

DESCRIPTION

The Model EVA-1 is a small, electronically controlled, valve actuator developed specifically to fit 1/4 inch to 1 inch Research Control® Valves. Its accurate positioning and compact size make it especially suited to flow control in research and small process applications. The unit features:

- Microprocessor-controlled, linear stepper motor
- 4-20 mA analog input
- Position 4-20 mA analog output (optional)
- Choice of 12 speeds
- Up to 40 pounds of stem thrust
- Accurate and repeatable positioning
- Adjustable split range
- Quick and simple zero and span input and output adjustments
- Adjustable stroke from 0.1875" to 0.5625"
- User adjustable direct or reverse action
- Optional handheld plug-in Communicator for all adjustments without removing the cover
- Controlled seating force to prevent innervalve damage
- Built-in temperature compensation
- Stainless steel yoke and rugged epoxy coated aluminum housing
- 115VAC/12VDC, 230VAC/12VDC, and 24VDC models available

OPERATION

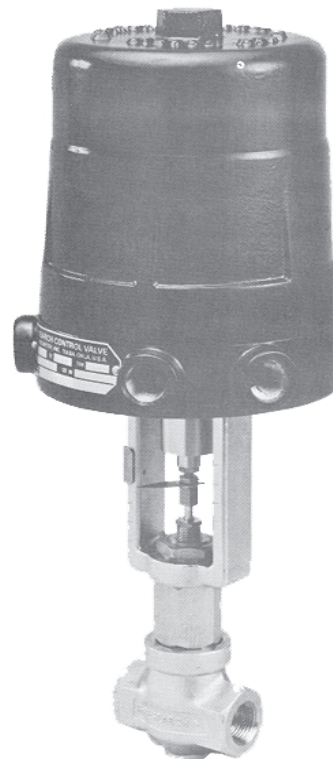
The Model EVA-1 consists of a microprocessor-controlled, linear stepper motor that responds to an input signal of 4-20 mA DC. It also offers an optional isolated loop powered 4-20 mA position output for signaling back to an indicator or control panel. The standard Model EVA-1 requires a 115 VAC power supply with 230VAC and 24VDC models available. A stroke of 0.437 inches for the 1/4" unit or a stroke of 0.562 inches for the 1/2" to 1" units is standard and can be adjusted quickly and easily with two switches under the actuator cover or via the communication port. This ease of calibration can be used to split range the input or limit the up or down travel of the valve. The Unit utilizes a "dual speed" operating mode. The low speed mode generates high thrust for seating the valve and overcoming packing friction while the high speed mode allows the valve to respond quickly to large input signal changes.

RATINGS

NEMA 4: Watertight

EXPLOSION PROOF*: Class 1, Division 1, Group C & D

*Standard models approved by FM and CSA.



Shown mounted on Type 807 valve assembly

SPECIFICATIONS**Electrical:****Supply Power/Standard:**

115 VAC +/- 10% @ 50-60 Hz and/or 12 VDC

Supply Power/Optional:

230 VAC +/- 10% @ 50-60 Hz and/or 12 VDC

24 VDC +/- 3%

Control input: 4-20 mA DC @ 125 ohms

Position Output: 4-20 mA DC isolated, 0-800 ohm loop impedance

Mechanical:

Stroke Length: up to 0.562" (adjustable)

Thrust: 40 lbs. at minimum step rate; 10 lbs. at maximum step rate

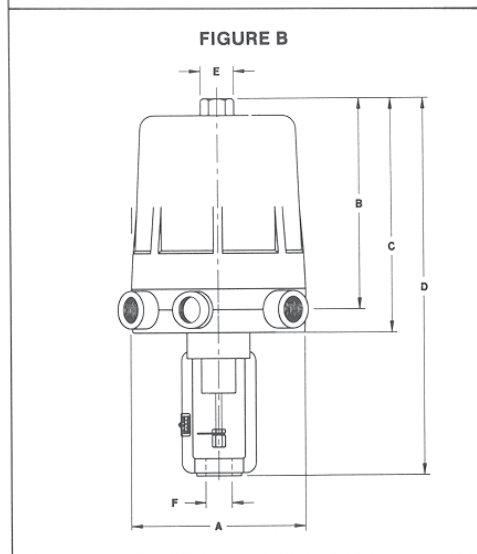
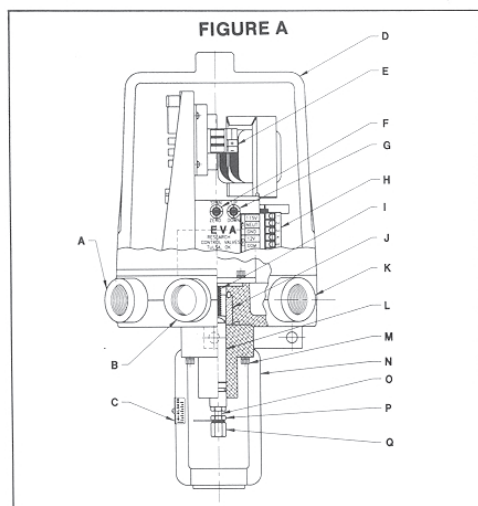
(See Output vs. Speed Chart on page 2)

