

# MFRC522 Module User Guide

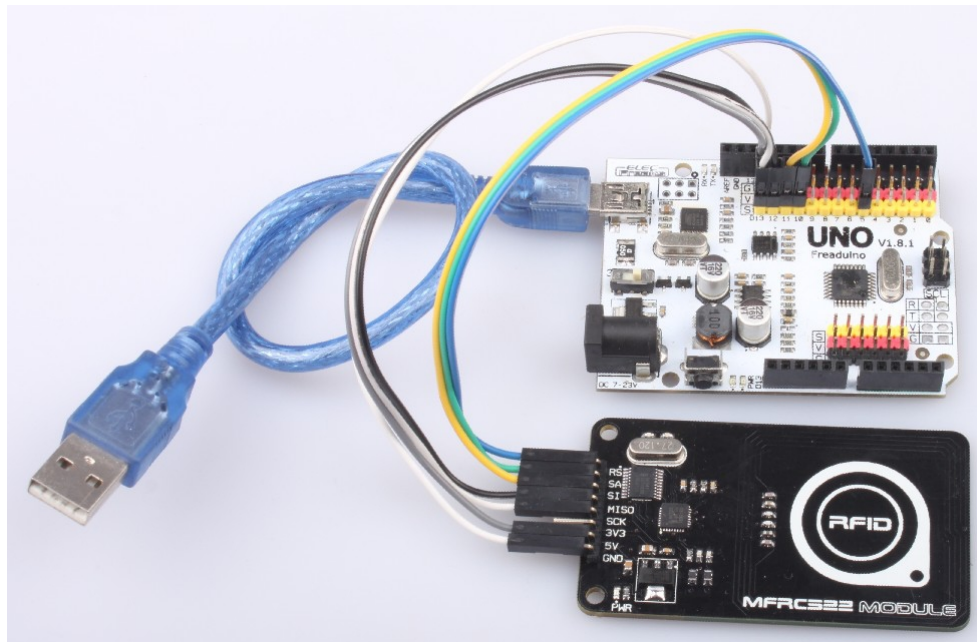
## MFRC522 Module Description

It is an contactless reader module based on the MFRC522 from NXP B.V.. Communication Via Serial makes it simple and easy-using. Compatible with ISO/IEC 14443 A/MIFARE cards, it supports all variants of the MIFARE Mini, MIFARE 1K, MIFARE 4K, MIFARE Ultralight, MIFARE DESFire EV1 and MIFARE Plus RF identification protocols, and the operating distance in Read/Write mode is up to 40 mm.

This module could be used in a variety of applications: Access management, Tracking of goods, Tracking of persons and animals, Toll collection and contactless payment, Machine readable travel documents, Smartdust (for massively distributed sensor networks), Tracking sports memorabilia to verify authenticity, Airport baggage tracking logistics and etc.

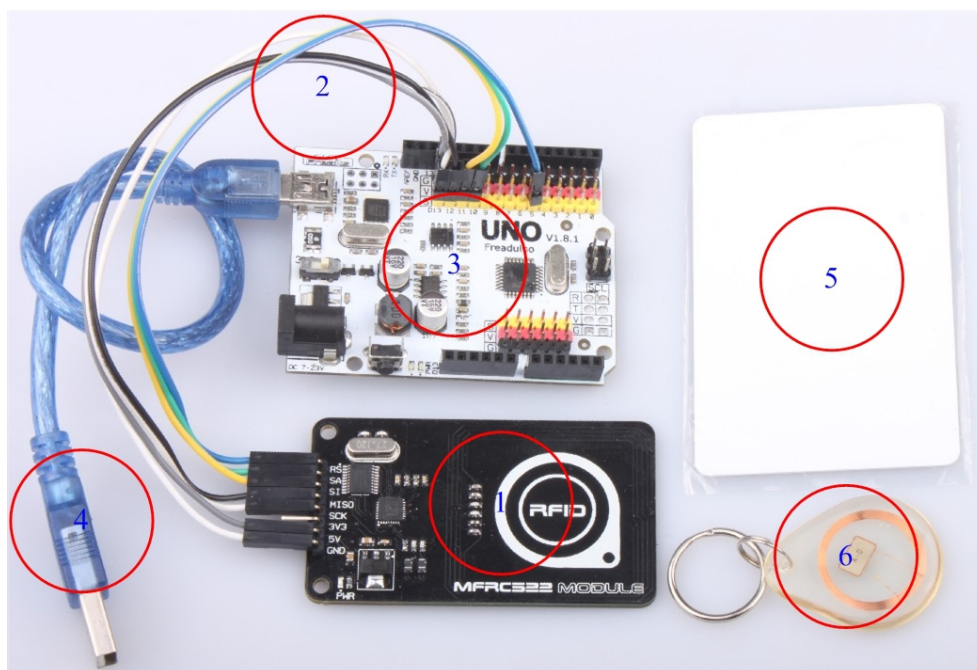
**Please note: MFRC522 IC working voltage of 3.3V, the power to the module, do not mistake the input voltage!**





