Instruction and Operating Manual

Cylinder Positioner

PPCL / EPCL Series

Power-Genex Ltd.

1. Introduction

1.1 General Information

This instruction and operating manual contains important notices the user should observe for a personal safety as well as for prevention against damage to property. Notices concerning a personal safety are highlighted by a safety alert symbol (⚠).

1.2 General Safety Instructions

This product was delivered out from the factory without any safety problems after a strict quality management process. In order to maintain this status and ensure a safe operation of this product, please be sure to read all safety instructions carefully described in this manual and observe safety information and symbols without exception.

1.3 Correct Usage

① This product can be used only for purposes specified in these instructions. If they are not definitely stated in these instructions, the user is fully responsible for all changes and retrofits to this product.

② In case of the intrinsically safe product supplied, please make sure to connect this product to the certified intrinsically safe circuits. These circuits should correspond with the intrinsic safety parameters indicated on the product nameplate or the certificates. If the circuits do not correspond with the intrinsic safety parameters on the product nameplate or the certificates, any safety required for approval can no longer be warranted.

③ This product is the electrostatic sensitive device that may be seriously damaged by voltages undetectable to a human. These kinds of voltages occur as soon as a electronic component or an assembly is touched by a person who is not grounded against a static electricity. Damage to a electronic component as a result of overvoltage cannot usually be detected immediately. It may become apparent after a long period of operation. Therefore, please make sure to avoid electrostatic charge.

1.4 Range and Responsibilities of Personnel

① Qualified personnel should be trained, instructed or authorized in operating and maintaining products and systems according to the safety regulations for electrical circuits, high pressures and hazardous atmosphere.

② For explosion proof products, they should be trained, instructed or authorized in carrying out work on electrical circuits for hazardous systems.

③ They should be trained or instructed in maintenance and use of proper safety equipment according to the safety instructions.

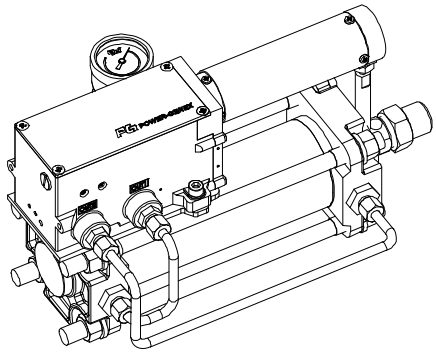
④ They should have a good experience to identify risks and avoid potential hazards when working with these products and systems.

1.5 Transport and Storage

Make sure that damages during delivery are prevented through proper packaging.

Products and replacement parts should be returned in their original packaging. If the original packaging is no longer available, please ensure that they should be packaged to provide sufficient protection against transport.

2. Overview of Structure



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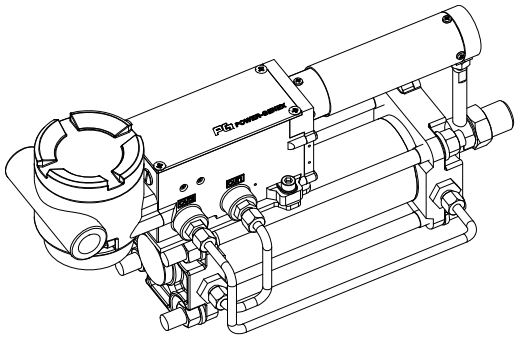

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3. Specifications

		PPCL	EPCL
Input signal		3 – 15psi (0.2 – 1bar)	4 - 20 mA @ 24 VDC
Impedance			425Ω
Supply air pressure		3 – 7bar(100psi) free of oil, water, or moisture	
Operating characteristic		Linear	
Pressure gauges		Stainless steel	·
Operating stroke		30mm - 300mm	
Operating characteristic	Linearity	1.0% F.S	
	Sensitivity	0.5% F.S	
	Hysteresis	1.0% F.S	
	Repeatability	0.5% F.S	
Air consumption		5LPM (Sup = 1.4 ~ 6 bar)	
Operating temperature		-20 ~ +70℃ (-4 ~ +158℉)	
Pneumatic connections		Rc 1/4 or NPT 1/4	
Electrical connections		·	G 1/2, NPT 1/2 or M20 X 1.5
Explosion proof / protection class		IP66	Flameproof Ex d IIC T6 / IP66
Body material / painting		Aluminum diecast / powder coating	
Weight		1.5kg	2kg

