



CL7206A5 RFID Reader module

User manual

Shenzhen Hopeland Technologies Co., Ltd

Welcome to be the user of Hopeland RFID products.

Thanks for choosing Hopeland RFID' s Multi-functional
Reader Module CL7206A5. We believe our device will
bring convenience for your work.



FCC Warning

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following

measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Note: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate this equipment

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The distance between user and products should be no less than 20cm



CE Note

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Hereby, SHENZHEN HOPELAND TECHNOLOGIES CO., LTD. declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU

Importers: XXXXXXXX

Address: XXXXXXXX

A copy of the declaration of conformity can be obtained with this user manual; This product is not restricted in the EU.

The wireless operation frequency is 865.7MHz to 867.5MHz. The Max ERP Power is 26.24dBm

The distance between user and products should be no less than 20cm.



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1. Specification

1.1 Product features

CL7206A5 is a UHF RFID reader module, partner with CL7206D2.

1.2 Main functions and technical features

1.2.1 Main functions

- ★ Hardware partner with CL7206D2
- ★ Telecommunication port: RS232, RS485, Ethernet port, USB
- ★ IO interface: 1 for IO input, 2 for IO output, 1 for wiegand output, IO out and wiegand is same port.
- ★ IO interface's level fluctuation trigger the reading function(Response time: <10ms)
- ★ Power by adapter and USB

1.2.2 Features

- ★ Internet port speed rate: 10M/100M automatic.
- ★ RS232 serial rate: 115200bps (default), 19200 bps, 9600bps
- ★ RS485 rate: 115200bps (default), 19200 bps, 9600bps
- ★ Operate under low temperature $-20\pm 3^{\circ}\text{C}$ for 48hours (read tags), back to indoor temperature read tags normally.
- ★ Operate under high temperature $-70\pm 3^{\circ}\text{C}$ for 48 hours (read tags), back to indoor temperature read tags normally.

1.2.3 Working environment

- Working temperature range: $-20^{\circ}\text{C} \sim +70^{\circ}\text{C}$

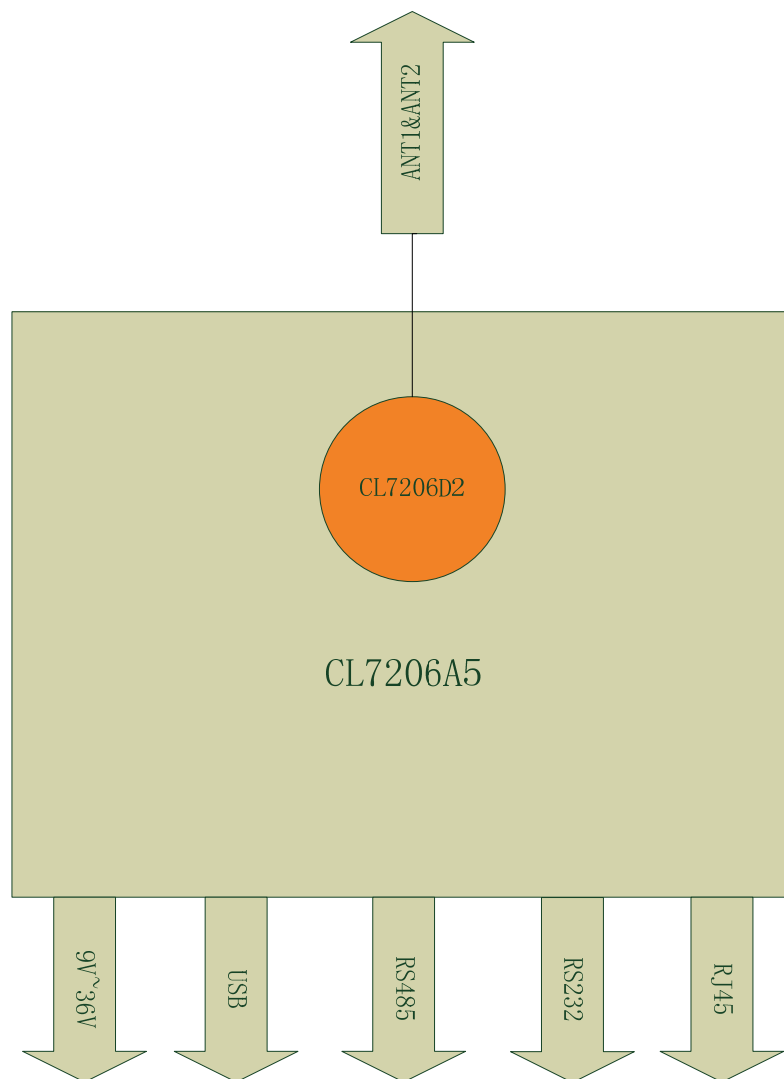
- Relative humidity: 5%RH～90%RH（+25℃）

2. External interface

2.1 Size

105mm×95mm×18mm (excluding accessories)

2.2 Interface photograph



Development board can be compatible with CL7206D2 2 port module. Development board power up through power port, and communicate with USB/RS232/Network port.

2.3 Interface Definition

RJ45 Interface Definition form

Linear	Color	Definition
1	White, green	Ethernet data transmitting positive end
2	green	Ethernet data transmitting negative end
3	White, orange	Ethernet data receiving positive end
4	Blue	5V power input
5	White, blue	Power ground
6	Orange	Ethernet data receiving negative end
7	White, brown	RS485 positive
8	Brown	RS485 negative

RS232 Interface Definition form

Linear	Definition
1	NC
2	RXD
3	TXD
4	NC
5	GND
6	NC
7	GPI1
8	GPO1/Wiegand 0
9	GPO2/Wiegand 1

3. Installation manual

3.1 Attentions

To ensure the normal and stable operation of the device and your personal property and safety, please carefully read the following notes before install CL7206A5 module:

1. Firstly, check whether the power socket is connected to the ground, and to see whether the local power supply voltage is in accordance with the applicable voltage range of the reader;
2. Check the device and the external connection if is closely connected;
3. Pay attention to the type selection and the length limit of the cable and the serial line:
 - Serial line connect directly, no longer than 5 meters
 - RS485 Cable connect directly, no longer than 80 meters
 - Network cable connects no longer than 80meters.
4. When installing several readers, the antenna position and the antenna spacing should be appropriate to avoid interference with each other.

