

# spirax/sarco®

## SP2 Electropneumatic Smart Valve Positioner

### Description

The SP2 smart valve positioner can be loop powered from a 4-20 mA input signal or independently powered to provide accurate adaptive positional control of pneumatic linear actuated valves. 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 rotating travel indicator plus continuous digital display of % travel. The SP2 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. The SP2 is supplied with a NAMUR standard mounting kit for attachment to yoke or pillar mounted actuators.

### Applications

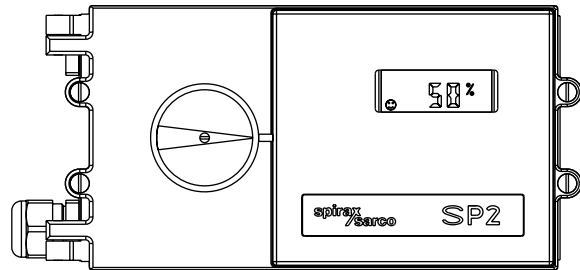
The SP2 can be used with the following pneumatic actuators:  
 PN3000 and PN4000 series See TIS 1.515 and TIS 1.516  
 PN5000 and PN6000 series See TIS 1.512 and TIS 1.513

### Technical data

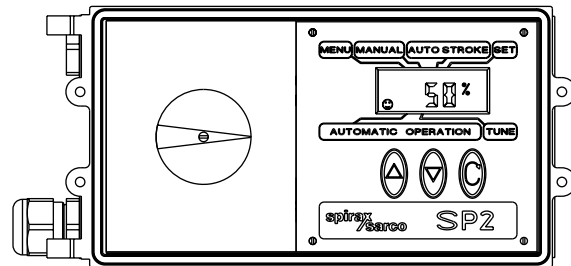
Input signal range	4 - 20 mA nominal
Minimum input signal (loop powered)	3.6 mA
Supply pressure	20 psig (1.4 barg) minimum - 85 psig (6 barg) maximum, oil, water and dust free (to DIN / IEC60770)
Output pressure	0 to 100% supply pressure
Stroke range	.4" to 4.0" (10 mm to 100 mm)
Action	Single action / fail vent
Operating temperature	14° to 175°F (-10°C to +80°C)
Maximum air flow	141 ft <sup>3</sup> /h at 20 psig (4.5 normal m <sup>3</sup> /h at 1.4 barg) 388 ft <sup>3</sup> /h at 85 psig (11 normal m <sup>3</sup> /h at 6 barg)
Steady state air consumption	Less than 1.2 ft <sup>3</sup> /h (0.035 normal m <sup>3</sup> /h)
Air connections	Screwed 1/4" NPT
Cable gland	Pg 13.5
Electrical connections	Spring clamp terminals for 0.2 to 1.5 mm• wire
Enclosure rating	IP65
Characteristics	Linear, Equal % (ratio 1:50) or Fast opening (ratio 50:1)
Resolution (maximum)	8000 steps
Scan time	10 ms
Options	Individually isolated and externally powered
Front cover	Hinged with security tag facility
Shipping weight	10 lb (3.2 kg)

### Materials

Part	Material	Finish
Case and cover	Die cast Aluminum	Anti-corrosive paint to RAL5010
Linkage kit	Stainless steel / plated steel	



SP2 with front cover closed



SP2 with front cover removed

### Programmable functions

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

# SP2 Electropneumatic Smart Valve Positioner

## Dimensions approximate in inches (mm)

A	B	C	D	E	F
1.2 (32)	7.6 (195)	1.6 (41)	3.9 (100)	6.5 (166)	3.8 (98)

## Options

Can be supplied fitted or may be fitted at a later date.

