

# VDSAJET SERIES PRINTER OPERATION MANUAL

Version: V2.9 Operation manual V2.9 is correspond to SAJET software 2.9 and later version

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# 1. Safety

Caution : To ensure the high quality of printing, the printing parameters must be exactly set and the machinery installation must fit accurately. Security is a highly important issue in equipment operation and maintenance. Therefore, this manual contains contents of operation warnings and cautions. Please read and understand those warnings and cautions before operating and maintaining this machine. Never attempt to repair or modify this machine by yourself. If you can not overcome or solve problems with the methods in this manual, please turn off the machine and unplug the power cable, and then contact the service engineer of Shanghai Loobjet Information Tech Co., Ltd

## 1.1 Preventive measures:

- Keep machine away from below following status: electrostatic interference、over temperature、over wet、excessive vibration、dusts/gas excess.
- Avoid using same group power with high-power motor and other equipment which will be easy to cause power interference.
- Make sure of the installation of machine correctly, pull out the plug before cleaning the machine.
- Do not put heavy things on machine to avoid machine falling down in imbalance to hurt people.
- Close the machine and shut off the power to avoid electric shock when change ink cartridge.
- The power must be off when repair, for avoiding electric shock.
- Loose the fasten screws before rotating the screen
- Power should be off if not use the machine in long time

# 2. Printer installation

## 2.1 Printer introduction

SAJET is the third generation high resolution printer developed by Loogal based on HP TIJ2.5 tech, which adopts the most advanced control tech of LGCS. Users are easy to send command through interface to control printers and print content.

1. Can print variable data, including variable text, barcode ,time, counter, image, database and real-time data
2. Barcode types that support can reach more than 15, nearly cover all kinds of barcodes format.
3. Inner built WIFI, network.
4. Metal shell and industrial design, more stable.
5. Take HP original driving board to ensure higher print quality.
6. Wireless print head authentication technology.
7. 10.1 inch touch screen, much easier to operate.

## 2.2 Technical parameters

Model	SAJET			
<b>Print system</b>	HP TIJ2.5			
<b>Print height</b>	SAJET-1	12.7mm		
	SAJET-2	2*12.7mm		
	SAJET-3	3*12.7mm		
	SAJET-4	4*12.7mm		
<b>Max print speed&amp; Resolution</b>	30 m/m@ 600×600DPI 60m/m@300×300DPI 120m/m@300×150DPI			
<b>Port</b>	USB/ RS232/Multi functional interface			
<b>Display screen</b>	10.1 inch touchable screen			
<b>Operation interface</b>	EASYTOUCH			
<b>Font size</b>	TrueType zoom			
<b>Template format</b>	LGPV1.0			
<b>Print data type</b>	Text, counter, date, barcode, image ,database			
<b>Barcode type supported</b>	EAN8 EAN13 EAN128 CODE25 CODE39 CODE128 CODE128A CODE128B CODE128C Codebar2width UPC12 PIATS PDF417 PIATS DRUG QR CODE DATAMATRIX			
<b>Real time data</b>	Counter, date ,barcode ,text ,image, database			
<b>Other</b>	Simulation speed print/Simulation sensor print			
<b>Power supply</b>	110-220VAC 50/60Hz			
<b>Max power</b>	120W			
<b>Operation temperature &amp; humidity</b>	TEM 5°C~35°C HUM 10%~90%			
<b>Package dimension</b>	302*229*210mm (L*W*H)			
<b>Package weight</b>	3.9Kg/1HEAD	4.3Kg/2HEAD	4.8Kg/3HEAD	5.3Kg/4HEAD

## 2.3 Parts

Main parts of SAJET: Main engine, print head, sensor, synchronizer (not standard)

### 2.3.1 Main engine



Instruction image of the back serial port



Power interface (DC): working power is 30V, 4A

Synchronizer interface: (ENCODER): Function of synchronizer is to detect the move speed of print target and make print speed keep same pace with object move speed. Install and adjust the synchronizer properly can prevent the image from distortion

Sensor interface (SENSER): When inspect print object, sensor will send trigger signal to SAJET. SAJET will control the print head to print according to the signal received.

Warning light interface (ALARM): Warning light will indicate present print status or error status

Print head interface (P1-P4): Connect print head 1-4 by cable

Multifunctional interface (MULT): It includes serial port, cascade and PLC

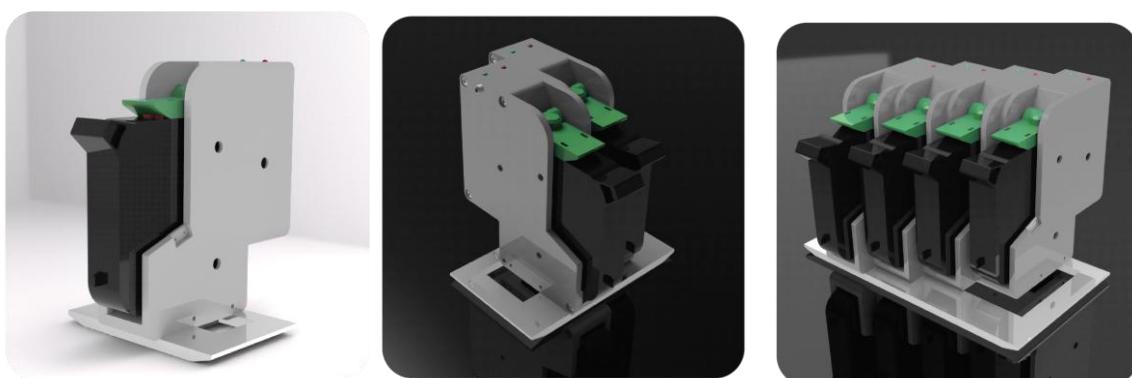
USB interface: User can input template file from U-disk

### 2.3.2 Print head

Single print head

Two joint print heads

Four joint print heads



**Attention: print head needs to use specified connection cable. And there is red and blue indication light in each print head.**

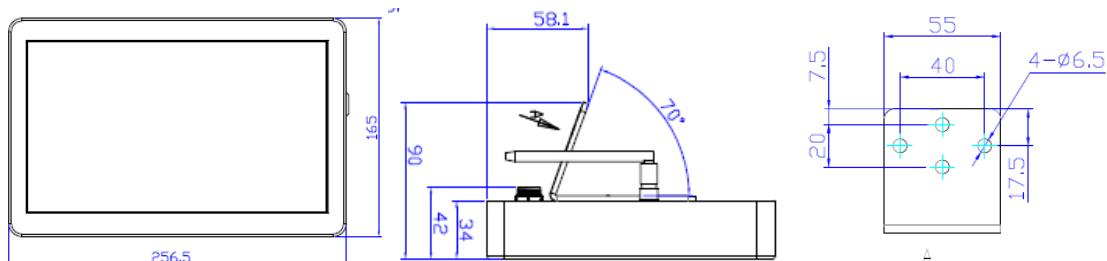
## 2.4 Install

### 2.4.1 Software installation

Software is installed well in printer when out of factory.

