

Infostepper  
Device Debugging Software  
2.4.2

Operation Guide

Nanjing Bilin Intelligent Identification  
Technology Co., Ltd

# Catalog

I .Introduction.....	4
1.1 Purpose.....	4
1.2 Definition.....	4
II .Software Overview.....	5
2.1 Software Application.....	5
2.2 Software Function Overview.....	5
2.3 Software Operation Environment.....	5
III. Software Operation Method.....	6
3.1 Device Connection.....	6
3.1.1 Serial Port / USB Serial Port Connection .....	6
3.1.2 Ethernet Connection .....	8
3.2 Data Interface .....	9
3.2.1 Data Text Display .....	9
3.2.2 Decoding Information Statistics.....	10
3.2.3 Command.....	11
3.3 Image Interface.....	13
3.3.1 ImagingMonitor.....	14
3.3.2 Image Settings .....	19
3.3.2.1 Decoding Window Settings .....	19
3.3.2.2 Image general parameter settings .....	21
3.3.3 Filter parameter Settings.....	24
3.4 Settings Interface.....	28
3.4.1 Download and Modification of Setting Command.....	28
3.4.2 Loading and Saving of Device Configuration (PC side) .....	30
3.4.3 Saving and Switching of Device Configuration (inside the device) .....	31
3.4.4 Communication Settings .....	31
3.4.4.1 RS232 Serial Communication Settings .....	32
3.4.4.2 Ethernet Communication Settings .....	33
3.4.5 I/O Settings.....	33
3.4.6 Edit Settings.....	35
3.4.7 Debug Settings.....	36
3.4.8 Output Rule Settings .....	38
3.4.9 Presentation Settings .....	40
3.4.10 Decode Settings.....	42
3.4.11 Imaging Settings.....	44
3.4.12 Automatic parameter adjustment Settings .....	46
3.4.13 Code Type .....	47
3.4.14 OCR Settings .....	48
3.5 Toolbar Operation .....	49
3.5.1 Open and Save.....	50
3.5.2 Multi-Barcode.....	50
3.5.2.1 Sequence Rules Setting .....	52

3.5.2.2 Multi-Barcode Toolbar.....	54
3.5.3 Barcode Editing.....	54
3.5.3.1 Edit Process Window.....	55
3.5.3.2 Basic Editing.....	56
3.5.3.3 Quick Editing.....	57
3.5.3.4 Barcode Editing Toolbar .....	60
3.5.4 I / O Programming.....	61
3.5.4.1 Module introduction .....	61
3.5.4.2 How to edit logic diagram .....	64
3.5.4.3 common logic .....	66
3.5.4.4 Logic Toolbar.....	70
3.5.5 OCR .....	71
3.5.6 Transmit Image Decoding.....	72
3.5.7 Transformation Assistant .....	72
3.5.8 Firmware Update.....	73
3.5.9 Restore Default Layout.....	74
3.5.10 Device Synchronized.....	75
3.5.11 Help.....	76
3.5.12 Options .....	76
3.6 Terminal Simulation Function .....	77
3.6.1 Serial Port Debugging.....	77
3.6.2 Ethernet Debugging.....	77

# I .Introduction

## 1.1 Purpose

The guide describes in detail the overall functions of the Infostepper and the operation methods of each functional module. For all users when using the software.

## 1.2 Definition

**Software:** Infostepper Device Debugging Software.

**Device:** Nanjing Bilin Intelligent Software Co., Ltd. is involved in the research and development of all equipment that can be debugged by using Infostepper.

**User:** The person who uses the software to debug the device. Including but not limited to the company's technical support engineer, developers, sales personnel and customers who purchase the company's products.

## **II .Software Overview**

### **2.1 Software Application**

The software is a kind of software which runs under Windows system and can debug the equipment that Nanjing Bilin Intelligent Software Co., Ltd. participates in the research and production. In the form of imageical interface, the workload of debugging personnel is simplified and the work efficiency is provided. It greatly improves the problem of long debugging time and error prone under the mode of manual input command debugging.

### **2.2 Software Function Overview**

The software supports using Serial Port, USB Serial Port and Ethernet to connect with the device. It has the following functions:

Develop and debug the super terminal simulation function for professional technicians.

Barcode data, decoded images and other data acquisition functions.

Device communication parameters, decoding parameters, input and output logic setting functions.

Custom multi-barcode output rule function.

Customize barcode editing function.

Reading statistics function.

Device firmware update function.

### **2.3 Software Operation Environment**

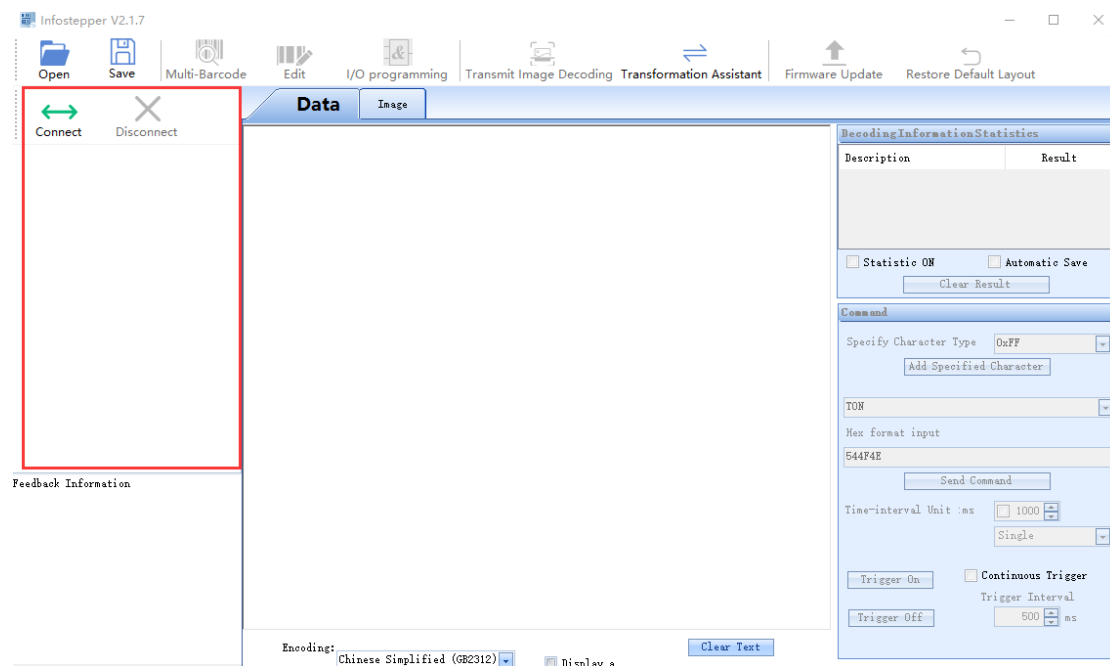
The software is developed based on Microsoft .Net framework 4.0. The user's computer system needs to support. Net framework 4.0. At present, Windows XP and later systems can run the software.

## III. Software Operation Method

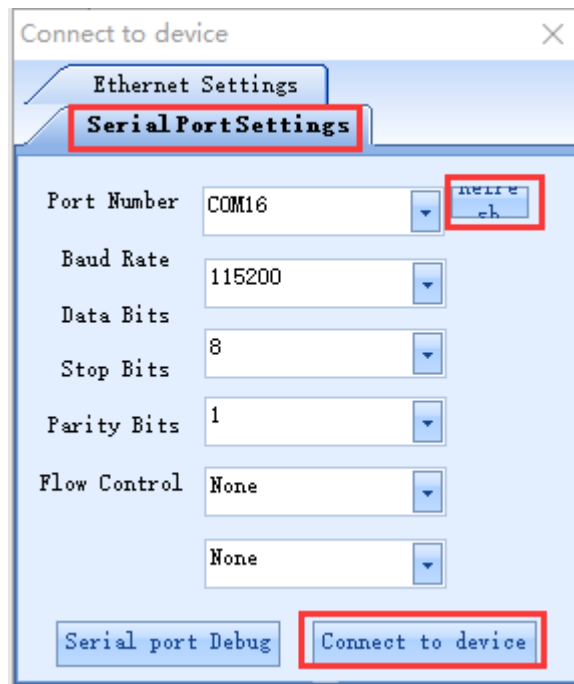
### 3.1 Device Connection

The software supports Serial Port / USB Serial Port or Ethernet to connect devices. But not all devices support the above connections. Before connecting, you must confirm which connection the current device supports, and use the correct cable to connect the device with the computer.

#### 3.1.1 Serial Port / USB Serial Port Connection

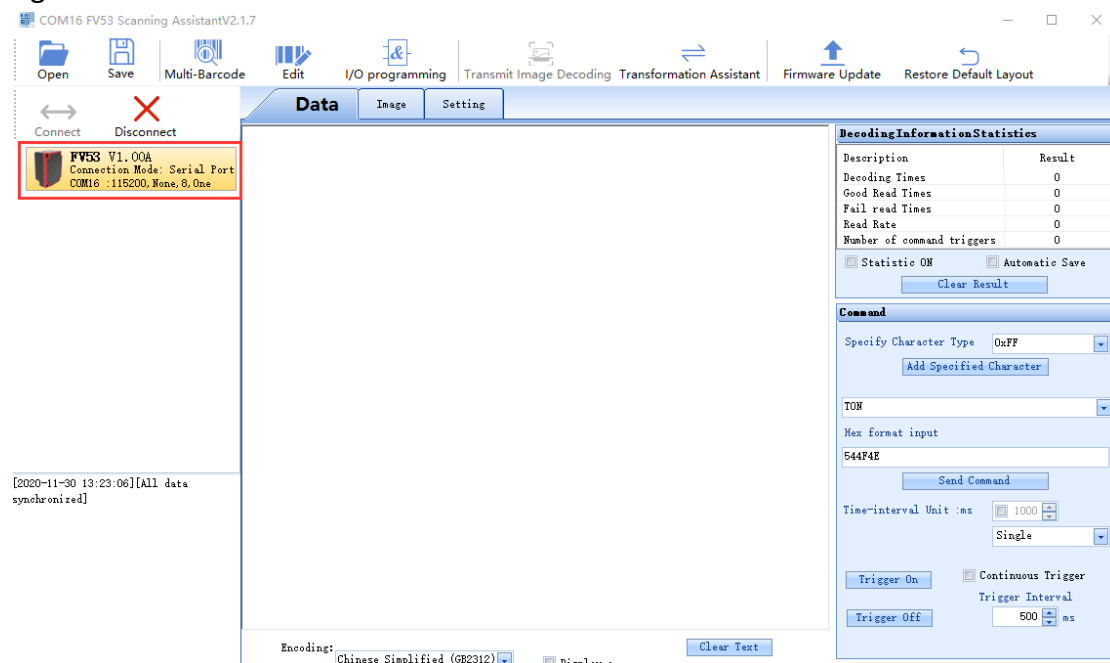


After the Infostepper is started, the left side of the main interface is the device connection bar. Click **Connect** to open the device connection window, as shown in the following figure. The default is **Serial Port Settings**.



Select the corresponding COM number under the **Port Number**. If the COM number is not displayed, you can click the **Refresh** to search. Select the corresponding serial port number, and select the correct Baud Rate, Data Bit, Stop Bit and other parameters, and then click **Connect to device**.

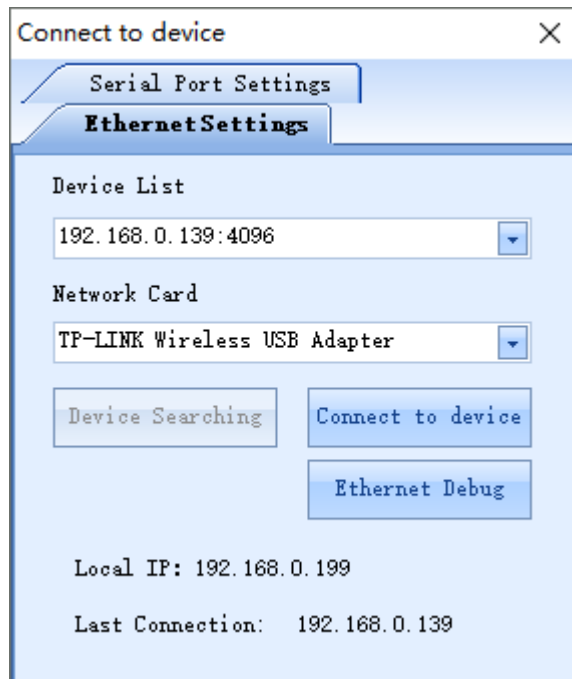
If the connection is successful, the device icon, model and connection mode will be displayed in the device connection status bar on the left, as shown in the following figure.



\*When it is necessary to use the device to view the image, in order to ensure the speed of viewing the image, it is recommended to set the port Baud Rate to 115200 or use Ethernet to connect.

### 3.1.2 Ethernet Connection

Click **Ethernet Settings** in the device connection window to switch to Ethernet Settings interface, as shown in the following figure.



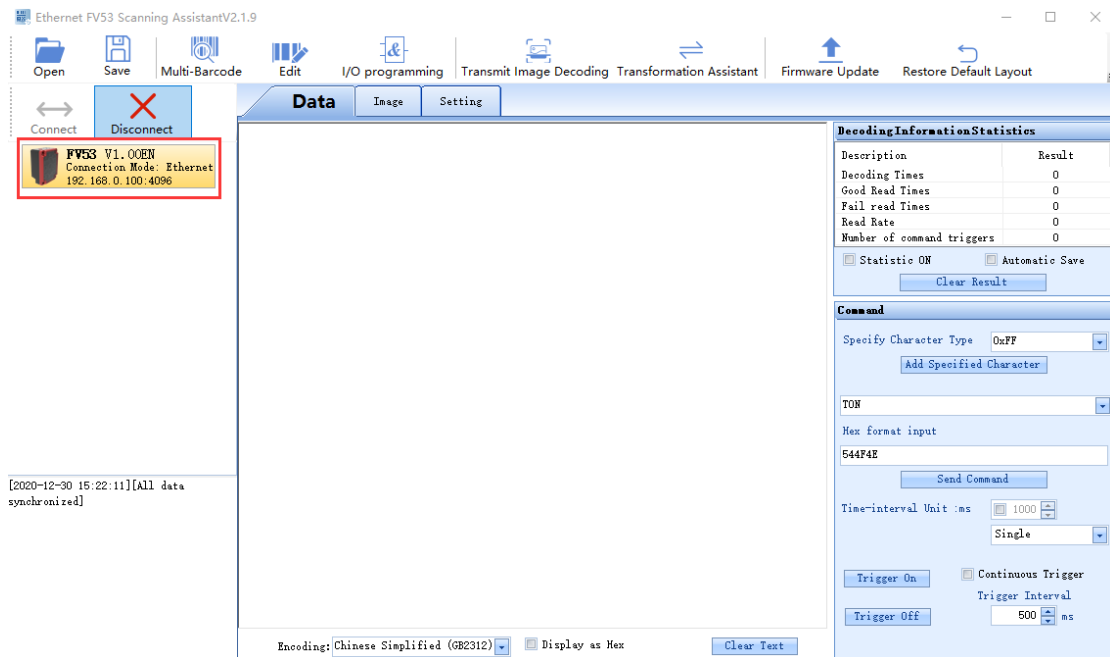
First, select the **Network Card** to be used. All automatically retrieved devices on the network will be loaded into the device list. Click the drop-down list to select the device to be connected, and then click **Connect to device** to complete the connection.

The Ethernet Settings must ensure that two devices are in the same network segment. There are generally two solutions to meet the demand:

- a. Set the IP parameters of the device in advance to be available in the user LAN or enable DHCP (if supported by the device), and connect the device with the computer connected to the user LAN.
- b. The device is directly connected to the network cable of the user's computer, and the IP address parameters of the computer are modified to make the computer and the device in the same network segment.

After the connection is successful, the main interface of the software is as shown in the figure below.

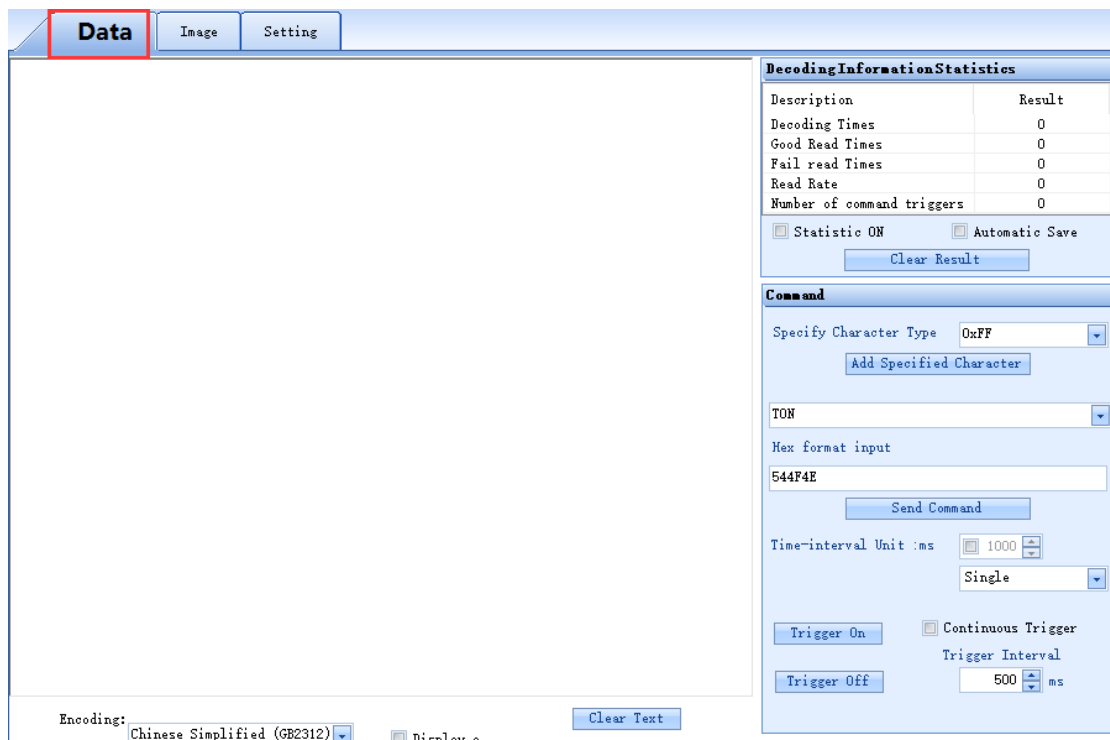




## 3.2 Data Interface

### 3.2.1 Data Text Display

The main interface is data interface by default, as shown in the figure below.



1. **Display window:** The window displays decoding data, feedback value of device debugging, etc..

2. **Encoding:** The coding format of text display, including the following 4 types:
- a. **Chinese Simplified (GB2312):** It is applicable to the information exchange between Chinese character processing, Chinese character communication and other systems. The basic set includes 6763 Chinese characters and 682 non Chinese character imageic characters.
  - b. **Unicode:** An industry standard in the field of computer science, including character set, coding scheme, etc.
  - c. **UTF-8:** UTF-8 encodes Unicode characters in 1 to 4 bytes.
  - d. **ASCII code:** A set of character codes for the relationship between English characters and binary bits. The ASCII code specifies a total of 128 characters. For example, the space "space" is 32 (binary 00100000), and A is 65 (binary 01000001).
3. **Display as Hex:** Whether the text is displayed in hex format.
4. **Clear Text:** Clear all contents in the display window.

### 3.2.2 Decoding Information Statistics

The software can automatically count the decoding times and other relevant information when the device reads the barcode, so as to facilitate the user to count and evaluate the reading effect.

DecodingInformationStatistics	
Description	Result
Decoding Times	0
Good Read Times	0
Fail read Times	0
Read Rate	0
Number of command triggers	0

☐ Statistic ON      ☐ Automatic Save

Clear Result

Setting      mode:default

1. **Statistic ON:** After checking, turn on the function of statistics decoding information.
2. **Clear Result:** It can clear the current statistics result.
3. **Automatic Save:** The statistical information can be saved in text format, and the user can set the save path by itself.
4. **Setting:** The default standard mode is applicable when the device is connected to infostepper. The hardware mode is only applicable to FV20X. When decoding without

connecting infostepper , the decoding data can be obtained.

\*When using decoding information statistics, you must set Auto-wrap On and No Read On, as shown in the following figure.

[illegible]

### 3.2.3 Command

The software lists the common setting items of the device. Users only need to click the corresponding button to complete the setting of the device commands. The software also supports the user to manually input commands to set the device.

**Command**

Specify Character Type 0xFF

Add Specified Character

TON

Hex format input

544F4E

Send Command

Time-interval Unit :ms 1000

Single

1. **Character input:** The user can directly input the setting command or query command in the character input box.

The software will record the last 10 commands that have been sent. Click the drop-down list to view and select the commands that have been sent, as shown in the following figure.

**Command**

Specify Character Type: 0xFF

Add Specified Character

TON

TON

TOFF

\x02C\x0dCSMOFF\x03

Send Command

Time-interval Unit :ms

1000

Single

2. **Hex formatl input:** Keep real-time synchronization with the data in the character input box, and the complete format of the command will be displayed.

3. **Time-interval:** You can set the interval time of timing transmission. When checked, the software will send the commands of character input box to the device according to the set interval.

4. **Single:** you can select the sending method for the historical command in the character input box. Click the drop-down list to view and select the sending method, as shown in the following figure.

**Command**

Specify Character Type: 0xFF

Add Specified Character

TON

Hex format input

544F4E

Send Command

Time-interval Unit :ms

1000

Single

Single

Loop 1 and 2

In Sequence

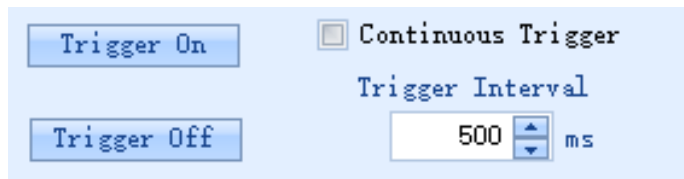
Random

500 ms

Trigger On

Trigger Off

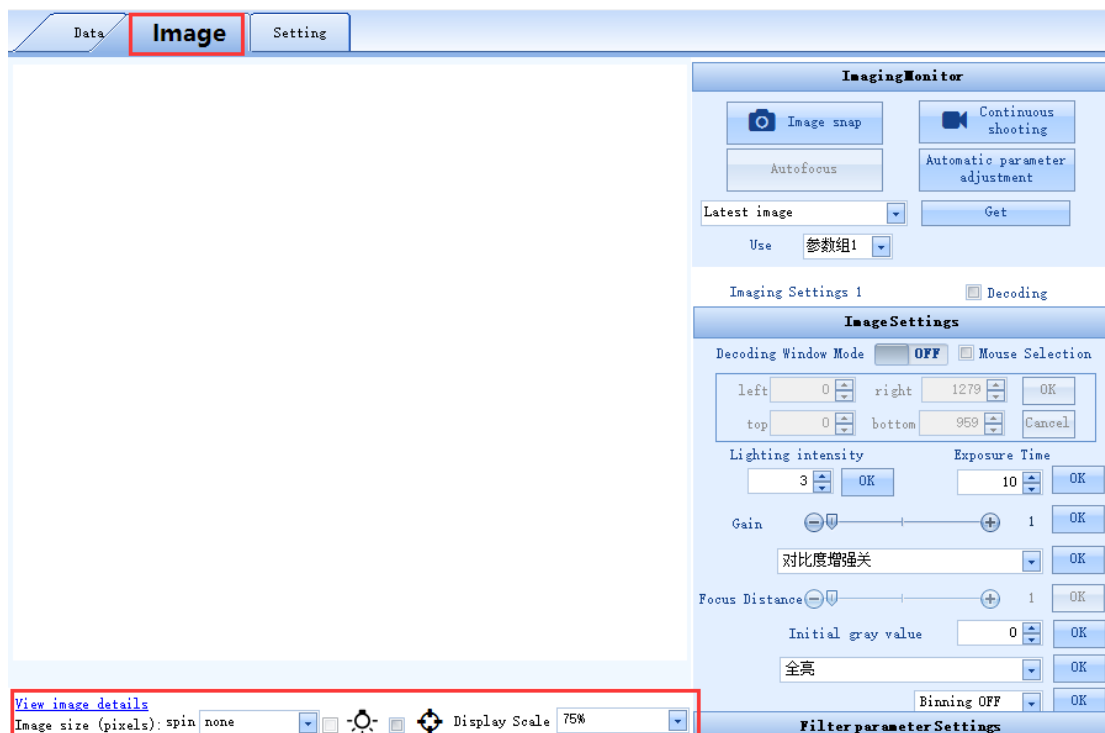
The user can also trigger the device and control the trigger scanning through the operation and setting of the trigger function on the interface.



