

ELECTRO-PNEUMATIC POSITIONER

Linear & Rotary Type

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

Power-Genex Electro-Pneumatic Positioners (4-20mA linear and rotary type) are advanced control devices which provide unparalleled stability in difficult environments

FEATURES

- ◆ Easy Maintenance
- ◆ Precise Calibration with simple SPAN and ZERO adjustments
- ◆ Simple Conversion to Direct Acting or Reverse Acting
- ◆ 1/2 Spilt Range Available by simple adjustments without changing parts
- ◆ Simple Structure for feedback connection
- ◆ Corrosion-Resistant Aluminium Diecast Body
- ◆ Sensitive and Correct Response for high performance
- ◆ Economical Energy Saving
- ◆ Extremely Vibration Resistant Design
- ◆ Stainless Steel Gauges Standard
- ◆ A Restricted Pilot Valve Orifice Kit for small actuators included
- ◆ Optional Built-in Limit Switches or 4-20mA Position Transmitter for feedback
- ◆ Optional Directly-Mountable Positioner guaranteeing more outstanding stability



EPL (Linear Type)

SPECIFICATIONS

Type Item	EPL		EPR	
	Linear Type (lever feedback)		Rotary Type (cam feedback)	
	Single	Double	Single	Double
Input Signal	4...20mA DC (Note.1)			
Input Resistance	235 ± 15 ohms			
Supply Air Pressure	Max. 7.0 kgf/cm ² (100psi)			
Standard Stroke	10 ~ 80mm(Note.2)		60 ~ 100° (Note.3)	
Air Piping Connection	PT 1/4 (NPT 1/4)			
Conduit Connection	PF 1/2 (NPT 1/2)			
ExplosionProof Classification	Exmd II BT6, Exmd II C(H ₂) T6, IP66, Exia IIBT6			
Ambient Temperature	-20 ~ 70 °C			
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	5 LPM (Sup. 1.4 kgf/cm ²)			
Flow Capacity	80 LPM (Sup. 1.4 kgf/cm ²)			
Material	Aluminium Diecast Body			
Weight	2.9 kg (with a terminal box)			

Note : 1) 1/2 spilt 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)



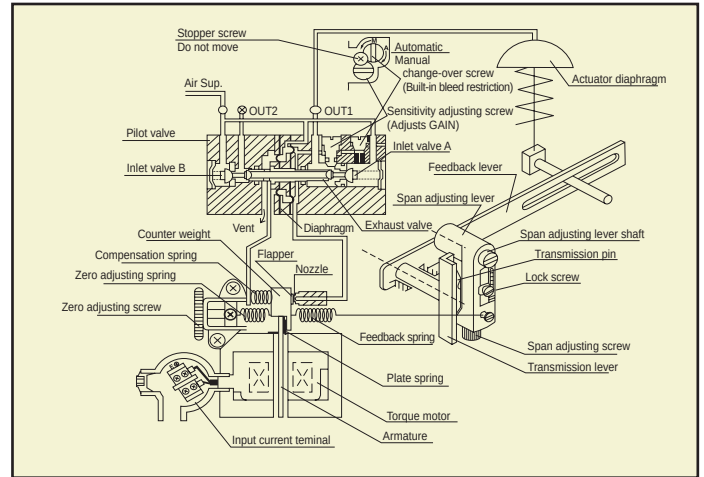
EPR (Rotary Type)

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.

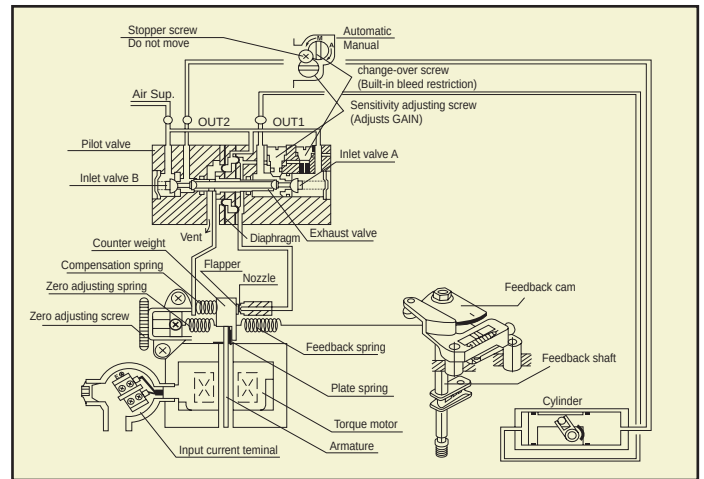
The valve stem goes up or down by the movement of the actuator diaphragm, and the feedback spring lengthens or shortens by the movement of the feedback lever. The valve stem stays in the position where the spring force is balanced with the force generated by the input current in the torque motor. The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



EPR (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 OUT 2 decreases) to move the cylinder actuator.

