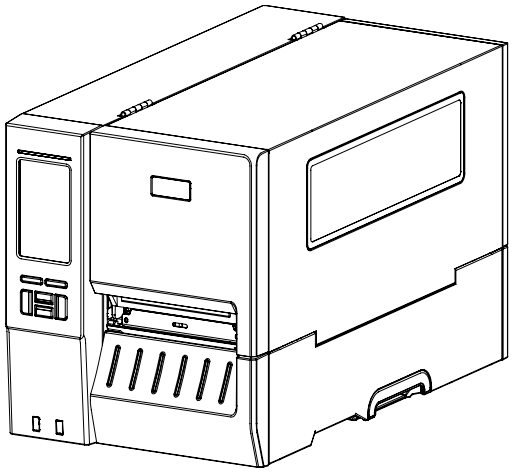
BRADY®
WHEN PERFORMANCE MATTERS MOST™



BBP®16M

Thermal Transfer/ Direct Thermal Barcode Printer

User Guide

Contents

Copyright Information

Agency Compliance and Approvals

CE	EN 55032, Class A EN 55024 EN 62368-1 This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
KC	KN 32 KN 35 이 기기는 업무용(A 급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.
TÜV SÜD	EN 62368-1
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。
ISI	IS 13252(Part 1)/ IEC 60950-1

Note: There may have certification differences in the series models, please refer to product label for accuracy.

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 from the AC inlet 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:

(For equipment with RTC (CR2032) battery or rechargeable battery pack)

Risk of explosion if battery is replaced by an incorrect type.

Dispose of used batteries according to the Instructions as below.

1. DO NOT throw the battery in fire.
2. DO NOT short circuit the contacts.
3. DO NOT disassemble the battery.
4. DO NOT throw the battery in municipal waste.
5. The symbol of the crossed out wheeled bin indicates that the battery should not be placed in municipal waste.

Caution: Hot surface for printhead.
Do not touch the printhead before it cooling.

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.

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

CE Statement:

This equipment complies with EU radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

All operational modes:

2.4GHz: 802.11b, 802.11g, 802.11n (HT20), 802.11n (HT40)

5GHz: 802.11a,

The frequency, mode and the maximum transmitted power in EU are listed below:

2400 MHz – 2483.5 MHz: 19.88 dBm (EIRP)

5150 MHz – 5250 MHz: 17.51 dBm (EIRP)

5150-5350MHz for Only indoor use

5470-5725MHz for indoor/outdoor use

Restrictions In AZE

National restrictions information is provided below

Frequency Band	Country	Remark
5150-5350MHz	**Azerbaijan**	**No license needed if used indoor and power not exceeding 30mW**
5470-5725MHz		

Hereby, TSC Auto ID Technology Co., Ltd. declares that the radio equipment type [Wi-Fi] IEEE 802.11 a/b/g/n is in compliance with Directive 2014/53/EU

The full text of the EU declaration of conformity is available at the following internet address: http:// www.tscprinters.com

RF exposure warning (Wi-Fi)

This equipment must be installed and operated in accordance with provided instructions and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be providing with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

SAR Value: 0.736 W/kg

Informations concernant l'exposition aux fréquences radio (RF)
La puissance de sortie émise par l'appareil sans fil est inférieure à la limite d'exposition aux fréquences radio de l'Industry Canada (IC). Utilisez l'appareil sans fil de façon à minimiser les contacts humains lors du fonctionnement normal.

Ce périphérique a été évalué et démontré conforme aux limites SAR (Specific Absorption Rate – Taux d'absorption spécifique) par l'IC lorsqu'il est connecté à des dispositifs hôtes spécifiques opérant dans des conditions d'utilisation mobile. **(Pour le Wi-Fi)**

Ce périphérique a également été évalué et démontré conforme aux limites d'exposition radio-fréquence par l'IC pour des utilisations par des opérateurs mobiles (les antennes sont à moins de 20 cm du corps d'une personne). **(Pour le Bluetooth)**

NCC 警語:

經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。(即低功率電波輻射性電機管理辦法第十二條)

低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。(即低功率電波輻射性電機管理辦法第十四條)

1. Introduction

1.1 Product Introduction

Thank you very much for purchasing the bar code printer.

The new high-performance bar code printer was designed to deliver the cleanest and high quality barcodes. It features a die-cast print mechanism housed in a very strong yet lightweight cabinet. This new design results in a more durable printer that is suited for your most heavy-duty demand cycles.

The 600 dpi high resolution series which makes it ideal for printing very small 2D barcodes, graphics, fine print and other ultra-high-resolution images.

The printers are loaded with standard features including a color touch display with new GUI design and six menu buttons to provide a great user experience, support for 600 meter long ribbons, 8” OD media rolls, built-in Ethernet, two USB hosts for keyboard and scanner connections, USB 2.0 and serial interfaces.

This document provides an easy reference for operating the printers. 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 respective programming manuals of the programming languages.

Applications:

- Industrial-duty Printing
- Work in process
- Compliance labeling
- Order Fulfillment
- Distribution
- Shipping/Receiving
- Healthcare Labeling and Patient Safety
- Electronics & Jewelry labeling

1.2 Product Specification and Features

Model / Item	BBP®16M
Resolution	600 DPI
Printing method	Thermal transfer and direct thermal
Print speed	1.5,2,3…6 ips Up to 6 IPS
Max. print width	104 mm(4.09”)
First print dot from left media edge	0~1 mm
Max. print length	2540 mm (100”)
Physical dimension	W 276 mm x D 502 mm x H 326 mm
Weight	15.43 kg (34.02 lbs)
Carton dimension	L633*W403*H466 mm
Label roll capacity	8” OD; 1.5” ~ 3” ID core
Processor	32-bit RISC high performance processor (BGA 536Mhz)
Memory	• 512MB Flash memory • 256MB DDR2 • USB device memory (FAT32) • microSD card, up to 32 GB
Interface	• RS-232 (Max. 115,200 bps) • USB 2.0 (High speed mode) • Internal Ethernet • USB host *2 (Front side), connecting USB storage device
Power	Auto sensing power supply (20% print ratio) • Input: AC 100-240V, 4-2A, 50-60Hz • Output: DC 5V, 5A; DC 24V, 7A; DC 36V, 1.4A; Total 243W
LCD display/ Operation buttons	• Multi-language selectable • 4.3” Large Backlit LCD display (16 bits Color, Resolution 480 x 272 ; Resistive Touch Screen) • 6 operation buttons (menu, select, up, down, left/pause, right/feed) • 1 LED (with 2 LEDs Green & Red)

Sensors	• Gap transmissive sensor (Position adjustable, 0mm -> 92mm) • Black mark reflective sensor (Position adjustable, 0mm -> 85.4mm) with switchable (On printer display) setting for Top Black mark sensor • Ribbon end sensor (transmissive) • Ribbon encoder sensor • Head open sensor • Media near end sensor
Font & bar code rotation	0, 90, 180, 270 degree
Command set	TSPL-EZ™(Compatible to EPL, ZPL, ZPL II, DPL)
Media type	Continuous, die-cut, black mark, fan-fold, notch, care label (cut by hi-speed cutter)
Media wound type	Outside wound
Media width	15 mm ~ 114 mm
Media thickness	0.06 ~ 0.28 mm
Media core diameter	1.5”~3” I.D. core
Label length	5 mm ~
Gap height	Min. 2 mm
Black mark height	Min. 2 mm
Black mark width	Min. 8 mm (0.31”)
Ribbon capacity	600M meter long, 1” core (ink coated outside or inside), max OD 90 mm
Ribbon width	25.4 mm ~ 114.3 mm (1”~4.5”)
Environment condition	Operation: 0 ~ 40˚C (32 ~ 104˚F), 25~85% non-condensing Storage: -40 ~ 60 ˚C (-40 ~ 140˚F), 10~90% non-condensing
Environment compliance	RoHS, WEEE, Reach, Prop65, including China RoHS and Taiwan RoHS
Accessories	• Windows Driver CD disk • Quick start guide • USB port cable (1.5M) • Power cord
RTC & Buzzer	Standard

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 USB interface cable

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

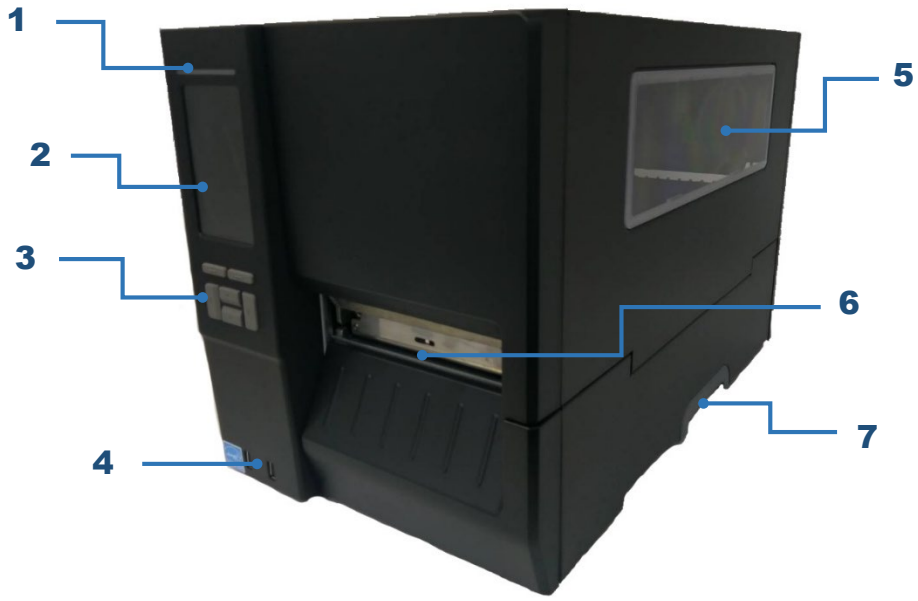
Note: Check the production date

Serial NO.: XXX 17 22 XXXX

YEAR **WEEK**

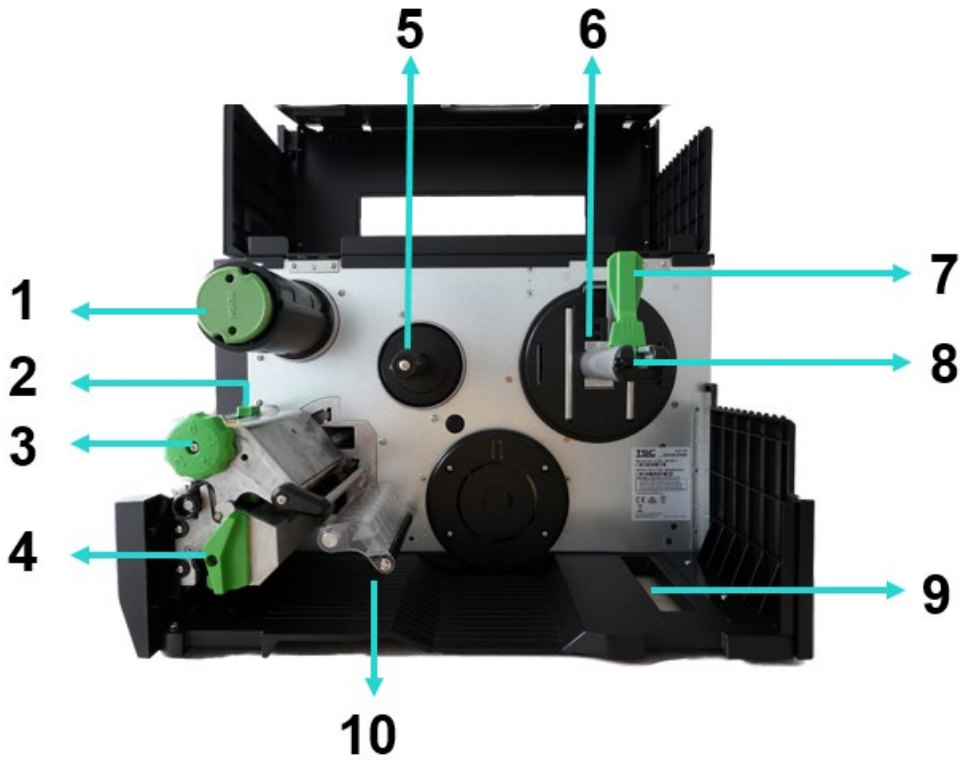
2.2 Printer Overview

2.2.1 Front View

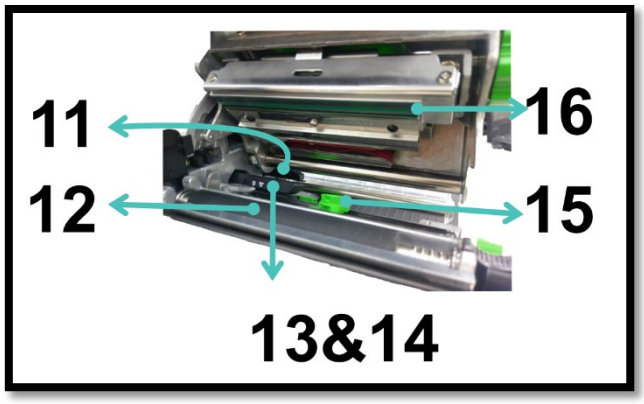


1. LED indicator
2. LCD display
3. Front panel buttons
4. USB host x 2
5. Media view window
6. Paper exit chute
7. Printer cover handle

