Reader Comprehensive Demo Software

USER MANUAL

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1. Software Connection

1. Preparation before connection

Before opening the DEMO software, please check and confirm whether the hardware device you want to connect has been powered on, connected and in standby working state. (For specific wiring methods and interface instructions, please refer to our equipment specification or equipment manual.)

1. The reader antenna has been connected;

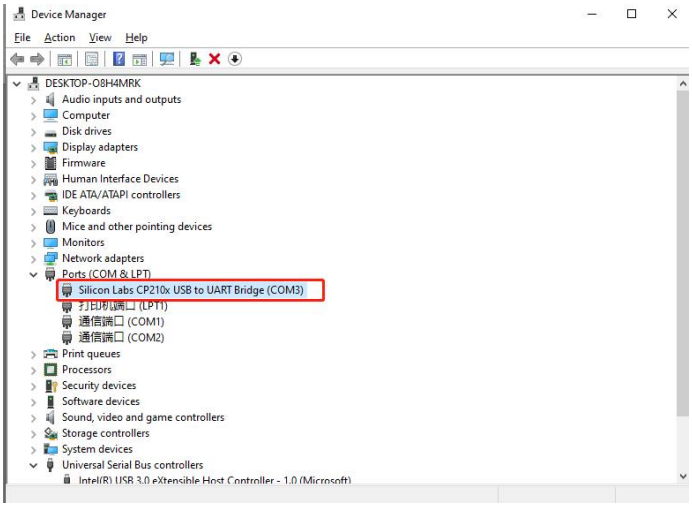
2. The data connection with the computer (host computer) has been connected (RS232 / RJ45, etc.);

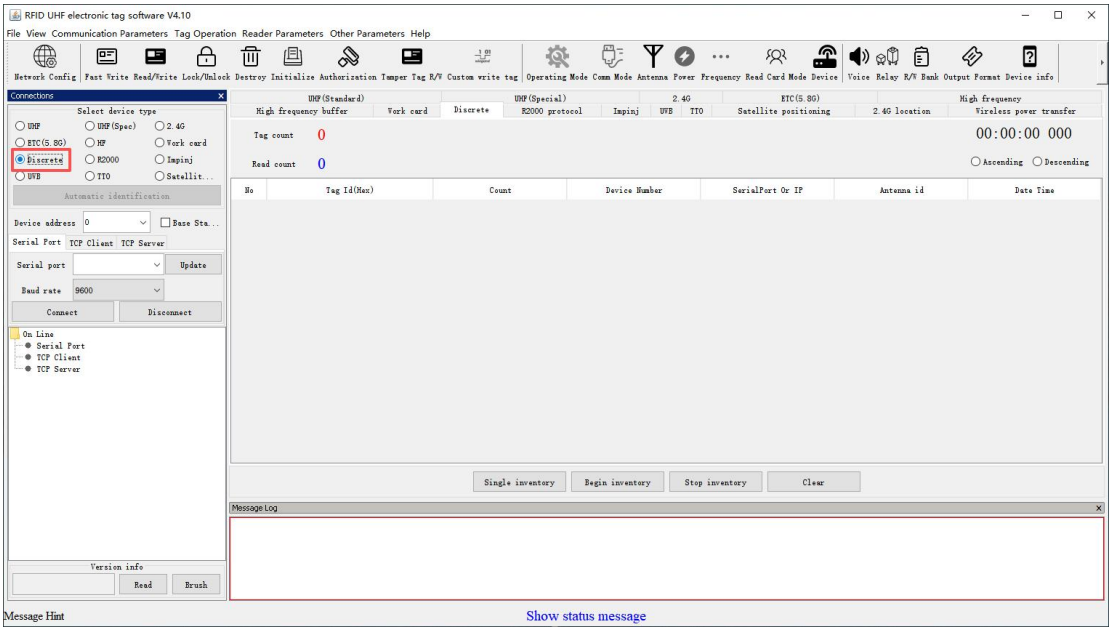
3. The equipment has a normal and stable power supply;

2. Serial Port

Before connecting the serial port, please confirm the specific serial port number and the serial port parameters of our equipment. The serial port number can be viewed on Windows: Control Panel - Device Manager - Port (COM and LPT). If the corresponding serial port is not found, please check the serial port driver or physical connection. The serial port of our equipment only supports parallel serial port lines;

The default factory serial port parameters of the device are baud rate 9600.





For devices JT-8380/JT-8288/JT-8280/JT-8290/JT-6210/JT-6223/JT-2860, please select the device type "Discrete".

When the connection between the device and the host computer (computer) is RS232 (serial port), select the [Serial Port] page in the device column, select the corresponding com number found in the previous step in the serial port position drop-down box, select the default baud rate 9600, and click the [Connect] button. If you ignore the step of querying the serial port number, you can click the [Update] button to automatically search for the device connection serial port number.

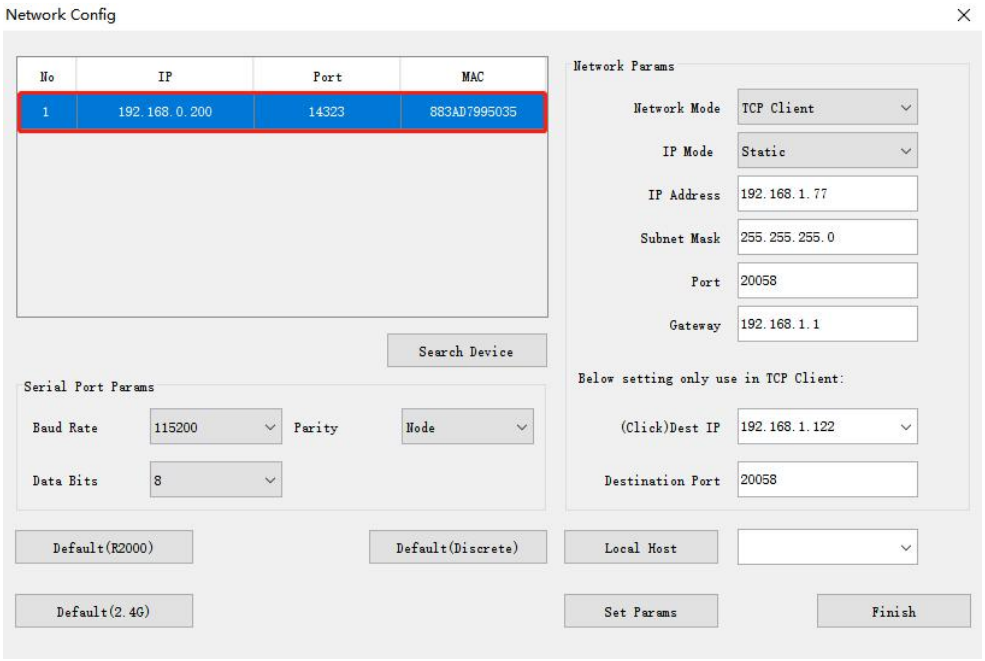
Check if the version number can be successfully obtained from the bottom left corner. If it cannot be obtained, it means that the connection was not successful.

