## PRESSURE SENSORS

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<td>MPS-71 Sensor, Installation &amp; Service Instructions</td>
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<td>MPS-8 Sensor, Installation &amp; Service Instructions</td>
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</tr>
</tbody>
</table>

Visit [www.pdnplu.com](http://www.pdnplu.com) for additional instruction sheets.
WARNING
To avoid unpredictable system behavior that can cause personal injury and property damage:
• Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
• Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.
• Operate within the manufacturer’s specified pressure, temperature, and other conditions listed in these instructions.
• Medium must be moisture-free if ambient temperature is below freezing.
• Service according to procedures listed in these instructions.
• Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
• After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.
• Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.

Installation
• Avoid short-circuiting the MPS-7 Series. Connect the brown lead to V+ and blue lead to 0V.
• Do not connect the output lead wires (black / white) to the power supply.
• Outputs not being used should be trimmed and insulated.
• Install using Panel Mount Bracket or Back Mount Brackets.

Mounting Bracket Kit (Included Parts)
2 Mounting Brackets
2 Mounting Screws

Introduction
Follow these instructions when installing, operating, or servicing the product.

Cautions
The MPS-7 Central Display is designed to monitor pressure and is not a safety measure to prevent accidents.
The compatibility of the sensor is the responsibility of the designer of the system and specifications.

Operating Environment
• Parker / Convum Sensors have not been investigated for explosion-proof construction in hazardous environments.
• Do not use with flammable gases, liquids, or in hazardous environments.
• Avoid installing the sensor in locations where excessive voltage surges could damage or affect the performance of the sensor.

Operations
• Dedicate a power supply of 10.8 to 30VDC to the MPS-7 Series and set the ripple to Vp-p10% or less. Avoid excessive voltage. Avoid voltage surges.
• A small amount of internal voltage drop is possible. Ensure the power supply minus any internal voltage drop exceeds the operating load.

WARNING
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MPS-71 Series Sensor

Specifications

<table>
<thead>
<tr>
<th>Remote Pressure Range</th>
<th>Vacuum (V)</th>
<th>Positive (P)</th>
<th>Compound (R)</th>
<th>Low (L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units of Measure</td>
<td>bar: 0.001</td>
<td>bar: 0.01</td>
<td>bar: 0.01</td>
<td>bar: 0.001</td>
</tr>
<tr>
<td>Display Resolution</td>
<td>kPa: 0.1</td>
<td>kPa: 0.001</td>
<td>kPa: 1</td>
<td>kPa: 0.1</td>
</tr>
<tr>
<td></td>
<td>mmHg: 1</td>
<td>kgf/cm²: 0.01</td>
<td>kgf/cm²: 0.01</td>
<td>kgf/cm²: 0.001</td>
</tr>
<tr>
<td></td>
<td>inHg: 0.1</td>
<td>PSI: 1</td>
<td>PSI: 0.1</td>
<td>PSI: 0.1</td>
</tr>
</tbody>
</table>

Proof Pressure

Operating Temperature

Storage Temperature

Humidity

Electrical Connection

Power Supply

Display

Display Refresh

Circuit

2 Switch Outputs

Linear Output Mode

Response Time

MPS-71 Open Collector Wiring

Pin #
1 Brown: 24VDC
2 Black: NPN / PNP Open Collector
3 Blue: 0VDC
4 White: NPN / PNP Open Collector

Sensor Male Pin Out

Open Collector with Analog or Reset Input

Grommet Lead Only
Brown: 24VDC
Black: NPN / PNP Open Collector
Blue: 0VDC
White: NPN / PNP Open Collector
Pink: Analog 1 to 5VDC or Reset Input 1 to 5VDC

Output Modes

The MPS-71 is a central display and control for remote MPS-5, 6, 8 analog sensors. Each remote sensor supplies an analog signal to a specific channel on the MPS-71 which is converted to an open connector output "NPN / PNP".

The Switch Output Mode has a switch point programmed by the user at a specified pressure. The Hysteresis Range (h) adjustment controls the output signal 0 to 100% below the Switch Point (H).

The Window Comparator Mode provides two Switchpoint Settings (A) and (b) that control the output signals (NPN / PNP) between two pressures. This is referred to as the "High / Low" setting.