1. **Trigger On:** click the button to send the trigger command to the device, and the device will read the code.
2. **Trigger Off:** click the button to send the cancel trigger command to the device, and the device stops reading the code.
3. **Continuous Trigger:** After checking, the software continuously sends triggering commands to the device at a specified time interval, and control device continuously triggers the code reading.

### 3.3 Image Interface

Click **Image** on the main window to enter the image interface, which can debug the camera of the device, as shown in the following figure.



1. **Display window:** Displays the images taken, acquired and continuous images in

real time.

2. **Image size (pixels):** The pixel displaying the image.

3. **Aiming light:** control whether the aiming light of the equipment is on

4. **Auxiliary lighting:** whether the lighting of control equipment is on

5. **Display Scale:** Select the scale size of the display image, and the display window can display the corresponding scale size image in real time.

6. **Spin:** Including none, 90, 180, 270, Flip horizont and Flip vertical. After modification, it will take effect on the next image acquired. The rotated image does not support frame selection of the decoding window, and supports display of the decoding box

### 3.3.1 ImagingMonitor



1. **Image snap:** When the user clicks the **Image snap**, the device will take an image and upload it to the image display window on the left. If the image is blurred or the focus is not clear, the user can adjust the reading distance; if the overall image is darker or brighter, the image parameters can be set.

\*"Photo" function supports image processing of expansion corrosion and anti equality.

2. **Continuous shooting:** The device will continuously take pictures and upload them for display, simulating similar video effects on the screen. In the continuous shooting mode, the user can see the impact of the device position adjustment and camera setting change in real time, and can quickly adjust the camera parameters.

a. In the real-time shooting window interface, you can select the display scale and adjust the display scale of the current image.

b. Under the image display box, the rate of image upload will also be displayed.

c. At the same time, it will decode synchronously in the process of continuous shooting. If it is decoded successfully, it will mark the position of the barcode in the figure, and use the color to represent the quality of the barcode (green: high, red: low).

d. In the feedback information bar at the bottom left corner of the interface, the barcode content in the barcode indicator box can be displayed in real time, as shown in the following figure.



\*No expansion, corrosion is carried out for continuous shooting displayed image, and it can be carried out for decoded image.

\*When the trigger mode is **Multi-Barcodes** Mode, all readable barcodes will be marked during continuous shooting, as shown in the following figure.

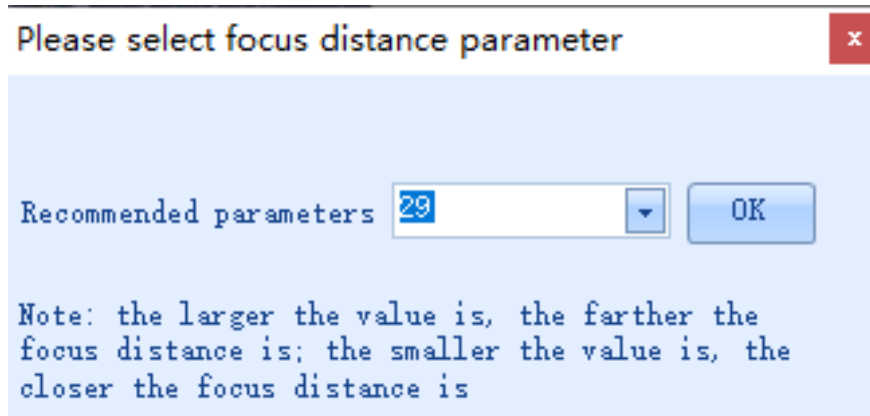


**Note:** During continuous shooting, you cannot switch to the Data and Setting interface. Stop continuous shooting to recover.









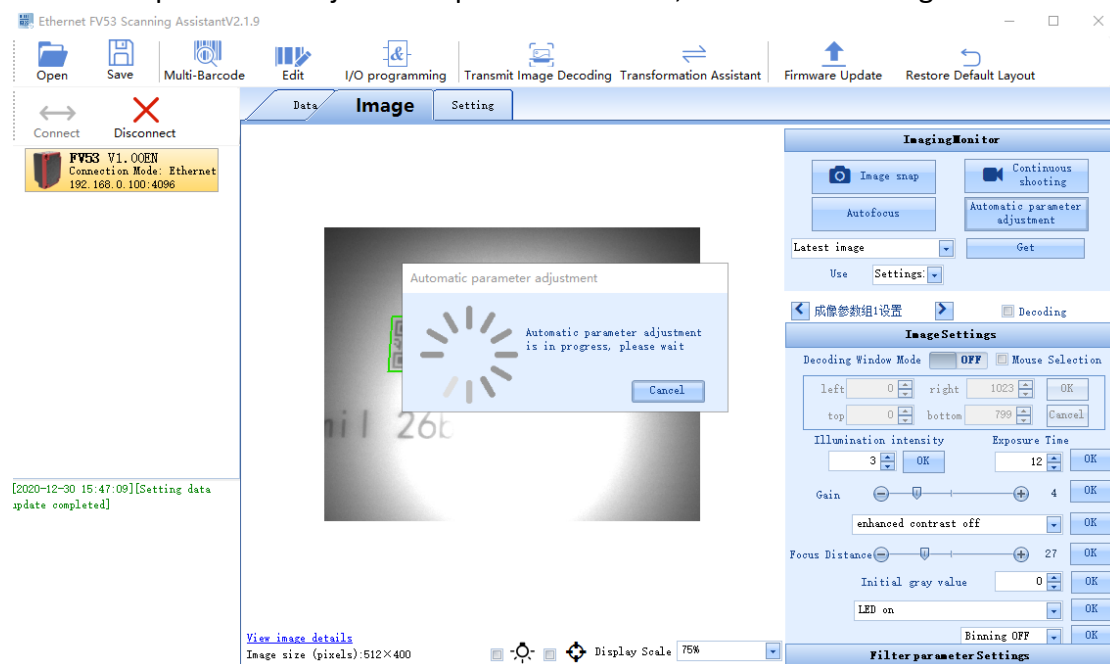
**7. Automatic parameter adjustment:** After auto focusing or manual focusing, click **Automatic parameter adjustment** to adjust parameters automatically, including auto adjustment of exposure time, gain and illumination intensity.

If the automatic parameter adjustment is successful, the buzzer will have music sounds, and automatically jump to continuous shooting, so as to check the effect of parameter adjustment.

If the automatic parameter adjustment fails, the buzzer will make an error alarm.

\*Before automatic parameter adjustment, the relevant settings can be changed in **Image Settings** to ensure high efficiency automatic parameter adjustment.

Automatic parameter adjustment process interface, as shown in the figure below.



## 8. Monitor Use Settings 1:

- The result of automatic parameter adjustment will be saved to which setting is selected.
- Which setting is selected, and which setting images will be obtained by taking and continuous shooting.

### 3.3.2 Image Settings

Including decoding window mode setting and image general parameter setting.

#### 3.3.2.1 Decoding Window Settings

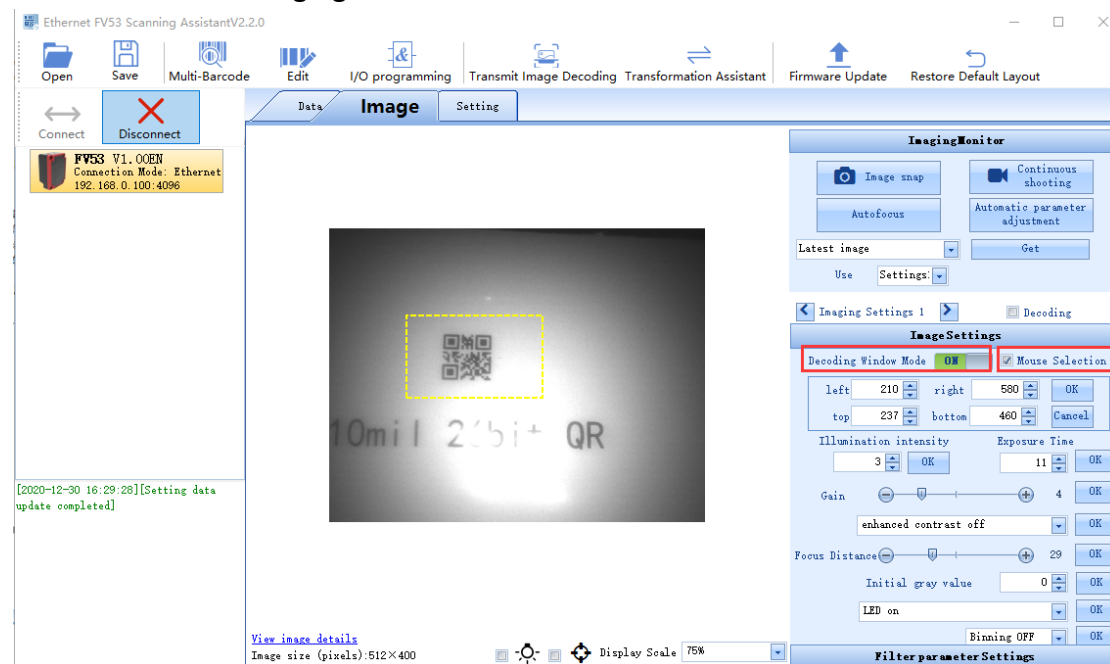
The imaging Setting 1,2,3 and 4 can respectively set the decoding window mode.

By default, the device attempts to decode all areas within the field of view, but in some cases, such as when the barcode position is relatively fixed or only the barcode on the fixed position needs to be read, the decoding window mode can be used. In the mode, only the barcode appearing in the specified window can be read by the device, and the decoding time can be reduced. The steps are as follows:

a. First, choose **Continuous shooting** , **Image snap** or **Get latest image**, and choose the appropriate field of vision and distance.

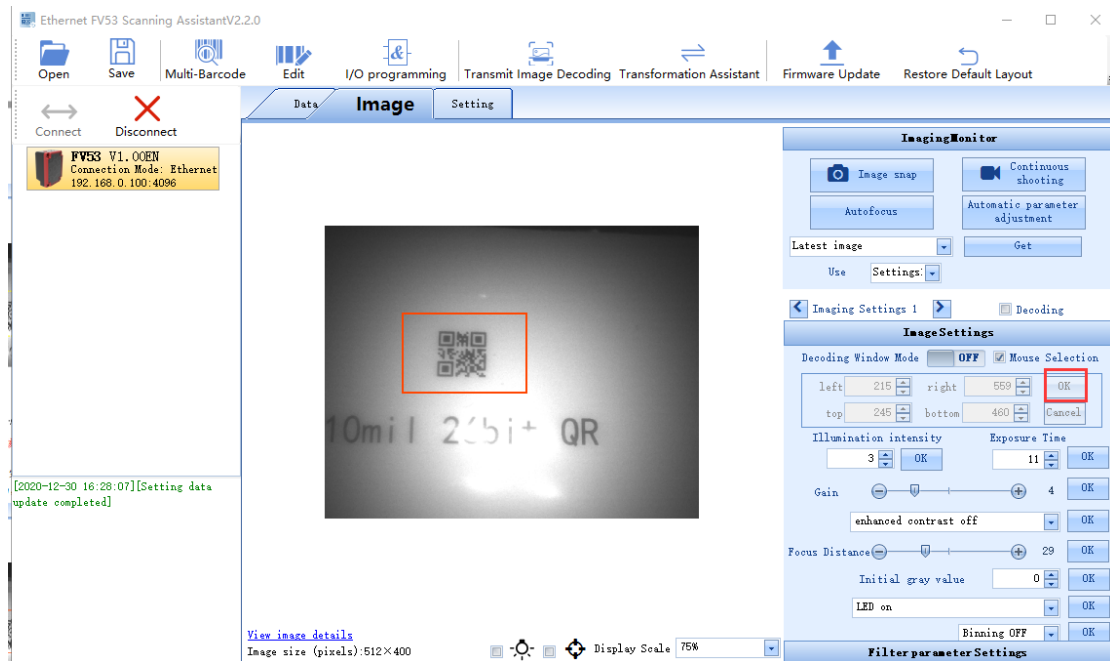
b. Open **Decoding Window Mode** .

c. Click **Mouse Selection**, and select the range to be read in the left area with the mouse. After the range is framed out, the effect picture of the rectangular box is as shown in the following figure.

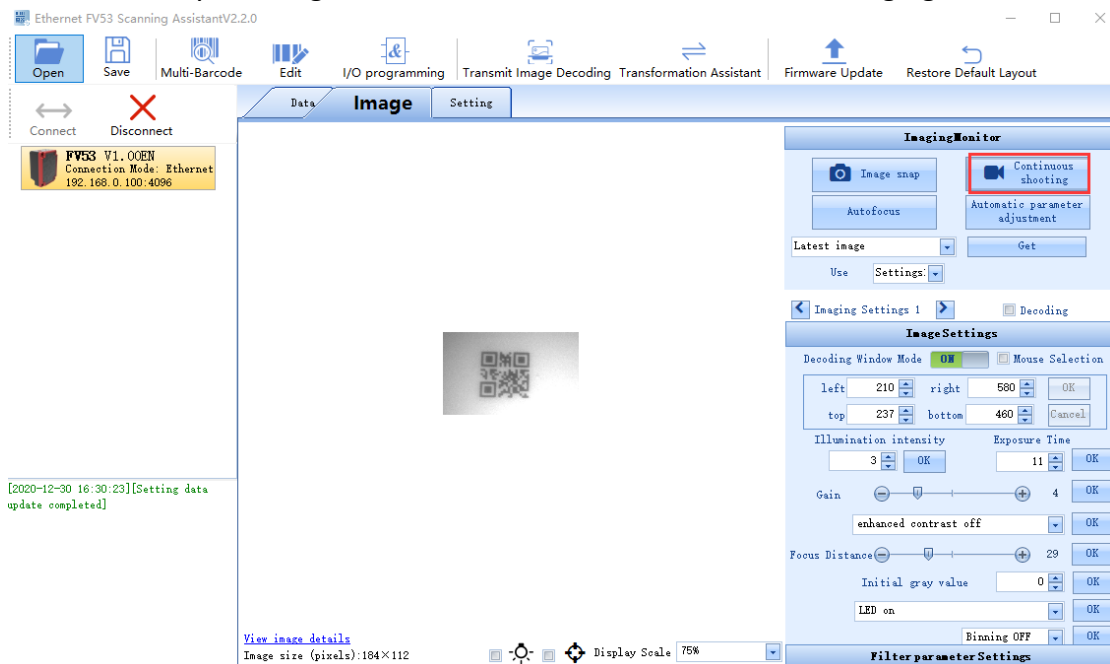


\*The area value of the box selection will be displayed in real time in the "window left ,right ,up and down" of the module and the multi barcode matching rule module.

d. Then click **OK** to complete the setting. After the setting is confirmed, the rectangular box turns into a red solid line, and the device will only read the barcode in the red rectangular box, as shown in the following figure.

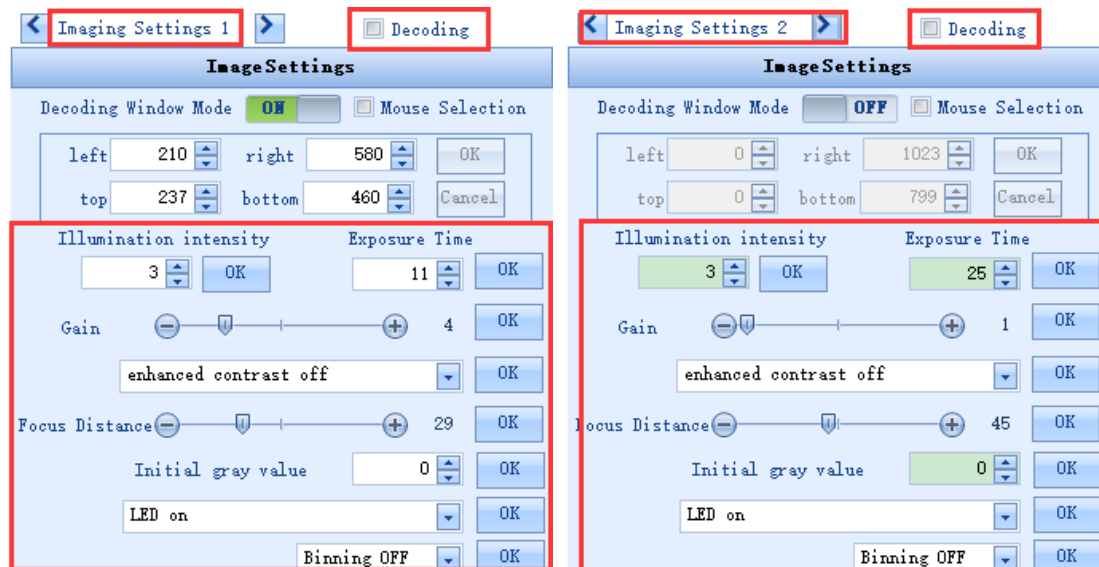


e. Finally, click **Continuous shooting**, and you can see that the code reading area at the time is only the range of box selection, as shown in the following figure.



### 3.3.2.2 Image general parameter settings

When the device is adjusted to a clear image, you can try to get the best reading effect by adjusting the lighting parameters and other relevant settings.



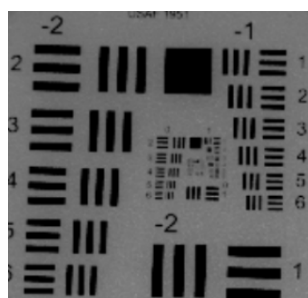
**Imaging Settings 1:** the following area shows the settings of Imaging Settings 1. Turn the page to view the settings of Imaging Settings 2, Imaging Settings 3 and Imaging Settings 4.

**Decoding:** when it is turned on, trigger decoding will use the Imaging Settings (Imaging Settings 1, Imaging Settings 2, Imaging Settings 3 and Imaging Settings 4) checked to decode in turn.

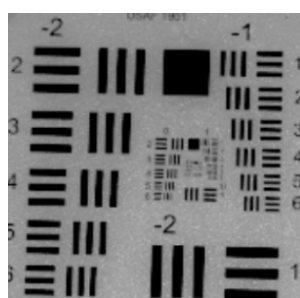
\*When the trigger mode is "Common mode" or "Multi-barcodes mode", multiple sets of imaging settings can be used for decoding, which is suitable for different barcode environments requiring multiple image settings.

**1. Illumination intensity:** The parameter indicates the illumination intensity level of the lighting source. The smaller the value is, the lower the illumination intensity is. The larger the value is, the higher the illumination intensity is. Assuming that illumination intensity 1 is 20%, illumination intensity 2 is 50% and illumination intensity 3 is 100%.

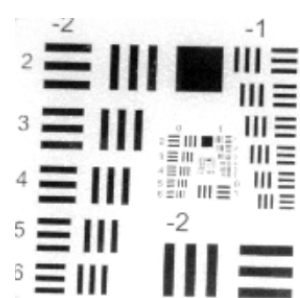
Range: 0-3 (default 2).



Illumination intensity 0



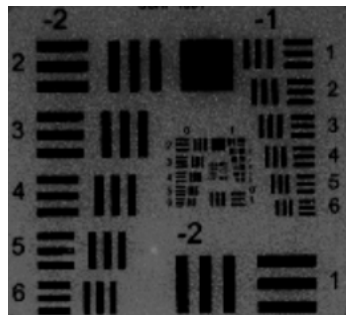
Illumination intensity 1



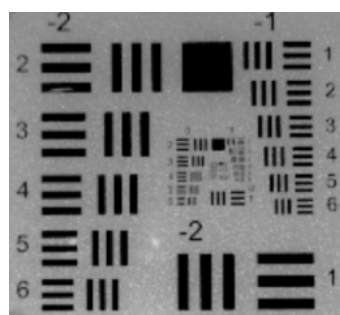
Illumination intensity 3

2. **Exposure Time:** The principle is to adjust the time (i.e. exposure time) when light is projected onto the sensitive surface of the CMOS sensitive material by controlling the opening time of the shutter. Exposure time determines the time for CMOS to record images. The longer the exposure time is, the brighter the image is, and vice versa. In the case of sufficient external light, it is generally required to reduce the exposure time, whereas in the case of relatively dark external light, it is generally required to extend the exposure time.

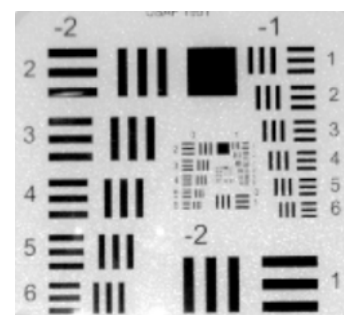
Range: 1-100 (default 8).



Exposure time 2



exposure time 5



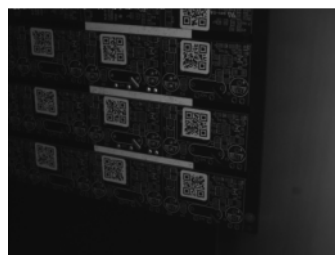
exposure time 10

3. **Gain:** Including digital gain and analog gain.

Digital gain adjustment is to use numerical calculation to adjust brightness, with larger magnification, and avoid noise generated by electronic amplifier, but it will reduce pixel depth.

The analog gain can enhance the effective signal, and the noise signal in the image will also be increased; when the contrast of the image is not obvious, the gain can be increased appropriately to get a more obvious contrast effect.

Range: 1-16 (default 1).



Gain 1



Gain 8

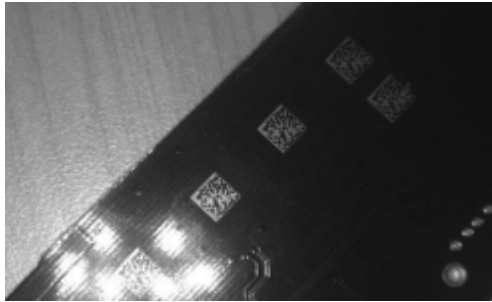


Gain 16

4. **Focus Distance:** Device for liquid lens. The device is fixed at a height. Adjust the focusing distance, and the device will change the focusing distance.

5. **enhanced contrast mode:** When the mode is turned on, the contrast of the image will increase significantly, which is usually used to read the barcode with poor contrast (such as the laser engraving code).

\*Default enhanced contrast off.



enhanced contrast off



enhanced contrast on

6. **Initial gray value:** When the overall image is darker, it is recommended to reduce the initial gray value; when the overall image is lighter, it is recommended to increase the initial gray value appropriately.

Range: 0-767 (default 0).

\*The function only takes effect when enhanced contrast on.

7. **LED On:** Select the mode of device light from the drop-down list.

a. Grouping devices are divided into LED on, TOP LED on, Central LED on, Bottom LED on, TOP and Bottom LED on, LED off .

b. Non grouped devices are divided into LED on and LED off

c. FV5X is divided into three parts: LED on, polarization, Nonpolarization and LED off.

8. **Binning:** off by default.

After opening, the field of view remains unchanged, but the pixels are reduced to a quarter of the original.

