

High Resolution Inkjet Printing System

ECH900 Series

User Manual

Revision: 1.01

2020-06-09

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At all times the printer must be operated with EC-Pack 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 ECH900 Series. The information contained in this manual is relevant to Version 1.0 software or later versions, unless otherwise stated.

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: ECH900

Print lines: Multiple lines within printing area

Print Height: 0-12.7mmX 4

Support font : Windows fonts, LOGO, Linear Barcode, 2D barcodes

Print Speed : 120m/min (150DPI)

Variable Data : Date, Time, Sequential/Serial Number.

Message Length: 500mm (extendable as option)

Message Storage: 2GB

Supported Cartridge: EC Cartridge only.

External I/O : Standard USB Host, DB9 (Serial port)

External I/O : Standard USB Host, DB9 (Serial port)

Power Consumption: below 60W

Working Environment: Temperature 0°C~70 °C

EMI Compliance: EN55011:2009+A1:2010, EN61326-1:2013,
EN61000-3-2:2014, EN61000-3-3:2013

Cartridge life time: up to 1.5 billion dots (42ml ink cartridge), about 385,000 12.7mm height characters, depending on the DPI setting.

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

Optional Accessories:

1. Shaft Encoder
2. External Photocell

1.2 Gentle Reminder

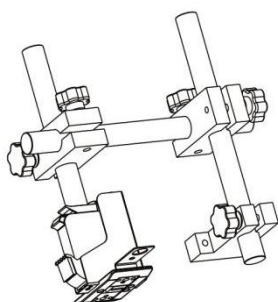
1. This is precision equipment, do not attempt to dismantle unless you are fully trained.
2. Please read and understand the operation manual before operating this printer.
3. Please make sure all the cables are properly and correctly connected as per manual.
4. Periodically inspect and check the connectivity of the cables and connectors.

1.3 Product Photo

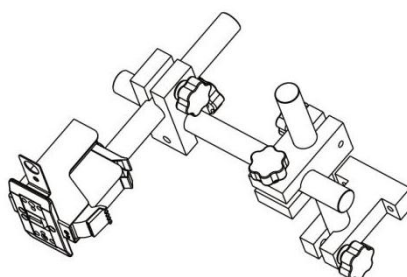


Chapter 2 - Installation

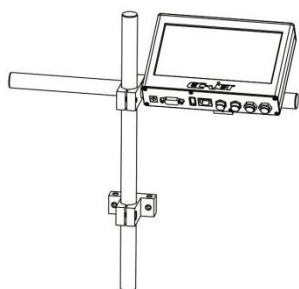
2.1 Typical Installation Diagram:



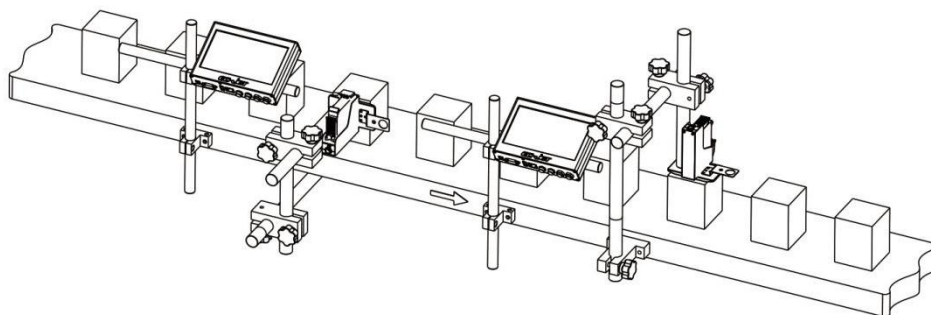
Down side Printing Setup



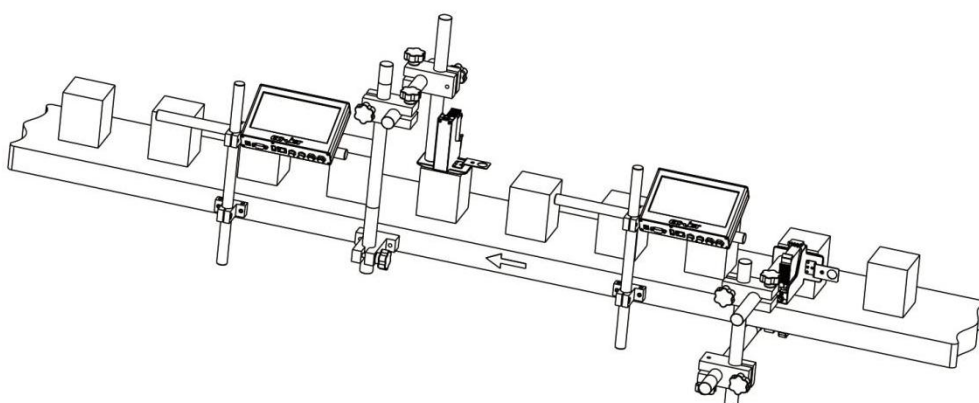
Side Printing Setup



Controller/Touch Screen/GUI



Example of Printer Installation at Production (Photo 1)



Example of Printer Installation at Production (Photo 2)

2.2 External I/O:

φ 5 Power Port : 12V/5A Power Supply (60W) 。

USB Port : Standard USB Host。

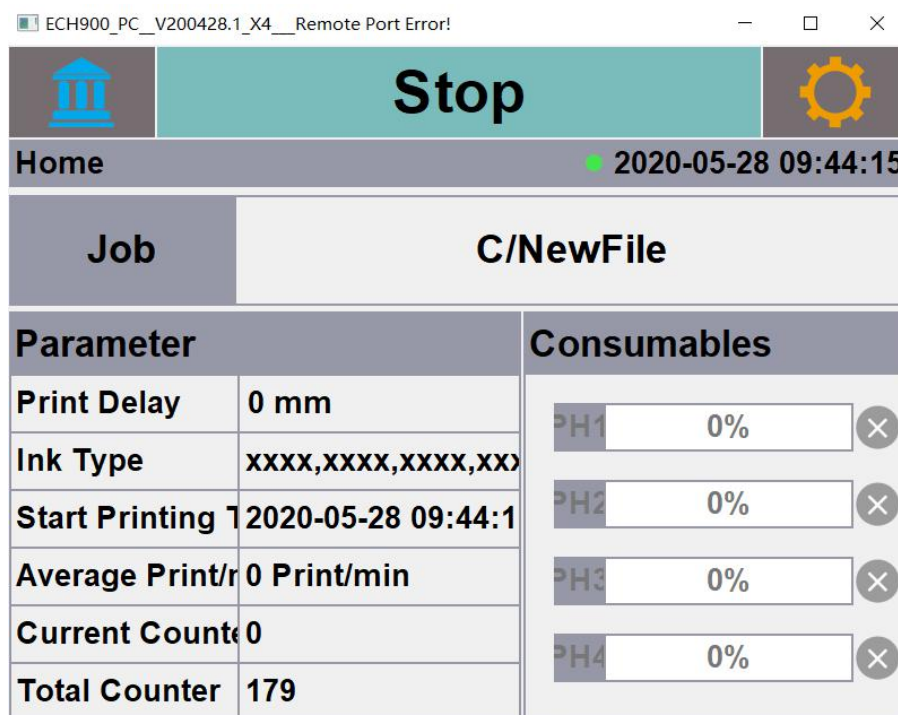
DB9 Port : Pins allocation as below

DB9 Pin	Functions
1	12V DC output 500mA
2	NPN photocell signal
3	NPN auxiliary photocell signal
4	GND
5	GND
6	12V DC output 500mA
7	Alarm 0
8	Alarm 1
9	Alarm 2
10	serial port RX
11	12V DC output 500mA
12	Encoder A phase
13	Encoder A phase
14	GND
15	serial port RX

Chapter 3 ECH900 Printer User Interface


3.1 User Interface Introduction

1. Machine cable connection (such as power adapters, host-to-head), turn the machine power switch, wait about 30s machine boot into the main interface:




2. Install EC Cartridge, System will recognize ink type automatically:

ECH900_PC_V200428.1_X4_Remote Port Error!
— □ ×



Stop



Home
● 2020-05-28 09:43:22

Job	C/NewFile	
Parameter	Consumables	
Print Delay	0 mm	<div style="display: flex; justify-content: space-between;"> <div style="width: 60%;"> <div style="background-color: #00CED1; width: 100%; height: 15px; margin-bottom: 2px;"></div> <div style="display: flex; justify-content: space-between; align-items: center;"> PH1 100% ✓ </div> </div> <div style="background-color: #D3D3D3; width: 100%; height: 15px; margin-bottom: 2px;"></div> <div style="display: flex; justify-content: space-between; align-items: center;"> PH2 0% × </div> </div> <div style="background-color: #D3D3D3; width: 100%; height: 15px; margin-bottom: 2px;"></div> <div style="display: flex; justify-content: space-between; align-items: center;"> PH3 0% × </div>


PH4
0%
×

3.1.1 Editing Message




Step 1: Press **Job** will lead to message selection interface:

ECH900_PC_V200428.1_X4_Remote Port Error!
— □ ×



Stop



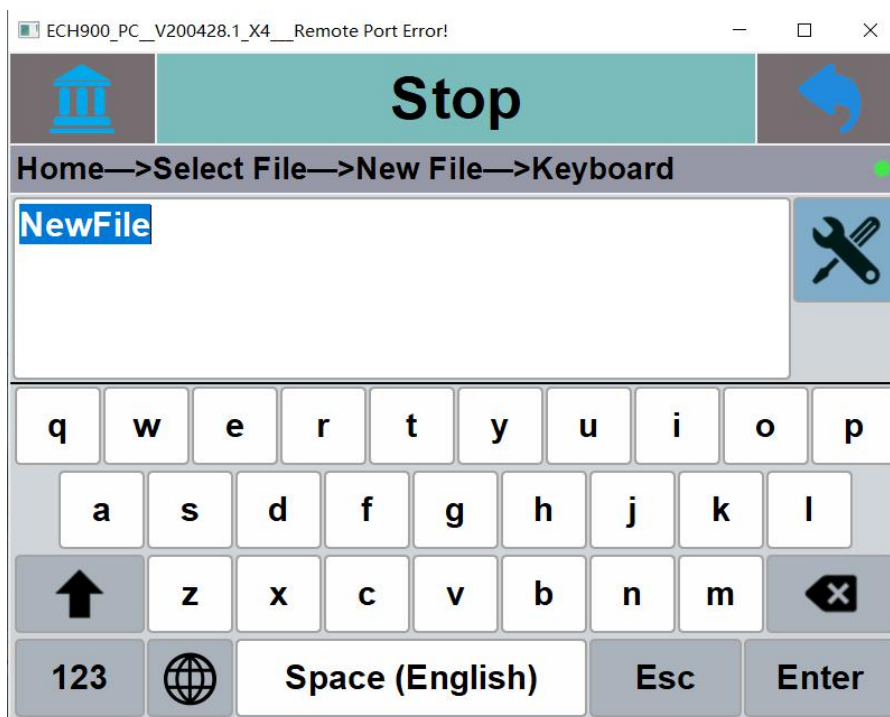
Home—>Select File
●




File List	C/NewFile
C/NewFile	<div style="display: flex; justify-content: space-between; align-items: center; border-bottom: 1px solid black;"> <div style="background-color: #D3D3D3; padding: 2px;">Preview</div> <div style="border: 1px solid black; flex-grow: 1; background-color: yellow;"></div> </div>

New
Download
Upload
Delete
Cancel


Ok

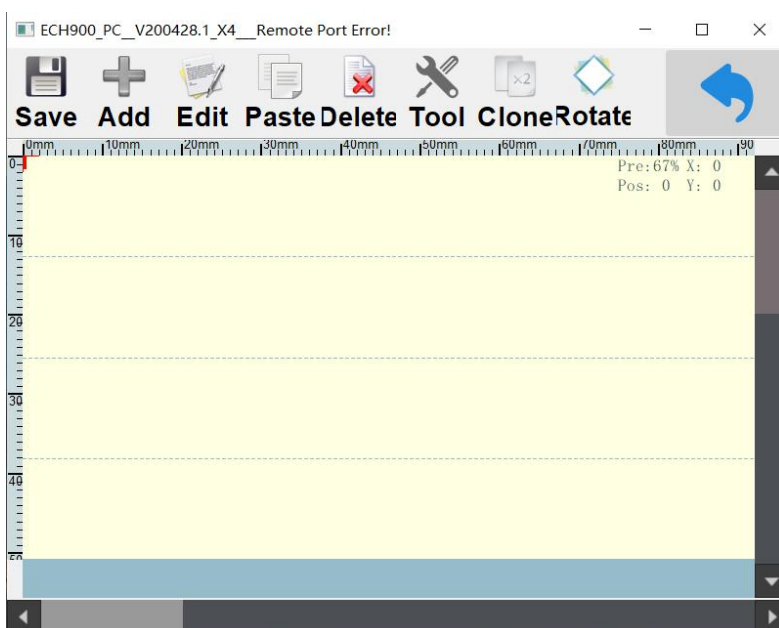
Step 2: Press  will lead to Create New Message, Enter New Message Name:



Keyboard: ECH900 Preloaded with English and Chinese Keyboard, Press  to switch between Chinese, English or other Keyboard, Press  for symbols and numeric, Press  for Capital Letter.

After entering the message name correctly, click the keyboard to enter the message editing interface automatically:

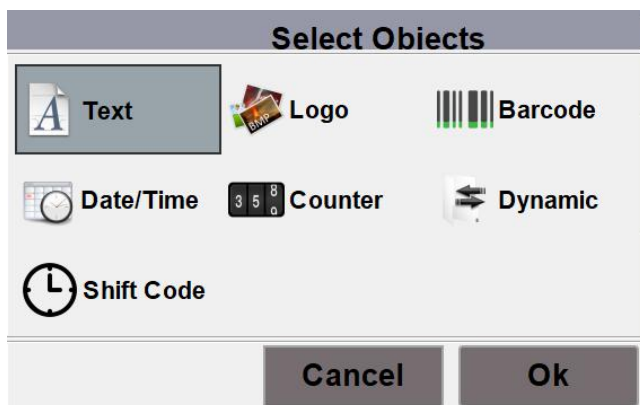
Step 3 : Press  after naming your message will lead to Message Editing Interface.



This is the message editing menu.

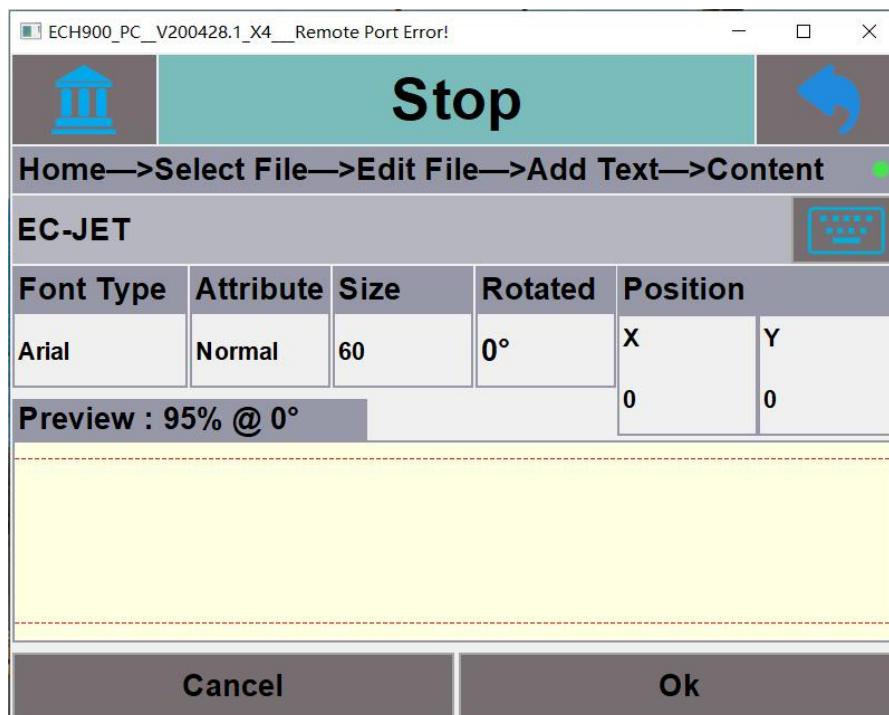



Select **Add** field type needed, user can select desire field type in




, Click ok to add the desired field type in the edit area.

