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

- **High Accuracy Over a Wide Temperature Range**
  - ±0.05% FS capability (absolute)
  - ±0.10% FS capability (gauge/differential)
- **Accurate Temperature Compensation**
- **Small, Lightweight, Versatile**
- **High Accuracy Capability with use of Appropriate Signal Conditioning and Digital Correction.**
- **On-chip Temperature Bridge** - enhances temperature compensation accuracy.
- **Volume:** ~ 0.16 in³ (2.6 cm³) - absolute
  ~ 0.22 in³ (3.6 cm³) – gauge/differential
- **Lightweight:** ~ 6.7 grams – absolute
  ~ 7.5 grams – gauge/differential
- **Media Interface:** Handles most dry gas media.
SPECIFICATIONS

Performance Specifications

Accuracy 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

Long Term Stability:
0.02% FS max per year

Mechanical Specifications

Pressure Ranges and Type:
See Ordering Information at right

Media Compatibility:
Suitable for non-condensing, non-corrosive, and non-combustible gases.

Weight:
6.7 grams (absolute)
7.5 grams (gauge/differential)

Electrical Specifications

Excitation: 5 ± 0.05 VDC
Pressure Bridge: 10kΩ nominal (VEX1 – GND)
Temperature Bridge: 20kΩ nominal (VEX2 – GND)

Pressure & Temperature Output (volts):

<table>
<thead>
<tr>
<th>PSI</th>
<th>Vpress @ Pmin</th>
<th>Vpress @ Pmax</th>
<th>Vpress Span</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min</td>
<td>Max</td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>2 psig</td>
<td>0</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td>2 psid</td>
<td>1</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>5 psig</td>
<td>0</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td>5 psid</td>
<td>0.75</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>20 psig</td>
<td>0</td>
<td>0.75</td>
<td>2.5</td>
</tr>
<tr>
<td>20 psid</td>
<td>1</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>20/50 psia</td>
<td>0.15</td>
<td>2.25</td>
<td>2.75</td>
</tr>
</tbody>
</table>

Environmental Features

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 (2002/95/EC): Yes

Find out more

For more information on Honeywell’s Precision Pressure Transducers visit us online at www.honeywell.com/pressuresensing or contact us at 1-800-323-8295 or 763-954-2474. Customer Service Email: ssec.customer.service@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. Covered by one or more of the following US Patents: 4,918,992 and 4,788,521.

Honeywell
12001 Highway 55
Plymouth, MN 55441
Tel: 800-323-8295
www.honeywell.com/pressuresensing

Honeywell International Inc.

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FULL SCALE PRESSURE RANGE

<table>
<thead>
<tr>
<th>PARTY</th>
<th>P1 Pressure</th>
<th>P2 Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0002</td>
<td>N/A</td>
<td>2 PSIG/D</td>
</tr>
<tr>
<td>0005</td>
<td>N/A</td>
<td>5 PSIG/D</td>
</tr>
<tr>
<td>0020</td>
<td>20 PSIA</td>
<td>20 PSIG/D</td>
</tr>
<tr>
<td>0050</td>
<td>50 PSIA</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Example:

IPS 0020 A

APPLICATION SCHEMATIC

Vsupply

Vpress

Vtemp

1 – VEX2
2 – RR
3 – Rtp
4 – PV2
5 – Rbias
6 – SUB/VEX1
7 – PV1
8 – GND
9 – TV1
10 – TV2

(1) Accuracy achievable with appropriate signal conditioning and digital correction. (2) The IPS pressure port should be protected from any cleaning solutions/processes. Ultrasonic cleaning should not be used as it may degrade the internal connectors. (3) Per application schematic. (4) As tested in Integrated Pressure Transducer (IPT) configuration.