



DC500L Series Piezo Inkjet Printer

User Manual V1.0

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DK 3.08 T240802A-01-CNSJ

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General

Intro

The DC500L series is a small printhead module designed to meet the requirements of strict single-station environments, with limited installation space, and can print vertically, horizontally, and flat. The DC series is equipped with DIKAI intelligent siphon ink supply system, which can realize 360-degree printing in any direction.

DC500L Series benefits: 13.3-inch high resolution 1080P touch screen, user-friendly interface, advanced integrated circuit ink system, independent cartridge module design, one machine can connect up to four types of nozzle.

Inspection

Power supply

Ensure that the power supply is as indicated on the label next to the source socket of the inkjet machine. If the voltage rating is different, consult your local supplier before using the printer. Use only the power cable provided by the printer.

Ground connection

The device must be connected to an AC power supply with a ground lead that complies with IEC requirements or local regulations. If the protective grounding cable is broken, the device may be dangerous.

Warning

Warning

1. The surface of the nozzle absolutely does not allow direct irradiation or reflection of ultraviolet lamps, which can easily cause blockage of the nozzle.

2. The nozzle can not be scraped by hard objects, especially sharp things, otherwise it will cause damage to the nozzle, thus affecting the printing effect.
3. The nozzle is a damageable part, and the surface of the nozzle is not allowed to contact any liquid except our certified ink and cleaning agent.
4. When the nozzle is not used for more than 5 days, after cleaning the spray hole surface with the nozzle wiping cloth stained with cleaning liquid, put a clean nozzle special wiping cloth in the stainless steel nozzle protective cover, and cover the nozzle protective cover, which can play the role of avoiding light and dust.
5. If the nozzle is not used for a long time, intermittent maintenance is required. After the normal startup process is executed every other week, ink is squeezed once or twice, and the test content is printed to ensure that the nozzle is not blocked.
6. Please use our designated special consumables, such as the use of consumables without our certification caused by the fault is not within the scope of warranty.
7. It is prohibited to use ink that has expired or recycled waste ink.
8. It is strictly forbidden to disassemble the equipment within the warranty period, and it must be operated in a standardized manner under the guidance of the manufacturer's engineer. The equipment damage caused by private disassembly will be borne by the user.

Caution

Caution

1. If ink or cleaning agent accidentally enters eyes, immediately rinse eyes with plenty of water, and seek medical attention as soon as possible if you feel uncomfortable.
2. If the equipment is equipped with ultraviolet curing light source, do not look directly at the light source, avoid long-term exposure to the skin, and try to avoid light

treatment on the spot to prevent human eyes or skin from contact with light for a long time.

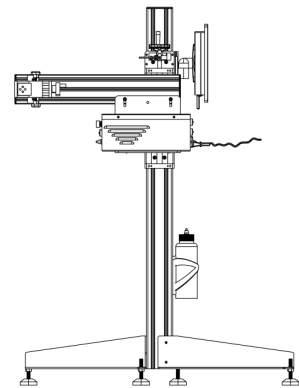
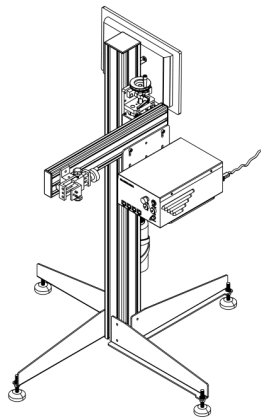
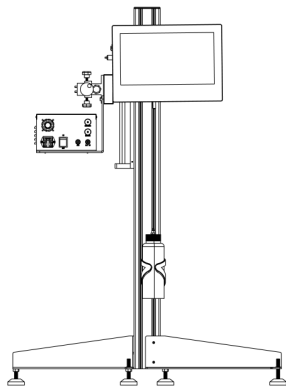
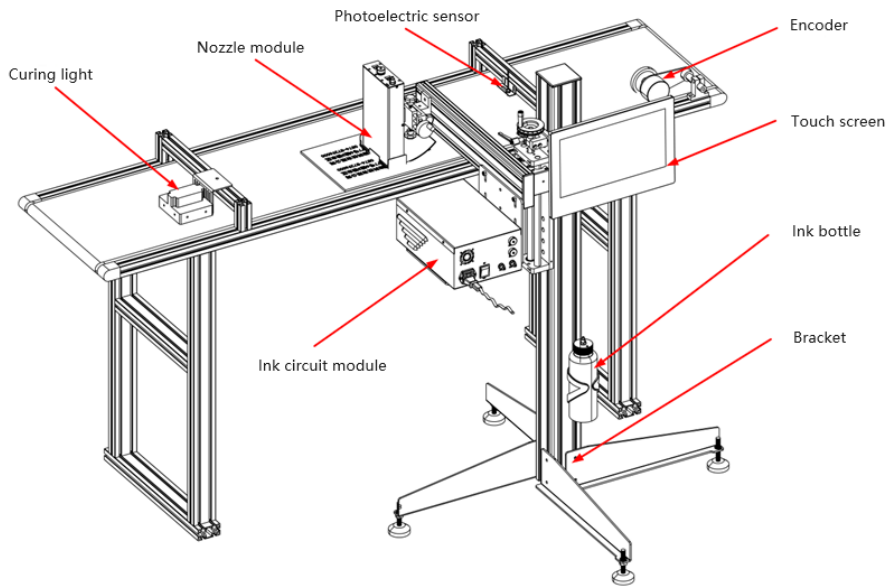
3. The UV curing light source supported by the equipment is the LED cold light source, but if it stays under the light source for a long time, it will still cause the temperature of the object to rise rapidly, and even cause the product to burn.

Description

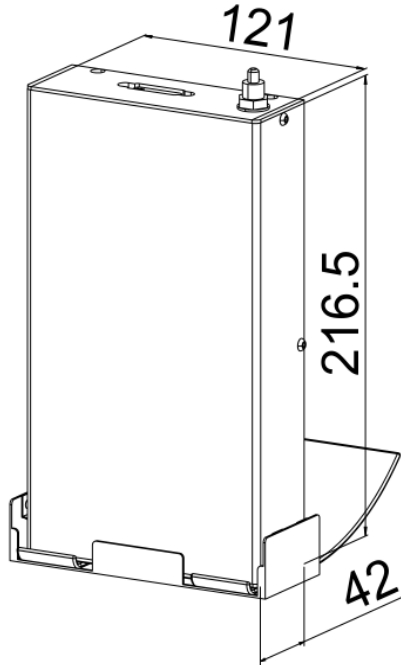
Parameter

Printer type	DC500L series
Nozzle type	Industrial high definition piezoelectric nozzle
Print lines	Unlimited number of lines, nozzle printing height range, any arrangement
Print font	Any fonts supported by Windows
Print content	Fixed and variable text, images, various encodings, databases
Print direction	360° full print
Print speed	0-600 m/min
Print method	Single or continuous printing
Ink type	Oily ink, water-based ink, UV curable ink
Ink color	Black, white, various color spot colors, ultraviolet or infrared color development
Display screen	13.3 inch HD touch screen
Operating system	Windows7 64-bit or later
Software system	Easyprint multifunctional printing system
Data interface	USB\RS232\Ethernet
PH Cable length	3 meters is standard
TEMP range	0-50°C
Humidity range	Less than 85% non-condensation
Suitable voltage	AC100-240V 50/60Hz

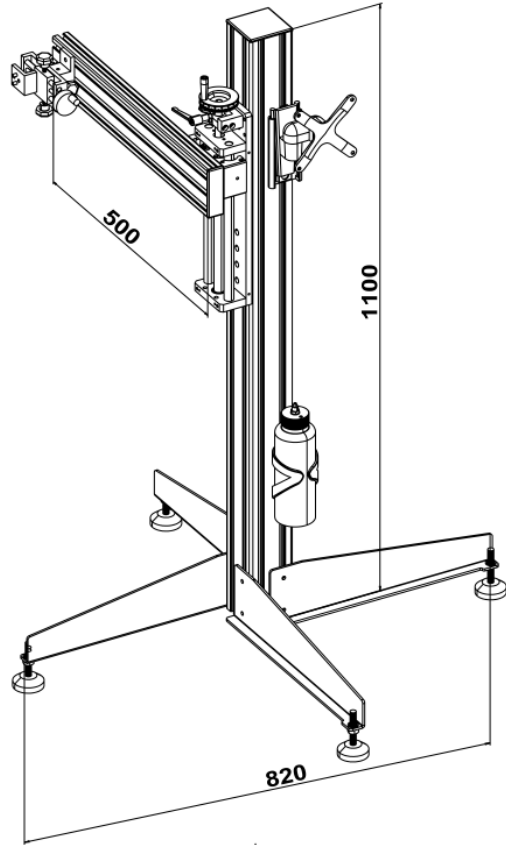
Hardware composition



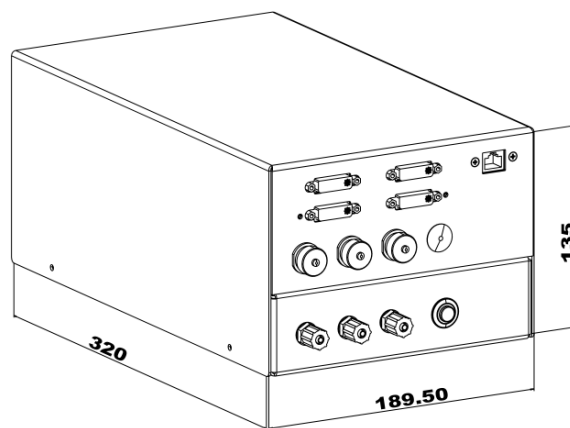
Module size



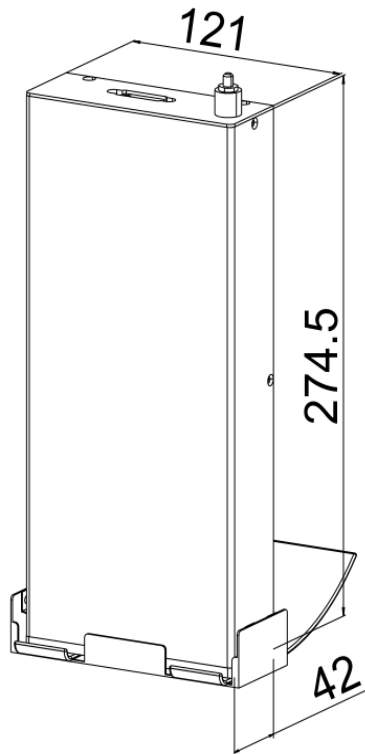
513L/523L/525L Nozzle module



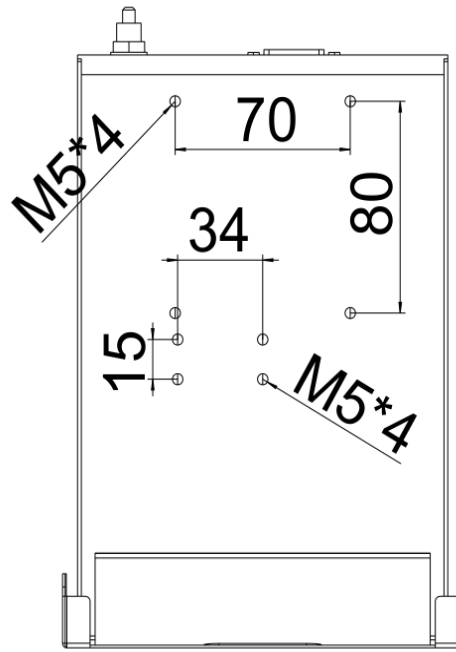
Bracket



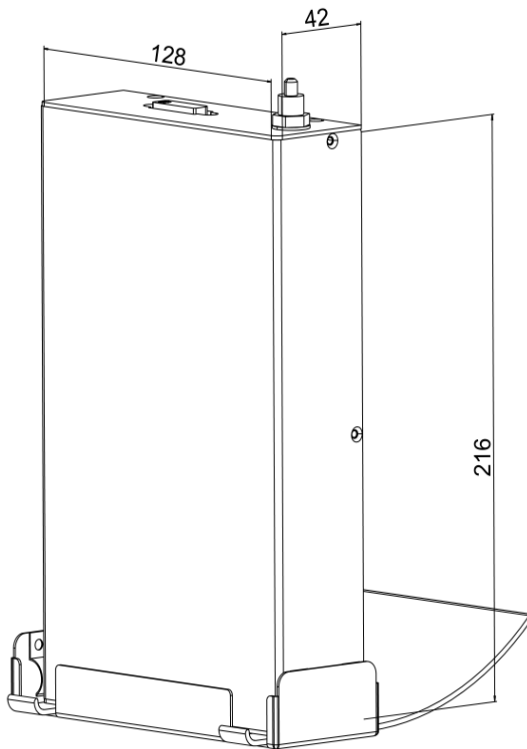
Ink circuit module



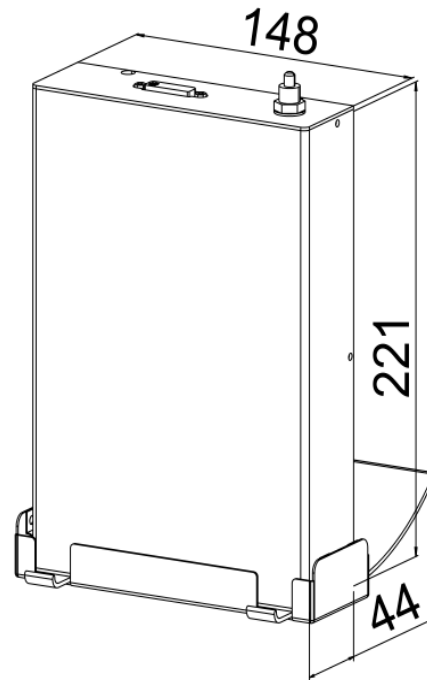
545L Nozzle module



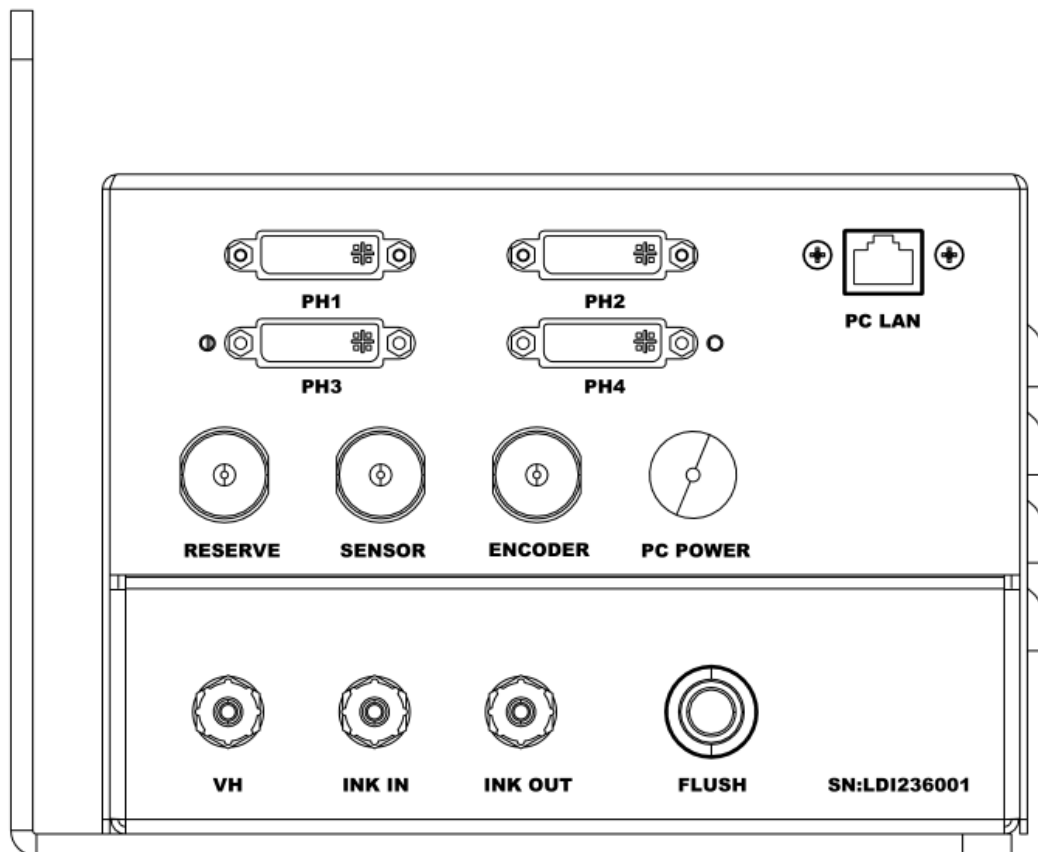
Holes for securing the backplane



517L Nozzle module



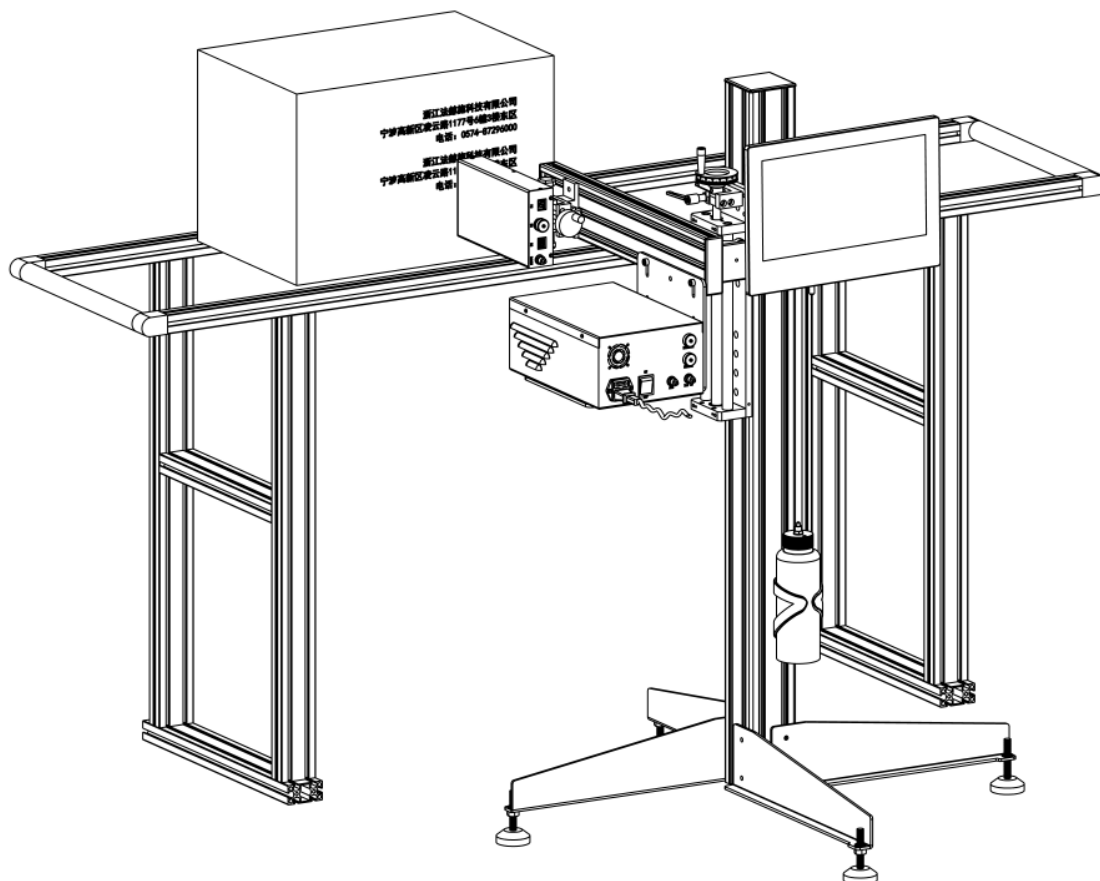
517LPlus Nozzle module



1. PH1-PH4: nozzle 1 to nozzle 4 cable interface
2. PC LAN: gigabit network port connected to a PC or touch screen
3. RESERVE: reserve ports
4. SENSOR: indicates a sensor port
5. ENCODER: indicates the encoder interface
6. PC POWER: touch screen power port
7. VH: exhaust port
8. INK IN: ink inlet, even ink bottle or ink bucket
9. INK OUT: the ink outlet connects the nozzle to the ink inlet
10. FLUSH: ink squeeze switch

