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GroveSensorGrove - Flame Sensor

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☒ Grove

Grove

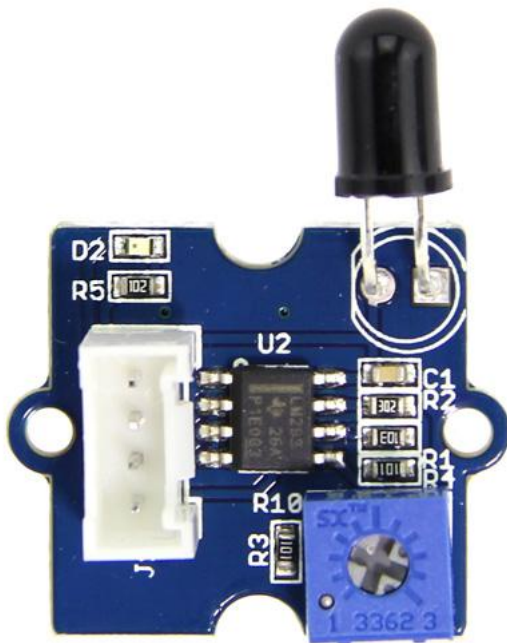
☒ Sensor

Sensor

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## Grove - Flame Sensor



The Grove - Flame Sensor can be used to detect fire source or other light sources of the wavelength in the range of 760nm - 1100 nm. It is based on the YG1006 sensor which is a high speed and high sensitive NPN silicon phototransistor. Due to its black epoxy, the sensor is sensitive to infrared radiation. In fire fighting robot game, the sensor plays a very important role, it can be used as a robot eyes to find the fire source.

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## Features

Grove Interface  
High Photo Sensitivity  
Fast Response Time  
Easy to use  
Sensitivity is adjustable

Tip

More details about Grove modules please refer to [Grove System](#)

## Specifications

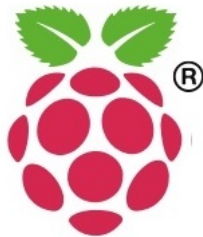
Item	Min	Typical	Max	Unit
Voltage	4.75	5.0	5.30	VDC
Current	/	20	/	mA
Range of Spectral Bandwidth	760	940	1100	nm
Detection range	0	~	1	m
Response Time	15			μS
Operating Temperature	-25	~	85	°C

## Platforms Supported

Arduino



Raspberry Pi



Caution

The platforms mentioned above as supported is/are an indication of the module's software or theoretical compatibility. We only provide software library or code examples for Arduino platform in most cases. It is not possible to provide software library / demo code for all possible MCU platforms. Hence, users have to write their own software library.

## Getting started

The module is mainly used to detect the infrared light. It outputs digital signal 0 and 1 through a Comparator output. The output value will be 0 when infrared light is detected. And the sensitivity is adjustable by the precision potentiometer.

### Play with Arduino

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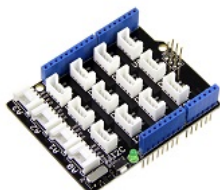
### Hardware

