NC-UV2513-II

User Manual

Please read this manual carefully before you use this machine

and keep it handy for future reference.

Catalogue

Warning

1. Please carefully read these instructions before using the machine.

2. Children or individuals with disabilities are not allowed to use this machine. If use by such persons is necessary, it must be under supervision.

3. Use accessories and ink from the original manufacturer in accordance with the instructions.

4. Ensure the power supply voltage matches the voltage indicated on the power cable and machine nameplate.

5. This machine is for indoor use only. It is recommended to install an air conditioner in the room to maintain stable operating temperature and humidity.

6. Before using the machine, remove the wooden shipping crate and foot cup fasteners used for transportation, and place the machine stably on a stable tabletop.

7. Do not use the machine in harsh environments such as open flames, excessive dust, or high humidity.

8. Never use the machine in damp or waterlogged rooms.

9. Do not place debris or miscellaneous items on the machine body, machine platform, or in the area surrounding the machine.

10. Maintain a stable temperature in the workshop. Do not use the machine in extremely hot conditions (above 30°C) or extremely cold conditions (below 15°C).

11. Do not use any damaged cables for power supply.

12. If the power supply cable is damaged, cease use of this machine immediately.

13. Turn off the machine power before performing cleaning or maintenance.

14. Use the machine in compliance with local laws and regulations.

15. Before sending a print job, ensure the print head does not come into contact with any objects. Note that automatic height sensing detection is ineffective for transparent materials.

16. When the machine is operating, prolonged direct viewing of UV light can damage eyesight—UV-protective goggles are recommended. To move the machine, at least four people are required to lift it. Do not move the machine together with other machine components, and remember to unplug the power plug during movement.

17. When adding ink, components such as ink tubes, ink bottles, and ink bottle caps may come into contact with ink—please take appropriate protective measures (e.g., wearing gloves).

18. The machine workbench must have sufficient load-bearing capacity and must not wobble during operation.

19. Prolonged high-load printing with LED lights is not recommended.

20. Ensure the machine is properly grounded.

21. Avoid using the machine during thunderstorm weather to prevent damage from lightning strikes.

22. If your ink is not sourced from Nocai, the machine will no longer be eligible for warranty coverage.

Machine Introduction and Graphics Analysis

1.1 Graphic analysis of the front and side of the machine

① Platform：Place the material when printing

② Emergency Stop Switch：Cuts off machine power immediately

③ 400W Servo Motor：Control the forward and backward movement of the machine head

④ Coupling：Connect the lead screw to the motor

⑤ Control panel with machine status display

⑥ Suction button: Controls main power for table suction

⑦ Power Button: Turns the machine on

⑧ Electrical cabinet assembly: Power supply for the machine's underframe

⑨ Computer display

⑩ System unit

⑪ Ink pump: Sucks waste ink from the cap top

⑫ Waste ink container: Holds waste ink

⑬ Print carriage assembly: Performs printing and integrated LED curing

⑭ Main beam: Supports carriage movement

⑮ Ink cartridge assembly: Supplies ink to the machine

⑯ Printhead maintenance station assembly: For printhead capping and purging/cleaning

⑰ Industrial socket: Provides power to the machine
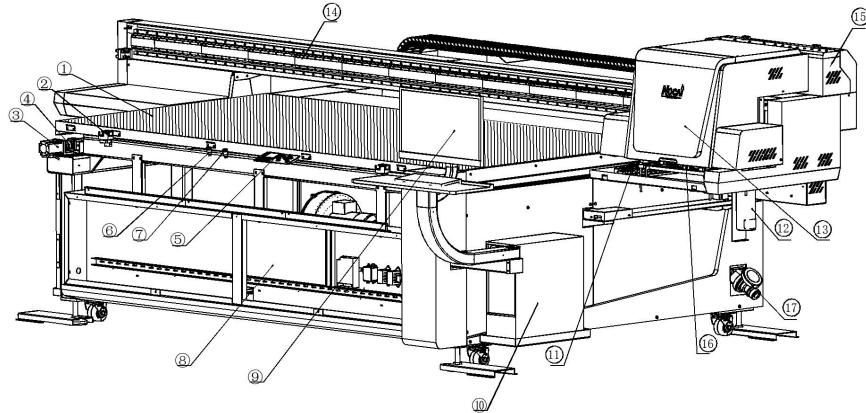
1.2 Graphic analysis of the back of the machine

① Gantry axis drive: Controls the gantry linear motor precisely.

② Y-axis drive: Controls the Y-axis motor precisely.

③ Printhead mainboard: Powers the head board and controls X/Y-axis motor signals.

④ Ball screw: Converts rotary motion into linear motion.

⑤ Lifting maintenance station drive: Controls the lifting motor precisely.

⑥ Blower: Provides suction for the table (vacuum hold-down).

⑦ Gantry cable carrier: Protects and guides cables and ink tubes to the carriage.

⑧ Ink cartridge drip tray: Contains potential ink leaks to protect the power supply below.
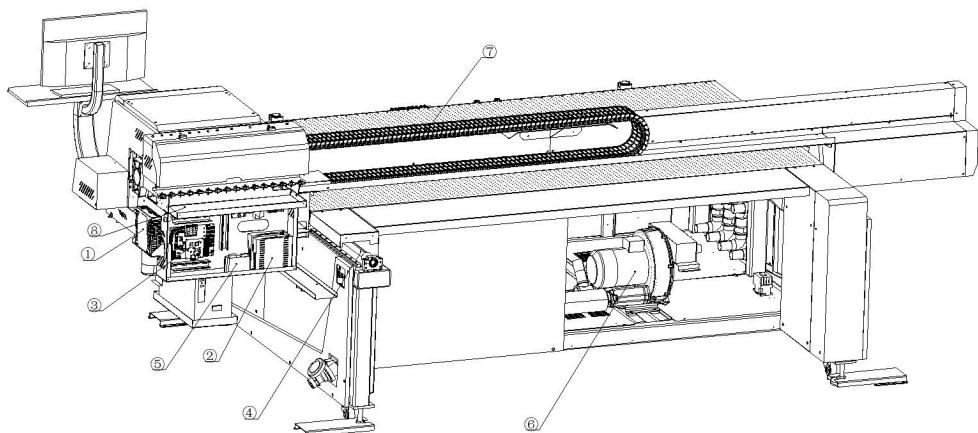
1.3 Analysis of ink station of the machine

① Maintenance station lower limit sensor: Determines the lowest descent point of the station.

② Maintenance station stroke adjustment bracket: Sets the lower position of the station.

③ Maintenance station lift motor: Controls the raising and lowering of the station.

④ Maintenance station drive gear: Transmits power to raise and lower the station.

⑤ Cap top: Used during printhead servicing.

⑥ Printhead wiper: Wipes residual ink from the printhead surface after cleaning.

⑦ Φ4 fitting: Allows the ink pump to draw waste ink from the maintenance station.
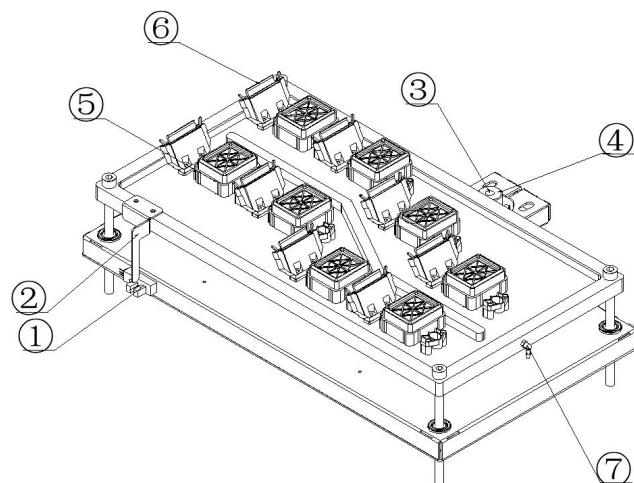
1.4 Graphic analysis of gantry beam

① Beam Up Button: Raises the gantry.

② Gantry lower button: Lowers the gantry.

③ Carriage left button: Moves the print carriage to the left.

④　Platform forward button: Moves the print platform forward.

⑤　Platform back button: Moves the print platform backward.

⑥　Carriage right button: Moves the print carriage right and"maintenance"

shortcut

⑦　Machine display panel: Shows data and status information.

⑧　Suction On/Off switch: Controls the suction fan for the platform.

⑨　Function menu key

⑩　Test shortcut key: Nozzle check hotkey

⑪　Pause print button: With clean hotkey function

⑫　Exit button: Exits the menu without saving changes.

⑬　Settings enter key: for menu configuration
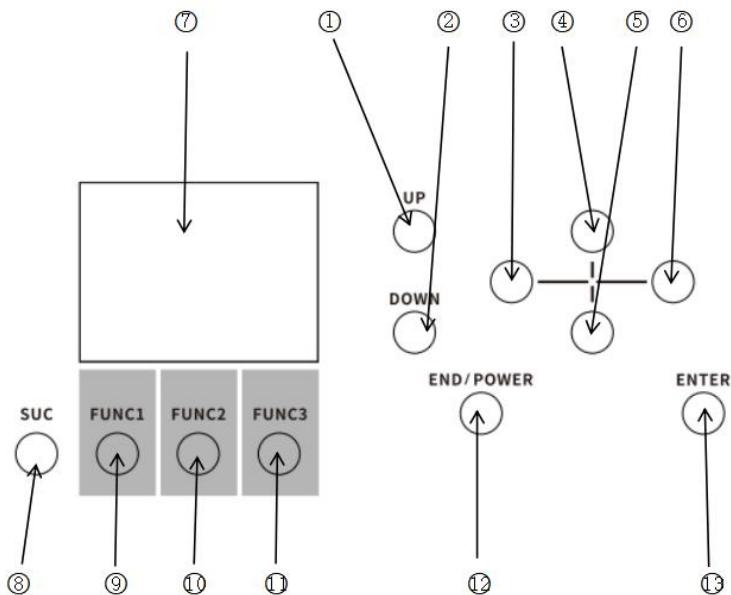

1.5 Graphic analysis of print carriage

①　Heating element: Raises the temperature of UV ink to the optimal

working level.

②　JV33 Ink Damper: Filters ink and supplies it to the printhead.

③　Printhead: Ejects ink for printing.

④　Print carriage crash barrier: Protects the printhead from impact damage.

⑤　UV Lamp: Accelerates the curing process of ink.

⑥　Expansion board.

⑦　Lift motor drive: Controls the print carriage lift motor precisely .

⑧　Mainboard

⑨　42 stepper motor: control the lifting and lowering of the ink cart

⑩　Carriage lift driven pulley: Works in conjunction with the drive pulley to raise and lower the print carriage.

⑪　Print carriage lift belt: Drives the vertical movement of the carriage.

⑫　Temperature control PCB: Monitors and regulates the printhead's operating temperature.

⑬　Ink truck lower limit sensor: control the rise and fall of the ink station

⑭　Print carriage upper limit sensor: Determines the highest point of travel for the maintenance station lift.

⑮　Ball screw: Converts rotational motion into linear motion

⑯　UV varnish curing lamp: Cures the UV varnish instantly.

⑰　Electrostatic removal device
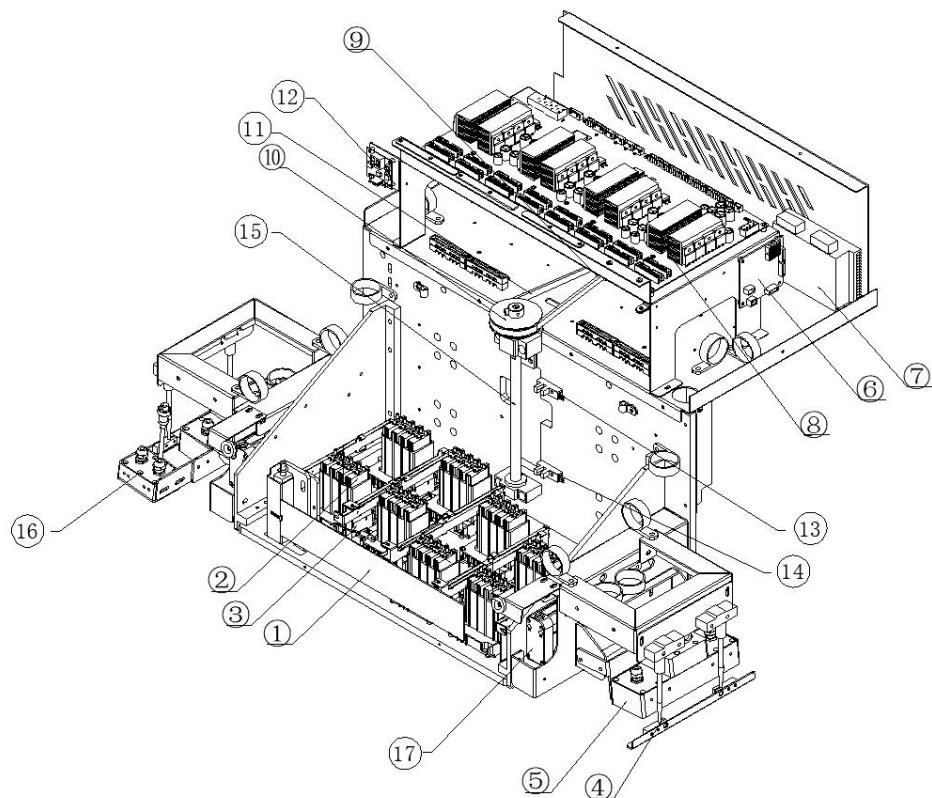
1.6 Graphic analysis of gantry beam

① Left limit sensor of the trolley: controls the left and right movement stroke of the ink cart

② Print carriage limit switch: limits the travel range of the carriage physically .

③ Linear motor stator: Generates a magnetic field to drive the rotor movement of the linear motor

④ Print carriage linear guide: The rail along which the carriage moves left and right.

⑤ Magnetic grid: Provides high-resolution feedback for X-axis precision positioning and dimension control.

⑥ Carriage home position sensor: Defines the zero reference point for the print carriage.
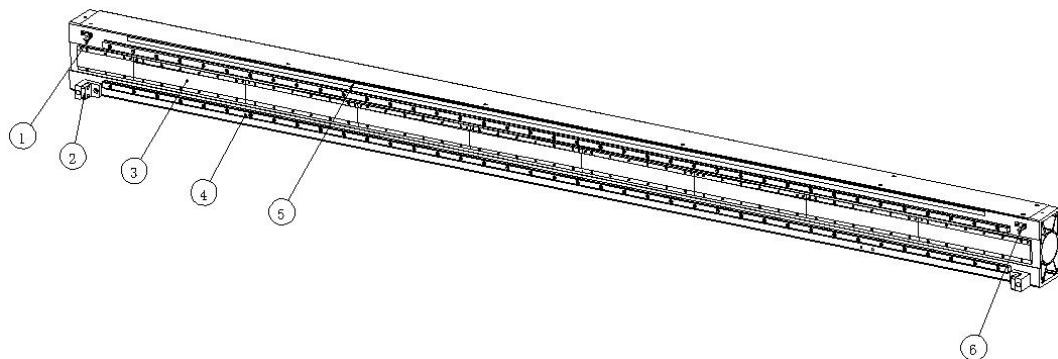
## 1.7 Graphic analysis of ink cartridge

① Low ink warning light： Indicates low ink in the cartridge.

② Cartridge cover

③ Ink reservoir filler cap: For adding ink and preventing leaks.

④ Ink bottle: Holds ink.

⑤ Disc filter: Filters impurities from the ink.

⑥ Linear motor braking resistor
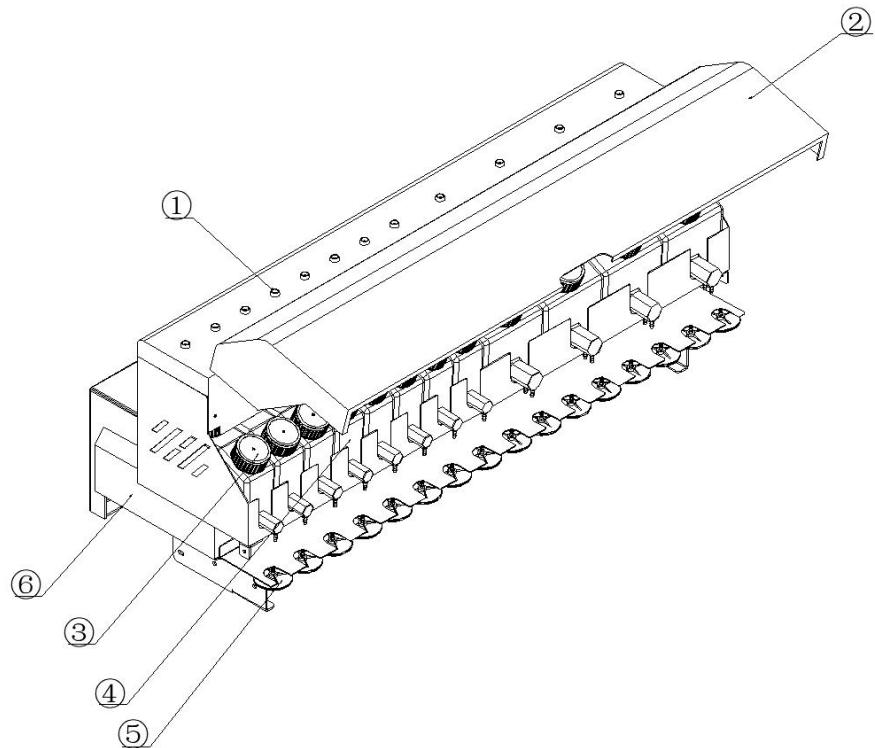
1.8 Suction zone analysis

Suction zone knob: Controls the airflow on/off for the suction zone.
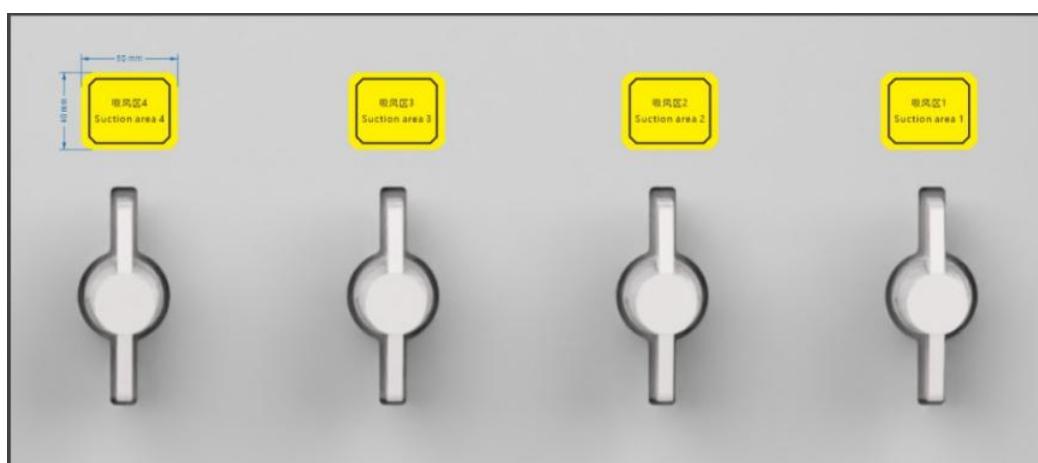
Machine Initialization Confirmation

2.1 Preparations

Make sure that the machine looks normal, and matches the power supply voltage (220V or 110V) of the machine.

2.2 Confirm that the boot initialization process is normal

The machine is powered on, turn on the main power switch at the back of the machine, click the power button on the front panel, the machine starts, and the initialization action is executed.

The machine initializes the action process completely：

【The initialization sequence: The ink station descends to its lower limit → The cart rises to the upper limit → The cart moves right to the right limit → The platform moves forward slightly, then reverses to the rear limit → The cart moves left to above the ink station (capping position) → The cart descends for ink station capping → Initialization complete.】

2.3 Machine movement test: PASSED

【Connect the machine to the computer using a USB 3.0 data cable→ Launch the driver software→Verify that the status "Online" or "Connected" is displayed in the lower-left corner of the software interface→Use the driver's controls to move the machine left, right, forward, and backward. Use the Z-axis control to move it up and down→Confirm that the machine responds correctly to all movement commands.】

How to Add Ink

1. Follow the color tips to add the corresponding ink as following.

2. In order to prevent the ink from leaking out and contaminating the shell sheet metal when adding ink, protective measures need to be taken. The bottle mouth can be wrapped with paper. After adding the ink, twist the ink bottle tightly.

