

Split Reader DEMO User Manual

1.Preparation.....	2
2. Connection.....	2
2.1 RS232.....	2
2.2 TCP/IP.....	3
3.Basic Operation.....	4
3.1 Tag searching area.....	5
3.2 Tag Read/Write.....	6
3.3 Rapid Write.....	6
3.4 Read/Wirte data.....	7
3.5 Advanced operation.....	9
4.Communication parameter setting.....	10
5.Reader parameter setting.....	11
5.1Device Parameter.....	12
5.2 Communication Way.....	13
5.3 Frequency and other parameters.....	13
6. Other operations.....	14
6.1 Tag authorization.....	15
6.2 Tag Reading control.....	16
6.3 Relay automatic closing enable.....	16

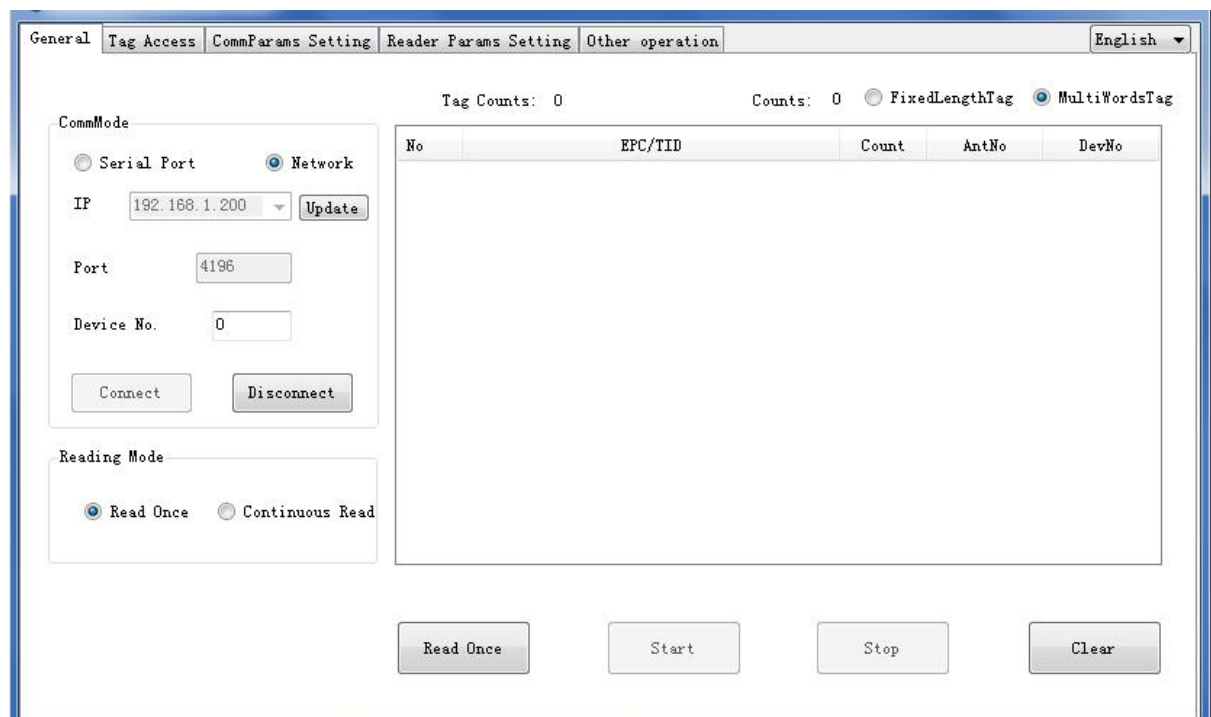
1.Preparation

Before opening the DEMO software, check and confirm that the hardware device you want to connect is powered on(sound 'beep'):

- 1、 The antenna of Reader has been connected。
- 2、 the data cable with host computer is connected(RS232 / RJ45/RS485)
- 3、 the Reader has normal stable power supply;

2. Connection

find and open folder “Demo”, double click “DisDemo.exe” to start DEMO software ,
Operation interface as below:



2.1 RS232

As reader is connected with host computer: RS232 communication, click [serial port] in the [Communication Mode] .

Note, for the first time to connect by RS232, client need download/install suitable USB serial Driver at first. After successfully installation of USB Driver, click [update] to get the communication ports and choose the **right port**. ensure the [baud rate] and [device number] of connected reader, Default baud rate: 9600, default device number. Then click [Connect].

