4T520/ 4T530 Series

THERMAL TRANSFER/DIRECT THERMAL BAR CODE PRINTER

USER'S MANUAL
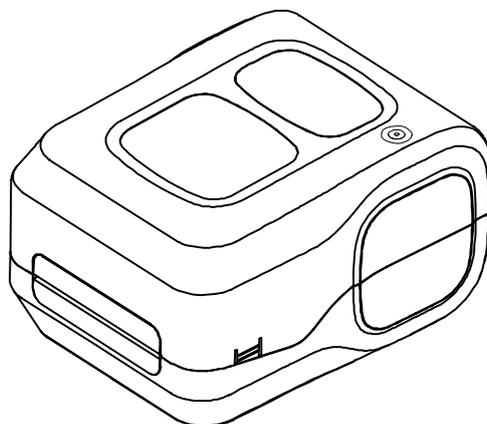
Copyright Information

Agency Compliance and Approvals

CCC	GB 4943.1 GB 9254, Class A GB 17625.1 此为 A 级产品，在生活环境中，该产品可能会造成无线电干扰，在这种情况下，可能需要用户对干扰采取切实可行的措施。
(symbol)	IS 13252(Part 1)/ IEC 60950-1
KC	KN 32 KN 35

Important safety instructions:

1. Read all of these instructions and keep them for later use.

2. Follow all warnings and instructions on the product.

3. Disconnect the power plug from the AC outlet before cleaning or if fault happened.

   Do not use liquid or aerosol cleaners. Using a damp cloth is suitable for cleaning.

4. The mains socket shall be installed near the equipment and easily accessible.

5. The unit must be protected against moisture.

6. Ensure the stability when installing the device, Tipping or dropping could cause damage.

7. Make sure to follow the correct power rating and power type indicated on marking label

   provided by manufacture.

8. Please refer to user manual for maximum operation ambient temperature.

WARNING:
Moving parts. Keep finger or body away from moving parts.

Caution: The printhead may be hot and could cause severe burns. Allow the printhead to cool.

WARNING:
Remove the power from AC inlet before opening the media cover for cleaning or repairing faults. After cleaning or fixing faults, media cover closing before power connecting to AC inlet.

Contents

1. Introduction

1.1 Product Introduction

Thank you very much for purchasing zenpert bar code printer.

The 4T520 / 4T530 series printer features the single motor that is capable of handling large capacity 300 meters ribbon and large rolls of media inside its sleek design. If the 5" interior label capacity is not enough, simply add an external media roll mount and the 4T520 / 4T530 series can easily handle 8" OD rolls of labels designed for expensive industrial label printers.

The moveable black mark sensor design can accept a wide range of label media. All of the most frequently used bar code formats are included. Fonts and bar codes can be printed in any one of the four directions.

The 4T520 / 4T530 series printer is built-in the high quality and support various kinds of media. With flexible firmware design, users can also download the True Type Font from PC into printer memory for printing labels. Besides the scalable font, it also provides a choice of eight different sizes of the alphanumeric bitmap font. By integrating rich features, it is the most cost-effective and high-performance printer in its class!

To print label formats, please refer to the instructions provided with your labeling software; if you need to write the custom programs, please refer to the TSPL / TSPL2 programming manual that can be found on [zenpert official website](#).

- Applications
  - Manufacturing & Warehousing
    - Work in Progress
    - Item Labels
    - Instruction labels
    - Agency labels
  - Healthcare
    - Patient Identification
    - Pharmacy
    - Specimen Identification
  - Parcel Post
    - Shipping / Receiving Labels
  - Small Office / Home Office
  - Retail Marking
    - Price tags
    - Shelf labels
    - Jewelry tags

1.2 Product Features

The printer offers the following product features.

| Model Name	4T520	4T530
Resolution	203 dpi	300 dpi
Max. print speed	6 ips	4 ips
Max. print width	108 mm	105.6 mm
Max. print length	25,400 mm	11,430 mm
Media width	19~118 mm	
Label length	5~25,400 mm	5~11,430 mm
Media thickness	0.06~0.19 mm	
Media capacity	127 mm OD	
Media inner core	1"	
Media wound type	Outside wound	
Min. gap length	2 mm	
Gap sensor position	Fixed	
Min. black mark size	8 mm (w) x 2 mm (h)	
Ribbon width	40~110 mm	
Ribbon	300 m, OD 67 mm, 1" core (ink coated outside) 110 m, OD 40 mm, 0.5" core (ink coated outside)	
CPU	32-bit RISC CPU	
DRAM	64MB	
FLASH	16MB	
Interface	USB2.0	
Sensor	Gap sensor Black mark sensor Head open sensor Ribbon end sensor	
Buzzer	Standard	
Environmental	WEEE、REACH、RoHS	
Operation temperature	0～40 ℃	
Operation humidity	10-85%, non-condensing	
Storage temperature	-20～60 ℃	
Storage humidity	5-90%, non-condensing	
Option	Cutter (for liner only)	
Factory option (China only)	Internal Bluetooth	

2. Operations Overview

2.1 Unpacking and Inspection

This printer has been specially packaged to withstand damage during shipping. Please carefully inspect the packaging and printer upon receiving the bar code printer. Please retain the packaging materials in case you need to reship the printer.
Unpacking the printer, the following items are included in the carton.

- One printer unit

- One quick installation guide

- One power cord

- One external universal switching power supply

- One USB interface cable

- A pair of 1" ribbon spindles

- A pair of 0.5" ribbon spindles

- One ribbon paper core

- One label spindle with two fixing tabs

If any parts are missing, please contact the Customer Service Department of your purchased reseller or distributor.
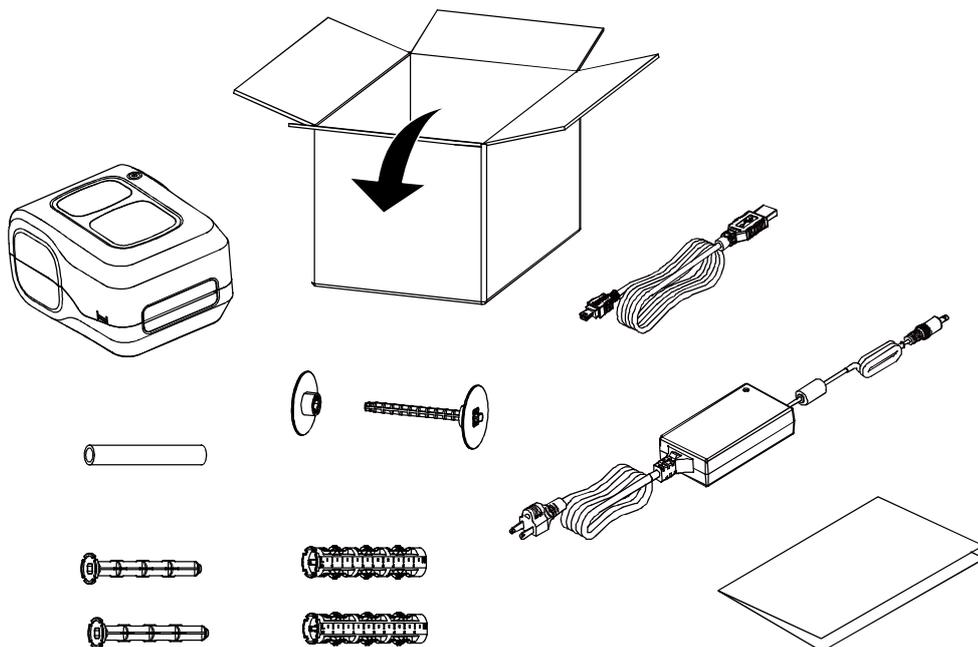
2.2 Printer Overview

2.2.1 Front View
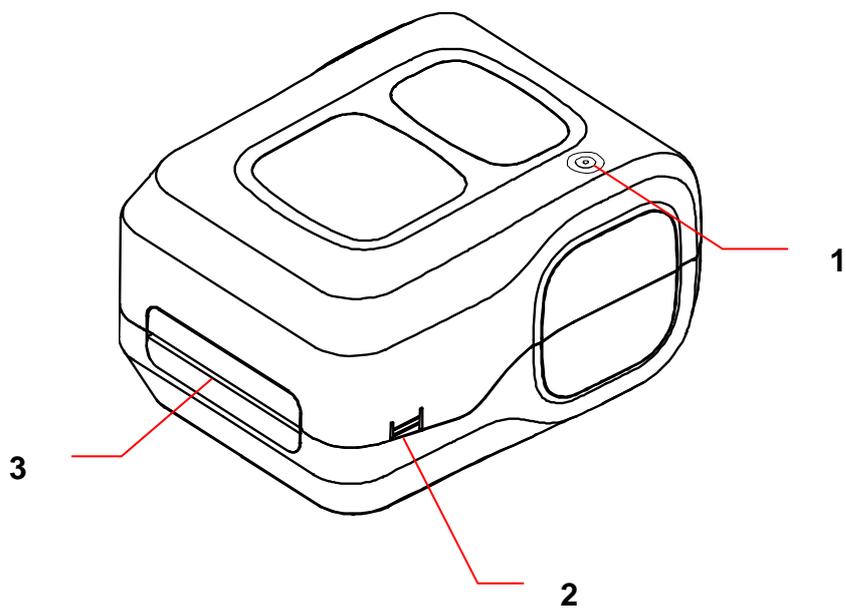
1. LED indicator & Feed/Pause button
2. Top cover open tab
3. Paper exit chute