3. Network port (RJ-45) [If your device does not have a network port, please skip this part.]

When the device is connected to the computer (host computer) via RJ45 (network port communication), select the [TCP Client] or [TCP server] page in the device column.

Click [Network Parameters] in the shortcut bar (or select Communication Parameter Settings - Network Parameters in the menu bar) to enter the network

parameter settings page. Left-click [Search Devices] to automatically search for all our devices in this LAN.



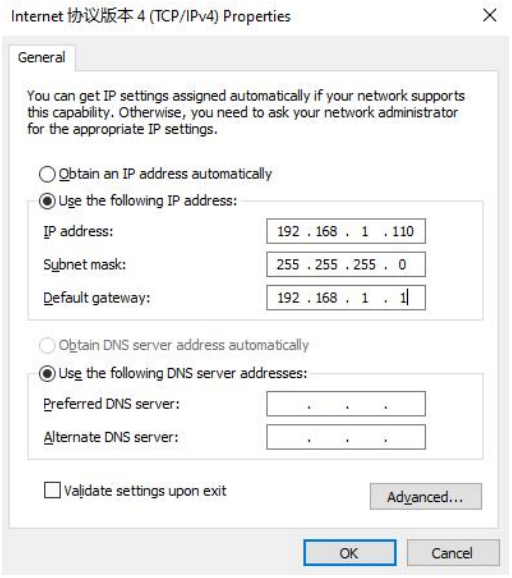
As shown in the figure: Click the device in the list to view the RJ45 (network port) communication parameters of the currently selected device on the right. At this time, you can modify the RJ45 (network port) communication parameters of the device. The modified parameters need to comply with the communication address protocol of the local area network.

- **[Network Parameters]:** The network working mode of the reader is divided into two types: client (TCP Client) and server (TCP server).
- **[IP Mode]:** This is the way to obtain the network card parameters of the reader, which is divided into two methods: static IP (Static) and DHCP acquisition (Dynamic/dynamic acquisition). Static IP parameters need to be defined by the user, and the IP address will not change automatically after the setting is completed. In the DHCP acquisition method, the reader automatically obtains the IP allocation of the LAN device by the router, which may change according to the changes in the routing settings.
- **[IP address]:** The IP address will be preset at the factory, but the access to the LAN may not conform to the LAN IP address definition. Please consult the user's network administrator for LAN IP address allocation.

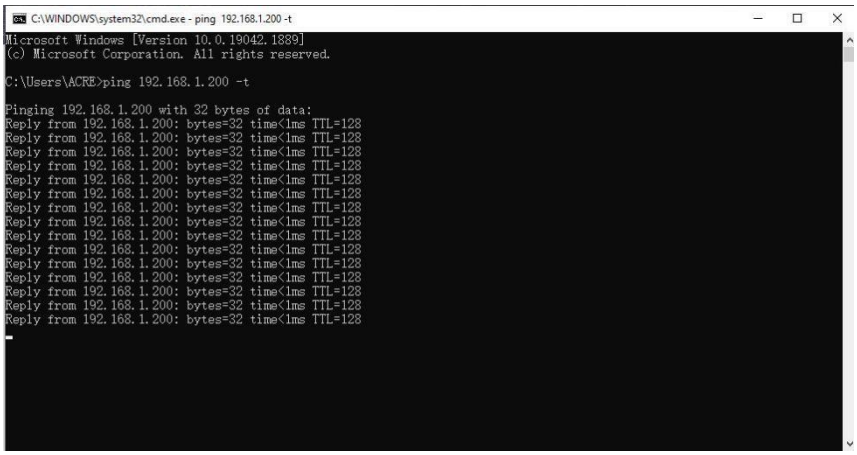
- **[Subnet Mask]:** One of the network card address parameters. Please consult the user's LAN network administrator for specific parameters.
- **[Port]:** Data output channel, only works when the reader device acts as a [TCP server].
- **[Gateway]:** One of the network card address parameters. For specific parameters, please consult the user's LAN network administrator.
- **[Destination IP]:** The IP address of the server when the reader acts as a [TCP Client].
- **[Destination Port]:** When the reader acts as a [TCP Client], the receiving port for data transmission to the server. In this mode, the connection port needs to fill in the destination port.
- **[Local IP]:** Automatically obtain the local IP address.
- **[Set parameters]:** Write the filled network card parameters and corresponding data into the network card to complete the settings.
- **[Finish]:** Exit the network parameter setting page.
- **[Default (R2000)]:** Fill in the factory default network port parameters of the R2000 reader device in the network card parameter text box, and click [Set Parameters] to apply the default parameters to the network card.
- **[Default (Discrete)]:** Fill in the factory default network port parameters of the Discrete reader device in the network card parameter text box, and click [Set parameters] to apply the default parameters to the network card.
- **[Default (2.4G)]:** Fill in the factory default network port parameters of the 2.4G reader device in the network card parameter text box, and click [Set parameters] to apply the default parameters to the network card.

When device is directly connected (using RJ45 standard crystal head twisted pair cable to connect the host computer (computer) and the reader device) : Please change the host computer (computer) IP address to **192.168.1.xxx** network segment.

Setting method: **Control Panel - Network and Sharing Center - Change Adapter Settings - Local Area Connection, right-click the local area connection and select Properties, and modify the IPv4 settings.** As shown below:



After the parameters and IP settings are completed, it is recommended to verify whether the network communication is unobstructed. Press the WIN + R keys and enter ping 192.168.1.200 (the set reader IP address) - t in the pop-up window.



The reader device joins the LAN : The host computer starts the Demo software to enter the network parameter setting interface and click [Search Device]. Select the device displayed in the list on the left, and then set the network parameters of the reader. Modify the reader's [Network Mode], [IP Mode], [IP Address], [Subnet Mask], [Port], [Gateway], [Destination IP], [Destination Port] and other parameters to make the parameters conform to the LAN IPv4 address protocol. Click [Set Parameters] to write the filled parameters into the reader's network card. For the

specific meaning of the network card address data, please consult the network technician or our technical engineer.

