

An Introduction to the 42kHz Sound Wave

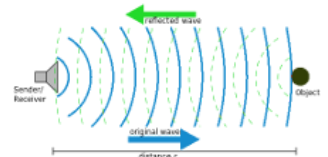
| Written By: Cody Carlson | Date Posted: 07-08-2015 |

Key Takeaways

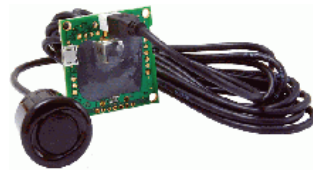
- MaxBotix® Inc., currently uses 42kHz sound waves in all of its ultrasonic sensors
- Ultrasonic sensors will detect objects regardless of their visual characteristics
- A 42kHz sound wave will not range through solid objects

The 42kHz Sound Wave

MaxBotix® Inc., sensors provide sensing solutions for a wide variety of applications. Our [Sensor Selection Guide](#) outlines and provides sensor recommendations for many of these applications. We choose to have our sensors operate at 42kHz to help our sensors excel in many of these applications. Different frequencies provide different levels of detection to a number of targets. When operating at the right frequency ultrasonic waves can even pass through solid objects and detect only specified materials.



Operation at 42kHz allows our sensors to detect solid and liquid targets with great regularity. Any object, whether solid or liquid, will reflect the 42kHz sound waves back to the sensor and be detected. This prevents the need to buy a special sensor to detect your target, even if the type of target varies throughout the application. Even porous and non-solid objects are detected when placed in front of the sensor. The end result is that our sensors will not ignore object that are placed in front of them regardless of their visual characteristic.



While we do specify specific sensors for separate applications such as "[Car Detection](#)," the 42kHz sound waves do not distinguish between targets made from different materials. We specify sensors to applications such as "Car Detection" only because the sensor was tuned with this application in mind. While the sensor is designed with car detection in mind, it may be a great fit for a host of other applications.

Other Frequencies

Sound waves at any frequency will be able to travel through water or even solids to some extent. The MaxBotix® sensors are designed for in air ranging. All calculations and calibrations are performed to ensure the open air operation is consistent, reliable, and accurate. The sensors were not created to operate outside of these parameters. We do not characterize the accuracy or reliability of our sensor for any operation that is not done in air, and attempting to use our sensors for ranging through anything other than air is unsupported.

We work hard to provide reliable high quality sensors to meet the needs of our customer and have created a variety of custom sensors for highly specialized applications. We are glad to work with you, so please ask your sales rep for additional information.

Products related to the Article Above

[MB8450 Car Detection Sensor](#)



[XL-MaxSonar-WR1](#)



[HRXL-MaxSonar-WRLT](#)



Articles related to the Article Above

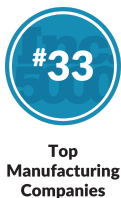
[LV-MaxSonar-EZ® Quick Start Guide](#)



[MaxSonar Sensor Acoustic Noise Tolerance Test](#)



[Snow Sensor Mounting](#)



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.

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.

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