

Application Note

PX2 Series Heavy Duty Pressure Transducer

Background

Honeywell's PX2 Series Heavy Duty Pressure Transducer is a portfolio of highly configurable pressure sensors that use piezoresistive sensing technology with ASIC (Application Specific Integrated Circuit) signal conditioning in a stainless steel housing. The PX2 Series is fully calibrated and compensated for offset, sensitivity, temperature effects and non-linearity using the on-board ASIC. This provides a Total Error Band of $\pm 2\%$ over the operating temperature range of $-40\text{ }^{\circ}\text{C}$ to $125\text{ }^{\circ}\text{C}$ [$-40\text{ }^{\circ}\text{F}$ to $257\text{ }^{\circ}\text{F}$] (see Figure 1).

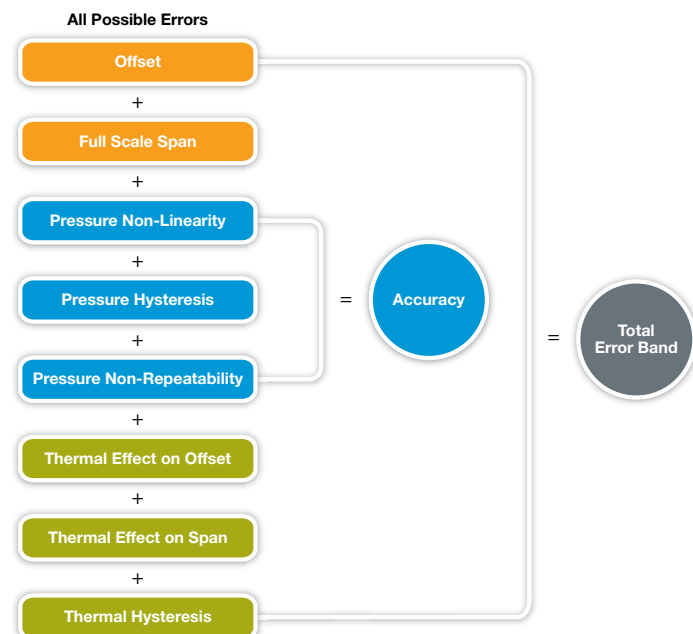


Figure 1. Error Components of Total Error Band

Solutions

With thousands of possible configurations, the PX2 Series allows Honeywell to meet customer requirements and quickly provide samples. New standard configurations are regularly being added.

The PX2 Series is compatible with a variety of harsh media including brake fluid, refrigerants, engine oil, tap water, hydraulic fluids, and compressed air. The wide operating temperature range, ingress protection up to IP69K, and 100 V/m radiated immunity allow for reliable performance in tough environments.

These transducers measure absolute or sealed gage pressure. The absolute versions have an internal vacuum reference and an output value proportional to absolute pressure. The sealed gage versions have an internal pressure reference of one atmosphere

The PX2 Series is available in three pressure ranges, with additional pressure ranges coming soon.

- 1 bar to 46 bar
- 100 kPa to 4.6 MPa
- 15 psi to 667 psi

All products are RoHS compliant and are designed and manufactured according to ISO 9001 standards.

POTENTIAL INDUSTRIAL APPLICATIONS

HVAC/R

May be used to monitor system performance for proper environmental control of:

- Compressor inlet and outlet pressure
- Rooftop chillers
- Compressor rack rooms
- Refrigerant recovery systems
- Compressor oil pressure

AIR COMPRESSORS

May be used to monitor compressor performance and efficiency, specifically:

- Compressor inlet and outlet pressure
- Cooling water inlet and outlet pressure
- Compressor oil pressure
- Filter pressure drop

GENERAL

May be used to monitor:

- Emissions monitoring
- Factory automation
- Flow and level
- Fluid power
- Foam dispensing
- Injection molding knock-out valves
- Lasers
- Laminating equipment
- Packaging equipment
- Pneumatics
- Pumps
- Solar energy
- Sprayers

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at sea level.

HVAC/R

Description: May be used to monitor system performance for proper environment control of compressor inlet and outlet pressure, rooftop chillers, compressor rack rooms, refrigerant recovery systems, and compressor oil pressure.

Customer Benefits: Broad temperature compensation ($\pm 2\%$) over a wide operating temperature range allows the system to function as designed under a wider temperature swing.

Air Compressors

Description: May be used to monitor compressor performance and efficiency, specifically, compressor inlet and outlet pressure, filter pressure drop, cooling water inlet and outlet pressure, and compressor oil pressure.

Customer Benefits: Broad temperature compensation ($\pm 2\%$) over a wide operating temperature range allows the system to function as designed under a wider temperature swing.