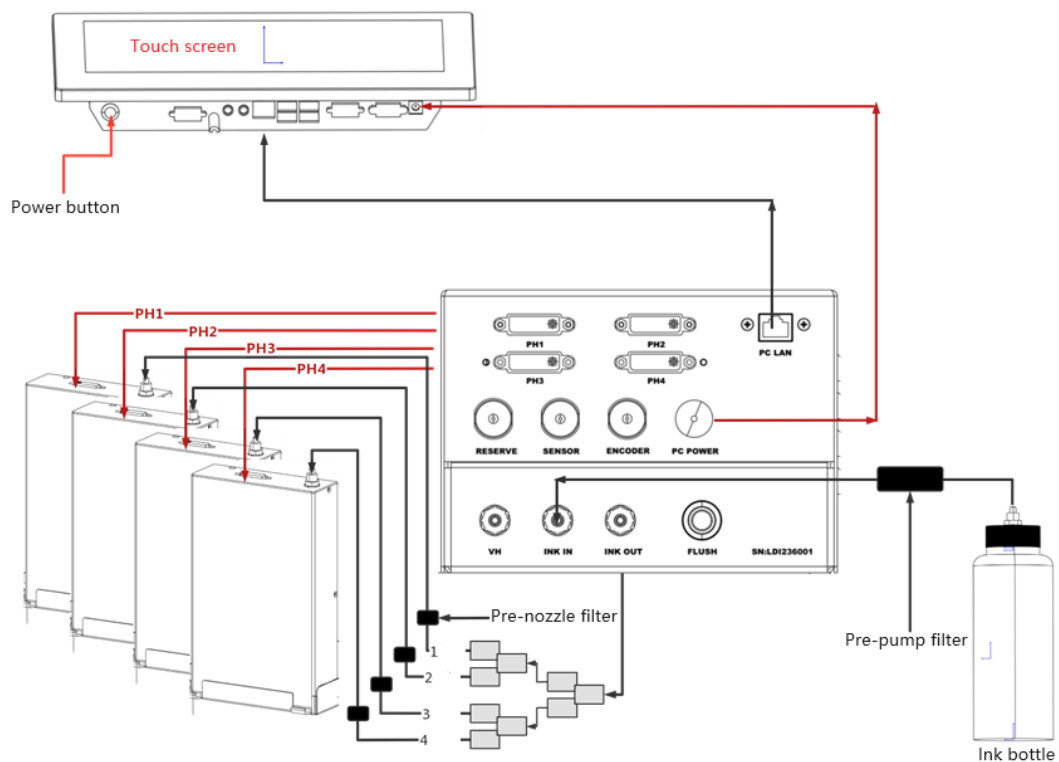
Installation

Installation procedure

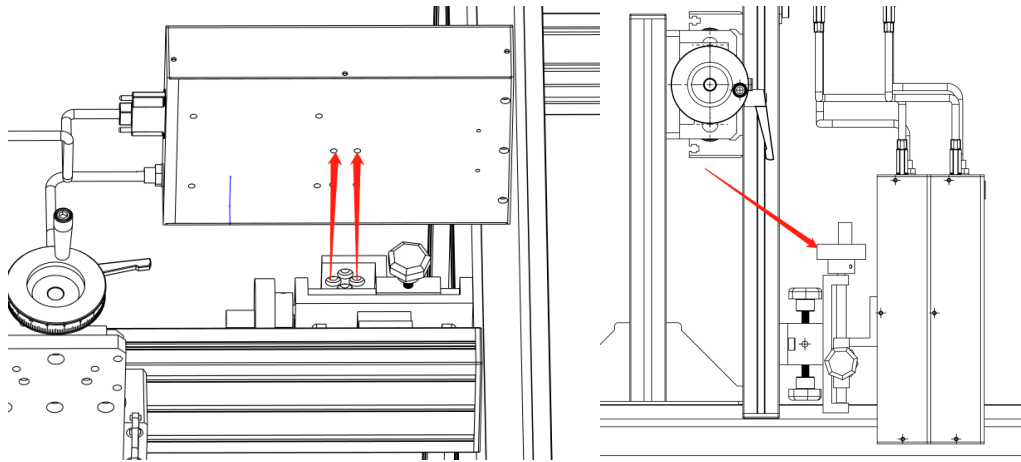


1. Independent floor bracket installation.
2. Check whether the following components are properly installed:
 - 2.1 Installation and fixing of operating screen, ink bottle, ink path module and bracket.
 - 2.2 The nozzle and nozzle bracket.
 - 2.3 The 29PIN cables between ink circuit module and nozzle module.
 - 2.4 The nozzle module, ink circuit module tube and filter in front of nozzle.
 - 2.5 Sensor and sensor bracket.
 - 2.6 Encoder and encoder bracket
 - 2.7 The curing light(if equipped) , then perform the following steps.
3. Check if the nozzle and substrate are parallel.
4. Open the ink bottle cap, replace it with an aluminum ink bottle cap, and fix it to the ink bottle holder. If it is white and other precipitated ink, shake it for more than 60 seconds before adding it to the main ink tank, and be careful not to flow outside the main ink tank when adding ink.

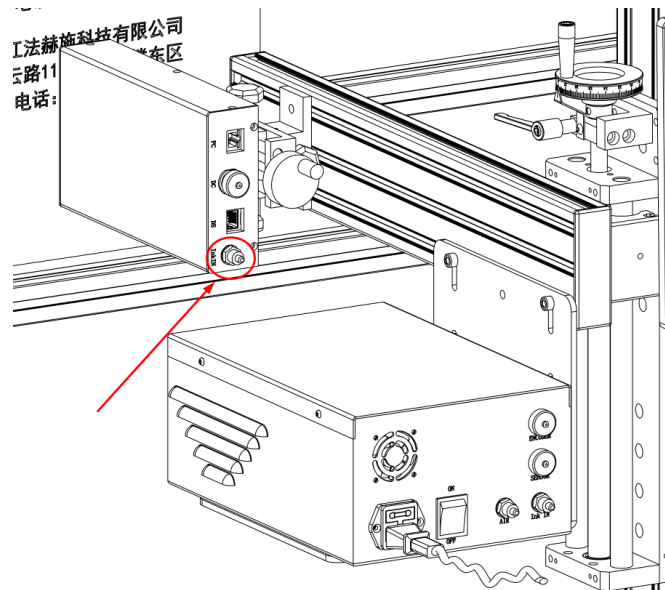
- 5 **Power on:** After filling up the ink, turn on the device. The voltage is automatically shift from 100-240V, and the power supply must be securely grounded.
6. **Ink apply:** Turn on the power switch of the filter on the side of the chassis; the device automatically supplies the ink to circuit system which lasts about 1-2 minutes. The 04 failure may occur while inking, then press the button on the right-most of mainboard for three second or more to restart the system. After 1-2 minutes, the alert removed and the ink squeeze switch of ink circuit module lights up.
7. **Exhausting:** put stainless ink tray under the nozzle, prepare the specialized nozzle wipe, wear protective sleeves, press the ink squeeze switch for about 3-4 seconds, repeat extrusion process after at least 15 seconds until no bubbles are discharged from the nozzle. Finally use the specialized nozzle wipe to clean up the bottom of nozzle, the initial ink apply comes to an end.

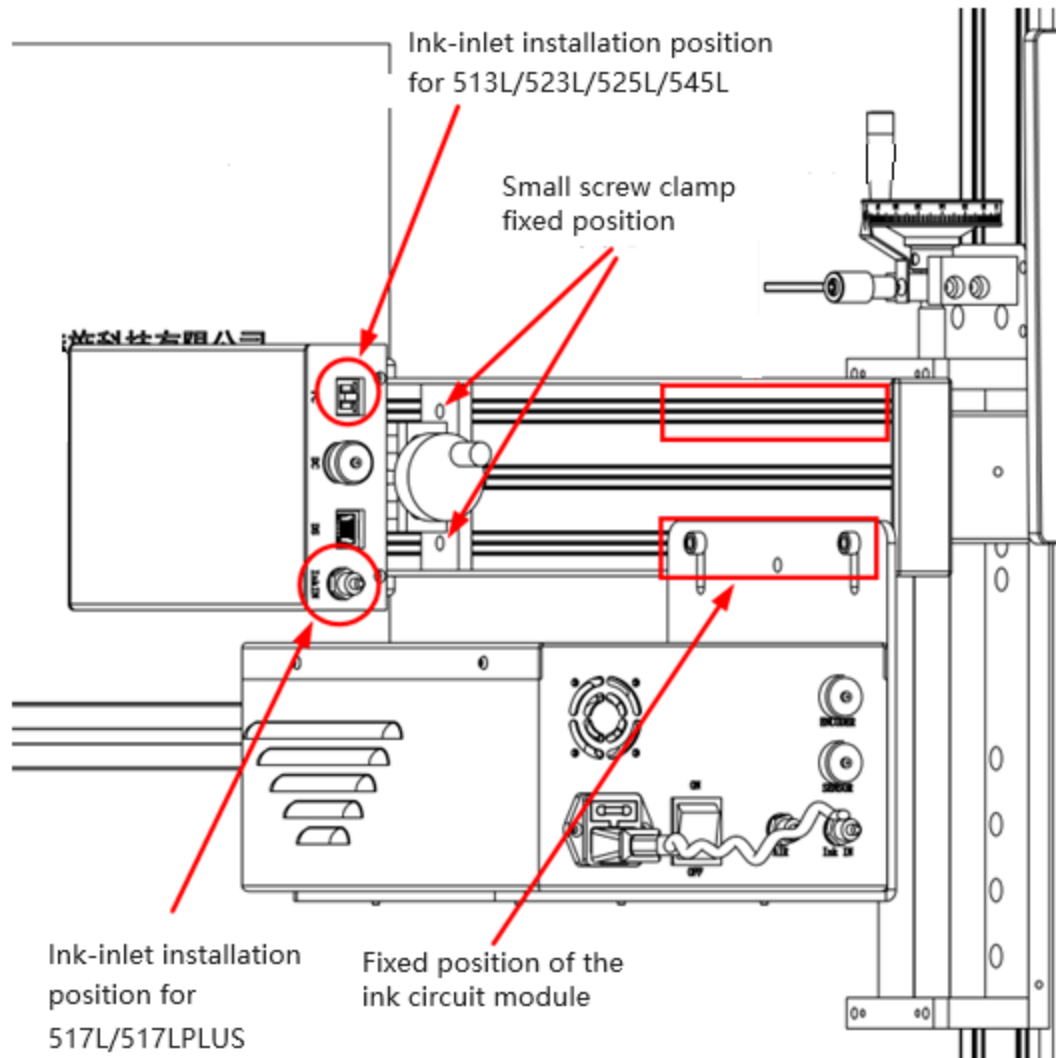


Bracket mounting



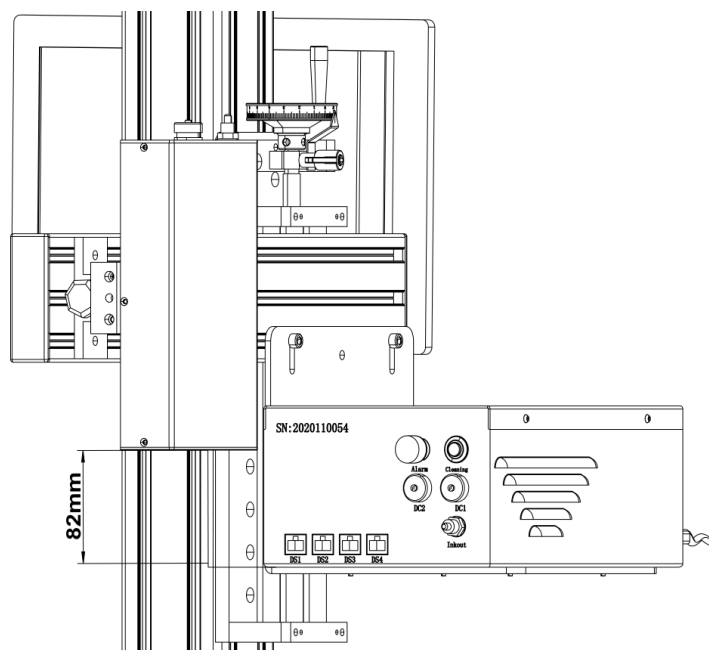
Side-injection installation





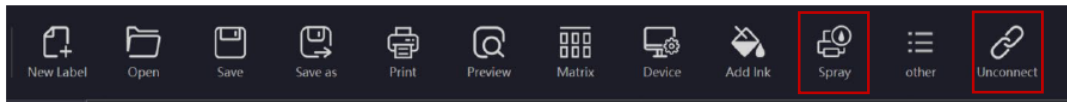
1. There are three types of standard 29PIN cables: 0.6m, 1m, 1.5m; for more types please contact sales.
2. Please tighten the quick screw joint of input ink mouth, the middle ink tube connect the pre-head filter, and pay attention to the inking direction of the filter. The shorter is the ink tube between the ink circuit module and the nozzle, the better. Do not coil up if the tube is too long.
3. The ink circuit module is fixed on the bottom chute of the 3090 profile, the 517L&517LPLUS ink-inlet connector is near the lower side, and the ink-inlet of other nozzle models is located on the upper side of the nozzle.



Down-injection installation



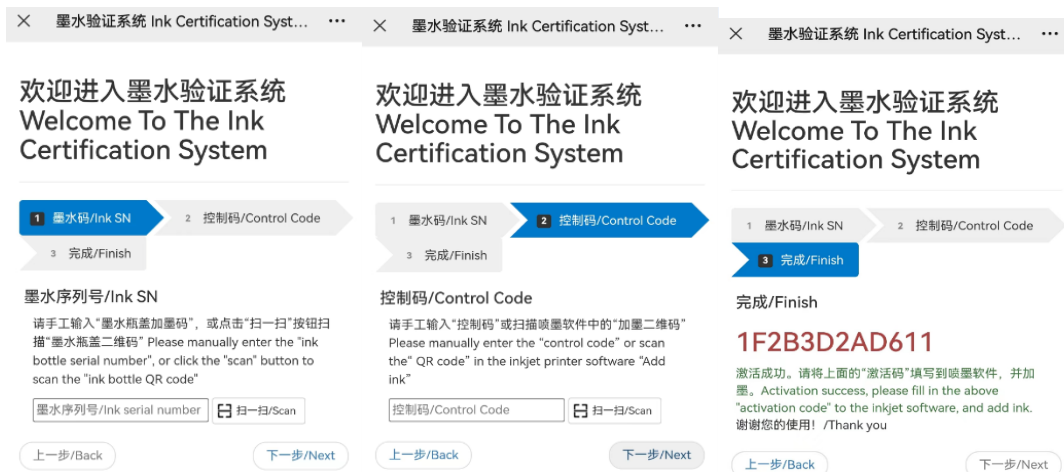
1. There are three types of standard 29PIN cables: 0.6m, 1m, 1.5m; for more types please contact sales.
2. Please tighten the quick screw joint of input ink mouth, the middle ink tube connect the pre-head filter, and pay attention to the inking direction of the filter. The shorter is the ink tube between the ink circuit module and the nozzle, the better. Do not coil up if the tube is too long.
3. The ink circuit module is fixed to the bottom chute of the 3090 profile.

Startup software and get the device ready



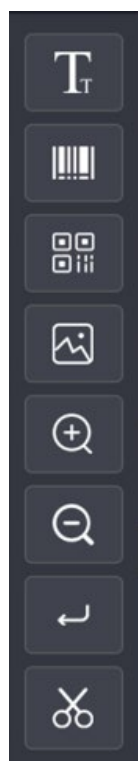
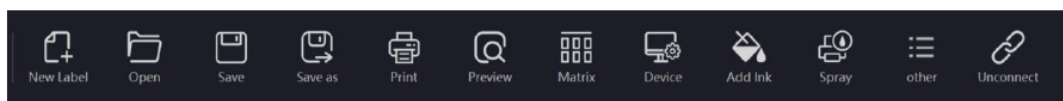
- 1. Startup the software:** double click or right-click to open the Easyprint software on the touch screen to run the coding software. If the software cannot run, please Check whether the blue and white USB software encryption lock is correctly inserted into the USB port on the touch screen, and the encryption lock light is on.
- 2. Link status check:** check the link status  on the right of the image above, If the device is connected, the software and hardware are ready. If the device is not connected, click the icon and wait 5 seconds to check the connection status. If the device is still not connected, refer to "Hardware is not connected" in this article.
- 3. Test printing:** put a white paper under the nozzle, then click the spray icon  on the menu, you can find a complete ink line on the paper. The best printing distance between nozzle and substrate is 1-5mm, the closer is the distance, the print is clearer.

