

# CURRENT TO PRESSURE (I/P) CONVERTER

**Control Air**  
**3-15 to 3-120 psi**

## IP210 Series



- ✓ Loop Powered
- ✓ Ideal for Pneumatic Control Systems
- ✓ IP65 Sealed Case
- ✓ Zero and Span Adjustments for Field Calibration
- ✓ Rugged Zinc-Cast Housing



IP210-X15 shown  
actual size.

A “current to pressure” converter (I/P) converts an analog signal (4 to 20 mA) to a proportional linear pneumatic output (3 to 15 psig). Its purpose is to translate the analog output from a control system into a precise, repeatable pressure value to control pneumatic actuators/operators, pneumatic valves, dampers, vanes, etc. The IP210 is a loop-powered instrument, which eliminates the need for an external power supply (except for IP210-X120).

### Principle of Operation

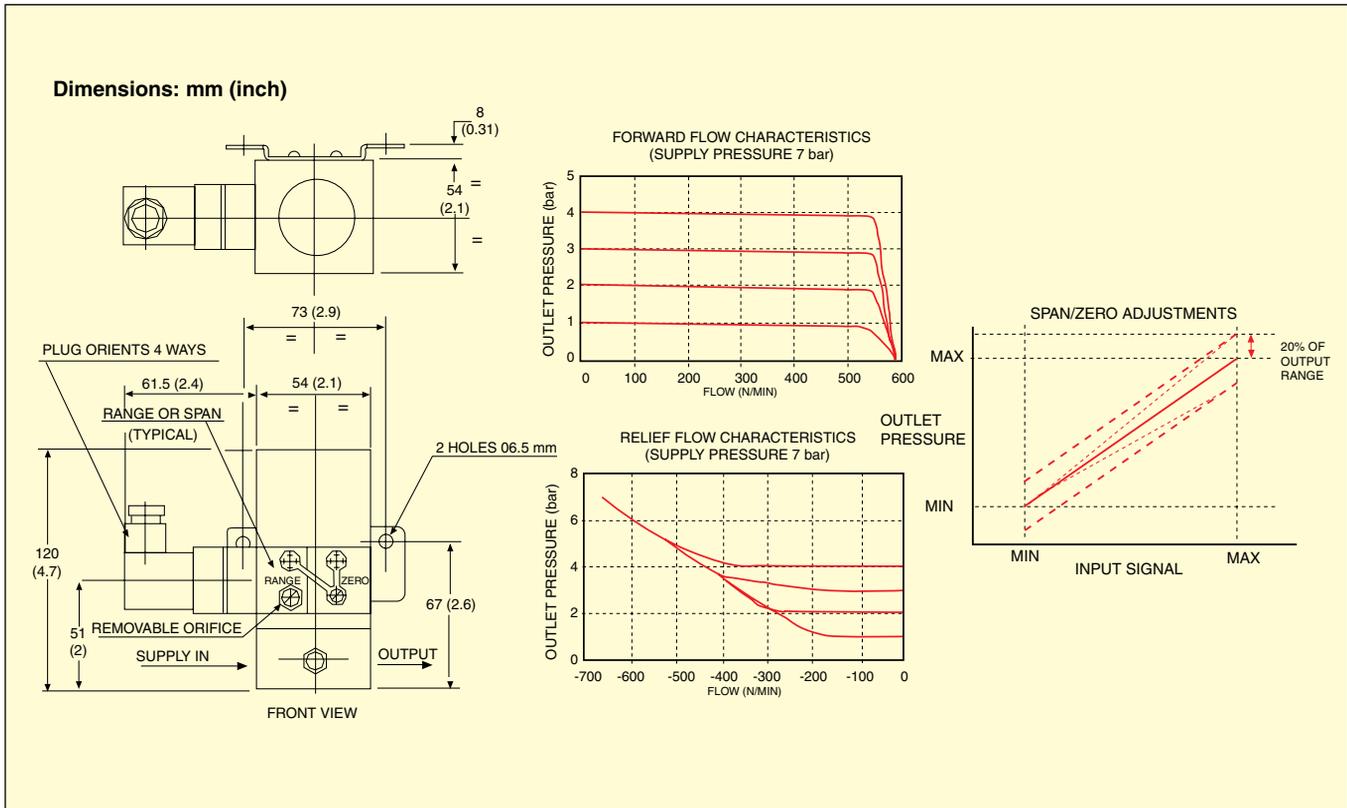
TRODEX’s IP210 converts an analog signal (4 to 20 mA) to a proportional linear pneumatic output (3 to 15 psig). Its uncomplicated design and proven electromagnetic force balance deliver consistently high performance.

The IP210 provides a reliable, repeatable, accurate means of converting an electrical signal into pneumatic pressure. Its force balance principle is a coil suspended in a magnetic field on a flexible mount. At the lower end of the coil is a flapper valve that operates against a precision ground nozzle to create a backpressure on the servo diaphragm of a booster relay.

The input current flows in the coil and produces a force between the coil and the flapper valve, which controls the servo pressure and the output pressure.

Zero adjustment of the unit is made by turning a screw that regulates the distance between the flapper valve and the air nozzle. Span adjustment is made by varying a potentiometer, which shunts input current past the coil. An integral volume flow booster provides adequate flow capacity, resulting in fast response time and accurate control.

# LOOP-POWERED ELECTROPNEUMATIC CONTROL



## SPECIFICATIONS

**Accuracy:** 0.5% FS  
**Supply Sensitivity:** 0.025% span per % supply pressure change  
**Zero Adjustment:** 5% FS  
**Span Adjustment:** 20% FS  
**Operating Temp:** -20 to 70°C (-5 to 160°F)  
**Compensated Temp:** -10 to 60°C (15 to 140°F)  
**Thermal Effects:** <0.1%/°C over operating range  
**Input Resistance:** <300 Ω

**Media:** Oil-free, clean, dry air filtered to 25 μm  
**Recommended Supply Pressure:** 25 to 30 psig (filtered air)  
**Max Supply Pressure:** 80 psig (for IP210-X120: 135 psi)  
**Min Supply Pressure:** 10 psi above maximum output pressure  
**Air Consumption (Leakage):** 0.03 scfm  
**Flow Rate:** 10 scfm ≤60 psi; 0.06 >60 psi  
**Response Time:** <30 psi [less than 0.5 s (10 to 90% step); ≥30 psi: 2 s]

**Failure Mode:** Upon electrical failure, the signal pressure falls to bleed pressure  
**Pressure Port:** ¼ FNPT  
**Electrical Connection:** DIN 43650 with screw terminals included  
**Housing:** IP65 rated, epoxy-painted zinc die castings  
**Construction:** Nitrile diaphragms, stainless steel/nylon flapper, nozzle and supply valve, integral surface mounting bracket included  
**Weight:** 1.7 kg (3 lb)

## To Order

MODEL NO.	INPUT RANGE	OUTPUT RANGE
IP210-X15	4 to 20 mA	3 to 15 psig
IP210-X30	4 to 20 mA	3 to 30 psig
IP210-X60	4 to 20 mA	3 to 60 psig
IP210-X120	4 to 20 mA*	3 to 120 psig

\* 3-wire system. External 24 Vdc power supply required.

Comes complete with operator's manual.

**Ordering Examples:** IP210-X15, I/P converter, takes a 4 to 20 mA control signal and converts it into 3 to 15 psig control air.  
 IP210-X60, I/P converter, takes a 4 to 20 mA control signal and converts it into 3 to 60 psig control air.