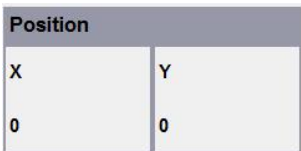
Example: Add Text field



Select  will pop up keyboard interface to enter or alter your content.

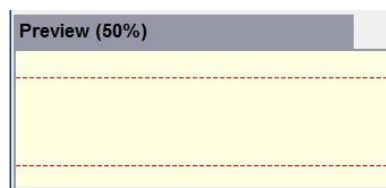
Select  to change font attribute

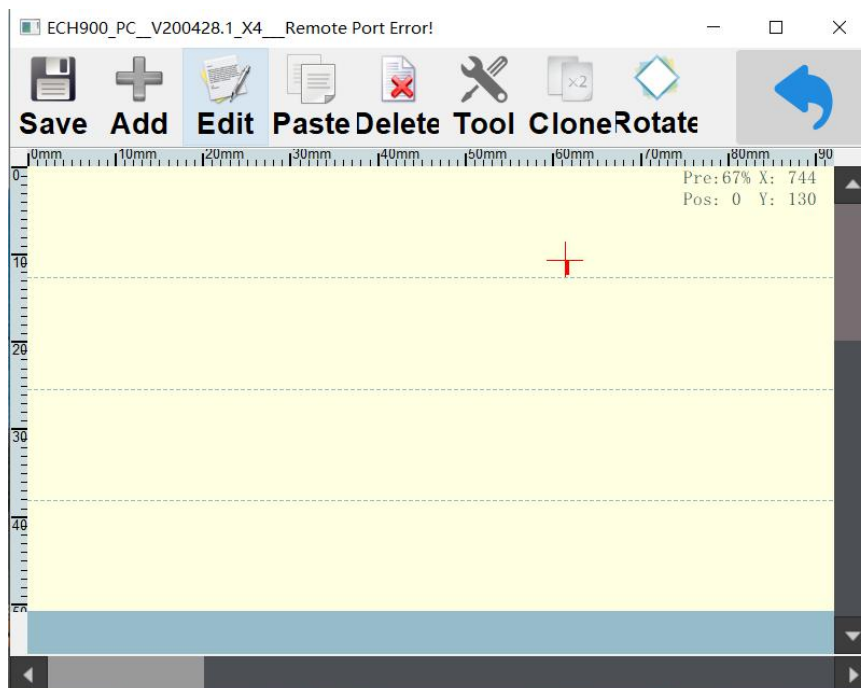
Font Type	Attribute	Size	Rotated
Arial	Normal	60	0°

Select  to enter text position in the message, default value is (0,0), user can fine tune or adjust text location at the message editing menu as well.

Position	
X	Y
0	0

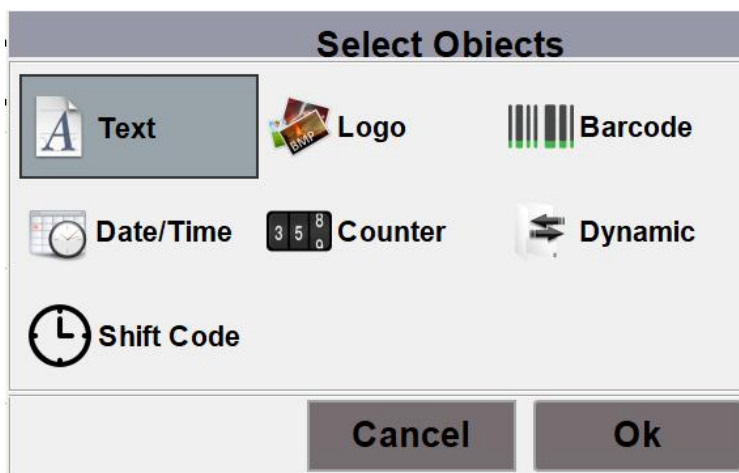
User will able to preview the text content example shown at below, then select 'confirm'.







You have successfully adding 'Text' field.

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

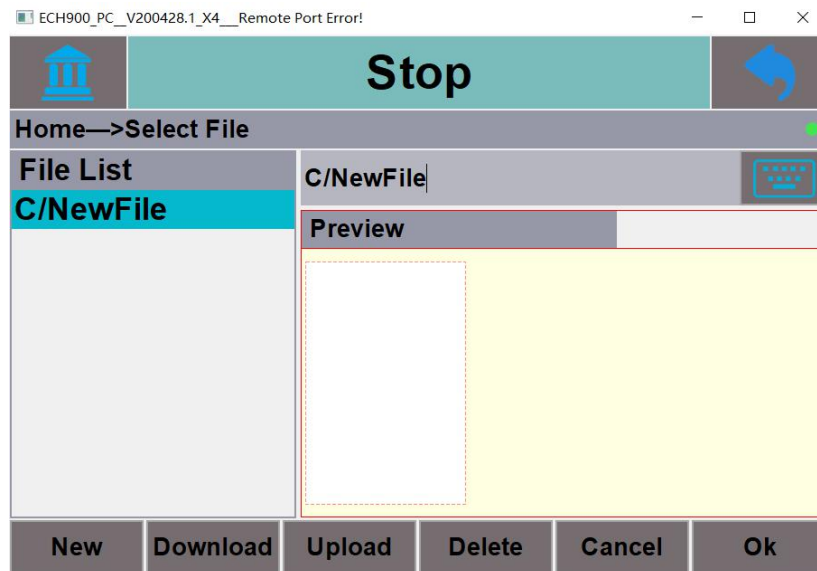


There is options

in the menu,

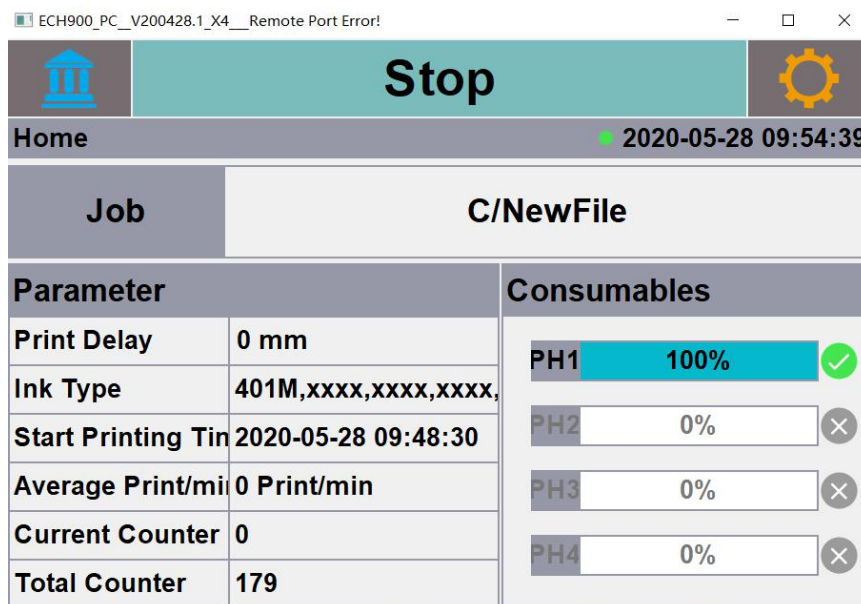
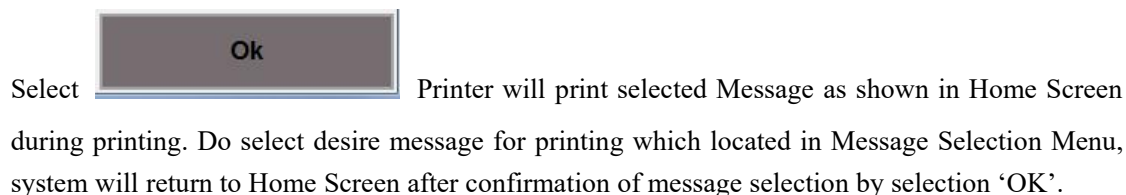
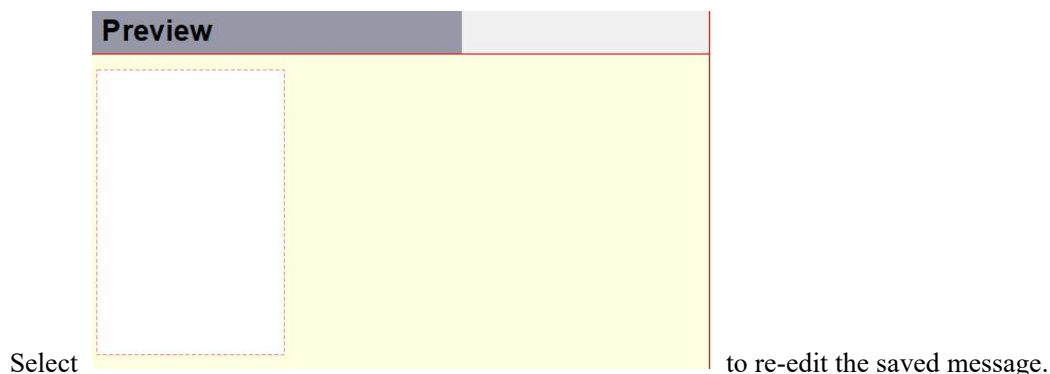
select  **Tool**, it will show  toolbar. You can edit, delete, paste, clone, rotate and use the arrow keys to fine-tune the added filed in the print message. You can also select and drag it freely.