2.2.2 Interior View
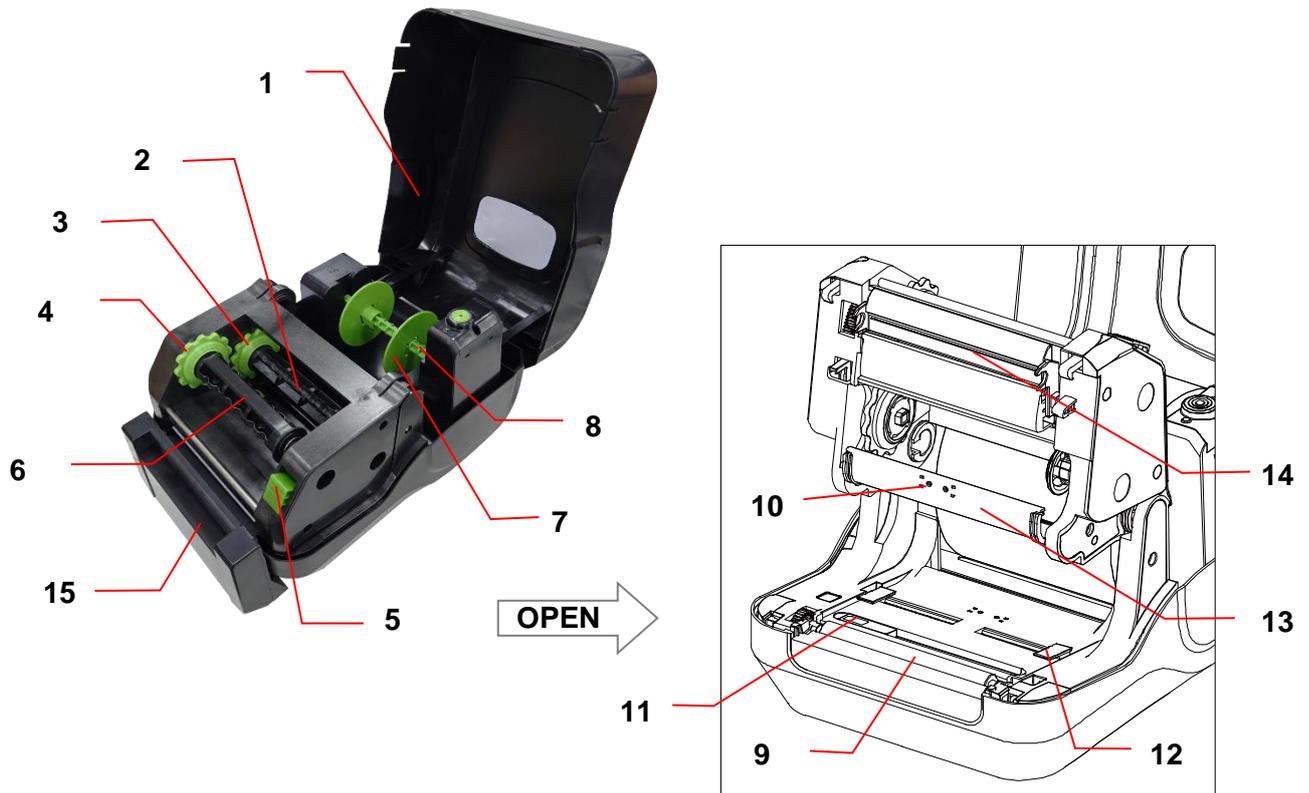

1. Printer top cover
2. Ribbon supply spindle
3. Ribbon supply hub
4. Ribbon rewind hub
5. Print head release button
6. Ribbon rewind spindle
7. Fixing tab
8. Media supply spindle
9. Platen roller
10. Gap sensor
11. Black mark sensor
12. Media guide
13. Ribbon cover
14. Print head
15. Cutter (optional)

WARNING
HAZARDOUS MOVING PARTS
**KEEP FINGERS AND OTHER**
BODY PARTS AWAY

2.2.3 Rear View
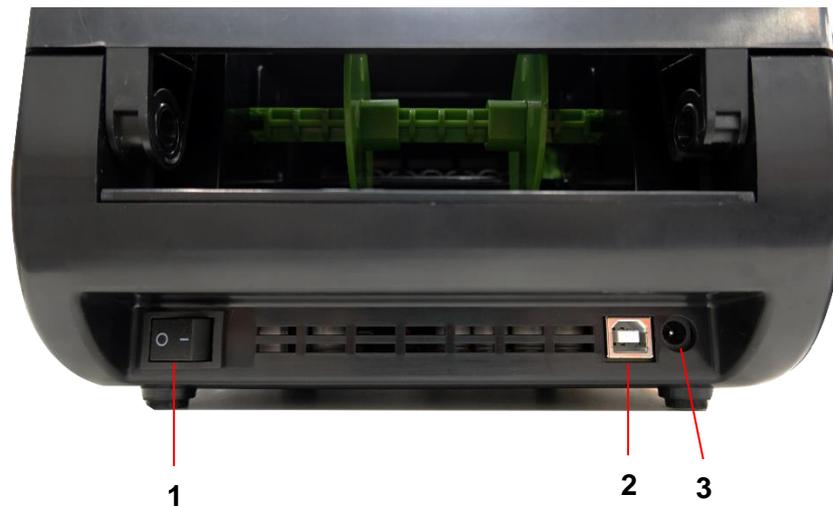
1. Power switch
2. USB interface (USB 2.0/High speed mode)
3. Power jack socket

Note:

The interface picture here is for reference only. Please refer to the product specification for the interfaces availability.

3. Setup

3.1 Setting up the Printer
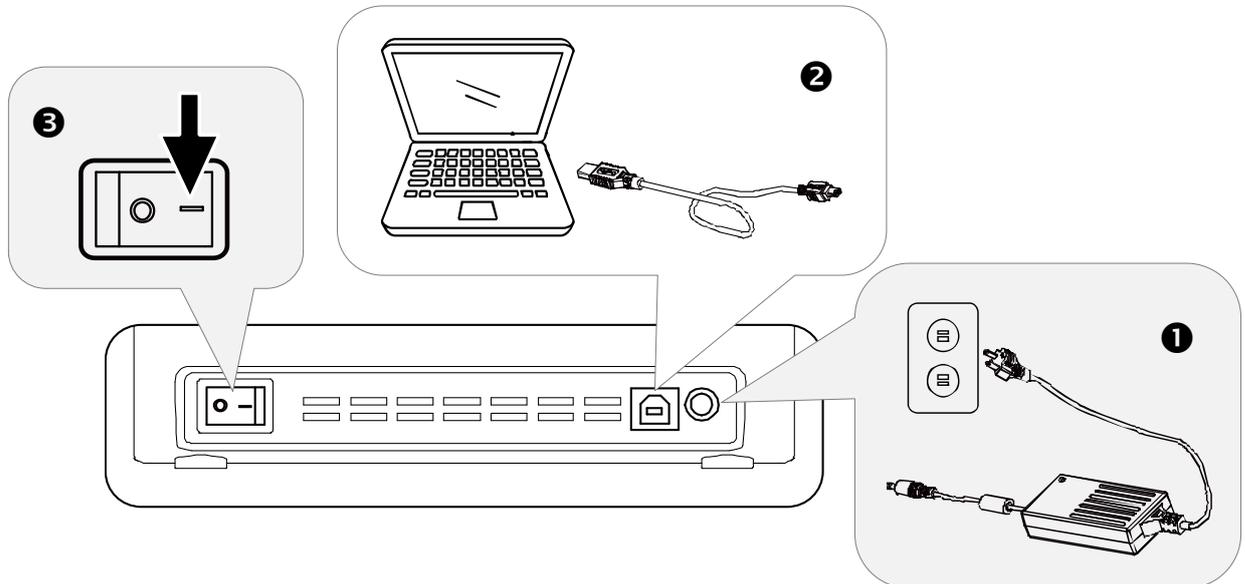
Place the printer on a flat, secure surface, then follow the steps below:

1. Plug the power cord into the AC power cord socket at the rear of the printer. Then, plug the other side into a properly grounded power outlet.
2. Connect the printer to the computer with the provided USB cable.
3. Push the power switch on "-" side to open the power of printer.
4. If you would like to watch printer installation videos or download the firmware and software, please scan the QR code as below for more information.

