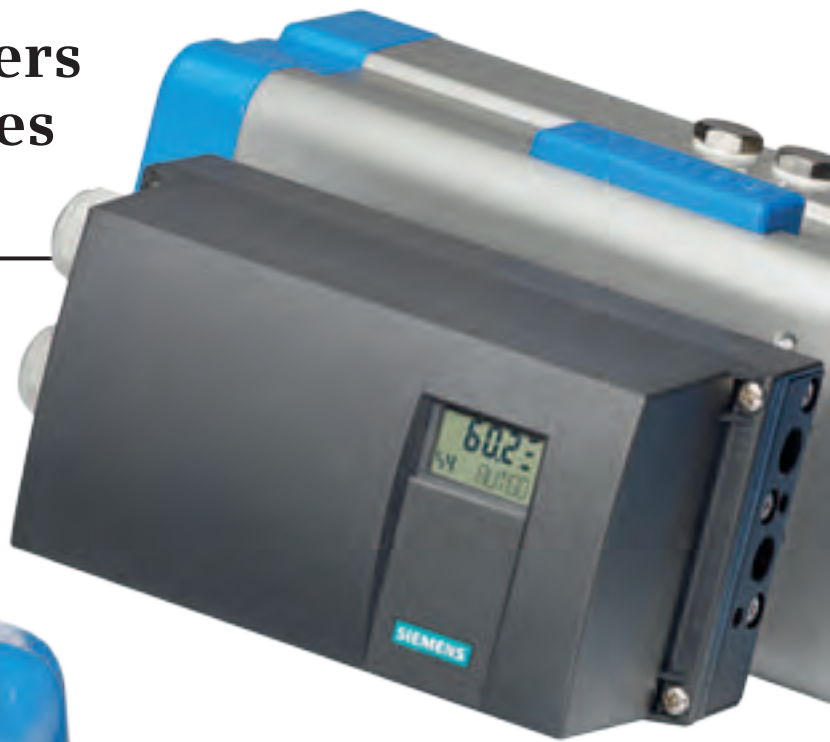


**How many positioners
do process industries
actually need?**



**SITRANS VP300 and SIPART PS2:
two positioners for all their demands.**

Answers for industry.

SIEMENS



At home in many sectors:

- Chemicals/petrochemicals
- Pharmaceuticals
- Food and beverages
- Oil and gas
- Energy
- Paper/cellulose
- Glass
- Water/wastewater
- Cement
- Mining and metals
- Marine engineering



Precise and intelligent: the Siemens range of positioners

Positioners from Siemens have been guaranteeing safe and trouble-free operation around the globe for more than 15 years. They accurately control every valve type and process, while handling special tasks with perfect reliability. We continually develop our product range to satisfy your exacting specifications and demands that your process requirements place on positioners.

Our range of intelligent electropneumatic positioners for linear and part-turn actuators is represented by the names SITRANS VP300 and SIPART PS2. These two product models optimally cover every application. Regardless of application; safe control of valves in chemicals and oil & gas, or precise control in pharmaceuticals or food; we offer the positioner solution for every valve.

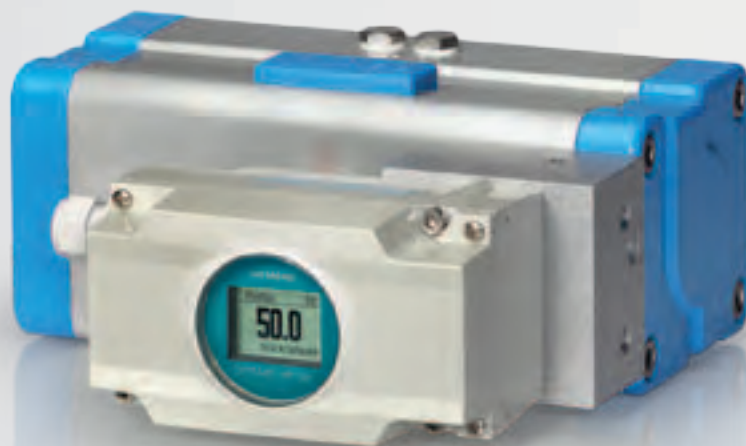
These include the most widely used electro-pneumatic positioner, SIPART PS2. The new SITRANS VP300 opens even more applications for our family of intelligent positioners. Whether a proven device or a new one – the fundamental features of our positioners are always the same: comprehensive functionalities, diagnostics capability, simple assembly, and fast commissioning. The result is also always the same: with Siemens positioners, processes are completely safe and reliable.

Our newest version: SITRANS VP300

SITRANS VP300 is our newest addition to the family. It supplements our range of positioners for use in hostile environments, and with compressed air, which is frequently moist or contaminated. Innovative features such as non-contacting position detection and rugged mechanical connection via an OPOS Interface® not only mean that the SITRANS VP300 is particularly resistant to vibration, but also permit simple and fast assembly with just two screws.