After the settings are completed, please also execute the ping command to perform a preliminary test on the reader network.

After confirming the network, you can proceed with the connection operation.

When the reader network parameter is **TCP server mode**, the connection method is as follows:

- **[TCP Client]:** Fill in the IP address of the device to be connected in the text box, and click the [Update] button to automatically obtain the IP address of our device in the LAN.
- **[Port]:** Fill in the [Port] in the network parameters, and do not fill in the [Destination Port].
- **[Connect]:** After filling in the connection parameters, click the [Connect] button to connect to the reader device. After the connection is completed, the IP of the currently connected and online device will be displayed in the connection status bar, and the information prompt bar will display "Device IP connection successful". At this time, click the [Read] button in the version information bar to query the firmware version of the currently selected device, and the information bar will display "Read version number successful".

＊ If the reading fails, please return to the connection preparation and repeat the above steps to confirm that the network connection is normal.

When the reader network parameters are in **TCP Client mode**, the connection is as follows:

- **[Local IP]:** The text box contains the server IP. When the demo is connected, it is the local IP address of the host computer. Click the [Update] button to automatically obtain the local IP address and fill it in. For a host computer with multiple network cards, you need to click the small triangle,

enter the drop-down box and select the network card where the [Destination IP] in [Network Parameter Settings] is located.

- **[Port]:** Fill in the [Destination Port] in the network parameters, do not fill in the [Port].
- **[Connect]:** After filling in the connection parameters, click the [Start Monitoring] button to start the server port monitoring. At this time, the IP of the currently connected and online device will be displayed in the connection status bar, and the information prompt bar will display "TCP service started successfully". At this time, click the [Read] button in the version information bar to query the firmware version of the currently selected device, and the information bar will display "Read version number successfully".

** If the reading fails, please return to the connection preparation and repeat the above steps to confirm that the network connection is normal.*

Notice:

1. When using the network to connect the reader, you need to turn off the anti-virus software and system firewall;
2. When connecting via a laptop or other computer, the WiFi function needs to be turned off in [Search Device];
3. When the reader is connected as a TCP server, the host computer can only be a TCP Client; similarly, when the reader is a TCP Client, the host computer can only be a TCP server;
4. The baud rate and other serial port parameters on the network parameter page should not be modified unless necessary. The serial port parameters in the communication mode must be modified before modification. After modification, the corresponding serial port baud rate and other parameter values must be remembered.

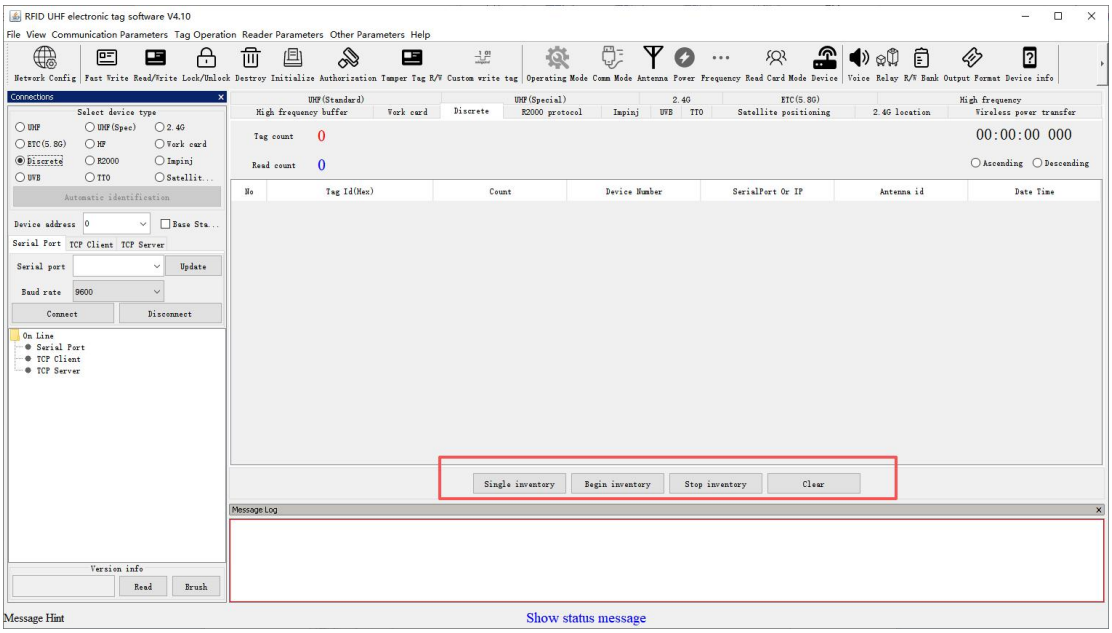
5. When connecting to the WIFI network, the parameters are configured on the WIFI management page. For details, refer to the "--Reader WIFI Connection Operation Manual.doc" file.

2. Basic Operation

When the device is in communication (i.e. the version number is read normally), you can click [Auto Identify] to identify the device as a certain type. Click the corresponding device type to access the relevant settings interface and data display interface. The following is a demonstration using an **Discrete** device.

1. Card Reader

The data display bar of the software's main basic interface is the basic card reading demonstration interface, which has four buttons: [Single inventory], [Begin Inventory], [Stop inventory], and [Clear].



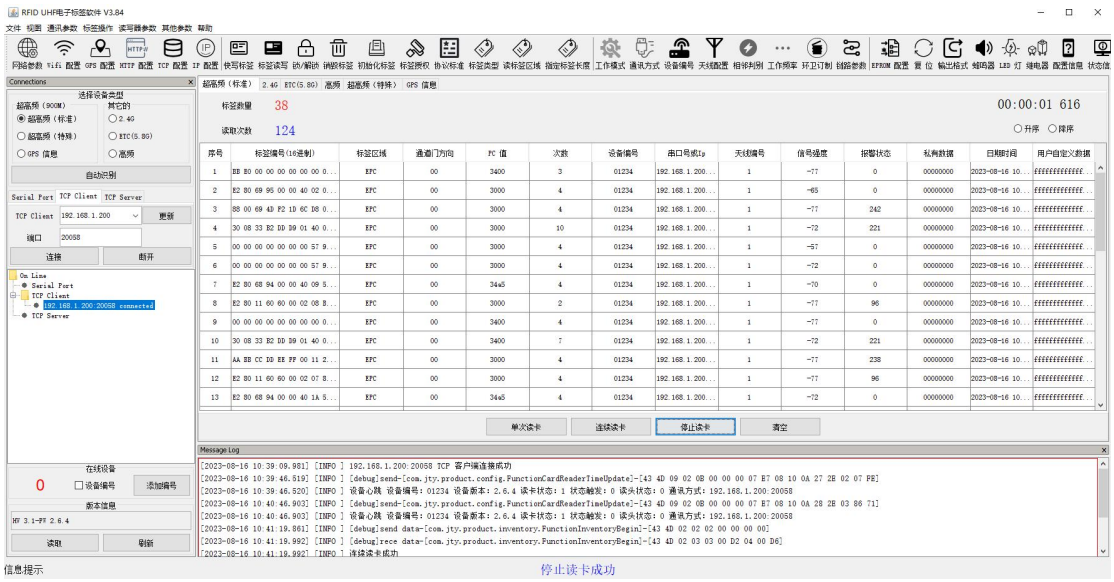
There are two card reading modes: "Single inventory" and "Begin Inventory".

