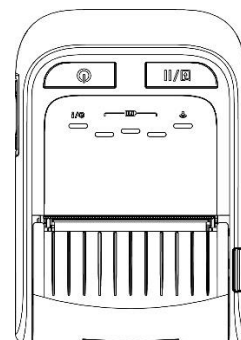


TDM-20

Direct Thermal Portable Printer

USER'S MANUAL



Copyright Information

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Agency Compliance and Approvals



2014/30/EU(EMC), 2014/35/EU(LVD), 2011/65/EU(RoHS 2.0)
EN 55032 Class B
EN 55024
EN61000-3-2:2014
EN61000-3-3:2013
EN 60950-1



FCC part 15B, Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

This device complies with Part 15 of the FCC Rules. 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 Class B digital apparatus complies with Canadian ICES-003
Cet appareil numérique de la classe B est conforme à la norme
NMB-003 du Canada.



AS/NZS CISPR 22 Class B
AS/NZS CISPR 32 Class B



NOM-019-SCFI-1998



10 C.F.R. Section 430.23(aa) (Appendix Y to Subpart B of part 430)



TP TC 004/2011
TP TC 020/2011



LP0002



GB 4943.1
GB/T9254
GB 17625.1



IS 13252(Part 1)/
IEC 60950-1



CNS 13438
CNS 14336-1
CNS 15663



KN 32 / KN 35

Important safety instructions:

1. Read all of these instructions and keep them for later use.
2. Follow all warnings and instructions on the product.
3. Disconnect the power plug from the AC outlet before cleaning or if fault happened.
Do not use liquid or aerosol cleaners. Using a damp cloth is suitable for cleaning.
4. The mains socket shall be installed near the equipment and easily accessible.
5. The unit must be protected against moisture.
6. Ensure the stability when installing the device, Tipping or dropping could cause damage.
7. Make sure to follow the correct power rating and power type indicated on marking label provided by manufacture.
8. Please refer to user manual for maximum operation ambient temperature.

重要安全說明：

1. 閱讀所有這些說明，並保留以備未來使用。
2. 按照產品上的所有警告和說明進行操作。
3. 在清潔前或發生故障時，拔除電源插頭與交流電源插座的連接。
不要使用液體或噴霧清潔劑。建議使用濕布清潔。
4. 電源插座應安裝在設備附近及方便使用處。
5. 本機器必須防止潮濕。
6. 確保安裝設備時的穩定性，翻倒或跌落可能會導致設備損壞。
7. 確保按照製造商提供的標籤上標明之正確的額定功率和電源類型進行設定。
8. 請參考使用手冊以確認環境溫度的最大值。

WARNING:

Hazardous moving parts, keep fingers and other body parts away.

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.

警告：

（對於帶有 RTC（CR2032）電池或可充電電池組的設備）

如果更換不正確的電池類型，會有爆炸的危險。

請按照以下說明處理廢電池：

1. 請勿將電池投入火中。
2. 請勿使觸點短路。
3. 請勿拆卸電池。
4. 請勿將電池丟入都市廢棄物。
5. 垃圾桶畫叉圖案表示電池不應放置在都市廢棄物中。



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

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.

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 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 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)

警告：

本電池如果更換不正確會有爆炸的危險，請依製造商說明書處理用過之電池。

NBTC SDoC

MFi for 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)

iPad, iPad Air, iPad Pro, iPhone are trademarks of Apple Inc., registered in the U.S. and other countries.

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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California Perchlorate Material Notice

Perchlorate material - special handling may apply. See:

<http://www.dtsc.ca.gov/hazardouswaste/perchlorate/>

This product's coin cell battery may contain perchlorate and may require special handling when recycled or disposed of in California.

單元Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛Lead (Pb)	汞Mercury (Hg)	鎘Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr ⁺⁶)	多溴聯苯 Polybrominate d biphenyls (PBB)	多溴二苯醚 Polybrominate d diphenyl ethers (PBDE)
內外塑膠件	○	○	○	○	○	○
內外鐵件	-	○	○	○	○	○
滾輪	○	○	○	○	○	○
銘版	○	○	○	○	○	○
電路板	-	○	○	○	○	○
晶片電阻	-	○	○	○	○	○
積層陶瓷表面 黏著電容	○	○	○	○	○	○
集成電路-IC	-	○	○	○	○	○
電源供應器	○	○	○	○	○	○
印字頭	-	○	○	○	○	○
馬達	-	○	○	○	○	○
液晶顯示器	-	○	○	○	○	○
插座	-	○	○	○	○	○
線材	-	○	○	○	○	○
備考 1. “超出 0.1 wt %” 及 “超出 0.01 wt %” 係指限用物質之百分比含量超出百分比含量基準值。 Note 1 : “Exceeding 0.1 wt %” and “exceeding 0.01 wt %” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.						
備考 2. “○” 係指該項限用物質之百分比含量未超出百分比含量基準值。 Note 2 : “○” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.						
備考 3. “-” 係指該項限用物質為排除項目。 Note 3 : The “-” indicates that the restricted substance corresponds to the exemption.						

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1. Introduction

1.1 Product Introduction

Thank you very much for purchasing TSC bar code printer.

Enjoy TSC's reputation for cost-efficient, high durability printers with the TDM-20 mobile barcode printer. The TDM-20 is a compact, light-weight printer capable of working with any mobile printing application where you need quick simple receipts/labels on demand.

The TDM-20 is designed for a rough life, inside the IP54-rated environmental case to resist dust and water and with its durable design prepared to take up to 2.5 meters fall and keep printing.

This small and light-weight printer can be worn comfortably for a full shift, without interfering with the user's tasks. Use USB, NFC tag, Bluetooth, or Wi-Fi a/b/g/n and BT4.2 coexist module to connect to a mobile computer or even a smartphone and produce clear easy-to-read receipts hour after hour.

To print the receipt or labels, you can use the enclosed labeling software or TSC printer language to create the label template. For more information about TSPL2, please refer to the TSPL/TSPL2 programming manual at [TSC website](#).

- Applications
 - Direct store deliveries (DSD)
 - Proof of Delivery and Pickup
 - Field Sales/Repairs
 - Mobile Ticketing
 - Table Side Ordering
 - Parking Citations
 - Onboard Ticketing
 - Utility Billing/Meter Reading
 - Laboratory

1.2 Product Features

1.2.1 Printer Standard Features

The printer offers the following standard features.

Features Description
Direct thermal printing
Black mark reflective sensor
Head open sensor
3 operation buttons (On/off, feed/pause, and cover-open buttons)
LED version: <ul style="list-style-type: none">● 5 LEDs: 1 for printer status; 3 for Battery capacity; 1 for wireless status
Audible alert Programmable buzzer
Rechargeable Li-ion battery
32-bit RISC high performance processor
Micro USB 2.0 (high speed mode) interface
32 MB DRAM
16 MB Flash memory
TSPL-EZD (EPL2, ZPL2, and DPL), Epson® ESC-POS or TSPL-EZ with CPCL emulation languages support
Fonts and bar codes can be printed in any one of the four directions (0, 90, 180, 270 degree)
8 alpha-numeric bitmap fonts
One Monotype Imaging® CG Triumvirate Bold Condensed scalable font
Built-in Monotype True Type Font engine
Downloadable fonts from PC to printer memory
Downloadable firmware upgrades
Support TPH Care function

Text, bar code, graphics/image printing (Please refer to the TSPL/TSPL2 programming manual for supporting code page)

Supported bar code		Supported Image Format
1D bar code	2D bar code	Windows .BMP, .PCX (Max. 256 colors graphics)
Code128 subsets A.B.C, Code128UCC, EAN128, Interleave 2 of 5, Code 39, Code 93, EAN-13, EAN-8, Codabar, POSTNET, UPC-A, UPC-E, EAN and UPC 2(5) digits add-on, MSI, PLESSEY, China Post, ITF14, EAN14, Code 11, TELPEN, PLANET, Code 49, Deutsche Post Identcode, Deutsche Post Leitcode, LOGMARS	CODABLOCK F mode, DataMatrix, Maxicode, PDF-417, Aztec, MicroPDF417, QR code, RSS Barcode (GS1 Databar)	

1.2.2 Printer Optional Features

The printer offers the following optional features.