Ink activation method



Operation

Function button introduction



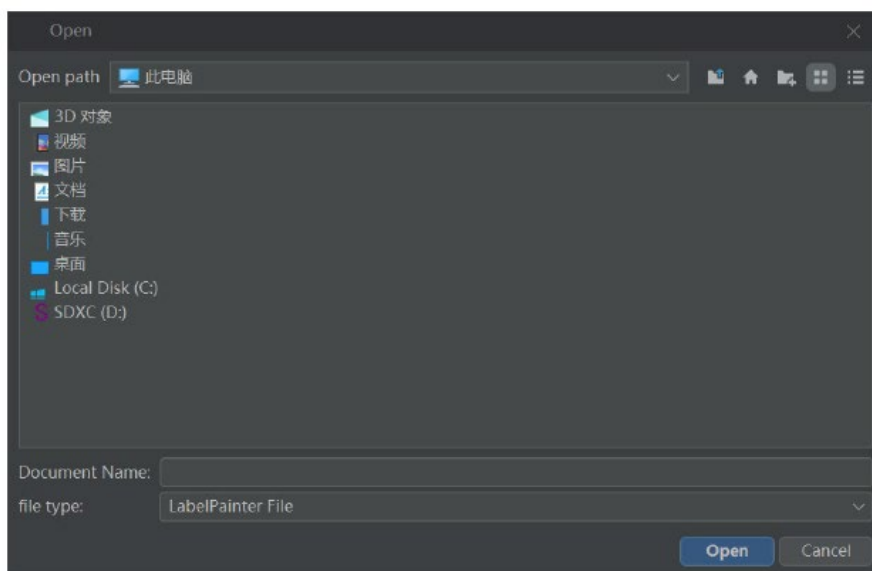
Top toolbar:

1. **New Label:** Make a new template or file.
2. **Open:** Open a saved template or file.
3. **Save:** Save the edited template or file.
4. **Save as:** The current editing content is saved with another template name.
5. **Print:** Print current template.
6. **Preview:** Simulation display printing effect.
7. **Matrix:** Using the matrix function, you can edit and print templates in batches.
8. **Device:** Adjust the hardware parameters.
9. **Add ink:** Recharge the ink usage of the system.
10. **Spray:** Force the print head to eject ink, and test whether the print head connection is normal.
11. **Other:** Alignment, system default parameter setting.
12. **Disconnect/Connect :** Display print head connection status.

Left toolbar:

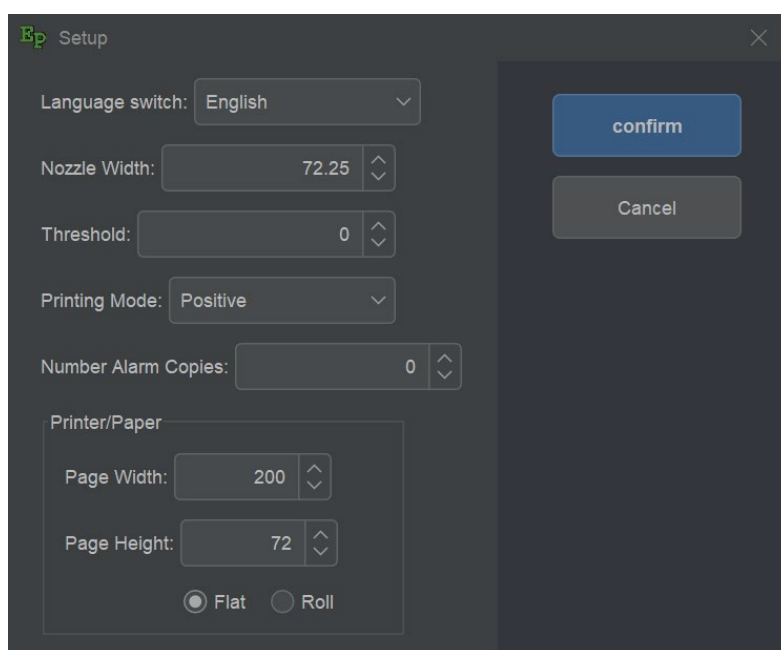
1. **Insert text:** Clicking on text content will show up the text editing box.
2. **Insert one-dimensional code:** Edit various types of one-dimensional bar codes.
3. **Insert one-dimensional code:** Edit various types of two-dimensional bar codes.
4. **Insert image:** Supports various types of image formats.
5. **Canvas zoom in:** Editing interface amplify.
6. **Canvas zoom out:** Editing interface shrink.
7. **Return to the last step:** Undo the previous incorrect operation.
8. **Delete:** Cut or delete the selected content.

Quick search of print files



1. Choose the "Open" button to open all local templates.
2. Quick search and preview the print content of templates through right-side search bar shown as the left image.
3. The information bar shows the templates size, resolution, number of pages, and copies, etc.
4. After selected, press the "Open" button in the lower right corner to bring the template into the editing bar, and click "Cancel" to cancel all operations.

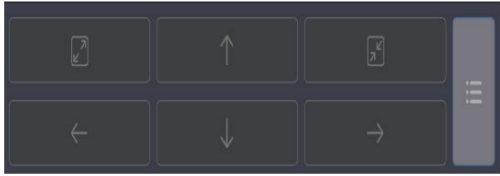
Printing parameters






1. Choose the "Open" button-The system menu is shown on the above.
2. Language switch: change various operation languages.
3. Nozzle width: set according to different models device.
4. Color threshold: the color threshold of the imported image.
5. Print mode:(Nozzle motion print mode)
 - 5.1 Forward direction: always print from one side to the other.
 - 5.2 Forward and backward: Print forward at the first time, and reverse at the second time.
 - 5.3 Forward, backward and forward: print forward at the first time, reverse at the second time, and forward at the third time, every three times is a cycle.
6. Copy alarm: after print a certain copies, output alarm.
7. Width in paper direction and height in nozzle direction: size of the default template.
8. Flash sheet: Paging printing; Roll to roll mode: continuous printing.

Printing Parameters

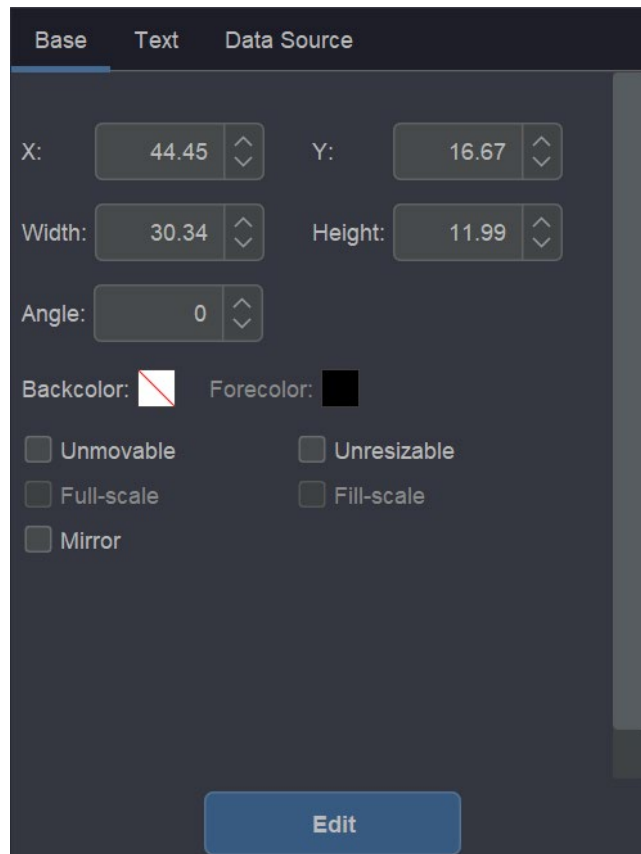
1. **Page Width:** The size of the template in the direction of movement.
2. **Page Height:** Set according to the actual size of the nozzle.
3. **X-DPI:** Refers to the number of dots printed by 1 inch in the direction of movement, the larger the value, the thicker the print.
4. **Y-DPI:** Cannot be modified, determined by the physical properties of the nozzle.
5. **PD-Dist.(single):** From left to right is the delay of the four print heads, and the distance from the photosensor of each print head to the print content can be set individually.
6. **PD-Dist.(all):** Increase or decrease the distance of all photosensor at the same time, decrease the display of negative numbers.
7. **Save:** Save all parameters after adjustment.



- 8.  Zoom in.
- 9.  Zoom out.
- 10.  Up, Down, Left, Right.
- 11. **Text increase:** Zoom in, zoom out, and move the step size of text.
- 12. **Graphical increase:** Zoom in, zoom out, and move the step size of graphic.

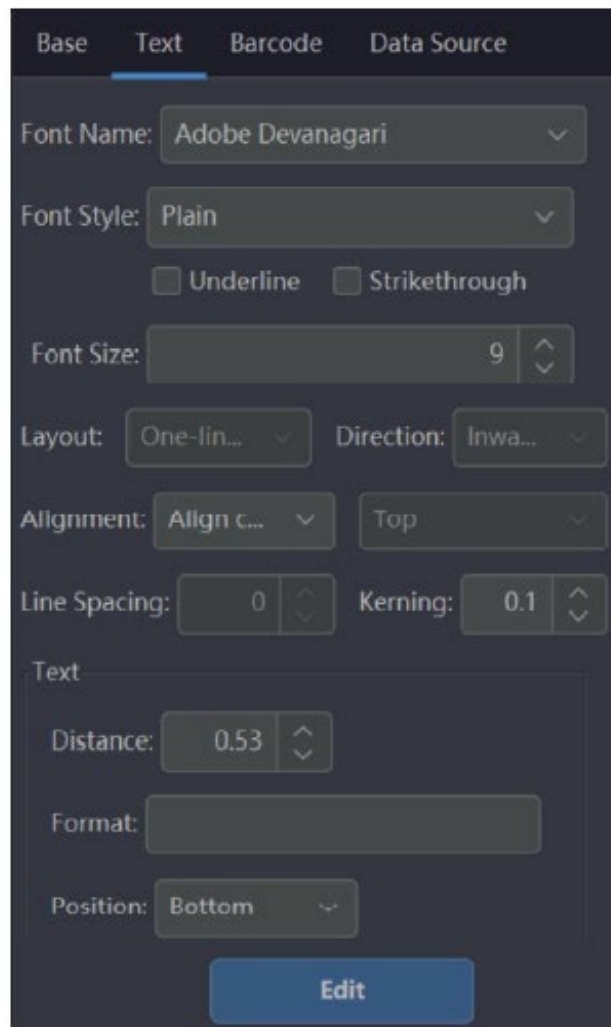
Print content editing

Text



1. Base:

- 1.1 X/Y: the coordinate position of the content.
- 1.2 Width/height: refers to the size of the content.
- 1.3 Angle: the content rotation angle.
- 1.4 Back color/Front color: the color of text background and content.
- 1.5 Unmovable, Unresizable, Full-scale, Fill-scale: All for text parameters.
- 1.6 Mirror: mirror the selected text content to transform.



2. Text:

- 2.1 Font Name: select the appropriate font for the text.
- 2.2 Font Style: Plain, Bold, Italic, Bold Italic.
- 2.3 Underline: underline the text.
- 2.4 Font Size: size of the text font.
- 2.5 Layout: one-line, multi-line, arc, Multiline padding, original, one-line automatic.
- 2.6 Direction: when selected arc, provide outside and inside to choose from.

2.7 Alignment: align in left and right, center and align the two ends; When selected multi-line or multi-line fill, you can check align top, align middle, and align bottom.

2.8 Line Spacing: when selected multi-line or multi-line fill, adjust the space between lines.

2.9 Kerning: adjust the kern between text words.

Barcode



The image shows a configuration dialog box for a barcode. It has four tabs: Base, Text, Barcode, and Data Source. The 'Base' tab is selected. The dialog contains the following settings:

- Quiet Zone:** Top: 0, Bottom: 0, Left: 0, Right: 0.
- Position:** X: 1.58, Y: 2.53.
- Size:** Width: 13.77, Height: 2.71.
- Angle:** 0.
- Colors:** Backcolor: (white with diagonal line), Forecolor: (black).
- Options:**
 - Unmovable
 - Unresizable
 - Full-scale
 - Fill-scale
 - Mirror
 - Small Char

An 'Edit' button is located at the bottom of the dialog.

1. Base:

1.1 Quiet Zone: adjust the size of the upper, lower, left, and right blank areas.

1.2 X/Y: the coordinate position of the content.

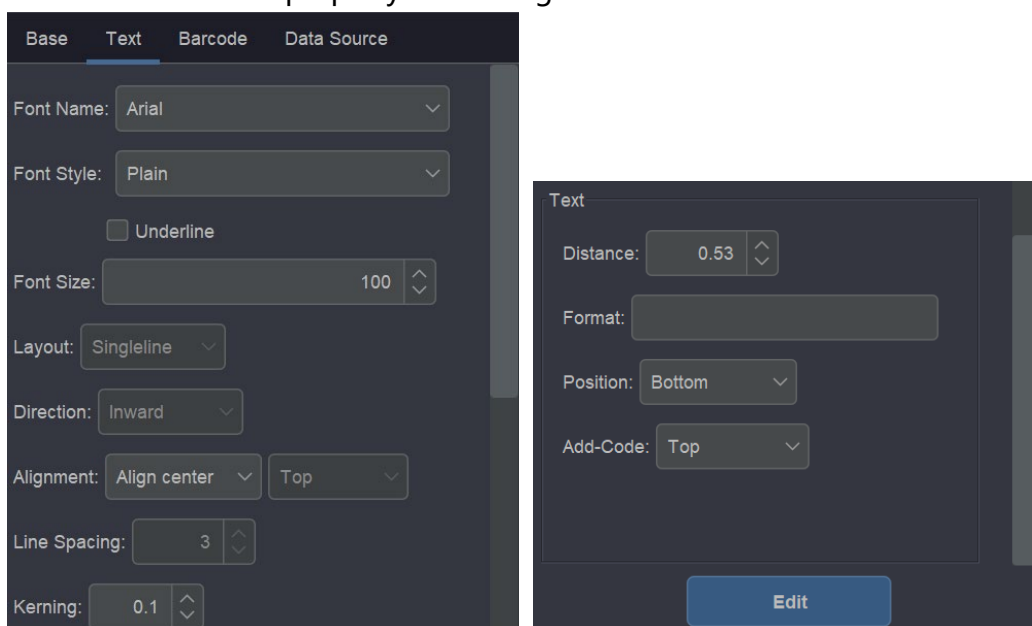
1.3 Width/height: refers to the size of the content.

1.4 Angle: the content rotation angle.

1.5 Back color: the color of selected content.

1.6 Unmovable, Unresizable, Full-scale, Fill-scale: All for imported graphics.

1.7 Mirror: the property that changes all the content.



2. Text:

2.1 Distance: adjust the distance of numbers or letters and bar code.

2.2 Format: if the format of numbers should be shown as: 123 456 789, fill the format with "?? ? ? ?" , and the numbers under the code will be added with a space automatically.

2.3 Position: option for "none, downside, upside" , whether displays the content of the barcode and the position of the barcode.

2.4 Extra-code: option for "none, downside, upside" , whether the extra-code is shown and the position.

The screenshot shows the Barcode configuration screen. The 'Barcode' tab is active. The settings are as follows:

- Type: Code 128
- Sample: ABCabc
- Encoding: Default
- X-unit(mm): 0
- Ratio: 0
- Reduce: 0
- Bearer Width(mm): 0
- Notch(mm): 2.12

There are also checkboxes for 'Optimal' and 'Escape', and a dropdown for the unit of 'Reduce' (currently set to '%'). A blue 'Edit' button is located at the bottom center.

3. Barcode:

3.1 Type: select the type of 1-D code.

3.2 Sample: select the sample of the selected bar code type.

3.3 Encoding: select encoding method of the 1-D code.

3.4 X-unit(mm): manual set the X-unit of 1-D code; Chose the "Optional" to get optimal X-unit defined by the system.

3.5 Ratio: set the ration of length and width of the code. The "escape" option is used for special purposes, for example, the identifier in the GS1 code is selected when escaping.

3.6 Reduce: reduce the width of the bar code by percentage or mm(width unit).

3.7 Bearer Width: Set the width and position of the support strip.

3.8 Notch: Some bar code types support grooves. This option sets the height of the notch.

2D-code



Base
Barcode
Data Source

Type: QR Code v

Sample: ABCabc

Encoding: UTF-8 v 0 ^ v

X-unit(mm): 0 ^ v Optimal

Ratio: 0 ^ v Escape

Reduce: 0 ^ v % v

QRCode

FMT: Default v

Version: Default v

ECL: Medium v

Compress: Default v

Mask: Default v

Edit

1. Barcode:

1.1 Format: three options for Default, UccEan, Industry.

1.2 Version: provide Default and other versions for options.

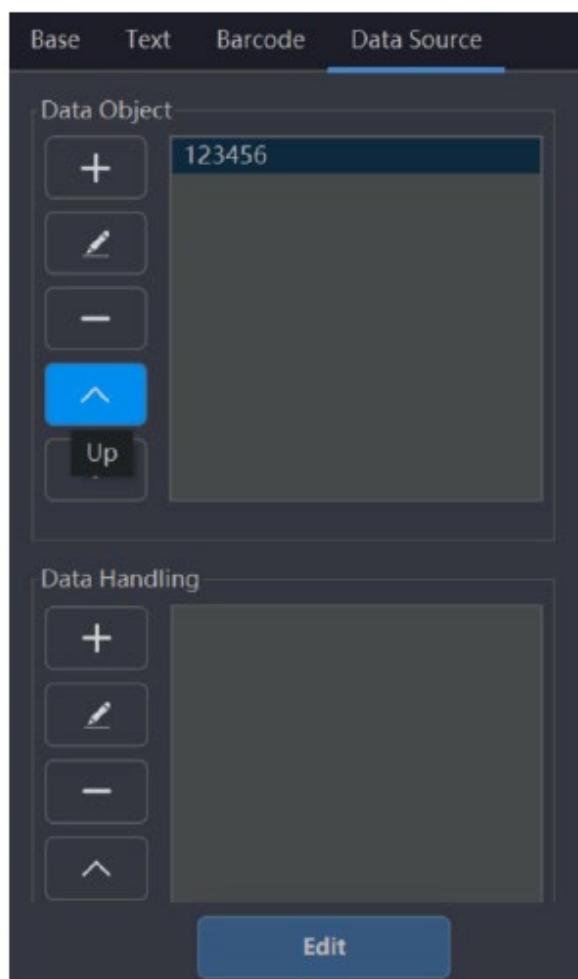
1.3 Correction: choose the correction grade of 2-D code, the higher grade, the higher the 2-D code version. Provide four options, from bottom to top is Low、Medium、Quartile、High. Encoding 2-D code is to convert data information into graphics, reading just the opposite. The principle of 2-D code error correction is setting redundancy when encoding 2-D code

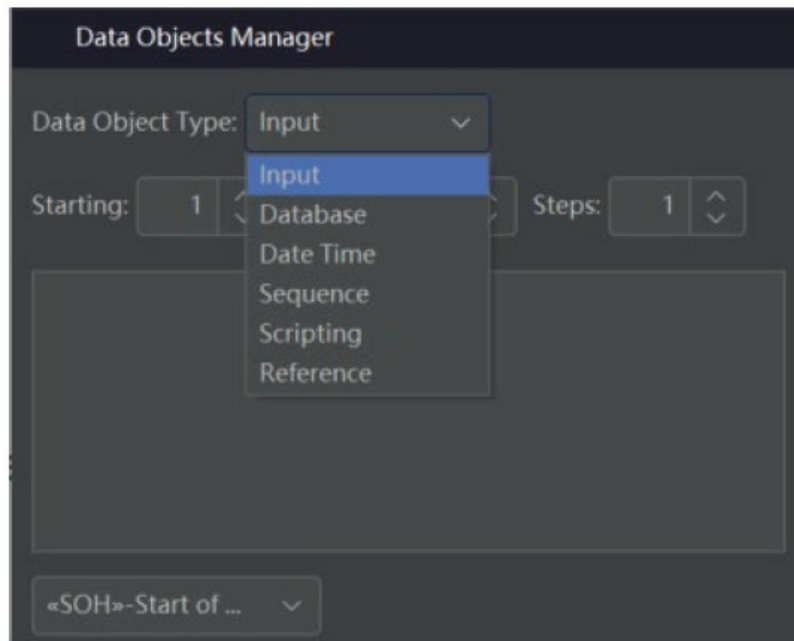
(generation) , just like we are building a RAID disk array, if there is a disk damage will not affect the data stored in the hard disk.

