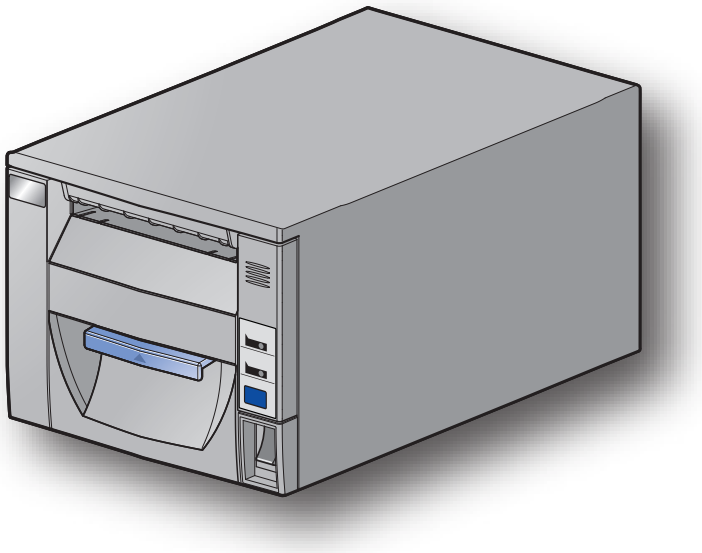
THERMAL PRINTER

FVP10 SERIES

Hardware Manual



Federal Communications Commission
Radio Frequency Interference
Statement

This device complies with Part 15 of FCC Rules and Industry Canada licence-exempt RSS standard(s). 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.

Le présent appareil est conforme aux 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, et
(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 device, affix it to the interface cable.

NOTE:
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
CAN ICES-3 (A) / NMB-3 (A)

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 Supplément C à OET65 et d"exposition aux fréquences radioélectriques (RF) CNR-102 de l"IC. Cet équipement émet une énergie RF très 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).

Caution Symbol

These symbols are located near the thermal print head.
Because the thermal print head is hot immediately after printing, do not touch it. Static electricity can damage the thermal print head. To protect the thermal print head from static electricity, do not touch it.

This symbol is located near the cutter.
Never touch the cutter blade, as you could injure your fingers.

This symbol is located near the peripheral drive connector.
Do not connect this to a telephone.

This symbol is located near the screws securing the case or the protective plate, which should not be opened by individuals other than service personnel. Individuals, other than service personnel, should not remove these screws. High voltage areas in the case can be dangerous.

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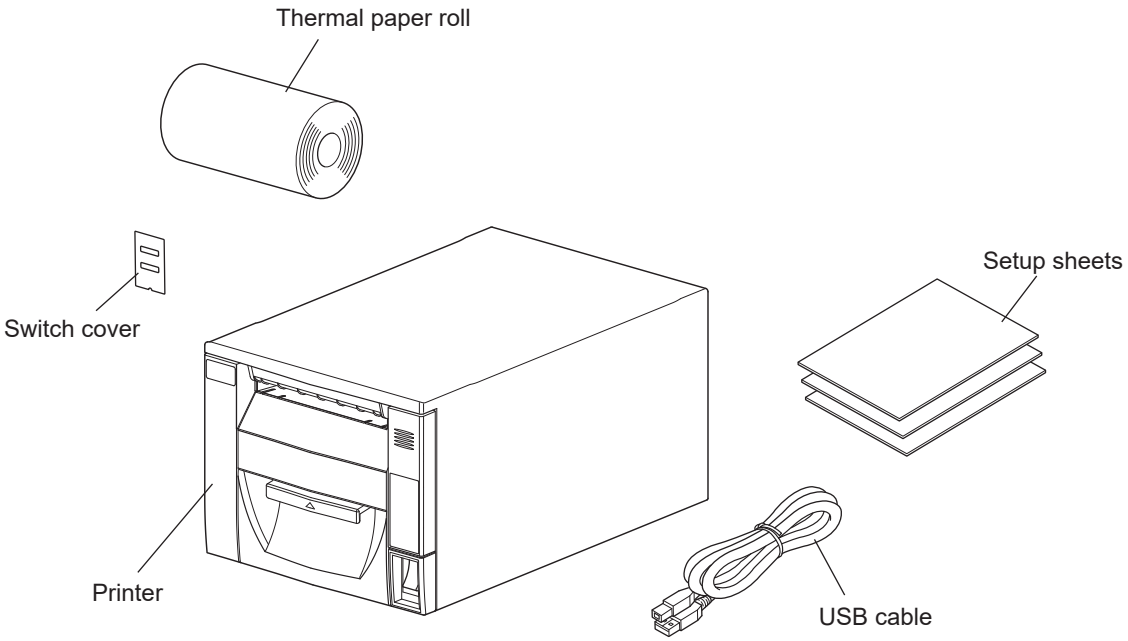
1. Unpacking and Installation

1-1. Unpacking

After unpacking the unit, check that all the necessary accessories are included in the package.



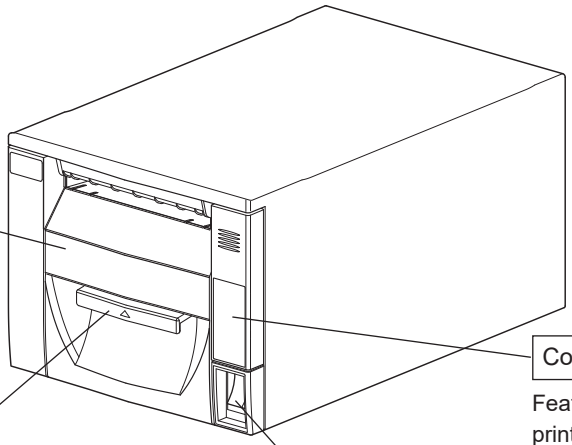
1-2. Notes about Installation

1. Place the printer on a firm, level desktop.
2. Do not install the printer where it may become unstable if its front cover were pulled out.
   The printer may fall and cause injury.
   If you need to install the printer in such a location, fix it in place.
3. Do not install the printer where an excessive amount of moisture, dust, oily mist, or iron is present. Doing so may result in malfunction, fire, or electric shock.
4. When placing objects on top of the printer, be sure that the force applied to the printer does not exceed 32.7 N (3 kgf). (Make sure that the load is not concentrated on the front section of the printer.)
5. Use the printer within boundaries indicated in the environmental requirements. Even when the ambient temperature and humidity are within the specifications, avoid radical changes in environmental conditions.The suitable operating temperature range is as follows:
   Operating temperature: 5°C to 45°C
6. This device employs a DC motor and switches that have an electrical contact point.
   Avoid using the device in environments where silicon gas can become volatile.
7. When disposing of the printer, obey local regulations.

⚠ WARNING

- Shut down your equipment immediately if it produces smoke, a strange odor, or unusual noise. Immediately unplug the equipment and contact your dealer for advice.
- Never attempt to repair this product yourself. Improper repair work can be dangerous.
- Never disassemble or modify this product. Tampering with this product may result in injury, fire, or electric shock.

2. Parts Identification and Nomenclature



Front cover

Open to replace paper.
Do not open while printing.

Control panel

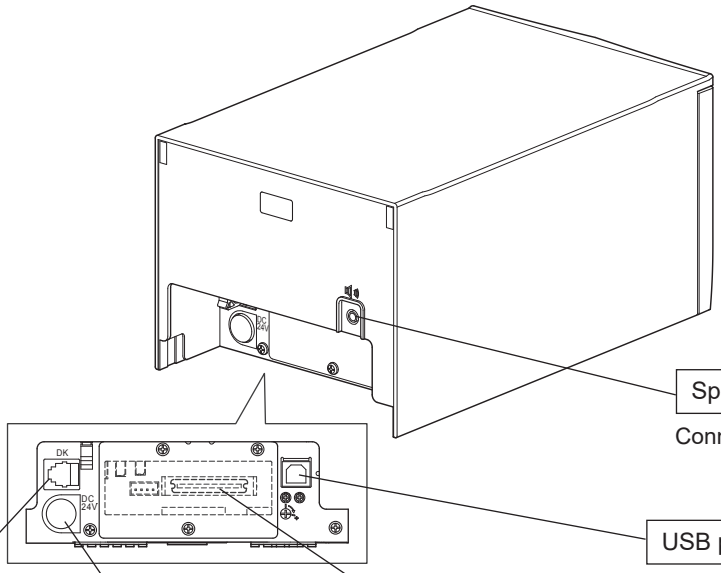
Features LEDs that indicate printer status and a button for operating the printer.

Cover open lever

Pull the cover open lever toward you to open the front cover.

Power switch

Turns the printer on and off.



Speaker jack

Connects to a speaker.

USB port

Connects to a host computer through a USB cable.

Peripheral drive connector

Connects to peripheral devices such as cash drawers.
Do not connect this to a telephone line.

Power connector

Connects to an optional AC adapter.

Optional interface board connector

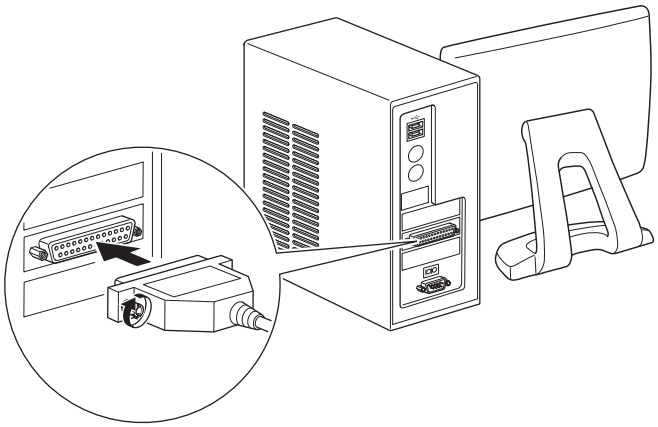
If you install an optional interface board, you can connect the printer to a host computer through a cable.

3. Setup

3-1. Connecting the Interface Cable to the PC

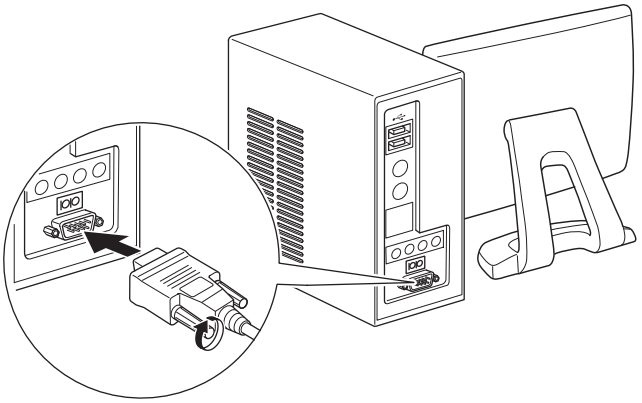
3-1-1. Parallel Interface Cable

Connect the parallel interface cable to a parallel port on your PC.



3-1-2. RS-232C Interface Cable

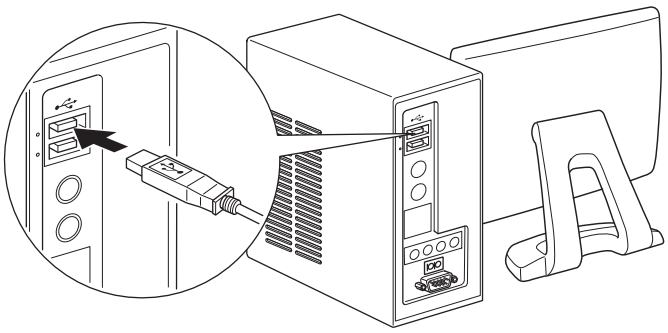
Connect the RS-232C interface cable to a RS-232C port on your PC.



3-1-3. USB Interface Cable

Connect the USB interface cable to a USB port on your PC.

Accessory: USB cable 1.8M with core TSP1 (P/N: 30729170)



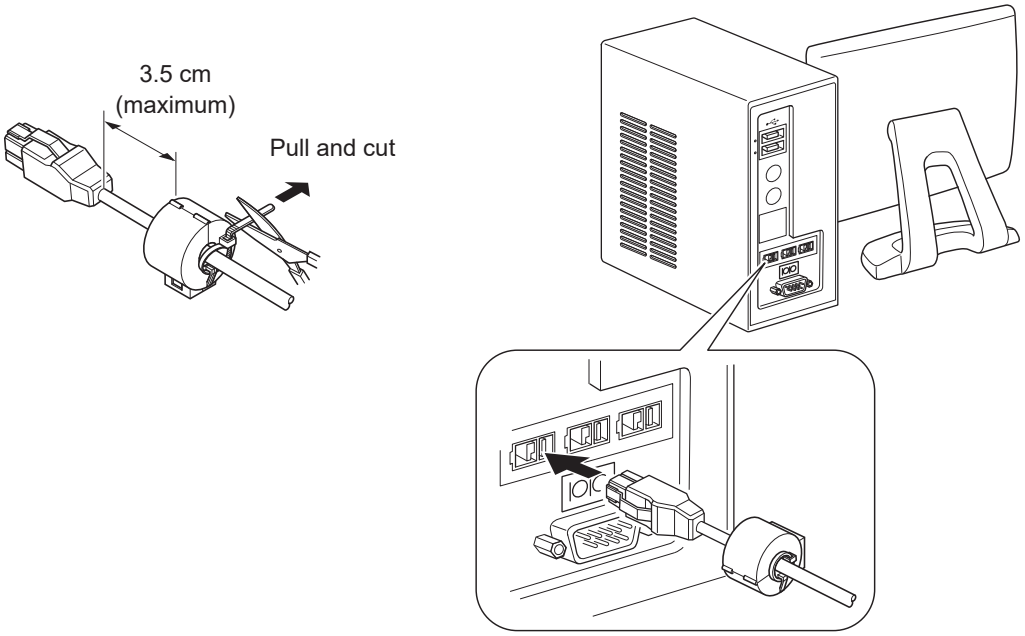
3-1-4. PoweredUSB Interface Cable

To protect the printer from electromagnetic interference, affix the ferrite core that came with the optional PoweredUSB interface board to the cable. Then, connect the cable to a PoweredUSB port on your PC.

Note: The optional PoweredUSB cable has been designed specifically for this printer.
Other PoweredUSB cables may not meet the EMC technical standards.

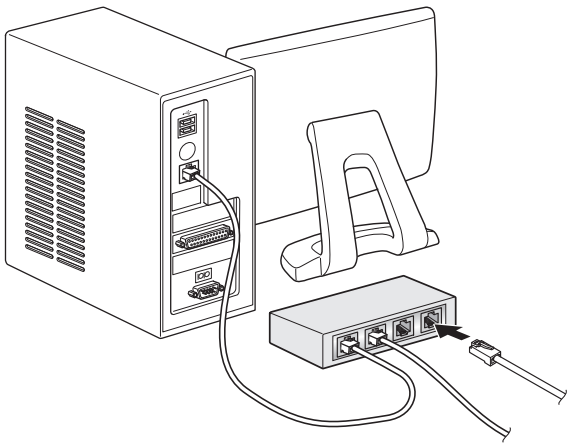
Option: PoweredUSB cable 1X8LNL 1.2M (P/N: 30729130)

Star-recommended PCI card: PCI to 4 Port PoweredUSB Card (Model: 301-1150-01; manufacturer: Digi)



3-1-5. Ethernet Interface Cable

Connect the Ethernet cable to a USB port on your PC.

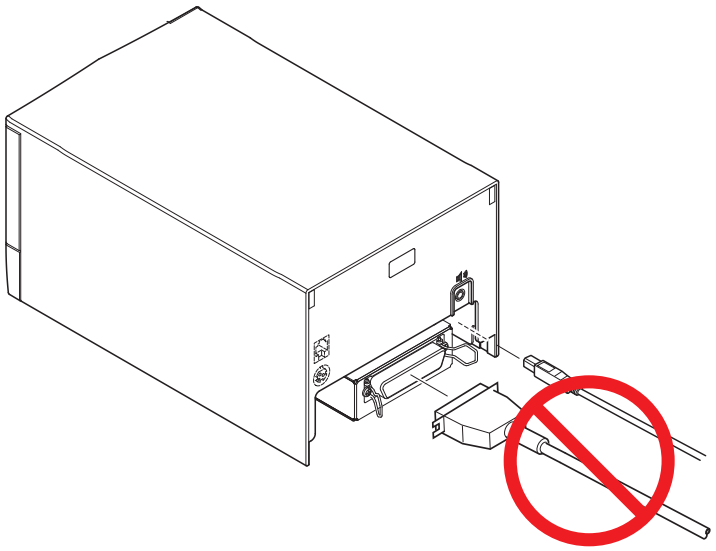


3-2. Connecting the Interface Cable to the Printer

Only a USB cable is provided. If you are using another type of cable, obtain a cable that meets the printer specifications. Because the appropriate interface cable differs depending on the system that you are connecting the printer to, contact your dealer if you are unsure about what cable to use.

Before connecting or disconnecting an interface cable, be sure to remove the AC adapter's power cable plug from the outlet.

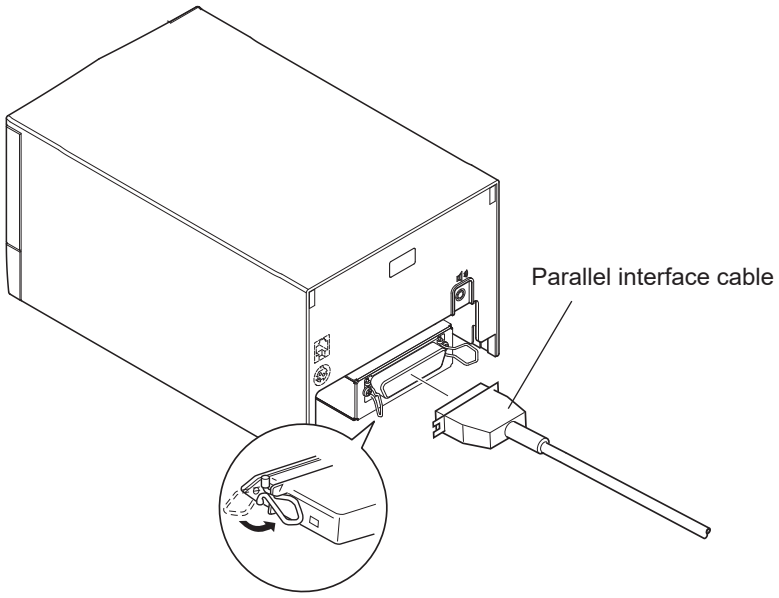
⚠ **CAUTION:** Do not connect move than one at any given time.



3-2-1. Parallel Interface Cable

You do not have to affix a ferrite core to a parallel interface cable.
To connect a parallel interface cable, follow the instructions given below.

(1) Make sure that the AC adapter's power cable plug is not connected to the outlet.
(2) Connect the interface cable to the connector on the parallel interface board, and fasten the connector clasps.



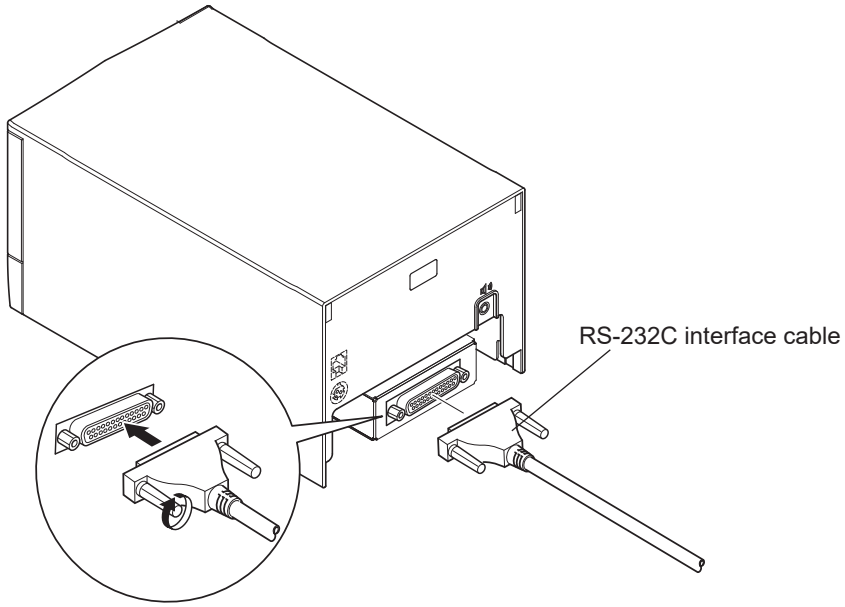
3-2-2. RS-232C Interface Cable

You do not have to affix a ferrite core to an RS-232C interface cable.

To connect an RS-232C interface cable, follow the instructions given below.

(1) Make sure that the AC adapter's power cable plug is not connected to the outlet.

(2) Connect the RS-232C interface cable to the connector on the RS-232C interface board, and tighten the left and right connector screws.



3-2-3. USB Interface Cable

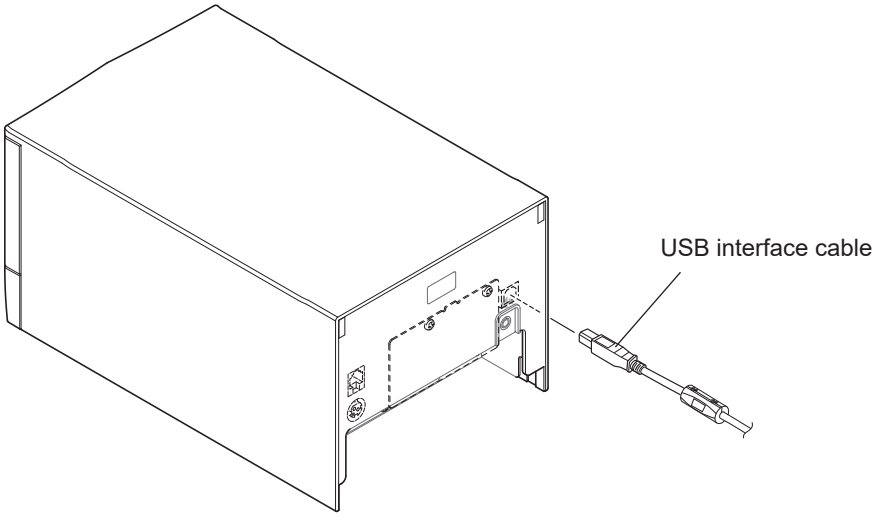
You do not have to affix a ferrite core to a USB interface cable.

To connect a USB interface cable, follow the instructions given below.