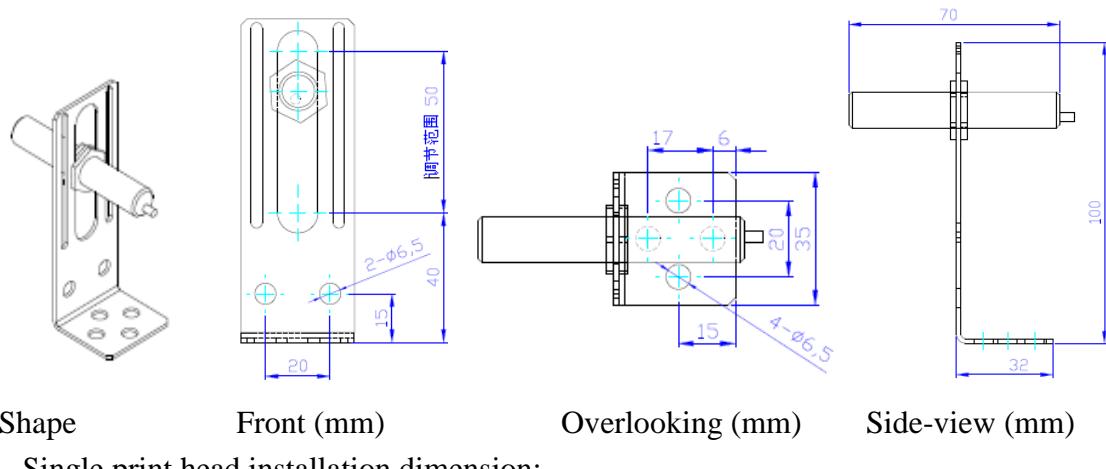
### 2.4.2 Mechanical dimension

1. Installation dimension of main engine:

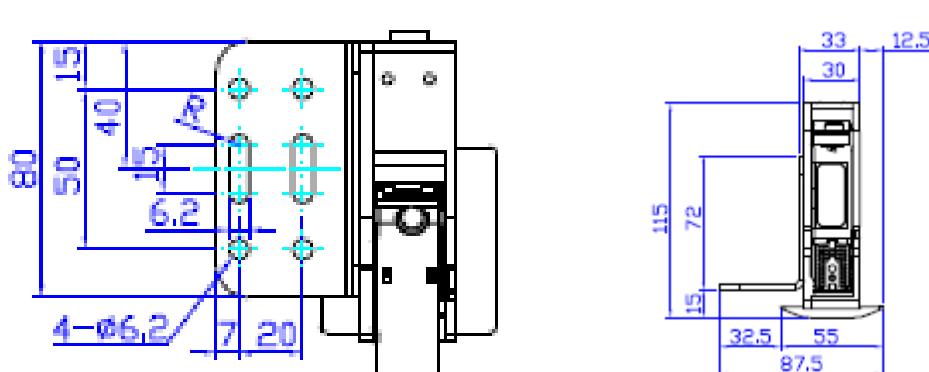


Front dimension (Unit: mm) Side -view dimension (Unit: mm) Installation hole location

2. Sensor installation dimension:



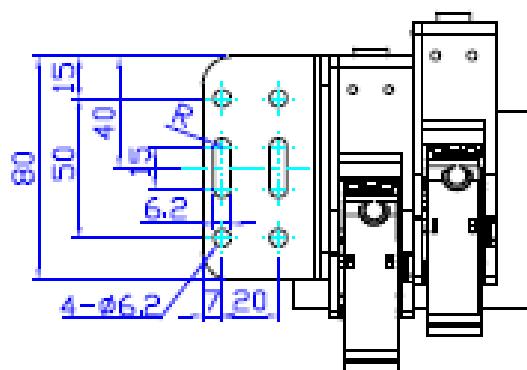
3. Single print head installation dimension:



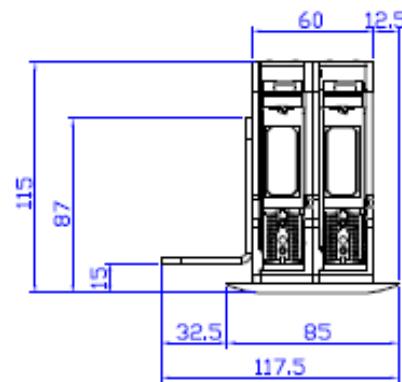
Overlooking dimension: (unit: mm)

Front dimension (mm)

4. Two joint print heads installation dimension:

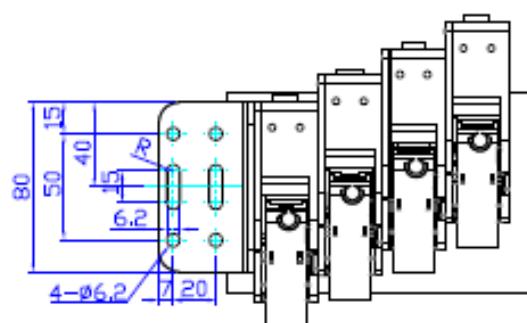


### Overlooking dimension (mm)

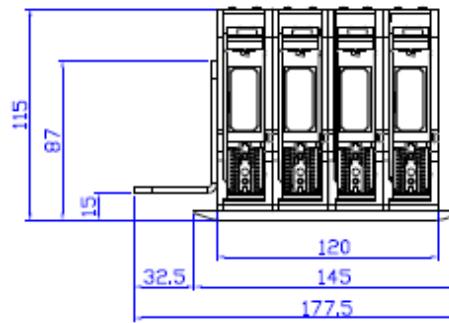


### Front dimension (mm)

## 5. 4 Four joint print heads installation dimension:



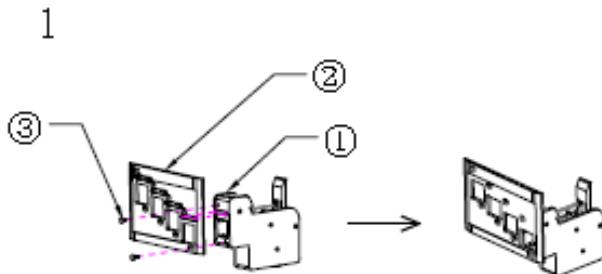
### Overlooking dimension (mm)



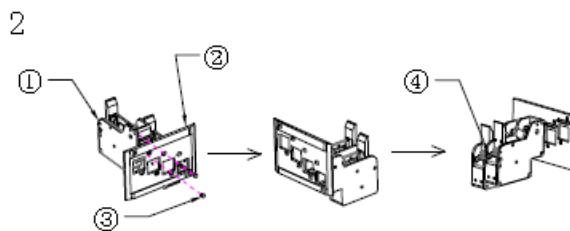
### Front dimension (mm)

### 2.4.3 Print head paper deflector installation drawing

1. Align the location pin of 1# print head to ② location pin hole, press in to make No.1 print head connect with paper deflector; Tightening screw ③.



2. Align the location pin of 2# print head to ② location pin hole, press in to make 2# print head connect with paper deflector; Connect 2# print head with the already installed 1# print head; Screwing ③ screw, then screwing ④ screw, and then tighten screw ③ and ④



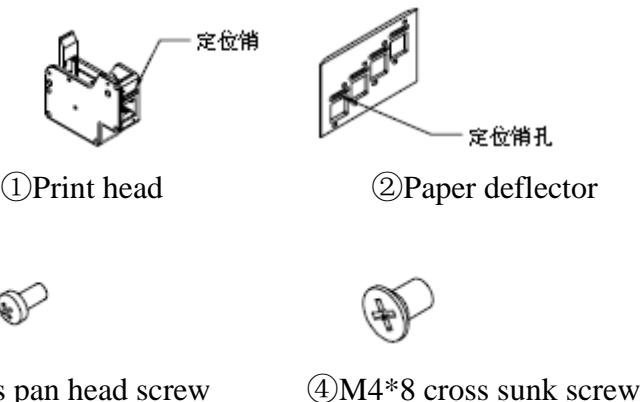
1. The installation method of 3# and 4# is same as above.