Features Description	User options	Factory options
802.11 a/b/g/n Wi-Fi and Bluetooth V4.2, NFC tag, and USB 2.0 high-speed interface		<input type="radio"/>
MF i Bluetooth V5.0 with NFC tag and USB 2.0 high-speed interface		<input type="radio"/>
Vehicle mount kit		<input type="radio"/>
Vehicle docking cradle		<input type="radio"/>
Linerless kit		<input type="radio"/>
Micro type USB 2.0 cable	<input type="radio"/>	
Rechargeable Li-ion battery	<input type="radio"/>	
4-slot battery charger	<input type="radio"/>	
1-slot docking cradle (use with printer ready for docking cradle)	<input type="radio"/>	
4-slot docking cradle (use with printer ready for docking cradle)	<input type="radio"/>	
12-24VDC automobile cigarette lighter plug	<input type="radio"/>	

12-60VDC adaptor with cigarette lighter adaptor cable	<input type="radio"/>	
Media spacer kit (support media roll width for 1, 1.5, and 2 inches)	<input type="radio"/>	
IP54-rated environmental case with shoulder strap	<input type="radio"/>	
Shoulder strap kit (without environmental case)	<input type="radio"/>	
CD	<input type="radio"/>	

1.3 General Specifications

General Specifications	
Physical dimensions	79 mm (W) x 36.5 mm (H) x 116 mm (D)
Enclosure	Plastic
Weight (w/ battery)	0.215 kg (0.47 lbs)
Electrical	<ul style="list-style-type: none"> ■ Internal charging capability (battery-in) Input: AC 100-240V, 2.5A, 50-60Hz Output: DC 12V/ 1A ■ 12-24V DC automobile cigarette lighter plug ■ Auto-switching AC adapter <p>External charging capability (battery-out)</p> <ul style="list-style-type: none"> ■ Single printer charger station <ul style="list-style-type: none"> - Input: 12V/ 1A - Output: 12V/ 0.9A ■ 4-bay printers charger station <ul style="list-style-type: none"> - Input: 12V/ 5A - Output: 12V/ 0.9A (each bay) ■ 4 bay batteries charger station <ul style="list-style-type: none"> - Input: 24V/ 2.5A DC - Output: 8.4V/ 1.5A*4 DC ■ Battery pack Capacity: 1,130 mAh Output: 7.4V <p>Note: The printer will automatically turn off when stopping operation after 30 minutes.</p>

Battery	Output	7.4VDC
	Capacity	1,130mAh
	Charging time	2.5hrs under the condition of 25°C (by 12V/1A charger)
Environmental condition	<p>Operation Temperature: -15* ~ 50°C (5 ~ 122°F)</p> <p>Storage Temperature: -30 ~ 70 °C (-22 ~ 158°F)</p> <p>Relative Humidity:</p> <ul style="list-style-type: none"> - Operation: 10% to 90% non-condensing - Storage: 10% to 90% non-condensing <p>IP42 w/o protective case</p> <p>IP54 w/ protective case</p> <p>Drop 1.8 m (5.9 ft) w/o IP54-rated environmental case</p> <p>Drop 2.5 m (8.2 ft) w/ IP54-rated environmental case</p>	

Note:

**The operation condition is as below.*

4 ips, density 8, printing coverage 12.5%, 2 min. print 1 label with Bluetooth connection. The printer can work for 8.6 hours.

1.4 Print Specifications

Print Specifications	TDM-20
Print head resolution	203 dots/inch (8 dots/mm)
Printing method	Direct thermal
Dot size (width x length)	0.125 x 0.125 mm (1 mm = 8 dots)
Print speed (inches per second)	Max. 4 ips (102 mm/sec)
Max. print width	48 mm (1.89")
Max. print length	Continuous receipt paper: 2,794 mm (110")
Printout bias	Vertical: 1 mm max.
	Horizontal: 1 mm max.

1.5 Media Specifications

Media Specifications	TDM-20
Media roll capacity	Max. O.D.: 30 mm (1.18")
Media type	Continuous, black mark, partial label with gap (liner is transparent and can be detectable by reflective sensor) & selected liner free label
Media wound type	Outside wound
Media length	25.4 mm (1") ~ 2,794 mm (110") Tear mode: 50 mm (1.97") ~ max. print length
Media width	Max. 58 mm (includes liner) Black mark: min.8 mm (w) x 2 mm (h)
Media thickness	0.06 mm (2 mil) ~ 0.10 mm (3.94 mil)

Note: Please locate the black mark on the printing side when using black mark continuous label.

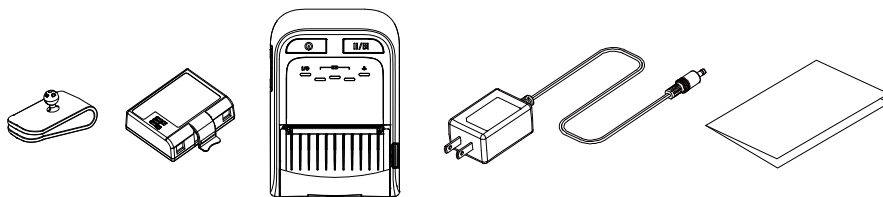
2. Operations Overview

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 Li-ion battery
- One quick installation guide
- One auto-switching AC adapter
- One belt clip



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

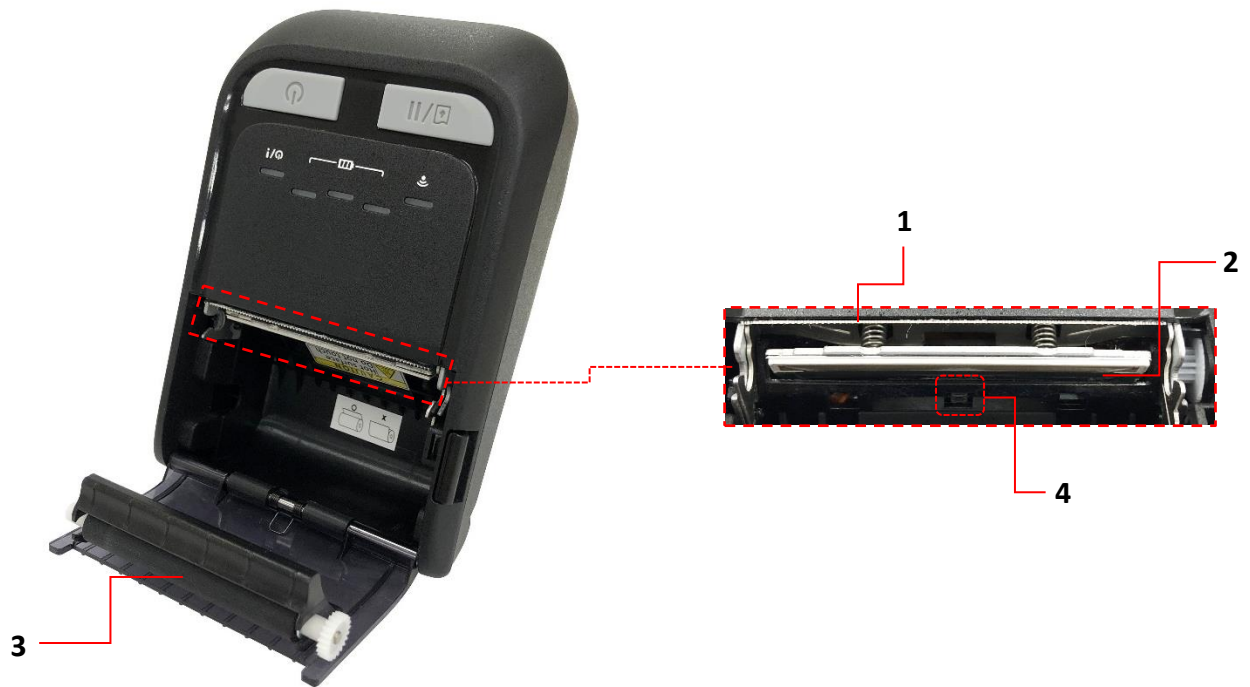
2.2 Printer Overview

2.2.1 Front View



1. Power on/off button
2. Feed/stop button
3. LED indicators
4. Media cover
5. Media view window
6. Media cover release button