3. Printing a test pattern, open the online driver software, PrintExp. Ensure the connection status displayed in the lower-left corner is "Connected Successfully". Click the "Check" or "Inspect" button. Select the corresponding printhead from the list. Click the "Capping" or "Prime" button to initiate the ink charging process.
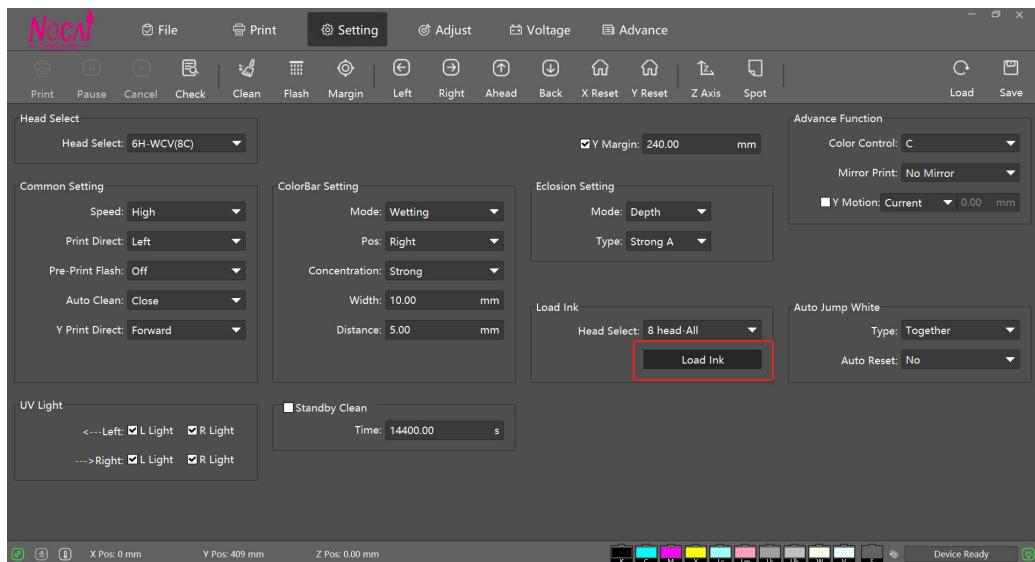
The machine starts ink suction. Check the waste ink bottle until ink is drawn out to confirm that the ink path is unobstructed. Click "Cancel Ink Filling" in the driver software, and the ink storage in the damper is completed.

Click the cleaning button on the driver software "PrintExp", select the corresponding print head and its cleaning intensity. After the machine completes the cleaning operation, click "Test" to print a test strip. If there is a color missing or ink breakage, continue cleaning the print head until the test strip shows all colors completely. Then the machine enters standby mode.
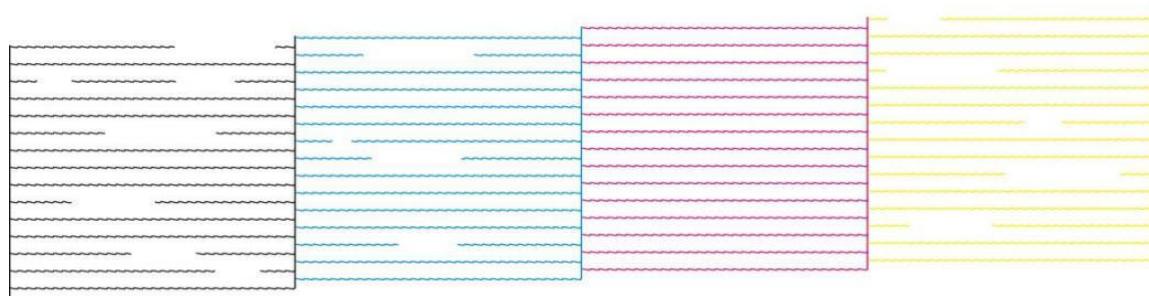
There is ink breakage on the test strip; "Auto Cleaning" needs to be continued.

The test strip is normal.
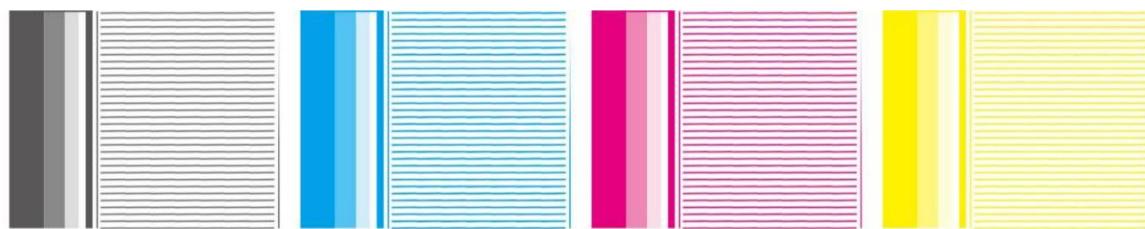
Install and Setup the Driver

4.1 Computer requirements

The system version must be 64-bit Windows 7, Windows 8, or Windows 10.

Memory: More than 4GB;

Hard disk: More than 250GB.

The computer must be equipped with a Gigabit network card and a Gigabit network cable to ensure the software can connect normally.

Set the computer's IPv4 address to "192.168.100.XXX" and the subnet mask to "255.255.255.0".

4.2 Install the driver

4.2.1 Install-PrintExp

Launch the print control software. First, ensure that the machine is powered on properly, the startup initialization process is normal, and the computer is connected to the machine by a data cable.

The PrintExp software can be opened and used directly. First, locate the folder where the PrintExp software is stored, open the folder, find the application program PrintExp_X64.exe , and double-click it to launch the PrintExp software.

When the connection is successful,

the bottom left corner of the PrintExp software interface will display "Connection Successful" (with a green light on).

4.2.2 Software Online Settings Instructions

How to determine a gigabit network card

进行网络联机之前，首先要检查电脑的网卡一定千兆网卡才能正常连接，百

兆网卡与千兆网卡区别Before performing network connection, you must first check that the computer's network card is a gigabit network card to ensure normal connection. Differences between 100M network cards and gigabit network cards：

Gigabit network card contains these characters.：Gigabit、GBE、10/100/1000M、RTL8169 。

100Mbps network card contains these characters：Fast Ethernet、10/100、FE。

Go to the computer's Device Manager, check the Network Adapters. The following picture shows a 100Mbps network card：
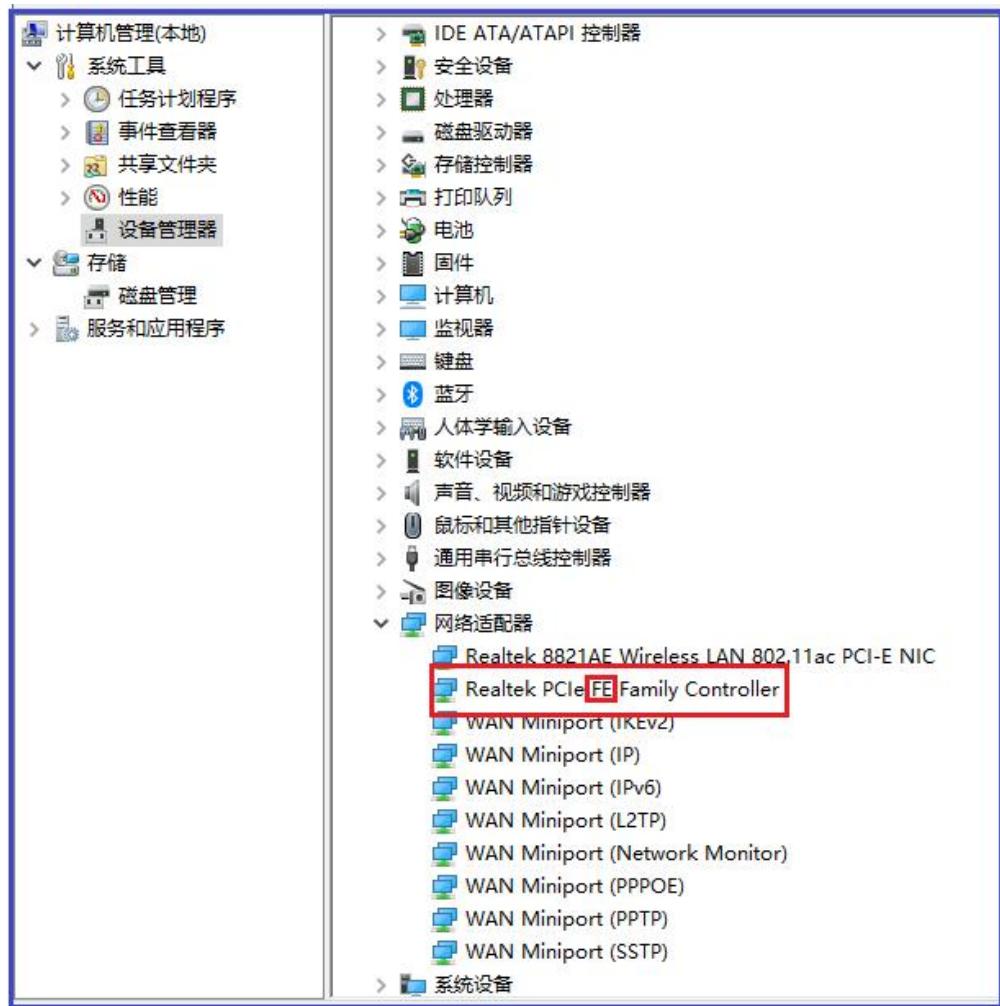
The following picture shows a Gigabit network card：
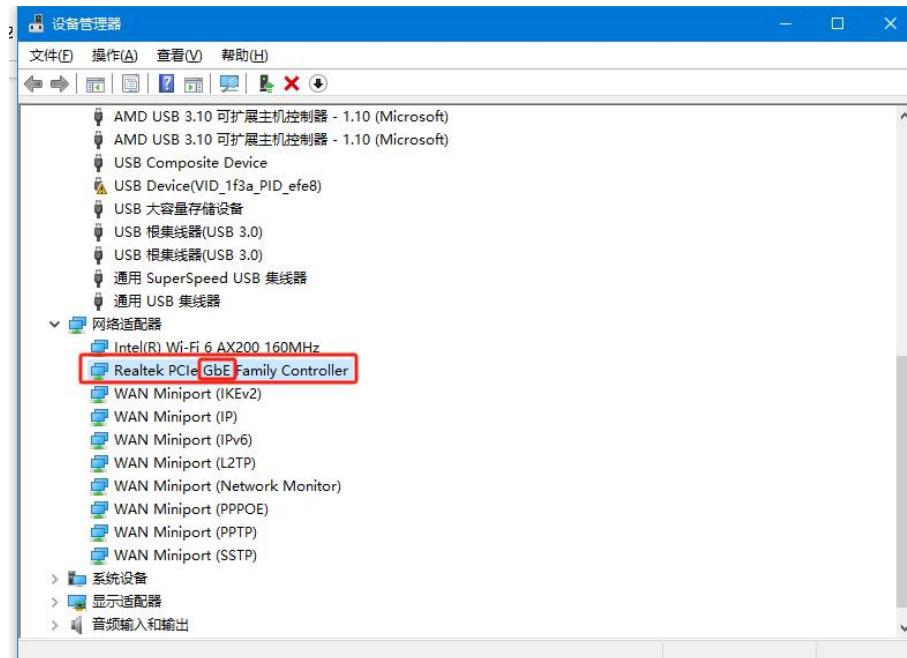
In addition, the computer used with this machine must be equipped with a USB 3.0 interface.
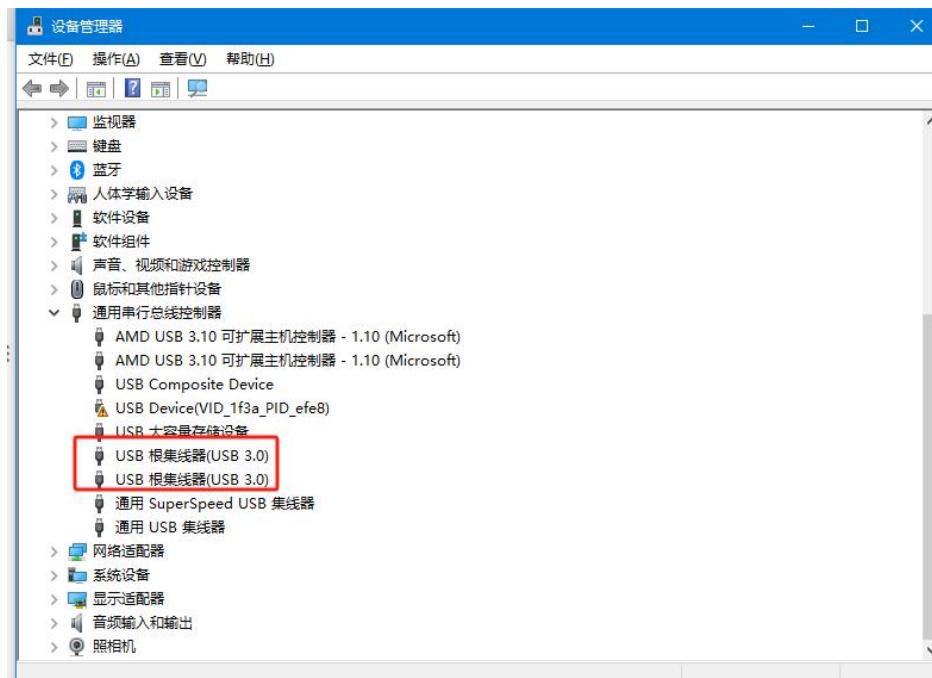
4.2.3 Network Settings

For the first time, you must set the network connection parameters to use it online. Connect the 3.0 data cable to configure the network settings.

First, install PrinterUSB3.0_wlh_x86_ENU, then open the following folder.

