TRIAC

Electro-Pneumatic Positioner

Linear & Rotary Type

A Solid Workhorse You Can Depend On For Consistent, Reliable Control

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

Specifications

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

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 0°–60° or 0°–100° (EPR)

Features

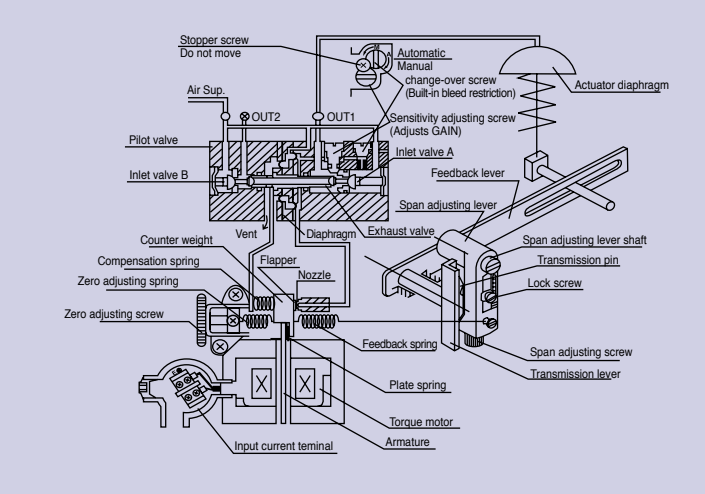
- Easy maintenance
- Precise calibration with simple SPAN and ZERO adjustments
- Simple conversion to Direct Acting or Reverse Acting
- Split range control available by simple adjustments without changing parts
- Simple structure for feedback connection
- Corrosion-resistant aluminum diecast body
- Sensitive 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.

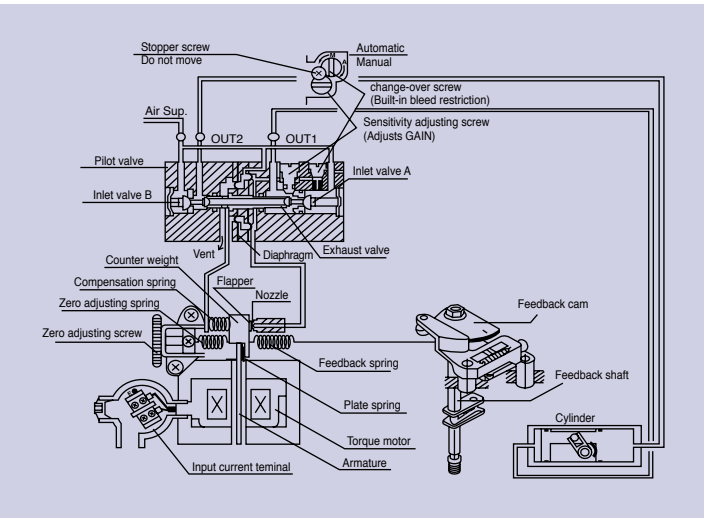
The valve stem goes up or down by the movement of the actuator diaphragm, and the feedback spring lengthens or shortens by the movement of the feedback lever. The valve stem stays in the position where the spring force is balanced with the force generated by the input current in the torque motor. The 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 willincrease, 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 OUT 1 increases (as OUT 2 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.

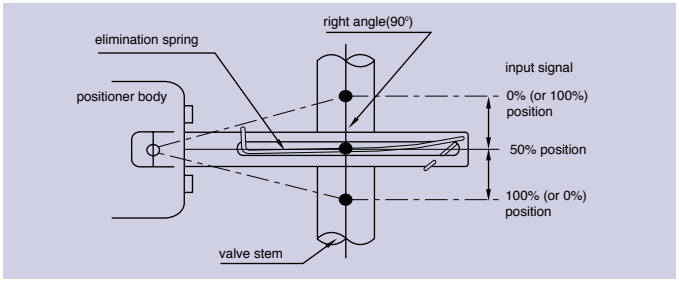


Installation

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%).

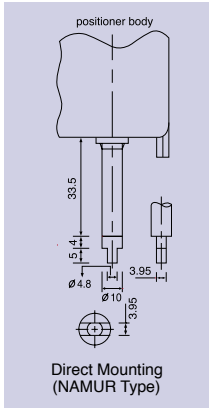
2) The stroke range for the best performance should be 3/8" – 3-1/4" and the operation angle of the feedback lever should be between minimum 10º and maximum 30º to carry out accuracy and linearity perfectly.