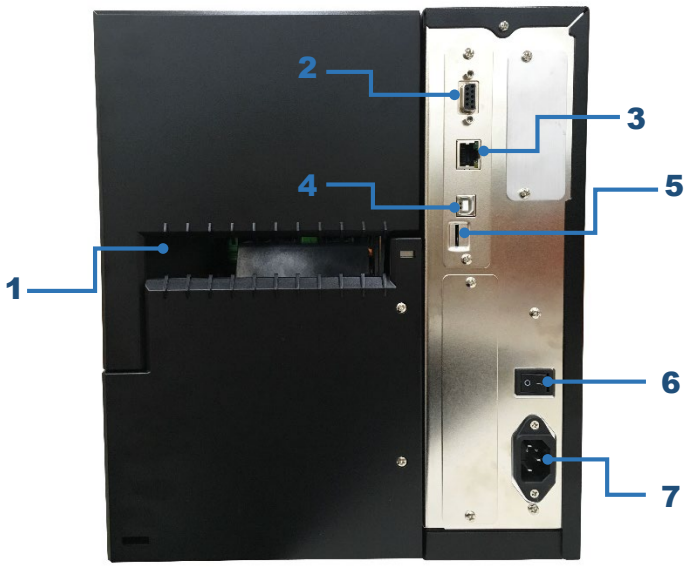
2.2.2 Interior view



1. Ribbon rewind spindle
2. Print head pressure position adjustment knob
3. Print head pressure adjustment knob
4. Print head release lever
5. Ribbon supply spindle
6. Media near end
7. Label roll guard
8. Label supply spindle
9. External label entrance chute
10. Damper
11. Ribbon sensor
12. Platen roller
13. Black mark sensor (shown as ↓)
14. Gap sensor (shown as ▽)
15. Front label guide
16. Print head



2.2.3 Rear View



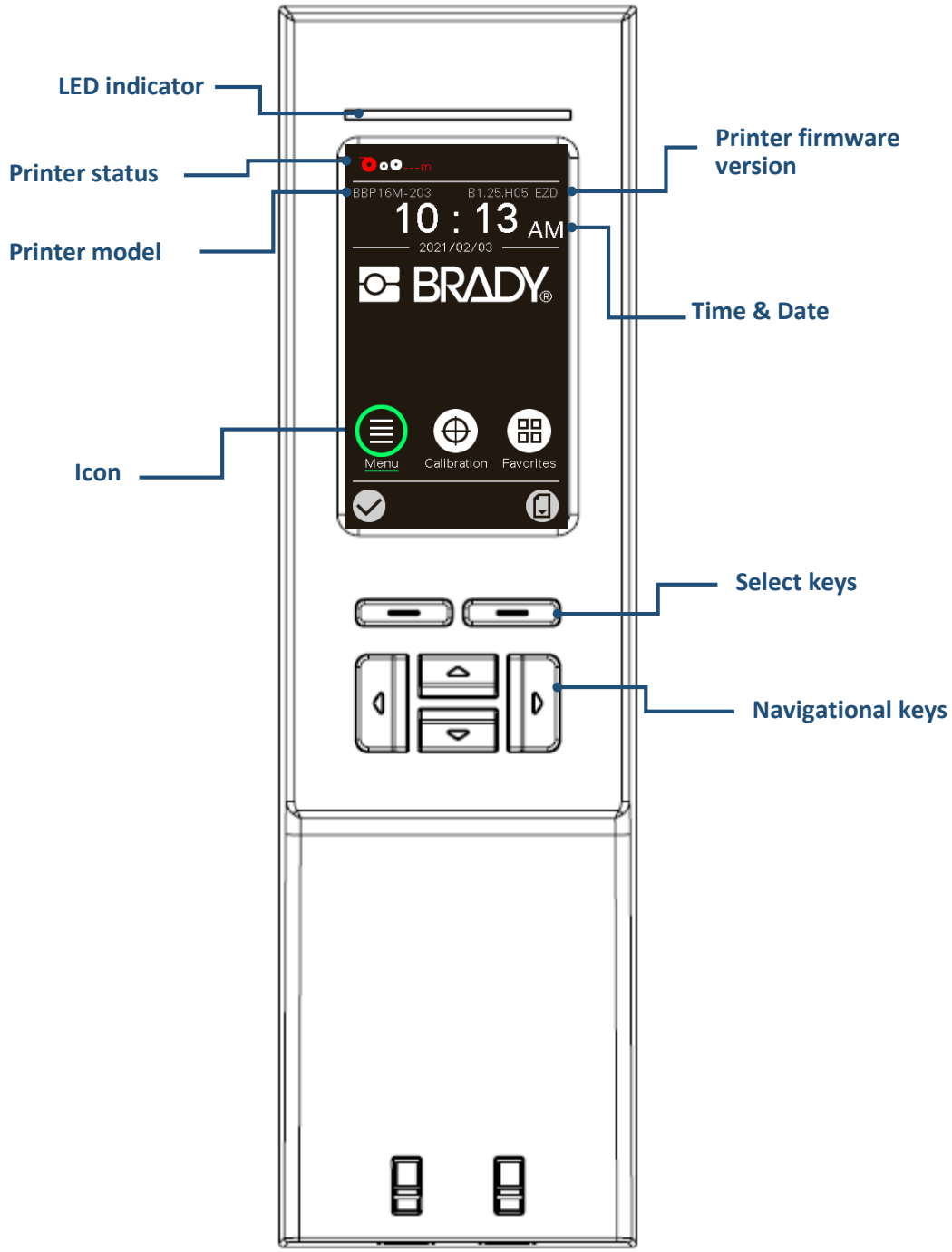
1. External label entrance chute
2. RS-232C interface
3. Ethernet interface
4. USB interface
5. *microSD card slot
6. Power switch
7. Power cord socket

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

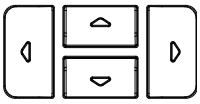
*** Recommended microSD card specification.**

Type	microSD card spec	microSD card capacity	Approved microSD card manufacturer
microSD	V2.0 Class 4	4G	Transcend
	V2.0 Class 4	8G	Transcend
	V3.0 Class 10 UHS-I	16G	Transcend
	V3.0 Class 10 UHS-I	32G	Transcend
	V3.0 Class 10	16G	Kingston
	V2.0 Class 4	16G	Scandisk
	V3.0 Class 10 UHS-I	16G	Scandisk
- The DOS FAT file system is supported for the microSD card. - Folders/files stored in the microSD card should be in the 8.3 filename format. - The miniSD / SD card adapter is required.			

2.3 Operator Control



2.3.1 LED Indication and Keys

LED	Status	Indication	
	Green	Solid	This illuminates that the power is on and the device is ready to use.
		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 printer.	
	Red	Solid	This illuminates printer head open and cutter error.
		Flash	This illuminates a printing error, such as head open, paper empty, paper jam, or memory error etc.
Keys	**Function**		
Select keys 	The labels on the footer of the UI will explain the function for left and right soft key. Check the labels on the footer of the UI screen. The meaning of the select keys will vary.		
Navigational keys 	Used to select icons, menu selection, and navigation in the UI.		

2.3.2 Main page Icons

Indicated icon	Indication
	Ethernet is connected
	Media capacity (%)
	Ribbon capacity (m)
	TPH cleaning
	Security lock
Icon button	**Function**
	Enter the menu
	Calibrate the media sensor
	Enter the “Favorites” option
	Enter cursor (be marked in green) located option
	Feed button (advance one label)

2.3.3 Power-on Utilities

BBP16M Series have the power-on utilities for user to set sensor calibration, self-test, and factory default functions. Please refer to the template below to setup the settings.

Please follow the steps below for different power-on utilities.

1. Turn off the printer power switch.
2. Hold on the right side of the select key () then turn on the power switch.
3. Release the button when LCD monitor indicates with different functions.
4. Printer will setup the functions showing on the LCD monitor accordingly.

The sequences of the settings:

Power on utilities	**The LED color will be changed as following pattern:**						
LED color / ***Functions (showing on LCD monitor)***	Amber	Red (5 blinks)	Amber (5 blinks)	Green (5 blinks)	Green/Amber (5 blinks)	Red/Amber (5 blinks)	Solid green
1. Sensor Calibration (Gap / black mark sensor)		*Release*					
2. Self-test and enter dump mode			*Release*				
3. Factory Default				*Release*			
4. Bline Calibration					*Release*		
5. Gap Calibration						*Release*	
6. READY (Skip AUTO.BAS)							*Release*

3. Setup

3.1 Setting up the printer

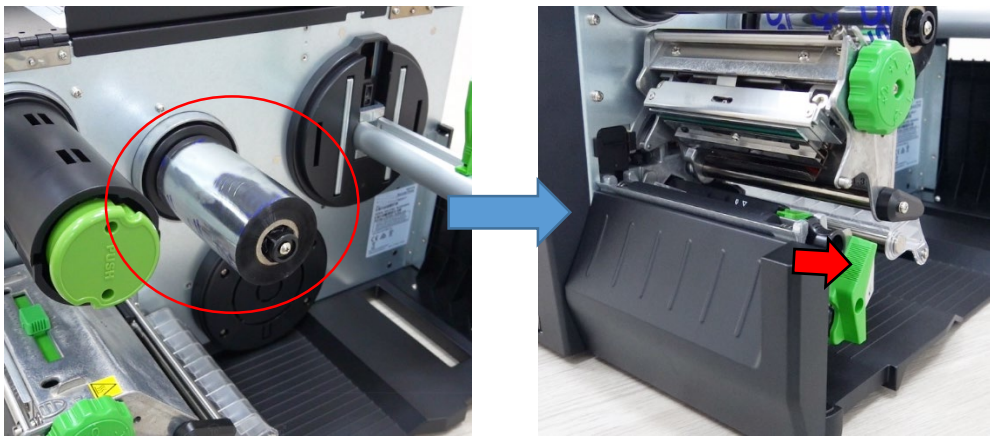
1. Place the printer on a flat, secure surface.
2. Make sure the power switch is off.
3. Connect the printer to the computer with the provided USB cable.
4. Plug the power cord into the AC power cord socket at the rear of the printer, and then plug the power cord into a properly grounded power outlet.

Note: Please switch OFF printer power switch prior to plug in the power cord to printer power jack.

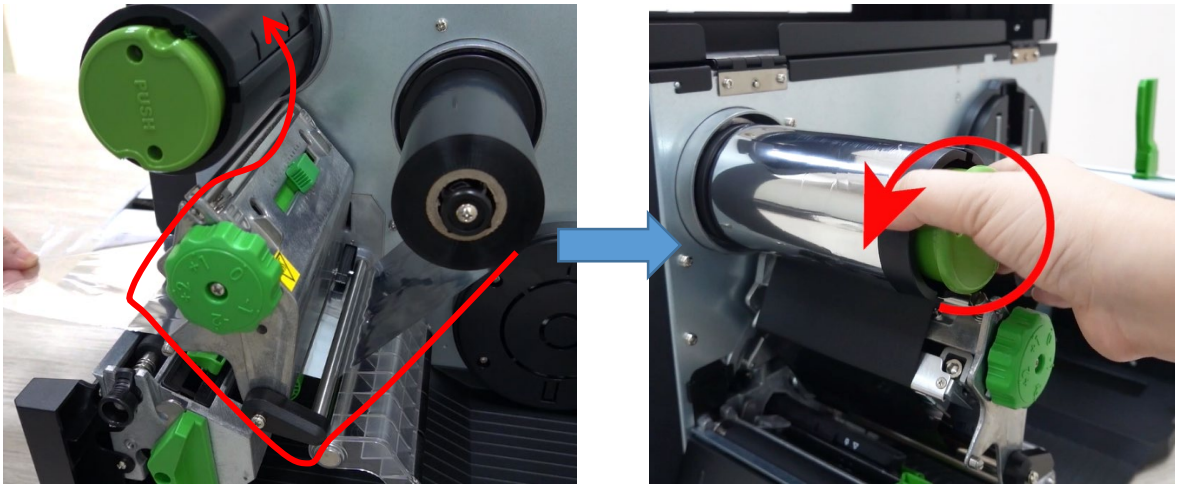
3.2 Loading the Ribbon

1. Open the printer right side cover.

2. Install the ribbon onto ribbon supply spindle. Push the Print head release lever to open print head mechanism.

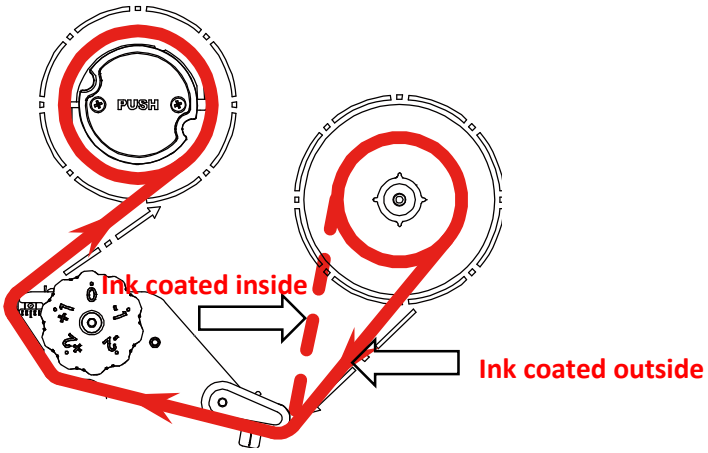


3. Thread ribbon below the ribbon guide bar through ribbon sensor slot and as the loading path printed on the printer. Wind the ribbon rewind spindle counterclockwise roughly 3~5 circles until the ribbon is smooth, properly stretched and wrinkle-free.



