SM02&SM04

User Manual

Table of Contents

1. Information

1.1. Characteristics

☑ Support   ISO18000-6C(EPC C1G2) protocol tag;

☑ 860~960MHz frequency band;

☑ USB HID drive free;

☑ Support virtual keyboard and serial port;

☑ Working voltage: +12V power supply;

☑ Working current: < 200mA

☑ Reading distance range: model SM02>**2** metre,   model SM04>**4** metre

☑ Interface support:

Model SM02---RS485 and Wigand

Model SM02U---USB , RS485 and Wigand

Model SM02N---TCPIP and Wigand

Model SM04---RS485 and Wigand

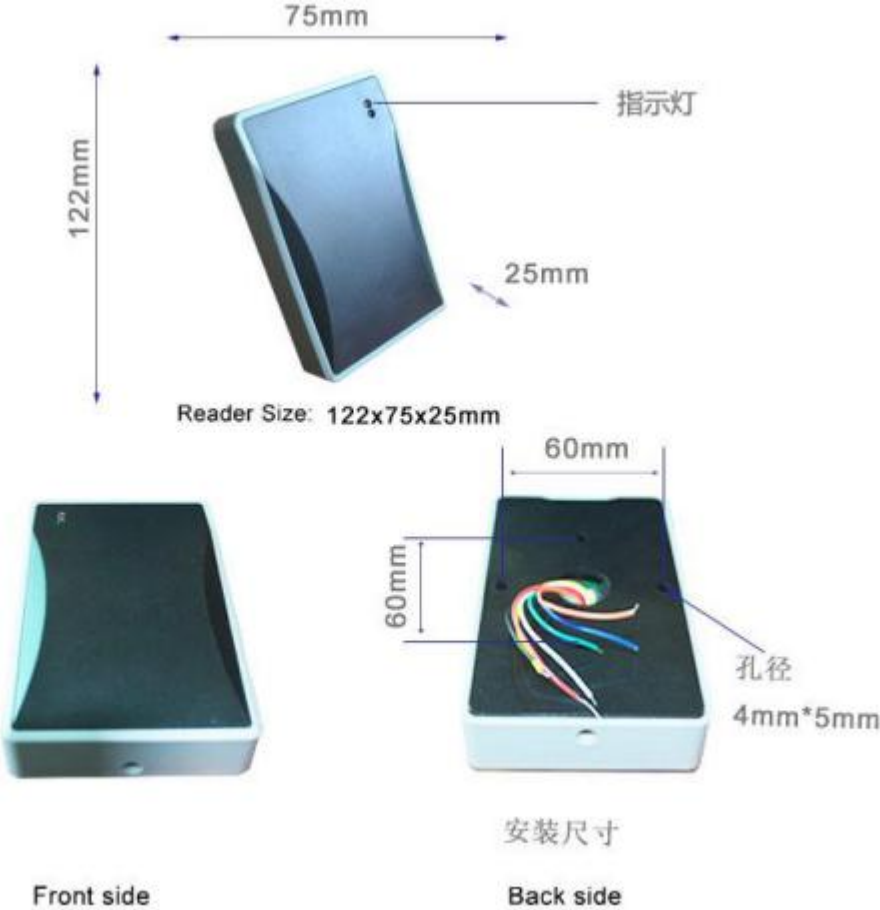**Model SM04U**---USB ,TCPIP, RS485 and Wigand

Model SM04N---TCPIP, RS485 and Wigand

1.2. Applications

☑ Logistics and warehouse management: goods flow, warehouse management and the flowing management of mail,   parcels and luggage

☑ Intelligent parking management: parking management and automatic charges

☑ Productive lines management: production process fixed identify

☑ Product counterfeit-proof inspection: using memory's write-protect functions inside tags and identifying with true-false of products

☑ Other fields: used widely in club management, libraries,students schools, consumption management, time management, dinner management and pool management

