## Vacuum Sensors
### Installation / Service Instruction Sheets

*Click on bulletin below to view instruction sheet.*

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<th>Issued Date</th>
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<td>MPS-1 Basic, Pressure Sensor</td>
<td>June, 2003</td>
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<td>MPS-2 Versatile, Pressure Sensor</td>
<td>June, 2003</td>
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<td>June, 2003</td>
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<td>June, 2003</td>
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</table>

Pneumatic Division, North America, Richland, MI 269-629-5000
Introduction

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

ANSI

Cautions

The MPS-1 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. Potentiometer for the Switch Point Pressure and Hysteresis Range is sensitive. Excessive force or exceeding the limits of the trimmers may cause damage.

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.

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.
## Specifications

<table>
<thead>
<tr>
<th>Operating Pressure Range</th>
<th>(V) Vacuum (0 to -30 inHg), (L) Low Pressure (0 to 14.7 PSI), (P) Pressure (0 to 145 PSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media</td>
<td>Air and Non-Corrosive Gases</td>
</tr>
<tr>
<td>Pressure Port</td>
<td>N: 1/8&quot; NPT, R: 1/8&quot; BSPT, G: 1/8&quot; BSPP, E: Flange Mount with M5 Female</td>
</tr>
<tr>
<td>Proof Pressure</td>
<td>V: 72.5 PSI, L: 72.5 PSI, P: 217.5 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>4-Pin, M8 Connector with Built-in LED</td>
</tr>
<tr>
<td>Power Supply</td>
<td>10.8 to 30 VDC, Ripple Vp-p 10% Max., Reverse Voltage Protection</td>
</tr>
<tr>
<td>Analog Output</td>
<td>1 to 5 VDC ±0.04, Accuracy Linear 0.5% F.S.</td>
</tr>
<tr>
<td>Switch Output</td>
<td>N.O., Switch Output Mode with Hysteresis Adjustment</td>
</tr>
<tr>
<td>Output Circuit</td>
<td>NPN (Sinking), PNP (Sourcing) Open Collector Transistor 30VAC, 80mA</td>
</tr>
<tr>
<td>Switch Output Setting H</td>
<td>3-Turn Trimmer</td>
</tr>
<tr>
<td>Hysteresis Setting h</td>
<td>3/4-Turn Trimmer (3 to 20% of Switch Output Setting)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sensor Pin Out</th>
<th>Lead Wiring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin #</td>
<td>![Sensor Pin Out Diagram]</td>
</tr>
<tr>
<td>1 Brown: 24VDC</td>
<td>![Lead Wiring Diagram]</td>
</tr>
<tr>
<td>2 White: Analog 1 to 5VDC Output</td>
<td></td>
</tr>
<tr>
<td>3 Blue: 0VDC</td>
<td></td>
</tr>
<tr>
<td>4 Black: NPN / PNP Open Collector Output</td>
<td></td>
</tr>
</tbody>
</table>

### Switch Output

The MPS-1 Series Sensor has two outputs, one open NPN or PNP switch output and one analog output. The Hysteresis Range \( h \) controls the output signal below the Switch Point \( H \). The Pressure Output Signal is a 3 turn trimmer that sets the switch point of the output. The hysteresis adjustment is a 3/4 turn trimmer to control the output signal 3 to 20% below the pressure output signal. The Analog Output is a 1 to 5 VDC signal calibrated to the pressure scale of the sensor.

![Switch Output Setting Diagram]

### Hysteresis Setting

The Hysteresis setting is a 3/4 - turn potentiometer trimmer with a range of 3% to 20% below the switch point \( S \). Rotate the Hysteresis trimmer \( H \) clockwise to increase the Hysteresis range and rotate the trimmer counter clockwise to lower the Hysteresis range \( h \). A separate pressure gauge is necessary to accurately adjust these values.

For best results, set the switch point \( S \) of the output signal before adjusting the hysteresis range. For fine tuning the hysteresis range, re-adjust the switch point \( S \) of the output signal.

### Accessories

<table>
<thead>
<tr>
<th>Cable, 2 Meters Straight</th>
<th>CB-M8-4P-2M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable, 5 Meters Straight</td>
<td>CB-M8-4P-5M</td>
</tr>
<tr>
<td>Cable, 5 Meters 90°</td>
<td>CB-M8-4P-5M-90</td>
</tr>
</tbody>
</table>

### Replacement Kits

<table>
<thead>
<tr>
<th>ACCMPS-1E</th>
<th>Mounting Bracket Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPS-1-IP65</td>
<td>IP65 Kit</td>
</tr>
</tbody>
</table>

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-2 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

• Installation of air dryer system is recommended to remove moisture.

IP65 Kit (Included Parts)

1 Venting Nipple M3
1 Washer M3

DIN Rail Mounting Kit (Accessory Kit)

1 DIN Rail
2 Washer M3
2 Screws M3

WARNING

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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>Operating Pressure Range</th>
<th>(V) Vacuum (0 to -30 inHg)</th>
<th>(R) Compound (-14.7 to +72.5 PSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units of Measure</td>
<td>bar: 0.001</td>
<td>bar: 0.01</td>
</tr>
<tr>
<td>Display Resolution</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>

