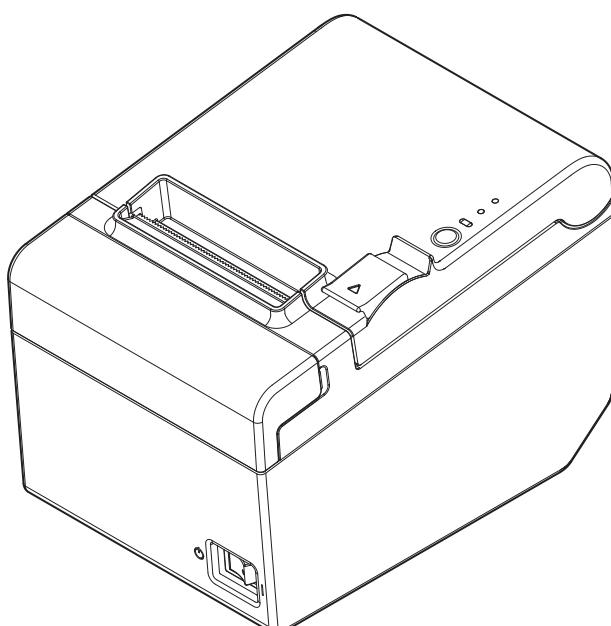


# TM-T20III

## 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-T20II

Describes precautions for replacement.

### Appendix

Describes general specifications and character code tables.

## Cautions

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## ESC/POS® Command System

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.

# 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.

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

## Warnings

	<b>WARNING</b>	<ul style="list-style-type: none"><li>• To avoid risk of electric shock, do not set up this product or handle cables during a thunderstorm</li><li>• Never insert or disconnect the power plug with wet hands. Doing so may result in severe shock.</li><li>• Handle the power cable with care. Improper handling may lead to fire or electric shock.<ul style="list-style-type: none"><li>* Do not modify or attempt to repair the cable.</li><li>* Do not place any heavy object on top of the cable.</li><li>* Avoid excessive bending, twisting, and pulling.</li><li>* Do not place the cable near heating equipment.</li><li>* Check that the plug is clean before plugging it in.</li><li>* Be sure to push the plug all the way in.</li></ul></li><li>• Be sure to use the specified AC adapter. Connection to an improper power source may cause fire or shock.</li><li>• Do not place multiple loads on the power outlet. Overloading the outlet may lead to fire.</li><li>• Shut down your equipment immediately if it produces smoke, a strange odor, or unusual noise. Continued use may lead to fire. Immediately unplug the equipment and contact qualified service personnel.</li><li>• Never attempt to repair this product yourself. Improper repair work can be dangerous.</li><li>• Never disassemble or modify this product. Tampering with this product may result in injury or fire.</li><li>• Do not allow foreign matter to fall into the equipment. Penetration by foreign objects may lead to fire.</li></ul>
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- If water or other liquid spills into this equipment, do not continue to use it. Continued use may lead to fire. Unplug the power cord immediately and contact qualified service personnel.
- Do not use aerosol sprayers containing flammable gas inside or around this product. Doing so may cause fire.

## Cautions



- Do not connect cables in ways other than those mentioned in this manual. Different connections may cause equipment damage or fire.
- Be sure to set this equipment on a firm, stable, horizontal surface. The product may break or cause injury if it falls.
- Do not use this product in locations subject to high humidity or dust levels. Excessive humidity and dust may cause equipment damage or fire.
- Do not place heavy objects on top of this product. Never stand or lean on this product. Equipment may fall or collapse, causing breakage and possible injury.
- Take care not to push your hand or finger against the manual cutter. Doing so may injure your hand or finger.
  - \* When you remove printed paper
  - \* When you perform other operations such as loading/replacing roll paper
- Do not open the roll paper cover without taking the necessary precautions, as this can result in injury from the autocutter fixed blade.
- To ensure safety, unplug this product before leaving it unused for an extended period.
- Do not remove the user interface board installed on this product.

## Caution Labels

The caution labels on the product indicate the following precautions.



### CAUTION:

Do not touch the thermal head and the frame on its side during or immediately after use. After printing, the thermal head and its surroundings can be very hot.

## 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/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 | <a href="#">Product Overview</a>  |
| Chapter 2 | <a href="#">Setup</a>   |
| Chapter 3 | <a href="#">Advanced Usage</a>  |
| Chapter 4 | <a href="#">Application Development Information</a>   |
| Chapter 5 | <a href="#">Handling</a>  |
| Chapter 6 | <a href="#">Replacement of the TM-T20II</a>   |
| Appendix  | <a href="#">Product Specifications</a><br><a href="#">Specifications of Interfaces and Connectors</a> |

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# Product Overview

This chapter describes features of the product.

## Features

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### Printing

- High speed receipt printing is possible (250 mm/s {9.84"/s} maximum).
- Switching from 80 mm {3.15"} width paper printing to 58 mm {2.28"} width paper printing is available.

---

### Handling

Easy drop-in paper loading

---

### Software

- Command protocol is based on the ESC/POS® Proprietary Command System.
- Windows printer drivers, OPOS ADK, and OPOS ADK for .NET are available.
- Printing of various types of bar codes, GS1-DataBar, and two-dimensional symbols (PDF417, QR code, MaxiCode, Composite Symbology, Aztec Code, DataMatrix) is supported.
- A maintenance counter function is supported.
- Multiple languages are supported for code pages, Windows drivers, and utility software.

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### Interface

The interface is selectable when purchasing the product.

---

### Environment

Paper reduction function is available.

---

### Others

- Various installation layouts (horizontal, vertical, and wall-hanging installation) are selectable.
- Optional Wireless LAN unit and external buzzer are available.

# Product Configurations

## Models

- Serial (RS-232C)/USB interface model
- Ethernet interface model

## Accessories

### Included

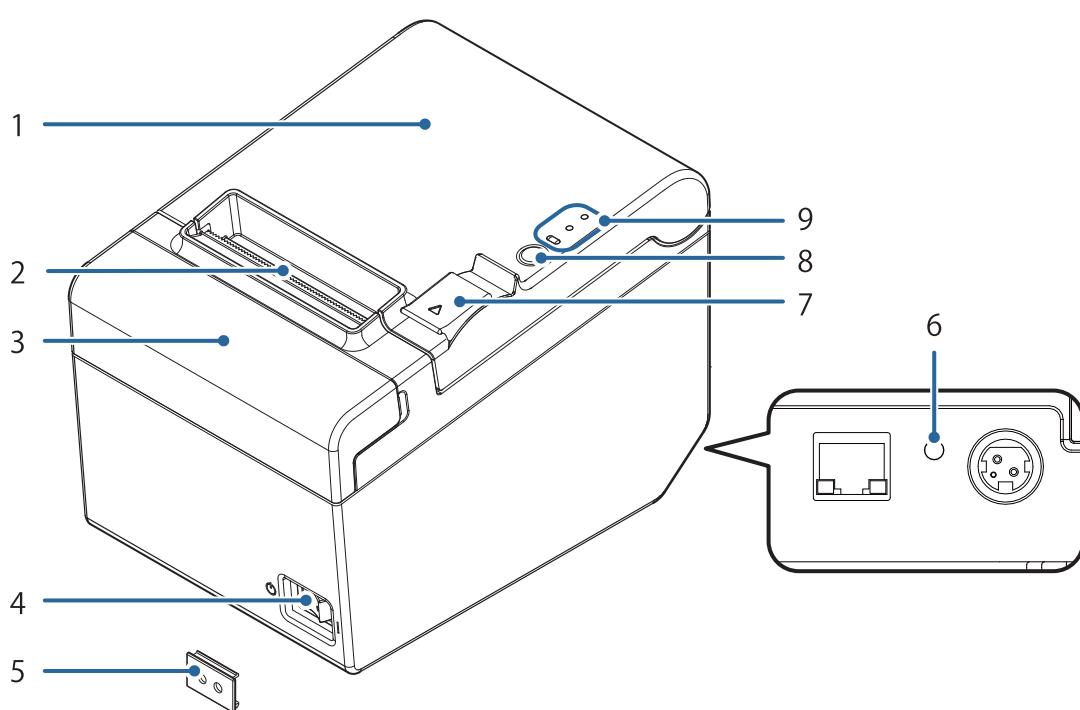
- Roll paper (for operation check)
- Power switch cover
- Soft power switch cover
- Wall hanging bracket
- Rubber feet for vertical installation
- 58 mm width roll paper guide
- AC adapter
- Interface cable\*
- AC cable\*
- User's Guide

\*: Not included with some models

### Options

- Affixing tape for fixing the printer (Model: DF-10)
- External buzzer (Model: OT-BZ20)
- Wireless LAN cable set (Model: OT-WL06)

## Parts and Functions

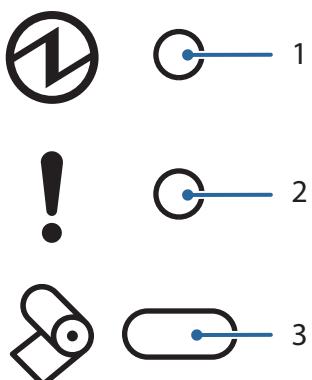


1	Roll paper cover	Open this cover to install/replace the roll paper.
2	Manual cutter	Use this cutter when you cut the roll paper manually.
3	Cutter cover	If the roll paper cover will not open due to a paper jam, open this cover and unlock the autocutter blade.
4	 Power switch	Press this button to turn the printer on or off. (  : OFF /  : ON)
5	Power switch cover	Put this cover on the power switch to prevent it being operated inadvertently. 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. For attaching the power switch cover, see " <a href="#">"Attaching the Power Switch Cover" on page 40</a> ".
6	Status sheet button (Ethernet interface model only)	Press this button to print the interface status sheet, or to reset the interface settings.
7	Cover open lever	Use this button to open the roll paper cover.
8	 Feed button	Press this button to feed the roll paper by one line. Hold down this button to feed the roll paper continuously.
9	LED lights	For details on the LED lights, see " <a href="#">"LED lights" on page 14</a> ".

**NOTE**

When turning off the printer without using the power switch, it is recommended to send a power-off command to the printer. If you use the power-off sequence, the latest maintenance counter values are saved. (Maintenance counter values are usually saved every two minutes.) For information about ESC/POS commands, see the ESC/POS Command Reference.

## LED lights



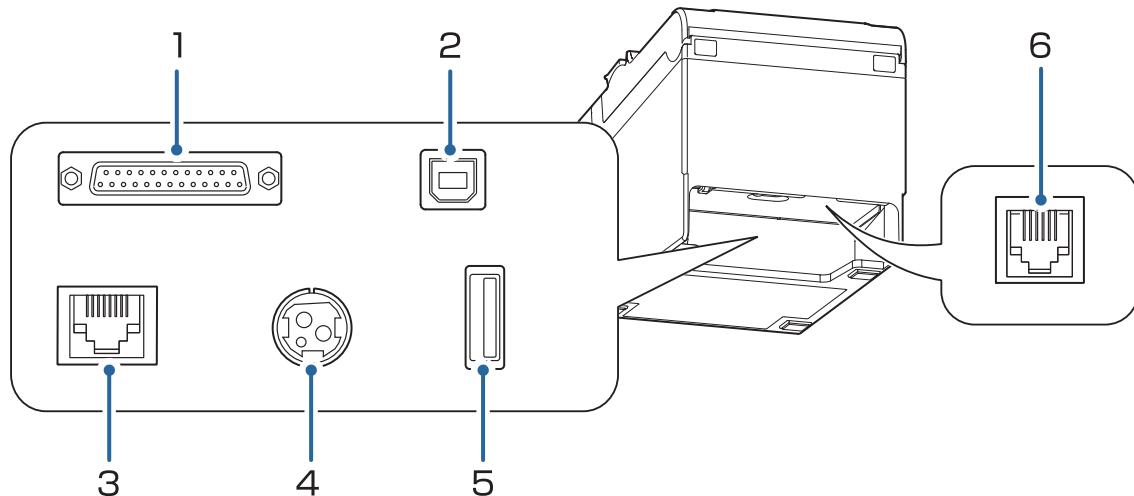
1	Power LED	<ul style="list-style-type: none"> <li>On when the power supply is on.</li> <li>Off when the power supply is off.</li> </ul>
2	Error LED	<p>Lights or flashes when the printer is offline. (For information about the lighting and flashing patterns, see "Status and Errors" on page 16.)</p> <ul style="list-style-type: none"> <li>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.</li> <li>Lights when the end of the roll paper is detected, and when printing has stopped (offline). If this happens, replace the roll paper.</li> <li>Off when the printer is in standard mode (online).</li> </ul>
3	Paper LED	<ul style="list-style-type: none"> <li>Lights when there is no more roll paper. If the near-end detection is set to "Enabled", this LED also lights when the near-end of the paper is detected.</li> <li>Off when there is a sufficient amount of roll paper remaining.</li> <li>Flashes when a self-test is in progress or when macro execution standby state.</li> </ul>

## Connectors

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

### CAUTION

- The interface installed differs according to the model.
- Do not remove the user interface board installed on this product.



1	Serial interface	Connects the serial cable for connecting to a computer.
2	USB (Type-B) connector	Connects the USB cable for connecting to a computer. The connector is covered with a plate when shipped with some model. When using this connector with such model, set Interface Selection in the printer's Software Setting Mode to [Built-in USB]. See "Software Settings" on page 42.
3	Ethernet connector	Connects the 10BASE-T/100BASE-TX Ethernet cable.
4	Power supply connector	Connects the AC cable. "Connecting the AC adapter" on page 28
5	USB (Type-A) connector	Use only for connecting optional Wireless LAN unit. Leave the cover in place if this connector is not used.
6	Drawer kick connector	Connects the cash drawer or the optional external buzzer. <a href="#">"Connecting the Cash Drawer" on page 35</a> <a href="#">"Connecting the Optional External Buzzer" on page 37</a>

## Status and Errors

The LEDs light or flash to indicate the printer status.

**CAUTION**

The printer cannot print while an error is left unsolved.

### 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 end is detected by the roll paper end sensor)
- During an operation standby state
- When an error has occurred ("[Status and Errors](#)" on page 16)
- While the roll paper cover is open

### Automatically Recoverable Errors

The printer cannot print when automatically recoverable errors occur. When the conditions for recovery described below are met, the printer automatically recovers from the error.

Error	Error description	Error LED status	Condition for Recovery
Roll paper cover open error	The roll paper cover was opened during printing	ON	The roll paper cover is closed
Head temperature error	A high temperature outside the thermal head drive operating range was detected	ON	When the thermal head cools

## Recoverable Errors

The printer cannot print when a recoverable error occurs. When the roll paper cover is closed, the power is turned off and on again, or an error recovery command is received, the printer can recover from the error.

Error	Error description	Error LED status	Condition for Recovery
Autocutter error	Autocutter does not work correctly	ON	Recovers from the error when the jammed paper or foreign matter is removed, and the roll paper cover is closed

**CAUTION**

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

**NOTE**

Use the TM-T20III Utility to change the condition for recovery. For details, see the TM-T20III Utility User's Manual.

