**Mobile Printer**
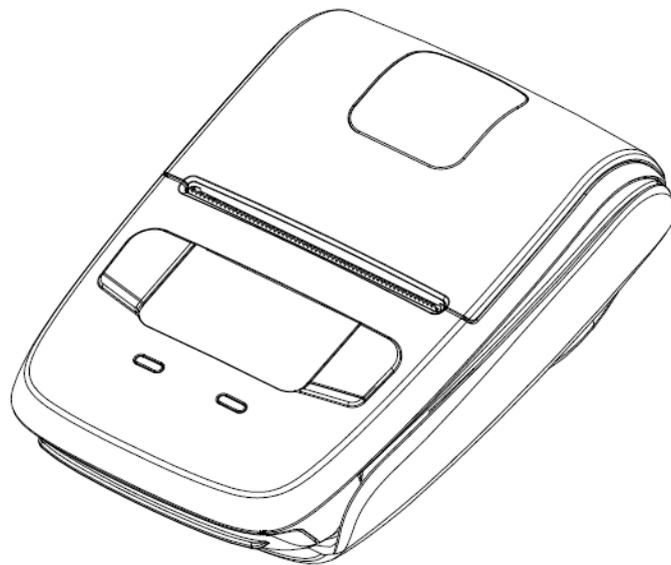
# SM-L200 SERIES

# *Hardware Manual*



star

# Federal Communications Commission
# Radio Frequency Interference
# Statement

This device complies with Part 15 of FCC Rules and Industry Canada's licence-exempt RSSs. 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 this device.

Le présent appareil est conforme aux la partie 15 des règles de la FCC et CNR d'Industrie Canada applicables aux appareils radio exempts de licence.
L'exploitation est autorisée aux deux conditions suivantes :
(1) l'appareil ne doit pas produire de brouillage;
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

**FCC CAUTION**
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
For compliance with the Federal Noise Interference Standard, this equipment requires a shielded cable.
For RF interference suppression, if a ferrite core is provided with this advice, affix it to the interface cable.

**NOTE:**
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.
CAN ICES-3 (B) / NMB-3 (B)

This equipment complies with FCC/IC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65 and RSS-102 of the IC radio frequency (RF) Exposure rules. This equipment has very low levels of RF energy that it deemed to comply without maximum permissive exposure evaluation(MPE). But it is desirable that it should be installed and operated keeping the radiator at least 20cm or more away from person's body (excluding extremities: hands, wrists, feet and ankles).

Cet équipement est conforme aux limites d''exposition aux rayonnements énoncées pour un environnement non contrôlé et respecte les règles les radioélectriques (RF) de la FCC lignes directrices d'exposition dans le Suppl ément C à OET65 et d'' exposition aux fréquences radioélectriques (RF) CNR-102 de l'' IC. Cet équipement émet une énergie RF trés faible qui est considérée conforme sans évaluation de l'' exposition maximale autorisée. Cependant, cet équipement doit être installé et utilisé en gardant une distance de 20 cm ou plus entre le dispositif rayonnant et le corps (à l''exception des extrémités : mains, poignets, pieds et chevilles).

**<Europe model>**

# Declaration of Conformity

We declare, under our solo responsibility, that the product to which this declaration relates complies with the provisions of following European Directives:

**2014/53/EU**
**2011/65/EU , 2015/863**

harmonised standard
RADIO **:**      **EN 300 328 V2.1.1**
EMC **:**       **EN 301 489-1 V2.1.1**
               **EN 301 489-17 V3.1.1**
               **EN 55032 : 2015**
               **(Comments： EN 55032:2012 is included in EN 55032:2015.)**
               **EN 61000-3-2 : 2014**
               **EN 61000-3-3 : 2013**
               **EN 55024 : 2010+A1:2015**
SAFETY **:**    **EN 62368-1 : 2014 /AC： 2015**
               **EN 62479 : 2010**
ENVIRONMENT**：**   **EN 50581: 2012**

Manufacturer's Name      **Star Micronics Co.,Ltd.**
Manufacturer's Address   **20-10 Nakayoshida, Suruga-ku, Shizuoka-shi,**
                      **Shizuoka 422-8654 Japan**

Importer's Name        **Star Micronics Europe Ltd.**
Importer's Address       **Star House, Peregrine Business Park, Gomm Road,**
                      **High Wycombe, Bucks. HP13 7DL, U.K.**

Type of Equipment      **Thermal Printer**
Model Name            **SM-L200 , SM-L204**
Ref. Radio Report No.     **17071100-CE-R1 , 17071100-CE-R2**
Ref. EMC Report No.      **17071100-CE-E**
Ref. Safety Cert. No.      **17071100-CE-H , 17071100-CE-S**
Ref. Environ. Report No.   **SM-L200-RoHS-02**

Place    **High Wycombe - U.K.**                                (Signature)
Date      **06-12-2017**                    **David Pearce**      (Full Name)
Year of 1st CE mark   **'15**           **Technical Director**    (Position)

**Refer to OR Code below**

***Trademark acknowledgments***

SM-L200: Star Micronics Co., Ltd.

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# Caution Symbol

| | |
|---|---|
| ⚠ | This symbol is placed near the thermal head to indicate that it may be hot. Never touch the thermal head immediately after the printer has been used. Let the thermal head cool for a few minutes before touching it. |
| ⚠ | This symbol is placed near the thermal head to indicate that it is easily damaged. Observe the precautions for handling electrostatic sensitive devices. |

# Safety Precautions   ⬚ Please be sure to read

**To use this product in safety, please follow the precautions given below.**

## ⚠ WARNING

- ✓ If you notice smoke, a strange smell, or a strange sound, turn off the power immediately, and remove the USB cable and/or battery pack. Then contact the dealer.
- ✓ If any foreign material (metal scraps, water, or other fluid) enters the printer, immediately turn off the printer and remove the USB cable and/or battery pack. Then, contact your dealer for advice. Continued use of the printer could result in a fire.
- ✓ Never attempt to repair the printer yourself. Also do not disassemble or modify the product. Doing so could lead to injury, fire, or electric shock.
- ✓ Do not touch the tear bar.
  - There is a tear bar inside the paper outlet slot. Neither put your hand in the paper outlet slot while printing is in progress, or put your hand into the outlet even when printing is not in progress.
  - The printer cover can be opened when replacing the paper. However, since the tear bar is on the inside of the printer cover, be careful not to place your face or hands too close to the tear bar.
- ✓ During and immediately after printing, the area around the thermal head is very hot.Do not touch it, as you could be burned.
- ✓ If any battery fluid gets on your skin or clothing, immediately wash the affected area with fresh water. Otherwise, skin damage may result.
- ✓ The battery pack may be hot immediately after the product has been used.

# ■ Using the Printer

✓ Some semiconductors can be damaged by static electricity.Be sure to turn off the printer when inserting or removing the battery pack.

✓ Do not drop the printer or hit it against a hard object.

✓ Do not open the printer cover while the printer is printing.

✓ Before you open the printer cover, make sure that printing data is not being sent to the printer.

✓ Do not unplug or plug in a USB cable while the printer is printing or during communication.

✓ Do not touch a USB connector while the printer is printing.

✓ Turn off the printer when you are not using it.

✓ When the printer is used in a low temperature environment, the battery's performance will be diminished, and the amount of time that you can use the printer for may be reduced.

✓ Do not pull out paper while the printer cover is closed.

✓ The heating element and the driver IC of the thermal head are easily damaged. Do not touch them with metal objects, sandpaper, etc.

✓ Printing quality may suffer if the thermal head heating element becomes soiled by being touched with your hands. Do not touch the thermal head heating element.

✓ There is a risk of damage to the driver IC of the thermal head from static electricity. Never directly touch the IC.

✓ Do not operate the printer if there is moisture on the front surface of the head from condensation, etc.

# ■ Thermal Paper Handling

✓ Only use thermal paper with the designated specifications.The printing quality and working life of the thermal head cannot be guaranteed if any paper other than that recommended is used. In particular, if ion concentration of [Na+, K+, C1-] is high, it may drastically reduce the working life of the thermal head. Please exercise caution.

✓ Store the thermal paper in a cool, dry, dark location.

✓ Do not rub the thermal paper with a hard object.

✓ Do not leave the thermal paper in contact with plastic film, an eraser, or adhesive tape for a long period of time.