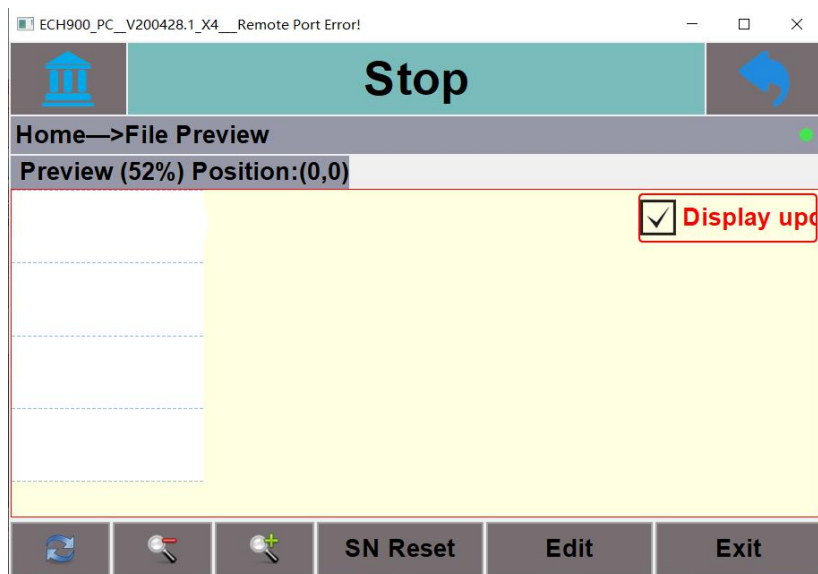
Step 3: Select 'Save' then 'Exit' when done with message editing.



Message content can be previewed in Message Selection Menu.

Select  to delete selected message.





User can select  to edit current message.

3.2 Home Screen/Menu

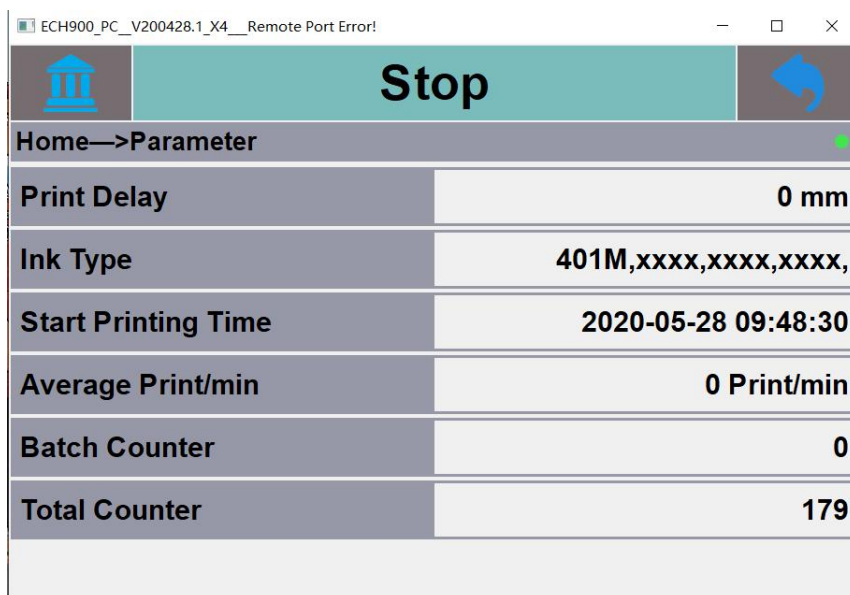
Home Screen/Menu shown information as below:

Parameter	
Print Delay	0 mm
Ink Type	401M,xxxx,xxxx,xxxx,
Start Printing Tin	2020-05-28 09:48:30
Average Print/mi	0 Print/min
Current Counter	0
Total Counter	179

and

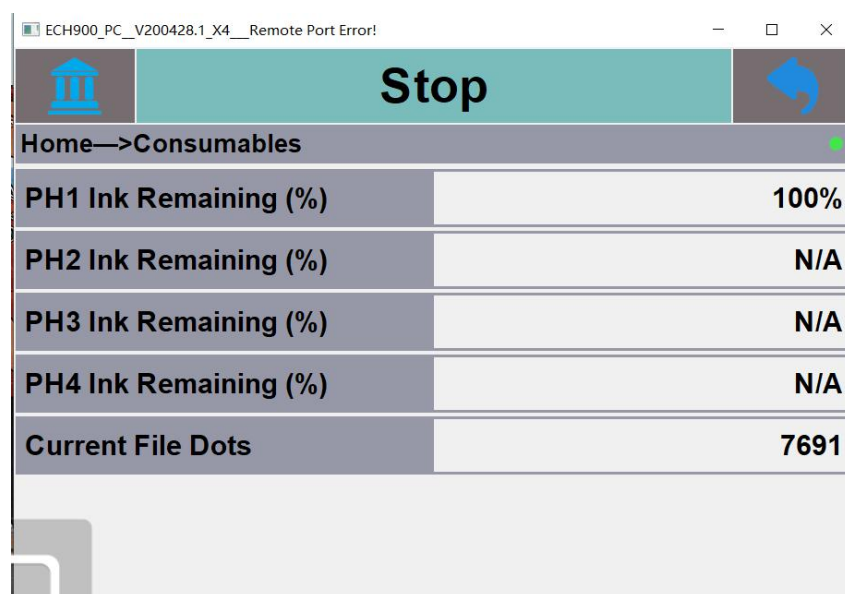
Consumables		
PH1	100%	✓
PH2	0%	✗
PH3	0%	✗
PH4	0%	✗

Select cartridge “Parameter” will lead to cartridge parameter menu as below:



User can reset or change counter at this menu, other parameters are not editable.

