

NEW
High-Performance
Models!

Description

These 2-wire (loop-powered) I/P transmitters accept a current signal (such as 4-20mA) from a DCS, PLC or PC-based control system. They convert the current signal to a pneumatic signal (3-15psig, 0.2-1Bar, 20-100kPa, etc.) to provide precise, proportional control of valves, actuators, and other pneumatically-controlled devices.

The economical IPH² (NEMA 4X, IP66) is watertight, dust-tight, and resistant to corrosion and chemicals. In addition to meeting NEMA 4X, IP66 requirements, the IPX² can be installed in explosion-proof environments.

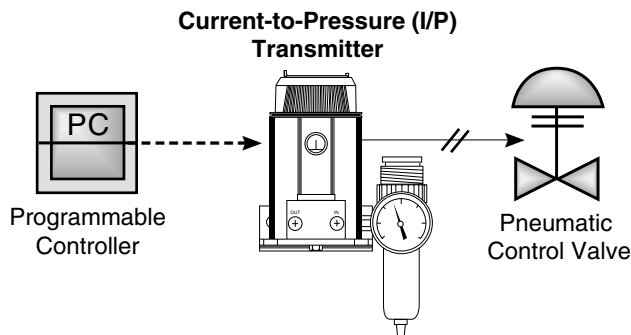
Both units are available with an optional coalescing filter/regulator that combines an air filter and miniature supply line regulator with a pressure gauge that reads in both psig and Bars.

Approved for Use with Natural Gas

Special design, construction, and materials allow the model **IPX² with the -NG1 or -NG2 option** to be used with natural gas as its pneumatic supply (commonly referred to as sweet gas consisting of up to 20ppm of H₂S).

This advantage allows the IPX² to be installed in remote compressor sites where it is too expensive or impossible to run a clean air supply.

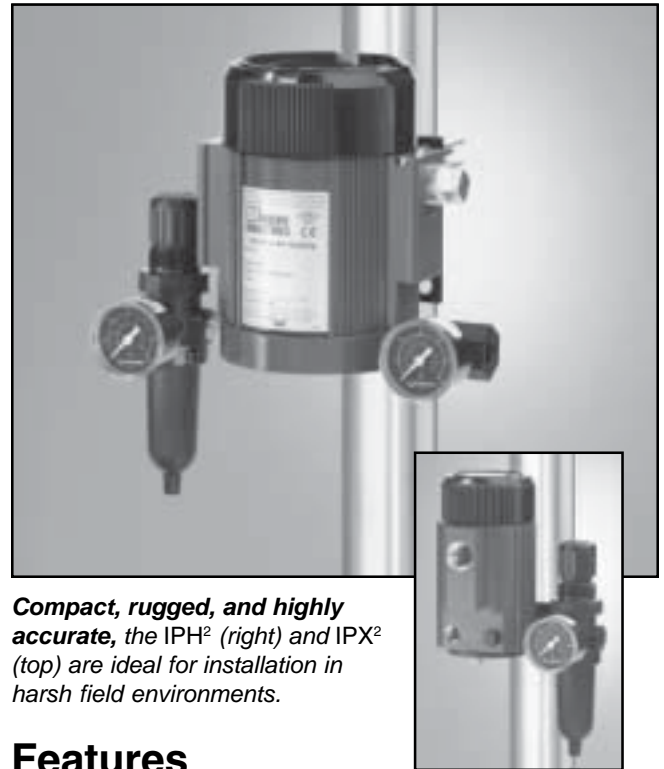
Figure 1. I/P transmitters accept a current input and convert it to a proportional pneumatic control signal.



Certifications



Check the listing on page 3 for certification details.



Compact, rugged, and highly accurate, the IPH² (right) and IPX² (top) are ideal for installation in harsh field environments.

Features

- **Wide variety of input and output choices.** Available with 4-20mA or split range inputs, and 22 direct and reverse output ranges. Custom ranges are also available.
- **Low air consumption and high output volume.** The IPH² and IPX² output as much as 5SCFM and consume as little as 0.08SCFM.
- **Accurate and stable.** Featuring exceptional $\pm 0.25\%$ of span accuracy and six-month stability, they are ideal for precise applications in difficult to access locations.
- **Immune to supply pressure variation.** Maintain incredible accuracy even when the supply pressure fluctuates between 20 and 40psig.
- **Clog Resistant Filtered Nozzle and Orifice.** A larger orifice, combined with an easily replaceable internal filter protects against clogging caused by debris.
- **RFI/EMI protection.** Special circuit and enclosure designs protect against the harmful effects of radio frequency and electromagnetic interference.

