

## **High Resolution Inkjet Printing System**

**ECH100S**

# **User Manual**

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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 ECH100S. 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: ECH100S**

Print Height : 0-12.7mm

Print Speed : 60m/min (150DPI)

Print Resolution : Max.600DPI, 150x300DPI, 300x300DPI, 450x300DPI, 600x300DPI

Print Distance : 2mm

Message Length: 0 - 300mm

Operation Interface : 7-inch resistive touchscreen

Operation System : EC-JET

Data Supported : Chinese ,English ,Number, Symbol, Serial number, Shift number,  
graphics 1D Bar code, 2D Bar code, Dynamic date, Real time

Online Edition : Supported

External I/O : Standard USB Host, photocell, shaft encoder, alarm output, RS232(optional)

Working Environment : Temperature:10~40℃, Relative humidity:10~80%

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

Ink Type : Water based ink, Solvent based ink

Alarm Output : Only support single-way output of fault and alarm

Power Supply : AC110V/240V, 50/60Hz

Power Rating : <60W

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

**Optional Accessories:**

1. Shaft Encode
2. External Photocell

### 1.2 Gentle Reminder

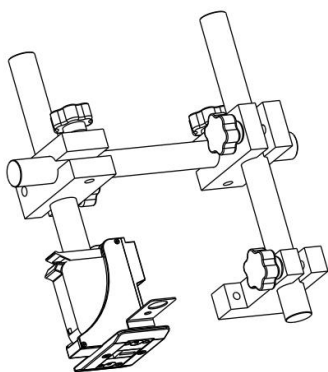
1. This is precision equipment, do not attempt to dismantle unless you are fully trained.
2. Please read and understand the operation manual before operating this printer.
3. Please make sure all the cables are properly and correctly connected as per manual.
4. Periodically inspect and check the connectivity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

### 1.3 Product Photo

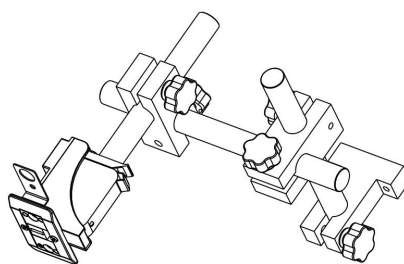


## Chapter 2 - Installation

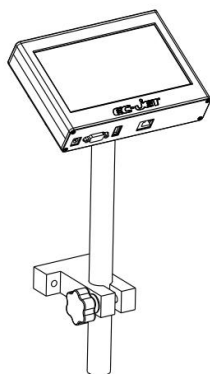
### 2.1 Typical Installation Diagram:



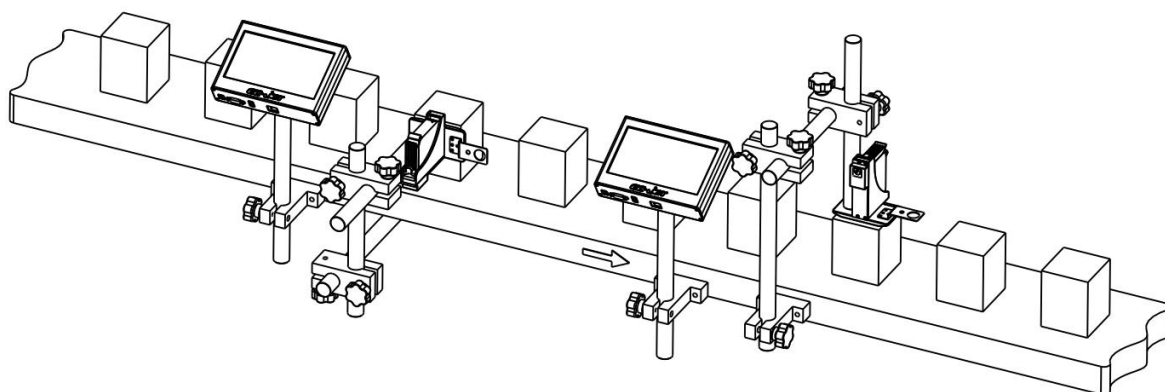
Down side Printing Setup



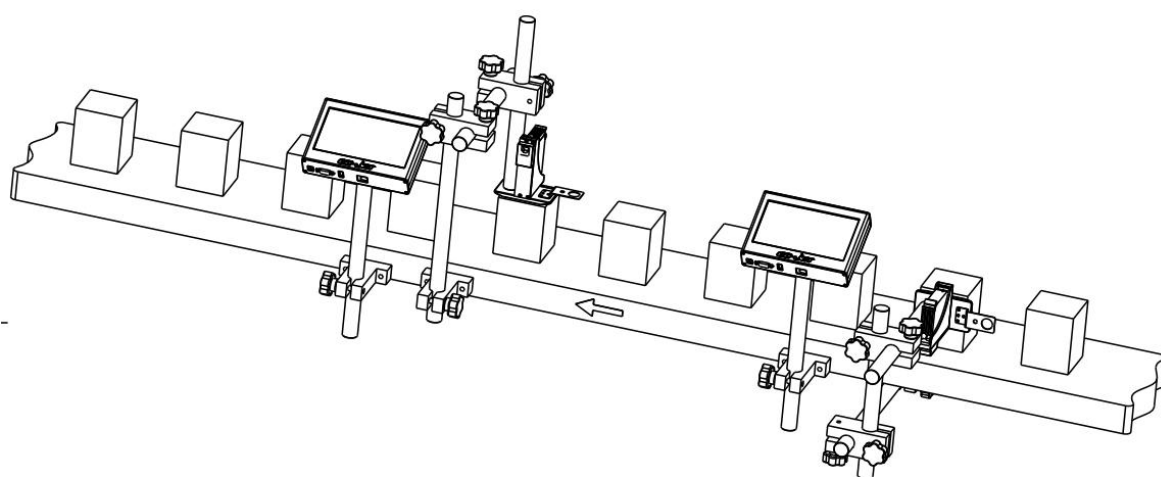
Side Printing Setup



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       | Alarm 1 (12V output: NO) |
| 2       | Reserved                 |
| 3       | Reserved                 |
| 4       | 12V DC                   |
| 5       | GND                      |
| 6       | NPN photocell signal     |
| 7       | NC                       |
| 8       | Encoder Channel A        |
| 9       | Encoder Channel B        |



