# 1040

THERMAL INKJET CODER

# USER'S MANUAL

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# SAFETY INFORMATION

- STOP PRINTING BEFORE INSERTING OR REMOVING THE CARTRIDGE.
- TURN OFF PRINTER BEFORE PLUGGED / UN-PLUGGED ANY CABLE (PRINT HEAD CABLE / ENCODER CABLE / SENSOR CABLE / IO CABLE).
- BE CAREFUL OF USING OTHER EXTERNAL DEVICES SUCH AS: ENCODER / SENSOR / ALARM BEACON / POWER SUPPLY.
- DO NOT TRY TO USE OTHER CARTRIDGES THAT IS NOT SUPPLIED FROM YOUR SUPPLIER.
- AVOID USING WITH HIGH VOLTAGE, STRONG IMPACT TO PRINTER.
- STORE THE PRINTER IN A DUST-FREE ENVIRONMENT.
- BE CAREFUL OF UPDATING FIRMWARE AND SOFTWARE.
- WORKING TEMPERATURE: 5-50$^{o}$C.
- USE GLOVE TO AVOID THE SHARP FROM MOUNTING BRACKET.
- RECOMMEND USE MASK AND GLASSES TO AVOID THE INK FLY IN AIR.

# EMERGENCY CASE

**IN SOME SPECIAL CASE LIKE: APPEAR SMOKE ON PRINTER, PRINT OUT CONTINUOUSLY WITHOUT CONTROL, FIRE, EXPLOSIVE SOUND, ETC.**

**PLEASE REMOVE THE POWER SUPPLY IMMEDIATELY!**

# ENVIRONMENT PROTECTION

**DON'T THROW PRINTER / INK CARTRIDGE TO RECYCLE BIN**

# PRODUCT LIMITED 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 (12) 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.**

- **ANY NON-ORIGINAL PARTS AND UNAPPROVED OEM INKS ARE USED.**
- **THE PRODUCT HAS BEEN ALTERED OR MODIFIED WITHOUT APPROVAL FROM US.**
- **THERE IS DAMAGE ON THE PRINT HEAD AS 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.**

# ABOUT MACHINE

Thank you for purchasing the **B1040 Thermal Inkjet Coder**, a product of **Rynan Technologies, Singapore.** This printer is designed for packaging printing applications powered by HP Thermal Inkjet Technology.

Machine boasts to be able to control via PC connection to print variable data and barcodes, Bluetooth connection via mobile devices running on Android operating systems, and wireless keyboard. Each option provides a full set of applications.

Machine produces crisp text, logos, variable data and barcodes on porous and non-porous media by automatically recognizes aqueous and solvent inks and applies the appropriate printing parameters.

The complete system includes one machine, power supply with On/Off switch, wireless keyboard, mounting brackets and necessary software for PC and Bluetooth operations.

# TECHNICAL SPECIFICATIONS

## Machine details

| No | Description | Specifications |
|---|---|---|
| 1 | Model | **B1040** |
| 2 | Display | LCD 2.8” automatic rotation |
| 3 | Dimensions (LxWxH) | 107.5 x 74.5 x 83 mm / 4.23 x 2.93 x 3.27 in |
| 4 | Weight | 450g |
| 5 | Power supply | AC 100V – 240V, 50/60Hz, 1.4A |
| 6 | Maximum power consumption | 48W |
| 7 | Maximum printing resolution | 600x600dpi |
| 8 | Print speed | 76m/min@300x300dpi |
| 9 | Optical density | 5 levels |
| 10 | Operation selection | PC, Wireless keyboard, Bluetooth |
| 11 | Message memory | 100 messages |
| 12 | Ink solution | Aqueous and Solvent |
| 13 | Menu language | Multiple / selectable |
| 14 | Printable characters | Windows true fonts with PC connection |
| 15 | No. of lines | Maximum 6 lines |
| 16 | Character height | Maximum 12.7mm / 0.5” |
| 17 | Printability | Alphanumeric, logos, date/time, expiry date, Julian date, shift code, data and barcodes |
| 18 | Operating temperature | $5^0$C – $50^0$C |
| 19 | External connections | External sensor, encoder, alarm kit, etc… |

## Keyboard

The Machine is currently compatible with all wireless 2.0 keyboards available in the market.

## Android devices

Control machine via Bluetooth connection by using Android devices from 4.0 up to.

## Personal computer

- CPU: Core 2 Duo 2x2.0 GHz
- Ram: 2GB
- Hard disk space: 50 MB
- Operating system: Windows 7, Windows 8 (32, 64 bits)
- Microsoft .NET Framework 4

# MACHINE OVERVIEW

## Indicator LED

- **[1] Sensors:**

  Set default with black conveyor.

  Internal sensor: Red light.

  External sensor: Green light.

  Sensor is activated when receives signals.
- **[2] Error:** Reports errors during operation.
- **[3] Bluetooth/PC:** Remains ON when being connected.
- **[4] Printing Status:** Remains ON when it's on printing mode.
- **[5] Ink Low:** Remains ON to indicate ink low.

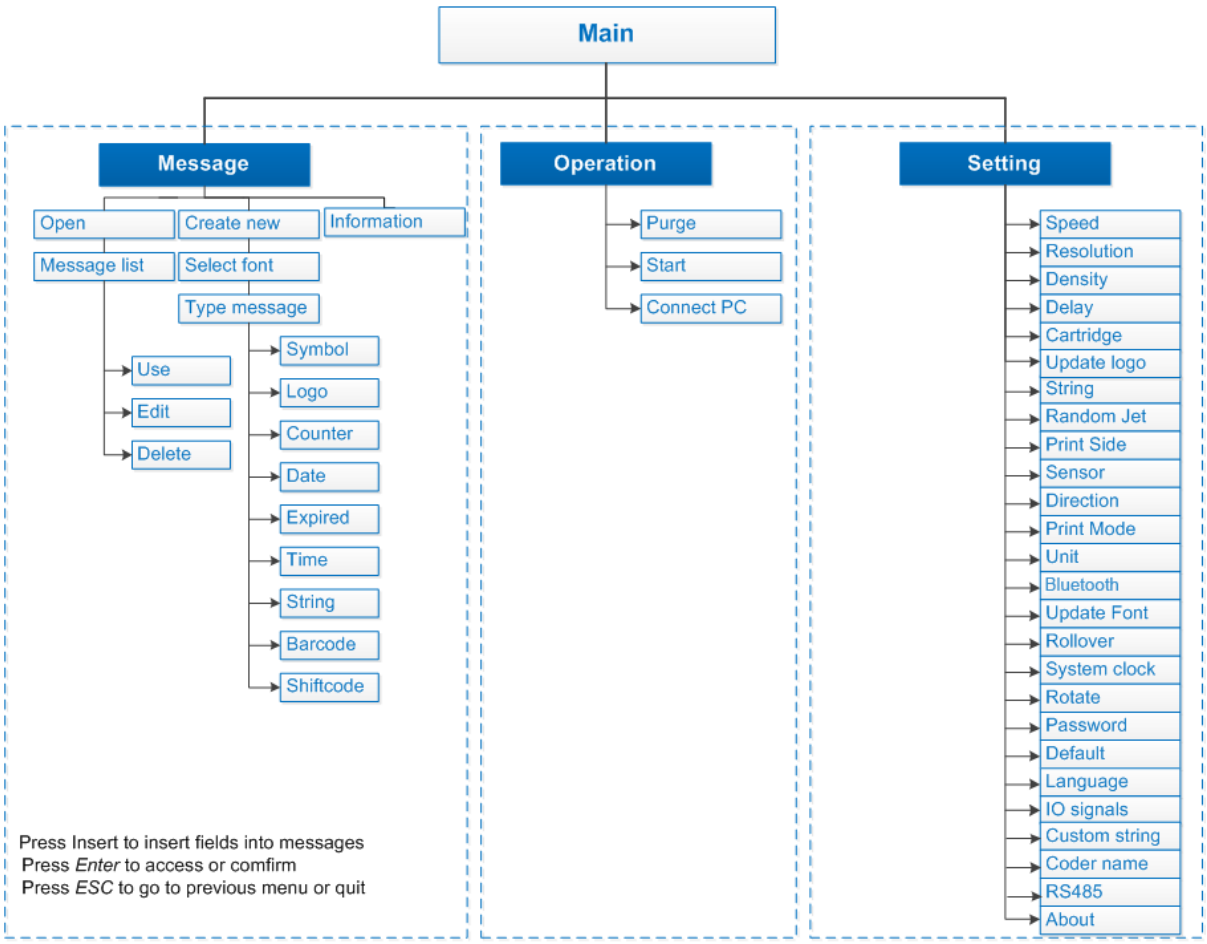
## Connecting Port

- **[1]** USB flash port for updating firmware, fonts and logo.
- **[2]** USB port for wireless keyboard receiver.
- **[3]** USB port for PC connection.
- **[4]** Extend port for external sensor, encoder, alarm, etc…
- **[5]** Power supply.

## Keyboard

| No | Key | Use |
|---|---|---|
| 1 | Enter | Confirm, save or apply |
| 2 | ESC | Go to previous session |
| 3 | ⬅/➡ | Move your cursor to left/right |
| 4 | ⬆/⬇ | Move your cursor up/down |
| 5 | Shift | Press and hold “Shift” to input capitalized characters |
| 6 | Insert | Press “Insert” to insert Symbol, Logo, Counter, Date, Expired, Time, String, Barcode, and Shift into the message |
| 7 | Backspace | Delete your message from the left |
| 8 | Tab | Move your cursor faster |
| 9 | Home/End | Move your cursor to Home/End |

## Operation menu on machine




From the main screen of machine, use ⬅ ➡ ⬆ ⬇ arrow keys to move the cursor to the desired object. Press Enter to save and apply settings. Otherwise, press ESC.

## Message

- **Create:** create new message.
- **Open:** open existing messages on the machine memory.
- **Use:** use existing message.
- **Edit:** edit existing message.
- **Delete:** delete message.
- **Information**: displays setting information.
- **Symbol:** insert some special symbols.
- **Logo**: insert logo or image from your machine memory. Support 4 logos only.
- **Counter**: insert product counter.
- **Date**: insert current date.
- **Expired**: insert expired date.
- **Time**: insert current time.
- **String**: insert string.
- **Barcode**: insert barcodes.
- **Shift code**: insert shift code.
- **Custom string**: insert custom string.

## Operation

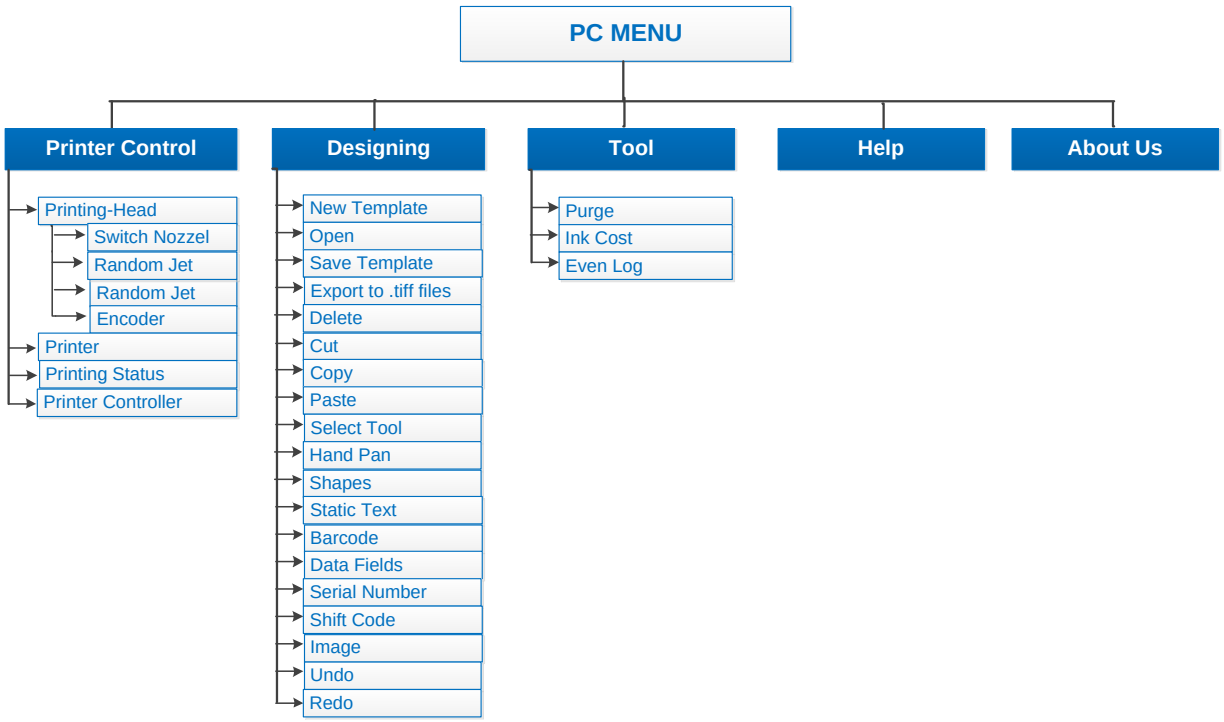
- **Start:** start printing job. Combine **CTRL + SHIFT + ENTER** to fast start print when machine stopped.
- **Stop:** stop printing job. Combine **CTRL + SHIFT + ENTER** to fast stop print when machine is printing.
- **Purge:** all of nozzle on cartridge will push out ink. After purged you will see 2 lines of ink on substrate.
- **Connect PC / Disconnect PC:** connect and disconnect machine from PC.

## Settings

- **Speed**: set print speed for the machine.
- **Resolution**: set your desired resolution.
- **Density**: set optical density of the print.
- **Delay**: set the distance since the sensor receives signal to the start of printing.
- **Cartridge**: display the current level of ink in the cartridge.
- **Update Logo**: update logo or image from USB to the machine memory.
- **String**: set the chain of data to insert into the print.
- **Random Jet**: prevents the print head from clogging due to the extended down time between prints.
- **Print Side**: select nozzle side Odd, Even, or Auto Switch.

- **Sensor**: select External or Internal sensor.
- **Directions**: set print direction: ABC: left right, CBA: right left, ∀BↃ: reverse left right, ↃB∀: reverse right left.
- **Print Mode**: select your print mode: Sensor mode and Continuous mode.
- **Unit**: select your desired measurement **inch/mm.**
- **Bluetooth**: turn on Bluetooth connection to control machine by Android devices.
- **Update Fonts**: update different font sizes for machine.
- **Rollover**: set different date depending on specific production hour.
- **System clock**: set time and date for your system clock.
- **Rotate**: select your screen modes: Auto-rotate or Lock rotate.
- **Password**: set to authorize different level of users, or to protect the machine from unauthorized users.
- **Default**: reset machine to factory default.
- **Language**: select your interface language.
- **IO signals**: the extend button to re-start machine.
- **Custom string**: update the custom strings via USB flash that are created from application on PC. This useful to printing with any language without connecting to PC.
- **Coder name**: show coder name on smartphone application.

## Operation menu on computer




### Printer Control

Setting all printing parameters for the message before start printing.

Be sure to stop the printing mode before setting the parameters.

## Printing - Head

### Switch Nozzle

Select nozzle sides, ODD or EVEN.

Turn on **ODD** to print on the odd side (with 300x300dpi).

Turn on **EVEN** to print on the even side (with 300x300dpi).

### Auto Switch Nozzle

Select ON for automatically changing nozzles between ODD and EVEN. And then select the number of changing. Otherwise, select OFF.

### Random Jet

Periodically purge to clean the print head.

Turn ON **Status** and set the time for purging in the **Time** by click up or down at or input the desired value.

This value is adjustable from 5s to 1,000s.

### Encoder

Encoder is recommended to optimize maximum print quality.

Turn ON **Encoder** to operate Machine with encoder. Print speed of Machine will be automatically synchronized with conveyor speed.

Turn OFF **Encoder** to disable encoder. Input your desired speed at **Speed** to synchronize with the speed of the conveyor.

**Max Speed:** shows the maximum speed you can achieve with the current resolution and density.

***NOTES:***

- *Ensure your encoder is working if it is ON and can detect the objects.*
- *To make a test print without conveyor, turn OFF encoder.*

## Printer

### Unit

Select your measurement **Inches** or **Millimeters.**

### Direction

Select your print direction **Left to Right** or **Right to Left**.

Select **Rotate View** to print upside down.

### Rotate View

Upside down the current design of your message.

### Density

Select your desired optical density. There are 5 levels to select.

### Resolution DPI

Select your desired resolution

### Printing Mode

Select your printing mode**: Continuous Mode** or **Sensor Mode.**

**Sensor Mode**

Machine prints when sensor is triggered.

- Select **Internal** to print with a built-in sensor on Machine.
  - Set **Delay before** and **Delay after** print to have your message printed at the desired position.
- Select **External** to print with external sensor
  - Input distance from external sensor to the print head, set **Delay before** and **Delay after** print to have your message printed at the desired position.

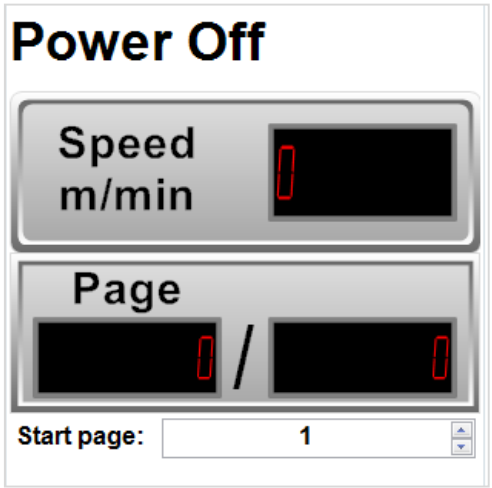
**Continuous Mode**

Machine will print continuously when a sensor is triggered for the first time.

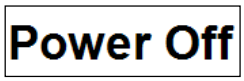
When **Continue** mode is applied, distance between the messages on the same object should to be set.

- Go to **Fixed Length** to input the value or select the value by click up or down at .
- Go to **Repeat All** and select **Times** to input how many prints to be repeated. Otherwise, select **Unlimited**.

### Printing Status




**Power On** Machine is connected to PC.



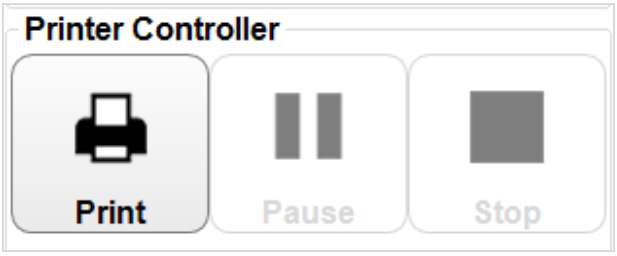

Machine is disconnected from PC.

Displays the current speed of conveyor synchronized by encoder.

Displays the number of pages printed (left) per the total pages to print (right).

Select page to start printing, apply for counter, barcode, data field. The data will continue to be printed from the start page.

## Printer Controller

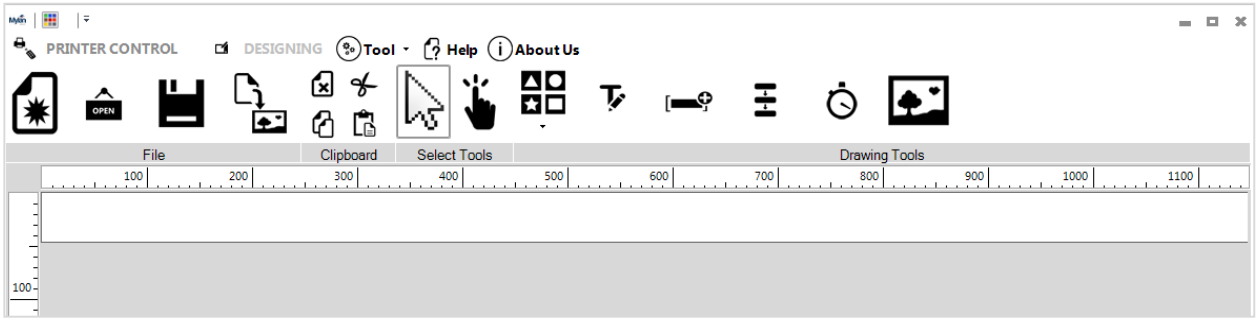


**Print**: Select to print

**Pause**: Select to temporary stop printing

**Stop**: stop printing. This must be applied before adjusting parameters or editing the message.

## Designing messages



**New template:** Create new message with free template design.

**Open:** Open message from PC.

**Save template:** Save message to PC.

**Export to .tiff files:** Export message in Tiff format.

**Delete:** Delete object.

**Cut:** Cut object.

**Copy:** Copy object.

**Paste:** Paste object.

**Select Tool:** Select to function and edit each object on the message.

**Hand Pan:** Move designing area to right/left to function on the hidden area in case your message is not fully displayed on the screen.

**Shapes:** Select image to insert into message: Line, Rectangle, Square, Circle and Oval.

**Static Text:** Insert characters and barcodes.

**Data Fields:** Insert data**.**

**Serial Number:** Insert counter.

**Shift Code:** insert shift code.

**Image:** Insert image or logo.

## Tools

Purge

**Purge:** all of nozzle on cartridge will push out some ink. This will help clean all cartridge.

Ink Cost

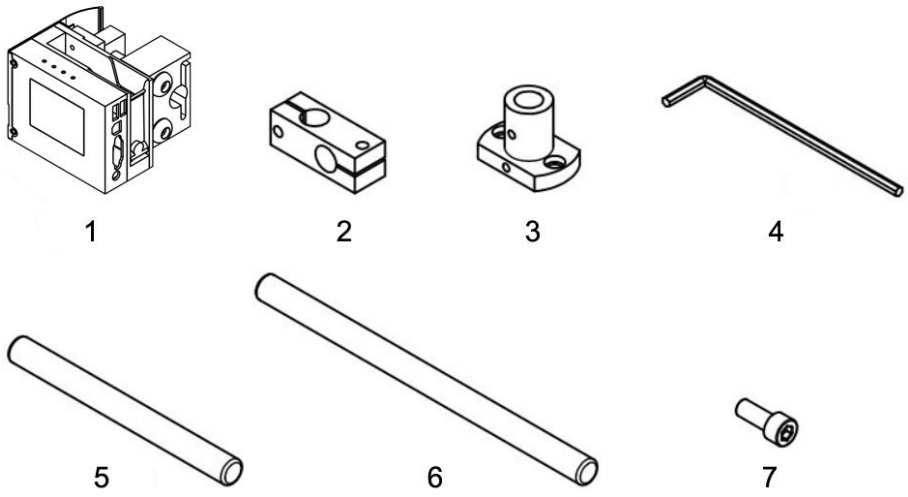
**Ink Cost:** calculate number of printing job, ink price, price for each print.

Event Log

**Event Log:** view all of action that user did on application.

# INSTALLATION PROCEDURES

## MOUNTING BRACKETS



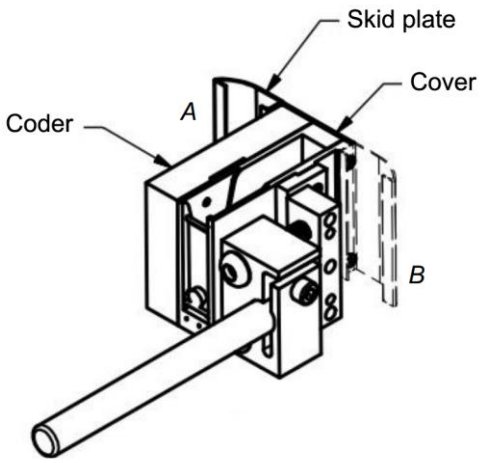

| No | Item | Quantity |
|---|---|---|
| [1] | Machine | 1 |
| [2] | Clamps | 3 |
| [3] | Base clamp | 1 |
| [4] | Allen Key 6 | 1 |
| [5] | Round bar short | 3 |
| [6] | Round bar long | 1 |
| [7] | Screws M8x20 | 8 |

### Step 1

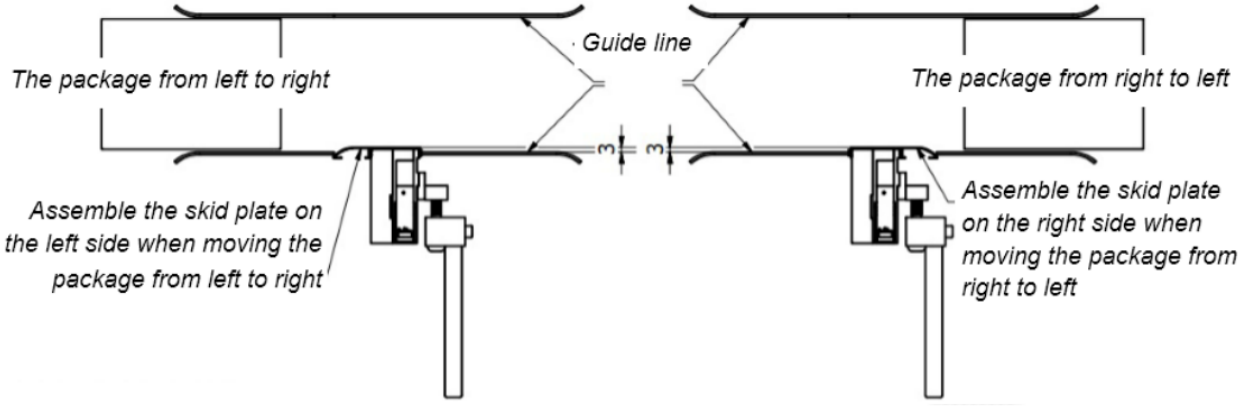
Skid plate adjust depending on direction of your production line.

Select direction to mount machine on the conveyor. Skid plate can be assembled as A or B position depending on the direction of the products on the conveyor.

Default machine will be set at B position.



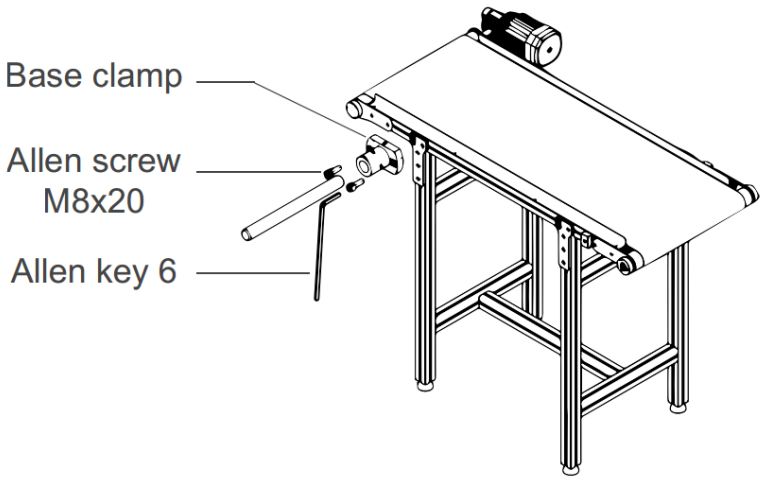

***NOTES:*** *Push the cover plate fit to the machine when assembling the skid plate.*




Please setup machine with minimum distance that you could. Closer distance for better printing quality. We are recommend from 1-3 mm.

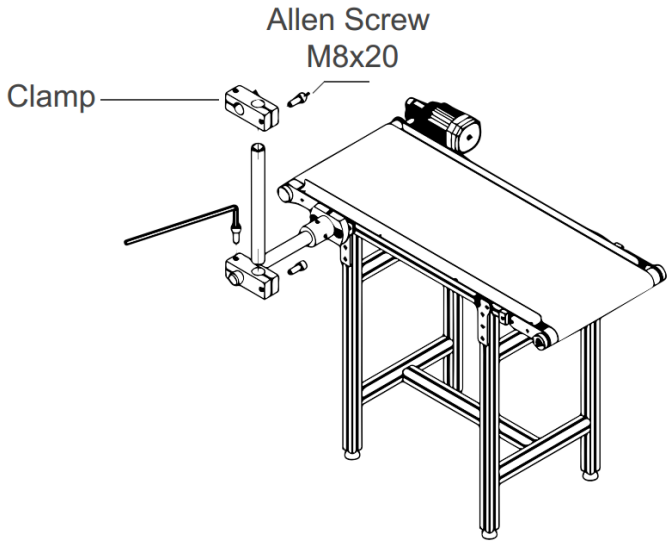
### Step 2

Installing the base clamp to the side of the conveyor.



### Step 3

Installing the clamps to the round bar.

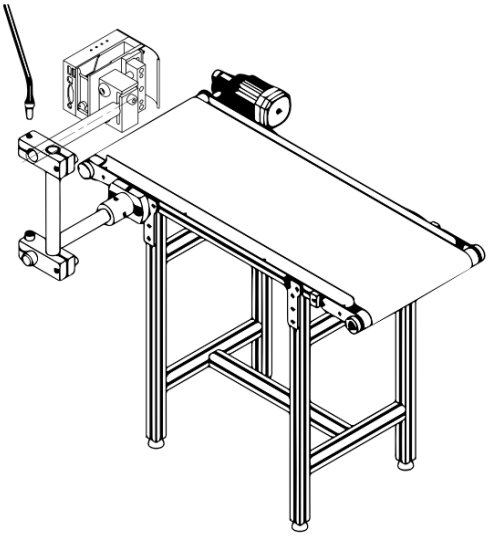



### Step 4

Select the suitable bar length for each case.

