

# ELECTRO PNEUMATIC CONVERTER

The Electro-pneumatic converter converts the electric signal elaborated by the control system into a proportional pneumatic signal to actuate the regulating device driven by the Pneumatic Actuator.

A force balance instrument, it incorporates a magnetic motor including a permanent magnet with a coil moving along its air gap to control the taper plug of a pneumatic valve. EP converter works on flapper nozzle principle. The pressure elaborated between the variable section orifice and a calibrated orifice is applied to the taper plug as a force balancing coil displacement. This pressure is the output control signal.

### Available Versions

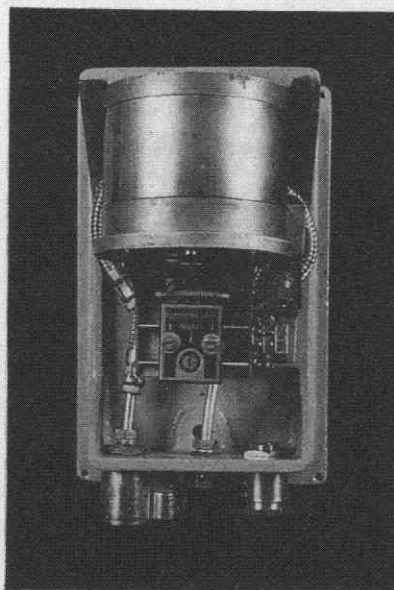
- EP 3 : Standard version
- EP 4 : Explosion proof version
- Intrinsic Safety Version
- EP 5 : dust proof & water proof enclosure as per IP 65/NEMA 4

### Main Parts

- Electro dynamic motor with permanent magnet and moving coil
- Pneumatic valve
- Housing

EP 3 and EP 5 : Drip tight cover; die cast aluminium alloy

EP 4 : Cover screwed on a base plate, with a locking device, aluminium alloy



### Electric Connection

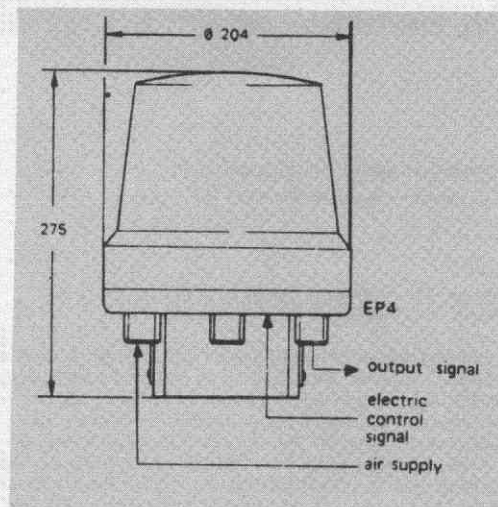
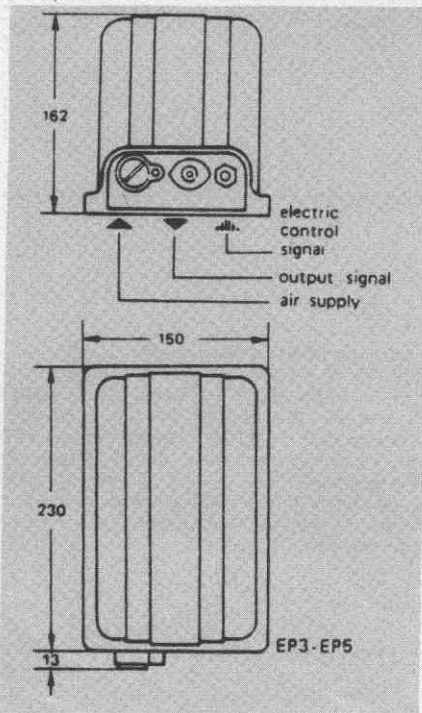
Two wire connection  
 EP 3 and EP 5 : Conduit connection for cable dia. 11 to 13  
 EP 4 : Tapped 3/4" NPT for explosion proof packing gland (Customer supply).

### Pneumatic connection

EP 3 and EP 5 : Tapped  
 EP 4 : Explosion proof connections  
 Connecting tubing from EP to positioner, tube ID 4 mm, OD 6 mm, maximum length 6 m

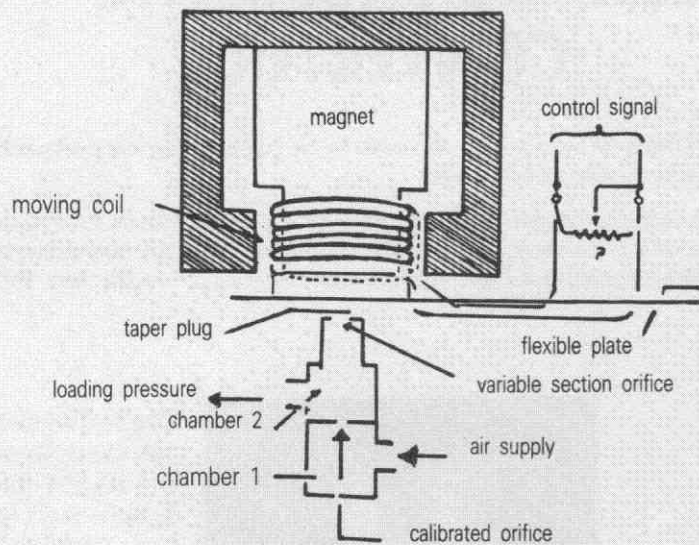
### Mounting

Vertical mounting on a wall or a tube  
 Possible mounting on a vibration dampener  
 The pressure reducer out put may be > 250 l/h



Type	Model	Weight
EP3	standard	8 kg
EP5	tropicalized	
EP4	explosion proof	9 kg

## SCHEMATIC DIAGRAM



### Operating specifications

Input signal (Control current)  
 Range: 4 to 20 mA  
 Impedance:  $190 \Omega \pm 30 \Omega$  and  $22^\circ\text{C}$   
 Output pressure (loading pressure)  
 Range 0.2 to 1 bar  
 Maximum transient flow : 250 l/h

### Air Supply

Rated pressure : 1.4 bar  $\pm$  0.1 bar / 20 psi  $\pm$  1 psi  
 Permanent rate requirement : 180 l/h  
 Insulation resistance : 100 M  $\Omega$  under 500 V DC  
 Ambient operating temperature : 0 to  $+60^\circ\text{C}$   
 Limit operating temperature :  $-20^\circ$  to  $+80^\circ\text{C}$

### PERFORMANCE

Under reference conditions  
 — Temperature:  $+22^\circ\text{C} \pm 2^\circ\text{C}$ , Relative Humidity :  $55\% \pm 15\%$   
 — Accuracy :  $\pm 1.5\%$   
 — Repeatability :  $\pm 1.5\%$

### Environmental influence

— Temperature effect  
 on zero drift :  $2 \cdot 10^{-4}$  bar/ $^\circ\text{C}$   
 on slope drift :  $4 \cdot 10^{-4}$  bar/ $^\circ\text{C}$   
 on impedance :  $4 \cdot 10^{-3}$  bar/ $^\circ\text{C}$   
 — Supply pressure effect on the output pressure: 0.5% / 100 m bar  
 — Effect of a permanent supply rate on the output pressure:  
 1% / 20 l/h

Technical Specifications subject to change

## KELTRON CONTROLS

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