Double-click"setup.exe";
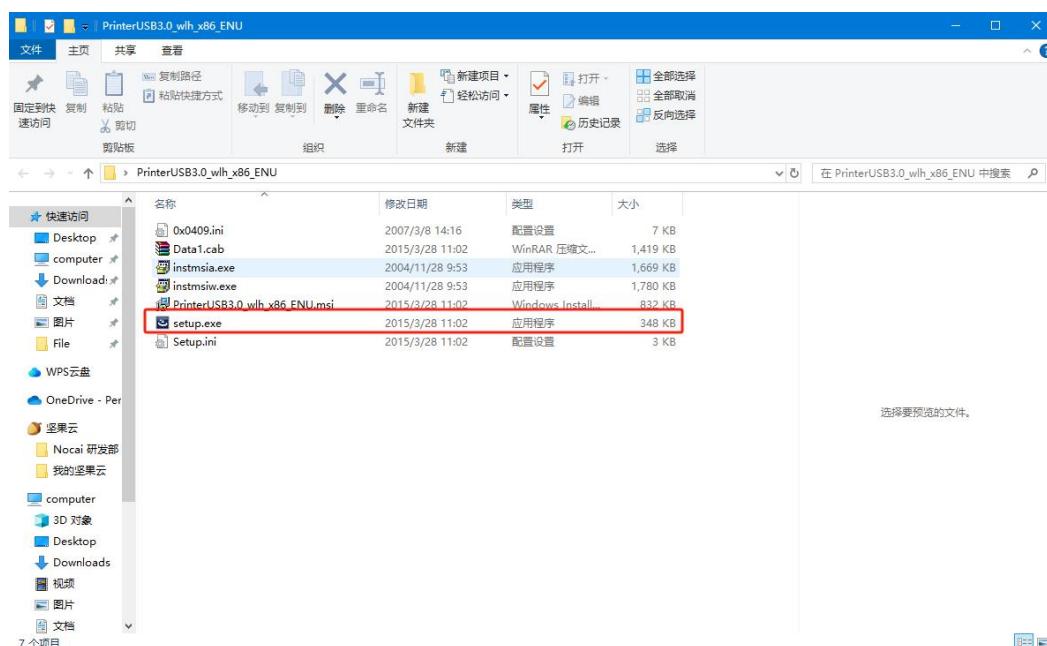
Click"next";
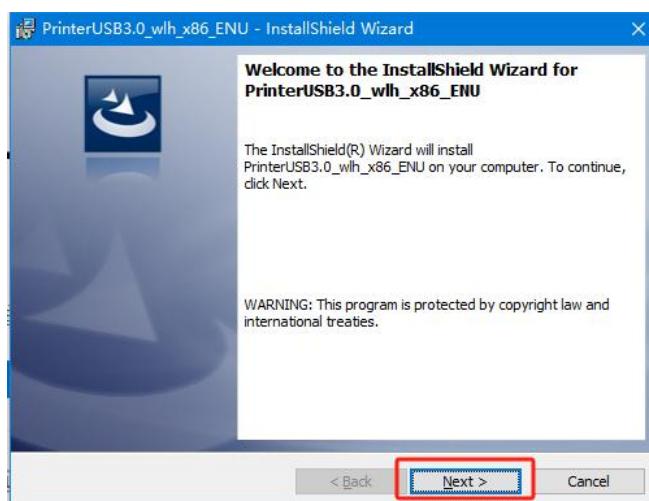
Check the box to agree and click "Next".
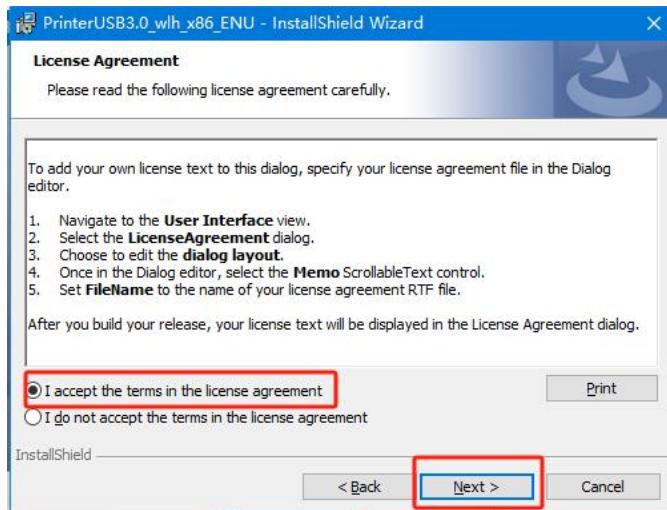
No changes needed; click "Next" directly.
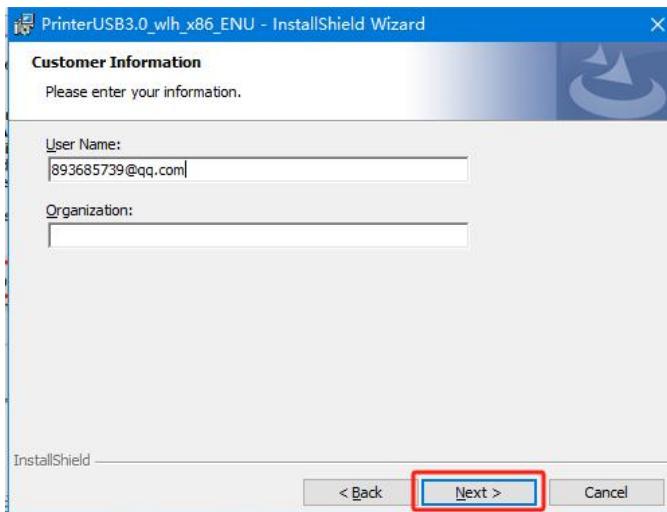
Check "complete" and click "next".
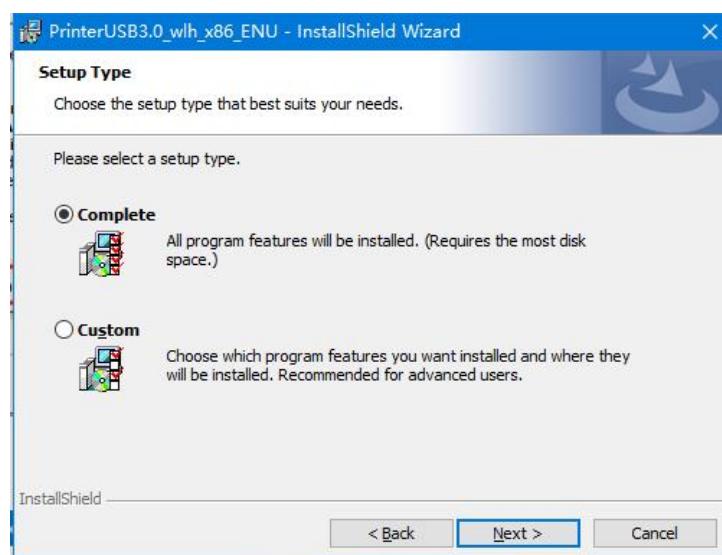
Click"install";
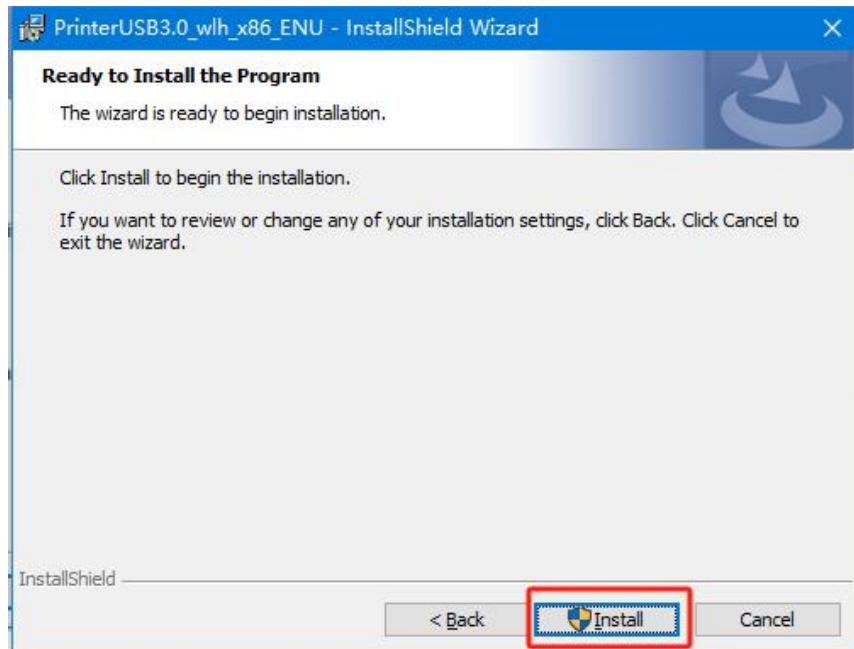
Installation is complete.
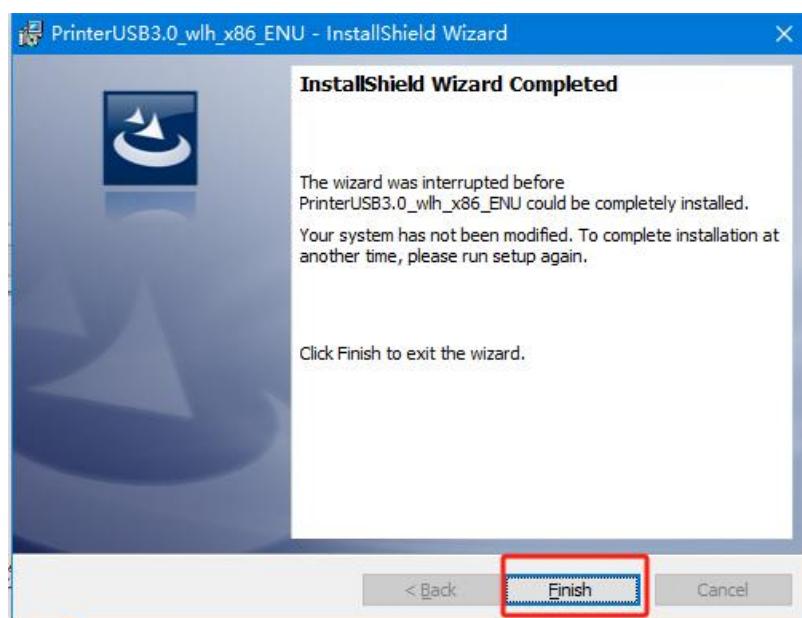
Online Setup Method: In the online software → Advanced Menu →
Communication Settings. At this point, the Communication Settings window will
be displayed, as shown below:
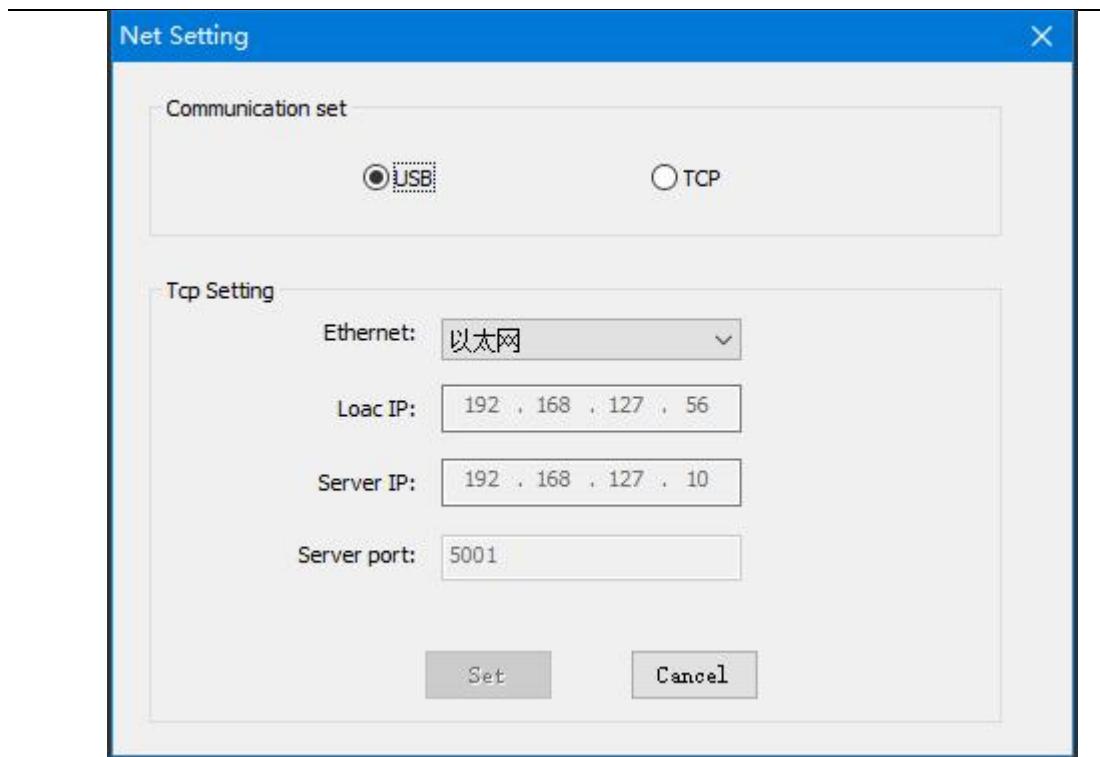
The server IP and server port settings are fixed and do not need to be configured again. Since a network cable is not used, there is no need to set the local IP either. As shown in the figure above, select USB communication in the communication settings.

After restarting the software, return to the main interface window of the online driver software. You can see that if the first icon in the lower left corner of the main interface is green, it indicates that the device is connected online. If it is still red, it means no connection is established. You can unplug and re-plug the data cable to try again and check if the connection is successful. If the connection still fails, you should check whether the data cable is in good condition.

The setup and introduction of driver function

The main interface of the PrintExp software is shown in the figure below：
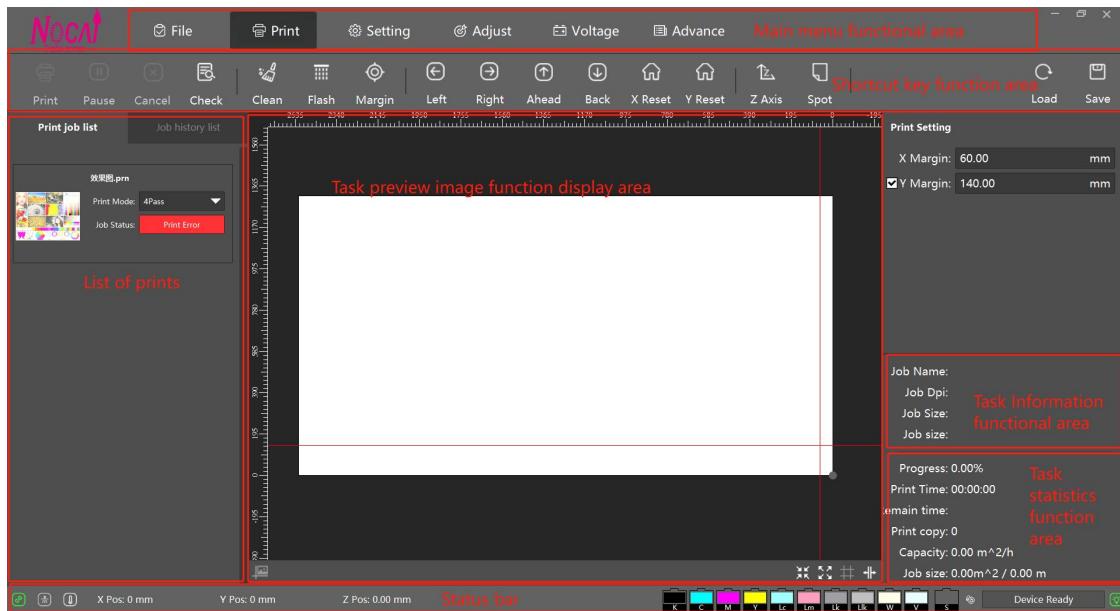
The main interface of the PrintExp software mainly consists of several parts: the main menu function area, the shortcut button function area, the print list function area, the task preview display area, the print task information function area, and the status bar. The following is an introduction to each of these parts respectively.

5.1 File

Click "File" in the menu bar to access the File interface. This interface includes file directory window, image preview window, and image information display bar, as shown in the figure below：
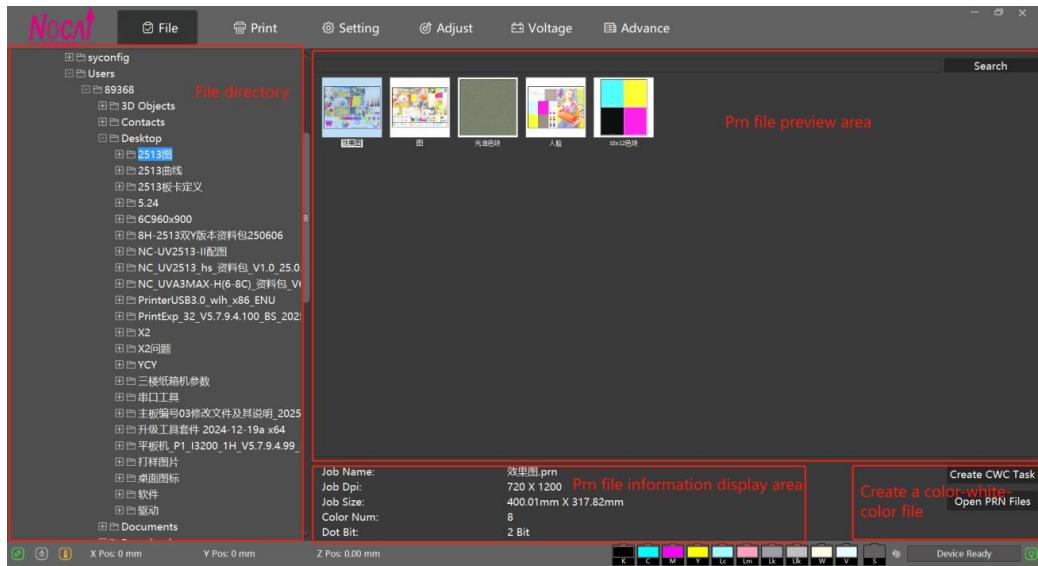
NO.	Name	Function description
1	File directory and function area	Choose the storage folder for the file.
2	PRN file preview area	Display all files under the specified folder.
3	PRN file information display area	Display the information of the file.
4	Create color-white-color task	Click and create color-white-color task
5	Open PRN file	Search and select PRN files via the path.

If you select a preview image and then click right, a menu list will pop up, as shown in the figure below:
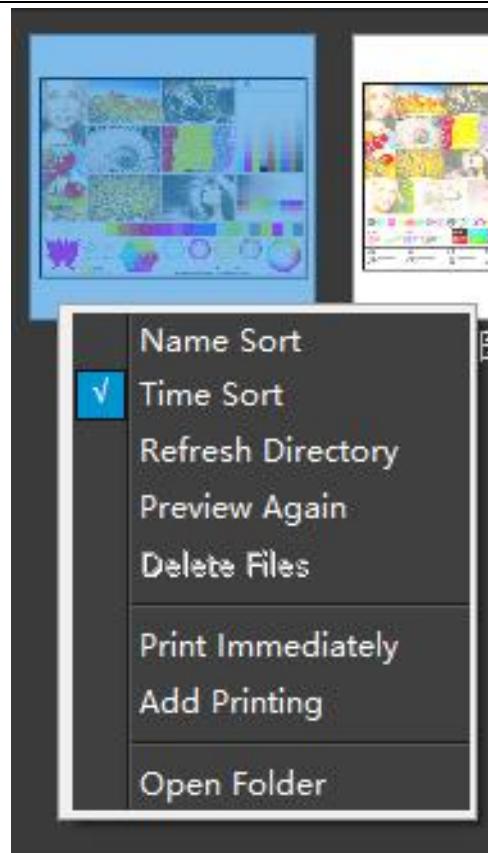
NO.	Name	Function description
1	Refresh directory	Refresh all files under the specified folder.
2	Preview again	Regenerate the preview image of the specified file.
3	Delete files	Delete the file
4	Print immediately	Add the file to the task list and start printing immediately.
5	Add printing	Add the selected file to the task list.
6	Open folder	Open the folder.

5.2 Print

Click "Print" in the menu bar to access the Print interface, as shown in the figure below:
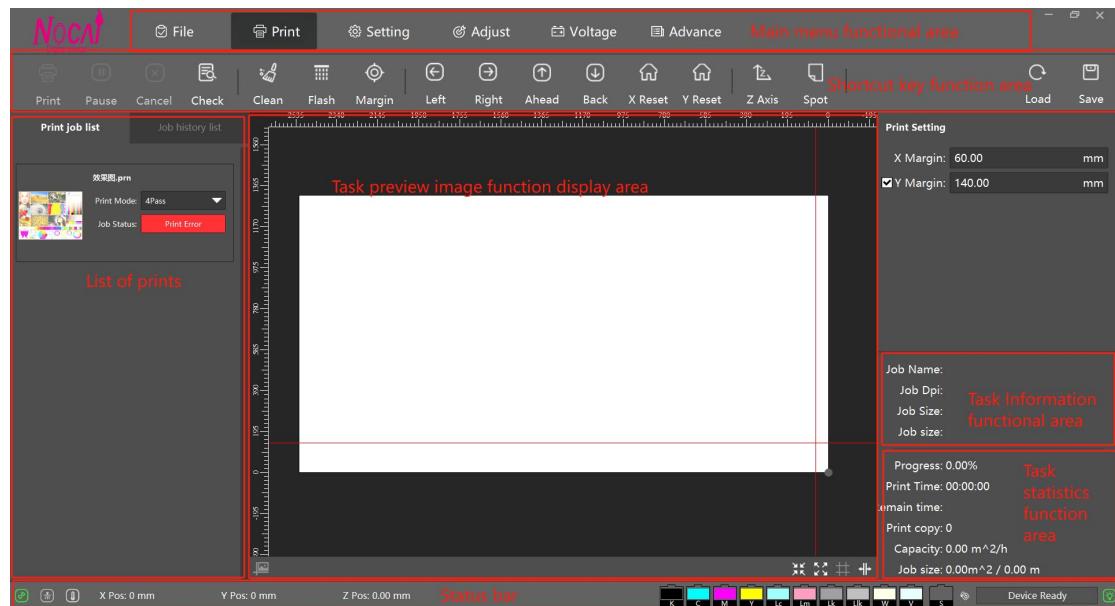
NO.	Name	Function description
1	Main menu function area	Display the main function and button
2	Shortcut button and function area	The area that displays command buttons that frequently used.
3	Print list and function area	The area that displays all current tasks that are being printed or pending printing.
4	Display function area of task preview image	The area that displays the platen printing area and the preview image of the selected task.
5	Information function area of task	The area that displays all information of the current task.
6	Statistics function area of the task	The current task's printing progress, printing time/estimated remaining time, printing capacity, and printing area

7	Status bar	The area that displays the system's current working status, connection status, XYZ position coordinates, limit reminders, and ink cartridge/safety bottle status.

5.2.1 Task list

The printing interface includes task list window, a historical task list window, task preview window, and print information window；

Choose a task in the list, then click right to bring up a drop-down menu, as shown in the figure below：
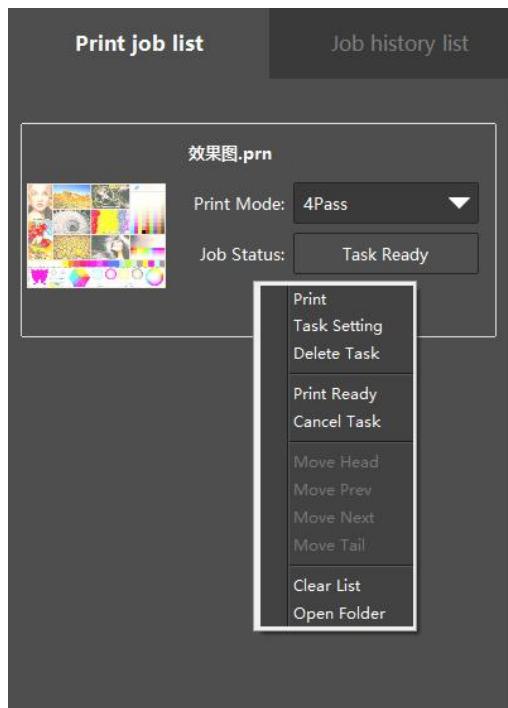
NO.号	Name	Function description
1	Print	Start printing
2	Task setting	Edit task properties, such as the settings of printing parameters and task parameters.
3	Delete task	Delete task from the list
4	Print ready	Add the current task to the print queue.

5	Cancel task	Cancel printing or cancel the pending print status
6	Move head	Move the task to the head of the task list.
7	Move preview	Move the print task up by one position.
8	Move next	Move the print task down by one position.
9	Move tail	Move the selected task to the end of the task list.
10	Clear list	Clear all the tasks of the list
11	Open folder	Open the folder

5.2.2 Job history list
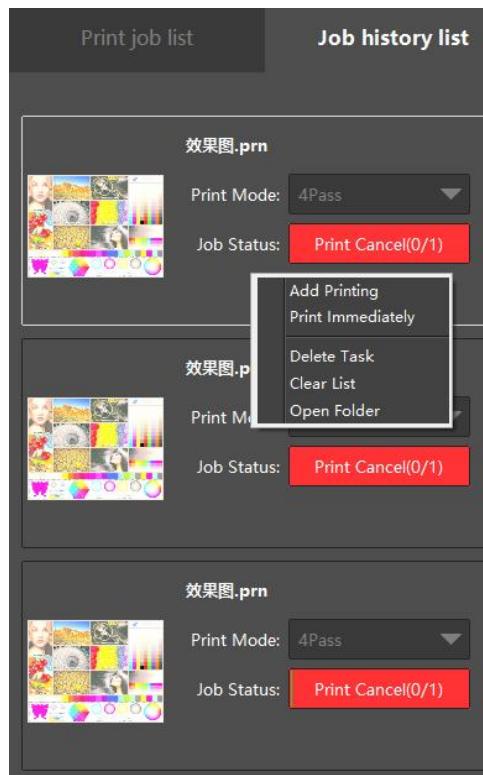
NO.	Name	Function description
1	Add Printing	Add the task to the list.