2.2.2 Interior View



1. Tear edge
2. Print head
3. Platen roller
4. Black mark sensor

2.2.3 Rear View





- 1. Li-ion Battery
- 2. Battery open clasp
- 3. Interface cover
- 4. Power jack
- 5. USB interface




2.3 Operator control

2.3.1 LED Indication and Keys



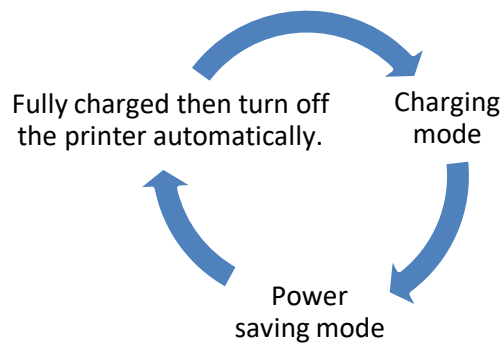
- 1. Power on/off button
- 2. Feed/Pause button
- 3. Printer status LED indicator
- 4. Battery charge level LED indicators
- 5. Wireless status LED indicator


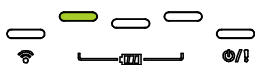



Keys	Function
	<ul style="list-style-type: none">1. Press and hold for 2-3 seconds to turn on the printer.2. Press and hold for 2-3 seconds to turn off the printer.
	<ul style="list-style-type: none">1. Ready status: Feed one label2. Printing status: Pause the print job

LED	Status		Indication
Printer status LED indicator 	Off		Printer is ready
	Green (blinking)		Printer is paused
	Green (blinking every two seconds)		Sleep mode/ entered the sleep mode after stop working over 2 minutes (The interval can be changed by revising the command, refer to TSPL/TSPL2 programming manual on TSC website).
	Red (solid)		Media cover is open
	Red (blinking)		Printer error
	Amber (blinking)		Battery is charging.
Battery status LED indicator 	Green (blinking)		Battery is charging.
	Green (solid)		Battery is charged.
Wireless/Bluetooth status LED indicator 	Bluetooth/ Wi-Fi	Blue (blinking)	Bluetooth/ Wi-Fi device is communicating.
		Blue (solid)	Bluetooth/ Wi-Fi device is ready.

2.3.2 Battery Charging Cycle

1. Charging the battery when the printer **turns on**.


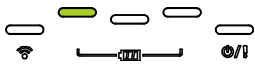
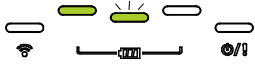
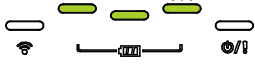
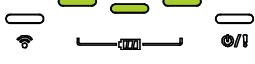


Charging cycle	LED version	
<div>1. Charging the battery when the printer turns on.</div> <div></div>	<div></div>	Charging level: 0~30%
	<div></div>	Charging level: 30~60%
	<div></div>	Charging level: 60~100%
	<div></div>	Charging level: 100%
<div>2. Power saving mode</div>	<div>1. Printer status LED blinks amber light.</div> <div>2. Push power on/off button when charging the battery, the printer will leave power saving mode.</div> <div>3. Remove the power supply of the printer will leave power saving mode.</div>	
<div>3. Fully charged then turn off the printer automatically.</div>		

Note:

1. Printer status LED blinks amber light when charging the battery.
2. Push power on/off button when charging the battery, the LED lights will shows the charging status.
3. After the battery was fully charged and stopped print job for a while, the printer will automatically turn-off.

2. Charging the battery when the printer **turns off**.

Charging cycle	LED version	
Charging the battery when the printer turns off. 		Charging level: 0~30%
		Charging level: 30~60%
		Charging level: 60~100%
		Charging level: 100%

Note:

1. Printer status LED blinks amber light when charging the battery.
2. Push power on/off button when charging the battery, the LED lights will shows the charging status.
3. After the battery was fully charged and stopped print job for a while, the printer will automatically turn-off.

3. Setup

3.1 Install the Battery



1. Insert battery to the left side of battery slot on the rear of the printer.




2. Push the battery down and pull the battery clasp to lock the battery.

Battery safety warning:

1. DO NOT throw the battery in fire. DO NOT short circuit the contacts.
2. DO NOT disassemble the battery. DO NOT throw the battery in municipal waste.





3. The symbol of the crossed out wheeled bin () indicates that the battery should not be placed in municipal waste.

3.2 Charge the Battery

It takes 1.5 to 2 hours to fully charge the battery before the first time usage. The lifetime of the battery is 300 times for charge/discharge cycles.


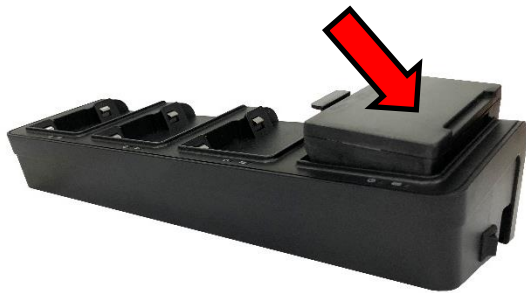

3.2.1 Charge the Battery

	<ol style="list-style-type: none">1. Open the interface cover and plug the power cord into the power jack.
	<ol style="list-style-type: none">2. Plug the power cord into a properly power outlet. <p>Note: Please refer to section 2.3.2 for more information about battery charging cycle.</p>

Charging Temperature

The battery normal working condition is from 0°C to 40°C (32 °F to 104 °F). The device or battery charger always perform battery charging in a safe and optimum manner. At higher temperatures (e.g. approximately +40 °C (+104 °F) or charging when turning on the printers), the printer or battery charger may stop charging for a period of time to keep the battery at acceptable temperatures.

3.2.2 Charge by 4-bay Battery Charger Station (Optional)

	<ol style="list-style-type: none">1. Plug the power cord to the power jack on the charger station.
	<ol style="list-style-type: none">2. Insert the printer along the slot to the charger station as pictured. Note: Please refer to section 3.1 for battery installation procedure.
	<ol style="list-style-type: none">3. Push the battery clasp and properly install the battery4. Plug the power cord into a properly power outlet then turn on the power switch. It will start charging. Note: The battery is completely charged and the amber of LED indicator will be off and turns to green.

