MDN-100 Ultrasonic Distance Sensor

Overview

MDN-100 is a dual range ultrasonic distance sensor.

The MDN-100 can be used to collect position, velocity, and acceleration data of moving objects. It has a standard camera mount so that a tripod can be used to position the sensor accurately.

Students can study a variety of motions with the Motion Detector, including

Walking toward and away from the Motion Detector.

Dynamics carts moving on track.

Objects in simple harmonic motion, such as a mass

hanging on a spring.

Pendulum motions.

Objects dropped or tossed upward.

A bouncing object.

Specifications:

Specifications	*for Range 0.5-2.5m*
Update Rate	25 msec
Sensitivity	2mV/mm

Specifications	*for Range 0.5-- 12m*
Update Rate	100 msec
Sensitivity	0.4 mV/mm

Principle:

This MDN-100 emits short bursts of ultrasonic sound waves from the ultrasonic transducer. These waves fill a cone-shaped area about 15 to 20° off the axis of the center line of the beam. The MDN-100 then “listens” for the echo of these ultrasonic waves returning to it. The MDN-100 measures how long it takes for the ultrasonic waves to make the trip from the MDN-100 to an object and back. Using this time and

the speed of sound in air, the distance to the nearest object is determined.
Note that the MDN-100 will report the distance to the closest object that produces a sufficiently strong echo. The MDN-100 can
pick up objects such as chairs and tables in the cone of ultrasound.
The sensitivity of the echo detection circuitry automatically increases, in steps, every few milliseconds as the ultrasound travels out and back. This is to allow for echoes being weaker from distant objects

Intended Usage

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