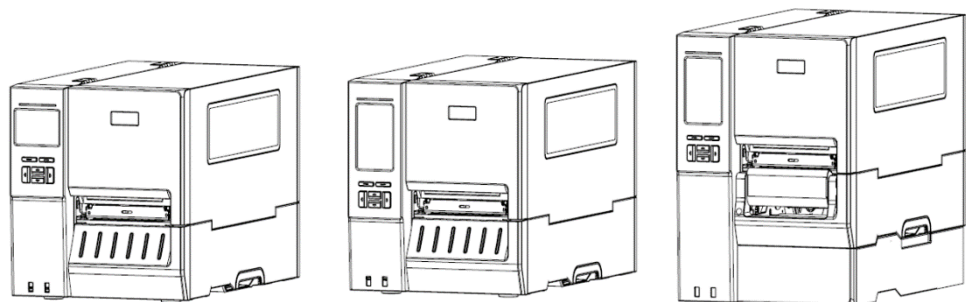


***MH241/MH341/MH641/
MH241T/MH341T/MH641T/
MH241P/MH341P/MH641P Series***

**THERMAL TRANSFER / DIRECT THERMAL
BAR CODE PRINTER**

**USER'S
MANUAL**



Copyright Information

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Agency Compliance and Approvals

EN 55032: Class A

EN 55024



EN 60950-1

EN 62368

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.

FCC part 15B, Class A

ICES-003, Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.



Operation is subject to the following two conditions: (1) This device may cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.



AS/NZS CISPR 32, Class A



UL 60950-1 (2nd Edition)

CSA C22.2 No. 60950-1-07 (2nd Edition)

UL 62368-1, 2nd Edition, 2014-12-01 (Audio/video, Information and Communication Technology Equipment - Part 1: Safety Requirements) CAN/CSA C22.2 No. 62368-1-14, 2nd Edition, 2014-12 (Audio/video, Information and Communication Technology Equipment - Part 1: Safety Requirements)



EN 62368-1:2014/A11:2017

KN 32



KN 35

K60950-1(2011-12)

이 기기는 업무용(A 급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

GB 4943.1



GB/T9254, 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。



Energy Star for Imaging Equipment Version 3.0



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.

provided by manufacture.



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

RF exposure warning (For Bluetooth)

The equipment complies with FCC RF exposure limits set forth for an uncontrolled environment.

The equipment must not be co-located or operating in conjunction with any other antenna or transmitter.

Canada, Industry Canada (IC) Notices

This Class B digital apparatus complies with Canadian ICES-003 and RSS-210.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Radio Frequency (RF) Exposure Information

The radiated output power of the Wireless Device is below the Industry Canada (IC) radio frequency exposure limits. The Wireless Device should be used in such a manner such that the potential for human contact during normal operation is minimized.

This device has been evaluated for and shown compliant with the IC Specific Absorption Rate ("SAR") limits when installed in specific host products operated in portable exposure conditions. **(For Wi-Fi)**

This device has also been evaluated and shown compliant with the IC RF Exposure limits under portable exposure conditions. (Antennas are less than 20 cm of a person's body). **(For Bluetooth)**

Canada, avis de l'Industry Canada (IC)

Cet appareil numérique de classe B est conforme aux normes canadiennes ICES-003 et RSS-210. Son fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas causer

d'interférence et (2) cet appareil doit accepter toute interférence, notamment les interférences qui peuvent affecter son fonctionnement.

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)

For MFi Bluetooth



Use of the Made for Apple badge means that an accessory has been designed to connect specifically to the Apple product(s) identified in the badge, and has been certified by the developer to meet Apple performance standards. Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards.

For US Model

Made for iPhone®XS Max, iPhone XS, iPhone XR, iPhone X, iPhone 8, iPhone 8 Plus, iPhone 7, iPhone 7 Plus, iPhone SE, iPhone 6s, iPhone 6s Plus, iPhone 6, iPhone 6 Plus, iPhone 5s, iPad Pro® 12.9-inch (2nd generation), iPad Pro 10.5-inch, iPad® (6th generation), iPad (5th generation), iPad Pro 9.7-inch, iPad Pro 12.9-inch (1st generation), iPad Air® 2, iPad mini™ 4, iPad mini 3, iPad Air, iPad mini 2, iPod touch® (6th generation)

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For JP Model

Made for iPhone XS Max, iPhone XS, iPhone XR, iPhone X, iPhone 8, iPhone 8 Plus, iPhone 7,

iPhone 7 Plus, iPhone SE, iPhone 6s, iPhone 6s Plus, iPhone 6, iPhone 6 Plus, iPhone 5s, iPad Pro 12.9-inch (2nd generation), iPad Pro 10.5-inch, iPad (6th generation), iPad (5th generation), iPad Pro 9.7-inch, iPad Pro 12.9-inch (1st generation), iPad Air 2, iPad mini 4, iPad mini 3, iPad Air, iPad mini 2, iPod touch (6th generation)

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Except for US, JP Model

Made for iPhone XS Max, iPhone XS, iPhone XR, iPhone X, iPhone 8, iPhone 8 Plus, iPhone 7, iPhone 7 Plus, iPhone SE, iPhone 6s, iPhone 6s Plus, iPhone 6, iPhone 6 Plus, iPhone 5s, iPad Pro 12.9-inch (2nd generation), iPad Pro 10.5-inch, iPad (6th generation), iPad (5th generation), iPad Pro 9.7-inch, iPad Pro 12.9-inch (1st generation), iPad Air 2, iPad mini 4, iPad mini 3, iPad Air, iPad mini 2, iPod touch (6th generation)

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1. Introduction

1.1 Product Introduction

Thank you very much for purchasing TSC bar code printer.

The new high-performance MH241 Series 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.

There have MH241, MH241T, and MH241P Series with nine models available. The MH241/MH241T/MH241P prints at 203 dpi series are at speeds up to an amazing 14 inches per second, MH340/MH340T/MH340P offers higher 300 dpi resolution at speeds up to 12 inches per second, and the MH640/MH640T/MH640P series features 600 dpi high resolution which makes it ideal for printing very small 2D barcodes, graphics, fine print and other ultra-high-resolution images.

The MH241 Series printers are loaded with standard features including a color touch display with brand-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, RS-232 interface, two USB hosts for keyboard and scanner connections, USB 2.0 and serial interfaces. Parallel, GPIO ports, and internal Bluetooth module are available as an option.

This document provides an easy reference for operating the MH241 series. 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 TSC website at <http://www.tscprinters.com>.

- 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

	STANDARD			Advanced			PREMIUM		
Model	MH241	MH341	MH641	MH241T	MH341T	MH641T	MH241P	MH341P	MH641P
Resolution	8 dots/mm (203 DPI)	12 dots/mm (300 DPI)	24 dots/mm (600 DPI)	8 dots/mm (203 DPI)	12 dots/mm (300 DPI)	24 dots/mm (600 DPI)	8 dots/mm (203 DPI)	12 dots/mm (300 DPI)	24 dots/mm (600 DPI)
Printing method	Thermal transfer and direct thermal								
Max. print speed	356 mm (14")/second	305 mm (12")/second	152 mm (6")/second	356 mm (14")/second	305 mm (12")/second	152 mm (6")/second	356 mm (14")/second	305 mm (12")/second	152 mm (6")/second
Max. print width	104 mm(4.09")								
Max. print length	25,400 mm (1000")	11,430 mm (450")	2540 mm (100")	25,400 mm (1000")	11,430 mm (450")	2540 mm (100")	25,400 mm (1000")	11,430 mm (450")	2540 mm (100")
Enclosure	Die-cast print mechanism and base with bi-fold metal cover with large clear media view window								
Physical dimension	276 mm (W) x 326 mm (H) x 502 mm (D) 10.87" (W) x 12.83" (H) x 19.76" (D)						276 mm (W) x 412 mm (H) x 502 mm (D) 10.87" (W) x 16.22" (H) x 19.76" (D)		
Weight	15.35kg (33.84 lbs)			15.43 kg (34.02 lbs)			18.93kg (41.73 lbs)		
Label roll capacity	203.2 mm (8") O.D.								
Internal rewinder (full roll)	Internal rewinding kit (5" O.D.) (dealer option)						Standard (8" O.D.) (With 3" Rewinder I.D)		
Ribbon	600 m long, max. O.D. 90 mm, 1" core (ink coated outside or inside)								
Ribbon width	25.4 mm ~ 114.3 mm (1" ~ 4.5")								
Processor	32-bit RISC CPU								
Memory	<ul style="list-style-type: none"> ■ 512MB Flash memory ■ 256MB DDR2 ■ microSD Flash memory card reader for Flash memory expansion, up to 32 GB 								
TPH feature	<ul style="list-style-type: none"> ■ Support TSC TPH Care and TPH odometer 								
Interface	<ul style="list-style-type: none"> ■ RS-232 ■ USB 2.0 (High speed mode) ■ Internal Ethernet, 10/100 Mbps ■ USB host *2 (Front side), for scanner or PC keyboard ■ GPIO (DB15F) + Centronics (factory option) ■ Internal Bluetooth 5.0 MFi (factory option) ■ Slot-in 802.11 1/b/g/n/ac Wi-Fi + BT combo module kit (dealer option) 								

Power	Internal switching power supply		
	<ul style="list-style-type: none"> ■ 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	<ul style="list-style-type: none"> ■ 6 operation buttons (menu, feed/pause, up, down, left, right) ■ 1 LED (with 2 LEDs Green & Red) 	<ul style="list-style-type: none"> ■ Multi-language selectable ■ 6 operation buttons (menu, select, up, down, left/pause, right/feed) ■ 1 LED (with 2 LEDs Green & Red) 	
LCD	<ul style="list-style-type: none"> ■ 3.5" color display, 320 x 240 pixel 	<ul style="list-style-type: none"> ■ 4.3" color display, 480 x 272 pixel; Resistive touch screen 	
Sensors	<ul style="list-style-type: none"> ■ Gap transmissive sensor (position adjustable) ■ Black mark reflective sensor (Bottom or Top black mark sensor switchable and position adjustable) ■ Head open sensor ■ Ribbon encoder sensor ■ Ribbon end sensor 	<ul style="list-style-type: none"> ■ Gap transmissive sensor (position adjustable) ■ Black mark reflective sensor (Bottom or Top black mark sensor switchable and position adjustable) ■ Head open sensor ■ Ribbon encoder sensor ■ Ribbon end sensor ■ Media near end sensor 	
Real time clock	<ul style="list-style-type: none"> ■ Standard 		
Internal font	<ul style="list-style-type: none"> ■ 8 alpha-numeric bitmap fonts ■ One Monotype Imaging® CG Triumvirate Bold Condensed scalable font ■ Built-in Monotype True Type Font engine 		
Bar code	1D bar code		
	Code 39, Code 93, Code128UCC, Code128 subsets A.B.C, Codabar, Interleave 2 of 5, EAN-8, EAN-13, EAN-128, UPC-A, UPC-E, EAN and UPC 2(5) digits add-on, MSI, PLESSEY, POSTNET, RSS-Stacked, GS1 DataBar, Code 11, China Post		
	2D bar code		
	PDF-417, Maxicode, DataMatrix, QR code, Aztec		
Font & bar code rotation	0, 90, 180, 270 degree		
Print language	TSPL-EZD (Compatible to EPL, ZPL, ZPL II, DPL)		
Media type	Continuous, die-cut, black mark (Bottom side or top side black mark), fan-fold, notch, perforated, tag, care label (outside wound)		
Media width	20 ~ 114 mm (0.79" ~ 4.5")		
Media thickness	0.06 ~ 0.28 mm (2.36 ~ 11 mil)		
Media core diameter	3.81mm/76.2mm (1.5"/ 3")		
Label length	5 ~ 25,400 mm (0.20" ~ 1,000")	5 ~ 11,430 mm (0.20" ~ 450")	5 ~ 2,540 mm (0.20" ~ 100")
Environment condition	<p>Operation: 0 ~ 40°C (32 ~ 104°F), 25~85% non-condensing</p> <p>Storage: -40 ~ 60 °C (-40 ~ 140°F), 10~90% non-condensing</p>		
Safety regulation	FCC Class A, CE Class A, RCM Class A, UL, cUL, TÜV/safety, CCC, KC, BIS, ENERGY STAR®		

Environmental concern	Comply with RoHS, WEEE	
Accessories	<ul style="list-style-type: none"> ● Windows labeling software CD disk ● Quick start guide ● USB port cable ● Power cord 	
RTC & Buzzer	Standard	
Factory option	<ul style="list-style-type: none"> ● GPIO (DB15F)+ Parallel interface ● Internal Bluetooth 5.0 MFi * 	
Dealer option	<ul style="list-style-type: none"> ■ Regular cutter kit(full cut guillotine cutter) ■ Heavy duty cutter kit(full cut guillotine cutter) ■ Care label cutter kit ■ High speed care label cutter kit ■ Rotary heavy duty cutter kit ■ 1" I.D. core media spindle kit ■ 802.11 a/b/g/n/ac Wi-Fi + BT combo module kit (including slot-in housing) ■ Peel-off kit ■ Internal rewinding kit (5" O.D.) (With 1" rewinder I.D) 	<ul style="list-style-type: none"> ■ 802.11 a/b/g/n/ac Wi-Fi + BT combo module kit
User option	<ul style="list-style-type: none"> ■ 802.11 a/b/g/n/ac Wi-Fi + BT combo module ■ Cutter catch tray (Basic) ■ Cutter catch tray UCT-Basic (Universal cutter catch tray-Basic) ■ Cutter catch tray UCT (Universal cutter catch tray) ■ KP-200 Plus keyboard display unit 	

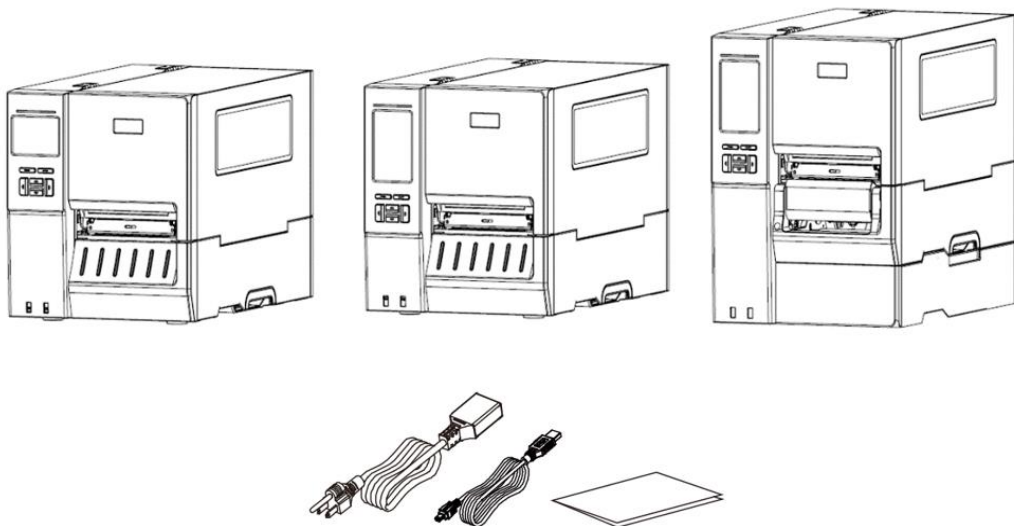
2. Operations Overview

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 (MH241, MH241T, or MH241P Series)
- 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

