THERMAL PRINTER
SP1-21
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 SP1-21 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 safety, or to protect damage to the equipment, 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 |

Examples of Symbols

⚠ The △ symbol indicates caution (including DANGER or WARNING). The example in the left column indicates that caution or warning conditions exist.

🚫 The ⊘ symbol indicates the action is prohibited. The example in the left column indicates disassembly is prohibited.

🔌 The ● symbol indicates a required operation that must be performed or an obligatory Instruction. The example in the left column indicates unplugging is required.

⚠ Warning

🚫	Do not use an AC adapter other than that which is specified. Doing so may cause heating and fire leading to serious accidents.
🚫	DO NOT bend the power cable forcibly, or place heavy object on the cable because it might damage the cable and cause fire or electric shock.If the power cable is damaged, discontinue use and replace it immediately.
🚫	Never disassemble the printer and the AC adapter. Failure to follow this instruction may cause overheating or burning of the printer or the AC adapter, or an electric shock, which may lead to fires or accidents.

⚠ Caution

🚫	Do not drop any metallic objects or liquids, such as water or coffee into the printer. Doing so may cause fire,electric shock or failure of the printer.
🚫	Never touch the thermal head immediately after printing because it becomes very hot. Make sure that the thermal head is cool before setting papers or cleaning the thermal head.
🚫	Do not connect or disconnect the AC adapter with wet hands. It may result in electric shock, shortcircuit and ffailure.
🚫	Never use the printer in a place of extreme humidity or any place where it can possibly be splashed by any liquids. If any liquids get into the printer, it could lead to fire, electric shock, or other serious accidents.
❗	Be sure to hold the connector part of the power cable or interface cable when disconnecting the cable. Pulling on the cable portion may cause it to fray and break.
🔌	Power OFF the printer in any of the following cases. Using the printer may casue accidents or fire. ◆ The printer does not receoover from an error. ◆ Smoke,strange noise or smells erupt from the printer. ◆ A piece of metal or any liquids drop into slot of 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 droping or hitting it.
◆Turn off the power switch, and keep the AC plug removed from the receptacle when the unit is not used.

■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
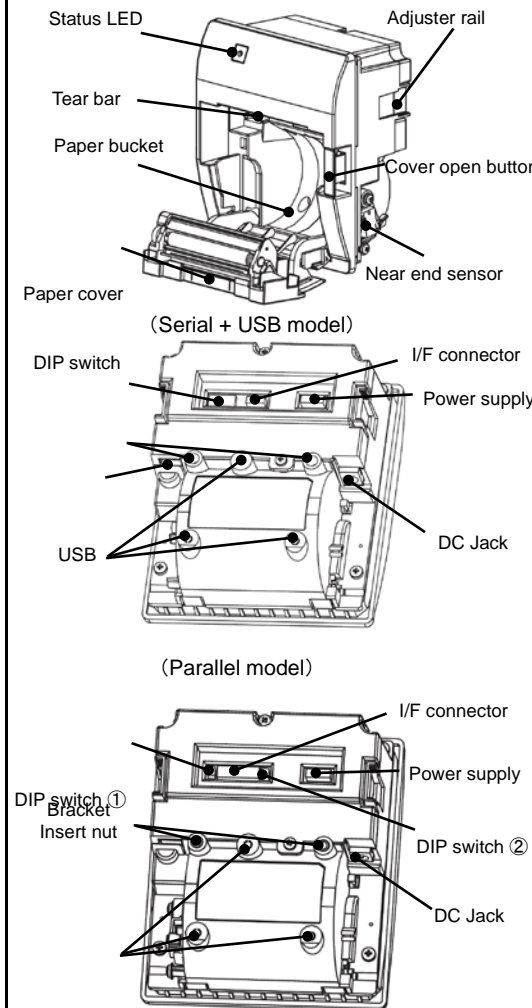
2. Preparation

2.1 Unpacking

When unpacking, check whether a complete set is present.
・Printer unit   1 unit
・Sample roll   1 roll
・Instruction manual   1 volume
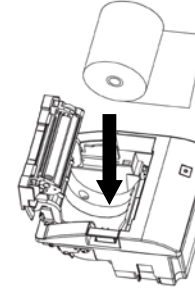★For ordering the thermal paper, contact our sales office or local distributors.
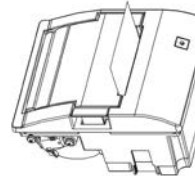
2.2 Components / Parts