## Hardware and Software Preparation

---



**Hardware:**

- 1、MFRC522 Module
- 2、Jumper Wire
- 3、Arduino mainboard
- 4、USB Cable
- 5、S50 Induction IC Card
- 6、Clear Card

**Software:**

- 1、Arduino\_RFID\_522\_CODE
- 2、Arduino IDE(1.0.5)

## Part 1 Download Arduino RFID 522 CODE to Arduino IDE

1. Download the file of "Arduino\_RFID\_522\_CODE" from our official website
2. Open "Arduino\_RFID\_522\_CODE", and enter into Arduino IDE(1.0.5), the screen like below would occur, then compile and upload the code.



```
RFID_522 | Arduino 1.0.5
File Edit Sketch Tools Help

RFID_522

// the sensor communicates using SPI, so include the library:
#include <SPI.h>

#define uchar unsigned char
#define uint unsigned int

//数组最大长度
#define MAX_LEN 16

//////////////////////////////////////
//set the pin
//////////////////////////////////////
const int chipSelectPin = 10; //如果控制板为UNO, 328, 168
//const int chipSelectPin = 53; //如果控制板为mega 2560, 1280
const int NRSTPD = 5;

//MF522命令字
#define PCD_IDLE 0x00 //NO action;取消当前命令

Done uploading.

Binary sketch size: 5,662 bytes (of a 32,256 byte maximum)

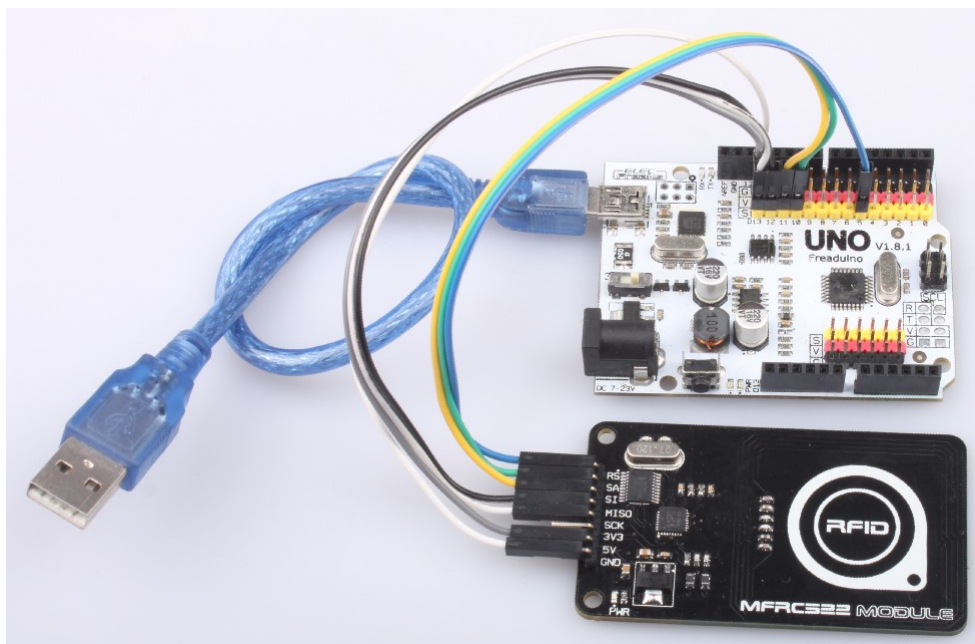
1 Arduino Uno on COM53
```

**Note:**

- 1、 The content in the red circle would remind you that when using Arduino UNO or MEGA 2560 mainboard to test, you need to modify the chipSelectPin into the corresponding pin.

