

IP51 & IP61

MODEL



Benefits

- Intrinsically Safe or Explosion Proof
- Rugged Housings - NEMA 4X (IP51) or Explosion Proof (IP61)
- Field Configurable Direct, Split and Inverse Ranges
- Calibrate without Removing Tubing or Wires (with Optional Test Jack)
- Accuracy better than 0.15% (345 psig)
- One Year Warranty



Current To Pressure Transducer

Provides a Pneumatic Output Proportional to a Current Input

DESCRIPTION

The IP51 and the IP61 current to pressure converters produce a pneumatic output in response to a current input. They are useful for applications involving the control of actuators, valves, or interfacing electrical equipment to pneumatic instrumentation.

This series of I/P transducers represents a new generation in pneumatic signal conversion. The unique solid state current to pressure converter uses minimal electrical energy and air consumption to produce accurate, output pressure signals. Because there are no moving parts, the unit will operate reliably for many years when installed properly. They are designed for ease of installation and operation.

These transducers are available in a NEMA 4X housing (IP51) or in an Explosion Proof housing (IP61). They are rated Intrinsically Safe and are available with FM approval (standard) and CSA approval (optional).

OPERATION

A block diagram outlining the operation of the units is shown as Fig. 1. The electric to pneumatic conversion takes place in the E-Pi valve. A conditioned 4-20 mA input signal provides a current to the coil of the E-Pi. This creates a magnetic field which magnetizes the valve. The magnetization is proportional to the input current signal and positions the membrane relative to the valve seat. The pneumatic output (back pressure) is thereby modulated relative to the input current. Further conditioning of the pneumatic output is achieved with a volume booster.

Final conditioning of the boosted pneumatic output signal is achieved by actually measuring the output with a pressure sensor. This signal is then compared with the current to the "E-Pi" to achieve the exact pneumatic output relative to the 4-20 mA current input.

MODEL SELECTION

- IP51** 4-20 mA input, NEMA 4X
- IP61** 4-20 mA input, Explosion Proof



Protecting the Integrity of Industrial Process Signals



SPECIFICATIONS

Input	4-20mA
Output	3-27, 3-15, 6-30 PSIG
Accuracy	3-15 PSIG: $\pm 0.15\%$ of Span 3-27, 6-30 PSIG: $\pm 0.25\%$ of Span
Repeatability	0.05% of Span
Deadband	0.02% of Span
Stability/Reproducibility	0.5% of Span / 6 months
Position Effect	Not Measurable
Vibration Effect	<0.25% from 1-200Hz/1g
Frequency Response	-3db at 5Hz (per ISA-S26.4.3.1 Configuration A)
Loop Load	3.8VDC + 5Ω (195 Ω load at 20 mA)
Operating Current	3.7 mA min., 200 mA max, continuous at 120°F Half Cycle 70 amp 1/20sec. at 68°F
Failure Mode	Transducer always fails in the direct mode, i.e., if input current drops below 3.7 mA DC the output will drop to 1 to 2 psig regardless of direct or reverse mode selection
Enclosure	Internally purged NEMA 4X Cast/Machined Aluminum with powder coat epoxy.

Connections	1/4" NPTF supply port (1). 1/4" NPTF output Port (2). 1/2" NPTF electrical conduit connection.
Weight	2.5 lbs
Supply Pressure	Minimum of 3 psig and maximum of 10 psig above the maximum calibrated output.
Supply Pressure Effect	Not measurable within the recommended supply pressure range.
Output Capacity	4.0 SCFM (Supply and Exhaust Characteristics are balanced to within $\pm 10\%$)
Air Consumption	0.04 SCFM Steady State Average (0.06 SCFM Maximum)
Operating Temperature	-20° to 150 °F (-29° to 66 °C)
Temperature Effect	<1% per 100 °F (38 °C) change
RFI-EMI Effect	Per SAMA PMC 33.1 standard (b), (c) 20 to 100 MHz, Class 3 effect on zero & span less than 1%
Operational Modes	Direct, reverse and/or split-range (field-selectable, no additional parts needed)
Agency Approvals	CSA & FM approved for hazardous environments (refer to manual for details, #741-0014) <i>Consult Factory for details</i>