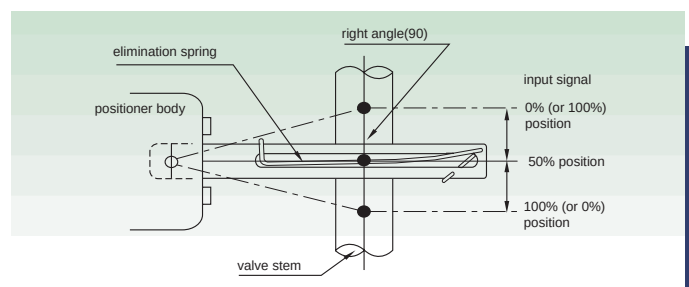
The movement of the actuator in turn rotates the feedback shaft, and the feedback spring lengthens or shortens by the movement of the feedback cam connected to the feedback shaft. The actuator stays in the position where the spring force is balanced with the force generated by the input current in the 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 (Linear Type)

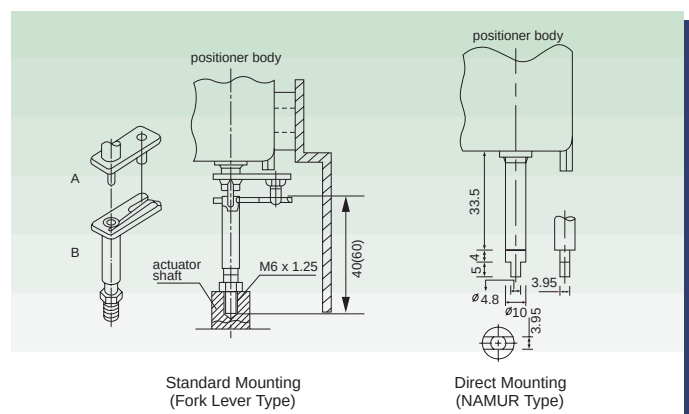
- 1) Connect the feedback lever to the control valve stem at position where the angle between the valve stem and the feedback lever is 90 degrees as shown to the right when the input signal is set to 12mA(50%).
- 2) The stroke range for the best performance should be 10 ~ 80mm and the operation angle of the feedback lever should be between Min. 10 degrees and Max. 30 degrees to carry out accuracy and linearity perfectly.



FEEDBACK LEVER INSTALLATION

EPR (Rotary Type)

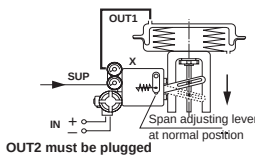
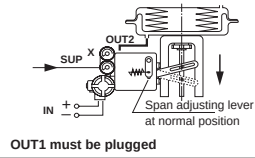
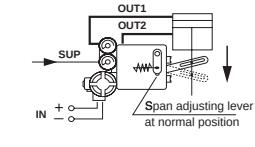
Mount the positioner to the actuator at position where the feedback lever is in perfect alignment with the rotary actuator output shaft. The spring pin of the feedback lever "A" should be placed in the orifice of the feedback lever "B". Be sure that linearity and hysteresis will suffer if these alignment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

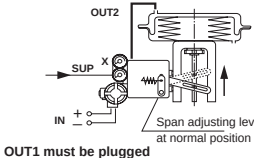
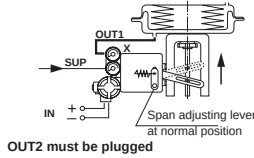
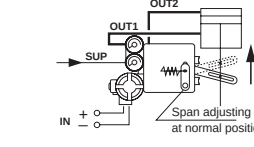


MOUNTING

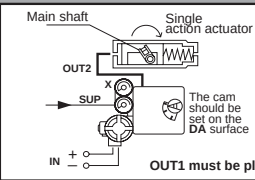
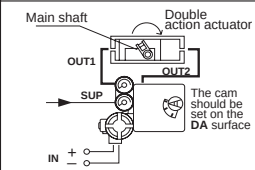
AIR PIPING

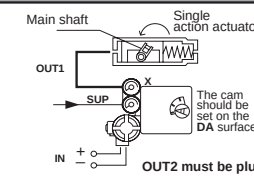
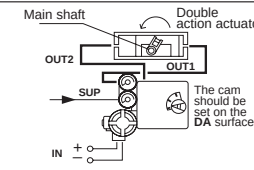
◆ EPL - LINEAR TYPE

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	

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	
As the input signal increases, Valve stem moves upwards	

◆ EPR - ROTARY TYPE

Direct Acting (DA)	
As the input signal increases, Actuator stem rotates clockwise.	
As the input signal increases, Actuator stem rotates clockwise.	

Reverse Acting (RA)	
As the input signal increases, Actuator stem rotates counter - clockwise.	
As the input signal increases, Actuator stem rotates counter - clockwise.	

