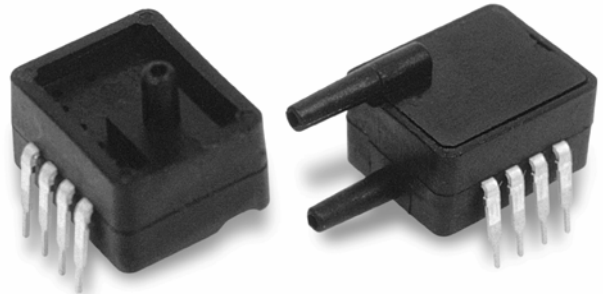


## ASDXL Series

### Microstructure Pressure Sensors

0 in to  $\pm 5$  in H<sub>2</sub>O, 0 in to 10 in H<sub>2</sub>O, 0 in to  $\pm 10$  in H<sub>2</sub>O



#### DESCRIPTION

The ASDXL Series pressure sensors are fully calibrated and temperature compensated with on-board Application Specific Integrated Circuitry (ASIC). This ASDXL sensor is in a DIP format (Dual In-line Package) and provides digital correction of sensor offset, sensitivity, temperature coefficients and non-linearity. The ASDXL Series has an analog output that is ratiometric with supply voltage over the compensated supply range with 11-bit resolution.

#### FEATURES

- Available in differential and gage packages
- Calibrated and temperature compensated output
- Analog output with 11-bit resolution
- Pressure ranges from 0 in to  $\pm 5$  in H<sub>2</sub>O, 10 in H<sub>2</sub>O,  $\pm 10$  in H<sub>2</sub>O
- Response time of 8 ms
- DIP package
- ASIC-enhanced output

All ASDXL sensors are accurate to within  $\pm 2.5$  % Full Scale Span (FSS) and are intended for use with non-corrosive, non-ionic working fluids such as air and dry gases. (Contact factory for media compatibility on G2/D4 packages).

This series is designed and manufactured in accordance with ISO 9001 standards and is compliant with the WEEE and RoHS directives.

#### POTENTIAL APPLICATIONS

- Medical equipment
- HVAC controls
- Pneumatic controls

# ASDXL Series

## 0 in to $\pm 5$ in H<sub>2</sub>O, 0 in to 10 in H<sub>2</sub>O, 0 in to $\pm 10$ in H<sub>2</sub>O

### GENERAL SPECIFICATIONS

Characteristic	Parameter	Characteristic	Parameter
Supply voltage (Vs)	4.75 Vdc to 5.25 Vdc	Lead soldering temperature	4 s at 250 °C [482 °F]
Maximum supply voltage	6.50 Vdc max.	Vibration	10 g at 20 Hz to 2000 Hz
Current consumption	6 mA typ.	Shock	100 g for 11 ms
Output current - sink	2 mA max.	Life	1 million cycles min.
Output current - source	2 mA max.	Position sensitivity	50 $\mu$ V/V/g typical

### ENVIRONMENTAL SPECIFICATIONS

Characteristic	Range
Compensated	0 °C to 85 °C [32 °F to 185 °F]
Operating	-20 °C to 105 °C [-4 °F to 221 °F]
Storage	-40 °C to 125 °C [-40 °F to 257 °F]

### PRESSURE RANGE SPECIFICATIONS

Listing	Pressure Range	Burst Pressure <sup>(1)</sup>
ASDXL05	0 in to $\pm 5$ in H <sub>2</sub> O	3 PSI
ASDXL10	0 in to 10 in H <sub>2</sub> O	3 PSI
	0 in to $\pm 10$ H <sub>2</sub> O	

### PERFORMANCE CHARACTERISTICS 4D <sup>(2)</sup>

Characteristic	Min.	Typ.(5)	Max.	Unit
Full scale span (FSS) <sup>(3,4)</sup>	–	4.000	–	V
Zero pressure offset <sup>(4)</sup>	2.400	2.500	2.600	V
Output at full scale pressure (P2) <sup>(4,5)</sup>	4.400	4.500	4.600	V
Output at full scale pressure (P1) <sup>(4,5)</sup>	0.400	0.500	0.600	V
Accuracy <sup>(6)</sup>	–	–	$\pm 2.5$	% FSS
Quantization error <sup>(7)</sup>	2.44	–	–	mV
Response time <sup>(8)</sup>	–	8	11	ms

