To achieve the sensing or feedback function, pneumatic sensors can be:

- limit switches in a variety of sizes and configurations
- pressure switches with many adjustable ranges
- components designed specifically for pneumatic technology using pressure variation, air bleed or blocking for detection.

A wide variety of pneumatic sensors are available to suit any application requirement.

**PNEUMATIC LIMIT SWITCHES**

Pneumatic limit switches are non-passing (NNP) or passing (NP) when actuated by a moving part. The various operating levers, bore dimensions and functions are given below.
Basic Features

Pneumatic Sensors

PNEUMATIC PRESSURE AND VACUUM SWITCHES

These devices monitor the pressure of a fluid (air, water, oil or vacuum). Pressures from -30" (vacuum switches) to 130 PSI (pressure switches) can be detected in several ranges depending on the model selected. (See pressure switches in logic section for further details.)

BLEED SENSORS

Bleed sensors are used for the sensing of low forces and short travel. They are simple to install and connect. The detected object blocks the bleed air at low flow. An increase of pressure in tube (T) creates a pneumatic signal (S) on the relay equal to the supply pressure (P).

FLUIDIC PROXIMITY SENSORS

Fluidic proximity sensors are used when the application requires non-contact sensing of the moving part. A fluidic sensor emits a continuous air jet (A) at low pressure. When the object to be detected interferes with this air jet, a back pressure (a) is created. When this back pressure reaches the amplifier relay, an output signal (S) is generated equal to supply pressure (P).
Direct Acting Limit Switches

1/16" I.D. Internal Orifice

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Connection</th>
<th>Actuator</th>
<th>Type of Switching*</th>
</tr>
</thead>
<tbody>
<tr>
<td>PXCM111</td>
<td>5/32&quot; Instant</td>
<td>Steel Plunger Operating Levers Available (See Below)</td>
<td>NNP</td>
</tr>
<tr>
<td>PXCM115</td>
<td>10-32 UNF</td>
<td>Plastic Roller</td>
<td>NNP</td>
</tr>
<tr>
<td>PXCM121</td>
<td>5/32&quot; Instant</td>
<td>Plastic Roller</td>
<td>NNP</td>
</tr>
<tr>
<td>PXCM125</td>
<td>10-32 UNF</td>
<td>Plastic Roller</td>
<td>NNP</td>
</tr>
</tbody>
</table>

7/64" I.D. Internal Orifice

Actuators For Steel Plunger

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Connection</th>
<th>Actuator</th>
<th>Type of Switching*</th>
</tr>
</thead>
<tbody>
<tr>
<td>PXCM521</td>
<td>5/32&quot; Instant</td>
<td>Plastic Roller</td>
<td>NNP</td>
</tr>
</tbody>
</table>

Specifications

Air Quality
Standard Shop Air, Lubricated or Dry, 40µm Filtration

Flow SCFM (Nl/min)
- PXCM111: 2.2 (60)
- PXCM121: 3.0 (85)
- PXCM521: 8.8 (250)

Materials
- Body: Zinc Alloy
- Poppets: Polyurethane
- Seals: Nitrile (Buna N)

Maximum Operating Frequency
5 Hz

Nominal Bore Ø
- PXCM111, PXCM121: 1/16" (1.5 mm)
- PXCM521: 7/64" (2.5 mm)

Number of Operations with Dry Air at 90 PSI (6 bar) and 68°F (20°C) – Frequency 1 Hz
10 Million

Operating Positions
All Positions

Operating Pressure
40 to 115 PSIG (3 to 8 bar)

Ports
- 5/32" Instant for Semi-Rigid Nylon or Polyurethane Tube
- 10-32 UNF Available

Temperature
- Operating: 32°F to 122°F (0°C to + 50°C)
- Storage: -22°F to 140°F (-30°C to +60°C)