三喷头组合

四喷头组合

## 2. Parts drawing



①Print head

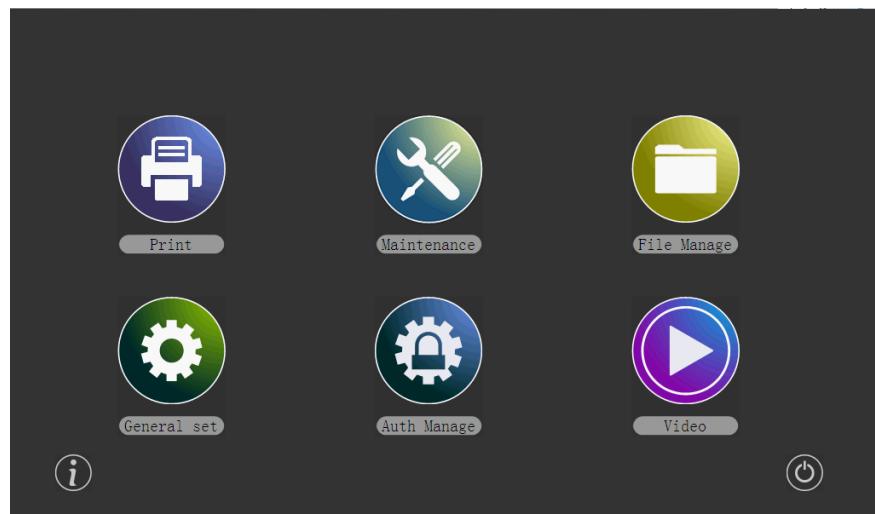
②Paper deflector

③M3\*6 Cross pan head screw

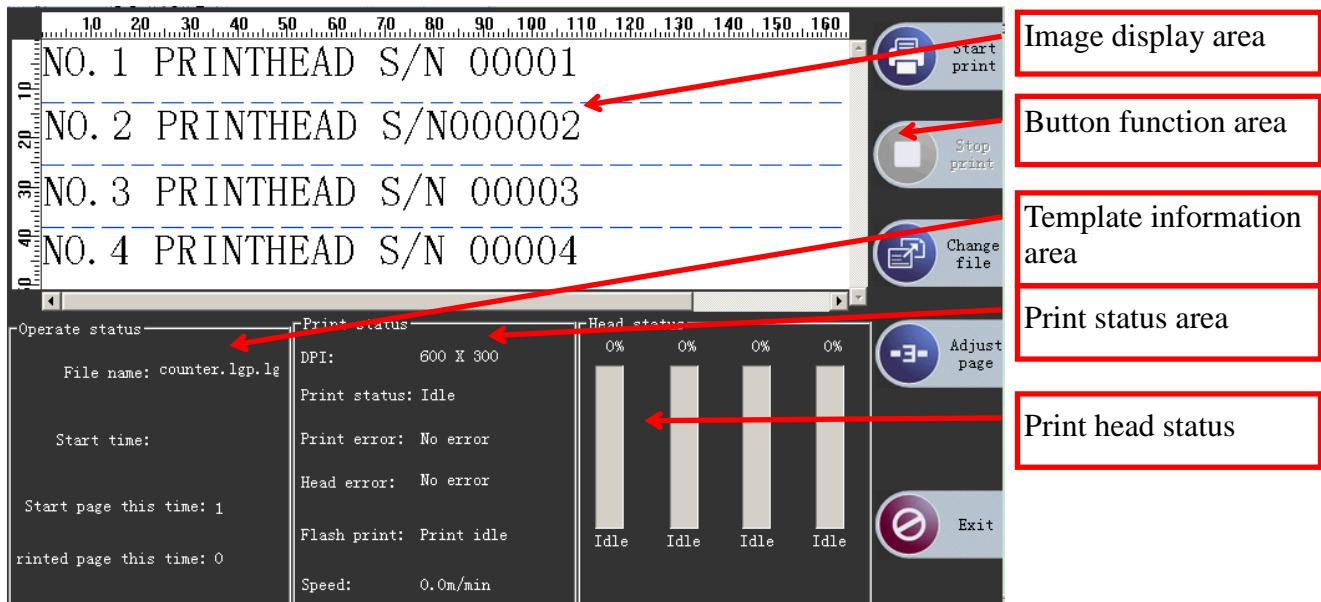
④M4\*8 cross sunk screw

## 3. Operation

### 3.1 SAJET home interface



## 3.2 Print



### 3.2.1 Image display area

Image display area shows image in the present template file.

### 3.2.2 Button function area

1. Start to print

Print last time print template

**Attn: Before printing, pls set the printer parameters well and prepare the template well.**

2. Stop printing

Stop present print task

3. Change file

If print template is different from last time, use “change template function” and choose template needed print.

4. Adjust start page

If need to change start page, use this function

**Attention: counter value is also adjusted when start page is adjusted**

### 3.2.3 Template information area

Template information area shows information of present template: template name, start printing time, start page this time, already print quantity

### 3.2.4 Print status area

Present print status is shown in template information area: print DPI, print status, print head status, print head error, flash spray status, production line speed.

### 3.2.5 Print head status area

Print head status area shows ink quantity and status of each print head

## 3.3 Maintenance

### 3.3.1 Clean print head

If certain print head is blocked, pls move away object in front of print head and put a paper in front of print head, then click “clean No\* print head”. At this time, little ink will be

printed out to clean. If print head still blocked, pls refer to 《HP print head maintenance method》

### 3.3.2 Change print head

**Attn: pls make sure the printer is on stop printing status when change print head**

Step: click “start to change No \* print head”, then take out empty ink cartridge and put a new one. After this, click “finish changing No. \* print head”

### 3.3.3 Select print head orifice

If print DPI is 300DPI, you can choose line A or Line B to print, if one line is broken, this way can prolong print head life time.

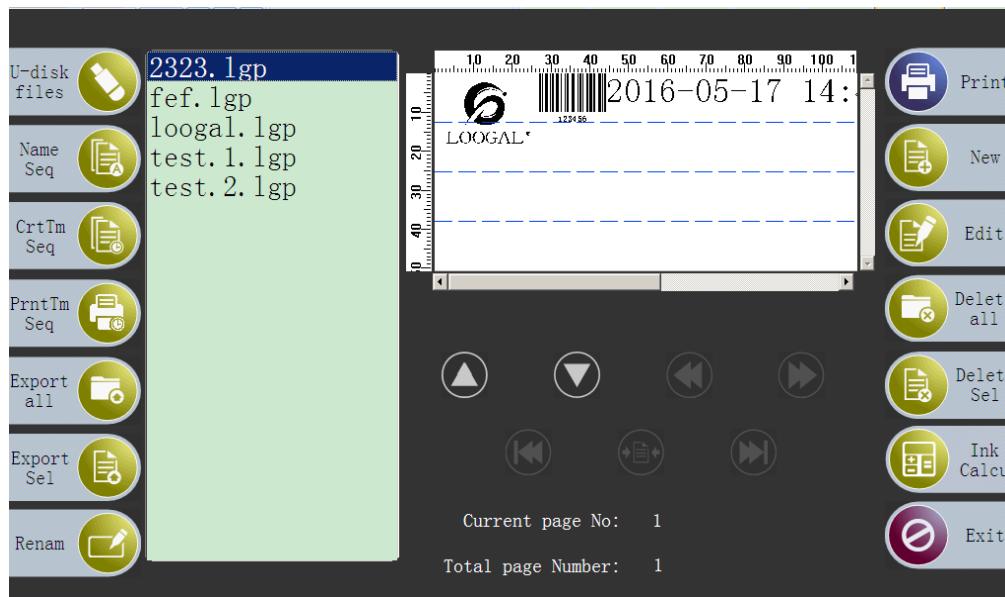
### 3.3.4 Test

Sensor signal test: Detect current high and low level of sensor.

Synchronizer signal test: detect current synchronizer direction and speed.

Communications test: Printer will display data received from communications port in the dialog box.

## 3.4 Templates management



U-disk files management (Local files management) this can be switched over freely between local files management and U-disk files management.

Sequence: if there is many files, user can sequence files in various ways for convenient search.

Output all files (input all files): Output all the files in printer to U-disk or input all the files in U-disk to printer.

Output selected files (input selected files) Input U-disk first, output the selected files to U-disk and change template name to “DEFAULT.LGP”. Or input selected files in U-disk to printer.

Build a new template: add a template, details refer to “edit template file”.

