

## Home

## Sensor Selection Guide

## Products / Buy Now

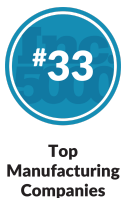
## Documents & Downloads

## Performance Data

## Tutorials & Application Notes

## Contact

## News & Announcements



MaxBotix Inc., Makes Inc. 5000 List For Second Time

Author: Kathy Kostal Date: 08-31-2016



Inc. Magazine Unveils 35th Annual List of America's Fastest Growing Private Companies—the Inc. 5000. MaxBotix Inc., Ranks No. 1752 on the 2016 Inc. 5000 with Three-Year Sales

Growth of 213%.  
Click [here](#) for full article.

## Raspberry Pi TTL Tutorial

Author: Cody Carlson Date: 08-02-2016



MaxSonar sensors offer a variety of outputs including TTL serial data. This tutorial guides you through the process of setting up your Raspberry Pi 3 with a MaxBotix sensor. Click [here](#) for full article.

## Packaging Options for the MaxSonar Sensors

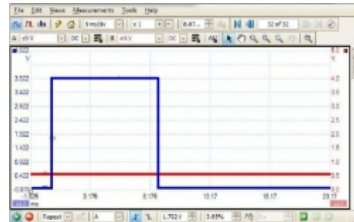
Author: Scott Wielenberg Date: 07-26-2016



MaxBotix offers an expanded range of packaging options for many of our sensors. Each option provides unique benefits to certain mounting integrations. This article provides a brief overview of each option. Click [here](#) for full article.

# Finding Distance Using Pulse Width

Written By: Tom Bonar | DatePosted: 07-10-2012 |



## Calculating Distance from Pin 2

All of the MaxSonar sensors have an output waveform that is a pictorial representation of distance measured. For the majority of our sensors that waveform output is a pulse width. The Pulse Width output is 0-Vcc that shows the Time of Flight in microseconds (uS).

Our standard LV-MaxSonar and XL-MaxSonar sensors assume the temperature is 22.5 degrees celsius. These sensors do not apply temperature compensation as the air temperature changes. Our HR-MaxSonar sensors do apply automatic temperature compensation as the air temperature changes. To apply temperature compensation to your LV-MaxSonar or XL-MaxSonar part please see the Temperature Compensation PDF [here](#).

## LV-MaxSonar Sensors

To calculate the Time of Flight (ToF) pulse width for all of our LV-MaxSonar sensors use the scaling factor: **147uS/inch**

The formula to convert from ToF (pulse width) is:

$$(ToF/147)=Ri$$

ToF = Time of Flight in uS (microseconds)

Ri = Range in inches

Please be aware that in order to avoid incorrect calculations ToF must be in the same unit of measurement.

If you are viewing your ToF output on an oscilloscope and have a reading of 13.23mS, you would use the formula:

$$(13230/147)=Ri. \text{ In this example } Ri = 90$$

## XL-MaxSonar Sensors

To calculate the ToF pulse width for all of our XL-MaxSonar sensors use the scaling factor: **58uS/cm**

The formula to convert from ToF to distance is:

$$(ToF/58)=Rcm$$

ToF = Time of Flight in uS

Rcm = Range in cm.

Please be aware that in order to avoid incorrect calculations ToF must be in the same unit of measurement.

If you are viewing your ToF output on an oscilloscope and have a reading of 10.44mS, the formula would look like:

$$(10440/58)=Rcm. \text{ In this example } Rcm = 180$$

## HR-MaxSonar Sensors

The scaling factor for these sensors is **1uS/mm**

For this sensor family if the pulse width is 5mS, the distance to the target ranged is 5000mm.

If the pulse width to the target is 2.7mS, the distance to the target is 2700mm.

In summary for the HR-MaxSonar sensors; the represented ToF output from the sensor is equivalent to the distance of the ranged target from the sensor.

## Products related to the Article Above

HLRV-MaxSonar-EZ1



XL-MaxSonar-EZ2



XL-MaxSonar-WR



## The MaxBotix RMA Process Guide

Author: Scott Wielenberg Date: 07-18-2016



When providing support, our technical support team may determine that further testing at our facility is the best way to help resolve the

issue that you are facing. At this point, they will start the Return Merchandise Authorization (RMA) process. This article will explain what you can expect as your ultrasonic sensor travels through our RMA process.

[Click here](#) for full article.

## Important Considerations for Using an Ultrasonic Sensor Inside of a Pipe

Author: Scott Wielenberg Date: 07-11-2016



Many customers have requested the option to mount an ultrasonic

sensor in a pipe. During the testing and development cycle, we discovered a number of considerations and requirements that must be met for the application to be successful. When all of these are met, a user may be able to achieve the desired level of success for measuring the liquid level inside of a pipe.

[Click here](#) for full article.

## Grand Opening of Facility Expansion

Author: Jenney Grover Date: 06-28-2016



On April 19th, we welcomed our supporters to join us for the Grand Opening of the Build Out. Bob and Nita Gross gave a tour of the build out and their vision for the space. We continue to be in awe of the support

from our community, our employees, our distributors, and our customers. Thank you for the many years of support, and we look forward to serving you in the years to come.

[Click here](#) for full article.

## News Archive

## New Product Signup

Signup for notification of our exciting new products and periodic new letters. We are excited to provide the latest information from MaxBotix Inc.

Subscribe

[Home](#) | [Distributors](#) | [FAQ](#) | [Downloads](#) | [Performance](#) | [Terms & Conditions](#) | [Privacy Policy](#) | [Site Map](#) | [Contact](#)

Copyright © 2016 MaxBotix Inc. All Rights Reserved. MaxBotix Inc. High Performance Cost Effective Outdoor Sensors

The names MaxBotix®, MaxSonar®, ProxSonar™, TrashSonar™, ParkSonar™, EZ0, EZ1, EZ2, EZ3, EZ4, AE0, AE1, AE2, AE3, AE4, WR, WR1, WRA, WRL, WRLA, WRM, and WRMA are trademarks of MaxBotix Inc.

Teflon® is a registered trademark of DuPont™

All other trademarks mentioned herein are the property of their respective companies.

website revision 4.17