Height: 13 inches (actuator with yoke only)

Weight: 12 lbs. (actuator with yoke only)

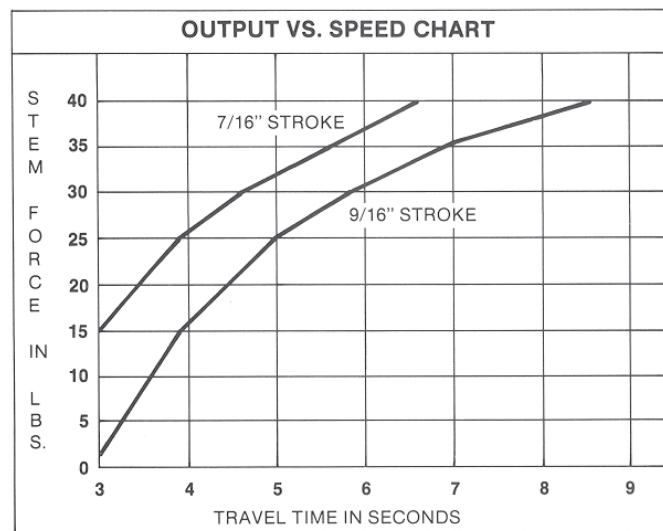
Operating Temperature Range: -10° to +60° C





Description of items	Description of items
A. Setup/service port (1/2" NPT)	J. Anti-rotation sleeve
B. Signal port (1/2" NPT)	K. Supply power port (1/2" NPT)
C. Travel scale	L. Spring loaded stem assembly
D. Cover	M. Cap screw
E. Input terminal block (4-20mA)	N. Yoke
F. Span/zero switch	O. Actuator stem connector
G. Travel switch	P. Travel pointer locknut
H. Power supply board	Q. Trim stem connector
I. Motor shaft	

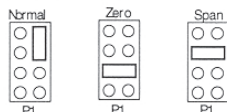
VALVE SIZE	DIMENSIONS (in inches)						
	A	B	C	D	E	F	STROKE
1/4"	6.0	6.75	7.0	12.37	1.13 HEX	0.625	0.437
1/2", 3/4", 1"	6.0	6.75	7.0	12.37	1.13 HEX	0.875	0.562



Calibration Procedure

- Input Zero:** With P1 Jumper set to the "Normal" position, apply input signal for the "Closed" valve position. Use the UP/DOWN switch to close the valve. Push the SPAN/ZERO switch to ZERO.
- Input Span:** Apply input signal for the "Open" valve position. Use the UP/DOWN switch to open the valve. Push the SPAN/ZERO switch to SPAN.
- Output Zero*:** Apply input signal for the "Closed" valve position. Move P1 Jumper to the Zero position. Adjust the output to read 4 mA with the UP/DOWN switch. Push the SPAN/ZERO switch to ZERO.
- Output Span*:** Apply input signal for the "Open" valve position. Move P1 Jumper to the Span position. Adjust the output to read 20 mA with the UP/DOWN switch. Push the SPAN/ZERO switch to Span.
- Return P1 Jumper to the Normal position.**






Note: P1 is located on the electronic logic card.
* Optional feature



Wiring Connections

Power Supply Terminal Block

See Item "H" of Figure "A"

	1	<input type="checkbox"/> 115 VAC	<input type="checkbox"/> 230 VAC (Opt.)
	2	Neutral AC Voltage	
	3	Ground	
<hr/>			
	4	<input type="checkbox"/> 12 VDC*	<input type="checkbox"/> 24VDC (Opt.)
	5	DC Common	

* 12 VDC Std. on AC units, NA on 24 VDC.

Caution: Do not connect input signal to this terminal.

Input Terminal Block

See Item "E" of Figure "A"

+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OUT
-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	IN
-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Position Output

(Optional feature)

4-20 mA DC isolated

Signal Input

4-20 mA DC

Caution: Do not connect supply to input terminals.



Please see our website at
www.badgermeter.com
for specific regions and contacts.

Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding bid obligation exists.



BadgerMeter, Inc.

P.O. Box 581390, Tulsa, Oklahoma 74158
(918) 836-8411 / Fax: (918) 832-9962

www.badgermeter.com