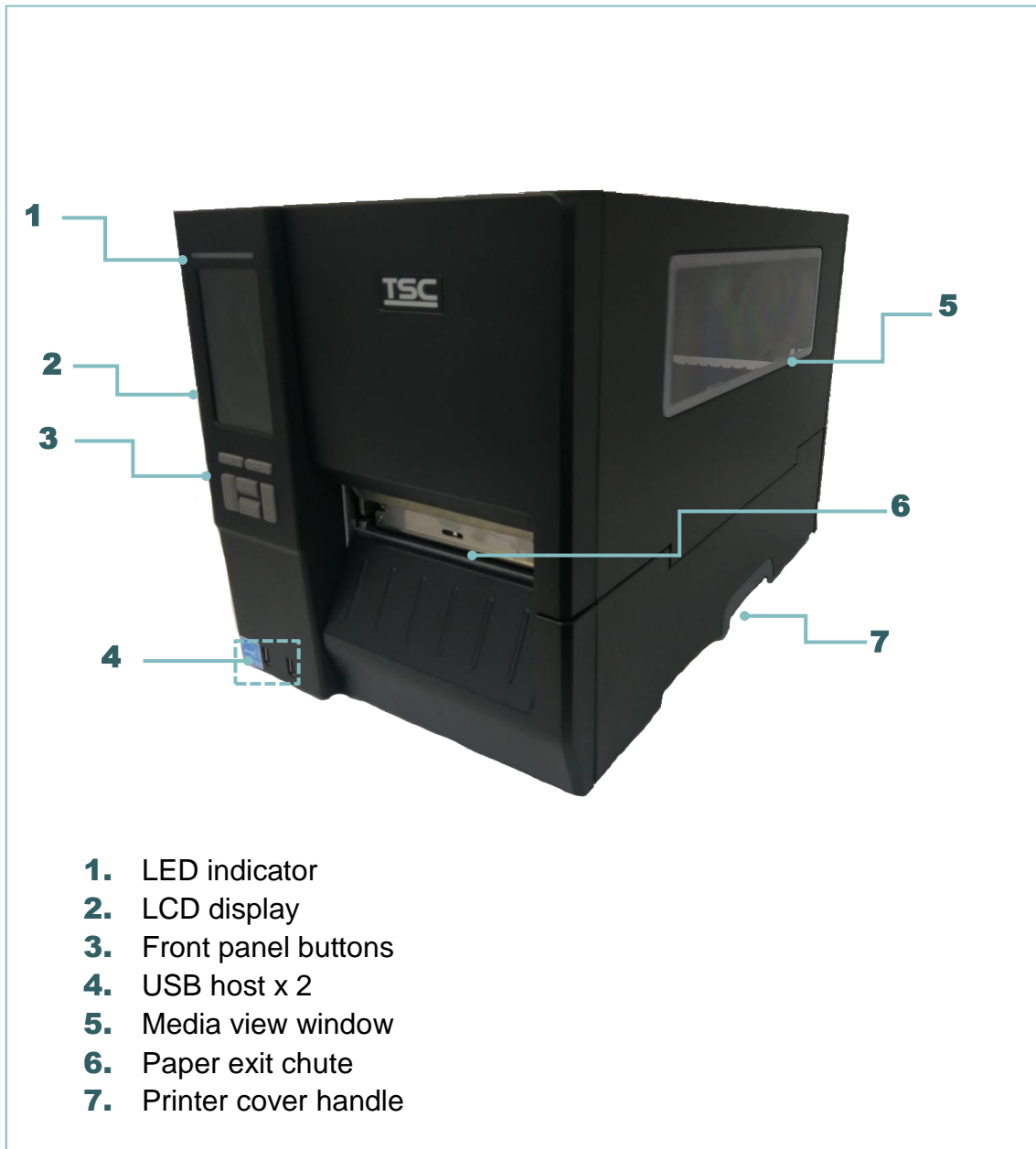
Год

Неделю

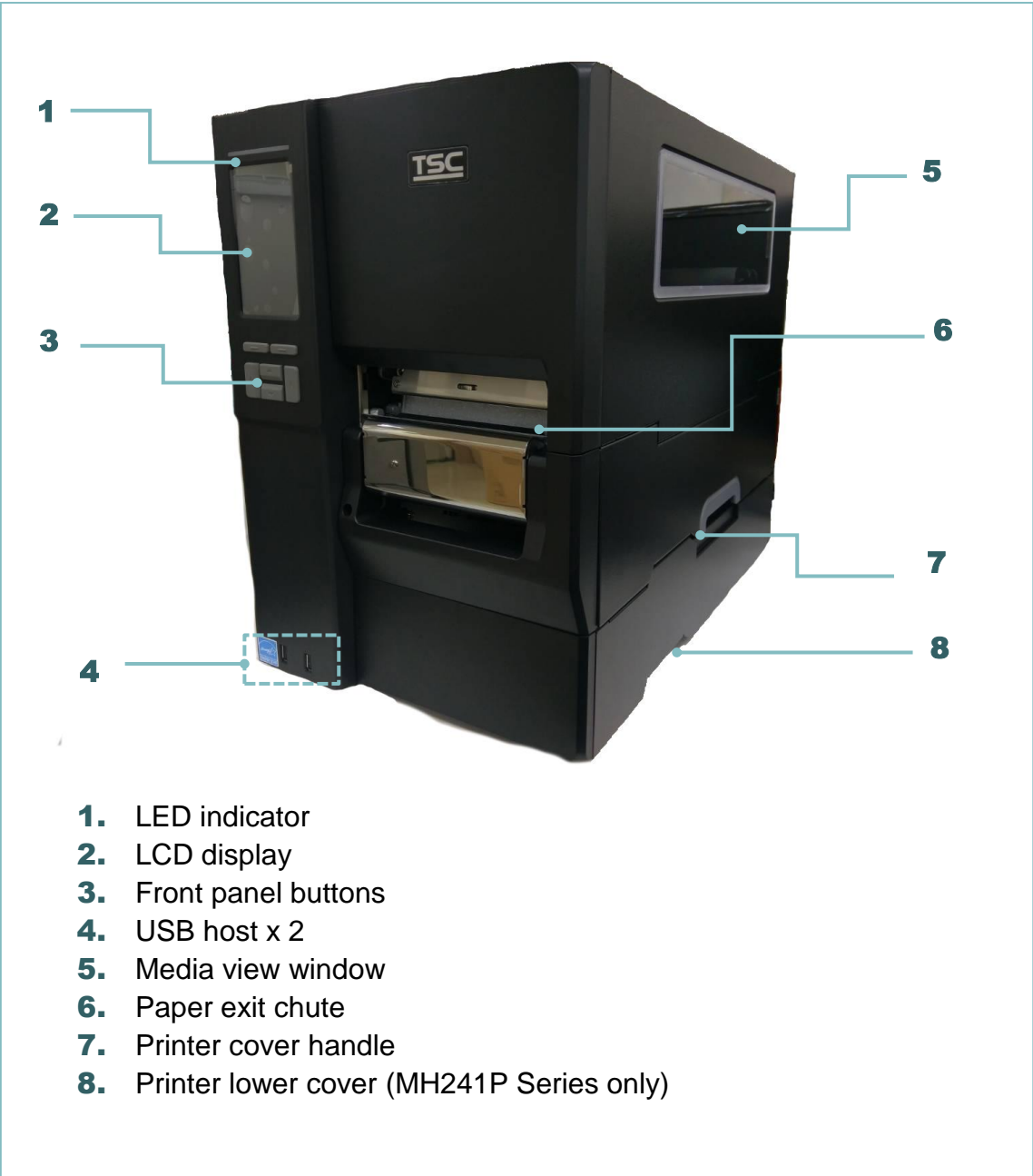
2.2 Printer Overview

2.2.1 Front View

For MH241 Series

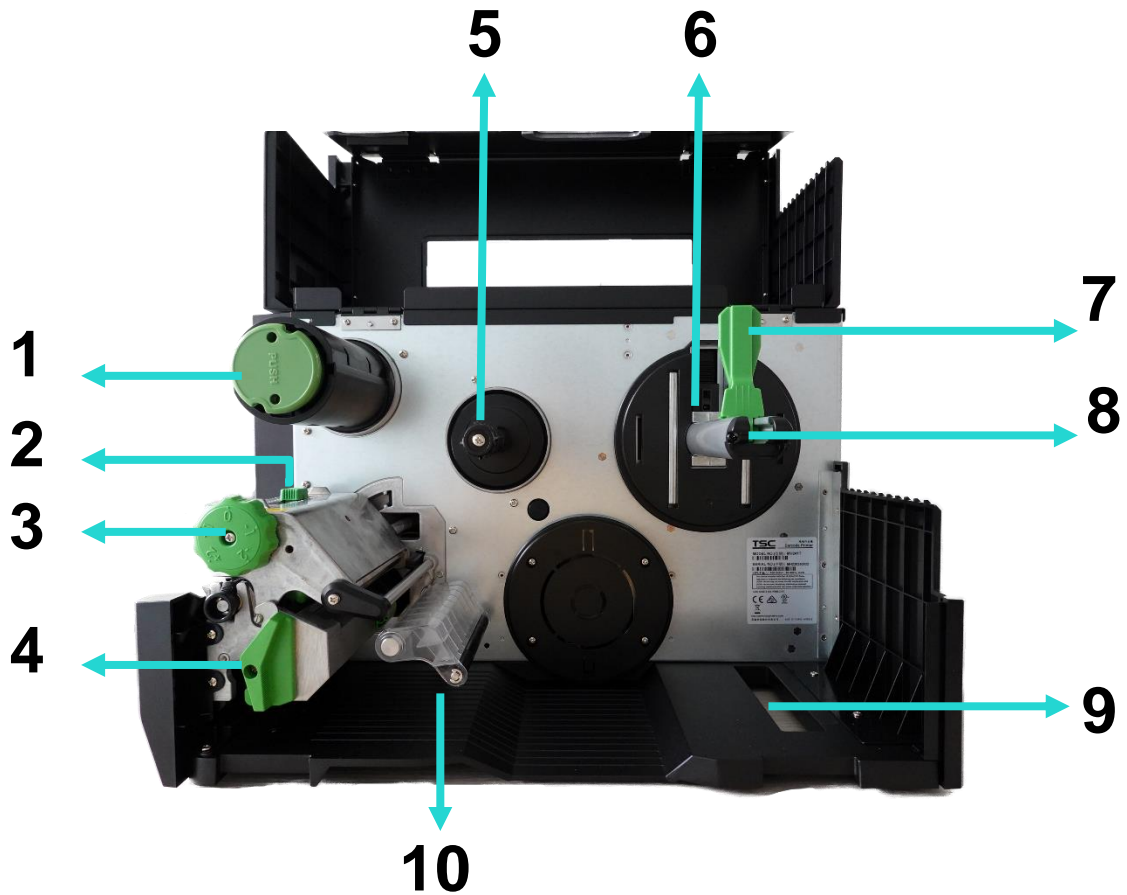


For MH241P Series

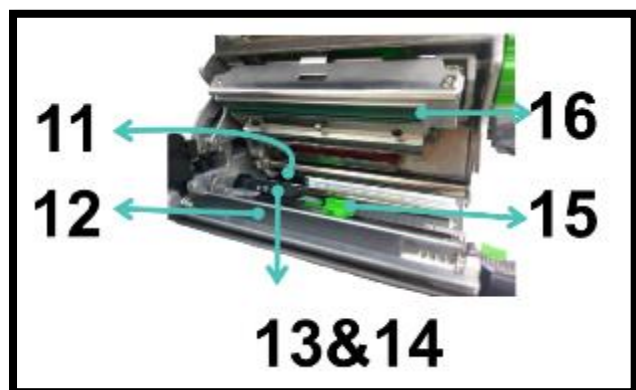


2.2.2 Interior view

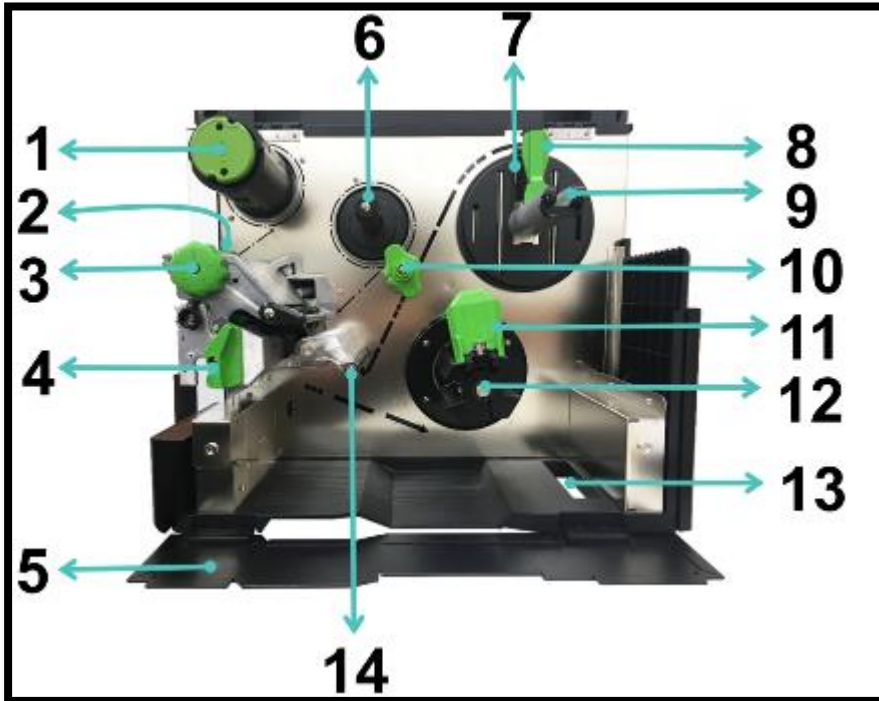
For MH241 & MH241T Series



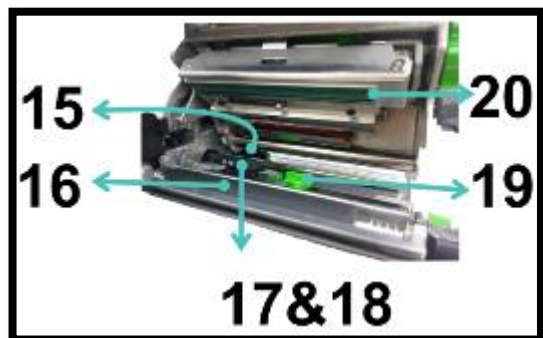
1. Ribbon rewind spindle
2. Print head pressure position adjustment knob
3. Print head pressure adjustment knob
4. Print head release lever
5. Ribbon supply spindle
6. Media near end sensor (movable, MH241T Series only)
7. Label roll guard
8. Label supply spindle
9. External label entrance chute
10. 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



For MH241P Series



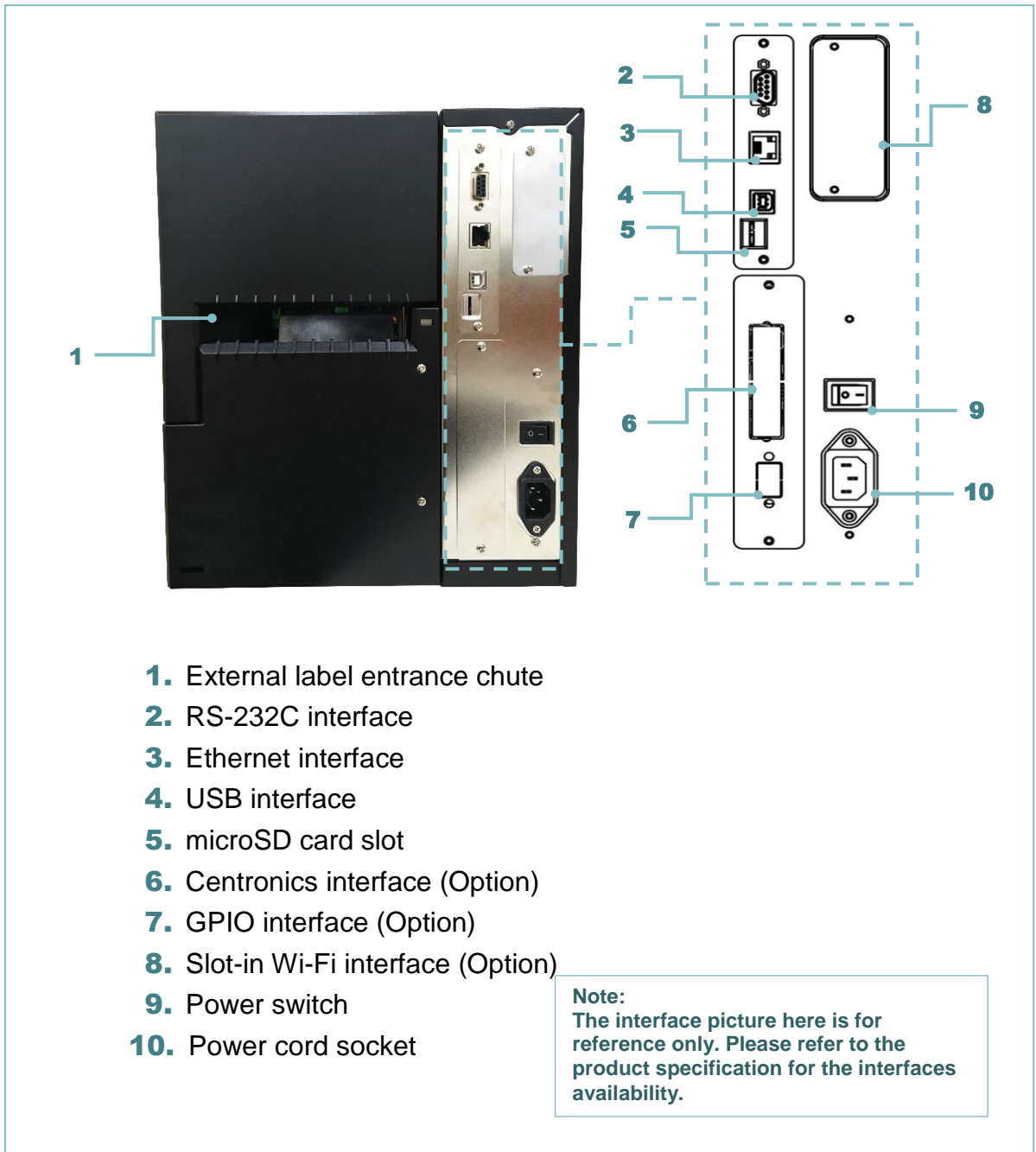
1. Ribbon rewind spindle
2. Print head pressure position adjustment knob
3. Print head pressure adjustment knob
4. Print head release lever
5. Printer lower cover
6. Ribbon supply spindle
7. Media near end sensor (movable, MH241T/MH241P Series only)
8. Label roll guard
9. Label supply spindle
10. Media guide bar & rear label guide
11. Media rewind guide
12. Media rewind spindle
13. External label entrance chute
14. Damper
15. Ribbon sensor
16. Platen roller
17. Black mark sensor (shown as ↓)
18. Gap sensor (shown as ▽)
19. Label guide
20. Print head