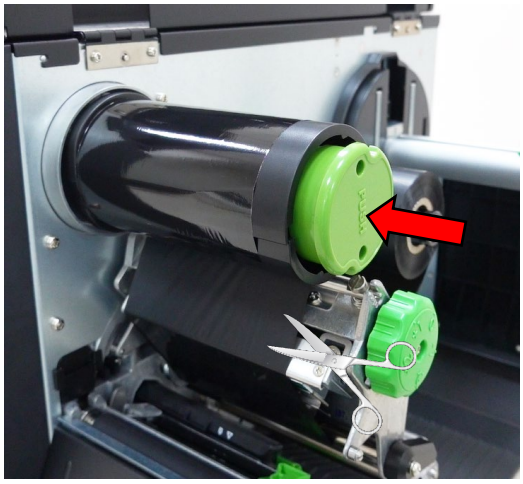
4. Close the print head mechanism by pushing down the both sides of the print head release lever.

Ribbon loading path:



3.3 Remove Used Ribbon

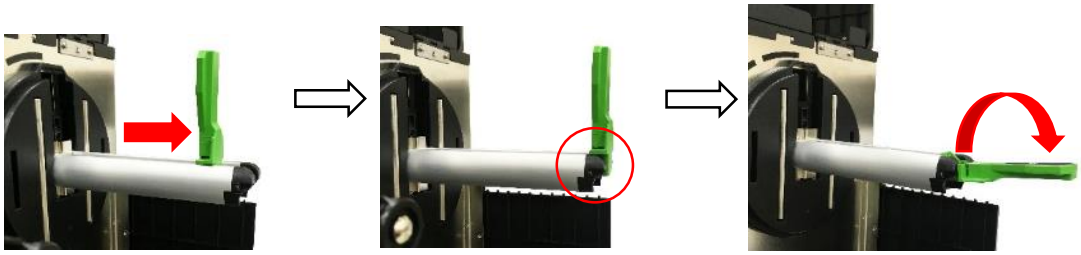
1. Break the ribbon between ribbon guide plate and the ribbon rewind spindle. Push the ribbon release button and slide the ribbon off to release the ribbon on the ribbon rewind spindle at the same time.



3.4 Loading the Media

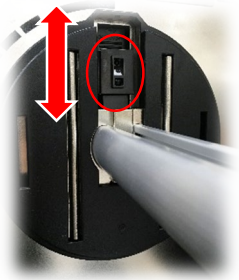
3.4.1 Loading the Media

1. Open the printer right side cover.
2. Move the label roll guard horizontally to the end of label spindle, then flip down the label roll guard.

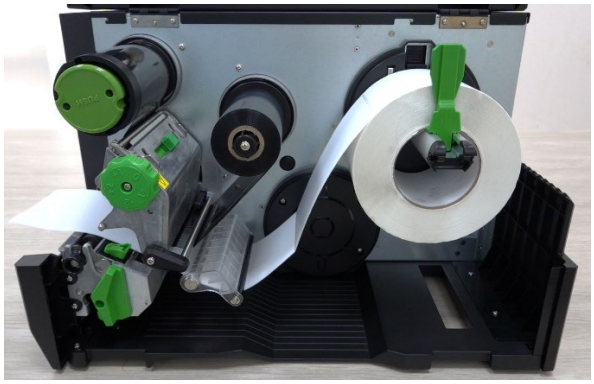


3. Place the media roll on the label supply spindle and use label roll guard to fix it.

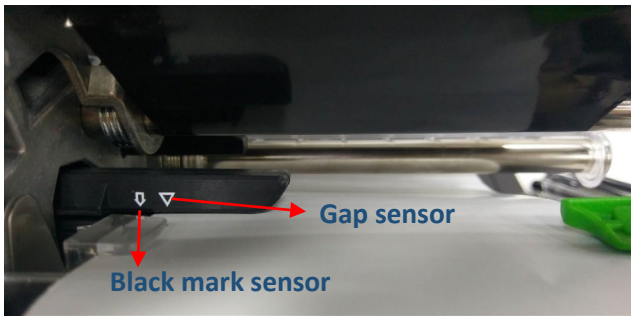
Note:
The media end sensor is movable, which can detect the capacity of media and remind users to change the media roll.



4. Push the print head release lever and install the label through the media guide bar, damper, media sensor, and label guide to install the media.



5. Move the media sensor by adjusting the media sensor position adjustment knob, make sure the gap or black mark sensor is at the location where media gap/black mark will pass through for sensing.

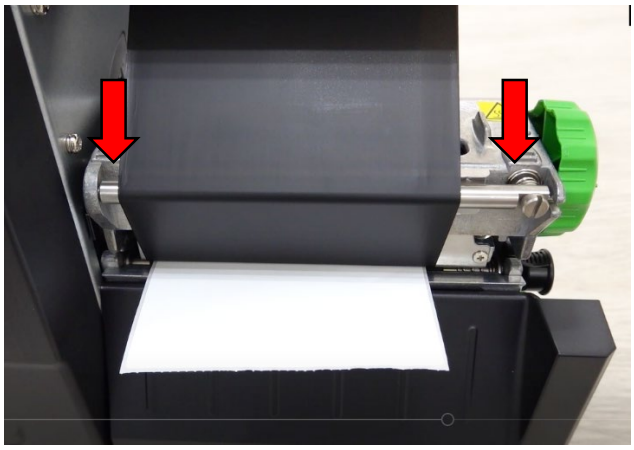


Note:

- **The sensor location is marked by a triangle mark ▽ (gap sensor) and arrow mark ↓ (black mark sensor) at the sensor housing.**
- **The media sensor position is movable, please make sure the gap or black mark is at the location where media gap/black mark will pass through for sensing.**

6. Adjust the label guide to fix the media position.

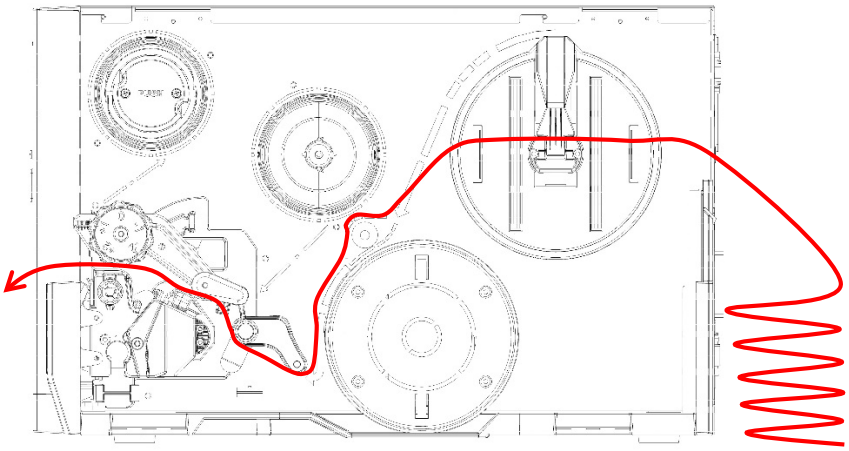
7. Close the print head mechanism on both sides and make sure the latches are engaged securely. Set media sensor type and calibrate the selected sensor.

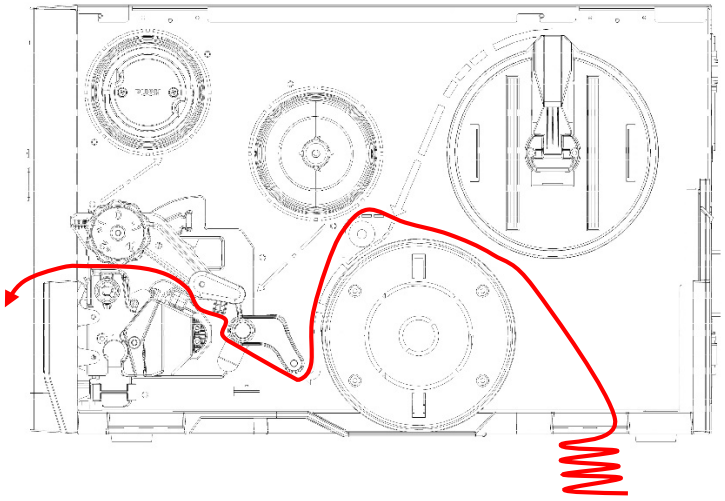


Note:
Please calibrate the gap/black mark sensor when changing media.

3.4.2 Loading the Fanfold/External Media

1. Open the printer right side cover.
2. Insert the fanfold media through the bottom or rear external label entrance chute.
3. Please refer to section 3.4.1 step 4~8 for loading media.

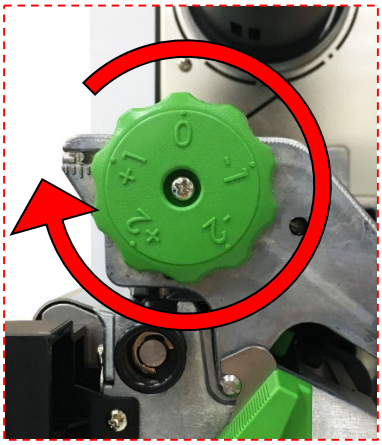




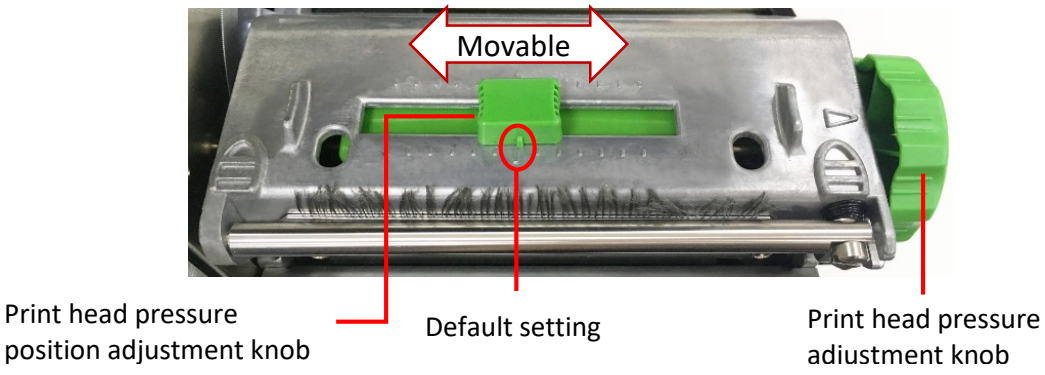
Note:
Please calibrate the gap/black mark sensor when changing media.

4. Adjustment Knob

4.1 Print Head Pressure Adjustment Knob & Print Head Pressure Position Adjustment Knob



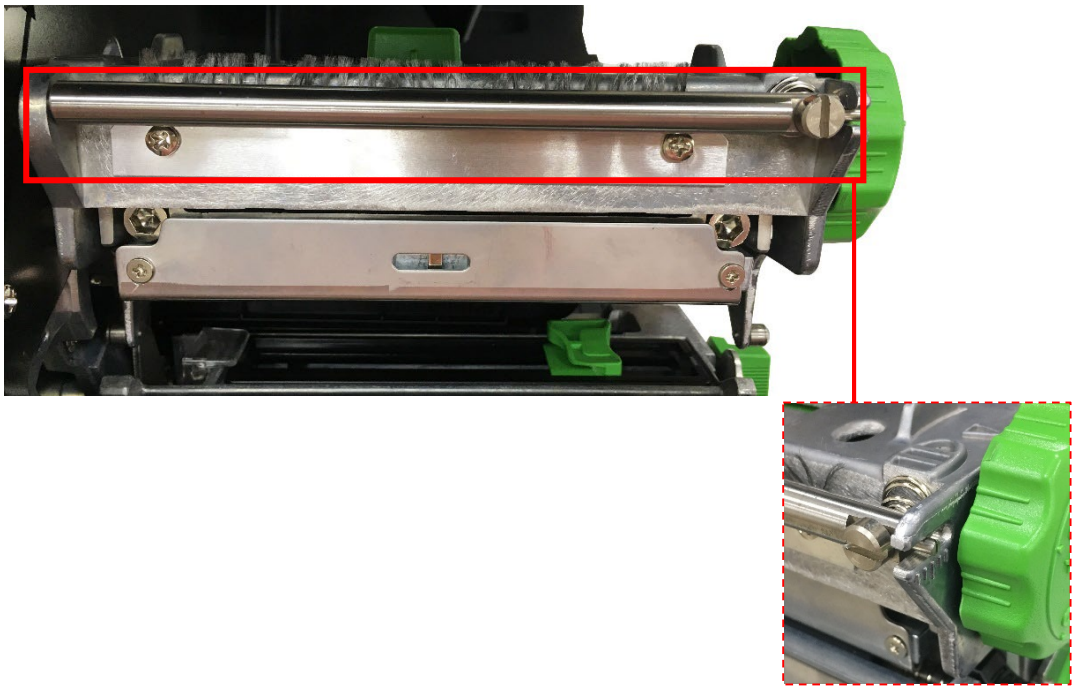
The print head pressure adjustment knob has 5 levels of adjustment. Because the printer's paper alignment is to the left side of mechanism, different media widths require the different pressure to print the label correctly. Therefore, it may require to adjust the print head pressure adjustment knob and get the best print quality.



