

BLV Series Low Voltage Pressure Sensors

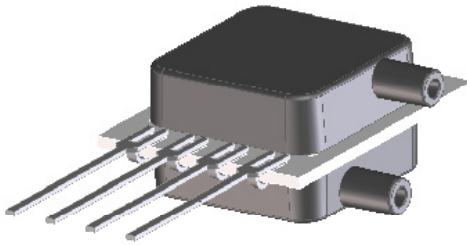


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Introduction

The BLV Series Basic Sensor is based on All Sensors' CoBeam²™ Technology. The device provides a high output signal at a low operating voltage and reduces the overall supply voltage while maintaining comparable output levels to traditional equivalent basic sensing elements. This lower supply voltage gives rise to improved warm-up shift while the CoBeam² Technology itself reduces package stress susceptibility resulting in improved overall long term stability. The technology also vastly improves position sensitivity compared to conventional single die devices.

This series is intended for use with non-corrosive, non-ionic working fluids such as air, dry gases and the like. The output is also ratiometric to the supply voltage and is operable from 0.9 to 1.8 volts DC.



Features

0 to 1 inH₂O to 0 to 30 inH₂O Pressure Ranges
 Low Supply Voltage (0.9V to 1.8V)
 90% Less Power than Mini-Basic Series
 0.3% Linearity
 Improved Front to Back Linearity
 Excellent Position Sensitivity
 Improved Warm-Up Shift Distribution
 Parylene Coating Available Upon Request

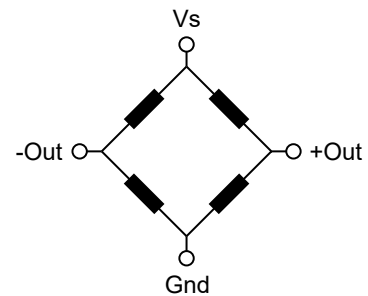
Applications

Medical Instrumentation
 Environmental Controls
 HVAC
 Portable / Hand Held Devices

Standard Pressure Ranges

Device	Operating Range	Proof Pressure	Burst Pressure
BLV-L01D	±1 inH ₂ O	20 inH ₂ O	30 inH ₂ O
BLV-L05D	±5 inH ₂ O	50 inH ₂ O	75 inH ₂ O
BLV-L10D	±10 inH ₂ O	100 inH ₂ O	150 inH ₂ O
BLV-L20D	±20 inH ₂ O	200 inH ₂ O	300 inH ₂ O
BLV-L30D	±30 inH ₂ O	300 inH ₂ O	450 inH ₂ O

Equivalent Circuit



Pressure Sensor Maximum Ratings

Supply Voltage (Vs)	6 Vdc
Common Mode Pressure	50 psig
Lead Temperature (soldering 2-4 sec.)	270 °C

Environmental Specifications

Temperature Ranges	Operating	-25 to 85 °C
	Storage	-40 to 125 °C
Humidity Limits		0 to 95% RH (non condensing)

Performance Characteristics for BLV Series

ALL PARAMETERS ARE MEASURED AT 1.8 VOLT EXCITATION AND ROOM TEMPERATURE UNLESS OTHERWISE SPECIFIED. PRESSURE MEASUREMENTS ARE WITH POSITIVE PRESSURE APPLIED TO PORT B (THE ONLY PORT FOR THE SINGLE PORT CONFIGURATION).

Parameter	Min	Typ	Max	Units	Notes
Output Span					
L01D @ 1 inH2O	4.05	-	6.93	mV	4
L05D @ 5 inH2O	16.2	-	29.7	mV	4
L10D @ 10 inH2O	16.2	-	39.6	mV	4
L20D @ 20 inH2O	16.2	-	39.6	mV	4
L30D @ 30 inH2O	12.15	-	44.55	mV	4
Offset Voltage @ Zero Diff. Pressure	-	-	±10	mV	-
Offset Temperature Shift (0°C-70°C)	-	±25.0	-	µV/°C	1
Offset Warm-up Shift	-	±20.0	±100	µV	2
Offset Position Sensitivity (1g)	-	±20.0	-	µV	-
Offset Long Term Drift (One Year)	-	±120	-	µV	-
Linearity, Hysteresis Error	-	0.10	±0.30	%FSS	3
Response Time (10% to 90% Pressure Response)	-	100	-	µS	-
Front to Back Linearity	-	0.25	-	%FSS	5
Temperature Effect on Resistance (0°C-70°C)	-	2800	-	ppm/°C	-
Temperature Effect on Span (0°C-70°C)	-	-1900	-	ppm/°C	-
Input Resistance	-	3.0	-	kΩ	-
Output Resistance	-	3.0	-	kΩ	-