Note:

* **Please switch OFF printer power switch prior to plugging in the power cord to printer power jack.**

* **The interface picture here is for reference only. Please refer to the product specification for the interfaces availability.**

3.2 Loading the Ribbon

	1. Open the printer top cover by pressing the top cover open tabs located on each side of the printer.
1″ core: **0.5″ core:** 	2. Insert the paper core to the ribbon rewind spindle. **Note:** **Please follow the direction when installing the ribbon rewind spindle.** L R
1″ core: **0.5″ core:** 	3. Insert the ribbon roll to the ribbon spindle. **Note:** **Please follow the direction when installing the ribbon supply spindle.** L R
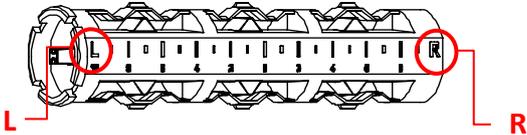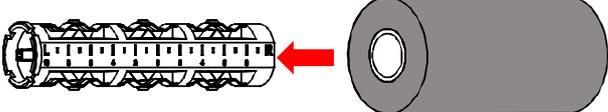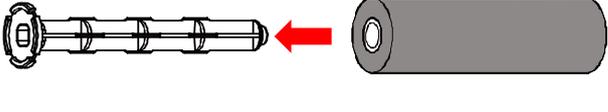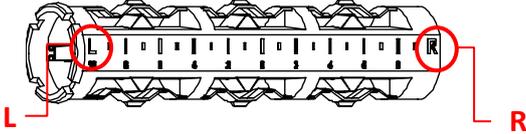
4. Push the print head release button to open the print head mechanism.
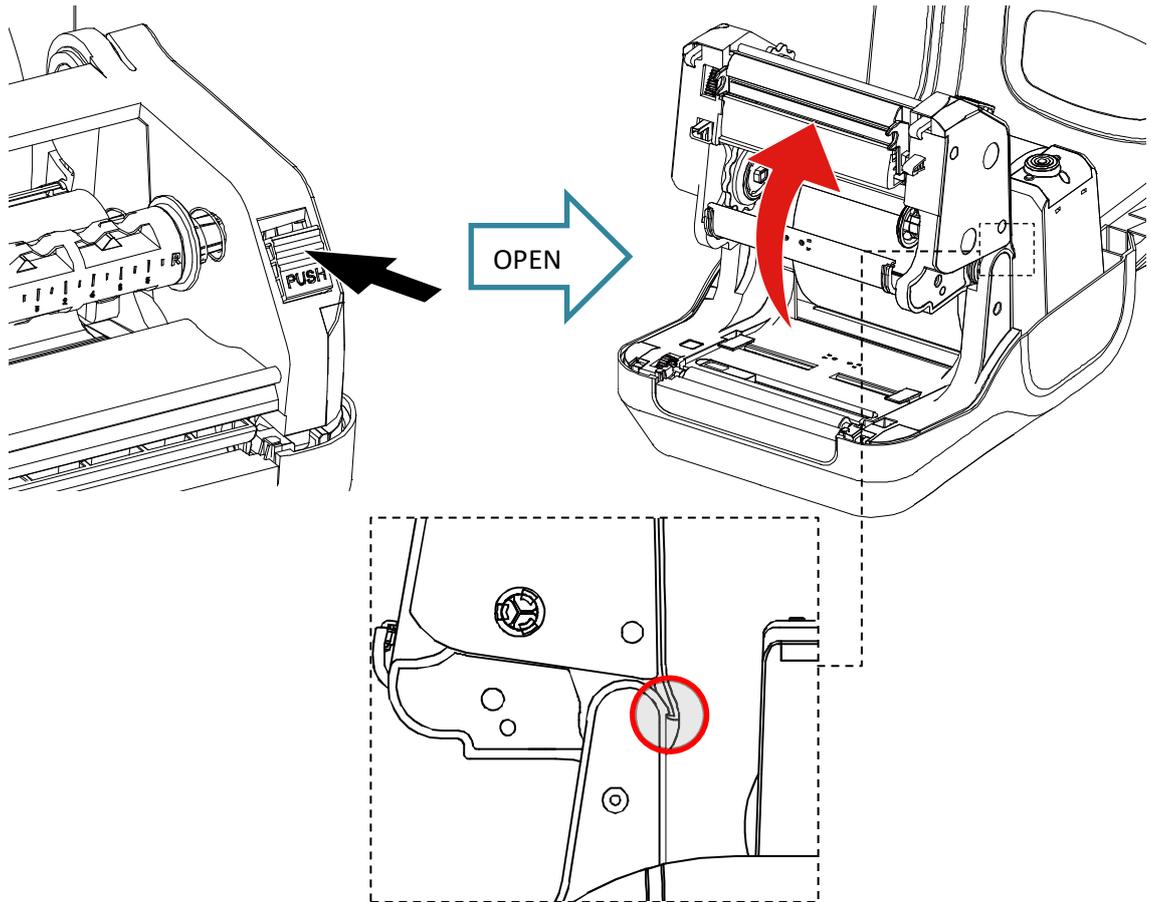
5. Open the ribbon cover.
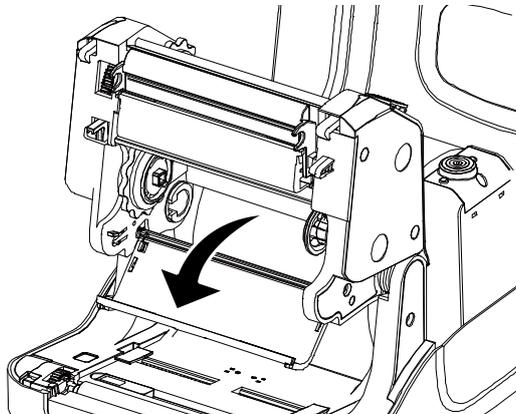
6. Insert the ribbon rewind spindle (with paper roll) and ribbon supply spindle ((with ribbon) to ribbon rewind hub and rewind spindle hub.
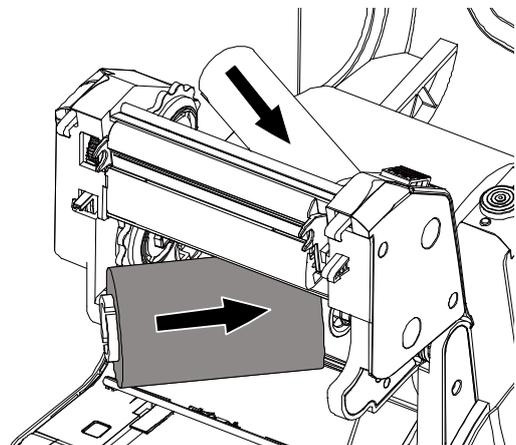
Note:
Insert right side of spindle (marked "R") to hub first. Then, insert the left side (marked "L") to the hole at the ribbon mechanism.
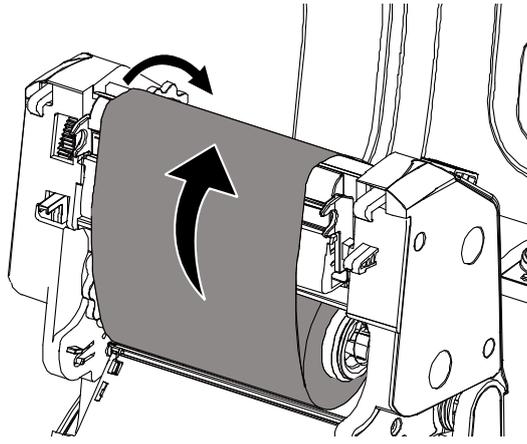
	7. Pull the leader of the ribbon through the print head and stick the leader of the ribbon onto the ribbon rewind paper core. 8. Turn the ribbon rewind hub until the ribbon plastic leader is thoroughly wound and the blue section of the ribbon covers the print head.
	9. Close the print head mechanism with both hands and make sure the latches are engaged securely.
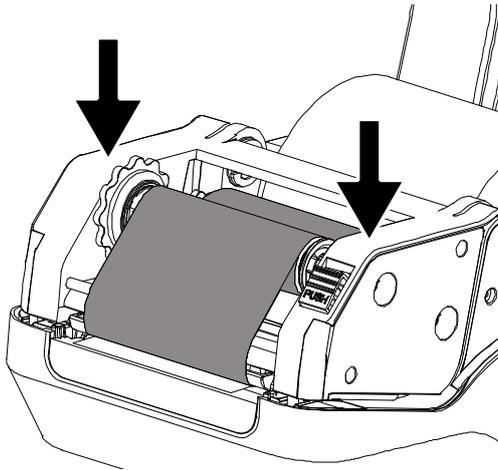
3.3 Loading the Media

3.3.1 Loading the Roll Labels
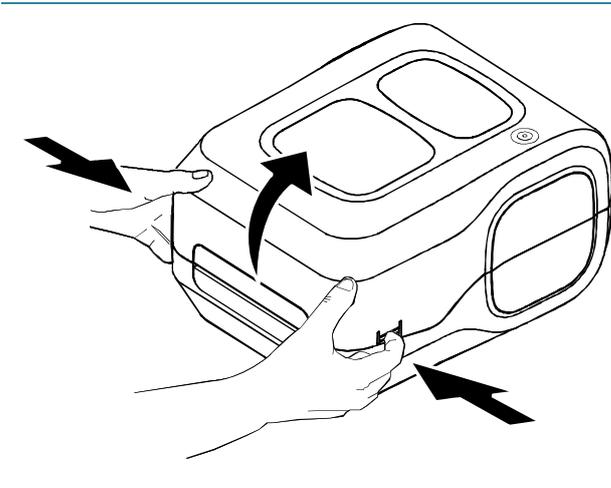
1. Open the printer top cover by pressing the top cover open tabs located on each side of the printer.

