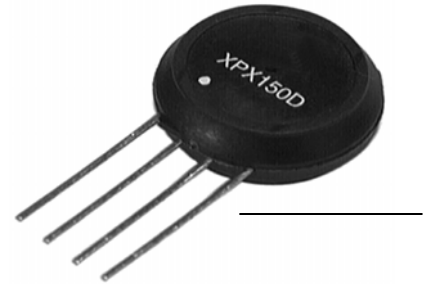


XPC/XPCL and XPX/XPXL Series

Uncompensated/Compensated and Compensated Calibrated Silicon Pressure Sensors



DESCRIPTION

The XPC/XPCL and XPX/XPXL Series sensors integrate silicon micromachined sensing technology, temperature compensation, and calibration in a complete family of low-cost packages. This series offers a cost-effective solution for design requirements.

These piezoresistive pressure sensors use micromachined silicon chips mounted on ceramic and protected with a plastic cap. Several tube arrangements with nylon housings are available for various pressure applications.

FEATURES

- Low cost, small size
- Temperature compensated
- Zero and span calibrated
- Millivolt output
- Differential, gage and absolute pressure
- Constant voltage excitation
- High impedance - low current

On devices of 5 psi and above, the top side of the chip is protected against humidity by a Silgel® coating.

Although the sensors are designed for use with noncorrosive, nonionic pressure media, they accommodate many gases that are used in medical applications.

POTENTIAL APPLICATIONS

- Medical applications
- Applications requiring small size
- Applications requiring vacuum and positive pressure reference or both

XPC/XPCL and XPX/XPXL Series

ELECTRICAL SPECIFICATIONS

| Characteristic | XPC/XPCL at 12 Vdc, 25 °C [77 °F] | | | | XPX/XPXL at 5 Vdc, 25 °C [77 °F] | | | |
|--|-----------------------------------|------|-----------|---------|----------------------------------|-------|-----------|---------|
| | Min. | Typ. | Max. | Unit | Min. | Typ. | Max. | Unit |
| Excitation voltage | 3.0 | 12.0 | 16.0 | Vdc | 3.0 | 5.0 | 12.0 | Vdc |
| Null | -1.0 | 0 | 1.0 | mV | -50 | 0 | 50 | mV |
| Offset temperature shift ⁽¹⁾ 0 °C to 25 °C [32 °F to 77 °F] 25 °C to 70 °C [77 °F to 158 °F] | - | - | ±1.0 | mV | - | ±0.5 | - | mV |
| Full scale temperature shift ⁽¹⁾ 0 °C to 25 °C [32 °F to 158 °F] 25 °C to 70 °C [77 °F to 158 °F] | - | - | ±2 | PPM/°C | - | -2200 | - | PPM/°C |
| Linearity, hysteresis error ⁽²⁾ | - | 0.25 | 1.0 | % span | - | 0.25 | 1.0 | % span |
| Input resistance | 5.0 | - | - | kOhm | 5.0 | - | - | kOhm |
| Output resistance | - | 3.0 | - | kOhm | - | 3.0 | - | kOhm |
| Operating temperature | -25 [-13] | - | 85 [185] | °C [°F] | -25 [-13] | - | 85 [185] | °C [°F] |
| Storage temperature | -40 [-40] | - | 125 [257] | °C [°F] | -40 [-40] | - | 125 [257] | °C [°F] |
| Common mode pressure | - | - | 50 | psi | - | - | 50 | psi |
| Weight | - | 2 | - | g | - | 2 | - | g |

Notes:

- Shift is relative to 25 °C [77 °F].
- Measured at 1/2 full scale rated pressure using BFSL.

ABSOLUTE OUTPUT

| FS Pressure | XPC at 12 Vdc, 25 °C [77 °F] Output Full Scale Span (mV) | | | XPX at 5 Vdc, 25 °C [77 °F] Output Full Scale Span (mV) | | | Overpressure (psi) Max. |
|-------------|---|------|------|--|-------|------|----------------------------|
| | Min. | Typ. | Max. | Min. | Typ. | Max. | |
| 5 psi | 57 | 60 | 63 | 112 | 168.5 | 225 | 15 |
| 15 psi | 85 | 90 | 95 | 168 | 253 | 338 | 45 |
| 30 psi | 85 | 90 | 95 | 168 | 253 | 338 | 90 |
| 60 psi | 85 | 90 | 95 | 189 | 263.5 | 338 | 180 |
| 100 psi | 95 | 100 | 105 | 210 | 295 | 380 | 250 |