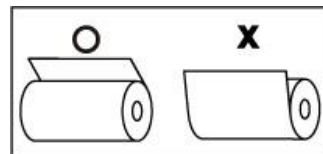
3.4 Loading the Media



1. Open the printer media cover by pressing the media cover release button.



2. Place the media roll at the correct side, and pull out enough paper over the tear edge.



3. Press the media cover on both sides to close it and make sure the media cover have closed correctly.

4. Accessories

4.1 Install the Belt Clip



1. Turn the battery to rear side and lock the belt clip on the hole at the top of the printer.

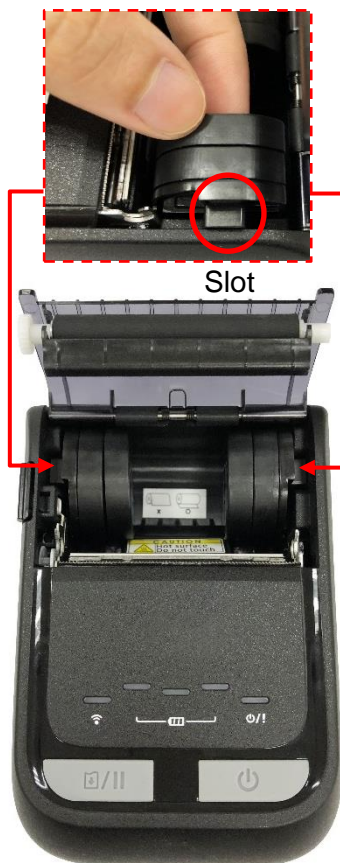


2. Press the ball on the belt clip to the hole as pictured. The printer can be hung on the belt.

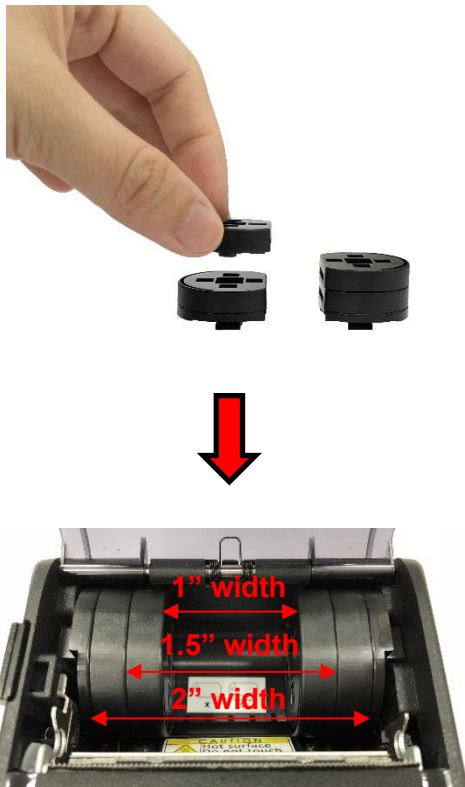
4.2 Install the Media spacer kit (Optional)



1. Open the printer media cover by pressing the media cover release button.



2. Insert the media spacers to both sides of slots then complete the installation.



Note:

1. The media spacer kit could easily change the media fix width ranged from 1", 1.5", to 2" by moving both sides of the adapters.
2. When install the media spacers, the number of media spacers should be same on both sides.

4.3 Install the IP54-rated environmental case with shoulder strap (Optional)



1. Open the zip along the arrow direction indicated on case cover.

Zip of case cover

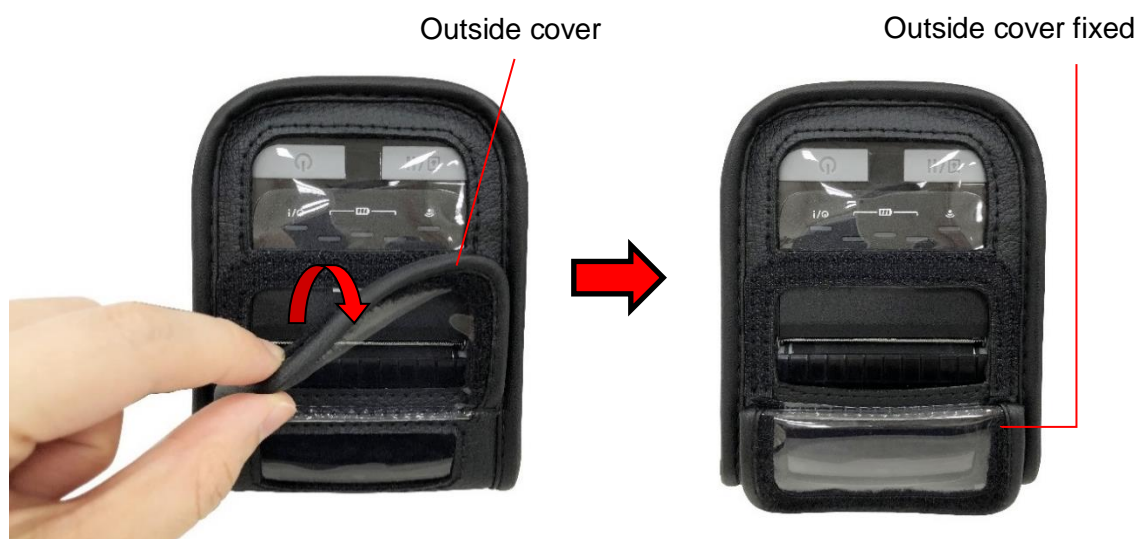


2. Place the printer in the case.

Note:

The printing side must face the outside cover as indicated.

-
3. Zip up the case cover. The outside cover should be opened and fixed while printing.



4.4 Install Shoulder strap kit (Optional)



1. Turn the printer to rear side, remove the battery on the rear of the printer and lock the shoulder strap kit on the hole above the battery as indicated.



2. Reinstall the battery, and the printer can be hung on the shoulder strap.

4.5 Install Vehicle holder adapter for RAM mount (Optional)



Copper pillars

1. Turn the printer to the rear side.

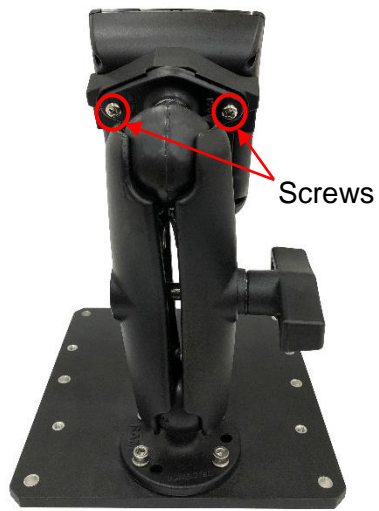
Note:

Please choose the printer with **copper pillars** as indicated.



Copper pillars

2. Install the vehicle holder adapter align with the copper pillars and fix with two screws as indicated.






3. Fix the vehicle holder adapter on the ball adapter by two screws.



4. Install and fix the vehicle holder with ball adapter on RAM mount then complete installation.
Note: The RAM mount is not included in the option.

4.6 Charge by 1-bay Printer Charger Station (Optional)

	<ol style="list-style-type: none">1. Push the printer properly to the charger station.
	<ol style="list-style-type: none">2. Plug the power cord to the power jack on the charger station.
	<ol style="list-style-type: none">3. Plug the power cord into a properly power outlet.



4. After the power outlet of the charger station is connected, the printer will start charging.

Note:

When the battery is completely charged, the amber of LED indicator will be off and shows fully charged green lights.

4.7 Charge by 4-bay Printer Charger Station (Optional)



**Vertical placement
(must be installed with base support)**



Horizontal placement

1. Users could install the 4-bay charger station in vertical or horizontal positions.



**Vertical placement
(must be installed with base support)**

2. Install the printer on the charger station as indicated.



Horizontal placement



3. Plug the power cord to the power jack on the charger station.



4. Plug the power cord into a properly power outlet.

-
5. Turn on the power switch on the charger station, it will flash the blue light and start charging.



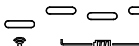




Note: When the battery is completely charged, the amber of LED indicator will be off and shows fully charged green LED.

5. Power-on Utilities

There are three power-on utilities to set up and test printer hardware. These utilities are activated by pressing FEED button (📄/🔌) then turning on the printer power simultaneously and release the button at different positions of LED indicator.

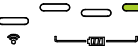
Please follow the steps below for different power-on utilities.

1. Turn off the printer.
2. Hold on the FEED button (📄/🔌) then turn on the printer (🔌).
3. Release the button (📄/🔌) when LED indicates with different positions for different functions.

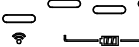
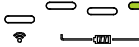
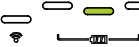
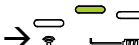

Power on utilities	The positions of LED light will be changed as following pattern:				
LED					
Functions	 (solid)	 (5 blinks)	 (5 blinks)	 (5 blinks)	 (Solid green)
1. Media sensor calibration		Release			
2. Self-test and enter dump mode			Release		
3. Printer initialization				Release	

5.1 Media Sensor Calibration

Please follow the steps below to calibrate the media sensor.





1. Turn off the printer.
2. Hold on the FEED button (📄/🔌) then turn on the printer (🔌).
3. Release the FEED button (📄/🔌) when the indicator becomes  and blinking. (Any green will do during the 5 blinks)

- It will calibrate the black mark sensor sensitivity.
- The LEDs will be changed as following order:




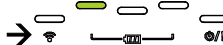

 (amber) →  (5 blinks) →  (5 blinks)
 →  (5 blinks) →  (solid green)

5.2 Self-test and Dump Mode

Please follow the steps below.

