PS1E Series
Electro-pneumatic
Interface Valves

Catalog PS1E-1/USA
November, 2009
WARNING

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Features .................................................................................................................2-3

3/2 and 4/2 Electro-pneumatic interface modules
  - complete units, head / tail sets, intermediate pressure supply ......................4
  - modules without solenoid, solenoids, pressure switch ..................................5

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Suppressor and LED indicators, spare parts, marking accessories.......................7

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Compact, easy to install, reliable...

Easy to meet system design needs
- Full flow capacity allows direct operation of small cylinders (single or double acting) or pneumatic piloting of larger control valves (pneumatic or hydraulic).
- Valve configurations in 3/2 or 4/2 (single or double acting).
- Outlet fittings (push-in) for 5/32" or 1/4" tubing.
- System modification or expansion simplified by easily adding modules to stack.
- Wide range of voltages available.
- Multiple pressures possible in one assembly.

Easy to install in your system
- Modules snap together and mount on 35mm (DIN) rail.
- Micro-valve stack and PLC may be mounted in the same enclosure.
- Common air supply, exhaust, and electrical supply reduce connections to 1 wire and 1 tube per module.
- Supply and exhaust air can be piped with only one tube for each.
- Fast hook-up with captive wire clamp connections and push-in fittings.
- Compatible pneumo-electric module provides integrated feedback capability for the PLC.
- Eliminates cumbersome electrical connections on machine mounted solenoid valves.

Easy to maintain system operation
- Manual override for setup and troubleshooting.
- Poppet design for long, trouble free life (lubricated or non-lubricated air).
- Integrated diagnostics (main air test point, output pneumatic indicator, optional suppressor/LED) provide system status at a glance.
- All electrical connections are in a protected enclosure.
- Modular design and easy connection aid in module replacement or system expansion.
**Electrical Output Signals**

- DIN rail
- Air Supply
- Pressure Test Point

**Pneumatic Output Signals**

- Pipeable Exhaust
- Write On Marking Tabs

**Electro-pneumatic Interface Valves**

**Features**

- **Pressure Test Point**
- **Power Valve Control**
- **Direct Control of Mini-Cylinders**

**3/2 MODULE (1 Output)**

- (1 Solenoid Actuator)

**4/2 MODULES (2 Outputs)**

- (2 solenoid actuators)

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⚠ **Caution:** Because these are poppet valves, the common air supply pressure must be built up rapidly (never use a slow start valve 2/2 on the air supply for the interfaces). When pressure is applied, the 4/2 valve takes up a predetermined position (unactuated) when no electrical signal is present.

- Output 2 (yellow indicator) passing.
- Output 4 (red indicator) non-passing.
Assembled Units
All units include pop-up indicator for pneumatic output. Red indicates NNP / NC function.
Yellow indicates NP / NO function.
All model numbers shown include non-locking manual override.
(For other voltages, use component parts shown on page 5).

Single Solenoid - Spring Return 3/2 -
Normally Non-Passing (NNP) / Normally Closed (NC)

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Output Port Push-In Connection Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>12V DC</td>
<td>PS1E21102J, PS1E21102B</td>
</tr>
<tr>
<td>24V DC</td>
<td>PS1E21102B, PS1E216702B</td>
</tr>
<tr>
<td>24V AC</td>
<td>PS1E2101B, PS1E216701B</td>
</tr>
<tr>
<td>120V AC</td>
<td>PS1E21101F, PS1E216701F</td>
</tr>
</tbody>
</table>

Weight: 0.21 lb (0.095 kg)

Single Solenoid - Spring Return 4/2

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Output Port Push-In Connection Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>12V DC</td>
<td>PS1E28102J, PS1E286702J</td>
</tr>
<tr>
<td>24V DC</td>
<td>PS1E28102B, PS1E286702B</td>
</tr>
<tr>
<td>24V AC</td>
<td>PS1E28101B, PS1E286701B</td>
</tr>
<tr>
<td>120V AC</td>
<td>PS1E28101F, PS1E286701F</td>
</tr>
</tbody>
</table>

Weight: 0.36 lb (0.165 kg)

Double Solenoid 4/2

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Output Port Push-In Connection Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>12V DC</td>
<td>PS1E29102J, PS1E296702J</td>
</tr>
<tr>
<td>24V DC</td>
<td>PS1E29102B, PS1E296702B</td>
</tr>
<tr>
<td>24V AC</td>
<td>PS1E29101B, PS1E296701B</td>
</tr>
<tr>
<td>120V AC</td>
<td>PS1E29101F, PS1E296701F</td>
</tr>
</tbody>
</table>

Weight: 0.45 lb (0.205 kg)

Head and Tail Sets
Used to mount valves to DIN rail and provide supply and exhaust ports. All hardware is included.

Single supply type supplies from one end of the manifold assembly with the other end blocked.