Switch Output

Window Comparator Output
## Error Messages

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Err</em></td>
<td>Zero Reset Error</td>
<td>Reset Zero</td>
</tr>
<tr>
<td><em>PErr</em></td>
<td>Peak Value Error</td>
<td>Check Vacuum Source</td>
</tr>
<tr>
<td><em>Er1</em></td>
<td>System Error (Internal)</td>
<td>Contact Factory</td>
</tr>
<tr>
<td><em>CE1</em></td>
<td>Over current of Output 1</td>
<td></td>
</tr>
<tr>
<td><em>CE2</em></td>
<td>Over current of Output 2</td>
<td>Load current exceeds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>maximum 125mA.</td>
</tr>
<tr>
<td><em>FFF</em></td>
<td>Applied pressure exceeds</td>
<td>Apply pressures with</td>
</tr>
<tr>
<td></td>
<td>pressure range</td>
<td>the rating of the sensor</td>
</tr>
<tr>
<td><em>FF</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Accessories

**MPS-ACCH4**
Panel Mounting Bracket

![Panel Mounting Bracket Diagram]

## Cables

- **CB-M8-4P-2M**
- **CB-M8-4P-5M**
- **CB-M8-4P-2M**
- **CB-M8-4P-5M-90**

## Replacement Kits

**MPS-ACCK1** ........................................... Mounting Bracket Kit
Introduction

Follow these instructions when installing, operating, or servicing the product.

ANSI

Cautions

The MPS-8 Pressure Sensor is designed to monitor pressure and is not a safety measure to prevent accidents. The compatibility of the sensor is the responsibility of the designer of the system and specifications.

Operating Environment

• Parker / Convum Sensors have not been investigated for explosion-proof construction in hazardous environments.
• Do not use with flammable gases, liquids, or in hazardous environments.
• Avoid installing the sensor in locations where excessive voltage surges could damage or affect the performance of the sensor.

Operations

• Dedicate a power supply of 10.8 to 30VDC to the sensor and set the ripple to Vp-p10% or less. Avoid excessive voltage. Avoid voltage surges.
• A small amount of internal voltage drop is possible. Ensure the power supply minus any internal voltage drop exceeds the operating load.
• Verify the operating media is compatible with the specified sensor. Check the chemical make-up, operating temperatures, and maximum pressure ranges of the system before installing.
• Installation of air dryer system is recommended to remove moisture.

Installation

• Never insert an object into the pressure port other than an appropriate fluid connector.
• Avoid short-circuiting the sensor. Connect the brown lead to V+ and blue lead to 0V.
• Do not connect the output lead wires (black / white) to the power supply.
• Outputs not being used should be trimmed and insulated.
• Install using the metal mounting base.

Extra copies of these instructions are available for inclusion in equipment/maintenance manuals that utilize these products. Contact your local representative.
MPS-8 Series Sensor

**Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating Pressure Range</strong></td>
<td>(V) Vacuum (0 to -30 inHg), (R) Compound (-14.7 to 72.5 PSI)</td>
</tr>
<tr>
<td><strong>Media</strong></td>
<td>Air and Non-Corrosive Gases</td>
</tr>
<tr>
<td><strong>Pressure Port</strong></td>
<td>M5 Female, M5 Male Swivel, 4mm Tube Stud</td>
</tr>
<tr>
<td><strong>Proof Pressure</strong></td>
<td><strong>V</strong>: 72.5 PSI, <strong>R</strong>: 116 PSI</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>32 to 122°F (0 to 50°C)</td>
</tr>
<tr>
<td><strong>Storage Temperature</strong></td>
<td>14 to 140°F (-10 to 60°C)</td>
</tr>
<tr>
<td><strong>Humidity</strong></td>
<td>35 to 85% RH</td>
</tr>
<tr>
<td><strong>Electrical Connection</strong></td>
<td><strong>G</strong>: Grommet Open Lead; <strong>GE</strong>: Clip Type for use with MPS-7 Series</td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
<td>10.8 to 30VDC, Ripple Vp-p 10% Max., Reverse Voltage Protection</td>
</tr>
<tr>
<td><strong>Switch Output</strong></td>
<td>1 Output, Normally Open, NPN or PNP Open Collector Transistor, 30VDC, 125mA</td>
</tr>
<tr>
<td><strong>Linear Output</strong></td>
<td>Analog Output 1 to 5VDC</td>
</tr>
<tr>
<td><strong>Switch Point Setting</strong></td>
<td>2/3 Trimmer</td>
</tr>
<tr>
<td><strong>Hysteresis</strong></td>
<td>≤ 2% of F.S. Fixed</td>
</tr>
</tbody>
</table>

**Output Mode**

The MPS-8 Sensor is 10 mm wide with an NPN / PNP open collector switch output or an analog output. The MPS-8 can be used in combination with the MPS-7 series display or as a standalone unit. Analog output is required for use with the MPS-7 display.

**Open Collector Wiring**

Grommet Lead Only
Brown: 24VDC
Blue: 0VDC
Black: NPN / PNP Open Collector

**Switch Output**

![Switch Output Diagram]

**Analog Wiring**

Grommet Lead Only
Brown: 24VDC
Blue: 0VDC
Black: Analog 1 to 5VDC

**Analog Output**

![Analog Output Diagram]
Pneumatic Division
Richland, Michigan 49083

WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
- Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.
- Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.
- Medium must be moisture-free if ambient temperature is below freezing.
- Service according to procedures listed in these instructions.
- Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.
- Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.