## Unrecoverable Errors

The printer cannot print when an unrecoverable error occurs. If the error persists after turning the printer off and then on again, the printer may be defective. Contact qualified service personnel.


**CAUTION**

Turn off the power immediately when an unrecoverable error occurs.

Error	Error description	Error LED flash code
R/W error in memory	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.	

## Status Display

	<b>Power LED</b>	<b>Error LED</b>	<b>Paper LED</b>
Online	ON	OFF	OFF
Initializing after power-on	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 while the printer is not printing	ON	ON	-
No paper	ON	ON	ON
While updating firmware	ON	Flashing	Flashing
While in forced firmware update mode	ON	ON	ON
While in power off standby	ON	OFF	Flashing
The network link is down	ON	Flashing*	-
Waiting to print status sheet	ON	ON	Flashing

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

\*: The error LED flashing patterns are as follows.



## NV Memory

The printer is equipped with the NV memory (Nonvolatile Memory) to store 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 (Customized value)
- R/E (Receipt Enhancement)
- User-defined page
- Maintenance counter



As a guide, NV memory rewriting should be 10 times or less a day when you program applications.

### CAUTION

## NV Graphics Memory

Graphics, such as shop logos to be printed on receipts, can be stored. Even with a serial interface model whose transmission speed is low, high speed graphics printing is possible.

TM-T20III Utility or ESC/POS commands can be used for the graphic registration.

TM-T20III Utility or NV Graphics Information Print Mode can be used for the confirmation.

## 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 (Customized Value)

You can configure various settings of the printer.

For more information, see "[Software Settings](#)" on page 42.

## R/E (Receipt Enhancement)

Registered graphics in the NV Graphics Memory can be printed automatically, as a top logo before receipt printing or as a bottom logo before cutting paper.

TM-T20III Utility or ESC/POS commands can be used for the settings.

TM-T20III Utility or Receipt Enhancement Information Print Mode can be used for the confirmation.

## User-defined Page

You can store character data in the user-defined page (character code table: page 255) so that you can also print characters not resident in the printer.

## Maintenance Counter

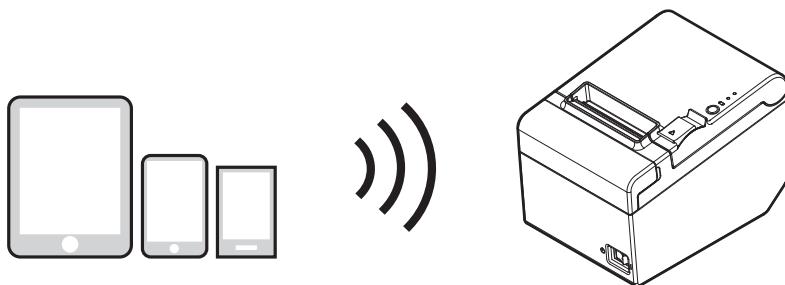
With this function, printer information, such as the number of lines printed, the number of autocuts, and printer operation time after the printer starts working, is automatically stored in NV memory. You can use the counter information for periodical checks or part replacement.

**NOTE**

- You can also check the print head running length and number of times of autocutting with the self-test (see "Self-test Mode" on page 53).
- The maintenance counter value is normally saved in the NV memory every 2 minutes (maximum of 4 minutes). However, it is not automatically saved when the product is in the power-saving mode or when the power is turned off without using the power switch.

## Simple Setup for Wireless LAN

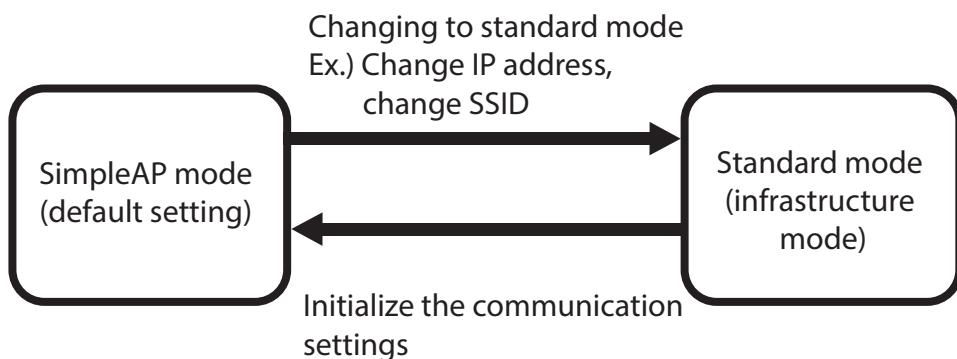
This printer comes with a mode (SimpleAP) that allows printers to connect with a smart device or a computer without requiring a wireless access point. This allows you to easily setup a wireless LAN for the printer by using a printer settings tool (TM-T20III Utility, Epson TM Utility for iOS/Android, 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	: WPA2-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-T20III Utility or EpsonNet Config. After switching, operations continue in standard mode. If you want to make settings in SimpleAP mode again, initialize the communication settings. (["Resetting the Interface Settings" on page 62](#))



## Useful Functions for Smart Devices

You can easily connect this product to the network by using the QR code printed on the status sheet.

### QR Code

Capture the QR code printed on the status sheet with the camera on your smart device to acquire the printer information (information for specifying the device).

Specify the target printer using the acquired information to connect to the network.

**NOTE**

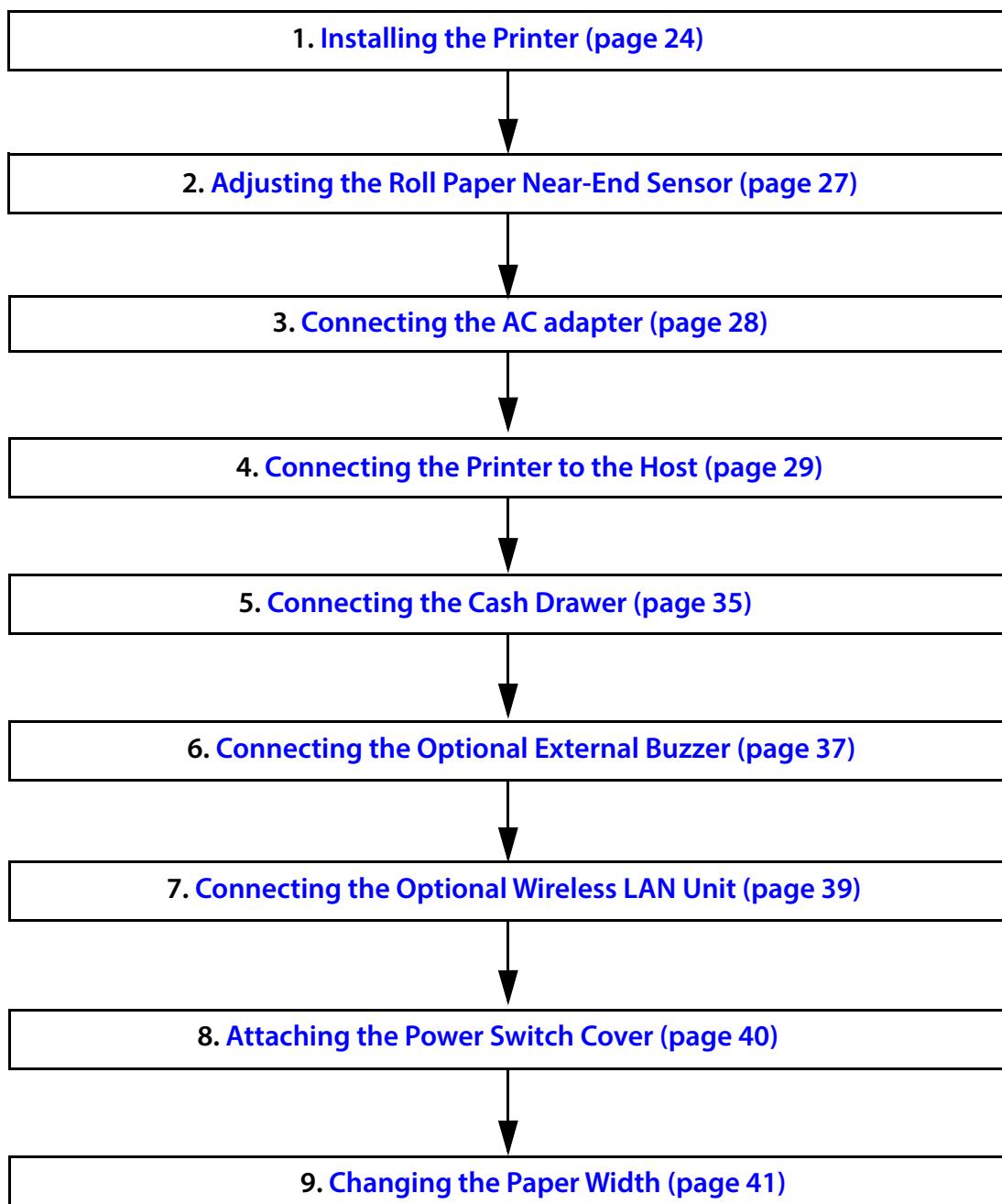
- To use the function, programming using Epson ePOS SDK is required. In addition to the QR code capturing operations, use Printer Easy Select API to achieve this function.  
See the “Epson ePOS SDK for Android/iOS User’s Manual” and the Epson ePOS SDK sample program for more details. The sample program also contains a sample implementation method for capturing a QR code.
- You can try a demo of the function by using Epson TM Utility for iOS/Android.

# Setup

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

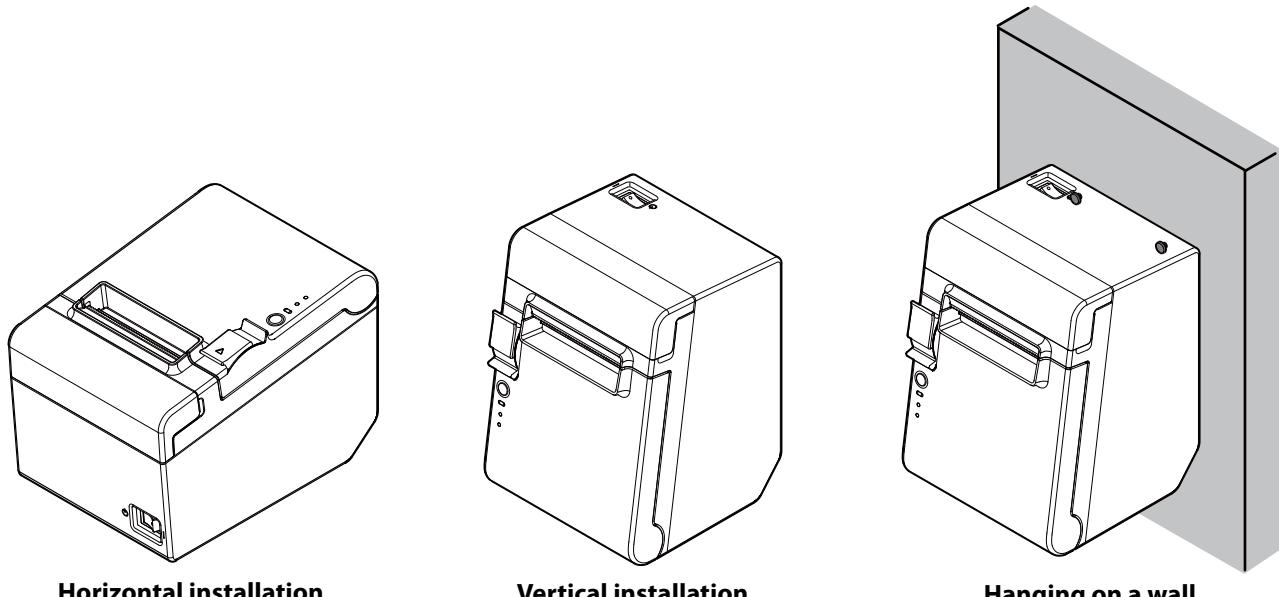
## Flow of Setup

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



## Installing the Printer

You can install the printer horizontally on a flat surface (with the paper exit on top) or vertically (with the paper exit at the front). Also, you can hang it on a wall using the included accessories.



**Horizontal installation**

**Vertical installation**

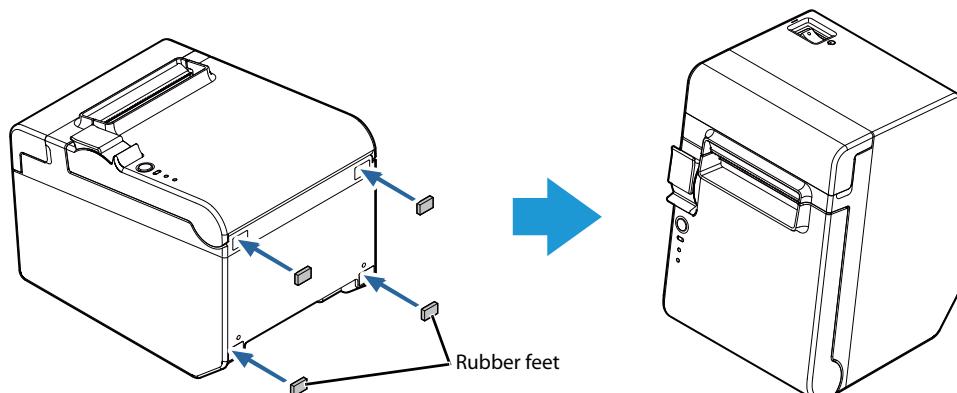
**Hanging on a wall**

**CAUTION**

- Do not place the printer in a dusty location.
- Do not knock or strike the printer. This may cause defective print.
- Do not catch cables or place foreign matter under the printer.
- Take measures to prevent the printer from moving by vibration during paper cutting and when using a drawer. Affixing tape (Model: DF-10) is provided as an option.

### Installing the Printer Vertically

When installing the printer vertically, attach the four rubber feet in the rectangular indentations in the printer case, as shown in the illustration below.



## Hanging the Printer on a Wall

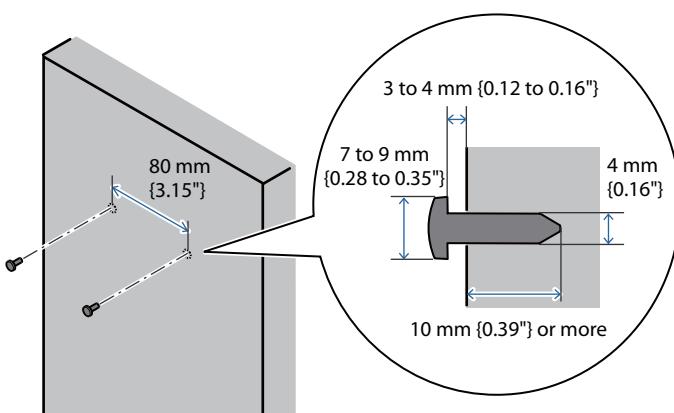
To securely hang the printer on a wall, follow the steps below.

