

OEM-EP Miniature Electronic Pressure Controller

Pressure Controllers




Typical Applications

- Carrier Gas Pressure Control
- Air over Liquid Flow Control
- Mass Spectrometer Process Gas Supply Pressure Control

The OEM-EP Miniature Electronic Pressure Controller converts a variable electrical control signal into a variable pneumatic output. Sized to minimize internal volume and ease integration, the OEM-EP is an ideal replacement for manual regulators, needle valves and vent orifices where precise pressure control is critical. Using Parker Hannifin's patented VSO® proportional valve and integral closed loop control, the OEM-EP is the perfect choice for carrier gas flow control, micro-fluidic flow control, vacuum pump control and aspirate/dispense applications.

Features

- Silent operation to reduce system noise levels
- High accuracy and unparalleled resolution for improved results
- Tested for long life to improve system availability
- Integral closed loop control to minimize system development time
- Low internal volume to improve efficiency
- Analog control for added design flexibility
- RoHS compliant 

Product Specifications

Physical Properties

Valve Technology:
Thermally compensated VSO® proportional valves.
Media:
Non-corrosive gases
Operating Environment:
32 to 131°F (0 to 55°C)
Storage Temperature:
-40 to 149°F (-40 to 65°C)
Length:
1.16 in (29.4 mm)
Width:
1.08 in (27.5 mm)
Height:
2.44 in (61.9 mm)
Weight:
5.6 oz (158.8 g)
Porting:
10-32 female ports
Metric adaptor available

Electrical

Main Voltage:
24 VDC ± 10%
Input Control Signal:
0-5 VDC standard
Monitor Output Voltage:
0-5 VDC
Maximum Current Requirement:
< 400 mA
Electrical Connection:
Molex 6 pin miniature connector

Wetted Materials

Manifold:
AL 6061-T6, FKM, 302 Series SS
Valve:
FKM, 300 Series SS Brass 36000HT
Sensor:
Glass, Silicon, Silicone, Polyphenylene Sulfide

Performance Characteristics

Pressure Ranges:
0-2 psig (0-0.14 bar)
0-5 psig (0-0.35 bar)
0-15 psig (0-1.03 bar)
0-50 psig (0-3.45 bar)
0-100 psig (0-6.89 bar)
<i>(Effective control range is 10%-100% of full scale)</i>
Pressure Accuracy:
± 1.5% Full Scale maximum
Response:
< 15 ms
<i>(Response time to target pressure is output volume dependent)</i>
Linearity:
≤ +1.5% Full Scale

VSO is a registered trademark of Parker Hannifin Corporation.



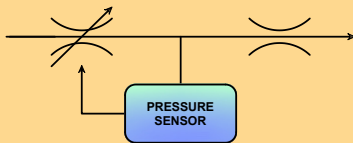
OEM-EP Miniature Electronic Pressure Controllers

OEM-EP Flow Capability Sizing Charts

How Flow Effects Pressure Control

The flow curves illustrate the flow capabilities of the two models of pressure controllers.

Pressure control using a constant flow approach requires the system to manage pressure drops across a variable orifice and a fixed orifice (see below).



Choosing the Right Model

In many cases, the fixed orifice is the cumulative restriction of the application system consuming gas. That fixed restriction and the inlet supply pressure level are key factors when selecting the correct model number for the OEM-EP.