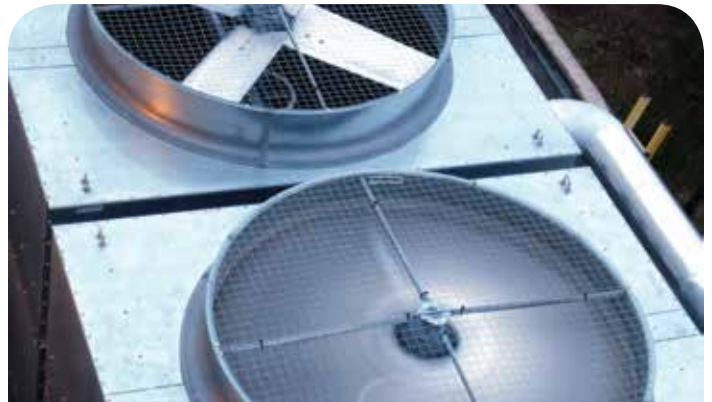


Figure 2. HVAC/R



Figure 3. Air Compressors

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PX2 Series Heavy Duty Pressure Transducer	Features and Benefits
	<ul style="list-style-type: none"> • Cost effective*: The PX2 Series is a precise pressure measurement solution that optimizes system performance at a competitive cost. • Designed for configurability*: With over 15,000 standard configurations, the PX2 Series easily meets our customers' specific application needs. • Application expertise*: Knowledgeable application engineers are available to answer customers' specific design questions during the development of their products. • Global support: Honeywell's global presence offers customers immediate product and application support throughout the development cycle, from design to global manufacturing. • Wide selection of options: Numerous standard or custom connectors, ports, pressure ranges and types, and output options include: <ul style="list-style-type: none"> - Connector types: Delphi Metri-Pack 150, Micro M12, DIN, Deutsch, cable harness (1 m, 2 m, 3 m, or 5 m). - Port types: 1/4-18 NPT, 1/8-27 NPT, 9/16-18 UNF SAE J1926-3, 7/16-20 UNF SAE J1926-3, 1/4 in 45° Flare Female Schrader (7/16-20 SAE J512), M12 x 1.5 ISO 6149-3, G1/4 ISO 1179-3, G1/8 ISO 1179-3. - Pressure range: 1 bar to 46 bar 100 kPa to 4.6 MPa 15 psi to 667 psi. - Pressure reference: Absolute or sealed gage. - Output transfer function: Ratiometric, regulated or current. • Short lead time: Due to the PX2 Series' configurability, customers can count on a quick response to prototypes. Additionally, dedicated teams and manufacturing processes ensure that product samples are shipped quickly to support your demanding product development cycle. • Small Total Error Band (TEB): Honeywell specifies TEB, the most comprehensive, clear, and meaningful measurement that provides the transducer's true accuracy over a compensated temperature range of -40 °C to 125 °C [-40 °F to 257 °F]. The PX2 Series' industry-leading TEB of ±2%: <ul style="list-style-type: none"> - Provides excellent transducer interchangeability due to minimal part-to-part variation in accuracy. - Eliminates the customers' need for individual transducer testing and calibration. - Supports system accuracy and warranty requirements. • Fast response time: A fast response time of <2 ms helps maximize system performance. • Long life: A minimum 10 million cycles to operating pressure provides long life in the application. • Energy efficient*: AC and AD output transfer functions offer a 3.3 V ratiometric output with a <7 ms turn on time, enabling the PX2 Series to be used when energy efficiency is a key requirement. • Six sigma design standards*: Results in the highest level of quality, performance, and consistency so that customers are assured that the transducer will perform to specification. • Environmentally tough: Compatibility with a wide variety of harsh media, up to IP69K ingress protection, and 100 V/m radiated immunity allow for use in tough environments. • Wide operating temperature range: A compensated operating temperature range of -40 °C to 125 °C [-40 °F to 257 °F] allows customers to design the same sensor into a variety of applications. • Shock and vibration resistant: A mechanical shock rating of 100 G per MIL-STD-202F, Method 213B, Cond. F, and a vibration rating of 20 G sweep, 10 Hz to 2000 Hz, increase flexibility of use within the application. • Good EMC protection: Provides confidence that the transducer will not be damaged by environmental electromagnetic interference. Radiated immunity protection up to 100 V/m (ISO 11452-2) is available.

*Competitive Differentiator

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Find out more

To learn more about Honeywell's sensing and control products, call **1-800-537-6945**, visit

sensing.honeywell.com, or e-mail inquiries to **info.sc@honeywell.com**

Sensing and Control
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Warranty. Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

The Honeywell logo is displayed in a bold, red, sans-serif font.