NC-UVDTF60-PLUS(4H)

User Manual

Please read this manual carefully before using the product.
Please keep this manual readily accessible for future reference.

Catalogue

Notice

Please read the instruction before using the machine.

1. This machine can should not be used by children or people with disabilities. If necessary, please use it under supervision.
2. Please use original manufacturer's accessories and ink in accordance with the instruction.
3. Ensure that the power supply voltage matches that of the power cable and that on the machine nameplate.
4. It can only be used indoors. It is recommended to install an air conditioner in the room to maintain a stable working temperature and humidity.
5. Before using the machine, remove the wooden case and foot-cup fixtures used for transportation and place the machine steadily on a stable table.
6. Do not use the machine in harsh environments such as flame, dust, moisture, etc.
7. Never use the machine in a damp and leaky house.
8. Do not place debris on the machine and platform, or around the machine.
9. Please keep the temperature in the workroom stable. Do not use the machine in extremely hot conditions above 30℃ or cold conditions below 15℃.
10. Do not use any damaged cables for power supply.
11. If the power supply cable is damaged, stop using this machine.
12. Please turn off the power supply before cleaning or repairing.
13. Please use the machine in accordance with local laws and policies.
14. Before sending a task, ensure that the printhead does not come into contact with any objects. Note that the automatic height sensing function cannot detect transparent materials.
15. When the machine is operating , prolonged exposure to the UV light can damage eyesight. It is recommended to wear UV-protective googles.
16. At least 4 people are required to lift the machine. Please do not move with other machine parts. Remember to disconnect the power supply plug.
17. When adding ink, parts such as ink tube, ink bottle, and bottle cap may come into contact with the ink, so please take protective measurements.
18. Make sure the machine platform is flat, load-bearing , and not wobble when working.
19. It is not recommended to use to LED lights for high-loading printing for a long time.
20. Ensure that the machine is properly grounded.
21. Please avoid using this machine during thunderstorms to avoid lightning strikes.
22. If your ink is not from NOCAI, the machine will no longer be warranted.

Machine Mechanism Analysis

1.1Analysis of the Machine's Front and Side Views

①Print platform 600mm

②Key panel

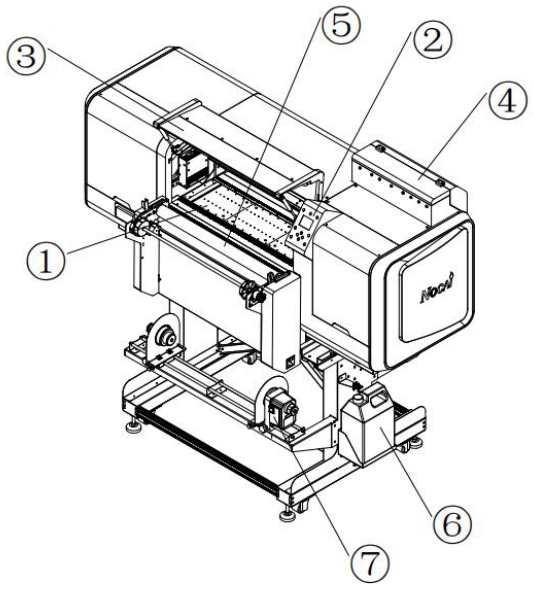
③Machine top cover

④Ink cartridge

⑤Heating shaft for crystal film

⑥Waste ink bottle

⑦Paper collector motor and switch



Note: the difference between this model and the standard one lies in the gold stamping function, which includes: hot stamping film unwinding, hot stamping heating shaft, hot stamping rewinding, B film feeding, and B film laminating heating shaft.

1.2Analysis of the Machine's Rear and Side Views

①Power switch

②Power port

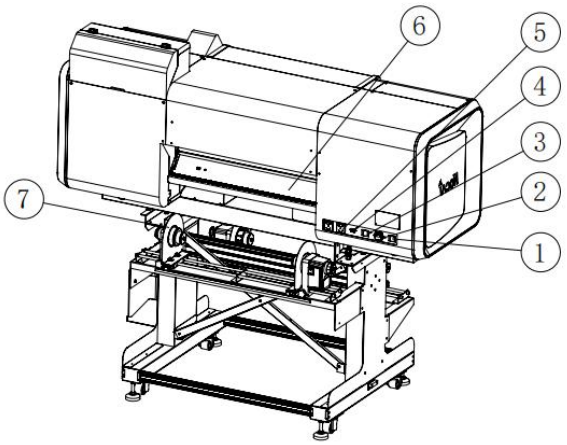
③roll material heating switch

④Ethernet port

⑤Paper collector power port

⑥Paper support pate

⑦Paper feeder



Note: compared with the standard model, this one does not require a film peeler.

1.3 Analysis of the Machine Beam Diagram

①X-axis motor

②Handpiece assembly wheel

③Aluminum beam

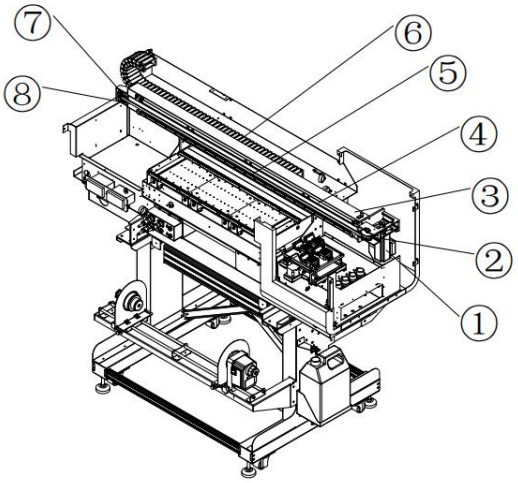
④Raster strip

⑤Handpiece guide rail

⑥Cable trunking drag chain

⑦Handpiece driven wheel

⑧Synchronous belt



1.4 Analysis of the Print Cart Diagram

①Cart printhead plate

②Right color UV lamp

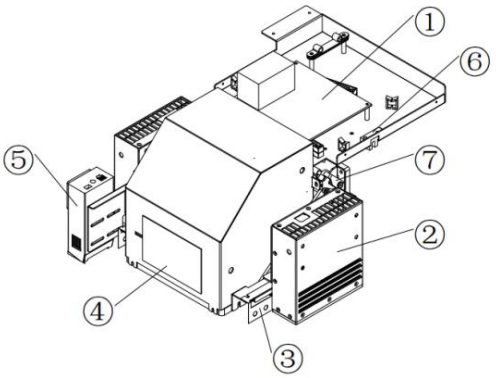
③Anti-collision plate

④Cart heating plate

⑤Varnish UV lamp

⑥Right limit sensor

⑦Ink cart height adjustment handle



1.5 Analysis of the Ink Station Diagram

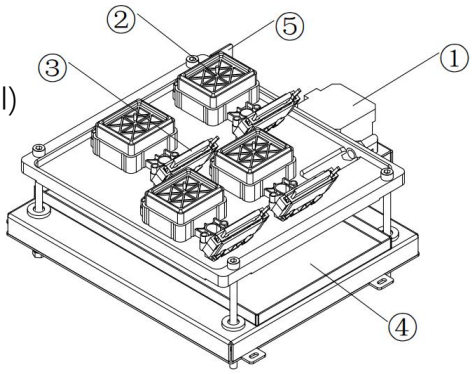
①Ink station motor

②Cap Top (there are 4 cap top in the revised model)

③Wiper

④Ink station ink leakage hopper

⑤Ink station sensing sheet metal



1.6 Analysis of the Machine Key Panel Diagram

①Machine display screen

②Clean

③LED strip

④Test

⑤Menu

⑥Move left

⑦Paper feeding

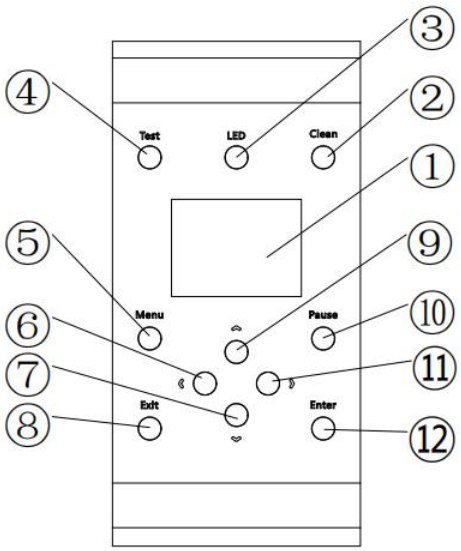
⑧Exit

⑨Paper retracting

⑩Pause

⑪Move right

⑫Enter



1.7 Analysis of the Ink Cartridge Diagram

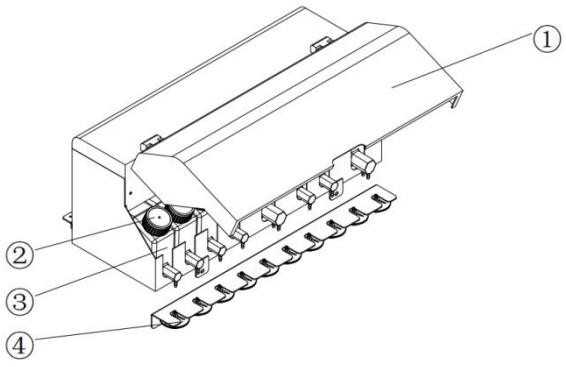
①Ink cartridge cover: ink cartridge guard

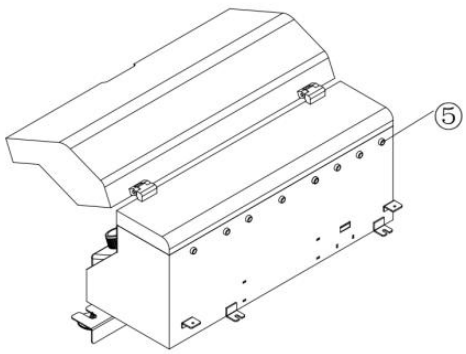
②Ink cartridge lid: add ink and prevent ink leakage

③Ink cartridge: store ink

④Disc-shaped filter:filter impurities in the ink

⑤Ink alarm indicator:remind reaming ink volume



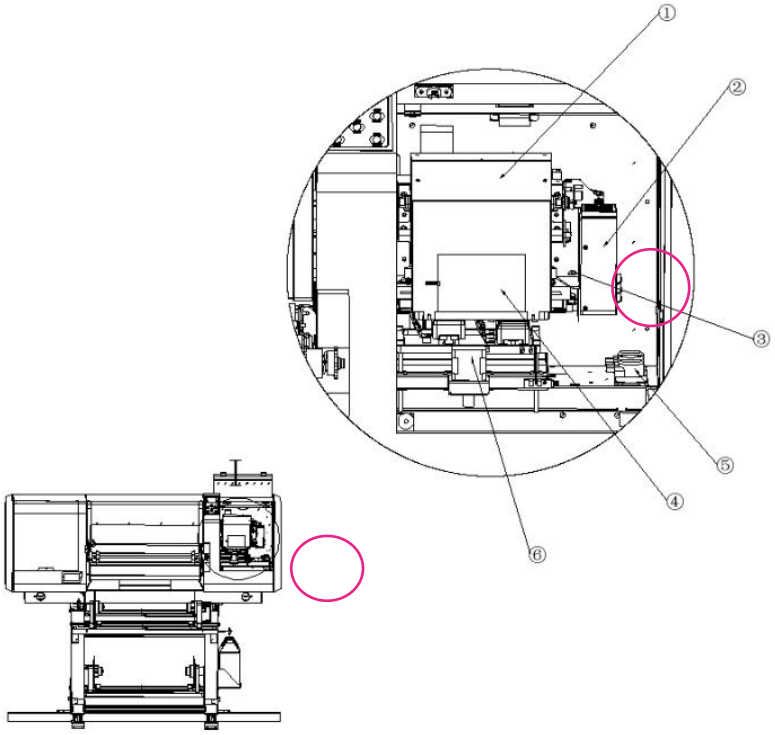


Preparation Works Before Use

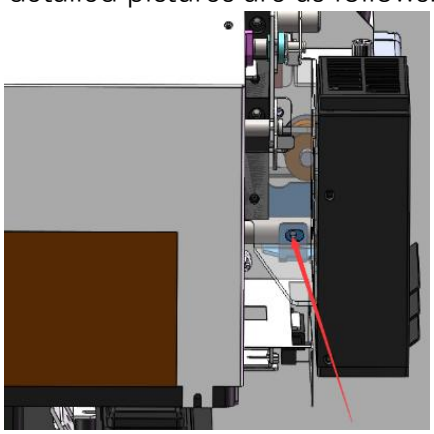
Preparation works before power on and after removing the machine's outer package, including three parts: ensuring proper machine placement, removing the machine's fixing sheet metal, and verifying the normal operation of power-on and machine movement.

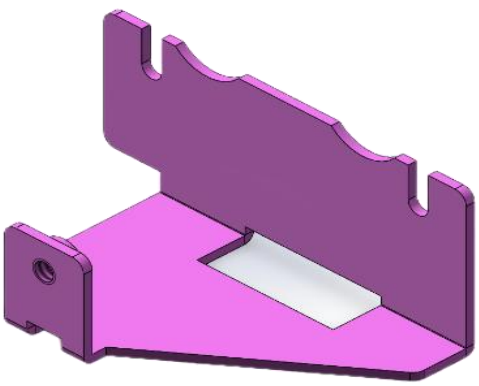
2.1 Removal of Machine Fixing Sheet Metal

Before powering on the machine, the fixing sheet metal that secures the cart must be removed first, as shown in the figure ③below.



The detailed pictures are as follows:





2.2 Verify Normal Start-Up Operation

Ensure that the machine has a normal appearance and is placed stably. Then, check the machine's power supply voltage label to see if it is 220V or 110V--the voltage must match the local power supply voltage before the machine can be used.

Connect the machine to the power supply and turn on the main power switch at the rear of the machine. The machine will start the initialization process, with the specific action sequence as follows:

【Ink station and wiper lower simultaneously→The cart moves a short distance to the left→The cart moves right to the limit position→The cart moves left to above the ink station→Ink station caps head】

2.3 Install Print Materials

①Direct printing base PET film A

(non-adhesive-backed)

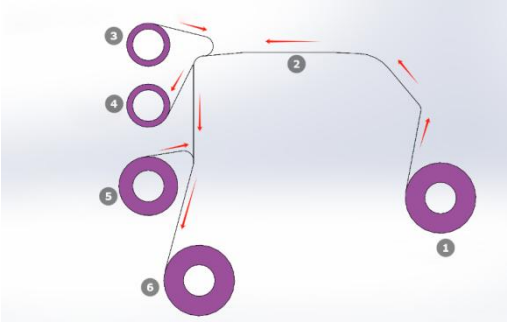
②Print platform

③Gold stamping film

④Gold stamping peeling and Rewinding

⑤Direct printing base PET film B(adhesive-backed)

⑥Finished product rewinding



Paper feeding diagram of hot stamping version

2.4 Heating Lamp Tube Settings

Use the up and down buttons to adjust the upper temperature limit, which will be displayed on the LED light at the lower left corner. The LED light at the upper part displays the real time temperature.

Note: the gold stamping version is equipped with two controllers. The left controller is for the gold stamping heating lamp tube, and the right one is for the laminating heating lamp tube.

Add Ink to the New Machine and Confirm the Printhead Ink Output Status

3.1 How to Add Ink

1) According to the diagram below, add the corresponding ink as indicated by the colors.
2) When adding ink, to prevent ink from leaking and contaminating the outer sheet metal, protective measures should be taken. You can wrap the bottle mouth with a paper towel.
3) After adding the ink, tighten the ink bottle properly.

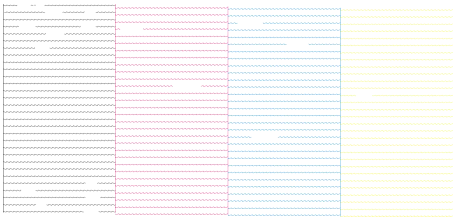
Automatic cleaning

In standby mode, click 【RIGHT】→【Equipment Maintenance】→【Auto Cleaning】→【Enter】on the key panel in sequence. After clicking the confirm key, the machine starts automatic cleaning.

3.2 Print the Test Strip

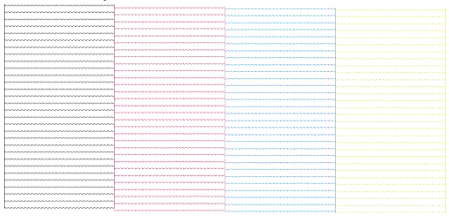
Click【TEST】on the key panel to print a test strip for printhead checking. If there is color missing or ink breakage, please continue with the manual printhead cleaning until the test strip is fully printed, which indicates that the ink installation is completed.

As shown in the figure below:



If there is ink breakage or nozzle broken pin on the test strip, continue with "auto cleaning".

The normal state of the test strip is as shown below:



Future Rip Installation

Future RIP is a printing control software for machines, mainly divided into two core modules: image processing and driver settings.

4.1 Future RIP Hardware Introduction

It includes two parts: the Future RIP installation package and the dongl. The Figure below shows the dongle, with a serial number on its front side.

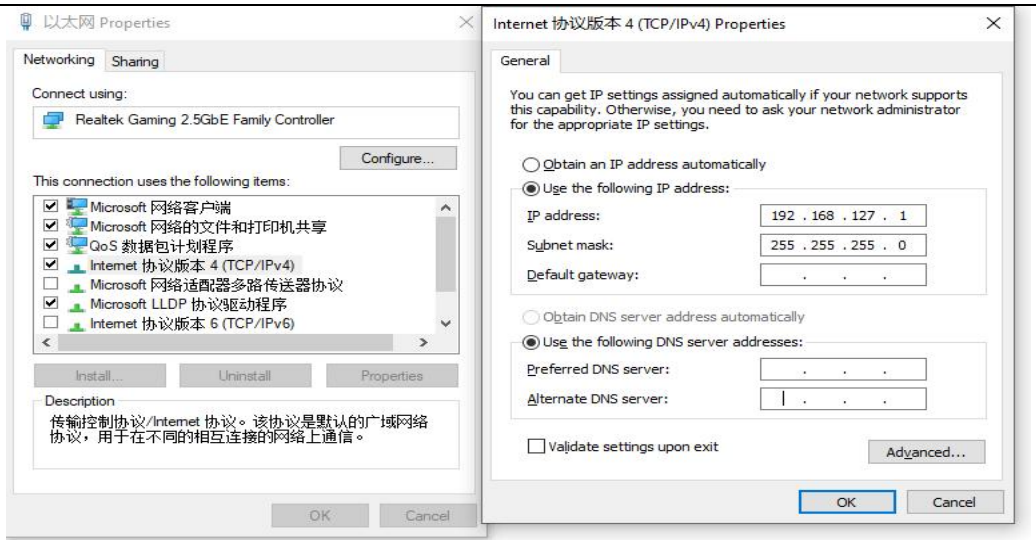
4.2 Computer Configuration Requirements and IP Settings

①System version: must be 64-bit Windows7, Windows8 or Windows 10.
System display language: must support both Chinese and English
CPU:Intel core5 or higher, or equivalent specifications are recommended.
RAM： 8GB or more is recommended.
Hard Disk： 500 GB or more of storage space is recommended.