**Horizontal setup**

This setup will be used to print on carton box, bottle, tray, pipe, etc…



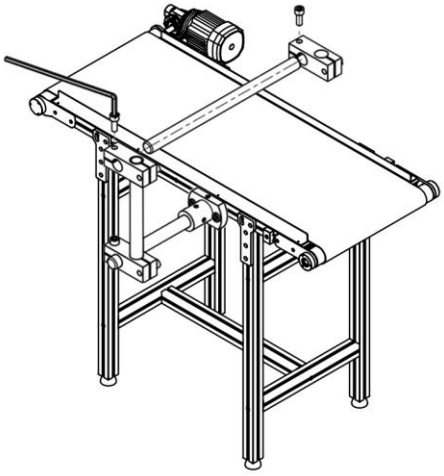
**Vertical setup**

This setup will be used to print on paper, film, and other flat substrates.

***NOTES:*** *With default machine, we don't support this setup. You need buy more accessories (round bar and clamps).*

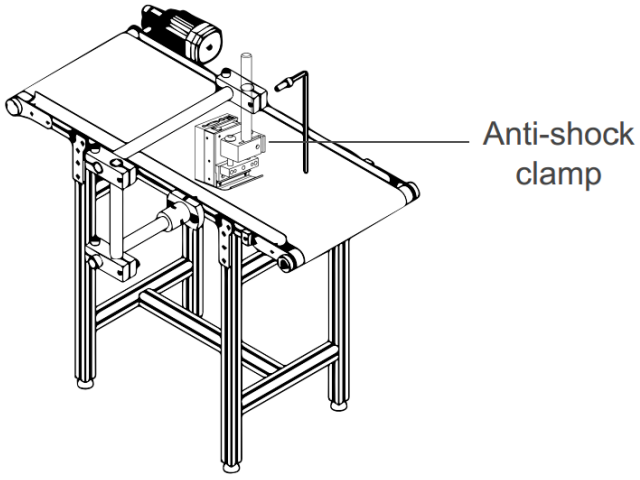
### Step a

Add more clamp to bracket.



### Step b

Add one more vertical round bar.




***NOTES:***

*Make sure the brackets are mounted firmly to avoid vibration and sway of the print head. This will affect the print quality.*

# GETTING STARTED

Install the machine on your conveyor according to the installation instructions. See the Quick Start Guide for more information.

- Set print direction and appropriate throw distance to obtain best print quality (1-3 mm).
- Insert ink cartridge.
- Plug the power cord into an appropriate power source to start up the machine.
- Insert keyboard receiver to keyboard port, turn on wireless keyboard.

# EXTERNAL DEVICES CONNECTIONS

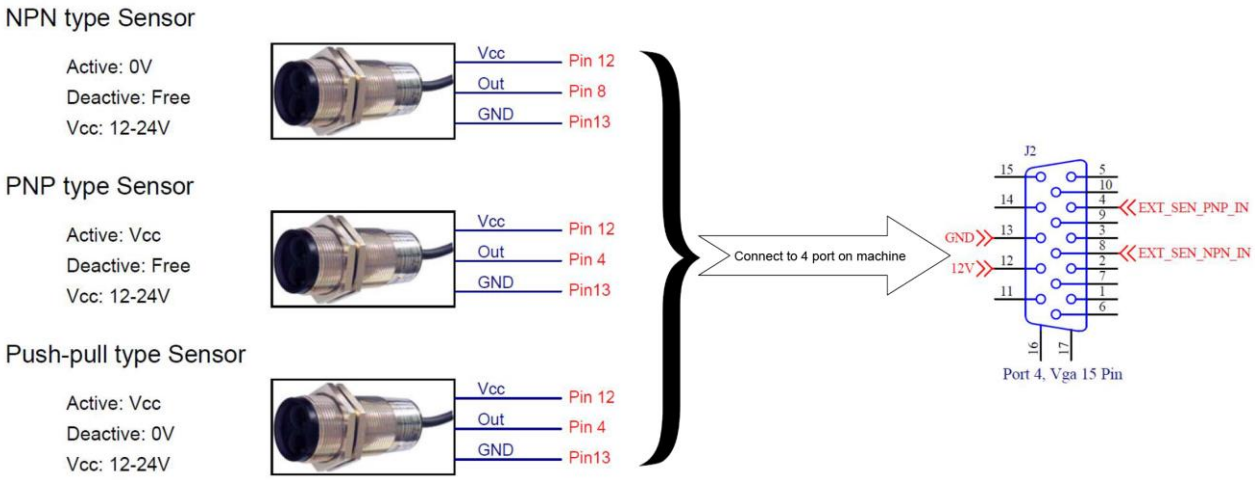
***NOTES:***

- *Machine is able to operate with External Sensor, Encoder, Alarm at a time. Consult your supplier for further supports on the settings and connections.*
- *To connect machine with External Sensor, Encoder, Alarm, etc…, additional connector DB15 (male) will be required.*

## EXTERNAL SENSOR

Machine supports NPN, PNP and Push-pull sensor types.

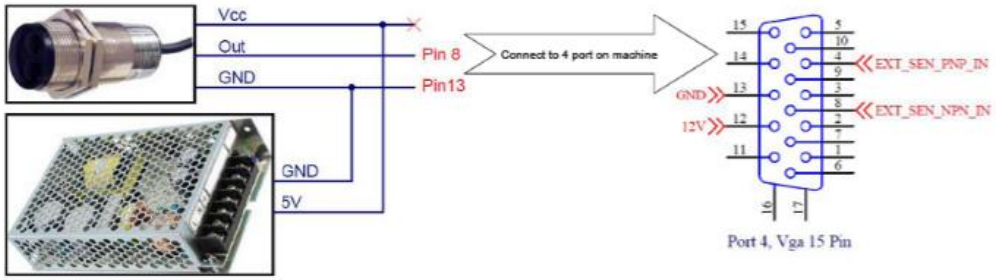
- Connect sensor using power supply on machine.




- Connect sensor to machine using external power supply. Below demonstration is for external power supply of 5V.

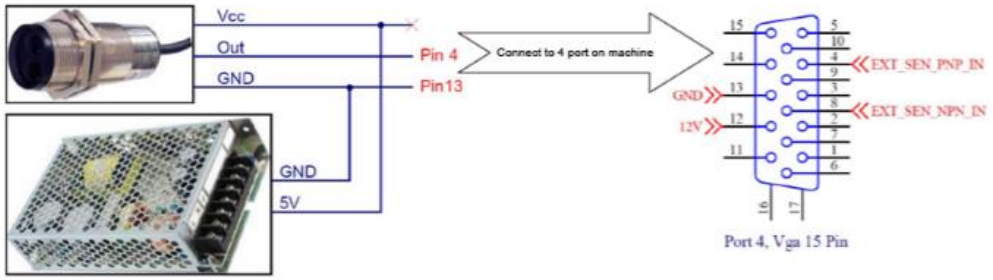
NPN type Sensor

Active: 0V
Deactive: Free
Vcc: 5V



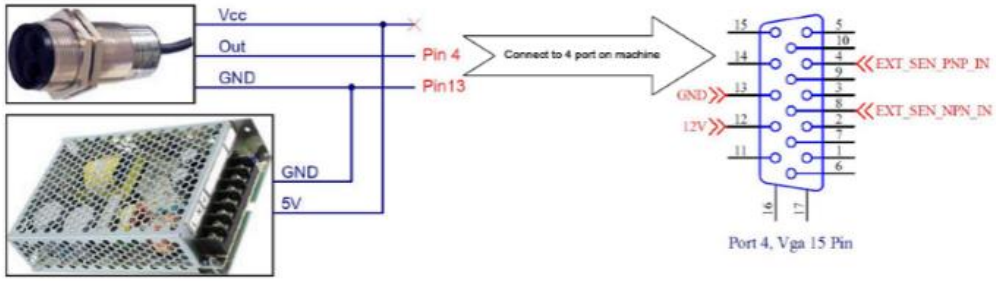

PNP type Sensor

Active: Vcc
Deactive: Free
Vcc: 5V




Push-pull type Sensor

Active: Vcc
Deactive: 0V
Vcc: 5V

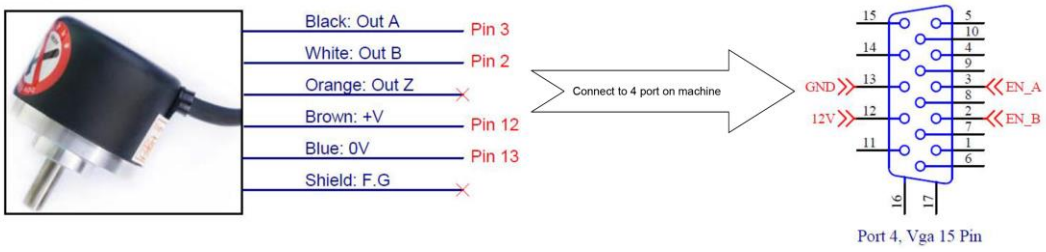



# ENCODER

An encoder is recommended to ensure the best print quality regardless the inconsistent speed of conveyor.

Encoder Technical Specifications

PPR: 3600
Output: ABZ
Power: 12-24V




To calculate wheel diameter (**D**) depend on resolution (**R**) is:

**D = R/(π x 600)** (inches).

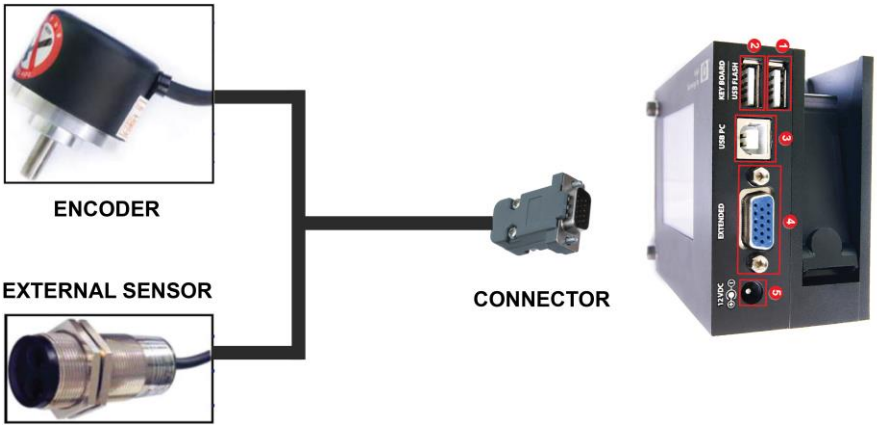
**Example**: Encoder has R = 3600 (PPR),

⇨ **D** = 1.90985 inches ~ 48.5 mm.

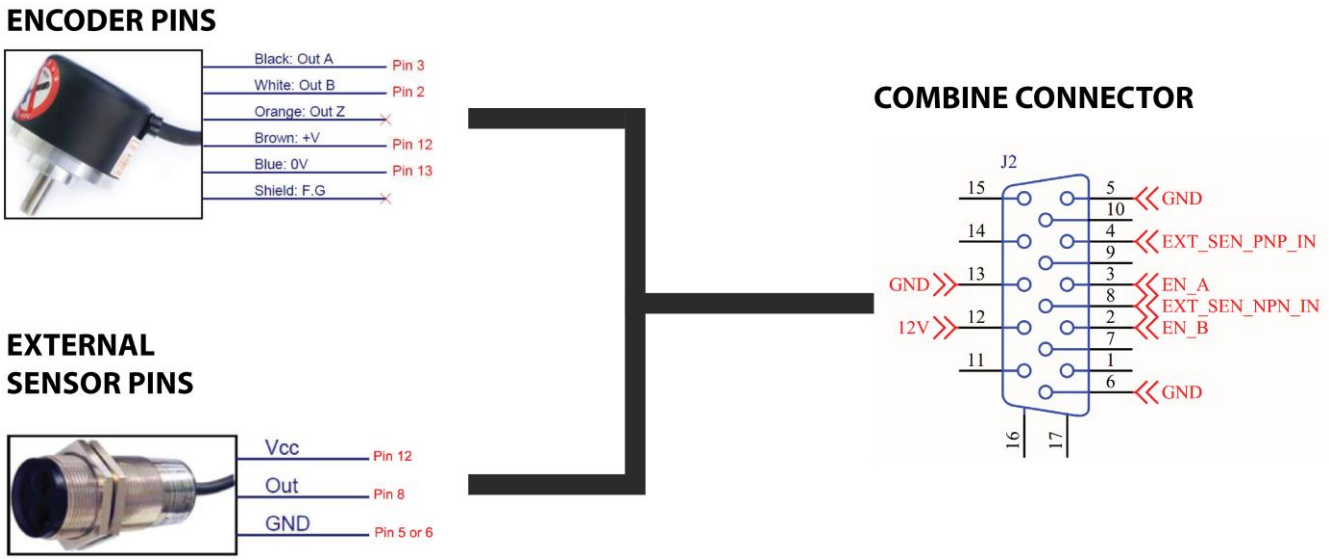
# COMBINE EXTERNAL SENSOR AND ENCODER

In some case you need to use external sensor and encoder to get perfect printing quality. But the machine have one extended port only. Please do as following instruction to take external sensor and encoder work together with machine.

See picture for this situation.




See this picture for connection pins.

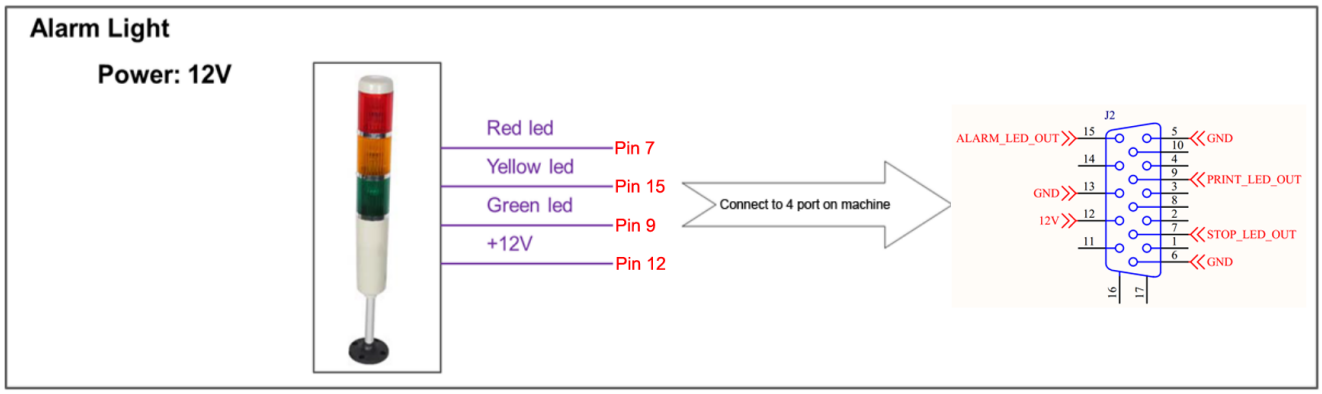



***NOTES:***

*PIN12 (12V) use for both of Encoder and External sensor.*

# ALARM

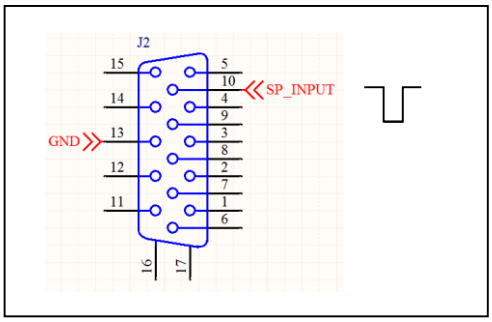
Allow users to monitor operation of Machine from distance via the light signals from the Alarm.

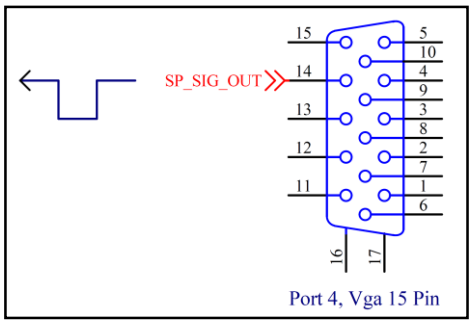



# INPUT AND OUTPUT

Input: To trigger some functions (reset counter …). Accept NPN or dry contact.

Output: NPN signal. Active when some even occur (each print …).




# RS485 PROTOCOL

Allow control machine via RS485 network from other devices like: PLC, PC…

Before use this protocol you need to set parameter on machine as below.

### Step 1

Connect **PIN 1** (RS485B) and **PIN 11** (RS485A) to RS485 network as picture below.

Machine extended port detail:

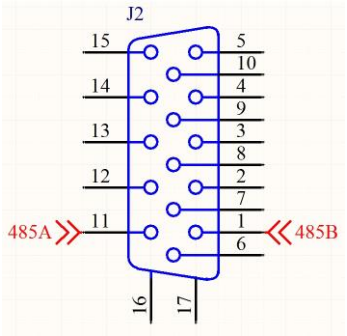
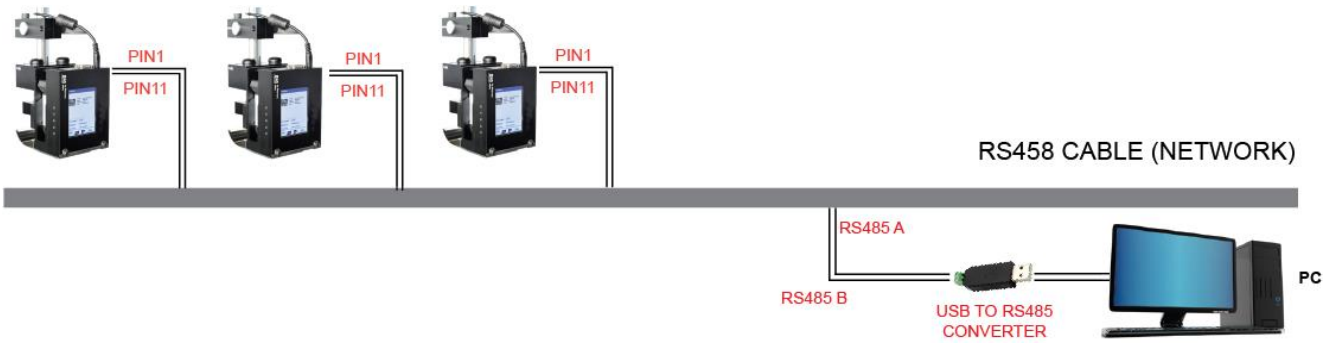
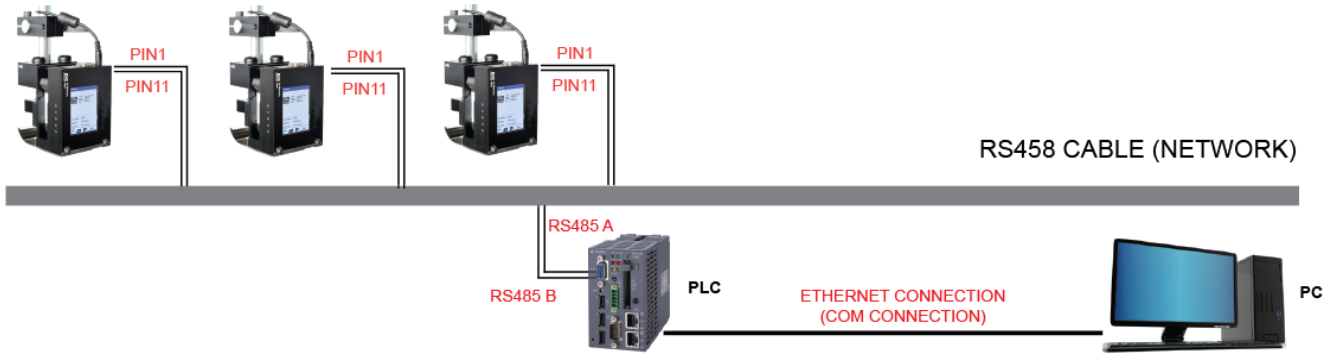


Diagram connect some machines to RS485 network with PCL and PC use to control. The PC need to use some converters to support RS485 protocol.

**CASE A**: use the PC as MASTER with USB to RS485 converter.




**CASE B**: use the PLC as MASTER. Then connect PLC to a PC.




### Step 2

On machine, go to Setting → RS485 → Enter.

***Status***: set to ENABLE.

***Address***: identification of machine on RS485 network. Value from 0-255.

***Baud rate***: select value from 4800-115200

***Parity***: checksum of protocol. Select ODD or EVEN. Otherwise select NONE.

***Data bits***: length of data. Select 8 or 9.

***Stop bits***: length of STOP BITS. Select 1 or 2.

### Step 3

Build a PLC/PC application (**NOTE: You need developer to do this**) use our RS485 commands detail. Then send command to machines.

Please ask us to get this commands detail.

# QUICK STARTUP

## REQUIRED COMPONENTS

| No | Basic Components | With keyboard | With smartphone | With PC | Optional |
|---|---|---|---|---|---|
| 1 | Machine | ✓ | ✓ | ✓ | |
| 2 | Wireless keyboard | ✓ | ✓ | ✓ | |
| 3 | Power supply | ✓ | ✓ | ✓ | |
| 4 | Mounting brackets | ✓ | ✓ | ✓ | |
| 5 | USB flash | ✓ | ✓ | ✓ | |
| 6 | Ink cartridge | ✓ | ✓ | ✓ | |
| 7 | Bluetooth connection | | ✓ | | |
| 8 | Smartphone Android | | ✓ | | |
| 9 | Android application | | ✓ | | |
| 10 | PC desktop/laptop | | | ✓ | |
| 11 | PC connection Cable | | | ✓ | |
| 12 | PC software controller | | | ✓ | |
| 13 | PC driver for machine | | | ✓ | |
| 14 | Encoder | | | | ✓ |
| 15. | Alarm | | | | ✓ |
| 16. | External Sensor | | | | ✓ |

### Setup machine

See Getting Started.

***NOTES:*** *The machine will function with HydraJET and SoluJET ink series from us only. Trying to use unapproved cartridges may damage the machine and void the warranty.*

## Keyboard setup

- Insert the receiver of wireless keyboard to USB port (port 2) on machine, remove the protected stamp in the battery slot and turn on the button at the back of the keyboard to begin operating machine with wireless keyboard.
- From the main screen of machine, use ⬅ ➡ ⬆ ⬇ arrow keys to move the cursor to Settings and begin implementing initial setups for the machine. Press Enter to save and apply settings. Otherwise, press ESC.

## Bluetooth setup

### Step 1

On machine go to **Setting** → **Bluetooth** → **Select Enable**, to active the Bluetooth connection on machine. Setup pin code and the name of machine will be show on smartphone.

### Step 2

From your Android devices, go to **Play Store** to download and install application (key words: rynan or rynan1040). Scan this barcode to quick access.

https://play.google.com/store/apps/details?id=rynantech.com

### Step 3

Run application. Taps on "**printers**" button, the application will automatic search all of machine in range near with Android device via Bluetooth.

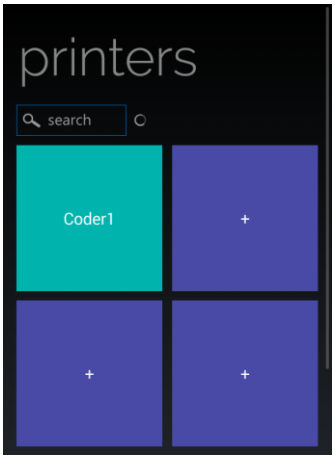
### Step 4

Taps on the button show the name of machine that you need to connect. Select "**Connect"**, input the PIN code the same with you has been set on machine at Step 1. Select Ok to completed connection.

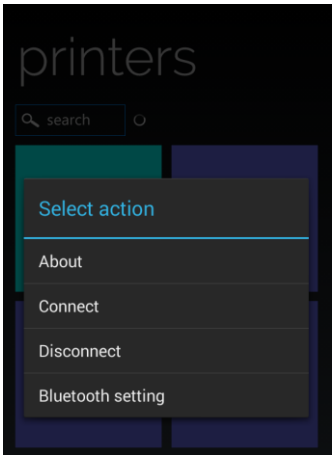
### Step 5

Return home screen of application to send command to machine.

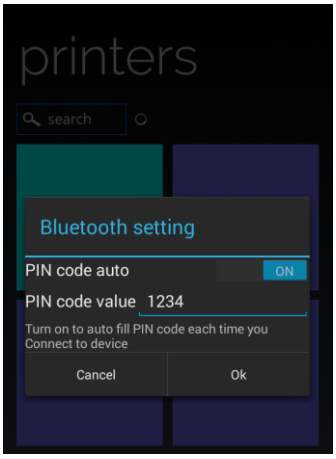
These picture show how to search, setup PIN and connect to machine with a smartphone and an application.



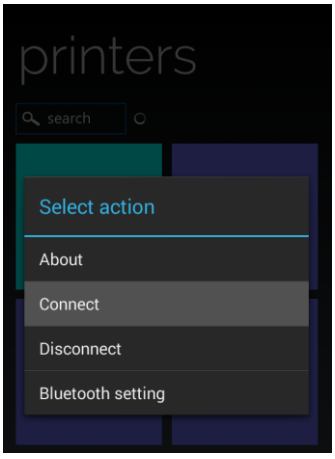

1



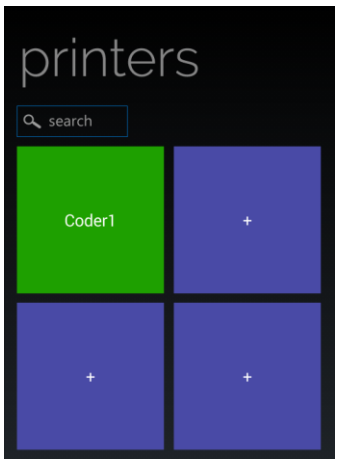

2




3




4




5

## PC connection setup

- Be sure you have a PC plugged in connected with machine via a USB A-B cable.
- Install **Controller Application** and **Driver of machine** to your PC.
- From the main screen of machine, go to **Operation** and select **Connect to PC** to connect machine with PC.

- Open Controller Application on your PC to begin design your desired message with free template designing tool.

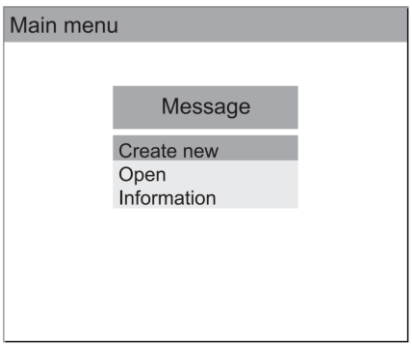
## Setup external devices (Optional)

See again at External device connection.