2. Insert the paper roll into the media supply spindle and use two fixing tabs to fix the paper roll onto the center of the spindle. (If your paper width is 4", you can remove the fixing tabs on both sides of the media supply spindle.)
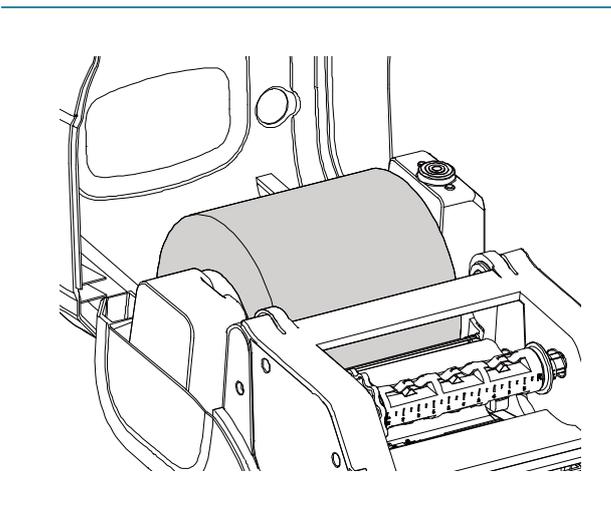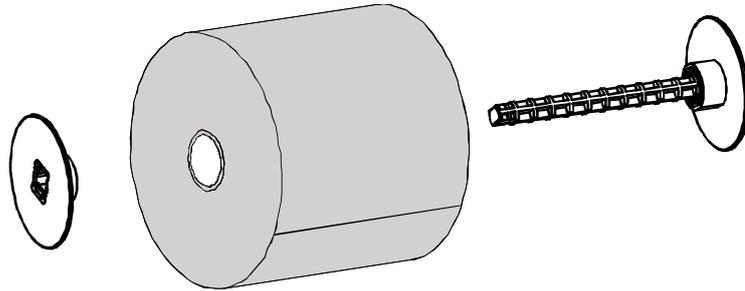
3. Place the paper roll onto the paper roll mount.

4. Push the print head release button to open the print head mechanism.

OPEN
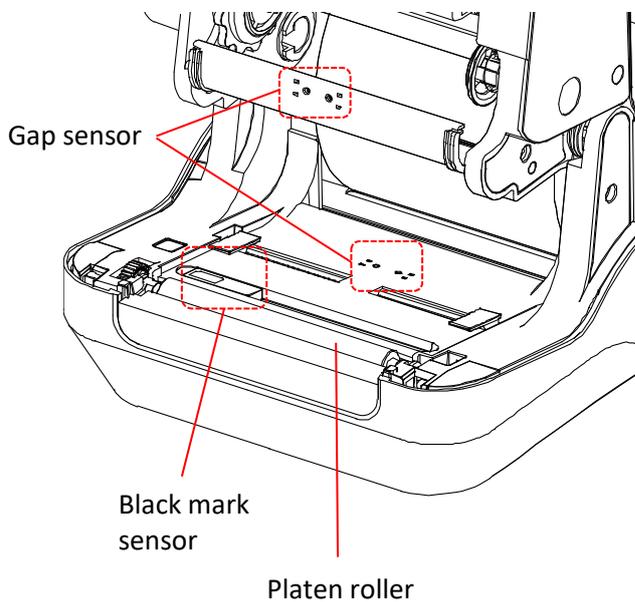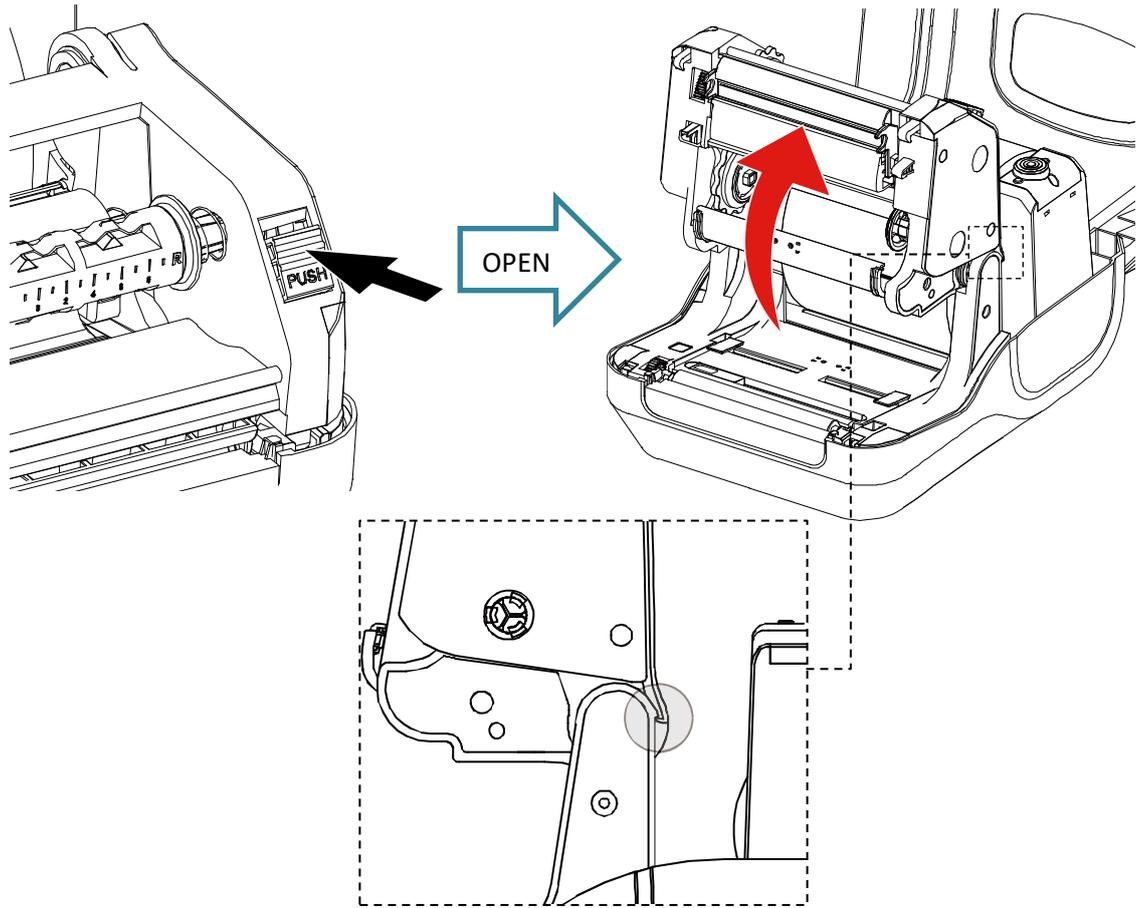
5. Adjust the black mark sensor if using black mark label.

Note:
The black mark sensor position is moveable and the gap sensor is fixed. Please make sure the gap or black mark is at the location where media gap/black mark will pass through for sensing.

Gap sensor

Black mark sensor
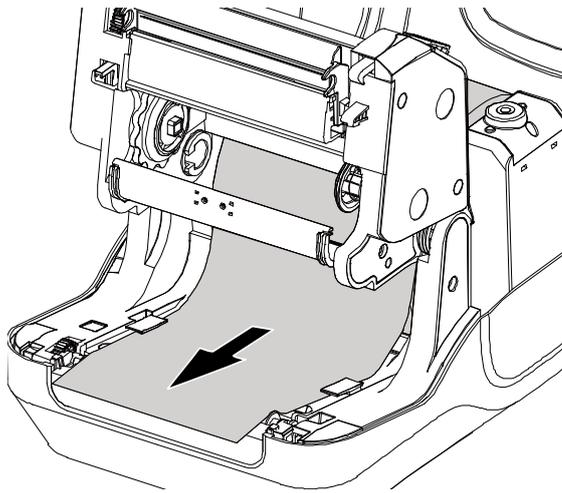
Platen roller

6. Feed the paper, printing side faces up, through the media sensor and place the label leading edge onto the platen roller.
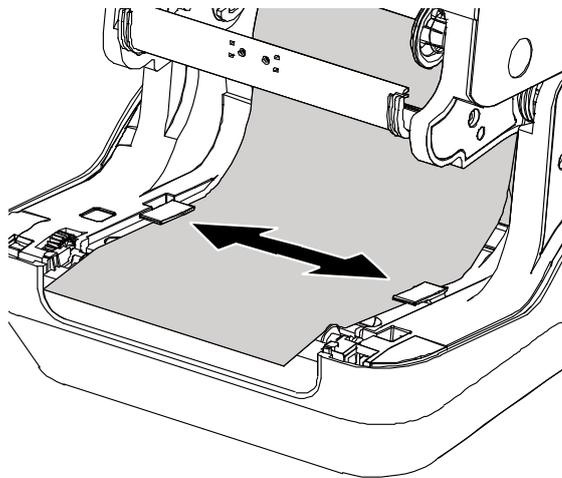
7. Move the media guides to fit the label width.
8. Close the print head mechanism with both hands and make sure the latches are engaged securely.