* NNP = Normally Non Passing.
## Operator Specifications

<table>
<thead>
<tr>
<th></th>
<th>PXCM111</th>
<th>PXCM121</th>
<th>PXCM521</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differential Travel</td>
<td>.006” (0.15 mm)</td>
<td>.012” (0.3 mm)</td>
<td>.020” (0.5 mm)</td>
</tr>
<tr>
<td>at 90 PSI (6 bar)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Travel (B)</td>
<td>.055” (1.4 mm)</td>
<td>.126” (3.2 mm)</td>
<td>.228” (5.8 mm)</td>
</tr>
<tr>
<td>at 90 PSIG (6 bar)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum Pre-Travel (A)</td>
<td>.035” (0.9 mm)</td>
<td>.079” (2 mm)</td>
<td>.087” (2.2 mm)</td>
</tr>
<tr>
<td>at 90 PSIG (6 bar)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum Operating Force</td>
<td>2.5 lb (11 N)</td>
<td>1.0 lb (4.5 N)</td>
<td>1.6 lb (7 N)</td>
</tr>
<tr>
<td>at 90 PSI (6 bar)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Diagram</td>
<td><img src="image" alt="Operating Diagram" /></td>
<td><img src="image" alt="Operating Diagram" /></td>
<td><img src="image" alt="Operating Diagram" /></td>
</tr>
</tbody>
</table>

## Dimensions

### PXCM111

- [Image of PXCM111 dimensions]

### PXCM121, PXCM131

- [Image of PXCM121, PXCM131 dimensions]

### PXCM521

- [Image of PXCM521 dimensions]
Pilot Operated Compact Limit Switches
5/32" Instant Connections
Pipeable Exhaust Port
7/64" I.D. Internal Orifice

Part Numbers

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Actuator</th>
<th>Type of Switching</th>
</tr>
</thead>
<tbody>
<tr>
<td>PXCM601A110</td>
<td>Steel Plunger</td>
<td>NNP</td>
</tr>
<tr>
<td>PXCM601A102</td>
<td>Steel Roller Plunger</td>
<td></td>
</tr>
<tr>
<td>PXCM601A103</td>
<td>90° Steel Roller Plunger</td>
<td></td>
</tr>
</tbody>
</table>

Actuators For Steel Plunger

Use with PXCM601A110

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Actuator</th>
</tr>
</thead>
<tbody>
<tr>
<td>XCMZ24</td>
<td>90° Stainless Steel Roller Lever, One Way Trip</td>
</tr>
</tbody>
</table>

Specifications

**Air Quality**
- Standard Shop Air, Lubricated or Dry, 40µm Filtration

**Flow SCFM (NL/min)**
- 8.8 (250)

**Materials**
- Body: Zinc Alloy
- Poppets: Polyurethane
- Seals: Nitrile (Buna N)

**Nominal Bore Ø**
- 7/64" (2.5 mm)

**Number of Operations with Dry Air at 90 PSI (6 bar) and 68°F (20°C) – Frequency 1 Hz**
- 10 Million

**Operating Positions**
- All Positions

**Operating Pressure**
- 40 to 115 PSIG (3 to 8 bar)

**Ports**
- 5/32" Instant for Semi-Rigid Nylon or Polyurethane Tube

**Temperature**
- Operating: 32°F to 122°F (-0°C to +50°C)
- Storage: -22°F to 140°F (-30°C to +60°C)

* NNP = Normally Non Passing.
Operator Specifications

<table>
<thead>
<tr>
<th></th>
<th>PXCM601A110</th>
<th>PXCM601A102</th>
<th>PXCM601A103</th>
<th>PXCM601A110 + XCMZ24</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Differential Travel</strong></td>
<td>.012&quot; (0.3 mm)</td>
<td>.008&quot; (0.2 mm)</td>
<td>.020&quot; (0.5 mm)</td>
<td>.047&quot; (1.2 mm) (A)</td>
</tr>
<tr>
<td>at 90 PSI (6 bar)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Maximum Travel (B)</strong></td>
<td>.197&quot; (5 mm)</td>
<td>.197&quot; (5 mm)</td>
<td>.197&quot; (5 mm)</td>
<td>—</td>
</tr>
<tr>
<td>at 90 PSIG (6 bar)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Minimum Pre-Travel (A)</strong></td>
<td>.066&quot; (1.7 mm)</td>
<td>.066&quot; (1.7 mm)</td>
<td>.066&quot; (1.7 mm)</td>
<td>.370&quot; (9.4 mm) (A)</td>
</tr>
<tr>
<td>at 90 PSIG (6 bar)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Minimum Operating Force</strong></td>
<td>5.4 lbf (24 N)</td>
<td>5.2 lbf (23 N)</td>
<td>5.2 lbf (23)</td>
<td>4.3 lbf (19)</td>
</tr>
<tr>
<td>at 90 PSI (6 bar)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Operating Diagram**

