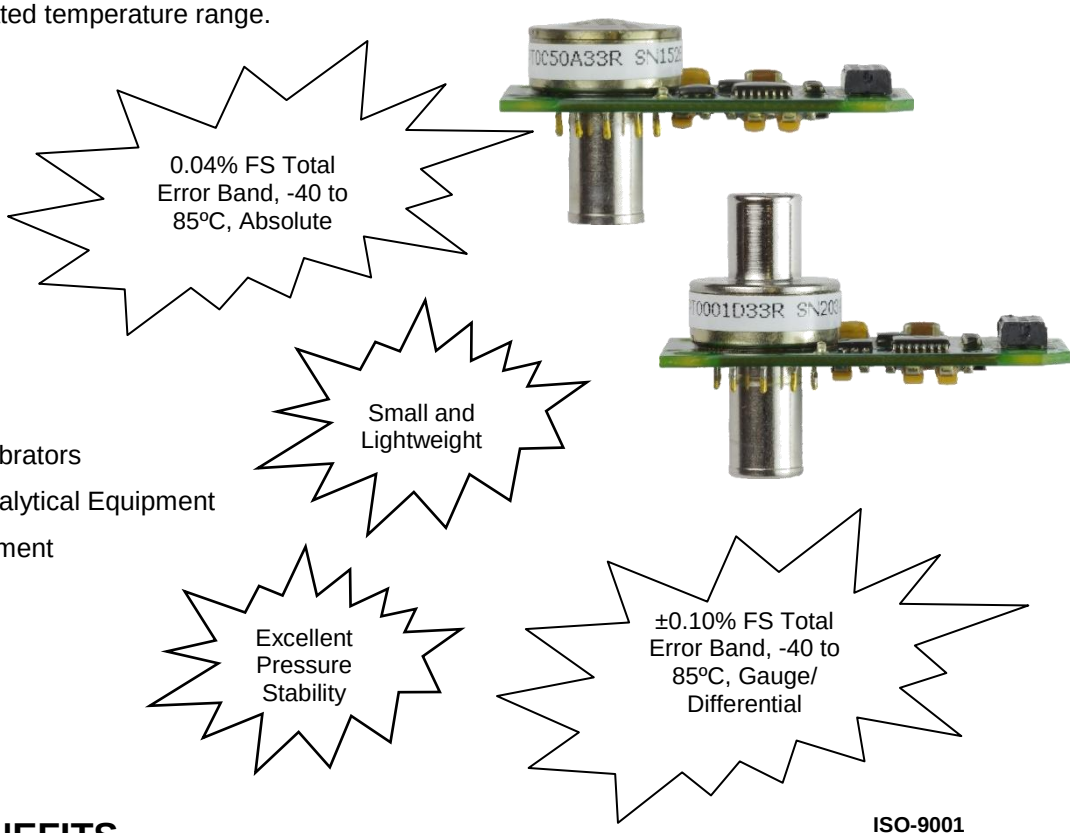
Honeywell

Integrated Pressure Transducer
IPT

Honeywell's Integrated Pressure Transducer (IPT) provides high accuracy pressure data in an industry standard SPI digital format. The core of the IPT is a proven Honeywell silicon piezoresistive pressure sensor with both pressure and temperature sensitive elements. The IPT is small and lightweight and can be easily integrated by the user into a wide variety of applications that require high performance in a small package. Applying the coefficients stored in the on-board EEPROM to the normalized IPT pressure and temperature output yields highly accurate and stable pressure readings over the -40 to 85°C compensated 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



