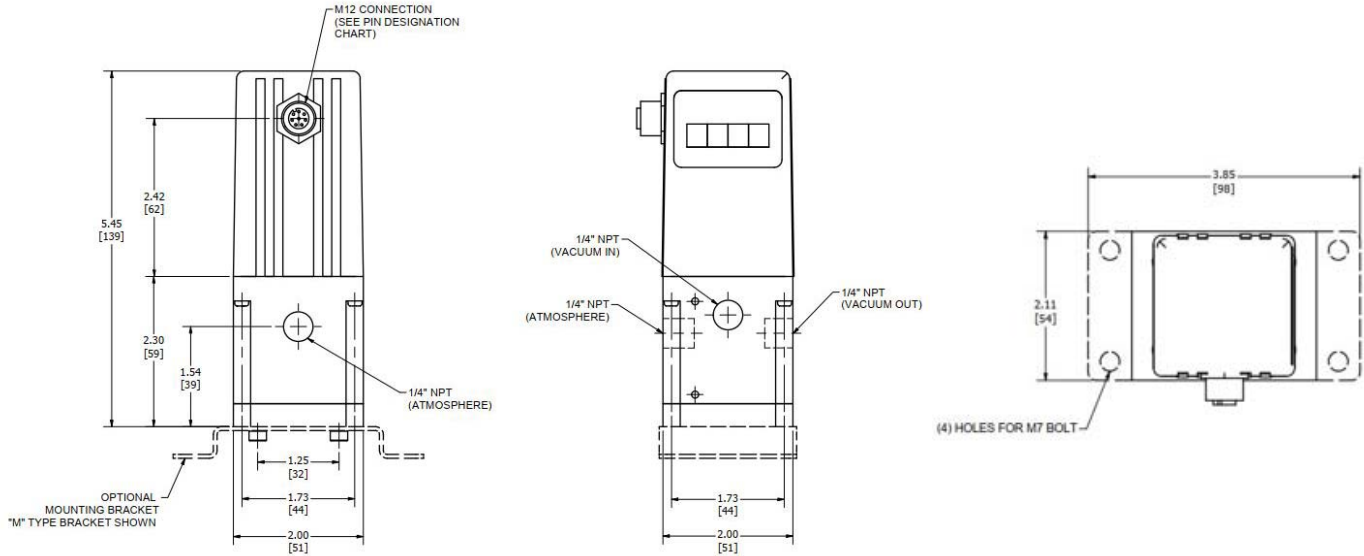


# Type 1005V

## Electro-Pneumatic Vacuum Regulator

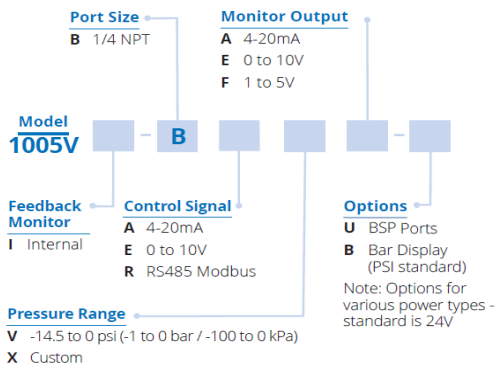
### Installation, Operation and Maintenance Instructions



Inch  
(mm)

(Drawing downloads available at <http://www.controlair.com>)

### Ordering Use this coding system to order



### Contents

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### Accessories

**Bracket Kits:**  
'L' type P/N: 449-542-055  
'M' type P/N: 449-542-059



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# DANGER, WARNING, CAUTION and NOTE statements

## DANGER

Refers to conditions or hazards which could result in serious personal injury or death.

## WARNING

Refers to conditions or hazards which could result in personal injury.

## CAUTION

Refers to conditions or hazards which could result in equipment or property damage.

## NOTE

Alerts you to facts or special instructions.

**ALL DANGER, WARNING, AND CAUTION NOTICES MUST BE COMPLIED WITH IN FULL.**

## 1. SPECIFICATIONS

Functional Specifications		Type 1005V
Input Range	0-10V / 4-20mA /RS485 Modbus	
Input Signal Impedance	Voltage : 10 kOhm	
	Current : 250 Ohm	
Vacuum Range	0 to -100 kPa (0 to -14.7 psig)	
Monitor Output	0-10V / 4-20mA / 1-5V	
Power Supply	DC24V (≤4W)	
Temp. Range (Operating)	32-158°F (0-70°C)	
Port Size	1/4 NPT	
Flow Rate	22 scfm (640 L/min) @ full open	
Performance Specifications		
Response	0.8S	
Repeatability	<± 0.1% full scale	
Hysteresis	<± 0.3% full scale	
Linearity	<± 0.1% full scale	
Accuracy	<± 0.5% full scale	
Life Cycle	Over 1 billion times	
Physical Specifications		
Media	Clean, dry, oil-free, instrument air, filtered to 5 micron	
Electrical Connection	M12 Connector	
Ingress Protection	IP65	
Manifold Material	Aluminum	
Weight	1.2 lbs. (0.55 kg)	

## 2. DESCRIPTION and INSTALLATION

### 2.1 Description

- 2.1.1 The electro-pneumatic vacuum regulator is a closed loop design, consisting of 2 solenoid valves, one pressure regulator and an electronic board that performs PID closed loop control. According to the input electronic signal, one valve opens up the vacuum inlet, and the other valve acts as vacuum breaker. Whilst increasing the vacuum level, the inlet valve acts upon the internal piston and allows air to be withdrawn. The internal pressure regulator senses the vacuum level and provides feedback to the electronic board which in turn controls the action of two valves until the target vacuum level is reached.

