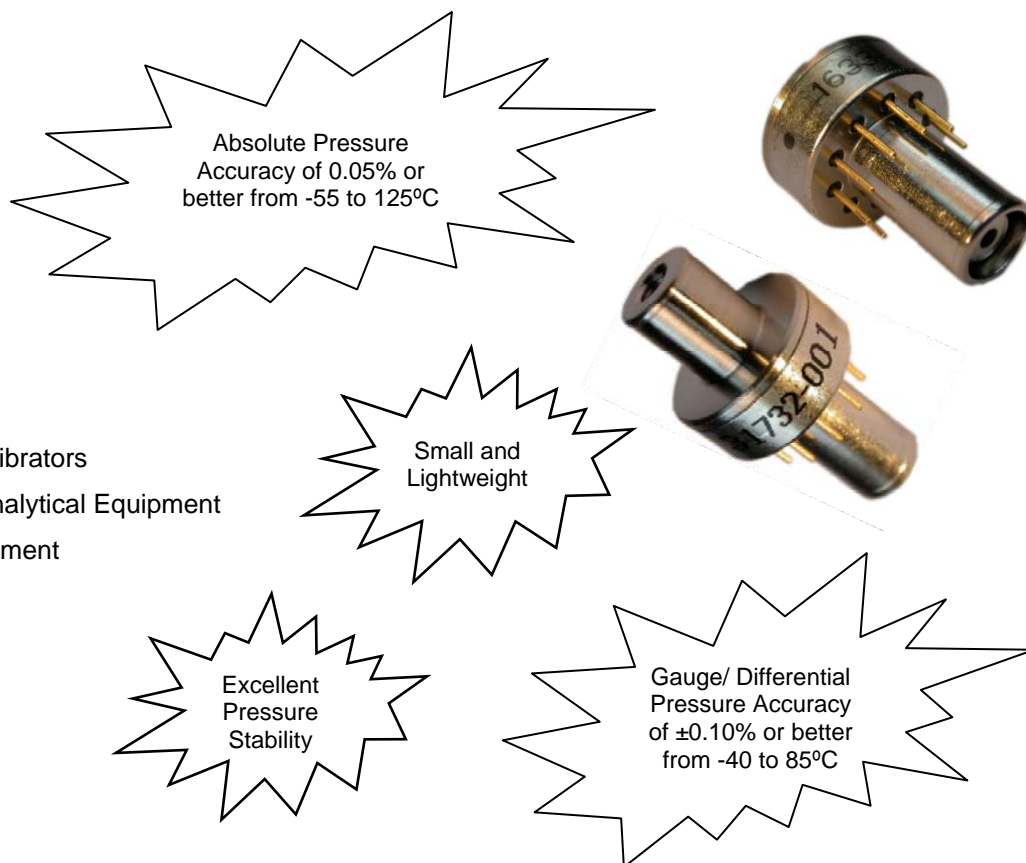


# Integrated Pressure Sensor IPS

Honeywell's Integrated Pressure Sensor (IPS) provides a high level millivolt pressure output with excellent stability. The core of the IPS is a proven Honeywell silicon piezoresistive pressure sensor with both pressure and temperature sensitive elements. The IPS is small and lightweight and can be easily mounted onto circuit boards. With the application of signal conditioning electronics and digital correction, the IPS offers highly accurate and stable pressure readings over a wide temperature range.

## APPLICATIONS:

- Air Data Computers
- Altimeters
- Cabin Air Pressure
- Engine Test Systems
- Flight Test Systems
- Meteorology
- Flow and Pressure Calibrators
- Instrumentation and Analytical Equipment
- Research and Development



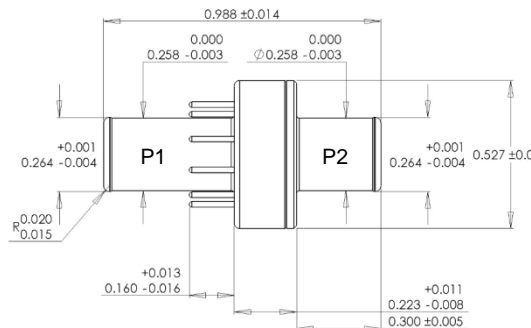
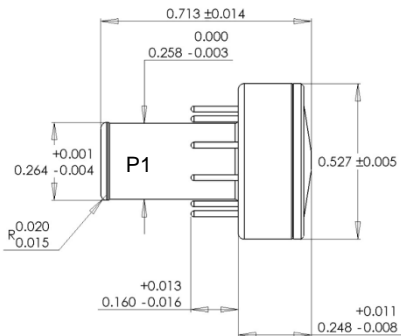
## FEATURES AND BENEFITS