2	Print Immediately	Add the task to the list and start printing immediately.
3	Delete task	Delete the task from the job history list.
4	Clear list	Clear all tasks in the job history list.
5	Open folder	Open folder

5.2.3 Task property

Double-click a task in the list to open the task properties window for that task (or click right and select "Task Settings"), as shown in the figure below:
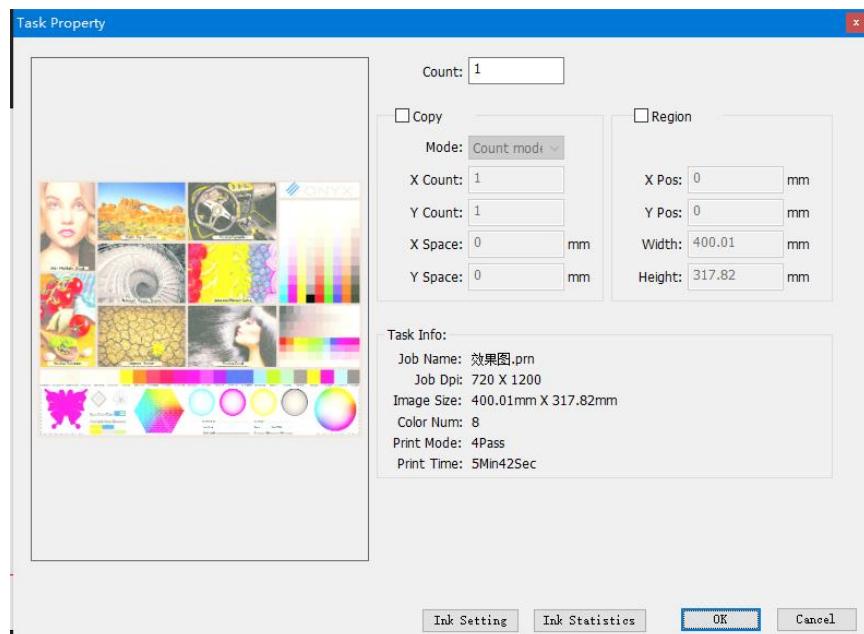
NO.	Name		Function description
1	Number of Copies	Number of Copies	Print several copies of the task，from 1 to 9999
2	Continuous Printing (Sheet Count Mode)	Number of horizontal copies	Number of horizontal continuous prints
		Number of vertical	Number of vertical continuous prints

|		copies	
		Horizontal spacing	Horizontal continuous printing interval (in millimeters)
		Vertical spacing	Vertical continuous printing interval (in millimeters)
3	Continuous Printing (Size Mode)	Width	The width of the image
		Height	The height of the image
		Horizontal spacing	Horizontal continuous printing interval (in millimeters)
		Vertical spacing	Vertical continuous printing interval (in millimeters)
4	Regional printing	X position	Starting position in the X-direction of the file
		Y position	Starting position in the Y-direction of the file
		Width	The width of the selected area of the file
		Height	The height of the selected area of the file
5	Task information		Including the task name, the printing precision of the task, the size of the task, the number of colors for the task, and the number of passes for the task

5.3 Setting
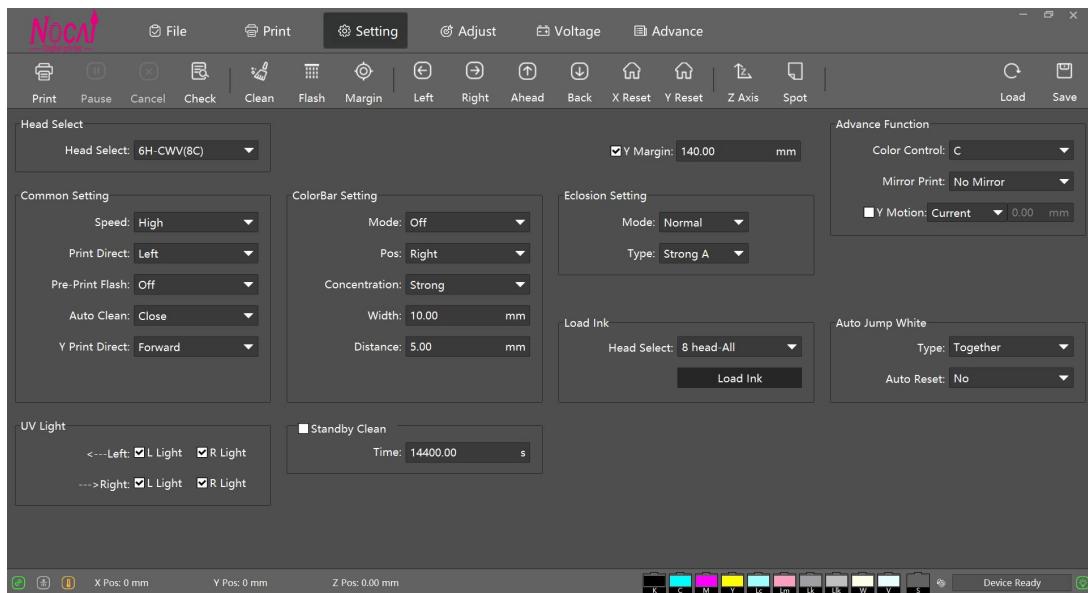
NO.	Name		Function description
1	Choose the printhead		Different combination modes

2	White margin setting	X margin	Starting position of printing （The flatbed printer is set up in the printing interface.)
		Y margin	Starting position of printing （Check the box for printing to enable Y-axis white margin positioning.) （The flatbed printer is set up in the printing interface.)
3	Common setting	Speed	Low, medium and high
		Print direction	Left, right and bidirection
		Pre-print flash	Flash or not before printing
		Auto clean	Automatical clean or not while printing （The cleaning method is origin flash spraying.)
		Y print direction	The paper feed direction for printing, supporting both forward and reverse printing.
4	Color bar setting	Mode	Mode: Off or moisturize： Color bars appear in each pass 、 Status: One color bar appears corresponding to each pass number.
		Position	The color bar is left color bar, right color bar, or both-side color bars.
		Concentration	The concentration of color bars when printing, with options of Low, Medium, and Strong.
		Width	The width of color bars when printing
		Distance	The distance between the color bars and the image when printing
5	Eclosion setting	Mode	Eclosion setting mode: Fixed feathering amplitude or custom amplitude can be selected. （0-200%)
		Type	Eclosion setting type
6	Advance function	Color control	Control the printhead data and manage whether data for different ink colors is output or not.
		Mirror print	Control whether the image is printed with a horizontal flip.
		Y motion	Movement mode of Y-axis after Printing: Specified, Current, Origin, Endpoint

7	UV light		Set the UV light irradiation direction switch
8	Auto jump white	Type	Close the mode of skipping the blank area, stepped white-jumping and continuous white-jumping
		Auto reset	Long time white jump selects whether to reset automatically and then jump white
9	Load ink		Select print head to load the ink
10	Standby clean		After selecting and setting the time, the machine will automatically clean at the specified intervals while in standby mode.

5.4 Adjust/Calibration

Click "Adjust" in the menu bar to enter the calibration interface, as shown in the figure below：
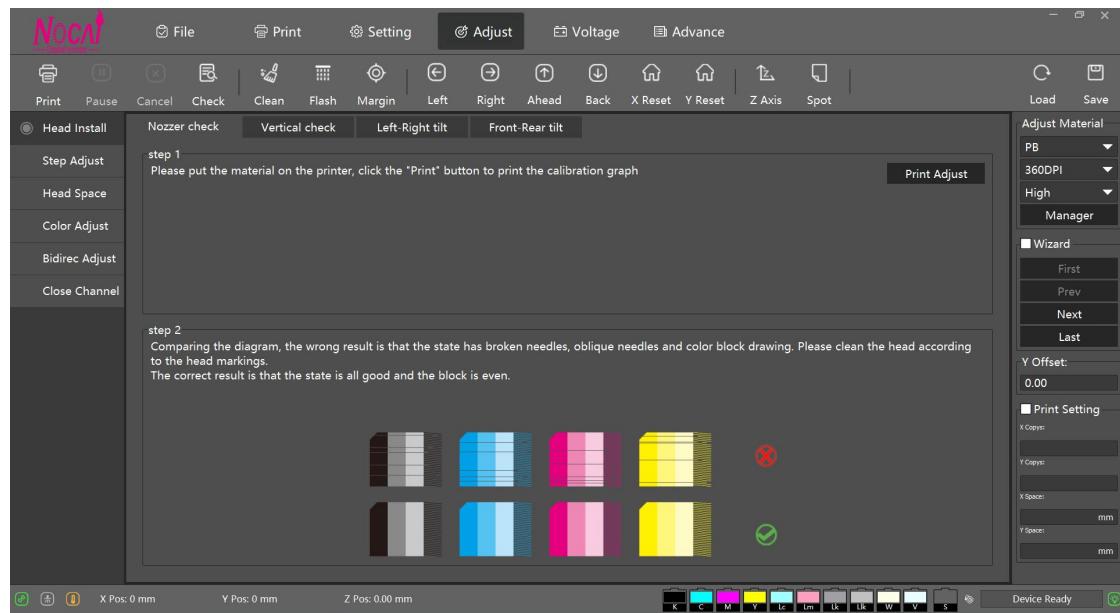
| 序号	名称		功能说明
1	Head install	Nozzle check	Check whether the nozzle is good or not
		Vertical check	Check if the nozzle is tilted
		Left-right tilt	Check that the entire nozzle plane is parallel to the horizontal plane
		Front-rear	

|		tilt	
2	Step adjust		Calibrate the reference step parameters and fine-tune the step parameters for different pass modes
3	Head space	Horizontal calibration	The horizontal spacing between printheads
		Vertical calibration	The vertical spacing between printheads
4	Color adjust		Calibration of the longitudinal and horizontal positions of each channel of the printhead
5	Bi-direction adjust		Calibrate bidirectional offsets at different speeds of bidirectional printing

5.4.1 Nozzle Check

Click"Print Adjust", the system will print the graph, as the following:
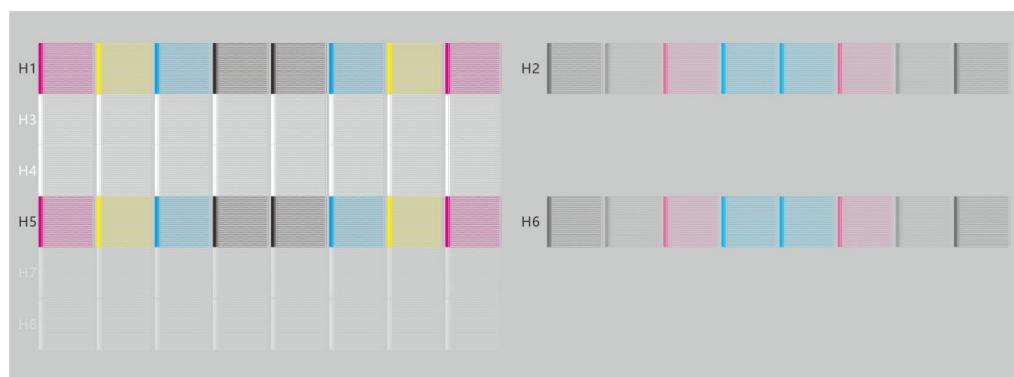
The normal and abnormal conditions of the black status graphic are partially enlarged, as shown in the figure below:


正常情况下喷头状态图
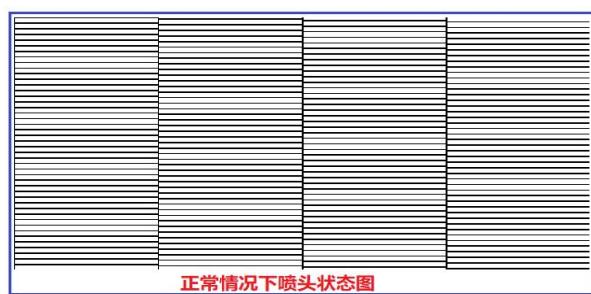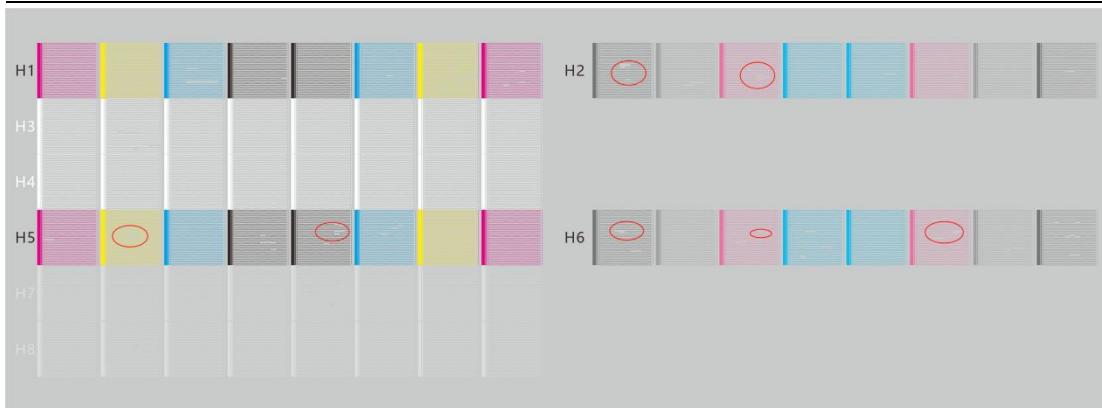
The status graphic in the case of the above diagram may be blocked and needs to be cleaned until the inkjet is in the best condition.

5.4.2 Vertical Check

Click"Vertical check", and the system will print the vertical check graphic, as the following：

喷头垂直方向位置正确校准图   喷头垂直方向有偏移校准图
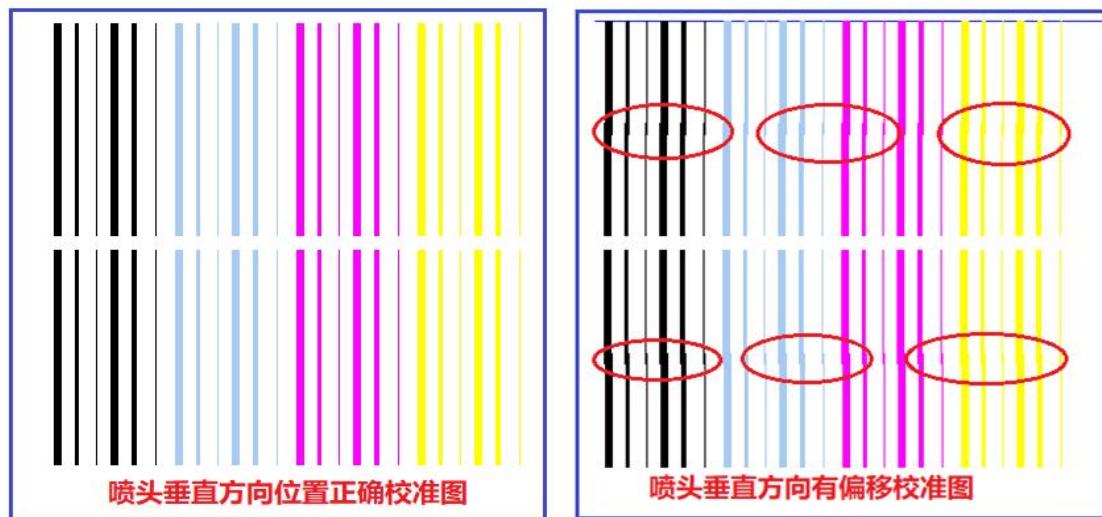
The calibration diagram on the right side of the above figure needs to be adjusted vertically until the vertical calibration diagram is correct.

5.4.3 Left Right Tilt

In the left-right tilt calibration interface, click Print. After confirming with the pop-up, the system will print the left-right tilt calibration image. As shown in the figure below:
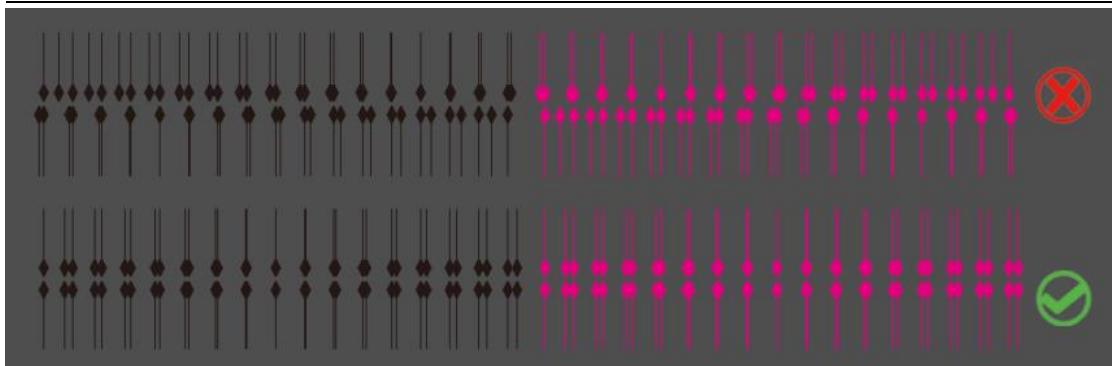
Compare with the schematic diagram, the wrong result is that the upper and lower parts of the calibration diagram coincide with each other in the same vertical position, please adjust the corresponding left and right tilt or adjust the left and right tilt of the base plate according to the printhead mark. The correct result is that the upper and lower parts coincide in the same vertical position.

5.4.4 Front-Rear Tilt

In the front-rear tilt calibration interface, click Print. After confirming with the pop-up, the system will print the front-rear tilt calibration image. As shown in the figure below:
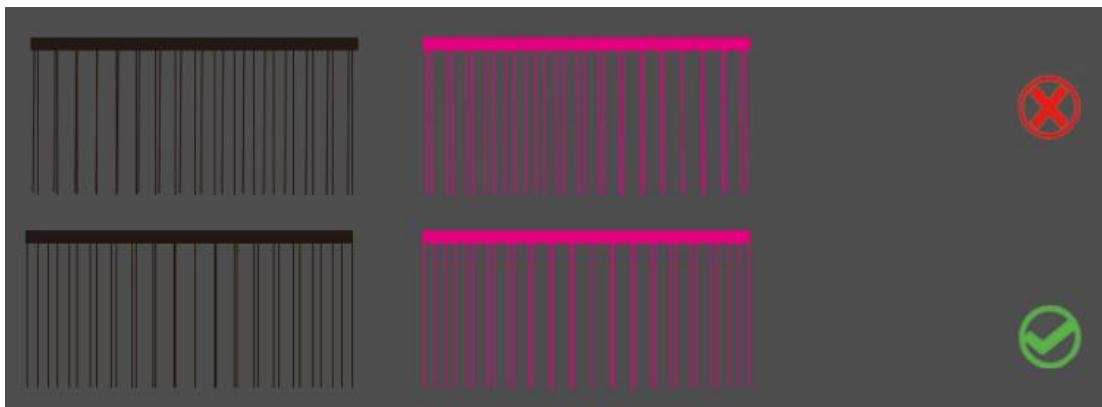

The diagram shows the incorrect result, where the calibration chart vertical lines intersect. Adjust the front-rear tilt of the nozzle markings or the front-rear tilt of the base plate accordingly. The correct result shows the vertical lines parallel to each other.