1.4 Compress: the method for compressing 2-D code. Provide four options of Default, None, Kanji, Chinese, corresponding to default, none, Kanji, Chinese.

1.5 Default: this option provides a total of 8 level default choices from 0 to 7. The purpose of using the default is to adjust the element display inside the QR code so that the reader can read the information as easily as possible.

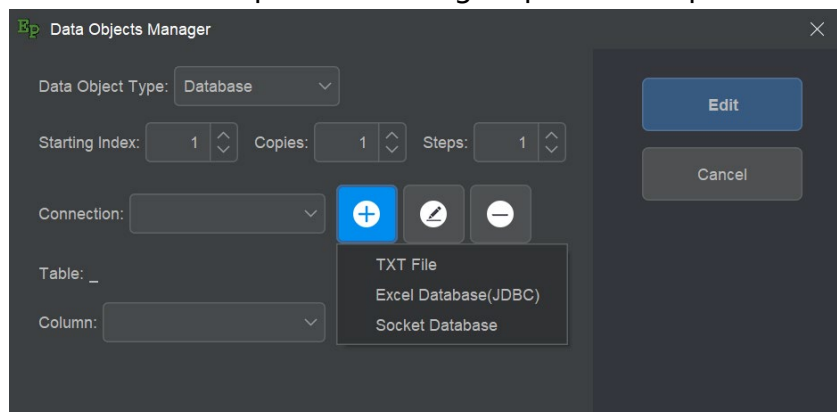
Date source





1. Input:

- 1.1 Input content directly in the data object edit box.
- 1.2 Confirm and exit after input.
- 1.3 When manual input, the Starting, Copies and Steps don't work.

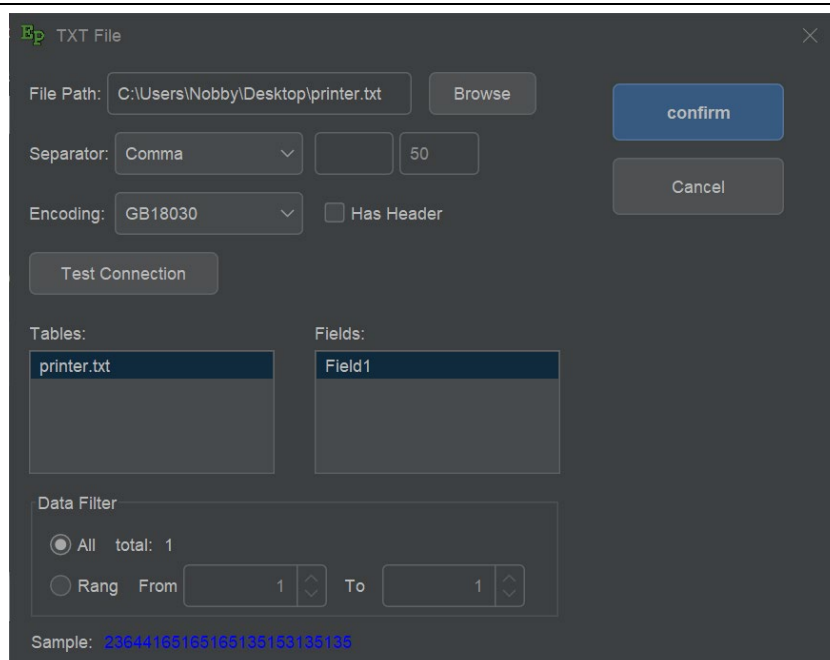


2. Database:

- 2.1 Starting: import from the number of records in the database.
- 2.2 Copies: number of data to be imported repeatedly.
- 2.3 Steps: import data from packets at intervals.
- 2.4 Connection: IP address of the imported database.



- 2.5 Add, edit, delete database. Database support TXT (CSV), Excel, and Socket external communication data.



3. Import-TXT:

3.1 File path: click the right browse button, to choose the data base file from file catalog.

3.2 List separator: types of symbols used to separate fields in the data base file, comma, TAB, specific length, customized symbols; Example: 123, 456, 789, if chosen the comma as separation, the software will divide the data into three fields. If choose the customized symbol, edit the symbol in the middle of the separator option. If choose specific length, edit with the length number.

3.3 Encoding: choose the method of encoding, if the first row of data base file is the name of column, check this option and the data will be imported from the second line.

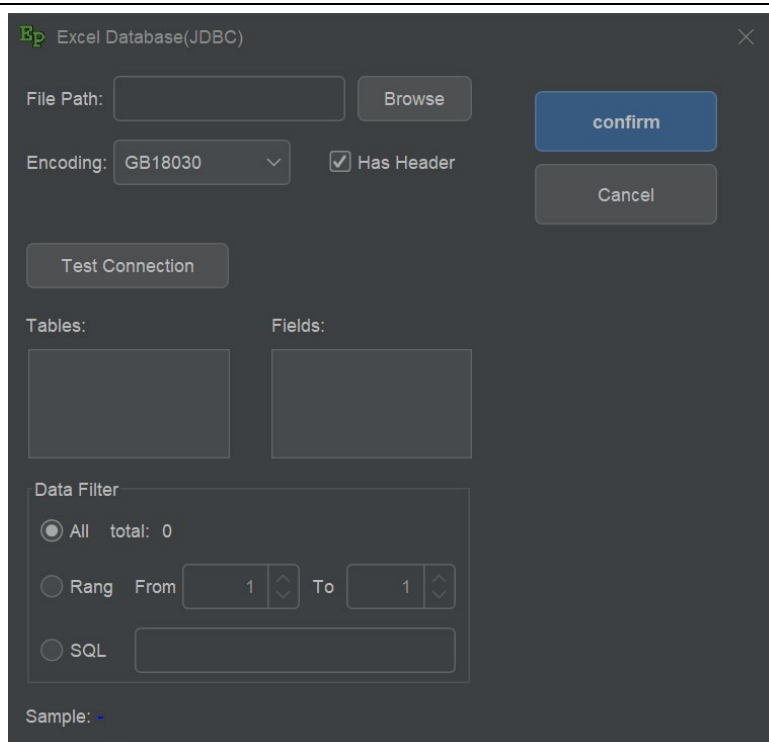
3.4 Option list: after clicking the test connection, Option list will show the name of data base file, "option field " will show the number of fields.

3.5 Data filtering: click the button " All " , then all the data that fits the condition will be input; Click the button " Range " and input the starting value, then the data that fits in the range will be input.

3.6 Sample: an example of an imported packet is shown in blue font.

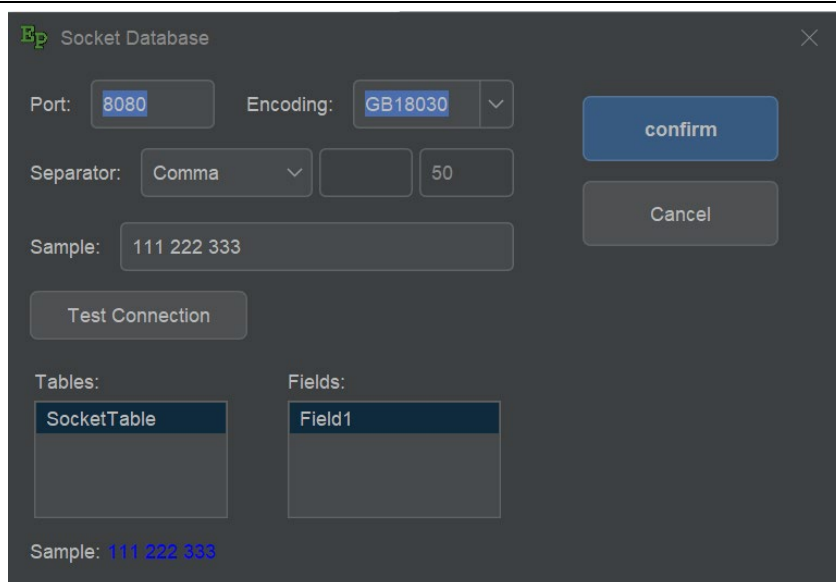
3.7 Edit: determine all the editing content and exit the page.

3.8 Cancel: cancel all operations and exit the page.



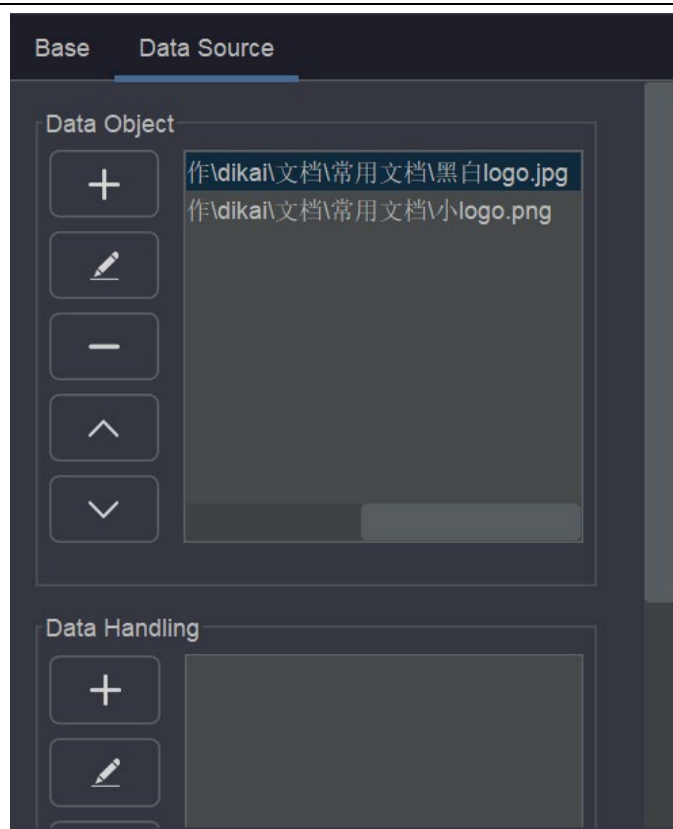
4. Import-EXCEL:

- 4.1 File path: click the right browse button, to choose the date base file from file catalog.
- 4.2 Encoding: choose the method of encoding, if the first row of data base file is the name of column, check this option and the data will be imported from the second line.
- 4.3 Option list: after clicking the test connection, Option list will show the name of data base file, "option field " will show the number of fields.
- 4.4 Data filtering: click the button " All " , then all the data that fits the condition will be input; Click the button " Range " and input the starting value, then the data that fits in the range will be input.
- 4.5 SQL: query, filter and sort the current database by SQL statement.
- 4.6 Sample: an example of an imported packet is shown in blue font.
- 4.7 Edit: determine all the editing content and exit the page.
- 4.8 Cancel: cancel all operations and exit the page.



5. Import-SOCKET:

- 5.1 Port: specifies the port number of the local computer used to obtain external communication data.
- 5.2 Encoding: choose the method of encoding.
- 5.3 List separator: types of symbols used to separate fields in the data base file, comma, TAB, specific length, customized symbols; Example: 123, 456, 789, if chosen the comma as separation, the software will divide the data into three fields. If choose the customized symbol, edit the symbol in the middle of the separator option. If choose specific length, edit with the length number.
- 5.4 Sample: input the example: 123, 456, 789, if chosen the comma as separation, the software will divide the data into three fields.
- 5.5 Option list: after clicking the test connection, Option list will show the name of data base file, "option field " will show the number of fields.
- 5.6 Sample: an example of an imported packet is shown in blue font.
- 5.7 Edit: determine all the editing content and exit the page.
- 5.8 Cancel: cancel all operations and exit the page.



6. Image:

6.1 Image input: click the + icon in the data source, as shown in the upper left picture, click the "File path" to appear in the lower left picture. Select the path and name of the image to be imported, that is, the image import is completed. This system supports BMP, JPEG, GIF, PNG, TIFF and other image formats.

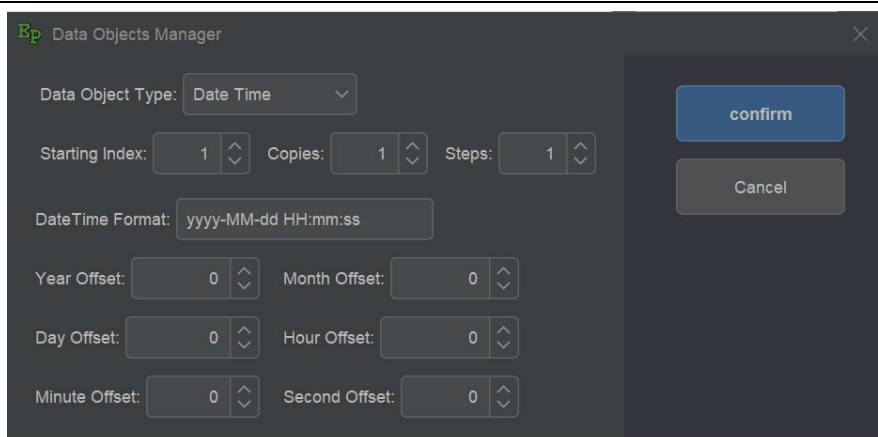
6.2 Image library printing: the picture has no data operation, but this system supports regular serial number named image library printing, and can print one by one according to the serial name of the picture.

6.3 Follow the normal process of importing any image from the sequence library to be printed, as shown in the image above left, leaving out the name of the final image and keeping only the location of the image.

6.4 Add serial number: click the + icon, add data object - sequence generation - processing method - complete number.

6.5 Add the image type name: click the + icon, add data object - manual input - image type (such as .bmp).

6.6 In this way, complete the editing of the serial picture. The operation logic is to use data object processing method and serial number generation method to splice out the picture path of the printed data.

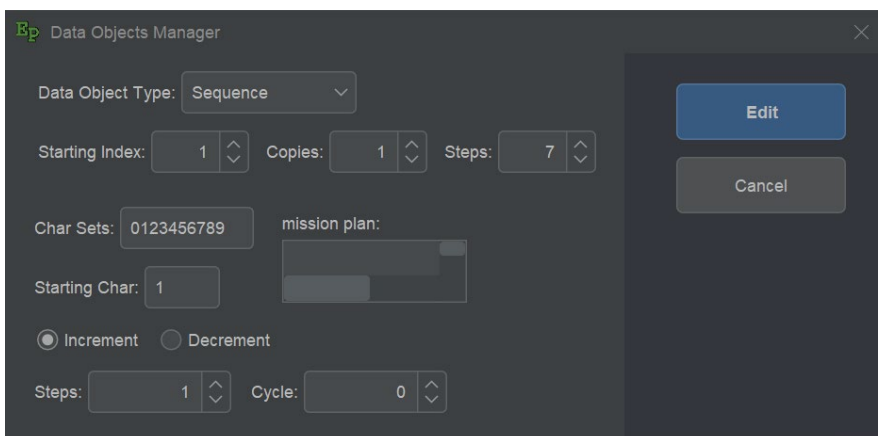


7. Date time:

7.1 Date format: yyyy stands for year (yy display two digits of the year), MM stands for month, dd stands for date, H stands for hour, mm stands for minute, ss stands for second, and Month and minute letters are case sensitive.

7.2 Year deviation: it can be a positive or negative number, that is, add or subtract the corresponding number from the current system time year.

7.3 Month/date/hour/minute/second deviation: the deviation is the same as in Year deviation.



8. Sequence generation:

8.1 Start: start from number of " Start string" to generate.

8.2 Copies: copies of the generated same serial number.

8.3 Steps: number of steps of the generated serial number.

8.4 Sequence character set: the character involved in serial number generation can be number or combined number and letter, such as 0123456789AB, and that's the generation of a 12-base sequence.

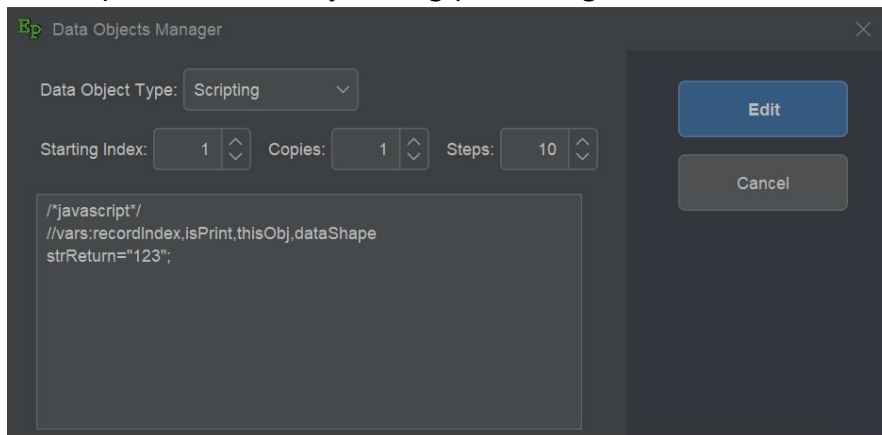
8.5 Start string: the start string of generated serial number.

8.6 Task Plan: set the planned group of sequence generation in advance, such as 1-10000, 1-5000, and sequence generation will be transformed into 1-10000 and then 1-5000 according to this plan.

8.7 Increment/decrement: whether the sequence is generated in increasing or decreasing mode.

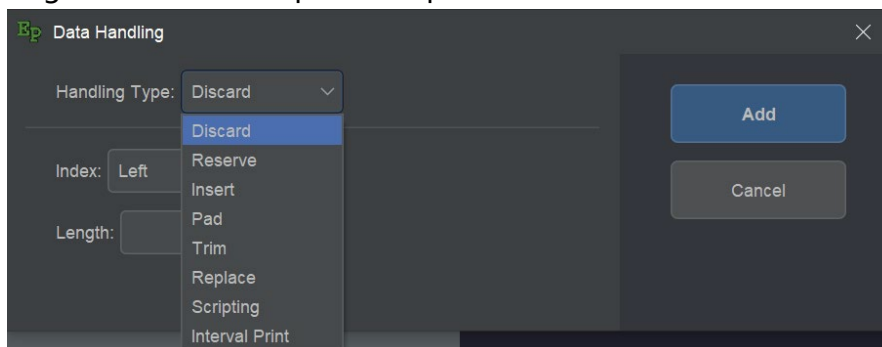
8.8 Cycle: the maximum cycle of sequence generation, such as 10, starts with a string of 1, and sequence generation will be generated from 1 to 10, and then periodically from 1 to 10.

8.9 Serial number preposition: after the sequence number is generated, the corresponding characters and character bits can be completed before the sequence number by adding processing methods.



9. Script programming:

9.1 Some complex functions can be performed through script programming. This function is an advanced function. Consult manufacturer engineers based on specific requirements.