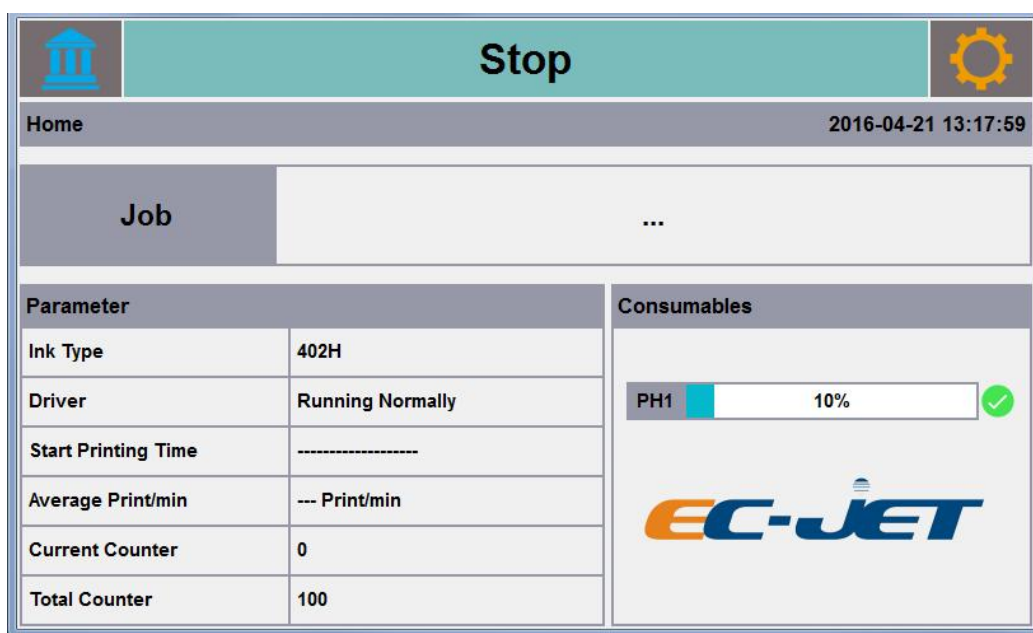
## Chapter 3 ECH100S Printer User Interface

### 3.1 User Interface Introduction

1. Connect the machine cables (such as power adapter, host to print head), turn on the machine power switch, and wait for about 30 seconds for the machine to start and enter the main interface:

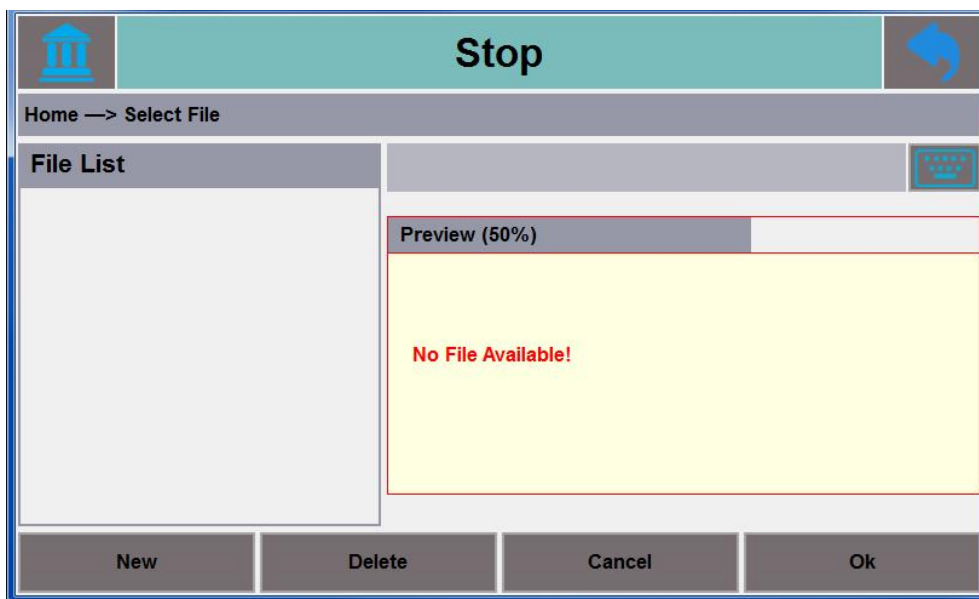



2. Install EC Cartridge, System will recognize ink type automatically:

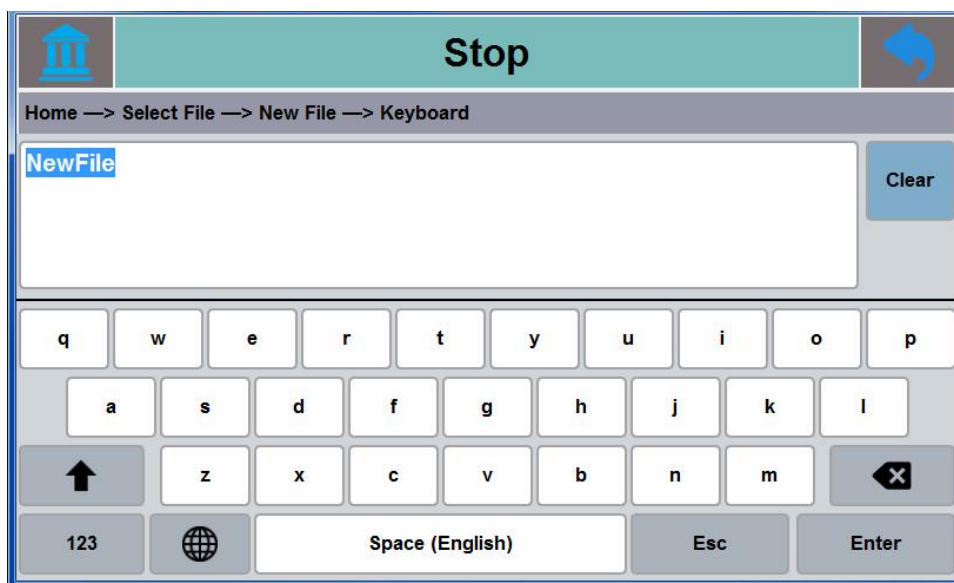




### 3.1.1 Editing Message


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



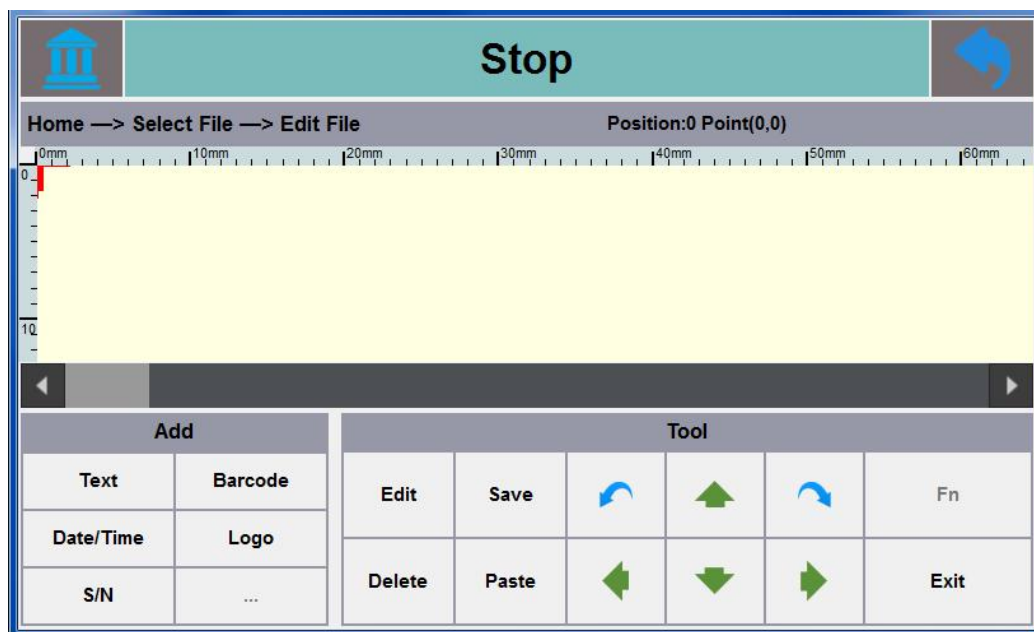
**Step 2:** Press  will lead to Create New Message, Enter New Message Name:



**Keyboard:** ECH100S Preloaded with English and Chinese Keyboard, Press  to switch between Chinese, English or other Keyboard, Press  for symbols and numeric,


Press  for Capital Letter. Chinese Simplified PinYin Input is supported.

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



This is the message editing menu.

| Add       |         |
|-----------|---------|
| Text      | Barcode |
| Date/Time | Logo    |
| S/N       | ...     |

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

Example: Add Text field

**Stop**

Home —> Select File —> Edit File —> Add Text


ABC

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

Preview (50%)

ABC

Cancel Ok

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

Select 

| Font Type | Attribute | Size | Rotated |
|-----------|-----------|------|---------|
| Arial     | Normal    | 60   | 0°      |

 to change font attribute

Select 

| Position |   |
|----------|---|
| X        | Y |
| 0        | 0 |

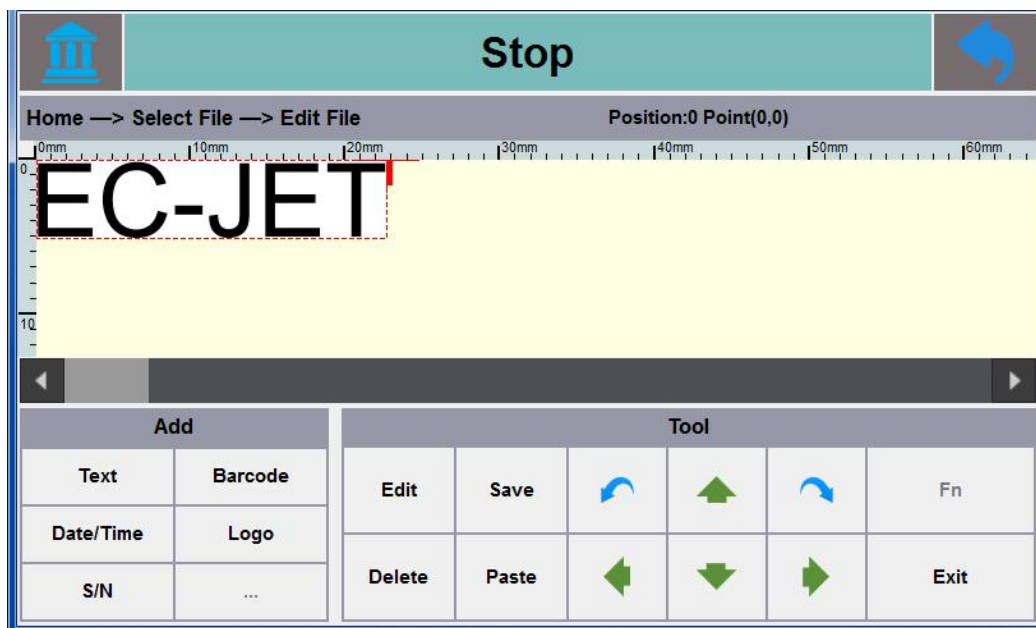
 to enter text position in the message, default value is (0,0), user can fine tune or adjust text location at the message editing menu as well.

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

Preview (50%)

EC-JET

Confirm






You have successfully adding 'Text' field.