②The computer must be equipped with a Gigabit network card and a Gigabit network cable to ensure normal online connection of the software.

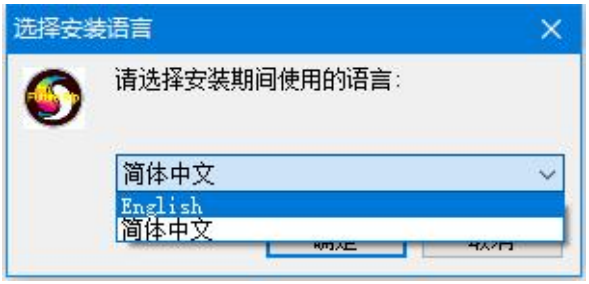
③ Set the computer ' s IPv4 address to obtain an IP address automatically. Meanwhile, do not check IPv6 option--only then can the driver achieve normal automatic online connection.

The operations are as follows: locate the icons  in the lower-right corner of the desktop,right click, and select 【Open network and Internet settings】. Click "Change adapter options", double-click "Local area connection" (or Ethernet), click "Properties". Uncheck "Internet protocol version 6(TCP/IP6)", check "Internet protocol version 4(TCP/IPv4)" and double click to open it. Fill in the IP address, click OK, and then click OK again to complete the setup.

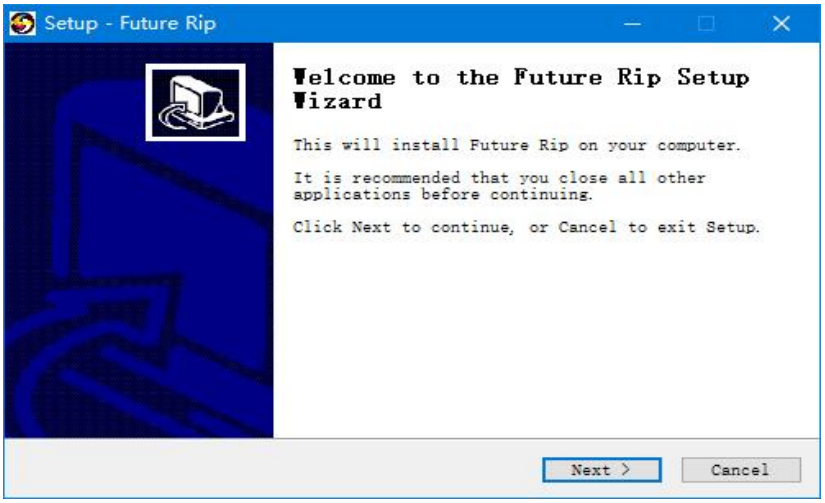


4.3 Future Rip Installation

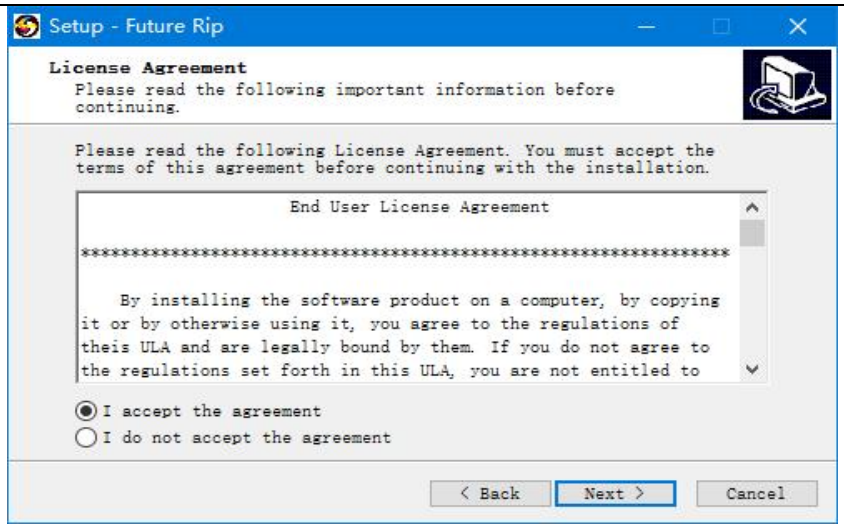
Open the file package named Future Rip on your computer. The package can be obtained from after-sales service or downloaded by yourself from our official website www.happycolor.com.cn. Find and open Future RIP.exe, right click and run it as an administrator. Then check Agree, click Next and click Install in sequence to complete the installation. The details are as follows:



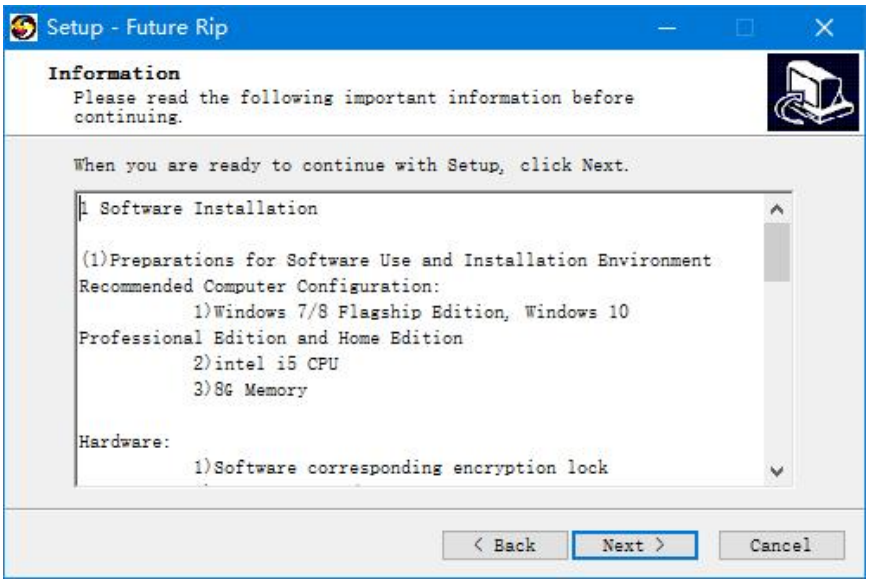
In this interface, you can select the display language between Chinese and English for the installation. Click Confirm", and the following pop-up window will appear:



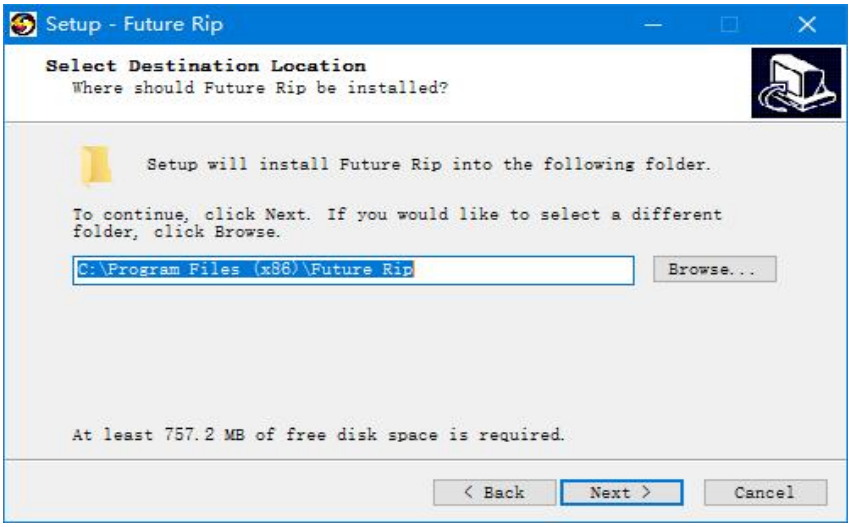
Click Next, the pop up window is as follow:



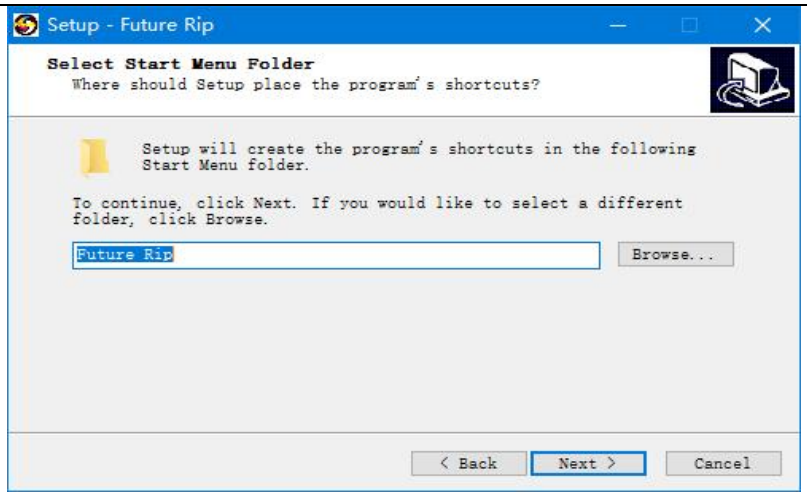
Click Next, the pop up window is as follow:



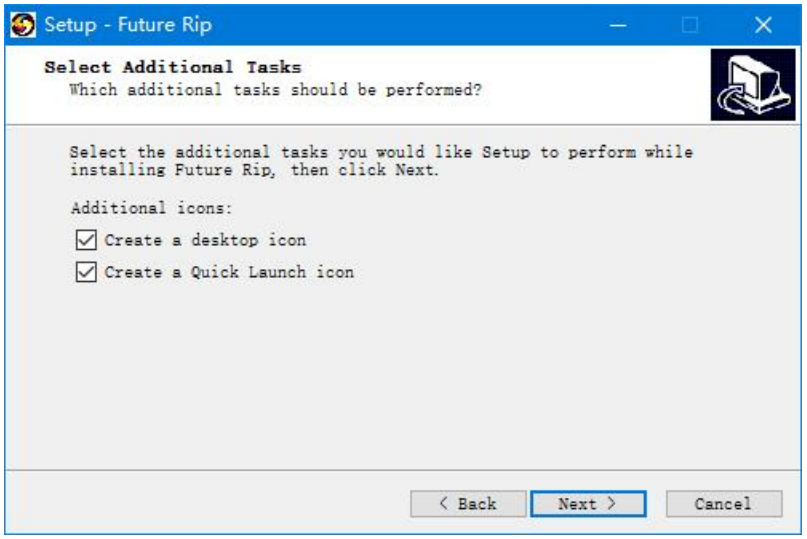
Click Next, the pop up window is as follow:

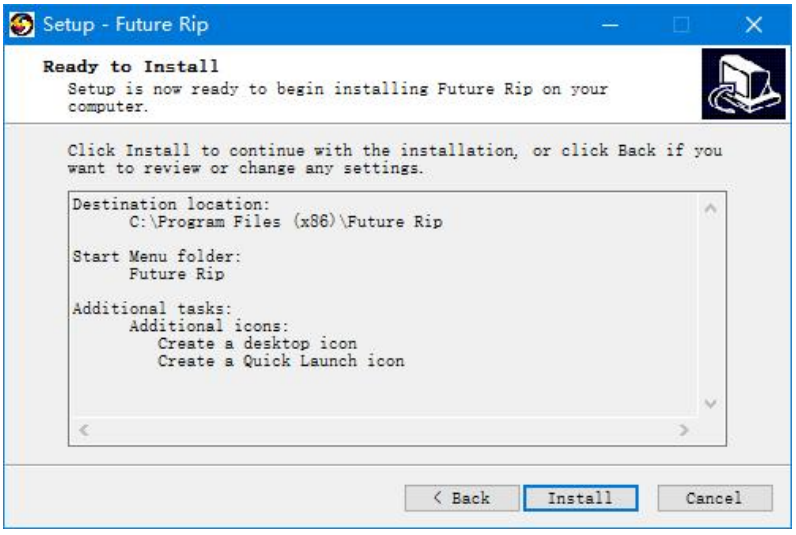


Click Next, the pop up window is as follow:



Click Next, the pop up window is as follow:





Click Install and the software installation will be completed. A startup icon will be generated on the computer desktop 

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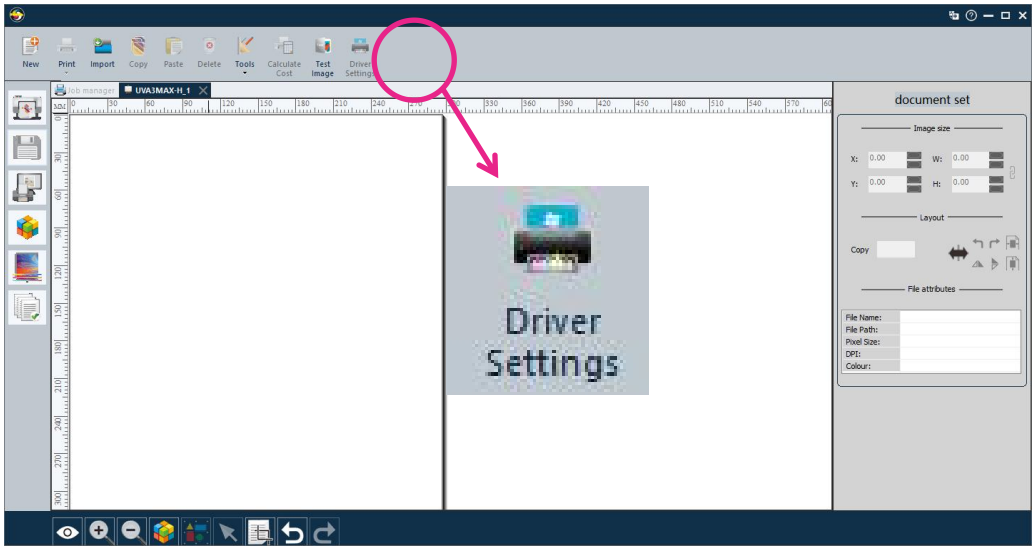
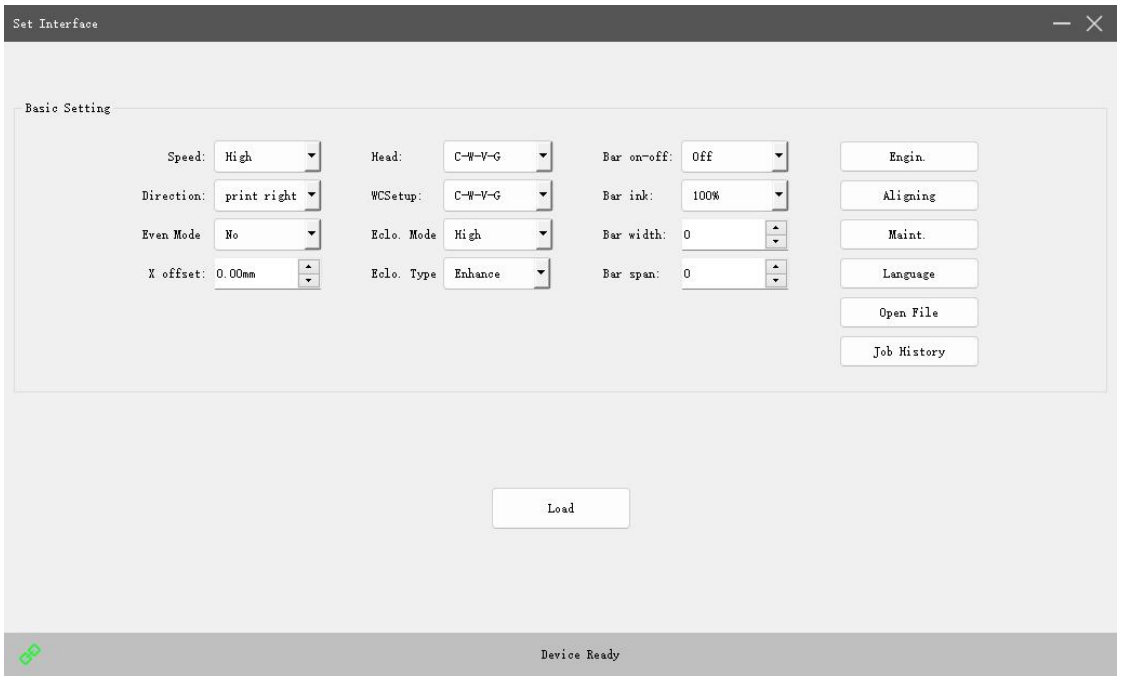
Explanation of Driver Settings

5.1 Open the Driver Settings

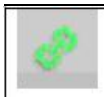
Double click the desktop icon【Future RIP.exe】, and the following pop up window will appear:



Then click the Driver Settings button. When a green chain icon is displayed in the bottom left corner,it indicates that the driver has been connected online, as shown in the figure below: if the icon in the bottom left corner stays on(steady light), the online connection is successful. If the icon flashes, the online connection is unsuccessful.



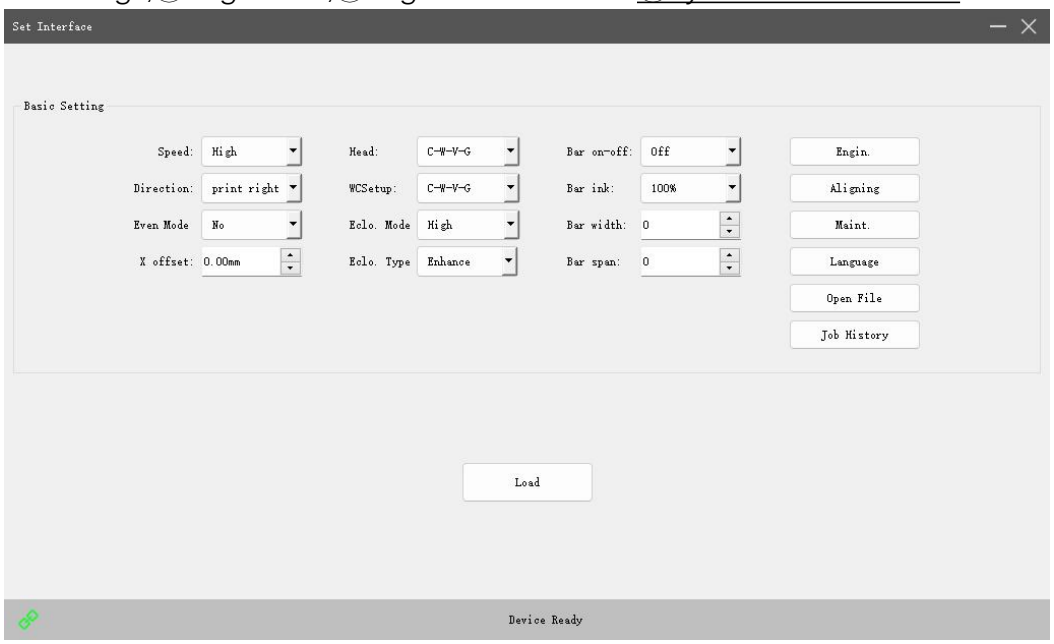
A green light indicates successful automatic connection, while a red light means the connection is unsuccessful.

