

# Microstructure Pressure Sensors

Signal Conditioned

0 psi to 1 psi up to 0 psi to 150 psi

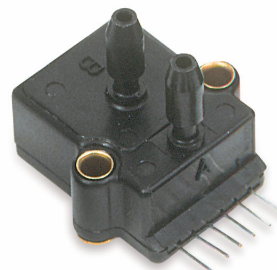
*ASCX Series*

## FEATURES

- 5 Vdc Supply
- High Level Voltage Output
- Field Interchangeable
- Calibrated and Temperature Compensated
- Small Form Factor
- Low Power
- Offset Adjust

## TYPICAL APPLICATIONS

- Medical Equipment
- Industrial Controls
- Pneumatic Controls



This series is a signal-conditioned version of Honeywell's proven performer and industry leading SCX series sensor.

This amplified ASCX device is in a package the same as the SCX but it offers a high level (4.5 V span) output on a very cost-effective basis. This family is fully calibrated and temperature compensated over a range of 0 °C to 70 °C [32 °F to 158 °F] but can be operated from -25 °C to 105 °C [-13 °F to 221 °F]. These sensors are intended for use with non-corrosive, non-ionic working fluids such as air and dry gases.

Devices are available to measure absolute, differential and gage pressures from 1 psi (ASCX01) up to 150 psi (ASCX150). The absolute devices (A) have an internal vacuum reference and an output voltage proportional to absolute pressure. Differential devices (D) allow application of pressure to either side of the sensing diaphragm and can be used for gage or differential pressure measurements.

The ASCX series devices feature an integrated circuit (IC) sensor element and laser trimmed thick film ceramic housed in a compact solvent resistant case. It provides excellent corrosion resistance and isolation to external packaging stresses. The package has convenient mounting holes and pressure ports for ease of use with standard plastic tubing for pressure connection.

All ASCX devices are calibrated for span to within  $\pm 1\%$  (typically  $\pm 0.2\%$ ) of FSO. The devices are characterized for operation from a single 5 volt supply although sensitivity is ratiometric to the supply voltage and any dc supply from 5 Vdc to 16 Vdc is acceptable.

The ACSX series requires very low quiescent current compared to other signal conditioned pressure sensors, thus, this series is ideal for battery-powered applications.

The 100 microseconds response time makes this series an excellent choice for computer peripherals and pneumatic control applications.

Contact your local honeywell representative, or go to Honeywell's website at [www.honeywell.com/sensing](http://www.honeywell.com/sensing) for additional details.

## 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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## PRESSURE RANGE SPECIFICATIONS

Model *	Operating Pressure	Proof Pressure <sup>(2)</sup>	Sensitivity <sup>(3)</sup>	Full-Scale Span <sup>(1)</sup>		
				Min.	Typ.	Max.
ASCX01DN	0 psid to 1 psid	20 psid	4.5V/psi	4.43 V	4.50 V	4.57 V
ASCX05DN	0 psid to 5 psid	20 psid	0.9V/psi			
ASCX15AN	0 psia to 15 psia	30 psia	0.3V/psi	4.455 V	4.50 V	4.545 V
ASCX15DN	0 psid to 15 psid	30 psid	0.3V/psi			
ASCX30AN	0 psia to 30 psia	60 psia	0.15V/psi			
ASCX30DN	0 psid to 30 psid	60 psid	0.15V/psi			
ASCX100AN	0 psia to 100 psia	150 psia	45mV/psi			
ASCX100DN	0 psid to 100 psid	150 psid	45mV/psi			
ASCX150AN	0 psia to 150 psia	150 psia	30mV/psi			
ASCX150DN	0 psid to 150 psid	150 psid	30mV/psi			

\* **Ordering information:** Order model number.

## MAXIMUM RATINGS

Characteristic	Description
Supply Voltage (Vs)	4.5 Vdc to 16 Vdc
Output Current	
Source	5 mA
Sink	3 mA
Lead Soldering Temperature (2 seconds to 4 seconds)	250 °C [482 °F]
Maximum Pressure On Any Port	150 psi
Quiescent Current	4 mA

## PARAMETER REFERENCE CONDITIONS

Model	Reference Conditions
Supply Voltage	5.01 ± 0.01 Vdc
Reference Temperature	25 °C [77 °F]
Load Condition	200 kOhm
Common Mode Pressure	0 psig

## ENVIRONMENTAL SPECIFICATIONS

Characteristic	Description (Maximum Ratings) All Devices
Compensated Operating Temperature	0 °C to 70 °C [32 °F to 158 °F]
Operating Temperature	-25 °C to 105 °C [-13 °F to 221 °F]
Storage Temperature	-55 °C to 125 °C [-67 °F to 257 °F]

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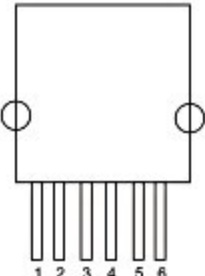
## ASCX PERFORMANCE CHARACTERISTICS <sup>(4)</sup>