Note:
For the label width less than 2 inches, please fix the Print head pressure adjustment knob inside the edge of the label as possible (prevent the unnecessary friction between the print head and platen roller).

4.2 Ribbon Tension Adjustment Knob Module

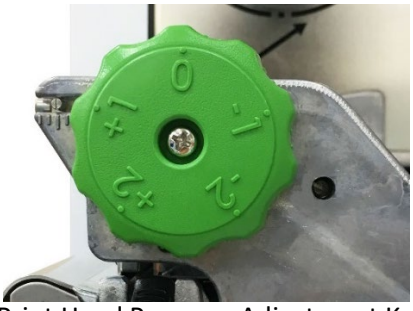
The ribbon tension adjustment knob has 5 positions for adjustment. Because the printer's ribbon alignment is to the left side of mechanism, different ribbon or media widths require different tension to print correctly. Therefore, it may require to adjust the ribbon tension adjustment knob to get your best print quality.

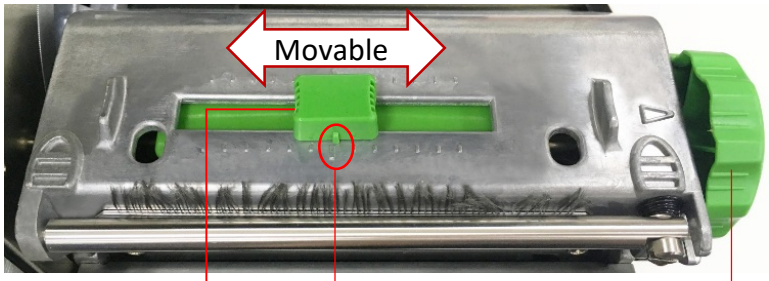


Ribbon Tension Adjustment Knob

4.3 Mechanism Fine Adjustment to Avoid Ribbon Wrinkles

This printer has been fully tested before delivery. There should be no ribbon wrinkle presented on the media for general-purpose printing application. Ribbon wrinkle is related to the media width, thickness, print head pressure balance, ribbon film characteristics, print darkness setting…etc. In case the ribbon wrinkle happens, please follow the instructions below to adjust the printer parts.

<table>
<tr><td rowspan="2">Adjustable Printer Parts</td><td>Ribbon Tension Adjustment Knob has 5 positions for adjustment. Use flat blade driver to change the ribbon tension position.
 
Ribbon Tension Adjustment Knob</td></tr>
<tr><td>The Print Head Pressure Adjustment Knob has 5 levels of settings. Switch the Print head Pressure Adjustment Knob and cooperate with the Print Head Pressure Position Adjustment Knob to adjust the pressure and position on print head.
 

Print Head Pressure Adjustment Knob
 
</td></tr>
</table>

<table>
<tr>
<td>Symptom (Wrinkle Example)</td>
<td>1. Wrinkle happens from label lower left to upper right direction
 
</td>
<td>Feed direction</td>
<td>2. Wrinkle happens from label lower right to upper left direction
 
</td>
</tr>
<tr>
<td></td>
<td>If the wrinkle on the label starts from the lower left side to upper right side, please do following adjustment.
1. Switch the ribbon tension adjustment knob clockwise per 1 level and print the label again to check if the wrinkle is gone.
 

2. If the ribbon tension adjustment knob has positioned on the level of innermost side but didn’t improve the ribbon wrinkle, please switch the print head pressure position adjustment knob per 1 level and print the label again to check if the wrinkle is gone.
3. If the ribbon wrinkle still can’t improve after switch the print head pressure position adjustment knob, please adjust the print head pressure adjustment knob per 1 level again to check if the wrinkle is gone.</td>
<td colspan="2">If the wrinkle on the label starts from the lower right side to upper left side, please do following adjustment.
1. Switch the ribbon tension adjustment knob counterclockwise per 1 level and print the label again to check if the wrinkle is gone.
 

2. If the ribbon tension adjustment knob has positioned on the level of outermost side but didn’t improve the ribbon wrinkle, please switch the print head pressure position adjustment knob per 1 level and print the label again to check if the wrinkle is gone.
3. If the ribbon wrinkle still can’t improve after switch the print head pressure position adjustment knob, please adjust the print head pressure adjustment knob per 1 level again to check if the wrinkle is gone.</td>
</tr>
</table>

5. LCD Menu Function

5.1 Enter the Menu

Tap  menu icon to enter the menu function.

5.2 Menu Overview

There are 6 categories for the menu. You can easy to set the settings of the printer without connecting the computer. Please refer to following sections for more details.

This “Setting” category can set up the printer settings for TSPL & ZPL2.

This "Sensor"option is used to calibrate the selected media sensor. We recommend calibrate the sensor before printing when changing the media.

This "Interface" option is used to set the printer interface settings.

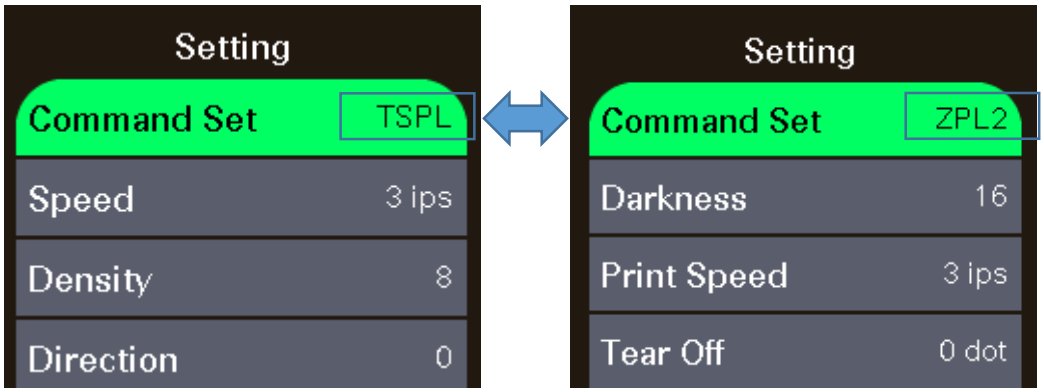
This "Advanced" option is used to set the printer LCD settings, initialization, cutter type, media low warning setting %...etc.

This "File Manager" option is used to check/ manager the printer available memory.

This "Diagnostic" optin is used to review printer to troubleshoot problems and other issues.

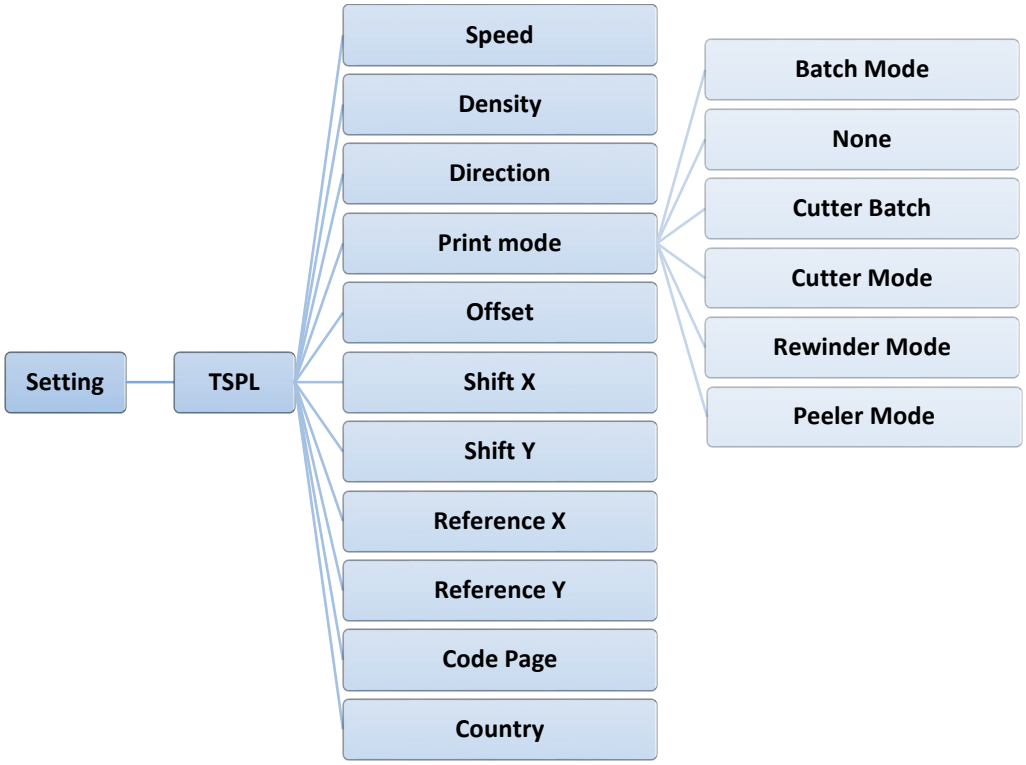
5.3 Setting

Choose the “Command Set” item on LCD and switch the TSPL and ZPL2 by press right select key.

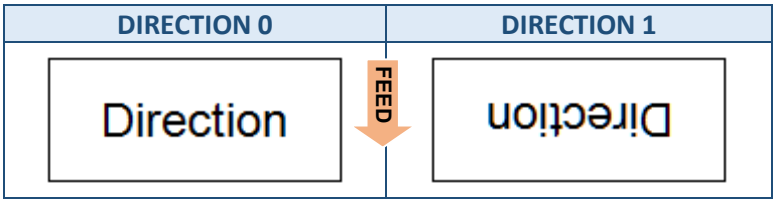


5.3.1 TSPL

This “TSPL” category can set up the printer settings for TSPL.



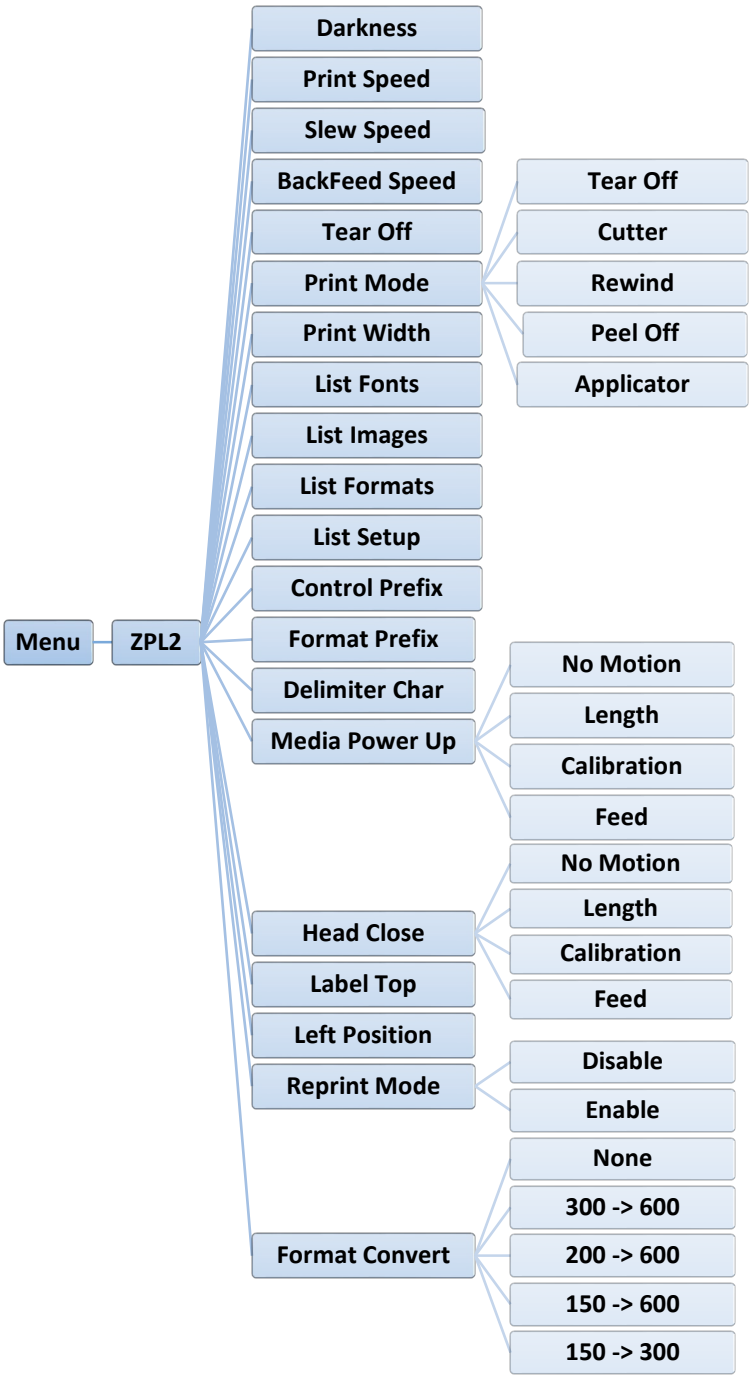
Item	Description	Default
Speed	Use this item to setup print speed. Available setting range is 1~6 for 600dpi.	**600 dpi: 3**

<table>
<tr><td>Density</td><td>Use this option to setup printing darkness. The available setting range is from 0 to 15, and the step is 1. You may need to adjust your density based on selected media.</td><td>8</td></tr>
<tr><td>Direction</td><td>The direction setting value is either 1 or 0. Use this item to setup the printout direction.
 
