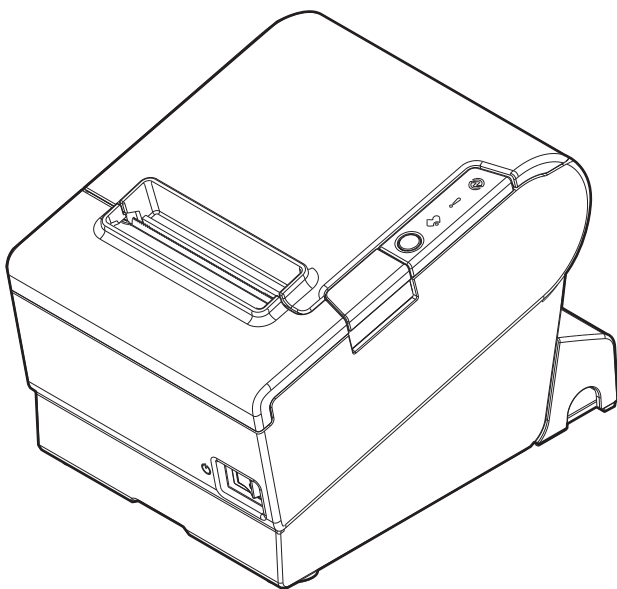


TM-T88VI-iHUB

Technical Reference Guide



Product Overview

Describes features of the product.

Setup

Describes setup and installation of the product and peripherals.

Advanced Usage

Describes advanced usage methods for the product.

Application Development Information

Describes how to control the printer and necessary information when you develop applications.

Handling

Describes how to handle the product.

Replacement of the TM-T88V-i

Describes precautions for replacement.

Appendix

Describes general specifications and character code tables.

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Epson ESC/POS is a proprietary POS printer command system that includes patented or patent-pending commands. ESC/POS is compatible with most Epson POS printers and displays.



ESC/POS is designed to reduce the processing load on the host computer in POS environments. It comprises a set of highly functional and efficient commands and also offers the flexibility to easily make future upgrades.

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For Safety

Key to Symbols

The symbols in this manual are identified by their level of importance, as defined below. Read the following carefully before handling the product.

 WARNING	You must follow warnings carefully to avoid serious bodily injury.
 CAUTION	Provides information that must be observed to prevent damage to the equipment or loss of data. <ul style="list-style-type: none">• Possibility of sustaining physical injuries.• Possibility of causing physical damage.• Possibility of causing information loss.
CAUTION	Provides information that must be observed to avoid damage to your equipment or a malfunction.
NOTE	Provides important information and useful tips.

Warnings

 WARNING	<p>In the following cases, immediately unplug the AC cable and contact your dealer or a Seiko Epson service center for advice. Continued use may lead to fire or electric shock.</p> <ul style="list-style-type: none">• If the product emits smoke, a strange odor, or unusual noises.• If water or other liquid spills into the product.• If the product is too hot to touch or the case is deformed. <p>Note the following points to avoid accidents such as fire, electric shock, or burn.</p> <ul style="list-style-type: none">• Do not use this product where flammable fumes from gasoline, benzene, thinner, or other flammable liquids may be in the air.• Do not use aerosol sprayers containing flammable gas inside or around the product.• Do not cover the product with cloth, or place the product in locations subject to high levels of humidity or dust.• Do not allow foreign objects or flammable objects to fall into the equipment.• Do not touch the inside of the product except where mentioned in the manual.• Do not use the product with any power supply or voltage other than the ones specified.• Do not connect cables in ways other than those mentioned in the manual.• Never disassemble or modify the product.• Do not use the power plug if there is dust or foreign matter attached.• Do not bend, twist, pull with excessive force, or place heavy object on the power cable.• Do not use the cables if they are damaged.• Do not place multiple loads on the power outlet (wall outlet).• Never insert or disconnect the power plug with wet hands.
---	--

Cautions



Note the following points to avoid injury or malfunction.

- Setup the product on a firm, stable, horizontal surface.
- Do not place heavy objects on top of the product. Never stand or lean on the product.
- Do not press your hands or fingers against the cutter when removing printed paper or loading/replacing roll paper.
- Do not put your hands between the cover and the body of the product when opening/closing the cover.
- Never attempt to repair the product yourself.
- Do not connect a telephone line to the drawer kick connector.

To ensure safety, unplug this product before leaving it unused for an extended period.

Caution Labels

The caution labels on the product indicate the following precautions.



Do not touch the thermal head and the frame on its side because it can be very hot after printing.



Touching the manual cutter may cause injury.

Restriction of Use

When this product is used for applications requiring high reliability/safety, such as transportation devices related to aviation, rail, marine, automotive, etc.; disaster prevention devices; various safety devices, etc.; or functional/precision devices, etc., you should use this product only after giving consideration to including fail-safes and redundancies into your design to maintain safety and total system reliability. Because this product was not intended for use in applications requiring extremely high reliability/safety, such as aerospace equipment, main communication equipment, nuclear power control equipment, or medical equipment related to direct medical care, etc., please make your own judgment on this product's suitability after a full evaluation.

Note about interference

- This product 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.
- If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
 - Reorient or relocate the receiving antenna for the radio/TV.
 - Increase the separation between the equipment and the radio/TV.
 - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
 - Consult your dealer or an experienced radio/TV technician for help.
- Never disassemble or modify this product.
- Seiko Epson Corporation shall not be liable for interference to radio/TV resulting from changes or modifications to this product not expressly approved by Seiko Epson Corporation.

Open Source Software License

This product uses open source software in addition to Epson proprietary software.

For information of the open source software used in this product, see the following URL.

<http://xxx.xxx.xxx.xxx/webconfig/licenses.html>

For “xxx.xxx.xxx.xxx” in the above URL, input your printer’s IP address.

About this Manual

Aim of the Manual

This manual provides developers/engineers with all the necessary information for design, development and installation of a POS system, and also design and development of a printer application.

Manual Content

The manual is made up of the following sections:

Chapter 1	Product Overview
Chapter 2	Setup
Chapter 3	Advanced Usage
Chapter 4	Application Development Information
Chapter 5	Handling
Chapter 6	Replacement of the TM-T88V-i
Appendix	Product Specifications Specifications of Interfaces Bluetooth Low Energy Technology Advertising Character Code Tables

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Product Overview

This chapter describes features of the product.

Features

Printing

- High speed printing (350 mm/s maximum).
- Shifting from 80 mm width paper printing to 58 mm width paper printing is available.
- Multi-tone graphic printing.

Handling

- Easy drop-in paper loading

Software

- TM-Intelligent functions are available.
 - Equipped with USB and serial interface which enable connection with peripheral devices such as a customer display and barcode scanner.
 - Supports Server Direct Print that sends a request for print data from the product to the Web server at regular intervals.
 - Since print data can be saved in the spooler, applications can be released from processing print jobs regardless of the printer status.
 - When a network printer is registered, print forwarding process can be realized. Also, if the printer is not ready to print, you can print from another printer.
 - Supports Device Data Notification function that enables your application on a Web server to start upon input of data from a peripheral device such as a barcode scanner.
 - Equipped with Web server that supports the scripting language "PHP" and database "SQLite3".
- Epson ePOS SDK is available. You can develop an application that runs on iOS, Android, Windows, or that runs in a Web browser (Web application).
- Command protocol is based on the ESC/POS Proprietary Command System.
- OPOS ADK, OPOS ADK for .NET, JavaPOS ADK, and Windows printer drivers (APD) are available.
- A maintenance counter function is supported.
- Various utility software are provided.
- A utility for iOS/Android™ (Epson TM Utility for iOS/Android) for making printer settings is also provided.

Environment

- Compliant with International ENERGY STAR Program.
- Paper saving function is available.

Functions

- NFC tag built into the printer unit for printing to a touched printer.
- Printing triggered by bar code scan by smart device camera.
- Supports printing using multiple interfaces.
- Enables HTTPS communication.
- Supports TLS1.2.

Others

- Optional Wireless LAN cable set, customer display, and external buzzer are available.
- The TM-T88VI Software & Documents Disc containing drivers, utility, and manuals is available.
 - * It may not be supplied depending on the model.

Product Configurations

Models

- Standard model: Ethernet interface, USB interface
- Wi-Fi[®] model: Ethernet interface, USB interface, Wireless LAN interface

Accessories

Included

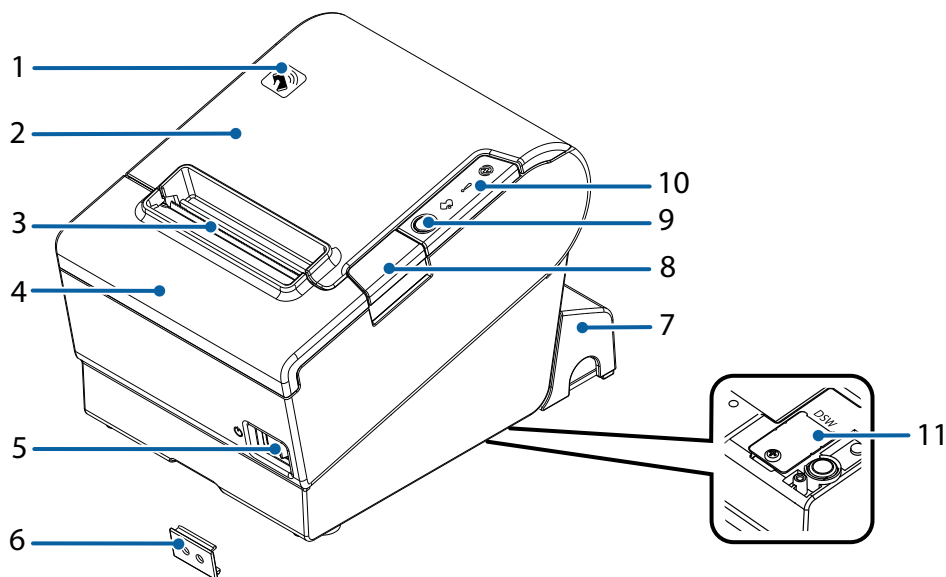
- Roll paper (for operation check)
- Power switch cover
- Connector cover
- Bottom cover for Connector cover
- Roll paper guide
- Screws
- Cable lock band
- TM-T88VI Software & Documents Disc (drivers, utilities, and documentation) *
- AC adapter*
- AC cable*
- Warranty certificate*
- Start Here



* May not be included depending on the model.

Options

- Optional external buzzer (Model: OT-BZ20)
- Wireless LAN cable set (Model: OT-WLxx)
- Customer display (Model: DM-D30, DM-D110, DM-D210)

Part Names and Functions



1	NFC Tag	<p>A mark is printed here to indicate the position of the NFC tag. To establish communication with an NFC device, bring the device close to this mark. For details on functions that use the NFC tag, refer to "Useful Functions for Smart Devices" on page 26.</p> <ul style="list-style-type: none"> • There is no data rewriting function. • Use Epson ePOS SDK to build this function into your application.
2	Roll paper cover	Open this cover to install/replace the roll paper.
3	Manual cutter	Use this cutter when you cut the roll paper manually.
4	Cutter cover	Open this cover to unlock the autocutter blade when the roll paper cover does not open due to a paper jam.
5	 Power switch	Turns the printer on or off.
6	Power switch cover	<p>Install the power switch cover onto the printer to prevent inadvertent changing of the power switch, to prevent tampering, and to improve the appearance of the printer.</p> <p>To operate the power switch, insert an object with a pointed tip such as a ballpoint pen into the hole on the power switch cover.</p> <p>For attaching the power switch cover, refer "Attaching the Power Switch Cover" on page 50.</p>
7	Connector cover	Use the printer with this cover attached to protect cables.
8	Cover open button	Use this button to open the roll paper cover.
9	 Feed button	Pressing this button once feeds roll paper for one line. Hold down this button to continue feeding roll paper.
10	Control Panel	For details on LED, see "Control Panel" on page 17 .
11	Dip switch cover	Open the cover to view the dip switches for settings.

Control Panel

Power LED

- Lights when the power supply is on.
- Off when the power supply is off.
- Flashes during the network to start up, when waiting for power off, or updating firmware.

CAUTION

Do not turn on by using the power switch while waiting for the power to turn off (when the Power LED is flashing). Otherwise, it may not startup correctly.

Error LED

- Lights or flashes when an error occurs. (For information about the flashing patterns, see "[Status and Errors](#)" on page 20.)
- Lights after the power is turned on or after a reset (offline). Automatically goes out after a while to indicate that the printer is ready.
- Off when the printer is in standard mode (online).

Paper LED

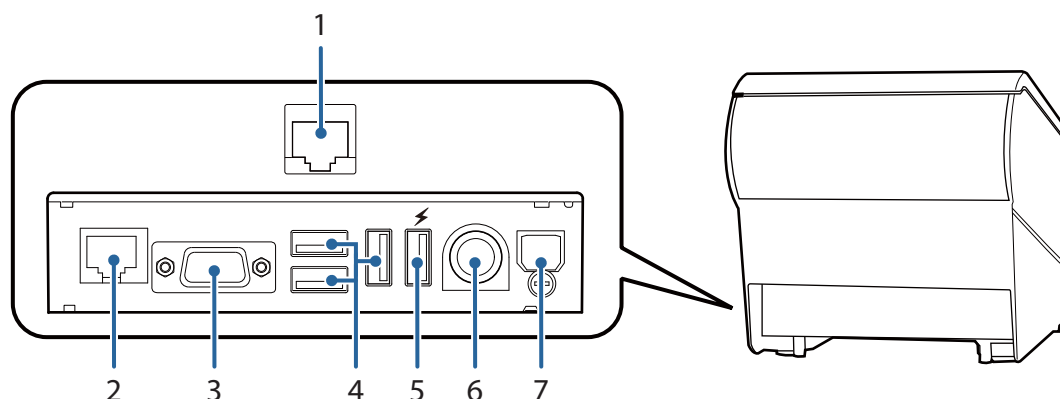
- Lights when the roll paper is out.
- Flashes to urge user to operate the Feed button.

Interfaces

All interfaces are located on the lower rear of the printer.

CAUTION

Do not insert a Type-B USB connector into the Ethernet port or the drawer kick connector. If it is inserted, the port, printer, and the system may malfunction.



1	Drawer kick connector	Connects the cash drawer or the optional external buzzer. See "Connecting the Cash Drawer" on page 40, and "Connecting the Optional External Buzzer" on page 42.
2	Ethernet port	Connects the 10BASE-T/100BASE-TX ethernet cable.
3	Serial port	Use only for connecting external devices.
4	USB port (Type A)	Use only for connecting external devices. CAUTION: It may be hard to disconnect some types of USB cable. Do not forcibly pull the cable, or the USB port and USB cable may be damaged. Contact your dealer if you encounter the trouble.
5	USB port with charging function	Connects a USB cable for connecting to an external USB device, or for charging a connected smart device or USB device. By using the setting utilities, you can configure whether to use the port for connecting a device or charging a device. CAUTION: <ul style="list-style-type: none"> • It may be hard to disconnect some types of USB cable. Do not forcibly pull the cable, or the USB port and USB cable may be damaged. Contact your dealer if you encounter the trouble. • Make sure you use the genuine cable for the tablet, smartphone, or USB device you are using. • Depending on how the device is being used, it may not charge to 100%. • It may take a few seconds before charging starts as the device searches for the most suitable amperage. • Charging may not be performed depending on the device's charging specifications. • Charging stops if it exceeds the rating for the USB port.
6	Power supply connector	Connect the AC adapter. See "Connecting the AC adapter" on page 34.
7	USB port (Type B)	Connects the USB cable for connecting to a computer. See "Connecting the Printer to the Host" on page 35.

Online and Offline

Online

The printer is online and ready for normal printing unless there is a reason to go offline.

Offline

The printer automatically goes offline under the following conditions:

- While the printer power is turning on/off
- While a self-test is running
- While roll paper is fed using the Feed button
- When the printer stops printing due to a paper end (when the paper out detector detected the paper out)
- During an operation standby state
- When an error has occurred (See "[Status and Errors](#)" on page 20)
- While the roll paper cover is open

Status and Errors

Error Status

There are three possible error types: automatically recoverable errors, recoverable errors, and unrecoverable errors.

Automatically Recoverable Errors

Printing is no longer possible when automatically recoverable errors occur. They can be recovered easily, as described below.

Error	Error description	Error LED flash code	Recovery measure
Roll paper cover open error	The roll paper cover was opened during printing.	<p>LED ON → LED OFF → Approx. 320 ms → ←</p>	Recovers automatically when the roll paper cover is closed.
Print head temperature error	A high temperature outside the head drive operating range was detected.	<p>LED ON → LED OFF → Approx. 320 ms → ←</p>	Recovers automatically when the print head cools.
TM-Intelligent function error	Cannot connect to the server.	<p>Error LED OFF Power LED ON → LED OFF → Approx. 160 ms → ← Approx. 5120 ms → ←</p>	Recovers automatically when the printer settings are corrected.

Recoverable Errors

Printing is no longer possible when recoverable errors occur. They can be recovered easily by turning the power on again or sending an error recovery command from the driver after eliminating the cause of the error.


Error	Error description	Error LED flash code	Recovery measure
Autocutter error	Autocutter does not work correctly.	<p>LED ON → LED OFF → Approx. 320 ms → ← Approx. 5120 ms → ←</p>	Remove the jammed paper or foreign matter in the printer, close the roll paper cover, send the error recovery command, or turn the power on to recover.

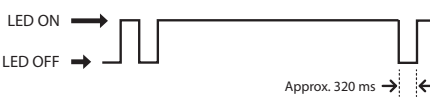
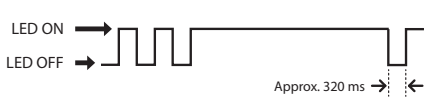


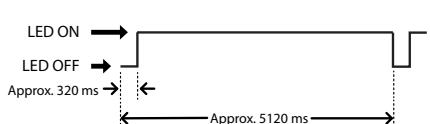
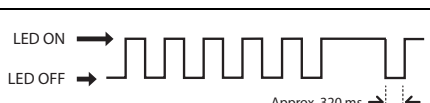
CAUTION

The error recovery command is valid only if a recoverable error (excluding automatically recoverable errors) occurs.

Unrecoverable Errors

Printing is no longer possible when unrecoverable errors occur. The printer must be repaired.

 CAUTION	Turn off the power immediately when unrecoverable errors occur.
---	---

Error	Error description	Error LED flash code
Memory R/W error	After R/W checking, the printer does not work correctly.	
High voltage error	The power supply voltage is extremely high.	
Low voltage error	The power supply voltage is extremely low.	
CPU execution error	The CPU is executing an incorrect address.	
Internal circuit connection error	Internal circuits are not connected correctly.	
Communication unit error	An error has occurred in the communication unit.	

Status Display

	Power LED	Error LED	Paper LED
Online	ON	OFF	OFF
Initializing after restarting	ON	ON	-
Running a self-test	ON	OFF	-
Waiting to continue self-test	ON	OFF	Flashing
Feeding using the Feed button	ON	OFF	-
Waiting to execute a macro	ON	OFF	Flashing
Roll paper cover open during error printing	ON	ON	-
No paper	ON	ON	ON

	Power LED	Error LED	Paper LED
Paper near end	ON	OFF	ON
While updating firmware	Flashing	OFF	OFF
Power off standing by	Flashing	OFF	OFF
Waiting to print status sheet	ON	ON	Flashing

-: Changes depending on whether or not paper is detected.

NV Memory

The printer's NV memory (Non-Volatile Memory) stores data even after the printer power is turned off. NV memory contains the following memory areas for the user:

- NV graphics memory
- User NV memory
- Memory switches
- R/E (Receipt Enhancement)
- Maintenance counter
- Web contents



NV memory can be rewritten about 100,000 times. As a guide, NV memory rewriting should be 10 times or less a day when you program applications.

NV Graphics Memory

Graphics, such as shop logos to be printed on receipts, can be stored.

Use the Setup Utilities to register graphics.

You can confirm the registered graphics in the NV graphics information print mode.

NOTE

- For detailed information about the Epson TM-T88VI Utility for Windows, see the TM-T88VI Utility User's Manual.
- For information about how to use the NV graphics information print mode, see "[NV Graphics Information Print Mode](#)" on page 71.

User NV Memory

You can store and read text data for multiple purposes, such as for storing a note including customizing or maintenance information of the printer.

Memory Switches

With the memory switches, which are software switches for the printer, you can configure various settings of the printer. For information about the memory switch, see "[Software Settings](#)" on page 57.

R/E (Receipt Enhancement)

Graphics, such as shop logos to be printed on top or bottom of receipts can be registered.

Use the Setup Utilities to register graphics.

Maintenance Counter

With this function, printer information, such as the number of lines printed, the number of autcuts, and printer operation time after the printer starts working, is automatically stored in NV memory.

NOTE

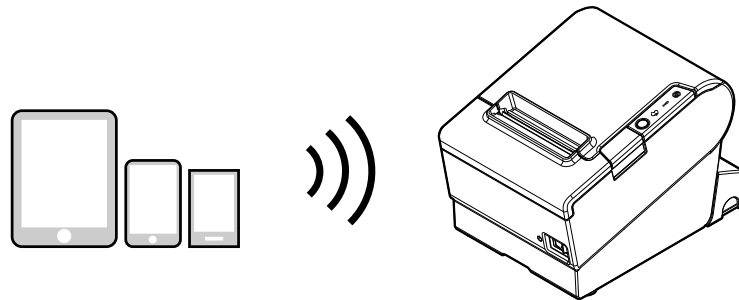
You can also check the head running length and number of times of autcutting with the self-test (see ["Self-test Mode" on page 71](#)).

Web contents

The region for Web servers.

Simple Setup for Wireless LAN

This printer comes with a mode (SimpleAP) that allows printers to connect with a smart device or a computer without requiring a wireless access point. This allows you to easily setup a wireless LAN for the printer by using a printer settings tool (Epson TM Utility for iOS/Android or EpsonNet Config) even without a network environment such as access points.

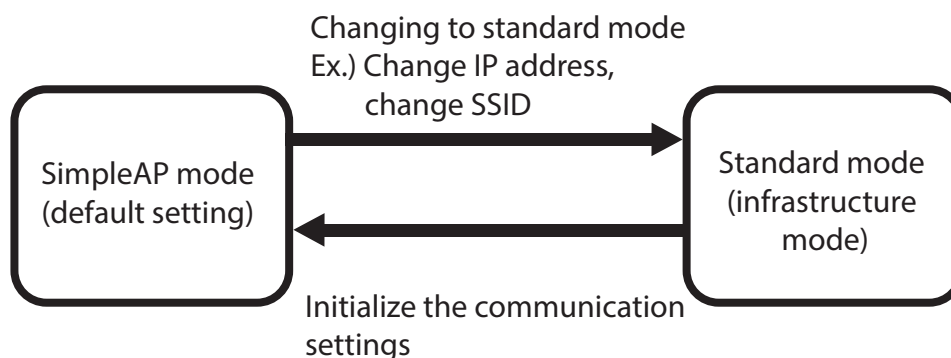


SimpleAP mode is enabled by default when shipping from the factory. When SimpleAP mode is enabled and the printer is turned on, the following information is printed automatically.

```
SimpleAP Start
SSID       : EPSON_Printer
Encryption Type : WPA-2-PSK
Passphrase  : 12345678

IP Address   : 192.168.192.168
MAC Address  : xx-xx-xx-xx-xx-xx
```

Although operations are performed in SimpleAP mode during the initial startup, operations switch to standard mode (infrastructure mode) when changing settings in Epson TM-T88VI Utility for Windows or EpsonNet Config. After switching, operations continue in standard mode. If you want to make settings in SimpleAP mode again, initialize the communication settings.



* You can also set as standard mode (Adhoc mode)

Useful Functions for Smart Devices

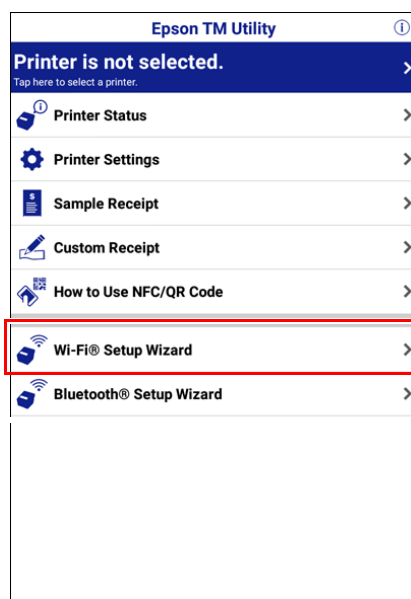
The Epson TM Utility for iOS/Android app provides useful functions for iOS and Android smart devices.

NOTE

You can download the Epson TM Utility for iOS/Android from Google Play™ or the App Store.

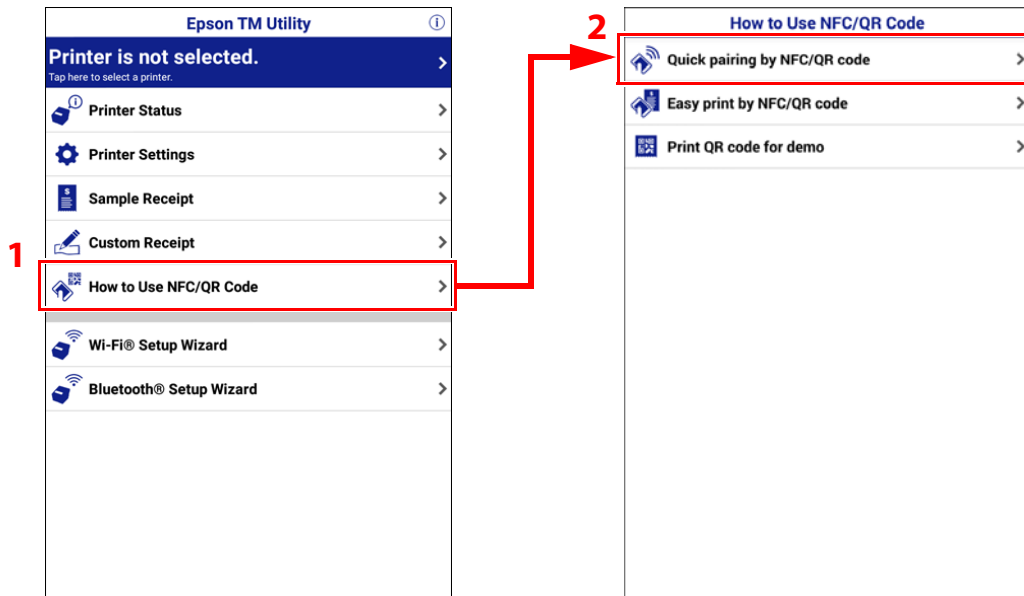
Wizard Guidance

The wizard provided allows you to easily connect to smart devices.



Quick pairing by NFC/QR code

Touch your device to the NFC tag built-in to the printer, or capture the QR code with the camera on your smart device to select the printer.

