

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。

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.

Contents

1. Introduction	1
1.1 Product Introduction	1
1.2 Product Features	2
1.2.1 Printer Standard Features	2
1.2.2 Printer Optional Features	3
1.3 General Specifications	4
1.4 Print Specifications	5
1.5 Media Specifications	5
2. Operations Overview	7
2.1 Unpacking and Inspection	7
2.2 Printer Overview	8
2.2.1 Front View	8
2.2.2 Interior View	9
2.2.3 Rear View	10
2.3 Operator control	11
2.3.1 LED Indication, LCD screen, and Keys	11
3. Setup	13
3.1 Install the Battery	13
3.2 Charge the Battery	14
3.2.1 Charge the Battery	14
3.2.2 Charge by Charger Station (Optional)	16
3.3 Communicate	18
3.3.1 Connecting with the Communication Cable	18
3.3.2 Connecting with Bluetooth (Optional)	18
3.4 Loading the Media	19
4. Accessories	20
4.1 Install the Belt Clip	20
4.2 Install the IP54-rated environmental case with shoulder strap (Optional) ...	21
5. Power-on Utilities	22
5.1 Media Sensor Calibration	22
5.2 Self-test and Dump Mode	23
5.3 Printer Initialization	26
6. Diagnostic Tool	27
6.1 Start the Diagnostic Tool	27
6.2 Printer Function	28

6.3 Calibrating Media Sensor by Diagnostic Tool	29
6.3.1 Auto Calibration	29
6.4 Setting Bluetooth by Diagnostic Tool (Optional)	30
7. Troubleshooting	31
7.1 Common Problems	31
8. Maintenance.....	33
Revise History	34

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 comfortable, light-weight printer capable of working with any mobile printing application where you need quick, simple receipts/labels on demand.

Our 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 2.1 meters fall and keep printing.

These small and light printers can be worn comfortably for a full shift, without interfering with the user's tasks. Use USB, optional Bluetooth to connect to a mobile computer or even a smartphone and produce clear easy-to-read receipts hour after hour.

This document provides an easy reference for operating the TDM-20.

The online version of the Programmer's manual, or more information can be downloaded from our official website.

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 the accessories or at [TSC official website](#).

- Applications
 - Direct store deliveries (DSD)
 - Proof of Delivery and Pickup
 - Field Sales/Repairs
 - Mobile Point-of-Sale
 - Parking Citations
 - Mobile Ticketing
 - Onboard Transportation Ticketing
 - Utility Billing/Meter Reading
 - Fleet Management

1.2 Product Features

1.2.1 Printer Standard Features

The printer offers the following standard features.

Product standard feature
Direct thermal printing
Black mark reflective sensor
Gap 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 states; 3 for Battery capacity; 1 for RF status LCD version: <ul style="list-style-type: none">● LCD color display: showing battery status, media type, firmware version, and error messages● 1 LED for Printer Status● 1 LED for RF connection (3 colors)
Audible alert Programmable buzzer
Rechargeable Li-ion battery
Micro USB 2.0 (High speed mode) interface
32 MB DRAM
16 MB NOR Flash memory
32-bit RISC high performance processor
Eltron® EPL, Epson® ESC-POS, and Zebra® ZPL 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
1D bar code	2D bar code	
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)	BITMAP, BMP, PCX (Max. 256 colors graphics)

1.2.2 Printer Optional Features

The printer offers the following optional features.

Product option feature	User options	Factory options
Micro USB 2.0 (high-speed mode) + MFi Bluetooth V4.2		<input type="radio"/>
NFC tag		<input type="radio"/>
TSPL-EZD and TSPL-EZ with CPCL or ESC-POS emulation		<input type="radio"/>
1-bay printer wireless charging station	<input type="radio"/>	
4-bay printer wireless charging station	<input type="radio"/>	
1-bay printer charger station	<input type="radio"/>	
4-bay printer charger station	<input type="radio"/>	
1-bay battery charger station	<input type="radio"/>	
4-bay battery charger station	<input type="radio"/>	
12-60V DC automobile cigarette lighter plug	<input type="radio"/>	
Vehicle Charger	<input type="radio"/>	
Vehicle Charger Converter		

IP54-rated protective case with shoulder strap	○	
Micro USB 2.0 cable (1.5M)	○	
10.8-60 VDC power source with dummy battery	○	
Rechargeable Li-ion battery	○	
Smart battery pack	○	
External charging pin (for wireless charging cover and cradle only)		○
3" paper core adapter	○	
Linerless mode		○
CD	○	