2. Specifications

2.1. Model：SM02

Reader Size: 122x75x25mm

Front side   Back side

2.2. Model：SM04

130mm

160mm

21mm

指示灯

Reader Size: 160x130x21mm

115mm

孔径4mm

Front side

安装尺寸
Back side

3. connection diagram

SM02

485通讯

韦根通讯

接线图

1. 红线	DC+9~16V	2. 黑线	0V
3. 蓝线	TRIGGER	4. 橙线	A
5. 黄线	B	6. 绿线	DATA0
7. 白线	DATA1		

SM04

485通讯

韦根通讯

接线图

1. red	DC+9~16V	2. black	0V
3. gray	TXD	4. green	RXD
5. white	GND	6. orange	Trigger
7. purple	RS485+	8. brown	RS485-
9. yellow	Data0	10. blue	Data1

4. Software operation

4.1. Download address

      http://www.uhfsky.com

NOTE：
①At present, the software only supports WINDOWS and Android。
②When setting software parameters, do not place RFID tags within the equipment identification range, otherwise the setting will fail。
③Use keyboard to output rfid tag number type reference: for example
The same number of different forms of expression：
Decimal number (Dec) =123456
Hexadecimal number (Hex)=1E240
Weigand number =001，57920（Break the hexadecimal value 1 E240 into decimal numbers 001， 57920）
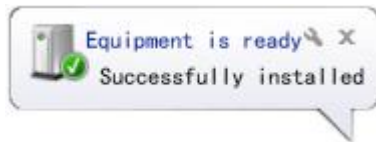If the output length is not enough, it can be set by adding 0 in front..

4.2. Operating instructions
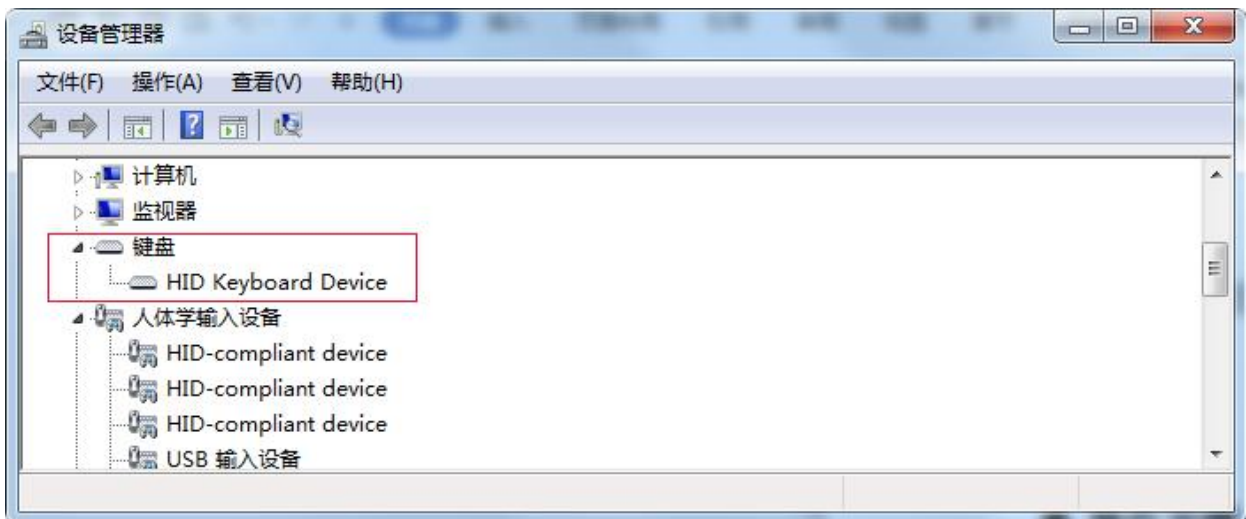
4.2.1. Connecting equipment

There are three ways to connect devices: USB connection-serial port connection-network port connection。

①**USB connection**

Plug the device into the USB interface of the computer and the following message pops up：

Then open the device manager of the computer, and there will be one more device in the keyboard option. As follows：：

This indicates that the computer has been successfully connected. Now, online operation is started.

②S**erial port connection**

SM series has RS232 or RS485 serial ports. If the computer has RS485 port or RS232 port, it can be directly connected to this equipment. If not, RS485 port should be converted into RS232 port or USB port, or RS232 port should be converted into USB port. As shown in figure:

RS485 to RS232   RS485 to USB OR RS232 to USB

When the converter is connected and plugged into the computer, the computer will remind you that you need to install the driver and install the driver according to the instructions. At this time, the computer will have an extra serial port interface, as shown in the figure:

When you unplug the converter, the serial port will disappear.
If the computer has its own serial port, it can be used directly without installing the driver.