### CAUTION

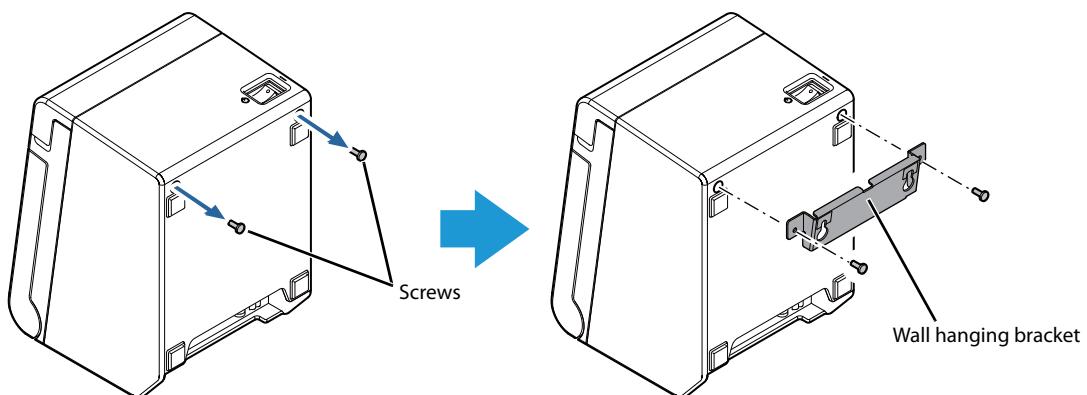
- Hang the printer on a wood, concrete, or metal wall. The thickness of the wall should be 10 mm {0.4"} or more.
- Be sure to use metallic screws.
- The screws to be put into the wall must have a pull-out strength of 150 N (15.3 kgf) or more.

### 1 Put two screws (diameter: 4 mm {0.16"}, head diameter: 7 to 9 mm {0.28 to 0.35"}) into the wall at an interval of 80 mm {3.15"}.

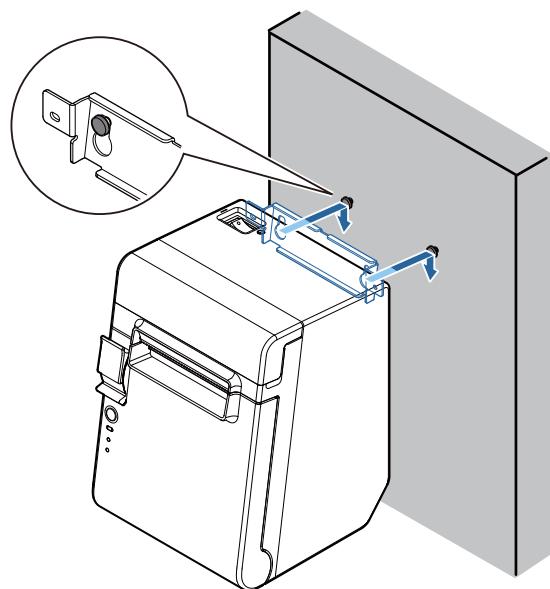
Make sure the length of the screw in the wall is 10 mm {0.39"} or more, and the length outside the wall is 3 to 4 mm {0.12 to 0.16"}.



### 2 Remove the two screws from the printer, and then attach the wall hanging bracket to the printer using the screws.



- 3** Align the holes in the wall hanging bracket with the screws on the wall, and hook it securely.



## Adjusting the Roll Paper Near-End Sensor

Below are two situations where a roll paper near-end sensor adjustment is required.

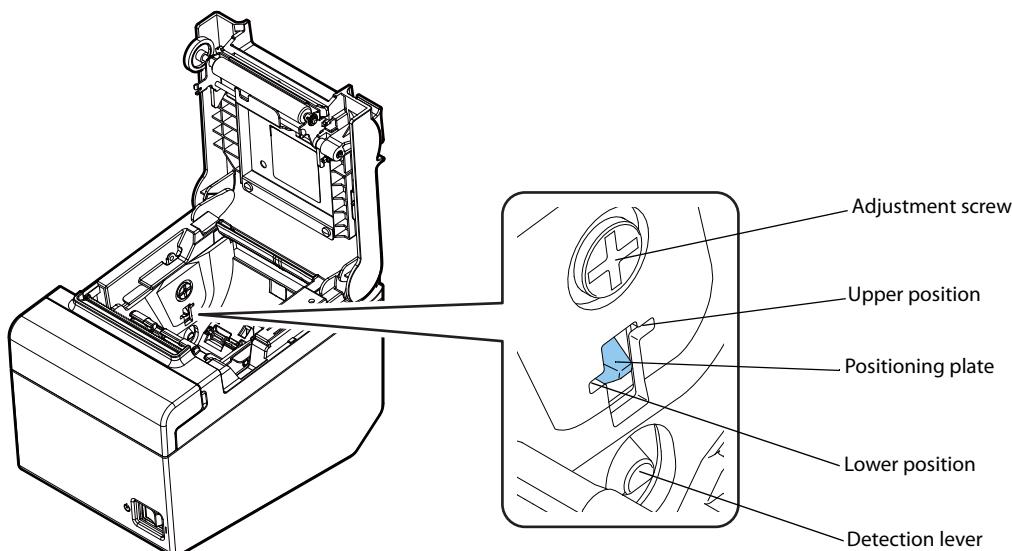
- To adjust the detection position to suit the diameter of the roll paper core used.
- To adjust the detection position of remaining amount of paper.

**CAUTION**

- The roll paper near-end detection function can be used only when this product is installed horizontally.
- Be sure to disable the near-end detection when the product is installed vertically or is wall-mounted. Failure to do so may lead to erroneous detection.
- 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 near-end sensor can detect the remaining paper as accurately as possible.
- To use the near-end detection, it must be enabled using the memory switches. See "[Software Setting Mode](#)" on page 54 for details about the making the memory switch settings.

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

- 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<br>(outer diameter) |
|-------------------------|---|
| Upper                   | Approx. 27 mm {1.06"}                         |
| Lower (Default setting) | Approx. 23 mm {0.97"}                         |
- 3 Tighten the adjustment screw.
  - 4 After adjustment, make sure that the detection lever operates smoothly.



## Connecting the AC adapter

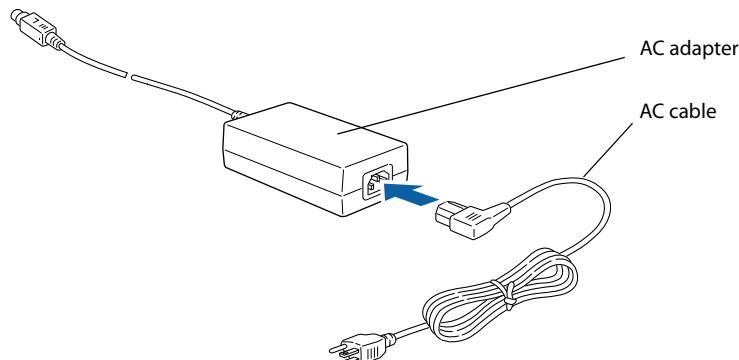


- Be sure to use the specified AC adapter [AC adapter, C1 (Model: M235B)]. Penetration by foreign objects may lead to fire.
- Never insert the AC cable plug into a socket that does not meet the input voltage of the AC adapter.  
Doing so may result in damage to the printer.
- Should a fault ever occur, immediately turn off the power to the printer and unplug the AC cable from the wall socket.

### Connecting Procedure

**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

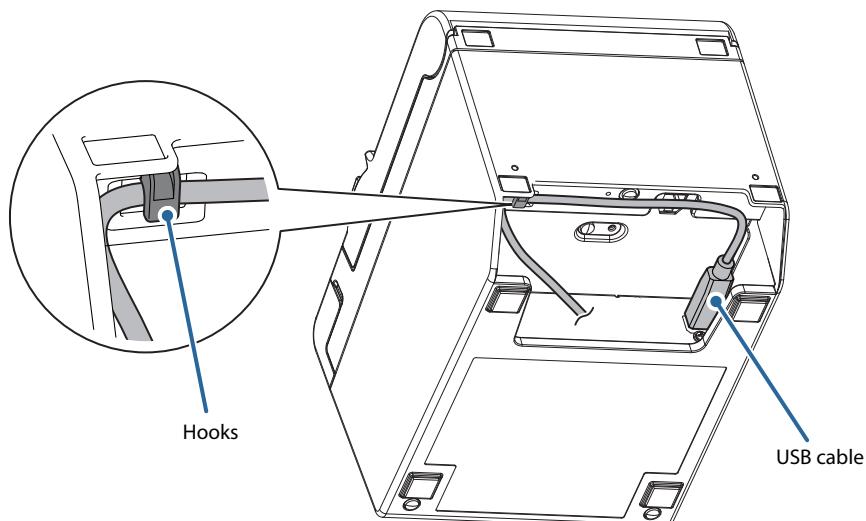
**CAUTION**

- Be sure to install the driver before connecting the printer to the host computer.
- The printer uses a modular connector specifically designed for the cash drawer. Do not connect the connector 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.

When connecting the USB cable to the printer, fix the cable with the hook to prevent it from being disconnected.


**CAUTION**

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

### Serial Interface

When connecting to the host computer through a serial interface (RS-232), connect a serial cable to the printer, start the host computer, and then turn on the printer.

**NOTE**

- When using connectors equipped with screws, tighten the screws on both sides to secure the connectors firmly.
- When using interface cables equipped with a ground line, attach the ground line to the screw hole marked "FG" on the printer.

## Ethernet Interface

Use an Ethernet cable to connect the printer to network via a hub.

Use Epson TM-T20III Utility or EpsonNet Config to set network.

For detailed information about the Epson TM-T20III Utility, refer to the TM-T20III Utility User's Manual.

For details on EpsonNet Config, refer to EpsonNet Config User's Guide.

### 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 LAN connector.

### NOTE

As same with Conventional models, you can use EpsonNet Config (Web version) in the same way.

Start up a web browser and then input the printer's IP address in the address bar.

On the authentication screen, input your user name and password.

The default setting for the password varies depending on the firmware version.

Firmware version	User name	Password
Before 20.03 ESC/POS	"epson"	"epson"
20.03 ESC/POS or later	"epson"	Product serial number (10 alphanumeric characters, case sensitive)

You can check the firmware version using the self-test ("Self-test Mode" on page 53).

You can check the product's serial number using a self-test ("Self-test Mode" on page 53) or on the manufacturing nameplate attached to the product.

## Wireless LAN Interface (when OT-WL06 is used)

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.
- 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.
- When connecting to a stealth SSID with W53 or W56 using OT-WL06, firmware version 20.04 ESC/POS or later is required.

**NOTE**

For SimpleAP mode, see "[Simple Setup for Wireless LAN](#)" on page 21.

## Setting up Using a SimpleAP Connection from a Windows Computer

### Necessary Items

Prepare the following items.

- Computer for setting: Windows 10/8/7  
Computer equipped with a wireless LAN function
- Utility for setting: TM-T20III Utility 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 setup 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
Passphrase	12345678
IP Address	192.168.192.168

#### 3 When connecting to the printer is complete, setup the Wireless LAN using the TM-T20III Utility or EpsonNet Config.

For information about the TM-T20III Utility, see the TM-T20III Utility User's Manual.

For details about EpsonNet Config, refer to EpsonNet Config User's Guide.

#### 4 When setting the wireless LAN is complete, remove the wired cable (LAN/USB) and restart the printer.

## Setting up Using a USB Connection from a Windows Computer

### Necessary Items

- Computer for setting: Windows 10/8/7
- Utility for setting: TM-T20III Utility
- USB cable

Follow the steps below to connect the printer.

- 1 Connect the printer to the computer via the USB cable.**
- 2 Turn on the computer.**
- 3 Turn on the printer.**
- 4 Start the TM-T20III Utility.**
- 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, see the TM-T20III 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

- 1 Select the network you want to connect to.
- 2 Enter the passkey.
- 3 Perform a test print.

## Connecting the Cash Drawer

### CAUTION

- The optional external buzzer and the cash drawer cannot be used simultaneously. Do not connect both the optional external buzzer and the cash drawer to the printer at the same time by using a branched connector.
- The cash drawer cannot be used if the enable/disable setting for the optional external buzzer is set to "enable". When using the cash drawer, be sure to set it to "disable" using the Epson TM-T20III Utility.
- Two driver transistors cannot be energized simultaneously.
- Leave intervals longer than 4 times the drawer driving pulse when sending it continuously.

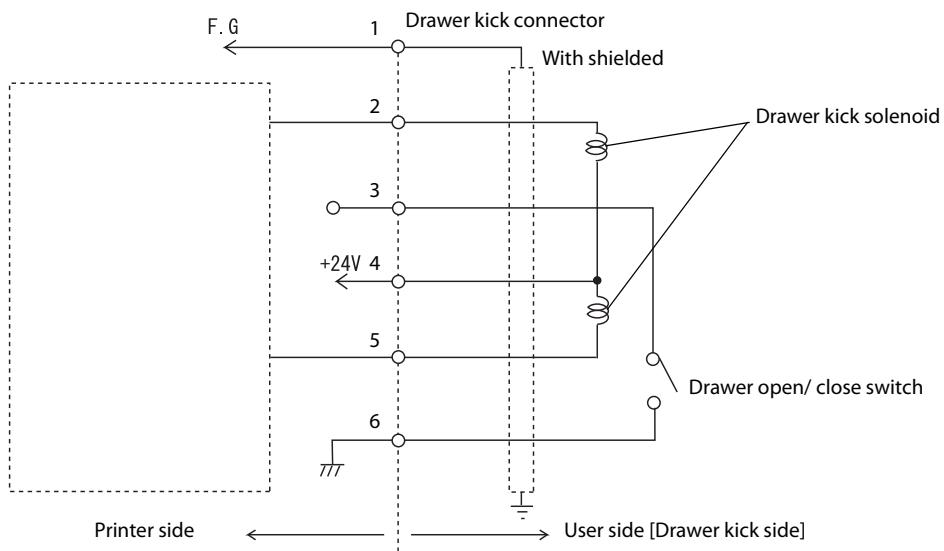
### Cash Drawer Requirements

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 ohms 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

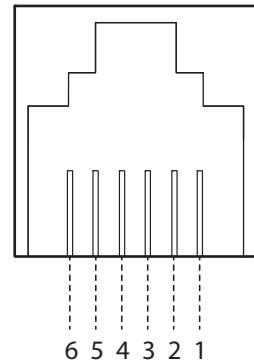


### Adaptable Connector

Modular connector RJ12

## Pin assignments

Pin number	Signal name	Direction
1	Frame GND	-
2	Drawer kick drive signal 1	Output
3	Drawer kick open/close signal	Input
4	+24 V	-
5	Drawer kick drive signal 2	Output
6	Signal GND	-

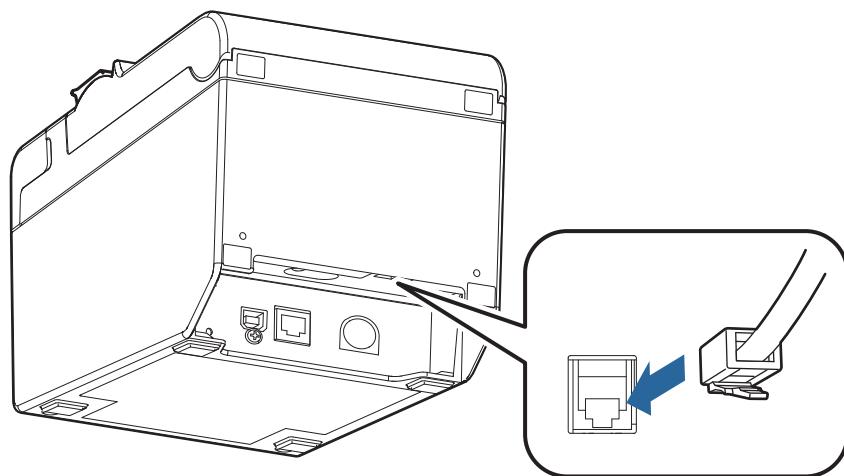


## Connecting the Drawer Kick Cable



- 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.



