

CYKLOP

THERMAL INKJET PRINTER CM600

USER MANUAL

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1.SAFETY INFORMATION

- Ensure the printer is set to STOP before installing or removing a cartridge.
- Avoid using printer with high voltage and/or non-compatible power supplies or external electronic accessories.
- Ensure printer is installed and stored in a manner to prevent any strong impacts from any external objects.
- Minimize the use and storage of the printer in high dust environments.
- The working temperature of the printer is 5°C~50°C.
- Turn off printer before plugging or removing any cable (DATA/ ENCODER/ SENSOR/ IO).
- Be careful when using other external devices such as DATA/ ENCODER/ SENSOR/ ALARM/ UART CABLE/ POWER SUPPLY.
- Only use authorized cartridges provided by operatorr authorized supplier.
- Use mask and safety goggles to prevent exposure to any airborne inks.
- Use gloves to prevent any cuts while installing the printer with the mounting bracket as there may be sharp edges.
- Do not expose to excessive heat sources, sunshine, fire or the like.
- For indoor use only. Printer should not be exposed to water.
- The power-outlet shall be installed near the equipment and shall be easily accessible.
- No replaceable parts inside, refer servicing to manufacturer specified agency or qualified service personnel.
- Only use accessories specified by the manufacturer.
- Disposal: all electrical and electronic products including batteries should be disposed of separately from the municipal waste stream via designated collection facilities appointed by the government or the local authorities.
- Please ensure the printer and operatorr systems are properly grounded.
- Use only the power supply listed in the user instructions: power supply adaptor.

2.EMERGENCY CASE

For emergency situations, e.g. smoke coming out of printer, uncontrollable continuous printing, fire, explosive sounds, etc.,

PLEASE REMOVE THE POWER SUPPLY IMMEDIATELY!

3.ENVIRONMENTAL PROTECTION

Don't throw printer or ink cartridges into regular garbage or recycling bins. Ensure proper disposal (e.g. electronic waste) in accordance with operator local laws.

4.PRODUCT WARRANTY

Limited warranty. The housing and circuit board for each printer is warranted to be free from defects in materials and workmanship for a period of twelve months from the bill of lading date. This limited warranty does not apply to spare parts, authorized inks, or cartridges, or to housings and circuit boards that experience problems resulting from misuse, tampering or improper storage,

The warranty expires under the following circumstances:

- Any non-original parts and unapproved OEM inks are used.
- The product has been altered or modified without approval from us.
- Printhead damage is a result of improper installation.
- Damage occurs from an accident, such as but not limited to, being dropped, being sprayed with water or other liquids, caused by a natural disaster, caused by stocking or shipping conditions.
- Unapproved, wrong or unstable power supply is used.

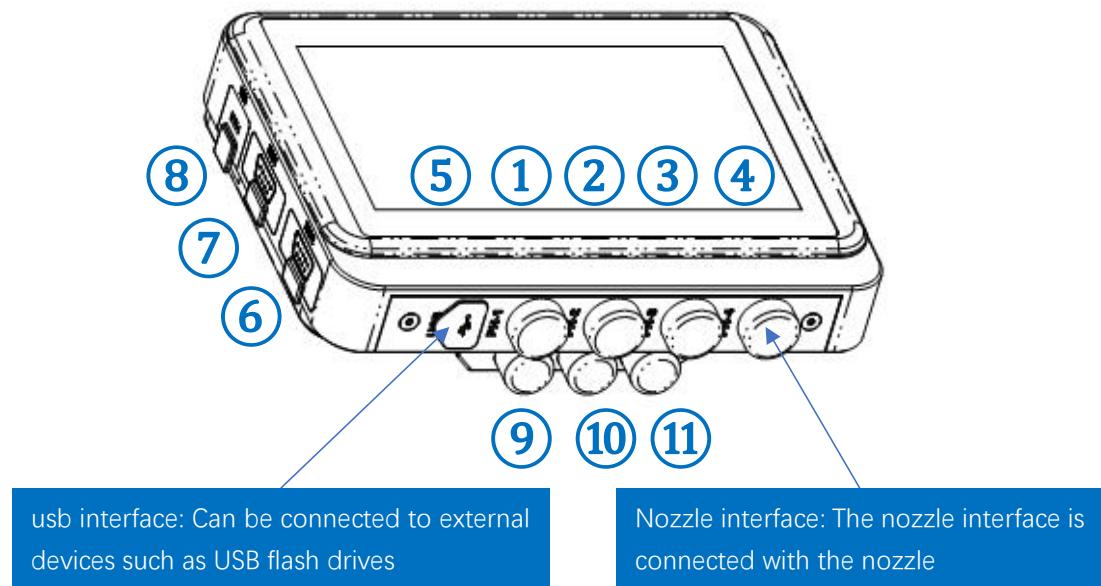
5.TECHNICAL SPECIFICATIONS

NO	DESCRIPTION	SPECIFICATIONS
1	Model	CM610/CM620/CM640
2	Printhead number	Maximum 2 for CM610/CM620 Maximum 4 for CM640
3	Guide plate kit	Guide plate kit for single head (C2.WJ.QT0077B) Guide plate kit for double head (C2.WJ.QT0078B) Guide plate kit for quadruple head (C2.WJ.QT0105B)
3	Dimensions (L x W x H)	
4	Weight	
5	Power supply	DC 12V-4A
6	Maximum power consumption	48W
7	Maximum printing resolution	600*300 Dpi
8	Optional resolution	4 levels
9	Operation	7" Touch Screen
10	Message memory	2G
11	Ink solution	Aqueous and Solvent
12	Menu language	Multiple/ selectable
13	Printable characters	Windows true fonts
14	No. of lines	Unlimited
15	Character height	Maximum 12.7mm/ 2inc for single head
16	Printability	Text, image, barcode, counter, shift code, time
17	Operating temperature	5°C -50°C and 90% air humidity, non-condensing
18	External connections	External sensor, External encoder and Alarm beacons

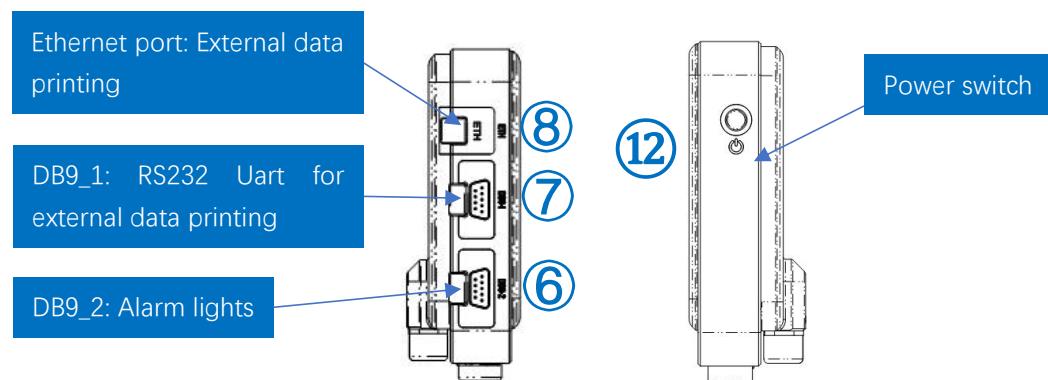
Resolution	150*300	200*300	300*300	600*300
Print Speed (m/min)	150	114	76	38

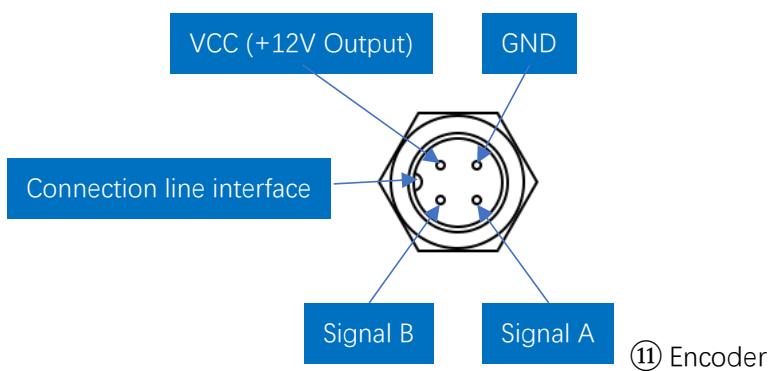
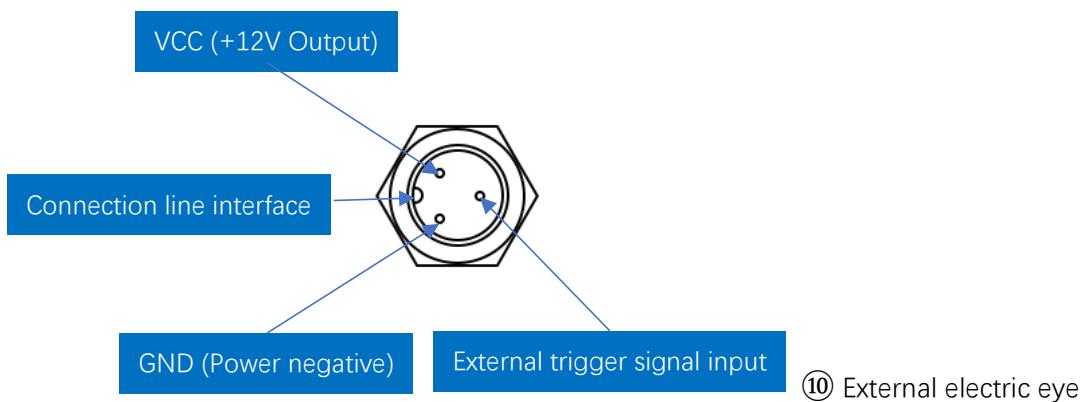
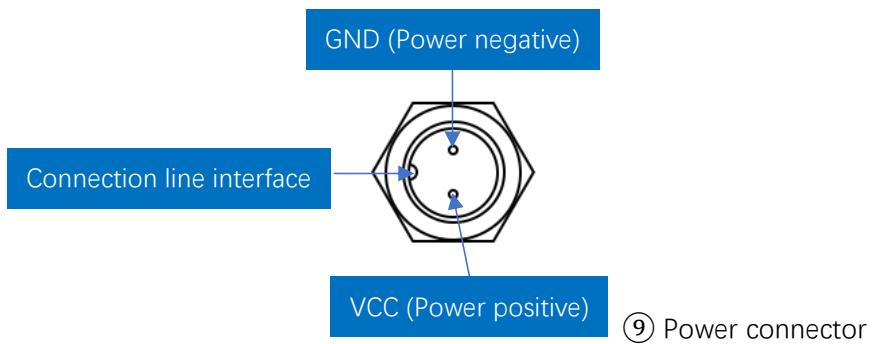
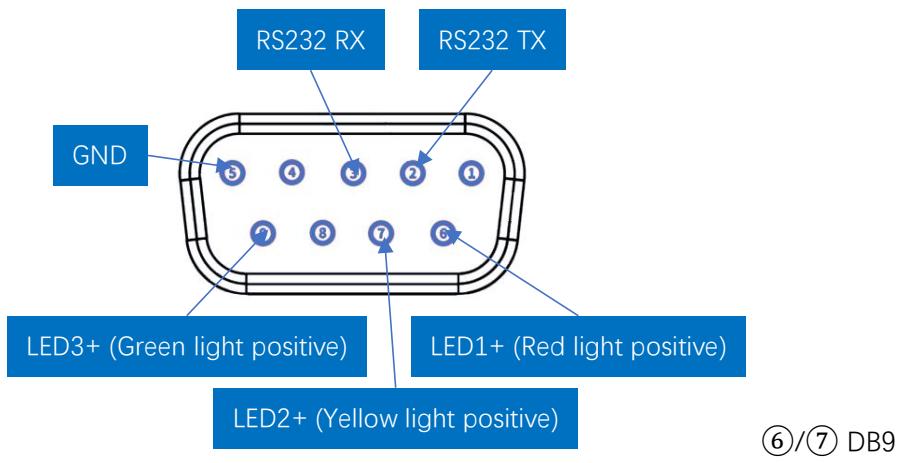
6.PRINTER OVERVIEW

6.1 Controller front side



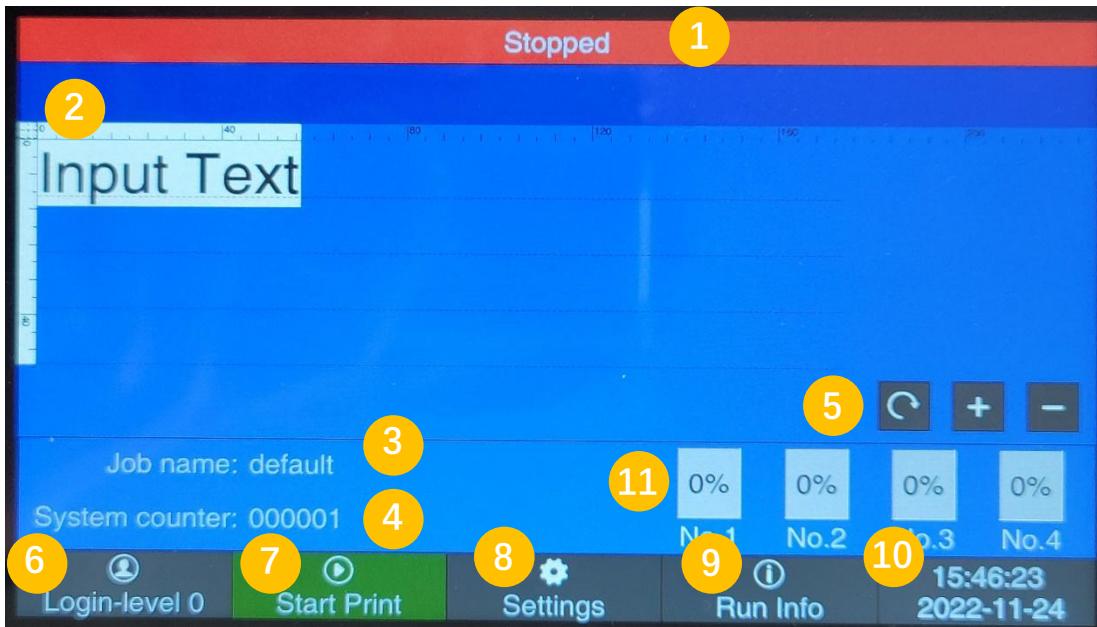
6.2 Controller back side





7.SOFTWARE USING

7.1 Main interface

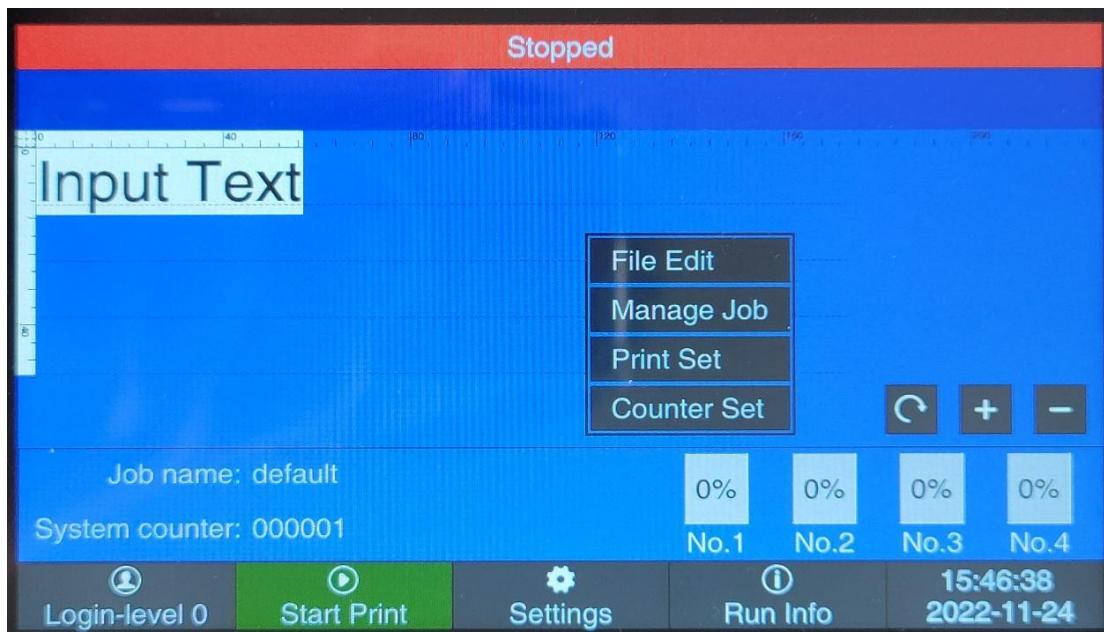


7.1.1 Page function

ITEMS	NAME	DESCRIPTION
1	Print status indicator function	The state is in the unprinted state, and the color is red when displayed as stop; the color is green when the state is in the printing state, and the display is wait print.
2	Print information preview function	Preview the edited content information and size
3	Job name	Current file name
4	System counter	Display the number of times the current information has been printed
5	Preview function button	1. The reset button can be restore the initial preview size of the system 2. The zoom in and zoom out buttons can free the size of currently viewed page
6	User level display	The device has three levels of user level setting permissions, which are 0, 1, and 2. The highest is level 2 administrator users, and the lowest is level 0 ordinary users. Advanced users can assign different operation permissions to low-level users.
7	Print button	Click to start printing or end the current

		printing
8	System settings	Click to enter the secondary menu to adjust and modify the system parameters
9	Run info	Display the current operating information of the system and various parameters
10	System time and date display	Can modify the current system date and time
11	Remaining ink display	Display the remaining ink amount of the current ink cartridges respectively

7.1.2 Edit menu

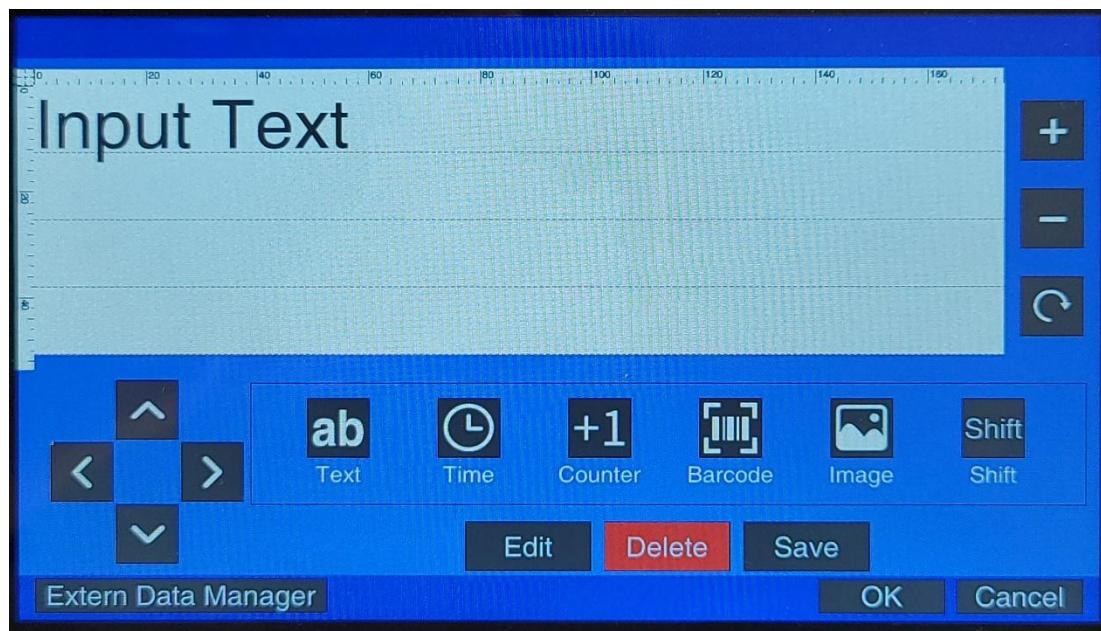


Tip: Long press the screen for 1-2 seconds to wake up the edit menu options.

ITEMS	NAME	DESCRIPTION
1	File Edit	Editable and printable content information
2	Manage Job	Click this button to open the print template management interface
3	Print Set	Different printing parameters can present different printing effects
4	Counter Set	Counter button to open the Counter setting form

7.1.3 File Edit

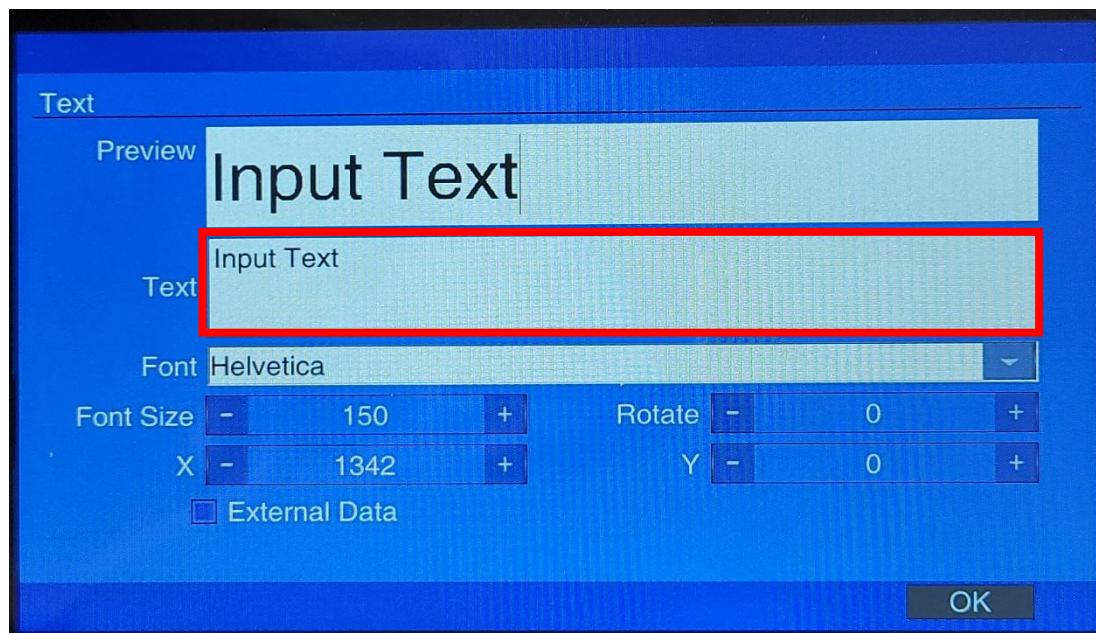
File editing is one of the important parts on the device. It will allow operator to design or laoperatort any print objects here. The following shortcut icons can make editing easy for operator.



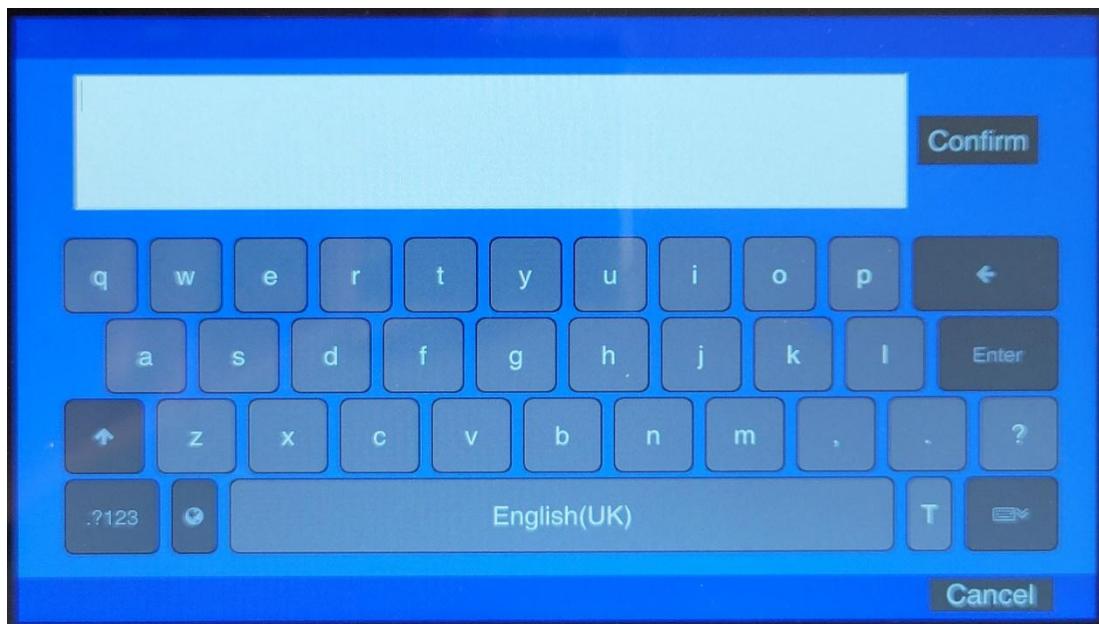
ITEMS	NAME	DESCRIPTION
	Position adjustment	Adjust the position of the content on the screen through the arrow keys or directly drag
	Text Editor	Click on the text edit to enter text, numbers, symbols, etc.
	Time Editor	Automatically read the current time of the system, with a variety of time formats built-in
	Counter Editor	Adding a counter in the edit text can help operator count the number of prints
	Barcode Editor	Support multi-format barcodes and QR codes, and import and print external data directly

	Image Editor	Import and print pictures stored locally on the device or an external device
	Shift Editor	This function can edit different production shifts according to different time periods
Extern Data Manager	Extern Data Manager	Manage items which select external data
	Preview function button	<ul style="list-style-type: none"> 1. The zoom in and zoom out buttons can free the size of the currently viewed page 2. The reset button can restore the initial preview size of the system

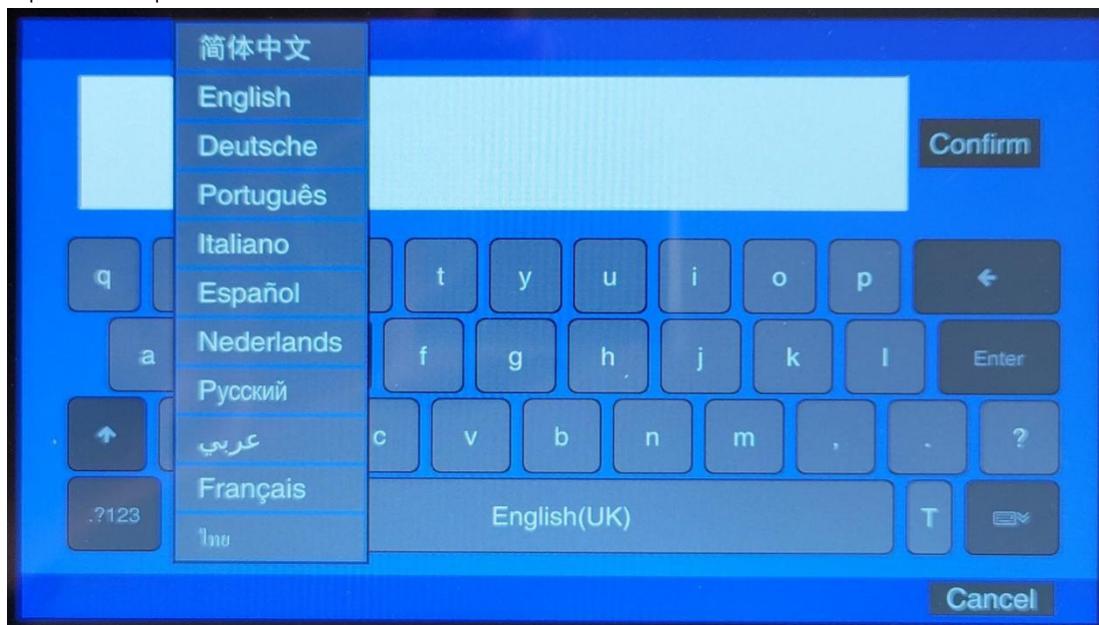
1) Text edit page



operator can adjust the text, size, angle, and text position by pressing a button. And also supports external data importing function with checking "External Data". Click on the red area shown in the figure above to enter the text.

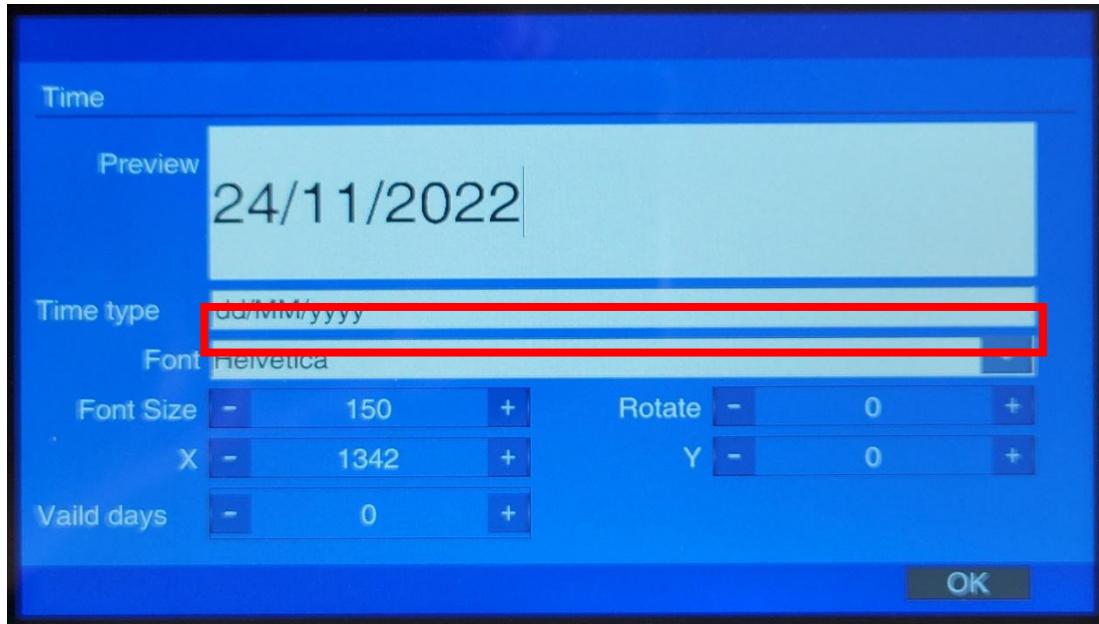


Click the keyboard on the screen to edit the text, and click the **Confirm** button after the input is completed.

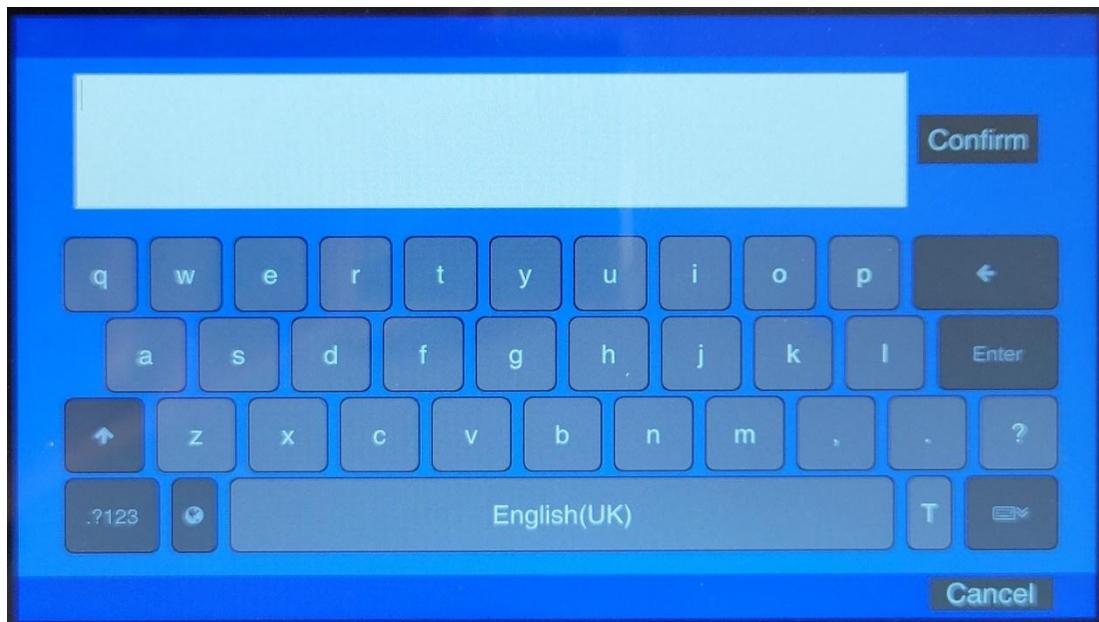


The device has built-in multiple languages, click the corresponding language to change the keyboard input method.

2) Time edit page

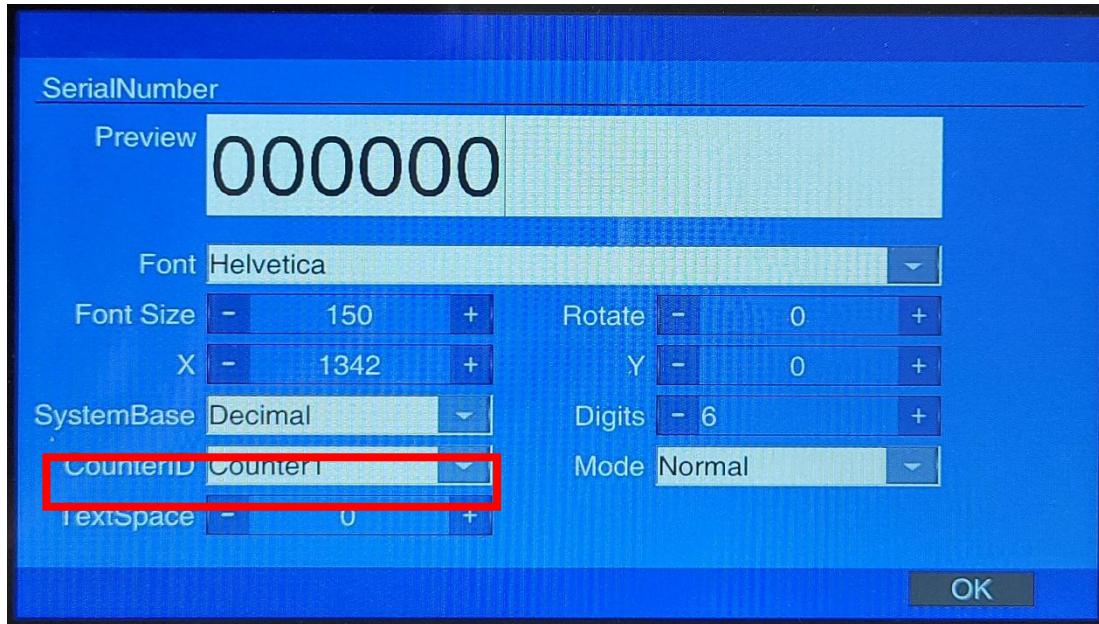


Click on the area indicated by the icon above, and the time format setting keyboard will pop up.



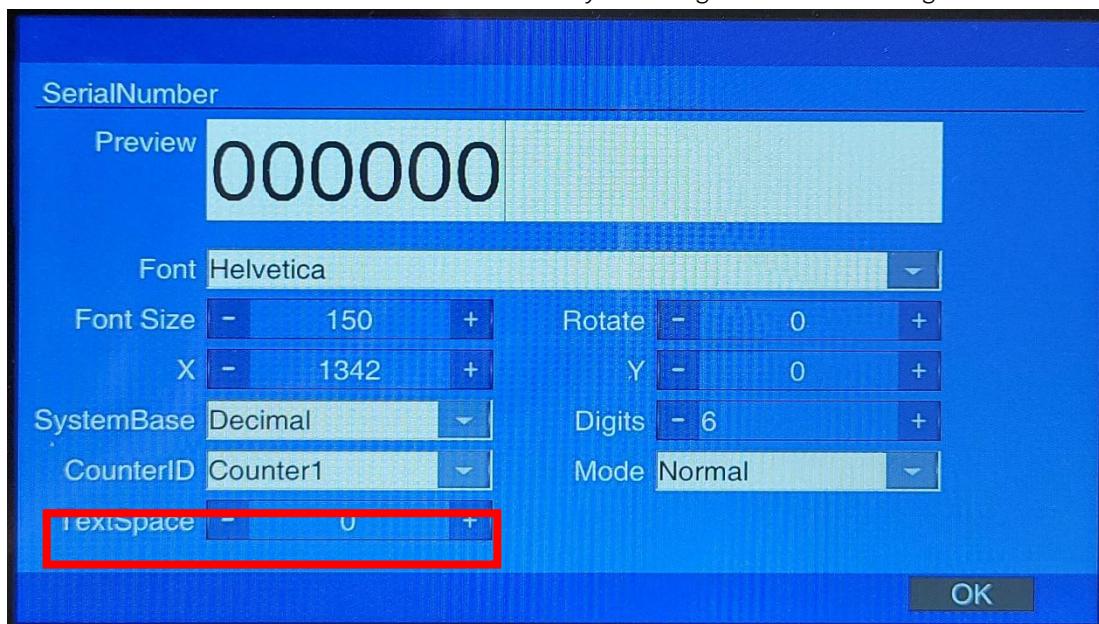
Enter the format that needs to be modified in the input box, and click the confirm button when finished.

3) Counter edit page



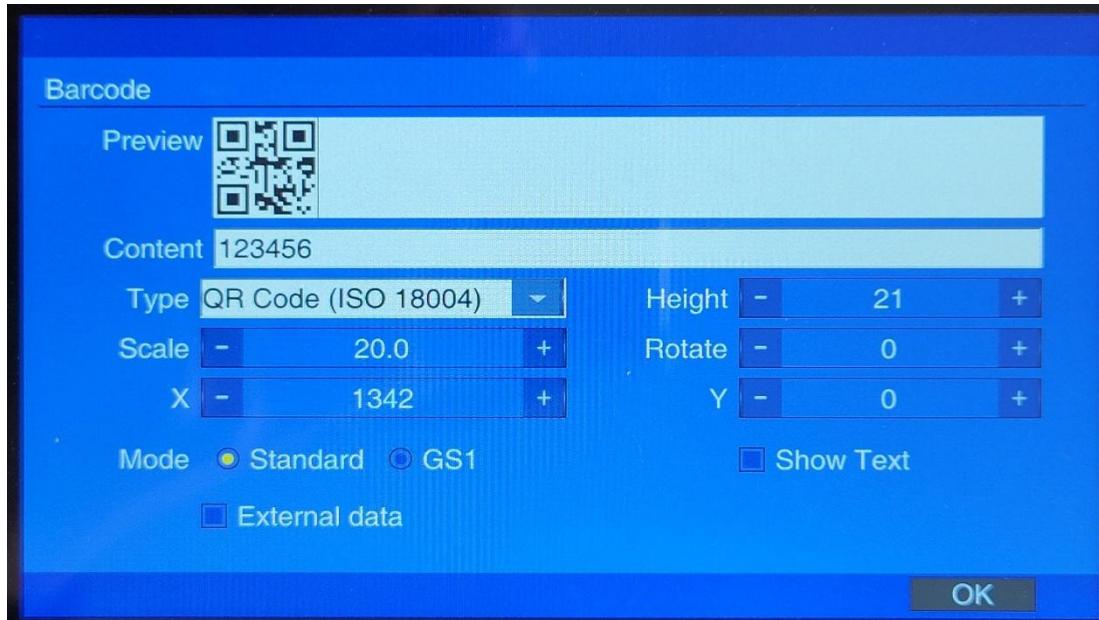
Up to four counters can be inserted into one editing file.

Different formats of the counter can be edited by selecting the number of digits and modes.



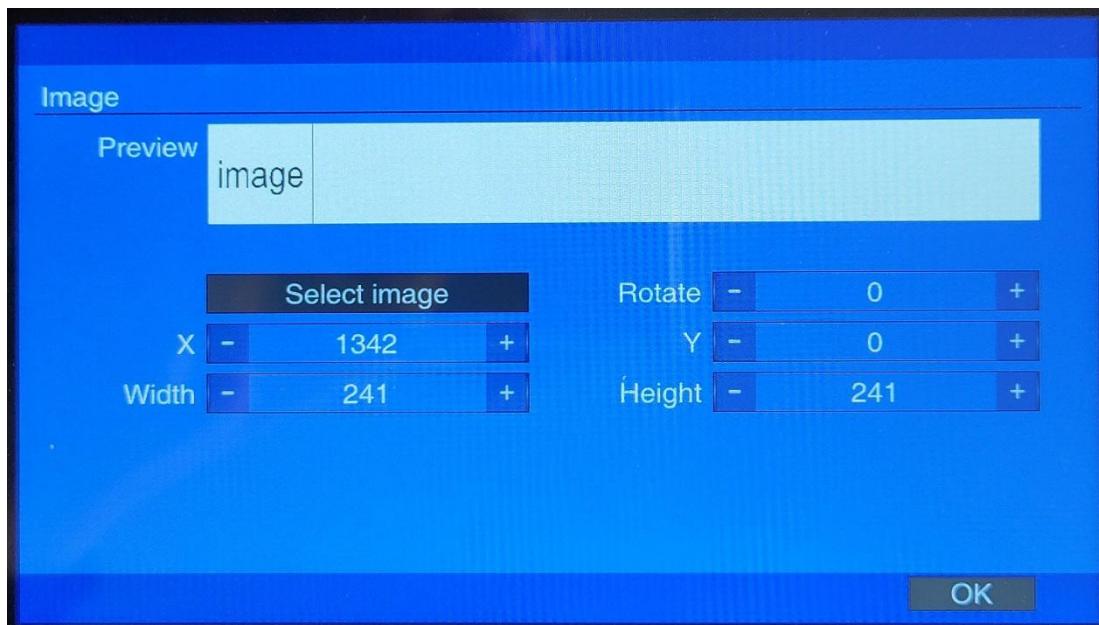
Click the plus or minus sign to adjust the distance between each character.

4) Barcode edit page

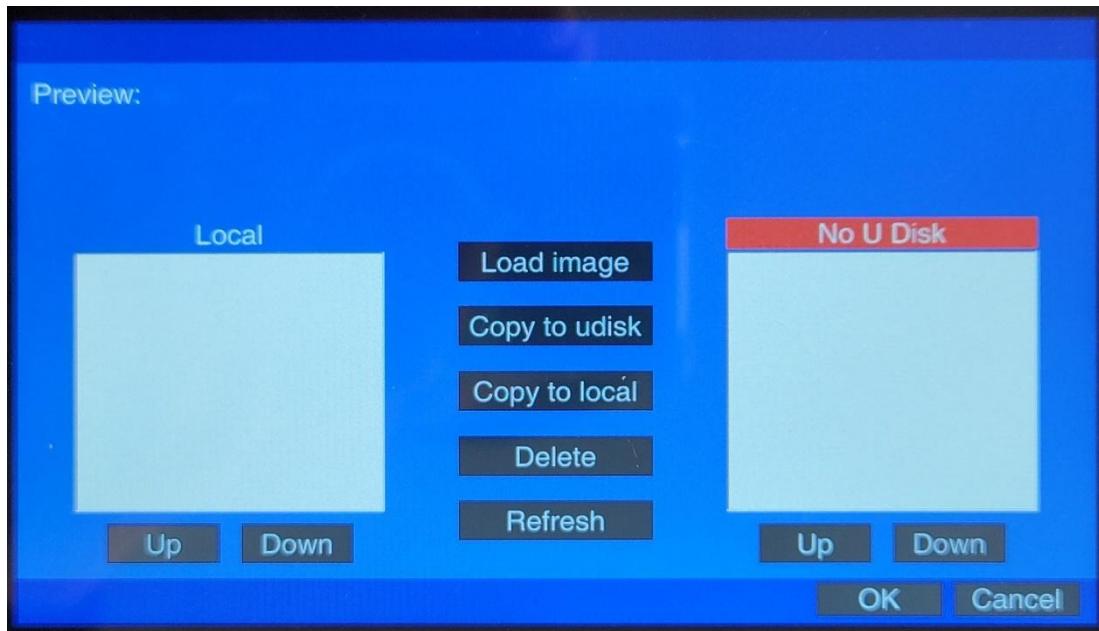


Edit the text in the content area, the following function buttons can adjust the format and parameters. And also supports external data import function with checking "External data".

5) Image edit page

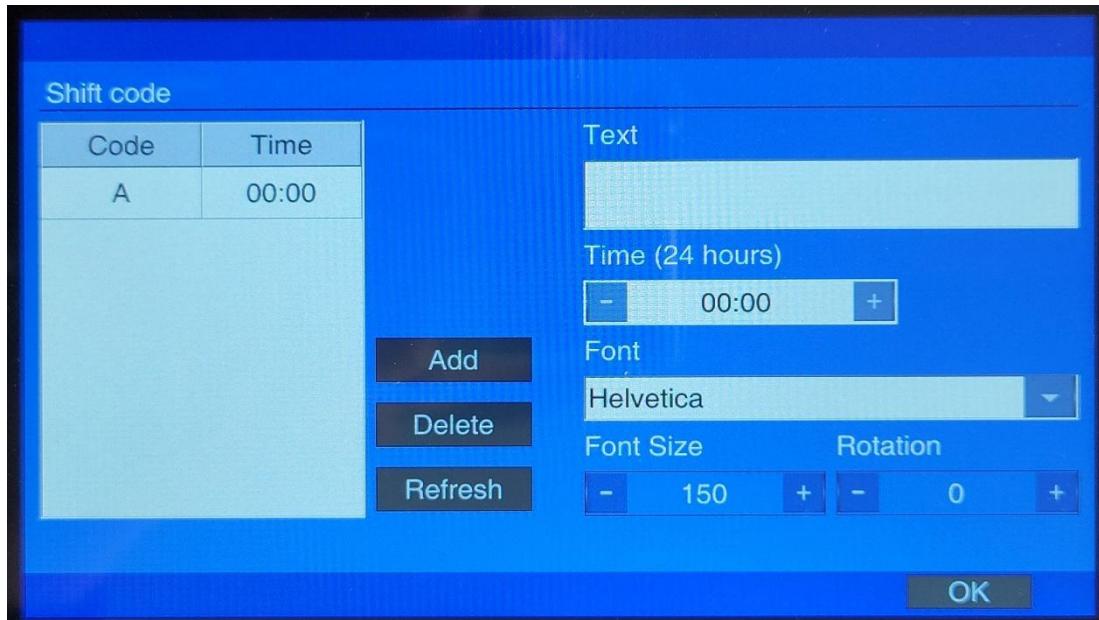


After selecting a picture, the picture information will appear in the upper display box, and the lower parameters can adjust the size and angle of the picture.



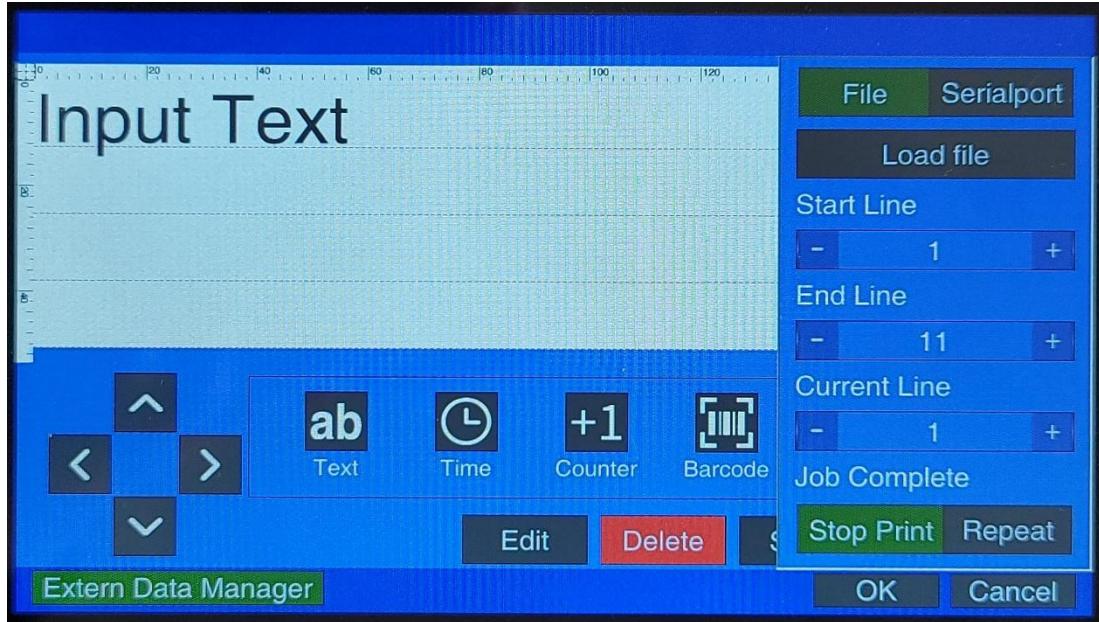
The picture selection page can copy files from the USB flash driver to the device, and also supports copying files from the device to the USB flash driver.

6) Shift edit page

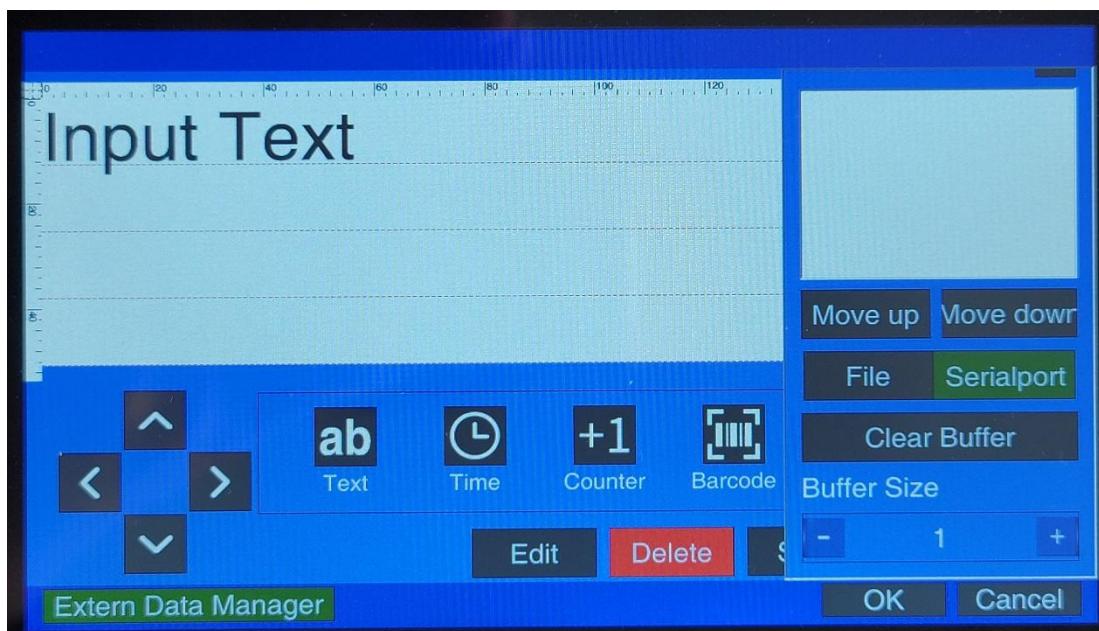


By adjusting the time zone to assign the corresponding shift number, in order to meet the production-oriented enterprises in the multi shift rotation inkjet needs.

7) Extern Data Manager

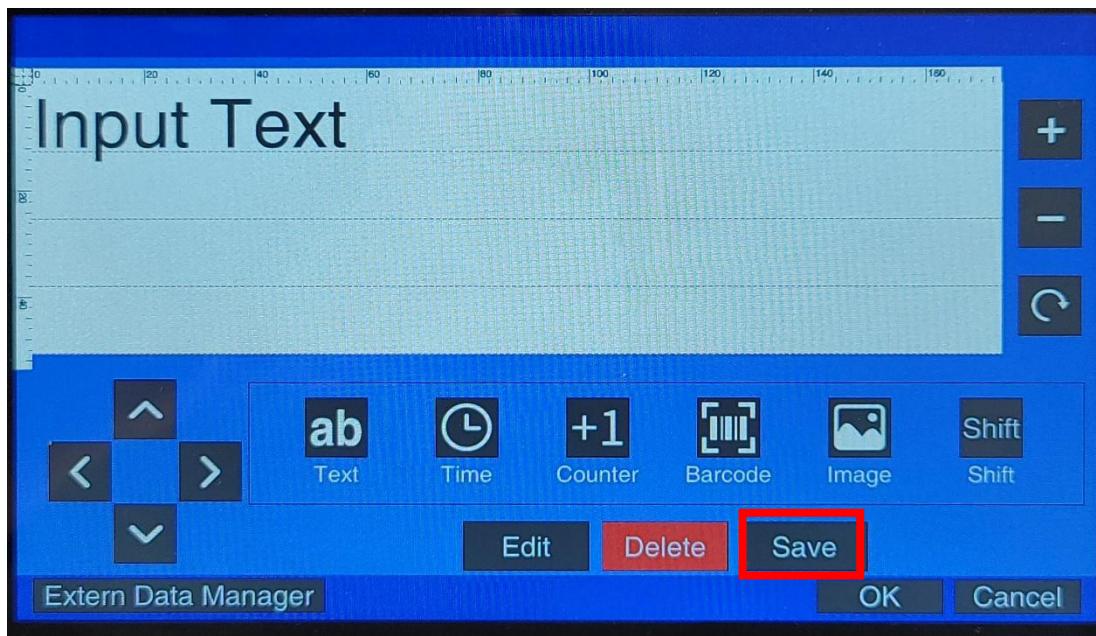


Support TXT and Excel format file, imported through external storage devices such as U disk.



External data can also be imported through serial port.

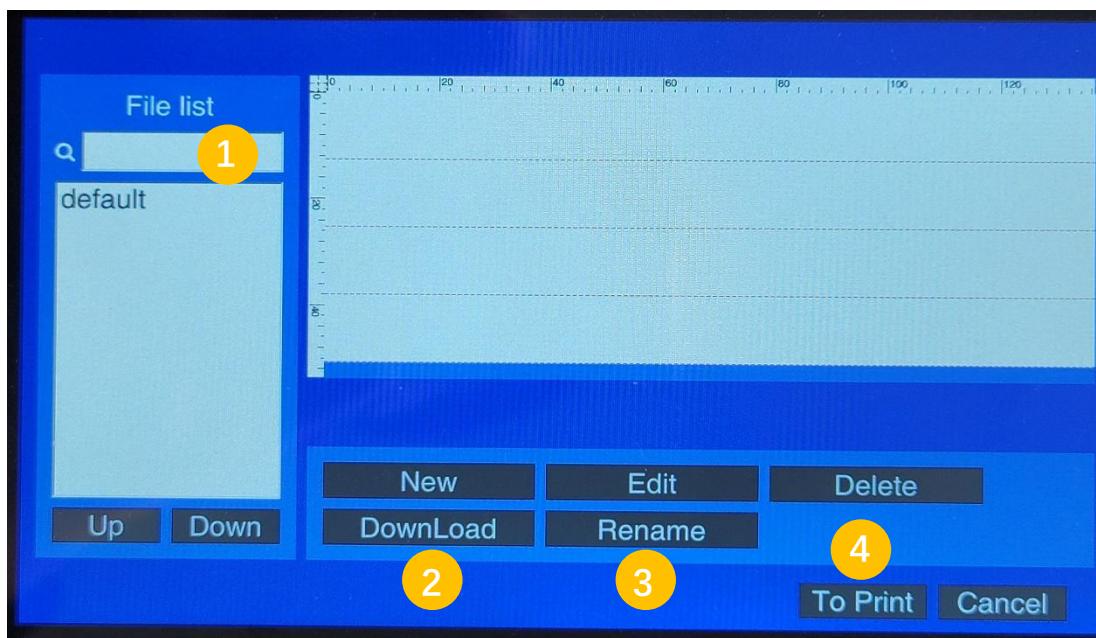
8) File save



After the file is edited, click the **Save** button to save the file, and click OK to return to the print page.

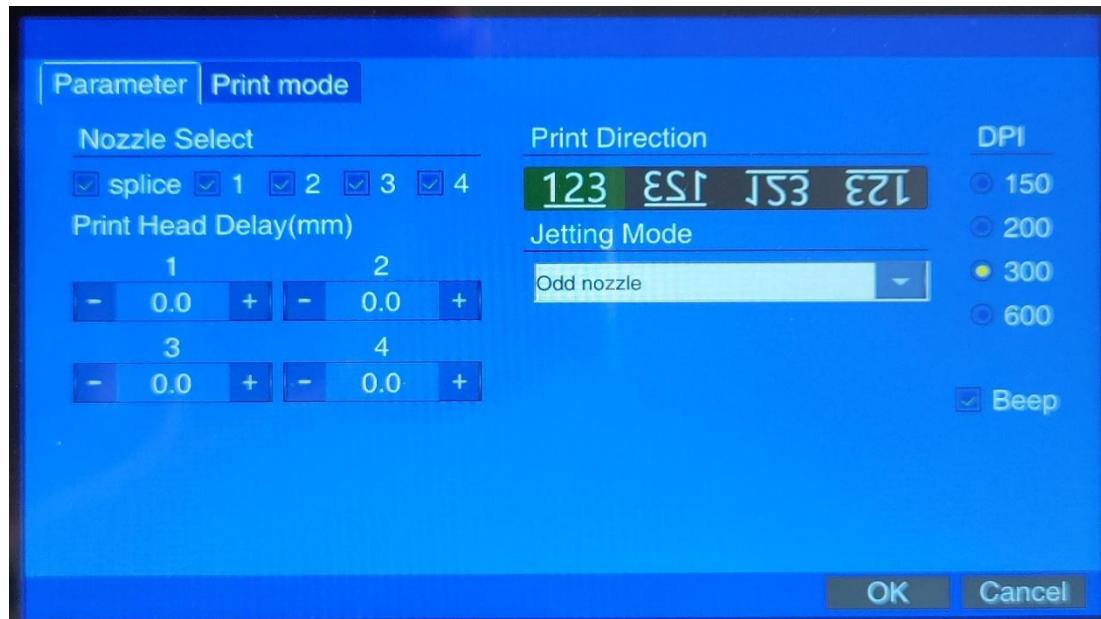
9) Manage Job

The previous edited file data is stored in the file management page. operator can modify or delete them again, or create a new file template. It is needed to name the template after created.



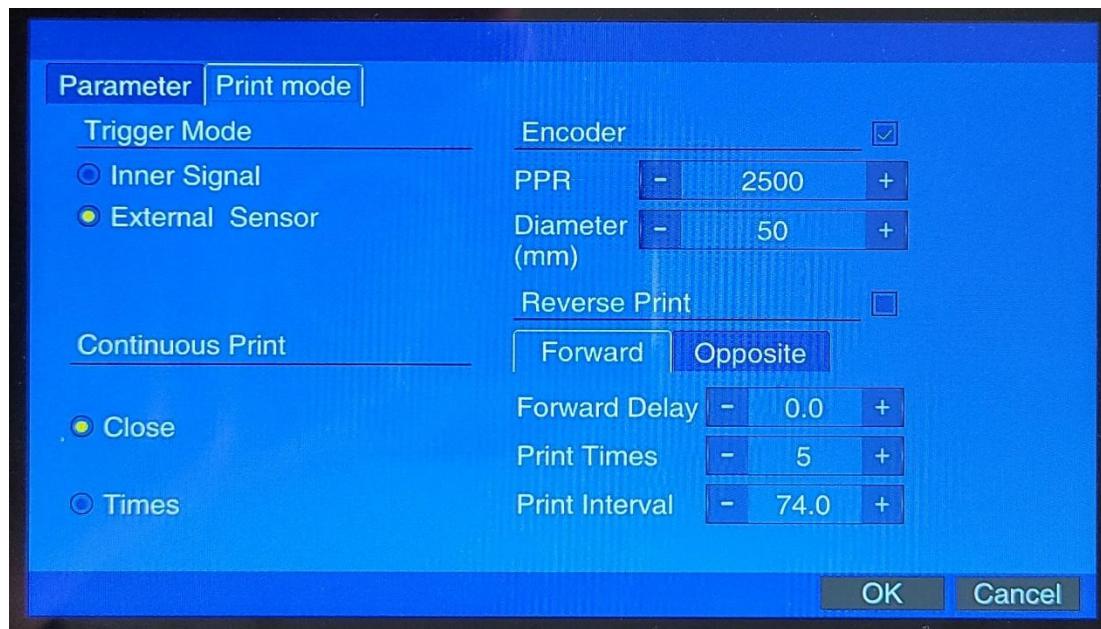
1. When the device stores a lot of files, and operator don't know how to find them, operator can use file search function with keywords of the file name.
2. Click the download button to copy the files to each other.
3. Click the rename button to change file's name.
4. Click the print button below to return to the home page.

7.1.4 Print Set



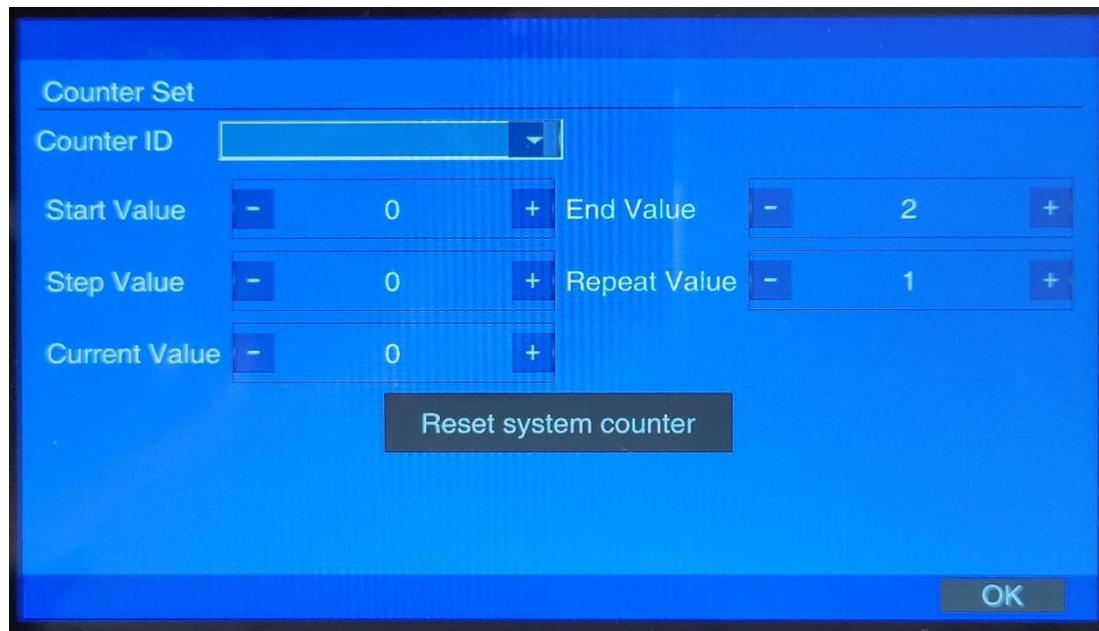
Parameter page is for printing parameter settings, operator can set the print head delay, printing grayscale (the higher value, the greater ink output), switching between different print nozzles after a period of use can make the ink cartridges more durable.

Note: If the printer only have two nozzle interface, don't select nozzle 3 and 4.



In the Print mode page, operator can select the trigger mode of the device's printing. Increase or decrease the value of the synchronization multiplier parameter, and the proportion of the output print content will be adjusted. When the trigger mechanism of the device is activated, the interval between printing content can be set.

7.1.5 Counter Set



The number of counters in the counter setting ID is determined by the number of counters edited in the current file. Up to four counters can be added to a file, and different counters can be assigned different values. Click the drop-down box button to switch between different counters.

Start Value: Counter start value

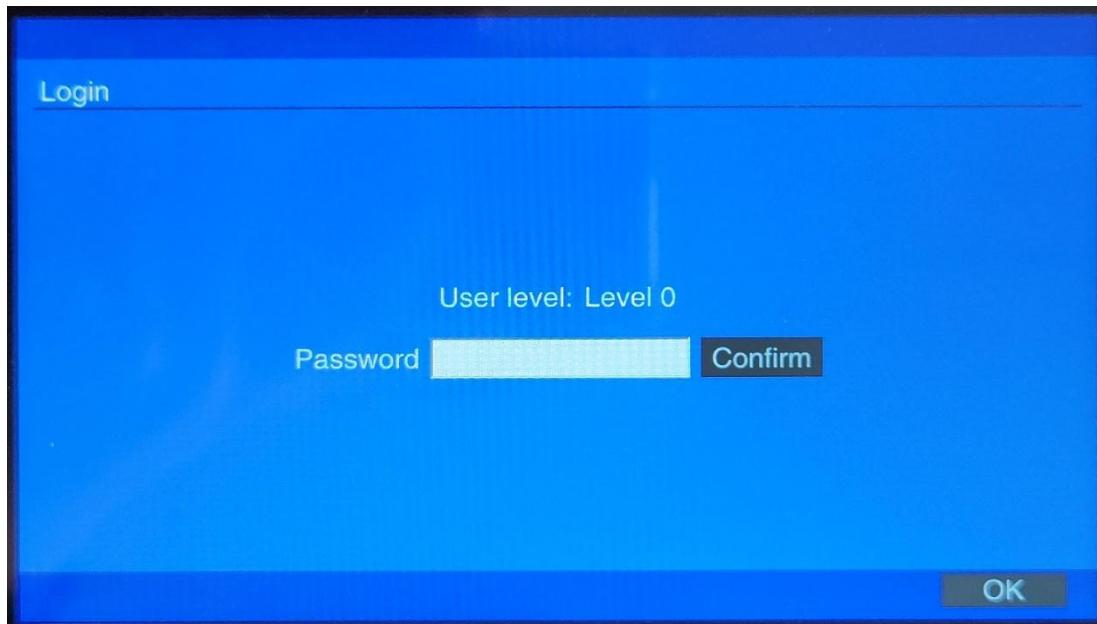
End Value: After the value is reached, count again

Step Value: Each print counter accumulative value

Repeat Value: Set the number of times to print each values

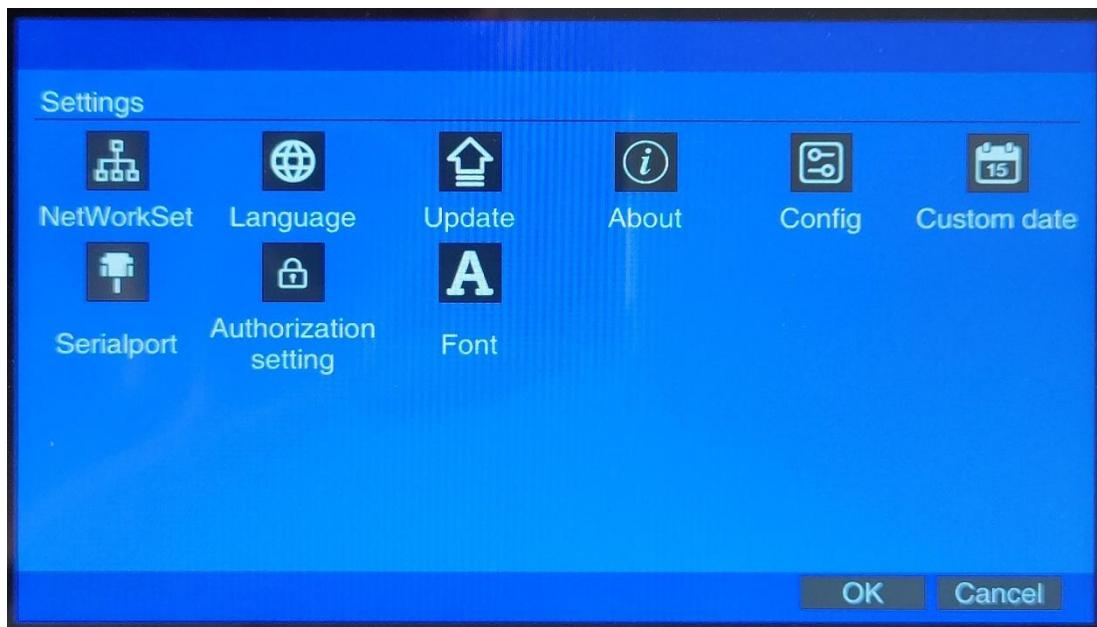
Current Value: Set the currently printed value within the range

7.2 User level login

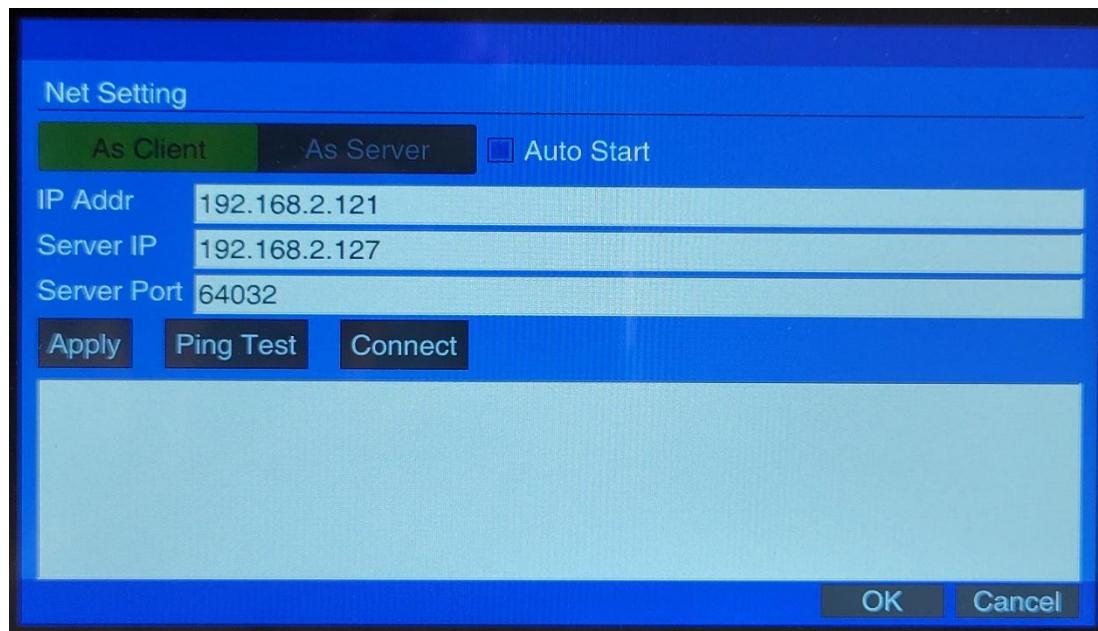


The system will give different user permissions based on the permissions assigned by the administrator. If operator need more permissions, operator can log in to high-level accounts.

7.3 System settings

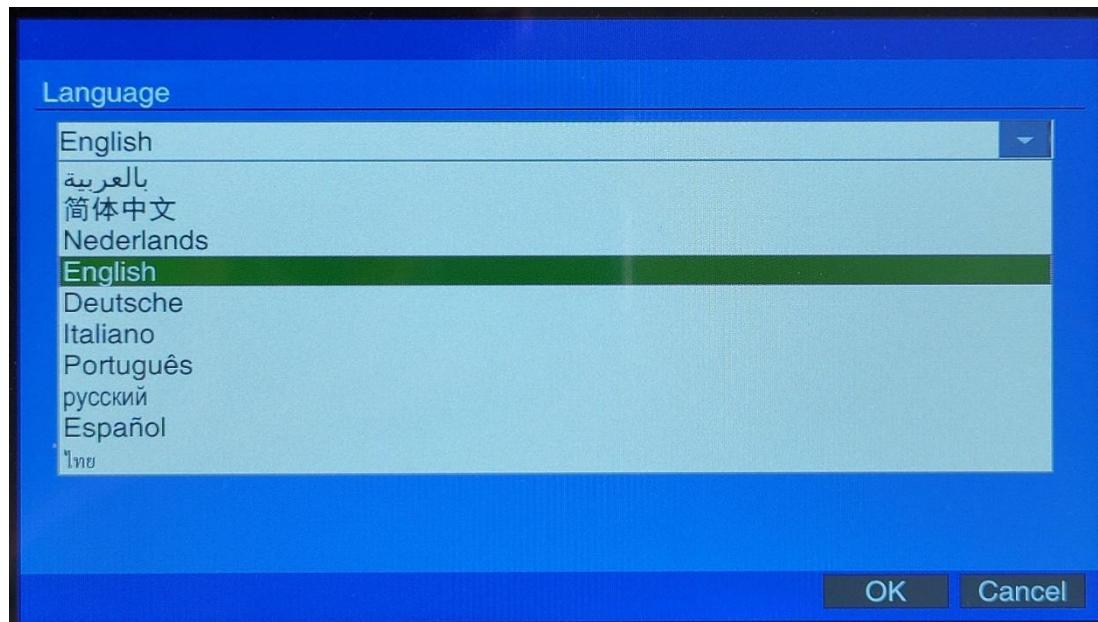


7.3.1 Network settings



Enter the corresponding IP address, server address, server port, the device will be connected to the local area network, and print collaboratively with other devices.

7.3.2 Language

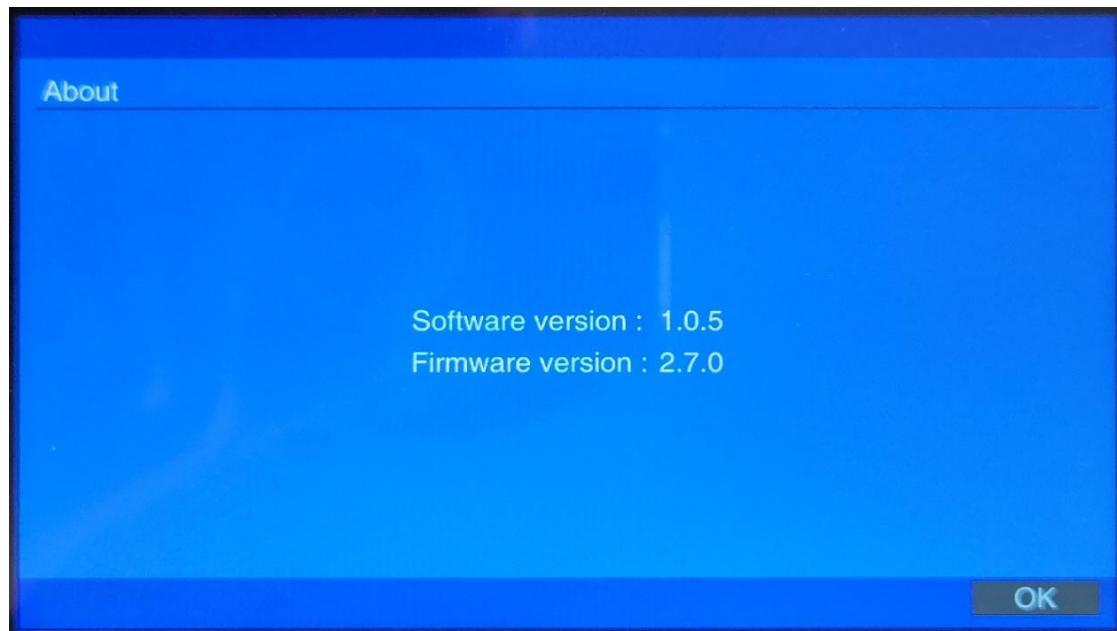


The device contains multi-language one-click switching.

7.3.3 Update

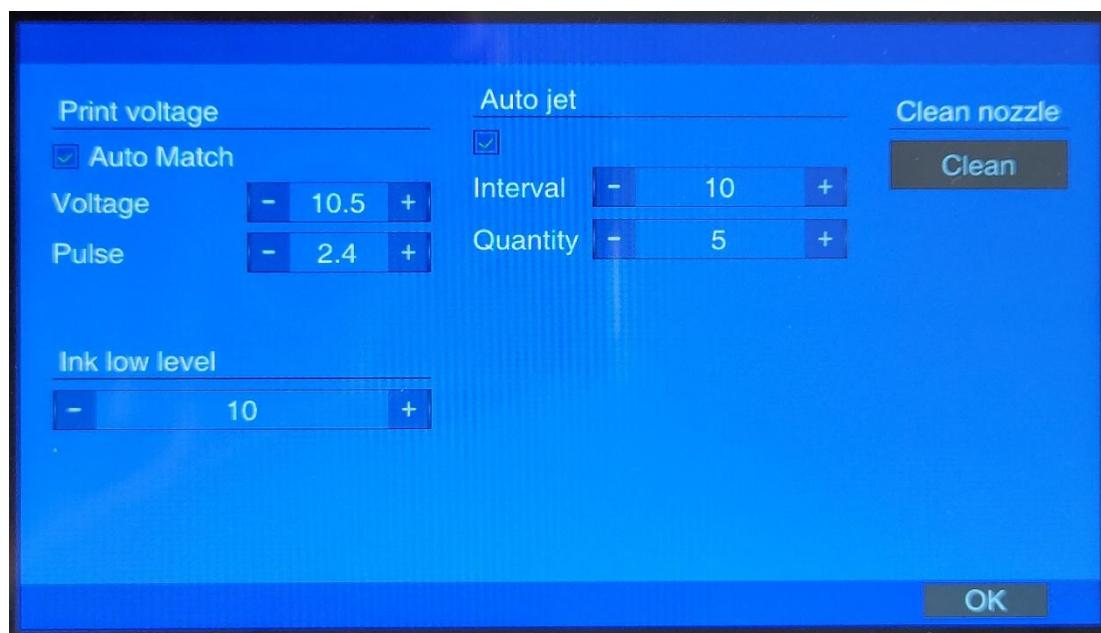
Put the upgraded file in the root directory of the connected USB flash, and click this button.

7.3.4 About



View the version information of the current software and firmware.

7.3.5 Config



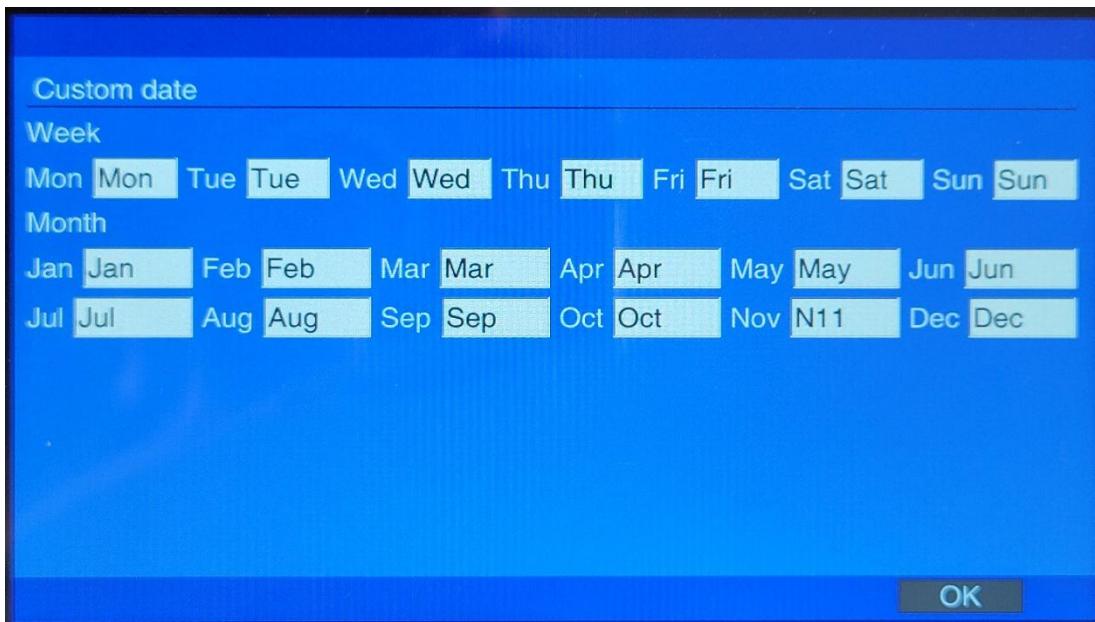
Please set the value of printing voltage and printing pulse according to the label on the ink cartridge or enable Auto Match. **Caution: any incorrect setting might damage printer.**

The Auto jet function is used to keep the nozzle wet and prevent the blockage caused by long time without printing.

Holding down **Clean** button, the nozzle will continuously eject ink and clean the nozzle.

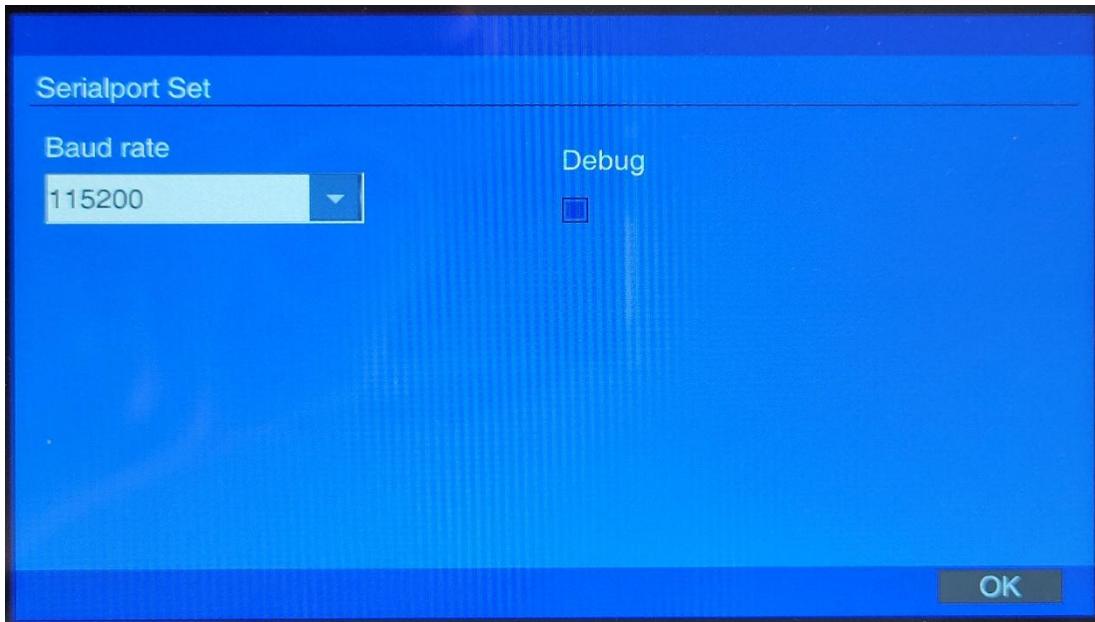
When the ink cartridge is lower than the set percentage, system will automatically remind the user that the ink cartridge needs to be replaced.

7.3.6 Custom date



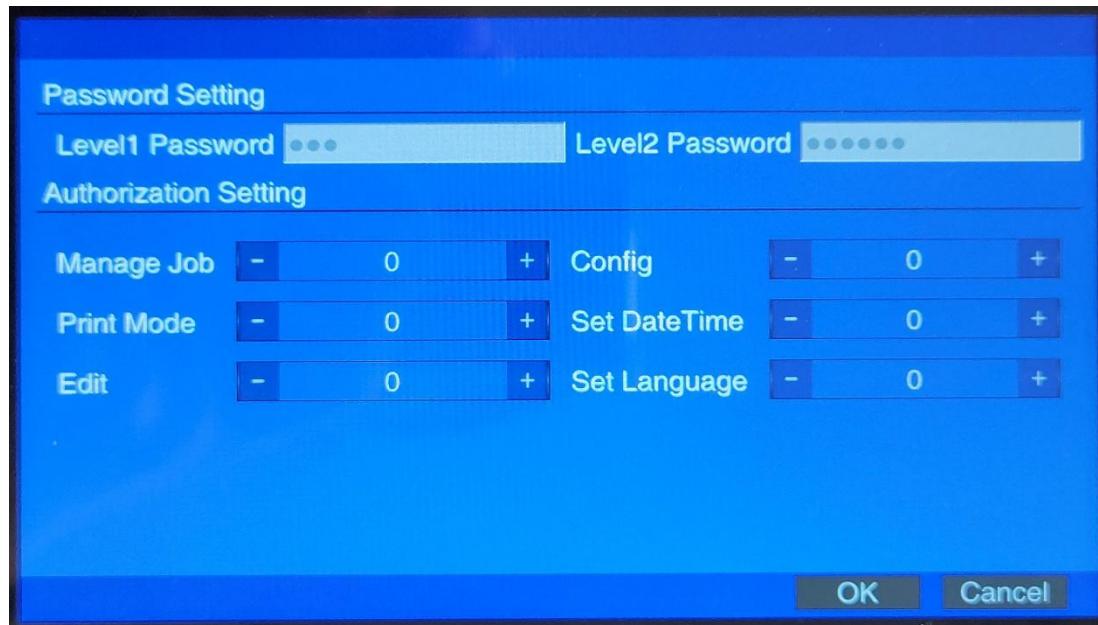
Click the date setting, operator can customize the abbreviation mark for each day and month.

7.3.7 Serial port settings



Select the corresponding Baud rate, the device may be connected to upper computer.

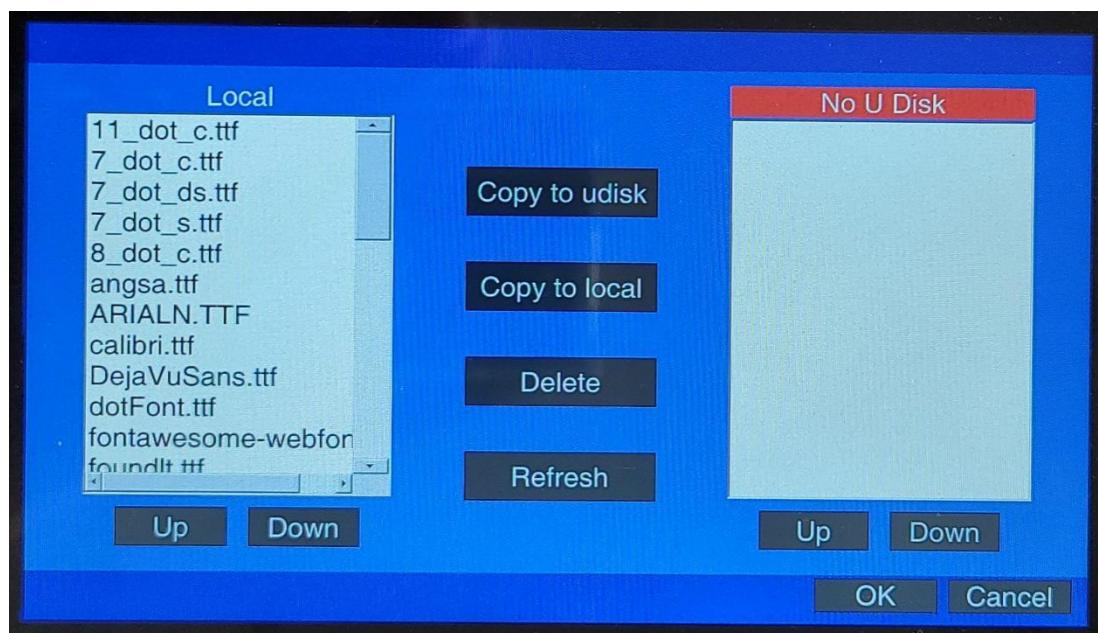
7.3.8 Authorization settings



Access to user authority management settings, Low-level users need to enter a password to access to advanced menu which determined by administrator.

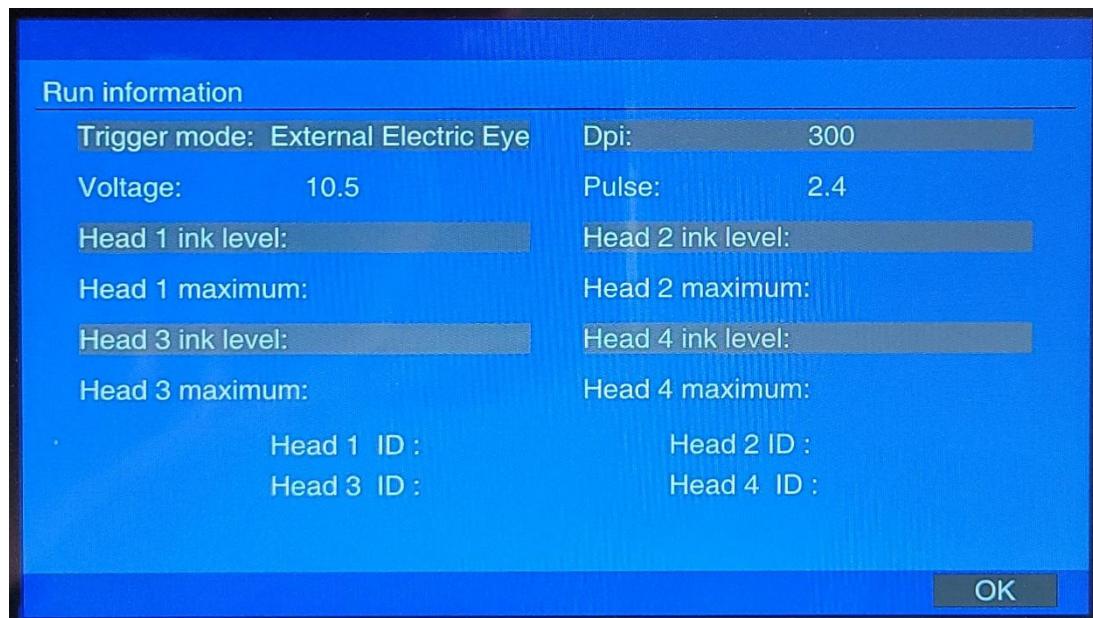
The administrator user can set the account and password authority of the same-level and lower-level users. The system can identify three levels of user authority: 0, 1, and 2. The module functions below would be available for different user after selecting different classification.

7.3.9 Font



Install external font to this device by copying the font with TTF format in the connected USB flash.

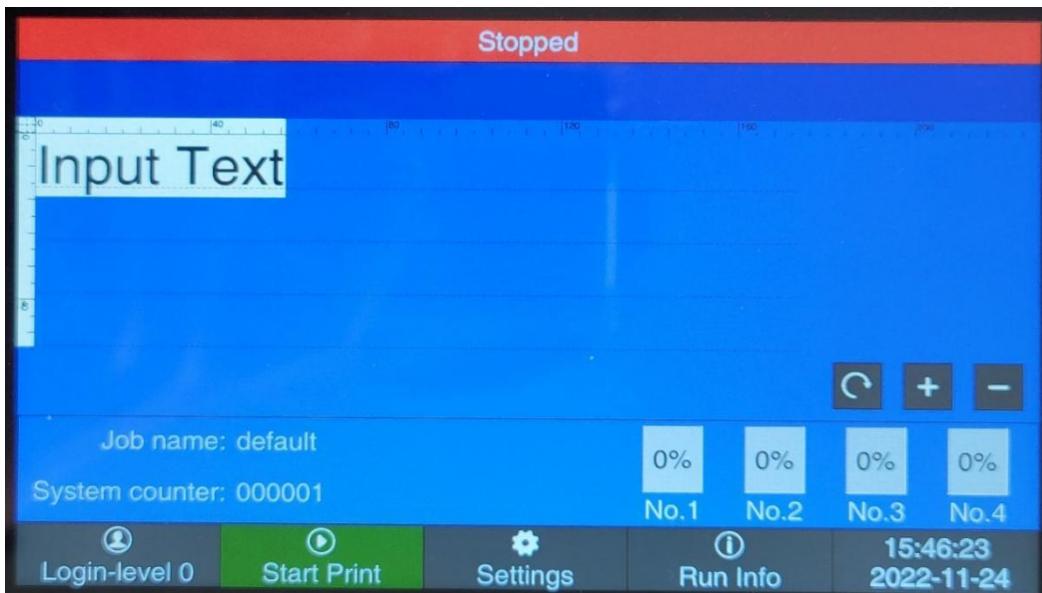
7.4 Run information



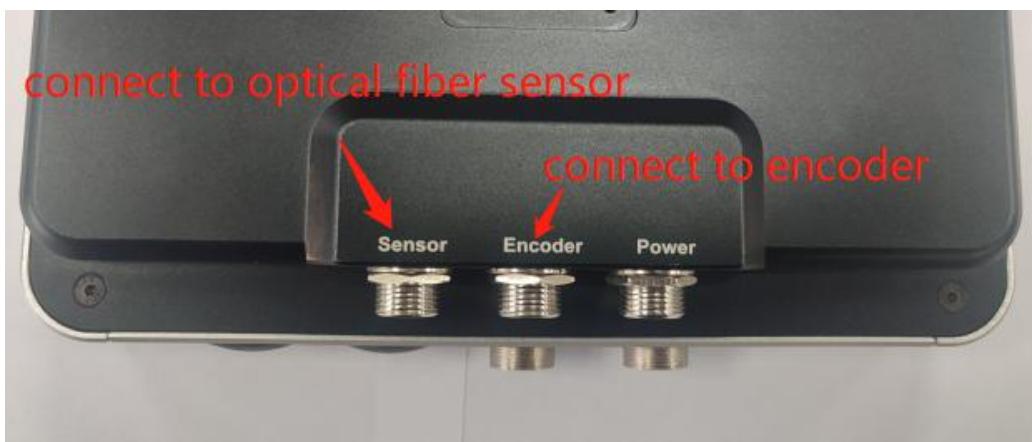
The operation information contains the information of various parameters of the equipment, so that operator can quickly understand the current operation of the equipment.

8. Operate the Thermal Inkjet Printer

8.1 Main parts



1. Controller front side



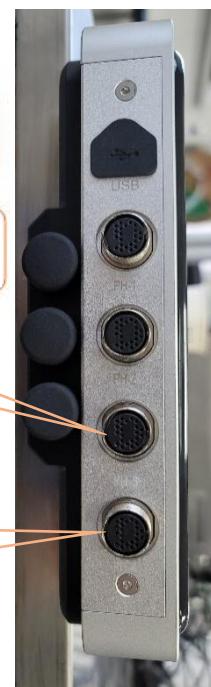
CM610/CM620 Controller back side



CM640 Controller back side



CM610/CM620 Controller bottom side



CM640 Controller bottom side



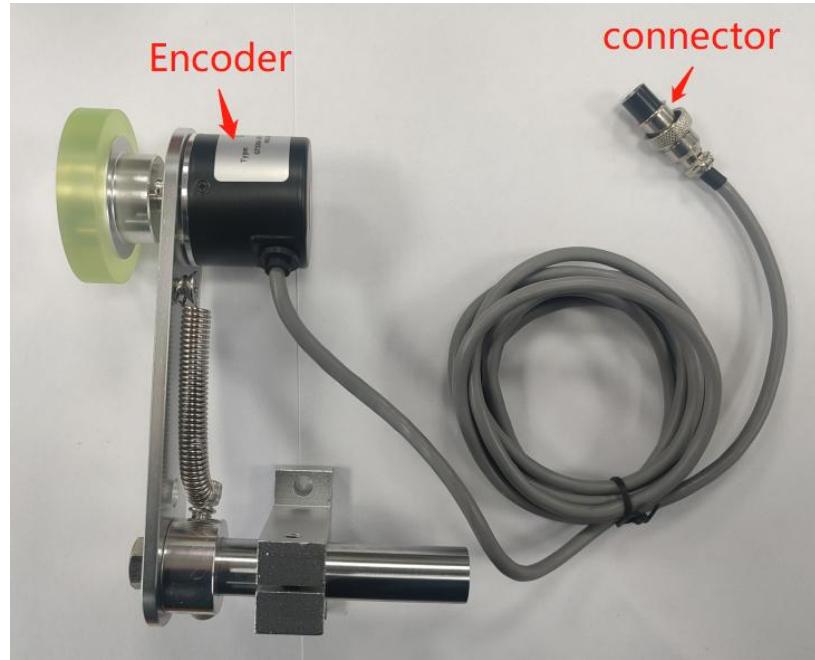
2.Optical fiber sensor set

Control output: NPN collector output

Power supply: 12-24V

Current consumption: ≤50mA

Note: Refer to the attached manual for the use of optical fiber sensor set.



3. Encoder

Encoder (with aviation plug 'GX12-4P' preassembled), bracket, wheel and necessary fastener are included in. 2500PPR

Note: Refer to the attached manual for the use of encoder.



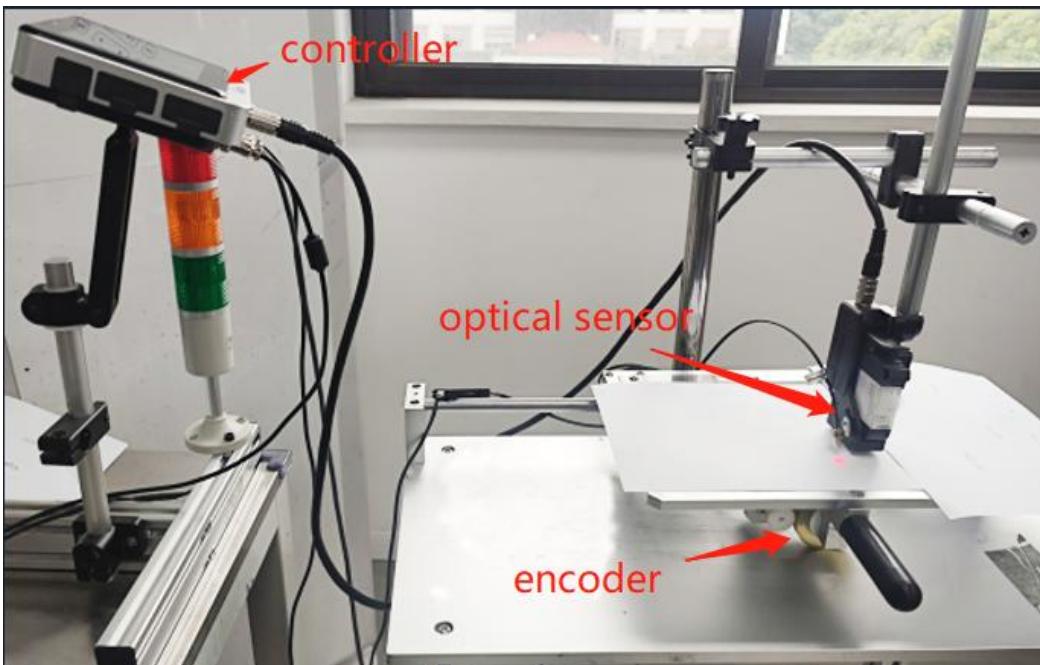
4. Printhead assembly

8.2 Connect Optical fiber sensor, Encoder and Printhead to Controller

Connect all the parts according to the identifier



The picture that TIJ is being adjusted in the factory



The encoder is under the slide

8.3 Insert the ink cartridge

8.3.1 Correct way of inserting

(1) Insert the cartridge parallelly to the bottom.



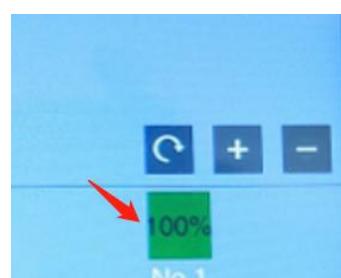
(2) Adjust the angle of the cartridge so that the nozzle can be fully exposed in the hole, and be careful not to touch the pins.



(3) Press in the cartridge and close the clip.



After insert the ink cartridge correctly, the screen will display the percent of the ink



8.3.2 Correct way of removing

(1) Open the clip and pull the cartridge up gently.



(2) Adjust the angle of the cartridge so that the cartridge does not touch the pins.



(3) Remove the cartridge.

8.3.3 Incorrect way of inserting

(1) Insert the cartridge diagonally and the cartridge touches the pins.

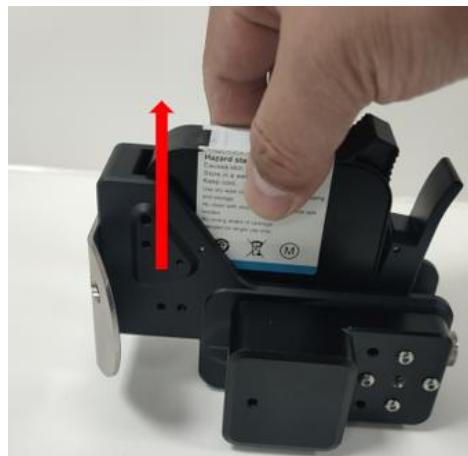


(2) Close the clip before inserting the cartridge completely.

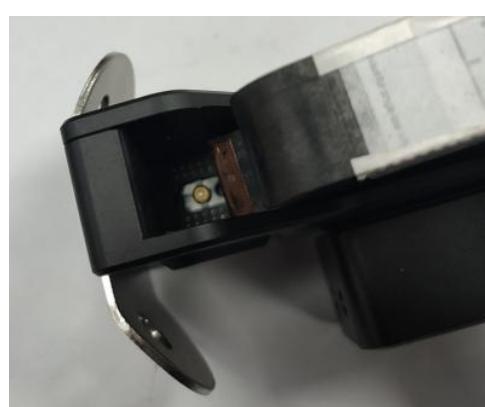


8.3.4 Incorrect way of removing

(1) Pull out the cartridge violently before open the clip.



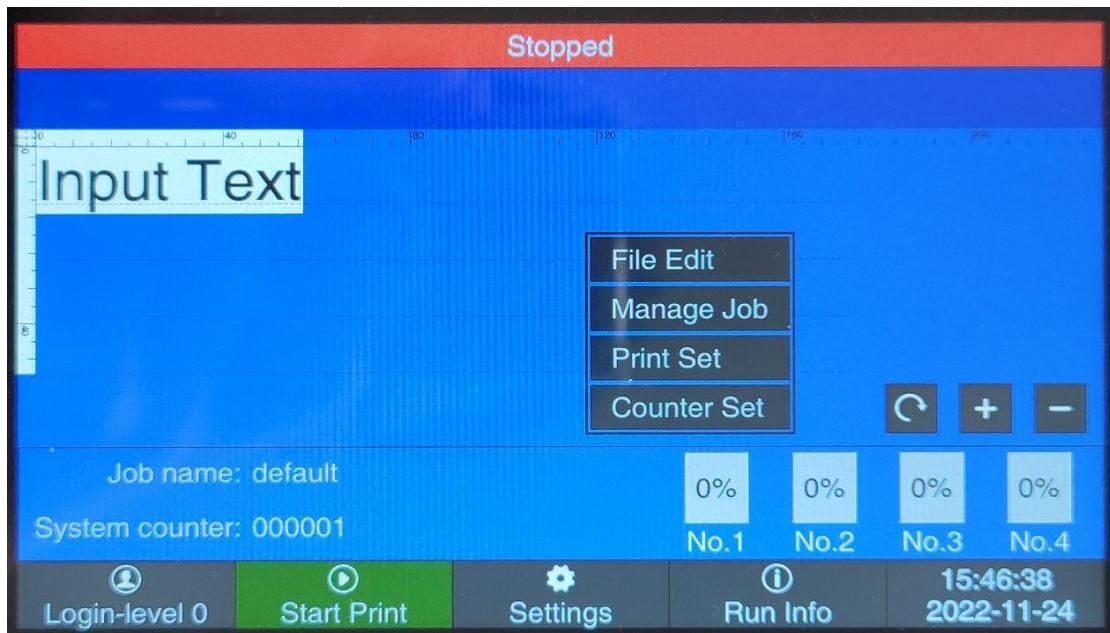
(2) The pins are pressed down while removing the cartridge.



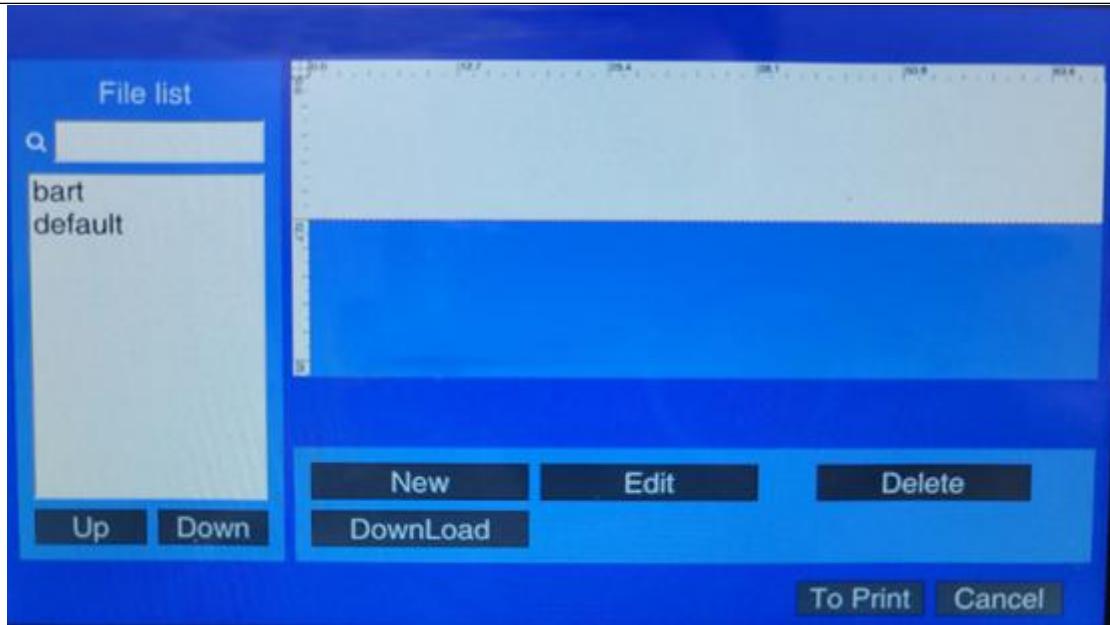
8.4 Print

- ◆ First, create a new file that will be printed.

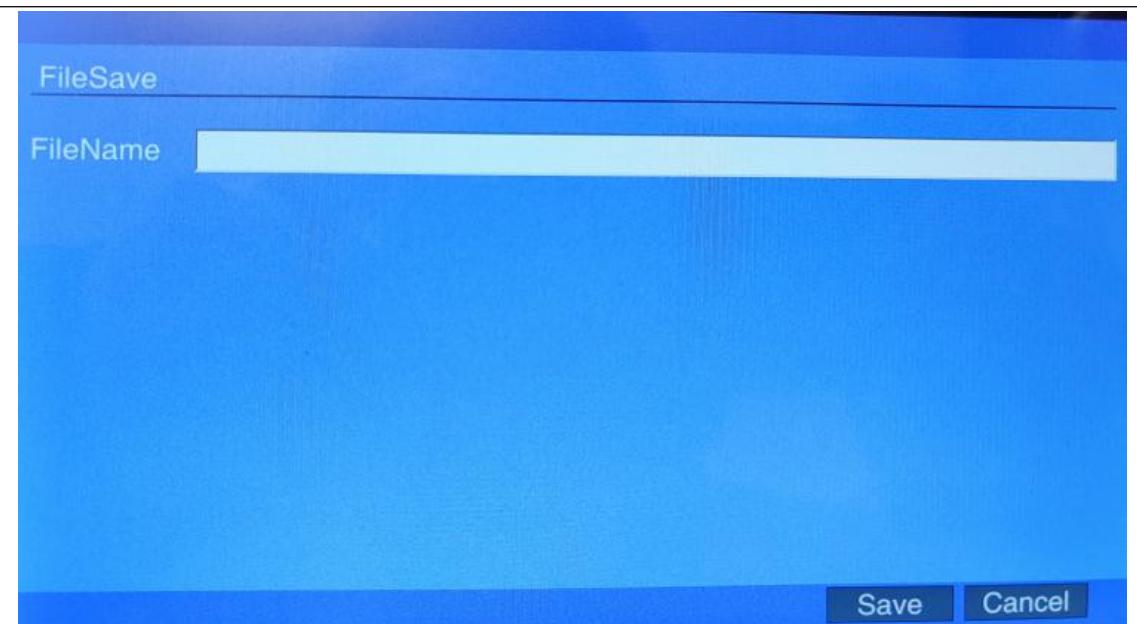
1) Long press the screen for 1-2 seconds to wake up the edit menu options.



2) Press "manage job"



3) Press "New"



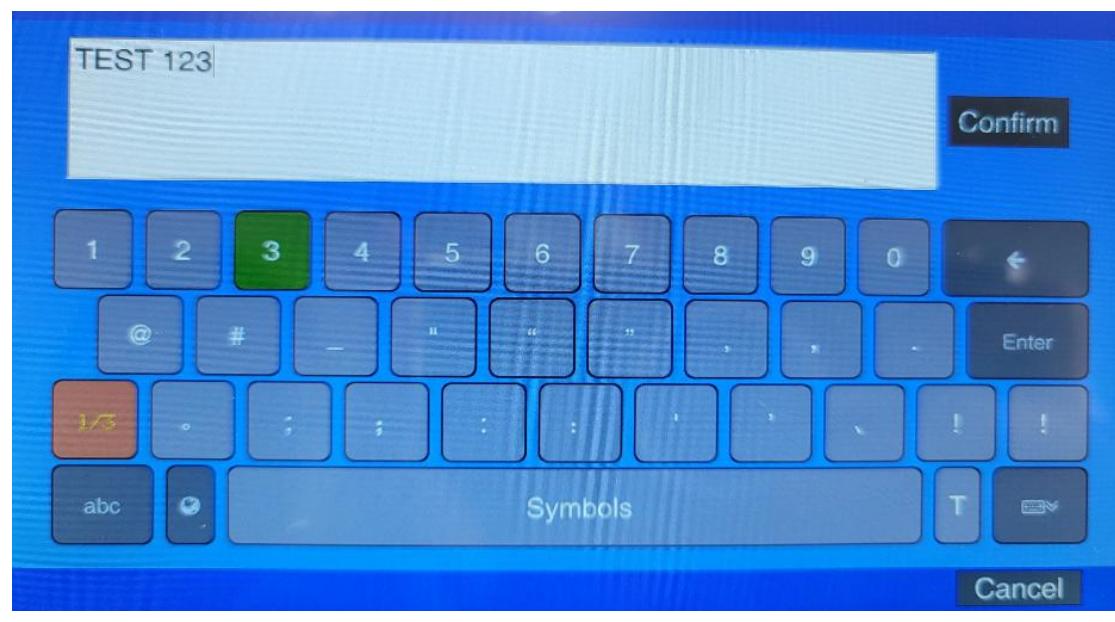
Input the filename. for example: TIJ TEST. Then press "save"

- 4) It can create text, time, counter, barcode, image, QR code and shift.

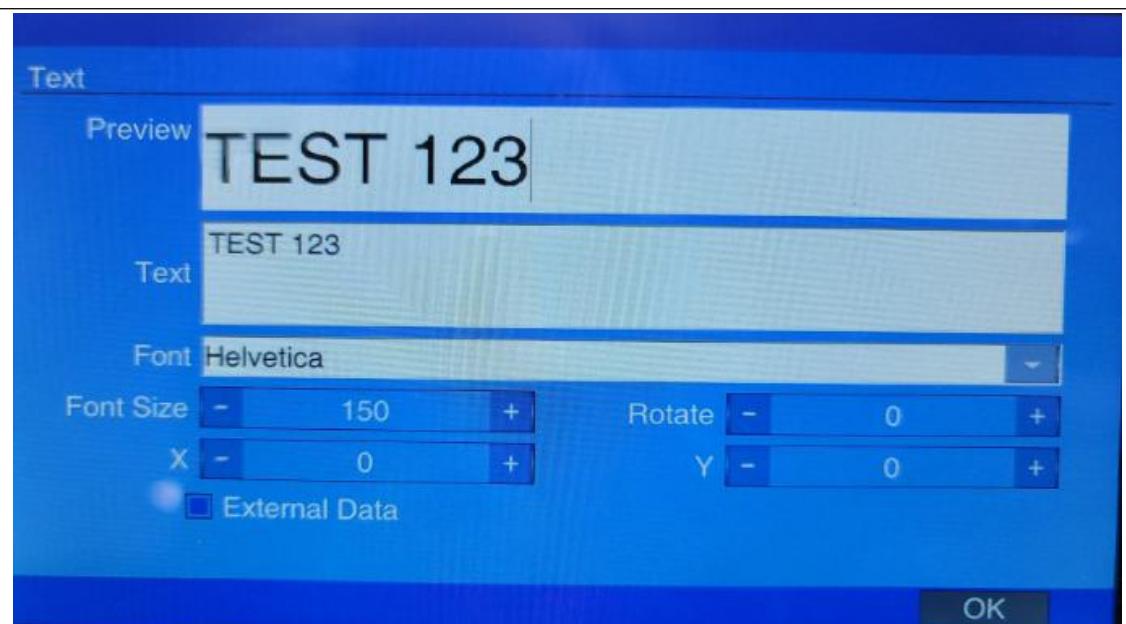


Here creates a text file as an example, press

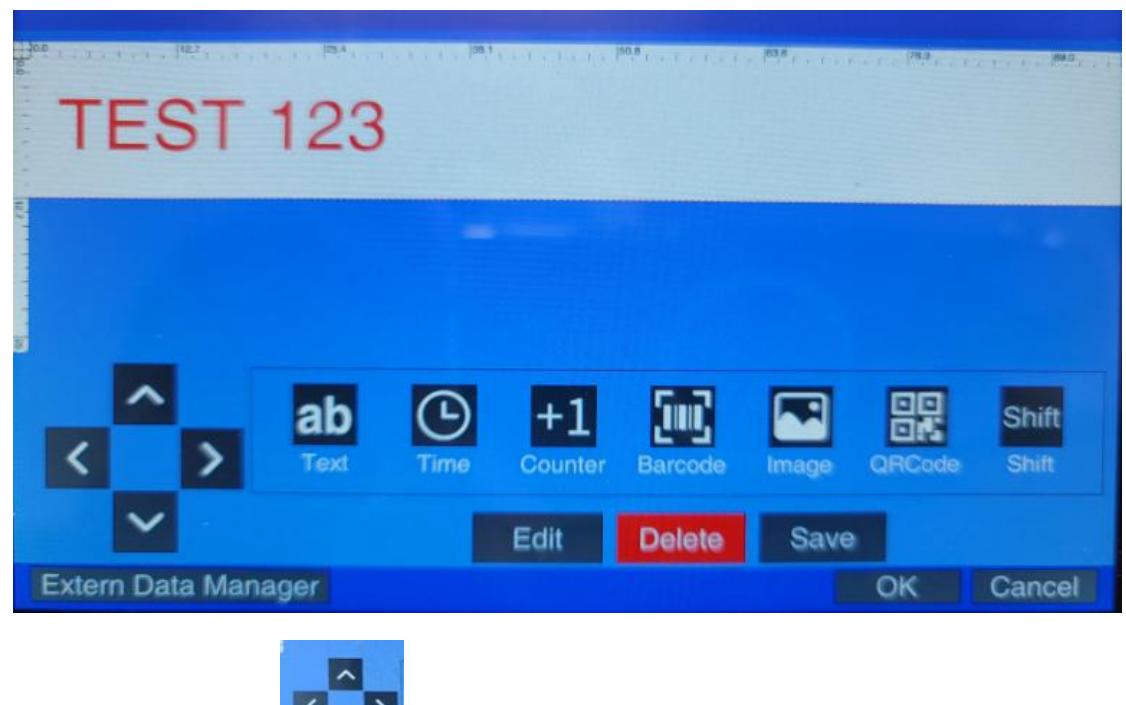
- 5) Input the TEST 123 in column Text for example



Press "confirm"

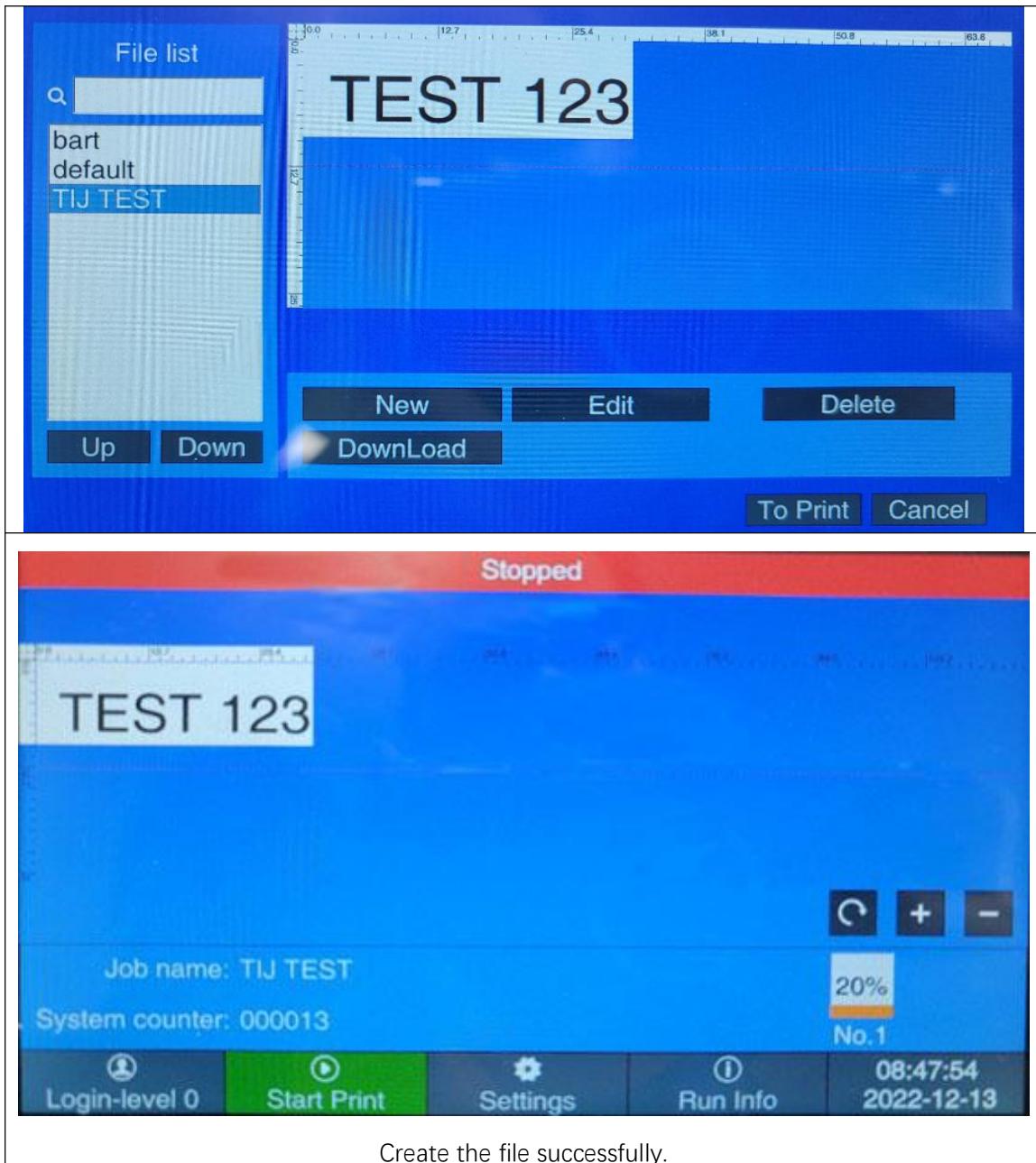


Press OK

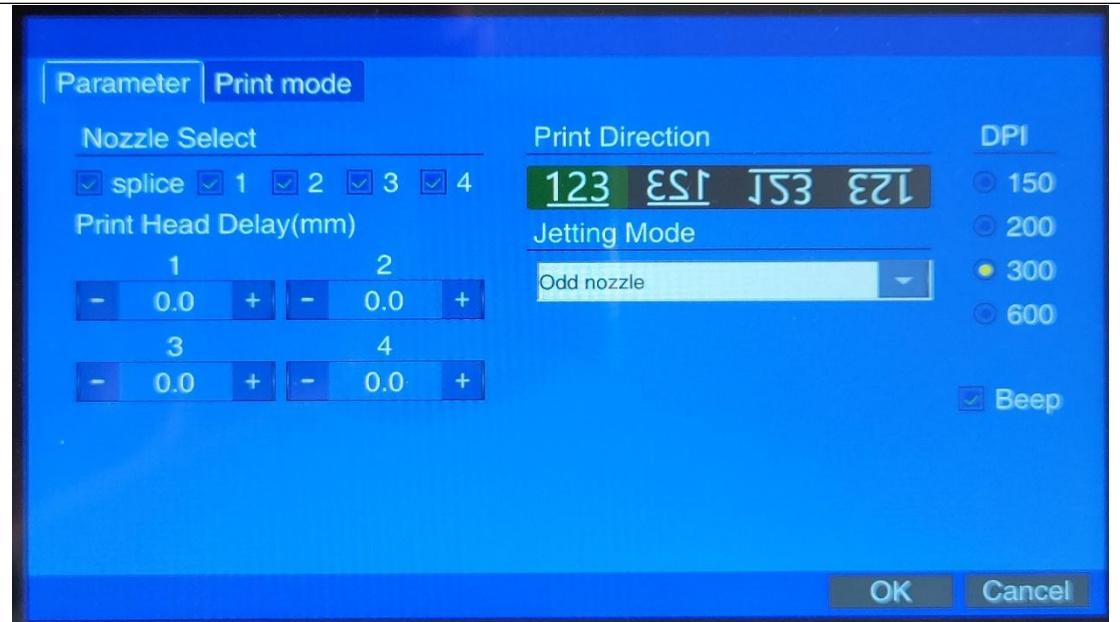


Press arrows to adjust the position, then press OK

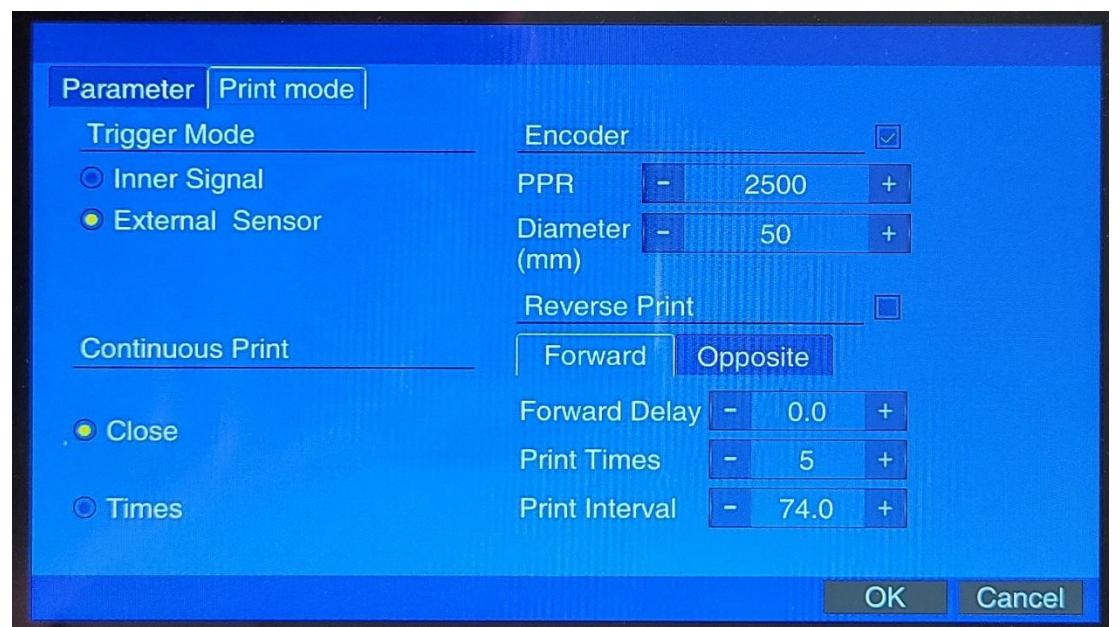
- 6) Press "To print"



- ◆ Print set: Long press the screen, select "print set"

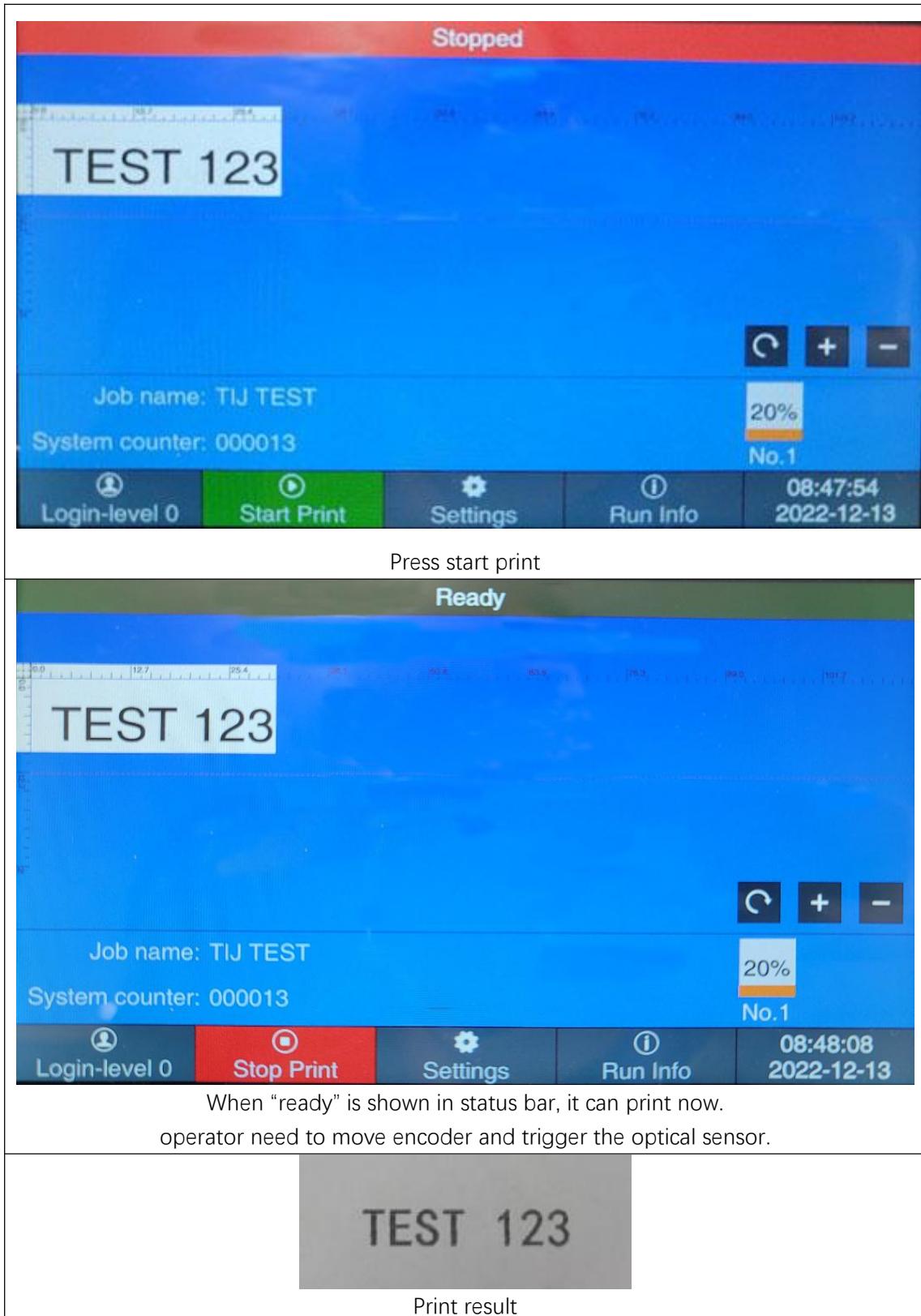


In parameter, Set Nozzle, DPI, print head direct.....



In print mode, select trigger mode, adjust encoder set. Then press ok.

◆ Start print



9.Maintenance

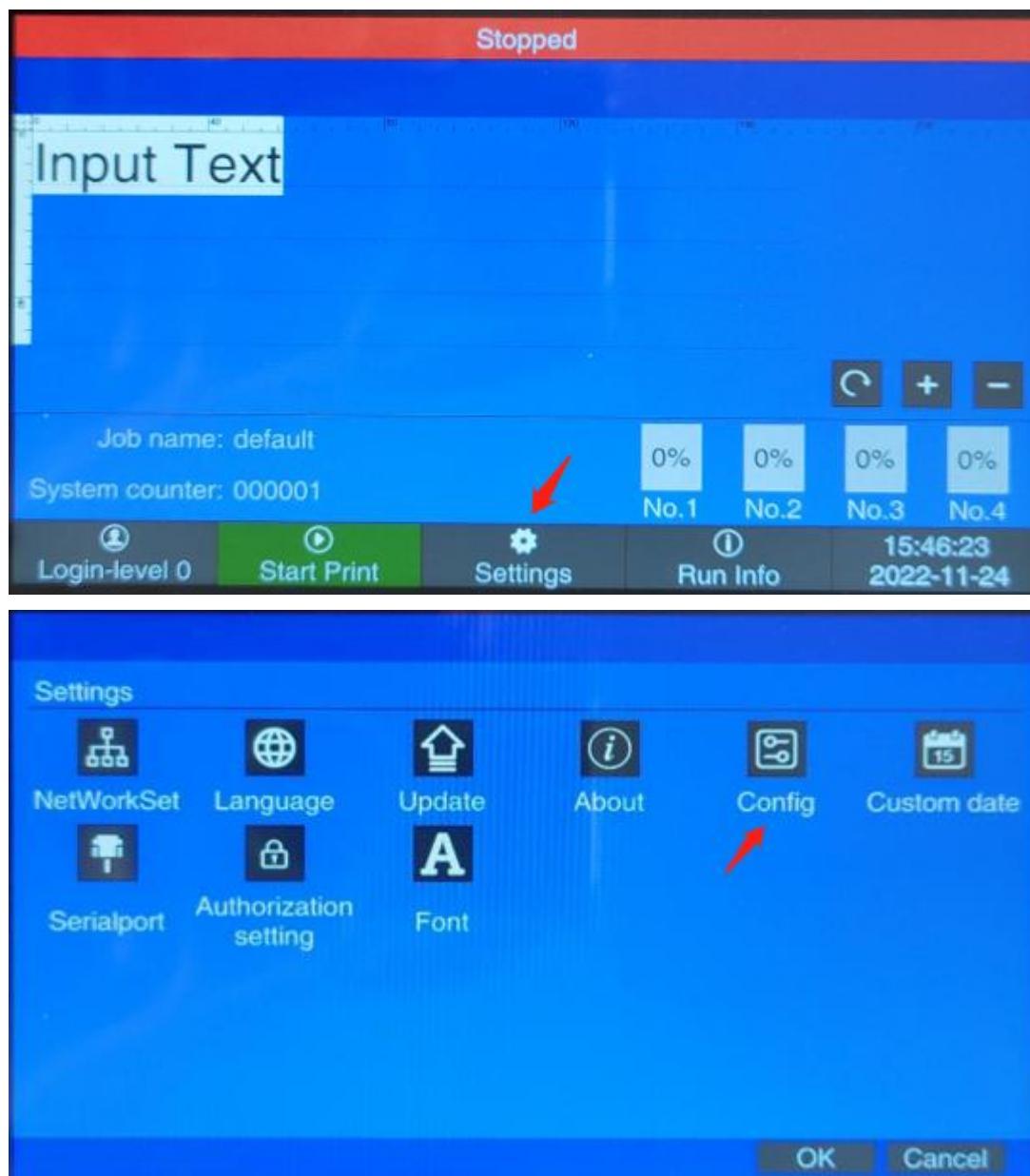
9.1 Maintain the printhead daily

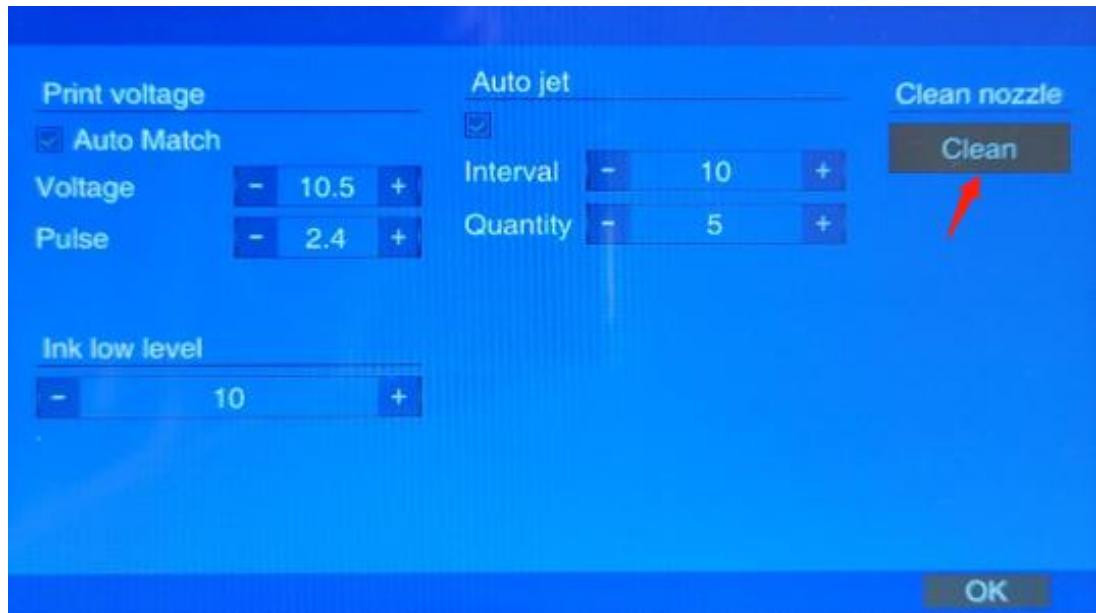
- 1) Please insert the ink cartridge and remove the ink cartridge correctly.
- 2) Don't touch the printhead pin
- 3) If the nozzle is dirty, clean it with non-woven fabrics gently and in the same direction.

9.2 Nozzle clean

Before start to print, suggest to print a content as a test. If the print result is missing line or fuzzy. It needs to clean the nozzle.

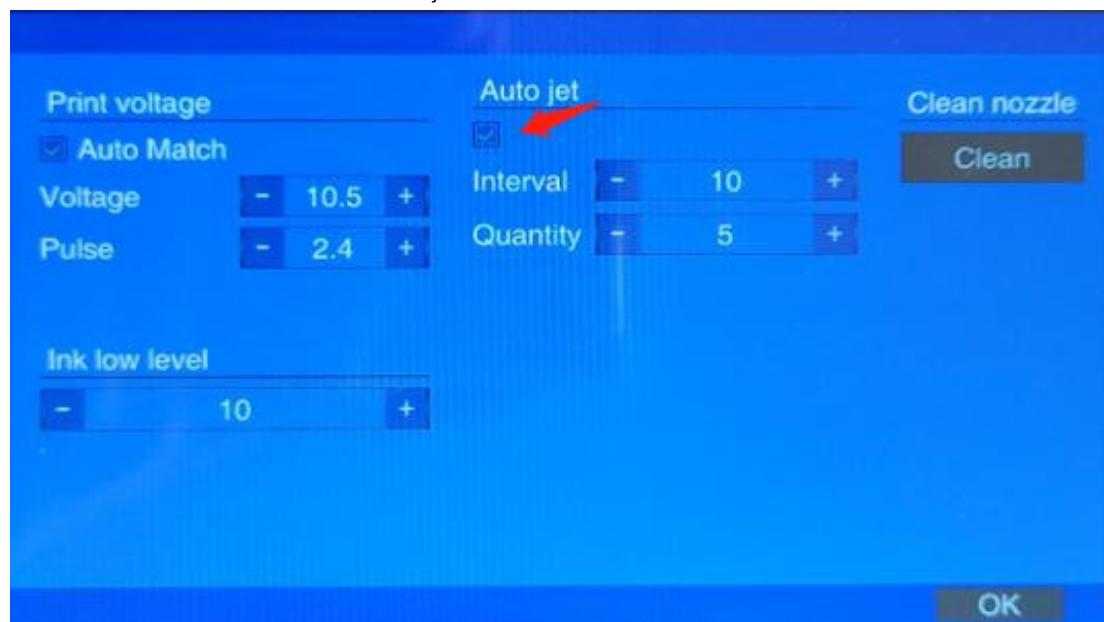
Press "setting"---select "config"





Long press "clean"

It is recommended to enable "auto jet"



operator can set the interval and quantity according to operator needs.

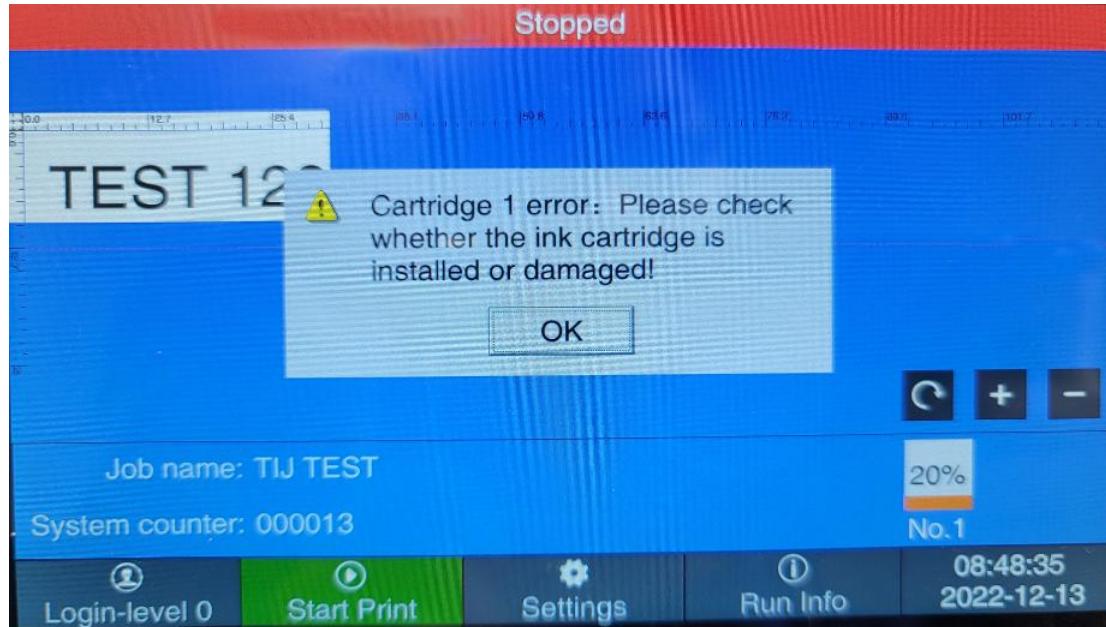
As the above picture, the nozzle will jet 5 times automatically every 10 seconds.

Auto jet can prevent the ink in the nozzle becoming dry.

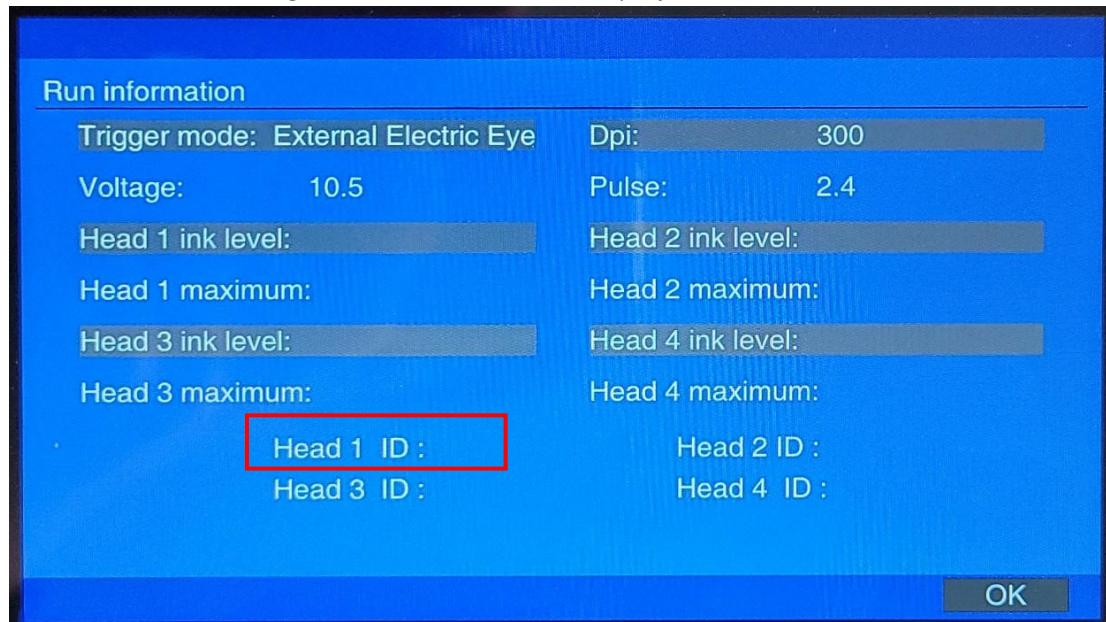
9.3 Troubleshooting

9.3.1 Cartridge Error

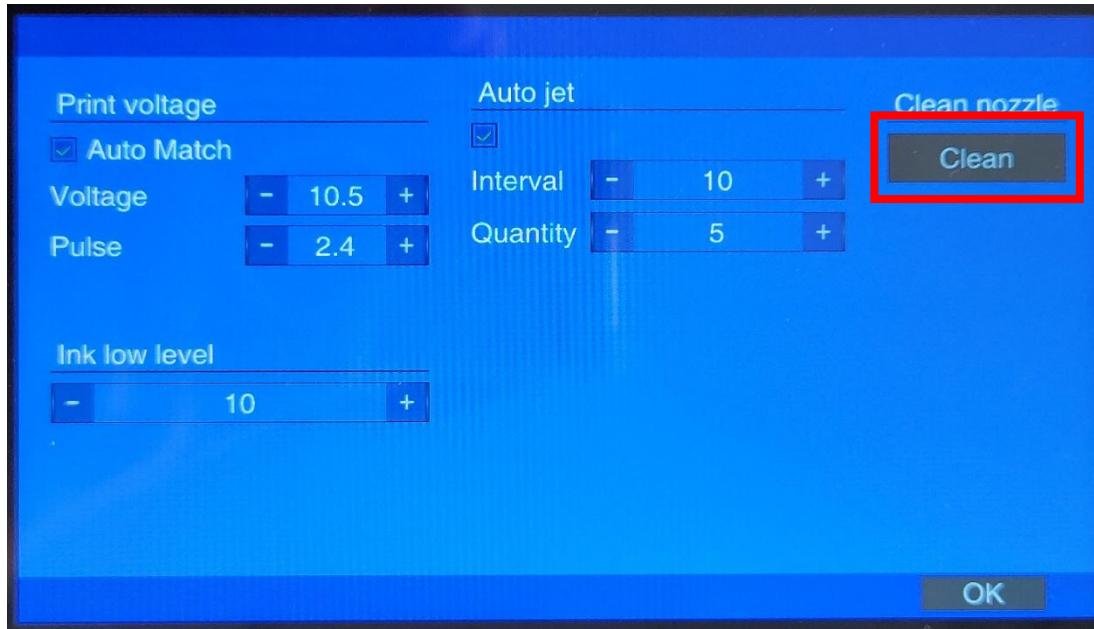
When TIJ display Cartridge error, as shown in the picture below.



First, please check if there is Head ID in "Run Info". If Head ID is empty, please long press "Clean" button in Config screen and check for ink spray.

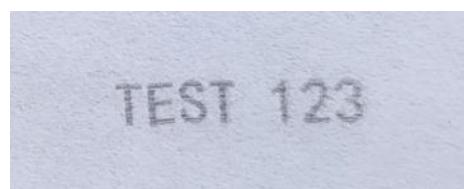


If any ink comes out, that means printhead/ cable/ controller are normal and connected well, it might be chip's problem. If there is no ink out, please check printhead/ cable/ controller being normal and connected well.



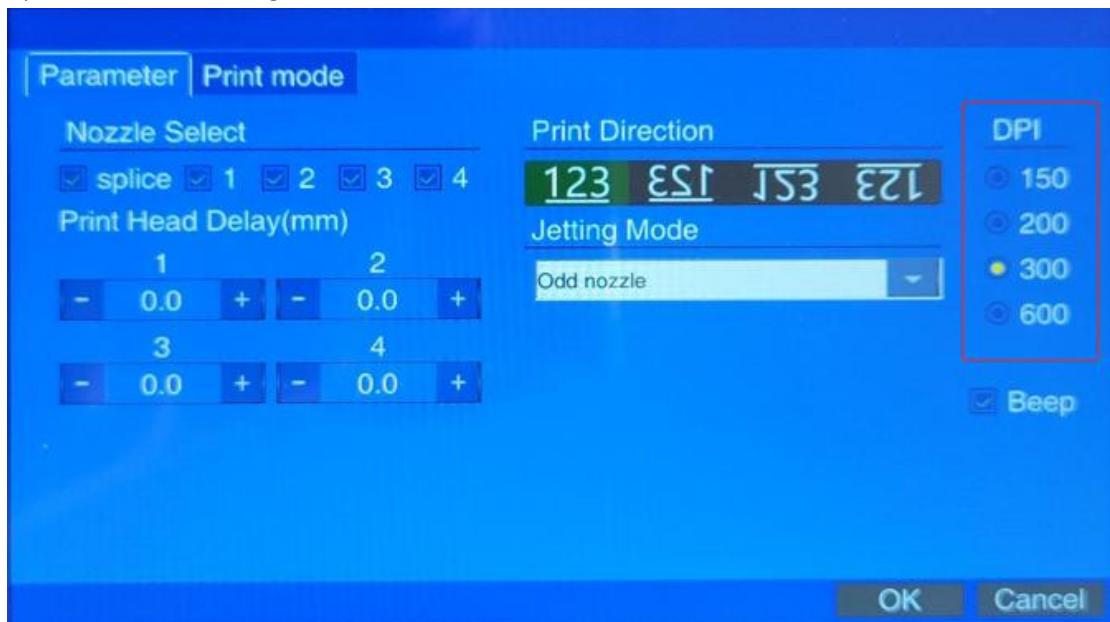
9.3.2 Poor print quality

If print result is fuzzy and bad, shown as the picture below



Maybe there are several reasons about it:

- 1) DPI is too low in the parameter
operator can select higher DPI

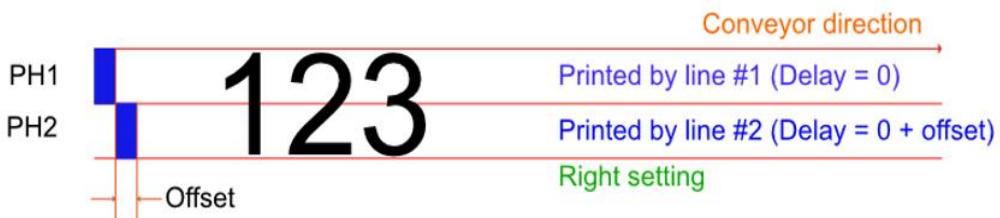


- 2) The distance is too far between the nozzle and the object that will be printed.
The distance should be no more than 5mm and the object will not touch the nozzle.
- 3) The printhead, cartridge or cable is damaged.
operator need to change the printhead, cartridge or cable.

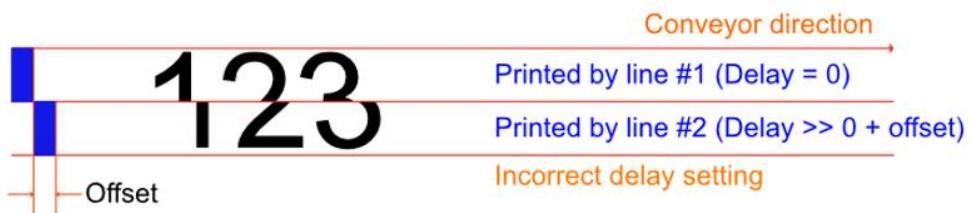
9.3.3 Combination failure for multi-lines

- 1) When multiple printheads are used for combination, Printhead1 and Printhead2 should be perpendicular to the moving direction of conveyor and the printhead delay value should be correct.

Well combination and printhead delay value, the print result is shown as the picture below:



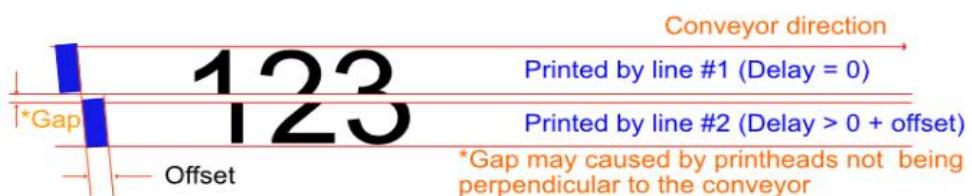
- 2) If Printhead1 and Printhead2 are perpendicular to the direction of conveyor, but the printhead delay value is incorrect, the result is shown as the picture below:



operator need to adjust the printhead delay value.

- 3) It will have a gap between PH1 and PH2, if the printheads are not perpendicular to the moving direction of the conveyor.

The result will also not be OK, as the picture shown below:



Firstly, operator need to fix the gap between PH1 and PH2 by aligning of both of them.
Then need to adjust the printhead delay value.

9.4 Software Update

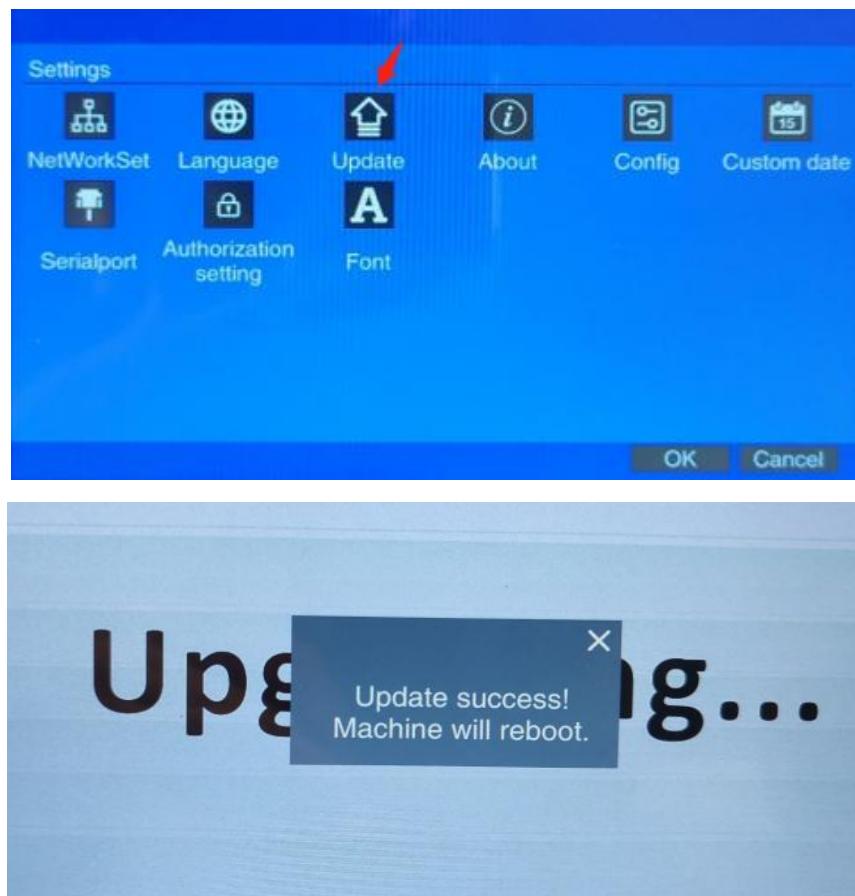
- 1) Copy the update software to usb flash drive



- 2) Insert the usb flash drive to TIJ usb port

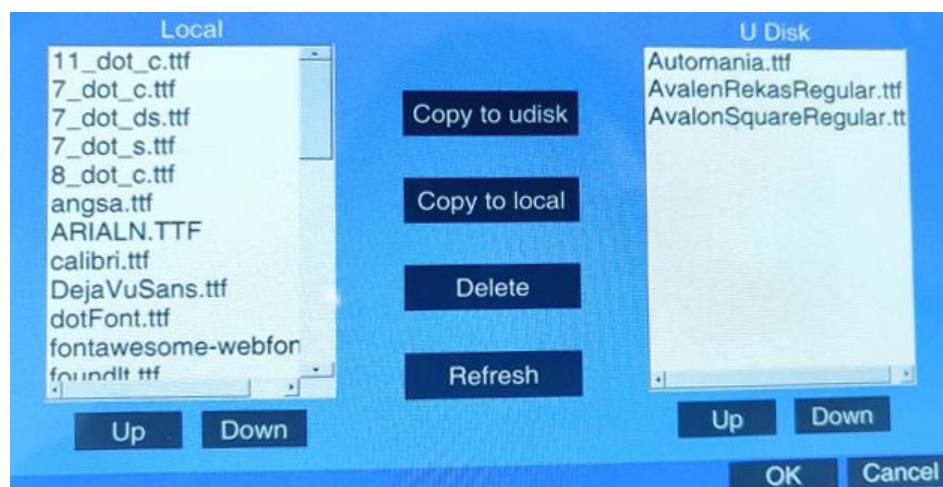
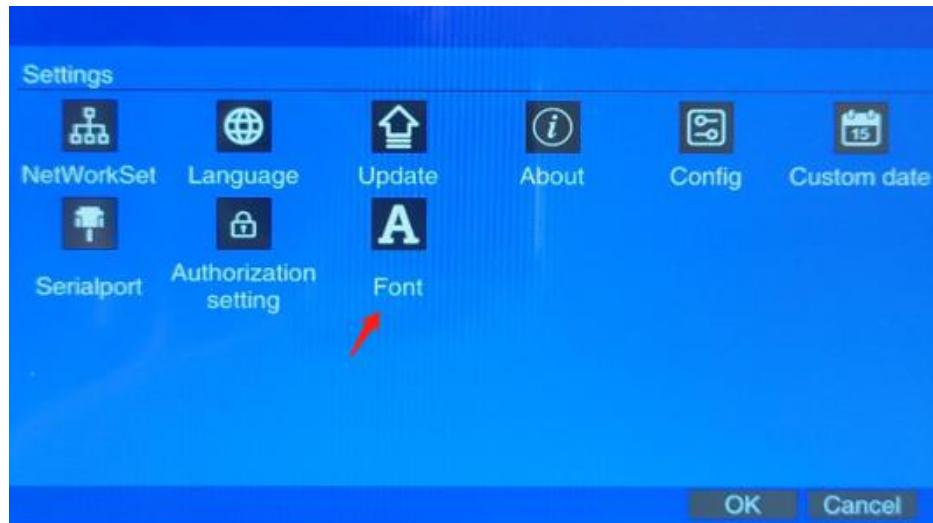


- 3) Press "settings", press "update". TIJ will update the software automatically.



9.5 Import Font

- 1). Copy the fonts to usb flash drive
- 2). Insert the usb flash drive to TIJ usb port
- 3). Press “settings”, press “Font”.

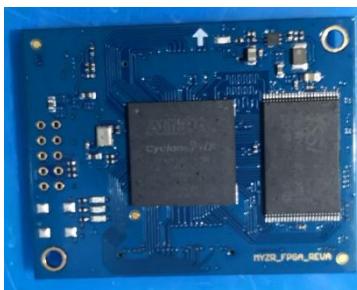


- 4). Select the font file(*.ttf) in the usb, press “copy to local”.

10.Appendix:

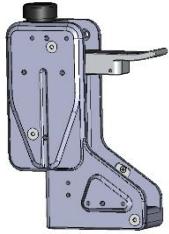
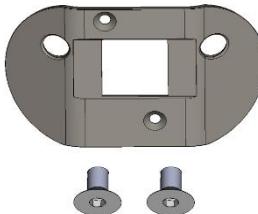
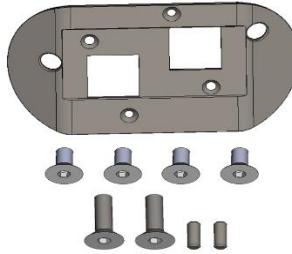
Spare parts list

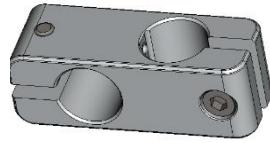
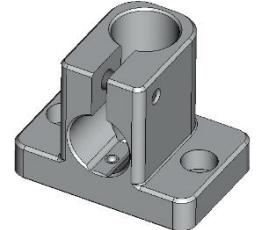
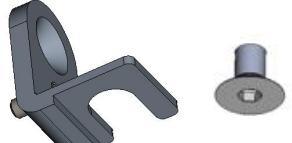
No.	Part No.	Part Name	Reference Picture	Note
1	C2.ZJ.0040A	TIJ Touch screen set		For TIJ controller, HMI
2	C3.BZ.0001QDB	TIJ Screen driver board		For TIJ controller screen driving

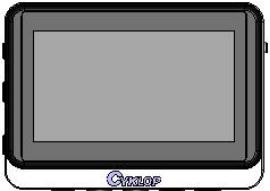
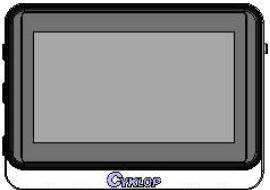
3	C3.BZ.0001ZB.2T	TIJ Main board-Double head	 A photograph of a blue printed circuit board (PCB) for a TIJ (Thermal Inkjet) printer. It features a central microcontroller, several surface-mount components, and two metal nozzles at the bottom edge.	For TIJ controller
4	C3.BZ.0001ZB.4T	TIJ Main board-Quadruple head	 A photograph of a blue printed circuit board (PCB) for a TIJ (Thermal Inkjet) printer. It features a central microcontroller, several surface-mount components, and four metal nozzles at the bottom edge.	For TIJ controller
5	C3.BZ.0001FPGA	TIJ FPGA Core board	 A photograph of a blue printed circuit board (PCB) for a TIJ (Thermal Inkjet) printer. It features a large Altera Cyclone II FPGA chip and various support components.	For TIJ controller

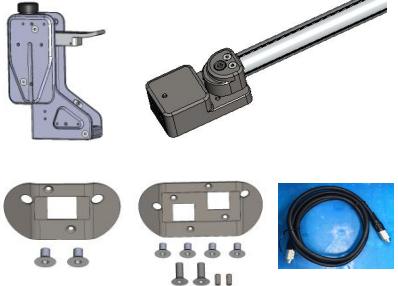
6	C3.BZ.0001CB	TIJ CB200 Core board-CK	 A blue printed circuit board (PCB) with a central black integrated circuit (IC) chip. A white rectangular label is attached to the board, featuring a QR code and the text "MYZR".	For TIJ controller
7	C3.KG.0002A	TIJ 3.0 Switch assembly	 A red and black cable assembly with a small white connector at one end.	For TIJ controller
8	C3.BZ.0001JKB	TIJ Power interface board	 A metal bracket holding three cylindrical metal components, likely connectors or sensors.	For TIJ controller
9	C3.BZ.0002QDB	TIJ Driver& connection board	 A blue PCB with a central black IC chip and a metal connector attached to it.	For TIJ printhead
10	C3.BZ.0003QDB	TIJ Printhead driver board	 A blue PCB with two black metal connectors on the left side.	For TIJ printhead

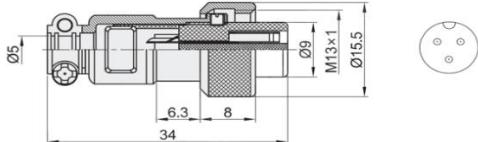
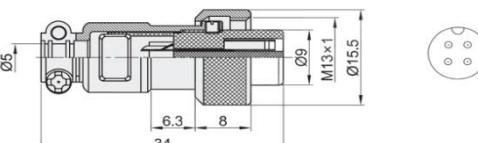
11	C4.H30H00.1500	TIJ Data cable	 A black TIJ data cable with two connectors, coiled on a blue surface.	For TIJ printhead and controller connection
12	C4.H30H00.5000	TIJ Data cable 5m	 A longer black TIJ data cable with two connectors, coiled on a blue surface.	For TIJ printhead and controller connection
13	C2.ZJ.0038A	TIJ Power adapter assembly	 A power adapter assembly consisting of a power brick and a cable, shown against a green background.	For TIJ controller power supply

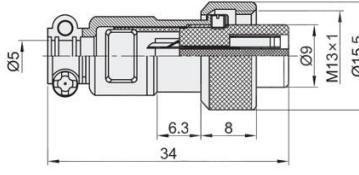
14	C2.ZJ.0018A	TIJ Printhead assembly		Use with TIJ controller
15	C2.WJ.QT0077B	TIJ Guide plate kit for single head		Use with TIJ printhead, protect nozzle
16	C2.WJ.QT0078B	TIJ Guide plate for double head		Use with TIJ printhead, protect nozzle, used to combine two printheads together to enlarge the printing height
17	C2.WJ.QT0105B	TIJ Guide plate for quadruple head		Use with TIJ printhead, protect nozzle, used to combine four printheads together to enlarge the printing height

18	C2.ZJ.0019A	TIJ Buffer mechanism		Use with TIJ printhead, absorb shock and locate printhead working direction
19	C2.ZJ.0022A	TIJ Cross bar jointer		For D20 bar cross connection and location
20	C2.ZJ.0023A	TIJ Base connector		Connect D20 bar to base
21	C2.ZJ.0020B	TIJ Sensor bracket set		Used for optical fiber sensor integration
22	C2.WJ.QT0089A	TIJ Bar D20x300		Provide more possibility for printhead together with cross bar jointer

23	C2.ZJ.0017A	TIJ Controller Set	 A black rectangular device with a small screen and several buttons at the bottom, labeled 'CYCLOP'.	Control the printhead to work as intended purpose
24	C2.ZJ.0045A	TIJ Controller Set for four printhead	 A black rectangular device with a small screen and several buttons at the bottom, labeled 'CYCLOP'.	Control four prinheads to work as intended purpose
25	C2.ZJ.0021A	Easy-position bracket assembly	 A grey articulated arm with a black circular base and a small black connector at the end.	Bracket assembly, hold/support the control on its position and angle as intended perpose
26	C2.ZJ.0024A	TIJ Controller support bar assembly	 A long grey cylindrical support bar with a black connector at one end.	Support to separate the controller from existing bracket system when used together with Base connector

27	C2.ZJ.0041A	TIJ Single-printhead set		Inkjet execution unit
28	C2.ZJ.0044A	TIJ Quadruple-printhead set		Inkjet execution unit
29	C4.B40000.100	TIJ FFC 40Pin		For main board and screen driver board connection
30	C4.N1200.200	TIJ Wire harness 12P		For main board and power interface board connection

31	C4.N08000.200	TIJ Wire harness 8P		For main board and power interface board connection
32	C4.B20000.100	TIJ FFC 20Pin		For printhead inner connection
33	C2.ZJ.0042A	TIJ Optical fiber sensor set		 <p>Optical fiber sensor & amplifier set (amplifier with aviation plug 'GX12-3P' preassembled)</p>
34	C2.ZJ.0043A	TIJ Encoder set/GTS06-OP-RAG2500Z1-2 M/TIJ		 <p>Encoder (with aviation plug 'GX12-4P' preassembled), bracket, wheel and necessary fastener are included</p>

35	C3.BJ.TBQ0001B	TIJ Encoder GTS06-OP-RAG2500Z1-2M		 Encoder (with aviation plug 'GX12-4P' preassembled), fastener and coupler are included
36	C5.QT.0038B	TIJ Wheel D50 for encoder		Wheel for encoder, matching shaft with 6mm diameter
37	C3.QT.BJD0003B	Traffic light-DB9-TIJ		Traffic light (With DB9 preassembled)

Ink cartridge list

No.	Part No.	Part Name	Description
1	YA.MH.TW46B	Cartridge-Water based/Black/CY642K	Black aqueous ink: Enhanced fade resistance, smear resistance and water resistance, excellent optical density, sharpness and barcode readability on various porous and semi-porous substrates
2	YA.MH.TW47B	Cartridge-Solvent based/Black/CYS640K	Black solvent ink: Fast drying time, excellent adhesion and rub resistance, high optical density, and excellent sharpness and barcode readability on semi-porous and non-porous substrates.
3	YA.MH.TW57B	Cartridge-Solvent based/Blue/CYS640B	Blue solvent ink: Good adhesion and rub resistance, excellent sharpness and barcode readability on semi-porous and non-porous substrates
4	YA.MH.TW51B	Cartridge-Solvent based/Red/CYS640R	Red solvent ink: Fast drying time, good adhesion and rub resistance, and excellent sharpness on semi-porous and non-porous substrates
5	YA.MH.TW58B	Cartridge-Solvent based/green/CYS640G	Green solvent ink: Fast drying time, good adhesion and rub resistance, enhanced optical density and sharpness on semi-porous and non-porous substrates
6	YA.MH.TW59B	Cartridge-Solvent based/yellow/CYS640Y	Yellow solvent ink: Fast drying time, good adhesion and rub resistance, and excellent sharpness on semi-porous and non-porous substrates
7	YA.MH.TW60B	Cartridge-Solvent based/invisible/CYS640I	Invisible solvent ink: Fast drying time, good adhesion and rub resistance, and excellent sharpness on semi-porous and non-porous substrates
8	YA.MH.TW52B	Cartridge-Solvent based/White/CYS640W	White pigment solvent ink: Fast drying time, excellent sharpness, fade resistance and heat resistance on semi-porous and non-porous substrates