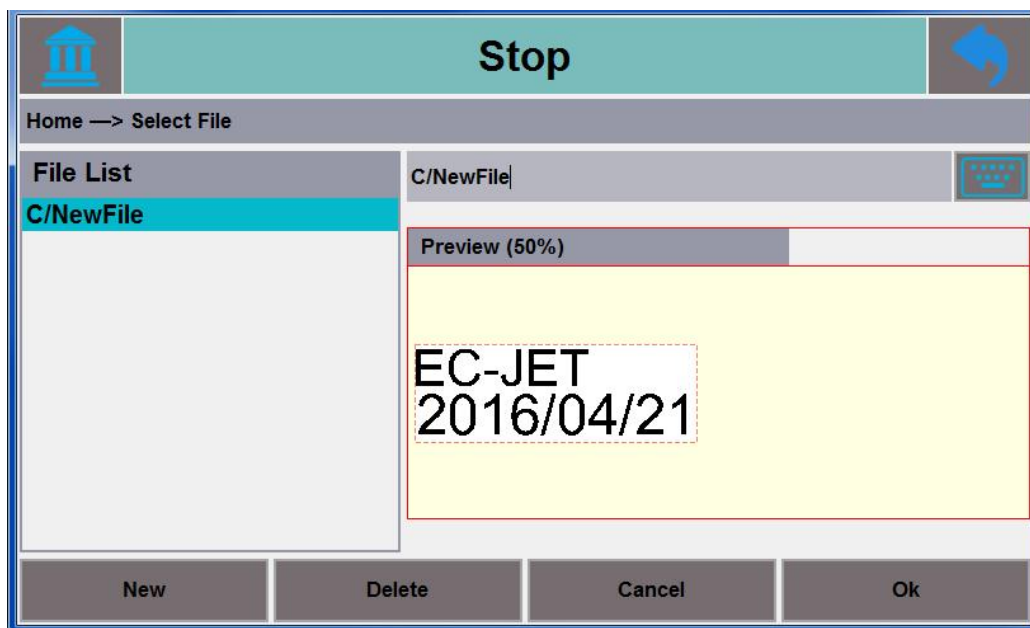
Repeat this step for another Text field or other types of field which desire. Fields available are Text, Time/Date, Serial Number, Barcode, Logo.

| Add       |         |
|-----------|---------|
| Text      | Barcode |
| Date/Time | Logo    |
| S/N       | ...     |

Next, user can use the below functions during message editing. Edit : editing selected field; Save: save existing message; Delete: delete selected field; Paste: copy and paste selected field. Blue arrows indicate 'Undo' and Redo'. Use Green arrow to move selected field to desire location.

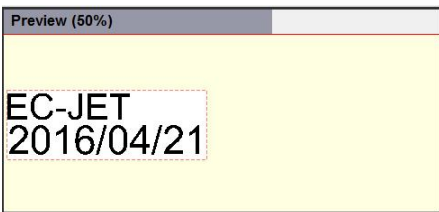
| Tool   |       |   |   |   |
|--------|-------|---|---|---|
| Edit   | Save  |  |  |  |
| Delete | Paste |  |  |  |

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

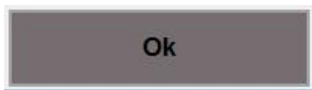





Message content can be previewed in Message Selection Menu.


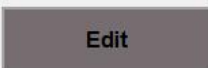
Select  to delete selected message.







Select (preview message)  to editing an existing selecting message.

Select  to edit/change message name.

Select  Printer will print selected Message as shown in Home Screen during printing. Do select desire message for printing which located in Message Selection Menu, system will return to Home Screen after confirmation of message selection by selection 'OK'.

| Stop   |                     |
|--|---------------------|
| Home   | 2016-04-21 13:23:25 |
| Job  | C/NewFile           |
| Parameter  | Consumables         |
| Ink Type   | 402H                |
| Driver   | Running Normally    |
| Start Printing Time  | -----               |
| Average Print/min  | --- Print/min       |
| Current Counter  | 0                   |
| Total Counter  | 100                 |
| <div>PH1  10% </div>  |                     |

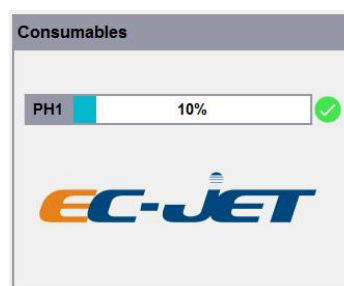
Select  Message Name to preview the message content. User can select 'Refresh Icon' to refresh current message; select 'Zoom out' or 'Zoom in' to preview message when needed; user can select  to edit current message; select 'Exit' to exit message preview and back to Home Screen.

| Stop   |   |
|--|---|
| Home → File Preview  |  |
| Preview (100%) Position:(0,0)  |   |
| <br> |   |
|   |    |
|   | Edit  |
| Exit   |   |

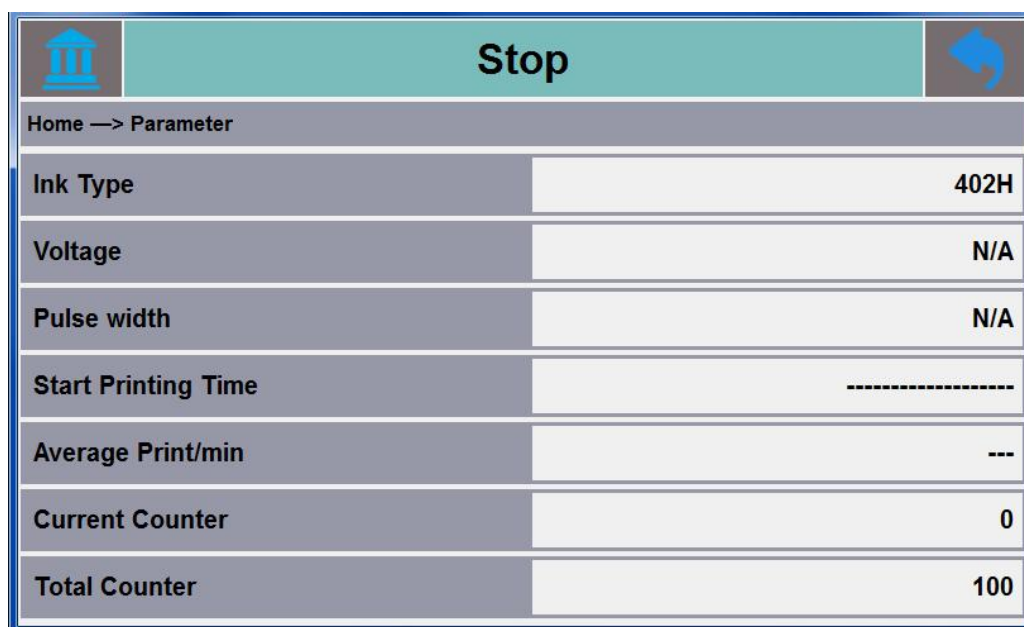
## 3.2 Home Screen/Menu

Home Screen/Menu shown information as below:

| Parameter           |                  |
|---------------------|------------------|
| Ink Type            | 402H             |
| Driver              | Running Normally |
| Start Printing Time | -----            |
| Average Print/min   | --- Print/min    |
| Current Counter     | 0                |
| Total Counter       | 100              |



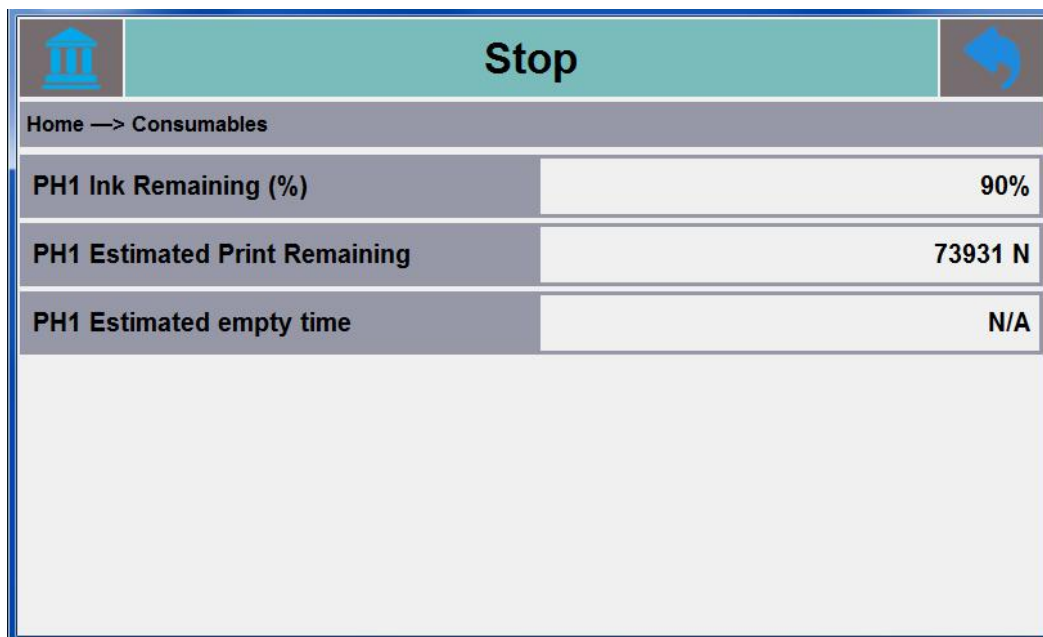
Select cartridge “Parameter” will lead to cartridge parameter menu as below:



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




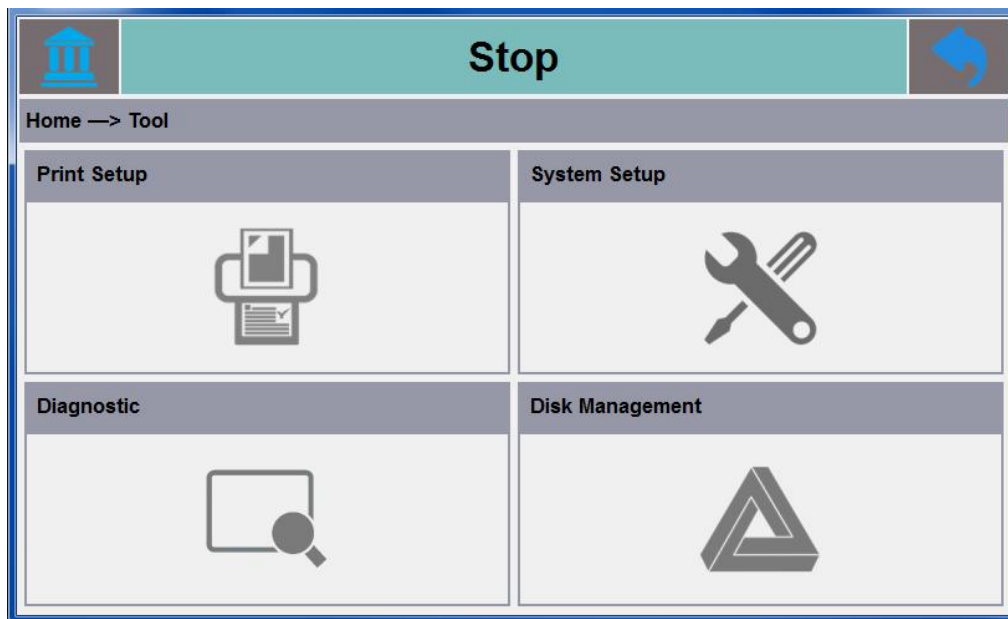
Select “Ink Information” will enter Cartridge Information menu:



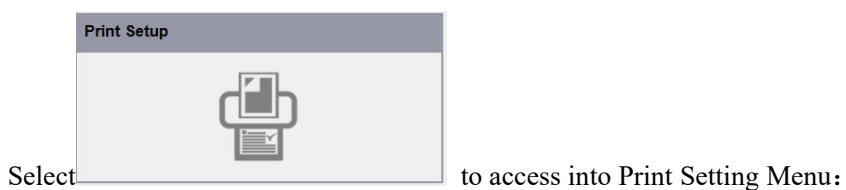
Cartridge information including Inks Level (%), Remaining Printable Message (total message printable message based on current ink level), Estimate printable time (based on current ink level). This information will help to prevent production interruption due to running out of ink.



