

ECLIPSE

2-Way Stepper-Controlled Proportional Isolation Valve

Operating Instructions



Utilizing the industry's most robust and powerful miniature linear actuator, the patent pending stepper-controlled proportional valve leads the industry in performance and durability.

This valve is ideal in critical applications for liquid and gas delivery, medical, analytical, and industrial automation requiring high resolution and excellent repeatability. In addition, the unique design allows for custom flow profiles.

- For Fluid & Air Applications
- Excellent Linearity (<4% of full-scale)
- Fast Response (<2 ms reaction time)
- Cycle Life of Typically >1 million Cycles
- Repeatability: <0.5% of Full Travel
- Bi-Directional

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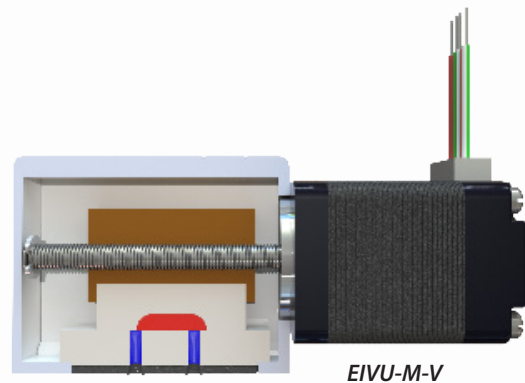
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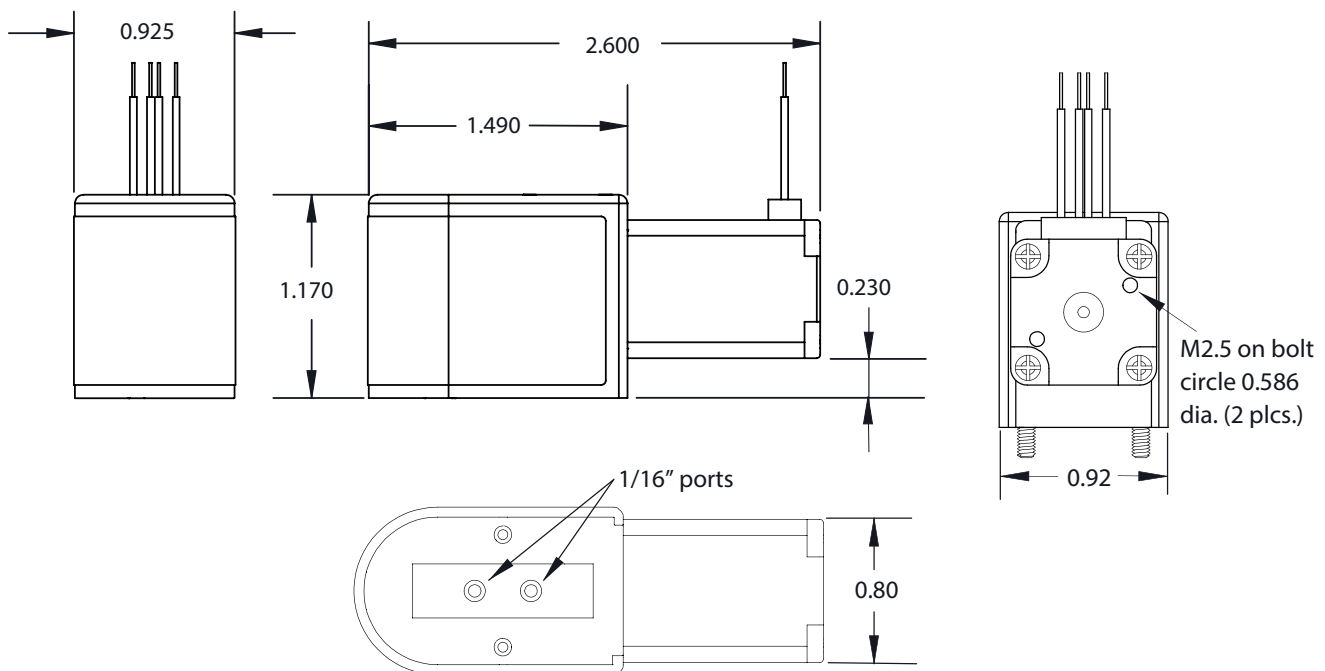
Technical Data

Medium	Liquids & gases*
Typical Cycle Time for Full Travel	1.1 seconds at 1,000 steps per second
Wetted Material	Ceramic (others depending on porting option)
Operating Pressure Range	Vac to 30 psig**
Proof Pressure (Overpressure)	50 psig
Flow Range	Air: 0 to 7 l/min -0/+10% (0.247 scfm) @ 30 psig Water: 0 to 190 ml/min -0/+10% (0.0067 scfm) @ 30 psig
Flow Resolution	0.19 ml/min water and 0.007 l/min air max @ 30 psig per full step depending on pressure
Position Resolution	0.00006" per step
Driver	Bipolar chopper drive required (see Power & Control Instructions)