### PERFORMANCE CHARACTERISTICS 4R <sup>(2)</sup>

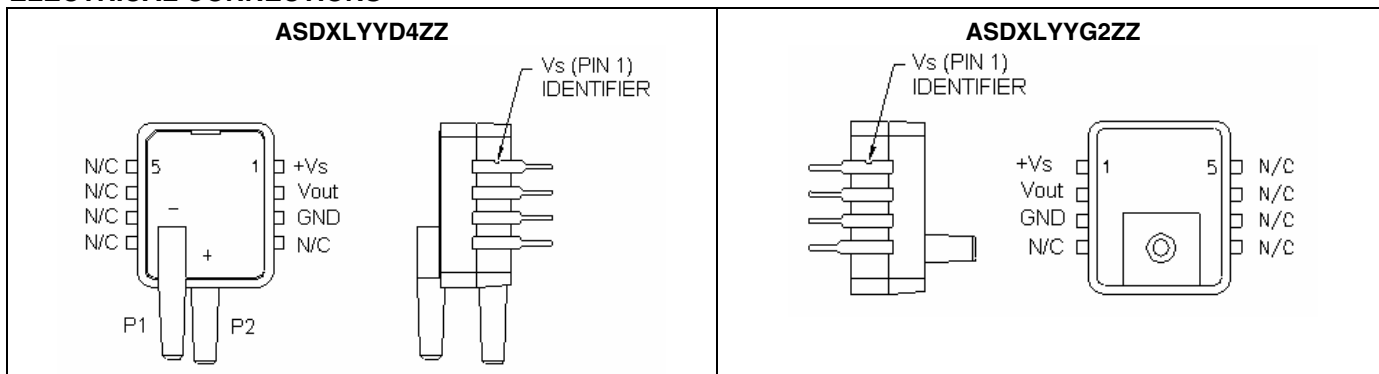
Characteristic	Min.	Typ.	Max.	Unit
Full scale span (FSS) <sup>(3,4)</sup>	–	4.000	–	V
Zero pressure offset <sup>(4)</sup>	0.400	0.500	0.600	V
Output at full scale pressure <sup>(4)</sup>	4.400	4.500	4.600	V
Accuracy <sup>(6,7)</sup>	–	–	$\pm 2.5$	% FSS
Quantization error <sup>(7)</sup>	2.44	–	–	mV
Response time <sup>(8)</sup>	–	8	11	ms

#### Notes:

1. If burst pressure is exceeded, even momentarily, the package may leak or the pressure sensing die may fracture.
2. Reference conditions (unless otherwise noted): supply voltage,  $V_s=5.0 \pm 0.01$  Vdc,  $T_a=25$  °C [77 °F].
3. Span is the algebraic difference between the output voltage at the specified pressure and the output at zero pressure.
4. Output is ratiometric within the supply voltage range (Vs).
5. Output of the device when maximum positive pressure is applied on the backside (P2) or the front side (P1) of the sensing element.
6. Accuracy is the combined errors from offset and span calibration, linearity, pressure hysteresis, and temperature effects. Calibration errors include the deviation of offset and full scale from nominal values. Linearity is the measured deviation based on a straight line. Hysteresis is the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure and temperature.
7. Minimum step size in the output due to a change in the input pressure.
8. Response time for 0 PSI to full scale pressure step change, 10% to 90% rise time.
9. 220 nF capacitor required between +Vs and GND.

# Microstructure Pressure Sensors

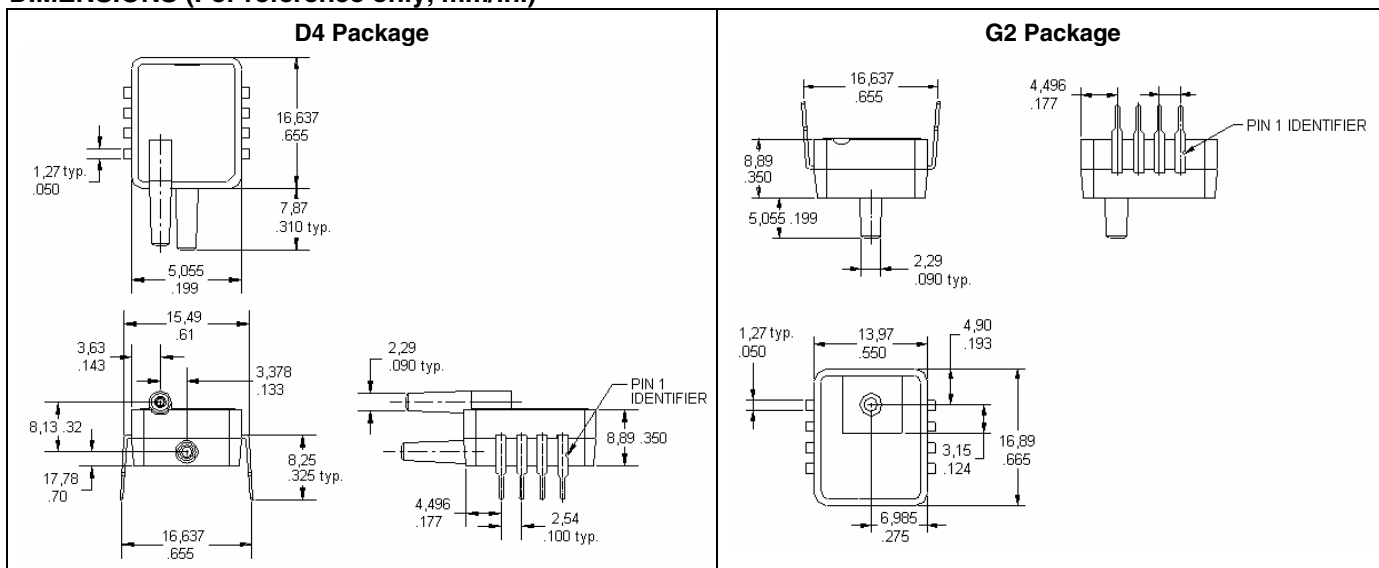
## ELECTRICAL CONNECTIONS <sup>(1,2,3)</sup>