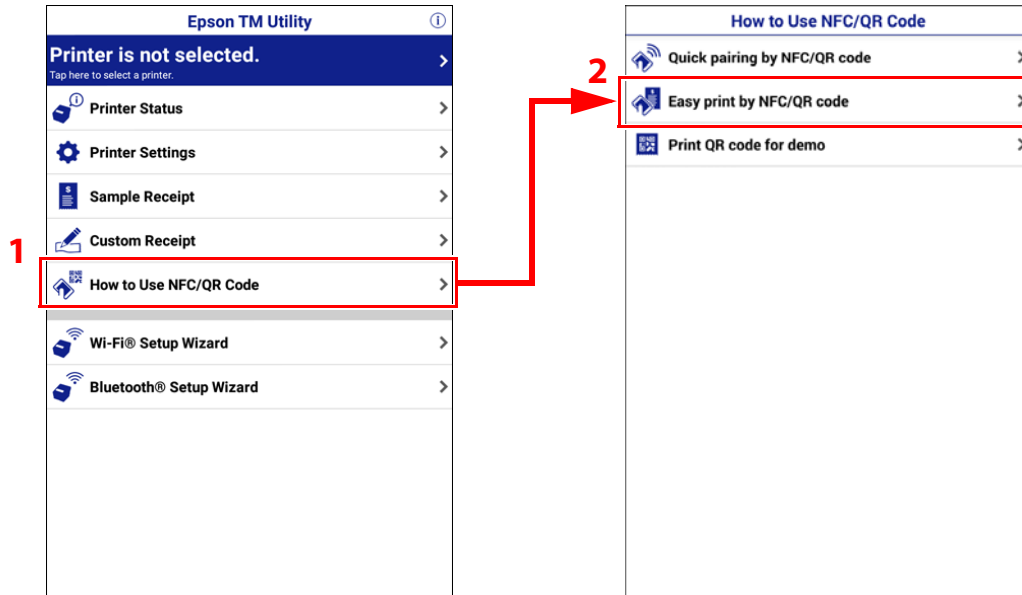


NOTE

- Use Epson ePOS SDK to build this function into your application. By using the Printer Easy Select API, you can acquire the printer information necessary for printing (device name, interface, and address) from the NFC or QR code data. See the "Epson ePOS SDK for Android/iOS User's Manual" and the Epson ePOS SDK sample program for more details. The sample program also contains a sample implementation method for reading an NFC tag and capturing a QR code.
- You can try a demo of this function in Epson TM Utility for iOS/Android.

Easy print by NFC/QR code

Touch your device to the NFC tag built-into the printer, or capture the QR code with the camera on your smart device to start printing.

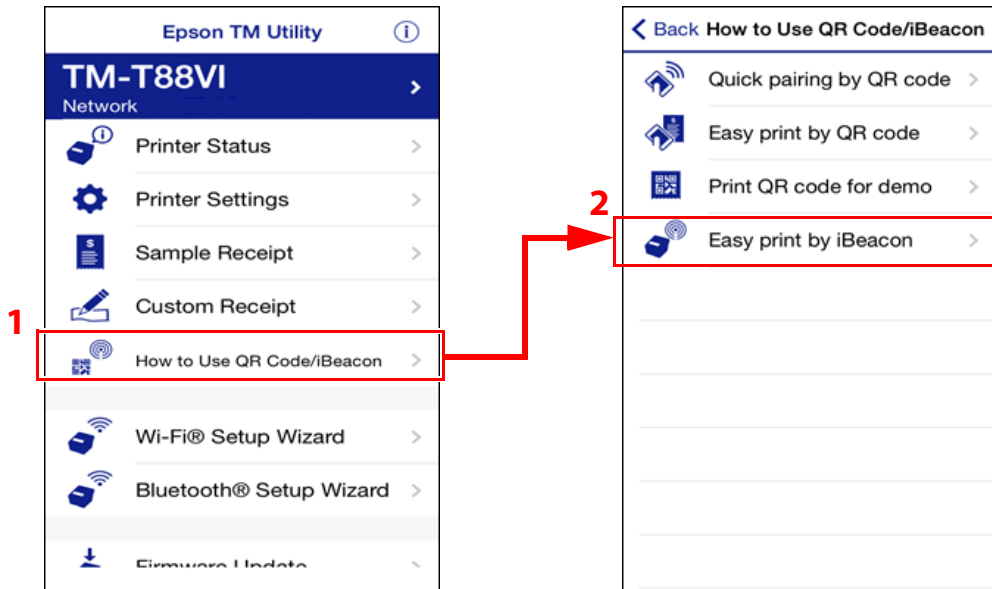


NOTE

- Use Epson ePOS SDK to build this function into your application. This function is created by combining NFC touch and QR code capturing operations, the target printer specifications using Printer Easy Select API, and the print job. See the "Epson ePOS SDK for Android/iOS User's Manual" and the Epson ePOS SDK sample program for more details. The sample program also contains a sample implementation method for reading an NFC tag and capturing a QR code.
- You can try a demo of this function in Epson TM Utility for iOS/Android.

Printing using iBeacon (available from iOS only)

If the TM-T88VI-iHUB printers are equipped with the iBeacon-compatible Bluetooth adapter (USB dongle), you can print from the nearest one.



NOTE

- To implement this function in your application, use Epson ePOS SDK. All you need to do is specifying the target printer by using Beacon information and the EasySelect API that allows you to easily select the printer, then adding a print process. For more details, refer to "Epson ePOS SDK for iOS User's Manual" and sample programs of Epson ePOS SDK.
- Demonstration of this function is available with Epson TM Utility for iOS Ver.3.4.0 or later.

Printing Using Multiple Interfaces

You can use all interfaces without any limitations on which interface is to be used. You can use this function to temporarily connect a smart device to a nearby printer and print.

The printer provides each interface with an independent receive buffer and switches the active interface depending on the priority, while handling data in each receive buffer.

You can set one interface for the main connection. Data received from the main connection interface is handled with the highest priority.

By default, the interface that receives the first data transfer is set as the main connection interface; however, you can select the main connection interface in advance.

In the status where all receive buffers are empty for more than the set time (1 second by default), interface switching is enabled. The interface that receives the data in this status becomes active.

CAUTION

You cannot use wired and wireless LANs at the same time. When a LAN cable is connected, wireless LAN is disabled.

NOTE

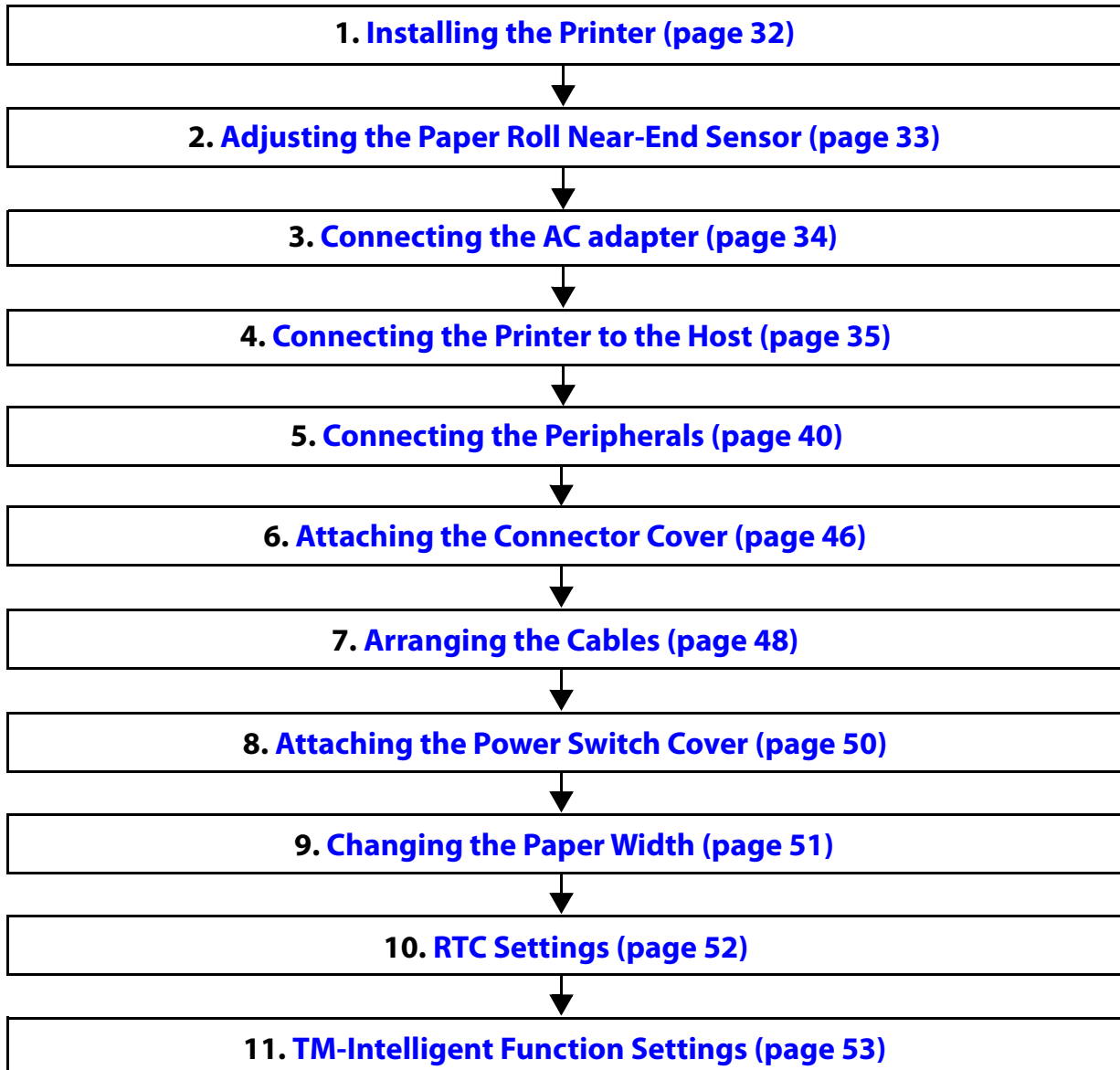
You can select the main connection interface and set the time to enable interface switching from the software settings. For details on software settings, see "[Software Settings](#)" on page 57.

Setup

This chapter describes setup and installation of the product and peripherals.

Flow of Setup

This chapter consists of the following sections along with the setup flow of the product and peripherals.



Installing the Printer

Important Notes on Installation

- The printer must be installed horizontally on a flat surface (not tilted).
- Do not place the printer in dusty locations.
- Do not catch cables or place foreign matter under the printer.

Adjusting the Paper Roll Near-End Sensor

Below are two situations where a roll paper NE sensor adjustment is required.

- To adjust the detection position to suit the diameter of the roll paper core used.
- To adjust the detection position of remaining amount of paper.

CAUTION

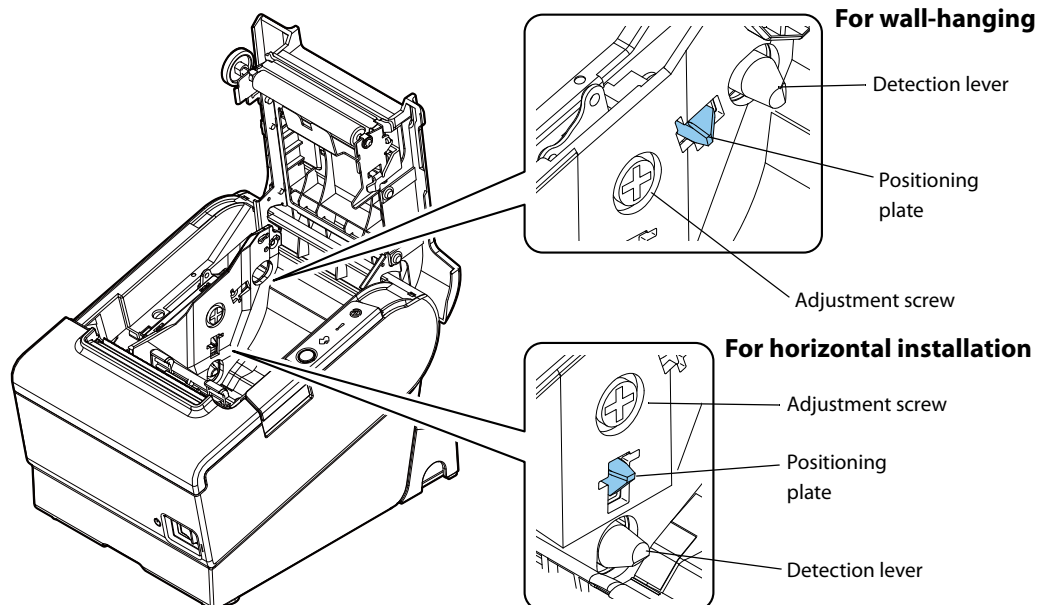
- Since roll paper cores vary slightly in shape, depending on paper roll design and manufacturing tolerances, it is impossible to detect the remaining paper exactly.
- Use roll paper with a core inner diameter of 12 mm {0.47"} and outer diameter of 18 mm {0.71"} so that the NE sensor can detect the remaining paper as accurately as possible.

Follow the steps below to adjust the roll paper near-end detector.

- 1 Open the roll paper cover, and remove the roll paper.
- 2 Loosen the adjustment screw fastening the sensor, and align the upper edge of the positioning plate with the adjustment position.

Adjustment position	Remaining amount of paper (outer diameter: mm)
Upper	Approx. 27 {1.06"}
Lower (Default setting)	Approx. 23 {0.97"}

- 3 Tighten the adjustment screw.
- 4 After adjustment, make sure that the detection lever operates smoothly.



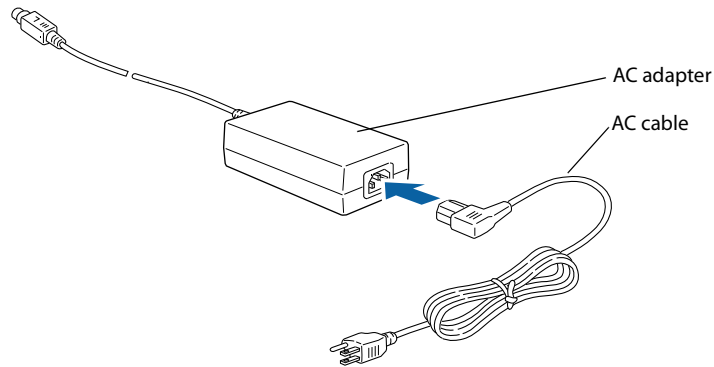
Connecting the AC adapter



- Be sure to use the specified AC adapter. Connection to an improper power source may lead to equipment damage, fire, or electric shock.
- Never insert the AC cable plug into a socket that does not meet the input voltage of the AC adapter.
Doing so may result in damage to the printer.
- Should a fault ever occur, immediately turn off the power to the printer and unplug the AC cable from the socket.

Connecting the AC adapter

- 1 Make sure the printer is turned off.
- 2 Connect the AC cable to the AC adapter.



- 3 Connect the DC cable of the AC adapter to the power supply connector (stamped 24V).

Connecting the Printer to the Host

CAUTION

- Be sure to install the driver before connecting the printer to the host computer.
- The printer uses modular connectors specifically designed for the cash drawer. Do not connect these connectors to an ordinary telephone line.

USB Interface

When using USB cable to connect with host device, connect the USB cable to the printer, and after starting the host device, turn the printer on.

CAUTION

- Do not place any weight or stress on the cable when using. Doing so could damage the cable and connectors.

Ethernet Interface

Use ethernet cable to connect the printer to network via a hub.

Use Epson TM-T88VI Utility for Windows, EpsonNet Config, or EpsonNet Config (Web version) to set network.

For details on the network settings, see ["Network Settings" on page 65](#).

CAUTION

- When LAN cables are installed outdoors, make sure they are connected through devices that have surge protection. Otherwise, the devices can be damaged by lightning.
- Never attempt to connect the drawer kick cable or a standard telephone line cable to the Ethernet port.

Wireless LAN Interface

You can connect using a wired cable (LAN/USB), or connect using SimpleAP mode, and setup a wireless LAN using a network configuration tool. When setting up multiple printers, you can connect using a wired cable (LAN/USB) and setup a wireless LAN using the Epson Deployment Tool.

Using Epson TM Utility for iOS/Android, you can easily connect the printer to the network from an iOS or Android devices.

CAUTION

- When using wireless LAN, make sure you disconnect the LAN cable. If a LAN cable is connected, wireless LAN is disabled.
- When you set up the access point at the same time, set the access point in advance and check that it operates correctly.
- Examine the radio wave situation in the surrounding area before use.
- Avoid using the same channel that is used in the neighboring shops where Wireless LAN is used.
- Wireless LANs with a frequency band of 2.4 GHz interfere with *Bluetooth*[®] communication. When using *Bluetooth* and Wi-Fi at the same time, we recommend using 5 GHz.
- When using the printer in environments where kitchen microwaves and other devices that may interfere radio waves are installed, observe the following points.
- Keep the printer away from the devices, such as kitchen microwaves, that may cause radio wave interference.
- Use channels that are away from the frequency bands that may cause radio wave interference.
- Place shields between the printer and the devices that may cause radio wave interference.
- Select either 2.4 GHz or 5 GHz, whichever is free from radio wave interference.
- In auto channel setting for the access point, do not select a channel in which the devices may cause radio wave interference.
- In the infrastructure mode, W53 and W56 channels are not available to connect to a stealth SSID access point.

NOTE

For SimpleAP mode, see "[Simple Setup for Wireless LAN](#)" on page 25.

Setting up Using a SimpleAP Connection from a Windows Computer

Necessary Items

Prepare the following items.

- Computer for setting: Windows 10/8/7/Vista
Computer equipped with a wireless LAN function
- Utility for setting: Epson TM-T88VI Utility for Windows or EpsonNet Config

Follow the steps below to connect the printer.

- 1 Turn on the printer.**
After starting the printer, check that the "SimpleAP Start" is printed. If it is not printed, you need to enable SimpleAP mode in interface settings mode.
- 2 Activate Windows Wireless Network Connection and select [EPSON_Printer] as the connection device on the screen that appears.**

If the window to enter a pass phrase appears, enter "12345678".

Default settings on printer are the following values.

Network mode	SimpleAP mode
SSID	EPSON_Printer
Pass phrase	12345678
IP Address	192.168.192.168

- 3 When connecting to the printer is complete, setup the Wireless LAN using the network setup tool, Epson TM-T88VI Utility for Windows or EpsonNet Config.**

For details about Epson TM-T88VI Utility for Windows, see TM-T88VI Utility User's Manual.

For details about EpsonNet Config, see EpsonNet Config User's Manual.

- 4 When setting the Wireless LAN is complete, restart the printer.**

Setting up Using a USB Connection from a Windows Computer

Necessary Items

Prepare the following items.

- Computer for setting: Windows 10/8/7/Vista
- Utility for setting: TM-T88VI Utility for Windows
- USB cable

Follow the steps below to connect the printer.

- 1 Connect the printer to a PC via the USB cable.**
- 2 Turn on the host computer.**
- 3 Turn on the printer.**
- 4 Start up the TM-T88VI Utility for Windows.**

CAUTION

When the TM-T88VI Utility for Windows is started up, the Feed button is disabled.

5 Select the printer, and then press the [OK] button.

If the printer is not displayed, press the "Add Port" button, and then add the printer connected by USB.

6 Perform network I/F as well as TCP/IP settings.

For details on the settings, see the TM-T88VI Utility User's Manual.

7 When you have finished making settings, disconnect the USB cable, turn off the printer, and then turn it back on.

CAUTION

To start wireless LAN communication, be sure to disconnect the USB cable, turn off the printer, and then turn it back on.

Setting up from a Smart Device

Necessary Items

Prepare the following items.

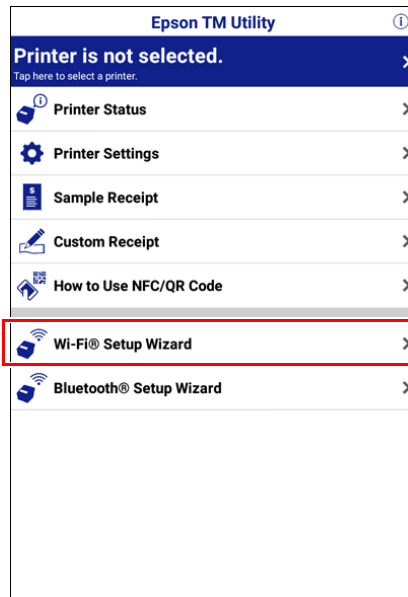
- Device for setting: iOS or Android device
- Utility for setting: Epson TM Utility for iOS/Android

Running Epson TM Utility for iOS/Android

1 Run the Epson TM Utility for iOS/Android.



2 Set from “Wi-Fi Setup Wizard” in the menu.



Setup and Operation Workflow

Select the network you want to connect to.

Enter the passkey.

Perform a test print.

Connecting the Peripherals

Connecting the Cash Drawer

CAUTION

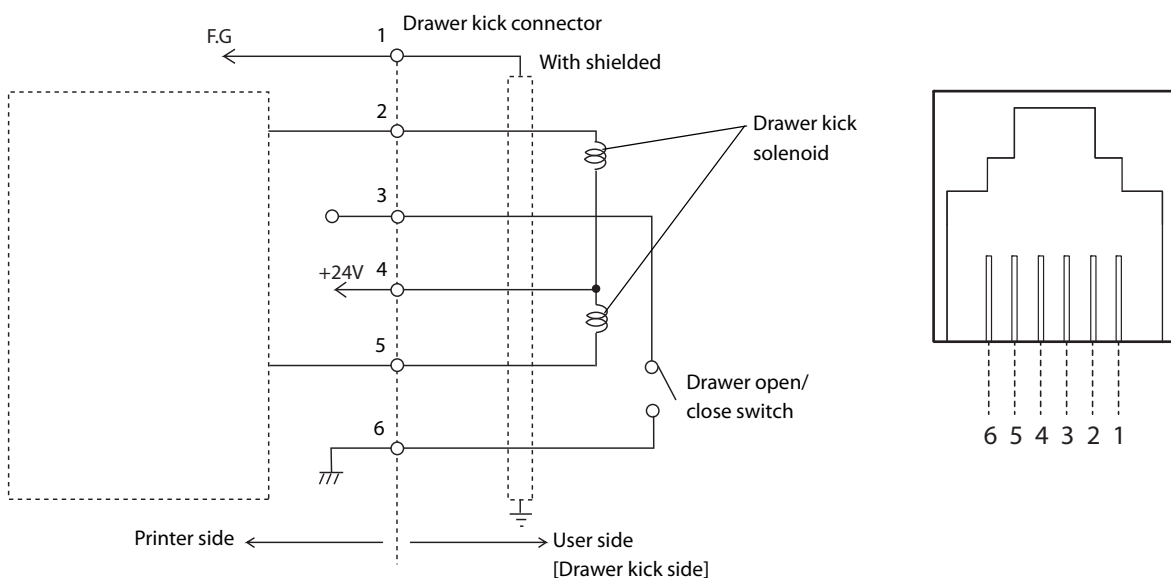
- Do not connect both the optional external buzzer and the cash drawer to the printer at the same time by using a branched connector.
- When the optional external buzzer is enabled with the memory switch (customized values) (see ["Software Settings" on page 57](#)), a cash drawer cannot be used. Be sure to disable it when you use a cash drawer.
- Two driver transistors cannot be energized simultaneously.
- Leave intervals longer than 4 times the drawer driving pulse when sending it continuously.

Specifications of drawers differ depending on makers or models. When you use a drawer other than specified, make sure its specification meets the following conditions.

Otherwise, devices may be damaged.

- The load, such as a drawer kick solenoid, must be connected between pins 4 and 2 or pins 4 and 5 of the drawer kick connector.
- When the drawer open/close signal is used, a switch must be provided between drawer kick connector pins 3 and 6.
- The resistance of the load, such as a drawer kick solenoid, must be $24\ \Omega$ or more or the input current must be 1A or less.
- Be sure to use the 24V power output on drawer kick connector pin 4 for driving the equipment.

Drawer Connection Diagram

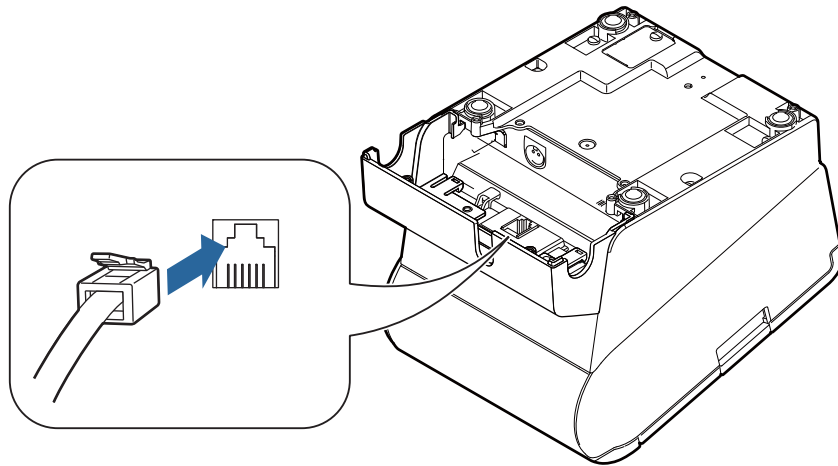


Connecting the drawer kick cable



- Use a shield cable for the drawer kick cable.
- When using cash drawer, make sure to use the power supply for printer (connector pins 4).
- Do not insert a telephone line into the drawer kick connector.
Doing so may damage the telephone line or printer.

Connect the drawer kick cable to the drawer kick connector by pressing firmly until the connector clicks into place.



2

Setting the Built-in Buzzer (for Model with a Built-in Buzzer)

For specifications with a built-in buzzer, a pulse output is sent to drawer kick connector pin 5 to beep the buzzer.

When using a cash drawer, connect a cash drawer operated by pin 2.

If you have to use a cash drawer operated by pin 5, change the DIP switch settings for the buzzer circuit.

For details, see ["Setting the DIP Switches" - "Setting Procedure" on page 55](#).

DIP Switch for Buzzer Circuit

DIP switch	Specified connector pin	ON	OFF	Default setting
1	Drawer kick connector pin 2	Buzzer beeps.	Buzzer does not beep.	ON
2	Drawer kick connector pin 5	Buzzer beeps.	Buzzer does not beep.	OFF

CAUTION

Do not set the buzzer to beep for pin numbers used for drawer operations. The buzzer and the cash drawer cannot be operated by one pulse signal.