<table>
<thead>
<tr>
<th>Media</th>
<th>Air and Non-Corrosive Gases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure Port</td>
<td>N: 1/8&quot; NPT, R: 1/8&quot; BSPT, G: 1/8&quot; BSPP, M5: M5 Female</td>
</tr>
<tr>
<td>Proof Pressure</td>
<td>V: 72.5 PSI, R: 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, G: 2m Grommet Open Lead</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>Display Refresh</td>
<td>0.1 to 3.0 sec. (Factory set at 0.1)</td>
</tr>
<tr>
<td>Output Circuit</td>
<td>NPN (Sinking) or PNP (Sourcing) Output, Open Collector Transistor 30VDC, 125mA</td>
</tr>
<tr>
<td>Switch Output</td>
<td>2 Output Signals, NPN or PNP, Normally Open or Closed, LED Indicator</td>
</tr>
<tr>
<td>Output Modes</td>
<td>Hysteresis or Window Comparator</td>
</tr>
</tbody>
</table>

#### Sensor Pin Out

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brown: 24VDC</td>
</tr>
<tr>
<td>2</td>
<td>White: NPN / PNP Open Collector Output</td>
</tr>
<tr>
<td>3</td>
<td>Blue: 0VDC</td>
</tr>
<tr>
<td>4</td>
<td>Black: NPN / PNP Open Collector Output</td>
</tr>
</tbody>
</table>

#### Lead Wiring

![Lead Wiring Diagram]

#### Output Modes

The MPS-2 Series Sensor has two independent NPN or PNP open collector output signals. 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-2 Series Sensor

Programming

1. Hold
   Press \( \text{on} \) \( \times 1 \)
   Output Set Open or Closed Selecting Units of Measure Easy Mode Activation
   
   \[ \text{ou \, i} \rightarrow \text{no} \rightarrow \text{nc} \]
   \[ \text{ou2} \rightarrow \text{no} \rightarrow \text{nc} \]
   \[ \text{PR} \rightarrow \text{bA} \rightarrow \text{HYS} \rightarrow \text{PR} \rightarrow \text{bA} \rightarrow \\text{FG} \rightarrow \text{PS} \]
   \[ \text{ESY} \rightarrow \text{off} \rightarrow \text{on} \]

2. Press \( \text{on} \) \( \times 2 \)
   Output Mode 1 Hysteresis or Window Comparator
   
   \[ \text{ou \, i} \rightarrow \text{HYS} \rightarrow \text{CNP} \rightarrow \text{off} \]
   \[ \text{End} \]

3. Press \( \text{on} \) \( \times 4 \)
   Output Mode 2 Hysteresis or Window Comparator
   
   \[ \text{ou \, i} \rightarrow \text{HYS} \rightarrow \text{CNP} \rightarrow \text{off} \]
   \[ \text{End} \]

4. Press \( \text{on} \) \( \times 1 \)
   Output 1 Setting Hysteresis Mode
   
   \[ \text{H} \rightarrow \text{1} \rightarrow 70 \rightarrow 145 \rightarrow 0 \]
   \[ \text{h \rightarrow 1} \rightarrow 13 \rightarrow 145 \rightarrow 0 \]
   Window Comparator Mode
   Low \[ \text{A} \rightarrow \text{-1} \rightarrow 42 \rightarrow 144 \rightarrow 0 \]
   High \[ \text{b} \rightarrow \text{-1} \rightarrow 71 \rightarrow 145 \rightarrow 0 \]
   \[ \text{End} \]

5. Press \( \text{on} \) \( \times 3 \)
   Output 2 Setting Hysteresis Mode
   
   \[ \text{H} \rightarrow \text{-2} \rightarrow 90 \rightarrow 145 \rightarrow 0 \]
   \[ \text{h} \rightarrow \text{-2} \rightarrow 13 \rightarrow 145 \rightarrow 0 \]
   Window Comparator Mode
   Low \[ \text{A} \rightarrow \text{-2} \rightarrow 85 \rightarrow 144 \rightarrow 0 \]
   High \[ \text{b} \rightarrow \text{-2} \rightarrow 113 \rightarrow 145 \rightarrow 0 \]
   \[ \text{End} \]

6. Press \( \text{on} \) \( \times 5 \)
   Automatic Teach Mode & Auto Surveillance
   
   \[ \text{Release} \rightarrow \text{Vacum Cycle} \rightarrow \text{Release} \rightarrow \text{End} \]

7. Press \( \text{on} \) \( \times 6 \)
   Display Refresh Settings / Output Response Time Interval
   
   \[ \text{dSP} \rightarrow \text{0.1} \rightarrow 30 \rightarrow 0.1 \]
   \[ \text{AuF} \rightarrow \text{1} \rightarrow 16 \rightarrow 64 \rightarrow 5.12 \]
   \[ \text{End} \]

8. Press \( \text{on} \) \( \times 7 \)
   Display Peak Value Bottom Value or Their Difference
   
   \[ \text{Pb} \rightarrow \text{off} \rightarrow \text{on} \]
   \[ \text{Pbd} \rightarrow \text{PE} \rightarrow \text{bo} \rightarrow \text{du} \]
   \[ \text{End} \]

9. Press \( \text{on} \) \( \times 8 \)
   Special Display Features
   
   \[ \text{dSF} \rightarrow \text{off} \rightarrow \text{on} \]
   \[ \text{Fnc} \rightarrow \text{lb} \rightarrow \text{ld} \rightarrow \text{2b} \rightarrow \text{2d} \rightarrow \text{off} \rightarrow \text{Al} \]
   \[ \text{End} \]

10. Hold
    Press \( \text{on} \)
    Lock

11. Press \( \text{on} \) \( \times 1 \)
    Press \( \text{on} \) \( \times 1 \)
    PE Peak Value bo Bottom Value

12. Press \( \text{on} \) for 3 Seconds
    Zero Reset

[Diagrams and illustrations of steps 1 to 12 are shown, including hand gestures and numerical values.]