✓ Do not stack the thermal paper on fresh diazo copies or wet-type copies.

✓ Do not use chemical glue on the thermal paper.

✓ Do not use thermal paper that has been stored for a long period .

# ■ Operating Environment for the Printer

Before actually unpacking the printer, you should take a few minutes to think about where you plan to use it. Remember the following points when doing this.

✓ Do not use the printer in an environment in which it will be subject to strong shaking while it is printing.

✓ Be careful to ensure that the printer is not exposed to direct sunlight.

✓ The appropriate environment for using the printer is described below.

Temperature: 0°C to 50°C

Humidity: 20% RH to 85% RH (no condensation)

✓ Do not place the printer near a copying machine or other device that produces a strong electromagnetic field.

✓ Keep the printer sufficiently removed from heaters and other sources of heat.

✓ Use the printer in a clean, low-humidity environment that is free from dust.

✓ Avoid using the printer in high-humidity rooms.

# ■ Printer Maintenance

Please perform the following maintenance every 6 months.

✓ Thermal head

Dip a cotton swab in an alcohol solvent (ethanol, methanol, or isopropyl alcohol), and clean the heating area of the head.

✓ Platen

While turning the platen, use a soft dry cloth to lightly rub the entire surface of the platen and remove any foreign objects.

✓ Paper storage unit and the surrounding area

Remove any dirt, dust, pieces of paper, etc., from the paper storage unit.

✓ Card reader

Regularly blow air onto the card reader to remove any dust from the card slot.

# ■ Using a Magnetic Card

✓ Do not bring magnets near the card, and do not store the card near a device that produces a magnetic field (such as a mobile phone, speaker, or TV). If you do so, the data on the card may be deleted.

✓ Do not leave the card in a high-temperature environment (such as the dashboard of a car).If you do so, the card may bend.

✓ Do not touch the card with dirty or wet hands. Also, do not attach adhesive tape or glue to the card. Failing to follow the above precautions could cause the card to stop working properly.

# Table of Contents

# 1. Product Overview

This printer is perfect for mobile banking systems, retail, POS (point of sale) terminals and other forms of mobile computing.

The characteristics of this printer are listed below:

- Pocket size (83x122.5x44mm)
- Extremely light and mobile (220g including Battery pack)
- Ultra-long standby time(20h) and continuously work for 1.2 hours
- 1.2m Drop Resistance
- Very silent printing thru direct thermal printing method
- Print speed 35mm/s (Paper feed 70mm/s)
- Support  Bluetooth Ver3.0/4.0[BLE] Dual Mode
- Support Secure Magnetic Stripe Reader <Model with Card Reader>
    *AES or 3DES encryption
    *DUKPT Key Management
- Support Graphic OLED(128x64 dots) with Blue Backlight
- Belt Clip as a standard accessory
- Support text and graphic printing
- Drop-in design that makes it easy to load paper
- A printer cover that can be opened with the touch of a button
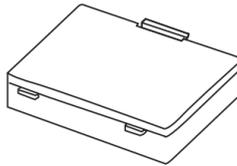- Printer cover open sensor, Paper-out sensor and Black mark sensor

# 1.1 Printer & Accessories

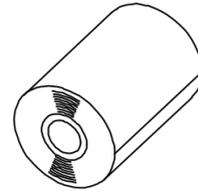The printer is packaged with the following accessories.

If any of these accessories is broken or missing, please contact the dealer that you bought the product.
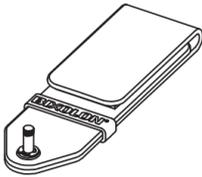
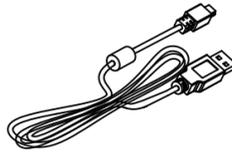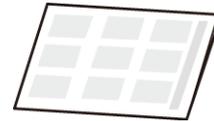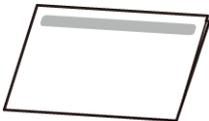| | | |
|:---:|:---:|:---:|
| Printer | Battery Pack | Printer paper sample |
| Belt Clip | USB Cable | Safety Instruction Sheet |
| Easy Setup Guide | | |

The optional items for this printer are listed below.
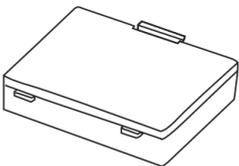
| | | |
|:---:|:---:|:---:|
| Battery Pack | Charging Cradle | USB Cable |
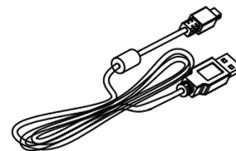
# 1.2 Appearance and Components

Paper Roll Prespective Window

OLED

MODE Button

POWER Lamp (Green)

FEED Button

Magnetic Stripe Reader
(MSR Mounting Model)

ERROR Lamp (Blue)

Platen

Thermal Head

Tear Bar

Cover Open Button

USB Interface

Belt Clip Screw Hole
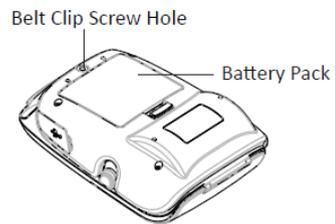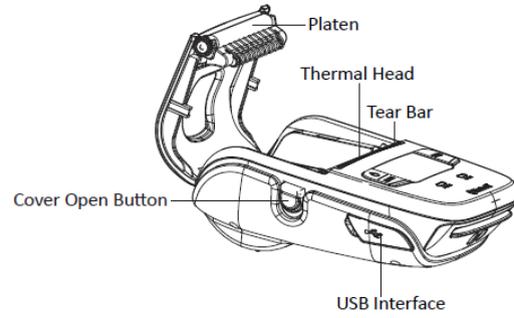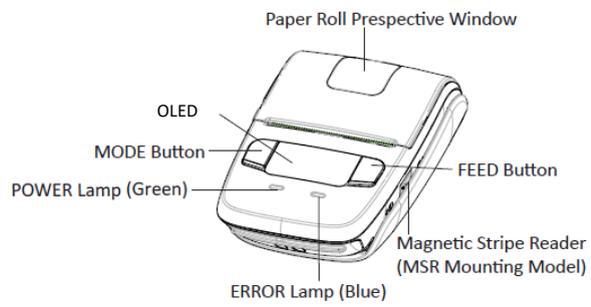
Battery Pack

# 2. Setup

## 2.1 Battery Pack

### 2.1.1 Inserting into the Printer

1. Make sure that the printer has been turned off before you insert or remove the battery pack.

2. Insert the battery pack into the back of the printer as in the figure shown below, following the direction of the arrow.



Hook

Push the battery pack until the hook clicks into place.
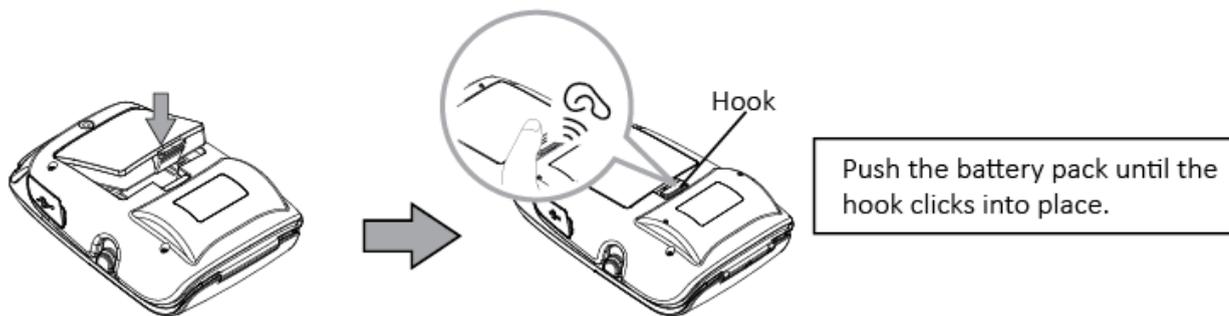
3. To remove the battery back, pull back the hook, and use the opposite procedure from the one you used to insert the battery pack.

## 2.1.2 Charging the Battery

Insert the battery pack into the printer to charge it.

Plug in socket with USB charging.

Charging via PC.

USB Cable
(Standard Accessory)

Ferrite Core

USB Port

USB Charger（Please prepare yourself）
- USB charger with plug
- Charger with battery
- USB cigar charger etc

When battery pack runs out of power, the battery icon will flash. It powers off automatically when continues printing. If you want to go on, please charge it.

