U13-C0442 Ultrasonic Ranger Module

Specifications

Item	Typical	Unit
Supply voltage	5.0	VDC
Global Current Consumption	15	mA
Ultrasonic Frequency	40	kHz
Maximal Range	400	cm
Minimal Range	3	cm
Resolution	1	cm
Trigger Pulse Width	10	µs

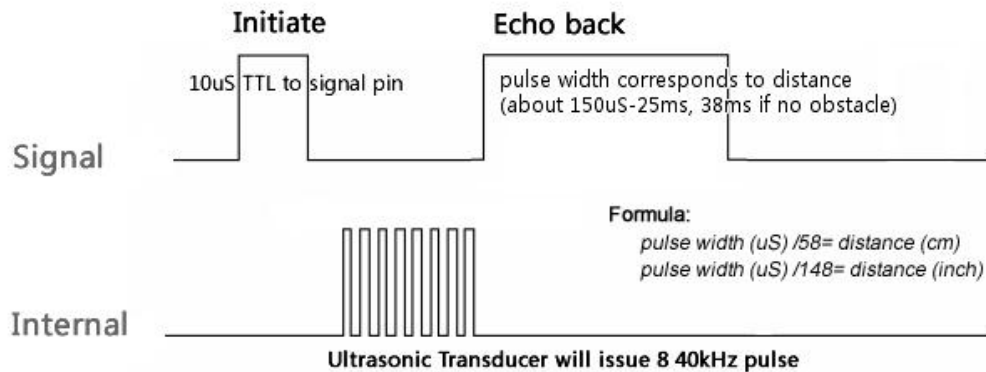**Usage**

The Ultrasonic Rangerwill work from 3 to 400cm.The following sketch demonstrates a simple application of using the sensor to measure distance.

Hardware:

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.

Programming:

1. download the File:Ultrasonic Ranger library and Unzip it into the libraries file of Arduino IDE by the path: ..\arduino-1.0\libraries.
2. Copy the following code and load to Arduino, connect the echo Pin on Ultrasonic Ranger to ArduinoDigital I/O 7.
3. Open the serial monitor and you can see the distance get from module.

```
const int TrigPin = 4;
const int EchoPin = 5;
float cm;
void setup()
{
Serial.begin(9600);
pinMode(TrigPin, OUTPUT);
pinMode(EchoPin, INPUT);
}
void loop()
{
digitalWrite(TrigPin, LOW);
delayMicroseconds(2);
digitalWrite(TrigPin, HIGH);
delayMicroseconds(10);
digitalWrite(TrigPin, LOW);

cm = pulseIn(EchoPin, HIGH) / 58.0;
cm = (int(cm * 100.0)) / 100.0;
Serial.print(cm);
Serial.print("cm");
Serial.println();
delay(1000);
}
```