Zero Reset
## 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>Er2</td>
<td>Auto Teach Mode Error</td>
<td>Restart Function</td>
</tr>
<tr>
<td>CE1</td>
<td>Over current of Output 1</td>
<td>Load current exceeds maximum 125mA.</td>
</tr>
<tr>
<td>CE2</td>
<td>Over current of Output 2</td>
<td></td>
</tr>
<tr>
<td>FFF</td>
<td>Applied pressure exceeds</td>
<td>Apply pressures with the rating of the sensor</td>
</tr>
<tr>
<td>–FF</td>
<td>pressure range</td>
<td></td>
</tr>
</tbody>
</table>

## Accessories

### MPS-ACCK4

**Din Rail**

![Din Rail Diagram](image)

## Cables

### CB-M8-4P-2M

![Cable Diagram](image)

### CB-M8-4P-5M

![Cable Diagram](image)

### CB-M8-4P-5M-90

![Cable Diagram](image)

### CB-M8-4P-M12-2M

![Cable Diagram](image)

### CB-M8-4P-M8-2M

![Cable Diagram](image)

### CB-M8-4P-M8-90

![Cable Diagram](image)

## Replacement Kit

**MPS-2-IP65** ................................................................. IP65 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 MPS-3 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.

- To achieve IP65 rating, connect the o-ring and barb to a normal environment with a 2mm I. D. tube as shown below.

**IP65 Kit (Included)**

1 O-Ring
1 Venting Nipple M3
1 Pipe Plug

**Mounting Bracket Kit (Included)**

2 Mounting Brackets
2 Screws

**WARNING**

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The MPS-3 Series Sensor has two independent NPN or PNP open collector output signals. An analog output is optional. 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 \( (H) \).

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.

The optional Analog Output Signal is calibrated to the pressure scale of the sensor.
**Error Messages**

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<td>Restart Function</td>
</tr>
<tr>
<td>CE1</td>
<td>Over current of Output 1</td>
<td>Load current exceeds maximum 125mA.</td>
</tr>
<tr>
<td>CE2</td>
<td>Over current of Output 2</td>
<td></td>
</tr>
<tr>
<td>FFF</td>
<td>Applied pressure exceeds</td>
<td>Apply pressures with the rating of</td>
</tr>
<tr>
<td>–FF</td>
<td>pressure range</td>
<td>the sensor</td>
</tr>
</tbody>
</table>

**Accessories**

**MPS-ACCH7**
Panel Mounting Bracket

**Cables**

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

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

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

**CB-M8-4P-M12-2M**

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

**Replacement Kits**

MPS-ACCK1 ............................................ Mounting Bracket Kit
MPS-3-IP65 ............................................ IP65 Kit
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• 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.

CAUTION
The MPS-3SS 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.

To achieve IP65 rating, connect the o-ring and barb to a normal environment with a 2mm I.D. tube as shown below.

IP65 Kit (Included Parts)
1 O-Ring
1 Venting Nipple M3

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

WARNING
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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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>Operating Pressure Range</th>
<th>Vacuum (V3F) (0 to 30 inHg)</th>
<th>Positive (P3S) (0 to 145 PSI)</th>
<th>Compound (R3F) (-14.7 to 72.5 PSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units of Measure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display Resolution</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>bar: 0.001</td>
<td>bar: 0.01</td>
<td>bar: 0.01</td>
</tr>
<tr>
<td></td>
<td>kPa: 0.1</td>
<td>kPa: 0.001</td>
<td>kPa: 1</td>
</tr>
<tr>
<td></td>
<td>mmHg: 1</td>
<td>kgf/cm²: 0.01</td>
<td>kgf/cm²: 0.01</td>
</tr>
<tr>
<td></td>
<td>inHg: 0.1</td>
<td>PSI: 1</td>
<td>PSI: 0.1</td>
</tr>
<tr>
<td>Media</td>
<td>Fluids, Non-Corrosive to 316L or 630 SUS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure Port</td>
<td>N: 1/8&quot; NPSF, R: 1/8&quot; BSPT, G: 1/8&quot; BSPP, VC: Semi-Conductor Type Connector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proof Pressure</td>
<td>V3F: 145 PSI, P35: 290 PSI, R3F: 217.5 PSI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>32 to 122°F (0 to 50°C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>14 to 140°F (-10 to 60°C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humidity</td>
<td>35 to 85% RH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical Connection</td>
<td>C: 4-Pin, M8 Connector, G: Grommet Open Lead</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Supply</td>
<td>10.8 to 30VDC, Ripple Vp-p 10% Max., Reverse Voltage Protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display</td>
<td>3-Digit, 7-Segment LED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display Refresh</td>
<td>0.1 to 3.0 sec. (Factory set at 0.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Circuit</td>
<td>NPN (Sinking), PNP (Sourcing) Open Collector Transistor; 30VDC, 125mA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switch Outputs</td>
<td>2 Output Signals, NPN or PNP, Normally Open or Closed, LED Indicator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linear Output</td>
<td>Optional Analog Output 1 to 5VDC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Modes</td>
<td>Hysteresis or Window Comparator</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Sensor Pin Out

**Pin #**

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

#### Lead Wiring

<table>
<thead>
<tr>
<th>Brown</th>
<th>V+</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>NPN / PNP Output</td>
</tr>
<tr>
<td>Blue</td>
<td>0V</td>
</tr>
<tr>
<td>Black</td>
<td>NPN / PNP Output</td>
</tr>
</tbody>
</table>

#### Output Modes

The MPS-3 Stainless Steel Series Sensor has two independent NPN or PNP open collector output signals. An analog output is optional. 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 \((H)\).

