



# Grove - Line Finder User Manual

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Wiki: [http://www.seeedstudio.com/wiki/index.php?title=Twig - Line Finder](http://www.seeedstudio.com/wiki/index.php?title=Twig_-_Line_Finder)

Bazaar: <http://www.seeedstudio.com/depot/Grove-Line-Finder-p-825.html>

## Document Revision History

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Revision	Date	Author	Description
1.0	Sep 22, 2015	Loovee	Create file

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*Under the supervision of Seeed Technology Inc., this manual has been compiled and published which covered the latest product description and specification. The content of this manual is subject to change without notice.*

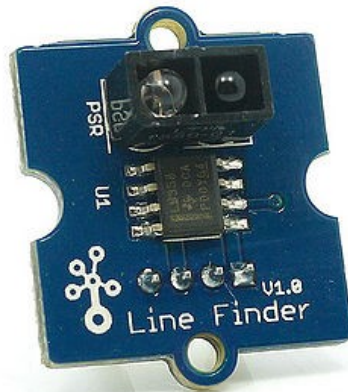
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## 1. Introduction

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Line finder Grove is designed for line following robotic. It consists two parts - an IR emitting LED and an IR sensitive phototransistor. It can output digital signal to a microcontroller so the robot can reliably follow a black line on a white background, or vice versa.



## 2. Specification

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- Power supply :5V DC
- Digital output mode: TTL (High when black is detected, Low when white is detected)
- Connector: 4 pin Buckled Grove interface
- Dimension: 20mm\*20mm
- ROHS: YES
- Comparator: MV358
- Photo reflective diode: RS-06WD

## 3. Demonstration

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### 3.1 With Arduino

The brick will return HIGH when black line is detected, and LOW when white line is detected. Using the adjustable resistor the detection range can be changed from 1.5cm to 5cm. If the sensor can't tell between black and white surfaces, you can also use the adjustable resistor to set a suitable reference voltage.

Includes important code snippet. Demo code like:

#### *Demo code*

```
//-----  
//Name: Line finder digital mode  
//Function: detect black line or white line  
//Parameter:  When digital signal is HIGH, black line  
//            When digital signal is LOW, white line  
//-----  
int signalPin = 3;    // connected to digital pin 3  
void setup()  {  
    pinMode(signalPin, INPUT); // initialize the digital pin as an output:  
    Serial.begin(9600); // initialize serial communications at 9600 bps:  
}  
// the loop() method runs over and over again,  
// as long as the Arduino has power  
void loop()  
{  
    if(HIGH == digitalRead(signalPin))  
        Serial.println("black");  
    else Serial.println("white"); // display the color  
    //delay(1000);                // wait for a second  
}
```

### 3.2 With Raspberry Pi

1. You should have got a raspberry pi and a grovepi or grovepi+.
2. You should have completed configuring the development environment, otherwise follow [here](#).
3. Connection
  - Plug the sensor to grovepi socket D7 by using a grove cable.
4. Navigate to the demos' directory:

```
cd yourpath/GrovePi/Software/Python/
```

### To see the code

```
nano grove_line_finder.py # "Ctrl+x" to exit #
import time
import grovepi

# Connect the Grove Line Finder to digital port D7
# SIG, NC, VCC, GND
line_finder = 7

grovepi.pinMode(line_finder, "INPUT")

while True:
    try:
        # Return HIGH when black line is detected, and LOW when white line is detected
        if grovepi.digitalRead(line_finder) == 1:
            print "black line detected"
        else:
            print "white line detected"

        time.sleep(.5)

    except IOError:
        print "Error"
```

### 5. Run the demo.

```
sudo python grove_line_finder.py
```



## 4. Resources

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- [Ealge files.zip](#)
- [LMV358.pdf](#)

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