



LR200M Mobile Thermal Receipt Printer



USER MANUAL

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1 Introduction

Thank you for purchasing the LR200M mobile thermal receipt printer. Bematech is committed to continuously improve product quality and provide better after-sales service. In order to take full advantage of our devices, we strongly recommend that you take the time to read this manual before diving into software solution.

Note: Information in this manual may change without prior notice.

1.1 Safety Information

- (1) This printer can only use battery and power adapter provided by our company, or it may cause damage to the printer, battery leakage, fire or explosion.
- (2) Do not put the battery into the fire, do not make it short circuit, break up or heating, otherwise it may cause the battery leakage, fire or explosion.
- (3) The battery liquid is corrosive. If the user's improper operation results in battery leakage and the liquid is contact with the skin or the clothes please use the clean water to wash immediately. If the liquid accidentally gets into the eyes, please rinse with plenty of clean water to wash the eyes and go to the hospital.
- (4) When printing or printing just finished, do not open paper cover and use finger or any part of body to touch the printer mechanism. The high temperature may cause scald.
- (5) Do not use the printer when the operation is failed. Please turn off and unplug it. Then call the dealer.

1.2 Usage Notice

- (1) Do not submerge the printer into the water and do not expose it in rain for prolonged time; otherwise it may lead the damage to the printer.
- (2) Do not open the paper cover when printing.
- (3) When using USB interface to print, do not disconnect the USB cable when printing, otherwise it may result in incompleteness of the print data.
- (4) The printer could work stably from -10°C to 50°C, but the higher temperature ($\geq 45^{\circ}\text{C}$) or lower temperature ($\leq 5^{\circ}\text{C}$) would degrade the print quality. Higher humidity ($\geq 85\%$) or lower humidity ($\leq 20\%$) also may degrade the print quality.
- (5) Use of printing paper with bad quality or stored for too long would affect the print quality and may even damage the printer.

1.3 Storage Notice

- (1) The printer should be stored in the environment where the temperature is -20°C to 70°C and relative humidity is 5% to 95%.
- (2) If the printer is to be stored for a long time, please take out the battery and stored it separately, otherwise it may result in the battery lose efficiency and may even cause leakage that damage the printer.
- (3) Do not store the thermal paper in a high temperature or direct sunlight environment. Seal off the packing and store it in dark and cool place.

1.4 Battery Safety Notice

Please read this user manual carefully before using the printer. Ignoring the followings may cause overheating, burning, explosion, damage of the battery and/or degrade the lifespan of the printer.

Warnings:

- (1) Do not let water or sea water in or leak into the battery. If the safety device in it is burned out, any charge of it would lead abnormality current and or voltage and bring unusual chemistry reaction, then cause the overheating, burning and/or explosion.
- (2) Do not use or place the battery near flame or high temperature environment. Overheating may cause damage to the resin shell and/or heat insulation material, and results in short circuit in the battery that leads overheating, burning and/or explosion.
- (3) Please use the only the charger supplied with the printer for charging. When charging under the abnormal conditions (such as high temperature, high voltage/current or using modified charger), it may cause excessive battery charging, abnormal current and/or voltage, causing unusual chemistry reaction and then may result in overheating, burning and/or explosion.
- (4) Positive and negative contacts are marked clearly on the battery. The user should make sure the battery position is correct when inserting into the charger or printer. Reverse insertion would lead to reverse charging that may cause unusual chemistry reaction and then may result in overheating, burning and/or explosion of the battery.
- (5) Do not make the battery contact to power socket and/or car cigarette lighting socket, which may lead high voltage, bring excessive current and result in overheating, burning and/or explosion of it.
- (7) Do not heat the battery or put it into the fire that may melt the heat insulation material or damage the safety device or equipment and may ignit the electrolytic that results in overheating, burning and/or explosion.

- (8) Do not let the battery contacts ((+) and (-)) to any metal objects. Do not store it with metal materials, such as necklace, hairpin etc. Short circuit in the battery may cause excessive current, then results in overheating, burning and/or explosion.
- (9) Do not drop the battery and avoid physical damage. If the safety device in the battery is damaged, charging of the battery would cause abnormal current and/or voltage that leads to overheating, burning and/or explosion.