HOW TO ORDER

EP	Actuator Operation	—	Input Signal	Feedback Lever Type	Pressure Gauge (SUP. OUT)	Construction	Pilot Valve Orifice	Position Feedback	Mounting Type
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Description	Code
Actuator Operation: - Linear Type - Rotary Type	L R
Input Signal: 4...20mA	1
Feedback Lever Type: - Linear Type - Rotary Type	A : Stroke (10~80mm) B : Stroke (80~150mm) A : M6 x 40L (standard) B : M8 x 40L C : M6 x 60L D : M8 x 60L
Pressure Gauge:	1 : 4 kgf/cm ² (60psi) 2 : 6 kgf/cm ² (80psi) 3 : 10 kgf/cm ² (150psi)

Description	Code
Construction	N: Without a Terminal Box W: With a Terminal Box (standard)
Pilot Valve Orifice	S: Standard Actuator (Actuator Volume over 180 cm ³) M: Small Actuator (Actuator Volume 90 ~ 180 cm ³)
Position Feedback	N:None(standard) O: Position Transmitter (Output Signal 4...20mA) L: 2 SPDT Limit Switches (only for EPR)
Mounting Type (only for EPR)	F: Standard Mounting (Fork Lever Type) D: Direct Mounting (NAMUR Type)

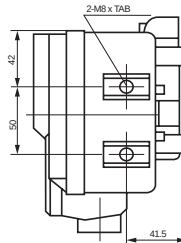
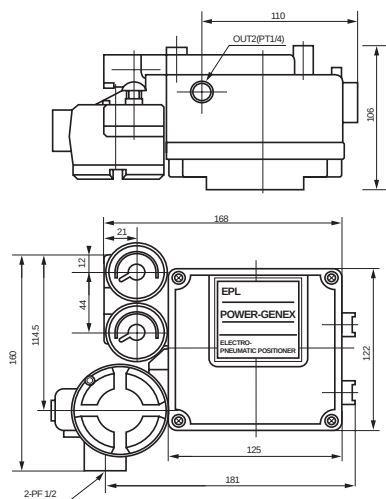
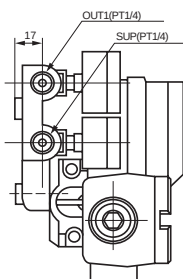
Example

EPR-1A2WSOF

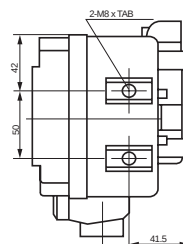
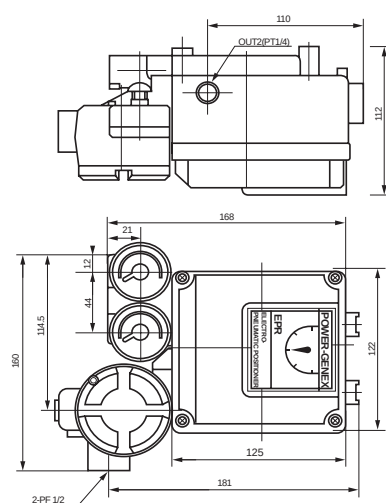
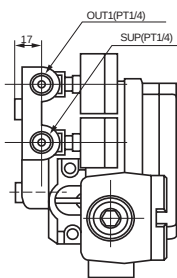
E/P Rotary Type Positioner with Input Signal 4...20mA , Feedback Lever M6 x 40L , Pressure Gauge 6 kgf/cm², Terminal Box , Pilot Valve Orifice for Standard Actuator , Position Transmitter (Output Signal 4...20mA), Standard Mounting (Fork Lever Type)

DIMENSIONS

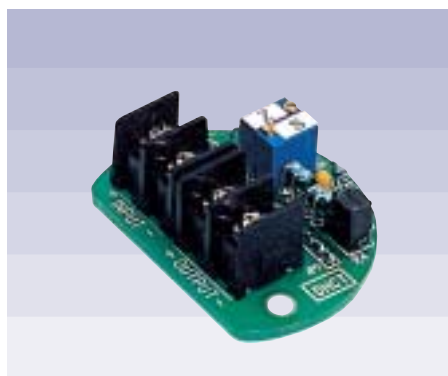
◆ EPL - LINEAR TYPE



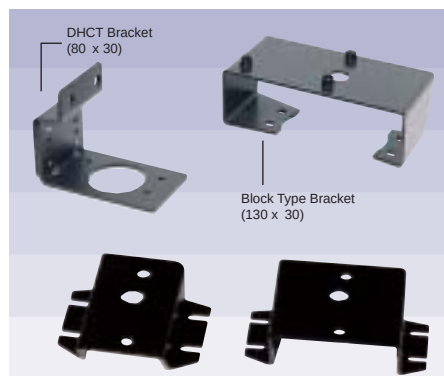
◆ EPR - ROTARY TYPE



ACCESSORIES

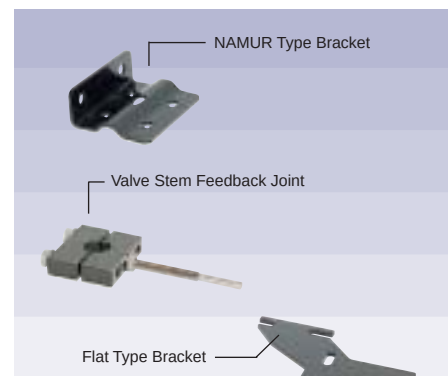


Position Transmitter Kit



NAMUR Type Bracket (80 x 30 x 20, for direct mounting) NAMUR Type Bracket (130 x 30 x 30, for direct mounting)

Rotary Type Mounting Brackets



Linear Type Mounting Brackets



ISO 9001 : 2000
KS A 9001 : 2001



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