10. Processing method:

10.1 Discard: select the location to drop from the left or the right, and enter the number of bits to drop.

10.2 Reserve: select the location to save from the left or the right, and enter the number of bits to drop.

10.3 Insert: select the location to insert and the string to insert.

10.4 Pad: select the position of pad, provide three options: left end, right end and both ends, and enter the target length of supply and the characters to fill.

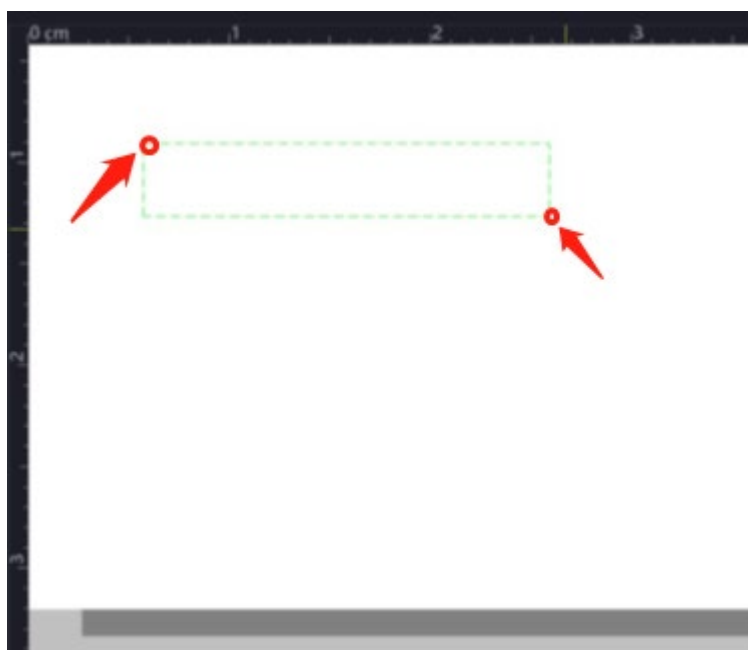
10.5 Trim: select the position of trimming, provide two options: left end, right end, to trim invisible characters in the batch end of the data source.

10.6 Replace: for data in the data source, replace the old string with the new string.

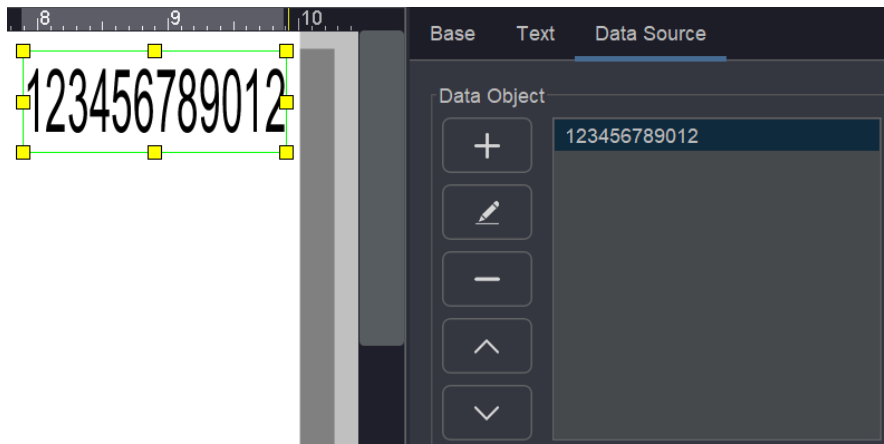
10.7 Scripting: data sources are processed by script programming. This is an advanced operation. For specific functions, consult manufacturer engineers.

10.8 Gap printing: there are two modes: interval output printing and interval output blank not printing, and set the number of intervals.

Various content edition method



Select the upper left corner of the software to edit the content type (text, bar code, two-dimensional code, picture) and use drag drawing. In the canvas, hold down the left button of the mouse (hold the screen in the touch screen), drag only the lower right corner of the target area and release the left button of the mouse (leave the screen) to complete the drawing of the rectangular area.

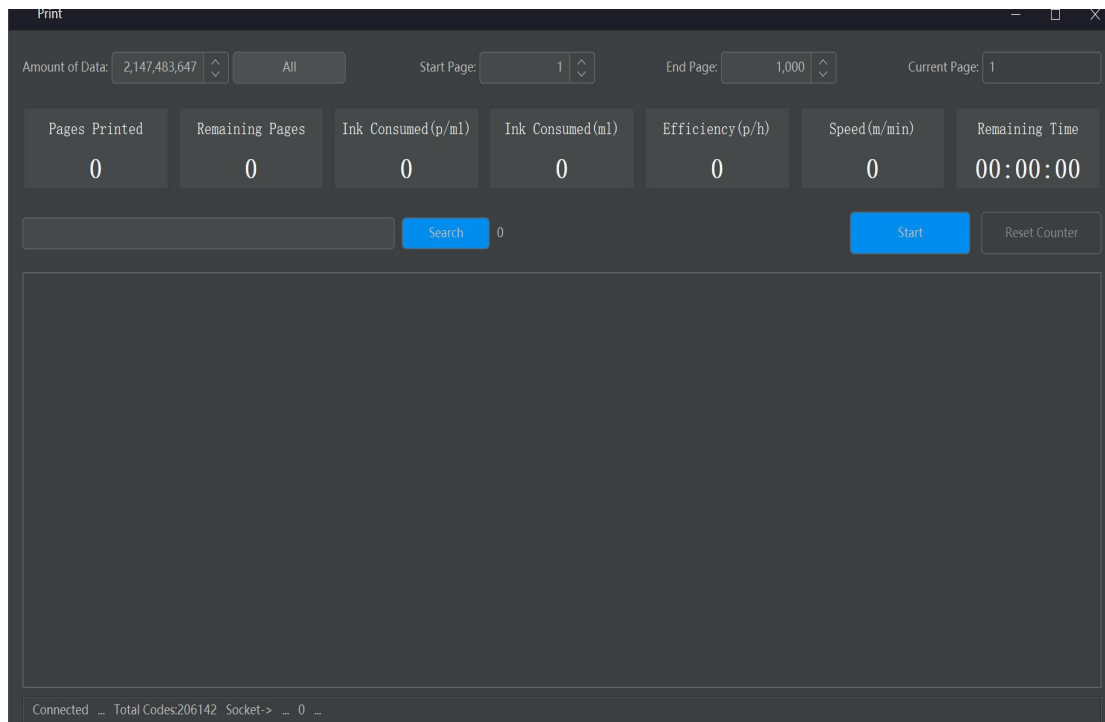


All four types of content require data source driven loading:

Click ADD , EDIT , DELETE , UP , DOWN  to complete the content editing and definition.

Select the data object on the left and click "Processing Method" on the right to adjust and process the data object in various ways.

Print output



Amount of Data: the total amount of data currently printed.

Start Page: start printing from this page number.

End Page: which page number to end printing.

Current Page: which page is currently printed.

Pages Printed: the number of completed printing.

Remaining pages: how many pages are left in the current job.

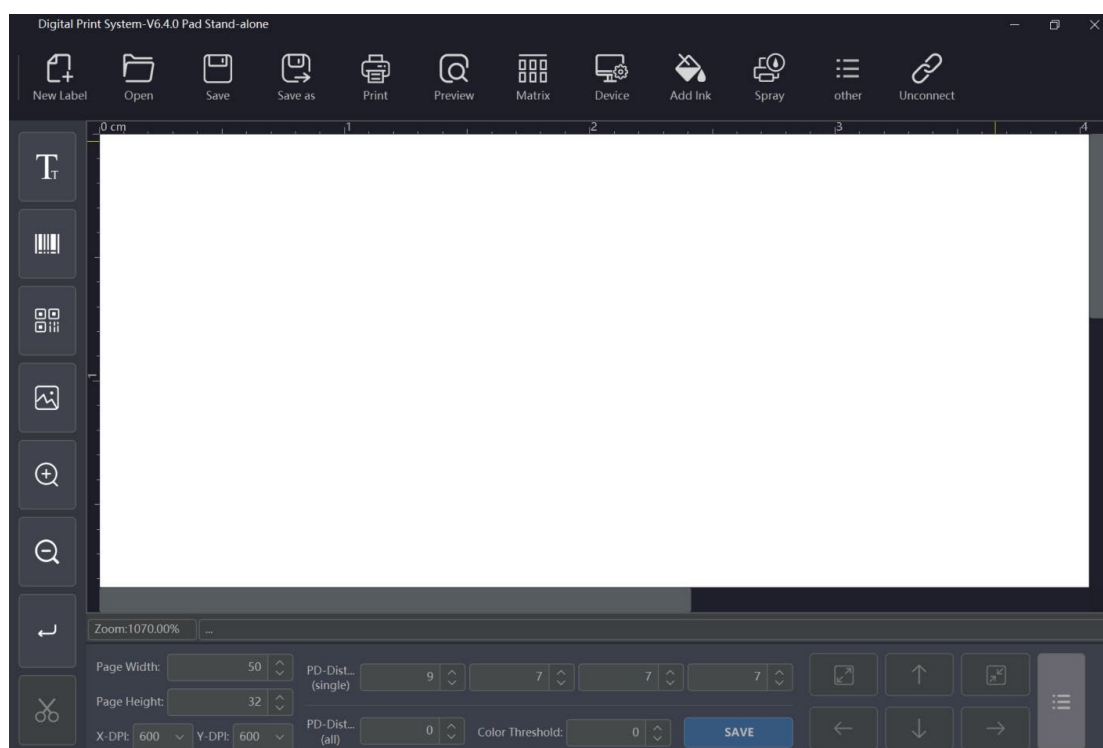
Ink consumption: the content of this article, the quantity that can be printed per milliliter of ink.

Total ink consumption: total ink consumption in this printer.

Speed: the current speed of the production line.

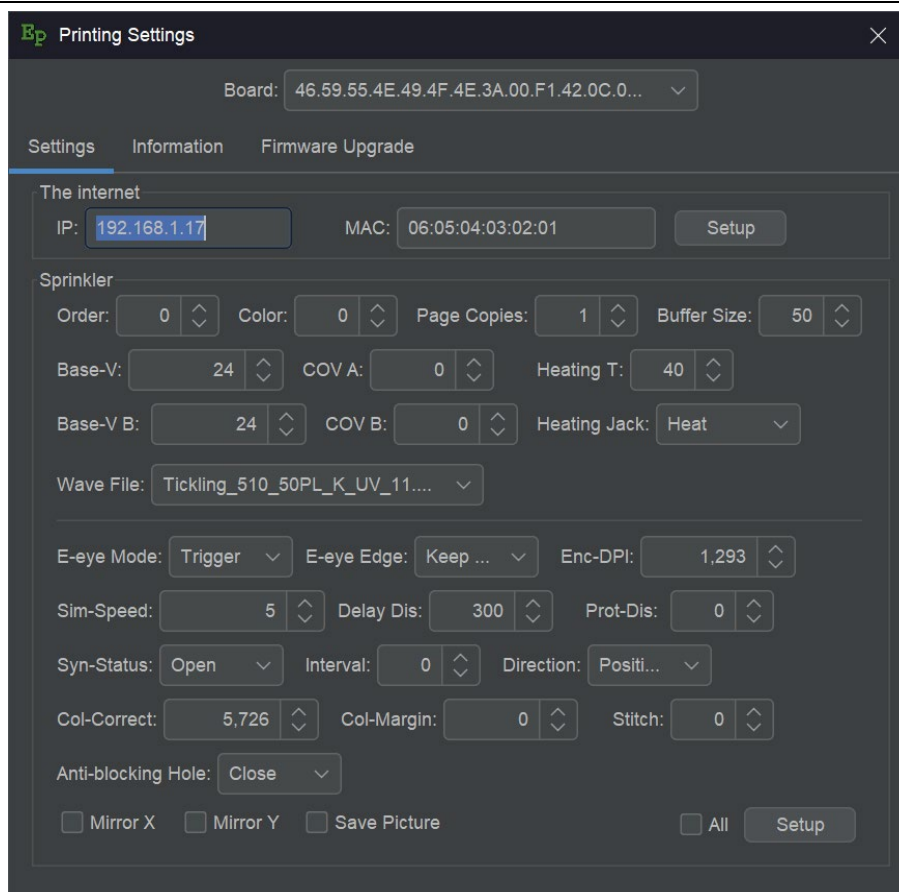
Device parameter setting

DC517L/517LPLUS



Open the "Device" menu and enter the engineer's advanced mode.

After modifying the parameters, click "Set" to save the parameters. If "All" is checked, the parameters will be used for all nozzle main boards.



1. **Mainboard card:** Select the parameter Settings of the corresponding printhead mainboard.

2. Network:

2.1 IP: Printhead mainboard IP address, unique IP address of each printhead mainboard, default: 192.168.1.17 (The value of the last field of multiple printhead increases by 1 bit from 17-56).

2.2 MAC: Unique MAC address of each printhead mainboard, default: 06:05:04:03:02:01 (The value of the last field of multiple printhead from 01-40).

3. Printhead:

3.1 Order: The order of multiple printhead starts from 0 by default. 0 is nozzles 1, 1 is nozzles 2, and so on.

3.2 Color: Monochrome defaults to 0.

3.3 Copies: The number of copies of the same content.

3.4 Data Buffer Capacity: Maximum number of printed information cached by the mainboard card.

3.5 Reference voltage: To set the voltage of the printhead, refer to the voltage value on the printhead label. The default value is 22.

3.6 Column offset voltage A: The voltage value increased or decreased by reference voltage in column A.

3.7 Heat temperature: Nozzle auxiliary heating temperature setting, UV ink default between 40-45, oil ink default 20.

3.8 Reference voltage B: Refer to Part 3.5 above.

3.9 Column offset voltage B: Refer to Part 3.6 above.

3.10 Heating port: First heating; Second curing light. Select 1 for both heating ports, option 2 for a heating port control curing light.

3.11 Waveform file: Select the waveform file of the printhead. 70 corresponds to 510_50PL or 510_35PL. 70PLUS corresponds to 1020_35PL or 1020_12PL. The default value is 1020_35PL. If the waveform does not match the actual printhead, the printing quality and stability will be decreased, and the statistics of ink cost will not be accurate.

4. Hardware parameter:

4.1 Sensor mode:

4.1.1 Trigger with external sensor.

4.1.2 Internal, the software generates trigger signals internally.

4.1.3 Simulate.

4.2 Sensor edge:

4.2.1 Normal close, trigger printing when senses the objects.

4.2.1 Normal open, trigger printing after reset of electric sensor.

4.2.3 Encoder DPI, the value is calculated according to the diameter of the encoding wheel and the number of encoder lines. The default value of 2000 lines with a diameter of 50MM is 1293.

4.2.4 Simulate speed, when the synchronizer is off, the software simulates the production line speed of the printing, in meters.

4.2.5 Delay distance, Calculate from the sensor sensing to the object (normally closed) or sensor reset (normally open), how long distance or time to start printing, when using an external encoder, in mm, when the encoder is closed, in the unit of analog time.

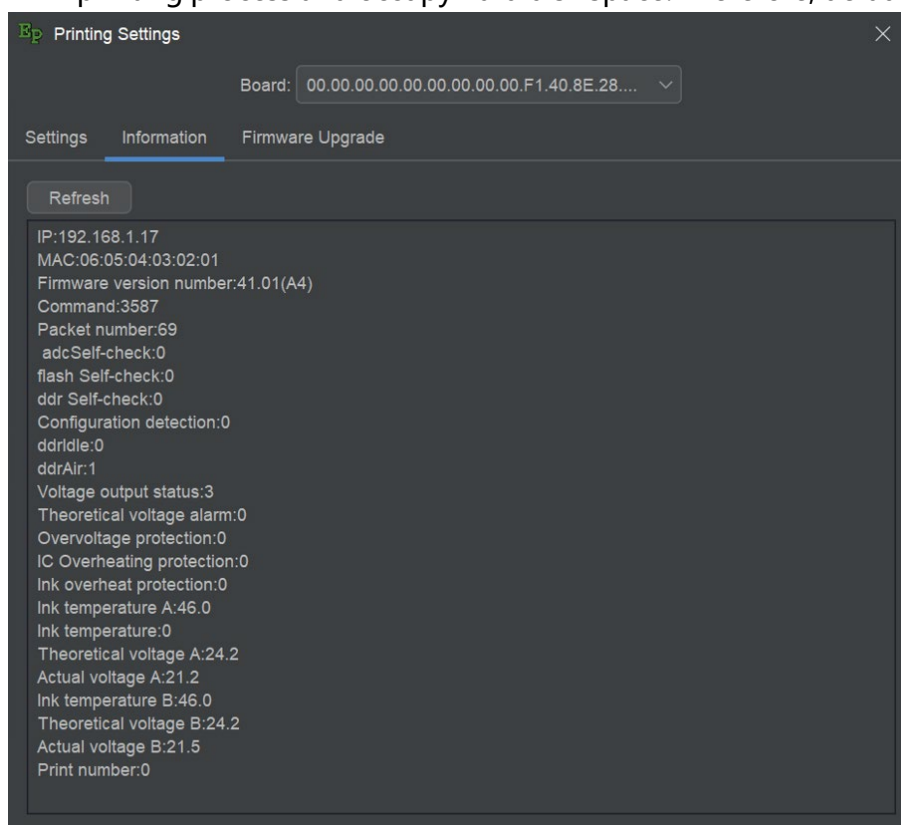
4.2.6 Protective distance: In the range of protective distance, multiple sensor triggers will be ignored and masked, in mm.

4.2.7 Encoder status: close, use simulate speed internal the software. Open, measure the actual line speed using a encoder.

4.2.8 Print gap, the interval between consecutive prints using software to simulate an electric eye trigger state.

4.2.9 Print direction: forward, reverse, and the actual print content is associated, such as the image content to change the parameter.

