



GUANGZHOU EC-PACK PACKAGING EQUIPMENT CO., LTD.
EC-JET High Resolution Inkjet Printer

High Resolution Inkjet Printing System

ECH500 Series

User Manual

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At all times the printer must be operated with EC-Pack approved spares and consumables.

About This Manual

The purpose of this manual is to provide the operator with sufficient information to carry out operation tasks on the EC-JET High Resolution InkJet Printer ECH500 Series.

Products described in this manual are subject to continuous development, and reviews of this manual will be made accordingly in subsequent amendments or reissues.

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Chapter 1 Introduction of EC-JET High Resolution Inkjet Printer

1.1 Specifications

Model: ECH500

Print lines: Arbitrary lines within the printing area

Print Height: 0-71.8mm

Operating system: Windows7, Windows10, Linux

Support message type: Windows fonts, picture (LOGO) , barcode, 2D code

Print speed: 60m/min @ 180DPI 120m/min @ 90DPI

Variable data: date, time, serial number, 2D code, barcode

Message Length: 700mm, extendable as option

Memory capacity: 2GB

Ink type: EC JET authorized ink

External I/O: standard USB Host, Standard network port, alarm interface, sensor interface

Power supply: 110V-240VAC,50/60Hz

Power Consumption: below 60W

Working Environment: Temperature 0°C~+70 °C

Cabinet material: Stainless steel, aluminum alloy

EMI Compliance: EN55011:2009+A1:2010, EN61326-1:2013,

EN61000-3-2:2014, EN61000-3-3:2013

Consumable capacity: 500ml/bottle。

Print material: Wood, Carton box, building materials, Porous and Semi Porous Surface

Optional:

1. Shaft encoder: make the printer speed automatically adapt to production line speed.
2. Sensor: induce objects, trigger printing information.

1.2 Gentle Reminder

1. This is precision equipment, do not attempt to dismantle unless you are fully trained.
2. Please read and understand the operation manual before operating this printer.

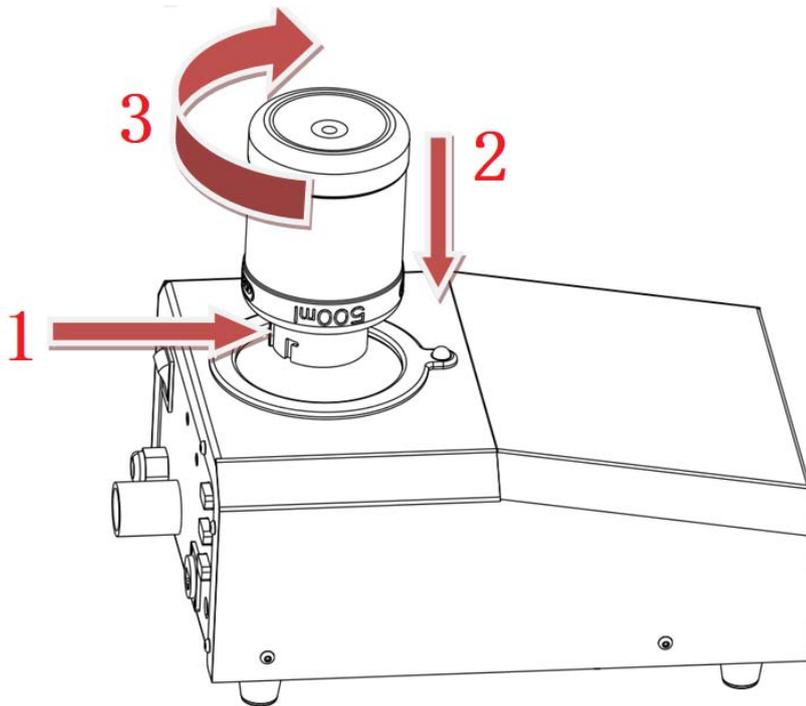
3. Connect the printer circuit correctly. Please check the wiring instructions when wiring.
4. Check the system connection wire regularly.

1.3 Product Photo



Chapter 2 Installation

2.1 Ink Bottle Installation Figure:



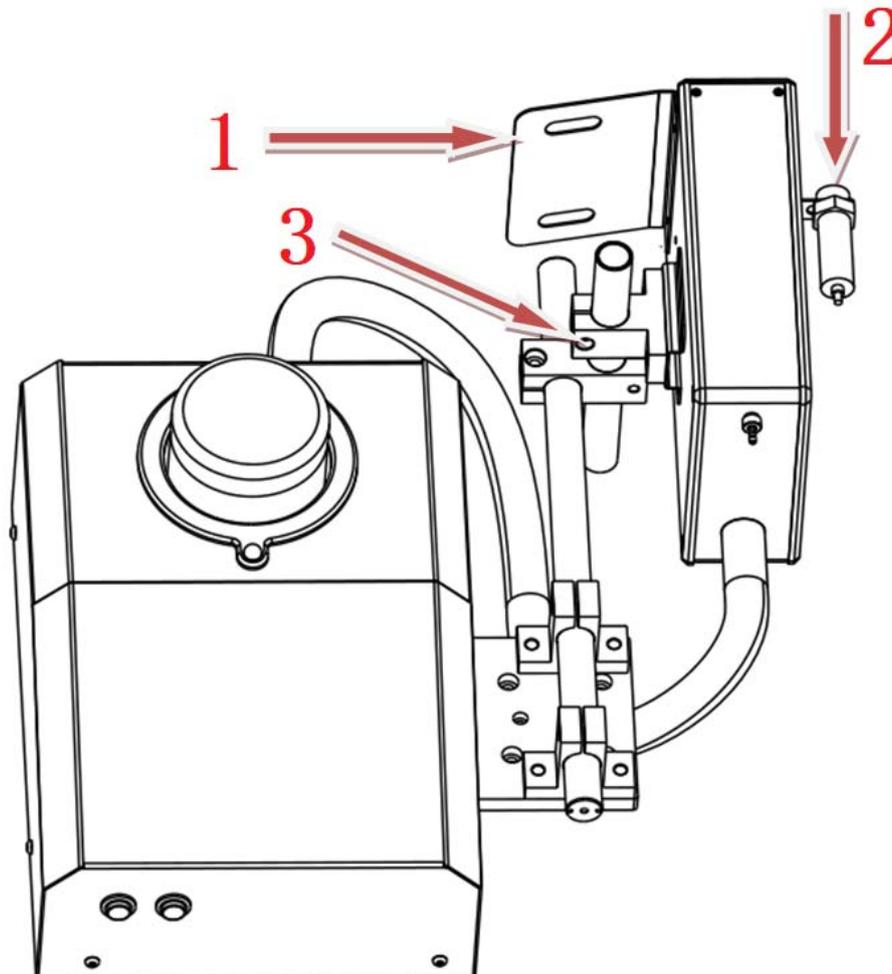
As shown in the figure:

Step 1: the positioning pin of the ink bottle protrusion is as shown by the arrow 1, facing directly to the upper side of the machine;

Step 2: put ink bottle as shown by arrow 2 and insert it into the bottom of the machine ink tank;

Step 3: after inserting the ink bottle , gently turn it by about 3° in the direction of the arrow 3. After the click sound, the ink bottle is inserted. At this point, the system status light flashes green, indicating that the ink bottle chip is properly inserted.

2.2 Printer Installation Figure:



As shown in the figure:

Step 1: Install the printer bracket the printhead, then adjust the printing position;

Step 2: According to the arrow 1, install the printhead anti-collision board in the product entering direction, the board can be installed on both sides of the printhead, according to the on-site product;

Step 3: Install the photocell on the other side of the printhead as indicated by arrow 2. The sensor can only detect the outer carton package . If you encounter special application, you can consult the company or agent, they will recommend the corresponding photocell.

Step 4: Adjust the height of the printhead as indicated by the arrow 3. It is recommended that the bottom surface of the printhead should be about 3cm higher than the bottom of the printer cabinet. If there is print missing in the top and still exist after doing ink pressing to remove air, then the printhead height needs to be appropriately reduced.

