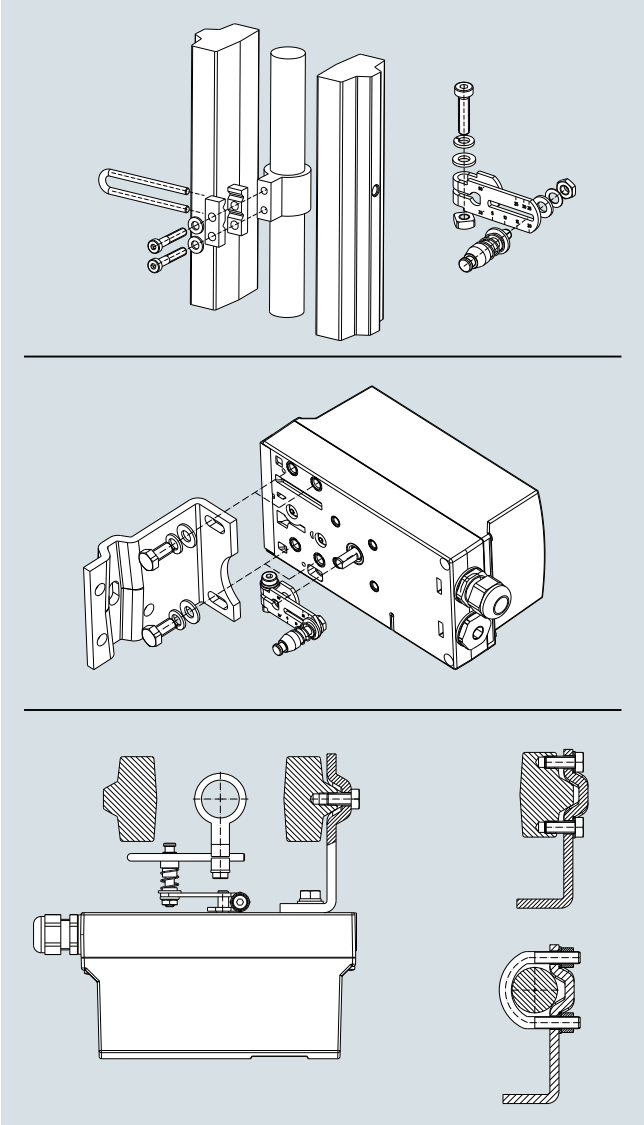
6DR5..6 Stainless steel enclosure, flameproof



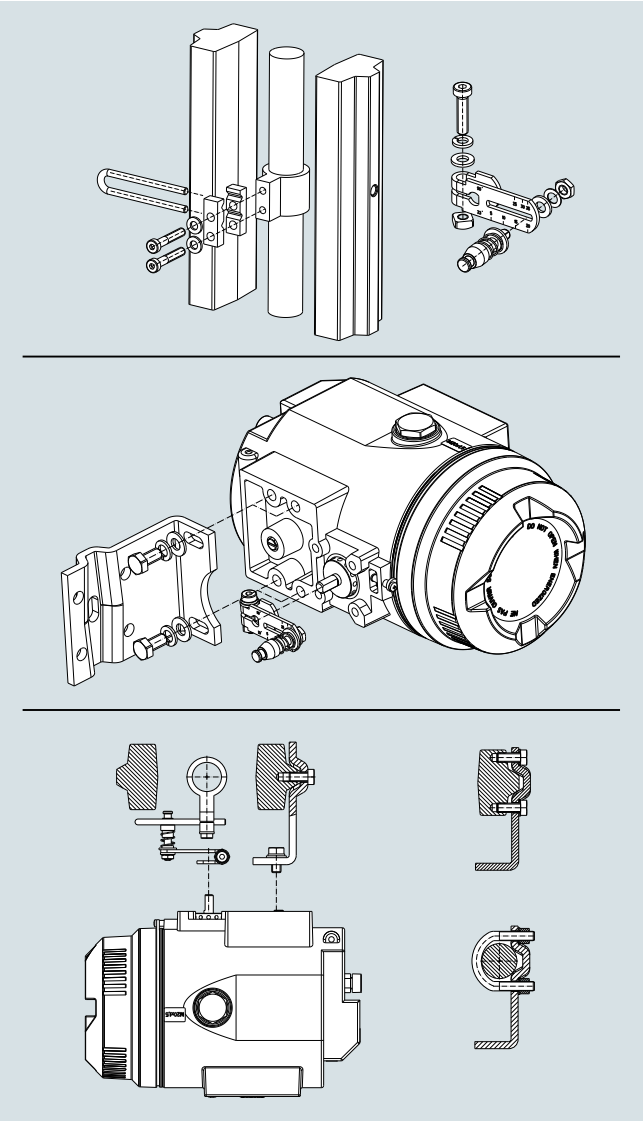
Mounting onto part-turn actuators; mounting console (scope of delivery of actuator manufacturer), extract from VDI/VDE 3845, dimensions in mm (inch)