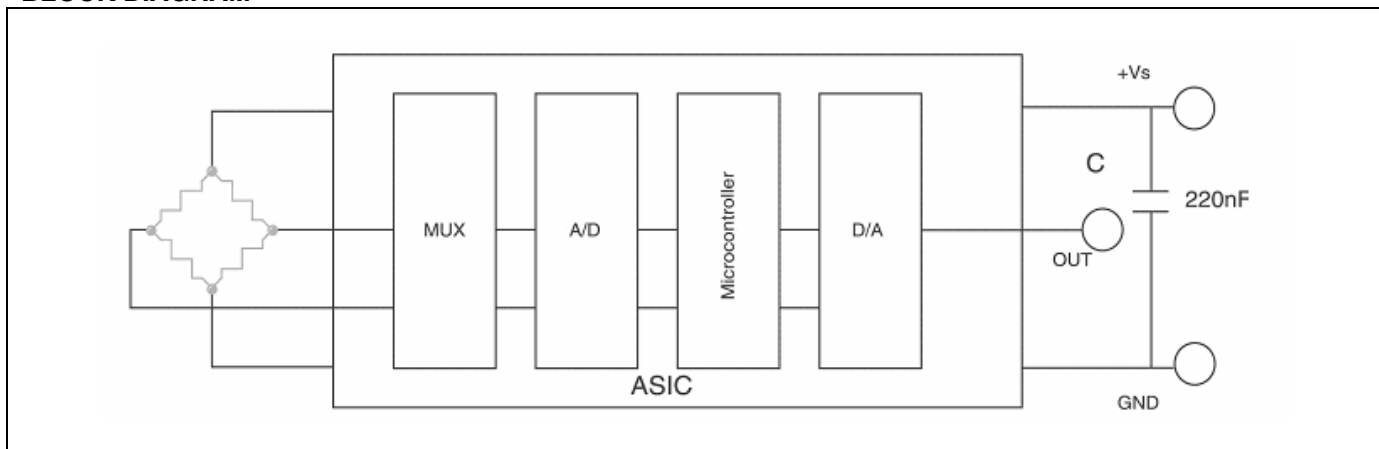
**Notes:**

1. N/C means no connection. Connecting to ground or other potential may damage sensor
2. Capacitor 220 nF required between +Vs and GND.
3. The sensor is not reverse polarity protected. Incorrect application of excitation voltage or ground to the wrong pin can cause electrical failure. Application of supply voltage above the maximum can cause electrical failure.

## DIMENSIONS (For reference only, mm/in.)



## BLOCK DIAGRAM



## ORDERING INFORMATION

Pressure Range	Gage	Differential	Bidirectional
0 in to $\pm 5$ in H <sub>2</sub> O	–	–	ASDXL05D44D
0 in to 10 in H <sub>2</sub> O	ASDXL10G24R	ASDXL10D44R	–
0 in to $\pm 10$ in H <sub>2</sub> O	–	–	ASDXL10D44D

### **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**

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:

**E-mail:** [info.sc@honeywell.com](mailto:info.sc@honeywell.com)

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

#### **Phone and Fax:**

Asia Pacific +65 6355-2828  
+65 6445-3033 Fax  
Europe +44 (0) 1698 481481  
+44 (0) 1698 481676 Fax  
Latin America +1-305-805-8188  
+1-305-883-8257 Fax  
USA/Canada +1-800-537-6945  
+1-815-235-6847  
+1-815-235-6545 Fax

## **Automation and Control Solutions**

Sensing and Control

Honeywell

1985 Douglas Drive North

Minneapolis, MN 55422

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

008141-3-EN IL50 GLO Printed in USA  
June 2006

Copyright © 2006 Honeywell International Inc. All rights reserved.

# Honeywell