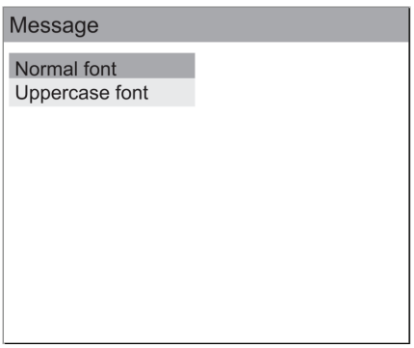
- Install external sensor
- Install encoder
- Install alarm kit

## Create first messages

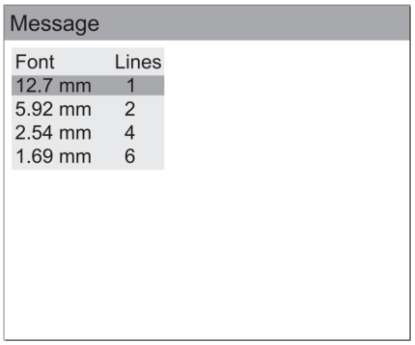
### On machine with keyboard (Standalone mode)




Select **Create new**

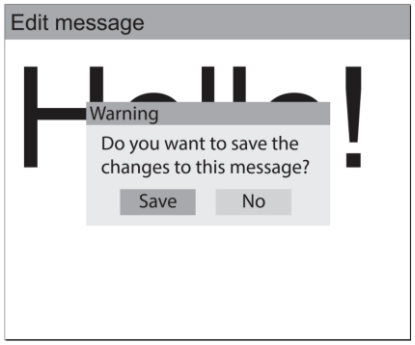



Select **Normal/Uppercase** font

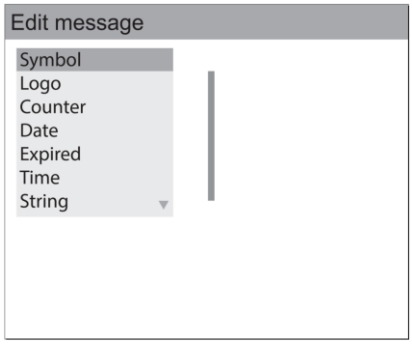



Select font size

Input "**Hello!**"

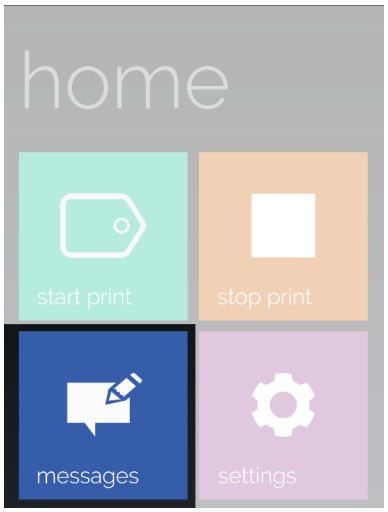



Press "**ESC**" to exit. Select "Save" to save your messages

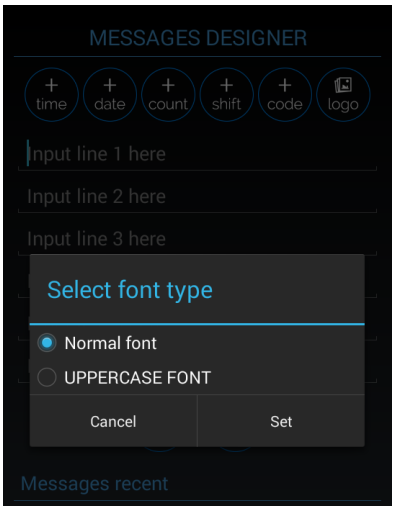



Press "**Insert**" to insert more data, variable, barcode, logo, …

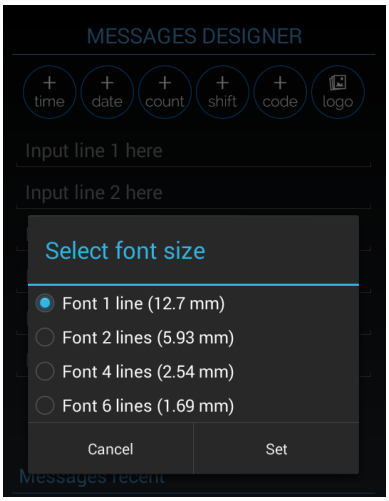
## On smartphone (Standalone mode)



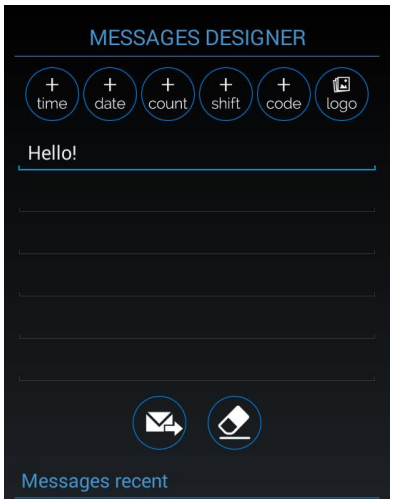

Taps on “messages”




Select Normal/ Uppercase font




Select font size




Input “Hello!” taps on send button

## On PC with application (PC mode)

See PC application introduction.

# FIRMWARE INTRODUCTION

From the main screen, use ⬆ and ⬇ arrow keys to select the desired menu: **Message**, **Operation**, or **Settings.** Press Enter to select. Press **ESC** to go back to the main screen.

## Message

Create new or open existing messages on the machine memory.

***NOTES:*** *While doing this, please be sure you already stop printing.*

### Create new messages

Go to **Create new** to select your desired fonts **Normal** or **Uppercase**

Select **Normal font** to create your message with lower and uppercase fonts. Then select your desired font size, number of line and insert fields into message. Otherwise, go to **uppercase font** uppercase fonts only.

Available fonts and sizes include:

| Lines | Arial |
|---|---|
| **1** | 12.7 mm |
| **2** | 5.93 mm |
| **4** | 2.54 mm |
| **6** | 1.69 mm |

Input message by using the following keys:

- Arrow keys ⬅ ➡ ⬆ ⬇ : move the cursor
- Enter : go to the next line
- Backspace : delete characters
- ESC : escape and save / unsaved messages

While creating message, press Insert on the keyboard to insert your desired fields.

### Symbol

Insert the following symbols into the message (extended ASCII).

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| € | ‚ | ƒ | „ | … | † | ‡ | ˆ | ‰ | ‹ | ‘ | ’ | “ | ” | • | – | — | ˜ | TM | › |
| ¡ | ¢ | £ | ¤ | ¥ | ¦ | § | ¨ | © | ª | « | ¬ | | ® | ¯ | ° | ± | 2 | 3 | ´ |
| µ | ¶ | · | ¸ | 1 | º | » | ¼ | ½ | ¾ | ¿ | × | Ø | Þ | | | | | | |

In the input section on machine, press Insert and use ⬆ or ⬇ arrow keys to move the cursor to **Symbol** and press Enter. Use the arrow keys to move your cursor to the desired object and press Enter to insert the symbols into message.

Below symbols are required be inserted from your wireless keyboard:

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ! | “ | # | $ | % | ‘ | ( | ) | * | + | , | - | . | / | : | ; | < | = | > | ? |
| @ | [ | \ | ] | ^ | _ | ` | { | \| | } | ~ | | | | | | | | | |

## Logo

Insert logo or image from Machine into message

Your logo should be updated or setup in the **Settings** menu

In the input section, press Insert and use ⬆ or ⬇ arrow keys to move your cursor to Logo and press Enter. Move your cursor to the desired Logo and press Enter.

***NOTES:***

- *Insert logo first, then input message if you need to print a logo at the beginning of the message.*
- *Input message, then insert logo if you need to print a logo at the end of the message.*
- *Logo should be inserted in the last line of your message if you are printing multiple lines to ensure it is fully printed.*

## Counter

Insert product counter into the message. There are **Single** and **Box/Lot.**

In the input section, press Insert and use ⬆ or ⬇ arrow keys to move the cursor to **Counter** and press Enter. Select your desired object and press Enter.

### Single

Is an independent counter. This is used to count the products printed, can be a product or a box.

Move the cursor to the each object and input the value. After all values are set, move the cursor to **Add counter here** and press Enter to insert the counter into the message.

- **Start**: start number of counter.
- **Current**: current number that you would like to print immediately.
- **Reset**: end number of counter.
- **Step**: count step of counter.
- **Up/Down**: direction of counter. Up for increase number, down for decrease number.
- **Fill zero**: add 0 before each number like 09, 009, 0009…
- **Add counter here**: insert counter into the message.

### Example

To print the following counter on each object:

001, 003, 005….101, 001, 003, 005 …

- **Start**: 1
- **Current**: 1

- **Reset**: 101
- **Step**: 2
- **Up/Down**: Up
- **Fill zero**: Enable

***NOTES:*** *User can insert up to 6 independent counters in one message.*

### Box/Lot

Is a dual counter. This is used to count the box and the products in the box.

Move the cursor to the each object and input value. After complete setting for all objects, move to **Add counter here** and press Enter to insert the counter into the message.

| Counter 1 | Counter 2 |
|---|---|
| • **Start**: start number<br>• **Current**: current number<br>• **Reset**: end number<br>• **Step**: count step<br>• **Up/Down**: increase or decrease<br>• **Fill zero**: add 0 before each number<br>• **Add counter here**: insert counter | • **Start**: start number<br>• **Current**: current number<br>• **Reset**: end number<br>• **Step**: count step<br>• **Up/Down**: increase or decrease<br>• **Fill zero**: add 0 before each number<br>• **Add counter here:** insert counter |

### Example

Printing on certain package a chain of digits, the first 3 digits are the number of the box containing the package; the last 3 digits are the order of the package within the box, let's say there are 20 packages in the box.

Follow below steps to set counter:

| **Step 1** Setup Counter 1 first and insert into the message<br>**Counter 1** |
|---|
| • **Start**: 0<br>• **Current**: 0<br>• **Reset**: 20<br>• **Step**: 1<br>• **Up/Down**: Up<br>• **Fill zero**: Enable |
| **Step 2** Then setup Counter 2 and insert into the same message<br>**Counter 2** |
| • **Start**: 0<br>• **Current**: 0<br>• **Reset**: 100<br>• **Step**: 1<br>• **Up/Down**: Up<br>• **Fill zero**: Enable |

The two counters will be printed as below:

***NOTES:***

- *Press Enter to apply each setting.*
- *Setup Counter 1, then Counter 2.*
- *Maximum value of Reset is up to 2,000,000,000.*
- *Maximum value of Step is 250.*
- *Counter will be backup and continue in case of power failure.*

## Date

Insert current date into message.

In the input section of Edit Messages, press **Insert**, then use ⬆ or ⬇ arrow keys to move the cursor to **Date** and press Enter.

- Input date format at **Format.**
- Press Enter to insert into message.

### Format

Select your desired format below to input into the **Format** section. Otherwise, date will not be displayed in the message.

- **Day**: d or dd.
- **Month**: M, MM or MMM.
- **Year**: yy or yyyy.
- **Julian date**: JJJ.

### Example

- 03/09/2014 : ***dd/MM/yyyy***
- 3/9/14 : ***d/M/yy***
- 3/SEP/14 : ***d/MMM/yy***

To insert the current date within a year (365 days), input Format JJJ. In this case, if your current date is 03/09/2014, date displayed on your message will be 246 for perpetual year and will be 247 for leap year (leap year the February have 29 days).

***NOTES:***

- *Lower case or Upper case is acceptable.*
- *Available separators include **Slash** (/), **Dash** (-), **Dot** (.), **Space** ( ) and No separator.*

## Expired

Insert expired date into the message

In the input section of Edit Messages, press Insert and use ⬆ or ⬇ arrow keys to move the cursor to **Expired** and press Enter.

- Input format of expired date at **Format** (similar format with the current date).
- Move the cursor to **Expired** and input the date that your product will be expired.
- Press Enter to confirm settings and insert into the message.

### Example

If your manufacture date is 03/09/2013 and your product will be expired in 1 year, you are required to input 365 at **Expired.** Machine will automatically calculate the expired date and insert into the message.

## Time

Insert current time into the messages.

Current time must be setup in **System clock** while doing **Settings.**

In the input section, press Insert, then use ⬆ or ⬇ arrow keys to move the cursor to **Time** and press Enter. Select and input your desired format and press Enter to insert into message.

- **Second**: s, ss.
- **Minute**: m, mm.

- **Hour**: h, hh.
- **AM or PM**: tt.

## String

Insert a string of data as setup in the **Settings**.

From the input section of new message, move the cursor to the position where a string will be inserted and press Insert.

Then use ⬆ or ⬇ arrow keys to move the cursor to **String** and press Enter. Select your desired string and press Enter to insert into the message.

Define these Strings at Setting → Strings. This is the shortcut will help you don't repeat input for one string like: company name, company address, email, phone number…

## Barcode 1D

Insert barcodes into message.

From the input section, use the arrow keys to move the cursor to the end of the final line of your message. Press Insert, then use ⬆ or ⬇ arrow keys to move the cursor to **Barcode** and press Enter. Select **Static** or **dynamic** and press Enter.

### Static barcode

Insert static 1D barcodes into your messages. We support 8 types of barcode

- **Type**: select your desired barcode type (**Code 39**, **Code 2/5**, **Code 128**, **Code 93**, **UPC-A**, **EAN**, **Codabar**, **and Code 11).**
- **Width**: Input width for barcode (value varies from 1 to 4).
- **Height**: Input height for barcode (value varies from 1 to 3).
- **Text**: Select **Enable** to display barcode value, otherwise select **Disable**.
- **Value**: Input value for your barcode.

Use ⬆ or ⬇ arrow keys to move to the cursor to your desired object and change the value. Press Enter after each value change to save and apply settings.

Example after printed will be like this:

First print | Second print | Third print | N-print, …

***NOTES:***

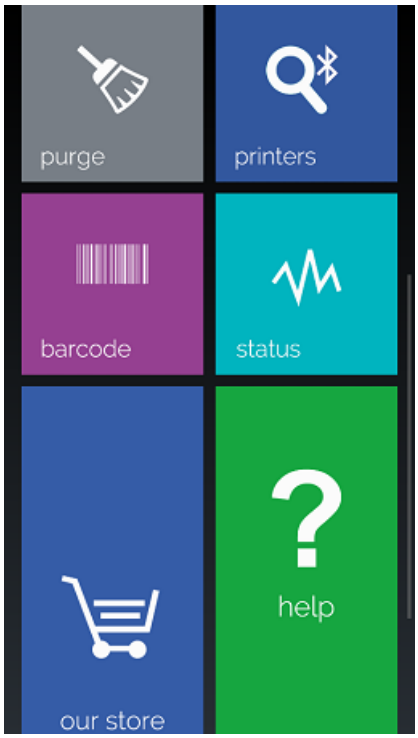
*If you would like to print static 2D barcode. Please use with update logo support. Create 2D barcode as image, use smartphone or application on PC to load it to machine.*

- *Use smartphone: see Update logo.*
- *Use PC: see Use Convert Logo*

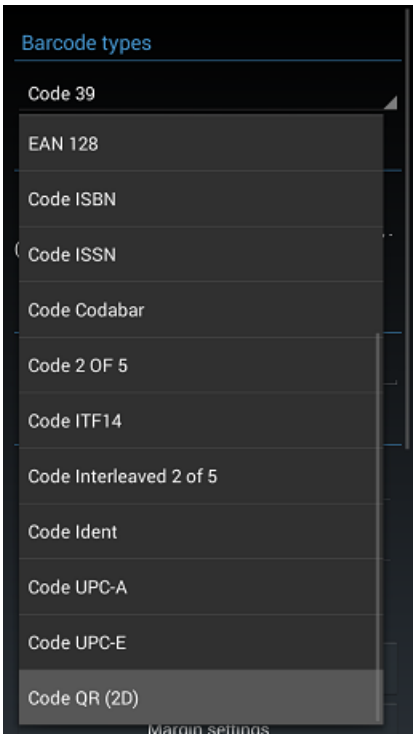
### Create 2D static barcode with smartphone

The application on smartphone will support you create new 2D barcode then you can send it directly to machine, don't need to use USB flash or PC application.

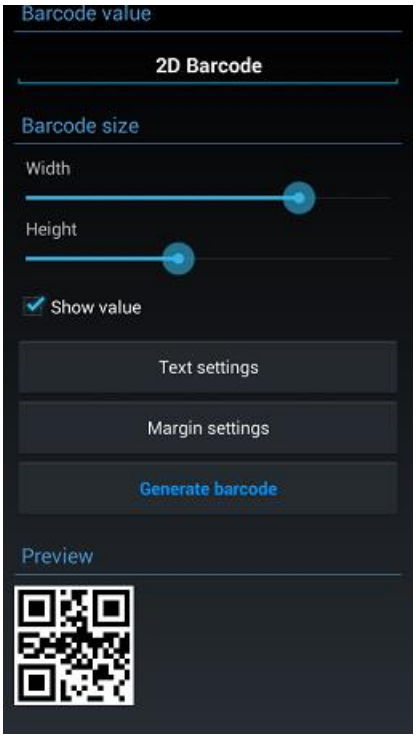
These step below will show you how to created 2D barcode:



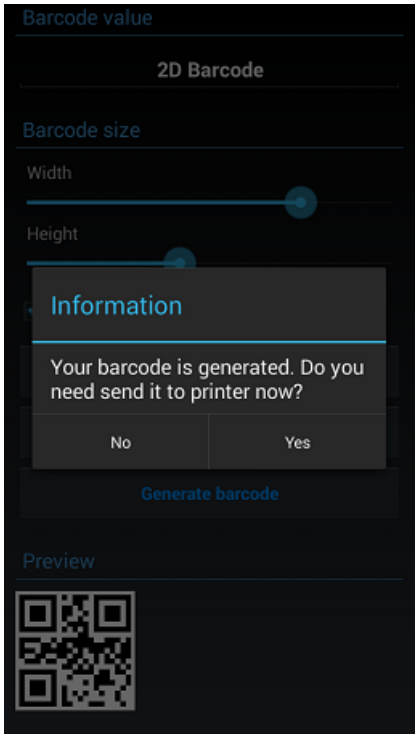

Taps on "**barcode**" button



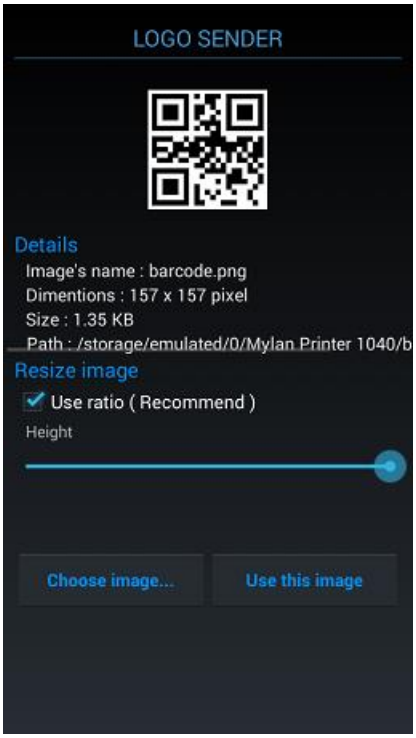

Select "**Code QR (2D)**"



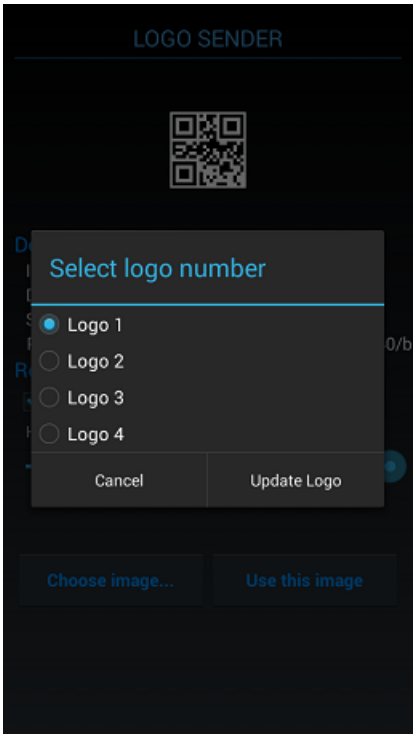

Input barcode value. Adjust Width, Height…




Taps on "**Generate barcode**" button. Select "**Yes**" to open Logo Sender




Taps on "**Use this image**"




Select logo number on machine

### Dynamic barcode

Insert dynamic barcode into your messages.

- **Type**: select your desired barcode (**Code 39**, **Code 215**, **Code 128**, **Code 93**, **UPC-A**, **EAN**, **Codabar**, and **Code 11**).
- **Width**: Input width for Barcode (value varies from 1 to 4).
- **Height**: Input height for Barcode (value varies from 1 to 3).
- **Text**: Select **Enable** to display barcode value, otherwise select **Disable**.
- **Prefix**: Input repeat value before barcode.
- **Counter**: setup values for your counter or dynamic data (like the **Single** counter).
- **Suffix**: Input repeat data after barcode.

Use ⬆ or ⬇ arrow keys to move to the cursor to your desired object and change the value. Press Enter after each value change to save and apply settings.

***NOTES:***

*Counter can be placed at the following positions of the barcode*

- *At the beginning : Prefix = 0*
- *In the middle : Input both Prefix and Suffix*
- *At the end : Suffix = 0*

Example after printed will be like this:

First print

Second print

Third print

Four print

### Shift code

Insert shift code into the message

From the designing section, use the arrow keys to move the cursor to your desired position in the message and press Insert. Then use ⬆ or ⬇ arrow keys to move to Shift code and press Enter.

- **Code:** input shift code. Maximum 2 characters (letter or number, or both).
- **Time:** input start time of each shift in **hour**: **minute**.

Code of each specific shift will be displayed according to each period of time of the shift.

Press Enter to save settings and press ESC to go back to the main menu.

## Open storage messages

Open existing messages to **Use** / **Edit** / **Delete**.

From the main screen of machine, select Message, go to **Open** and press Enter to go to message storage. Select your desired message and press Enter. Use ⬆ or ⬇ arrow keys to Use / Edit / Delete.

- **Use:** select existing message to print.
- **Edit:** select existing message to edit (see **Create New**).
- **Delete:** select message to delete.

Press ESC to go back to the main screen. Confirm "**Yes**" to save message.

## Status machine

Display settings and status of the machine. From the main screen of machine, select **Message** and use down arrow keys to go to **Information** and press Enter.

- **Ink level** : Current ink in the cartridge (ml).
- **Speed** : Current print speed (m/min or ft. /min).
- **Density** : Current density.
- **Resolution** : Current resolution.
- **Delay** : Current delay time.
- **Print mode** : Current print mode.
- **Repeat** : Number of prints repeated on the same object.

- **Delay** : Distance between 2 prints.
- **Minimum** : Number of prints left based on the current ink level, density and resolution.

# Operation

## Start

Change status of machine from stopped to start print.

Select **Operation → Start** to begin to print. Your message content along with other setting parameters will be displayed while printing.

- **Prints** : number of prints have been printed
- **Speed** : current speed (m/min)
- **Ink levels** : current amount of ink in the cartridge (ml)
- **Resolution** : current resolutions (dpi)

## Stop

Change status of machine from start printing to stop.

To stop print, press ESC to go back to the main screen. Use ⬆ or ⬇ arrow keys to go to **Operation**, select Stop to stop printing.

***NOTES:***

- *Machine should be stopped before doing other settings.*
- *Shortcut key to Start / Stop:* ***CTRL*** *+* ***SHIFT*** *+* ***ENTER****.*

## Purge

Select **Operation → Purge** to jet the ink out from all of nozzle this will help clean the print head.

**Connect / Disconnect PC**: Select to connect or disconnect Machine with PC

# Settings

From main menu select Settings to access settings menu.

From the Settings menu, use the arrow keys to move the cursor to your desired setting, press Enter to select and begin setting.

***NOTES:***

*Press Enter to save. Press ESC to go to main menu and apply new settings.*

## Speed

Set print speed with 2 print modes: **None Enc.** and **Encoder**

### None Enc (No encoder)

Operating Machine without encoder. Under this mode, print speed must be set to synchronize with conveyor speed to print good quality message (input value at **Value**).

### Encoder

Encoder is recommended where speed of the conveyor is varied. Under this mode, print speed of Machine will be synchronized with conveyor speed to ensure the best print quality.

Ensure you have an encoder installed with machine via the DB15 connector.

***NOTES**:*

- *Minimum speed: 7m/min*
- *Maximum speed: 228m/min*

From the **Settings** menu, use ⬆ or ⬇ arrow keys to move the cursor to **Speed**, press Enter. Press Enter again at **Select** to choose **None Enc.** or **Encoder** mode**.** Press Enter to apply settings.

### Resolution

Set the amount of ink drops on an inch. From the **Settings** menu, use ⬆ or ⬇ arrow keys to go to **Resolution**, press Enter. Select your desired resolution and press Enter.

Optional resolutions with standalone mode:

- 300x300 dpi
- 300x150 dpi
- 300x100 dpi

Optional resolutions with PC mode:

- 600x600 dpi
- 600x300 dpi
- 600x150 dpi
- 600x100 dpi
- 300x300 dpi
- 300x150 dpi
- 300x100 dpi

### Density

Set the optical density of the print.

There are 5 levels of **Density** to apply

From the **Settings** menu, use ⬆ or ⬇ arrow keys to move the cursor to **Density**, press Enter. Move the cursor to your desired density and press Enter to apply.

***NOTES:***

*Print speed will be varied according to the resolution and the optical density.*

Table below is used to explain about relationship between: Speed, Resolution and Density

| Density / Resolution | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| **300x300** | 76 | 38 | 25 | 19 | 15 |
| **300x150** | 152 | 76 | 50 | 38 | 30 |
| **300x100** | 228 | 152 | 101 | 76 | 60 |

## Delay

Delay **before** print and Delay **after** print (mm)

- **Delay before print**: set the distance since the sensor receives signal to the start of printing. Input value at **Value**, press Enter to apply settings.
- **Delay after print**: set the distance that the print head will delay after it finished the previous print and the next print. Input value at **Value**, press Enter to apply settings.

***NOTES:***

- *Delay before print varies from 5 to 500 mm.*
- *Delay after print varies from 50 to 500 mm.*

## Cartridge

Allows users to input the current amount of ink in the cartridge after inserting into the machine and display the current level of ink in the cartridge while printing.

From the **Settings** menu, use the arrow keys to go to **Cartridge** and press Enter.

***NOTES:***

- *Alarm is triggered when there is 5ml left in the cartridge.*
- *If the same cartridge is used on a different machine, record the ink level from the current machine and input it on the new machine.*

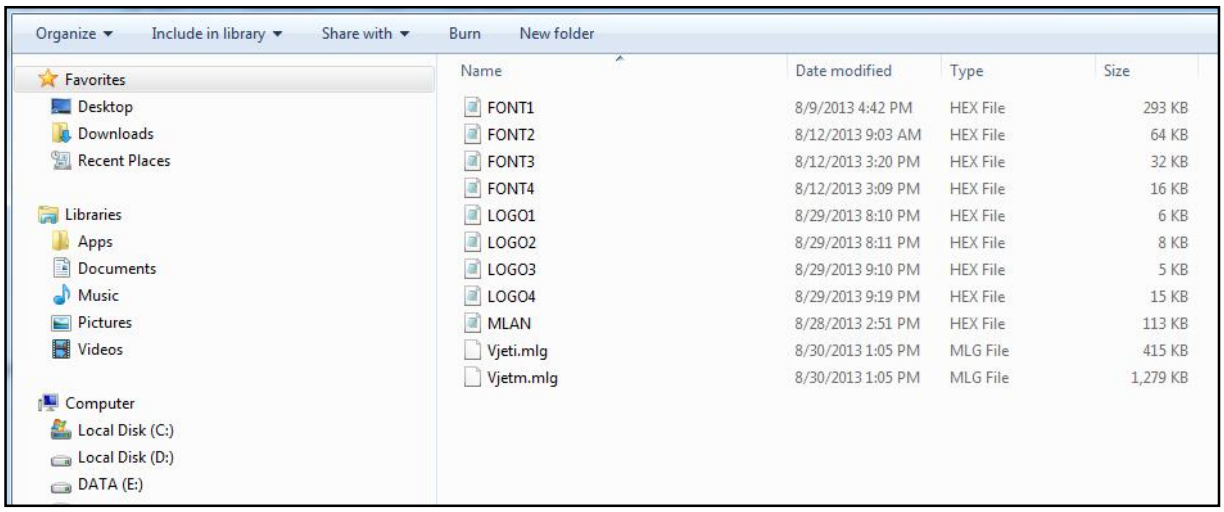
## Update Logo

Update logos or images from USB flash to the machine memory. Be sure your new logos are available on your USB flash.

Logos stored on your USB flash must be processed by our application See *Convert logo*.

Machine accepts logo with **.hex** format only. All logos must be named in order as **LOGO1**, **LOGO2**, **LOGO3**, and **LOGO4** as showed below.

## Update logo via USB flash



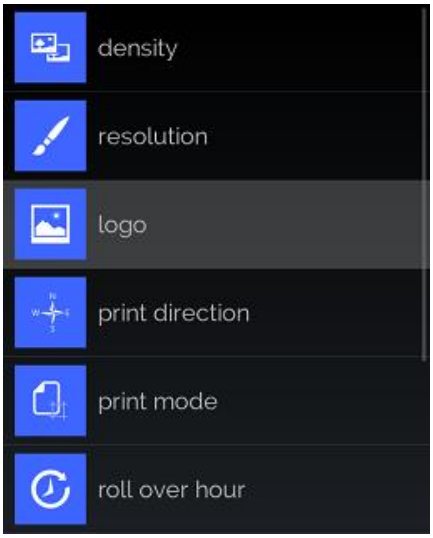

To update or change new logos on your machine memory, do the following steps:

- Insert USB flash into Machine (USB port 2)
- From the **Settings** menu, go to **Update Logo** and press Enter
- Select your desired logo (1, 2, 3 or 4) and press Enter to begin updating. Be sure you name them correctly. LOGO1 on your USB will replace LOGO1 on the machine memory and the same for other logos.

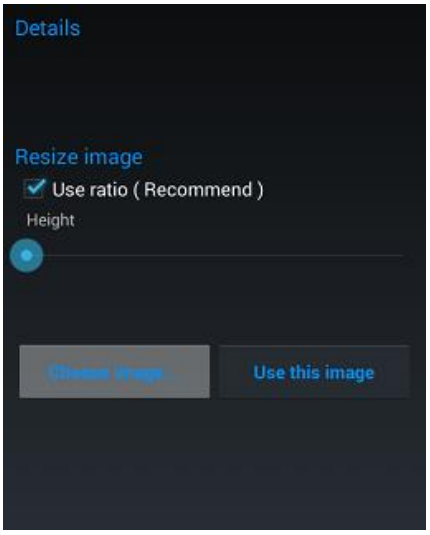
## Update logo via smart phone

Do as following steps to update the logo via your smartphone.