Mounting kit for NAMUR linear actuators

- 1 mounting bracket
- 2 clamps
- 1 U-bracket
- 1 lever arm with adjustable pick-up roll
- 2 U-bolts
- Various screws and lock washers



Mounting of SIPART PS2 on linear actuators



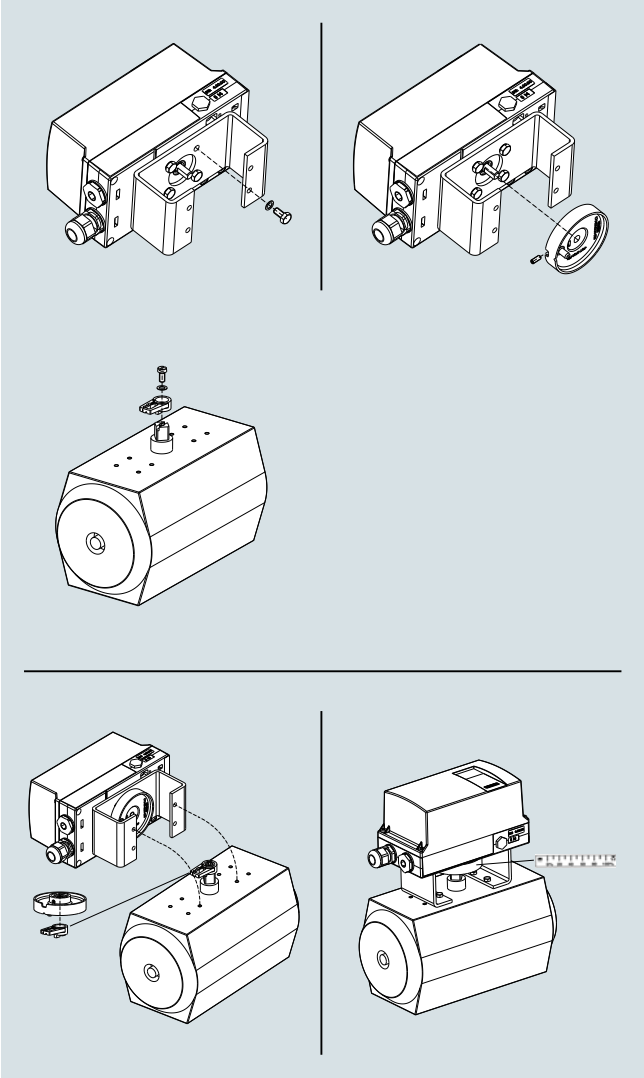
Mounting of SIPART PS2 in flameproof aluminum enclosure on linear actuators

Dimensional drawings

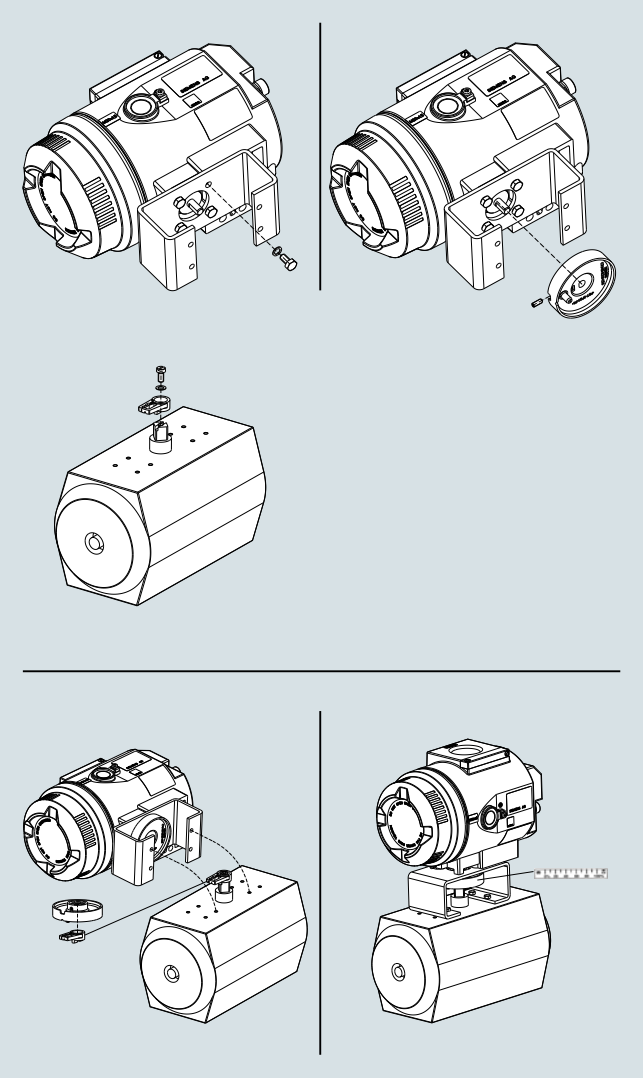
Mounting kit for NAMUR part-turn actuators