2.2.3 Rear View

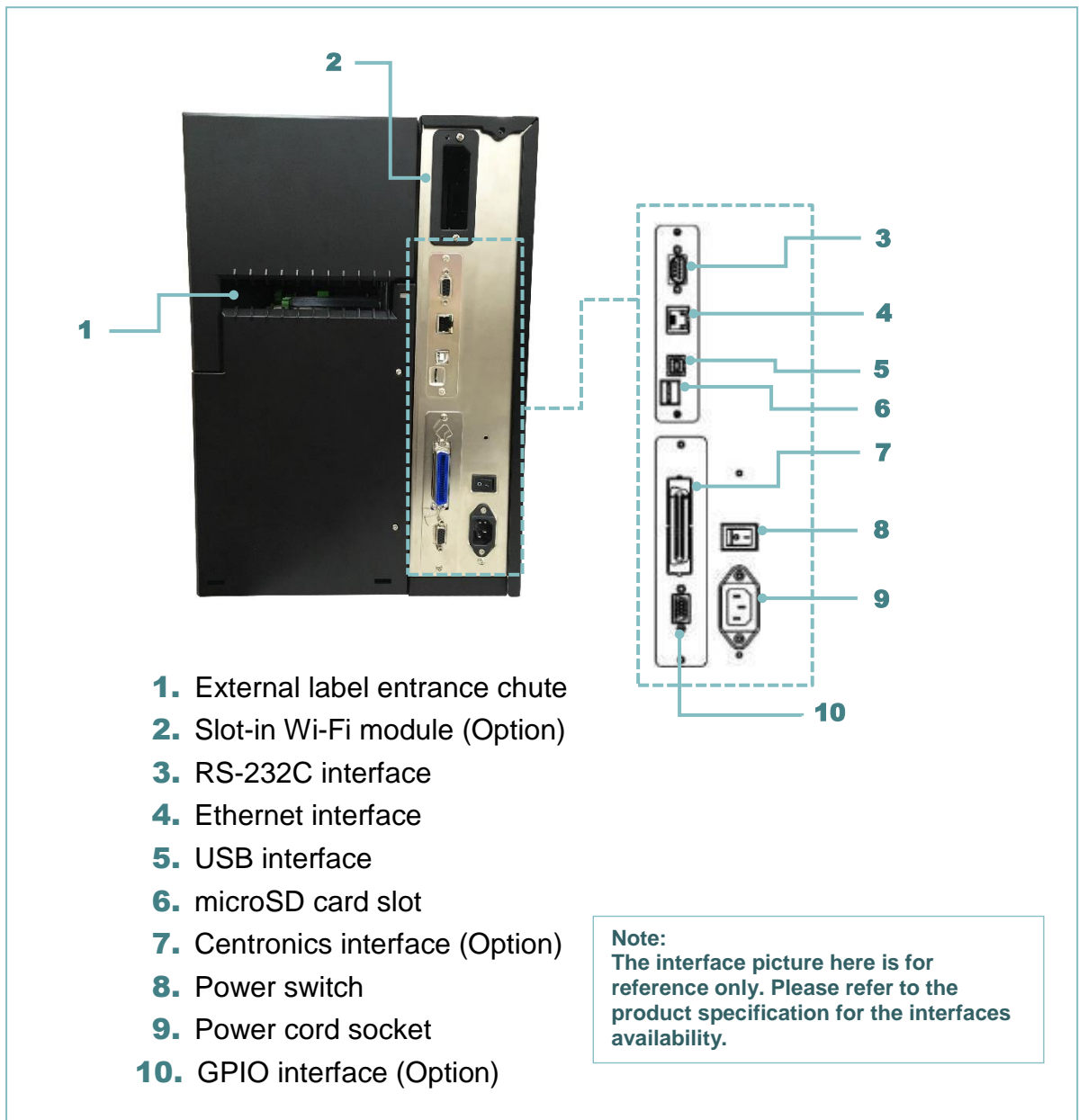
For MH241 & MH241T Series



- 1. External label entrance chute
- 2. RS-232C interface
- 3. Ethernet interface
- 4. USB interface
- 5. microSD card slot
- 6. Centronics interface (Option)
- 7. GPIO interface (Option)
- 8. Slot-in Wi-Fi interface (Option)
- 9. Power switch
- 10. Power cord socket

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

For MH241P Series



- 1. External label entrance chute
- 2. Slot-in Wi-Fi module (Option)
- 3. RS-232C interface
- 4. Ethernet interface
- 5. USB interface
- 6. microSD card slot
- 7. Centronics interface (Option)
- 8. Power switch
- 9. Power cord socket
- 10. GPIO interface (Option)

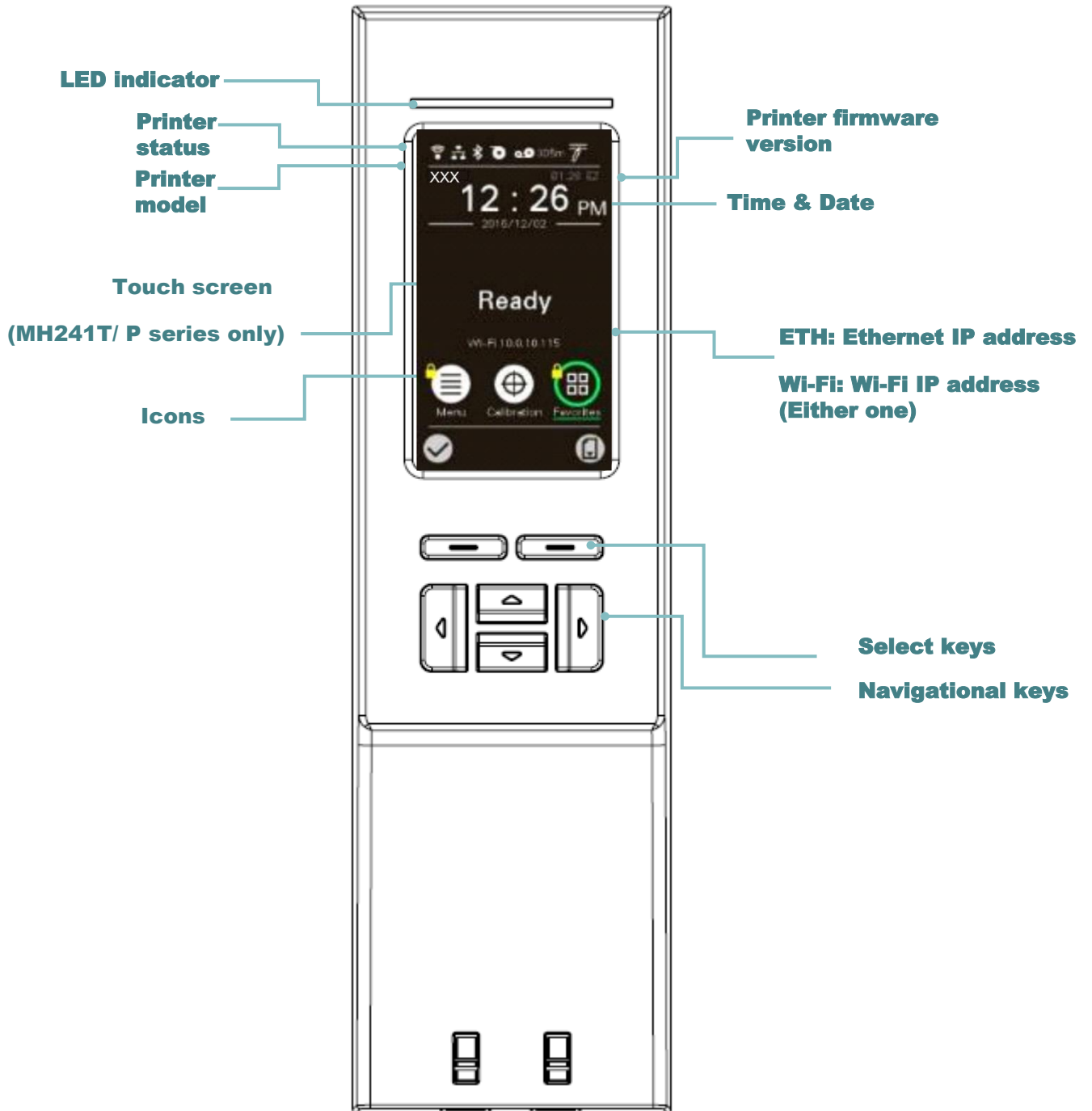
Note:
The interface picture here is for reference only. Please refer to the product specification for the interfaces availability.

* Recommended microSD card specification.



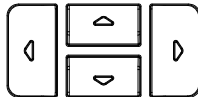
Type	microSD card spec	microSD card capacity	Approved microSD card manufacturer
microSD	V2.0 Class 4	4G	Transcend
	V2.0 Class 4	8G	Transcend
	V3.0 Class 10 UHS-I	16G	Transcend
	V3.0 Class 10 UHS-I	32G	Transcend
	V3.0 Class 10	16G	Kingston
	V2.0 Class 4	16G	Scandisk
	V3.0 Class 10 UHS-I	16G	Scandisk

- 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 LCD Monitor Operation (241T series for example)



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
	Wi-Fi device is ready (option)
	Ethernet is connected
	Bluetooth device is ready (option)
	Media capacity (%)
	Ribbon capacity (m)
	TPH cleaning
	Security lock
Icon button	Function
	Enter the menu
	Calibrate the media sensor
	Enter the “Favorites” option (please refer to section 6.9 (MH241 Series) & 7.9 (MH241T/MH241P Series))
	Enter cursor (be marked in green) located option
	Feed button (advance one label)

2.3.3 Power-on Utilities

MH241/ 241T/ 241P 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:

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

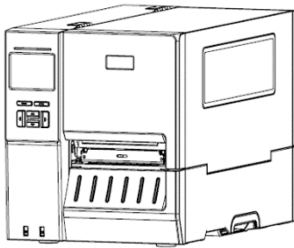
3. Setup

3.1 Setting up the printer

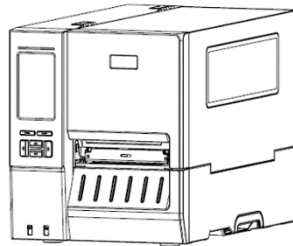
1. Place the printer on a flat, secure surface.
2. Make sure the power switch is off.
3. Connect the printer to the computer with the provided USB cable.
4. Plug the power cord into the AC power cord socket at the rear of the printer, and then plug the power cord into a properly grounded power outlet.

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

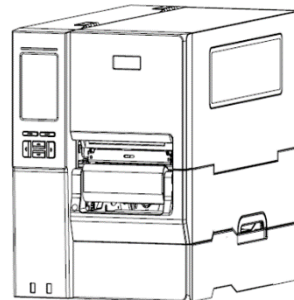
MH241 Series



MH241T Series



MH241P Series



3.2 Loading the Ribbon



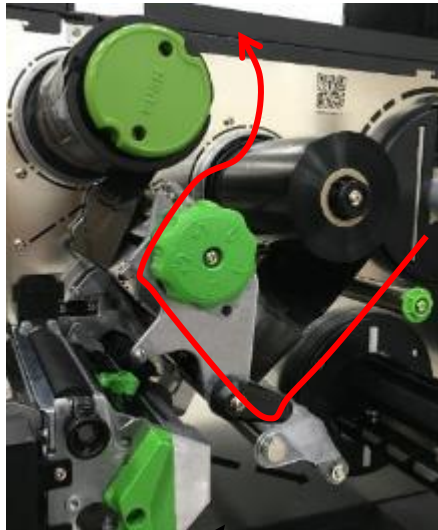
1. Open the printer right side cover.



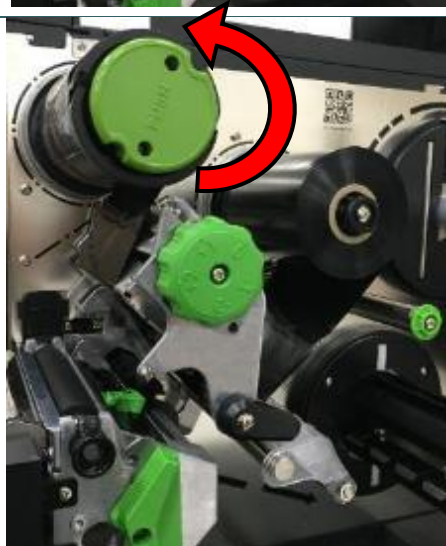
2. Install the ribbon onto ribbon supply spindle.



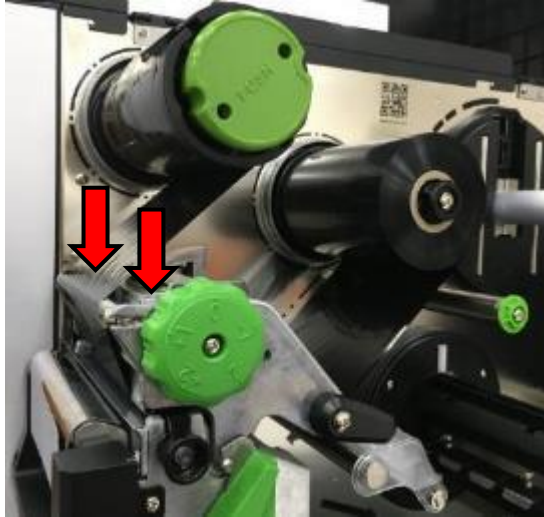
3. Push the Print head release lever to open print head mechanism.



4. Thread ribbon below the ribbon guide bar through ribbon sensor slot and as the loading path printed on the printer.



5. Wind the ribbon rewind spindle counterclockwise roughly 3-5 circles until the ribbon is smooth, properly stretched and wrinkle-free.

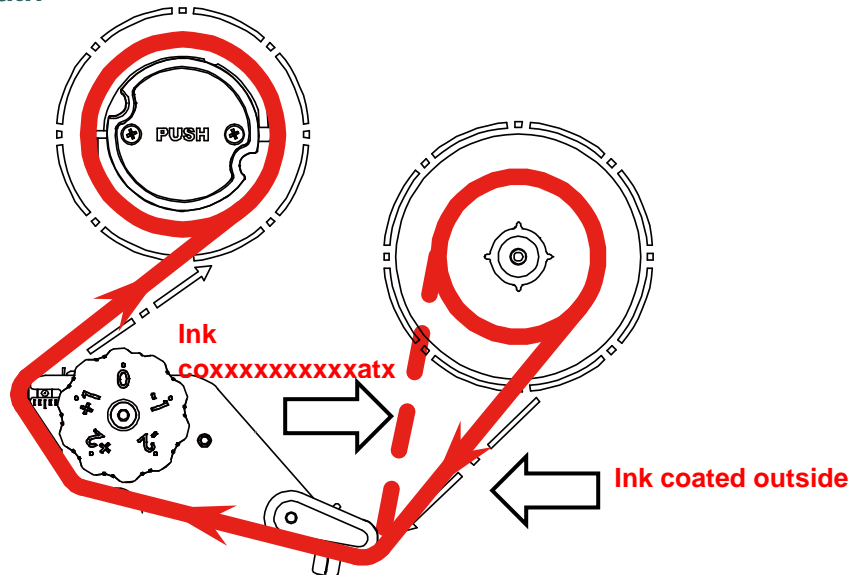


6. Close the print head mechanism by pushing down the both sides of the print head release lever.

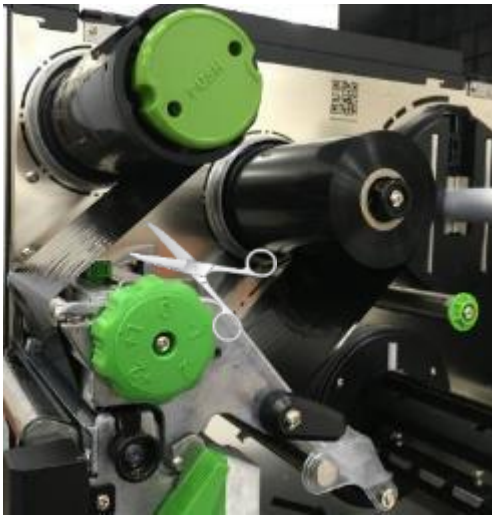
Note:

* Please refer to video on [TSC YouTube](#).