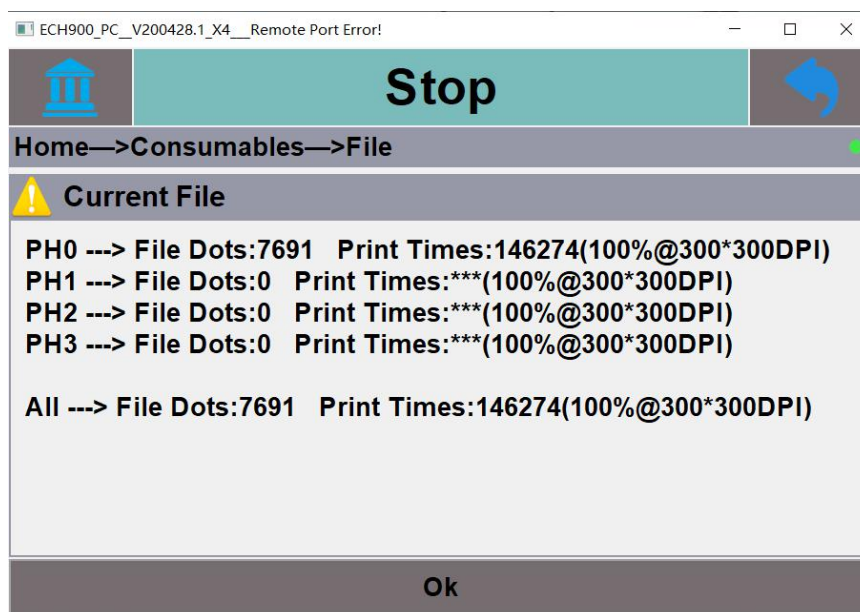
Select “Consumable” will enter Cartridge Information menu:



In this interface, you can view the remaining ink level of each cartridge, which can only be read and not edited.

Select **Current File Dots** **7691**, it will come up


with the interface which shows information of each cartridge.

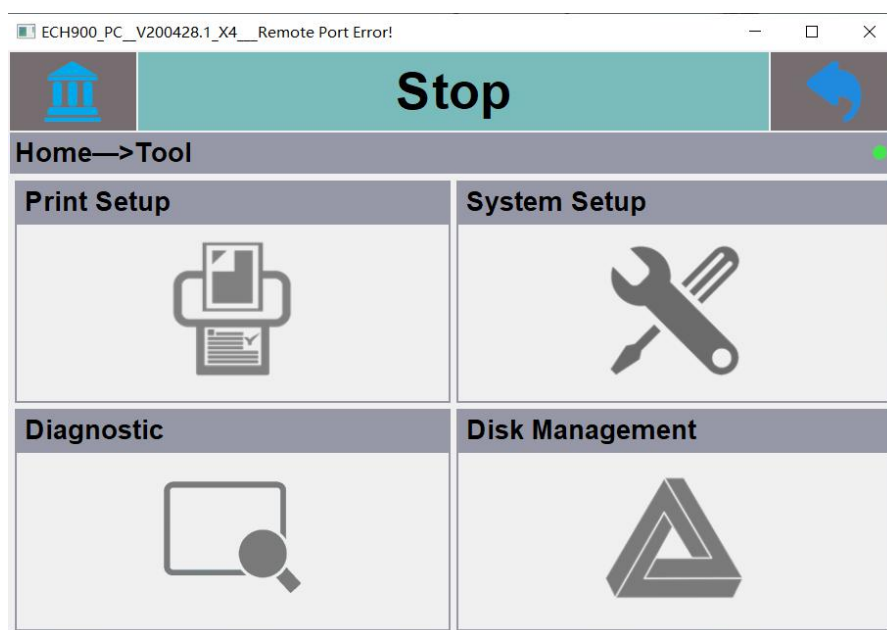


In this interface, we can see the Cartridge information, and the remaining Printable Message count. When the printer started printing, it will calculate the estimate printable time. This information will help to prevent production interruption due to running out of ink.

3.3 Printer Setting

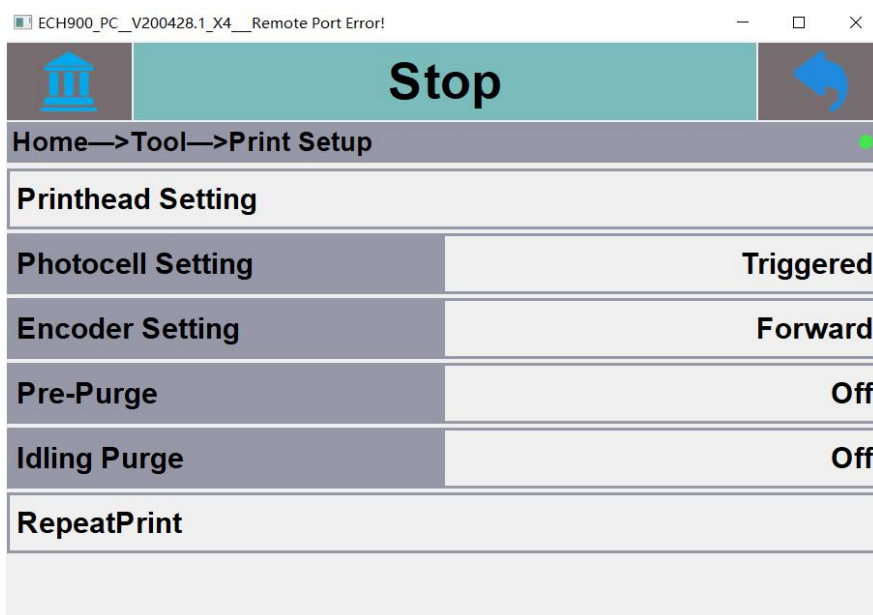


Select  to access into Printer Setting Menu:

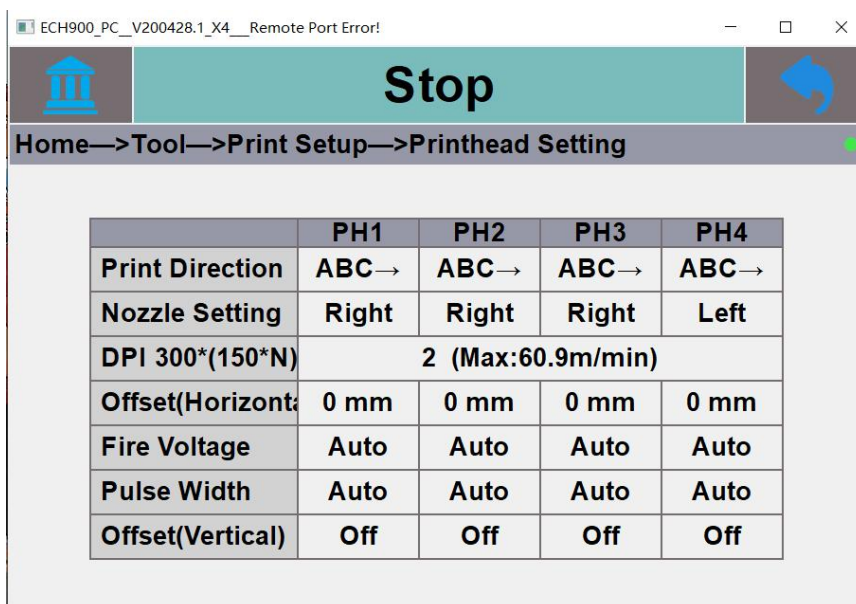


3.3.1 Print Setting

Select  to access into Print Setting Menu:



“Printhead Setting”



This Menu can set the printing direction according to the production line direction.

There are two rows of nozzles on each cartridge, when there is problem on one row of nozzles, you can use the other row to print.

Different print quality can be obtained by selecting different print resolution (DPI). Users can choose according to their needs. Higher resolution will consume more ink.

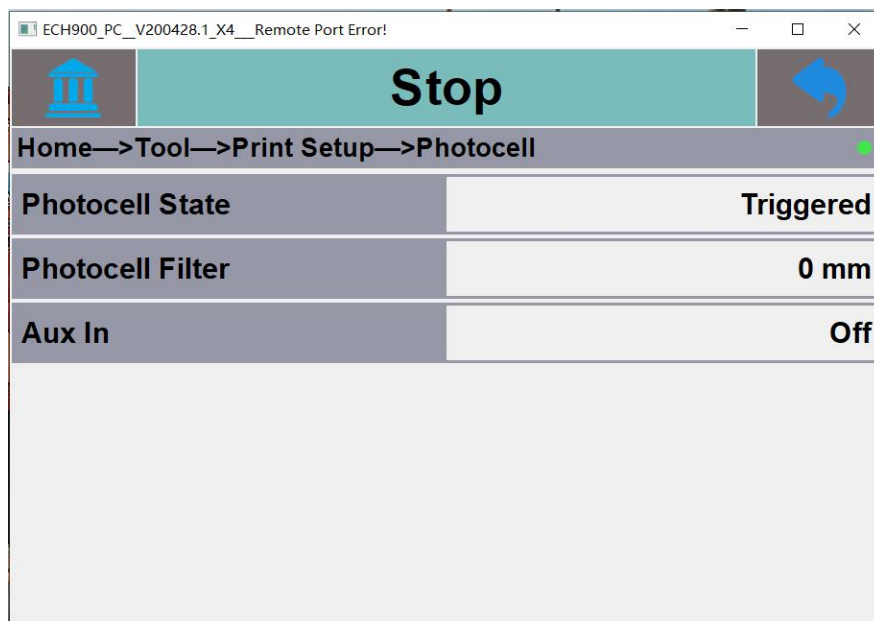
According to the actual situation on the production line, the horizontal and vertical offset of the nozzle can be adjusted accordingly.