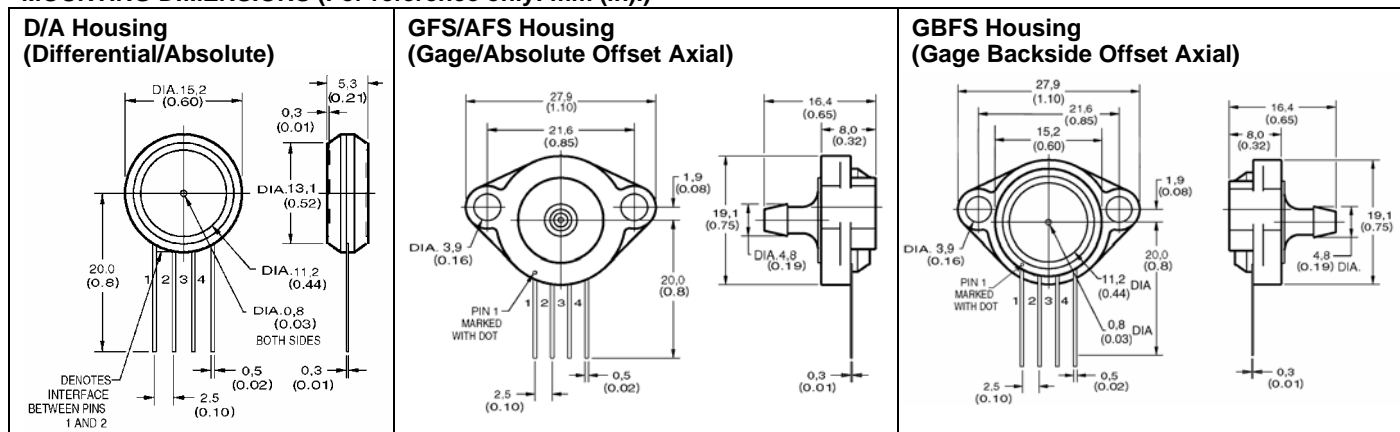
GAGE/DIFFERENTIAL⁽¹⁾ OUTPUT

| FS Pressure | XPC/XPCL at 12 Vdc, 25 °C [77 °F] Output Full Scale Span (mV) | | | XPX/XPXL at 5 Vdc, 25 °C [77 °F] Output Full Scale Span (mV) | | | Overpressure (psi) Max. |
|------------------------|--|------|------|---|-------|------|----------------------------|
| | Min. | Typ. | Max. | Min. | Typ. | Max. | |
| 4 in H ₂ O | 23 | 25 | 27 | 50 | 68 | 86 | 3 |
| 10 in H ₂ O | 19 | 20 | 21 | 40 | 78.5 | 112 | 3 |
| 1 psi | 17 | 18 | 19 | 40 | 75 | 110 | 3 |
| 5 psi | 57 | 60 | 63 | 112 | 168.5 | 225 | 15 |
| 15 psi | 85 | 90 | 95 | 168 | 253 | 338 | 45 |
| 30 psi | 85 | 90 | 95 | 168 | 253 | 338 | 90 |
| 60 psi | 85 | 90 | 95 | 189 | 263.5 | 338 | 180 |
| 100 psi | 95 | 100 | 105 | 210 | 295 | 380 | 250 |
| 150 psi | 85 | 90 | 95 | 187 | 262.5 | 338 | 250 |

Note:

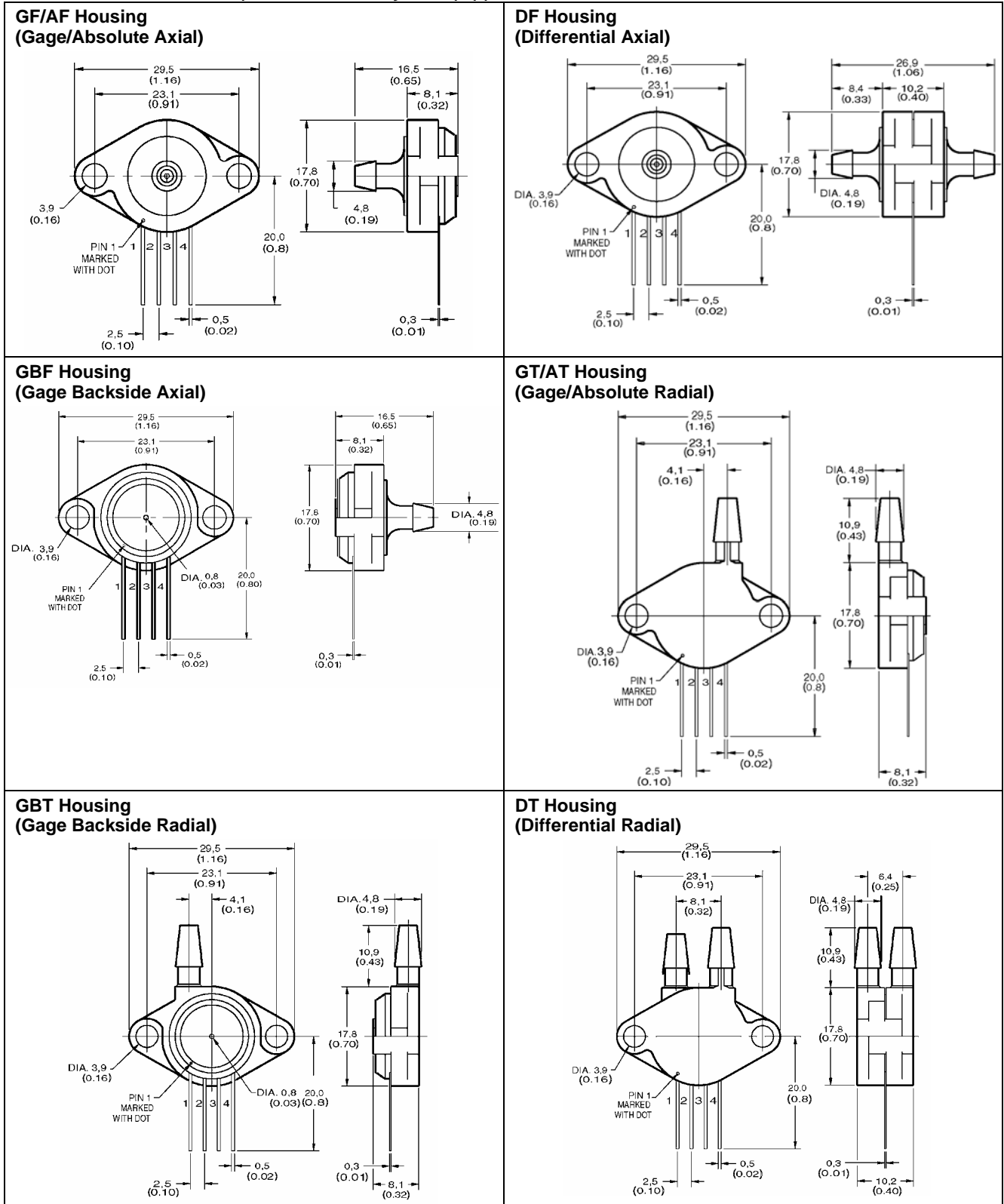
- Differential common mode pressure should not exceed 50 psi.

MOUNTING DIMENSIONS (For reference only: mm (in.))

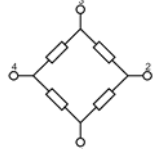


Uncompensated/Compensated and Compensated Calibrated Silicon Pressure Sensors

MOUNTING DIMENSIONS (For reference only: mm (in.))



EQUIVALENT CIRCUIT

| | | |
|---|---|--|
|  | <p>Pinout</p> <ol style="list-style-type: none"> 1. -V Excitation 2. + Output Signal 3. +V Excitation 4. - Output Signal | <p>Media compatibility: Clean, dry gases only.</p> <p>P1 Port: Media must be compatible with epoxy-based adhesive and silicon gel.</p> <p>P2 Port: Media must be compatible with nylon housing, epoxy-based adhesive and silicon.</p> |
|---|---|--|

ORDER GUIDE⁽¹⁾

| | | |
|--|---|--|
| <p>Series</p> <p>XPC</p> <p>XPX - uncompensated and uncalibrated, mV XPC - compensated and calibrated, mV</p> | <p>L</p> <p>04</p> <p>G</p> <p>B</p> <p>F</p> <p>C</p> | <p>Accuracy Grade</p> <p>(XPC, XPCL only) C - Commercial H - High Accuracy</p> |
| <p>Pressure Measurement</p> <p>L - Low Pressure (in H₂O) No Character - Indicates Pressure (psi)</p> | <p>Pressure Range</p> <p>04 in H₂O, 10 in H₂O 01, 05, 15, 30, 60, 100, 150 psi</p> | <p>Port Operation²</p> <p>B - Backside</p> <p>G - Gage D - Differential A - Absolute ≥ 5 psi</p> |
| <p>Port Option</p> <p>F - Axial T - Radial FS - Offset Axial²</p> | | |

Notes:

1. Not all combinations may be available. Contact Honeywell representative for details.
2. Option available in ported gage version only.

⚠ WARNING

PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

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.

Sensing and Control
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⚠ WARNING

MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

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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