Introduction
Follow these instructions when installing, operating, or servicing the product.

ANSI

Cautions
The MPS-9 Pressure Sensor is designed to monitor pressure and is not a safety measure to prevent accidents. The compatibility of the sensor is the responsibility of the designer of the system and specifications.

Operating Environment

- Parker / Convum Sensors have not been investigated for explosion-proof construction in hazardous environments.
- Do not use with flammable gases, liquids, or in hazardous environments.
- Avoid installing the sensor in locations where excessive voltage surges could damage or affect the performance of the sensor.

Operations

- Dedicate a power supply of 10.8 to 30VDC to the sensor and set the ripple to Vp-p10% or less. Avoid excessive voltage. Avoid voltage surges.
- A small amount of internal voltage drop is possible. Ensure the power supply minus any internal voltage drop exceeds the operating load.
- Verify the operating media is compatible with the specified sensor. Check the chemical make-up, operating temperatures, and maximum pressure ranges of the system before installing.
- Installation of air dryer system is recommended to remove moisture.

Installation

- Never insert an object into the pressure port other than an appropriate fluid connector.
- Avoid short-circuiting the sensor. Connect the brown lead to V+ and blue lead to 0V.
- Do not connect the output lead wires (black / white) to the power supply.
- Outputs not being used should be trimmed and insulated.
- Install as shown using the metal mounting bracket.

Failure or improper selection or improper use of the products and/or systems described herein or related items can cause death, personal injury and property damage.

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Specifications

<table>
<thead>
<tr>
<th>Pressure Range</th>
<th>(V) Vacuum</th>
<th>(R) Compound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units of Measure</td>
<td>bar: 0.001</td>
<td>bar: 0.01</td>
</tr>
<tr>
<td></td>
<td>kPa: 0.1</td>
<td>kPa: 1</td>
</tr>
<tr>
<td></td>
<td>mmHg: 1</td>
<td>kgf/cm²: 0.01</td>
</tr>
<tr>
<td></td>
<td>inHg: 0.1</td>
<td>PSI: 0.1</td>
</tr>
</tbody>
</table>

**Media**
Air and Non-Corrosive Gases

**Pressure Port**
M5F

**Proof Pressure**
V: 72.5 PSI, R: 116 PSI

**Operating Temperature**
32 to 122°F (0 to 50°C)

**Storage Temperature**
14 to 140°F (-10 to 60°C)

**Humidity**
35 to 85% RH

**Electrical Connection**
2m Grommet Open Lead

**Power Supply**
10.8 to 30VDC, Ripple Vp-p 10% Max., Reverse Voltage Protection

**Display**
3-Digit, 7-Segment LED

**Display Refresh**
0.2 sec. Fixed

**Output Circuit**
NPN (Sinking) or PNP (Sourcing) Open Collector Transistor, 30VDC, 125mA

**Linear Outputs**
Analog Output 1 to 5VDC

**Switch Outputs**
1 Switch Output, Normally Open, NPN or PNP, LED Indicator

**Output Mode**
Hysteresis: 0 to 100% of Switch Point Comparative: 2 limits selectable over full range

Open Collector and Analog Wiring

Grommet Lead Only
Brown: 24VDC
Blue: 0Vdc
Black: NPN / PNP Open Collector
White: Analog1 to 5VDC

Output Modes

The MPS-9 Sensor with display has one normally open NPN / PNP open collector output and Analog 1 to 5 VDC Output.

The Switch Output Mode has a switch point (H) programmed by the user at a specific pressure. The Hysteresis Range (h) adjustment controls the output signal 0 to 100% below the switch point (H).

Analog Output
Programming

1. Press \( \bullet \) 1x
   Switch Output Setting
   \[ \text{SEL} \]
   \[ \text{Wait 5 Seconds} \]
   \[ \text{End} \]

2. Press \( \bullet \) for 3 Seconds
   Hysteresis Setting
   \[ \text{Wait 5 Seconds} \]
   \[ \text{End} \]

3. Lock
   \[ \text{Unlock} \]

4. Power Supply Off
   Zero Reset

Selecting Units of Measure

- \( \bullet \) When Powering Up

- \( \bullet \) \( \bullet \) \( \bullet \) \( \bullet \)

- \( \bullet \) \( \bullet \) \( \bullet \) \( \bullet \)

- \( \bullet \) \( \bullet \) \( \bullet \) \( \bullet \)

- \( \bullet \) \( \bullet \) \( \bullet \) \( \bullet \)

- \( \bullet \) \( \bullet \) \( \bullet \) \( \bullet \)

- \( \bullet \) \( \bullet \) \( \bullet \) \( \bullet \)

- \( \bullet \) \( \bullet \) \( \bullet \) \( \bullet \)

Error Messages

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>\textit{Err}</td>
<td>Zero Reset Error</td>
<td>Reset Zero Below 3% of F.S.</td>
</tr>
<tr>
<td>\textit{Er1}</td>
<td>System Error (Internal)</td>
<td>Contact Factory</td>
</tr>
<tr>
<td>\textit{CE1}</td>
<td>Over current of Output 1</td>
<td>Load current exceeds</td>
</tr>
<tr>
<td>\textit{FFF}</td>
<td>Applied pressure exceeds</td>
<td>Apply pressures with the rating of the sensor</td>
</tr>
<tr>
<td>\textit{-FF}</td>
<td>pressure range</td>
<td></td>
</tr>
</tbody>
</table>
Introduction
Follow these instructions when installing, operating, or servicing the product.