IPH² & IPX²

NEMA 4X/IP66 & Explosion-Proof
Current-to-Pressure (I/P) Transmitters

Specifications

Performance Accuracy: $\pm 0.25\%$ of span including the combined effect of linearity, hysteresis, and repeatability (between 0 and 3psig output, error will not exceed $\pm 1.0\%$ of span)
Stability: Not to degrade from stated accuracy for six months
Step Response: < 0.2 seconds into 100ml load (6 in³) from 10% to 90% of span; Not guaranteed below 3psig output.
Supply Pressure Effect: Negligible from 20-40psig, steady pressure
Air Capacity: 5.0SCFM minimum (20psig supply, 0psig output)
Relief Capacity: 2.5SCFM minimum (15psig output)
Air Supply: Instrument air only, 20-40psig. (Must be 5psig greater than maximum output)
Gas Supply with -NG1 or -NG2 Option: Same cleanliness as instrument air. H₂S not to exceed 20ppm

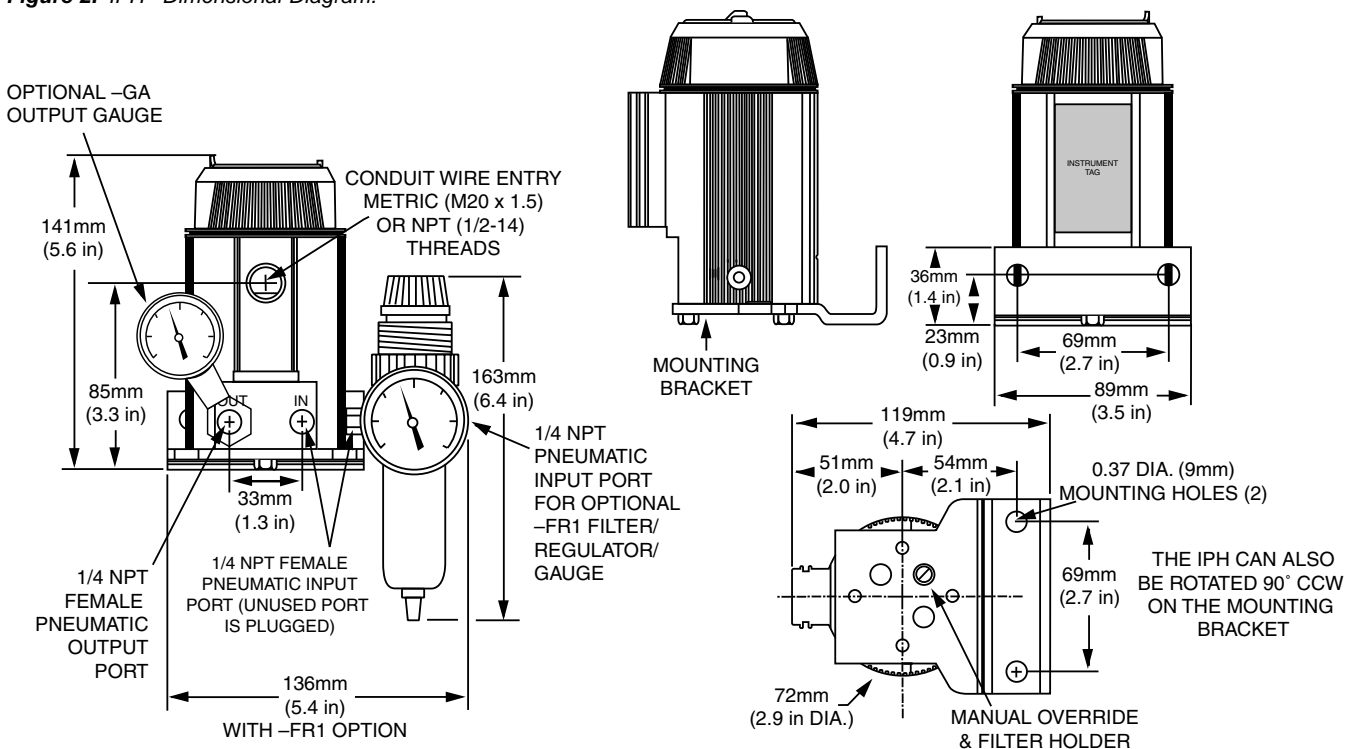
Performance (Continued)
Air Consumption (Dead-ended):
 At 3psig output, 20psig supply, consumes 0.08SCFM (0.14m³/hr), maximum; At 15psig output, 20psig supply, consumes 0.10SCFM (0.17m³/hr), maximum; At 15 psig output, 40psig supply, consumes 0.15SCFM (0.26m³/hr), maximum; At 30psig output, 40psig supply, consumes 0.17SCFM (0.29m³/hr), maximum
Maximum Input: 80psig without damage for units with output pressure rating of > 15 psig; 45psig without damage for units with output press 15psig
Voltage Drop: 5V, maximum
Mounting Position Effect: Negligible, unit can be mounted in any position; Should be mounted upright or horizontal to keep water out if it is not in a dry environment

Ambient Conditions
Operating & Storage Range: -40°C to +80°C (-40°F to +176°F)
Ambient Temperature Effect: $< \pm 0.025\%$ of span/°C, maximum from -20°C to 80°C; $< \pm 0.1\%$ of span/°C, max.
RFI/EMI Effect: $< \pm 0.1\%$ of span change at in field strengths of 10V/m @ frequencies of 20-500MHz
Shock and Vibration Effect: Meets SAMA PMC 31.1 as detailed in the field mounted category
Relative Humidity: 0-100%, non-condensing

Adjustment
Zero & Span: Screw adjusts zero or span by $\pm 10\%$ minimum, non-interactive

Weight
IPH²: 1.14Kg (2.5 lbs)
IPX²: 1.95Kg (4.3 lbs)

Figure 2. IPH² Dimensional Diagram.