Single inventory: Select the target reader in the connection status bar, then left-click the **Single inventory** button to start the operation. Each click sends a

one-time card reading command to the reader. If the reading succeeds, the corresponding tag ID will be displayed in the **Data Display Area**.

Begin Inventory: Select the reader device to be operated in the connection status bar. Click the [**Begin Inventory**] button once, and the Demo software will send a Begin Inventory command to the reader, allowing it to continue to search for tags. If the tag reading is successful, the ID number of the corresponding tag will be displayed in the data display column. Until the user actively clicks the [Stop] button, the Demo sends a stop card reading command to the reader, allowing it to stop searching for cards.

As the picture shows:



Interface display data and button introduction:

- **[Single inventory]:** Select [Single inventory] in the data display column. Each time you click [Single inventory], the DEMO software will send a search card command to the reader by default, allowing it to read the card once. If the card is read successfully, the ID number of the corresponding tag will be displayed in the [Search Card Demo] area.
- **[Begin Inventory]:** Click [Begin Inventory], and the DEMO software will send a card search command to the reader by default, allowing it to continuously search for cards. If the card is read successfully, the ID number of the

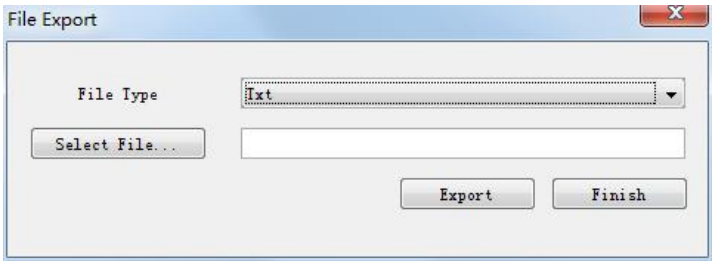
corresponding tag will be displayed in the [Card Searching Demonstration] area.

- **[Stop]:** Click the "Stop" button once when you need to stop continuous card punching. Note: If the device is in the state of Begin Inventory, you need to stop Begin Inventory before you can perform other functions.
- **[Clear]:** When the DEMO software is not in the card reading state, click this button to clear the data displayed in the demonstration area.
- **[Tag count]:** The total number of different ID numbers read by the device is the number of tags.
- **[Read count]:** The total number of times all tag ID numbers are read, which will scroll and display when reading the card.
- **[Ascending] and [Descending]:** Sort the found tag data from large to small or from small to large.
- **[No]:** The software arranges the serial number of the tag data list read.
- **[Tag ID (Hex)]:** Tag (card) data (EPC area, TID area, user area, reserved area) , i.e. tag ID number.
- **[Count]:** The total number of times a single tag (card) is recognized.
- **[Device Number]:** The device number of the current entry tag (card) is identified. This option needs to be checked in [Card Search Data Output Format] to be displayed.
- **[Serial Port or IP]:** The specific data output address of the device that identifies the current entry tag (card).
- **[Antenna id]:** Applicable to multi-channel reader devices, indicating which channel antenna this tag data is currently recognized by. This option needs to be checked in [Card Search Data Output Format] for it to be displayed.(JT-8380/JT-8288/JT-8280/JT-8290 only have one antenna)
- **[Date Time]:** The local time when the current tag data is received by this device.

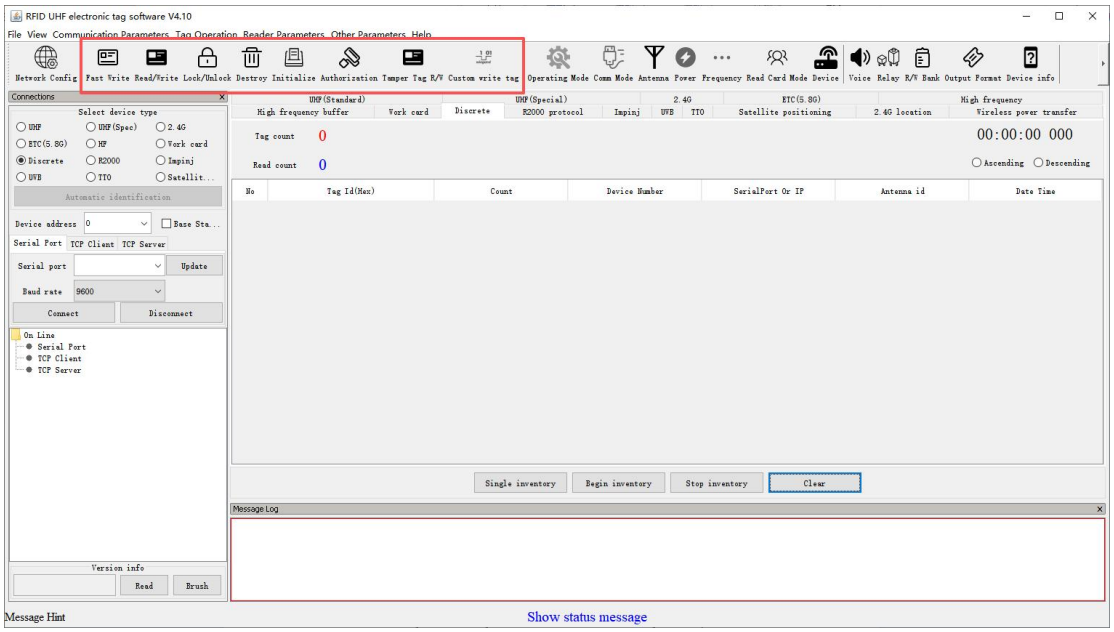
2. Data export

All data displayed in the data display column (i.e. all identified tag data) can be exported into three formats: text document (TXT), table (Excel), and Word file.