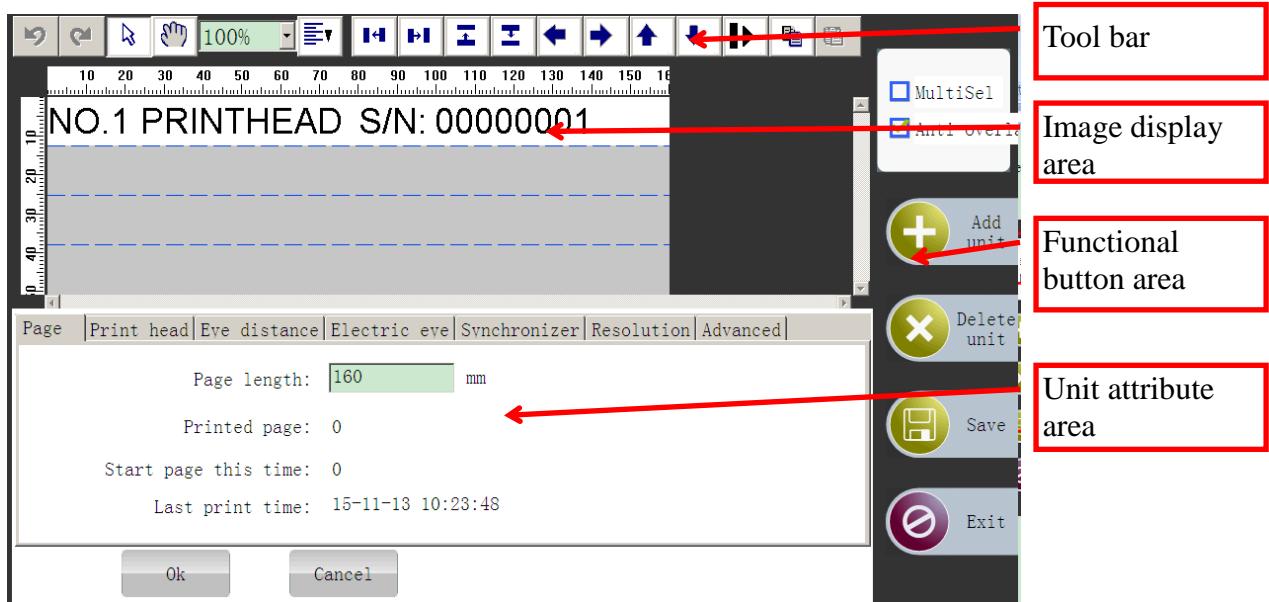
Edit template: introduce in next part.

Ink quantity calculation: according to template information and input cartridge capacity

and price, user can calculate the estimated cost of printing one page.

### 3.5 Edit template

Select template, then click “edit” to operate.



#### 3.5.1 Toolbar



Undo



Redo



Select unit, after clicking, it enters to select unit mode, can select the unit and modify



Move page, after clicking, the whole page can be moved to see part of page

150%

Amplification



Choose several units, left, right, up, top, bottom and horizontal center justifying.



Move to left, after selecting several unit, then right unit move towards left unit



Move to right, after selecting several unit, then left unit move towards right unit



Move to top, after selecting several unit, then right unit move towards top unit



Move to bottom, after selecting several unit, then right unit move towards bottom unit



Select the unit and move left



Select the unit and move right



Select the unit and move upward



Select the unit and move downward

#### 3.5.2 Images display area

In image display area, image in the template will be shown.

### 3.5.3 Button bar

#### 3.5.3.1 Multiple selection

**MultiSel** After selection, several units can be selected one time. And can be moved or aligned at the same time

#### 3.5.3.2 Anti-overlap

**Anti overlap** After selection, units will not be overlapped when moving

#### 3.5.3.3 Add unit

Click “add unit”, users can select unit type that will be added in the choice box

Unit type includes: text, time, counter, image, one and two dimension barcode, roundness, rectangle and line.

#### 3.5.3.4 Delete unit

Select unit needed to delete in the template, and then click “delete unit”

### 3.5.4 Unit attribute area

Click blank area of template, template attribute will be shown. When click one unit, then unit attribute will be shown.

#### 3.5.4.1 Template attributes

Template attribute includes all the parameters used in the template. When user creates a new template, printer will copy the parameters saved in last template to the new-built template.

Template attribute includes: page, print head, joint and distance, sensor, synchronizer, resolution and advanced.

##### 3.5.4.1.1 Page

Page includes: page length, already print page quantity, start print page, last print time.

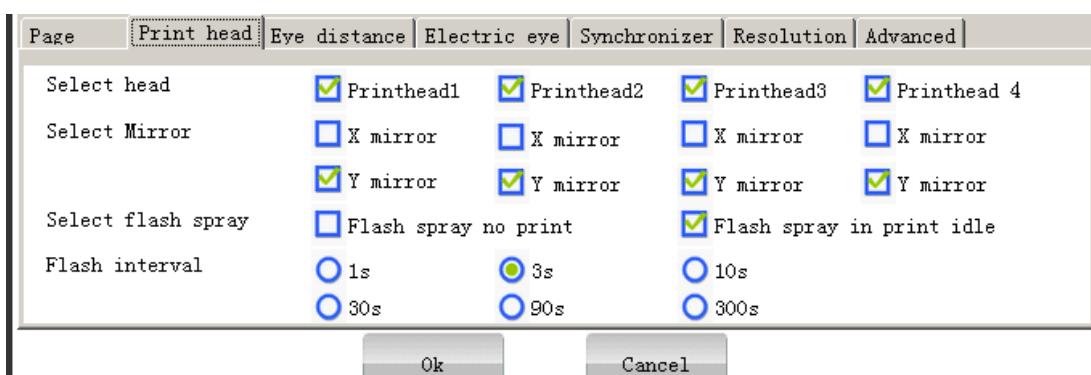
Page length: length of print page, content outside page length will not be printed. Page length is not over 1200mm.

Already printed page: cannot be modified.

Start page this time: cannot be modified.

Last print time: cannot be modified.

##### 3.5.4.1.2 Print head



##### 1. Select head

Select needed print head

##### 2. Select Mirror

If image in certain print head needs mirror in printing, then mirror in X and Y direction

can be selected. Users can confirm which mirror operation needed by adjusting mirror and observing print effect.

### 3. Select flash spray

Flash spray means print head will print out a small amount of ink on time if not in print status, which will prevent the ink from plugging the nozzle and lead to no print.

User can select two options of flash spray in printing or flash spray in wait printing, if not select both, then printer will not flash spray.

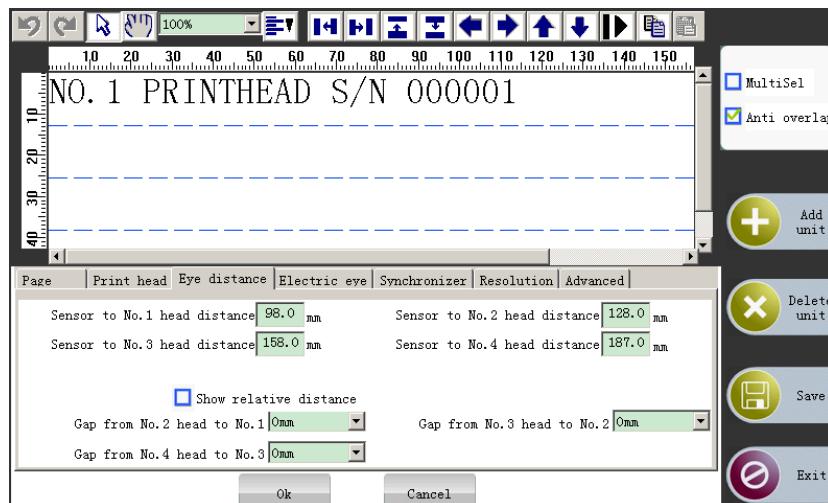
Flash spray in wait printing: printer is in idle status, and flash spray starts, once printer starts to print, flash spray stops.

### 4. Flash spray interval time

Users can choose different flash interval time according to different ink.

Flash interval time: 1s/3s/10s/30s/90s.