	The normal connection status of the network cable
	Network cable disconnection status

5.2 Explanation of the Driver Settings

A detailed introduction is provided below, as shown in the figure:

The software display interface is mainly divided into four sections:①Basic Settings,②Alignment,③Engineer Mode and④System Maintenance.



Detailed introductions are as follows:

5.2.1Basic Settings

X offset:it is used to set the offset position of the alignment pattern and image relative to the printing origin of the platform. It is recommended to set both values to 0.

Print Speed:four speed options are available: high speed, standard speed, low speed, and high precision. These speeds refer to the moving speed of the printhead during printing.

Color Combination:the following options are available: white,color & varnish; single color;singe white;single varnish;white & color;white & varnish;color & varnish;single glue; white, color, varnish & glue.

It determines which colors are used during printing. For example: select single white, then only white ink is printed. Select single color, then only color ink is printed. Select white & color, then both white ink and color ink are printed.

Print direction:three direction options are available, which refer to the moving direction of the printhead: print leftward, print rightward, and bidirectional printing.

Eclosion Mode:options include:off, low feathering, medium feathering and

high feathering, which effectively improves the printing quality. The higher the feathering level, the better the precision and quality, but the lower the printing speed.

Eclosion Type:two options are available:default type and enhanced mode. It is recommended to select default type.

Even Mode:enable this mode when the nozzles have broken pins.

Manual pumping：auto pumping for 30 seconds.

W/V ratio：for example, if you feel the ink volume is too high or too low during printing, you can adjust it here. Options include reducing the ink volume by percentage and muti-pass ink printing.

5.2.2Alignment

Click the alignment button, and the software will pop up the alignment process interface as shown in the figure below.

Material Settings

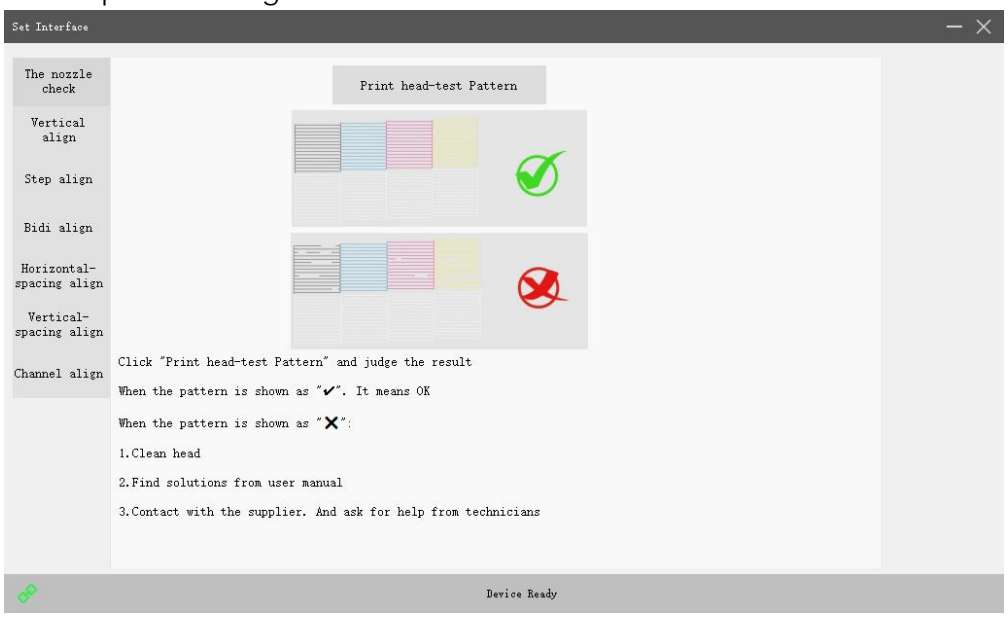
Material Selection： use this function when customers need to save and use different parameters for different printing materials. Each material corresponds to a set of alignment parameters, facilitating quick switch during printing.

Horizontal Maximum printing precision: for this model, select 480DPI.

Printing speed:when higher precision alignment is required, parameters can be aligned at high speed, medium speed, or low speed respectively. Generally, aligning at high speed is enough.

Alignment Process

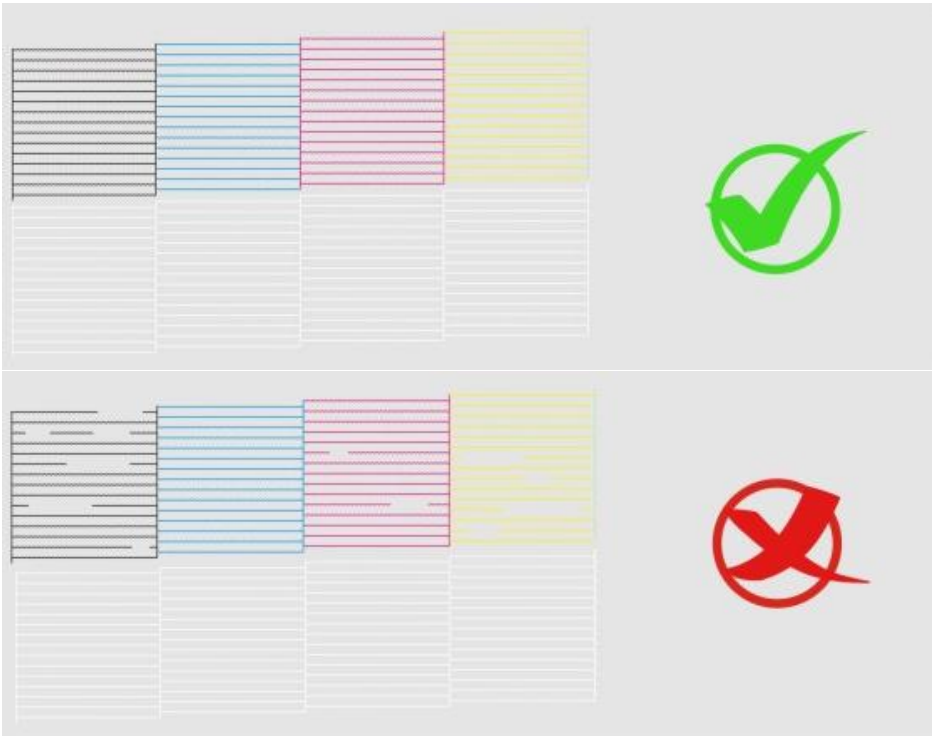
When installing a new machine, replacing the printhead, or after the printheaed is collided,perform alignments in sequence starting from mechanical alignment to complete the alignment work.



The Nozzle Check

Compare with the figures below. The incorrect results are the occurrence of

broken nozzles,skewed jetting, and color block streaking in the pattern, in which case the printhead should be cleaned. The correct result is that the pattern shows all colors completely and the color blocks are evenly distributed.

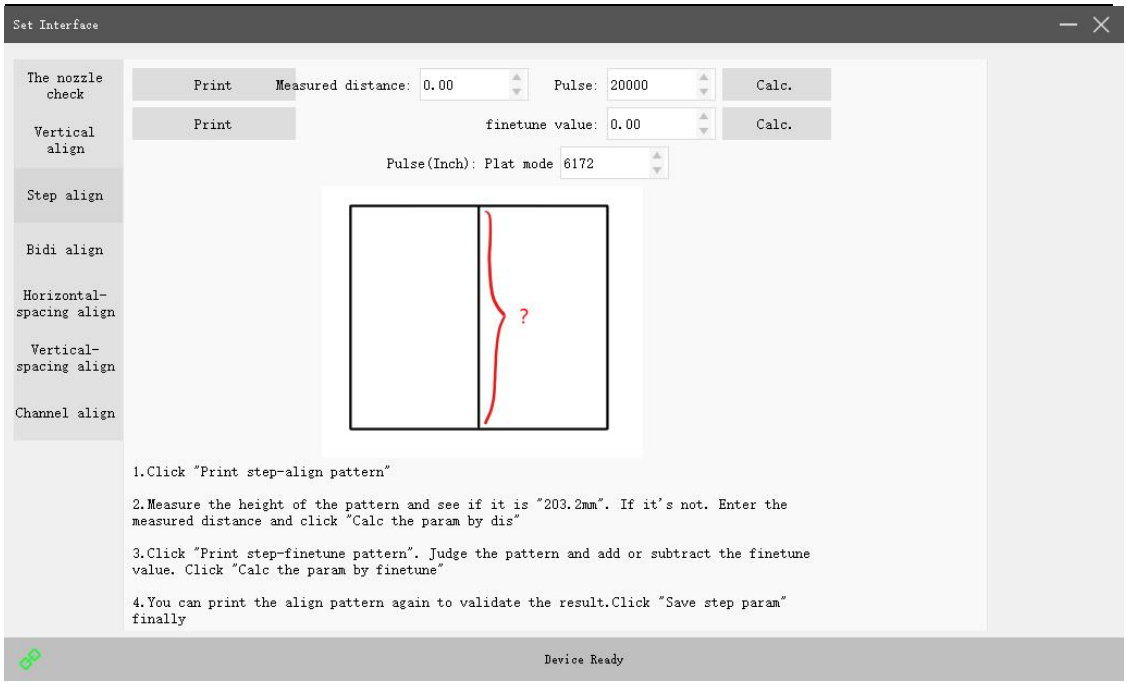


After confirming that the printhead status is OK, click Vertical alignment.

Mechanical Alignment

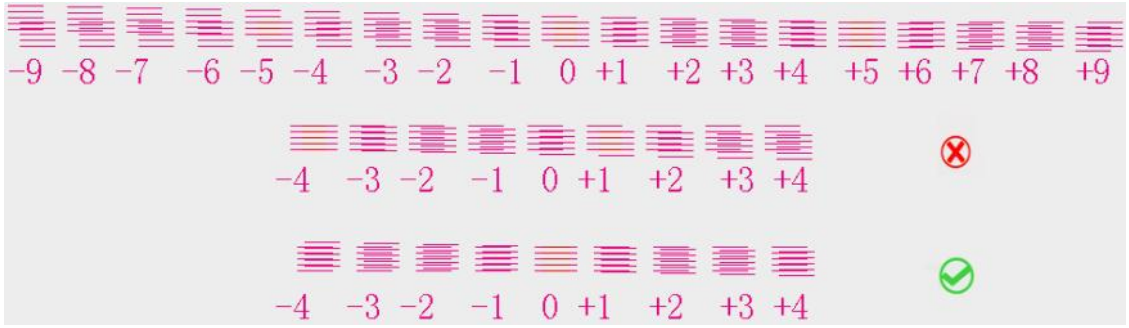
If the printhead is offset vertically to the left or right, you need to loosen the printhead fixing screws and gently twist it left or right to adjust its position.

Step Alignment

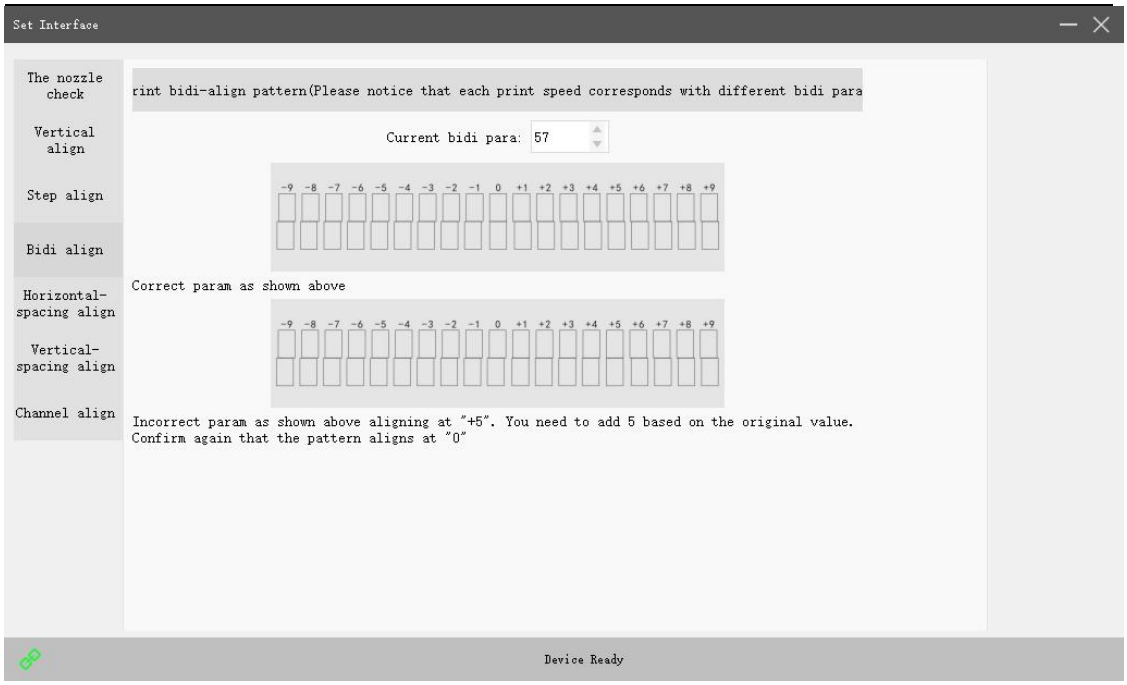


First, in the step alignment section, click print and the alignment lines shown in the figure below will appear.

A wrong result means the overlapping position of the alignment lines and reference lines on the alignment pattern is not at the 0 position. In this case, enter the value corresponding to the overlapping position into the input box to the right of the print button, then click the Calculate button below to perform alignment. A correct result means the overlapping position of the alignment lines and reference lines is at the0 position.

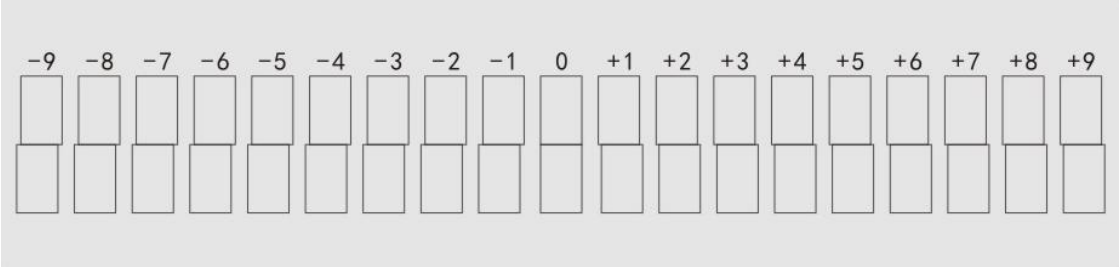


Bidirectional Alignment

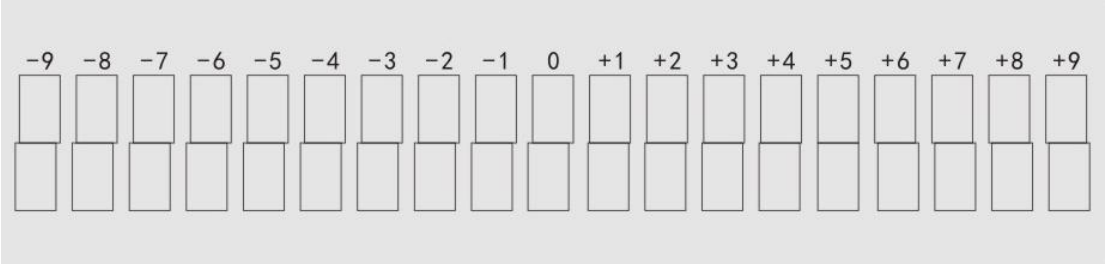


Click bidirectional alignment pattern, and after adjusting it according to the method shown in the above figure and making sure it is okay, click Next. The software will enter the main alignment interface and automatically select the horizontal spacing alignment.

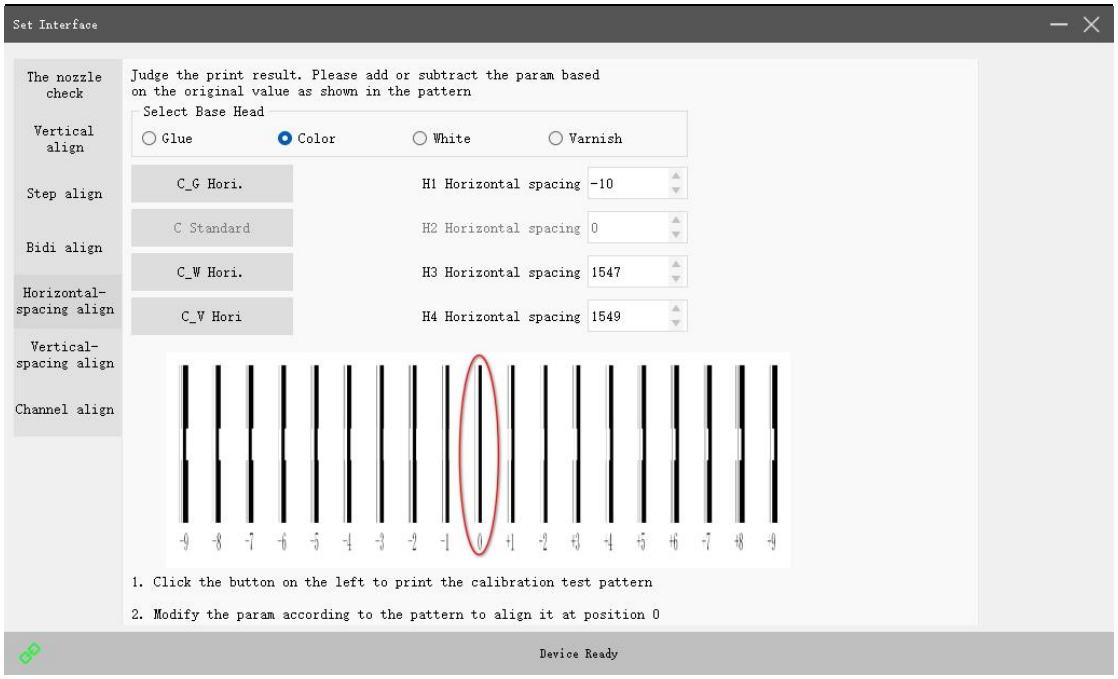
As shown in the figure, the position has been aligned to 0.



As shown in the figure, the position has not been aligned to 0.