1. Turn off the printer.
2. Hold on the FEED button () then turn on the printer () .
3. Release the FEED button () when the indicator becomes  and blinking. (Any green will do during the 5 blinks)

■ The LEDs will be changed as following order:

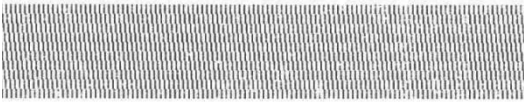
 (amber) →  (5 blinks) →  **(5 blinks)**
→  (5 blinks) →  (solid green)

4. It calibrates the sensor and measures the media length and prints internal settings then enter the dump mode.
5. Turn off / on the power to resume printer for normal printing.

■ Self-test

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

Self-test printout	
<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) ----- </pre>	<p>Model name</p> <p>F/W version</p> <p>Firmware checksum</p> <p>Printer S/N</p> <p>TSC configuration file</p> <p>System date</p> <p>System time</p> <p>Printed mileage (meter)</p> <p>Cutting counter</p>
<pre> ----- 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 ----- </pre>	<p>Print speed (inch/sec)</p> <p>Print darkness</p> <p>Label size (inch)</p> <p>Gap distance (inch)</p> <p>Gap/black mark sensor intension</p> <p>Code page</p> <p>Country code</p>
<pre> ----- 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 ----- </pre>	<p>ZPL setting information</p> <p>Print darkness</p> <p>Print speed (inch/sec)</p> <p>Label size</p> <p>Control prefix</p> <p>Format prefix</p> <p>Delimiter prefix</p> <p>Printer power up motion</p> <p>Printer head close motion</p> <p>Note: ZPL is emulating for Zebra® language.</p>

<pre> ----- BT SETTING ----- MAC ADDR: 000CBF12170F NAME: RF-BHS PIN CODE: 0000 PRINTER NAME: PS-12170F PAIR MODE: LEGACY MFi SUPPORTED: YES ----- </pre>	<p>BT setting information</p>
<pre> ----- DRAM FILE (0 FILES) ----- PHYSICAL XXXX KBYTES AVAILABLE XXXX KBYTES ----- ----- FLASH FILE (0 FILES) ----- PHYSICAL XXXX KBYTES AVAILABLE XXXX KBYTES ----- </pre> 	<p>Numbers of download files Total & available memory space</p> <p>Print head check pattern</p>

■ Dump mode

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

ASCII Data	→	<pre> SPEED 2.0 53 50 45 45 44 20 32 2E 30 0D DENSITY 8 0A 44 45 4E 53 49 54 59 20 38 SET PEEL 0D 0A 53 45 54 20 50 45 45 4C OFF DIRE 20 4F 46 46 0D 0A 44 49 52 45 CTION 0 0 43 54 49 4F 4E 20 30 0D 0A 47 AP 3.00 mm 41 50 20 33 2E 30 30 20 6D 6D .0.00 mm 2C 30 2E 30 30 20 6D 6D 0D 0A REFERENCE 52 45 46 45 52 45 4E 43 45 20 0.0 SET C 30 2C 30 0D 0A 53 45 54 20 43 UTTER OFF 55 54 54 45 52 20 4F 46 46 0D SIZE 100. 0A 53 49 5A 45 20 31 30 30 2E 02 mm.65.0 30 32 20 6D 6D 2C 36 35 2E 30 4 mm CLS 3A 20 6D 6D 0D 0A 43 4C 53 0D 4 BARCODE 1 0A 42 41 52 43 4F 44 45 20 31 44.149."39 34 34 2C 31 34 39 2C 22 33 39 ".120.1.0. 22 2C 31 32 30 2C 31 2C 30 2C 2.6."57114 32 2C 36 2C 22 35 37 31 31 34 3BT" PRIN 33 38 54 22 0D 0A 50 52 49 4E T 1.1 SPE 54 20 31 2C 31 0D 0A 53 50 45 ED 2.0 DE 45 44 20 32 2E 30 0D 0A 44 45 NSITY 8 S 4E 53 49 54 59 20 38 0D 0A 53 ET PEEL OF 45 54 20 50 45 45 4C 20 4F 46 F DIRECTI 46 0D 0A 44 49 52 45 43 54 49 ON 0 GAP 4F 4E 20 30 0D 0A 47 41 50 20 3.00 mm.0. 33 2E 30 30 20 6D 6D 2C 30 2E 00 mm REF 30 30 20 6D 6D 0D 0A 52 45 46 ERENCE 0.0 45 52 45 4E 43 45 20 30 2C 30 SET CUTT 0D 0A 53 45 54 20 43 55 54 54 ER OFF SI 45 52 20 4F 46 46 0D 0A 53 49 ZE 100.02 5A 45 20 31 30 30 2E 30 32 20 mm.65.04 m 6D 6D 2C 36 35 2E 30 34 20 6D m CLS BA 6D 0D 0A 43 4C 53 0D 0A 42 41 RCODE 144. 52 43 4F 44 45 20 31 34 34 2C 149."39".1 31 34 39 2C 22 33 39 22 2C 31 20.1.0.2.0 32 30 2C 31 2C 30 2C 32 2C 36 ".571143BT 2C 22 35 37 31 31 34 33 38 54 . PRINT 1 22 0D 0A 50 52 49 4E 54 20 31 .1 2C 31 0D 0A </pre>	←	Hex decimal data related to left column of ASCII data
------------	---	--	---	---




Note:

1. Labels' minimum width for Dump Mode testing is 2". (The default size for Dump Mode depends on printer's size. For smaller labels, manually adjust width on setting is needed.)
2. Turn off / on the power to resume printer for normal printing.



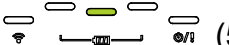


5.3 Printer Initialization

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

Printer initialization is activated by the following procedures.

1. Turn off the printer.
2. Hold on the FEED button () then turn on the printer () .
3. Release the FEED button when the indicator becomes  and blinking.
(Any green will do during the 5 blinks).

- The LEDs will be changed as following order:

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



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

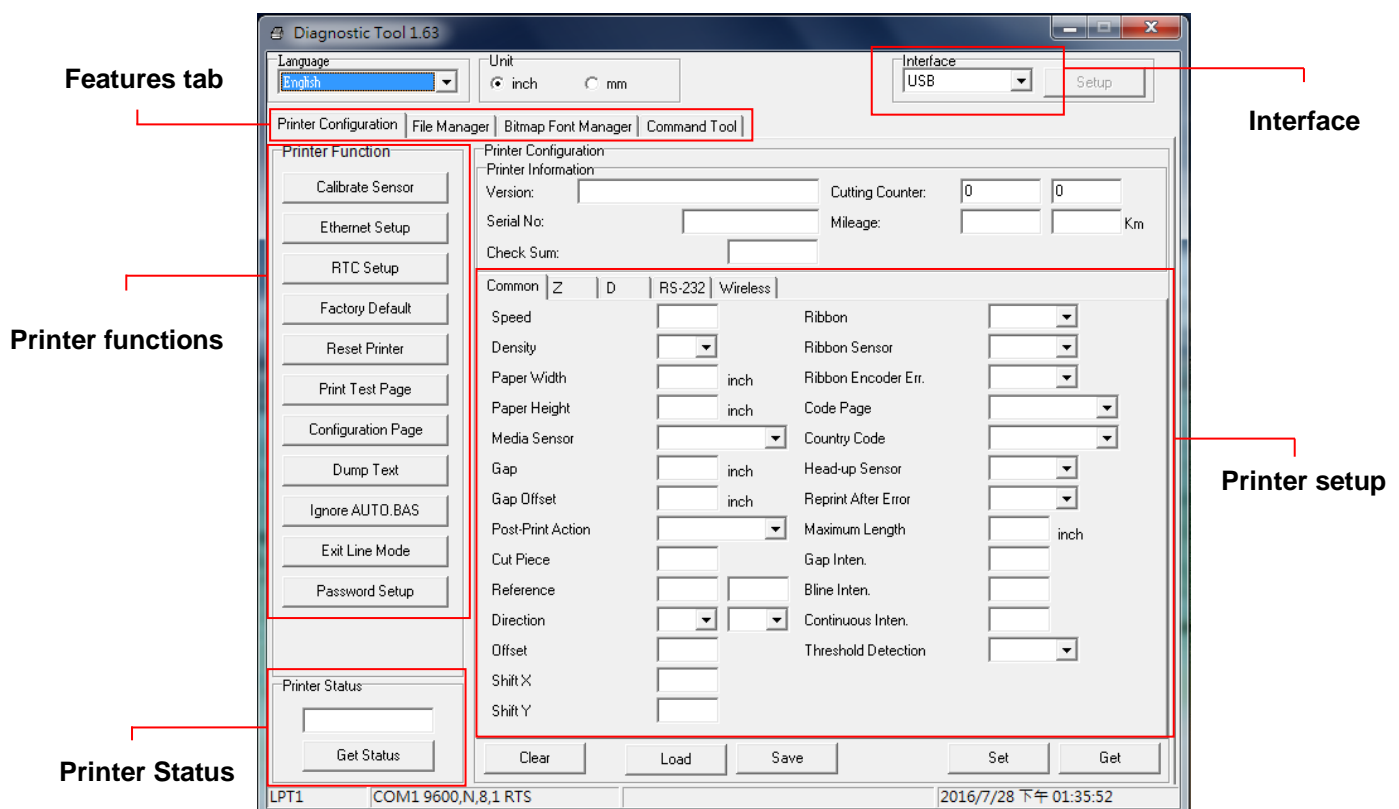
Parameter	Default setting
Speed	76.2 mm/sec (3 ips)
Density	8
Media Width	1.89" (48 mm)
Media Height	2" (50.8 mm)
Print Direction	0
Reference Point	0,0 (upper left corner)
Offset	0
Code Page	850
Clear Flash Memory	No
IP Address	DHCP

6. Diagnostic Tool

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

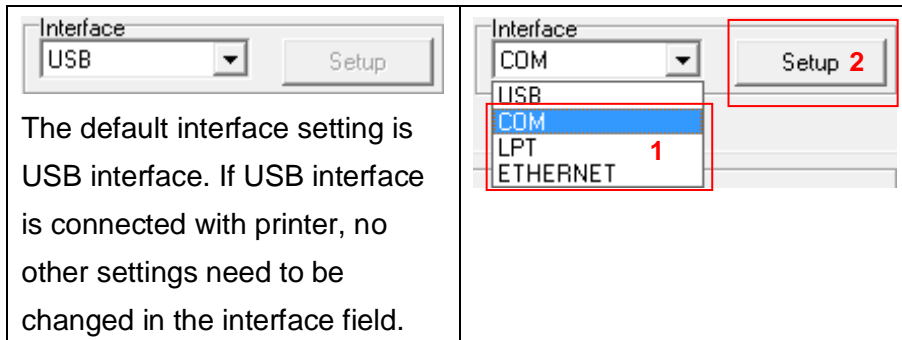
6.1 Start the Diagnostic Tool

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



6.2 Printer Function

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



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

Printer Function	Function	Description
Calibrate Sensor	Calibrate Sensor	Calibrate the sensor specified in the Printer Setup group media sensor field
Ethernet Setup	Ethernet Setup	Setup the IP address, subnet mask, gateway for the on board Ethernet
RTC Setup	RTC Setup	Synchronize printer Real Time Clock with PC
Factory Default	Factory Default	Initialize the printer and restore the settings to factory default. (Please refer section 5.3)
Reset Printer	Reset Printer	Reboot printer
Print Test Page	Print Test Page	Print a test page
Configuration Page	Configuration Page	Print printer configuration (Please refer section 5.2)
Dump Text	Dump Text	To activate the printer dump mode.
Ignore AUTO.BAS	Ignore AUTO.BAS	Ignore the downloaded AUTO.BAS program
Exit Line Mode	Exit Line Mode	Exit line mode.
Password Setup	Password Setup	Set the password to protect the settings

For more information about Diagnostic Tool, please refer to the diagnostic utility quick start guide on TSC website at [Downloads \ Manuals \ Utilities \ Diagnostic utility quick start guide](#).

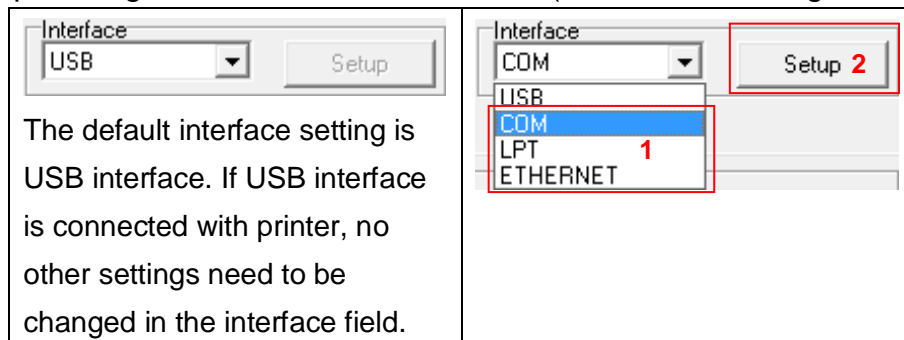
Note: The three different print modes below are available, you can download the command on TSPL/TSPL2 programming manual at [TSC website](#):

Print modes	
DRAFT	High print speed with lower density.
OPTIMUM	According to the label content such as barcode, text, and graphic to lower the print speed for getting higher print quality.
STANDARD (default)	Standard print speed and quality.

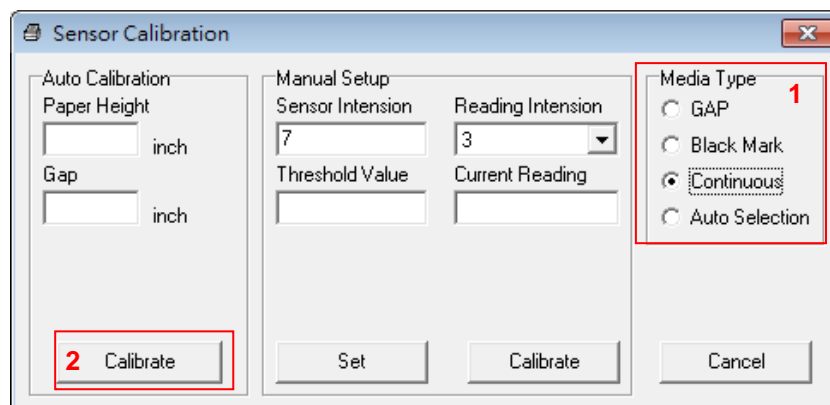
6.3 Calibrating Media Sensor by Diagnostic Tool

6.3.1 Auto Calibration

1. Make sure the media is already installed and media cover is closed. (Please refer to [section 3.4](#))
2. Turn on the printer power switch.
3. Open Diagnostic tool and set interface. (The default setting is USB)



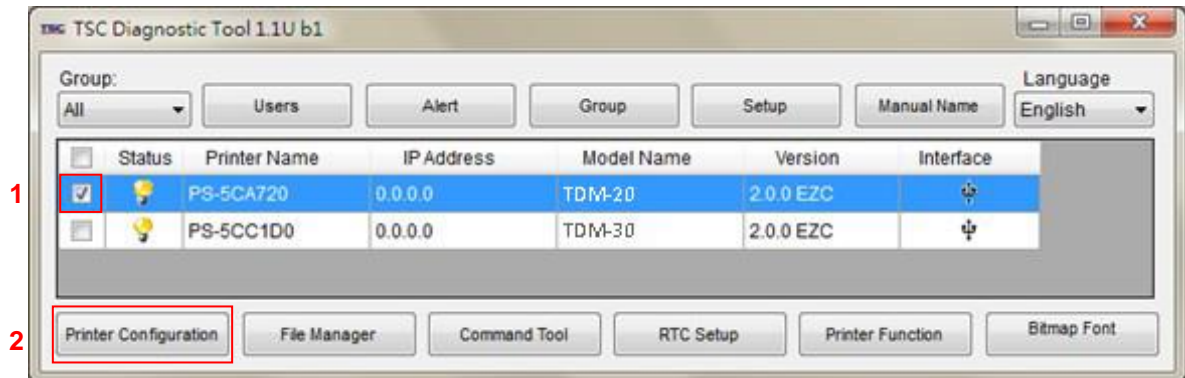
4. Click the “Calibrate Sensor” button.
5. Select the media type and click the “Calibrate” button.