3.2 Installation conditions

Before installing the reader, please carefully check if the product is in good condition, the accessories are complete or not, if there is any damage, please contact the supplier.

3.3 Device connection

3.3.1 Connect power adapter

☆ Insert the power cord into the AC power supply socket and plug another end into the power connector of the device and tighten.

☆ Turn on and wait about 20 seconds, the system initialization process is completed and is standby state.

3.3.2 Connect PC

☆ Development board comes with RS232, network port, USB port, RS485 port.

☆ RS232 and USB interface is for short distance communication (less than 5m), through the DB9 connector and the PC serial port connection to realize the communication of PC and the device.

☆ RS485 used for long distance communication (less than 80m)

☆ RJ45 network port used for long distance communication (less than 80m)

3.4 Device installation

Install the development board according to user's situation, it can use only one RJ45 port for power and communication; please refer to the RJ45 port definition form.

The development board can be powered by adapter and USB, communicated with PC by RJ45, RS232/RS485 and USB.

4. Operation instructions

4.1 Demo software instructions

Demo software for CL7206A5 is mainly used for system control, communication model, configuration setting and inquiring, reading tags and data displaying etc.

4.2 Demo software application environment

◆ Software environment

Windows 2000 Service Pack 3, Windows Server 2003, Windows XP Service Pack 2, Windows 7 OS

◆ Hardware environment

PC with P4/1.7GHz above, 512M or above, 40G hardware

4.3 Demo software version

◆ Demo V1.0.4

4.4 Demo software operation

4.4.1 Connect to reader

All functions are available only after connected successfully

4.4.1.1 Serial communication connection

After connected the reader with power and communication cable (serial port or network cable), open the demo software, if the icons on main Menu are grey, means the reader is not connected. In the 'connecting reader' option list select communication mode 'serial connection', 'connection parameters' select 'COM?' (Choose PC serial number), communication rate select 115200 (default), click OK

button, as shown in image 4-1.

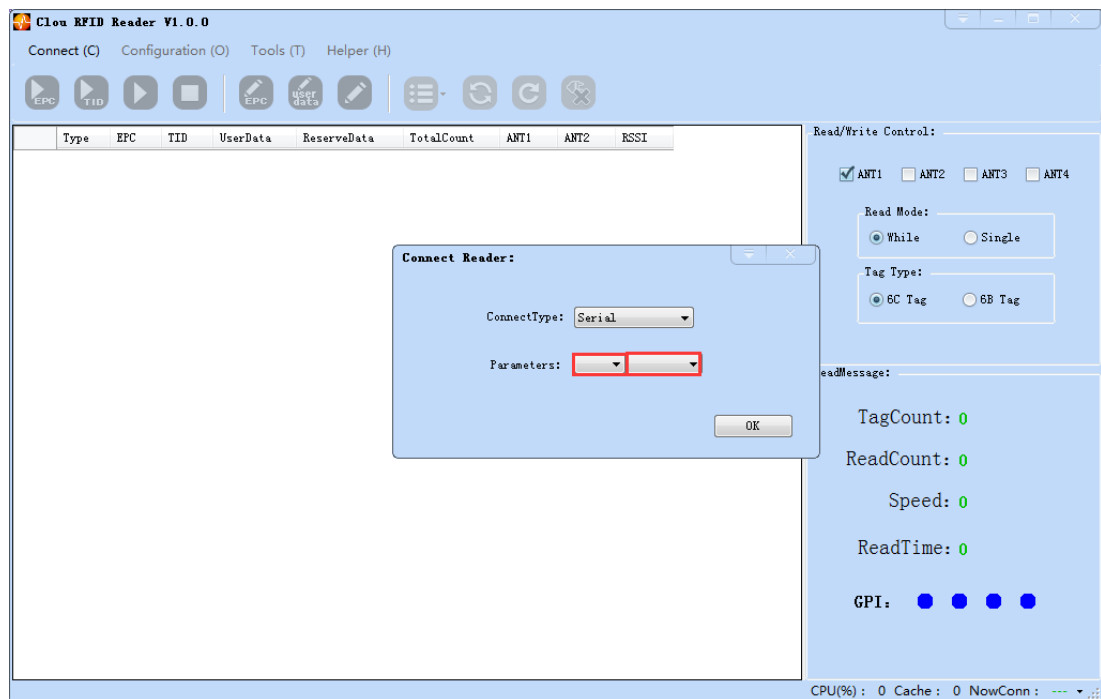
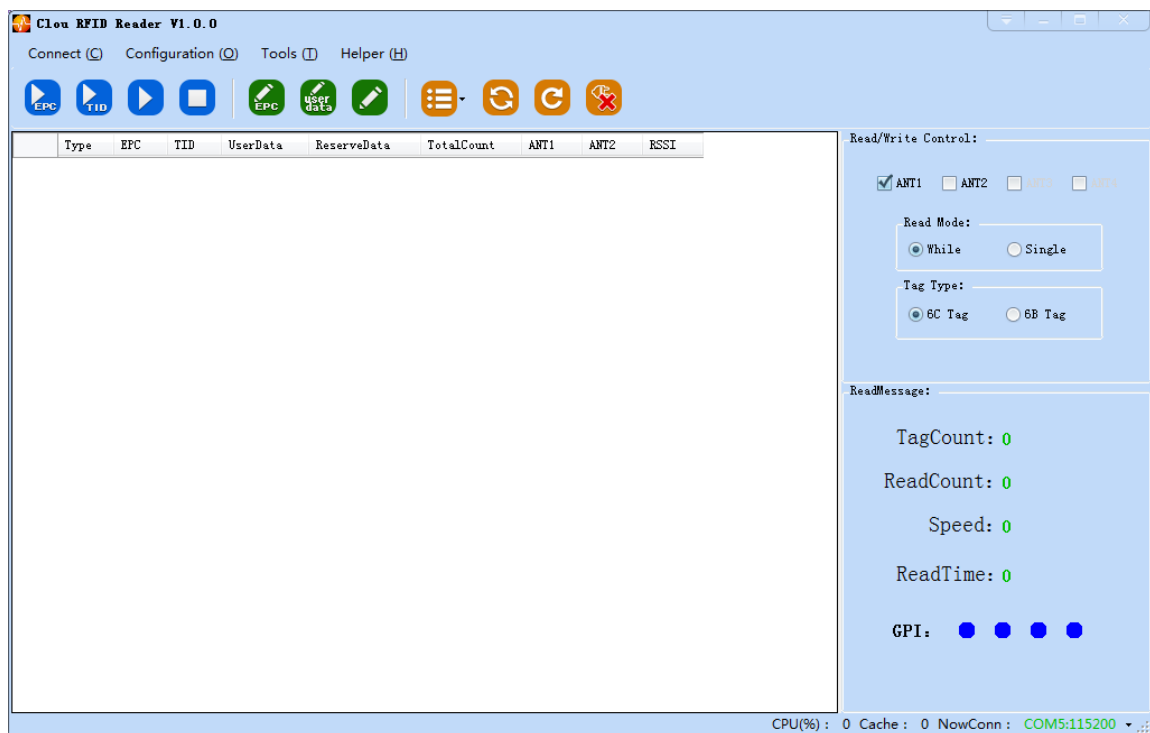