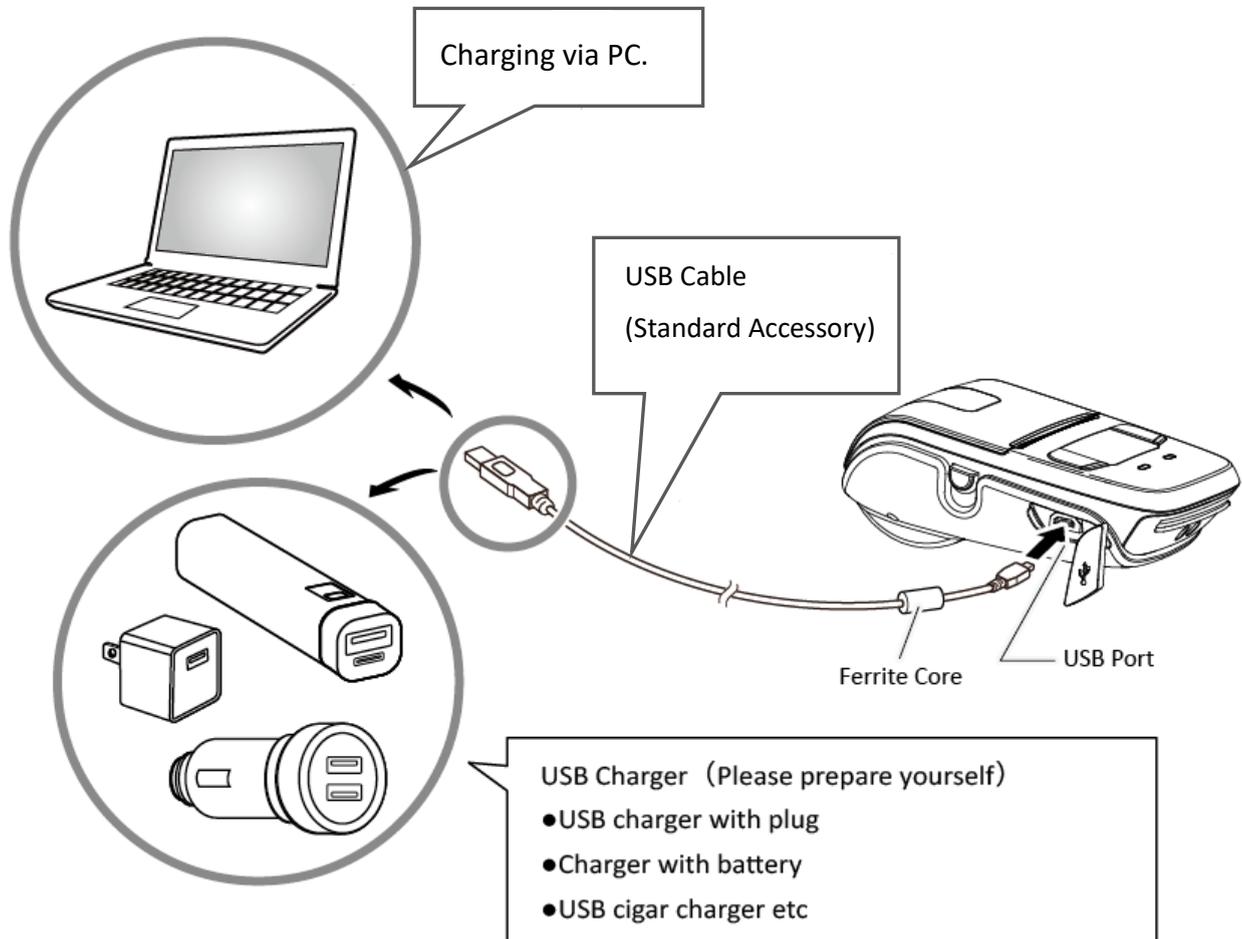**Battery charging status descriptions are as follows:**

| Printer Status | While Charging | Charging is completed |
|---|---|---|
| When power ON | Power lamp is Flashing in green | Power lamp is constant on *But if printer goes into Stand-by mode, power lamp will keep flash 1 time/second. |
| When power OFF | Power lamp is Flashing in green | Power lamp is off |

*NOTE: However, a low-grade car charger may cause a trouble due to a sudden change of voltage. Use the charger that satisfies the USB standard.*

⚠️ *Notes about the Battery Pack*

**General Battery Characteristics**

- The battery is a consumable and its performance over time gradually decreases.

- While not in use, the battery will slowly discharge itself.

  Prepare a battery pack that has been charged relatively recently (1 to 2 days earlier).

- To ensure that the battery lasts for a long time, we recommend that you turn off the printer whenever possible.

- When used at low temperatures, battery performance will temporarily decline. Be sure to have a fully-charged spare battery standing by if the printer will operate in a cold environment.

**Charging the Battery Pack**

- The battery pack can be charged at ambient temperatures between 0 and 40°C.
- The time required to charge the battery pack varies depending on the voltage and the ambient temperature. Normally, it takes 4 to 5 hours to charge the battery pack.
- It will take longer to charge the battery pack if you print while charging the battery pack.
- Do not remove the battery pack while it is being charged.
- Fully charge the battery prior to using the printer. Otherwise, the performance of the battery may be affected.
- There is no need to completely discharge or use up a rechargeable Lithium-ion battery before recharge it.
- It is normal for the battery pack to be hot after it has finished charging or been used.
- Do not recharge a battery pack that has just been fully charged.

**Battery Pack Life**

- The battery can be charged approximately 300 times in the normal temperature range without losing performance. If an extreme decline in the running time of the battery is noticed, the battery is reaching the end of its usable life. It is recommended to replace the old battery with a new one.

**Notes about Using the Battery Pack**

- Only use a designated battery pack.
- Only use the designated battery charging method.
  You cannot use a USB cable other than the designated USB cable.
- Do not throw the battery into a fire, place it near a flame or heating device, or leave it in a hot environment (under direct sunlight, in a car, etc.).
- Do not use a battery pack that has been dropped or subjected to a shock in some other way.
- Do not disassemble or modify the battery pack.
- Do not short the terminals of the battery pack or get it wet.
- Do not place the battery pack in a bag with a small metal object (such as a key).
- If any battery fluid gets on your skin or clothing, immediately wash the affected area with fresh water. Otherwise, skin damage may result.

**Notes about Storing the Battery Pack**

- The characteristics of the battery pack may degrade if you store it in a charged state for a long period of time. If you do not intend to use the battery pack for a while, use up its power before storing it.

- If you do not intend to use the battery pack for a long time, be sure to remove it from the printer.

- Keep the battery out of the reach of children. In addition, be careful that children do not remove the battery.

- Store the battery pack in a cool place.

    * We recommend that you store the battery pack in a dry area with an ambient temperature of 15 to 25 ℃.

    * Avoid storing the battery in locations with high or extremely low temperatures.

**Battery Disposal and Recycling**

A battery pack is used to power this device. Since the disposal process of batteries varies from country to country, refer to the appropriate measures mandating the disposal method of the country in which this device is used.

**< For U.S.A. and Canada >**

| | |
|---|---|
|  | Lithium-Ion batteries are recyclable. You can help preserve our environment by returning your used rechargeable batteries to the collection and recycling location nearest you. For more information regarding recycling of rechargeable batteries,call toll free 1-800-822-8837, or visit http://www.rbrc.org/ |

If battery pack is not in use for a long time, please remove it after fully charged. And it should be recharged every 3 months.

When power is low,battery should be charged in time. If the printer automatically power down because of low power, be sure to charge the battery in 15 days. Otherwise, it will cause permanent damage to the battery.

