User Manual

QR500 Pro

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English

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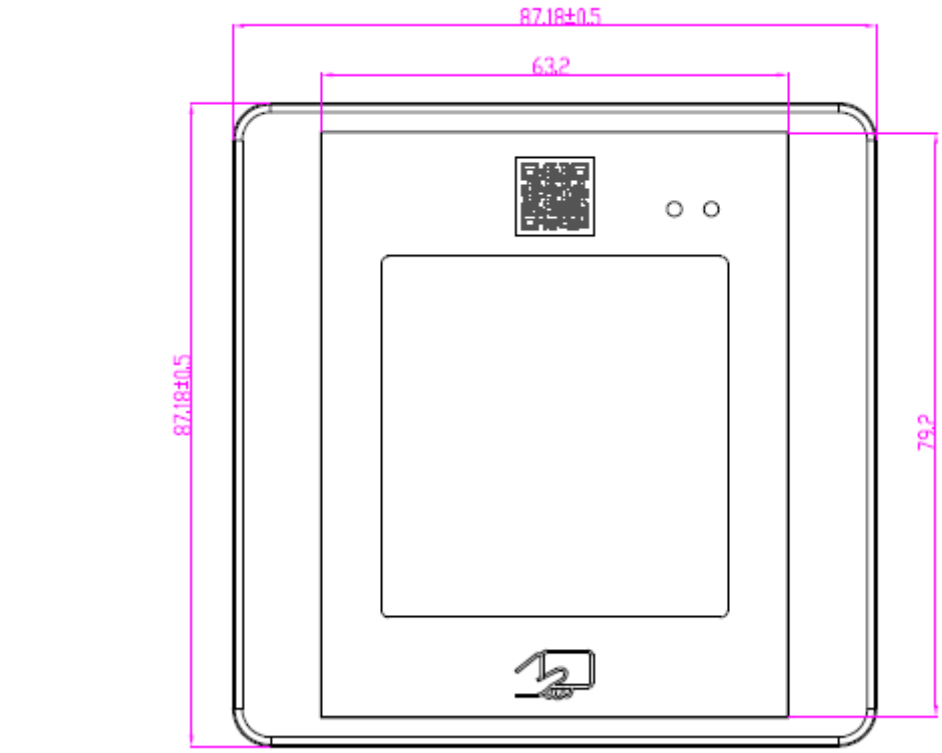
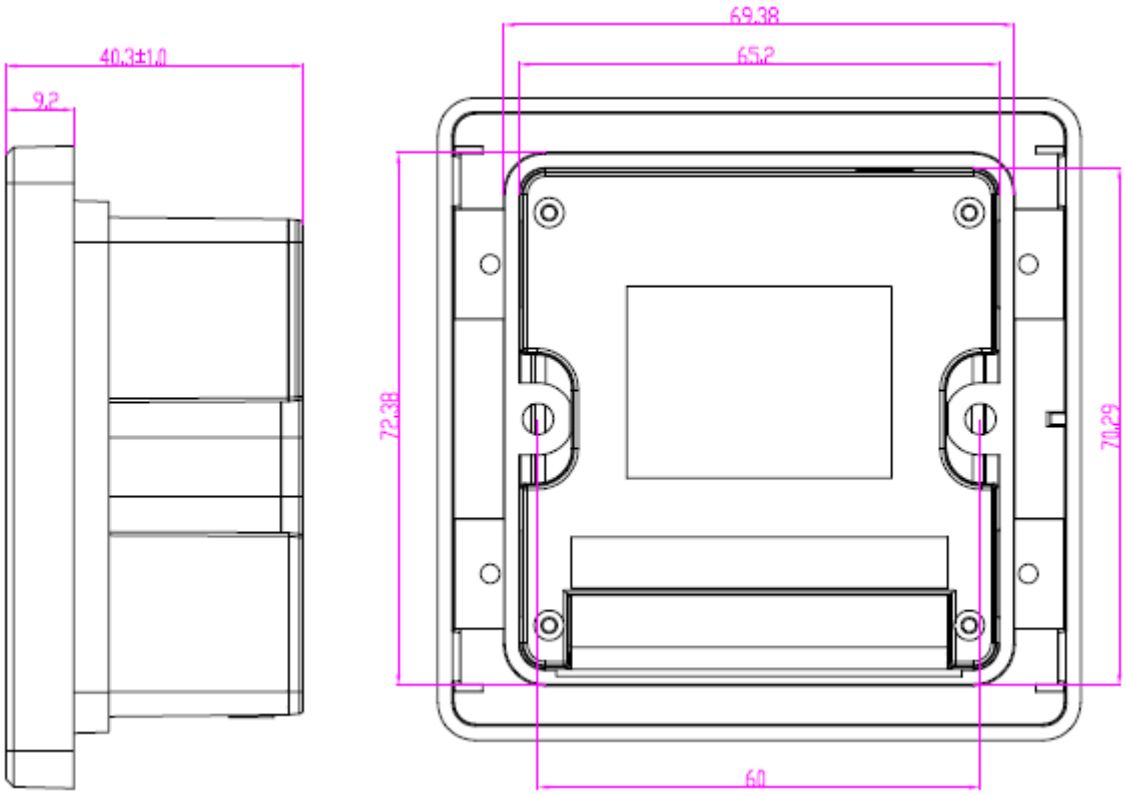
1 Overview

1.1 Appearance





1.2 Appearance Description

No.	Name	Description
1	USB Port	Communication with PC via Mini-USB cable connection.
2	Status Indicator	Display the equipment status, when standby mode, the light is off.
3	Power Indicator	Display equipment power-on status, normal red light is always on.

2 Wiring Instructions and Equipment Installation

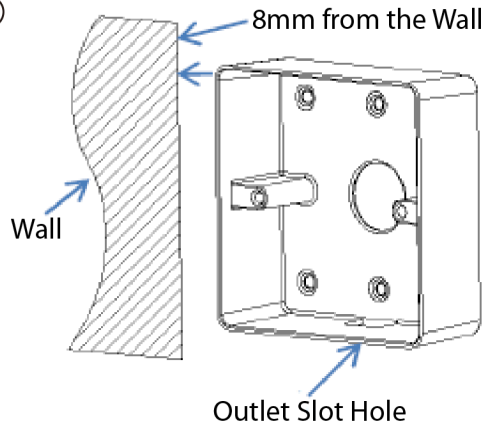
2.1 Wiring Definition

From left to right (based on the image above):

No.	Function	Description
1	DC(+12V)	Power
2	GND	Ground
3	485+	RS485 Interface
4	485-	
5	WGO	WG Interface
6	WG1	
7	\	No function
8	\	No function
9	BEEPER	External control line for buzzer, active low.
10	GLED	Green light external control line, active low.

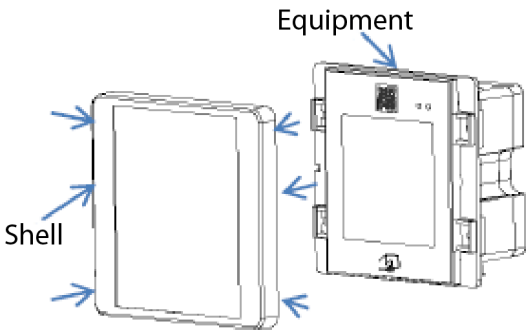
2.2 Equipment Installation

①



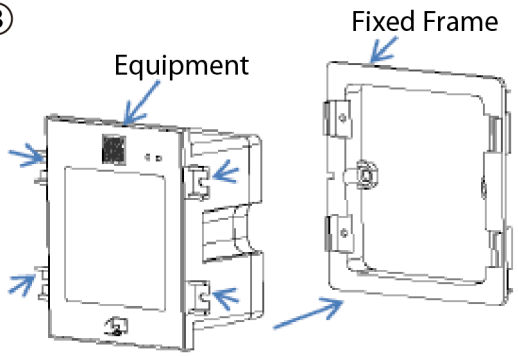
As shown above, dig a slot in the wall, install and fix the 86 type bottom box, with the outlet slot hole facing down and the end of the bottom box about 8mm from the wall.