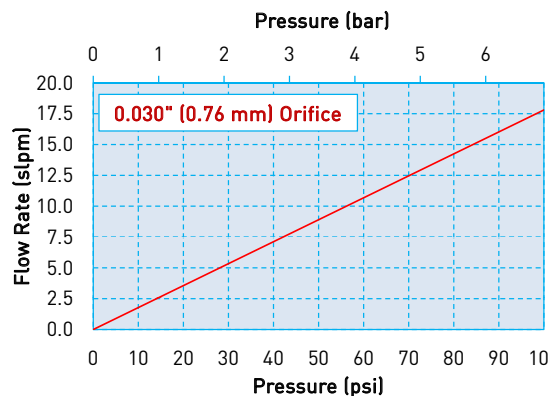
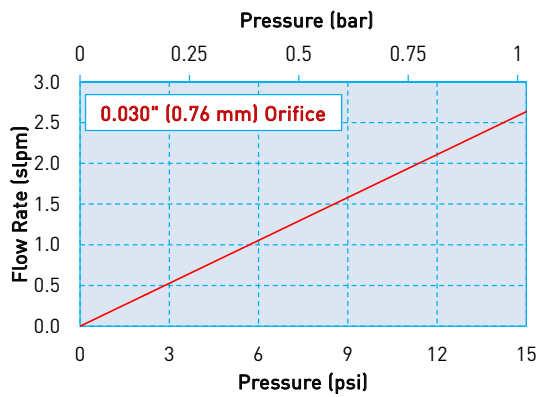
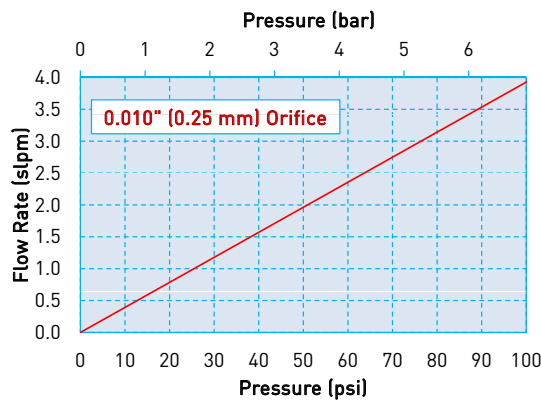
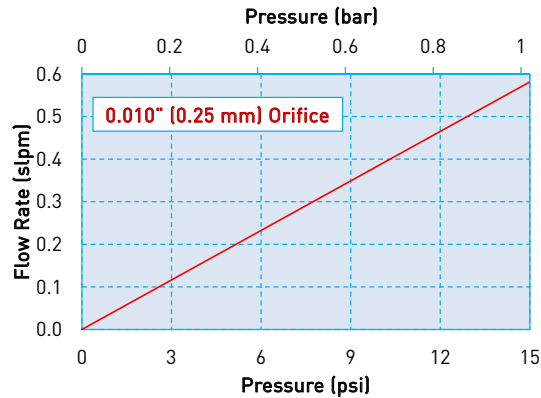
If the orifice is too small, it may fail to generate enough flow to drop the required pressure across the fixed orifice. If the orifice is too large, the Pressure Controller can become unstable. When considering orifice size please remember that the effective control range is 10%-100% of full scale.

EXAMPLE:

Please refer to flow chart labeled 0.010" (0.25mm) orifice. If your application requires 40 PSIG of pressure at 1 SLPM of flow, you would need a 0.010" orifice pressure controller.

This graph shows that a 0.010" orifice will flow up to 1.5 SLPM at 40 PSIG making it the right choice for your application.

