Warning: The contents of this manual cannot be arbitrarily changed without consent. We reserve the right to change the product in technology, parts, software, and hardware. If you need further information about the product, you can contact the dealer. No section of this manual shall be reproduced or transmitted in any form or by any means without permission.

Thermal Transfer Printer

4B-2054TC/4B-3044TB Series

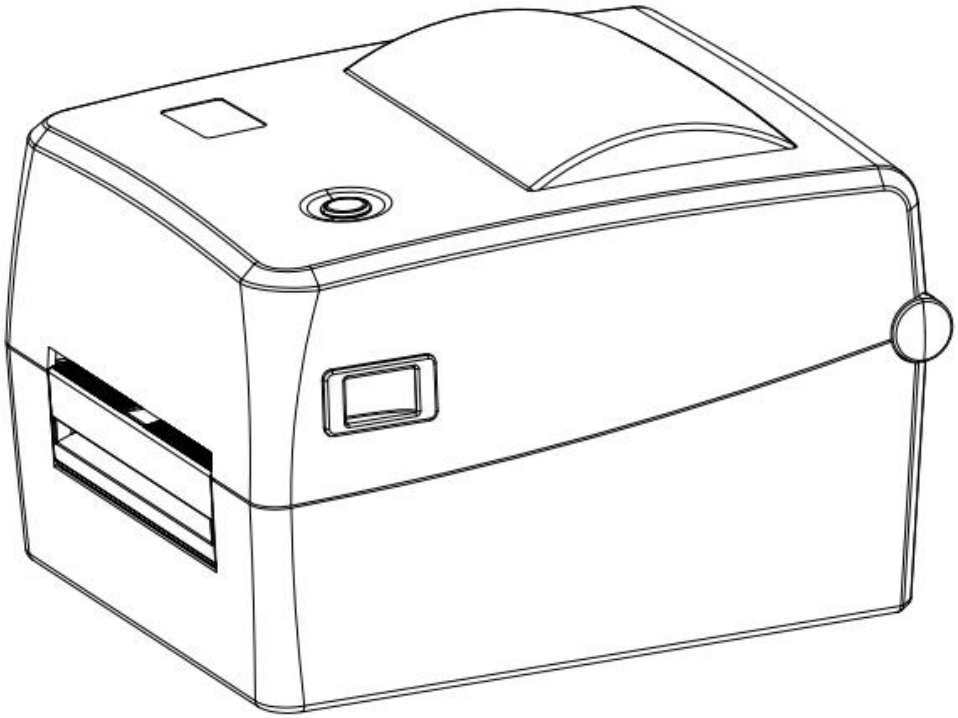
THERMAL TRANSFER/ DIRECT THERMAL BARCODE PRINTER

USER'S MANUAL

Please keep user manual for reference

Content

Copyright statement



1. Printer brief introduction

1.1 Introduction

Thank you for purchasing our thermal transfer/thermal barcode printer

The slidable media sensor supports a wide range of paper types, including paper rolls, paper slicing and folding. In addition, other commonly used bar code papers can be used

This model has built in high-quality and efficient simulation font engine and font library. With a flexible firmware design, users can also download True Type Font fonts to the printer's memory. Besides scaled font, five different alphanumeric , OCR-A and OCR-B fonts are available. Combining such a powerful function, competitive price, high printing quality, this printer will be your best choice in the same level of thermal and thermal transfer printers

When printing the label format, please refer to the information provided by your label editing software. If you need to write your own program, it is just only for your reference

TSPL、ZPL、DPL、EPL Instruction Manual.

Scope of application:

- o Manufacturing & warehousing industry
- o Logistics industry
- o Medical industry
- o Retail industry

1.2 Product parameters

Product standard equipment	**203 dpi** 4B-2054TC	**300 dpi** 4B-3044TB
Thermal transfer printing	○	○
Thermal printing	○	○
ABS plastic HOUSING	○	○
Gap sensor / through-transmission	○	○
Adjustable black mark sensor / reflection-TYPE	○	○
Ribbon sensor	○	○
Head open sensor	○	○
USB 2.0(full speed) Communication Interface	○	○
8 MB SDRAM	○	○
8 MB FLASH	○	○
Feed button and LED indicator	○	○
Supports (Eltron? and Zebra?) emulation	○	○
Contains 8 kinds of dot matrix type font	○	○
Fonts and bar codes can be rotated in four directions (0,90,180,270degree)	○	○
Including font	○	○
Can download windows font to use	○	○
can download firmware to update	○	○
Supports text, barcodes, photos. (Refer to TSPL,ZPL,DPL,EPL programmer's manual for available codepage)	○	○

SUPPORT BARCODE		Support image format
1D barcode	2D barcode	
Code 39, Code 93, Code128UCC, Code128 subsets A,B,C, Codabar, Interleaved2of 5, EAN-8, EAN-13, EAN-128, UPC-A, UPC-E, EANandUPC2(5) digits add-on, MSI, PLESSEY, POSTNET, China POST, GS1 DataBar, Code 11	PDF-417, Maxicode, DataMatrix, QR code, Aztec, GS1 DataBar Composite code	BITMAP, BMP, PCX (Max. 256 colors graphics)

1.3 General Specification

General Specification	
Printer measurement	246mm(D)*199mm(W)*168mm(H)
Printer weight	1.6kg
Power	Input:AC 100-240V Output: DC 24V Output:2.5A,60W
Environmental conditions	Operating environment: temperature5~40˚C(41~104˚F), Humidity (non-condensing) 25~85%, Storage environment: -40~60˚C temperature: 10~90%

1.4 Ribbon Specifications

Ribbon Specifications	
Ribbon external diameter	Max35mm
Ribbon length	90 m
Ribbon internal core diameter	12.7 mm (0.5")(Ink outside Coating)
Ribbon width	Max.110 mm
	Min.25.4mm
Ribbon winding type	Outer -roll type

1.5 Media specifications

Printing resolution	203 DPI	300 DPI
Printing head resolution ratio	8 dots/mm(203 DPI)	11.8 dots/mm(300 DPI)
Print mode	Thermal transfer and direct thermal	
Dot size	0.125 x 0.125mm	0.084 x 0.084 mm
(width x length)	(1mm= 8 dots)	(1mm= 8 dots)
Printing speed (ips: inches per second	127 mm (5") / s	101 mm (4") / s
Print width	25.4mm(1")~108 mm (4.25")	104 mm (4.09”)
Paper width (label + bottom paper)	Max 115 mm (4.5")	Max 115 mm (4.5")
	Min 25.4 mm (1.0")	Min 25.4 mm (1.0")
Paper thickness (label + bottom paper)	Max 0.25 mm	Max 0.25 mm
	Min 0.06 mm	Min 0.06 mm
Internal roll paper maximum capacity outside diameter	127 mm (5") OD	127 mm (5") OD
Paper type	Continuous paper, gap paper, black label paper, folding paper, perforated paper	
Paper winding type	External roll type/internal roll type	
Paper roller diameter	25.4 mm (1.0")	25.4 mm (1.0")
label length	10mm ~1778mm(0.39"~70")	10mm ~889mm(0.39"~35")

Remarks:
If you use a label length less than 25.4mm (1"), we suggest you use label which has a perforated line on the gap So that easy to tear off

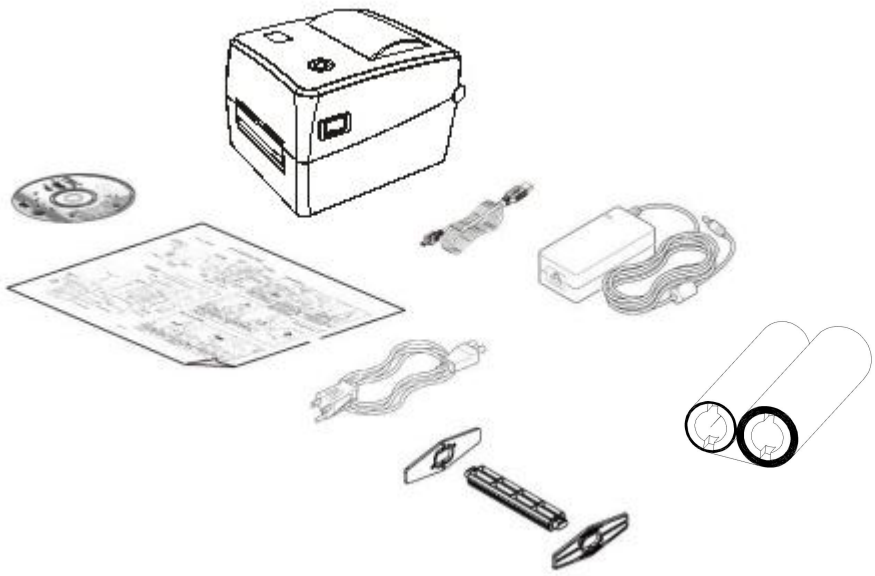
2. Product description

2.1 Unpacking and inventorying accessories

The printer is specially packed to resist the damage that may occur during transportation. However, in view of the fact that the printer may still be unexpectedly damaged while it is being transported, so that we suggest you check the packaging and printer setup carefully when receive the printer. If there is any obvious damage, please contact the dealer directly to indicate the nature and extent of the damage; please keep the packing material so that the printer can be mailed.