1.3 General Specifications

General Specifications	
Physical dimensions	105 mm (W) x 49.5 mm (H) x 116 mm (D)
Enclosure	Plastic
Weight (w/ battery)	385g
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 Input: 12V/ 2A Output: 12V/ 2A ■ 4-bay printers charger station Input: 12V/ 5A Output: 12V/ 5A ■ 1 bay battery charger station - Input: 12V/ 2A - Output: 8.4V/ 1.5A ■ 4 bay batteries charger station - Input: 24V/ 2.5A DC - Output: 8.4V/ 1.5A*4 DC <p>Note: The printer will automatically turn off when stopping</p>

	operation after 30 minutes.
Environmental condition	Operation Temperature: -15 ~ 50°C (5 ~ 122°F) Charging Temperature: 0 ~ 40°C (32 ~ 104°F) Storage Temperature: -30 ~ 70 °C (-22 ~ 158°F) Relative Humidity: - Operation: 10% to 90% non-condensing - Storage: 10% to 90% non-condensing IP54 w/ protective case Drop 1.8m (5.9ft) w/o IP54-rated environmental case Drop 2.1m (6.9ft) w/ IP54-rated environmental case

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	72 mm (2.83")
Max. print length	Continuous receipt paper: 2,794 mm (110") (associate with DRAM)
Printout bias	Vertical: 1 mm max.
	Horizontal: 1 mm max.

1.5 Media Specifications

Media Specifications	TDM-20
Media roll capacity	Max. O.D.: 40 mm
Media type	Continuous, die-cut, receipt, liner free label, and black mark
Media wound type	Outside wound
Media length	10 mm (0.39") ~ 2,794 mm (110") Tear mode: 50 mm (1.97") ~ max. print length
Media width	Max. 80 mm (includes liner)

	Black mark label: min.8 mm (w) x 2 mm (h) Gap label: min.8 mm (w) x 2 mm (h)
Media thickness	0.06mm ~ 0.16 mm In lowest print speed: 0.06mm ~0.18 mm