After successfully connection, bottom left of the Demo shows the hardware version of the reader.

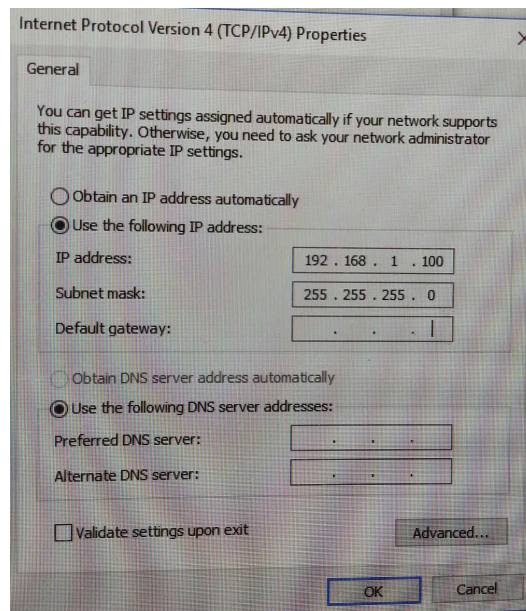
2.2 TCP/IP

As reader is connected with host computer: RJ45(TCP/IP) communication, click [network] in the [Communication Mode] .

The default factory IP address of Reader is: **192. 168. 1. 200**

Note: 1、 If that connected to Reader is laptop, the Wifi needs to be turned off.

2、 Add a network segment in the computer network setting, change the local IP address to: 192.168.1.XXX 【XXX is: 1-255, but not: 200】, if wrong setting, unable to search the Reader device.



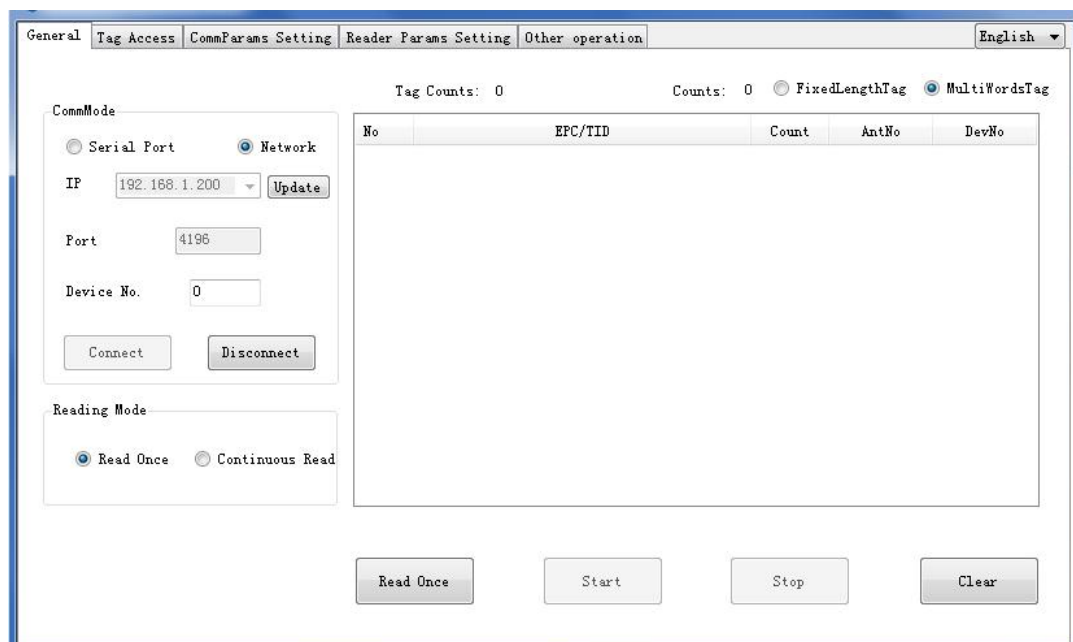
After choose[network], manually fill the IP: **192. 168. 1. 200**, then click[connect]. If successfully connection, bottom left of the Demo shows the hardware version of the reader.

No matter use RS232, or Use RJ45(TCP/IP) as Demo fails to connect to Reader, you should recheck whether the following steps has been completed. As demo fails to connect to Reader device, you should recheck whether following steps has been completed.

- 1、 the data cable with host computer is connected(RS232 / RJ45/RS485)
- 2、 the Reader has normal stable power supply (12V/3A)

If still not successful, please contact us for support.