Double supply type provides pressure and exhaust ports on both ends of the assembly.

<table>
<thead>
<tr>
<th>Push-In Connection Ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; Tube</td>
</tr>
<tr>
<td>6mm Tube</td>
</tr>
</tbody>
</table>

Wt: 0.22 lb (0.100 kg) Wt: 0.28 lb (0.125 kg)

Intermediate Supply Module - PS1E10387
1/8" Pipe port for supply and exhaust ports.
Allows replenishment or isolation of the supply and / or exhaust ports using included plugs.

Weight: 0.28 lb (0.125 kg)

<table>
<thead>
<tr>
<th>1/8&quot; Pipe Supply &amp; Exhaust</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPT</td>
</tr>
<tr>
<td>BSP</td>
</tr>
</tbody>
</table>

Shaded Items: Consult factory for availability.
Valves Without Solenoid Operators

All valve units include pop-up indicator for pneumatic output. Red indicates NNP / NC function. Yellow indicates NP / NO function.

(1) To obtain a complete assembled unit, i.e. PS1E21102J, order valve PS1E111 + solenoid PS1E2302J.

**Single Acting - Spring Return 3/2 - Normally Non-Passing (NNP) / Normally Closed (NC)**

<table>
<thead>
<tr>
<th>Output Port Push-in Connection Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/32&quot; (4 mm) Tube</td>
</tr>
<tr>
<td>PS1E111</td>
</tr>
</tbody>
</table>

**Single Acting - Spring Return 3/2 - Normally Passing (NP) / Normally Open (NO)**

<table>
<thead>
<tr>
<th>Output Port Push-in Connection Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/32&quot; (4 mm) Tube</td>
</tr>
<tr>
<td>PS1E121</td>
</tr>
</tbody>
</table>

**Single Acting - Spring Return 4/2**

<table>
<thead>
<tr>
<th>Output Port Push-in Connection Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/32&quot; (4 mm) Tube</td>
</tr>
<tr>
<td>PS1E181</td>
</tr>
</tbody>
</table>

**Double Acting 4/2**

<table>
<thead>
<tr>
<th>Output Port Push-in Connection Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/32&quot; (4 mm) Tube</td>
</tr>
<tr>
<td>PS1E191</td>
</tr>
</tbody>
</table>

**Line Mounted Pressure Switch**

Includes pop-up indicator to show presence of pressure. Includes Clip for mounting on 35mm DIN Rail.

1 SPDT Contact.
5A 250V
5/32 (4 mm) Push-In Tubing Port

Shaded Items: Consult factory for availability.

<table>
<thead>
<tr>
<th>Switching Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 PSIG Fixed</td>
</tr>
<tr>
<td>PS1P1081</td>
</tr>
<tr>
<td>30 - 75 Adjustable</td>
</tr>
<tr>
<td>PS1P1091</td>
</tr>
</tbody>
</table>

Wt: 0.11 lb (0.050 kg)
Valve Specifications

**Body Material:** Glass filled polyamide

**Electrical Connection:** Captive wire clamp

**LED / Noise Suppressor**:
- Combination LED (green) and zener diode

**Life Expectancy:**
- 10 million operations

**Maximum operating frequency:** 10 Hz

**Medium Quality**:
- Standard shop air, lubricated or non-lubricated, 50µ filtered

**Mounting**:
- 35mm (DIN) rail

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Operating Medium:
- Compressed air

Operating Pressure Range:
- 40 to 120 PSI (3 to 8 bar)

Operating Principal:
- Solenoid pilot operated poppet valve

Operating Temperature Range:
- 5° to 140°F (-15° to 60°C)

Response Time:
- 10-15 ms (electronic signal to pneumatic output)

Seal Material:
- Poppet - polyurethane
- Seals - Nitrile (Buna N)

**Supply and Exhaust Ports:**
- 1/4"

**Outlet port:**
- 5/32" 1/4"

**Flow rate:**
- SCFM @ 90 PSI
  - AC: 7.1
  - DC: 9.2

**CV**
- AC: 0.14
- DC: 0.16

**Tube Connections**:
- Push-in (instant) fittings

**Voltage Tolerance**:
- +10 to -15% of rated voltage @ 70°F

**Wire Size**:
- 14 - 22 AWG

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Caution: Memory in double acting (Bistable) 4/2 modules is input dependent. Either air supply or electrical command signal must be maintained or memory may be lost.