In the process of transmission, the amount of data becomes smaller and the decoding time is reduced.

### 3.3.3 Filter parameter Settings

Filter parameter Settings		
Filter processing 1	<input type="text" value="off"/>	<input type="button" value="OK"/>
Process 1 Parameters	<input type="text" value="3"/>	<input type="button" value="OK"/>
Filter processing 2	<input type="text" value="off"/>	<input type="button" value="OK"/>
Process 2 Parameters	<input type="text" value="3"/>	<input type="button" value="OK"/>
Filter processing 3	<input type="text" value="off"/>	<input type="button" value="OK"/>
Process 3 Parameters	<input type="text" value="3"/>	<input type="button" value="OK"/>
Filter processing 4	<input type="text" value="off"/>	<input type="button" value="OK"/>
Process 4 Parameters	<input type="text" value="3"/>	<input type="button" value="OK"/>
<input type="button" value="Restore Default Settings"/>		

**Filter processing 1:** off, Expansion, Corrosion, Average, Open operation, Close operation, Median, Sharpening. Filter processing 2 and Filter processing 3 are the same.

a.**off**:the dark and light pixels in the image are not processed. The image effect is shown in the figure below.





b. **Expansion:** the light color pixels in the image will be expanded, and the dark color pixels will be displayed more finely, as shown in the figure below.



\*If the printing quality of barcode is poor and the interval between barcode bar and blank is not clear due to ink blooming, it is recommended to open the mode.

c. **Corrosion:** the light color pixels in the image will be corroded, and the dark color pixels will be thicker, as shown in the figure below.



\*If the space between bar code and blank is too large (such as dot matrix or inkjet encoding), it is recommended to turn on the mode.

d. **Average:**



**e. Open operation**



**f. Close operation**



**g. Median**



#### h. Sharpening



**Process 1 Parameters:** The value range is 3, 5, 7, and the default parameter is 3. The larger the number is, the more obvious the effect is. Processing 2 parameter and processing 3 parameter are the same.

\*Filter processing 3 is based on filter processing 2; filter processing 2 is based on filter processing 1; filter processing 1 is based on the original image.

**Restore Default Settings:** Click **Restore Default Settings** to restore the image settings and filter parameter settings to factory settings.

### 3.4 Settings Interface

Click **Setting** on the main window to enter the settings interface, as shown in the figure below.

The screenshot displays the 'Setting' interface with three main sections:

- Mark 1:** A table with columns 'No.', 'Item', 'Value', and 'State'. Below the table are buttons: 'Delete the row', 'Download Configuration', and 'Generate configuration barcode'.
- Mark 2:** A section for device configuration with buttons: 'Open Device Configuration', 'Load different configurations', 'Save current device configuration to local', 'Selective configuration' (with a dropdown), 'Open', 'Save', 'Barcode generation', and 'Configuration name' (with a 'Rename' button).
- Mark 3:** A list of settings categories on the right, including 'Communication Settings', 'I/O Settings', 'Edit Settings', 'Debug Setting', 'Output Rule Settings', 'Presentation Settings', 'Decode Settings', 'Imaging Settings 1-4', 'Automatic parameter adjustment', and 'Code Type'. The 'Communication Settings' category is selected, showing a list of communication parameters on the far right.

The 'Communication Settings' list includes:

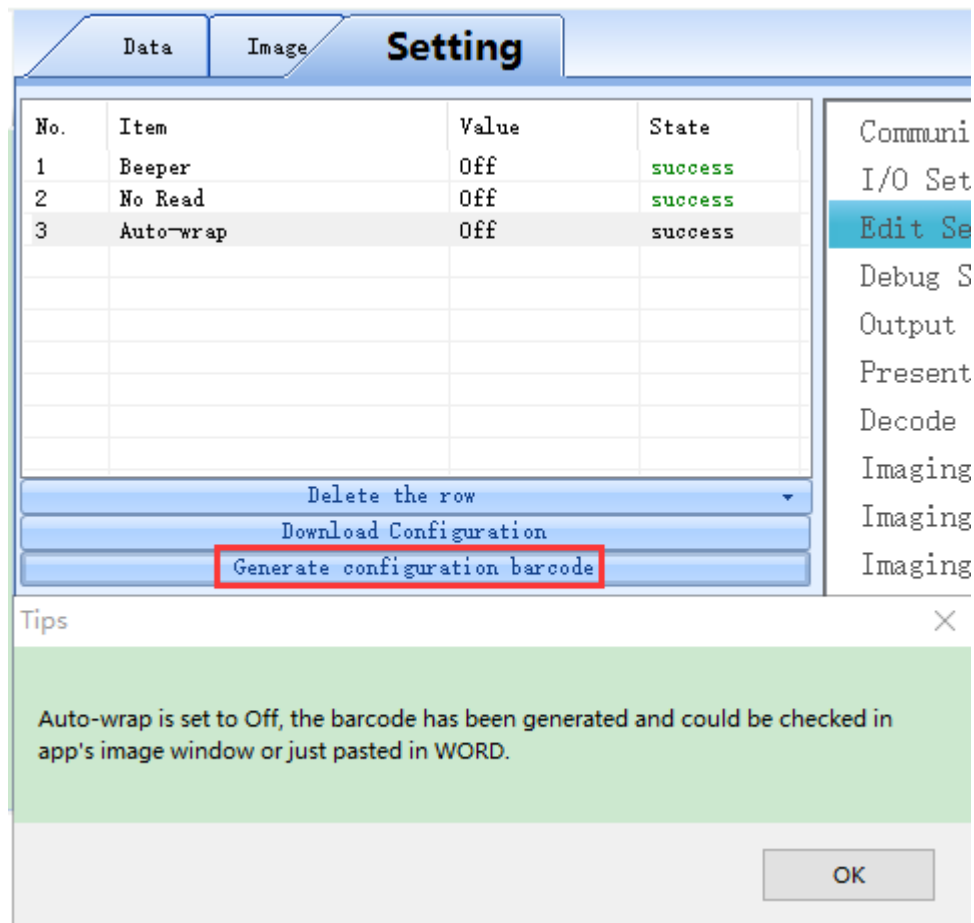
- Baud Rate: 115200
- Parity: None
- Data bits/Stop bit: 8 Data bits 1 Stop bit
- IP Address: 192 . 168 . 0 . 100
- Subnet Mask: 255 . 255 . 255 . 0
- Gateway Address: 0 . 0 . 0 . 0
- DNS Address: 0 . 0 . 0 . 0
- TCP Port Number: (1024-65535) 4096
- USB Communication Mode: USB Serial
- USB Keyboard Coding Mode: US Keyboard
- Default Communication Settings: Apply

Mark 1 is the settings module, which can download and modify setting commands.  
Mark 2 is the Device Configuration module, which can save and download the configuration (PC side), save and switch the configuration.  
Mark 3 is the setting category, so that users can quickly select the required settings.  
Click a setting category to display all settings under the category on the right.

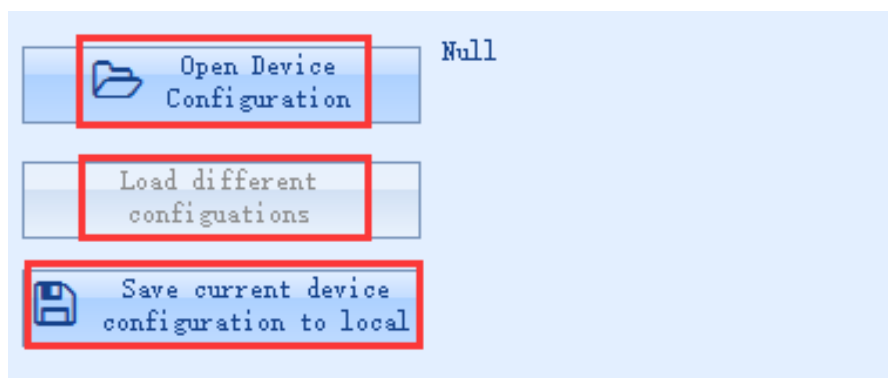
#### 3.4.1 Download and Modification of Setting Command

a. After modifying the device command, the modified command will be displayed in the setting item menu. If the setting items are all selected, click **Download Configuration**. When the setting status is displayed successfully, the setting will take effect. Remember: if **Download Configuration** is not clicked, the setting will not take effect!





### 3.4.2 Loading and Saving of Device Configuration (PC side)

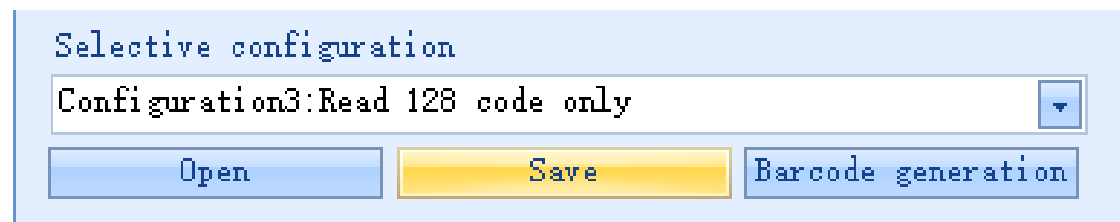


- 1. Open Device Configuration:** Select the saved configuration file on the computer, and then load the next different configuration.
- 2. Load different configurations:** After selecting the configuration file to be loaded, the software will prompt the number of different settings between the configuration file and the current device. Click the button to load. After loading into the table, click **Download Configuration** to finish loading the configuration file.

3. **Save current device configuration to local:** You can save the settings of the current device as a configuration file, and the user can save the configuration file to the computer.

### 3.4.3 Saving and Switching of Device Configuration (inside the device)

8 sets of configuration can be stored in the device at the same time. Users can switch any set of configuration for the current configuration of the device by means of command or barcode setting.



1. **Selective configuration:** In the drop-down menu, you can select one of the eight sets of built-in devices for loading or saving.

2. **Open:** Replace the selected parameter configuration with the current one.

3. **Save:** Save the current device configuration as the selected built-in matching settings.

4. **Barcode generation:** It is to generate barcode by loading the current configuration of the device and paste it according to the prompt.

5. **Configuration name:** The names of the eight sets of parameters built in the device can also be modified to facilitate the customer to save and call according to the actual application. After the user selects the configuration parameters, fill in the name in the input box, and click **Rename** to take effect.

### 3.4.4 Communication Settings

Click **Settings** on the main window to see the communication setting area on the right side of the interface, where you can configure the communication settings of the device, as shown in the following figure.

**Address Communication Mode:** networking mode

**Device Address:** the address of the networking device. The range is 0-9. The default value is 0.

**USB Communication Mode:** FV5X support USB Serial and USB Keyboard.

**USB Keyboard Coding Mode:** It supports US Keyboard,CN Keyboard (UTF-8) ,CN Keyboard (GBK) .

**Default Communication Settings :** check before **Apply** and download the settings. All settings in the setting interface will be restored to the default factory settings.

#### 3.4.4.1 RS232 Serial Communication Settings

In the window, you can set the parameters shown in the figure below.

1. **Baud Rate:** The rate of serial port data can be selected in the pull-down menu. After selection, please click **OK** and click **Download Configuration** to take effect (default baud rate: 115200).



2.**Parity**: You can select the method of parity bit in the drop-down menu (default is None).

3.**Data bits/Stop bit**: You can select the number of data bits and stop bits in the pull-down menu (the default is 8 Data bits and 1 Stop bit).

#### 3.4.4.2 Ethernet Communication Settings

The Ethernet communication setting interface is shown in the figure below.

IP Address  
192 . 168 . 0 . 100 I 确认

Subnet Mask  
255 . 255 . 255 . 0 I 确认

Gateway Address  
0 . 0 . 0 . 0 I 确认

DNS Address  
0 . 0 . 0 . 0 I 确认

TCP Port Number  
(1024-65535) 4096 [spinner]

When modifying the Ethernet parameters for the first time, it needs to be set at the serial port, because the default Ethernet parameters of Infostepper and the device may not be in a network segment, at the time, the device cannot be queried and connected under the Ethernet communication interface.

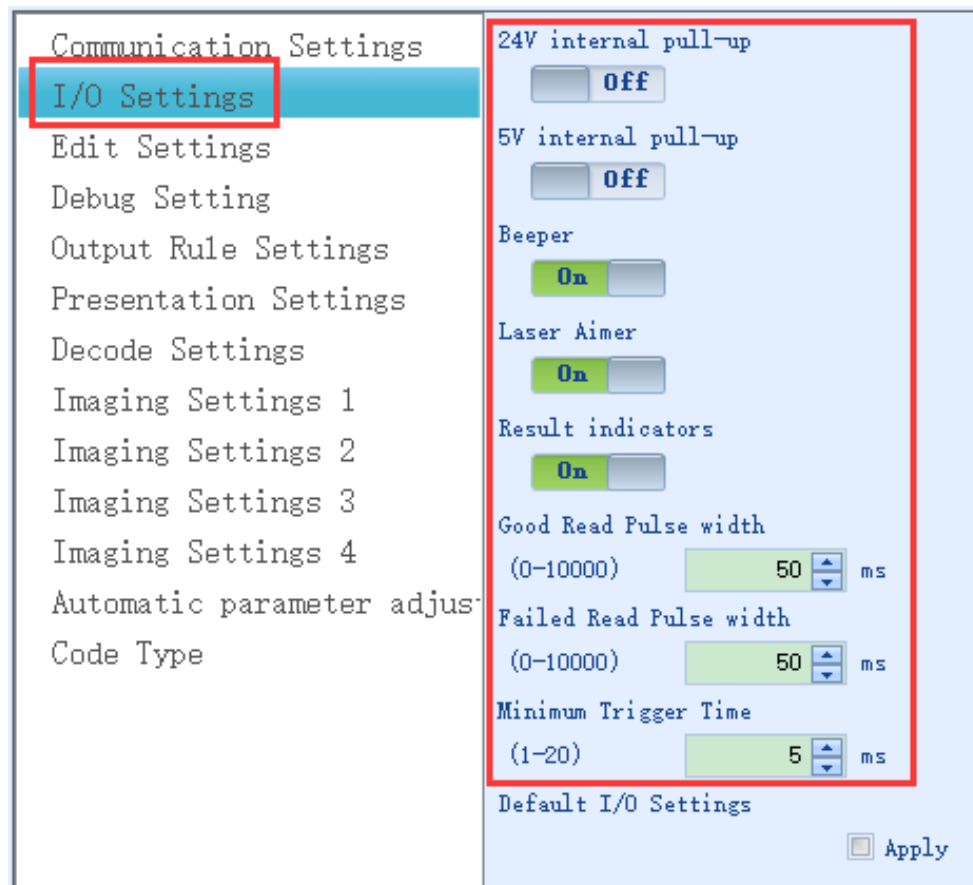
After communication connection, enter the interface to modify **IP Address**, **Subnet Mask**, **Gateway Address** and **TCP Port Number** to meet the requirements of user network.

The default IP address is 192.168.0.100

The default port number is 4096

#### 3.4.5 I/O Settings

Click **Settings** on the main window, and then click **I/O Settings**, then you can view the I/O settings area on the right side of the interface, as shown in the figure below.



1. **24V internal pull-up:** When the option is On, the voltage feedback value in the out1-out4 and com-in ports of the device is 24 VDC under normal conditions (the default is Off).

2. **5V internal pull-up:** When the option is On, the voltage feedback value in the out1-out4 and com-in ports of the device is 5 VDC under normal conditions (the default is Off).

3. **Beeper:** When the option is On, the device beeper is On; when the option is Off, the device beeper is off; (default is Off).

4. **Laser Aimer:** When the option is On, laser aimer is On; when the option is Off, laser aimer is off; (default is Off).

5. **Result indicators:** When the option is On, the fv5x Result indicators is On; when the option is set to off, the fv5x Result indicators is off; (default is off)

6. **Good Read Pulse width:** The parameter sets the holding time of reading success signal (minimum is 0ms, maximum is 10000ms, default is 50ms).

7. **Failed Read Pulse width:** The parameter sets the holding time of reading failure signal (minimum is 0ms, maximum is 10000ms, default is 50ms).

**8.Minimum Trigger Time:** When the input signal duration is greater than the setting value, the trigger will take effect(minimum is 1ms, maximum is 20ms, default is 5ms)

**9. Default HMI Settings :** Check before **Apply** and click **Download Configuration**, then all settings in the setting interface will be restored to the default factory settings.

### 3.4.6 Edit Settings

Click **Settings** on the main window, and then click **Edit Settings** to view the edit settings area on the right side of the interface, as shown in the following figure.

Communication Settings  
I/O Settings  
**Edit Settings**  
Debug Setting  
Output Rule Settings  
Presentation Settings  
Decode Settings  
Imaging Settings 1  
Imaging Settings 2  
Imaging Settings 3  
Imaging Settings 4  
Automatic parameter adjustment  
Code Type

Intermessage characters  
0x 0DOA 确认  
End characters  
0x 0DOC 确认  
Auto-wrap  
off  
Enable trigger command  
0x 544F4E 确认  
Disable trigger command  
0x 544F4646 确认  
No Read  
off  
No Read feedback  
0x 4E52 确认  
Transmission delay  
(0-10000) 0 ms  
Default Edit Settings  
Apply

**1.Intermessage characters:** When the device outputs barcode data, multiple barcode data contents are uploaded in turn. The user can set the spacing characters between each barcode data in hexadecimal (the maximum number of characters can be set: 8, the default is 0x0DOA).

\*Please confirm that under the edit settings bar, Auto-wrap is off to avoid the error of interval character.

**2. End characters:** When the device outputs barcode data, the end character can be added after all barcode data are transmitted, which is represented in hexadecimal (the maximum number of characters can be set: 8 ,the default is 0x0DOC).

\*Please confirm that under the edit settings bar, Auto-wrap is off to avoid ending character errors.

Note: for the detailed setting of multiple barcode reading mode, please refer to the multi-barcode rule of toolbar operation.

3. **Auto-wrap**: When the option is On, the suffix 0x0d0a will be added after the barcode or failure feedback data. If the option is Off , the above suffix will be removed.

4.**Enable trigger command**: The device supports the user to use the user-defined trigger on command. The defined characters need to be input in hexadecimal mode. After input, click **OK** on the right, and then click **Download Configuration** to take effect (the maximum number of supported characters is 8, and the default is TON).

5.**Disable trigger command**: The device supports the user to use the user-defined trigger off command. The defined characters need to be input in hexadecimal mode. After input, click **OK** on the right, and then click **Download Configuration** to take effect (the maximum number of supported characters is 8, and the default is TOFF).

6.**No Read**: When the switch is On, the device can output failure feedback characters after reading failed (the default is Off).

7. **No Read feedback**: The device supports the user to use the user-defined reading failure feedback character. The defined character needs to be input in hexadecimal mode. After input, click **OK** on the right, and then click **Download Configuration** to take effect (the maximum number of supported characters is 8, and the default is NR).

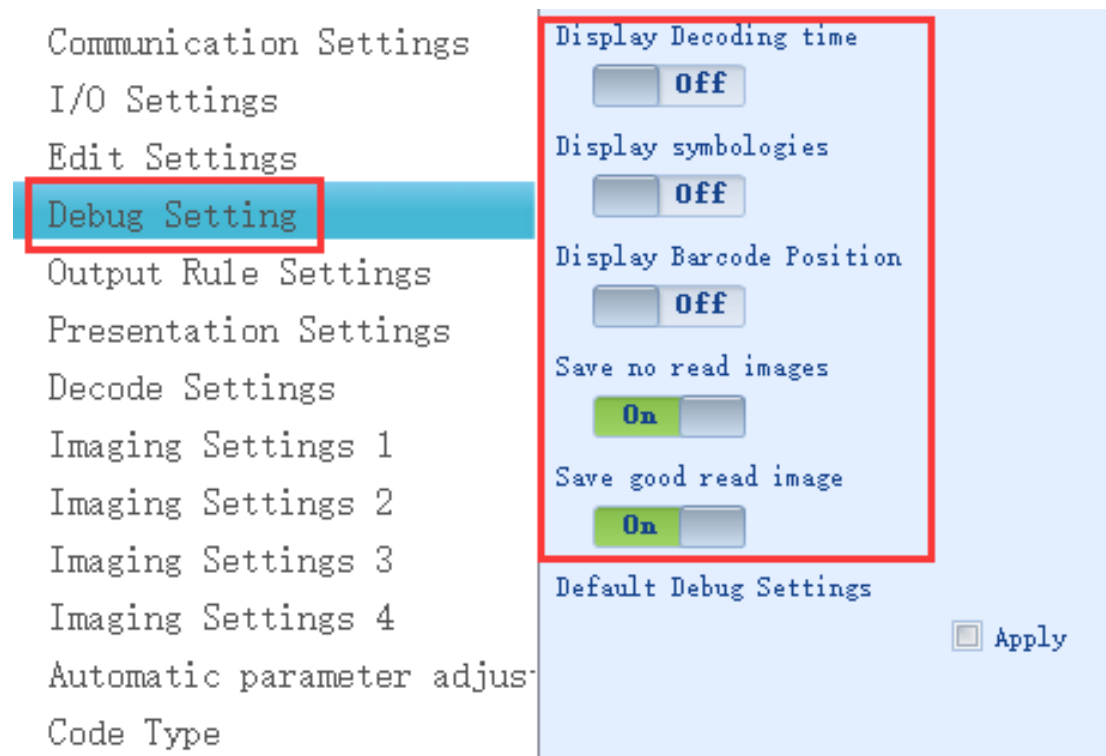
\*When Auto-wrap is On, the carriage return will be automatically added after the failed character.

8.**Transmission delay**: When the device is read successfully, the user can set the device delay for a period of time before outputting barcode data, input the required time value in the input box, click **OK** on the right, and then click **Download Configuration** to take effect. The setting also takes effect in multiple code reading modes (the minimum is 0ms, the maximum is 10000ms, and the default is 0ms).

9.**Default Edit Settings** :Check before **Apply** and click **Download Configuration**. All settings in the setting interface will be restored to the default factory settings.

### 3.4.7 Debug Settings

Click **Settings** on the main window, and then click **Debug Settings**, then you can view the debugging setting area on the right side of the interface, as shown in the figure below.



1. **Display Decoding time:** When it is On, the time from Trigger ON to barcode data output (full time) and the processing time spent on a single picture successfully decoded (unit: ms, default: Off) will be displayed in front of the barcode content. If the current decoding is unsuccessful, the information will not be output.

2. **Display symbologies:** When it is On, the code system category symbol representing the read barcode will be displayed in front of the barcode content (it is Off by default). If the current decoding is unsuccessful, the information will not be output.

3. **Display Barcode Position:** When it is On, the information of the relative position of the barcode in the field of view will be displayed in front of the barcode content (the default is Off). If the current decoding is unsuccessful, the information will not be output.

4. **Save no read images:** When it is On, the device can save the pictures taken in the last scan failure. The user can get and browse the pictures in the image interface, or save the pictures to the computer for viewing (the default is Off).

5. **Save good read images:** When the mode is On, you can view the image parsed after reading successfully in the image interface.

6. **Default Debug Settings :** Check before **Apply** and click **Download Configuration**. All settings in the setting interface will be restored to the default factory settings.

### 3.4.8 Output Rule Settings

Click **Settings** on the main window, and click **Output Rule Settings**. The right area is the Output Rule Settings area. In the interface, you can set the barcode repeated shielding reading function and the barcode matching function. As shown in the figure below.

Communication Settings

I/O Settings

Edit Settings

Debug Setting

Output Rule Settings

Presentation Settings

Decode Settings

Imaging Settings 1

Imaging Settings 2

Imaging Settings 3

Imaging Settings 4

Automatic parameter adjustment

Code Type

Same Barcode reread disabled

Reread delay

(0-10) 0 s

Symbolologies matching

All

Number of characters (Format: 8; 15-30)

specified character match

Close

Specified characters (hex)

0x

Starting position of specified characters

(1-255) 1

Default Output Rule Settings

**1. Same Barcode reread disabled:** When it is On, the device can read the same barcode but does not output it repeatedly within the time specified by the user. The mode also takes effect in the continuous reading mode (the default is Off). Non repeated reading means that the same barcode will not be read twice in a row. If the barcode read for the second time is another content, the content of the barcode read for the first time will not be shielded in the next reading.