Image 4-1 Serial communication connection

If the connection is successful, all the icons in the toolbar are illuminated, as shown in image 4-2, means the serial communication connection is successful.



Imag4-2 serial port communication connect successful

4.4.1.2 Network port communication connection

Network port used for long distance connection (within 80 m), connect to the router through cable and switcher, or connected with the PC network port directly. Select the communication mode "TCP connection" in the "connect reader" option list, "connect parameter" input reader IP (default 192.168.1.116), enter the communication port number (default 9090), and click OK button, as shown in image 4-3

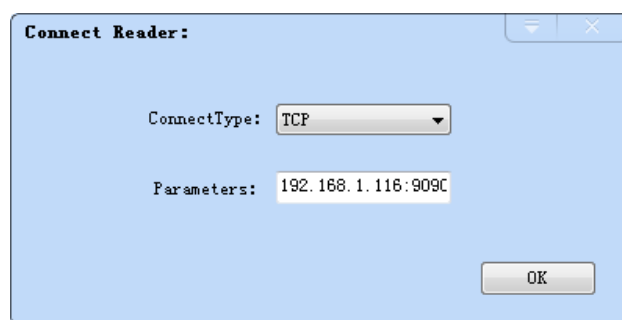


Image 4-3 Network port communication connection

The device has been written IP address 192.168.1.116 as default. If you forget or need to modify, using serial connection "connection" after connect successfully, then you can found the current IP address through select "settings" > "senior" > "configuration", set up the IP address in "Network port settings" when "configuration" dialog pops up. See image 4-4.

Note: The IP address of the reader can't be repeated. Use the Ping command to test whether the network is connected on PC.



image 4-4. Reader setting

4.4.1.3 RS485 communication connection

Select the communication mode in the "connect to the reader" option "485 connection (serial port)", "connect parameter" select "COM?" (select PC serial number), communication rate select "115200", enter the RS485 address, then click OK, as shown in image 4-5

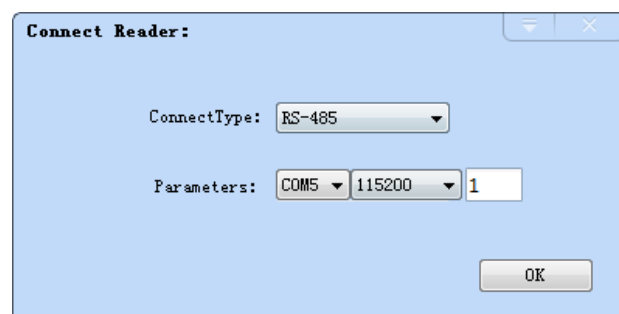


Image 4-5 485 communication connection

RS485 address defaults to 1

RS485 address range 1~255

4.4.2 Data display area



Image 4-6 Data display area parameter meanings

Type: Tags type: 6C

EPC: Tags' EPC data, read and writable

TID: the TID data of the label, the only logo, read only

User Data: user data area can be read and write.

Reserve Data: reserved area data, store the password data, etc.

Total Count: total number of tags

ANT1: the reading times of NO.1 antenna

RSSI: Signal Intensity

4.4.2.1 Read EPC

Click the button , the data display area will display the current read EPC data, the most length for the EPC is 240 bits.

EPC display as hexadecimal character string, use the word as length unit (1 word = 2 bytes = 4 hexadecimal character)

If you want to read the EPC data of the custom length, please refer to chapter

4.4.2.3 custom read

4.4.2.2 Read TID

Click the button , the data display area will display the current read EPC and TID data

TID data display as hexadecimal character string, use the word as length unit (1 word = 2 bytes = 4 hexadecimal character).

TID length, the default is 6 words.

If you want to read the TID data of the custom length, please refer to chapter 4.4.2.3 custom read

4.4.2.3 Custom read

Click the button , pop-up dialog box, as shown in Image 4-7& 4-8

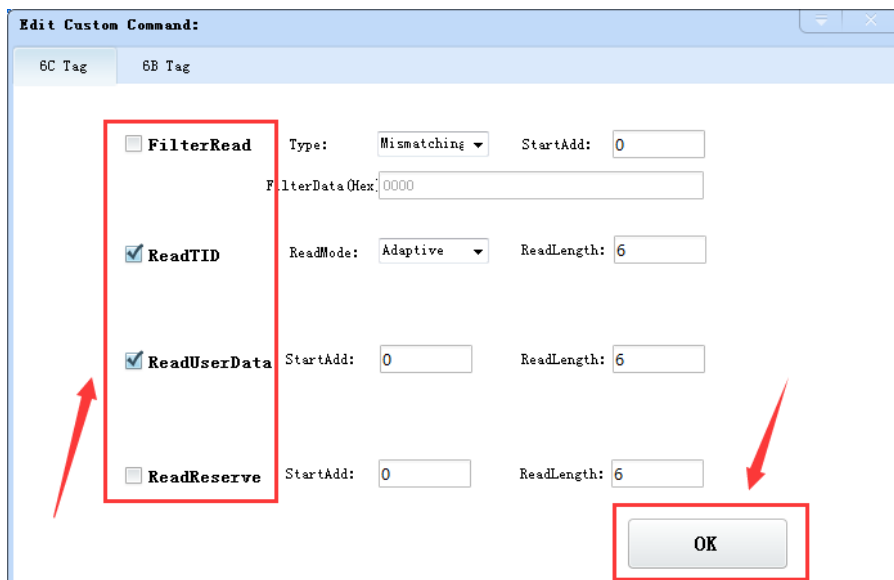


Image 4-7 6C tag setting

Select "6C tag configuration"

Matching read, you can matching read through known EPC data or TID data of tags.