## 2.2 Connecting a tablet or PC to the printer (pairing)

1. Press and hold MODE button for approx. 2 seconds, and printer is turned on.

   Then, it is ready to pair with another Bluetooth device.
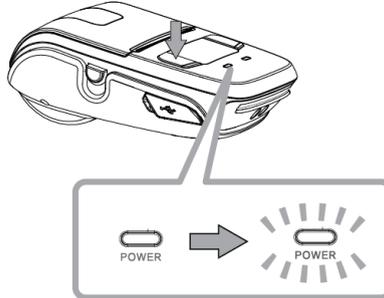


2. If necessary, enter the following information into the terminal that you are using.

   PIN: 1234 (default)

   Device name: "STAR L200-XXXXX"(default)

   Device name: "STAR L204-XXXXX"(MSR model)

   (XXXXX is the last digits of the Product Serial Number)

*Notes:*

*1.SM-L200 has two Bluetooth modes:*

   *a) One is Bluetooth Ver3.0 with PIN for Android or Windows system. PIN and Device name can be changed*

   *through Star Utility. To obtain this utility, please contact with your dealer.*

   *b) Another is Bluetooth 4.0(BLE) without PIN for iOS system.*

*2.SM-L200 changes the Bluetooth mode automatically by host system*

*3.Pairing sets one by one in order, otherwise it can't figure out which one succeeds in pairing.*

*The Bluetooth$^®$ word mark and logos are owned by the Bluetooth SIG, Inc. and any use of such*

*marks by Star is under license.(Design and specifications subject to change without notice.)*

You can test the connectivity with a host device by using StarIO SDK Application which is available
on Apple Store and Google play

## 2.2.1 iOS

1. Press and hold MODE button for approx. 2 seconds, and printer is turned on.
2. Pairing is not required. Select the model from your application.

   Device name: "STAR L200-XXXXX"(default)

   (XXXXX is the last five digit number written in the "Serial No." column on the bottom of the printer.)
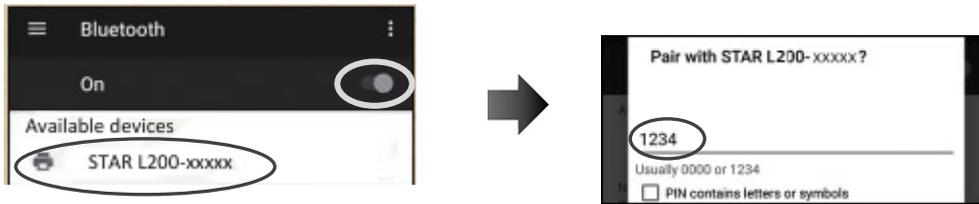
## 2.2.2 Android

1. Press and hold MODE button for approx. 2 seconds, and printer is turned on.
2. Open the tablet settings screen and select Bluetooth.



3. Turn ON Bluetooth.

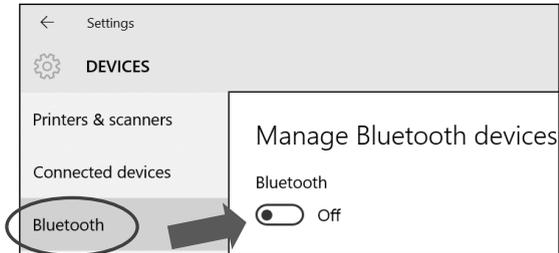   Select the displayed device name (STAR L200-XXXXX), and enter the PIN code.



4. When the device name is displayed under "Paired devices", pairing is completed.

## 2.2.3 Windows10

1. Press and hold MODE button for approx. 2 seconds, and printer is turned on.

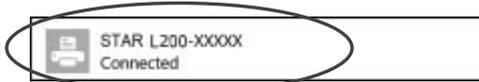2. Open SETTINGS , select [Devices] - [Bluetooth].



3. Turn ON Bluetooth.

   Select the displayed device name (STAR L200-XXXXX), and enter the PIN code.



4. When "Connected" is displayed, pairing is completed.



*You can test the connectivity with a host device by using Star IO SDK Application which is available on Apple Store and Google play.*

## 2.3 Loading Paper

Refer to Section 4 "Paper" (p. 25), to select roll paper that conforms to the specifications.

1) Press the cover open button to open the paper cover.
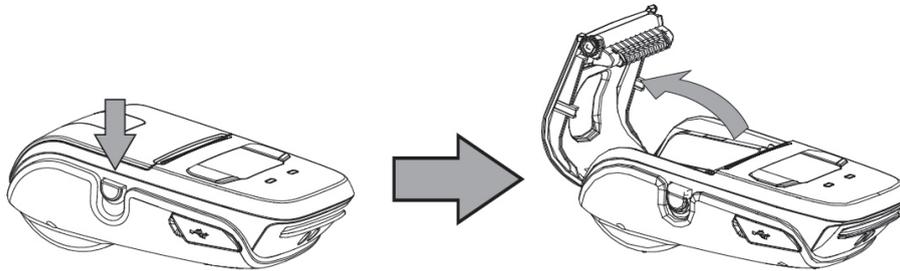


2) Load the roll paper in the orientation shown in the figure below.
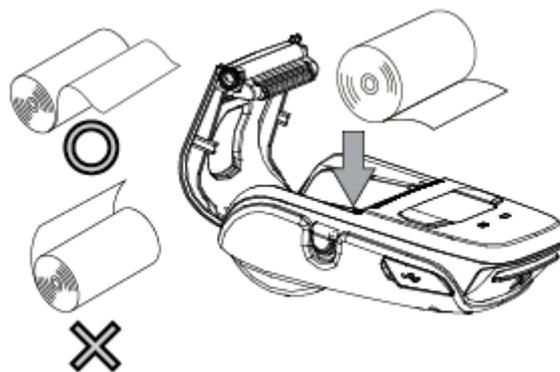


3) Pull the end of the roll straight toward you. Then press down on both sides of the printer cover to close it firmly.When you close the printer cover, make sure that it is closed on both sides.



4) Use the tear bar to cut the extra paper.

## ⚠CAUTION

When ERROR lamp is flashing, please make sure the cover is closed correctly. If it's not, open the cover and close it correctly.

When the paper is jammed, be sure to open the printer cover before removing the jammed paper.

Do not under any circumstances try to pull out the jammed paper forcefully while the printer cover is closed, doing so may damage parts of the printer.

## Caution Symbol

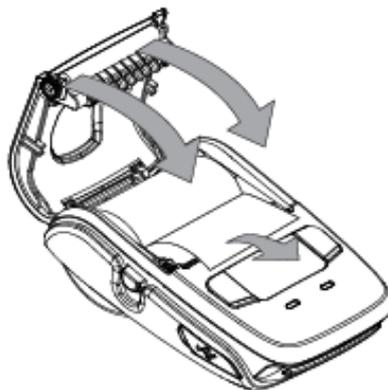This symbol is placed near the thermal head to indicate that it may be hot.

Never touch the thermal head immediately after the printer has been used.

Also, even when the thermal head is not hot, do not touch it, because static electricity can damage the devices inside the thermal head.

## ⚠*WARNING*

1) Do not touch the tear bar.
- There is a tear bar inside the paper outlet slot. You could neither put your hand in the paper outlet slot while printing is in progress nor put your hand into the outlet even when printing is not in progress.
- The paper cover can be opened when replacing the paper. However, since the tear bar is on the inside of the paper cover, be careful not to place your face or hands too close to the tear bar.

2) During and immediately after printing, the area around the thermal head is very hot. Do not touch it, as you could be burned.

## 2.4 Belt Clip

### 2.4.1 Attaching to the Printer

Follow the procedure below to attach the belt clip to the printer.

1. Make sure that you are attaching the belt clip in the right orientation, then screw the screw that comes with the belt clip into the designated screw hole to attach the belt clip to the printer.

2. Use a coin to firmly screw in the screw.
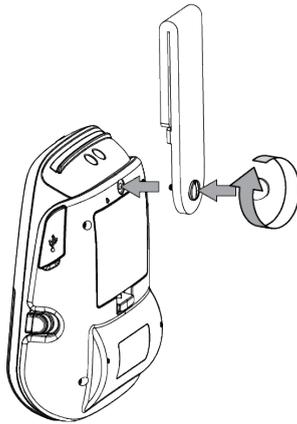
### 2.4.2 Using the Belt Clip

When the printer is attached to your belt, you can use it like the picture below.
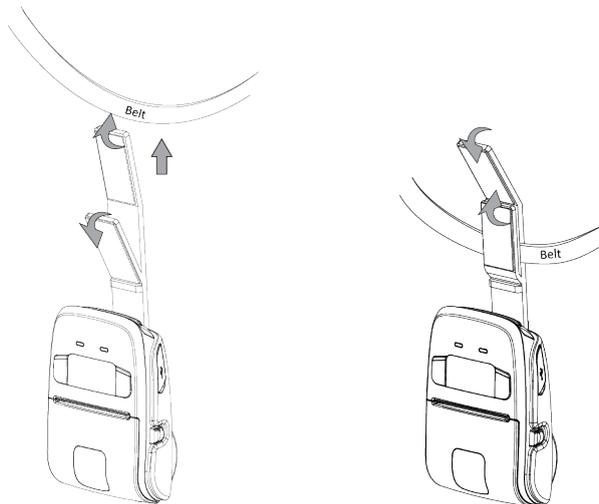
*Note: Be careful not to drop when use a belt clip.Velcro be securely fixed.*

Hold the printer firmly with your hand when you swipe a magnetic stripe card or cut paper. If it is not held firmly, you may fail to read card data or cannot cut paper smoothly with the tear bar.