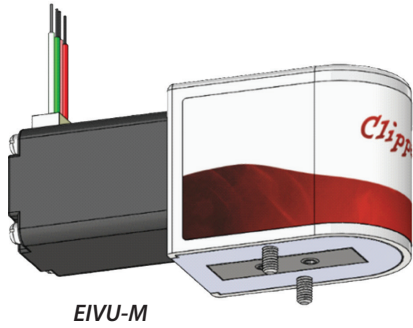
* Contact Clippard for specific media compatibility

** Contact Clippard for custom pressure ranges

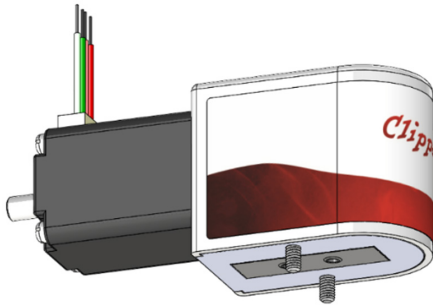
Ambient/Environment	32 to 180°F
Supply Voltage to Motor Driver	20 VDC @ 30 psig
Mounting	Manifold or flat bottom (ZDVF)
Current/Phase	0.49 Amps
Power Consumption	2.5 watts nominal only during adjustment. Zero power consumption to maintain position.
Seals	FKM standard, no elastomers with Zero Dead Volume (ZDVF) option
Options	Other seal materials. Encoder ready
More Details	clippard.com/link/eiv



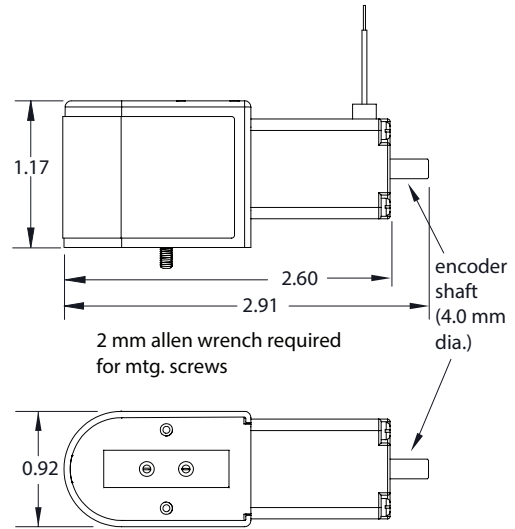
CONFIGURATIONS | EIVU-M



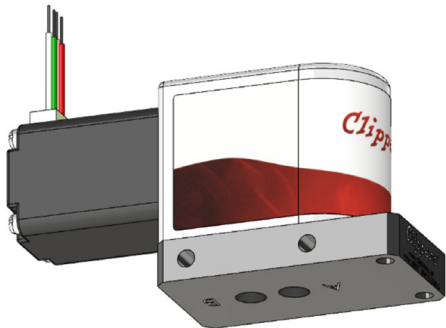
EIVU-M



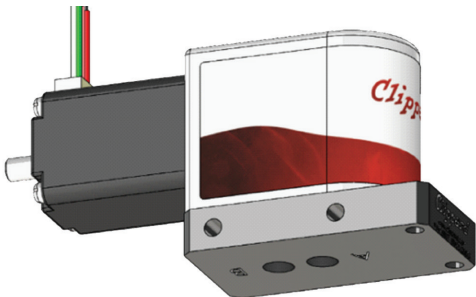
EIVU-M-ENS (shown at right)



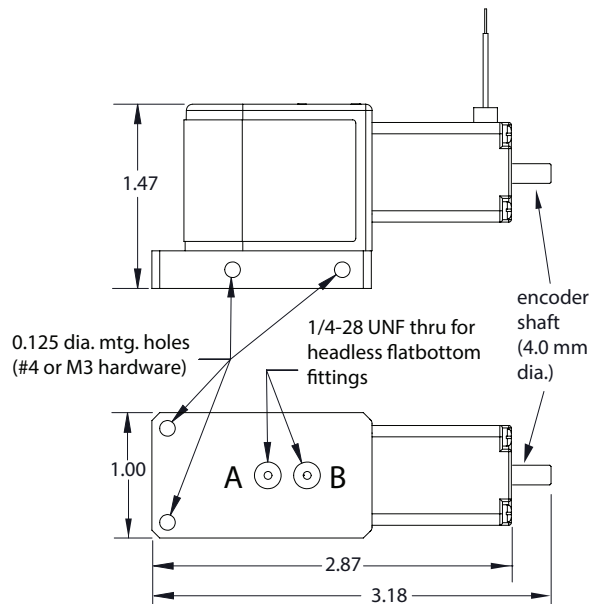
CONFIGURATIONS | EIVU-Z



EIVU-Z (shown at right)



EIVU-Z-ENS



Porting

Manifold Mount Model (EIVU-M)

An adapter such as the EIV single-station manifold (ordered separately) or a custom-made adapter utilizing the manifold layout below can be used to allow for a variety of needed fasteners. The EIV manifold has two #10-32 UNF or M5 x 0.8-6H ports where thread-to-barb fasteners can be used.