1.5 Electromagnetic compatibility statement

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.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

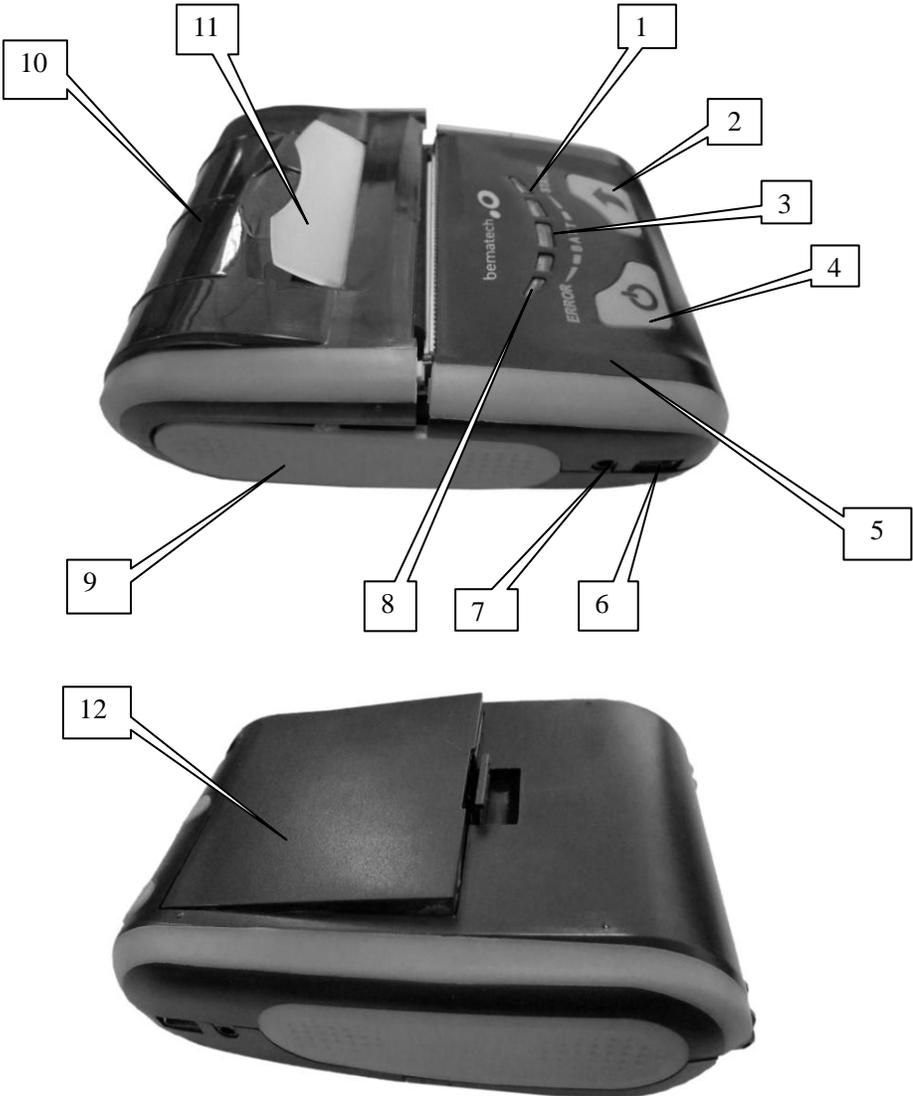
This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be located or operating in conjunction with any other antenna or transmitter.

2 Overview

The LR200M is a high quality mobile printer using thermal technology for printing. It is compatible with most point-of-sale systems on the market. The LR200M portable printer optimizes the mobile checkout process and helps accelerate business at the Point of Sale. The printer is equipped with both Bluetooth and WiFi interface, enabling it to work with POS applications designed for either wireless communications.

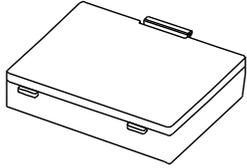
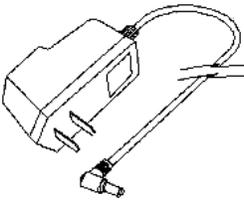
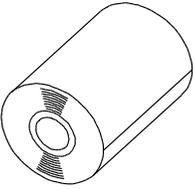
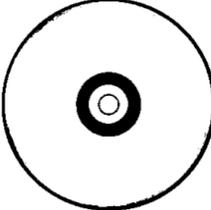
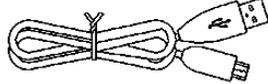
The rubber protection and non-slip design makes the light weight printer drop-resistant and easy to work with, making it ideal for mobile operations.

