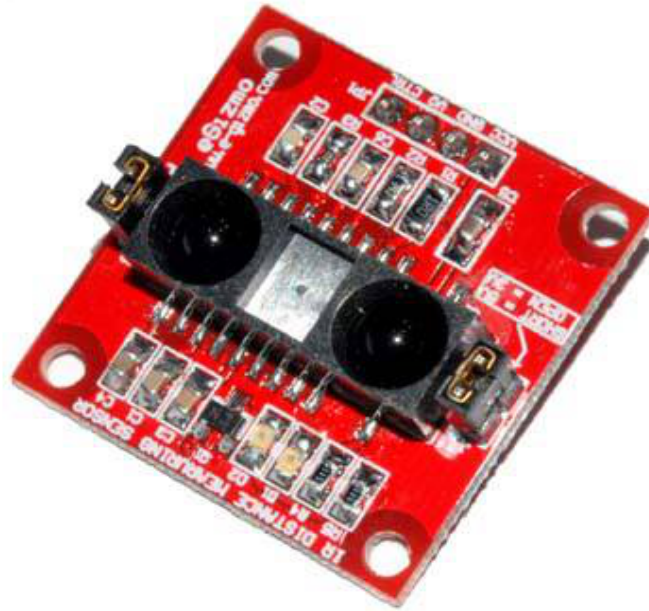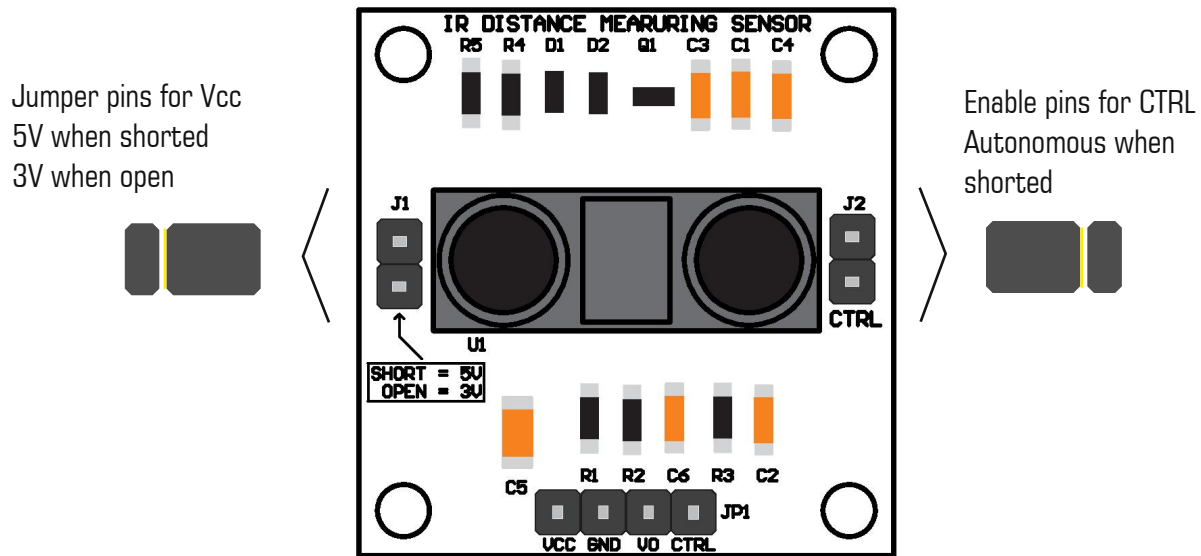# IR Distance Measuring Sensor

Features & Specifications

The e-Gizmo IR Distance Measuring Sensor break-out board can measure distances up to 10 - 150 cm. It features an analog output proportional to the distance measured. Typical applications are for proximity sensing, mobile robots, and alike.

> +5V/+3V power supply
> Optional control (CTRL) function

Major Parts Placement

Jumper pins for Vcc
5V when shorted
3V when open

Enable pins for CTRL
Autonomous when
shorted

IR DISTANCE MEARURING SENSOR

R5 R4 D1 D2 Q1 C3 C1 C4

J1

J2

SHORT = 5V
OPEN = 3V

U1

CTRL

C5   R1 R2 C6 R3 C2

JP1

VCC GND VO CTRL

Figure 1. IR Distance Measuring Sensor
Major Parts Placement

Figure 2. JP1 Pin assignments

JP1
VCC GND VO CTRL

Table 1. JP1 Pin Descriptions

PIN I.D.	Description
VCC	Voltage supply
GND	Ground
VO	Voltage Output
CTRL	Control

USER NOTE:

The IR Distance Measuring sensor may also be used in both 5V and 3V Vcc. However, this changes the range for measuring because VO is based on the Vcc. For example, using 3V as input will make the measurement more precise unlike using the 5V.

One may also use the CTRL to either stop measuring or let the sensor become autonomous. You may use 2 pin header jumpers as shown in the image to utilize these functions.

