



Pneumatic Division
Richland, Michigan 49083

Installation & Service Instructions
CVM105P

MPS-31 Series Sensor

ISSUED: October, 2004

Supersedes: April, 2004

Doc.# CVM-105P, ECN041016, Rev. 4

WARNING

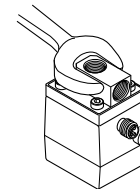
To avoid unpredictable system behavior that can cause personal injury and property damage:

- 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.

- 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

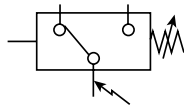
- Never insert an object into the pressure port other than an appropriate fluid connector.
- Avoid short-circuiting the sensor. Connect the brown lead to V+ and blue lead to 0V.
- Do not connect the output lead wires (black / white) to the power supply.
- Outputs not being used should be trimmed and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



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

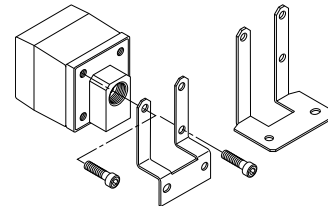
- Parker / Convum Sensors have not been investigated for explosion-proof construction in hazardous environments.
- Do not use with flammable gases, liquids, or in hazardous environments.
- Avoid installing the sensor in locations where excessive voltage surges could damage or affect the performance of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

Mounting Bracket Kit (Included Parts)

2 Mounting Brackets



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.

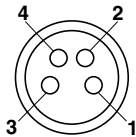
Specifications

Pressure Range	Vacuum (V)	Positive (P)	Compound (R)
Units of Measure	bar: 0.001	bar: 0.01	bar: 0.01
Display Resolution	kPa: 0.1	MPa: 0.001	kPa: 1
	mmHg: 1	kgf/cm ² : 0.01	kgf/cm ² : 0.01
	inHg: 0.1	PSI: 1	PSI: 0.1
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		
Electrical Connection	C: 4-Pin, M8 Connector, G: Grommet Open Lead		
Power Supply	10.8 to 26.4VDC, Ripple Vp-p 10% Max., Reverse Voltage Protection		
Display	3-Digit, 7-Segment LED		
Display Refresh	.1 to 3.0 sec. (Factory set at 0.1)		
Output Circuit	NPN (Sinking), PNP (Sourcing) Open Collector Transistor, 30VDC, 125mA		
Switch Output	Output Signal, NPN or PNP, Normally Open or Closed, LED Indicator		
Output Modes	Hysteresis or Window Comparator		
Output Response Time	< 2ms, 32, 256, 512ms Programmable (Factory set 2ms)		
Repeatability	± 0.2% F.S.		
Analog Output	Current 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)		

Sensor Pin Out

Pin

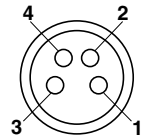
- 1 Brown: 24VDC
- 2 White: Not Used
- 3 Blue: 0VDC
- 4 Black: NPN / PNP Open Collector Output



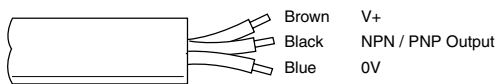
Sensor Pin Out with Analog Output

Pin

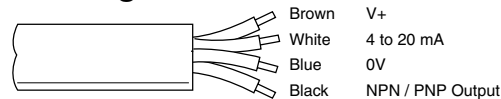
- 1 Brown: 24VDC
- 2 White: 4 to 20mA
- 3 Blue: 0VDC
- 4 Black: NPN / PNP Open Collector Output