5.4.5 Step Adjust

Click "Print Adjust" under the Baseline Step interface, and the system will print

the step calibration diagram as follows：
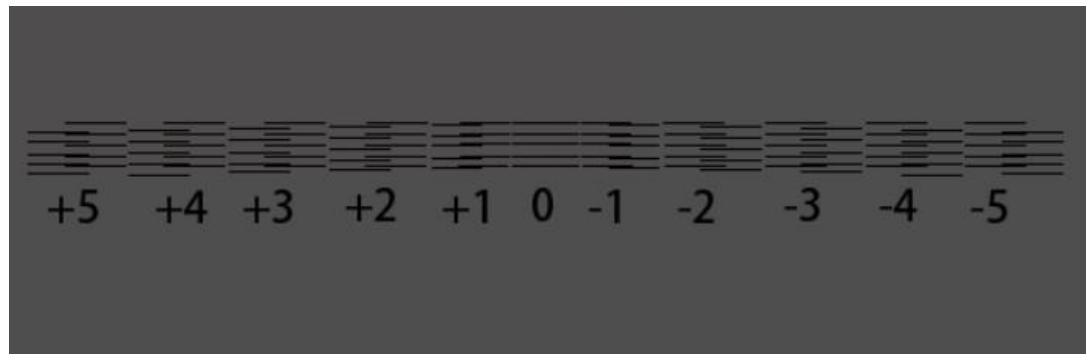
  Compare with the schematic diagram, the wrong result is that the calibration line and the guide line coincide with the calibration diagram are not at the 0 position, please enter the value on the right side of the "Print" button according to the value of the coincidence position of the calibration line and the reference line, and then click the "Calculate" button to calibrate.

  The correct result is that the calibration line and the guide line coincide at position 0.
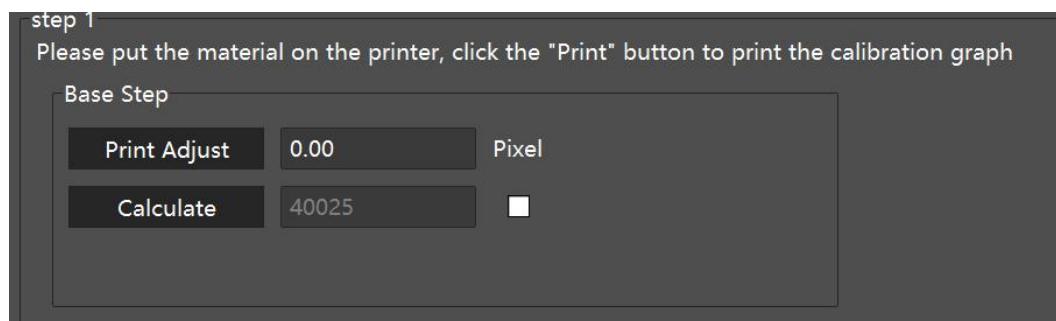
5.4.6 Horizontal Spacing Calibration of the Printhead

Click "Print Adjust" of the printhead horizontal spacing calibration interface and the system will print as follows：
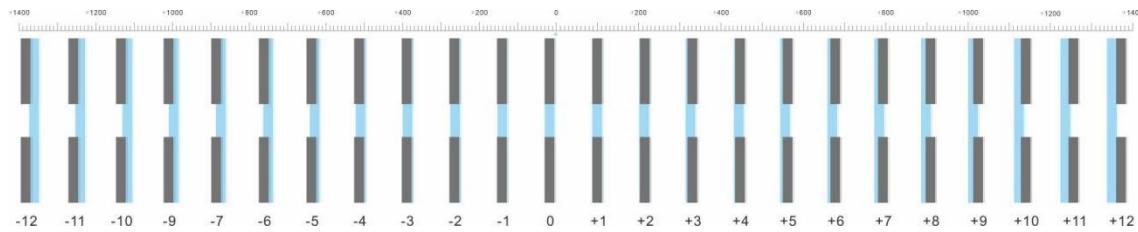
  Compare the schematic diagram, the wrong result is that the calibration line and the reference line coincide with the calibration diagram are not at the 0 position, please add or subtract on the original basis according to the value of the coincidence position of the calibration line and the reference line, and then

enter it in the corresponding input interface marked by the corresponding printhead.

The correct result is that the calibration line and the guide line coincide at position 0.

Horizontal L		Horizontal R		Vert Adjust			
step 1 Please put the material on the printer, click the "Print" button to print the calibration graph				Default value: 0.00		One-click Reset	Print Adjust
H1	0.0	H2	1345.0	H3	2691.0	H4	4035.5
H5	0.0	H6	1346.0	H7	2689.0	H8	4038.0
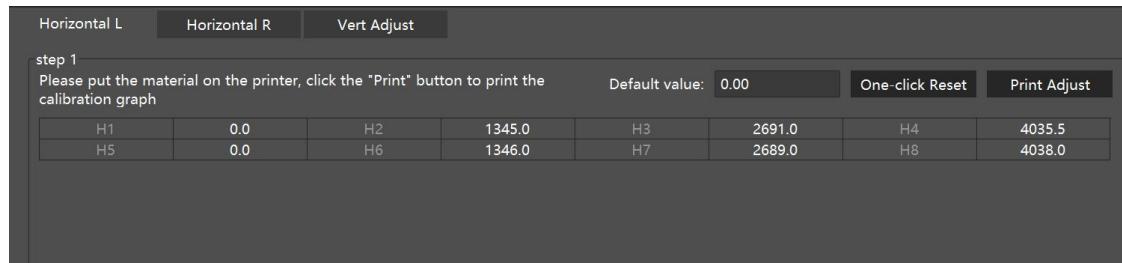
5.4.7 Vertical Spacing Calibration of the Printhead

Click "Print Adjust" of the Vertical Spacing Calibration interface of the printhead, and the system will print it as follows:
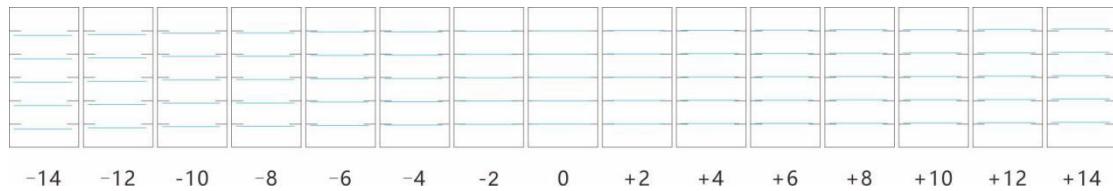
| −14 | −12 | −10 | −8 | −6 | −4 | −2 | 0 | +2 | +4 | +6 | +8 | +10 | +12 | +14 |

Compare the schematic diagram, the wrong result is that the calibration line and the reference line coincide with the calibration diagram are not at the 0 position, please add or subtract on the original basis according to the value of the coincidence position of the calibration line and the reference line, and then enter it in the corresponding input interface marked by the corresponding printhead.   The correct result is that the calibration line and the guide line coincide at position 0.

Horizontal L		Horizontal R		Vert Adjust			
step 1 Please put the material on the printer, click the "Print" button to print the calibration graph				Default value: 0.00		One-click Reset	Print Adjust
H1	0.0	H2	1.0	H3	797.0	H4	1594.0
H5	2393.0	H6	2392.0	H7	3482.0	H8	3400.0

5.4.8 Bi-direction Adjust

Click "Print Adjust" in the bi-directional calibration interface, and the system will print it as follows:
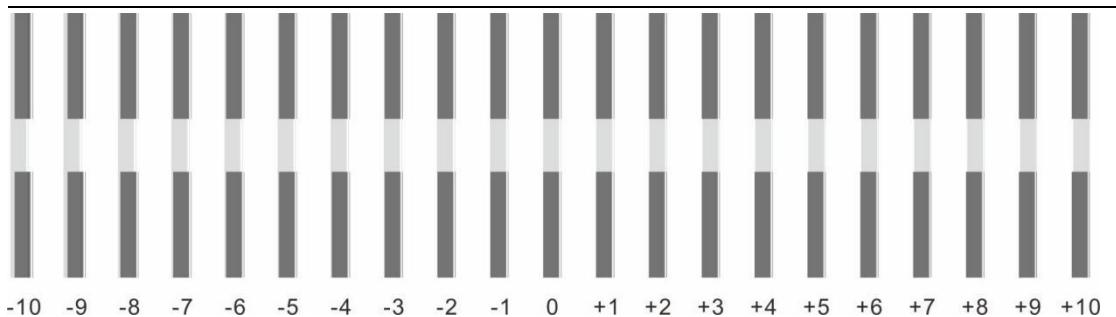
Compare with the schematic diagram, the wrong result is that the calibration line and the reference line coincide with the calibration diagram are not at the position of 0, please add or subtract on the original basis according to the value of the coincidence position of the calibration line and the reference line, and then enter it in the corresponding input box marked by the corresponding printhead.

The correct result is that the calibration line and the guide line coincide at the position of 0.
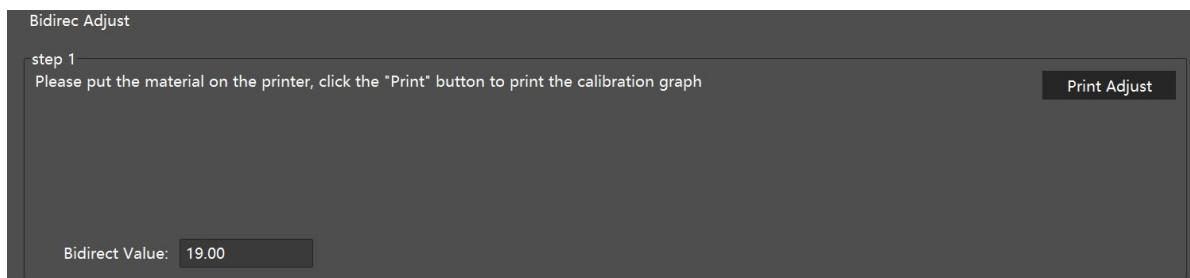
5.4.9 Color Adjust

Click"Print Adjust"in the color adjust interface, and the system will print it as follows：
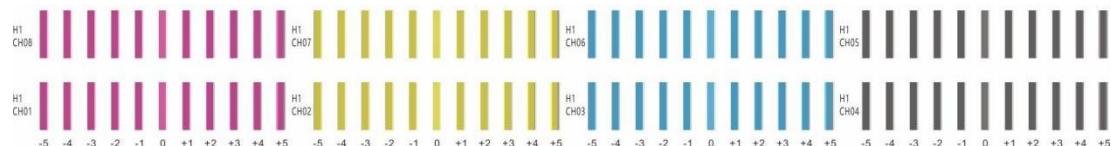
Compare with the schematic diagram, the wrong result is that the calibration line and the reference line coincide with the calibration diagram are not at the position of 0, please add or subtract on the original basis according to the value of the coincidence position of the calibration line and the reference line, and then enter it in the corresponding input box marked by the corresponding printhead.

The correct result is that the calibration line and the guide line coincide at the position of 0.

step 1
Please put the material on the printer, click the "Print" button to print the calibration graph   Default value: 0.00   One-click Reset   Print Adjust

<--	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
H01	0.5	0.0	1.5	0.0	1.0	0.0	1.5	0.0
H02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H03	0.5	-0.5	-0.5	-0.5	-0.5	-0.5	0.5	0.5
H04	0.0	-1.0	0.0	-1.0	-0.5	-1.0	1.0	1.0
H05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

5.5 Voltage

Click Voltage to enter the interface,as the following：
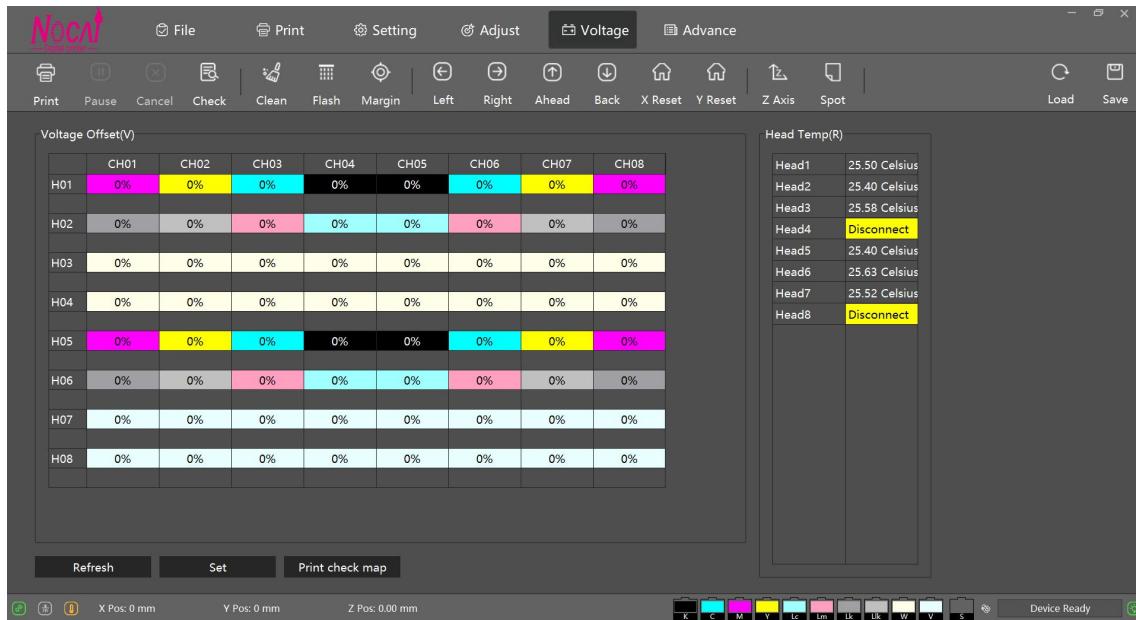
| NO.	Name	Function Description
1	Current temperature and voltage	Check the printhead, operating voltage of the board, and the voltage range is 1.4V when not working, and refresh the current temperature and voltage value
2	Set up the temperature	The working voltage offset (-5V~5V) of the printhead can be adjusted appropriately according to the actual situation of ink, and the voltage value of the effect can be set.

5.6 Advance

Click "Advance"to enter the interface， as the following:
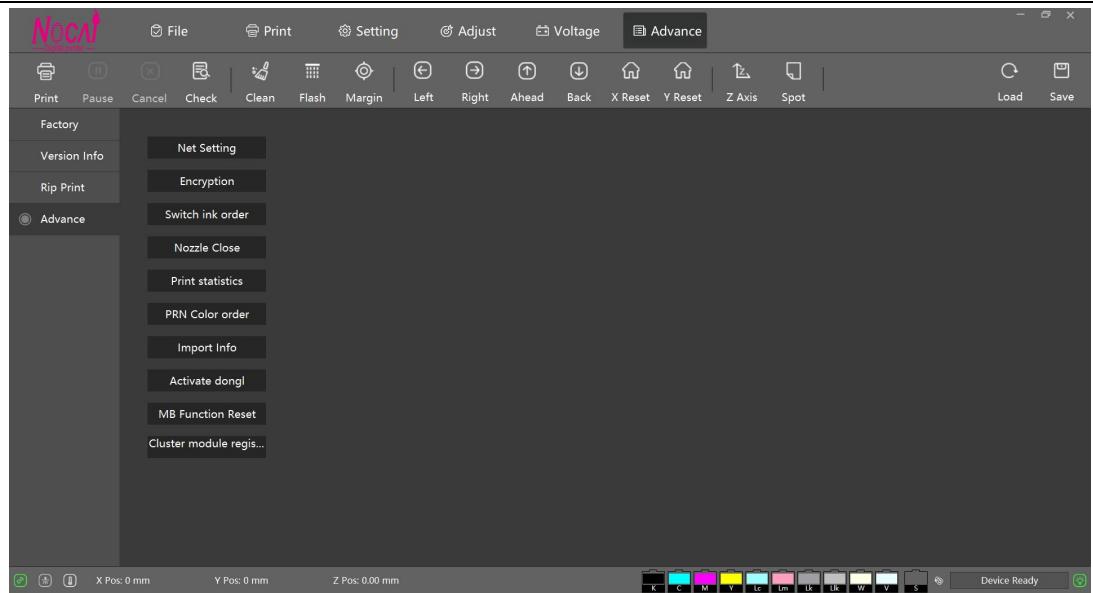
| NO.	Name	Function Description
1	Factory	The entry to the manufacturer parameter interface
2	Version Information	The information related to the board
3	Rip Print	Confirm the precision mode
4	Advance	Net setting, Encryption, Switch ink order, Nozzle close, Print statistic.

5.6.1 Version Information

Click Version Information on the "Advance" Interface and click "Details" to enter the interface as shown below:
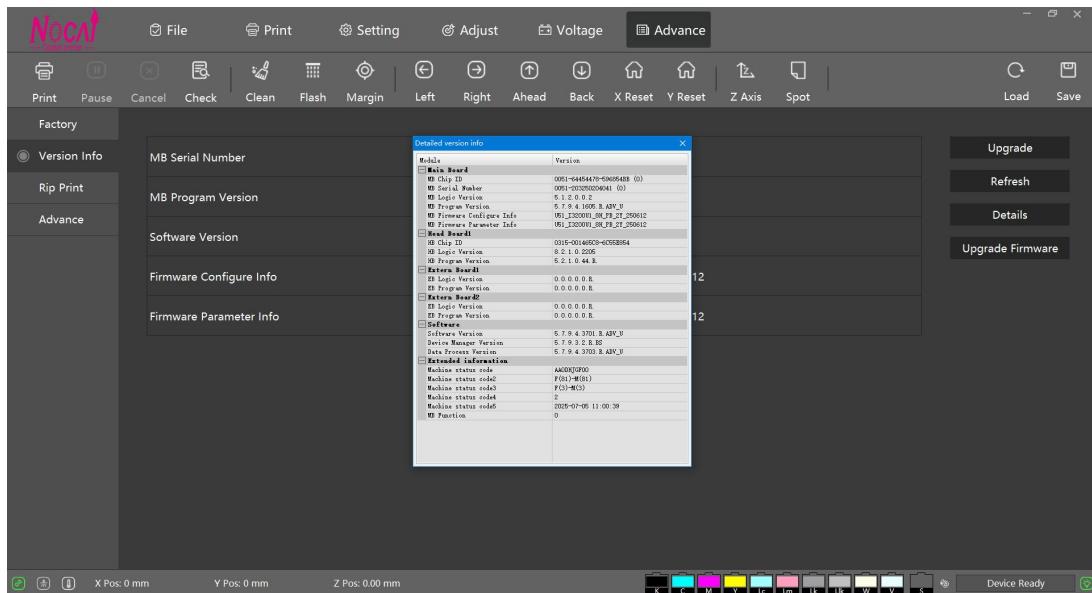
5.6.2 Rip Print

Click the Rip Print on the "Advance" interface to enter the interface as shown below:
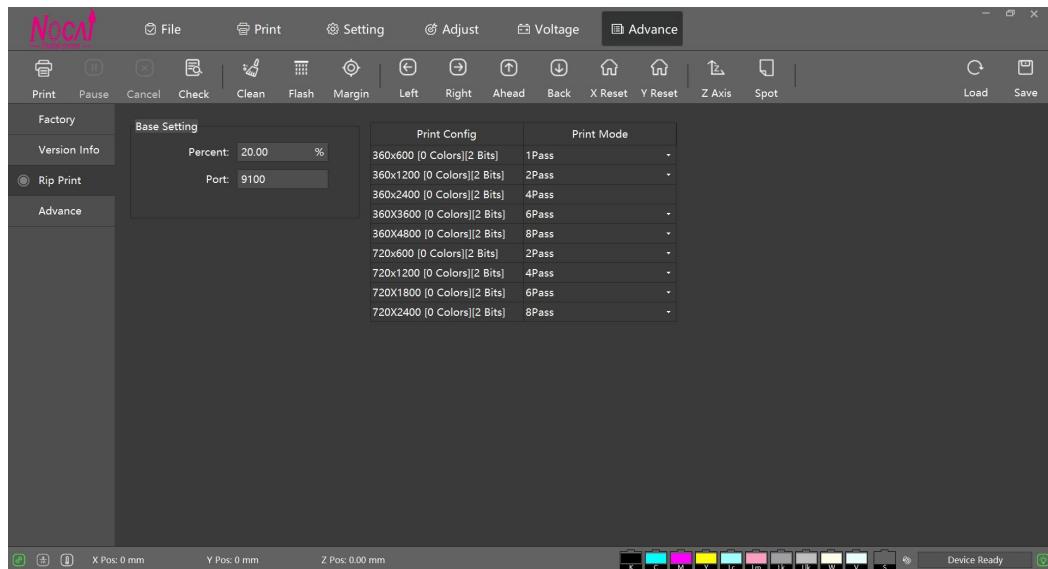
NO.	Name		Function Description
1	Base Setting	Percent	It starts printing when the RIP reaches the set value.
		Port	The default is 9100