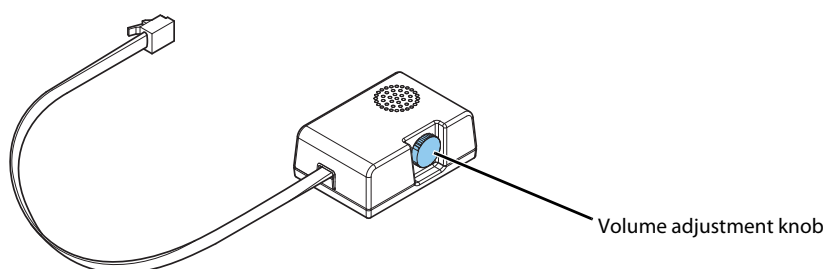
Connecting the Optional External Buzzer

When the optional external buzzer (model: OT-BZ20) is connected to the drawer kick connector of the printer, you can set the printer so that it beeps when you send commands, when an error occurs, when executed autocutting, and when detected paper end. Settings for sound patterns and frequency depending on the occasions the buzzer beeps are also available.

You need to set with the memory switch (customized values) for buzzer enable/disable setting, sound pattern setting, and frequency setting. For information about the memory switch (customized values), see "[Software Settings](#)" on page 57.

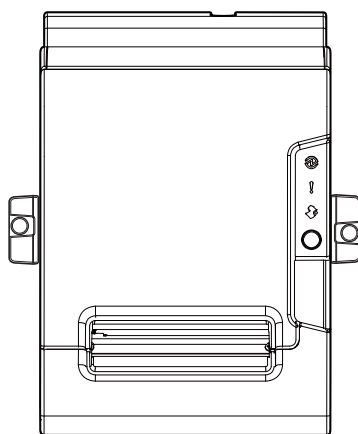
CAUTION

- Be sure to turn off the printer before you connect/disconnect the optional external buzzer.
- Do not connect both the optional external buzzer and the cash drawer to the printer at the same time by using a branched connector.



Attachment Position

The optional external buzzer is recommended to be installed in the following positions.



CAUTION

- Do not install the optional external buzzer at the roll paper exit.
- To prevent liquid from entering inside, it is recommended to install the optional external buzzer so that the volume adjustment knob is positioned sideways or downward.

Connecting the Optional Wireless LAN Unit

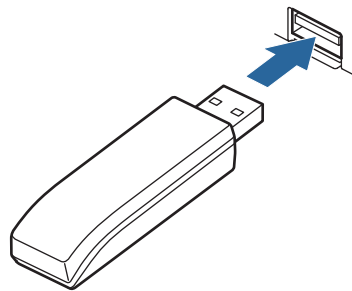
The optional Wireless LAN cable set (OT-WLxx) enables you to use the product with a Wi-Fi connection. For more information, refer to Technical Reference Guide of the Wireless LAN cable set.

CAUTION

- Be sure to turn off the printer when connecting the Wireless LAN unit.
- Depending on the installation conditions of the printer and the routing for cables connected to it, the status of the radio waves for the Wireless LAN unit may decline. If this does happen, use an extension cable.

NOTE

- This option may be included with this product, depends on the models.
- The shape of the Wireless LAN unit varies depending on the model.



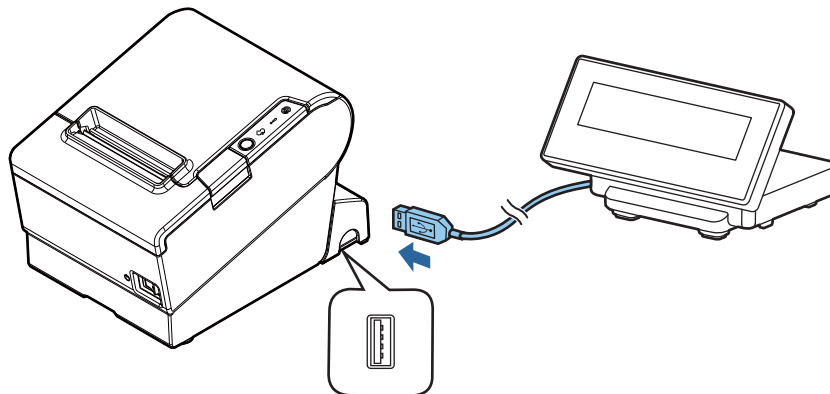
2

Connecting the Optional Customer Display

You can connect the customer display (DM-D30/DM-D110/DM-D210) to this product, using USB connection. For more information, refer to the Technical Reference Guide of the customer display.

CAUTION

Be sure to turn off the printer when connecting the customer display.



Connecting a Key Input Device

You can connect a key input devices using the USB port. Up to five devices can be registered.

To register, change, or delete the device, use the TM-T88VI Utility for Windows or EpsonNet Config (Web version).

How to register a MSR

Connect a supported MSR to the printer. The printer automatically detects the MSR and registers its DeviceID as "local_msr". Then the MSR can be used.

Start TM-T88VI Utility for Windows, then open the [Key Input Device] screen by selecting [TM-Intelligent] - [Device Administration] - [Key Input Device]. On the screen, make the following settings for the device whose VID & PID is "0x0853 & 0x0001".

For details on the settings, see the TM-T88VI Utility User's Manual.

Setting Item	Setting
Device Type	MSR
Control Script	MSR_V3TU_FK.js

How to register a keyboard with MSR

Connect a supported keyboard with MSR to the printer. The printer automatically detects the keyboard and registers its DeviceID as "HID1". Then the keyboard with MSR can be used.

Start TM-T88VI Utility for Windows, then open the [Key Input Device] screen by selecting [TM-Intelligent] - [Device Administration] - [Key Input Device]. On the screen, make the following settings for the device whose VID & PID is "0x1222 & 0xfaca".

For details on the settings, see the TM-T88VI Utility User's Manual.

Setting Item	Setting
Device Type	Keyboard
Control Script	Keyboard_MID_QM128A_RAA.js

How to register a USB composite device

Connect a supported USB composite device to the printer. The printer automatically detects the device and registers its DeviceID as "local_keyboard" or "local_scanner". Then the device can be used.

Start TM-T88VI Utility for Windows, then open the [Key Input Device] screen by selecting [TM-Intelligent] - [Device Administration] - [Key Input Device]. On the screen, find the device whose VID & PID is one of those in the following tables, then make the settings accordingly.

For details on the settings, see the TM-T88VI Utility User's Manual.

Keyboard

Setting Item	Setting
VID & PID	0x046a & 0x0037
Interface Number	0
Device ID	local_keyboard
Device Type	Keyboard
Control Script	Keyboard_Generic.js

Card reader

Setting Item	Setting
VID & PID	0x046a & 0x0037
Interface Number	1
Device ID	local_scanner
Device Type	Barcode reader
Control Script	Scanner_Generic.js

Connecting a Serial Communication Device

You can connect a device that supports serial communication using the serial port. Up to five devices can be registered.

To register, change, or delete the device, use the TM-T88VI Utility for Windows or EpsonNet Config (Web version).

How to check if a USB-Serial conversion cable can be used

Connect the USB-Serial conversion cable to the printer, then print a status sheet. If the information shown below is found in the status sheet, the conversion cable can be used.

ePOS-Device Peripheral

```
Device1
Vendor          :xxxxxxx
Product        :xxxxxxxxx
Interface Number :0
DeviceID       :usb_serial
Type           :SimpleSerial
```

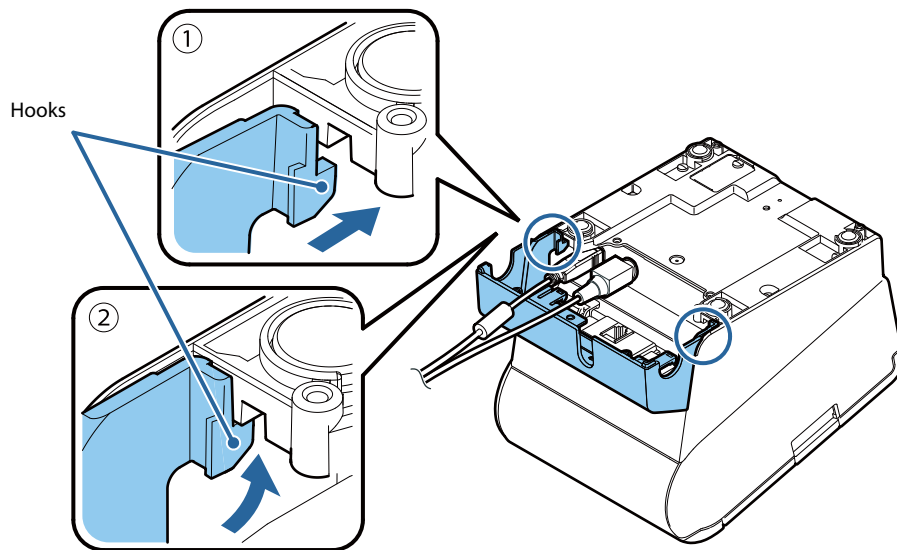
You can acquire the same information by accessing the menus of TM-T88VI Utility for Windows as described below.

[TM-Intelligent] - [Device Administration] - [Serial Communication Device]

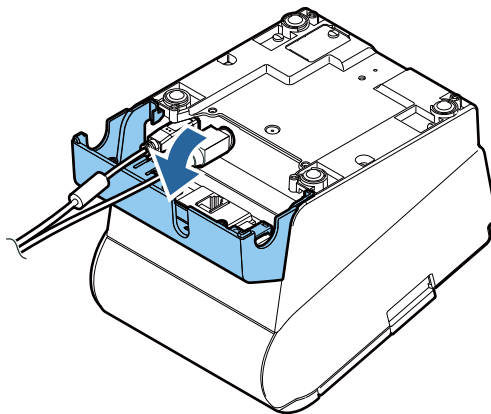
Attaching the Connector Cover

When using the connector cover, attach the connector cover.
Follow the steps below to attach the connector cover to protect cables.

- 1** Turn over the printer.
- 2** Position the two hooks on both sides of the connector cover so that they hook the printer case.



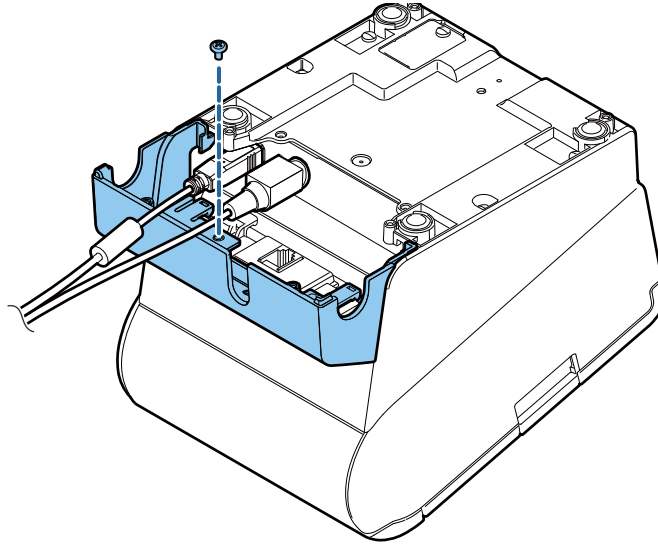
- 3** Push the connector cover down to click onto the printer case.



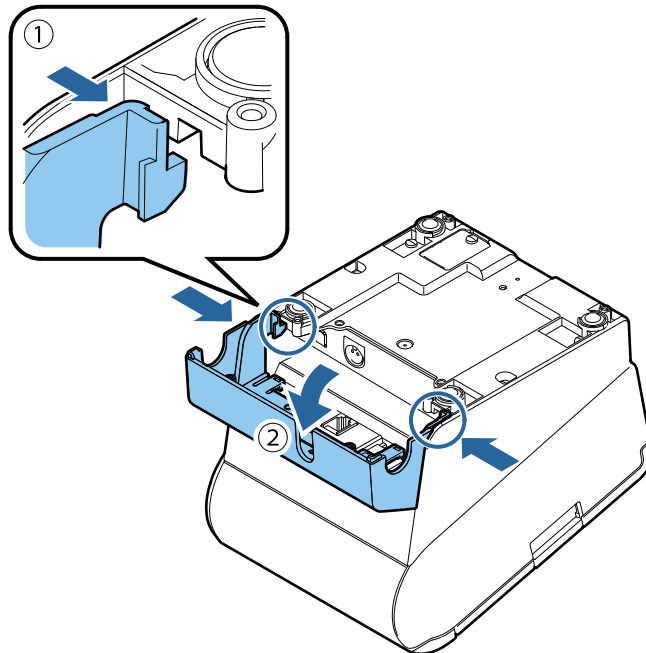
- 4** Pass each cable through the cable exits at the bottom of the connector cover.
- 5** Turn over the printer and make sure the cables are not pinched.

NOTE

- You can use the enclosed screw to fix the connector cover.



- To remove the connector cover, turn the printer over, remove the screw, and push the connector cover down while pushing both sides of the connector cover inward to detach the hooks from the printer case.

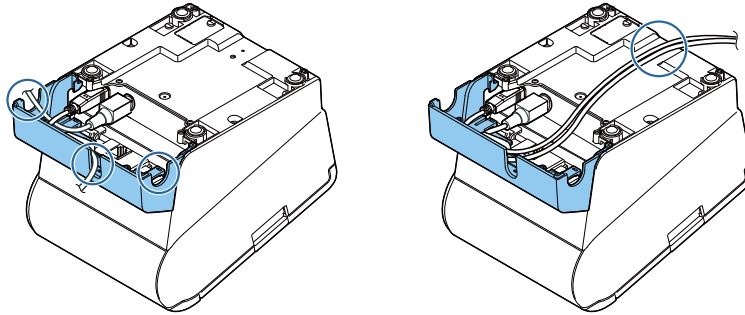


Arranging the Cables

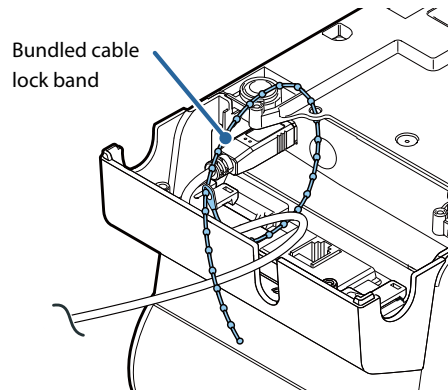
Route the cables when using the connector cover.

Pass the cables through cable exits in the connector cover. The connector cover has cable exits on the back and both sides.

You can also route the cables out the front by passing them through the notch in the printer bottom.

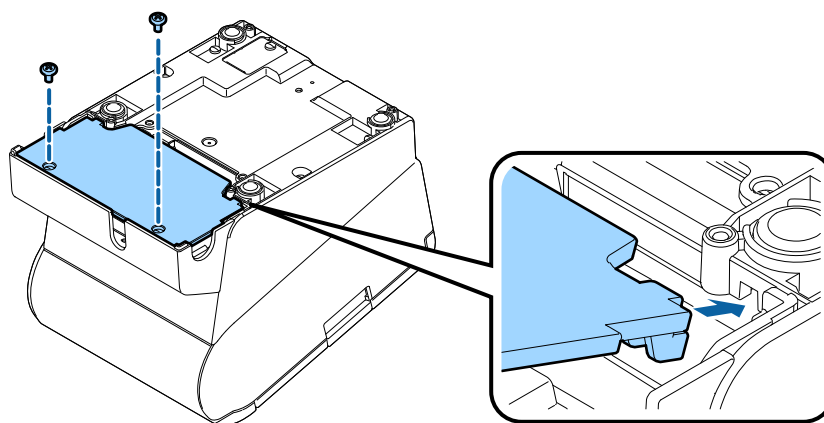


When using cables without lock, use of the bundled cable lock band is recommended.

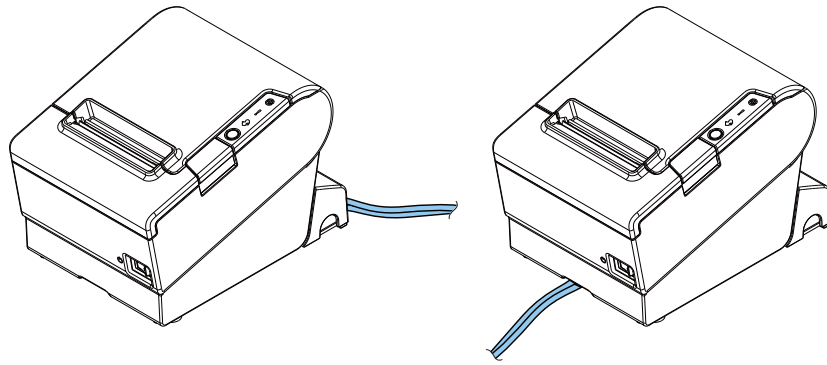


NOTE

You can also attach bottom cover to hide connectors.
Make sure the cable does not get caught when installing.



After the cable arrangement, turn over the printer, and make sure the cables are not pinched.



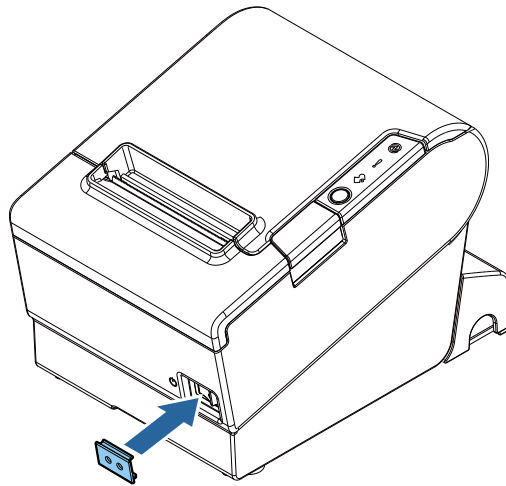
Attaching the Power Switch Cover

By attaching the power switch cover supplied, you can prevent accidental operations of the power switch. You can press the power switch by inserting a sharp-pointed object in the holes on the power switch cover. To detach the cover, use a sharp-pointed object.



WARNING

If an accident occurs with the power switch cover attached, unplug the power cord immediately. Continued use may cause fire or shock.



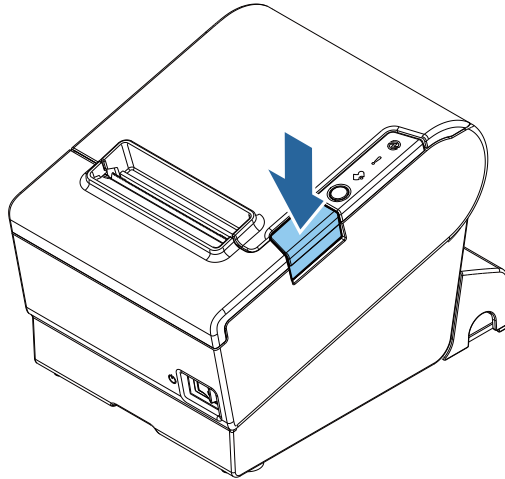
Changing the Paper Width

You can change the paper width from 80 to 58 mm by installing the included 58-mm width roll paper guides. Follow the steps below to change the paper width.

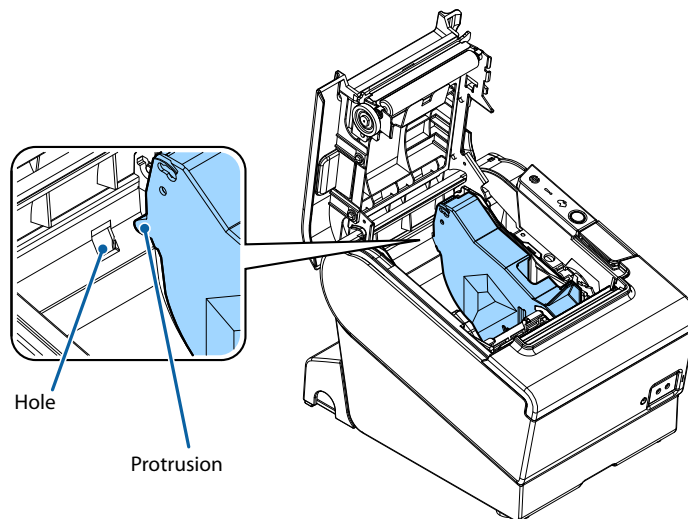
CAUTION

Turn off the printer when installing the roll paper guides.

1 Open the roll paper cover.



2 Install the roll paper guide so that the protrusion on the roll paper holder is aligned with the hole on the printer.



NOTE

You can use the enclosed screw to fix the roll paper guide.

CAUTION

After using the printer for an extended period at 58 mm, do not return to 80 mm. Parts of the print head that do not normally touch the paper may be damaged by the platen roller, and the autocutter may wear out.

3 Set the paper width in software setting mode.

For information about the software setting mode, see ["Software Settings" on page 57](#).

RTC Settings

The time for the RTC (Real Time Clock) may be initialized when starting up for the first time. If the time is initialized, make settings using the Setup Utilities.

For details on making settings using the Setup Utilities, see the TM-T88VI Utility User's Manual.

TM-Intelligent Function Settings

To use the TM-Intelligent functions of the printer, enable the functions you want to use using Epson TM-T88VI Utility for Windows or EpsonNet Config (Web version).

For instructions on how to set it using Epson TM-T88VI Utility for Windows, see the TM-T88VI Utility User's Manual.

When using EpsonNet Config (Web version), follow the procedure below to start it.

How to Start EpsonNet Config (Web version)

Start EpsonNet Config following the procedure below.

- 1 Start a computer that is connected to a network.**
- 2 Start a Web browser on the computer, then enter the following in the address bar.**
SSL disabled: `http://IP address of the printer/webconfig`
SSL enabled: `https://IP address of the printer/webconfig`

EpsonNet Config (Web version) starts in the browser.

NOTE

- To check the printer's IP address, print a status sheet from the printer. For more information, see ["Printing a Status Sheet" on page 79](#).
- You will be prompted to enter a username and password. Enter "epson" for both the username and password.
- Click [Help] to see the help of EpsonNet Config (Web version).



Advanced Usage

Setting the DIP Switches

On this printer, you can make various settings with DIP switches. The DIP switches are already set. Change the setting if necessary.

NOTE

For models with the buzzer function, see also "Setting the Built-in Buzzer (for Model with a Built-in Buzzer)" on page 41.

Setting Procedure

Follow the steps below to change the DIP switch settings.

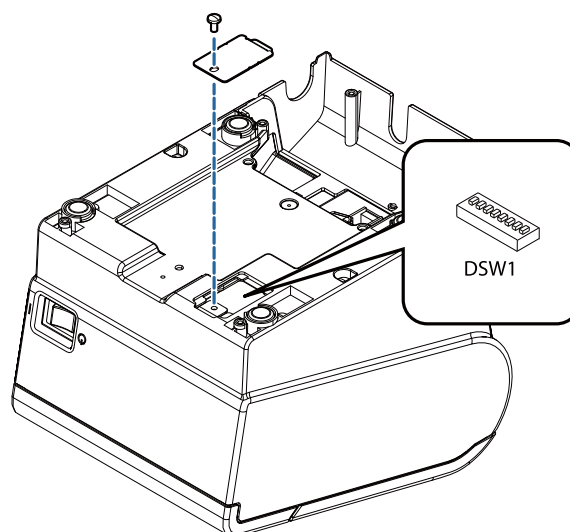


- **Before you remove the DIP switch cover, turn off the printer and disconnect all cables.** Otherwise, a short-circuit may cause the printer to malfunction.
- **If you open the DIP switch cover, be sure to close the cover and tighten the screw after adjusting the DIP switch.** Using this product with the cover open may cause fire or electric shock.

CAUTION

- DIP switch settings are enabled only when the power is turned on or the printer is reset via the interface. If the settings are changed after that, the functions will not change.
- Do not change switches that are fixed to ON or OFF. Otherwise, the printer may not operate normally.

- 1 Make sure the printer is turned off.
- 2 Unscrew the screw to remove the DIP switch cover from the base of the printer.



- 3 Set the DIP switches, using the tip of a tool, such as a small screwdriver.
- 4 Replace the DIP switch cover, and screw it in place.

Settings

SW	Function	ON	OFF	Default setting
1	Auto line feed	Always enabled	Always disabled	OFF
2	Receive buffer capacity	45 bytes	4 KB	OFF
3-4	Selects print density	See " Selecting the Print Density (DIP Switches 3/4) ".		OFF
5	Sets the release condition of the receive buffer BUSY state.	Releases the BUSY state when the remaining capacity of the receive buffer reaches 138 bytes.	Releases the BUSY state when the remaining capacity of the receive buffer reaches 256 bytes.	OFF
6-8	Reserved (Do not change setting)	Fixed to OFF		OFF

Selecting the Print Density (DIP Switches 3/4)

Function	SW	
	3	4
Print density (standard)	OFF	OFF
Print density (medium)	ON	OFF
Print density (dark)	OFF	ON
Do not set	ON	ON

Software Settings

For an outline of the functions, see the following section. Use the Epson TM-T88VI Utility for Windows, Epson TM Utility for iOS/Android, EpsonNet Config (Web version), or Software Setting Mode to set the memory switches.

NOTE

The software setting mode is the mode set using the printer's panel. For details on panel operations, see "[Software Setting Mode](#)" on page 73.

Item/Method		Software Setting Mode	Epson TM-T88VI Utility for Windows	Epson TM Utility for iOS/Android	EpsonNet Config (Web version)
Memory Switches	USB power saving function	✓	✓	✓	
	Paper sensors to output paper end signal	✓	✓	✓	
	Error signal output	✓	✓	✓	
Customized Values	Automatic paper reduction	✓	✓	✓	
	Auto paper feed&cut at cover close	✓	✓	✓	
	Buzzer function	✓	✓		
	Command execution during offline	✓	✓	✓	
	Character code table defaults	✓	✓		
	International character defaults	✓	✓		
	Font A auto replacement	✓			
	Font B auto replacement	✓			
	Print density	✓	✓	✓	
	Print speed	✓	✓	✓	
	Column emulation mode	✓	✓	✓	
	Print density during multi-tone printing	✓	✓	✓	
	Power supply output	✓	✓	✓	
	Paper width	✓	✓	✓	
	Interface switch wait time	✓	✓	✓	
	Main interface selection	✓	✓	✓	
	Startup display	✓	✓	✓	
	USB class	✓	✓		
USB IEEE1284 device ID	✓				
Restore & Delete Defined Data	✓			✓	
Settings for USB port with charging function	✓	✓	✓		

Item\Method	Software Setting Mode	Epson TM-T88VI Utility for Windows	Epson TM Utility for iOS/ Android	EpsonNet Config (Web version)
Print Data Parsing Setting*	✓	✓	✓	✓
Cut Error Release Method		✓	✓	
Logo		✓	✓	
ePOS-Print		✓	✓	✓
ePOS-Device		✓	✓	✓
ProxyInfo		✓	✓	✓
Server Direct Print		✓	✓	✓
Status Notification		✓	✓	✓
Device Data Notification		✓	✓	✓
Print Forwarding		✓	✓	✓
Web Contents Updater		✓	✓	✓
PHP		✓	✓	✓
Document Path		✓	✓	✓
Customer Display		✓	✓	✓ (Communication settings only)
Network CS Authentication		✓	✓	✓
Network Dev Info		✓	✓	✓
Ethernet Config		✓	✓	✓
Wi-Fi Config		✓	✓	✓
SSL/TLS Config		✓		✓
Certificate Config		✓		✓
TCP/IP Config		✓	✓	✓
SNMP Config		✓	✓	✓
Time Config		✓	✓	✓
LPR Config		✓	✓	✓
Port9100 Config		✓	✓	✓
IP/Port Filter Config		✓	✓	✓

*Setting item may not be available depending on the area.