2.1 Appearance



1. Status Indicator
2. Feed Key
3. Battery indicator
4. Power Key
5. Printer top cover
6. USB interface connector
7. Power supply connector
8. Error indicator
9. Printer body
10. Transparent cover
11. Cover opening lever
12. Battery

2.2 Accessories

Battery	Power Charger	Paper Roll
		
CD-ROM	Carrying belt clip	USB Cable
		

3 Operation

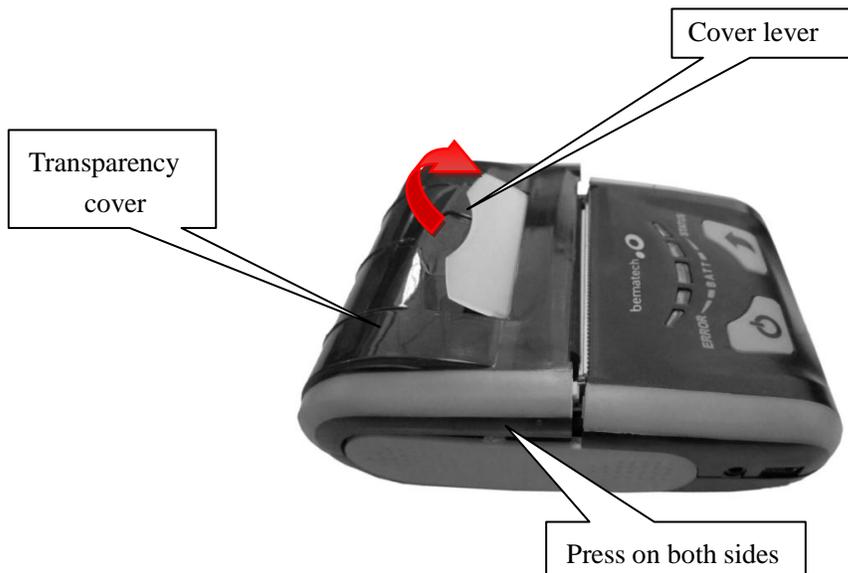
3.1 Preparation before use



(1) Battery Installation

1. As shown in the picture, put battery into the battery compartment.
2. Press the battery down until it is locked into the battery compartment.

(2) Paper Roll Installation





1. Pull up the cover level or press on both sides of cover to open it.
2. As shown in picture, place the paper roll in the printer. Note the correct direction of paper, otherwise the printer will not work properly.
3. As shown in picture, pull out a length of paper extending it out of the paper roll compartment.
4. Make sure that the paper roll is properly aligned and close the cover.

3.2 Basic Functions

(1) Power On

Under power off status, press and keep holding "POWER" button for two seconds, printer will be powered on with a short beep. Then release the power button. Printer status indicator (green LED) will turn on.

Note: If printer power indicator (blue LEDs) goes out and the error indicator (red LED) turns on, it means the printer is going to power off. Please change the battery or recharge it. For recharging steps, please refer to (5) below.

(2) Change font size

Under power off status, press and keep holding "POWER" button. The printer will be powered on with a short beep sound. If the button is kept holding, it will make a long beep sound, then follow by groups of 2, 3, 4 and 5 short beeps. If the power button is released after the groups of 2, 3, 4 or 5 beeps, it will change the font to one of the 4 fonts. The 4 font sizes are defined as follows.

2 beeps - Font A: 12 x 24

3 beeps - Font B: 9 x 24

4 beeps - Font C: 9 x 17

5 beeps - Font D: 8 x 16

Note: The font size can also be selected by application software by issuing font selection commands.

(3) Power Off

Under power on status, press and keep holding "POWER" button for two seconds, then the printer will be powered off and all indicator lights will be off.

(4) Self-Test

The printer can run self-test to check the settings and status.

Self-Test method as follows: Power off (if the printer is power on) the printer, then press "FEED" key and at the same time press and hold "POWER" key to turn power on. The printer will print out the self-test page which contains the printer status, setting and printing sample.

(5) Feed (Feed Manually)

Under printer ready status, press "FEED" key, the printer will start feeding paper.