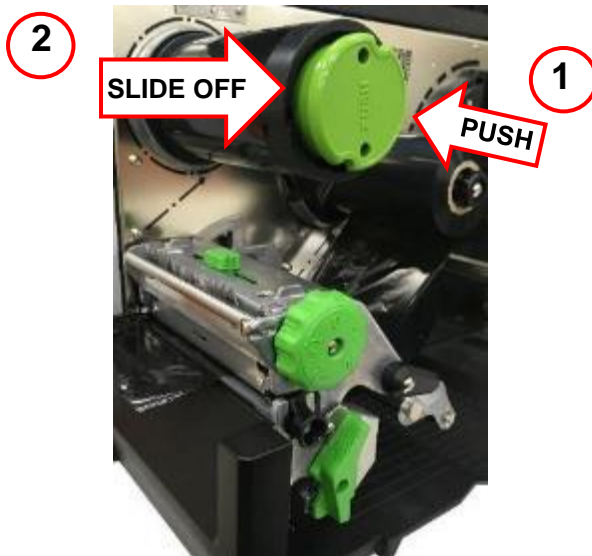
Ribbon loading path



3.3 Remove Used Ribbon



1. Break the ribbon between ribbon guide plate and the ribbon rewind spindle.



2. 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

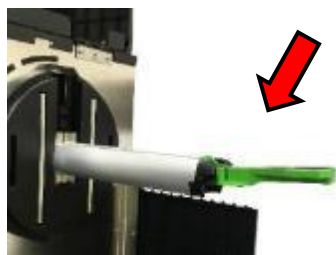
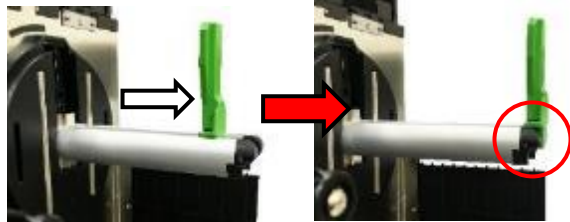
3.4.1 Loading the Media

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. For 1" spindle model, it supports the media with 1" core.

For 1.5" spindle model



For 1" spindle model

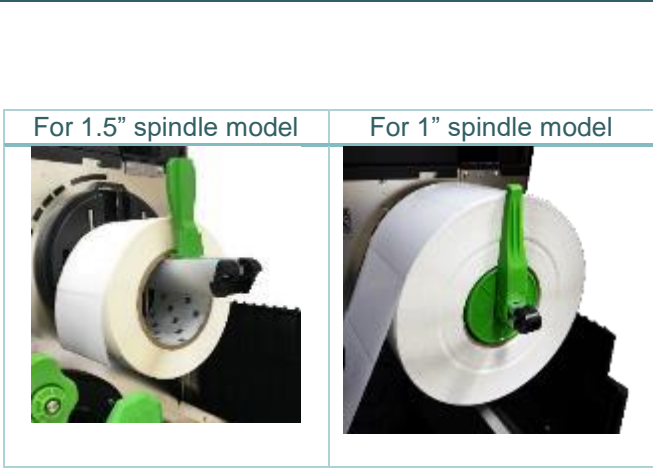


Using media with 3" core:



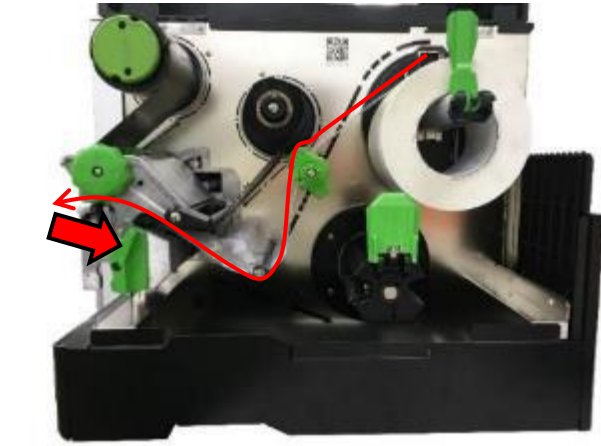
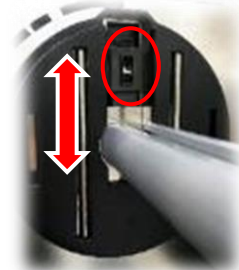
Using media with 1" core:
Remove the 3" core adapters.





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.

Note: MH241 Series doesn't attach the media guide bar.

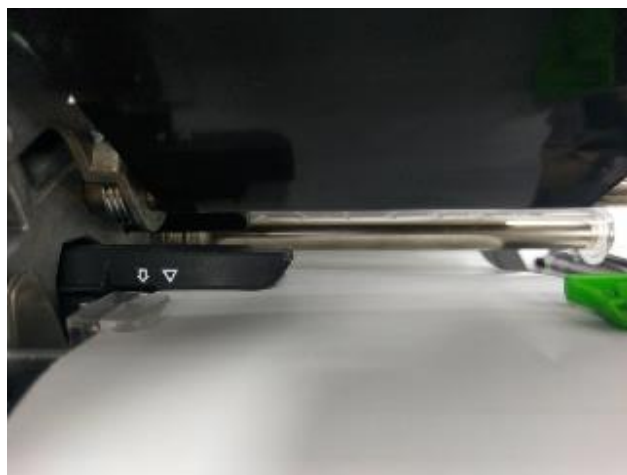


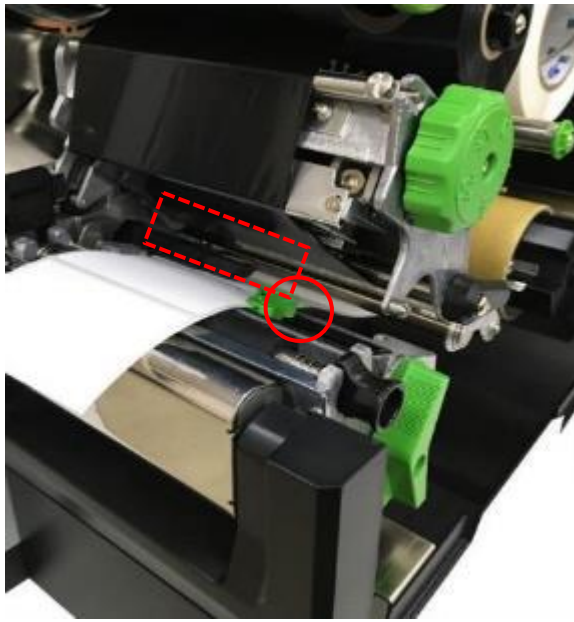
Interior view of MH241 Series

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.

Black mark sensor
(shown as ↓)

Gap sensor
(shown as ▽)





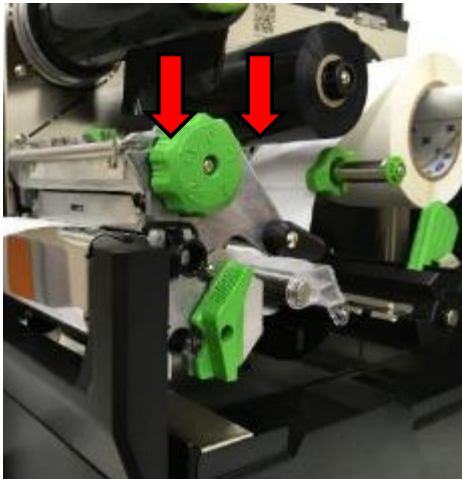
6. Adjust the label guide to fix the media position.

Note:

- * Please install the media through the media sensor.
- * The sensor location is marked by a triangle mark ∇ (gap sensor) and arrow mark \downarrow (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.



Black mark sensor
Gap sensor



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

Note:

- * Please calibrate the gap/black mark sensor when changing media.
- * Please refer to video on [TSC YouTube](#).

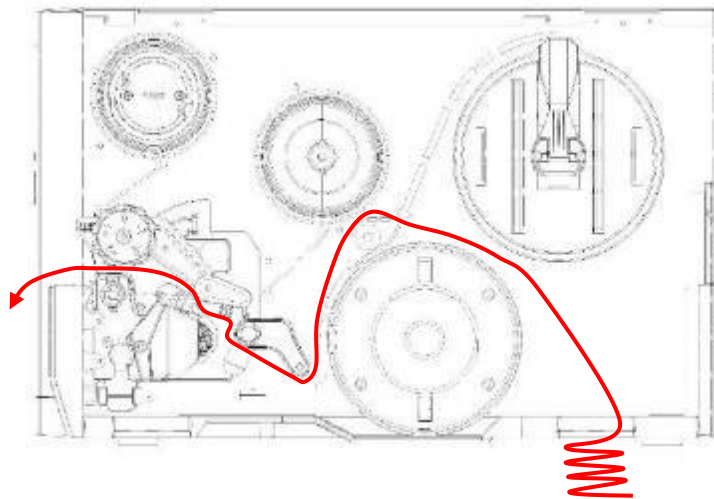
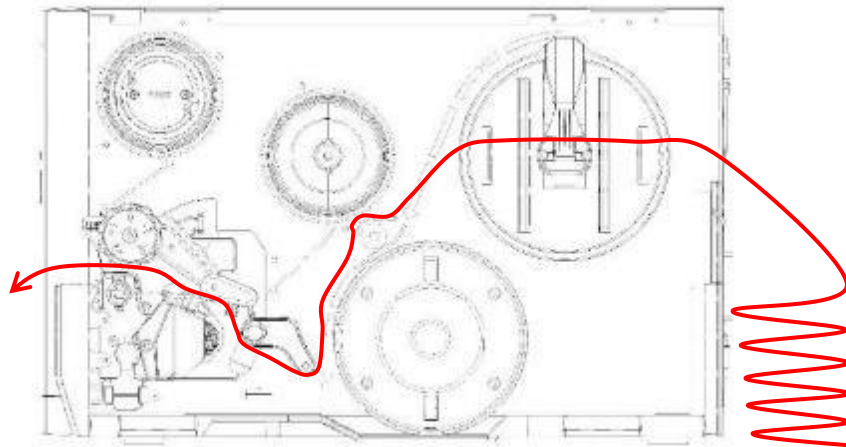
3.4.2 Loading the Fanfold/External Media



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.

Loading path for fan-fold labels



3.4.3 Loading Media in Peel-off Mode (Option for MH241P Series)



1. Open the printer right side cover.
2. Please refer to section 3.4.1 for loading media.
3. Using the front display panel to do the calibration first and set the printer mode to peeler mode.

Note:

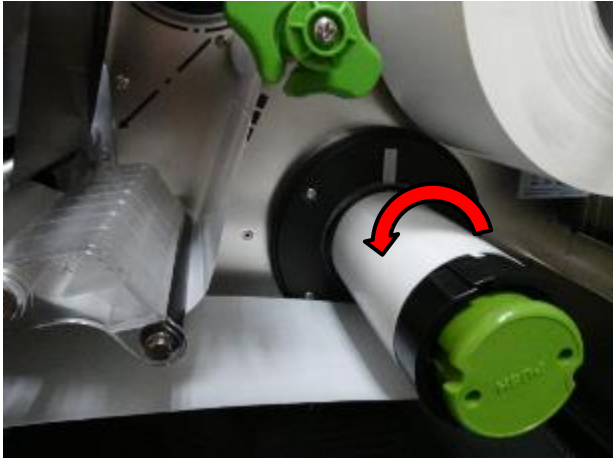
Please calibrate the gap/black mark sensor before loading media in the peel-off mode to avoid the paper jam.



4. Open print head release lever, label guide bar release lever, and peel-off module to pull approximately 650mm of the label through the front of the printer.
5. Remove several labels to leave liner.



6. Feed the leading edge of liner through the peel-off roller.



7. Wrap the liner onto the paper core and stick the liner on the spindle. Wind the spindle until the liner stretched properly.

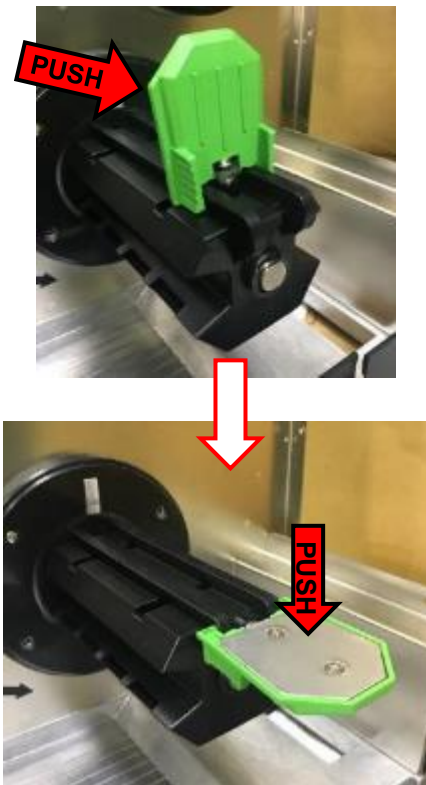


8. Close print head release lever and using the front display panel to set the print mode to "Peel off".
9. Press the FEED button to test.

3.4.4 Loading Media in Rewind Mode (Option for MH241P Series)



1. Open the printer right side cover.
2. Please refer to section 3.4.1 for loading media.
3. Using the front display panel to do the calibration and set the printer mode to rewind mode.



4. Open the printer lower cover, then push the label guide to the far right side and pull it down.



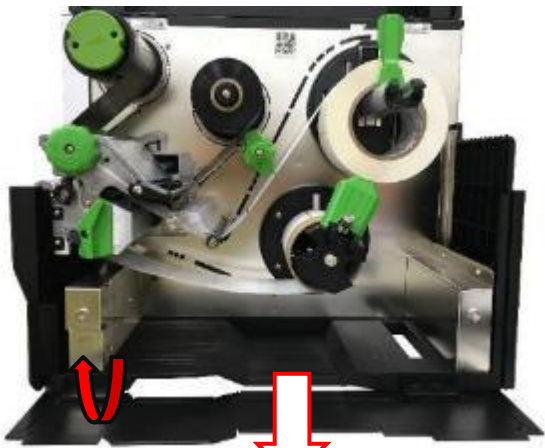
5. Install the paper core onto the rewind spindle.



6. Open print head release lever and label guide bar release lever to pull approximately 650mm of the label through the front of the printer.
7. Feed the leading edge of media through the redirect front panel as picture shown.



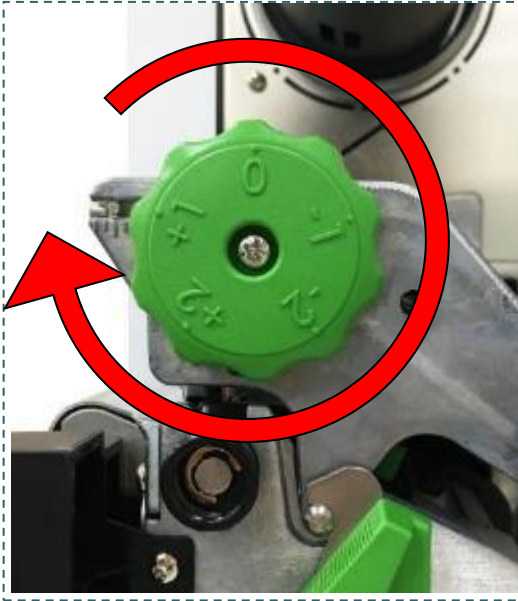
8. Wrap the label onto the internal rewind spindle and stick the label onto the paper core. Wind the spindle counterclockwise until the label stretched properly.