IPH² & IPX²

NEMA 4X/IP66 & Explosion-Proof
Current-to-Pressure (I/P) Transmitters

Ordering Information

Unit	Input	Output*	Supply Pressure**	Options	Housing
IPH2 NEMA 4X, IP66 Current-to-Pressure Transmitter	4-20MA 4-12MA 12-20MA into 250 ohms maximum Custom ranges also available.	0-20PSIG	25PSI	– FR1 Coalescing filter, miniature supply line regulator and pressure gauge that reads 0-60psig and 0-4Bars – GA1 Output gauge (reads in 0-30psig and 0-2Bars – NG1 IPX ² unit equipped with electrical wire seal fitting assembly and vent port <u>on the same side of the unit</u> for using Natural Gas (sweet gas consisting of up to 20ppm H ₂ S) as the pneumatic supply (not available with –FR1 and -GA1 options) – NG2 IPX ² unit equipped with electrical wire seal fitting assembly and vent port <u>on opposite sides of the unit</u> for using Natural Gas (sweet gas consisting of up to 20ppm H ₂ S) as the pneumatic supply (not available with –FR1 and -GA1 options)	IPH² ENCLOSURES: WDNS Aluminum body with PBT polyester cover; NPT pneumatic and NPT electrical entry ports WDNA Aluminum body with aluminum cover; NPT pneumatic and NPT electrical entry ports WDMS Aluminum body with PBT polyester cover; NPT pneumatic and metric electrical entry ports WDMA Aluminum body with aluminum cover; NPT pneumatic and metric electrical entry ports
		1-17PSIG	22PSI		
		3-15PSIG	20PSI		
		3-16.6PSIG	22PSI		
		3-18PSIG	23PSI		
		3-27PSIG	32PSI		
		6-30PSIG	35PSI		
		.2-1BAR	1.4BAR		
		20-100KPA	140KPA		
		.2-1KGCM2	1.4KGCM2		
		.02-.10MPA	.14MPA		
		Reverse Output:			
		20-0PSIG	25PSI		
		17-1PSIG	22PSI		
		15-3PSIG	20PSI		
IPX2 Explosion-Proof and NEMA 4X, IP66 Current-to-Pressure Transmitter		16.6-3PSIG	22PSI		
		18-3PSIG	23PSI		
		27-3PSIG	32PSI		
		30-6PSIG	35PSI		
		1-.2BAR	1.4BAR		
		100-20KPA	140KPA		
		1-.2KGCM2	1.4KGCM2		
		.10-.02MPA	.14MPA		
		*The unit's output must match the supply pressure to its right.			
		**Supply Pressure must be at least 5psi (0.3Bar) higher than output pressure.			

When ordering, specify: Unit / Input / Output / Supply Pressure / Options [Housing]
Model number example: IPH2 / 4-20MA / 3-15PSIG / 20PSI / –FR1 [WDNA]
 IPX2 / 4-20MA / .2-1BAR / 1.4BAR / -NG1 [EXIM]

Certifications**



General/Ordinary Locations, Intrinsically Safe and Non-Incendive*



Class I, II & III, Division 1, Groups A-G; Entity
 Class I, Zone 0, AEx ia IIC T6@60°C max. ambient
 Class I, Division 2, Groups A-D
 Suitable for: Class II & III, Division II, Groups F & G
Explosion-Proof & Dust Ignition-Proof (IPX² only)
 Class I, II & III, Division 1, Groups A-G

*Non-Incendive and Type N apparatus not available with IPX² with -NG option.
 ** Certifications are in submittal.



Intrinsically Safe

Ex II 1GD EEx ia IIC T6@60°C max. ambient
Type N*
 Ex II 3G EEx nA II T6@60°C max. ambient
Flame-Proof (IPX² only)
 Ex II 2GD EEx d IIC T6@60°C max. ambient

Environmental Protection: NEMA 4X and IP66



CE Conformant—EMC Directive 89/336/EEC
 EN 500812-2, 1993; EN 50082-2, 1995

IPH² & IPX²

NEMA 4X/IP66 & Explosion-Proof
Current-to-Pressure (I/P) Transmitters

Figure 3. IPX² Dimensional Diagram.

