Honeywell

XPC/XPCL Series and XPXL Series

Compensated/Calibrated and Uncompensated/Uncalibrated Board Mount Pressure Sensors



DESCRIPTION

The XPC/XPCL Series and 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.

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.

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

POTENTIAL APPLICATIONS

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

XPC/XPCL Series and XPXL Series

Table 1. Electrical Specifications

Characteristic	XPC/XPCL at 12 Vdc, 25 °C [77 °F]			XPXL at 5 Vdc, 25 °C [77 °F]			Unit
	Min.	Typ.	Max.	Min.	Typ.	Max.	
Excitation voltage	3.0	12.0	16.0	3.0	5.0	12.0	Vdc
Null	-1.0	0	1.0	-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	–	±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	–	-1800 PPM/°C	–	% span
Linearity, hysteresis error[2]	–	0.25	1.0	–	0.25	1.0	% span
Input resistance	5.0	–	–	–	3.0	–	kOhm
Output resistance	–	3.0	–	–	3.0	–	kOhm
Operating temperature	-25 [-13]	–	85 [185]	-25 [-13]	–	85 [185]	°C [°F]
Storage temperature	-40 [-40]	–	125 [257]	-40 [-40]	–	125 [257]	°C [°F]
Common mode pressure	–	–	50	–	–	50	psi

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

Table 2. Absolute Output

FS Pressure	XPC at 12 Vdc, 25 °C [77 °F] Output Full Scale Span (mV)			Overpressure (psi)
	Min.	Max.	Max.	Max.
5 psi	57	60	63	15
15 psi	85	90	95	45
30 psi	85	90	95	90
60 psi	85	90	95	180
100 psi	95	100	105	250

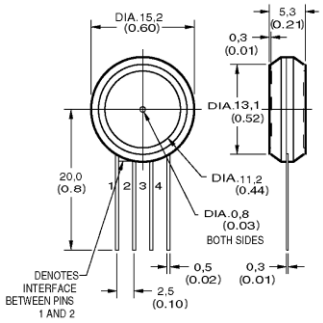
Table 3. Gage/Differential[1] Output

FS Pressure	XPC/XPCL at 12 Vdc, 25 °C [77 °F] Output Full Scale Span (mV)			XPXL at 5 Vdc, 25 °C [77 °F] Output Full Scale Span (mV)			Overpressure (psi)
	Min.	Typ.	Max.	Min.	Typ.	Max.	Max.
4 inH_2O	23	25	27	50	68	86	3
10 inH_2O	19	20	21	45	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

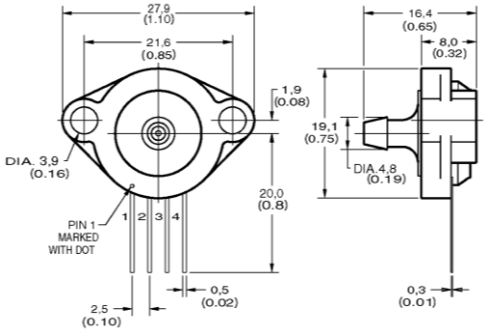
Note:
1. Differential common mode pressure should not exceed 50 psi.

Figure 1. Mounting Dimensions (For reference only: mm (in).)

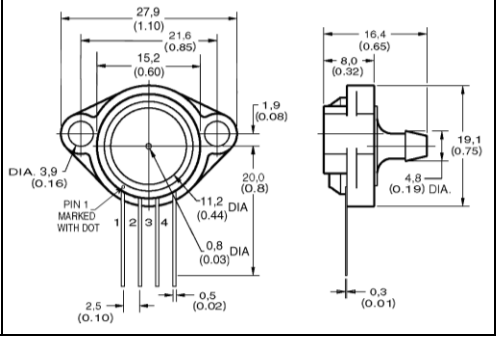
D/A Housing (Differential/Absolute)



GFS/AFS Housing (Gage/Absolute Offset Axial)



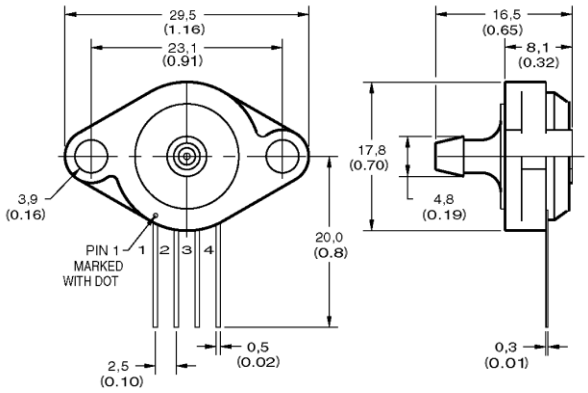
GBFS Housing (Gage Backside Offset Axial)



