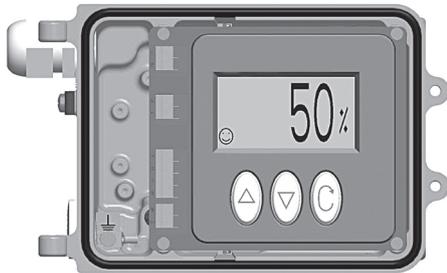



 SP500  
 with front cover closed

 SP500  
 with front cover removed

For the programmable functions see the next page

## Electropneumatic Smart Positioner SP500



### Description

The SP500 smart valve positioner is a loop powered device that is able to drive linear and quarter turn pneumatic valves. A 4-20 mA input signal determines the valve set point. Precise control is maintained through valve position feedback that automatically varies the pneumatic output pressure to overcome the effects of stem friction and flow forces to maintain desired valve position. Indication of valve position is provided through a continuous digital display of % travel. Valve position feedback is retrieved by means of a non contact technology based on Hall effect. The pneumatics are based on piezovalve technology - Therefore, high resolution, high reliability, vibration insensitivity and extremely low air consumption is guaranteed at steady state.

The SP500 includes many smart functions that can be fully programmed through menu driven software using an integral keypad and LCD alphanumeric data. Valve commissioning is simplified through an autostroke routine and LCD data of programming status, software travel switch status, mA input signal and valve diagnostics data. Moreover, the absence of mechanical linkages between the valve stem and the positioner, drastically simplifies and reduces the time required for the mounting procedure. The SP500 is supplied with a NAMUR standard mounting kit for attachment to yoke or pillar mounted actuators. For quarter turn valves, a mounting kit compliant to VDI/VDE 3845 is supplied.

The SP500 smart valve positioner supports optional expansion to include the HART® communication protocol, enabling complete configuration using a PC or handheld device

### Air supply

The SP500 smart positioner must be provided with a high quality air supply. A GESTRA MPC2 filter regulator with coalescing filter or equivalent must be used. A fixing kit is available to mount the MPC2 filter regulator onto the actuator. For further product data see the MPC2 Technical Information sheet.

### Applications

The SP500 can be used with the following pneumatic actuators:

**PN1000 and PN2000 series**

**PNS3000 and PNS4000 series**

**PN9000 series**

### Optional extras

<b>Gauge block</b>	Complete manifold block with two pressure gauges (supply pressure and pressure to the actuator)
<b>Retransmission and switch board</b>	4 - 20 mA valve position retransmission and 2 adjustable software switches
<b>Power supply board</b>	Allows 4 wire configuration: 2 for 4 - 20 mA input signal and 2 for independent 24 V power supply reducing positioner impedance to 50 Ω
<b>HART® board</b>	Enables communication using the HART® protocol

### Materials

Part	Material	Finish
<b>Case and cover</b>	Die cast aluminium	Anti-corrosive paint to RAL5010
<b>Magnet bracket</b>	Die cast aluminium	

## Technical data

<b>Input signal range</b>		4 - 20 mA nominal
<b>Minimum input signal</b>		3.4 mA
<b>Air supply pressure</b>		1.4 - 7.0 bar (5-10 psi above spring range pressure)
<b>Communication protocol</b>		HART® communication protocol superimposed over dc current signal
<b>Air quality</b>		Air supply must be dry, oil and dust free to ISO 8573-1 class 2:3:1
<b>Output pressure</b>		0 to 100% supply pressure
<b>Stroke range</b>	Linear valves	10 mm to 100 mm
	Quarter turn valves	5° to 120°
<b>Action</b>		Single action/fail vent
<b>Operating temperature</b>		-10 °C to +80 °C
<b>Maximum air flow</b>		4.2 normal m³/h at 1.4 bar g
		8.5 normal m³/h at 6.0 bar g
<b>Steady state air consumption</b>		Less than 0.016 normal m³/h
<b>Air connections</b>		Screwed ¼" NPT
<b>Cable gland</b>		M20
<b>Electrical connections</b>		Spring clamp terminals for 0.2 to 1.5 mm² wire
<b>Enclosure rating</b>		IP65
<b>Characteristics</b>		Linear, Equal % (ratio 1:50) or Fast opening (ratio 50:1)
<b>Resolution (maximum)</b>		0.1% F.S. (Full Scale)
		Tolerance ±0.5% F.S. (Full Scale)
<b>4 - 20 mA retransmit (optional)</b>		4 - 20 mA retransmission of valve position
<b>Software travel switches (optional)</b>	Two software configured travel switches	1 x normally closed
		1 x normally open
<b>Shipping weight</b>		2.2 kg