Cautions
The MPS-74 Pressure Display is designed to display remote pressure and is not a safety measure to prevent accidents.

The compatibility of the display and remote sensor is the responsibility of the designer of the system and specifications.

Operating Environment
- These displays have not been investigated for explosion-proof construction in hazardous environments.
- Do not use with flammable gases, liquids, or in hazardous environments.
- Avoid installing the sensor in locations where excessive voltage surges could damage or affect the performance of the sensor.

Operations
- Dedicate a power supply of 10.8 to 30VDC to the MPS-7 Series and set the ripple to Vp-p10% or less. Avoid excessive voltage. Avoid voltage surges.
- A small amount of internal voltage drop is possible. Ensure the power supply minus any internal voltage drop exceeds the operating load.

Installation
- Avoid short-circuiting the MPS-7 Series. Connect the brown lead to V+ and blue lead to 0V.
- Do not connect the output lead wires (black/white) to the power supply.
- Outputs not being used should be trimmed and insulated.
- Install using Panel Mount Bracket or Back Mount Brackets.

WARNING
To avoid unpredictable system behavior that can cause personal injury and property damage:
- Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
- Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.
- Operate within the manufacturer’s specified pressure, temperature, and other conditions listed in these instructions.
- Medium must be moisture-free if ambient temperature is below freezing.
- Service according to procedures listed in these instructions.
- Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.
- Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.

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<tr>
<th>Remote Pressure Range</th>
<th>Vacuum (V)</th>
<th>Positive (P)</th>
<th>Compound (R)</th>
<th>Low (L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>bar</td>
<td>0.001</td>
<td>bar: 0.01</td>
<td>bar: 0.01</td>
<td>bar: 0.001</td>
</tr>
<tr>
<td>kPa</td>
<td>0.1</td>
<td>kPa: 1</td>
<td>kPa: 1</td>
<td>kPa: 0.1</td>
</tr>
<tr>
<td>mmHg</td>
<td>1</td>
<td>kgf/cm²: 0.01</td>
<td>kgf/cm²: 0.01</td>
<td>kgf/cm²: 0.001</td>
</tr>
<tr>
<td>inHg</td>
<td>0.1</td>
<td>PSI: 1</td>
<td>PSI: 0.1</td>
<td>PSI: 0.1</td>
</tr>
</tbody>
</table>

#### Proof Pressure
See Remote Sensor Specifications

#### Operating Temperature
32 to 122°F (0 to 50°C)

#### Storage Temperature
14 to 140°F (-10 to 60°C)

#### Humidity
35 to 85% RH

#### Electrical Connection
- G: Grommet Open Lead
- C: M8 Connector

#### Power Supply
10.8 to 30VDC, Ripple (P-P) 10% Max., Reverse Voltage Protection

#### Display
4-Digit, 7-Segment LED

#### Display Refresh
0.2 Fixed

#### Circuit
NPN (Sinking), PNP (Sourcing) Open Collector Transistor, 30VDC, 125mA

#### Switch Output
Output Signals, NPN or PNP, LED Indicator

#### Linear Output Mode (71 Series)
Optional Output - Analog 1-5VDC, ± 0.2% Linear Accuracy, 0.5% F.S

#### Response Time
<5ms

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### MPS-74 Open Collector

#### Wiring
**Grommet Lead Only**
- Brown: 24VDC
- Black: NPN / PNP Open Collector
- Blue: 0VDC
- White: NPN / PNP Open Collector
- Pink: NPN / PNP Open Collector
- Orange: NPN / PNP Open Collector

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### Output Modes

The MPS-74 is a central display and control for remote MPS-5, 6, 8 analog sensors. Each remote sensor supplies an analog signal to a specific channel on the MPS-74 which is converted to an open connector output “NPN / PNP”.

The Switch Output Mode has a switch point programmed by the user at a specified pressure. The Hysteresis Range (h) adjustment controls the output signal 0 to 100% below the Switch Point (H).

