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ISO 9001

spirax/sarco

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CH Issue 3

SP200

Electropneumatic Smart Positioner

Description

The SP200 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. 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 the valve stem and the positioner, drastically simplifies and reduces the time required for the mounting procedure. The SP200 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.

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)

Model SP200is ATEX EC-type Certification

Certificate N. . IMQ 07 ATEX 011

Classification II 2GD

Ex ia IIC T6/Ex iaD 21 T85°C (Tamb -20/+40°C)

Ex ia IIC T5/Ex iaD 21 T100°C (Tamb -20/+65°C)

Ex ia IIC T4/Ex iaD 21 T135°C (Tamb -20/+80°C)

Nominal electrical input parameter	Circuit	Ui(V)	Ii (mA)	Pi(mW)	Ci(nF)	Li(mH)
	Supply	30	100	650	2	-
	Switch 1 & 2	15	25	65	12	-
	Retransmit	30	100	650	15	-

Applications

The SP200 can be used with the following pneumatic actuators:

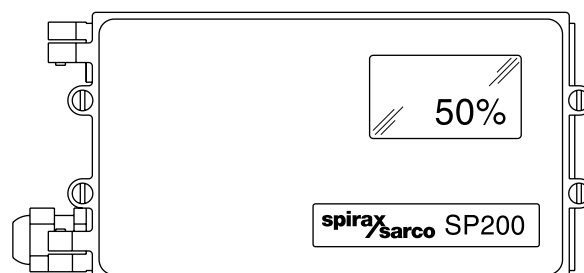
PN1000 and PN2000 series

PNS3000 and PNS4000 series

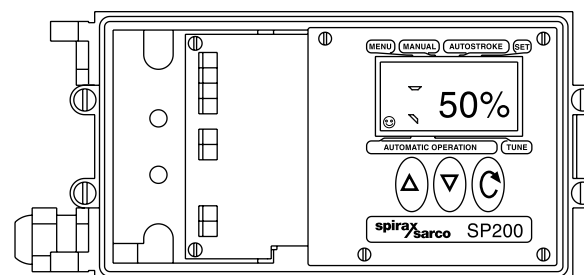
PN9000 series

Materials

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



SP200 with front cover closed



SP200 with front cover removed

Technical data

Input signal range	4 - 20 mA nominal
Minimum input signal	3.6 mA
Minimum air supply pressure	1 bar g above minimum spring range pressure
Maximum air supply pressure	6.0 bar g
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 valves 10 mm to 100 mm Quarter turn valves 5° to 120°
Action	Single action / fail vent Double action/fail vent output 1, fill output 2
Operating temperature	-10°C to +80°C
Maximum air flow	4.2 normal m³/h at 1.4 bar g 8.5 normal m³/h at 6.0 bar g
Steady state air consumption	Less than 0.035 normal m³/h
Air connections	Screwed 1/4" NPT
Cable gland	Pg 13.5
Electrical connections	Spring clamp terminals for 0.2 to 1.5 mm² 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	3.2 kg

Local regulations may restrict the use of this product to below the conditions quoted.

In the interests of development and improvement of the product, we reserve the right to change the specification without notice.

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Programmable functions

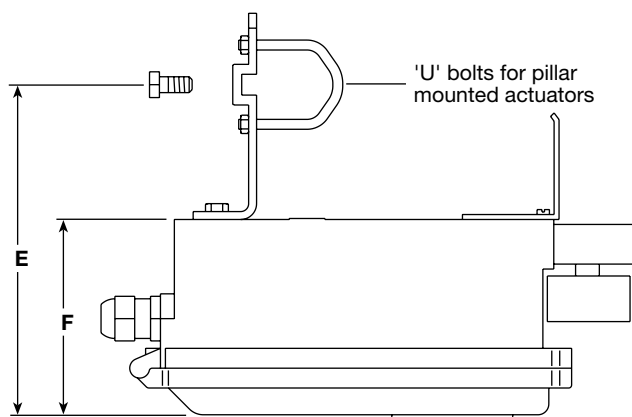
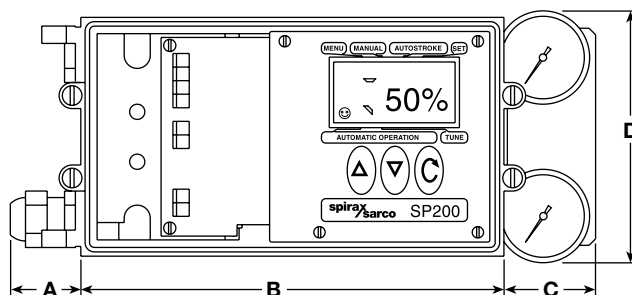
Autostroke	Automatic commissioning routine
Valve type	2-port or 3-port
% travel	Selectable 0 - 100% or 100% - 0% depending on valve / actuator configuration
Control action	Direct or reverse action (4-20 or 20-4 mA)
Travel limits	Setting of minimum and maximum travel limits
Signal span	4-20 mA or split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

Available spares

Pressure gauge	Pressure gauge only Available ranges: 0 to 2 bar, 0 to 4 bar or 0 to 7 bar
Filter plug kit	Plug plus 3 off filters and 'O' rings

Dimensions (approximate) in mm

A	B	C	D	E	F
32	195	41	100	166	98



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.

Installation

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

Positioner nomenclature guide

Positioner series	SP200	SP200
Actuator	L = Linear R = Rotary	L
Action	S = Single acting linear D = Single acting rotary	S
Approval	0 = Standard IP65/NEMA 4X is = intrinsically safe	0
Gauges	0 = No gauges G2 = gauge 0 - 2 bar (2 for single acting, 3 for double acting) G4 = gauge 0 - 4 bar (2 for single acting, 3 for double acting) G7 = gauge 0 - 7 bar (2 for single acting, 3 for double acting)	G7

Selection example:

SP200	L	S	0	G7
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How to order

Examples:

1 off SP200 LS0 electropneumatic smart positioner.

1 off SP200 LS0G7 electropneumatic smart positioner fitted with gauge block and 2 x 0 to 7 bar g pressure gauges.