Software Setting Mode Functions

USB power saving function

- Disabled
- Enabled (default setting)

NOTE

The USB power-saving function is valid only when the USB interface communication condition is set to the vendor-defined class and the system configuration is set so that the USB driver can support the USB power-saving function.

Paper sensors to output paper end signal

- Roll paper out detector (default settings)
- Disabled

Error signal output

- Enabled (default setting)
- Disabled

Automatic paper reduction

Extra upper space reduction

- Disabled (default setting)
- Enabled

Extra lower space reduction

- Disabled (default setting)
- Enabled

Line space reduction rate

- Not reduced (default setting)
- Reduce 25%
- Reduce 50%
- Reduce 75%

Line feed reduction rate

- Not reduced (default setting)
- Reduce 25%
- Reduce 50%
- Reduce 75%

Amount of reduction in character height

- Not reduced (default setting)
- Reduces space within the characters by 25%
- Reduces space within the characters by 50%
- Reduces space within the characters by 75%
- Reduces space within the characters by 75% + Reduces the height of the font

Amount of reduction in barcode height

- Not reduced (default setting)
- Reduce 25%
- Reduce 50%
- Reduce 75%

Amount of top margin by backfeed

Selectable from levels 15 mm ~ 2mm (0.5 mm interval)

Default setting: level 15 mm

CAUTION

- Remove all ejected paper before printing with backfeed.
- Disable the automatic top logo setting when enabling backfeed.
- You cannot use backfeed in the following cases even if you have enabled backfeed.
 - * Immediately after auto cutting while the cover is closed.
 - * While the self-test is in progress.

NOTE

- You can specify values in 0.5mm steps if you use Setup Utilities.

Auto paper feed&cut at cover close

- Cuts
- Does not cut (default setting)

Buzzer function

NOTE

- For information about how to connect the optional external buzzer, see ["Connecting the Optional External Buzzer" on page 42.](#)
- When the optional external buzzer is enabled, a cash drawer cannot be used. Be sure to disable it when you use a cash drawer.

Enables/disables

- Disabled (default setting)
- Enabled

Buzzer frequency (Error)

- Does not sound
- Sounds 1 time
- Sounds continuously (default setting)

Sound pattern (Autocut)

Selectable from Patterns A to E

Default setting: Pattern A

Buzzer frequency (Autocut)

- Does not sound
- Sounds 1 time (default setting)

Sound pattern (Pulse 1)

Selectable from Patterns A to E

Default setting: Pattern A

Buzzer frequency (Pulse 1)

- Does not sound
- Sounds 1 time (default setting)

Sound pattern (Pulse 2)

Selectable from Patterns A to E

Default setting: Pattern B

Buzzer frequency (Pulse 2)

- Does not sound
- Sounds 1 time (default setting)

Command execution during offline

- Enabled
- Disabled (default settings)

Character code table defaults

Selectable from 43 pages including user defined page

International character defaults

Selectable from 18 sets

Font A auto replacement

- Does not replace (default setting)
- Font B

Font B auto replacement

- Does not replace (default setting)
- Font A

Print density

Selectable from 70% to 130% (5% increment)

Default setting: 100%

Depending on the paper type, it is recommended to set the print density as shown in the table below for the best print quality.

Original Paper type	Density	Print speed
AF50KS-E	85%	13 (300 mm/sec)
KT55FA	100%	14 (350 mm/sec)
KT48FA	100%	13 (300 mm/sec)
F5041(55), F5041(48), P30521, P30523, P31523, P35524	105%	13 (300 mm/sec)

NOTE

- When the print density level is increased, print speed may be reduced. When printing at a density of 115% or more and below a room temperature of 15°C, the speed drops to less than 200 mm/sec.
- When setting the print speed to level 14, use customized values to set the print density.

Print speed

Selectable from levels 1 to 14 (Slow ~ Fast)

Default setting: level 13 or 14 (depends on the printer's specification)

CAUTION

- Print speed is restricted by the settings for the number of head electrification divisions. The maximum printing speed of 350 mm/s is only possible when 1 electrification division is selected.
- The maximum printing speed when using 58 mm is 300 mm/s.

NOTE

Depending on print conditions, such as print duty, print head temperature, and data transmission speed, print speed is automatically adjusted, which may cause white lines due to intermittent print (the motor sometimes stops). To avoid this, keep the print speed constant by setting it lower.

Column emulation mode

- Standard mode (default setting)
- 48/36 column mode

Print density during multi-tone printing

Selectable from 70% to 130% (5% increment)

Default setting: 100%

Power supply output

Selectable from levels 1 to 3 low power load

Default setting: level 3

Paper width

- 80mm (default setting)
 - 58mm
-

Interface switch wait time

Select from 1 to 10 seconds (in intervals of 1 second)

1 second (default setting)

Main interface selection

- Auto (interface that receives data first) (default setting)
- USB
- Ethernet/Wi-Fi
- No main connection I/F

CAUTION

- When using this printer with multiple interfaces, make sure the interface that is always connected to be set as the main connection.
- When using multiple interfaces, set the receive buffer capacity to 4 KB.
- You cannot use wired LAN and wireless LAN at the same time.

NOTE

For information about the function, see ["Printing Using Multiple Interfaces" on page 30](#).

Startup display

- Enabled
 - Disabled (default setting)
-

USB class

- Printer class (default setting)
 - Vendor-defined class
-

USB IEEE1284 device ID

- Do not output IEEE1284 Device ID
- Output IEEE1284 Device ID (default setting)

Settings for USB port with charging function

- Disable the charging function, Enable USB communication (default)
- Enable the charging function, Disable USB communication

Print data parsing setting

- Disabled (default setting)
- Enabled

NOTE

The setting item may not be available depending on the region.

Network Settings

The following explains the procedure for network settings in order to connect the product to your network.

Setup methods

There are three methods for set up.

Method 1: Setup using TM-T88VI Utility for Windows

This method uses the setup utility "TM-T88VI Utility" installed on your computer.

As it does not require any settings in advance to allow set up, you can easily perform set up using a computer already connected to the network.

Method 2: Setup using EpsonNet Config

This method involves installing the network configuration tool, EpsonNet Config, on your computer for setting.

As it does not require any settings in advance to allow set up, you can easily perform set up using a computer already connected to the network.

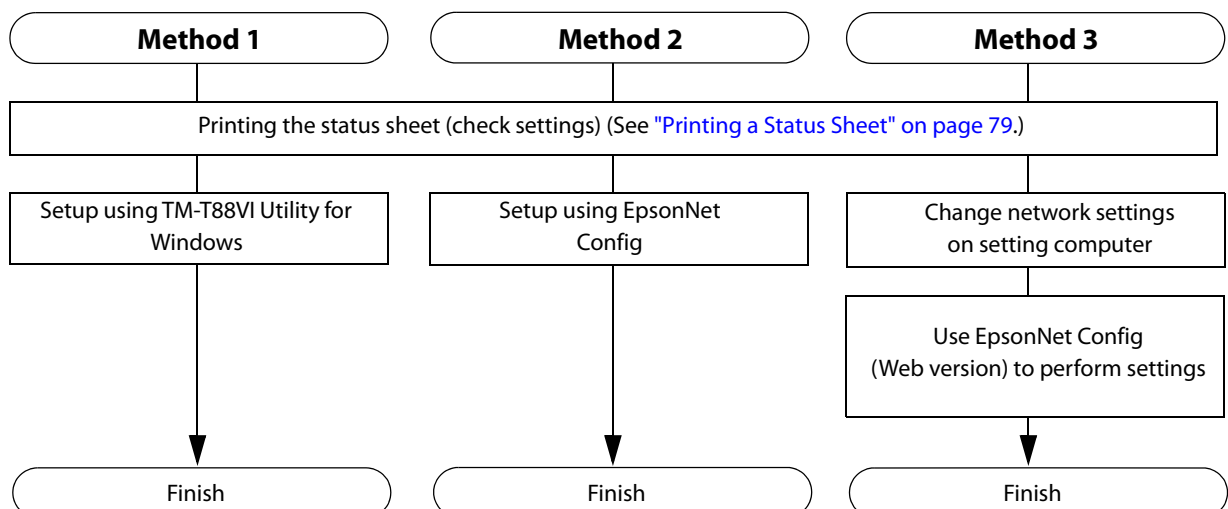
Method 3: Setup using EpsonNet Config (Web version)

This method involves opening the Web application equipped in the printer from a Web browser to perform settings.

Because you specify the printer's IP address to open it, you need to set your computer to the same network segment as the printer.

With EpsonNet Config (Web version), you can set more items than with EpsonNet Config.

Flow of Setup



Setup using TM-T88VI Utility for Windows

Start TM-T88VI Utility for Windows, then check and change the settings on the utility.

See the TM-T88VI Utility User's Manual for more information.

Setup using EpsonNet Config

Execute EpsonNet Config, select the target printer from the displayed device list, then check and change the settings.

If the printer is still set to factory defaults, the printer's MAC address is listed up, even if the computer does not have the same network address.

CAUTION

- The initial setting uses an IP address for the printer provided by a DHCP server. Since you cannot complete setup if there are conflicting IP addresses on the network, make sure that there are no other devices on the network that conflict with the IP address provided by the DHCP server. If a DHCP server is not available, a fixed IP address (192.168.192.168) is set approximately one minute after turning on the printer. Also, if the Ethernet cable is not connected, connect the Ethernet cable and then run this process.
- When DHCP is enabled, the provided IP address is printed automatically. However, if the Ethernet cable is not connected, and the Wireless LAN unit is not installed, printing is not performed.

1 Connect the printer to the same network as the computer where you installed EpsonNet Config.

2 Start up EpsonNet Config.

The tool automatically detects printers connected to the network and displays a list.

It may take up to a minute for the printer to be displayed in the list.

If it is not displayed, check that [Filter] is set to "(All)" or "Network-connected devices", then click [Refresh]. Or, select [Tools], then [Option], and check the settings of [Search Parameters].

3 Select the target printer, then click [Configuration].

If you cannot determine the target printer from the product name or the IP address, use the MAC address. You can check the printer's MAC address on the status sheet.

4 Change the printer's settings based on the network setting information you received from the network administrator.

Select an item from the menu and change the setting.

5 Once you set the necessary items, click [Transmit].

The changed contents are sent to the printer and the printer settings are changed.

NOTE

For details about EpsonNet Config, see the manual (operation guide) installed together with the tool or the online help.

Setup using EpsonNet Config (Web version)

Follow the steps below to start up EpsonNet Config (Web version), and check or change the settings.

CAUTION

- When setting up using the EpsonNet Config (Web version), you need to set the network settings for the device to the same network segment as the printer you want to connect to.
- The initial setting uses an IP address for the printer provided by a DHCP server. Since you cannot complete setup if there are conflicting IP addresses on the network, make sure that there are no other devices on the network that conflict with the IP address provided by the DHCP server. If a DHCP server is not available, a fixed IP address (192.168.192.168) is set approximately one minute after turning on the printer. Also, if the Ethernet cable is not connected, connect the Ethernet cable and then run this process.
- When DHCP is enabled, the provided IP address is printed automatically. However, if the Ethernet cable is not connected, and the Wireless LAN unit is not installed, printing is not performed.

- 1 Connect the setting computer and the printer to the same network.**
- 2 Perform network settings on the computer so that it is in the same segment as the printer's IP address.**

Subnet mask: Same subnet mask as the printer

IP address: Same segment (same network address) as the printer, different host address

Check the values set in the printer on the status sheet.

E.g.)

	Printer	Setting computer
Subnet mask	255.255.255.0	255.255.255.0
IP address	192.168.192.168	192.168.192.2

- 3 Start up your Web browser and input the printer's IP address into the address field.**

E.g.) <http://192.168.192.168/webconfig>

NOTE

Under initial settings, when you access EpsonNet Config (Web version) from your browser, an authentication warning message may be displayed.

- 4 Input your user name and password on the authentication window.**
Input "epson" for both the user name and password. You can change the password in the [Optional] setting menu, under [Password].
- 5 Change the settings based on the network setting information you received from the network administrator.**
Select an item from [Configuration] and change the setting.
- 6 After changing the necessary parameters, click the [Send] button.**
The changes are sent to the printer.

7 Click the [Reset] button on the Web page displayed after sending.

The sent contents are enabled.

Depending on the changes, such as the IP address, the connection with the setting computer may be cut and the EpsonNet Config window may not be displayed. To reconnect, you need to set the network settings of the setting computer to the same network segment as the printer for which settings were changed.

MAC Address Confirmation

You can check the printer's MAC address using the following procedures.

- Printing the status sheet
- Label attached on the product
- A printer self-test (May not be supported by some TM printers.)
- Using EpsonNet Config to confirm
- Using a Web browser to confirm (EpsonNet Config (Web version) function)

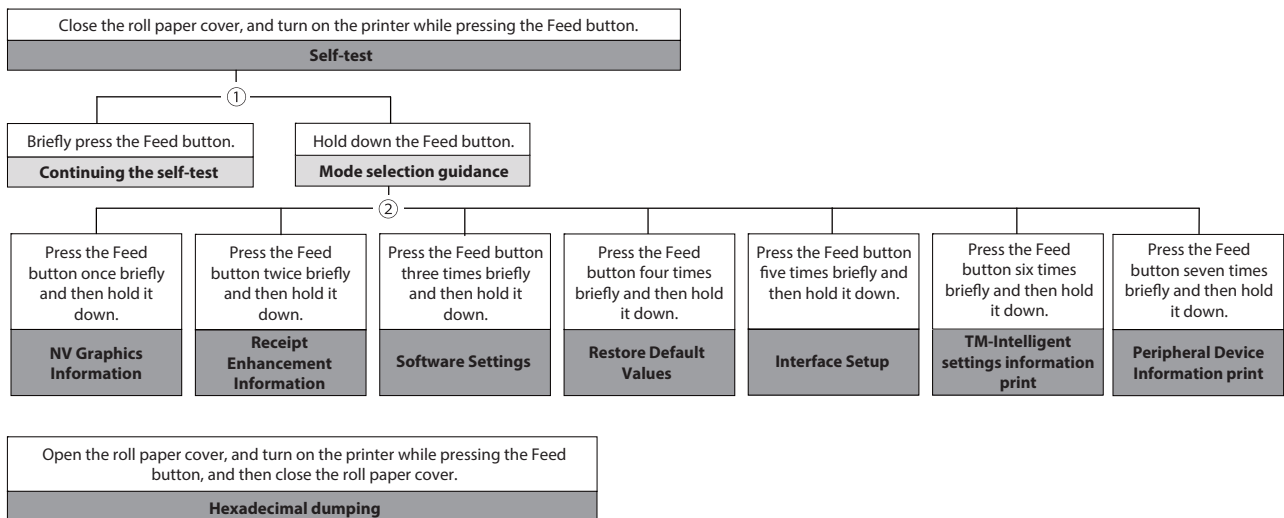
Setting/Checking Modes

As well as print mode, the following modes are also provided for making various printer settings and checking items.

- Self-test mode
- NV graphics information print mode
- Receipt Enhancement information print mode
- Software settings mode
- Restore default values mode
- Interface setup mode
- TM-Intelligent settings information print mode
- Peripheral Device Information print mode
- Hexadecimal dumping mode

The self-test mode or hexadecimal dumping mode is selected depending on the operation performed when the power is turned on.

NV graphic information print mode, Receipt Enhancement information print mode, Software settings mode, and Restore default settings mode are selected depending on the Feed button operation performed during a self-test.



In 1 and 2, the following guidances are printed, the Paper LED flashes, and instructs the user's operations.

1. Continuing self-test guidance

Select Modes by pressing Feed Button.
Continue SELF-TEST: Less than 1 second
Mode Selection : 1 second or more

2. Mode selection guidance

Mode Selection

Modes

- 0: Exit and Reboot Printer
- 1: NV Graphics Information
- 2: Receipt Enhancement Information
- 3: Customize Value Settings
- 4: Restore Default Values
- 5: Interface Setup
- 6: TM-Intelligent Information
- 7: Peripheral Device Information
- 8 or more: None

Select Modes by executing following procedure.

- step 1. Press the Feed button less than 1 second as many times as the selected mode number.
- step 2. Press Feed button for 1 second or more.

Self-test Mode

You can check the following items using the self-test.

- Product name
- Firmware version
- Product serial number
- Interface information
- Resident fonts
- Maintenance counter information (head running length, number of times of autocutting)

Follow the steps below.

- 1 Close the roll paper cover.**
- 2 While pressing the Feed button, turn on the printer. (Hold down the Feed button until printing starts.)**
After printing the current print status, a Continuing self-test guidance is printed, and the Power LED flashes.
- 3 Briefly press the Feed button (less than one second) to continue the self-test.**
The printer prints a rolling pattern on the roll paper, using the built-in character set.
After "*** completed ***" is printed, the printer initializes and switches to standard mode.

NV Graphics Information Print Mode

Prints the following NV graphic information registered to the printer.

- Capacity of the NV graphics
- Used capacity of the NV graphics
- Unused capacity of the NV graphics
- Number of NV graphics that are registered
- Key code, number of dots in X direction, number of dots in Y direction to be defined.
- NV graphics data

NOTE

For details on NV graphics, see "[NV Graphics Memory](#)" on page 23.

Follow the steps below.

- 1 After running a self-test, hold down the Feed button for at least one second, and then select the Mode selection.**

The Mode selection guidance is printed, and the Paper LED flashes.

- 2 After briefly (less than one second) pressing the Feed button once, hold it down for at least one second, to print the NV graphics information.**

After information printing, the Mode selection guidance is printed again.

- 3 To finish, turn off the power, or select "Exit and Reboot Printer".**

Receipt Enhancement Information Print Mode

You can check the following items using the R/E information mode:

- Automatic top logo setting
- Automatic bottom logo setting
- Extended settings for automatic top/bottom logo

Follow the steps below.

- 1 After running a self-test, hold down the Feed button for at least one second, and then select the Mode selection.**

The Mode selection guidance is printed, and the Power LED flashes.

- 2 After briefly (less than one second) pressing the Feed button twice, hold it down for at least one second, to print the R/E information.**

After information printing, the Mode selection guidance is printed again.

- 3 To finish, turn off the power, or select "Exit and Reboot Printer".**

Software Setting Mode

Set the printer's memory switches and customized values.

- Print density
- Auto reduction of amount of paper to use
- Enabling/disabling paper autocutting at cover close
- Paper width setting
- Auto replacement of font
- Print speed
- Command execution (offline)
- Specification for the top margin by backfeed
- Optional external buzzer control
- Interface setting
 - Communication conditions using a USB interface
 - Interface switch wait time
 - Main interface selection
- Enabling/disabling Display when interface is activating
- Power supply capacity
- Select paper sensor(s) to output paper-end signals
- ERROR signal when an error occurs
- Print data parsing settings
- Select mode for the USB port with charging function

NOTE

For details on the memory switches and customized values, see ["Software Settings" on page 57](#).

Follow the steps below.

1 After running a self-test, hold down the Feed button for at least one second to enter the Mode selection.

The Mode selection guidance is printed, and the Paper LED flashes.

2 Briefly press the Feed button three times (less than one second), hold it down for at least one second to enter the Software settings mode (Customized value setting).

The Software setting mode guidance is printed, and the Paper LED flashes.

Customize Value Settings

Modes

- 0: Exit
- 1: Print Current Settings
- 2: Print Density
- 3: Print Speed
- 4: Automatic Paper Reduction
- 5: Auto Paper Feed&Cut at cover close
- 6: Paper Width
- 7: Top Margin
- 8: Character/Font Settings
- 10: Interface Settings
- 11: Intelligent Settings
- 12: Command Execution (Offline)
- 13: Power Supply Output
- 14: Other Settings

Select Modes by executing following procedure.

- step 1. Press the Feed button less than 1 second as many times as the selected mode number.
- step 2. Press Feed button for 1 second or more.

3 After briefly pressing the Feed button (less than one second) for the number of times shown in the print result, hold down the button for more than one second to select the setting items.

The setting selected as the setting item, the current settings and default settings are printed.

Depending on the setting item, you may need to continue selecting the setting item before the settings are printed.

For details on setting items, see ["Software Settings" on page 57](#).

CAUTION

When set to a value other than those in the software setting mode, the current settings are not printed.

4 Select a setting by briefly pressing the Feed button (less than one second) for the number of times applicable to the setting, and then hold down the button for more than one second to confirm your selection.

After saving the settings, the Software setting mode guidance is printed, and the Paper LED flashes.

5 To close Software setting mode, turn off the printer, or select "Exit" to return to Mode selection guidance, and then select "Exit and Reboot Printer".

NOTE

- To select 0 as the item number, hold down the Feed button until printing starts.
- If the button is pressed a number of times that is not displayed by the Setup guidance, the operation is invalid and the same guidance is printed.

Restore Default Values Mode

In Restore default values mode, following values saved on NV Memory will be set back to default settings. When any error occurs, you can use to specify the reason.

Setting Contents	Setting Items	Restore Default Values and Delete Defined Data
Customized value	✓	✓
Memory switch	✓	✓
R/E (Receipt Enhancement) settings	✓	✓
Communication condition of USB interface	✓	✓
Communication condition of network interface	✓	✓
TM-Intelligent function settings	✓	✓
NV graphics	-	✓
NV bit image	-	✓
User-defined page	-	✓
User NV Memory	-	✓
Web contents	-	✓
<i>Bluetooth</i> low energy technology settings	-	✓

Follow the steps below.

- 1 After running a self-test, hold down the Feed button for at least one second to enter the Mode selection.**
The Mode selection guidance is printed, and the Paper LED flashes.
- 2 Briefly press the Feed button four times (less than one second), hold it down for at least one second to enter the Restore Default Values.**
The guidance is printed.
- 3 When only restoring the default settings:**
Briefly press the Feed button once (less than one second), hold it down for at least one second. (Hold down the Feed button until the message of restore completion is printed.)

When restoring default settings and deleting user defined data:

Briefly press the Feed button twice (less than one second), and then hold it down for at least one second. (Hold down the Feed button until the restoration complete message is printed.)

4 To finish, turn off the power.

Interface Setup Mode

Use this mode to setup the interface and other settings.

Follow the steps below.

- 1 After running a self-test, hold down the Feed button for at least one second to enter the Mode selection.**
The Mode selection guidance is printed, and the Paper LED flashes.
- 2 Briefly press the Feed button five times (less than one second), hold it down for at least one second to enter the Interface Setup mode.**
The guidance is printed.
- 3 After briefly pressing the Feed button (less than one second) for the number of times shown in the print result, hold down the button for more than one second to select the setting items.**

Initialize

Select [Wi-Fi & Ethernet Setup] or [Bluetooth Setup] and select [Initialize] to initialize the network setting parameter. The printer is reset and restarted.

SimpleAP mode (Wi-Fi model)

In Wi-Fi model, select [Wi-Fi & Ethernet Setup] and select [SimpleAP] to start in SimpleAP mode (the same as the factory default setting). The printer is reset and restarted, and it begins printing the "SimpleAP Start" information.

Select this to use Quick connection for Wi-Fi model.

NOTE

For information on the Quick connection function, see "[Simple Setup for Wireless LAN](#)" on page 25.

TM-Intelligent Settings Information Print Mode

This function allows you to print TM-Intelligent setting information currently registered in the printer.

Follow the steps below.

- 1 After running a self-test, hold down the Feed button for at least one second to enter the Mode selection.**
The Mode selection guidance is printed, and the Paper LED flashes.
- 2 Briefly press the Feed button six times (less than one second), hold it down for at least one second to print the TM-Intelligent setting information.**
After information printing, the Mode selection guidance is printed again.
- 3 To finish, turn off the power, or select "Exit and Reboot Printer".**

Peripheral Device Information Print Mode

This function allows you to print information for the device currently connected to the printer.

Customer display information
Wi-Fi adapter information
Bluetooth adapter information

Follow the steps below.

- 1 After running a self-test, hold down the Feed button for at least one second to enter the Mode selection.**
The Mode selection guidance is printed, and the Paper LED flashes.
- 2 Briefly press the Feed button seven times (less than one second), hold it down for at least one second to print the Peripheral Device Information.**
After information printing, the Mode selection guidance is printed again.
- 3 To finish, turn off the power, or select "Exit and Reboot Printer".**

Hexadecimal Dumping Mode

In hexadecimal dumping mode, data from the host device is printed in hexadecimal numbers and characters. By comparing the print outs and the program, you can check whether or not data is being sent to the printer correctly.

NOTE

- When there are no characters that correspond to the print data, " ." is printed.
- If you press the Feed button when there is less than one line of print data, one line is printed.
- During hexadecimal dumping mode, applications that check the printer status may not operate correctly. The printer only returns the status for the "Real-time transmission status" command.

Follow the steps below.

- 1 Open the roll paper cover.**
- 2 While pressing the Feed button, turn on the printer. (Hold down the Feed button until the Error LED turns on.)**
- 3 Close the roll paper cover.**
From this point, all data received by the printer is printed in the corresponding hexadecimal numbers and ASCII characters.

Example of printing in hexadecimal dumping mode:

```
Hexadecimal Dump
To terminate hexadecimal dump,
press FEED button three times.

1B 21 00 1B 26 02 40 40 1B 69 . ! . . & . @ . i
1B 25 01 1B 63 34 00 1B 30 31 . % . . c 4 . . 0 1
41 42 43 44 45 46 47 48 49 4A A B C D E F G H I J

*** completed ***
```

- 4 To close hexadecimal dumping mode, turn off the printer after printing is complete, or press the Feed button for three times.**

Printing a Status Sheet

Follow the steps below to check the interface settings.

NOTE

When the power LED is flashing, wait until it remains lit to start printing.

Using the Status Sheet Button

- 1 Check that the printer is turned on.**
Make sure the roll paper cover is closed.
- 2 If there is a connector cover, remove the cover.**
See "[Attaching the Connector Cover](#)" on page 46 for details on removing the connector cover.
- 3 Hold down the status sheet button for at least three seconds.**
The status sheet is printed. After printing, the printer returns to the standard mode.

Using the Feed button

- 1 Check that the printer is on.**
- 2 Open the roll paper cover.**
- 3 Hold down the Feed button for at least three seconds.**
- 4 Close the roll paper cover.**
The status sheet is printed. After printing, the printer returns to the standard mode.

*** Wi-Fi & Ethernet Interface ***

Wi-Fi Status

MAC Address : Unmounted
SSID : EPSON_Printer
Network Mode : Infrastructure
Comm Standard : 802.11b/g/n
Encryption Type : WPA2-PSK
Link Status : Unknown
Channel : Unknown
Transmission : Unknown
Access Point : Unknown
Signal Level : Unknown

Ethernet Status

MAC Address : XX-XX-XX-XX-XX-XX
Physical Layer : Auto-negotiation
Link Status : Connect

Ethernet

WF : XXXXXXXXXXXXX
DN : TM-T88VI



Network

Soft Version : XX.XX

TCP/IP Status

Acquiring : Auto
IP Address : XXX.XXX.XXX.XX
Subnet Mask : XXX.XXX.XXX.X
Default Gateway : X.X.X.X

Service Status

Time Server : (off)
Server Direct Print : (off)
Web Contents Updater : (off)
Status Notification : (off)

Other Status

Date/Time : 20XX/XX/XX 00:00:00
Wi-Fi Device ID : Unknown
Wi-Fi Region ID : 0

---Server access test result---

Device

local_printer
Model :TM-T88VI
Connection :Success
network_printer1
Model :TM-Txx
IP Address :192.168.192.100
Connection :Success
network_printer2
Model :TM-Txx
IP Address :192.168.192.101
Connection :Success

Spooler

Remaining Jobs :0 job

Server Direct Print

Server 1
Access Test :Success
Server 2
Access Test :Success
Server 3
Access Test :Success

Status Notification

Access Test :Success

Web Contents Update

Access Test
:HTTP Status Code : 404
Update Information
Contents Timestamp
:Wed Jan 1 00:00:52 2014
Last Update
:Wed Jan 1 00:00:53 2014
Update Result
:WebContentsSuccess

Resetting the Interface Settings

Follow the steps below to reset the interface settings.

NOTE

- You can return the interface settings to their defaults from the Interface Setup mode. See ["Interface Setup Mode" on page 76](#) for details on the Interface Setup mode.
- Only network settings are returned to their defaults.

- 1 Turn off the printer and close the roll paper cover.**
- 2 If the connector cover is attached, remove the cover.**
See ["Attaching the Connector Cover" on page 46](#) for details on removing the connector cover.
- 3 Hold down the status sheet button while turning on the printer.**
A message is printed indicating that resetting is being performed, and the printer restarts.

CAUTION

Hold down the status sheet button until the initialization execution message is printed.

TM-Intelligent Function

This product supports the TM-Intelligent function and provides the following functions.

- Network Printer Control
- Controlling for POS Peripherals
- Spooler and Print Forwarding
- Server Direct Print
- Device Data Notification
- Web Server
- Controlling POS Peripherals from iOS Applications
- Controlling POS Peripherals from Android Applications
- Controlling POS Peripherals from Web Applications
- Printing from Web Service Compatible Applications
- Controlling POS Peripherals from Socket Communication Compatible Applications

You can change the settings for each of the TM-Intelligent functions using Epson TM-T88VI Utility for Windows or EpsonNet Config (Web version). For details on the setting method for Epson TM-T88VI Utility for Windows, see the TM-T88VI Utility User's Manual.

You can also download a dedicated manual and sample programs from our homepage.

Network Printer Control

A function for printing on printers on the same network and acquiring printer status is implemented in the TM-Intelligent software. You can configure a system for controlling printers via smart device or a Web application.

You can perform control from a wide range of terminals and applications compatible with SOAP/HTTP communications.

Since a network printer can be controlled simply by designating the device ID from the customer's application, application development becomes easy.

For controllable network printers, see ["Product Specifications" on page 123](#).

Setting Items

Setting	Items
Enabling / Disabling for ePOS-Device Service	<ul style="list-style-type: none">• Enabling ePOS-Device Service
Web service	<ul style="list-style-type: none">• Enabling the Device Control
Network printer	<ul style="list-style-type: none">• Printer model• Device ID• IP Address

Controlling for POS Peripherals

A function for controlling POS peripherals is implemented in the TM-Intelligent software. Communication with peripherals is controlled by device control script files based on the communication protocol with the peripherals. You can control peripherals from socket communication compatible terminal applications. Accordingly, you can configure a system for controlling POS peripherals from smart device applications, which until now was difficult to do.

For details on controllable POS peripherals, see the Epson ePOS SDK User's Manual.

Device control script file

The following device control script files are registered to this product.

Device	Device type
Keyboard	Key input device
Keyboard with MSR (Tipro MID-QM128A)	
USB composite device (Cherry SPOS)	
Barcode scanner	
USB-Serial conversion cable	Serial communication device2
Serial communication device	

Setting Items

Setting	Items
Enabling / Disabling ePOS-Device Service	<ul style="list-style-type: none"> Enabling ePOS-Device Service
Web service	<ul style="list-style-type: none"> Enabling the Device Control
Customer display	<ul style="list-style-type: none"> Use / Do not use
Key input device	<ul style="list-style-type: none"> Device ID Select the device control script
Serial communication device	<ul style="list-style-type: none"> Device ID Select the device control script Communication settings
Other device	<ul style="list-style-type: none"> Device ID Select the device control script

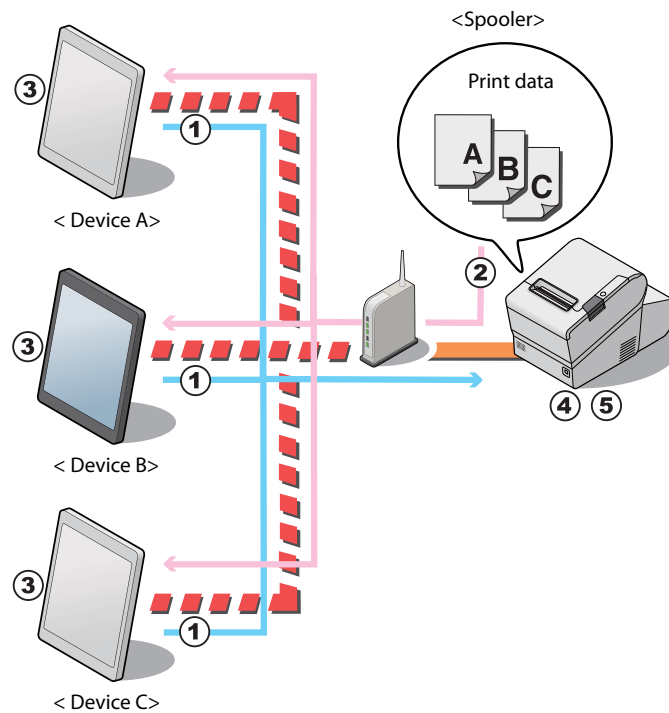
Spooler and Print Forwarding

Spooler

A spooler for saving print data and conducting background printing is implemented in the TM-Intelligent software. Even in systems where multiple print jobs are concentrated, an application system can be configured where response is not impeded.

General printing applications finish transactions upon confirming the printing. Due to such waiting, response times deteriorate in systems where multiple print jobs are concentrated. The spooler application stores print data and immediately returns the printing results to the application. This allows the application to proceed to the next operation without waiting for the current printing job to be completed.

Processing Flow using the Spooler Function



- 1 Devices A to C request printing of data A to C almost simultaneously.
- 2 The TM-Intelligent software saves the print data in the spooler in the order it receives it, and returns the printing results (JobID, printing result = true) to each device.
- 3 Each device application completes the printing process and executes the next operation.
- 4 This product successively prints print data A to C.
- 5 The TM-Intelligent software saves the printing results (JobID, printing result = true) in the log.

CAUTION

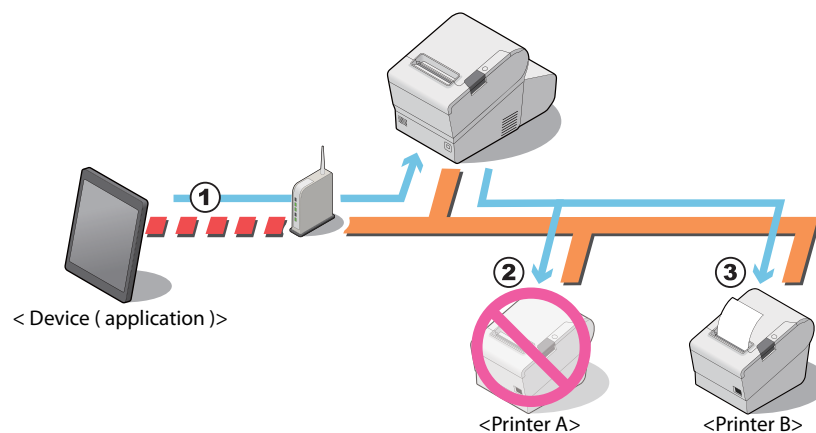
- If the printer cannot print because it is offline or there is an error, print data cannot be printed even if spooled. Since printing results are logged, they can be confirmed from the application. For the confirmation method, see "[Checking the print results](#)" on page 87.
- When power to this product is turned off, the spooler saved fields are erased.
- If the print data exceeds the remaining capacity of the spooler and cannot be spooled, the print data is erased. Concerning the spooler capacity, see "[Product Specifications](#)" on page 123.

Print Forwarding

Print forwarding, which enables printing to be performed from a different printer if it cannot be performed on another one is implemented in the TM-Intelligent software. You can configure a secure system that enables printing to be performed on a separate printer even if one printer cannot be used. All you need to do is specify the forwarded printer in the case where printing cannot be performed to the TM-T88VI Utility for Windows or the EpsonNet Config (Web version). There is no need to resend print data.

Complicated processing is required in order to implement a function by a general application for printing from a separate printer when a printer cannot be printed. By using print forwarding, since the TM-Intelligent software automatically conducts print forwarding, the printing process on the customer's application can be simplified.

Processing Flow using the Spooler Function



- 1** The device application sends the print data to the TM-Intelligent software.
- 2** The TM-Intelligent software tries to conduct printing process on printer A but cannot because the printer is offline. The TM-Intelligent software retries the number of times that is set in the spooler function.
- 3** The TM-Intelligent software prints with printer B.

CAUTION

- If a printer that is set as a forwarding source or forwarding destination cannot print because it is offline or because of an error, printing is not performed even if print forwarding is set. The printing results are logged and can be confirmed from the application. For the confirmation method, see ["Checking the print results" on page 87](#).
- When power to this product is turned off, the print forwarding data is erased. The print forwarding settings are not erased.
- If the print data exceeds the remaining capacity of the spooler and cannot be spooled, the print data is erased. Concerning the spooler capacity, see ["Product Specifications" on page 123](#).

Checking the print results

When the spooler is disabled

After printing, the job ID and print results are returned to the application. Also, when printing cannot be performed, the job ID, print results, and error code are returned.

When the spooler is enabled

- When print data cannot be spooled:
[JobID, Print result = false, Error code = EX_SPOOLER (spooler stopped)] is returned to the application.
- When print data can be spooled:
After spooling the print data, [JobID, Print result = true] is returned to the application. Printing is not performed at this point. Make an inquiry from the application to this product to confirm if printing was performed.

Checking the print results from the application

If inquired of print result from the application, the product returns the following information.

- Printing succeeded: [JobID, Print results = true]
- Printing succeeded: [JobID, Print result = false, Error code = Printer status]
- Printing or print forwarding: [JobID, Print result = false, Error code = Printing]

NOTE

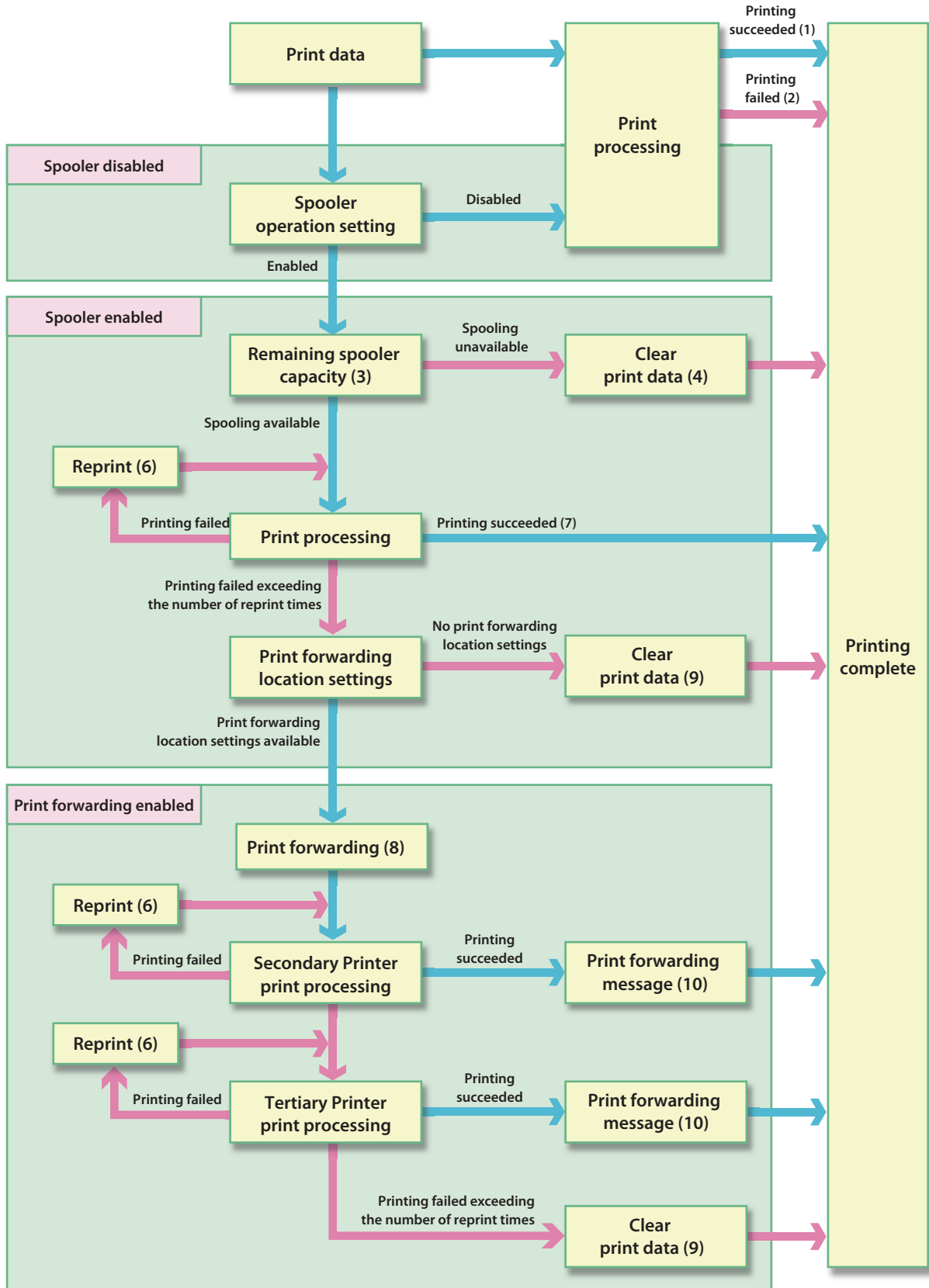
- When this product is turned off, data in the spooler and the log storage area is cleared. For detail, see "[Product Specifications](#)" on page 123.
- When printing cannot be performed with this products spooler or print forwarding, the print data is cleared. If printing has not been completed when checking in the application, we recommend reprinting.

Setting Items

Setting	Items
Enabling / Disabling ePOS-Device Service	<ul style="list-style-type: none"> • Enabling ePOS-Device Service
Web service	<ul style="list-style-type: none"> • Enabling spooler
Print forwarding	<ul style="list-style-type: none"> • Retry count • Forwarding message • Print forwarding route

Spooler and Print Forwarding

This section explains the print flow determined by whether or not the spooler or print forwarding is set for this product.



When spooler is disabled

- 1: Printing success
[JobID, Print result = true] is returned to the application.
- 2: Printing failed
[JobID, Print result = false, Error code = Printer status] is returned to the application.

When spooler is enabled

- 3: The remaining free space in the spooler and the size of the print data is checked, and the product determines whether or not the print data can be spooled.
- 4: If the print data cannot be spooled, the print data is cleared. [JobID, Print result = false, Error code = EX_SPOOLER (spooler stopped)] is returned to the application. This data is not stored in the product's spooler or the log storage area.
- 5: When print data can be spooled, [JobID, Print result = true] is stored in the spooler. [JobID, Print result = true] is also returned to the application.
- 6: Make the reprint settings (number of times and interval) in TM-T88VI Utility for Windows or EpsonNet Config (Web version).
- 7: When printing is successful, the spooler's print data and [JobID, Print result = true] are deleted. [JobID, Print result = true] are stored in the log storage area of this product.

When Print forwarding is enabled

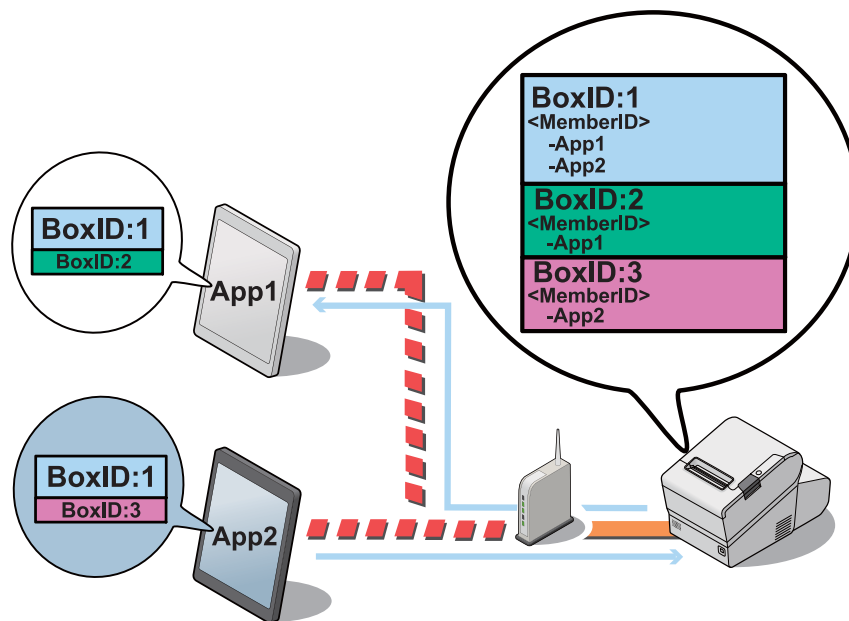
- 8: Send print data to Secondary printer.
- 9: When printing fails, the spooler's print data and [JobID, Print result = true] are deleted. [JobID, Print result = false, Error code = Printer status] are stored in the log storage area of this product.
- 10: Print with secondary (tertiary) printer.

Communication Box

A communication box, which is a virtual space for exchanging data between applications, is implemented in the TM-Intelligent software. The TM-Intelligent software discloses the virtual data space, which is identified by box ID, to applications. The box ID can be used by multiple applications, making it possible to easily configure a system for exchanging data between applications.

The communication box can be set and used from applications compatible with Epson ePOS SDK and ePOS-Device XML.

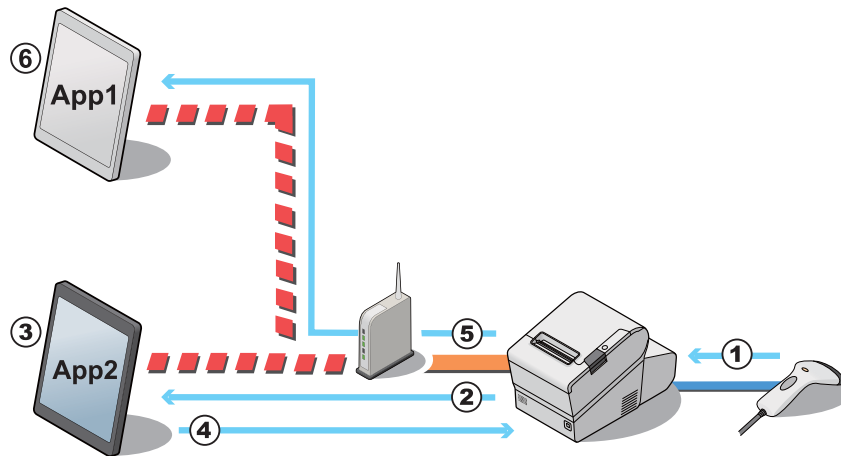
Communication Box Mechanism



The TM-Intelligent software manages the communication box with a box ID (BoxID in the figure above). Data can be exchanged between applications that belong to the communication box.

In the figure, applications App1 and App2 exchange data using the communication box with BoxID:1.

An example for processing the data using communication box



- 1** The product receive a barcode data scanned from scanner.
- 2** TM-Intelligent Software notify the barcode data to App2.
- 3** App2 acquire the barcode data, then convert to POS data.
- 4** App2 sends display data to communication box of TM-Intelligent Software.
- 5** TM-Intelligent Software notify the data is stored into communication box to App1.
- 6** App1 acquire the stored display data from communication box.

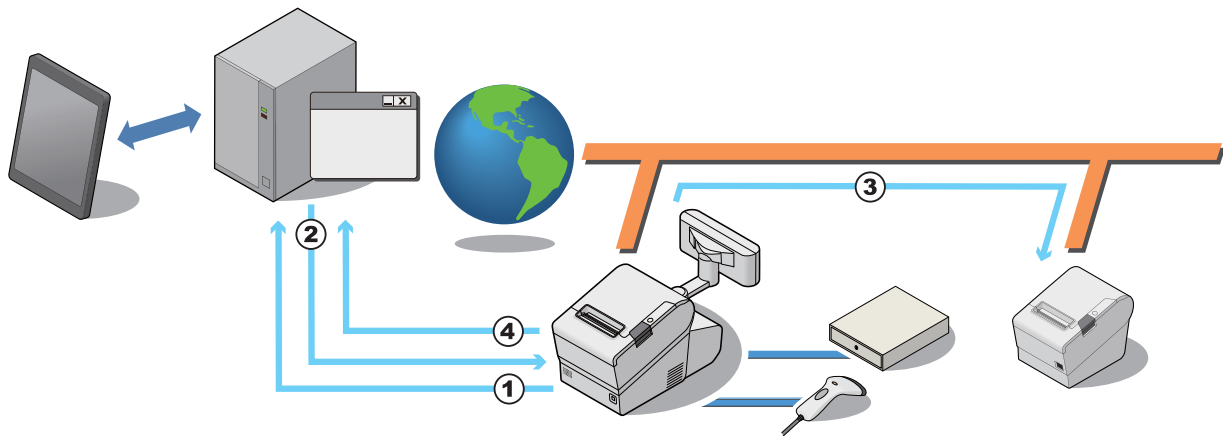
Server Direct Print

Server Direct Print is implemented in the TM-Intelligent software. The function allows the TM-Intelligent software to issue printing requests to Web server applications, conduct printing upon directly acquiring print data from the Web server, and notify the printing results to applications.

General printing system applications perform printing upon designating the printer. A function for including ePOS-Print XML print data in response to printing requests can be implemented in server direct print applications. Since the printer IP address is not specified from the application, printing can be performed via the internet even in environments where printing is difficult because the IP address cannot be acquired on the Web server side or the device cannot be controlled via the internet due to security policy settings.

Because the Web server application only includes print data in the response, printing can be performed without designating the printer.

Processing Flow Using the Server Direct Print Function



- 1** The TM-Intelligent software issues a print request to the Web server application.
- 2** The Web server application sends a response that includes print data to the TM-Intelligent software.
- 3** The TM-Intelligent software sends print data to the printer and performs printing.
- 4** The software notifies the printing results to the application.

Items to be Prepared by the Customer

- Web server
- Application for including print data in the responses to requests from the TM-Intelligent software

Setting Items

Setting	Items
Enabling / Disabling ePOS-Device Service	<ul style="list-style-type: none">• Enabling ePOS-Device Service
Web service	<ul style="list-style-type: none">• Enabling device control• Enabling server direct print• Enabling status notification
Server direct print	<ul style="list-style-type: none">• Application server settings
Status notification	<ul style="list-style-type: none">• Application server settings
Network printer	<ul style="list-style-type: none">• Printer model• Device ID• IP address
Proxy settings	<ul style="list-style-type: none">• Proxy server settings

Device Data Notification

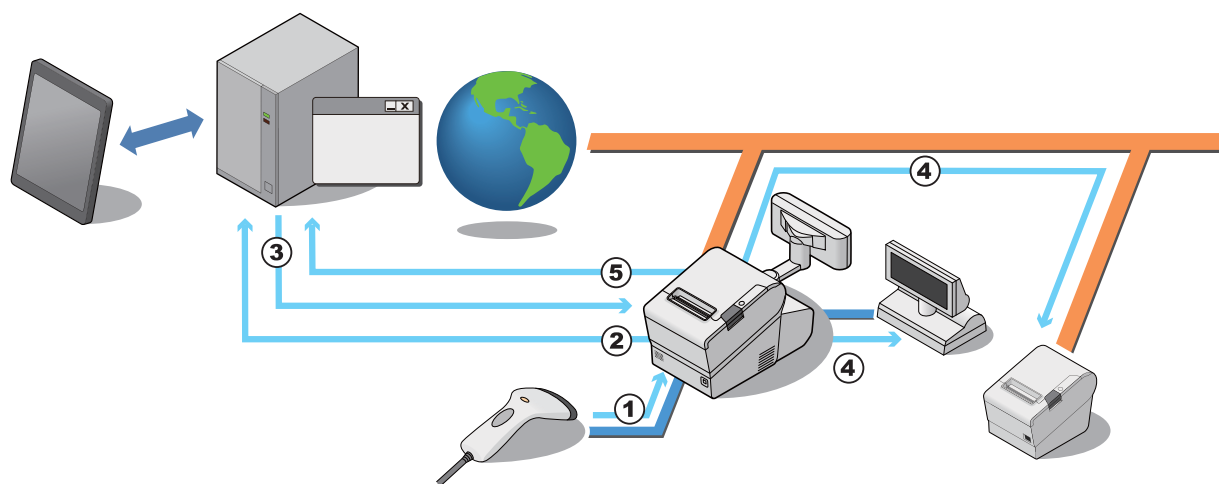
A device data notification function for using input data from a barcode scanner, etc. connected to this product as a trigger to receive print data or other data for controlling a device directly from the Web server and notifying the control results to the application is implemented in the TM-Intelligent software.

The Web server application can control the printer and device designated simply by including print data or device control data in the response.

You can configure a system for performing printing and controlling peripherals based on data notices from the device.

General printing system applications commence printing from the application side. A function for including print data in responses to printing requests can be implemented in the applications mounted on Web servers through device data notification. This function can be used to perform printing by using an ID number scanned by a barcode scanner as a trigger.

Processing Flow Using the Device Data Notification Function



- 1** The operator scans the ID number, etc. with a barcode scanner.
- 2** Application for including device control data in response to requests from the TM-Intelligent software
- 3** The Web server application sends a response that includes device control data to the TM-Intelligent software.
- 4** The TM-Intelligent software sends the control data to the target device, and processing is performed.
- 5** The TM-Intelligent software notifies the device control results to the application.