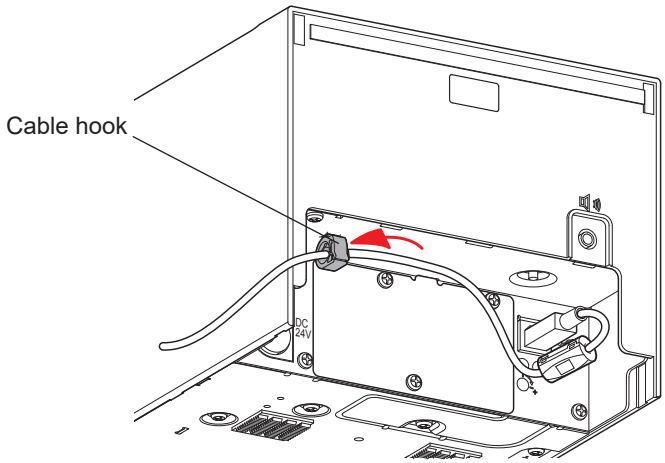
Accessory: USB cable 1.8M with core TSP1 (P/N: 30729170)

(1) Make sure that the AC adapter's power cable plug is not connected to the outlet.

(2) As shown in the figure, connect the USB interface cable to the USB interface connector.



(3) Pass the cable through the cable hook.



3-2-4. PoweredUSB Interface Cable

⚠ **CAUTION:** The optional PoweredUSB cable has been designed specifically for this printer.
Other PoweredUSB cables may not meet the EMC technical standards.

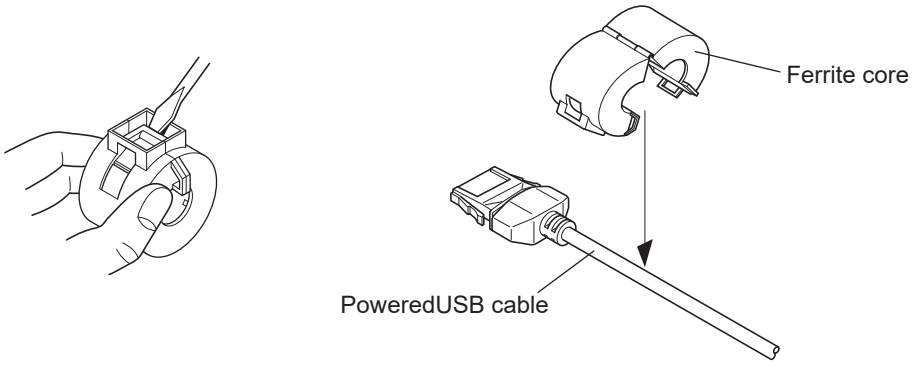
To protect the printer from electromagnetic interference, affix the ferrite core that came with the optional interface board to the cable. To connect the cable, follow the instructions given below.

(1) Turn the power switch off.

(2) If the AC adapter is connected, remove the power cable plug from the outlet, and then remove the plug from the printer's power connector.

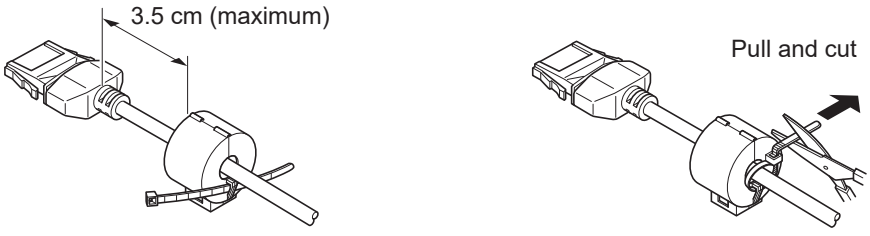
⚠ **CAUTION:** Do not connect the AC adapter while the PoweredUSB cable is connected. Doing so may result in malfunction.

(3) Affix the included ferrite core to the PoweredUSB cable as shown in the figure.
Option: PoweredUSB cable 1X8LNL 1.2M (P/N: 30729130)

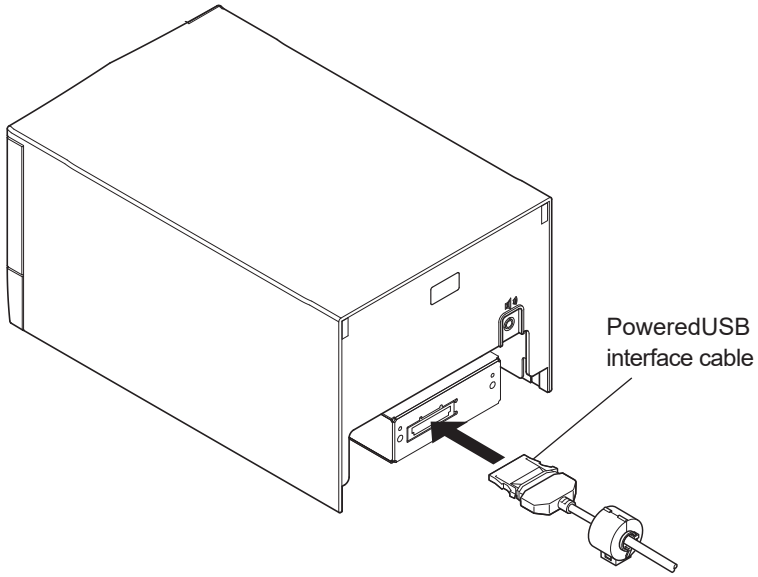


(4) Pass the fastener through the ferrite core.

(5) Loop the fastener around the PoweredUSB interface cable, and lock it.
Use scissors to cut the excess part of the fastener.



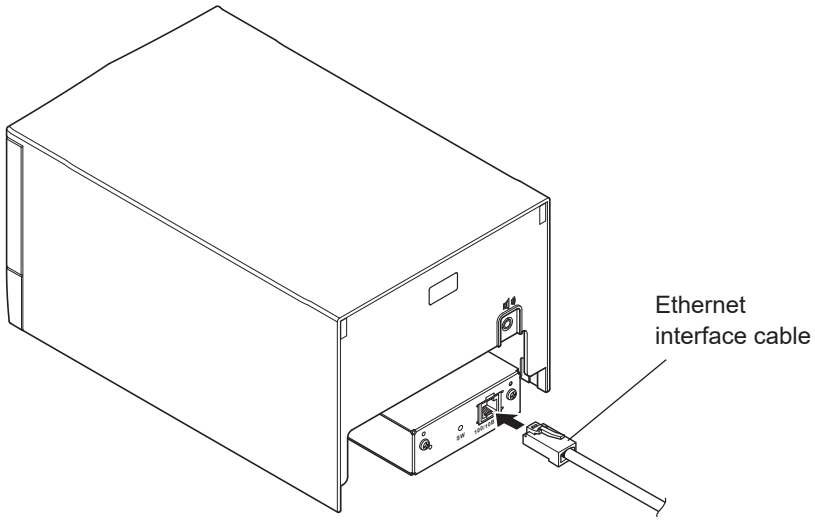
(6) Connect the PoweredUSB interface cable to the connector on the PoweredUSB interface board.



3-2-5. Ethernet Interface Cable

(1) Make sure that the AC adapter's power cable plug is not connected to the outlet.

(2) Connect the Ethernet interface cable to the connector on the Ethernet interface board.



■ Link disconnection detection feature

The Ethernet interface model is equipped with a link disconnection detection feature.

If the printer is turned on when an Ethernet cable is not connected to it, the POWER and ERROR lamps are simultaneously turned on and off at 2-second intervals to indicate the disconnection.

Be sure to connect the Ethernet cable from a PC or hub to the printer, and then turn the printer on.

3-3. Connecting the AC Adapter

Note: Before connecting or disconnecting the AC adapter, make sure that the printer and all the devices connected to it are turned off.

Then remove the power cord plug from the outlet.

(1) Connect the AC adapter to the power cable.

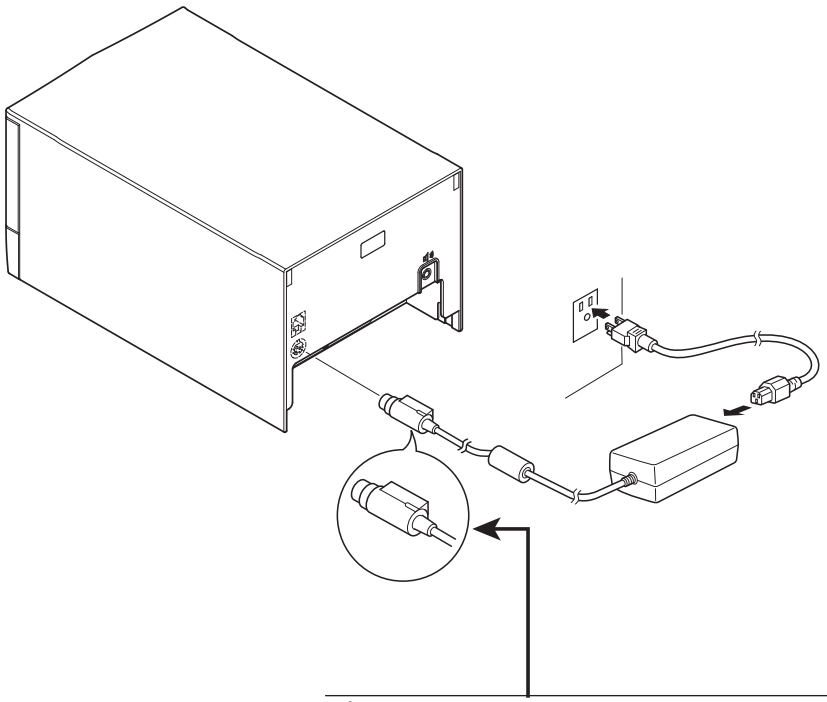
Note: The optional AC adapter has been designed specifically for this printer.

Other AC adapters may not meet the EMC technical standards.

Option: PS60A-24B1

(2) Connect the AC adapter to the connector on the printer.

(3) Insert the power cable plug into an AC outlet.



⚠ CAUTION

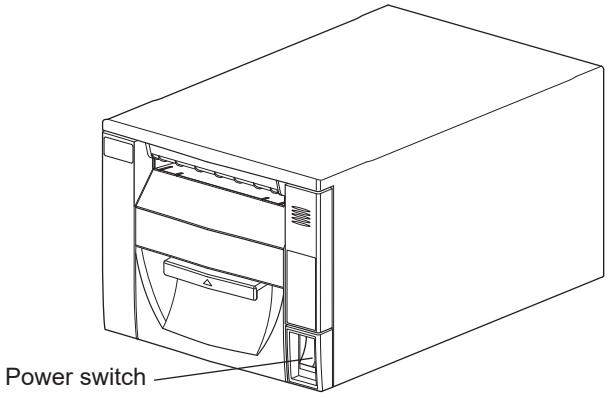
When disconnecting the cable, take hold of the cable connector to pull it out. Releasing the lock makes it easy to disconnect the connector.

Pulling the cable excessively could cause damage to the connector.

3-4. Turning the Power On

Connect the power cord according to the instructions in section 3-3, “Connecting the AC Adapter”.

Turn on the power switch on the front of the printer.
The POWER lamp on the control panel will light.



⚠ CAUTION

We recommend that you unplug the printer from the power outlet whenever you do not plan to use it for long periods. Because of this, you should locate the printer so that the power outlet it is plugged into is nearby and easy to access.

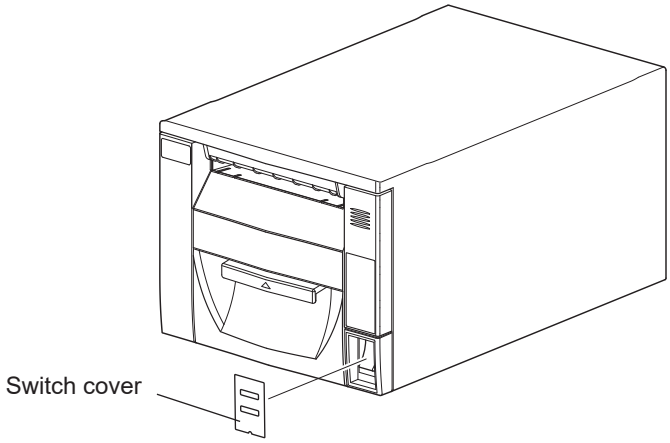
When an Switch blind is affixed to the printer above the power switch, the ON/OFF marks of the power switch may be hidden. If this occurs, remove the power cord from the outlet to turn the printer OFF.

3-5. Attaching the Switch Cover

You do not have to attach the switch cover. Do so only if you need to.
Attaching the switch cover will:

- Prevent unintentional operation of the power switch.
- Prevent other people from easily operating the power switch.

Attach the switch cover as shown in the figure below.



You can turn the power switch on (I) and off (O) by inserting a ballpoint pen or an object with a pointed tip into the holes in the switch cover.

⚠ *CAUTION*

We recommend that you unplug the printer from the power outlet whenever you do not plan to use it for long periods. Because of this, you should locate the printer so that the power outlet it is plugged into is nearby and easy to access.

3-6. Connecting to a Peripheral Device

You can connect a peripheral device to the printer using a modular plug.
Follow the instructions given below. For details about the recommended type of modular plug, see chapter 17, “Peripheral Drive Circuit”.

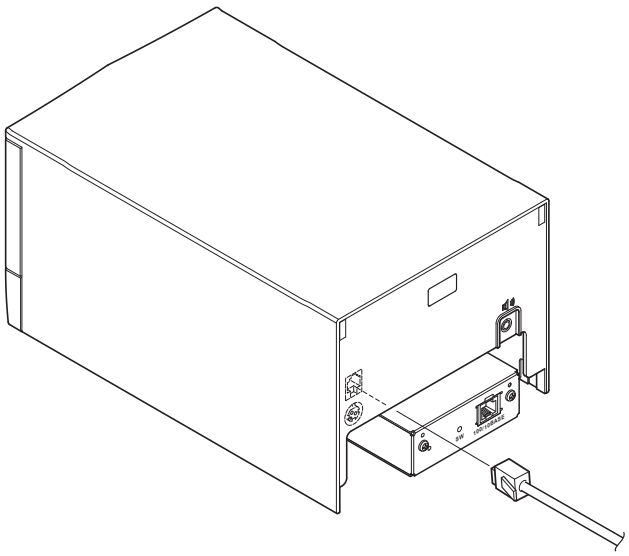
(1) Make sure that the AC adapter’s power cable plug is not connected to the outlet.

(2) Connect the end of the cable to the peripheral drive connector on the rear panel of the printer.
Connect the other end of the cable to the modular jack of the peripheral device.

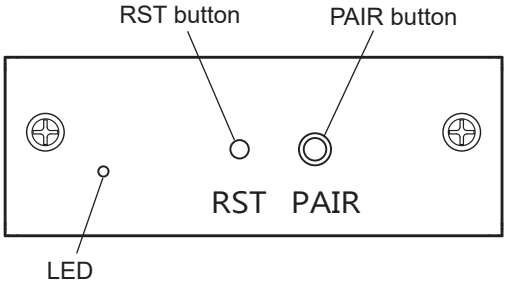
⚠ CAUTION

Do not connect a telephone line into the peripheral drive connector. Failure to observe this may result in damage to the printer.

Also, for safety purposes, do not connect wiring to the external drive connector if there is a chance it may carry peripheral voltage.



3-7. Bluetooth Settings (For Bluetooth Interface Models only)



<LED> Indicates the status of the Bluetooth interface.
Green (on): Not connected.
Green (flashing): Ready to start pairing.
Blue (on): Connected.
Purple (flashing): Auto connection ON.

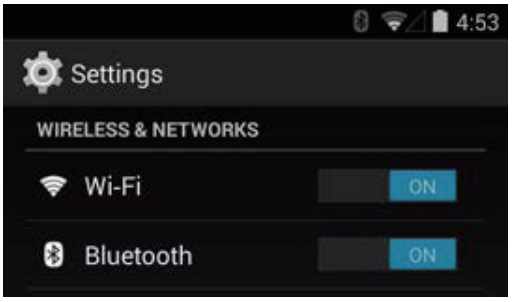
Pair the printer with the master device by following the procedure below.

3-7-1. Pairing using SSP (Simple Secure Pairing) [Default]

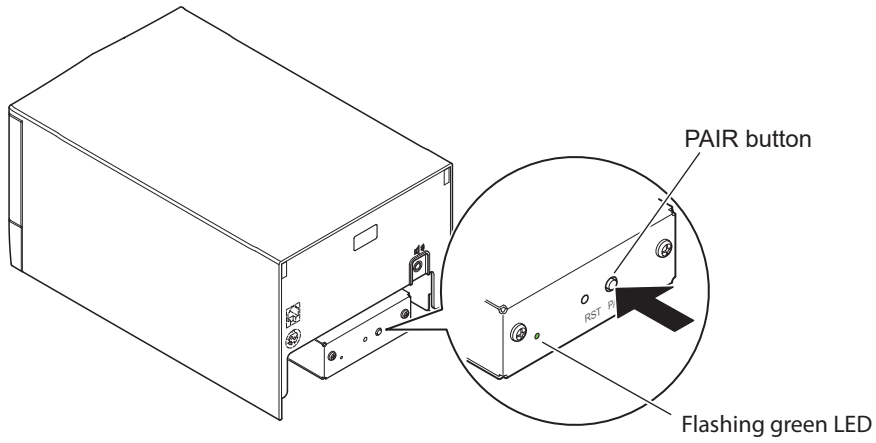
(1) Working on the master device, tap [Settings] and set [Bluetooth] to ON.

< iOS >

< Android >



(2) After turning the printer's power switch on, press and hold the PAIR button on the rear interface of the printer for 5 seconds or more, and then release it. The LED will flash green.



(3) Pairing will be possible for 60 seconds from when the LED begins flashing green. During this time, execute "Search for devices" from the master device and tap the relevant device from the displayed list.

Device name: Star Micronics (default)

(4) In an iOS device, after pairing, the LED will automatically begin flashing blue, and the printer will be automatically connected. In an Android device, the LED turns blue only while data is sent.

(5) Connect to the printer from the master device application and perform printing. If the printing is successful, the pairing process has been completed.

Note: The printer performs various processes immediately after connecting to or disconnecting from a master device.
Please wait approximately 0.1 seconds after connecting, and approximately 0.5 seconds after disconnecting, before beginning communications with the printer.

3-7-2. Pairing using PIN code

Enter the following information in the master device if it does not support SSP, or when otherwise necessary.

PIN: 1234 (default)
Device name: Star Micronics (default)

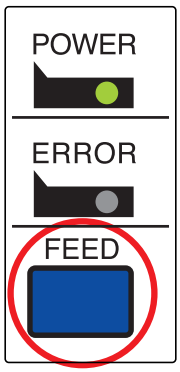
It is recommended that you change the PIN code for greater security.
For details regard changing the PIN code, please see the “Software Manual -Star Bluetooth Utility- ”.

3-7-3. Auto Connection Function (iOS only)

Each time the wireless connection is disconnected while communicating with upper-level iOS devices including iPad over Bluetooth, it is necessary to move back to the Bluetooth setting screen in the upper-level iOS device and tap the desired printer name again to build a connection. This is an iOS specification.
In order to save this labor, this printer is equipped with the Auto Connection function that automatically requests a connection from an upper-level iOS device that was connected to the printer last time.

The default setting of this function may differ according to the printer model you are using.
Confirm the default settings for your printer, as well as the use examples for ON/OFF settings, and then make the settings to match your purpose.
You can also check the current ON/OFF setting by performing self-printing.

< Confirmation procedure by self-printing >



(1) While the printer cover is closed, hold down the FEED button on the operation panel, and then turn on the power switch.

(2) Self-printing starts and the settings for F/W version, DIP switch, memory switch, and so on are printed.
Subsequently the interface information is printed and finally the current ON/OFF settings are printed.

Note: If "Auto Connection function" is set to ON when using devices other than iOS, a Bluetooth communication with the printer may fail. To use devices other than iOS, such as the Android/Windows devices, make sure you turn off the "Auto Connection" function before using the printer.
For information on how to set up this function, see "3-7-4. Setting up Auto Connection".

See the table below for details of Auto Connection setting.

	Auto Connection ON	Auto Connection OFF
Reconnecting without changing the master device	After the printer is turned on, it automatically connects to the last master device that was connected.	After turning on the printer, tap this printer's name on the Bluetooth settings screen on the master device.
Changing the connected master device	Disconnect the Bluetooth connection in such a way as to turn OFF the power to the upper-level device automatically connected. Then, establish a pairing with a desired master device.	After turning on the printer, establish a pairing with a desired master device.
Example (recommended)	When connecting directly to the printer from one master device.	When using the printer with multiple master device.

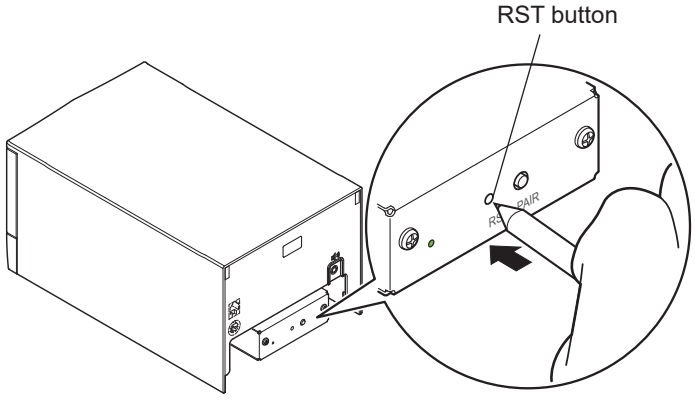
3-7-4. Setting up Auto Connection

◆Setting up from the Main Unit for the FVP10

Note : The following procedure explains how to change the Auto Connection function setting from ON to OFF.
If you want to change it from OFF to ON, please follow the same procedure.

(1) When paper is loaded in the printer and it is turned on, the [POWER] LED(green) on the front of the printer turns on.

(2) If you hold down the [RST] button on the back of the printer for at more than five seconds, initial operations are performed in the same way as when the power is turned on, and the LEDs on the front of the printer flash. If you press the [RST] button when the printer is placed upright, place it horizontally again while the LED is flashing.



(3) The following information is printed. After that, turn the printer off and then back on again to set "Auto Connection" to OFF.

```
< Current Setting >
 Auto Connection : OFF

To enable this setting, turn
Printer Power OFF and turn ON.
```

(4) To make sure "Auto Connection" is set to OFF correctly, perform self-printing as described in "3-7-3. Confirmation procedure by self-printing".

Note : Only Bluetooth Firmware Version 2.0 or later allows you to switch ON/OFF by pushing the [RST] button. The Bluetooth Firmware version can be confirmed by self-printing. (For more information, see "3-7-3. Confirmation procedure by self-printing".)

◆Setting from the Software

After pairing your device and the FVP10, change "Auto Connection" in the following application provided by our company.