#### 3.5.4.1.3 Distance and joint



##### 1. Distance from sensor to print head

Print position can be adjusted by adjusting distance from sensor to each print head. And joint in X direction can be adjusted by adjusting the relative distance between each print head.

##### 2. Show relative distance

What is displaying is distance from sensor to No.1 print head and the relative distance between each print head. Or it will display the distance from sensor to each print head.

##### 3. Sensor is close to No.1 print head

If select sensor close to No.1 print head, then means distance from sensor to No.1 print head is smallest. If select sensor close to No.4 print head, then means distance from sensor to No.4 print head is smallest.

##### 4. Interval from print head to print head

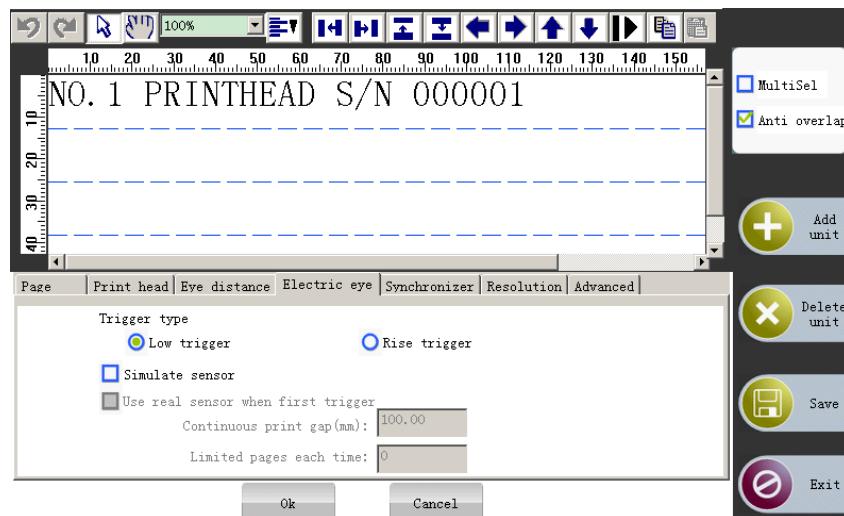
Joint in Y direction can be adjusted by adjusting the joint interval between each print head.

#### 3.5.4.1.4 Resolution

DPI in X direction: 100/150/200/300/600

DPI in Y direction: 300/600

### 3.5.4.1.5 Sensor



#### 1. Signal input type:

- Connect directly: Connect directly means connects sensor with printer's sensor socket, after connect loogal sensor well, then it can work. If users use other sensor, pls refer to the electrical interface
- PLC input: If sensor signal needs to get from PLC, pls equip PLC connection cable of Loogal, details refer to electrical interface.

#### 2. Trigger type

User can select rising edge or falling edge to trigger the printer

#### 3. Print direction

Forward direction and reverse direction can be selected.

#### 4. Simulation sensor

Simulation sensor means do not use real sensor, instead printer inside will generate a simulation sensor signal at regular intervals to trigger the printer. Simulation sensor is mainly used in below situations:

- When continuous object with fixed length needs to print repeated content, like panel, print requirements: print some pages when triggered by real sensor and will print some pages again by real sensor trigger next time. Setting below:
  - Select simulation sensor enable
  - Select first trigger by real sensor
  - Trigger type: select according to sensor input situation
  - Simulation print gap: Distance between two pages when simulation print
  - Limit the print quantity in each trigger: set according to page quantity needed to print in each trigger
- Continuous object with unknown length needs to print repeated content, like PVC pipe and film in drum. Print requirements: start to print when object comes to sensor detect range, and pause printing when object moves away. Continue to print when object comes to sensor detect range again
  - Select simulation sensor enable

- 
- ii. Not select first trigger by real sensor
  - iii. Trigger type: if sensor signal input is high level when there is object, then select rising edge trigger, on the contrary, select falling edge trigger
  - iv. Simulation print gap: Distance between two pages when simulation print
  - v. Limited print quantity in each trigger: recommend value is 0 (not limit print quantity)

### **3.5.4.1.6 Synchronizer**

#### **1. Signal input type:**

Users can select connect directly, cascading connection or simulation to get outer synchronizer signal

##### **a) Connect directly**

Connect directly means connect synchronizer to printer's synchronizer socket, after connecting with loogal synchronizer well, then it can work. If users use other synchronizer, pls refer to the electrical interface.

##### **b) Cascading**

Cascade or PLC connection means connect PLC direction /pulse signal to printer MULT socket. Pls use Loogal "PLC connection cable" for connection.

##### **c) Simulation speed**

When production line speed is stable and no high requirement for print quality, user can use simulation speed to print. Printer inside will simulate synchronizer signal in certain speed. User can select simulation speed and input the simulation synchronizer speed to print

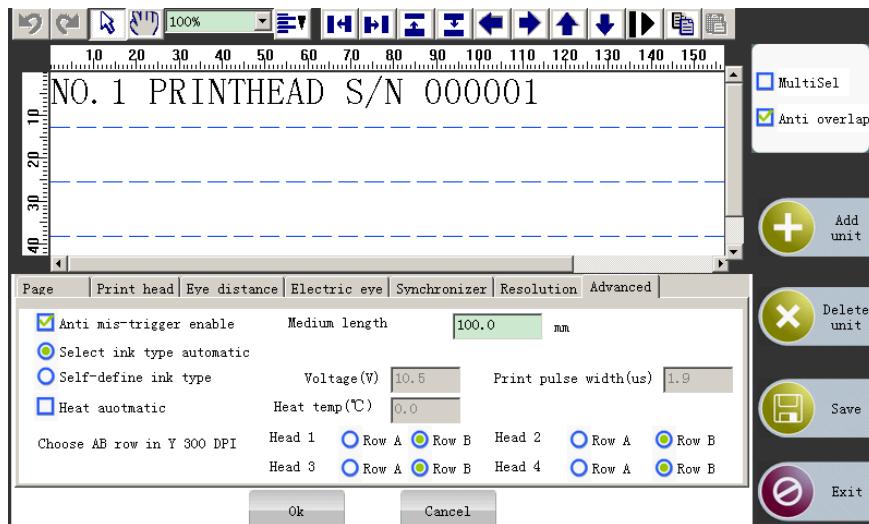
#### **2. Synchronizer calibration**

If users use synchronizer not from Loogal or need to input synchronizer signal from PLC, then the synchronizer signal frequency may not meet printer demand, which will cause the image compressed or stretched. If so, users can start function of "synchronizer calibration"

For example: user will print a rectangle whose length is 20cm, but actual print length is only 19cm. Users can input 20 in the image length, and input 19 in the actual length, then click button of "calibration". Printer will adjust the synchronizer signal to ensure rectangle actual print length is close to image length

***Attention: when production line speed is less than 5m/min, function of simulation speed cannot be used. Ratio must be 100% after calibration.***

### 3.5.4.1.7 Advanced



#### 1. Anti mistake trigger

If there is color lump that has strong comparison in the print object, it will trigger the sensor by mistake. When start “Anti false triggering” function and input object length, printer will ignore the sensor signal within object length after sensor is triggered.

#### 2. Select ink type

Printer will detect ink cartridge model automatically and offer best configuration to make print effect best. Printer only detects Loogal verified print head.

Self define ink cartridge model: If user will self define ink parameters, pls contact ink supplier.

### 3.5.4.2 Text attribute

#### 1. Position and size

- Position: user can input the distance that the unit to the most left and topmost
- Size: It can indicate the height and width of unit selected
- Scaling: scaling in X and Y direction can be input, unit is 1%. Integer value1-10000 can be input.
- Lock: If the unit is locked, then it cannot be removed or modified.

#### 2. Content

User can select fixed text, database file, and real time data.

- Fixed text is not variable content, so what input is what to print.
- Database file

#### *Database concept instruction:*

Printer can support database formats, like TXT or CSV. Printer will stop printing when last content of database is printed.

Each database file can have several records, and each record can have several fields. Each record is separated by record separator, each field is separated by field separator.