Items to be Prepared by the Customer

- Web server
- Application for including device control data in response to requests from the TM-Intelligent software

Setting Items

Setting	Items
Enabling / Disabling ePOS-Device Service	<ul style="list-style-type: none"> • Enabling ePOS-Device Service
Web service	<ul style="list-style-type: none"> • Enabling device control • Enabling device data notification
Device data notification	<ul style="list-style-type: none"> • Application server settings • Error settings
Network printer	<ul style="list-style-type: none"> • Printer model • Device ID • IP address
Customer display	<ul style="list-style-type: none"> • Use / Do not use
Key input device	<ul style="list-style-type: none"> • Device ID • Select the device control script
Serial communication device	<ul style="list-style-type: none"> • Device ID • Select the device control script • Communication settings
Other device	<ul style="list-style-type: none"> • Device ID • Select the device control script
Proxy settings	<ul style="list-style-type: none"> • Proxy server settings

Web Server

You can configure a Web server system which mounts the server-side scripting (php) Web contents. You can also use the SQLite database. Moreover, you can configure an automatic update system of Web contents for automatically updating Web contents from a separate Web server at regular intervals.

Preparation of Web content

File format

- HTML file
- CSS file
- JavaScript
- Image data
- php script (*.php)

Package file (*.zip)

Zip the files to be registered all together. The zip file name is arbitrary.

- Use one-byte alphanumeric characters (ASCII characters) for a zip file name and sub-folder name.
- The maximum size of the files before zipping is 100 MB. Otherwise, registering fails.
- Web contents cannot be registered additionally. All files are overwritten and registered. Zip web contents before registering.
- To register a print stylesheet, create a folder named "stylesheet" in the root folder, and store your print stylesheet in the folder. Then zip the folder.

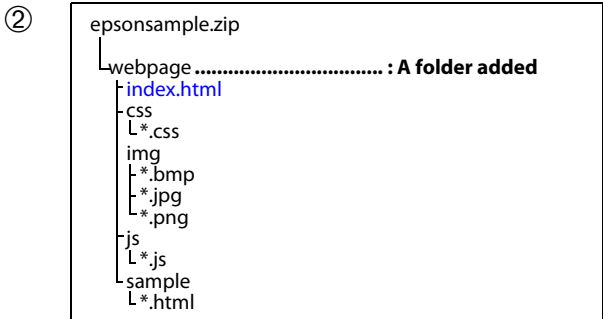
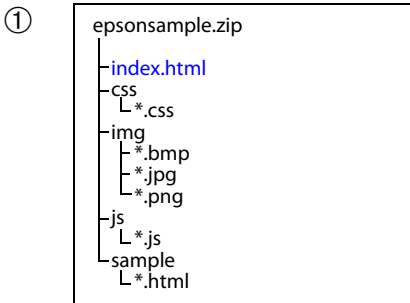
<Web contents and Print stylesheet>

```
ePOS-Device_UM_E_Sample.zip .....: Zip file
├─ index.html
├─ css
│  └─ *.css
├─ img
│  └─ *.bmp
│     └─ *.jpg
│        └─ *.png
├─ js
│  └─ *.js
├─ sample
│  └─ *.html
├─ ssltrustedcerts .....: Server authentication certificate
│  └─ example.pem
├─ sslservercerts .....: SSL authentication certificate
│  └─ ServerCert.crt.....Certificate file
│     └─ ServerKey.key.....Private key file
│        └─ ChainCert.crt.....Certificate chain file
```

<Print stylesheet only>

```
samplestylesheet.zip : Zip file
└─ stylesheet : Print stylesheet
   └─ *.xls
```

- When you access to registered web contents from an input terminal and so on, the URL differs depending on the folder structure of the zip file.
 - ① `http://[the product's IP address]/webapp/index.html`
 - ② `http://[the product's IP address]/webapp/webpage/index.html`



Register the prepared Web content file to TM-Intelligent Software.

NOTE The above samples are for storing all contents of your Web app under the "webapp" folder. Change the folder name according to your folder structure on the server.

Setting Items

Setting	Items
Enabling / Disabling ePOS-Device Service	<ul style="list-style-type: none"> • Enabling ePOS-Device Service
Web content update	<ul style="list-style-type: none"> • Register the web content • Web server settings for automatically updating
Web service	<ul style="list-style-type: none"> • Enabling automatic web content update

Controlling POS Peripherals from iOS Applications

A function for controlling this product's POS peripherals and network printers from iOS applications is implemented in the TM-Intelligent software.

Utilizing Epson ePOS SDK for iOS included in Epson ePOS SDK, you can easily configure an application system using API for controlling POS peripherals and printers.

Setting Items

Setting	Items
Enabling / Disabling ePOS-Device Service	<ul style="list-style-type: none">• Enabling ePOS-Device Service
Web service	<ul style="list-style-type: none">• Enabling the device control
Printer	<ul style="list-style-type: none">• Printer model• Device ID• IP address
Key input device	<ul style="list-style-type: none">• Device ID• Select the device control script
Serial communication device	<ul style="list-style-type: none">• Device ID• Select the device control script• Communication settings

Controlling POS Peripherals from Android Applications

A function for controlling this product's POS peripherals and network printers from Android applications is implemented in the TM-Intelligent software.

Utilizing Epson ePOS SDK for Android included in Epson ePOS SDK, you can easily configure an application system using API for controlling POS peripherals and printers.

Setting Items

Setting	Items
Enabling / Disabling ePOS-Device Service	<ul style="list-style-type: none"> • Enabling ePOS-Device Service
Web service	<ul style="list-style-type: none"> • Enabling the device control
Network printer	<ul style="list-style-type: none"> • Printer model • Device ID • IP address
Key input device	<ul style="list-style-type: none"> • Device ID • Select the device control script
Serial communication device	<ul style="list-style-type: none"> • Device ID • Select the device control script • Communication settings

Controlling POS Peripherals from Web Applications

A function for controlling this product's POS peripherals and network printers from Web applications is implemented in the TM-Intelligent software. You can also shut this product down from Web applications. Moreover, you can print images that are drawn on HTML5 Canvas from a HTML5-compatible Web browser.

Using the Epson ePOS SDK for JavaScript included in the Epson ePOS SDK, you can easily construct an application system by utilizing APIs for controlling POS peripherals and printers.

You can implement Web applications in a Web server or this product and use them from HTML5-compatible browser-mounted terminals.

Setting Items

Setting	Items
Enabling / Disabling ePOS-Device Service	<ul style="list-style-type: none">• Enabling ePOS-Device Service
Web service	<ul style="list-style-type: none">• Enabling the device control
Network printer	<ul style="list-style-type: none">• Printer model• Device ID• IP address
Key input device	<ul style="list-style-type: none">• Device ID• Select the device control script
Serial communication device	<ul style="list-style-type: none">• Device ID• Select the device control script• Communication settings

Printing from Web Service Compatible Applications

A function for controlling this product's POS peripherals and network printers from applications compatible with Web services is implemented in the TM-Intelligent software.

Through using the ePOS-Print XML system, you can perform printing from various device applications compatible with SOAP/HTTP communications. You can configure a system for controlling printers without depending on the OS. Moreover, because there is no need to install drivers and plug-ins to terminals, you can perform printing from a wide range of devices and systems compatible with Web services.

Setting Items

Setting	Items
Enabling / Disabling ePOS-Device Service	<ul style="list-style-type: none"> • Enabling ePOS-Device Service
Web service	<ul style="list-style-type: none"> • Enabling the device control
Network printer	<ul style="list-style-type: none"> • Printer model • Device ID • IP address

Controlling POS Peripherals from Socket Communication Compatible Applications

A function for controlling this product's POS peripherals and network printers from applications compatible with Web services is implemented in the TM-Intelligent software.

There is no need to install drivers and plug-ins to terminals.

Through using the TM-Intelligent system, you can perform printing from various device applications compatible with socket communications. You can configure a system for controlling printers without depending on the OS. Moreover, because there is no need to install drivers and plug-ins to terminals, you can perform control of POS peripherals from a wide range of devices and systems compatible with Web services.

Setting Items

Setting	Items
Enabling / Disabling ePOS-Device Service	<ul style="list-style-type: none">• Enabling ePOS-Device Service
Web service	<ul style="list-style-type: none">• Enabling the device control
Network printer	<ul style="list-style-type: none">• Printer model• Device ID• IP address
Key input device	<ul style="list-style-type: none">• Device ID• Select the device control script
Serial communication device	<ul style="list-style-type: none">• Device ID• Select the device control script• Communication settings

Application Development Information

This chapter describes how to control the printer and gives information useful for printer application development.

Controlling the Printer

The printer supports the following command systems:

- ESC/POS
- ePOS-Device XML
- ePOS-Print XML

Users can control the printer by using the aforementioned command, or the following development kits or drivers.

- EPSON Advanced Printer Driver (APD)
- OPOS ADK
- OPOS ADK for .NET
- JavaPOS ADK
- EPSON TM Virtual Port Driver
- Mac Printer Driver
- Epson TM/BA Series Thermal Printer Driver
- Epson ePOS SDK

ePOS-Print XML

ePOS-Print XML is the Epson original control command system for POS printers defined in XML. With ePOS Print XML commands, you can print in environments where http communication is available and from OS applications. For detailed information about ePOS-Print XML, see the ePOS-Print XML User's Manual.

ePOS-Device XML

ePOS-Device XML is a command system that uses XML to define functions to control various POS peripherals (including this product printer unit) connected to this product. An application creates a request message in XML format and sends it to this product using socket communications. For detailed information about ePOS-Device XML, see the ePOS-Device XML User's Manual.

ESC/POS

ESC/POS is the Epson original printer command system for POS printers and customer display. With ESC/POS commands, you can directly control all the printer functions, but detailed knowledge of printer specifications or combination of commands is required, compared to using drivers and applications.

For detailed information about ESC/POS commands, see the ESC/POS Command Reference that can be accessed from the following URL.

<https://reference.epson-biz.com/pos/reference/>

Controlling the Cash Drawer

A pulse output is sent to drawer kick connector pin 2 or pin 5, and you can open the drawer.

You can also check the open/close status of the drawer by checking the signal level of the drawer kick connector pin 3.

These controls are executed by a driver or by commands.

ESC/POS Commands

Prepare the output command for the specified pulse and the status transmission command.

For details, see the ESC/POS Command Reference.

For Windows Printer Drivers (APD)

You can set so that the drawer opens at the start/end of printing or start/end of a page. For details, see the manual for drivers.

For details on control, see the manual for Status API of the driver.

OPOS (OCX Driver)

Register a cash drawer using the SetupPOS Utility, and control using the OpenDrawer method or the DirectIO function.

For details, see the "EPSON OPOS ADK MANUAL APPLICATION DEVELOPMENT GUIDE Cash Drawer" and the "UnifiedPOS Specification".

OPOS for .NET

Register a cash drawer using the SetupPOS Utility, and control using the OpenDrawer method or the DirectIO function.

For details, see the "EPSON OPOS ADK for .NET MANUAL Application Development Guide Cash Drawer (EPSON Standard)" and the "UnifiedPOS Specification".

Epson ePOS SDK

The output command for the drawer kick pulse and the status transmission command are provided in each SDK library. For details, see the user's manuals provided with each SDK.

NOTE

- Whether or not pin 2 or pin 5 operates the drawer kick connector depends on the connected cash drawer.
- You can acquire documents regarding the UnifiedPOS from the following link.
<https://nrf.com/resources/retail-technology-standards/unifiedpos>

Controlling the Built-in Buzzer

For specifications with a built-in buzzer, a pulse output is sent to the operating pin for the drawer kick connector, and the built-in buzzer beeps.

You cannot change the volume or the sound emitted, but you can change the buzzing time by changing the signal pulse width.

This is controlled by a driver or by commands.

ESC/POS Commands

The output command for the specified pulse is used.

For details, see the ESC/POS Command Reference.

For Windows Printer Drivers (APD)

You can set so that the buzzer beeps at the start/end of printing or start/end of a page. For details, see the manual for drivers.

For API, the API for opening the drawer is used. For details, see the manual for Status API of the driver.

OPOS (OCX Driver)

Register a POS printer using the SetupPOS Utility and control using the DirectIO function.

For details, see the "EPSON OPOS ADK MANUAL APPLICATION DEVELOPMENT GUIDE POSPrinter (TM Series)".

OPOS for .NET

Register a POS printer using the SetupPOS Utility and control using the DirectIO function.

For details, see the "EPSON OPOS ADK for .NET MANUAL Application Development Guide POSPrinter (TM-T88VI)".

Epson ePOS SDK

Use the output command for the drawer kick pulse provided in each SDK library. For details, see the user's manuals provided with each SDK.

NOTE

When using a cash drawer operated by pin 5 with a built-in buzzer, you need to change the DIP switch settings for the buzzer circuit so that the buzzer beeps from a pulse signal for pin 2. For details, see "[Setting the Built-in Buzzer \(for Model with a Built-in Buzzer\)](#)" on page 41.

Controlling the Optional External Buzzer

You can set the optional external buzzer to buzz when an error occurs and when an automatic cut off occurs.

The buzzer can be buzzed using a driver or a command.

You can also set the timing and the beep pattern for the buzzer.

ESC/POS Command

Use the buzzer control command or the output command for the specified pulse.

For details, see the ESC/POS Command Reference.

For Windows Printer Drivers (APD)

You can set so that the buzzer beeps at the start/end of printing or start/end of a page. For details, see the manual for drivers.

For API, use the DirectIO function or the API for opening the drawer. For details, see the manual for Status API of the drivers.

OPOS (OCX Driver)

Register a POS printer using the SetupPOS Utility and control using the DirectIO function.

For details, see the "EPSON OPOS ADK MANUAL APPLICATION DEVELOPMENT GUIDE POSPrinter (TM Series)".

OPOS for .NET

Register a POS printer using the SetupPOS Utility and control using the DirectIO function.

For details, see the "EPSON OPOS ADK for .NET MANUAL Application Development Guide POSPrinter (TM-T88VI)".

Epson ePOS SDK

The command for the buzzer function is provided in each SDK library. For details, see the user's manuals provided with each SDK.

NOTE

For details on setting the optional external buzzer, see "[Connecting the Optional External Buzzer](#)" on [page 42](#).

Software

The following software is provided for application development.

Development Kits

Software	Description
EPSON OPOS ADK	This OCX driver can control POS peripherals using OLE technology.*1 Because controlling POS peripherals with original commands is not required on the application side, efficient system development is possible.
EPSON OPOS ADK for .NET	The OPOS ADK for .NET is a POS industry standard printer driver compatible with Microsoft POS for .NET. It allows you to develop applications that are compatible with the UPOS (Unified POS) specification. When developing applications, use a separate development environment such as Microsoft Visual Studio .NET.
EPSON JavaPOS ADK (Windows/ Linux)	JavaPOS is the standard specification which defines an architecture and device interface (API) to access various POS devices from a Java based system. Using JavaPOS standard API allows control with Java based applications of functions inherent to each device. A flexible design with Java language and JavaPOS enables many different types of computer systems, such as stand alone or network configuration, to use a same application. You can use JavaPOS to build applications and drivers independently of platforms. This allows flexible configurations using thin clients to meet the system requirements.
Epson ePOS SDK	This is a developer kit to control applications, native applications for smart devices, and printers. This includes libraries, manuals, and sample programs.
for Android	
for iOS	
for Universal Windows apps	
for JavaScript	

*1: OLE technology developed by Microsoft divides software into part blocks. The OPOS driver is presupposed to be used with a development environment, such as Visual Basic, unlike ordinary Windows printer drivers. It is not a driver to be used for printing from commercial applications.

You can acquire documents regarding the UnifiedPOS from the following link.

<https://nrf.com/resources/retail-technology-standards/unifiedpos>

Drivers

Software	Description	Operating environment
EPSON Advanced Printer Driver (APD)	In addition to ordinary Windows printer driver functions, this driver has controls specific to POS. The Status API (Epson original DLL) that monitors printer status and sends ESC/POS commands is also attached to this driver.	Windows
EPSON TM Virtual Port Driver	This is a serial/parallel-USB/LAN conversion driver to make an Epson TM/BA/EU printer connected via USB or LAN accessible from a POS application through a virtual serial or parallel port. It allows you to directly control devices connected via USB or LAN with ESC/POS commands without making changes in the POS application that controls devices connected via a serial or parallel interface.	Windows
Mac Printer Driver	Mac printer driver allows you to control the printer using Common UNIX Printing System (CUPS) on Mac OS X. This is a full raster printer driver. It is able to print images, text, and vector graphics etc., that an application displays. With this driver many printer controls are possible, such as paper cut timing control, cash drawer control, printing speed control, blank line skip, and upside-down printing. It also provides API and dialogues for print setting, sample applications, and logo setting utility.	Mac OS X
Epson TM/BA Series Thermal Printer Driver	This driver allows you to control the printer using Common UNIX Printing System (CUPS) on GNU/Linux. This is a full raster printer driver. It is able to print images, text, and vector graphics etc., that an application displays. With this driver many printer control are possible, such as paper cut timing control, cash drawer control, printing speed control, blank line skip, and upside-down printing.	GNU/Linux

Utilities

Software	Description	Operating environment
TM-T88VI Utility	A utility for checking and changing various printer settings. Use this utility to: <ul style="list-style-type: none"> • Check the current settings • Test operation • Store logos • Set paper saving • Set printing control • Set communication interfaces • Set the network • Set the intelligent function • Save/restore settings 	Windows
Epson TM Utility	A utility that can be downloaded from App Store or Google Play. You can check and change printer settings, and update firmware from iOS and Android devices. You can also perform demo printing.	iOS, Android
EpsonNet Config	A network setting tool for Epson network products.	Windows, Mac
Epson Deployment Tool	Use to make network and printer settings simultaneously. Allows you to make settings efficiently at the time of introducing TM printers for the first time, or when configuring multiple TM printers at the same time.	Windows

Software	Description	Operating environment
Epson Monitoring Tool	Use to check a list of status for the Epson printers connected to the network. You can also update certificates for multiple printers used for WPA2-Enterprise in a batch.	Windows
TM-T88VI Printer Model Setting Utility	This tool allows you to change the model name for the TM-T88VI-iHUB to TM-T88V or TM-T88IV.	Windows
BmpToRaster	You can convert BMP image files to multi tone or black and white print command data.	Windows
EPSON TMUSB Identifier Utility	This tool allows you to change the USB identification code (USB Serial No.). Setting an identification code before replacement makes it easy to perform replacement if a malfunction occurs.	Windows
TM-T88VI Firmware Updater	This tool allows you to update the firmware for the TM-T88VI-iHUB.	Windows

Others

Manual	Description
ePOS-Print XML User's Manual	Describes ePOS-Print XML statements. This manual comes with sample programs.
ePOS-Device XML User's Manual	Describes ePOS-Device XML statements. This manual comes with sample programs.
TM-T88VI/TM-T88VI-iHUB WebConfig API User's Manual	Describes the API for setting this product's TM-Intelligent function. Refer to this manual when using the API from your application to acquire or change settings.

Download

You can obtain software and manuals from one of the following URLs.

For customers in North America, go to the following web site and follow the on-screen instructions.

<http://www.epson.com/support/>

For customers in other countries, go to the following web site:

<http://download.epson-biz.com/?service=pos>

Handling

This chapter describes basic handling of the printer.

Installing and Replacing Roll Paper

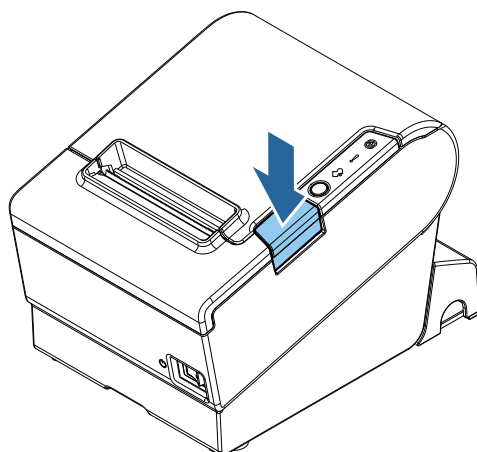


- **Do not open the roll paper cover during printing.**
The printer may be damaged.
- **Do not touch the manual cutter with your hands when installing or replacing the roll paper.**
Otherwise, you may be injured because the manual cutter blade is sharp.

CAUTION

- Use roll paper that meets the printer specification. For details about paper specification, see ["Paper Specifications" on page 129](#).
- Paper must not be pasted to the roll paper spool.

1 Open the roll paper cover.

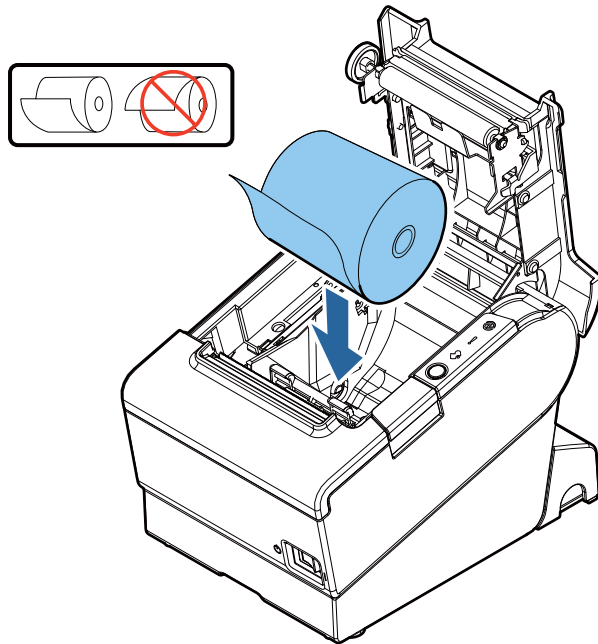


CAUTION

When the roll paper cover cannot be opened, see ["Removing Jammed Paper" on page 114](#).

2 Remove the used roll paper core, if any.

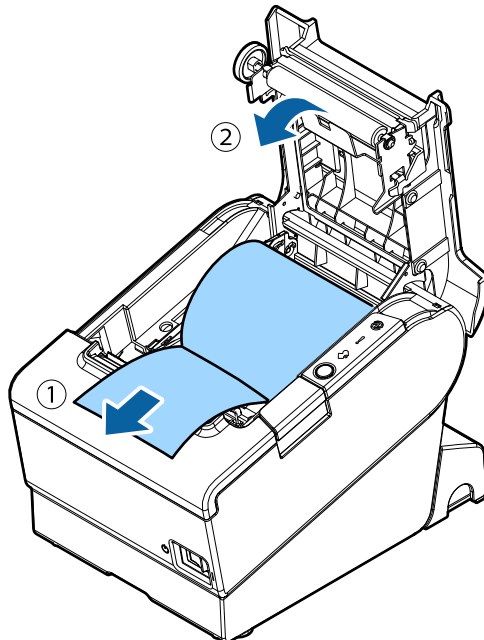
3 Install the roll paper in the correct direction.



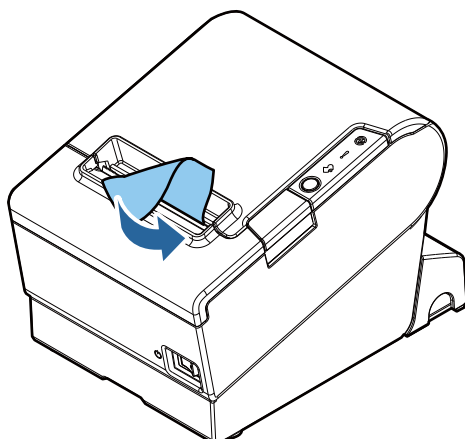
CAUTION

When roll paper is loaded, feed the paper for at least 20 mm.

4 Pull out some roll paper, and close the roll paper cover.



5 Tear off the paper.



Removing Jammed Paper



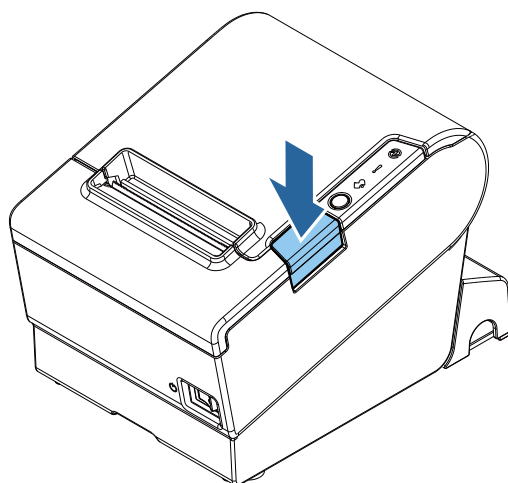
Do not touch the thermal head and its surroundings. After printing, the thermal head and its surroundings can be very hot.

CAUTION

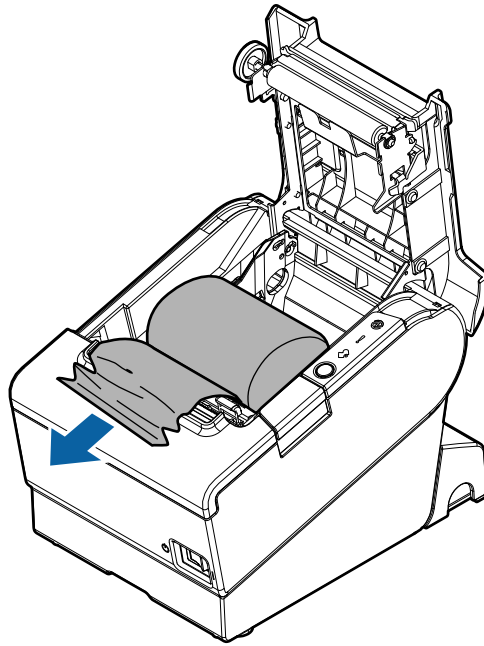
When a paper jam occurs, never pull out the paper forcibly.

Follow the steps below if the roll paper is jammed.

- 1** Turn off the printer.
- 2** Open the roll paper cover.



3 Remove the jammed paper.



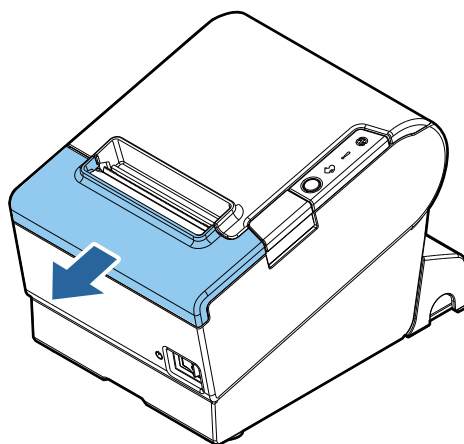
4 Close the covers.