After you receive barcode printer, please put it on a clean, stable table and open the printer carefully. Check whether the following items are included in the inventory

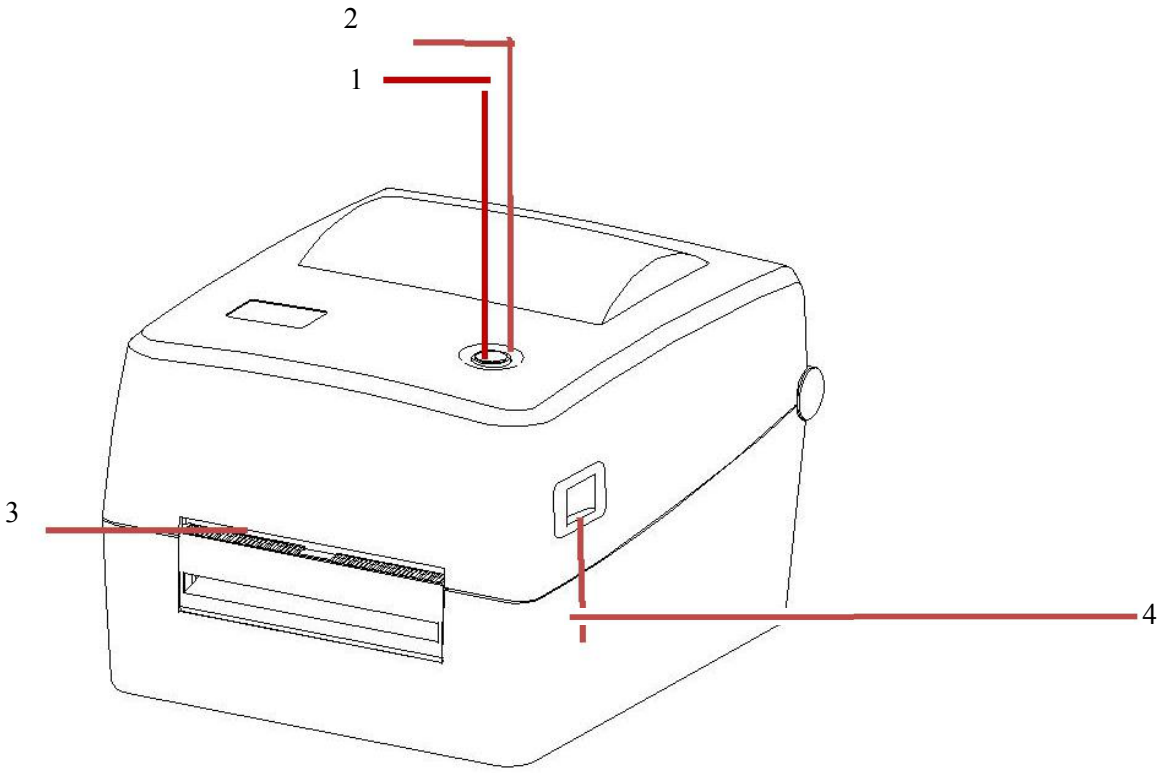
Bar code printer	x1
CD	x1
Quick Start Guide	x1
Power cable	x1
Power supply kit	x1
USB communication cable	x1
Paper supply kit	x1
Ribbon	x1
Rribbon roller	x2



Please keep the printer's packaging and materials properly for future transportation; if any of the above items is short or missing, please contact the customer service department where you purchased the product.

