

SEED TECHNOLOGY INC (SEEEDUINO)

Grove - Sound Sensor

Model: SEN12945P

Introduction

The Sound sensor module is a simple microphone. Based on the power amplifier LM386 and the electret microphone, it can be used to detect the sound strength of the environment. The value of output can be adjusted by the potentiometer.



Features

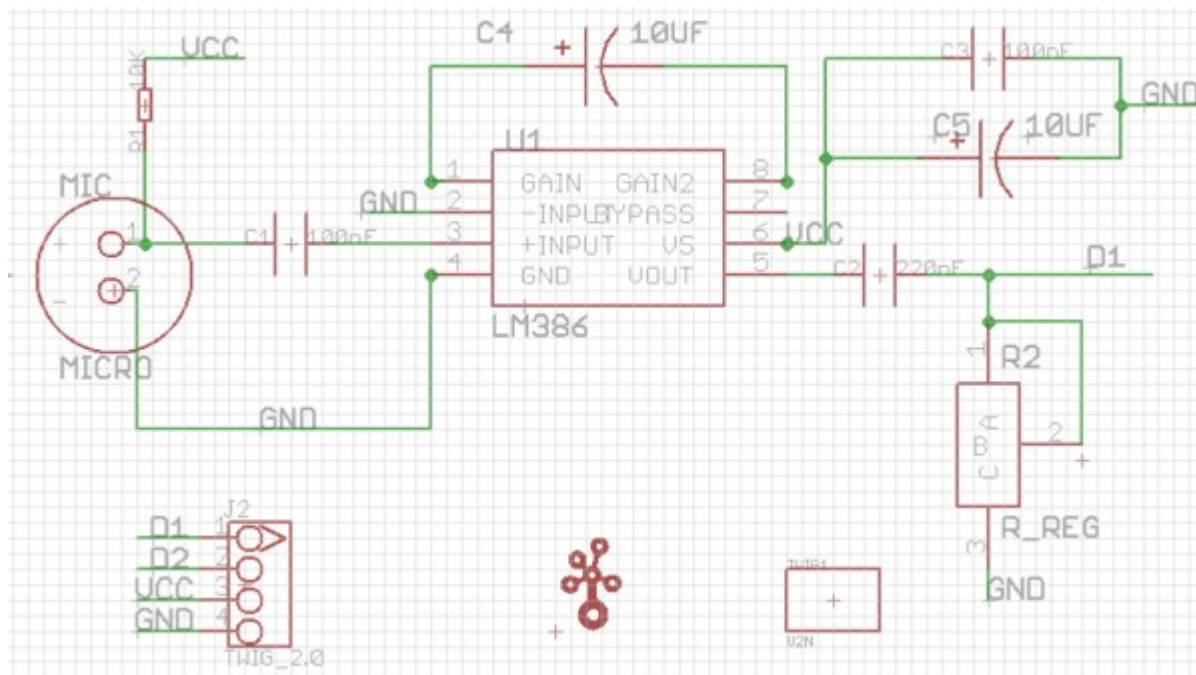
- Grove compatible interface
- Wide supply voltage range: 4V–12V
- Low quiescent current drain: 4mA
- 2.0cm x 2.0cm Grove module
- Minimum external parts
- Gain adjustable

Applications Ideas

- Simple microphone
- Sound detection

Cautions

The warnings and wrong operations possible cause dangerous.

Schematic**Specification****Key Specification**

Items	Min
PCB Size	2.0cm*4.0cm
Interface	2.0mm pitch pin header
IO Structure	SIG,VCC,GND,NC
ROHS	YES

Electronic Characteristics

Items	Conditions	Min	Type	Max	Unit
VCC	-	4	5	12	V
Supply Current	V cc= 5V	-	4	8	mA
Voltage Gain (A)	V S= 6V, f= 1 kHz	-	26	-	dB
Microphone sensitivity	1KHZ	-52	-	-48	dB
Microphone Impedance	-	-	2.2	-	KΩ
Microphone Frequency	-	20	-	16K	HZ
Microphone S/N ratio	-	-	54	-	dB
Microphone Sensitivity Reduction	4.5V-3.0V	-	-	3	dB

Pin definition and Rating

The standard 4 pin, with two I/O, Power and GND.