**Dimensions**

**PXCM601A102**

- 2 mounting holes Ø .17" (4.3)
- 2 countersunk Ø .32" (8.2)
- depth 4 mm

**PXCM601A103**

- top mounting holes, 2 x M5
- .71" (18 mm) centers

**PXCM-M601A110**

**PXCM601A110 + XCMZ24**
Limit Switches

Plunger Operated
5/32" Instant Connections
Pipeable Exhaust Port
1/8" I.D. Internal Orifice

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Actuator</th>
<th>Type of Switching</th>
</tr>
</thead>
<tbody>
<tr>
<td>PXCK21101</td>
<td>Steel Plunger</td>
<td>NNP</td>
</tr>
<tr>
<td>PXCK21102</td>
<td>Steel Roller Plunger</td>
<td>NP</td>
</tr>
<tr>
<td>PXCK21121</td>
<td>Plastic Roller Plunger</td>
<td>NNP</td>
</tr>
<tr>
<td>PXCK21106</td>
<td>Cats Whisker</td>
<td>NNP</td>
</tr>
</tbody>
</table>

Roller Operated
5/32" Instant Connections
Pipeable Exhaust Port
1/8" I.D. Internal Orifice

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Actuator</th>
<th>Type of Switching</th>
</tr>
</thead>
<tbody>
<tr>
<td>PXCK2110031</td>
<td>Multi-Function Head Actuates:</td>
<td>NNP</td>
</tr>
<tr>
<td></td>
<td>- From Right and Left</td>
<td>NP</td>
</tr>
<tr>
<td>PXCK2110041</td>
<td>Multi-Function Head Actuates:</td>
<td>NNP</td>
</tr>
<tr>
<td></td>
<td>- From Right and Left</td>
<td>NP</td>
</tr>
</tbody>
</table>

Field Conversion of Rotary Operating Head

* NNP = Normally Non Passing.
  NP = Normally Passing.
Separate Pneumatic Switch Bodies

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Actuator Description</th>
<th>Type of Switching*</th>
</tr>
</thead>
<tbody>
<tr>
<td>PXCK21100</td>
<td>For Use With ZCK Series NNP</td>
<td>NNP</td>
</tr>
<tr>
<td>PXCK22100</td>
<td>Operating Heads NP</td>
<td>NP</td>
</tr>
</tbody>
</table>

Pneumatic Switch Bodies With Rotary Heads

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Actuator Description</th>
<th>Type of Switching*</th>
</tr>
</thead>
<tbody>
<tr>
<td>PXCK21100</td>
<td>Multi-Function Head Actuates: - From Right and Left - From Right - From Left</td>
<td>NNP</td>
</tr>
<tr>
<td>PXCK22100</td>
<td></td>
<td>NP</td>
</tr>
</tbody>
</table>

Operating Heads

For Use With PXCK Switch Bodies

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Actuator Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZCKG00</td>
<td>—</td>
<td>Die Cast Zinc</td>
</tr>
<tr>
<td>ZCKD02</td>
<td>Roller Plunger</td>
<td></td>
</tr>
<tr>
<td>ZCKD06</td>
<td>Whisker</td>
<td></td>
</tr>
<tr>
<td>ZCKD10</td>
<td>Rod Plunger</td>
<td></td>
</tr>
<tr>
<td>ZCKD21</td>
<td>Delrin Roller Lever On Plunger</td>
<td>Plunger Operated</td>
</tr>
<tr>
<td>ZCKD23</td>
<td>Steel Roller Lever On Plunger</td>
<td></td>
</tr>
</tbody>
</table>

Operating Levers For Rotary Heads

For Use With Rotary Head ZCKG00

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Actuator Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZCKY51</td>
<td>Steel 1/8&quot; Square</td>
<td>Rod Levers</td>
</tr>
<tr>
<td>ZCKY52</td>
<td>Fiberglas 1/8&quot; Dia. Round</td>
<td></td>
</tr>
<tr>
<td>ZCKY81</td>
<td>Plastic Spring Rod Lever</td>
<td></td>
</tr>
<tr>
<td>ZCKY91</td>
<td>Metal Spring Rod Lever</td>
<td></td>
</tr>
<tr>
<td>ZCKY11</td>
<td>Delrin Roller Lever</td>
<td>Roller Levers</td>
</tr>
<tr>
<td>ZCKY13</td>
<td>Steel Roller Lever</td>
<td></td>
</tr>
<tr>
<td>ZCKY41</td>
<td>Adjust. Delrin Roller Lever</td>
<td></td>
</tr>
<tr>
<td>ZCKY43</td>
<td>Adjust. Steel Roller Lever</td>
<td></td>
</tr>
</tbody>
</table>
### Specifications