Note: The TDM-20 can only support continuous, die-cut, receipt, and black mark media type.

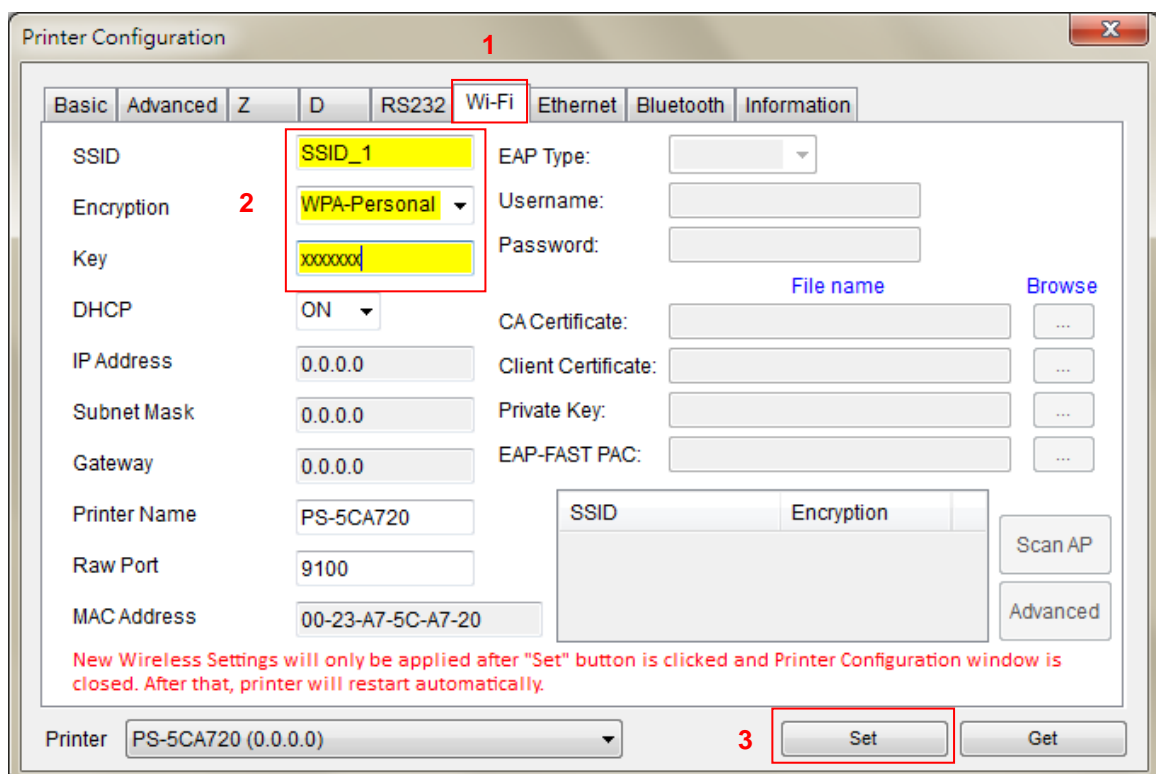
6.4 Setting Wi-Fi by Printer Management (Optional)

1. Make sure the media is already installed and media cover is closed. (Please refer to [section 3.4](#))
2. Connect the USB cable between the computer and the printer.
3. Turn on the printer power.
4. Start the Printer Management by double clicking on the icon.
5. Select the printer in the list then click the “Printer Configuration” button to enter the setting page.



6. Select the “Wi-Fi” tab to setup the wireless module.

▪ WPA-Personal



▪ WPA-Enterprise

Printer Configuration

Basic Advanced Z D RS232 **Wi-Fi** Ethernet Bluetooth Information

SSID: **SSID_2** (2)

Encryption: **WPA-Enterprise** (2)

Key:

DHCP: ON

IP Address: 0.0.0.0

Subnet Mask: 0.0.0.0

Gateway: 0.0.0.0

Printer Name: PS-5CA720

Raw Port: 9100

MAC Address: 00-23-A7-5C-A7-20

EAP Type:

Username:

Password:

CA Certificate: File name Browse

Client Certificate:

Private Key:

EAP-FAST PAC:

Scan AP

Advanced

New Wireless Settings will only be applied after "Set" button is clicked and Printer Configuration window is closed. After that, printer will restart automatically.

Printer: PS-5CA720 (0.0.0.0)

Set (4) Get

Note:

- * The default IP address is obtained by DHCP (Dynamic Host Configuration Protocol). To change the setting to static IP address, select DHCP item to "OFF" then enter the IP address, subnet mask and gateway.
- * On DHCP, user can change the printer name by another model name in "Printer Name" field.
- * User also can change the raw port in "Raw Port" field.
- * Before setting, the entered field will be shown in yellow for reminding.

7. After clicking "Set" button, close this "Printer Configuration" setup page and click "OK" button on "Confirm" window to reset the printer.

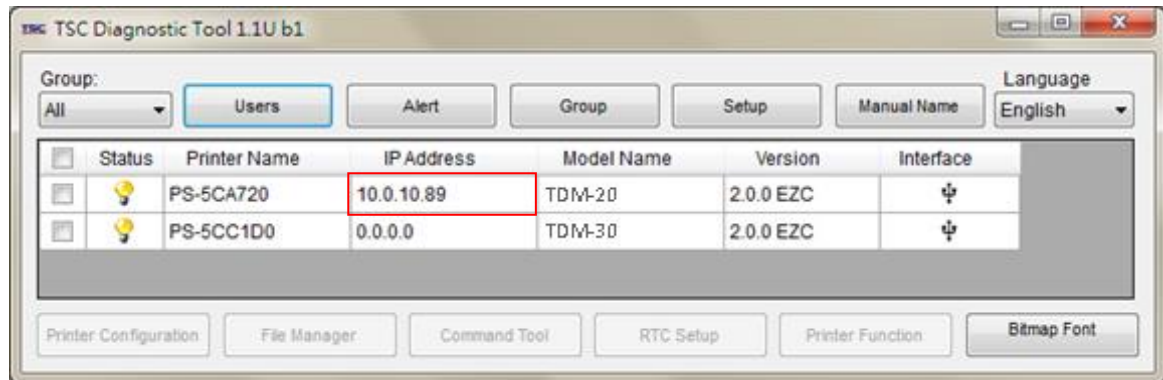
Confirm

Wireless settings are changed! The printer will reboot automatically to apply the new settings.

OK

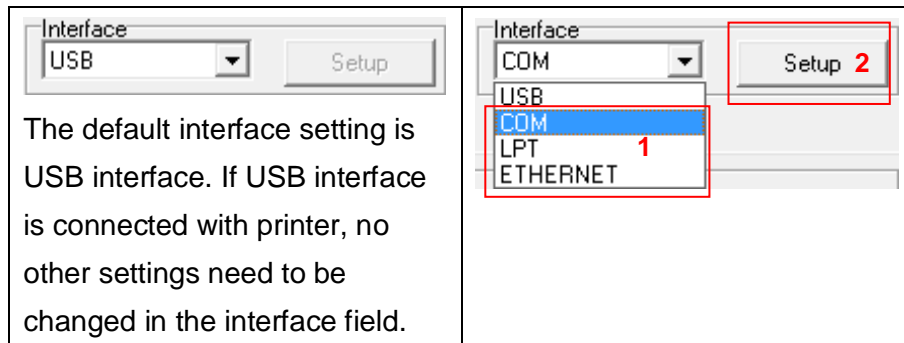
8. IP address will be shown in the "IP address" field. The Wi-Fi module has been connected.

