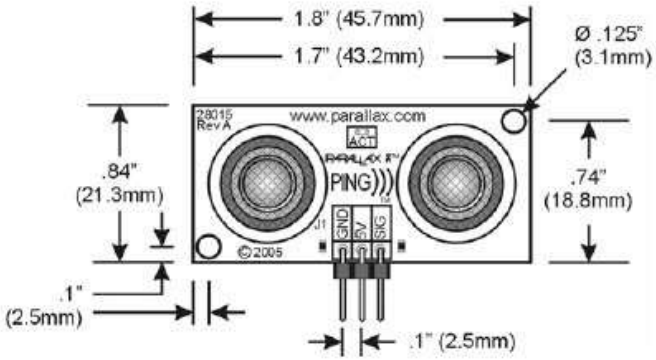
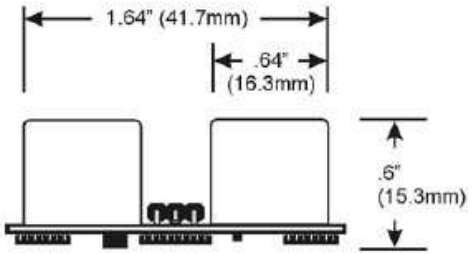
HC-SR04 Ultrasonic Distance Sensor

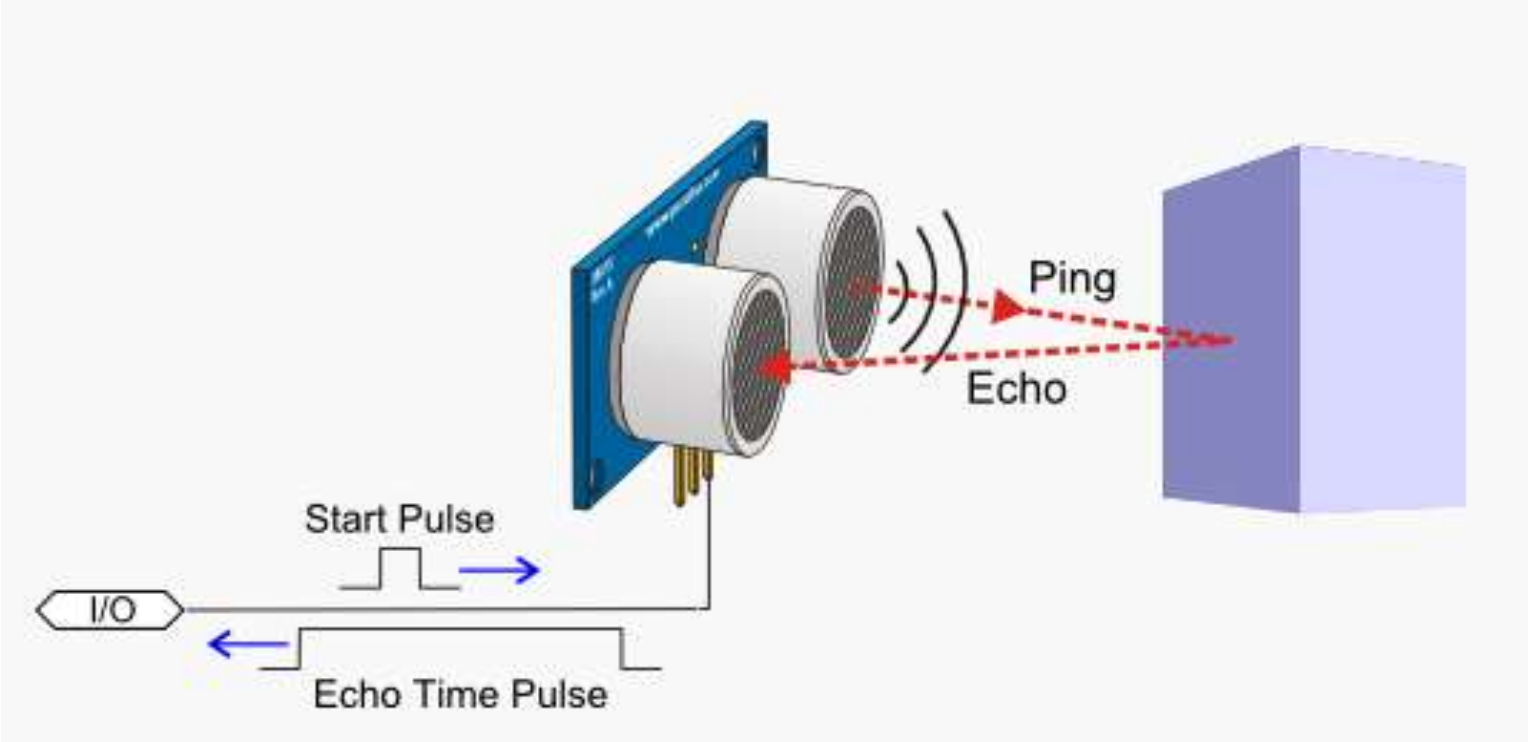
Διαστάσεις-pins

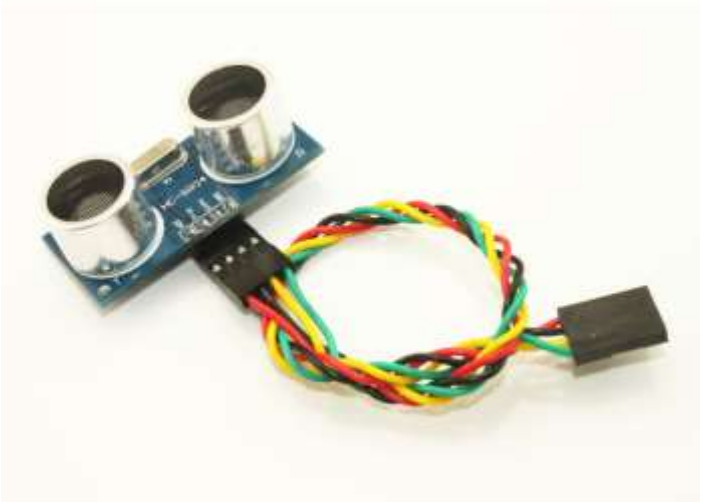
Dimensions



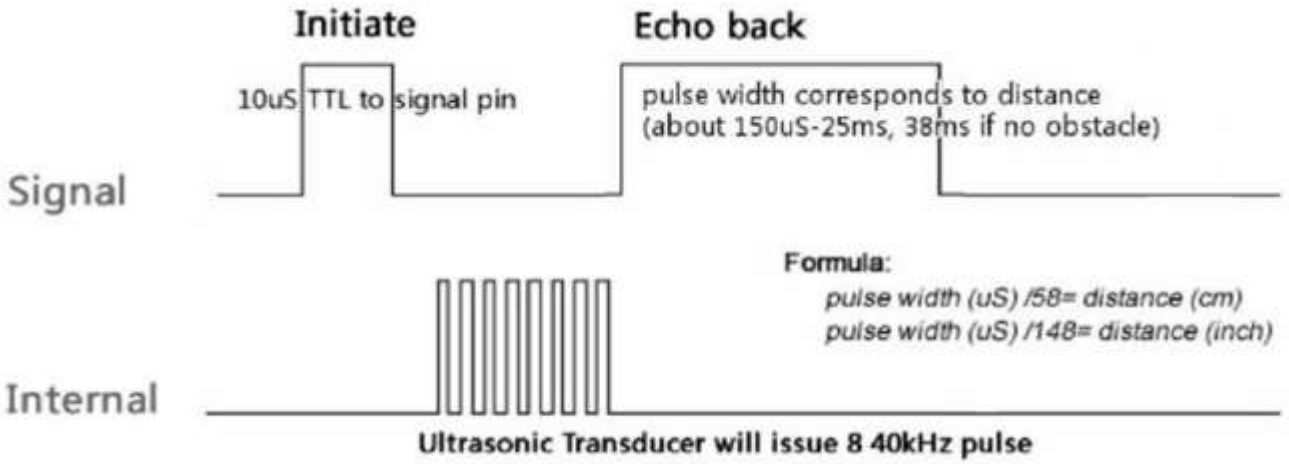


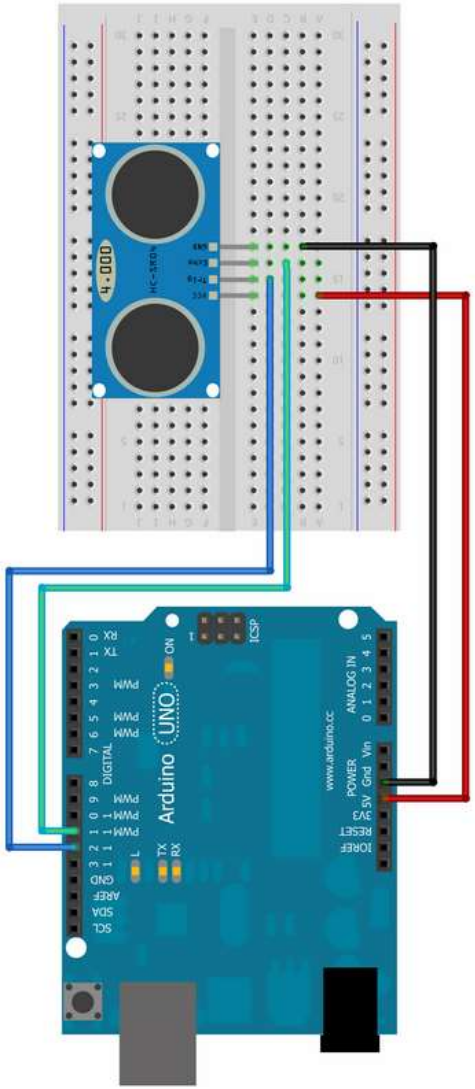
Θεωρία λειτουργίας






HC-SR04
VCC
TRIG
ECHO
GND


Initiate
Echo back
10uS TTL to signal pin
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



```
#define echoPin 7
#define trigPin 8

long duration, distance;

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);