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

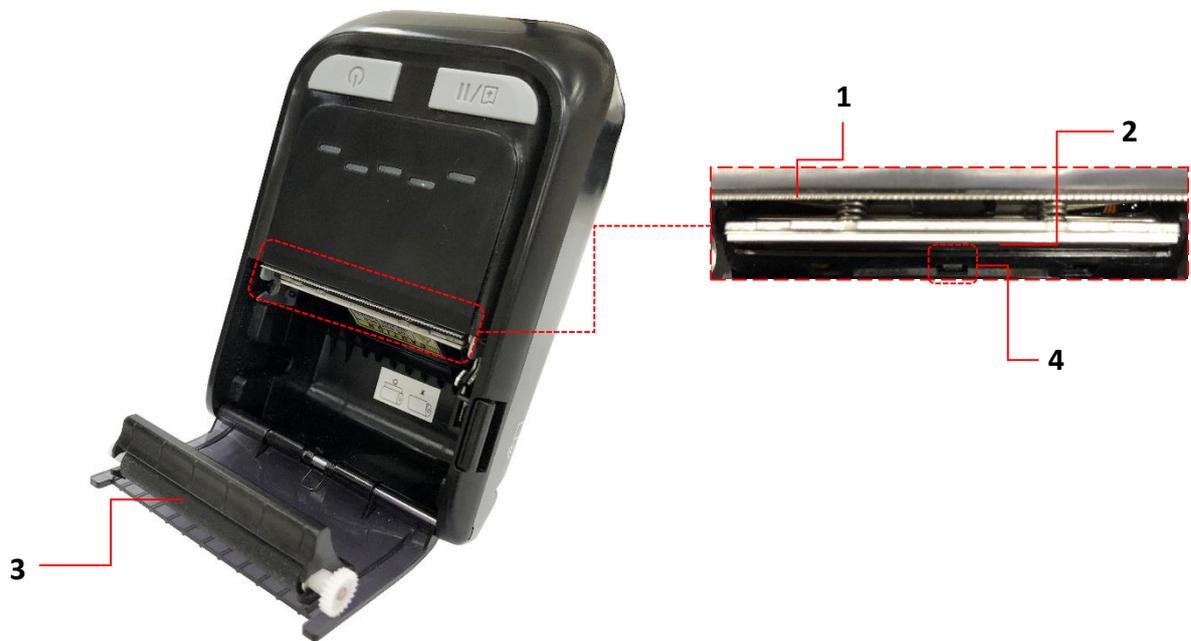
2.2.1 Front View

For LED version



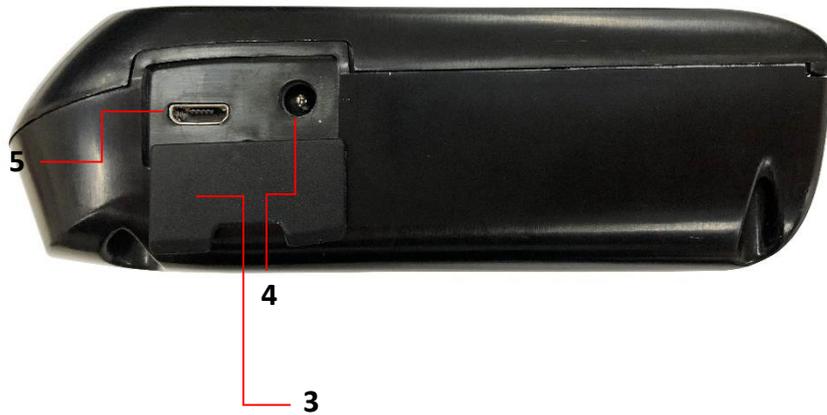
1. Power on/off button
2. Feed/stop button
3. LED indicators
4. Media cover
5. Media cover window
6. Media cover release button

2.2.2 Interior View



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

2.2.3 Rear View

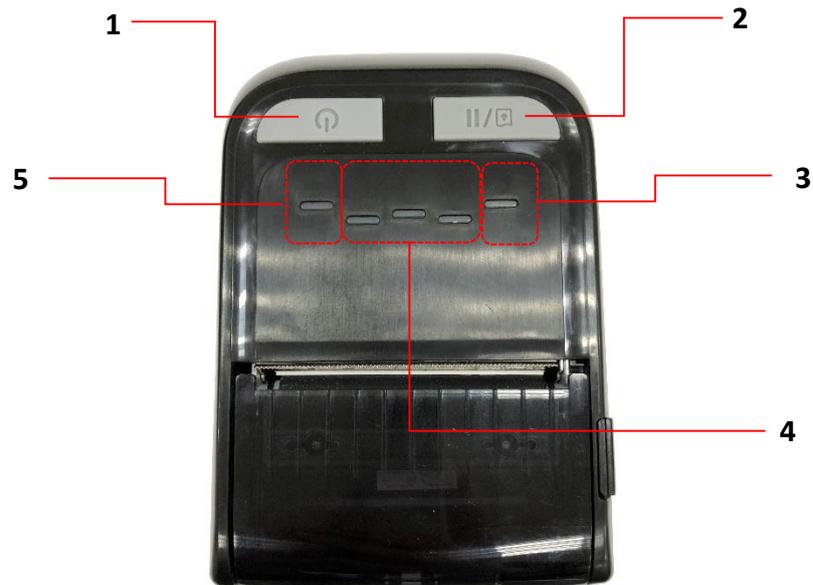


1. Li-ion Battery
2. Battery open clasp
3. Interface cover
4. Power jack
5. USB interface

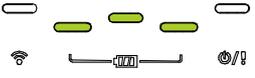
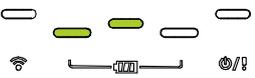
2.3 Operator control

2.3.1 LED Indication, LCD screen, and Keys

For LED version



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

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	
Battery status LED indicator 	Green (blinking)	Recharge the battery	
	Amber (solid)	Battery is charging	
	Green (solid)		Fully charged
			2/3 charged level
		1/3 charged level	
Wireless/Bluetooth status LED indicator 	Bluetooth	Blue (solid)	Bluetooth device is ready
		Blue (blinking)	Bluetooth device is communicating

Keys	Function
	<ol 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.
	<ol style="list-style-type: none"> 1. Ready status: Feed one label 2. Printing status: Pause the print job

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 right side of the battery down.



3. Pull the battery clasp to lock the battery.

Battery safety warning:

DO NOT throw the battery in fire. **DO NOT** short circuit the contacts.

DO NOT disassemble the battery. **DO NOT** throw the battery in municipal waste.



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



1. Open the interface cover and plug the power cord in to the power jack.

Note:

Please switch OFF printer power prior to plug in the power cord to printer power jack. When the battery is charging, please do not remove the battery from the printer, otherwise, please re-plug the power cord into a power outlet.



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

3. When the battery installed on printer and start charging, the printer will automatically open and color of battery status LED indicator is solid amber. The amber LED indicator will turned off after the battery is fully charged.



Note:

1. When printer start charging, the printer will automatically open and could not turn-off the power.
2. When checking the battery status, please connect the adapter to printer, the LED indicator will turn to green then extinguished when the battery is fully charged.

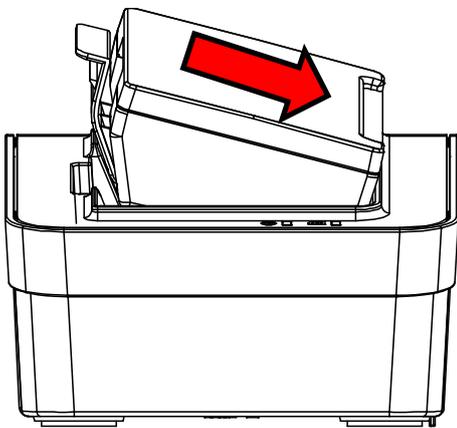
Charging Temperature

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.

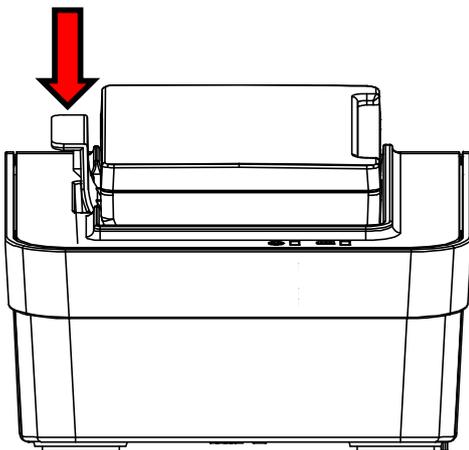
3.2.2 Charge by Charger Station (Optional)



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



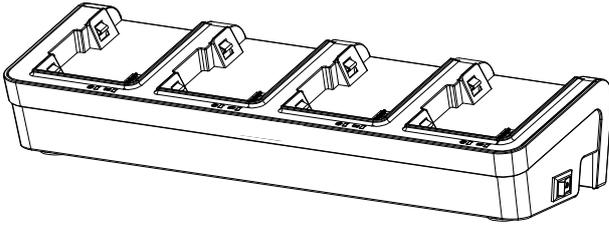
2. Insert the battery along the slot to the right side of charger station as pictured. (Refer to section 3.1 for battery installation procedure.)



3. Push the battery clasp and properly install the battery, it will start charging.

Note:

The battery is completely charged and the amber of LED indicator will be off and turns to green.



Note:
The four bay batteries charger station is also available for your reference.

LED Color	Description
Green / Solid	Battery is completely charged
Green / Blinking	Battery is charging
Red / Blinking	Battery charging error
Off	No battery
	Battery is completely charged over 1.5 ~ 2 hrs.

3.3 Communicate

3.3.1 Connecting with the Communication Cable

- USB to USB Cable (Optional)



1. Open the interface cover and connect the printer to the computer with USB cable.



3.3.2 Connecting with Bluetooth (Optional)

Default	
Name	RF-BHS
PIN	0000

Turn on the printer and make sure the Bluetooth of device is opened.
USB connector (PC)

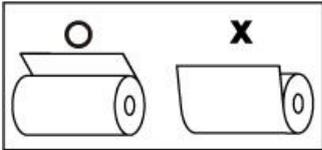
Note:
Please refer to section 6.5 to change the name of default and PIN.

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.

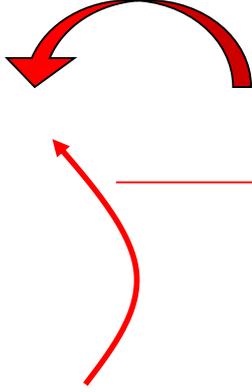


4. Accessories

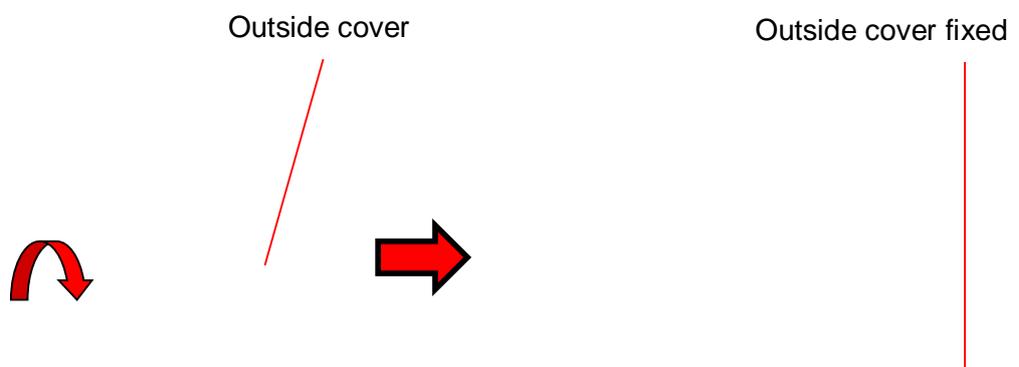
4.1 Install the Belt Clip

	<ol style="list-style-type: none">1. Turn the battery to rear side, remove the battery on the rear of the printer and lock the belt clip on the hole above the battery.
	<ol style="list-style-type: none">2. Press the ball on the belt clip to the hole as pictured.
	<ol style="list-style-type: none">3. After reinstalled the battery, the printer can be hung on the belt.