Characteristic	Min.	Typ.	Max.	Unit
Offset <sup>(5)</sup>				
Models ASCX15/30/100/150xN	0.205	0.250	0.295	Volts
Models ASCX01/05DN	0.180	0.250	0.320	Volts
Output @ FS Pressure		4.750		Volts
Combined Pressure Linearity and Hysteresis <sup>(6)</sup>	—	±0.1	±0.5	% FSO
Temperature Effect on Span 0 °C to 70 °C [32 °F to 158 °F] <sup>(7)</sup>				
Models ASCX15/30/100/150xN	—	±0.2	±1.0	% FSO
Models ASCX01/05DN	—	±0.2	±1.5	% FSO
Temperature Effect on Offset 0 °C to 70 °C [32 °F to 158 °F] <sup>(7)</sup>				
Models ASCX15/30/100/150xN	—	±0.5	±1.0	% FSO
Models ASCX01/05DN	—	±0.5	±1.5	% FSO
Repeatability <sup>(8)</sup>	—	±0.2	±0.5	% FSO
Response Time <sup>(9)</sup>	—	100	—	Microsec.

## SPECIFICATION NOTES

- Note 1: Full-Scale Span is the algebraic difference between the output voltage at full-scale pressure and the output at zero pressure.
- Note 2: Maximum pressure above which causes permanent sensor failure.
- Note 3: Sensitivity is ratiometric to supply voltage.
- Note 4: Performance specs are shown at reference conditions. Specifications apply for absolute pressure devices with pressure applied to Port A. For gage devices, pressure is applied to Port B and Port A is left open for ambient. For differential pressures, Port B is the high-pressure port. All differential devices feature dual pressure ports and can be used as gage or differential sensors. For absolute devices, Port B is inactive.
- Note 5: Offset calibration is at the lowest pressure for each given device.
- Note 6: Linearity refers to the best straight line fit as measured for offset, full scale and ½ full-scale pressure.
- Note 7: Temperature errors are the maximum shift over 0 °C to 70 °C [32 °F to 158 °F], relative to the 25 °C [77 °F] reading.
- Note 8: Maximum difference in output at any pressure within the operating pressure range and the temperature within 0 °C to 70 °C [32 °F to 158 °F] after:
- a) 100 temperature cycles, 0 °C to 70 °C [32 °F to 158 °F]
  - b) 1.0 million pressure cycles, 0 psi to Full-Scale Span.
- Note 9: Response time for a 0 psi to Full-Scale Span pressure step change, 10 % to 90 % rise time.

## ELECTRICAL CONNECTION

Pinout	ASCX Series
	PIN 1) External Offset Adjustment PIN 2) $V_s$ PIN 3) + Output PIN 4) Ground PIN 5) N/C PIN 6) Do Not Use

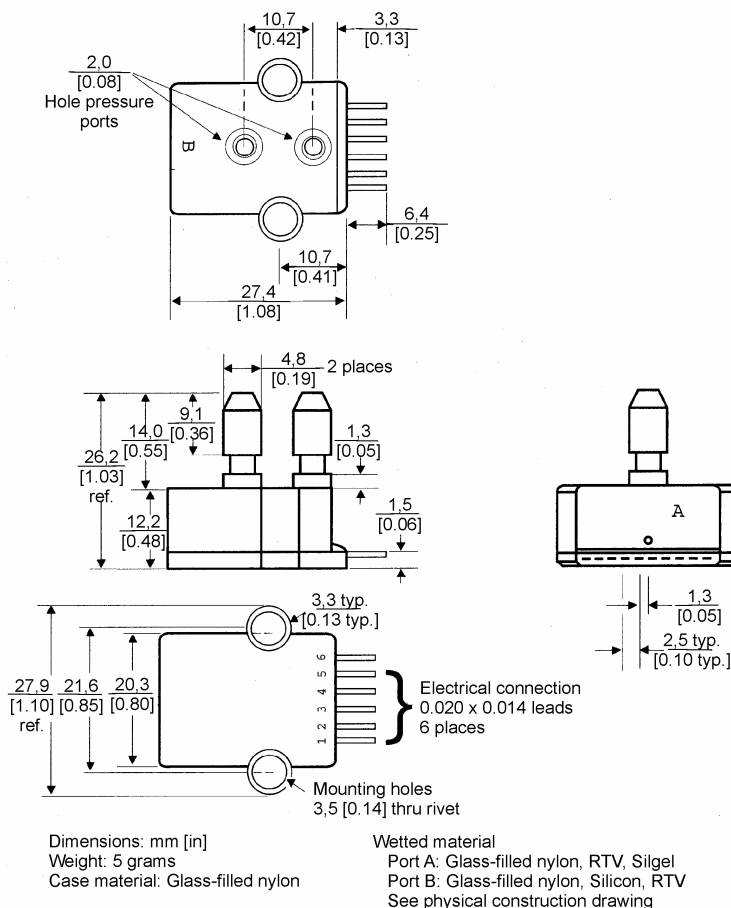
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## PHYSICAL DIMENSIONS for Reference Only (mm/in)



## 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

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**Honeywell**

Sensing and Control

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