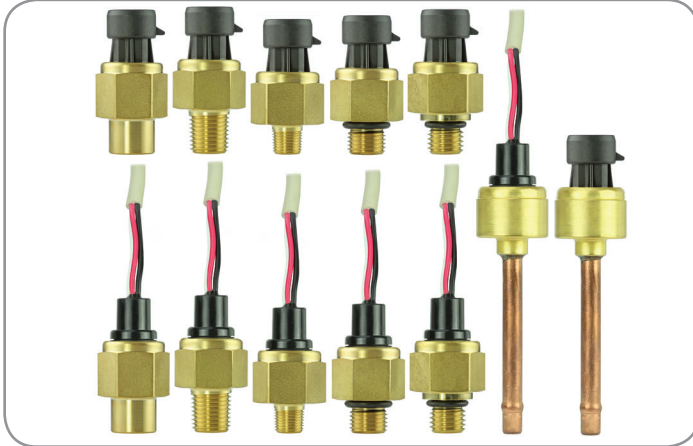


## Heavy Duty Pressure Transducers

PX3 Series, 1 bar to 50 bar | 15 psi to 700 psi

**32313757**  
Issue D

Datasheet



(Shown with mating connector. See Figure 5.)

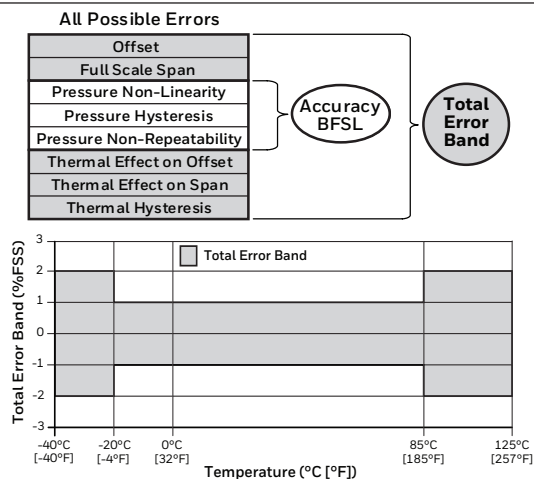
### DESCRIPTION

Honeywell's PX3 Series Heavy Duty Pressure Transducers use piezoresistive sensing technology with ASIC (Application Specific Integrated Circuit) signal conditioning in a brass housing and Metri-Pack 150 or cable harness electrical connections. The PX3 Series are fully calibrated and temperature compensated from -40°C to 125°C [-40°F to 257°F].

### VALUE TO CUSTOMERS

- Total Error Band (TEB)  $\pm 1.0$  %FSS from -20°C to 85°C: Provides the most comprehensive, clear and meaningful indication of the sensor's true measurement performance over a specified temperature range; small error promotes system uptime and efficiency. (See Figure 1.)

**Figure 1. TEB Definition and Temperature Performance**



- High insulation resistance and dielectric strength: Protect the user and sensor in high over-voltage situations, and ensures that the device is compliant with industry standards.
- High EMC performance: Operates reliably in the presence of electro-magnetic fields, such as near wireless signals, RF communication, and electrical devices.
- High external freeze/thaw resistance: Survives exposure to frost, commonly found in refrigeration systems. (See Figure 2.)

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- Reduced current consumption: Helps to reduce energy costs, and enhances product life if used in battery driven systems.
- Media compatibility: Common HFC (hydrofluorocarbon) refrigerants such as R410A and R134A, next generation low global warming potential (GWP) refrigerants such as R448A (Solstice® N40), R32 and R1234ZE, engine oil, petroleum-based hydraulic fluids, DOT 3 brake fluid, and dry air. For ammonia and other corrosive media, see Honeywell's SPT Series.

### DIFFERENTIATION

- Optional diagnostics mode: Beneficial in applications where the sensor functionality and the need to know internal or external failure modes is critical.
- Great customer value: Multiple configuration possibilities provide flexibility of use in the application with no upfront NRE or tooling charges.
- Durable: Provides the tough environmental specifications needed, including insulation resistance and dielectric strength, external freeze-thaw resistance (see Figure 2), and EMC performance.

### FEATURES

- Pressure range: 1 bar to 50 bar | 15 psi to 700 psi (absolute and sealed gage)
- Ratiometric output: 0.5 Vdc to 4.5 Vdc or 0.33 Vdc to 2.97 Vdc
- Fully calibrated and temperature compensated
- Total Error Band:  $\pm 1.0$  %FSS from -20°C to 85°C [-4°F to 185°F]
- External freeze/thaw resistance: 6 cycles from -30°C to 50°C [-22°F to 122°F]
- Insulation resistance: >100 MOhm, 1500 Vdc (in dry, non-ionized air)
- Dielectric strength: AC1500V, 1 min. or AC1800V, 1 s (in dry, non-ionized air)
- Current consumption: 3.5 mA max.
- EMC (radiated immunity): 200 V/m per ISO 11452-2
- Ingress protection IP67 (Metri-Pack 150), IP69K (cable harness)
- Response time: <2 ms
- RoHS, REACH, and CE compliant
- Six industry-standard pressure port types, including a tube port which provides for hermetically-sealed process connection

### POTENTIAL APPLICATIONS

- Industrial: Refrigerant pressure monitoring in HVAC/R systems; air compressor system pressure
- Transportation: Air system monitoring; hydraulic oil pressure monitoring

The PX3 Series is not recommended for use with media involving water, saturated air such as steam and vapor, and ammonia.

