

Ultrasonic Distance Measure

Ultrasonic distance sensor comes with an ASCII serial O/P and provided optimum ranging & detection of long to short distance ranges. Owing to their stable, precise, non-contact and accurate distance measurements from about 2 cm to 4 meters. Compactly designed, easy usable, high ranging and easily interfaced upon micro controllers RX and TX pin.



Features

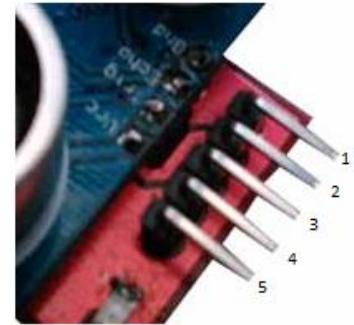
- Accurate and stable range data.
- ASCII output format.
- Compact sized SMD design.
- Minimum distance level can be set.
- Serial output.
- DO small plate digital output interface.
- Serial data of 9600 bps TTL level output for easy interface.

Specifications

Parameter	Value
Operating voltage	+5v DC
current	15mA
Modulation	40kHz
range	2cm-4m
Accuracy	0.3cm

Pin Specification

Pin	Name	Details
1	GND	Power supply ground
2	vcc	Power supply
3	rx	receiver
4	tx	transmitter
5	out	output



Working

This sensor is a high performance ultrasonic range finder. It is compact and measures an amazingly wide range from 2cm to 4m. This ranger is a perfect for any robotic application, or any other projects requiring accurate ranging information. This sensor can be connected directly to the digital I/O lines of your microcontroller and distance can be measured in time required for travelling of sound signal using simple formula as below.

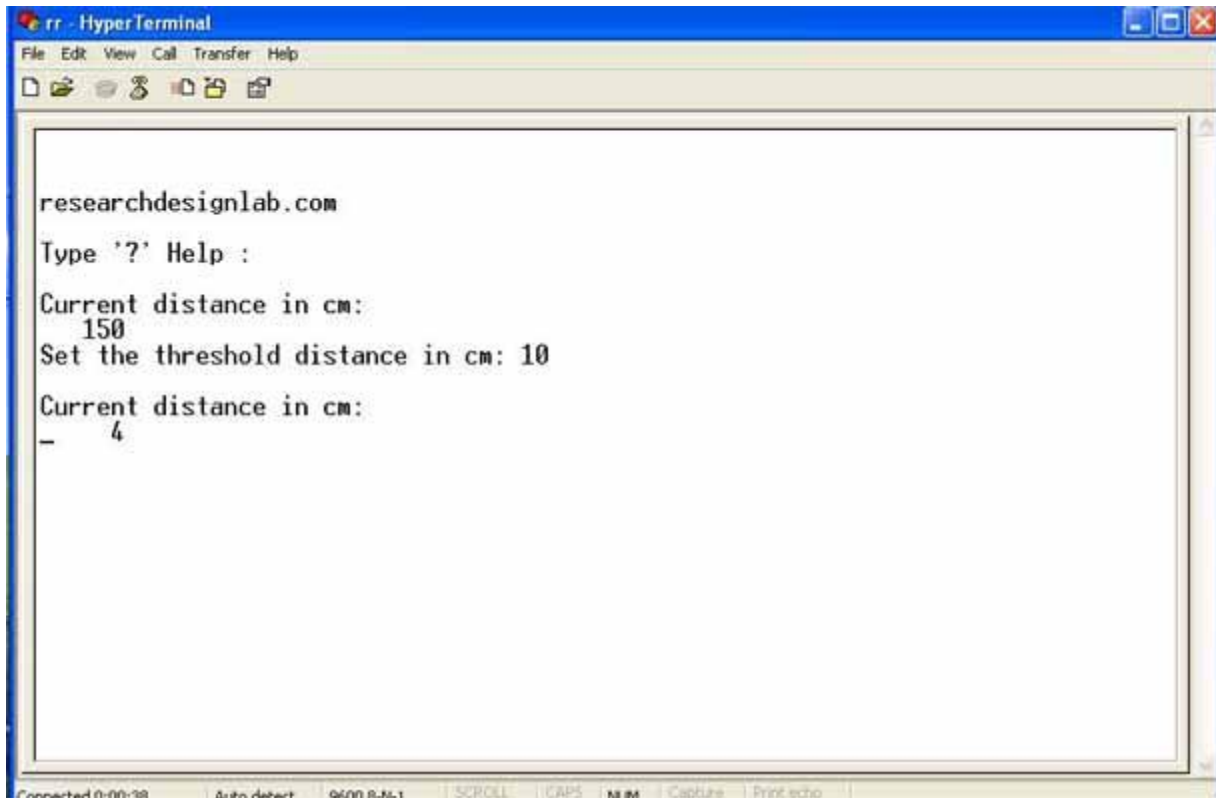
$$\text{Distance} = (\text{Echo pulse width high time} * \text{Sound Velocity (340M/S)/2})$$

or

$$\text{Distance in cm} = (\text{Echo pulse width high time (in uS)} * 0.017)$$

First of all a 10us trigger input has to be given to the pin named “Trig” on the sensor. This starts one cycle of range conversion and sends 8 bursts of sound waves from the transmitter. As soon as the signals are transmitted the “Echo” pin goes to high level and remains in high level until the same sound waves are received by the receiver. If the received sound waves are same as what the same sensor transmitted then the Echo pin goes to low level. If no object is detected within 5M after 30ms the Echo signal will automatically go to low level.

Configuring ultrasonic distance module:



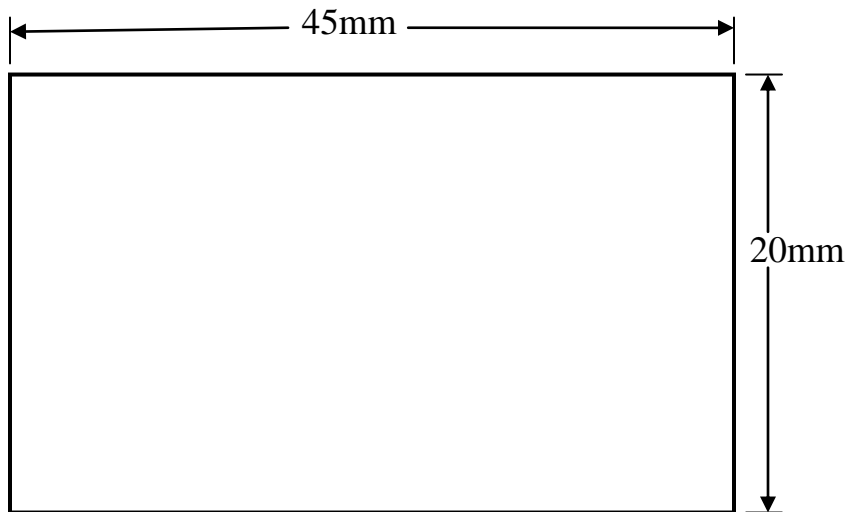
```
rr - HyperTerminal
File Edit View Call Transfer Help
researchdesignlab.com
Type '?' Help :
Current distance in cm:
 150
Set the threshold distance in cm: 10
Current distance in cm:
- 4
Connected 0:00:10 Auto detect 9600 Baud SCROLL CAPS NUM Capture Print echo
```

Sample Application

To view sample code and schematic click the below link:

<http://researchdesignlab.com/index.php/sensors/ultrasonic-distance-measure-230.html>

Board Dimensions



To buy this product click the below link

<http://researchdesignlab.com/index.php/sensors/ultrasonic-distance-measure-230.html>