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.

The optional Analog Output Signal is calibrated to the pressure scale of the sensor.
MPS-3SS Series Sensor Programming

1. Hold  
   Press  1x
   Output Set Open or Closed Selecting Units of Measure
   Easy Mode Activation

2. Press  2x
   Output Mode 1 Hysteresis or Window Comparator

3. Press  4x
   Output Mode 2 Hysteresis or Window Comparator

4. Press  1x
   Output 1 Switch Point Setting
   Hysteresis Mode

5. Press  3x
   Output 2 Switch Point Setting
   Hysteresis Mode

6. Press  5x
   Automatic Teach Mode & Auto Surveillance

7. Press  6x
   Display Refresh Settings / Output Response Time Interval

8. Press  7x
   Display Peak Value Bottom Value or Their Difference

9. Press  8x
   Special Display Features

10. Press  9x for 3 Seconds
    Zero Reset

11. Press  1x
    Peak Value

12. Press  1x
    Bottom Value
### 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>Er2</td>
<td>Auto Teach Mode Error</td>
<td>Restart Function</td>
</tr>
<tr>
<td>CE1</td>
<td>Over current of Output 1</td>
<td>Load current exceeds maximum 125mA.</td>
</tr>
<tr>
<td>CE2</td>
<td>Over current of Output 2</td>
<td></td>
</tr>
<tr>
<td>FFF</td>
<td>Applied pressure exceeds</td>
<td>Apply pressures with pressure range</td>
</tr>
<tr>
<td>–FF</td>
<td>Correspond to input voltage</td>
<td></td>
</tr>
</tbody>
</table>

### Accessories

**MPS-ACCH1**  
Panel Mounting Bracket

### Cables

- **CB-M8-4P-2M**
  
  ![CB-M8-4P-2M Diagram](image)

- **CB-M8-4P-5M**
  
  ![CB-M8-4P-5M Diagram](image)

- **CB-M8-4P-5M-90**
  
  ![CB-M8-4P-5M-90 Diagram](image)

- **CB-M8-4P-M12-2M**
  
  ![CB-M8-4P-M12-2M Diagram](image)

- **CB-M8-4P-M8-2M**
  
  ![CB-M8-4P-M8-2M Diagram](image)

### Replacement Kits

- MPS-ACCK1 ............................................ Mounting Bracket Kit
- MPS-4-IP65 .............................................. IP65 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 MPS-31 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.

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 OV.
• 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.

Mounting Bracket Kit (Included Parts)
2 Mounting Brackets

WARNING
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#### Output Modes

The MPS-31 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 \((H)\).

---

#### Sensor Pin Out

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Lead</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brown</td>
<td>24VDC</td>
</tr>
<tr>
<td>2</td>
<td>White</td>
<td>Not Used</td>
</tr>
<tr>
<td>3</td>
<td>Blue</td>
<td>0VDC</td>
</tr>
<tr>
<td>4</td>
<td>Black</td>
<td>NPN / PNP Open Collector Output</td>
</tr>
</tbody>
</table>

#### Sensor Pin Out with Analog Output

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Lead</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brown</td>
<td>24VDC</td>
</tr>
<tr>
<td>2</td>
<td>White</td>
<td>4 to 20mA</td>
</tr>
<tr>
<td>3</td>
<td>Blue</td>
<td>0VDC</td>
</tr>
<tr>
<td>4</td>
<td>Black</td>
<td>NPN / PNP Open Collector Output</td>
</tr>
</tbody>
</table>

---

#### Media

- Air and Non-Corrosive Gases

#### Pressure Port

- N: 1/8" NPSF
- R: 1/8" BSPT
- G: 1/8" BSPP

#### Proof Pressure

- V: 145 PSI
- P: 217.5 PSI
- R: 145 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

#### Display

- 3-Digit, 7-Segment LED

#### Display Refresh

- 0.1 to 3.0 sec. (Factory set at 0.1)

#### Output Circuit

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

#### Output Modes

- Hysteresis or Window Comparator

#### Output Response Time

- < 2ms, 32, 256, 512ms Programmable (Factory set 2ms)

#### Repeatability

- ±0.2% F.S.

#### Analog Output

- Output Current: 4 to 20mA
- Linearity: ±0.5% F.S. or less
- Maximum Load Impedance: 300Ω with power supply voltage of 12V; 600Ω with power supply voltage of 12V; Minimum Load Impedance: 50Ω

#### Thermal Error

- 1% over ±25°C (77°C) Temperature Change (Range 32 to 122°F (0 to 50°C)

#### General Protection

- IP40, CE Marked, EMC-EN55011 Class B, EN 50082-2

#### Current Consumption

- < 70mA

#### Vibration Resistance

- 10 to 55Hz, 1.5mm, XYZ, 2 hrs.