②



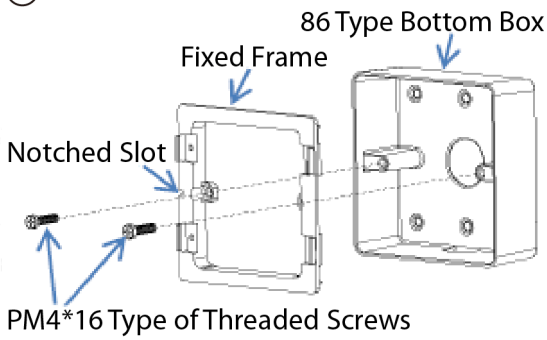
As shown above, use the disassembly tool to pry loose the left and right, up and down four buckle positions of the shell and remove the shell from the equipment, taking care not to damage the shell and the equipment.

③



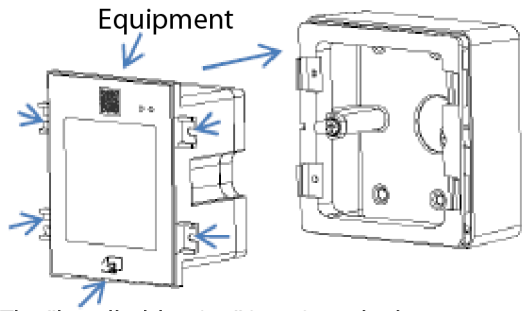
As shown above, use the disassembly tool to pry the fixed frame left and right, up and down in four buckle positions to remove the fixed frame from the equipment, taking care not to damage the fixed frame and the equipment.

④



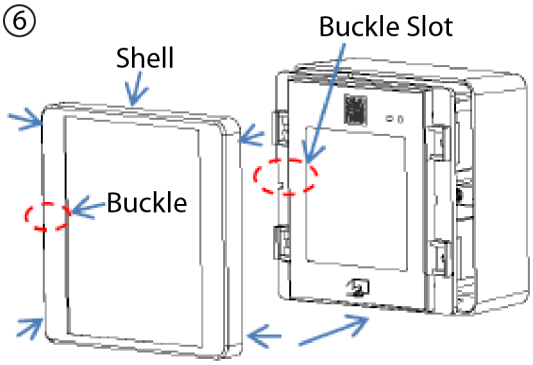
As shown above, use two PM4*16 type of threaded screws to fix the fixed frame assembly on the 86 type bottom box, note that the notched slot on the fixed frame is on the left.

⑤



As shown above, connect and cover the line, then attach the equipment assembly into the fixed frame. Pay close attention to the "handheld swipe" icon at the bottom.

⑥



As shown above, attach the shell assembly onto the equipment, at the same time check that the buckle on the shell is on the left side, to the buckle slot on the left side of its equipment.

Note:

1. Please wire before installation.
2. The product package does not include an Asian gang-box; this must be purchased separately.

3 Operating Instructions

3.1 Card Reader Test

First, the equipment is connected to +12V power supply; the power indication red light is always on. Wait around 5 seconds, the status indicator will turn green light, and the buzzer will sound once, indicating that the equipment has started successfully. The equipment then goes into standby mode, with the power indication red light is always on, the status indicator off, and the fill light white light on.

- **Card Swipe Test**

Put the user card into the swipe area of the equipment, the status indicator green light will illuminate once, the buzzer will sound once, and the equipment will transmit the card data through the Wiegand /RS485 /Mini-USB data line.

- **Scan Code Test**

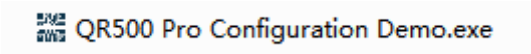
Put the 1D code or 2D code into the sweeping area of the equipment, the status indicator green light will illuminate once, the buzzer will sound once, and the equipment will transmit the 1D code or 2D code data through the Wiegand /RS485 /Mini-USB data line.

3.2 Configuration Software Operation Instructions

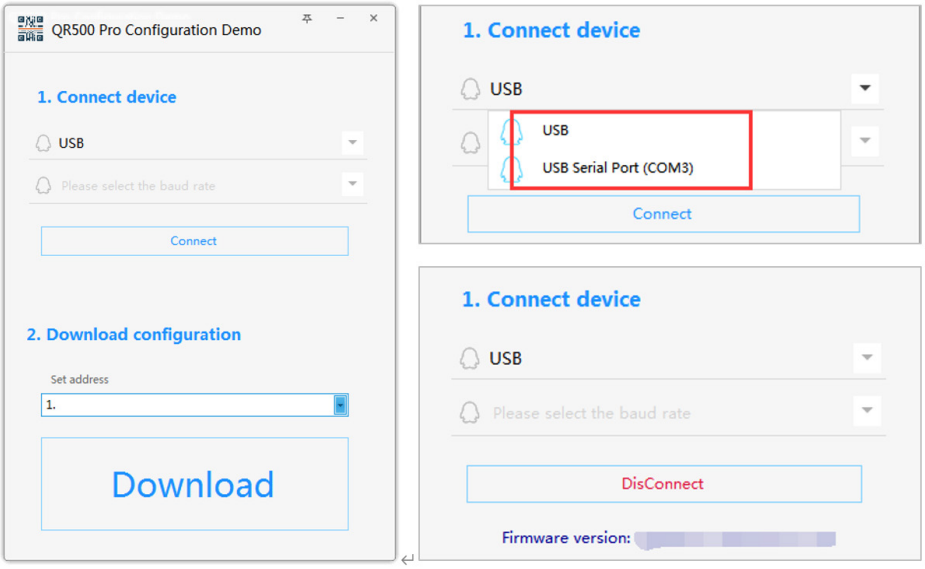
If you need to modify the equipment's Wiegand format, QR code mode, card reading parameters, etc., you can connect the computer configuration software through the Mini-USB data cable and modify the relevant parameters in the configuration software. Specific operations are as follows.

3.2.1 Connect the Software

1. The equipment is connected to the computer via Mini-USB cable, find and run the software.



2. Enter the connection page.



3. Select "USB", click **Connect**, wait for about 2 seconds, the page will show the firmware version of the equipment, that is, successful connection.

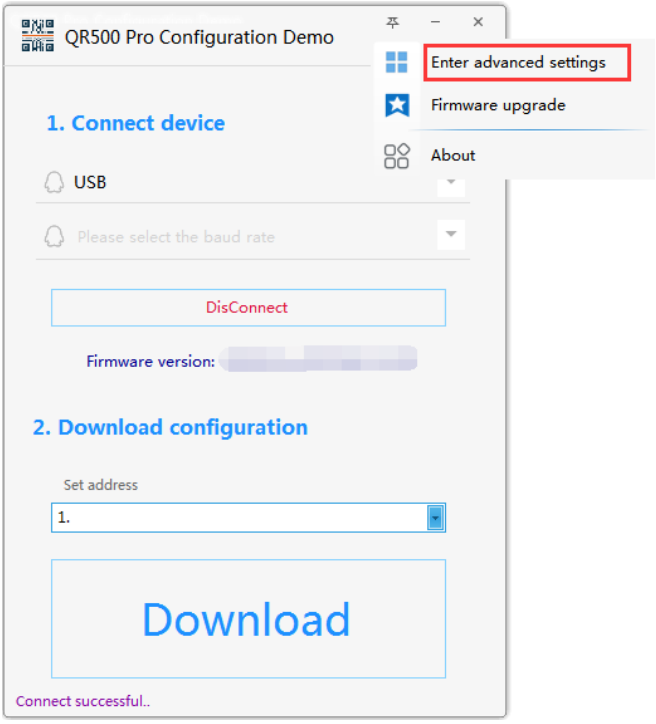
   Note:

   1) Support for two ways to connect the configuration software through USB or RS485 to serial port.