Note: IP address should be shown within about 5~15 seconds after printer turn on. If not, please to setup it again.

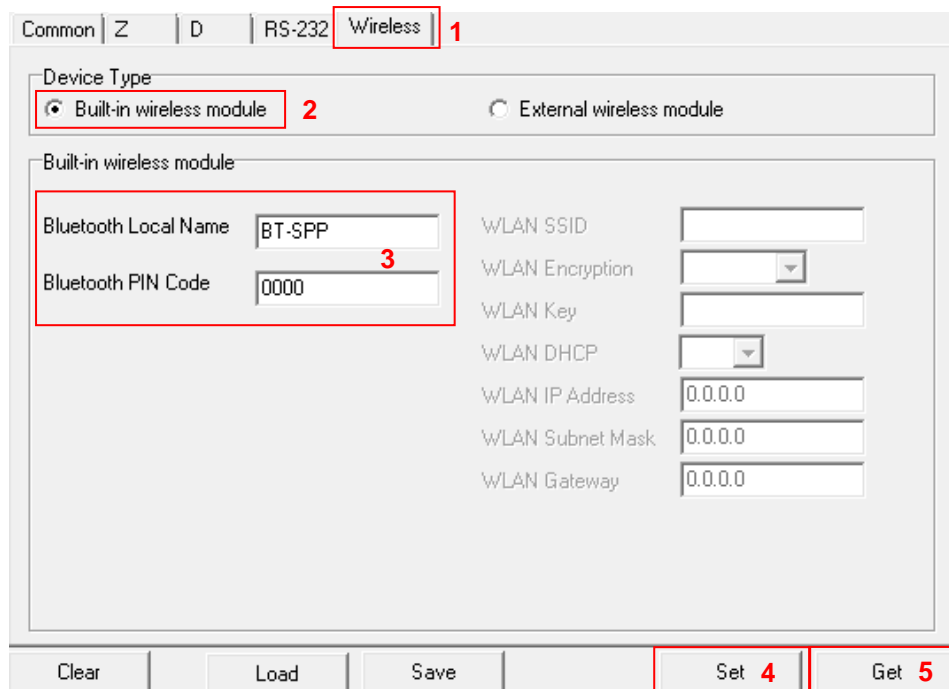


6.5 Setting Bluetooth by Diagnostic Tool (Optional)

1. Make sure the media is already installed and media cover is closed. (Please refer to [section 3.4](#))
2. Turn on the printer power switch.
3. Open Diagnostic tool and set interface. (The default setting is USB)



4. Select “Wireless” tab and “Built-in wireless module” item.
5. Enter the new BT Local Name or BT PIN Code in the editor.
6. Press “Set” button to set the new BT name or BT PIN code of the printer.
7. Press “Get” button to get back the settings. Make sure the Bluetooth module settings are set properly.



Note:

* The printer connects with the computer via USB cable, which is a user option.

7. Troubleshooting

7.1 Common Problems

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

Problem	Possible Cause	Recovery Procedure
Power indicator does not illuminate	<ul style="list-style-type: none"> * The battery is not properly installed. * The battery metal contacts pins are with dirt. * The battery is dead. 	<ul style="list-style-type: none"> * Clean the battery metal contacts. * Reinstall the battery. * Switch the printer on. * Charge the battery.
- The printer status from DiagTool shows "Head Open" .	<ul style="list-style-type: none"> * The media cover is open. 	<ul style="list-style-type: none"> * Please close the media cover.
- The printer status from DiagTool shows "Out of Paper" .	<ul style="list-style-type: none"> * Running out of media roll. * The media is installed incorrectly. * Black mark sensor is not calibrated. 	<ul style="list-style-type: none"> * Supply a new media roll. * Please refer to the steps on section 3.4 to reinstall the media roll. * Calibrate the black mark sensor.
- The printer status from DiagTool shows "Paper Jam" .	<ul style="list-style-type: none"> * Black mark sensor is not properly calibrated. * Make sure media size is set properly. * Media may be stuck inside the printer mechanism. 	<ul style="list-style-type: none"> * Calibrate the black mark sensor. * Set media size correctly. * Clean the printer mechanism.
Memory full (FLASH / DRAM)	<ul style="list-style-type: none"> * The space of FLASH/DRAM is full. 	<ul style="list-style-type: none"> * Delete unused files in the FLASH/DRAM. * Run printer self-test and check the available memory space for DRAM or FLASH. * Check the available memory space for DRAM or FLASH via DiagTool.
Poor Print Quality	<ul style="list-style-type: none"> * Media cover is not fully latched. * Dust or adhesive accumulation on the print head. * Print density is not set properly. * Print head element is damaged. 	<ul style="list-style-type: none"> * Make sure the right/ left side of media cover is fully latched. * 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 media roll.

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.
Irregular printing	* The printer is in Hex Dump mode.	* Turn off and on the printer to exit the dump mode.

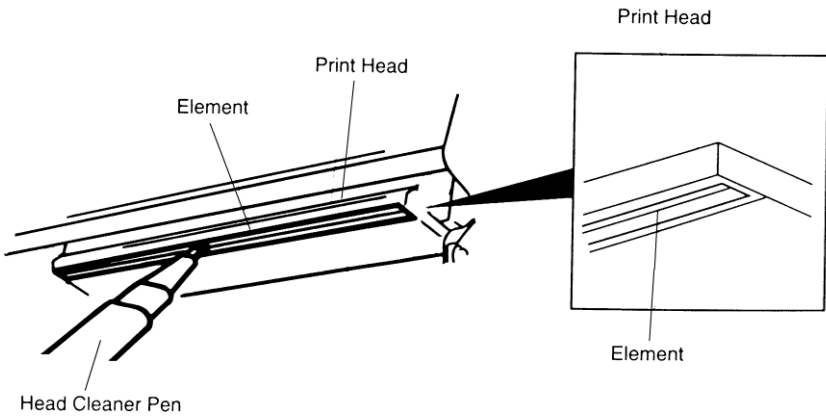
8. Maintenance

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

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

- Cotton swab
- Lint-free cloth
- Vacuum / Blower brush
- 100% Ethanol or Isopropyl Alcohol

2. The cleaning process is described as following,

Printer Part	Method	Interval
Print Head	1. Always turn off the printer before cleaning the print head. 2. Allow the print head to cool for a minimum of one minute. 3. Use a cotton swab and 100% Ethanol or Isopropyl Alcohol to clean the print head surface.	Clean the print head when changing a new label roll
	 <p>The diagram illustrates the print head assembly. It shows a main view of the print head with labels for 'Print Head', 'Element', and 'Head Cleaner Pen'. An inset box provides a magnified view of the 'Element' area, showing its internal structure.</p>	
Platen Roller	1. Turn the power off. 2. Rotate the platen roller and wipe it thoroughly with water.	Clean the platen roller when changing a new label roll
Tear Bar/Peel Bar	Use the lint-free cloth with 100% ethanol to wipe it.	As needed
Sensor	Compressed air or vacuum	Monthly
Exterior	Wipe it with water-dampened cloth	As needed
Interior	Brush or vacuum	As needed

Note:

- Do not touch printer head by hand. If you touch it careless, please use ethanol to clean it.
- Please use 100% Ethanol or Isopropyl Alcohol. DO NOT use medical alcohol, which may damage the printer head.
- Regularly clean the print head and supply sensors once change a new ribbon to keep printer performance and extend printer life.

Revise History

Date	Content	Editor
2019/10/22	Add Agency Compliance and Approvals (MFi for Bluetooth)	Kate
2019/11/7	Update Ch.2.3.2 Battery Charging Cycle	Kate
2019/12/11	Add Agency Compliance and Approvals (California Perchlorate Material Notice)	Kate
2020/3/30	Add Agency Compliance and Approvals (NBTC SDoC)	Camille



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