If Roll Paper Cover does not Open

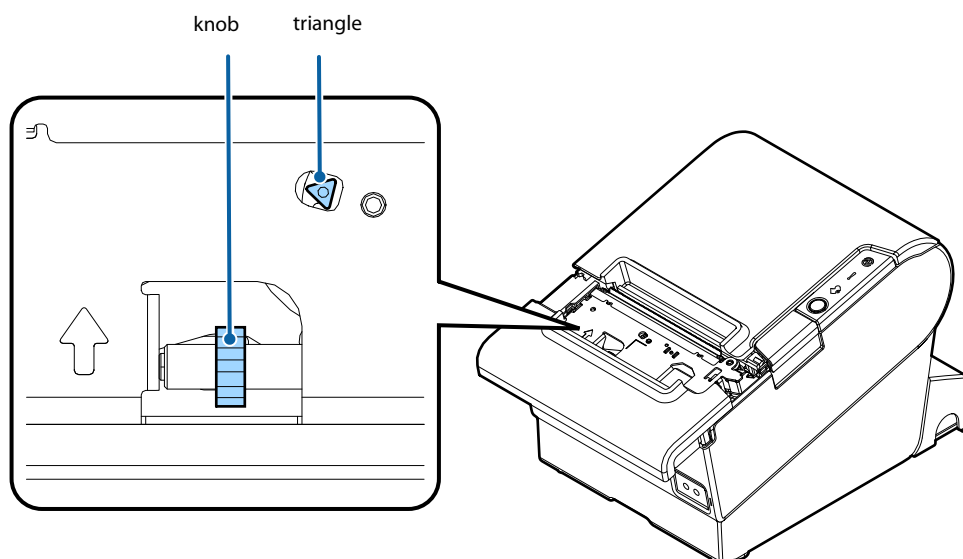
If a foreign substance has entered the autocutter or the roll paper jams, the autocutter blade cannot return to the correct position and it locks in place. In this situation, the roll paper cover does not open even if you pull the cover open lever.

Follow the steps below to return the autocutter blade to its normal position.

- 1 Turn off the printer.**
- 2 Slide the cutter cover toward the front to open it.**



- 3 Turn the knob until you see a triangle in the opening.**
This returns the cutter blade to the normal position. There is a label near the cutter to assist you.



- 4 Close the cutter cover.**
- 5 Open the roll paper cover and remove the jammed paper.**

Cleaning the Printer

Cleaning the Printer Case

Be sure to turn off the printer, and wipe the dirt off the printer case with a dry cloth or a damp cloth. Be sure to unplug the AC cable while cleaning.

CAUTION

Never clean the product with alcohol, benzine, thinner, or other such solvents.
Doing so may damage or break the parts made of plastic and rubber.

Cleaning the Thermal Head/Platen Roller

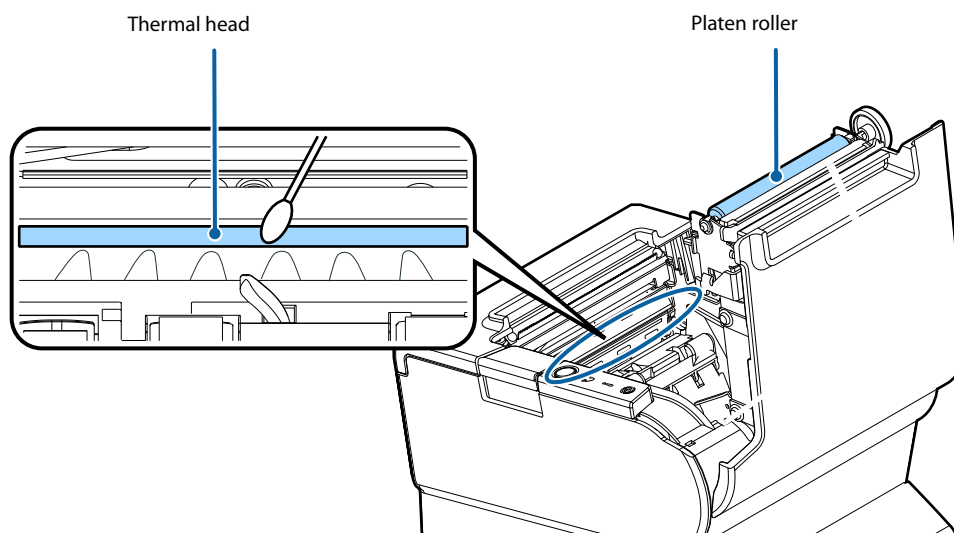
Epson recommends cleaning the thermal head periodically (generally every 3 months) to maintain receipt print quality.

Depending on the roll paper used, paper dust may stick to the platen roller and cause an irregular paper feed. To remove the paper dust, clean the platen roller with a cotton swab moistened with water. Turn on the printer power only after the water has completely dried.

Turn off the printer, open the roll paper cover, and clean the thermal elements of the thermal head with a cotton swab moistened with an alcohol solvent (ethanol or IPA).

CAUTION

- After printing, the thermal head can be very hot. Do not touch it and let it cool before you clean it.
- Do not damage the thermal head by touching it with your fingers or any hard object.



Preparing for Transport

Follow the steps below to transport the printer.

- 1** Turn off the printer.
- 2** Remove the power supply connector.
- 3** Remove the roll paper.
- 4** Pack the printer upright.

Replacement of the TM-T88V-i

This chapter describes differences in function between TM-T88VI-iHUB and TM-T88V-i.

Functional Comparison

The table below is the summary of functional differences between the two models.

TM-T88VI-iHUB vs TM-T88V-i Comparison Table

Function	TM-T88VI-iHUB	TM-T88V-i
Maximum print speed	350 mm/sec	300 mm/sec
Auto cutter	High speed type	
Printing width	80mm, 58mm	80mm, 58mm
Paper width detector	Equipped as standard for some models	Not equipped
Ethernet interface	Equipped as standard	Equipped as standard
Wi-Fi interface	Available with the option (OT-WL02/OT-WL05)	Available with the option (OT-WL01)
NFC	Equipped as standard	Not equipped
Ports for peripheral devices	USB Type A port × 4 Serial port × 1	USB Type A port × 4 Serial port × 1
Tablet charging function	Equipped as standard	Not equipped
microSD card slot	Not equipped	Equipped as standard
SimpleAP	Supported	Not supported
Status sheet print function	Yes	Yes
Printing using multiple interfaces	Yes	No
Top margin setting by using backfeed	Yes	No
Memory switch	Yes	Yes
Printer driver	Supported	Not supported
Epson TM Utility for iOS/Android	Supported	Not supported
Beacon packet broadcasting	Supported	Not supported

Additional Functions and Functional Improvements

Print Speed

The default printing speed for the TM-T88VI-iHUB may vary depending on the specification.

	TM-T88VI-iHUB	TM-T88V-i
Default	Up to 300 or 350 mm/s	Up to 300 mm/s
Maximum print speed	350 mm/s*	300 mm/s
Print speed setting (Customized value)	Level 1 to 14	Level 1 to 13

* The values are those when the paper width is set to 80 mm. When it is set to 58 mm, the maximum is 300 mm/s {11.8"/s}.

CAUTION

Depending on print conditions such as print duty, print head temperature, and data transmission speed, print speed is automatically adjusted.

USB port with charging function

TM-T88VI-iHUB is equipped with the USB port that has two functions; connecting with an external device, and charging a smart device or USB device. Use the settings utility to switch between the two functions.

SimpleAP Function

The TM-T88VI-iHUB comes with a mode (SimpleAP) that allows the printer to connect directly when using an optional wireless LAN unit without having to use a wireless LAN access point.

CAUTION

The SimpleAP function is for making settings only.

NFC

The TM-T88VI-iHUB supports NFC.

Epson TM Utility for iOS/Android

The TM-T88VI-iHUB allows you to make a variety of settings using the Epson TM Utility for iOS/Android for smart devices running iOS/Android.

TM-Intelligent Settings

TM-T88VI-iHUB allows you to configure TM-Intelligent function settings using TM-T88VI Utility, Epson TM Utility for iOS/Android, EpsonNet Config for Windows, and EpsonNet Config (Web version).

Beacon Packet Broadcasting

With the Beacon dongle connected, TM-T88VI-iHUB can broadcast Beacon packets (Bluetooth low energy technology Advertising Packet).



Appendix

Product Specifications

Printing method	Thermal line printing	
Cutting method	Partial cut (cutting with one point in left edge left uncut)	
Roll paper (single-ply) width	80 mm width paper printing: 79.5 ± 0.5 mm (3.13 ± 0.02 " 58 mm width paper printing: 57.5 ± 0.5 mm (2.26 ± 0.02 "	
Interfaces	USB: USB 2.0 Full-speed (12Mbps) Wired LAN: 10BASE-T/100BASE-TX Wireless LAN: Connects an optional Wireless LAN unit to the USB port.	
Buffers	Receive buffer	4 KB/45 bytes (selectable using DIP switch 2)
	Downloaded buffer	12 KB (both for user-defined characters and downloaded images)
	NV graphics data	384 KB
	Web Contents Area	100 MB
Barcode/two-dimensional symbol/ composite symbol printing	UPC-A, UPC-E, JAN8 / EAN 8, JAN13 / EAN13, Code39, Code93, Code128, ITF, CODABAR(NW-7), GS1-128, GS1 DataBar, PDF417, QR code, Maxi Code, Data Matrix, Aztec Code, Two-dimensional GS1 DataBar, Composite Symbology	
Cash drawer function	2 drives	
Power supply	AC Adapter,V	
Life	Mechanism	20 million lines
	Thermal head	200 million pulses 200 km (when using the specified original paper types (PD160R, TF50KS-EY, or KT55FA))
	Autocutter	3 million cuts (when using the specified original paper types (PD160R, TF50KS-EY, or KT55FA), at normal temperature and normal humidity)
	MTBF	350,000 hours
	MCBF	70 million lines
Temperature/humidity	Operating: 5 to 45°C {41 to 113°F}, 10 to 90% RH Storage: -10 to 50°C {14 to 122°F}, 10 to 90% RH	
Overall dimensions	145 × 195 × 148 mm {5.71 × 7.68 × 5.83"} (W × D × H)	
Mass	Approx. 1.6 kg {3.5 lb} (roll paper excluded)	

Printing Specifications

Printing method	Thermal line printing	
Dot density	180 × 180 dpi	
Printing direction	Unidirectional with friction feed (Reverse feed is not supported.)	
Printing width	80 mm width paper printing: 72.0 mm (2.83"), 512 dots 58 mm width paper printing: 50.8 mm (2.0"), 360 dots	
Characters per line	Font A (12 × 24)	80 mm width paper printing: 42 58 mm width paper printing: 30 48/36 column mode: 48
	Font B (9 × 17)	80 mm width paper printing: 56 58 mm width paper printing: 40 48/36 column mode: 53
	Kanji Font A	80 mm width paper printing: 21 58 mm width paper printing: 15
	Kanji Font B	80 mm width paper printing: 32 58 mm width paper printing: 22
	Special Font A	80 mm width paper printing: 42 58 mm width paper printing: 30 48/36 column mode: 40
	Special Font B	80 mm width paper printing: 56 58 mm width paper printing: 40 48/36 column mode: 53
	Maximum print speed*1	350 mm/s*2
Line spacing	4.23 mm {1/6"} (Default value, programmable by command)	

dpi: dots per inch

*1: when the printer prints text (built-in fonts) with the default print density level at 24V and 25°C {77°F}.

*2: The values are those when the paper width is set to 80 mm. When it is set to 58 mm, 300 mm/s {11.8"/s} maximum.

NOTE

Print speed may be slower, depending on such items as the data transmission speed.

Character Specifications

Number of characters	Alphanumeric characters: 95 Extended graphics: 128 × 43 pages (including user-defined page) International characters: 18 sets Korean Kanji (KC C5601): 8,366 (for Korean model)	
Character structure (W × H dots)	Font A (default): 12 × 24 (including 2-dot horizontal spacing) Font B: 9 × 17 (including 2-dot horizontal spacing) Kanji Font A: 24 × 24	
Character size (W × H)	Font A/ Special Font A	Standard: 1.41 × 3.39 mm Double-height: 1.41 × 6.77 mm Double-width: 2.82 × 3.39 mm Double-width, double-height: 2.82 × 6.77 mm
	Font B/ Special Font B	Standard: 0.99 × 2.40 mm Double-height: 0.99 × 4.80 mm Double-width: 1.98 × 2.40 mm Double-width, double-height: 1.98 × 4.80 mm
	Kanji Font A	Standard: 3.39 × 3.39 mm Double-height: 3.39 × 6.77 mm Double-width: 6.77 × 3.39 mm Double-width, double-height: 6.77 × 6.77 mm
	Kanji Font B	Standard: 2.26 × 2.26 mm Double-height: 2.26 × 4.52 mm Double-width: 4.52 × 2.26 mm Double-width, double-height: 4.52 × 4.52 mm

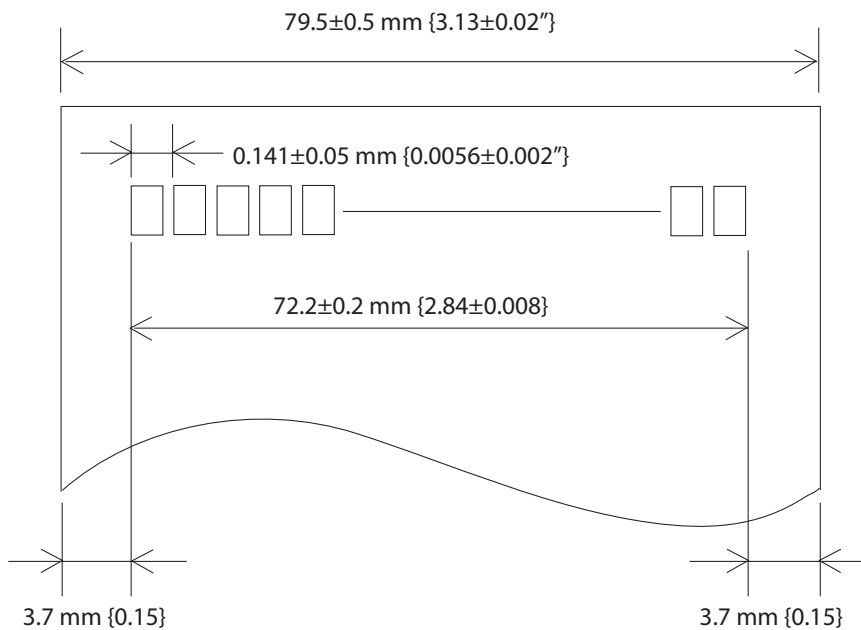
Note:

1. Space between characters is not included.
2. Characters can be scaled up to 64 times as large as the standard size.

Printable Area

80 mm paper width printing

The printable area of paper with a width of 79.5 ± 0.5 mm $\{3.13 \pm 0.02\}$ " is 72.2 ± 0.2 mm $\{2.84 \pm 0.008\}$ " (512 dots), and the space on the right and left sides is approximately 3.7 mm $\{0.15\}$ ".



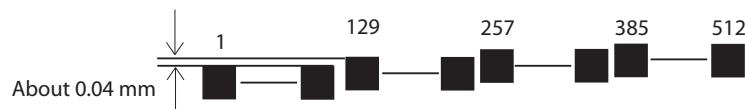
All the numeric values are typical.

CAUTION

- In 2-divided energizing, the print position within the printable area of the thermal elements for dots 1 to 256 and 257 to 512 is shifted approximately 0.07 mm $\{0.0028\}$ " in the paper feed direction as shown in the figure below.

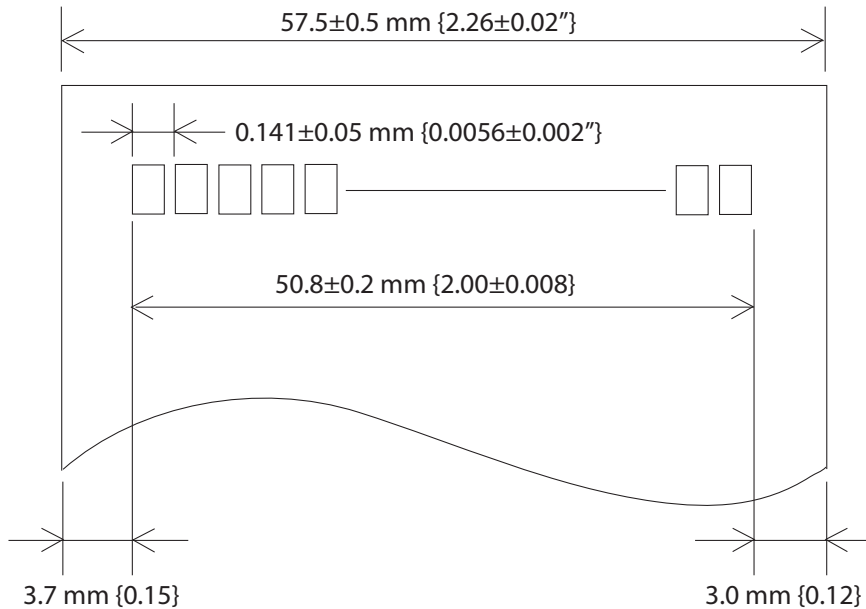


- In 4-divided energizing, the print position within the printable area of the thermal elements for dots 1 to 128, 129 to 256, 257 to 384, and 385 to 512 is shifted approximately 0.04 mm $\{0.0016\}$ " in the paper feed direction as shown in the figure below.



58 mm paper width printing

The printable area of paper with a width of 57.5 ± 0.5 mm { 2.26 ± 0.02 " } is 50.8 ± 0.2 mm { 2.00 ± 0.008 " } (360 dots), and the space on the left side is approximately 3.7 mm {0.15"} and the space on the right side is approximately 3.0 mm {0.12"}.



All the numeric values are typical.

CAUTION

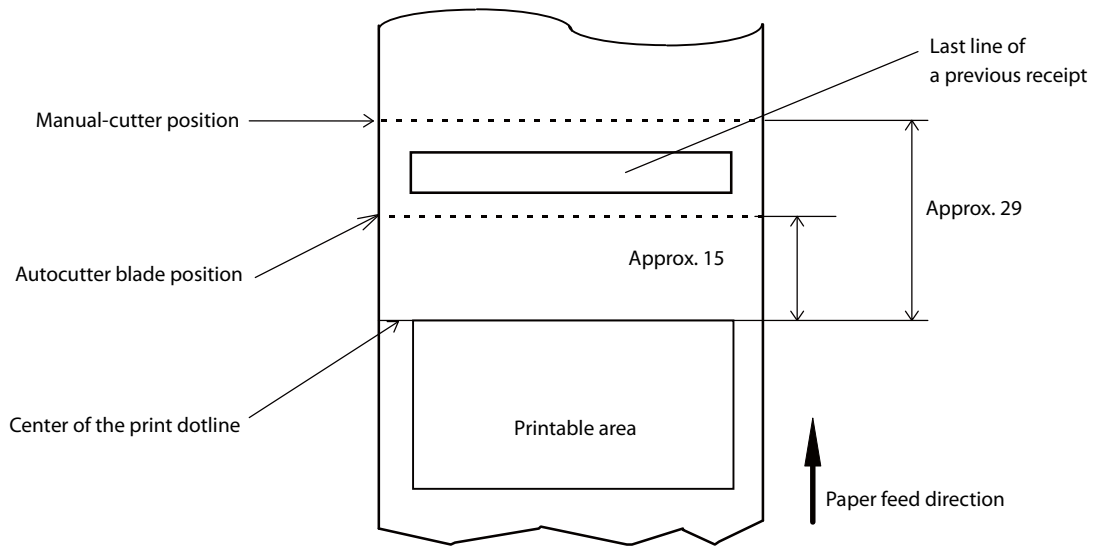
- In 2-divided energizing, the print position within the printable area of the thermal elements for dots 1 to 256 and 257 to 360 is shifted approximately 0.07 mm {0.0028"} in the paper feed direction as shown in the figure below.



- In 4-divided energizing, the print position within the printable area of the thermal elements for dots 1 to 128, 129 to 256, and 257 to 360 is shifted approximately 0.04 mm {0.0016"} in the paper feed direction as shown in the figure below.



Printing and Cutting Positions




[units: mm (All the numeric values are typical.)]

CAUTION

- The values above may vary slightly as a result of paper slack or variations in the paper. Take this into account when setting the cutting position of the autocutter.
- When removing cut paper, the remaining roll paper is pulled at the uncut section and the pitch of the next print may be reduced. When printing after cutting paper for prints with no pitch reduction, feed the paper about 1 mm {16/406 inches} before printing.
- When leaving paper loaded for an extended period of time, make sure you feed about 30 mm of paper. This can prevent paper from wrinkling and causing prints to be too light.

Paper Specifications

Paper types	Specified thermal paper	
Form	Roll paper	
Size	Roll paper diameter	83 mm {3.27"} maximum
	Roll paper spool	Inside: 12 mm {0.47"}, Outside: 18 mm {0.71"}
	Roll width when taken up	80 mm width paper printing: 79.5 + 0.5/-1.0 mm 58 mm width paper printing: 57.5 + 0.5/-1.0 mm
	Paper width	80 mm width paper printing: 79.5 ± 0.5 mm 58 mm width paper printing: 57.5 ± 0.5 mm
Specified original paper type	P30521, P30523, P31523, P35524 (Kanzaki Specialty Papers) AF50KS-E (Jujo Thermal Oy) F5041 (Mitsubishi HiTec Paper Flensburg GmbH) KT55FA, KT48FA (Koehler Paper Group) Epson Certified Media List for Thermal Receipt Printers  https://download.epson-biz.com/?content=sht_tm_media	

CAUTION

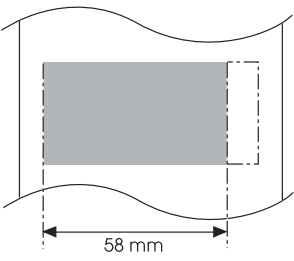
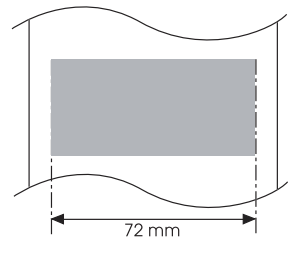
- Paper must not be pasted to the roll paper spool.
- The remaining amount of the roll paper when a roll paper near-end is detected differs depending on the spool type.

Electrical Characteristics

AC Adapter,V	Input voltage	AC 100-240V
	Rated frequency	50-60Hz
Supply current from the product	USB port with charging function	2.1A
Power consumption (AC100-230 V / 50-60 Hz)	Operating	27.4W
	Standby	1.5W

CAUTION

- Continuously printing high coverage data may activate the over-current protection. Make sure to configure so that print length of high-coverage print does not exceed the values described below.

Print ratio	80%	100%
Print example		
Print length	30 mm	20 mm

- If the over-current protection activates due to high coverage prints, uneven print density or a low voltage error will result.
- Because the total amperage can exceed the amperage rating, do not charge a device such as tablet while using DM-D210 and OT-WL05.

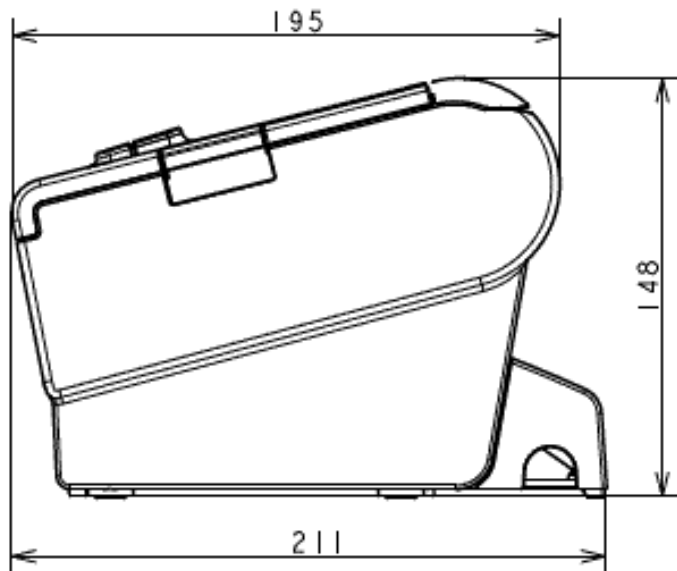
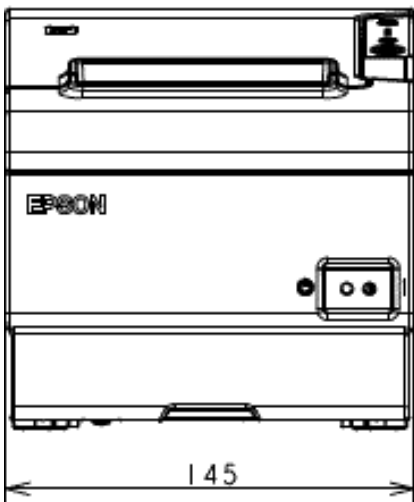
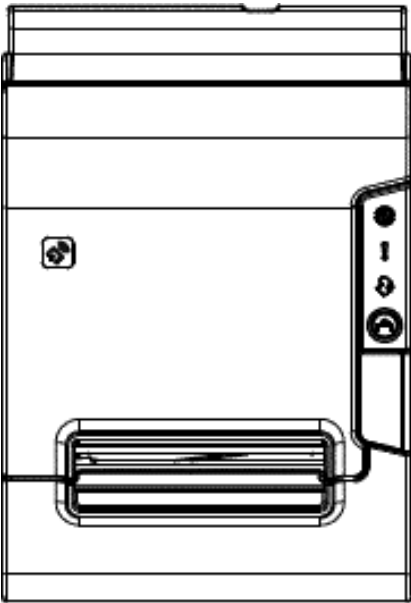
Environmental Conditions

Temperature/ Humidity	Operating	5 to 45°C {41 to 113°F}, 10 to 90% RH (See the operating temperature and humidity range below.)
	Storage (Factory packing)	-10 to 50°C {14 to 122°F}, 10 to 90% RH (except for paper)
		<p>Relative humidity [%RH]</p> <p>Ambient temperature [°C]</p> <p>Operating environment range</p> <p>31°C, 90%</p> <p>34°C, 90%</p> <p>34°C, 75%</p> <p>40°C, 65%</p> <p>45°C, 50%</p> <p>45°C, 43%</p> <p>— Specified original paper other than below</p> <p>— Specified original paper: P30521, P30523, P31523, P35524</p>
Acoustic noise (operating)		<p>Approximately 55 dB (bystander position)</p> <p>Note:</p> <p>The values above are measured in the Epson evaluation condition.</p> <p>Acoustic noise differs depending on the paper used, printing contents, and the setting values, such as print speed or print density.</p>
Dust and drip proofness function*		<p>IPX2 equivalent</p> <p>Note:</p> <p>Roll paper side is excluded.</p> <p>When the rubber feet sections are installed horizontally.</p>

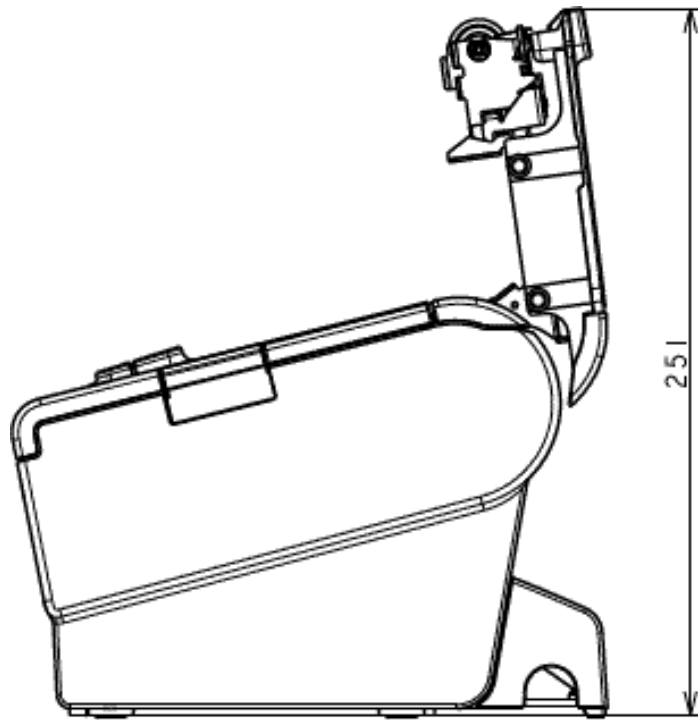
* The value measurements are equivalent to JISC0920 (IEC60529:2001) standard. Therefore, safety standard application, and failure and breakage of the printer are not guaranteed.

