Grove - PIR Motion Sensor

(Redirected from [Twig - PIR Motion Sensor](http://www.seeedstudio.com/wiki/index.php?title=Twig_-_PIR_Motion_Sensor&redirect=no))

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Introduction

This is a simple to use PIR motion sensor with Grove compatible interface. The sensor allow you to sense motion, almost always used to detect whether a human has moved in or out of the sensors range. Simply connect it to Grove - Base shield and program it, when anyone moves in it's detecting range, the sensor outputs HIGH on its SIG pin. The detecting range and respons speed can be adjusted by 2 potentiometers soldered on its circuit board, The response speed is from 0.3s - 25s, and max 6 meters of detecting range.  
Model:[SEN32357P](http://www.seeedstudio.com/depot/grove-pir-motion-sensor-p-802.html?cPath=144_149)  
[](http://www.seeedstudio.com/wiki/File:PIR_Motion.jpg)

Features

* Grove compatible interface
* Wide supply voltage range: 3V–5V
* 2.0cm x 4.0cm Grove module
* Detecting Angle: 120 degree
* Detecting Distance: max 6m
* Adjustable detecting distance and holding time

Application Ideas

* Motion sensor
* Thief-guarding System
* Switch
* Industrial automation

Specification

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Items** | **Conditions** | **Min** | **Norm** | **Max** | **Unit** |
| VCC | - | 3 | - | 5 | Volts |
| Measuring Current Supply | VCC=3V | - | - | 100 | uA |
| VCC=5V | - | - | 150 | uA |
| Measuring Range | - | 0.1 | - | 6 | m |
| Holding Time | - | 1 | - | 25 | S |
| Operating Temperature | - | -20 | - | 70 | °C |
| Storge Temperature | - | -35 | - | 80 | °C |
| Working Wave Length | - | 7 | - | 14 | um |
| Detecting Angle | - | - | 120 | - | degree |

Usage

The following sketch demonstrates a simple application of sensing montion. When someone moves in its detecting range, it outputs High through its SIG pin and the LED lights, else it outputs LOW. Then you can use it to detect the motion of people.

**Note:** The first time you use this module, you should regulate the two potentiometer which are used to adjust the detecting distance and the holding time. And you also need to regulate the switch beside to the Grove connector to set the module in a retriggerable situation(H position) or an un-retriggerable situation(L position)

* Connect the PIR Motion Sensor to Seeeduino through the [Grove-Base Shield](http://www.seeedstudio.com/wiki/Grove_-_Base_Shield) using the  Digital 2  interface and The LED  connect to Digital 4 of Grove - Base Shield.
* Connect the Seeeduino to PC via a USB cable.

(图片)

* Copy and paste code below to a new Arduino sketch.

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

/\*macro definitions of PIR motion sensor pin and LED pin\*/

#define PIR\_MOTION\_SENSOR 2//Use pin 2 to receive the signal from the module

#define LED 4//the Grove - LED is connected to D4 of Arduino

void setup()

{

pinsInit();

}

void loop()

{

if(isPeopleDetected())//if it detects the moving people?

turnOnLED();

else

turnOffLED();

}

void pinsInit()

{

pinMode(PIR\_MOTION\_SENSOR, INPUT);

pinMode(LED,OUTPUT);

}

void turnOnLED()

{

digitalWrite(LED,HIGH);

}

void turnOffLED()

{

digitalWrite(LED,LOW);

}

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

/\*Function: Detect whether anyone moves in it's detecting range\*/

/\*Return:-boolean, ture is someone detected.\*/

boolean isPeopleDetected()

{

int sensorValue = digitalRead(PIR\_MOTION\_SENSOR);

if(sensorValue == HIGH)//if the sensor value is HIGH?

{

return true;//yes,return ture

}

else

{

return false;//no,return false

}

}

* Upload the code, Please click [here](http://www.seeedstudio.com/wiki/Upload_Code) if you do not know how to upload.<br>
* Test the sensor if  it can sense your motion.

**Note:** The detecting distance can be adjusted by rotate the distance potentiometer. When you rotate the distance potentiometer clockwise, the detecting distance decreases from 6 meters to only several centimeters. And when you rotate it counter-clockwise to the end, the module will be too sensitive to be triggered by the atmosphere even there is no people moving before it. The holding time can also be adjusted by the Delay\_time potentiometer, the value is about from  25s to 1s when you rotate it clockwise. The module can also be set as retriggerable or un- retriggerable. When the switch is in the H position, the module is retriggerable and is unretrigerred when the switch is in L position. 

Version Tracker

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| --- | --- | --- |
| **Revision** | **Descriptions** | **Release** |
| v0.9b | Initial public release | date |

Resources

* [Grove - PIR Motion Sensor Eagle File](http://www.seeedstudio.com/wiki/File:Twig_-_PIR_motion_sensor_v0.9b.zip)
* [BISS0001 Datasheet](http://www.seeedstudio.com/wiki/File:Twig_-_BISS0001.pdf)
* [Fresnel lens 8120 Datasheet](http://www.seeedstudio.com/wiki/File:Fresnel_lens_8120.pdf)