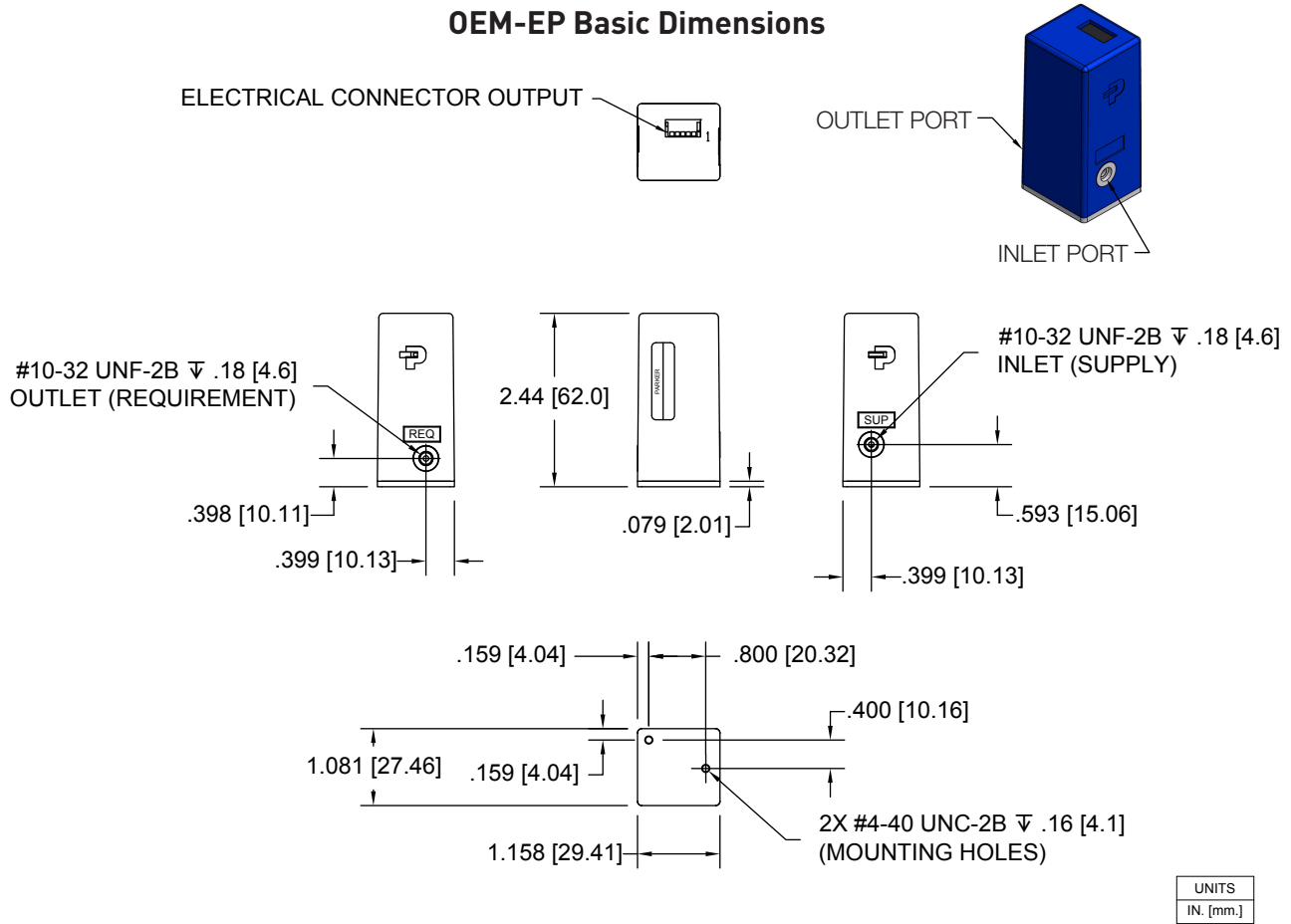
Typical Flow vs Pressure @ 25°C



OEM-EP Miniature Electronic Pressure Controllers

Mechanical Integration Dimensions

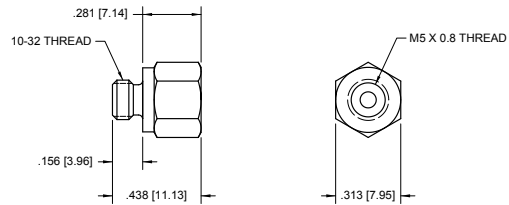
OEM-EP Basic Dimensions



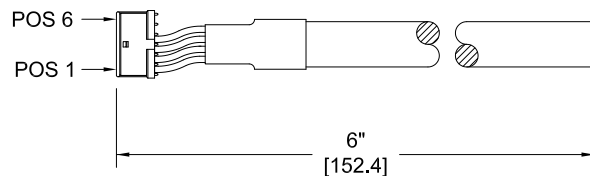
Electrical Interface

Molex, 874380642 Connector (included)	
Signal	Conn. Pin No. Color
Main Power, 24 VDC	1 Yellow
Input Control Signal, 0-5 VDC	2 Green
Monitor Signal Output, 0-5 VDC	3 Red
System Ground	4 Black
N/A	5 No Connection
N/A	6 No Connection