2.3 External I/O:

USB interface : Standard USB Host.

RJ45 interface : Standard gigabit Ethernet interface

DB9 Female interface : as shown in the following table

DB9 Female interface number	Function
1	None
2	Serial port RX
3	Serial port TX
4	24V DC output
5	GND
6	NPN photocell
7	PNP photocell
8	Shaft encoder A
9	None

DB9 Male interface : as shown in the following table

DB9 Male interface number	Function
1	Machine running status, 0: stop; 24V: running
2	Alarm 0
3	Alarm 1

4	24V DC output
5	GND
6	Alarm 1
7	5V DC output
8	None
9	None

Chapter 3 ECH500 User Instructions

3.1 Ink Loading for New Printer

Step 1: Install the printer on the production line to ensure that the bottom of the machine is stable and free of jitter. Note that the printhead needs to be installed on the side of the object to ensure that the circulating ink of the new printer can be recycled normally. If you need to print downward, after the ink is loaded, rotate the printhead 90 degrees downward, the lowest surface of the printhead should be 5CM higher than the bottom of the printer cabinet.

Step 2: Install the ink bottle into the printer according to the ink bottle installation figure.

Step 3: Turn on the power of the printer. It will enter standby mode after finishes processing the program . The system indicator will flash between white and green colors (if old ink bottle, it may flash other colors). Color indicates the remaining of ink, as shown the following table:

Green light, buzzer has no sound	The system is normal, the ink bottle is normal, and the system is supplying ink, remaining ink volume more than 50%
Cyan lamp, buzzer has no sound	The system is normal, the ink bottle is normal, and the system is supplying ink, remaining ink volume from 10% to 50%
Yellow light, buzzer has ticking sound	The system is normal, the ink bottle is normal, and the system is supplying ink, remaining ink volume less than 10%
Purple light, buzzer has ticking sound	The system is normal, the ink bottle is empty, please replace the ink bottle, and run the automatic shutdown for 10 minutes.
Red light, Buzzer keep beeping	The ink bottle is empty, please check the ink level.

Step 4: Press the printer start/stop button, the system starts to automatically draw ink. It takes about 10 minutes for the system to complete the secondary ink cartridge refilling process. Do not operate the machine during this process. When the ink drawing process is finished, the system will emit a long beep sound. The system status light is in constant green color (if old ink bottle, it may be in constant other colors).

Step 5: Keep pressing the ink pressing button on the printer, do not release it, until the nozzle of the printhead discharges ink and there is no air bubble. The system will automatically recycle the ink, no need to worry about the ink outflow problem. When the button is released, the system will replenishes the secondary cartridge again, until the ink is completed, the system will emit a

long beep sound and the system status light will be in constant green color. At this point the printer completes the new printer ink loading process.

Note: When printing, the system should be in running state, that is, the status light is always on. If the status light is flashing, press the start/stop button to turn on the ink supply. The system will automatically replenish the ink in future using . The system will record the state before the power is cut off. If it is powered off during running state, it will automatically turn on the ink supply in the next time startup. The ink supply does not need to be turned off before shutdown. Failure to properly install the ink bottle may result in failure to start the printer, or failure to refill the ink, etc.

3.2 Software Introduction

1. Connect the printer cables (such as the power adapter, the controller to the printer, one controller can connect with multiple printers, the number of connected printer is determined by the performance of the controller), turn on the controller and the printer power switch, and wait for the machine to fully enter into the main interface:



2. Function button introduction:

(1) Button  :

This button is the software turn off button, the printhead must be in stop state before the software is turned off.

(2) Button  and :

This button zooms in or out on the print preview image.

(3) Button :

This button is to start or pause the printing,  is the printing stop state,

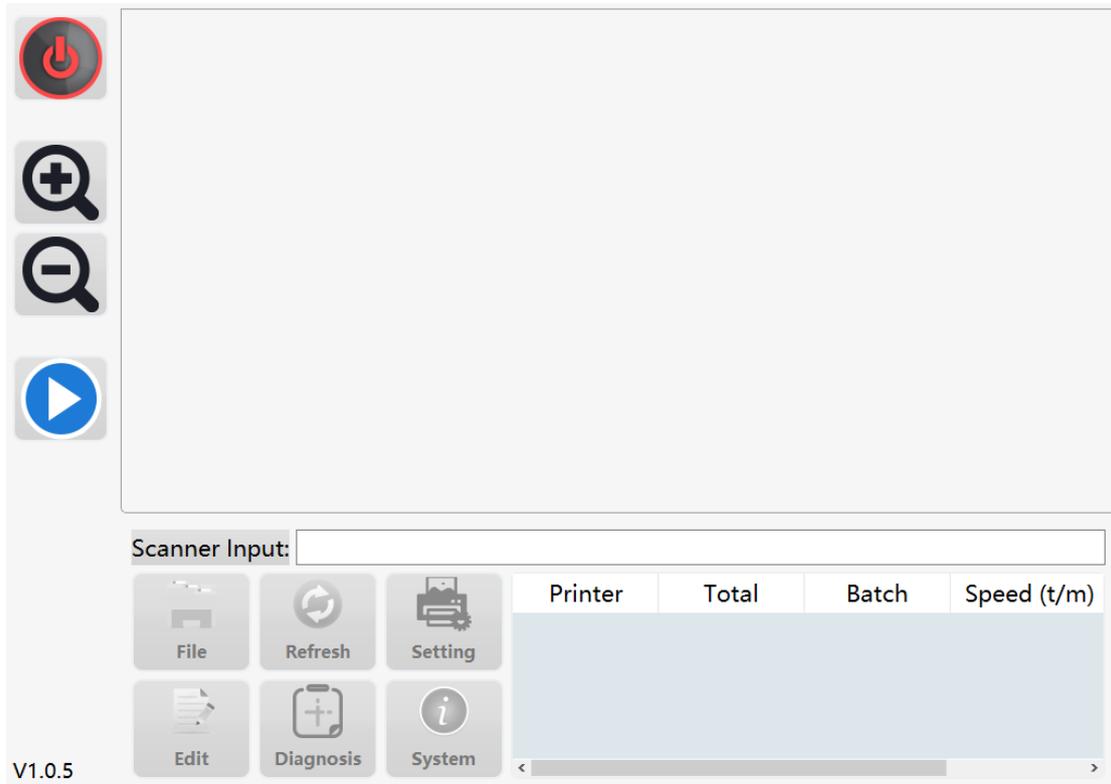
 is the printing state.

(4) Button  **File** :

Click this button to enter the file management interface.

(5) Button  **Refresh** :

This button is to refresh the printer and detect the connected printers. When the system is starting up, it will automatically detect all the printers connected to the controller. Click this button to manually refresh the printer. When the system does not detect the printer, the main interface of the system displays as shown below:



When the system detects the printer, all the detected printers' basic information and print preview are shown in the arrow pointing area:



- (6) Button  **Setting** :

Click this button to enter the print related parameter setting interface.

- (7) Button  **Edit** :

Click this button to edit the print file of the printer showing in the current interface.

- (8) Button  **Diagnosis** :

Click this button to enter the diagnostic interface to view the status of the printer. When the printer malfunctions, you can remove the general fault according to the system prompts in this menu. If it still cannot be used normally after fault removed, please contact your equipment supplier or manufacturer.

