SEED TECHNOLOGY INC (SEEEDUINO)
Grove - Light Sensor
Model: SEN11302P

Introduction

This light sensor module uses the GL5528 photoresistor to detect the light intensity of environment. An Op-amp LM358 is configured as a "voltage follower" to decease influence of resistance variation when light intensity changes.

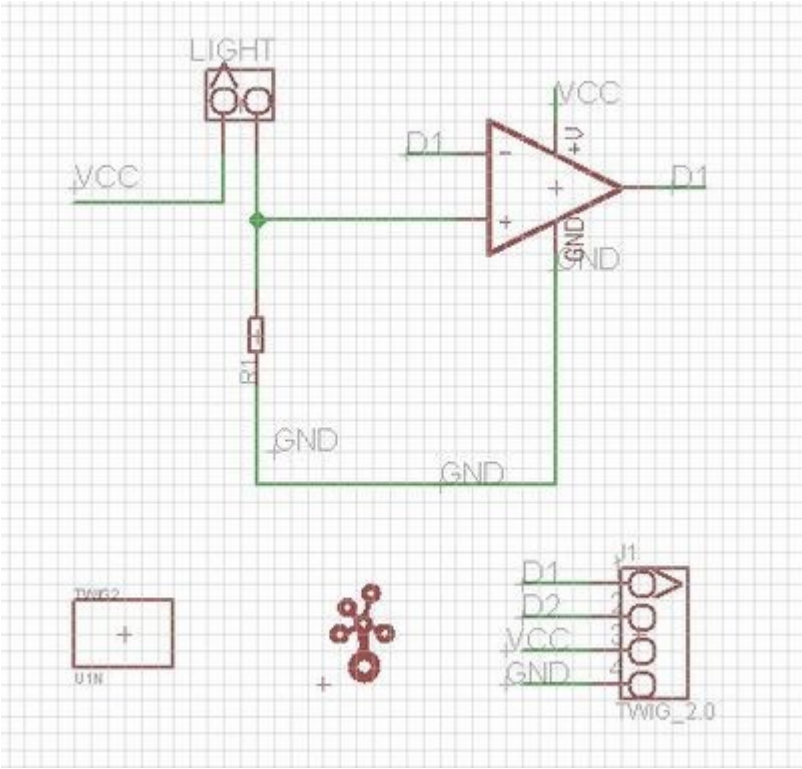
Features

- Grove compatible interface
- Wide supply voltage range: 3V–30V
- 2.0cm x 2.0cm Grove module

Applications Ideas

- Electronic toys
- Light-control switch
- Monitor

Schematic



Specifications

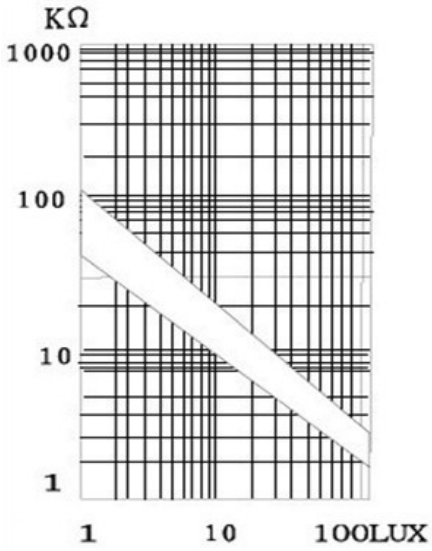
Key Specification

Items	Min
PCB Size	2.0cm*2.0cm
Interface	2.0mm pitch pin header
IO Structure	SIG,VCC,GND,NC
ROHS	YES

Electronic Characterstics

Items	Conditions	Min	Type	Max	Unit
System Characteristics					
VCC	-	3	5	30	V
Supply Current	-	0.5	-	3	mA
Photoresistor Characteristics					
Light resistance	10lux	8	-	20	kΩ
Dark resistance	0lux	-	1	-	kΩ
100γ10	-	-	0.6	-	-
Reponse time	Rising	-	20	-	S
	Falling	-	30	-	S
Peak Wavelength	-	-	540	-	nm
Ambient temperature	-	-30	-	+70	℃