</td><td>0</td></tr>
<tr><td>Print mode</td><td>This item is used to set the print mode. There are 6 modes as below,
<table><tr><th>Printer Mode</th><th>Description</th></tr><tr><td>None</td><td>Next label top of form is aligned to the print head burn line location. (Tear Off Mode)</td></tr><tr><td>Cutter Batch</td><td>Cut the label once at the end of the printing job.</td></tr><tr><td>Cutter Mode</td><td>Enable the label cutter mode.</td></tr><tr><td>Rewinder Mode</td><td>Enable the label rewinder mode.</td></tr><tr><td>Peeler Mode</td><td>Enable the label peel off mode.</td></tr><tr><td>Batch Mode</td><td>Once image is printed completely, label gap/black mark will be fed to the tear plate location for tear away.</td></tr></table></td><td>Batch Mode</td></tr>
<tr><td>Offset</td><td>This item is used to fine tune media stop location. Available setting value range is from -999 dots to 999 dots.</td><td>0 dot</td></tr>
<tr><td>Shift X</td><td rowspan="2">This item is used to fine tune print position. Available setting value range is from -999 dots to 999 dots.</td><td>0 dot</td></tr>
<tr><td>Shift Y</td><td>0 dot</td></tr>
<tr><td>Reference X</td><td rowspan="2">This item is used to set the origin of printer coordinate system horizontally and vertically. Available setting range is from 0 dot to 999 dots.</td><td>0 dot</td></tr>
<tr><td>Reference Y</td><td>0 dot</td></tr>
<tr><td>Code page</td><td>Use this item to set the code page of international character set.</td><td>850</td></tr>
<tr><td>Country</td><td>Use this option to set the country code. Available setting value range is from 1 to 358.</td><td>001</td></tr>
</table>

Note:
If printing from enclosed software/driver, the software/driver will send out the commands, which will overwrite the settings set from the panel.

5.3.2 ZPL2

This “ZPL2” category can set up the printer settings for ZPL2.



Item	Description	Default
Darkness	Use this item to setup printing darkness. The available setting range is from 0 to 30. You may need to adjust your density based on selected media.	**16**

<table>
<tr><td>Print Speed</td><td>Use this item to setup print speed. Available setting range is 1.5 ~6 for 600dpi.</td><td>600 dpi: 3</td></tr>
<tr><td>Tear Off</td><td>This item is used to fine tune media stop location. Available setting value range is from -120~120 dots.</td><td>0 dot</td></tr>
<tr><td>Print mode</td><td>This item is used to set the print mode. There are 3 modes as below,

<table><tr><th>Printer Mode</th><th>Description</th></tr><tr><td>Tear Off</td><td>Next label top of form is aligned to the print head burn line location.</td></tr><tr><td>Peel Off</td><td>Enable the label peel off mode.</td></tr><tr><td>Cutter</td><td>Enable the label cutter mode</td></tr><tr><td>Rewind</td><td>Enable the label rewind mode</td></tr></table></td><td>Tear Off</td></tr>
<tr><td>Print Width</td><td>This item is used to set print width. The available value range is 2 ~ 999 dots.</td><td>812 dot</td></tr>
<tr><td>List Fonts</td><td>This feature is used to print current printer available fonts list to the label. The fonts stored in the printer’s DRAM, Flash or optional memory card.</td><td>N/A</td></tr>
<tr><td>List Images</td><td>This feature is used to print current printer available images list to the label. The images stored in the printer’s DRAM, Flash or optional memory card.</td><td>N/A</td></tr>
<tr><td>List Formats</td><td>This feature is used to print current printer available formats list to the label. The formats stored in the printer’s DRAM, Flash or optional memory card.</td><td>N/A</td></tr>
<tr><td>List Setup</td><td>This feature is used to print current printer configuration to the label.</td><td>N/A</td></tr>
<tr><td>Control Prefix</td><td>This feature is used to set control prefix character.</td><td>N/A</td></tr>
<tr><td>Format Prefix</td><td>This feature is used to set format prefix character.</td><td>N/A</td></tr>
<tr><td>Delimiter Char</td><td>This feature is used to set delimiter character.</td><td>N/A</td></tr>
<tr><td>Media Power Up</td><td>This option is used to set the action of the media when you turn on the printer.

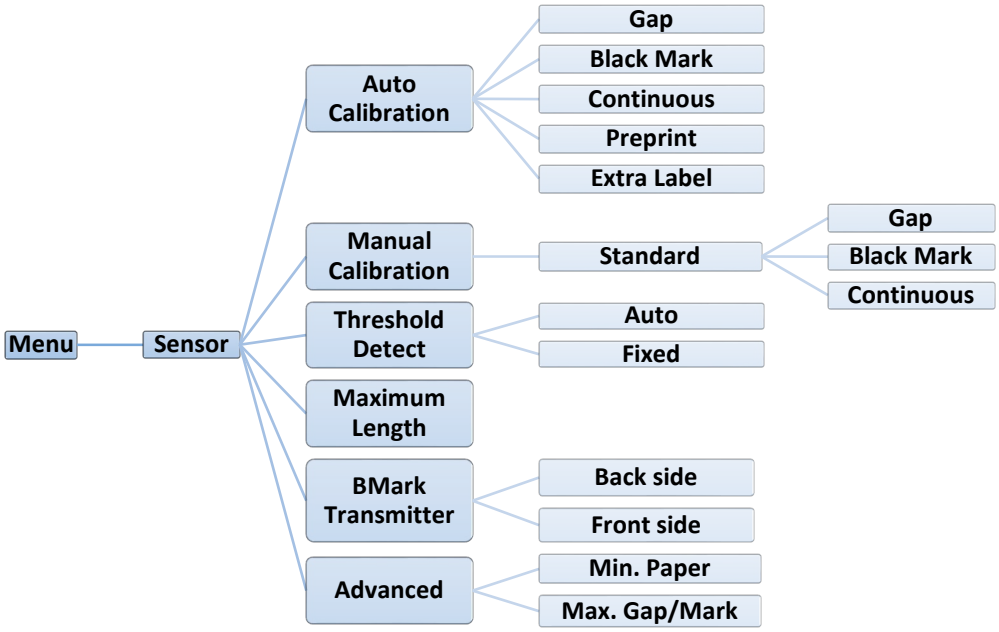
<table><tr><th>Selections</th><th>Description</th></tr><tr><td>Feed</td><td>Printer will advance one label</td></tr><tr><td>Calibration</td><td>Printer will calibration the sensor levels, determine length and feed label</td></tr><tr><td>Length</td><td>Printer determine length and feed label</td></tr><tr><td>No Motion</td><td>Printer will not move media</td></tr></table></td><td>No Motion</td></tr>
</table>

<table>
<tr>
<td>Head Close</td>
<td>This option is used to set the action of the media when you close the print head.
<table>
<tr><th>Selections</th><th>Description</th></tr>
<tr><td>Feed</td><td>Printer will advance one label</td></tr>
<tr><td>Calibration</td><td>Printer will calibration the sensor levels, determine length and feed label</td></tr>
<tr><td>Length</td><td>Printer determine length and feed label</td></tr>
<tr><td>No Motion</td><td>Printer will not move media</td></tr>
</table>
</td>
<td>No Motion</td>
</tr>
<tr><td>Label Top</td><td>This option is used to adjust print position vertically on the label. The range is -120 to +120 dots.</td><td>0</td></tr>
<tr><td>Left Position</td><td>This option is used to adjust print position horizontally on the label. The range is -9999 to +9999 dots.</td><td>0</td></tr>
<tr><td>Reprint Mode</td><td>When reprint mode is enabled, you can reprint the last label printer by pressing ^ button on printer’s control panel.</td><td>Disable</td></tr>
<tr><td>Format Convert</td><td>Selects the bitmap scaling factor. The first number is the original dots per inch (dpi) value; the second, the dpi to which you would like to scale.</td><td>None</td></tr>
</table>

Note:
If printing from enclosed software/driver, the software/driver will send out the commands, which will overwrite the settings set from the panel.

5.4 Sensor

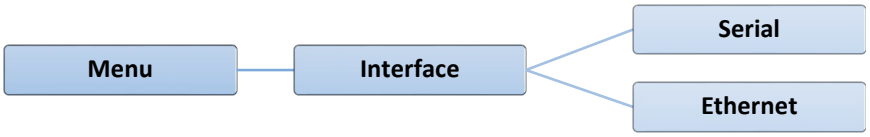
This option is used to calibrate the selected sensor. We recommend calibrate the sensor before printing when changing the media.



Item	Description	Default
Auto Calibration	This option is used to set the media sensor type and calibrate the selected sensor automatically. Printer will feed 2 to 3 gap labels to calibrate the sensor sensitivity automatically. For [Extra Label] item, users can add extra feeding label(s) to do the sensor calibration.	**N/A**
Manual setup	In case "Automatic" cannot apply to the media, please use "Manual" function to set the paper length and gap/bline size then scan the backing/mark to calibrate the sensor sensitivity. **Note: The "Media Capacity" item is used to calibrate the media capacity sensor %.**	**N/A**
Threshold Detect	This option is used to set sensor sensitivity in fixed or auto.	**Auto**
Maximum Length	This option is used to set the maximum length for label calibration.	**253 mm**
BMark Transmitter	Control black mark sensor's light to face up or face down	**Back Side**
Advanced	This function can set the minimum paper length and maximum gap/bline length for auto-calibrate the sensor sensitivity.	**0 mm**

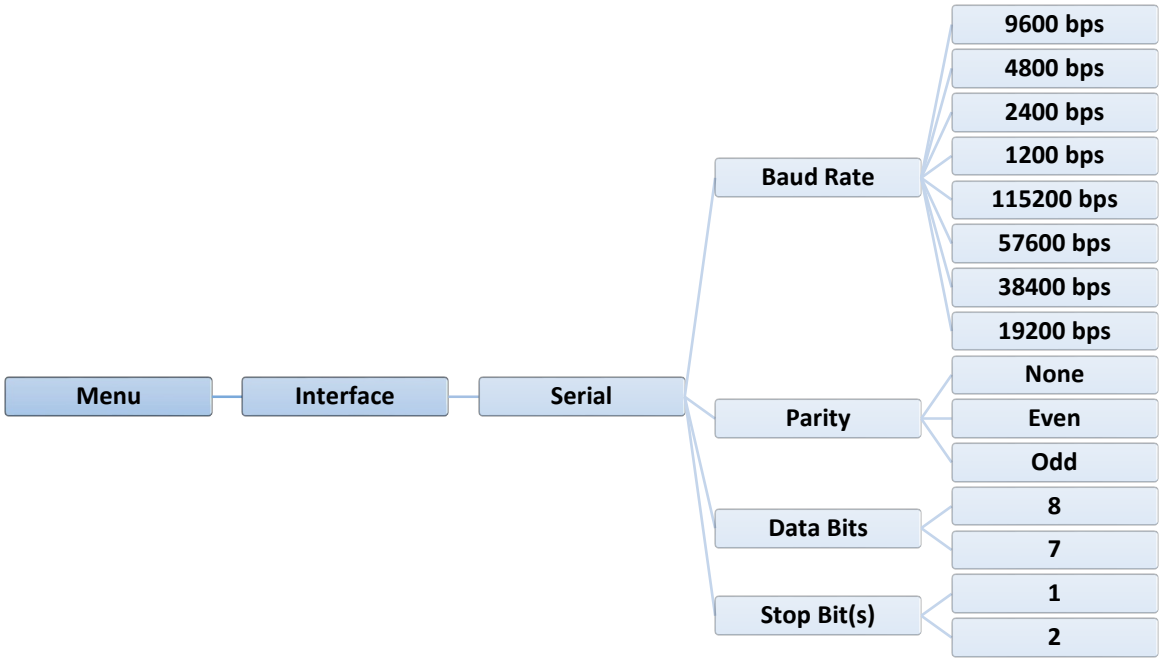
5.5 Interface

This option is used to set the printer interface settings.



5.5.1 Serial Comm.

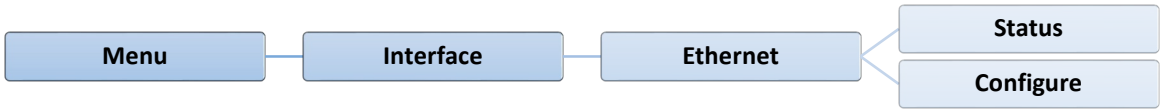
This option is used to set the printer RS-232 settings.



