SM02&SM04 User Manual

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1. Information

1.1. Characteristics

- ☑ Support ISO18000-6C(EPC C1G2) protocol tag;
- \blacksquare 860~960MHz frequency band;
- \blacksquare USB HID drive free;
- ☑ Support virtual keyboard and serial port;
- ☑ Working voltage: +12V power supply;
- \blacksquare 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

 \square 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

 \square 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



2.2. Model: SM04



3. connection diagram



接线图			T
1. 红线	DC+9~16V	2. 黑线	ov
3. 蓝线	TRIGGER	4. 禮线	A
5. 黄线	В	6. 绿线	DATAO
7. 自线	DATA1		



线图			Â
1. red	DC+9~16V	2. black	ov
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

Data Download 💿

http://www.uhfsky.com

NOTE:

(1) At present, the software only supports WINDOWS and Android。

(2) When 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 $_{\circ}$

(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.

2Serial 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:



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	RFIDDemo Open the file and
REDDemo	are, , open the fife and
double-click the software icon .exe , The foll	lowing main interface appears:
🙆 RFID READER DEMO - [Ver:3.4.0.0]	_ 🗆 🗙
CONNECT(C) LANGUAGE HELP(H)	
CHOOSE INTERFACE	
USB Interface O NET Interface Serial Interface	
USB Parameters	
USB Device HID_3000-01 Refresh(F5)	
[ATTENTIONS] 1 When setting software parameters do not place REID tags within the scope of devi	ice identification otherwise the setting will fail.
2. If you encounter problems with the card reader, please try to restore the factory se	attings first:
	er det constant
Time RCP Type RCP Packet(HEX)	Time Current Status
	14:00:18 582 发现USB设备!
DISCONNECTED USB 2	Status

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.

(1)USB Interface:

Select USB commun	ication	USB Interface a	fter confirming that the USB device i
plugged in,As sh	own in the	figure:	
CHOOSE INTERFACE			
O USB Interface		NET Interface	Serial Interface
USB Parameters	HID 3000-01	Refrech/E5)	
USD Device	1110_0000-01	Kenesii(13)	

②Serial Interface:

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

HOUSE INTERFAC	E.			
OUSB Interface		NET Inter	face	Serial Interface
Serial Parameters				
PortName	COM1	- BaudRa	te 57600	- Auto Switch

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 ^O **NET Interface**, As shown in the

CHOOSE INTERFAC					
USB Interface	۲	NET Interface		Serial Interface	
NET Parameters					
Device IP	192.168.2.115	- O Device Port	49152	Ping	Search device

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:

TimeCurrent Status14:11:15 148PING:192.168.2.115 SuccessThis 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:

)[
	Search(F1)	Config	
	ect device IP:192.	168.2.108 MAC:A	54C5E02EADE
т	Device IP	Mac Address	Dev Name

Click the "Search" button to search all online devices. You can select the equipment you want to set it up.

let setti	NGS(UT Version)			_ 🗆 🗙
Current device IP:1	92.168.2.108 MAC:	A64C5E02EADE		
Base Settings				
Server Type	TCP Server -	DHCP Mode	Static IP 👻	
Mac Address	A64C5E02EADE	Dev Name	AD-NU	
Device IP	0.0.0	Device Port	49152	
Net Mask	0.0.00	Gateway	0.0.0.0	
Serial Settings				
Show			**This form parameter is generally	y default, not need change.
Other Settings				
Show			**This form parameter is generally	y default, not need change.
Get Settings	Default Settings			Save&Reboot

(4)CONNECT:

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:

AFID READER D	EMO - [Ver:3.4.0.0] - [915MHz Rea	der - Q Series] - [(QU - V1.21]			
DISCONNECT(C) LAI	NGUAGE HELP(H)						
Inventory Tag Inventory	Inventory Tags:	Current Ant: Inventory Times(s): All Tags(tags): Run Times(s):	0 0 0 0	Stop for Tags(tags): Stop for Run Times(sec, Stop for Inventory(num)	80 × : 0 × : 0 ×	Inventory Interval(ms):	50 🔹
Simple Settings Advanced Settings Tag	PC EPC			Cc	unt Ant	RSSI	
Operation Defalut Parameters Restart System	Loop Inventory	Clear	Sa	/e Single	Inventory		
Time RCP Type 14:06:01 248 RCP CMD 14:06:01 261 RCP RSP 14:06:01 679 RCP CMD 14:06:01 703 RCP RSP	RCP Packet(HEX) 7C FF FF 82 32 00 D2 CC FF FF 82 00 22 0A 7 7C FF FF 81 32 00 D3 CC FF FF 81 00 1B 01 0	7 77 77 2E 61 6F 73 69 64 1 02 0A 01 02 1E 0A 0F 0	4 2E 63 6F 6D 20 30 41 55 5 0 01 02 00 00 00 00 00 02 00 0	Time 14:00:18 582 156 14:06:01 234 14:06:01 454	Current St. 发现USB设备 CONNECT: CONNECT:	atus ≹! not connect reader,connect Connected.	
CONNECTED	USB V1.	18 Type:QU - \	/ersion:V1.21 - Address	: 65535 Ready			