# 3. Printer Features

## 3.1 Control Panel
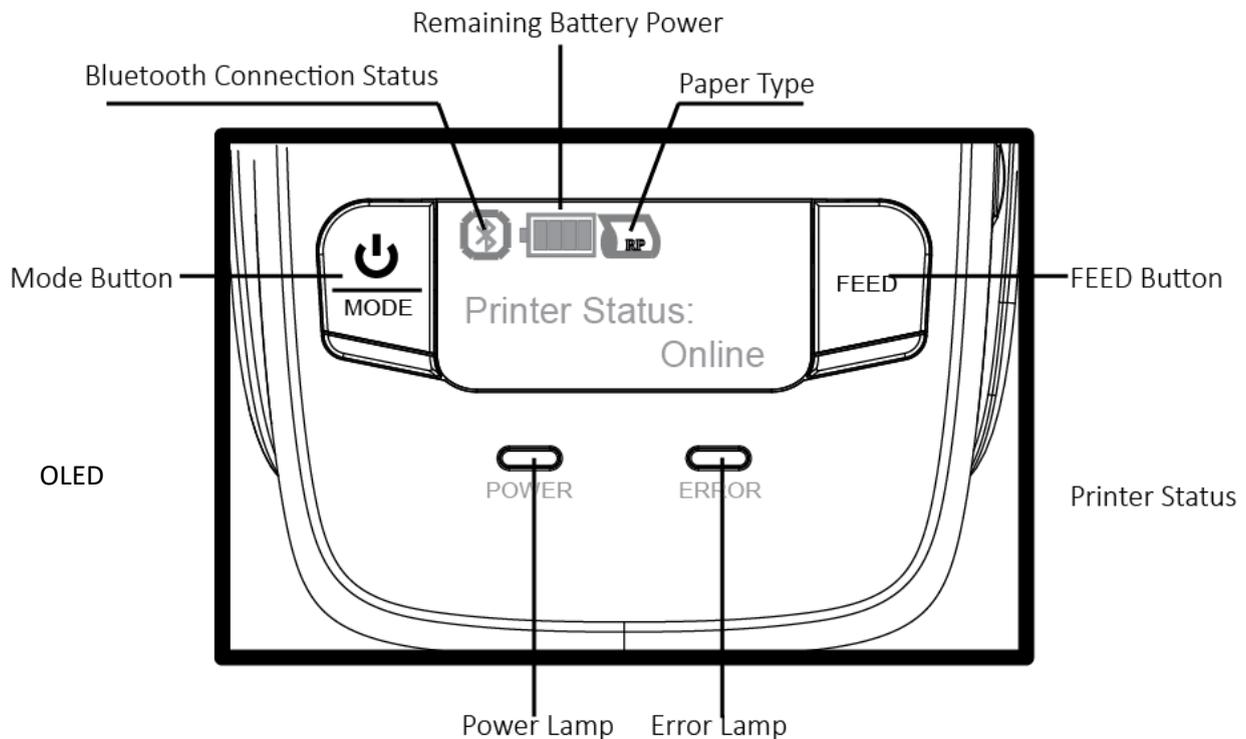


## 3.1.1 Button

1) MODE Button:

①Pressing and holding the MODE button for 2 seconds or more will turn the power on or off.

②Pressing and holding MODE & FEED buttons for 5 seconds will put the printer into Memory Switch Setting mode. The MODE button can now be used to change Printer MODE status visible on the OLED screen for fast configuration .

(Refer to 3.3 Memory Switch Settings for details about mode conversion)

2) FEED Button :

①When the printer is on, paper can be fed manually by pressing and holding the FEED button for more than one second.

②In Memory Switch Setting mode,the FEED button can be used to move cursor("_") and confirm the new setting.

## 3.1.2 Panel Lamp

1) **POWER (Green):** Printer is ON and ready to receive data.

2) **ERROR (Red):** Indicates an error has occurred. (Ex.: Paper Out, Cover Open, etc)

| Power lamp (green) | Error lamp (blue) | Status |
|---|---|---|
| Flash | OFF | Power-on charging |
| Flash | OFF | Power-off charging |
| ON | OFF | Power-on charging , Battery full |
| OFF | OFF | Power-off charging , Battery full |
| ON | OFF | Power on |
| Flash | OFF | Standby |
| ON | Flash | Paper out |
| ON | Flash | Cover open |

## 3.1.3 OLED Indication

OLED will display most of the printer status.

1) The 128 x 64 dots display shows alphanumeric characters.

2) Content

Mode/Status: Indicates the currently specified printer mode or error status.

Remaining battery power :

**No Charging**

| Icon | Battery Status and Voltage |
|---|---|
| | Empty    3.6~3.7V<br>The remaining battery power is extremely low.<br>*Less than 3.6V   Please turn off the printer |
| | 1 bar    3.7~3.8V<br>The remaining battery power is low.<br>Please charge the battery pack |
| | 2 bars    3.8~3.9V |
| | 3 bars    3.9~4.0V |
| | 4 bars    Above 4.05V<br>There is sufficient remaining battery power. |

**While charging**

| Icon | Battery Status and Voltage |
|---|---|
| | Charging   Below 4.1V |
| | 4 bars    Above 4.05V |

Bluetooth connection status

 The mark on the left indicates that there is no Bluetooth connection.

 The mark on the left indicates that there is a Bluetooth connection

Paper type

 Receipt

 Black mark (Front)

 Black mark (Back)

 Out of paper

## 3.1.4 Buzzer Description

| Buzzer | Status |
| --- | --- |
| No ring | Low battery |
| Once | Begin charging/Press button/Cover close |
| Twice | Paper out/Cover open |
| Thrice | USB disconnected |

# 3.2 Self Test

You can use self test to check the printer's settings.

Before you start the self test, make sure that roll paper has been properly loaded into the printer.

## 3.2.1 Self Test Procedure

1）Turn on the power while holding down FEED.

2）The printer will print the current printer status, including the firmware version, communication mode, print settings and QR code that links to the users Manual Download site.

3) The self test will finish automatically. The printer will be ready to receive data after the self test finishes.

## 3.2.2 Printing the Bluetooth Device Name and MAC Address

1) Follow the procedure in section 3.2.1 to perform a self test.

2) Before the self test finishes, press and hold FEED and MODE at the same time.

3) The printer will print the Bluetooth device name and MAC address, and the self test will finish automatically.

The printer will be ready to receive data after the self test finishes.

# 3.3 Memory Switch Settings

Change the Memory switch by following operations. (Refer to P16 "Memory Switch Setting Table").

1.Press and hold MODE button for approx. 2 seconds, and printer is turned on.
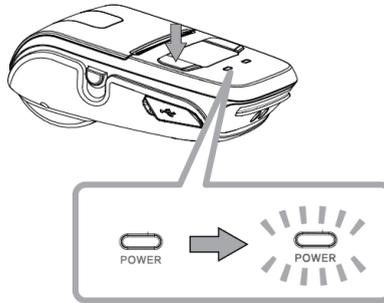


2.To put the printer into Memory Switch Setting mode, press and hold both the MODE & FEED

buttons for 5 seconds. After printer displays "Enter Menu Mode", you can configure the settings.

Release the buttons after you surely confirm the screen display "Enter Menu Mode", to get a printer

into the setting mode.



3.To switch the Menu and option parameter , or return to the previous menu, press MODE button.

4.To move the cursor("_"), entry the printer mode, or confirm the new setting, press FEED button.

---

## ⚠CAUTION

Before changing the memory switch settings, make sure that the communication with a host device is

disconnected.

When the printer is under the Bluetooth communication with a host device, it cannot enter the Memory Switch

Setting mode.