SITRANS VP300 at a glance

- Innovative positioner from Siemens
- Standard aluminum enclosure to IP66/NEMA 4x protection
- Non-contacting position detection (GMR effect)
- Rapid assembly through innovative OPOS Interface®
- Simple operation using graphic display and menu prompting
- SIL-certified partial stroke test





The No. 1: SIPART PS2

SIPART PS2 is currently the most widely used positioner for linear and part-turn actuators in a wide range of process industries. This is not without reason. The proven all-round design has a particularly flexible stroke range, intelligent diagnostics, and communicates either via HART, PROFIBUS PA or Foundation Fieldbus. What has been proven so often is certainly the correct choice.

SIPART PS2 at a glance

- The No. 1 among electropneumatic positioners
- Protection as a standard according to IP66/NEMA 4x, alternatively with Makrolon® aluminum or stainless steel enclosure
- Versions with external non-contacting travel sensors
- High flexibility in the stroke range from 3 to 200 mm (0.1 to 7.9 inch) (more on request)
- Communication via PROFIBUS PA, Foundation Fieldbus or HART
- Intelligent diagnostics functions
- Explosion-proof version (Ex d)



SITRANS VP300 in detail

New local user interface

SITRANS VP300 is particularly easy to operate. The graphic display can be viewed in a wide variety of languages.

Histograms and other graphic information can be output directly on the display. A communications interface for display on a PC is no longer necessary.

Extremely fast commissioning

Our new positioner which provides maximum control accuracy in a process is ready for use within an extremely short time. Commissioning is carried out conveniently and fully automatically. SITRANS VP300 only requires information on whether it is fitted on a linear or part-turn actuator. The tight closing function can be activated as an option directly in the commissioning menu.

Non-contacting detection of valve stem position in accordance with GMR effect

The SITRANS VP300 applies the GMR effect¹ which was awarded a Nobel Prize in 2007. This giant magnetoresistance discovered by Peter Grünberg and Albert Fert is used for non-contacting detection of position. This means instead of awkwardly fitted levers and complex interaction between the components, the SITRANS VP300 only requires a single magnet and is immediately available for use for strokes up to 150 mm (5.9 inch) and rotary angles up to 120°. Position detection using GMR is not only simple to implement, it is also resistant to magnetic fields and temperature variations.

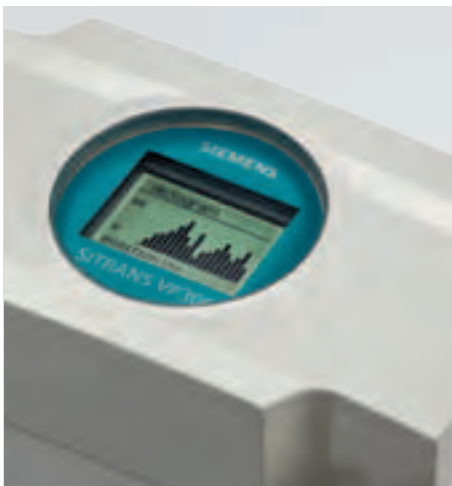
Innovative OPOS Interface®

Our new SITRANS VP300 is equipped with the innovative OPOS Interface®. This multi-vendor mechanical and pneumatic interface in accordance with VDI/VDE 3847 allows simple assembly of the positioner at the front with just two screws – without external piping. Since the actuator can be blocked, the SITRANS VP300 can be replaced during ongoing operation. We offer corresponding adapters for converting older actuators to the OPOS Interface®.

Rugged for all applications

SITRANS VP300 is designed as standard with an aluminum enclosure to IP66 degree of protection. The non-contacting position detection is resistant to vibration. The valve block itself is less susceptible to problems resulting from compressed air which is contaminated, moist or contains oil.

¹ GMR = giant magnetoresistance



SITRANS VP300: where, when, how?

Vibrations are present in your application?



Thanks to non-contacting position detection, SITRANS VP300 is extremely resistant to vibrations.

You find the commissioning and operation of positioners complicated?



Thanks to plain text and helpful wizards (commissioning wizards), operation of the SITRANS VP300 is fast & simple.

Your application is exposed to a low or high ambient temperature?



SITRANS VP300 offers a wide temperature range from -40 °C to +85 °C (-40 °F to 185 °F).

You have problems with the compressed air quality in your plant?



SITRANS VP300 works without problem with compressed air in accordance with ISO 85673-1, Class 3.

You require a long time to correctly mount a positioner on the actuator?



Thanks to the OPOS interface, the SITRANS VP300 is mounted within the shortest possible time using just two screws.