Taps on "**settings**"

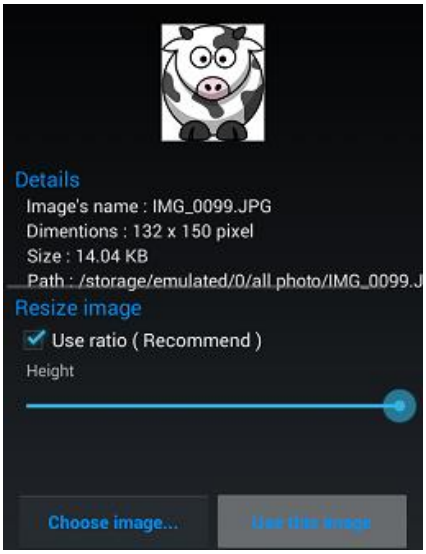



Taps on "**logo**"

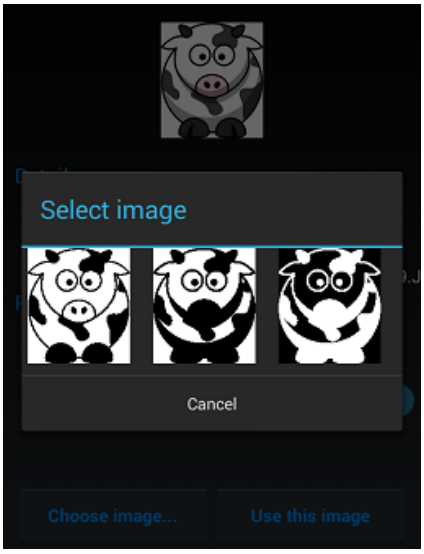



Taps "**Choose image**"

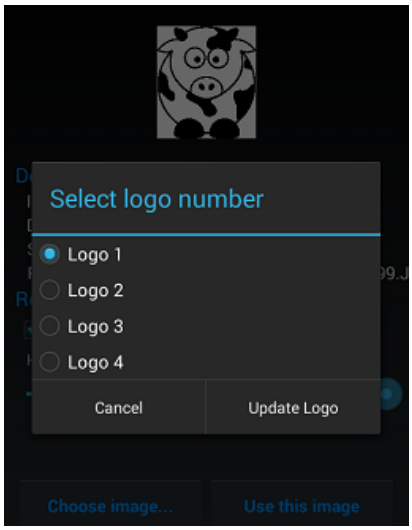
Select image on your phone



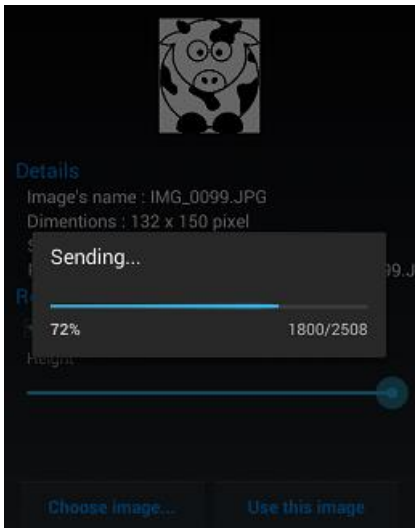

Taps "**Use this image**"



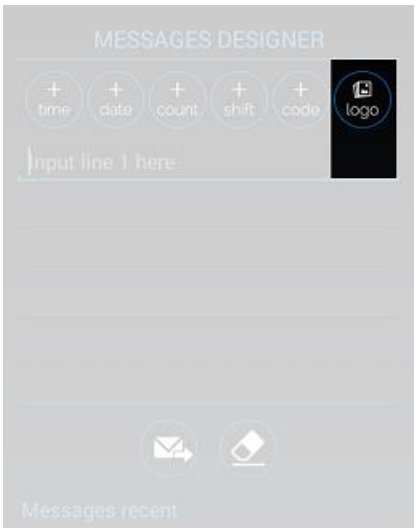

Select convert mode




Select logo number on machine

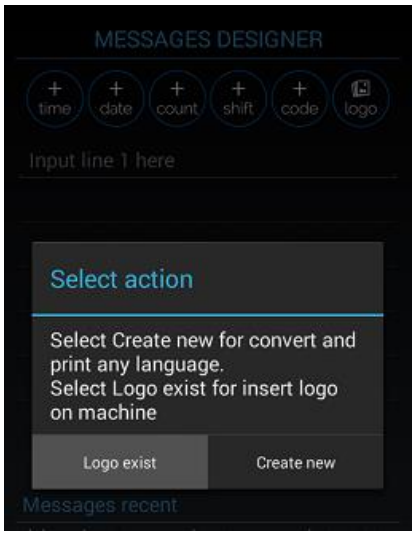



Waiting for sending process

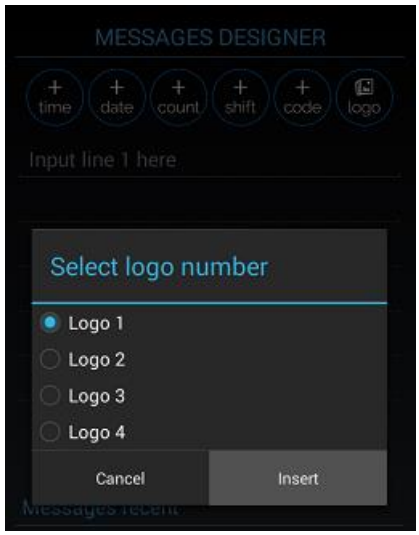



Open Messages Designer.

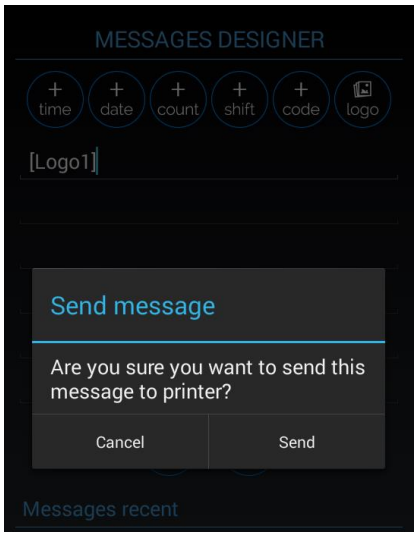
Taps "**logo**" button




Select "**Logo exist**"




Select number logo on machine




Taps send button. Select "**Send**"

### String

Insert a string of data into messages.

From the **Settings** menu, use the arrow keys to go to **String** and press Enter. Input your strings into the input section. Press ESC to apply and go back to the main menu.

***NOTES**:*

- *Maximum length of each string is 50 characters.*
- *Machine allows maximum 5 strings on the machine memory.*

### Random Jet

Schedule automatic jetting to clean the print head.

From the **Settings** menu, use arrow keys to select **Random Jet** and press Enter. Select **Status** and press Enter.

- Select **Enable** and input time for jetting (second (s)) at **Time.**
- Select **Disable** to disable random jetting.

***NOTES**:*

*This function is useful for Solvent base ink. So we recommend that, any user need enable this function with time around 15-30 seconds to help printing quality always perfect.*

### Print Side

Set nozzles on 2 modes **Manual** and **Auto.**

From the **Settings** menu, use the arrow keys to go to **Print Side** and press Enter. Select **Manual** or **Auto** by pressing Enter at **Select**

- **Manual**: Press Enter at Value to select Odd or Even. This is applied in case one of your nozzle side is not working. Press Enter to apply.
- **Auto**: Input the number that the nozzles will switch after certain prints. To automatically switch nozzles after every print, input 1. To switch nozzles after every 25 prints, input 25.

***NOTES:***

- *Operation with PC: Odd and Even to achieve max 600x600dpi*
- *Operation with wireless keyboard: Odd or Even (max 300x300dpi)*
- *Operation with smart devices: Odd or Even (max 300x300dpi)*

### Sensor

Select **External** or **Internal** sensor.

From the **Settings** menu, use the arrow keys to go to **Sensor** and press Enter. Move to your desired mode and press Enter to confirm.

## Directions

Set print direction correlating the direction of the conveyor. Machine supports 4 directions: ABC: left right, CBA: right left, ∀BↃ: reverse left right, ↃB∀: reverse right left.

From the **Settings** menu, use the arrow keys to go to **Directions** and press Enter. Move to your desired direction and press Enter to confirm.

## Print Mode

**Sensor** mode and **Continue** mode.

From the **Settings** menu, use the arrow keys to go to **Print Mode** and press Enter. Select **Mode** and press Enter to select **Sensor** or **Continue** mode.

### Sensor mode

Machine is triggered by sensor and print.

Go to Mode and press Enter to select **Sensor** mode and use arrow keys to move to other settings.

Input value at **Repeat** to set the number of prints to be repeated on the same object. Press Enter to confirm and go to the next setting. Valid values vary from 0 to 100.

Input value at **Delay** to set distance between the prints. Valid values vary from 10 to 10,000. Invalid values results in error.

### Continue mode

Go to Mode and press Enter to select **Continue** mode and use arrow keys to move to other settings.

Input value at **Delay** to set distance between the prints. Valid values vary from 10 to 10,000. Invalid values results in error.

## Unit

Select your desired measurement units **inch** or **mm.**

From the **Settings** menu, use the arrow keys to go to **Unit** and press Enter. Move to your desired measurement, press Enter to select.

## Bluetooth

Connect Machine to Bluetooth network.

From the **Settings** menu, use the arrow keys to go to **Bluetooth**, press Enter. Use ⬆ and ⬇ arrow keys to turn ON or turn OFF Bluetooth (see Quick Startup).

## Update Fonts

Update different fonts and character sizes for Machine. There is one font at a time on Machine.

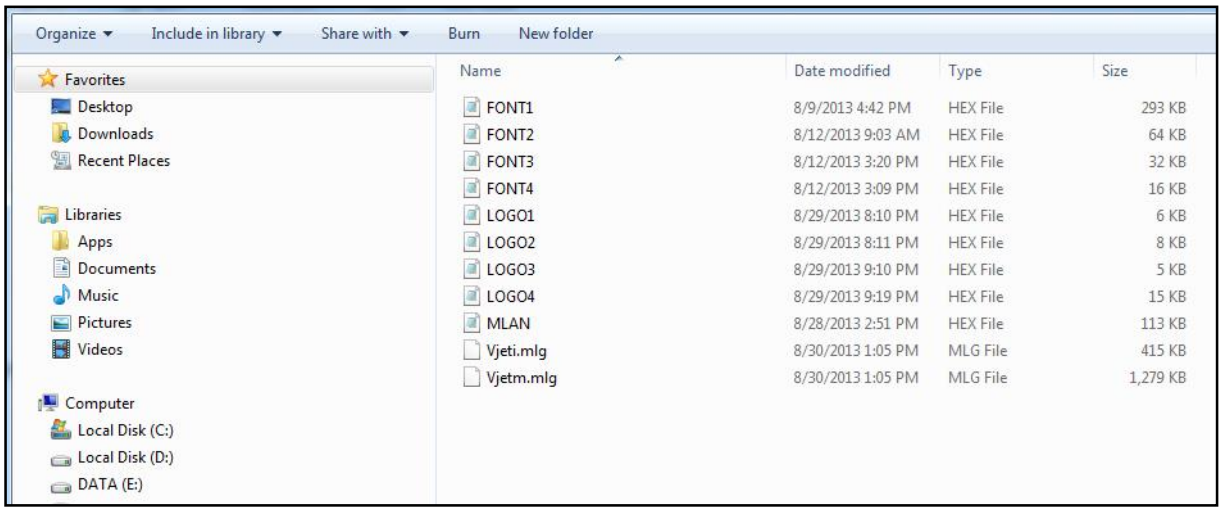
Machine supports the following fonts while working with wireless keyboard.

| Lines | Size |
|---|---|
| **1** | 12.7 mm |
| **2** | 5.93 mm |
| **4** | 2.54 mm |
| **6** | 1.69 mm |

**Steps to update different font/size:**

- Insert USB flash into USB port 2 on Machine.
- From the **Settings** menu, go to **Update Font** and press Enter.
- Select your desired font/sizes (1 to 4) and press Enter to begin updating. FONT1 on your USB will replace FONT1 on the machine memory and the same with other fonts.

Machine accepts font/sizes with **.hex** format only. All font/sizes must be named as showed below.




***NOTES:***

- *Fonts being updated will replace the existing ones on the machine memory.*
- *Machine prints true fonts while working with PC*

## Rollover

Set different date depending on the shift schedules of your production.

From the **Settings** menu, use the arrow keys to move to **Rollover** and press Enter.

Go to **Set** and press Enter. **Enable** this function and input value at **Time**. Press Enter to apply (default value is 00h: 00). Otherwise select **Disable and p**ress Enter to apply.

## System Clock

Set time and date for your system clock

From the **Settings** menu, use arrow keys to go to **System clock** and press Enter

Go to **Date**, use ⬅ and ➡ arrow keys to change date value and press Enter to apply.

Go to **Time**, use ⬅ and ➡arrow keys to change time value and press Enter to apply.

## Rotate

This function will allow you control the direction of menu interface, it help user can easier look to the screen and operate. With a rotate sensor inside so it can automatic adjust the interface to match with current direction of machine.

From the **Settings** menu, use the arrow keys to go to **Rotate** and press Enter.

Select Auto or Lock rotate or others, press Enter to apply.

Screen will rotate according to the direction of the machine when **Auto** is selected.

Screen will be locked at the direction when **Lock rotate** is selected.

Otherwise select others.

## Password

Set to authorize of users, or to protect the machine from unauthorized users. Machine is defaulted as no password.

To activate password protection, from the **Settings** menu use arrow keys to go to **Password** and press Enter. Then go to Active and select Enable to set password.

Enter old password (1234567890), then enter your new password and retype to confirm.

Maximum characters allowed for password is 10 including letters and numbers.

## Default

Reset your machine settings to the factory defaults. This can be used after updating firmware or reset machine in case errors occur during operation.

From the **Settings** menu, select **Default** and press Enter. A confirmation box will appear. Select **Yes** to continue. Otherwise, select **No.**

## Language

Select your interface language. Right now we support these language:

**English** (Default), **Polish**, **Spanish**, **Finnish**, **Korean**, **Chinese**, **Vietnamese, Portuguese**, **Russian**, **German**, **French.**

From the **Settings** menu, select **Language** and press Enter. Use the arrow keys to move to your desired language and press Enter to apply. Otherwise, select ESC.

***NOTES:***

*At default setting, machine just show 6 languages at Setting → Language. If you don't see your desired language at menu. But it inside our support languages. Please do as following.*

### Add optional language interface

For example user need change machine interface to Korean. They will need as below.

**Step 1**

Copy all file of machine's firmware to root folder of USB flash. See table below for more information.

| Languages | File name |
|---|---|
| Index Update | 00.txt |
| Finnish | 01.txt |
| Spanish | 02.txt |
| German | 03.txt |
| French | 04.txt |
| Russian | 05.txt |
| Vietnamese | 06.txt |
| Chinese | 07.txt |
| Korean | 08.txt |
| Portuguese | 09.txt |
| Polish | 10.txt |

**Step 2**

After copy all file to USB, looking at file **00.txt** (**Index update**). Open and edit of this file content to "**08**" (this mean Index update will become to Korean – 08.txt). Save and closed this file.

**Step 3**

Insert USB flash to machine. Go to **Settings** menu. **Press F12**. Please wait a moment for machine update new Index of language.

**Step 4**

- Go to **Settings → Language → Enter.** You will see "**Korean**" will appear at the bottom of menu language.
- Select "**Korean**", press Enter.
- **Press F12** to complete operation. Please wait a moment, the machine will read file 08.txt and update to memory.

The machine will exit Settings menu and return Main menu with new Korean language interface.

***NOTES**: You need do exactly 4 steps above and also press F12 with 2 times.*

## IO signals

Select start/ stop the coder from the button

From the **Settings** menu, select **IO signals** and press Enter. Then select input to active **Start/ Stop**.

## Custom string

Update and select the Custom string

To update the Custom string by USB flash, from the **Settings** menu, select **Custom string** and press Enter. Then select the desired Custom string number or select all to update and then press Enter, wait until return the **Settings** menu.

## Coder name

Change machine name. This name will be show when you use smartphone and application to search machine. It will help you recognize machine when you have so many Bluetooth devices around or is case you have more than 1 machine.

From the **Settings** menu, select **Coder name.** Input new name for machine. Default we will set it "**Coder 1**"

## RS485 protocol

## About

- See information of the current firmware.
- Update to a different firmware ***(see Appendix 1).***

# PC APPLICATION INTRODUTION

## Requirement

- **CPU**: Core 2 Duo 2x2.0 GHz.
- **Ram**: 2GB.
- **Hard disk space**: 50 MB.
- **Operating System**: Windows 7, Windows 8 (x86 / x64 bit).
- **Software**: Microsoft **.**NET Framework 4, Microsoft Office x86 / x64 bits.

## Hardware setup

Do as below on machine.

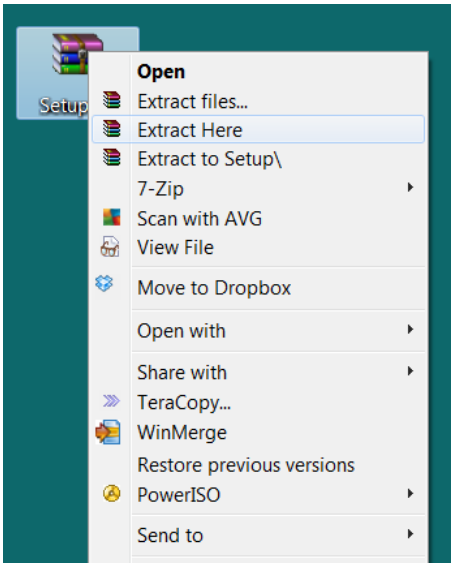
- **Step 1**: connect USB cable from machine to PC.
- **Step 2**: open Operation menu, select "**Connect PC**". If cannot select, please stop print first, then select again.

## Software setup

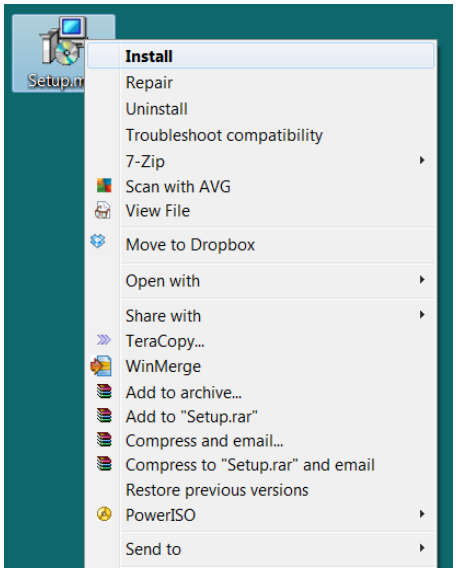
### Install application

***NOTES:***

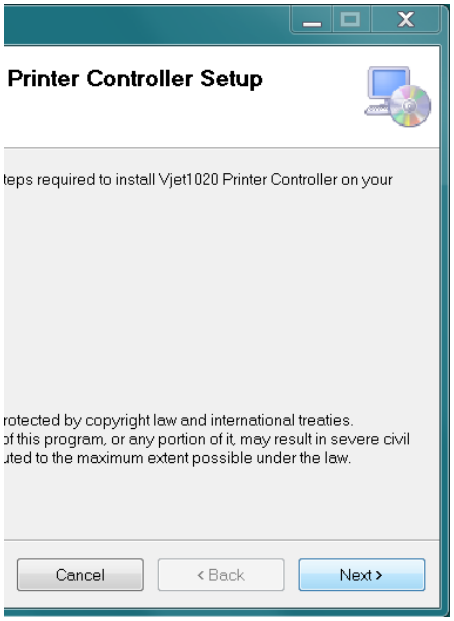
- *Please install the Microsoft .NET Framework 4.0 or newer. Use this link [http://www.microsoft.com/en-us/download/details.aspx?id=17851](http://www.microsoft.com/en-us/download/details.aspx?id=17851)*
- *If you are using Window 8, the Microsoft .NET Framework has been integrated to system.*



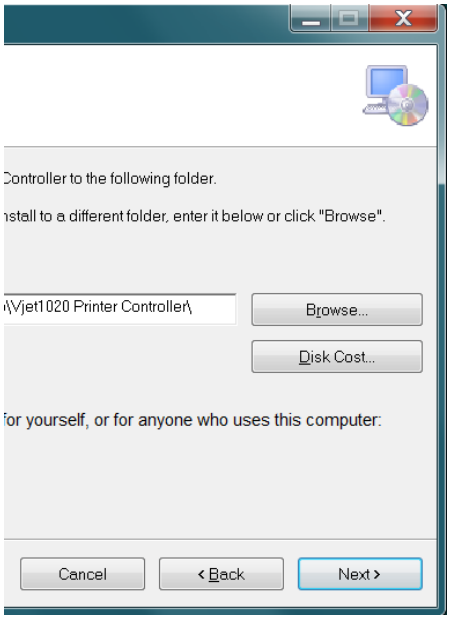

Extract setup RAR file.



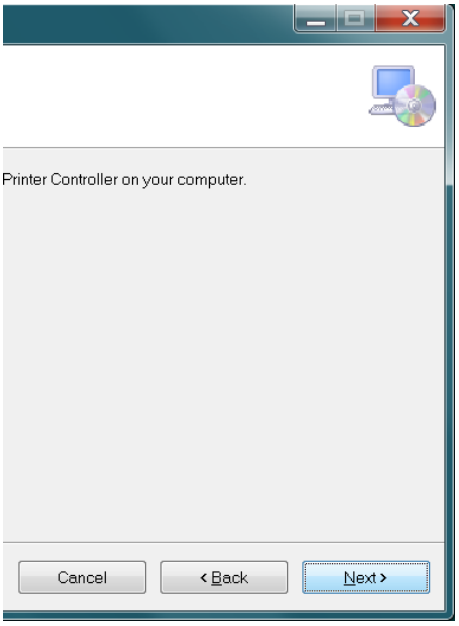

Right click select Install on MSI file



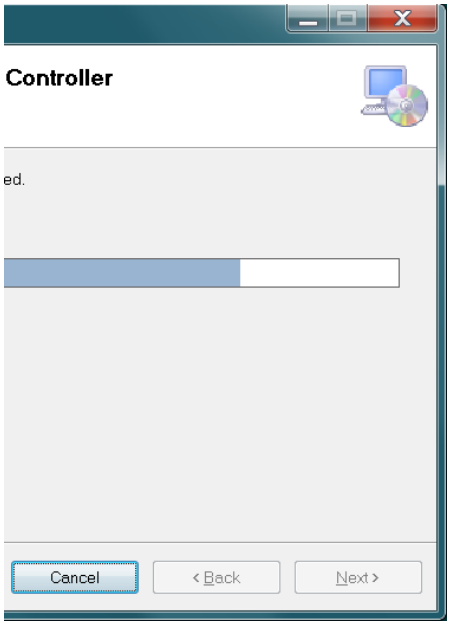

Click Next




Click Next or select other path



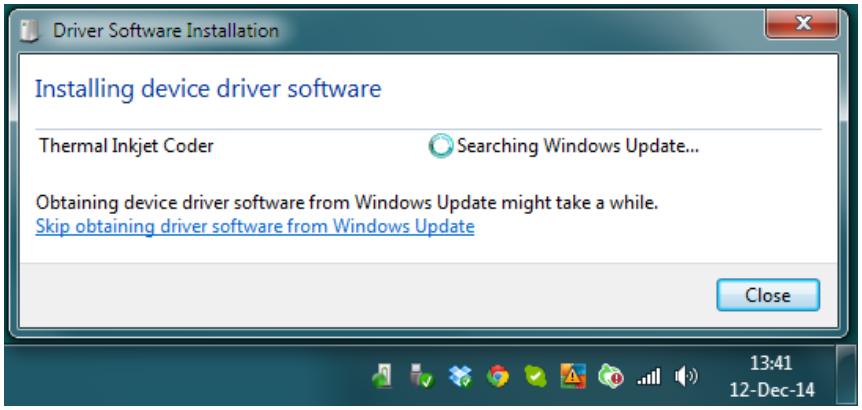

Click Next



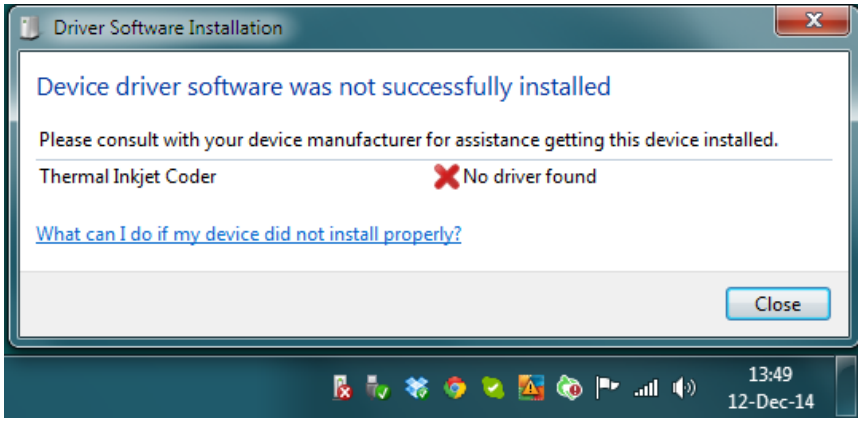

Waiting for complete!

## Install driver

When plug your machine to computer. Your Window will search the driver for machine, but it will not able to success install driver. You need install by manual.

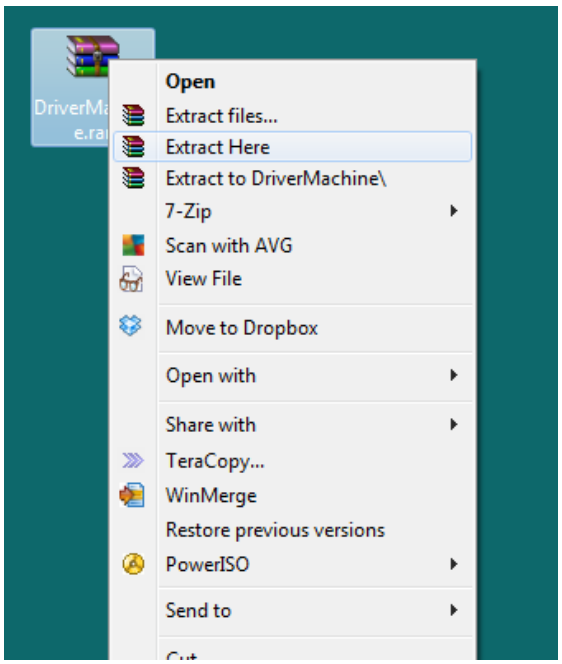



Searching driver software…

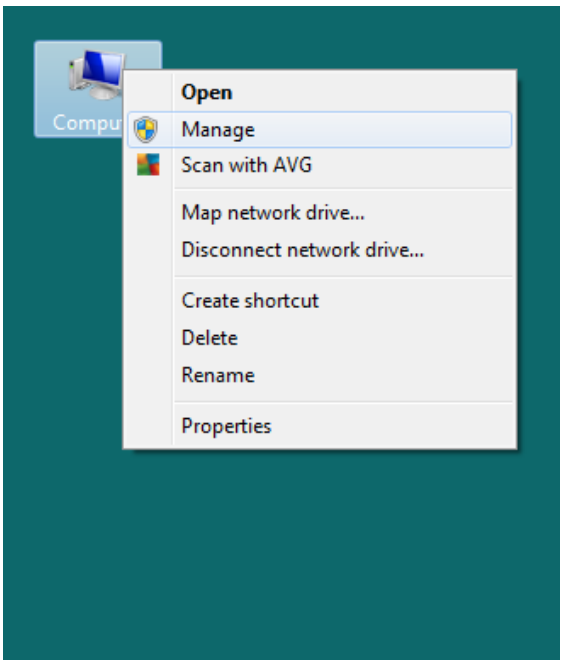



Cannot successfully installed driver.