MODELS & ACCESSORIES

Accessories

P901	Test Jack Plug
P902	Filter Regulator (150PSI, max. input)
P903	Output Gauge
P906	2 1/2-inch Pipe Mount Kit
P915	Replacement Transducer 3-15 PSI
P927	Replacement Transducer 3-27 PSI

Ordering Information

Specify:

- Model: **IP51, IP61**
- Output:
 - 2000 for 3-27 psig
 - 3000 for 3-15 psig
 - 4000 for 6-30 psig
- Options: **CS** for Canadian Standards Association Certification

DIMENSIONS

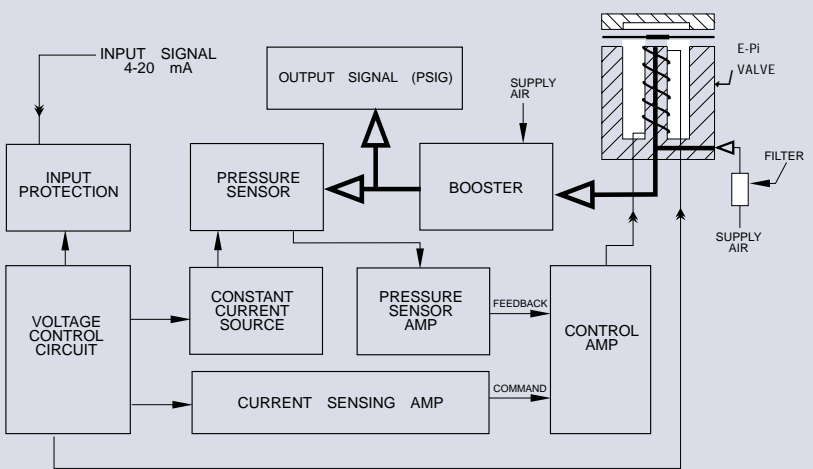
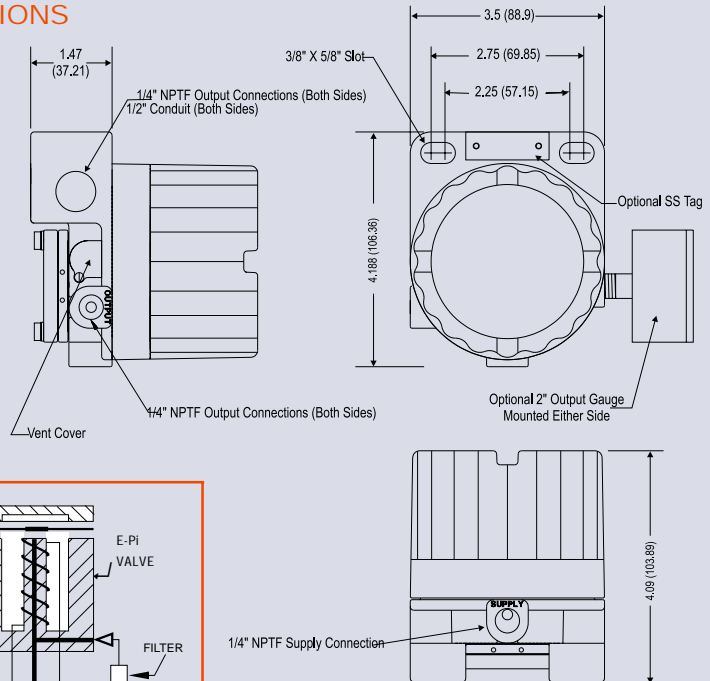


Figure 1: Operational Block

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