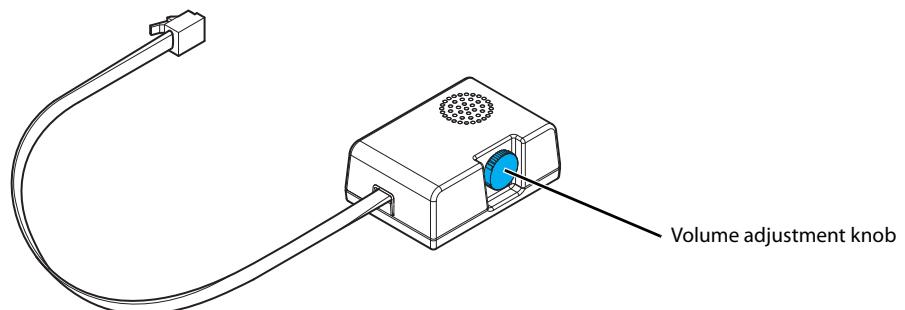
## Connecting the Optional External Buzzer

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 auto cutting, and when detected paper end. Settings for sound patterns and frequency depending on the occasions the buzzer beeps are also available.

Use the TM-T20III Utility to make the buzzer settings: enable/disable setting, sound pattern setting, and frequency setting.

**CAUTION**

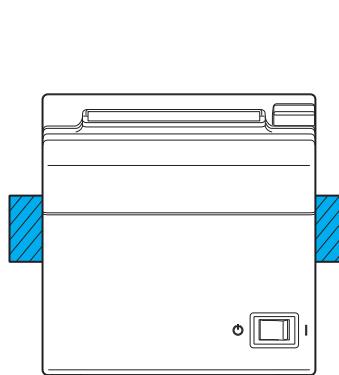
- Be sure to turn off the printer before you connect/disconnect the optional external buzzer.
- The optional external buzzer and the cash drawer cannot be used simultaneously. Do not connect both the optional external buzzer and the cash drawer to the printer at the same time by using a branched connector.



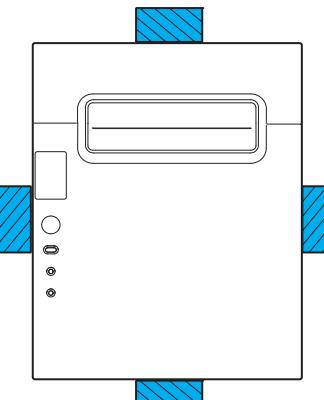
### Connecting Procedure

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

- When using the printer horizontally: either side
- When using the printer vertically or on a wall: either side/top/bottom (only for wall hanging installation)



**Horizontal installation  
(Front View)**

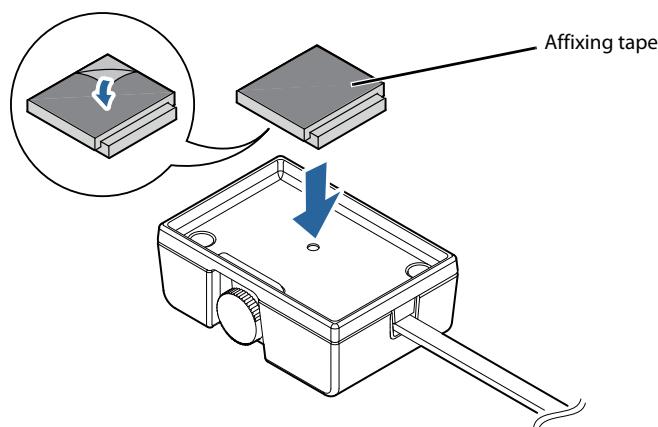


**Vertical/Wall-hanging installation  
(Front View)**

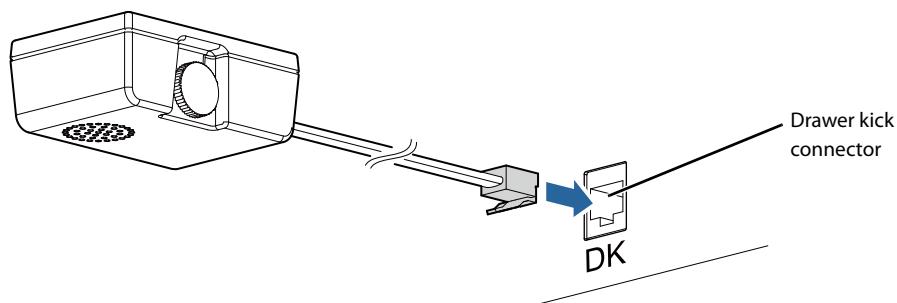
**CAUTION**

- 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.

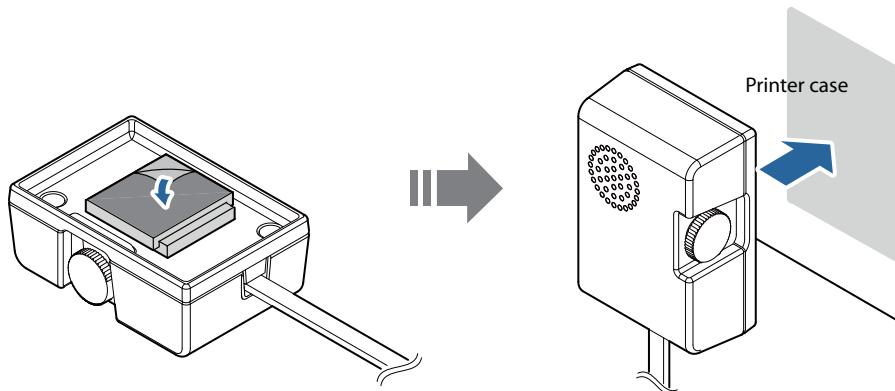
- 1** Turn off the printer.
- 2** Clean and dry the printer case where the buzzer will be installed.
- 3** With 2 included pieces of the affixing tape combined, peel off the backing paper on one side, and stick the tape in the center of the attaching surface of the buzzer unit.



- 4** Connect the cable of the buzzer to the drawer kick connector on the printer.



- 5** Peel off the backing paper on the other side of the affixing tape, and attach the buzzer unit to the printer case.

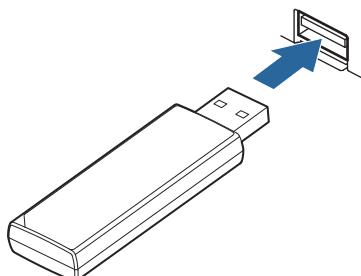


## Connecting the Optional Wireless LAN Unit

The optional Wireless LAN cable set (OT-WL06) enables you to use the product with a Wi-Fi connection. For more information, refer to User's Manual 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.



## 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.

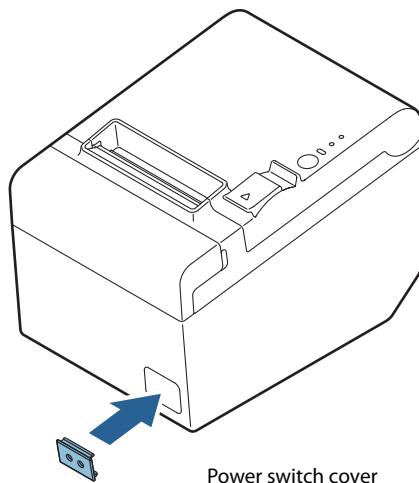
A soft cover for the power switch is also included.

**WARNING**

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

**CAUTION**

Use the soft power switch cover if the printer is installed in a humid location or exposed to water. If current leakage occurs, it could result in electric shock.



Power switch cover

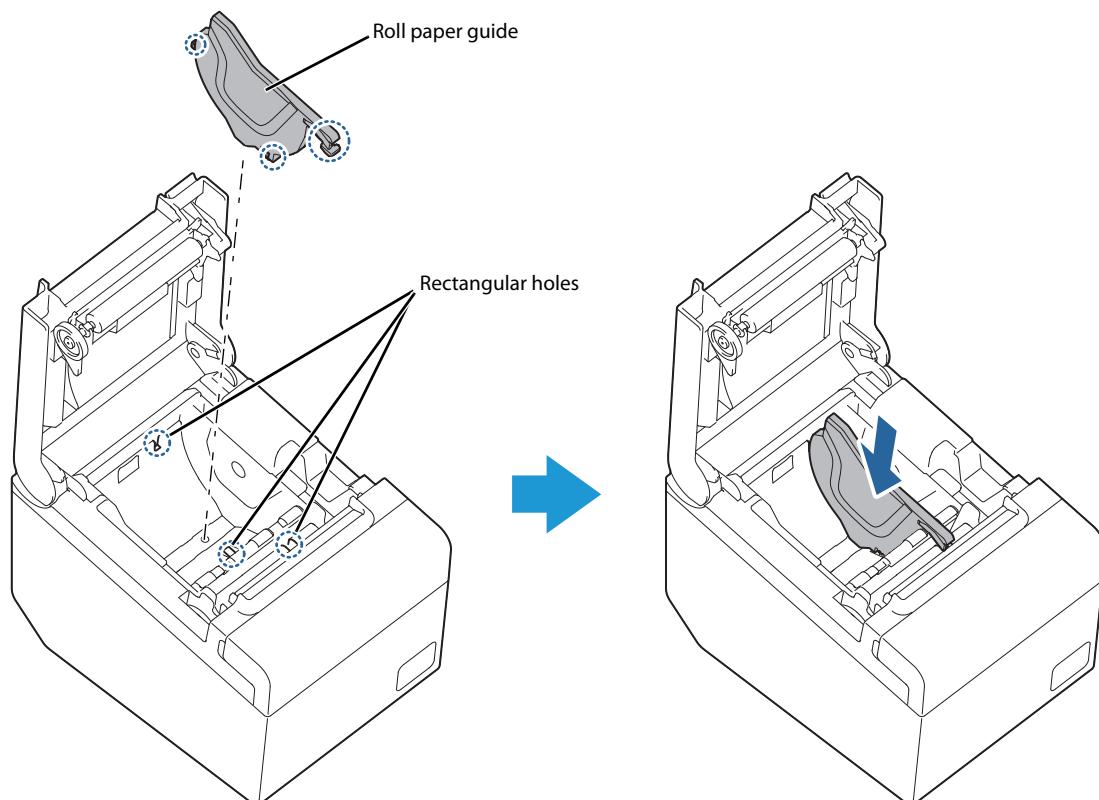
## Changing the Paper Width

You can change the paper width from 80 to 58 mm {3.15 to 2.28"} by installing the included 58-mm {2.28"} width roll paper guide. Follow the steps below to change the paper width.

**CAUTION**

Because some parts of the print head and the autocutter contact the platen and they may become worn out, once you change the paper width from 80 to 58 mm {3.15 to 2.28"} and use the printer, you cannot change it back to 80 mm {3.15"}.

- 1** Open the roll paper cover.
- 2** Align the three tabs of the 58-mm {2.28"} width roll paper guide with the rectangular holes in the printer, and push the guide downward.



- 3** Using the memory switch, change the paper width setting.

For more information, see "Software Settings" on page 42.

# Advanced Usage

## Software Settings

With the memory switches and customized values, which are software settings for this printer, you can set the various functions. For an outline of the functions, see the following pages. Software settings are performed using the TM-T20III Utility, Software Setting Mode, or ESC/POS Commands.

	Item/Method	Software Setting Mode	Epson TM-T20III Utility
<b>Memory Switches</b>	Automatic line feed	✓	✓
	USB power-saving function	✓	✓
	Paper sensors to output paper end signal	✓	✓
	Error signal output	✓	✓
	Data processing with reception error	✓	✓
	Recovery conditions from receive buffer BUSY	✓	✓
	Receive buffer capacity	✓	✓
	Condition for BUSY	✓	✓
	Near-end detection	✓	✓
<b>Customized Values</b>	Print density	✓	✓
	Print speed	✓	✓
	Power supply unit capacity	✓	✓
	Paper Width & Print Column	✓	✓
	Automatic paper reduction	✓	✓
	Character code table defaults	✓	✓
	International character defaults	✓	✓
	Font A auto replacement	✓	
	Font B auto replacement	✓	
	Autocutting after closing the roll paper cover	✓	✓
	Buzzer function	✓	✓
	Shrinking/Expanding graphics data		✓
	USB class	✓	✓
	Serial Interface Communication Condition	✓	✓
	Interface selection	✓	✓

Item/Method	Software Setting Mode	Epson TM-T20III Utility
Cut error release method		✓
Auto top logo printing		✓
Auto bottom logo printing		✓
Extended settings for auto top logo/bottom logo printing		✓

**NOTE**

- For detailed information about the Epson TM-T20III Utility, refer to the TM-T20III Utility User's Manual.
- For information about how to use the memory switch setting mode, see "["Software Setting Mode"](#) on page 54.

**Feature****Automatic line feed**

- Always disabled (default setting)
- Always enabled

When set to "Always enabled", paper is fed by one line after data in the print buffer is printed.

**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**

- Enables both the roll paper end sensor and the roll paper near-end sensor (default setting)
- Disables both of the sensors

**Error signal output**

- Enabled (default setting)
- Disabled

**NOTE**

This model does not support this setting.

**Data processing with reception error**

- Prints "?" (default setting)
- Ignored

## Recovery conditions from receive buffer BUSY

- Releases the BUSY state when the remaining receive buffer capacity reaches 256 bytes (default setting)
- Releases the BUSY state when the remaining capacity of the receive buffer reaches 138 bytes.

## Receive buffer capacity

- 4 KB (default setting)
- 45 bytes

## Condition for BUSY

- Receive buffer full/Offline (default setting)
- Receive buffer full

**CAUTION**

- In either case above, the printer enters the BUSY state after power is turned on, and when a self-test is being run.
- If BUSY condition is set to "Receive buffer full," the printer will not become BUSY
  - \* When the roll paper cover is open
  - \* When paper is fed by the FEED button
  - \* When printing has stopped for a paper out
  - \* When macro execution ready state
  - \* When error has occurred

## Near-end detection

- Disabled (default setting)
- Enabled

## Print density

Selectable from levels 1 to 7 (Light to Dark)

Default setting: Level 4

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
AF50KS-E KT55FA KT48FA	Level 4
F5041(48) F5041(55)	Level 5

**NOTE**

When the print density level is increased, print speed may be reduced.