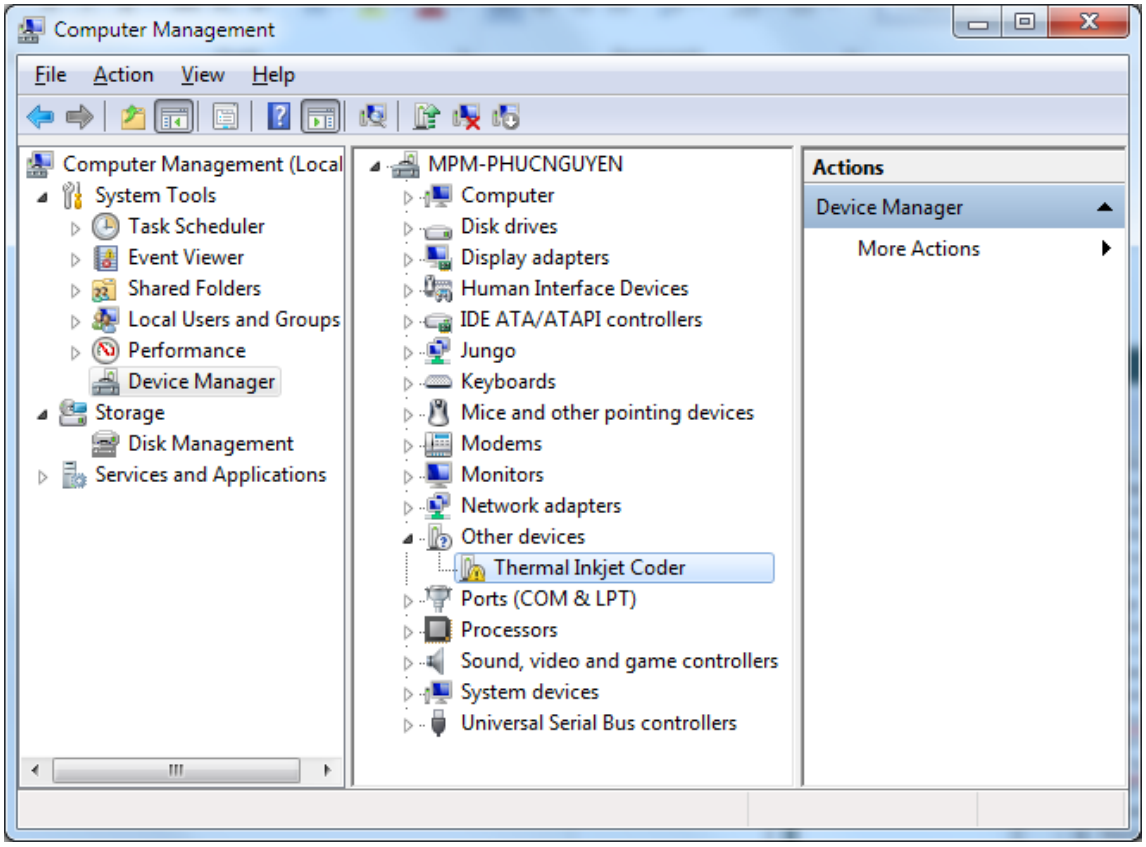
Please do as following:



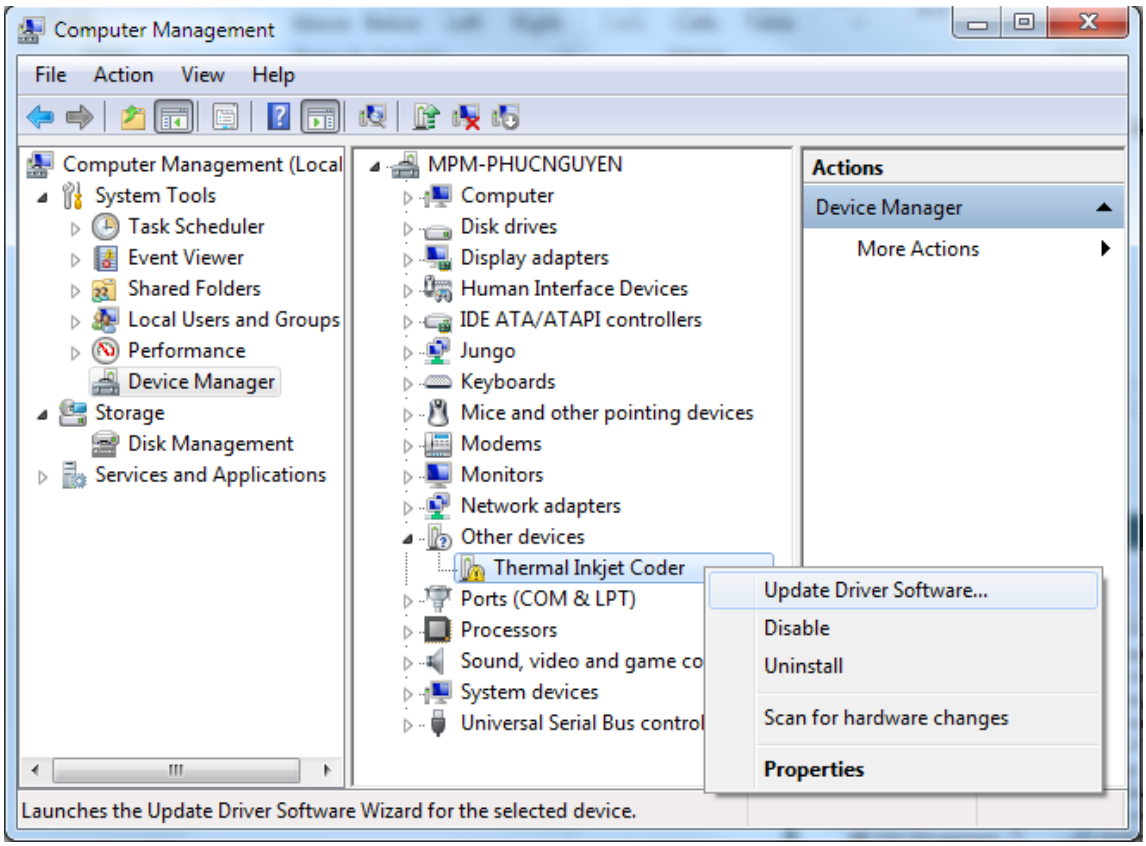

Extract driver. Get it from us.



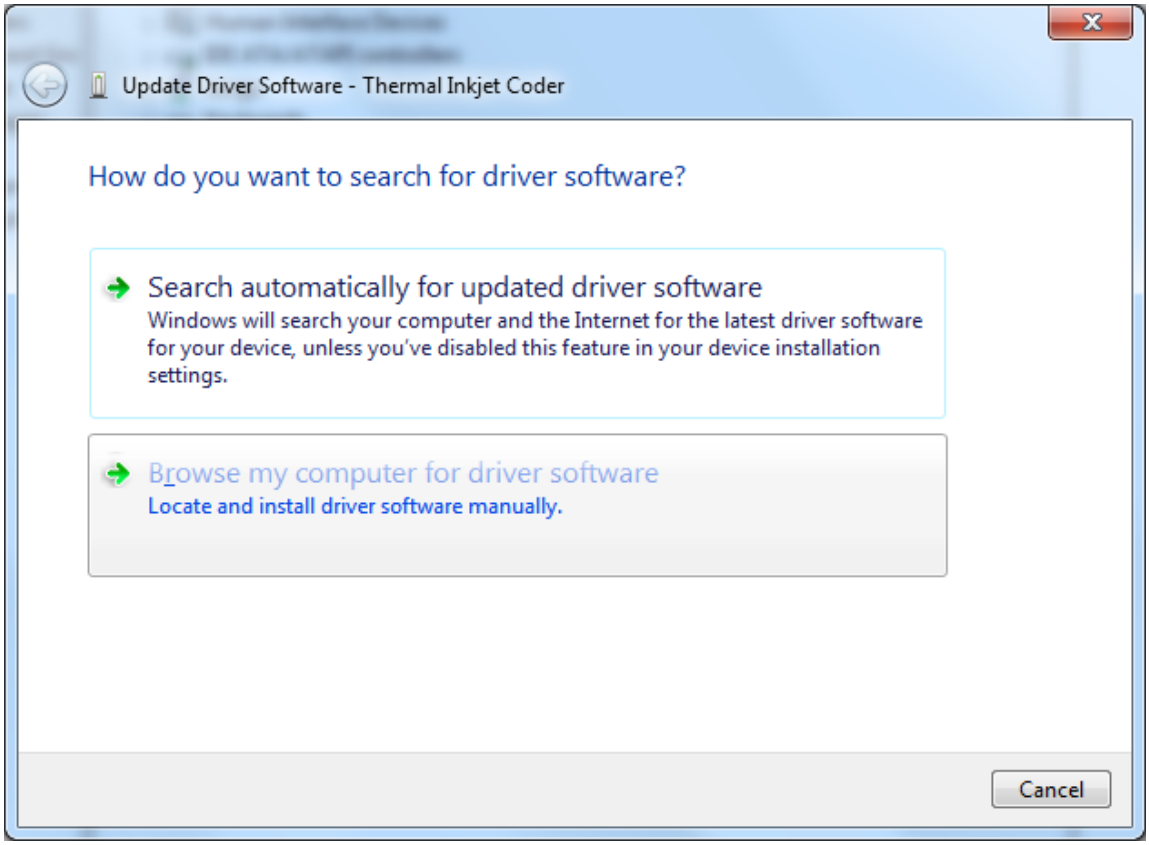

Open **Manage** function.



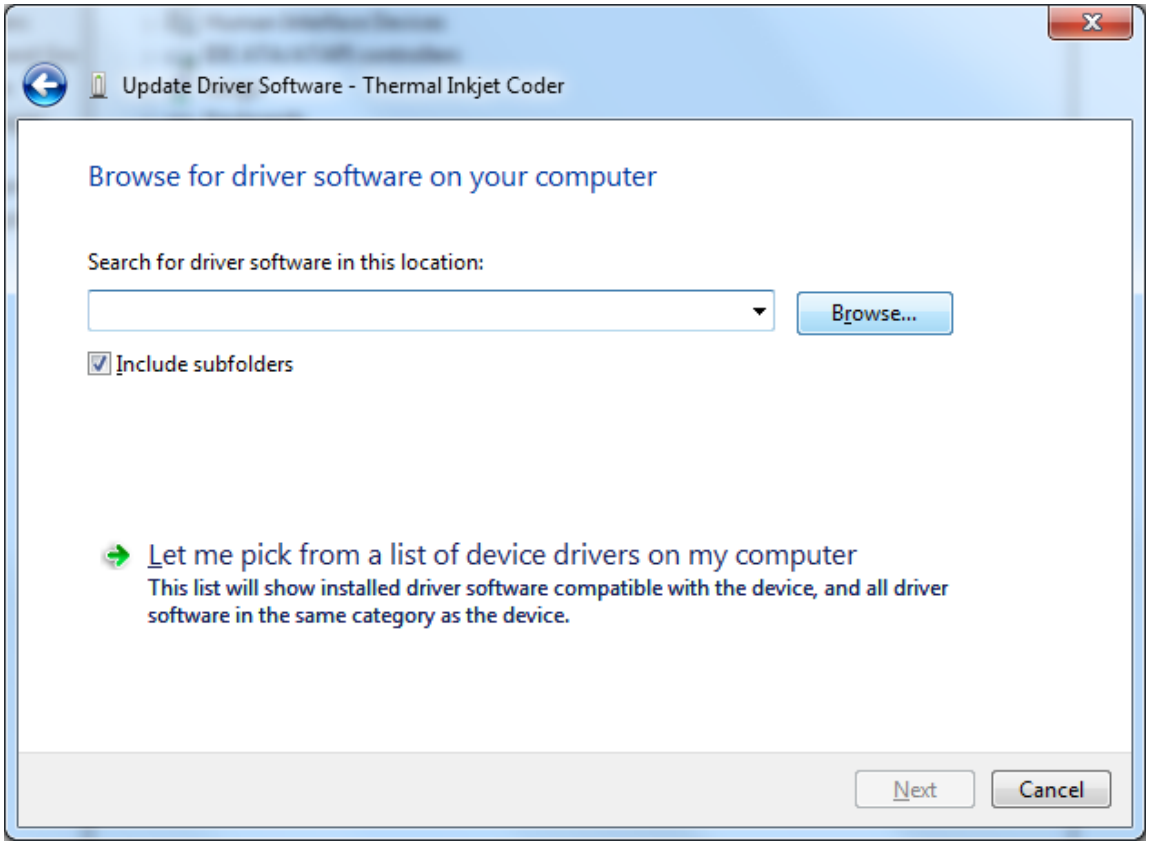

Look at **Other devices**. "**Thermal Inkjet Coder"** is our machine.



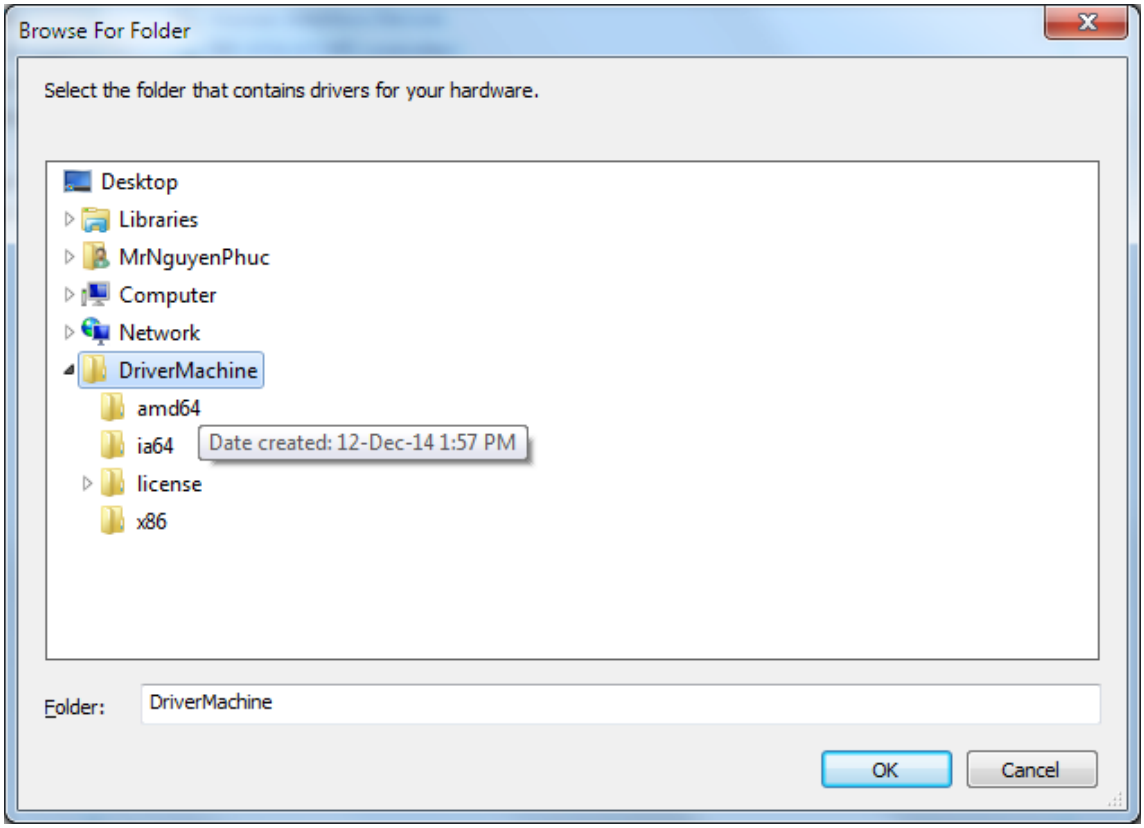

Right click. Select **Update Driver Software.**



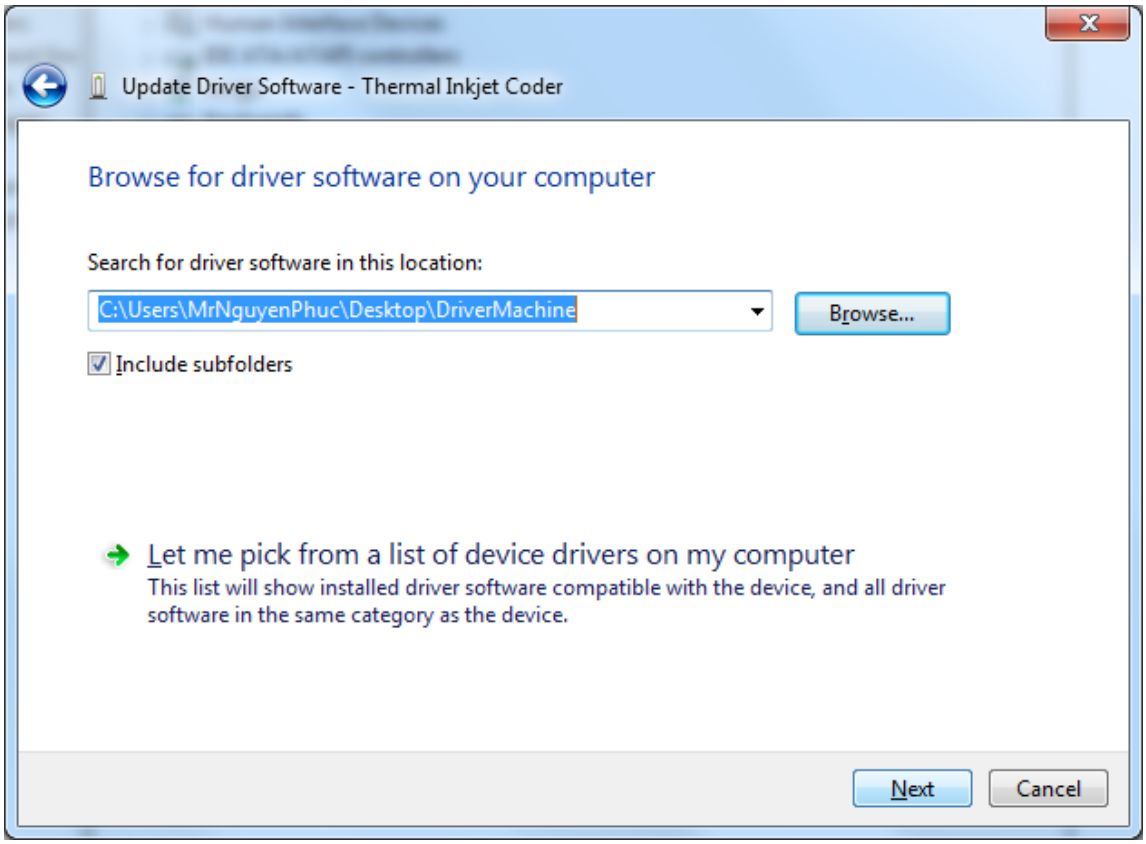

Select **Browse my computer for driver software.**



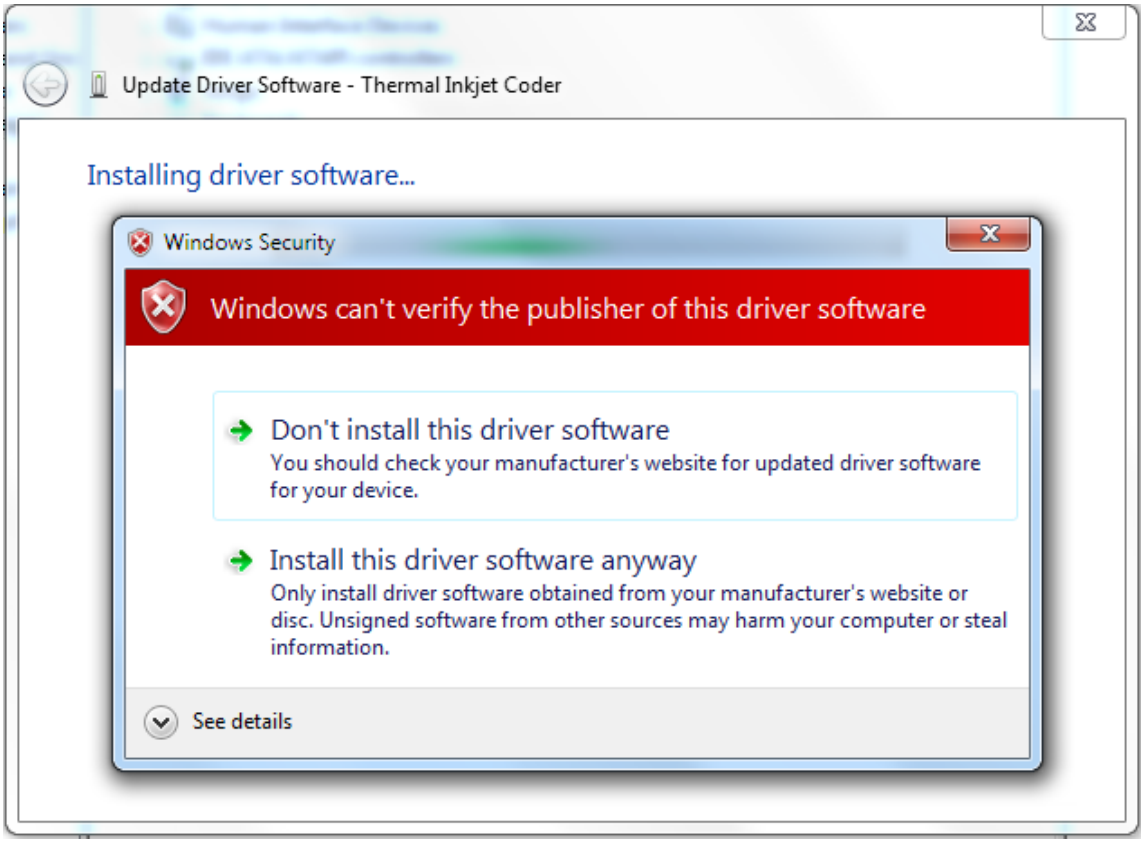

Select **Browse** to locate to driver folder.



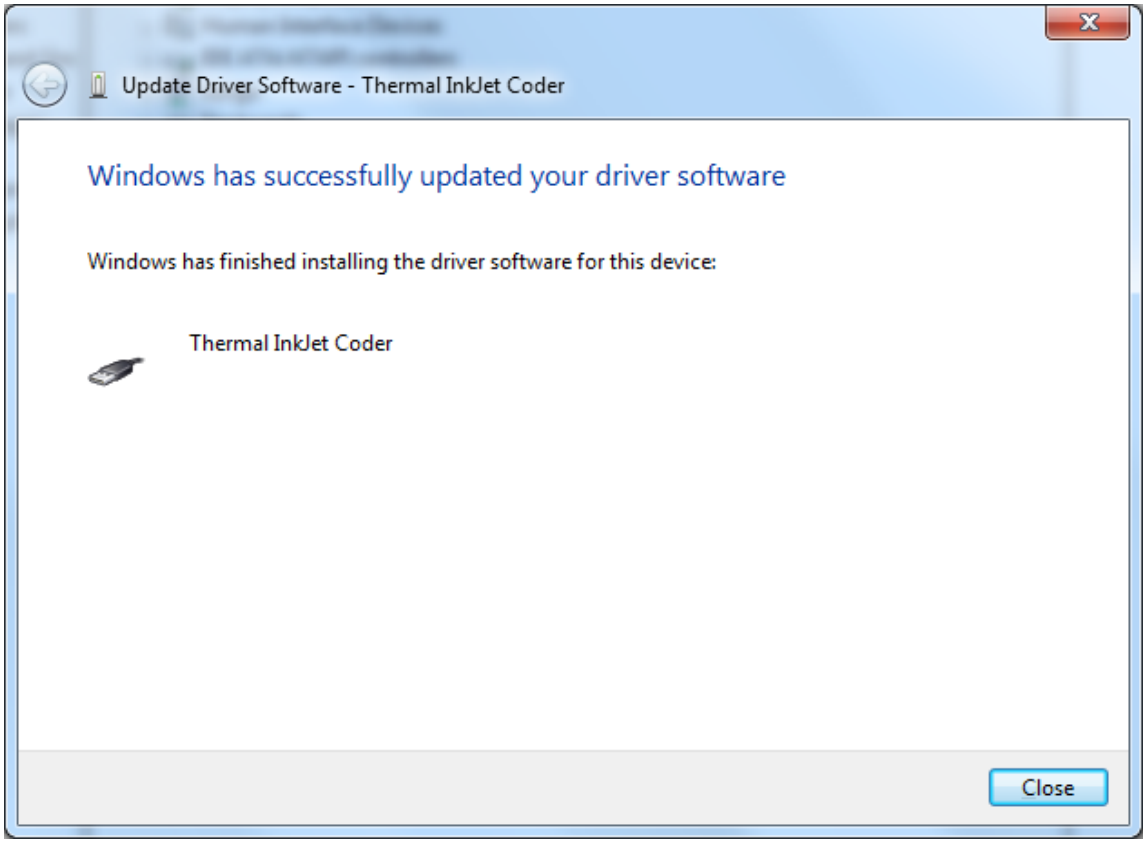

Locate to folder driver.



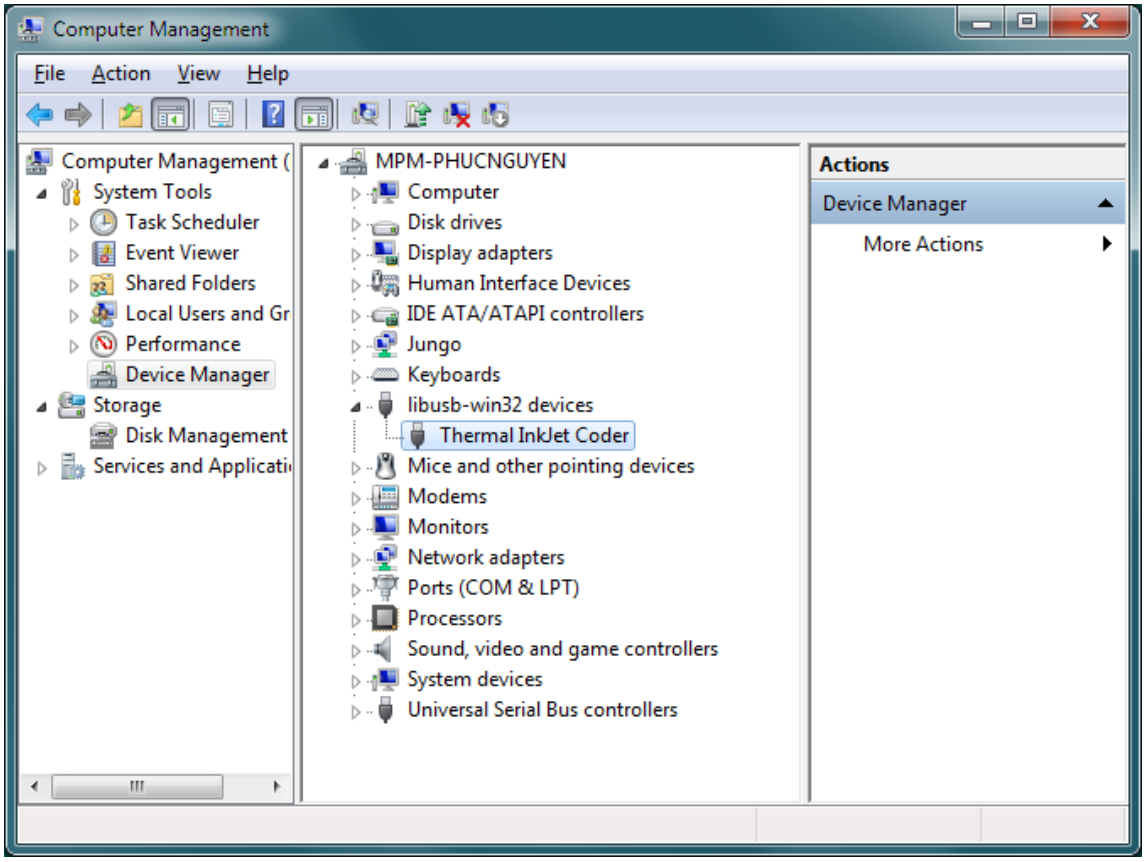

Click Next to continue.




Got security issue with Window. No problem, "**Install this driver software anyway**"!




Wait a moment, and here your driver installed success.



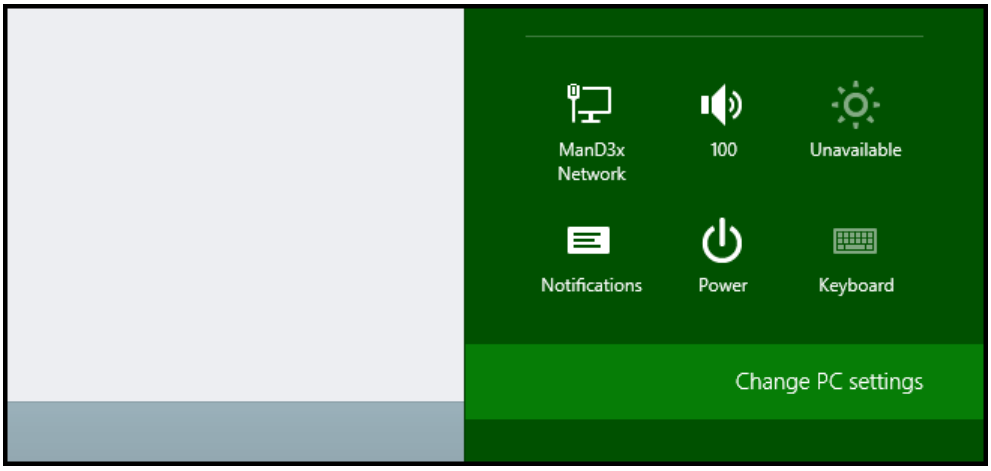

Look at Device Manager, you will see **Thermal InkJet Coder** device appear here.