Lead Wiring



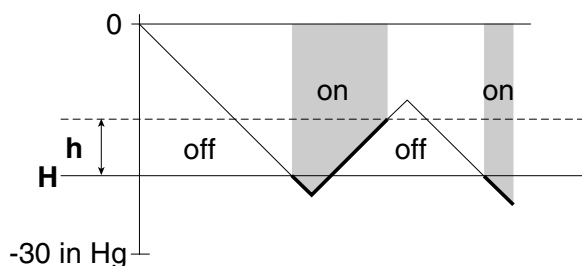
Lead Wiring



Output Modes

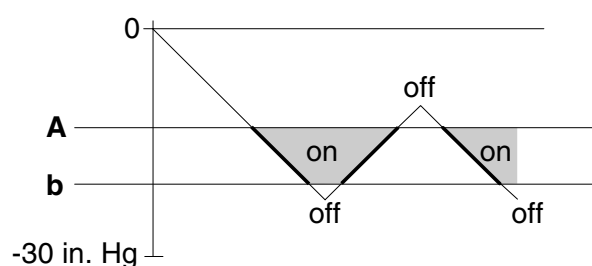
The MPS-31 Series Sensor has one independent NPN or PNP open collector output signal. The Switch Output Mode has a switch point programmed by the user at a specific pressure. The Hysteresis Range (**h**) adjustment controls the