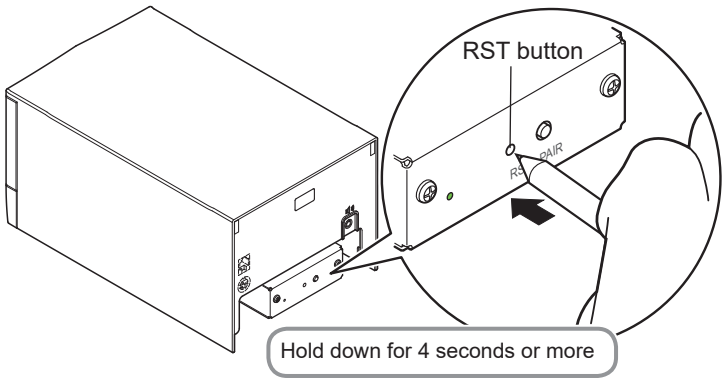
- iOS: Download "Star Setting Utility" from the following Web site.
  http://www.star-m.jp/prjump/000003.html
- Android: Download "Star Setting Utility" from the following Web site.
  http://www.star-m.jp/prjump/000004.html
- Windows: Download "Star Bluetooth Utility" from the following Web site.
  http://www.star-m.jp/prjump/000006.html

3-7-5. Resetting Bluetooth Settings

The following procedure explains how to initialize settings that you have changed such as the PIN code, device name, and so on.

(1) While inserting a thin object such as the tip of a pen and holding down the RST button on the rear of the printer, turn on the printer's power switch. The POWER LED (green) and the ERROR LED (red) on the front of the printer start flashing.

(2) Hold down the **RST button for 4 seconds or more** (note 1), and then release it.



(3) After you release the RST button, if the LED stops flashing and the POWER LED remains lit green within 12 seconds, initialization is complete. If the LED continues to flash for longer than 12 seconds after releasing the RST button, this indicates that initialization was not successful. Turn off the printer's power and then try again from step 1.

(4) Turn off the printer's power switch and delete the pairing setup with the master device.

Note1: In step 2, if you do not hold down the RST button for long enough, initialization will not complete correctly.

For F/W Ver2.0, Ver3.0a, and Ver3.0b interfaces

In step 2, you need to hold down the RST button for 8 seconds or more.

Also, after finishing steps 1 to 3, to check that initialization was completed correctly, perform self-printing. If the second sheet (* Bluetooth Information ***) is not printed, initialization has not been completed correctly. If this happens, turn off the printer's power, and then try again from step 1.**

(You can check the firmware version from the self-printing results. See page 13 for the self-printing procedure.)

2: Do not turn off the printer during initialization; otherwise initialization will not complete correctly.

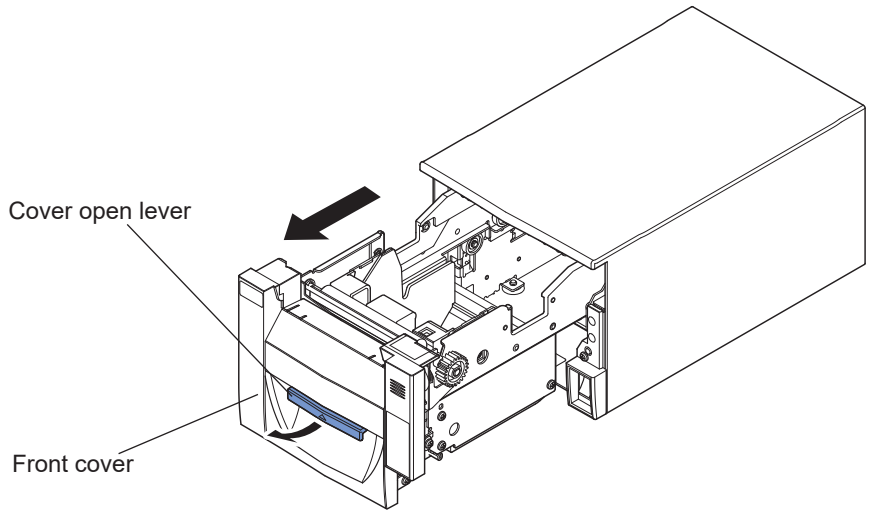
3: If initialization is not completed correctly, turn off the printer's power and then try again from step 1.

4. Loading Paper and Configuring the Cutter

4-1. Loading a Paper Roll

Use a paper roll that complies with the printer specifications. (See chapter 5, “Consumable Parts and AC Adapter”.)

(1) Pull the cover open lever toward you, and pull the front cover out to open it.



(2) Load the paper roll into the printer in the direction indicated by the figure, and pull the leading edge of the paper straight toward you.

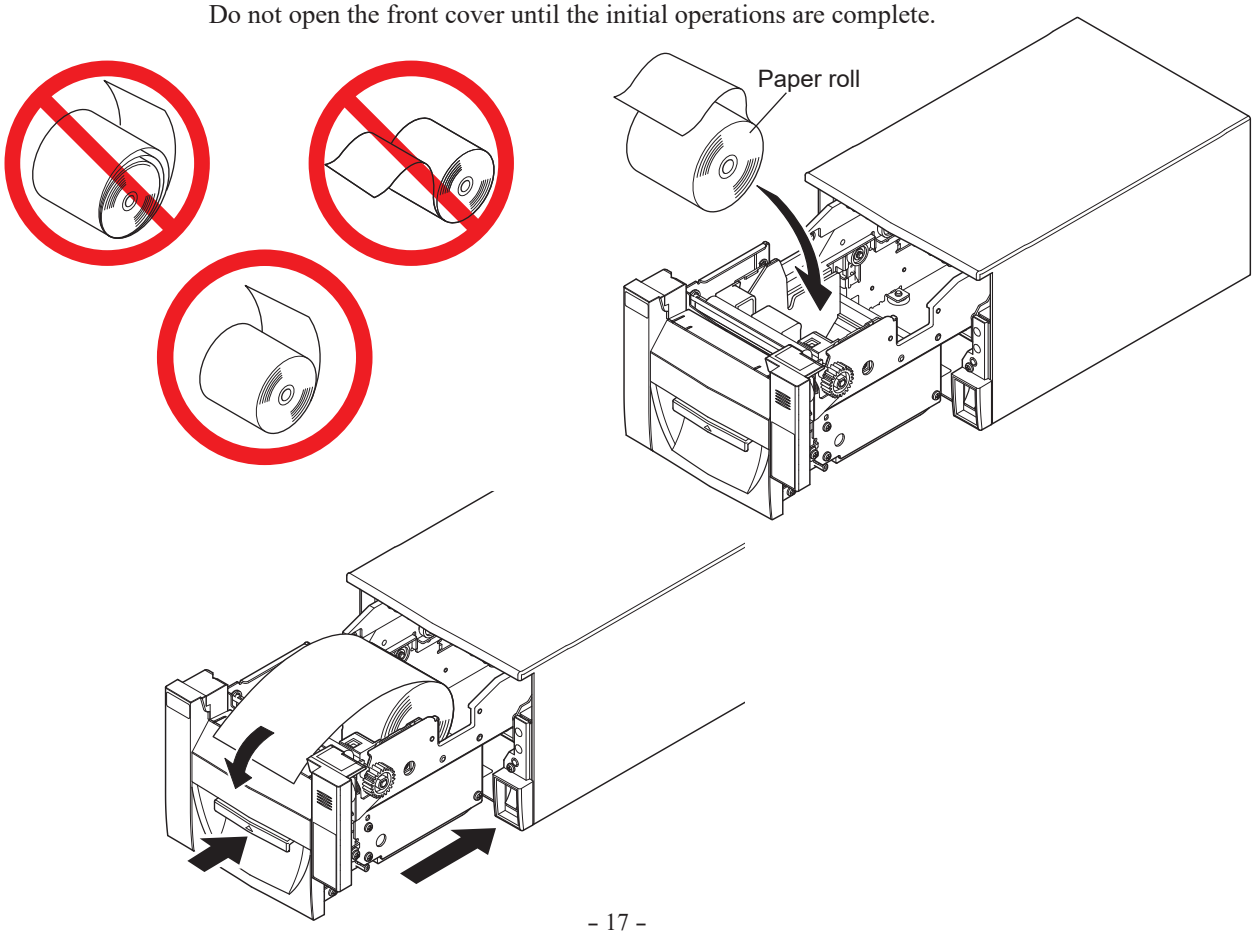
⚠ **CAUTION 1:** Pull the paper out while keeping it tight.

2: Be careful not to pull the paper out at an angle, because doing so may cause the paper to jam or skew.

(3) Push the front of the printer to securely close the front cover.

⚠ **CAUTION 1:** Be careful not to get your fingers caught when closing the printer’s front cover.

2: After the front cover is closed, the printer performs the initial operations (paper feeding to paper cutting). Do not open the front cover until the initial operations are complete.

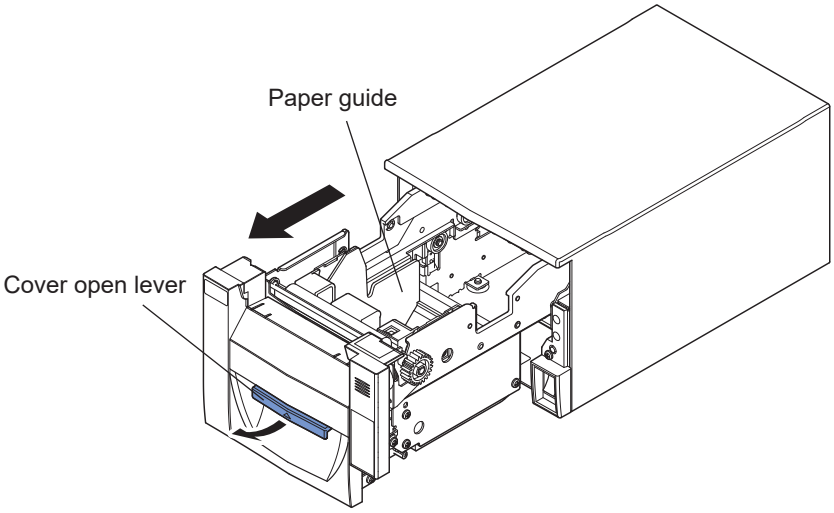


4-2. Changing the Paper Width

Move the paper guide to match the paper roll width.

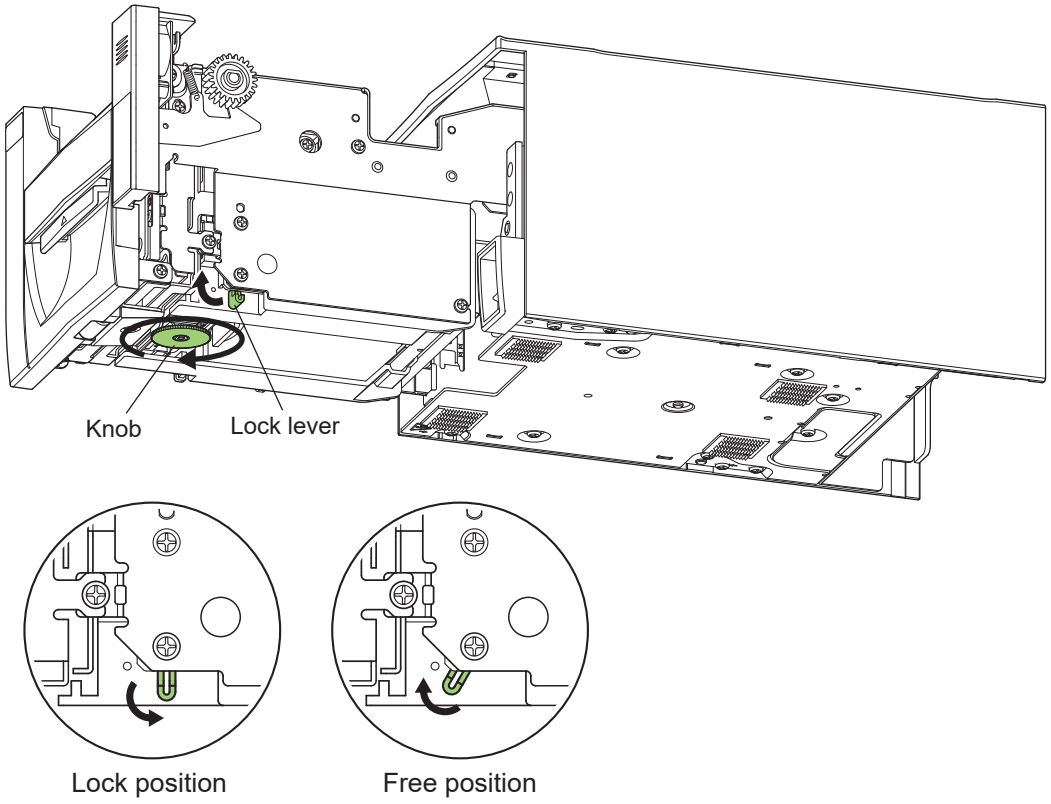
* The following instructions are for changing the paper width from 79.5 mm to 57.5 mm.

(1) Pull the cover open lever toward you, and pull the front cover out to open it.



(2) Move the lock lever to the free position.

(3) Turn the knob clockwise until it stops. Move the lock lever to the lock position.



Note: Do not change the paper width while the printer is in use.

4-3. Changing the Paper Thickness

To change the paper thickness setting, change the tension and the slide lever positions.

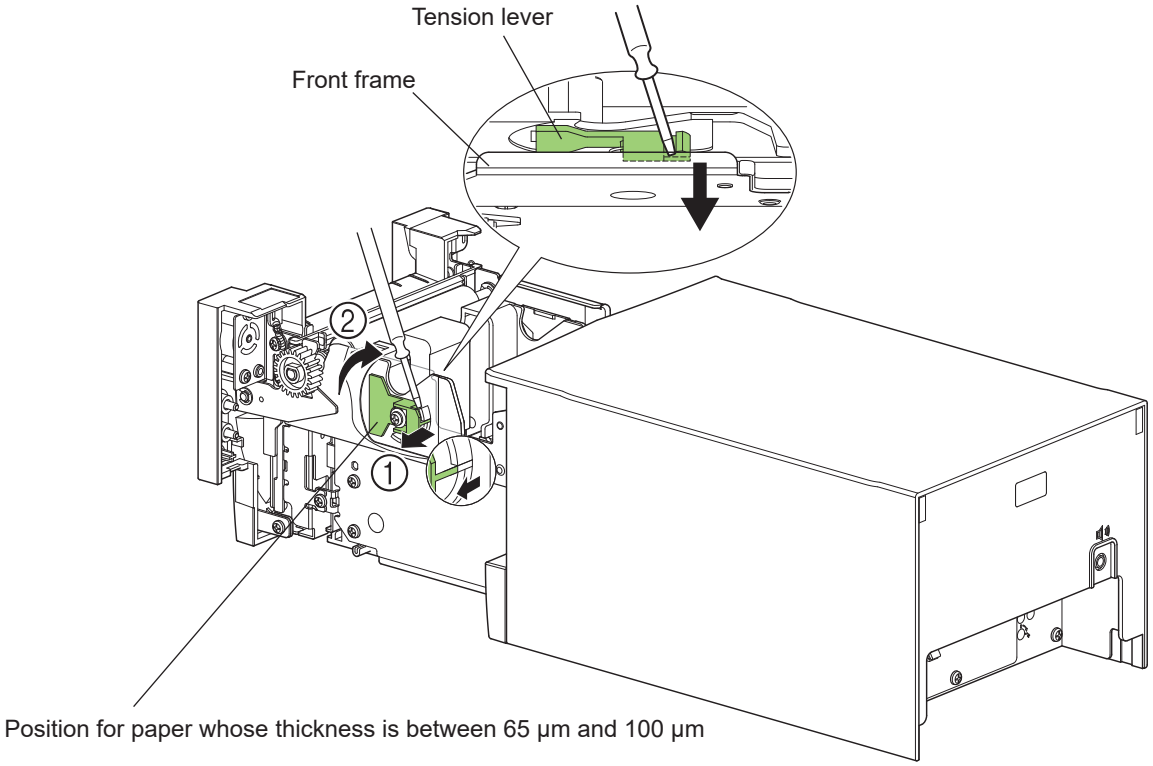
4-3-1. Setting the Tension Lever Position

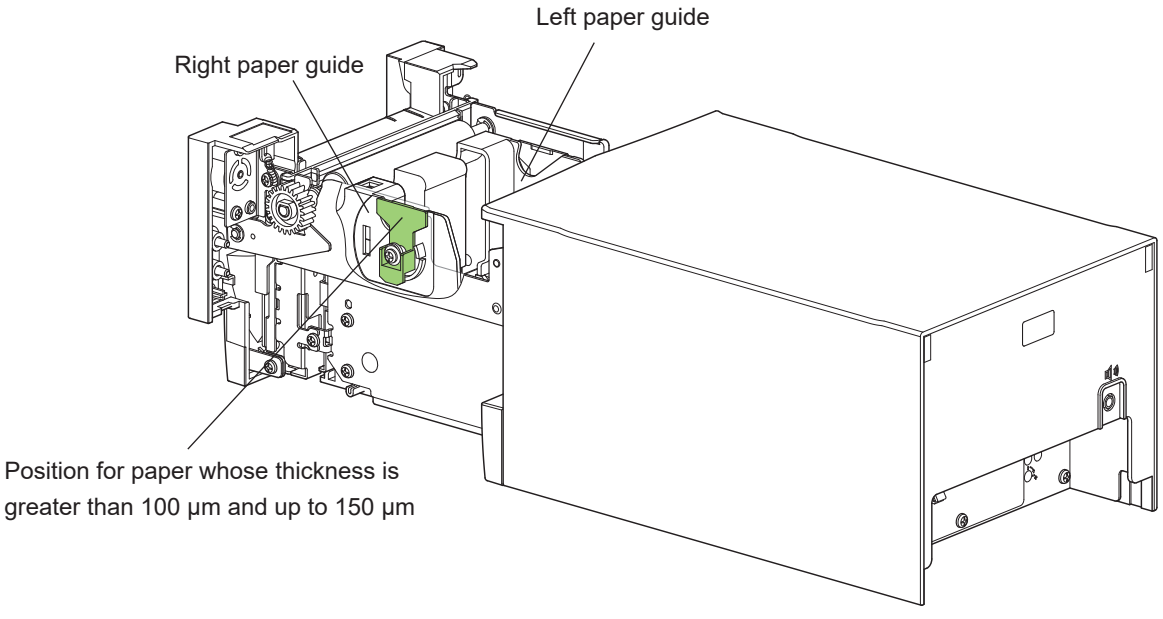
By factory default, the tension lever is set for paper thicknesses between 65 µm and 100 µm.

To use paper whose thickness is greater than 100 µm and up to 150 µm, change the left and right paper guides' tension lever positions according to the instructions given below.

(1) Pull the cover open lever toward you, and pull the front cover out to open it.

(2) Insert a precision flat-blade screwdriver between the front frame and the paper guide, and as shown in the figure, push the part of the tension lever that is set in the paper guide outward to release it, and turn the lever clockwise.





4-3-2. Setting the Slide Lever Position

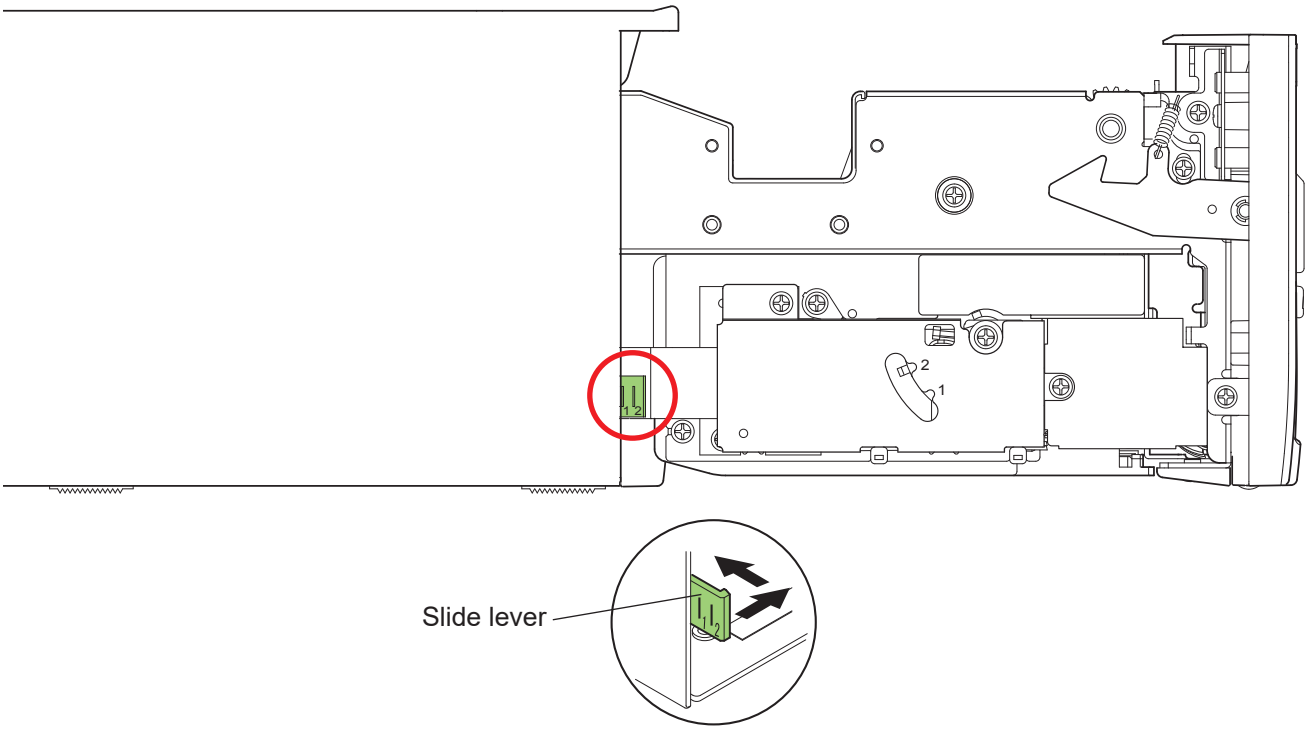
By factory default, the tension lever is set for paper thicknesses between 65 µm and 100 µm.

To use paper whose thickness is greater than 100 µm and up to 150 µm, change the slide lever position according to the instructions given below.