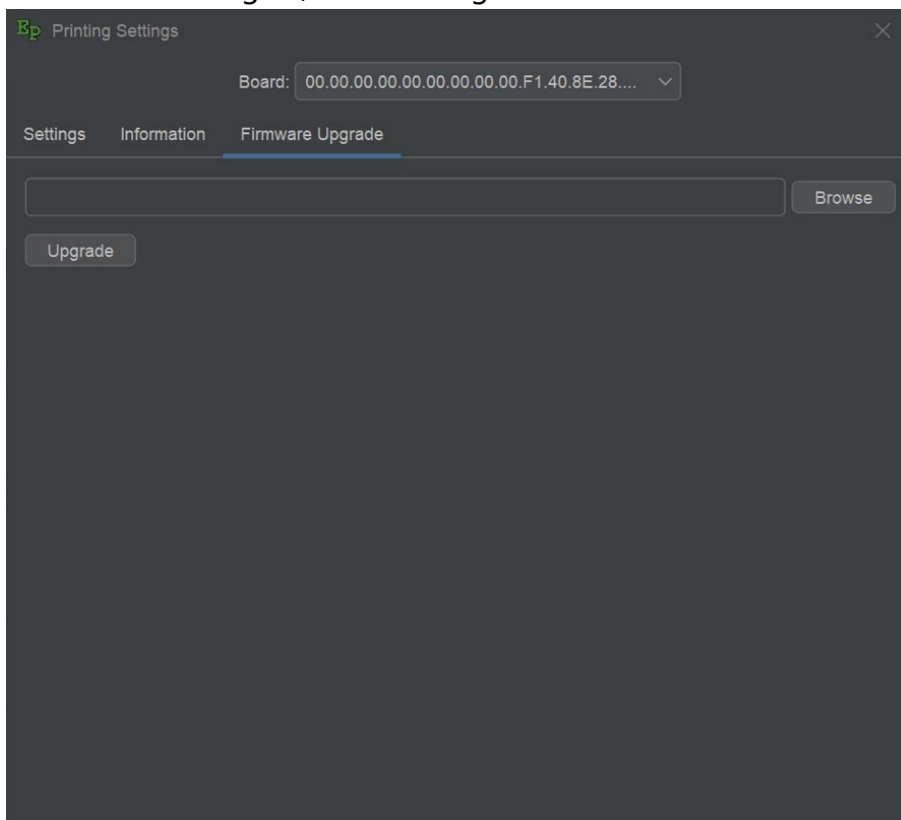
- 4.2.10 Column calibration, between the nozzle column calibration value, default 5726, advanced operation contact the manufacturer engineer.
- 4.2.11 Column spacing, default 0, slightly adjusts the print effect.
- 4.2.12 Stitching width, multi nozzle seamless stitching closed stitching hole width value.
- 4.2.13 Idle hole blocking: close, open. The inactive nozzle is kept oscillating by micro voltage, but the inkjet nozzle protector mechanism is not activated.
- 4.2.14 X image, print content X image print.
- 4.2.15 Y image, print content Y image print.
- 4.2.16 Save image, to save printing content of each page. This function is enabled to check device problems, which may slow down the printing process and occupy hard disk space. Therefore, default closed.



5. Information: Displays the working status of each parameter of the device.

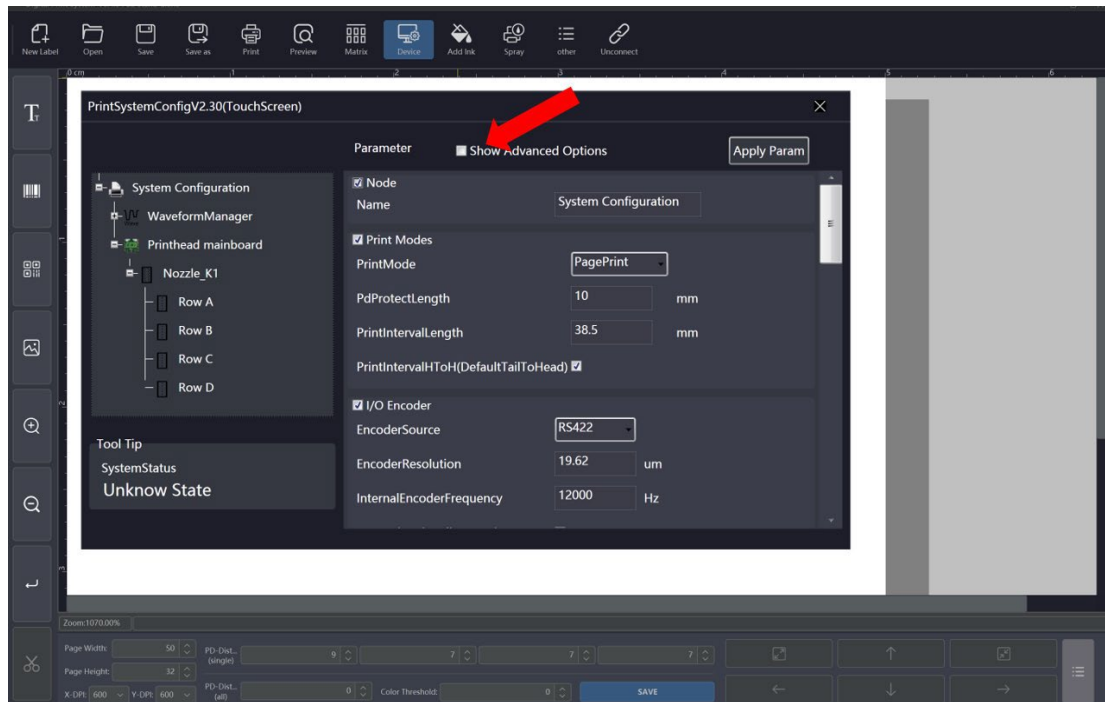
- 5.1 IP: Select the IP address of the current nozzle mainboard.
- 5.2 MAC: Select the MAC address of the current nozzle mainboard.
- 5.3 Firmware version number: Nozzle mainboard firmware version.
- 5.4 Command: The last communication command type code.
- 5.5 Packet number: 0.
- 5.6 ADC self-check: 0-pass, 1-failure.

- 5.7 FLASH self-check: 0-pass, 1-failure.
- 5.8 DDR self-check: 0-pass, 1-failure.
- 5.9 Configuration detection: 0-pass, 1-failure.
- 5.10 DDR idle: 0-idle, 1-busy.
- 5.11 DDR empty: 1 indicates that the data in the DDR is run out.
- 5.12 Voltage output status, drive voltage switch: 1 indicates enable.
- 5.13 Theoretical voltage alarm, 1 indicates alarm.
- 5.14 Overvoltage protection, 1 indicates overvoltage.
- 5.15 IC overheating protection: 1 indicates IC overheating protection.
- 5.16 Ink overheating protection, 1 indicates IC overheating protection.
- 5.17 Ink temperature A, actual temperature of nozzle A.
- 5.19 Theoretical voltage A, set voltage of nozzle A.
- 5.20 Actual voltage A, actual voltage of nozzle A.
- 5.21 Ink temperature B, actual temperature of nozzle B.
- 5.22 Theoretical voltage B, set voltage of nozzle B.
- 5.23 Actual voltage B, actual voltage of nozzle B.



Click “view” button to choose the firmware file needs to be upgrade, finish upgrade process according to the instructions.

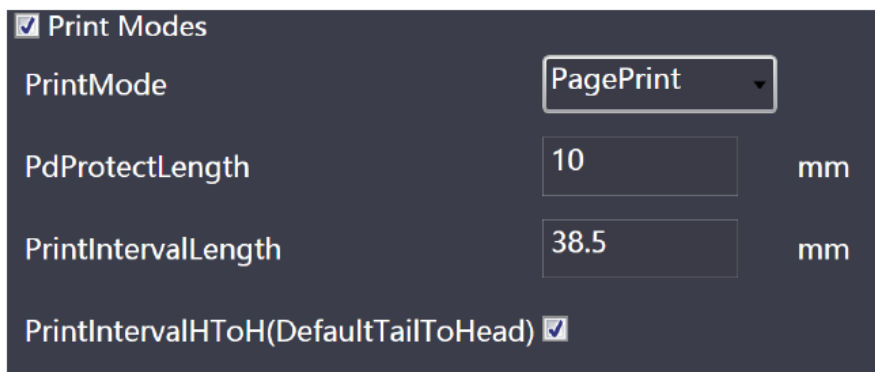
DC513L/523L/525L/545L



Open the "Device" menu and enter the engineer's advanced mode.

Shown on the image: Click "show advanced options" and enter the password "123" , you can modify hidden advanced parameters.

After each parameter is modified, click "Apply Param" to save the parameters.



1. Print modes:

1.1 Print modes: continue print and page print.

1.2 Pd protect length: Used to ignore false trigger signals between two consecutive color scales.

1.3 Print interval length: During continuous printing, the printing interval between the end of the previous label and the beginning of the next label.

1.4 Continuous print gap head to head (default end to head): the distance from the top of first image to the next image. End to head distance is calculated from the end of first image to the head of next image.

1.5 Bidirectional printing: Support forward and reverse.

1.6 High bidirectional calibration value: Used for bidirectional print position calibration.

<input checked="" type="checkbox"/> I/O Encoder		
EncoderSource	RS422	
EncoderResolution	19.62	um
InternalEncoderFrequency	12000	Hz
InvertDirectionalityEncoder	<input checked="" type="checkbox"/>	
EncoderDerivedLineSpeed	0.0	m/min
EncoderStaticDebouncingValue	50	Pulse

2. Encoder:

2.1 Encoder type: External encoder/internal encoder (when there is no encoder in the production line, we need to keep the external speed to be relatively stable).

2.2 Encoder resolution calculate algorithm: Encoder wheel perimeter/ (Encoder wire count * 4)*1000; For example: testing encoder is 10000 wires, and encoder wheel perimeter is 89.88mm, calculate with the algorithm is: encoder resolution=89.92*3.14/(10000*4)*1000=7.059.

2.3 Internal encoder frequency: Used to test the frequency of internal virtual encoder.

2.4 Reverse encoder: Set the forward and reverse directions of encoder.

2.5 Disable dual-phase encoder: Whether to disable the dual-phase encoder.

2.6 The actual returned encoder speed (when changed to internal encoder, this parameter calculates the speed based on the modified encoder resolution and internal encoder frequency. Specific algorithm: Internal encoder frequency * encoder resolution *60/1000000).

2.7 Encoder static debouncing value: used to solve the small encoder count error caused by jitter when the platform is at rest (this parameter is only used to solve this kind of jitter problem in the static state in the special environment or oscilloscope can capture the small count change).

The screenshot displays a configuration menu with the following settings:

- I/O Print Go / Product Detect
 - PrintGoSource: TTL
 - PrintGoSignalEdge: Falling
 - ProductDetectCount: 0
- Adjust
 - AllPrintHeadsXLocalMMTargetAdju: 0.0 mm
- BlackLabelCompensation
 - BlackLabelCompensationEnable:
 - BlackLabelInterval: 100 mm
 - CompensationMaximumCount: 35 Count
 - CurrentCompensationCount: 0 Count

3. Sensor:

- 3.1 Electric sensor: Select the electric sensor generated by software simulation or triggered by external hardware.
- 3.2 Trigger: Rising edge trigger, falling edge trigger.
- 3.3 Detect times: The actual trigger times of the electric eye in the printing process, that is, the actual number of printed pages.
- 3.4 Dynamic adjustment of electric sensor distance of all nozzles: When multiple nozzles are splice, it is too tedious to adjust multiple nozzles separately, so this function is used to adjust the electric eye distance as a whole.

4. Black label:

- 4.1 Black label spacing: Equivalent to the normal trigger interval of the continuous color label.
- 4.2 Maximum number of black label compensations: The maximum number of lost eye signals that can be compensated.
- 4.3 Current number of black label compensation: the function to display the number of compensation.
- 4.4 This function is used to prevent the loss of the electric sensor signal received by the software affected by uneven printing color scale or other factors between continuous operations, but in order to ensure consistency between continuous operations, the function is used. This function can not

be infinite compensation, there is a certain upper limit, if you want unlimited compensation, it is recommended to directly use the link printing function, set the corresponding printing interval.

<input checked="" type="checkbox"/> Spray		
SprayFrequency	1000	Hz
SprayTime	0.5	s
SprayInterval	10	s

5. Spray:

5.1 Spray frequency: Times of flashes per second.

5.2 Spray time: Flash duration.

5.3 Spray interval: Time between each flash spray.

5.4 Automatic spray: Switch to automatic spray.

5.5 Spray trigger with external IO input of mainboard: Connect the I/O expansion board to use the function, and flash signals through the external I/O expansion board.

5.6 All print head spray: Under the set of all print head spray/stop spraying.

<input checked="" type="checkbox"/> SystemSetting		
BoardMaxBufferImageNum	2000	Page
TestSoftwareProcessImageSpeed	<input type="checkbox"/>	
LogMessage	<input type="checkbox"/>	
LogImage	<input type="checkbox"/>	
DoNotDetectRunOutOfDataError	<input type="checkbox"/>	
DetectPdMismatchError	<input type="checkbox"/>	
Language	English(US)	
PrintHeadType	Gen5	
ConfigurationFileName	PrintParam_G5.xml	

6. System setting:

6.1 The maximum number of cached pages that can be set by the mainboard (the specific pages depends on the size of the printed image and the resolution of the printed image).

6.2 Test software image processing speed function switch: This function is only used to test the limit speed of software processing a template. The actual printing speed is affected by other external factors.

6.3 Switch to function the log record: If enabled, the mainboard and software will record the number of printing pages and various states during printing in real time. However, if enabled, the printing efficiency will be affected because it needs to be recorded in real time. It is recommended that you do not enable the log function.

6.4 Switch to record image: If enabled, all image data received by the mainboard will be cached in a specific folder. This function is the same as the preceding function. You are not advised to enable it.

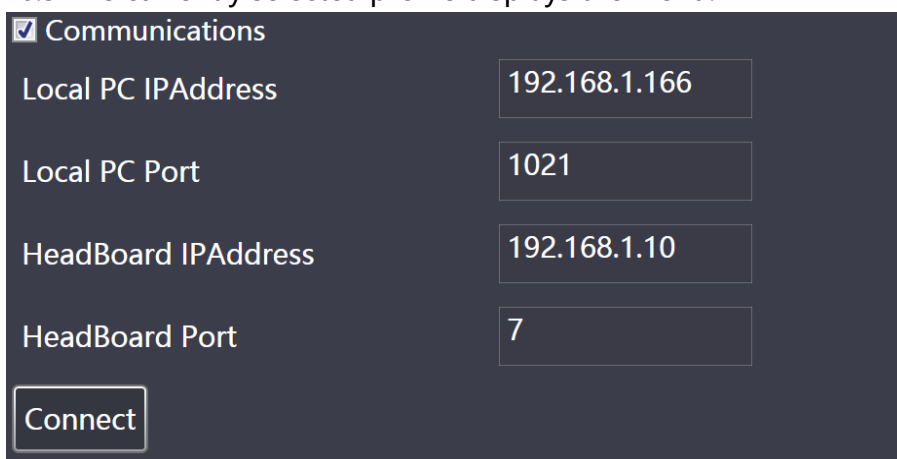
6.5 Non error for checking run out of mainboard data: If enabled, no error message will be displayed after the mainboard data is consumed.

6.6 Error to check for inconsistent sensor trigger: Check whether the trigger signals of electric sensor are consistent among multiple print heads.

6.7 Language: Support multiple languages.

6.8 Print head type: The first time to use the software, you need to select the corresponding print head configuration file option. After selecting, save the application and restart it. The corresponding relationship between product model and print head is 100-G4, 200-G5, 300-G6, and 50-GH2220

6.9 The currently selected profile displays the menu.



The screenshot shows a dark-themed settings window with the following fields and values:

Field	Value
Local PC IPAddress	192.168.1.166
Local PC Port	1021
HeadBoard IPAddress	192.168.1.10
HeadBoard Port	7

A "Connect" button is located at the bottom left of the window.

7. Nozzle board:

7.1 Name: Name of print head mainboard.

7.2 Print head type in the firmware: Display the actual print head type.

7.3 Headboard firmware version: Indicates the firmware version of the current headboard.

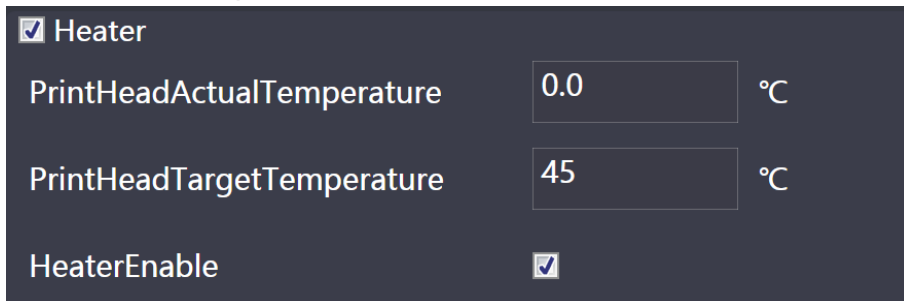
7.4 IP address of the NIC of the local PC: Default: 192.168.1.166. The actual IP address of the NIC of the local PC must be the same as that of the

required software. Otherwise, the mainboard of the sprinkler head cannot connect to the software.

7.5 Local PC port: Port number of the local PC used by the software, default: 1021.

7.6 Headboard IP address: Generally select the 192.168.1.* field, IP addresses cannot be the same when multiple print heads are configured.

7.7 Head board port: Port number of the nozzle motherboard. Default: 7.



<input checked="" type="checkbox"/> Heater	
PrintHeadActualTemperature	0.0 °C
PrintHeadTargetTemperature	45 °C
HeaterEnable	<input checked="" type="checkbox"/>

8. Nozzle heater:

8.1 Print Head Actual Temperature: Actual measured temperature of the nozzle.

8.2 Print Head Target Temperature: The target temperature set by the nozzle.

8.3 Heater Enable: Heating switch.

8.4 Actual temperature of the main chip on the board: (The normal range is 60-80°C. If it exceeds this range, the room temperature and machine heat dissipation need to be cooled accordingly).

8.5 External auxiliary heating feedback of the actual temperature: This feature is used for print heads without self-heating, such as: GH2220/G51.

8.6 Target temperature for external auxiliary heating: Target temperature for auxiliary heating.

8.7 Function switch of external auxiliary heating: Auxiliary heating switch.

8.8 Note: Only the board card corresponding to the nozzle without self-heating function can have external auxiliary heating function.

<input checked="" type="checkbox"/> Print Mode	
PrintHeadIsEnabled	<input checked="" type="checkbox"/>
XDirPrintResolution	<input type="text" value="600"/> DPI
XDirMirrorSwathe	<input type="checkbox"/>
YDirMirrorSwathe	<input type="checkbox"/>
XInterleavedPixelStep	<input type="text" value="1"/>
XInterleavedPixelOffset	<input type="text" value="0"/>

9. Print mode:

9.1 Nozzle enable: Switch for nozzle printing.

9.2 X direction dpi: The actual print resolution depends on the template. This parameter is invalid.

9.3 X Direction Mirror Swathe: Mirror swathe switch.

9.4 Y Direction Mirror Swathe: Mirror swathe switch.

9.5 X Inter Leaved Pixel Step: X direction step value used for double heads overlap.

9.6 X Inter Leaved Pixel Offset: X direction starting data, for double-headed overlap.

9.7 Use the board to output analog electric eye signal: This function is to output analog electric eye signal with the current board card, to other board use. Additional IO auxiliary boards are required (for internal testing only).

9.8 Switch to trigger multi printing from external sensor.

9.9 Multiple print copies setting (The above two functions are used when you need to print repeated data during the simulated eye trigger period. Only for special application scenarios, otherwise do not use, if you need to use this function, if there is anything unclear, you can contact the supplier first.)