9. Use "Diagnostic Tool" to set the media sensor type and calibrate the selected sensor. (Start the "Diagnostic tool" → Select the "Printer Configuration" tab → Click the "Calibrate Sensor" button) Please refer to section 5.3.
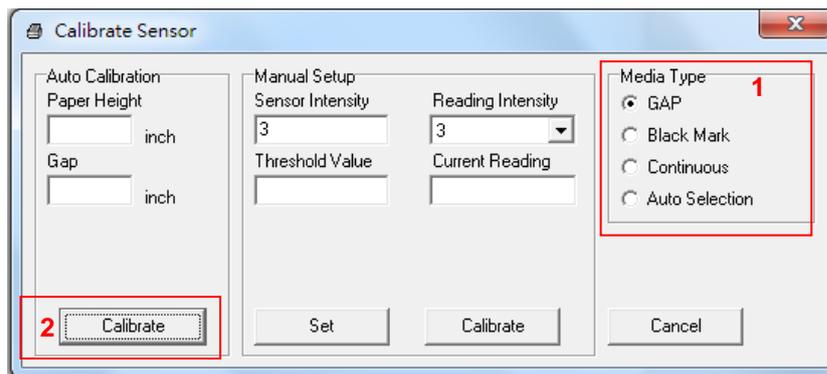
Note:

* Please calibrate the gap/ black mark sensor when changing media.

4. LED and Button Functions

This printer has one button and one three-color LED indicator. By indicating the LED with different color and pressing the button, the printer can feed labels, pause the printing job, select and calibrate the media sensor, print printer self-test report, reset printer to defaults (initialization). Please refer to the button operation below for different functions.

4.1 LED Indicator

LED Color	Description
Green/Solid	This illuminates that the power is on and the device is ready to use.
Green/Flash	This illuminates that the system is downloading data from PC to memory or the printer is paused.
Amber	This illuminates that the system is clearing data from the printer.
Red/Solid	This illuminates printer head open, cutter error.
Red/Flash	This illuminates a printing error, such as head open, paper empty, paper jam, ribbon empty, or memory error etc.

4.2 Regular Button Functions

1. Feed labels
When the printer is at ready status (Green/Solid), press the button to feed one label to the beginning of next.

2. Pause the printing job
When the printer is at printing states, press the button to pause a print job. When the printer is paused the LED will be green blinking. Press the button again to continue the printing job.

4.3 Power-on Utilities

There are six power-on utilities to set up and test printer hardware. These utilities are activated by pressing FEED button then turning on the printer power simultaneously and release the button at a different color of LED.

Please follow the steps below for different power-on utilities.
1. Turn off the printer power switch.
2. Hold on the button then turn on the power switch.
3. Release the button when LED indicates with different color for different functions.

Power on utilities	The LED color will be changed as the following pattern:						
LED color Functions	Amber	Red (5 blinks)	Amber (5 blinks)	Green (5 blinks)	Green/Amber (5 blinks)	Red/Amber (5 blinks)	Solid green
1. Gap / black mark sensor calibration		*Release*					
2. Gap / black mark sensor calibration, Self-test and enter dump mode			*Release*				
3. Printer initialization				*Release*			
4. Set black mark sensor as media sensor and calibrate the black mark sensor					*Release*		
5. Set gap sensor as media sensor and calibrate the gap sensor						*Release*	
6. Skip AUTO.BAS							*Release*

4.3.1 Gap/Black Mark Sensor Calibration

Gap/black mark sensor sensitivity should be calibrated at the following conditions:
1. A brand new printer
2. Change label stock
3. Printer initialization

Please follow the steps below to calibrate the ribbon and gap/black mark 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 **red** and blinking. (Any red will do during the 5 blinks).

- It will calibrate the ribbon sensor and gap/black mark sensor sensitivity.
- The LED color will be changed as the following order：
  Amber → **red (5 blinks)** → amber (5 blinks) → green (5 blinks) → green/amber (5 blinks) → red/amber (5 blinks) → solid green

Note:
Please select gap or black mark sensor by sending GAP or BLINE command to printer prior to calibrate the sensor.
For more information about GAP and BLINE command, please refer to TSPL/TSPL2 programming manual.

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

While calibrating the gap/black mark sensor, the printer will measure the label length, print the internal configuration (self-test) on the 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 **amber** and blinking. (Any amber will do during the 5 blinks)

- The LED color will be changed as the following order.
  Amber → red (5 blinks) → **amber (5 blinks)** → green (5 blinks) → green/amber (5 blinks) → red/amber (5 blinks) → solid green

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 calibrating the sensor.

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

■ Self-test

Printer will print the printer configuration after gap/black mark sensor calibration. Self-test printout can be used to check if there is any dot damage on the heater element, printer configurations and available memory space.

Self-test printout

``
-------------------------------- 	
        SYSTEM INFORMATION
-------------------------------- 	
    MODEL: XXXXXX
 FIRMWARE: X.XX
 CHECKSUM: XXXXXXXX
      S/N: XXXXXXXXXXX
      TCF: NO
     DATE: 1970/01/01
     TIME: 00:04:18
NON-RESET: 110   m (TPH)
    RESET: 110   m (TPH)
NON-RESET: 0   (CUT)
    RESET: 0   (CUT)
-------------------------------- 	
``
Model name
F/W version
Firmware checksum
Printer S/N
zenpert configuration file
System date
System time
Printed mileage (meter)
Cutting counter

``
-------------------------------- 	
        PRINTING SETTING
-------------------------------- 	
    SPEED: 5 IPS
  DENSITY: 8.0
    WIDTH: 4.00 INCH
   HEIGHT: 4.00 INCH
      GAP: 0.00 INCH
INTENSION: 5
 CODEPAGE: 850
  COUNTRY: 001
-------------------------------- 	
``
Print speed (inch/sec)
Print darkness
Label size (inch)
Gap distance (inch)
Gap/black mark sensor intension
Code page
Country code

``
-------------------------------- 	
            Z SETTING
-------------------------------- 	
 DARKNESS: 16.0
    SPEED: 4 IPS
    WIDTH: 4.00 INCH
    TILDE: 7EH (~)
 	
    CARET: 5EH (^)
DELIMITER: 2CH (,)
 POWER UP: NO MOTION
HEAD CLOSE: NO MOTION
-------------------------------- 	
``
ZPL setting information
Print darkness
Print speed (inch/sec)
Label size
Control prefix
Format prefix
Delimiter prefix
Printer power up motion
Printer head close motion
 	
Note:
ZPL is emulating for Zebra®
language.

```
------------------------------
       RS232 SETTING
------------------------------
      BAUD: 9600
    PARITY: NONE
  DATA BIT: 8
  STOP BIT: 1
------------------------------
```

RS232 serial port configuration

```
------------------------------
     DRAM FILE (0 FILES)
------------------------------
    PHYSICAL   XXXX KBYTES
    AVAILABLE  XXXX KBYTES
------------------------------

------------------------------
     FLASH FILE (0 FILES)
------------------------------
    PHYSICAL   XXXX KBYTES
    AVAILABLE  XXXX KBYTES
------------------------------
```

