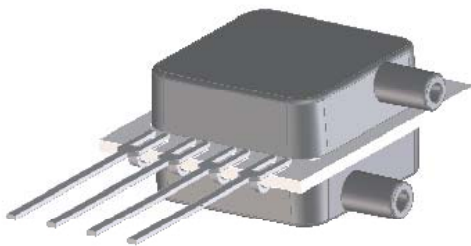


# BLV SERIES LOW VOLTAGE PRESSURE SENSORS



## Features

- 0 to 1 "H<sub>2</sub>O to 0 to 30 "H<sub>2</sub>O Pressure Ranges
- uPower 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

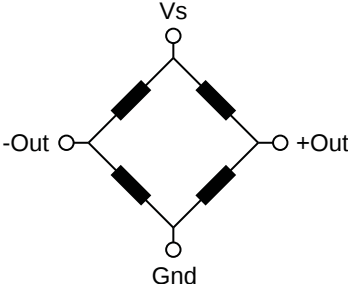
## Applications

- Medical Instrumentation
- Environmental Controls
- HVAC
- Portable / Hand Held Devices

## General Description

The BLV Series Basic Sensor is based on All Sensors' CoBeam<sup>2</sup>™ 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 CoBeam<sup>2</sup> 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.

| Standard Pressure Ranges              |                 |                |                | Equivalent Circuit                                                                    |  |
|---------------------------------------|-----------------|----------------|----------------|---------------------------------------------------------------------------------------|--|
| Device                                | Operating Range | Proof Pressure | Burst Pressure |  |  |
| BLV-L01D                              | ±1 inH2O        | 100 inH2O      | 300 inH2O      |                                                                                       |  |
| BLV-L05D                              | ±5 inH2O        | 200 inH2O      | 300 inH2O      |                                                                                       |  |
| BLV-L10D                              | ±10 inH2O       | 200 inH2O      | 300 inH2O      |                                                                                       |  |
| BLV-L20D                              | ±20 inH2O       | 200 inH2O      | 500 inH2O      |                                                                                       |  |
| BLV-L30D                              | ±30 inH2O       | 200 inH2O      | 800 inH2O      |                                                                                       |  |
| Pressure Sensor Maximum Ratings       |                 |                |                | Environmental Specifications                                                          |  |
| Supply Voltage (Vs)                   |                 | 6 Vdc          |                | Temperature Ranges                                                                    |  |
| Common Mode Pressure                  |                 | 5 psig         |                | Operating -25 to 85 °C                                                                |  |
| Lead Temperature (soldering 2-4 sec.) |                 | 270 °C         |                | Storage -40 to 125 °C                                                                 |  |
|                                       |                 |                |                | Humidity Limits                                                                       |  |
|                                       |                 |                |                | 0 to 95% RH (non condensing)                                                          |  |

## Approvals

| MKT                                                                 | DATE | MFG                                                                 | DATE | ENG                                                                 | DATE | QA                                                                  | DATE |
|---------------------------------------------------------------------|------|---------------------------------------------------------------------|------|---------------------------------------------------------------------|------|---------------------------------------------------------------------|------|
| <input type="checkbox"/> As Is <input type="checkbox"/> With Change |      | <input type="checkbox"/> As Is <input type="checkbox"/> With Change |      | <input type="checkbox"/> As Is <input type="checkbox"/> With Change |      | <input type="checkbox"/> As Is <input type="checkbox"/> With Change |      |

## 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                               | 4.5  | 8.0   | 11.5  | mV     | 4     |
| L05D @ 5 inH2O                               | 13.5 | 24.0  | 34.5  | mV     | 4     |
| L10D @ 10 inH2O                              | 18.0 | 32.0  | 46.0  | mV     | 4     |
| L20D @ 20 inH2O                              | 22.0 | 38.0  | 55.0  | mV     | 4     |
| L30D @ 30 inH2O                              | 25.0 | 42.0  | 60.0  | mV     | 4     |
| Offset Voltage @ Zero Diff. Pressure         | -    | -     | ±10   | mV     | -     |
| Offset Temperature Shift (0°C-70°C)          | -    | -25.0 | -     | uV/°C  | 1     |
| Offset Warm-up Shift                         | -    | ±20.0 | ±100  | uV     | 2     |
| Offset Position Sensitivity (1g)             | -    | ±20.0 | -     | uV     | -     |
| Offset Long Term Drift (One Year)            | -    | ±120  | -     | uV     | -     |
| Linearity, Hysteresis Error                  | -    | 0.10  | ±0.30 | %FSS   | 3     |
| Response Time (10% to 90% Pressure Response) | -    | 100   | -     | uS     | -     |
| 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   | -     | k ohm  | -     |
| Output Resistance                            | -    | 3.0   | -     | k ohm  | -     |

### 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 LINERITY COMPUTED AS: 
$$\text{Lin}_{FB} = \left( \left| \frac{\text{Span}_{\text{Front}}}{\text{Span}_{\text{Back}}} \right| - 1 \right) \cdot 100\%$$