4.2.3. Inventory demonstration

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

2)Put 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:

Simple Settings	Work Mode	Write Tag Mode	-
USB			

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:

Inventory	Basic Parameter	s Settings						
Tag	Out Power	30dBm	-	The nonlinear relationship between power and distance can be adjusted as needed				
Simple Settings	Work Mode	Write Tag Mo	ode 👻	3				
USB								
7								
Settings								
Tag Operation								
Defalut Parameters								

Different simple configurations corresponding to different communication methods

						L.						1	The poplinear relationship between power and
Out Power	6dBm ▼										1	distance can be adjusted as needed	
Work Mode	TID Visual Keyboard Mode 🔹												
ata Output For	mat Settings												
Out Mode:	Disabled(Check	data	a Onli	ne)	•]							
	No.:	1	2	3	4	5	6	7	8	9	10	11	12
EPC o	data(hex):	E2	00	00	1D	62	07	01	49	27	20	7F	22
		13	14	15	16	17	18	19	20	21	22	23	24
TID	data(hex):	E2	00	34	12	01	2F	FO	00	0A	25	69	62
Selec	t location: From	1		То	3	A. V		[Мо	ve Le	ft	Mov	e Right
Choose the format: Decimal		•]										
Change the length:										4	俞出数值位数不够前面自动补0		
Ou	tput data:						14	8111	36				

(Description 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

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 O 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:

Out Power	30dBm 👻			•							The nonlinear relationship between power and distance can be adjusted as needed		
Work Mode	Read Tag(Epc) Mode					.]							
Out Mode:	WG26				•	·							
	No.:	1	2	3	4	5	6	7	8	9	10	11	12
EPC d	ata(hex):	E2	00	00	1 B	23	02	01	06	02	60	4F	85
Select	location:	M	ove l	.eft)[M	ove R	light]					
GPIO Control													
Trigger Mode	00-DisEnable	Ы			,	7						[Do not use IO input function

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:

Inventory	Basic Parameters S	ettings						
Tag	Output Mode	RS485(RS23: -	Work Mode	Active •	Same ID interval	1	*0.5s	
Simple Settings	Buzzer	Output only 🔻						
Advanced	Auto Read Type	6C 🔹	Auto Read Interva	10 🚔 *10ms	Auto Read Delay	1	s s	
Settings	Device Id							
Basic	Device Id	00250011044473	33F00000CA8					
RF	RS485 Protocol Add	Iress Settings						
Else	Address	65535						
		A A A A A A A A A A A A A A A A A A A						
Tag Operation								
Tag Operation Defalut								
Tag Operation Defalut Parameters								

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

②Description of setting RF parameters::

Inventory	RF Specification S	Settings		
Tag	Regional Standa	irds USA 🗸 🗸	Table	
Simple	RF Transmitter Po	ower Settings		
Settings	Tx Power	6dBm 🔫]	
Advanced	RF Modulation Se	ettings		
Jettings	Modulation	00-High Sen 🔻	Mixer Gain	12dB 🔻
Basic	IF Amp Gain	36dB 👻	SignalThreshold	0120
RF		L		
Else				
Tag Operation				
Defalut Parameters				
Restart System	Get	Set	Default	

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 **Table** 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:

区域标准	USA	-	Table						
新射频规范		USA		原射频规范	USA				
	Num.	Frequency	*	(待设置规范)	Num.	Frequency			
	0	902.250 MHz			0	902.250 MHz			
	1	902.750 MHz							
	2	903.250 MHz							
	3	903.750 MHz							
	4	904.250 MHz	-						
		All>>			Clear				

- **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

Inventory Tag	OLD EPC		PC	NE	N EPC					USE T	IME(Cour	nt		
Simple Settings															
Advanced Settings															
Tag Operation															
Simple Write															
Copy TID	No.: EPC data(hex):		1 2 00 00	3 0 00	4	5 00	6 00	7 00	8 00	9 00	10 00	11 1 00 0	2		
	Incremented mode:		Auto increment					nted st	ed step: 1 🙀						
	Choose the format:		Hex		3	•									
	Select location:	From	1 To 2 Move						Move	ve Left Move Right					
Defalut															
Parameters	Input data:		00-00 Increme						ment Decrement						
Restart System	Start Stop		Default				no	tag				Exp	ort(txt)	Clear	

As shown in figure:

(1)Description 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. (3)Description 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.