### 3.3 Printer Setting

Select  to access into Printer Setting Menu:





### 3.3.1 Print Setting



|  <span style="font-size: 24pt; font-weight: bold;">Stop</span>  |           |
|---|-----------|
| Home → Tool → Print Setup   |           |
| <b>Printhead Setting</b>  |           |
| Print Delay   | 0 mm      |
| Photocell Setting   | Triggered |
| Encoder Setting   | Off       |
| Pre-Purge   | 0         |

“Printhead Setting”

|  <span style="font-size: 24pt; font-weight: bold;">Stop</span>  |                |
|---|----------------|
| Home → Tool → Print Setup → Printhead Setting   |                |
| Print Channel   | Single Channel |
| Print Direction   | ABC→           |
| Nozzle Setting  | Right Nozzle   |
| Resolution  | 300X300        |

This Menu offer setting like Print Mode (Single/Dual), Print Direction, Print nozzle setting

(Left/Right) and print resolution.

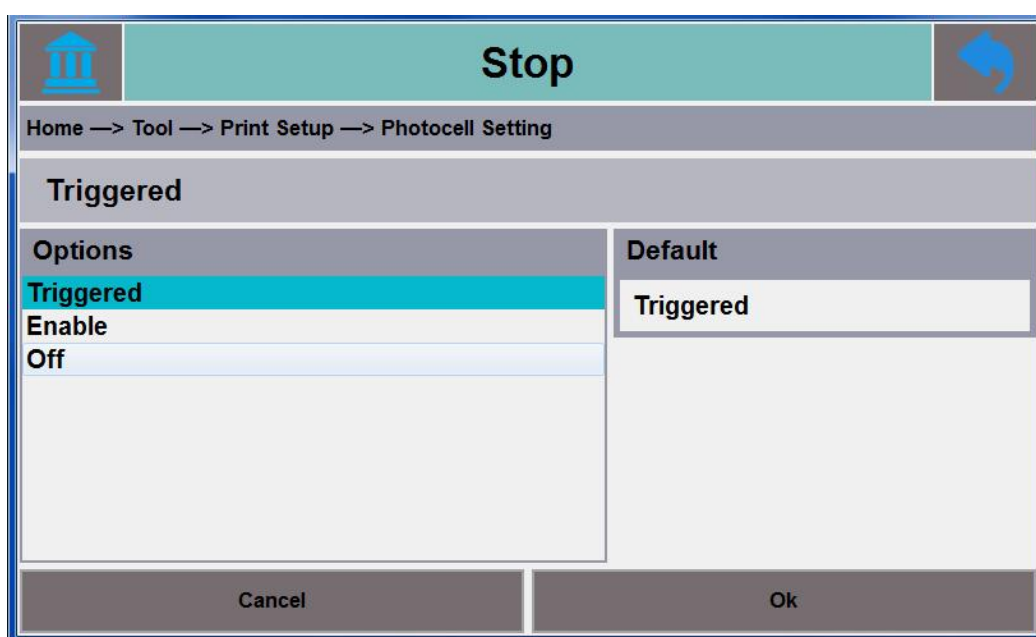
Please switch print nozzle if one side of the nozzle is seriously damage.

Print resolution will determine the darkness of the printing. Higher resolution will provide darker print result.

### “Print Delay”

Setting for sensor triggered to start print distance.

### “Photocell Setting”



| Stop  |           |
|---|-----------|
| Home → Tool → Print Setup → Photocell Setting |           |
| Triggered                                     |           |
| Options                                       | Default   |
| Triggered                                     | Triggered |
| Enable  |           |
| Off   |           |
| Cancel  | Ok        |

“Trigger” : Printer will printer when photocell is triggered.

“Enable” : Printer will keep printing when sensor remain triggered.

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

### “Encoder Setting”

| Stop  |      |
|---|------|
| Home → Tool → Print Setup → Encoder Setting |      |
| Shaft Encoder                               | On   |
| Pulse/Cycle                                 | 5000 |
| Diameter                                    | 50mm |
| DPI   | 808  |

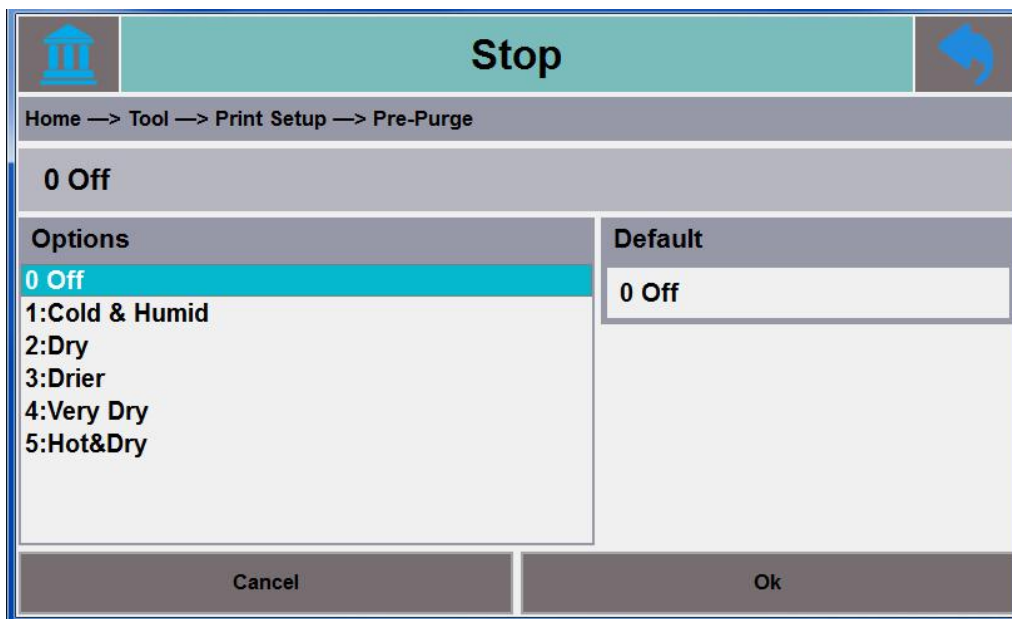
Please enter the encoder pulse and encoder wheel Diameter (mm) when encoder setting turn “On”. Printer will able to print consistently even the conveyor speed may vary.