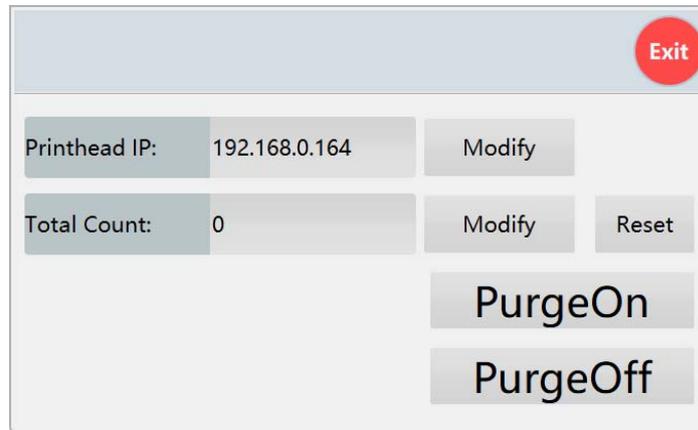
- (9) Button  **System** :

Click this button to enter the system setting interface to set system parameters, such as viewing system basic information, setting system language, automatic power on/off, printhead network parameters, remote communication, barcode scanner, and testing remote communication, etc.

- (10) The printer name button in the printer list area, as indicated by the arrow in the following figure:

Printer	Total	Batch	Speed (t/m)
Printer1			

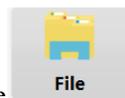
Click this button to enter the printer operation interface, it can modify the IP address of the printer, and modify the current printer printing count, etc., and clean the printhead by turning on and off the Purge button. The specific interface is as shown:

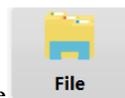


The screenshot shows a control panel with the following elements:

- Exit**: A red circular button in the top right corner.
- Printhead IP:** A field containing the IP address `192.168.0.164` and a **Modify** button.
- Total Count:** A field containing the value `0`, with **Modify** and **Reset** buttons.
- PurgeOn**: A large button for purging the print head.
- PurgeOff**: A large button for turning off the purge function.

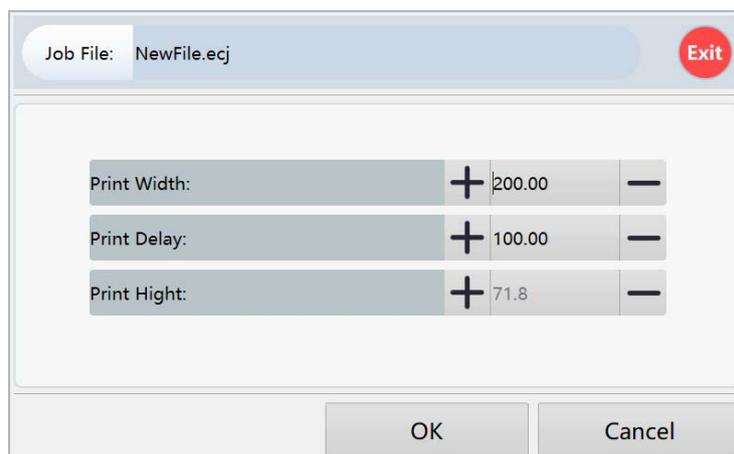
3.3 Edit Message



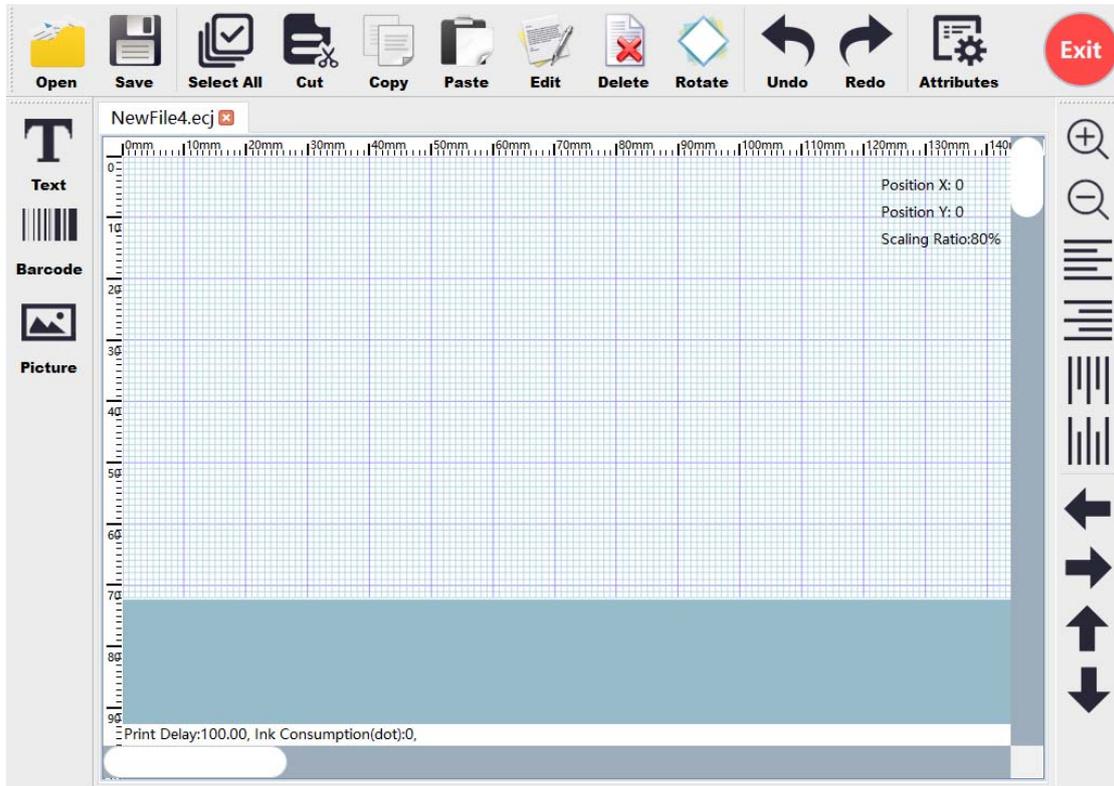
Step 1: Click the  button to enter the file management interface; the area indicated on the figure can choose to view pictures, databases, and log files;



Step 2: Click the  button to enter the message name input interface, enter the name of the new message. If you need to use other delay parameters, you can change the default parameters of the print delay to other value. The print width is automatically adapted when editing the message, no need to modify.



Step 3: click  to enter the message editing interface



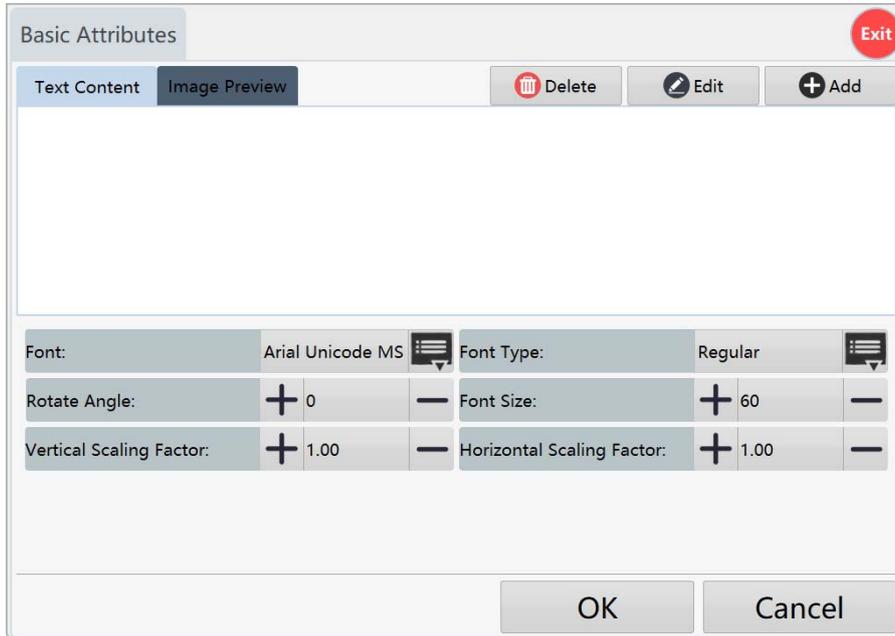
You can edit the data needs to print in this interface.

