Grove - Magnetic Switch

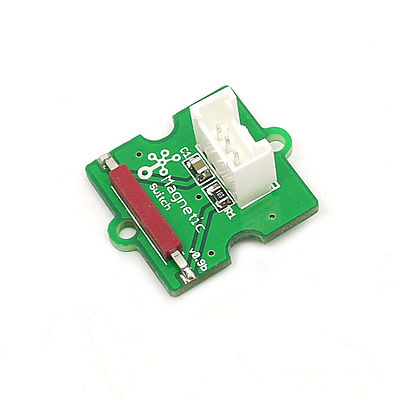
(Redirected from [Twig - Magnetic Switch](http://www.seeedstudio.com/wiki/index.php?title=Twig_-_Magnetic_Switch&redirect=no))

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Introduction

This is a Grove interface compatible Magnetic switch module. It is based on encapsulated dry reed switch CT10. CT10 is single-pole, single throw (SPST) type, having normally open ruthenium contacts. The sensor is a double-ended type and may be actuated with an electromagnet, a permanent magnet or a combination of both. The magnetic switch is a wonderful tool for designers who would like to turn a circuit on and off based on proximity.

Model:[COM11335P](http://www.seeedstudio.com/depot/grove-magnetic-switch-p-744.html?cPath=156_160)

[](http://www.seeedstudio.com/wiki/File:Twig-Manetic.jpg)

Features

* Grove compatible interface
* 2.0cm x 2.0cm Grove module
* Minimum external parts
* 10W rating
* Rugged encapsulation

Application Ideas

* Proximity Sensor
* Security Alarm Sensor
* Level Sensor
* Flow Sensor
* Pulse Counter

Specification

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Items** | **Min** | **Norm** | **Max** | **Unit** |
| Working Voltage | 4.75 | 5.0 | 5.25 | V |
| Switched Power | 10 | | | W |
| Switched Voltage AC,RMS value(max) | < 140 | | | V |
| Switched Current DC | < 500 | | | mA |
| Carry Current DC | < 0.5 | | | A |
| Contact Resistance | <200 | | | mΩ |
| Insulation Resistance | >106 | | | MΩ |
| Operating Temperature | -40 | - | 125 | ℃ |
| Operate Range | 10 | - | 40 | AT |

Usage

The SIG pin of the module output LOW normally. When a magnet approaches the switch, the magnetic switch close and the SIG pin output HIGH.

The following sketch demonstrates a simple application of using the Magnetic switch to control the led. When you put a magnet that has enough magnetic power close to the module, the switch is closed .Then the SIG pin out put a high voltage. You can use this to control the led.

As the picture on the below indicates, the Magnetic switch is connected to digital port 9 of the [Grove - Basic Shield](http://www.seeedstudio.com/wiki/Grove_-_Base_Shield) and the LED is connected to digital port 13. When there is Magnetic approaches the switch, the SIG pin output a High voltage. Then the LED light. The hardware installation is as follows:   
(图片)  
Copy and paste code below to a new Arduino sketch.

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

/\*macro definitions of magnetic pin and LED pin\*/

#define MAGNECTIC\_SWITCH 9

#define LED 13//the on board LED of the Arduino or Seeeduino

void setup()

{

pinsInit();

}

void loop()

{

if(isNearMagnet())//if the magnetic switch is near the magnet?

{

turnOnLED();

}

else

{

turnOffLED();

}

}

void pinsInit()

{

pinMode(MAGNECTIC\_SWITCH, INPUT);

pinMode(LED,OUTPUT);

}

/\*If the magnetic switch is near the magnet, it will return ture, \*/

/\*otherwise it will return false \*/

boolean isNearMagnet()

{

int sensorValue = digitalRead(MAGNECTIC\_SWITCH);

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

{

return true;//yes,return ture

}

else

{

return false;//no,return false

}

}

void turnOnLED()

{

digitalWrite(LED,HIGH);

}

void turnOffLED()

{

digitalWrite(LED,LOW);

}

Upload the code, Please click [here](http://www.seeedstudio.com/wiki/Upload_Code) if you do not know how to upload.  
Then the LED light when there is Magnetic approaches the switch. Have a try!

Version Tracker

|  |  |  |
| --- | --- | --- |
| **Revision** | **Descriptions** | **Release** |
| Grove - Magnetic Switch v1.0 | Initial public release designed for Grove module | Jan 12, 2011 |

Resources

* [Grove-Magnetic Switch Eagle File](http://garden.seeedstudio.com/images/d/dd/Magnetic_Switch.zip)
* [CT10 datasheet](http://garden.seeedstudio.com/images/2/29/CT10.pdf)