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Pressure Switch Specifications

**Body Material:** Glass filled polyamide

**Contact Material:** Silver

**Rating**:
- 10A / 250VAC

**Maximum Operating Frequency:** 10 Hz

**Mechanical Life:**
- 30 million operations

**Pressure Range:**
- Operating: Pressure operated micro switch

**Contact Life**

<table>
<thead>
<tr>
<th>Contact life</th>
<th>AC 24V</th>
<th>AC 48V</th>
<th>AC 120V</th>
<th>AC 240V</th>
<th>DC 12V</th>
<th>DC 24V</th>
<th>DC 48V</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Million Operations</td>
<td>Inductive</td>
<td>25</td>
<td>56</td>
<td>115</td>
<td>140</td>
<td>17</td>
<td>24</td>
</tr>
<tr>
<td>2 Million Operations</td>
<td>Resistive</td>
<td>86</td>
<td>190</td>
<td>370</td>
<td>440</td>
<td>42</td>
<td>58</td>
</tr>
<tr>
<td>5 Million Operations</td>
<td>Inductive</td>
<td>10</td>
<td>14</td>
<td>19</td>
<td>21</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

**Switch Pressure**
- Fixed pressure: 19 to 120 PSI (1.3 to 8 bar)
- Adjustable pressure: 30 to 120 PSI (2 to 8 bar)

**Operating Temperature Range**
- 5° to 140°F (-15° to 60°C)

**Seal Material**
- Poppet - polyurethane

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Dimensions shown in inches (mm)

**3/2 and Single Head and Tail Set**

- Ground
- Electrical Common
- Electrical Signal

**4/2 and Double Head and Tail Set**

- LED (Optional)
- 35mm (DIN) Rail
- Intermediate Module

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*Rail at less than 0.8” does not allow enough room for mounting clips and may cause air leaks.
### Suppressor and LED Indicators

Mount between Solenoid Valve and the Interface Module

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Circuit Diagram</th>
<th>Voltage</th>
<th>Part Number</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indication by LED</td>
<td>![Circuit Diagram]</td>
<td>24 VDC and 50/60 Hz</td>
<td>PS1E1620B</td>
<td>.022</td>
</tr>
<tr>
<td>Sold in Lots of 5</td>
<td>![Circuit Diagram]</td>
<td>48 VDC and 50/60 Hz</td>
<td>PS1E1620E</td>
<td>.022</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120 V / 60 Hz 115 V / 50 Hz</td>
<td>PS1E1511F</td>
<td>.028</td>
</tr>
<tr>
<td></td>
<td></td>
<td>240 V / 60 Hz 230 V / 50 Hz</td>
<td>PS1E1511M</td>
<td>.028</td>
</tr>
</tbody>
</table>

### Mounting Rail 35mm (DIN)

<table>
<thead>
<tr>
<th>Material</th>
<th>Length</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>6'</td>
<td>AM1 DE200</td>
</tr>
</tbody>
</table>

### Spare Parts

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 lot of 100 O-ring seals between Modules (Pressure - Exhaust)</td>
<td>PPR-L12</td>
</tr>
<tr>
<td>1 lot of 50 seals between Modules 3/2 or 4/2 and Coil PS1-E23</td>
<td>PPR-L13</td>
</tr>
<tr>
<td>- 25 seals (Type A) for Modules 3/2 and 4/2 Bistable</td>
<td></td>
</tr>
<tr>
<td>- 25 seals (Type B) for Modules 4/2 Monostable and Bistable</td>
<td></td>
</tr>
</tbody>
</table>

### Marking Accessories

To be used in place of Write-On Marking Tabs

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clip-On Marker Strips</td>
<td></td>
</tr>
<tr>
<td>Strip of 10 Identical Numerals (State the Number required)</td>
<td>AB1-R-</td>
</tr>
<tr>
<td>Strip of 10 Identical Letters (State the Letter required)</td>
<td>AB1-G-</td>
</tr>
<tr>
<td>Strip of 10 + Signs*</td>
<td>AB1-R12</td>
</tr>
<tr>
<td>Strip of 10 - Signs*</td>
<td>AB1-R13</td>
</tr>
</tbody>
</table>

*Sold in Lots of 25 Strips of 10 Markers
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7. Special Tooling: A tooling charge may be imposed for any special tooling. No limitations, drawings, fixtures, molds and patterns acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller’s property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

8. Buyer’s Property: Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer, or any other items which become Buyer’s property, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller’s possession or control.

9. Taxes: Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like charges. Buyer shall pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

10. Indemnity For Infringement of Intellectual Property Rights: Buyer shall have no liability for infringement of any patents, copyrights, trade dress, trade secrets or similar rights except as provided in this Part 10. Seller shall defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets (hereinafter “Intellectual Property Rights”). Seller will pay the cost of any action and defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that an item sold pursuant to this contract infringes the Intellectual Property Rights of a third party. Seller’s obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, Buyer may, at its sole expense and option, procure for Buyer the right to continue using said item, replace or modify said item so as to make it noninfringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have the right to claim for damages for claims of infringement based on information provided by Buyer, or directed to items delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any item sold hereunder. The foregoing provisions shall constitute Seller’s sole and exclusive remedy for infringement of Seller’s intellectual property rights.

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