The Window Comparator Mode provides two Switchpoint Settings (A) and (b) that control the output signals (NPN / PNP) between two pressures. This is referred to as the “High / Low” setting.
MPS-74 Series Sensor

MPS-74 Programming

1. **Output Selection**
   - Normally Open / Normally Closed
   - Press \( \text{on} \) \( \text{off} \)
   - \( \text{ou} \) \( \text{no} \) \( \text{nc} \)
   - \( \text{ou} \) \( \text{no} \) \( \text{nc} \)
   - \( \text{ou} \) \( \text{no} \) \( \text{nc} \)
   - \( \text{ou} \) \( \text{no} \) \( \text{nc} \)
   - \( \text{End} \)

2. **Select Output Mode**
   - Hysteresis or Window Comparator
   - Output Setting
   - Peak Surveillance
   - Repeat Procedure for Each Channel
   - \( \text{ou} \) \( \text{no} \) \( \text{nc} \)
   - \( \text{hys} \) \( \text{on} \) \( \text{off} \)
   - \( \text{hys} \) \( \text{on} \) \( \text{off} \)
   - \( \text{hys} \) \( \text{on} \) \( \text{off} \)
   - End

3. **Select Remote Pressure**
   - SelectUnit of Measure
   - Vacuum
     - \( \text{p} \) \( \text{pa} \) \( \text{br} \) \( \text{af} \) \( \text{ha} \) \( \text{ih} \)
   - Low Pressure
     - \( \text{p} \) \( \text{pa} \) \( \text{br} \) \( \text{af} \) \( \text{ha} \) \( \text{ps} \)
   - Standard Pressure
     - \( \text{p} \) \( \text{pa} \) \( \text{br} \) \( \text{af} \) \( \text{ha} \) \( \text{ps} \)
   - Compound Pressure
     - \( \text{p} \) \( \text{pa} \) \( \text{br} \) \( \text{af} \) \( \text{ha} \) \( \text{ps} \)
   - End

4. **Save Energy Mode**
   - Digital IN Mode
   - \( \text{on} \) \( \text{dch} \)
   - \( \text{on} \) \( \text{dch} \)
   - \( \text{on} \) \( \text{dch} \)
   - End

5. **Press and Hold 3 Seconds**
   - Scan Mode
   - 3 Second Intervals

6. **Hold \( \text{on} \) 1x**
   - Lock
   - Unlock
**Error Messages**

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Err</td>
<td>Zero Reset Error</td>
<td>Reset Zero</td>
</tr>
<tr>
<td>PErr</td>
<td>Peak Value Error</td>
<td>Check Vacuum Source</td>
</tr>
<tr>
<td>E1</td>
<td>System Error (Internal)</td>
<td>Contact Factory</td>
</tr>
<tr>
<td>CE1</td>
<td>Over current of Output 1</td>
<td></td>
</tr>
<tr>
<td>CE2</td>
<td>Over current of Output 2</td>
<td>Load current exceeds maximum 125mA.</td>
</tr>
<tr>
<td>CE3</td>
<td>Over current of Output 3</td>
<td></td>
</tr>
<tr>
<td>CE4</td>
<td>Over current of Output 4</td>
<td></td>
</tr>
<tr>
<td>FFF</td>
<td>Applied pressure exceeds</td>
<td>Apply pressures with the rating of the</td>
</tr>
<tr>
<td>–FF</td>
<td>pressure range</td>
<td>sensor</td>
</tr>
</tbody>
</table>

**Accessories**

**MPS-ACCH5**
Panel Mounting Bracket

**Replacement Kits**

MPS-ACCK3 ............................................ Mounting Bracket Kit
WARNING
To avoid unpredictable system behavior that can cause personal injury and property damage:

- Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
- Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.
- Operate within the manufacturer’s specified pressure, temperature, and other conditions listed in these instructions.
- Medium must be moisture-free if ambient temperature is below freezing.
- Service according to procedures listed in these instructions.
- Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.
- Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.

Introduction
Follow these instructions when installing, operating, or servicing the product.

ANSI

Cautions
The MVS-201 Pressure Sensor is designed to monitor pressure and is not a safety measure to prevent accidents.
The compatibility of the sensor is the responsibility of the designer of the system and specifications.

Operating Environment

- Parker / Convum Sensors have not been investigated for explosion-proof construction in hazardous environments.
- Do not use with flammable gases, liquids, or in hazardous environments.
- Avoid installing the sensor in locations where excessive voltage surges could damage or affect the performance of the sensor.

Operations

- Dedicate a power supply of 10.8 to 30VDC to the sensor and set the ripple to Vp-p10% or less. Avoid excessive voltage. Avoid voltage surges.
- A small amount of internal voltage drop is possible. Ensure the power supply minus any internal voltage drop exceeds the operating load.
- Verify the operating media is compatible with the specified sensor. Check the chemical make-up, operating temperatures, and maximum pressure ranges of the system before installing.
- Installation of air dryer system is recommended to remove moisture.

