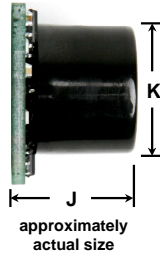
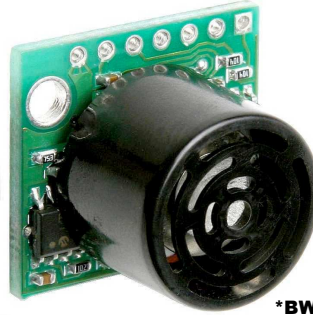


# LV-MaxSonar®-EZ1™

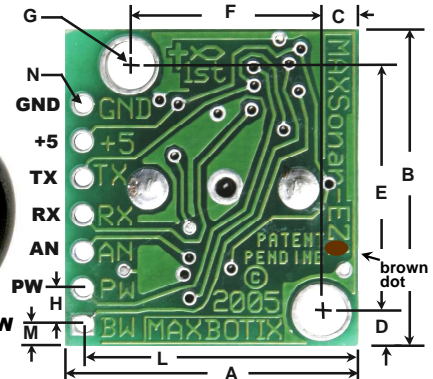
## High Performance Sonar Range Finder

With 2.5V - 5.5V power the LV-MaxSonar®-EZ1™ provides very short to long-range detection and ranging, in an incredibly small package. The LV-MaxSonar®-EZ1™ detects objects from 0-inches to 254-inches (6.45-meters) and provides sonar range information from 6-inches out to 254-inches with 1-inch resolution. Objects from 0-inches to 6-inches range as 6-inches. The interface output formats included are pulse width output, analog voltage output, and serial digital output.



### LV-MaxSonar®-EZ1™

#### Data Sheet



\*Brown dot parts enhanced for low noise chaining

|   |             |             |
|---|-------------|-------------|
| A | 0.785"      | 19.9 mm     |
| B | 0.870"      | 22.1 mm     |
| C | 0.100"      | 2.54 mm     |
| D | 0.100"      | 2.54 mm     |
| E | 0.670"      | 17.0 mm     |
| F | 0.510"      | 12.6 mm     |
| G | 0.124" dia. | 3.1 mm dia. |

|   |             |                   |
|---|-------------|-------------------|
| H | 0.100"      | 2.54 mm           |
| J | 0.645"      | 16.4 mm           |
| K | 0.610"      | 15.5 mm           |
| L | 0.735"      | 18.7 mm           |
| M | 0.065"      | 1.7 mm            |
| N | 0.038" dia. | 1.0 mm dia.       |
|   |             | weight, 4.3 grams |

values are nominal

#### Features

- Continuously variable gain for beam control and side lobe suppression
- Object detection includes zero range objects
- 2.5V to 5.5V supply with 2mA typical current draw
- Readings can occur up to every 50mS, (20-Hz rate)
- Free run operation can continually measure and output range information
- Triggered operation provides the range reading as desired
- All interfaces are active simultaneously
  - Serial, 0 to Vcc
    - 9600Baud, 81N
  - Analog, (Vcc/512) / inch
  - Pulse width, (147uS/inch)
- Learns ringdown pattern when commanded to start ranging
- Designed for protected indoor environments
- Sensor operates at 42KHz
- High output square wave sensor drive (double Vcc)

#### Benefits

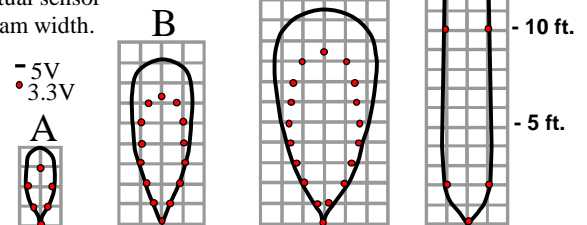
- Very low cost sonar ranger
- Reliable and stable range data
- Sensor dead zone virtually gone
- Lowest power ranger
- Quality beam characteristics
- Mounting holes provided on the circuit board
- Very low power ranger, excellent for multiple sensor or battery based systems
- Can be triggered externally or internally
- Sensor reports the range reading directly, frees up user processor
- Fast measurement cycle
- User can choose any of the three sensor outputs

#### Beam Characteristics

The beam width of the LV-MaxSonar-EZ1 is controlled. The beam width of the LV-MaxSonar®-EZ1™ compromises robust people detection with a narrow beam width. Sample results for measured beam patterns are shown below on a 12-inch grid. The detection pattern is shown for;

- 0.25-inch diameter dowel, note the narrow beam for close small objects,
- 1-inch diameter dowel, note the long narrow detection pattern,
- 3.25-inch diameter rod, note the long controlled detection pattern,
- 11-inch wide board moved left to right with the board parallel to the front sensor face and the sensor stationary. This shows the sensor's range capability.

Note: The displayed beam width of (D) is a function of the specular nature of sonar and the shape of the board (i.e. flat mirror like) and should never be confused with actual sensor beam width.



beam characteristics are approximate

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