

Light Sensor Module Data & Tutorial

Introduction

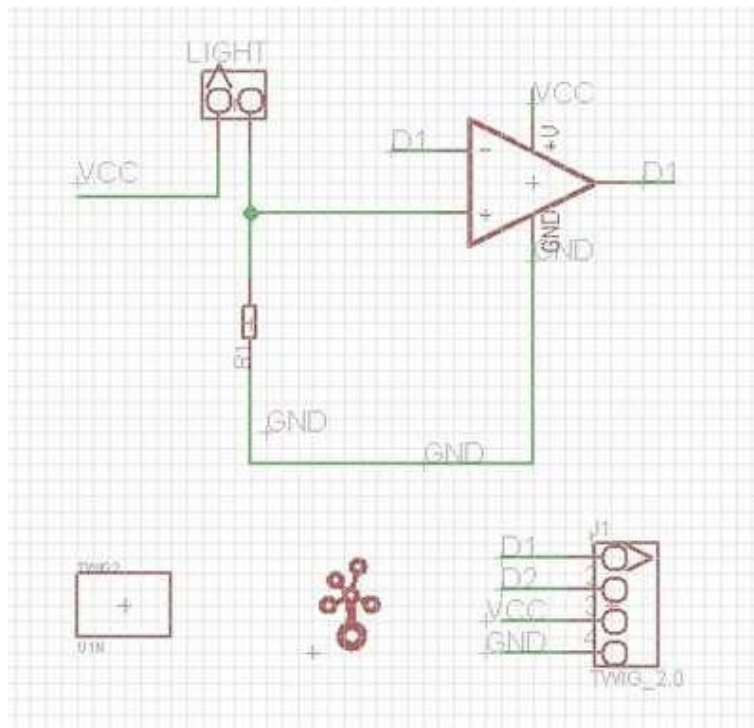
This light sensor module uses the [GL5528 photo-resistor](#) to detect the light intensity of the environment. [The resistance of the sensor decreases when the light intensity of the environment increases.](#) The LM358 op-amp is configured as a "voltage follower" to increase the accuracy of this device.



Application Examples

1. You can make a light turn on when it is getting dark.
2. With a laser pointer you can make a cheap intruder alarm.
3. Control the intensity of light source based on the surrounding light conditions
4. Tracking of solar panels to the sun direction for best solar power generation efficiency

