TRIAC Electro-Pneumatic Positioners (4-20 psi, linear and rotary type) are advanced control devices which provide unparalleled stability in difficult environments.

### Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>EPL (Linear Type, lever feedback)</th>
<th>EPR (Rotary Type, cam feedback)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>EPL</td>
<td>EPR</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>Double</td>
</tr>
<tr>
<td>Input Signal</td>
<td>4...20 mA DC (NOTE 1)</td>
<td></td>
</tr>
<tr>
<td>Input Resistance</td>
<td>235±15Ω</td>
<td></td>
</tr>
<tr>
<td>Supply Air Pressure</td>
<td>Max.100 psi (7.0 kgf/cm²)</td>
<td></td>
</tr>
<tr>
<td>Standard Stroke</td>
<td>10–80mm (NOTE 2)</td>
<td>60–100º (NOTE 3)</td>
</tr>
<tr>
<td>Air Piping Connection</td>
<td>1/4&quot; NPT</td>
<td></td>
</tr>
<tr>
<td>Conduit Connection</td>
<td>1/2&quot; NPT</td>
<td></td>
</tr>
<tr>
<td>Explosion-Proof Classification</td>
<td>Exmd II BT6, Exmd II C(H²)T6, IP66, Exia II BT6</td>
<td></td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>-4 ~ 158ºF</td>
<td></td>
</tr>
<tr>
<td>Pressure Gauge</td>
<td>Stainless Steel</td>
<td></td>
</tr>
<tr>
<td>Output Characteristics</td>
<td>Linear</td>
<td></td>
</tr>
<tr>
<td>Linearity</td>
<td>Within ±1.0% F.S.</td>
<td>Within ±1.5% F.S.</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>Within 0.1% F.S.</td>
<td>Within 0.5% F.S.</td>
</tr>
<tr>
<td>Hysteresis</td>
<td>Within 0.5% F.S.</td>
<td>Within 1.0% F.S.</td>
</tr>
<tr>
<td>Repeatability</td>
<td>Within ±0.5% F.S.</td>
<td></td>
</tr>
<tr>
<td>Air Consumption</td>
<td>.18 CFM @ 20 psi</td>
<td></td>
</tr>
<tr>
<td>Flow Capacity</td>
<td>2.83 CFM @ 20 psi</td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>Aluminum Diecast Body</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>6.5 lbs. with a terminal box</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:**
1) 1/2 split range can be adjusted
2) Feedback lever for stroke 80–150mm is available (EPL)
3) Stroke can be adjusted to 0º–60º or 0º–100º (EPR)

### Features

- Easy maintenance
- Precise calibration with simple SPAN and ZERO adjustments
- Simple conversion to Direct Acting or Reverse Acting
- Split range control available by simple adjustments without changing parts
- Simple structure for feedback connection
- Corrosion-resistant aluminum diecast body
- Sensitive response for high performance
- Vibration resistant design
- Stainless steel gauges standard
- A restricted pilot valve orifice kit for small actuators included
- Optional built-in limit switches or 4-20 mA position transmitter for feedback
- Optional directly-mountable positioner
**Principles of Operation**

**EPL (Linear Operation)**

As the signal current from the controller increases, the plate spring of the torque motor works as a pivot. As the armature receives the rotary torque in the counter-clockwise direction, the counter-weight is pushed to the left, the clearance between the nozzle and the flapper will increase, and the nozzle back pressure will decrease. As a result, the exhaust valve of the pilot valve moves to the right, and the output pressure of OUT1 increases to move the actuator diaphragm. The valve stem goes up or down by the movement of the actuator diaphragm, and the feedback spring lengthens or shortens by the movement of the feedback lever. The valve stem stays in the position where the spring force is balanced with the force generated by the input current in the torque motor. The compensation spring is for direct feedback of the motion of the exhaust valve and is connected to the counter-weight to enhance the stability of the loop. The zero point is adjusted by changing the zero adjustment spring tension.

**PPR (Rotary Operation)**

As the signal current from the controller increases, the plate spring of the torque motor works as a pivot. As the armature receives the rotary torque in the counter-clockwise direction, the counter-weight is pushed to the left, the clearance between the nozzle and the flapper will increase, and the nozzle back pressure will decrease. As a result, the exhaust valve of the pilot valve moves to the right, and the output pressure of OUT1 increases (as OUT2 decreases) to move the actuator.