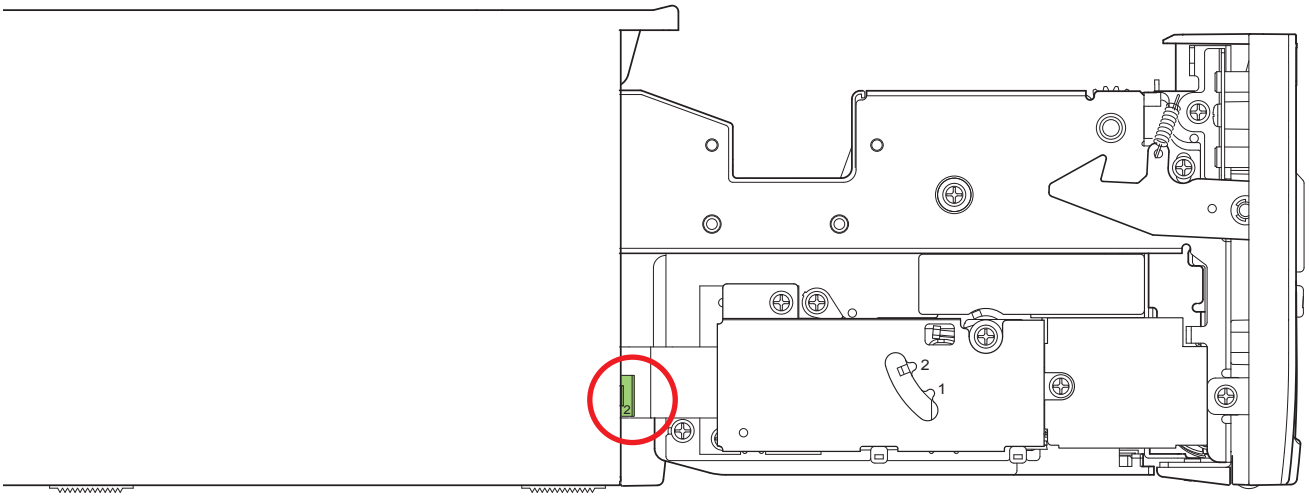
(1) Pull the cover open lever toward you, and pull the front cover out to open it.

(2) While pushing the slide lever that is on the left side of the case inward, change the lever position.

Position for paper whose thickness is between 65 µm and 100 µm



Position for paper thicknesses greater than 100 µm and up to 150 µm

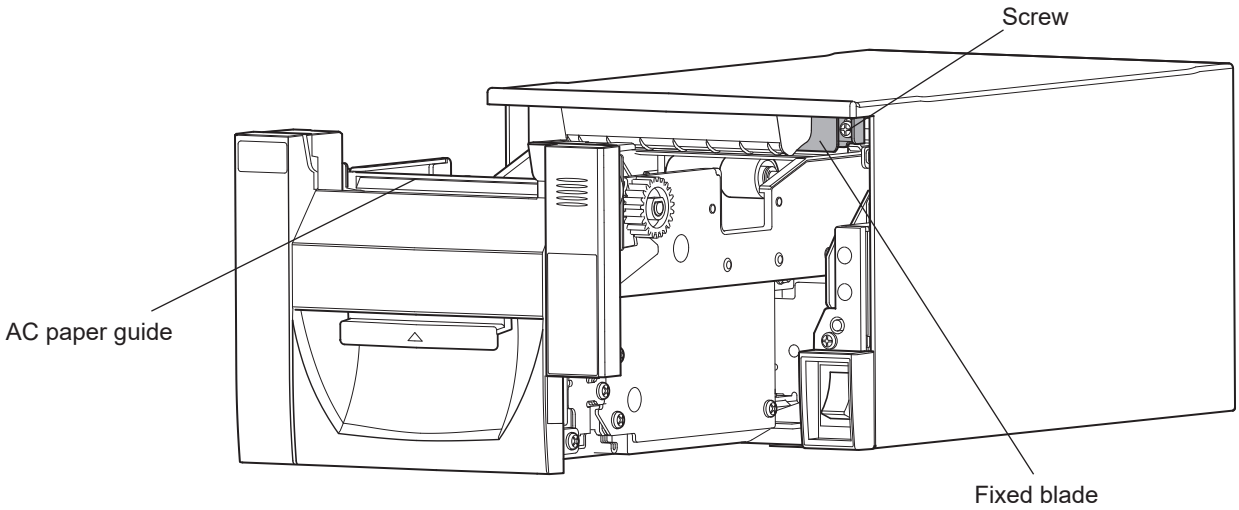


4-4. Changing the Cutter Mode

To change the cutter mode from partial to full, follow the instructions given below.

To change the cutter mode, change Dip switch DIPSW1-10 (see chapter 12, "Dip Switch Settings").

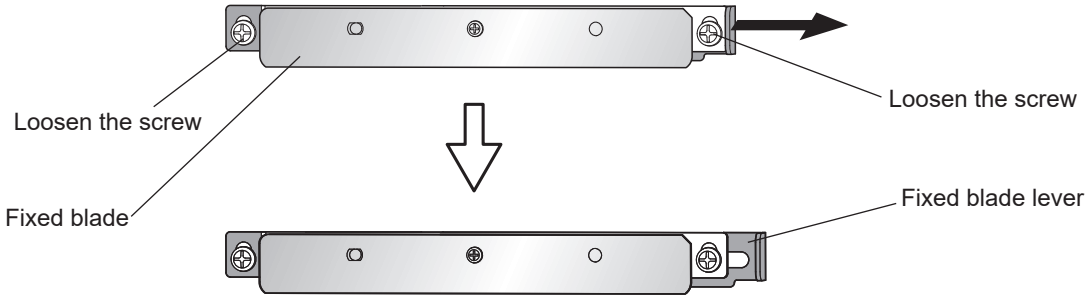
(1) Pull the cover open lever toward you, and pull the front cover out to open it.



(2) Loosen the two screws at the fixed blade section.

Note: To keep the screws from falling, only turn them once or twice.

(3) Move the fixed blade lever in the direction of the arrow until it stops.

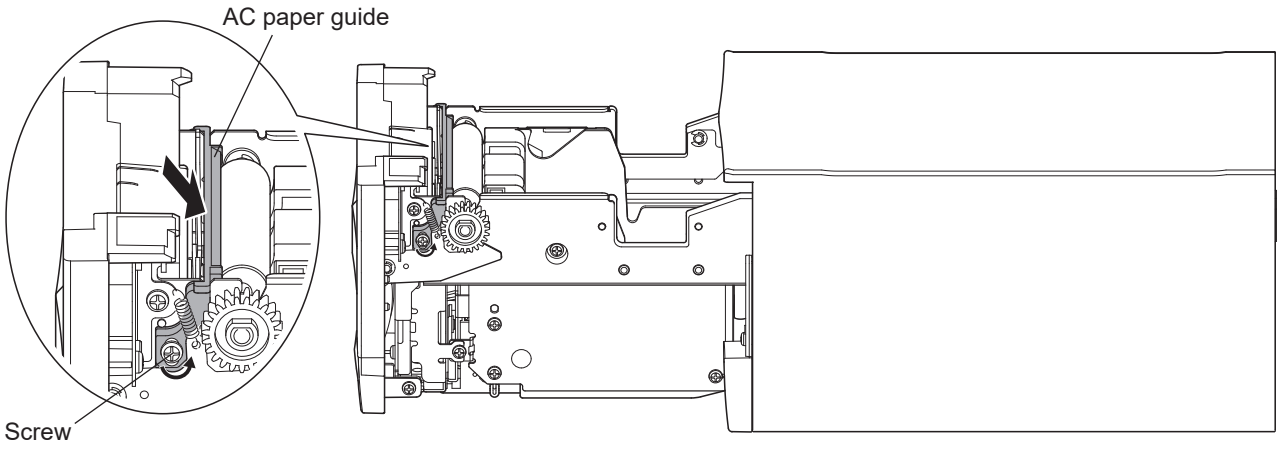


(4) Tighten the two screws.

(5) Loosen the screw on either side of the AC paper guide section.

Note: To keep the screws from falling, only turn them once or twice.

(6) Lower the AC paper guide until it stops. Then, tighten the two screws.



Note: Do not change the cutter mode while the printer is in use.

4-5. Setup Precautions

Caution Symbol

These symbols are located near the thermal print head.
Because the thermal print head is hot immediately after printing, do not touch it. Static electricity can damage the thermal print head. To protect the thermal print head from static electricity, do not touch it.

This symbol is located near the cutter.
Never touch the cutter blade, as you could injure your fingers.

This symbol is located near the peripheral drive connector.
Do not connect this to a telephone.

This symbol is located near the screws securing the case or the protective plate, which should not be opened by individuals other than service personnel. Individuals, other than service personnel, should not remove these screws. High voltage areas in the case can be dangerous.

⚠ WARNING

- If you notice smoke or strange odors coming from this product, turn the power switch off immediately, and remove the power cord from the AC outlet. For repairs, contact the dealer that you bought the product from.
- Never attempt to repair the product yourself. Doing so can be dangerous.
- Never disassemble or modify the product. Doing so may result in injury, fire, or electric shock.
- On models that have cutters or tear bars, do not touch the cutter blade or the tear bar.
  - There is a cutter or tear bar inside the paper outlet slot. Never put your hand in the slot regardless of whether or not the printer is in operation.
  - You must open the printer cover to replace paper. However, because the cutter blade or tear bar is located inside of the cover, be careful not to bring your face and hands too close to the blade or tear bar when the cover is open.
- During and immediately after printing, the area around the print head is very hot. Don't touch it because you could be burned.
- Be sure to turn off the printer before performing maintenance on the cutter. Failing to do so is dangerous.

⚠ CAUTION

- We recommend that you unplug the printer from the power outlet whenever you do not plan to use the printer for long periods.

  Because of this, you should locate the printer so that the power outlet it is plugged into is nearby and easy to access.
- If an AC cord set is supplied with the product, the power cord that is included has been specially designed for the product.
- Make sure that the printer and the PC are turned off and unplugged from their AC outlets before you make connections.
- Do not connect a telephone line to the peripheral drive connector, which is used for devices such as cash drawers. Doing so may cause the printer to malfunction. Also, for safety purposes, do not connect a wire that may carry excessive voltage to the peripheral drive connector.

- Do not open the printer covers while the printer is printing or cutting.
- Do not pull out paper when the printer cover is closed.
- If liquid or foreign objects (such as coins and paper) enter the inside of the printer, turn the power switch off, disconnect the power cord from the AC outlet, and consult the dealer that you bought the product from. Continuing to use the printer may lead to a short-circuit, which may cause electric shock or fire.
- The heating element and the driver IC of the thermal print head are easily damaged. Do not touch them with metal objects, sandpaper, etc.
- Do not touch the thermal print head heating element. Doing so may make it dirty, which will decrease the printing quality.
- Static electricity can damage the driver IC and other components of the thermal print head. Avoid touching it directly.
- Do not operate the printer if there is moisture (which has been caused by condensation or another factor) on the front surface of the head.
- The printing quality and the thermal print head's service life cannot be guaranteed if paper other than the recommended paper is used.

  In particular, thermal paper containing Na+, K+, or C1- may drastically reduce the service life of the thermal print head.
  We recommend that you use paper with the following maximum ion densities: 500 ppm of Na+, 150 ppm of K+, and 300 ppm of Cl-.

  For details on recommended thermal paper, see the following webpage.

  http://www.starmicronics.com/support/

⚠ CAUTION

Wireless Communication

- Do not use the device where using wireless devices is prohibited or may cause interference or danger.
- The radio waves generated by the device may interfere with the operation of electronic medical devices. If you are using any electrical medical device, contact its manufacturer for the restrictions on the use of the device.
- Security functionality for Bluetooth is installed in this product. Configure the security settings according to the manual (available on the Star Micronics website) to reduce the risk of security issues.
- This device supports Bluetooth.

  Since this functionality may be limited by local regulations, first review the radio laws specific to the country in which the product will be used.
- Below is a list of laws this device has been approved by. As Star Micronics is committed to constant innovation, revisions may be made without an announcement. Access the Star Micronics website for the latest listing of approvals.
- Please refer to Star Micronics website for the latest information and manuals.

5. Consumable Parts and AC Adapter

Use paper that meets the specifications.

5-1. General Thermal Paper Roll

5-1-1. Paper Roll Specifications

(1) Paper thickness: 65 µm to 150 µm (excluding Mitsubishi HiTec F5041)

(2) Paper width: 79.5 ± 0.5 mm

57.5 ± 0.5 mm

Note: Never change the paper width while the printer is in use.

(3) Outer roll diameter: ø83 mm or less

Take up paper roll width: 80 $^{+0.5}_{-1}$ mm or 58 $^{+0.5}_{-1}$ mm

(4) Core inner and outer diameters:

65 µm to 75 µm: core inner ø12 ± 1 mm, core outer ø18 ± 1 mm

core inner ø25.4 ± 1 mm, core outer ø32 ± 1 mm

75 µm to 150 µm: core inner ø25.4 ± 1 mm, core outer ø32 ± 1 mm

(5) Printed surface: Outer edge of roll *** Do not use inner-wrapped paper rolls.**

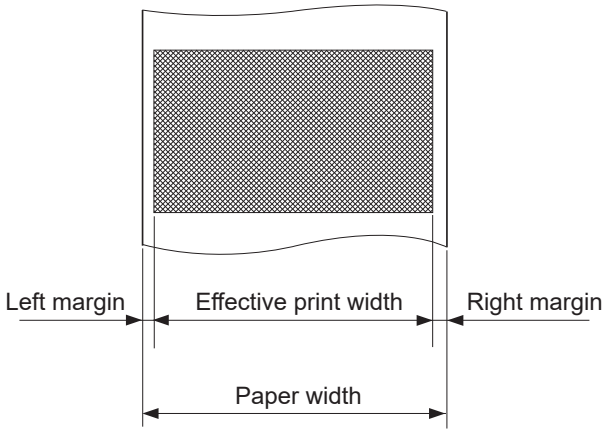
Note 1: Do not glue or tape the paper roll and shaft core together.

2: Do not fold the tail end of the paper.

3: We do not recommend the use of paper that has black marks printed on its near-end-sensor side, because near-end sensing may fail when the near-end sensor deteriorates.

5-1-2. Effective Print Width

Paper width (mm)	Left and right margins (mm)	Effective print width (mm)	Number of print columns (12 × 24 font)
79.5 ± 0.5	4	72	48
57.5 ± 0.5	2.75, 3, 3.6	52.5, 52.0, 50.8	35, 34, 33



5-2. Thermal Label Paper Roll (Tack label paper and full-face thermal label paper)

5-2-1. Paper Roll Specifications

(1) Total paper thickness: 150 µm or less

(2) Paper width: 79.5 ± 0.5 mm

(3) Outer roll diameter: ø83 mm or less

Take up paper roll width: $80\ ^{+0.5}_{-1}$ mm or $58\ ^{+0.5}_{-1}$ mm

(4) Core inner and outer diameters:

core inner ø25.4 ± 1 mm, core outer ø32 ± 1 mm

(5) Printed surface: Outer edge of roll *** Do not use inner-wrapped paper rolls.**

Note 1: Set the tension lever to the position for paper thicknesses greater than 100 µm and up to 150 µm.

2: Set the slide lever to the position for paper thicknesses greater than 100 µm and up to 150 µm.

3: Do not glue or tape the paper roll and shaft core together.

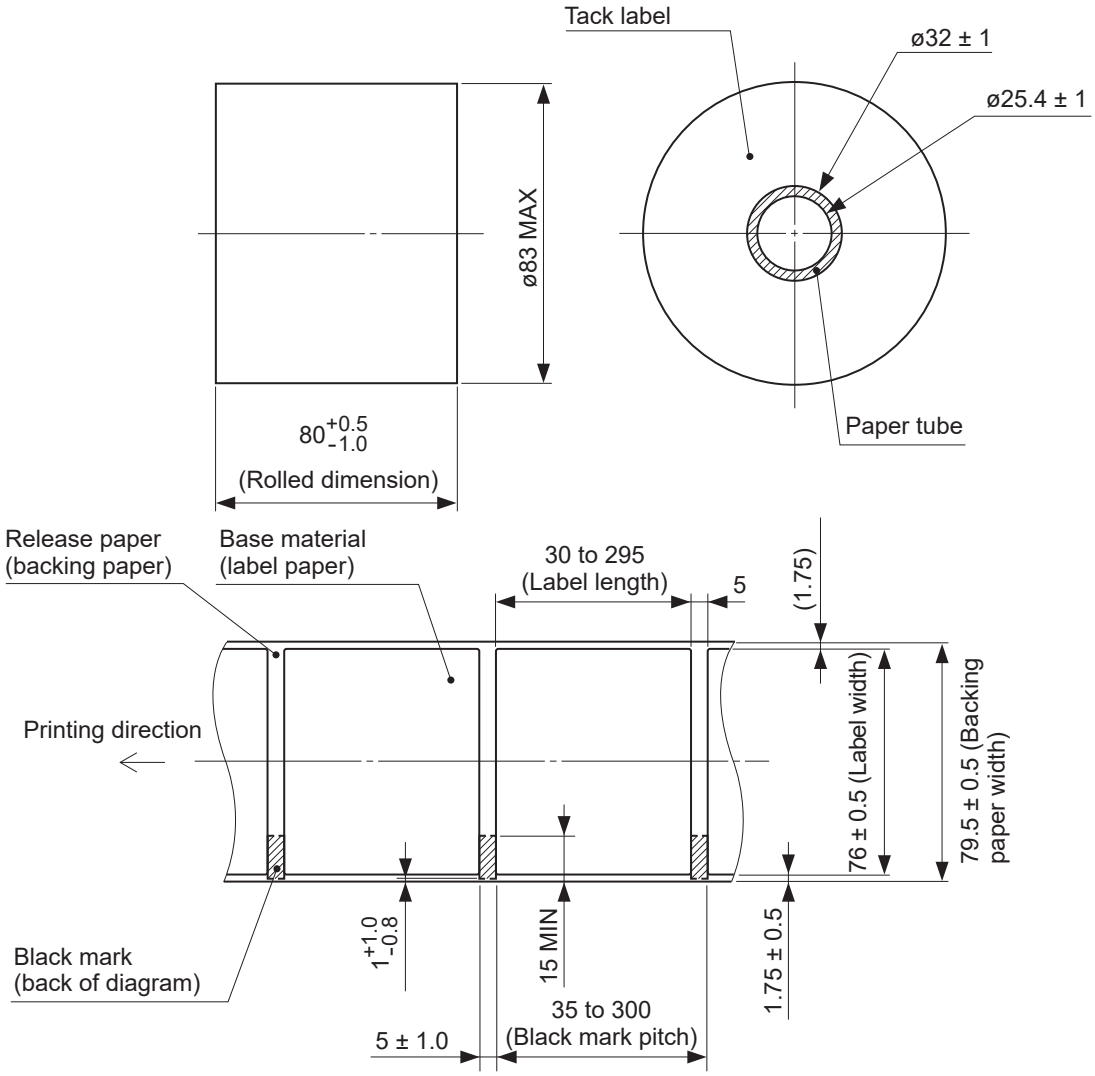
4: Do not fold the tail end of paper.

5: When using tack label paper, be sure to cut the backing paper.

5-2-2. Effective Print Width

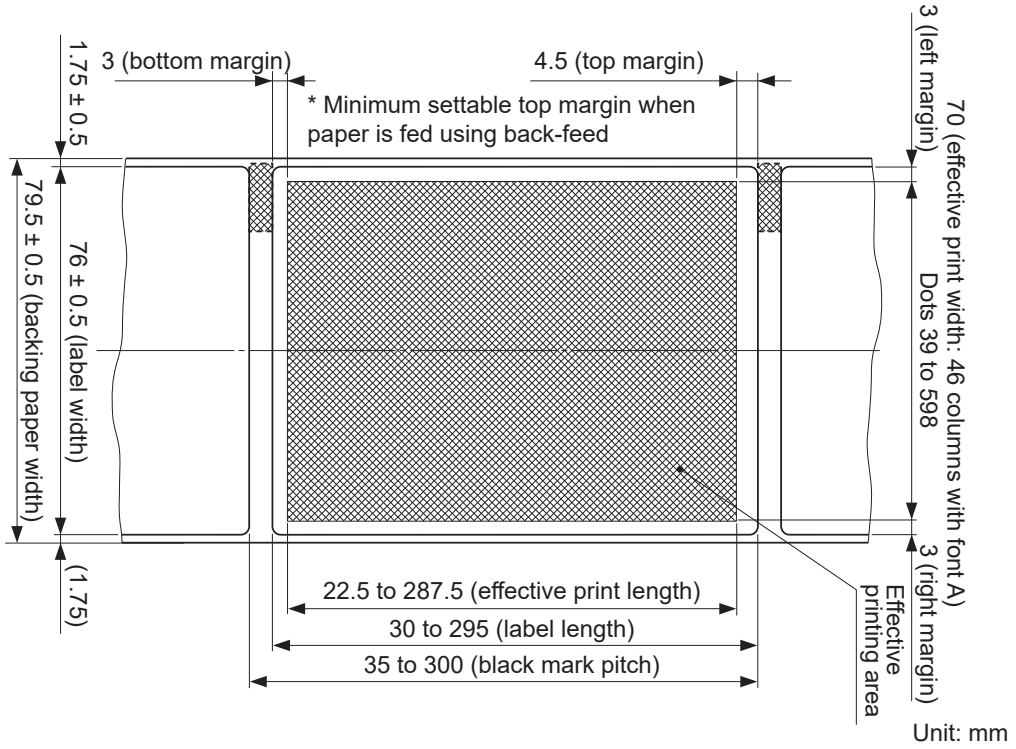
	Paper width (mm)	Left and right margins (mm)	Effective print width (mm)	Number of print columns (12 × 24 font)
Tack label paper	76 ± 0.5	3	70	46
Full-face thermal label paper	79.5 ± 0.5	4	72	48

■ **Detailed Diagrams of Recommended Tack Label Specifications**



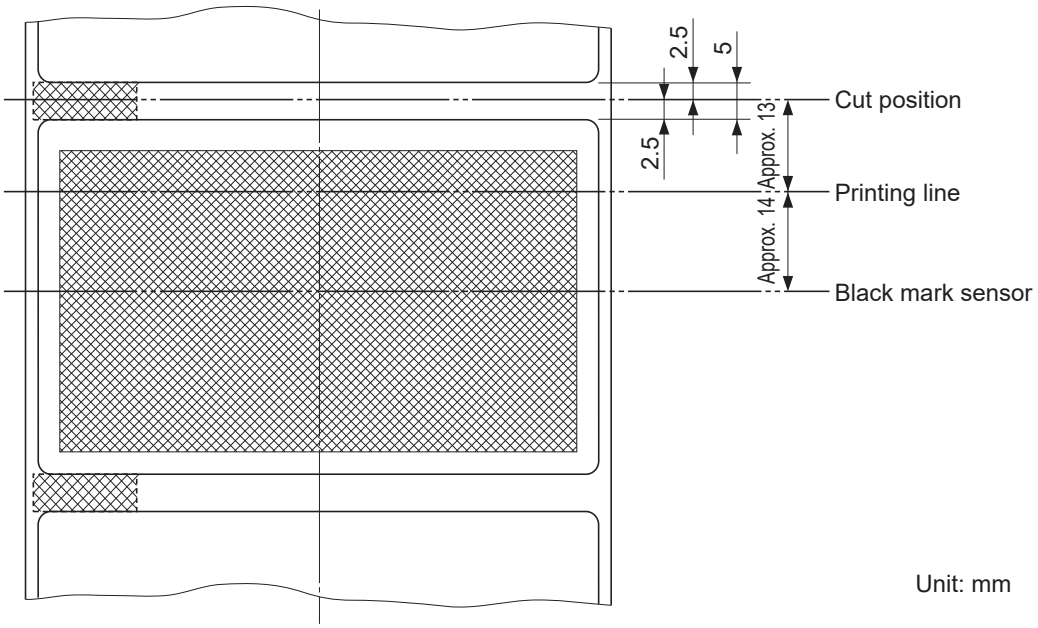
Unit: mm

■ **Detailed Diagram of Effective Printing Area**



Unit: mm

■ **Diagram of Cut Position, Printing Line, and Black Mark Sensor Position**



Unit: mm

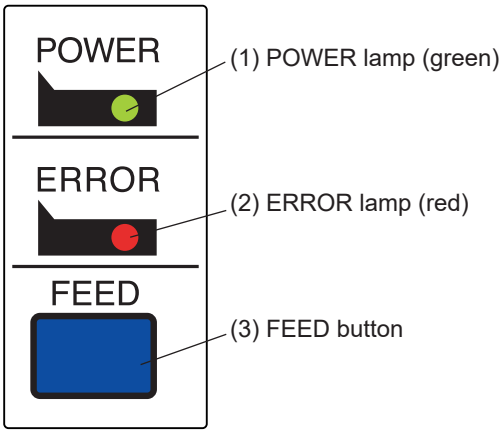
5-3. AC Adapter (Option)

Note: The optional AC adapter has been designed specifically for this printer.
Other AC adapters may not meet the EMC technical standards. They may also cause damage to the printer, electric shock, or fire.