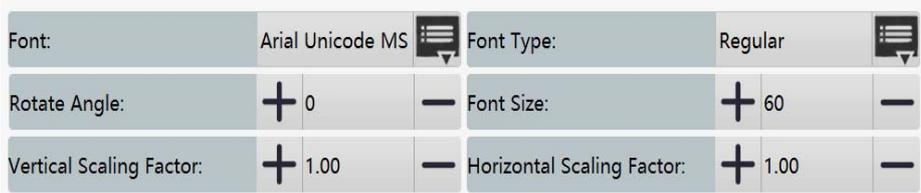


Select the type of printing message required in **Text**, **Barcode**, **Picture**, you can add the required printing message freely in the editing area.

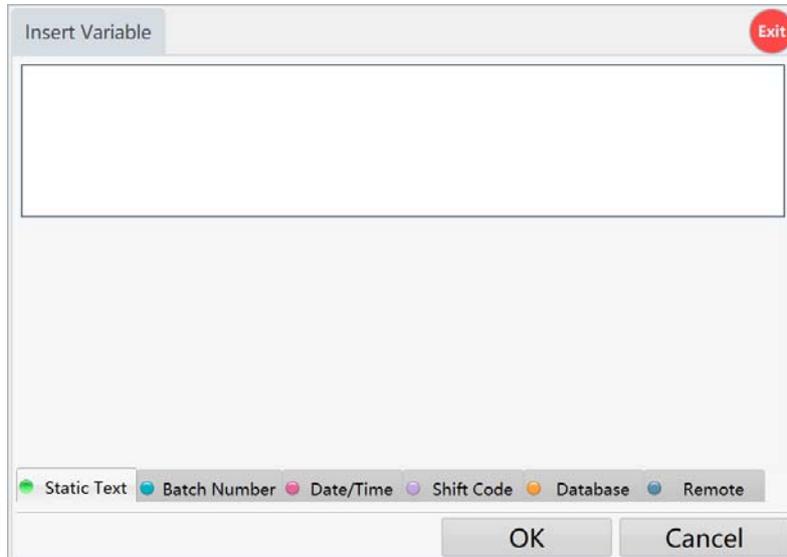


Example: Add text, click **Text** to enter the add text interface

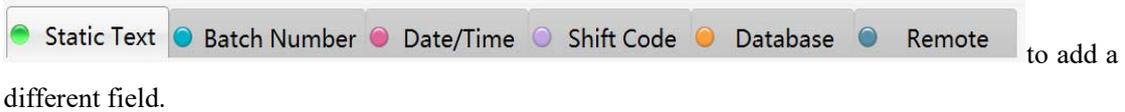


Click  to select the font attribute of the text ; please note that the horizontal scalling factor is the zoom ratio of the print image in the horizontal direction;

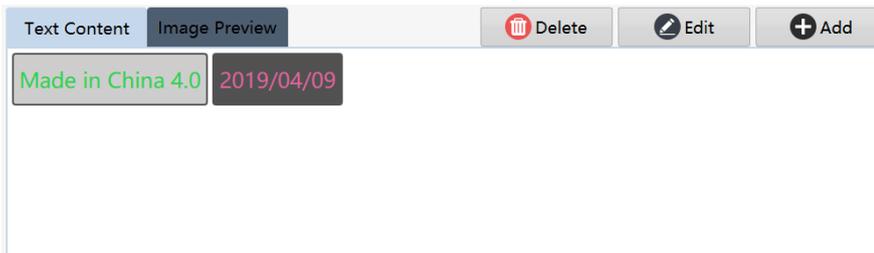
Click  to enter the field adding interface:



Click

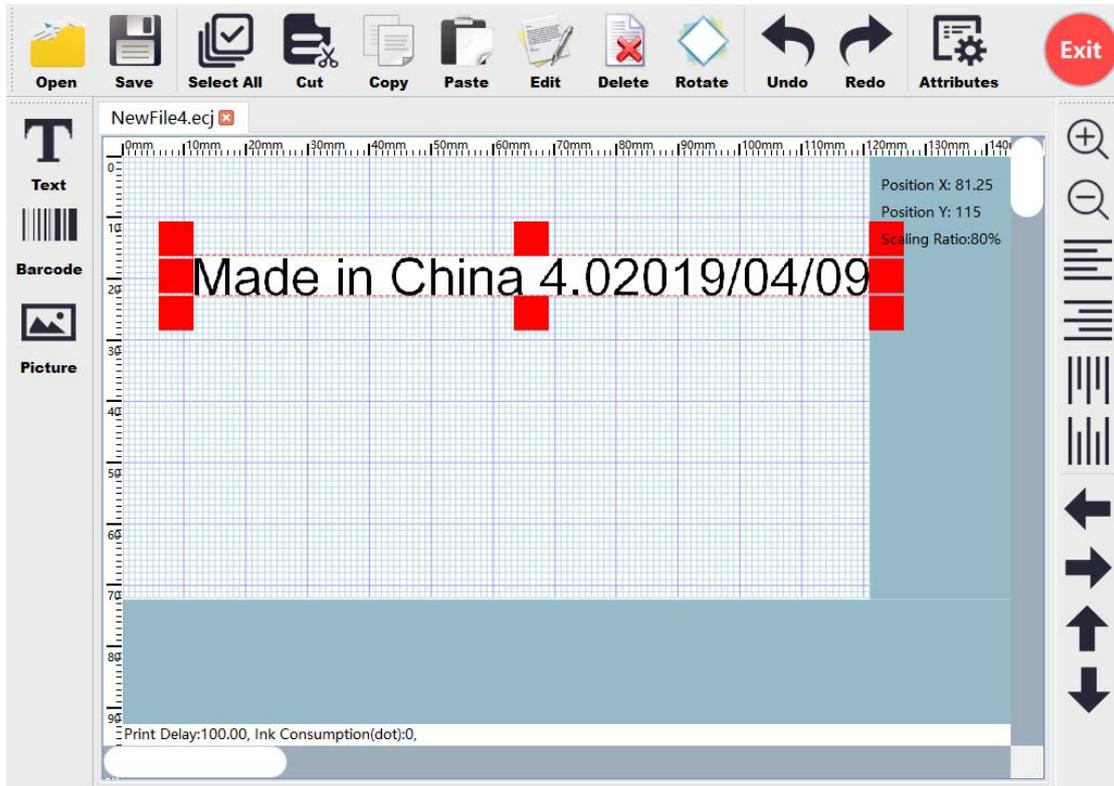


As shown in the figure below, static text field and time field have been added. Different colors correspond to different fields. The position of the field can be changed by selecting and dragging it.



After adjusting the properties of the text and confirming the preview is consistent with the desired print content, click "OK".





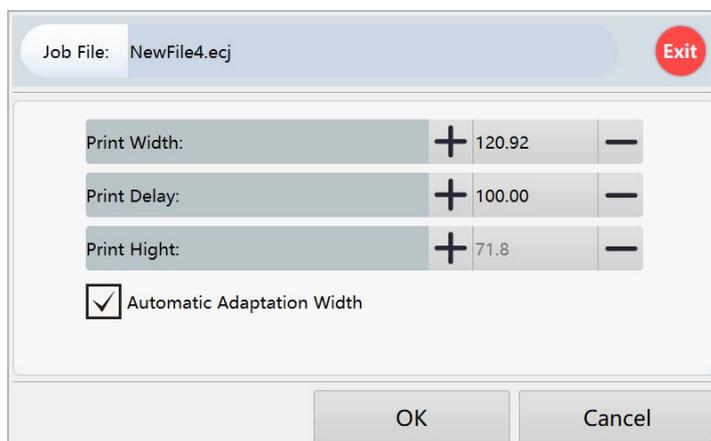
You have successfully added a "text" to the printing message.

In a similar way, you can add "text", "bar code", "picture" as needed in the message.