### 2.2 Mounting

- 2.2.1 The Type 1005V comes with one of two brackets: M-mount or L-mount.

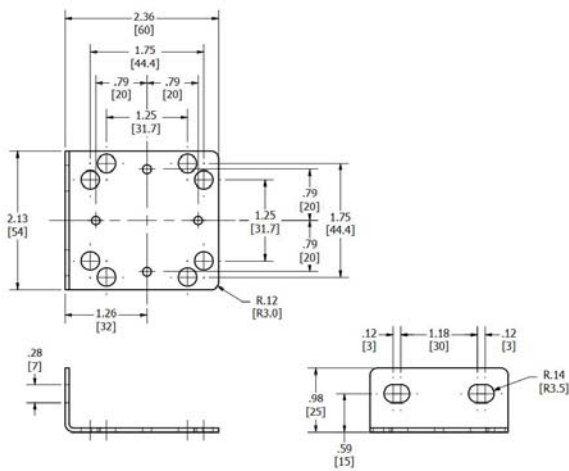


Figure 1: 449-542-055 "L" mount

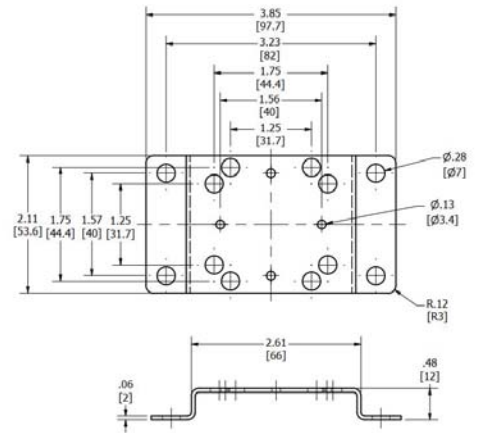


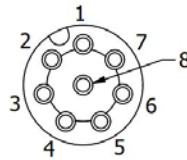
Figure 2: 449-542-059 "M" mount

### 2.3 Pneumatic / Vacuum Connections

- 2.3.1 Clean all pipe lines to remove dirt and scale before installation.
- 2.3.2 Vacuum lines must be filtered to 40 microns and free of moisture and lubricants.
- 2.3.3 Avoid getting pipe sealant inside the piping or transducer.

### 2.4 Electrical Connection

- 2.4.1 All regulators come standard with a 6-foot M12 connection cable.



Pin	Description	Color
1	24V DC Power (-) Command (-) Output monitor (-) 2nd loop transducer 0-10V (-)	Blue
2	24V DC Power (+) 2nd loop transducer 4-20mA (+)	Brown
3	Monitor output (+)	Black
4	0-5V Command (+) 0-10V Command (+) 4-20mA Command (+)	White
5	RS485(D-)	Gray
6	2nd loop transducer 0-10V (+) 2nd loop transducer 4-20mA (-)	Green
7	-	-
8	RS485(D+)	Red

Figure 3

## 3. OPERATION

### 3.1 Calibration

- 3.1.1 All units are shipped from the factory calibrated, direct acting.
- 3.1.2 Consult factory for custom calibration.

## 4. MAINTENANCE & REPAIRS

### 4.1 Precautions

- 4.1.1 Do not rotate the M12 connection socket at any time.
- 4.1.2 Never handle circuit board unless properly grounded to prevent ESD (Electro-static Discharge).
- 4.1.3 Clean, dry air should be used with the Type 1005V. Foreign matter in the vacuum lines can clog the solenoid valve orifices.

## 5. TROUBLESHOOTING

PROBLEM	LOOK FOR	SOLUTION
No or low output (vacuum)	Insufficient vacuum source or vacuum line leak.	Verify unregulated vacuum and check all connections.
No digital display	Insufficient 24 VDC power	Verify 24 VDC supply with minimum 4W available.
Not responding to command signal	Improper wiring connections	Verify wiring per section 2.4

**NOTE**

*If problems are not solved by troubleshooting procedures, contact a factory application's engineer at (603) 886-9400 for further assistance.*

## 6. WARNING

**FAILURE MODES:** This device must not be used for protecting final control elements connected to the output port from the effect of pressure present at the supply port. If devices connected to the output port have a pressure rating less than the pressure present at the supply port, then pressure relieving or pressure limiting devices must be employed to protect the devices from over pressurization, possibly causing physical damage, personal injury and/or property damage.

## 7. WARRANTY & DISCLAIMER

ControlAir LLC products are warranted to be free from defects in materials and workmanship for a period of eighteen months from the date of sale, provided said products are used according to ControlAir LLC recommended usages. ControlAir LLC's liability is limited to the repair, purchase price refund, or replacement in kind, at ControlAir LLC's sole option, of any products proved defective. ControlAir LLC reserves the right to discontinue manufacture of any products or change product materials, designs, or specifications without notice. Note: ControlAir does not assume responsibility for the selection, use, or maintenance of any product. Responsibility for the proper selection, use, and maintenance of any ControlAir product remains solely with the purchaser and end user.

Before using these products with fluids other than air, for non-industrial applications, life-support systems, or other applications not within published specifications, consult ControlAir LLC.