MVS-201 Assembly

Installation

- Never insert an object into the pressure port other than an appropriate fluid connector.
- Avoid short-circuiting the sensor. Connect the brown lead to V+ and blue lead to 0V.
- Do not connect the output lead wires (black / white) to the power supply.
- Outputs not being used should be trimmed and insulated.

Failure or improper selection or improper use of the products and/or systems described herein or related items can cause death, personal injury and property damage.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application, including consequences of any failure and review the information concerning the product or systems in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.
The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

Extra copies of these instructions are available for inclusion in equipment / maintenance manuals that utilize these products. Contact your local representative.
Specifications

<table>
<thead>
<tr>
<th>Pressure Range</th>
<th>(R) Compound (-14.7 to 72.5 PSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units of Measure</td>
<td>Off: 0, On: 1</td>
</tr>
<tr>
<td>Display Resolution</td>
<td>Off: 0.01, On: 1</td>
</tr>
<tr>
<td>Media</td>
<td>Non-Lubricated Air and Non-Corrosive Gases</td>
</tr>
<tr>
<td>Proof Pressure</td>
<td>116.0 PSI</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>32 to 122°F (0 to 50°C)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>14 to 140°F (-10 to 60°C)</td>
</tr>
<tr>
<td>Humidity</td>
<td>35 to 85% RH</td>
</tr>
<tr>
<td>Electrical Connection</td>
<td>C: 4-Pin, M8 Connector</td>
</tr>
<tr>
<td>Power Supply</td>
<td>10.8 to 30VDC, Ripple Vp-p 10% Max., Reverse Voltage Protection</td>
</tr>
<tr>
<td>Display</td>
<td>3-Digit, 7-Segment LED</td>
</tr>
<tr>
<td>Resolution &amp; Units of Measure</td>
<td>kPa: 1, bar: 0.01, kgf/cm²: 0.01, PSI: 0.1</td>
</tr>
<tr>
<td>Display Frequency</td>
<td>5Hz</td>
</tr>
<tr>
<td>Circuit</td>
<td>NPN (Sinking), PNP (Sourcing) Open Collector Transistor</td>
</tr>
<tr>
<td>Digital Output</td>
<td>Individually Selectable N.O. or N.C., max 125mA, 30V, with Overcurrent Protection</td>
</tr>
<tr>
<td>Mode</td>
<td>OP1, OP2, OP3 Hysteresis: 0 to 100% of Switch Point</td>
</tr>
</tbody>
</table>

Sensor Pin Out

201 M8 Pin #

1 Brown: 24VDC
2 White: Input; NPN (0VDC) / PNP (24VDC)
3 Blue: 0VDC
4 Black: NPN / PNP Open Collector Output

Solenoid Pin #

1 Red: Vacuum Solenoid Valve + V
2 Black: Gnd
3 Red: Break Solenoid Valve + V
4 Black: Gnd

Output Modes

The MVS-201 Series Sensor has one independent NPN or PNP open collector output signal. The Switch Output Mode has a switch point programmed by the user at a specific pressure. The Hysteresis Range \( h \) adjustment controls the output signal 0 to 100% below the Switch Point \( H \).
MVS-201 Series Sensor

Programming

1. Press 1x

   Operating Mode 1

   $op_1 \rightarrow op_2 \rightarrow op_3$

   $bt \rightarrow 200 \rightarrow 999$

   $t_1 \rightarrow 30 \rightarrow 0$

   $t_2 \rightarrow 0 \rightarrow 0$

   End

2. Switch Output

   Operating Mode 2

   $op_2 \rightarrow op_3 \rightarrow op_1$

   $bt \rightarrow 200 \rightarrow 999$

   $t_1 \rightarrow 30 \rightarrow 0$

   $t_2 \rightarrow 0 \rightarrow 0$

   End

3. Outmode

   Operating Mode 3

   $op_3 \rightarrow op_2 \rightarrow op_1$

   $bt \rightarrow 999$

   $t_2 \rightarrow 0$

   End

4. Screen Saver

   Peak Vacuum Level

   Vacuum Level Response Time

   Blow-off Time

   Operation 1: Air Conservation / Timer

   Operation 2: Vacuum Timer Option

   Operation 3: Signal Controlled Vacuum

   Blow-Off Timer

   Controlled Vacuum Signal with Timer

   Blow-Off Activation Timer

   Switch Output Value (H-v)

   Switch Output Hysteresis Value (h-v)

   Blow-off Output Value (H-d)

   Blow-off Output Hysteresis Value (h-d)

   Error Message - Peak Vacuum Level

   Error Message - Vacuum Response Time

   Error Message - Blow-off Time

   Output 1

   Vacuum Valve (Leave NO)

   Blow-off Release Valve (Leave NO)

   Screen Saver Function

   Peak Vacuum Level Recorder (P-v)