ISO-9001  
ISO-14001

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>▶ <b>High Accuracy Over a Wide Temperature Range</b><br/> <math>\pm 0.05\%</math> FS capability (absolute)<br/> <math>\pm 0.10\%</math> FS capability (gauge/differential)</li> <li>▶ <b>Accurate Temperature Compensation</b></li> <li>▶ <b>Small, Lightweight, Versatile</b></li> </ul> | <ul style="list-style-type: none"> <li>▶ <b>High Accuracy Capability with use of Appropriate Signal Conditioning and Digital Correction.</b></li> <li>▶ <b>On-chip Temperature Bridge</b> - enhances temperature compensation accuracy.</li> <li>▶ <b>Volume:</b>     ~ 0.16 in<sup>3</sup> (2.6 cm<sup>3</sup>) - absolute<br/>                             ~ 0.22 in<sup>3</sup> (3.6 cm<sup>3</sup>) - gauge/differential</li> <li><b>Lightweight:</b>   ~ 6.7 grams – absolute<br/>                             ~ 7.5 grams – gauge/differential</li> <li><b>Media Interface:</b> Handles most dry gas media.</li> </ul> |
|--|--|

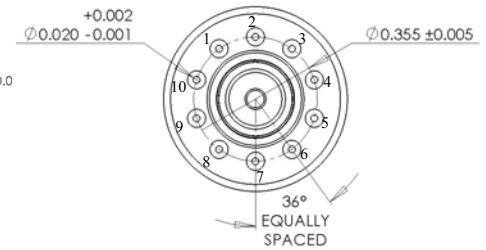
# IPS

## DIMENSIONS (Inches)



## SENSOR PINOUT

(As seen from port P1)  
Pin 1 Designation: Ink mark on outside of package.



## SPECIFICATIONS

### Performance Specifications<sup>(1)</sup>

#### Total Error Band Capability:

±0.05%FS absolute (from -55 to 125°C)

±0.10%FS gauge, differential (from -40 to 85°C)

#### Temperature Range:

Operating -55 to 125°C (-67 to 257°F), absolute

Operating -40 to 85°C (-40 to 185°F), gauge/differential

Storage: -65 to 150°C (-85 to 302°F), absolute

Storage: -55 to 125°C (-67 to 257°F), gauge/differential

Long Term Stability<sup>(9)</sup>: 0.025% FS max per year

### Mechanical Specifications

#### Pressure Ranges and Type:

See Ordering Information at right

Media Compatibility<sup>(2)</sup>: Suitable for non-condensing, non-corrosive, and non-combustible gases.

Weight: 6.7 grams (absolute)

7.5 grams (gauge/differential)

### Electrical Specifications<sup>(3)</sup>

Excitation: 5 ± 0.05 VDC

Pressure Bridge: 10kΩ nominal (VEX1 – GND)

Temperature Bridge: 20kΩ nominal (VEX2 – GND)

#### Pressure & Temperature Output (volts):

PSI	Vpress @ Pmin	Vpress @ Pmax	Vpress Span
	Min	Max	Min Max
2 psig	0	1	1.25 3 0.75 2
2 psid	1	2	2.5 3.5 1 2.5
5 psig	0	1	1.25 3 0.75 2.25
5 psid	0.75	1.75	2.5 4 1.25 3.25
20 psig	0	0.75	2.5 4.75 2 4.5
20 psid	1	2	2.5 4 1 2.5
20/50 psia	0.15	2.25	2.75 4.85 1.5 5
	Vtemp @ Tmin	Vtemp @ Tmax	Vtemp Span
	Min	Max	Min Max
2/5/20 psig/d	0.5	2.25	1.5 4 0.75 2.25
20/50 psia	0.15	-	- 4.85 1.25 -