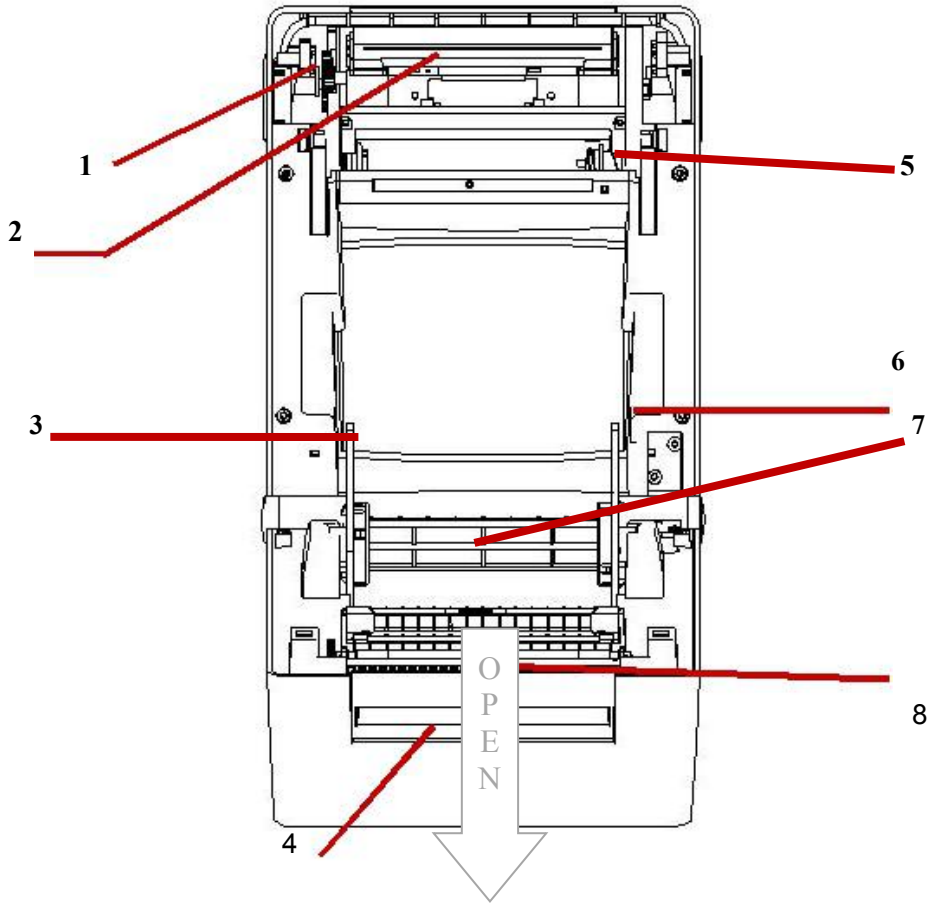
2.2 Printer components

Appearance

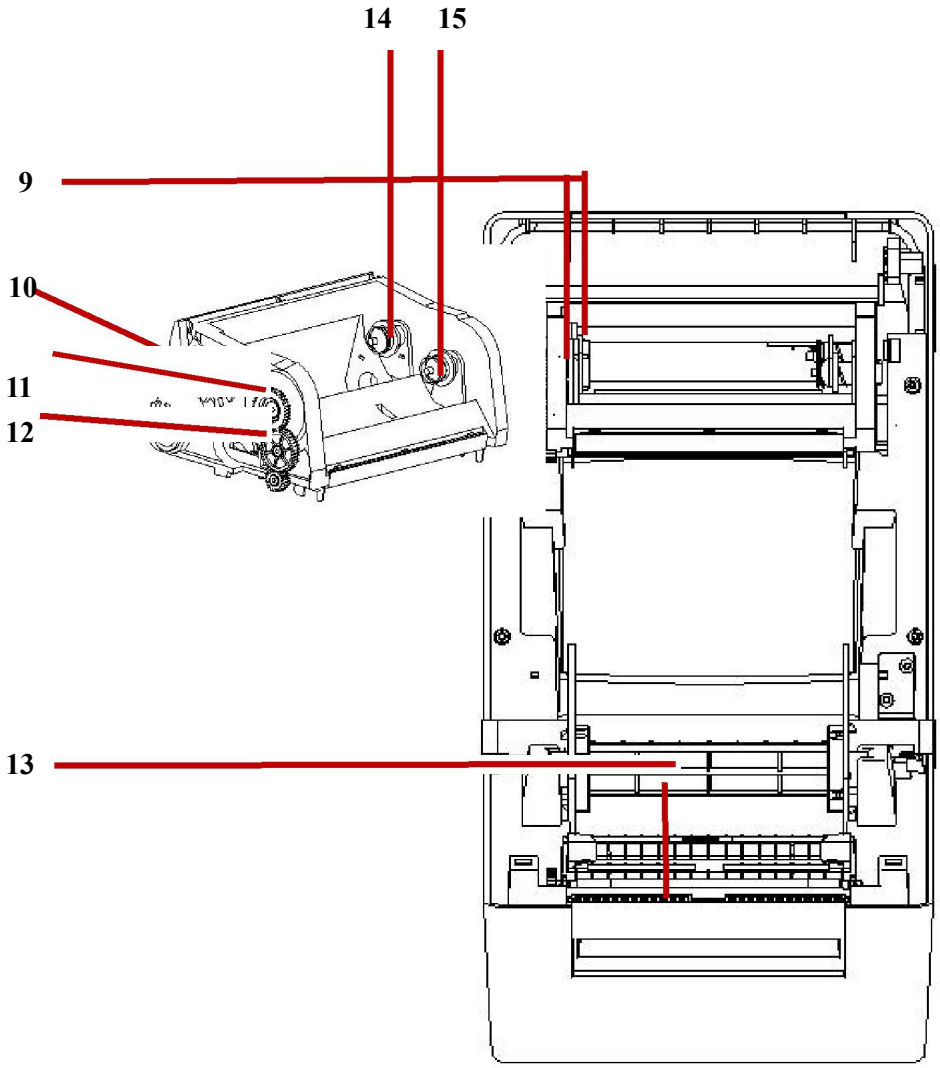


1. **Feed Button**
2. LED indicator light
3. Paper outlet
4. Cover open switch

Internal

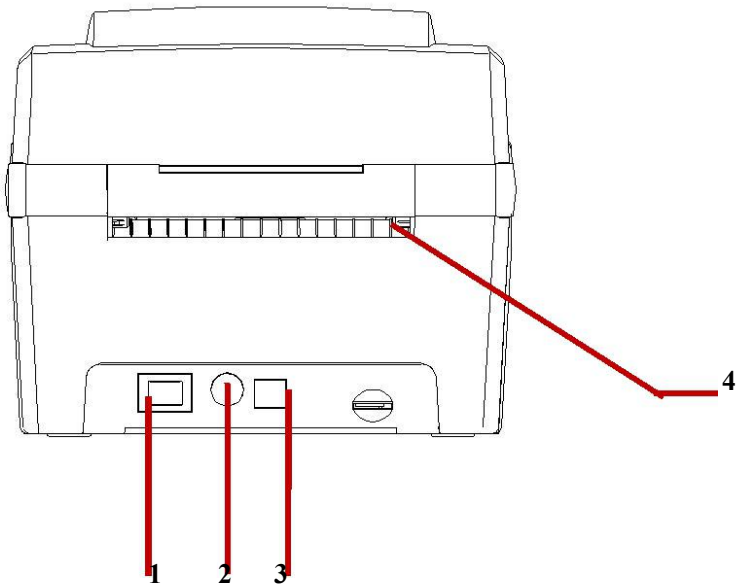


1.Ribbon gear
2.Printhead
3.Label guide
4.Front cover
5. Bracket lock
6. Cover support kit
7. Black mark sensor
8. Stripping sensor



9. Ribbon fixed kit
10. Grating wheel
11. Ribbon gear 3
12. Ribbon gear 2
13. Platen roller
14. Ribbon fixed fastener
15. Used ribbon fixed fastener

Back view



1.Power switch
2.Power jack
3. USB(USB2.0/Fullspeed mode)
4.Paper inlet

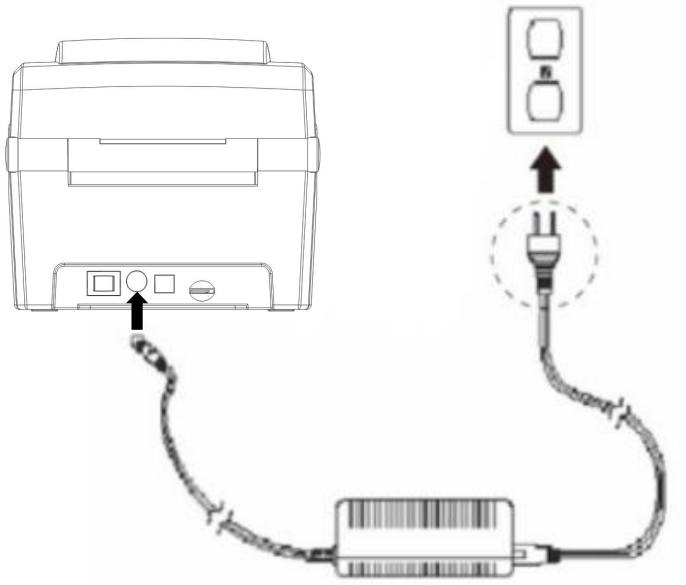
.

Attention:The transfer interface of the printer in the picture will difference according to the type of machine you are purchasing. actual transfer interface Please refer to the product specification.

3. Installation

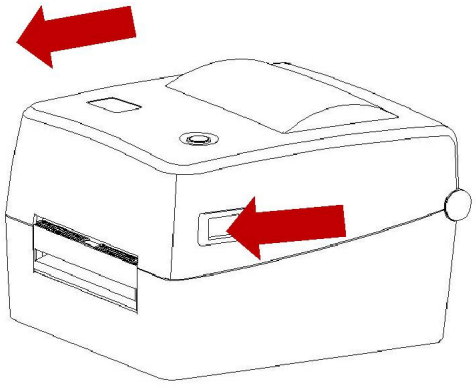
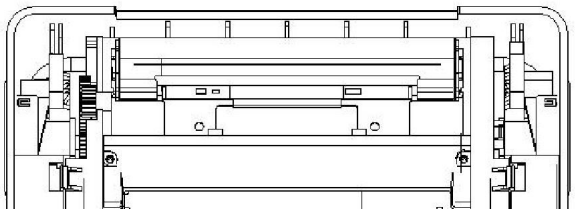
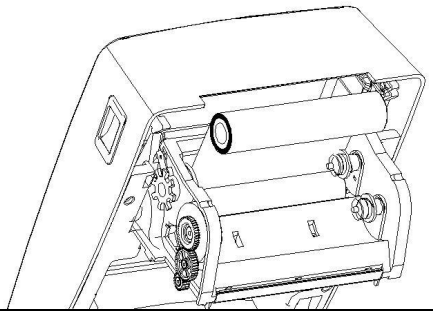
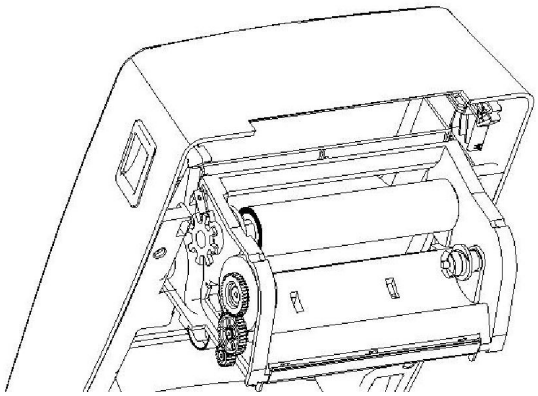
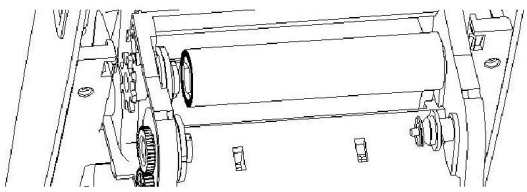
3.1 Install printer