Item	Description	Default
Baud Rate	This item is used to set the RS-232 baud rate.	**9600**
Parity	This item is used to set the RS-232 parity.	**None**
Data Bits	This item is used to set the RS-232 Data Bits.	**8**
Stop Bit(s)	This item is used to set the RS-232 Stop Bits.	**1**

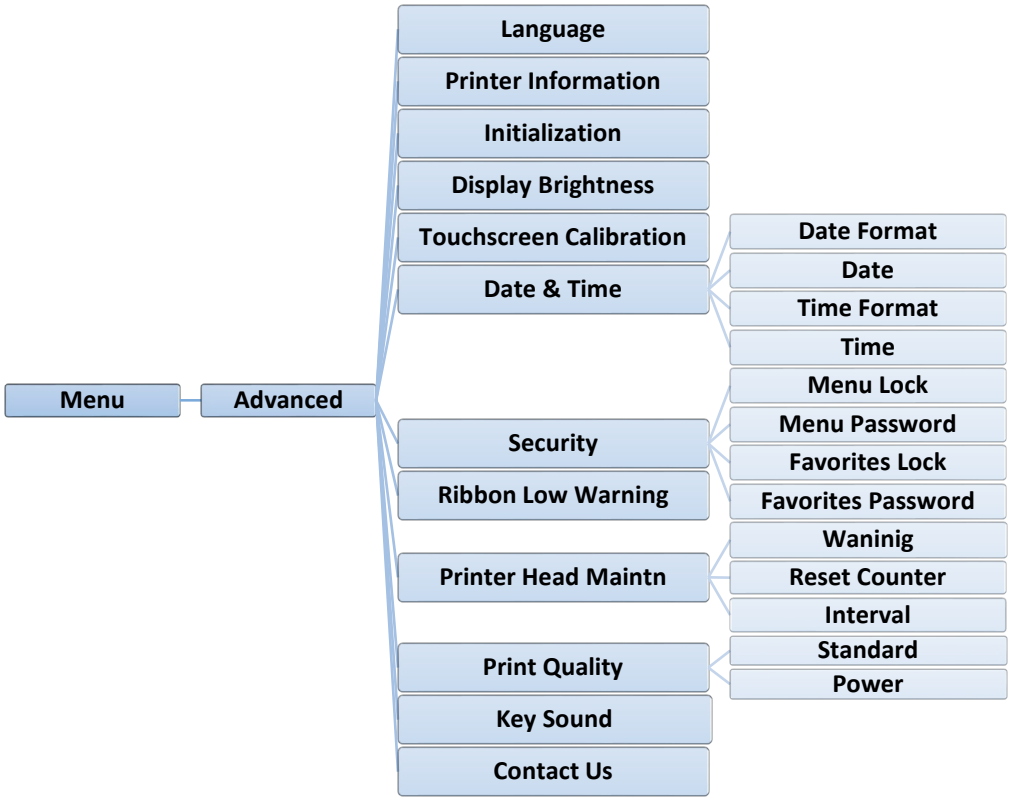
5.5.2 Ethernet

Use this menu to configure internal Ethernet configuration, check the printer's Ethernet module status, and reset the Ethernet module.



Item	Description	Default
Status	Use this menu to check the Ethernet IP address and MAC setting status.	**N/A**
Configure	**DHCP:** This item is used to ON or OFF the DHCP (Dynamic Host Configuration Protocol) network protocol. **Static IP:** Use this menu to set the printer's IP address, subnet mask and gateway.	**DHCP**

5.6 Advanced



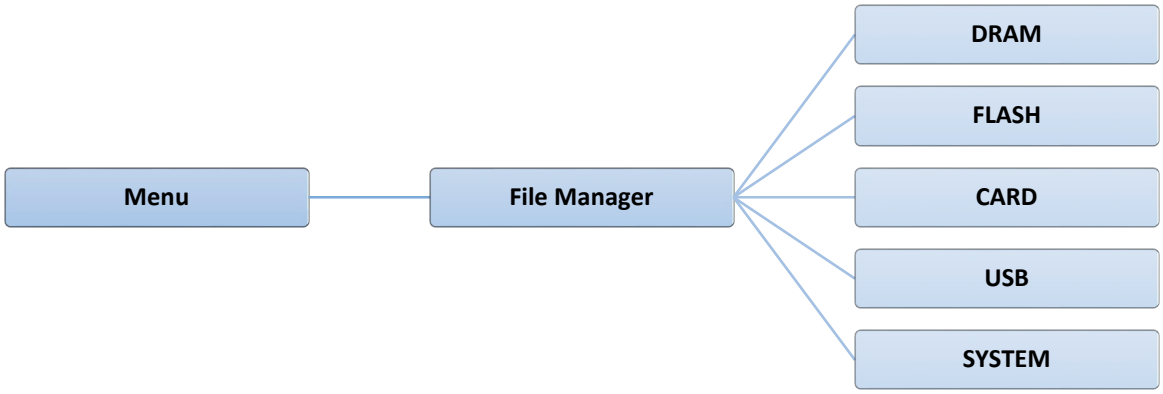
Item	Description	Default
Language	This item is used to setup the language on display.	**English**
Printer Information	This feature is used to check the printer serial number, printed mileage (m), printed labels (pcs) and cutting counter.	**N/A**
Initialization	This feature is used to restore printer settings to defaults.	**N/A**
Display Brightness	This item is used to setup the brightness for display. (Range 0~100)	**50**
Touchscreen Calibration	This item is used to calibrate the center of the cross for best result for touchscreen.	**N/A**
Date & Time	This item is used to setup the date and time on display.	**N/A**
Security	This feature is used to set the password for locking the menu or favorites. The default password is 8888.	**Disable**
Ribbon Low Warning	This item is used to set the warning for ribbon low. For example, if setting value is 30m, when ribbon capacity was lower than 30m, the will be shown in red.	**30 m**

<table>
<tr>
<td>Printer Head Maintn</td>
<td>This item is used to check print head status and to set the settings for print head care.
<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Warning</td><td>This item is used to enable/disable the print head clean warning. If enable this feature, once print head has been reached the setting mileage then the warning icon will be shown on printer UI for reminding user to clean the print head. The default setting is disable.</td></tr>
<tr><td>Reset Counter</td><td>This item is used to reset the print head clean warning mileage after cleaned print head.</td></tr>
<tr><td>Interval</td><td>This item is used to set the expected mileage for reminding user to clean the print head. You have to enable the “TPH warning lock” for use. The default setting is 1 km.</td></tr>
</table>
</td>
<td>N/A</td>
</tr>
<tr>
<td>Print Quality</td>
<td>This item is used to select the print quality to standard/ power mode.</td>
<td>Standard</td>
</tr>
<tr>
<td>Key Sound</td>
<td>This item is used to open/close the key sound.</td>
<td>ON</td>
</tr>
<tr>
<td>Contact us</td>
<td>This feature is used to check the contact information for tech support service.</td>
<td>N/A</td>
</tr>
</table>

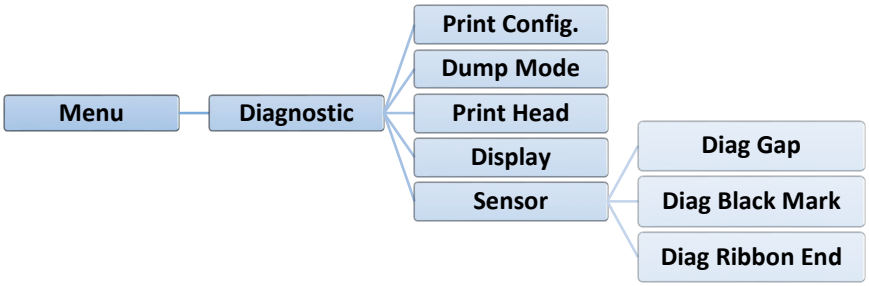
5.7 File Manager

This feature is used to check the printer available memory, show the files list, delete the files or run the files that saved in the printer DRAM/Flash/Card/USB memory.

Note:
For CARD and USB items, it will show when the SD card or USB flash drive is installed.
For SYSTEM item, it is used to check the printer internal system information. (For read only)



5.8 Diagnostic



Item	Description
Print Config.	This feature is used to print current printer configuration to the label. On the configuration printout, there is a print head test pattern, which is useful for checking if there is any dot damage on the print head heater element.

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)
------------------------------

------------------------------
      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
------------------------------

------------------------------
          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
------------------------------

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

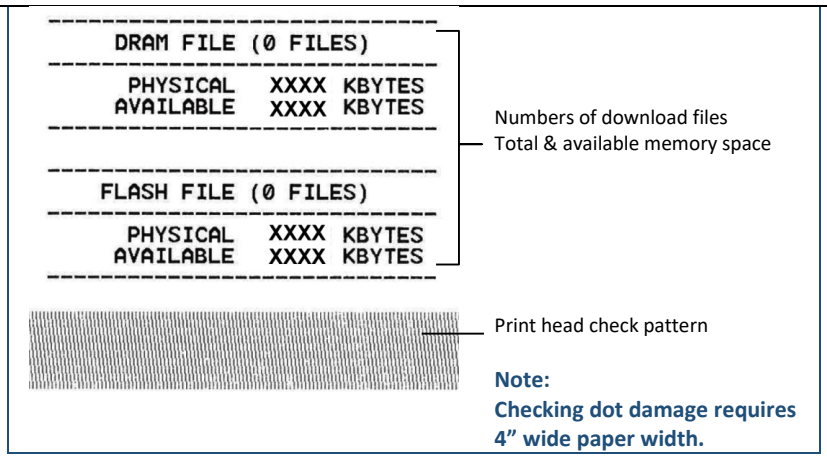
Model name
F/W version
Firmware checksum
Printer S/N
Configuration file
System date
System time
Printed mileage (meter)
Cutting counter

Print speed (inch/sec)
Print darkness
Label size (inch)
Gap distance (inch)
Gap/black mark sensor intension
Code page
Country code

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

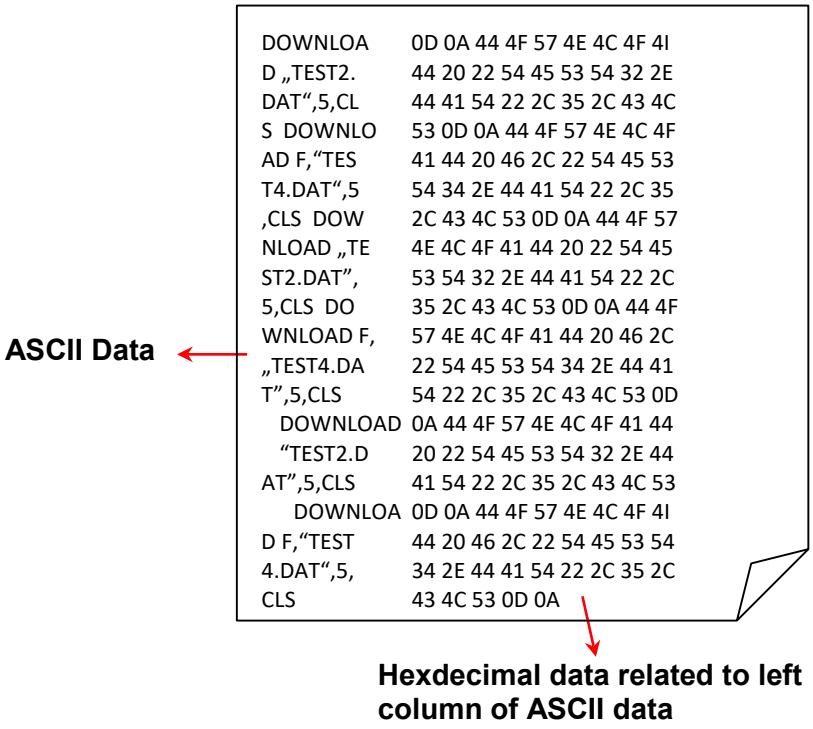
Note: ZPL is emulating for Zebra® language.

RS232 serial port configuration



Dump Mode

Captures the data from the communications port and prints out the data received by printer. In the dump mode, all characters will be printed in 2 columns. 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.



Note:
Dump mode requires 4" wide paper width.

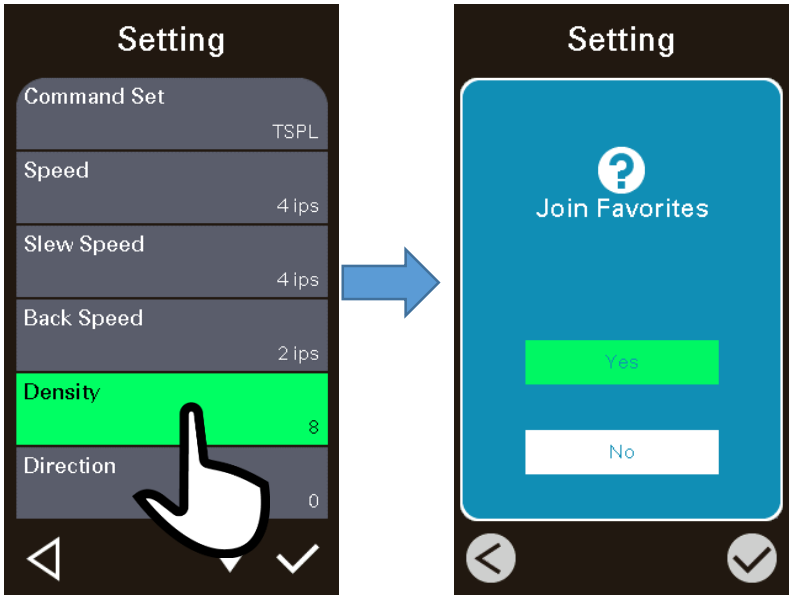
Print Head	This feature is used to check print head's temperature and bad dots.
Display	This feature is used to check LCD's color state.
Sensor	This feature is used to check sensors intensity and reading state.