3.Basic Operation



The basic operation interface has function such as single tag reading, continuous tag reading, Stop, Clear, etc.

There are two ways of tag reading: [Read once] and [continuous Read].

If select [Read once], in the tag reading function operation area, every time [Read once] is clicked, Demo software send a tag finding command to Reader to enable it to Read once. If the tag is successfully read, the ID number of corresponding tag will be displayed in the [Reading Tag Demo] area.

If select [continuous read], as [start] is clicked, Demo software send a tag finding command to Reader at fixed time, to enable it to Read continuously. If the tag is successfully read, the ID number of corresponding tag will be displayed in the [Reading Tag Demo] area.

3.1 Tag searching area

Tag searching area is on the right of basic operation interface, as below.

Tag Counts: 0 Counts: 0 ☐ FixedLengthTag ☒ MultiWordsTag

No	EPC/TID	Count	AntNo	DevNo
----	---------	-------	-------	-------

Read Once

Start

Stop

Clear

Read once: select [Read once], in the tag reading function operation area, every time [Read once] is clicked, Demo software send a tag finding command to Reader to enable it to Read once. If the tag is successfully read, the ID number of corresponding tag will be displayed in the [Reading Tag Demo] area.

Continuous read: select [continuous read], as [start] is clicked, Demo software send a tag finding command to Reader at fixed time, to enable it to Read continuously. If the tag is successfully read, the ID number of corresponding tag will be displayed in the [Reading Tag Demo] area.

Stop: click [stop] to stop continuous read operation. Note: **if reader is working at continuous reading status, have to stop continuous read before any other operation/setting.**

Clear: click [Clear] to clear all the data in the tag searching area.

[No]: the total number of different ID read by reader is the number of tags.

[Count]: The sum of the number of times all tag ID numbers are read, will scroll when reading the card.

[fixed Byte] and [Multi-Byte]: Multi-byte mode is selected when reading different byte tags, and fixed-byte mode is 12-byte selected fixed.

3.2 Tag Read/Write

Tag read/write function operation interface as below:

General Tag Access CommParams Setting Reader Params Setting Other operation English

Fast Write Tag
Valid characters: 0-9 A-F, length:4、8、12、16、20、24bits (delimited by space)
Data ☐ Automatic Add 1

Read/Write Tag Data
☒ Ant1 ☐ Ant2 ☐ Ant3 ☐ Ant4 ☐ Ant5 ☐ Ant6 ☐ Ant7 ☐ Ant8
R/W Bank Start Address Length ☐ ReadByAnt
Data ☐ WriteByAnt
Weigen tran ☒ Wigan 2+1 Mode ☐ Wigan 3+0 Mode

Advanced Operation
Access Password Operation Bank
Destr...

3.3 Rapid Write

Rapid write tag function operation area as below.

Fast Write Tag
Valid characters: 0-9 A-F, length:4、8、12、16、20、24bits (delimited by space)
Data ☐ Automatic Add 1

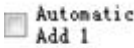
[Rapid write]:The EPC area of the tag can be quickly rewritten, and the data to be written is filled in the box (the data must be a hexadecimal number, and the number of bits is 4, 8, 12, 16, 20, 24 bits), after the data is filled in, place the tag in the appropriate area directly above the reader, and then click [Rapid Write]. If it is successful, "Write Successful" will be displayed at the bottom left of the interface. If it fails, "Write failed" will be displayed at the bottom left of the interface. If fails, following adjustments and tests should be made at this time:

- A、 Appropriate adjustment of the position or height of the tag placement;

B、 whether the tag or reader is encrypted;

C、 check the reader and computer connection if no problem;

When the written data is incremented by 1 in order, and it is a hexadecimal number, you can

check it  before clicking the [Rapid Write] button. When the write is successful, the data in the box will be automatically incremented by 1.

Clear: When the data in the input box needs to be rewritten, you can click the [clear] button to clear the data.

3.4 Read/Wirte data

Read/Write function operation area as below.



The interface for the Read/Write Tag Data function. It includes radio buttons for selecting an antenna (Ant1 to Ant8), a dropdown for R/W Bank, input fields for Start Address and Length, and buttons for Read, Clear, and Write. There are also checkboxes for ReadByAnt and WriteByAnt. At the bottom, there are radio buttons for Wigan 2+1 Mode and Wigan 3+0 Mode, a Switch button, and three buttons: AdvancedAccess Tag, Conn Read, and Stop.