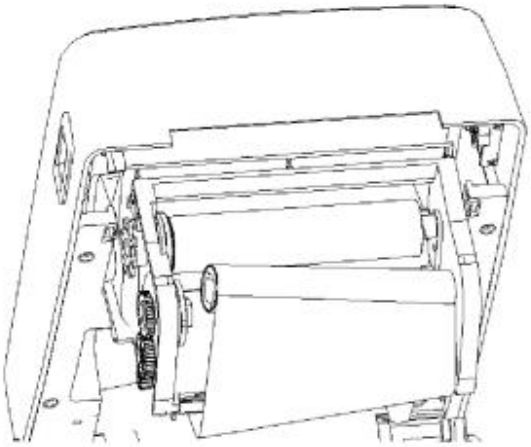
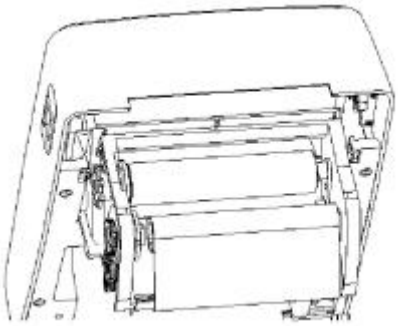
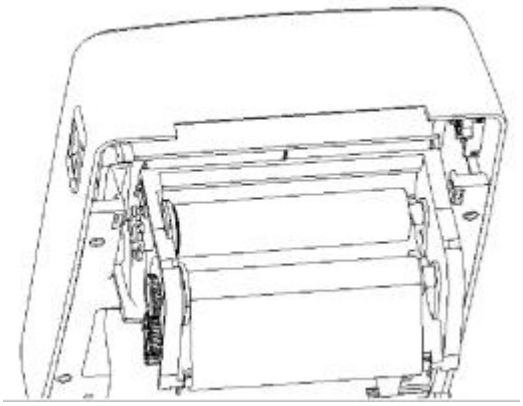
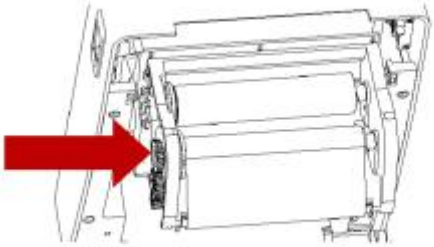
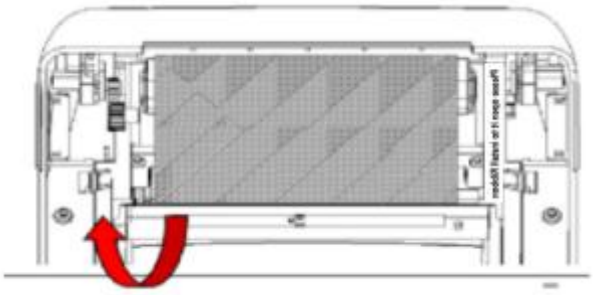
1. Put the printer on a stable surface.
2. Make sure the power is off.
3. Insert one end of the USB cable into the slot on the back of the printer, and then connect the other end of the cable to the appropriate slot on the computer.
4.Insert the power cord into the power jack on
5. The rear of the printer and plug the other end into an AC outlet.



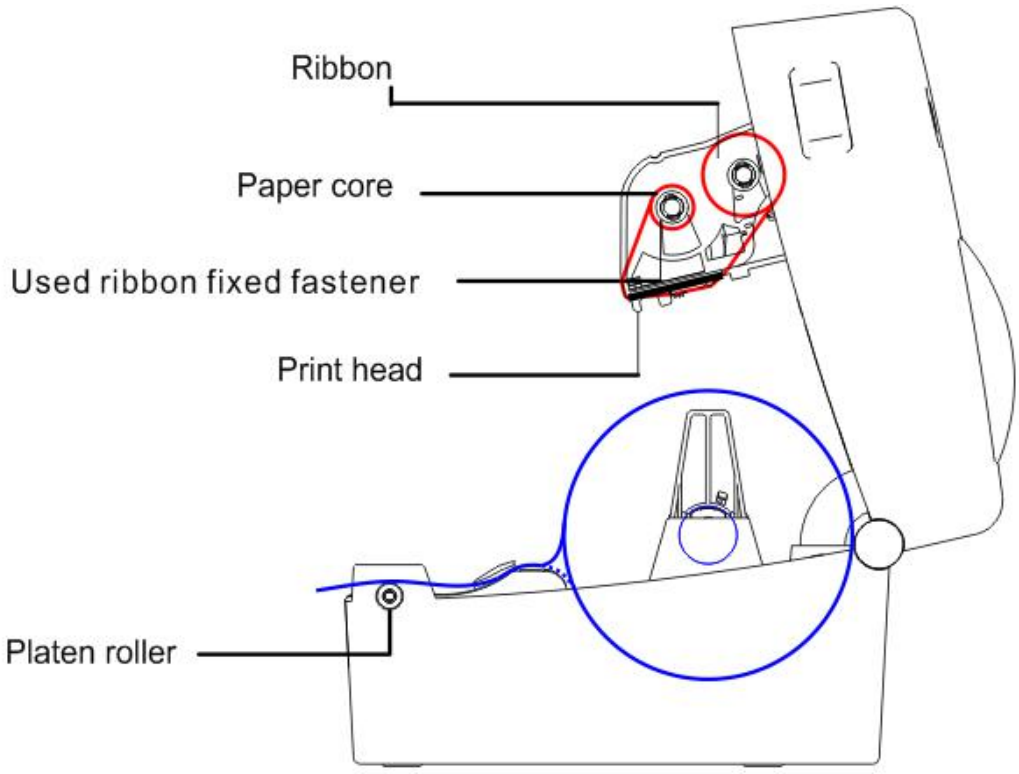
ATTENTION:
Turn off the printer's power switch and plug the power cord into the printer's power socket
The transfer interface of the printer in the picture will difference according to the type of machine you are purchasing. actual transfer interface Please refer to the product specification

3.2 Install the ribbon

	1. Pull the switch forward, arrow direction in the picture for reference, on both left and right side to open cover.
	2.Please push the plastic hook aside, arrow direction in picture for reference, and pull down the printhead gently to get ribbon installation area.
	3、Insert ribbon into ribbon fixed fastener at the right side and adjust wheel at the left side to fit. And pull ribbon through beneath.
	4.Install the used ribbon as the supply ribbon. Picture in below for for reference. User can follow the guide Quick installation guide as well. 

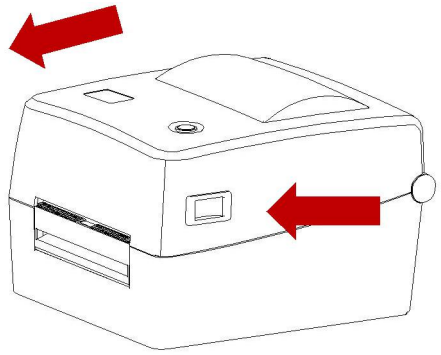
	5、Pass the ribbon around the print head, and then the right side of the ribbon recovery shaft is stuck on the ribbon recycling axis. The left ribbon wheel 2 corresponds the position of the ribbon to the concave surface of the ribbon recovery axis and the concave surface of the axis. 
	6.Turn the ribbon gear 2 to flatten the ribbon. 
	7. As shown in the left picture, both hands press upward at the arrow place , close the print head. Make sure the print head closed completely so that ensure the print quality

- Ribbon installation path

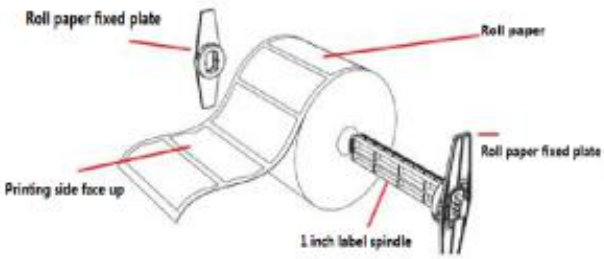


3.3 Installation of paper

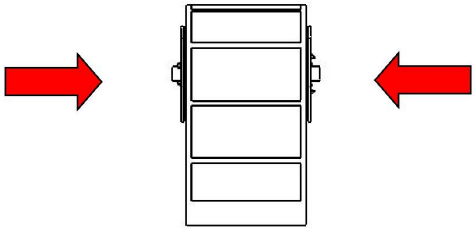
3.3.1 Installation of paper

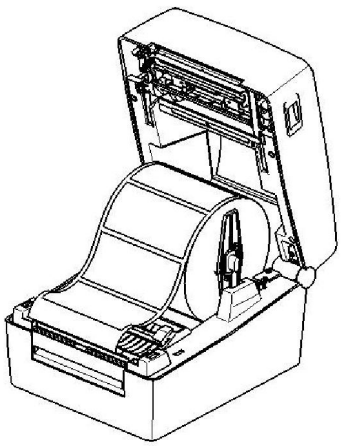


1. Pull the switch on the left and right sides of the cover in the direction of the arrow, and open the top cover of the printer.