5.9 How to Organize the “Favorites”

This “Favorites” feature can create customized menu. You can organize the commonly used setting options to the Favorites.

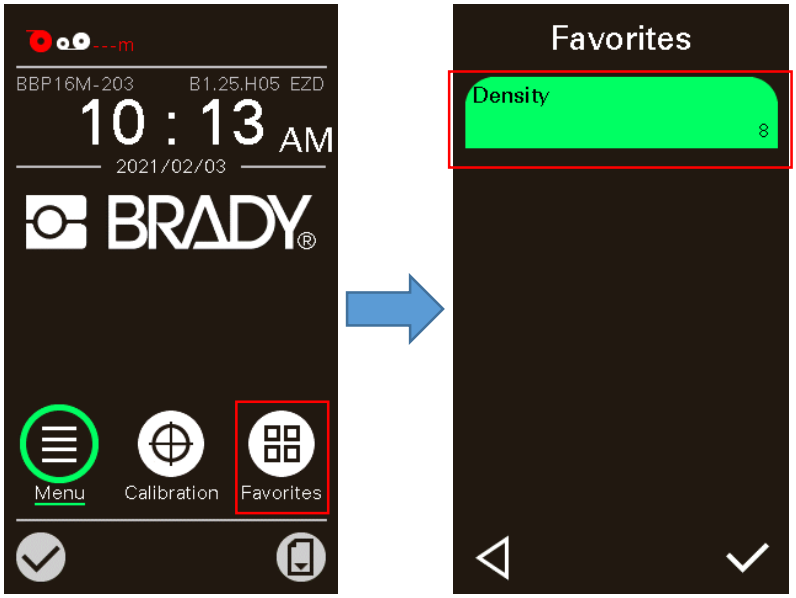
Please follow the steps below to organize,

1. Select the menu option that will be added in “Favorites”. (be selected in green)
2. Tap and hold the option that on touch panel, unit “Join Favorites” setting screen pop up.

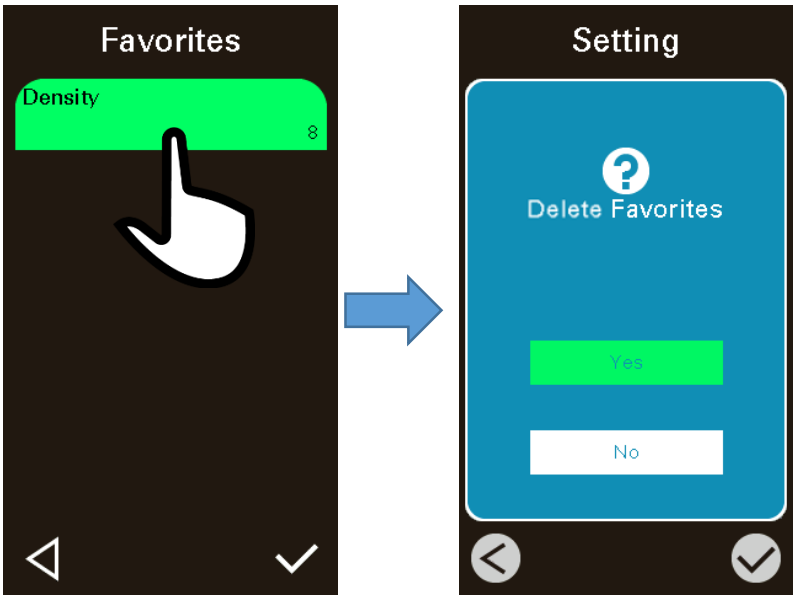


3. Select “Yes” to join this “Density” option to “Favorites”.

4. Tap  icon to enter the “Favorites” menu to check if it be added into the “Favorites”.



Note:
Tap and hold the on the option of favorite, unit “Delete Favorites” setting screen pop up. Select “Yes” to delete this setting option item on “Favorites”.

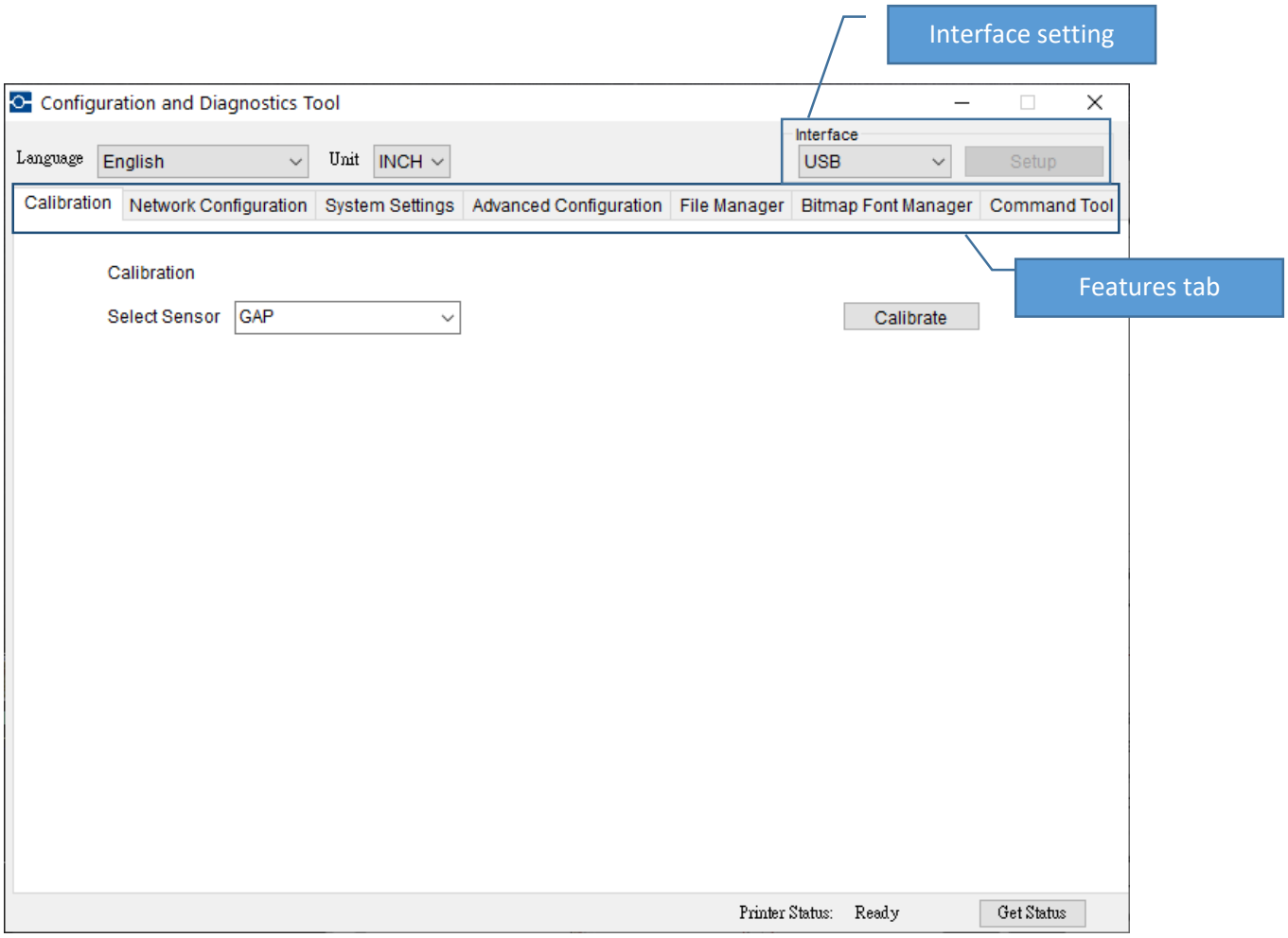


6. Diagnostic Tool

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 setting in an instant, which makes it much easier to troubleshoot problems and other issues.

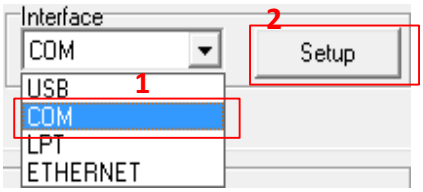
6.1 Start the Diagnostic Tool

1. Double click on the Diagnostic tool icon to start the software.
2. There are seven features (Calibration, Network Configuration, System Settings, Advanced Configuration, File Manager, Bitmap Font Manager and Command Tool) included in the Diagnostic utility.



6.2 Printer Function

1. Connect the printer and computer with a cable.
2. Select the PC interface connected with bar code printer.

USB cable	Other cable
 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.	

3. Click the “Printer Function” button to setup.
4. The detail functions in the Printer Function Group are listed as below.

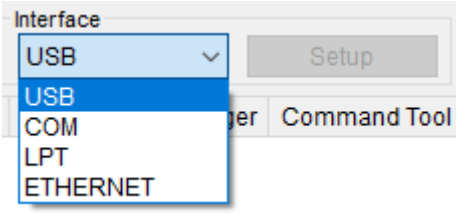
Function	Description
Calibrate Sensor	Calibrate the sensor specified in the Printer Setup group media sensor field
Ethernet Setup	Setup the IP address, subnet mask, gateway for the on board Ethernet
RTC Setup	Synchronize printer Real Time Clock with PC
Factory Default	Initialize the printer and restore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

6.3 Setting Ethernet by Diagnostic Tool

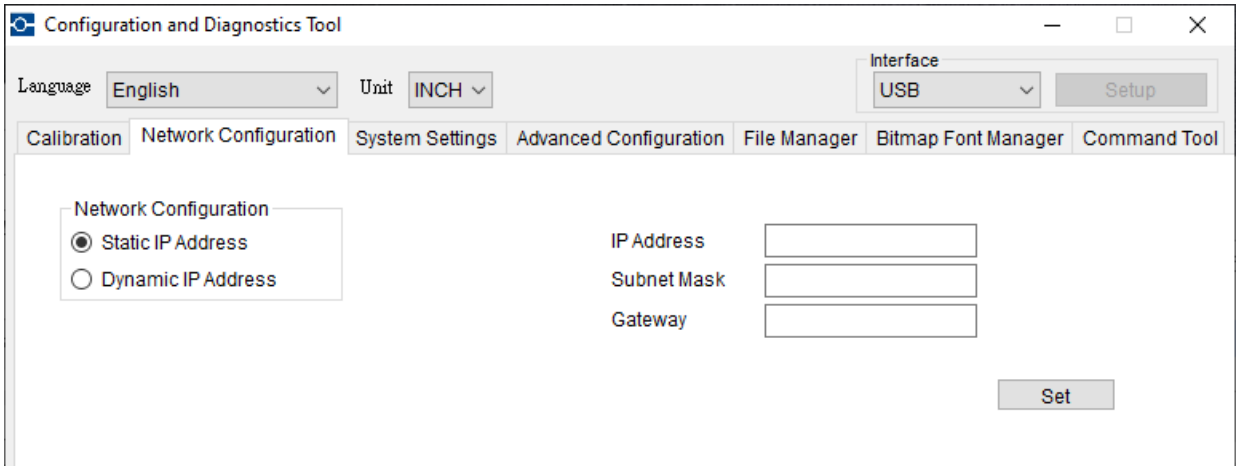
The Diagnostic Utility is enclosed in the CD disk \Utilities directory. Users can use Diagnostic Tool to setup the Ethernet by RS-232, USB and Ethernet interfaces. The following contents will instruct users how to configure the Ethernet by these three interfaces.

6.3.1 Using USB interface to setup Ethernet interface

1. Connect the printer and computer with USB cable.
2. Turn on the printer power switch.
3. Start the Diagnostic Utility by double clicking on the icon.
4. The Diagnostic Utility default interface setting is USB interface. If USB interface is connected with printer, no other settings need to be changed in the interface field.

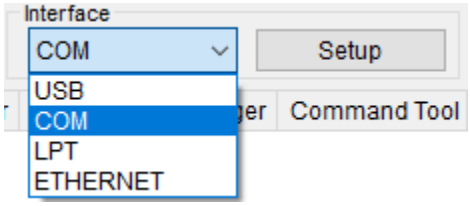


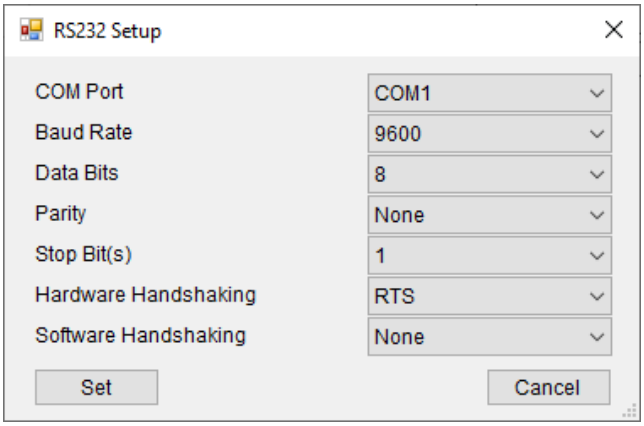
5. Click on the “Network Configuration” tab to setup the IP address, subnet mask and gateway for the on board Ethernet.