Read TID, select to read the tag TID data, the read mode default as "adaptation", use the word as length unit.

Read the user area, select to read the tag user area data, use the word as the starting address and read length unit

Read the reserved area, select to read the tag retains data, use the word as the starting address and read length unit.

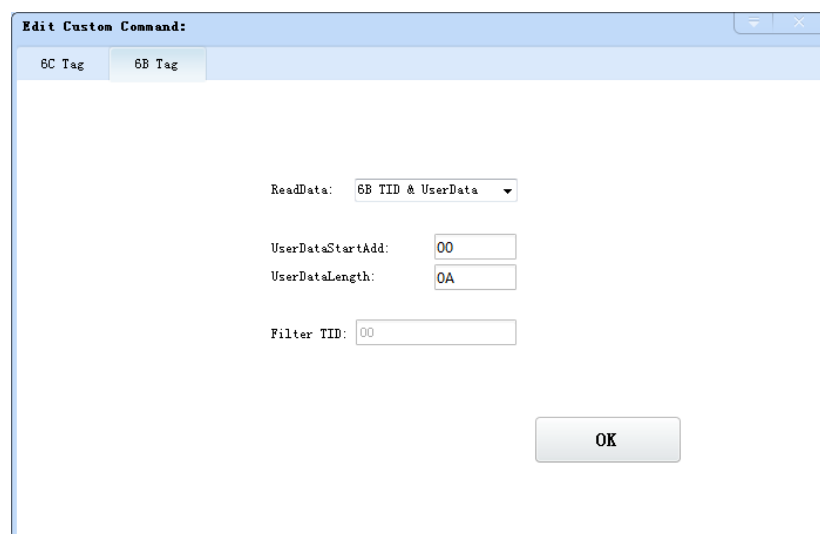


Image 4-8 6B tag setting

4.4.2.4 Stop read

Click button  stop all read and write operations.

4.4.3 Write data

4.4.3.1 Write EPC data

Click button  and pop up dialog box as shown in image 4-9:

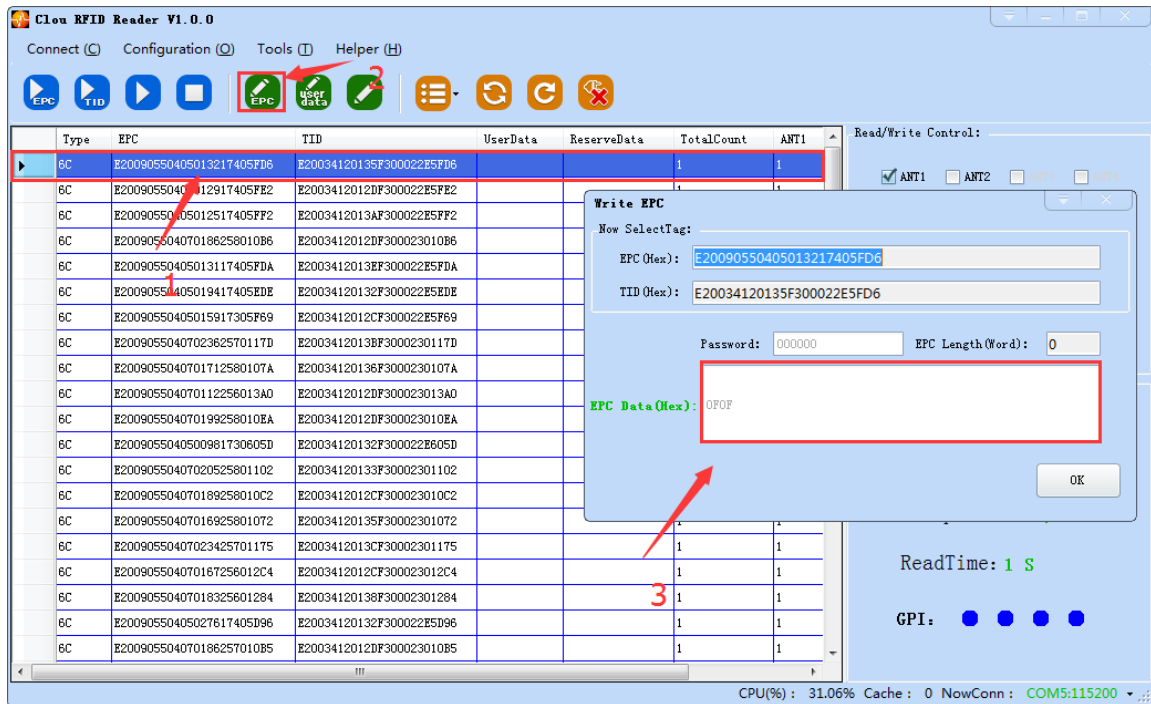


Image 4-9 Write EPC data

Select a label data (contains TID information) has been read, fill in the EPC data (16 hex string), click "OK".