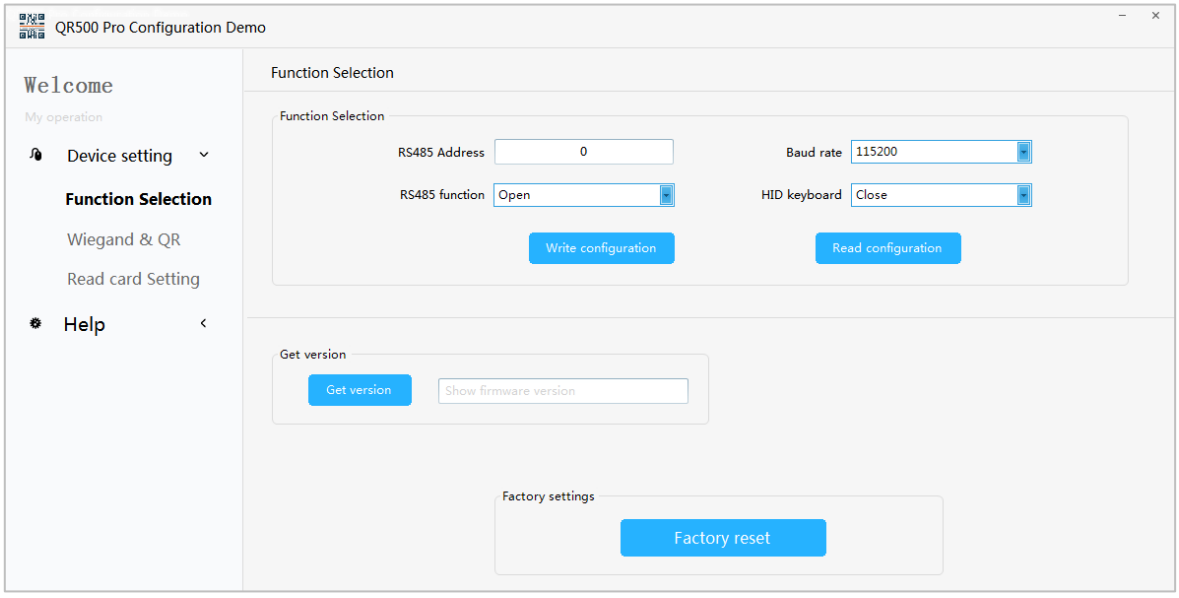
   2) USB: Use the USB communication method to connect to the configuration software.

   3) USB Serial Port (COM*): Use RS485 to serial port method to connect the configuration software. When you select this method, the baud rate is selected as 115200.

4. In the upper right corner of the page, click , then click **Enter Advanced Settings** to enter the settings page.

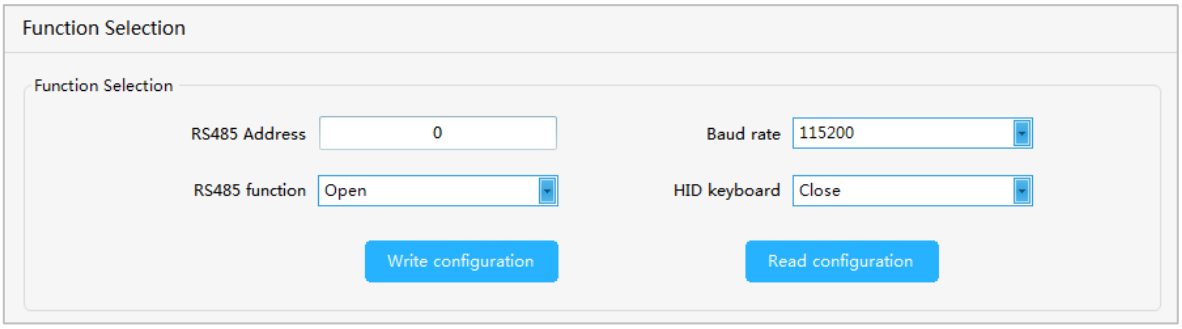


5. Settings page.



3.2.2 Function Selection

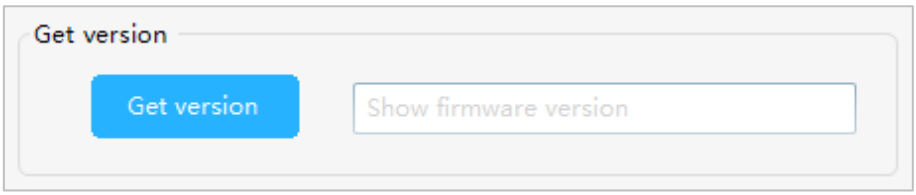
1. Set RS485 communication address, equipment serial number, baud rate, and HID keyboard function switch.



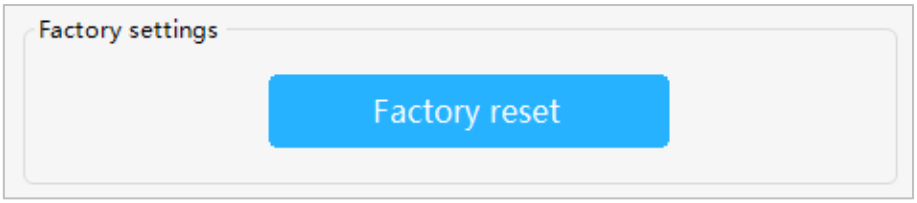
Item Description:

RS485 Address	0 is the broadcast address, can be set in the range 0 to 255, general application setting is 1to 8.
Baud Rate	Used when RS485 to serial communication.
RS485 Function	Turns RS485 communication on or off.
HID Keyboard	Analog keyboard output. When turned on, swipe or scan the code, the data will be output in the text or edit box.
Write Configuration	Click **Write Configuration** to update the parameters to the equipment after the parameters are modified.
Read Configuration	Get the current configuration parameters of the card reader.

2. Click **Get version** to get the firmware version number.

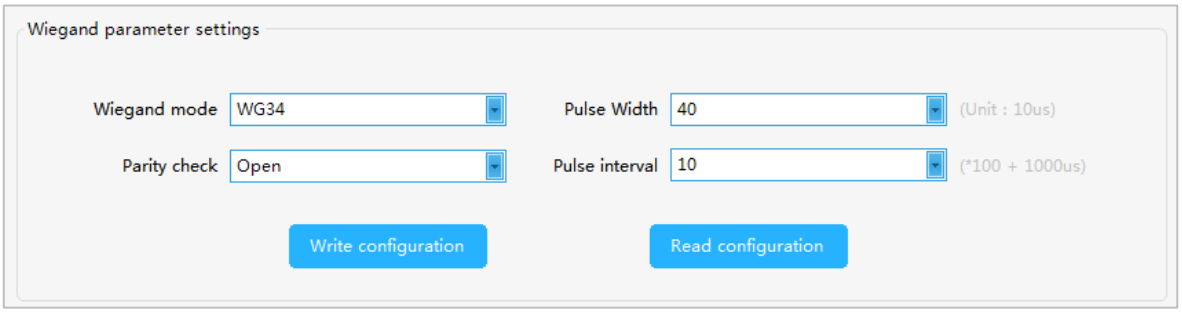


3. Click **Factory reset** to restore factory settings.



3.2.3 Wiegand and QR Code Parameter Setting

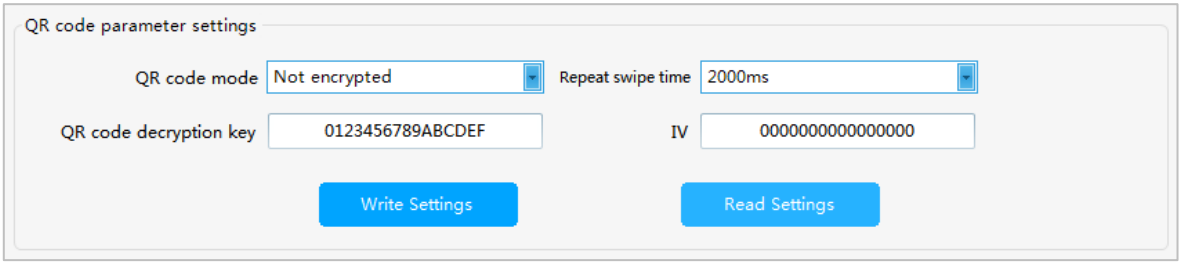
1. Wiegand parameter setting.