5.6.3 Net Setting

Click the Net Setting button in the Advance interface, as shown below:
Different communication methods can be selected according to the board communication interface, such as network communication mode, the TCP communication needs to set the IP address
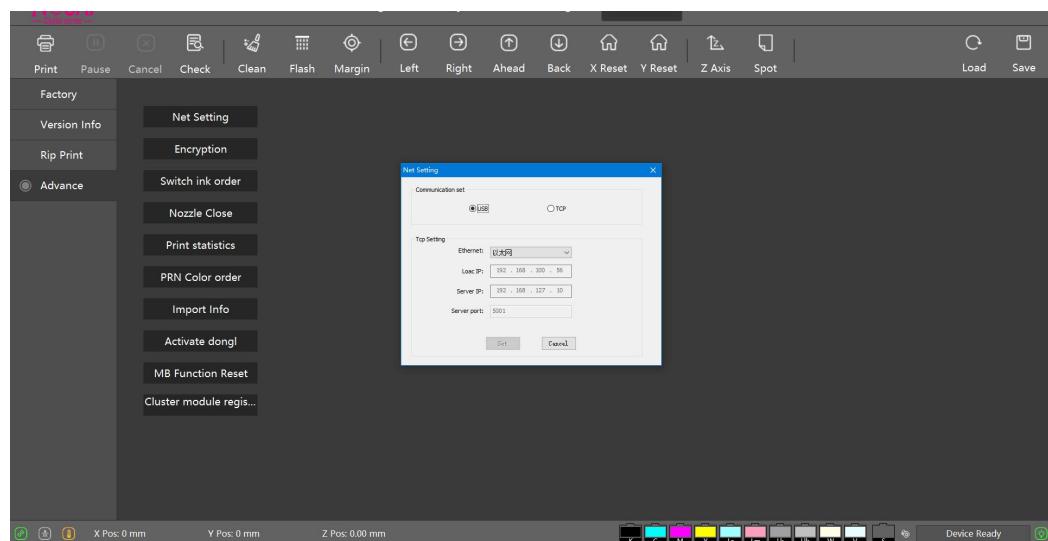
5.6.4 Encryption

Click the "Advance", and then click "Encryption" to pop up the following prompt interface：

You can delay the encryption management (Extension) and set up the language.
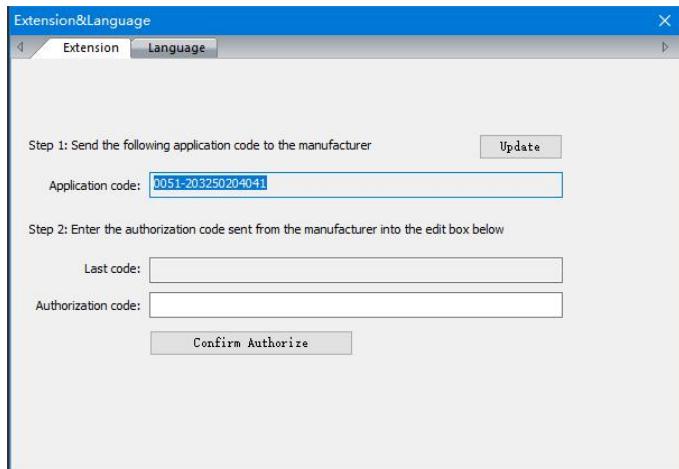
| 序号	名称	功能说明
1	update	Generate the application mode automatically for the current mainboard.
2	Application code	The authorization code generated by the manufacturer according to the application code and the time of installment.
3	Last code	The authorization code of the last period at the time of installment, it will be empty when authorize it for the first time.
4	Confirm authorize	After entering the authorization code, click Authorize Now to authorize the mainboard.

5.6.5 Language Selection

Enter the Advance Interface, click "Language" and the following prompt box will pop up：
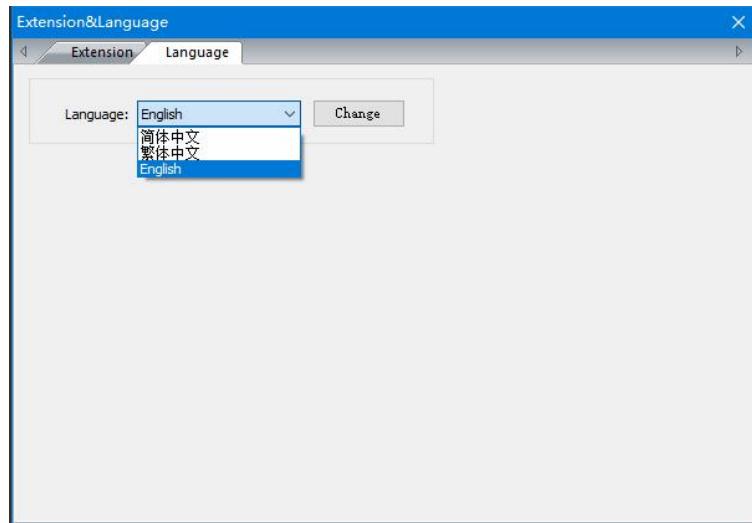
Select the language you want to use and click Change. The pop-up box will prompt you to restart the software after confirmation, and the software will show the selected language.

5.6.6 Nozzle Close

Click nozzle close button in the Advance interface and it will enter the following interface：
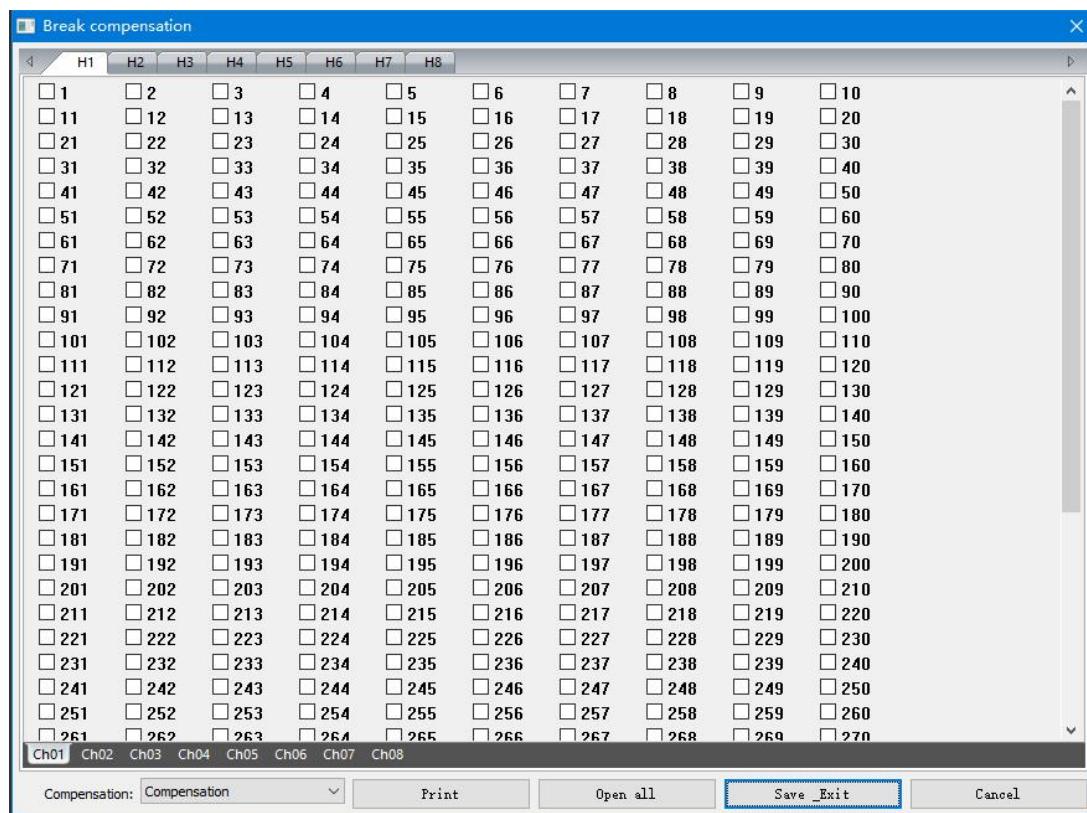
NO.	NAME	FUNCTION
1	Compensation solution	Select the solution
2	Print (check)	Check the status of the broken hole of each nozzle
3	Open all	Open all the nozzle/Close
4	Save _Exit	Save the current settings and exit the setting
5	Cancel	The current settings are not saved, and exit the setting directly.

Click the right on the setting interface, and it will pop up a menu, as shown in the figure below：
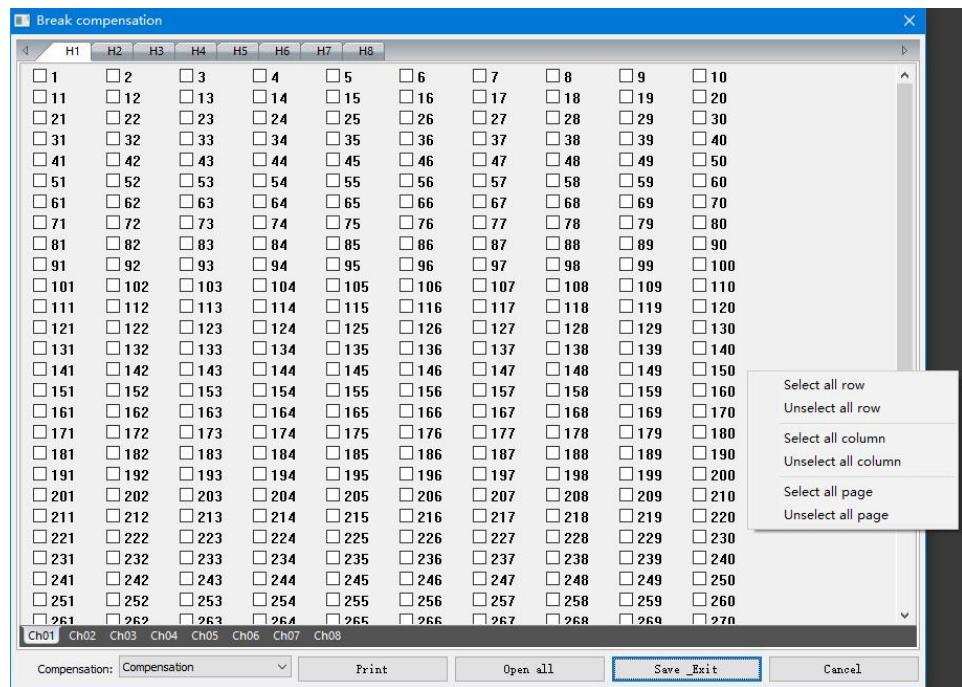
NO.	NAME	FUNCTION
1	Select all row	Select the entire row
2	Unselect all row	Deselect the entire row
3	Select all column	Select the entire column

| 4	Unselect all column	Deselect the entire column
5	Select all page	Select the entire page
6	Unselect all page	Deselect the entire page

5.6.7 Switch Ink Order

Click the " Switch Ink Oder"button in the Advance interface, it will display the following prompt box:

Switching between two channels of the same nozzle changes the ink output.

5.6.8 Print Statistic

Click "Print Statistic" in the advance interface and and it will enter the following interface：
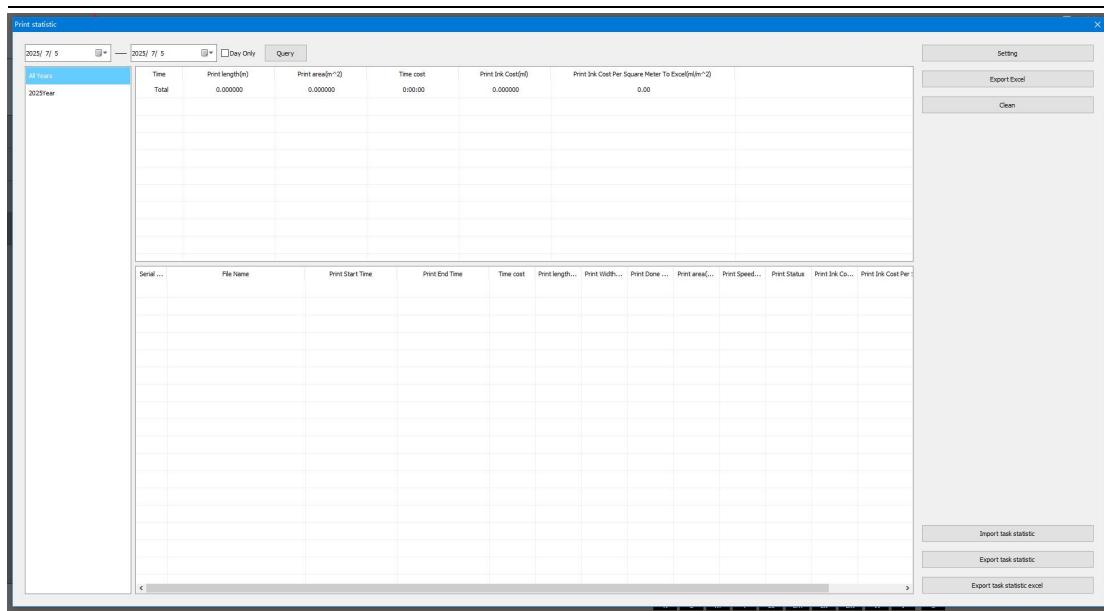
5.7 Log

Click the "Log" button in the right-top of the interface, and it will enter the following interface:
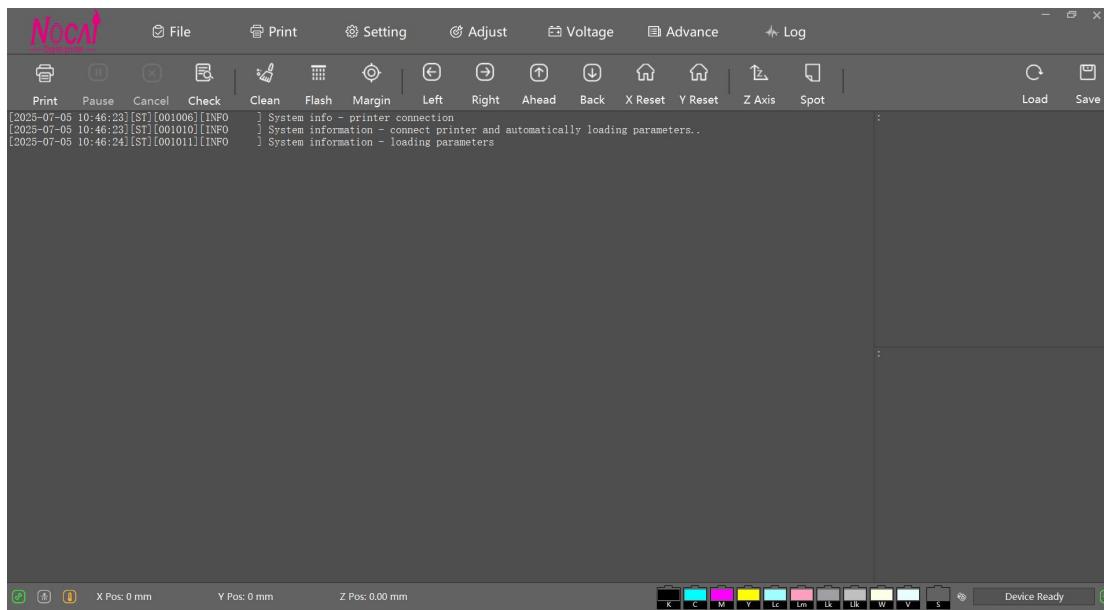
You can see the operation, especially when there is an error or fault, and you can know what kind of error message is generated by viewing the debugging information, so as to solve the error specially.

5.8 Quick Button

Icon	Function
Print	Click the Print button and print the selected files
Stop Continue	Stop/continue print button to pause or resume the print job Keyboard shortcut: Space
Cancel	Stop printing
Check	Check the printhead and print the state graphic
Flash spray	Start/Close flash spray
White edge	Positioning button for white edge, the position of X axis is the white edge value
Direction buttons	Direction movement button, move left, move right, feed, return (double click for continuous movement) Shortcut key: Ctrl+direction keys
X reset	X-axis reset button
Y reset	Y-axis reset button Special operation: The Y-axis is operated at the position of 0 and reset 3 times, and it will enter the limit reset.
Z axis	Control panel of Z-axis, which can perform Z-axis control operation and measure the height
Spot color	Control panel of spot color in order to control color channel data
Stepping- Stepping+	Step Fine Adjustment Button: Step fine adjustment can be performed during printing.
Bidirectional- Bidirectional+	Bidirectional Fine Adjustment Button: Bidirectional fine adjustment can be performed during printing.

The Z-axis interface is as follows:
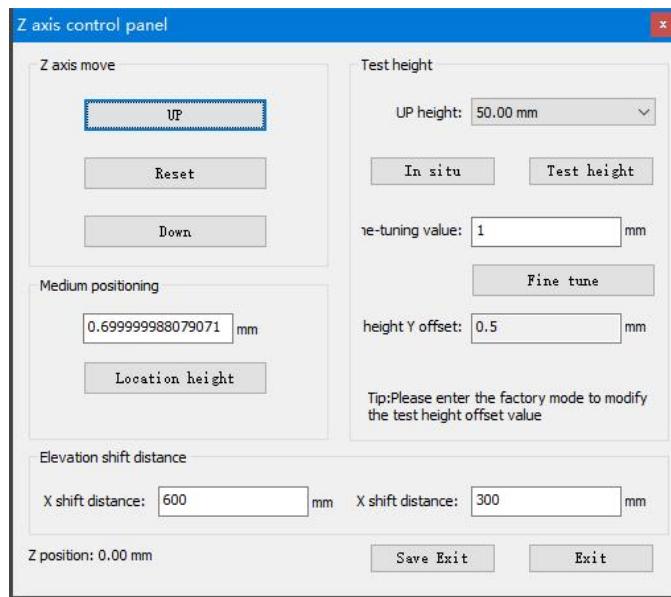
NO.	Name	Function
1	Z axis move	Move, rise, fall and reset of Z axis
2	Medium positioning	The height is positioned, and it will move to the height of the media after initialization
3	Test height	For large, flat surfaces without bumps or depressions: Directly click to measure height. If the measured height is deemed too low and unsafe, click 'Spin' button to raise the cart slightly.
4	Elevation shift distance	Move to the designated position using the offset values to measure the height: If X > 0 and Y > 0: the X and Y axis will move to the specified position before measuring the height. If Y = 0: The system will not move the Y axis.

After adjusting the height of the same material, note it down. For the second print, you can directly input the medium positioning and click the positioning height.

After adjusting the height, it is best to move the cart completely on the surface of the material before printing the product, so as to prevent the protruding parts of the material from scratching the nozzle during printing. For some materials that will be deformed during printing, the height should be appropriately increased.

The dedicated Spot Color interface is shown below:
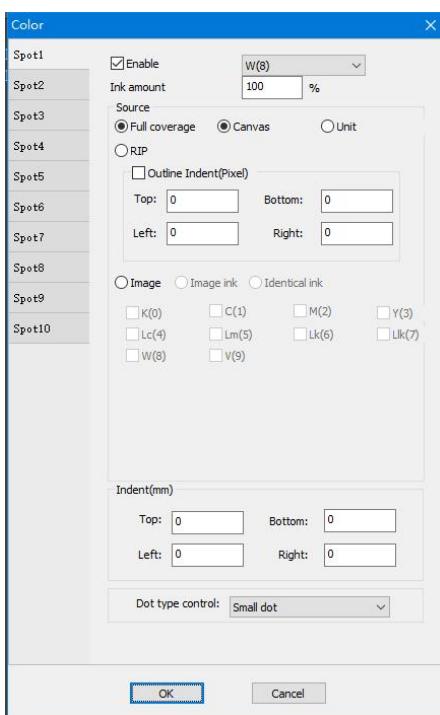
Function Description: This feature enables process the software of existing channel data within PRN files.

Specific function：

Special colors 1-10 indicate 10 PRN data channels

Enable, check to activate, and select the specified PRN channel (the number of supported channels is determined by firmware configuration).

