DESCRIPTION
The Model EVA-1 is a small, electronically controlled valve actuator developed specifically to fit 1/4…1 in. (6…25 mm) 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 range 0.1875…0.5625 in. (4…14 mm)
- User adjustable direct or reverse action
- RS-232 Serial Port 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
- 115V AC/12V DC, 230V AC/12V DC, and 24V DC models available

* Not Explosion Proof when RS-232 port is uncovered or when cover is removed.

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 has 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 115V AC power supply with 230V AC and 24V DC models available. A stroke of 0.437 in. (11 mm) for the 1/4 in. (6 mm) unit or a stroke of 0.562 in. (14 mm) for the 1/2…1 in. (12…25 mm) 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 uses 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
* Not Explosion Proof when RS-232 port is uncovered or when cover is removed.

SPECIFICATIONS

### Electrical

<table>
<thead>
<tr>
<th>Supply Power/Standard</th>
<th>115V AC +/- 10% @ 50…60 Hz and/or 12V DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Power/Optional</td>
<td>230V AC +/- 10% @ 50…60 Hz and/or 12V DC 24V DC +/- 3%</td>
</tr>
<tr>
<td>Control input</td>
<td>4…20 mA DC @ 125 ohms</td>
</tr>
<tr>
<td>Position Output</td>
<td>4…20 mA DC isolated, 0…800 ohm loop impedance</td>
</tr>
</tbody>
</table>

### Mechanical

<table>
<thead>
<tr>
<th>Stroke Length</th>
<th>Up to 0.562 in. (143 mm) (adjustable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thrust</td>
<td>40 lb (18.1 kg) at minimum step rate; 10 lb (4.5 kg) at maximum step rate See “Specifications” on page 2</td>
</tr>
<tr>
<td>Height</td>
<td>13 in. (330.2 mm) (actuator with yoke only)</td>
</tr>
<tr>
<td>Weight</td>
<td>12 lb (5.4 kg) (actuator with yoke only)</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>14…140° F (–10…60° C)</td>
</tr>
</tbody>
</table>
DIMENSIONS

Description of Items
A: Setup/service port (1/2 in. NPT)
B: Signal port (1/2 in. NPT)
C: Travel scale
D: Cover
E: Input terminal block (4…20 mA)
F: Span/zero switch
G: Travel switch
H: Power supply board

Calibration Procedure
1. 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.
2. 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.
4. 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.
5. Return P1 Jumper to the Normal position.

NOTE: P1 is located on the electronic logic card.

WIRING CONNECTIONS

Valve Size

<table>
<thead>
<tr>
<th>Valve Size</th>
<th>Dimensions in. (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>in. (mm)</td>
<td>A</td>
</tr>
<tr>
<td>1/4 (6.4)</td>
<td>6.18 (157.0)</td>
</tr>
<tr>
<td>1/2 (12.7)</td>
<td>6.18 (157.0)</td>
</tr>
<tr>
<td>3/4 (19.1)</td>
<td>6.18 (157.0)</td>
</tr>
<tr>
<td>1 (25.4)</td>
<td>6.18 (157.0)</td>
</tr>
</tbody>
</table>

**SPECIFICATIONS**

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