Define printer data get from that database file, and the database must have been input into the printer.

Primary record number: Each database can have several records. Each record's sequence

in the database is called record number. Change primary record number can make it possible to start printing from that record.

Field number: Each record can have several fields; user can select field number that needs printing.

Field separator: it is symbol that separates each field, and user can define the field separator. When each record only has one database field, then the field separator can be ignored

***Database example:***

Database file name is dbtest.txt, file content below:( Below italic part is just used to illustrate, and not really exist in the dbtest.txt file)

Field1 Field 2 Field 3

*Record No.1:* AA111,9676421,LONDONE

*Record No.2:* AB112,9645232,NEWYORK

*Record No.3:* AC113,5437642,SHANHAI

*Record No.4:* AD114,9676443,BEIJING

*Record No.5:* AE115,9673431,Seattle

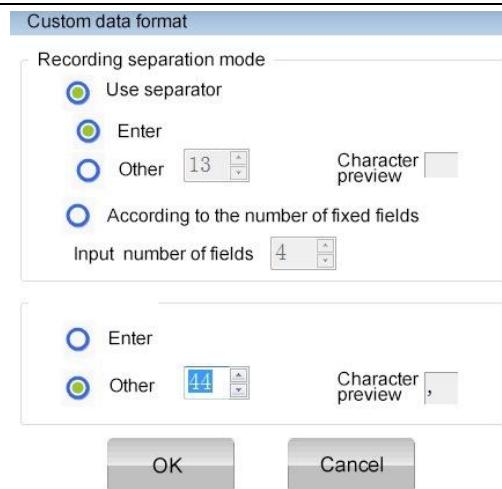
*Record No.6:* AF116,9336764, Bangkok

If users need to print LONDONE, NEWYORK, SHANHAI, BEIJING....., operations as below:

- i. Input database file dbtest.txt
- ii. Add text unit in print template
- iii. Select “content” -> database file
- iv. Click  button, below interface appears



- v. Select dbtest.txt file, click “enter”, then below interface will appear



- vi. Select “enter” as the record separator, select “other” as the field separator, input value 44( ASCII value of ,), then click enter.

- vii. Select 3 as the field number, input 1 as the start record.

***Examples of separate records according to fixed field number.***

This function is used to separate the continuous fields to single record, which is convenient for customers to select certain fields to print.

Database file dbtest2.txt content below:

AA111, AB111, AC111, AD112, AA112, AB112, AC112, AD112, AA113, AB113, AC113, AD113, AA114, AB114, AC114, AD114 ,.....

When user needs to print AA111, AA112, AA113, AA114, operations below:

- i. Select dbtest.txt file first, then click “enter”
- ii. Select “separate record according to fixed field number, input 4 as the field number.
- iii. Select other as field separator, input value 44, ( ASCII value of ,), click enter.
- iv. Select 1 as field number, initial value input 1.

c) Real time data

Real time data function can be added according to customer demands.

**3.5.4.3 Time attribute**

1. Position and size: Same as Text operation

2. Content

a) Time format

Y means year, M means month, D means day, h means hour, m means minute, s means second. YYYY means four numbers of years will be printed; YY means only last two numbers of years will be printed. MM means 0 is auto-filled if only one number in month. M means 0 is not auto-filled if only one number in month. Day/hour/minute/second is same as year.

The sequence of year/day/hour/minute/second is not limited. Any character of font library can be inserted among in time. To print the defined character (Y,M,D,h,m,s) , / should be inserted before the defined character.

***Examples:***

---

This is the example for 13-08-31:05:15:01

Example 1: printed as: 13-08-31:05:15:01

shown as: YY-MM-DD:hh:mm:ss

Example 2: printed as: 13Y-8M-31D

shown as: YY\Y-M|M-D|D

Example 3: printed as: 2013 年 08 月 31 日 05 时 15 分

shown as: YYYY 年 MM 月 DD 日 hh 时 mm 分

b) Valid time: If users choose “valid time”, then time printed out is current time plus valid time. User can input year, month, day and minute of valid time

3. Font: same as text font function

4. Appearance: except group function, others same as text

#### **3.5.4.4 Counter attribute**

1. Position and size: same as text attribute

2. Content

***Attn: counter current value is also adjusted when adjust the start page***

a) From

Start value of counter recycle

b) To

Stop value of counter recycle

Max value user can input is 999,999,999, when stop value is larger than start value, it is addition count, on the contrary, it is subtraction count.

c) Step length

Value that increases or decreases in each time that counter changes. Value user can input is 1-999999.

d) Repeat times of each step

How many pages gap when counter changes

#### **Counter example:**

User needs to print 1, 1, 1, 1, 3, 3, 3, 3, 5, 5, 5, 5, .....

Set start value 1, step length is 2, repeat times of each step to 4, then it is ok.

e) Fill zero in front

When choose “Fill zero in front”, printer can ensure the length of counter printed out same.

For example: counter that user self define has 9 bits, while actual counter value only has 6 bits.

User can fill three zeros using this function before counter with 6 bits.

f) Recycle count

When user chooses recycle count, when counter arrives at the stop value, then it will restart to count from start value, or printer will stop printing when arrives at stop value.

3. Font: same as text font attribute.

4. Appearance: except group function, others same as text.

#### **3.5.4.5 Attribute of one dimension barcode**

1. Position and size: Except invalid function of zooming in X direction, others are same as text

- 
- 2. Content: Same as text
  - 3. Barcode
    - a) Barcode type
      - Users can choose barcode type that needs printing.
    - b) Barcode basic width:
      - Barcode basic width means width of the superfine barcode line. If users use HP print head, then the basic width of barcode is integer times of 0.0423
    - c) Trimming level
      - For each ink has different diffusivity which will affect barcode print effect. Trimming level function can improve the barcode quality which is caused by ink diffusivity
  - 4. Appearance
    - a) Rotation, barcode can be rotated in degrees of 0、90、180、270.
    - b) Mirror in X direction: barcode including text will be mirrored in X direction.
    - c) Display text: whether display the content in barcode in text format, if not selected, then below parameters invalid.
      - i. Alignment type: the alignment type of text and barcode.
      - ii. Text above: if select option of “text displays above barcode”, if not, then text will be displayed under barcode
      - iii. Text distance, the distance between text and barcode
      - iv. Text group:

***Text group example:***

When text content in barcode is 123456789, while required print effect is

- 12 345 6789
- i. Select function of “group” first
  - ii. Group format: 2,3,4.
  - iii. Space quantity between groups: 2.

- 5. Font: The font of the text that is used to display the barcode, same as text attribute.

**3.5.4.6 Attribute of two-dimension barcode**

- 1. Position and size: Except invalid function of zooming, others are same as text.
- 2. Content: Same as Text
- 3. Barcode
  - a) Barcode type
    - Users can select barcode type that needs printing
  - b) Adjust
    - Adjust parameters of different barcodes is different
  - c) Barcode basic width
    - Barcode basic width means width of the superfine barcode line. If users use HP print head, then the basic width is integer times of 0.0423
- 4. Appearance
  - a) Rotation, barcode can be rotated in degrees of 0、90、180、270.
  - b) Mirroring in X direction, barcode will be mirrored in X direction.

### **3.5.4.7 Attribute of roundness**

1. Position and size:
  - a) Position: Distance between selected unit and page left most or up most can be input
  - b) Size: Length and width of selected unit can be input, when height and width is same, it is roundness
  - c) Lock: If lock selected unit, then it cannot be moved or modified
2. Shape:
  - a) Line width: Width of unit frame can be chosen
  - b) Fill: choose whether to fill the unit.