Item Description:

Wiegand Mode	Settable reader Wiegand format, optional 34, 66.
Parity Check	Wiegand check switch. Example: Wiegand 26, turn off Wiegand check, it will be Wiegand 24.
Pulse Width	This parameter can be set to adapt to different brands of controllers.
Pulse Interval	Set the pulse interval time to determine the upcoming current to the controllers.
Write Configuration	After modifying the parameters, click "Write Configuration" to write the parameters into the equipment.
Read Configuration	Get the current configuration parameters of the card reader.

2. QR code parameter setting.

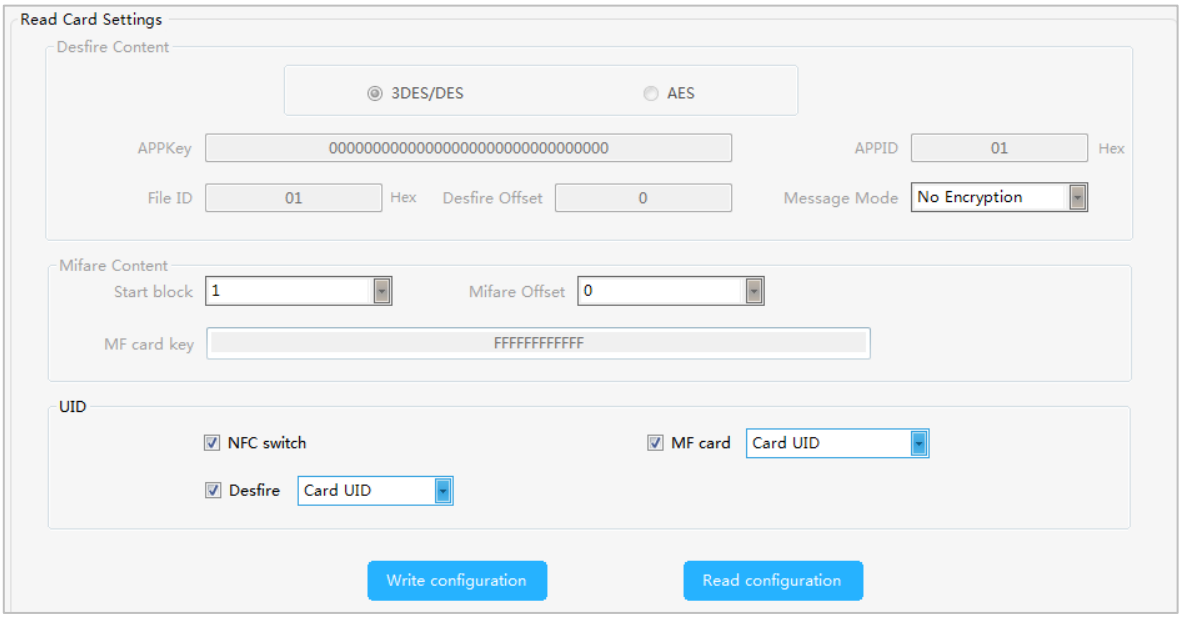


Item Description:

OR Code Mode	You can set QR code recognition mode, you can choose "no encryption transmission" or "Europe". "Europe": a customized recognition mode, the QR code data is output after decrypted according to the customized way.
Repeat Swipe Time	Set the interval of repeated swiping and sweeping of the card reader, selectable from 0-5000ms.
QR Code Decryption Key	When choose "Europe" recognition mode, decrypt the QR code data, use the key.
IV	When "Europe" recognition mode is selected, the initial vector is used to decrypt the QR code data.
Write Settings	Click **Write Settings** to update the parameters to the equipment after the

	parameters are modified.
Read Settings	Get the current configuration parameters of the card reader.

3.2.4 Read Card Settings

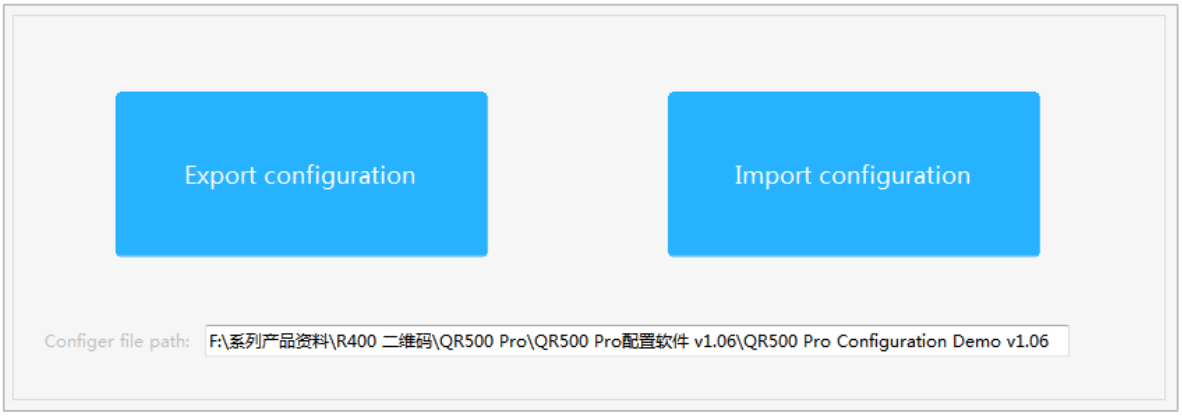


Item Description:

3DES/DES， AES	The encryption method used to read the card data, card authentication.
APPKey	Card authentication, key used when reading card data. hexadecimal, length 16 bytes.
APPID	The Desfire card to be read, the application identifier where the data is located. hexadecimal, length 3 bytes.
File ID	Desfire card to be read, the file number where the data is located. hexadecimal, length 1 byte.
Desfire Offset	Desfire card to be read, the data starts from the first few bytes.
Message Mode	When reading the card data, choose whether to communicate in clear text or encrypted communication.
Start Block	The MF user card to be read, the block where the data is located.
Mifare Offset	The MF user card to be read, the data starts from the first byte.
MF Card Key	The MF user card to be read, the sector key where the data is located.
NFC Switch	Read function switch, off means the reader does not support card swipe.
MF Card, Desfire	You can set the reader to read MF, DESFire card physical card number or card content, also can turn on or off the support for this type of card.
Write Configuration	Click **Write Configuration** to update the parameters to the equipment after the parameters are modified.
Read Configuration	Get the current configuration parameters of the card reader.

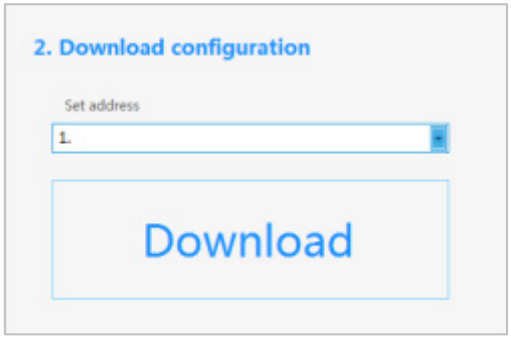
3.2.5 Page Configuration

You can import or export the configuration of the set reader parameters to achieve rapid setting of the reader parameters.