FEEDBACK LEVER INSTALLATION

EPR 1200 (Rotary Type)

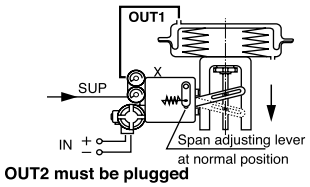
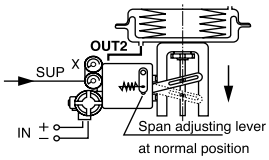
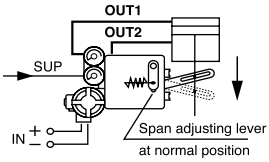
Mount the positioner to the actuator at position where the feedback lever is in perfect alignment with the rotary actuator output shaft. The spring pin of the feedback lever "A" should be placed in the orifice of the feedback lever "B". Be sure that linearity and hysteresis will suffer if these alignment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

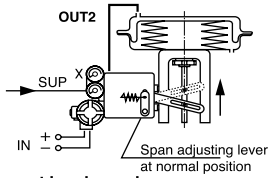
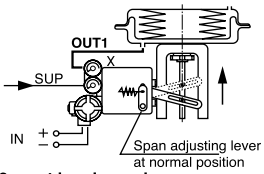
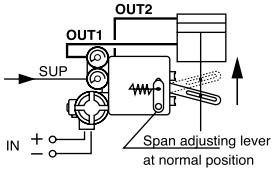


MOUNTING

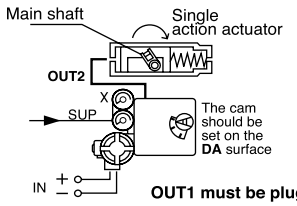
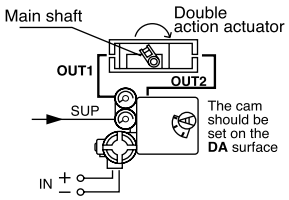
Air Piping

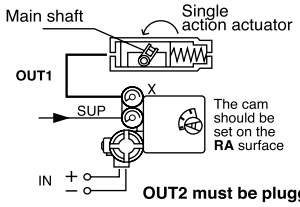
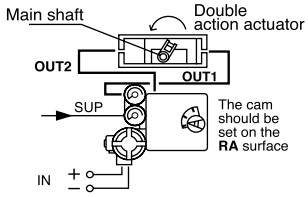
EPL 1200 - Linear Type

Direct Acting (DA)	
As the input signal increases, Valve stem moves downwards Actuator : **DA** Connection : Out 1	 **OUT2 must be plugged**
As the input signal increases, Valve stem moves downwards Actuator : **DA** Connection : Out 2	 **OUT1 must be plugged**
As the input signal increases, Valve stem moves downwards	

Reverse Acting (RA)	
As the input signal increases, Valve stem moves upwards Actuator : **RA** Connection : Out 2	 **OUT1 must be plugged**
As the input signal increases, Valve stem moves upwards Actuator : **RA** Connection : Out 1	 **OUT2 must be plugged**
As the input signal increases, Valve stem moves upwards	

EPR 1200 - Rotary Type

Direct Acting (DA)	
As the input signal increases, Actuator stem rotates clockwise.	 **OUT1 must be plugged**
As the input signal increases, Actuator stem rotates clockwise.	

Reverse Acting (RA)	
As the input signal increases, Actuator stem rotates counter-clockwise.	 **OUT2 must be plugged**
As the input signal increases, Actuator stem rotates counter-clockwise.	