It is important that you can replace the positioner during ongoing operation?



Thanks to rapid mounting and a shutoff function for the air in the actuator, this is no longer a problem.

Technical specifications

Setpoint signal	4–20 mA analog or HART
Stroke range	3 mm to 150 mm 0.1 inch (1/8") to 5.9 inch (6")
Slewing angle range	30° to 120°
Auxiliary power	
– Pneumatic	1.4 bar to 8 bar (20 psig to 117 psig)
– Electric	4–20 mA (two-wire circuit)
– Load voltage	6.5 V (non-Ex without HART)
Airflow	
– Supply to actuator (at $\Delta p = 6$ bar) (88 psidp)	13 m ³ /h (7.6 scfm)
– Actuator to exhaust (at $\Delta p = 6$ bar) (88 psidp)	25 m ³ /h (14.7 scfm)
Max. air bleed in settled state	< 0.095 m ³ /h (0.056 scfm)
Required air quality	Class 3 in accordance with ISO 8573-1
Binary inputs	One digital input for floating contact One digital input for 24 V (safety shutdown)
Explosion protection	II 2 G Ex ia/ib II C T6 or II 3 G Ex n A nL [nL] IIC T6 or II 3 G Ex nL [nL] IIC T6
Approvals	FM CSA SIL 2 in accordance with IEC 61508 for safety shutdown SIL 1 in accordance with IEC 61508 for partial stroke test Others on request
Ambient temperature	– 40 °C to +85 °C (– 40 °F to 185 °F)
Accessories/Options (can be retrofitted)	Limit module: – Electrical alarm outputs including fault output and binary input (floating contacts or 24 V) Mounting kits Pressure gauge block Position feedback, 4–20 mA

SIPART PS2 in detail

Protected against hostile environments

Designed in a Makrolon®, aluminum or stainless steel casing, the SIPART PS2 positioners are suitable for all applications. Designed as standard with IP66 or NEMA 4x degree of protection, they are resistant to even the most hostile environments. Thanks to the innovative pneumatic block, they can even resist a few days with moist compressed air. Temperature variations or changes in pressure in the supply network have no influence on the SIPART PS2 performance. Faults are practically impossible, and the control system functions without problem. Versions with external non-contacting travel sensors are available for particularly critical applications.

Explosion-proof version

SIPART PS2 is also available with an explosion-proof enclosure with EExd IIC T4-T6 type of protection. The display is protected by a flap with a bullet-proof glass pane, can be read at all times, and is simple and convenient to use even during ongoing operation following opening of the flap.

Flexible stroke range

The SIPART PS2 with its broad scope of stroke ranges is appropriate for a wide range of actuators and the growing number of "mini-valves" with very small strokes. A scale can be set from 3 to 200 mm (0.1 to 7.9 inch). Our proven positioner can even be integrated in modern actuators "pipeless" without additional effort.

All-inclusive

SIPART PS2 already has all important functions such as position feedback or limit signaling "on board." These are simple to set without additional equipment using a convenient display with three input keys. The intelligent positioner knows the characteristics of all valves "inside out." Cams and additional signaling devices are unnecessary.

SIPART PS2 operates according to the two-wire principle without an additional electrical power supply. Versatile and easy use is therefore possible. The SIPART PS2 is also the ideal alternative to conventional electromechanical technology.

Extremely communicative

SIPART PS2 exhibits its communicative side in dialog with higher-level systems. It can be integrated into the communications landscape via PROFIBUS PA, Foundation Fieldbus or HART protocol. With HART and PROFIBUS, it is also possible to apply SIMATIC PDM to clearly display and document saved trends, histograms, as well as commissioning and operating data.



SIPART PS2: where, when, how?

You have a hostile environment?



SIPART PS2 is available in Makrolon®, aluminum and stainless steel casings.

Your control system communicates digitally?



SIPART PS2 is available in PROFIBUS PA and Fieldbus Foundation versions.

You require alarm signals independent of the microprocessor?



SIPART PS2 has optional internal slot initiators or limit value contacts – also for retrofitting.

You have applications which require a high degree of protection or expose the positioner to strong vibrations?



The non-contacting sensor (NCS) has IP68 degree of protection, and is extremely resistant to shocks and vibrations.

You wish to record the valve position using external potentiometers?



External potentiometers or the NCS can be connected to the SIPART PS2 via the EMC filter module.

You wish to test your solenoid valve or replace its function (including partial stroke test) by a positioner?



SIPART PS2 prevents the closing of fittings during the solenoid valve test, or monitors open/close fittings as an “intelligent solenoid valve.”