output signal 0 to 100% below the Switch Point (**H**).

Switch Output



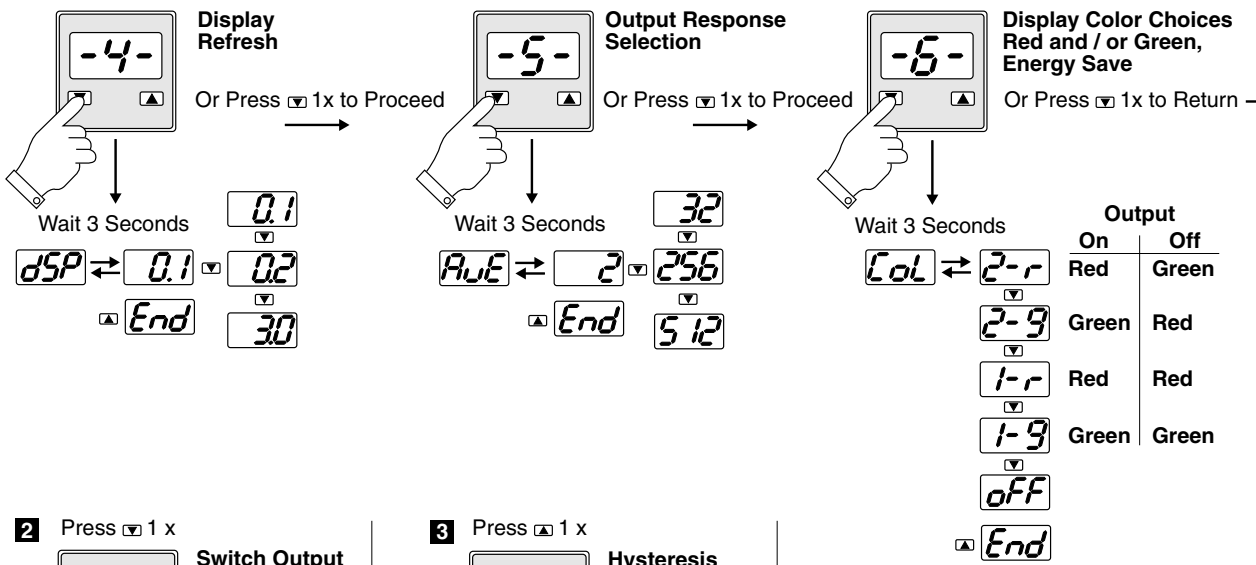
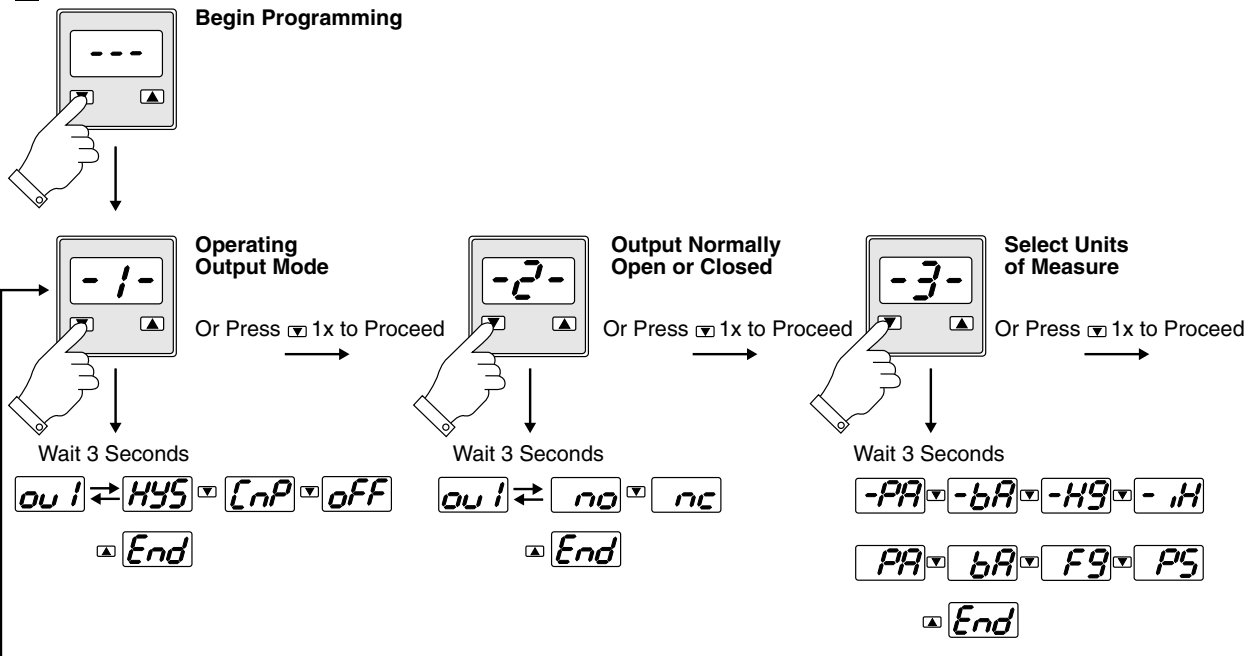
The Window Comparator Mode provides two Switchpoint Settings (**A**) and (**b**) that control the output signals (NPN / PNP) between two pressures. This is referred to as the "High / Low" setting.