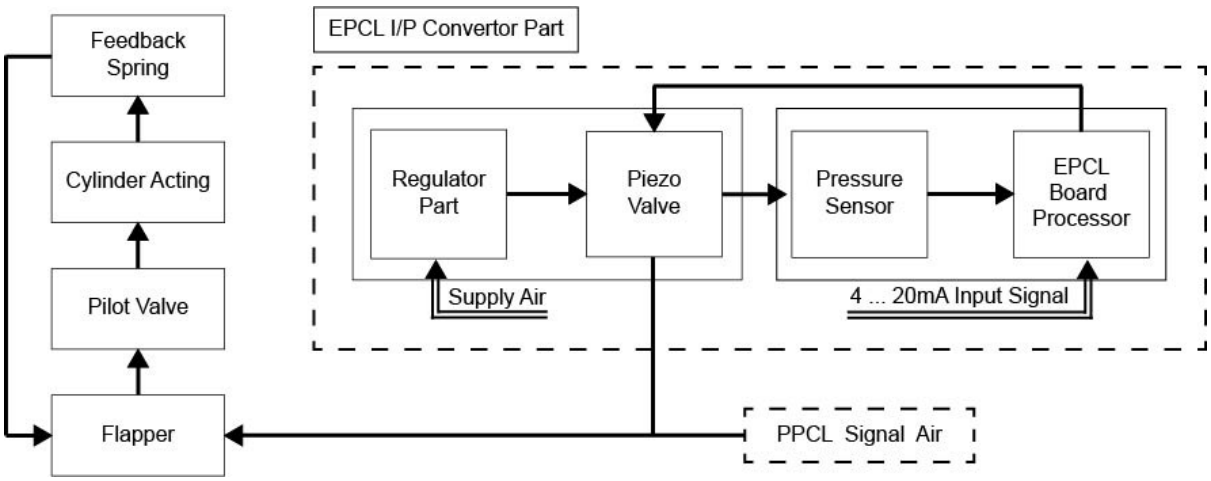
4. Part Numbering System (order code)

	PPCL (EPCL) -	X	X
Operating Stroke	On request (30mm – 300mm)	Stroke	
Connections (Pneumatic – Electrical)	Rc 1/4 – G 1/2		P
	NPT 1/4 – NPT 1/2		N

Ex) EPCL – 150P : EPCL, 150mm stoke, Rc 1/4 – G 1/2

PPCL – 200N : PPCL, 200mm stroke, NPT 1/4 – NPT 1/2

5. Principle of Operation



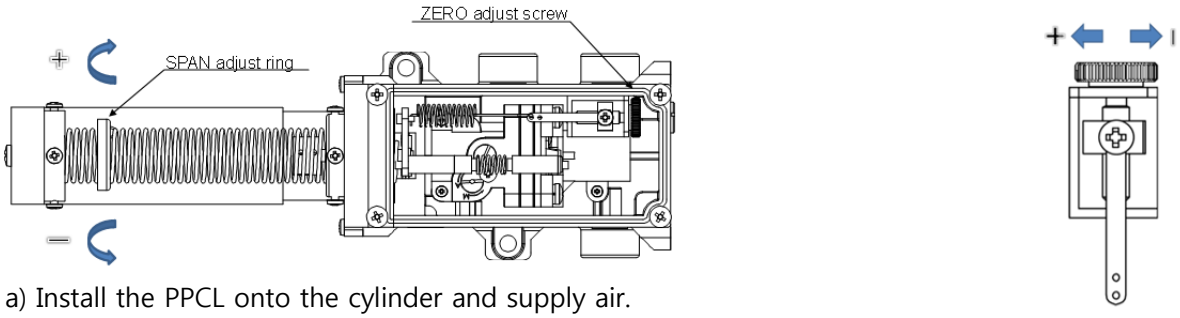
1. The EPCL convert the supply air to the pneumatic signals at the I/P converting part according the current input signals.
2. The PPCL is operating with 3-15psi pneumatic signals.
3. EPCL – I/P Convertor Part

   A supply air pressure is reduced at the regulator part and transmitted to a piezo valve. The control signals from the EPCL board are transmitted to a piezo valve for output pressure that is transmitted to the EPCL board as pressure feedback through a pressure sensor.