### Environmental Features<sup>(4)</sup>

Overpressure: 3x FS

Burst Pressure: 3x FS

Mechanical Shock: DO-160E Section 7.0,

Category A, Figure 7.2, Operational Standard

Thermal Shock: Storage Temperature Cycling per

JESD22-104, Section 5.0: -55°C to +125°C

Vibration: DO-160E Section 8, Category H,

Aircraft Type 2, Aircraft Zones 1 & 2

RoHS Compliant (2002/05/EC): Yes

## ORDERING INFORMATION

### IPS Integrated Pressure Sensor

IPS

#### FULL SCALE PRESSURE RANGE

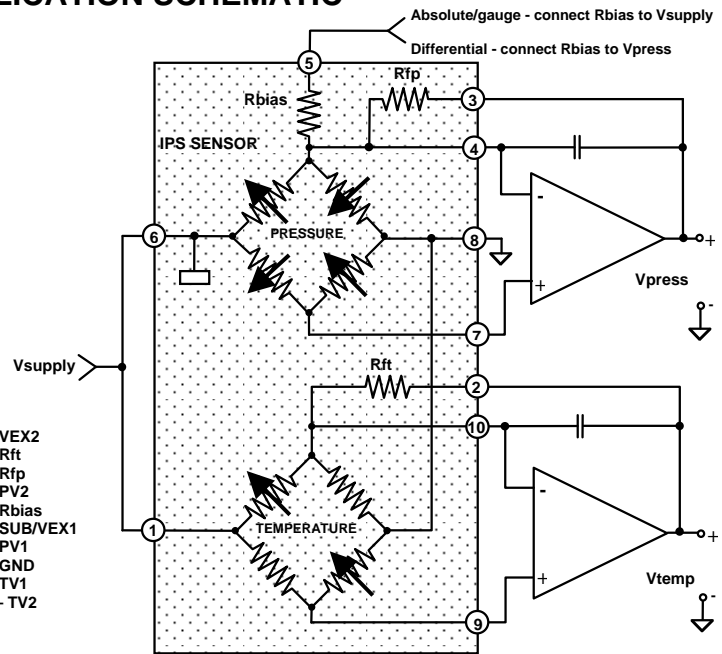
	Absolute	Gauge/Differential
0002	N/A	2 PSIG/D
0005	N/A	5 PSIG/D
0020	20 PSIA	20 PSIG/D
0050	50 PSIA	N/A

TYPE	P1 Pressure	P2 Pressure
A	Absolute	0 (vacuum) to FS
G	Gauge/	Reference to FS
	Differential	+FS to -FS rel. to P2
		Reference
		+FS to -FS rel. to P1

Example:

IPS 0020 A

## APPLICATION SCHEMATIC



<sup>(1)</sup> Accuracy and stability achievable with appropriate signal conditioning, digital correction and preconditioning of both sensor and electronics. <sup>(2)</sup> The IPS pressure port should be protected from any cleaning solutions/processes. Ultrasonic cleaning should not be used as it may degrade the internal connects. Port P2 must be shielded from light due to a strong photoelectric effect on the sense element. <sup>(3)</sup> Per application schematic. <sup>(4)</sup> As tested in Integrated Pressure Transducer (IPT) configuration. <sup>(5)</sup> Beyond max. total error band when continuously powered at 25±10°C, <90%RH and 28 to 32 inHg atmospheric pressure.

## Find out more

For more information on Honeywell's Precision Pressure Transducers visit us online at [www.pressuresensing.com](http://www.pressuresensing.com) or contact us at 1-800-601-3099 (International: 1-602-365-3099). Customer Service Email: [D&Sorders@honeywell.com](mailto:D&Sorders@honeywell.com).

Honeywell reserves the right to make changes to improve reliability, function or design. Honeywell does not assume any liability arising out of the application or use of any product or circuit described herein; neither does it convey any license under its patent rights nor the rights of others.

Honeywell  
12001 Highway 55  
Plymouth, MN 55441  
Tel: 800-323-8295  
[www.pressuresensing.com](http://www.pressuresensing.com)

ADS-14185  
July 2014  
©2012 Honeywell International Inc.

**Honeywell**