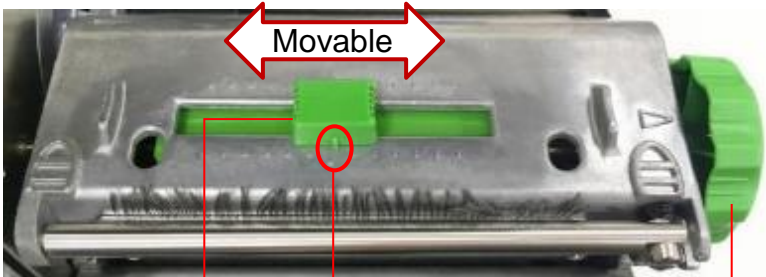
9. Adjust the media rewind guide to fit the label width.
10. Close print head release lever and print head lower cover.

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.

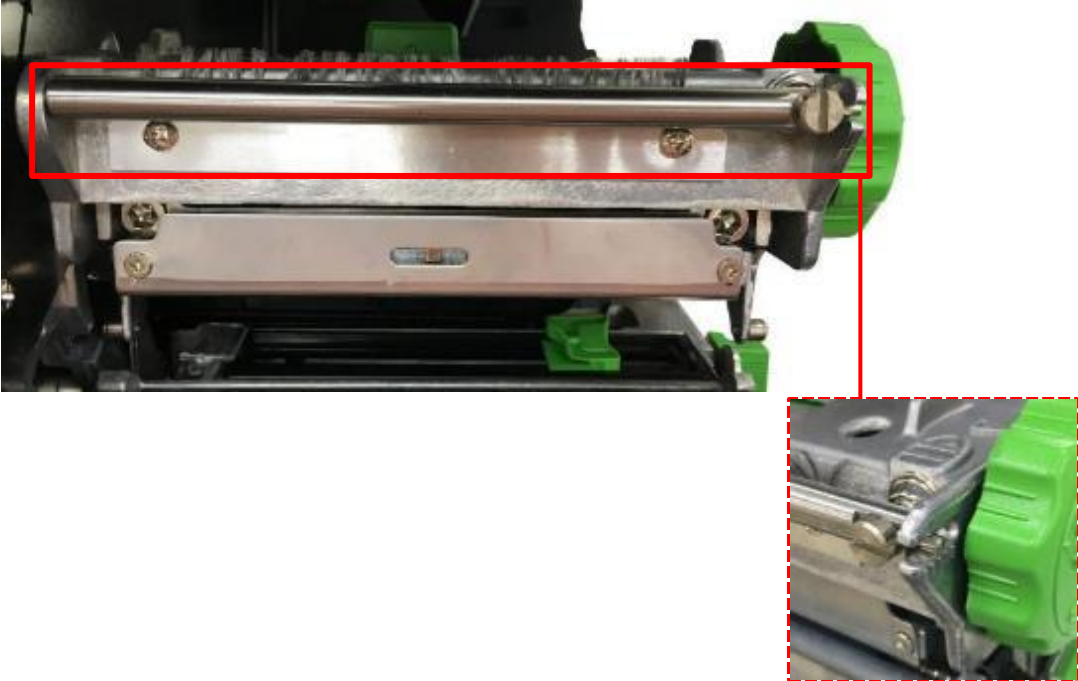


Note:

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



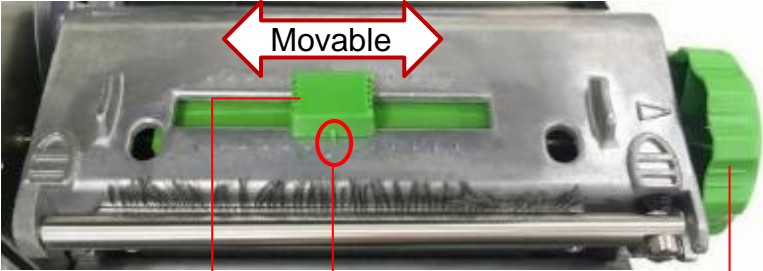
The ribbon tension adjustment knob has 5 positions for adjustment. Because the printer's ribbon alignment is to the left side of mechanism, different ribbon or media widths require different tension to print correctly. Therefore, it may require to adjust the ribbon tension adjustment knob to get your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





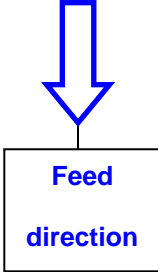


Ribbon Tension Adjustment Knob

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.

<p>Adjustable Printer Parts</p>	<p>Ribbon Tension Adjustment Knob has 5 positions for adjustment. Use flat blade driver to change the ribbon tension position.</p>  <p>Ribbon Tension Adjustment Knob</p>
	<p>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.</p>  <p>Print Head Pressure Adjustment Knob</p>
	 <p>Print head pressure position adjustment knob Default setting Print head pressure adjustment knob</p>

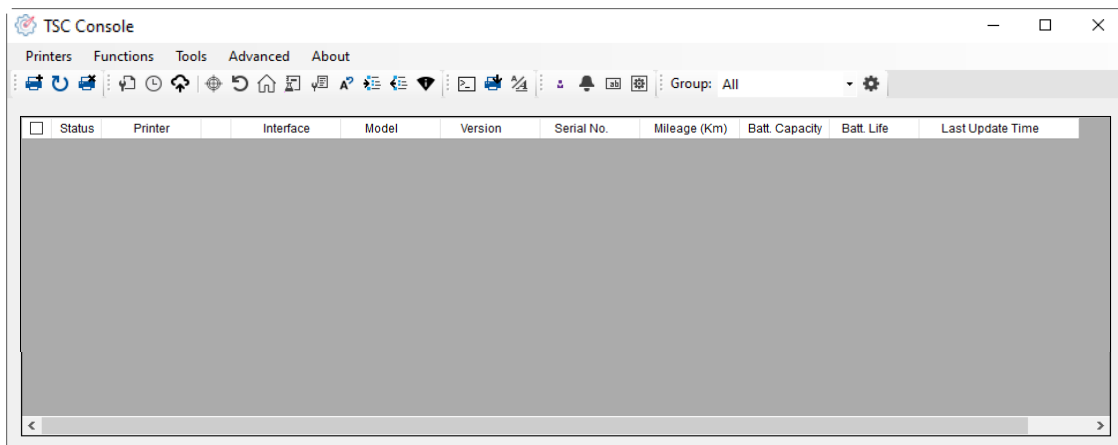
Symptom	1. Wrinkle happens from label lower left to upper right direction (“ ’ ”)	2. Wrinkle happens from label lower right to upper left direction (“ ` ”)
		
<p data-bbox="263 1171 375 1238">Wrinkle Example</p>	<p data-bbox="419 842 863 931">If the wrinkle on the label starts from the lower left side to upper right side, please do following adjustment.</p> <ol data-bbox="419 958 847 1081" style="list-style-type: none"> 1. Switch the ribbon tension adjustment knob clockwise per 1 level and print the label again to check if the wrinkle is gone.  <ol data-bbox="419 1491 882 1977" style="list-style-type: none"> 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. 	<p data-bbox="898 842 1342 931">If the wrinkle on the label starts from the lower right side to upper left side, please do following adjustment.</p> <ol data-bbox="898 958 1326 1111" style="list-style-type: none"> 1. Switch the ribbon tension adjustment knob counterclockwise per 1 level and print the label again to check if the wrinkle is gone.  <ol data-bbox="898 1523 1326 2067" style="list-style-type: none"> 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.
	 <p data-bbox="842 589 962 685">Feed direction</p>	

5. TSC Console

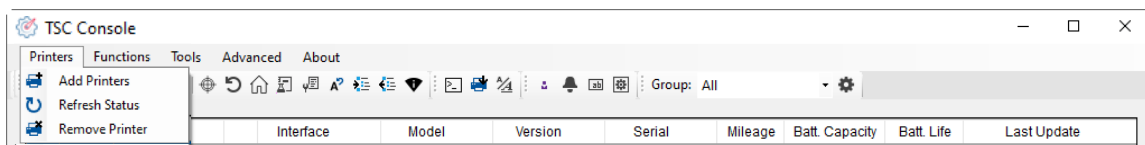
TSC Console combine the Printer Management, Diagnostic Tool, CommTool and Printer Webpage settings, which enables you to adjust printer's settings/status; change printers' settings; download graphics, fonts and firmware; create a printer bitmap font; and send additional commands to printers at the same time.

5.1 Start TSC Console

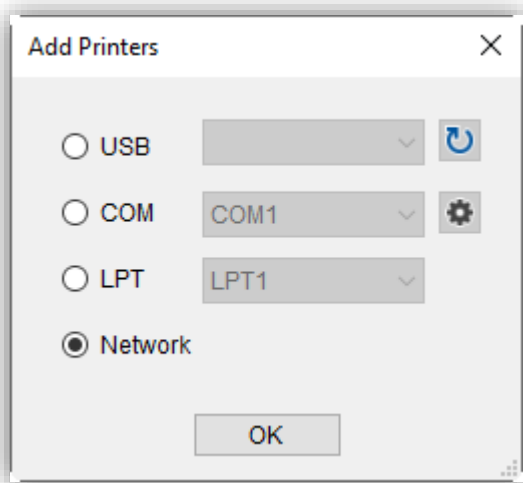
- Double click TSC Console icon to start the software.



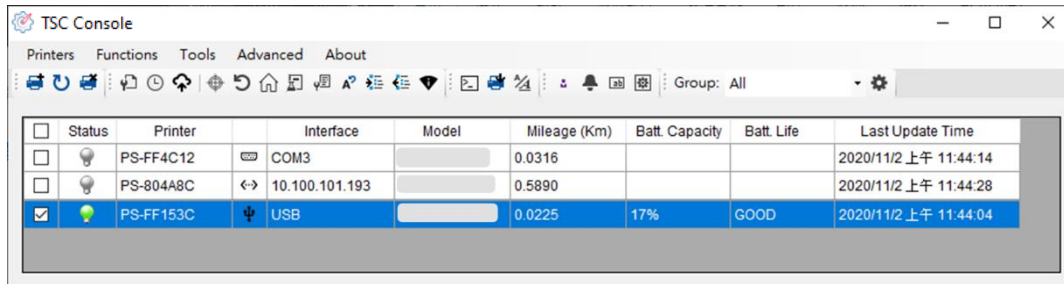
- Manually add the devices by clicking **Printer > Add Printers**.



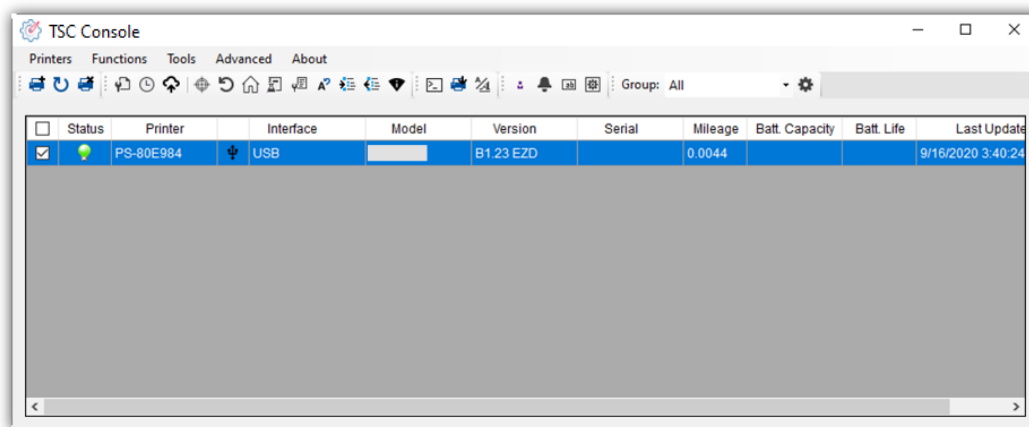
- Select the current interface of the printer.



- The printer will be added to **TSC Console**'s interface



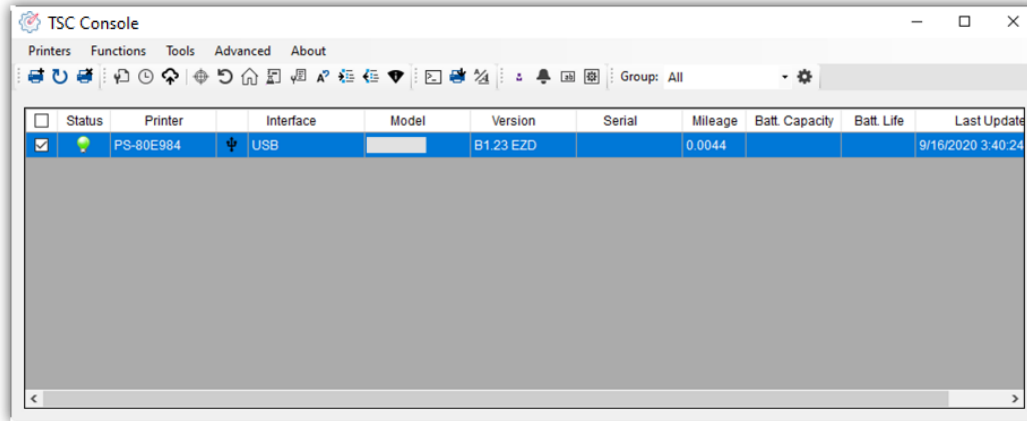
- Select the printer and set the settings.



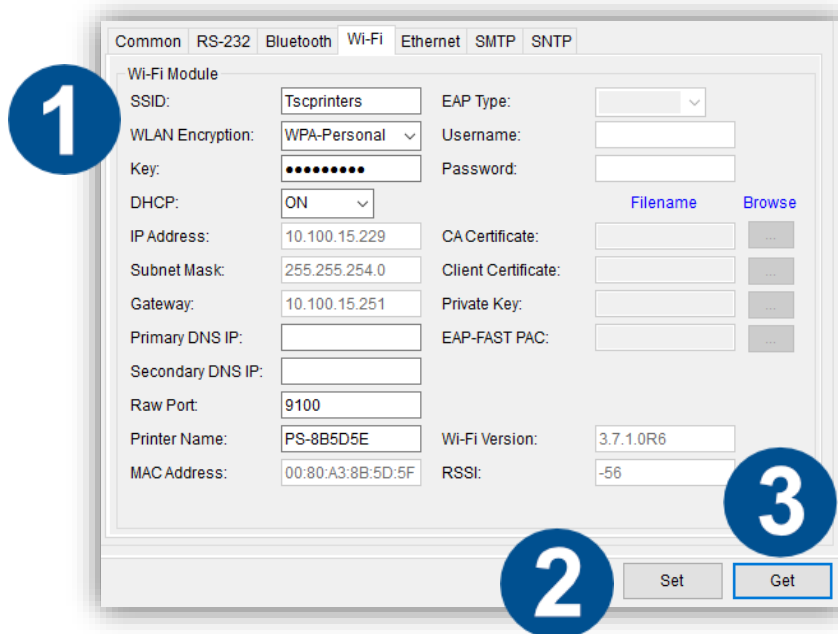
- ※ For more information, please refer to **TSC Console Users Manual**.

5.2 Set WiFi and Add to TSC Console Interface

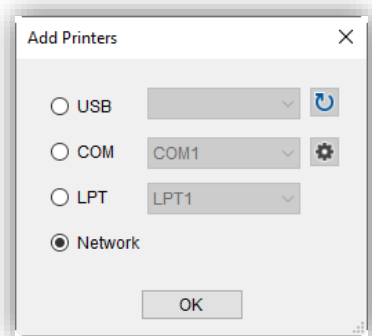
- Use **USB** or **COM Port** to set up the interface



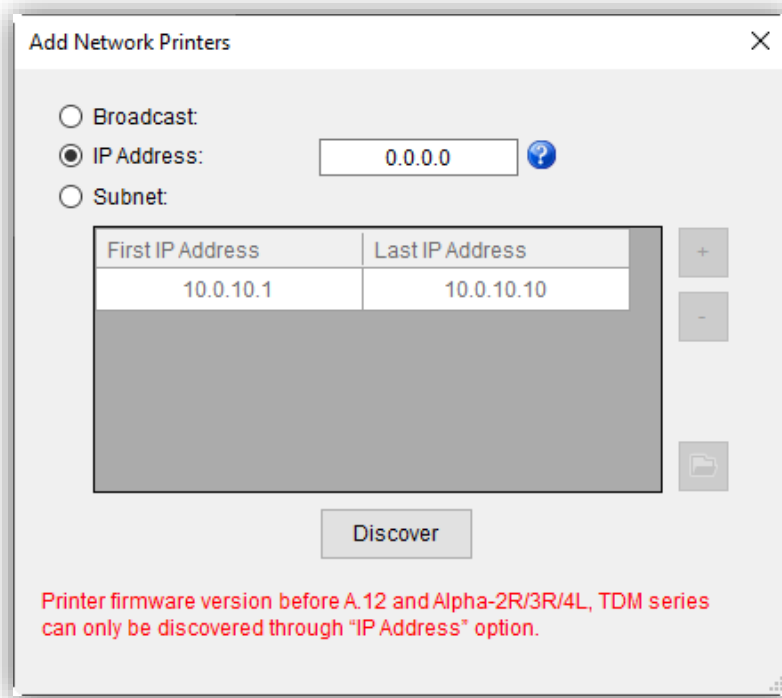
- Click **Get** to receive printer's info and finish WiFi setting by clicking **WiFi tab**.
- Click **Set** and the printer will reset.
- Click **Get** to ensure printer has connected to WiFi.