## Print speed

Selectable from levels 1 to 13 (Slow ~ Fast)

Default setting: Level 13

**NOTE**

Depending on print conditions, such as print duty, thermal 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.

## Power supply unit capacity

Selectable from levels 1 to 3

Default setting: Level 3

## Paper Width & Print Column

**CAUTION**

- To change the paper width, you need to install the 58 mm width paper guide plate. (See "Changing the Paper Width" on page 41.)
- Because some parts of the print head and the autocutter contact the platen and they may become worn out, once you change the paper width from 80 to 58 mm {3.15 to 2.28"} and use the printer, you cannot change it back to 80 mm {3.15"}.

- 80 mm {3.15"} width paper/48 characters (default setting)
- 80 mm {3.15"} width paper/42 characters
- 58 mm {2.28"} width paper/35 characters
- 58 mm {2.28"} width paper/42 characters

## Automatic paper reduction

- Disabled (default setting)
- Recommended setting
- Maximum paper reduction

The table below shows the details of "Recommended setting", and "Maximum paper reduction".

	<b>Recommended setting</b>	<b>Maximum paper reduction</b>
<b>Top margin</b>	Reduced	Reduced
<b>Bottom margin</b>	Reduced	Reduced
<b>Line spacing</b>	Reduced by 75%	Reduced by 75%
<b>Line break</b>	Reduced by 75%	Reduced by 75%
<b>Barcode height</b>	Reduced by 75%	Reduced by 75%
<b>Space around each character</b>	Not reduced	Reduced by 75%

**NOTE**

- Paper reduction is not performed for space dot lines of graphics printing data.
- When reducing barcode height, reading of the barcode is not guaranteed. Be sure to check that the barcode can be read with a user's barcode reader in advance.

---

## Character code table defaults

Selectable from 43 pages including user-defined page

Default setting: PC437: USA, Standard Europe

**NOTE**

Refer to the following URL regarding the character code table.  
[www.epson-biz.com/pos/reference/charcode/](http://www.epson-biz.com/pos/reference/charcode/)

---

## International character defaults

Selectable from 18 sets

Default setting: USA

---

## Font A auto replacement

- Does not replace (default setting)
- Font B

---

## Font B auto replacement

- Does not replace (default setting)
- Font A

---

## Autocutting after closing the roll paper cover

- Cuts (default setting)
- Does not cut

---

## Buzzer function

**NOTE**

- For information about how to connect the optional external buzzer, see "Connecting the Optional External Buzzer" on page 37.
- 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)

---

**Shrinking/Expanding graphics data****Resizing**

- No resizing (default setting)
- Automatic shrinking
- Manual adjustment

**Algorithm**

- Thinning out method
- Nearest neighbor method (default setting)
- Bilinear method
- Bicubic method

**Scaling factor (manual adjustment)**

50% to 200%

---

**USB class**

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

---

## Serial Interface Communication Condition

### Baud rate

- 2400 bps
- 4800 bps
- 9600 bps
- 19200 bps
- 38400 bps (default setting)
- 57600 bps
- 115200 bps

### Parity

- No parity (default setting)
- Odd parity
- Even parity

### Handshaking

- DTR/DSR (default setting)
- XON/XOFF

### Bit length

- 7 bits
- 8 bits (default setting)

---

## Interface selection

**NOTE**

- The default settings and selectable settings differ according to the model.
- If the model has the USB Type B port blocked by a metal plate, to use the USB interface, it is necessary to remove the metal plate, connect the USB cable, and select [Built-in USB] or [Auto Selection] for this setting.

- UIB (The interface used for data communication is limited to the serial interface.)
- Built-in USB
- Ethernet<sup>\*1</sup>
- UIB / Built-in USB (The interface used for data communication is limited to the interface connected to the printer.)<sup>\*2</sup>
- Auto Selection

\*1: Default setting for Ethernet interface model.

\*2: Default setting for Serial/USB interface model.

---

## Auto top logo printing

**NOTE**

TM-T20III Utility does not support the setting for the number of lines to be deleted below top logo.

**Key-code**

Selectable from key-codes of registered logos

**Alignment**

- Left
- Center
- Right

**Number of lines to be deleted below top logo**

---

## Auto bottom logo printing

**Key-code**

Selectable from key-codes of registered logos

**Alignment**

- Left
- Center
- Right

## Extended settings for auto top logo/bottom logo printing

**NOTE**

TM-T20III Utility does not support the following settings.

- Top logo print while paper feeding to the cutting position
- Top logo print while clearing the buffer to recover from a recoverable error
- Top logo print after paper feeding with the Feed button has finished

### Top logo print while paper feeding to the cutting position

- Disabled (default setting)
- Enabled

### Top logo print when printer is powered on

- Disabled (default setting)
- Enabled

### Top logo print when roll paper cover is closed

- Disabled
- Enabled (default setting)

### Top logo print while clearing the buffer to recover from a recoverable error

- Disabled
- Enabled (default setting)

### Top logo print after paper feeding with the Feed button has finished

- Disabled (default setting)
- Enabled

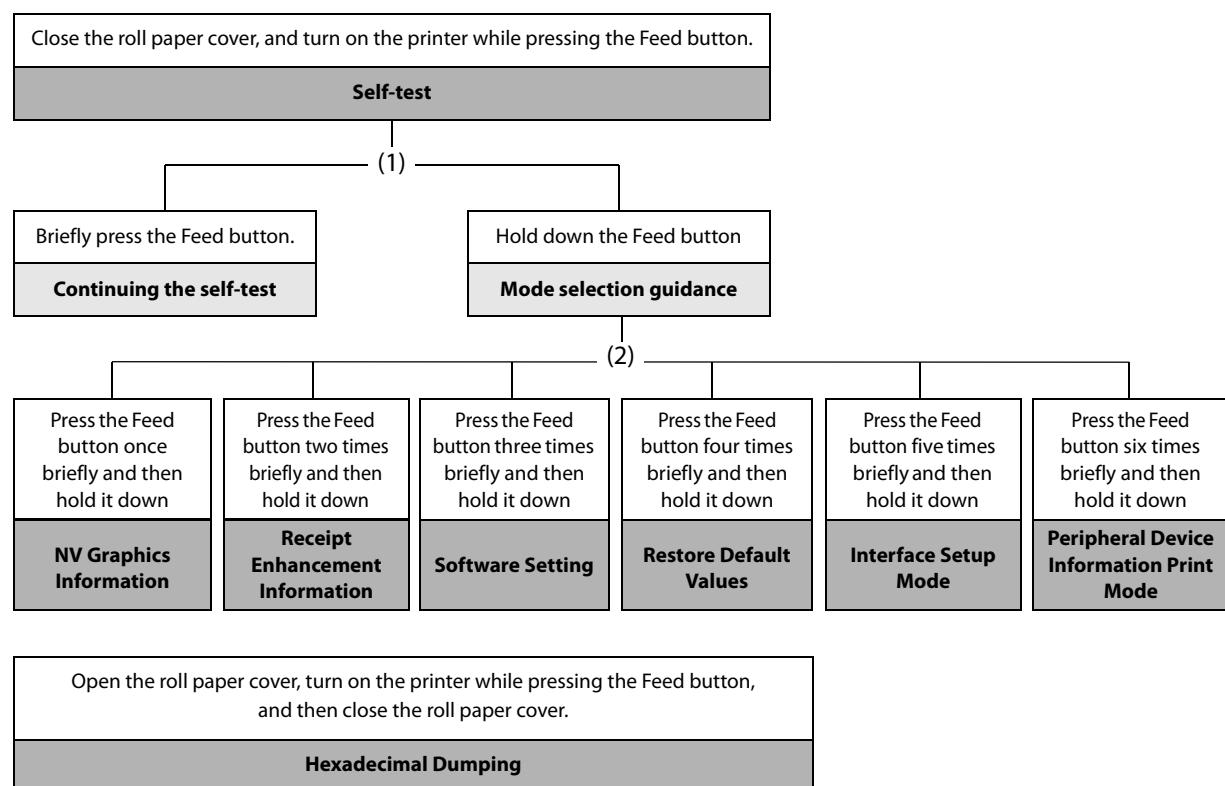
## Setting/Checking Modes

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 setting mode
- Restore default values mode
- Interface setup mode (Ethernet model only)
- Peripheral device information print mode
- Hexadecimal dumping mode

To enter the Self-test mode or the Hexadecimal dumping mode, turn the printer on with the special operations as described below.

To enter one of the other modes, first enter the Self-test mode, and then select one mode by operating the Feed button as described below.



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: Peripheral Device Information  
7 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 (print head running length, number of times of auto-cutting)

Follow the steps below. The self-test can also be executed using ESC/POS Commands.

- 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 graphics 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 19.

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 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:

- Auto top logo printing setting
- Auto bottom logo printing setting
- Extended settings for auto top/bottom logo printing

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 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

You can change the printer settings. For information on available setting items, see "["Software Settings" on page 42](#)".

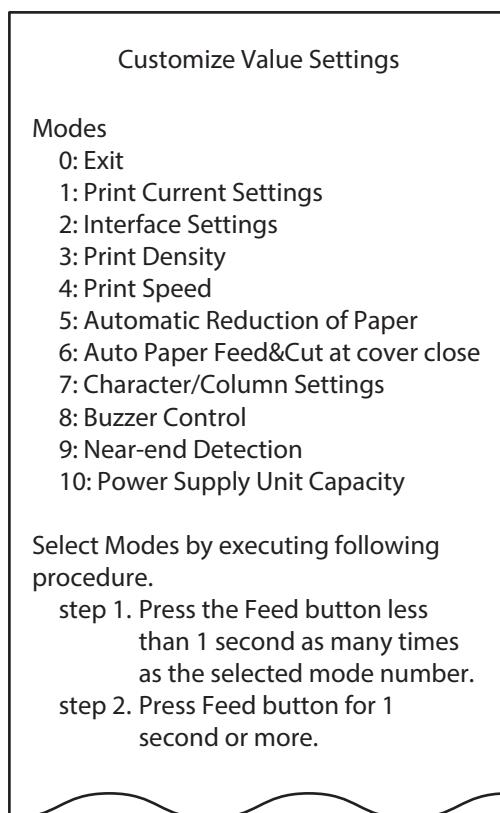
Follow the steps below.

**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 setting mode (Customized Value Settings).**

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



**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 42.

**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 Switches	✓	✓
R/E (Receipt Enhancement) settings	✓	✓
Communication condition of USB interface	✓	✓
Communication condition of serial interface	✓	✓
Communication condition of network interface	✓	✓
NV graphics	-	✓
NV bit image	-	✓
User-defined page	-	✓
User NV Memory	-	✓

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 restoration complete message 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] and select [Initialize] to initialize the network setting parameter. The printer is reset and restarted.

---

### SimpleAP mode (OT-WL06)

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 21.

## Peripheral Device Information Print Mode

This function allows you to print information for the device (Wi-Fi adapter information) currently connected to 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 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 the hexadecimal dumping mode, the printer prints the data transmitted from a host computer in hexadecimal numbers and their corresponding characters. It enables you to check if data is transmitted to the printer correctly.

**NOTE**

- If there is no character corresponding to 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. Hexadecimal Dumping Mode can also be executed using ESC/POS Commands.

- 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.**

The printer starts printing data received from then on in hexadecimal numbers and their corresponding 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.
- This function is available only with the Ethernet interface model.

### Using the Status Sheet Button

**NOTE**

Only the content for the Ethernet and Wi-Fi interface are printed.

**1 Check that the printer is turned on.**

Make sure the roll paper cover is closed.

**2 Hold down the status sheet button (for 3 seconds or longer).**

The status sheet is printed. After printing, the printer returns to the standard mode.

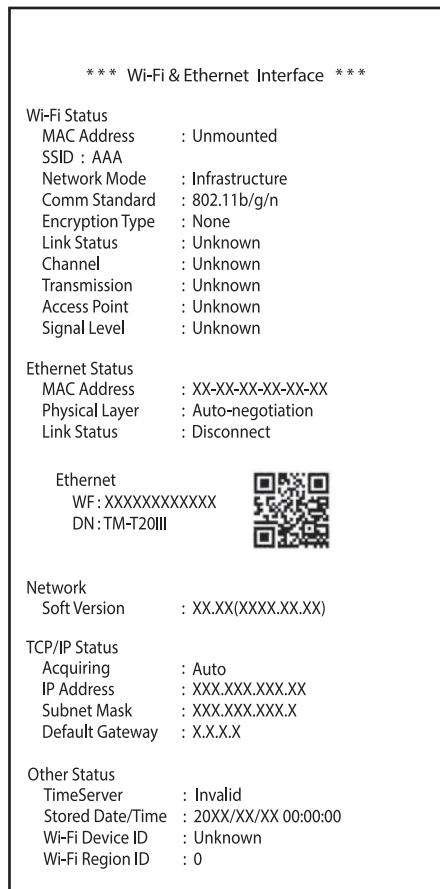
## Using the Feed button

**NOTE**

Content for the Ethernet, and Wi-Fi interface are printed.

- 1** Check that the printer is turned on.
- 2** Open the roll paper cover.
- 3** Hold down the Feed button (for 1 seconds or longer).
- 4** Close the roll paper cover.

The status sheet is printed. After printing, the printer returns to the standard mode.



## 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. For details on the Interface Setup mode, see "[Interface Setup Mode](#)" on page 57.
- Only network settings are returned to their defaults.

**1 Turn off the printer and close the roll paper cover.**

**2 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.

# 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:

- ePOS-Print XML (Ethernet interface model only)
- ESC/POS

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
- 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.

### **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 details of ESC/POS, see the ESC/POS Command Reference. The ESC/POS Command Reference can be accessed at the following URL.

[www.epson-biz.com/pos/reference/](http://www.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 of printing. 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://www.omg.org/retail/unified-pos.htm>

# 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 at any time using a driver or a command. You can also set the timing and the beep pattern for the buzzer.

## ESC/POS Commands

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)

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 POS Printer (TM-T20III)".

## 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 37.

# 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.* 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 JavaScript	

- \* 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://www.omg.org/retail/unified-pos.htm>

## 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-T20III Utility	<p>A utility for checking and changing various printer settings. Use this utility to:</p> <ul style="list-style-type: none"> <li>• Check the current settings</li> <li>• Test operation</li> <li>• Store logos</li> <li>• Set paper reduction</li> <li>• Set printing control</li> <li>• Set communication interfaces</li> <li>• Set the network</li> <li>• Save/restore settings</li> </ul>	Windows
Epson TM Utility	A utility that is available on the App Store or Google Play. Use this to perform wireless connection setup and change settings on the printer from iOS and Android devices. This utility also comes with some sample printing functions.	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
Epson Monitoring Tool	<p>Use to check a list of status for the Epson printers connected to the network.</p> <p>You can also update certificates for multiple printers in a batch.</p>	Windows

## Others

Software	Description
ePOS-Print XML User's Manual	Describes ePOS-Print XML statements. This manual comes with sample programs.