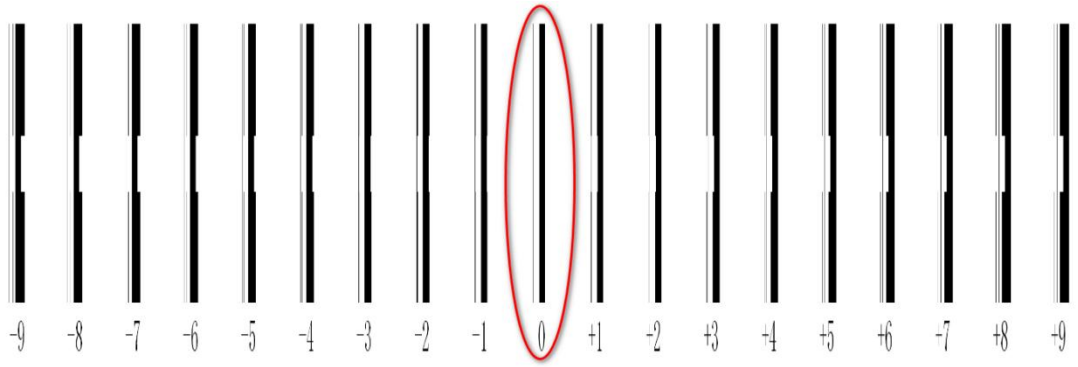


Horizontal Spacing Alignment



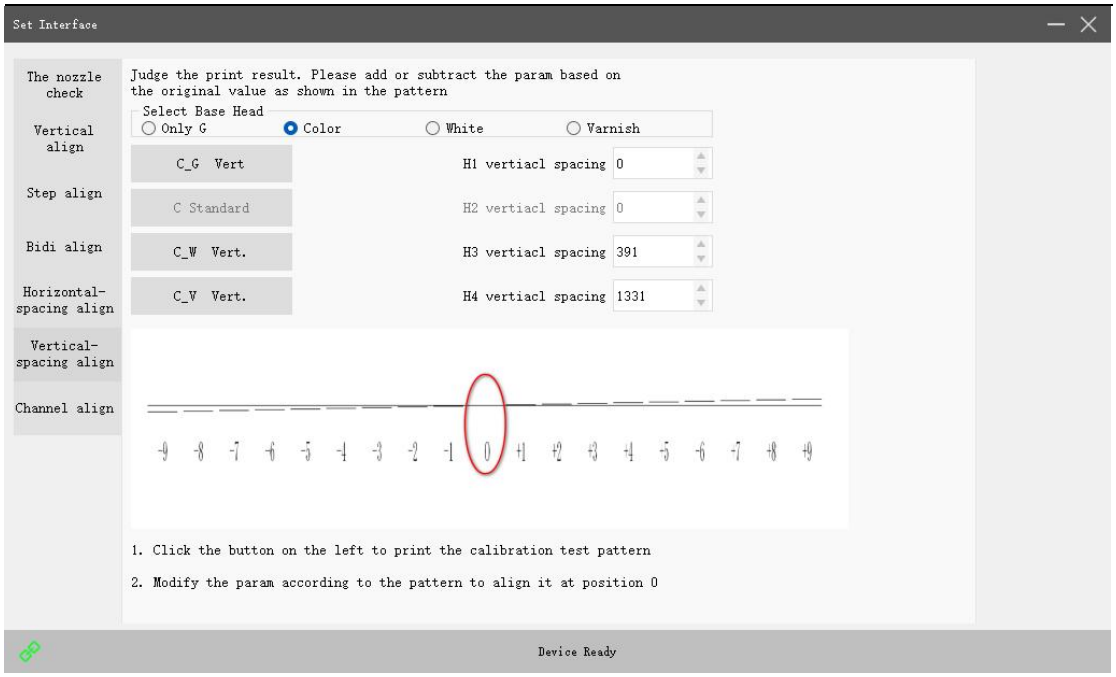
With color as the reference, observe the printed alignment pattern and check the alignment of the black and white lines. For example, if black and white lines have the best alignment at +3, add 3 to the current horizontal spacing value; if black and white lines have the best alignment at -3, subtract 3 from the current horizontal spacing value. Adjust repeatedly until the black and white lines have the best alignment at 0, appearing as a single straight line.

Click save after the adjustment is completed.

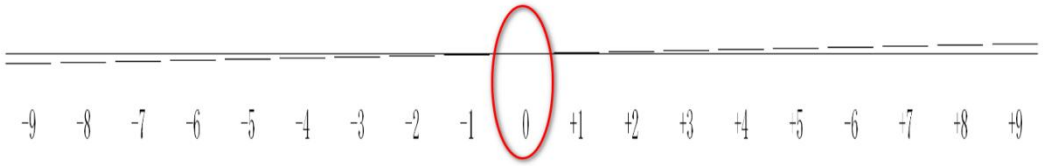


Click next, and the software will enter the alignment main interface and automatically select vertical spacing alignment.

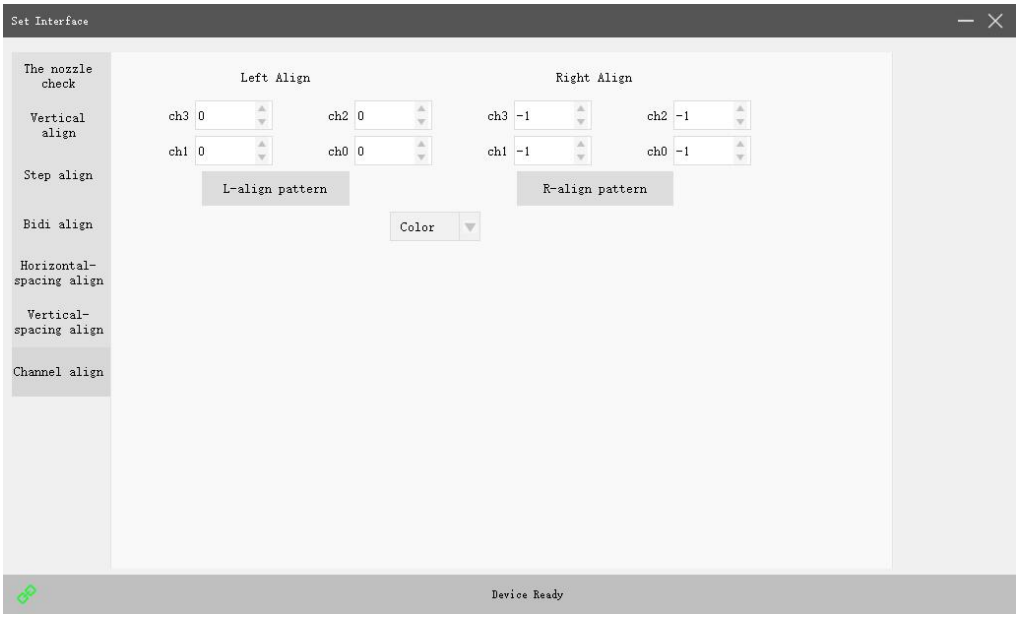
Vertical Spacing Alignment



As shown in the figure below, adjust until the black and white lines corresponding to the number 0 achieve the best alignment, appearing as a single straight line.

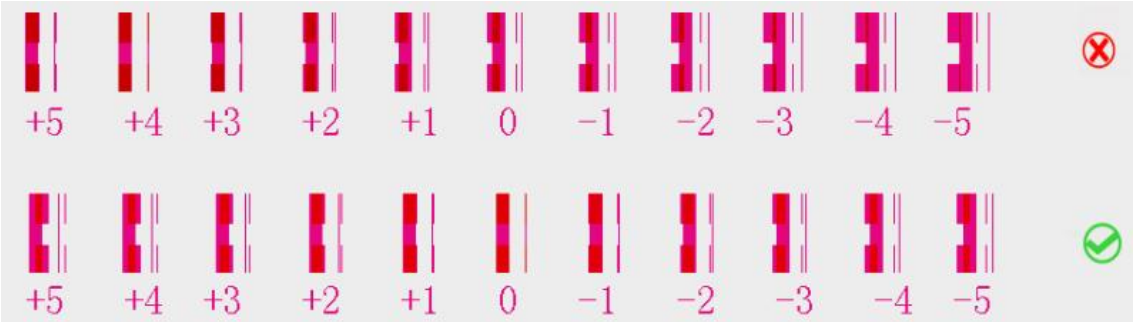


Channel Alignment

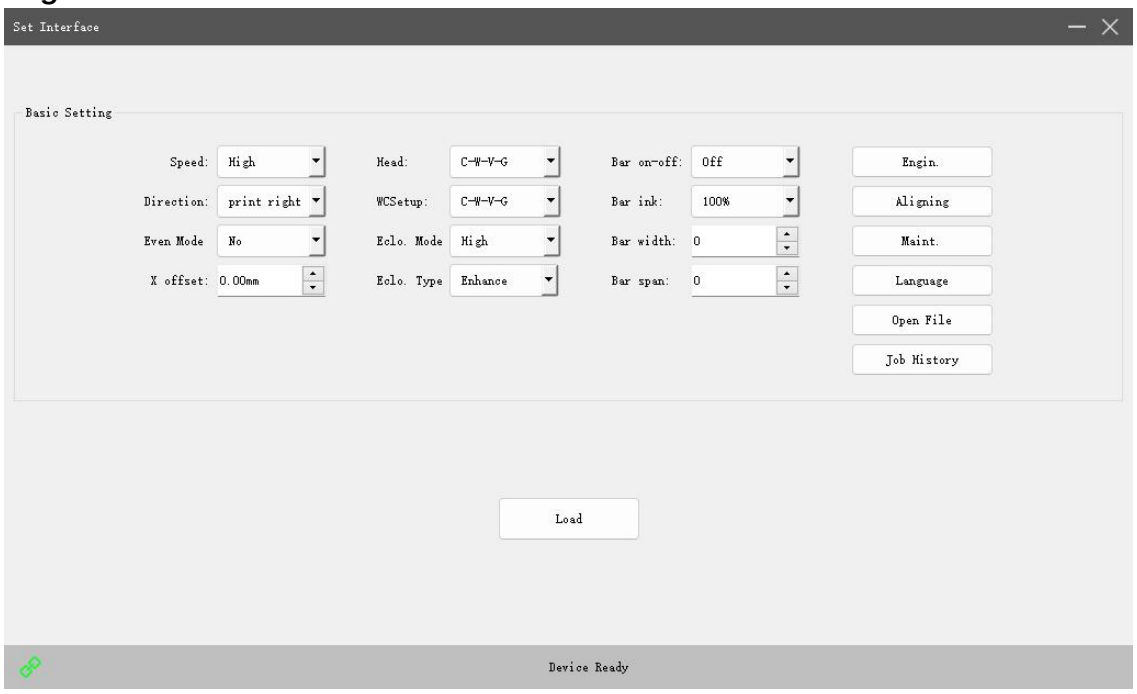


Click ‘L-align pattern’ or ‘R-align pattern’, and the the machine will print a alignment pattern as shown in the figure below:1

An incorrect result means that the overlapping position of the alignment lines and the reference lines on the alignment pattern is not at the 0 position. In this case, calculate the value based on the overlapping position by adding or subtracting form the original value, then input it into the corresponding box for the respective color. A correct result means that the overlapping position of the calibration lines and reference lines is at the 0 position.



Engineer Mode



Click engineer mode, and the pop[up window is as follow:

Advanced setting

Strip blank：it has on and off. When it is turned on, it will skip printing the blank areas in the image.

Blank-Disc：The distance that the cart moves extra backward after printing. Unit: mm.

Voltage adjustment：The default is 512. increase or decrease the value under the guidance of after-sales technician according to the actual print quality.

Voltage type：the default is S, which is applicable to the standard height of 2-3 mm.

White ink ratio：It is divided into10%、20%、30%、40%、50%、60%、70%、80%、90%、100%,the amount of white ink output can be reduced proportionally.

White ink pass：it is divided into 1 pass to 10 pass.

Varnish ratio：it is divided into 10%、20%、30%、40%、50%、60%、70%、80%、90%、100%,the amount of varnish can be reduced proportionally.

Glue ratio：it is divided into10%、20%、30%、40%、50%、60%、70%、80%、90%、100%,the amount of glue can be reduced proportionally.

White ink order：the default is WWWW. If W is switched to N, the corresponding channel will be closed.

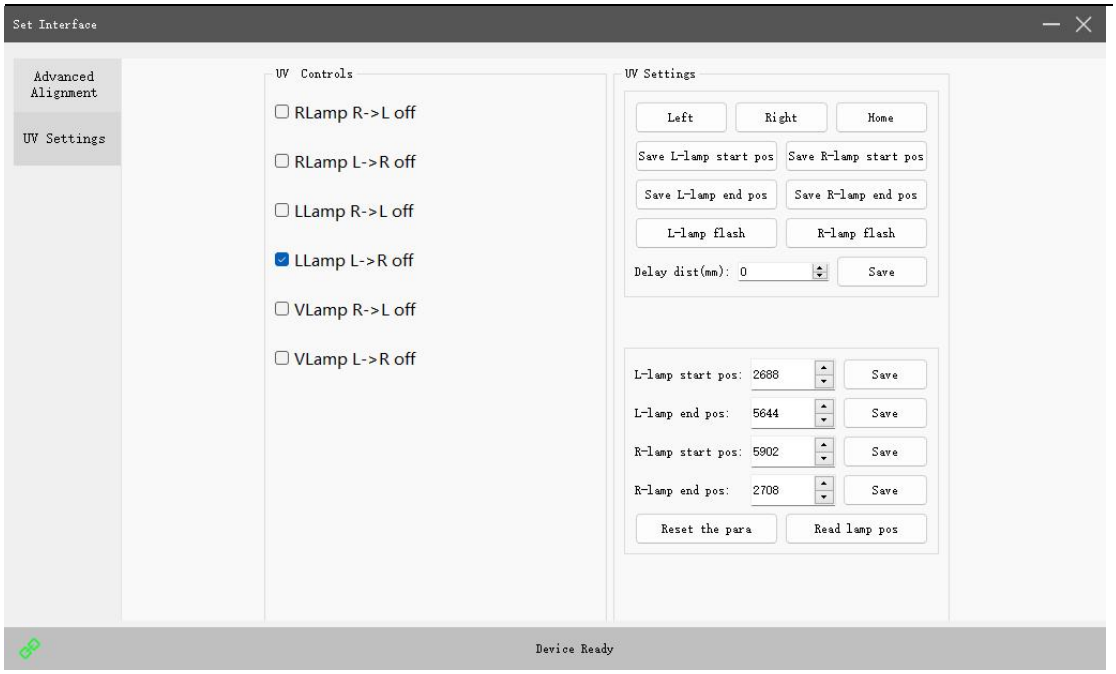
Color ink order：the default is KCMY, and the channel can not be closed.

Varnish order：the default is VVVV. If V is switched to N, the corresponding channel will be closed.

Varnish pass: it is divided into 1 pass to 10 pass.

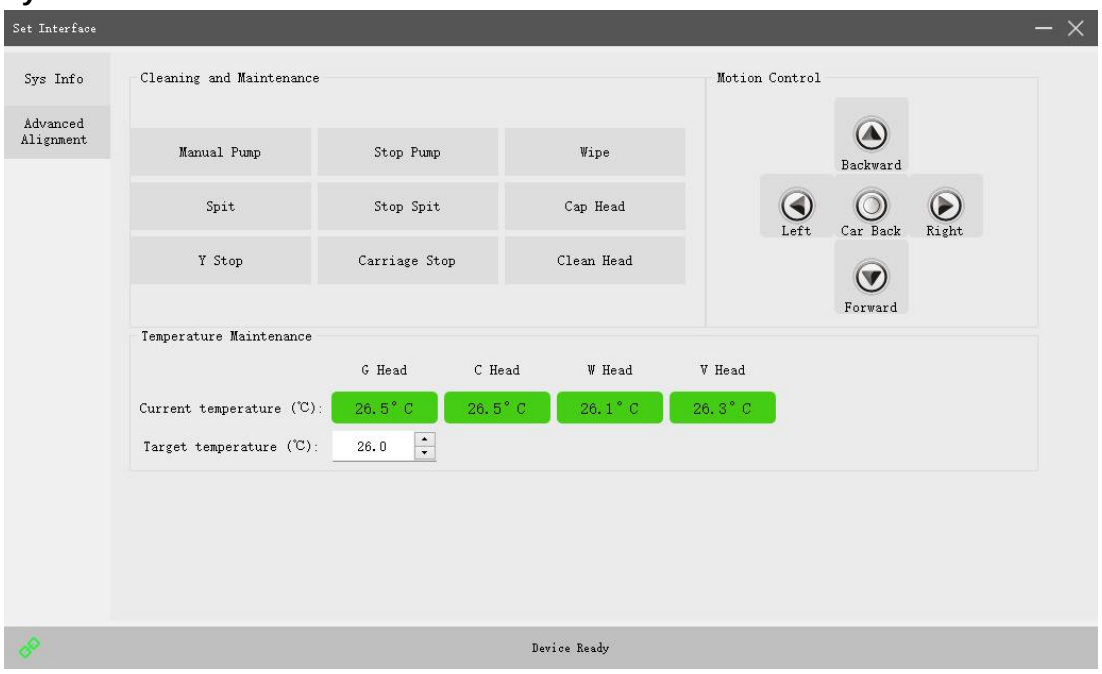
Glue pass:it is divided into 1Pass to 10 pass.

UV setting



①First, print a test strip.
②Move the cart to align the left UV lamp with the starting point of the test strip.
③Click the left UV lamp to flash. After determining the position, click the left amp start position to save parameters.
④Move the cart to align the left UV lamp with the end point of the test strip.
⑤Click the UV lamp to flash. After determining the position, click the left lamp end position to save parameters.
⑥Click the read position and then click save.
⑦Calibration completed.

System maintenance

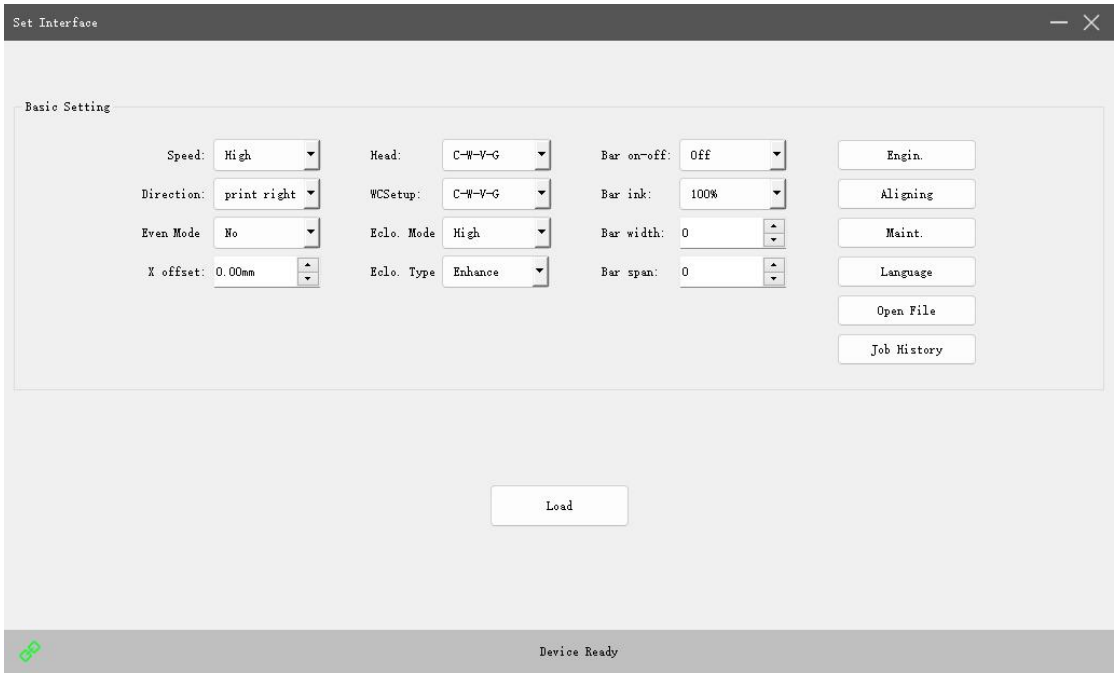


Printhead temperature maintenance

Current temperature: displays the actual temperature of the printhead read in real time.