- Return to the **Add Printers** dialog box and click **Network**.



- Select the ways of searching WiFi devices.



- Click **Discover** to find the printer.

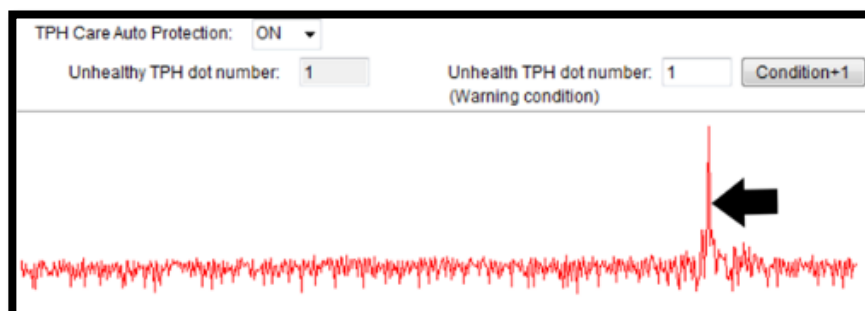
※ **Printer firmware version before A.12 and Alpha-2R/3R/4L, TDM series can only be discovered through "IP Address" option.**

5.3 TPH Care

TPH Care could check condition of the print head. Set the failure dots threshold for indicating errors when the threshold is reached.

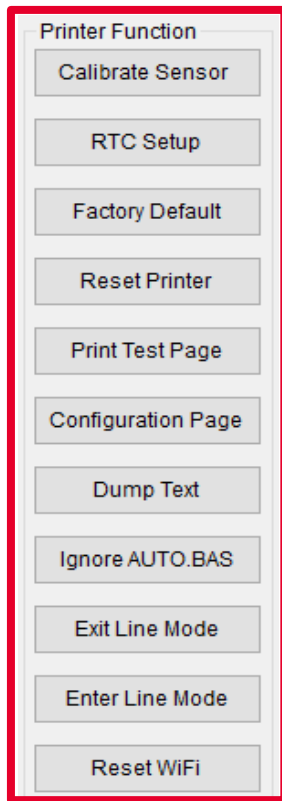


1. Enable the **TPH Care** function. (Note: Default is disabled/OFF.) Then click "**Get TPH care profile**" button and a diagram will show above.
2. If the profile is flat, it means the print head is good. Check "**Unhealthy TPH dot number**". If the result is zero (0), it means the print head is good.
3. Bad dots are presented as a spike in the spectrum. The arrow below indicates the presence of potentially damaged dots and printer will stop printing.



5.4 Printer Function

1. **Printer Function** could be found in **Printer Configuration**. “**Printer Function**” will be shown on the left side of the window.

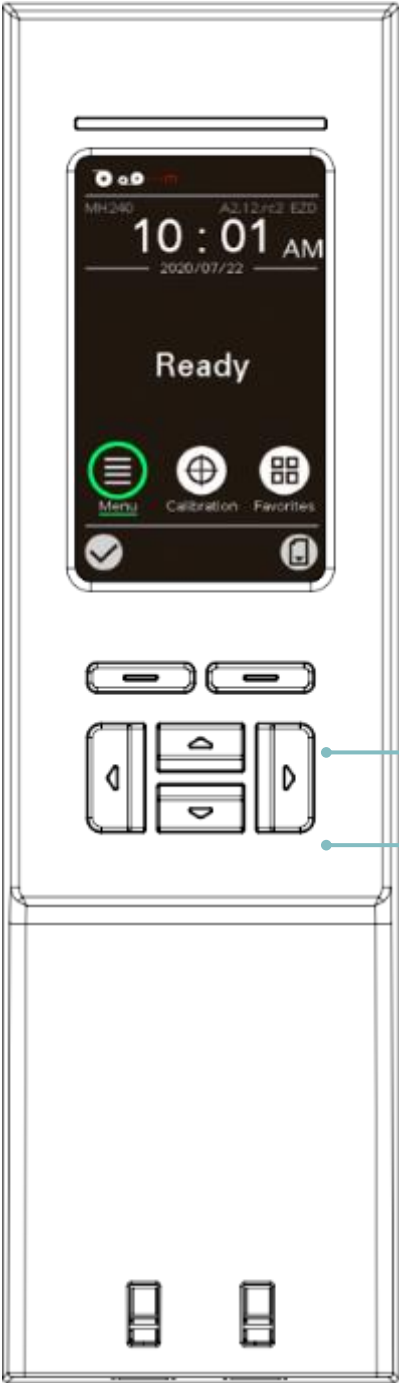


Functions	Description
Calibrate Sensor	Detect media types and the size of the label
RTC Setup	Synchronize printer with Real Time Clock on PC
Factory Default	Initialize the printer to default settings
Reset Printer	Reboot printer
Print Test Page	Print test page according to the specified label size and sensor type.
Configuration Page	Print printer configurations
Dump Text	Activate the printer to dump mode
Ignore AUTO.BAS	Ignore AUTO.BAS file when printer boot up.
Exit Line Mode	Exit the line mode to page mode
Enter Line Mode	Leave page mode and enter line mode
Reset WiFi	Restore the WiFi settings to defaults.



6. LCD Menu Function

6.1 Enter the Menu

(Use MH241T for sample, Difference between MH241 is MH241 use smaller non-touched screen)



*** By Keys:**

Use Select keys to select the  "Menu" icon and press the right select key button (means ) to enter each function.

Select keys
Navigational keys

6.2 Menu Overview

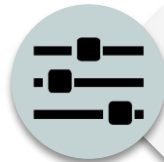
There are 6 categories for the menu. You can easily set the settings of the printer without connecting the computer. Please refer to following sections for more details.



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.

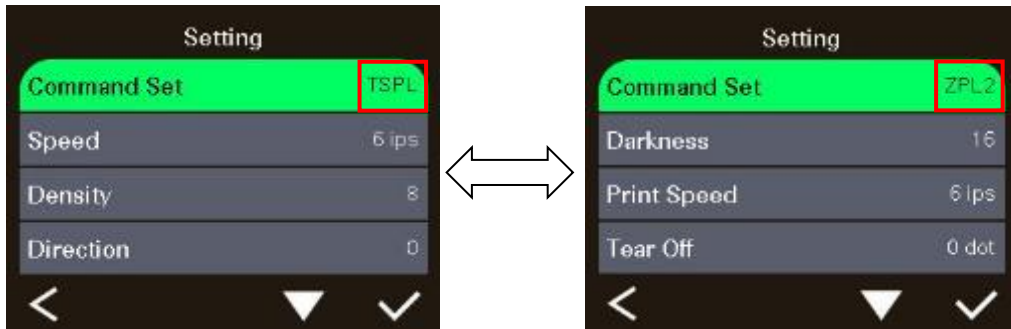


This "File Manager" option is used to check/manager the printer available memory.



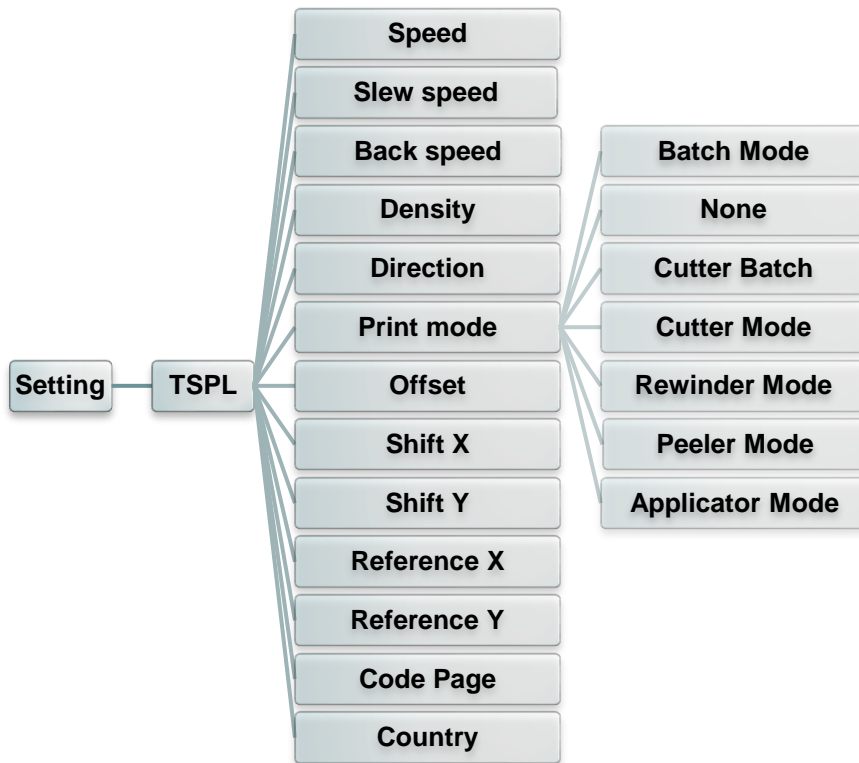
This "Diagnostic" option is used to review printer to troubleshoot problems and other issues.

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

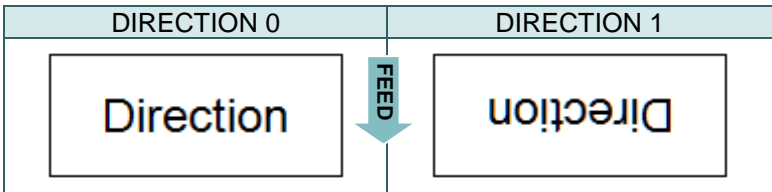


6.3.1 TSPL

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



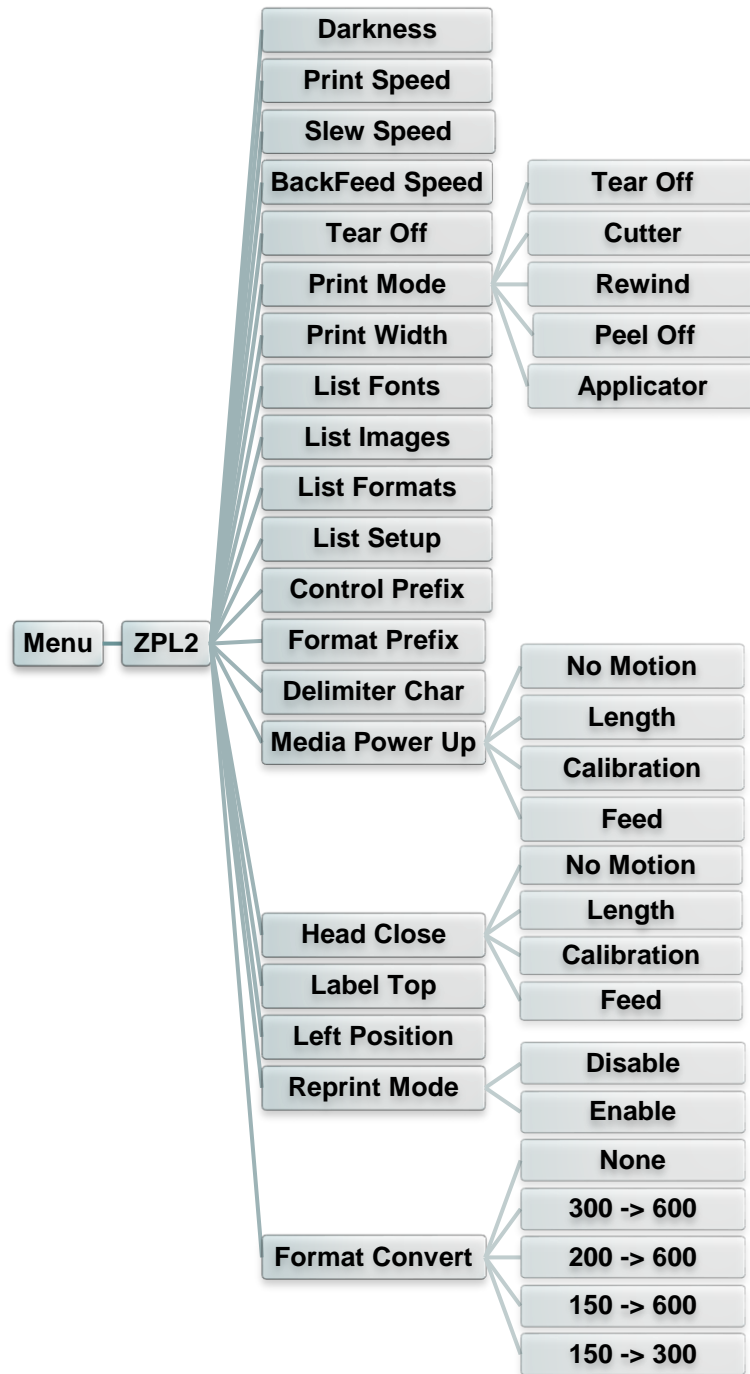
Item	Description	Default
Speed	Use this item to setup print speed. Available setting range is 2~14 for 203dpi, 2~12 for 300dpi and 1~6 for 600dpi.	203 dpi: 6 300 dpi: 4 600 dpi: 3
Slew Speed	Use this item to setup feed speed. Setting value is up to 8 ips.	203 dpi: 6 ips 300 dpi: 4 ips

		600 dpi: 3 ips																
Back Speed	Use this item to setup back feed speed. Setting value is up to 6 ips.	2 ips																
Density	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.	8																
Direction	<p>The direction setting value is either 1 or 0. Use this item to setup the printout direction.</p> 	0																
Print mode	<p>This item is used to set the print mode. There are 6 modes as below,</p> <table border="1" data-bbox="424 913 1222 1402"> <thead> <tr> <th>Printer Mode</th> <th>Description</th> </tr> </thead> <tbody> <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> <tr> <td>Applicator Mode</td> <td>Same as peeler mode but it doesn't need peeler sensor, user could use this mode with GPIO.</td> </tr> </tbody> </table>	Printer Mode	Description	None	Next label top of form is aligned to the print head burn line location. (Tear Off Mode)	Cutter Batch	Cut the label once at the end of the printing job.	Cutter Mode	Enable the label cutter mode.	Rewinder Mode	Enable the label rewinder mode.	Peeler Mode	Enable the label peel off mode.	Batch Mode	Once image is printed completely, label gap/black mark will be fed to the tear plate location for tear away.	Applicator Mode	Same as peeler mode but it doesn't need peeler sensor, user could use this mode with GPIO.	Batch Mode
Printer Mode	Description																	
None	Next label top of form is aligned to the print head burn line location. (Tear Off Mode)																	
Cutter Batch	Cut the label once at the end of the printing job.																	
Cutter Mode	Enable the label cutter mode.																	
Rewinder Mode	Enable the label rewinder mode.																	
Peeler Mode	Enable the label peel off mode.																	
Batch Mode	Once image is printed completely, label gap/black mark will be fed to the tear plate location for tear away.																	
Applicator Mode	Same as peeler mode but it doesn't need peeler sensor, user could use this mode with GPIO.																	
Offset	This item is used to fine tune media stop location. Available setting value range is from -999 dots to 999 dots.	0 dot																
Shift X	This item is used to fine tune print position. Available setting value range is from -999 dots to 999 dots.	0 dot																
Shift Y		0 dot																
Reference X	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.	0 dot																
Reference Y		0 dot																
Code page	Use this item to set the code page of international character set.	950																
Country	Use this option to set the country code. Available setting value range is from 1 to 358.	001																

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


6.3.2 ZPL2

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



Item	Description	Default
Density	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
Print Speed	Use this item to setup print speed. Available setting range is 2~18 for 203dpi, 2~14 for 300dpi and 1.5 ~6 for 600dpi.	203 dpi: 6 300 dpi: 4 600 dpi: 3