- 1 coupling wheel
- 1 driver pin
- 8 scales
- 1 pointer
- Various screws and lock washers

Important: The mounting console and the screws for mounting onto the part-turn actuator are not included in the scope of delivery and must be provided by the customer (see "Technical specifications")

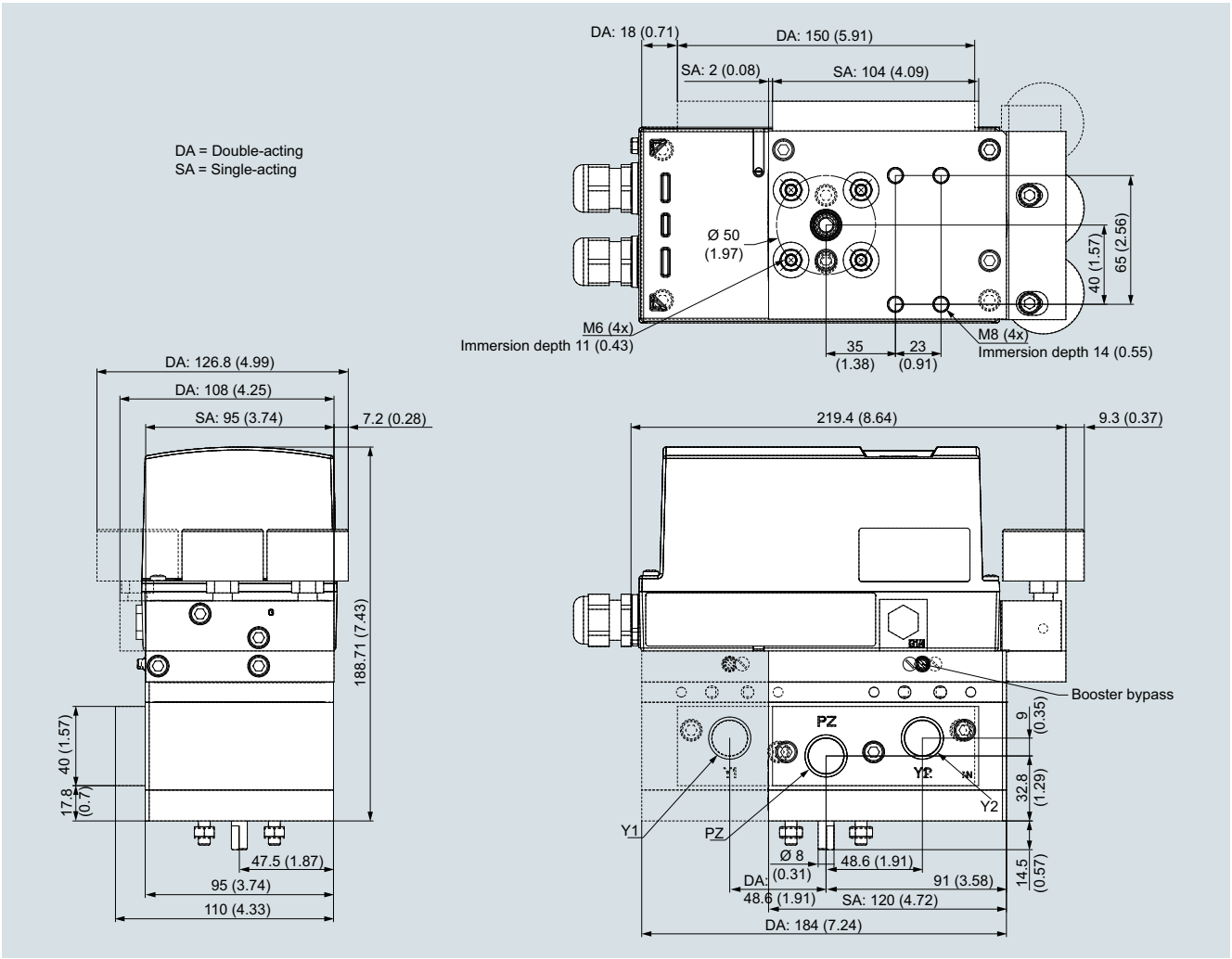


Mounting of SIPART PS2 on part-turn actuators