**2. Reread delay:** The parameter sets the holding time of the repeated barcode screening function. When the time set by the user reaches, the repeated reading barcode content can be output (the minimum is 0s, the maximum is 10s, and the default is 0s).

\*0 represents infinite shielding time.

Communication Settings  
I/O Settings  
Edit Settings  
Debug Setting  
**Output Rule Settings**  
Presentation Settings  
Decode Settings  
Imaging Settings 1  
Imaging Settings 2  
Imaging Settings 3  
Imaging Settings 4  
Automatic parameter adjustment  
Code Type

Same Barcode reread disabled  
☐ **off**

Reread delay  
(0-10)  s

Symbologies matching

All

确认

Number of characters (Format: 8; 15-30)

确认

specified character match

Close

确认

Specified characters (hex)

0x

确认

Starting position of specified characters  
(1-255)

Default Output Rule Settings  
☐ Apply

**3.Symbologies matching:** The option can select **ALL** or a specific code system. When **ALL** is selected, the subsequent filter conditions will take effect for the full code system. When the specific code system is selected, the subsequent filter conditions will only take effect for the specific code system. At the same time, the device will only read the specific code system (please note the rule).

**4.Number of characters (Format: 8; 15-30):** A number can be filled in the input box. The device can read and output only when the number of barcode digits meets the number rule. If the input box is empty, it means that there is no limit on the number of barcode digits. If several digits need to be set, multiple digits can be entered and separated by English semicolons, as shown in the following figure.

Number of characters (Format: 8; 15-30)

确认

If you need to set a certain range, you can enter the minimum and maximum allowed number of characters, separated by ~, as shown in the figure below.

Number of characters (Format: 8; 15-30)

确认

5. **Specified character match:** The option is the effective way for the specific character matching mode in the barcode content. There are three types to choose :

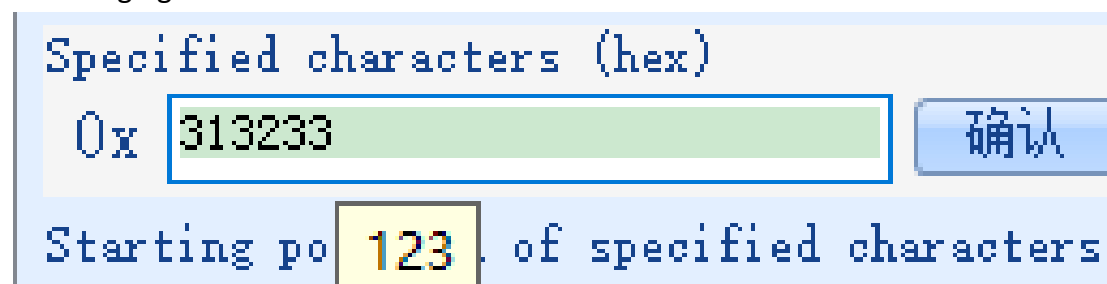
a. **Close:** when the mode is set, the character matching condition does not take effect.

b. **Output matched barcode:** when the mode is set, only the barcode that meets the matching conditions can be read and output.

c. **Output unmatched barcode:** when the mode is set, only barcodes that do not meet the matching condition can be read and output.

\*The special character matching switch and the number limit of barcodes are effective together. If they are set in the above coding system and the number of barcodes, the barcodes can be read and output only when they meet the previous rules.

6. **Specified characters (hex):** In the input box, you can enter the hexadecimal format of the characters to be matched, which can support up to 8 specific characters; if you need to enter multiple characters, you can directly enter them, as shown in the following figure.



Specified characters (hex)

0x 313233 确认

Starting po 123 of specified characters

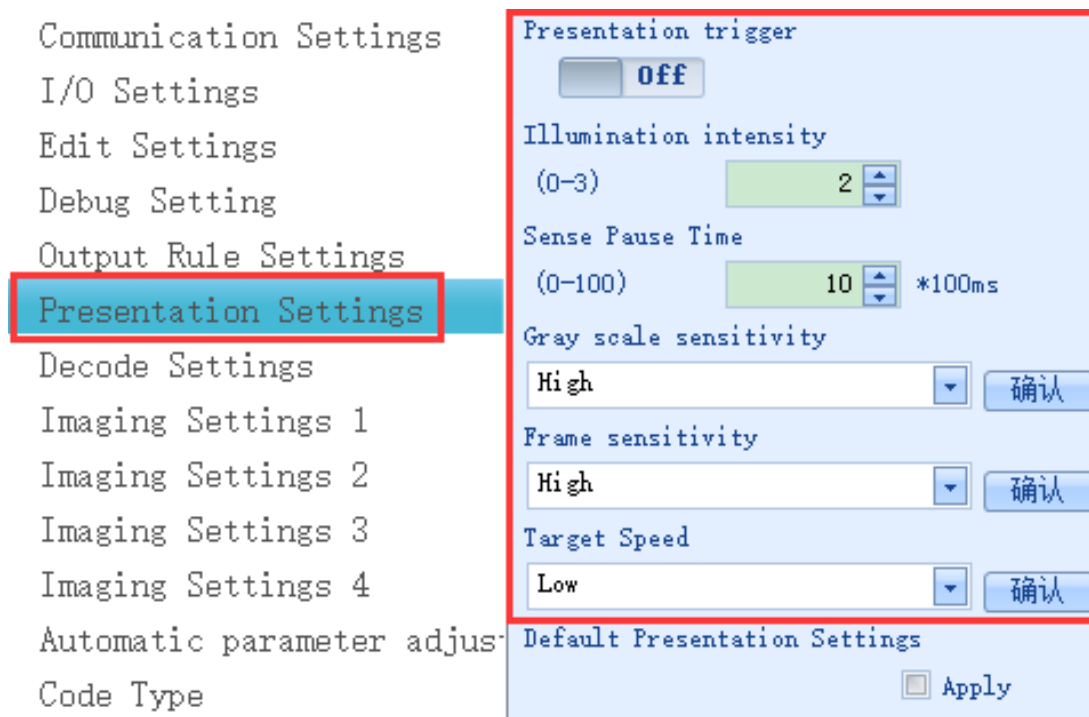
7. **Starting position of specified characters:** The option specifies the effective starting position of special characters. The minimum value is 1, which means starting from the first digit.

8. **Default Output Rule Settings :** Check before **Apply** and click **Download Configuration**. All settings in the setting interface will be restored to the default factory settings.

### 3.4.9 Presentation Settings

Click **Settings** on the main window and click **Presentation Settings**. The right area is the presentation settings area. In the interface, you can set the parameters related to the presentation mode of the device, as shown in the figure below.





1. **Presentation trigger:** When it is On, if the two consecutive images taken by the device change greatly, it will be automatically activated and start the inductive trigger.

Note: presentation trigger is On, it will enter the presentation mode immediately, and the continuous shooting of the image interface is not available.

2. **Illumination intensity:** In the presentation mode, you can set the lighting brightness of the device. The larger the setting value is, the brighter the device lighting will be when presentation triggered.

3. **Sense Pause Time:** The time for the device to keep working in the presentation mode.

4. **Gray scale sensitivity:** In the presentation mode, the smaller the proportion of the difference between two consecutive images in the whole image is, the higher the gray sensitivity is.

5. **Frame sensitivity:** In the presentation mode, if the gray scale difference between two pixel points is greater than the current gray scale sensitivity, it is judged as different points. The smaller the proportion of these different points in the whole picture, the higher the frame sensitivity is. The higher the picture sensitivity, the easier the device will be triggered.

6. **Target Speed:** In the presentation mode, the higher the setting of moving speed is, the higher the frequency of triggering drawing is.

7. **Default Presentation Settings** : Check before **Apply** and click **Download Configuration**. All settings in the setting interface will be restored to the default factory settings.

### 3.4.10 Decode Settings

Click **Settings** on the main window, and then click **Decode Settings**. The right area is the decode settings area.

In the interface, you can configure the device's work and time limit to search barcode, inverted barcode reading, DPM code setting, decoding matching rules, etc..

**1.Trigger Mode:** It includes **Common Mode**, **Enhanced Mode**, **Continuous Mode**, **Multi-Barcodes Mode** and **Comparison Mode**.

a.**Common Mode:** When it is On, the device will take a picture at a fast frequency and decode it for analysis. If the decoding fails, the device will take the next picture immediately and continue decoding analysis. (the mode is the default Trigger Mode).

\*It is recommended to use the mode in reading scenarios with short triggering intervals.

b. **Enhanced Mode:** When it is On, the device will quickly take multiple images, and then decode and analyze the captured images one by one.

\*It is recommended when reading barcodes in high-speed movement.

\* FV5X does not support the mode.

c. **Continuous Mode:**When it is On, the device takes pictures all the time within the effective time of the trigger signal, and decodes the barcode in each picture.

\*The mode is usually used for client demonstration.

d.**Multi-Barcodes Mode:** When it is On,the device will read multiple barcodes in the field of view during an effective triggering process. You can set multi barcode rules to filter and read barcodes.

e.**Comparison Mode:** When it is On,, if "IN2 of terminal block" has input signal, the decoding result will be set as the reference barcode for comparison; if "IN2 of terminal block" has no input signal, the decoding result will be compared with the set reference barcode, and the reference barcode will be output in the data text box.

\*Read successfully when the comparison is consistent (data will not be uploaded), fail to read when the decoding fails or the comparison is inconsistent, and output error prompt (including **No Read feedback**, **Beeper**, **I/O output**).

\* FV5X does not support the mode.

The screenshot shows a software interface for configuring a device. On the left is a sidebar with a list of settings categories: Communication Settings, I/O Settings, Edit Settings, Debug Setting, Output Rule Settings, Presentation Settings, **Decode Settings** (highlighted with a red box), Imaging Settings 1, Imaging Settings 2, Imaging Settings 3, Imaging Settings 4, Automatic parameter adjustment, and Code Type. The main panel on the right is titled 'Decode Settings' and contains several sections. At the top is 'Trigger Mode' with a dropdown set to 'Common Mode' and a '确认' (Confirm) button. Below this is a red-bordered box containing 'Trigger Type of Continuous Mode' (dropdown set to 'I/O trigger' with a '确认' button), 'Snap interval of Continuous Mode' (range 0-50, value 0, unit \*100ms), 'Maximum decoding time' (range 0-10000, value 5000, unit ms), 'Time limit to search barcode' (range 20-500, value 300, unit ms), and five toggle switches, all currently set to 'off': 'Dot matrix code optimization', 'Inverted barcode reading', 'Small DM reading optimization', 'Defaced DM reading optimization', and 'NO quiet zone QR reading'. At the bottom of the main panel is 'Default Decode Settings' with an 'Apply' button.

**2.Trigger Type of Continuous Mode:** It includes I/O trigger and Power on.

**3. Snap interval of Continuous Mode:** minimum is 0ms, maximum is 5000ms, default is 0ms

**4. Maximum decoding time:** When the device is triggered (including external trigger or command trigger), the maximum reading time of the device can be set. Input the required time value in the input box, click **OK** on the right after input, and then click **Download Configuration** to take effect (minimum is 0ms, maximum is 10000ms, default is 5000ms).

\*When it is 0, if the external signal is triggered, the barcode reading time of the device is subject to the external trigger signal. If the external signal fails, the device stops reading (if the reading is successful in the single trigger mode, the device also ends reading).

**5.Time limit to search barcode:** In the decoding process, when processing the

current picture, the maximum time spent searching for the possible barcode in the picture can be set. If the barcode is still not found after the set time is reached, discard the current picture and process the next picture (the minimum is 20ms, the maximum is 500ms, and the default is 100ms).

**6. Dot matrix code optimization:** When the mode is On, the reading effect of DPM code will be improved.

\*When it is On, reading the barcode assigned by printing or printing mode will reduce the effect.

**7. Inverted barcode reading:** When the mode is On, the device can read both the reverse code and the positive code at the same time. When the mode is Off, only the positive code can be read.

\*When it is On, the effect of reading positive code will be weakened.

**8. Small DM reading optimization:** When the mode is On, the reading effect of DM code with small size will be enhanced.

**9. Defaced DM reading optimization:** When the mode is On, the reading effect of the defaced DM code will be enhanced.

**10. NO quiet zone QR reading:** When the mode is On, the reading effect of no quiet zone QR will be enhanced.

**11. Maximum quantity of images taken in Enhanced Mode:** When the device trigger mode is enhanced mode, the maximum number of images captured after each trigger can be set (value range is 1-20, default is 10).

**12. Snap interval of Enhanced Mode:** The interval time between multiple images can be set. If the object moves slowly, the interval time can be increased appropriately. If the object moves faster, the reading interval time can be reduced appropriately (value range is 0-50ms, default is 0).

**13. Default Decode Settings:** Check before **Apply** and click **Download Configuration**, then all settings in the setting interface will be restored to the default factory settings.

### **3.4.11 Imaging Settings<sup>1234</sup>**

Click **Settings** on the main window, and then click **Imaging Settings<sup>1 or 2 or 3 or 4</sup>**. The right area is the imaging settings area. In the interface, you can set the parameters such as the image preprocessing method of the device, as shown in the following figure.

Communication Settings

I/O Settings

Edit Settings

Debug Setting

Output Rule Settings

Presentation Settings

Decode Settings

Imaging Settings 1

Imaging Settings 2

Imaging Settings 3

Imaging Settings 4

Automatic parameter adjust

Code Type

1#Apply in decoding

No

确认

1#Decoding Window

关

1#Vertical Boundary

02370460

确认

1#Horizontal Boundary

02100580

确认

1#Illumination mode

LED on

确认

1#Pixel binning

off

1#Illumination intensity

(0-3)

3

1#Gain

(1-16)

4

1#Initial gray value

(0-767)

0

1#enhanced contrast

enhanced contrast off

确认

1#Exposure Time

(1-100)

9

1#Focus Distance

(0-100)

26

1#Filter 1

off

确认

1#Filter 1 parameters

3

确认

1#Filter 2

off

确认

1#Filter 2 parameters

3

确认

1#Filter 3

off

确认

1#Filter 3 parameters

3

确认

1#Filter 4

off

确认

1#Filter 4 parameters

3

确认

The part is equivalent to the **Image general parameter settings** of the image

interface, including image general parameter settings and filter parameter settings.

Imaging settings 1, 2, 3 and 4 can be selected to apply in decoding. When it is On, trigger decoding will use the imaging settings (settings 1, settings 2, settings 3 and settings 4) checked to apply in decoding in turn to decode.

1. **Decoding Window**: when open, it is the same as decoding window mode.

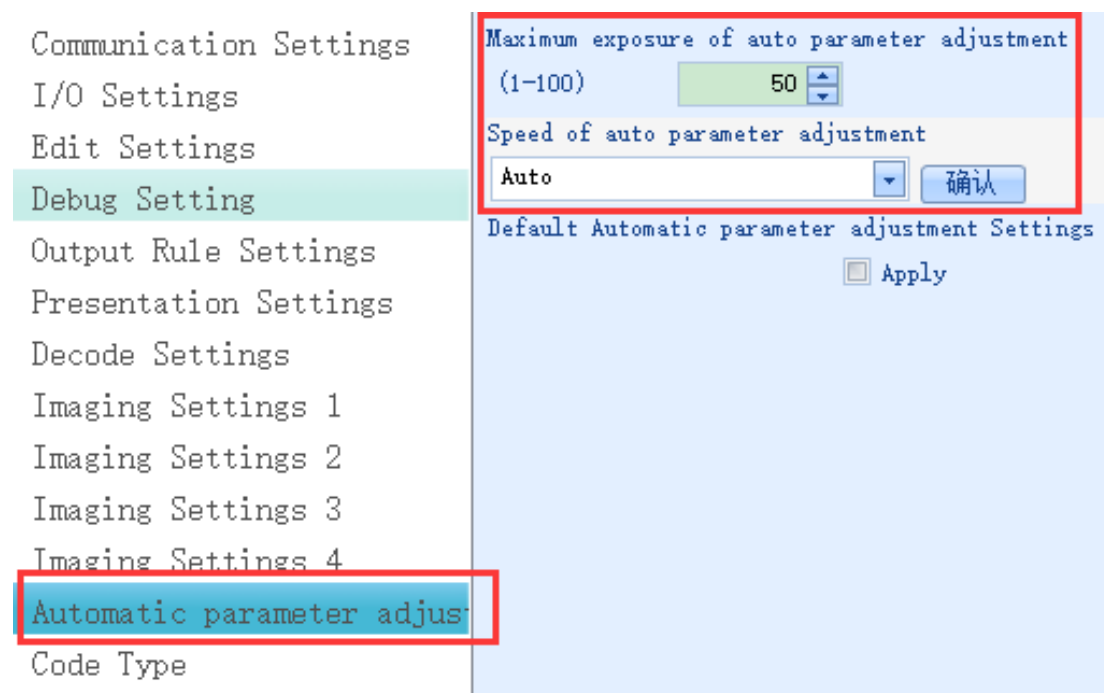
2. **Vertical boundary**: the value is equal to the value above and below the window

3. **Horizontal boundary**: the value is equal to the window left and window right

4. **Default Imaging Settings**: Check before **Apply** and click **Download Configuration**, then all the settings under the setting interface and the parameter settings of the image interface will be restored to the default factory settings.

### 3.4.12 Automatic parameter adjustment Settings

Click **Settings** on the main window, and then click **Automatic parameter adjustment Settings**. The right is the automatic parameter adjustment setting area, as shown in the figure below.



1. **Maximum exposure of auto parameter adjustment**: The exposure time in the process of automatic parameter adjustment shall not be greater than "maximum exposure time of automatic parameter adjustment".

If the static barcode is read, the maximum limit can not be set, and the default value or the maximum value can be taken.

If the moving barcode is read, set the maximum exposure time according to the required speed to ensure that the barcode can be decoded normally when it moves

after the automatic parameter adjustment.

\*Default 50, range 1-100.

**2.Speed of auto parameter adjustment:** It includes auto, high speed, medium speed and low speed. The default value is auto.

The result of "**Auto**" parameter adjustment is determined by the algorithm, which is equivalent to medium speed.

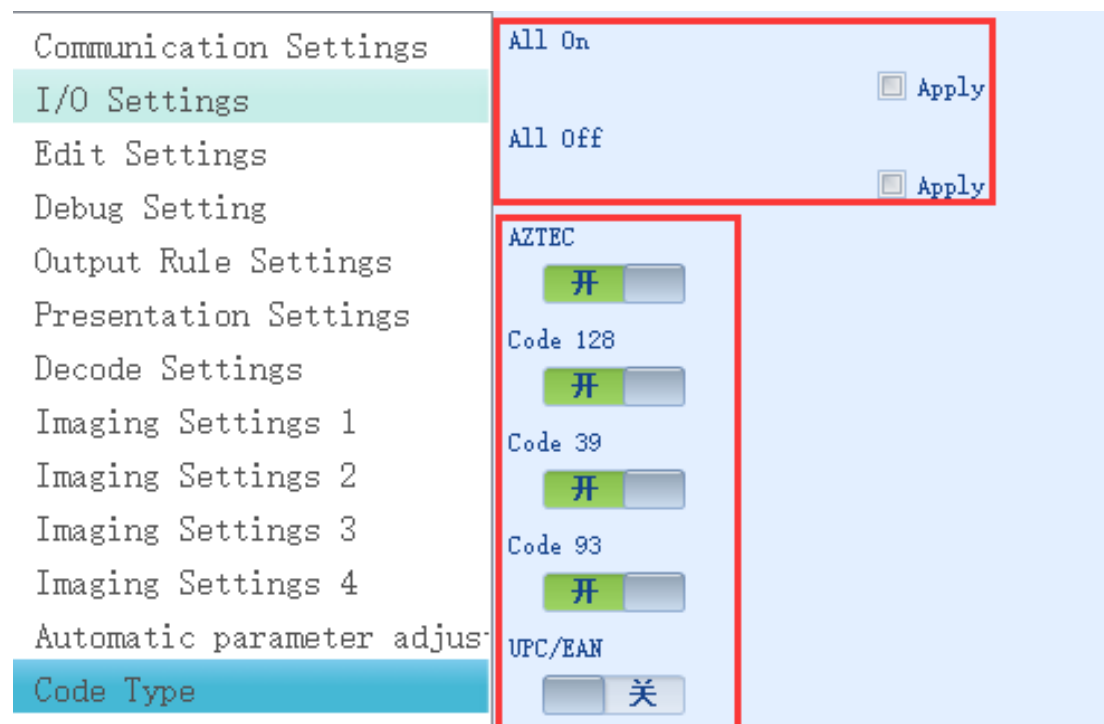
The result of "**High**" parameter adjustment has no filtering processing, so the speed is the fastest.

The results of "**Medium**" and "**Low**" parameter adjustment include image parameters and filtering processing, but only the difference of parameter adjustment speed.

**3.Default Automatic parameter adjustment Settings:** Check before **Apply** and click **Download Configuration**, then all the settings under the setting interface will be restored to the default factory settings.

### 3.4.13 Code Type

Click **Settings** on the main window, and then click **Code Type** . The right area is the code type area. In the interface, you can configure the barcode types that the device can read, as shown in the following figure.



1. **All On:** Check before **Apply** to activate the full code on mode. At the time, all the barcode types supported by the device are activated.

2. **All Off:** Check before **Apply** to activate the full code off mode. At the time, all the barcode types that can be supported by the device are closed.

3. **Single code system setting:** The user can also turn on and off the single coding system, just drag the button behind the coding system, and then click **Download Configuration** on the left, and the settings will take effect.

### 3.4.14 OCR Settings

Click **Settings** on the main window, and then click **OCR Settings**. The area on the right is the OCR setting area. In the interface, the device OCR function can be configured.

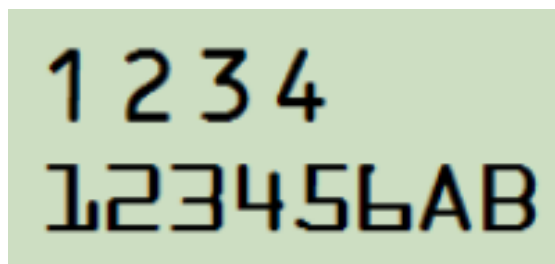
#### 1. OCR function:

When it is off, OCR character recognition is off.

When it is on, the OCR character recognition function is on.

#### 2. Single row mode:

Example explanation

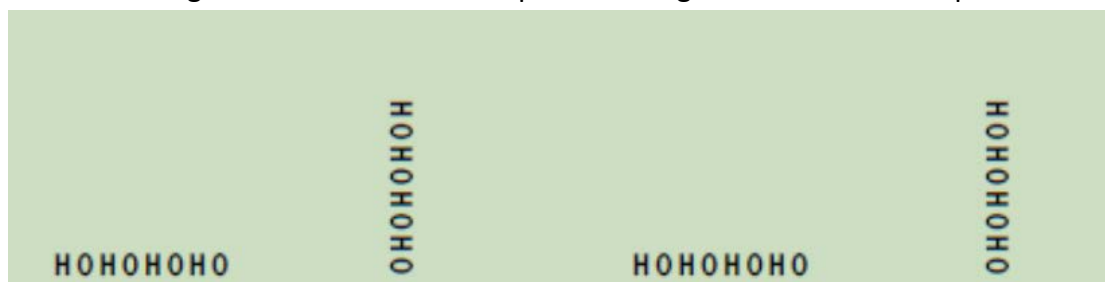


When it is off, the device will think of an OCR string with two lines of characters.