The function operation of tag read/write is mainly to read or write data in each area of the label (where the TID area can only be read and cannot be written). And you can specify the selected channel (antenna) to read and write. If the tags need written is too many, you can also use the "Batch Write" function.



A dropdown menu for the R/W Bank. The options are RFU, EPC, TID, and User. The EPC option is currently selected and highlighted in blue.

[Reserve area]: address 0-3; 0-1 store 32bits kill password, default value: 00 00 00 00; 2-3 store 32bits access password, default value:00 00 00 00; As the area is not encrypted by access or the encryption is killed, the data in the area can be freely rewritten.

[EPC arae]: address 2-7, store 96 bits ID number. This is the area where the data that our

device reads by default is stored. When the area is not encrypted by access or the encryption is killed, the data in the area can be rewritten as needed.

[TID area]: address 0-5; store 96bits globally unique and unchangeable ID numbers.

[User area]: address 0-31; store 512bit data. By default, each address is: 00 00. When the area is not encrypted or killed, the data in the area can be rewritten at will.

The above descriptions of each area use Alien H3, a commonly used tag chip, as an example. Different chips, corresponding regional data and actual effects may be different.

Tag Read/Write process

1.Place the tag directly above the antenna that is connected to the device, approximately: 3-5cm.

(Make sure there are no other tags around the antenna)

2.in the pull-down menu of the [Operation Area] button to Select the area(EPC) to read or write (take the EPC area as an example) ,Drop down menu to confirm the selection of EPC

3.Select the appropriate starting address at the start address, initially set: 2

4.Select the length of the data to be read or written in the length. initially set: 6

The data is read or written to the EPC area starting position: 2 and the length: 6 data. 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 displayed at the bottom left of the interface: read successfully.

Conversely, if the read fails, the data bar does not display any data, and the read failure is displayed at the bottom left of the software interface. If fails, you should check again whether the label is good or bad, the connection between the device, the antenna, and the data cable is intact.

If you need to start the EPC area with a position of 2 and a length of 6 data, write it. You need to fill in the data field with the same length as the length setting.

As the write is successful, "Write Successful" is displayed at the bottom left of the software. To ensure that the required data has been successfully written, you can click [clear] and then click [Read]. After the reading is successful, check whether the data displayed in the data column is the data to be written. After verification, the write is successful. Conversely, if the write fails, the write fails on the bottom left of the software.

Note: After the area corresponding to the operation is encrypted by the access, it is necessary to input the access password to perform as writing, and the writing cannot be performed after the area corresponding to the operation is killed and encrypted.

3.5 Advanced operation

Advanced operation area as below:



The screenshot shows a software interface titled "Advanced Operation". It contains two input fields: "Access Password" and "Destr...". To the right of the "Access Password" field is a label "Operation Bank" followed by a dropdown menu. Below the "Access Password" field is a button labeled "Initialize". To the right of the "Destr..." field is a button labeled "Destroy Tag". Further to the right are two buttons: "Lock" and "Unlock".

[Lock]: Locking is to write encryption for the EPC area and User area; write and read encryption for Reserve (reserved area) and kill (inactivated area). The password is stored in: Reserve (reserved area), address: 2-3 Access area, the default is: 00 00 00 00.

Locking operation process:

- 1、 Place the tag directly above the antenna that is connected to the device, approximately: 3-5cm. (Make sure there are no other tags around the antenna)
- 2、 Select the area(EPC) to read or write, Drop down menu to confirm the selection of EPC
- 3、 Enter the password in [Access Password]. The password is stored in the Access area of the Reserve: 2-3. If it is not rewritten, the default is: 00 00 00 00. (This example, the password has been rewritten as: 00 00 00 03)
- 4、 click [Lock]. After the card is successfully locked, "Lock Successful" will be displayed at the bottom left of the software interface.

To verify that the lock has been successfully locked, you can verify it in the [tag Read/Write] area.

The steps are as follows:

- 1、 Place the tag directly above the antenna that is connected to the device, approximately: 3-5cm. (Make sure there are no other tags around the antenna)
- 2、 Select the operation area and set the starting position and length as shown below.
- 3、 Click [Read]. After the reading is successful, the data is displayed in the data column. Then

slightly change the data, initially set to: E2 00 55 66, then click [Write], you can try multiple clicks, the bottom left of the software, only shows: "Write failed".

