

## Silicon Pressure Sensors

Compensated Pressure Sensing

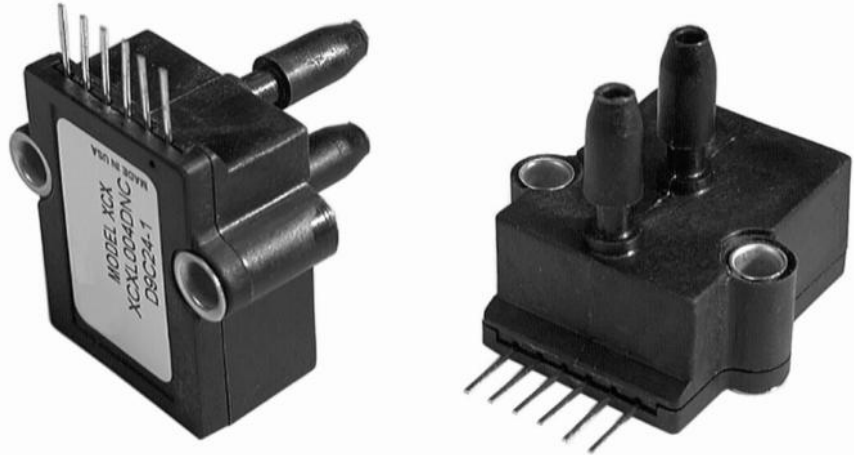
*XCX, XCXL Series*

### FEATURES

- Pressure Ranges from 4 in H<sub>2</sub>O, 10 in H<sub>2</sub>O and 1 psi through 240 psi
- Calibrated offset
- Listings Calibrated for Full Scale span to  $\pm 1.0\%$  Over Compensated Temperature Range
- High Grade Listings Calibrated for Full Scale span to  $\pm 0.5\%$  Over Compensated Temperature Range
- Temperature Compensated over 0 °C to 70 °C [32 °F to 158 °F]
- Gage, Differential, and Absolute Pressure
- Ratiometric mV Output

### TYPICAL APPLICATIONS

- Medical Applications
- Applications Requiring Small Size
- Applications Requiring Vacuum, Positive Pressure or Both



### GENERAL DESCRIPTION

The XCXL, XCX Series integrates silicon micromachined sensing technology, temperature compensation, and calibration in an improved performance industry standard package. A unique stress isolating design protects against torque induced. Additional stability and long term accuracy improvements are gained through simplified compensation techniques, which eliminate temperature dependent thermal compensation.

This series is available in a commercial (XCX-DNC) performance level. This performance level provides the calibration accuracy of offset thermal compensation, and linearity providing added flexibility to meet critical performance budgets. The XCA and XCR Series provide amplified output as well as integrated compensation.

### **⚠ 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.**

### **⚠ 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.**

# Silicon Pressure Sensors

## Compensated Pressure Sensing

## *XCX, XCXL Series*

### ELECTRICAL SPECIFICATIONS at 12 Vdc excitation at 25 °C<sup>1</sup> [77 °F]

	XCX and XCXL – C grade			XCX and XCXL – H grade			Units
	Min.	Typ.	Max.	Min.	Typ.	Max.	
Excitation Voltage	3.0	12.0	16.0	3.0	12.0	16.0	Vdc
Null	--	--	1.0	--	±0.5	±1.0	mV
Temperature Error on Offset 0 °C to 50 °C [32 °F to 122 °F] <sup>2</sup> (4 in H <sub>2</sub> O)	--	--	1.0	--	--	0.5	mV
Temperature Error on Offset 0 °C to 70 °C [32 °F to 158 °F] <sup>2</sup> (all except 4 in H <sub>2</sub> O)	--	--	1.0	--	--	0.5	mV
Temperature Error on Span 0 °C to 50 °C [32 °F to 122 °F] <sup>2</sup> (4 in H <sub>2</sub> O)	--	--	2.0	--	--	1.0	% Span
Temperature Error on Span 0 °C to 70 °C [32 °F to 158 °F] <sup>2</sup> (all except 4 in H <sub>2</sub> O)	--	--	2.0	--	--	1.0	% Span
Linearity, Hysteresis Error <sup>3</sup>	--	0.5	1.0	--	0.3	0.5	% Span
Repeatability	--	0.1	--	--	0.1	--	% Span
Input Resistance	--	15	--	--	15	--	kΩ
Output Resistance	--	3.0	--	--	3.0	--	kΩ
Compensated Temperature Range	0 [32]	25 [77]	70 [158]	0 [32]	25 [77]	70 [158]	°C [°F]
Storage Temperature Range	-40 [-40]	--	125 [257]	-40 [-40]	--	125 [257]	°C [°F]
Relative Humidity (non-condensing)	0	--	95	0	--	95	% RH
Common Mode Pressure	--	--	50	--	--	50	psig
Shock (Duration 11 ms any axis)	--	--	10	--	--	10	g
Weight	--	2	--	--	2	--	gram

