Microstructure Pressure Sensors
0 psi to 1 psi through 0 psi to 100 psi

ASDX Series

FEATURES
- ASIC enhanced output
- Wide compensated temperature range 0 °C to 85 °C [32 °F to 185 °F]
- Available in absolute, differential and gage types
- Pressure ranges from 0 psi to 1 psi through 0 psi to 100 psi
- Accuracy ±2 % max. Volts Full Scale
- Quantization step of 3 mV
- Response time 8 ms

TYPICAL APPLICATIONS
- Flow calibrators
- Ventilation and air flow monitors
- Gas flow instrumentation
- Dialysis equipment
- Sleep apnea monitoring and therapy equipment
- Barometry
- HVAC controls
- Pneumatic controls

The ASDX series is an amplified version of Honeywell’s proven performer and industry leading SDX series sensor. The amplified ASDX sensor’s footprint is slightly larger than the SDX but it offers a high level output (4.0 Vdc span) on a very cost-effective basis. This series is fully calibrated and temperature compensated with on-board Application Specific Integrated Circuity (ASIC). They are intended for use with non-corrosive, non-ionic working fluids; such as air and dry gases.

Sensors are available to measure absolute, differential, and gage pressures. The absolute devices have an internal vacuum reference and an output voltage proportional to absolute pressure. Differential devices allow application of pressure to either side of the sensing diaphragm and can be used for gauge or differential measurements.

All ASDX devices are accurate to within ± 2.0 % full scale, designed for operation from a single 5.0 Vdc supply and are manufactured in accordance with ISO 9001 standards.

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.
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ASDX Series

**BLOCK DIAGRAM**

```
+Vs
C
220pF
MUX
AD
Microcontroller
D/A
ASIC
OUT
GND
```

**ELECTRICAL CONNECTIONS**

**ASDXxxxD4**

```
N/C
N/C
+V5 (PIN 1) IDENTIFIER
N/C
N/C
+V5 (PIN 1) IDENTIFIER
N/C
N/C
```

**ASDXxxxG2**

```
N/C
N/C
V5 (PIN 1) IDENTIFIER
N/C
N/C
V5 (PIN 1) IDENTIFIER
N/C
N/C
```

**ASDXxxxA2**

```
N/C
N/C
+V5 (PIN 1) IDENTIFIER
N/C
N/C
V5 (PIN 1) IDENTIFIER
N/C
N/C
```

* N/C means no connection, connecting to ground will damage to sensor.

**SPECIFICATIONS (Maximum Ratings)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Voltage (Vs)*</td>
<td>4.75 Vdc to 5.25 Vdc</td>
</tr>
<tr>
<td>Maximum Supply Voltage*</td>
<td>6.50 Vdc (max.)</td>
</tr>
<tr>
<td>Consumption Current</td>
<td>6 mA (typ.)</td>
</tr>
<tr>
<td>Output Current - Sink</td>
<td>2 mA (max.)</td>
</tr>
<tr>
<td>Output Current - Source</td>
<td>2 mA (max.)</td>
</tr>
<tr>
<td>Lead Temperature</td>
<td>2 Sec to 4 Sec @ 250 °C [482 °F]</td>
</tr>
</tbody>
</table>

*Note: 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.

**ENVIRONMENTAL SPECIFICATIONS (ALL DEVICES)**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Ranges:</td>
<td>Compensated: 0 °C to 85 °C [32 °F to 185 °F]</td>
</tr>
<tr>
<td></td>
<td>Operating: -20 °C to 105 °C [-4 °F to 221 °F]</td>
</tr>
<tr>
<td></td>
<td>Storage: -40 °C to 125 °C [-40 °F to 257 °F]</td>
</tr>
<tr>
<td>Vibration:</td>
<td>10 g at 20 Hz to 2000 Hz</td>
</tr>
<tr>
<td>Shock:</td>
<td>50 g for 11 ms</td>
</tr>
<tr>
<td>Life:</td>
<td>1 million cycles minimum</td>
</tr>
</tbody>
</table>

**PRESSURE RANGE SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Pressure Range</th>
<th>Burst Pressure (3)</th>
<th>Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASDX001</td>
<td>0 psi to 1 psi</td>
<td>5 psi</td>
<td>4.00 V/psi</td>
</tr>
<tr>
<td>ASDX005</td>
<td>0 psi to 5 psi</td>
<td>20 psi</td>
<td>0.80 V/psi</td>
</tr>
<tr>
<td>ASDX015</td>
<td>0 psi to 15 psi</td>
<td>30 psi</td>
<td>0.267 V/psi</td>
</tr>
<tr>
<td>ASDX030</td>
<td>0 psi to 30 psi</td>
<td>60 psi</td>
<td>0.133 V/psi</td>
</tr>
<tr>
<td>ASDX100</td>
<td>0 psi to 100 psi</td>
<td>150 psi</td>
<td>0.040 V/psi</td>
</tr>
</tbody>
</table>
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ASDX Series