Model name: PS60A-24B1
Input: 90 to 264 V AC, 50/60 Hz
Output: 24±10% V DC, 2.1 A

6. Control Panel and Other Functions

6-1. Control Panel



(1) POWER lamp (green)
Lights when the printer is online.
This lamp also indicates errors, in combination with other lamps.

(2) ERROR lamp (red)

Lights when the cover is open.
This lamp also indicates errors, in combination with other lamps.

(3) FEED button

When the printer is online, pressing this button feeds the paper roll.
When an audio error message is being played, pressing this button stops the message.
Press this button again if you want to hear the message again.

6-2. Errors

(1) Recoverable errors

Error description	POWER	ERROR	Recovery condition
Thermal head high temperature detection error	Flashes at 2 second intervals	Off	The printer recovers automatically when the thermal head cools.
Paper roll near-end detection*1	On	Flashes at 2 second intervals	Indicates that the paper roll is near the end. The printer recovers when you set a new paper roll and close the front cover.
Cover open error	On	On	The printer recovers when you close the cover.
Paper out error	On	Flashes at 0.5 second intervals	The printer recovers when you set a new paper roll and close the front cover.
Black mark error	On	Flashes at 1 second intervals	The printer recovers when you change the black mark paper (readjust in PE and BM sensor adjustment mode).
Link disconnection detection*2	Flashes at 2 second intervals	Flashes at 2 second intervals	Connect an Ethernet cable. For details, see section 3-2-5, "Ethernet Interface Cable."

*1 Near-end detection does not work until the paper is fed for 100 mm after the cover is opened and then closed.

*2 Ethernet interface model only

Note 1: If the cutter cannot return to the home position, or the printer cannot initialize, the error is unrecoverable. For details, see section 9-3, “Releasing the Cutter Lock”.

2: If the paper is jammed, turn the power off, clear the jammed paper, and then turn the power on. For details, see section 9-2, “Removing Paper Jams”.

(2) Errors that the printer cannot recover from

Error description	POWER	ERROR	Cause	Recovery condition
Cutter error	Off	Flashes at 0.25 second intervals	Cutter failure.	The printer cannot recover from this error.
Flash memory error	Off	Flashes at 0.5 second intervals	Flash memory access error.	The printer cannot recover from this error.
EEPROM error	Off	Flashes at 0.75 second intervals	EEPROM access error.	The printer cannot recover from this error.
SRAM error	Off	Flashes at 1 second intervals	SRAM access error.	The printer cannot recover from this error.
Head thermistor error	Off	Flashes at 1.5 second intervals	Head thermistor error has been detected.	The printer cannot recover from this error.
Power voltage error	Off	Flashes at 2 second intervals	Power voltage error has been detected.	The printer cannot recover from this error.

Note 1: If an unrecoverable error occurs, turn the power off immediately.

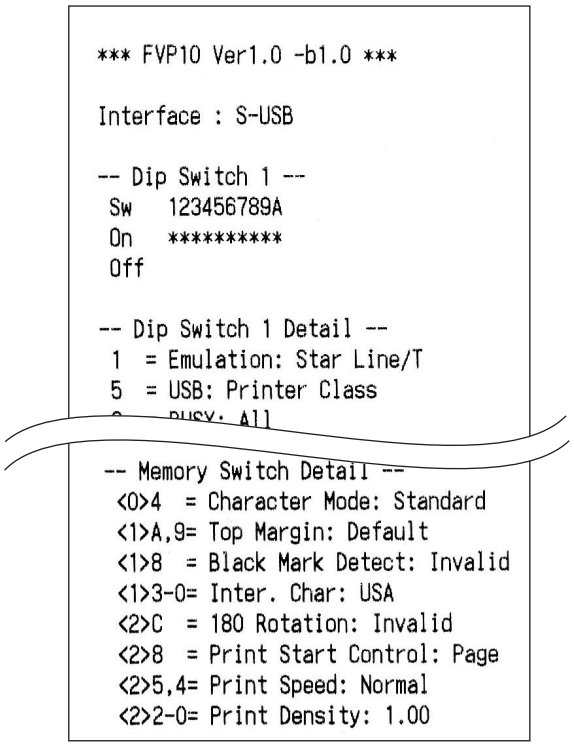
2: A power voltage error may be a result of a power supply malfunction. If other unrecoverable errors occur, contact your dealer for repairs.

* When an error occurs, an audio error message is played. For details, see section 8-4, “Audio Error Messages”.

6-3. Self-Printing

6-3-1. Test Printing

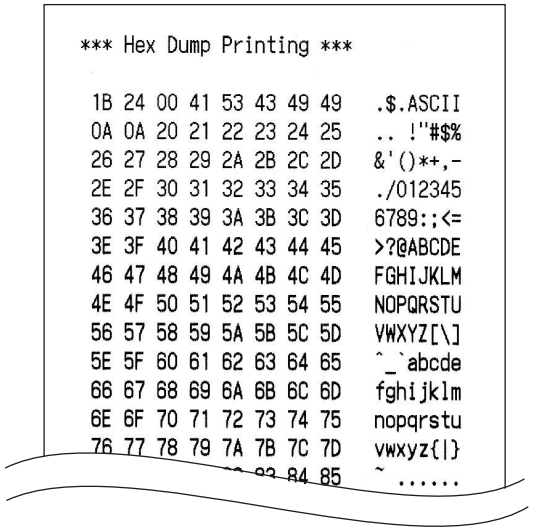
(1) Load a paper roll into the printer.
(2) With the front cover closed, turn the power switch on while holding down the FEED button.
(3) The internal speaker produces a buzzer sound, and the printer starts a test print.
The printer prints its version number, DIP switch settings, memory switch settings, etc. When the test print is finished, the printer returns to normal mode.



```
*** FVP10 Ver1.0 -b1.0 ***

Interface : S-USB

-- Dip Switch 1 --
 Sw   123456789A
 On   **********
 Off

-- Dip Switch 1 Detail --
 1  = Emulation: Star Line/T
 5  = USB: Printer Class
 8  = BUSY: All

-- Memory Switch Detail --
 <0>4  = Character Mode: Standard
 <1>A,9= Top Margin: Default
 <1>8  = Black Mark Detect: Invalid
 <1>3-0= Inter. Char: USA
 <2>C  = 180 Rotation: Invalid
 <2>8  = Print Start Control: Page
 <2>5,4= Print Speed: Normal
 <2>2-0= Print Density: 1.00
```

6-3-2. Hexadecimal Dump Mode

(1) With the front cover open, turn the power on while holding down the FEED button.
(2) When you close the front cover after the printer initialization has been completed, the printer prints "*** Hex Dump Printing ***" and enters Hexadecimal Dump mode.
(3) All the signals received from the host computer are printed in hexadecimal code. You can use this mode to check whether the control codes sent from your program are being received correctly by the printer.
(4) If the last line of program data is less than one line, you can press the FEED button to print it.
To clear this mode, turn the printer off.



```
*** Hex Dump Printing ***

 1B 24 00 41 53 43 49 49   .$.ASCII
 0A 0A 20 21 22 23 24 25   .. !"#$%
 26 27 28 29 2A 2B 2C 2D   &'()*+,-
 2E 2F 30 31 32 33 34 35   ./012345
 36 37 38 39 3A 3B 3C 3D   6789:;<=
 3E 3F 40 41 42 43 44 45   >?@ABCDE
 46 47 48 49 4A 4B 4C 4D   FGHIJKLM
 4E 4F 50 51 52 53 54 55   NOPQRSTU
 56 57 58 59 5A 5B 5C 5D   VWXYZ[\]
 5E 5F 60 61 62 63 64 65   ^_`abcde
 66 67 68 69 6A 6B 6C 6D   fghijklm
 6E 6F 70 71 72 73 74 75   nopqrstu
 76 77 78 79 7A 7B 7C 7D   vwxyz{|}
                  84 85   ~ .....
```

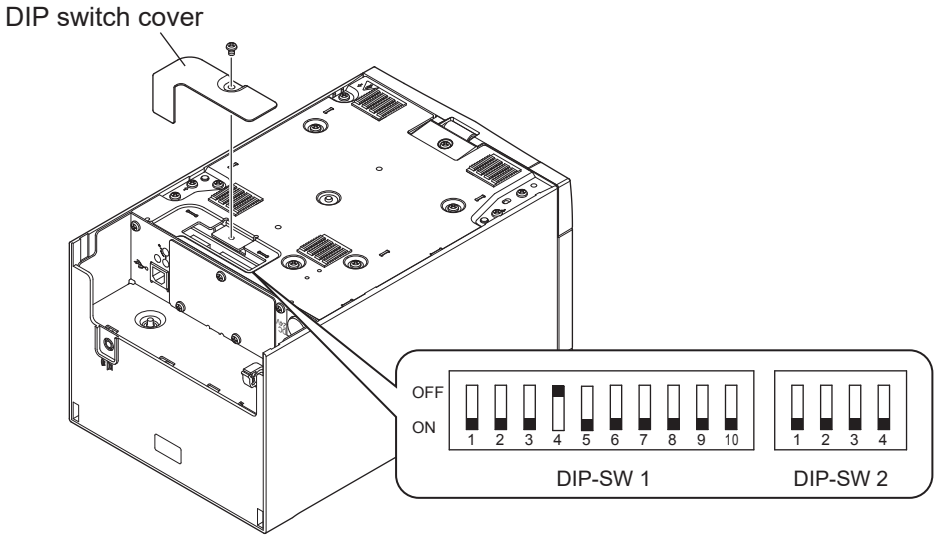
6-4. Adjusting Sensors

6-4-1. PE and BM Sensor Adjustment Mode

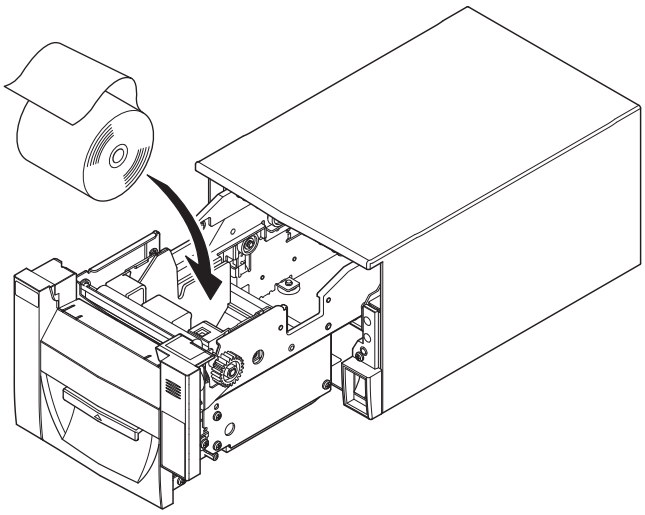
(1) Check that the printer is turned off.

(2) Unfasten the screw holding the DIP switch cover at the bottom of the printer, and remove the cover.

(3) Using a pointed object, set DIP switch DIPSW1-4 to OFF and DIP switches DIPSW1-5, DIPSW1-6, and DIPSW1-7 to ON.



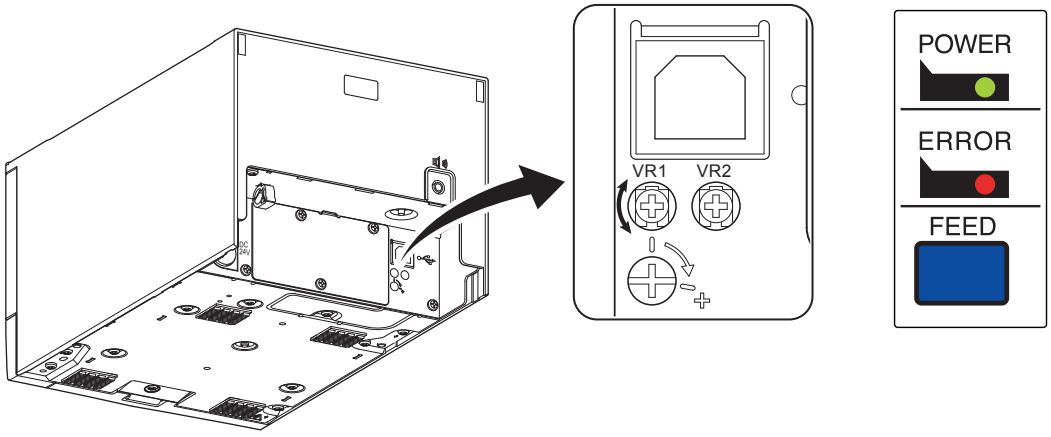
(4) Open the front cover, and set a paper roll into the printer.



(5) Turn the printer on.

The lamps on the control panel will flash, and the printer will enter sensor adjustment mode.

(6) As shown in the figure below, turn VR1 with a precision flat-blade screwdriver so that both the POWER lamp (green) and ERROR lamp (red) light.



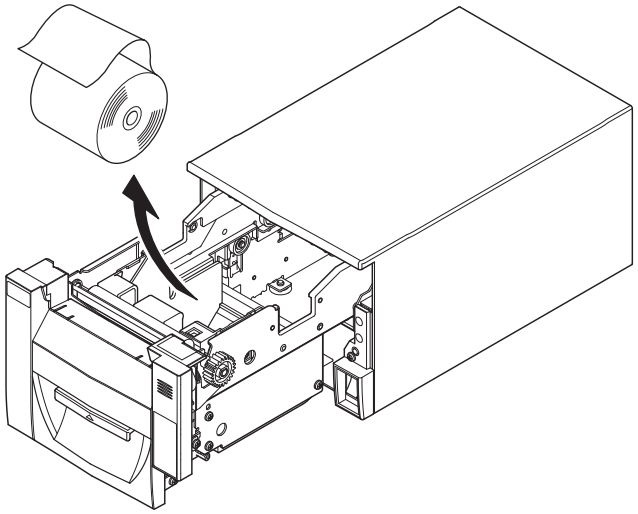
(7) Turn the printer off, and set DIP switches DIPSW1-4, DIPSW1-5, DIPSW1-6, and DIPSW1-7 to their original settings.

(8) Attach the DIP switch cover.

6-4-2. NE Sensor Adjustment Mode

(1) Check that the printer is turned off.

(2) Open the front cover, remove the paper roll from the printer, and close the front cover.



(3) Unfasten the screw holding the DIP switch cover at the bottom of the printer, and remove the cover.

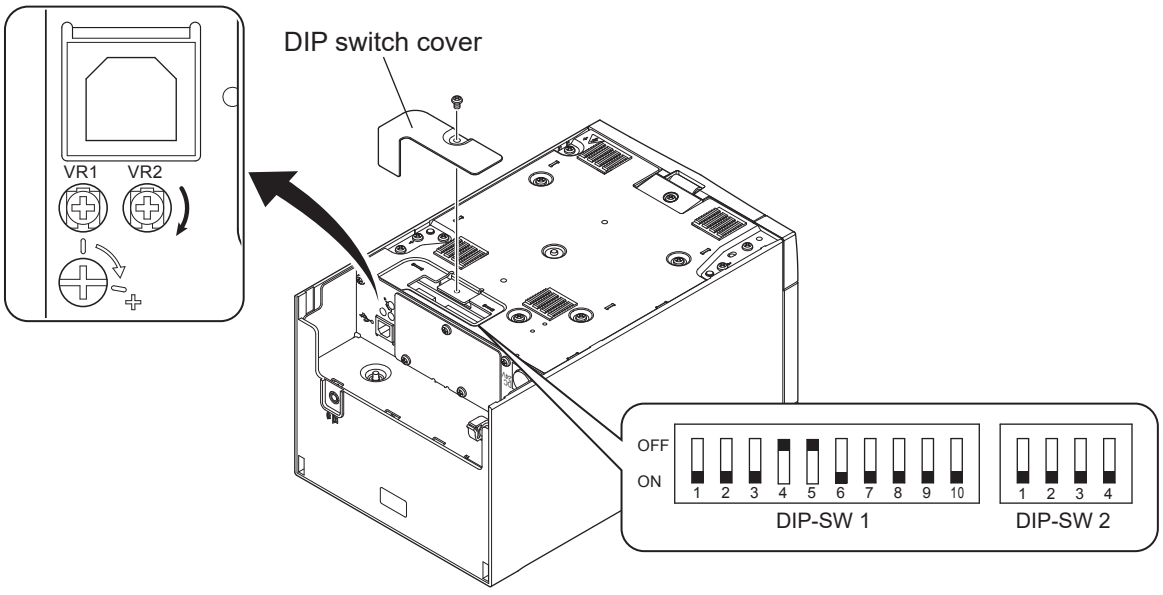
(4) Using a pointed object, set DIP switches DIPSW1-4 and DIPSW1-5 to OFF and DIP switches DIPSW1-6 and DIPSW1-7 to ON. Then turn the printer on.

The lamps on the control panel will flash, and the printer will enter sensor adjustment mode.

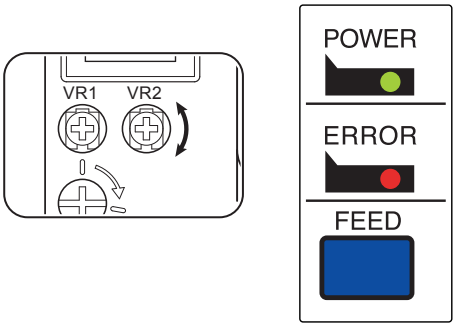
(5) Turn VR2 clockwise all the way with a precision flat-blade screwdriver as shown in the figure below.

If the POWER lamp (green) is on at this point, proceed to step (7).

If the POWER lamp (green) is off, proceed to step (6).

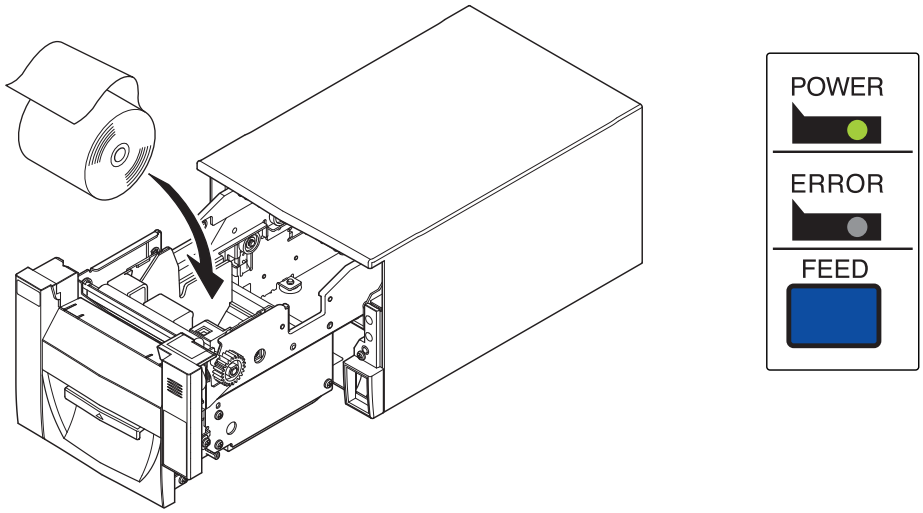


(6) Turn VR2 so that both the POWER lamp (green) and ERROR lamp (red) light.

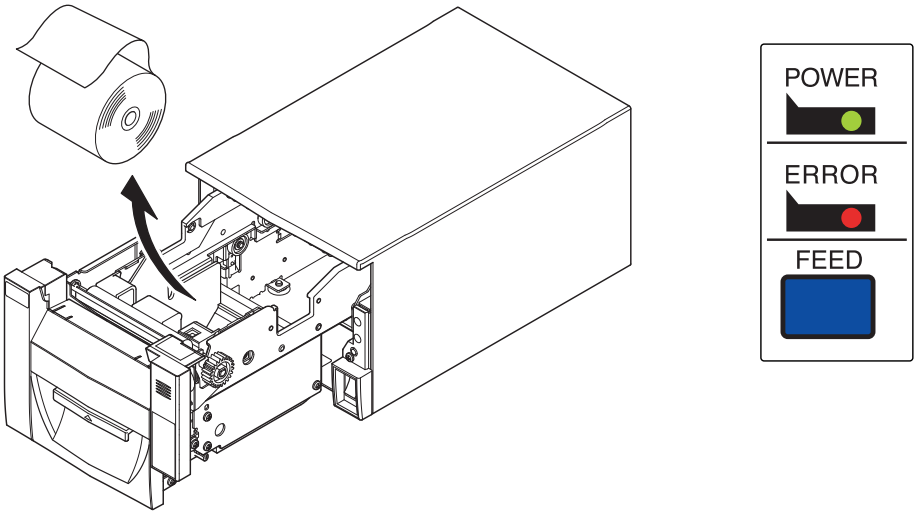


(7) Press the FEED button. The LED will flash, and the printer will enter sensor check mode.

(8) Open the front cover, set a paper roll into the printer, and close the front cover.
Check that the POWER lamp (green) is lit and the ERROR lamp (red) is off.



(9) Open the front cover, remove the paper roll from the printer, and close the front cover.
Check that both the POWER lamp (green) and ERROR lamp (red) are lit.