## 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.

[www.epson.com/support/](http://www.epson.com/support/)

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

[www.epson-biz.com](http://www.epson-biz.com)

## ***Notes on Printing Barcodes and Two-dimensional Symbols***

- The user must set the quiet zone, depending on the barcode standards.
- When printing PDF417 (two-dimensional symbols), the following are recommended:
  - Module height: 3 to 5 times the module width
  - Vertical size of the symbol: approximately 5 mm {0.20"} or more
- The recognition rate of ladder barcodes and two-dimensional symbols may vary depending on widths of the modules, print density, environmental temperature, type of paper, and characteristics of the reader. Therefore, the user must check the recognition rate before setting the use conditions so that the restrictions of the reader are satisfied.
- Reading quality of barcodes and two-dimensional symbols in graphics multiple tone printing is not guaranteed.
- When printing ladder barcodes or two-dimensional symbols with graphics printing, set the print speed to speed level 6.

# Handling

This chapter describes basic handling of the printer.

## Installing and Replacing Roll Paper

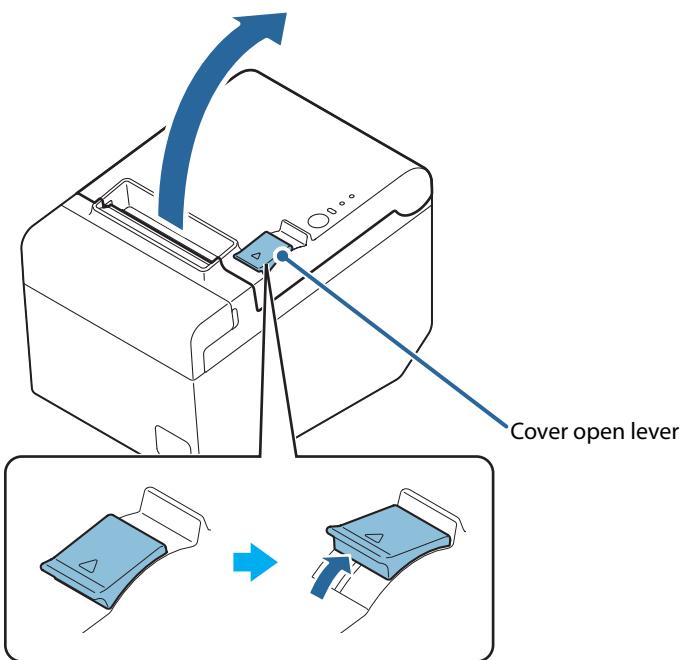


- Do not open the roll paper cover during printing.  
The printer may be damaged.
- Do not touch the manual cutter with your hands when installing or replacing the roll paper.  
Otherwise, you may be injured because the manual cutter blade is sharp.



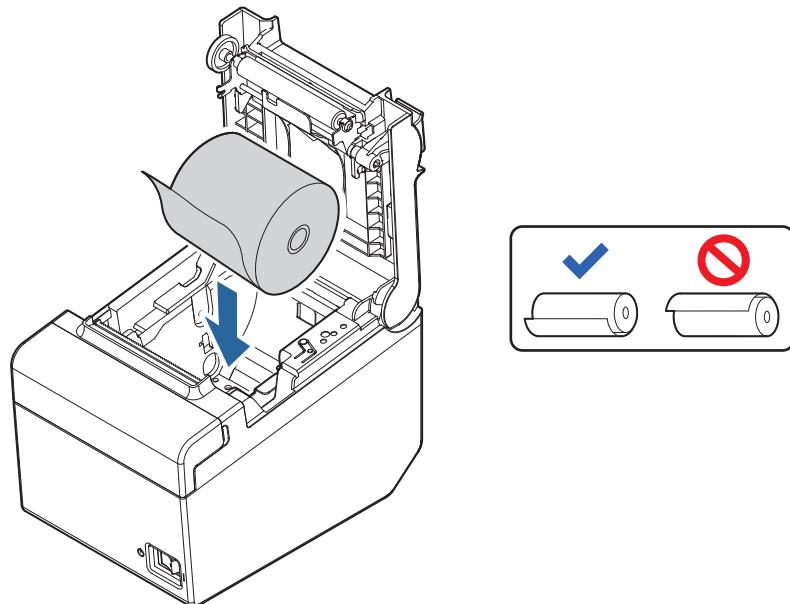
- Use roll paper that meets the printer specification. For details about paper specification, see "Paper Specifications" on page 81.
- Do not use a roll paper whose end is pasted to the paper core.

### 1 Press the cover open lever to open the roll paper cover.

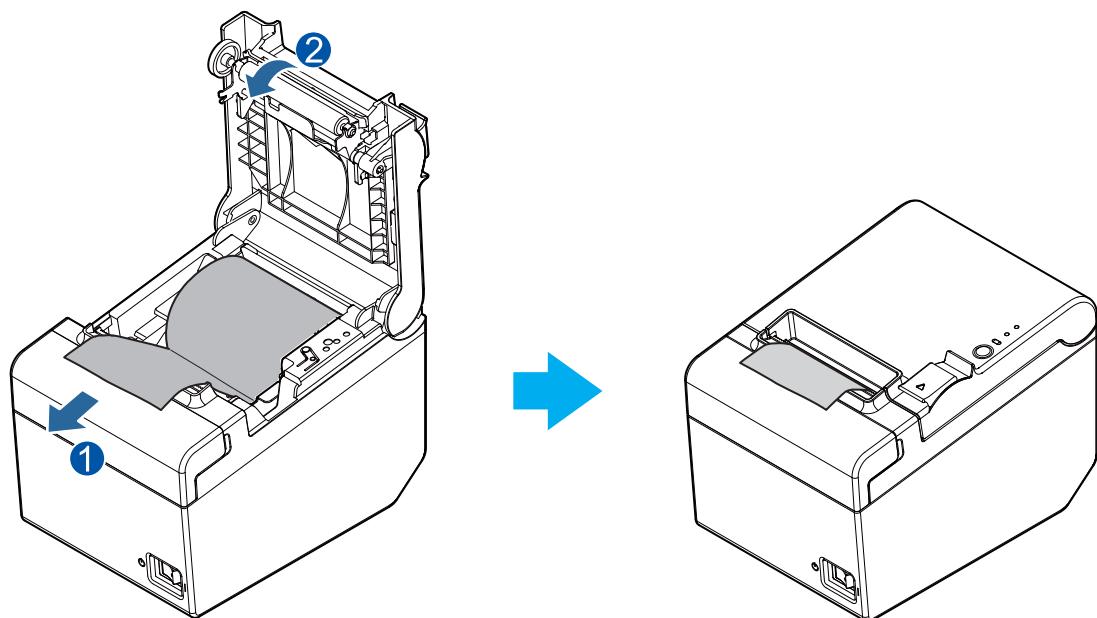


### 2 Remove the used roll paper core, if any.

**3** Install the roll paper in the correct direction.



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



## Removing Jammed Paper

When a paper jam occurs, never pull out the paper forcibly. Open the roll paper cover, and then remove the jammed paper.



Do not touch the thermal head. (See "[Cleaning the Thermal Head/Platen Roller](#)" on page 74.)  
After printing, the thermal head and its surroundings can be very hot.

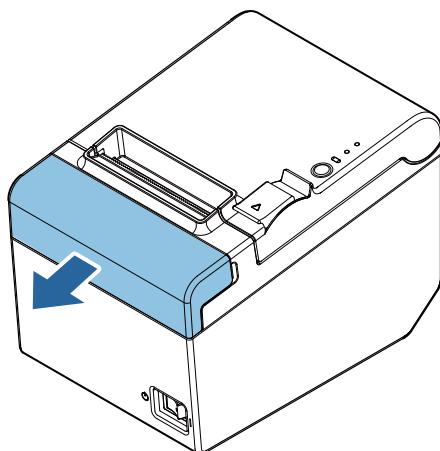
**CAUTION**

### When the Roll Paper Cover Cannot be Opened

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.

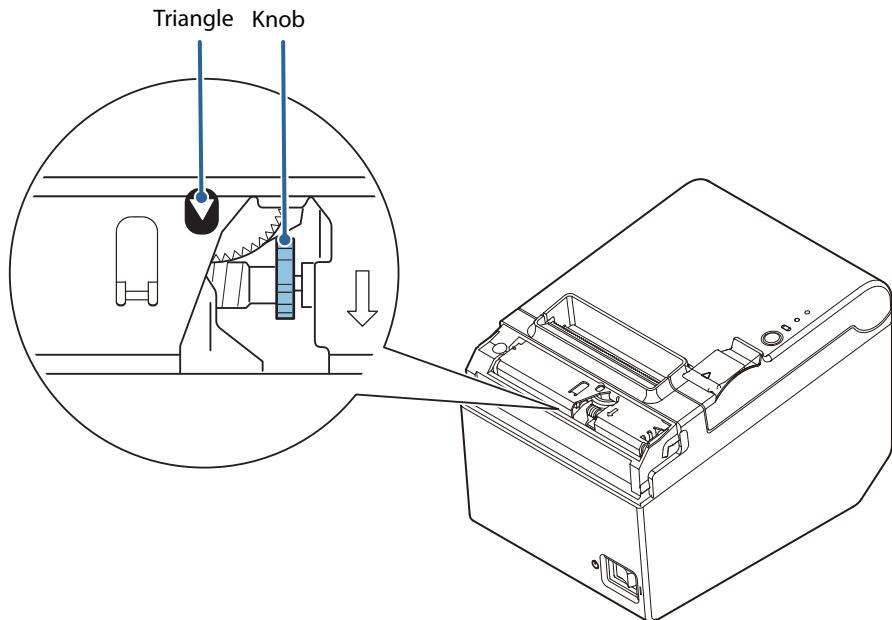
Follow the steps below to return the autocutter blade to its normal position.

- 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.

Refer to the operation instructions engraved on the back of the cutter cover.



- 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

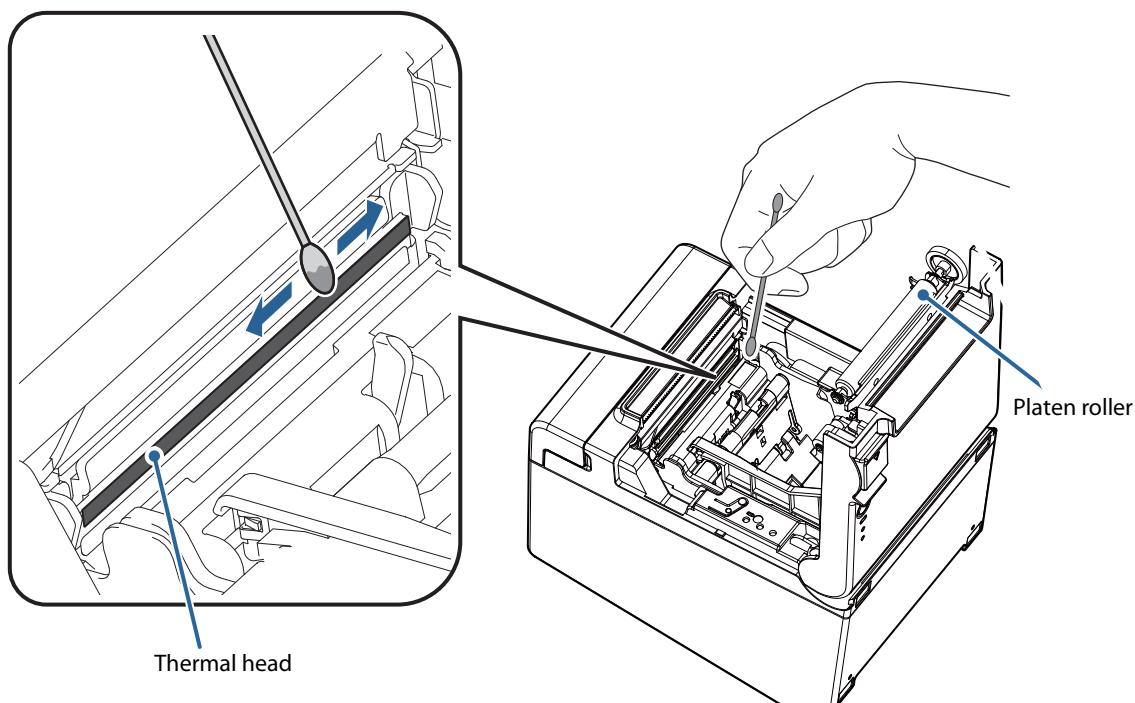
Epson recommends cleaning the thermal head periodically (generally every 3 months) to maintain receipt print quality. Depending on the roll paper used, paper dust may stick to the platen roller and cause an irregular paper feed. To remove the paper dust, clean the platen roller with a cotton swab moistened with water. Turn on the printer power only after the water has completely dried.

Turn off the printer and open the roll paper cover. 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 Ensure that the POWER LED has turned off.**
- 3 Disconnect the AC cable.**
- 4 Remove the roll paper.**
- 5 Pack the printer upright.**

# Replacement of the TM-T20II

The TM-T20III is designed so that it can smoothly replace the TM-T20II. This chapter describes precautions for the replacement.

## Compatibility

### Printing

The printing and character specifications are the same as those of the TM-T20II. Without special configurations, the TM-T20III prints the same results as the TM-T20II prints.

### Print Speed

The TM-T20III prints faster than the TM-T20II.

	<b>TM-T20III</b>	<b>TM-T20II</b>
Maximum print speed	Up to 250 mm/s {9.84"/s}	Up to 200 mm/s {7.87"/s}
Print speed setting	Level 1 to 13	Level 1 to 13

**NOTE**

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

### Logo Registration

The TM-T20III can register logos in the NV memory (NVRAM) with the Setup Utilities.

### Driver Compatibility

You can operate the TM-T20III with a driver for the TM-T20II.