**Air Quality**
- Standard Shop Air, Lubricated or Dry, 40µm Filtration

**Flow SCFM (NI/min)**
- 7.4 (210)

**Materials**
- Body: Zinc Alloy
- Poppets: Polyurethane
- Seals: Nitrile (Buna N)

**Maximal Operating Frequency**
- 5 Hz

**Nominal Bore Ø**
- 1/8” (3 mm)

**Number of Operations with**
- Dry Air at 90 PSI (6 bar) and 68°F (20°C) – Frequency 1 Hz
- 10 Million

**Operating Positions**
- All Positions

**Operating Pressure**
- 40 to 115 PSIG (3 to 8 bar)

**Temperature**
- Operating: 32°F to 122°F (0°C to +50°C)
- Storage: -22°F to 140°F (-30°C to +60°C)

**Ports**
- 5/32” Instant for Semi-Rigid Nylon or Polyurethane Tube

### Operator Specifications

<table>
<thead>
<tr>
<th></th>
<th>PXCK2-01</th>
<th>PXCK2-02</th>
<th>PXCK2-03</th>
<th>PXCK2-06</th>
<th>PXCK2-00 + Actuator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differential Angle</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>12°</td>
<td>3°</td>
</tr>
<tr>
<td>Differential Travel</td>
<td>.008” (0.2 mm)</td>
<td>.008” (0.2 mm)</td>
<td>.008” (0.2 mm)</td>
<td>—</td>
<td>80°</td>
</tr>
<tr>
<td>Maximum Angle of Travel</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Maximum Travel (B) at 90 PSIG (6 bar)</td>
<td>.020” (0.5 mm)</td>
<td>.020” (0.5 mm)</td>
<td>.020” (0.5 mm)</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Minimum Pre-Travel (A) at 90 PSIG (6 bar)</td>
<td>.087” (2.2 mm)</td>
<td>.087” (2.2 mm)</td>
<td>.102” (2.6 mm)</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Minimum Operating Force at 90 PSI (6 bar)</td>
<td>3.6 lbf (16N)</td>
<td>4.5 lbf (20N)</td>
<td>3.4 lbf (15N)</td>
<td>17.0 oz in (120mNm)</td>
<td>29.8 oz in (210mNm)</td>
</tr>
<tr>
<td>Minimum Operating Torque at 90 PSI (6 bar)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>35°</td>
<td>31° (Minimum Lever Travel Including Pre-Travel Required For Operation)</td>
</tr>
<tr>
<td>Operating Angle</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>35°</td>
</tr>
</tbody>
</table>

![Operating Diagram](image-url)
### Switch Bodies Only

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Type of Switching*</th>
</tr>
</thead>
<tbody>
<tr>
<td>PX CJ 117</td>
<td>NNP</td>
</tr>
<tr>
<td>PX CJ 127</td>
<td>NP</td>
</tr>
</tbody>
</table>

### Switch Bodies With Rotary Head

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Direction of Actuation</th>
<th>Type of Switching*</th>
</tr>
</thead>
<tbody>
<tr>
<td>PX CJ 11701</td>
<td>Right &amp; Left, Spring Return</td>
<td>NNP</td>
</tr>
<tr>
<td>PX CJ 11705</td>
<td>Right or Left, Spring Return</td>
<td>NNP</td>
</tr>
<tr>
<td>PX CJ 12701</td>
<td>Right &amp; Left, Spring Return</td>
<td>NP</td>
</tr>
<tr>
<td>PX CJ 12705</td>
<td>Right or Left, Spring Return</td>
<td>NP</td>
</tr>
</tbody>
</table>

#### Top Plunger & Rotary Operating Heads

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZC 2 JE 61</td>
<td>Top Push</td>
<td>Spring Return</td>
</tr>
<tr>
<td>ZC 2 JE 62</td>
<td>Top Roller Push</td>
<td>Spring Return</td>
</tr>
<tr>
<td>ZC 2 JE 63</td>
<td>Side Push</td>
<td></td>
</tr>
<tr>
<td>ZC 2 JE 70</td>
<td>Cat’s Whisker</td>
<td></td>
</tr>
</tbody>
</table>