Note 1: All parameters are measured at 12 Vdc excitation, pressure specs obtained with pressure applied to the front of the sensor.

Note 2: Shift is relative to 25 °C [77 °F]

Note 3: Measured at ½ full scale rated pressure using BFSL

### DIFFERENTIAL AND GAGE OUTPUT at 12 Vdc excitation at 25 °C [77 °F]

Full Scale Pressure	XCX C- Grade Output Full Scale Span, (mV)			XCX H Grade Output Full Scale Span, (mV)			Max. Overpressure (psi)
	Min.	Typ.	Max.	Min.	Typ.	Max.	
4 in H <sub>2</sub> O	38	40	42	--	--	--	5
10 in H <sub>2</sub> O	19	20	21	19.8	20.0	20.2	5
0.3 psi	19	20	21	19.8	20.0	20.2	5
1 psi	17	18	19	17.8	18.0	18.2	5
5 psi	57	60	63	59	60	61	15
15 psi	85	90	95	89	90	91	45
30 psi	85	90	95	89	90	91	90
60 psi	85	90	95	89	90	91	180
100 psi	95	100	105	99	100	101	200
150 psi	85	90	95	89	90	91	300
240 psi	95	100	105	99	100	101	300

# Silicon Pressure Sensors

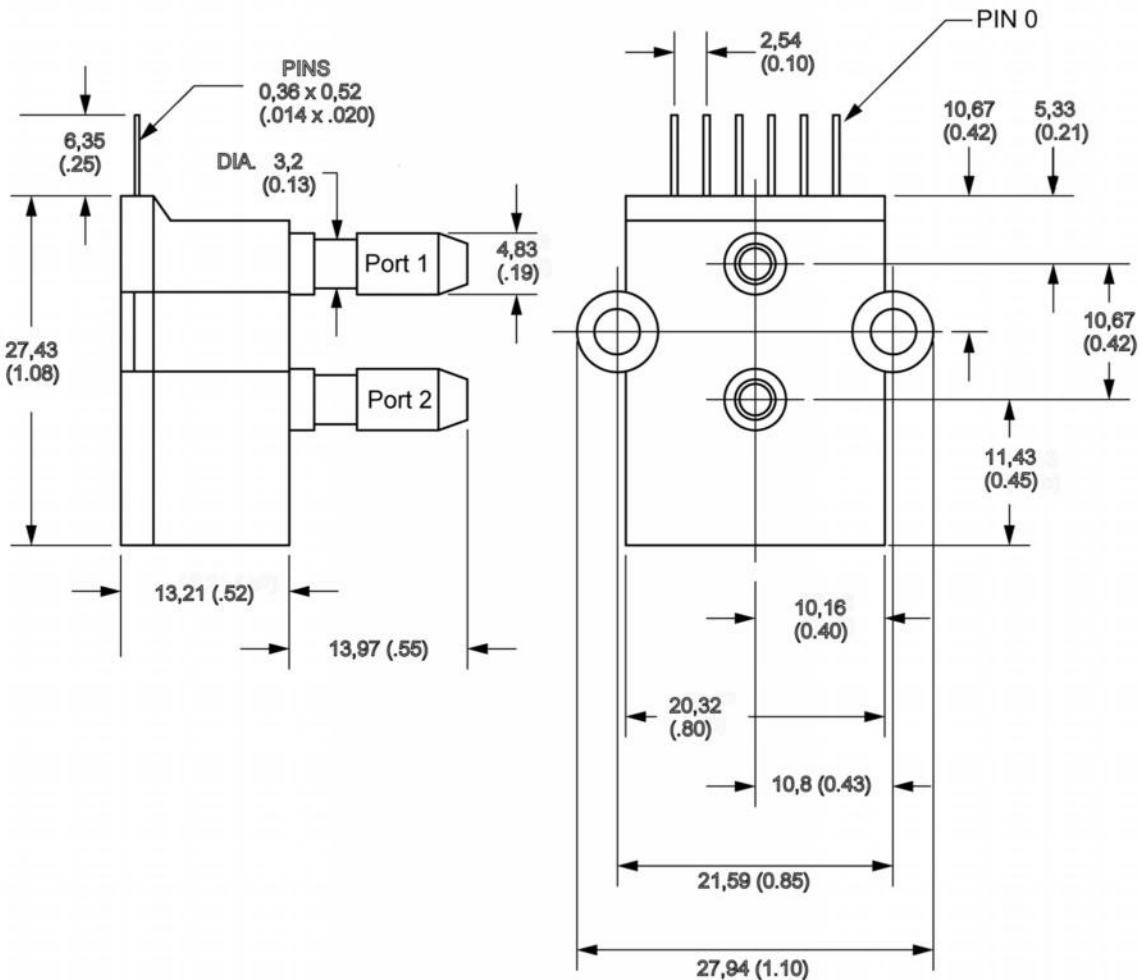
## Compensated Pressure Sensing

# XCX, XCXL Series

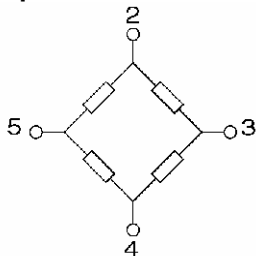
**ABSOLUTE OUTPUT at 12 Vdc excitation at 25 °C [77 °F]**

FS Pressure	XCX Output Full Scale Span, (mV)			Max. Overpressure (psi)
	Min.	Typ.	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	200

**PHYSICAL DIMENSIONS for reference only mm [In]**



### Equivalent Circuit



### Pinout

1. N/C
2. +V Excitation
3. -V Output Signal
4. -V Excitation