(6) Battery Recharge

When the printer has been working for a long time, the battery will be out of power. In that case, the printer power indicator (blue lights) will go out, and at the same time the error indicator (red light) will turn on. This means the battery needs recharging. If the printer powers off automatically while printing, the battery need to be recharged.

To recharge the battery, plug the charger power adapter into AC power socket, and connect the DC plug to the charger socket of the printer. During the charging process, under power on status, power indicator (blue light) will keep flashing

from left to right repeatedly till charging is complete and then the indicator will stay on.

The printer can also be charged via USB port of host computer. However, the battery cannot be recharged using power adapter and USB at the same time. Note that charging through USB port will require longer charging time.

Normally, the battery can last for printing 100 meters or 3 hours. This parameter is only for reference. The capacity of the battery would decrease after a long time usage and could shorten the actual printing time.

3.3 Printer Communication Interface

(1) USB Interface

1. Connect printer to the computer with USB cable and turn on the printer.
2. Install the USB driver. The driver will create a virtual serial port.
3. Invoke "Device Manager" and check under "Ports (COM & LPT)" for the COM port number assigned.
4. Set up POS software or utility software to the assigned COM port to communicate with the printer.

(2) Wi-Fi Interface Setup

1. Connect printer to computer via USB port and install USB virtual serial port driver.
2. Run the "LR200M_ConfigurationTool" utility software.
3. Select "Wifi" tab and Input the SSID name of wireless router in SSID field.
4. Choose the encryption type of wireless route based on the router you are using. If you choose the router encryption type is "WPA-PSK/WPA2-PSK", and authentication type is "automate", then select WPA2-PSK or WPA2-PSK and enter the PSK key to match the router settings.
5. If the encryption type for router is "WEP", select WEP and enter the WEP key to match the router settings.
6. Enter the desired IP address according to allocation from your network administrator.
7. After entering all WiFi parameters, under "Port" section, select "COM Port" option and then change the COM port number to match with the assigned port in virtual serial driver. Configure the default baud rate of printer as "9600" and then click "Set" to apply the WiFi settings.

(3) Bluetooth Interface

1. Print a self-test page [see 3.2 (4) above] and turn on power of printer.
2. In host device, search for the external bluetooth device to pair.
3. If there is more than one bluetooth device found, select the printer device corresponding to EDR NAME (for Windows and Android) or BLE NAME (for iPad/iPhone) shown on the self-test page.
4. For EDR, Input password “0000” and finish the pairing.

Notes:

1. Please refer to host device bluetooth function description for detail operations of bluetooth device paring.
2. During pairing, LR200M portable mini printer must be powered on.
3. After pairing successfully, other host device can still be paired with the printer. Each printer can be paired with 8 host devices maximum. If the printer is paired with more than eight host devices, the first paired host information will be deleted automatically. If this host need to work with the printer, it has to be paired again.
4. For the host device with bluetooth virtual serial ports (such as smart phones, tablets, laptops, etc), after successful pairing, data can be sent through the bluetooth virtual serial port to the LR200M for printing. If the host device does not have bluetooth virtual serial port, please consult the host device supplier.

3.4 LED Indicators and Buzzer Signal Description

The printer has a buzzer and three LED indicators to show status of the printer. The LED indicators represents the current status of the printer and the buzzer prompts the printer status changes.

Status (green)	Battery Power (blue)	Error (red)	Printer Status
On	3 LEDs flash from left to right	Off	Charging
On	Off	On	Battery level Low
On	All 3 LEDs on	Off	Charging complete

On	1 to 3 LEDs on	Off	Normal operation. Number of LEDs indicates battery level
On	1 to 3 LEDs on	On	Abnormal
Off	Off	Slow flash	Standby mode
Off	Off	Off	Power off

3.5 Preventive Maintenance

This printer has been developed to have a long life expectancy with no replacement of components and minimum user interference. But printer lifetime is highly influenced by the following factors: paper quality, regular preventive maintenance, environmental conditions and how carefully the user handles this product.

- (1) During normal operation some dust particles from the thermal paper will adhere to the thermal print head surface. Therefore, it is recommended to clean the printer head after 10 km of printed length or if printing quality is degrading. Switch off the printer before cleaning it. Clean the print head with a cotton swab, soaked with alcohol solvent (ethanol or isopropanol). Do not clean the print head with hard, abrasive objects or your fingers, since this can cause damage to its delicate surface. Clean the platen roller (rubber roller) with the cotton swab to remove any dust particles.