### If Connecting as a Peripheral Device of the TM-i/DT Printer

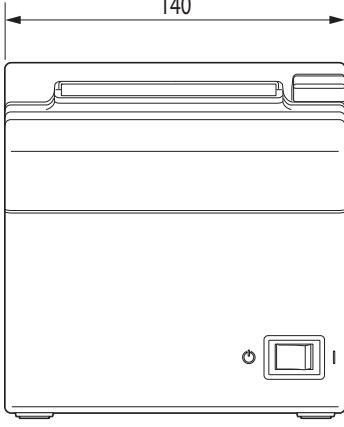
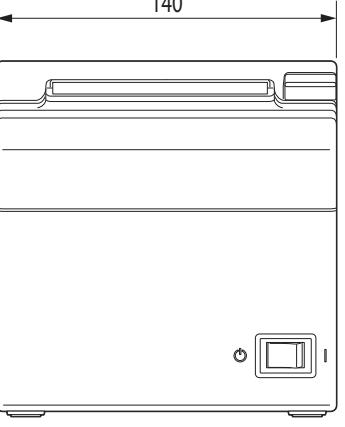
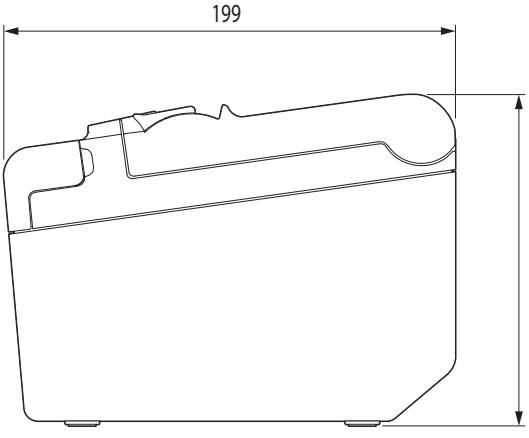
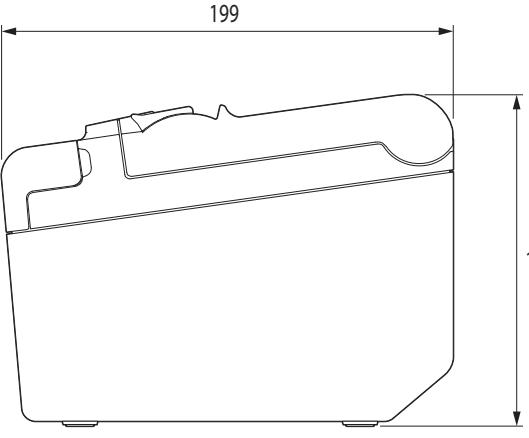
If using this product as a network printer from a TM-i/DT printer, register it as TM-T20II.  
For the registration method, see the Technical Reference Guide of the TM-i/DT printer.

**NOTE**

This is available for firmware version 20.03 ESC/POS or later.

## Overall Dimensions

You can place the TM-T20III in the same location as the TM-T20II, since its overall dimensions and weight are almost the same as those of the TM-T20II.

<b>TM-T20III</b> W:140 × D:199 × H:146 mm Approx. 1.7 kg {W:5.52" × D:7.84" × H:5.75" Approx. 3.75 lb}	<b>TM-T20II</b> W:140 × D:199 × H:146 mm Approx. 1.7 kg {W:5.52" × D:7.84" × H:5.75" Approx. 3.75 lb}
	
	

Units: mm

# Appendix

## Product Specifications

Printing method	Thermal line printing	
Paper feed speed	Approx. 200 mm/s {approx. 7.88"/s} (continuous paper feeding with the Feed button)	
Cutting Method	Partial cut (cutting with one point at left uncut)	
Interface	<b>Serial/USB model</b> USB: USB 2.0 Full-speed (12 Mbps) Serial: RS-232 <b>Ethernet model</b> USB: USB 2.0 Full-speed (12 Mbps) Ethernet: 10BASE-T/100BASE-TX Wireless LAN: Connects an optional Wireless LAN unit to the USB (Type-A) connector.	
Buffers	Receive buffer	4 KB/45 bytes (selectable using the memory switches)
	Downloaded buffer	Approx. 12 KB (both for user-defined characters and downloaded images)
	NV graphics data	256 KB
	Downloaded graphics data	208 KB
Barcode/two-dimensional symbol/composite symbol printing	UPC-A, UPC-E, JAN 8 (EAN 8), JAN 13 (EAN 13), CODE 39, ITF, CODABAR (NW-7), CODE 93, CODE 128, GS1-128, GS1 DataBar Omnidirectional, GS1 DataBar Truncated, GS1 DataBar Stacked, GS1 DataBar Stacked Omnidirectional, GS1 DataBar Limited, GS1 DataBar Expanded, GS1 DataBar Expanded Stacked, PDF417, QR CODE, MaxiCode, Composite Symbology, Aztec Code, DataMatrix	
Drawer kick connector drive function	2 drives	
Power supply	Power supplied by the specified AC adapter	
AC power consumption (100 to 230V/50 to 60 Hz) <sup>*1</sup>	Operating	Approx. 29.5 W
	Standby	Approx. 0.80 W
Life <sup>*2</sup>	Mechanism	15 million lines
	Thermal head	150 km {93.2 miles}
	Autocutter	1,500,000 cuts
MTBF <sup>*3</sup>	360,000 hours	
MCBF <sup>*4</sup>	60,000,000 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 (H × W × D)	146 × 140 × 199 mm {5.75 × 5.51 × 7.83"} 146 × 140 × 199 mm {5.75 × 5.51 × 7.83"}	
Mass	Approx. 1.7 kg {3.31 lb} (roll paper excluded)	

\*1: According to our operation conditions. It may differ depending on the usage conditions and product model.

\*2: Indicates the point at which the wear-out failure period starts.

\*3: Indicates the mean time between failures during the random failure period.

\*4: Indicates the overall mean time between failures, including wear-out and random failures, before the life is reached.

## Printing Specifications

		<b>80 mm {3.15"} width paper</b>	<b>58 mm {2.28"} width paper</b>
Printing method		Thermal line printing	
Paper feed direction		Unidirectional with friction feed	
Dot density		203 × 203 dpi	
Printing width	Standard mode (default setting)	72.0 mm {2.83"}, 576 dots	52.5 mm {2.07"}, 420 dots
	42 column mode	68.3 mm {2.69"}, 546 dots	47.3 mm {1.86"}, 378 dots
Characters per line	Standard mode (default setting)	Font A	48
		Font B	64
	42 column mode	Font A	42
		Font B	60
Character spacing	Standard mode (default setting)	Font A	0.25 mm {0.0098"} 2 dots
		Font B	0.25 mm {0.0098"} 2 dots
	42 column mode	Font A	0.38 mm {0.015"} 3 dots
		Font B	0.25 mm {0.0098"} 2 dots
Line spacing		3.75 mm {0.15"} (default setting, programmable by command)	
Maximum print speed*1		250 mm/s {9.84"/s}*2	

dpi: dots per inch

\*1: when the printer prints with the standard print density level at 25°C {77°F} and 24V.

\*2: The maximum is 100 mm/s {3.94"/s} when printing ladder barcodes or two-dimensional symbols.

**NOTE**

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

## Character Specifications

			<b>80 mm {3.15"} width paper</b>	<b>58 mm {2.28"} width paper</b>
Number of characters			Alphanumeric characters: 95 Extended graphics: 128 × 43 pages (including user-defined page) International characters: 18 sets	
Character structure (W x H dots)	Standard mode (default setting)	Font A	12 × 24 dots (Right-side dot space: 2)	
		Font B	9 × 17 (Right-side dot space: 2)	
	42 column mode	Font A	13 × 24 dots (Right-side dot space: 3)	
		Font B	9 × 17 dots (Right-side dot space: 2)	
Character size*	Standard mode (default setting)	Font A	1.25 × 3.00 mm {0.05 × 0.12"} 1.25 × 6.00 mm {0.05 × 0.24"} 2.50 × 3.00 mm {0.10 × 0.12"} 2.50 × 6.00 mm {0.10 × 0.24"}	
		Font B	0.88 × 2.13 mm {0.03 × 0.08"} 0.88 × 4.26 mm {0.03 × 0.16"} 1.76 × 2.13 mm {0.06 × 0.08"} 1.76 × 4.26 mm {0.06 × 0.16"}	
	42 column mode	Font A	1.25 × 3.00 mm {0.05 × 0.12"} 1.25 × 6.00 mm {0.05 × 0.24"} 2.50 × 3.00 mm {0.10 × 0.12"} 2.50 × 6.00 mm {0.10 × 0.24"}	0.88 × 2.13 mm {0.03 × 0.08"} 0.88 × 4.26 mm {0.03 × 0.16"} 1.76 × 2.13 mm {0.06 × 0.08"} 1.76 × 4.26 mm {0.06 × 0.16"}
		Font B	0.88 × 2.13 mm {0.03 × 0.08"} 0.88 × 4.26 mm {0.03 × 0.16"} 1.76 × 2.13 mm {0.06 × 0.08"} 1.76 × 4.26 mm {0.06 × 0.16"}	1.25 × 3.00 mm {0.05 × 0.12"} 1.25 × 6.00 mm {0.05 × 0.24"} 2.50 × 3.00 mm {0.10 × 0.12"} 2.50 × 6.00 mm {0.10 × 0.24"}

\*: Space between characters is not included.

Characters can be scaled up to 64 times as large as the standard size.

### NOTE

Refer to the following URL regarding the character code table.  
[www.epson-biz.com/pos/reference/charcode/](http://www.epson-biz.com/pos/reference/charcode/)

## Paper Specifications

	<b>80 mm {3.15"} width paper</b>	<b>58 mm {2.28"} width paper</b>
Paper types	Specified thermal paper	
Form	Roll paper	
Roll paper diameter	Max.: 83 mm {3.27"} Inside: 12 mm {0.47"}, Outside: 18 mm {0.71"}	
Size	Roll width when taken up Paper width Paper thickness	80 + 0.5/-1.0 mm {3.15 +0.02/-0.04"} 79.5 ± 0.5 mm {3.13 ±0.02"} 57.5 ± 0.5 mm {2.26 ±0.02"} Maximum of 80 µm, minimum of 48 µm
Specified original paper type	NTP080-80	NTP058-80
Specified original paper type	TF50KS-EY, TF60KS-E (NIPPON Paper Industries Co., Ltd.) PD150R, PD160R, PD190R (OJI Paper Mfg. Co., Ltd.) P220AGB-1 (Mitsubishi Paper Mills Limited.) AF50KS-E (Jujo Thermal Oy) F5041(48), F5041(55) (Mitsubishi HiTec Paper Flensburg GmbH) KT55FA, KT48FA (Koehler Paper Group)  Epson Certified Media List for Thermal Receipt Printers  <a href="http://www.epson-biz.com/?content=sht_tm_media">www.epson-biz.com/?content=sht_tm_media</a>	

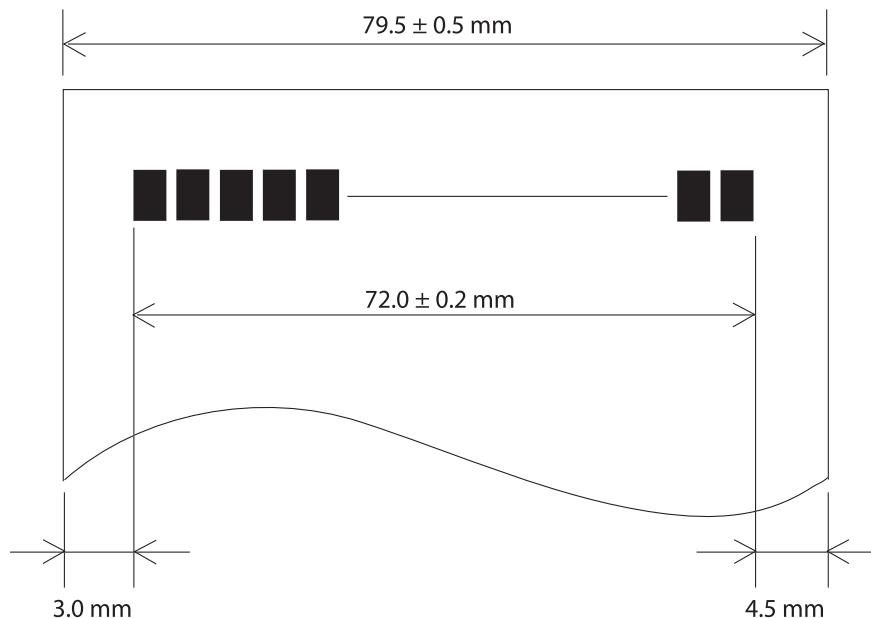
### CAUTION

- Paper must not be pasted to the roll paper spool.
- For the best print quality for each paper type, it is recommended to set the print density. (See "Software Settings" on page 42.)
- Use of thermal paper with a pre-printed recording surface should be avoided. Using it can cause the thermal head to stick to the thermal paper surface during printing, and cause printing failure and other problems. The pre-printing also can result in reduced print density. Using thermal paper with a pre-printed recording surface, pre-printing should be done in accordance with the conditions (ink type, printing and other conditions) recommended by the paper manufacturer, and the thermal paper should be checked to ensure that there is no faulty printing, loss of print density, or other problems.

## Printable Area

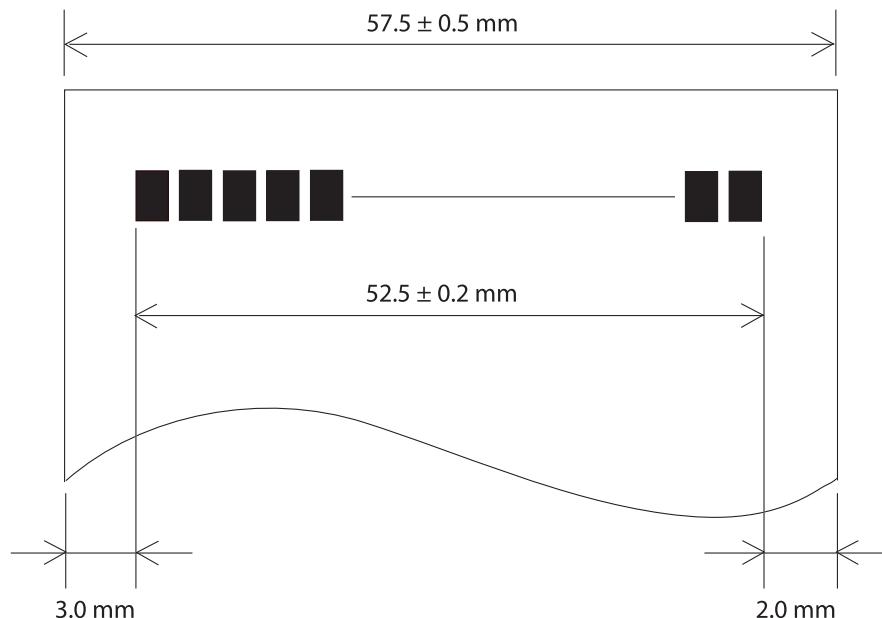
### 80 mm {3.15"} width paper printing

The maximum printable area of paper with a width of  $79.5 \pm 0.5$  mm { $3.13 \pm 0.02$ "} is  $72.0 \pm 0.2$  mm { $2.83 \pm 0.008$ "} (576 dots) and the approximate space is 3.0 mm {0.12"} on the left side and 4.5 mm {0.18"} on the right side.

