

CP316

Ultrasonic Distance Sensors

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January 29, 2020

Ultrasonic sensors

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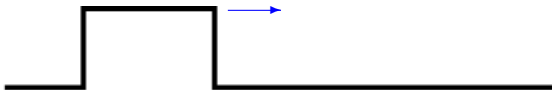
- *Transmitter* sends out pulse

Ultrasonic sensors

- *Transmitter* sends out pulse
- *Receiver* registers echo



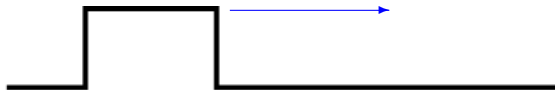
- **transmit**



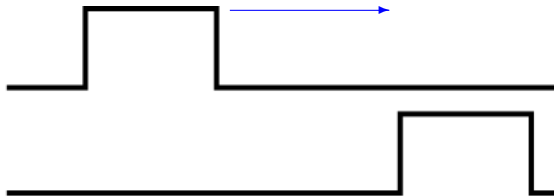
- **transmit**



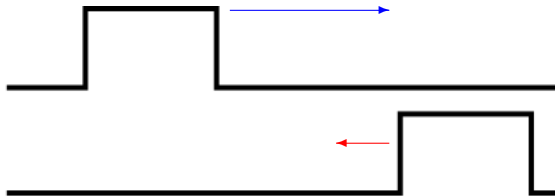
- **transmit**



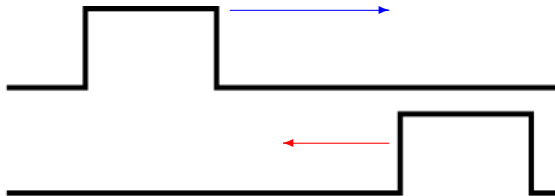
- **transmit**



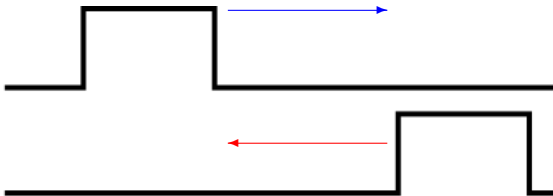
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Why is it $2d$?

Fixed vs. floating point math

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Many issues must be considered when using fixed point (e.g. integer) math instead of floating point math.

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- Range of variables is at most a few orders of magnitude.

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- What is the distance *resolution* needed for the application?

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- What is the distance *resolution* needed for the application?
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- How frequently do measurements need to be taken?

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All of these factors need to be considered in determining timing parameters and options.