PERFORMANCE SPECIFICATIONS(4)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Symbol</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero Pressure Offset</td>
<td>Voff</td>
<td>0.420</td>
<td>0.500</td>
<td>0.580</td>
<td>Vdc</td>
</tr>
<tr>
<td>Full Scale Span(5)</td>
<td>Vfss</td>
<td>4.00</td>
<td></td>
<td></td>
<td>Vdc</td>
</tr>
<tr>
<td>Output at FS Pressure</td>
<td>Vfso</td>
<td>4.420</td>
<td>4.500</td>
<td>4.580</td>
<td>Vdc</td>
</tr>
<tr>
<td>Accuracy(6)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>±2.0%</td>
</tr>
<tr>
<td>Response Time(7)</td>
<td>–</td>
<td>8</td>
<td>–</td>
<td>–</td>
<td>ms</td>
</tr>
<tr>
<td>Quantization Step(8)</td>
<td>–</td>
<td>3</td>
<td>–</td>
<td>–</td>
<td>mV</td>
</tr>
</tbody>
</table>

SPECIFICATION NOTES

Note 1: Capacitor 220 nF required between +Vs and GND pin.
Note 2: Pins 4, 5, 6, 7 and 8 are internal device connections and should not be connected to external circuitry or ground.
Note 3: If maximum burst pressure is exceeded, even momentarily, the package may leak or burst, or the pressure sensing die may fracture.
Note 4: Reference Conditions (unless otherwise noted): Supply voltage, V_s=5.0 ± 0.01 Vdc; T_a=25 °C [77 °F]. Output is ratiometric within the supply voltage range (Vs).
Note 5: Span is the algebraic difference between the output voltage at the specified pressure and the output at zero pressure. Span is ratiometric to the supply voltage.
Note 6: Accuracy is the combined errors from offset and span calibration, linearity, pressure hysteresis, and temperature effects. 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. Calibration errors include the deviation of offset and full scale from nominal values.
Note 7: Response time for a 0 psi to full-scale pressure step change, 10 % to 90 % rise time.
Note 8: The smallest change in the output voltage, given any change in pressure.

PRESSURE TRANSDUCER PERFORMANCE CHARACTERISTICS

Error Band Multiplier Over -20 °C to 105 °C [-4 °F to 221 °F]

ORDERING INFORMATION - PART NUMBER DESCRIPTION

Sensor Series

ASDX XXX XX 4X

Pressure Ranges

001 = 0 psi to 1 psi  D, G
005 = 0 psi to 5 psi  D, G
015 = 0 psi to 15 psi D, G, A
030 = 0 psi to 30 psi D, G, A
100 = 0 psi to 100 psi D, G, A

Device Output

4R = 0.5 Vdc to 4.5 Vdc
4D = 2.5 ±2.0 Vdc*
4H = 0.25 Vdc to 4.25 Vdc*
4M = 0.2 Vdc to 4.7 Vdc*

Package Style and Type

A2 = DIP Package Absolute
D4 = DIP Package Differential
D2, G2 = DIP Package, Gage

* Contact Honeywell for additional information.

For example:
Part #ASDX015A24R=ASDX device 15 psi absolute, A2 Package, 0.5 Vdc to 4.5 Vdc Output
TO ORDER, USE THE FOLLOWING PART NUMBER(S)

<table>
<thead>
<tr>
<th>Pressure Range</th>
<th>Absolute</th>
<th>Gauge</th>
<th>Differential</th>
<th>Bidirectional</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 psi to 1 psi</td>
<td>–</td>
<td>ASDX001G24R</td>
<td>ASDX001D44R</td>
<td>ASDX001D44D</td>
</tr>
<tr>
<td>0 psi to 5 psi</td>
<td>–</td>
<td>ASDX005G24R</td>
<td>ASDX005D44R</td>
<td>ASDX005D44D</td>
</tr>
<tr>
<td>0 psi to 15 psi</td>
<td>ASDX015A24R</td>
<td>ASDX015G24R</td>
<td>ASDX015D44R</td>
<td>ASDX015D44D</td>
</tr>
<tr>
<td>0 psi to 30 psi</td>
<td>ASDX030A24R</td>
<td>ASDX030G24R</td>
<td>ASDX030D44R</td>
<td>ASDX030D44D</td>
</tr>
<tr>
<td>0 psi to 100 psi</td>
<td>ASDX100A24R</td>
<td>ASDX100G24R</td>
<td>ASDX100D44R</td>
<td>ASDX100D44D</td>
</tr>
</tbody>
</table>

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:
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