#### Shock Resistance

- 10 G, XYZ

#### Material

- Housing: Polycarbonate
- Pressure Port: Zinc Die-cast

#### Mass

- 1.7 oz. (45g)
MPS-31 Series Sensor
CVM-105P

Programming

1. Press \( \text{ } \) for 3 Seconds
   - Begin Programming
   - Press \( \text{ } \) 1x to Proceed
   - Wait 3 Seconds
   - Display
   - Operating
   - Output Mode
   - Output Normally
   - Open or Closed
   - Select Units
   - of Measure
   - Switch Output Setting and Low Setting
   - Hysteresis Mode
   - Window Comparator Mode
   - Low
   - Wait 5 Seconds

2. Press \( \text{ } \) 1x
   - Switch Output Setting and Low Setting
   - \( \text{ } \) Will Display for 1 Second
   - Hysteresis Mode
   - \( \text{ } \) 145
   - Window Comparator Mode
   - \( \text{ } \) 144
   - Wait 5 Seconds

3. Press \( \text{ } \) 1x
   - Hysteresis Setting and High Setting
   - \( \text{ } \) Will Display for 1 Second
   - Hysteresis Mode
   - \( \text{ } \) 145
   - Window Comparator Mode
   - \( \text{ } \) 145
   - Wait 5 Seconds

4. Hold \( \text{ } \)
   - Press \( \text{ } \) 1x
   - Lock
   - Unlock

5. Press \( \text{ } \)
   - Zero Reset
   - Press \( \text{ } \) for 3 Sec.
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 the rating of the sensor</td>
</tr>
<tr>
<td>–FF</td>
<td>pressure range</td>
<td></td>
</tr>
</tbody>
</table>

Accessories

MPS-ACCH7
Panel Mounting Bracket

Cables

CB-M8-4P-2M, Female to Open Lead

CB-M8-4P-M8-2M, Female to M8 Male

CB-M8-4P-M8-5M, Female to M8 Male

CB-M8-4P-M8-5M-90, Female to Open Lead

Pin Out Connection
Female Interface 4-Pin, M8
Male Interface 4-Pin, M8
Male Interface 4-Pin, M12

Cable Pin | Color
---|---
1 | Brown
2 | White
3 | Blue
4 | Black

Replacement Kit
MPS-ACCK1 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 MPS-4 Differential 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
• Installation of air dryer system is recommended to remove moisture.

Installation & Service Instructions
CVM-106P
MPS-4 Series Sensor
ISSUED: June, 2003
Supersedes: July, 2002
Doc.# CVM-106P, ECN030385, Rev. 2

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

WARNING
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MPS-4 Series Sensor

Specifications

<table>
<thead>
<tr>
<th>Operating Pressure Range</th>
<th>Vacuum (V)</th>
<th>Compound (D)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0 to 29.8 inHg)</td>
<td>(-8 to +8 inH₂O)</td>
</tr>
<tr>
<td>Units of Measure</td>
<td>inH₂O: 0.1</td>
<td>inH₂O: 0.1</td>
</tr>
<tr>
<td>Display Resolution</td>
<td>kPa: 0.01</td>
<td>kPa: 0.01</td>
</tr>
<tr>
<td></td>
<td>mmHg: 1</td>
<td>mmHg: 1</td>
</tr>
<tr>
<td></td>
<td>inHg: 0.1</td>
<td>inHg: 0.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Media</th>
<th>Air and Non-Corrosive Gases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure Port</td>
<td>M5 Female (2 qty.)</td>
</tr>
<tr>
<td>Proof Pressure</td>
<td>V: 29 PSI, D: 3.9 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, G: Grommet Open Lead</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>Display Refresh</td>
<td>.1 to 3.0 sec. (Factory set at 0.1)</td>
</tr>
<tr>
<td>Output Circuit</td>
<td>NPN (Sinking), PNP (Sourcing) Open Collector Transistor, 30VDC, 125mA</td>
</tr>
<tr>
<td>Switch Outputs</td>
<td>2 Output Signals, Normally Open or Closed, LED Indicator</td>
</tr>
<tr>
<td>Output Modes</td>
<td>Hysteresis or Window Comparator</td>
</tr>
</tbody>
</table>

Sensor Pin Out

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

Lead Wiring

Sensor Pin Out with Analog Output

Pin #
1 Brown: 24VDC
2 White: Analog 1 to 5VDC Output
3 Blue: 0VDC
4 Black: NPN / PNP Open Collector Output

Lead Wiring

Output Modes

The MPS-4 Differential Pressure Sensor monitors pressure in applications where small changes in pressure are critical. The MPS-4 has two independent NPN or PNP open collector output signals. 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 \( H \) settings which are programmed on the sensor by the user.

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.

The optional Analog Output Signal is calibrated to the pressure scale of the sensor.