The term 'Full Image' (RIP) refers to the data source for the selected PRN channel, where the software generates color blocks based on the PRN size to represent

the selected channel, with a scale of 0-100%. 'RIP' indicates data from the PRN file

that the software does not process, while 'Image' denotes data from the selected

PRN channel that is copied from other PRN channels.

Indent applies a parameter-based pixel indentation around selected PRN

channel data (effective in full-image mode).

5.9 Status Bar

Icon	Function description
	Normal connection status
	Disconnected status
	Flash spray active
	Flash spray inactive
	Normal temperature status
	Temperature warning status
	Abnormal temperature status
	Ink Status, Low Ink Detection, Secure Tank Verification
	Ink System Reset, Ink timeout icon blinking: Click to reset for auto feed
设备就绪	Operating Status Display
	System Normal Operation
	System Warning Condition
	System Fault Status
	Limit status display. When the limit status signal changes, it is displayed.
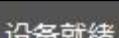
Install RIIN Software

6.1 Install the software

Extract the software package to a folder of the same name. Run the .exe file. Click "Next" to proceed.

Click 'Browse' to select the destination path. Make sure 800MB disk space is available, Click 'Next' to proceed after confirmation".
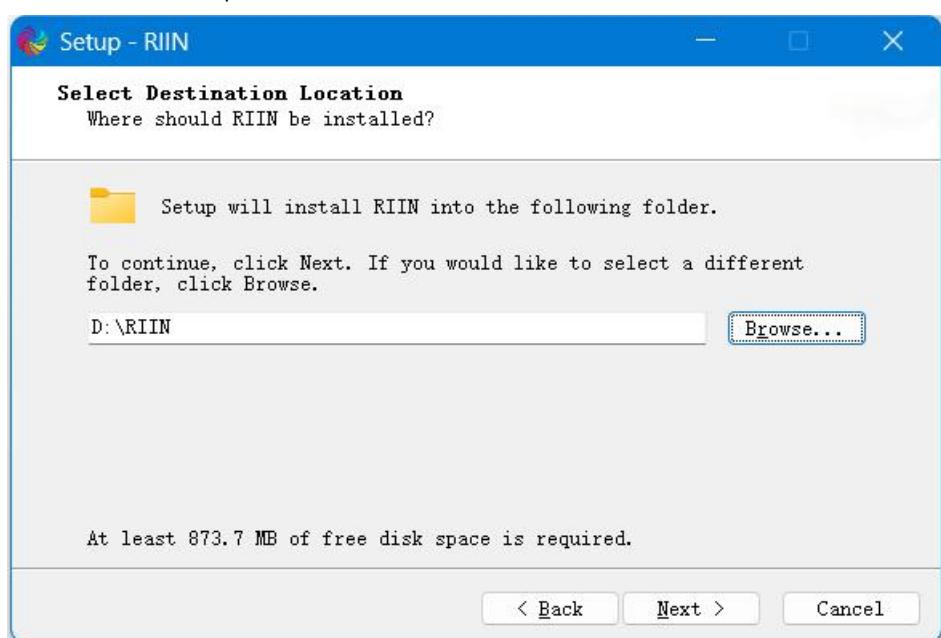
Click 'Browse' to select a folder for program shortcuts. It is recommended to use default location (click 'Next' directly)".
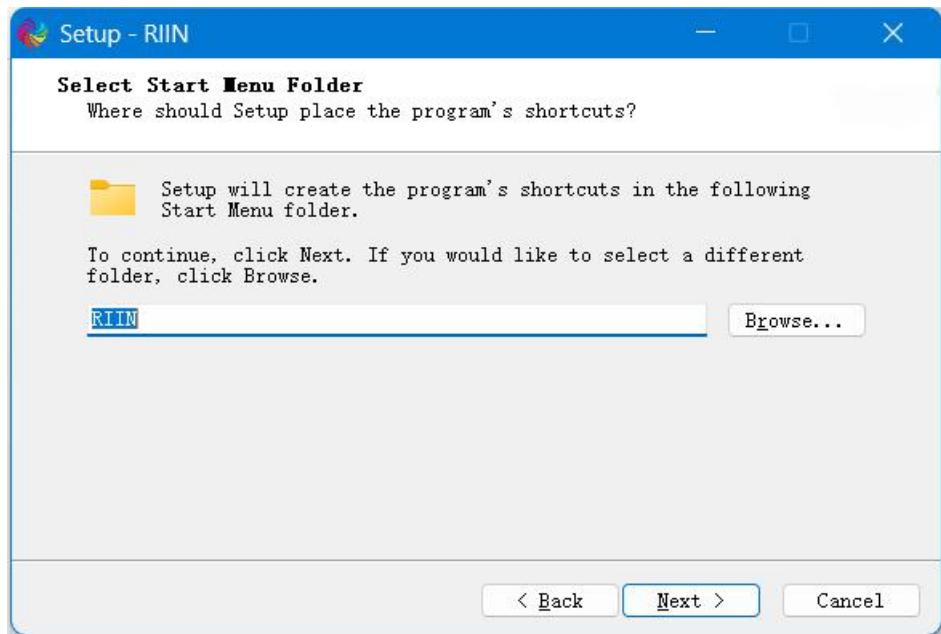
Create desktop shortcut or not. Keep defaults and click 'Next'.
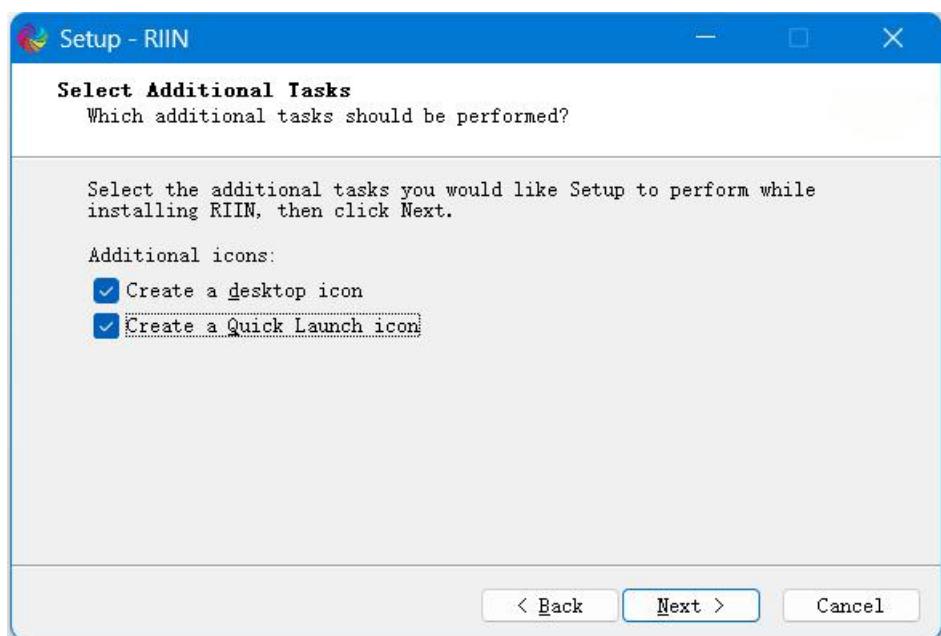
After installation is complete, click "Finish" and then click "Finish" again.
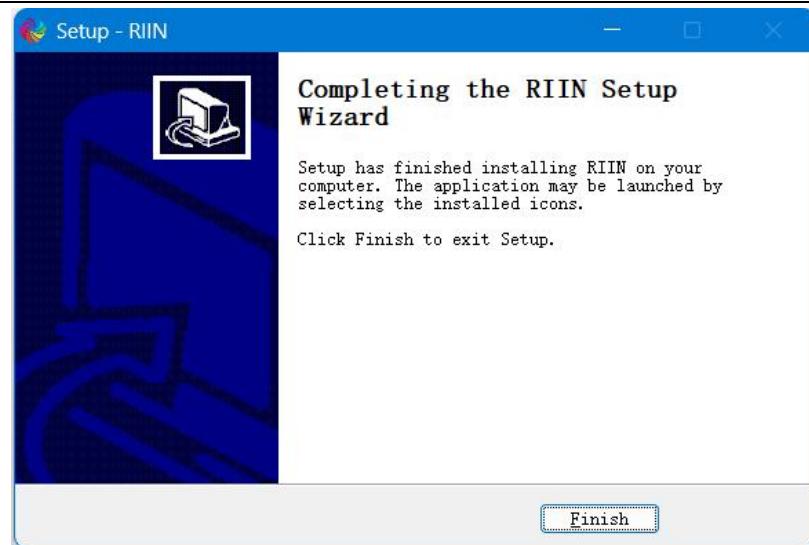
Important Notes:

The installation interface of RIPrint software may vary slightly across versions, but the installation steps remain largely the same.

If initial installation fails: Uninstall prior version completely and install it again.

6.2 Printer setting
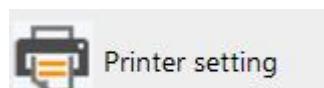
Click"Printer setting" shortcut key: Ctrl+Shift+P）. The program will display the Printer Settings dialog as shown below：
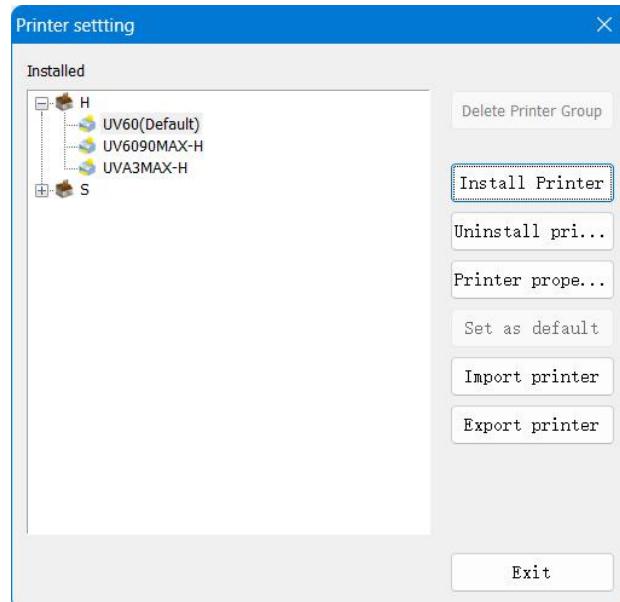
By default, the printer list already contains a default printer, which is the program's built-in printer driver and supports file output ports.

Install the printer:

If no suitable printer exists in the installed printers list, add your device manually. Click the "Install Printer" button, the Install Printer dialog will launch as shown below:
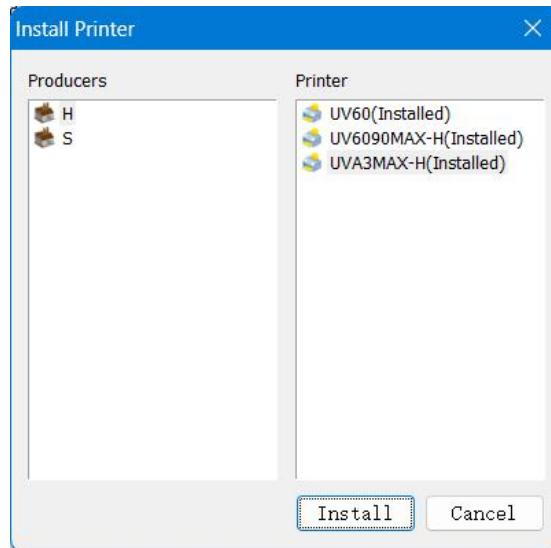
Normally, if you have officially purchased RIPrint software, the software supplier should have written the required drivers for you.

The printer you need should be in the list of printers from the corresponding manufacturer. Select it and click the "Install" button. The newly added printer will appear in the installed printer list.

Set printer properties: Select the printer you want to configure, then click the "Printer Properties" button. The program will display the printer properties dialog box, as shown in the figure below.
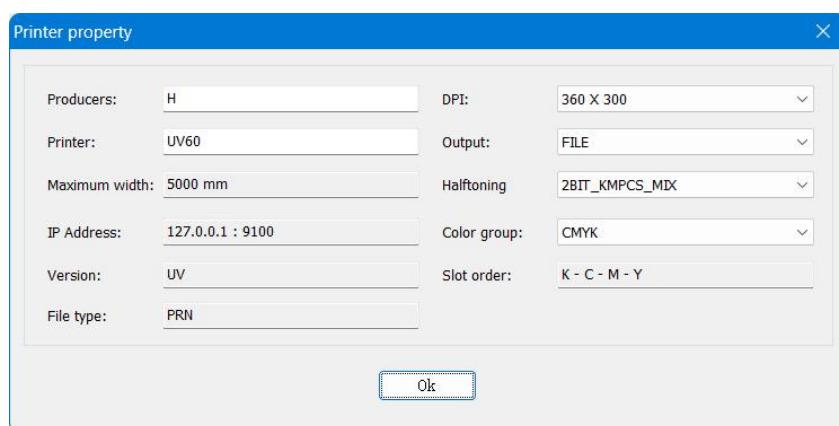
Here, you can view the printer's output resolution(DPI), color group, output method, and other parameters. After viewing, click OK to exit.

Delete printer: If you want to remove an unused printer from the installed printer list, simply select the printer and click "Delete Printer". All information about the printer will be deleted after the operation. Please proceed with caution.

Set as default printer: After configuring your printer, select the desired printer and click "Set as Default". The printer will be marked as the default. This completes the setup.

Note: If your driver changes any printer settings, you need to reinstall the printer and set it as the default printer to use it normally.

6.3 Add Job

1."New" is to create a new canvas.

2. "Save" is to save the current canvas item with the current name and directory.

3. "Print" is the entry point to the print confirmation interface

4."Import" is to import the graphic to the canvas.

5."Undo" This command undoes the last edit. The software supports multi-level undo.

6."Redo" This command redoes actions undone by the undo command.

7."Copy" Copies the selected image on the active canvas item.

8."Paste" Pastes the copied image onto the active canvas.

9."Delete" Removes selected images from the canvas.

10."Group" Combines multiple selected images into one.

11."Ungroup" Ungroups the combined image into individual elements.

12."Split image" Divides an image into customizable segments.

13."Fill" Applies user-defined fill values to selected vector primitives (rectangles,

ellipses, etc.)

14."Layout" Access to Typesetting Tools.

15."Display" It is the entry for toggling content visibility on the settings page. Settings include: whether to show the ruler and select its unit, whether to display snapping guides/primitives, snapping distance adjustment, whether to show thumbnails/borders/dividing lines, reminder setup for image import, and language selection.

16."Tools" is the entry point for clearing cache, setting size error compensation, and other features.

Click"New"can add files, （Pull the image into the frame directly）as shown above：
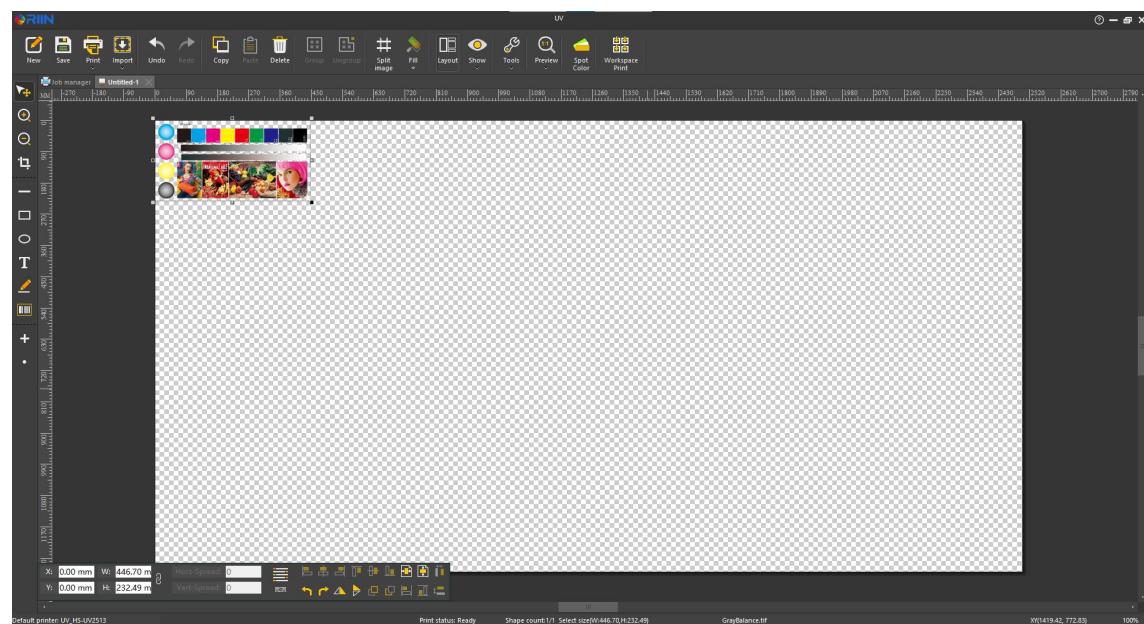
6.4 Print

Click 'Print' in the menu bar will launch the Print Confirmation dialog, as shown below:
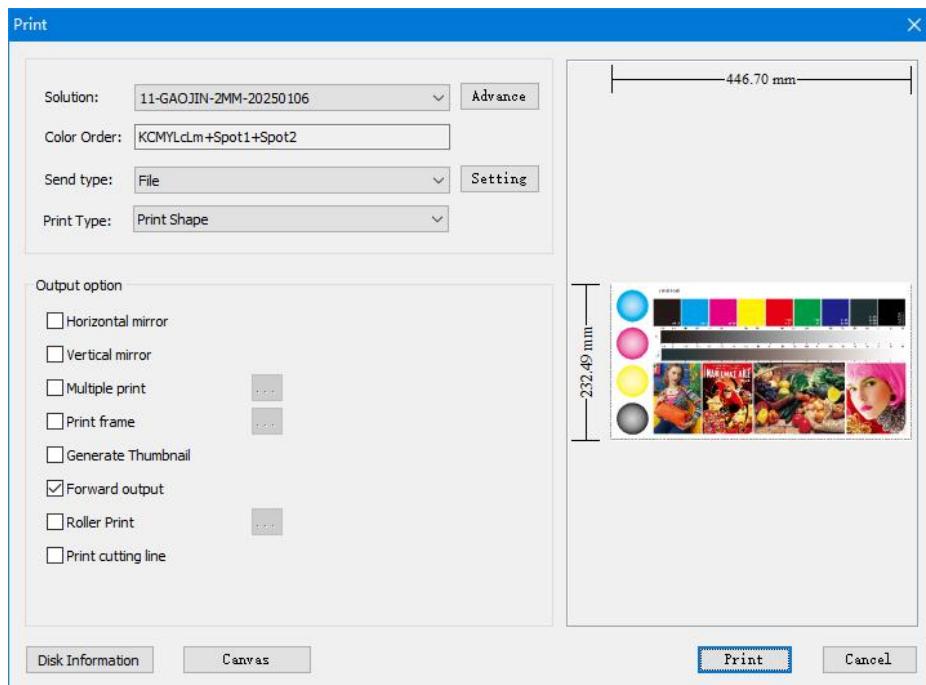
Here you can set the parameters for printing：

1. Print scheme: Select a print scheme from all newly created ones for your printing needs.

2. Send type：Print to the file port（Send type：FILE）or print to the network port（Send type：TCP/IP）。Print to the file port is to generate PRN file firstly and then open it by Printer Manager. At last, print it. Print to the network port is to process the picture and print at the same time, there is no PRN file. Simply keep Printer Manager running in the background with parameters configured.