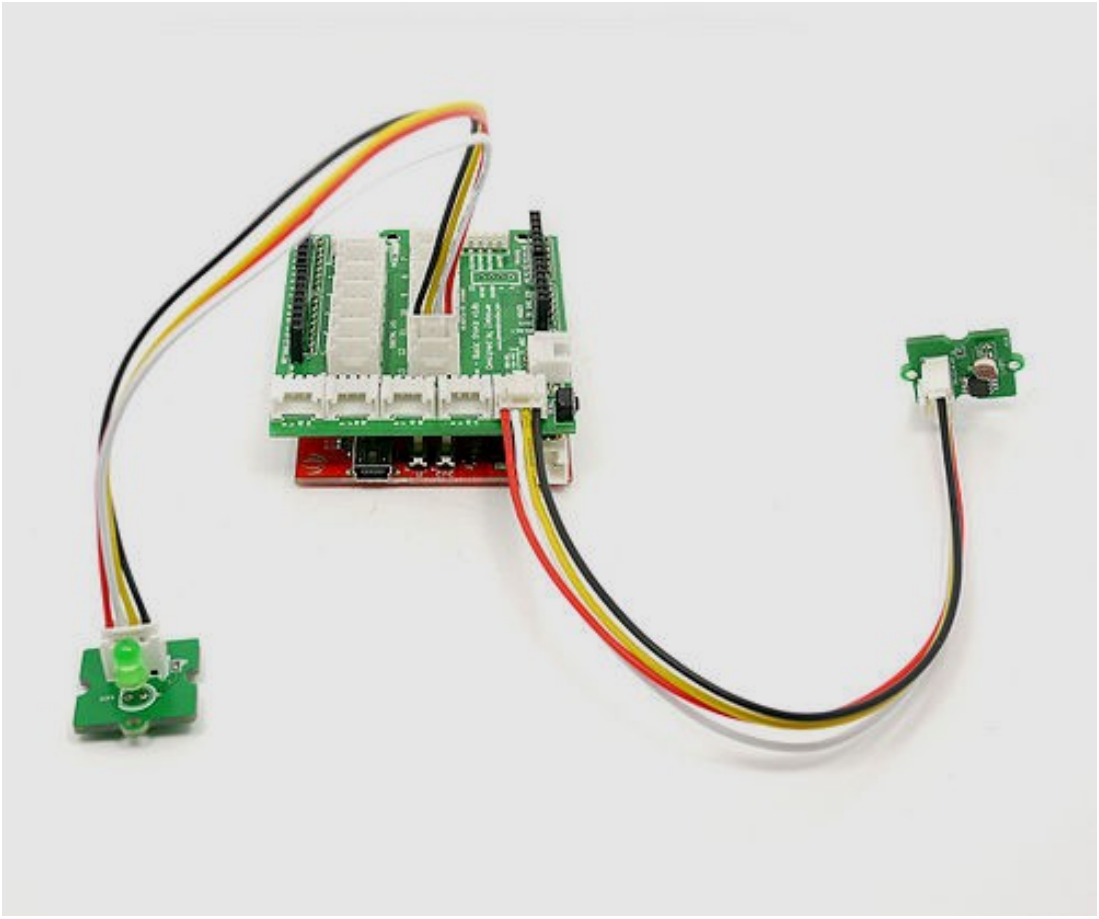
Below is the resistance curve of GL5528.



Usage

Connect the module to the Grove Basic shield using the 4-pin grove cable, then you can get a voltage value based on the light intensity of the environment. Using these data, you can make your own application according to your requirement.

Hardware Installation



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 which stands for light value can be calculated based on the voltage obtained through the analog port. Then you can use this data to control the LED or other thing you like.

```
/*
This sketch is for use with the LDR Grove module, Grove Base Shield and a LED Grove module
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 treshold 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);
}
```

Application

1. make a light turn on when it is getting dark.
2. make a cheap intruder alarm With a laser pointer .

Support

If you have questions or other better design ideas, you can go to our forum or wish to discuss.

Version Tracker

Revision	Description	Release Date
Electronic brick - light sensor(Analog) v0.9b	Initial Publish release	Aug 04, 2009
Grove - Light Sensor v1.0	revision from Electronic brick to Grove units	Dec 22, 2010

Additional Idea

What do you think of our Grove modules? Don't forget that we always welcome your views on our goods and services so that we can continue to meet all your stock requirements. You can write them here or go to Seeedstudio Wish page.

Resources

- Eagle Files
- LM358pdf

See Also

- GROVE - Starter Bundle
- 2-axis compass Module
- Grove - I2C 3-axis Accelerometer
- Grove - 3-axis Gyro
- Grove - Water Sensor
- Grove - 3-axis Compass
- Grove - Touch Sensor
- Grove- Temperature and Humidity Sensor
- Grove - Magnetic Switch
- Grove - Alcohol Sensor
- Grove - OLED Display 128*64
- Grove - Serial LCD
- Grove - RTC
- Grove - Electricity Sensor
- Grove - Sound Sensor
- Grove - Base Shield

Licensing