Export method: Select the menu bar - File - Export to enter the file export interface, select the file format to be exported (TXT, Excel, Word), and then select the specific file path to be exported. As shown in the figure below.



3. Tag Operations



1. Fast write tag

Click Tag Operation in the menu bar - Fast write tag ; or click the **[Fast write tag]** button in the shortcut bar to enter the tag read/write interface.



When **[Auto add 1]** is checked, the written data will automatically increase by 1 each time it is successfully written, and there is no need to fill it in again.

[Read]: Read the initial data of the tag to be written.

[Write]: Write the data in the [Data] text box into the tag chip.

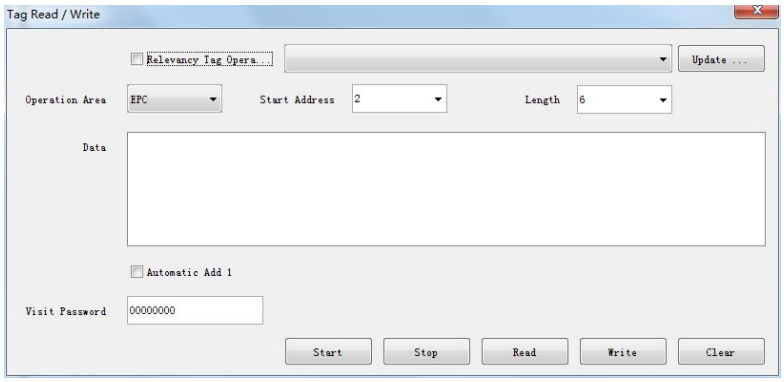
[Clear]: Clear the data in the text box.

[Finish]: Close the current window.

Note:UHF RFID tag chips can only be written with hexadecimal values, 0-9, A-F. Data that does not conform to these rules cannot be written.

2. Tag Read/Write

Click Tag Operation in the menu bar -Tag Read/Write; or click the [Tag Read/Write] button in the shortcut bar to enter the tag read/write interface.



The tag reading and writing functions mainly read or write the data in each area of the tag (the TID area can only be read but not written).

- **[Reserve (reserved area)]:** Address: 0-3; Address: 0-1 stores the 32-bit kill password (kill password or destroy password), the default is: 00 00 00 00; 2-3 stores the 32-bit access password (Access), the default is: 00 00 00 00. When

this area is not access encrypted or killed encrypted, the data in the area can be rewritten at will.

- **[EPC (EPC area)]:** Address: 2-7; stores 96-bit ID number, which is the area where the data read by our device is stored by default. When this area is not encrypted or encryption is killed, the data in the area can be rewritten on demand.
- **[TID (TID area)]:** Address: 0-5; stores a 96-bit globally unique and non-rewritable ID number.
- **[User (User Area)]:** Address: 0-31; stores 512-bit data. The default address is: 00 00. When this area is not encrypted or encryption is killed, the data in the area can be rewritten at will.

The above regional descriptions are based on the commonly used Alien H3 tag chip as an example. Different chips may have different corresponding regional data and actual functions.

a. Place the tag directly above the antenna connected to the device, approximately 3-5cm away. (Make sure there are no other tags around the antenna)
b. Select the area to be read or written in the drop-down menu of the [Operation Area] button (taking the EPC area as an example)
c. Confirm that EPC is selected in the drop-down menu.
d. Select a suitable starting address in the start address, and set it to 2 (the default for EPC is 2, and the default for user area and reserved area is 0).
e. Select the length of data to be read or written in the length field. The initial setting is: 6 (the unit is "word", that is, the data length is 24 bits, a total of 96 bits.)
f. Now the data with the starting position of 2 and length of 6 in the EPC area is read or written. If you just want to read, just press [Read]. When the reading is successful, the corresponding data will appear in the data display column. And in the [Information prompt column], it will show: Read successfully.

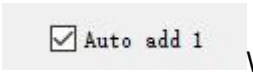
On the contrary, if the reading fails, the data frame will not display any data, and the [Information prompt bar] will display "Read failed"

At this point, you should check again the quality of the tag, its placement, and whether the connection between the device, antenna, and data cable is intact.

If you need to write data with the starting position of the EPC area being 2 and the length being 6, you need to fill in the data column with data of the same length as the length setting.

When writing is successful, the [Information Prompt Bar] displays "Writing Successfully". To ensure that the required data has been written successfully, you can click [Clear] and then click [Read]. After reading successfully, verify whether the data displayed in the data box is the data that needs to be written. After verification, it proves that the writing is successful. On the contrary, if the writing fails, the [Information Prompt Bar] displays "Writing Failed".

When the data to be written is incremented by 1 in sequence and is a hexadecimal number, you can check it before clicking the [Write] button.



When the quick writing is successful, the data in the box will automatically increase by 1.

[Continuous Read]: The reader will repeatedly send the designated area tag reading command to the reader. When the tag data is read, the serial number will be marked in the data box and displayed. There will be no prompt if it fails.

[Access Password]: When the reserved area password is changed, the access password needs to be changed to the user-specified password to write data normally. Default: 00 00 00 00

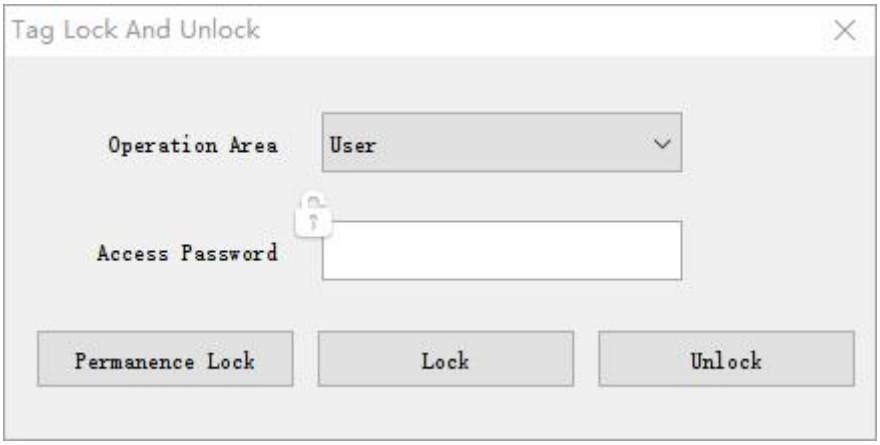
(1) Note 1: When the area that needs to be operated is encrypted, you need to enter the access password to write when writing; when the area that needs to be operated is killed and encrypted, you cannot write.

(2) Note 2:When writing cards, there should be no other tags around the reader.