Metric Adaptor (available option)



Molex #874380642 to flying lead Plug-in Cable (included)



OEM-EP Miniature Electronic Pressure Controllers

Installation Guide

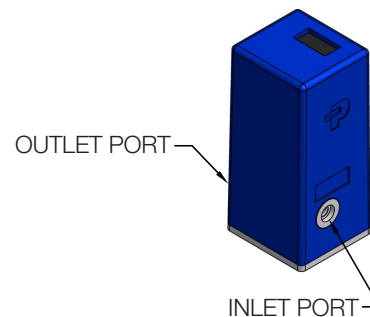
The OEM-EP is a dynamic pressure controller that uses proportional valve technology to supply an accurate and stable pressure source for a variety of application requirements. Installation of this device requires the completion of a few easy steps.

They are as follows:

- Ensure that the gas is non corrosive, clean and dry.
- Connect the gas supply to the Inlet Port on the OEM-EP.
- Connect a line requiring the controlled pressure to the Outlet Port on the OEM-EP.
- Pneumatic ports are 10-32 UNF-2B Female. Metric Adaptor option is available.
- The EPC effective control range is 10%-100% of full scale.
- Electrical connections are made through the connector at the top of the unit.

They are as follows:

Molex, 874380642 Connector (included)	
Signal	Conn. Pin No. Color
Main Power, 24 VDC	1 Yellow
Input Control Signal, 0-5 VDC	2 Green
Monitor Signal Output, 0-5 VDC	3 Red
System Ground	4 Black
N/A	5 No Connection
N/A	6 No Connection



Key Things to Remember:

The pressure controller requires downstream restriction to build pressure. There are two ways to accomplish this:

- Use a venting controller: The venting controller is configured with an internal vent orifice that is roughly 40% of the controller orifice size. This configuration of controller can supply pressure to an application with a effective downstream restriction that represents 30% of the controller orifice size down to a completely restricted application.
- Use of a non-venting controller: The non-venting controller does not incorporate an internal vent orifice and will require a downstream restriction of roughly 20% to 60% of the controller's orifice size.

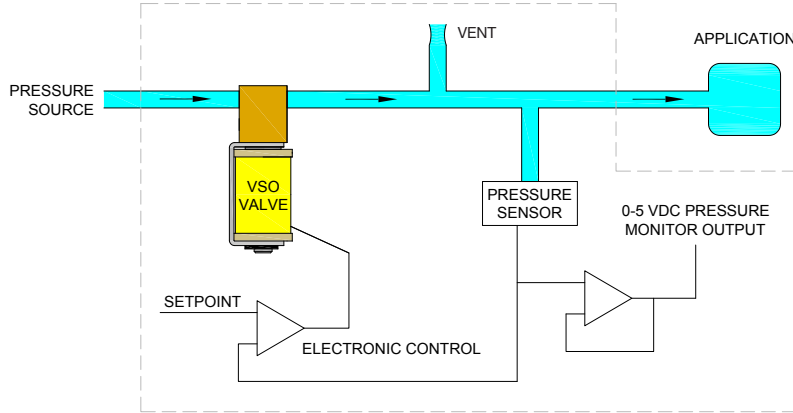
For example:

A non-vented controller with an orifice size of 0.010" should have 0.002" to 0.006" effective downstream restriction.

OEM-EP Miniature Electronic Pressure Controllers

Configurations

Pressure Controller with Internal Vent



With Internal Vent.
A vent is required when the application does not consume any gas. For example, pressurizing a piloted regulator.