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

	<p>1. Open the zip along the arrow direction indicated on case cover.</p> <p>Zip of case cover</p>
	<p>2. Place the printer in the case.</p> <p>Note: The printing side must face the outside cover as indicated.</p>

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



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

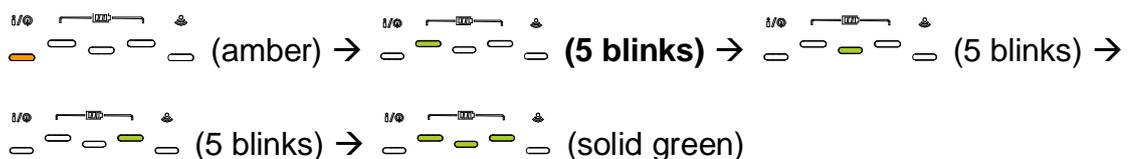
Power on utilities	The positions of LED light will be changed as following pattern:				
LED					
Functions	(solid)	(5 blinks)	(5 blinks)	(5 blinks)	(Solid green)
1. Media sensor calibration		Release			
2. Self-test and enter dump mode			Release		
3. Printer initialization				Release	

5.1 Media Sensor Calibration

Please follow the steps below to calibrate the media sensor.

1. Turn off the power switch.
2. Hold on the FEED button (📄/🔌) then turn on the power switch.
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:

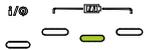


5.2 Self-test and Dump Mode

Please follow the steps below.

1. Turn off the power switch.

2. Hold on the FEED button () then turn on the power switch.

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:



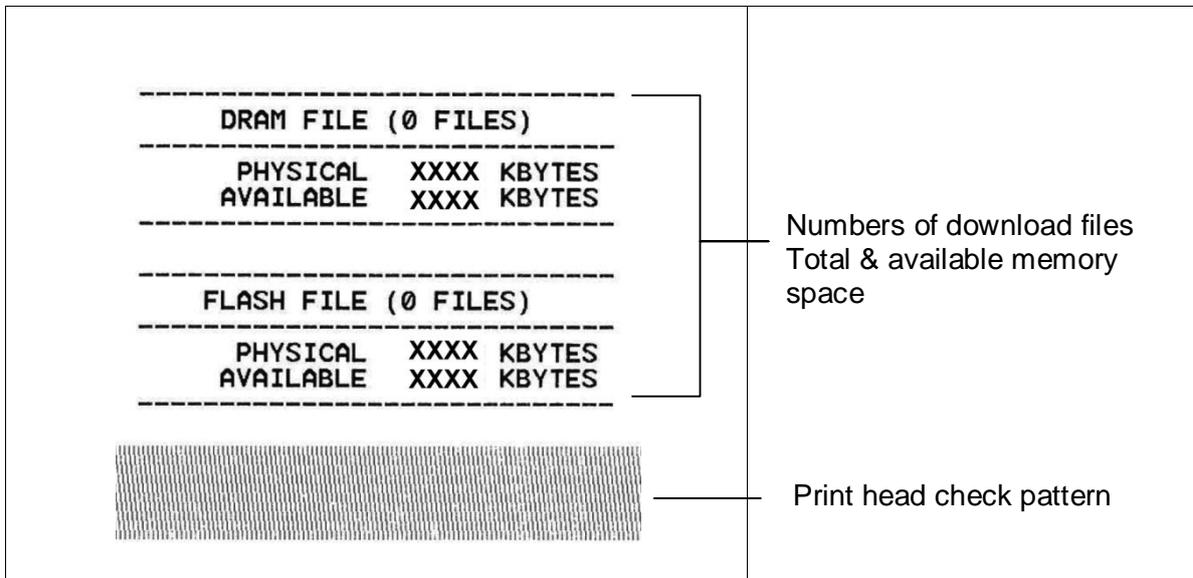
4. It calibrates the sensor and measures the media length and prints internal settings then enter the dump mode.

