IP81-2000EX (NEMA 4X, 3-27psig output)
IP81-3000EX (NEMA 4X, 3-15psig output)
IP81-4000EX (NEMA 4X, 6-30psig output)

IP81

Explosion Proof Current to Pressure Transducer

Produces a Pneumatic Output in Response to a Current Input

- Compact Size
- Explosion Proof
- Intrinsically Safe
- Mount in Any Orientation
- Easy Wiring
- Accuracy±0.10% of Span
- RFI/EMI Protected
- Supply Pressures up to 100psig

The IP81 Explosion proof current to pressure transducer produces a pneumatic output that is directly proportional to a current input signal. A closed loop pressure feedback control system provides a highly accurate, stable air pressure output for the operation of actuated valves. The unit can mount in any position and is insensitive to vibration. Its compact housing and easily accessible ports and adjustments make setup and installation simple. An integral volume booster provides high flow capacity, which increases control speed in critical applications.

This compact I/P transducer delivers reliable high performance for the toughest applications in the most hazardous environments. The IP81 converts an electrical current signal to a stable, pneumatic output to actuate valves. Its NEMA 4X (IP65) housing is designed for both intrinsically safe and explosion proof operation. Advanced circuitry includes electronic feedback control for superior vibration protection and highly accurate output. With flow rates up to 12 SCFM (20m^3/hr), the IP81 has the muscle to drive large valves and actuators. It is very economical to operate, consuming only 0.05 SCFM (0.11m^3/hr), which is especially important in natural gas applications. Its small footprint can fit into tight spots. An optional mounting kit lets you mount it directly on a valve, wall, panel, or 2" pipe. And since the IP81 is position insensitive, it provides even more freedom in mounting and connecting to valves and instruments. Easy access Zero and Span adjustments make bench or field calibration quick and easy.

For operating versatility, you can choose direct, reverse, and split range modes. A piezoelectric bimorph actuator and surface mounted electronics are conveniently mounted on a removable control manifold that allows easy maintenance. The IP81 can be out of the box and up and running quickly. Whether designing a new control system or upgrading an old one, the IP81 is the best unit for the job. It is a great combination of performance and value. contact Action Instruments today and one of our application specialists will be happy to discuss your needs.

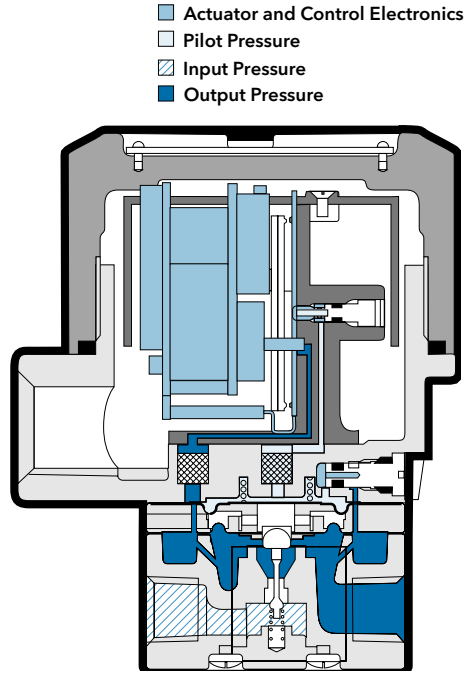

Figure 1. IP81 Operation

The IP8 utilizes a nozzle to control a pilot pressure to an integral volume booster. The resultant output pressure is measured by a pressure sensor, which in turn provides a feedback signal to the control circuitry. The feedback circuit compares this signal to the input signal and self corrects as necessary, thus minimizing the effects of vibration, position, temperature and supply pressure. The current signal flows to the piezo actuator causing it to bend toward the nozzle. This restricts the flow of air through the nozzle and creates back pressure in the pilot pressure chamber. This back pressure acts as a signal pressure which in turn controls the pressure at the output.

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Specifications

Functional Specifications

Inputs: 4-20 mA

Outputs:

3-15 psig (0.20-1.00 BAR)
3-27 psig (0.20-1.80 BAR)
6-30 psig (0.40-2.00 BAR)

Air Consumption:

3.0 scfh (0.11 m3/hr) at mid range

Supply Pressure:

100 psig (7.0 BAR) maximum Note that supply pressure must be a minimum of 5 psig above maximum output.