External Dimensions and Mass

- Width: Approximately 145 mm {5.71"}
- Depth: Approximately 195 mm {7.68"}
- Height: Approximately 148 mm {5.83"}
- Mass: Approximately 1.6 kg {3.53 lb} (except for roll paper)



[Units: mm]



[Units: mm]

Controllable Peripherals

Network Printer

Following printer models can be registered as network printer.

	World wide models	Simplified Chinese models	Traditional Chinese models	South Asia models	Korean models
TM-T88VI-iHUB	✓				✓
TM-T88VI	✓	✓	✓	✓	✓
TM-m10	✓	✓	✓	✓	✓
TM-m30	✓	✓	✓	✓	✓
TM-T88V-i	✓	✓	✓	✓	✓
TM-T70-i	✓	✓	✓	✓	✓
TM-T20II-i	✓	-	-	-	-
TM-T82II-i	-	✓	✓	✓	-
TM-T83II-i	-	-	-	-	✓
TM-U220-i	✓	-	-	-	-
TM-T88V*	✓	✓	✓	✓	✓
TM-T88IV	✓	✓	✓	✓	✓
TM-T70	✓	✓	✓	✓	✓
TM-T70II	✓	✓	✓	✓	✓
TM-T90	✓	-	✓	✓	-
TM-L90	✓	✓	✓	-	✓
TM-P60II	✓	-	-	-	-
TM-P60II Peeler	✓	-	-	-	-
TM-T20	✓	-	-	-	-
TM-T20II	✓	-	-	-	-
TM-T82II	✓	✓	✓	✓	-
TM-T83II	-	-	-	-	✓
TM-P80	✓	-	-	-	-
TM-P20	✓	-	-	-	-
TM-U220	✓	✓	✓	✓	✓

* TM-T88IV compatible mode is not supported.

Other Device

Customer display	DM-D30, DM-D110, DM-D210
Key input device	Barcode scanner, Keyboard (English, Japanese, German, French, Italian, Spanish, English (UK))
Serial communication device	Automatic change dispenser, USB-Serial conversion cable
The other devices	Cash drawer, MSR (Omron V3TU-FK), Keyboard with MSR (Tipro MID-QM128A), USB composite device (Cherry SPOS)

Supported Keyboard Layouts

Keyboard type	Key layout
English (US)	
Japanese	
German	
French	

Keyboard type	Key layout
Italian	
Spanish	
English (UK)	

Specifications of Interfaces

USB Interface

USB interface port

USB type-B port

USB transmission specifications

USB function

Overall specifications	According to USB 2.0 specifications	
Transmission speed	USB Full-Speed (12 Mbps)	
Transmission method	USB bulk transmission method	
Power supply specifications	USB self power supply function	
Current consumed by USB bus	2 mA	
USB packet size (with full-speed connection)	USB bulk OUT (TM)	64 bytes
	USB bulk IN (TM)	64 bytes
USB device class	Both USB vendor-defined class and USB printer class are supported.	

NOTE

To set the USB device class, see "[Software Settings](#)" on page 57.

USB descriptor

		USB vendor-defined class	USB printer class
Vendor ID		04b8h	04b8h
Product ID		0202h	0E21h
String Descriptor	Manufacturer	EPSON	EPSON
	Product	TM-T88VI	TM-T88VI
	Serial number	Character string based on the product serial number	Character string based on the product serial number

Ethernet Interface

Communication specifications

10BASE-T/100BASE-TX

Support protocols

Protocols	Usage
IP, ARP, ICMP, UDP, TCP	Basic communication protocols
LP, LPR, TCP Socket Port	Printing protocols
HTTP/HTTPS	Used in EpsonNet Config (Web version)
SNMP, ENPC	Used in setting and monitoring
DHCP, APIPA	Used in automatic setting for the IP address and so on
TLS	Used to encrypt HTTPS traffic

Digital certificate

Certificate data	Supported file format
Certificate data with a secret key	PKCS#12, PEM*
Certificate data without a secret key	PEM, DER

* The PEM format is supported only when registering and updating the secret key to update the certificate using the WebContentsUpdate function.

Network parameters

Item	Default settings
IP address	192.168.192.168*
Subnet mask	255.255.255.0*
Default gateway	0.0.0.0*
IP address acquisition	Auto (DHCP)
APIPA	Disabled
arp/ping	Disabled
IP address printing	Enabled
Socket Timeout	90 seconds
Standard Community Name (Read Only)	Fixed at "public"

Item	Default settings
Community name (Read Only)	no value
Community name (Read/Write)	no value
SNMP IP Trap 1	Disabled
SNMP IP Trap 2	Disabled
Communication mode	Auto negotiation
IP Filter	Disabled

* Initial value when "Acquiring the IP Address" is set to "Manual."

Wi-Fi Interface

NOTE

- Countries where Wi-Fi can be used are limited. Since notes are provided for each country, check the sheet supplied with the product.
- When using wireless LAN, make sure you disconnect the LAN cable. If a LAN cable is connected, wireless LAN is disabled.

Specification

- IEEE802.11b/g/n (2.4 GHz band) or IEEE802.11a/b/g/n (2.4 GHz or 5 GHz band) compliant Wi-Fi communication compatible.
- Infrastructure mode and 802.11 Ad-hoc mode are supported.

Communication Standard

When using OT-WL02:

- IEEE802.11b (2.4 GHz)
- IEEE802.11g (2.4 GHz)
- IEEE802.11n (2.4 GHz)

When using OT-WL05:

- IEEE802.11b (2.4 GHz)
- IEEE802.11g (2.4 GHz)
- IEEE802.11n (2.4 GHz)
- IEEE802.11a (5 GHz)
- IEEE802.11n (5 GHz)

Security

Security can be selected from among the following:

- WEP
- WPA-PSK(AES): WPA-PSK(AES),WPA-PSK(TKIP),WPA2-PSK(AES),WPA2-PSK(TKIP) can be connected
- WPA2-PSK: WPA2-PSK(AES),WPA2-PSK(TKIP) can be connected
- WPA2-Enterprise

Settings in SimpleAP mode (Factory default settings)

Parameter	Setting value
SSID	EPSON_Printer
Passphrase	12345678
IP Address	192.168.192.168
Subnet mask	255.255.255.0

* In SimpleAP mode, DHCP Server is working and assigns IP address to host automatically.

Settings in Standard Mode

Parameter	Default setting
Communication standard	802.11b/g/n
Network mode	Infrastructure mode
SSID	EPSON_Printer
Encryption type	WPA2-PSK
Passphrase	EpsonNet
IP Address	Automatically acquired by DHCP

Printing communication protocol

- LP, LPR: Transfers printing data
- TCP Socket Port: Transfers printing data and printer status via bidirectional direct socket communication.

LP, LPR

- Max. simultaneous connections: 6
- Number of connections for which printing is available: 1 (Other users need to wait until printing is completed.)
- Time out: 90 sec. (changeable)
- Job cancel: Not available
- Banner printing: Not available

Socket communication

- Port type: TCP communication port for direct printing
- Port number: 9100
- Port communication direction: bidirectional
- Max. simultaneous connections: 6
- Number of connections for which printing is available: 1 (Other users need to wait until printing is completed.)
- Time out: 90 sec. (changeable)

Encryption protocol

Protocol		Usage
TLS		For encrypted HTTPS communication
WEP		For encrypted wireless communication
WPA2-Personal		For encrypted wireless communication
WPA2-Enterprise	EAP-TLS	For encrypted wireless communication
	PEAP-TLS	
	PEAP-MSCHAPv2	

Digital certificate

Certificate data	Supported file format
Certificate data with a secret key	PKCS#12, PEM*
Certificate data without a secret key	PEM, DER

* The PEM format is supported only when registering and updating the secret key to update the certificate using the WebContentsUpdate function.

Notes on Using the Wi-Fi Model

- Keep the printer away from the devices, such as kitchen microwaves, that may cause radio wave interference.
- Use channels that are away from the frequency bands that may cause radio wave interference.
- Place shields between the printer and the devices that may cause radio wave interference.
- Select either 2.4 GHz or 5 GHz, whichever is free from radio wave interference.
- In auto channel setting for the access point, do not select a channel in which the printer may cause radio wave interference.

Notes on Wi-Fi connection

Because not all the combinations of the printer and Wireless LAN units have been checked for operation, the operation of the printer in combination with all the Wireless LAN units is not guaranteed. Especially in the ad-hoc mode, the printer may not operate normally, depending on the combination of the device to connect with. Be sure to carry out evaluation of the operation before use.

Notes on use

- When you initialize or change the printer settings, the printer is reset to reflect the settings. It may take about 1 minute depending on the network settings or environment. Also, your application may indicate power off during the time waiting for reset. In that case, wait for about 1 minute, and then reconnect to the printer.
- Where Wi-Fi communication is in heavy traffic, your application may falsely recognize that the communication is disconnected and indicate power off due to response delay. In that case, disable Power Save to improve the trouble.

NFC Tag

Transmission standard	ISO14443 A
Frequency	13.56 MHz
Resonance frequency	14.30 Hz±0.55 MHz
Memory	144 byte
Transmission distance	Approximately 10 mm from the NFC installation location.

NOTE

- The transmission distance is an estimate that depends on our experiment conditions and is not a guaranteed value.
- It varies based on the installation environment and target device.

Bluetooth Low Energy Technology Advertising

Introduction

When you connect the BT820 from Lairdtec to the USB A port on the TM-T88VI-iHUB and turn it on, the *Bluetooth* low energy technology Advertising Packet is transmitted. By default, the TM-T88VI-iHUB transmits the packet according to the iBeacon Format from Apple. You can also change the data that is transmitted by following the steps in "[Changing the Bluetooth Low Energy Technology Advertising Packet](#)" on page 144.

Glossary:

Term	Description
<i>Bluetooth</i> Low Energy Technology Advertising	The name of this function.
<i>Bluetooth</i> Low Energy Technology Advertising Packet	The data sent by this function from the printer.
<i>Bluetooth</i> adapter	The BT820 from Lairdtec A USB dongle to connect to the USB Type A port.
iBeacon	The format stipulated by Apple for <i>Bluetooth</i> low energy technology Advertising Packets When using the default settings for the TM-T88VI-iHUB (<i>Bluetooth</i> adapter installed in the printer and the printer is on), the <i>Bluetooth</i> low energy technology Advertising Packet is transmitted in iBeacon format.

Dongle specifications

Manufacturer: Laird Tech

Model name: BT820

For setting methods and settings, see the TM-T88VI Utility User's Manual.

Procedure

When turning on the TM-T88VI-iHUB, the *Bluetooth* adapter connected to the USB Type A port is enabled. If you install the *Bluetooth* adapter after turning on the printer, this is not enabled.

Bluetooth Low Energy Technology Advertising Packet Format

In the TM-T88VI-iHUB, the iBeacon format is used by default for the *Bluetooth* low energy technology Advertising Packet.

The UUID for the TM-T88VI-iHUB is "fac1ba2f-61a2-4d83-9a8c-60087c232569".

The user can edit the following specifications in the iBeacon format: UUID, Major number, Minor number, and Measured Power.

Table 1 iBeacon Packet Format

Content	Data Length	Value	Description
Length of this data	1 byte	02h	
AD type	1 byte	01h	Adtype: flags
Flags	1 byte	06h	Fixed value (06h)
Length of this data	1 byte	1Ah	Fixed value (1Ah)
AD type	1 byte	FFh	Adtype: Company identifier
Company Identifier code	2 bytes	004Ch	Apple's manufacture ID
iBeacon type	1 byte	02h	Incomplete List of 16-bit service UUIDs
iBeacon length	1 byte	15h	15h=21=16+2+2+1
UUID	16 bytes	-	Default UUID = fac1ba2f-61a2-4d83-9a8c-60087c232569
Major Number	2 bytes	-	
Minor Number	2 bytes	-	
Measured Power	1 byte	05h	C5h: -59dB

Changing the *Bluetooth* Low Energy Technology Advertising Packet

The TM-T88VI-iHUB can acquire a configuration script from the printer.

You can also change settings by transmitting the configuration script to the printer.

The configuration script only supports UTF-8 encoding.

The iBeacon Format is defined in the configuration script by default for the TM-T88VI-iHUB.

You can change this Packet Format to support Eddystone-UID or Eddystone-URL.

However, the TM-T88VI-iHUB only supports single Advertising Data Packets.

You can change the settings using either of the following two methods.

- Changing settings using the Epson TM-T88VI Utility for Windows (see the TM-T88VI Utility User's Manual for details)
- Changing settings using an HTTP Request

The method of changing settings via an HTTP Request is explained below.

Digest authentication

You need Digest authentication to communicate with the printer.

The default ID and Password are ID: epson, Pass: epson and are the same as the administrator for Network settings.

Escape processing for configuration scripts

When reading/writing a configuration script for a printer, the strings (content of the configuration script) being transmitted and received uses the following escape processing. However, escape is not performed for uXXXX (hexadecimal strings) such as Japanese.

Table 2 Escape Processing

Escape	Description
\"	quotation mark
\\	reverse solidus
\b	backspace
\f	form feed
\n	line feed
\r	carriage return
\t	tab
\u002F	solidus
\u003C	<
\u003E	>
\u002B	+

Acquiring the configuration script from the printer using an HTTP request

A response for the json format is acquired using the GET method for the HTTP request.

Request

Table 3 Request Header

Request header: Content-Type: text/plain; charset=utf-8
 http://(printer IP address)/webconfig/beamon.cgi?Type=(one of the following Table 4 Types)

Table 4 Types

Type	Description
(none)	If a Type is left out, the same operation is performed as when current is specified.
current	Specifies the currently enabled configuration script.
volatile	Specifies the configuration script stored in RAM.
static	Specifies the configuration script stored in ROM.
default	Specifies the default configuration script.
status	Acquires information for the <i>Bluetooth</i> adapter.

Response

Table 5 Response Header

<p>Content-Type: application/json; charset=utf-8 Access-Control-Allow-Origin: * Access-Control-Allow-Methods: POST, GET, OPTIONS, HEADER Access-Control-Allow-Headers: Content-Type, Content-Length, Authorization X-Content-Type-Options: nosniff X-XSS-protection: 1; mode=block X-Frame-Options: deny Content-Security-Policy: default-src 'none' WWW-Authenticate: Digest realm="<IPAddr>", nonce="xx", qop="auth"</p>
--

Table 6 Response

Function	GET Parameter	Results	Response
Acquires the configuration script currently enabled	Type=current Or no Type is set	Acquisition successful	200 OK
Acquires the configuration script on the RAM	Type=volatile	Acquisition successful	200 OK
		Acquisition failed (No file)	404 Not Found
Acquires the configuration script on the ROM	Type=static	Acquisition successful	200 OK
		Acquisition failed (No file)	404 Not Found
Acquires the Default configuration script	Type=default	Acquisition successful	200 OK
Acquires information from the <i>Bluetooth</i> adapter	Type=status	Acquisition successful	200 OK
		Acquisition failed (No adapter connected)	404 Not Found
Others	Type = Other than the above or A parameter except for Type exists	Type is invalid	400 Bad Request

Table 7 GET Response Body

Response Status	Response Body
200 OK	<pre>{ "message": "Success" "detail": null "description" : <Encoded string for the configuration script> }</pre>

Response Status	Response Body
404 Not Found	<pre>"message": "Requested file not found" "detail": null "description": null }</pre>
400 Bad Request	<pre>{ "message": "Invalid Parameter" "detail": null "description": null }</pre>

Table 8 GET Response Body (Type=status)

Response Status	Response Body
200 OK The HCI Version for the <i>Bluetooth</i> adapter is 6 or higher Link	<pre>{ "message": "Success", "detail": null, "description": { "VendorID": "0a12", "ProductID": "0001", "ProductName": "CSR8510 A10", "Bluetooth LE": "Support" } }</pre>
200 OK The HCI Version for the <i>Bluetooth</i> adapter is 5 or lower	<pre>{ "message": "Success", "detail": null, "description": { "VendorID": "0a12", "ProductID": "0001", "ProductName": "(no name)", "Bluetooth LE": "Not support" } }</pre>
404 Not Found Adapter not connected	<pre>"message": "Beacon dongle not connected", "detail": null, "description": null }</pre>

Writing the configuration script to the printer

You can save a configuration script to the printer using the HTTP POST method.

You can save the configuration script to volatile or non-volatile memory.

When changing using a low frequency less than once an hour, you can save to non-volatile memory; however, when changing at a higher frequency, you need to save to volatile memory.

When the change is successful, the advertising data is changed.

Request

```
Content-Type: text/json; charset=utf-8
http://(printer IP address)/webconfig/beacon.cgi
```

See the POST parameters in Table 10 Response for the parameters.

Response

Table 9 Response Header

```
Content-Type: application/json; charset=utf-8
Access-Control-Allow-Origin: *
Access-Control-Allow-Methods: POST, GET, OPTIONS, HEADER
Access-Control-Allow-Headers: Content-Type, Content-Length, Authorization
X-Content-Type-Options: nosniff
X-XSS-protection: 1; mode=block
X-Frame-Options: deny
Content-Security-Policy: default-src 'none'
X-RateLimit-Limit: 1 (when type=static only)
X-RateLimit-Remaining: 1 or 0 (when type=static only)
X-RateLimit-Reset: 1390941626 (when type=static only)
WWW-Authenticate: Digest realm="<IPAddr>", nonce="xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx", qop="auth"
```

Table 10 Response

Function	POST Parameters	Results	Response
Updating the configuration script in volatile memory	<pre>{ "type": "volatile", "description": "<The string for the configuration script that performed escape processing>" }</pre>	Update successful	200 OK
		Update failed When the parameter is too long	413 Request Entity Too Large
		Update failed When an error occurs when applying a new configuration script	500 Internal Server Error
Deletes the configuration script from volatile memory	<pre>{ "type": "volatile", "description": "delete" }</pre>	Deleting successful	200 OK
		Deleting failed	500 Internal Server Error

Function	POST Parameters	Results	Response
Updates the configuration script in non-volatile memory	<pre>{ "type": "static", "description": "<The string for the configuration script that performed escape processing>" }</pre>	Update successful	200 OK It has following header: X-RateLimit-Limit: 1 X-RateLimit-Remaining: 0 X-RateLimit-Reset: xx
		Update failed When the parameter is too long	413 Request Entity Too Large It has following header: X-RateLimit-Limit: 1 X-RateLimit-Remaining: 1 X-RateLimit-Reset: xx
		Update failed When an error occurs when applying a new configuration script	500 Internal Server Error It has following header: X-RateLimit-Limit: 1 X-RateLimit-Remaining: 0 X-RateLimit-Reset: xx
		Update failed When the gap between updating is more than once an hour	429 Too Many Requests It has following header: X-RateLimit-Limit: 1 X-RateLimit-Remaining: 0 X-RateLimit-Reset: xx
Deletes the configuration script from non-volatile memory	<pre>{ "type": "static", "description": "delete" }</pre>	Deleting successful	200 OK
		Deleting failed	500 Internal Server Error
Others	<ul style="list-style-type: none"> • No parameters • Invalid parameters • Error in escape processing 	Update failed	400 Bad Request

Table 11 POST Response Body

Response Status	Body
200 OK	{ "message": "Success", "detail": null, "description" : < The string for the configuration script that performed escape processing > }
400 Bad Request	{ "message": "Invalid Parameter", "detail": "****", (see Table 12) "description" : null }
413 Request Entity Too Large	{ "message": "Request Entity Too Large", "detail": null, "description" : null }
429 Too Many Requests	{ "message": "You sent too many requests in a given amount of time.", "detail": null, "description": null }
500 Internal Server Error	{ "message": "Failed to update settings", "detail": "****", (see Table 13) "description" : null }

Table 12 400 Bad Request Details

Case	Body
The correct escape processing is not performed at the point escape processing is needed	{ "message": "Invalid Parameter", "detail": "Special characters must be escaped", "description" : null }
An undefined Type parameter has been specified	{ "message": "Invalid Parameter", "detail": "A parameter 'type' is invalid", "description" : null }

Case	Body
No Type specified Or an invalid parameter has been specified	{ "message": " Invalid Parameter ", "detail": "A parameter 'type' or 'description' is not specified", "description": null }
When detecting a string with invalid escape processing	{ "message": " Invalid Parameter ", "detail": "Invalid parameter is found", "description": null }

Table 13 500 Internal Server Error Details

Case	Body
Update failed	{ "message": "Failed to update settings", "detail": null, "description": null }
Deleting failed	{ "message": "Failed to delete settings", "detail": null, "description": null }
An error occurs when applying a new configuration script	{ "message": " Failed to set the settings to the beacon.", "detail": <Error code from BeaconCtrl> "description": null }

Editing the Configuration Script

In the configuration script, the settings for the module for *Bluetooth* in Linux can be written in the same way as for the Bluez hcitool, and you can customize the settings.

Make sure you include the following descriptors in the configuration script.

- Advertising stop
- Device address specifications
- Advertising parameter specifications
- Advertising start
- Advertising data specifications

Starting and stopping *Bluetooth* low energy technology Advertising

Format: cmd 0x08 0x000A n

Function: Starting and stopping transmission of the Advertising packet.

Parameter n	Length	Function
00	2 characters	Advertising stop
01	2 characters	Advertising start

NOTE

When specifying a start point, make sure you start Advertising using this command before "[Bluetooth low energy technology Advertising Packet specifications](#)" on page 153.

Device address specifications

Format: cmd 0x08 0x0005 n6 n5 n4 n3 n2 n1

Function: Specify a BD Address. Specify a value in Little Endian.

NOTE

As a Random Static Address is used in T88VI, bit7 and bit6 for n1 need to be set to 1.

Bluetooth low energy technology Advertising parameter specifications

Format: cmd 0x08 0x0006 aL aH bL bH c d e f1 f2 f3 f4 f5 f6 g h

Function: Sets a variety of parameters for the Advertising packet.

Definition	Length	Default	Description
Min advertising Interval	2 bytes	aL: a0 aH: 00	00a0h * 0.625 = 100ms Period 00a0h is the minimum that can be specified.
Max advertising Interval	2 bytes	bL: a0 bH: 00	00a0h * 0.625 = 100ms Period 00a0h is the minimum that can be specified.
Advertising type	1 bytes	c: 03	03h: ADD_NONCONN_IND
Own address type	1 bytes	d: 01	01h: random device address
Peer address type	1 bytes	e: 00	00h: public device address
Peer address	6 bytes	f1-f6: 00	No use
Advertising channel map	1 bytes	g: 07	07h: All channel enabled
Advertising filter policy	1 bytes	h: 02	02h: Process scan requests from all devices and only connection requests from devices that are in the White List.

See the *Bluetooth* specifications for details.

Bluetooth low energy technology Advertising Packet specifications

Format: cmd 0x08 0x0008 d1 d2 ... d32

Function: Sets the Data for the *Bluetooth* low energy technology Advertising packet.

Specify all from d1 to d32. If these are not necessary, specify 00 for each one.

Definition	Length	Default (iBeacon)	Description
Advertising data length	1 byte	d1: 1e	1eh: 30bytes
Advertising Data	31 bytes	d2: 02 d3: 01 d4: 06 d5: 1a d6: FF d7: 4c d8: 00 d9: 02 d10: 15	02h: Length
		d11-d26: fa c1 ba 2f 61 a2 4d 83 9a 8c 60 08 7c 23 25 69	TM UUID fac1ba2f-61a2-4d83-9a8c-60087c232569
		d27: 00 d28: Model No.	Major number The Default specifies the ID that indicates the model type using keywords shown in "Keywords" on page 154. You can also specify a direct value.
		d29: 00 d30: IP address 4th byte	Minor number The Default specifies the 4th sector of the IP address using keywords shown in "Keywords" on page 154. You can also specify a direct value.
		d31: C5	C5: -59dB
		d32: 00	00h: Fixed value

Keywords

You can specify the following keywords when describing the script.

Reserve String	Length	Content	Example
\$SERIAL_ADDR	6 bytes	Address that uses 1 for the MSB2bit in the last 6 digits of the printer's serial number.	When the Serial No. is ABCD123456, the Address uses 1 for the MSB2bits for the leading 1 byte in the last 6 digits. F1:32:33:34:35:36 is generated and replaced with a string using 36 35 34 33 32 F1 sorted in Little endian.
\$RANDOM_ADDR	6 bytes	Address in which the printer generates a random 6 byte number, and 1 is for the MSB2bit of the leading 1 byte.	Generates a random 6 byte number in the printer and replaces it with a string that sorts the Address using 1 for the MSB2bits for the leading 1byte in Little endian.
\$IPn	1 byte	Value for #n in the printer's IP address.	When the IP address is 192.168.192.168, it is replaced with the following string. IP1: c0 IP2: A8 IP3: 64 IP4: c8
\$MODEL_NO	1 byte	ID value assigned to the printer model.	02h is used for the TM-T88VI. 00: no use 01: reserve 02: TM-T88VI 03: TM-T88VI-iHUB
\$MACn	1 byte	Value for #n in the MAC address.	Available range: \$MAC1,\$MAC2, \$MAC3, \$MAC4, \$MAC5, \$MAC6
\$BD_ADDRn	1 byte	Value for #n in the <i>Bluetooth</i> address.	Available range: \$BD_ADDR1, \$BD_ADDR2, \$BD_ADDR3, \$BD_ADDR4, \$BD_ADDR5, \$BD_ADDR6

Character Code Tables

Refer to the following URL regarding the character code table.

<http://www.epson-biz.com/pos/reference/charcode/>