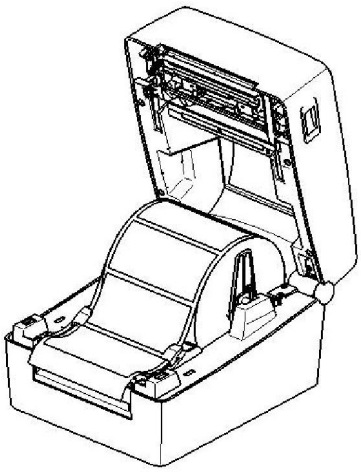


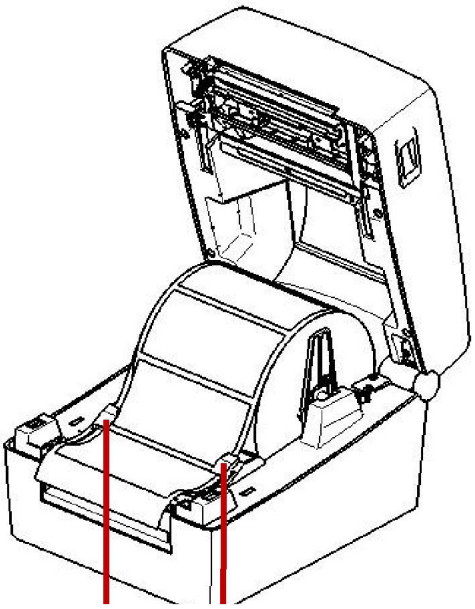
2、Put the paper on the label supply shaft and use the paper coil to fix the paper on the center of the supply shaft (if the paper is 4 "wide, the fixed piece can be taken down with the paper scroll directly).





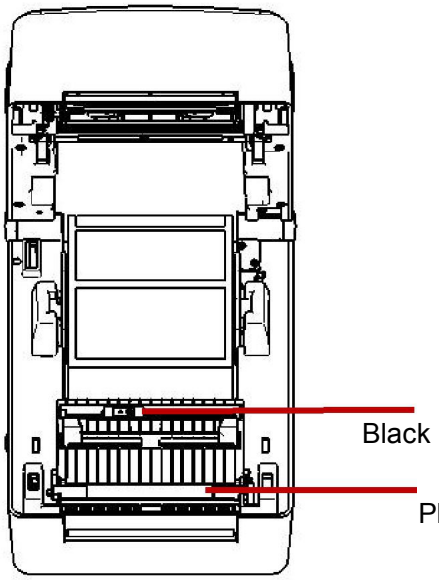
3、Put the paper on the paper rack

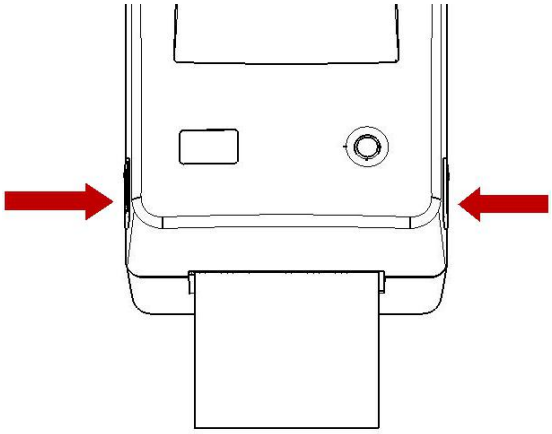




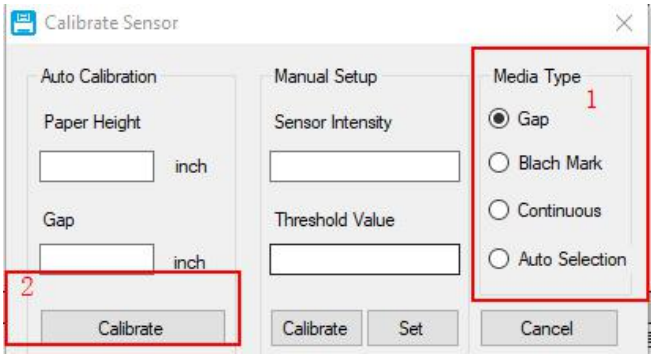
Label guide

4.Pull out the front end of the paper (print face up),get the paper through the paper guide block and the black mark sensor, pull the paper over the rubber roller , adjust the paper guide and paper with the same width and slight contact.





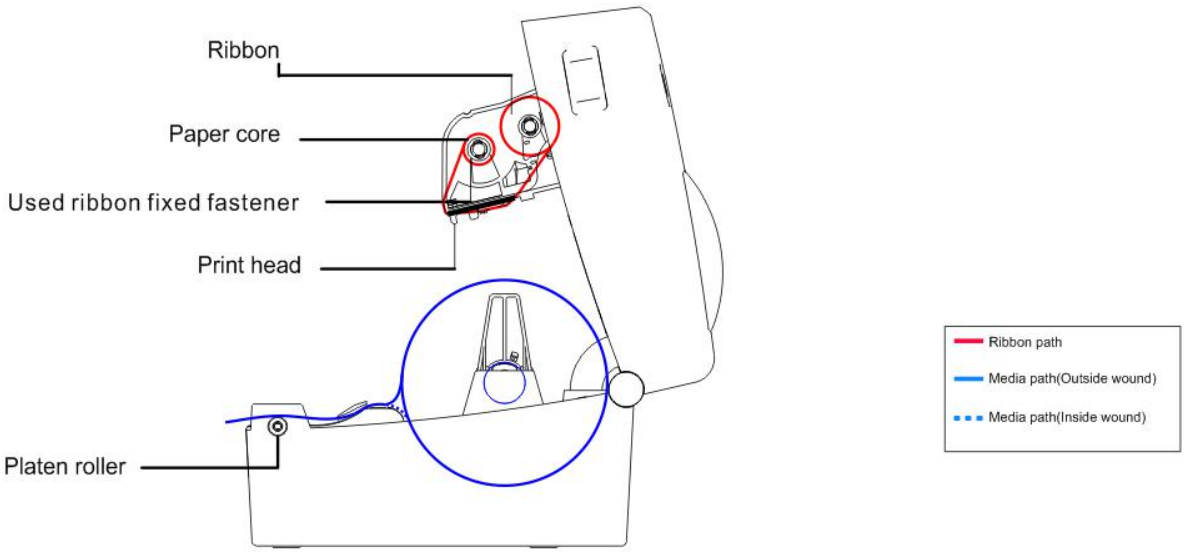
5.Push the upper cover back-up block with your right hand and close the printer.



6、Please use the "Diagnostic Tool" to set the appropriate sensor type according to the paper category and correct the label sensor (open "Diagnostic tool", select the "printer settings" page ,press the "sensor correction" key), please refer to the 5.3 chapter.

Note:The label sensor of this series is removable. Please confirm that the gap (or black mark) of the aper is passed through the sensor. It is recommended that when you change the different types of label paper, please redo the sensor calibration.

- **Media loading path**



4. LED indicator and the function of button

Printer designed with one set of gear motor, one Feed button and one LED indicator. According to the different LED display color, User can tell the status of printer.

4.1 LED indicator

LED indicator color	introduction
Blue (fixed)	Power on, printer standby
Blue (blinking)	Printer is downloading data or in pause status.
Purple	The printer is formatting the data
Red (fixed)	Printer is in head opened or cutter error status.
Red (blinking)	Printing errors, such as paper out, jam or memory errors, etc.