**Step 1.** Prepare the below stuffs:

**Seeeduino V4.2**



**Base Shield**



**Grove-Flame\_Sensor**



**Grove - Red LED**



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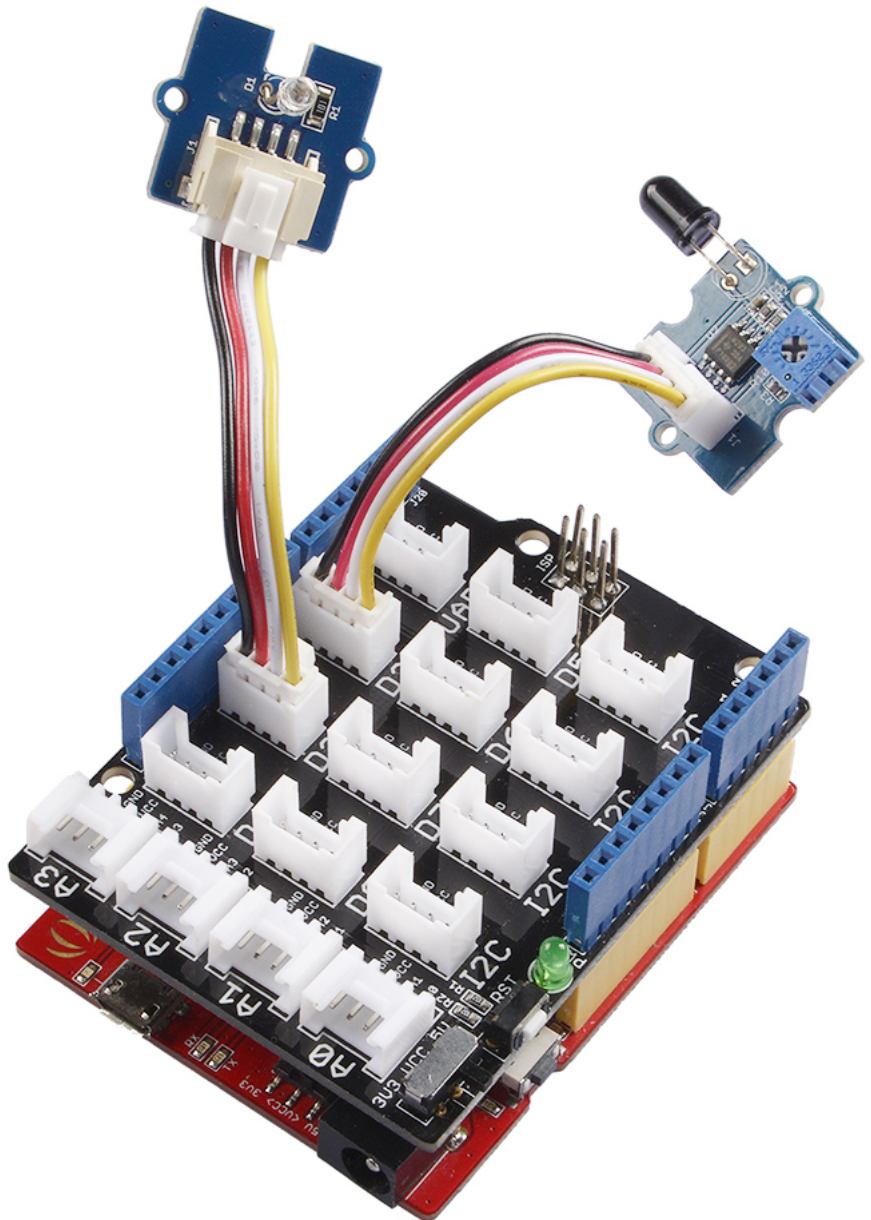
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**Step 2.** Connect Grove-Flame\_Sensor to port **D2** of Grove-Base Shield.

**Step 3.** Connect Grove - Red LED to port **D3** of Grove-Base Shield.

**Step 4.** Plug Grove - Base Shield into Seeeduino.

**Step 5.** Connect Seeeduino to PC via a USB cable.



#### Note

If we don't have Grove Base Shield, We also can directly connect this module to Seeeduino as below.

#### Seeeduino Grove-Flame\_Sensor

5V	Red
GND	Black
Not Conencted	White
D2	Yellow

#### Seeeduino Grove - Red LED

5V	Red
GND	Black
Not Conencted	White
D3	Yellow

#### Software

**Step 1.** Copy the code and flash it into the controller board.

Here is the code

—

—

```

1  /*****
2
3  #define FLAME_SENSOR 2 //connect SENSOR to digital pin2
4  #define LED 3 //connect Grove - LED to pin3
5
6  void setup()
7  {
8      pinsInit();
9  }
10 void loop()
11 {
12     if(isFlameDetected())
13         turnOnLED();
14     else turnOffLED();
15 }
16 *****/
17 void pinsInit()
18 {
19     pinMode(FLAME_SENSOR, INPUT);
20     pinMode(LED,OUTPUT);
21     digitalWrite(LED,LOW);
22 }
23 void turnOnLED()
24 {
25     digitalWrite(LED,HIGH);
26 }
27 void turnOffLED()
28 {
29     digitalWrite(LED,LOW);
30 }
31 boolean isFlameDetected()
32 {
33     if(digitalRead(FLAME_SENSOR))
34         return false;
35     else return true;
36 }

```

**Step 2.** The LED will light up when there is infrared light.

## Play with Codecraft

### Hardware

**Step 1.** Connect a Grove - Flame Sensor to port D2, and connect a Grove - Red LED to port D3 of a Base Shield.

**Step 2.** Plug the Base Shield to your Seeeduino/Arduino.

**Step 3.** Link Seeeduino/Arduino to your PC via an USB cable.

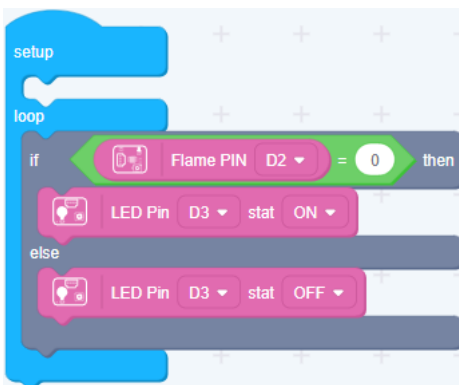
### Software

**Step 1.** Open [Codecraft](#), add Arduino support, and drag a main procedure to working area.

Note

If this is your first time using Codecraft, see also [Guide for Codecraft using Arduino](#).