4、 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 the User area are locked, they cannot be written but can be read;

Reserve (reserved area) {kill area + Access area} after locking, can not be read and written without entering the access password .

[unlock]:Unlock the area that has been locked.

[Initialization tag]: For the different tags of the PC (protocol control code), perform unified initialization settings.

[kill tag]: The kill password exists in the Reserve area. The address : 0-1 in the Kill area.

Default value: 00 00 00 00。

4.Communication parameter setting

Communication parameter setting interface as below:

[Communication parameter setting] is to provide a preliminary modification to the parameters related to the network communication of the device for the customer who has already connected the network port communication. Process as below:

1、 Click [Search Device]. After the search is successful, the interface will display the relevant

parameters of all network communication of the device.

2、In general, the data of the [serial parameter] area is as shown below and does not need to be modified:

Baud rate: 9600; check bit: non ; Data bit: 8; Stop bit: 1

if the user needs to modify the IP address of the connected device, in the [Network Parameters] area, select the IP address of the connected device to modify it. Note that the changed IP address cannot conflict with the connected device IP in the same network segment, and then Click the [Set Parameter] button to confirm the modification. After the modification is successful, there will be a related dialog box: the setting is successful.

Note: The network mode under the communication parameter setting item, the IP mode and port number do not need to be changed, and the default setting remains unchanged. Failure to do so may result in a failed communication connection.

If there are multiple modifications, forget the set parameters, click [Default Parameters], and then click [Set Parameters] to restore to the factory defaults.

5.Reader parameter setting

Reader parameter setting as below:

The screenshot displays the 'Reader Params Setting' window with the following sections:

- General** | **Tag Access** | **CommParams Setting** | **Reader Params Setting** | **Other operation** | English
- Device Params**
 - Work Mode: **Timing** (dropdown)
 - Timint interval: **20** (input) | **10** (dropdown) | **MS**
 - ☐ Adja-Discr
 - Buttons: **Read**, **Default**, **Set**
- Communication Mode**
 - Comm Mode: **RS485/RJ45** (dropdown)
 - Baud Rate: **9600** (dropdown)
 - Buttons: **Read**, **Default**, **Set**
- Antenna Set**
 - ☒ Ant1 | ☐ Ant2 | ☐ Ant3 | ☐ Ant4 | ☐ Ant5 | ☐ Ant6 | ☐ Ant7 | ☐ Ant8
 - Buttons: **Read**, **Set**
- Frequence and other params**
 - Device No.: **0** (input)
 - Power: **150** (input)
 - Reading mode: **Single Tag** (dropdown)
 - Buttons: **Read**
 - US Baa: **US Baa** (dropdown)
 - Freq mode: **Freq Hoppin** (dropdown)
 - Frequency list (checkboxes):
 - 902.5, 903.0, 903.5, 904.0, 904.5, 905.0, 905.5, 906.0, 906.5, 907.0
 - 907.5, 908.0, 908.5, 909.0, 909.5, 910.0, 910.5, 911.0, 911.5, 912.0
 - 912.5, 913.0, 913.5, 914.0, 914.5, 915.0, 915.5, 916.0, 916.5, 917.0
 - 917.5, 918.0, 918.5, 919.0, 919.5, 920.0, 920.5, 921.0, 921.5, 922.0
 - 922.5, 923.0, 923.5, 924.0, 924.5, 925.0, 925.5, 926.0, 926.5, 927.0
 - Buttons: **Set**, **Default**, **Clear**

5.1 Device Parameter

Device parameter setting area shown as below.:



The screenshot shows a web-based interface for setting device parameters. It features a title bar 'Device Params' and a 'Work Mode' dropdown menu currently set to 'Timing'. To the right is a 'Timint interval' section with a text input field containing '20' and a unit dropdown menu set to '10' MS. Below the 'Work Mode' dropdown is a checkbox labeled 'Adja-Discr'. At the bottom right are three buttons: 'Read', 'Default', and 'Set'.

Working mode: Master-slave mode, timing mode, trigger mode.

[Master-slave]: In this mode of operation, the reader works under the control of a PC or other controller. The reader and the control unit can communicate via one of RS232, RS485 or Ethernet interfaces. This way of working supports all the features provided by the secondary development kit.

[Timing mode]: The reader automatically reads the card in a certain period (configurable), and the read data is output through the designated communication port. This mode operates on the tag as read-only. In [Time Interval], enter the frequency between the reader and the reader to read the tag 2-200.