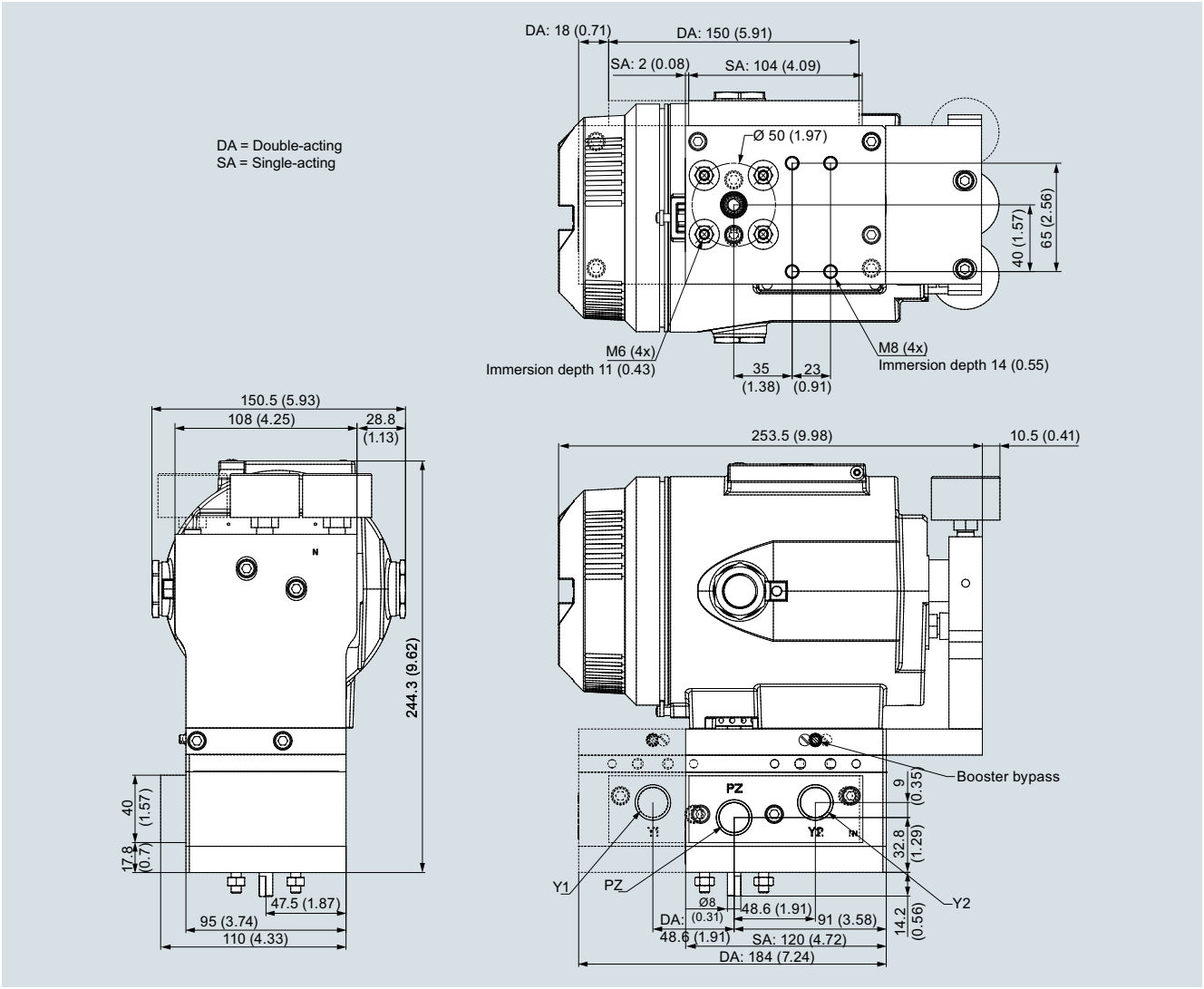
Mounting of SIPART PS2 in flameproof aluminum enclosure on part-turn actuators

Booster mounted on positioner



Booster mounted on positioner, dimensions in mm (inch)

Dimensional drawings



Booster mounted on positioner in a flameproof enclosure, dimensions in mm (inch)

More information

Special versions

On request