How To Order

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

PP
Pneumatic

EP
Electro-Pneumatic

L
Linear

R
Rotary

1200
3–15 psi

1000
4–20 mA

XX
(0) Limit Switches

LS
2 SPDT Mechanical

PS
2 Proximity Switches

XX
No Transmitter

TR
4–20 mA PositionTransmitter

X
Flat Indicator

D
Dome Indicator

Example

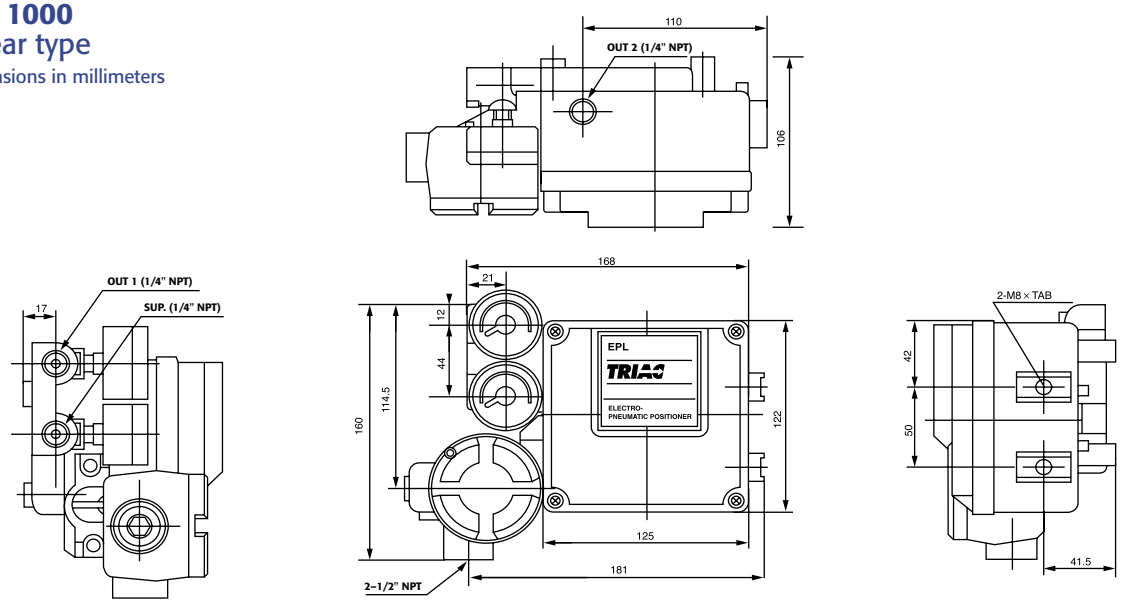
EPR1000-LS-XX-X

Electro-Pneumatic Rotary Positioner, 4–20 mA signal, with 2 SPDT Limit Switches and Flat Position Indicator

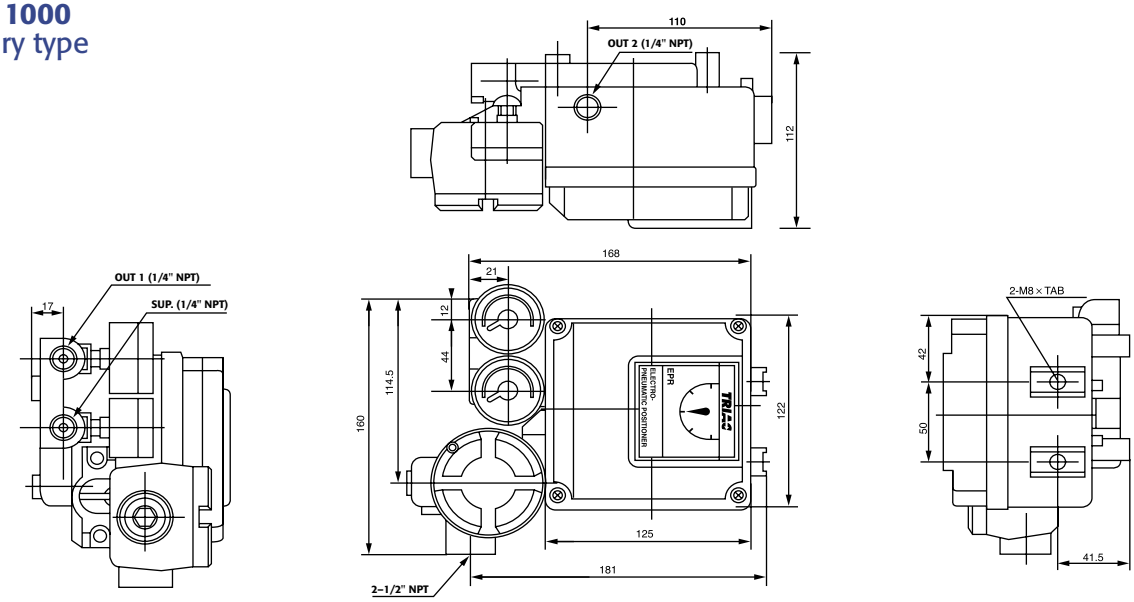
Dimensions

EPL 1000
Linear type

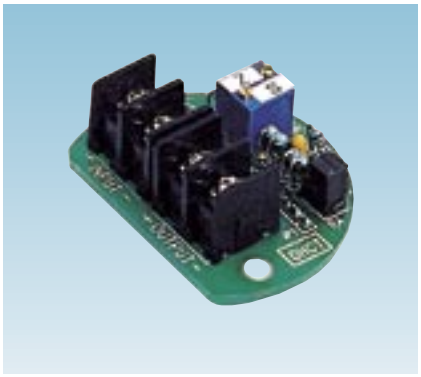
Dimensions in millimeters



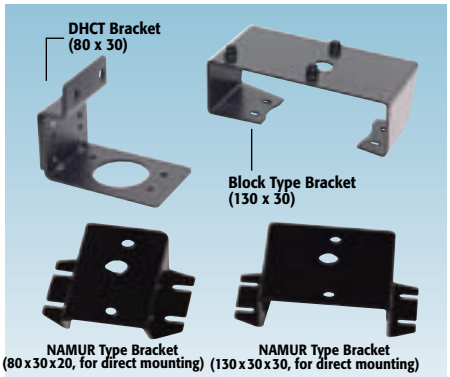
EPR 1000
Rotary type



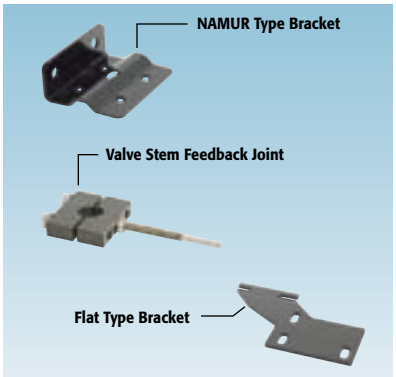
Accessories



Position Transmitter Kit



Rotary Type Mounting Brackets



Linear Type Mounting Brackets

TRIAC
DIVISION OF
A-T 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