

RFIDA02 Serial Port M1 Card Reader Module Manual



1. Features

Working frequency: 13.56MHZ

Support protocol: ISO/IEC 14443 A

Baud rate: optional, default 9600Bit/S

Working voltage: DC5V-18V

Working current: about 10mA

Appearance size: 45*38 *11mm

Weight : 8g

Communication interface: RS485, TTL

Status prompt: LED, buzzer

Function: select card number UID, read and write block data, sector encryption, value-added depreciation, etc.

Working mode: the default active card reading number once, can set active reading block, passive card reading number or block, etc.

Communication protocol: Please refer to the communication protocol document for the communication protocol

Supports MF1xxS20, MF1xxS70 and MF1xxS50 encryption in Read/Write mode

Supported card types: mifare1 S50, mifare1 S70, mifare UltraLight, mifare Pro, mifare Desfire, etc.

2. Pin description

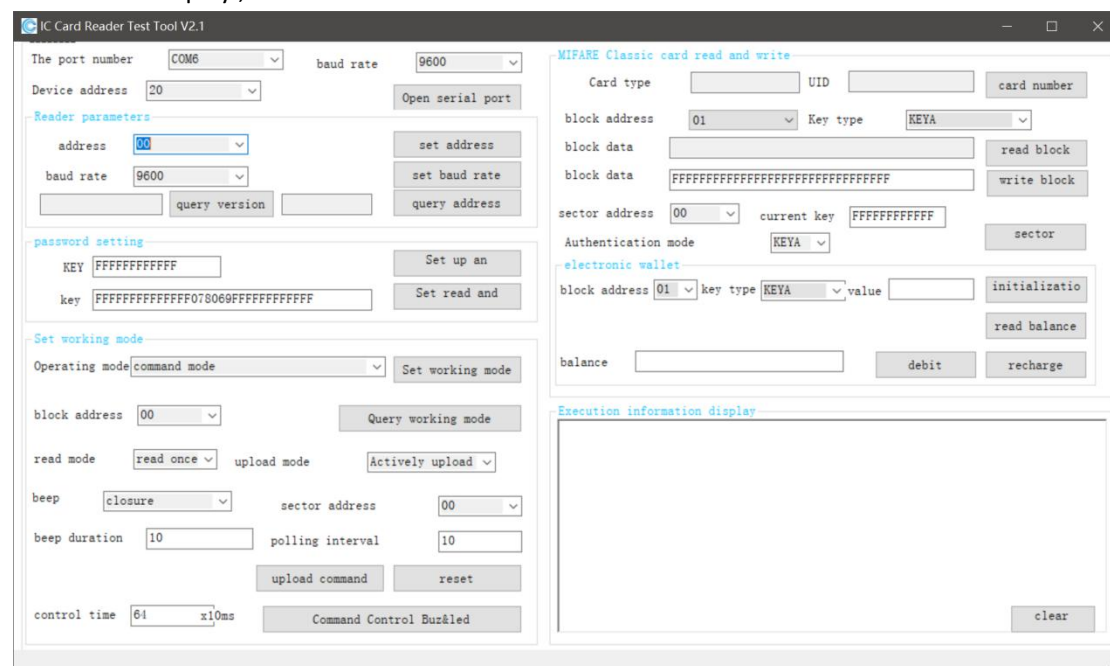
GND: GND pin, negative pole of DC 5V-18V power supply;

VCC : VCC pin, positive pole of DC 5V-18V power supply;

A+: RS485 A+;
B-: RS485 B-;
RXD : serial port output;
TXD: serial input;
J1: J1 is short-circuited for 5S and then reset, restore factory settings

3.the use of test software

The module can be debugged through the test software provided by us. The test software is divided into 7 areas, namely serial port connection, card reader parameters, password setting, setting working mode, MIFARE Classic card reading and writing, electronic wallet and execution information display , the software interface is as follows.



1. Serial connection

Select the port connecting the card reader to the computer, select the serial port baud rate set by the card reader, and click the **Open Serial Port** button to connect the card reader. The selection of the device address can be updated by clicking the **query address** button after the serial port is successfully connected, or it can be directly selected when the address of the card reader is known.

2.Card reader parameters

In this area, the device address and serial port baud rate of the card reader can be set, and the version number and device address of the card reader can also be queried.

Set address: first click the query address button to clarify the device address of the current card reader, then select the address to be set in the address selection box, and click the **set address** button to change the address of the card reader. After changing the address of the card reader, click the **Query Address** button again to update the display device address.

Set baud rate: Select a baud rate that is inconsistent with the current one in the baud rate selection box, and click the set baud rate button to set the serial port baud rate of the card reader. After changing the baud rate, please re-select the baud rate to connect the card reader,

otherwise the card reader cannot be controlled.