**Step 2.** Drag blocks as picture below or open the cdc file which can be downloaded at the end of this page.



Upload the program to your Arduino/Seeeduino.

Success

When the code finishes uploaded, the LED will goes on when Flame Sensor detects flame.

## Play With Raspberry Pi



## Hardware

**Step 1.** Prepare the below stuffs:

**Raspberry pi**



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**GrovePi\_Plus**



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**Grove-Flame\_Sensor**

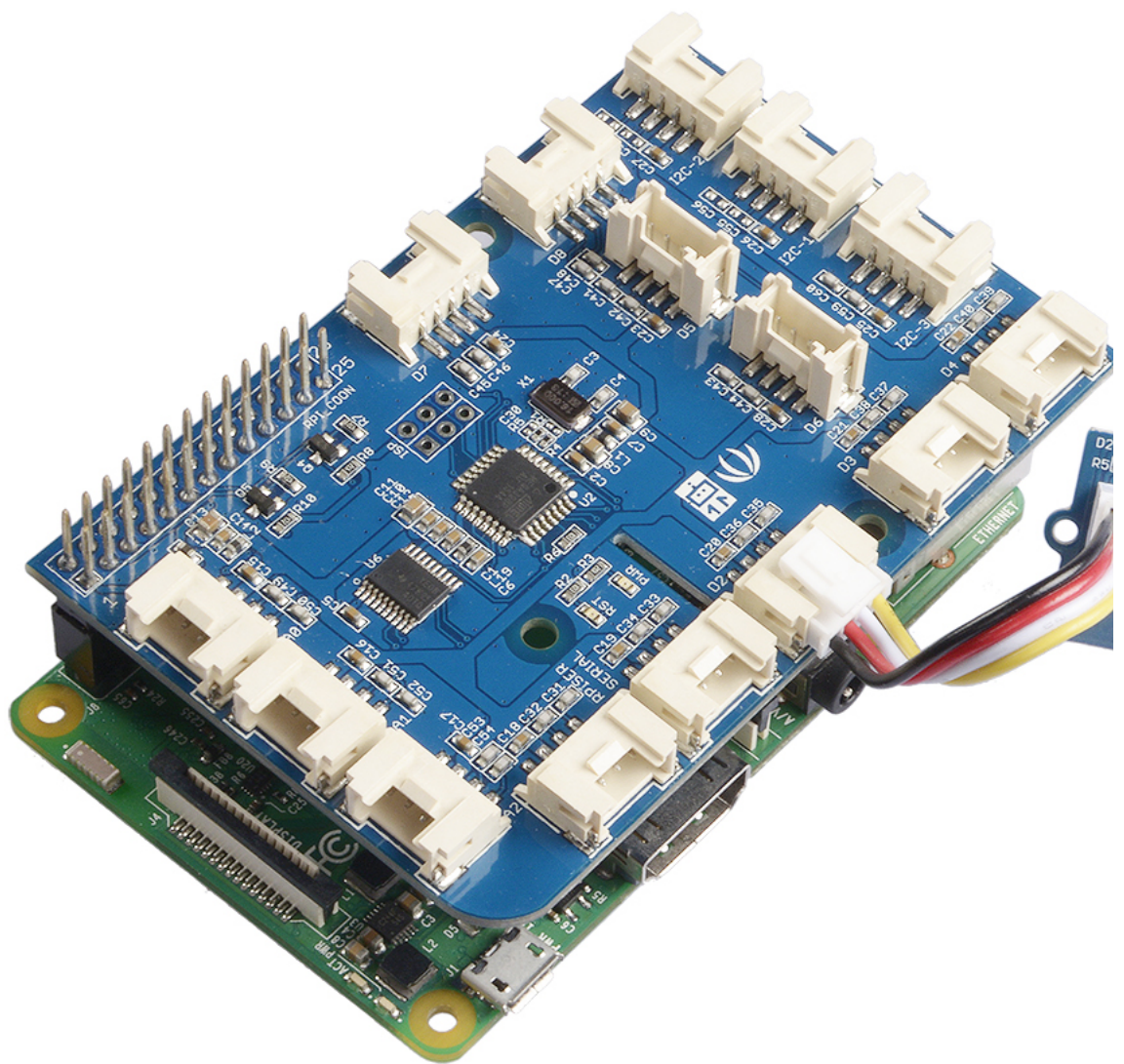


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**Step 2.** Plug the GrovePi\_Plus into Raspberry.

**Step 3.** Connect Grove-Flame\_Sensor to D2 port of GrovePi\_Plus.

**Step 4.** Connect the Raspberry to PC through USB cable.



## Software

**Step 1.** Follow [Setting Software](#) to configure the development environment.

**Step 2.** Git clone the Github repository.

□

□

```
1 cd ~
2 git clone https://github.com/DexterInd/GrovePi.git
```

**Step 3.** Excute below commands to use this sensor

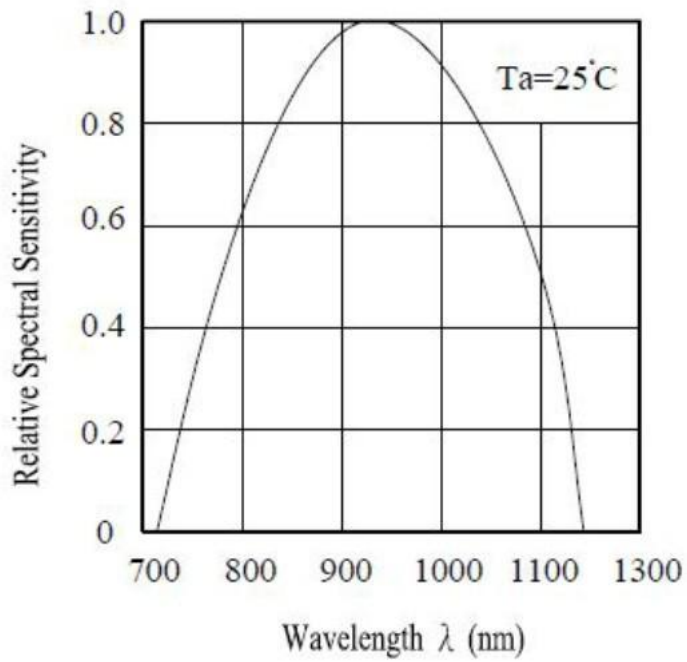
```
1 cd ~/GrovePi/Software/Python
2 python grove_flame_sensor.py
```

Here is the code of example:

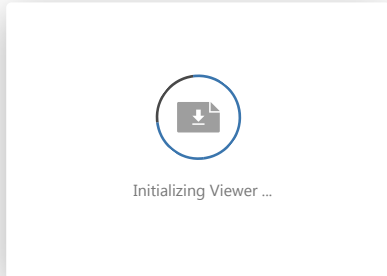
```
1 #!/usr/bin/env python
2 #
3 # GrovePi Example for using the Grove Flame Sensor (https://www.seeedstudio.com/wiki/Grove\_-\_Flame\_Sensor)
4 #
5 # The GrovePi connects the Raspberry Pi and Grove sensors. You can Learn more about GrovePi here: http://www.dexterindustries.com/GrovePi
6 #
7 # Have a question about this example? Ask on the forums here: http://forum.dexterindustries.com/c/grovepi
8 #
9 '''
10 ## License
11 The MIT License (MIT)
12 GrovePi for the Raspberry Pi: an open source platform for connecting Grove Sensors to the Raspberry Pi.
13 Copyright (C) 2017 Dexter Industries
14 Permission is hereby granted, free of charge, to any person obtaining a copy
15 of this software and associated documentation files (the "Software"), to deal
16 in the Software without restriction, including without limitation the rights
17 to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
18 copies of the Software, and to permit persons to whom the Software is
19 furnished to do so, subject to the following conditions:
20 The above copyright notice and this permission notice shall be included in
21 all copies or substantial portions of the Software.
22 THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
23 IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
24 FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
25 AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
26 LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
27 OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
28 THE SOFTWARE.
29 '''
30 import time
31 import grovepi
32
33 # Connect the Grove Flame Sensor to digital port D2
34 # SIG,NC,VCC,GND
35 flame_sensor = 2
36
37 grovepi.pinMode(flame_sensor,"INPUT")
38
39 while True:
40     try:
41         print(grovepi.digitalRead(flame_sensor))
42         time.sleep(.5)
43     except IOError:
44         print ("Error")
45
46
```

## Reference<sup>1</sup>

The sensor can detect the light source whose wavelength is in the range of 760nm - 1100 nm. The picture below shows the spectral sensitivity.



## Schematic Online Viewer



## Resources

[Eagle] [Grove - Flame Sensor Eagle File](#)

[Library] [Github repository for Grove Flame Sensor Library](#)

[Datasheet] [LM293D datasheet](#)

[Codecraft] [CDC File](#)

## Tech Support

Please submit any technical issue into our [forum](#).