Generally, the default is: 20*10ms, that is, the card is searched every 200ms. When the required parameters are set, click [Settings]. After the setting is successful, there will be a message. In order to verify the setting success, you can select another working mode, and then click [Read] to see if it displays the working mode you want to set. If not, set it again.

[Trigger mode]: As the input high level is input on the trigger input port, the reader starts to periodically read the card and automatically turns off after a period of time.

When the required parameters are set, click [Settings]. After the setting is successful, it will display: The working mode parameter setting is successful. In order to verify the setting success, you can select another working mode, then click [Read] to see if it displays the working mode you want to set. If not, set it again.

Generally, the default factory setting is: [Fixed mode], the timing time is: 20*10ms.

[Adjacent discrimination]: When the adjacent time (1-200 can be set) is set, the same tag number, no matter how many times it is read, is only uploaded to the computer (host computer).

5.2 Communication Way

Communication way parameter setting area shown as below:

The screenshot shows a software interface for setting communication parameters. It is divided into two main sections: 'Communication Mode' and 'Antenna Set'.
In the 'Communication Mode' section, there is a 'Comm Mode' dropdown menu currently set to 'RS485/RJ45', and a 'Baud Rate' dropdown menu set to '9600'. To the right of these are three buttons: 'Read', 'Default', and 'Set'.
In the 'Antenna Set' section, there are eight checkboxes labeled 'Ant1' through 'Ant8'. 'Ant1' is checked, while the others are unchecked. To the right of these checkboxes are two buttons: 'Read' and 'Set'.

Communication way: RS232、RS485/RJ45、Wiegand。

[RS232]: It appears as a 9-pin (DB-9) type. It is called COM1 on a personal computer and has a default baud rate of 9600. Theoretical data transmission distance: 10m.

[RS485]: Using the differential signal negative logic, the logic "1" is represented by the voltage difference between the two lines - (2 ~ 6) V; the logic "0" is represented by the voltage difference between the two lines + (2 ~ 6) V. The interface signal level is lower than that of RS-232-C, and it is not easy to damage the chip of the interface circuit, and the level is compatible with the TTL level, which is convenient for connection with the TTL circuit. The default baud rate is 9600, theoretical data transmission distance: 400m

[RJ45]: RJ45 type network cable plug, also known as crystal head, is made of eight cores and is widely used in the connection between network equipment (called Category 5 or twisted pair) between LAN equipment and ADSL broadband Internet users. The default baud rate is 9600, theoretical data transmission length: 400m

[Wiegand]: Wiegand agreement is an internationally uniform standard and is a communication protocol developed by Motorola. It is suitable for many features of card readers and cards involving access control systems. It comes in many formats, and the standard 26-bit should be the most common format. Theoretical data transmission distance: 30m

5.3 Frequency and other parameters

Frequency and other parameter setting area shown as below.

Frequency and other params

Device No. Power Reading mode

Freq mode

<input checked="" type="checkbox"/> 902.5	<input type="checkbox"/> 903.0	<input type="checkbox"/> 903.5	<input type="checkbox"/> 904.0	<input type="checkbox"/> 904.5	<input type="checkbox"/> 905.0	<input type="checkbox"/> 905.5	<input type="checkbox"/> 906.0	<input type="checkbox"/> 906.5	<input type="checkbox"/> 907.0
<input checked="" type="checkbox"/> 907.5	<input type="checkbox"/> 908.0	<input type="checkbox"/> 908.5	<input type="checkbox"/> 909.0	<input type="checkbox"/> 909.5	<input type="checkbox"/> 910.0	<input type="checkbox"/> 910.5	<input type="checkbox"/> 911.0	<input type="checkbox"/> 911.5	<input type="checkbox"/> 912.0
<input checked="" type="checkbox"/> 912.5	<input type="checkbox"/> 913.0	<input type="checkbox"/> 913.5	<input type="checkbox"/> 914.0	<input type="checkbox"/> 914.5	<input type="checkbox"/> 915.0	<input type="checkbox"/> 915.5	<input type="checkbox"/> 916.0	<input type="checkbox"/> 916.5	<input type="checkbox"/> 917.0
<input checked="" type="checkbox"/> 917.5	<input type="checkbox"/> 918.0	<input type="checkbox"/> 918.5	<input type="checkbox"/> 919.0	<input type="checkbox"/> 919.5	<input type="checkbox"/> 920.0	<input type="checkbox"/> 920.5	<input type="checkbox"/> 921.0	<input type="checkbox"/> 921.5	<input type="checkbox"/> 922.0
<input checked="" type="checkbox"/> 922.5	<input type="checkbox"/> 923.0	<input type="checkbox"/> 923.5	<input type="checkbox"/> 924.0	<input type="checkbox"/> 924.5	<input type="checkbox"/> 925.0	<input type="checkbox"/> 925.5	<input type="checkbox"/> 926.0	<input type="checkbox"/> 926.5	<input checked="" type="checkbox"/> 927.0

