NEW PRODUCT BRIEF

Bourns® Model BPS110 & BPS120

INTRODUCTION

Bourns® Precision Sensor (BPS) pressure sensors are designed for demanding applications in the industrial, medical* and consumer markets. Quality, performance and reliability are the core values of this family of environmental sensors.

MARKET SEGMENT OVERVIEW

Sensors have become the most critical component of information collection. Features such as self-diagnostics, network compatibility, small form factor and self-calibration are considered essential. "Real-time" data analytics are driving the evolution of sensors and sensor networks.

Dependable sensors for every type of pressure and environment requiring high precision with ultra-low pressure ranges are used in a myriad of applications across multiple market segments.

CUSTOM OPTIONS AVAILABLE

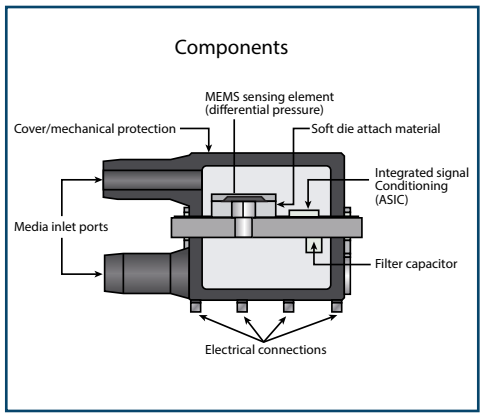
(Contact factory for details)

- Pressure range
- Temperature range
- Accuracy
- Port configuration
- I^2C address
- Supply voltage
- Update rate (I^2C only)

FEATURES

- Ultra-low sensing: 0.15 PSI to 1.0 PSI (10 mbar to 70 mbar)
- Extreme sensitivity and stability: Total Error Band of 1.5 % FS over a temperature range of 0 °C to +60 °C (Six-Sigma process)
- Lifetime drift: 0.5 % FS
- Media compatibility: non-corrosive dry gases
- Analog and digital (I^2C) output options
- Differential and gauge options
- Active temperature compensation
- RoHS and REACH compliant**

BASIC CONSTRUCTION



BENEFITS

- Superior performance in ultra-low pressure sensing applications
- Design flexibility - for use in either analog or digital systems
- Compensated plug and play reduces development time
- World-class technical support
- Global supply chain

PRODUCT FIT & APPLICATIONS

These products are best suited for applications where precision is essential and customers understand the value proposition of the product in the following market segments:

Medical Devices (low/medium risk)***

- Portable oxygen generators
- Nebulizer
- CPAP equipment
- Diagnostic spirometer
- Gas chromatography equipment
- Facility ventilation pressure

Industrial

- Process control
- HVAC
- Pneumatic control
- Gas flow instrumentation
- Flow calibrators

Consumer

- Home appliances

** Excluding life-critical, life-saving and life sustaining applications.*
***RoHS3 Directive 2015/863 Amendments of Annex II on March 31, 2015.*
**** Bourns® products have not been designed for and are not intended for use in "lifesaving," "life-critical" or "life-sustaining" applications nor any other applications where failure or malfunction of the Bourns® product may result in personal injury or death. See Legal Disclaimer Notice: http://www.bourns.com/docs/legal/disclaimer.pdf.*

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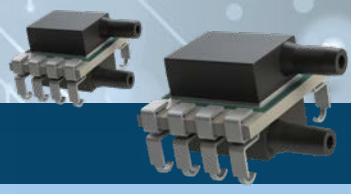
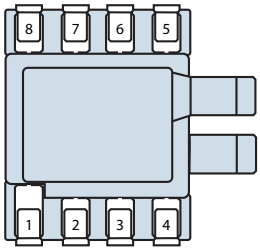
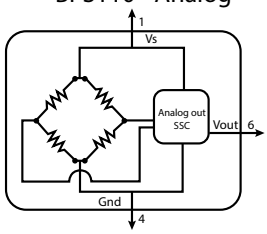


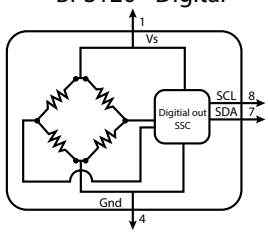
CIRCUIT DIAGRAMS



BPS110 - Analog



BPS120 - Digital



PRODUCT CHARACTERISTICS

Series	Photo	Pressure Range	Compensated Temperature Range	Output	Accuracy	Total Error Band (TEB)	Measurement Type	Features
BPS110		0.15 PSI 0.30 PSI 1.0 PSI	0 °C to 60 °C	Amplified Analog 5 % to 95 % V_S	0.25 % FS	±1.5 % FS	• Differential • Gauge	• Ultra-low pressure • Surface mount package • RoHS compliant*
BPS120		0.15 PSI 0.30 PSI 1.0 PSI	0 °C to 60 °C	I^2C, 13 bit	0.25 % FS	±1.5 % FS	• Differential • Gauge	• Ultra-low pressure • Surface mount package • RoHS compliant*

BPS110 TRANSFER FUNCTION FORMULA

$$P_{psi} = (P_{max} - P_{min}) \cdot \left(\frac{V_{out} - V_{minComp}}{V_{maxComp} - V_{minComp}} \right) + P_{min}$$

Where

P_{psi} = Measured Pressure in PSI
P_{max} = Maximum Pressure
P_{min} = Minimum Pressure
$V_{minComp}$ = Minimum Voltage (Usually 0.5 V)
$V_{maxComp}$ = Maximum Voltage (Usually 4.5 V)
V_{out} = Output Voltage (Pin 6)

BPS120 TRANSFER FUNCTION FORMULA

$$P_{psi} = (P_{max} - P_{min}) \cdot \left(\frac{P_{counts} - 0.1 \cdot Max}{0.8 \cdot Max} \right) + P_{min}$$

Where

P_{psi} = Measured Pressure in PSI
P_{counts} = Pressure Counts from Merit Sensor Part
P_{min} = Minimum Pressure
P_{max} = Maximum Pressure
Max = 16384 = 14 Bits

**RoHS3 Directive 2015/863 Amendments of Annex II on March 31, 2015.*

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