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>	<ul style="list-style-type: none"> Model name F/W version Firmware checksum Printer S/N TSC configuration file System date System time Printed mileage (meter) Cutting counter
<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>	<ul style="list-style-type: none"> Print speed (inch/sec) Print darkness Label size (inch) Gap distance (inch) Gap/black mark sensor intension Code page Country code
<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>	<ul style="list-style-type: none"> 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 <p>Note: ZPL is emulating for Zebra® language.</p>
<pre> ----- RS232 SETTING ----- BAUD: 9600 PARITY: NONE DATA BIT: 8 STOP BIT: 1 ----- </pre>	<ul style="list-style-type: none"> RS232 serial port configuration



■ 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 34 20 6D 6D 0D 0A 43 4C 53 0D BARCODE 1 0A 42 41 52 43 4F 44 45 20 31 44.149."39 34 34 2C 31 34 39 2C 22 33 39 ".120.1.0. 22 2C 31 32 30 2C 31 2C 30 2C 2.6."57114 32 2C 36 2C 22 35 37 31 31 34 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 S1 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
------------	---	--	---

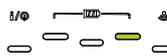
Note:

1. Dump mode requires 2" wide paper width.
2. Turn off / on the power to resume printer for normal printing.

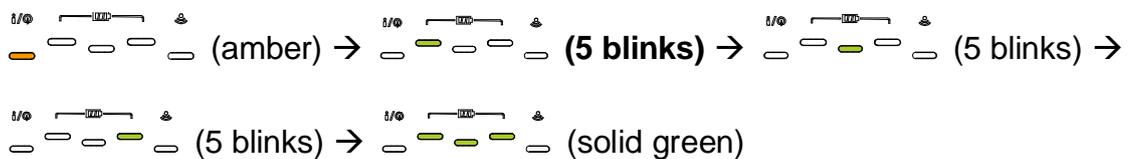
5.3 Printer Initialization

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



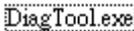
Printer configuration will be restored to defaults as below after initialization.

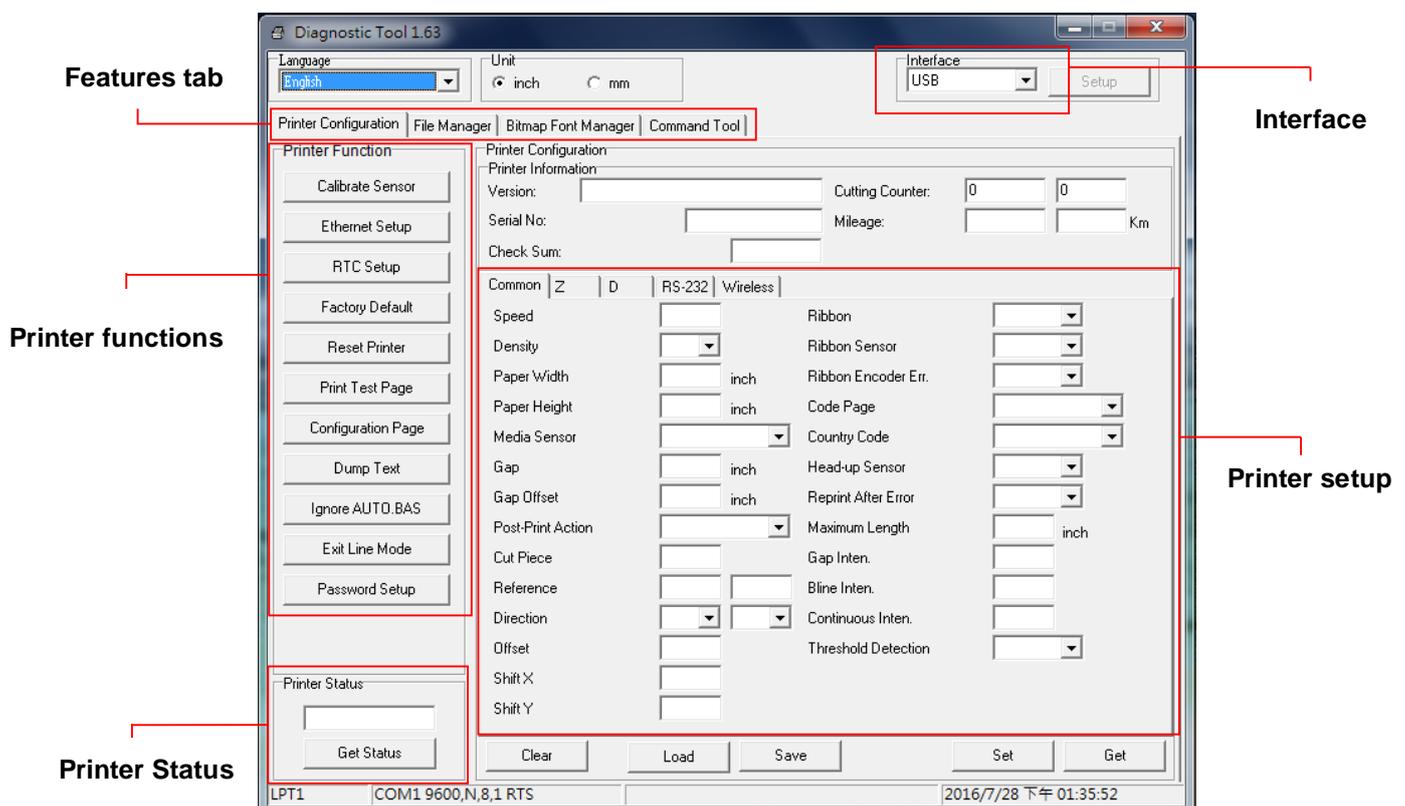
Parameter	Default setting
Speed	50.8 mm/sec (2 ips)
Density	8
Media Width	2.83" (72 mm)
Media Height	4" (101.5 mm)
Sensor Type	Black mark sensor (As paper end sensor)
Black Mark Setting	As paper end sensor
Print Direction	0
Reference Point	0,0 (upper left corner)
Offset	0
Serial Port Settings	9600 bps, none parity, 8 data bits, 1 stop bit
Code Page	850
Country Code	001
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.