#### Rotary Type

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZC 2 JE 01</td>
<td>From Left &amp; Right</td>
<td></td>
</tr>
<tr>
<td>ZC 2 JE 02</td>
<td>Counterclockwise From Right</td>
<td></td>
</tr>
<tr>
<td>ZC 2 JE 03</td>
<td>Clockwise From Left</td>
<td></td>
</tr>
<tr>
<td>ZC 2 JE 05</td>
<td>From Left or Right</td>
<td></td>
</tr>
<tr>
<td>ZC 2 JE 09</td>
<td>Maintained Positions</td>
<td></td>
</tr>
</tbody>
</table>

#### Operating Levers For Rotary Heads

- ZC 2 JE 91: Delrin Roller
- ZC 2 JE 81: Steel Roller
- ZC 2 JY 21: Offset Delrin Roller
- ZC 2 JY 81: Plastic Spring Rod
- ZC 2 JY 91: Metal Spring Rod
- ZC 2 JY 31: Delrin Roller
- ZC 2 JY 41: Offset Delrin Roller
- ZC 2 JY 51: Rod Lever
- ZC 2 JY 71: Single Track, Delrin Roller
- ZC 2 JY 61: Double Track, Delrin Rollers

---

* NNP = Normally Non Passing.
NP = Normally Passing.
## Specifications

### Air Quality
- Standard Shop Air, Lubricated or Dry, 40µm Filtration

### Flow SCFM (NL/min)
- 7.4 (210)

### Materials
- Body: Zinc Alloy
- Poppets: Polyurethane
- Seals: Nitrile (Buna N)

### Nominal Bore Ø
- 1/8" (3 mm)

### Number of Operations with
- Dry Air at 90 PSI (6 bar) and
- 68°F (20°C) – Frequency 1 Hz
- 10 Million

### Minimum Pre-Travel (A)
- .059" (1.5 mm) at 90 PSIG (6 bar)

### Minimum Operating Force
- 3.6 lbf (16N) at 90 PSI (6 bar)

### Nominal Bore Ø
- 1/8" (3 mm)

### Number of Operations with
- Dry Air at 90 PSI (6 bar) and
- 68°F (20°C) – Frequency 1 Hz
- 10 Million

### Maximum Travel (B)
- 228" (5.8 mm) at 90 PSIG (6 bar)

### Minimum Pre-Travel (A)
- .059" (1.5 mm) at 90 PSIG (6 bar)

### Minimum Operating Force
- 3.6 lbf (16N) at 90 PSI (6 bar)

### Minimum Operating Torque
- 7.1 oz in (50Nm) at 90 PSI (6 bar)

### Maximum Angle of Travel
- 75°

### Operating Pressure
- 40 to 115 PSIG (3 to 8 bar)

### Differential Angle
- ---
- 5°
- 5°
- 2°
- 2°

### Differential Travel at 90 PSI (6 bar)
- .008" (0.2 mm)
- ---
- ---
- ---
- ---

### Maximum Travel (B)
- 228" (5.8 mm)
- ---
- ---
- ---
- ---

### Minimum Pre-Travel (A)
- .059" (1.5 mm)
- ---
- ---
- ---
- ---

### Minimum Operating Force
- 3.6 lbf (16N)
- ---
- ---
- ---
- ---

### Minimum Operating Torque
- 7.1 oz in (50Nm)
- 35.4 oz in (250Nm)
- 35.4 oz in (250Nm)
- 35.4 oz in (250Nm)
- ---

### Operating Angle
- (Minimum Lever Travel Including Pre-Travel Required For Operation)
- ---
- 23°
- 23°
- 12°
- 12°

### Operating Diagram

![Operating Diagram](image-url)
Switch Body With Plunger Heads
With ZC2JE61

Switch Body With Rotary Heads and Operating Levers

Rotary Heads With Operating Levers
ZC2JY81
ZC2JY91
ZC2JY41

Pneumatic Switch Bodies
PX CJ117, PX CJ127

Dimensions

Sensing
Heavy Duty Limit Switches – “J” Series

Catalog PCC-3/USA
For Pressure and Vacuum Sensing, see Pressure Switches in Logic Section.