Technical specifications	
Setpoint signal	0/4–20 mA analog, HART, PROFIBUS PA or Foundation Fieldbus protocol
Stroke range	3 mm to 200 mm 0.1 inch (1/8”) to 7.9 inch (7.5”) (larger strokes on request)
Rotary angle range	30° to 100° (larger slewing angles on request)
Auxiliary power	1.4 bar to 7 bar (20 psig to 102 psig) 4 to 20 mA (two-wire circuit) or 18 to 30 V (four-wire circuit) or 10.5 mA supplied over bus with PROFIBUS/Foundation Fieldbus
– Pneumatic	
– Electric	
– Load voltage	6.36 V (non-Ex without HART)
Airflow	9.8 m³/h (5.65 scfm) 19.2 m³/h (11.30 scfm)
– Supply to actuator (at Δp = 6 bar) (88 psidp)	
– Actuator to exhaust (at Δp = 6 bar) (88 psidp)	
Max. air bleed in settled state	< 0.036 m³/h (0.02 scfm)
Required air quality	Class 2 in accordance with ISO 8573-1
Binary inputs	One digital input for floating contact
Explosion protection	II 2G EEx ia/ib II C T6 or II 2G EEx d II C T6 or II 3G EEx n A L [L] IIC T6
Approvals	FM CSA SIL 2 in accordance with IEC 61508/IEC 61551 Others on request
Ambient temperature	–30 °C to +80 °C (–22 °F to 176 °F) (other temperature ranges on request)
Accessories/Options (can be retrofitted)	Limit modules: – Electrical alarm outputs including fault output and binary input (floating contact or 24 V) – Slot initiators including fault output – Limit value contacts including fault output Mounting kits Pressure gauge block Solenoid valve block Position feedback module, 4–20 mA External position sensor, also non-contacting

Increased process safety through enhanced diagnostic functions

Our intelligent SIPART PS2 and SITRANS VP300 are equipped with comprehensive functionalities, and deliver diagnostic data on themselves, their environment and the valve and actuator. With these premium diagnostics, these positioners set the standards for cost efficiency, reduce maintenance requirements in the plant, guarantee safe process control, and provide high functional safety in emergency situations.



Three-stage alarm concept

Just like the proven SIPART PS2, our new SITRANS VP300 positioner is equipped with comprehensive diagnostics functions as standard. In order to provide advanced warning of expensive failures during operation, our positioners continuously check the actuator and valve. The three-stage alarm concept which provides early information on required maintenance or an imminent failure allows predictive and efficient maintenance. You can plan scheduled outages, not having to react to an unexpected shutdown. The diagnostics package includes functions for pneumatic leaks, valve wear, static friction, stiffness and much more.

Partial stroke and solenoid valve test

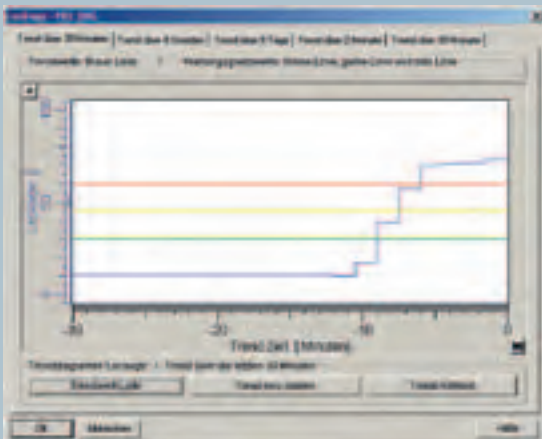
By means of a regular partial stroke test, SIPART PS2 and SITRANS VP300 ensure that ESD valves (emergency shutdown) and other open/close automated valves remain movable in the event of an emergency. The attached solenoid valve can also be tested.

Two jobs in one device

In the case of automated valves with a solenoid valve, e.g. with ESD or control valves, the solenoid valve can also be replaced completely by the SIPART PS2. With SIL 2 certification, the positioner takes over its task, can control in addition, and carry out the partial stroke test.

All diagnostic standards at a glance:

- Alarm status based on NAMUR NE107
- Partial stroke test for open/close and control valves
- Pneumatic leaks
- Stiffness of a valve
- Stiction of the packing
- Wear of the valve seat or plug
- Deposits or caking on the valve seat or plug
- Failure of the valve or actuator shaft and blockage of a pipeline (with continuous processes)
- Trend diagrams t, x
- Histograms x, t
- Stroke counter for fitting
- Direction reversal counter
- Operating hours counter
- Deadband
- Temperature measurement



The increasing leakage value signals imminent control valve failure.



(OK, no maintenance request)



Maintenance request



Urgent maintenance request



(Imminent) positioner, valve or actuator failure

Icons on the distributed control system show the respective maintenance status.

Get more information

www.siemens.com/processinstrumentation

www.siemens.com/sitransvp300

www.siemens.com/sipartps2

www.siemens.com/positioners

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