   Vacuum Response Time Recorder

   Blow-Off Time Recorder

   Normally Open

   Normally Closed

   Low or High Signal to Vacuum Valve
MVS-201 Series Sensor

Error Messages

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Err</td>
<td>Zero Reset Error</td>
<td>Reset Zero Below 3% of F.S.</td>
</tr>
<tr>
<td>Er1</td>
<td>System Error (Internal)</td>
<td>Contact Factory</td>
</tr>
<tr>
<td>CE1</td>
<td>Over current of Output 1</td>
<td>Load current exceeds</td>
</tr>
<tr>
<td>FFF</td>
<td>Applied pressure exceeds</td>
<td>Apply pressures with pressure range</td>
</tr>
<tr>
<td>−FF</td>
<td>pressure range</td>
<td></td>
</tr>
</tbody>
</table>

Accessories

Cables

MVS-201
(Connects Sensor to Vacuum & Blow-off Release Pilot Valves)

For CVK
CVK-D201G

For MC2
MC2-C201G

For CVR2
CVR2-C201G
Safety Guide For Selecting And Using Pneumatic Division Products And Related Accessories

WARNING:
FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF PNEUMATIC DIVISION PRODUCTS, ASSEMBLIES OR RELATED ITEMS (“PRODUCTS”) CAN CAUSE DEATH, PERSONAL INJURY, AND PROPERTY DAMAGE. POSSIBLE CONSEQUENCES OF FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THESE PRODUCTS INCLUDE BUT ARE NOT LIMITED TO:

- Unintended or mistimed cycling or motion of machine members or failure to cycle
- Work pieces or component parts being thrown off at high speeds.
- Failure of a device to function properly for example, failure to clamp or unclamp an associated item or device.
- Explosion
- Suddenly moving or falling objects.
- Release of toxic or otherwise injurious liquids or gasses.

Before selecting or using any of these Products, it is important that you read and follow the instructions below.

1. GENERAL INSTRUCTIONS

1.1. Scope: This safety guide is designed to cover general guidelines on the installation, use, and maintenance of Pneumatic Division Valves, FRLs (Filters, Pressure Regulators, and Lubricators), Vacuum products and related accessory components.

1.2. Fail-Safe: Valves, FRLs, Vacuum products and their related components can and do fail without warning for many reasons. Design all systems and equipment in a fail-safe mode, so that failure of associated valves, FRLs or Vacuum products will not endanger persons or property.


1.4. Distribution: Provide a copy of this safety guide to each person that is responsible for selection, installation, or use of Valves, FRLs or Vacuum products. Do not select, or use Parker valves, FRLs or vacuum products without thoroughly reading and understanding this safety guide as well as the specific Parker publications for the products considered or selected.

1.5. User Responsibility: Due to the wide variety of operating conditions and applications for valves, FRLs, and vacuum products Parker and its distributors do not represent or warrant that any particular valve, FRL or vacuum product is suitable for any specific end use system. This safety guide does not analyze all technical parameters that must be considered in selecting a product. The user, through its own analysis and testing, is solely responsible for:

- Making the final selection of the appropriate valve, FRL, Vacuum component, or accessory.
- Assuring that all user’s performance, endurance, maintenance, safety, and warning requirements are met and that the application presents no health or safety hazards.
- Complying with all existing warning labels and/or providing all appropriate health and safety warnings on the equipment on which the valves, FRLs or Vacuum products are used; and,
- Assuring compliance with all applicable government and industry standards.

1.6. Safety Devices: Safety devices should not be removed, or defeated.

1.7. Warning Labels: Warning labels should not be removed, painted over or otherwise obscured.

1.8. Additional Questions: Call the appropriate Parker technical service department if you have any questions or require any additional information. See the Parker publication for the product being considered or used, or call 1-800-CPARKER, or go to www.parker.com, for telephone numbers of the appropriate technical service department.

2. PRODUCT SELECTION INSTRUCTIONS

2.1. Flow Rate: The flow rate requirements of a system are frequently the primary consideration when designing any pneumatic system. System components need to be able to provide adequate flow and pressure for the desired application.

2.2. Pressure Rating: Never exceed the rated pressure of a product. Consult product labeling, Pneumatic Division catalogs or the instruction sheets supplied for maximum pressure ratings.

2.3. Temperature Rating: Never exceed the temperature rating of a product. Excessive heat can shorten the life expectancy of a product and result in complete product failure.

2.4. Environment: Many environmental conditions can affect the integrity and suitability of a product for a given application. Pneumatic Division products are designed for use in general purpose industrial applications. If these products are to be used in unusual circumstances such as direct sunlight and/or corrosive or caustic environments, such use can shorten the useful life and lead to premature failure of a product.

2.5. Lubrication and Compressor Carryover: Some modern synthetic oils can and will attack nitrile seals. If there is any possibility of synthetic oils or greases migrating into the pneumatic components check for compatibility with the seal materials used. Consult the factory or product literature for materials of construction.