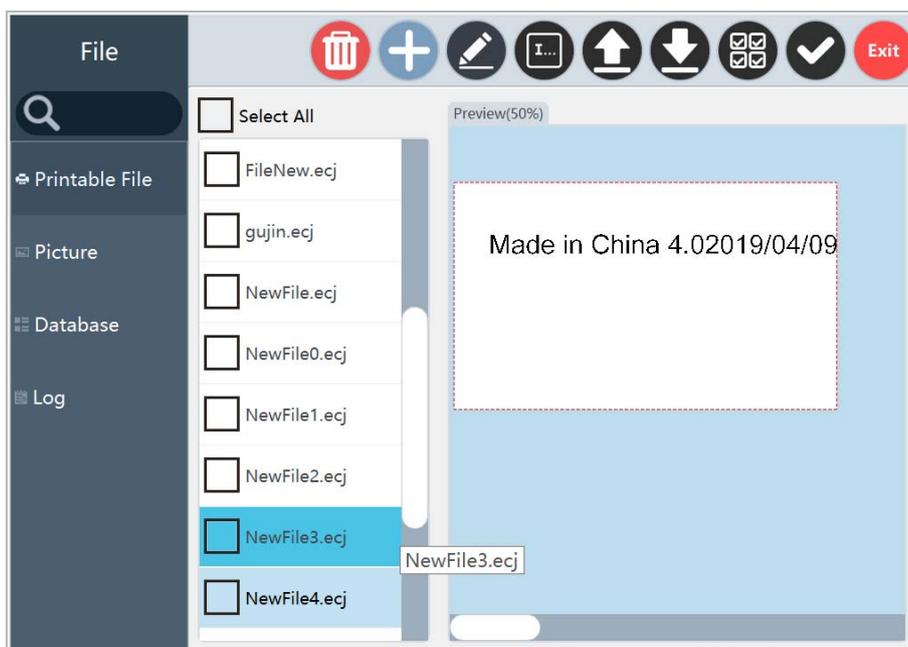
In addition: you can use the toolbar to re-edit, delete, paste, adjust the message alignment, zoom the display interface, and fine-tune with direction key to the added filed in the message. You can also select and drag freely.



Click  to modify the current message file name, print delay and other attributes, the interface is as shown below:



Step 3: Save and return after editing the message



You can see the edited content in the message preview.



Click to delete the saved data;



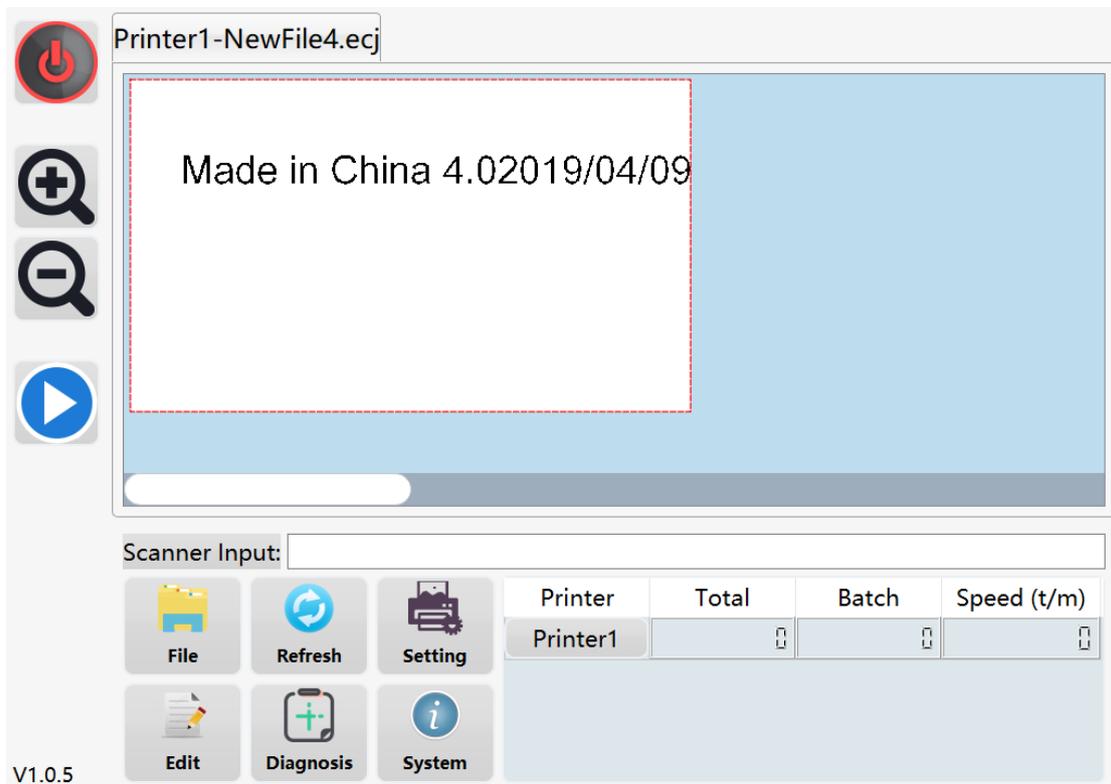
Click to edit the selected message again;



Click to apply the currently selected message to all printers;



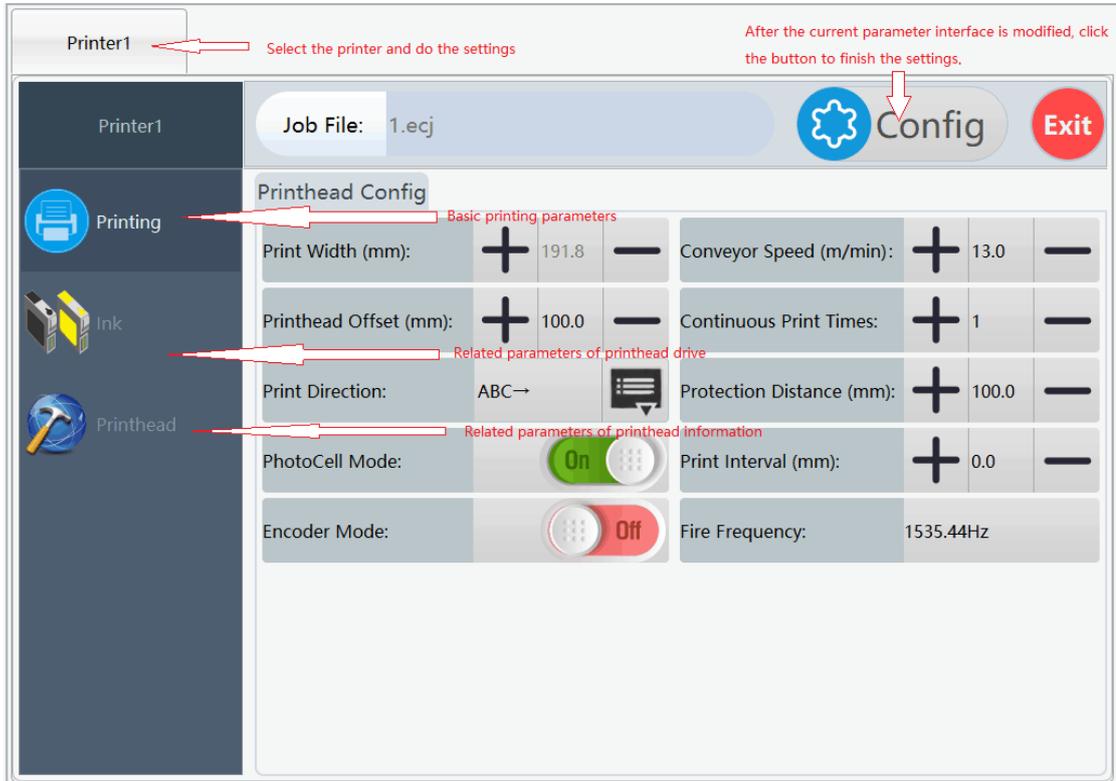
Click  to apply the current selected message to the printer corresponding to the current preview interface. The printer will print the current selected message when start printing. When there are multiple files in the file list, you need to use this function to select different printing messages. Click this button here to execute the last edited test message. After clicking, the system will automatically return to the main interface.