③Network port connection

The network interface is divided into wired connection and wireless connection (WIFI connection).
Wired connection is relatively simple, which can be directly connected with the computer by network cable or indirectly connected with the computer by router.
Operation steps of the computer to which the WIFI device is connected:
1. prepare a computer with WIFI signal.
2. WIFI devices have a reset button, and press it for 5 seconds. After releasing it, use the computer to search the WIFI network, find the WIFI network name of the device, and click Connect.

4.2.2. Connect computers

After downloading and decompressing the software, , Open the file and double-click the software icon , The following main interface appears：

There are three communication parameter configurations: USB Interface---serial Interface---net Interface.
The parameter configuration of each interface is different, so you can connect to the computer only by choosing the correct configuration.

①USB Interface：

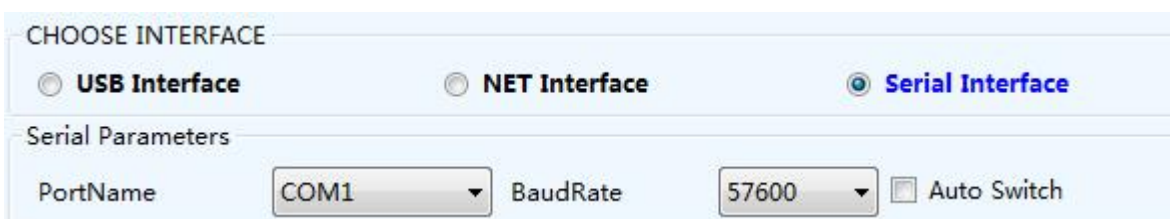Select USB communication after confirming that the USB device is plugged in, As shown in the figure：

If the USB device is empty, please confirm whether the usb cable is plugged in again, and then press the button [刷新(F5)] or F5。
Select the USB device and click the "CONNECT" button 。

②Serial Interface:
After confirming that the converter is installed, select the network port for communication ◉ Serial Interface ,As shown in the figure:

Select the serial port that appeared when the converter was installed before, the baud rate is 57600 by default, and click the "CONNECT" button.

③NET Interface:
After confirming the network connection (including wired network and wireless network), select the network port for communication ◉ NET Interface ,As shown in the figure:

Here, select the correct remote IP address and remote IP port of the equipment (by default, the computer is the customer service terminal, this equipment is the server, and TCPIP protocol), and click the "Network Diagnosis" button. If the connection is correct, the success sign will be displayed in the status bar, as shown in the figure:

This indicates that the connection has been successful。

| Time	Current Status
14:11:31 899	PING:192.168.2.115 TimedOut

This means that it has timed out and the connection failed。

Reason for connection failure:
1. The network is not connected correctly, so the network cannot be used.
2. If the IP address or port of the device is wrong, click the "Search Device" button to find out the IP address and port of the connected device, or reconfigure the network parameters of the device, such as IP address, TCPIP, UDPIP, gateway, etc. When setting the IP address, make sure that you can't have the same IP address in the same gateway.As shown in figure:
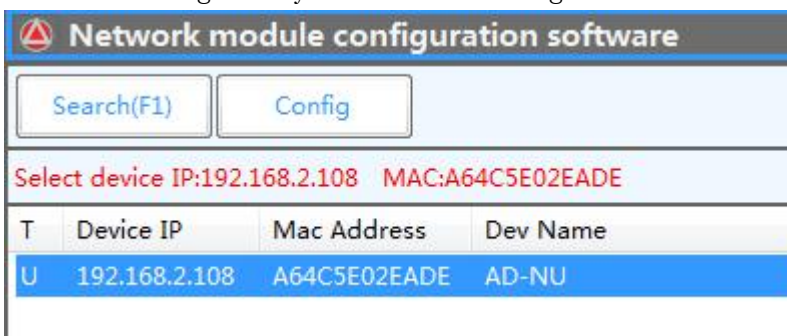
Click the "Search" button to search all online devices. You can select the equipment you want to set it up.
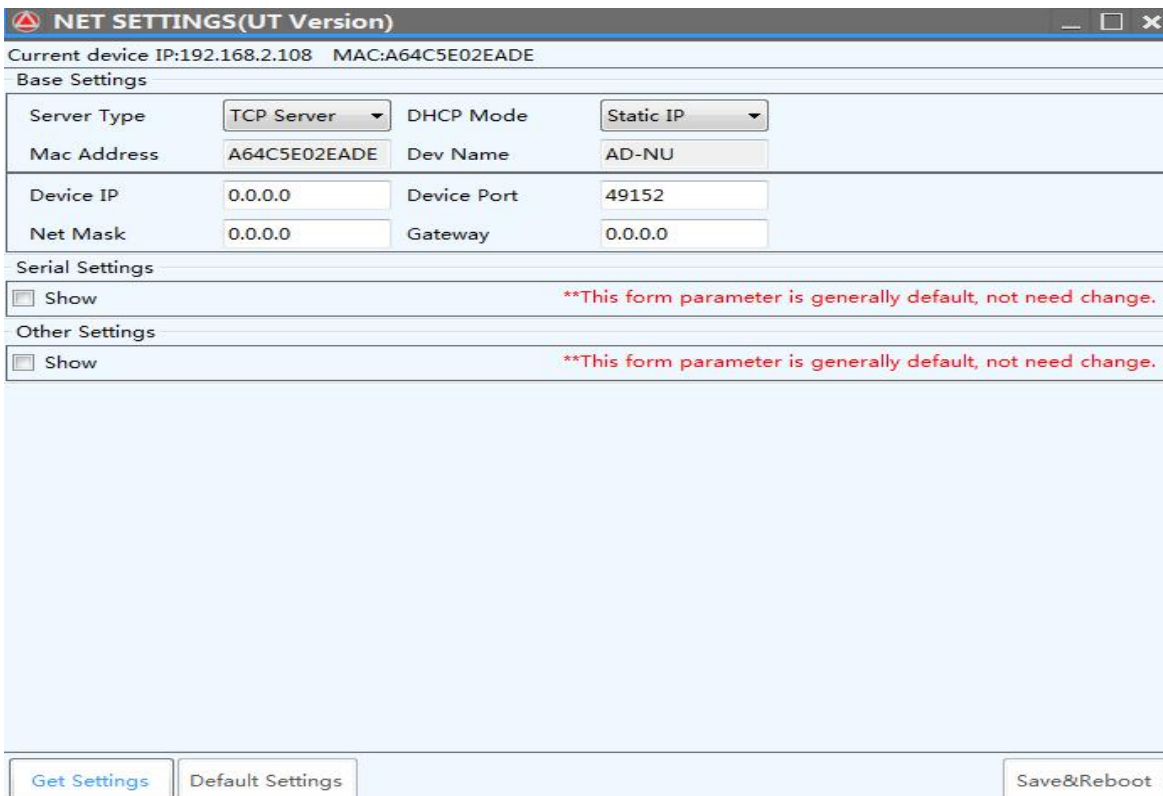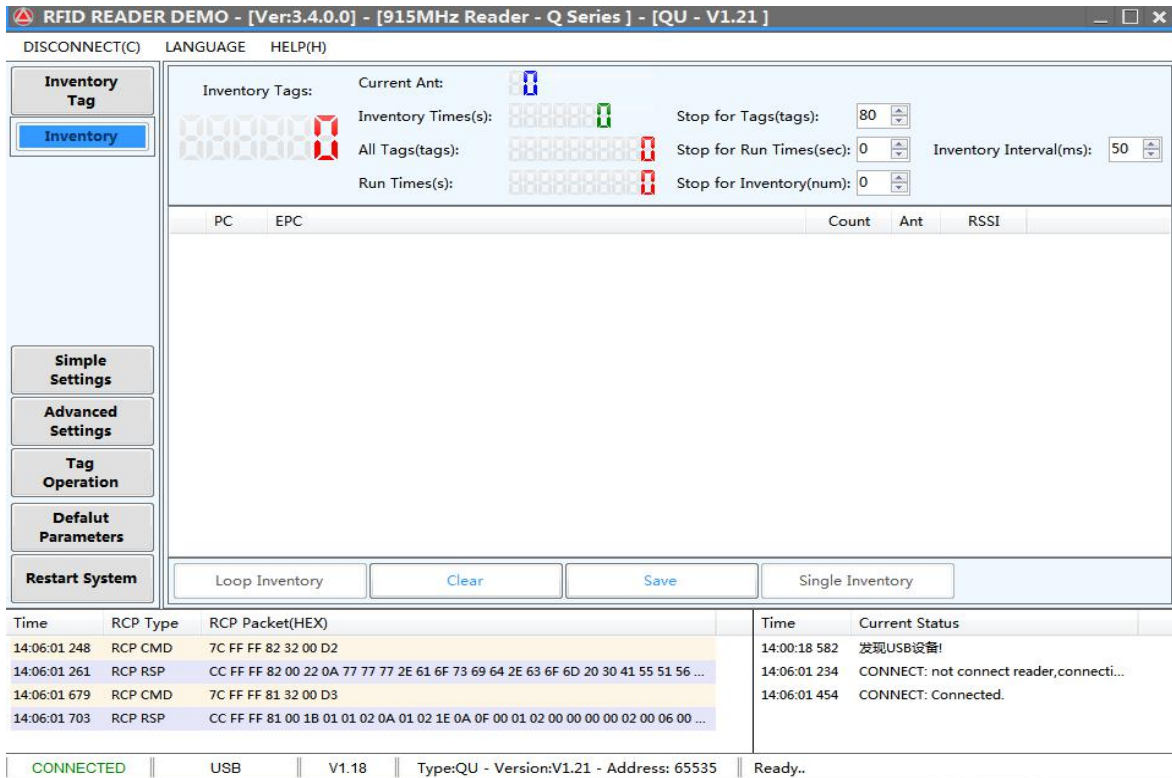
④CONNECT：