When it is on, the device will think of a 4-bit string and an 8-bit string.

3. **Preferred Orientation:** OCR character sequence has direction. When characters are read in reverse or after flipping, recognition errors may occur. After the character direction is set, it will read in the set direction. It should be noted that the direction is only for symmetrical characters, otherwise it is easy to cause direction confusion.

From left to right    From bottom to top    From right to left    From top to bottom





#### 4.Stripping of Checksums:

When it is off, the OCR character verification function is off.

When it is on, the OCR character verification function is on.

5. **Busy background:** When the background color of the certificate is not the standard color (the standard color is white), the mode can be turned on to improve the reading effect.

\*The default is off.

#### 6. Issue uncertain Output:

The setting is off, when a character is interpreted with uncertainty, it will not be output.

The setting is on, if it is uncertainty when a character is interpreted, it will be output according to the most likely content. The output character may not match the actual character.

7.**Passport verification function:** When the mode is On, the passport verification bit verification function will be activated to improve the accuracy of character interpretation, but at the same time, the speed of interpretation will be reduced.

\*The default is off.

#### 8. Allow multiple spaces:

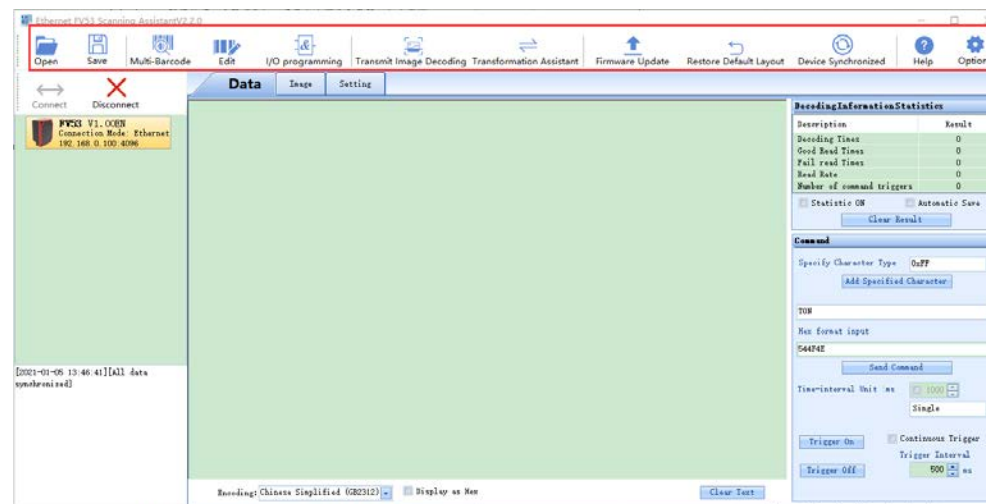
When it is off, two or more consecutive space characters are not interpreted.

When it is on, two or more consecutive space characters are interpreted.

9.**Default OCR Settings :** check before Apply and click **Download Configuration**. All settings in the setting interface will be restored to the default factory settings.

### 3.5 Toolbar Operation

After the infostepper software is started and the device is connected, the toolbar is on the upper side of the main interface, as shown in the following figure.



### 3.5.1 Open and Save

You can read or save the data in the current interface.

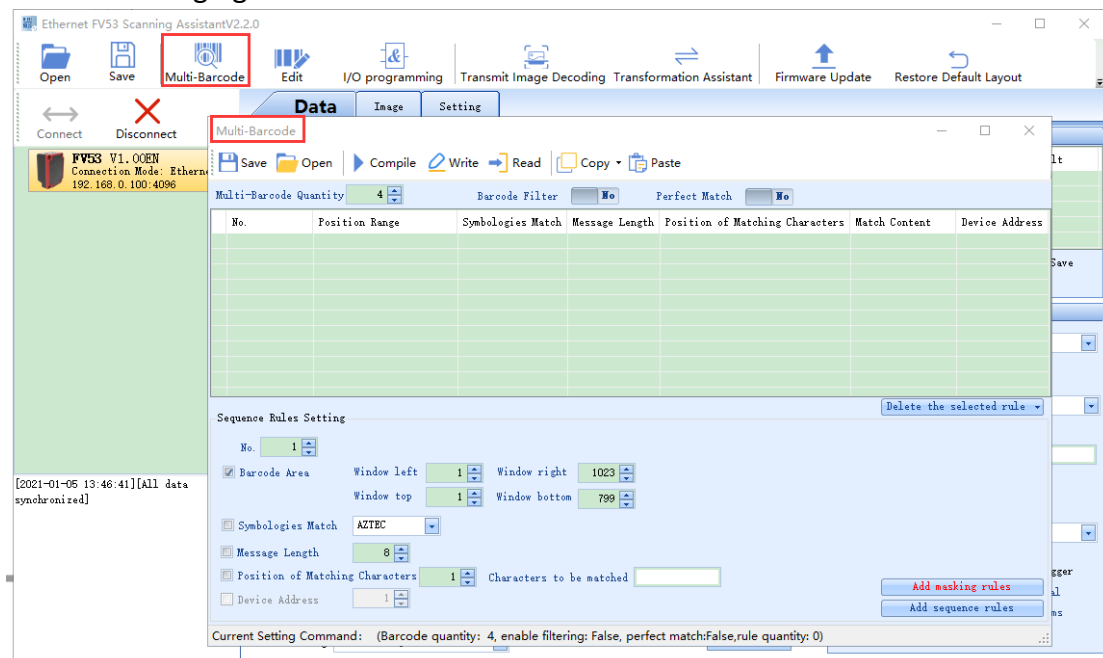
For example, in the “Data” interface, you can open and save text.

In the “Image” interface, you can open the local image, save the photo or the latest acquired image.

In the “Settings” interface, you can open the local configuration file and save the device configuration file to the local.

### 3.5.2 Multi-Barcode

Click the **Multi-Barcode** to open the multi barcode matching rule window, as shown in the following figure



In the interface, you can set related settings such as Multi-Barcode Quantity, Sequence Rules, and write, read or delete the settings.



### 3.5.2.1 Sequence Rules Setting

Sequence Rules Setting

No. 1

☒ Barcode Area Window left 1 Window right 1023  
Window top 1 Window bottom 799

☐ Symbolologies Match AZTEC

☐ Message Length 8

☐ Position of Matching Characters 1 Characters to be matched

☐ Device Address 1

Add masking rules

Add sequence rules

Current Setting Command: (Barcode quantity: 4, enable filtering: False, perfect match: False, rule quantity: 0)

1. **No.:** When reading multiple barcodes, you can sort and output the read barcodes, set the output sequence and the matching conditions in the setting area below. For example, the first output barcode is code 128, and the second output barcode is 10 in length.

2. **Barcode Area:** The barcode in the reading field can also be matched by specifying the location of the barcode area. First, check the barcode area, and then fill in the limit value corresponding to the location in the value box in four directions.

\*The configuration can be used under the condition of static reading. It is not recommended under the condition of dynamic reading.

3. **Symbolologies Match:** Set the matching condition as the code type of barcode. When setting, you need to click the box in front of the menu bar and select the matching code in the drop-down menu.

4. **Message Length:** Set the matching condition as the length of barcode data bits. When setting, you need to click the box in front of the menu bar and set the number of barcode bits.

5. **Position of Matching Characters:** Set the matching condition as the character on the specified position of the barcode. First set the matching character position, tick before matching the character position, and then select the specified position of the barcode. For example, 1 represents the first position of the barcode; then set the character to be matched, and enter the character in the input box.

6. **Device Address:** Only for control box device.

\*After setting conditions for each output sequence are completed, you need to click **Add sequence rules** in the lower right corner to add the setting content to the table.

\*If multiple barcodes have redundant barcodes that need to be shielded, you can set rules according to the characteristics of the barcodes. Click **Add masking rules** in the lower right corner to add the masking barcodes to the table. Compiled and Written together with the sequence rules, and the barcodes matching the masking sequence will also be ignored in the decoding process.

Note: When setting the masking sequence, you do not need to set the output

sequence number. You can set any masking sequence.

[illegible]

### Example explanation

[illegible]

The content shown above represents the following reading rules:

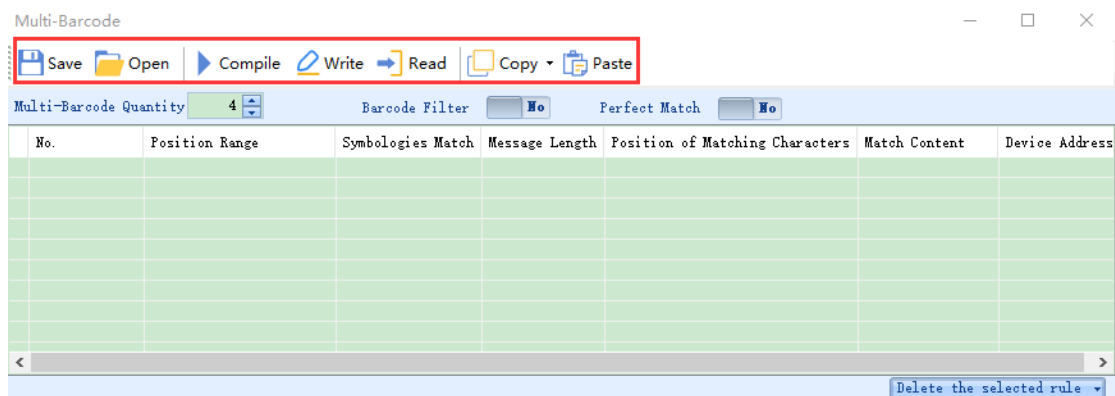
The first output character is code 39 with A initial.

The second output is a DataMatrix code without special restrictions.

The third output is an 8-bit code 128.

After setting, you must click **compile** and **write** in the multi-barcode rule toolbar to take effect.

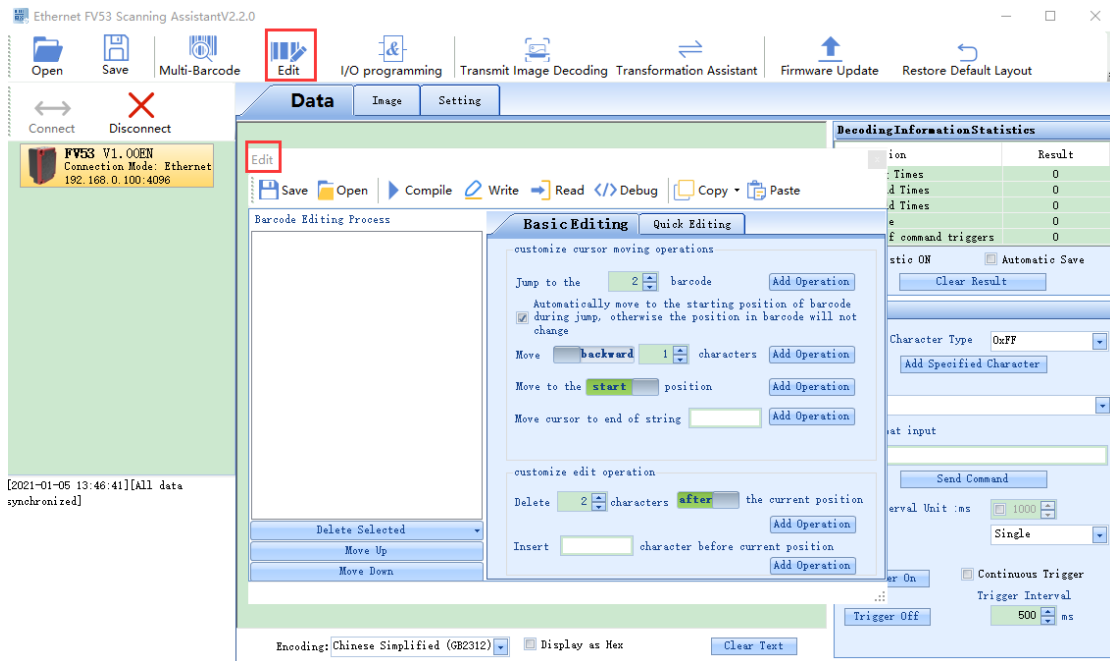
### 3.5.2.2 Multi-Barcode Toolbar



1. **Save:** The current multi-barcode output rule can be saved as an output code file with suffix of. Mul.
2. **Open:** The saved multi-barcode output code file can be opened, and the configuration can be made effective by compiling and writing.
3. **Compile:** Compile the set multi-barcode rule into a series of commands, which are used as the effective commands of the device.
4. **Write:** Write the compiled current command to the device. After writing, the multi barcode rule will take effect.
5. **Read:** Read out the current multi-barcode rule of the device, and the read rule will be displayed in the below window.
6. **Copy rules of reading Multi-Barcodes:** Copy all displayed multi-barcode rules in the window, and wait for the new device to copy the rule.
7. **Generate Barcode of reading multi-Barcodes rules:** You can copy the barcode generated by the currently set multi-barcode rule, and paste it in other windows or documents.
8. **Paste:** Paste the copied multi-barcode rule.

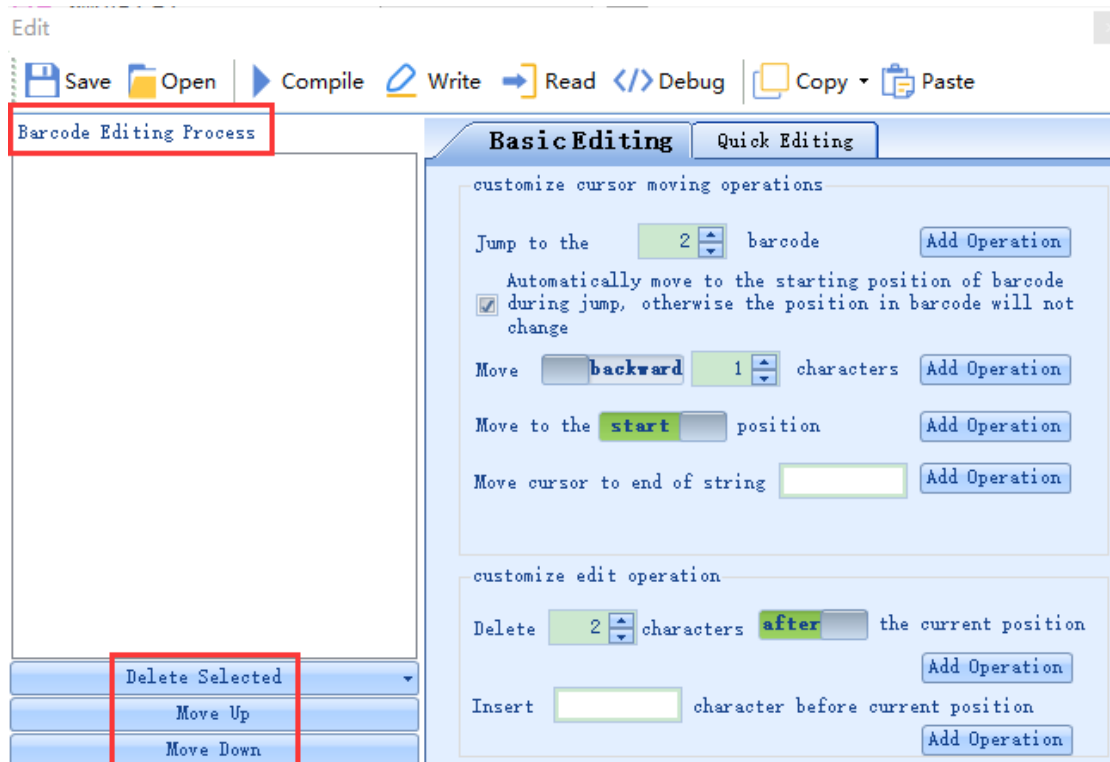
### 3.5.3 Barcode Editing

Click **Edit** to open the barcode editing window, as shown in the figure below.



In the interface, users can edit and output barcode data content through **Basic Editing** or **Quick Editing**.

### 3.5.3.1 Edit Process Window



**1. Barcode Editing Process:** It can display the user's editing operation to the data in the window, or display the currently effective commands of the device in the window through the read-out operation.

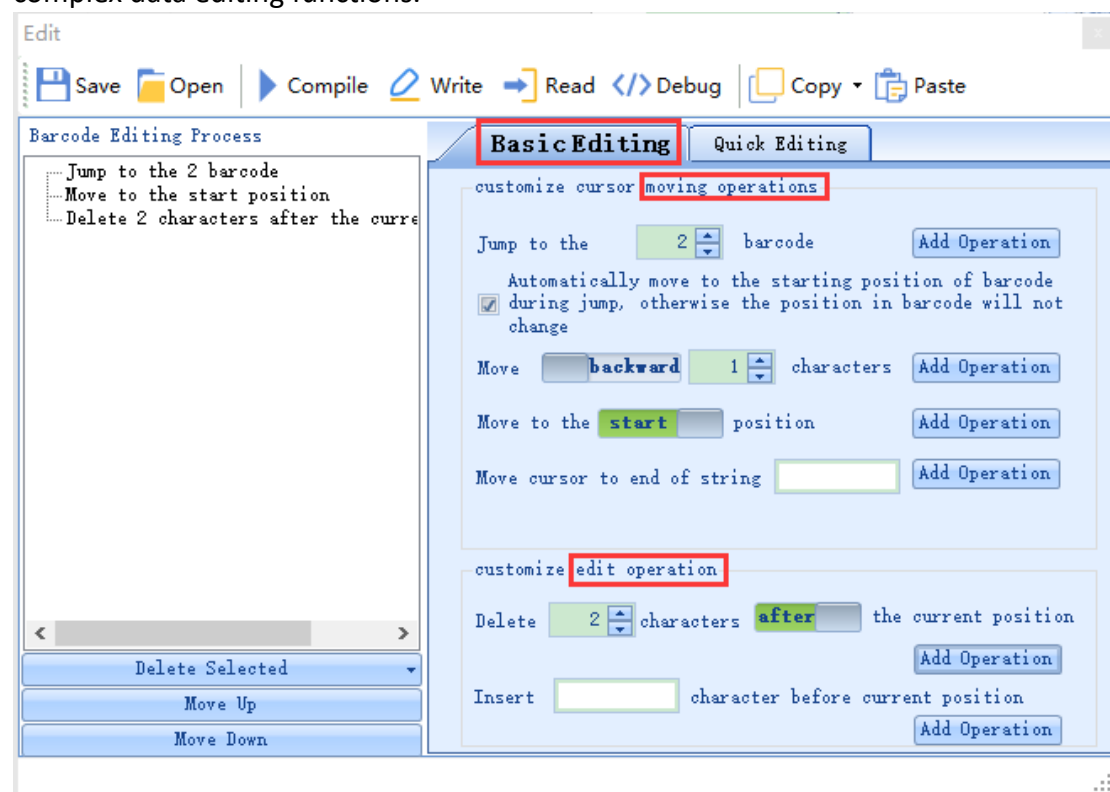
2. **Delete:** After selecting an operation in the editing process, you can click Delete to delete the operation.

3. **Move Up:** After selecting an operation in the editing process, you can click the move up button, and the operation will take effect in advance.

4. **Move Down:** After selecting an operation in the editing process, you can click the move down button, and the effective order of the operation will be pushed back.

### 3.5.3.2 Basic Editing

The following interface is the basic editing interface. In the interface, two kinds of operations can be used, i.e. position moving and editing, to complete the more complex data editing functions.



1. **Skip barcodes No.:** If multi barcode reading mode is enabled, you can edit the read barcode contents separately. For example, if you need to edit the data of the second barcode you read, you can select the number 2 and then add to start the operation of the second barcode.

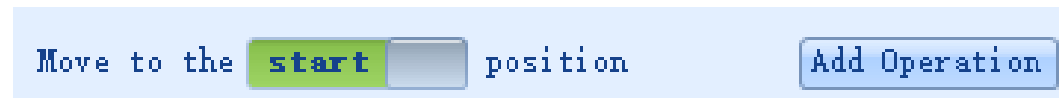
2. **Move Backward:** It means that the direction of pointer movement is the direction of barcode end position.

3. **Move Forward:** It means that the direction of pointer movement is the starting position direction of barcode.



4. **Number of characters moved:** The number filled in the character input box represents the number of digits the pointer moves.

After selection and input, click the **Add Operation**, and the above content will enter the edit process box on the left.



Move to the **start**  position

5. **Start:** It means that the pointer moves to the starting position of the barcode, before the first character.

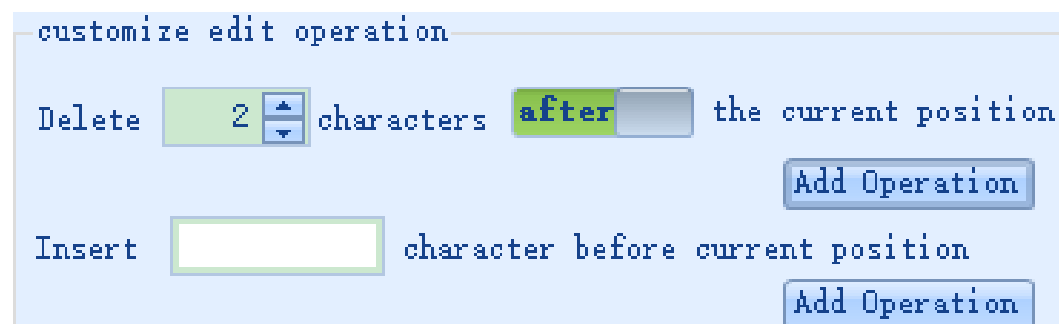
6. **End:** It means that the pointer moves to the barcode ending position, after the last character.



Move cursor to end of string

7. **Move cursor to end of string:** The character filled in the input box represents that the pointer will move after the character.

\*After selection and input, click the **Add Operation** to enter the edit process box on the left.



customize edit operation

Delete    characters **after**  the current position

Insert  character before current position

8. **After:** It means the direction from the pointer position to the end of the barcode.

9. **Before:** It means the direction from the pointer position to the starting position of the barcode.

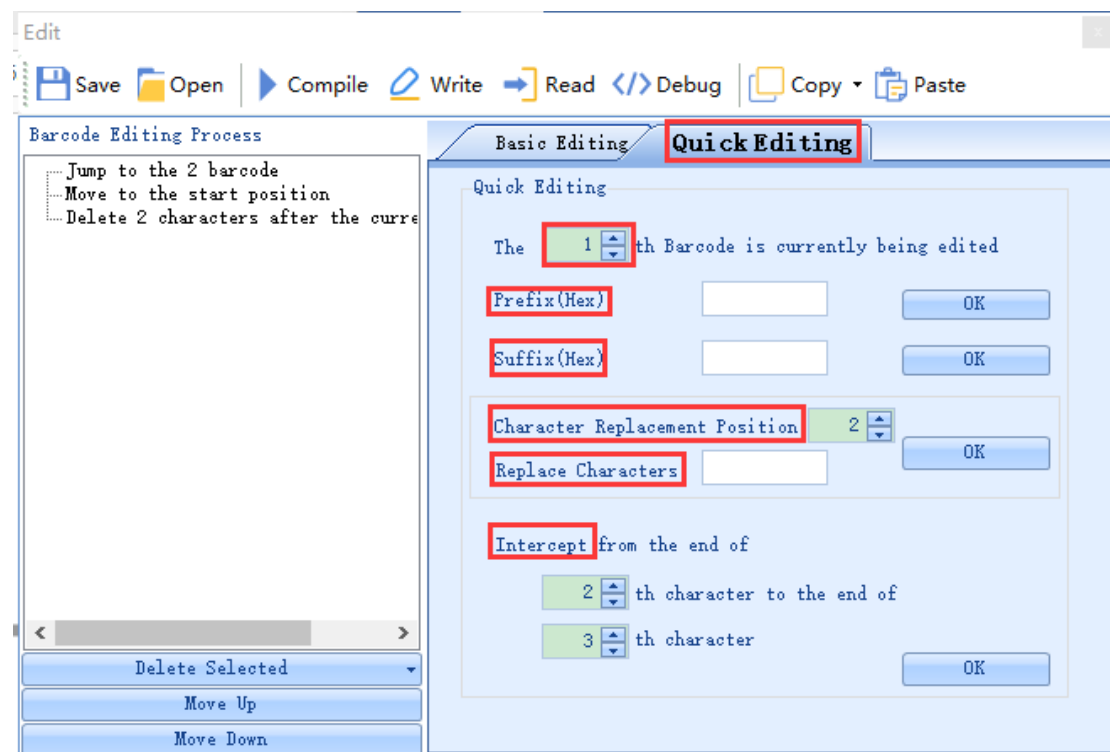
10. **Number of characters deleted:** The number filled in the character input box represents the number of characters deleted.