4.2 General button function

1.Paper feeding

When printer is standby(Blue LED fixed), the installed paper will move forward one unit if feed button is pressed once.

2.Pause mode

When the printer is printing, press feed button will cause the printing to pause. Then Blue LED indicator will display in blinking status.

4.3 Boot functions

The printer has six boot functions to be used to set or test printer hardware.

You can start these functions by:

1. Turn off power of printer.
2. Keep pressing down the feed button then turn on printer.
3. Release the button according to the timing in the table below.

Boot functions	Light color cycle mode					
Light color / Menu	Purple	Blue	Red	Purple	Blue	Blue
			Blink 5 times	Blink 5 times	Blink 5 times	Fixed blue
1.Gap/black mark sensor detection and calibrate paper.			Release the button			
2. Gap/black mark sensor detection, print self-test page and enter debug mode				Release the button		
3. Printer initialization (restore factory default)					Release the button	
4. Skip the AUTO. BAS procedure						Release the button

4.3.1 Gap/black label sensor detection

This detection is used to determine the sensitivity of label paper sensor after the printer starts up . When you changes new and different specifications of the paper roll or Initialize the printer to restore the value of the factory default, you need the sensor to redetect label paper clearance. And clearance detection or correction of black is set based on the value of reference for the last time. The default value of the printer sensors is set to clearance adjustment.

Please follow the steps below to calibrate the ribbon and gap/black mark sensor.

1. Hold on the button then turn on the power switch..
2. Release the button when LED becomes red and blinking. (Any red will do during the 5 blinks).
3. It will calibrate the ribbon sensor and gap/black mark sensor sensitivity. The LED color will be changed as following order：

Purple →blue → red (5 blinks) → purple (5 blinks) → blue (5 blinks) →solid blue

Note:

Please select gap or black mark sensor by sending GAP or BLINE command to printer prior tocalibrate the sensor.

For more information about GAP and BLINE command, please refer to TSPL2 programming manual.

4.3.2 Gap/Black Mark Calibration, Self-test and Dump Mode

While calibrate the gap/black mark sensor, printer will measure the label length, print the internal configuration (self-test) on label and then enter the dump mode. To calibrate gap or black mark sensor, depends on the sensor setting in the last print job.

Please follow the steps below to calibrate the sensor.

1. Turn off the power switch.
2. Hold on the button then turn on the power switch.
3. Release the button when LED becomes purple and blinking. (Any purple will do during the 5 blinks)

The LED color will be changed as following order.

Purple → red (5 blinks) → purple (5 blinks) → blue (5 blinks) → blue/purple (5 blinks)→ red/purple (5 blinks)→solid blue

4. It calibrates the sensor and measures the label length and prints internal settings then enter the dump mode.

Note:

Please select gap or black mark sensor by Diagnostic Tool or by GAP or BLINE command prior to calibrate the sensor.

For more information about GAP and BLINE command, please refer to TSPL2 programming manual.

■ Self test page

The printer will print self test values after the sensor calibration is completed. Before you connect the printer to the computer, you can verify the printer to print properly by using the self -test function . The self-test values can be used to check the quality of the printer and show the setting of the printer internal state.

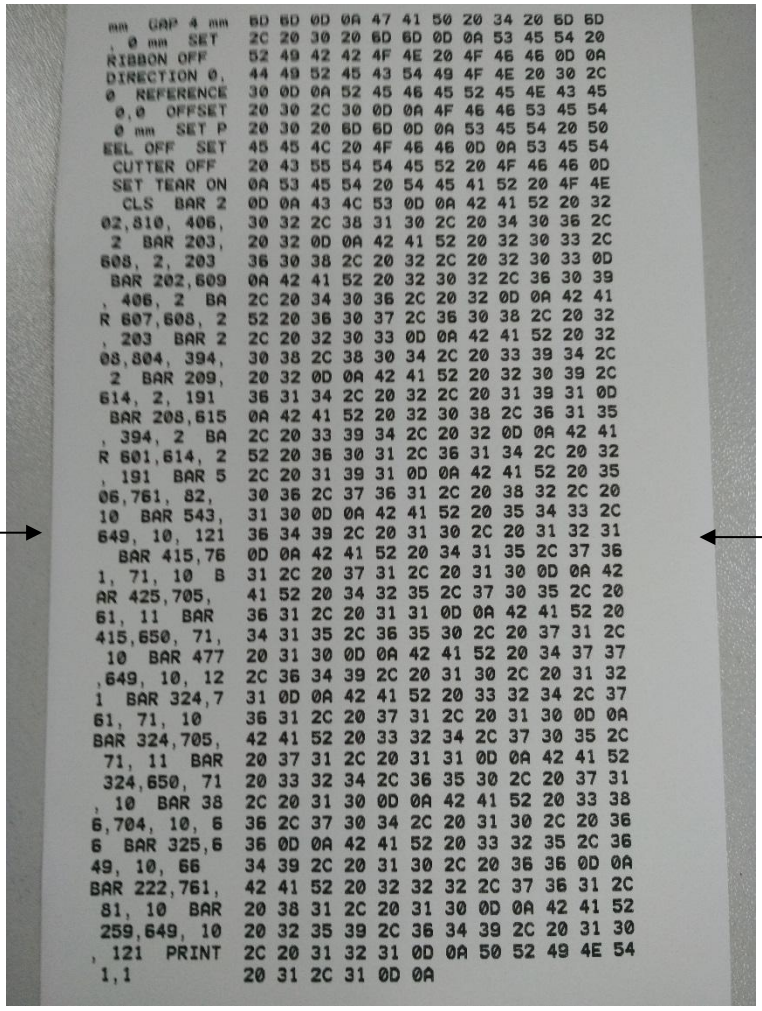
Self-test printout

Model & Firmware version
Serial number
Current printing length
Check sum
Serial port information
Current codepage
Country code
Printing speed
Printing density
Media size (unit: inch)
Black mark or gap size (vertical gap, offset)
Sensor sensitivity
Memory information

■ Debug mode

In debug mode, all volume label are printed out as machine code. On the left side of volume label is the ASCII string received data from the computer. And on the right of are data printed out in form of hexadecimal values according to the left ASCII string .This function provide user or engineer to debug program. After debugging, user need to restart the printer to resume printing mode.

ASCII String →



← ASCII code

Note:

1. Please using 4 inches label to get the complete debug information

4.3.3 Printer initialization

Printer initialization function is to format DRAM memory and change setting to factory default.

Printer initialization is activated by the following procedures.

3.1 Turn off the power switch.

3.2 Hold on the button then turn on the power switch.

3.3 Release the button when LED turns blue after 5 purple blinks. (Any blue will do during the 5 blinks).

The LED color will be changed as following:

Purple →blue → red (5 blinks) → purple (5 blinks) → blue (5 blinks) →solid blue

Factory default value：

Parameter	The default value
Speed	127 mm/sec (5 ") (203DPI) 101 mm/sec (4 ") (300DPI)
Density	8
Label width	4 " (100 mm)
Label height	2.5 " (63.5 mm)
Sensor type	Gap sensor
Gap setting	0.08 " (2.0 mm)
Direction	0
Reference point	0,0 (upper left corner)
Offset	0
Tearing mode	On
Peeling mode	Off
Serial port Settings	9600 bps, none parity, 8 data bits, 1 stop
Character set	850
Country code	001
Clearing Flash	No
IP address	DHCP

4.3.4 Skip the AUTO. BAS procedure

TSPL2 programming manual command language allows users to load a document automatically (AUTO. BAS) in flash memory. Printer will automatically perform according to the boot files loaded by users. When you want to skip AUTO. BAS procedure, you can use this function to ignore this automatically executable files.

Please follow the procedures below to skip an AUTO.BAS program.

1. Turn off printer power.
2. Press the FEED button and then turn on power.
3. Release the FEED button when LED becomes solid blue.