Switch Output

Window Comparator Output
Programming

1. Hold  Press 1x
   Output Set Open or Closed Selecting Units of Measure

2. Press 2x
   Output Mode 1 Hysteresis or Window Comparator

3. Press 4x
   Output Mode 2 Hysteresis or Window Comparator

4. Press 1x
   Output 1 Switch Point Setting
   Hysteresis Mode

5. Press 3x
   Output 2 Switch Point Setting
   Hysteresis Mode

6. Lock
   Unlock
   Zero
   Reset

7. Press 6x
   Display Refresh Settings / Output Response Time Interval

8. Press 7x
   Display Peak Value Bottom Value or Their Difference

9. Hold Press 1x
   Hold Press 1x
   Hold Press 1x
   Hold Press 1x
   Port Reference Selection

10. Hold Press 1x
11. Hold for 3 Seconds
    Zero Reset

12. Hold
    Lock
13. Unlock

14. A Port
15. B Port

16. Hold Press 1x
    Peak Value
    Bottom Value

17. Hold Press 1x

18. Holding

19. Display Peak Value
20. Bottom Value
21. Hold for 3 Seconds

22. Window Comparator Mode
    Low
    High

23. Hysteresis Mode
    Low
    High

24. Window Comparator Mode
    Low
    High

25. Hysteresis Mode
    Low
    High

26. Low
    Low

27. High
    High

28. Set
    Open
    Closed

29. Selecting

30. Units of Measure

31. Display Refresh

32. Interval

33. Setting

34. Switch Point

35. Press

36. Selection

37. Settings

38. Response

39. Time

40. Interval

41. Difference

42. Their

43. Comparator

44. Comparator

45. Mode

46. Mode

47. Mode

48. Mode

49. Mode

50. Mode

51. Mode

52. Mode

53. Mode

54. Mode

55. Mode

56. Mode

57. Mode

58. Mode

59. Mode

60. Mode

61. Mode

62. Mode

63. Mode

64. Mode
**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>CE2</td>
<td>Over current of Output 2</td>
<td>maximum 125mA.</td>
</tr>
<tr>
<td>FFF</td>
<td>Applied pressure exceeds</td>
<td>Apply pressures with</td>
</tr>
<tr>
<td>−FF</td>
<td>pressure range</td>
<td>the rating of the sensor</td>
</tr>
</tbody>
</table>

**Accessories**

**MPS-ACCH1**
Panel Mounting Bracket

**Cables**

- **CB-M8-4P-2M**
- **CB-M8-4P-5M**
- **CB-M8-4P-5M-90**
- **CB-M8-4P-M12-2M**
- **CB-M8-4P-M8-2M**

**Replacement Kits**

MPS-ACCK1 ............................................ 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 MPS-5 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

• 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.
• To achieve IP65 rating, connect the o-ring and barb to a normal environment with a 2mm I. D. tube.

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>Operating Pressure</th>
<th>(V) Vacuum (0 to 30 inHg), (P) Pressure (0 to 145 PSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media</td>
<td>Liquids and Gases Non-Corrosive to 316SS</td>
</tr>
<tr>
<td>Pressure Port</td>
<td>R: 1/4” Male BSPT, N: 1/4” Male NPT with M5 Female</td>
</tr>
<tr>
<td>Proof Pressure</td>
<td>V: 145 PSI, P: 290 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, G: Grommet Open Lead, GE: Clip Type for use with MPS-7</td>
</tr>
<tr>
<td>Power Supply</td>
<td>10.8 to 30VDC, Ripple Vp-p 10% Max., Reverse Voltage Protection</td>
</tr>
<tr>
<td>Linear Output</td>
<td>Analog Output 1 to 5VDC</td>
</tr>
</tbody>
</table>

Sensor Pin Out

Pin #
1 Brown: 24VDC
2 Black: Analog 1-5VDC
3 Blue: 0VDC
4 Not Used

Lead Wiring

Output Modes

The MPS-5 Series Transducer is constructed of 316L or 630 SUS with Analog output capabilities. The sensor can be used as a standalone unit or in combination with the MPS-7 Sensor Display. The analog output is 1 to 5VDC (± 0.04) with accuracy linear 0.5% F.S.

Accessories

Cables

[Images of sensor pins and lead wiring diagrams]
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-6 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
- Installation of air dryer system is recommended to remove moisture.

Installation & Service Instructions
CVM-108P
MPS-6 Series Sensor
ISSUED: June, 2003
Supersedes: July, 2002
Doc.# CVM-108P, ECN030385, Rev. 2

1/8 Inch Male
C:4-Pin, M8

1/8 Inch Male
G: Grommet (2m)

1/8 Inch Male
T: 6mm Tube Connector
G: Grommet (2m)
GE: (2m) Grommet Clip Conn.

Extra copies of these instructions are available for inclusion in equipment / maintenance manuals that utilize these products. Contact your local representative.
The MPS-6 Series Sensor is compact and lightweight with NPN or PNP open connector switch output or analog output capabilities. The sensor can be used as a stand alone unit or in combination with the MPS-7 series display. The MPS-6 Switch Output unit provides one open and closed output for the same switch point. The MPS-6 Analog Output unit provides analog output 1 to 5 VDC. Analog output is required for use with the MPS-7 display.

### Output Modes

The MPS-6 Series Sensor is compact and lightweight with NPN or PNP open connector switch output or analog output capabilities. The sensor can be used as a stand alone unit or in combination with the MPS-7 series display. The MPS-6 Switch Output unit provides one open and closed output for the same switch point. The MPS-6 Analog Output unit provides analog output 1 to 5 VDC. Analog output is required for use with the MPS-7 display.

### Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Pressure Range</td>
<td>(V) Vacuum (0 to -30 inHg), (P) Pressure (0 to 145 PSI)</td>
</tr>
<tr>
<td>Media</td>
<td>Air and Non-Corrosives Gases</td>
</tr>
<tr>
<td>Pressure Port</td>
<td>N: 1/8” NPT Male, R: 1/8” BSPT Male, G: 1/8” BSPP Male, T: 6mm Tube Stud</td>
</tr>
<tr>
<td>Proof Pressure</td>
<td>V: 72.5 PSI, P: 217.5 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></td>
<td>G: Grommet Lead</td>
</tr>
<tr>
<td></td>
<td>GE: Clip Type for use with MPS-7 Display</td>
</tr>
<tr>
<td>Power Supply</td>
<td>10.8 to 30 VDC, Ripple Vp-p 10% max., Reverse Voltage Protection</td>
</tr>
<tr>
<td>Switch Output</td>
<td>1 Output Signal Open and Closed, NPN or PNP, 30VDC, 125mA</td>
</tr>
<tr>
<td>Linear Output</td>
<td>Analog Output 1 to 5 VDC</td>
</tr>
<tr>
<td>Switch Point Setting</td>
<td>2/3 Turn Trimmer</td>
</tr>
<tr>
<td>Hysteresis Setting</td>
<td>≤ 2% of F.S.</td>
</tr>
</tbody>
</table>

