

# spirax/sarco

## SP400

### Electropneumatic Smart Positioner

#### Description

The SP400 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 SP400 includes many smart functions that can be fully programmed through menu driven software using an integral keypad and LCD alphanumeric data. The absence of mechanical linkages between the valve stem and the positioner, drastically simplifies and reduces the time required for the mounting procedure. Moreover the software has been designed to simplify operations as much as possible: commissioning requires just assembling the SP400 to the valve and pressing one button. The SP400 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.

#### Air supply

The SP400 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. For further product data regarding the MPC2 see Technical Information sheet TI-1-609-US.

#### Applications

The SP400 can be used with the following pneumatic actuators:

**PN1000 and PN2000 series**

**PNS3000 and PNS4000 series**

**PN9000 series**

**TN2277SE and TN2277SR**

#### Optional extras

**Gauge block** Complete manifold block with two two pressure gauges (supply pressure and pressure to the actuator)

#### Materials

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



For the programmable functions see page 2

SP400 with front cover closed



SP400 with front cover removed

#### Technical data

<b>Input signal range</b>	4 - 20 mA nominal
<b>Minimum input signal</b>	3.6 mA
<b>Input impedance</b>	280 Ω
<b>Minimum air supply pressure</b>	15 psig above minimum spring range pressure
<b>Maximum air supply pressure</b>	100 psig
<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 ½" to 4" Quarter turn valves 5° to 120°
<b>Action</b>	Single action/fail vent
<b>Operating temperature</b>	14°F to 176°F
<b>Maximum air flow</b>	5 cfm @ 90 psig 2.5 cfm @ 20 psig
<b>Steady state air consumption</b>	Less than 0.01 scfm
<b>Air connections</b>	Screwed ¼" NPT
<b>Cable gland</b>	M20
<b>Electrical connections</b>	Spring clamp terminals for 15 to 32 AWG
<b>Enclosure rating</b>	IP65
<b>Characteristics</b>	Linear
<b>Resolution (maximum)</b>	0.1% F.S. (Full Scale)
<b>Shut-off</b>	1%
<b>Shipping weight</b>	4.85 lb

Local regulation may restrict the use of this product below the conditions quoted. Limiting conditions refer to standard connections only. In the interests of development and improvement of the product, we reserve the right to change the specification.

TI-P343-36-US 02.11

# SP400 Electropneumatic Smart Positioner

## Dimensions (approximate) in inches

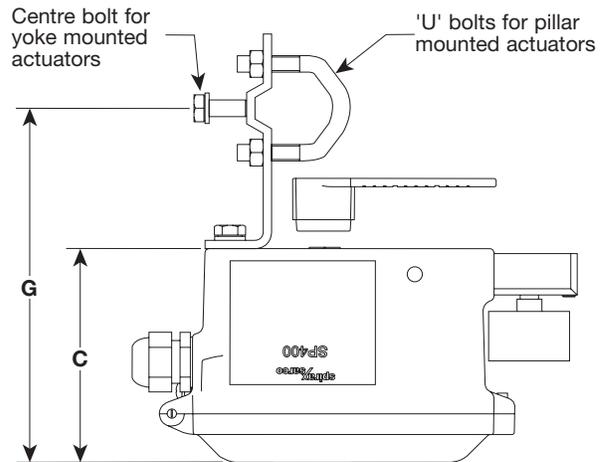
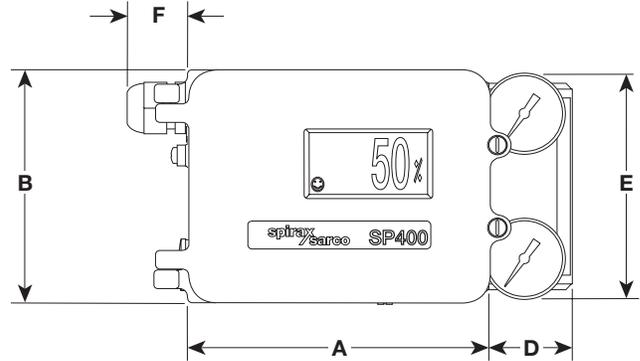
A	B	C	D	E	F	G
5.7	4.4	4.1	1.6	4.3	1.2	6.8

## 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)
	OFF range 4-20 mA
<b>Split range</b>	Low range 4-13 mA
	High range 11-20 mA
	0.5%
<b>Deadband</b>	1.5%
	3.0%
	5.0%
<b>Reset</b>	Resets all programmed values
<b>Input signal</b>	Visualisation of input mA signal

## Available spares

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



## Safety information, installation and maintenance

Full details are contained in the SP400 electropneumatic smart positioner Installation and Maintenance Instructions (IM-P343-37) supplied with the product.

## Positioner nomenclature guide

<b>Positioner series</b>	<b>SP400</b>	<b>SP400</b>
<b>Movement/action</b>	0 = Linear, single action 1 = Rotary, single action	0
<b>Retransmission + software switches</b>	0 = Not mounted	0
<b>Enclosure</b>	0 = Standard	0
<b>Approvals</b>	0 = Standard	0
<b>24 V power supply</b>	0 = Not mounted	0
<b>Remote sensor</b>	0 = No	0
<b>Extended stroke</b>	0 = No	0
<b>Gauge block</b>	0 = Not mounted G2 = Full scale 30 psig G4 = Full scale 60 psig G7 = Full scale 100 psig	G4

**Selection example:**

## How to order

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

**Example:** 1 off Spirax Sarco SP400 000 000 0G4 electropneumatic smart linear positioner equipped with gauge block for full scale pressure of 60 psig.

**Caution:** The SP400 smart positioner must have a high quality air supply. A Spirax Sarco MPC2 filter regulator with coalescing filter or equivalent must be used.