 **CAUTION!**

The print head can be hot just after printing. Do not touch the print head; let it cool down before touching and cleaning. Because the thermal elements of the print head and driver IC are fragile, avoid touching them with any metal objects or any abrasive material.

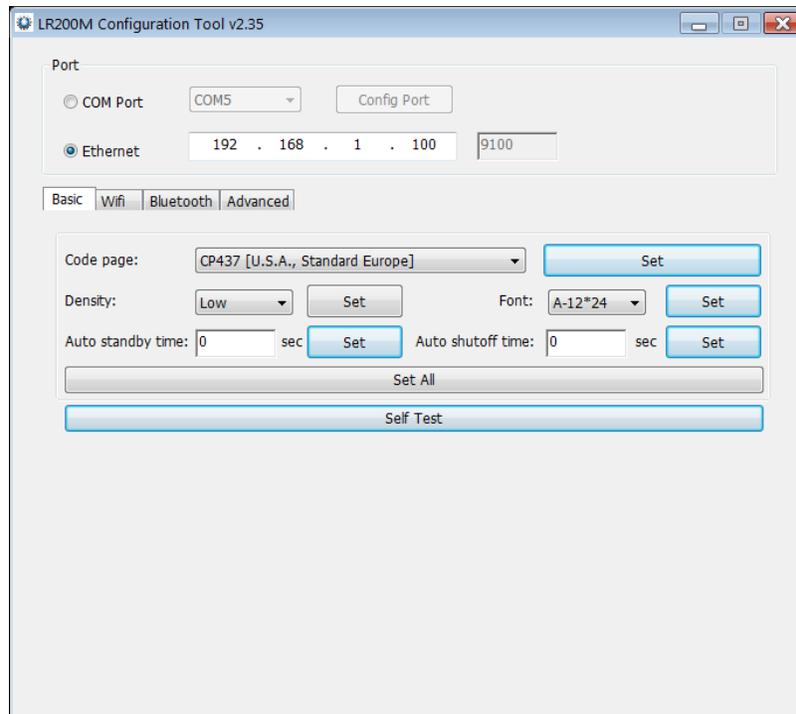
- (2) During normal operation paper particles will build up inside the printer. This is normal, but dust and paper particles can prevent the sensors from functioning properly. To avoid that, verify once a year that the sensor surfaces are unobstructed. To remove small paper particles from the sensors, use a small brush to wipe off the dust and paper particles. Do not attempt to use liquids to clean the sensors, in order to avoid damage.
- (3) Clean the external cabinet with a soft cloth, moistened in water or neutral detergent. Never use chemically treated or chemical substances like alcohol or similar solvent. The use of these products can make the cabinet of the printer

changes its color or be deformed.

- (4) Although the printer is designed to withstand drops, it is still advisable to avoid dropping the printer. To carry the printer around safely, attach the printer to the supplied leather carrying belt clip and secure to the waist belt.
- (5) To extend the battery life, avoid over discharge of the battery. Recharge the battery as soon as possible when battery level is low.

4 Configuration Utility Software

The mobile printer comes with a configuration software for Windows to help configuring the printer. The utility can work through COM port (USB virtual COM port or Bluetooth virtual COM port) or Ethernet (WiFi interface).



4.1 Basic settings

1. Code page: Select default code page.
2. Density: set printing density if necessary.
3. Font: select default font size.
4. Auto standby time: set time out value to go into standby mode. In standby mode, printer to turn off system components to save battery power. Battery level LEDs on the printer will be turned off and Status LED will be flashing slowly. When printing data is received or paper feed button is pressed, the printer will wake up and operates normally. Value 0 means timer is disabled.
5. Auto shutoff time: Set time out value to automatically turn off power. Value 0 means timer is disabled. Minimum timer value is 60 seconds. If programmed value is less than 60, the printer will turn off power after 60 seconds.

4.2 WiFi settings

Note that USB connection should be used for setting WiFi parameters as Ethernet connection is not established before these parameters are set.

1. SSID: Set SSID of wireless network to be connected.
2. Mode: Set Station mode or Access Point mode.
3. Encryption modes: Set encryption mode according to network requirements.
4. IP: Set static IP address for the printer.
5. Print current setting: print out current WiFi configurations.