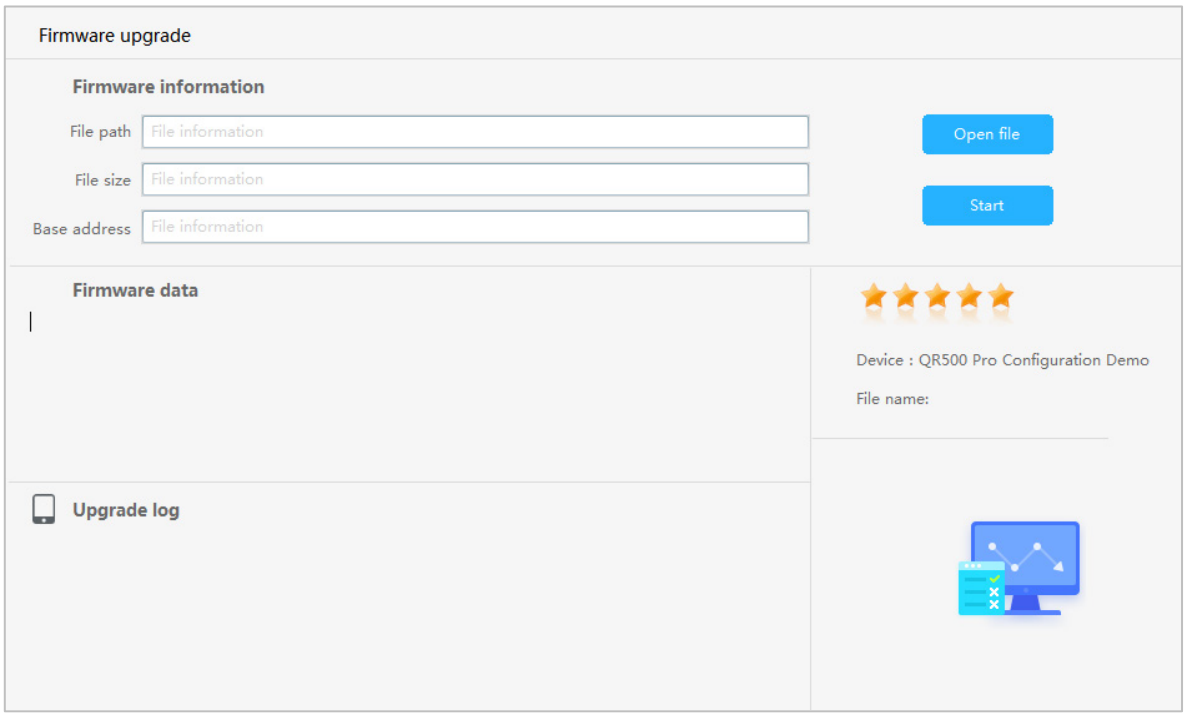
Note:

1) If the reader is RS485 communication and the configuration is imported, the RS485 address also needs to be set.
2) In the connection page (as shown on the right), the download configuration and import configuration function are the same.

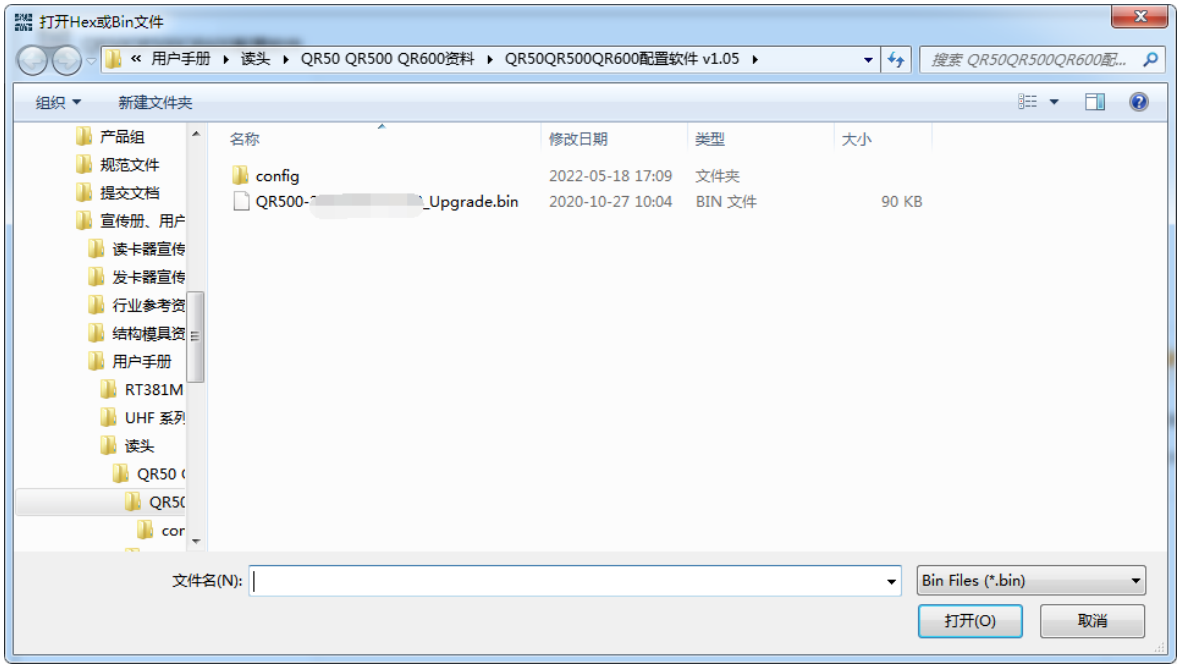


3.2.6 Firmware Upgrade

1. If the reader needs firmware upgrade, you can upgrade in the "Firmware Upgrade" page.



2. Click **Open File**, select the upgrade firmware, click **Open**, then click **Start**. Disconnect the card reader, unplug the USB, and then connect the USB again, the card reader will automatically start to upgrade, wait for the progress bar at the bottom of the page to complete. When the progress bar is completed, the upgrade is successful.



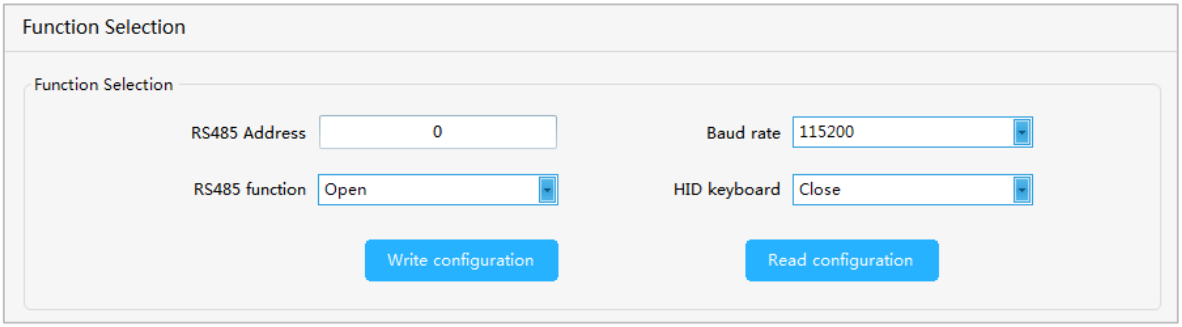
Note: When upgrading, you need to power off the card reader, unplug the USB, and then connect the USB again.

3.3 Active Card Reading Operation Instructions

If you need a QR code reader to issue a user card (active card reading), you can refer to the following operation.

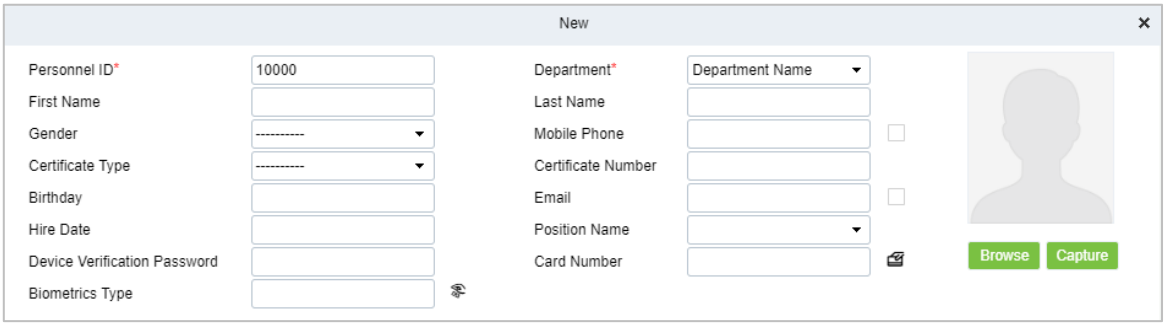
3.3.1 Open HID Keyboard

The reader connects to the computer through the Mini-USB data cable, and then find and run the configuration software. Enter the advanced settings, in the function selection, select "HID keyboard - Open", click **Write Configuration**. If it is already open, no need to connect to the configuration software settings.