***NOTES:*** *If your PC uses Window 8 64bits, please do one next step* ***Disable signature enforcement*** *before you install the driver.*

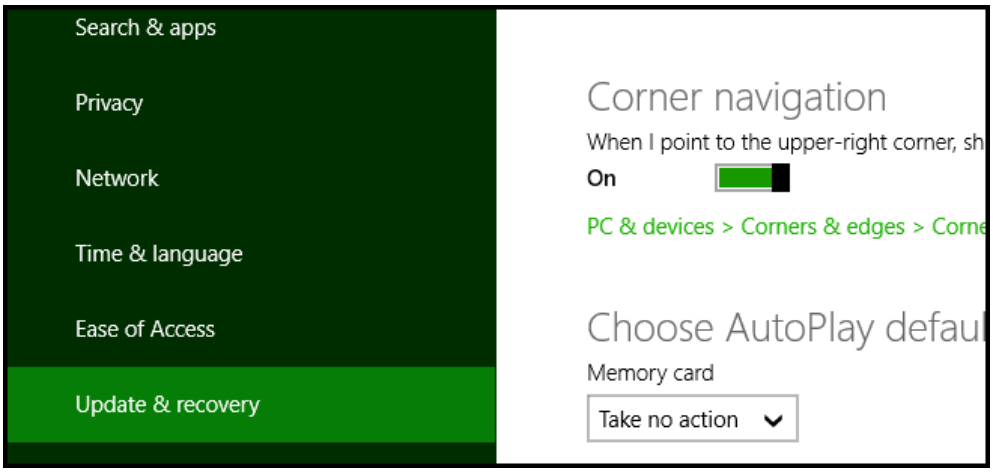
## Install driver on Window 8

Press the Win + C keyboard combination to bring up the Charms Bar, then click on the **Settings** Charm.

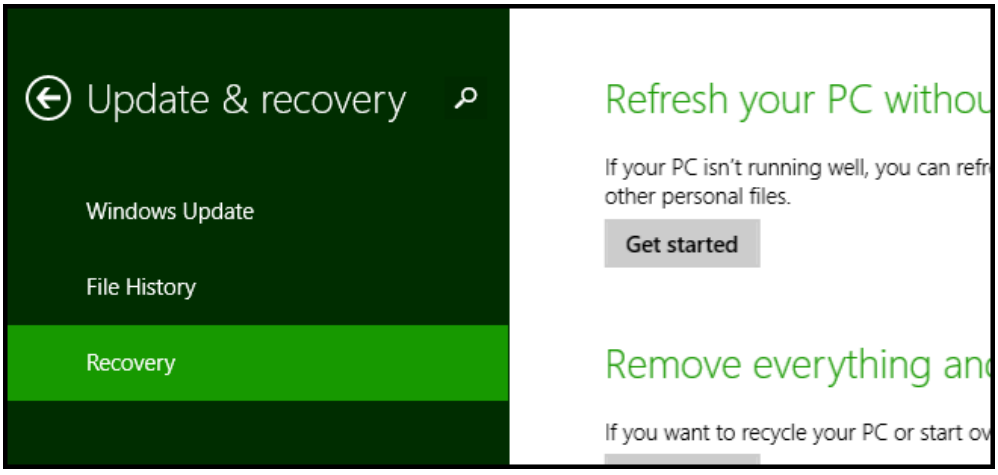
We need to head into the Modern Control Panel, so go ahead and click on the Change PC settings link.




When the Control Panel opens, switch over to the "**Update & recovery**" section.

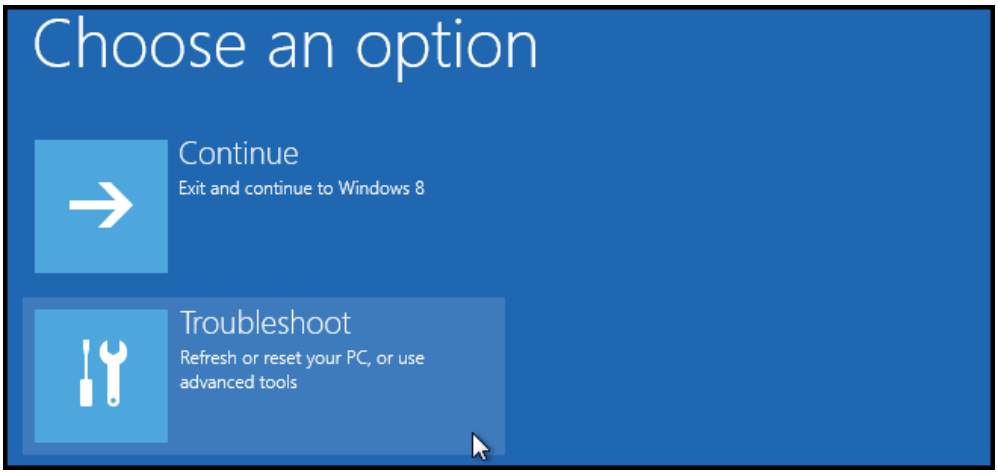



Then click on the Recovery option on the left hand side.

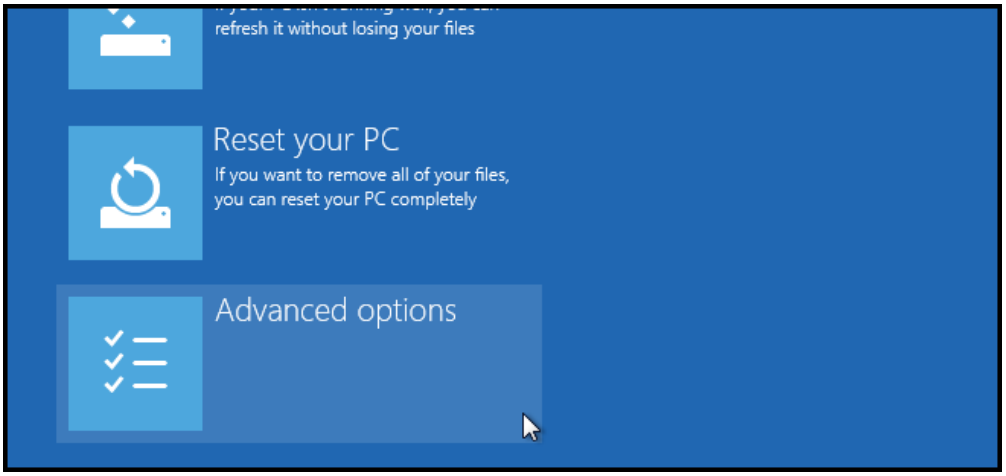



Once selected, you will see an advanced startup section appear on the right hand side. You will need to click on the "**Restart now**" button.

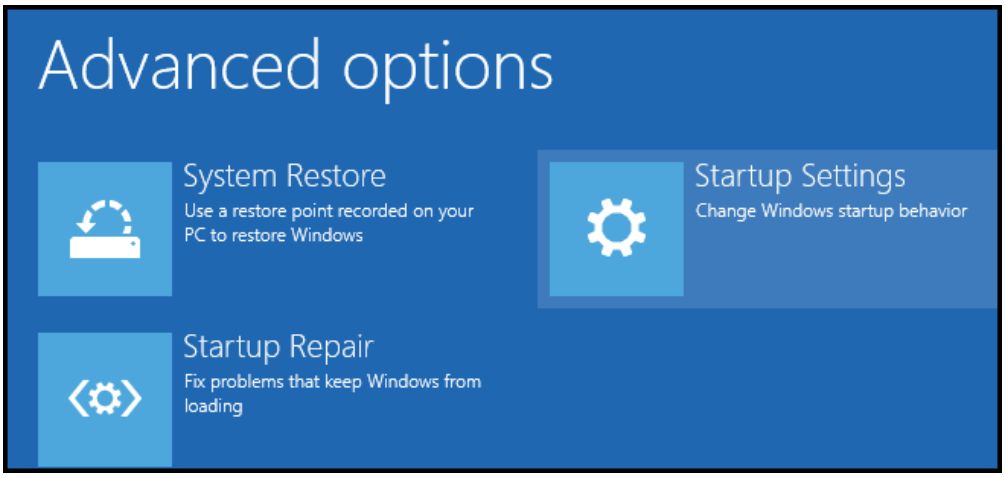
Once your Computer has rebooted you will need to choose the Troubleshoot option.



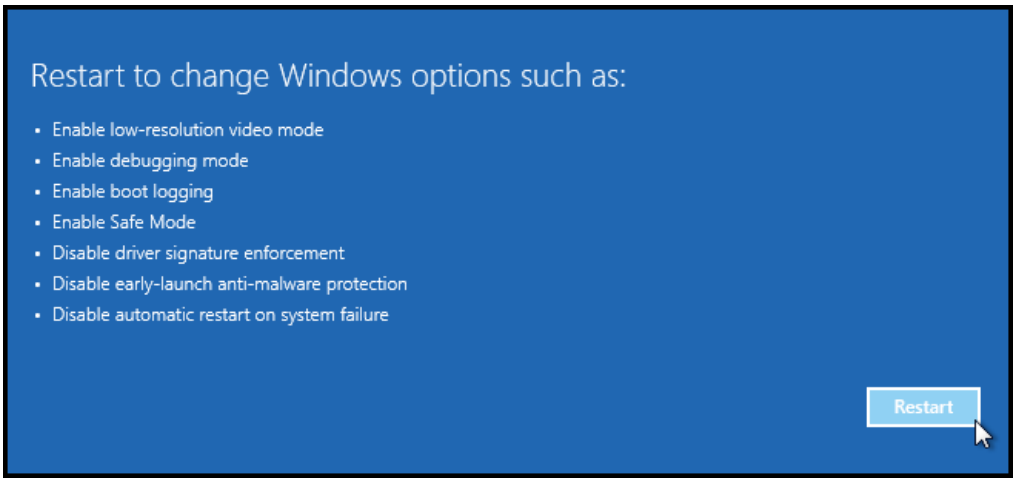

Then head into **Advanced** options.



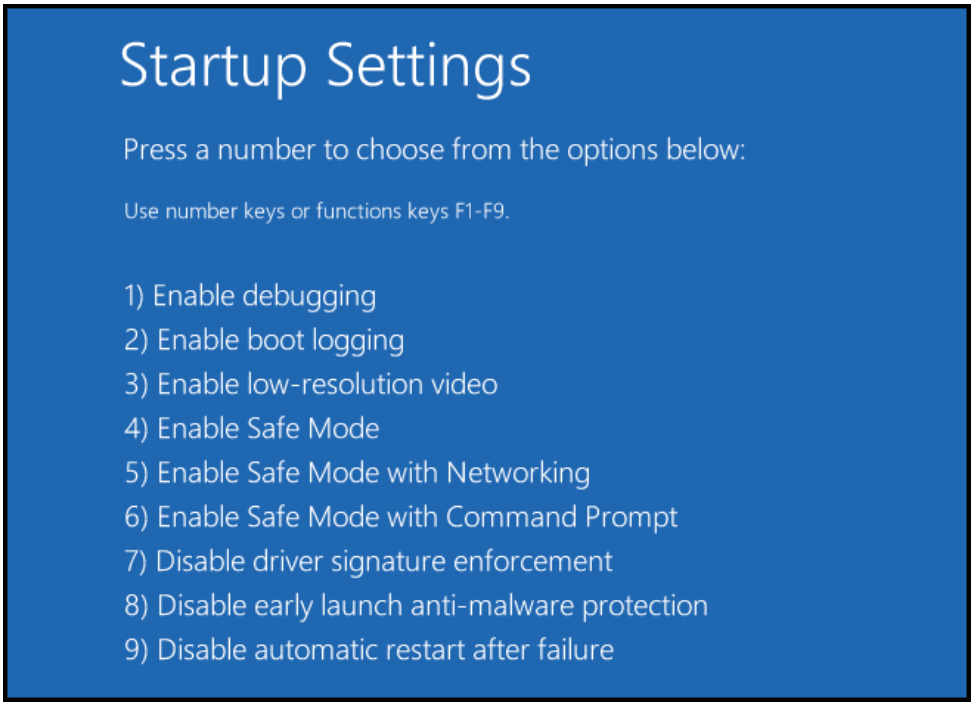
Then Startup Settings.




Since we are modifying boot time configuration settings, you will need to restart your Computer one last time.



Finally, you will be given a list of startup settings that you can change. The one we are looking for is "**Disable driver signature enforcement**". To choose the setting, you will need to press the F7 key.



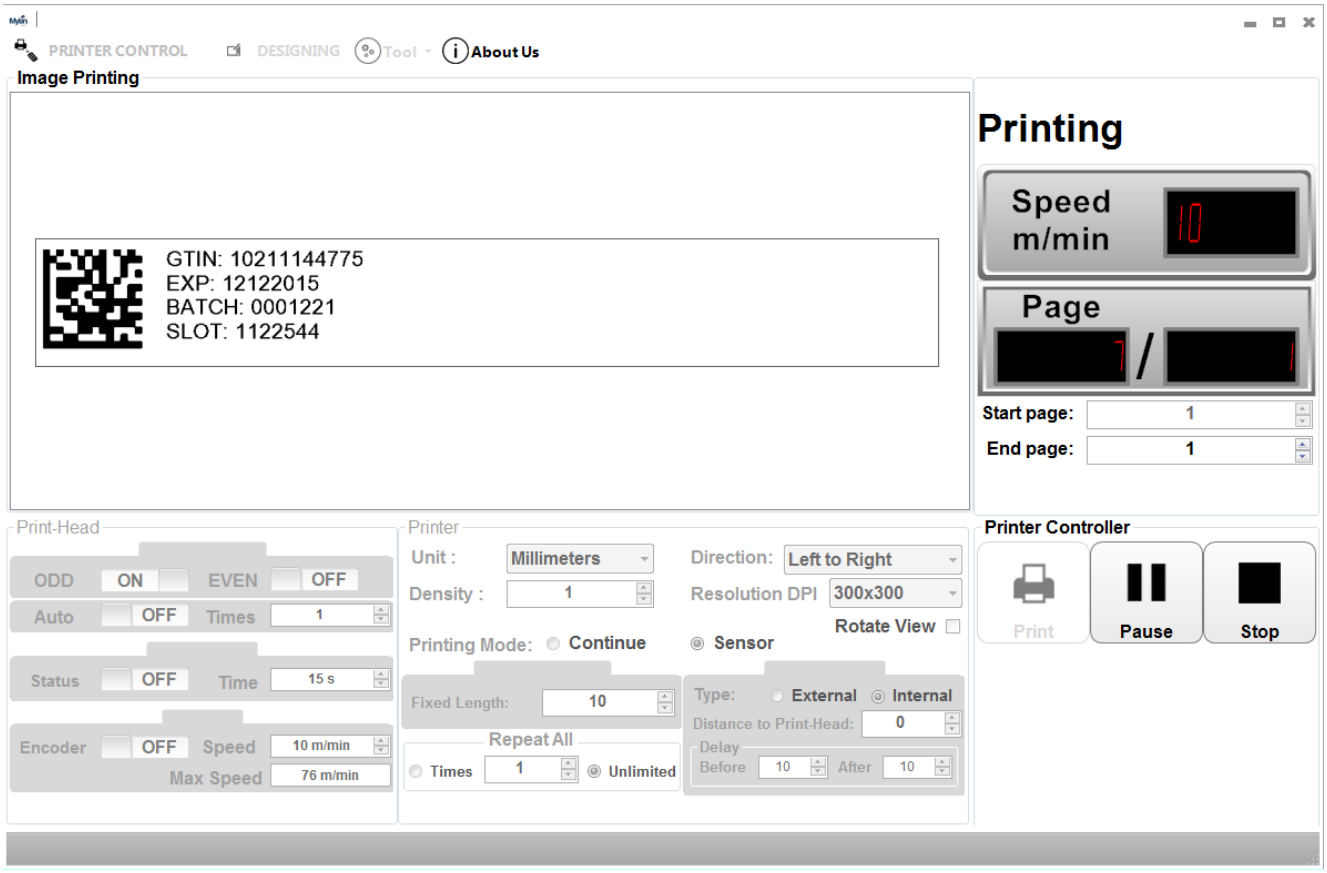

That's all there is to it. Your PC will then reboot and you will be able to install unsigned drivers without any error message.

# Software Using

Make sure Hardware Setup has been did.

After installed, open Controller application.

## Printer Controller Interface

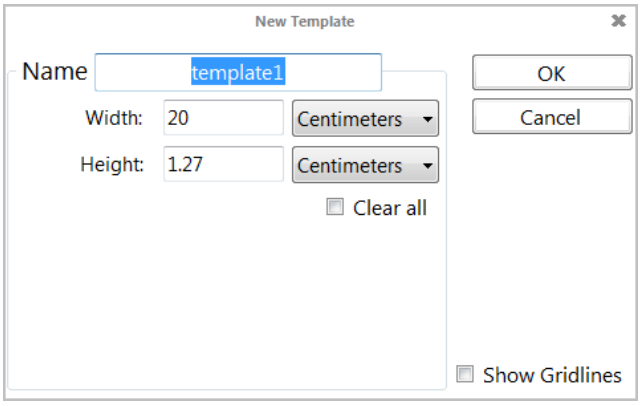



Setting all printing parameters for the message before start printing. Be sure to stop the printing mode before setting the parameters.

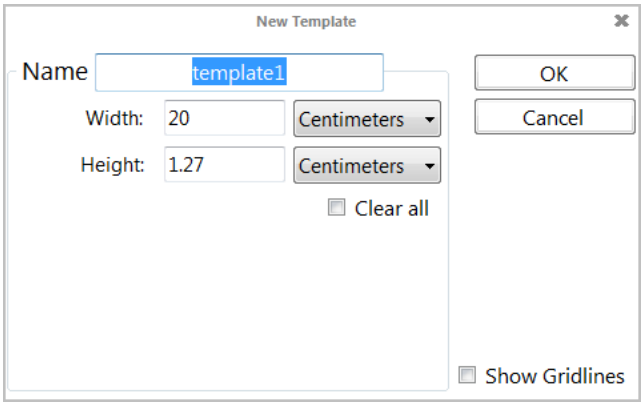
## Create new message

Click **DESIGNING** to open design template. From the designing section, select **New Template**. A new window pops up.

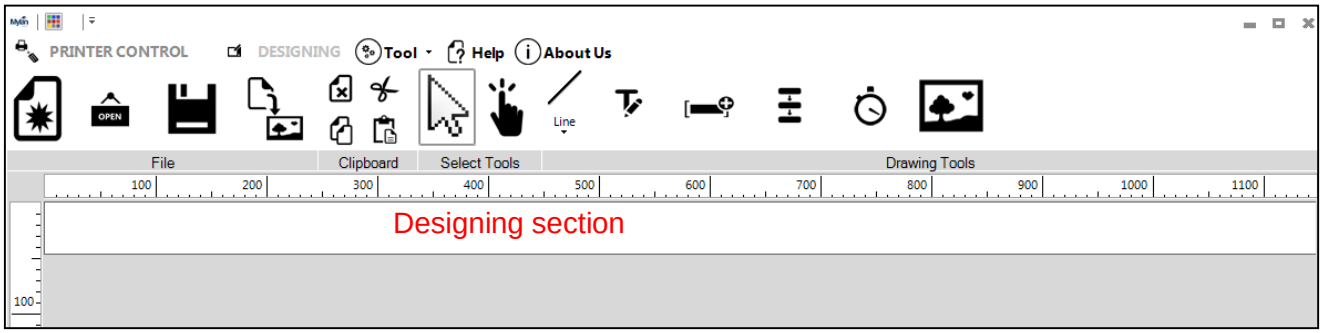
- Name your message at **Name.**




- Input **Width** and **Height** of your message. Height of the message is default at 12.7mm.
- Select measurement: **Centimeters**, **Millimeters**, **Inches**, **Pixel**.




- Select OK to save settings and begin designing message

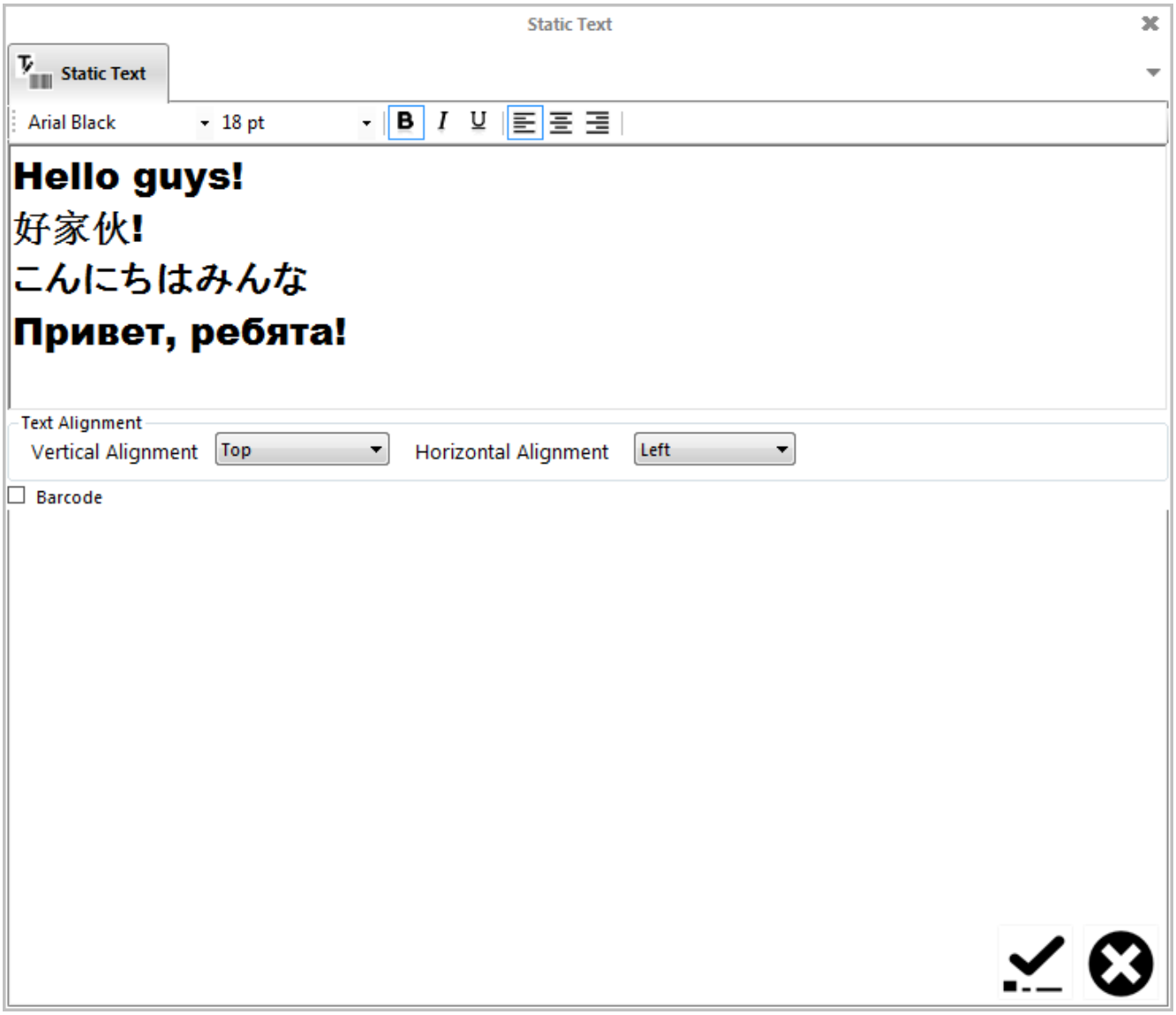



***NOTES:***

*Be sure the objects are completely located in the template. Any parts projected out of this section will be missed print.*

## Static text object

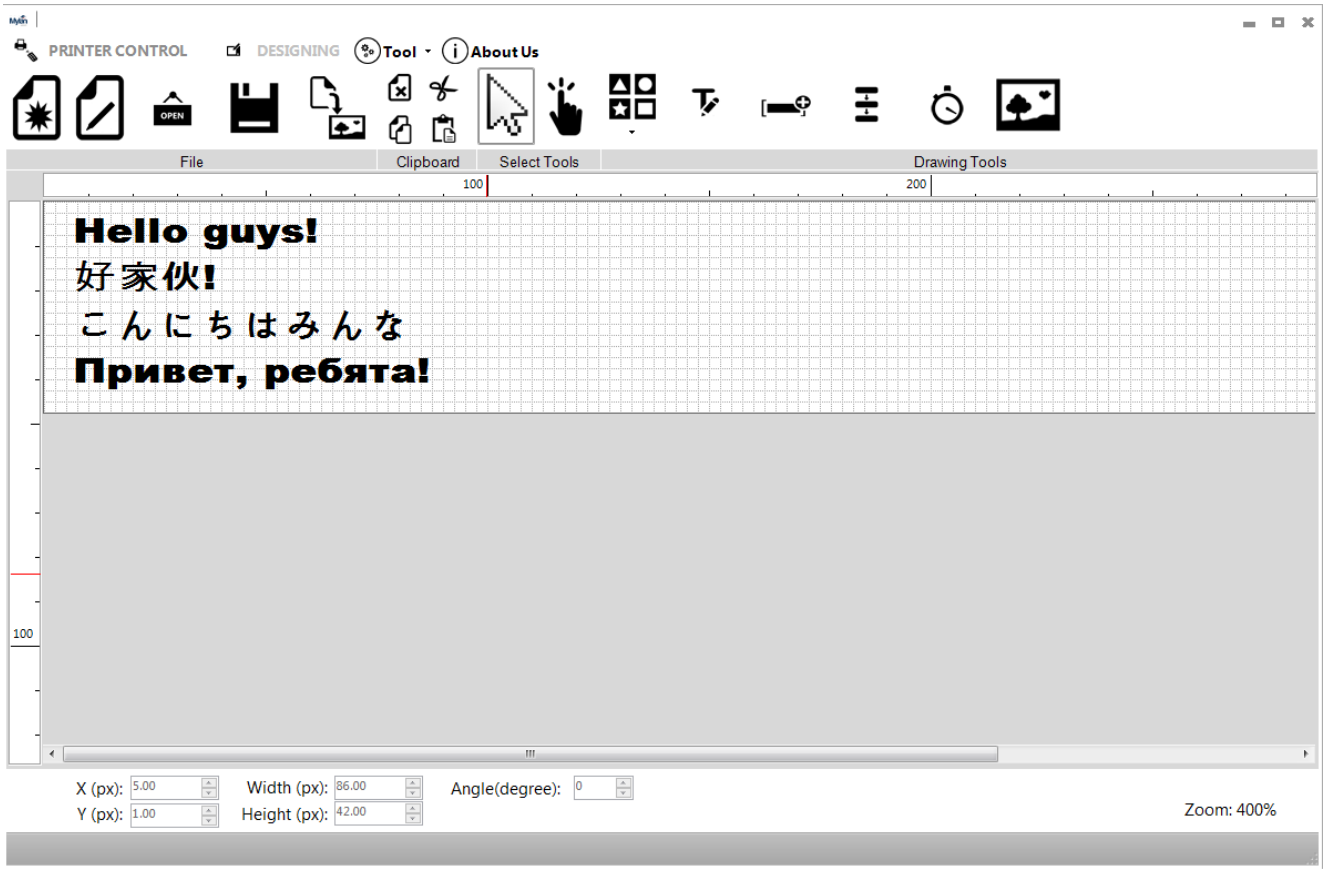
- From the Designing section, select **Static Text** and click on the designing section. Static Text window will pop up.
- Input content from your keyboard. You can select any font type (**Window True Font**), any font size and input in any language.




- Format your content just like functioning on Microsoft Word, including font, size, bold, italic, underline, left, center and right align.
- Position of the text can be aligned in 2 directions: **Vertical Alignment** and **Horizontal Alignment.**
- **Vertical Alignment:** Top, Center, and Bottom.
- **Horizontal Alignment:** Left, Center, Right.
- Select **Barcode** to create if barcode is needed.
- Tab **Barcode** will pop up.
- Press ✓ button to finish your input.