   (Piezo valve is a piezoelectric element that moves open or close according to current signals)
4. The pneumatic signals(3~15psi) move the flapper and settle the output pressure of the pilot valve Out 1 and Out 2. The cylinder is moved by the output pressure until the pneumatic signal is matched with the force of transmitted to the flapper through the feedback spring connected to the cylinder rod.

6. Setting

6-1. PPCL (3-15psi input signal)



a) Install the PPCL onto the cylinder and supply air.

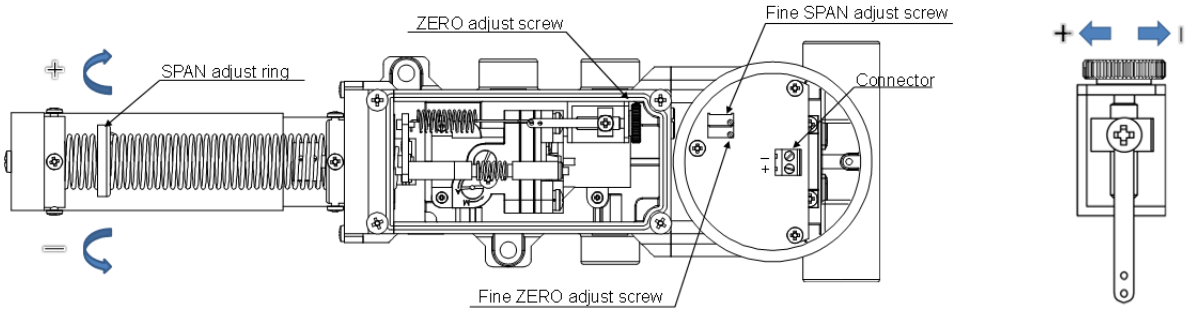
b) Dis-install the feedback spring protection tube by unfastening the bolts.

c) Supply 3psi input signal and turn the Zero adjust screw slowly until the cylinder reaches a fully closed position.

d) Supply 15psi input signal and turn the Span adjust ring slowly inside of the feedback spring protection tube until the cylinder reaches a fully open position.

e) Repeat c) and d) until the cylinder reaches a fully closed position and a fully open position.

6-2. EPCL (4-20mA input signal)



a) Install the EPCL onto the cylinder and supply air.

b) Dis-install the feedback spring protection tube by unfastening the bolts.

c) Supply 4mA input signal and turn the Zero adjust screw slowly until the cylinder reaches a fully closed position.

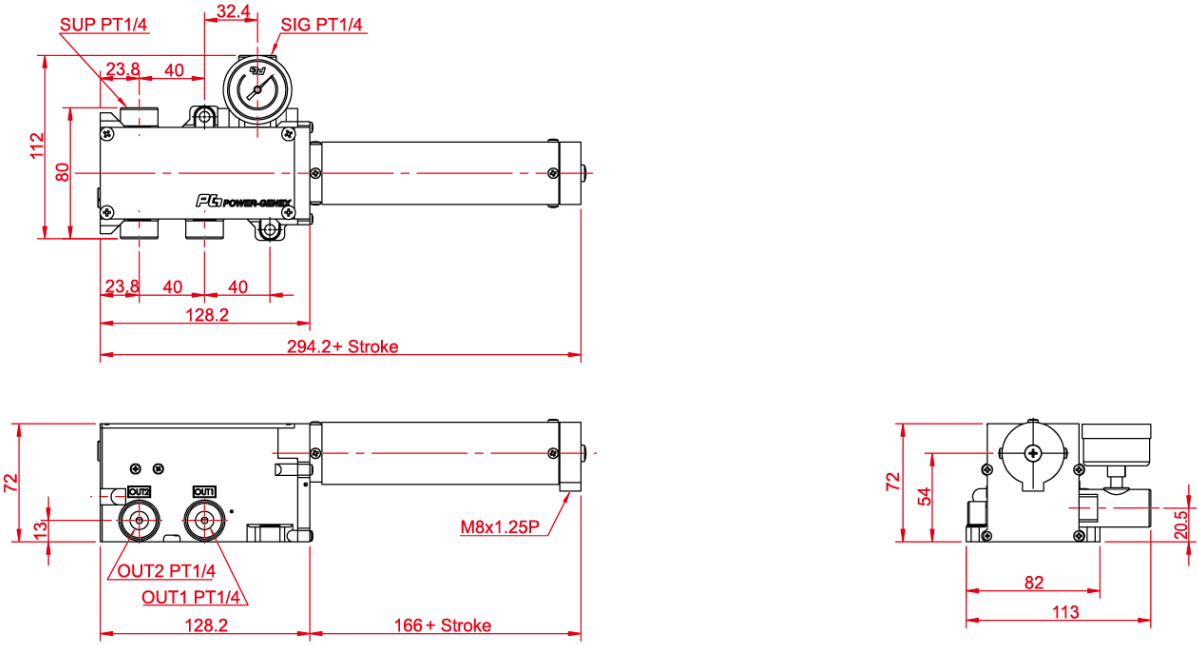
d) Supply 20mA input signal and turn the Span adjust ring slowly inside of the feedback spring protection tube until the cylinder reaches a fully open position.