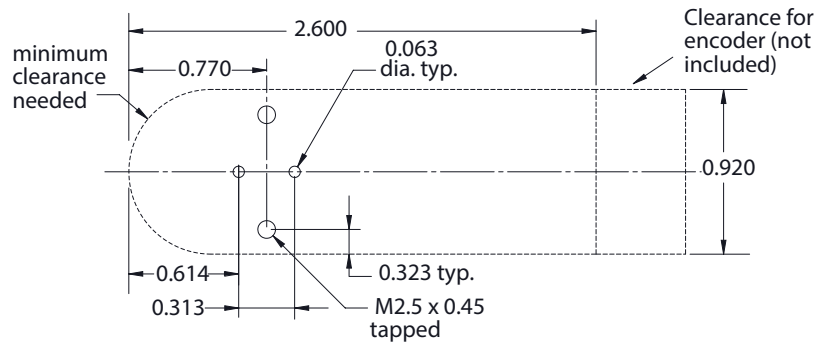
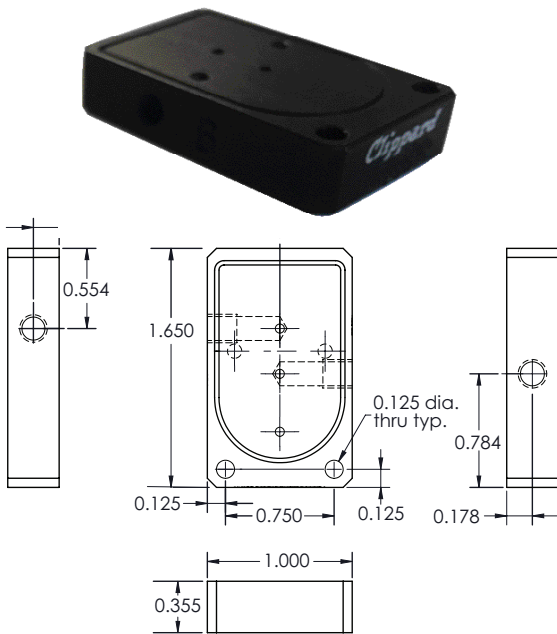
Zero Dead Volume Model (EIVU-Z)

The adapter that is included with the valve has two 1/4-28 UNF ports for two headless flatbottom fittings such as a nut/ferrule combination ordered separately as ZDVF-18 (IDEX P/N #XP-283x).

The Eclipse valve is bi-directional, however the calibration curve is recorded using the port closest to the motor (Port B) as the supply. Please note there are slightly different flow characteristics depending on which way the valve is operated. Contact Clippard's Technical Sales Team with questions.

Single-Station Manifold

Manifold Layout



EUM-01 Single-Station Manifold, #10-32
M-EUM-01 Single-Station Manifold, M5x0.8

Valve Ordering Information

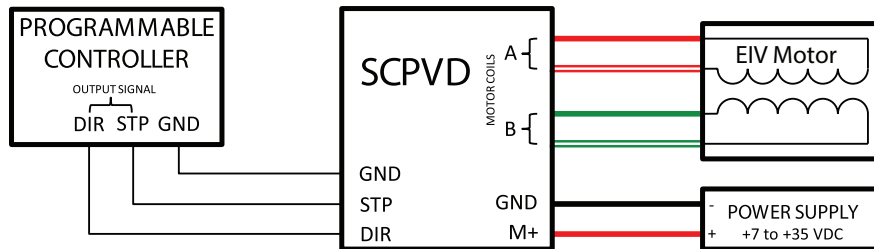
PART NO.	PORTING	SEALS	ENCODER SHAFT
EIVU-M-V	Manifold Mount	FKM	-
EIVU-M-V-ENS	Manifold Mount	FKM	yes
EIVU-Z	Zero Dead Volume Adapter	-	-
EIVU-Z-ENS	Zero Dead Volume Adapter	-	yes

Power & Control

A Bipolar Chopper Drive, SCPVD-1 (not included) is a power-efficient method of using current to drive a stepper motor to obtain high stepping rates. The chopper gets its name from the technique of rapidly turning the output voltage on and off (chopping) to control motor current.