## 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 |

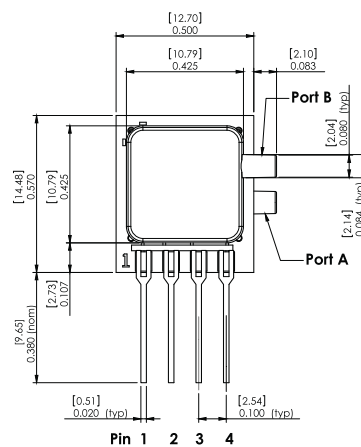
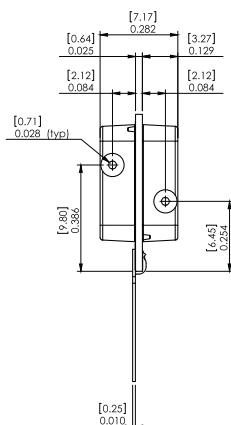
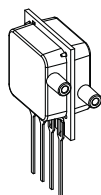
(Consult with factory for parylene coating)

Example: BLV-L10D-B1NS-N

BLV SERIES LOW VOLTAGE PRESSURE SENSORS

## Package Drawings

## B1NS Package

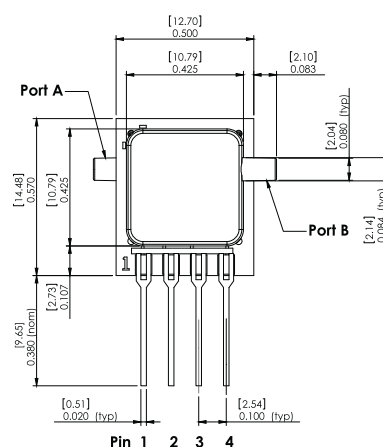
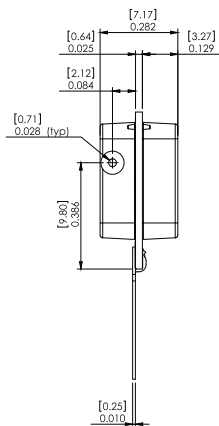
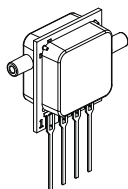


## Pinout

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

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

## B2NS Package

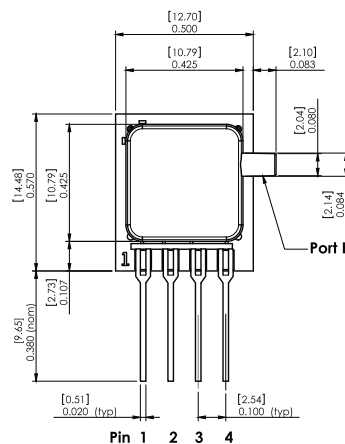
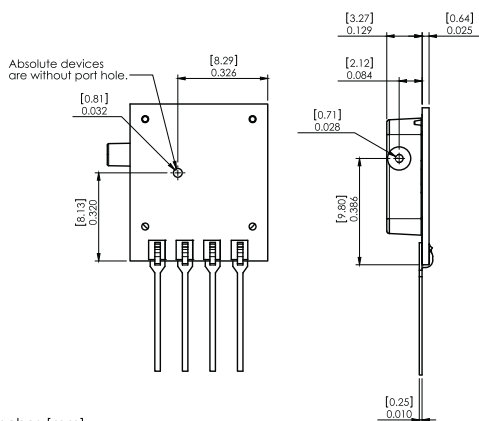
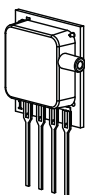


## Pinout

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

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

## BGNS Package

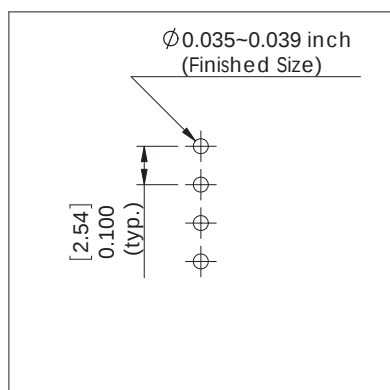


## Pinout

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

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

## Suggested Pad Layout

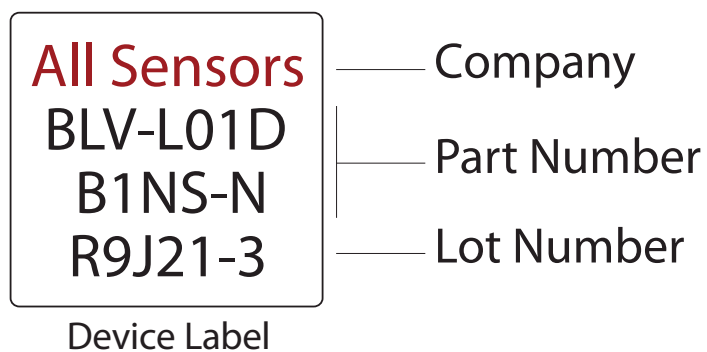


PAD-01

## Package Characteristics

| Package ID | Approximate Port Volume |        |                 | Weight | Units |
|------------|-------------------------|--------|-----------------|--------|-------|
|            | Port A                  | Port B | Units           |        |       |
| B1NS       | 181                     | 176    | mm <sup>3</sup> | 1.2    | Grams |
| B2NS       | 181                     | 176    | mm <sup>3</sup> | 1.2    | Grams |
| BGNS       | 1.5                     | 176    | mm <sup>3</sup> | 0.9    | Grams |

## Product Labeling



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BLV SERIES LOW VOLTAGE PRESSURE SENSORS

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