### **3.5.4.8 Attribute of rectangle**

1. Position and size:
  - a) Position: Distance from selected unit to left most and up most of the page can be input
  - b) Size: Length and width of selected unit can be input, when height and width is same, it is square.
  - c) Lock: If lock selected unit, then it cannot be moved or modified
2. Shape
  - a) Line width: Choose width of the unit frame
  - b) Fillet radius: Choose the fillet radius of unit four corner, when radius is zero, then it is rectangle.
  - c) Fill: whether to fill the unit

### **3.5.4.9 Attribute of straight line**

1. Position and size
  - a) Position: Distance from selected unit to left most and up most of the page can be input
  - b) Direct line size can be input
  - c) If lock selected unit, then it cannot be moved or modified
2. Appearance
  - a) Line width: can be input
  - b) Direct line direction: left top to right bottom, right top to left bottom, vertical and horizontal.

### **3.5.4.10 Attribute of image**

1. Position and size: same as text attribute
2. Content:

User can select static image or dynamic image

  - a) Static image is not variable content, user can input image through “template management->input selected file”, then select the image name to print.
  - b) Dynamic image

User inputs a batch of images to printer dynamic image directory by menu of “input dynamic image”. Printer will print according to file create time, and already printed image will be deleted.

Input dynamic image: Input dynamic image in U-disk to main printer.

Clear dynamic image: Eliminate dynamic image: eliminate dynamic image stored in the

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printer but not printed yet.

### 3. Appearance

- a) Rotate, unit selected can be rotated in degrees of 0,90,180,270
- b) Mirroring: unit selected can be mirrored in X direction.

## 3.6 General set

### 3.6.1 Language set

Language selection: Traditional Chinese, simplified Chinese, English. (Other language needed, pls contact supplier)

### 3.6.2 Unit set

Unit when edit image, mm and 1/10 can be selected

### 3.6.3 Time &Date

What set now is current system time

### 3.6.4 Touchable screen

#### 3.6.4.1 Statistic boundary value

1. Click “Statistic boundary value”
2. Use touch pen to slide 5-10 times in the top left corner, top right corner, bottom right corner, bottom left corner.
3. Click “get statistic result”
4. Click “use statistic result”

#### 3.6.4.2 Calibration

1. Click word of “calibrate touch screen”
2. Use touch pen to touch each cross cursor exactly (about 2-3 seconds)
3. Then click the central screen

## 3.7 Authority management

### 3.7.1 Authority management

Users can set different password in different modules according to demands. The primary password is empty, if no password, you can enter any module.

Pls contact supplier for administration password.

### 3.7.2 Parameters backup

Backup and recovery set parameters.

### 3.7.3 Upgrade

Firmware upgrade: is used to upgrade system and word stock. Store the upgrade file in the U-disk, input password, then click upgrade is ok. It will take about 1 minute to finish upgrade, and system will indicate “upgrade succeeds”. Pls restart the printer after upgrade.

Software upgrade: used to upgrade operation software, method is same as firmware upgrade.

## 3.8 Real time data print

### 3.8.1 Basic illustration

#### *Real time data concept illustration:*

PC transfers the real time data file that needs printing to SAJET, SAJET will read and print according to time that real time data file is generated and delete relative file after reading.

Real time data must be sent to SAJET 1 second ahead of sensor trigger, or there will be error in SAJET.

### 3.8.2 Network connections

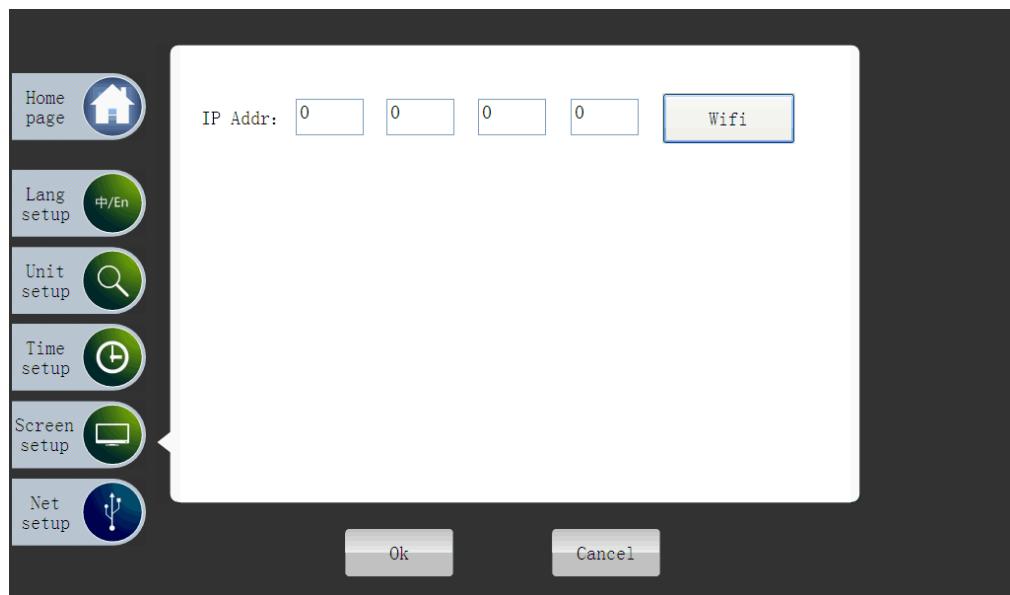
#### 1. Hardware connection



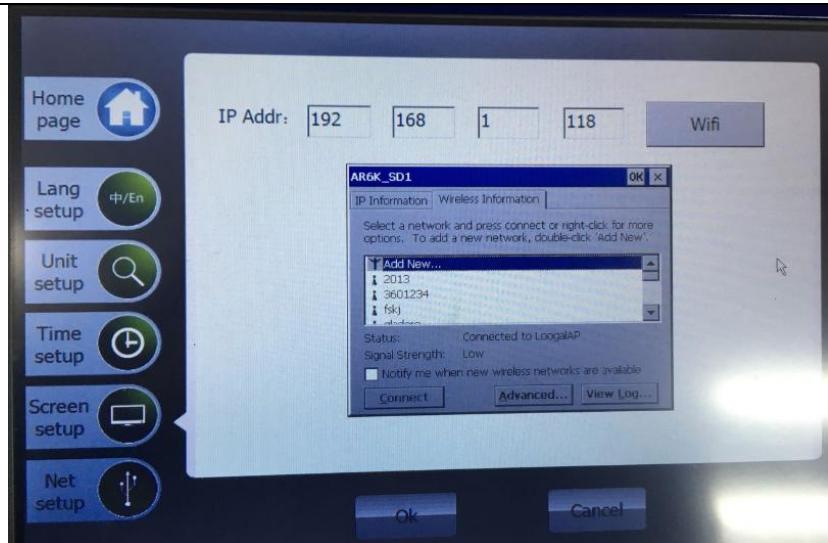
#### 2. Network set:

- SAJET default gateway is 192.168.1.1 and default IP address is 92.168.1.111
- Following steps is to change IP address: “general settings ->Network settings->Input new IP-> Click button of “ok”
- IP address input

range:192.168.1.100-192.168.1.255



- WIFI connection: Following steps is to connect with WIFI: “General settings->network settings->WIFI, then below interface comes. Select available SSID, click button of “Connect” and input wifi password. If succeed, Connected to XXX will be indicated.



#### 4. Data transfer

In SAJET, real time data file will be put in the folder named REALTIMEDATA

If SAJET present IP address is 192.168.1.111, then input

<\\192.168.1.111\SHARE\REALTIMEDATA> in the Computer resource manager's address bar and transfer the real time data to this folder.

#### 3.8.3 Real time data file

Real time data file is TXT file with extension name txt, and file coded format is UTF8 or ASCII. There is no special requirement for real time data name, but is better by time to name it.

Each real time file can include a few real time data, and each real time data can max have 32 fields, and each field can have max 80 ASCII code. Each piece of real time data is separated by “enter” and each field is separated by “,” ( punctuation is English version)

For example: real time data file “realtime16121301.txt” includes 6 piece of real time data, and each real time data includes 4 fields:

AA111, AA112, AA113, AA114  
 AB111, AB112, AB113, AB114  
 AC111, AC112, AC113, AC114  
 AD111, AD112, AD113, AD114  
 AE111, AE112, AE113, AE114  
 AF111, AF112, AF113, AF114

#### 3.8.4 Print template set:

Text unit and barcode unit can set real time data, settings below:

Content-real time data-field

#### 3.8.5 Clear cache

After printing, SAJET will not delete files that not read in the file, if need to delete all the files, pls click button of “clear cache”.