e) Repeat c) and d) until the cylinder reaches a fully closed position and a fully open position.

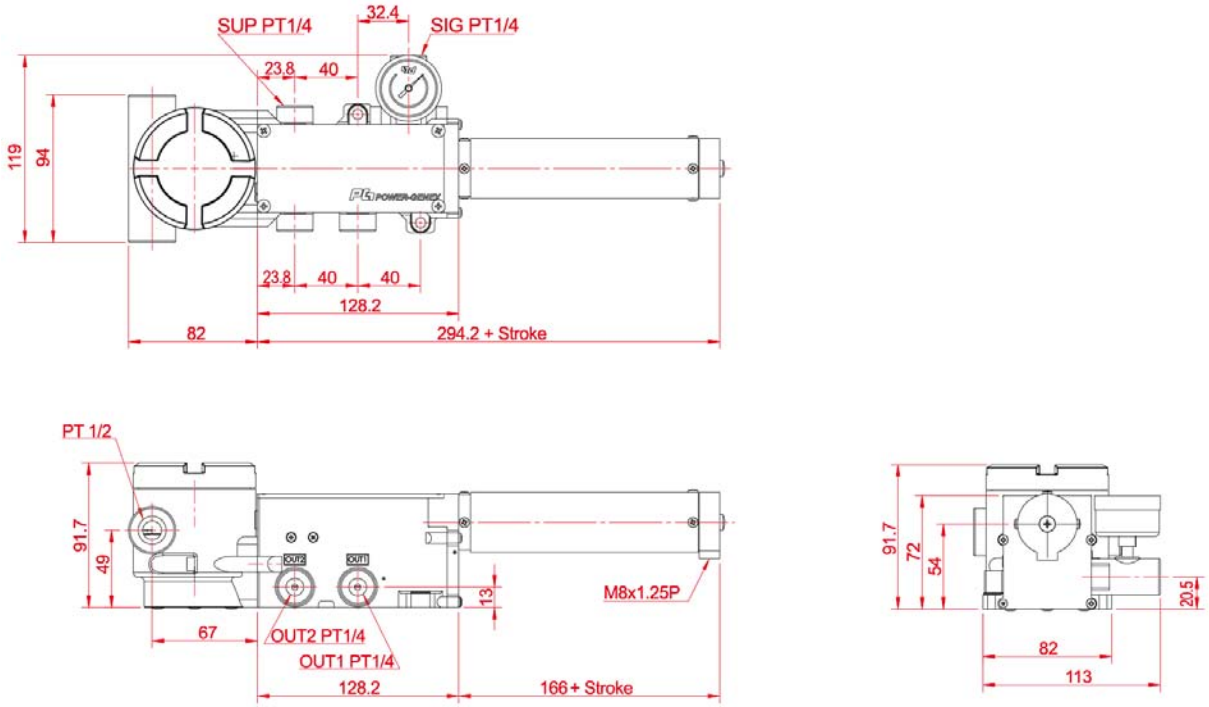
f) Turn the fine Zero adjust screw at 4mA input signal and the fine Span adjust screw at 20mA for a more precise setting.

7. Dimensions

7.1 PPCL



7.2 EPCL



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