4.4.3.2 Write user data

Click button  and pop up dialog box as shown in image 4-10:

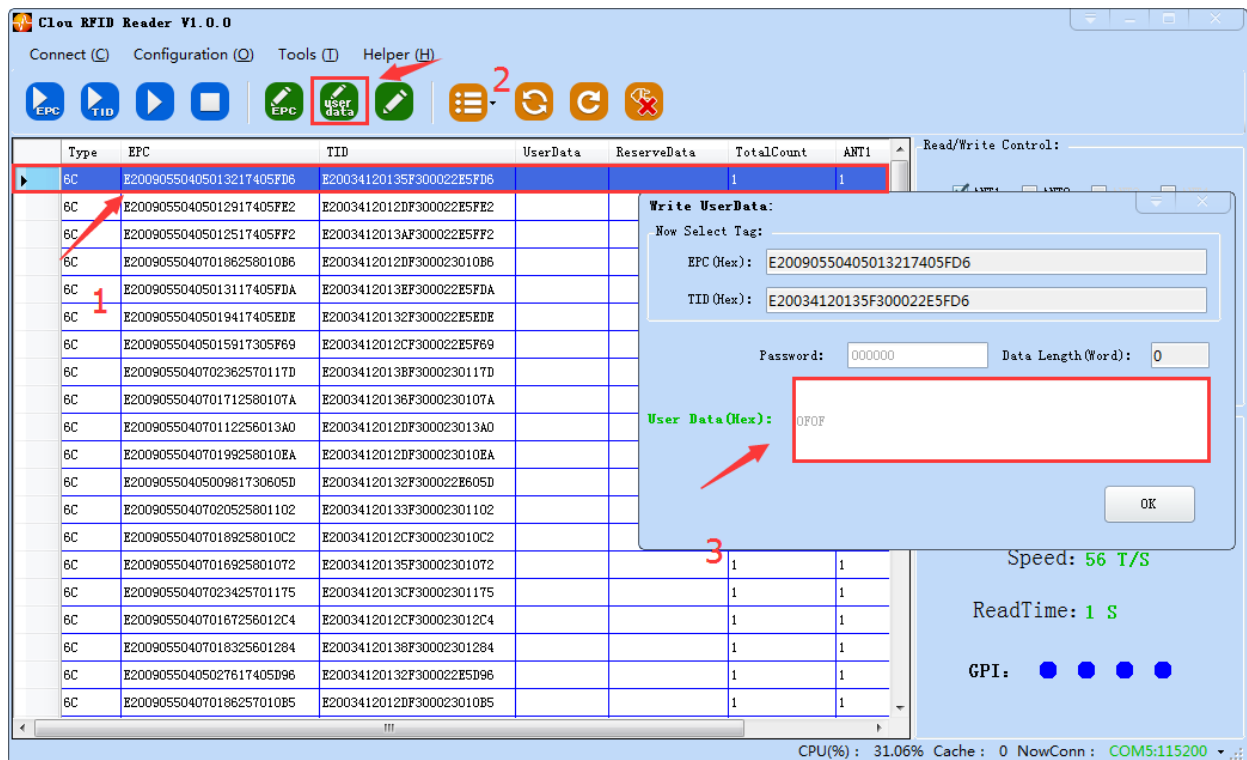


Image 4-10 write user data

Select a label data (contains TID information) has been read, fill in the user data (16 hex string), click "OK".

4.4.3.3 Custom tag action

Click button  and pop up dialog box as shown in image 4-11:

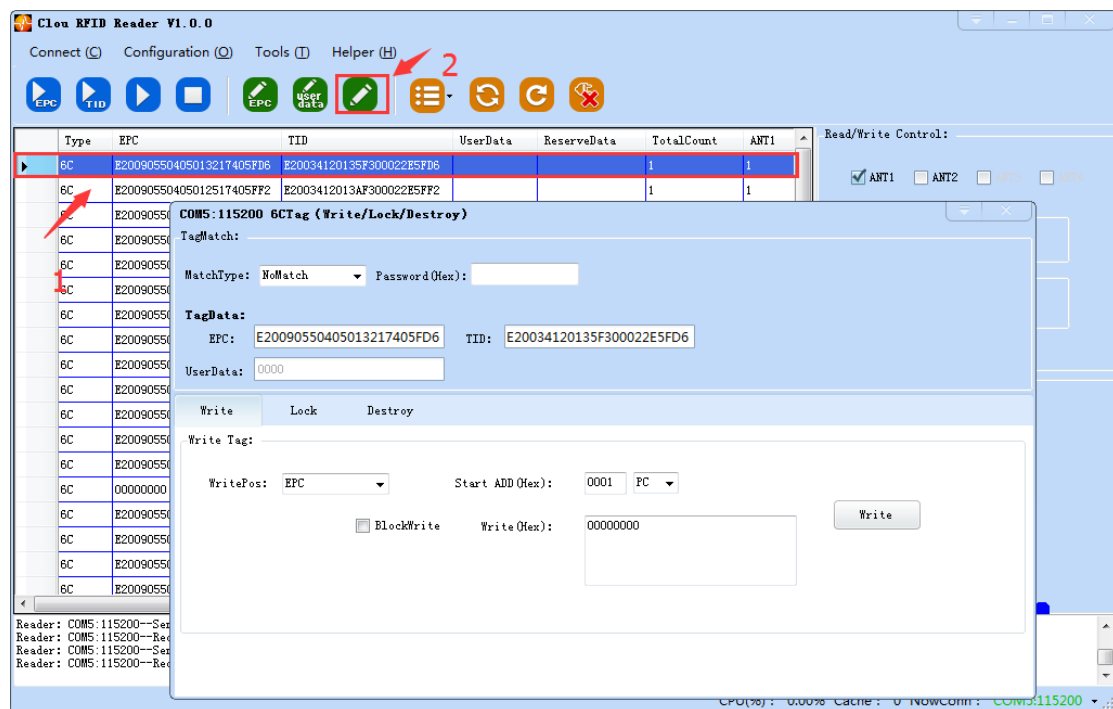


Image 4-11 Custom tag action

1. Select a tag data that has been read;
2. Click the "custom operation" button;
3. Take detailed action to write / lock / destroy tag according to the reader protocol

4.4.4 TCP server / client mode

Select configuration on the main demo interface > "read and write configuration >" TCP server / client mode ", pop-up dialog box, as shown in Image 4-12:

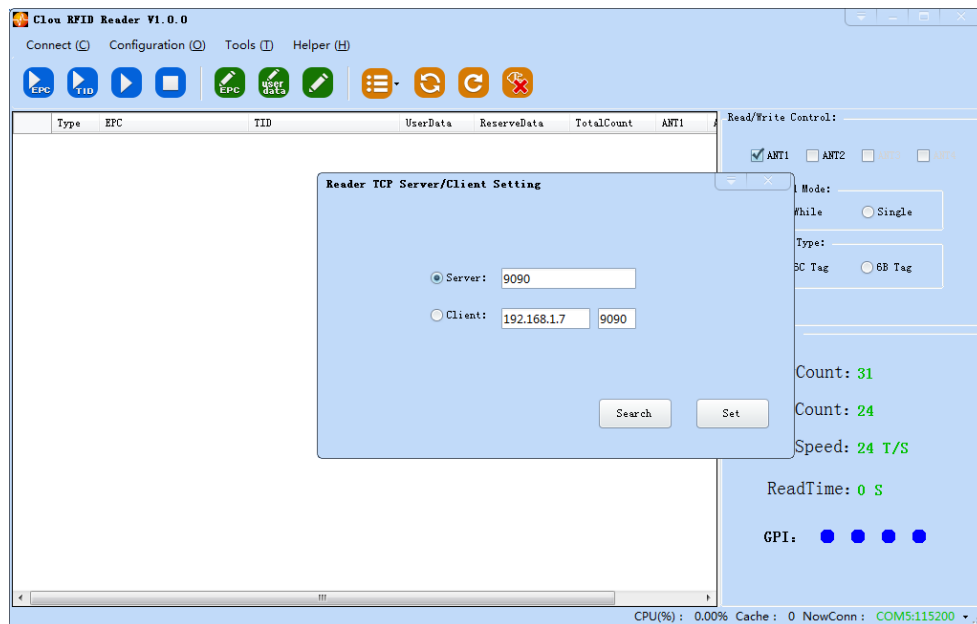


Image 4-12 Mode setting

4.4.6 Frequency hopping management

Click "configuration" on the main interface > RFID configuration > "hopping management", pop-up frequency hopping management dialog box, as shown in image 4-13

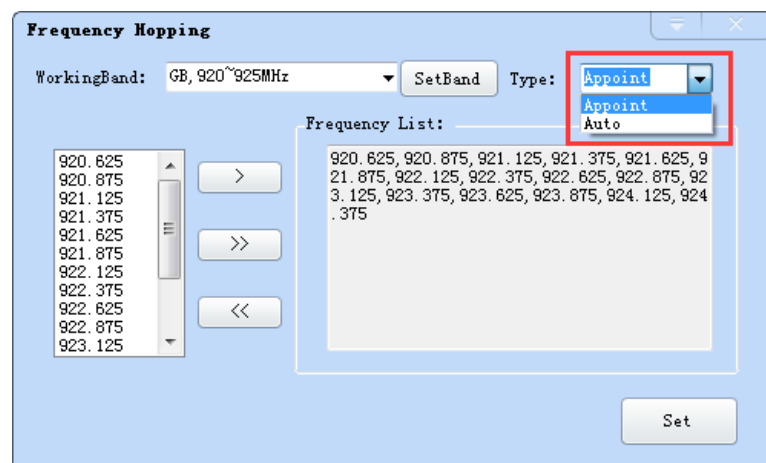


Image 4-13 Frequency hopping management

Select " GB,920-925MHz " (see Image 4-14) in the "working band" drop-down list, click the "Settings", select single frequency points from the left frequency list box(see

Image 4-14) then click the ">" button, right into the list box, and then click the "configuration" to confirm; If you want to select the full band frequency hopping just click ">>" all the frequency points will show on the right side of the list box, click the "configuration" to confirm. If you click "<<", all frequency points on the right side of the list box will be cleared.

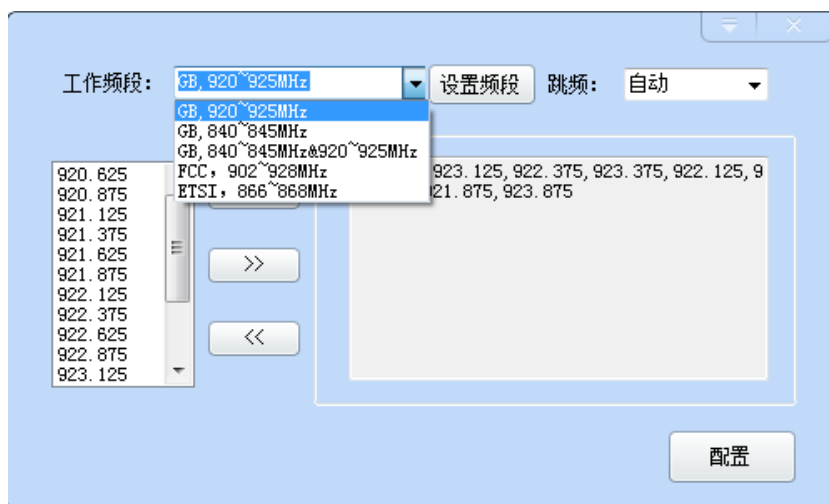


Image 4-15 hopping selection

Note: The purpose of setting up the "automatic" is to avoid the interference of the external signal and select the fast frequency hopping. The default configuration for general application is automatically (as shown red mark dropdown list in image 4-13).

4.4.7 Label filtering

Select "configuration" on the main interface > "RFID configuration" > "label filter", then pop-up dialog box, as shown in image 4-15:

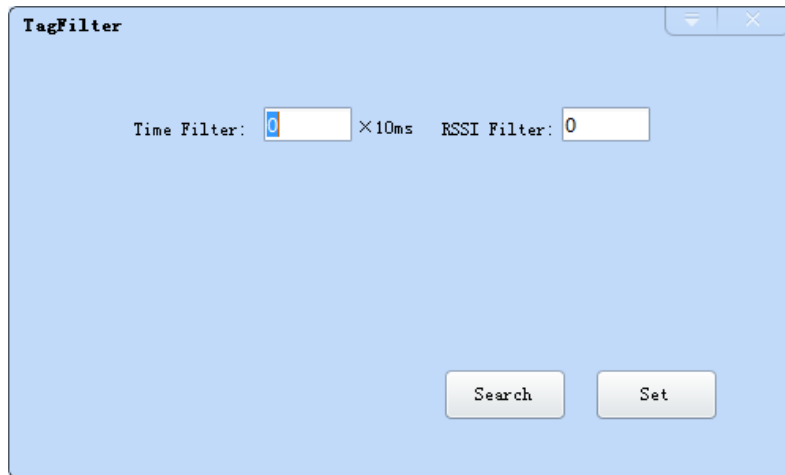


Image 4-15 Label filtering

Filtering time: indicates that the same label content within a specified period of time within a read card instruction is only uploaded once, 0~65535, and time units: 10ms.