<input checked="" type="checkbox"/> Alignment		
XLocalMMTarget	<input type="text" value="50"/>	mm
XLocalMMTargetAdjustValue	<input type="text" value="0.0"/>	mm
XInvertDirection	<input type="checkbox"/>	
YPixelTotalTarget	<input type="text" value="0"/>	Pixel
YPixelTotalTargetAdjustValue	<input type="text" value="0.0"/>	mm
YDisableNozzleNumber_L	<input type="text" value="0"/>	
YDisableNozzleNumber_R	<input type="text" value="0"/>	
<input checked="" type="checkbox"/> Spray		
SprayFrequency	<input type="text" value="1000"/>	Hz
SprayTime	<input type="text" value="0.5"/>	s
<input type="button" value="Spray"/>		

10. Alignment and spray:

10.1 The distance from the nozzle to sensor: In MM.

10.2 Dynamic adjustment of electric eye distance of sprinkler head: used to dynamically adjust the printing position of paper direction in the printing process. This function does not take effect immediately. You must complete the data cached before sending the printed data according to the adjusted parameters. Therefore, it should be used with the previous motherboard cache page number. (The number of cached pages can be set according to the actual print speed.)

10.3 Nozzle reverse installation: Nozzle reverse installation or nozzle rotation 180 degrees.

10.4 Pixel points in Y-direction starting image of print head: Y-direction starting data, default is 0 when single print head, when multiple splicing, the sequence is: 0; 1280; 2560... (Take Ricoh G5 or G6 print head as an example, depending on the actual number of nozzle holes).

10.5 Dynamic adjustment of initial image position in Y direction of sprinkler head: dynamic adjustment in Y direction is basically consistent with that in X direction.

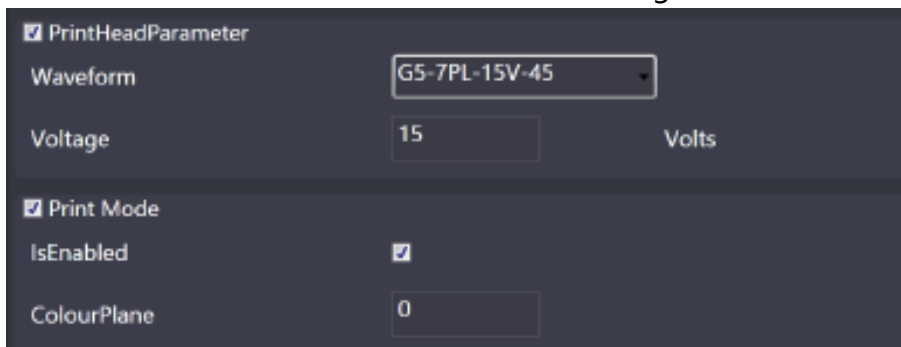
10.6 The nozzle is disabled on the left and right side, which is used to deal with overlapping area nozzles when multiple heads are spliced.

10.7 Flash frequency and flash maintenance time of the current print head.

10.8 Parameters modifications and attentions of multi-heads connection first step: Confirm that one nozzle as the reference, the overlapping nozzle number of each two print heads. Taking print head forward and reverse installation into consideration, manual test is needed to confirm the direction and disable for the left and right side nozzles.

10.9 Print a black bar, observe the amount of overlap in the cross section, and slowly modify until the nozzles overlap properly. Confirm the forbidden number of nozzles, and then modify the Y-direction starting data. Points to note: Assuming that the number of overlapping nozzles is 10, the starting data of the second nozzle is 1270 (1280-10), and if the third nozzle is exactly spliced, the Y-direction starting data is 2550 (2560-10).

10.10 When the fourth nozzle is just splicing, the Y-direction starting data is 3830 (3840-10). If a certain nozzle has the number of disabled nozzles, in order to ensure the continuity of the data, the starting data of the following nozzle should be modified successively. Finally, you can arrange some small text to confirm whether the stitching is normal.



11. Printhead parameter:

11.1 Waveform: Actual waveform of current nozzle hole.

11.2 Drive voltage: Actual voltage of current nozzle hole.

11.3 Whether enable of current column nozzle: Switch of the column nozzle.

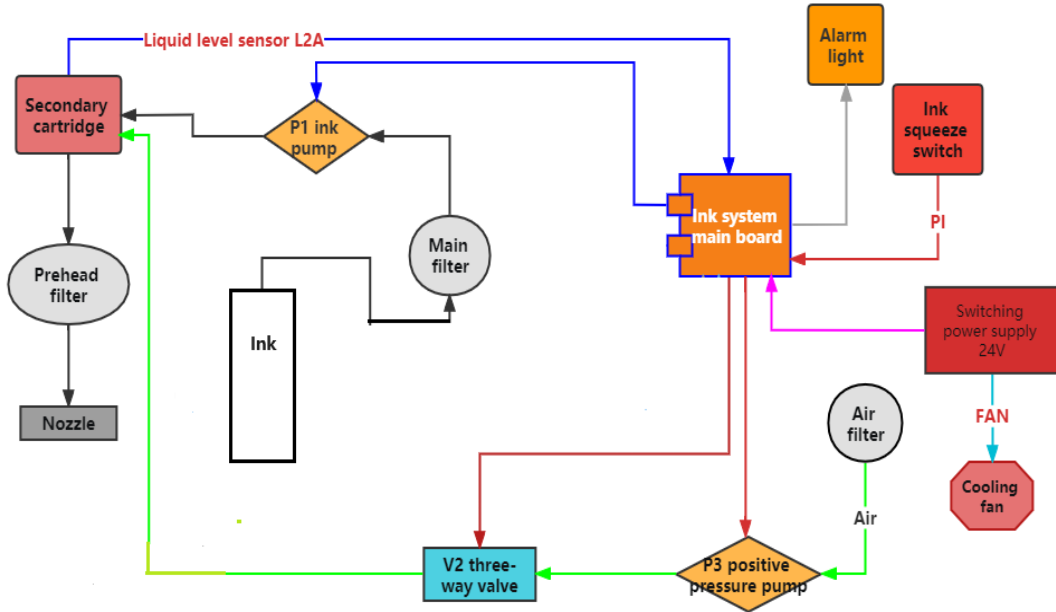
11.4 Color index: Different color channels (used in color environments).

11.5 Distance from the column nozzle hole to nozzle: In MM.

11.6 The column nozzle actual electric sensor distance: In MM.

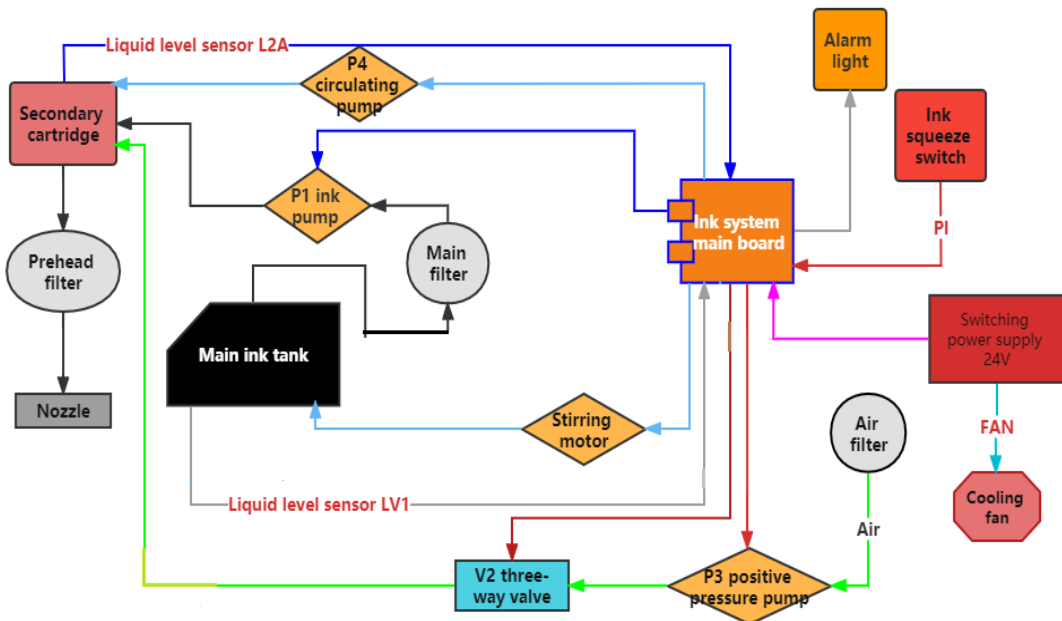
Ink and electric circuit

Common ink circuit diagram



LD series
Common ink circuit diagram

Circulating ink circuit diagram

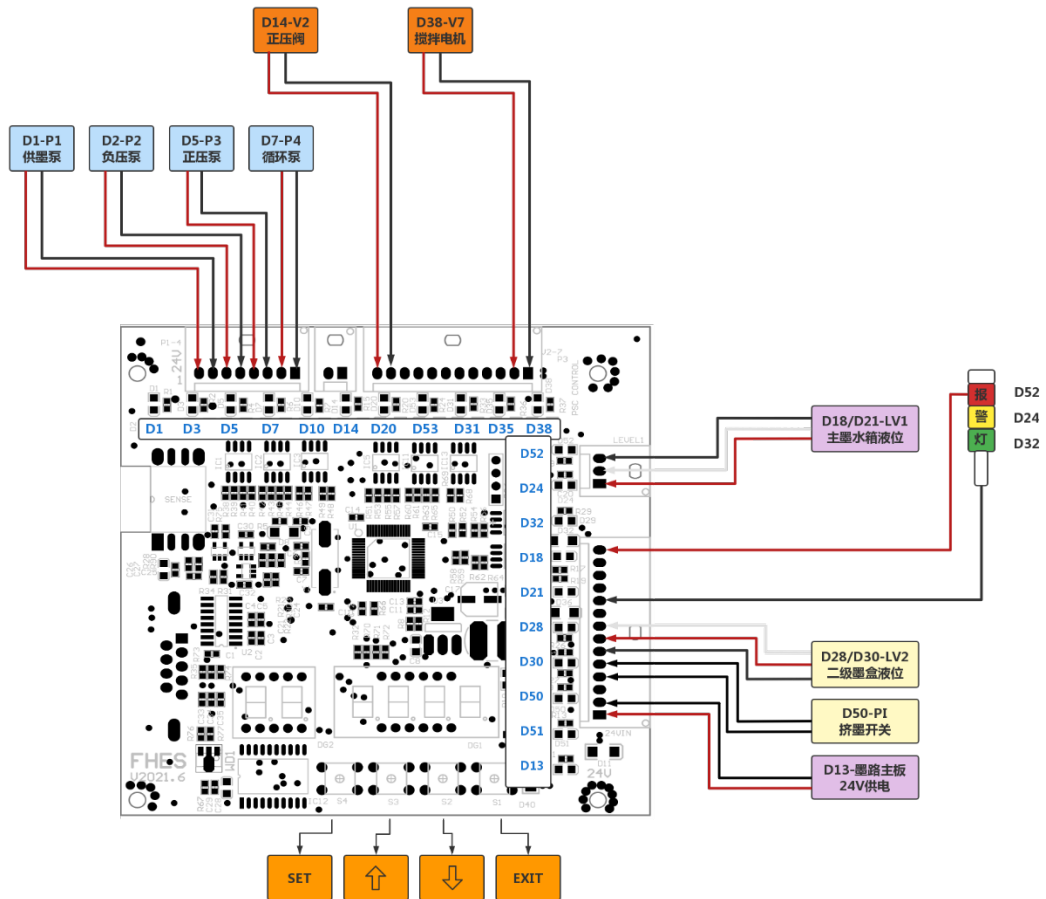


LD series
Circulation ink circuit diagram

Mainboard chip light paraphrase

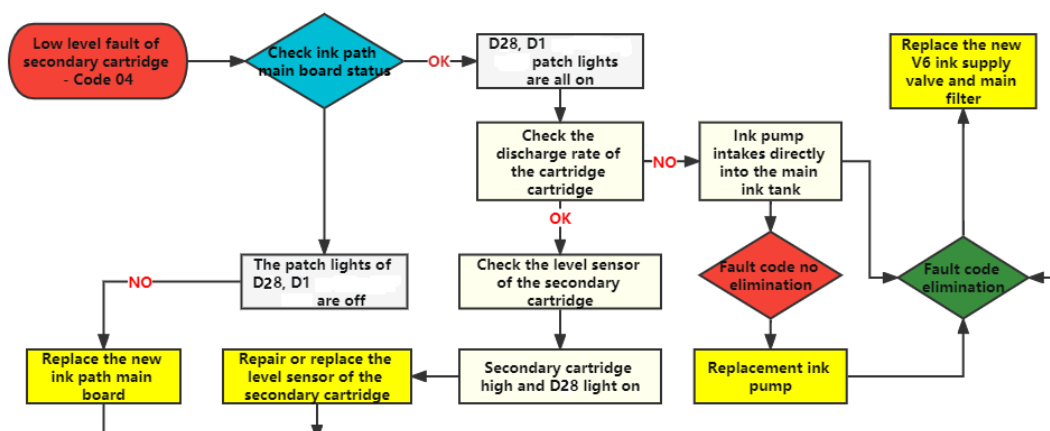
Number	Item code	paraphrase
D1	P1	Ink pump work
D3	P2	Negative pressure pump work
D5	P3	Positive pressure pump work
D7	P4	Circulating pump work
D10	V1	Nozzle solenoid valve work
D14	V2	Positive pressure valve work
D20	V3	Pressure switching valve work
D53	V4	Negative pressure valve work
D31	V5	Exhaust valve work
D35	V6	Pre-pump solenoid valve work
D38	V7	Main ink interference mixing work
D52	RED	Alarm red light fault
D24	YEL	Alarm yellow light fault
D32	GRE	Alarm green light working indication
D18	LV1-A	Main ink tank out of ink warning
D21	LV1-B	Main ink tank is empty
D28	LV2-A	Secondary cartridge Level 1 is out of ink
D30	LV2-B	Secondary cartridge Level 2 overflows
D50	PI	Nozzle squeeze ink cleaning work
D51	BK	Non-occupation
D13	POWER	Ink circuit board power indicator

Mainboard wire diagram



Fault troubleshooting

Fault 04 symptom and troubleshooting



Cause and symptom:

The secondary ink cartridge is in low level state continuously for 30 seconds.

1. The red alarm lamp is continuously on;
2. The buzzer continuously sounds;
3. The ink path control board stops all operations except for the alarm until the fault is eliminated;
4. The ink path main board displays the 04 fault code.

Troubleshooting:

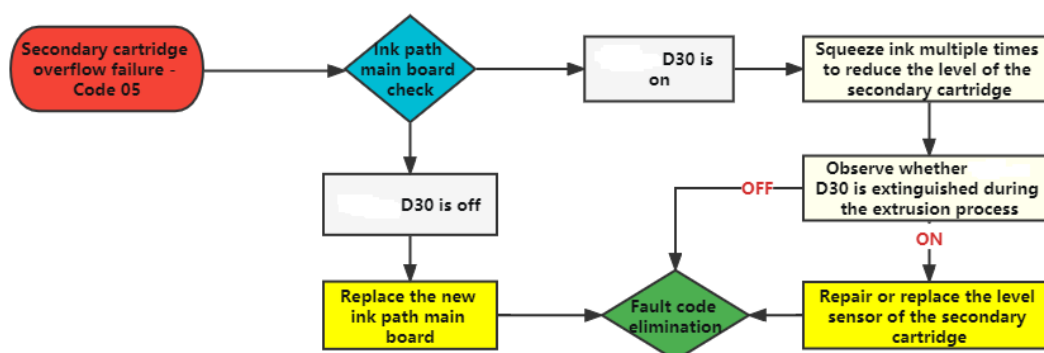
1. Check whether the ink in the ink bottle or ink bucket is used up, replace or pour a new bottle of ink, restart the ink path, and restart the software.
2. If there is ink in the ink bucket or ink bottle, check whether the ink tube in the section from the ink bottle to the ink path inlet connector is folded, blocking the ink supply.
3. If the filter has not been replaced for more than 12 months, please replace the main filter before the pump and the filter before the nozzle.
4. If the above operation still does not solve the problem, restart the ink circuit system, observe the working status of the ink circuit motherboard patch LED light, observe the D1 patch light, D1 on indicates the low level ink supply work;
5. If the ink pump D1 light is not on after the low liquid level light of the ink circuit mainboard D28 is on, the ink circuit mainboard is faulty. Replace the ink circuit mainboard with a new one.
6. If all indicators on ink pump D1 are normal and the device is powered off, wear protective gloves, remove the black ink supply tube from the secondary

ink cartridge, ensure that ink drips out, connect a transparent container under the ink tube, and power on the device again. Check whether ink quickly flows out of the ink tube.

7. If there is a rapid outflow of ink, quickly power off the device, insert the ink tube, open the upper cover of the secondary ink cartridge, repair or replace the level sensor, this fault is often caused by the lower level sensor can not float normally, and will report the 05 fault after repeated restart, then first eliminate the 05 fault, and then deal with the 04 fault;

8. After the step 6 aggregation operation, no ink outflow or small outflow, confirm that the ink tube is not folded, the filter is not more than 12 months, replace the ink pump.

Fault 05 symptom and troubleshooting



Cause and symptom:

The float of the level sensor in the secondary ink cartridge is at the high liquid level.

1. The red alarm lamp is continuously on;
2. The buzzer continuously sounds;
3. The ink path control board stops all operations except for the alarm until the fault is eliminated;
4. The ink path main board displays the 05 fault code.

Troubleshooting:

1. Check whether the D30 light of the main board of the Muru is on. If the D30 light is not on, replace the main board with a new one.
2. If the D30 light is on and the INK line is powered off, put on protective gloves, place the INK tray under the ink line of the ink line host, remove the INK OUT ink tube, and let the ink flow into the ink line until no large amount of ink flows OUT, insert the ink tube.

3. Power on the Mo road again, observe whether the D30 light of the main board of the Mo Road is off, and the 05 fault code is eliminated;
4. If the D30 light is not off, gently tap the side of the second-level cartridge with a tool. If the D30 light is off, the float stuck in the upper level is reset after gently tapping the vibration;
5. Gently tap the non-solenoid valve face of the secondary ink cartridge several times. If the D21 or D30 light is still on, remove the upper cover of the secondary ink cartridge and check whether the upper float ball of the level sensor of the secondary ink cartridge connected to the upper cover is stuck in the upper liquid level. Adjust the upper and lower positions of the floating ball by hand, observe the working status of the D30 patch light, and determine whether the liquid level sensor is damaged. If it is damaged, replace it with a new one;
6. Reinstall the cover of the secondary ink cartridge, pay attention to the rubber sealing ring of the ink cartridge to be intact and completely fixed in the card slot, and fix the secondary ink cartridge, motherboard and other accessories.