Specification Notes

NOTE 1: SHIFT IS RELATIVE TO 25°C.

NOTE 2: SHIFT IS WITHIN THE FIRST HOUR OF EXCITATION APPLIED TO THE DEVICE.

NOTE 3: MEASURED AT ONE-HALF FULL SCALE RATED PRESSURE USING BEST STRAIGHT LINE CURVE FIT.

NOTE 4: THE SPAN IS THE ALGEBRAIC DIFFERENCE BETWEEN FULL SCALE OUTPUT VOLTAGE AND THE OFFSET VOLTAGE.

NOTE 5: FRONT-BACK LINEARITY COMPUTED AS: $Lin_{FB} = \left(\frac{Span_{Front}}{Span_{Back}} - 1 \right) \cdot 100\%$

How To Order

BLV- - -

Series

Pressure Range

Option	Description
L01D	1 inH2O
L05D	5 inH2O
L10D	10 inH2O
L20D	20 inH2O
L30D	30 inH2O

Package

Option	Description
B1NS	Two Ports Same Direction
B2NS	Two Ports Opposite Direction
BGNS	One Port

Coating

Option	Description
N	No Coating
P	Parylene Coating

(Consult with factory for parylene coating)

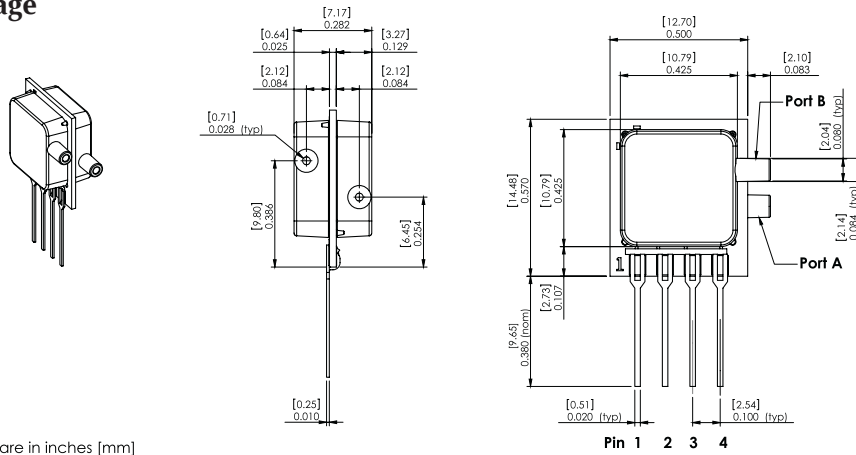
Example: **BLV-L10D-B1NS-N**

Note: Parylene Coating is not available for pressure ranges below 10 inH2O.