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

“Print Delay”

Setting for sensor triggered to start print distance.

“Photocell Setting”

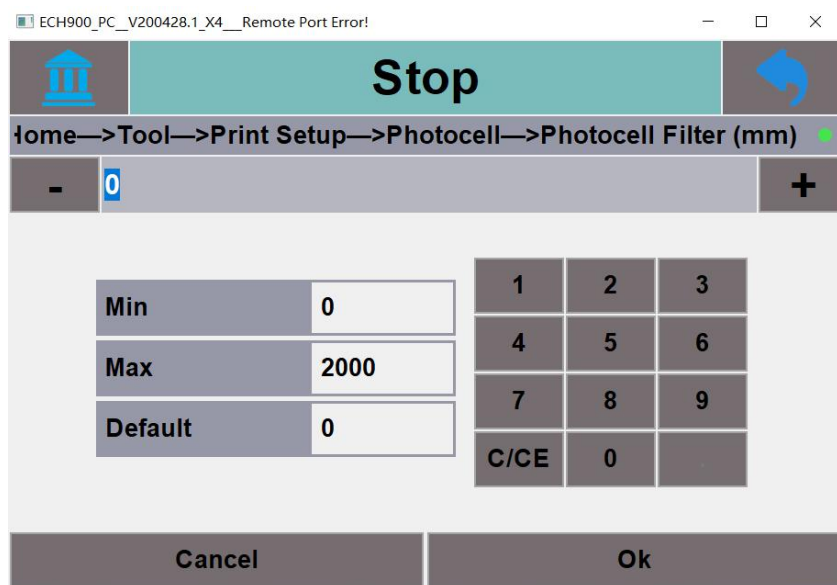
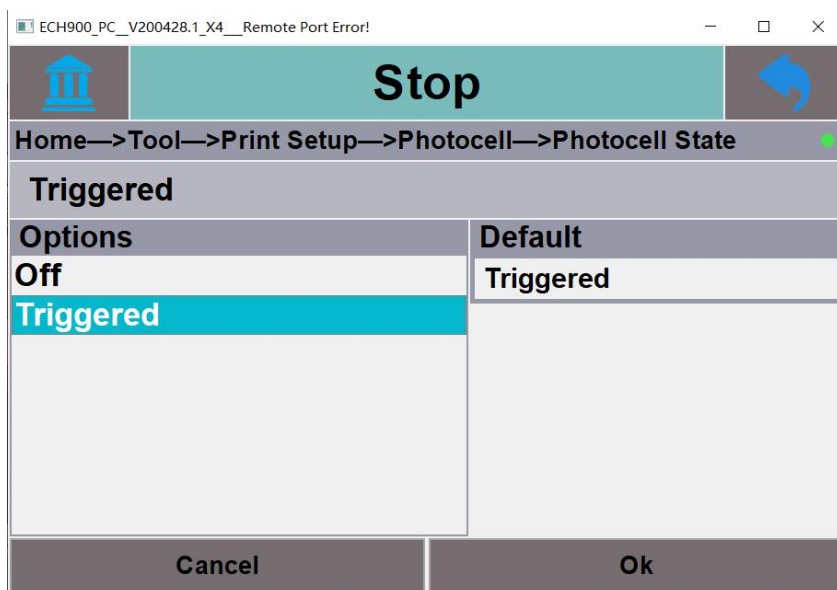


After selecting the "Photocell " option, three Settings can be adjusted

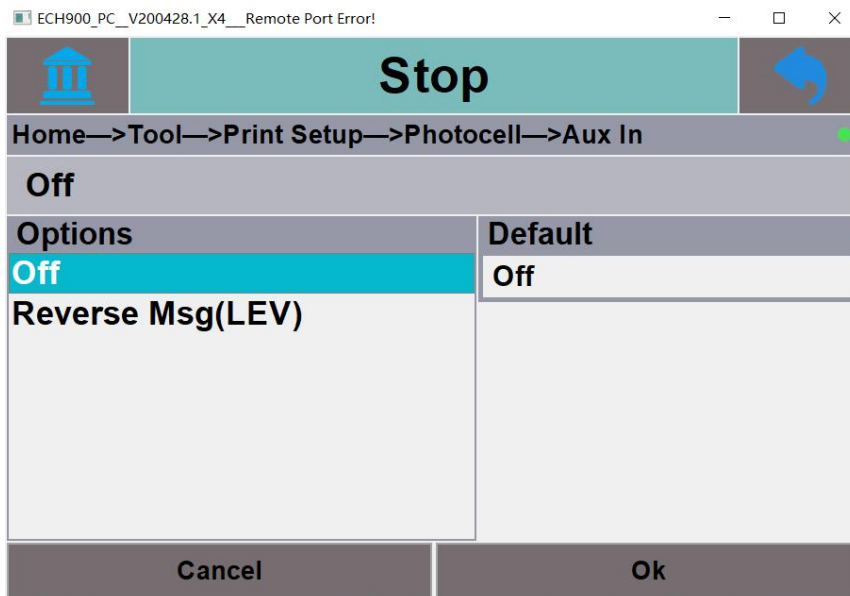
Select **Photocell State** **Triggered** , there are two options at the bottom left of the interface:

“Triggered” : Printer will print when photocell is triggered.

“Off” : Printer will keep printing upon start print.