Print to the file port，click"Print"，the interface is as shown below:
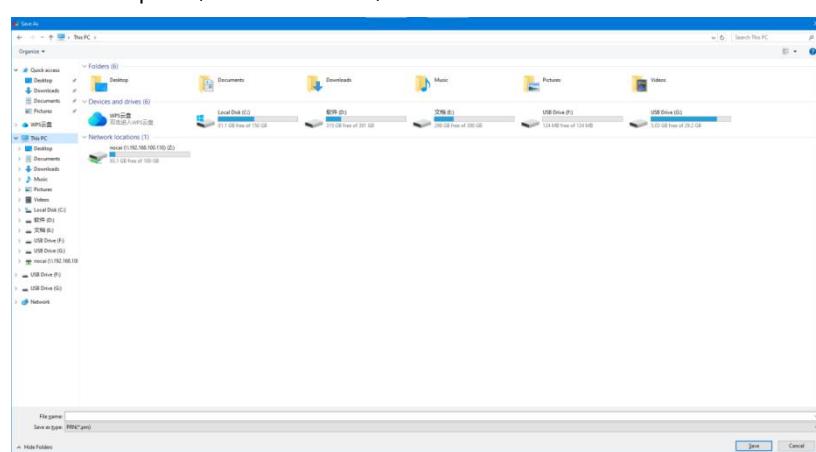
Maintenance Methods and Precautions

7.1 Maintenance method of printhead

①There is a board chip inside the print head, which is directly plugged in with the print head flat cable. Pay close attention to the contact part between the print head flat cable and the print head—ink dripping/leakage must be prevented. If water or ink is found on the print head flat cable or the print head, turn off the machine immediately, remove the components, dry them thoroughly, and then reinstall them to test whether they are burnt out. Never turn on the machine with water/ink present, otherwise the print head and print head board will be burnt.

② The print head flat cable is tightly connected to the print head socket during use and is not easily plugged in or out. Over time, issues such as contact oxidation, damage, misalignment, or contact wire shorting may occur. Therefore, when plugging in or out the print head flat cable, carefully check for these problems. Resolve the issue (e.g., clean oxidized contacts) or replace the flat cable; otherwise, the print head or print head board may be burnt.

③When not using the machine you must maintain the printer once a day, power-on it once and print the test strip, if the test strip is not complete, please clean automatically to ensure that the test strip is normal. Use the cleaning solution 3-5 drops of ink in the cap top when more than 3 days of vacation unattended. And then combine and seal the printhead and the cap top,which will protect the printhead.

④After ink is added to the ink cartridge, use the method of "adding small amounts frequently". Once opened, ink has a shelf life of 3 months; beyond 3 months, it will deteriorate, which affects print quality and causes print head clogging. It is recommended that users stir the ink evenly regularly and turn on

the white ink stirring switch at the ink cartridge when using the machine.

⑤The optimal height of the print head from the printing material is 2-3mm. Confirm the printing height in a timely manner to avoid scratching damage to the print head.

⑥ Sheet metal of the cart must be cleaned regularly to avoid effects on the printhead.

⑦Avoid printing transparent materials that can cause printhead clogging.

7.2 Ink station maintenance

During ink suction or cleaning (when the print head is combined with the ink absorption pad), ink may drip inside the ink station or onto the sheet metal. It is essential to wipe down these areas with isopropyl alcohol regularly or promptly to keep the ink station clean.

7.3 Magnetic grid maintenance

The magnetic grid strip, a precision control component mounted on the crossbeam, is designed to regulate printing accuracy. When the grid edge bulges, it may be scraped by the magnetic sensor during operation, causing direct scratches. This can lead to reduced accuracy or data loss during subsequent use, potentially triggering cart collisions. Therefore, always verify the grid's position during machine operation: ensure it remains centered within the sensor's detection range and is free from friction. In dusty or contaminated environments, particles may adhere to the grid strip, causing positional errors. Promptly clean the grid using alcohol to maintain its integrity. Replace any scratched grids immediately to prevent positional misalignment. Never use magnetic objects to touch the grid to avoid demagnetization.

7.4 Guide rail maintenance

The guide rail contains cart guide rail. There is lubricant between guide rail and slider, please add lubricant regularly in order to avoid corrosion. If you find that there is black oil on it, you need to use alcohol to wipe firstly and then add lubricant.

7.5 Suction platform maintenance

This printer is equipped with suction function, there are many dense holes on the platform to produce suction to the material on the platform, so please keep the platform clean, and avoid blocking the suction holes to cause the suction is not strong, or watery objects are sucked into the air holes to hurt the fan.

7.6 Replace damper

It is recommended to replace every 3 months.

7.7 Replace captop

It is recommended to replace every 3 months.

7.8 Shell sheet metal maintenance

Keep the shell clean, if there is any droplet, please scrub it to avoid ink corrosion on the outer paint surface of the sheet metal.

Troubleshooting Common Faults

8.1 Common examples of ink-supply suspension problems

Test strips are complete
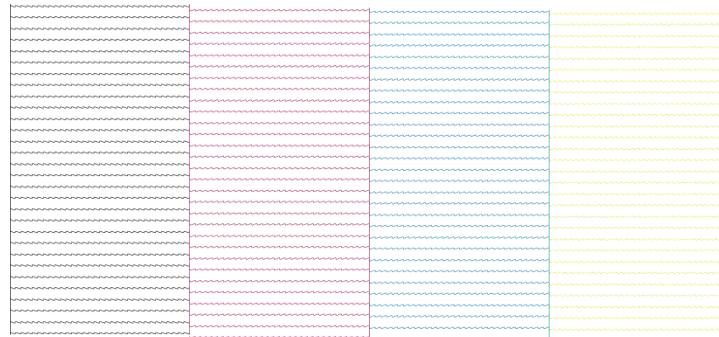
Partial ink break in test strip

Note: The partial ink-supply suspension problem of the test strip is caused by the corrosion of the ink to the print head. You can choose automatic cleaning. If it cannot solve the problem, you can continue to use it without affecting the print effect.

Severe partial ink breakage in test strip
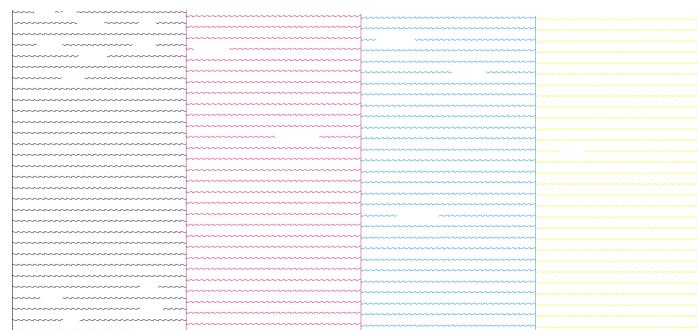
Solution:

1.Use a syringe to draw the damper to check whether the ink can flow out normally and eliminate the possibility of blockage and air leakage. If there is a problem, replace the damper.

2.If the ink is still blocked after replacing the damper, check the ink tube and the damper jam head.

3.Clean the print head manually to ensure that the nozzle is not blocked.

Problem description: The above problems generally occur due to damper and printhead blockage. Please check first.

Almost complete ink breakage in test strip
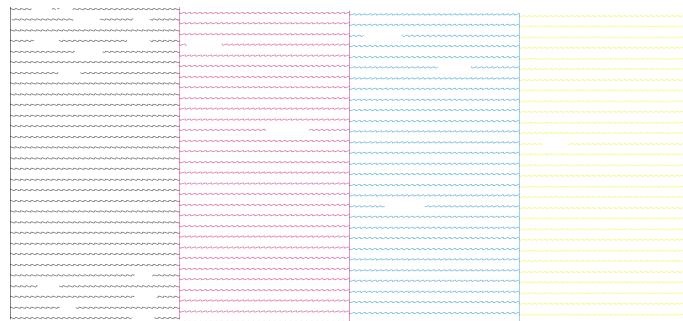
Solution：

1.Automatically clean and check if it can draw ink. If it cannot draw ink normally, replace the new captop or adjust the position again.

2.Check the printhead surface for ink residue. If there are single-color ink droplets, replace the corresponding damper. If there are multi-color ink droplets, check whether the doctor blade(scraper) can properly scrape the printhead mirror during automatic cleaning.

3.Replace the headboard.

Problem Overview： The above problems generally occur due to the ink entering the receptacle of head cable or the improper operation after replacing the printhead, resulting in a short circuit of the printhead, burning the head board or printhead, because the head will damage the head board, but the head board will not damage the printhead. It is recommended to give priority to replacing the printhead and the new head cable.

Color blending: large area blending
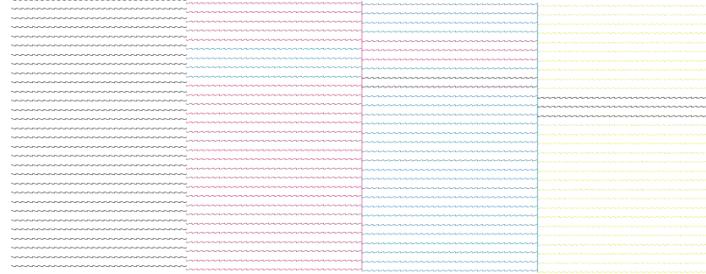
Solution：

　　1.First, perform an ink flush, then print a test strip to check if the color mixing improves. If not, inspect the printhead surface for ink residue. If there are single-color ink droplets, replace the corresponding damper. If multiple color droplets are present, verify during automatic cleaning that the doctor blade(scraper) properly contacts the printhead mirror.

　　2. Replace the printhead。

　　Problem Overview：When the above problem occurs, firstly check whether there is residue on the surface of the printhead.

Test strip ink offset
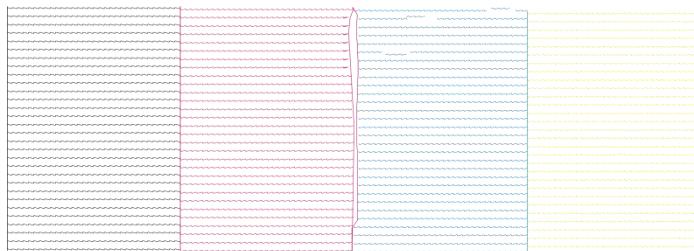
Solution：

　　1.Check whether the height of the printhead is within 2-3mm from the printing medium.

　　2.The printing environment is within the range of 15℃~30℃.

　　3. Check whether the captop can draw ink normally.

　　4. Mix the ink thoroughly and draw more than 10ml of ink from the damper. Clean the print head. If the problem persists, replace the ink.

　　Problem overview: The above problems occur. If there is no special change in the surrounding environment, the machine is usually left for a long time,

resulting in ink sedimentation.

8.2 No Ink Suction During Cleaning

Solution：

1.Pour cleaning fluid into the captop, then confirm whether the cleaning fluid can be suctioned out through the cleaning operation. If not, replace the ink suction pump.

2.Check if the connecting tube of the captop is disconnected or clogged; reconnect it or replace the tube if necessary.

3.If the captop is damaged or aged, replace it (Priority consideration).

4.Check that the captop and the printhead are correctly positioned; the captop must not seal the print head (Priority consideration), as shown in the figure below:

➡正确　　■ 喷头　■ 吸墨垫　　　　➡错误　　■ 喷头　■ 吸墨垫
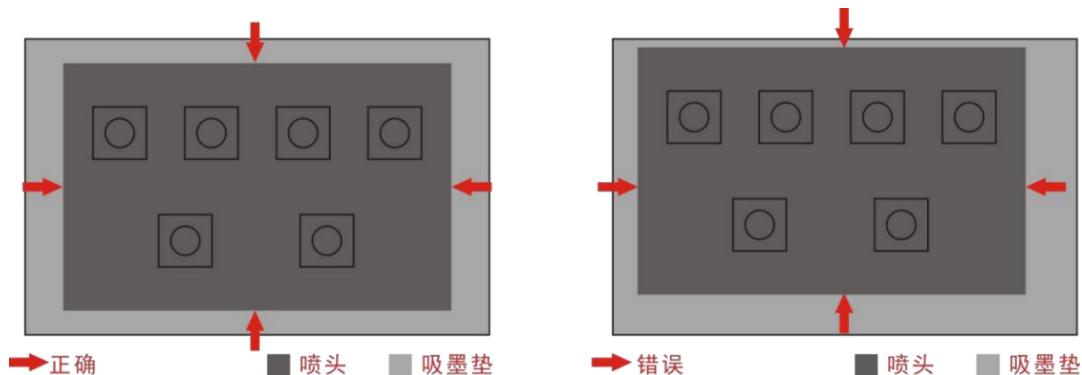
Adjusting the alignment position between the captop and the print head mirror surface requires patience. The square edge of the captop should generally be positioned within the edge metal plate of the print head mirror surface (this is the standard).

If it is positioned outside the edge metal plate (as shown in the top-right figure), air leakage will occur between the print head and the captop. This will prevent ink suction and make it impossible to adjust the test strip to a normal

state.

For the adjustment method, refer to the diagram.

5.The method for left-right and front-back fine adjustment of the **captop** is shown in the figure below:
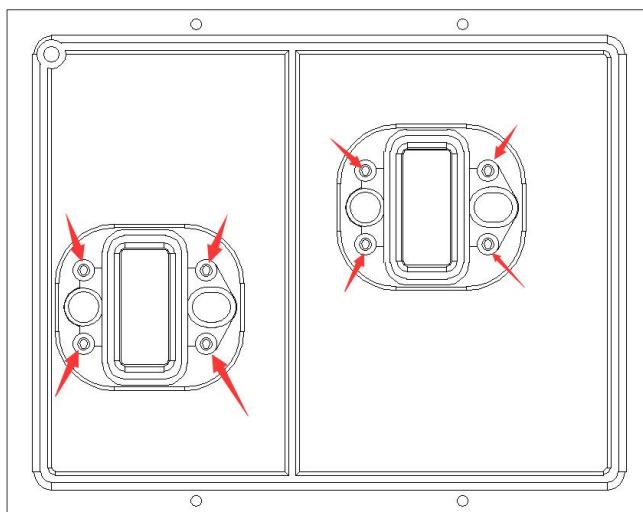
As shown in the above figure, adjusting the captop position is applicable to cases where inaccurate alignment occurs due to fine adjustment of the print head. Captop adjustment allows for large-range alignment movement and is easy to perform—simply loosen the fixing screws of the captop to make adjustments.

6.Front-back Fine Adjustment of the **Print Head**

Problem Overview: For the above-mentioned issues, misalignment of the print head may occur after long-term use of the machine, reinstallation of the print head, or installation of a new captop. It is necessary to adjust the front-back and left-right positions between the print head and the captop. The specific amount of misalignment must be determined by observing the alignment gap between the bottom of the print head and the captop.

After adjustment, perform automatic cleaning. During the automatic cleaning process, if there are ink beads on the print head mirror surface before the ink scraping action, it indicates that ink suction is normal.

8.3 Cart with great resistance

1、The cart moves to the middle of the machine to start, and the cart does not move to report an error.

1.1When the machine is turned on, move the cart by hand to see if it can be pushed easily, if so, please check whether the X-axis drive motor indicator light is on or flashing red to report error, and whether the base screw of the motor pulley is tightened.

1.2Check the cart board LED status; if unlit, replace its data cable.

1.3Replace the cart board.

1.4Check that the X-axis motor pulse signal line has these problems such as loose, broken, and aging problem.

1.5Replace the mainboard.

Problem Overview：Please check the hardware architecture firstly.

2、The cart moves to the middle of the machine to start, and then moves left to report an error

2.1Replace the cable of cart board.

2.2Replace the cart board.

2.3Replace the mainboard.(Highly unlikely)

Problem Overview：If the above problem occurs, the cart board cannot receive the instructions sent by the mainrboard normally.

3、The cart moves to the middle of the machine to start, and then it moves right to report an error

3.1 Check whether the light is on or not, and if not, it is recommended to replace the magnetic grid sensor.

3.2Whether there are obvious scratches on the magnetic grid strip, if any, it

is recommended to replace it.

3.3Whether there is ink, oil stains, or dust on the magnetic grid strip, if so, please wipe it with alcohol.

3.4Whether the magnetic grid strip is stuck in the middle of the magnetic grid sensor, centering left and right, up and down, moving back and forth without scratching.

3.5Whether the magnetic grid sensor is stuck in the slot.

3.6Replace the cart board.

Problem Overview：The above problem is because the cart has received the command from the mainboard, but the magnetic grid sensor cannot read data correctly.

4、During the printing process, the machine reports errors occasionally

4.1Whether there are obvious scratches on the magnetic grid strip, if any, it is recommended to replace it.

4.2Whether the magnetic grid strip has ink, oil stains, dust, clean it with alcohol.

4.3Whether the magnetic grid strip is stuck in the middle, left and right up and down centered, moving back and forth without scratching.

4.4 Whether the X-axis motor belt is loose.

4.5Whether the base screws of the motor cart are tightened.

4.6Replace the cable of the mainboard.

4.7Check whether the temperature of the X-axis drive motor is above 50 degrees, if so, reconnect the X-axis drive signal cable or check whether the X-axis drive motor is parallel to the transverse belt (note that below 50 degrees is within the normal range).

Problem Overview： The magnetic grid sensor can read the data, but there will be an error data feedback.

5、The cart moves to the middle to turn on, the ink cart moves to the left, then to the right, and crashes to the left after reaching the ink station, and returns to the middle to report an error.

 5.1 Check whether the origin sensor is offset or not.

 5.2 Replace the cart origin sensor.

 5.3 Replace the cable of the cart origin sensor.

 5.4 Replace the cart board.

6、The front and rear limit sensors are incorrect

 6.1 Pull up the front and rear limit sensor cables.

 6.2 Replace the front and rear limit sensor.

 6.3 Check whether the connection cable of the limit sensor is loose, broken or aging.

 6.4 Replace the mainboard.

8.4 Ink does not dry

All products are not dry:

1.Check whether the UV lamp lights up or not during printing. If it does not light up, please refer to the solution of UV light.

The edges of the product are not dry:

1.Confirm the version number（Pull down the setting menu to find the device information）

2.Manufacturer make sure the version number and upgrade the printer.

3.Adjust the UV lamp in the advanced settings of the driver panel.

Board Definition

25.0610

J1
mainboard
power supply
24V

M24V
MGND
GND
24V

Ink pump 1
Ink pump 2
Ink pump 3
Ink pump 4
Ink pump 5
Ink pump 6
Ink pump 7
Ink pump 8

M24V
P0
P1
P2
P3
P4
P5
P6
P7

Waste ink
pump

M24V
P8

Ink stir
Test height
UV-L
UV-R

P10
P11
P12
P13

ON
1 2

RUN
LINK
BUSY
ERROR

1 2

Optical fiber Optical fiber Optical fiber Optical fiber

HOSON MAB GLB U51

X8
Ink
station
motor

A+
A-
B-
B+

cable
interface

3.0
USB
cable

Y motor 1
Y motor 2

Panel board
power supply

A+ B+ G P- D- GND G
A+ G B- P+ D+ ORG 24V G

J7
Test
height
(On-off
signal)

J16 Left-Front Y

J17 Left-Back Y

J18 Right-Front Y

J19 Right-Back Y

J20
Ink Station
Limit

J21
Waste ink
alarm
(On-off
signal)

X4
X motor

X6
Z motor

cable
interface

RS485
J30   Panel
board

1
2
Optical
fiber

J8
Up limit
J4
Right limit

J10   J9
Anti-   (Short
collision circuit)

ERROR
BUSY
LINK
RUN

J1
Car
board
Power
supply
42V

42V
GND
GND
24V

radiating fin radiating fin   radiating fin radiating fin   radiating fin radiating fin   radiating fin radiating fin

LEFT DOWN RIGHT DOWN
LEFT UP   RIGHT UP

EMB-RS422_01-TTL_08
V1.0.0.R

2025.6.10

GND
24V J1

Encoder Signal
Switch Board

Car
Borad

J5 GND BX2 AX2

J2 magnetic
grid signal

G
A+
A−
B+
B−

Equivalent
EncoderSignal
From X-Driver

墨盒小板
Ink tank circuit board

| GND 5V | GND 5V | GND 5V | GND 5V | GND 5V | GND 5V | GND 5V | GND 5V | GND 5V | GND 5V | GND 5V | GND 5V |
| GND 5V | GND 5V | GND 5V | GND 5V | GND 5V | GND 5V | GND 5V | GND 5V | GND 5V | GND 5V | GND 5V | GND 5V |

GND
5V

J1
Power
supply

Panel board
The front of the Key Board

UP

DOWN

SUC FUNC1 FUNC2 FUNC3 END/POWER ENTER

J31 Rs485

+5V
GND

B/CANL
A/CANH

CAN
435

The back of the Key Board