Ordering Information

Part Number	990-005101-002	990-005101-015	990-005101-100	990-005103-002
Series	OEM-EP	OEM-EP	OEM-EP	OEM-EP
Configuration	Internal Vent	Internal Vent	Internal Vent	Internal Vent
Effective Orifice	0.010" (0.25 mm)	0.010" (0.25 mm)	0.010" (0.25 mm)	0.030" (0.76 mm)
Main Voltage	24 VDC	24 VDC	24 VDC	24 VDC
Control Voltage	0-5 VDC	0-5 VDC	0-5 VDC	0-5 VDC
Pressure Range	0-2 psig	0-15 psig	0-100 psig	0-2 psig

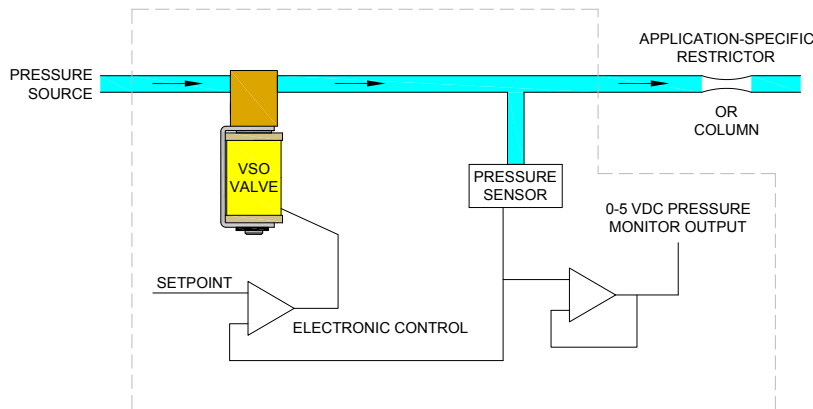
Part Number	990-005103-005	990-005103-015	990-005103-050	990-005103-100
Series	OEM-EP	OEM-EP	OEM-EP	OEM-EP
Configuration	Internal Vent	Internal Vent	Internal Vent	Internal Vent
Effective Orifice	0.030" (0.76 mm)	0.030" (0.76 mm)	0.030" (0.76 mm)	0.030" (0.76 mm)
Main Voltage	24 VDC	24 VDC	24 VDC	24 VDC
Control Voltage	0-5 VDC	0-5 VDC	0-5 VDC	0-5 VDC
Pressure Range	0-5 psig	0-15 psig	0-50 psig	0-100 psig

Accessories	
Part Number	190-008246-001
Configuration	10-32 Male to M5 x 0.8 mm Female Adaptor w/O-ring
Wetted Materials	FKM & Brass



OEM-EP Miniature Electronic Pressure Controllers Configurations

Pressure Controller with No Internal Vent



With No Internal Vent.
An internal vent may not be required when the application consumes a high rate of gas or the gas is coming from a limited source and/or is flammable.

Ordering Information

Part Number	990-005123-015	990-005123-050	990-005123-100
Series	OEM-EP	OEM-EP	OEM-EP
Configuration	No Internal Vent	No Internal Vent	No Internal Vent
Effective Orifice	0.030" (0.76 mm)	0.030" (0.76 mm)	0.030" (0.76 mm)
Main Voltage	24 VDC	24 VDC	24 VDC
Control Voltage	0-5 VDC	0-5 VDC	0-5 VDC
Pressure Range	0-15 psig	0-50 psig	0-100 psig

Accessories	
Part Number	190-008246-001
Configuration	10-32 Male to M5 x 0.8 mm Female Adaptor w/O-ring
Wetted Materials	FKM & Brass



NOTE: In order to provide the best possible solution for your application, please provide the following requirements when contacting Applications Engineering:

- Media, Inlet & Outlet Pressures
- Minimum Required Flow Rate
- System Supply Voltage
- Media
- Ambient Temperature Range

Please click on the Order On-line button (or go to www.parker.com/precisionfluidics/oemep) to configure your OEM-EP Miniature Electronic Pressure Controller. For more detailed information, visit us on the Web, or call and refer to Performance Spec. #790-002247-001 and Drawing #890-003082-001.

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For more information call +1 603 595 1500 or email ppfinfo@parker.com
Visit www.parker.com/precisionfluidics

