Seeed Studio Works

Seeed Ultrasonic Sensor

Seeed ultrasonic sensor is non-contact distance measurement module, which is also compatible with electronic brick. It's designed for easy modular project usage with industrial performance.
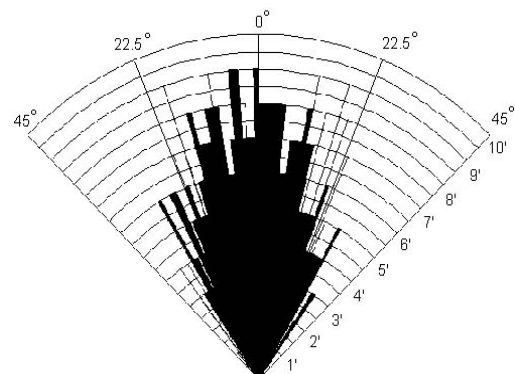
Features

Detecting range: 3cm-4m
Best in 30 degree angle
Electronic brick compatible interface
5VDC power supply
Breadboard friendly
Dual transducer
Arduino library ready
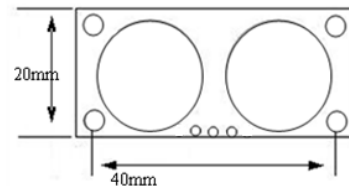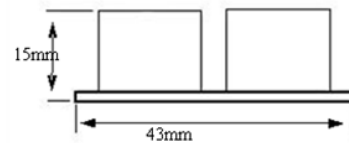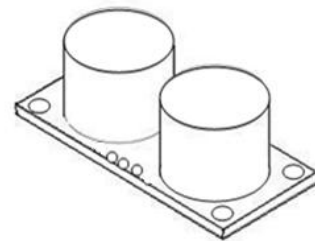
Specifications

Supply voltage	5 v
Global Current Consumption	15 mA
Ultrasonic Frequency	40k Hz
Maximal Range	*400 cm*
Minimal Range	3 cm
Resolution	1 cm
Trigger Pulse Width	10 µs
Outline Dimension	43x20x15 mm

Practical test of performance,
Best in 30 degree angle

Sequence chart

Initiate
10uS TTL to signal pin

Echo back
pulse width corresponds to distance
(about 150uS-25ms, 38ms if no obstacle)

Signal

Formula:
pulse width (uS) /58= distance (cm)
pulse width (uS) /148= distance (inch)

Internal

Ultrasonic Transducer will issue 8 40kHz pulse
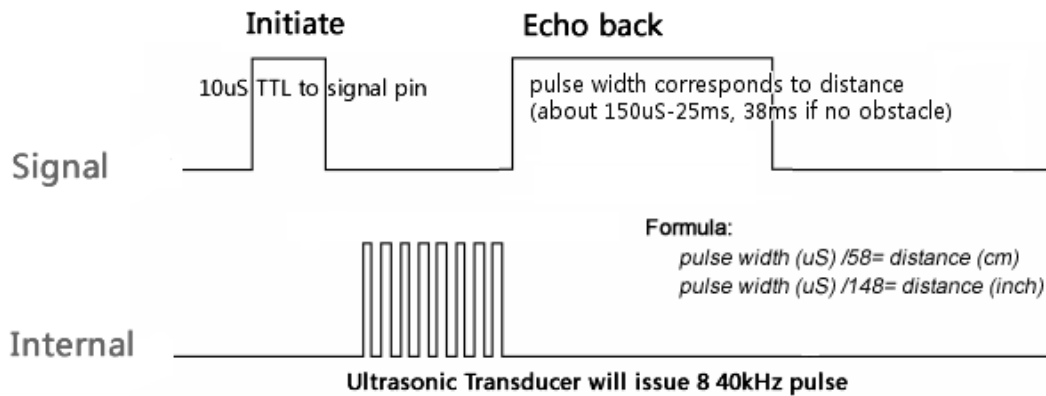
A short ultrasonic pulse is transmitted at the time 0, reflected by an object. The senor receives this signal and converts it to an electric signal. The next pulse can be transmitted when the echo is faded away. This time period is called cycle period. The recommend cycle period should be no less than 50ms.

If a 10μs width trigger pulse is sent to the signal pin, the Ultrasonic module will output eight 40kHz ultrasonic signal and detect the echo back. The measured distance is proportional to the echo pulse width and can be calculated by the formula above. If no obstacle is detected, the output pin will give a 38ms high level signal.

Revision History

Rev.	Descriptions	Release date
1.0	Seeed Ultrasonic Sensor	14.05.2010