4.3 Bluetooth settings

Note that USB connection should be used for setting Bluetooth parameters as Bluetooth connection is not established before these parameters are set.

Pin: Set Bluetooth 4.0 EDR pairing pin code for the printer (BLE does not require pin settings).

4.4 Advanced settings

Note that USB connection recommended for these settings to ensure secure data transmission.

1. Printer Firmware: update printer firmware if necessary.
2. Logo: Download a list of logo bitmap files to the printer NVRAM for logo printing on the receipts.

5 Troubleshooting

The following table describes some of the problems that may occur while using the printer. For every problem there is a possible cause and a suggested procedure to solve the problem.

Problem	Possible Cause	Procedure
The printer does not turn on.	The battery charge level is too low.	Recharge the battery.
	Possible problem with battery contact.	Check conditions of the battery contacts. Clean and retry.
	Battery is at end of life.	Replace with new battery.
The printer does not respond to the commands.	The communication interface is not set up correctly.	Check communication interface setup of the printer and the host.
	Wrong programming sequences.	Check the command set being used. The printer is configured to ESC/POS™.
Communication is faulty.	The communication cable has one or more wires with faulty connections / broken wires.	Check for a good connection between the printer and the host or change the communication cable.
	WiFi or bluetooth signal is too weak location of operation.	Check distance from wireless router or bluetooth host. Change wireless router placement location.
	The baud rate is set incorrectly	If the baud rate set in the printer is different from the host's baud rate, the printer will print random characters or not print at all. Check carefully the host's serial baud rate configuration.
The error LED is on	The printer is at error status or no paper	Check whether printer is out of paper. Replace paper roll if necessary. Check for paper loading problems and make sure that cover is properly closed.
Poor printing.	Paper dust and paper residues on the print head can influence printing quality	Clean the print head as described at chapter 3.

Problem	Possible Cause	Procedure
The paper does not get out the printer.	Paper jam	CAUTION! Do not touch the print head; let it cool down before touching, as it can be very hot after printing. Switch off the printer and open the cover. Remove the crumpled paper from the printer and install a new paper roll. If necessary, remove the rest of the disrupted paper.

6 Specifications

PRINTING

Printing Method	Thermal line printing
Resolution	203 dpi (8 dots/mm)
Paper Width	56 mm
Printing Width	48 mm
Paper Roll Diameter	φ40mm max
Paper Thickness	60 to 80 μm
Character Font	ASCII Font A: 12x24 ASCII Font B: 9x24 ASCII Font C: 9x17 ASCII Font D: 8x16
Characters per Line	Font A: 32 Font B: 42 Font C: 42 Font D: 48
Printer Density	384 dots/line
Printing Speed	80 mm/s
NV Bitmap Flash	64Kb
Receipt Buffer	8Kb

LIFE SPAN

Printer Head Lifetime	50 Km
MCBF	5,000,000 lines

BATTERY

Type	Rechargeable Li-ion battery
Capacity	1400mAh
Operation time	Continuous 3 hours or 100m
Charging time	3 to 5 hours (power adapter) 6 to 10 hours (USB)
Lifespan	>500 recharge cycles
Charger	USB or power adapter

ELECTRICAL

Power adapter input	AC 100-240V, 50/60Hz
Power adapter output	DC 12V, 1A

COMMUNICATION

Interfaces	Bluetooth (BT4.0 EDR & BLE), WiFi, and USB
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CONNECTORS

USB	Standard Mini USB female
Power (for charger)	2.5mm power plug

OPERATIONS

Paper Sensor	Supported
Paper Loading	Clam-shell paper loading
Printing Commands	ESC/POS
Power Alarm	Low battery indicators
Code pages	CP437, CP850, CP860, CP863, CP865, CP866, CP852, CP858, WPC1252, Katakana
Barcode types	CODE39, EAN-13, EAN-8, CODABAR, CODE93, ITF, QR

MECHANICAL

Weight	260g (0.57 lbs) Including paper roll and battery
Dimension (LxWxH)	112mm x 79mm x 45mm (4.4" x 3.1" x 1.8")

ENVIRONMENT

Operating temperature	-10°C to 50°C
Relative humidity	20% to 85%, non-condensing
Storage temperature	-20°C to 70°C
Relative humidity	5% to 95%, non-condensing



LR200M Mobile Thermal Receipt Printer



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