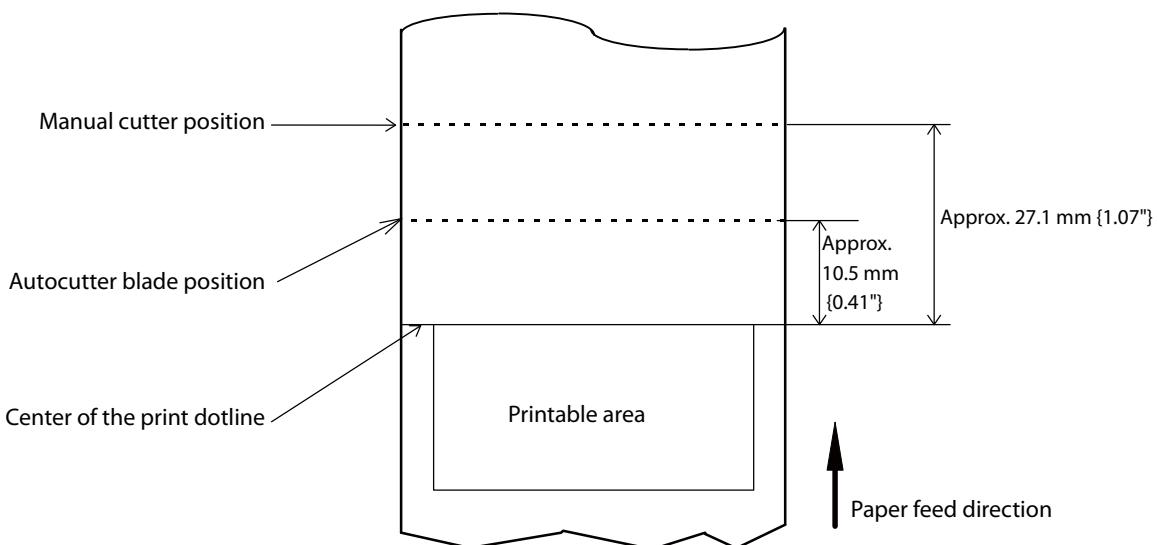


## 58 mm {2.28"} width paper printing

The maximum printable area of paper with a width of  $57.5 \pm 0.5$  mm { $2.26 \pm 0.02$ "} is  $52.5 \pm 0.2$  mm { $2.07 \pm 0.008$ "} (420 dots), and the approximate space is 3.0 mm {0.12"} on the left side and 2.0 mm {0.079"} on the right side.



## Printing and Cutting Positions

**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 40 mm of paper. This can prevent paper from wrinkling and causing prints to be too light.

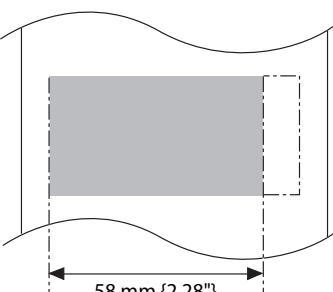
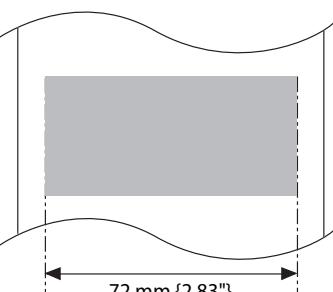
## Electrical Characteristics

Supply voltage	24VDC ± 7%
Rated current	1.5 A

### CAUTION

If printing is continuously performed with a high print ratio, the overcurrent protection may be activated and result in uneven print density or a low voltage error. Therefore, the printing length must not exceed the following values when printing with high print ratio.

Print ratio: Number of dots being energized per one dot line / Total number of dots per one dot line (576 dots)

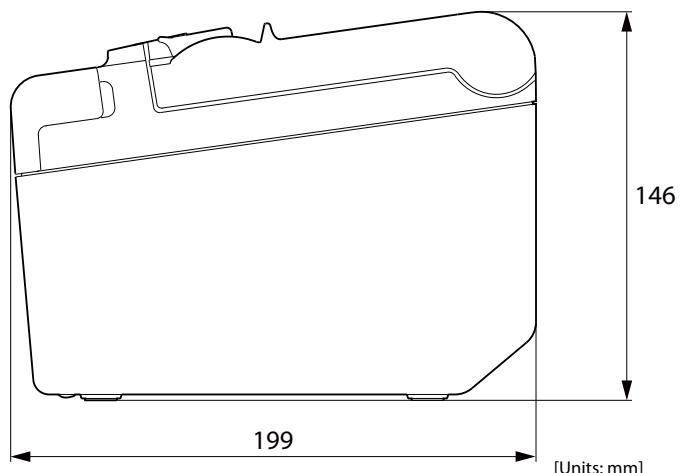
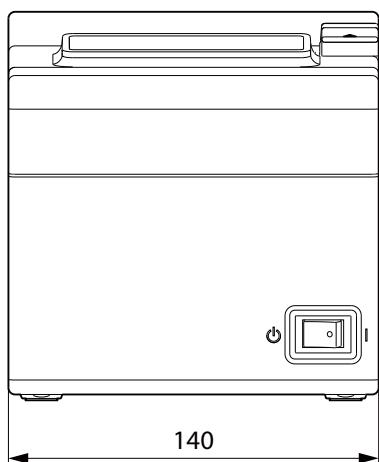
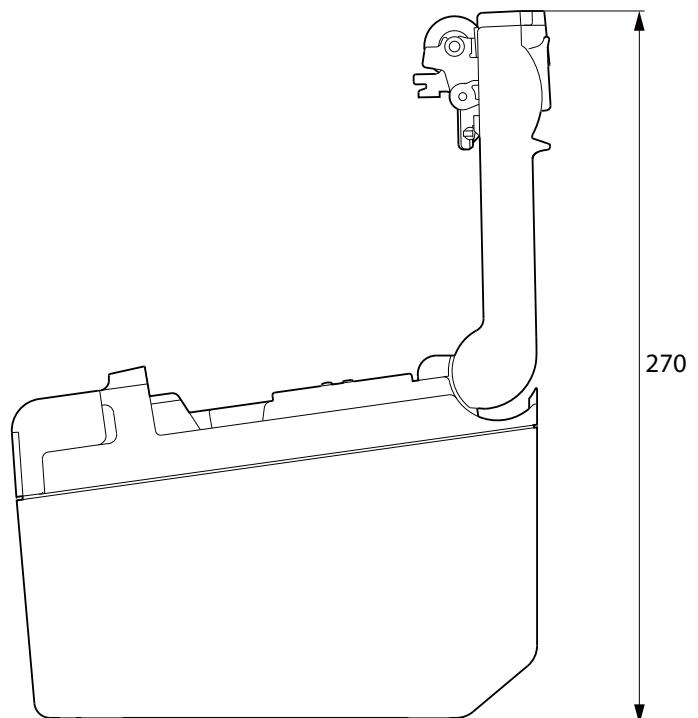
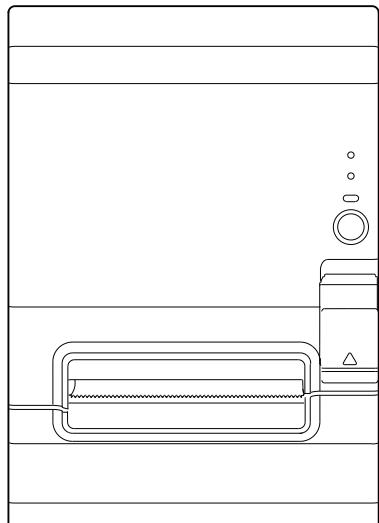
Print ratio	80%	100%
Print example	 58 mm {2.28"}	 72 mm {2.83"}
Print length	30 mm {1.18"}	20 mm {0.79"}

## Environmental Conditions

Temperature/ Humidity	Operating	5 to 45°C {41 to 113°F}, 10 to 90% RH (See the operating environment range below.)
	Storage	-10 to 50°C {14 to 122°F}, 10 to 90% RH (except for paper)
		<p>The graph illustrates the operating environment range for temperature and relative humidity. The x-axis represents ambient temperature in degrees Celsius (°C), ranging from 0 to 50. The y-axis represents relative humidity in percent (%RH), ranging from 0 to 90. The operating environment range is defined by a rectangle. At 0°C, the relative humidity is 10%. As temperature increases to 34°C, the relative humidity remains constant at 90%. From 34°C to 45°C, the relative humidity decreases linearly from 90% to 50%. Above 45°C, the relative humidity is 50% regardless of temperature. Specific points are marked: (0, 10), (34, 90), (45, 50), (40, 65), and (40, 90).</p>
Vibration resistance	When packed	<p>Frequency: 5 to 55 Hz  Acceleration: Approximately <math>19.6 \text{ m/s}^2</math> {2 G}  Sweep: 10 minutes (half cycle)  Time: 1 hour  Orientation: x, y, and z</p> <p>There is no external or internal visible damage and the unit operates normally after being subjected to vibration.</p>
Impact resistance	When packed	<p>Packing: Epson standard package specifications  Height: 60 cm {23.62"}  Orientation: 1 corner, 3 edges, and 6 surfaces</p> <p>There is no external or internal visible damage and the unit operates normally after being dropped.</p>
	When unpacked	<p>Height: 5 cm {1.97"}  Orientation: Lift one edge and release it (for all 4 edges)</p> <p>There is no external or internal visible damage and the unit operates normally after being dropped while not operating.</p>
Acoustic noise	(operating)	<p>Approx. 55 dB (bystander position)</p> <p>Note: The values above are measured in the Epson evaluation condition.  Acoustic noise differs depending on the paper used, printing contents, and the setting values, such as print speed or print density.</p>

## External Dimensions and Mass

- Height: Approx. 146 mm {5.75"}}
- Width: Approx. 140 mm {5.51"}}
- Depth: Approx. 199 mm {7.83"}}
- Mass: Approx. 1.7 kg {3.75 lb} (excluding roll paper)



# Specifications of Interfaces and Connectors

## Description

- Full-speed transmission at 12 Mbps [bps: bits per second]
- Plug & Play, Hot Insertion & Removal

## USB Interface

### USB interface connector

USB type-B connector

### USB transmission specifications

#### USB function

Item	Specifications	
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 42.

### USB descriptor

		USB vendor-defined class	USB printer class
<b>Vendor ID</b>		04B8h	04B8h
<b>Product ID</b>		0202h	0E28h
<b>String Descriptor</b>	Manufacturer	EPSON	EPSON
	Product	TM-T20III	TM-T20III
	Serial number	Character string based on the product serial number	Character string based on the product serial number

## RS-232 Serial Interface

### Interface board specifications (RS-232-compliant)

Item		Specifications
Data transfer method		Serial
Synchronization		Asynchronous
Handshaking		Select one of the following in the software setting mode. • DTR/DSR • XON/XOFF
Signal level	MARK	-3V to -15V logic "1"/OFF
	SPACE	+3V to +15V logic "0"/ON
Bit length		Select one of the following in the software setting mode. • 7 bit • 8 bit
Transmission speed		Select one of the following in the software setting mode. 2400/4800/9600/19200/38400/57600/115200 bps [bps: bits per second]
Parity check		Select one of the following in the software setting mode. • Yes • No
Parity selection		Select one of the following in the software setting mode. • Even • Odd
Stop bit		1 or more bits However, the stop bit for data transfer from the printer is fixed to 1 bit.
Connector	Printer side	DSUB 25 pin (female)

## Functions of each connector pin

Pin no.	Signal name	Signal direction	Function
1	FG	-	Frame ground
2	TXD	Output	Transmission data
3	RXD	Input	Reception data
4	RTS	Output	Equivalent to DTR signal (pin 20)
6	DSR	Input	<p>This signal indicates whether the host computer can receive data. SPACE indicates that the host computer can receive data. MARK indicates that the host computer cannot receive data.</p> <p>When DTR/DSR control is selected, the printer transmits data after confirming this signal. (except if transmitted using some ESC/POS commands).</p> <p>When XON/XOFF control is selected, the printer does not check this signal.</p> <p>When you use this signal as the printer's reset signal, the printer is reset when the signal remains MARK for a pulse width of 1 ms or more.</p>
7	SG	-	Signal ground
20	DTR	Output	<p>1) When DTR/DSR control is selected, this signal indicates whether the printer is BUSY.</p> <ul style="list-style-type: none"> <li>•SPACE status Indicates that the printer is ready to receive data.</li> <li>•MARK status Indicates that the printer is BUSY. Select the BUSY condition in the software setting mode.</li> </ul> <p>2) When XON/XOFF control is selected, this signal indicates that the printer is properly connected and ready to receive data from the host.</p> <ul style="list-style-type: none"> <li>•SPACE status The signal indicates that the printer is properly connected and ready to receive data from the host.</li> </ul> <p>The signal is always SPACE, except in the following cases:</p> <ul style="list-style-type: none"> <li>•During the period from when power is turned on to when the printer is ready to receive data.</li> <li>•While the self-test is in progress.</li> </ul>
25	INT	Input	The printer is reset if the signal remains at SPACE for a pulse width of 1 ms or more.

## XON/XOFF

When XON/XOFF control is selected, the printer transmits the XON or XOFF signals as follows.

The transmission timing differs, depending on the BUSY condition.

Signal	Printer status	BUSY condition	
		Receive buffer full	Receive buffer full/ Offline
XON	When the printer goes online after turning on the power (or reset using the interface)	Transmit	Transmit
	When the receive buffer is released from the buffer full state	Transmit	Transmit
	When the printer switches from offline to online	-	Transmit
	When the printer recovers from an error using some ESC/POS commands	-	Transmit
XOFF	When the receive buffer becomes full	Transmit	Transmit
	When the printer switches from online to offline	-	Transmit

## Code

The hexadecimal numbers corresponding to the XON/XOFF codes are shown below.

- XON code: 11H
- XOFF code: 13H

**CAUTION**

- When the printer goes from offline to online and the receive buffer is full, XON is not transmitted.
- When the printer goes from online to offline and the receive buffer is full, XOFF is not transmitted.
- When handshaking is set to DTR/DSR, XON is not transmitted as long as the printer is offline, even if a receive buffer full state has been cleared.

## Ethernet Interface

### Communication specifications

10BASE-T/100BASE-TX

### Support protocols

Protocols	Usage
IP, ARP, ICMP, UDP, TCP	Basic communication protocols
LP, LPR	Printing protocols
TCP Socket Port	Used to transfer printing data and printer status via (bidirectional) direct socket communication.
HTTP/HTTPS	Used by browsers to display and set module status
SNMP	Used by dedicated and general MIB tools to acquire and set module and printer status
ENPC	Used to acquire and set module and printer status
DHCP	Used to acquire the IP address
APIPA	Used to assign the IP address

## 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	Automatic
APIPA	Disabled
arp/ping	Disabled
IP Address Printing	Enabled
Socket Timeout	90 seconds
Standard Community Name (Read Only)	"public"
Community name (Read Only)	No
Community name (Read/Write)	No
SNMP IP Trap 1	Disabled
SNMP IP Trap 2	Disabled
Communication mode	Auto negotiation
IP Filter	Disabled

\* Initial value when "IP address acquisition" is set to "Manual."

## Wireless LAN Interface (when OT-WL06 is used)

**NOTE**

When using wireless LAN, make sure you disconnect the LAN cable. If a LAN cable is connected, wireless LAN is disabled.

### Specifications

- IEEE802.11b/g/n (2.4 GHz band) or IEEE802.11a/b/g/n (2.4 GHz or 5 GHz band) compliant
- Infrastructure mode is supported.

### Communication Standard

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

### Security

- 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)

---

## 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 devices 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 adhoc 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 one 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 one 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.