3.3.2 User Card Issuing Demonstration (Active Card Reading)

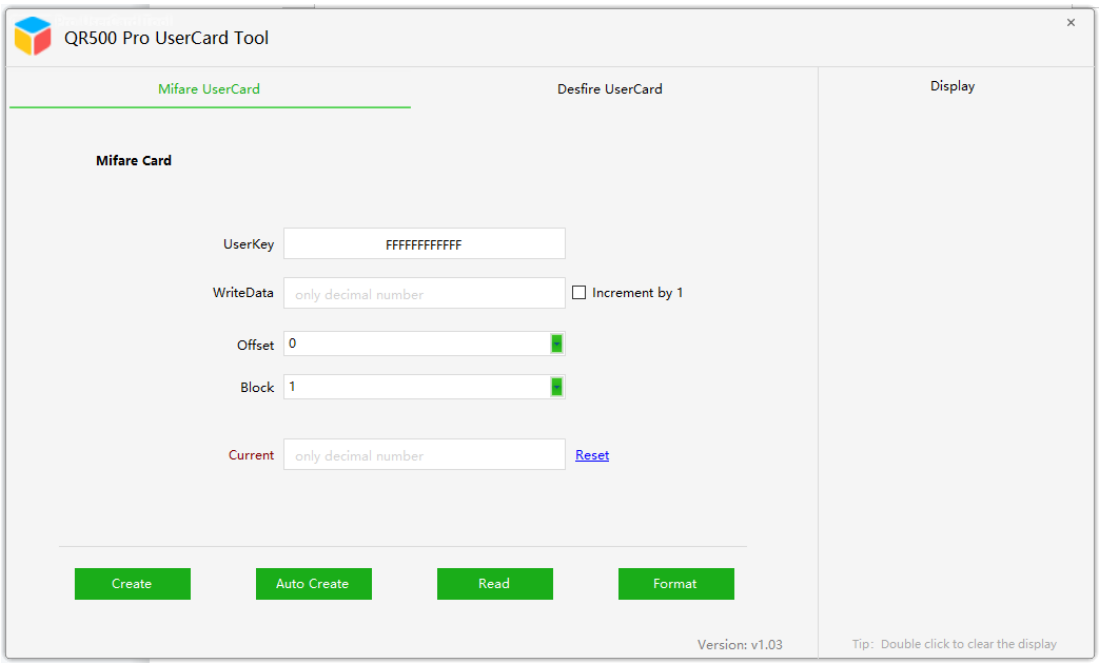
Using a successfully set up QR code reader, left click on the personnel to add a new card number box or text document, WORD document, WeChat QQ chat box, the user card into the card issuer swipe area, the card issuer will automatically card number / content output to the above editable box.



4 Instructions for QR500 Pro User Card Tool

4.1 Mifare UserCard

This function is used to create mifare user card.

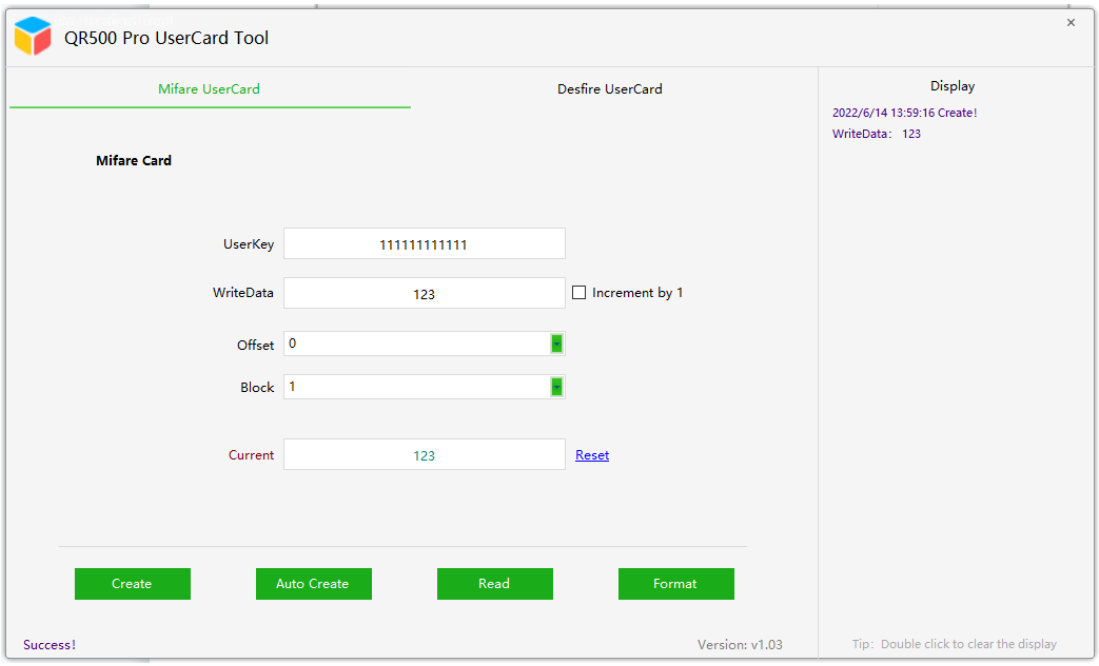


4.1.1 Details of Parameters

Parameter	Meaning
UserKey	The Mifare card sector key A where the [Block] is located.
WriteData	The data wanted to write
Increment by 1	If this option is checked, the data in write data will be incremented by 1 after the card is successfully written.
Offset	**[WriteData]** write the starting position in the card
Block	Block address of mifare card.

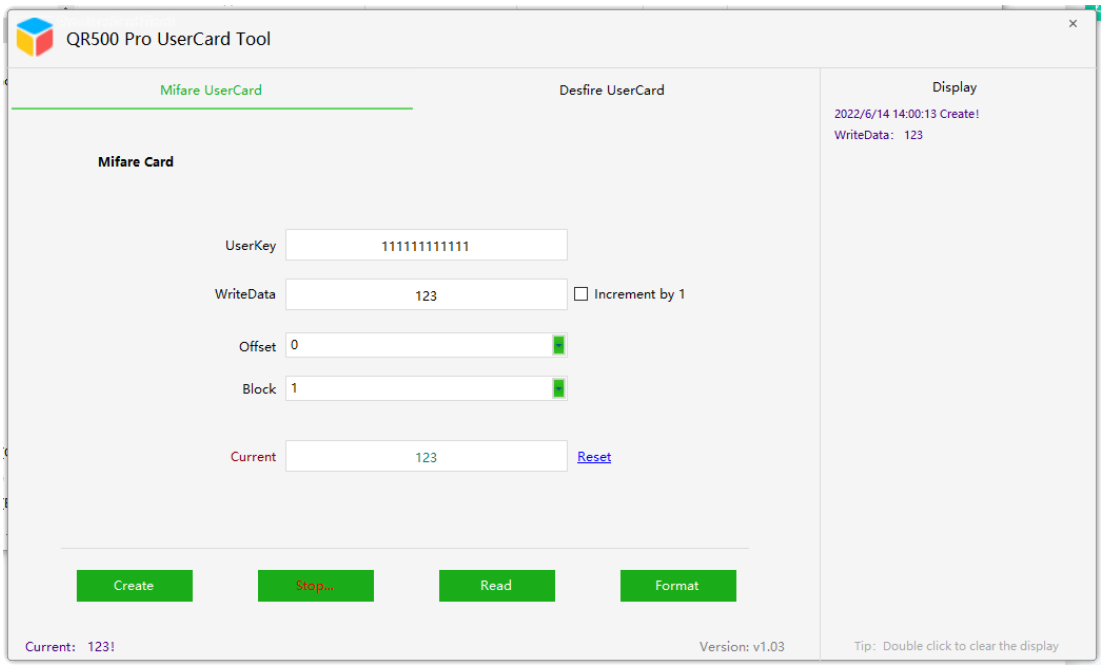
4.1.2 Create

Use the default key A of FFFFFFFFFFFF, and write the data in **[WriteData]** to the offset address in the block. After the card writing is successful, change key A to the value in **[UserKey]**.