The LED color will be changed as following:

Purple→blue→ red (5 blinks)→ purple (5 blinks) → blue (5 blinks) → solid blue

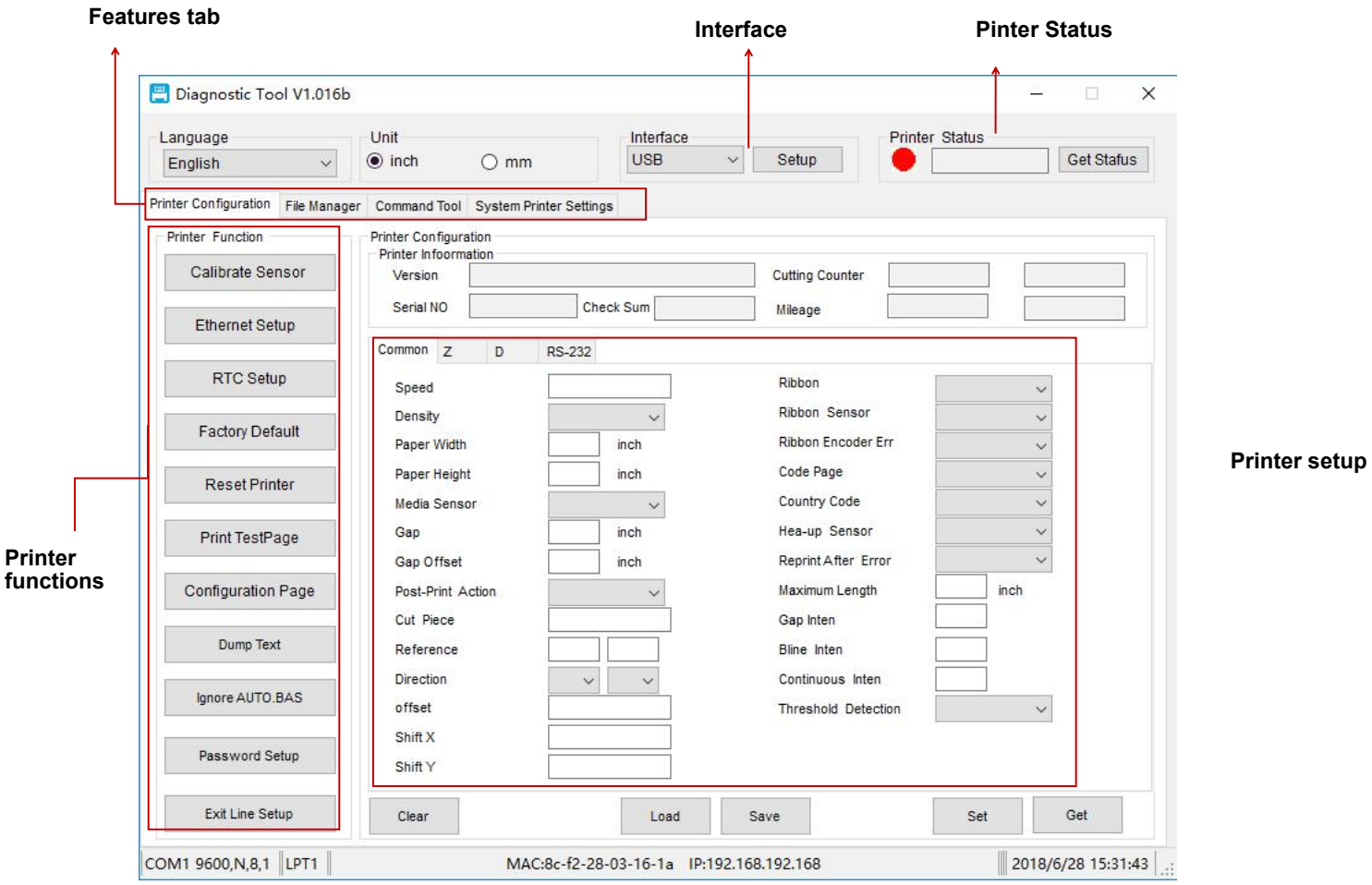
4. Printer will be interrupted to run the AUTO.BAS program.

5. Diagnostic Tool

Diagnostic Tool is a simple and easy-operated tool, which can check the printer information, file download and send emulation command.

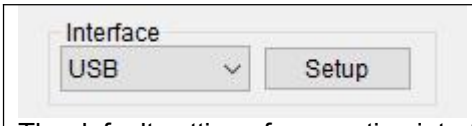
5.1 Enable DiagnosticTool tool program

2. There are three administration pages (printer Settings, file management, communication tools) in main picture after the program starts.

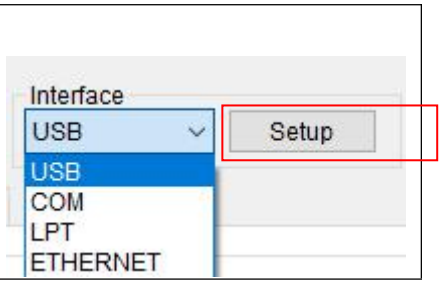


5.2 Printer Setting

1. Choose connection interface between computer and printer.



The default setting of connection interface of printer diagnostic tools program is USB . So if transmission is through the USB cable link, there is no need to set this part. Just go to the next step.



2.Click the needed function in function area.

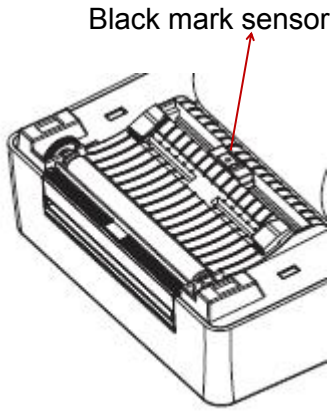
3.Printer function introduction in the administration page of Printer Setting is as follows.

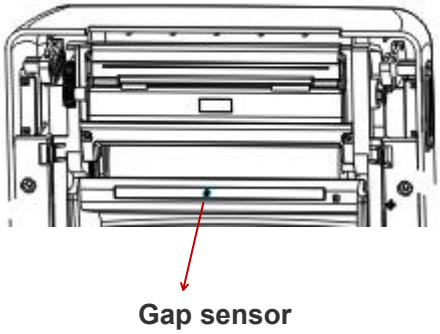
Inroduction
Sensor calibration
Set the Ethernet
Set printer RTC time parameters
restore factory default and restart
Restart the printer
Print the test page
Print self-test page
Enter the printer error budgeting model
Ignore AUTO. BAS files
Set the Diagnostic Tool passwords

5.3 Printer Diagnostic Tool Program on paper sensor correction

5.3.1 Automatic correction

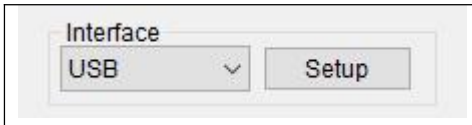
1.Please make sure the paper correctly installed and closed the printer head.



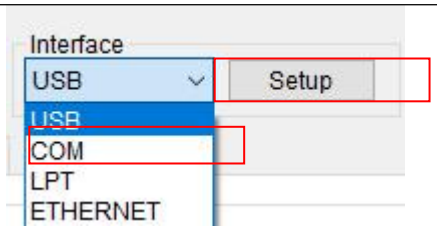


3.1 Turn on printer.

3.2 Select the communicate port according to the connected port.

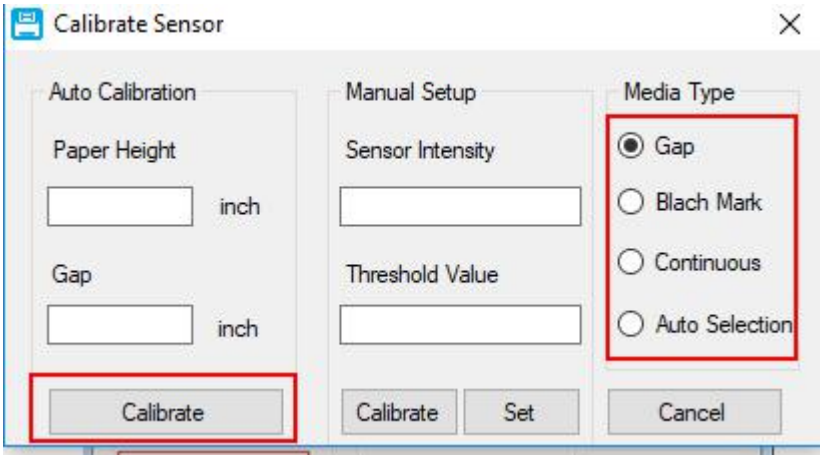


Default setting of connection interface of printer diagnostic tools program is USB . So if transmission is through the USB cable link, there is no need to set this part. Just go to the next step.