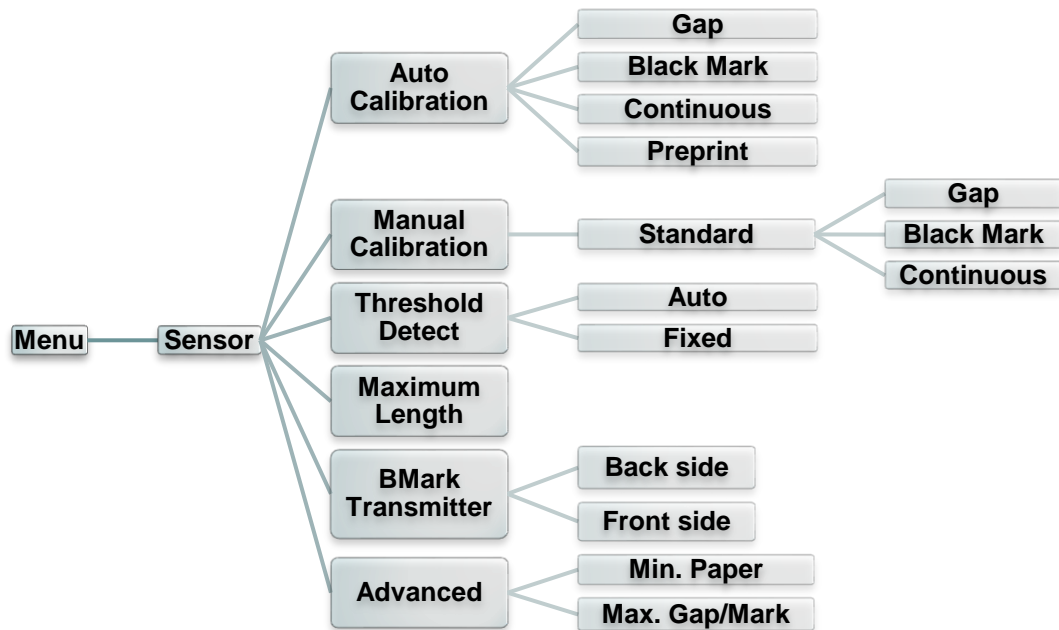
Slew Speed	Use this item to setup feed speed. Setting value is up to 8 ips.	203 dpi: 6 ips 300 dpi: 4 ips 600 dpi: 3 ips												
BackFeed Speed	Use this item to setup back feed speed. Setting value is up to 6 ips.	2 ips												
Tear Off	This item is used to fine tune media stop location. Available setting value range is from -120~120 dots.	0 dot												
Print mode	This item is used to set the print mode. There are 3 modes as below,	Tear Off												
	<table border="1"> <thead> <tr> <th>Printer Mode</th> <th>Description</th> </tr> </thead> <tbody> <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> <tr> <td>Applicator</td> <td>The print engine prints a label when it receives a signal from the applicator.</td> </tr> </tbody> </table>		Printer Mode	Description	Tear Off	Next label top of form is aligned to the print head burn line location.	Peel Off	Enable the label peel off mode.	Cutter	Enable the label cutter mode	Rewind	Enable the label rewind mode	Applicator	The print engine prints a label when it receives a signal from the applicator.
	Printer Mode		Description											
	Tear Off		Next label top of form is aligned to the print head burn line location.											
	Peel Off		Enable the label peel off mode.											
	Cutter		Enable the label cutter mode											
Rewind	Enable the label rewind mode													
Applicator	The print engine prints a label when it receives a signal from the applicator.													
Print Width	This item is used to set print width. The available value range is 2 ~ 999 dots.	812												
List Fonts	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.	N/A												
List Images	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.	N/A												
List Formats	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.	N/A												
List Setup	This feature is used to print current printer configuration to the label.	N/A												
Control Prefix	This feature is used to set control prefix character.	N/A												
Format Prefix	This feature is used to set format prefix character.	N/A												
Delimiter Char	This feature is used to set delimiter character.	N/A												
Media Power Up	This option is used to set the action of the media when you turn on the printer.	No Motion												
	<table border="1"> <thead> <tr> <th>Selections</th> <th>Description</th> </tr> </thead> <tbody> <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> </tbody> </table>		Selections	Description	Feed	Printer will advance one label	Calibration	Printer will calibration the sensor levels, determine length and feed label	Length	Printer determine length and feed label	No Motion	Printer will not move media		
	Selections		Description											
	Feed		Printer will advance one label											
	Calibration		Printer will calibration the sensor levels, determine length and feed label											
Length	Printer determine length and feed label													
No Motion	Printer will not move media													

Head Close	This option is used to set the action of the media when you close the print head.	No Motion										
	<table border="1"> <thead> <tr> <th>Selections</th> <th>Description</th> </tr> </thead> <tbody> <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> </tbody> </table>		Selections	Description	Feed	Printer will advance one label	Calibration	Printer will calibration the sensor levels, determine length and feed label	Length	Printer determine length and feed label	No Motion	Printer will not move media
	Selections		Description									
	Feed		Printer will advance one label									
	Calibration		Printer will calibration the sensor levels, determine length and feed label									
Length	Printer determine length and feed label											
No Motion	Printer will not move media											
Label Top	This option is used to adjust print position vertically on the label. The range is -120 to +120 dots.	0										
Left Position	This option is used to adjust print position horizontally on the label. The range is -9999 to +9999 dots.	0										
Reprint Mode	When reprint mode is enabled, you can reprint the last label printer by pressing  button on printer's control panel.	Disable										
Format Convert	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.	None										

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

6.4 Sensor

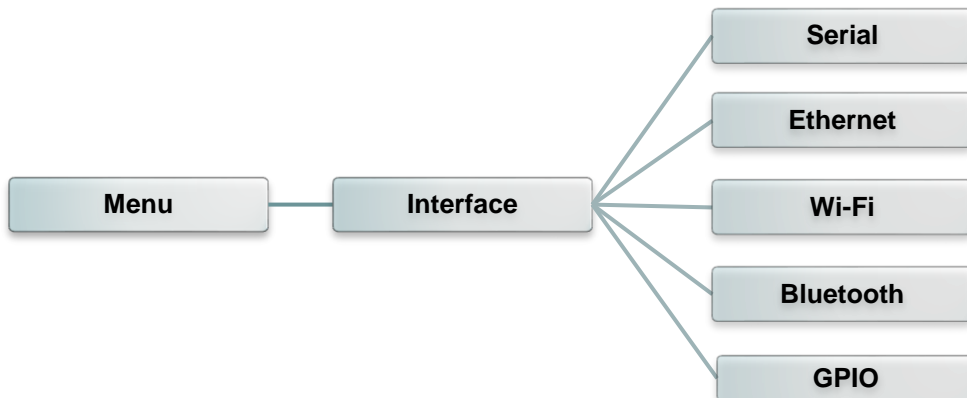
This option is used to calibrate the selected sensor. We recommend calibrate the sensor before printing when changing the media.



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.	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.	254 mm
BMark Transmitter	This option is used to set upper black mark sensor or the lower black sensor as the main transmitter.	Back side
Advanced	This function can set the minimum paper length and maximum gap/bline length for auto-calibrate the sensor sensitivity.	0 mm

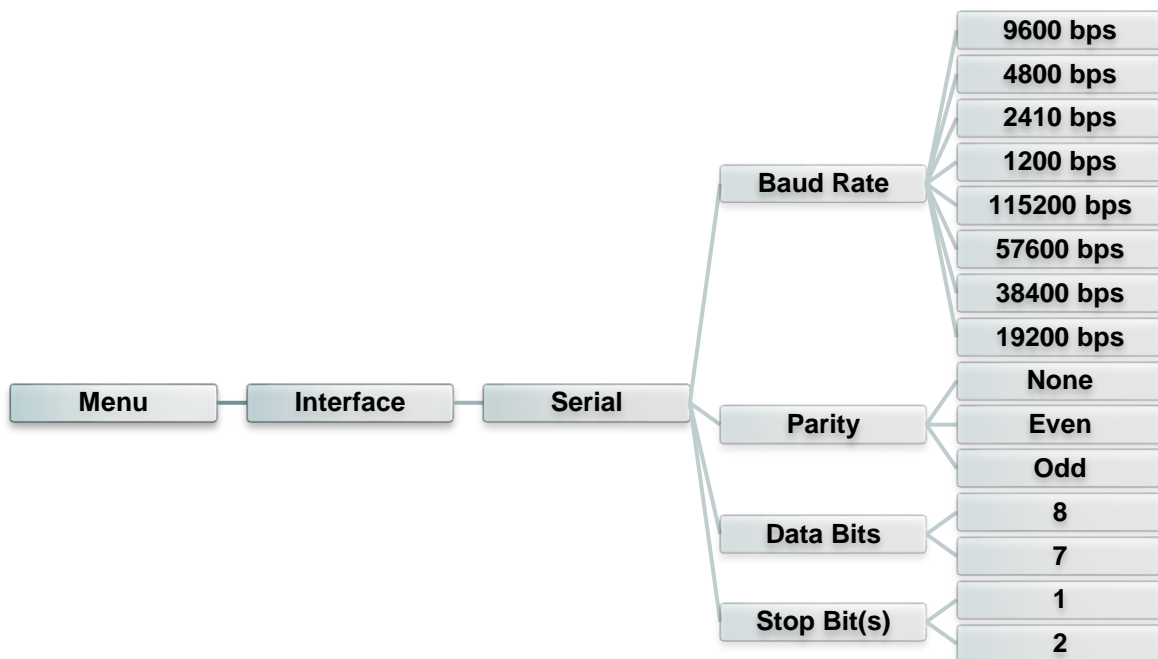
6.5 Interface

This option is used to set the printer interface settings.



6.5.1 Serial Comm.

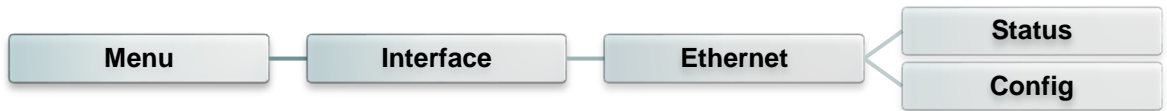
This option is used to set the printer RS-232 settings.



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

6.5.2 Ethernet

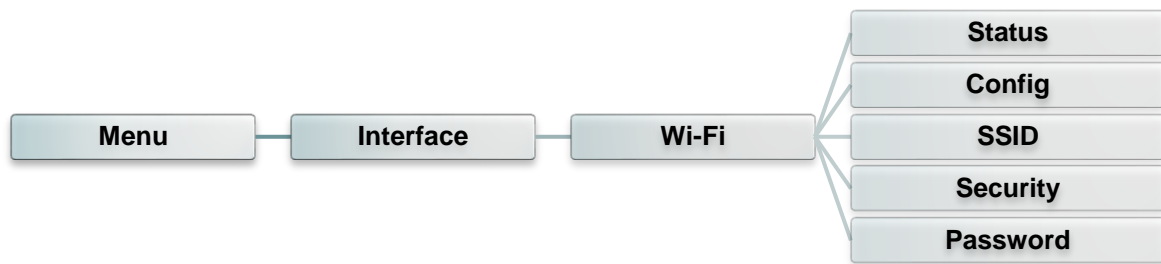
Use this menu to configure internal Ethernet configuration, check the printer's Ethernet module status, and reset the Ethernet module.



Item	Description	Default
Status	Use this menu to check the Ethernet IP address and MAC setting status.	N/A
Config.	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

6.5.3 Wi-Fi

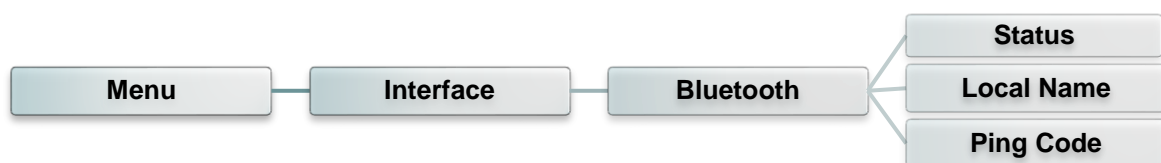
This option is used to set the printer Wi-Fi settings.



Item	Description	Default
Status	Use this menu to check the Wi-Fi IP address, MAC setting status....	N/A
Config.	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
SSID	Use this menu to set the Wi-Fi SSID	N/A
Security	Use this menu to set the Wi-Fi security	Open
Password	Use this menu to set the Wi-Fi password	N/A

6.5.4 Bluetooth

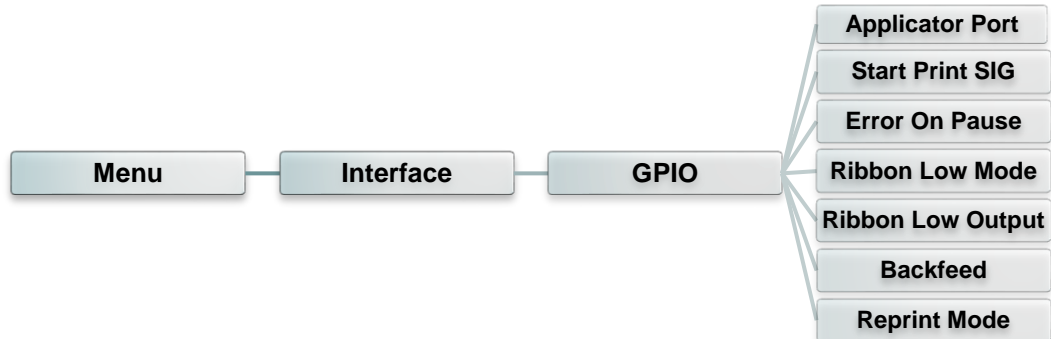
This option is used to set the printer Bluetooth settings.



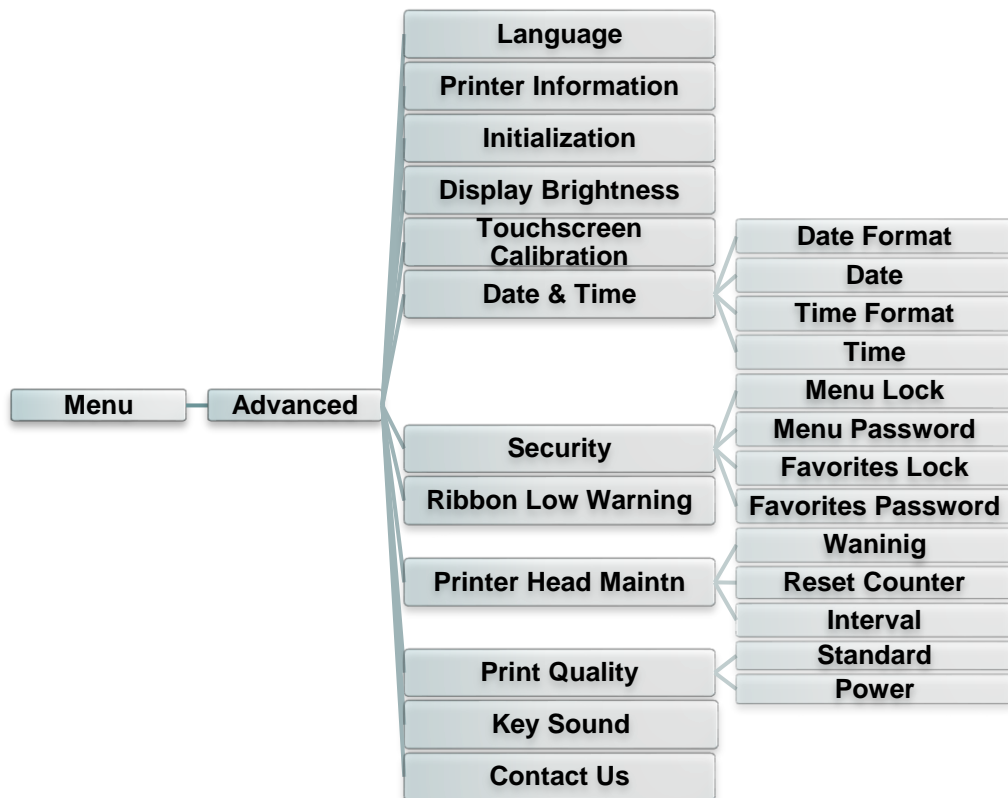
Item	Description	Default
Status	Use this menu to check the Bluetooth status.	N/A
Local Name	This item is used to set the local name for Bluetooth.	RF-BHS
Ping Code	This item is used to set the local ping code for Bluetooth.	0000

6.5.5 GPIO


This option is used to set the print engine GPIO settings. (Applicator interface with DB15F connector +5V I/O)



