

spirax/sarco

SP200

Electropneumatic Smart Positioner

Description

The SP200 smart valve positioner is loop powered from a 4-20 mA input signal to provide accurate adaptive positional control of pneumatic linear and rotary 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 continuous digital display of % travel. Valve position feedback is retrieved by means of a non contact technology based on Hall effect. Therefore, high resolution, high reliability and vibration insensitivity are guaranteed.

The SP200 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 valve stem and positioner, drastically simplifies the mounting procedure and reduces the time required. The SP200 is supplied with a IEC60534-6-1 (NAMUR) standard mounting kit for attachment to linear yoke or pillar mounted actuators. For rotary actuators a mounting kit compliant to VDI/VDE3845 is supplied.

Applications

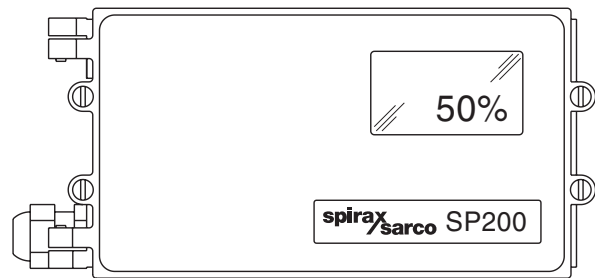
The SP200 can be used with the following pneumatic actuators:

PN1000 and PN2000 series	see TI-P320-50
PN3000 and PN4000 series	see TI-P357-11 and TI-P357-13
PN9000 series	see TI-P357-30

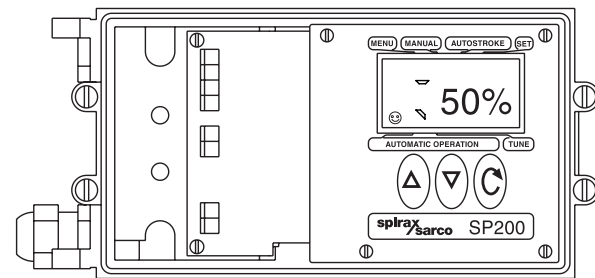
Technical data

Input signal range	4 - 20 mA nominal	
Minimum input signal	3.6 mA	
Minimum air supply pressure	20 psig	
Maximum air supply pressure	90 psig	
Air quality	Air supply must be dry, oil and dust free to ISO 8573-1 class 2:3:1	
Output pressure	0 to 100% supply pressure	
Stroke range	Linear Actuators	0.4" to 4"
	Rotary Actuators	5°F to 120°F
Action	Single action	fail vent
	Double action	fail vent output 1, fill output 2
Operating temperature	14°F to 176°F	
Maximum air flow	5.4 SCFM @ 90 psig	
Steady state air consumption	Less than 0.022 scfm	
Air connections	Screwed 1/4" NPT	
Cable gland	Pg 13.5	
Electrical connections	Spring clamp terminals for 32 to 15 AWG wire	
Enclosure rating	IP65	
Characteristics	Linear, Equal % (ratio 1:50) or	
	Fast opening (ratio 50:1)	
Resolution (maximum)	0.1% F.S. (Full Scale)	
4 - 20 mA retransmit	4 - 20 mA retransmission of valve position	
Software travel switches	Two software configured travel switches	1 x normally closed
		1 x normally open
Shipping weight	7 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.



SP200 with front cover closed



SP200 with front cover removed

Materials

Part	Material	Finish
Case and cover	Die cast aluminum	Anti-corrosive paint
Magnet bracket	Die cast aluminum	

Programmable functions

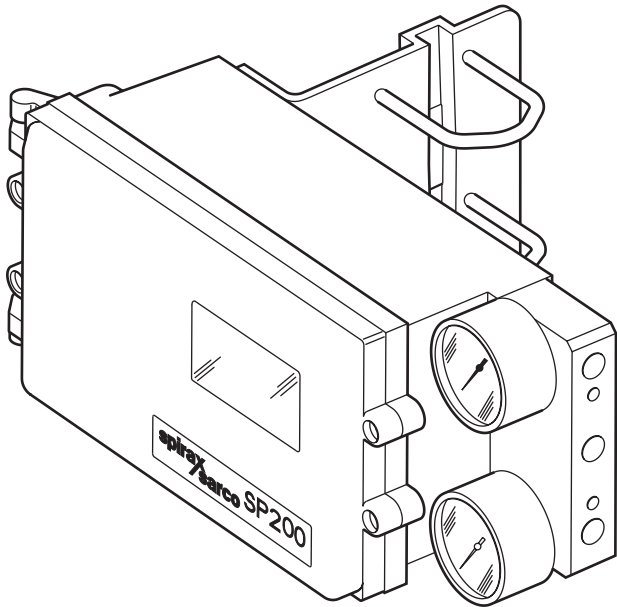
Autostroke	Automatic commissioning routine
Valve type	2-port or 3-port
% travel	Selectable 0 - 100% or 100% - 0% depending on valve / actuator configuration
Control action	Direct or reverse action (4-20 or 20-4 mA)
Travel limits	Setting of minimum and maximum travel limits
Signal span	4-20 mA or split 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
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.