The movement of the actuator in turn rotates the feedback shaft, and the feedback spring lengthens or shortens by the movement of the feedback cam connected to the feedback shaft. The actuator stays in the position where the spring force is balanced with the force generated by the input current in the torque motor. The compensation spring is for direct feedback of the motion of the exhaust valve and is connected to the counter-weight to enhance the stability of the loop. The zero point is adjusted by changing the zero adjustment spring tension.

**Installation**

**EPL 1200 (Linear Type)**

1) Connect the feedback lever to the control valve stem at position where the angle between the valve stem and the feedback lever is 90º as shown to the right when the input signal is set to 12 psi (50%).

2) The stroke range for the best performance should be 3/8" – 3-1/4" and the operation angle of the feedback lever should be between minimum 10º and maximum 30º to carry out accuracy and linearity perfectly.

**EPR 1200 (Rotary Type)**

Mount the positioner to the actuator at position where the feedback lever is in perfect alignment with the rotary actuator output shaft. The spring pin of the feedback lever "A" should be placed in the orifice of the feedback lever "B". Be sure that linearity and hysteresis will suffer if these alignment and placement are not correct.
**Air Piping**  
**EPL 1200 - Linear Type**

### Direct Acting (DA)

As the input signal increases,  
Valve stem moves downwards  
**Actuator : DA**  
**Connection : Out 1**

As the input signal increases,  
Valve stem moves downwards  
**Actuator : DA**  
**Connection : Out 2**

As the input signal increases,  
Valve stem moves downwards  
**Actuator : DA**  
**Connection : Out 1**

### Reverse Acting (RA)

As the input signal increases,  
Valve stem moves upwards  
**Actuator : RA**  
**Connection : Out 2**

As the input signal increases,  
Valve stem moves upwards  
**Actuator : RA**  
**Connection : Out 1**

### EPR 1200 - Rotary Type

#### Direct Acting (DA)

- **Main shaft**
- **Single action actuator**
- **OUT2 must be plugged**

- **Main shaft**
- **Double action actuator**
- **OUT1 must be plugged**

#### Reverse Acting (RA)

- **Main shaft**
- **Single action actuator**
- **OUT1 must be plugged**

- **Main shaft**
- **Double action actuator**
- **OUT2 must be plugged**

### How To Order

**EP**  
**R**  
**1000**  
**LS**  
**XX**  
**X**  

<table>
<thead>
<tr>
<th>EP</th>
<th>R</th>
<th>1000</th>
<th>LS</th>
<th>XX</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>PP</td>
<td>L</td>
<td>1200</td>
<td>(0) Limit Switches</td>
<td>XX</td>
<td>XX</td>
</tr>
<tr>
<td>Pneumatic</td>
<td>Linear</td>
<td>3–15 psi</td>
<td>No Transmitter</td>
<td>(Adjusts GAIN)</td>
<td>Dome Indicator</td>
</tr>
<tr>
<td>EP</td>
<td>R</td>
<td>1000</td>
<td>2 SPDT Mechanical</td>
<td>PS</td>
<td>X</td>
</tr>
<tr>
<td>Electro-Pneumatic</td>
<td>Rotary</td>
<td>4–20 mA</td>
<td>Proximity Switches</td>
<td>4–20 mA</td>
<td>Flat Indicator</td>
</tr>
</tbody>
</table>

**Example**

**EPR1000-LS-XX-X**  
Electro-Pneumatic Rotary Positioner, 4–20 mA signal, with 2 SPDT Limit Switches and Flat Position Indicator.
**Dimensions**

**EPL 1000**  
Linear type  
Dimensions in millimeters

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**EPR 1000**  
Rotary type

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**Accessories**

- **Position Transmitter Kit**
- **ROTARY TYPE MOUNTING BRACKETS**
- **LINEAR TYPE MOUNTING BRACKETS**
- **NAMUR Type Bracket**
  - (80 x 30) for direct mounting
  - (130 x 30) for direct mounting
- **Block Type Bracket**
  - (130 x 30)
- **DHCT Bracket**
  - (80 x 30)
- **Valve Stem Feedback Joint**
- **Flat Type Bracket**

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**TRIAC**  
DIVISION OF  
AT Controls, Inc.

11363 Deerfield Rd.  
Cincinnati, Ohio 45242  
(513) 247-5465  
FAX (513) 247-5462  
e-mail: sales@a-tcontrols.com  
Web site: www.a-tcontrols.com