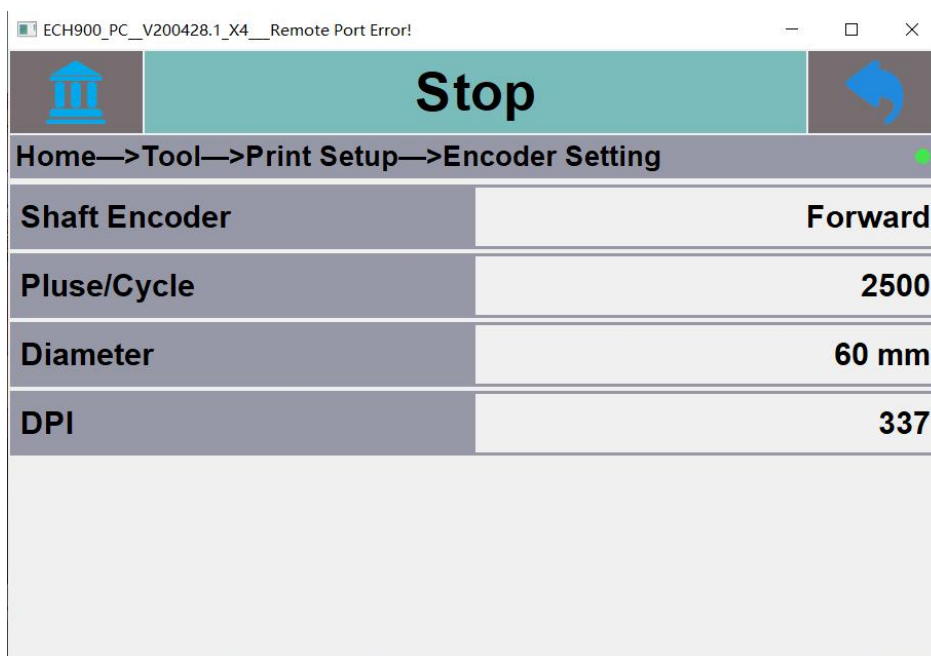


Photocell filter self-defining



- Auxiliary photocell setting

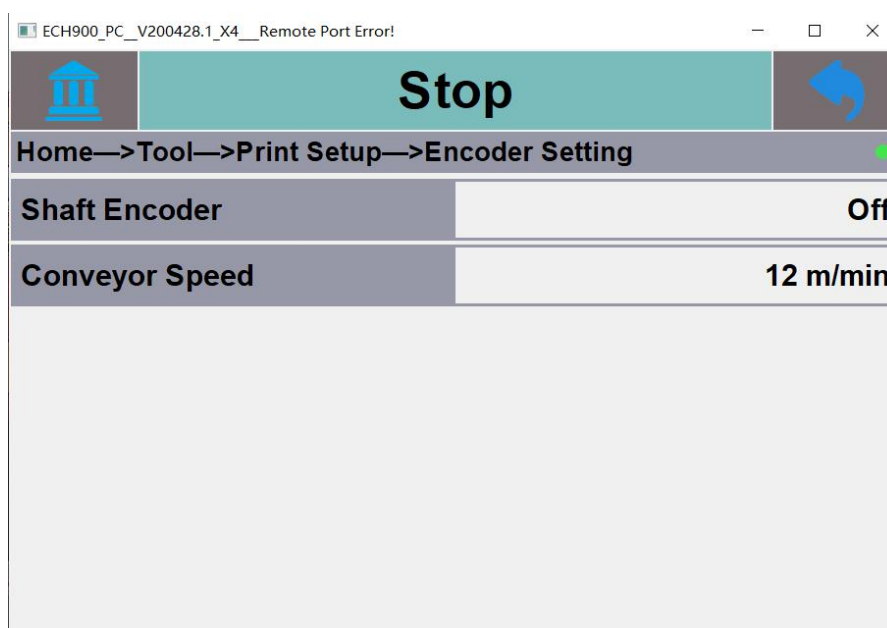
“Encoder Setting”



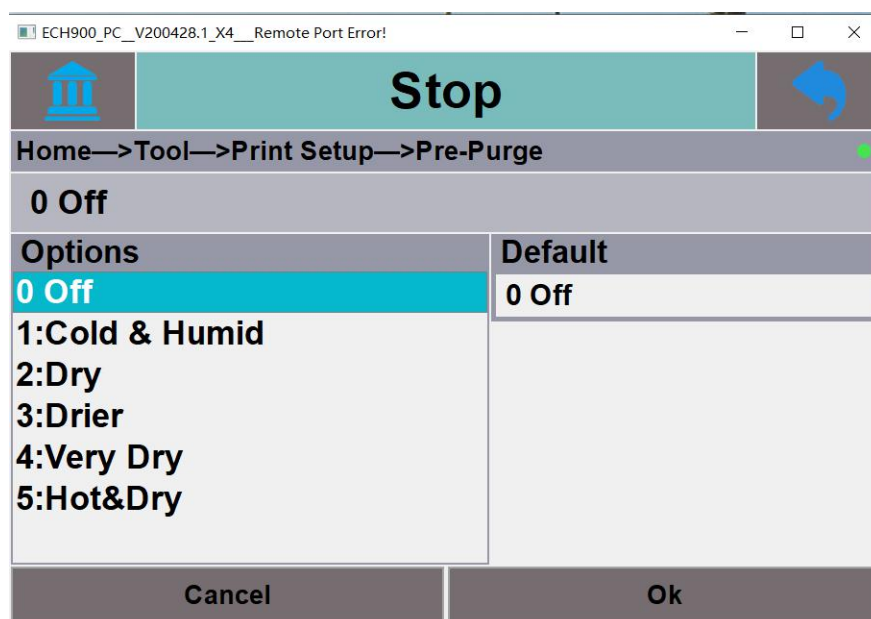
When the encoder is set to "forward or reverse", the encoder pulse (PPR) and the encoder wheel diameter (mm) should be based on the encoder parameters. The system will calculate the width of the printing message accordingly, and the width will not change from the production line speed.

When the speed of the production line is not constant, the encoder needs to be installed and set to "forward or reverse" in the software.

If Encoder setting is “Off”, please enter the actual conveyor speed. This is recommended for conveyor which has consistent speed, otherwise print quality might be affected.



“Pre Purge”



Print quality might be affected if the printing interval is long or working in a dry environment. To solve this issue, the system will perform pre purge process to nozzle base on the environment degree which set in the menu. The process will improve the printing effect.

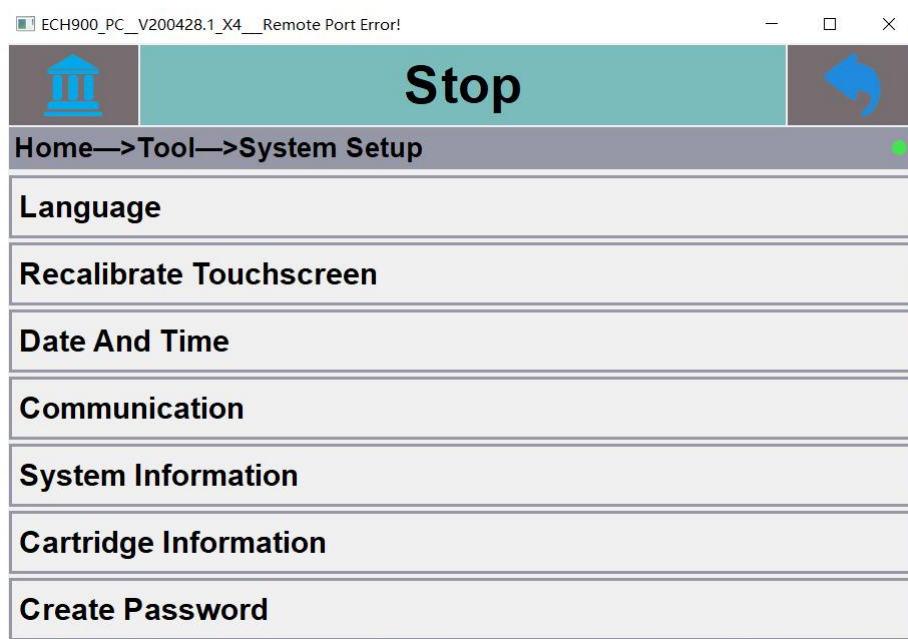
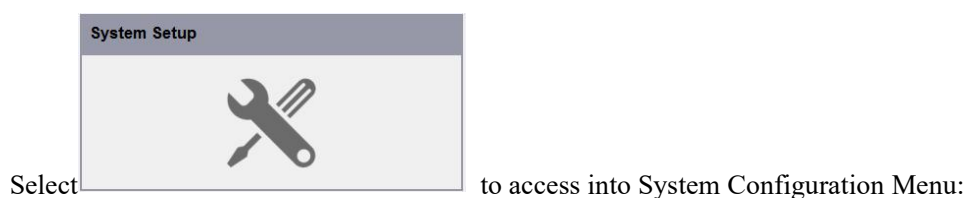
- 0 Off** : System default, no pre purge. Typical aqueous ink recommended leave it off.
1~5 level : 1 for normal room temperate 28°C and humid, 5 for hot and dry environment.

Warm Reminder:

Please alert the sensor position during printhead cleaning as inks might be sprayed onto product.

Printhead cleaning will consume certain amount of inks from cartridge which will reduce total printable message.