(3) Note 3: When writing non-standard 12-byte data, please pay attention to modify the PC code. For details, please refer to the ISO18000-6C protocol. (Or consult our business manager or technical support engineer)

3. Tag Lock and Unlock

Click the **[Tag Lock and Unlock]** button in the shortcut bar to enter the Tag lock and unlock interface.



Tag lock and unlock: Locking is to write encryption to the EPC area and User area; write and read encryption to the Reserve area and kill area. The password is stored in the Access area of Reserve, address 2-3, and the default is generally: 00 00 00 00.

Here is an example of how to lock:

1) Place the tag directly above the antenna connected to the device, approximately 3-5cm away. (Make sure there are no other tags around the antenna)
2) Select the specific area in the [Operation Area] drop-down box. The initial setting is: ECP area
3) Enter the password in [Access Password]. The password is stored in the Access area at address 2-3 in the Reserve. If it is not rewritten, the default is generally: 00 00 00 00.
4) Finally, click [Lock]. After the card is locked successfully, the [Information Prompt Bar] will display "Tag locked successfully".

To verify that the lock has been successfully completed, you can verify in the [Tag Read and Write] area. The steps are as follows:

a. Place the tag directly above the antenna connected to the device, approximately 3-5cm away. (Make sure there are no other tags around the antenna)

b. As shown in the figure below, select the number operation area and set the starting position and length.

c. Click [Read]. After the data is successfully read, the data will be displayed in the data box. Then slightly modify the data, initially set to: E2 00 55 66, and then click [Write]. You can try to click it multiple times. The [Information Prompt Bar] will only display: "Tag writing failed".

d. When you need to write other data to the EPC area, you need to unlock the EPC area first.

Note: After the EPC area and User area are locked, they cannot be written when unlocked, but can be read;

After the Reserve (reserved area) {kill area + Access area} is locked, it cannot be read or written without entering the access password.

4. Destroy Tag

Click the **[Destroy]** button in the shortcut bar to enter the destroy tag interface.



[Destroy Tag]: The destruction password is in the Reserve (reserved area), address: Kill area 0-1, the default is: 00 00 00 00. Fill in the corresponding password

data in the text box after [Destroy Password], and click the [Destroy Tag] button to destroy the tag.

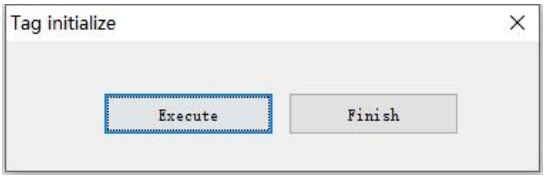
Note:

1. The [Destroy Tag] action is irreversible, please operate with caution!

2. When [Destroy Tags], refer to the [Read/Write Tags] content for the placement and position of the tags.

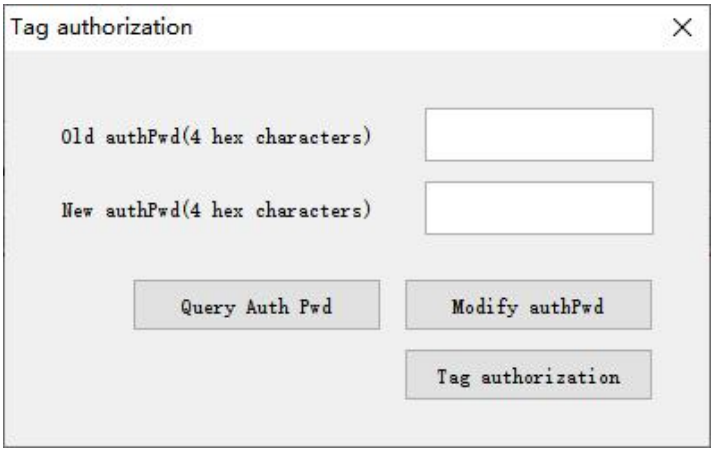
5. Tag Initialize

Click the [Tag initialize] button in the shortcut bar to enter the Tag initialize interface.



[Tag initialize] : Initialize tag and restore tag factory default data. Click "Execute" in the text box after [Initialize Tag] to restore Tag default data.

6. Tag authorization



[Tag authorization] is a relatively fast and simple way to protect tags. By encrypting the authorization to the specified tag, it ensures that some illegal or unauthorized tag information will not be read by the reader.

The operation steps of authorization are as follows:

① Click **[Query Auth Pwd]** ,the exist authorization password of the reader device will be displayed in the Old authPwd text box (the first default is **FFFF**, and the case will not be affected).

② Enter a four digit hexadecimal number different from FFFF in [New authPwd];

③ Click **[Modify authPwd]** ,if the modification is successful, a prompt box will pop up;

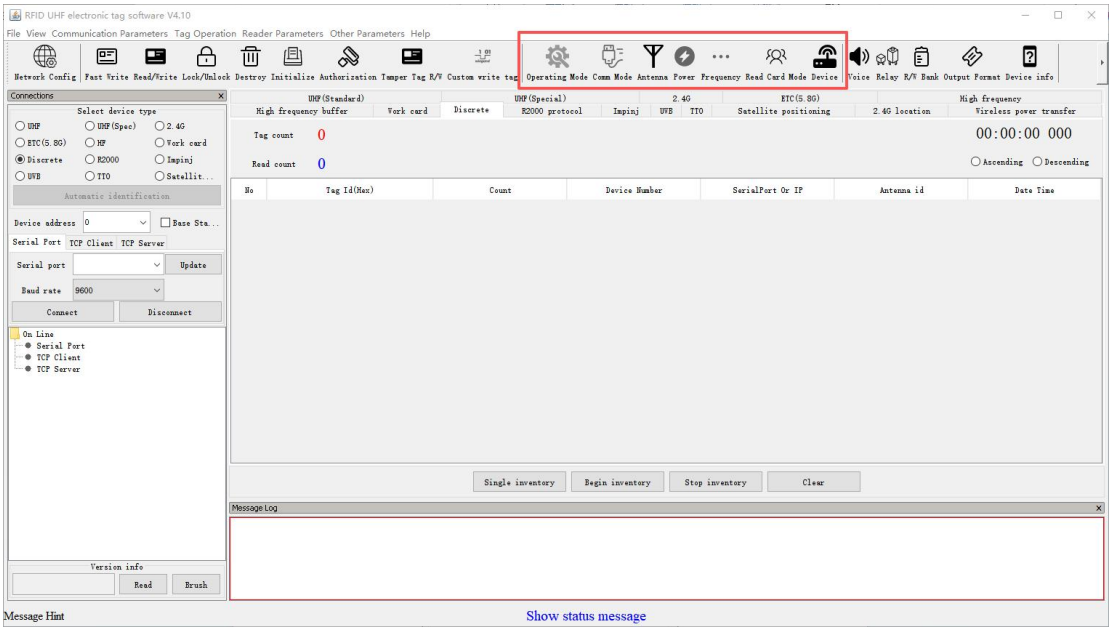
The above steps are a secret setting for the reader. After setting, if no encryption authorization is performed for any tag, all tags will not be read by the reader.