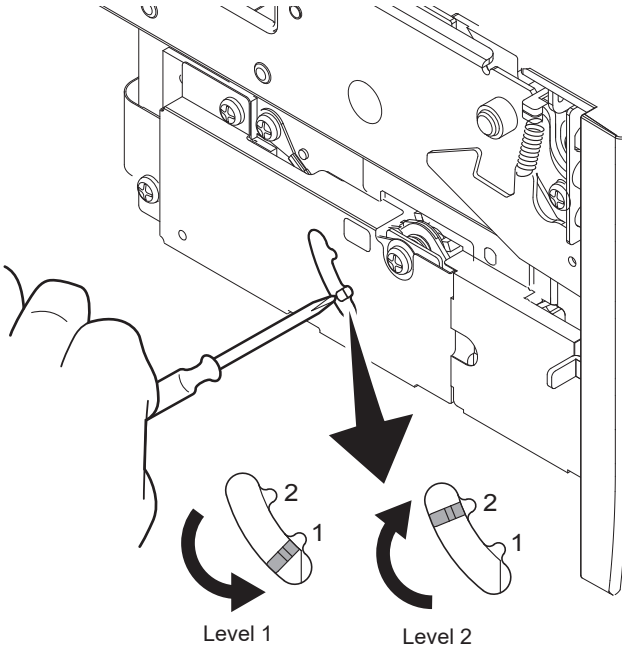
(10) Turn the printer off, and set DIP switches DIPSW1-4, DIPSW1-5, DIPSW1-6, and DIPSW1-7 to their original settings.

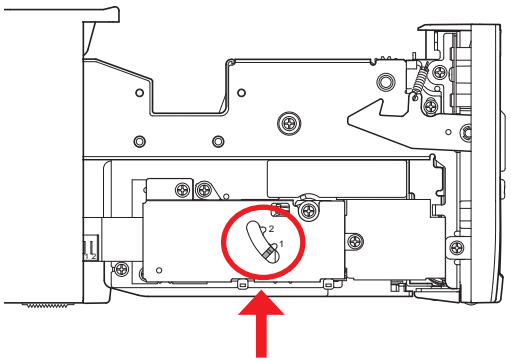
(11) Attach the DIP switch cover.

7. Adjusting the Near-End Sensor

To use the near-end sensor, set the remaining paper length to detect.
Follow the instructions given below.

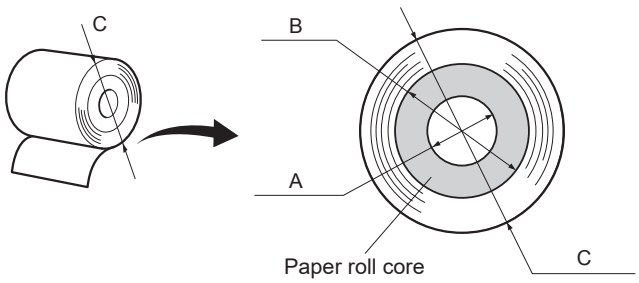
(1) Open the rear cover.
(2) Use a ballpoint pen or a pointed object to pull the sensor up and move it to the appropriate position.
Check that the position is correct.





Appropriate positions according to the type of paper

Thickness (µm)	Core paper roll with ø12 (A) inner diameter and ø18 (B) outer diameter				Core paper roll with ø25.4 (A) inner diameter and ø32 (B) outer diameter			
	Detected diameter (C; mm)		Remaining paper length (m)		Detected diameter (C; mm)		Remaining paper length (m)	
	Level 1	Level 2	Level 1	Level 2	Level 1	Level 2	Level 1	Level 2
65	Approx. ø23	Approx. ø26	Approx. 2.5	Approx. 4.3	Approx. ø38	Approx. ø42	Approx. 5.1	Approx. 8.9
75			Approx. 2.1	Approx. 3.7			Approx. 4.4	Approx. 7.7
80					—		—	Approx. 7.3
95					—		—	Approx. 6.1
150					—		—	Approx. 3.9



Note:

1) The adjuster is factory set to level 1.
2) The detected diameter and remaining paper length given in the table are calculated values; there may be discrepancies depending on the rolled state of the paper, the actual mechanism, and the printing pattern.
3) With thick paper (whose thickness is greater than 75 µm) or label paper, the paper roll itself may become loose, causing errors in detection. So set the adjuster to level 2.

8. Speaker

8-1. Speaker Specifications

(1) Model number: SCG-16A

(2) External dimensions: ø16-h3

(3) Sound pressure:

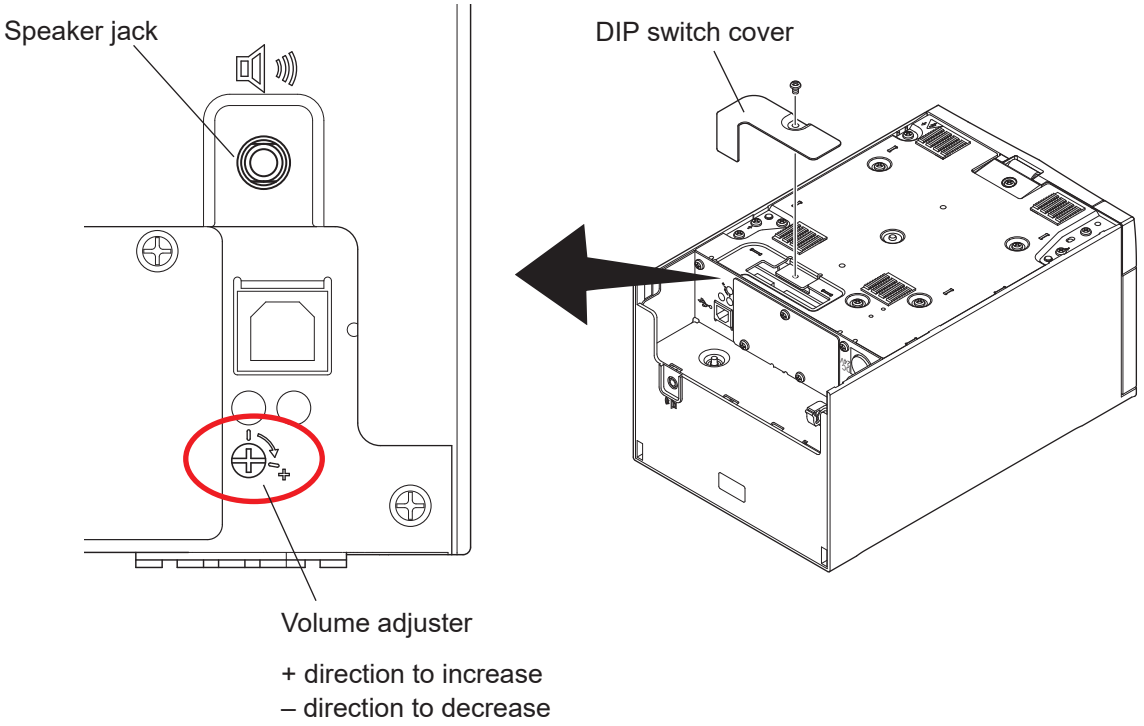
By itself	92.5 dB ± 3 dB (rated input: 0.3 W, measurement distance: 10 cm)
Embedded in printer	61.2 dB ± 3 dB (measurement distance: ISO7779 compliant; diagonally upwards from the printer at a distance of 67.5 cm)

8-2. Adjusting the Volume

To adjust the volume, follow the instructions given below.

(1) Unfasten the screw holding the DIP switch cover at the bottom of the printer, and remove the cover.

(2) Turn the volume adjuster with a precision flat-blade screwdriver to adjust the volume.



8-3. Speaker Jack

(1) Connector: ø3.5 monaural mini jack

(2) Target speaker: A speaker with an impedance of 8 Ω is recommended.

8-4. Audio Error Messages

When an error occurs, the printer produces an audio error message.

Status			Audio Message
On-Line	Warning output	Paper roll near-end detection*1	Paper Near End, please prepare for the paper refill.
Error	Auto recovery error	Thermal head high temperature detection error	Head Temperature is too high, please wait until Power lamp turns on.
	Errors that can be recovered from	Cover open error*2	Please close the printer cover.
		Paper out error	Paper end. Please refill paper.
		Black mark error	Black Mark error is detected. Please confirm the specification according to the Users Manual.
	Errors that cannot be recovered from	Cutter error	Cutter error. Please refer to the Users Manual for recovery.
		Flash error	Flash ROM error. Please turn off the printer and refer to the Users Manual for recovery.
		EEPROM error	EEPROM error. Please turn off the printer and refer to the Users Manual for recovery.
		SRAM error	SRAM error. Please turn off the printer and refer to the Users Manual for recovery.
		Head thermistor error	Thermistor error. Please turn off the printer and refer to the Users Manual for recovery.
		Power voltage error	Power Voltage error. Please turn off the printer and refer to the Users Manual for recovery.

*1 Near-end detection does not work until the paper is fed for 100 mm after the cover is opened and then closed.

*2 Output 5 seconds after a cover open error occurs.

9. Preventing and Removing Paper Jams

9-1. Preventing Paper Jams

When you set the paper roll into the printer, do not pull out the end of the paper at an angle.

Do not touch the paper roll when the printer is printing or paper-feeding or before the cut operation has finished completely.

Holding or pulling the paper while it is being fed may cause paper jams, improper cutting, or improper line breaks.

9-2. Removing Paper Jams

If a paper jam occurs, remove the paper according to the instructions given below.

(1) Turn the power switch off.

(2) Pull the cover open lever toward you to open the front cover.

(3) Remove the jammed paper.

⚠ **CAUTION:** Do not pull on the paper with the printer cover closed. Doing so may cause damage to or deformation of parts such as the thermal head and the rubber roller.

(4) Set the paper roll straight, and gently close the front cover.

⚠ **CAUTION 1:** Set the paper roll straight.

If you close the front cover with the paper roll skewed, paper jams may occur.

2: Close the front cover completely.

If the front cover is not closed completely, the printer may not print.

(5) Turn the power switch on.

Make sure that the ERROR lamp is not lit.

⚠ **CAUTION:** When the ERROR lamp is lit, the printer will not accept any commands. Be sure to close the front cover completely.

9-3. Releasing the Cutter Lock

If the cutter locks, release it according to the instructions given below.

⚠ **CAUTION:** Be sure to turn off the printer first when maintenancing the cutter.

(1) Turn the power switch off.

(2) Close the front cover, and turn the printer back on. In ordinary cases, this will release the lock.

If the lock is not released, contact your dealer.

10. Maintenance

Accumulation of paper dust and dirt may cause the printer to not print portions of characters.

To prevent such problems, perform periodic maintenance, such as removing paper dust from the paper transport section and removing the blackened paper dust from the thermal head surface.

Note: Turn the printer's power switch off before performing maintenance.

Use the following as a guideline for when to periodically clean the printer.

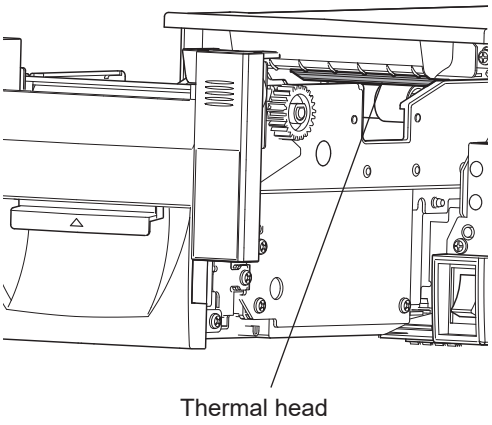
Thermal paper: Every six months or 1,000,000 lines of printing

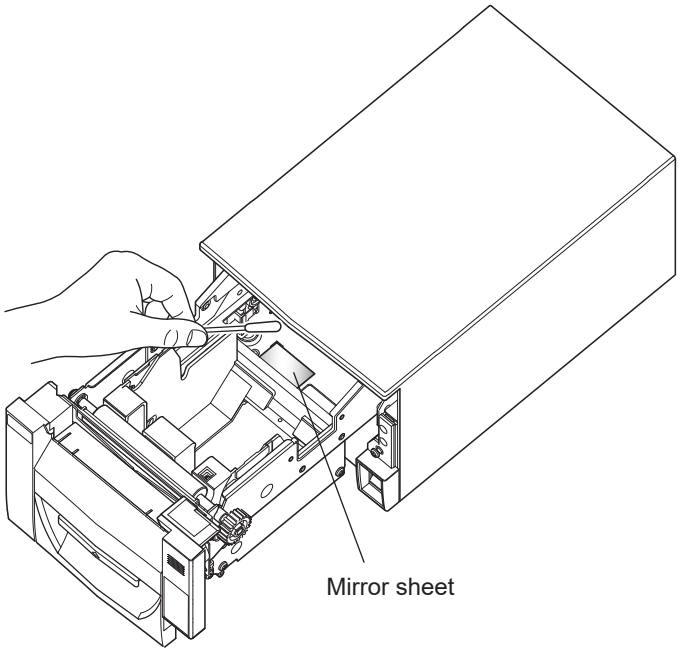
Label paper: Every month or 200,000 lines of printing

10-1. Thermal Head

To remove the blackened paper dust that has accumulated on the thermal head surface, wipe it clean with a cotton swab (or soft cloth) dipped in alcohol (ethanol, methanol, or isopropyl).

The thermal head is located where it is hard to look at directly. Use the mirror sheet to clean the head.





⚠ **CAUTION 1:** The thermal head is easily damaged, so clean it with a soft cloth, taking care not to scratch it.

2: Do not clean the thermal head immediately after printing, when it is hot.

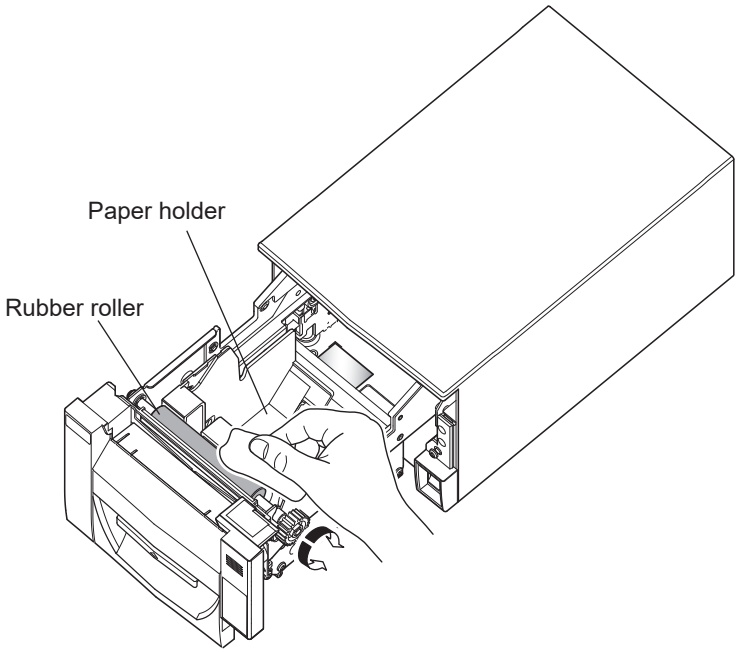
3: Be careful of static electricity while cleaning the thermal head. Static electricity can damage the head.

4: When label paper is used, paste adheres to the head, platen, and paper guides. Wipe off the paste. If you don't, paper transport problems and improper printing may occur. We recommend that you wipe off the paste frequently, not just during periodic maintenance.

5: Turn the power on only after the alcohol has dried completely.

10-2. Platen Rubber Roller

Apply alcohol (ethanol, methanol, or isopropyl) to a dry, soft cloth, and wipe off the dirt from the rubber roller. Clean the entire rubber roller by rotating it.

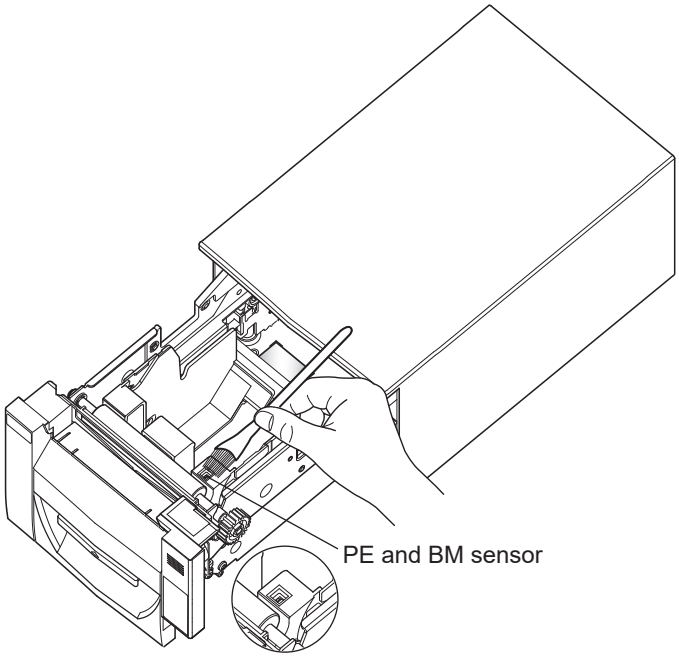


10-3. Paper Holder

Clean the paper holder of debris, dust, paper particles, glue, etc. that may have accumulated.

10-4. Sensors and Their Surrounding Area

Clean the sensors of debris, dust, paper particles, etc.
In particular, if the reflection sensors are dirty, detection will not be performed properly.
Cleaning is relatively easy if you use a brush or a similar tool.



11. Specifications

11-1. General Specifications

(1) Print method: Direct line thermal printing (thermal type)

(2) Print speed: Max. 2000 dots/sec. (250 mm/sec.; standard monochrome mode)

(3) Dot density: 203 dpi; 8 dots/mm (0.125 mm/dot)

(4) Printing width: Max. 72 mm
Settable between 30 mm and 72 mm at 1 mm intervals

(5) Number of print columns: Max. 48 columns (12 × 24 font)
Max. 64 columns (9 × 24 font)
Max. 36 columns (16 × 24)
Max. 24 columns (24 × 24 kanji font)

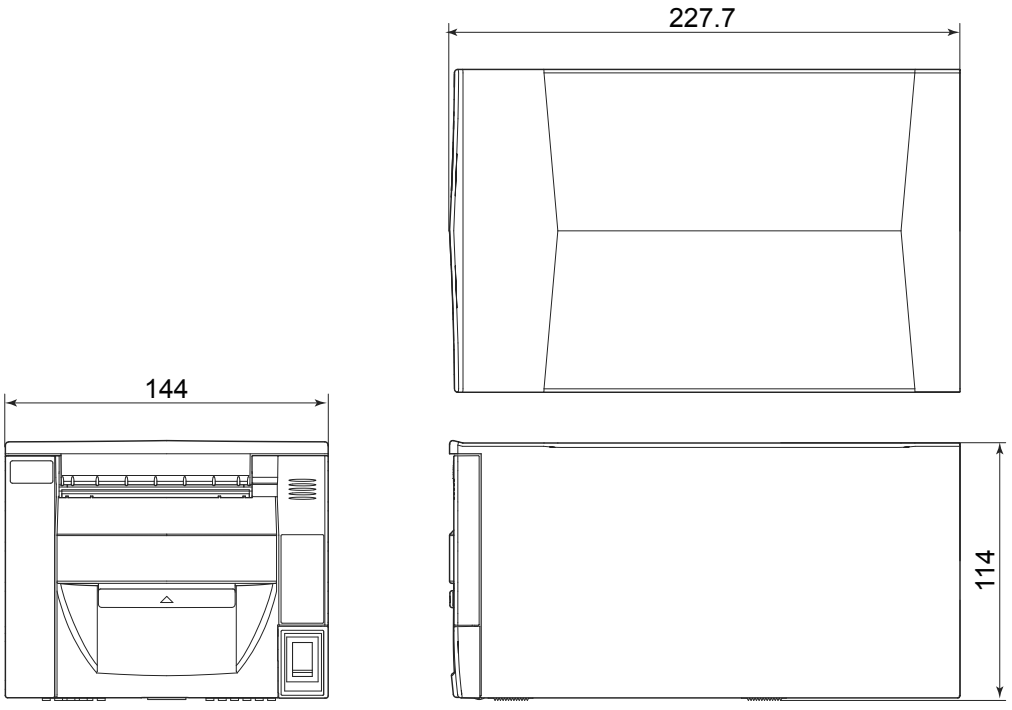
(6) Paper feed method: Friction feed
Feed pitch 0.125 mm

(7) Paper roll: See section 5-1, “General Thermal Paper Roll” and 5-2, “Thermal Label Paper Roll” in chapter 5, “Consumable Parts and AC Adapter”.
Paper width:
General thermal paper: 79.5 ± 0.5, 57.5 ± 0.5 mm
Label paper: 79.5 ± 0.5 mm (backing paper width)
Roll diameter: Max. ø83 mm

(8) External dimensions: 144 mm (width) × 227.7 mm (depth) × 114 mm (height)
144 mm (width) × 316.2 mm (depth) × 114 mm (height); with cable cover attached
* Front section height is 115.5 mm.

(9) Weight: 2.8 kg (without paper roll)

(10) Noise: Approx. 53 dB



Unit: mm

11-2. Auto Cutter Specifications

(1) Cutting method: Guillotine type

(2) Cutter modes: Switchable between full cut and partial cut (leaves one uncut portion in center of paper)
(For instruction on how to switch the mode, see section 4-4, “Changing the Cutter Mode”.

(3) Cutting duty cycle: Min. 3 seconds/cut

(4) Paper thickness: 65 µm to 150 µm

11-3. Interface Specifications

USB standard: Type-B

Options

Parallel: 36-pin Amphenol
IEEE1284 compliant (Compatibility and Nibble modes)

Serial RS-232C: D-SUB 25 pin

Ethernet: RJ-45

PoweredUSB: FCI 69913-104LF (1 x 8 right-angle type)

11-4. Power Supply Specifications

(1) Operating voltage: 24 V DC ± 10%

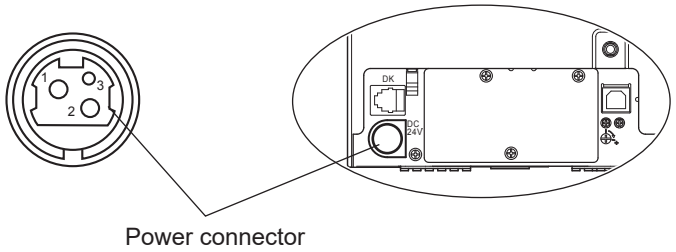
(2) Current consumption (24 V DC, room temperature):

Standby	Approx. 0.12 A
ASCII printing	Approx. average 1.56 A
100% duty cycle printing	Approx. peak 7.84 A
(Solid printing)	Approx. average 4.2 A

Note: Continuous solid printing should be 10 seconds or less.

(3) Power connector pinout:

Pin number	Function
1	+24 V
2	GND
3	N.C
Shell	Frame ground



Power connector

Note: The optional AC adapter (PS60A-24B1) has been designed specifically for this printer.
Other AC adapters may not meet the EMC technical standards.
If you are preparing your own power supply, without using the optional AC adapter, note the following points.

- Use a power supply that is rated 24 V DC and 2.1 A, or equivalent.
  (Select a power supply with current capacity that is appropriate for the actual printing ratio.)
- Use a power supply that complies with SELV output or LPS (Limited Power Source).
- Take into consideration the noise in the environment that the printer is installed in, and take appropriate measures to protect the printer from static electricity, AC line noise, etc.