## **Part 2 MFRC522 Module and Arduino UNO Wiring Way**

### **Step 1. Wiring diagram**



MFRC522 Module and Arduino UNO/MEGA 2560 Connecting Chart

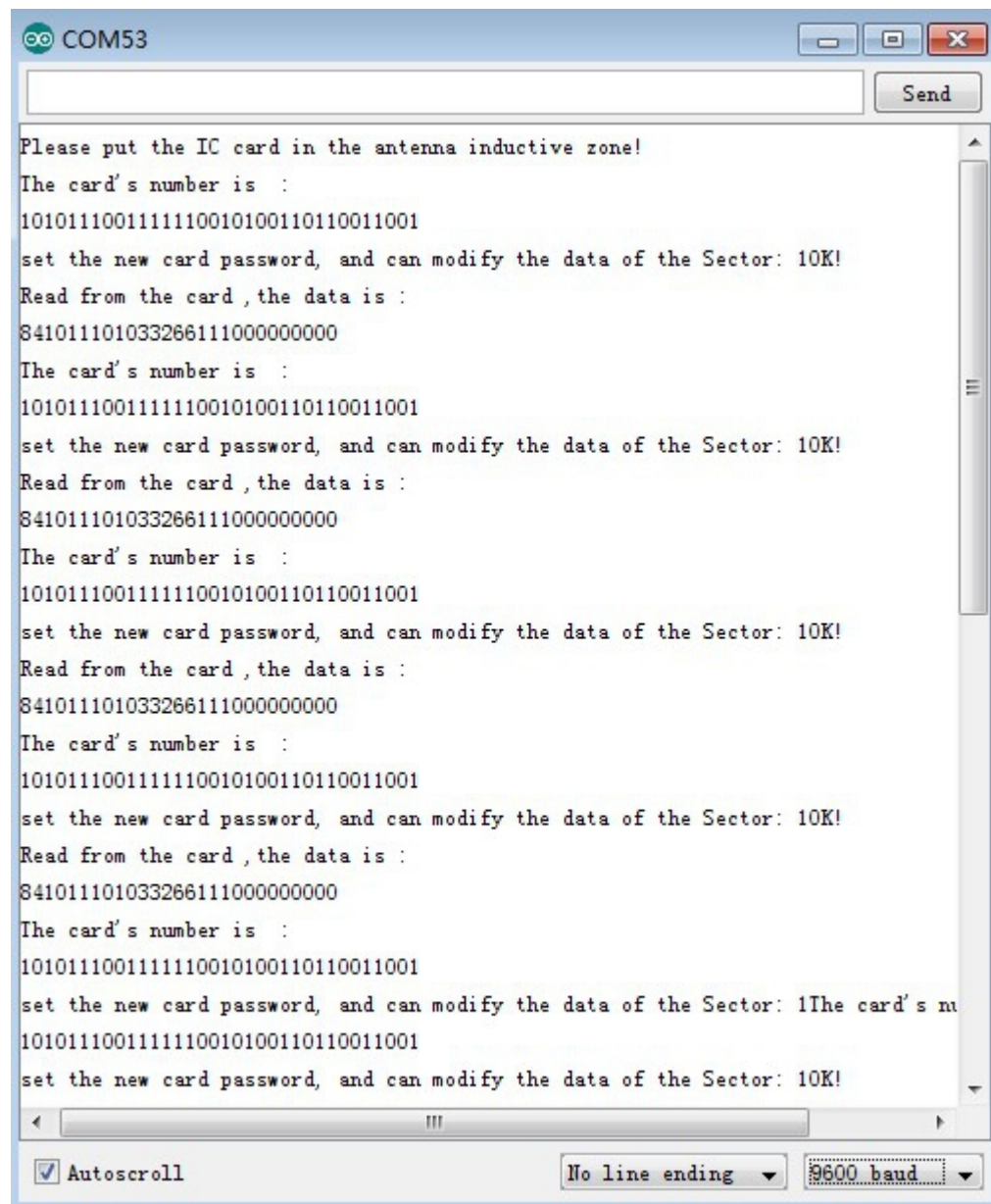
MFRC Module	Arduino UNO /MEGA 2560
GND	GND
+5V	+5V
3V3	3V3
SCK	D13/52
MISO	D12/50
SI(MOSI)	D11/51
SA(CS)	D10/53
RS	D5/5



## Step 2. Compile and run the Arduino (1.0.5) IDE code

Compile and run the program in Arduino (1.0.5) IDE. After upload succeed, open the serial port, then place the S50IC induction card or clear card within the induction area of the module, you would see the display effect as follows.

Running effect as below:



The screenshot shows the Arduino IDE serial monitor window titled "COM53". The window contains a text area with the following output:

```
Please put the IC card in the antenna inductive zone!  
The card's number is :  
1010111001111110010100110110011001  
set the new card password, and can modify the data of the Sector: 10K!  
Read from the card , the data is :  
841011101033266111000000000  
The card's number is :  
1010111001111110010100110110011001  
set the new card password, and can modify the data of the Sector: 10K!  
Read from the card , the data is :  
841011101033266111000000000  
The card's number is :  
1010111001111110010100110110011001  
set the new card password, and can modify the data of the Sector: 10K!  
Read from the card , the data is :  
841011101033266111000000000  
The card's number is :  
1010111001111110010100110110011001  
set the new card password, and can modify the data of the Sector: 10K!  
Read from the card , the data is :  
841011101033266111000000000  
The card's number is :  
1010111001111110010100110110011001  
set the new card password, and can modify the data of the Sector: 1The card's n  
1010111001111110010100110110011001  
set the new card password, and can modify the data of the Sector: 10K!
```

At the bottom of the window, there are three controls: a checked "Autoscroll" checkbox, a "No line ending" dropdown menu, and a "9600 baud" dropdown menu.