## 4. PC edit software operation

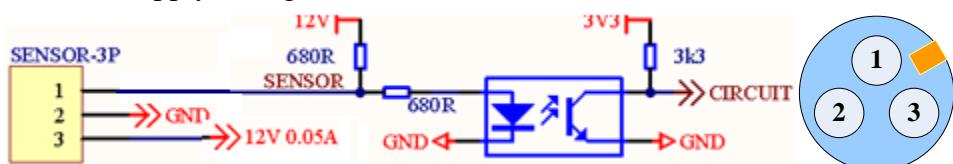
PC edit software of SAJET is mainly used to edit templates in computer. The interface is same as printer interface, except template management functions, other functions of PC software is invalid.

1. Install: Click icon SETUP.EXE under install directory, and install following steps.
2. Directory instruction:
  - a) Install directory: C:\SAJET
  - b) Template files save directory: C:\PRINTFIL

## 5. Electric interface

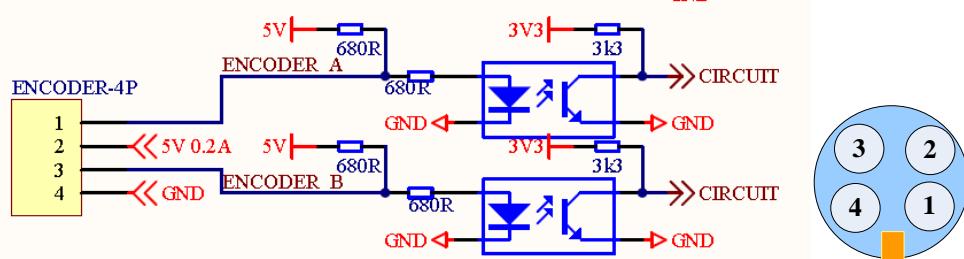
### 5.1 Sensor interface

Sensor supply voltage is 12V, and electric current is no more than 150mA



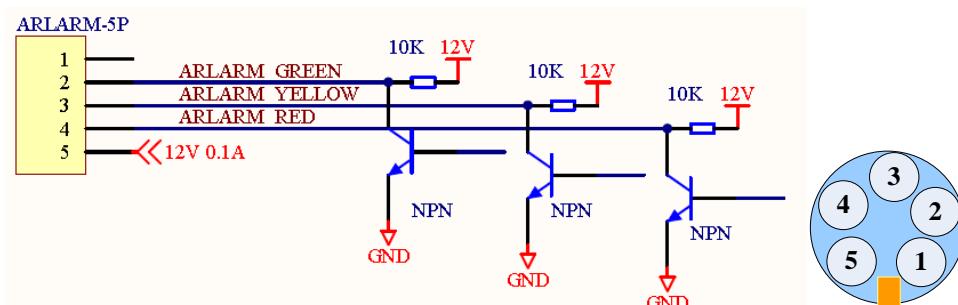
### 5.2 Synchronizer interface

Synchronizer supply voltage is 5V and electric current is no more than 150mA



### 5.3 Warning light interface

Output high level is more than 11 V, output low level is less than 0.7V, and electric current in each road is no more than 100mA.

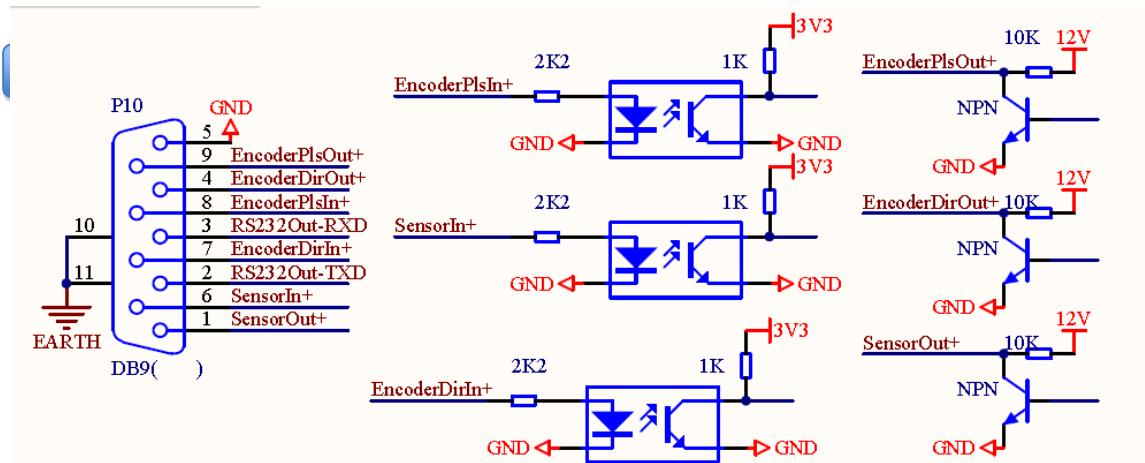


Status light	Warning light	Status	Reason & Solution
<b>Blue light on</b>	Green light on	Idle	
<b>Blue light flashes</b>	Green light flashes	Print	
<b>Blue light flashes</b>	Green light flashes	Self-check	
<b>No light flashes</b>	Yellow light flashes	Print head lacks ink	Ink in print head will be used up ,pls prepare to change new ink cartridge.
<b>Red light flashes</b>	Red light flashes	Print head is out of ink	Ink in print head is used up, pls change new ink cartridge
<b>Red light flashes</b>	Red light flashes	Protect print head	There is static electricity or electromagnetic interference, pls improve the working environment.
<b>Red light flashes</b>	Red light flashes	Print head self-check fails	1. Print head is broken, pls change print head 2. Hardware fault, pls repair or contact supplier.
<b>Red light flashes</b>	Red light flashes	Print head verification fails	Print head did not pass the verification, pls change verified print head.
<b>Red light flashes</b>	Red light flashes	Print head data overtime	1.Gap between print objects is too small ,pls increase the gap 2. Printer cannot process the data in time, pls lower print speed
<b>Red light flashes</b>	Red light flashes	Print head communication fails	1. Static electricity and electromagnetic interference, pls improve working environment 2. Hardware fault, pls repair or contact supplier
<b>Red light flashes</b>	Red light flashes	Real time data error	1.data transfer has error which is caused by Static electricity and electromagnetic interference, pls improve working environment

		2. Printer does not receive print data in time, pls increase distance from sensor to print head 3. Printer does not receive print data in time, pls increase data sending speed
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## 5.4 Multifunctional interface

Input voltage is 12V-24V; input electric current is over 5 mA



## 6. Warning light & Error

### 6.1 Print head status

Print head status light	Status	Reasons & Solution
Blue light on	Idle	
Blue light flashes	Print	
Red light on	Error	Refer to main engine error

### 6.2 Main engine status light & Waring light

Main engine status light: in the main engine switch outer ring, there is red and blue status indication light

Warning light: pls see optional parts

Flash: off in one second and on in one second

Other errors: pls repair or contact supplier.

## 7. Optional parts

Name	P/N	Function & Feature
12#		Light weight, small inertia and good following

<b>Synchronizer</b>		performance. Working voltage:5-12 V 300PPI
<b>12#Infrared reflection sensor</b>		Working voltage: 12V, detect distance: 2.5-9cm
<b>13#Infrared reflection sensor</b>		Working voltage: 12V, detect distance: 2m
<b>14# Fiber reflection sensor</b>		Positional accuracy high, used to detect tiny object. Working voltage: 12V-24V
<b>11# Warning light</b>		Used to indicate status and warning
<b>11# PLC connection cable</b>		Used to connect printer and PLC