

ABP2 SERIES

32350268
Issue A

Board Mount Pressure Sensors

High Accuracy, Compensated/Amplified
4 bar to 12 bar | 400 kPa to 1.2 MPa | 60 psi to 175 psi
Digital Output, Liquid Media Capable

DESCRIPTION

The ABP2 Series are piezoresistive silicon pressure sensors offering a digital output for reading pressure over the specified full scale pressure span and temperature range. They are calibrated and temperature compensated for sensor offset, sensitivity, temperature effects and accuracy errors (which include non-linearity, repeatability and hysteresis) using an on-board Application Specific Integrated Circuit (ASIC). Calibrated output values for pressure and temperature are updated at approximately 200 Hz. All products are designed and manufactured according to ISO 9001 standards. The liquid media option includes an additional silicone-based gel coating to protect the electronics under port P1, which enables use with non-corrosive liquids (e.g. water and saline) and in applications where condensation can occur. The ABP2 Series is available in tube packaging. Pocket tape and reel packaging is available upon request.

VALUE TO CUSTOMERS

- Simplifies design-in: Small size saves room on the PC board (PCB), simplifying design in smaller and lower power devices. Meets IPC/JEDEC J-STD-020E Moisture Sensitivity Level 1 requirements:
 - Allows avoidance of thermal and mechanical damage during solder reflow attachment and/or repair that lesser rated sensors may incur.
 - Allows unlimited floor life when stored as specified (simplifying storage and reducing scrap).
 - Eliminates lengthy bakes prior to reflow.
 - Allows for lean manufacturing due to stability and usability shortly after reflow.
- Cost-effective: Small size helps engineers reduce design and manufacturing costs while maintaining enhanced performance and reliability of the systems they design.

- Accurate: Total Error Band (TEB) and wide pressure range enable engineers to optimize system performance by improving resolution and system accuracy.
- Flexible: Supply voltage range, variety of pressure units, types and ranges, output options, and wide operating temperature range simplify use in the application
- Versatile: Wet-media compatibility, low power, and temperature output options make the sensor a versatile choice for Internet of Things applications

DIFFERENTIATION

- Application-specific design ensures suitability for a wide array of customer requirements.
- Digital output allows the sensor to be directly plugged into the customer's circuitry without requiring major design changes
- Total Error Band (See Figure 1.):
 - Provides true performance over the compensated temperature range, minimizing the need to test and calibrate every sensor, thereby potentially reducing manufacturing costs
 - Improves sensor accuracy
 - Offers ease of sensor interchangeability due to minimal part-to-part variation

POTENTIAL APPLICATIONS

- **Medical:** Ventilators/portable ventilators, CPAP, blood analysis, blood pressure monitoring, breast pumps, drug dosing, hospital beds, massage machines, oxygen concentrators, patient monitoring, sleep apnea equipment, urine analyzers and wound therapy
- **Industrial:** HVAC transmitters, life sciences, material handling, pneumatic control and regulation, process gas monitoring and valve positioning/positioners
- **Commercial:** Air beds, coffee makers, washing machines, level measurement, dish washers, vacuum cleaners, hand dryers and rice cookers
- **Transportation:** Air brakes, CNG monitoring, fork lifts and fuel level measurement



FEATURES

- Total Error Band (see Figure 1): As low as $\pm 1.5\%$ FSS
- Liquid media option: Compatible with a variety of liquid media
- Long-term stability: $\pm 0.25\%$ FSS
- Accuracy: $\pm 0.25\%$ FSS BFSL
- Wide pressure range: 4 bar to 12 bar | 400 kPa to 1.2 MPa | 60 psi to 175 psi
- High burst pressures (see Table 9.)
- Wide operating temperature range of -40°C to 110°C [-40°F to 230°F]
- Calibrated over wide temperature range of -40°C to 110°C [-40°F to 230°F]
- 24-bit digital I²C or SPI-compatible output
- IoT (Internet of Things) ready interface
- Ultra-low power consumption (as low as 0.01 mW typ. average power, 1 Hz measurement frequency)
- Meets IPC/JEDEC J-STD-020E Moisture Sensitivity Level 1
- REACH and RoHS compliant
- Food grade compatible
- NSF-169, LFGB and BPA compliant materials
- Temperature output available



Honeywell offers a variety of board mount pressure sensors for use in potential medical and industrial applications. To view the entire product portfolio, [click here](#).

Honeywell

BASIC BOARD MOUNT PRESSURE SENSORS, ABP2 SERIES

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TOTAL ERROR BAND

Total Error Band (TEB) is a single specification that includes the major sources of sensor error, as shown in Figure 1. TEB should not be confused with accuracy, which is actually a component of TEB. TEB is the maximum error that the sensor could experience.

Honeywell uses the TEB specification in its datasheet because it is the most comprehensive measurement of a sensor's true accuracy. Honeywell also provides the accuracy specification in order to provide a common comparison with competitors' literature that does not use the TEB specification.

Many competitors do not use TEB—they simply specify the accuracy of their device. Their accuracy specification, however, may exclude certain parameters. On their datasheet, the errors are listed individually. When combined, the total error (or what would be TEB) could be significant.

FIGURE 1. TOTAL ERROR BAND