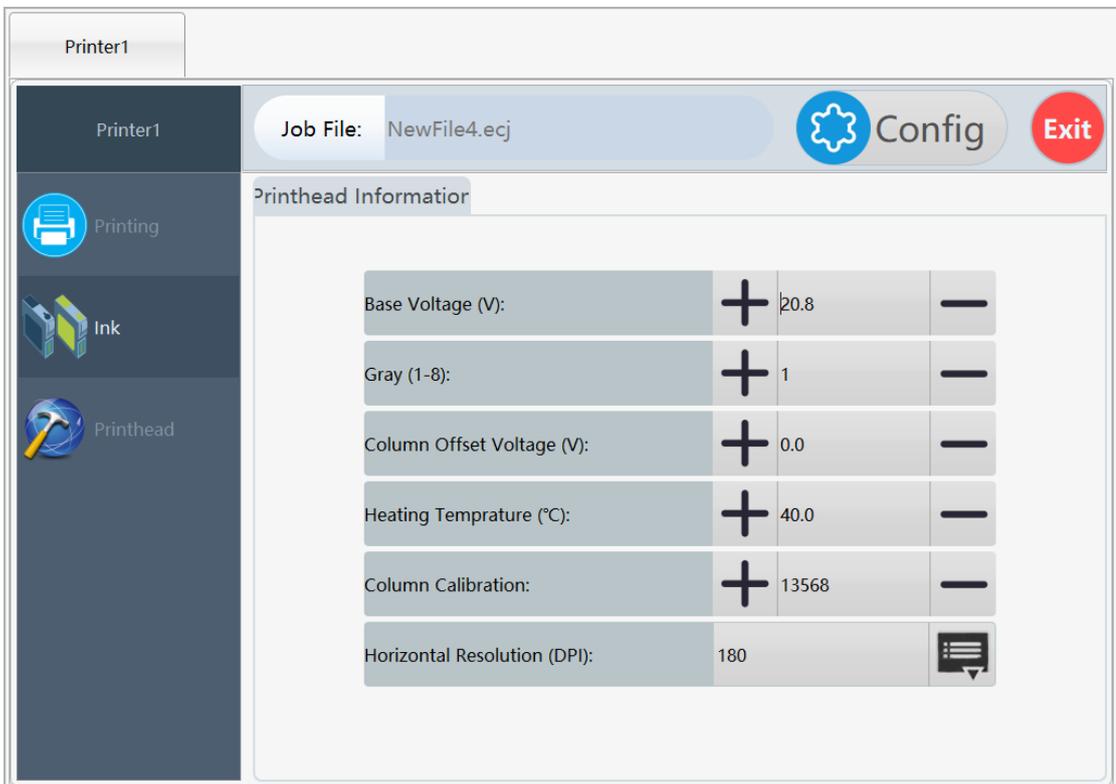
3.4 Print Settings



Click  to enter the print setting interface, where the related printing parameters of all printers can be set, and each printers are set in the same way:



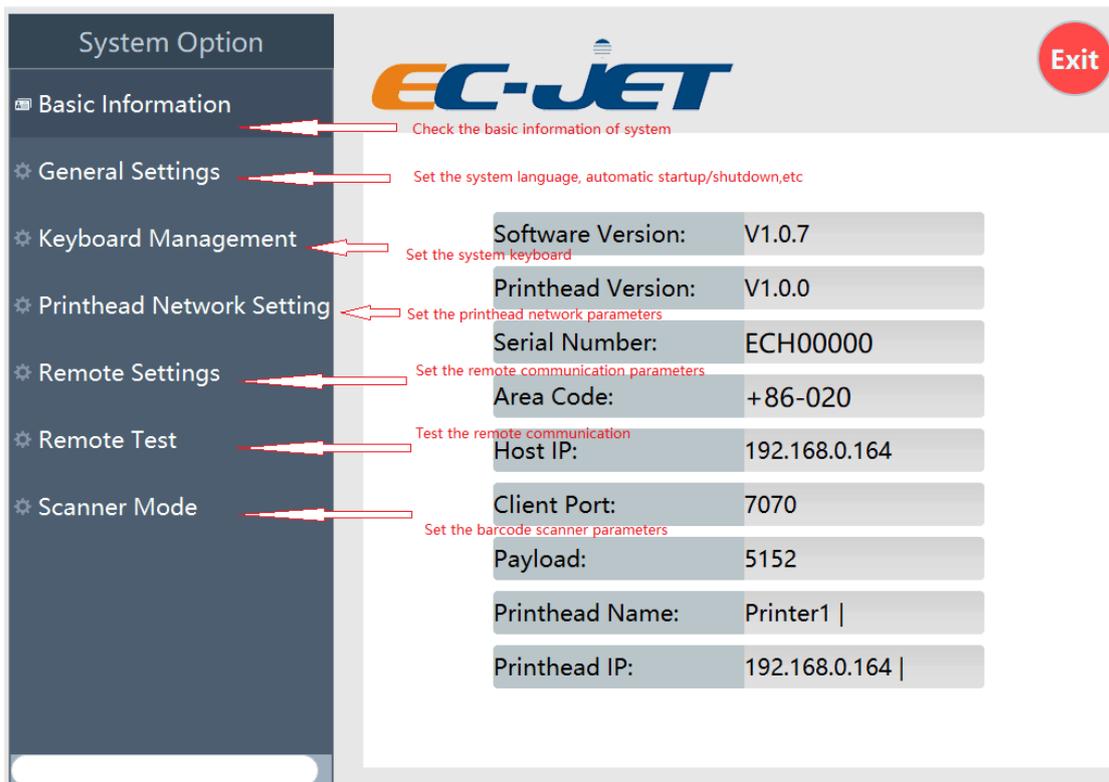
Printhead offset: When multi-printheads splicing printing is involved, this parameter can modify the relative position of the printed image between the printheads;



Data mode: Static mode means the printing image can not change(except using remote communication mode), it must be set to dynamic mode in the high speed printing application to adapt to the production line speed, wherein the buffer size value is the number of images that the print data buffered to the printer. The value can be adjusted according to the actual scene. **(Special note: under the remote mode, when the data mode is static mode, when receiving remote data, it will immediately refresh the print image mirror and no cache; when the data mode is dynamic mode, when the remote data is received, it will refresh the print image mirror when the last printing action is completed, and the printing data is buffered into the printer;**

3.5 System Setup

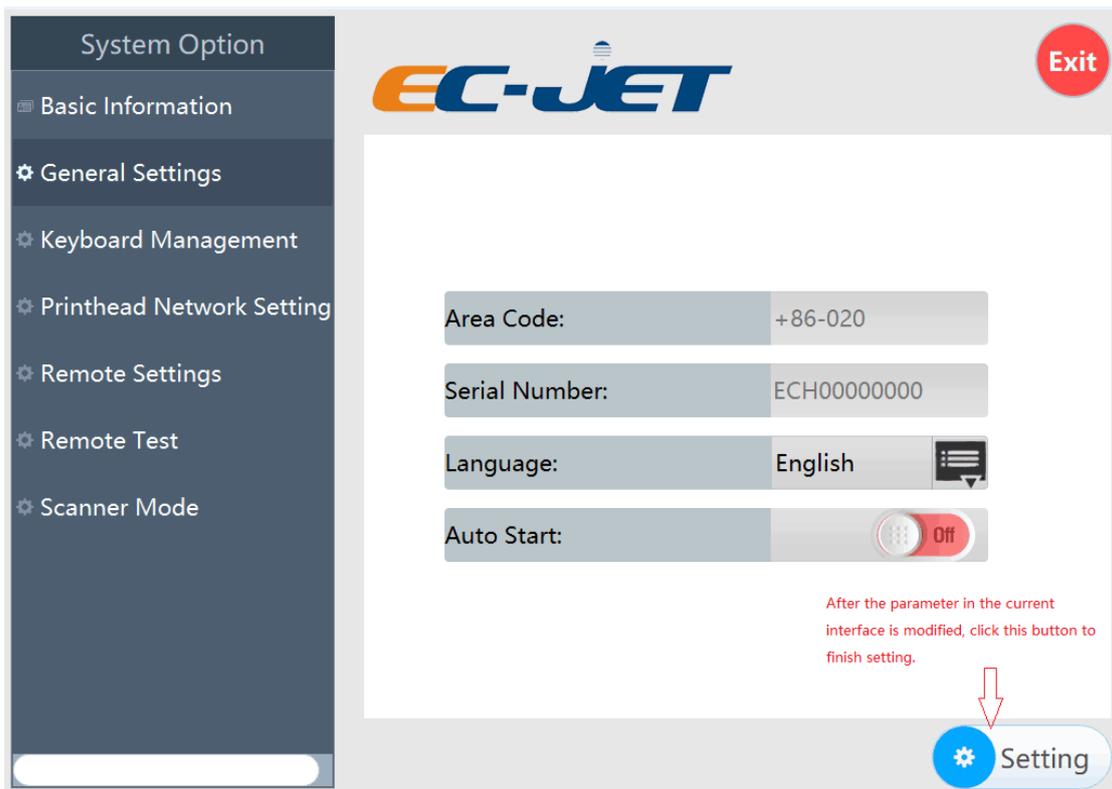
Click  to enter the system settings interface:



In the basic information interface, you can view basic system information, such as software version, area code, machine serial number, controller IP and other information;

3.5.1 General Settings

Click "General Settings" to enter the general settings interface:



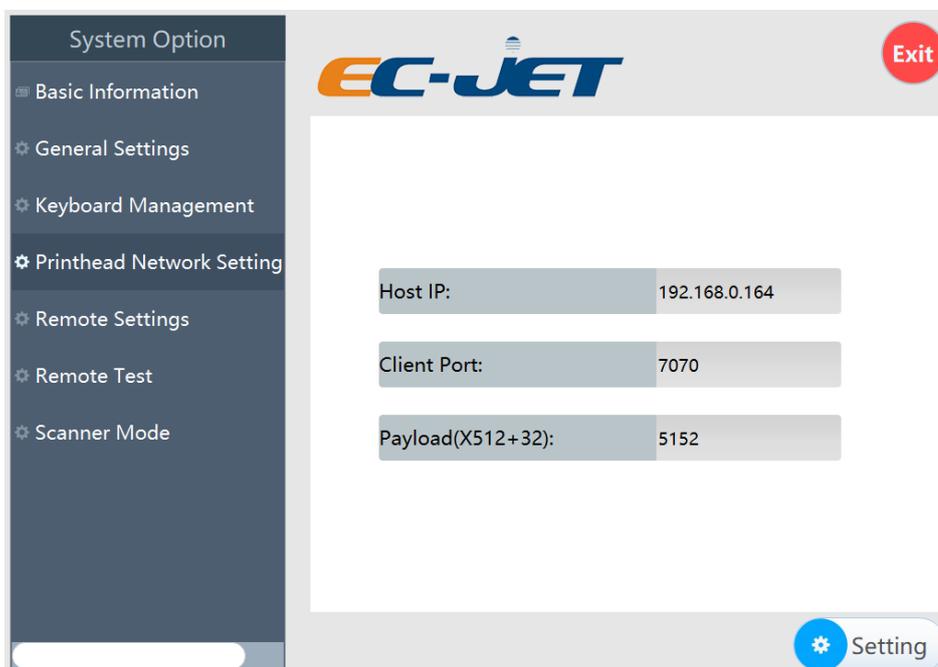
In this setting interface, you can set the machine area code, serial number, system language, and power-on automatic startup. After the parameter modification is completed, click



to save the modified parameters.

3.5.2 Printhead Network Settings

Click “Printhead Network Settings” to enter the printhead network setting interface:



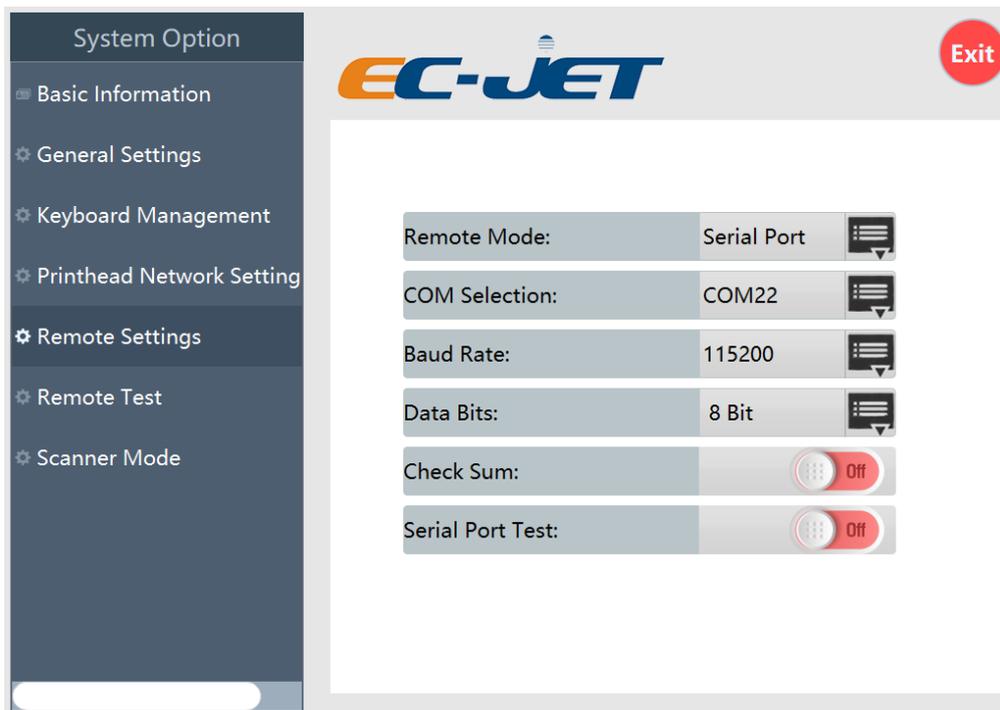
Host IP: the IP address of the network card used by the software;

Client port: the receiving port number of the printer, when the controller communicates with the printer;

Payload: it is the size of the transmitted data packet. This value is generally no need to be modified. If it needs to be modified, modify according to the specified format (integer multiple of 512 +32, and less than 65472);

3.5.3 Remote Settings

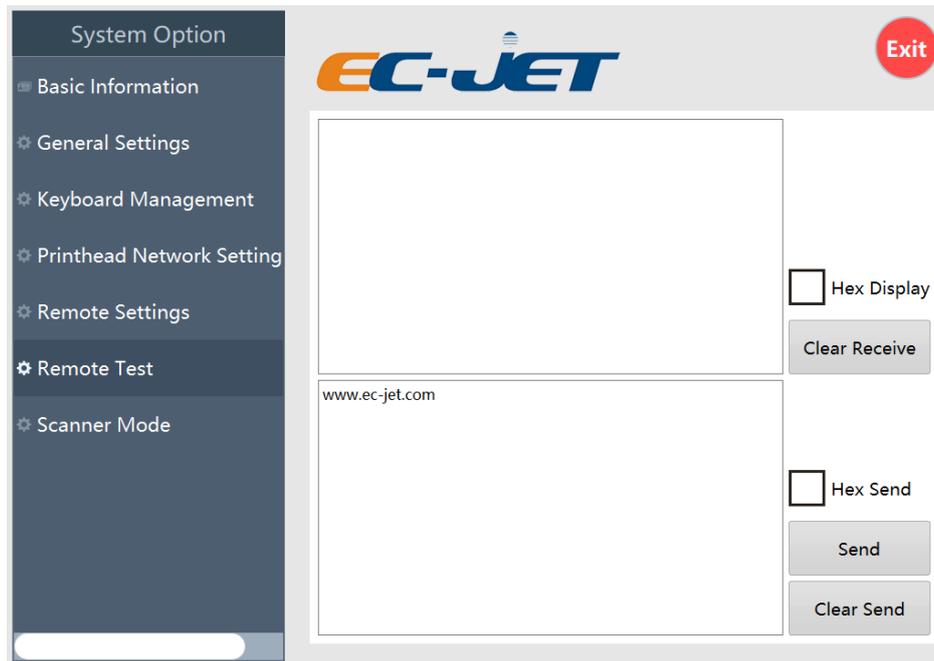
Click "Remote Settings" to enter the remote settings interface:



Remote mode: Remote mode can choose to use serial port or network for communication. When remote mode is serial port, configure the serial port related parameters, open serial port test to send and receive remote data in remote test interface, and test remote communication.

