

**THERMAL PRINTER
SP2-21
INSTRUCTION MANUAL**

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.

Introduction

Thank you for purchasing the SP2-21 thermal printer. Read the 'Safety Instructions' and '1. Operating Precautions' carefully before using this printer for safe handling of it. Save these instructions for future reference.

Safety Instructions

To use this equipment safely, or to protect the equipment from damage, the following symbols are used throughout this manual to highlight safety information

	Warning	The symbol indicates that failure to observe these instructions or mishandling of this equipment could lead to severer injury or death
	Caution	The symbol indicates that failure to observe these instructions or mishandling of this equipment could lead to injury or only property damage.

Samples of symbol

- The symbol indicates caution(including DANGER or WARNING).
- The symbol indicates the action is prohibited.
For an example, the symbol shown left indicates DISASSEMBLY is prohibited.
- The symbol indicates required operation which must be performed and/or instructed.
For an example, the symbol shown left indicates UNPLUGGING is required.

Warning

	Do not bend the power cord or place heavy objects on it. It may damage the cord and cause fire or electric shock. Never use a damaged AC power cord. It may cause fire or electric shock.
	Never disassemble and/or remodel the printer. It may cause heating and/or inflammation, and results in fires and/or accidents.

Caution

	Do not drop any metallic objects nor spill coffee, water or any other liquid. It may result in electric shock, short circuit and failure.
	As the thermal head may be very hot immediately after printing, do not touch it not to burn your fingers. Be sure that the thermal head is cool before replacing a paper or cleaning the thermal head.
	Do not connect or disconnect the interface cable and/or AC code with wet hands. It may result in electric shock, short circuit and failure.
	Do not use the printer in a places where it is exposed to excess moisture or water spray. It may result in electric shock, short circuit and failure.
	Remove the interface cable and/or code from the connector or the receptacle by gripping the connector or the AC plug. Never pull the cable itself. It may result in short circuit and failure.
	In the following cases, turn the printer power OFF and unplug the AC power cord from the outlet. (Including when charging the battery) <ul style="list-style-type: none"> • The printer can not be restored from failure. • Smoke, unusual noises or odd smells are emitted by the printer. • When metallic object is dropped or any liquid is spilled inside the printer.

1. Operating precautions

Observe the following for safe and proper operation.

- Notes on use
 - ◆ Do not subject the printer to strong shocks by dropping or hitting it.
 - ◆ Turn off the power switch, and keep the AC plug removed from the receptacle when the unit is not used.
 - ◆ Do not force to pull out paper from paper exit. It may result in trouble or failure.
- Notes on treatment of thermal paper
 - ◆ Use dedicated thermal paper only.
 - ◆ Do not rub the paper with hard substance.
 - ◆ Keep the paper away from organic solvent.
 - ◆ Do not let the paper touched with vinyl chloride film, eraser or adhesive tapes for hours.
 - ◆ Store the paper in a dry, cool and dark place.
 - ◆ Do not put the paper on diazo print or wet copy that has just been copied.
- Notes on installation
 - ◆ Install the printer on a level and stable surface.
 - ◆ Avoid such places with: Slanted surface, strong vibration, direct sunlight, full of dust, excessively high or low temperature, corrosive gas

2. Preparation

2.1 Unpacking

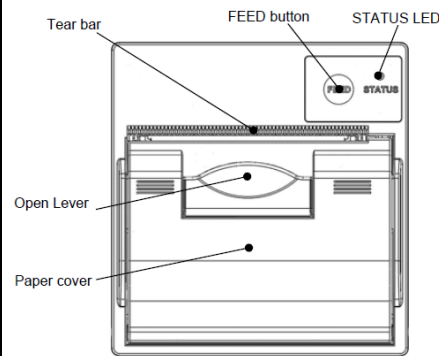
When unpacking, check whether a complete set is present.

- Printer unit 1 unit
- Fixture bracket 1 unit
- Sample roll 1 roll
- Instruction manual 1 volume

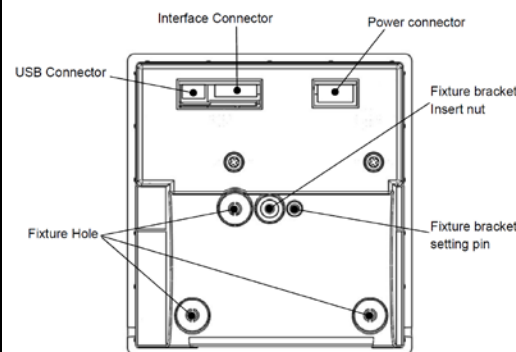
★ For ordering the thermal paper, contact our sales office or local distributors