## Programmable functions

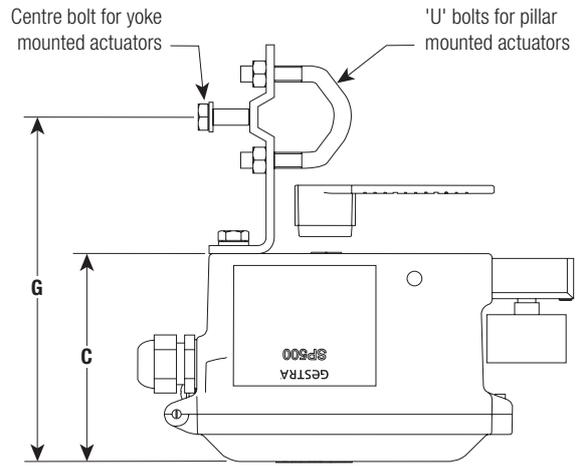
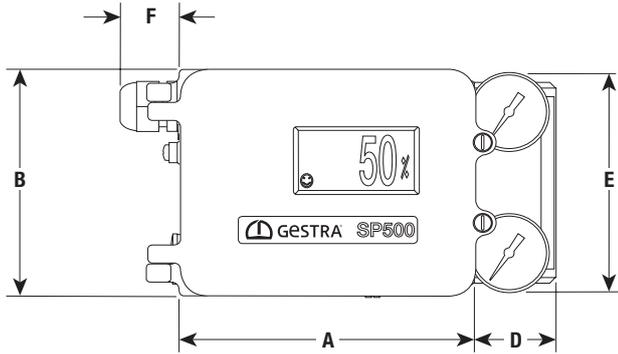
<b>Autostroke</b>	Automatic commissioning routine
<b>Valve type</b>	2-port or 3-port
<b>% travel</b>	Selectable 0 - 100% or 100% - 0% depending on valve/actuator configuration
<b>Control action</b>	Direct or reverse action (4 - 20 or 20 - 4 mA)
<b>Travel limits</b>	Setting of minimum and maximum travel limits
<b>Signal span</b>	4 - 20 mA or split ranged (minimum span 4 mA)
<b>Deadband</b>	Positional accuracy (minimum 0.2% to max. 10% of valve travel)
<b>Tight shut-off</b>	Fully vent or inflate at preset input signals
<b>Characteristic</b>	Linear, = % or fast opening input signal to valve travel relationship
<b>Travel time</b>	Slows down valve opening or closing
<b>Travel switches</b>	Software configured travel switch setting (range 0 - 100%)
<b>Reset</b>	Resets all programmed values
<b>Calibrate</b>	Centering
<b>Input signal</b>	Visualisation of input mA signal
<b>Auto operation/vent</b>	Option of automatic operation or vent (actuator) whilst reprogramming
<b>Data logging</b>	Diagnostic record of total number of valve strokes and completed hours run time

## Available spares

<b>Pressure gauge</b>	Pressure gauge only Available ranges: 0 to 2 bar, 0 to 4 bar or 0 to 7 bar
<b>Filter plug kit</b>	Plug plus 3 off filters and 'O' rings
<b>Retransmission and switch board</b>	4 - 20 mA valve position retransmission and 2 adjustable software switches
<b>Power supply board</b>	Allows 4 wire configuration: 2 for 4 - 20 mA input signal and 2 for independent 24 V power supply reducing positioner impedance to 50 Ω
<b>HART® board</b>	enables communication using the HART® protocol

## Dimensions (approximate) in mm

A	B	C	D	E	F	G
145	113	105	40	109	30	172



## Safety information, installation and maintenance

Full details are contained in the SP500 electropneumatic smart positioner Installation and Maintenance Instructions supplied with the product.

## Positioner nomenclature guide

Positioner series	SP500 = SP500 SP501 = SP500 with HART® communication protocol	SP500
Movement/action	0 = Linear, single action 1 = Rotary, single action	0
Retransmission + software switches (optional)	0 = Not mounted R = Mounted	R
Enclosure	0 = Standard	0
Approvals	0 = Standard	0
24 V power supply (optional)	0 = Not mounted P = Mounted	0
Remote sensor	0 = No	0
Extended stroke	0 = No	0
Gauge block	0 = Not mounted G2 = Full scale 2 bar G4 = Full scale 4 bar G7 = Full scale 7 bar	G4

Selection example: 

SP500	0	R	0	0	0	0	0	0	G4
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## How to order

Please include all the required optional extras as described on the first page.

**Example:** 1 off GESTRA SP500 0R00000G4 electropneumatic smart positioner equipped with retransmission and software switches board plus gauge block for full scale pressure of 4 bar.

**Caution:** The SP500 smart positioner must have a high quality air supply. A GESTRA MPC2 filter regulator with coalescing filter or equivalent must be used inclusive of fixing kit - See Technical Information sheet for further data and How to order.

## GESTRA AG

Münchener Straße 77, 28215 Bremen, Germany  
 Telefon +49 421 3503-0, Telefax +49 421 3503-393  
 E-mail info@de.gestra.com, Web www.gestra.com