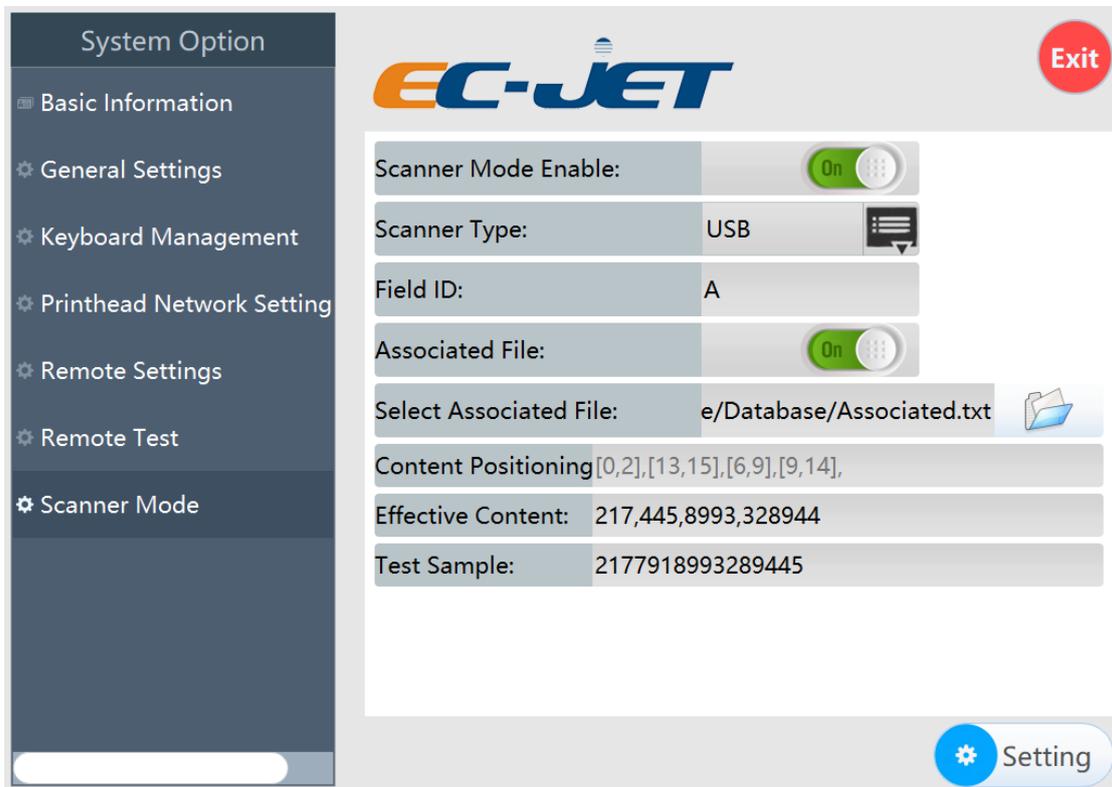
3.5.4 Remote Testing

Click "Remote Testing" to enter the remote testing interface to test the remote communication:



3.5.5 Scanner Mode

Click "Scanner Mode" to enter the scanner mode setting interface:



Scanner mode enable: Turn on or off the scanner mode;

Scanner type: The scanner type can support both USB and serial ports;

Field ID: corresponding to the filed ID that already exists in the print file, one-to-one correspondence;

Associated file: Whether to associate the scanner scan content with the print execution file, if it's enabled, then the function is enabled;

Select associated file: Click  to select the associated file comparison table, where the associated file comparison table is UTF-8 encoded txt text, one data corresponds to an execution file name (**Note: the execution file name does not have a suffix, and does not contain a path, otherwise the software cannot parse correctly**), the file reference format is as shown in below:



Content positioning: locate the location of the content printed by the printer in the content read by the scanner, and support any position where the actual existence exists and any combination;

Test example: used to locate the content to be printed, and fill in the content obtained by the scan. The specific operation refers to the example in the figure;

After the scanner is set, input the identified content in the input field of the main interface scanner, the content will be loaded into the print execution file to perform printing.

Chapter 4 Precautions

4.1 Printer Precaution

1. Prevent liquid (ink/water etc.) from contacting electronics part which may cause short circuit and printer failure.
2. Printer must be electrically grounded.
3. This Printer might not suitable for high humidity, high temperature, very dusty and vibrating environment.
4. Do not connect power adapter to supply which is beyond 110V-240VAC, 50/60Hz, to prevent fire hazard.
5. Printhead is a precision engineering component, do not wipe the nozzle with non-designated materials. User must strictly follow the cleaning procedure to avoid scratching to the nozzle.
6. In case of accident (smoke, burning smell, liquid fell/contact with electronic parts), please turn off the power supply immediately and contact manufacturer for further action.
7. Please contact manufacturer if printer is abnormal, do not dismantle the printer which will void the warranty.

4.2 Printhead Precaution

1. Handle the printhead with care. Make sure to open the nozzle cover when using.
2. Gentle reminder: In order to improve the printing effect and extend the lifetime of the printhead, when the printer is continuously working for 8 to 12 hours or doesn't work for more than two days, it is recommended to carry out the ink pressing process and wipe the surface of the printhead with a clean non-woven fabric/non-woven tissue. If the working environment of the printer is dusty, it is recommended to do the printhead maintenance more often.
3. If there is occasional nozzle blocked during printing, first check the nozzle surface for impurities. If there is, do the ink pressing to wash the nozzle surface with ink first, do not wipe the nozzle when the nozzle surface has impurities. When the nozzle surface is no impurity, wipe the nozzle surface with a clean non-woven fabric/non-woven tissue and do the print test.
4. In order to better protect the printer and maintain a stable print quality, it is recommended to do ink pressing for 2-3 times each day before starting.

4.3 Warnings

1. The printer is sensitive to static electricity. The installation site must be well grounded: the voltage between the neutral and ground does not exceed 1V.

2. Use special cleaning fluid to clean the printhead. It is strictly forbidden to clean inside the printhead and ink path with water or other liquid, otherwise the printhead may be damaged.

3. It is forbidden to plug and unplug all the plugs or connecting wires on the charged printer, otherwise the circuit or the printhead may be damaged.

4. Please wipe the printhead with a special cotton swab or non-woven fabric soaking the cleaning solution to avoid scratching the surface of the printhead. Otherwise, the surface film of the printhead will be damaged, and causing ink dropping or bad printing on printhead, which will affect the normal use of the printhead.

5. When wiping the nozzle, do not use too much force, otherwise it will damage the nozzle; when wiping, it can only be wiped in one direction, do not wipe back and forth.

6. The printhead will have a reference voltage when it leaves the factory. Generally, the software reference voltage is consistent with the factory voltage. It depends on the actual environment. The optimal working voltage of the printhead is as low as possible without affecting the printing effect. If the printhead voltage is too high for a long time, the electrode load of the printhead will be too large. When the temperature is too high and the voltage need to be lowered, there might be blurry printing, ink missing or other printing problems.

Appendix Dimensions of Printer and Printhead