11. **Inserted character:** The character content filled in the character input box represents the data inserted at the current pointer position.

### 3.5.3.3 Quick Editing

The following figure shows the **Quick Editing** in the setting area, where you can complete some common simple editing functions for barcode data. If you need to

complete some complex data editing functions, you can switch to the **Basic Editing**.



1. **Currently edited barcodes No.:** If the **Multi-Barcodes Mode** is enabled, you can edit the read barcode contents separately. 1 represents the first output barcode in the multi barcode, and 2 represents the second.  
If it is a single-barcode mode, enter 1.

2. **Prefix:** The device supports the user to add a custom prefix character in front of the barcode data content. The defined character needs to be input in hexadecimal mode. After input, click the confirm button on the right, **Compile** and **Write** before it takes effect (the maximum number of characters supported is 8, which is blank by default).

3. **Suffix:** The device supports the user to add a custom suffix character in front of the barcode data content. The defined character needs to be input in hexadecimal mode. After input, click the confirm button on the right, **Compile** and **Write** before it takes effect (the maximum number of characters supported is 8, which is blank by default).

Examples are as follows:

The screenshot displays the 'Barcode Editing Process' window. On the left, a tree view shows 'General edition of bar code 1' with sub-items 'Prefix: A' and 'Suffix: B'. Below this are buttons for 'Delete Selected', 'Move Up', and 'Move Down'. The main area has two tabs: 'Basic Editing' and 'Quick Editing'. The 'Quick Editing' tab is active, showing a 'Quick Editing' dialog. This dialog includes a spinner for 'The 1 th Barcode is currently being edited', input fields for 'Prefix(Hex)' (41) and 'Suffix(Hex)' (42), each with an 'OK' button. Below these is a 'Character Replacement' section with a 'Character Replacement Position' spinner (2) and a 'Replace Characters' input field, also with an 'OK' button. At the bottom, an 'Intercept from the end of' section has two rows: '2 th character to the end of' and '3 th character', each with a spinner and an 'OK' button.

4. **Character replacement:** The device supports the user to replace the characters on the specified position in the barcode data with custom characters, input the character position to be replaced in the **Character Replacement Position**, and directly input the replaced characters in the **Replace Characters** (no hexadecimal is required). After input, **Compile** and **Write** to take effect.

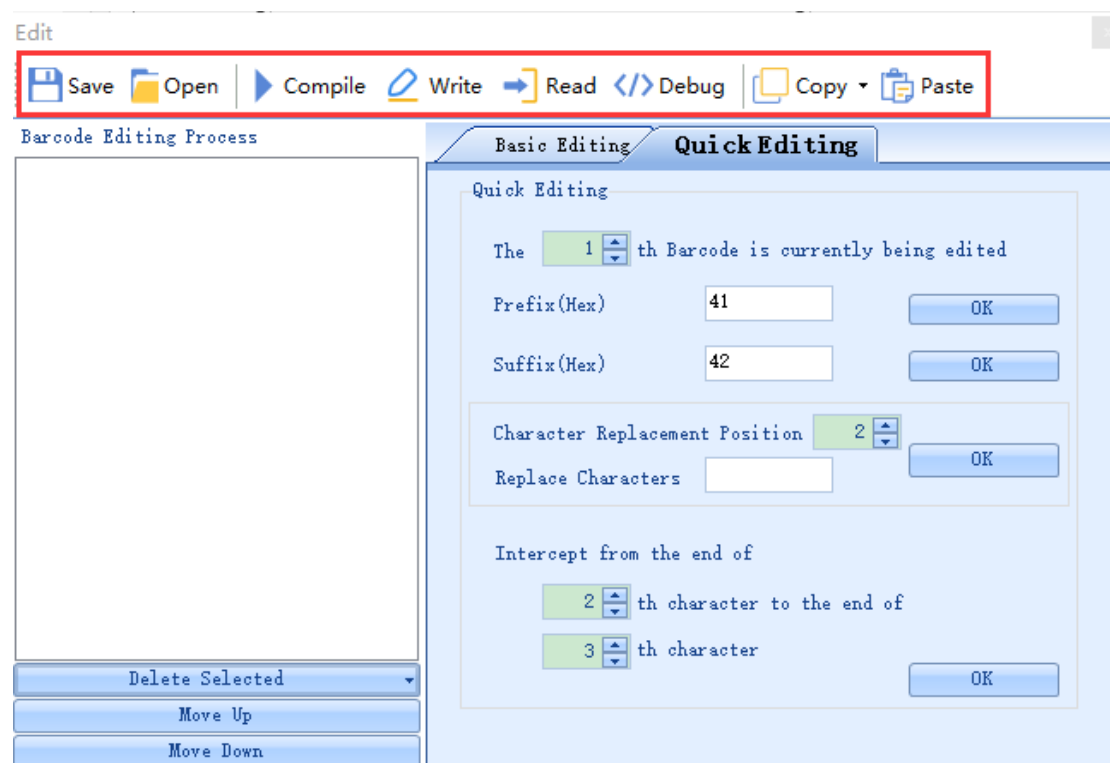
Character replacement in the shortcut setting interface can only replace one character in one position. If you need to replace more than one character, please set it in the **Basic Editing**.

This close-up shows the 'Intercept from the end of' section of the 'Quick Editing' dialog. It contains two rows of input: the first row has a spinner set to '2' followed by the text 'th character to the end of', and the second row has a spinner set to '3' followed by the text 'th character'. An 'OK' button is located to the right of these inputs.

5. **Character truncation:** The input value of the first output box represents the position of the character to be intercepted, and the input number represents the position corresponding to the barcode data to be intercepted; the second output box represents the position of the character to be intercepted.

\*The ending position can be negative, for example - 2 represents the second character from the end of the barcode.

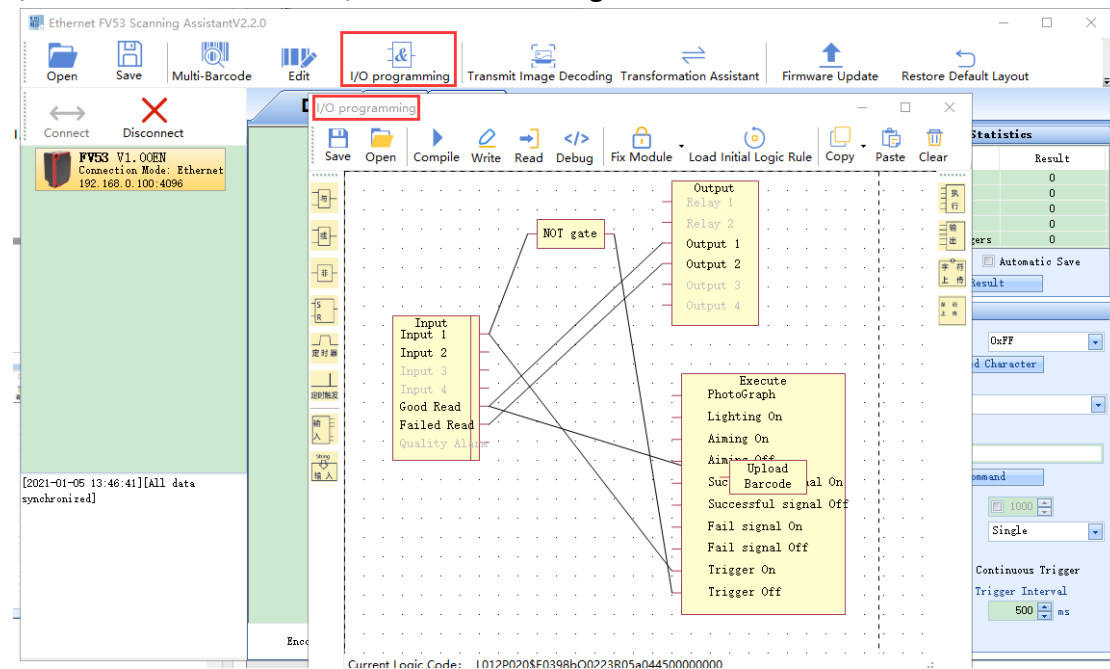
### 3.5.3.4 Barcode Editing Toolbar



1. **Save:** The barcode editing code file can be saved locally.
2. **Open:** You can open the barcode editing code file to the process, compile and write at last, and complete the operation of writing the barcode editing code to the device.
3. **Compile:** Compile the user's editing operation of data into command that can be recognized by the device.
4. **Write:** Issue compiled commands to the device.
5. **Read:** Read out the currently effective editing operation in the device to the software interface.
6. **Debug:** Simulate the effect of the current setting in the software.
7. **Copy rules:** The current barcode editing code can be copied, waiting for the new device to copy the code.
8. **Generate barcode of editing rules:** You can copy the barcode generated by the current barcode editing, and paste it in other windows or documents.
9. **Paste:** Paste the previously copied code into a new device.

### 3.5.4 I / O Programming

Click **I/O programming** to open the custom logic window, which can configure the I/O function of the device, as shown in the figure below.



#### 3.5.4.1 Module introduction

##### Input Module

1. **In1**: It represents the signal input of in1 pin in I / O terminal, which is effective at low level by default.
2. **In2**: It represents the signal input of in2 pin in I / O terminal, which is effective at low level by default.
3. **Good Read**: Successful reading .
4. **Failed Read**: Fail reading .

##### Output Module

1. **Output 1**: It represents voltage feedback 1.
2. **Output 2**: It represents voltage feedback 2.
3. **Output 3**: It represents voltage feedback 3.
4. **Output 4**: It represents voltage feedback 4.

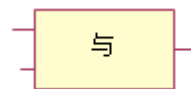
##### Execution Module

1. **Lighting On**: Turn on the lighting light of the device.
2. **Lighting Off**: Turn off the lighting of the device.
3. **Aiming On**: Turn on the aiming light of the device.
4. **Aiming Off**: Turn off the aiming light of the device.
5. **Successful signal On**: Open reading success feedback.
6. **Successful signal Off**: Close reading success feedback.

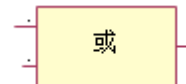
7. **Fail signal On**: Open reading failure feedback.
8. **Fail signal Off**: Close reading failure feedback.
9. **Trigger On**: Trigger on the device to read the code.
10. **Trigger Off**: Cancel the trigger operation on the device.

### Logic function Module

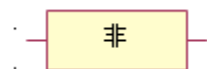
1. **AND gate**: It realizes **AND gate** logical function.



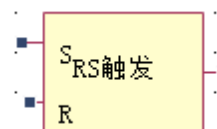
2. **OR gate**: It realizes **OR gate** logical function.



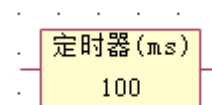
3. **NOT gate**: It realizes **NOT gate** logical function.



4. **Rs**: RS trigger.

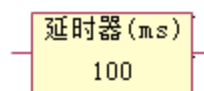


5. **Timer**: User-defined time module, realizing the function of maintaining a period of



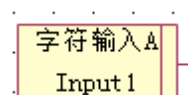
time state, controlling trigger time, output feedback time, etc.

6. **Delaying device**: User-defined time module. After a period of delay, the device can



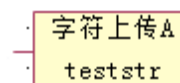
perform subsequent operations.

7. **Input Character**: Input the custom character to the device, which can realize functions such as the upper computer sends out the character guidance device to



carry out relevant actions, etc.

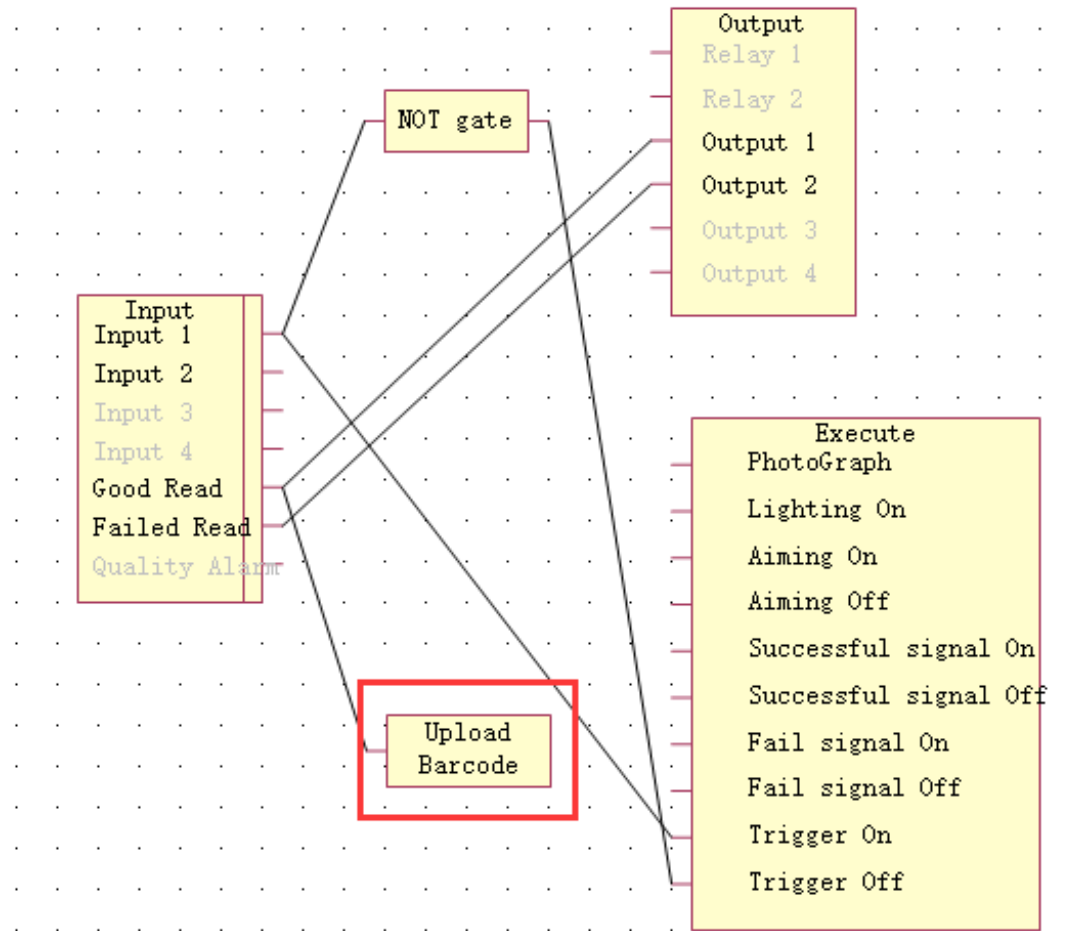
8. **Upload Character**: The device can upload user-defined characters and realize



functions such as user-defined data feedback after reading failure.

### 9. Upload Barcode:

The default logic diagram is shown in the figure below:

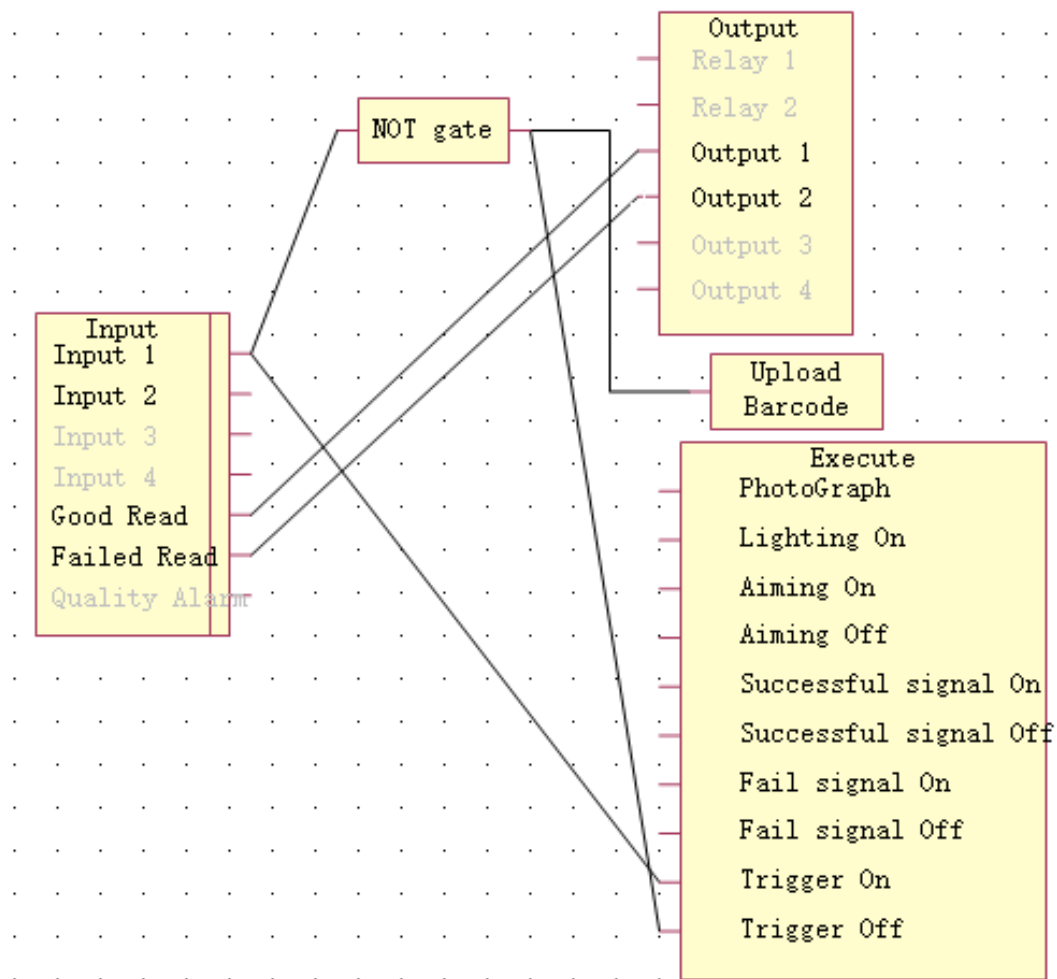


The barcode upload function module defines the upload rules of the read barcode content. The default rule is that the barcode information will be uploaded immediately after the reading is successful.

The upload rule of the failed feedback character has not changed. It is still uploaded after the trigger is finished.

The module represents the data information, reading the successful I/O signal is not affected.

\*Example: When the trigger signal ends, upload the barcode data content.



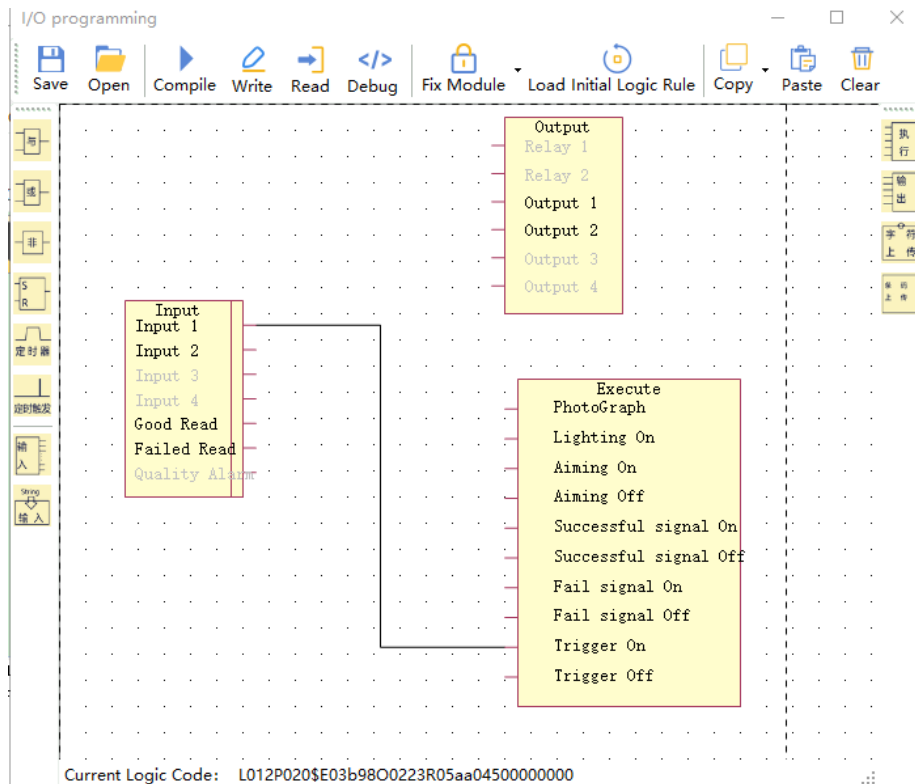
### 3.5.4.2 How to edit logic diagram

#### Direct logic

After selecting the corresponding position of the input end or other input modules, drag the mouse from the node to the node of the output or execution module to release it.

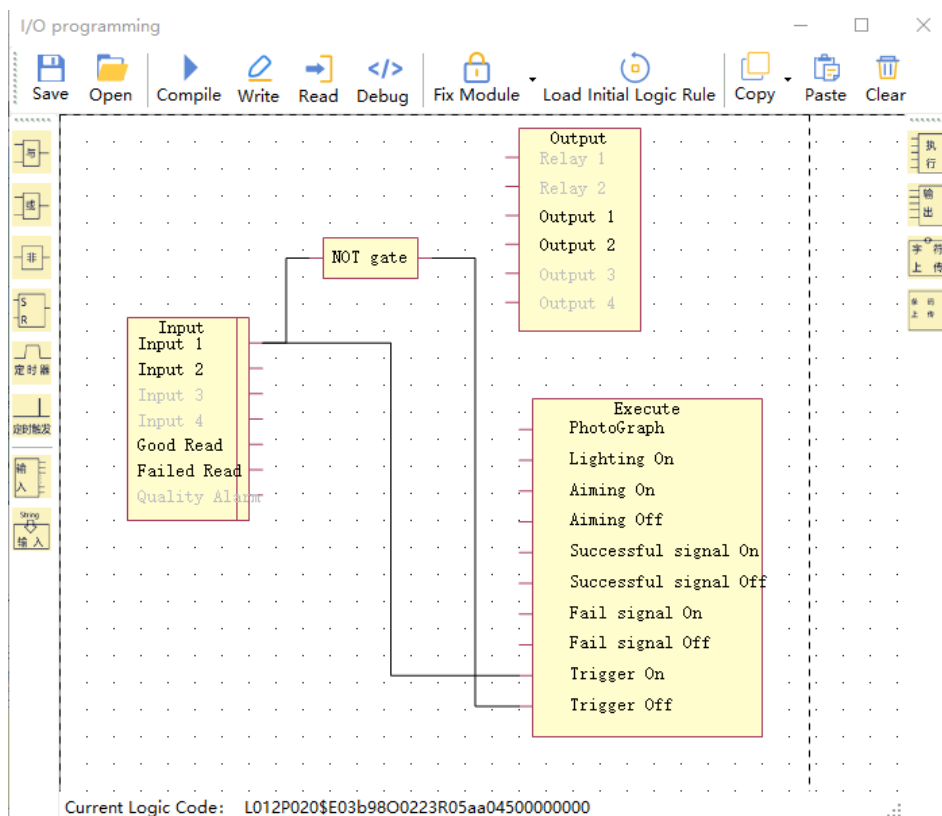
Note: Drag to the node. If the box is green, you can release the mouse, which means the logical connection is successful.