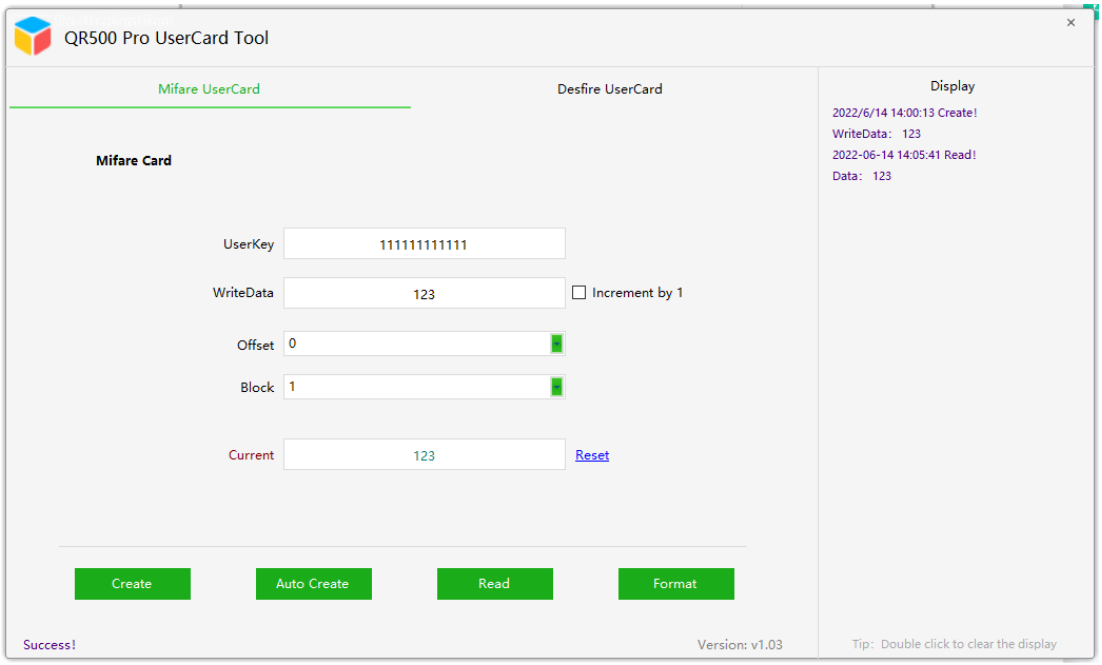
4.1.3 Auto Create

The same function as creates, but this function can send multiple cards continuously without clicking multiple times, but this function needs to be stopped separately



4.1.4 Read

Use the password in the **[UserKey]** to verify the selected block address, if the verification is successful, the card content will be read and displayed.

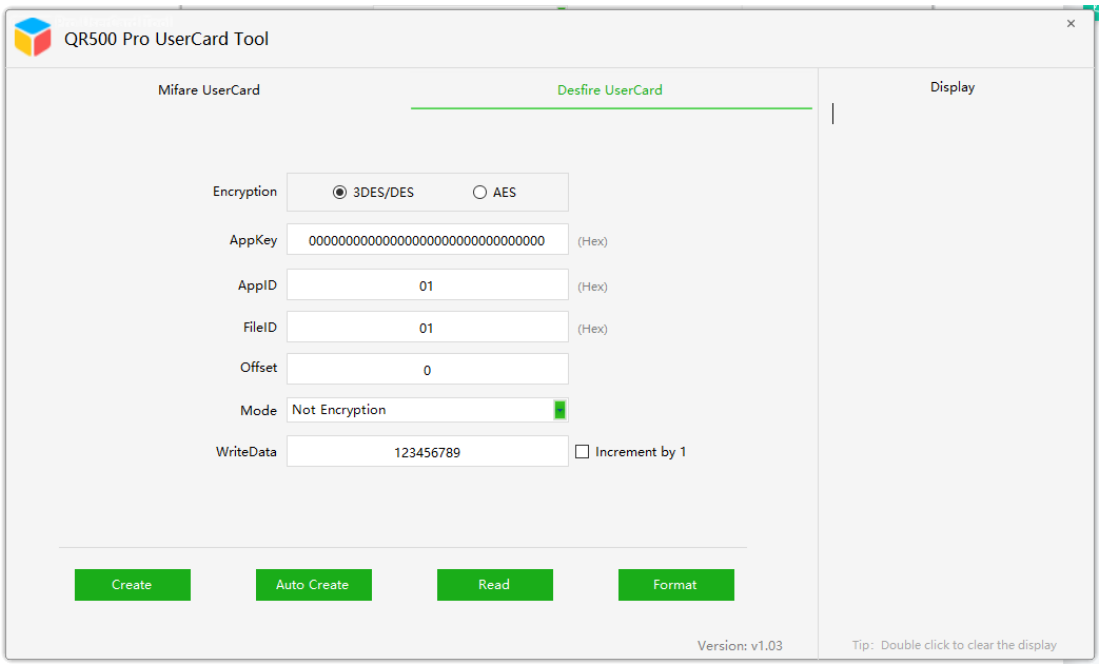


4.1.5 Format

Use the password in the **[UserKey]** to verify the selected block address. If the verification is successful, the card content will be cleared and keyA will be changed to FFFFFFFFFFFF.

4.2 Desfire UserCard

This function is used to create desfire user card.

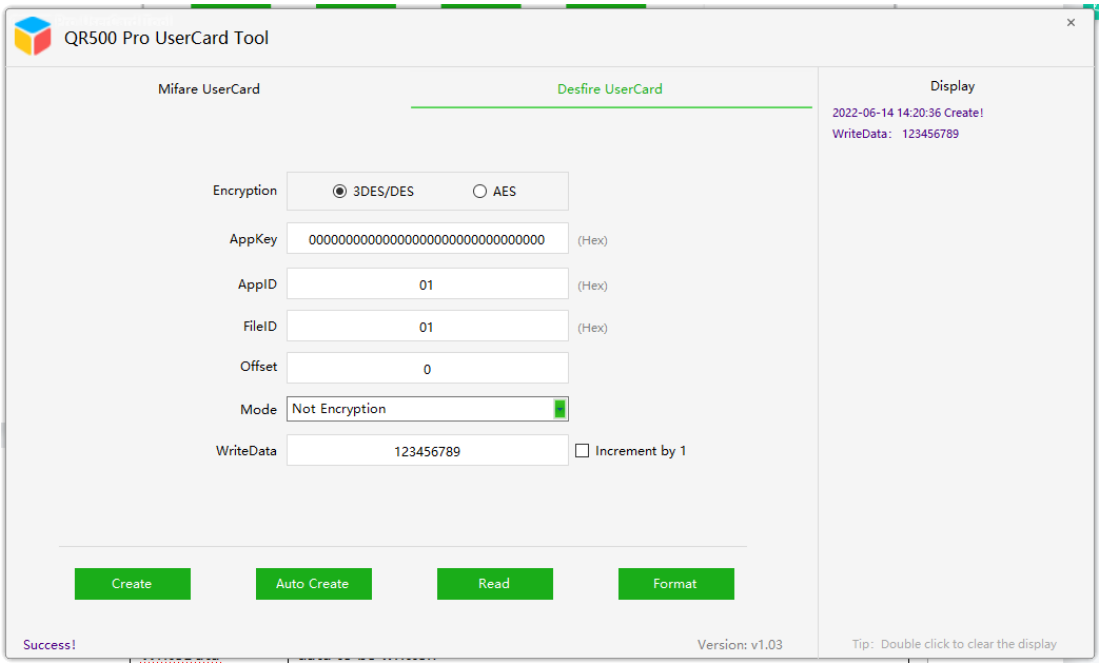


4.2.1 Details of parameters

Parameter	Meaning
Encryption	3DES/Des or AES
AppKey	The master key of the application to be created
AppID	ID of the application to be created
FileID	ID of the file to be created
Offset	The starting position where data is written to the file
Mode	encrypted or unencrypted
WriteData	data to be written
Increment by 1	If this option is checked, the data in **[WriteData]** will be incremented by 1 after the card is successfully written.