Set target temperature: the set temperature range is between 0-28℃. when the current printhead temperature is lower than the set temperature, the heating function will be activated and stop once the temperature reaches the set value.

Language selection



Click the language option, and the pop-up window is as follows:

After making your selection, click OK to confirm.

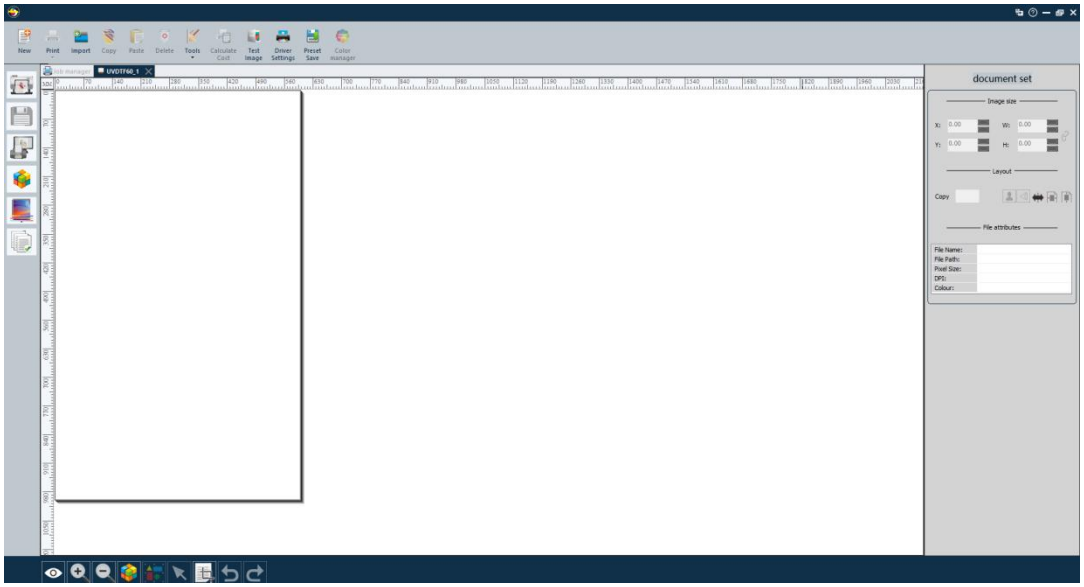
Future Rip Usage Introduction

6.1 Dongle

- Plug the USB dongle into the computer. As shown in the figure on the right, the light will turn on and off at interval, indicating normal operation.
- Check the middle part at the top of the software: No special display means the USB dongle is recognized normally. Display of Demo version means the USB dongle is not plugged into the computer or fails to be recognized.

6.2 Function Introduction

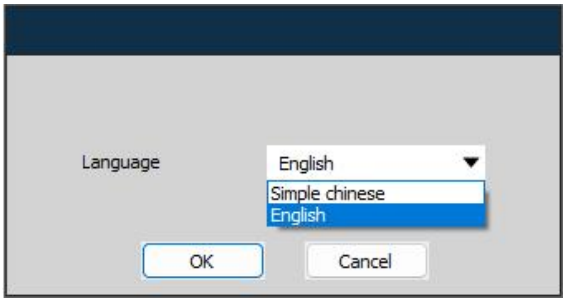
Open the software, and the main page of the software will pop up. Below is a brief introduction to the setup and use of the printing process.



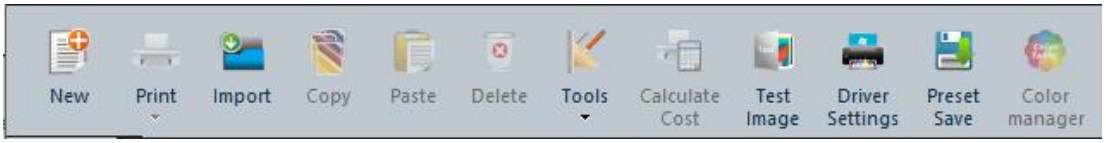
6.2.1 Language Switch

Click the icon  in the upper right corner of the software to select Chinese/ English switching:

The pop-up window will appear as shown below:



6.2.2 Navigation Bar



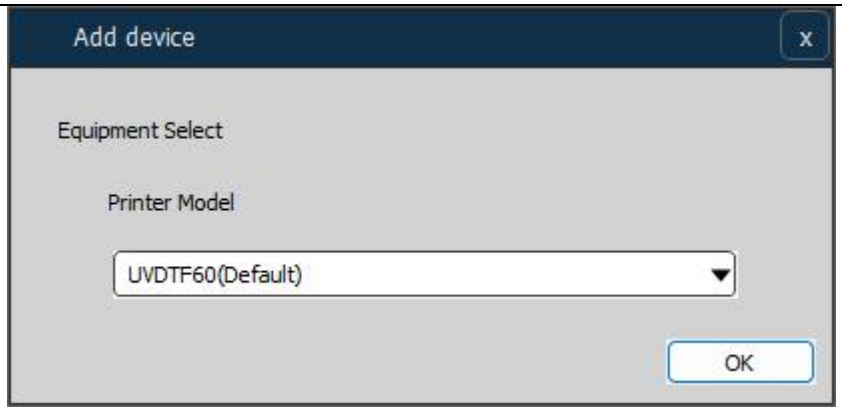
New：create a new canvas for print task.
Print：send the print job.
Import：import images.
Copy：copy multiple copies of the print image.
Paste：paste the copied images.
Delete：delete the images.
Driver settings：Configure printer driver parameters.

6.2.3 Main Functions

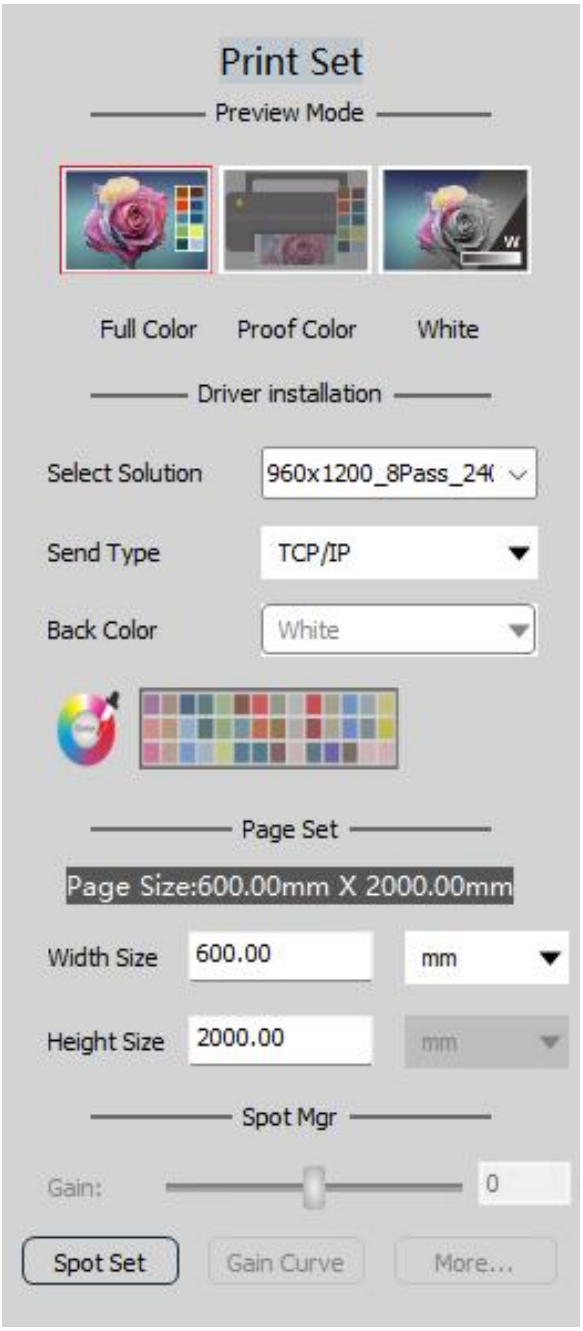
Icon	Explanation
	Printer management
	Document settings
	Print setting
	Color management
	Calibrate the imported color
	Job management

Printer management

Click the printer management icon, and the pop-up window is as follows:



For printer setting, the default model is NC_UVDTF60, no need to modify, just click OK.



Print set

Click the print settings icon  , and the pop-up window is as follows:

Driver installation

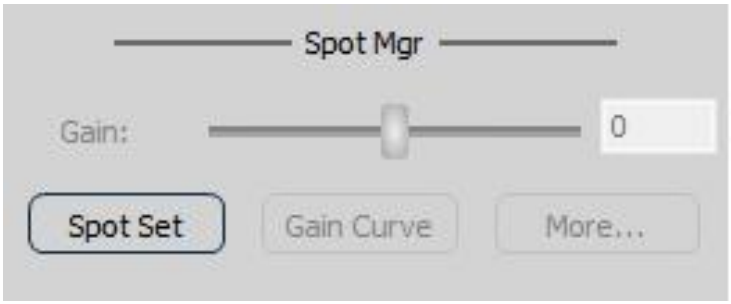
Select curve: default 960x900 6pass， 960x1200 8pass

Send method:file, network(default network)

Page Setting

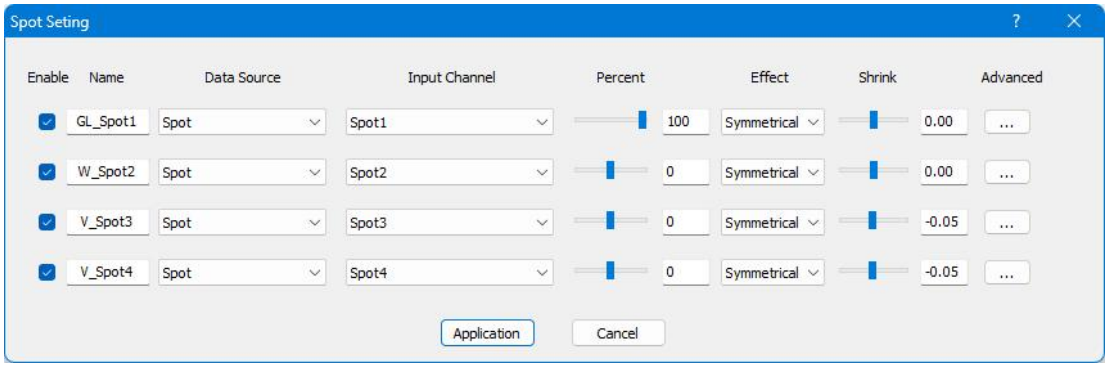
Canvas size:the default width is 600mm, and the height is unlimited. (when modifying the size value, press the Enter key on the keyboard to save.)

Spot color management



Spot color setting

Click Spot Setting in the software's menu bar, and configure the details as shown in the figure below:



Enable:check the box to enable the corresponding spot color printing; uncheck it to disable it.

Here, check the box for spot color 1 glue to enable glue spot color printing.

Check the boc for spot color 2 white ink to enable white ink spot color printing.

Check the boxes for spot color 3 and 4 varnish to enable varnish spot color printing.

Data source： select the ink output mode for corresponding spot color.

Taking white ink printing as an example (the same applies to varnish), the functions are introduced as follows:

Empty	No data indicates that white ink is not being printed.
Image substrate(same density)	Based on the maximum density of image color, white ink of the same thickness is printed where the image has color. Transparent and pure white areas are not printed.
Image substrate(image density)	White ink is printed according to the shade of the image color. The darker the color; the thicker the white ink; the lighter the color, the thinner the white ink. Transparent and pure white areas are not printed.
Image substrate (unimage density)	White ink is printed according to the shade of the image color. The darker the color, the thinner the white ink; the lighter the color, the thicker the white ink. Transparent and pure white areas are not printed.
Spot color	White ink is printed using the spot color data from image creation. Note: Currently, RIP prints spot color data and now supports mainstream image formats such as Tiff, PDF and AI exported from PS. For the creation and application of spot colors, please refer to the spot color video tutorials.
All	The entire image is printed with a special color (white ink or varnish) at 100% density.

Input channel: Spot color1,Spot color2,Spot color3,Spot color4can be selected.

Spot color1→The first spot color data among the spot color data contained in the image.

Spot color2→The third color data among the spot color data contained in the image.

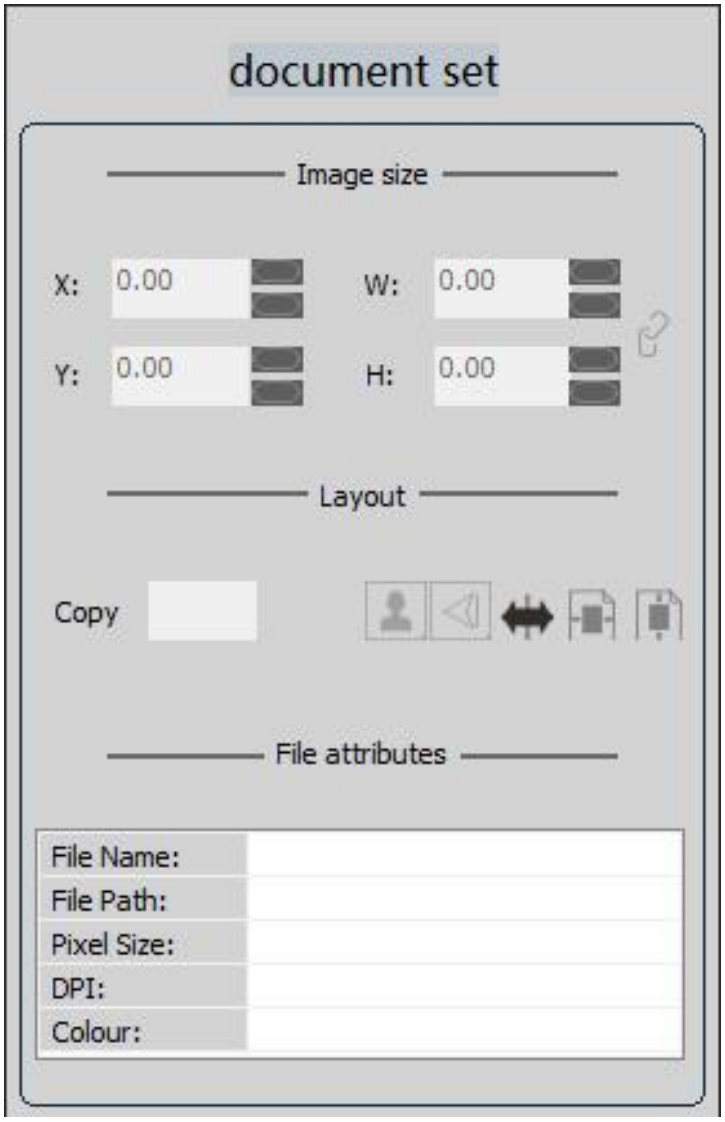
Spot color4→The fourth spot color data among the spot color data contained in the image.

Percent: On the current basis, increase or decrease the print density of the spot color data. Adjustment range: -100%-+100%.

Effect: Generally, symmetrical mode is selected.

Shrink: The spot color data is printed with inward shrinkage or outward enlargement/diffusion. Adjustment range:-5 to +5.

As shown in the figure below, after completing the settings, click Application, then select to print the white ink or varnish spot color data.



Document setting

Click the document setting icon  , and the following will be displayed on the right side of the interface:

Position and size

X white edge and Y edge:modify the offset of the image.

W:image width, H:image height, modify the size for scaling.

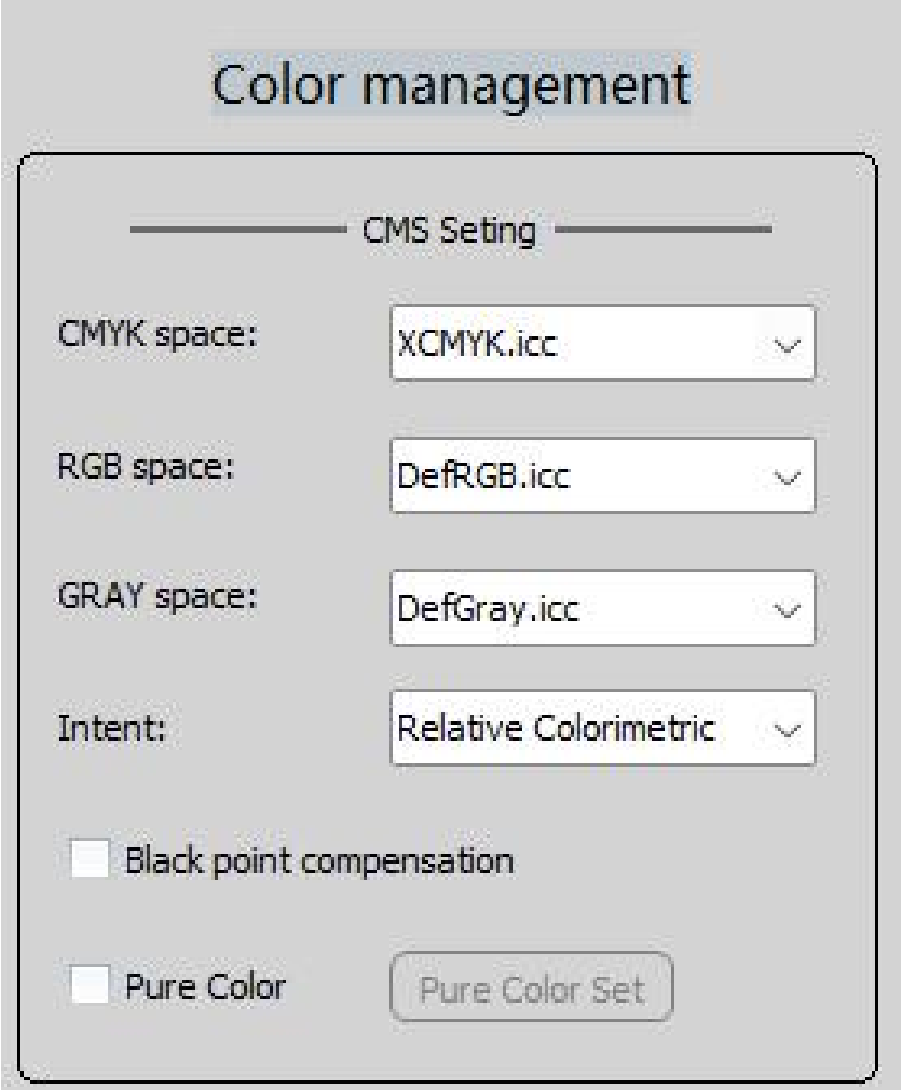
	Aspect ratio locked, one-way scaling mode
	Aspect ratio locked, proportional scaling mode

Layout:

Shortcut icons such as duplicating multiple images, automatic layout, rotating 90°to the left,rotating 90°to the right, horizontal centering, horizontal mirroring, vertical mirroring, and vertical centering.