Numbers of download files
Total & available memory space

Print head check pattern
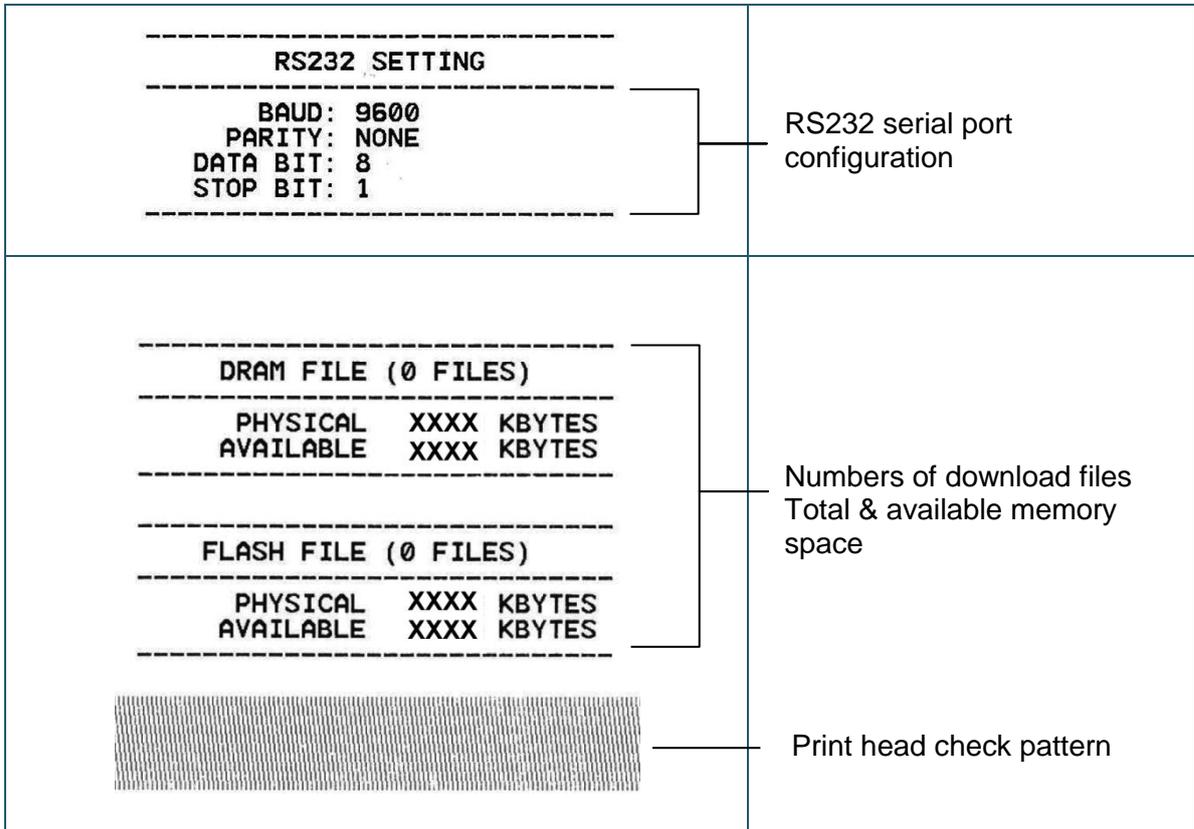
■ Dump mode

Printer will enter dump mode after printing printer configuration. In the dump mode, all characters will be printed in 2 columns as following. The left side characters are received from your system and right side data are the corresponding hexadecimal value of the characters. It allows users or engineers to verify and debug the program.

ASCII Data →

```
SPEED 2.0    53 50 45 45 44 20 32 2E 30 0D
  DENSITY 8  0A 44 45 4E 53 49 54 59 20 38
   SET PEEL  0D 0A 53 45 54 20 50 45 45 4C
  OFF  DIRE  20 4F 46 46 0D 0A 44 49 52 45
CTION 0   G  43 54 49 4F 4E 20 30 0D 0A 47
AP 3.00 mm   41 50 20 33 2E 30 30 20 6D 6D
,0.00 mm     2C 30 2E 30 30 20 6D 6D 0D 0A
REFERENCE    52 45 46 45 52 45 4E 43 45 20
0.0  SET C   30 2C 30 0D 0A 53 45 54 20 43
UTTER OFF    55 54 54 45 52 20 4F 46 46 0D
  SIZE 100.  0A 53 49 5A 45 20 31 30 30 2E
02 mm,65.0   30 32 20 6D 6D 2C 36 35 2E 30
4 mm  CLS    34 20 6D 6D 0D 0A 43 4C 53 0D
 BARCODE 1   0A 42 41 52 43 4F 44 45 20 31
44,149,"39   34 34 2C 31 34 39 2C 22 33 39
",120,1,0,   22 2C 31 32 30 2C 31 2C 30 2C
2,6,"57114   32 2C 36 2C 22 35 37 31 31 34
38T"  PRIN   33 38 54 22 0D 0A 50 52 49 4E
T 1,1  SPE   54 20 31 2C 31 0D 0A 53 50 45
ED 2.0  DE   45 44 20 32 2E 30 0D 0A 44 45
NSITY 8  S   4E 53 49 54 59 20 38 0D 0A 53

ET PEEL OF   45 54 20 50 45 45 4C 20 4F 46
F  DIRECTI   46 0D 0A 44 49 52 45 43 54 49
ON 0   GAP   4F 4E 20 30 0D 0A 47 41 50 20
3.00 mm,0.   33 2E 30 30 20 6D 6D 2C 30 2E
00 mm  REF   30 30 20 6D 6D 0D 0A 52 45 46
ERENCE 0,0   45 52 45 4E 43 45 20 30 2C 30
  SET CUTT   0D 0A 53 45 54 20 43 55 54 54
ER OFF  SI   45 52 20 4F 46 46 0D 0A 53 49
ZE 100.02    5A 45 20 31 30 30 2E 30 32 20
mm,65.04 m   6D 6D 2C 36 35 2E 30 34 20 6D
m  CLS  BA   6D 0D 0A 43 4C 53 0D 0A 42 41
RCODE 144,   52 43 4F 44 45 20 31 34 34 2C
149,"39",1   31 34 39 2C 22 33 39 22 2C 31
20,1,0,2,6   32 30 2C 31 2C 30 2C 32 2C 36
,"5711438T   2C 22 35 37 31 31 34 33 38 54
"  PRINT 1   22 0D 0A 50 52 49 4E 54 20 31
,1           2C 31 0D 0A
```

← Hex decimal data related to left column of ASCII data

Note:

1. **Dump mode requires 4" wide paper width.**

2. **Turn off / on the power to resume printer for normal printing.**

4.3.3 Printer Initialization

Printer initialization is used to clear DRAM and restore printer settings to defaults.

Printer initialization is activated by the following procedures.

1. Turn off the power switch.

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

3. Release the button when LED turns **green** after 5 amber blinks. (Any green will do during the 5 blinks).

■ The LED color will be changed as following:
Amber → red (5 blinks) → amber (5 blinks) → **green (5 blinks)** → green/amber (5 blinks) → red/amber (5 blinks) → solid green

Printer configuration will be restored to defaults as below after initialization.

Parameter	Default setting
Speed	127 mm/sec (5 ips) (203DPI)
	76 mm/sec (3 ips) (300DPI)
Density	8
Label Width	4" (101.5 mm)
Label Height	4" (101.5 mm)
Sensor Type	Gap sensor
Gap Setting	0.12" (3.0 mm)
Print Direction	0
Reference Point	0,0 (upper left corner)
Offset	0
Tear Mode	On
Peel off Mode	Off
Cutter Mode	Off
Code Page	850
Country Code	001
Clear Flash Memory	No

4.3.4 Set Black Mark Sensor as Media Sensor and Calibrate the Black Mark Sensor

Please follow the steps as below.

1. Turn off the power switch.

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

3. Release the button when LED turns **green/amber** after 5 green blinks. (Any green/amber will do during the 5 blinks).

■ The LED color will be changed as following:
   Amber → red (5 blinks) → amber (5 blinks) → green (5 blinks) → **green/amber (5 blinks)** → red/amber (5 blinks) → solid green

4.3.5 Set Gap Sensor as Media Sensor and Calibrate the Gap Sensor

Please follow the steps as below.

1. Turn off the power switch.

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

3. Release the button when LED turns **red/amber** after 5 green/amber blinks. (Any red/amber will do during the 5 blinks).

■ The LED color will be changed as following:

Amber → red (5 blinks) → amber (5 blinks) → green (5 blinks) → green/amber (5 blinks)

→ **red/amber (5 blinks)** → solid green

4.3.6 Skip AUTO.BAS

TSPL/TSPL2 programming language allows user to download an auto execution file to flash memory. Printer will run the AUTO.BAS program immediately when turning on printer power. The AUTO.BAS program can be interrupted without running the program by the power-on utility.

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 green**.

■ The LED color will be changed as following:

Amber → red (5 blinks) → amber (5 blinks) → green (5 blinks) → green/amber (5 blinks)

→ red/amber (5 blinks) → **solid green**

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

5. Diagnostic Tool

TSC's Diagnostic Utility is an integrated tool incorporating features that enable you to explore a printer's settings/status; change a printer's settings; download graphics, fonts and firmware; create a printer bitmap font; and send additional commands to a printer. With the aid of this powerful tool, you can review printer status and settings in an instant, which makes it much easier to troubleshoot problems and other issues.