3. Password setting

This area is used to set the read/write key of the card reader.

Set alternate password: This function is reserved for subsequent use;

Set read/write password: Fill in the read/write key in **Key box**, and then click **Set read/write password** to set the password for the card reader to read/write card verification. key.

4. Set the working mode

This area is mainly used to set the working mode of the card reader.

Setting working mode: In active mode, you can set **block address**, **upload mode**, **read mode**, **beep switch**, **polling interval** and **beep duration** read in this mode. After selecting the working mode, click **set working mode** to complete the setting of the card reader. You can also click **Query Working Mode** to query the current mode of the card reader. When **upload mode** is to actively upload data, the device will upload information in real time. When **upload mode** is to upload data by command, to read device information, you need to send a command upload command to the device or click the test tool **command upload** button.

The **beep** refers to the prompt sound when the card is detected in the active mode, and the beep can be switched on and off and the beep duration can be adjusted.

Restore factory settings: Click the **Restore Factory Settings** button to restore the card reader parameters to the initial state.

Buzzer control: The buzzer can be controlled by the **command control Buz** button, and the continuous opening time of the buzzer is controlled by **control duration**.

5. MIFARE Classic Card read and write

The card reader needs to work in the command mode for the function of this area to be effective.

Card reading information: Click the **card reading number** button and place the MIFARE Classic card to be read on the card reader for card reading, or place the card on the card reader and then click the **card reading number** button to display the corresponding information in the card type and card number. .

Read block data function: Set the block address to be read and the key type for verification, and then click to **read block data**. Before operating this command, make sure that the read-write key has been set, and the current key of the card is the same as the set key.

Write block data function: set the block address to be read and the key type for verification, and then click to **write block data**. The address of the data block is 0x00~0xff, please check the data manual of the card to avoid misoperation of the key block, which may cause damage to a single sector of the card; cards of different capacities contain different numbers of data blocks, so write according to the card manual. Input data: fixed to 16Byte. Before operating this command, make sure that the read-write key has been set, and the current key of the card is the same as the set key.

Sector encryption function: select the sector to be encrypted in the **sector address**, 1K capacity M1 card, the value range of the sector address is 0x00~0x0F, a total of 16 sectors. 4K capacity M1 card, the sector address value range is 0x00~0x27, a total of 40 sectors; the **authentication mode** selects authentication key A or key B; **current key**: the current key of the card, the card factory default is 0xFF FF FF FF FF FF, if the key of the card has been changed,

please refer to the actual one. After clicking the **sector encryption** button, the card reader will write the read-write key stored in the card to the key area of the corresponding sector of the card, and the key stored in the card reader is set by the user. Sector encryption is equivalent to writing data to the key block of the card. Users can also use the **write block data** command to directly write the 16-byte key sequence <KeyA+control word+KeyB> into the key area.

6. Electronic Wallet

The card reader needs to work in the command mode for the function of this area to be effective.

Please refer to the card data manual for the address of the data block. The address can only use the user data area, and cannot use the 0 sector 0 block and all key blocks.

Initialize the electronic wallet function: When using the electronic wallet, you need to initialize the card first. Before operating this command, make sure that the read-write key has been set, and the current key of the card is the same as the set key. After setting the key type of the block address verification to be initialized, and the initial value of the initialized electronic wallet, click **initialize** and then place the card to initialize.

Read balance function: Click the **read balance** button and then place the card to get the balance in the card e-wallet. The block corresponding to the card needs to be initialized.

Deduction function: Fill in the value to be deducted in the value box, click the **deduction** button, and then place the card to successfully deduct the payment. Before the operation, the card needs to be initialized as an electronic wallet.

Recharge function: Fill in the value to be recharged in the value box, then click the **recharge** button, and then place the card to recharge successfully. Before the operation, the card needs to be initialized as an electronic wallet.

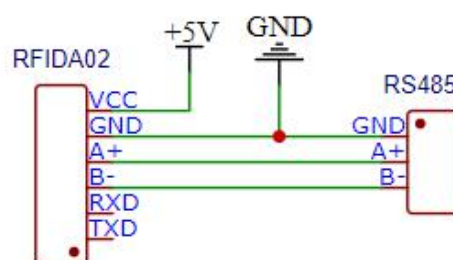
7. Execution information display

Real-time display of the communication information between the test software and the card reader and the prompt information when the test software is running.

Note: If the test software has sent an instruction to the card reader, but the card reader returns data after about 2 seconds, please check whether the read/write key of the card reader is consistent with the card key.

4. Example of wiring diagram

RS485 communication wiring diagram:



TTL communication wiring diagram:

