

# **Handheld High Resolution Inkjet Printing System**

## **ECH200Pro Series**

# **User Manual**

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

## About This Manual

The purpose of this manual is to provide the operator with sufficient information to carry out operation tasks on the EC-JET High Resolution Inkjet Printer ECH200Pro Series.

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

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# Chapter 1 Introduction of EC-JET High Resolution Inkjet Printer

## 1.1 Specifications

**Model: ECH200Pro**

Print lines: Arbitrary lines in the printing area

Print Height : 0-12.7mm

Support font : Windows fonts

Support message type: Text, LOGO, Linear Barcode, 2D Barcode, Time/Date, Sequential/Serial Number.

Printing Speed: 120m/min (150DPI)

Variable Data: Date, Time, Serial Number,

Message Length: 500mm (extendable as option)

Message Storage: Unlimited (2GB Storage)

Supported Cartridge: EC Cartridge only.

External I/O : Standard USB Host,

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

Battery: 16.8V (Use batteries supplied by the manufacturer)

Power Consumption: <30W

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

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

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

Consumable life time: 1500 million dots maximum( 42ml cartridge), approximately 385 thousands character in 12.7mm height, according to the gray level of the character.

Substrate : Wood, Carton box, building materials, Porous and Semi Porous Surface.

**Optional:**

1. Encoder: to make the printer automatically adapt to the speed change of the production line.
2. Sensor: Object induction, trigger printing information.

## 1.2 Gentle Reminder

1. This is precision equipment, do not attempt to dismantle unless you are fully trained.
2. Please read and understand the operation manual before operating this printer.
3. Please connect the printing system correctly, and check the instructions when wiring.

## 1.3 Product Photo



## Chapter 2 Installation

### 2.1 External I/O:

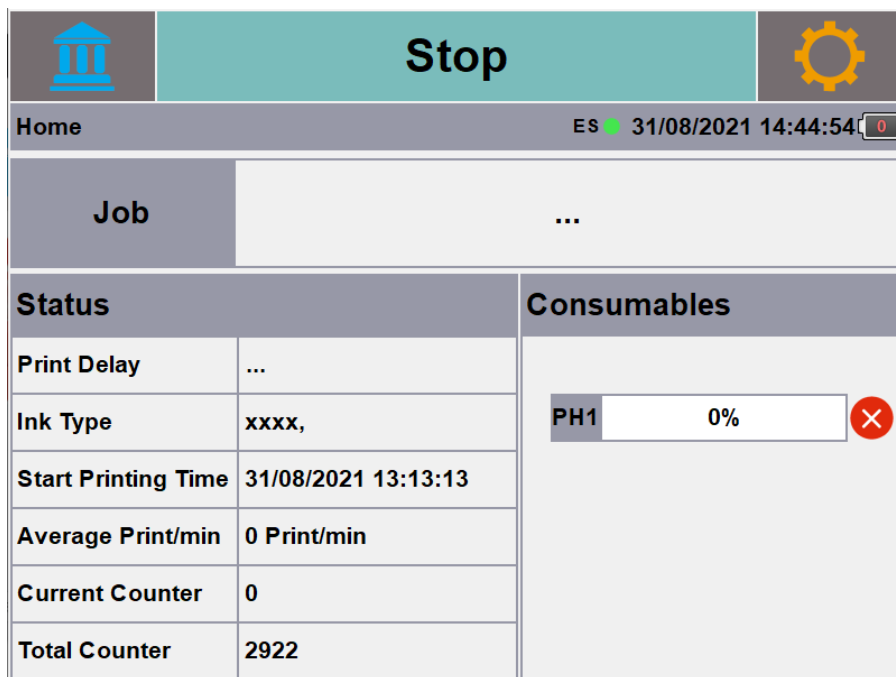
**Φ 5 Power Port** : 24V Power Supply (30W)

**USB Port** : Standard USB Host.

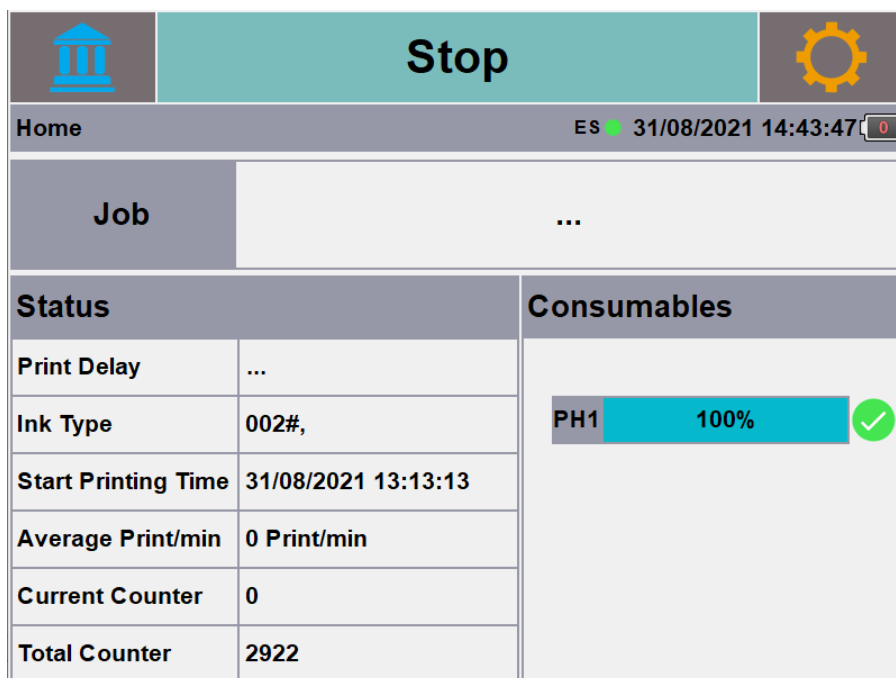
## Chapter 3 ECH200Pro Printer User Interface

### 3.1 User Interface Introduction


Turn on the machine power switch, wait for about 30s machine boot into the main interface:



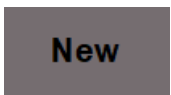
Install EC Cartridge, System will recognize ink type automatically:




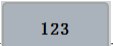


### 3.1.1 Editing Message


**Step 1:** Click  will lead to Message Selection interface:

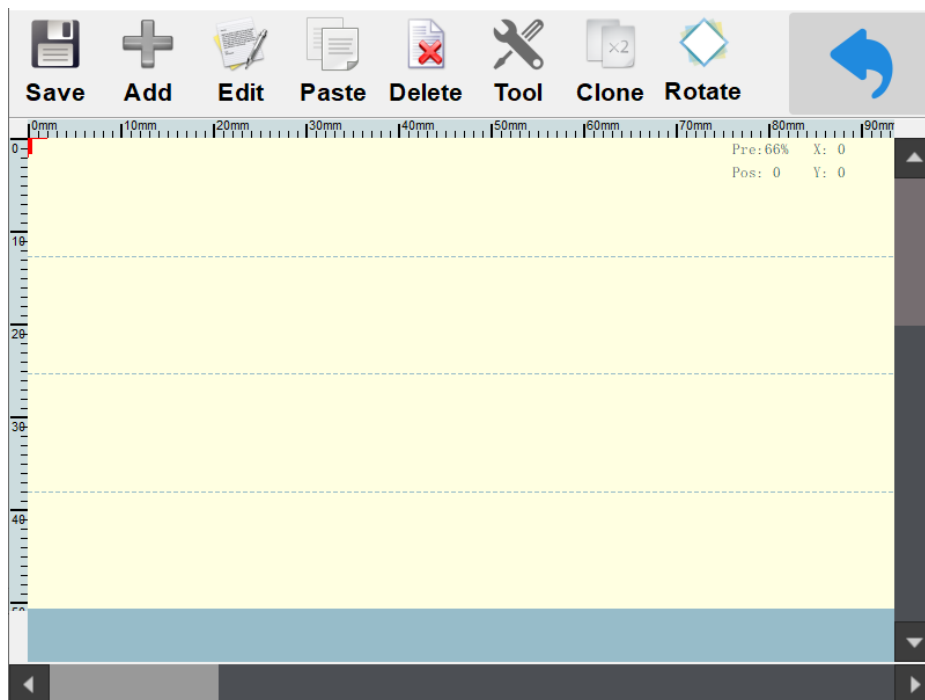


**Step 2:** Click  will lead to Message Name inputting interface, and input the new message name:

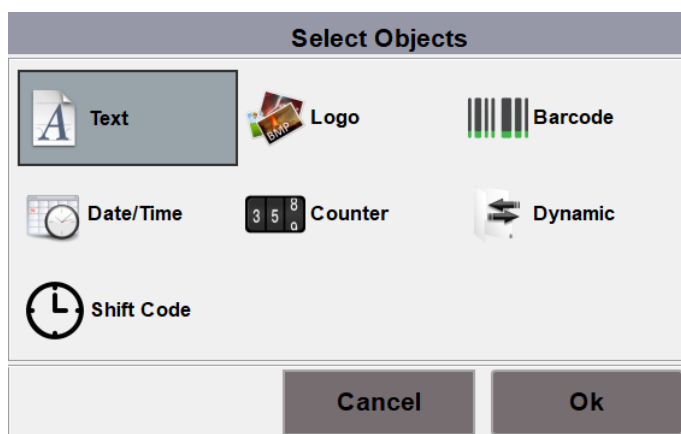


**Keyboard:** ECH200Pro Preloaded with English and Chinese Keyboard, click  to switch between Chinese, English or other Keyboard, click  for symbols and numeric, click  for Capital Letter. Chinese Simplified PinYin Input is supported. click  after naming your message will lead to Message Editing Interface.

**Step3:** Click  to enter into the Message Editing Interface.




Click **Add** to enter into the message adding interface, the printing message can be added in this interface.




Select the field type needed, user can add desire field type in message editing area.

Example: Add text field




Stop



Home—>Select Job—>Edit File—>Add Text
ES ● 0

ABC|




Font Type	Attribute	Size	Rotated	Position	
Arial	Normal	60	0°	X	Y
				0	0

**Preview : 96% @ 0°**

ABC

Cancel

Ok

Click  or the click in the edit box, it will pop up keyboard interface to enter or alter your content.

Click 

Font Type	Attribute	Size	Rotated
Arial	Normal	60	0°

 to change font attribute

Click 

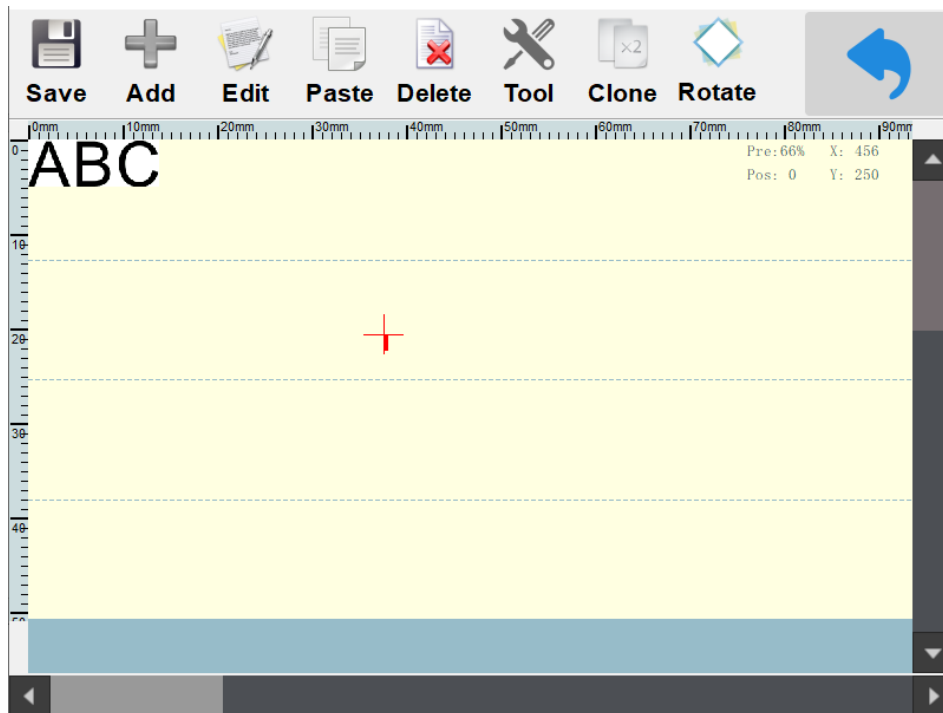
Position
X
Y
0
0

 to change text position in the message, default value is (0,0), user can fine tune or adjust text location at the message editing interface.

User will able to preview the text content example shown at below, then click 'confirm'.

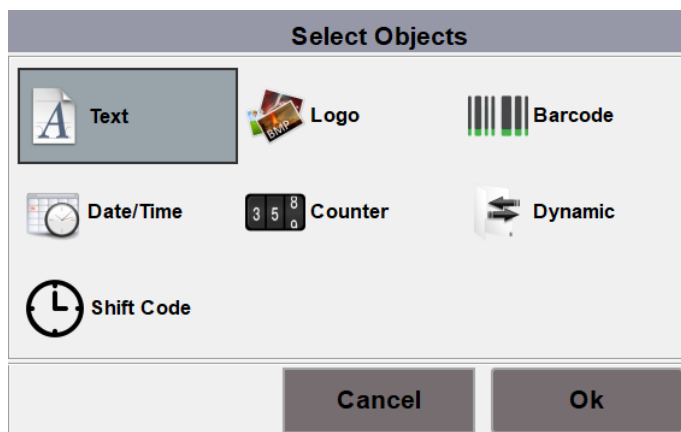
**Preview : 96% @ 0°**

ABC



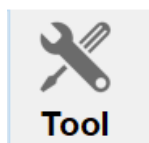
You have successfully added a 'Text' field in printing message.

Repeat this step for another Text field or other types of field which desire. Fields available are Text, Time/Date, Serial Number, Barcode, Logo.



Besides: there are several options on the software



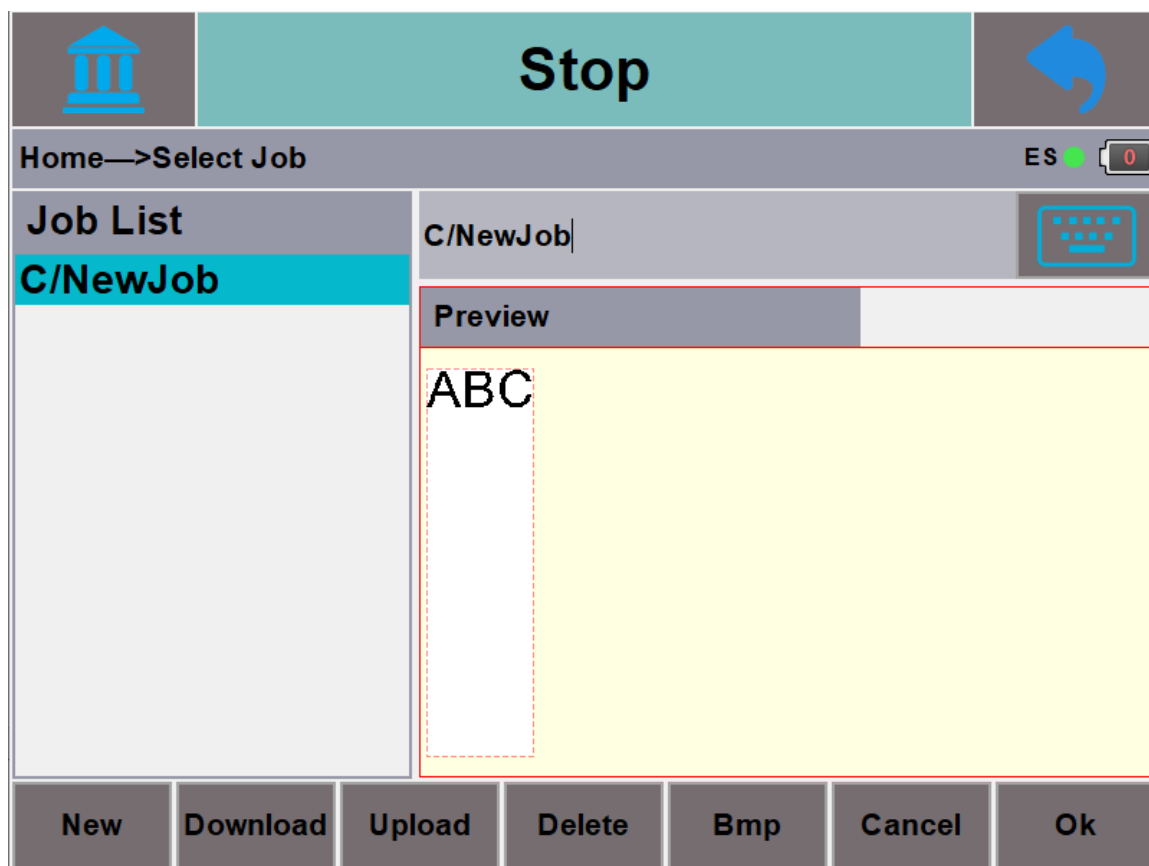


**Tool**



Click **Tool** then user can use the toolbar to edit, delete, paste or fine tune with direction key on the already added field in the printing message. It can also be dragged freely when the field is selected.

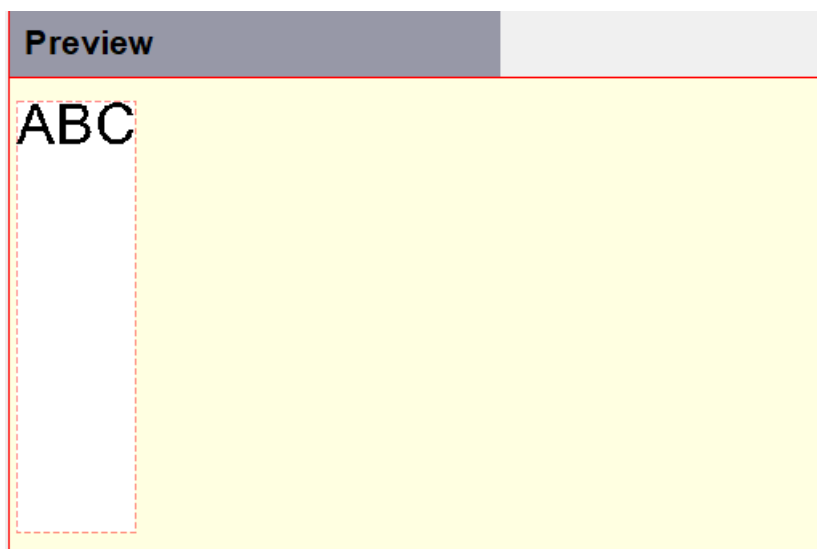
**Step 4:** Click 'Save' then 'Exit' when done with message editing.



The message can be previewed after editing.

**Delete**

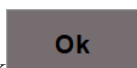
Click **Delete** to delete selected message.

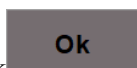



Click  to edit an existing selected message.




Click  to change the name of the message.




Click , printer will print selected message when starting to printing. When there are multiple files in the file list, you need to use it to select different printing messages. Click this button to execute the last edited test data. After clicking, the system will automatically return to the main interface.

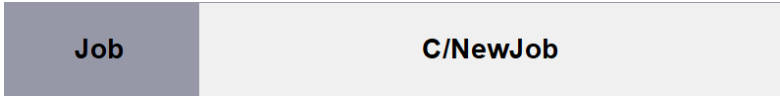


Stop

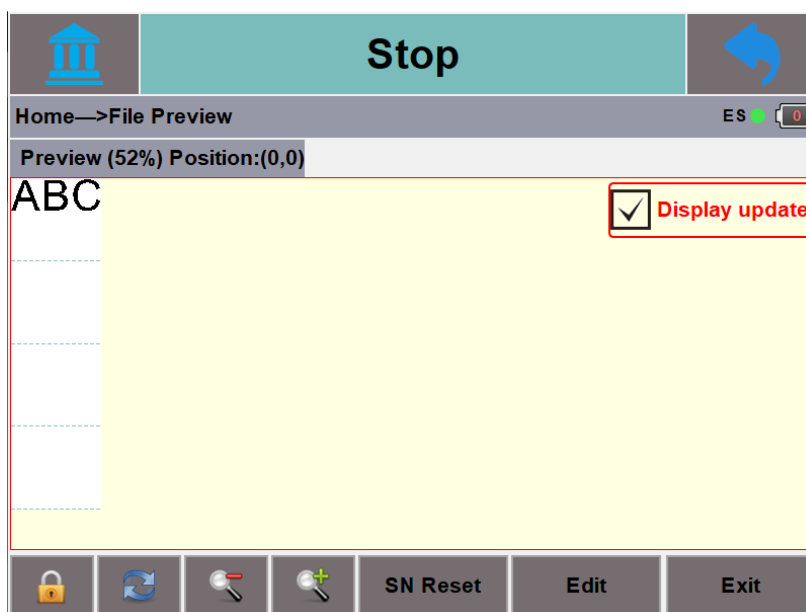


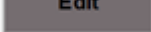
Home ES 31/08/2021 15:47:53 0

Job	C/NewJob	
Status		Consumables
Print Delay	0 mm	<div>PH1 100% </div>
Ink Type	002#,	
Start Printing Time	31/08/2021 13:13:13	
Average Print/min	0 Print/min	
Current Counter	0	
Total Counter	2922	

Click , it can be seen that the system has executed the "new file" edited in the previous step.

Click the editing message of printing  and it can be previewed




Click  You can quickly enter the data editing interface to change the message.

## 3.2 Main Interface Parameter



Main interface parameter included

Status	
Print Delay	0 mm
Ink Type	002#,
Start Printing Time	31/08/2021 13:13:13
Average Print/min	0 Print/min
Current Counter	0
Total Counter	2922

Consumables	
PH1	100% 

and

Click the "Parameter" area to enter the cartridge parameter interface

 <span style="background-color: #4682B4; color: white; padding: 5px 20px; font-weight: bold;">Stop</span> 	
Home—>Parameter <span style="float: right;">ES <span style="color: green;">●</span> <span style="border: 1px solid black; padding: 0 2px;">0</span></span>	
Print Delay	0 mm
Ink Type	002#,
Start Printing Time	31/08/2021 13:13:13
Average Print/min	0 Print/min
Batch Counter	0
Total Counter	2922
Msg-Time Refresh	300 S

The counting information can be changed. Others are read-only options and cannot be edited.

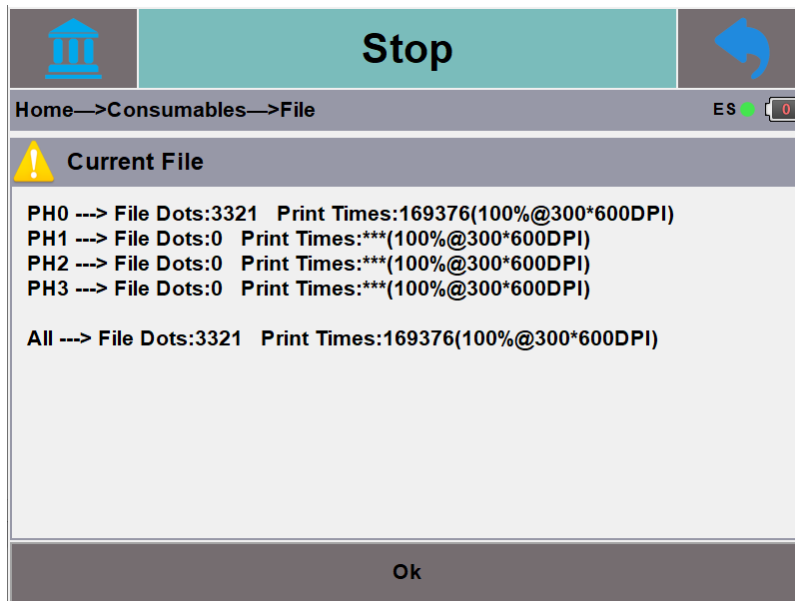
Click the "Consumables" area to enter the ink level detection interface:

 <span style="background-color: #4682B4; color: white; padding: 5px 20px; font-weight: bold;">Stop</span> 	
Home—>Consumables <span style="float: right;">ES <span style="color: green;">●</span> <span style="border: 1px solid black; padding: 0 2px;">0</span></span>	
PH1 Ink Remaining (%)	100%
PH2 Ink Remaining (%)	N/A
PH3 Ink Remaining (%)	N/A
PH4 Ink Remaining (%)	N/A
Current File Dots	3321
Ink Low Alarm Threshold	1 %

You can check the remaining ink level of each ink cartridge from this interface, which can only be


read but not edited

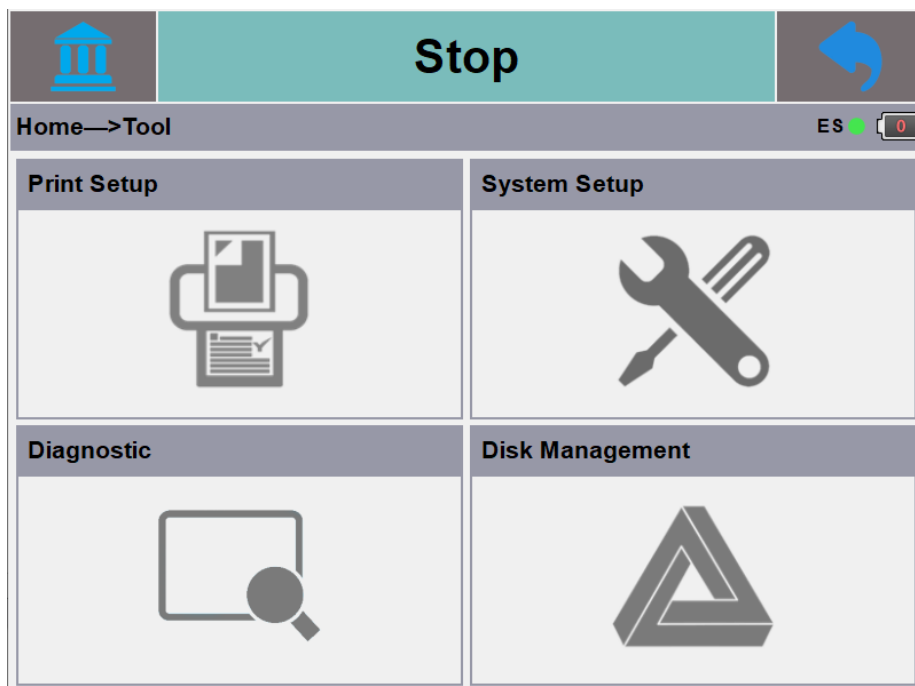
Click  this option to display all the current ink cartridges printing message on the interface.



You can see the ink volume information and the current printing time from this interface. When printing starts, the system will automatically calculate the approximate usable time. Users can decide the inventory of ink cartridge based on this information to prevent the shortage of ink cartridges from affecting production.

### 3.3 Printer Setting

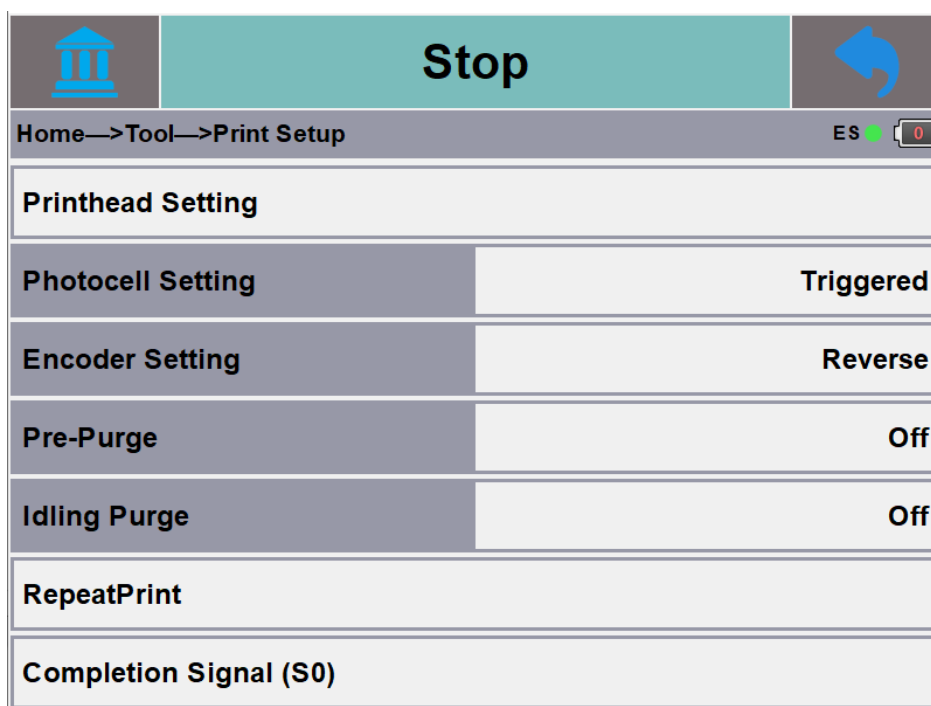
Click  to access into Printer Setting interface:




### 3.3.1 Print Setup




Click  to enter into the printing setup interface:



## Printhead Setup



Stop



Home→Tool→Print Setup→Printhead Setting
ES ● 0

	PH1
Print Direction	ABC→
Nozzle Setting	Left
DPI 300*600	4 (Max:30.4m/min)
Offset(Horizontal)	0 mm
Fire Voltage	11.6 V
Pulse Width	1.9 us
Offset(Vertical)	Off

喷印区域

☒ P1

☐ P2

☐ P3

☐ P4

You can change the printing direction according to the running direction of the production line by this interface

Because the ink cartridge has two rows of nozzles, when one row of nozzles is damaged, the other row of nozzles can be used.

Different printing quality can be obtained by choosing different printing resolutions (DPI). Users can choose according to their needs. Higher resolutions require more ink.

The horizontal and vertical offset of the nozzle can be adjusted accordingly according to the actual situation on the production line.



The ignition voltage and pulse time will be automatically adjusted according to the information of the printer.

The printhead has 4 printing areas in total. By selecting one or more printing areas, can realize interchangeable printing for different areas.

## "Print Delay"

The distance from the contact of the electric eye to the start of printing can be adjusted.

## "Sensor"

 <div style="text-align: center; background-color: #4682B4; color: white; padding: 5px; font-weight: bold; font-size: 1.2em;">Stop</div> 	
Home—>Tool—>Print Setup—>Photocell <span style="float: right;">ES <span style="color: green;">●</span> 0</span>	
Photocell State	Triggered
Photocell Filter	0 mm
Aux In	Off
Signal Length	0 ms(0.001s)
Signal Lock	12 cs(0.01s)

After clicking the "Electric Eye" option, there are three settings that can be adjusted.



Click 





Photocell State	Triggered
-----------------	-----------

 There are two options at the bottom left of the interface:





"Triggered": The machine will print one time when the sensor is triggered one time.

"Off": After starting the printing, the system will shield the sensor signal and keep printing.

 <div style="text-align: center; background-color: #4682B4; color: white; padding: 5px; font-weight: bold; font-size: 1.2em;">Stop</div> 	
Home—>Tool—>Print Setup—>Photocell—>Photocell State <span style="float: right;">ES <span style="color: green;">●</span> 0</span>	
Triggered	
Options	Default
Off	Triggered
Triggered	
Cancel	Ok





		<b>Stop</b>			
Home→Tool→Print Setup→Photocell→Photocell Filter (mm) ES   0					
-		0		+	
Min	0				
Max	2000				
Default	0				
1		2		3	
4		5		6	
7		8		9	
C/CE		0			
Cancel			Ok		

Sensor wave filtering fuser-defined.

		<b>Stop</b>			
Home→Tool→Print Setup→Photocell→Aux In ES   0					
<b>Off</b>					
<b>Options</b>			<b>Default</b>		
<b>Off</b>			<b>Off</b>		
<b>Reverse Msg(LEV)</b>					
Cancel			Ok		

Auxiliary sensor setup





“Encoder setup”

	<b>Stop</b>	
Home—>Tool—>Print Setup—>Encoder Setting		ES   0
Shaft Encoder	Reverse	
Pulse/Cycle	2500	
Diameter	60 mm	
DPI	337	





When the encoder is set to "forward or reverse", the pulse number (PPR) and the diameter of the encoder wheel (mm) should be input according to the parameters, and the system will calculate the width of the printing information accordingly, the width will not change with the change of production speed.

When the production speed is uneven, it is necessary to install an encoder and set it to "forward or reverse" in the software.

When the encoder is "off", the actual production speed needs to be input to the "conveyor speed". This is only applicable when the production speed is uniform, otherwise it will affect the printing effect.

	<b>Stop</b>	
Home—>Tool—>Print Setup—>Encoder Setting		ES   0
Shaft Encoder	Off	
Conveyor Speed	10 m/min	

“Pre-cleaning the printhead”

	<b>Stop</b>	
Home—>Tool—>Print Setup—>Pre-Purge		ES   0
0 Off		
<b>Options</b>	<b>Default</b>	
0 Off	0 Off	
1:Cold & Humid		
2:Dry		
3:Drier		
4:Very Dry		
5:Hot&Dry		
<b>Cancel</b>	<b>Ok</b>	

When the printing interval is longer and the air is relatively dry, the printing effect may be affected. In order to overcome this problem, the system will pre-flush the nozzles according to the ambient air level set in this menu to improve the printing effect.

0 Off: There is no pre-flushing action, which is the default setting of the system.

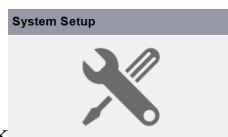
Level 1~5: Suitable for air dryness respectively, level 1 is non-drying, and level 5 is very dry.

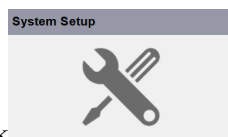
Tips:

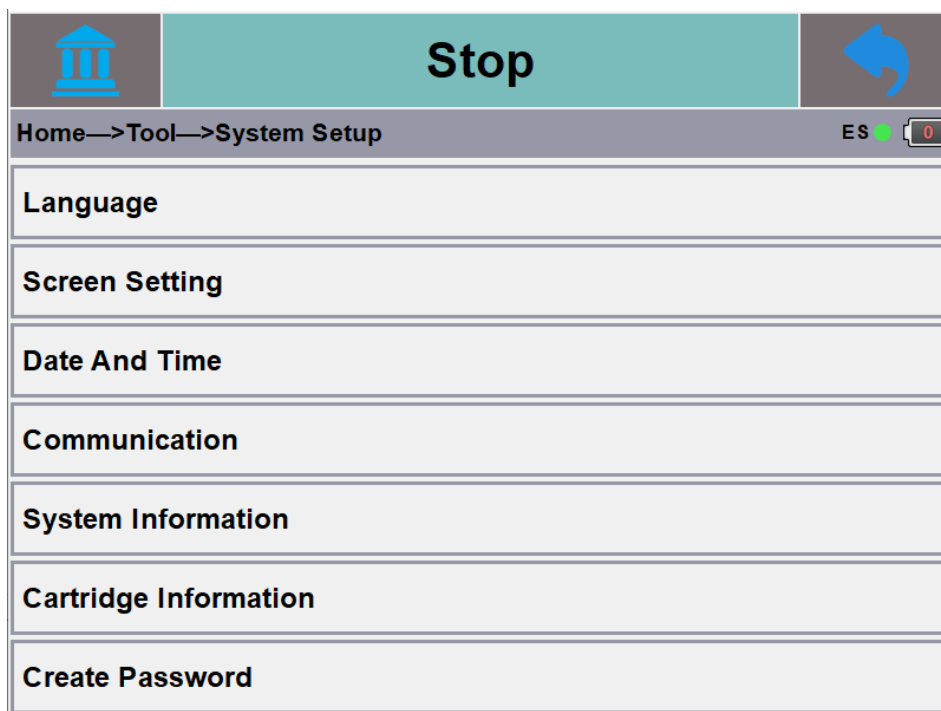
Pay attention to adjusting the installation position of the sensor to prevent a small amount of ink from being sprayed on the product during pre-cleaning.

When it's pre-cleaning mode, a small amount of ink will be consumed, which will affect the using time of the ink cartridge.

### 3.3.2 System Setup



Click  to enter into screen saver setting interface.



"Language": System language;

"Screen calibration": It's used to calibrate the system touch screen, which has been calibrated before leaving the factory;

"Date and time": It's used to set the time and date of the system;

"Communication": used to set the baud rate, IP address and number of the serial port;

"System Information": used to view the system version and software upgrade information, please contact with your equipment supplier or manufacturer when the user needs to upgrade the software, it has risk of damaging the machine when upgrading the software. Users must not upgrade by themselves;

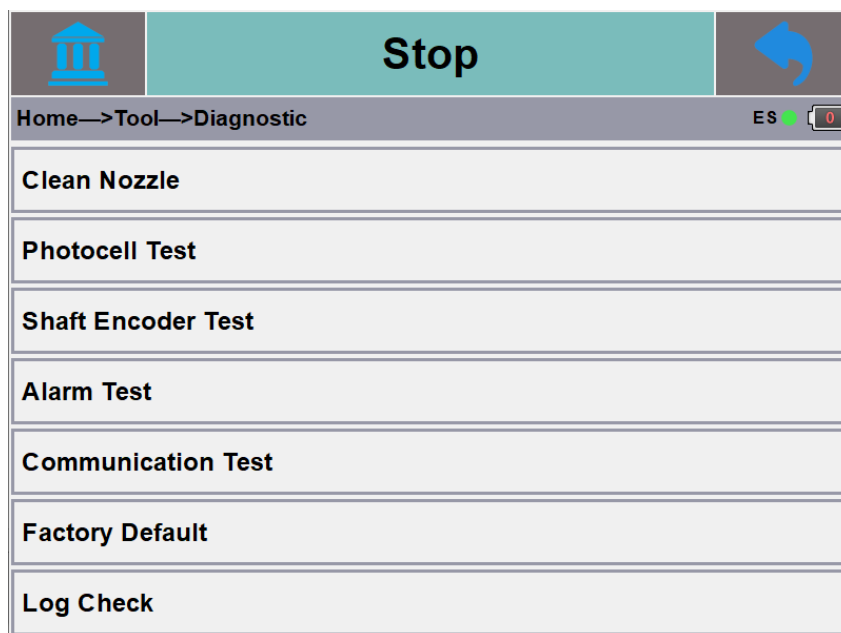
"Ink Cartridge Information": When the system detects that there is an ink cartridge, you can view the related information of the ink cartridge.

"Create a password": You can create passwords for the administrator and operator separately

### 3.3.3 Diagnostic menu



Click enter the diagnosis menu interface:

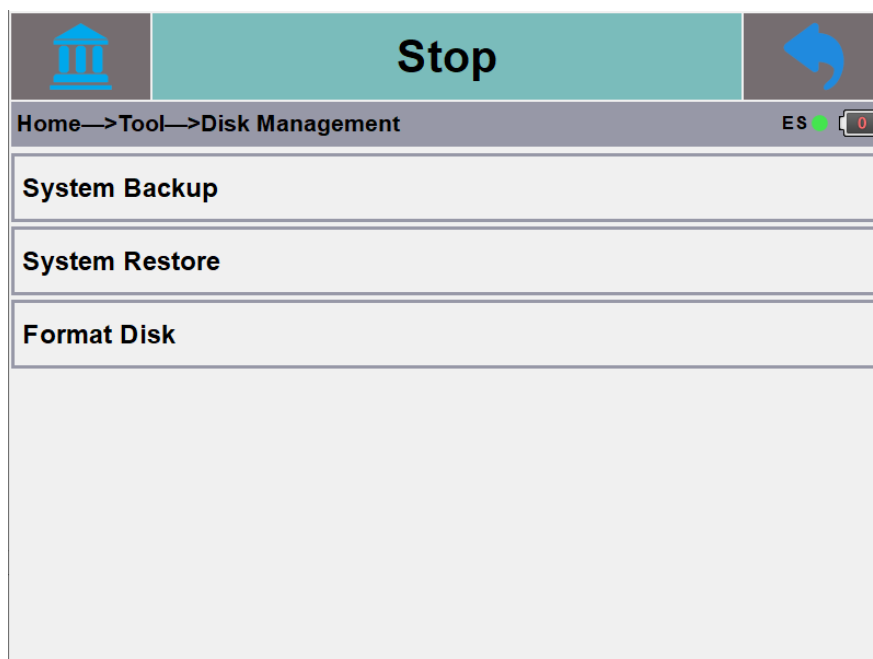


When the machine fails, you can rectify the general fault according to the system prompts in this menu. If the machine still cannot be used normally after troubleshooting, please contact your equipment supplier or manufacturer.

### 3.3.4 Disk Management



Click enter the disk management interface:





Users can use U disk to back up machine data and parameters, or restore previous backup information or parameters, and format the disk.

**Warm Reminder:** When formatting the disk, the system will delete all data information.


### 3.4 Start printing

Please set the printing parameter according to the production line before start up.


Click the button , the system will be in printing status.