---

# Example

When you want to change the settings of the printer mode as shown below,

| Item | Factory Setting | Configuration Example |
|---|---|---|
| 1 Density | 0(Medium) | 1(Low) |
| 2 Standby Time | 0060(Sec) | 0080(Sec) |
| 3 Auto Off Time | 0000(Invalid) | 1000(Min) |
| 4 Smart Power | 0(Disable) | 0(Disable) |
| 5 Paper Type | 0(Receipt) | 2(BM(Back)) |
| 6 Factory Reset | 0(Cancel) | 0(Cancel) |
| 7 Password | 0000 | 2222 |
| 8 Previous Menu | --- | --- |

Press and hold the MODE & FEED buttons for 5 seconds.

→You will see present "Enter Menu Mode" in the OLED.

Press the MODE button once to switch the menu item.

   Display: 1 Self Test →2 System Setting

Press the FEED button once to get into the System Setting menu.

→You will see present "Input Password 0000" in the OLED.

→Press FEED button to move cursor("_"),Press MODE button to switch the number (0~9).

     Password: 0000(default)

→Press and hold the FEED button for 2 seconds to get into the menu.

   Display:   1 Density

             2 Standby Time

             3 Auto off Time

             4 Smart Power

[Density]

Press MODE button to switch the menu item,then press the FEED button once to enter the menu.

→Press the FEED button once to get into the Density menu.

   Display:   Density:

             0-Medium     1-Low

             2-High        0

             3-Special

→Press the MODE button once to input the number 1, then press and hold FEED button to confirm the new setting and return to the previous menu.

(The density has set to Low)

0(Medium) → 1(Low)

Please use at a room temperature if you want to set the density to '3 Special'.

Some type of the paper are not suitable for use in low temperature environment.

[Standby Time]

Press the MODE button once to switch the menu item--Standby Time.

→Press the FEED button once to get into the menu.

    Display:                Standby Time:

                              [0010-9999(Sec)]

                                      0060

→Press the FEED button twice to move cursor("-"), then press the MODE button twice to input the number: 8, finally press and hold FEED button to confirm the new setting and return to the previous menu.

    (The standby time has set to 80 seconds)

    0060(Sec) →0080(Sec)

| |
|---|
| When set the parameter to 0000, the standby time becomes invalid. |
| If set the parameter to 001~ 009, a buzzer beeps, so do not set it. |

[Auto Off Time]

Press the MODE button twice to switch the menu item--Auto Off Time.

→Press the FEED button once to get into the menu.

    Display:                Auto Off Time:

                              [0001-9999(Min)]

                                      0000

→Press the MODE button once to input the number on : 1, then press and hold FEED button to confirm the new setting and return to previous menu.

    (The auto off time has set to 1000 minutes)

    0000(Min) →1000(Min)

| |
|---|
| When set the parameter to 0000, the auto off time becomes invalid. |

[Smart Power]

Press the MODE button 3 times to switch the menu item--Smart Power.

→Press the FEED button once to get into the menu.

    Display:                Smart Power

                        0-Disable

                        1-Enable         0

→Press the MODE button once to input the number on : 1, then press and hold FEED button to confirm the new setting and return to previous menu.

[Paper Type]

Press the MODE button 4 times to switch the menu item--Paper Type.

→Press the FEED button once to get into the menu.

Display:                0-Receipt

                                 1-BM(Front)

                                 2-BM(Back)       <u>0</u>

→Press the MODE button twice to input the number:2, then press and hold FEED button to confirm the new setting and return to the previous menu.

(The paper type has set to BM(Back))

0(Receipt) →2(BM(Back))

[Factory Reset]

Press the MODE button 5 times to switch the menu item--Factory Reset.

→Press the FEED button once to get into the menu.

Display:                 0-Cancel

                                 1-Factory Reset

                                         <u>0</u>

→When the setting does not need to be reset, press and hold FEED button to return to the previous menu.

[Password]

Press the MODE button 6 times to switch the menu item--Password.

→Press the FEED button once to get into the menu.

Display:                 Input New

                                 Password

                                       <u>0</u>000

→Press the MODE button twice to input the number: 2,then press FEED button once to move cursor("-"), press the MODE button twice to input the number:2, repeat the above steps to input the number "2222", finally press and hold FEED button to confirm the new setting and return to the previous menu.

(The Password has set to 2222)

0000→2222

[Previous Menu]

Press the MODE button 7 times to switch the menu item--Previous Menu.

→Press the FEED button once to return to the previous menu.

Display:                  1 Self Test

                                     2 System Setting

                                     3 Exit Menu

[Self Test]

Press the MODE button 2 times to switch the menu item--Self Test.

Press the FEED button once to enter the menu item--Self Test.

Display:                  1 Print

                                     2 MSR

                                     3 MSR Key Inject

                                     4 Hex Dump Mode

                                     5 Previous Menu

→Press the FEED button once,you will see present "Press Feed To Print" in the OLED, press FEED button, the new settings will be printed.

___

If the settings were not configured correctly, follow the above procedure to configure the settings again.

# Memory Switch Setting Table

| First-level menu | | Second-level menu | Third-level menu | Default |
|---|---|---|---|---|
| 1 Self Test | | 1 Print | Press Feed To Print | -- |
| | | 2 MSR | Please Swipe Card | -- |
| | | 3 Hex Dump Mode | Hex Dump Mode | -- |
| | | 4 Previous Menu | -- | -- |
| 2 System Setting | Input Password: 0000 | 1 Density | 0-Medium<br>1-Low<br>2-High<br>3-Special | Medium |
| | | 2 Standby Time | Standby Time: [0010-9999(Sec)] | 60 Seconds |
| | | 3 Auto Off Time | Auto Off Time:[0001-9999(Min)] | 0000 Min |
| | | 4 Smart Power | Smart Power<br>0-Disable<br>1-Enable | 0 |
| | | 5 Paper Type | 0-Receipt<br>1-BM(Front)<br>2-BM(Back) | Receipt |
| | | 6 Factory Reset | 0-Cancel<br>1-Factory Reset | Cancel |
| | | 7 Password | Input New Password: 0000 | 0000 |
| | | 8 Previous Menu | -- | -- |
| 3 Exit Menu | | -- | -- | -- |

# 3.4 Instruction for Power Management

The printer in the Standby(Sleep) Mode will recover to the Print Ready Mode when receiving print data or button operations.

Press the FEED button or the MODE button and confirm that the Power lamp(Green LED) is turned on. When the Power lamp is not turned on, it is possible that the printer is turned off by the Power OFF mode. In this case, turn the printer on manually.

## 3.4.1 Standby Time

Display on OLED is disappeared when a setting time has passed.(0010-9999 sec)

## 3.4.2 Auto-Off Time

The power is turn off when a setting time has passed.(0001-9999 min)

## 3.4.3 Smart Power Option (Supported from firmware version 1.3)

The smart power option is a function to turn on the printer when it is supplied the power.

When the printer is turned off, upon being powered, it will automatically turn on.

Please press and hold the MODE button to turn off the printer when it is supplied the power.

<If AUTO OFF is enabled>

If the smart power option is enabled and printer is turned on and powered, AUTO OFF function will be disabled.

In this case, AUTO OFF function will be enabled after power is interrupted.

For instance, if AUTO OFF is set to 10 minutes and,

The smart power option enabled, printer turned on and powered, then printer will NOT be turned off after 10 minutes.

The smart power option enabled, printer turned on and NOT powered, then printer will be turned off after 10 minutes.

| Status<br>Event | | Event1<br><br>Powered | Event2<br>Powered<br>Interrupted | Event3<br>Auto Power OFF<br>Time out | Event4<br>Charging<br>completed |
|---|---|---|---|---|---|
| Condition 1 | Turned OFF<br>No charging | Turn ON (Auto)<br>Start charging | N/A | N/A | N/A |
| Condition 2 | Turned OFF<br>Charging | N/A | Turn OFF<br>No charging | N/A | Turn OFF<br>Charging |
| Condition 3 | Turned ON<br>No charging | Turn ON (Auto)<br>Start charging | N/A | Turn OFF<br>No charging | N/A |
| Condition 4 | Turned ON<br>Charging | N/A | Turn ON<br>No charging | Turn ON<br>Charging | Turn ON<br>Charging |

## 3.5 Magnetic Card Reader (For MSR model)

Please keep the following points in mind when reading a card.

● Swipe the card with its magnetic stripe side towards the printer.

● Hold the card in the center and swipe it straight at a steady speed in the directions of arrows.You can swipe the card in either direction to read the data.