4. Press the "sensor calibration" button.

5. Choose the paper type and press the "Calibrate" button

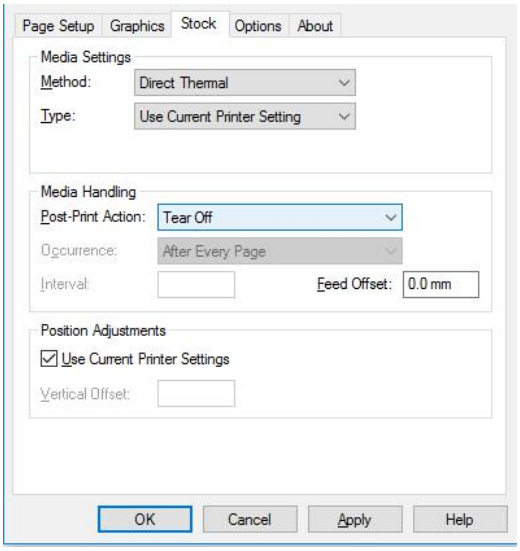


6、Troubleshooting

The contents of the table below are common problems and solutions in general operators ;If you troubleshoot in the way we suggest, and printer is still not functioning, then please get in touch with manufacturer's customer service department to get more help.

Problems	possible factors	solution
-The power indicator light is not light	* The ac plug socket and the power supply plug socket are not properly connected with the socket of the printer.	*Check and make sure the ac plug socket and the power supply plug socket are correctly connected with the socket of the printer.
	* The printer power switch is not on.	* Turn on the power switch.
-Printer Diagnostic tools (the Diagnostic Tool) show" head opened "	* Cover doesn't close entirely	* Try to reclose cover harder once.
-Printer Diagnostic tools (the Diagnostic Tool) show "Ribbon end" or "Ribbon speed error"	* Ribbon end	* Supply a new ribbon roll.
	* Ribbon installed incorrectly	* Please refer to the steps on section 3.2 tore-install the ribbon.
-Printer Diagnostic tools (the Diagnostic Tool) shows "paper end"	* Label paper end	* Install the new label paper
	* Paper installed incorrectly	* Correct the Sensor position
	* Gap/black mark sensors error	* Recalibrate label sensor
Printer Diagnostic tools (the Diagnostic Tool) shows " Paper Jam "	* Clearance/black label sensors detect error	* Recalibrate volume label sensor
	* Volume label paper size is not correct	* Set the correct label size
	* Maybe volume label paper gets stuck in internal structure of printer	* Clean the internal structure of printer

Problems	Possible factors	Solution
-**Not Printing**	* Pin feet of Serial port line in the transmission line slot is not the type of 1 to 1	* Reconnect the transmission line. * Replace new transmission line. * Ribbon does not match label . * Please Confirm whether ink surface of Ribbon is installed correctly. * Reinstall the Ribbon. * Clean the print head. * Print density setting is not correct. * The connection line of the print head is not connected properly. Please turn off the printer's power supply and reconnect the connection line of the print head. * Please confirm that the connecting line of the stepping motor is connected correctly. * Please confirm that there is a PRINT instruction in the print program. In the end, and at the end of each line, there must be a CRLF.
-The memory space is full(FLASH / DRAM)	*FLASH/DRAM memory space is full	* Remove unnecessary files inside FLASH / DRAM. * DRAM can store up to 256 files at most.. * The maximum storage capacity of the DRAM is 256KB. * FLASH can store up to 256 files at most.. * 2560KBthe maximum storage capacity in FLASH is 2560KB.
- Poor print quality	* Ribbon and label paper are not installed Correctly * There is dust or glue stacking on the print head * Print density setting is not correct * Print head damage * Ribbon does not match label * The pressure setting of the print head is not appropriate	* Reinstall the consumables. * Clean print head. * Clean rubber roller. * Adjust the printer's printing density and printing speed. * Print out the self-test value to see if the print head is damaged. If the print head is damaged, replace the print head. * Replace a suitable ribbon or label paper. * Iif the thickness of the label exceeds 0.22 mm, the printing quality may not be good enough. Please increase the print head pressure first. * Confirm that the print head frame has been completely closed.
-The situation of jumping paper when printing	* The size of the label is not set or incompletely set * Do not recalibrate the sensor after replacing tag * label sensor is covered by dust, causing incorrect detection	* Please confirm that the label size is set to be correct. * Please recalibrate the label sensor. * Clean the dust on the sensor with a gas brush.

problems	possible factors	solution
- Print position is incorrect when printing small volume label	* Label sensor setting is incorrec * label size setting is incorrect * The vertical displacement (vertical offset) in the printer driver's label style is not set correctly.	* Recalibrate label sensors * Set the correct size of the volume label and the clearance size of the volume label *If BarTender software is used, set the vertical offset (vertical offset) in the printer 
- Print content on the left and right sides missing	* Incorrect label size setting	* Set the correct label size
- When the printer is restarted, the RTC time is incorrect	* Battery run out of electricity	* Please replace the battery on the motherboard
- Wrinkle problem	* Pressure of print head is uneven * Ribbon is not installed correctly *The label paper is not installed correctly *Incorrect print density * label paper feeds incorrectly	* Please go to the next chapter for the adjustment of uneven pressure on the print head. * Please set the suitable density to have good print quality. * Please adjust the label width adjuster to fit the label width.
- Black label paper with gray lines	* There is dirt on the print head * There is dirt on rubber roller	* Clean print head * Clean rubber roller
- Print unsteadily	* The printer is in Hex Dump mode * Serial line (RS-232) setting is incorrect	* Turn the printer off again and jump out of the dump mode *Reset the RS-232

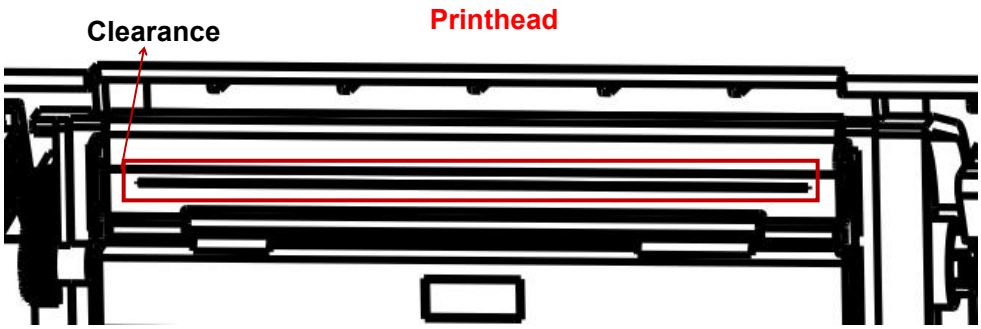
7. Maintenance of the printer

To do simple maintenance of printer ,it will not only make sure the quality of printing ,but also can extend the printer's life . please find us some recommended maintenance method as below.

1.se use the tools listed below to clean and maintain your printer

- Cotton swab
- cotton
- air brush
- Medical alcohol

2. Cleaning and maintenance procedures

Cleaning part	Procedures	Recommended cleaning frequency
Printing head	1. Please turn off the power 2.let print head to cool for at least one minute 3.The cotton swab dampened with alcohol and then Wipe the print head surface	Replacing a roll of new label paper
		
Rubber roller	1. Turn the power off. 2. Rotate the platen roller and wipe it thoroughly with Medical alcohol and a Cotton swab, or lint-free cloth.	Clean the platen roller when changing anew label roll
Stripp paper flake	Use the lint-free cloth with Medical alcohol to wipe it.	As needed
transducer	Compressed air or vacuum	Monthly
Outside of machine	Wipe it with water-dampened cloth	As needed
inside of machine	Brush or vacuum	As needed

NOTE:

- Do not touch the print head directly . If touched by accident, dampen cotton swab with medical alcohol to wipe the printing head .

- ◆ Please use medical alcohol. Do not use industrial alcohol. Industrial alcohol may damage the print head.

- ◆ If your printer has frequent error messages, clean your printer's transducer frequently
- ◆ Printer is suitable for tropical climates ,safe to use.

■ This is Grade A level product. this product may cause radio interference in the living environment. In this case, users may need to take practical measures for radio interference.

Update record

Date	Content	Editor
2018/07/01	Release	