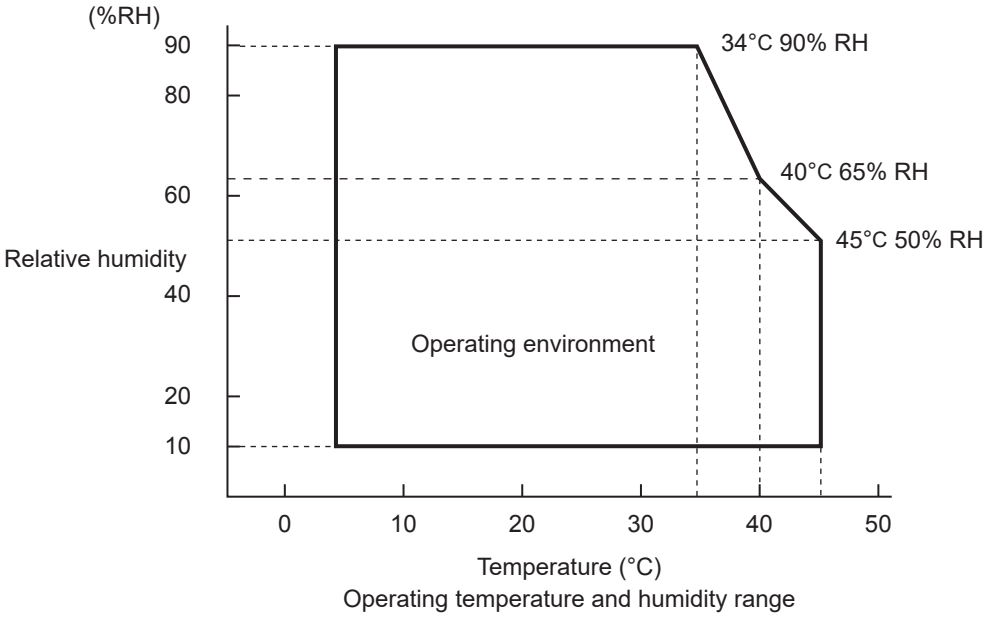
11-5. Environmental Requirements

Temperature and humidity

(1) During operation

Temperature: 5°C to 45°C

Humidity: 10% RH to 90% RH (no condensation)



Operating temperature and humidity range

(2) During storage (excluding paper)

Temperature: -20°C to 60°C

Humidity: 10% RH to 90% RH (no condensation)

Note: The maximum temperature and humidity combination is 40°C and 90% RH (without condensation).

11-6. Reliability Specifications

(1) Service life Mechanical: 20,000,000 lines

Head: 150 km, 150,000,000 dots (maximum for monochrome printing)

<Conditions>

Average printing ratio: 12.5%; recommended thermal paper: 65 µm (when using P220AG)

(2) MCBF: 60,000,000 lines

The Mean Cycle Between Failure (MCBF) is defined to be the overall failure cycle, which includes random or wear failures that occur until the printer reaches its mechanical life of 20,000,000 lines.

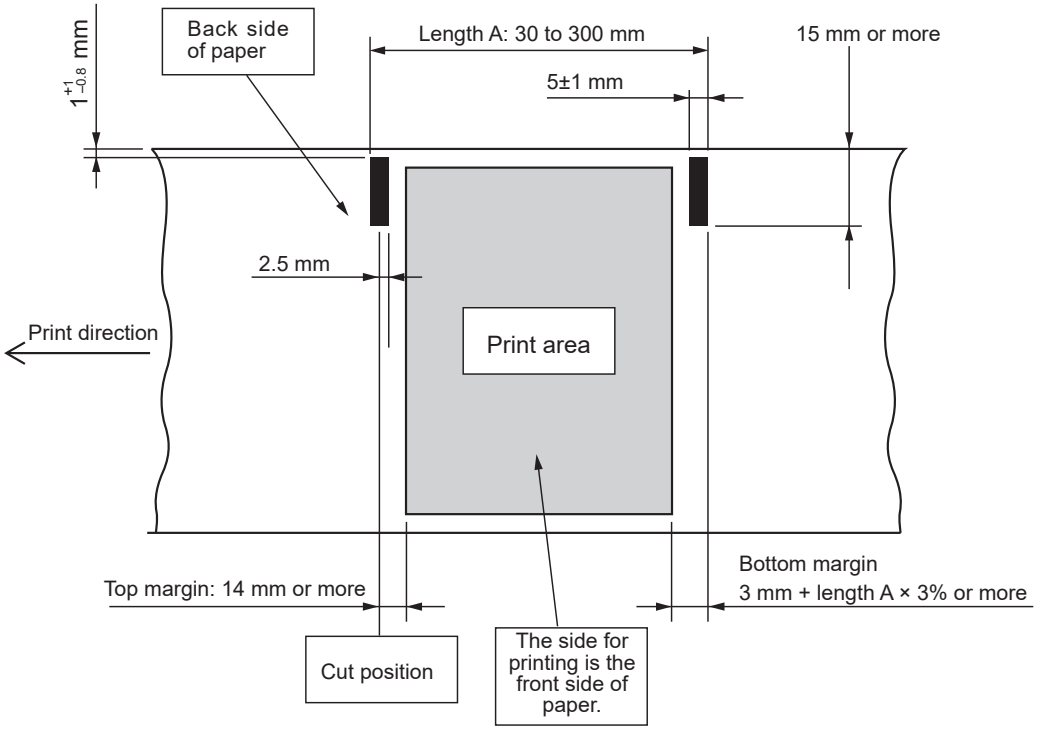
Note: The mechanical life is 20,000,000 lines. The MCBF of 60,000,000 lines does not indicate the durable service life.

(3) Auto cutter service life

- Paper width of 79.5 mm and 57.5 mm including tack label backing paper
  Paper width between 65 µm and 100 µm: 2,000,000 partial cuts, 2,000,000 full cuts
  Paper width greater than 100 µm and up to 150 µm: 600,000 partial cuts, 600,000 full cuts
- Paper width of 79.5 mm for full-face thermal label paper
  300,000 partial cuts and 300,000 full cuts

Note: All the reliability values indicated above are based on the use of the recommended thermal paper. They are not guaranteed with the use of non-recommended thermal paper.

11-7. Black Mark Specifications



Note:

1) The cut position shown above is for when memory switch #2 (print start position adjustment) is set to its default setting.
2) The black mark's PCS value must be 0.90 or more.
3) With the factory default setting, the printer may not detect black marks correctly, depending on the paper that you are using and the printed condition of the black marks.

   We recommend that you make adjustments with the paper that you are using.
4) The accuracy of paper feeding to the start position through black mark detection is ±2 mm of the reference print position. The printing length accuracy is ±2% of the set value, taking into account the environmental temperature and the error in the manufacturing process of the platen core. Add a maximum of -5% error to the set value when taking the service life into account. If you are using pre-printed paper, pay attention to the print layout.
5) The printing area is as shown in the above diagram when you use black marks.

   The top margin consists of approximately 13 mm from the print position to the cut position (auto cutter) and at least 1 mm (8 dot lines) of paper feeding when printing after cut operations. Therefore, the minimum total margin is 14 mm.

   Ensure that the margin shown in the above diagram is used to prevent the printing length setting along the paper feed direction from exceeding the black mark pitch. Otherwise, pages may be skipped.

   [Example of printing area setting]

   <When the black mark pitch (length A) is 100 mm>

   Top margin: 14 mm/Bottom margin: 3 mm + (100 mm × 0.03) = 6 mm

   Therefore, the printing length along the paper feed direction must be 80 mm or less.

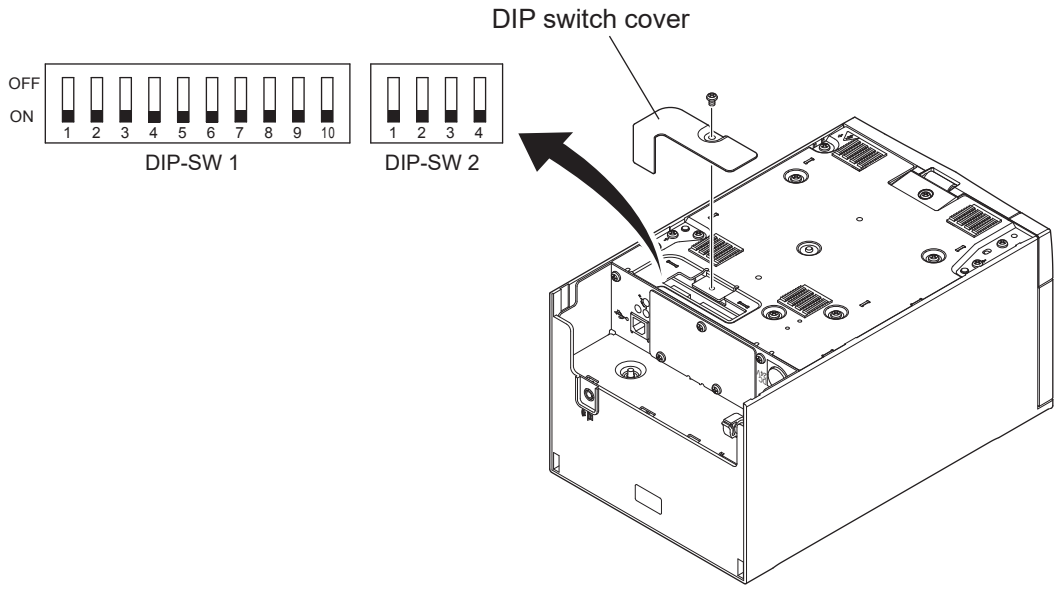
12. DIP Switch Settings

Two DIP switches are provided at the bottom of the printer, and you can set them according to the tables that start on the next page.

To change the settings, follow the instructions given below.

(1) Check that the printer is turned off.

(2) Unfasten the screw holding the DIP switch cover at the bottom of the printer, and remove the cover.

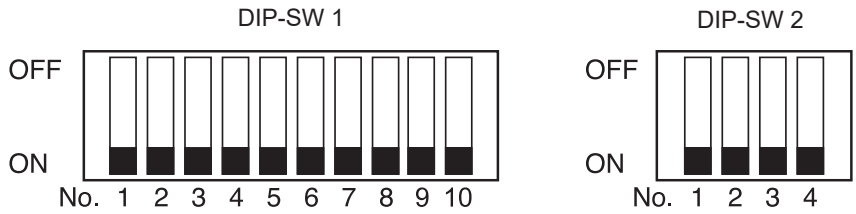


(3) Using a pointed object, set the DIP switches.

(4) Attach the DIP switch cover, and fasten it with screws.

Note: The new settings take effect when you turn on the printer.

12-1. Parallel Interface Model



■ DIP-SW 1

Switch	Function		ON	OFF
1-1	Emulation		STAR line mode	ESC/POS mode
1-2	STAR line mode	Reserved	Always ON	
	ESC/POS mode	Resolution correction	203 dpi	180 dpi
1-3	Reserved		Always ON	
1-4	Sensor adjustment		Invalid	Valid
1-5	Reset using the INIT signal (pin #31)		Valid	Invalid
1-6	Handshaking conditions (conditions for BUSY)		Receive buffer full or offline	Receive buffer full
1-7	ASB function*1		Invalid	Valid
1-8	STAR line mode	NSB function*2	Invalid	Valid
	ESC/POS mode	Reserved	Always ON	
1-9	Low peak current mode		Invalid	Valid
1-10	Installed cutter type		Partial cut	Full cut

*1 ASB function:

Automatically sends a status signal to the host whenever the printer status changes (cover open, paper out, error, etc.).
For details, see the separate command specifications (Star Line mode and ESC/POS mode).

*2 NSB function:

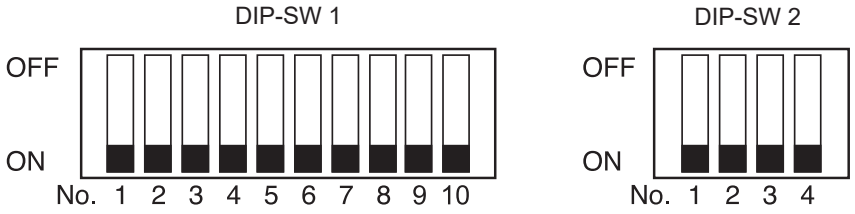
Automatically sends a status signal whenever the printer switches to reverse transfer mode.
For details, see the separate command specifications (Star Line mode).

■ DIP-SW 2

Switch	Function	ON	OFF
2-1 to 2-4	—	—	—

By factory default, all settings are set to ON.

12-2. RS-232C Interface Model



■ DIP-SW 1

Switch	Function		ON	OFF
1-1	Emulation		STAR line mode	ESC/POS mode
1-2	STAR line mode	Reserved	Always ON	
	ESC/POS mode	Resolution correction	203 dpi	180 dpi
1-3	Reserved		Always ON	
1-4	Sensor adjustment		Invalid	Valid
1-5	Reserved		Always ON	
1-6	Handshaking conditions (conditions for BUSY)		Receive buffer full or offline	Receive buffer full
1-7	ASB function*1		Invalid	Valid
1-8	Reserved		Always ON	
1-9	Low peak current mode		Invalid	Valid
1-10	Installed cutter type		Partial cut	Full cut

*1 ASB function:

Automatically sends a status signal to the host whenever the printer status changes (cover open, paper out, error, etc.).
For details, see the separate command specifications (Star Line mode and ESC/POS mode).

■ DIP-SW 2

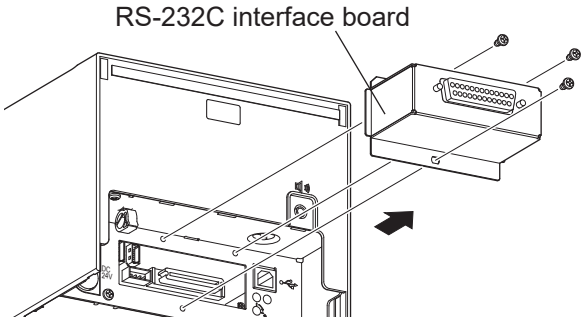
Switch	Function	ON	OFF
2-1 to 2-4	—	—	—

By factory default, all settings are set to ON.

To change DIP-SW 3, which is on the RS-232C interface PCB, follow the instructions given below.

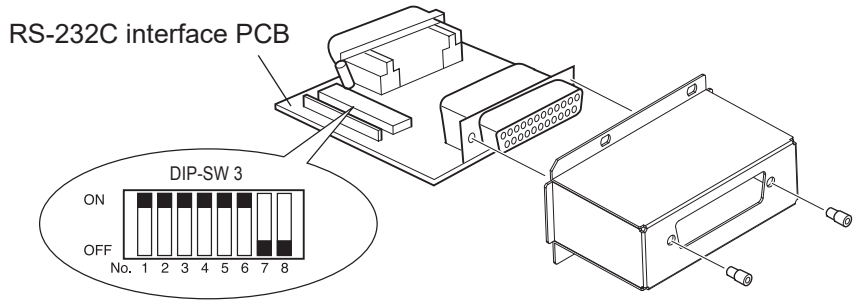
(1) Check that both the printer and the host computer are turned off.

(2) Remove the interface board from the printer.



(3) Remove the interface PCB from the interface board so that you can access DIP-SW 3.

(4) Change the DIP-SW 3 settings.



(5) Attach the RS-232C interface PCB following the procedure for removing it in reverse.

(6) Install the interface board onto the printer.

(7) Turn both the printer and the host computer on.

Note: The new settings take effect when you turn on the printer.

■ DIP-SW 3

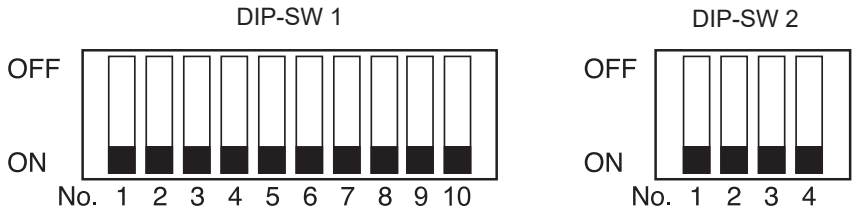
Switch	Function	ON	OFF
3-1	Baud rate	See the table below.	
3-2			
3-3	Data length	8 bits	7 bits
3-4	Parity check	Invalid	Valid
3-5	Parity	Odd	Even
3-6	Handshaking	DTR	XON/XOFF
3-7	Reserved	Always OFF	
3-8			

Baud rate settings

3-1	3-2	Baud rate
ON	ON	9600 bps
OFF	ON	4800 bps
ON	OFF	19200 bps
OFF	OFF	38400 bps

By factory default, 3-7 and 3-8 are OFF, and all other settings are ON.

12-3. USB and PoweredUSB Interface Model



■ DIP-SW 1

Switch	Function			ON	OFF
1-1	Emulation			STAR line mode	ESC/POS mode
1-2	STAR line mode	Reserved		Always ON	
	ESC/POS mode	Resolution correction		203 dpi	180 dpi
1-3	Reserved			Always ON	
1-4	Sensor adjustment			Invalid	Valid
1-5	USB mode			Printer Class	Vendor Class
1-6	Handshaking conditions (conditions for BUSY)			Receive buffer full or offline	Receive buffer full
1-7	ASB function*1	Printer Class		Valid	Invalid
		Vendor Class		Invalid	Valid
1-8	STAR line mode	NSB function*2	Printer Class	Valid	Invalid
			Vendor Class	Invalid	Valid
	ESC/POS mode	Reserved		Always ON	
1-9	Low peak current mode			Invalid	Valid
1-10	Installed cutter type			Partial cut	Full cut

*1 ASB function:

Automatically sends a status signal to the host whenever the printer status changes (cover open, paper out, error, etc.).
For details, see the separate command specifications (Star Line mode and ESC/POS mode).

*2 NSB function:

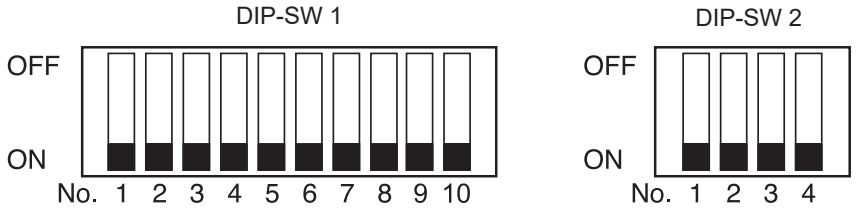
Automatically sends a status signal whenever the printer switches to reverse transfer mode.
For details, see the separate command specifications (Star Line mode).

■ DIP-SW 2

Switch	Function	ON	OFF
2-1 to 2-4	—	Always ON	

By factory default, all settings are set to ON.

12-4. Ethernet Interface Model



■ DIP-SW 1

Switch	Function		ON	OFF
1-1	Emulation		STAR line mode	ESC/POS mode
1-2	STAR line mode	Reserved	Always ON	
	ESC/POS mode	Resolution correction	203 dpi	180 dpi
1-3	Reserved		Always ON	
1-4	Sensor adjustment		Invalid	Valid
1-5	Reset using the INIT signal (pin #31)		Valid	Invalid
1-6	Handshaking conditions (conditions for BUSY)		Receive buffer full or offline	Receive buffer full
1-7	ASB function*1		Valid	Invalid
1-8	STAR line mode	NSB function*2	Valid	Invalid
	ESC/POS mode	Reserved	Always ON	
1-9	Low peak current mode		Invalid	Valid
1-10	Installed cutter type		Partial cut	Full cut

*1 ASB function:

Automatically sends a status signal to the host whenever the printer status changes (cover open, paper out, error, etc.).
For details, see the separate command specifications (Star Line mod and ESC/POS mode).

*2 NSB function:

Automatically sends a status signal whenever the printer switches to reverse transfer mode.
For details, see the separate command specifications (Star Line mode).

■ DIP-SW 2

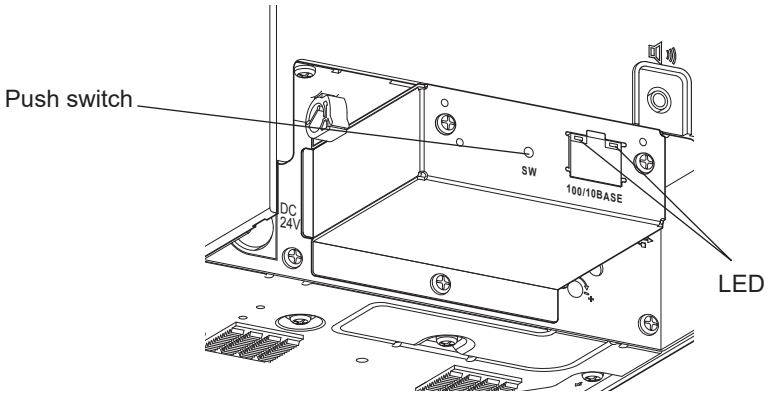
Switch	Function	ON	OFF
2-1 to 2-4	—	Always ON	

By factory default, all settings are set to ON.

■ Initializing Settings

To initialize the settings, use the push switch as follows:

(1) With the printer in normal operating mode, hold down the push switch for 1 to 5 seconds.
The green and red LEDs flash with a regular pattern.



(2) Push the switch again. The red and green LEDs both turn off, and the Ethernet interface settings are returned to their factory default values.

(3) When the Ethernet interface initialization has been completed, the printer automatically reboots.

■ LED Display

Green LED .....Lights when 100BASE-TX is detected on the other end of the connection

Red LED.....Lights when packets are received

13. Parallel Interface

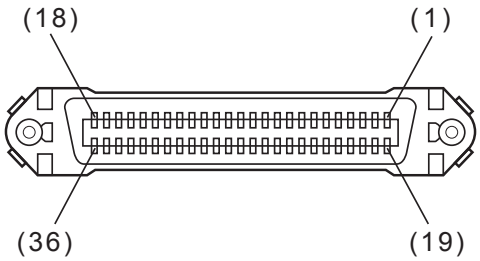
This bidirectional parallel interface is compatible with the IEEE1284 Compatibility and Nibble modes. Contact your dealer for details.

Pinout for the two modes

Pin number	Direction	Compatibility mode	Nibble mode
1	In	nStrobe	HostClk
2	In/Out	Data0	Data0
3	In/Out	Data1	Data1
4	In/Out	Data2	Data2
5	In/Out	Data3	Data3
6	In/Out	Data4	Data4
7	In/Out	Data5	Data5
8	In/Out	Data6	Data6
9	In/Out	Data7	Data7
10	Out	nAck	PtrClk
11	Out	Busy	PtrBusy/Data3,7
12	Out	PError	AckDataReq/Data2,6
13	Out	Select	Xflag/Data1,5
14		–	HostBusy
15		–	–
16		Signal GND	Signal GND
17		Frame GND	Frame GND
18	Out	+5V	+5V
19 ~ 30		Twisted Pair Return	Twisted Pair Return
31	In	nInit	nInit
32	Out	nFault	nDataAvail/Data0,4
33		EXT GND	–
34	In	Compulsion Status	–
35		–	–
36	In	nSelectIn	1284Active

Note 1) The prefix “n” on the signal name refers to low active signals.
If any of the signal lines listed above is not available on the host, bidirectional communication is not possible.

