Description
The SP400 is a loop powered digital valve positioner for linear and quarter-turn pneumatic valves. It has been designed for users that want the benefits of a smart digital positioner but do not need all the functionality and extra features of the SP500. 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 the desired valve position. Indication of valve position is provided through a continuous digital display of % travel.
The pneumatics are based on piezo-valve technology giving high resolution, high reliability, vibration insensitivity and class-leading low air consumption. The SP400 includes straightforward functionality that can be easily set up through the screen and keypad. The absence of mechanical linkages greatly reduces the time required for the mounting procedure and 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-P054-04.

Applications
The SP400 can be used with the following pneumatic actuators:
- PN1000 and PN2000 series
- PNS3000 and PNS4000 series
- PN9000 series

Optional extras
- Gauge block: Complete manifold block with two pressure gauges (supply pressure and pressure to the actuator)

Materials
<table>
<thead>
<tr>
<th>Part</th>
<th>Material</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case and cover</td>
<td>Die cast aluminium</td>
<td>Anti-corrosive paint to RAL5010</td>
</tr>
<tr>
<td>Magnet bracket</td>
<td>Die cast aluminium</td>
<td></td>
</tr>
</tbody>
</table>

Technical data
- Input signal range: 4 - 20 mA nominal
- Minimum input signal: 3.6 mA
- Air supply pressure: 1.4 - 7.0 bar (5-10 psi above spring range pressure)
- 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
- 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 0.016 normal m³/h
- Air connections: Screwed ½” NPT
- Cable gland: M20
- Electrical connections: Spring clamp terminals for 0.2 to 1.5 mm² wire
- Enclosure rating: IP65
- Characteristics: Linear
- Resolution (maximum): 0.1% F.S. (Full Scale)
- Shut-off: 1%
- Shipping weight: 2.2 kg

First for Steam Solutions
**Dimensions** (approximate) in mm

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>145</td>
<td>113</td>
<td>105</td>
<td>40</td>
<td>109</td>
<td>30</td>
<td>172</td>
</tr>
</tbody>
</table>

**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)
- **Split range**
  - OFF  range 4 - 20 mA
  - Low  range 4 - 13 mA
  - High range 11 - 20 mA
- **Deadband**: 0.5%, 1.5%, 3.0%, 5.0%
- **Reset**: Resets all programmed values
- **Input signal**: Visualisation of input mA signal

**Available spares**

- **Pressure gauge only**
  - Available ranges: 0 to 2 bar, 0 to 4 bar, 0 to 7 bar
- **Filter plug kit**
  - 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**

<table>
<thead>
<tr>
<th>Positioner series</th>
<th>SP400</th>
<th>SP400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movement/action</td>
<td>0 = Linear, single action</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>1 = Rotary, single action</td>
<td>1</td>
</tr>
<tr>
<td>Retransmission +</td>
<td>0 = Not mounted</td>
<td>0</td>
</tr>
<tr>
<td>software switches</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enclosure</td>
<td>0 = Standard</td>
<td>0</td>
</tr>
<tr>
<td>Approvals</td>
<td>0 = Standard</td>
<td>0</td>
</tr>
<tr>
<td>24 V power supply</td>
<td>0 = Not mounted</td>
<td>0</td>
</tr>
<tr>
<td>Remote sensor</td>
<td>0 = No</td>
<td>0</td>
</tr>
<tr>
<td>Extended stroke</td>
<td>0 = No</td>
<td>0</td>
</tr>
<tr>
<td>Gauge block</td>
<td>0 = Not mounted</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>G2 = Full scale 2 bar</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>G4 = Full scale 4 bar</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>G7 = Full scale 7 bar</td>
<td>7</td>
</tr>
</tbody>
</table>

**Selection example:** SP400 0 0 0 0 0 0 0 G4

**How to order**

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

Example: 1 off Spirax Sarco SP400 000 000 004 electropneumatic smart linear positioner equipped with gauge block for full scale pressure of 4 bar.

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 inclusive of fixing kit – See Technical Information sheet TI-P054-04 for further data and How to order.