5. - Output Signal
6. N/C

### Media Compatibility

#### Media Compatibility, Wetted Materials

(Apply clean, dry gases only)

P1 Port: Front side of silicon diaphragm, silicone gel passivation, glass filled nylon alumina.

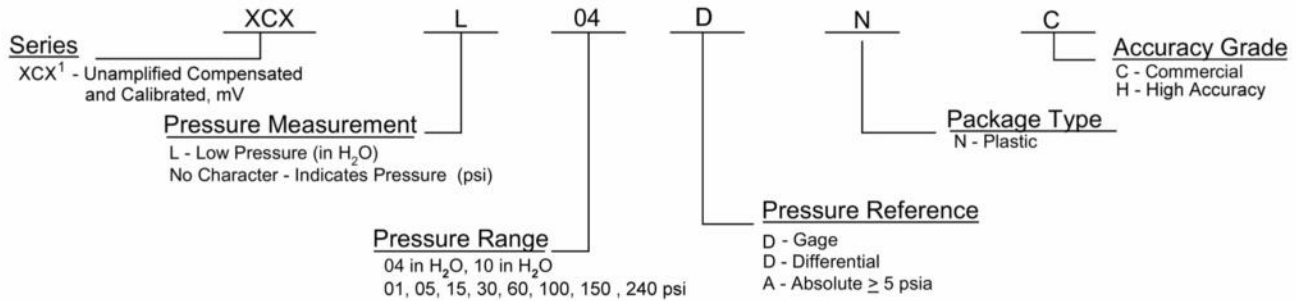
P2 Port: Silicon diaphragm, glass filled nylon, and alumina ceramic. Port not used for absolute devices

# Silicon Pressure Sensors

## Compensated Pressure Sensing

# XCX, XCXL Series

### CPC/CPCL/CPX/CPXL SERIES ORDER GUIDE



Note:1. Gage and Differential use "D" suffix. Product is the same. Not all combinations are available.

### WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace 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.**

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.

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.

For application assistance, current specifications, or name of the nearest Authorized Distributor, contact a nearby sales office. Or call:

1-800-537-6945 USA/Canada

1-815-235-6847 International

#### FAX

1-815-235-6545 USA

#### INTERNET

[www.honeywell.com/sensing](http://www.honeywell.com/sensing)

[info.sc@honeywell.com](mailto:info.sc@honeywell.com)

## Honeywell

Sensing and Control

[www.honeywell.com/sensing](http://www.honeywell.com/sensing)

Honeywell

11 West Spring Street

Freeport, Illinois 61032