



# Grove - 125KHz RFID Reader

Release date : 9/20/2015

Version : 1.0

Wiki: [http://www.seeedstudio.com/wiki/Grove - 125KHz RFID Reader](http://www.seeedstudio.com/wiki/Grove_-_125KHz_RFID_Reader)

Bazaar: <http://www.seeedstudio.com/depot/Grove-125KHz-RFID-Reader-p-1008.html>

## Document Revision History

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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.*

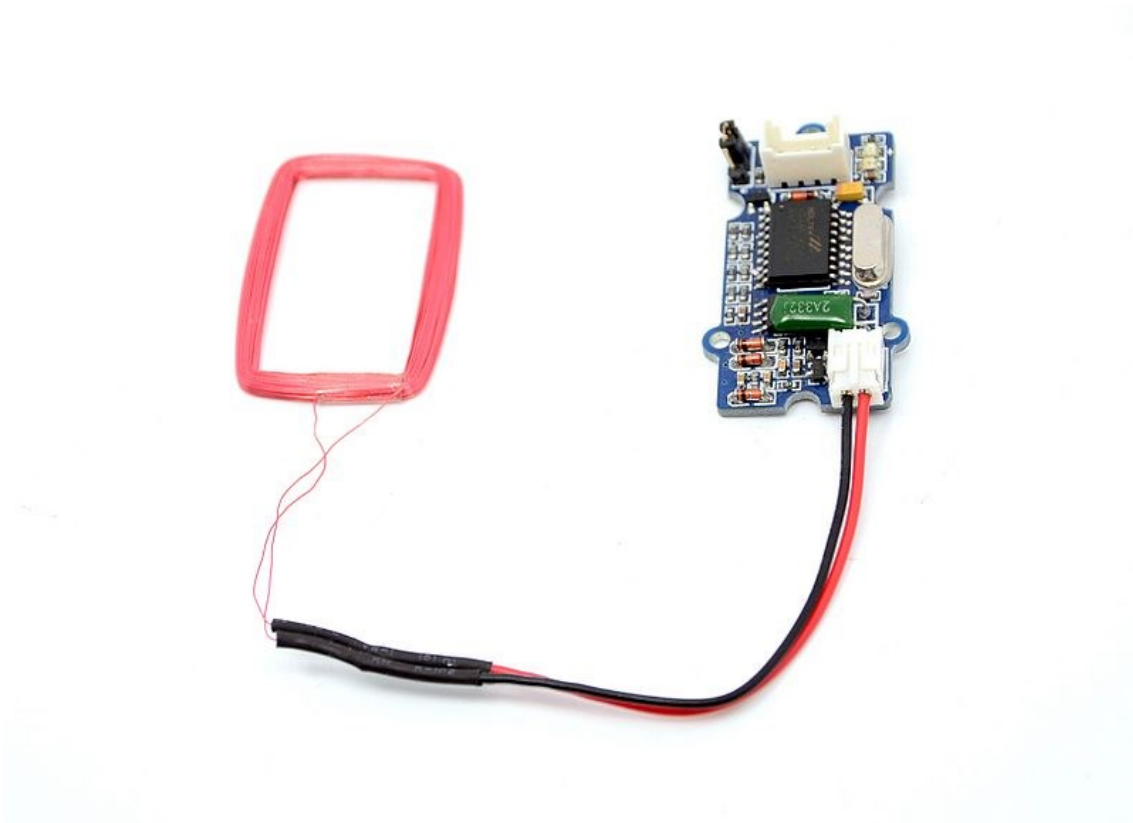
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## 1. Introduction

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This Grove-125KHz RFID Reader is a module used to read uem4100 RFID card information with two output formats: Uart and Wiegand. It has a sensitivity with maximum 7cm sensing distance. There is also [the electronic brick version](#) of this module. It can help you with project like internet of thing and access control system.



And you should use these module below while using RFID reader:

- [RFID tag combo \(125khz\)](#)

## 2. Specifications

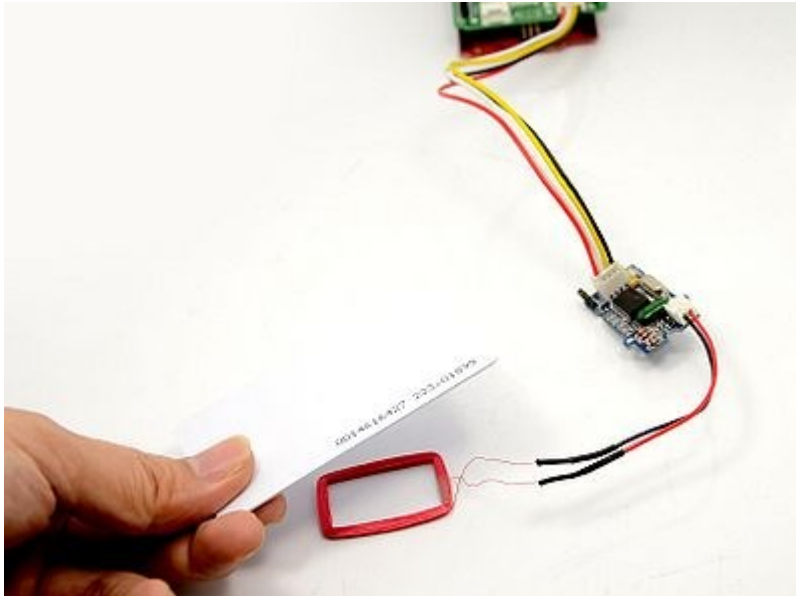
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Voltage:	4.75-5.25V
Working Frequency	125 KHz
Sensing Distance(Max):	70mm
TTL Output	9600 baudrate, 8 data bits, 1 stop bit, and no verify bit
Wiegand Output	26 bits Wiegand format, 1 even verify bit, 24 data bits, and 1 odd verify bit

### 3. Demonstration

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Here we show how to read RFID information using the Grove - 125KHz RFID Reader. Connect Grove - 125KHz RFID Reader to UART of Grove - Base Shield.