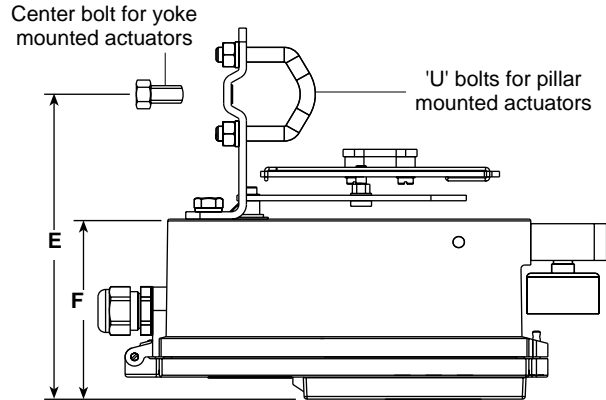
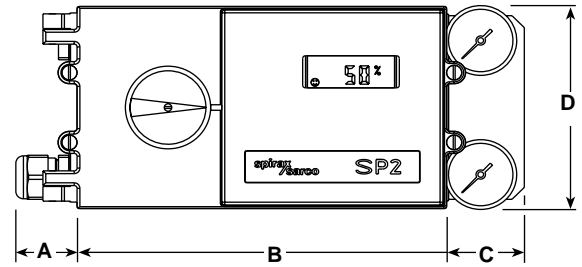
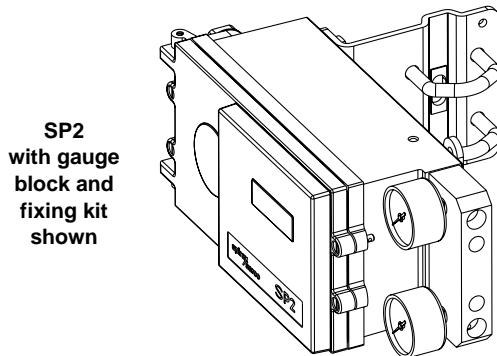
Software travel switches	Two software configured travel switches (1 x normally closed, 1 x normally open)
Vane operated proximity switches	Two Pepperl & Fuchs proximity switches plus two software travel switches (cannot be used simultaneously).
Gauge block with gauges	Manifold block complete with two pressure gauges (supply pressure and pressure to the actuator). Available ranges: 2 x 0 - 30 psi, 2 x 0 - 60 psi, 2 x 0 - 100 psi

## Available spares

Pressure gauge	Pressure gauge only Available ranges: 0 to 30 psi, 0 to 60 psi, or 0 to 100 psi
Filter plug kit	Plug plus 3 off filters and 'O' rings

## Air supply

The SP2 smart positioner must be provided with a high quality air supply. A Spirax Sarco 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.



## Installation

Full details are contained in the SP2 smart positioner Installation and Maintenance Instructions supplied with the product.

## How to order

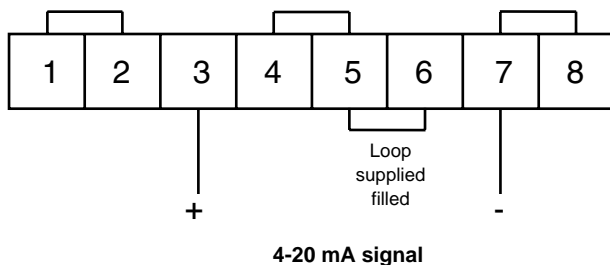
### Examples

- 1 off SP2 electropneumatic smart positioner.
- 1 off SP2 electropneumatic smart positioner fitted with gauge block and 2 x 0 to 100 psi gauges.
- 1 off SP2 electropneumatic smart positioner fitted with 2 x software configured travel switches.

## Wiring details for the main board connections

The SP2 can be loop powered using the 4 - 20 mA signal source providing a minimum signal of 3.6 mA can be maintained. If required, the SP2 can be separately powered. This is particularly useful if the input signal is likely to fall below 3.6 mA minimum or for applications that has limited voltage drop available.

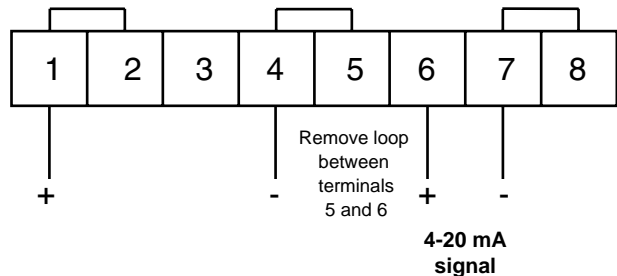
### Loop powered mode



Minimum current	= 3.6 mA
Maximum current	= 30 mA
Voltage drop	= 8-10 volts

Note: For wiring details of the options board wiring, please refer to the Installation and Maintenance Instructions.

### Separate power mode



Maximum supply voltage	= 36 V @ 9.6 mA
Minimum supply voltage	= 18 V @ 3.6 mA
Maximum loop current	= 30 mA @ 3.0 volts
Minimum loop current	= 0 mA
Loop series resistance	= 100 ohms
Supply to signal isolation	= 50 Vac

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