5.1 Start the Diagnostic Tool

1. Double click on the Diagnostic tool icon   DiagTool.exe   to start the software.
2. There are four features (Printer Configuration, File Manager, Bitmap Font Manager, Command Tool) included in the Diagnostic utility.
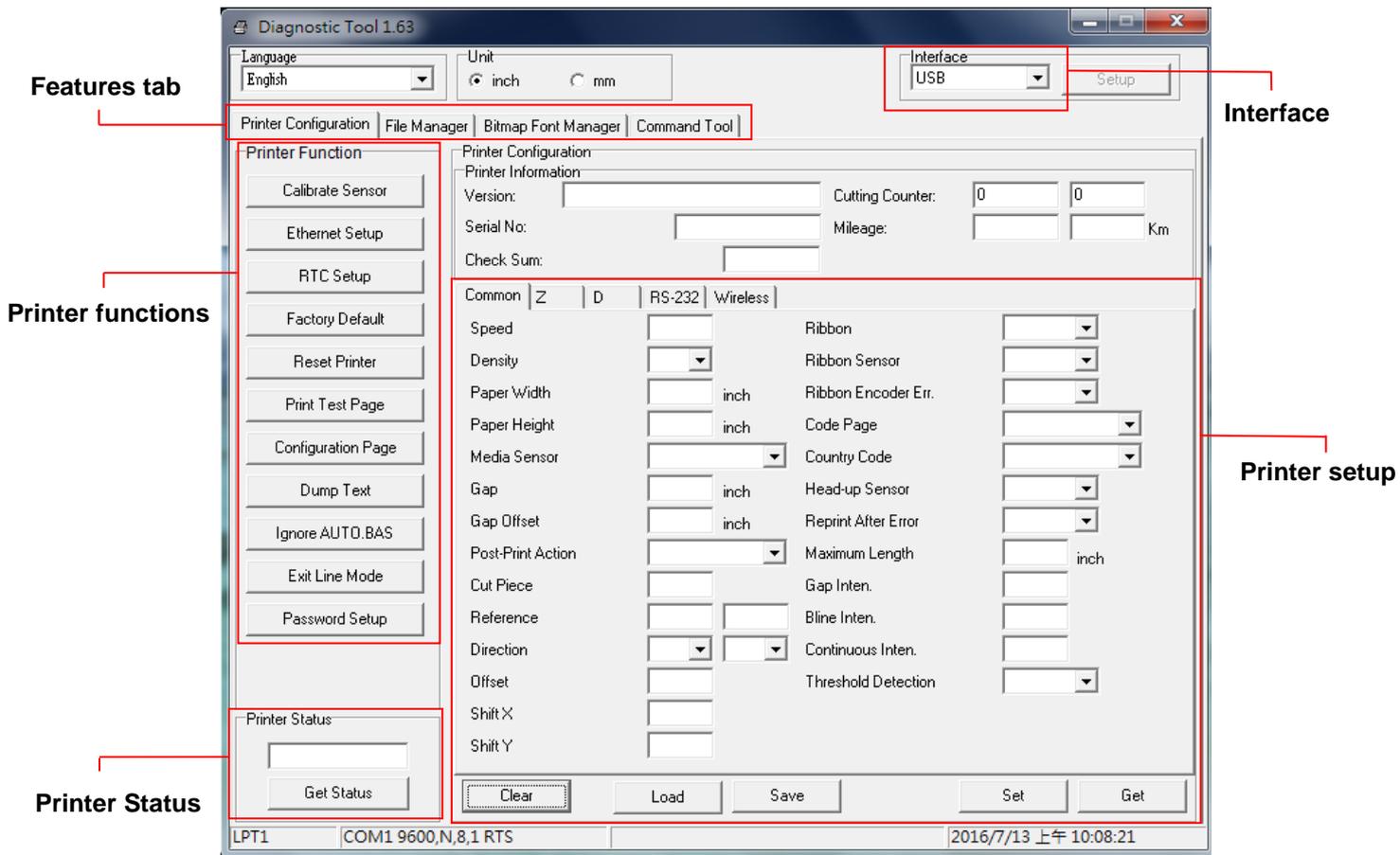
5.2 Printer Function

1. Select the PC interface connected with bar code printer.

   The default interface setting is USB interface. If USB interface is connected with printer, no other settings need to be changed in the interface field.
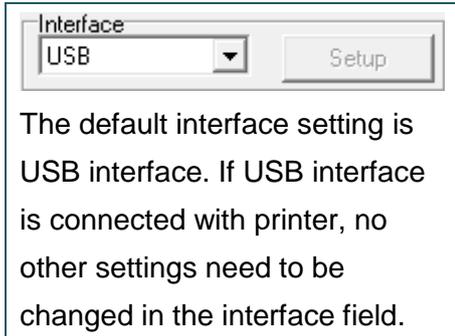
2. Click the "Printer Function" button to setup.

3. The detail functions in the Printer Function Group are listed as below.

Function	Description
Calibrate Sensor	Calibrate the sensor specified in the Printer Setup group media sensor field
Ethernet Setup	Setup the IP address, subnet mask, gateway for the on board Ethernet
RTC Setup	Synchronize printer Real Time Clock with PC
Print Test Page	Print a test page
Reset Printer	Reboot printer
Factory Default	Initialize the printer and restore the settings to factory default. (Please refer section 4.3.3)
Dump Text	To activate the printer dump mode.
Ignore AUTO.BAS	Ignore the downloaded AUTO.BAS program
Configuration Page	Print printer configuration (Please refer section 4.3.2)
Password Setup	Set the password to protect the settings

For more information about Diagnostic Tool, please refer to the diagnostic utility quick start guide on Zenpert official website.

5.3 Calibrating Media Sensor by Diagnostic Tool

5.3.1 Auto Calibration

1. Make sure the media is already installed and print head mechanism is closed. (Please refer to section 3.3.)

    Note:
    The media sensor position is moveable. Please make sure the gap or black mark is at the location where media gap/black mark will pass through for sensing.

2. Turn on the printer power switch.
3. Open Diagnostic tool and set interface. (The default setting is USB.)

    The default interface setting is USB interface. If USB interface is connected with printer, no other settings need to be changed in the interface field.
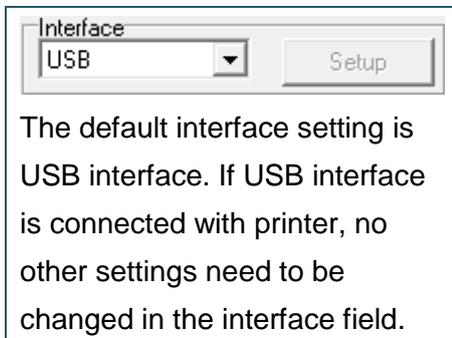
4. Click the "Calibrate Sensor" button.
5. Select the media type and click the "Calibrate" button.
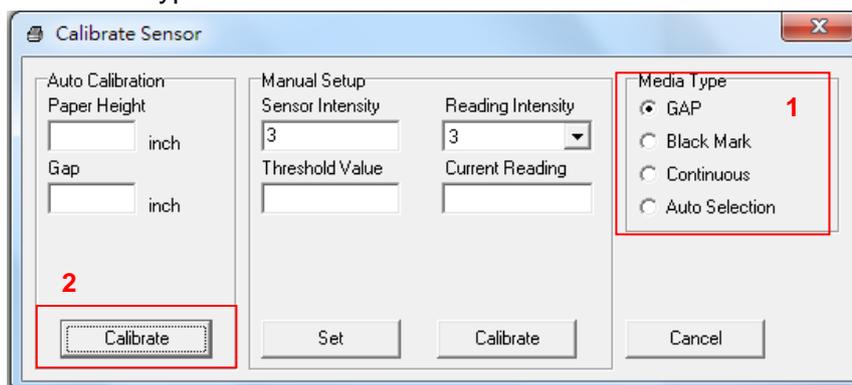
6. Troubleshooting

6.1 Common Problems

The following guide lists the most common problems that may be encountered when operating this bar code printer. If the printer still does not function after all suggested solutions have been invoked, please contact the Customer Service Department of your purchased reseller or distributor for assistance.