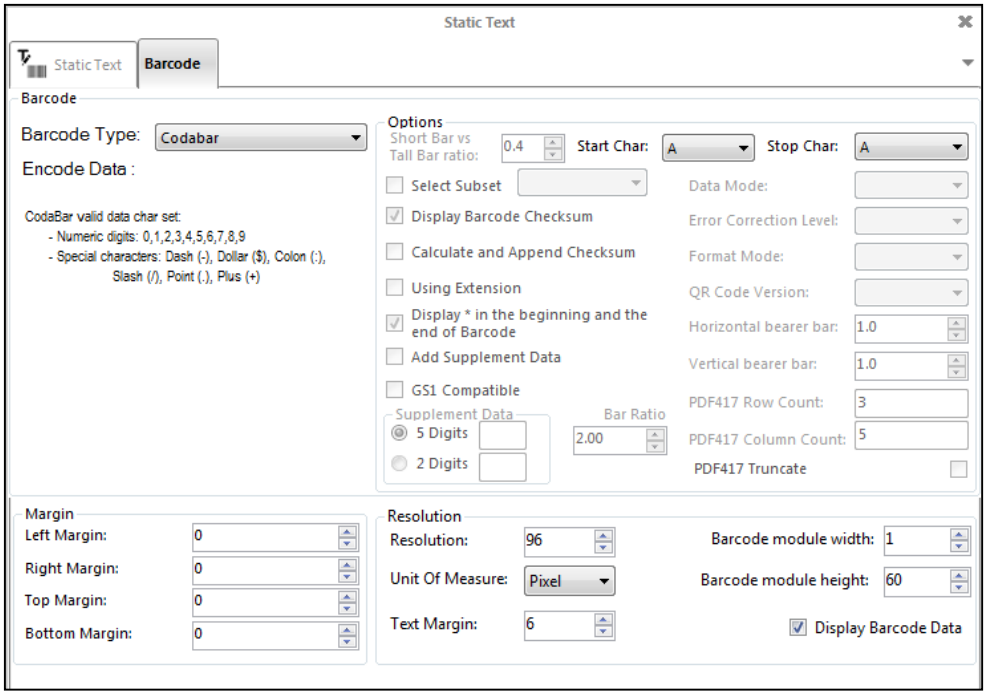
Your static text will appear on the template. Right now you can adjust position, size of this text also.

Use the roll button to zoom in or zoom out the template.

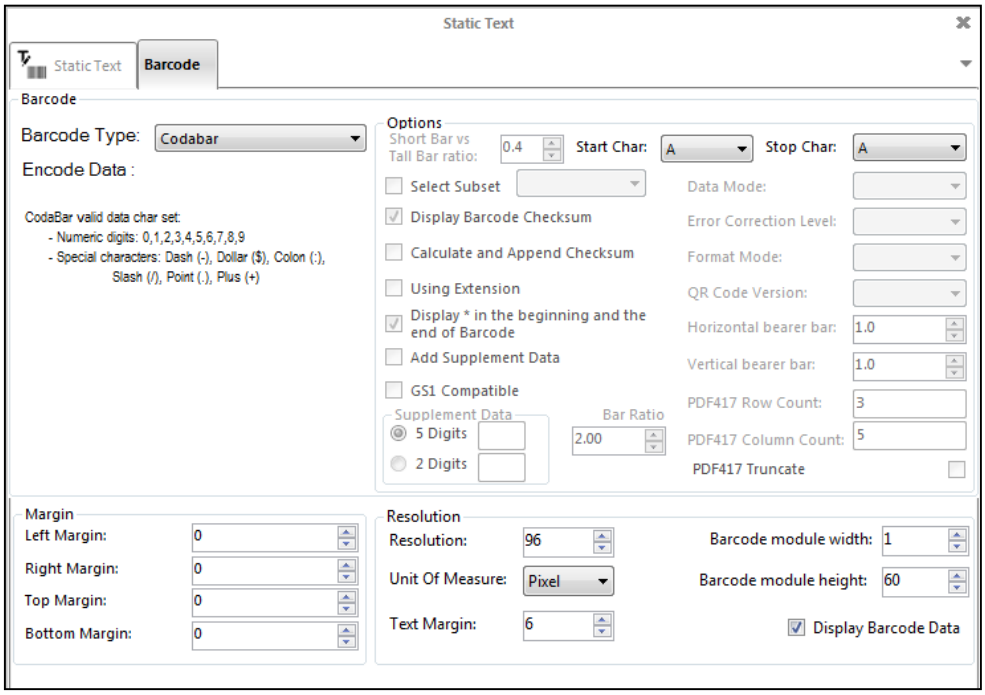



If you would like to convert above string to barcode format. Please check at "**Barcode**" check box. The window input will open new barcode tabs.

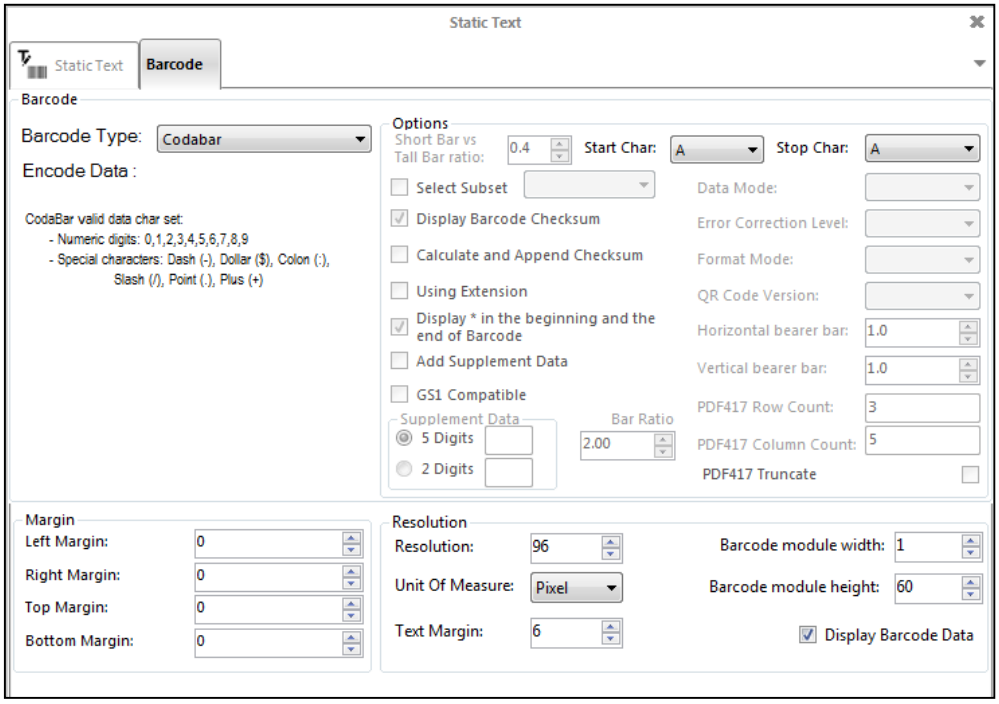
- Click on tab **Barcode**. A new window will pop up to set the parameters for the barcode.
- Select your desired type of barcode at **Barcode Type.** See references at **Encode Data** to create your barcode.



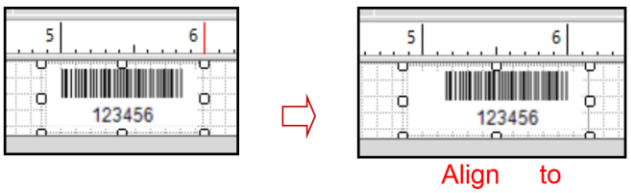
- Look at **Options** to set parameters according to your specific requirements for each barcode.



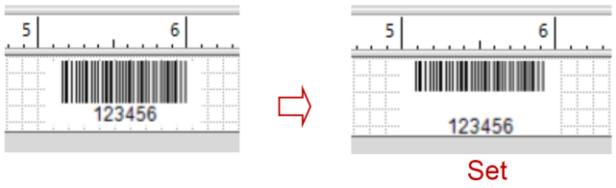

- Place your barcode within the **Margin** and set **Resolution.**



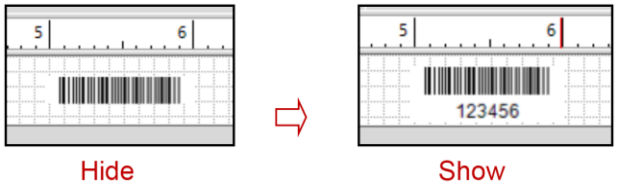

- **Left Margin**: align barcode from the left.



- **Right Margin**: align barcode from the right.
- **Top Margin**: align barcode from top.
- **Bottom Margin**: align barcode from bottom.
- **Resolution**: set resolution for your barcode.
- **Unit of Measure**: choose unit of for margin: Centimeter, Inch, and Pixel.
- **Text Margin**: set distance from the text (barcode data) to the bottom edge of barcode.

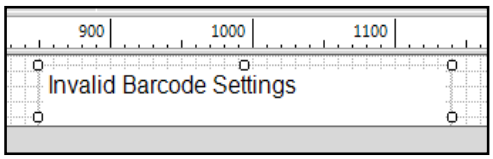



- **Barcode module width**: adjust width of barcode.
- **Barcode module height**: adjust height of barcode.
- **Display Barcode data**: show/hide barcode data.



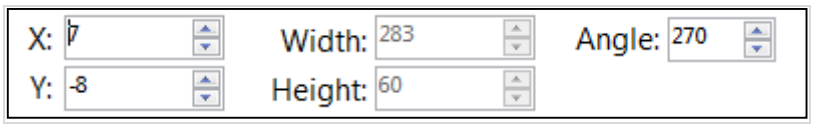

When all parameters are set, go back to Static Barcode, select ☑ to confirm and apply settings.

No barcode will be generated if the data input is incorrect.



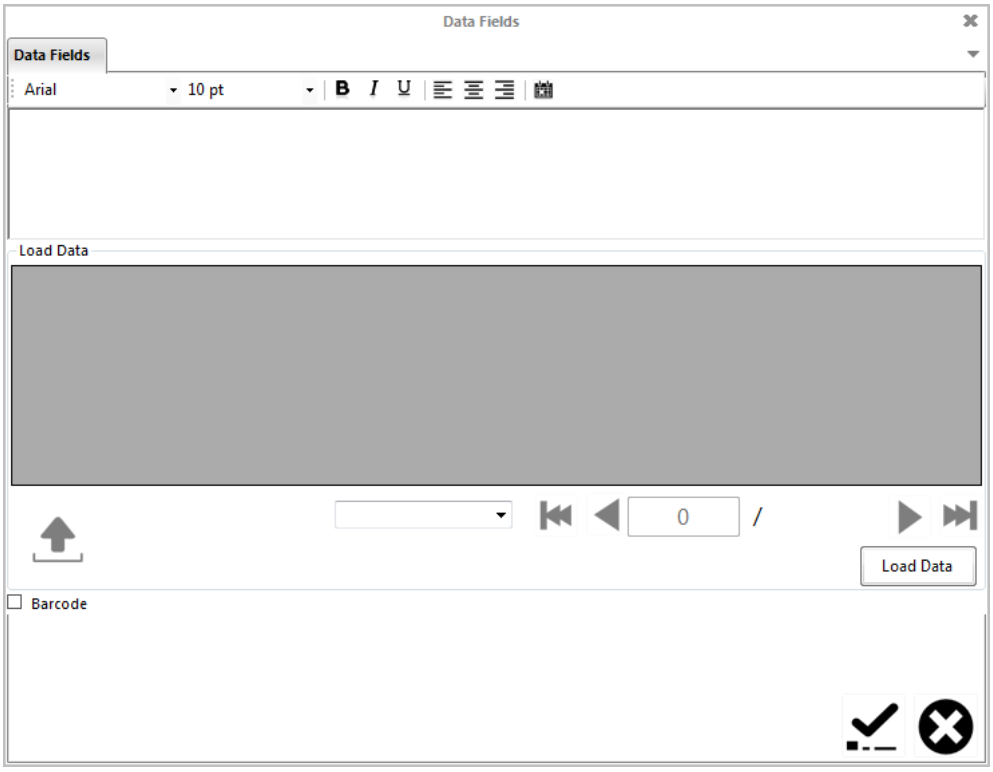

Set the position of the object.

- **X**: Align object from the left.
- **Y**: Align object from the top.
- **Angle**: rotate the object

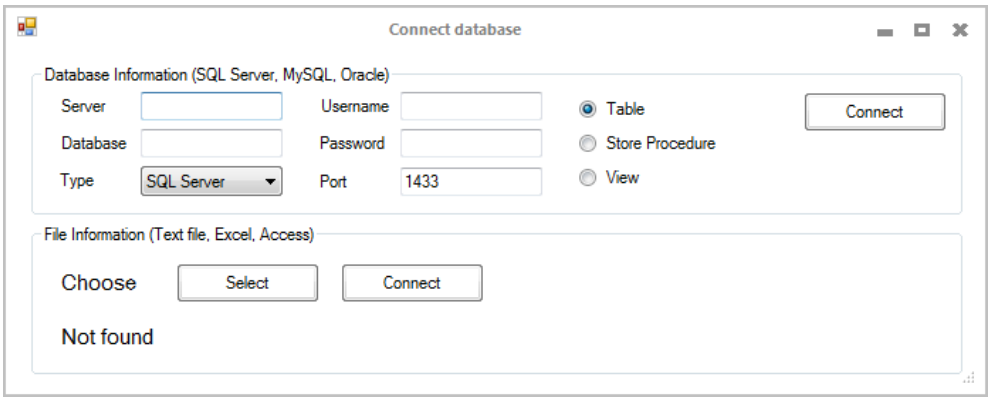


## Data field object

From the Designing section, select **Data Fields** and click on the designing section. Data Fields window will pop up.



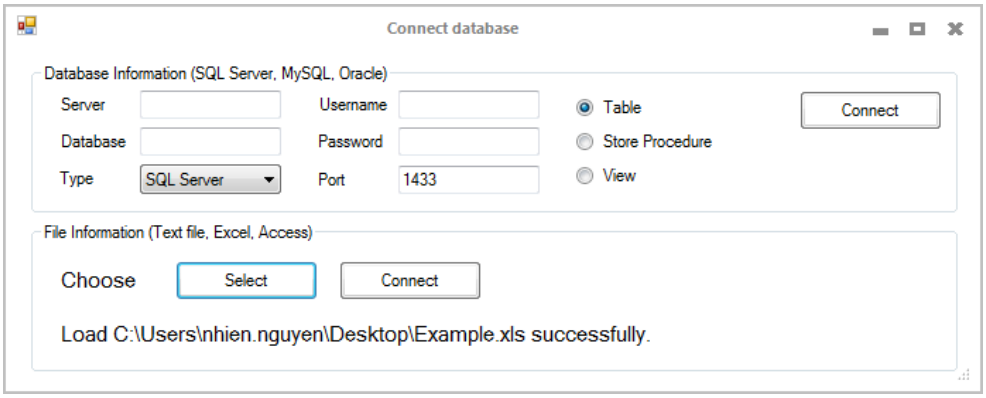

Click **Load Data**, Connect database window will pop up. There are two options for loading data: **Database Information** and **File Information.**



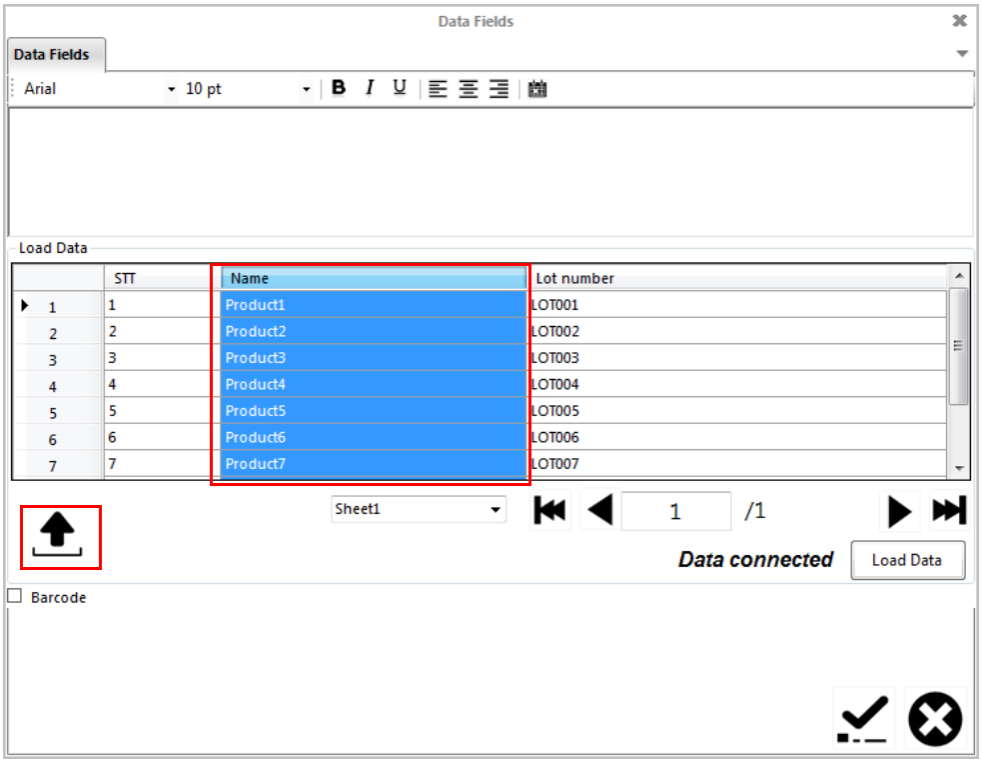

- **Database Information**: load database from your server.

  Input server's name, Database's name, Username and Password of your server.
- **File Information**: load database from your local file.

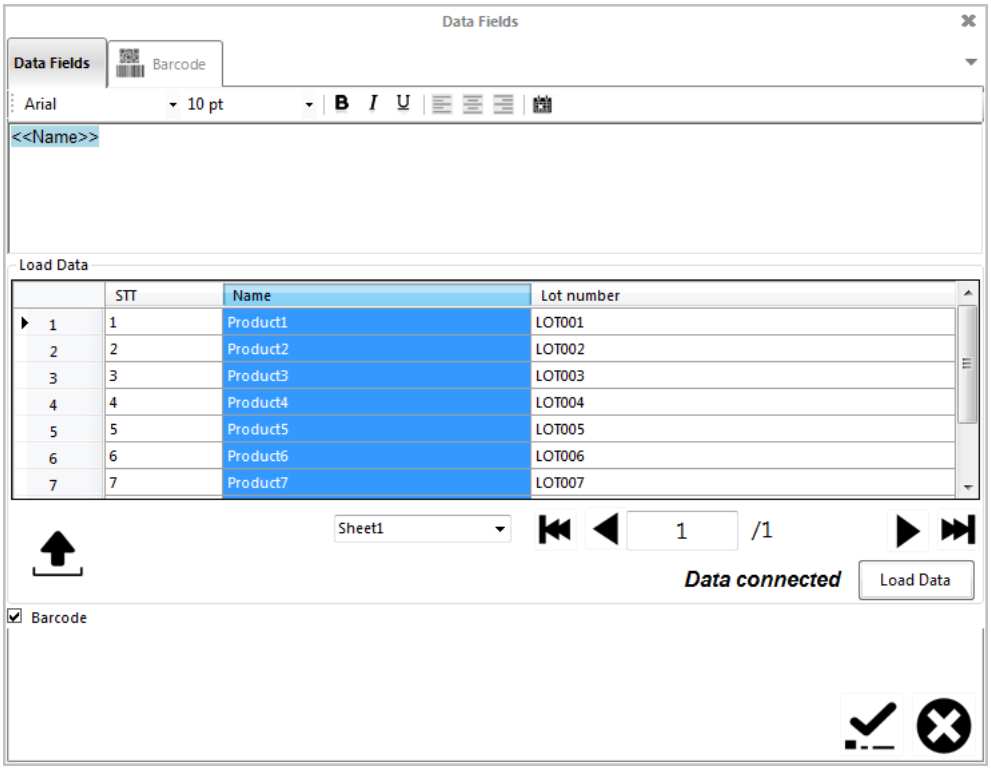
  Click **Select** to choose the desired file (Text, Excel or Access file).




Click **Connect** to connect the file to the message after loading successfully.
Choose the column of data which is need to be printed (by click on name of column), then click add button to add column to data field compose box. You can add more column, add some static text, format font, size, type…

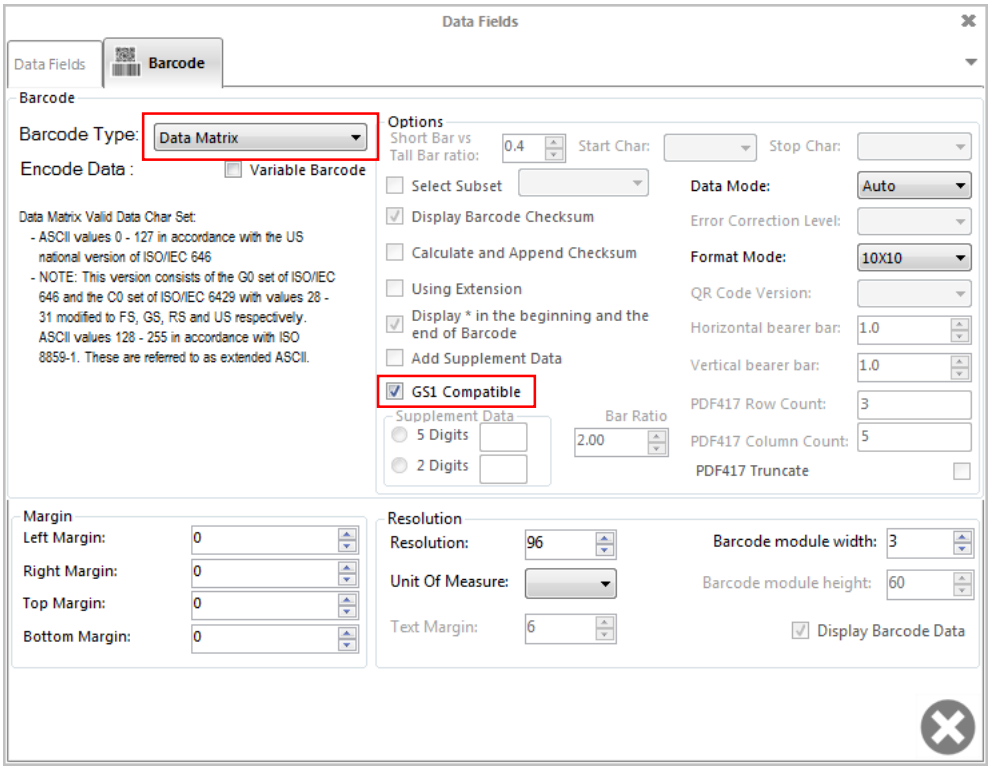


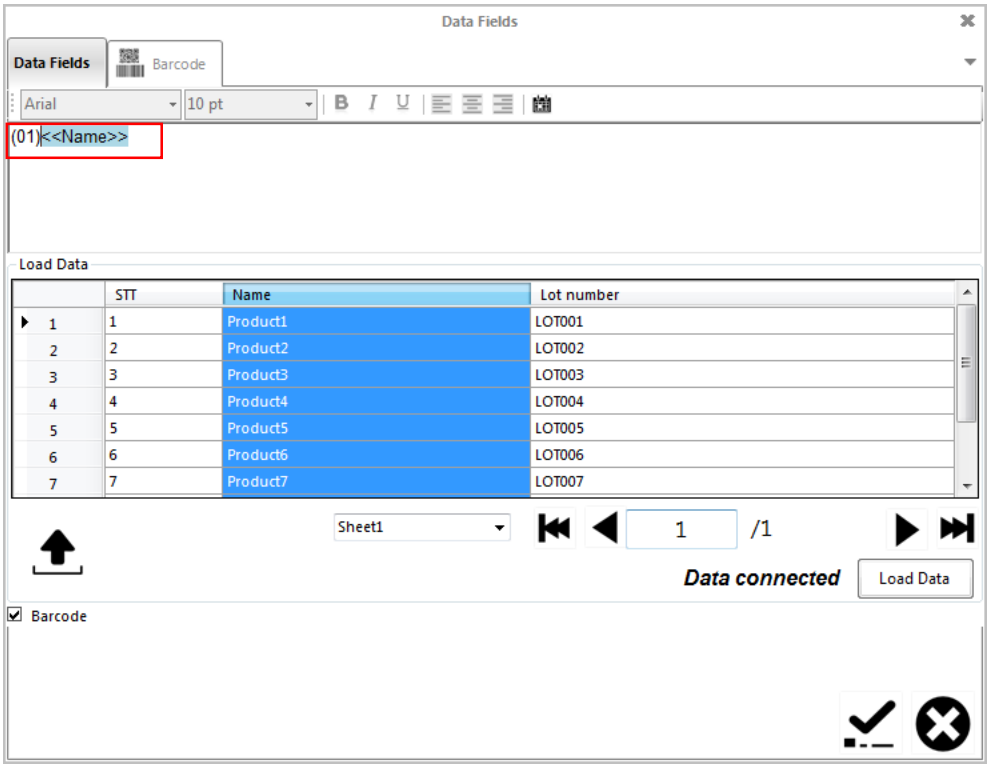

- Select **Barcode** to create if barcode is needed. See setting barcode from ***Static text object.***




***NOTE**:*

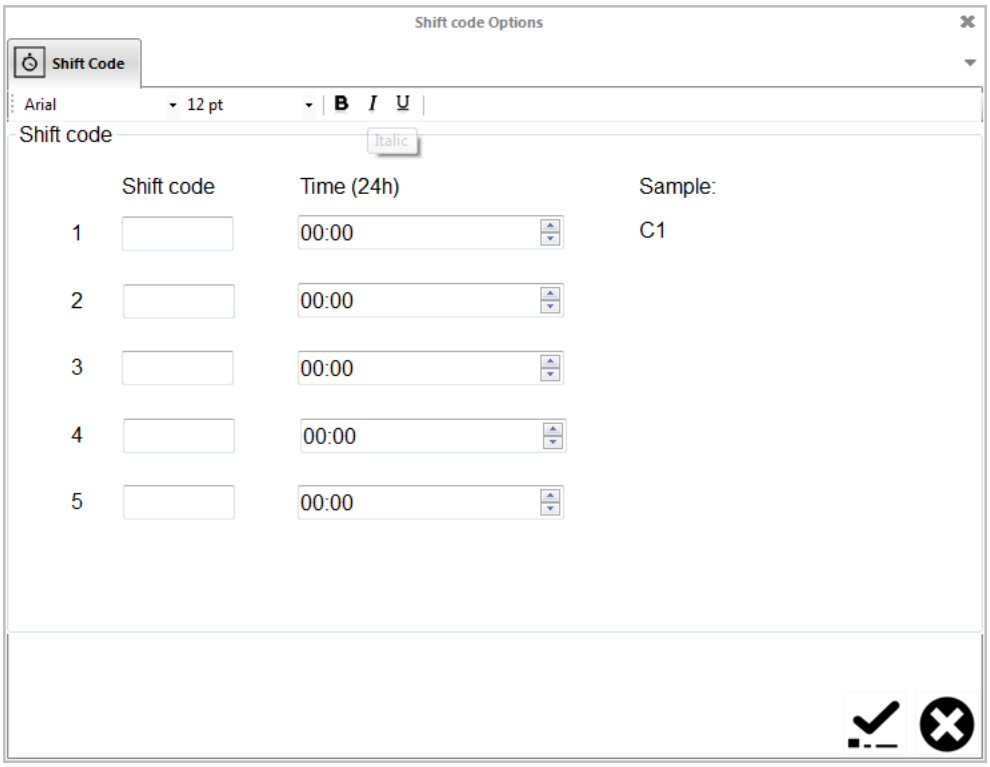
*For type of **Data Matrix** barcode, select **GS1 Compatible,** and input the Application Identity number for the data before each data field.*





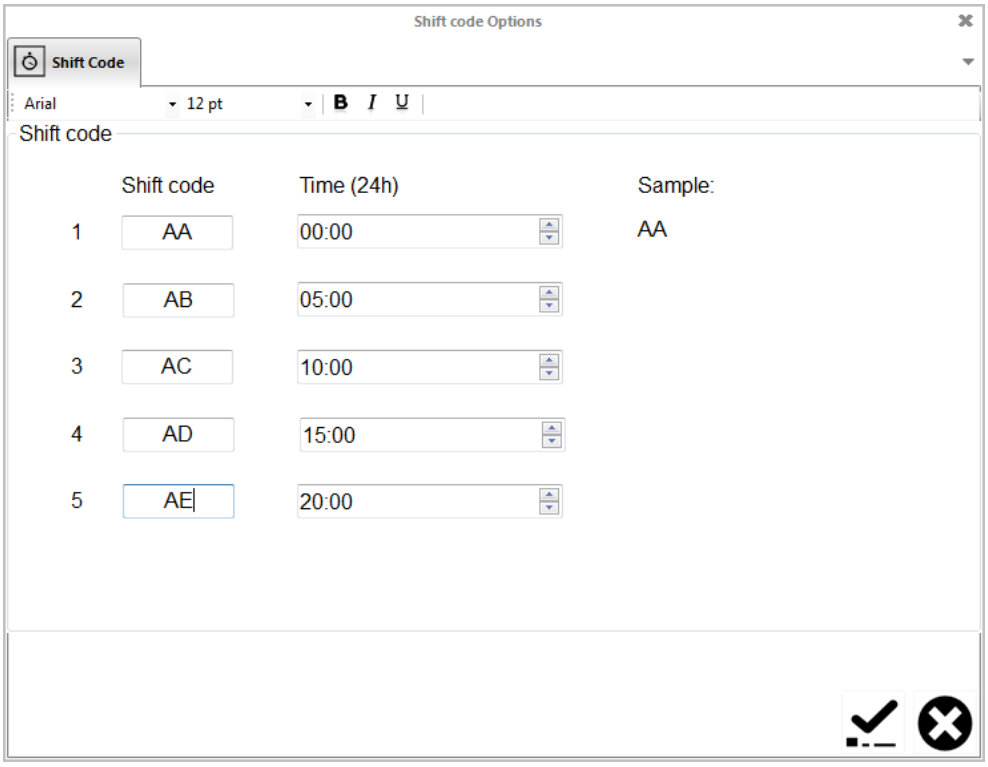

## Shift code object

From the Designing section, select **Shift Code** and click on the designing section. Shift Code window will pop up**.**



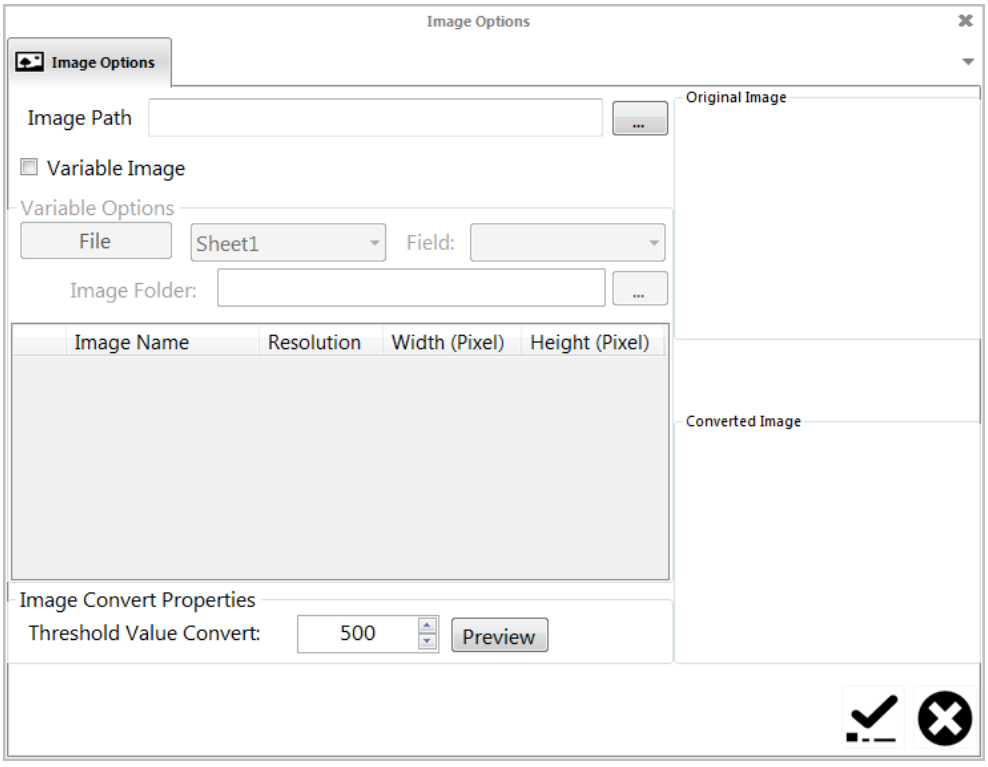

- The firmware supports to create up to 5 shift codes.