Running



Home
ES ● 31/08/2021 16:08:51 0

Job	C/NewJob	
<b>Status</b>		<b>Consumables</b>
Print Delay	0 mm	<div> <div>PH1</div> <div>100%</div>  </div>
Ink Type	002#,	
Start Printing Time	31/08/2021 16:08:45	
Average Print/min	0 Print/min	
Current Counter	0	
Total Counter	2922	

## Chapter 4 Precaution

### 4.1 Printer Precaution

1. Prevent liquid (ink/water etc.) from contacting electronics part which may cause short circuit and printer failure.
2. Printer must be electrically ground. Otherwise, it may cause problems such as poor printing quality and leakage
3. This Printer might not suitable for high humidity, high temperature, very dusty and vibrating environment.
4. Always use the original power adapter, do not connect power adapter to supply which is beyond 110V-240VAC, 50/60Hz, to prevent fire hazard.
5. Printhead is precision engineering component, only use lint free cloth or tissue to wipe the printhead. User must follow the cleaning procedure to prevent printhead from scratched.
6. In case of accident (smoke, burning smell, liquid fell/contact with electronic parts), please turn off the power supply immediately and contact manufacturer for further action.
7. Please contact manufacturer if printer is abnormal, do not dismantle the printer which will void the warranty.

### 4.2 Cartridge Precaution

1. Handle cartridge with care, open the cartridge clip and tear away the blue tape (if needed) when installing into printer for use.
2. Cartridge which continuously used for 8-12 hours or left unused in printer or uncap for more than 1 day should be wiped with lint free cloth/tissue and cap for storage. Printhead might need more cleaning under dusty environment.
3. If there is occasional stringy or dyed ink, please wipe the printhead with lint free cloth/tissue, and swing the printhead downwards for several times, and then put it on printer to start printing again.
4. Recommended to keep cartridge with clip when not in use. Do wipe the printhead with lint-free cloth/tissue with deionized water for better result.

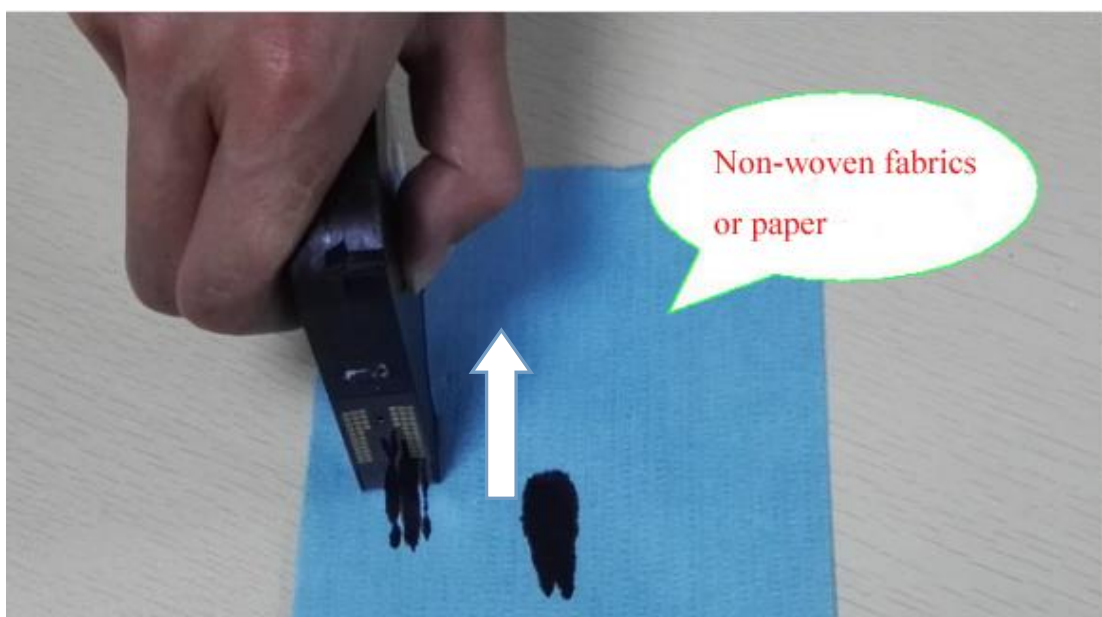
### 4.3 Precautions for battery charging and use

1. There are two ways to charge this printer: cradle charging (battery removal required) and direct charging (battery removal not required). It is forbidden to use any non-EC-JET charger to charge the battery.
2. It is forbidden to overcharge for more than 4 hours. If you find that the light does not turn after 2 hours of continuous charging (the red light turns to green), please check whether the battery temperature is hot.
3. It is strictly prohibited to turn on the printer when charging, and it is forbidden to use while charging.
4. The battery is strictly prohibited from being near flammable, explosive, and corrosive objects when charging. No sundries are allowed within 15 meters of the surrounding area, and multiple batteries are not allowed to charge, to prevent danger caused by overloading of the line.
5. If the battery is stored for more than 3 months, it is recommended to charge the battery regularly. Long-term storage temperature  $0^{\circ}\text{C} \sim 45^{\circ}\text{C}$ , relative humidity  $60 \pm 25\%$ .
6. Do not throw the battery in the box or drawer, so as to avoid short circuit with other metal materials.
7. Store it out of the reach of children.
8. The battery is stable under normal temperature and pressure. It is forbidden to heat above  $70^{\circ}\text{C}$  or burn, deform, destroy, crush, disassemble, overcharge, short circuit, or be exposed to humid conditions for a long time.

#### 4.4 Printhead Cleaning Method

Fold the lint-free cloth/tissue at least 2 times (4 layers/plies) and lay flat on table. Hold the cartridge with printhead downwards, gently apply pressure and pull as shown in photo below. Hold downward and pull gently approximately 4cm then repeat again to make sure printhead is clear from blockage or dust. Repeat this step when necessary. Please contact manufacturer if problem remain after several attempts.

Cleaning process will consume some inks which might affect cartridge printable life span.



## Appendix Machine Dimensions