RSSI threshold: When label RSSI value small than the threshold value, the label data will not be uploaded and discarded.

4.4.8 Auto idle configuration

Select "configuration" on the main interface > "RFID configuration" > "auto idle ", then pop-up dialog box, as shown in image 4-16:

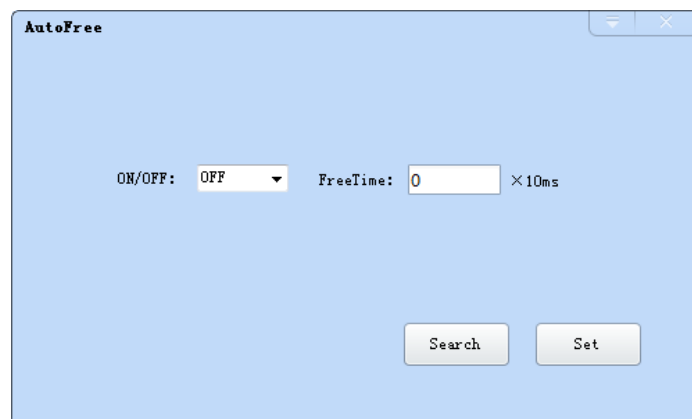


Image 4-16 Auto idle configuration

Auto idle mode means when the reader continuous reading tags, all using antenna didn't identify the tags for three times continuously ,then the reader automatically enter a period of idle state to save power consumption, the reader re-enter the card reader automatically after idle time.

4.4.9 GPI/O Configuration

GPI/O control to provide the query and set up the I/O port state, control the function of the I/O device.

GPI configuration

Select “configuration “on the main interface > "GPI/O configuration" > “GPI configuration "then pop-up dialog box, as shown in image 4-17:

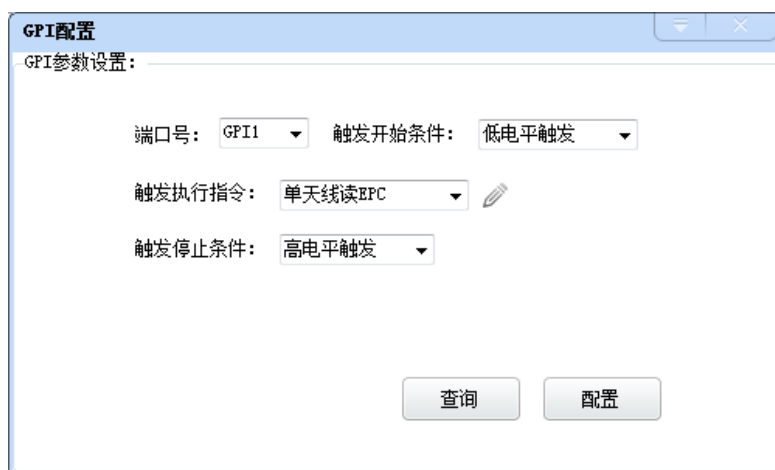


Image 4-17 GPI configuration

- Check: check the various port trigger parameters
- Configuration: select the port need to set, click button to execute the settings after modify
- Trigger start condition: select the mode from the drop-down list
- Trigger execution instruction: select the mode from the drop-down list
- Trigger stop condition: select the mode from the drop-down list
- Description: when the start condition is satisfied, the reader will perform the configuration of the reader/ writer command.

GPO configuraiton

Select “configuration “on the main interface > "GPI/O configuration" > “GPI configuration "then pop-up dialog box, as shown in image 4-18

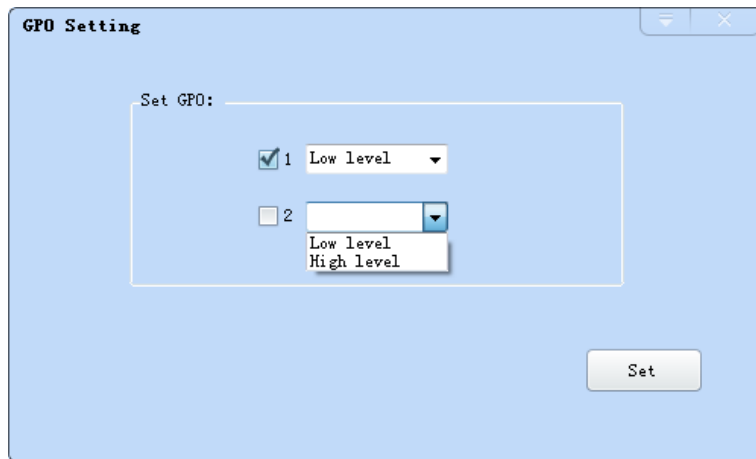


image 4-18 GPO configuration

CL7206A5 development board only supports two GPO outputs, that is "1" and "2".

Select the high / low level, click this configuration to execute settings after modify.

4.4.10. Advanced configuration

Weigand configuration

Select "configuration" on the main interface > "GPI/O configuration" > "Weigand" then pop-up dialog box, as shown in image 4-19:

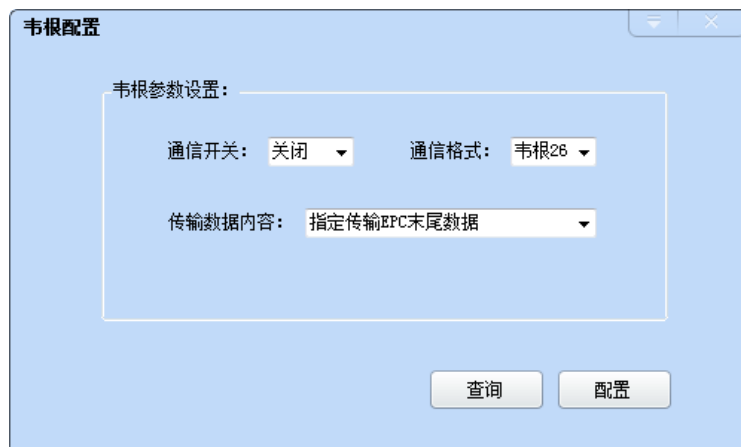


Image 4-19 Weigand configuration

In the Weigand parameter settings area, set up the "communication switch" for the "open" state, and select the corresponding "communication format" and "transmission data content", click on the "configuration" to determine.