6.6 Advanced

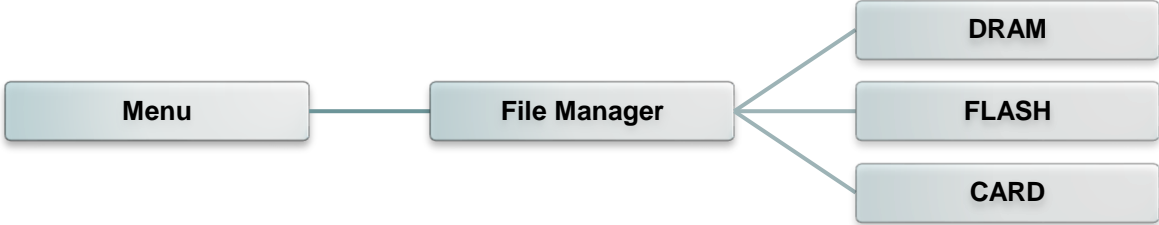


Item	Description	Default
Language	This item is used to setup the language on display.	English
Printer Information	This feature is used to check the printer serial number, printed mileage (m), printed labels (pcs) and cutting counter.	N/A
Initialization	This feature is used to restore printer settings to defaults.	N/A
Display Brightness	This item is used to setup the brightness for display. (Range 0~100)	50

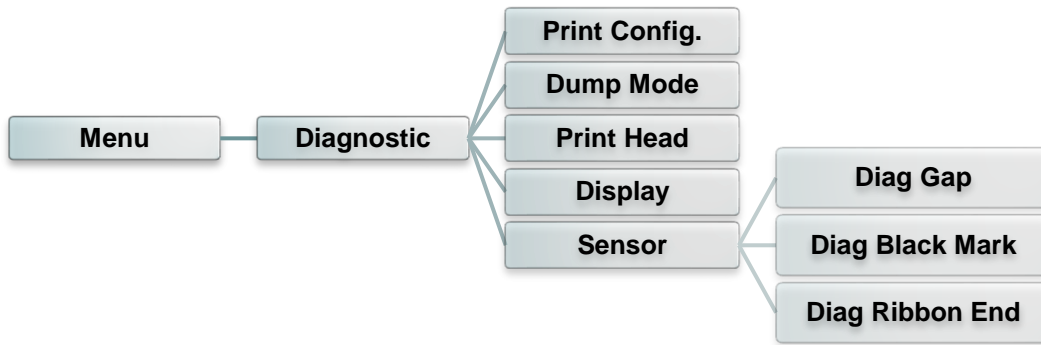
Touchscreen Calibration	This item is used to calibrate the center of the cross for best result for touchscreen.	N/A
Date & Time	This item is used to setup the date and time on display.	N/A
Security	This feature is used to set the password for locking the menu or favorites. The default password is 8888.	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.	30m
Printer Head Maintn	This item is used to check print head status and to set the settings for print head care.	
	Item	Description
	Warning	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.
	Reset Counter	This item is used to reset the print head clean warning mileage after cleaned print head.
Interval	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.	N/A
Print Quality	This item is used to select the print quality to standard/ power mode.	Standard
Key Sound	This item is used to open/close the key sound.	ON
Contact us	This feature is used to check the contact information for tech support service	N/A

6.7 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 memory.



6.8 Diagnostic



Item	Description
Print Config.	<p>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.</p> <div data-bbox="491 801 1311 2033" style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;">Self-test printout</p> <pre> ----- SYSTEM INFORMATION ----- MODEL: XXXXXX FIRMWARE: X.XX CHECKSUM: XXXXXXXX S/N: XXXXXXXXXXXX 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 ----- </pre> <p>Model name F/W version Firmware checksum Printer S/N TSC 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</p> </div>

	<div style="border: 1px solid black; padding: 10px;"> <pre> ----- DRAM FILE (0 FILES) ----- PHYSICAL XXXX KBYTES AVAILABLE XXXX KBYTES ----- FLASH FILE (0 FILES) ----- PHYSICAL XXXX KBYTES AVAILABLE XXXX KBYTES ----- </pre>  <p>Print head check pattern</p> <p>Note: Checking dot damage requires 4" wide paper width.</p> </div> <p>Numbers of download files Total & available memory space</p>
--	--


<p>Dump Mode</p>	<p>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.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <pre> DOWNLOA 0D 0A 44 4F 57 4E 4C 4F 4I D „TEST2. 44 20 22 54 45 53 54 32 2E DAT“,5,CL 44 41 54 22 2C 35 2C 43 4C S DOWNLO 53 0D 0A 44 4F 57 4E 4C 4F AD F,“TES 41 44 20 46 2C 22 54 45 53 T4.DAT“,5 54 34 2E 44 41 54 22 2C 35 ,CLS DOW 2C 43 4C 53 0D 0A 44 4F 57 NLOAD „TE 4E 4C 4F 41 44 20 22 54 45 ST2.DAT“, 53 54 32 2E 44 41 54 22 2C 5,CLS DO 35 2C 43 4C 53 0D 0A 44 4F WNLOAD F, 57 4E 4C 4F 41 44 20 46 2C „TEST4.DA 22 54 45 53 54 34 2E 44 41 T“,5,CLS 54 22 2C 35 2C 43 4C 53 0D DOWNLOAD 0A 44 4F 57 4E 4C 4F 41 44 “TEST2.D 20 22 54 45 53 54 32 2E 44 AT“,5,CLS 41 54 22 2C 35 2C 43 4C 53 DOWNLOA 0D 0A 44 4F 57 4E 4C 4F 4I D F,“TEST 44 20 46 2C 22 54 45 53 54 4.DAT“,5, 34 2E 44 41 54 22 2C 35 2C CLS 43 4C 53 0D 0A </pre> </div> <p>ASCII Data ←</p> <p>Hexadecimal data related to left column of ASCII data</p> <p>Note: Dump mode requires 4" wide paper width.</p>
-------------------------	---

<p>Print Head</p>	<p>This feature is used to check print head's temperature and bad dots.</p>
--------------------------	---

<p>Display</p>	<p>This feature is used to check LCD's color state.</p>
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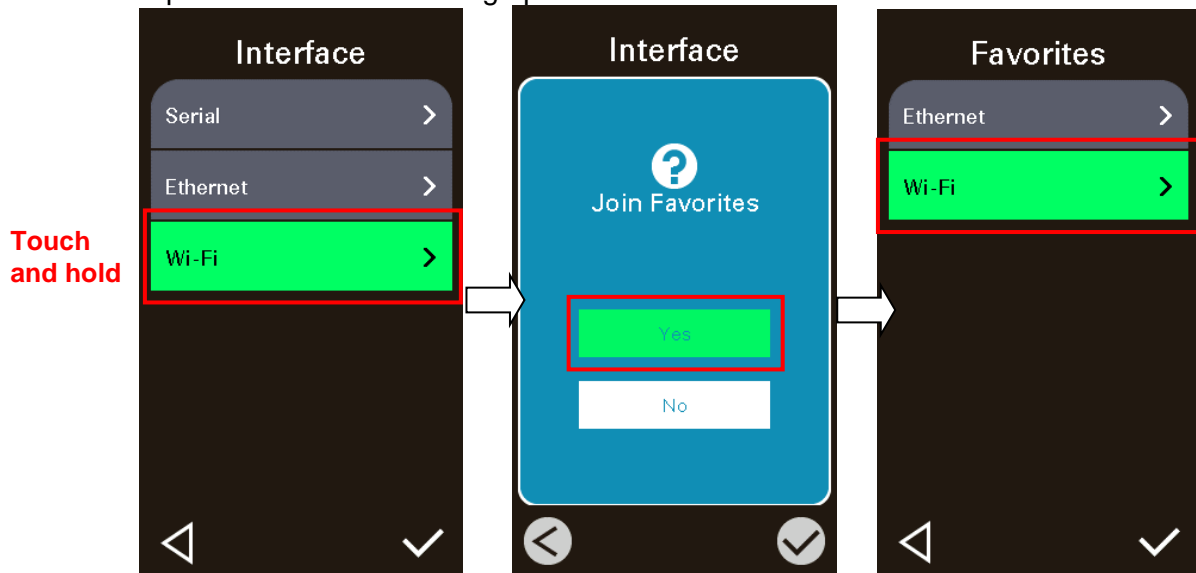
<p>Sensor</p>	<p>This feature is used to check sensors intensity and reading state.</p>
----------------------	---

6.9 Favorites

This feature is used to create your own favorites list. You can organize the commonly used setting options in “Favorites” .

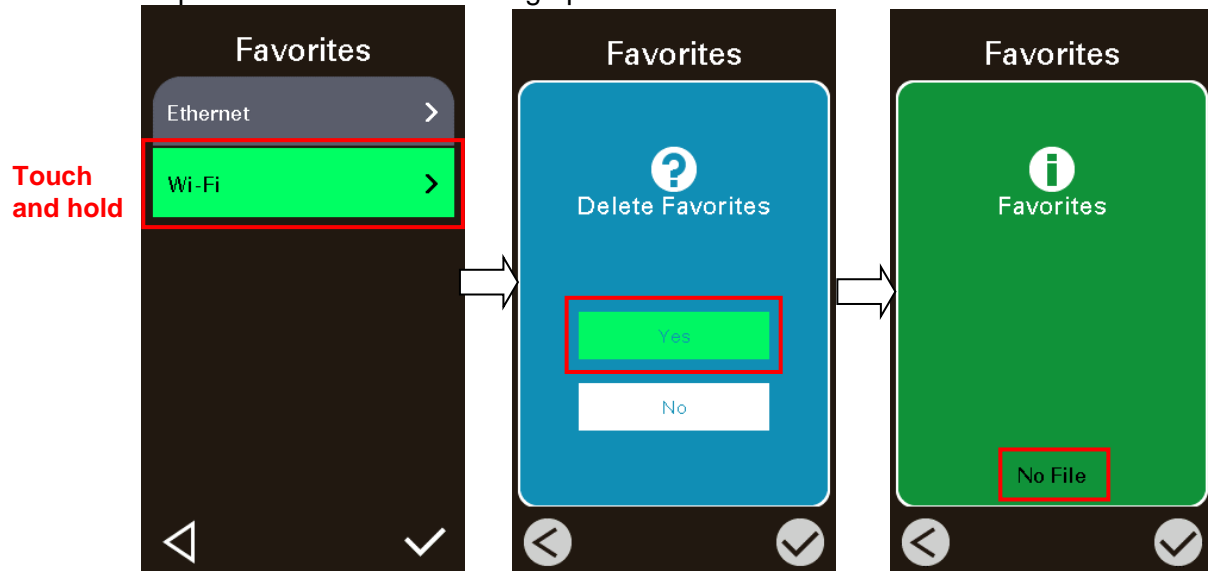
- **Get organized “Favorites” list**

Touch and hold a favorite option item, until “Join Favorites” setting screen pops up. Tap “Yes” to add this setting option item to “Favorites”.



- **Delete “Favorites” item**

Touch and hold the option item, until “Delete Favorites” setting screen pops up. Tap “Yes” to delete this setting option item on “Favorites”.

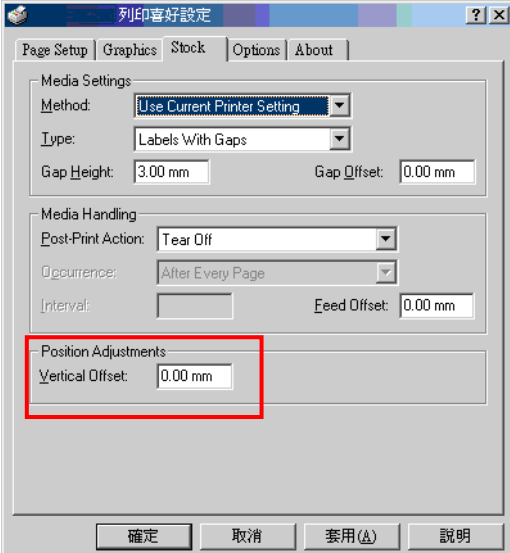


7. Troubleshooting

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	<ul style="list-style-type: none"> * The power cord is not properly connected. * The power switch is closed. 	<ul style="list-style-type: none"> * Plug the power cord in printer and outlet. * Switch the printer on.
Carriage Open	<ul style="list-style-type: none"> * The printer carriage is open. 	<ul style="list-style-type: none"> * Please close the print carriage.
Not Printing	<ul style="list-style-type: none"> * 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. 	<ul style="list-style-type: none"> * Re-connect cable to interface or change 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 printhead. 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	<ul style="list-style-type: none"> * Label or ribbon is loaded not correctly. * Use wrong type paper or ribbon 	<ul style="list-style-type: none"> * 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	<ul style="list-style-type: none"> * Running out of ribbon. * The ribbon is installed incorrectly. 	<ul style="list-style-type: none"> * Supply a new ribbon roll. * Please refer to the steps in user's manual to reinstall the ribbon.
No Paper	<ul style="list-style-type: none"> * Running out of label. * The label is installed incorrectly. * Gap/black mark sensor is not calibrated. 	<ul style="list-style-type: none"> * 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	<ul style="list-style-type: none"> * Gap/black mark sensor is not set properly. * Make sure label size is set properly. * Labels may be stuck inside the printer mechanism. 	<ul style="list-style-type: none"> * Calibrate the media sensor. * Set media size correctly. * Remove the stuck label inside the printer mechanism.
Take Label	<ul style="list-style-type: none"> * Peel function is enabled. 	<ul style="list-style-type: none"> * If the peeler module is installed, please remove the label. * If there is no peeler module in front of the printer, please switch off the printer and install it. * Check if the connector is plugging correctly.
Can't downloading the file to memory (FLASH / DRAM/CARD)	<ul style="list-style-type: none"> * The space of memory is full. 	<ul style="list-style-type: none"> * Delete unused files in the memory.

microSD card is unable to use	<ul style="list-style-type: none"> * microSD card is damaged. * microSD card doesn't insert correctly. * Use the non-approved SD card manufacturer. 	<ul style="list-style-type: none"> * Use the supported capacity microSD card. * Insert the microSD card again. * The supported microSD card spec and the approved microSD card manufacturers, please refer to section 2.2.3.
Poor Print Quality	<ul style="list-style-type: none"> * 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. 	<ul style="list-style-type: none"> * 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	<ul style="list-style-type: none"> * Wrong label size setup. 	<ul style="list-style-type: none"> * Set the correct label size.
Gray line on the blank label	<ul style="list-style-type: none"> * The print head is dirty. * The platen roller is dirty. 	<ul style="list-style-type: none"> * Clean the print head. * Clean the platen roller. (Please refer to chapter 9)
Irregular printing	<ul style="list-style-type: none"> * The printer is in Hex Dump mode. * The RS-232 setting is incorrect. 	<ul style="list-style-type: none"> * Turn off and on the printer to skip the dump mode. * Re-set the Rs-232 setting.
Label feeding is not stable (skew) when printing	<ul style="list-style-type: none"> * The media guide does not touch the edge of the media. 	<ul style="list-style-type: none"> * If the label is moving to the right side, please move the label guide to left. * If the label is moving to the left side, please move the label guide to right.
Skip labels when printing	<ul style="list-style-type: none"> * Label size is not specified properly. * Sensor sensitivity is not set properly. * The media sensor is covered with dust. 	<ul style="list-style-type: none"> * 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.
Wrinkle Problem	<ul style="list-style-type: none"> * Printhead pressure is incorrect. * Ribbon installation is incorrect. * Media installation is incorrect. * Print density is incorrect. * Media feeding is incorrect. 	<ul style="list-style-type: none"> * 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	<ul style="list-style-type: none"> * The battery has run down. 	<ul style="list-style-type: none"> * Check if there is a battery on the main board.
The left side printout position is incorrect	<ul style="list-style-type: none"> * Wrong label size setup. * The parameter Shift X in LCD menu is incorrect. 	<ul style="list-style-type: none"> * Set the correct label size. * Press [Menu] → [Setting] → [Shift X] to fine tune the parameter of Shift X.

<p>The printing position of small label is incorrect</p>	<ul style="list-style-type: none"> * 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. 	<ul style="list-style-type: none"> * 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.  <p>The screenshot shows the 'Printer Preference' dialog box with the following settings:</p> <ul style="list-style-type: none"> Method: Use Current Printer Setting Type: Labels With Gaps Gap Height: 3.00 mm Gap Offset: 0.00 mm Post-Print Action: Tear Off Occurrence: After Every Page Interval: (empty) Feed Offset: 0.00 mm Position Adjustments: Vertical Offset: 0.00 mm (highlighted in red)
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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	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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

Revise History

Date	Content	Editor
2021/2/3	● Modify chapter 6-9 and 8	Linda
2021/3/9	● Modify Chp. 2.2.2 –No.2’s arrow position	Linda
2021/3/15	● Add inside diameter spec for the internal rewinder kit	Linda



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