Encoder is highly recommended on conveyor speed is not consistent.

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.

| Stop  |         |
|---|---------|
| Home → Tool → Print Setup → Encoder Setting |         |
| Shaft Encoder                               | Off     |
| Conveyor Speed                              | 12m/min |

### “Pre Purge”



Print Quality might be affected if printer working under hot and dry environment or left uncap and no print for certain amount of time i.e. 15mins. To prevent this issue, printer will perform pre purge base on the setting set at this section.

- 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:

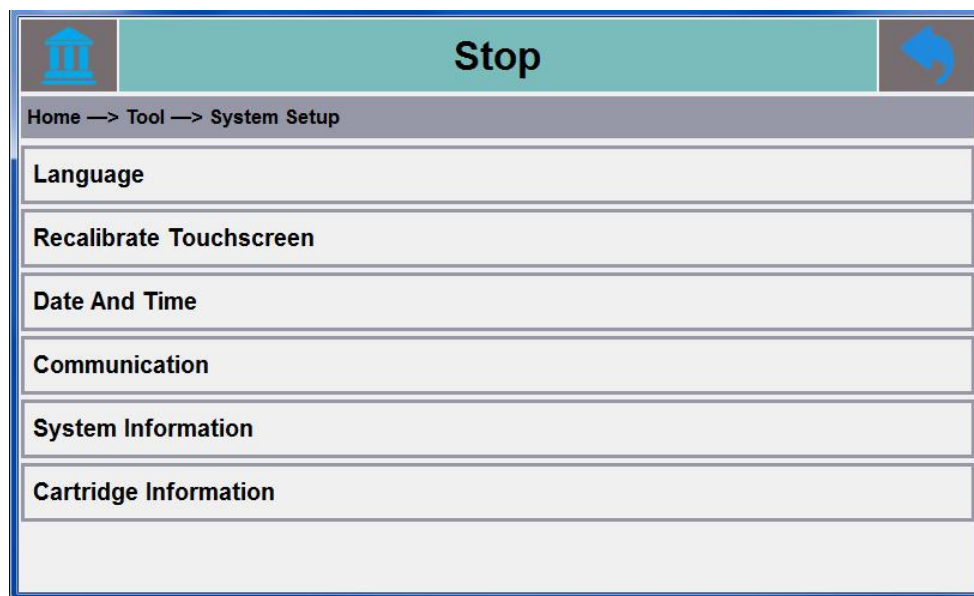
Please alert the sensor position during printhead cleaning as inks might be sprayed onto product.

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

### 3.3.2 System Setup



Select  to access into System Configuration Menu:



**Language** : System Language Setting

**Recalibrate Touchscreen** : Used to calibrate the system touch screen, calibrated at the factory before leaving the factory

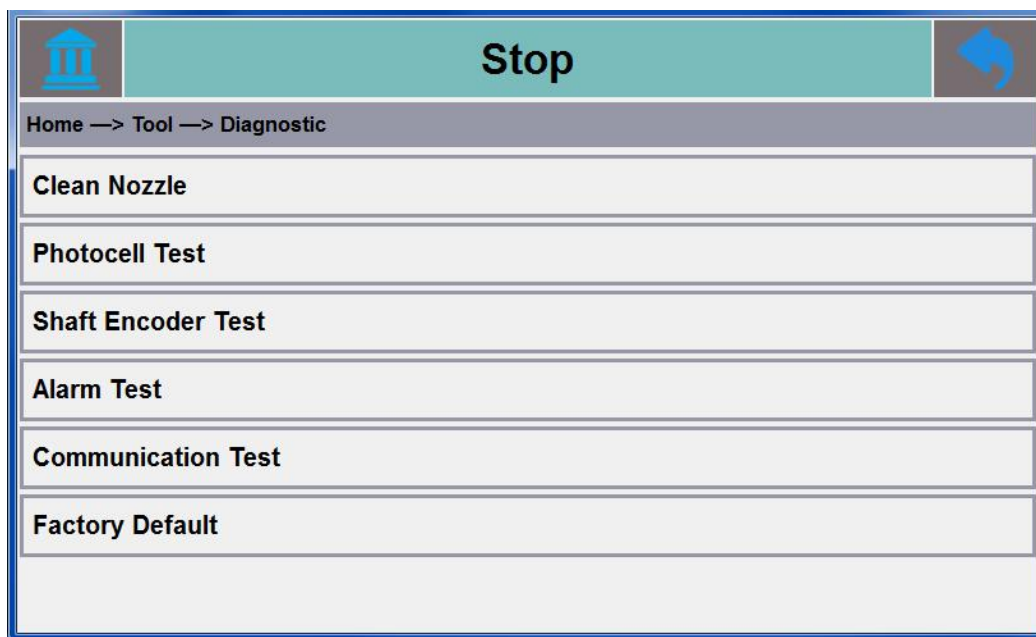
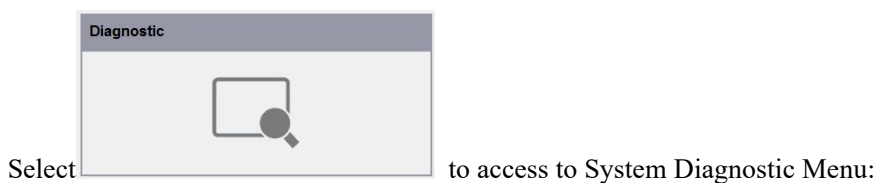
**Date And Time** : Time/Date Setting

**Communication** : Used to set the baud rate of the serial port

**System Information** : Used to view system version and software upgrade information. When users need to upgrade software, please contact your equipment supplier or manufacturer. Upgrading software may damage the machine. Users should not upgrade by themselves.