Weigand port Parameter configuration: includes “Weigand 26, “Weigand 34” and “Weigand 66”models.

Weigand 26: TID or EPC data reported from the end of the Weigand port is valid for 3 bytes.

Weigand 34: TID or EPC data reported from the end of the Weigand port is valid for 4 bytes.

Weigand 66: TID data reported from the end of the Weigand port is valid for 8 bytes.

Restore factory settings

Select “configuration” on the main interface > “restore factory settings” then pop-up dialog box, as shown in image 4-20:

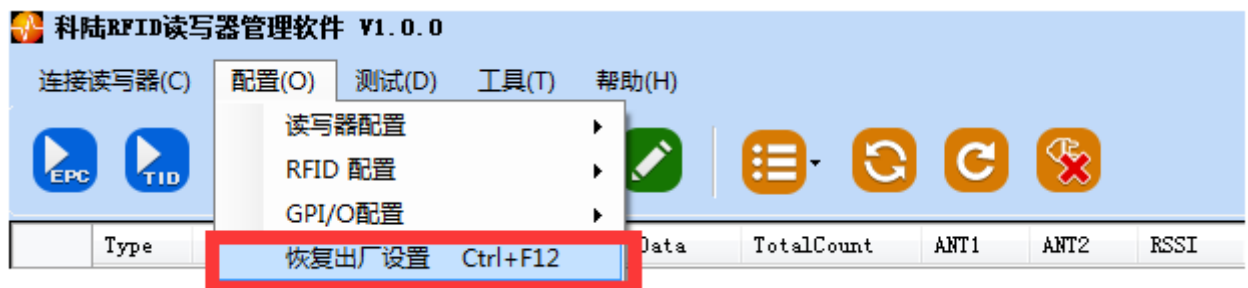


Image 4-20 restore factory settings

When connected to the reader in any form, click OK button, and all settings of the reader will be restored to the factory setting.

4.4.11 Tools

Data export

Select "tools" on the main interface > "data export" > "form (*. XLS)", in the pop-up dialog box, as shown in image 4-21, select the required export file save path.



Image 4-21 Data export

Read the tag data to support data export, export format can be.Csv (comma file) and.Xls (Excel).

Software upgrade

The reader support for online upgrade, software upgrades support the baseband software upgrade (the underlying software) and application software upgrades (system software applications). Select "tools" on the main interface > "software upgrade" > "software", the pop-up dialog box, as shown in image 4-23:



Image 4-22 Application software upgrade

To find the Bin upgrade file path in the upgrade file drop-down list, click 开始升级 the upgrade

progress bar shows 100% that means the application software upgrade successfully, pop-up upgrade prompted success dialog box, click OK to restart the reader, as shown in image 4-23.

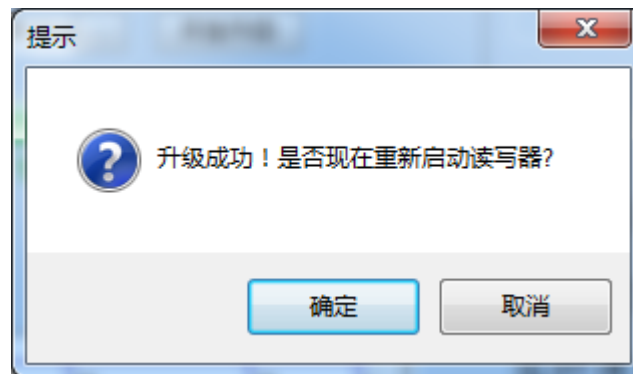


Image 4-23 Software upgrade successfully

The process of the application of the base band software is the same as that of the application software.

5. Common failures

5.1 Daily maintenance

The routine maintenance of CL7206C usage:

- ☆To check whether the tightening of RF connector
- ☆To check if the screw fixed reader and antenna is loose
- ☆To check whether the RF cable joints appear outsourcing breaking the shielding layer
- ☆To check if the reader power line connection is reliable

5.2 Common failure analysis and solution

Power supply system failures:

Check whether the power adapter is normal, and the AC supply voltage is between 100V ~ 240V.

The panel indicator light failed when power on:

Check whether the communication is normal , please contact customer service if it's not normal.

The serial port unable to connect:

Check if the serial cable is not connected or connected unstable.

Check if the serial port connect baud rate of the reader is correct

Check if the selected COM port is right.

The network port cannot connect:

Factory set the default IP address: 192.168.1.116 when CL7206C reader device ex-factory, ensure the IP address of the PC and reader in the same network segment, such as "192.168.1.XXX" then you can connect to the reader, if you forget the IP address of the device, you can reset the reader's IP address through the serial port.

The reader can't read the tag

Check if the setting of antenna number is correct

Check if the label is damaged

Check if the label is placed in the reader's valid reading and writing range.

Check if the electromagnetic interference between the reader and the other device.

For the problem users cannot solve, please contact customer service.

6. Accessory

6.1 accessory

Form 6-1 Accessory list

ITEM	Name	BOM	Unit	QYT	Note
1	CL7206A5 reader module development board	2205014800000 02	1	pcs	standard
2	Power adapter	2026010000004 17	1	pcs	Standard
3	AC Power Cable	2035010000008 72	1	Pcs	Standard
4	Network cable	2035000000018 8	1	pcs	standard
5	RS232 serial port cable	2035100000047 8	1	pcs	standard
6	USB port cable	2035100000003 6	1	pcs	standard
7	Feeding Cable	2035020000021 21	1	pcs	Standard

6.2 Storage environment

CL7206A5 fixed reader should be stored in below conditions:

☆ Environment temperature: -40℃ ~ +85℃

☆ Relative humidity: 5% RH ~ 95%RH

7. Host Information

The host will Satisfy Class I or Class II permissive change based this module FCC ID

Product: Module housing

Model: HL7206B7

The Picture



8. After-sale service

Letter to Customers

Since our aim is to continuously improve our products for better user experience, we may modify the product characteristics, composition and design of circuits without given notifications. Thus the real product may be not in accordance with this manual. Generally, we will provide timely amendments to this manual. If it's not provided timely, please consult our service department.

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