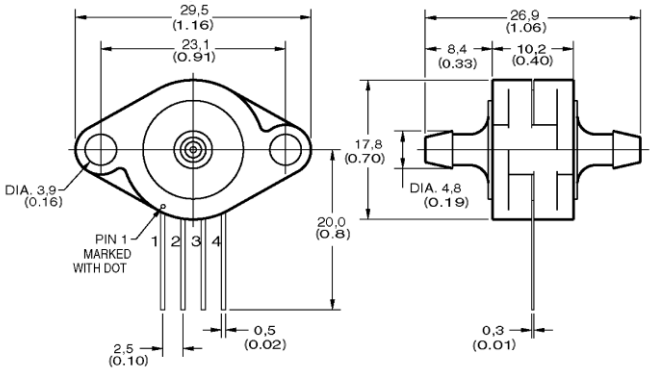
Compensated/Calibrated and Uncompensated/ Uncalibrated Board Mount Pressure Sensors

Figure 1. Mounting Dimensions (continued)

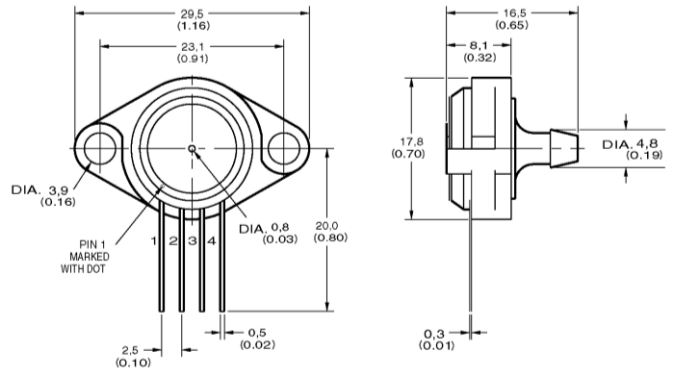
GF/AF Housing
(Gage/Absolute Axial)



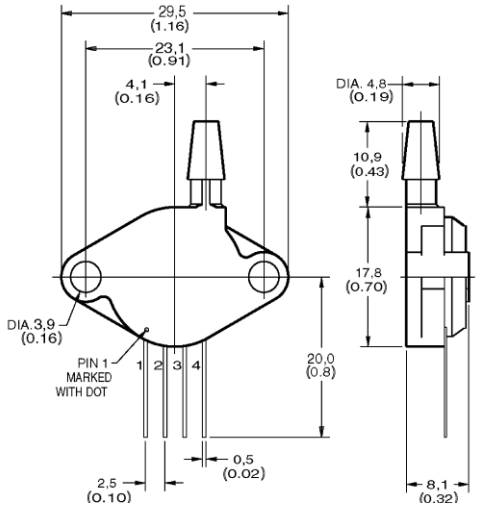
DF Housing
(Differential Axial)



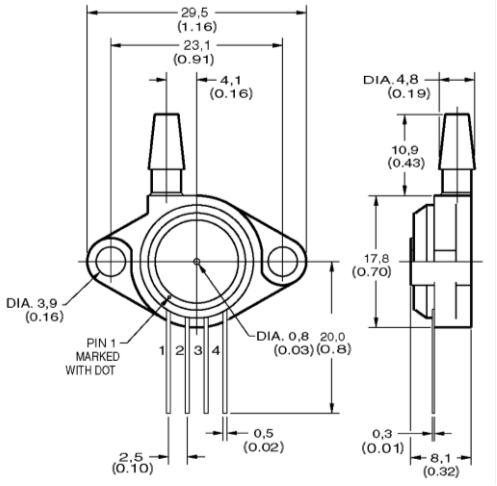
GBF Housing
(Gage Backside Axial)



GT/AT Housing
(Gage/Absolute Radial)



GBT Housing
(Gage Backside Radial)



DT Housing
(Differential Radial)

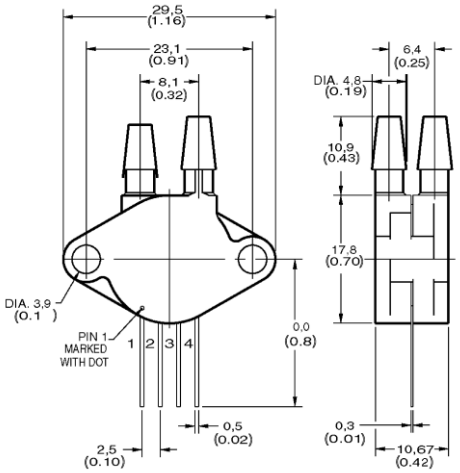
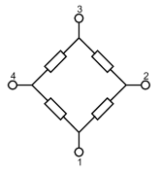


Figure 2. Equivalent Circuit



Pinout
1. -V Excitation
2. + Output Signal
3. +V Excitation
4. - Output Signal

Media compatibility: Clean, dry gases only.

P1 Port: Media must be compatible with epoxy-based adhesive and silicon gel.
P2 Port: Media must be compatible with nylon housing, epoxy-based adhesive and silicon.

Order Guide[1]

XPCL	04	G	B	F	C
Series	Pressure Range	Pressure Reference	Port Operation[2]	Port Option	Accuracy Grade
XPC - compensated and calibrated (psi) XPCL - compensated and calibrated (inH_20) XPXL - uncompensated and uncalibrated (inH_20)	04 inH_20, 10 inH_20 01, 05, 15, 30, 60, 100, 150 psi	G - Gage D - Differential A - Absolute ≥ 5 psi	B - Backside	F - Axial T - Radial FS - Offset Axial[2]	(XPC, XPCL only) C - Commercial H - High Accuracy

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.

⚠ 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
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