File attributes:

File name, file path, pixel size, DPI, colour



Color management

Click the color management icon  for details as follows:

CMS setting

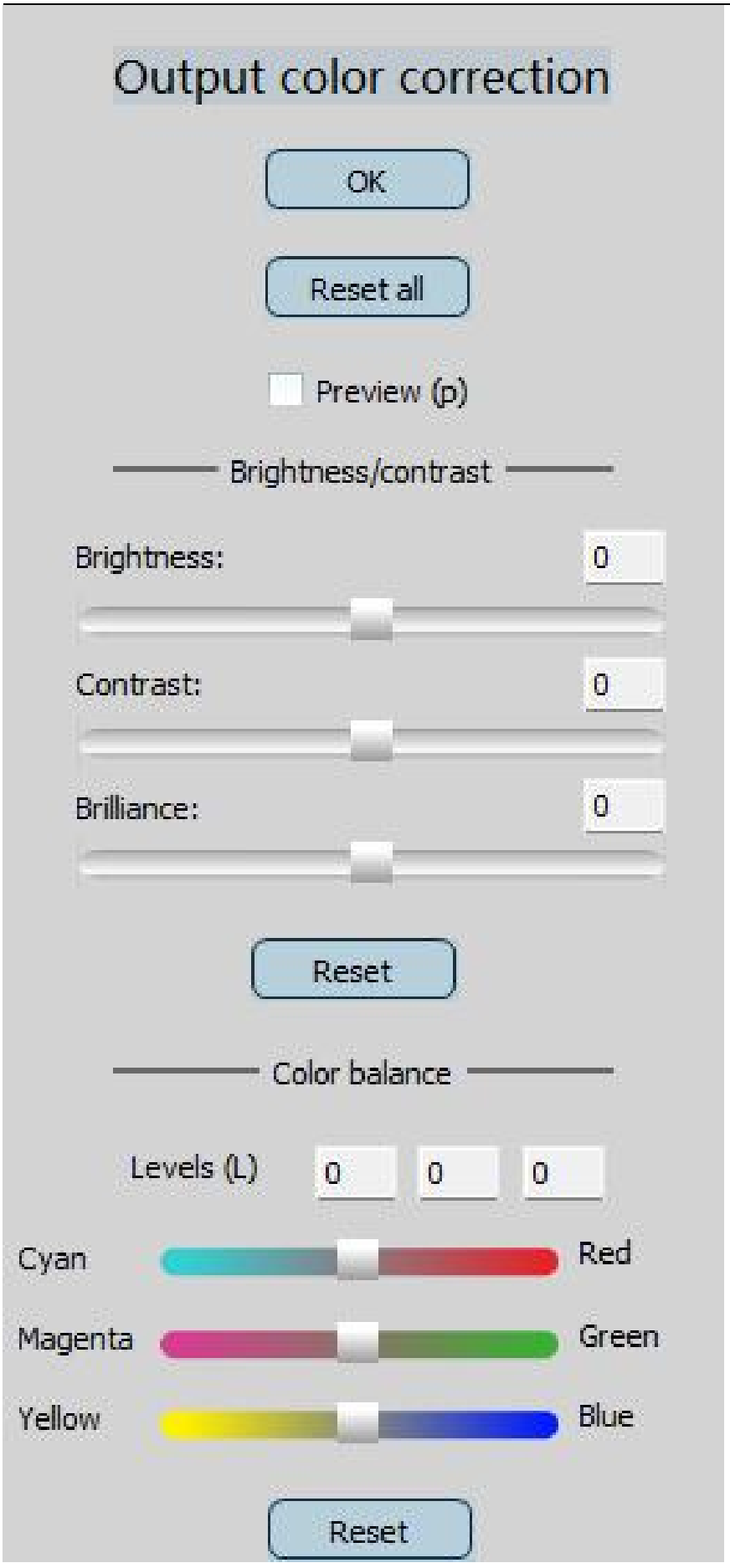
1、CMYK space

2、RGB space

3、GRAY space

4、intent

5、black point compensation


Output color correction
OK
Reset all
Preview (p)
Brightness/contrast
Brightness:
0
Contrast:
0
Brilliance:
0
Reset
Color balance
Levels (L)
0
0
0
Cyan
Red
Magenta
Green
Yellow
Blue
Reset

Output color correction

Click the output color correction icon  for details as follows:

Brightness/contrast

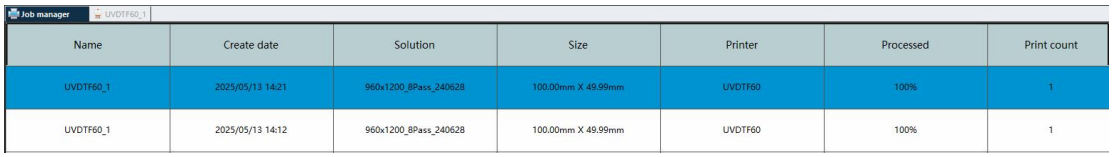
Brightness, contrast, brilliance, overall ink volume adjustment

Color balance

Adjustment of R、G、B colors

Job management

Click the job management icon  for details as follows:



Job management(displays print image data, print history)： name, time, file type, printer size.

6.2.4 Bottom Function Keys

	Preview page
	Zoom in
	Zoom out
	Constantly lit enabled curve
	Disabled curve
	Select all
	Select and move images
	Image size cropping function

Introduction to Keypad Functions

7.1 Home Page Display Content

Homepage	Attribute display	Printing direction Direction[only awy][Bidi]
		Printing speed Speed
		Feathering degree Soften
		Ink volume display
	Printing start position	Press the left direction key to make the cart leave the ink station. You can use the left and right keys to change the printing start position, and press the enter key to confirm.
	Carrier movement	Press the up and down keys to move the paper.
	Nozzle test	Test shortcut function key
	Pause	Press the pause shortcut function key
	Auto cleaning	Dean shortcut function key

After the power-on initialization process is completed, the following content will be displayed.

7.2 Menu List

When the main screen is displayed, press the [ENTER] button to show the menu screen. Press the [EXIT] button to return to the previous screen.

LV1	LV2	LV3	Details
Setup menu	Auto Clean		Auto cleaning in standby mode.
			Standby flash spraying. The waiting time, flash spray ink volume, and ink suction interval can be set.
	Device Address		After verifying the password, you can set the default value address and user-defined settings.

	Station Setup	Station POS	Align the printhead with the cap top to center them, press ENTER, select the option to save the ink station origin, and press ENTER again to save the settings.
		Spurt POS	Check whether the maintenance flash spray position is within the ink station.
		Wipe POS	Move the wiper to the right end of the printhead,the center position between the anti-collision strip and the printhead. Press ENTER, select the option the save the wiper position, and press ENTER again to save the settings.
		Wiper POS	Pop-up type is not required.
		Wiper Height	Set the wiper height for performing the ink scraping action.
		Car Cap POS	Not setting is required for the lifting ink station.
		Cap Height	Set the ink station height during capping.
		Print Spurt POS	Move the cart and set the flash spray position and frequency(0-99) .

Maintenance	Nozzle Test	Print the test strip directly, which is equivalent to pressing the TEST key on the keypad in standby mode.
	Clean Nozzle	Select the printhead that needs cleaning, and theprinter will execute the automatic cleaning process, which includes three actions: ink loading, nozzle wiping and flash spraying. Access this function by pressing the Clean key on the keypad when the printer is in standby mode.
	Manual Pump	Select the printhead that needs cleaning. The device will enter the capping state, and then the device will start drawing out the ink.
	Wipe Nozzle	The printer performs a single nozzle wiping action.
	Flush	The printer repeats flashing spray action. You need to click the Exit key to turn it off according to the situation.
	Cap Head	The printhead returns to the ink station and performs the capping action.
	Inking	Select the printhead and execute the automatic ink loading action.
	Clean Cap	Press the Up key to pop up the scraper(not supported). Press Down key activates the ink pump to discharge the waste ink from the ink station.

Auxiliary func	Ink Circulate	The ink agitation interval, time and intensity can be set.
	Warn Paper	Turn on or off the paper-out alarm.
	FAN SETUP	The suction mode and suction intensity of the platform can be set.
	After Print Paper Back	The paper retraction distance after printing can be set.
	UV Lamp Setting	UV lamp parameters can be set after verifying the password.
	Cap Right Set	By clicking Test, the printhead will move to the top of the ink station and perform a single flash spray. This allows you to check whether the flash spray position of the printhead falls within the ink station.
Dev.Mgr.		Record all version information of the device.
Restore Default		Restore all the values of the device to the factory default settings.
Language		The language of the keypad interface can be switched. Currently, only simplified Chinese and English are supported.

Introduction to the Proofing Operation Process

Taking crystal label material printing as an example, the printing operation process will be introduced.

8.1 Place the Printing Material and Confirm the Printing Height

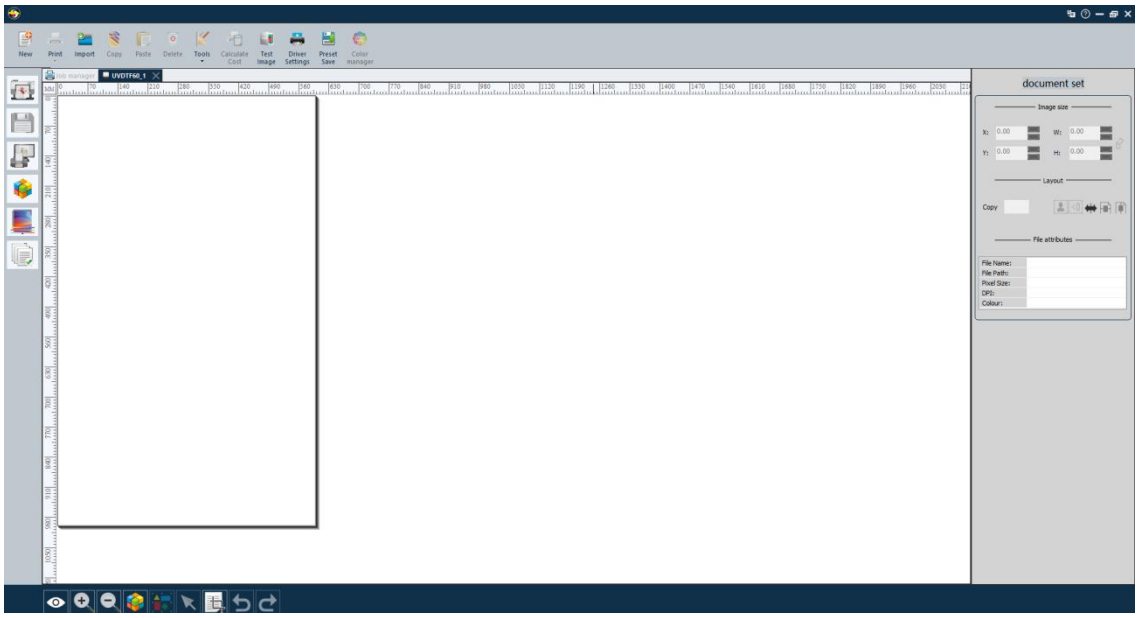
Lay an A-film of appropriate size flat on the platform to ensure it fits tightly against the platform.

For the printhead printing height, confirm that the height difference between the printhead and the paper surface is 2-3 mm.

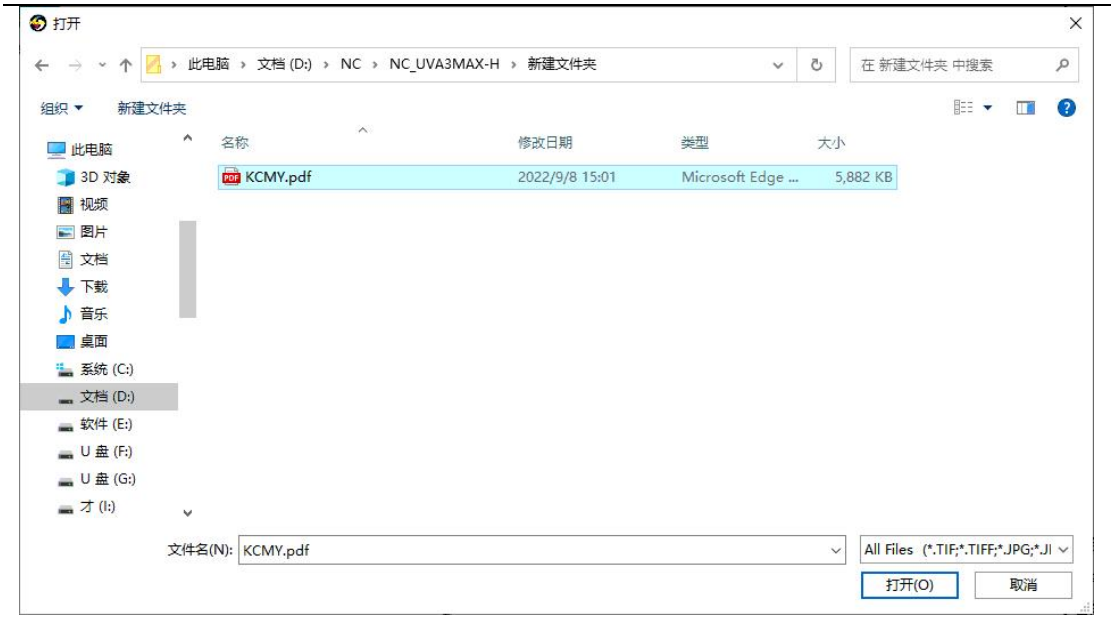
8.2 Import Image

Open **Future Rip** software, click the 【Import】 button 

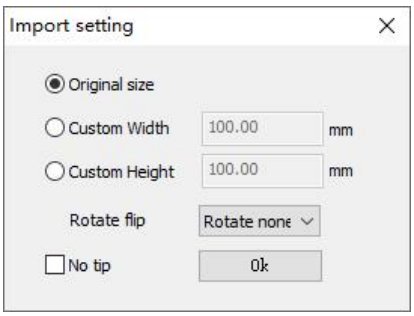
in the upper left corner of the software,locate the stored image, select it, and click Open.



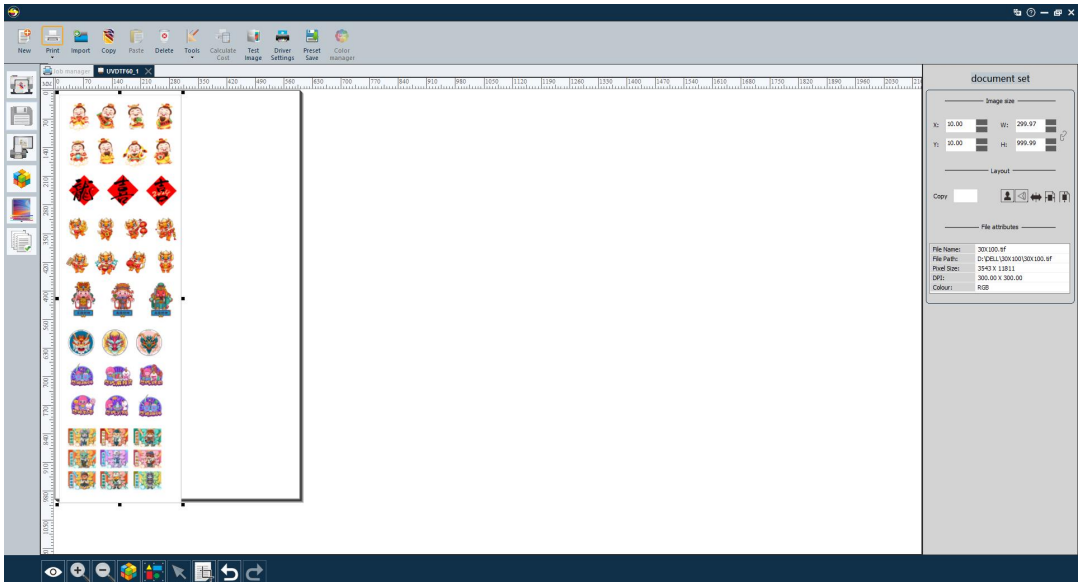
A pop-up window will appear as shown below. After selecting the image, click open.



Click open and the pop-up window will appear as shown below. Click OK.