### Sensor Pin Out

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brown: 24VDC</td>
</tr>
<tr>
<td>2</td>
<td>White: NPN / PNP Open Collector Output</td>
</tr>
<tr>
<td>3</td>
<td>Blue: 0VDC</td>
</tr>
<tr>
<td>4</td>
<td>Black: NPN / PNP Open Collector Output</td>
</tr>
</tbody>
</table>

### Sensor Pin Out with Analog Output

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brown: 24VDC</td>
</tr>
<tr>
<td>2</td>
<td>White: LED In 5VDC</td>
</tr>
<tr>
<td>3</td>
<td>Blue: 0VDC</td>
</tr>
<tr>
<td>4</td>
<td>Black: Analog 1 to 5VDC</td>
</tr>
</tbody>
</table>

### Accessories

#### Cables

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

#### Housing

- AMP 171822-5
- AMP 170204-15

#### Switch Point Trimmer

Rotate the potentiometer trimmer to increase or decrease pressure switch point output. Excessive force or exceeding the limits of the trimmers may cause damage.
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.

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.

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
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>bar:</td>
<td>0.001</td>
<td>0.01</td>
<td>0.01</td>
<td>0.001</td>
</tr>
<tr>
<td>kPa:</td>
<td>0.1</td>
<td>0.001</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>mmHg:</td>
<td>1</td>
<td>0.01</td>
<td>0.01</td>
<td>0.001</td>
</tr>
<tr>
<td>inHg:</td>
<td>0.1</td>
<td>PSI:</td>
<td>1</td>
<td>PSI:</td>
</tr>
</tbody>
</table>

| Proof Pressure         | See Remote Sensor Specifications for MPS-5, MPS-6 or MPS-8 Series |
| 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                | 3-Digit, 7-Segment LED |
| Display Refresh        | 0.1 to 3.0 sec. (Factory set at 0.1) |
| Circuit                | NPN (Sinking), PNP (Sourcing) Open Collector Transistor, 30VDC, 125mA |
| 2 Switch Outputs       | Output Signals, NPN or PNP, LED Indicator |
| Linear Output Mode     | Optional Output - Analog 1-5VDC, ± 0.2% Linear Accuracy, 0.5% F.S |
| Response Time          | <2ms |

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

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.

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
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>Er1</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>FFF</td>
<td>Applied pressure exceeds</td>
<td>Apply pressures with the rating of the sensor</td>
</tr>
<tr>
<td>–FF</td>
<td>pressure range</td>
<td></td>
</tr>
</tbody>
</table>

Accessories

MPS-ACCH4
Panel Mounting Bracket

Cables

CB-M8-4P-2M

CB-M8-4P-5M

CB-M8-4P-M12-2M

CB-M8-4P-M8-2M

CB-M8-4P-5M-90

Replacement Kits

MPS-ACCK1 ............................................ 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 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 OV.
• 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.
**Specifications**

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Output Mode</strong></td>
<td>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 stand alone unit. Analog output is required for use with the MPS-7 display.</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>

**Open Collector Wiring**

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

![Open Collector Wiring Diagram](image)

**Analog Wiring**

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

![Analog Wiring Diagram](image)

**Analog Output**

![Analog Output Diagram](image)
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, 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.
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).

### Open Collector and Analog Wiring

Grommet Lead Only
- Brown: 24VDC
- Blue: 0VDC
- Black: NPN / PNP Open Collector
- White: Analog 1 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).

### 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>Display Resolution</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>

<table>
<thead>
<tr>
<th>Media</th>
<th>Air and Non-Corrosive Gases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure Port</td>
<td>M5F</td>
</tr>
<tr>
<td>Proof Pressure</td>
<td>V: 72.5 PSI, R: 116 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>2m Grommet Open Lead</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>Display Refresh</td>
<td>0.2 sec. Fixed</td>
</tr>
<tr>
<td>Output Circuit</td>
<td>NPN (Sinking) or PNP (Sourcing) Open Collector Transistor, 30VDC, 125mA</td>
</tr>
<tr>
<td>Linear Outputs</td>
<td>Analog Output 1 to 5VDC</td>
</tr>
<tr>
<td>Switch Outputs</td>
<td>1 Switch Output, Normally Open, NPN or PNP, LED Indicator</td>
</tr>
<tr>
<td>Output Mode</td>
<td>Hysteresis: 0 to 100% of Switch Point Comparative: 2 limits selectable over full range</td>
</tr>
</tbody>
</table>

### Open Collector and Analog Wiring Diagram

- Brown: V+ 24VDC
- White: Analog 1 to 5VDC
- Blue: 0VDC
- Black: NPN / PNP Output

### Analog Output Diagram

- Output (Volts) vs Pressure
- Max. Rating

### Switch Output Diagram

- Switch Output On/Off
- Hysteresis Range
  - Off: -30 in Hg
Programming

1. Press \( \times 1 \) \( \text{SET} \) \( \text{Switch Output Setting} \)
   
   \( \text{SET} \) Will Display for 1 Second
   
   \( \text{H-1} \rightarrow -135 \rightarrow -30 \rightarrow 0 \)
   