Schematic Diagram

Figure 3. IR Distance Measuring Sensor
Schematic Diagram
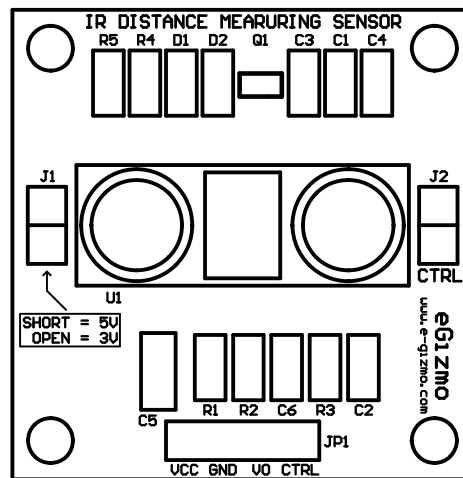
PCB Board Presentation
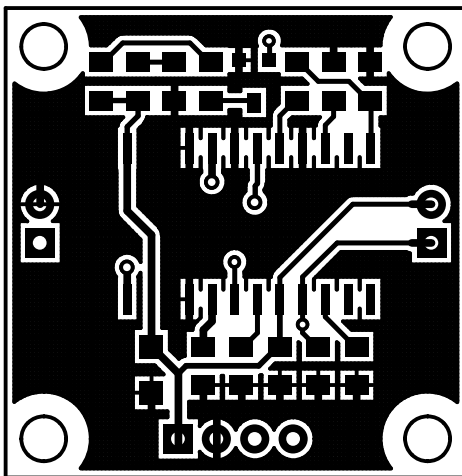

Figure 4. IR Distance Measuring Sensor
Silkscreen Layout

Figure 5. IR Distance Measuring Sensor
Top PCB Layout

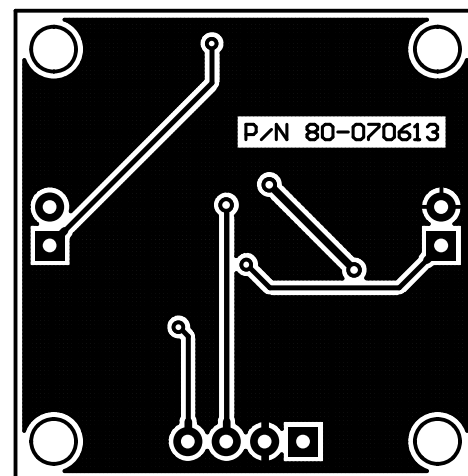

Figure 6. IR Distance Measuring Sensor
Bottom PCB Layout

Sample Application
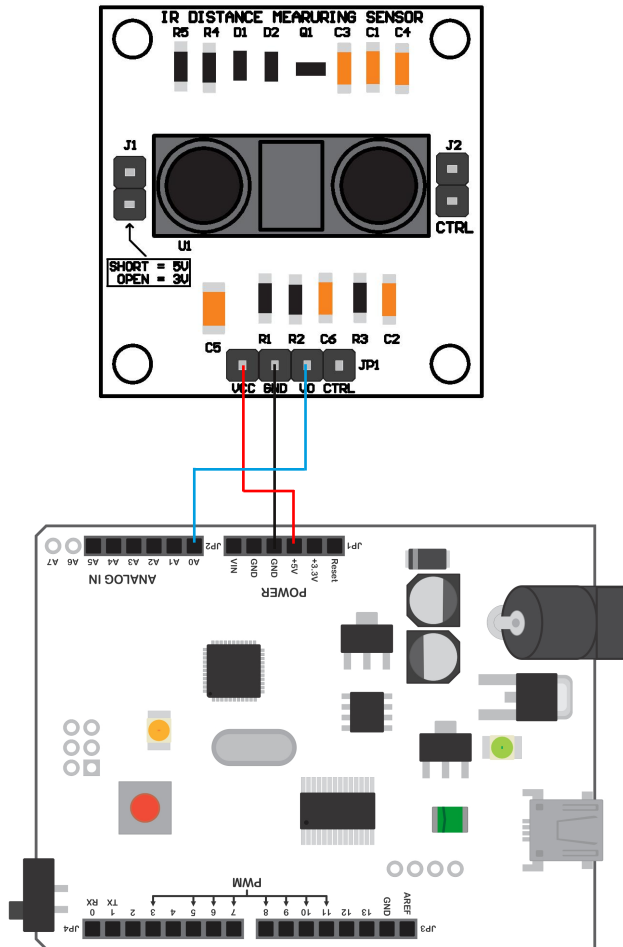

Figure 7. IR Distance Measuring Sensor
Sample Application Wiring Diagram

Wiring connections:

IR   MCU

Vcc - +5V

GND - GND

VO - A0

CTRL - NC

* J1 & J2 is shorted

Sample Codes
(Copy & paste this to your Arduino IDE)

```
/*
Sharp GP2Y0A60SZ0F IR Distance Sensor
Sample Program
This program allows the IR sensor to
measure distance in inches. Conversion
from inches to cm is also included.
Codes by:
eGizmo
Mechatronix Central
August 6, 2013
*/
void setup()
{
Serial.begin(9600);
}
void loop()
{
int out = analogRead(A0);
// Measures Vout
float voltage = out * (5.0 / 1023.0);
// Vout conversion
float distance = (((1/(voltage*voltage))0.003))*
100;
// Vout to inches
Serial.print(distance);
Serial.print(" ");
Serial.print("inches ");
float distance1 = distance*2.54;
// Cm conversion
Serial.print(distance1);
Serial.print(" ");
Serial.println("centimeter");
}
```