Flow Capacity:

4.5 scfm (7.6 m^3/hr) at 25 psig (1.7 BAR) supply
12.0 scfm (20.0 m^3/hr) at 100 psig (7.0 BAR) supply

Temperature Limits:

Operating: -40° to +160°F (-40° to +71°C)
Storage: -40° to +200°F (-40° to +93°C)

Loop Load, I/PTransducer:

9.5 VDC @ 20 mA

Operating Modes:

direct, reverse and split range

Performance Specifications

Accuracy, Hysteresis and Repeatability:

±0.10% of span

Deadband:

0.02% of span

Position Effect:

No measurable effect

Vibration Effect:

< ±1.0% of span under the following conditions:
5-15Hz @ 0.8 inches constant displacement;
15-500Hz @ 10g's

Supply Pressure Effect:

No measurable effect

Temperature Effect:

±0.045%/°F (0.07%/°C) of span

Reverse Polarity Effect:

No damage from reversal of normal supply current (4-20 mA) or from misapplication of up to 60 mA.

RFI/EMI Effect:

< 0.5% of span change in output pressure per EN 61000-4-3:1998, Amendment 1, Performance Criterion A.

Physical Specifications

Port Sizes:

Pneumatic 1/4" NPT
Electric 1/2" NPT

Media:

Clean, dry, oil-free, air-filtered to 40 microns.
Sweet natural gas or methane when purchased with the (E) option.

Mounting:

Direct wall, panel, or 2" pipe (optional)

Enclosure:

NEMA 4X (IP65)

Materials:

Housing: Chromate treated aluminum with epoxy paint.
Elastomers: Buna-N
Trim: Stainless steel; brass; zinc plated steel

Weight:

1.8 lbs. (0.82 kg)

Hazardous Area Classifications

Factory Mutual (FM) and Canadian Standards Association (CSA) Approvals

Zone Certification	Entity Parameters	Temperature Code	Enclosure
Intrinsic Safety Class I, Division 1 Groups C & D Class II, Division 1 Groups E, F, & G Class III, Division 1 Fibers	Vmax = 30Vdc Imax = 125mA Pi = 0.7W Ci = 0 nF Li = 0 mH	T4 Ta = +70°C	NEMA-4x
Explosive Proof Class I, Division 1 & 2 Groups B, C, & D Class II & III Division 1 Groups E, F, & G	-----	T6 Ta = +70°C	NEMA-4x

Ordering Information

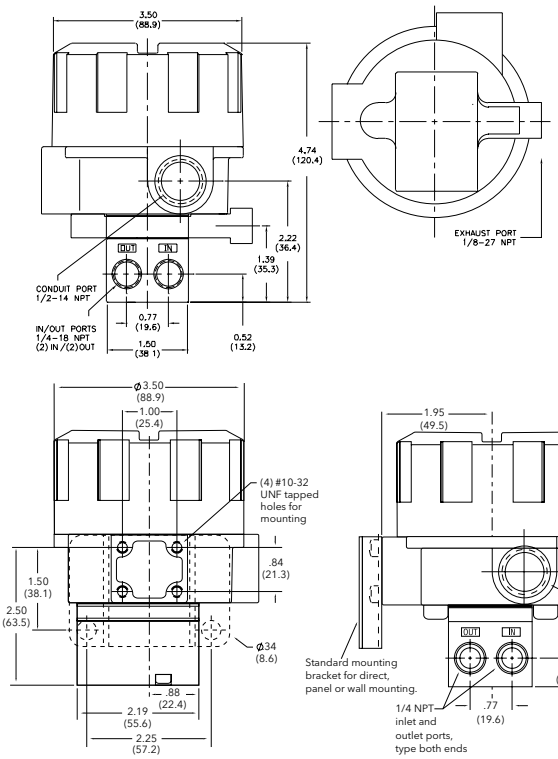
Specify:

1. Model:
   IP81-2000EX (NEMA 4X, 3-27psig output)
   IP81-3000EX (NEMA 4X, 3-15psig output)
   IP81-4000EX (NEMA 4X, 6-30psig output)
2. Mounting Kit:
   IPX-P2KIT (2" pipe mounting kit)

Dimensions

Dimensions are in inches (millimeters)

Dimensions IN (mm)	Standard Unit	Natural Gas Option
A	2.07 (52.6)	2.22 (56.4)
B	4.59 (116.6)	4.74 (120.4)
C	2.50 963.5)	2.65 (67.3)



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