After configuring the communication mode, click the "CONNECT" button in the upper left corner, and four sub-function buttons can be operated on the back side after online:

Inventory Tag---Simple settings---advanced settings---Tag Operation---Default Parameters---restart system.

As shown in the figure：

4.2.3. Inventory demonstration

①After the system is connect, the Inventory Tag interface appears directly, as shown in the above figure:

②Put the RFID tag within the recognizable range of the equipment。

③Click the "Loop Inventory" button, and the label information will be displayed in the text box soon。

Note: USB desktop card issuer can only use this function if its working mode is set to data writing. As shown in figure:
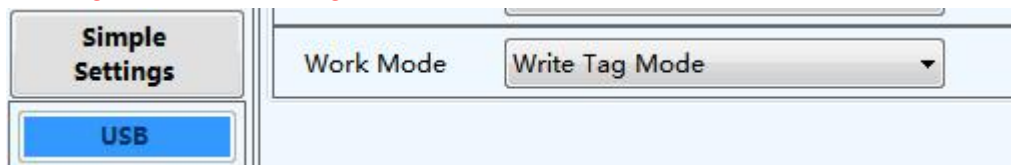
4.2.4. Simple setting

Simple setting is a simple operation for users who have low requirements on data processing or don't know much about software. If there are higher requirements or more professional users, please use "Advanced Setting"。
Click the "Simple Settings" button on the left, as follows:

Different simple configurations corresponding to different communication methods

①Description of simple parameters of USB communication：
1. transmission power: range (0-30DBM), corresponding to the distance (non-linear) of RFID tag of equipment.
2. Working modes: There are three modes: data writing mode, EPC data reading mode

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and TID data reading mode.

write tag mode: select this mode when writing data to a single label. After entering this mode, the equipment will enter the command state and will not actively identify labels (this mode can use the "inventory demonstration" function).

read tag mode: when this mode is selected, the equipment will automatically identify the label and output the data according to the set data output format.

TID visual keyboard mode: this mode adds the function of TID number output on the basis of EPC data reading mode. EPC+TID number output or TID output can be selected.

When the latter two working modes are selected, the data output format setting interface will pop up.