Be sure to hold the printer firmly with your hand while swiping.

> ➢ Pay attention to the hand you hold the printer, you finger should not touch the cover of the MSR slot, if not, the card cannot be read properly. (See correct example on Figure 3.4-2)

If you hold the corner of the card, it is difficult to swipe it straight so that you may fail to read the card data.So hold the card in the center when you swipe the card.
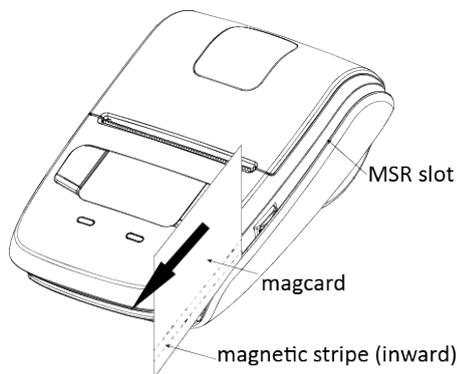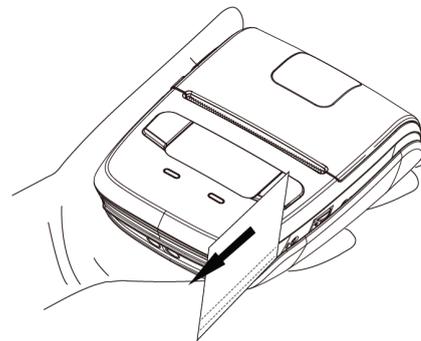
**Figure 3.4-1**                                   **Figure 3.4-2**



MSR slot

magcard

magnetic stripe (inward)

● A buzzer will sound once when a card is successfully read, and you will see present "MSR read success" in the OLED.

● When the printer fails to read the card, the buzzer will sound three times and you will see present "MSR read failure" in the OLED. Please check the orientation of the card, and slide it through the reader slot again.

*Note:*

*1.Swiping JIS card is also under MSR mode.*

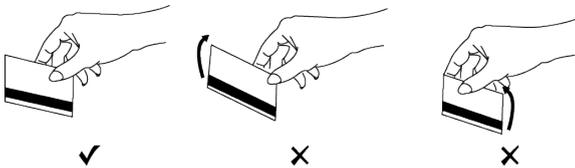*2.JIS card operation is same as MSR card operation.*

# ■ Correct example:
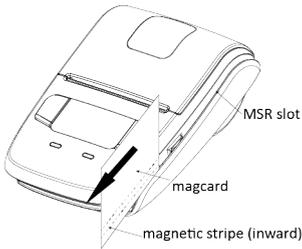
Make sure the magnetic stripe is towards to the magnetic head. Hold the card in the center as illustrated below and swipe it straight at a steady speed in the direction of arrows.
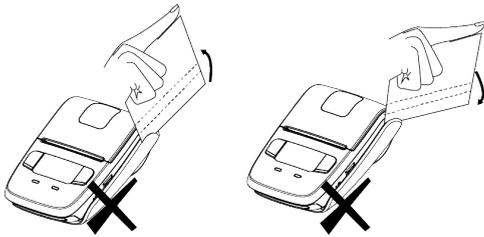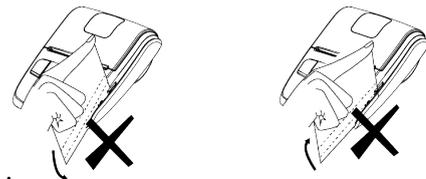
# Incorrect example:

## To grasp a magnetic card

If you grasp the front/rear part of a card and move it through the MSR slot,the front /rear part is loose and a read error occurs.
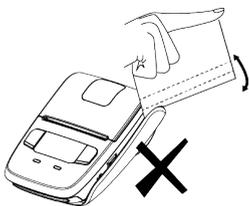
## To move a magnetic card

If you insert a card tilted upward/downward into the MSR slot,the card does not move horizontally and a read error occurs.

If you extract a card at the end of the MSR slot by lifting up or lowering down,the card is not maintained and a read error occurs.

If you insert a card into the middle part of the MSR card ,the card is not read correctly and read error occurs,or if you move the card back or forth by force after inserting into the MSR slot,the card is not read correctly and a read error occurs.
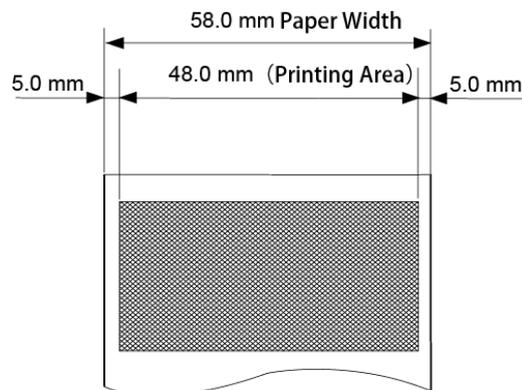
# 4. Paper

## 4.1 Paper Specification

Paper type             Thermal paper

Paper width            58mm

Paper thickness        $0.053mm \leq X \leq 0.12mm$

Roll paper diameter      $13mm \leq \emptyset \leq 40.5mm$

## 4.2 Recommended Paper

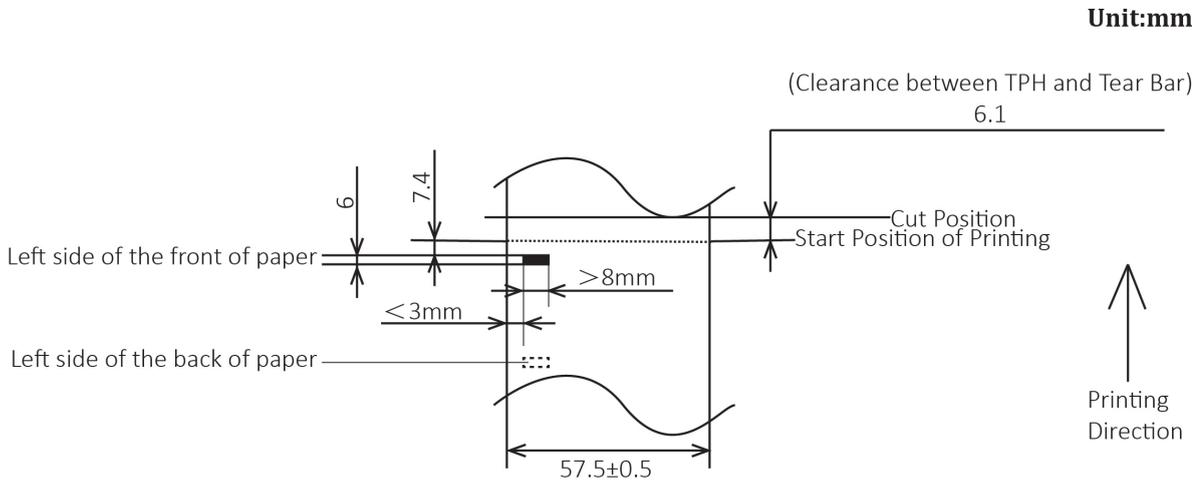| Manufacturer | Product Name |
|---|---|
| Mitsubishi Paper Mills Limited | P220AG |
| Oji Paper Co., Ltd. | PD450 |
| Appvion, Inc | Alpha 400-2.1 |
| Oji Paper Co., Ltd. | FD200 |

## 4.3 Printing Range



---

⚠️ *CAUTION*

*1) Do not use roll paper whose end is glued to its core, because the printer will be unable to properly detect the end of the paper. Also, we recommend that you use roll paper that has a roll end mark at its end.*

*2) Chemicals and oil may cause the roll paper to change color or cause the printed characters to become lighter.*

*3) Please be aware that the roll paper can be affected by heat, humidity, and direct sunlight.*