Window Comparator Output

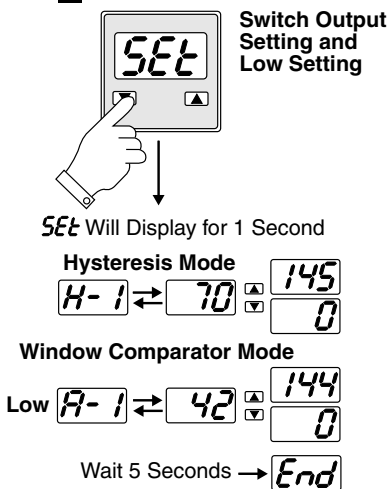


Programming

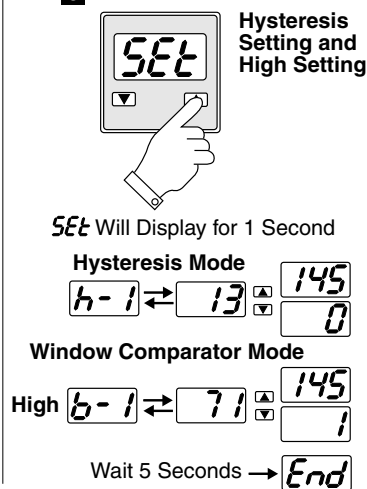
1 Press for 3 Seconds



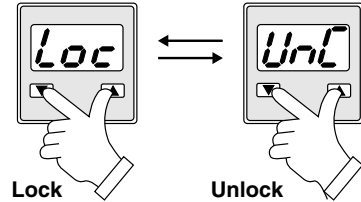
2 Press 1 x



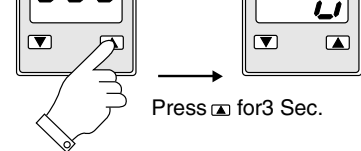
3 Press 1 x



4 Hold Press 1 x



5 Press for 3 Sec.

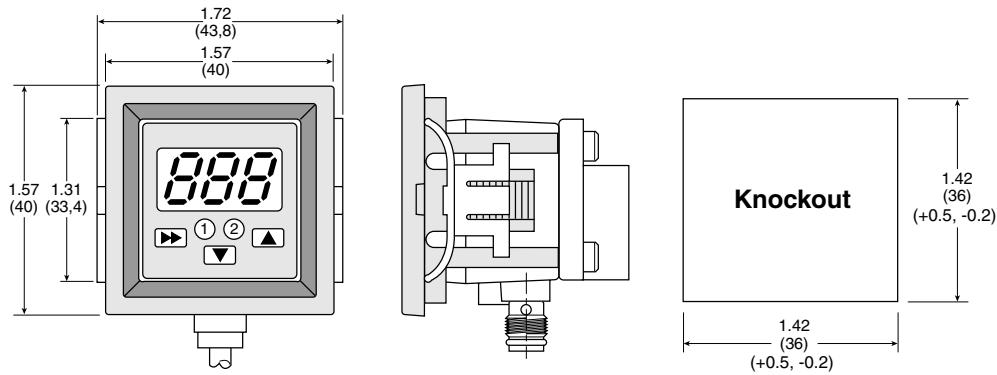


Error Messages

Display	Description	Solutions
Err	Zero Reset Error	Reset Zero Below 3% of F.S.
Er1	System Error (Internal)	Contact Factory
CE1	Over current of Output 1	Load current exceeds
FFF -FF	Applied pressure exceeds pressure range	Apply pressures with the rating of the sensor

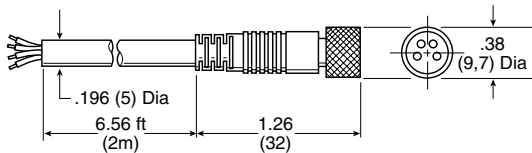
Accessories

MPS-ACCH7 Panel Mounting Bracket

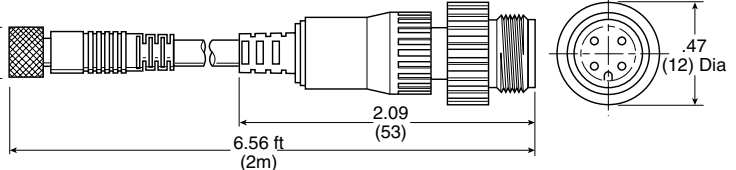


Cables

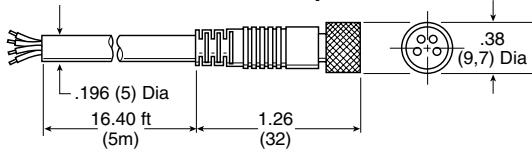
CB-M8-4P-2M, Female to Open Lead



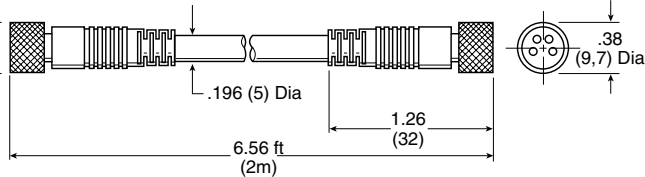
CB-M8-4P-M12-2M, M8 Female to M12 Male



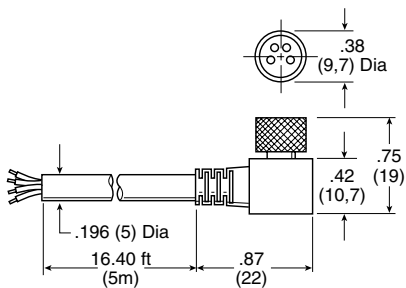
CB-M8-4P-5M, Female to Open Lead



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



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

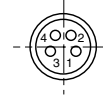


Pin Out Connection

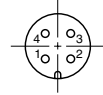
**Female Interface
4-Pin, M8**



**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