Grove - Electromagnet

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Version： 1.0

Wiki: http://www.seeedstudio.com/wiki/Grove_-_Electromagnet

Bazaar: http://www.seeedstudio.com/depot/Grove-Electromagnet-p-1820.html

Document Revision History

Revision	Date	Author	Description
1.0	Sep 21, 2015	Victor.He	Create file

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Disclaimer

For physical injuries and possessions loss caused by those reasons which are not related to product quality, such as operating without following manual guide, natural disasters or force majeure, we take no responsibility for that.

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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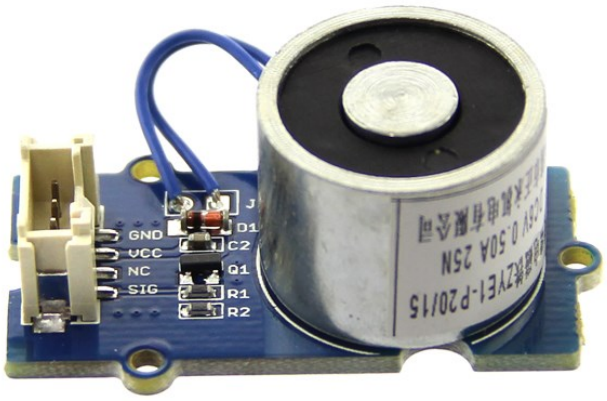
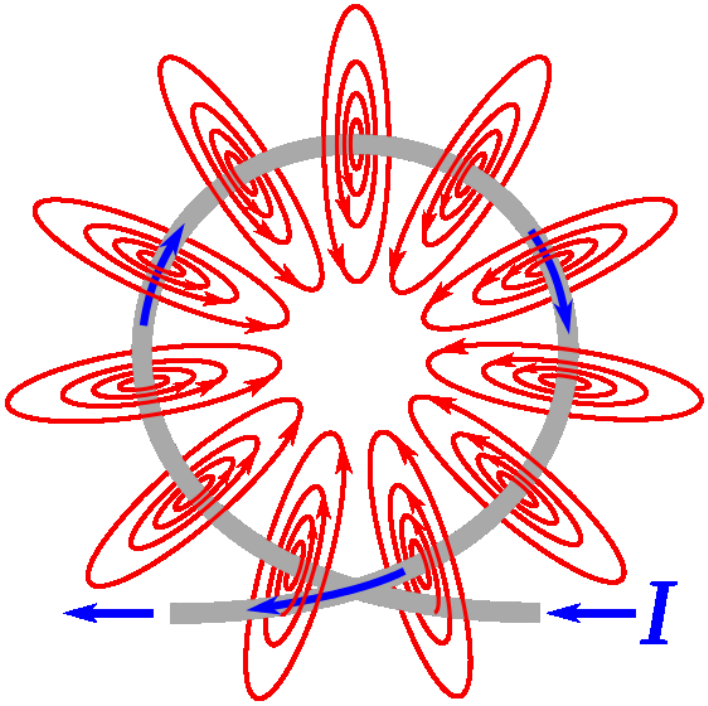
1. Introduction

An electromagnet is a type of magnet in which the magnetic field is produced by electric current. An electric current flowing in a wire creates a magnetic field around the wire, due to Ampere's law (see drawing below). To concentrate the magnetic field, in an electromagnet the wire is wound into a coil with many turns of wire lying side by side. The magnetic field of all the turns of wire passes through the center of the coil, creating a strong magnetic field there. Grove - Electromagnet can shuck 1KG weight and hold on. It easy to use, to learn electromagnet principle.





2. Features

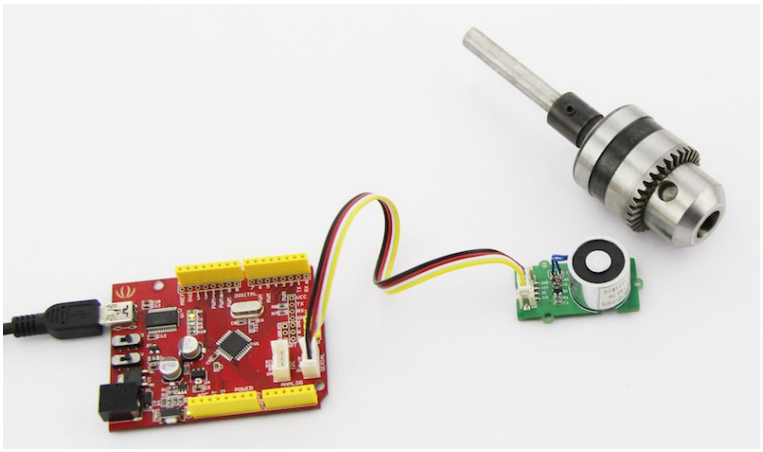
- Grove shape
- 1KG peak suction
- Low standby current

3. Specification

Working Voltage	DC 5V
Working Current	400mA
Standby current	200uA
Load Weight	1KG

4. Usage

4.1 With Arduino



```
/*
Turns on an Electromagnet on for one second, then off for one second,
repeatedly.

This example code is in the public domain.
*/

int Electromagnet = 0;
int LED = 13;

// the setup routine runs once when you press reset:
void setup() {
    // initialize the digital pin as an output.
    pinMode(Electromagnet, OUTPUT);
    pinMode(LED, OUTPUT);
}

// the loop routine runs over and over again forever:
void loop() {
```

```
    digitalWrite(Electromagnet, HIGH); // turn the Electromagnet on (HIGH
is the voltage level)
    digitalWrite(LED, HIGH);   // turn the LED on (HIGH is the voltage
level)
    delay(1000);              // wait for a second
    digitalWrite(Electromagnet, LOW);// turn the Electromagnet off by
making the voltage LOW
    digitalWrite(LED, LOW);  // turn the LED off by making the voltage LOW
    delay(1000);              // wait for a second
```

4.2 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 D4 by using a grove cable.

4. Navigate to the demos' directory:

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

To see the code

```
nano grove_electromagnet.py      # "Ctrl+x" to exit #
```

```
import time
import grovepi

# The electromagnet can hold a 1KG weight

# Connect the Grove Electromagnet to digital port D4
# SIG,NC,VCC,GND
electromagnet = 4

grovepi.pinMode(electromagnet,"OUTPUT")
time.sleep(1)

while True:
    try:
        # Switch on electromagnet
        grovepi.digitalWrite(electromagnet,1)
        print "on"
        time.sleep(2)

        # Switch off electromagnet
```

```
        grovepi.digitalWrite(electromagnet,0)
        print "off"
        time.sleep(2)

    except KeyboardInterrupt:
        grovepi.digitalWrite(electromagnet,0)
        break
    except IOError:
        print "Error"}
```

5. Run the demo.

```
sudo python grove_electromagnet.py
```

5. Resource

File:Grove Electromagnet v1.0 SCH PCB.zip

Datasheet ZYE1-P20-15 PDF

Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

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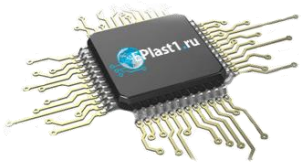
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)
Факс: 8 (812) 320-02-42
Электронная почта: org@eplast1.ru
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.