STEPPER-CONTROLLED SCPV SERIES
2-WAY PROPORTIONAL VALVES

Utilizing the industry’s most robust and powerful linear actuator, the high flow stepper-controlled proportional valve outperforms the competition in performance and durability. The SCPV valve is ideal in critical applications such as gas delivery, medical, analytical, and industrial automation requiring high resolution, high flow, and low hysteresis. In addition, the unique design allows for custom flow profiles when required.

- Less than 2% hysteresis
- Excellent linearity—less than 2.5% of full-scale
- 2 ms reaction time
- Millions of cycles
- Holds position for power savings or at a loss of power

**Characteristic Curve**
*Flow Rate for SCPV-1-3 @ 100 psig*

<table>
<thead>
<tr>
<th>Flow (l/min)</th>
<th>0</th>
<th>50</th>
<th>100</th>
<th>150</th>
<th>200</th>
<th>250</th>
<th>300</th>
<th>350</th>
<th>400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steps</td>
<td>0</td>
<td>100</td>
<td>200</td>
<td>300</td>
<td>400</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Part No. Description**

<table>
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<th>Part No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>SCPV-1-3</td>
<td>Proportional Valve, In-Line</td>
</tr>
<tr>
<td>SCPV-1-3M</td>
<td>Proportional Valve, Manifold</td>
</tr>
<tr>
<td>SCPV-1-3C</td>
<td>Proportional Valve, Cartridge</td>
</tr>
</tbody>
</table>

**Medium**
Air or compatible gases

**Typical Cycle Time for Full Travel**
- 0.95 seconds @ 100% duty cycle
- 0.55 seconds @ 25% duty cycle
  (full open to full close or full close to full open)

**Wetted Material**
Stainless steel, aluminum, brass, acetal, and FKM*

**Pressure Range**
Vac to 100 psig*

**Flow Range**
0 to 280 l/min
Special configurations over 500 l/min available*

**Flow Resolution**
0.7 l/min per step

**Position Resolution**
0.001" per step

**Temperature Range**
32 to 184˚F

**Driver**
Bipolar chopper drive required

**Needle**
3.5˚

**Supply Voltage to Motor**
5 VDC

**Response Time**
0.95 seconds fully-open to fully-closed

**Mounting**
In-line, manifold, or cartridge

**Power Consumption**
3.85 watts nominal only during adjustment
Zero power consumption to maintain position

**Seals**
FKM standard, others available*

**Option**
Rubber seat (add -R suffix)

**More Details**
cpillard.com/link/scpv

*This product is highly modifiable for OEM applications—including alternate body materials, flow profiles, and more. Clippard has successfully produced special configurations of the SCPV with flows over 700 slpm at 100 psig. Call 877-245-6247 today to discuss your needs.
STEPPER-CONTROLLED SCPV SERIES & DRIVER

PROPORTIONAL VALVE

LINEAR ACTUATOR CHARACTERISTICS

<table>
<thead>
<tr>
<th>Wiring</th>
<th>Bipolar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current/Phase</td>
<td>385 mA</td>
</tr>
<tr>
<td>Motor Voltage</td>
<td>5 VDC</td>
</tr>
<tr>
<td>Resistance/Phase</td>
<td>13 ohms</td>
</tr>
<tr>
<td>Inductance/Phase</td>
<td>8.08 mH</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>3.85 watts</td>
</tr>
<tr>
<td>Temperature Rise</td>
<td>135˚F</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>20M ohms</td>
</tr>
</tbody>
</table>

Maximum Step Pulse Frequency vs. Operating Pressure

Wiring Harness (included)

SCPVD BI-POLAR STEPPER MOTOR DRIVER

The SCPVD is a bi-polar stepper motor driver board which can be used for stepper motors up to a max 2A/phase. It is based on the Allegro A4988 motor driver. The driver requires a motor drive voltage of 7 to 35 volts. An external controller is required to deliver step and direction signals to the driver board. The SCPVD is capable of micro-stepping and defaults to a 16th step micro-stepping mode. The step mode as well as several other options such as sleep, enable, and reset can be toggled on and off.

For more details, visit clippard.com/scpv

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<tr>
<td>SCPVD-1</td>
<td>SCPVD-1 SCPV Valve Driver</td>
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</tbody>
</table>

- Medical, analytical, and industrial gas mixing
- Anesthesia equipment
- Precision flow control
- Cuff/bladder pressure control
- Process flow control
- Variable speed control
- Automation of needle valve

Functional Diagram

Part No. Description
SCPVD-1 SCPVD-1 SCPV Valve Driver

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