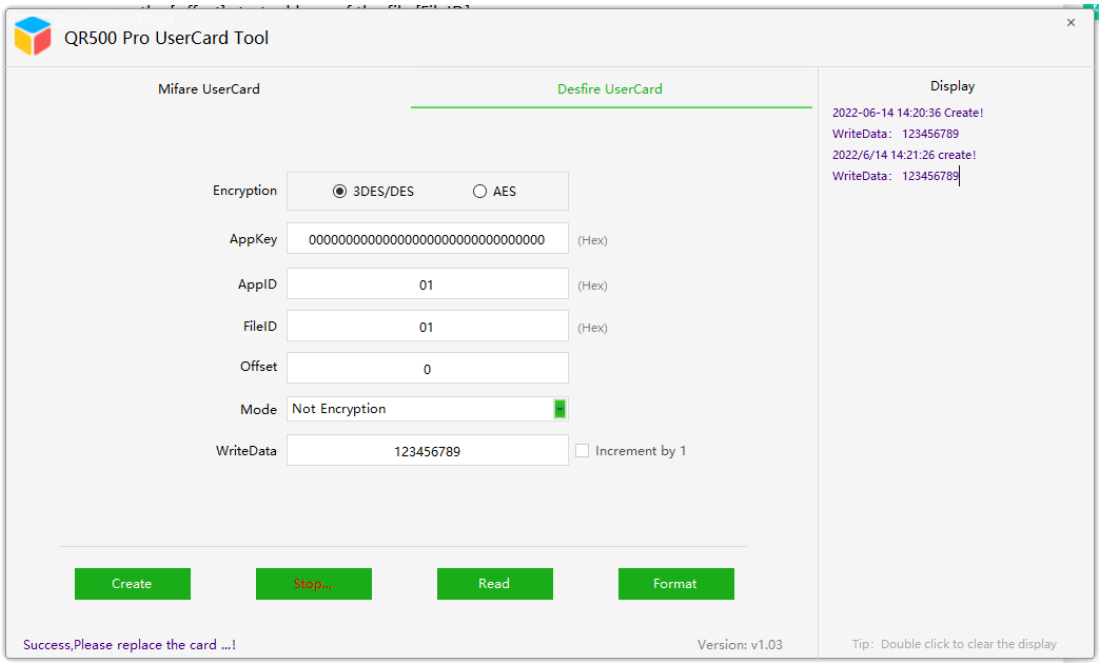
4.2.2 Create

Create a sub-application **[AppID]** under application 0, set the master password of the application **[AppID]** to **[AppKey]**, then create a file **[FileID]** in the application **[AppID]**, and write the data to the **[offset]** start address of the file **[FileID]**.



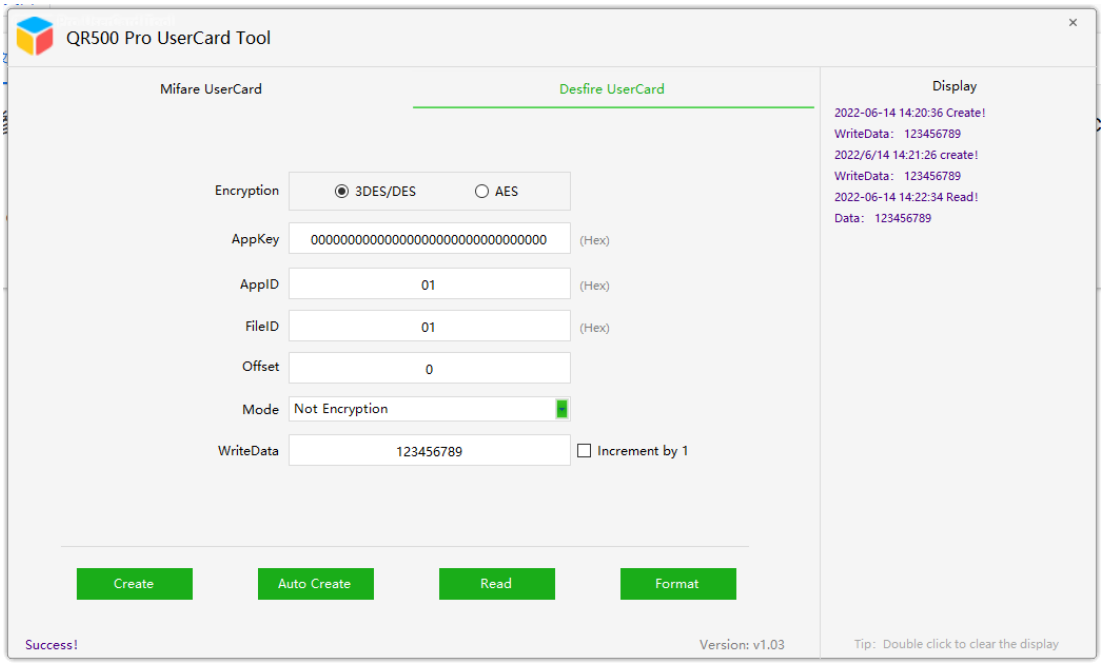
4.2.3 Auto Create

The same function as create, but this function can send multiple cards continuously without clicking multiple times, but this function needs to be stopped separately



4.2.4 Read

Read the data in the card according to the selected parameters and display the data



4.2.5 Format

Format application 0.

Appendix

Card Reader Status Description

Category	Description
Buzzer sounds 1 time, status indicator green light flashes 1 time.	Swipe the card or scan the code to verify success.
Power on indicator red light is always on, status indicator off, fill light white light on.	Standby.

Caution

1. The power supply for supplying the card reader is recommended to use a non-switching linear DC power supply. The power supply distance is recommended to be no more than 100 meters. When it exceeds 100 meters, please use a separate power supply.
2. To make sure that the normal operation of the card reader, please verify the input power is between 12V±10%.
3. It is recommended that the distance between two card readers should be at least 30cm or more.
4. To reduce the long-distance noise, the shielding layer of the transmission line should be common ground with the card reader and access control.

FAQ

Q: Reading the same code, the data displayed in the text document is different, what is the problem?
A: It is expected to be the input method difference, we recommend the customer to adjust the input method to English.

Q: Is there any recommendation on the size and paper for 2D code printing on paper?
A: The size of the QR code is recommended 30*30mm, and the paper is recommended 300g coated paper or 250g matte powder paper, or A4 paper.

Q: Does outdoor bright light have any effect on QR code recognition?
A: The strong light will make the camera over-heat and cause the recognition of QR code error, when installing, avoid direct sunlight.

Q: Can the QR code reader support barcode?
A: Yes, common 1D codes can be supported, such as: Code 39/Code 93, Codabar, UPC/EAN, etc.

Q: What is the problem that the 2D code reader does not brush the MF card but can brush the DESFire card?
A: It is expected that the card reader is set to read the contents of the MF card, so it does not brush, modified to read the physical card number.

Q: QR code reader can read up to how many digits of pure digital numbers?
A: Wiegand 66 supports a maximum of 18 digits and RS485 supports 1000 bytes.

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