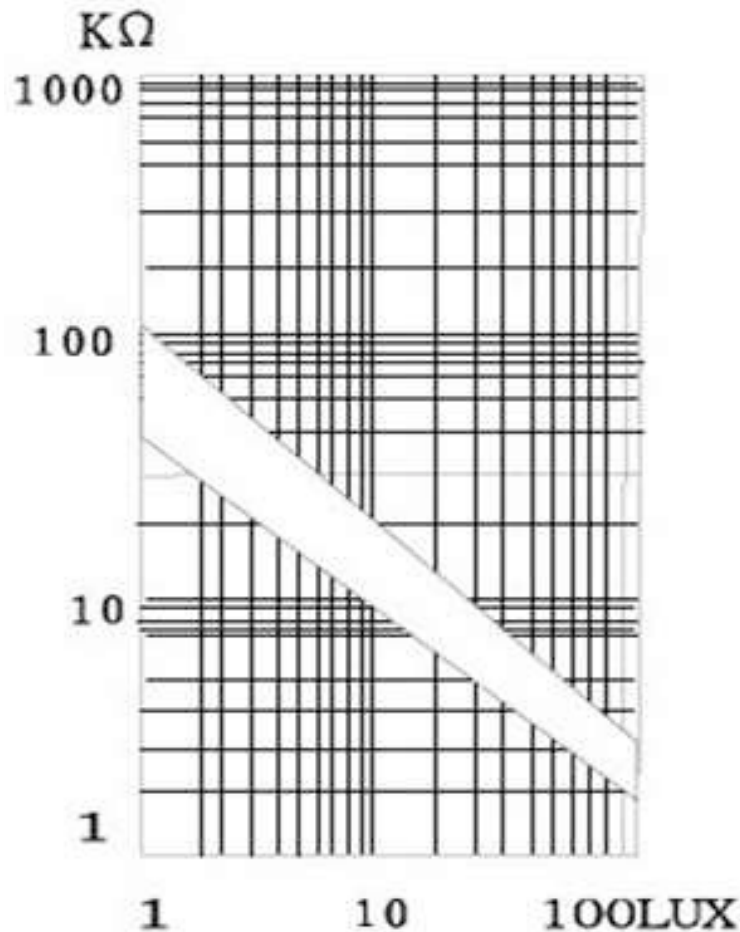
Schematic



Electronic Characteristics

Items	Conditions	Min	Type	Max	Unit
System Characteristics					
VCC	-	3	5	30	V
Supply Current	-	0.5	-	3	mA
Photo-resistor characteristic					
Light resistance	10 LUX	8	-	20	K Ohm
Dark resistance	0 LUX	-	1	-	K Ohm
Response Time	Rising	-	20	-	ms
Peak wavelength	-	-	540	-	nm
Temperature	-	-30	-	+70	Centigrade

Resistance Curve of GL5528 ([Click here for data sheet of GL5528](#))

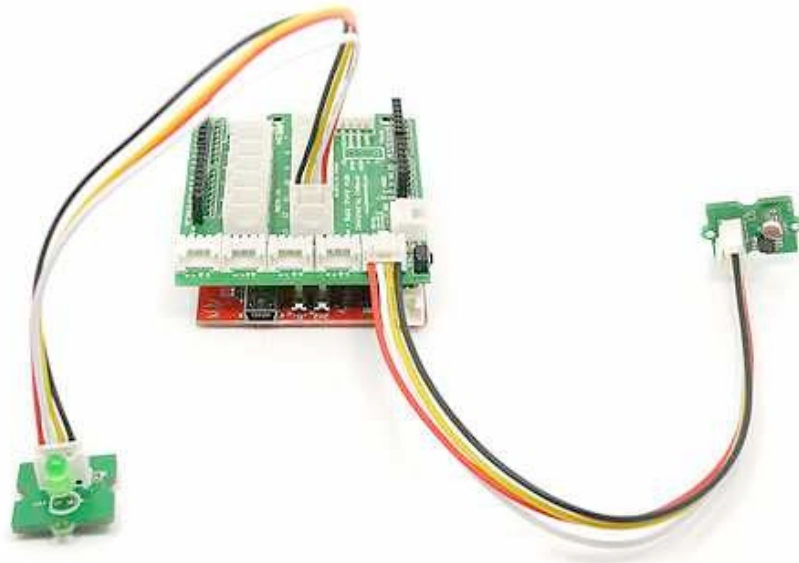


What is best light source suited for our light sensor?

As you can see in the above table, the [Peak wavelength is 540 nm](#), which makes the green light ([Green LED](#)) - for the which the emitted light wave length is about 570 - is best suited for light detection using this sensor. Yet, this light sensor module is suitable for detecting day light, lamp light, LASER pointer light.

Hardware Installation

Connect the Light sensor module to the Arduino analog pin using 3 wire cable



Arduino Software Programming

The program below uses the Light sensor to control the LED. As the picture shows above, the Light sensor is connected to analog port 0 and the LED is connected to port 12. The resistance of the photoresistor can be calculated based on the voltage obtained through the analog pin. Then you can use this data to control the LED or other thing.

```
/*  
This sketch is for use with the LDR Twig, Stem Base Shield  
and a LED Twig  
Grove series are made by Seeedstudio.com  
Sketch was improved and patched by DutchDude
```

```

*/

#include <math.h>
const int ledPin=12;           //Connect the LED
Grove module to Pin12, Digital 12
const int thresholdvalue=10;   //The treshhold for
which the LED should turn on. Setting it lower will make it
go on at more light, higher for more darkness

void setup() {
    Serial.begin(9600);        //Start the Serial
connection
    pinMode(ledPin,OUTPUT);    //Set the LED on
Digital 12 as an OUTPUT
}
void loop() {
    int sensorValue = analogRead(0);
    float Rsensor;
    Rsensor=(float)(1023-sensorValue)*10/sensorValue;

    if(Rsensor>thresholdvalue)
    {
        digitalWrite(ledPin,HIGH);
    }
    else
    {
        digitalWrite(ledPin,LOW);
    }

    Serial.println(Rsensor,DEC);
}

```

For more Information, Please contact [Future Electronics Egypt \(Arduino Egypt\)](#)