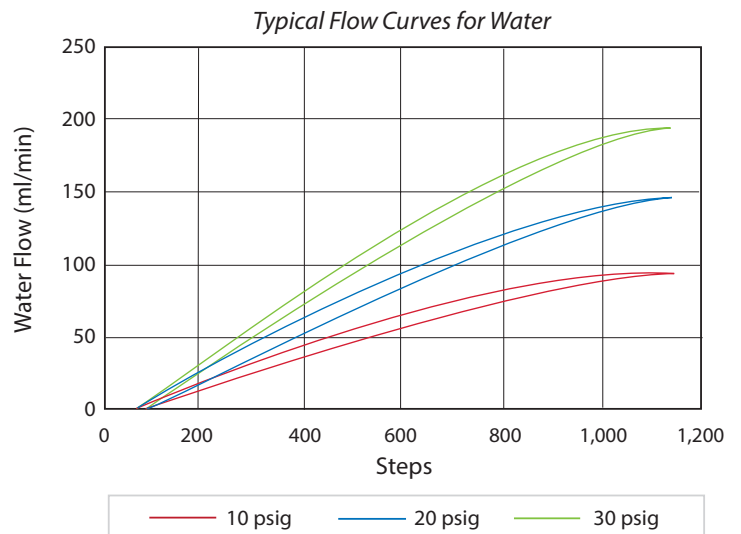
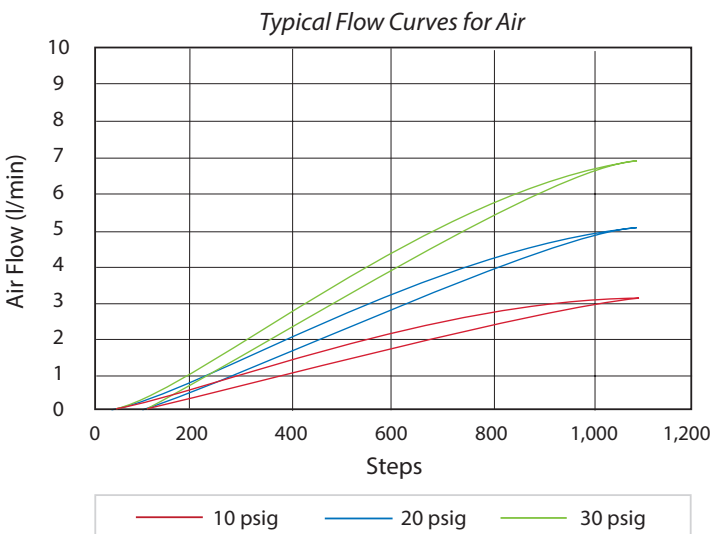
Stepper motors require external electrical components in order to operate. These components typically include a power supply, logic sequencer switching components, and a clock pulse source to determine the step rate. Many commercially available drives have integrated these components into a complete package. The EIV coil pairs are: red and red with white strip (A), and green and green with a white strip (B).

See clippard.com/scpv for further information.



Homing the Valve

If step counts are lost the valve can be homed by driving the motor clockwise until it reaches the hard stop (audible change). It is recommended to drive the motor at a lower current or voltage during the homing procedures. The 4-digit number at the end of the serial number is the number of steps from the motor hard stop to initial flow, or the offset distance. A hard-stop can be reached on either end of the motor shaft, but the offset distance given is relative to the motor hard-stop. Direction of rotation can be determined by viewing the inset shaft on the back of the valve.





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Other Useful Materials

Frequently Asked Questions

Technical Data Sheet

How Stepper Motors Provide Precision Control White Paper

Limited Warranty

All information contained in this publication is for reference only. Proper design engineering procedures should be used to assure any compliances. Clippard Instrument Laboratory, Inc. reserves the right to make changes without notice and does not warrant or guarantee the information contained herein.

Clippard Instrument Laboratory, Inc. (Seller) warrants its products to be free from defects in material and workmanship for a period of one (1) year from the date of sale. Seller's liability shall be limited at seller's option to repair, replace or refund purchase price of product found by seller's examination to be defective. All claims under this warranty must be made in writing to seller's factory sales department giving full details, prior to return of product, postpaid, to factory. Seller shall not be responsible for product failure due to normal wear, accident, buyer's misapplication, abuse, neglect or alteration of product. Seller will not be responsible for any consequential damages. Clippard makes no other warranty of any kind, expressed or implied. Circuits shown in this catalog are for instructional purposes only. All circuits used on equipment and machinery should be thoroughly tested by qualified personnel under actual working conditions to determine their suitability for buyer's intended use. All technical data and operations are average values based on standard production models. Some deviations can be expected and considerations should be given during initial design stages. All operating characteristics are based on new equipment, under normal conditions of use and environments and oil free air supply. Dimensions stated may be nominal and are subject to change without notice. Contact Clippard for specific dimensional tolerances when dimensions are critical.

Proudly made in the USA.

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