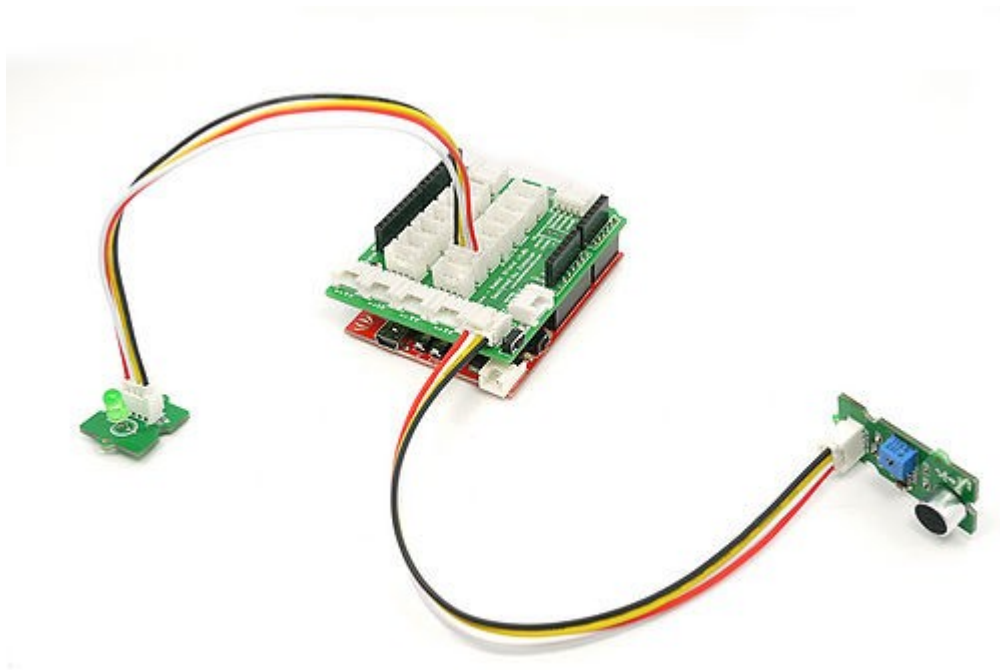
Mechanic Dimensions

Grove - Sound Sensor is the standard Grove module, the dimension is: 2cm*4cm*1.6mm.

Usage

This module uses the LM386 power amplifier to strengthen the electronic signal produced by the electret microphone. When powered on, the SIG pin will output the signal regulated by LM386. The potentiometer at the output can be used to regulate the gain.

Hardware Installation



Programming

The program below shows how to use the sound sensor to control the led. Connect the Sound sensor to analog port A0 and the LED to port 12. The potentiometer is used to regulate the gain of the output signal. The larger the potentiometer, the larger the output signal. If the sound of the environment is bigger than the threshold, then the Led will be turned on.

```
const int ledPin = 12;          // the number of the LED pin
const int thresholdvalue=400; //The threshold to turn the led on
void setup() {
  pinMode(ledPin, OUTPUT);
}

void loop() {
  int sensorValue = analogRead(A0); //use A0 to read the electrical signal
  if(sensorValue>thresholdvalue)
    digitalWrite(ledPin,HIGH); //if the value read from A0 is larger than 400, then light the LED
  delay(200);
  digitalWrite(ledPin,LOW);
}
```

Example

The projects and application examples.

Bill of Materials (BOM) /parts list

Num	Part	Value	package	Notes
1	C1	100nF	0603	

Комплекующие для робототехники	Роботы для сборки	Собрать робота своими руками		
2	C2	220nF	0603	
3	C3	100nF	0603	
4	C4	10uF	1206	
5	C5	10uF	1206	
6	J2	GROVE_2.0	2.0_1X4	Four-pin base
7	MICRO	MICRO	MICRO	MIC
8	R1	10K	0603	
9	R2	10KREG	R_REG	Adjustable Resistor
10	U1	LM386M-1	SO08	Audio Amplifier

FAQ

Here is the Grove - Sound Sensor FAQ, now the version is v0.9b, users can list the Frequently Asked Questions here, example as below:

What is Grove - Sound Sensor

Answer: Grove - Sound Sensor is a simple microphone. Based on the power amplifier LM386 and the electret microphone, it can be used to detect the sound strength of the environment. The value of output can be adjusted by the potentiometer.

Resources

- [Grove - Sound Sensor Source files](#)
- [LM386pdf](#)

Support

If you have questions or other better design ideas, you can go to our [forum](#) or [wish](#) to discuss.

Version Tracker

Revision	Descriptions	Release
v0.9b	Initial public release	Jan 14, 2011

Bug Tracker

No bugs have been found yet. Do you think you've found one? Please describe it here, we want to know what you have to say!

Additional Idea

What do you think of our Relay Shield? 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 Seedstudio [Wish](#) page.

See Also

- [GROVE - Starter Bundle](#)
- [2-axis compass Module](#)
- [Grove - I2C 3-axis Accelerometer](#)
- [Grove - 3-axis Compass](#)
- [Grove - Water Sensor](#)
- [Grove - Light Sensor](#)

- [Grove - Touch Sensor](#)
- [Grove- Temperature and Humidity Sensor](#)
- [Grove - Magnetic Switch](#)
- [Grove - Alcohol Sensor](#)
- [Grove - OLED 128*64 reversion](#)
- [Grove - Serial LCD](#)
- [Grove - RTC](#)
- [Grove - Electricity Sensor](#)
- [Grove - 3-axis Gyro](#)
- [Grove - Base Shield](#)

Licensing

This documentation is licensed under the Creative Commons [Attribution-ShareAlike License 3.0](#) Source code and libraries are licensed under [GPL/LGPL](#), see source code files for details.