To create each shift code with any two digits: number, letter or symbol. Select font, size and then select time to display shift code.

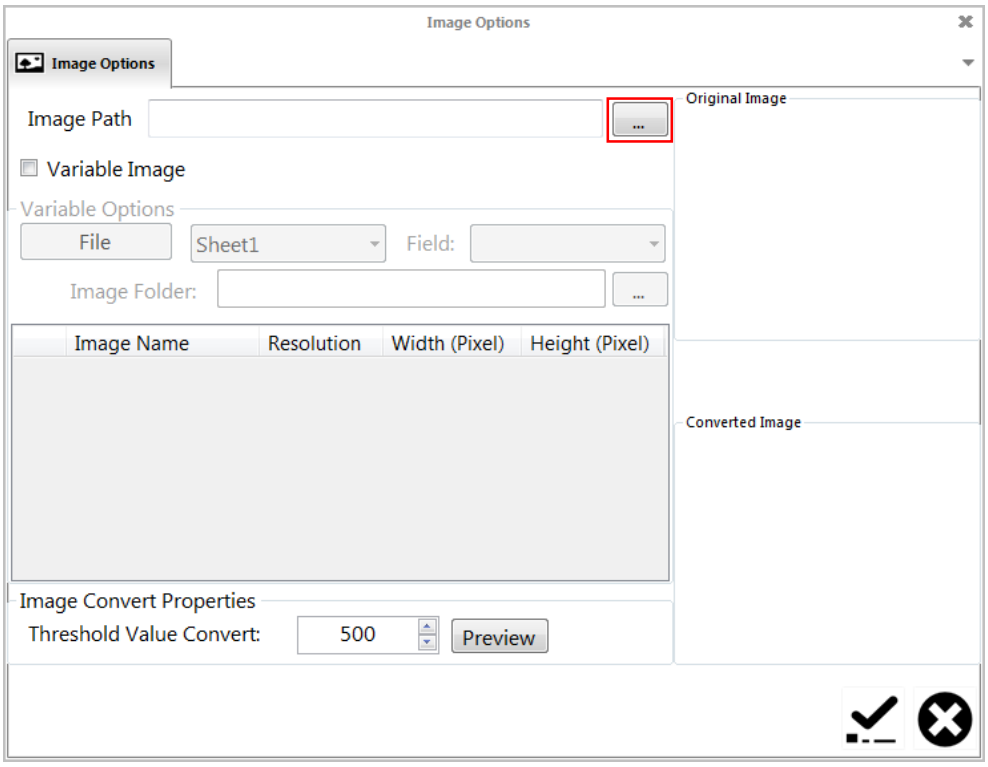



## Image object

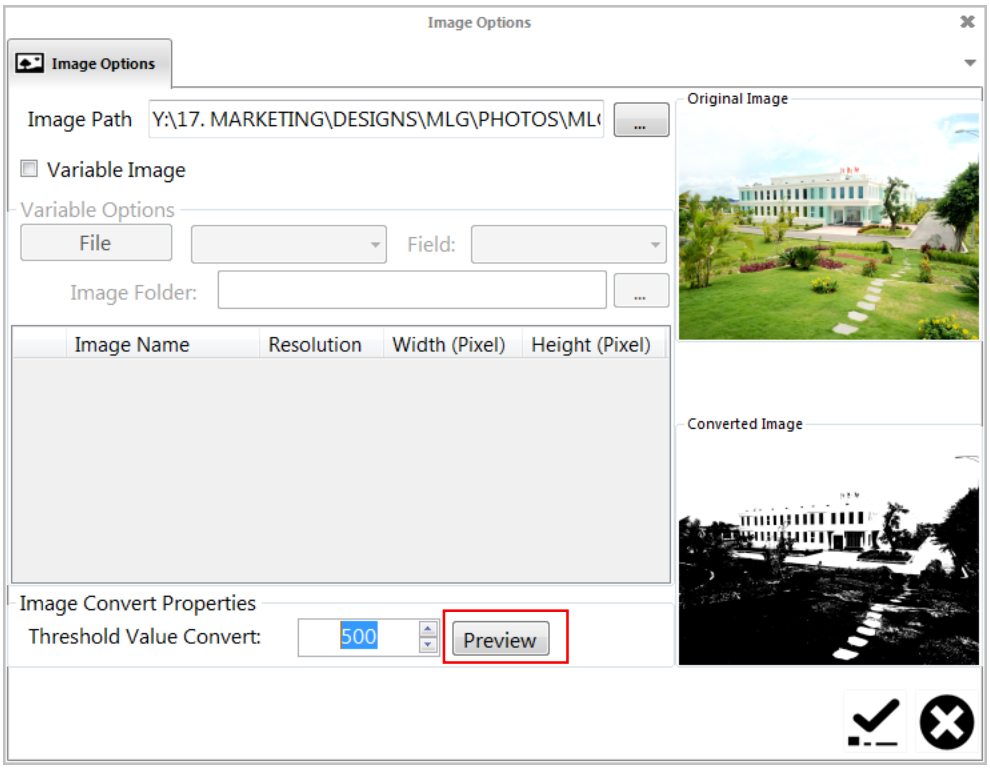
From the Designing section, select Image and click on the designing section. Image window will pop up.



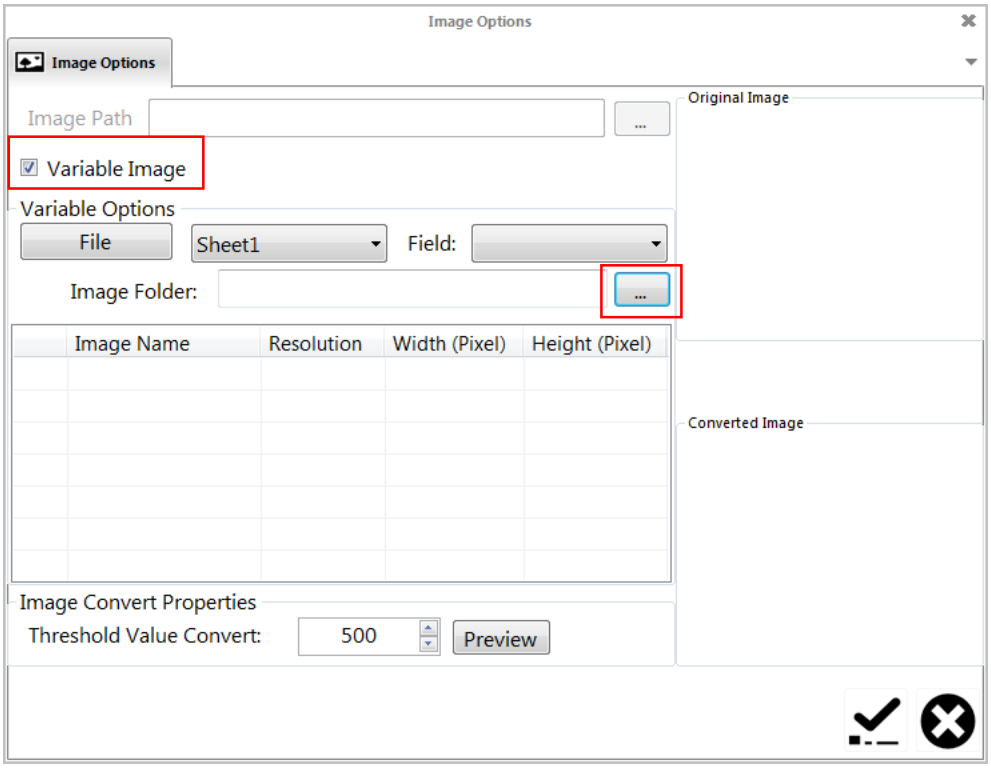
Select your desired image at **Image Path**.



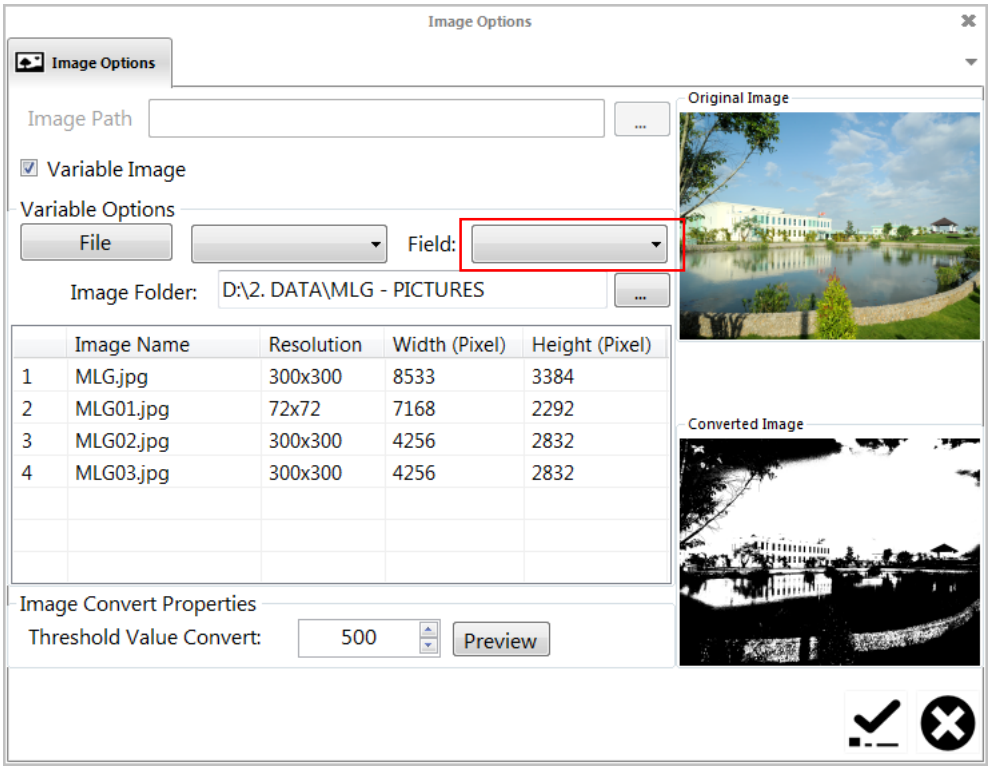

Set **Threshold Convert Properties** as your requirement.




Select **Variable Image** if need to print many images. Select images at **Image Folder**.




Choose data field at **Field**



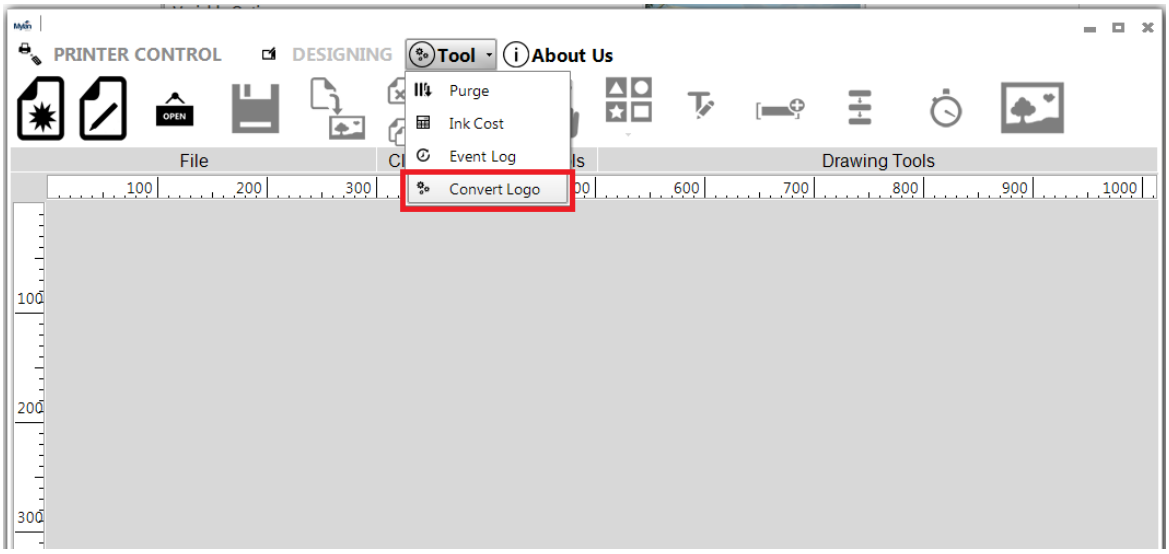

Select Ok to finish.

## Convert logo

This function is help you create logo under **.hex** format use for update logo to machine via USB flash.

### Step 1

Open Controller application. Go to **Tool** → **Convert Logo**.




### Step 2:

Go to **Browse** to select your desired logo.

### Step 3

Adjust the Threshold, background color (Normal, Inverse).

### Step 4

Select to name your logo (**LOGO1**, **LOGO2**, **LOGO3**, and **LOGO4**) and save it to USB flash.

On machine. Insert the USB flash to machine. Go to **Settings → Logo → Select the name of logo** that you just created. Wait a moment, the machine will update logo from USB flash to itself memory.

# APPENDIX

## INK CARTRIDGES MAINTERNANCE

### Print head cleaning

As Machine is working, if the print quality is degraded, please check on the ink level in the cartridge:

- If the cartridge is out of ink, change the new cartridge.
- If the cartridge isn't out of ink, the degraded print quality may be caused by the ink-spray, dust, or paper fiber being collected and built up on the surface of the nozzles plate. To maintain the print quality of the cartridge follow these wiping and purging tips.

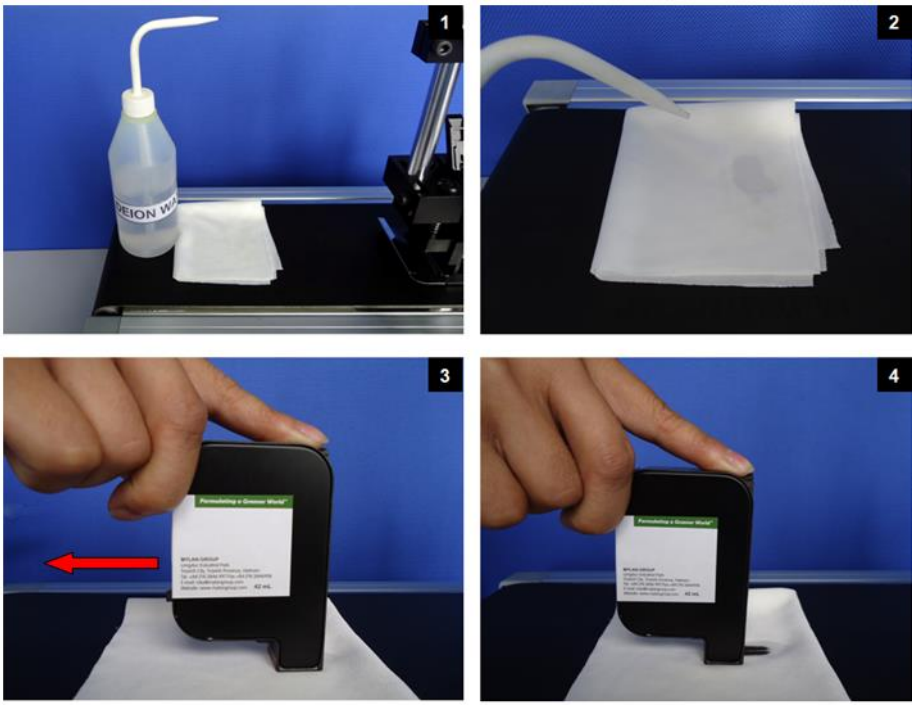
### Wiping

**[1]**: Materials needed: a lint-free, soft cloth, and de-ionized water.

**[2]**: Moisten the cloth with de-ionized water. Tap water also works but de-ionized water is recommended since the tap water contains impurities that can damage the print head.

**[3]**: Wipe slowly across the long-axis with the cartridge facing down as shown.

**[4]**: There are two lines of ink on the moistened cloth after wiping.



## Important notes

- To avoid scratching the orifice plate, do not apply excessive force or use a dry or abrasive cloth.
- To avoid clogging the nozzles, make certain that the lint free cloth and de-ionized water used do not have a high percentage of suspended particles.
- Do not shake the cartridge as ink pressure will damage the nozzles.

## Purging

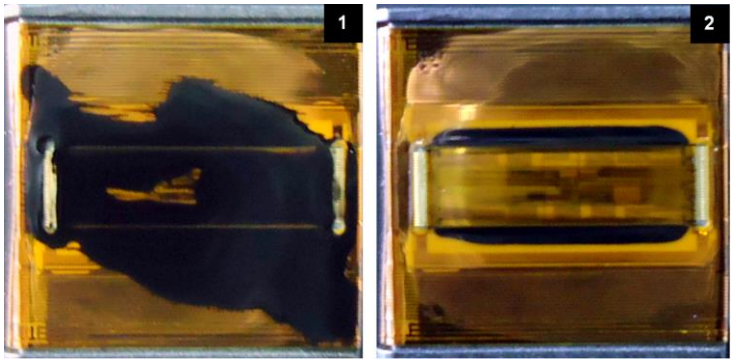
**[1]:** If the cartridge sits inactive and uncapped for a period of time, the ink may dry and form a viscous plug at the nozzles. The dried ink plug can cause misdirected drops and eventually block the nozzles. White streaks may be visible in the printed text or graphic. To fix this problem, purge the ink plug out of the nozzles. Printing alone may be inefficient in removing ink plugs from the nozzles. See the description above about how to run the Purge function in the machine (10.4).

**[2]:** Then wipe the cartridge with a moist, lint-free cloth to remove the excess ink on the surface of nozzle plate.

**[3]:** After that print a few lines of text or graphics at high resolution to utilize more nozzles and push more ink out.

**[4]:** Finally, check the printed image. If the print quality can't be recovered, repeat this procedure several times. If it still doesn't work, change the print cartridge.

The cartridge before [1] and after [2] cleaning:



# INK CARTRIDGE STORAGE PROCEDURE

## For short term storing (less than one day)

- Leave the cartridge in the machine, capped. Capping cartridge is always recommended to prevent the nozzles from drying out or becoming clogged due to ink's solvent evaporation or dusting.
- Wipe and/ or purge the cartridge next time it is used until good print quality is achieved.

## For long term storing (more than one day)

- Remove the cartridge from the machine
- Remember that all inkjet print cartridges produce a small amount of ink residue that may build up on the cartridge nozzles during printing. We need to wipe the cartridge to remove these ink residues from the nozzles plate.
- Tightly cape the print cartridge by sealing tape.
- Leave the cartridge uncapped and place it in an airtight container with moist, dust- free cloth or sponge to prevent cartridge's nozzles from drying out or becoming clogged. Close the container tightly.
- Wipe and/ or purge the print cartridge next time it is used until getting the good print quality is achieved.

## System disposal

- Keep the print head connected to the ink reservoir when disposing of system.
- Place the entire system in a plastic bag to avoid ink leakage.

## Important handling cautions

- The cartridge has to be stored in a nozzle-up position.
- Never squeeze the ink reservoir as this will push ink out of the print head.
- To avoid getting air in the print head, never shake, drop or hit the print head.
- To avoid getting air in the print head, never hold the print head more than 10 inches above the ink reservoir when removing the system for storage.
- To avoid ink leakage, never hold the print head below the reservoir.

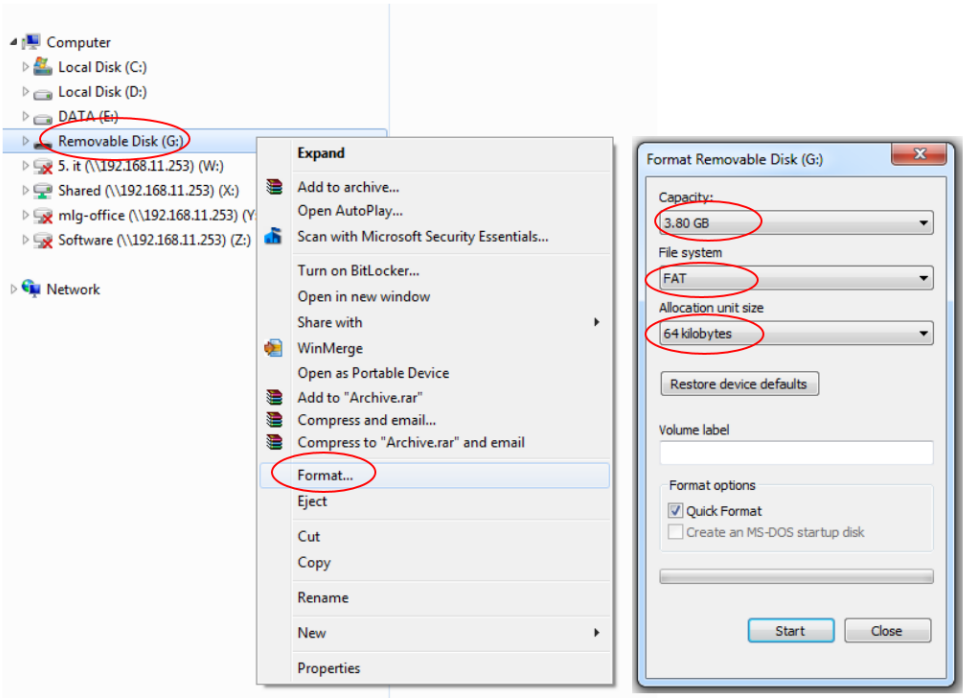
# UPDATE FIRMWARE INSTRUCTIONS

***NOTES**:*

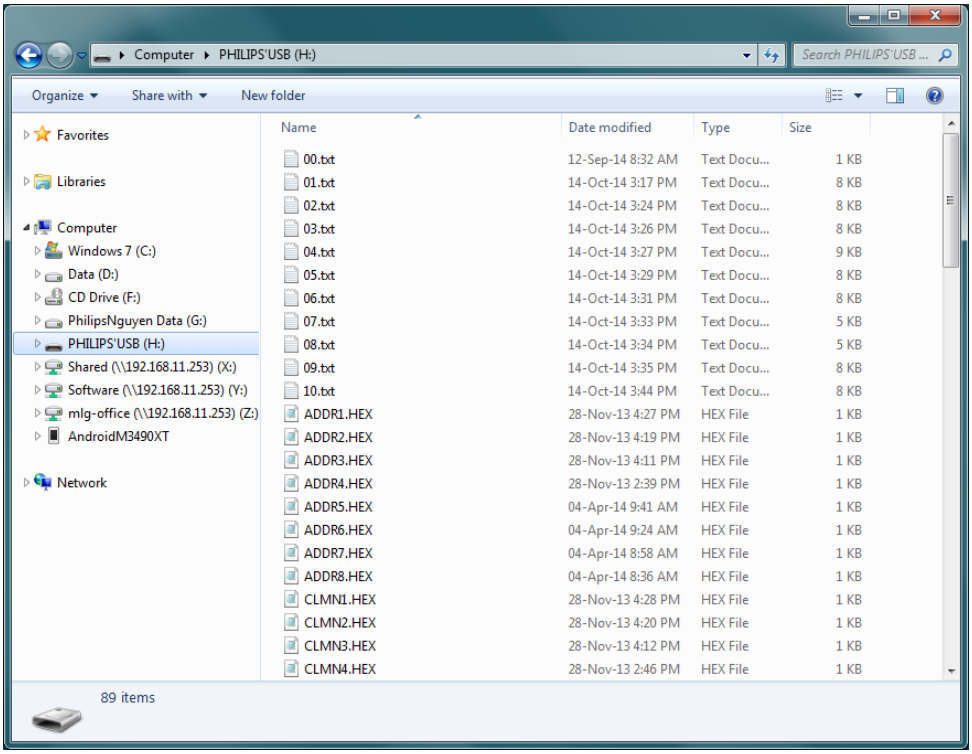
- *Be sure there is no power failure while firmware is being updated.*
- *All data and settings will be lost while updating new firmware.*
- *Cartridge should be removed from the machine to avoid failure.*
- *Everything connected with the machine (exclude keyboard) should be removed from the machine.*

## Prepare USB flash

- Prepare USB flash disk less than 4GB.
- Format USB flash disk with file system **FAT** / **FAT32** and allocation unit size **64 kilobytes**. See photo below




- Extract firmware folder (**.RAR file**) to USB flash disk.




- Insert USB flash disk into machine.

## Update firmware

- From the main menu, use the arrow keys to go to **Settings→about→Update firmware→Yes.**
- This process will take 3 minutes.
- When update is complete, go back to the **Main Menu** and press **F12.**

## Update logo

When update is complete, go to **Settings → Update logo** and do the following updates:

- Update Logo → Logo 1
- Update Logo → Logo 2
- Update Logo → Logo 3
- Update Logo → Logo 4

You can skip this step if it not need to you.

## Update font

This process will take 2 - 3 minutes.

- Update Font → Font 12.7 mm
- Update Font → Font 5.93 mm
- Update Font → Font 2.54 mm
- Update Font → Font 1.69 mm

***NOTES:***

*This step must be updated to make sure your **Edit Messages** on machine work well.*

## Machine default

Set your machine to factory defaults. Go to **Settings → Default → Yes**.

***NOTES:***

*This step must be execute to make sure all new function on machine work well and no more error happened.*

# TROUBLE SHOOTING

| Error ID | Reason | Solution |
|---|---|---|
| **Hardware** | | |
| ***Display no cartridge*** | The connection between the boards on cartridge and machine is not fitted fully. | Take out the cartridge and insert into the machine again. |
| ***Not print*** | The internal sensor is dirty by ink and dusty. | Clean the internal sensor. |
| **Firmware** | | |
| ***Failure updating language and others*** | Miss-press F12 key. | Press F12 key and set default the coder |
| ***The printing result is not correct*** | Confusion of the previous unknown setting. | Set default the coder to reset the first default parameters. |
| **Software** | | |
| ***Delay printing is not correct*** | It is conflicted with another program such as Anti-virus program → causing the data signal interference. | Disable or remove that program while controlling the machine via PC. |
| ***Print 1 or 2 time then stop return ready status*** | USB cable is not tight. | Change to others USB port on PC, plug again PC cable. |