



# Precision Environmental Sensors

**BOURNS®**

# Introduction

Bourns® Sensors and Controls is committed to providing customers with precision environmental sensors for applications requiring highly stable output in harsh environments. The Bourns Precision Sensor (BPS) portfolio of products is comprised of pressure and humidity sensors designed for demanding applications in the industrial, low to medium risk medical\*, and consumer markets. Quality, performance and reliability are the core values of this family of environmental condition sensors.

## Pressure Sensors

The Bourns® Ultra-low Pressure Sensor line (BPS110, BPS120, BPS125 and BPS310 series) provides extreme sensitivity and stability across a wide range of temperatures (-40 °C to +85 °C) as well as pressure sensing down to 250 pascals. These sensors offer both gauge and differential measuring modes. Digital and analog outputs are available on the compensated, calibrated series (BPS110, BPS120, BPS125, BPS160, and BPS170). The BPS310 series is uncompensated for ultra-fast response and high resolution with a millivolt output.

The BPS320 and BPS330 series are designed for general use applications where the media is air or non-corrosive gases. Available in both gauge and absolute measuring modes, these series also offer a gel coating for use in certain applications where humidity is present in the media.

## APPLICATIONS

### Bourns® BPS110, BPS120, BPS125, BPS160, BPS170 & BPS310 Series Ultra-Low Pressure:

#### Medical Devices (low/medium risk)\*

- Portable oxygen generators
- Nebulizers
- CPAP equipment
- Diagnostic spirometers
- Gas chromatography equipment
- Facility ventilation pressure

#### Industrial

- Process control
- HVAC (VAV control, clogged filter detection, transmitters, room pressure)
- Pneumatic control
- Gas flow instrumentation
- Flow calibrators

#### Consumer

- Home appliances

Features of the Bourns® BPS130, BPS140 and BPS340 series pressure sensor line include compatibility with certain liquid media (such as water, oil and fuel). The unique sensor die design protects the sensing element from the harsh media. The BPS130 and BPS140 series pressure sensors have temperature compensated, amplified analog outputs with temperature compensation across a wide range of temperatures (-40 °C to +140 °C). The BPS340 series, with millivolt output is uncompensated for high resolution and ultra-fast response.

## Humidity

Bourns® BPS240 series is a relative humidity sensor in a small package (2.0 x 2.0 x 1.25 mm) with I<sup>2</sup>C output for demanding applications. It offers typical accuracy of 2 %, fast response time and low current consumption with reliable capacitive technology for low voltage applications.

As with the other Bourns® Sensors and Controls products, several of our BPS models can be modified to fit the customer's specific application. Custom pressure ranges and accuracy are just a few of the modifications available.

### Bourns® BPS130, BPS140, & BPS340 Series High Temperature, Medium Pressure, Harsh Media:

#### Industrial

- Process control
- HVAC (transmitters, room pressure)
- Pneumatic control
- Instrumentation
- Flow calibrators

#### Transportation\*\*


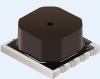
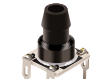
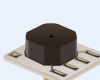
- Fuel
- Oil
- EGR systems

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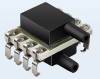

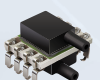




\*\* Custom engineered solutions. Check with factory for availability.

# Product Portfolio


## UNCOMPENSATED PRESSURE SENSORS

Series	Photo	Pressure Type	Pressure Range	Output	Media Capability	Offset (mV/V)	Non-linearity	Lifetime Drift	Resolution	Supply Voltage, VDC	Operating Temperature	Package Size	Port Style	Terminal
BPS310		Gauge, Differential	0.15 to 1.0 psi	mV	Non-corrosive dry gases	0 ± 10	± 0.25 %FS	± 0.5 %FS	infinite	2.7 to 15	-40 °C to +85 °C	12 mm	Dual Horizontal	SMD
BPS320		Gauge, Absolute	15 to 500 psi	mV	Non-corrosive dry gases	0 ± 10	± 0.2 %FS	± 0.5 %FS	infinite	1.5 to 15	-40 °C to +85 °C	6 mm	Manifold Mount or Ceramic Chimney	Solder pads, SMD
BPS330		Gauge, Absolute	5 to 60 psi	mV	Non-corrosive dry gases	0 ± 5	± 0.25 %FS	± 0.5 %FS	infinite	1.5 to 15	-40 °C to +125 °C	8 mm	Single Port or Ceramic Chimney	PC pins
BPS340		Gauge, Absolute	15 to 500 psi	mV	Harsh media (air, liquid and gas)	0 ± 10	± 0.2 %FS	± 0.5 %FS	infinite	1.5 to 15	-40 °C to +85 °C	9 mm	Single Port	Solder pads, SMD

## COMPENSATED PRESSURE SENSORS

Series	Photo	Pressure Type	Pressure Range	Output	Media Capability	Total Error Band	Accuracy	Lifetime Drift	Resolution	Supply Voltage, VDC	Operating Temperature	Package Size	Port Style	Terminal
BPS110		Gauge, Differential	0.15 to 1.0 psi	Amplified Analog	Non-corrosive dry gases	± 1.5 %FS	± 0.25 %FS	± 0.5 %FS	12 bit	2.7 to 5.5	-40 °C to +85 °C	12 mm	Dual Horizontal	SMD
BPS120		Gauge, Differential	0.15 to 1.0 psi	Digital I <sup>2</sup> C	Non-corrosive dry gases	± 1.5 %FS	± 0.25 %FS	± 0.5 %FS	13 bit	2.7 to 5.5	-40 °C to +85 °C	12 mm	Dual Horizontal	SMD
BPS125		Gauge, Differential	1" H2O to 2" H2O, 0.15 to 1.0 psi	Digital I <sup>2</sup> C	Non-corrosive dry gases	± 1.5 %FS	± 0.25 %FS	± 0.5 %FS	13 bit	3.0 to 3.6	-40 °C to +85 °C	12 mm	Dual Horizontal	SMD
BPS130		Gauge, Absolute	15 to 500 psi	Amplified Analog	Harsh media (air, liquid and gas)	± 2.5 %FS	± 0.25 %FS	± 0.5 %FS	12 bit	4.5 to 5.5	-40 °C to +150 °C	10 mm	Single Port, Manifold	Solder holes, PC pins
BPS140		Gauge, Absolute	15 to 300 psi	Amplified Analog	Harsh media (air, liquid and gas)	± 2.5 %FS	± 0.25 %FS	± 0.5 %FS	12 bit	4.5 to 5.5	-40 °C to +150 °C	10 mm	Single Port	Solder holes
BPS160		Gauge, Pressure	-14.5 to 145 psi	Amplified Analog	Harsh media (air and gas)	± 2.5 %FS	± 2.5 %FS	± 0.5 %FS	13 bit	4.75 to 5.5	-20 °C to +100 °C	10 mm	Single, Vertical	SMD
BPS170		Gauge, Differential	-14.5 to 145 psi	Digital I <sup>2</sup> C	Harsh media (air and gas)	± 2.5 %FS	± 0.25 %FS	± 0.5 %FS	13 bit	4.75 to 5.5	-20 °C to +100 °C	10 mm	Single, Vertical	SMD

## HUMIDITY

Series	Photo	Output	Resolution	Range	Accuracy	Supply Voltage, VDC	Operating Temperature	Package Size	Terminal
BPS240		Digital I <sup>2</sup> C	10 bit	0 to 100 %RH	± 2 %RH TYP.	-0.3 to 7.0	-40 °C to +105 °C	2 mm	SMD



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