Software alarm processing

Nozzle main board and software error (for 517L&517LPLUS)				
Number	Paraphrase	Reason	Phenomenon	Solution
3024	Nozzle drive ADC self-test	When the nozzle voltage is not turned on, the nozzle voltage detection is abnormal	Software error report	Nozzle main board hardware failure, restart after the problem can not be eliminated, replace the nozzle main board
3025	Flash self-test	The board storage is abnormal	The board storage is abnormal	Nozzle main board hardware failure, restart after the problem can not be eliminated, replace the nozzle main board
3026	DDR self-test	The read and write of the card memory is abnormal	Software error report	Nozzle main board hardware failure, restart after the problem can not be eliminated, replace the nozzle main board

3030	The nozzle voltage output was enabled	The voltage of the nozzle is not output, and it will generally occur at the same time with other faults	Software error report	Check the status of other faults
3031	Nozzle drive theoretical voltage alarm	The expected output voltage of the nozzle is too high	Software error report	1. Check whether the nozzle voltage calibration is normal 2. Check whether the temperature of the nozzle is too low
3032	Nozzle drive voltage overvoltage protection	The output voltage of the nozzle is too high	The software reports an error, the voltage output is disabled, and the nozzle has no drive voltage output or the drive voltage output is out of control	1. Check the nozzle voltage parameter Settings or the hardware of the nozzle main board 2. Replace the nozzle main board
3033	Nozzle IC overheat protection	The internal temperature of the nozzle is too high	The software reports an error and turns off the nozzle drive voltage output	1. Unplug the nozzle data cable, the fault is not eliminated, replace the nozzle main board 2. Step 1 rectify the fault and replace the data cable 3. If the fault persists, replace the nozzle head
3034	Ink overheat protection	The ink temperature is too high, which may be due to incorrect temperature setting or uncontrolled heating	Software error report	1. Check whether the temperature near the nozzle heating plate is indeed too high than the set temperature 2. Shut down until the temperature decreases, connect the machine to check whether the temperature of the nozzle changes in real time. If it changes normally, perform step 3; otherwise, perform step 4 3. After the system starts and

				insists that the temperature of the nozzle reaches the preset temperature, check whether the heating output of the board stops, measure the voltage and resistance at both ends of the heating sheet of the nozzle, and the heating indicator light of the main board of the nozzle is always on after reaching the set temperature, which may be a board fault or leakage of the heating sheet of the nozzle 4. Connect the machine after the temperature decreases, check the nozzle data line if the temperature is abnormal, or the nozzle itself may be abnormal temperature feedback, replace the nozzle data line, still unresolved, replace the nozzle
4001	General error	An error occurred while printing content generation	Printing stops after an error is reported	Check whether the main board of the nozzle is properly connected and whether the preview template has data
4005	The device is disconnected	Physical reasons or system Settings	The software cannot connect to the nozzle main board	1. Check the network adapter status and whether the Gigabit Ethernet connection and local IP address are correct. If the Gigabit Ethernet is disconnected, check whether the PC, network cable, and nozzle main board are properly connected. Or the main board of the nozzle is faulty 2. Run the PING command to check whether the PC can communicate with the printhead main board. If no, check whether the IP address of the printhead main board is

				changed 3. After the temperature decreases, the machine is connected, and if the temperature continues to be abnormal, check the data line of the nozzle head. It may also be that the temperature feedback of the sprinkler head is abnormal
4006	Waveform file error	The waveform file is not saved or the waveform file is incorrectly read	Software error report	Check whether the path of the waveform file is correct and whether the waveform file is occupied
4007	Failed to verify the board	The card ID doesn't match the inkjet software	Software error, unable to configure and print	Check whether the main board of the nozzle is properly connected and whether the OEMID of the main board of the nozzle is correctly written
4008	The print data is insufficient	No print data is available for printing	Printing stopped due to insufficient data	1. Check whether the template content is empty 2. Check whether the data file where the template is called exists 3. Reduce the printing speed and check whether the column calibration Settings are correct
4027	Nozzle configuration file detection	Nozzle configuration file detection	The software reported an error, the configuration could not be correct	Check whether the waveform file matches the current device
4035	The ink has run out	The ink has run out	Software error report	The ink has been used up, please add it

Nozzle main board and software error (for 513L&523L&525L&545L)

Number	Paraphrase	Reason	Phenomenon
1	Board expiration,	The nozzle main	1. Check that the core board and

	printing stop	board does not have a password or the password expires	bottom plate of the nozzle main board are not fastened properly 2. Contact the supplier or send the nozzle main board back to the printer supplier for inspection
2	The data processing speed can not keep up with the printing speed, printing stops	The processing speed of the upper computer software can not keep up with the consumption of the cache page number of the board	First determine whether the difference between sent and sprayed page numbers is gradually shrinking or has stopped sending abnormally. If the difference between the number of pages sent and the number of pages sprayed is getting smaller and smaller, the software needs to reduce the printing speed, improve the computer configuration, reduce the paper direction resolution, reduce the size, etc. In terms of hardware, check whether the network cable is a Category 7 network cable, the network port is a Gigabit network port, and the switch is a Gigabit switch. If the number of sent pages stops abnormally, you need to check whether all the headboards can print normally and whether the software version and firmware do not match
3	The network cable of the head board is disconnected, the printing stop	The software reported an error, could not receive the reply of the nozzle main board	1. Check whether the network cable on the nozzle main board is loose 2. Check whether the main board of the nozzle can be pinged 3. Whether there is electromagnetic interference
4	UDP communication disconnected 10 seconds timeout, printing stopped	The printhead main board reported an error, the data sent by the software could not be received for more than 10 seconds	1. Check whether the network cable on the nozzle main board is loose 2. Check whether the main board of the nozzle can be pinged 3. Whether there is electromagnetic interference
5	The number of electric eye trigger reaches the upper limit, the printing stops, please check the electric eye	Nozzle main board cache electric eye more than 80, is generally triggered by the electric eye error	1. First check the electric eye distance set by the software, which can not be set to 0 or negative 2. Next, calibrate the electric eye or find the point where there is no false trigger in the printing medium, and

	trigger		each false trigger point will be deposited by the main board within the set electric eye protection distance
6	Black label compensation reaches the upper limit, printing stops, please check the print media black label	The set black label compensation reaches the upper limit	Check the print medium for black label on the print
7	Plate ink consumption is exhausted, printing stops, please add ink	Ink is running out	Ink is insufficient, add ink as soon as possible
8	Board detected 24V power failure, printing stop	The nozzle main board is powered off or the power supply voltage is unstable	Check whether the main board power supply is normal and the power voltage is stable
9	Image ID receiving verification failed, printing stopped	Image ID receiving verification failed	Often the firmware and software versions do not match
10	Board image data verification and FPGA verification failed, printing stopped	Nozzle main board image data validation and FPGA validation failed	If it is 50 or 100, you can check the maximum cache page number of the software. If it is more than 1000 pages, change it to less than 1000 pages
11	Board image data check and ARM check failed, printing stopped	The card image data check and ARM check failed	If this problem occurs, please contact the printer supplier

Maintenance

Nozzle cleaning and maintenance

Nozzle cleaning

Cleaning the nozzle is usually not recommended, only after the nozzle is blocked, and cleaning the nozzle risks damaging the nozzle.

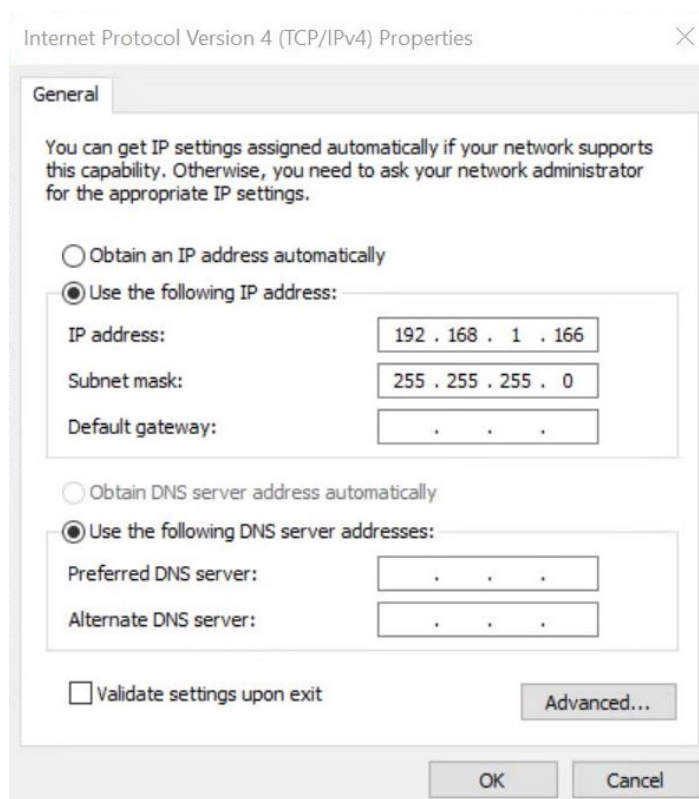
1. Do a good job of protecting the nozzle circuit before cleaning the nozzle head. You can use electrical tape to protect the circuit to prevent the circuit part from being contaminated by the cleaning liquid or ink, causing damage.
2. Special cleaning solution must be used to flush the nozzle.
3. The filter must be connected before washing to effectively protect the nozzle.
4. The pushing pressure of the glass syringe should be controlled below 30KPa (equal to about 0.3Kg/cm²) when rinsing, pay attention to whether the cleaning liquid line rushed out of the spray hole is straight, whether the spray hole is blocked without liquid, after several rinsing, the ideal effect can not be achieved, the cleaning liquid can be retained in the nozzle for 30 minutes, and then the flushing action is performed.
5. After the flushing is finished, empty the cleaning agent inside the nozzle head and ink it as soon as possible. Keeping the cleaning solution inside the nozzle head for a long time may cause damage to the nozzle head.
6. After cleaning the nozzle, please check the printing effect on the machine as soon as possible. If the effect is not good, the nozzle can be cleaned repeatedly.

Daily maintenance

When the inkjet printer is not in use, clean the surface of the nozzle with a dust-free rod or nozzle cloth with special cleaning liquid, pad the dry nozzle cloth in the nozzle protective cover, and cover the nozzle protective cover, which can play the role of dust-proof and light-proof.

Common problem troubleshooting

Hardware unconnected



The indicator of the port connecting the nozzle module to the computer is off.

1. After the power is off, reinsert the network cable (Category 7 shielded) or 29PIN cable to ensure that the network cable is properly connected.
2. As shown in the picture, correctly set the IP address of the computer network card connected to the nozzle module.

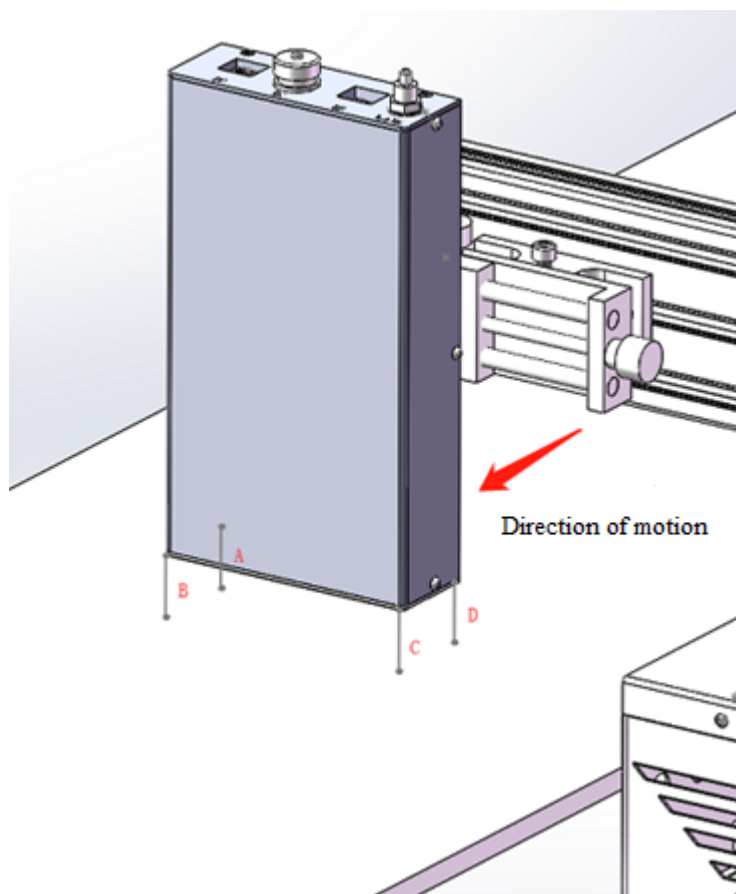
Check whether the power supply and nozzle module of the ink circuit are normal.

1. Check whether the boat switch power indicator of the main box is on.
2. Check whether the power indicator on the main board of the nozzle module is on.

Whether the IP address Settings of device parameters in the inkjet software are changed.

The default IP address of the software is 192.168.1.166. The software IP address must be the same as the IP address of the PC NIC.

Double imaging in printing



Check whether the nozzle plane is parallel to the surface of the printed object.

The two surfaces of the nozzle plane must be kept parallel (such as $A=B=C=D$ in the left figure), and the high-resolution nozzle is often spliced by multiple rows of nozzle holes.

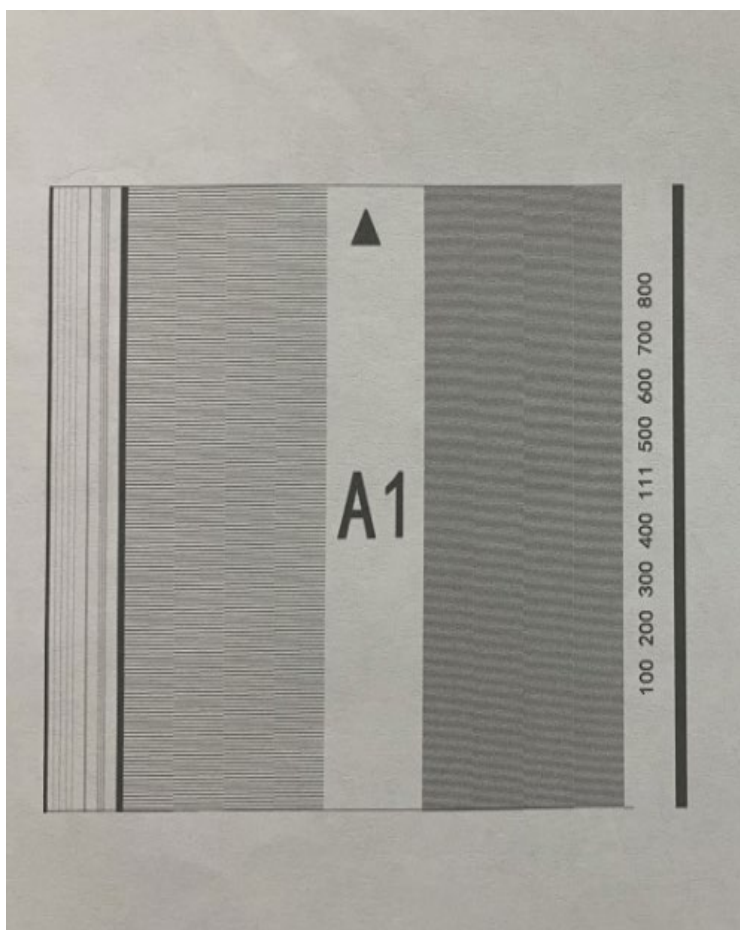
Whether the nozzle is perpendicular to the direction of motion of the printing object.

Make sure that the direction of the object is perpendicular to the BC line, so that the multiple rows of holes can perfectly overlap the insertion points.

Whether the related parameters in the device parameters are set correctly.

1. Calculate with the standard 50MM diameter \2000PR encoder wheel, the resolution value of the software external encoder is set to:
513L/523L/525L:19.62, 517L/517LPlus: 1293.
2. Select or cancel the nozzle reverse installation option to check whether the printing effect changes.
3. When using the internal encoder, the set analog speed is inconsistent with the actual production line speed.

Poor treatment of printing effect



The relevant reasons for the poor printing effect are as follows, excluded one by one.

1. The nozzle hole is blocked, mainly due to curing lamp irradiation, long-term exposure to the air of the nozzle, external damage of the nozzle surface, the use of unqualified or expired ink, the nozzle contact with other chemical liquids, the circuit aging or damage.
2. The distance between the nozzle and the surface of the printing object is within 2mm, and the maximum is 5mm. The closer the distance is, the clearer the printing is.
3. Whether the inkjet printer has good independent grounding, free from external interference such as static electricity and wind blowing nozzle.
4. Whether the parameters of the inkjet software are set accurately, such as ink temperature, voltage, wave pattern, etc.
5. Whether the relative height difference between the nozzle and the independent cartridge assembly is accurate.
6. The distance between the curing lamp and the nozzle module is too large, resulting in serious ink diffusion on the surface of the printed object.

No printing process

Non-printing caused by incorrect hardware and software Settings.

1. Place a piece of white paper under the nozzle, according to the software "flash spray", observe whether there is ink spray marks on the white paper, if there is, it can be determined that the hardware and software Settings are not correct caused by the printing.
2. Click Print start, when using the external encoder, open the production line, keep the encoder wheel rotating, observe whether there is a speed value on the printing interface, such as the speed value is 0, check whether the encoder is installed correctly; Adjust synchronizer parameters set "reverse" option to select or uncheck whether the speed can be detected normally.
3. The software can detect the speed, manually trigger the sensor, observe whether the page number of the printed interface will increase with the number of induction, if it cannot be increased correctly, check whether the sensor is installed correctly; If you can increase the page number correctly and check whether the electric eye distance setting is accurate, you can put the white paper under the nozzle. When the production line is running normally, manually trigger the sensor to see if there is ink spray. If so, test spray with the printed object and adjust the electric eye distance.
4. The above operation still cannot solve the problem. Check the sprinkler Settings in the parameter setting to confirm whether "Enable this column" has been checked for each column of spray holes, and the voltage is set accurately, with the range of 513L/523L/525L/545L between "15-20V" and the range of 517L/517LPLUS between "20-24V".
5. To adjust Device parameters, stop printing. Save the parameters and enable printing to check the adjustment effect.

Non-printing caused by hardware problems or incorrect installation.

1. Place a piece of white paper under the nozzle, according to the software "flash spray", observe whether there is ink ejecting trace on the white paper, if not, it can be judged that the hardware is not installed correctly or there is a hardware problem.
2. Wipe the nozzle head with a wiping cloth or wipe the nozzle head after squeezing ink, and immediately perform step 1. If there is any ink trace, check whether the installation position of the independent ink cartridge assembly and the nozzle module is correct according to the guide "Normal printing after squeezing ink but the duration is not long".

3. If no ink is displayed after performing step 2, check whether the inkjet software is connected. If no ink is displayed, perform the "Inkjet software Display Hardware is not connected" command to ensure that the software is connected.
4. Perform Step 3. If no ink is found after the nozzle is connected, open the cover of the nozzle module to check whether the terminal of the nozzle is tightly connected to the main board of the nozzle. Power off, reinsert the nozzle, and power on to test the flash jet.
5. Perform step 4, if no ink, flash spray, ear close to the nozzle, whether there is a high-frequency "squeak" sound, if not, replace a good nozzle motherboard and try again, if there is still no "squeak" sound, the nozzle is suspected to be damaged; If the spray is normal, it indicates that the main board of the nozzle is damaged.
6. Perform Step 5 to replace the main board, but the flash jet still fails. Replace the nozzle with a new one. After executing the exhaust bubble of the nozzle, test the flash jet to check whether the flash jet is normal.