#### 3.1 Uart Mode (Jumper set to the left two pins)

You would need to select the jumper to "U" to enter this mode, and the setting is: 9600bps, N, 8, 1, TTL output

```
// link between the computer and the SoftSerial Shield
//at 9600 bps 8-N-1
//Computer is connected to Hardware UART
//SoftSerial Shield is connected to the Software UART:D2&D3

#include <SoftwareSerial.h>

SoftwareSerial SoftSerial(2, 3);
unsigned char buffer[64]; // buffer array for data receive over serial
port
int count=0; // counter for buffer array
void setup()
{
  SoftSerial.begin(9600); // the SoftSerial baud rate
  Serial.begin(9600); // the Serial port of Arduino baud rate.
```

```

}

void loop()
{
  if (SoftSerial.available())          // if data is coming from
software serial port ==> data is coming from SoftSerial shield
  {
    while(SoftSerial.available())      // reading data into char
array
    {
      buffer[count++]=SoftSerial.read(); // writing data into
array
      if(count == 64)break;
    }
    Serial.write(buffer,count);        // if no data transmission
ends, write buffer to hardware serial port
    clearBufferArray();                // call clearBufferArray function
to clear the stored data from the array
    count = 0;                          // set counter of while loop to zero

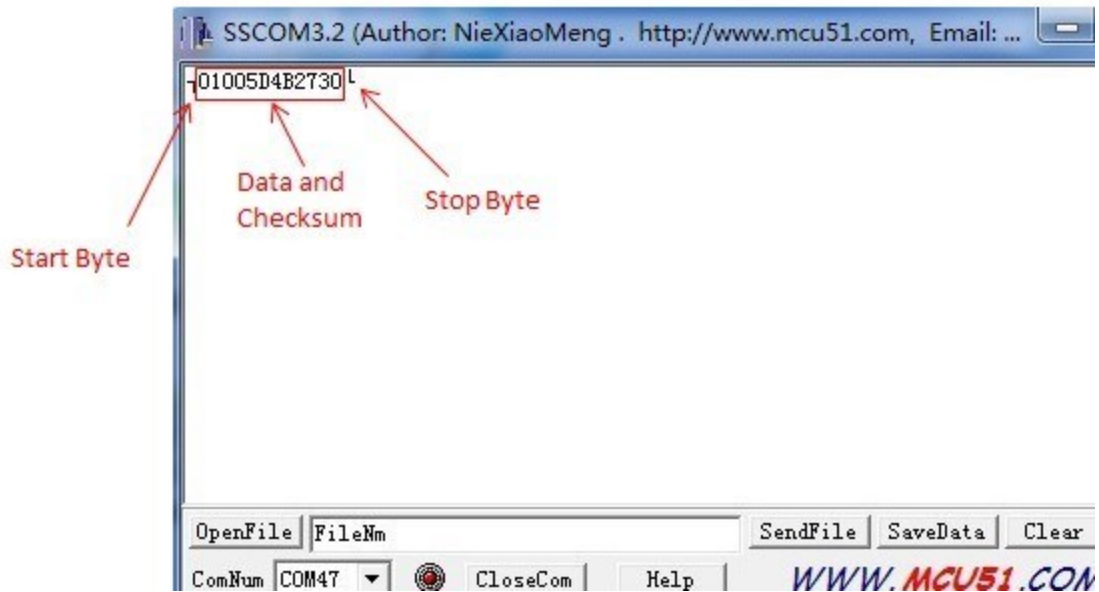
  }
  if (Serial.available())              // if data is available on hardware
serial port ==> data is coming from PC or notebook
  {
    SoftSerial.write(Serial.read());   // write it to the SoftSerial
shield
  }
}

void clearBufferArray()                // function to clear buffer array
{
  for (int i=0; i<count;i++)
  { buffer[i]=NULL;}                  // clear all index of array with
command NULL
}

```

Open the Serial Monitor, the card information can be display as show below:





### 3.2 Wiegand Mode (Jumper Set to the Right two Pins)

You would need to select the jumper to "W" to enter this mode.

The [Wiegand demo code](#) for Seeeduino is designed to read Wiegand data in interrupt mode.

In Wiegand Mode, output data is formatted with 26bits including 24bits card info and 2 bits parity.

bit	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
-	P	D																							P	
-	-	E										0										-				
-	-	D2[7..0]							D1[7..0]							D0[7..0]						-				

- PE is even bit, PO is odd bit;
- E is the data bit which was involved in even, O is the data bit which was involved in odd;
- DX[7..0] is the data bit which correspond to Mifare@ Standard & Light card read only ID;