Subbase Mounted, Non-Adjustable
Pressure to Electrical Switch
DIN 43650 Form B Industrial Connector

Subbase Mounted, Adjustable
Pressure to Electrical Switch
Spade Connectors or Formed Cable
Electrical Connection

Stand Alone or DIN Rail Mounted,
Adjustable & Non-Adjustable
Pressure to Electrical Switch
Screw Terminal Connections

Subbase Mounted, Adjustable
Pressure to Pressure Switch

Subbase Mounted, Adjustable
Vacuum to Electrical Switch
Spade Connectors or Formed Cable
Electrical Connection
Application

The threshold sensor provides electrical or pneumatic feedback information on pneumatic cylinder status. These devices monitor the back pressure of the cylinder's exhausting chamber. When the cylinder stops, the back pressure drops and the threshold sensor provides the desired output. Ideal for variable stroke applications. The banjo fitting and the feedback element are two separate subassemblies, giving the user flexibility between electrical, electronic and pneumatic outputs as feedback.

Mounting

Banjo fittings in 10-32 to 1/2" pipe sizes are designed to be installed directly into actuator ports (up to 5" bore cylinders). The banjo fitting can accommodate other functional fittings and components such as right angle flow control valves or blocking valves. Banjo fittings screw into actuators using an Allen wrench or 5/16" hex head wrench for 10-32 size. Electrical or pneumatic feedback element snaps into place using a locking clip.

Operation

Pneumatic sensors have a continuous pressure signal applied to the sensor device. Electrical sensors have a continuous electrical signal applied to the sensor device. The threshold sensor assembly mounted directly into the cylinder port provides an output signal S, which can be pneumatic or electrical, when the falling back pressure in the exhausting chamber of the cylinder reaches the operating threshold (approximately 6-9 PSIG). (The device is a normally passing device. The output is only on when there is nearly zero pressure at the cylinder.)
Catalog PCC-3/USA

Dimensions & Technical Information

Threshold Sensors

Dimensions

![Dimensions Diagram]

<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>H</th>
<th>K</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWSB1557</td>
<td>.98&quot; (25)</td>
<td>.43&quot; (11)</td>
<td>5/16&quot; Hex</td>
<td>.79&quot; (20)</td>
<td>.40&quot; (10)</td>
<td>.67&quot; (17)</td>
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<tr>
<td>PWSB1887</td>
<td>.98&quot; (25)</td>
<td>.63&quot; (16)</td>
<td>3/16&quot; Allen</td>
<td>.71&quot; (18)</td>
<td>.40&quot; (10)</td>
<td>.79&quot; (20)</td>
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<tr>
<td>PWSB1997</td>
<td>.98&quot; (25)</td>
<td>.83&quot; (21)</td>
<td>5/16&quot; Allen</td>
<td>.71&quot; (18)</td>
<td>.40&quot; (10)</td>
<td>.87&quot; (22)</td>
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<tr>
<td>PSWB1337</td>
<td>.98&quot; (25)</td>
<td>1.10&quot; (28)</td>
<td>3/8&quot; Allen</td>
<td>.79&quot; (20)</td>
<td>.47&quot; (12)</td>
<td>.98&quot; (25)</td>
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<tr>
<td>PWSB1227</td>
<td>.98&quot; (25)</td>
<td>1.30&quot; (33)</td>
<td>1/2&quot; Allen</td>
<td>.93&quot; (24)</td>
<td>.55&quot; (14)</td>
<td>1.02&quot; (26)</td>
</tr>
</tbody>
</table>

Specifications

Current Rating (PWSM1012)
- 5 VA, 250 VAC
- 5W, 48 VAC

Materials
- Body: Thermoplastic
- Mounting Screw & Threads: Brass

Maximum Operating Frequency
- 10 Hz

Number of Operations with
- Dry Air at 90 PSI (6 bar) and
- 68°F (20°C) – Frequency 1 Hz
- 10 Million

Operating Pressure
- 0 to 150 PSIG (0 to 10 bar)

Output Flow Rate (PWSP111)
- 3 SCFM at 90 PSIG

Pilot Pressure (PWSP111)
- >64 PSIG (4.4 bar)

Spare Sensor Locking Clip
- PPRWO1 (1 Lot of 50 Pieces)

Temperature
- Operating: 32°F to 122°F (0°C to + 50°C)
- Storage: -22°F to 140°F (-30°C to +60°C)

Threshold Pressure
- 6 to 9 PSIG (.4 to .6 bar)