2.2 Components/Parts

Front-Assembly



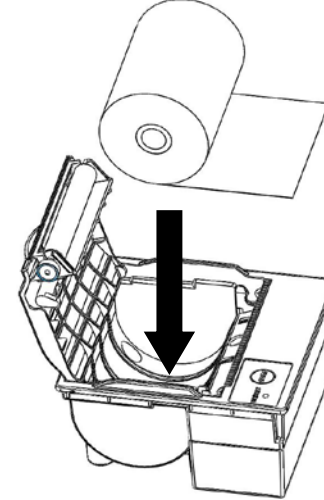
Backside-Assembly



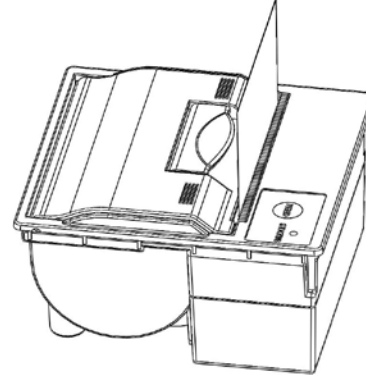
3. Handling

3.1 Setting paper roll

- ① Pull the open lever to open the paper cover.
- ② Place the paper roll as shown in the picture. (Printing surface: External side)



- ③ Set the paper end beyond paper exit.
- ④ Close the open lever.
- ⑤ Close the paper cover by pressing both end-sides of the cover.
- ⑥ Feed paper by pushing FEED button, and cut the paper by tear bar.



- Handle the tear bar carefully so as not to injure fingers or hands.
- Make sure the both end-sides of paper cover to be locked without fail when the paper cover is closed.
- When the paper is jammed, follow the correct procedure.

3.2 Self test printing

- ① Power on by depressing FEED button.
- ② At every several seconds, the STATUS LED light turns GREEN ⇒ RED ⇒ GREEN ⇒ RED alternatively. Release FEED button immediately after the LED turns RED.
- ③ After completing the self test printing, the printer enters to Standby mode.

3.3 HEX dump printing

- ① Power on by depressing FEED button.
- ② At every several seconds, the STATUS LED light turns GREEN ⇒ RED ⇒ GREEN ⇒ RED alternatively. Release FEED button immediately after the 2nd time of LED turns GREEN.
- ③ After printing the title of "Hex Dump Mode", starts hexadecimal code.
- ④ Prints hexadecimal numbers and characters entered from the host system.
- ⑤ To cancel the HEX dump mode, turn on the power again.

3.4 LED lamp(Status LED)

When an error occurs, the status LED lights or blinks depending on the type of errors.
○/◎: Turn ON red and green (0.1sec)

No error signal is detected.

Status	STATUS LED
Standby	ON (Green LED)
Initializing	◎◎◎◎(Green LED)

Auto recovery error

Status	STATUS LED
Temperature error (≧70°C or higher)	○◎◎◎ (Red LED)
Paper empty	ON (Red LED)
Standby mode	OFF

Unrecoverable error

Status	STATUS LED
Upper limit voltage error	○◎◎◎ (Red & Green LED)
Lower limit voltage error	○◎◎◎ (Red & Green LED)

3.5 Maintenance

Periodically clean the printer to maintain the printing quality and avoid failures. It is recommended to maintain the printer every 6 months or 1 million lines of printing.

- ① Print head
When cleaning the thermal dot line on the head, use a cotton swab with alcohol (ethanol) and wipe off stains and dust.
- ② Platen roller
When cleaning the platen roller, use a dry soft cloth and wipe off the stain with rotating the roller.
- ③ Sensor and peripherals
Clean the stain, dust and paper powder on the paper empty sensor and paper cover sensor.

- Prior to maintenance work, be sure to turn OFF the printer.
- Avoid cleaning the head immediately because it is hot.

For details, please refer to the technical guide.

4. Specifications

4.1 General specifications

Command systems: ESC/POS compatible
Printing method: Direct line thermal
Interface:

Serial (RS-232C)
USB 2.0

Max. printing speed: 90mm/sec
(DC8.5V, printing rate less than 12.5%)

Printing width/paper width: 48mm/58mm

Barcode UPC-A/E, JAN13/8, CODE39, ITF, CODABAR, CODE128

Power supply Power connector
Voltage : DC 4.75 to 9.0V 3A

Dimensions (WxDxH)
80x52x85.5mm

Weight approx.130g
(without paper roll)

Operating environment
Temp. -10°C to +50°C
Guarantee temperature of printing quality +5°C to +40°C
Humidity 20%RH to 85%RH
(No condensation)

Storage environment
Temp. -25°C to +60°C
Humidity 10%RH to 90%RH
(No condensation)

Regulations VCCI B, FCC B, CE

- ◎ The printer models are listed in Technical guide.
- ◎ Updated printer driver is listed in the Website.
- ◎ Windows is the registered Trademark of Microsoft Corporation.
- ◎ ESC/POS is the registered Trademark of Seiko Epson Corporation.
- ◎ This instruction manual may be subject to change without notice for product improvement.

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