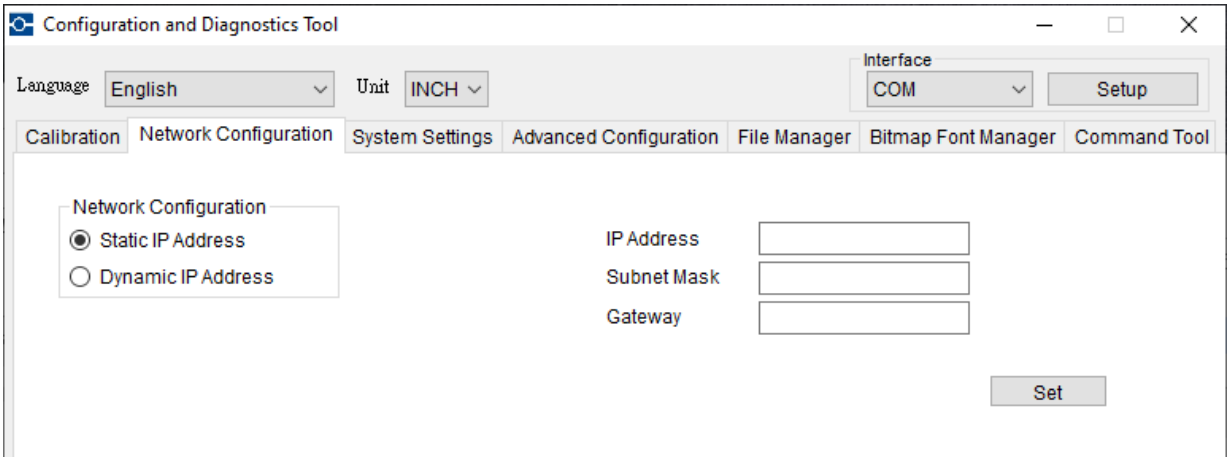
6.3.2 Using RS-232 interface to setup Ethernet interface

1. Connect the computer and the printer with a RS-232 cable.
2. Turn on the printer power.
3. Start the Diagnostic Utility by double clicks on the icon.
4. Select “COM” as interface then click on the “Setup” button to setup the serial port baud rate, parity check, data bits, stop bit and flow control parameters.



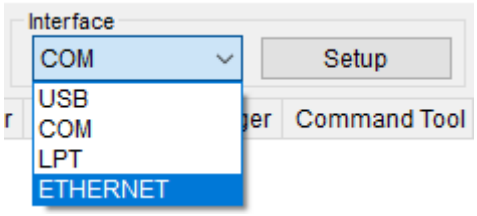


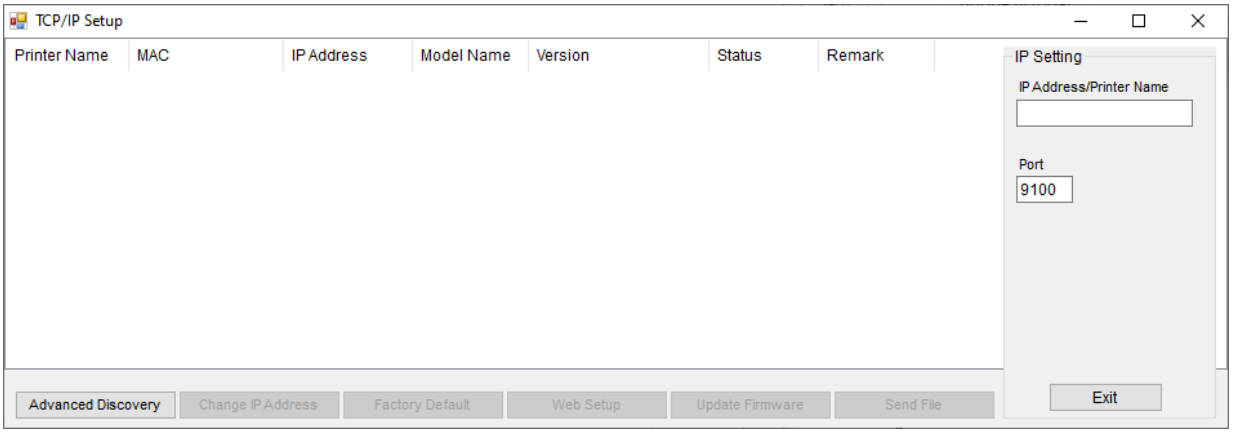
5. Click on the “Ethernet Setup” button from printer function of Printer Configuration tab to setup the IP address, subnet mask and the gateway for the on board Ethernet.



6.3.3 Using Ethernet interface to setup Ethernet interface

1. Connect the computer and the printer to the LAN.
2. Turn on the printer power.
3. Start the Diagnostic Utility by double clicks on the icon.
4. Select “Ethernet” as the interface then click on the “Setup” button to setup the IP address, subnet mask and gateway for the on board Ethernet.





5. Click the “Advanced Discovery” button to explore the printers that exist on the network.
6. Select the printer in the left side of listed printers, the correspondent IP address will be shown in the right side “IP address/Printer Name” field.
7. Click “Change IP Address” to configure the IP address obtained by DHCP or static.
   The default IP address is obtained by DHCP. To change the setting to static IP address, click “Static IP” radio button then enter the IP address, subnet mask and gateway. Click “Set IP” to take effect the settings.
   Users can also change the “Printer Name” by another model name in this fields then click “Set Printer Name” to take effect this change.

   Note:
   After clicking the “Set Printer Name” or “Set IP” button, printer will reset to take effect the settings.

8. Click “Exit” button to exit the Ethernet interface setup and go back to Diagnostic Tool main screen.
   Factory Default button
   This function will reset the IP, subnet mask, gateway parameters obtained by DHCP and reset the printer name.
   Web setup button
   Except to use the Diagnostic Utility to setup the printer, you can also explore and configure the

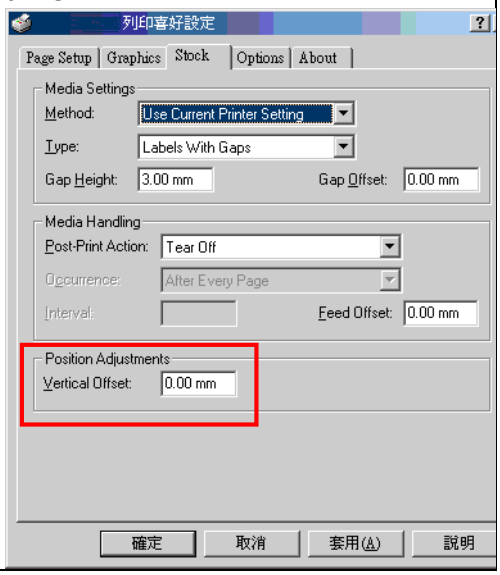
printer settings and status or update the firmware with the IE or Firefox web browser. This feature provides a user friendly setup interface and the capability to manage the printer remotely over a network.

7. Troubleshooting

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.	• Plug the power cord in printer and outlet. • Switch the printer on.
Carriage Open	• The printer carriages are open.	• Please close the print carriages.
Not Printing	• Check if interface cable is well connected to the interface connector. • Check if wireless or Bluetooth device is well connected between host and printer. • The port specified in the Windows driver is not correct.	• Re-connect cable to interface or chang a new cable. • Please reset the wireless device setting. • Select the correct printer port in the driver. • Clean the printhead. • Printhead'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.
No print on the label	• Label or ribbon is loaded not correctly. • Use wrong type paper or ribbon	• Follow the instructions in loading the media and ribbon. • Ribbon and media are not compatible. • Verify the ribbon-inked side. • The print density setting is incorrect.
No Ribbon	• Running out of ribbon. • The ribbon is installed incorrectly.	• Supply a new ribbon roll. • Please refer to the steps in user's manual to reinstall the ribbon.
No Paper	• 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 in user's manual to reinstall the label roll. • Calibrate the gap/black mark sensor.

Paper Jam	• 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 media sensor. • Set media size correctly. • Remove the stuck label inside the printer mechanism.
Can't downloading the file to memory (FLASH / DRAM/CARD)	• The space of memory is full.	• Delete unused files in the memory.
microSD card is unable to use	• microSD card is damaged. • microSD card doesn't insert correctly. • Use the non-approved SD card manufacturer.	• Use the supported capacity microSD card. • Insert the microSD card again.
Poor Print Quality	• Ribbon and media is loaded incorrectly • Dust or adhesive accumulation on the print head. • Print density is not set properly. • Printhead element is damaged. • Ribbon and media are incompatible. • The printhead pressure is not set properly.	• Reload the supply. • Clean the print head. • Clean the platen roller. • Adjust the print density and print speed. • 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. • Adjust the printhead pressure adjustment knob. • The release lever does not latch the printhead properly.
Missing printing on the left or right side of label	• Wrong label size setup.	• Set the correct label size.
Gray line on the blank label	• The print head is dirty. • The platen roller is dirty.	• Clean the print head. • Clean the platen roller. (Please refer to chapter 8)
Irregular printing	• The printer is in Hex Dump mode. • The RS-232 setting is incorrect.	• Turn off and on the printer to skip the dump mode. • Re-set the Rs-232 setting.
Skip labels when printing	• Label size is not specified properly. • Sensor sensitivity is not set properly. • The media sensor is	• Check if label size is setup correctly. • Calibrate the sensor by Auto Gap or Manual Gap options. • Clear the GAP/Black mark sensor

	covered with dust.	by blower.
Wrinkle Problem	• Printhead pressure is incorrect. • Ribbon installation is incorrect. • Media installation is incorrect. • Print density is incorrect. • Media feeding is incorrect.	• Please refer to the next chapter. • Please set the suitable density to have good print quality. • Make sure the label guide touch the edge of the media guide.
RTC time is incorrect when reboot the printer	• The battery has run down.	• Check if there is a battery on the main board.
The left side printout position is incorrect	• Wrong label size setup. • The parameter Shift X in LCD menu is incorrect.	• Set the correct label size. • Press [Menu] →[Setting] → [Shift X] to fine tune the parameter of Shift X.
The printing position of small label is incorrect	• Media sensor sensitivity is not set properly. • Label size is incorrect. • The parameter Shift Y in the LCD menu is incorrect. • The vertical offset setting in the driver is incorrect.	• Calibrate the sensor sensitivity again. • Set the correct label size and gap size. • Press [Menu] →[Setting] → [Shift Y] → to fine tune the parameter of Shift Y. • If using the software BarTender, please set the vertical offset in the driver. • 

8. Maintenance

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

- **For Cleaning**
  Depending on the media used, the printer may accumulate residues (media dust, adhesives, etc.) as a by-product of normal printing. To maintain the best printing quality, you should remove these residues by cleaning the printer periodically. Regularly clean the print head and supply sensors once change a new media to keep the printer at the optimized performance and extend printer life.

- **For Disinfecting**
  Sanitize your printer to protect yourself and others and can help prevent the spread of viruses.

- **Important**
  - Set the printer power switch to O (Off) prior to performing any cleaning or disinfecting tasks. Leave the power cord connected to keep the printer grounded and to reduce the risk of electrostatic damage.
  - Do not wear rings or other metallic objects while cleaning any interior area of the printer.
  - Use only the cleaning agents recommended in this document. Use of other agents may damage the printer and void its warranty.
  - Do not spray or drip liquid cleaning solutions directly into the printer. Apply the solution on a clean lint-free cloth and then apply the dampened cloth to the printer.
  - Do not use canned air in the interior of the printer as it can blow dust and debris onto sensors and other critical components.
  - Only use a vacuum cleaner with a nozzle and hose that are conductive and grounded to drain off static build up.
  - All reference in these procedures for use of isopropyl alcohol requires that a 99% or greater isopropyl alcohol content be used to reduce the risk of moisture corrosion to the printhead.
  - Do not touch printhead by hand. If you touch it careless, please use 99% Isopropyl alcohol to clean it.
  - Always taking personal precaution when using any cleaning agent.

- **Cleaning Tools**
  - Cotton swab
  - Lint-free cloth
  - Brush with soft non-metallic bristles
  - Vacuum cleaner
  - 75% Ethanol (for disinfecting)
  - 99% Isopropyl alcohol (for printhead and platen roller cleaning)
  - Genuine printhead cleaning pen
  - Mild detergent (without chlorine)

- **Cleaning Process**

Printer Part	Method	Interval
Print Head	1. Always turn off the printer before cleaning the printhead. 2. Allow the printhead to cool for a minimum of one minute. 3. Use a cotton swab and 99% Isopropyl Alcohol or genuine print head cleaning pen to clean the print head surface.	Clean the print head when changing a new label roll.
Platen Roller	1. Turn off the printer. 2. Rotate the platen roller and wipe it thoroughly with the lint-free 99% Isopropyl Alcohol.	Clean the platen roller when changing a new label roll
Peel Bar	Use the lint-free cloth with 99% Isopropyl Alcohol to wipe it.	As needed
Sensor	Use a brush with soft non-metallic bristles or a vacuum cleaner, described above, to remove paper dust. The upper and lower media sensors should be cleaned to ensure reliable Top of Form and Paper Out sensing.	Monthly
Exterior	Clean the exterior surfaces with a clean, lint-free cloth (water-dampened cloth). If necessary, use a mild detergent or desktop cleaning solution then use the 75% Ethanol to wipe it.	As needed
Interior	Clean the interior of the printer by removing any dirt and lint with a vacuum cleaner, as described above, or use a brush with soft non-metallic bristles then use the 75% Ethanol to wipe it.	As needed