   Wait 5 Seconds
   
   \( \text{End} \)

2. Press \( \times 3 \) \( \text{Hysteresis Setting} \)
   
   \( \text{---} \) Will Display for 1 Second
   
   \( \text{H-1} \rightarrow -20 \rightarrow -30 \rightarrow 0 \)
   
   Wait 5 Seconds
   
   \( \text{End} \)

3. \( \text{Loc} \) \( \text{Lock} \)
   
   \( \downarrow \uparrow \)
   
   \( \text{UnC} \) \( \text{Unlock} \)

4. Press \( \times 3 \) \( \text{Zero Reset} \)
   
   \( \text{---} \) \( \text{Zero} \)

5. Power Supply Off
   
   Press \( \bullet \) When Powering Up
   
   \( \text{Press} \) for 3 Seconds
   
   \( \text{Selecting Units of Measure} \)
   
   Will Display for 1 Second

   \( \text{Negative Pressure} \)
   
   \( -\text{kPa} \)
   
   \( -\text{bar} \)
   
   \( -\text{mmHg} \)
   
   \( -\text{inchHg} \)

   \( \text{Compound Pressure} \)
   
   \( \text{PR} \) \( \text{kPa} \)
   
   \( \text{bAr} \) \( \text{bar} \)
   
   \( \text{Fg} \) \( \text{kfg/cm}^2 \)
   
   \( \text{PSI} \)

Error Messages

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

Mounting Bracket Kit (Included Parts)

- 2 Mounting Brackets
- 2 Mounting Screws

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.

WARNING

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.
### 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

#### 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. Hold and Press 1x
   Output Selection
   Normally Open / Normally Closed

2. Press 1x
   Select Output Mode
   Hysteresis or Window Comparator
   Output Setting
   Peak Surveillance
   (Repeat Procedure for Each Channel)

3. Press 2x
   Select Remote Pressure
   Select Unit of Measure

4. Press 3x
   Save Energy Mode
   Digital IN Mode

5. Press and Hold 3 Seconds
   Scan Mode

6. Hold and Press 1x
   Hold and Press 1x
   Lock
   Unlock

---

Select Remote Pressure
Select Unit of Measure

Vacuum
Low Pressure
Standard Pressure
Compound Pressure

Press
Hold
Press
Press
Press
Press
Press
Press

Hold
Lock
Unlock

Press
Hold
Scan

3 Second Intervals
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>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 maximum 125mA.</td>
</tr>
<tr>
<td>CE2</td>
<td>Over current of Output 2</td>
<td></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.

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.

MVS-201 Assembly

MC2 Generator

CVR-2 Generator

CVK Generator

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### Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure Range (R) Compound</td>
<td>(-14.7 to 72.5 PSI)</td>
</tr>
<tr>
<td>Units of Measure</td>
<td></td>
</tr>
<tr>
<td>Display Resolution</td>
<td></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 <strong>Hysteresis</strong>: 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**

**CVM-115P**

**Programming**

---

1. Press 1x

   - **Operating Mode 1**
     - Press 1x
     - **Op1**
     - **Op2**
     - **Op3**
     - **bt**
     - **tl**
     - **t2**
     - **End**

2. Switch Output

   - **H-u**
   - **H-d**
   - **End**

3. Outmode

   - **Open or Closed**

4. Screen Saver

   - **Peak Vacuum Level**
   - **Vacuum Level Response Time**
   - **Blow-off Time**

---

- **Op1**  
  Operation 1: Air Conservation / Timer

- **Op2**  
  Operation 2: Vacuum Timer Option

- **Op3**  
  Operation 3: Signal Controlled Vacuum

- **bt**  
  Blow-Off Timer

- **tl**  
  Controlled Vacuum Signal with Timer

- **t2**  
  Blow-Off Activation Timer

- **H-u**  
  Switch Output Value (H-v)

- **hu**  
  Switch Output Hysteresis Value (h-v)

- **H-d**  
  Blow-off Output Value (H-d)

- **hd**  
  Blow-off Output Hysteresis Value (h-d)

- **Ed9**  
  Error Message - Peak Vacuum Level

- **Rd**  
  Error Message - Blow-off Time

- **Rl1**  
  Error Message - Vacuum Response Time

- **Rl2**  
  Error Message - Peak Vacuum Level

- **Rl3**  
  Error Message - Vacuum Response Time

- **Ou1**  
  Output 1

- **Ou2**  
  Vacuum Valve (Leave NO)

- **Oud**  
  Blow-off Release Valve (Leave NO)

- **Ps**  
  Screen Saver Function

- **P-v**  
  Peak Vacuum Level Recorder (P-v)

- **Rl**  
  Vacuum Response Time Recorder

- **dt**  
  Blow-Off Time Recorder

- **Lo**  
  Normally Open

- **Lc**  
  Normally Closed

- **Ed9**  
  Low or High Signal to Vacuum Valve

---

3
## 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</td>
</tr>
<tr>
<td></td>
<td>pressure range</td>
<td>the rating of the sensor</td>
</tr>
</tbody>
</table>

## Accessories

### Cables

- CB-M8-4P-2M
- CB-M8-4P-5M
- CB-M8-4P-5M-90
- CB-M8-4P-M12-2M
- CB-M8-4P-M8-2M

## MVS-201

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

### For CVK

- CVK-D201G

### For MC2

- MC2-C201G

### For CVR2

- CVR2-C201G