*4) The roll paper may change color if you scratch it with your fingernail, a hard piece of metal, etc.*
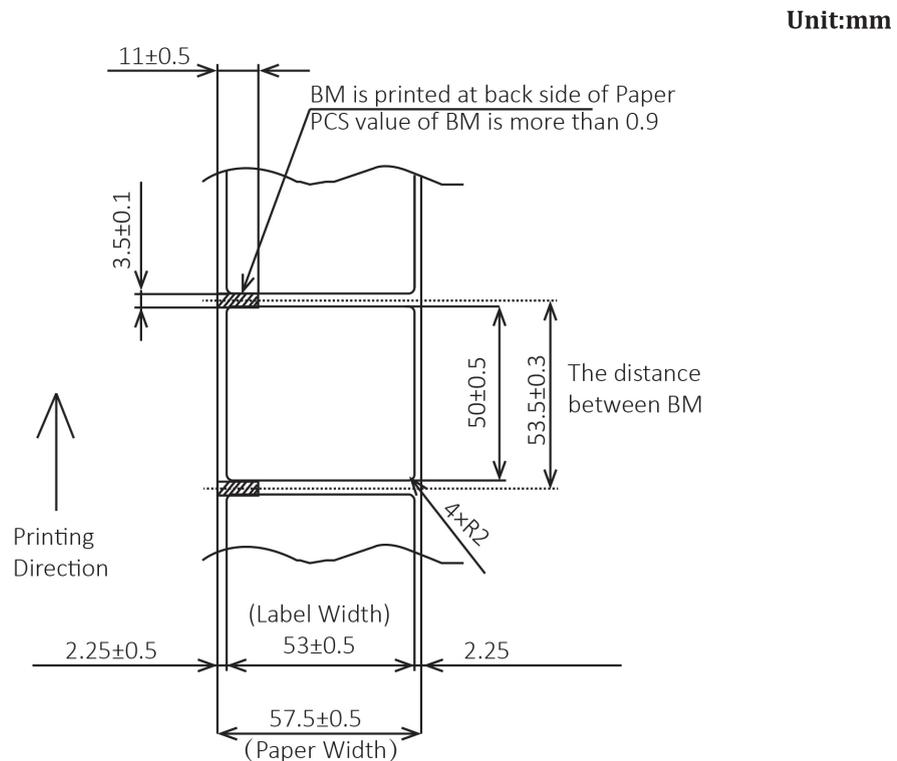
# 4.4 Specification of Black Mark

SM-L200 supports black mark on both sides of the paper and the specification of black mark is illustrated by the following image.

## ● Thermal paper

Unit:mm

(Clearance between TPH and Tear Bar)
6.1

6

7.4

Cut Position
Start Position of Printing

Left side of the front of paper

>8mm

<3mm

Left side of the back of paper

Printing
Direction

57.5±0.5

## ● Label paper

Unit:mm

11±0.5

BM is printed at back side of Paper
PCS value of BM is more than 0.9

3.5±0.1

50±0.5

53.5±0.3

The distance
between BM

Printing
Direction

4×R2

(Label Width)
2.25±0.5    53±0.5    2.25

57.5±0.5
(Paper Width)

*Note:PCS value of BM should be more than 0.9*

# 5. General Specification

## Table 5-1 General Specification

| Item | | Specifications | |
|---|---|---|---|
| Printing | Printing method | Direct line thermal printing | |
| | Resolution | 203dpi (8dots/mm) | |
| | Printing speed | 35mm/s | |
| | Valid printing width | 48mm (384dots) | |
| Interface | Bluetooth | Bluetooth Spec | Bluetooth Ver 3.0/4.0 [BLE] Dual Mode |
| | | Frequency range | 2.4GHz ISM band |
| | | Data transmission rate | 115200bps adjustable |
| | | Data bit | 8 data bit fixed |
| | | Parity bit | No parity fixed |
| | | Stop bit | 1 stop bit fixed |
| | USB | Micro-USB  *1 | |
| Power saving | Sleep mode | YES | |
| Character Set | Font | Alphanumeric: 9x17, 9x24, 12x24 dots Kanji:24x24 dots | |
| Barcode Symbologies | 1D | UPC-A, UPC-E, EAN8, EAN13, CODE39, ITF, CODE128, CODE93 | |
| | 2D | QR code, PDF417 | |
| Graphics | | Support bitmap printing with different density and user defined bitmap printing (Max. 512K for total) | |
| Detection | Sensors | Printer cover open sensor, Paper-out sensor and Black mark sensor | |
| LED lamp | Power lamp | Green | |
| | Error lamp | Blue | |

*1. Only for the printer  which "BT/USB" is displayed in the ID seal.

# Table 5-1 General Specification(Continued)

| Item | | Parameter |
|---|---|---|
| Charging | | USB charge<br>Output DC 5V ⎓0.5A,Time required for full charge: 5H |
| Power supply | Battery | 1700mA 3.7V rechargeable battery pack |
| | Battery operating time | Approximately 13 hour printing (12 receipts per hour with sleep mode) |
| OLED | | 128 x 64 dots with Blue Backlight |
| MSR (Single Head) MSR model only | Format | ISO 7810, ISO 7811, ISO7812 1st, 2nd and 3rd Track/ JISII Track Reading |
| | Security | AES or 3DES encryption. DUKPT Key Management |
| Paper | Paper type | Thermal paper |
| | Paper width | 57.5±0.5mm |
| | Paper thickness | 0.053mm≤X ≤0.12mm |
| | Roll paper diameter | 13mm≤∅≤40.5mm |
| | Recommended paper | P220AG, PD450, FD200, Alpha 400-2.1 |
| Physical characteristics | Operation condition | 0°C to 50°C, 20% to 85%RH |
| | Charging condition | 0°C to 40°C, 0~10℃ *1 |
| | Storage condition | -20°C to 60°C, 5% to 95%RH |
| | Dimension | 86(W) x 122.5(D) x 46(H) mm |
| | Weight | 220g (including battery pack) |
| Reliability | TPH | 50km(not more than 12.5% printing density)/100 million pulses |
| Software | Emulation | StarPRNT mode |

*1. When the printer is used in a low temperature environment (less than 10 degrees), the battery's performance will be diminished, and the amount of time that you can use the printer for may be reduced.
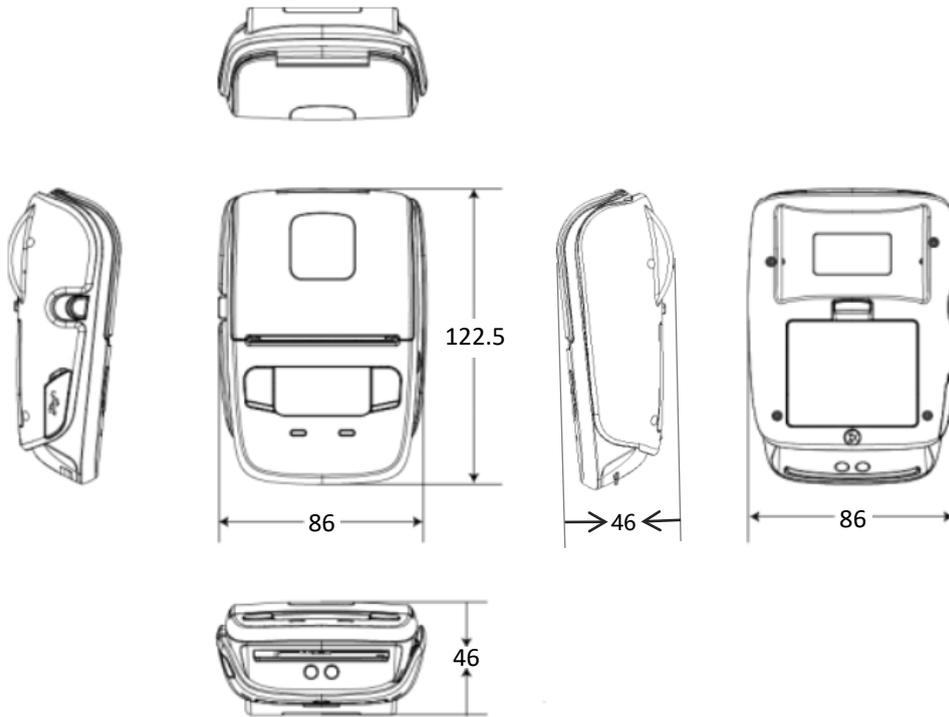
# ⚠WARNING:

Pls.use the recommended thermal paper or same quality paper, otherwise it will influence the printing quality and decrease the thermal print head life.

Pls. Use at a room temperature if you want to set the print density to "Special".

Some types of the paper are not suitable for use in low-temperature environment.

# ■ Dimensions

・External Dimension: 86mm (W) x 122.5mm(D) x 46mm (H)

・Weight　　　　　　: 220g (including battery pack)

・Body color　　　　: Black

122.5

86

46

86

46

Rev.2.2