Voltage Range (PWSM1012)
- 12 - 240 VAC
- 12 - 48 VDC

Operating Assembly and Connection

Electrical output sensor:
- 5/32" instant connection

Electronic output sensor:
- 5/32" instant connection

Universal Description

<table>
<thead>
<tr>
<th>Function</th>
<th>Symbol</th>
<th>Function</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normally Non-Passing (NNP)</td>
<td></td>
<td>Normally Open (N.O.)</td>
<td></td>
</tr>
<tr>
<td>Normally Passsing (NP)</td>
<td></td>
<td>Normally Closed (N.C.)</td>
<td></td>
</tr>
</tbody>
</table>

Fluid Power

2-Way

3-Way
Bleed Sensors

For Use With PRFA12 Relay

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Port</th>
<th>Actuator</th>
</tr>
</thead>
<tbody>
<tr>
<td>PXFA111</td>
<td>5/32&quot; Instant</td>
<td>Touch</td>
</tr>
<tr>
<td>PXFA121</td>
<td>5/32&quot; Instant</td>
<td>Ball Roller</td>
</tr>
<tr>
<td>PXFA131</td>
<td>5/32&quot; Instant</td>
<td>Cat’s Whisker</td>
</tr>
</tbody>
</table>

Bleed Sensor Relay

Complete With PZUA Subbase (5/32" Instant Fittings)

For Use With PXFA Bleed Sensors

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRFA12</td>
<td>Provides a supply to a bleed sensor and generates an output signal when operated.</td>
</tr>
</tbody>
</table>

Application

Bleed sensors make it possible to sense very low actuating forces or small motions in a small space. They are easy to install and connect, as they only require a single tube.

Note: The length of the interconnecting tube must remain short if quick response times are required.

Specifications

Minimum Pre-Travel at 6 bar
PXFA12* ......................................................... .040 (1 mm)

Maximum Travel
PXFA12* ......................................................... .110 (2.8 mm)

Minimum Operating Force at 90 PSI (6 bar)
PXFA12* ........................................................ 11 oz. (3 N)

Minimum Operating Torque at 90 PSI (6 bar)
PXFA13* ............................................ 1.3 in-oz (12.5 mmN) (Center of Operator)

Sensing Distance
PXFA11* ......................................................... Direct
PXFA12* ......................................................... Direct
PXFA13* ......................................................... Direct

Sensing Angle
PXFA13* ............................................................. 10°

For PRFA12 Specifications, see Relays in Section A of this Catalog.

Dimensions
Fluidic Proximity Sensors & Amplifier Relay

**Fluidic Proximity Sensor**
Amplified, 1/8" I.D. Internal Orifice

**Amplifier Relay**

**Operating Principle, Characteristics**
Fluidic Proximity Sensors are used in conjunction with amplifier relays. A low pressure supply, "Px" 1.5 to 3 PSIG (.1 to .2 bar), is connected to Sensor and Relay. A permanent bleed, in an annular pattern, issues from the Sensor, creating a sensitive field. When an object enters this field, it reflects a low pressure signal to the Sensor and, in turn, to the Amplifier Relay. The low pressure signal is then amplified to system level, 40 to 120 PSIG (2.8 to 8.3 bar) and output S appears.

Low Pressure Supply, "Px" minimum pressure, varies as a function of Sensing Distance “D” and Signal Travel Distance “L” from Sensor to Amplifier Relay. The diagram shows these variations. In any case, air consumption is negligible and virtually inaudible.

**Specifications**
Sensing Distance
PXDA111 ......................................... .04 to .20 (1 to 5 mm)

**Mounting Styles**
Two mounting styles are provided on each Sensor. Nose Mount: Nuts are supplied Flush Mount: Two clearance holes are provided in Sensor body.

**Dimensions**

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For Use With PRDA12 Amplifier Relay

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Sensing Distance</th>
<th>Ø Mounting</th>
<th>Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>PXDA111</td>
<td>5/64&quot; to 3/16&quot;</td>
<td>M12 x 2</td>
<td>5/32&quot; (4mm) Instant</td>
</tr>
</tbody>
</table>

**Function**
Fluidic Proximity Sensors are used for non-contact sensing of stationary or moving parts. Certain applications require detection without physical contact, particularly where the object to be detected is fragile or soft. The technique of detection by fluid proximity sensor provides the ideal solution for this need.