2.6. Polycarbonate Bowls and Sight Glasses: To avoid potential polycarbonate bowl failures:

- Do not locate polycarbonate bowls or sight glasses in areas where they could be subject to direct sunlight, impact blow, or temperatures outside of the rated range.
- Do not expose or clean polycarbonate bowls with detergents, chlorinated hydro-carbons, keytones, esters or certain alcohols.
- Do not use polycarbonate bowls or sight glasses in air systems where compressors are lubricated with fire resistant fluids such as phosphate ester and di-ester lubricants.
2.7. Chemical Compatibility: For more information on plastic component chemical compatibility see Pneumatic Division technical bulletins Tec-3, Tec-4, and Tec-5.

2.8. Product Rupture: Product rupture can cause death, serious personal injury, and property damage.
   • Do not exceed the maximum primary pressure rating of any pressure regulator or any system component.
   • Consult product labeling or product literature for pressure rating limitations.
   • Do not connect pressure regulators or other Pneumatic Division products to bottled gas cylinders.

3. PRODUCT ASSEMBLY AND INSTALLATION INSTRUCTIONS

3.1. Component Inspection: Prior to assembly or installation a careful examination of the valves, FRLs or vacuum products must be performed. All components must be checked for correct style, size, and catalog number. DO NOT use any component that displays any signs of nonconformance.

3.2. Installation Instructions: Parker published Installation Instructions must be followed for installation of Parker valves, FRLs and vacuum components. These instructions are provided with every Parker valve or FRL sold, or by calling 1-800-CPARKER, or at www.parker.com.

3.3. Air Supply: The air supply or control medium supplied to Valves, FRLs and Vacuum components must be moisture-free if ambient temperature can drop below freezing.

4. VALVE AND FRL MAINTENANCE AND REPLACEMENT INSTRUCTIONS

4.1. Maintenance: Even with proper selection and installation, valve, FRL and vacuum products service life may be significantly reduced without a continuing maintenance program. The severity of the application, risk potential from a component failure, and experience with any known failures in the application or in similar applications should determine the frequency of inspections and the servicing or replacement of Pneumatic Division products so that products are replaced before any failure occurs. A maintenance program must be established and followed by the user and, at minimum, must include instructions 4.2 through 4.10.

4.2. Installation and Service Instructions: Before attempting to service or replace any worn or damaged parts consult the appropriate Service Bulletin for the valve or FRL in question for the appropriate practices to service the unit in question. These Service and Installation Instructions are provided with every Parker valve and FRL sold, or are available by calling 1-800-CPARKER, or by accessing the Parker web site at www.parker.com.


4.4. Visual Inspection: Any of the following conditions requires immediate system shut down and replacement of worn or damaged components:
   • Air leakage: Look and listen to see if there are any signs of visual damage to any of the components in the system. Leakage is an indication of worn or damaged components.
   • Damaged or degraded components: Look to see if there are any visible signs of wear or component degradation.
   • Kinked, crushed, or damaged hoses. Kinked hoses can result in restricted air flow and lead to unpredictable system behavior.
   • Any observed improper system or component function: Immediately shut down the system and correct malfunction.
   • Excessive dirt build-up: Dirt and clutter can mask potentially hazardous situations.

Caution: Leak detection solutions should be rinsed off after use.

4.5. Routine Maintenance Issues:
   • Remove excessive dirt, grime and clutter from work areas.
   • Make sure all required guards and shields are in place.

4.6. Functional Test: Before initiating automatic operation, operate the system manually to make sure all required functions operate properly and safely.

4.7. Service or Replacement Intervals: It is the user’s responsibility to establish appropriate service intervals. Valves, FRLs and vacuum products contain components that age, harden, wear, and otherwise deteriorate over time. Environmental conditions can significantly accelerate this process. Valves, FRLs and vacuum components need to be serviced or replaced on routine intervals. Service intervals need to be established based on:
   • Previous performance experiences.
   • Government and / or industrial standards.
   • When failures could result in unacceptable down time, equipment damage or personal injury risk.

4.8. Servicing or Replacing of any Worn or Damaged Parts: To avoid unpredictable system behavior that can cause death, personal injury and property damage:
   • Follow all government, state and local safety and servicing practices prior to service including but not limited to all OSHA Lockout Tagout procedures (OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – Lockout / Tagout).
   • Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
   • Disconnect air supply and depressurize all air lines connected to system and Pneumatic Division products before installation, service, or conversion.
   • Installation, servicing, and / or conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
   • After installation, servicing, or conversions air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or if the product does not operate properly, do not put product or system into use.
   • Warnings and specifications on the product should not be covered or painted over. If masking is not possible, contact your local representative for replacement labels.

4.9. Putting Serviced System Back into Operation: Follow the guidelines above and all relevant Installation and Maintenance Instructions supplied with the valve FRL or vacuum component to insure proper function of the system.