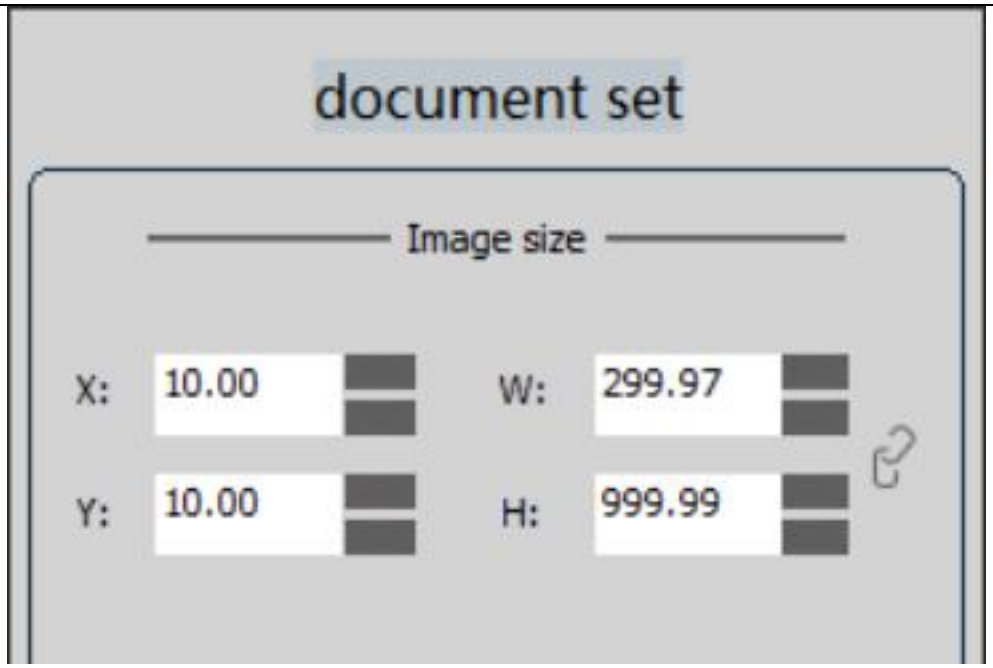


The details are as follows:



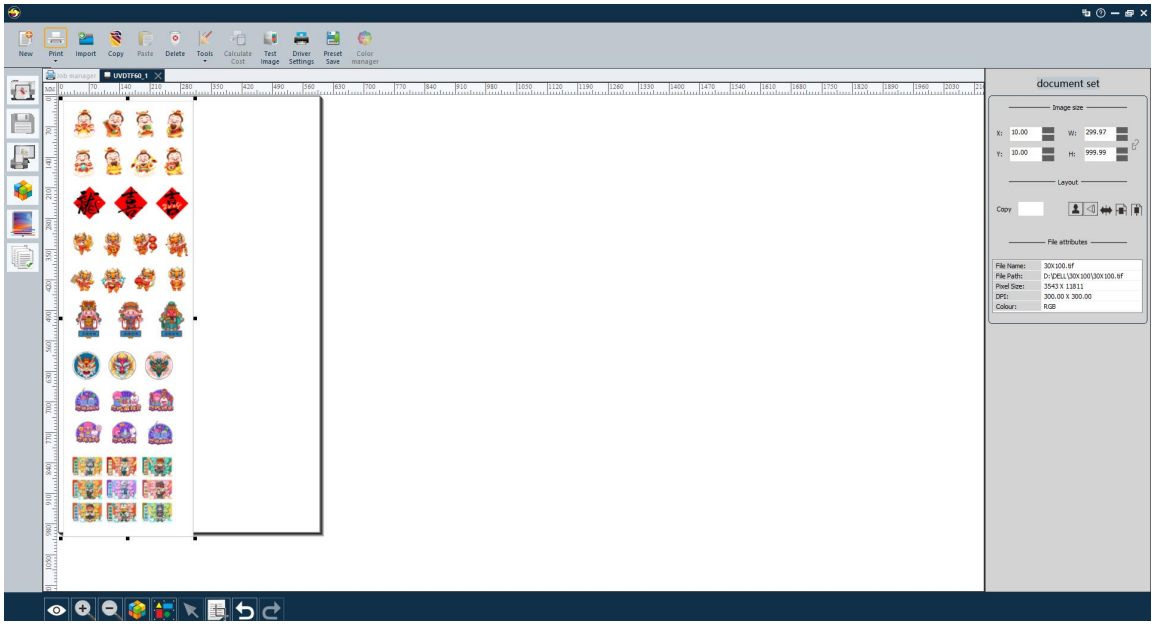
8.3 Confirm the Printing Conditions

Image offset

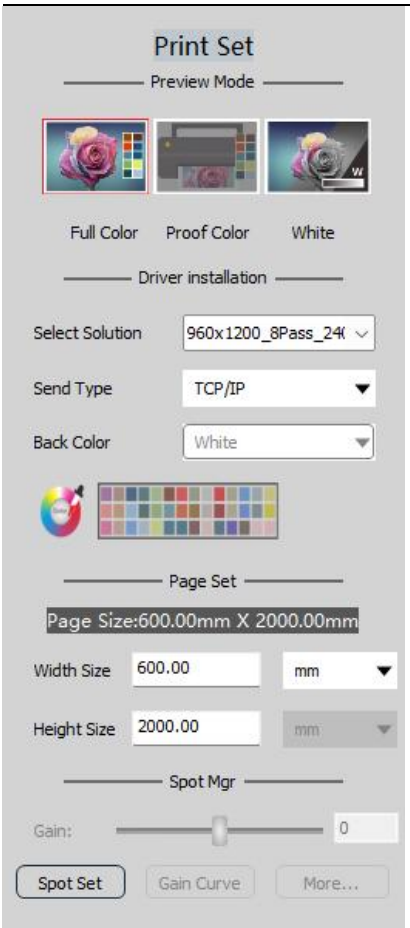


Click the document settings icon, and set the offset position to 10mm to the right and 10mm downward.

As shown in the right figure:



Click Print Set.



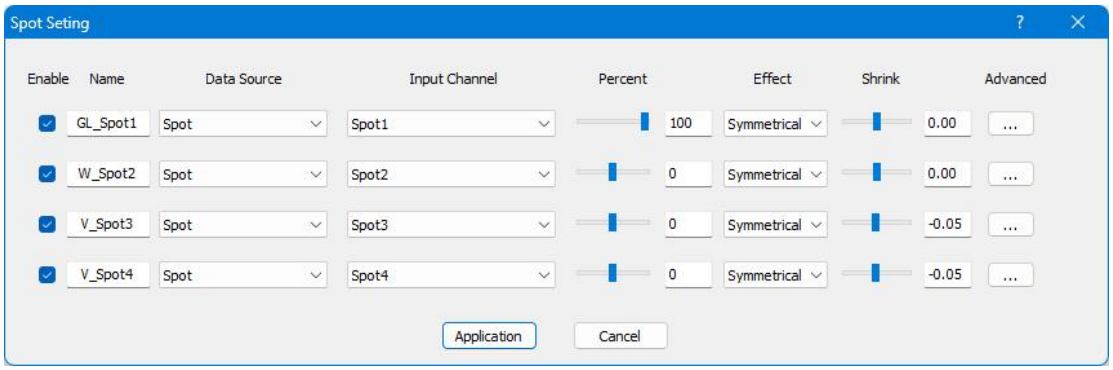
The details are as follows:

①Select the curve(default curve:960x900 6pass，960x1200 8pass)

②Set the send type to TCP/IP.

② Confirm the page settings：width=297mm，height=420mm

③ Spot color settings:set the spot color for the image. Do not check spot color 1, set white ink to spot color 2, set varnish to spot color 3 and 4. Keep the effect as the default symmetrical.

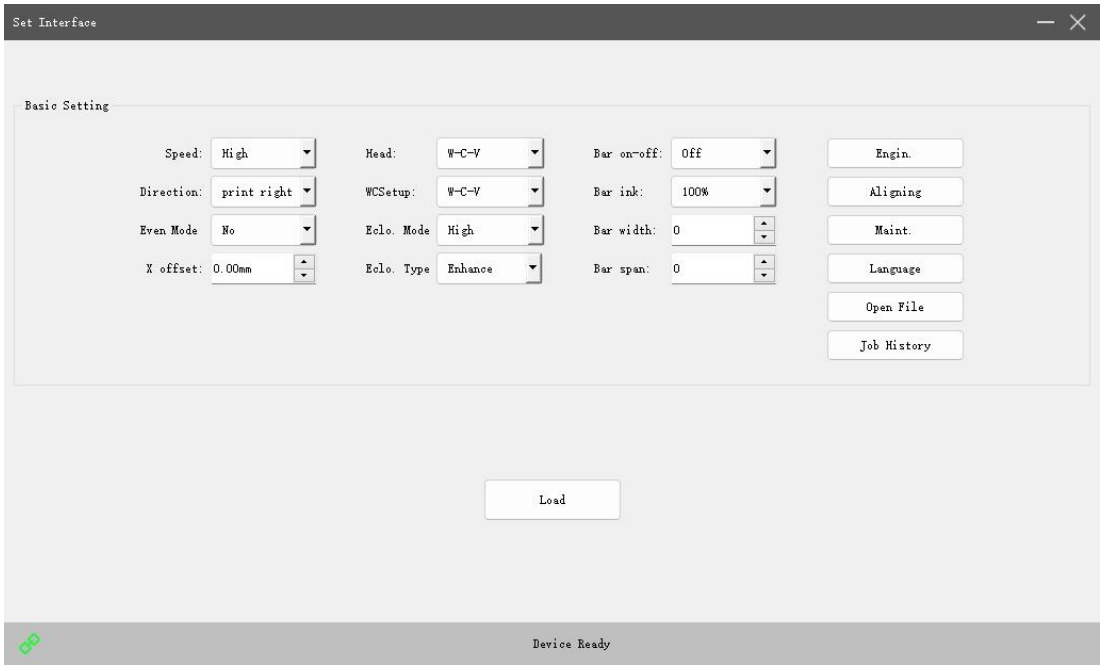


8.4 Confirm the Driver Settings Parameters

Click the driver settings icon 

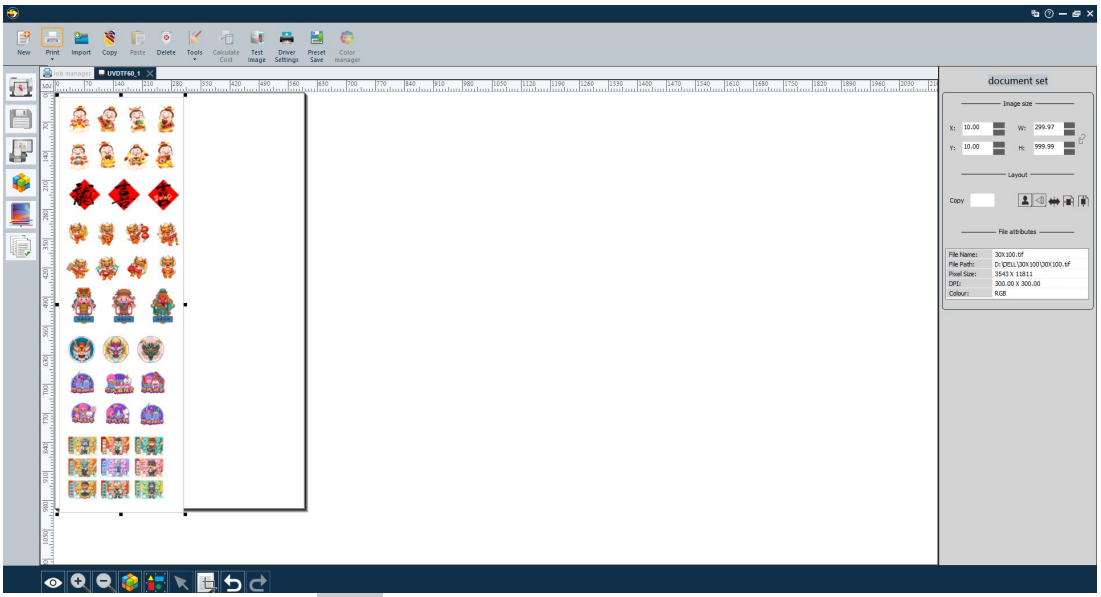
on the Future RIP interface, and the pop up

window will appear as shown below:



Confirm the X white edge, print speed, color combination, feather selection, print direction, calibration parameters, etc. After confirming, return to the Future RIP interface.

8.5 Send for Printing



Click the print icon 

in the upper left corner to execute printing. After click Print, a pop up window will direct you to the print list, and “print while ripping” process will start.

Machine Maintenance Method and Precautions

9.1 Maintenance Methods for Printhead

①There is a board chip inside the printhead, which is directly plugged into the printhead flat cable. Special attention should be paid to the contact part between the printhead cable and the printhead. It is crucial to prevent ink leakage. Once water-like substances are found on the printhead flat cable or in the printhead, turn off the machine immediately, remove the components and dry them. Only then can we reinstall and test whether they are burned out. Remember never turn on the machine when there is water present. Otherwise, both the printhead and the printhead board will be burned out.

②Since the printhead flat cable is tightly connected to the printhead socket during use, it is generally not easily plugged or unplugged. As a result, issues such as contact oxidation, damage, misalignment, or other contact short-circuit may occur. Therefore, when connecting or disconnecting the printhead flat cable, carefully check for and solve these problems or replace the printhead cable. Otherwise, it may cause damage to the printhead or prinhead board.

③Maintenance must be done when the machine is not in use:insist on turning on the machine once a day and printing a test strip. If there is ink breakage on the test strip, perform an auto cleaning to ensure the test strip is normal, and you can print a small image afterward. If the machine is not in use for more than 3 days in a holiday, apply3-5 drops of cleaning solution to the cap top, then attach the printhead to the cap top for sealing, which will provide a certain level of protection.

④After adding ink to the ink cartridge, use the method of “adding small amount frequently”. Once opened, the ink has a shelf life of 3 months--beyond this period, it will deteriorate, which may affect the print quality and cause the printhead clogging. It is recommended that customers regularly agitate the ink and turn on the white ink agitation switch at the cartridge when using the machine.

⑤The optimal distance between the printhead and the printing material is 2-3mm. Confirm the print height timely to avoid the printhead damage caused by scraping.

⑥The sheet metal of the cart printhead must be cleaned regularly to prevent any impact on the the printhead.

⑦Avoid printing on transparent, semi-transparent, or any light-transmitting materials, as this may cause nozzle clogging.

9.2 Ink Station Maintenance

When the printhead is attached to the cap top for ink pumping or cleaning,

ink will drop inside the ink station or on the sheet metal. Therefore, it is imperative to wipe these areas regularly or timely with alcohol to keep the in station clean.

9.3 Guide Rail Maintenance

The machine's guide rails include the cart rail. The contact between the guide rail and the slider is based on lubricant. Please add lubricant to the guide rails at regular intervals for maintenance to prevent rust and stiffness caused by insufficient oil. If black oil stains are found on the guide rail, first clean them thoroughly with alcohol before applying lubricant.

9.4 Damper Replacement

It is recommended to replace the damper every 3 months.

9.5 Cap top Replacement

It is recommended to replace the damper every 3 months.

9.6 Cover Sheet Metal Maintenance

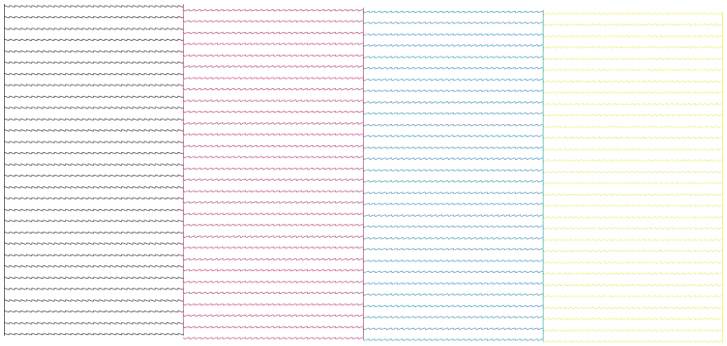
Keep the cover clean. If ink dripping occurs, wipe it off promptly to prevent the ink from corroding the paint of the sheet metal.

Common Troubleshooting Methods

10.1 Issues with Ink Breakage in Test Strips

Examples of common ink breakage issues are shown in the figure below:

10.1.1 The Test Strip is Fully Printed

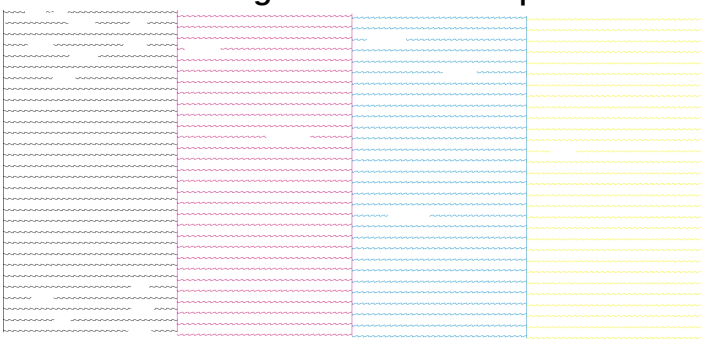


Note:normal states. This state indicates that the machine's printhead is in excellent condition.

10.1.2 Partial Ink Breakage on the Test Strip

Instruction: Partial ink breakage on the test strip is caused by corrosion damage to the printhead from the ink. You may select automatic cleaning to address this issue. If automatic cleaning fails to solve the problem, the machine can still be used continuously, as it will not affect the printing effect.

10.1.3 Severe Partial Ink Breakage on the Test Strip



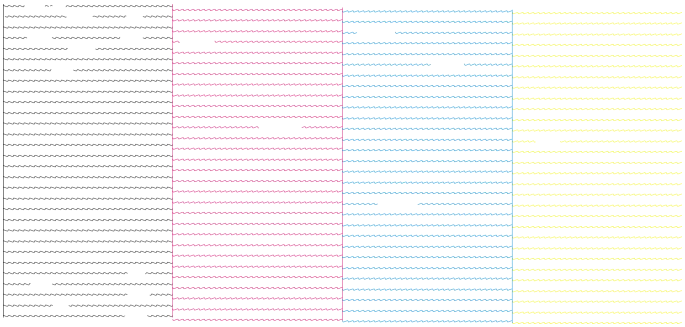
Solutions:

1.Use a syringe to draw ink from the damper to check if the ink can flow out normally. Rule out the possibilities of blockage and air leakage. If there is a

problem, please replace the damper.
2.If there is still a blockage when drawing ink from the damper after replacing it, please check if the ink tube and the damper are clogged. Is there is still a clogging issue when drawing ink from the damper after replacing it, please check whether the ink tube and the damper chuck are clogged.
3. Manually clean the printhead and make sure it is not clogged.

Problem overview: If the above problems occur, it is generally caused by blockages of the damper and printhead. Please check them first.

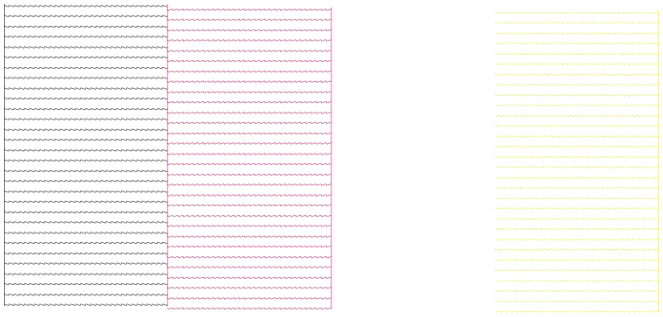
10.1.4 The Test Strip Has Almost Complete Ink Breakage



Solutions:
1.Perform auto cleaning and check if ink can be pumped. If ink cannot be pumped properly, replace with a new cap top or readjust its position.
2.Check if there is ink residue on the surface of the printhead. If there are ink droplets of a single color,replace the corresponding damper. If there are ink droplets of multiple colors, check if the wiper can properly wipe the printhead mirror surface during the auto cleaning process.
3.Manually clean. Use a syringe to flush the printhead and check if it is clogged.

Problem overview:in case of such muti-color ink breakage issues as mentioned above, the possibility of nozzle clogging is generally low. It is recommended to thoroughly check whether the ink suction and scarping between the cap top and the nozzle are functioning properly.

10.1.5 Missing Color Blocks on the Test Strip



Solutions:

1.Use a syringe to pump ink from the damper to ensure ink can flow out normally. Manually clean the the printhead and make sure it is not clogged.
2.Check if there is ink stains on the printhead cable connector. If yes, please clean it thoroughly and retest, or replace the printhead.
3.Unplug and reinsert the printhead cable, and check if the contacts of the printhead are oxidized or damaged. If yes, replace the printhead cable, plug it properly and retest.
4.Replace the printhead board.

For the issues where a single color is missing, it is generally because the printhead voltage is not transmitted normally. Common causes include problems with the printhead board, printhead cable or the printhead itself. However, it cannot be ruled put that the issues is caused by insufficient ink supply for that single color or a clogged printhead.