Out Mode:	When you choose to disable the virtual keyboard, you can detect whether the output data is correct, while when you choose to enable the virtual keyboard, you can output data at the cursor position or in the text file like a keyboard.
NO.:	represents the order of EPC numbers
Hex Tag(EPC)code:	data representing EPC number, which can be modified in the box. The three numbers with black bottom in front represent data to be output to USB port. The length and position can be adjusted from the following option, and the final number will appear in the last line.
Change the position:	adjust the length and position of the output part of EPC number
Choose the format:	there are decimal, hexadecimal and standard Wigan, and there are more output formats in Advanced Configuration.
Change the length:	the fixed length of the output data; if it is less than the length, add 0 before it; if it is greater, it will be discarded.
Output data :	reference of output data of virtual keyboard after setting the previous parameters.

The software can intelligently and freely combine different output formats, such as decimal and hexadecimal data, and the output data is the last line.

②Simple parameter description of serial communication：

1. transmission power: refer to the description of simple parameters of USB communication.

2. Working mode: refer to the description of simple parameters of USB communication.

3. Function selection: There are six choices in total. The first two items communicate according to our underlying protocol, and different communication methods choose corresponding communication functions. The last four items are standard Wigan output settings, including WG26, WG34, WG66 and WG98.

When the last four items are selected, the Wigan data output format setting interface will pop up.

NO.: represents the order of EPC numbers

EPC data: data representing EPC number. The number in black represents Wigan data to be output. The position can be adjusted from the following option.

Select location: the position of the output data can be adjusted left or right.

4. Trigger mode: The equipment can only be triggered when the set conditions are met.

③Simple parameter description of network port communication：Refer to the simple parameter description of serial communication.

4.2.5. Advanced settings

Advanced settings have higher professional knowledge for users. Please consult customer service staff if you are unclear.Click the "Advanced Settings" button on the left, and there are three submenus, namely, basic ---RF ---Else
As shown in figure:

① **Description of setting basic parameters:**

Output Mode: select the communication mode between this equipment and external equipment.

Working mode:

Command mode (the equipment can work only when it sends a command without actively reading the card.)

Active mode (the device reads the card actively, works when it is powered on, and sends data to the communication interface)

Passive mode (the device reads the card actively, works when it is powered on, does not send data to the communication interface, and needs to send commands to receive data)

Same ID interval: the time interval for uploading the same tag data

Buzzer: it can be turned on or off

Auto read type: the type of output label data, which can be EPC number or TID number.
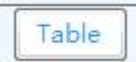
Auto read interval: the interval between reading label data twice

Auto read delay: the time to delay sending the tag data to the communication interface after reading it

Device ID: the unique ID number of each equipment, which cannot be modified

Address: the address used for RS485 communication

②**Description of setting RF parameters::**

Regional Standards： Each country has its own corresponding standards for the restrictions on the use of RFID UHF band. American standards and European standards are usually used. Click this button to select the frequency to be scanned. When one frequency is selected for scanning, the frequency is fixed, and when multiple frequencies are selected for scanning, it is frequency hopping. As shown in figure:

Tx Power：The range of transmission power (0-30DBM) corresponds to the distance (non-linear) of RFID tag of equipment.
RF Modulation Settings：This is the modulation and de-calling of tag inventory signal, which is usually selected by default.

③Description of setting else parameters:
There are four options to open the Other Parameters menu, which are:
Data Output format setting --GPIO setting -- Encryption setting--Extended setting
Meet various customized functions of users.

4.2.6. Read and write operations

Click the "Tag operation" button on the left, and there are three submenus, namely,
Simple Write-Advanced Write-Copy TID

As shown in figure:

①Description of setting Simple Write:
This function is specially set for writing label data quickly, and it may be very
intuitive to set the data you want to write.

        No.: represents the sequence of EPC numbers

EPC data(hex): this line of data is the EPC number to be written into the
label. Among them, the two numbers in the front black box
represent the position where the data is to be written (the
length and position can be adjusted from the following option),
and the number in the back white box is fixed and can be modified
at will.

Incremented mode: increment and decrement, and the increment number is in the back
column.

Choose the format: decimal, hexadecimal and standard Wigan

Select location: adjust the length and location of data input into EPC number

Input data: enter the data you want to write into the variable EPC number
here, and the unchanged data can be directly modified in the
white box in the line of EPC number above.

②Description of setting Advanced Write:

This function can read and write more complex tags, such as accessing four blocks of tags, setting encryption and destruction of tags, etc., and operate carefully.

③Description of setting Copy TID:

This function is to directly copy the TID number of the tag into the EPC block data and turn it into an EPC number.