Options

Gauge block single action	Complete manifold block with two pressure gauges (supply pressure and pressure to the actuator)
Gauge block double action	Complete manifold block with three pressure gauges (supply pressure, pressure output 1 and pressure output 2)
Available spares	
Pressure gauge	Pressure gauge only Available ranges: 0 to 30 psig, 0 to 60 psig or 0 to 100 psig
Filter plug kit	Plug plus 3 off filters and 'O' rings

Air supply

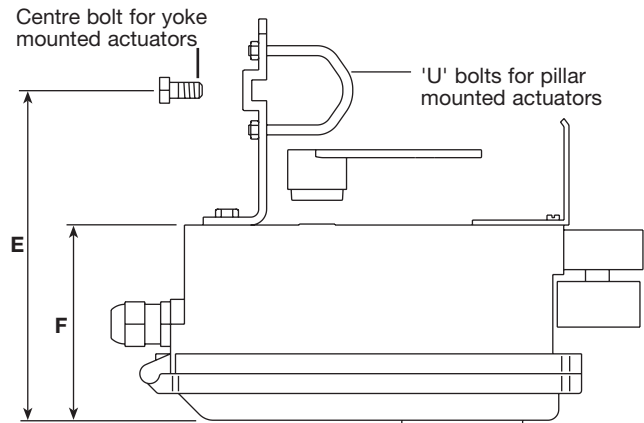
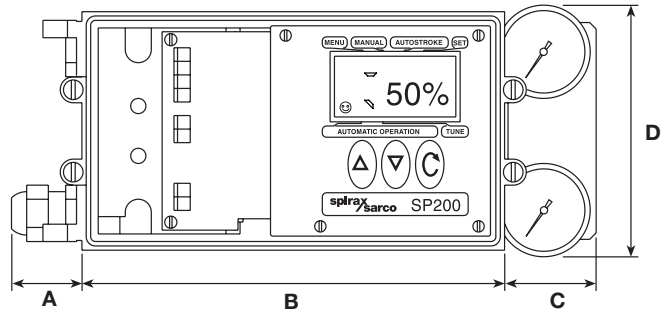
The SP200 smart positioner must be provided with a high quality air supply. A Spirax Sarco MPC2 filter regulator with coalescing filter or equivalent must be used. A fixing kit is available to mount the MPC2 filter regulator onto the actuator.



SP200 with gauge block and fixing kit shown

Dimensions (approximate) in inches

A	B	C	D	E	F
1.26	7.7	1.61	3.94	6.54	3.86



Installation

Full details are contained in the SP200 smart positioner Installation and Maintenance Instructions supplied with the product.

How to order

Examples

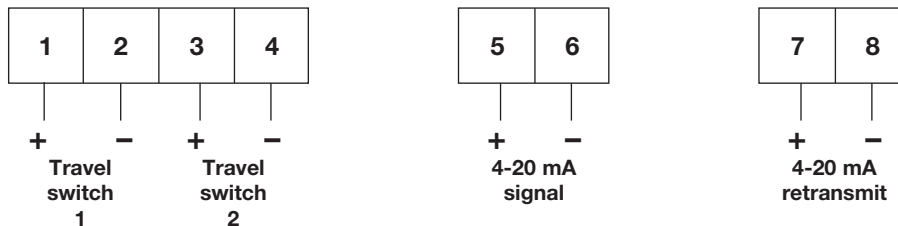
- 1 off SP200 electropneumatic smart positioner.
- 1 off SP200 electropneumatic smart positioner fitted with gauge block and 2 x 0 to 100 psig gauges.

Selection Guide

SP200A00	linear, single acting
SP200A01	rotary, single acting
SP200A02	linear, double acting
SP200A03	rotary, double acting

Wiring details for the main board connections

The SP200 can be loop powered using the 4 - 20 mA signal source providing a minimum signal of 3.6 mA.



Minimum current	= 3.6 mA
Maximum current	= 30 mA
Voltage drop	= 10.6 V @ 20 mA