## Combinational logic

You can click the logic module on the left, for example, after clicking the **NOT gate**, the logic icon will be displayed in the window, and then drag the cable to realize the required logic, as shown in the following figure.



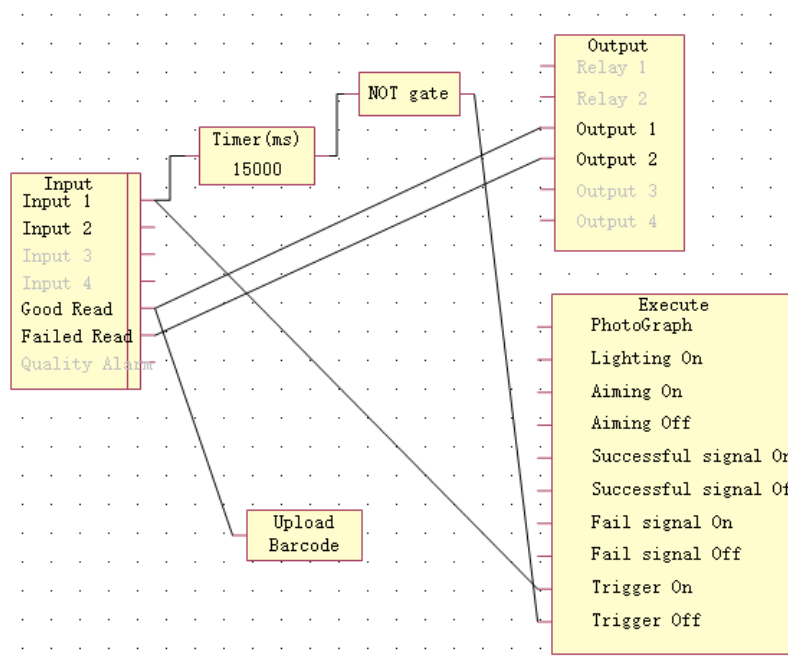
**Delete logical line:** After selecting the logical line, press Delete on the keyboard to delete it.

\*After editing the logic diagram, you need to click **Compile** on the logic toolbar, and then click **Write** to take effect.

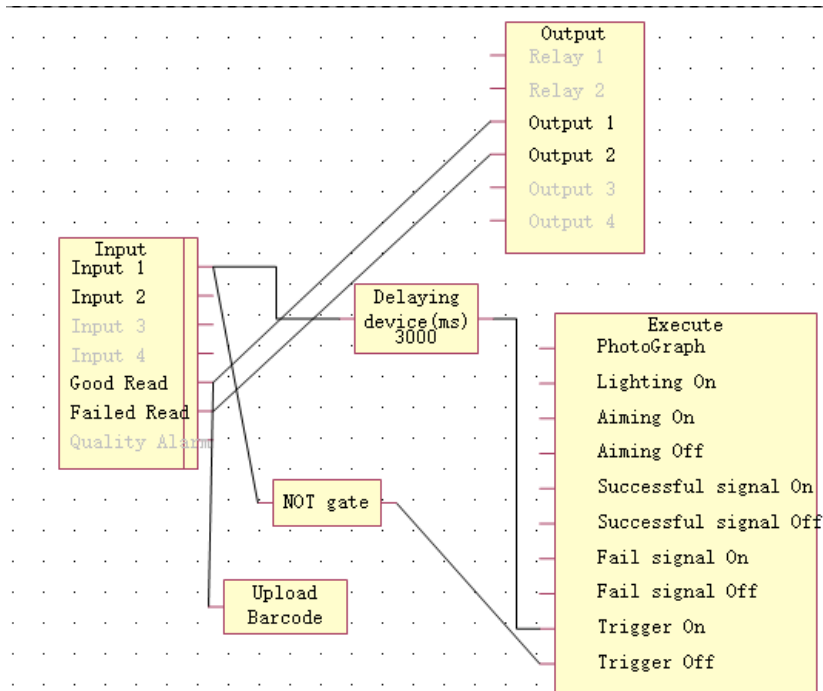
### 3.5.4.3 common logic

1. The IN1 trigger signal is held for 15s.

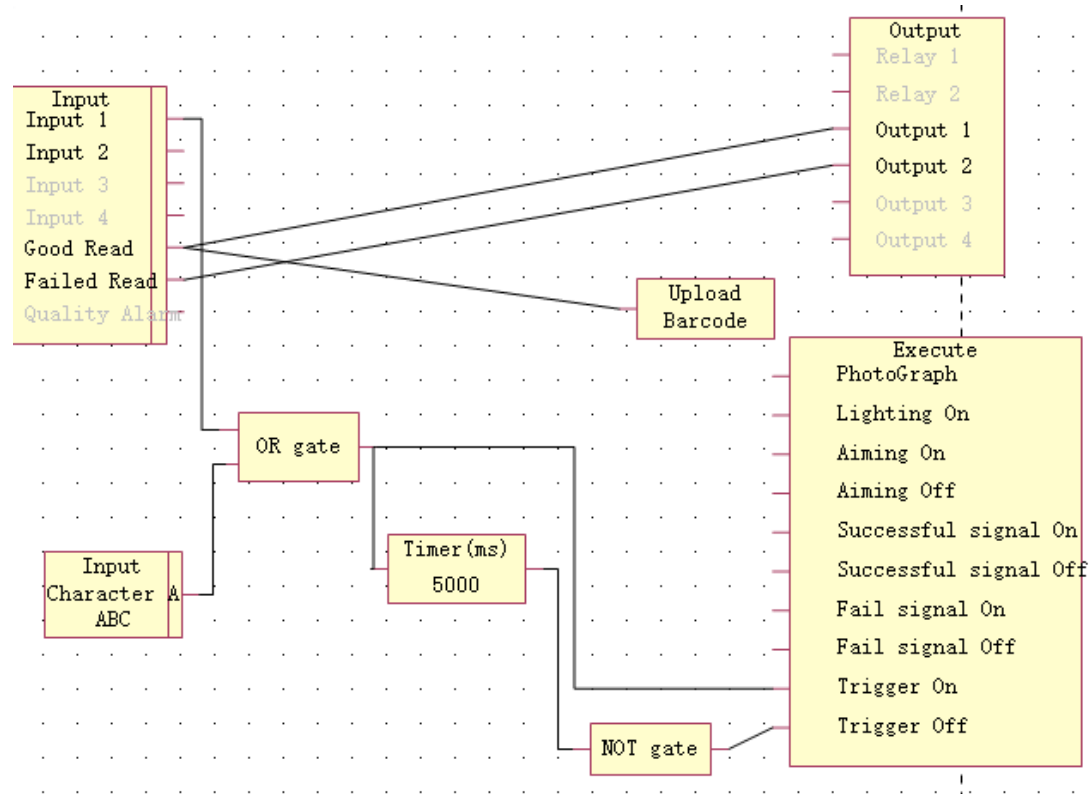
Parameter setting: Decoding Settings - Maximum decoding time - 0ms.



2. IN1 has a trigger signal, and the reader starts to trigger scanning after 3s.

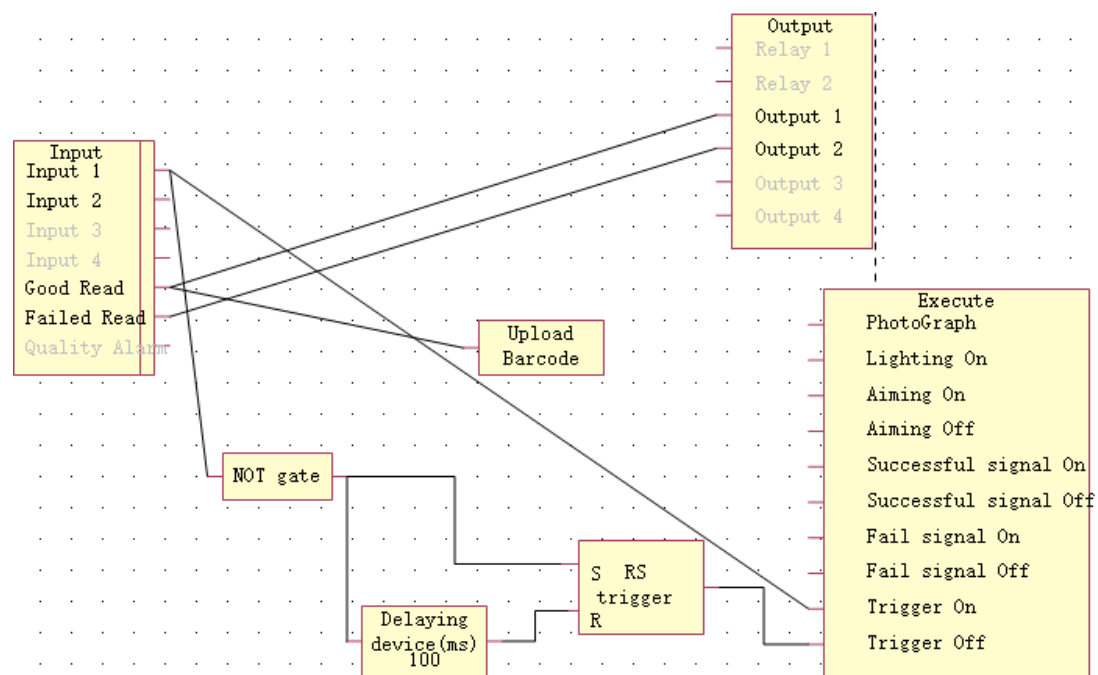


3. IN1 or character ABC triggers scanning, and the reader reads successfully / cancels triggering after 5s.

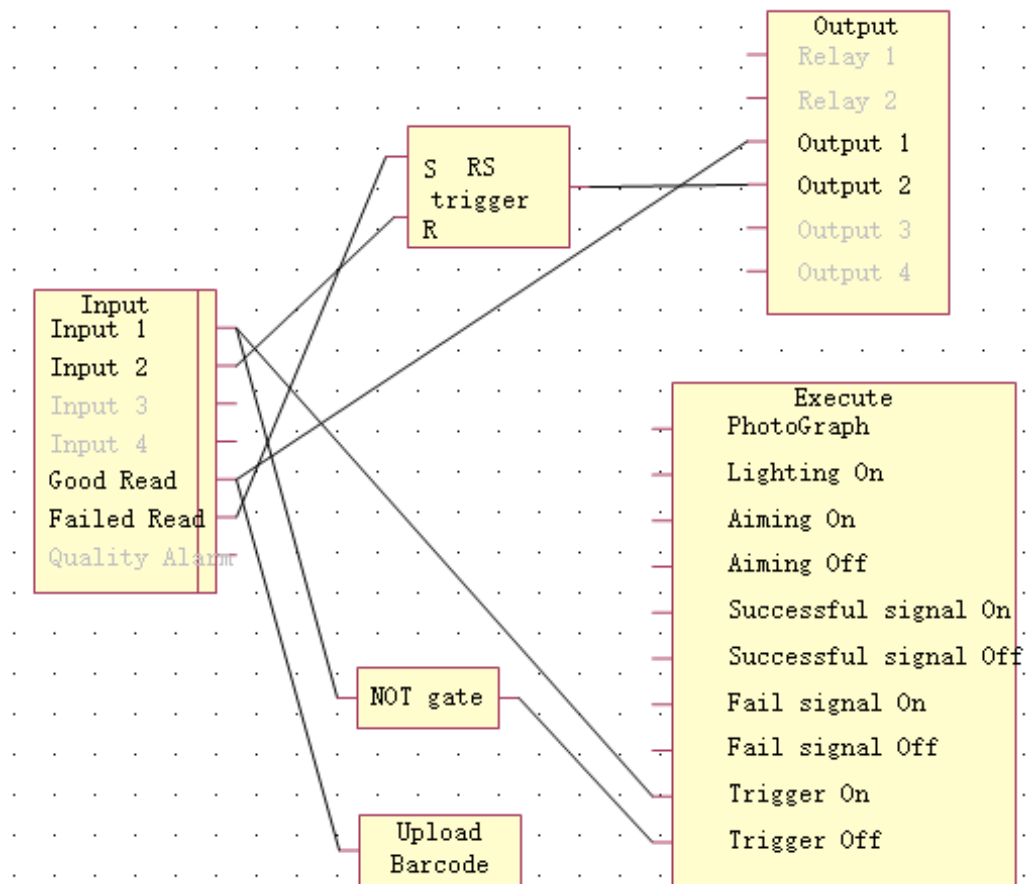


4. After the trigger signal disappears, the reader continues to work for 3s and then goes out.

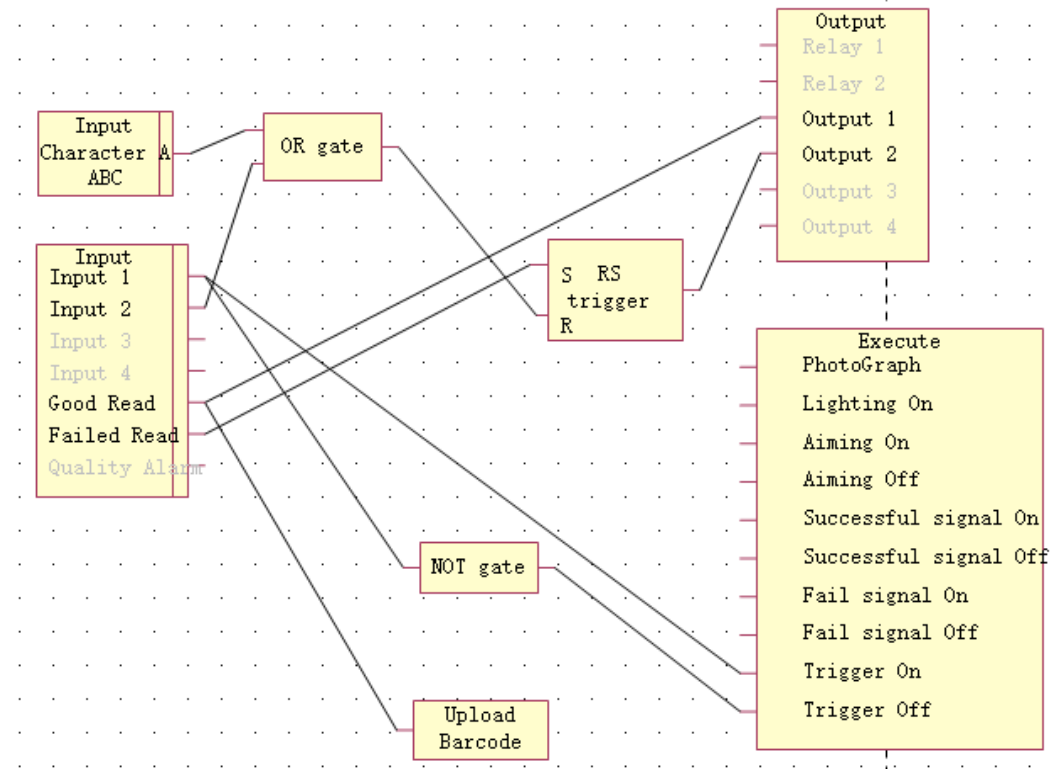
Parameter setting: Decoding Settings - Maximum decoding time - 0ms.



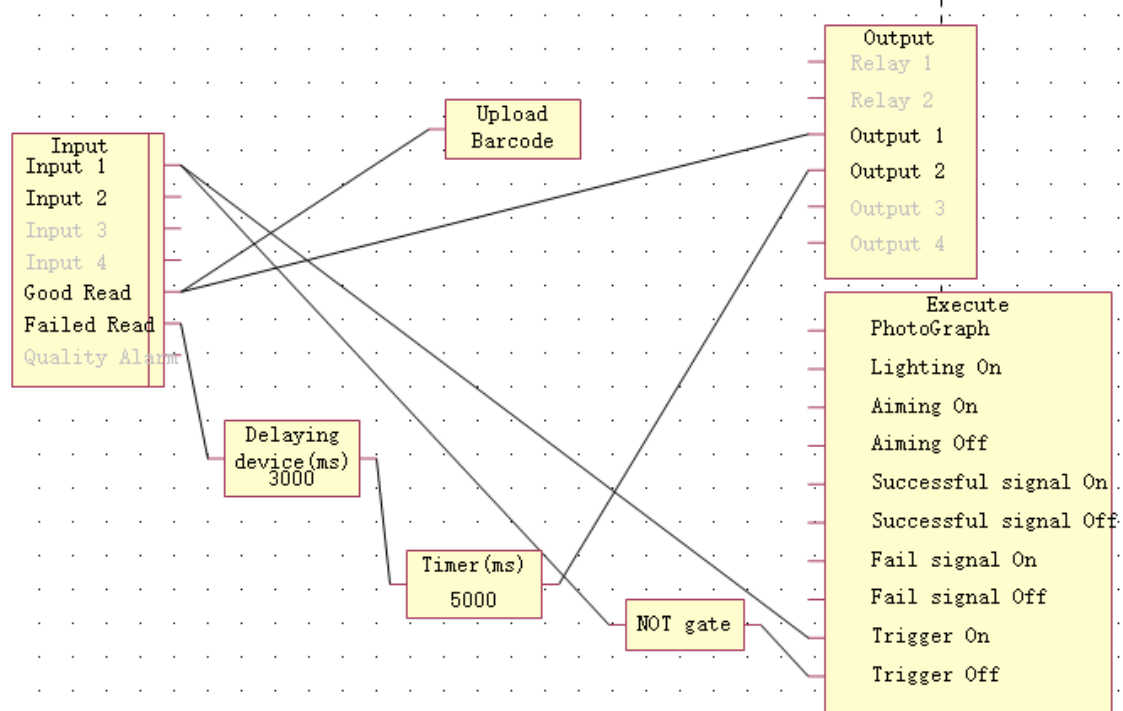
5. If reading fails, OUT2 takes effect; IN2 takes effect, OUT2 resets.



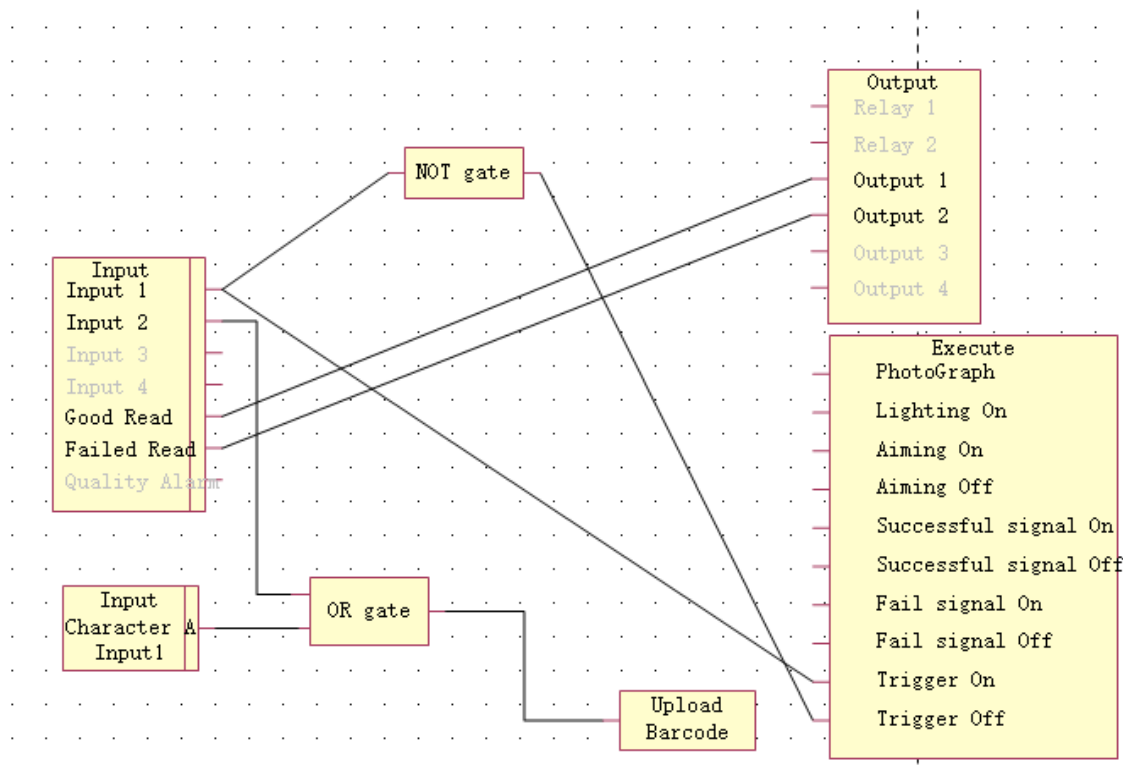
6. If reading fails, OUT2 will take effect, IN2 or input ABC (character), OUT2 will reset.



7. The reading failure signal takes effect after a delay of 3s and a holding time of 5s.

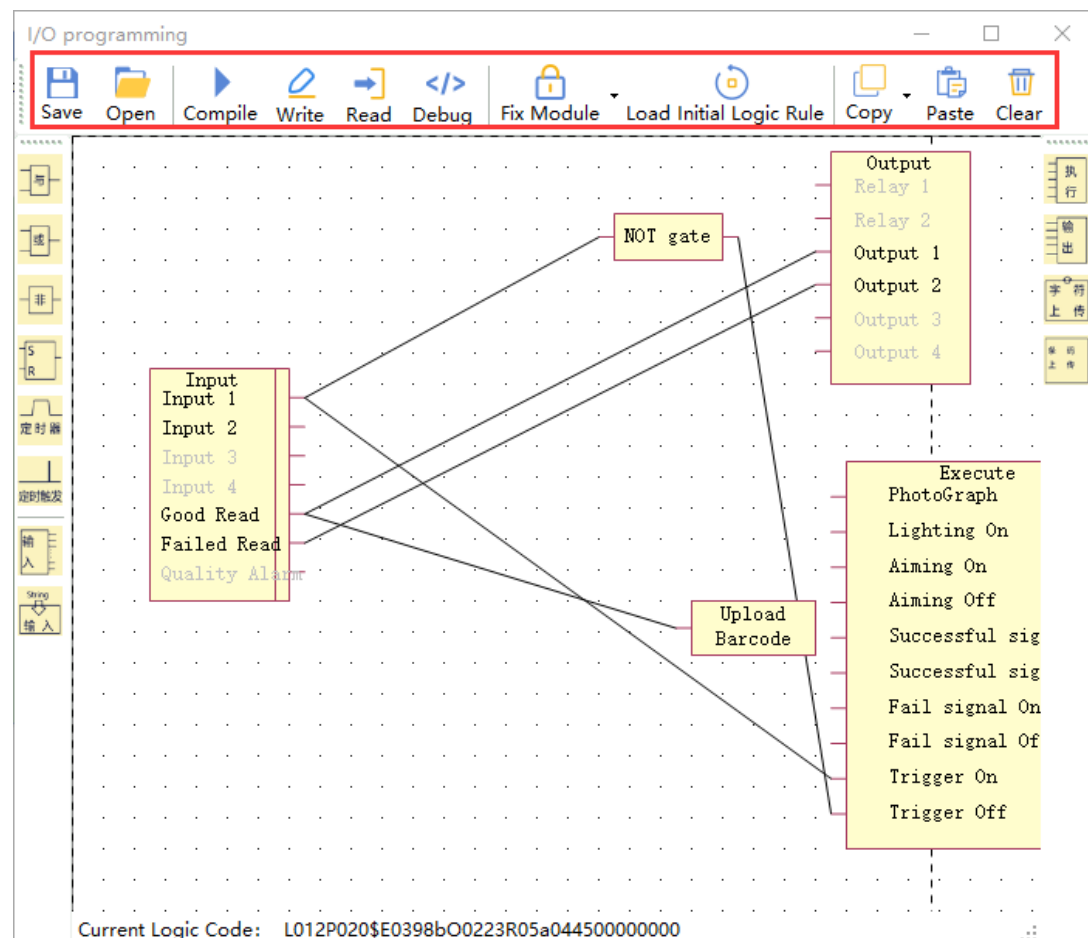


8. If the reading is successful, it will not be uploaded immediately. After IN2 triggers or receives the character ABC, it will upload the reading data.