[Device No]: Each reader will have a corresponding device number. The default factory default setting is: 0. Set a different device number. Convenient to distinguish between data uploads of different devices.

[power]: The output power of most readers is: 150, and the power of some readers dedicated to writing cards will be slightly different. The power input range of this DEMO software is 1-150.

[Reading mode]: Card reading methods are: EPC single tag and EPC multi- tag

Single tag: Set this mode to make the reader read the best for a single tag.

Multi-tags: Set this mode to make the reader read the best for a multi-tags(normal in 20 tags)

[Frequency setting]: The frequency setting has two modes: frequency hopping mode and fixed frequency mode.

Frequency hopping mode: The reader sequentially circulates at multiple frequencies while transmitting the read tag signal.

Fixed frequency mode: When the reader sends the read tag signal, it only sends the signal at the set frequency point.

6. Other operations

Other operation setting interface shown as below:

6.1 Tag authorization

Tag authorization parameter setting show as below:

Encryption is quick and easy to protect tags from permissions. By encrypting the authorization to the specified label, it is guaranteed that some illegal or unauthorized label information will not be read by the reader. The authorization label operation steps are as follows:

- 1、 In the [original authorization code] input box: input FFFF (the first default is: FFFF, and the case does not affect);
- 2、 in [New Authorization Code], enter a four-digit hexadecimal number different from FFFF, which is initially set to:1234;
- 3、 Click [Modify Authorization Code], and the modification will pop up the prompt box information.

The above steps are to set a secret setting for the reader. After setting, if any tag is not authorized for encryption, all tags will not be read by the reader.

- 4、 Place the tag directly above the antenna connected to the device, approximately: 3-5cm.
(Ensure that there are no other tags around the antenna), click [Tag Authorization], after the

authorization is successful, it will display: the authorization is successful, otherwise the authorization failure will be displayed, then the tag position and height need to be re-adjusted, and the authorization is re-authorized.。

- 5、 the tag after successful authorization, can return to the [basic operation] area, carry out the [continuous card reading] test, the purpose is to verify whether the authorization is successful, and verify that the unauthorized tag is not read.
- 6、 As the authorization password needs to be changed twice or more, you need to follow the steps in the first step above to re-operate. Just note that when you input [original authorization code], it is the password that was last modified. Instead of: FFFF

6.2 Tag Reading control

Tag Reading control parameter setting shown as below.

Read the Card Control		USB output format (only with double usb device)	
Buzzer Voice	Continuous bee ▼	Read	Set
R/W Bank	EPC ▼	Read	Set
		Wiegand26 (1B+2B) 8bits(Dec) ▼	Read Set

The sound of the card reader buzzer has three options: “Off”, “Continuous Beep” and “Only One Ring”.

Off: After the reader reads the tag, there will be no audible prompts.

Continuous Beep: Every time the reader reads the tag, the corresponding one will ring.

Only one Ring: Every time the reader reads the tag, it will only sound once.。

[USB output format]: This setting is limited to dual USB Writer, so before setting, first determine the connected device as: dual USB Writer.

6.3 Relay automatic closing enable

Relay automatic closing enable setting shown as below:

A dialog box titled "Relay Control" with a light gray border. Inside, there are two radio button options: "Initiative" and "Passivity". The "Initiative" option is selected, indicated by a filled circle. To the right of these options is a button labeled "Set".

Relay Control

☒ Initiative

☐ Passivity

Set

When the device has a relay signal output and is not controlled by the internal software of the reader (Generally, the default relay signal of the factory relay signal, when the reader reads the label, the relay will automatically pick up) to Control of relay status.

[Active] and [Passive] setting options are matched with "Close Time Value", and then click the [Settings] button to set related functions. You can also click the [Read] button to read the current relay setting status.