**Cartridge Information** : Cartridge information like ink type, ink color, ink remaining etc.

### 3.3.3 System Diagnostic

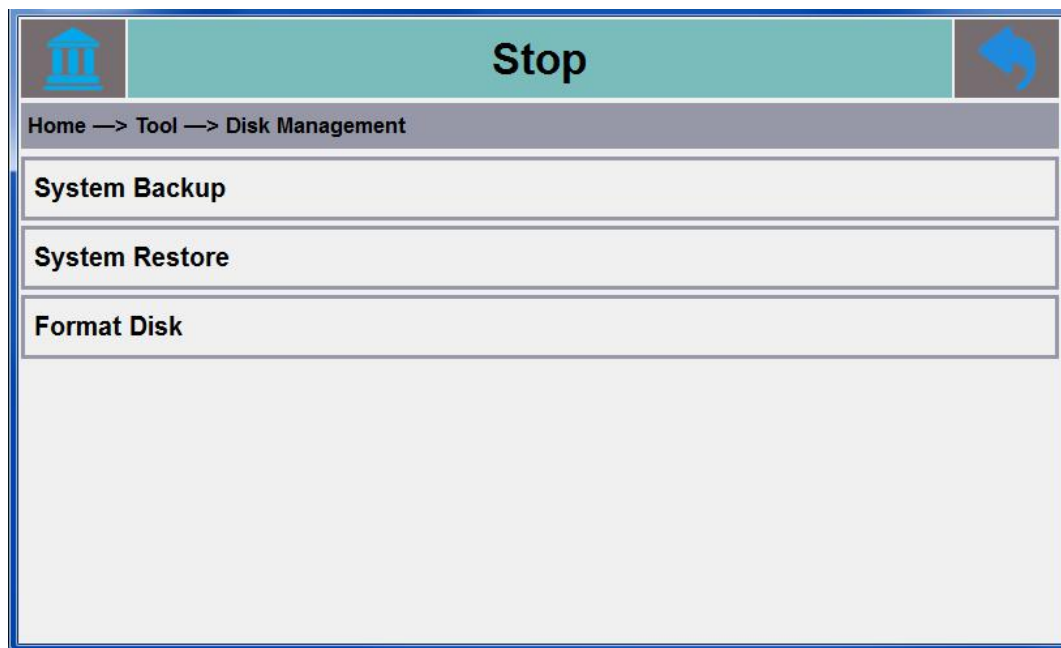
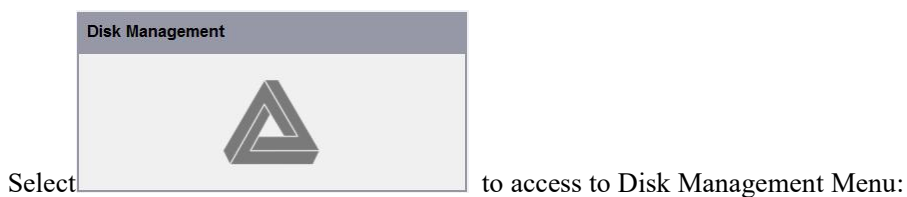


This Menu is designed for step by step troubleshooting when printer abnormal. Restore Printer back to Factory Default will be last step for your troubleshooting.

Please contact manufacture if problem remain.



### 3.3.4 Disk Management





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 make sure all cables is properly connected, cartridge is properly installed before start the printing process.

Select  , System will initiate into printing/running mode.

| Home                |                     | 2016-04-21 13:29:13  |  |
|---------------------|---------------------|--|--|
| Job                 |                     | C/NewFile  |  |
| Parameter           |                     | Consumables  |  |
| Ink Type            | 402H                | <div> <div>PH1</div> <div>10%</div> <div>✓</div> </div>                              |  |
| Driver              | Running Normally    |  |  |
| Start Printing Time | 2016-04-21 13:28:59 |  |  |
| Average Print/min   | 0 Print/min         |  |  |
| Current Counter     | 0                   |  |  |
| Total Counter       | 100                 |  |  |

## 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.

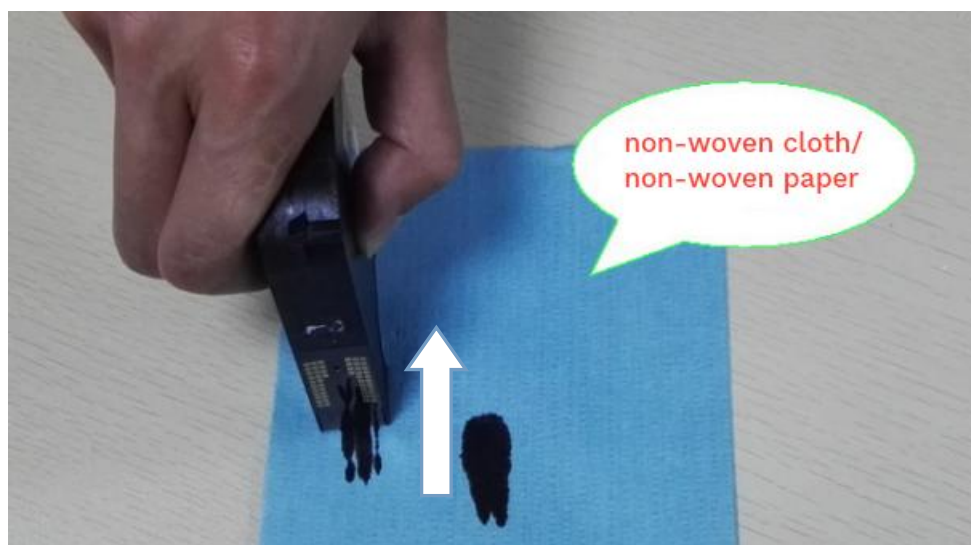
### 4.2 Cartridge Precaution

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. If the ink has a filamentous effect or the ink is dry, please wipe the surface of the printhead with a clean non-woven cloth/non-woven paper, and gently shake the printhead downward several times before printing.
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 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)