④ Put a tag directly on the reader's antenna above 3-5cm (ensure that there are no other tags around the antenna),click **[Tag authorization]**.After successful authorization, it will display: authorization succeeded; Otherwise, the authorization failure will be displayed, and the tag position and height shall be readjusted to authorize again.

⑤ After successful authorization, back to the main interface for [Begain inventory] test to verify whether the authorization is successful and whether the unauthorized tag will not be read.

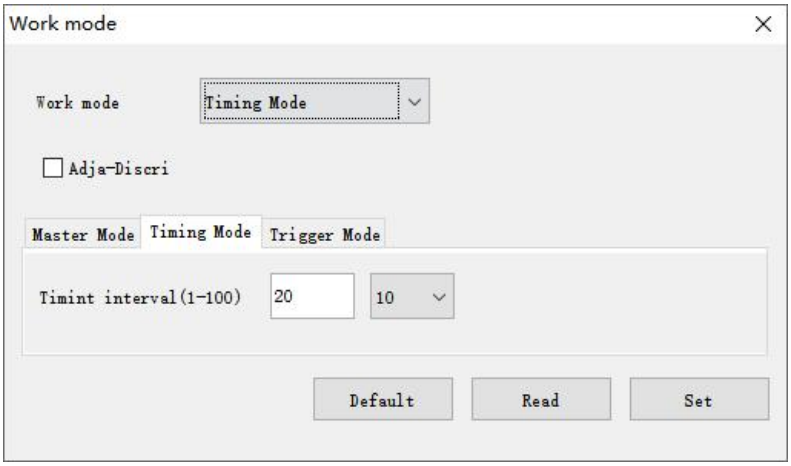
4. Reader parameter settings

All parameter settings made by the user for the reader device are written into the mainboard flash, and the parameters will not be refreshed when the power is off and restarted.



1. Operating Mode

Cick the [Work Mode] button in the shortcut bar to enter the working mode interface.



All our reader devices have the following three working modes: master-slave mode, timing mode, and trigger mode. The default factory settings are generally: [Timing Mode], and [Timing Mode Data Output Interface] is set by default according to the device model. As shown in the figure.

[Master-Slave Mode]: In this working mode, the reader works under the control of the host computer (computer) or other controller. The reader and the controller can communicate through one of the RS232, RS485 or Ethernet interfaces. This

working mode supports all the functions provided by the secondary development package.

[Timing Mode]: The reader automatically reads the card at a certain period (configurable), and the read data is output through the specified communication port. When the required parameters are set, click [Set]. After the setting is successful, there will be a prompt message. To verify the successful setting, you can select another working mode and then click [Read] to see if it is displayed as the working mode you want to set. If not, set it again.

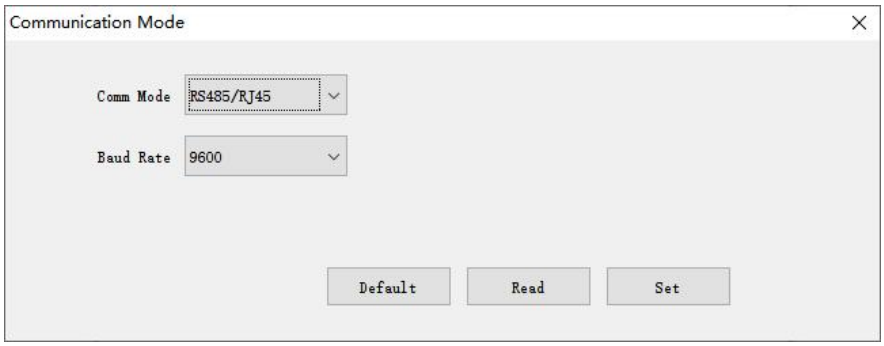
[Trigger Mode]: This mode requires an external infrared, photoelectric gate or similar on-off switch peripheral. When a high level is input to the trigger input port, the reader starts to read the card periodically and automatically turns off after a period of time. In [Trigger Delay], enter the delay time; in [Trigger Mode Alarm Time], set the automatic closing time of the relay after the trigger. When the required parameters are set, click [Set]. After the setting is successful, it will be displayed: The working mode parameters are set successfully. To verify the successful setting, you can select another working mode and then click [Read] to see if it is displayed as the working mode you want to set. If not, set it again.

[Adjacent Discrimination]: After setting the adjacent discrimination time (1-255, unit: seconds), within this time, the same tag number will only be uploaded to the computer (host computer) once no matter how many times it is read.

Note: For specific terminal wiring sequence or pin definition, please refer to the corresponding reader specification manual.

2. Communication mode

Click the **[Communication Mode]** button in the shortcut bar to enter the working mode interface.



[Comm Mode] : You can choose the method by which the data information read by the card reader is transmitted to the host computer (computer). Generally, the default is the channel corresponding to the device model, including [RJ45 network port], [serial port], [RS485], [WiFi], [2.4G], etc. This method is read-only for the tag. When the required parameters are set, click [Set]. After the setting is successful, there will be a prompt message. To verify the successful setting, you can select another working mode and then click [Read] to see if it is displayed as the working mode you want to set. If not, set it again.

[Baud Rate]: Select the baud rate for this communication method.

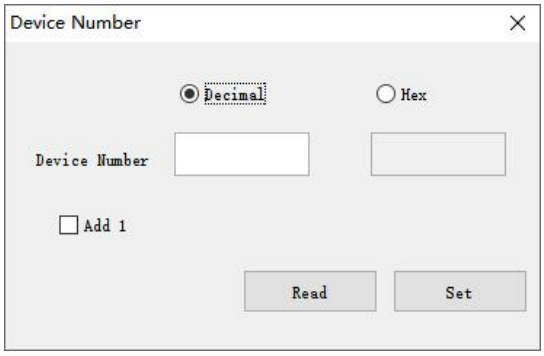
[Default]: This interface setting is adjusted to the default value.

[Read]: Read the configuration information of the connected card reader.

[Settings]: Write current parameters to the card reader device.