（Serial + USB model）

Status LED, Adjuster rail, Tear bar, Paper bucket, Cover open button, Paper cover, Near end sensor, DIP switch, I/F connector, Power supply, USB, DC Jack

（Parallel model）

I/F connector, Power supply, DIP switch ①, Bracket, Insert nut, DIP switch ②, DC Jack, Front assembly holes

3. Handling

3.1 Setting paper roll

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

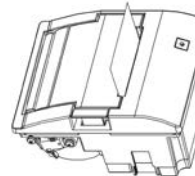③Guide the paper end beyond paper exit and close the print head.

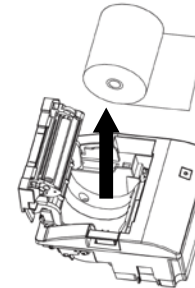④The printer feeds the paper as set by software memory and executes a partial cut.

| ⚠ | Handle the cutter carefully so as not to injure fingers or a hand. |

3.2 Clearing paper jams

①Turn off the printer power.
②Press the cover open button to open the paper cover. (Cutter moves to the home position)

③Remove the jammed paper.
④Close the paper cover and turn ON the power.

3.3 Self test printing

① Set the DIP switch to "Test print mode" and turn ON the power.
② The LED lights up and the printer starts printing.
③After completing the self test printing, the printer goes to Standby mode.

3.4 HEX dump printing

① Set the DIP switch to "Hex dump mode" and turn ON the power.
② After printing the title of "Hex Dump Mode", starts hexadecimal code.
③ Prints hexadecimal numbers and characters entered from the host system.
④ To cancel the Hex dump mode, set the DIP switch off and turn ON the power.

3.5 LED lamp

When an error occurs, the status LED lights or blinks depending on the type of errors.
○/◎: Turn ON red and green（0.1sec）
●: Turn OFF（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℃ or higher)	○●○● (Red)
Detect paper near end	◎●◎● (Green)
Paper empty	ON (Red)
Paper cover open	ON (Red)

Unrecoverable error

Status	STATUS LED
Auto cutter lock	○◎○◎ (Red & Green)
Upper limit voltage error(≒9.6V or higher)	○◎○◎ (Red & Green)
Lower limit voltage error(≒4.0V or less)	○◎○◎ (Red & Green)

3.6 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.
①Print head
When cleaning the thermal dot line on the head, use a cotton swab with alcohol (ethanol) and wipe off stains and dust.
②Platen roller
When cleaning the platen roller, use a dry soft cloth and wipe off the stain with rotating the roller.
③Sensor 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:
SP1-21S   Serial (RS-232C) USB 2.0
SP1-21P   Parallel (Centronics)

Max. printing speed: 100mm/sec
（Use AC adapter, printing rate less than 12.5%）

Printing width/paper width: 48mm/58mm

Barcode   UPC-A/E,JAN13/8,CODE39,ITF, CODABAR,CODE128
2D barcode(Option)
QR,MaxiCode,PDF417, MicroPDF417,DataMatrix

Power supply
Power connector
Voltage : DC 4.75 to 9.5V 3A
AC adapter
Model : BLS-120W
Input : AC100V to 240V、50/60Hz
Output : DC9.0V 3.0A
AC power cord
Model : ACS-120A（Japan）
ACS-100G（EU）
ACS-100U（USA）
Dimensions (W×D×H)
101×116×61mm
Weight   approx.290g
(Excluding paper and AC adapter）
Operating environment
Temp. −10℃ to＋50℃
(Using AC adapter)
0℃ to ＋40℃
Guarantee temperature of printing quality
+5℃～＋40℃
Humidity   20%RH to 85%RH
(No condensation）
Storage environment
Temp. −20℃ to ＋60℃
Humidity   10%RH to 90%RH
(No condensation）
Thermal paper   Model : P-58-30
Paper width : 58mm
Roll length : approx.30m
Roll diameter : 50mm
Regulations   VCCI B、FCC B、CE
Input buffer   8kbytes

◎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.

🄰 SANEI ELECTRIC INC.