

TECHNICAL NOTE

PX2 Series Heavy Duty Pressure Transducers Media Compatibility

1.0 BACKGROUND

When using heavy duty pressure transducers across a variety of media, it is necessary to ensure that the device is able to operate with the desired media without adverse effects. To ensure compatibility, it is important to consider all the materials in the sensor with which the media will come into contact. The information in this Technical Note is intended to assist end users in understanding the media compatibility of the PX2 Series Heavy Duty Pressure Transducer (see Figure 1).

Figure 1. PX2 Series Heavy Duty Pressure Transducers



Ultimately, it is up to the customer to determine if the transducer is compatible with the media and is right for the application. Honeywell can assist in this effort, utilizing our existing application knowledge and testing experience.

2.0 DESCRIPTION

Honeywell's PX2 Series Heavy Duty Pressure Transducer is a line of highly configurable pressure transducers that use piezoresistive sensing technology with ASIC (Application Specific Integrated Circuit) signal conditioning in a stainless steel housing that is compatible with a variety of liquid and gaseous media.

The PX2 Series is fully calibrated and compensated for transducer offset, sensitivity, temperature effects and non-linearity using an 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 $257\text{ }^{\circ}\text{F}$].

Wetted Materials of Construction

The following wetted materials of construction are exposed materials in the media path:

- Port: 304 stainless steel
- Substrate: alumina ceramic

- Adhesive: epoxy
- Electronics: glass, silicon

The media being used needs to be compatible with all wetted materials used in the transducer construction (i.e., ports, substrate, adhesives, and electronic components). Even though a liquid may be compatible initially, it is not uncommon for some media to undergo chemical changes in the application over time. If this is possible in the end user application, the changed media also needs to be validated as compatible with the wetted materials.

An example of this change is when a compatible gas, like nitrogen dioxide (NO_2), combines with high humidity to form nitric acid (HNO_3), which, at certain concentrations, will etch the silicon sensor die and affect the sensor output. The same thing may occur when water is present in combination with NO_2 or other gases that create an incompatible working liquid.

Compatible Media

The following media have been shown to be compatible with the wetted materials used in the construction of the PX2 Heavy Duty Pressure Transducer.

- Refrigerants
 - R410A
 - R134A
 - R1234ZE
 - Mixture of R245fa and trans-dichloroethylene
- Engine oil 10W30
- Brake fluid DOT3
- Hydraulic fluid
- Tap water
- Compressed air

This list is for reference only and contains only a portion of all the media with which the PX2 Series is compatible. It is up to the customer to determine if the transducer is compatible with the media and is right for an application.

Additional Usage Information

The CAUTION information on the next page provides additional usage information that should be followed in order to avoid potential product damage.

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CAUTION

PRODUCT DAMAGE

- Ensure particulates in the media stream are kept to a minimum. All PX2 Series transducers are dead-ended devices. Particulates can accumulate inside the transducer, causing damage or affecting transducer output.
- Recommend that the transducer be positioned with the port facing downwards; any particulates in the system are less likely to enter and settle within the pressure transducer if it is in this position.
- Ensure that the media does not create a residue when dried; build-up inside the transducer may affect transducer output. Rinsing of a dead-ended transducer is difficult and has limited effectiveness for removing residue.
- Ensure media are compatible with wetted materials. Non-compatible media will degrade transducer performance and may lead to transducer failure.

Failure to comply with these instructions may result in product damage.

WARRANTY/REMEDY

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 other 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.

SALES AND SERVICE

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office or:

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