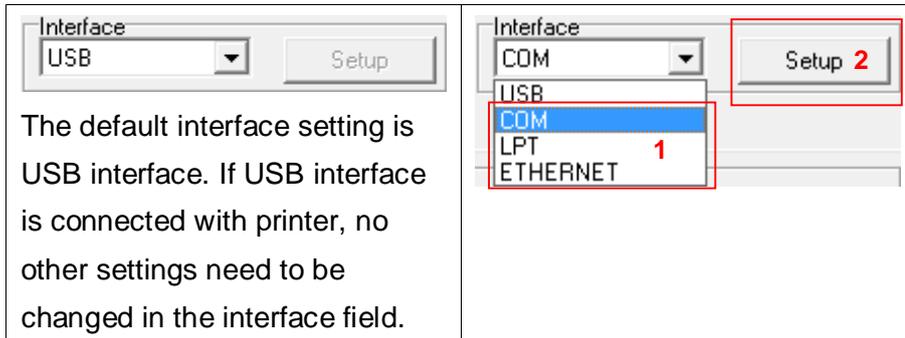
6.1 Start the Diagnostic Tool

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](#).

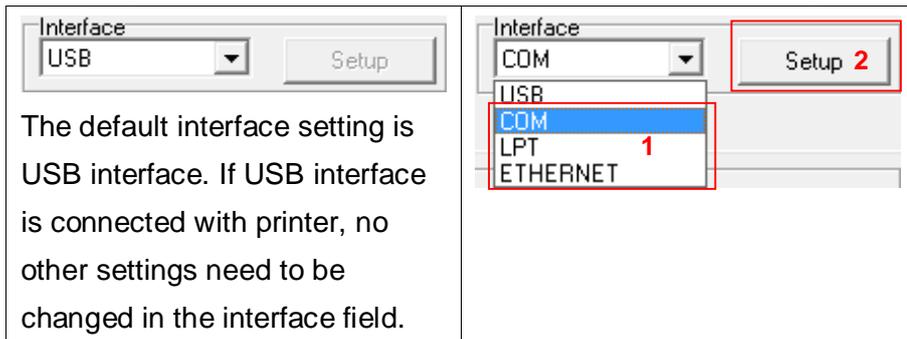
Note: The three different print modes below are available, you can download the command on TSPL/TSPL2 programming manual at [TSC official website](#):

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.

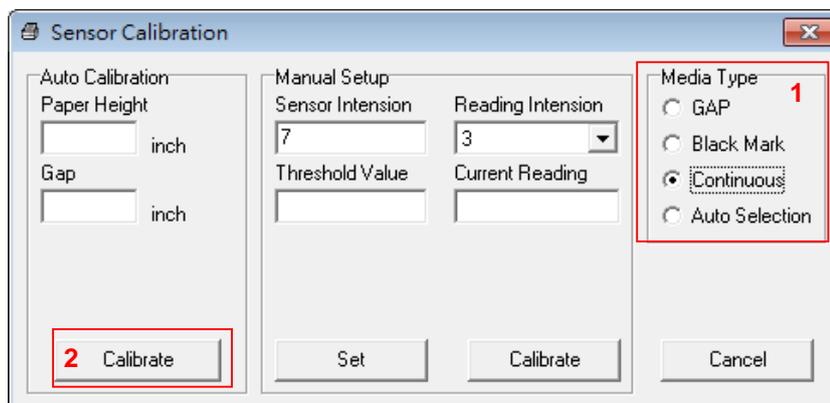
6.3 Calibrating Media Sensor by Diagnostic Tool