Problem	Possible Cause	Recovery Procedure
Power indicator does not illuminate.	* The power cord is not properly connected. * The power of printer is not opened.	* Plug the power cord in printer and outlet. * Switch the printer on.
- The printer status from DiagTool shows "**Head Open**". - The LED shows "**Red (blinking)**".	* The printer carriage is open.	* Please close the print carriage.
- The printer status from DiagTool shows "**Ribbon End Err.**" Or "**Ribbon Encoder Err.**" - The LED shows "**Red (blinking)**".	* Running out of ribbon. * The ribbon is installed incorrectly.	* Supply a new ribbon roll. * Please refer to the steps on section 3.2 to re-install the ribbon.
- The printer status from DiagTool shows "**Out of Paper**". - The LED shows "**Red (blinking)**".	* Running out of label. * The label is installed incorrectly. * Gap/black mark sensor is not calibrated.	* Supply a new label roll. * Please refer to the steps on section 3.3 to reinstall the label roll. * Calibrate the gap/black mark sensor.
- The printer status from DiagTool shows "**Paper Jam**". - The LED shows "**Red (blinking)**".	* Gap/black mark sensor is not set properly. * Make sure label size is set properly. * Labels may be stuck inside the printer mechanism.	* Calibrate the gap/black mark sensor. * Set label size correctly.
Not Printing	* Cable is not well connected to serial or USB interface or parallel port. * The serial port cable pin configuration is not pin to pin connected.	* Re-connect cable to interface. * Chang a new cable. * Ribbon and media are not compatible. * Verify the ribbon-inked side. * Reload the ribbon again. * Clean the print head. * The print density setting is incorrect. * Print head's harness connector is not well connected with printheat. Turn off the printer and plug the connector again. * Check your program if there is a command PRINT at the end of the file and there must have CRLF at the end of each command line.
Memory full (FLASH / DRAM)	* The space of FLASH/DRAM is full.	* Delete unused files in the FLASH/DRAM.
Poor Print Quality	* Ribbon and media is loaded incorrectly * Dust or adhesive accumulation on the print head.	* Reload the supply. * Clean the print head. * Clean the platen roller. * Adjust the print density and print speed.

|	* Print density is not set properly. * Printhead element is damaged. * Ribbon and media are incompatible. * The printhead pressure is not set properly.	* Run printer self-test and check the print head test pattern if there is dot missing in the pattern. * Change proper ribbon or proper label media. * The print head mechanism does not latch the print head properly.
Skip labels when printing	* Label size is not specified properly. * Sensor sensitivity is not set properly. * The media sensor is covered with dust.	* Check if label size is setup correctly. * Calibrate the sensor by Auto Gap or Manual Gap options. * Clear the GAP/Black mark sensor by blower.
The printing position of small label is incorrect	* Media sensor sensitivity is not set properly. * Label size is incorrect. * The vertical offset setting in the driver is incorrect.	* Calibrate the sensor sensitivity again. * Set the correct label size and gap size. * If using the software BarTender, please set the vertical offset in the driver.
Missing printing on the left or right side of label	* Wrong label size setup.	* Set the correct label size.
Wrinkle problem	* The pressure of printhead is not balanced on each side. * Ribbon installation is incorrect. * Media installation is incorrect. * Print density is incorrect. * Media feeding is incorrect.	* Please set the suitable density to have good print quality. * Make sure the label guide touch the edge of the media guide.
Gray line on the blank label	* The print head is dirty. * The platen roller is dirty.	* Clean the print head. * Clean the platen roller.
Irregular printing	* The printer is in Hex Dump mode.	* Turn off and on the printer to skip the dump mode.
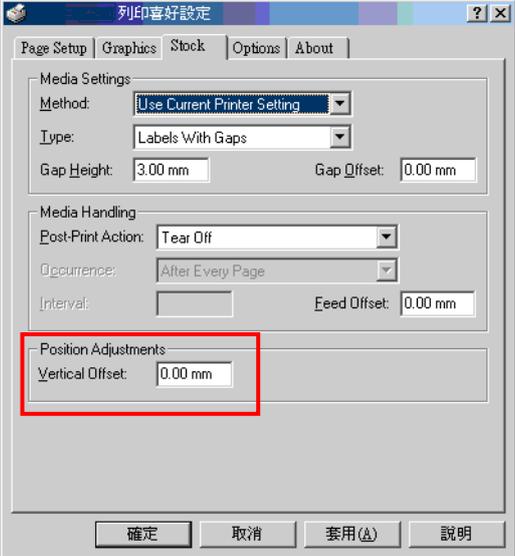
7. Maintenance

This session presents the clean tools and methods to maintain your printer.

1. Please use one of following material to clean the printer.

■ Cotton swab

■ Lint-free cloth

■ Vacuum / Blower brush

■ 100% ethanol

2. The cleaning process is described as following,

Printer Part	Method	Interval
Print Head	1. Always turn off the printer before cleaning the print head. 2. Allow the print head to cool for a minimum of one minute. 3. Use a cotton swab and 100% ethanol to clean the print head surface. 	Clean the print head when changing a new label roll.
Platen Roller	1. Turn the power off. 2. Rotate the platen roller and wipe it thoroughly with 100% ethanol and a cotton swab, or lint-free cloth.	Clean the platen roller when changing a new label roll.
Tear Bar/Peel Bar	Use the lint-free cloth with 100% ethanol to wipe it.	As needed
Sensor	Compressed air or vacuum	Monthly
Exterior	Wipe it with water-dampened cloth	As needed
Interior	Brush or vacuum	As needed

Note:

● Do not touch printer head by hand. If you touch it careless, please use ethanol to clean it.

● Please use 100% Ethenol. DO NOT use medical alcohol, which may damage the printer head.

● Regularly clean the print head and supply sensors once change a new ribbon to keep printer performance and extend printer life.

Revise History

Date	Content	Editor

	28	
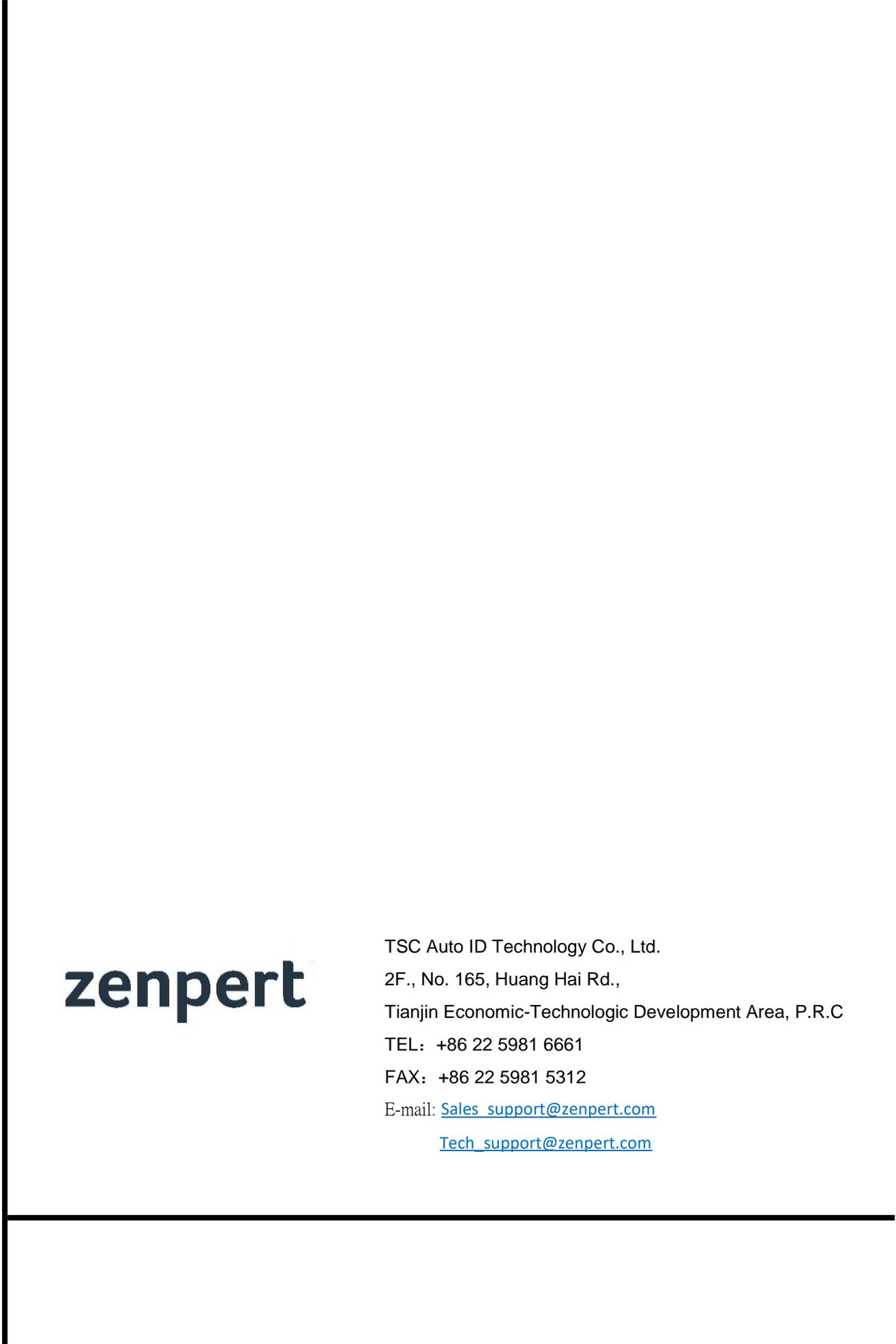
zenpert

TSC Auto ID Technology Co., Ltd.

2F., No. 165, Huang Hai Rd.,

Tianjin Economic-Technologic Development Area, P.R.C

TEL：+86 22 5981 6661

FAX：+86 22 5981 5312

E-mail: Sales_support@zenpert.com

Tech_support@zenpert.com