Package Drawings

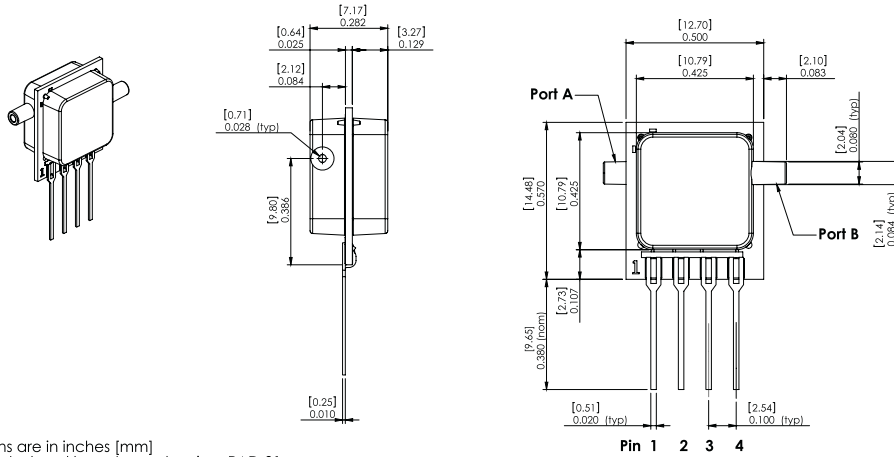
B1NS Package



NOTES
 1) Dimensions are in inches [mm]
 2) For suggested pad layout, see drawing: PAD-01

Pinout
 1) Gnd
 2) -Out
 3) Vs
 4) +Out

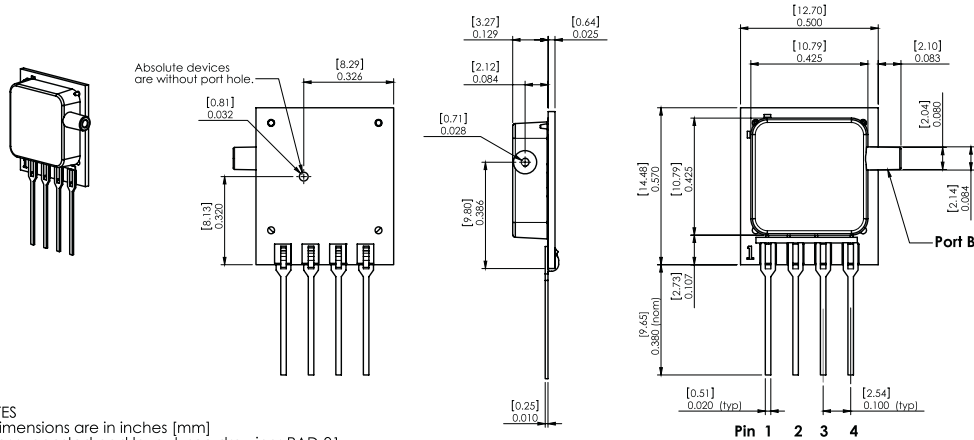
B2NS Package



NOTES
 1) Dimensions are in inches [mm]
 2) For suggested pad layout, see drawing: PAD-01

Pinout
 1) Gnd
 2) -Out
 3) Vs
 4) +Out

BGNS Package

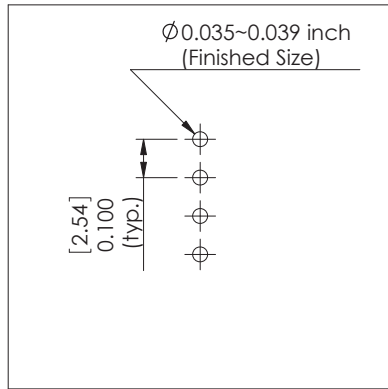


NOTES
 1) Dimensions are in inches [mm]
 2) For suggested pad layout, see drawing: PAD-01

Pinout
 1) Gnd
 2) -Out
 3) Vs
 4) +Out



Suggested Pad Layout



PAD-01

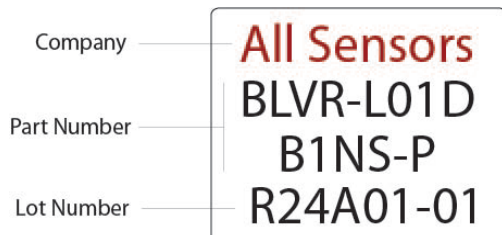
Pressure Tubing Recommendations

Tubing Recommendations			
ID	OD	Material*	
		Low Pressure	High Pressure
1/16"	1/8"	Silicone	Polyurethane

Package Characteristics

Package ID	Approximate Port Volume			Weight	Units
	Port A	Port B	Units		
B1NS	181	176	mm ³	1.2	Grams
B2NS	181	176	mm ³	1.2	Grams
BGNS	1.5	176	mm ³	0.9	Grams

Product Marking Example



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