3. Device number setting

[Device Number]: Each reader has a corresponding device number, which is generally set to 0 by default. Set different device numbers to distinguish data uploaded from different devices. The device number is a decimal number between 0000 and 9999 .



[Read]: Read the configuration information of the connected card reader.

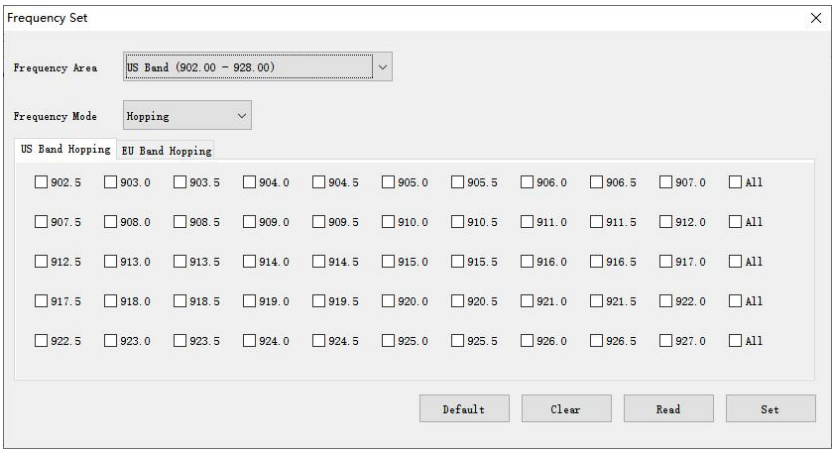
[Set]: Write the current parameters to the card reader device.

4. Power



The factory default power is 30.The power range is 0-30.

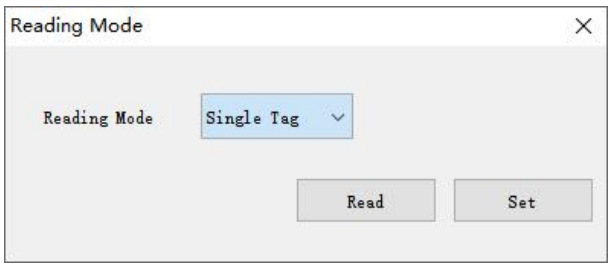
5. Frequency Set



[Frequency Area]: Select the frequency standard. The parameters are generally set to the US Band by default and cannot be modified without permission.

[Frequency Mode]: Default is Hopping mode.And you can choose below hopping frequency point.

6. Reading Mode



[Reading Mode]: [Single Tag] means read one tag at a time.**[Multiple Tag]** means reading multiple tags at a time(almost 0-5 tags),group reading can affect reading distance performance.

Note:If you need to read more tags in a group, please choose our higher-performance reader model.

5. Other operations

1. Voice

Click the [Buzzer] button in the shortcut bar to enter the buzzer configuration interface.



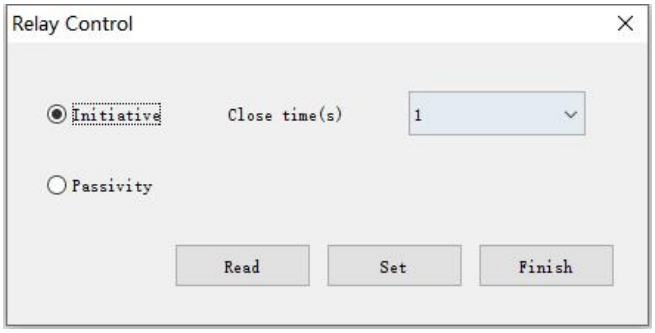
[Close]: Turn off the buzzer.

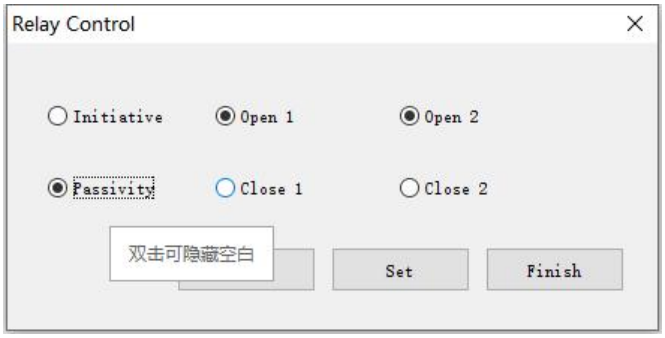
[Continue]: Continuous beeping

[Only Once]: The buzzer beep only once.

2. Relay settings (customized)

You can enter the I/O operation interface by clicking "Other Operations in Menu Bar - Relay Control" or the [Relay] button in the shortcut bar. When the device has relay signal output and is not controlled by the internal software of the card reader, the relay status can be controlled.





[Initiative]: select the corresponding relay closing time in the drop-down box and click Set.

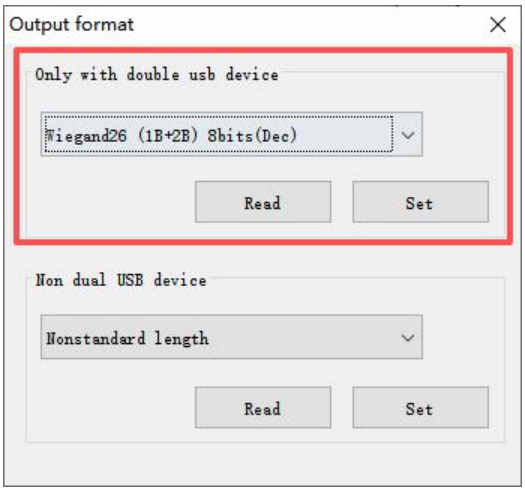
[Passivity]:check the corresponding [Open] or [Close] again to turn the corresponding relay on/off.

[Set]: Write current parameters to the card reader device.

Note: For specific device line sequence and pin definition, please refer to our device specification.

3. Output Format

The output format is mainly to set the data format returned by the card reader after reading the tag, as shown in the figure. The relevant information in the figure can be selected whether it is within the returned data format. If it is checked, the relevant data will be sent, and if it is not checked, no relevant data will be sent.



JT-6210/JT-6223 reader please use **[Only with double usb device]**

JT-8380/JT-8288/JT-8280/JT-8290 reader please use**[Non dual USB device]**

[Read]: Read the card reader mode setting data of the current device and display it in the card reader mode interface. The successful reading information prompt bar will show that the card reader mode is successfully read.

[Set]: Write current parameters to the card reader device.

Note: For data format analysis, please refer to the document - "Uniform Protocol Tag Data Format"