2) Be sure to use twisted pair wires for each signal line, and connect the return wires to signal ground.



Compatible with
Amphenol 57-30360

14. RS-232C Interface

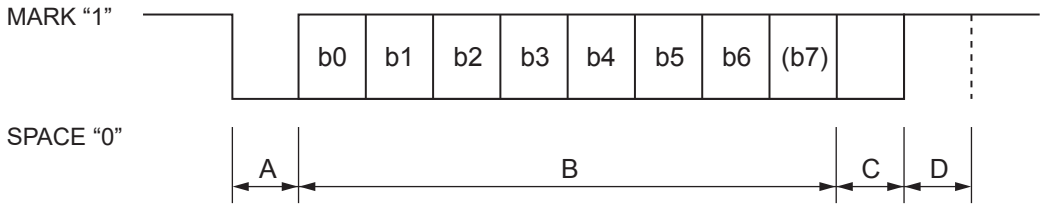
14-1. RS-232C Interface Specifications

(1) Data transmission method: Asynchronous start-stop

(2) Baud rate: 4800, 9600, 19200, 38400 bps (selectable with DIP switch)

(3) Data: 1 start bit
7 or 8 data bits (selectable with DIP switch)
Odd, even, or no parity (selectable with DIP switch)
1 stop bit

(4) Signal polarity: RS-232C
Mark: Logic “1” (-3 V to -15 V)
Space: Logic “0” (+3 V to +15 V)



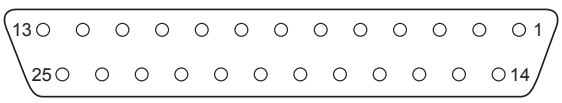
A: Start bit
B: Data bit
C: Parity bit
D: Stop bit

14-2. Connector and Signal Name

Pin number	Signal name	Direction	Function
1	FG	—	Frame ground
2	TXD	OUT	Transmission data
3	RXD	IN	Receive data
4	RTS	OUT	Same control as DTR
5	N.C	—	Not used
6	DSR	IN	(1) STAR line mode Not used (2) ESC/POS mode 1) DIP SW3-7 = OFF a) DTR/DSR mode Indicates whether the host can receive data. (This excludes data transmission that uses <DLE> <EOT> and <GS a> commands.) SPACE: The host can receive data. MARK: The host cannot receive data. b) X-ON/X-OFF mode Status of this signal is not checked. 2) DIP SW3-7 = ON Functions as an external reset signal. A mark signal with a pulse width of 1 ms or longer resets the printer.

<table>
<tr><th>Pin number</th><th>Signal name</th><th>Direction</th><th>Function</th></tr>
<tr><td>7</td><td>SG</td><td>—</td><td>Signal ground</td></tr>
<tr><td>8-19</td><td>N.C</td><td>—</td><td>Not used</td></tr>
<tr><td>20</td><td>DTR</td><td>OUT</td><td>(1) STAR line mode
a) DTR mode
Indicates whether the printer can receive data from the host.
SPACE: The printer can receive data.
MARK: The printer cannot receive data.
b) X-ON/X-OFF mode
Always set to SPACE, except during the following conditions
1. After a reset, until communication is enabled
2. During test printing

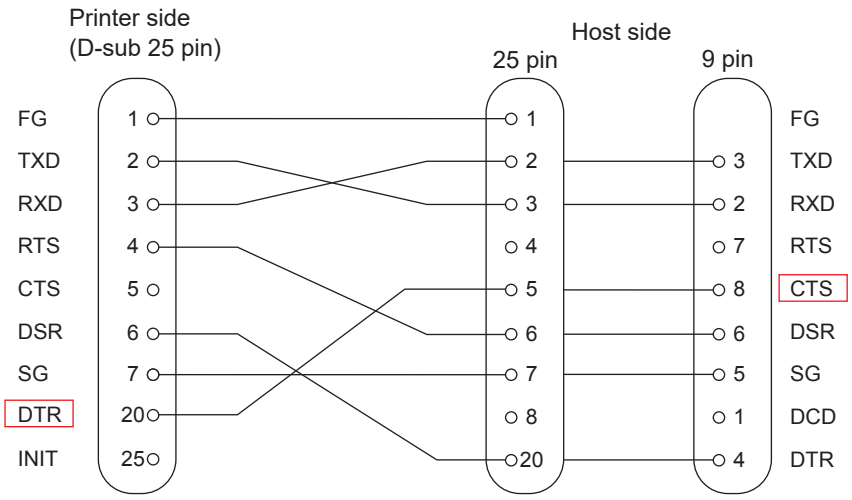
(2) ESC/POS mode
a) DTR/DSR mode
Indicates whether the printer can receive data from the host.
SPACE: The printer can receive data.
MARK: The printer cannot receive data.
The conditions that result in a BUSY state change according to the DIP switch settings.
<table>
<tr><th rowspan="2">Printer status</th><th colspan="2">DIP SW 1-6</th></tr>
<tr><th>OFF</th><th>ON</th></tr>
<tr><td>1. After power-on reset or interface reset but before communication is enabled</td><td>BUSY</td><td>BUSY</td></tr>
<tr><td>2. Test printing</td><td>BUSY</td><td>BUSY</td></tr>
<tr><td>3. Cover open</td><td>–</td><td>BUSY</td></tr>
<tr><td>4. Paper feeding through the paper feed switch</td><td>–</td><td>BUSY</td></tr>
<tr><td>4. Stopped because paper ran out</td><td>–</td><td>BUSY</td></tr>
<tr><td>5. Waiting for switch input for macro execution</td><td>–</td><td>BUSY</td></tr>
<tr><td>6. Other error</td><td>–</td><td>BUSY</td></tr>
<tr><td>7. Receive buffer full</td><td>BUSY</td><td>BUSY</td></tr>
</table>
b) X-ON/X-OFF mode
Always set to SPACE, except during the following conditions
1. After a reset, until communication is enabled
2. During test printing</td></tr>
<tr><td>21-24</td><td>N.C</td><td></td><td>Not used</td></tr>
<tr><td>25</td><td>INIT</td><td>IN</td><td>1) DIPSW3-8 = OFF
Status of this signal is not checked.
2) DIPSW3-8 = ON
Functions as an external reset signal. A space signal with a pulse width of 1 ms or longer resets the printer.</td></tr>
</table>



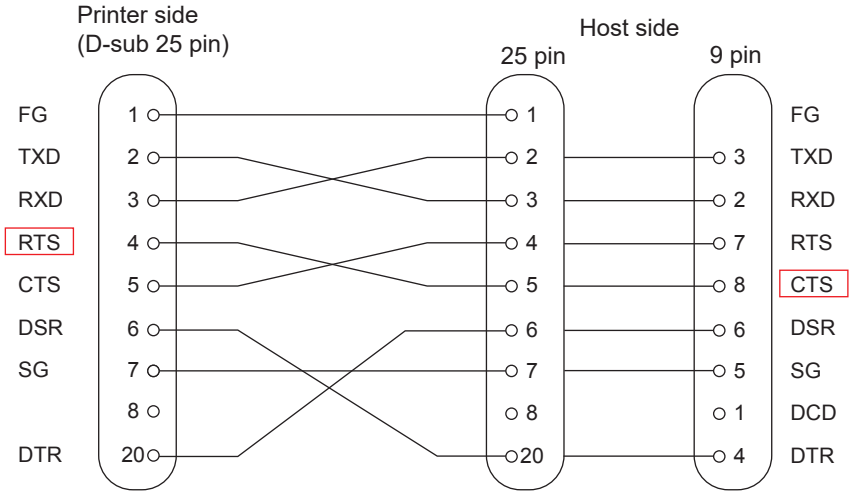
D-sub 25 pin

14-3. Cable Connections

Refer to the host computer's interface specifications, and connect the interfaces.
Typical connections (for hardware flow control) are shown below.



■ When using an RS-232C cable (reverse type) sold commercially



* In general, windows PCs that have serial interfaces receive printer's hardware flow control signal (DTR) through the CTS pin. But cables sold commercially connect the PC's CTS pin to the printer's RTS pin. Therefore, when using a cable sold commercially, we recommend the transmission method be changed to Xon/Xoff protocol mode.

Note: Use inch screws for the connector fixing screws.

15. USB and PoweredUSB Interface

15-1. USB and PoweredUSB Interface Specifications

(1) USB function

General specifications: Conforms to USB 2.0

Data rate: USB full speed mode (12 Mbps)

Transmission method: USB bulk transmission mode

Power supply: Self-powered

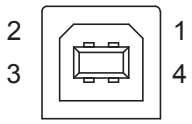
(2) Connector: USB: USB up-stream port connector (USB Type-B)
PoweredUSB: 1 × 8 right-angle type

15-2. Connector and Signal Name

Type B connector

DUSB-BRA42-T11(D2)-FA (manufacturer: DDK)

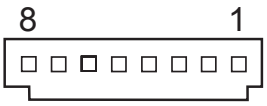
Pin number	Signal name	Function
1	VBUS	USB Power pin (+5 V DC)
2	D-	Serial Data-
3	D+	Serial Data+
4	GND	Signal ground



PoweredUSB port

69913-104LF (manufacturer: FCI)

Pin number	Signal name	Function
1	F-GND	Frame ground
2	+24 V	+24 V DC
3	GND	Signal ground
4	D+	Serial Data+
5	D-	Serial Data-
6	VBUS	USB Power pin (+5 V DC)
7	+24 V	+24 V DC
8	F-GND	Frame ground



16. Ethernet Interface Specifications

(1) Communication specifications

General specifications:	Conforms to IEEE802.3
Communication media:	10Base-T and 100Base-TX
Data rate:	10 Mbps and 100 Mbps
Protocol:	TCP/IP
TCP/IP protocols:	ARP, RARP, BOOTP, DHCP, LPR, #9100, HTTP, TELNET, FTP, TFTP

(2) Connector: RJ-45 (8-pin modular)

Note: Factory-set login password for administrator

HTTP (Web), Telnet, or FTP protocol is used when you change the printer settings. To change the settings, you must log into the printer using an administrator account.

The administrator account login information for HTTP (Web), Telnet, and FTP are shown below.

Administrator account name	“root” (required)
Password	“public” (required)

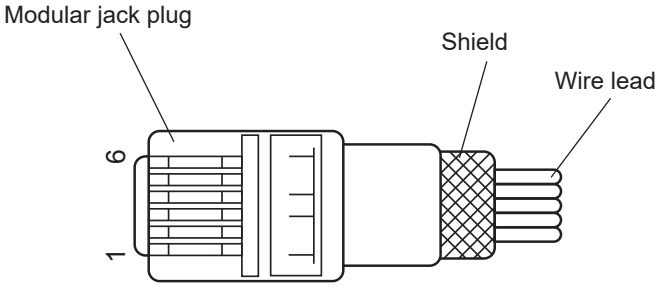
* You can change the password after logging in.

17. Peripheral Drive Circuit

This printer is equipped with a circuit for driving peripheral devices such as cash drawers.
There is a peripheral drive connector (6-pin modular plug) at the drive circuit output. To use the drive circuit, connect a cable to this connector (the cable is not included in the package).

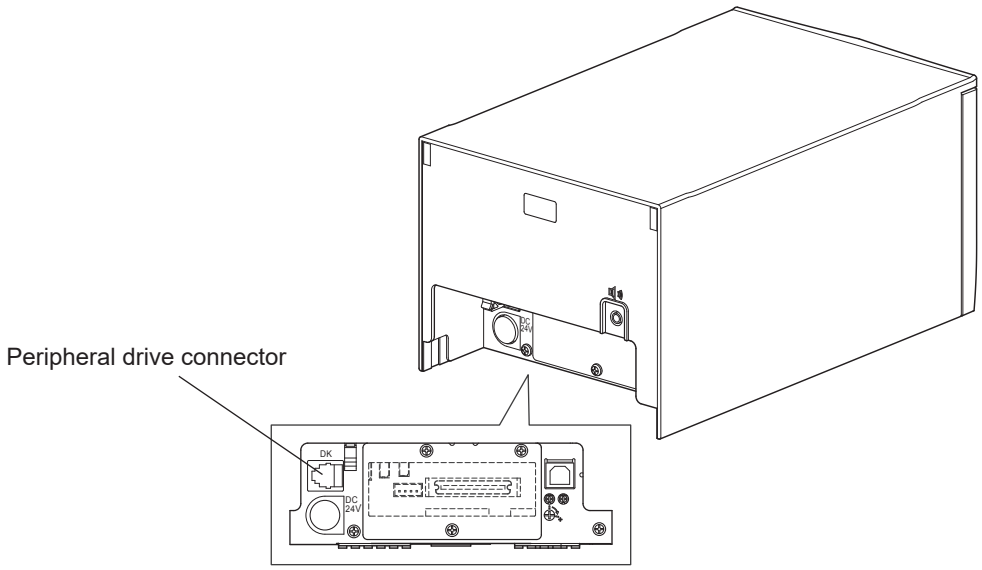
The recommended cable specifications are indicated below.

Recommended cable specifications

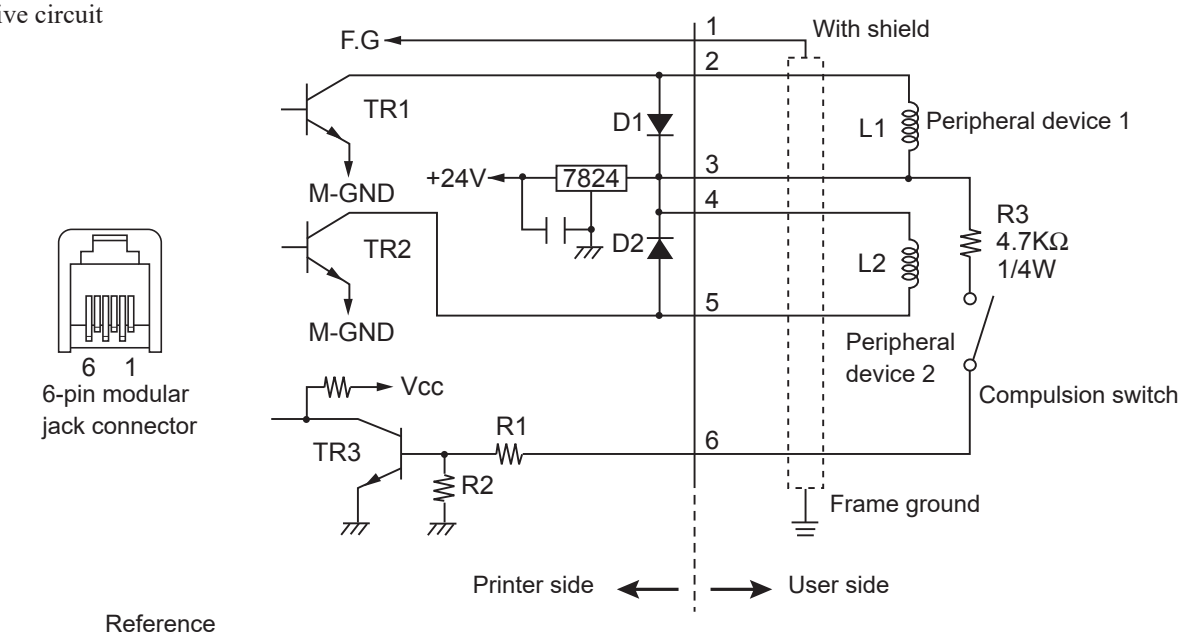


Manufacturer	Model
MOLEX	90075-0007
AMP	641337
FCI	B-66-4

Note: Connect a shielded wire to pin 1 (frame ground).

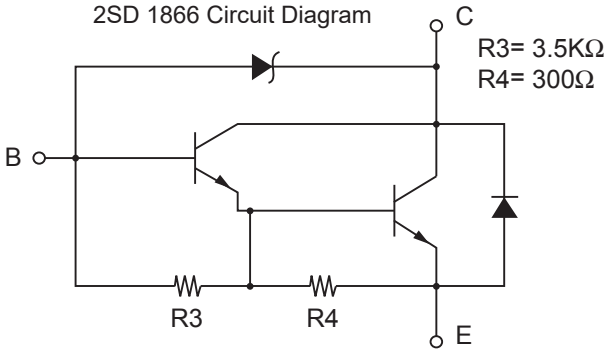


Drive circuit



Reference

2SD 1866 Circuit Diagram



Drive output	24 V, 1.0 A max.

TR1, 2: 2SD 1866 or equivalent

R1 = 10 kΩ

R2 = 33 kΩ

Handling Precautions

1) Peripheral devices 1 and 2 cannot be driven simultaneously.
2) To continuously drive the peripheral device, keep the duty cycle less than or equal to 20%.
3) If you connect a cash drawer or similar device, be sure not to set bit 2 of memory switch #7 to 1. Doing so may damage the connected device and the drive circuit.
4) You can use the status command to query the compulsion switch state.*
5) Minimum resistance for coils L1 and L2 is 24 Ω.
6) Absolute maximum rating of diodes D1 and D2 (Ta = 25°C)
   Average rectified current I_o = 1.0 A
7) Absolute maximum rating for transistors TR1 and TR2 (Ta = 25°C)
   Collector current I_C = 2.0 A

* For details of commands, see the separate Programmer's Manual.
http://www.star-m.jp/eng/dl/dl02.htm

18. Memory Switch Settings

On each printer model, the memory switches are factory-set to their appropriate settings.
Note that the printer may not operate properly depending on how you specify these settings.

The table below shows the factory settings.

Memory switch	Hexadecimal code
#0	0000
#1	0000
#2	0000
#3	0000
#4	0000
#5	0000
#6	0000
#7	0000
#8	0000
#9	0000

⚠ WARNING

Changing the memory switch settings can cause the printer to fail to operate correctly.

English:	Hereby, STAR MICRONICS CO.,LTD. declares that this Wireless Device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Deutsch: [German]	Hiermit erklärt STAR MICRONICS CO.,LTD., dass sich das Gerät Wireless Device in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
Svenska: [Swedish]	Härmed intygar STAR MICRONICS CO.,LTD. att denna Wireless Device står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.
Español: [Spanish]	Por medio de la presente STAR MICRONICS CO.,LTD. declara que el Wireless Device cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Português: [Portuguese]	STAR MICRONICS CO.,LTD. declara que este Wireless Device está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Français: [French]	Par la présente STAR MICRONICS CO.,LTD. déclare que l'appareil Wireless Device est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
Suomi: [Finnish]	STAR MICRONICS CO.,LTD. vakuuttaa täten että Wireless Device tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Italiano: [Italian]	Con la presente STAR MICRONICS CO.,LTD. dichiara che questo Wireless Device è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Dansk: [Danish]	Undertegnede STAR MICRONICS CO.,LTD. erklærer herved, at følgende udstyr Wireless Device overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
Nederlands: [Dutch]	Hierbij verklaart STAR MICRONICS CO.,LTD. dat het toestel Wireless Device in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
Eesti: [Estonian]	Käesolevaga kinnitab STAR MICRONICS CO.,LTD. seadme Wireless Device vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
Ελληνική: [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ STAR MICRONICS CO.,LTD. ΔΗΛΩΝΕΙ ΟΤΙ Wireless Device ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
Slovensky: [Slovak]	STAR MICRONICS CO.,LTD. týmto vyhlasuje, že Wireless Device spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Slovensko: [Slovenian]	STAR MICRONICS CO.,LTD. izjavlja, da je ta Wireless Device v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Česky: [Czech]	STAR MICRONICS CO.,LTD. tímto prohlašuje, že tento Wireless Device je ve shodě se základními požadavky a dalšími příslušnými ustanoveními smernice 1999/5/ES.
Magyar: [Hungarian]	Alulírott, STAR MICRONICS CO.,LTD. nyilatkozom, hogy a Wireless Device megfelel a vonatkozó alapvetõ követelményeknek és az 1999/5/EK irányelv egyéb elõírásainak.
Български: [Bulgarian]	това Безжично устройство е в съответствие със задължителните изисквания и другите приложими разпоредби на Директива 1999/5/ЕО.
Polski: [Polish]	Niniejszym STAR MICRONICS CO.,LTD. oświadcza, że Wireless Device jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/WE.
Malti: [Maltese]	Hawnhekk, STAR MICRONICS CO.,LTD., jiddikjara li dan Wireless Device jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/KE.
Latviski: [Latvian]	Ar šo STAR MICRONICS CO.,LTD. deklarē, ka Wireless Device atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių : [Lithuanian]	Šiuo STAR MICRONICS CO.,LTD. deklaruoja, kad šis Wireless Device atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Norsk : [Norwegian]	STAR MICRONICS CO.,LTD. erklærer herved at utstyret Wireless Device er i samsvar med de grunnleggende krav og øvrige relevante krav i direktiv 1999/5/EF.
Română : [Romanian]	Prin prezenta STAR MICRONICS CO., LTD. declară că acest dispozitiv este conform cu cerinţele esenţiale şi alte prevederi relevante ale directivei 1999/5/CE.
Hrvatski : [Croatian]	Ovime Star Micronics CO., LTD. Izjavljuje da je bežični uređaj u skladu s osnovnim zahtjevima i drugim važnim odredbama direktive 1999/5/EZ.

Italia: l'uso pubblico è soggetto ad autorizzazione generale da parte del rispettivo provider di servizi.

Norge: Dette avsnittet gjelder ikke det geografiske området innenfor en radius på 20 km fra sentrum av Ny-Ålesund.

This statement will be applied only for the printers marketed in Europe.

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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:

1999/5/EC
2014/30/EU
2014/35/EU
2011/65/EU , 2015/863

harmonised standard

RADIO :	**EN 300 328 V1.9.1:2015**
EMC :	**EN 301 489-1 V1.9.2:2011**
	EN 301 489-17 V2.2.1:2012
	EN 55032:2012 Class B (CISPR 32:ed1.0-2012)
	EN 61000-3-2:2014 (IEC 61000-3-2:2014)
	EN 61000-3-3:2013 (IEC 61000-3-3:2013)
	EN 55024:2010 (CISPR 24:ed2.0-2010)
SAFETY :	**EN 60950-1:2006 / A2:2013**
	EN 62311:2008
	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	**FVP10**
Ref. Radio Report No.	**F161591E1, F161591E2**
Ref. EMC Report No.	**F111592E1 , 92-157-EMC , 91-116-EMC , 90-064-EMC**
Ref. Safety Cert. No.	**91-116-Safety , 73526631 Rev.0,1,2 , S161188E1**
Ref. Environ. Report No.	**FVP10-RoHS-02**

Place **High Wycombe - U.K.** D. Pearce (Signature)

Date **24-02-2017** **David Pearce** (Full Name)

Year of 1st CE mark **'10** **Technical Director** (Position)

URL: http://www.star-m.jp/eng

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