 duration = pulseIn(echoPin, HIGH);

 //Calculate the distance (in cm) based on the speed of sound.
 distance = duration/58.2;

 Serial.println(distance);

 //Delay 50ms before next reading.
 delay(50);
}
```

New Ping Library

```
#include <NewPing.h>

#define TRIGGER_PIN  4  // Arduino pin tied to trigger pin on the ultrasonic sensor.
#define ECHO_PIN     7  // Arduino pin tied to echo pin on the ultrasonic sensor.
#define MAX_DISTANCE 100 // Maximum distance we want to ping for (in centimeters). Maximum sensor distance is rated at 400-500

long int uS;
NewPing sonar(TRIGGER_PIN, ECHO_PIN, MAX_DISTANCE); // NewPing setup of pins and maximum distance.

void setup() {
  Serial.begin(9600); // Open serial monitor at 115200 baud to see ping results.
  myservo.attach(SERVO_PIN);
}

void loop() {
  uS = sonar.ping(); vUS_ROUNDTRIP_CM
  Serial.ptintln(uS/US_ROUNDTRIP_CM);
  delay(50); // Wait 50ms between pings (about 20 pings/sec). 29ms should be the shortest delay between pings.
  uS = sonar.ping(); vUS_ROUNDTRIP_CM
  Serial.ptintln(uS/US_ROUNDTRIP_CM);
  delay(50); // Wait 50ms between pings (about 20 pings/sec). 29ms should be the shortest delay between pings.
}
```