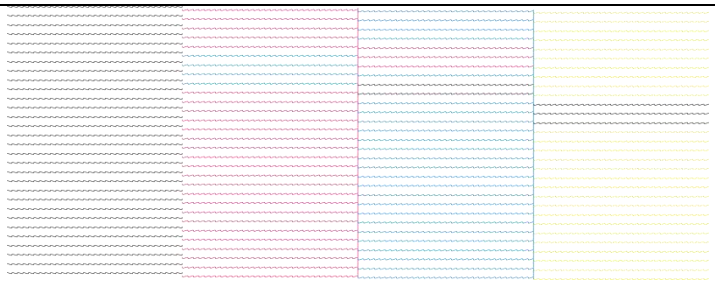
10.1.6 No Pattern on the Test Strip

Solutions:

1.Unplug and reinsert the printhead cable. Check if the contacts of the printhead cable are oxidized or damaged. If so, replace the printhead cable, plug it properly and retest.
2.Check if there is any ink stain on the printhead cable connector of the printhead. If yes, clean it thoroughly and retest, or replace the printhead.
3.Replace the printhead board.

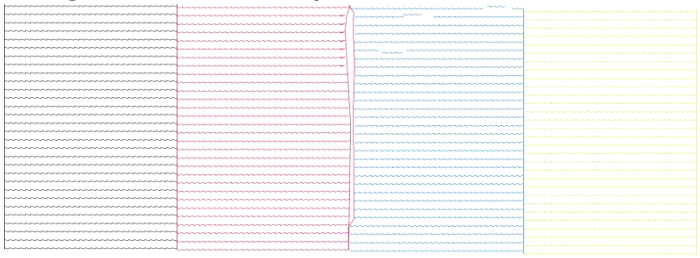
Problem overview:for the above mentioned issue, it is generally caused by ink entering the printhead connector or incorrect operation by the customer after replacing the printhead, which leads to a short circuit in the printhead and burns out the printhead board or the printhead itself. Since a faulty printhead can damage the printhead board, but a faulty printhead board will not damage the printhead, it is recommended to first replace the printhead and install a new printhead cable.

10.1.7 Color Mixing: Large Area Color Mixing



Solutions:
1.Please first perform ink flushing, then print a test strip to check if the color mixing situation improves.If not, check the printhead surface for ink residue: if there are ink droplets of a single color, replace the corresponding damper; if there are ink droplets of multiple colors, check whether the wiper can properly wipe the printhead mirror surface during the auto cleaning process.
2.Replace the printhead.
Problem overview: If the above problems occur, first check the printhead surface for ink residue.

10.1.8 Ink Smearing on the Test Strip



Solutions:
1. Check if the distance between the printhead and the printing medium is within 2-3 mm.
2.Ensure the printing environment is within 25℃~30℃.
3.Test whether the cap top can draw ink normally.
4.Agitate the smearing ink evenly, draw more than 10ml of ink from the damper with a syringe, and then clean the printhead. If the problem remains, it is recommended to replace the ink.
Problem overview: If the above problem occurs, and there are no special changes in the surrounding environment, it it generally caused by ink settling due to machine being left unused for a long time.

10.2 Future RIP Prompt Software UV(Demo Version)

1.Check if the dongle light is on. If not, please replace the computer's USB adapter or the dongle itself.

10.3 UV Lamp Not Working

1.Check if the the UV lamp power cord is connected.
2.Check if the UV lamp power supply is energized and has voltage output.

Replace the UV lamp power supply is necessary.
3.Measure the corresponding terminal on the main board to see if there is a 24V voltage output during printing. Replace the main board if there is no output.
4.Replace the UV lamp.

10.4 Ink Not Drying

All products with ink not drying:

Check if the UV lamp is on during printing. If it is off, please resolve the issue (refer to the solution for UV lamp not turning on).

Edges of the product not drying properly:

1.Verify the UV lamp calibration parameters.
2.Confirm the equipment information and version number with the manufacturer, and upgrade the machine to the latest version.

10.5 Error Codes

Error informationError Information1	PC driver version error
Error information2	The balance of the usage time is less than a certain amount
Error information3	The balance of usage time is zero
Error information4	Origin sensor error
Error information5	Parameter initialization error
Error information6	Cart collision
Error information7	The parameter table ID does not match the registration ID.
Error information8	Small cart transmission ratio
Error information9	Large cart transmission ratio
Error information10	UI parameter initialization error
Error information11	Wavetable is empty
Error information12	Cart direction error
Error information13	Print cart stops
Error information14	Cart position error
Error information15	Servo motor self-test distance is insufficient

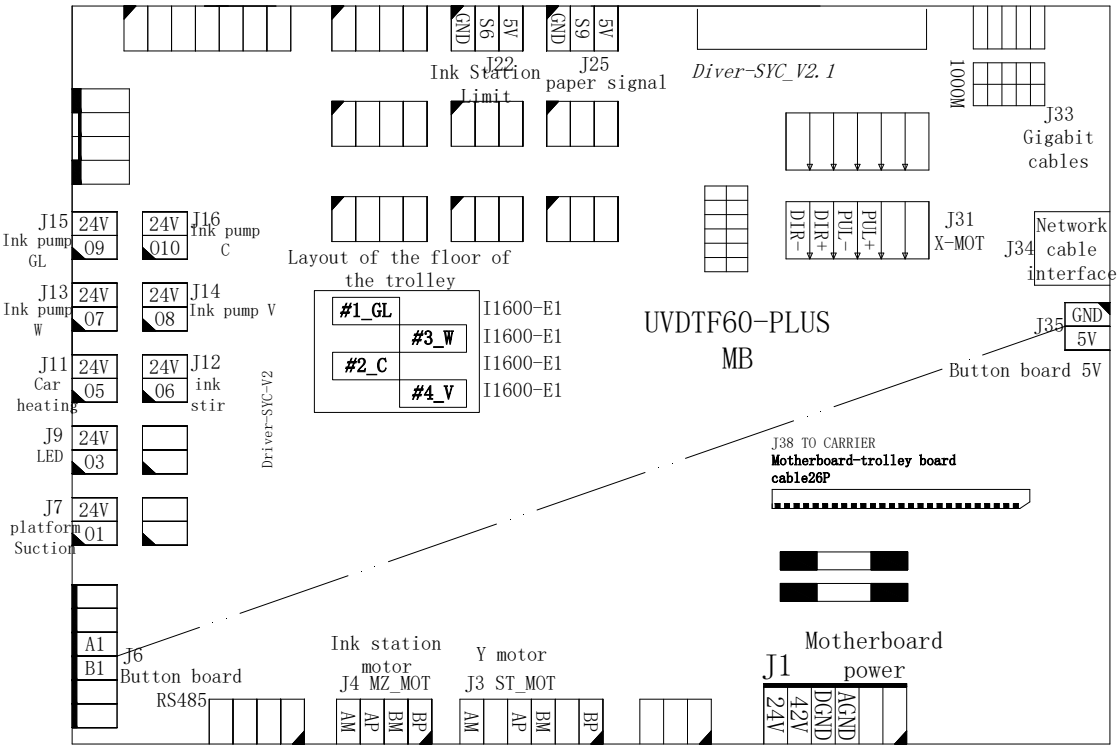
Error information16	Driver board alarm
Error information17	UI parameter does not match cart parameter ID
Error information18	IP address conflict error
Error information19	Ink cartridge initialization error
Error information20	Ink cartridge level alarm
Error information21	Ink cartridge is zero
Error information22	UI parameter table test version
Error information23	Time limit is not supported
Error information24	Time limit reading error
Error information25	Time limit expired
Error information26	Time has been illegally modified
Error information27	Parameter table printhead type error
Error information28	Automatic printhead detection error
Error information29	Abnormal UI reset error
Error information30	Error in detecting ink station motor or sensor
Error information31	Panel nozzle test filling data error
Error information32	Flash jet timeout error before printing
Error information33	Nozzle test timeout error
Error information34	Abnormal SDR startup detection, undetectable
Error information35	Paper pressure sensor error
Error information36	The selected ink sequence has no corresponding waveform
Error information39	Raster lost
Error information40	Waster ink alarm
Error information41	Overwidth alarm
Error information42	Printing touches the maximum Y limit
Error information43	Printing touched the maximum Z limit

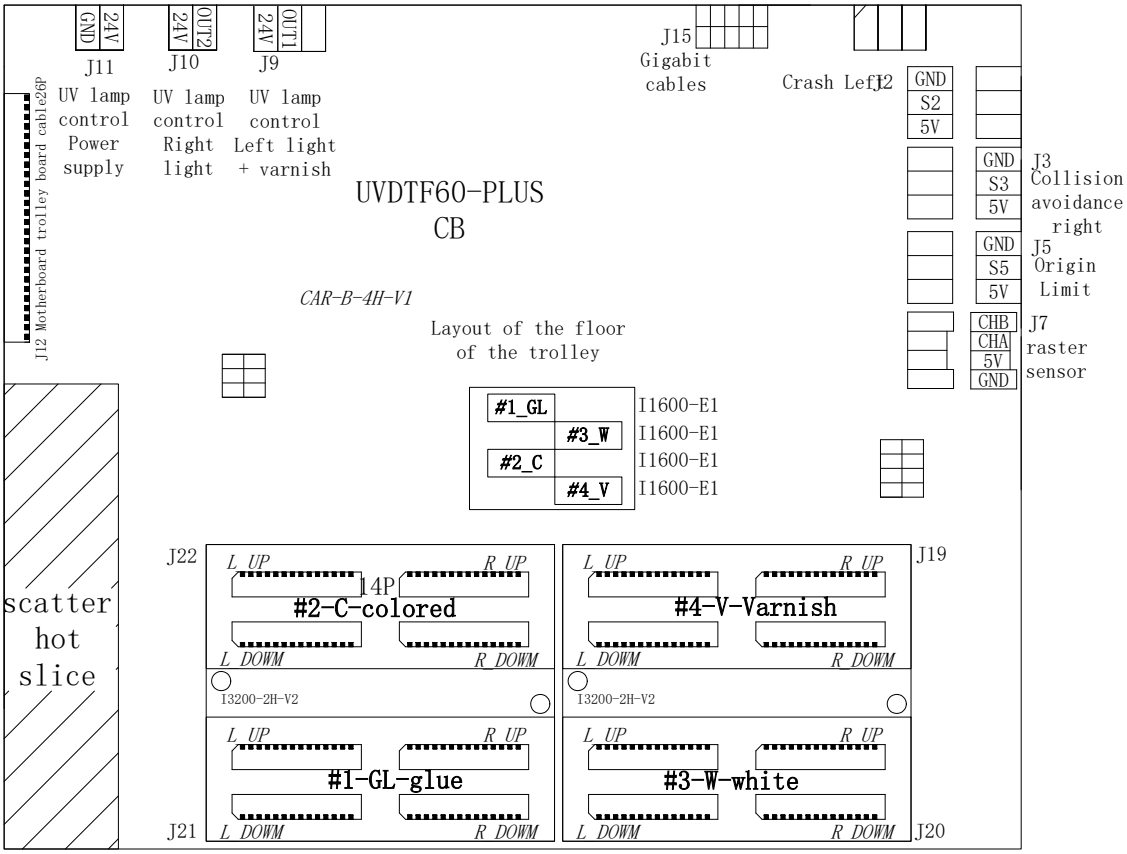
Error information50	Ink level monitoring alarm
Error information51	Ink not activated
Error information101	Debug error
Error information102	Debug error
Error information103	Debug error
Error information104	High cart resistance
Error information105	Cart reverse
Error information106	Width exceed
Error information107	Cart zero position sensor error
Error information108	Raster detection error
Error information109	SDR detection error
Error information110	PC driver error
Error information111	Insufficient square meterage
Error information112	Lifting ink station sensor error
Error information113	Main board and cart board communication error
Error information114	The printing square meterage is 0
Error information115	Fiber optic communication failure
Error information116	Empty paper alarm
Error information117	Parameter ID does not match registered ID
Error information118	Invalid parameter table
Error information119	Cart board has no main program written
Error information120	Printhead lifting motor error
Error information121	Paper feeding limit
Error information122	Paper feeding initialization error
Error information123	Anti-collision
Error information124	Anti-collision during initialization
Error information125	Ink overflows
Error information126	Small cart transmission ratio
Error information127	Large cart transmission ratio
Error information128	Cart board printhead type error
Error information129	The through-beam sensor pauses during printing
Error information130	External RAM error
Error information131	The position of the cart has an over-tolerance error when it stops.
Error information132	Position error when cart moves

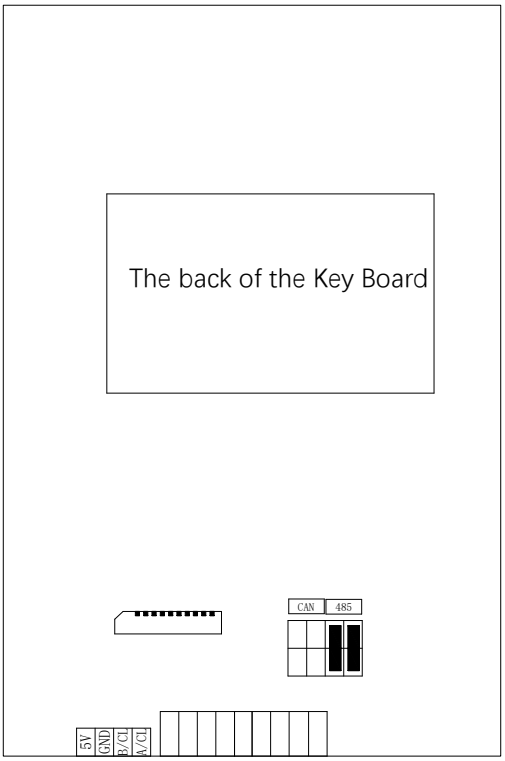
Error information133	Muti-machine system abnormal startup error
Error information134	SDR startup detection abnormal, undetectable
Error information135	Ink station expansion board not connected
Error information136	Temperature alarm
Error information137	Humidity alarm
Error information138	FPGA reset timeout
Error information139	Failed to apply for external SRAM, used for 485 initialization
Error information140	485 communication failure in muti-machine system
Error information141	Abnormal printing in muti-machine system
Error information142	Main ink bottle empty
Error information143	Waste ink full
Error information144	Paper feeding and collecting expansion board not connected
Error information145	Paper feeding and collecting expansion board operation error
Error information146	Ink pump motor board not connected
Error information147	The slave machine has no network connection
Error information148	485 communication failure between master and slave machines in muti-machine system
Error information149	Time restriction is not supported
Error information150	Error reading of time restriction
Error information151	Time restriction has been exhausted
Error information152	Time has been illegally modified
Error information153	Multi-machine system synchronization failure
Error information154	Printhead automatic detection error/the cover of the cart has been abnormally opened(Model X33)
Error information155	The fabric flattening stick has not lowered
Error information156	The slave machine self-inspection failed
Error information157	Printhead alarm
Error information158	Printhead alarm 2

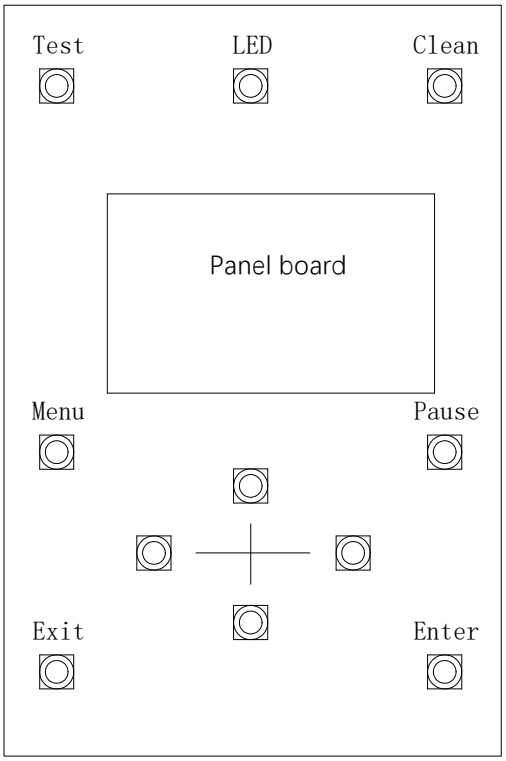
Error information164	Rewind or unwind the paper to the end
Error information165	Ink supply timeout
Error information166	SWATH printing: cart waiting timeout
Error information167	Cancellable ink station error
Error information168	Printhead temperature too high
Error information169	Abnormal printhead voltage supply
Error information170	Distributed message distribution:connection timeout
Error information171	The currently selected wave table is empty
Error information172	Ink station sensor error during cart movement
Error information173	Printhead reversed insertion, wrong insertion, offset insertion, ink ingress
Error information174	Problem with the connecting cable between the secondary development data card and the control card
Error information175	The cart is detected to have stopped, but the current pass printing is not completed
Error information176	Excessive pressure difference alarm of the machine head negative pressure gauge
Error information199	CPU abnormal error(program crash, forbidden address access)

Introduction to Board Circuit Definition






The back of the Key Board
CAN
485
5V
GND
B/CL
A/CL


Test
LED
Clean
Panel board
Menu
Pause
Exit
Enter

Maintenance Code of Practice

12.1 After-sales Service and Warranty Policy

Starting from the contract date, the entire machine is covered by a one-year warranty. However, accessories that are in direct contact with ink including printhead, cap top, ink pump/peristaltic pump, ink tube, ink cartridge and damper are not included in the warranty scope. If on-site service by a technician is requested, the buyer shall bear the costs of the technician's round-trip transportation, accommodation , and meals.

12.2 Seeking Assistance

If you have any problems while using the machine, please follow these steps to seek assistance:

12.2.1 First, check the user manual.

12.2.2 Please visit the Nocai website for more product information.(http://www.happycolor.com.cn/)

12.2.3 Contact your local dealership for help.

12.3 User Information Section: Please Refer to the Table Below

User information section	
User name:	
Product:	
Model:	
Detailed address:	
Telephone number:	

12.4 Non-warranty Items

12.4.1 Product malfunctions and damages are due to the use of inks not specified by Nocai.

12.4.2 Product malfunctions and damages are due to the user operating in the working environment not specified by Nocai(such as power supply, temperature and humidity).

12.4.3 Malfunctions, damages or loss of components caused by user improper storage(such as damage from rodents, insects, liquid infiltration, foreign objects entering).

12.4.4 Malfunctions and damages caused by human factors.

12.4.5 Malfunctions and damages caused by failure to follow the usage methods and key matters noted in the product instruction manual.

12.4.6 Malfunctions and damages caused during user transportation.

12.4.7 Malfunctions and damages caused by force majeure.

12.5 Warranty Policy

12.5.1 Nocai does not guarantee to provide for the loss or damage of supplied accessories(manuals, software).

12.5.2 Nocai shall not be liable for any indirect losses, future earnings, etc. incurred by users due to the product malfunctions.

12.6 Precautions

12.6.1 Handling:

12.6.1.1 Do not forcibly pull the cart beam and the print platform when moving the printer.

12.6.1.2 It requires 2 people to hold the printer's foot cups and move it steadily.

12.6.2 Operating environment

Operating environment	Temperature	25℃-28℃
	Humidity	35%-65%