### PORTFOLIO

Honeywell's PX3 Series joins the PX2 Series, MLH Series, and SPT Series heavy duty pressure transducers.

# Heavy Duty Pressure Transducers

## PX3 Series, 1 bar to 50 bar | 15 psi to 700 psi

**Table 1. Electrical Specifications**

| Characteristic  | Parameter  |
|---|--|
| Supply voltage:<br>5 Vdc<br>3.3 Vdc                                 | ±0.25 Vdc<br>±0.25 Vdc   |
| Over voltage and reverse voltage                                    | ±16 Vdc  |
| Current consumption:<br>5 Vdc supply<br>3.3 Vdc supply              | 3.0 mA max.<br>1.6 mA to 2.1 mA  |
| Short circuit protection  | yes  |
| Nominal output transfer function:<br>5 Vdc supply<br>3.3 Vdc supply | 0.5 Vdc to 4.5 Vdc (ratiometric to supply)<br>0.33 Vdc to 2.97 Vdc (ratiometric to supply) |

**Table 2. Performance Specifications (At 25°C [77°F] and under unless otherwise noted.)**

| Characteristic   | Parameter   |
|--|---|
| Operating temperature range <sup>1</sup>   | -40°C to 125°C [-40°F to 257°F]   |
| Storage temperature range <sup>1</sup>   | -40°C to 125°C [-40°F to 257°F]   |
| Compensated temperature range  | -40°C to 125°C [-40°F to 257°F]   |
| Total Error Band <sup>2</sup> :<br>-20°C to 85°C [-4°F to 185°F]<br><-20°C, >85°C [-4°F, >185°F]   | ±1.0 %FSS<br>±2.0 %FSS  |
| Accuracy BFSL <sup>3</sup>   | ±0.25 %FSS  |
| Response time  | <2 ms (10% to 90% step change in pressure)  |
| Turn on time <sup>4</sup>  | <7 ms   |
| EMC rating <sup>5</sup> :<br>surge immunity (all leads) _____<br>electrostatic discharge _____<br>radiated immunity _____<br>fast transient burst _____<br>immunity to conducted disturbances _____<br>radiated emissions _____<br>radiated immunity _____ | ±1000 V line to ground per IEC 61000-4-5<br>±4 kV contact, ±8 kV air per IEC 61000-4-2<br>10 V/m (80 MHz to 1000 MHz) per IEC 61000-4-3<br>±1 kV per IEC 61000-4-4<br>3 V per IEC 61000-4-6<br>40 dB (30 MHz to 230 MHz), 47 dB (230 MHz to 1000 MHz) per CISPR 11<br>200 V/m per ISO 11452-2 |
| Insulation resistance  | >100 MOhm, 1500 Vdc (in dry, non-ionized air)   |
| Dielectric strength  | AC1500V, 1 min. or AC1800V, 1 s (in dry, non-ionized air)   |
| Load resistance  | >5 kOhm   |
| Life   | greater than 10 million full scale pressure cycles over the calibrated pressure range   |

<sup>1</sup> Dependent on external and internal seal and cable jacket materials. See Table 5 and Figure 5 for temperature range details.

<sup>2</sup> Total Error Band: The maximum deviation from the ideal transfer function over the entire compensated temperature and pressure range. Includes all errors due to offset, full scale span, pressure non-linearity, pressure hysteresis, pressure non-repeatability, thermal effect on offset, thermal effect on span, and thermal hysteresis. See Figure 1.

<sup>3</sup> Accuracy: The maximum deviation in output from a Best Fit Straight Line (BFSL) fitted to the output measured over the pressure range at 25°C [77°F]. Includes all errors due to pressure non-linearity, pressure hysteresis, and pressure non-repeatability. See Figure 1.

<sup>4</sup> Turn on Time: Duration from power applied until first valid output.

<sup>5</sup> Tested using 1.5 m [59.1 in] cable.

**Table 3. Pressure Reference Definitions**

| Pressure Reference       | Definition  |
|--------------------------|---|
| Absolute                 | Output is calibrated to be proportional to the difference between applied pressure and a fixed reference to perfect vacuum (absolute zero pressure).  |
| Sealed gage <sup>1</sup> | Sensor construction is identical to the absolute version with a built in reference at zero pressure in order to minimize measurement error over temperature. The output is calibrated to be proportional to the difference between applied pressure and a reference of 1 standard atmosphere (1.013 barA   14.7 psiA). Example: 100 psi sealed gage has a calibrated pressure range from 14.7 psi absolute to 114.7 psi absolute. (See Figure 3.) |

<sup>1</sup> Sealed gage option only available in pressure ranges at or above 8 bar | 100 psi.