### 3.5.4.4 Logic Toolbar

After the logic diagram is edited, it needs to be compiled and written to take effect. The module describes how to perform subsequent operations on the logic diagram and take effect.



1. **Save:** The existing commands or compiled commands of the device can be saved as a logical configuration file to the local.

2. **Open:** Open the logic configuration file to be imported, and then execute the command compilation and write to take effect.

3. **Compile:** After compiling the logic diagram, click compile to generate the logic command.

4. **Write:** After the commands are compiled, confirm that there is no problem with the logic diagram. Click write to send the commands to the device to realize the required logic.

5. **Read:** When opening the logic window, the current logic of the device will not be displayed. If you need to view the current logic selection readout, the current device I / O logic will be displayed.

\*If the compiled logic is written and read out, the logic diagram will be rearranged,

but the effective logic will not be changed.

6.**Debug**: Click the debugging button to open the barcode editing effect simulation window.

7. **Fix Module**: Lockable function module and logic module.

8. **Load Initial Logic Rule**: The initial logic code can be loaded, compiled and written, and the operation of writing logic code to the device can be completed.

9. **Copy**: The current logic code can be copied, waiting for the new device to copy the code.

10. **Paste**: Paste the previously copied code into a new device.

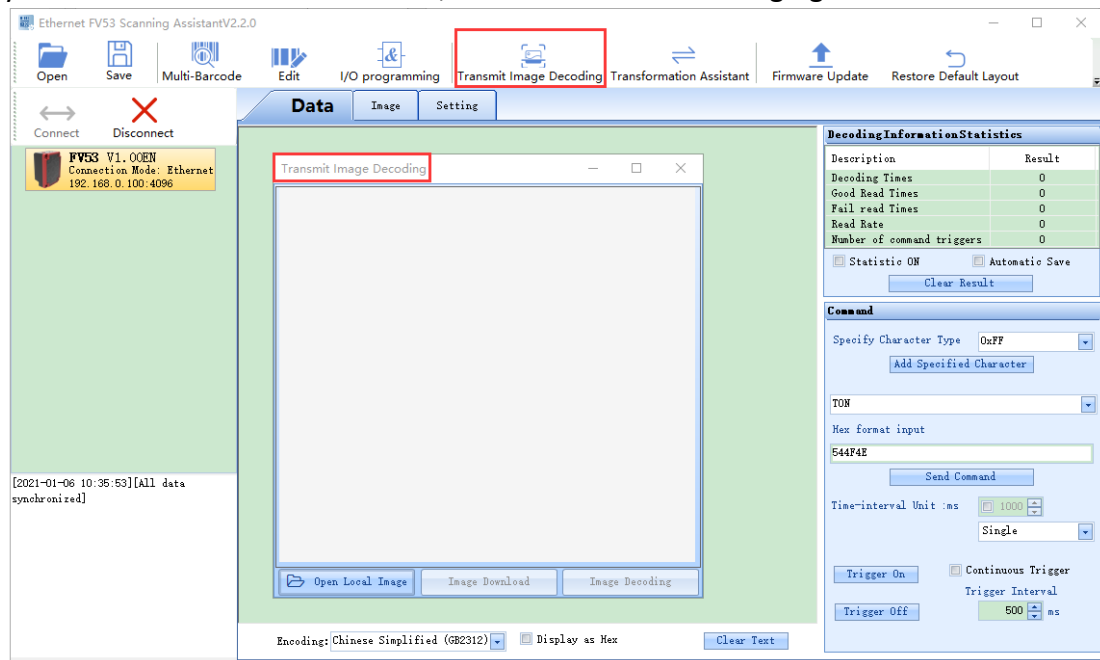
11. **Clear**: Clear all the logic codes currently displayed. Use Delete to quickly delete the selected module.

The user-defined logic setting needs a certain knowledge of digital circuit to be used correctly. General users can tell Technical support engineer about their needs. After Technical support engineer completes the design of logic diagram, it is saved and sent to users. Users can open the logic diagram file for direct use.

### 3.5.5 OCR

### 3.5.6 Transmit Image Decoding

Click **Transmit Image Decoding** to open the transmit image decoding window, where you can edit the decoded content, as shown in the following figure.

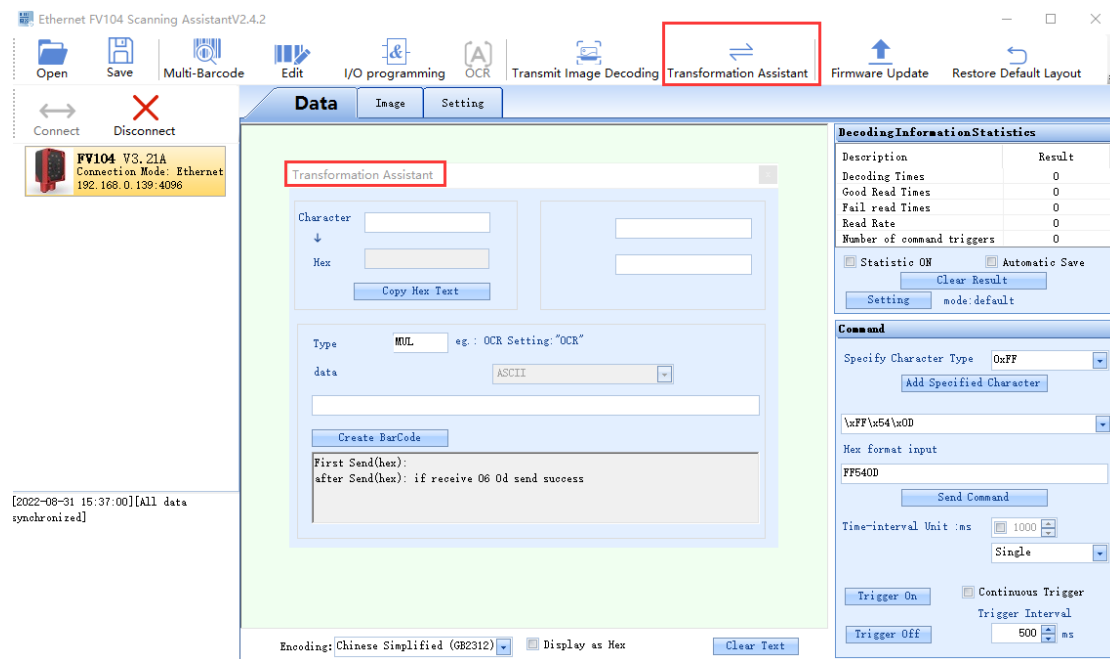


1. **Open Local Image:** Select a local. bmp image.
2. **Image Download:** Download the image to the device.
3. **Image Decoding:** Decode the image to be transmitted, and the decoding result will be displayed in the text box of the "Data" interface.

### 3.5.7 Transformation Assistant

Click **Transformation Assistant** to open the window, where you can convert characters to hexadecimal, and convert between decimal and hexadecimal, as shown in the following figure.

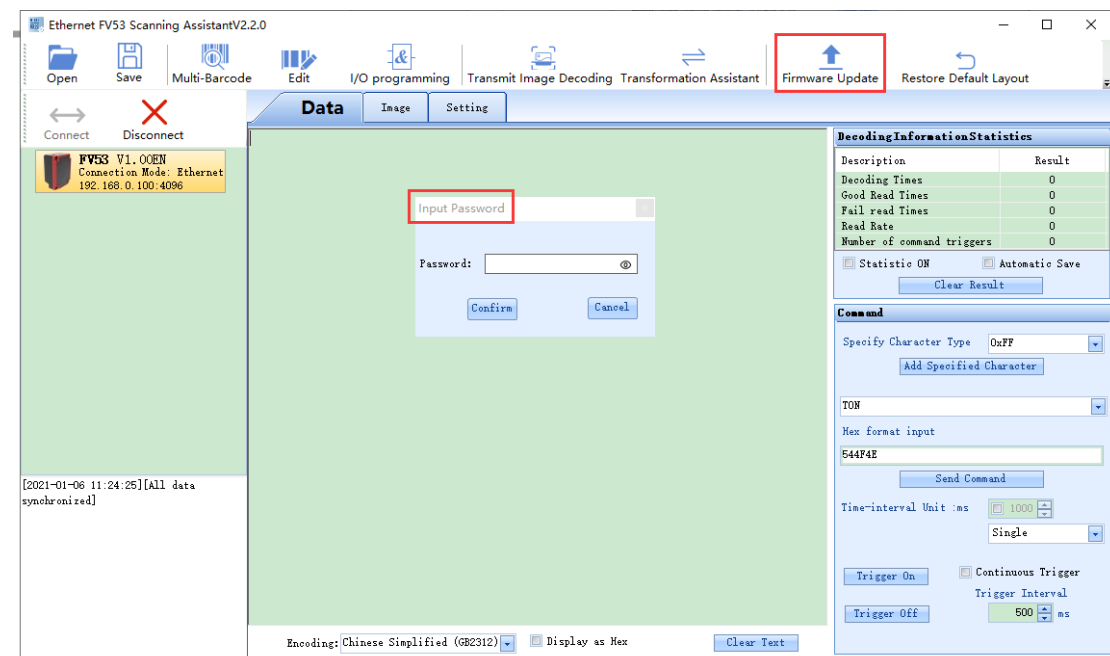




**Data:** Input the instruction to generate the setting code.

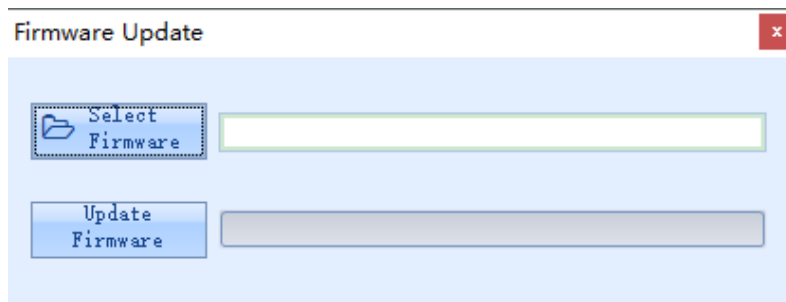
### 3.5.8 Firmware Update

Click **Firmware Update** to open the **Input Password** window, as shown in the figure below.



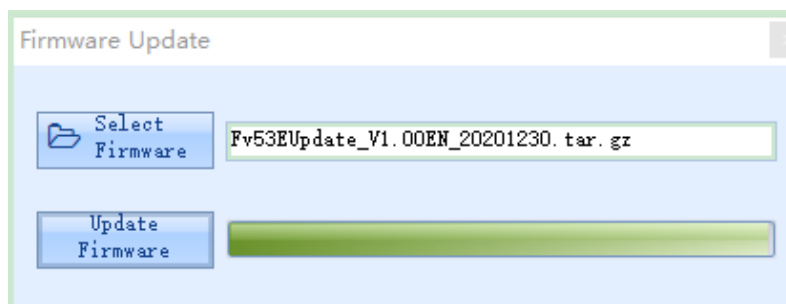
**1. Input Password:** Unlock the administrator permission, and the firmware update function will be unlocked, as shown in the following figure.

When the software is shut down, the administrator authority is automatically logged out.



2. **Select Firmware:** Select the firmware to be updated locally.

3. **Update Firmware:** The firmware update will be automatically completed by the software, and the user can wait patiently, as shown in the following figure.

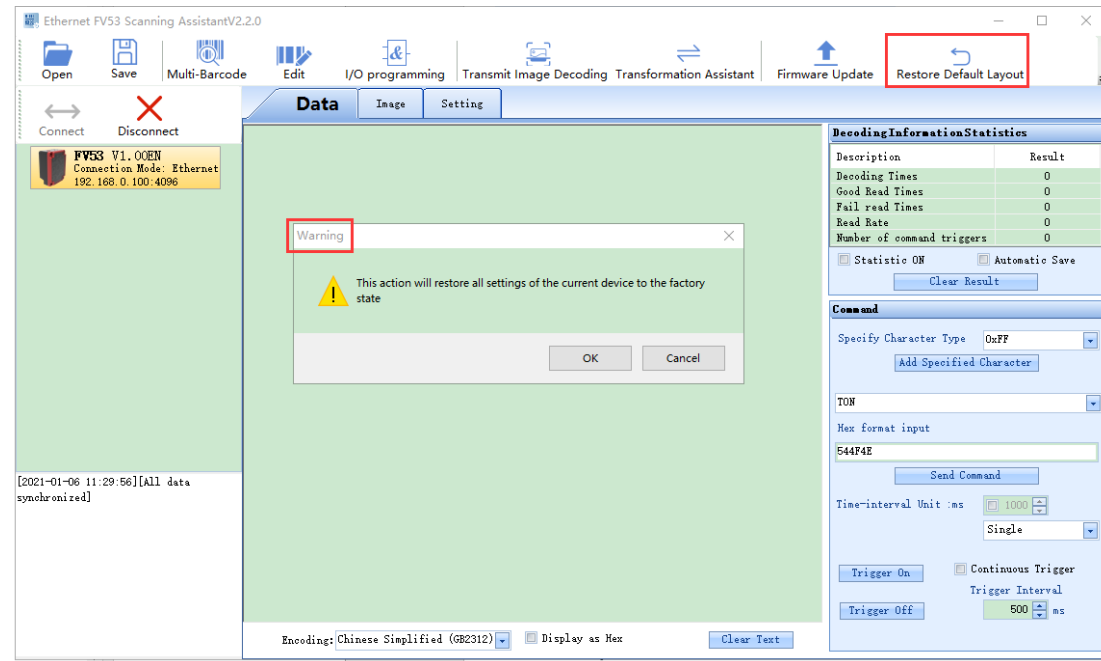


After receiving the firmware transmitted by the software, the device will automatically upgrade. At the time, there may be a short period of time when the device does not respond to the operation commands of the software. After the upgrade of the device, the software can be used to operate the device normally.

At present, firmware transmission supports serial port connection. When the firmware is large, in order to improve the firmware update speed, it is recommended to use 115200 baud rate to connect the device.

### 3.5.9 Restore Default Layout

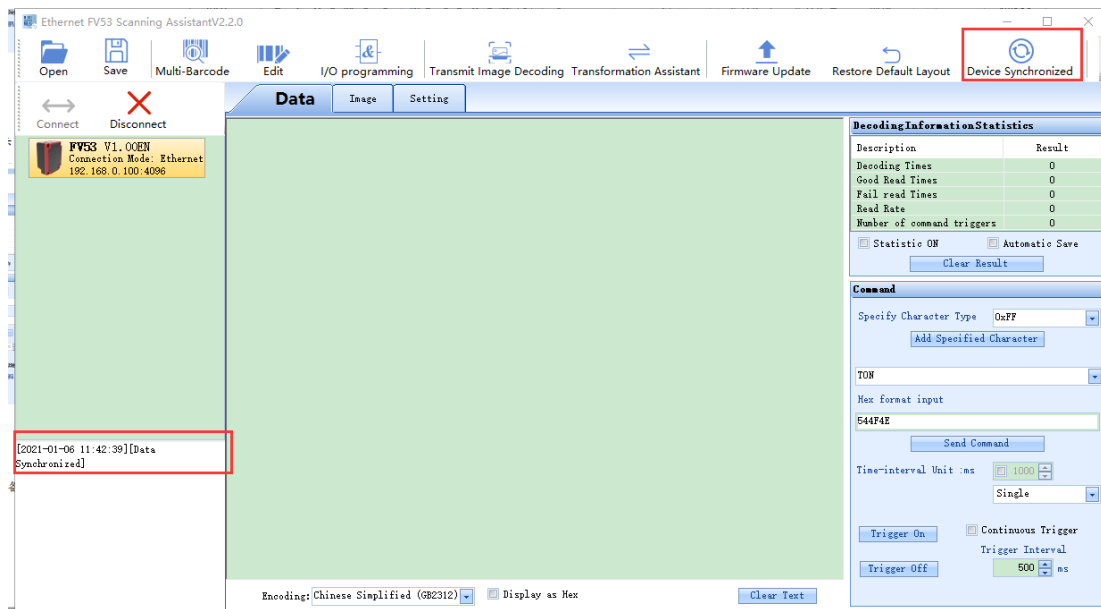
Click **Restore Default Layout**, and a warning window will pop up, as shown in the following figure.



Click OK to restore the factory settings. Wait for the device to restart and reconnect the Infostepper.

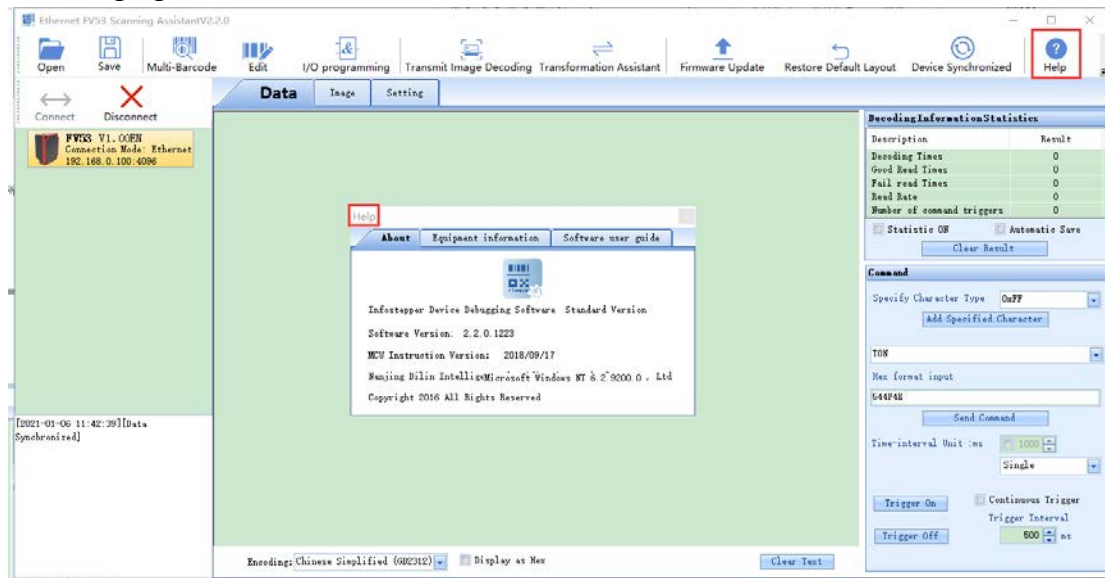
### 3.5.10 Device Synchronized

Click **Device Synchronized**, and the feedback information in the lower left corner shows "Data synchronized", as shown in the figure below.



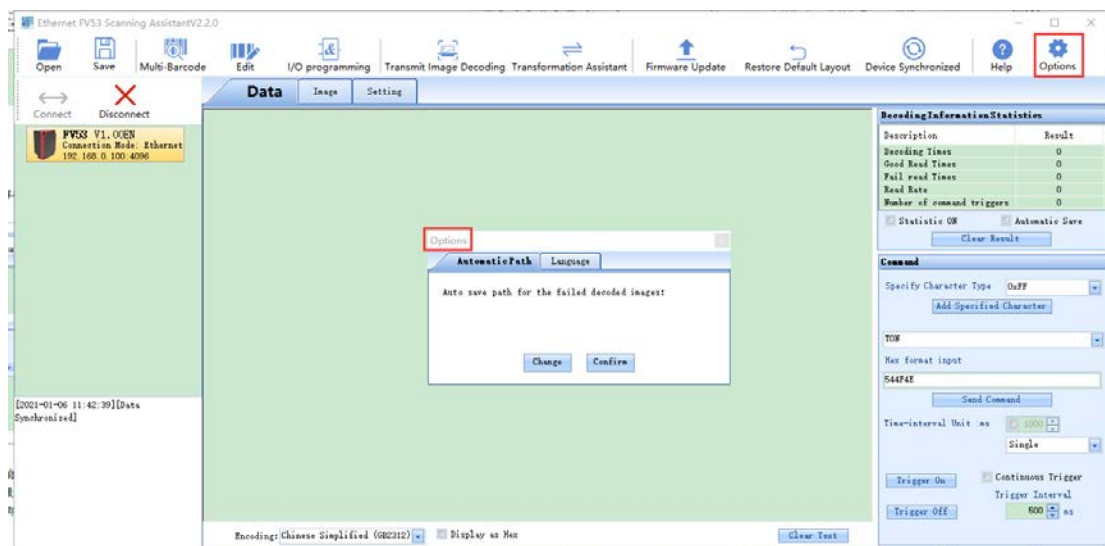
### 3.5.11 Help

Click **Help** to open the Help window, where you can get the software information, the information of the currently connected device and the software user manual (only available when the software is connected to the device), as shown in the following figure.



### 3.5.12 Options

Click **Options** to open the Options window, which can change the path automatically saved by the failed decoding image set, as shown in the following figure.



When saving the acquired decoding failure image set for the first time, it will automatically prompt to select the path. Without changing the PC, the saving path of the decoding failure image set is the last selected path by default. If you want to

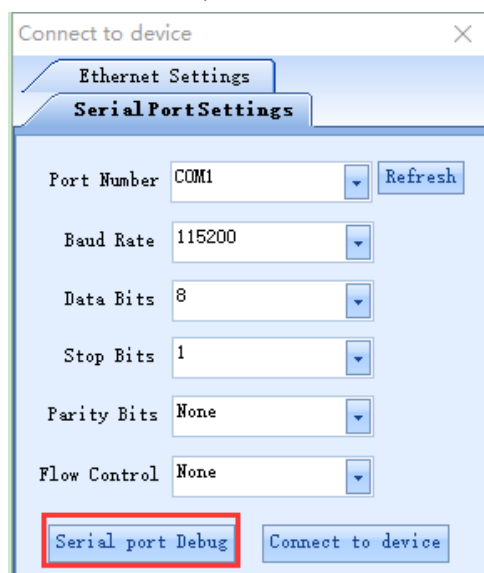
change the path, click “Change” in the above figure, and select the desired path to take effect.

### 3.6 Terminal Simulation Function

It is equivalent to serial port assistant, TCP assistant and other tools on the market. It is only recommended to connect with the device without any other interaction. When the device fails, you can send commands in the mode to debug / repair the problem.

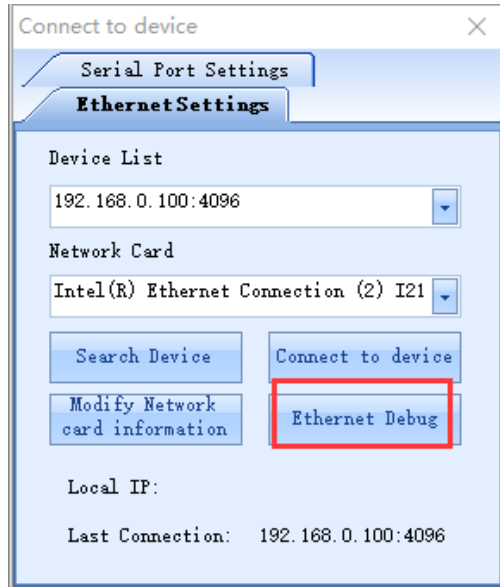
#### 3.6.1 Serial Port Debugging

Select the specified port and baud rate, and click **Serial Port Debugging** to establish the connection, as shown in the following figure.



#### 3.6.2 Ethernet Debugging

Input the IP of the device, click **Ethernet Debugging** to establish the connection, as shown in the figure below.



After the connection is established, when the cursor stays in the text box, all keyboard operations will be fed back to the device, and the feedback information of the device will also be displayed in the data text box. At the time, the software is equivalent to a terminal of the device, and developers can debug the device.