3.3.2 System Setup



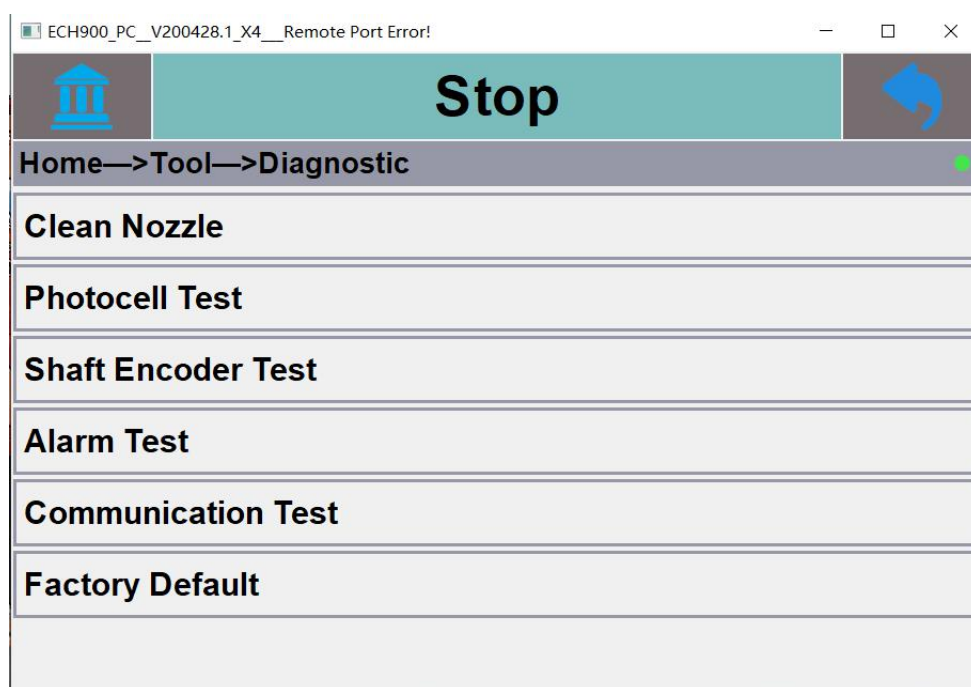
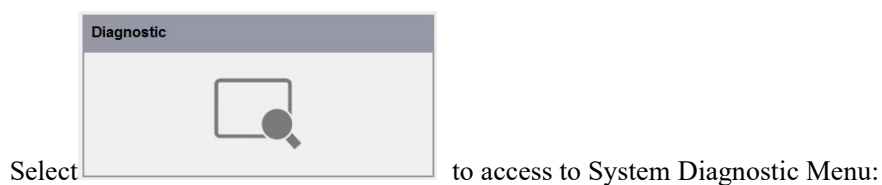
Language : System Language Setting

Touch Screen Calibration : for recalibration of touch screen, touch screen has been factory calibrated

Time/Date : Time/Date Setting

- Baud Rate** : For Com port Communication baud rate setting
- System Information** : Current system firmware version. Please contact Manufacture/Distributor for updating when necessary. Do not attempt to updating firmware as there is risk of printer failure.
- Cartridge Information** : Cartridge information like ink type, ink color, ink remaining etc.

3.3.3 System Diagnostic

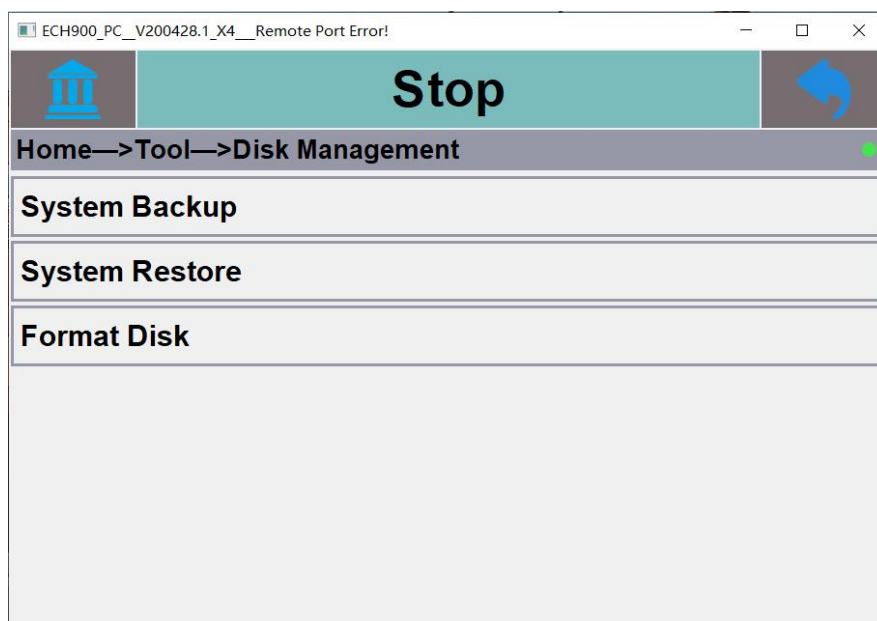


This Menu is designed for step by step troubleshooting when printer is abnormal. Please contact supplier or manufacturer if problem remain.

3.3.4 Disk Management



Select to access to Disk Management Menu:



User can use USB drive to backup messages and printer setting, or restore previous backup or format USB drive.

Warm Reminder: Formatting USB drive will delete all the messages stored.


3.4 Printing Initialization

Please set all the print parameters according to the production line situation.




Select , System will initiate into printing/running mode.

ECH900_PC_V200428.1_X4___Remote Port Error!
— □ ×



Running



Home
● 2020-05-28 10:16:13

Job	C/NewFile	
Parameter	Consumables	
Print Delay	0 mm	PH1 <div style="width: 100%; background-color: #00bcd4;"></div> 100% ✓
Ink Type	401M,xxxx,xxxx,xxxx,	PH2 <div style="width: 0%; background-color: #ccc;"></div> 0% ×
Start Printing Time	2020-05-28 10:16:12	PH3 <div style="width: 0%; background-color: #ccc;"></div> 0% ×
Average Print/min	0 Print/min	PH4 <div style="width: 0%; background-color: #ccc;"></div> 0% ×
Current Counter	0	
Total Counter	179	

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.
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

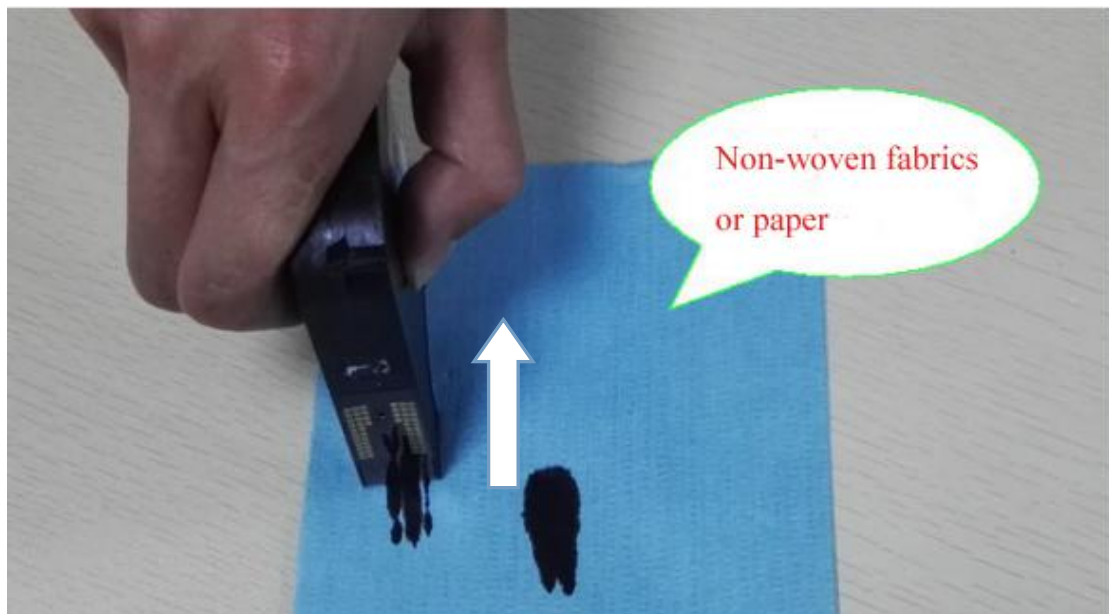
1. Handle cartridge with care, open the cartridge clip and tear away the blue tape (if any) when because install into printer for use.
2. Cartridge which continuously used for 8-12 hours or left unused in printer or uncap for more than 1 day should be wiped with lint free cloth/tissue and cap for storage. Printhead might need more cleaning under dusty environment.
3. To Clarify
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.

If occasional printing problems or dry, use a clean, non-woven / non-woven paper to wipe the nozzle surface while the spray thrown light upside down several times, then prints again .

4.3 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 on 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 – Printer Dimension (mm)