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)



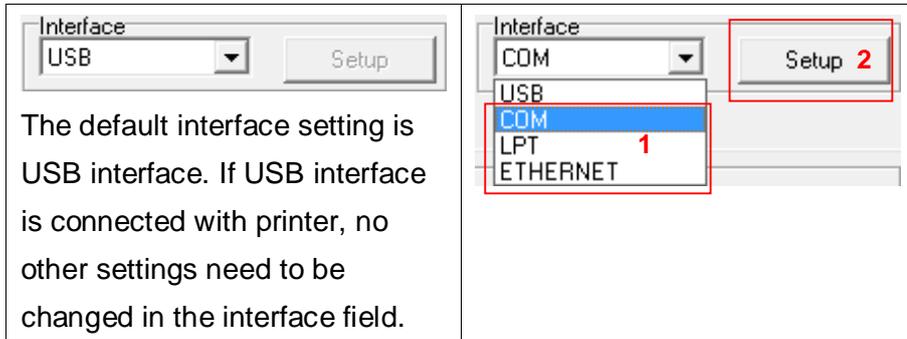
4. Click the “Calibrate Sensor” button.
5. Select the media type and click the “Calibrate” button.



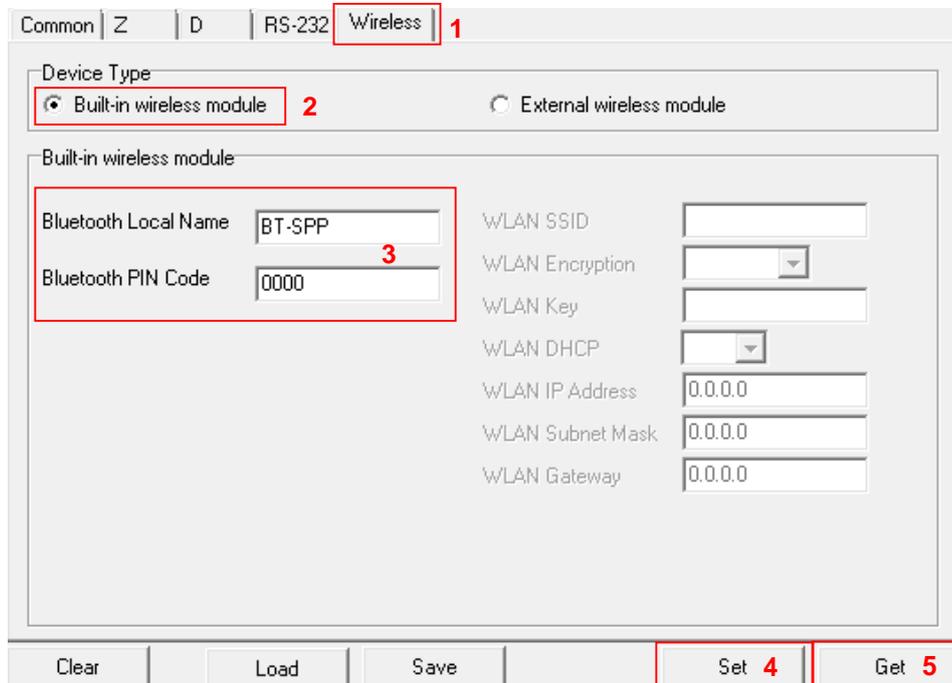
Note: The TDM-20 can only support continuous, die-cut, receipt, and black mark media type.

6.4 Setting 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 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 is dead. 	<ul style="list-style-type: none"> * 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 printer carriage is open. 	<ul style="list-style-type: none"> * Please close the print carriage.
- 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 set properly. * 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 is loaded incorrectly * 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"> * 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 media roll.

<p>Missing printing on the left or right side of label</p>	<p>* Wrong label size setup.</p>	<p>* Set the correct label size.</p>
<p>Gray line on the blank label</p>	<p>* The print head is dirty. * The platen roller is dirty.</p>	<p>* Clean the print head. * Clean the platen roller.</p>
<p>Irregular printing</p>	<p>* The printer is in Hex Dump mode.</p>	<p>* Turn off and on the printer to skip the dump mode.</p>

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
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.



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