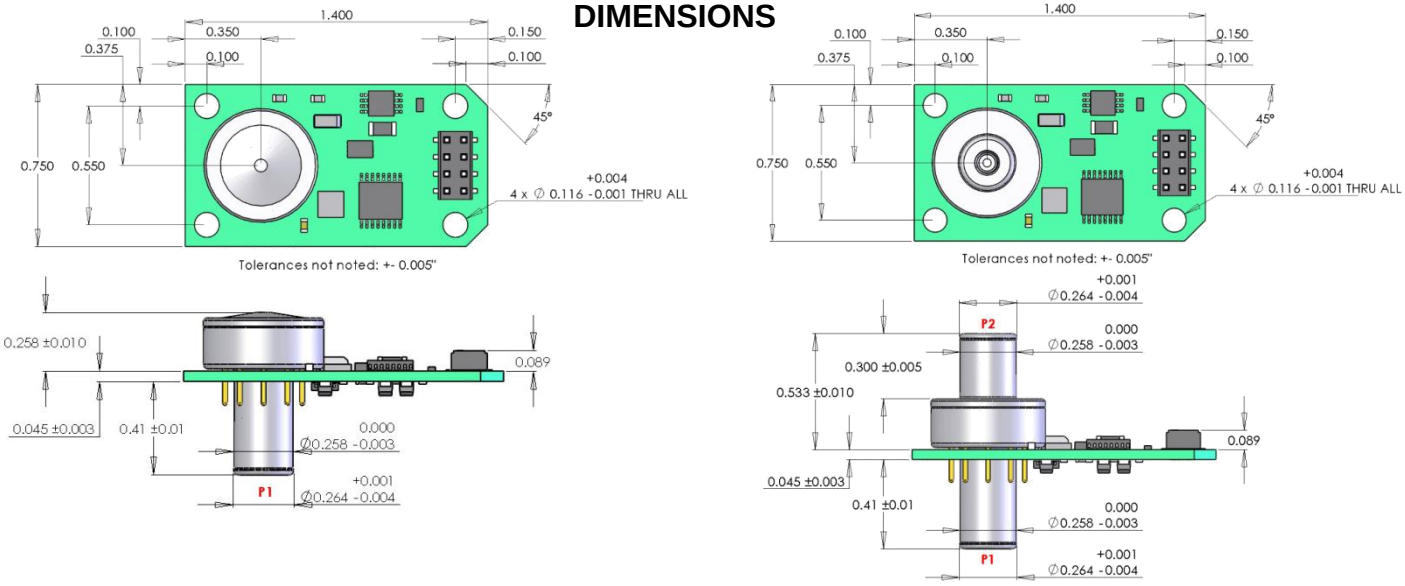
FEATURES AND BENEFITS

ISO-9001
ISO-14001

- **High Accuracy Over a Wide Temperature Range**
  From -40 to 85°C
  ±0.04% FS Total Error Band (absolute pressure),
  to ±0.10% FS Total Error Band (gauge/ differential pressure) (1)
- **Digital SPI Output**
- **Small and Versatile**
- **Stored Correction Coefficients in EEPROM –** Ready to use; No additional pressure and temperature calibration necessary.
  Simplifies System Design – No additional signal compensation needed to achieve a highly accurate pressure reading.
- **Industry Standard Interface –** Ready communication between a µController/µProcessor and the IPT.
- **Volume** ~ 1 in^3 (16 cm^3)
  Lightweight – Less than 10 grams.
  Media Interface – Handles most dry gas media.

IPT

DIMENSIONS



SPECIFICATIONS

Performance Specifications[1]

Total Error Band: (from -40 to 85ºC)
±0.04%FS absolute
±0.10%FS gauge, differential
±0.20%FS 1 psi gauge
Temperature Range:
Operating -40 to 85ºC (-40 to 185ºF)
Storage: -55 to 125ºC (-67 to 257ºF)
Pressure Sensor Temperature Error: ±1°C typ.
Long Term Stability[5]**:**
0.025% FS max per year

Mechanical Specifications

Pressure Ranges and Type:
See Ordering Information at right
Pressure Units: PSI[2]
Media Compatibility: Suitable for non-condensing, non-corrosive, and non-combustible gases.
Weight[3]**:** ~8.0 grams (absolute)
~9.7 grams (gauge, differential)

Electrical Specifications

Output:
24-bit pressure value
16-bit temperature value
256 x 8 EEPROM configuration
Power Requirements:
Supply Voltage: 4 to 12 VDC
Current Consumption:
6 mA typical, 7.5 mA max
Interface: 3.3V SPI (mode 1,1) SCLK ≤5 Mhz
Update Rate: 166 samples/second

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: -55ºC to +125ºC
Vibration: DO-160E Section 8, Category H, Aircraft Type 2, Aircraft Zones 1 & 2
RoHS Compliant (2002/05/EC): Yes

ORDERING INFORMATION

IPT Integrated Pressure Transducer

IPT	FULL SCALE PRESSURE RANGE	Absolute	Gauge	Differential
	0001	***N/A***	1 PSIG[1]	1 PSID
	0002	***N/A***	2 PSIG	2 PSID
	0005	***N/A***	5 PSIG	5 PSID
	0010	***N/A***	10 PSIG	10 PSID
	0020	20 PSIA	20 PSIG	20 PSID
	0050	50 PSIA	***N/A***	***N/A***

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

DIGITAL INTERFACE VOLTAGE	
33	3.3 volts

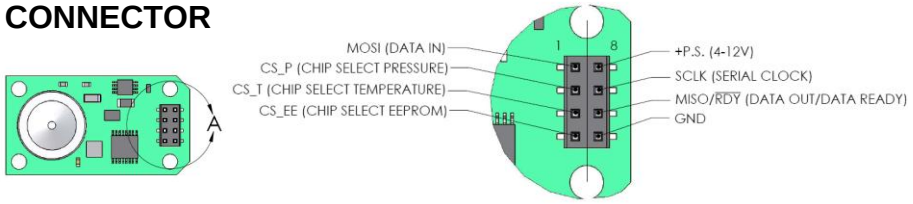
POWER SUPPLY	
R	Regulated, 4-12VDC

OPTIONS	
A	Demonstration Kit[4]

Example:

IPT	0020	A	33	R	-A

CONNECTOR



[1] Total Error is the sum of worst case linearity, repeatability, hysteresis, thermal effects, and calibration errors over the operating temperature range. Accuracy is only achieved after applying the correction coefficients and algorithm as shown in section 3.2. of Product Specification (FS = Full Scale). For total error calculations of differential units, "Full Scale" is the pressure difference between the minimum and maximum pressures. For example, full scale for a 1 psid PPT is 2 psi (-1 to +1 psi). Pressure range 1psi gauge has total error of ±0.20% FS. [2] After applying the correction coefficients stored in EEPROM, the resultant pressure reading is expressed in PSI (pounds per square inch). [3] Not including mounting hardware. [4] Demonstration kit includes RS-232 Cable, Demo Board, AC adapter, MS Windows Software, and User's Manual. [5] 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 or contact us at 1-800-601-3099 (International: 1-602-365-3099). Customer Service Email: D&Sorders@honeywell.com.

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