EPSON

TM-T70Ⅱ-DT2
Technical Reference Guide

Product Overview
Describes features of the product.

Setup
Describes setup for the product and peripheral devices necessary before using this product.

Printer Functions and Settings
Describes the printer functions and setting items.

Windows Settings
Describes the pre-installed Widows settings and specifications.

TM-DT Software System Development
Describes the requirements for system development using TM-DT software.

PC-POS System Development
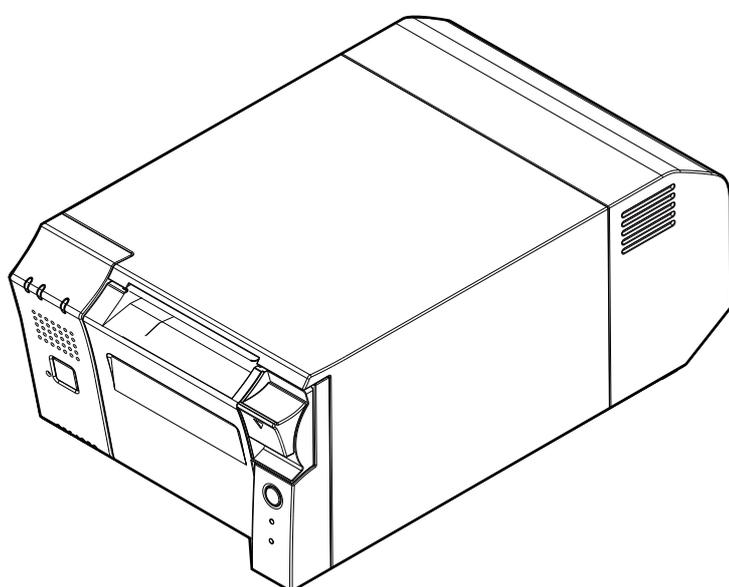Describes information necessary for developing a PC-POS system.

Handling
Describes how to handle the product.

Replacement of the TM-T70II-DT
Describes how to replace the TM-T70II-DT.

Product Specifications
Describes this product's specifications.

M00112106

Rev. G

Cautions

- No part of this document may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of Seiko Epson Corporation.

- The contents of this document are subject to change without notice. Please contact us for the latest information.

- While every precaution has been taken in the preparation of this document, Seiko Epson Corporation assumes no responsibility for errors or omissions.

- Neither is any liability assumed for damages resulting from the use of the information contained herein.

- Neither Seiko Epson Corporation nor its affiliates shall be liable to the purchaser of this product or third parties for damages, losses, costs, or expenses incurred by the purchaser or third parties as a result of: accident, misuse, or abuse of this product or unauthorized modifications, repairs, or alterations to this product, or (excluding the U.S.) failure to strictly comply with Seiko Epson Corporation's operating and maintenance instructions.

- Seiko Epson Corporation shall not be liable against any damages or problems arising from the use of any options or any consumable products other than those designated as Original Epson Products or Epson Approved Products by Seiko Epson Corporation.

Trademarks

Microsoft, and Windows are registered trademarks of Microsoft Corporation in the United States and/or other countries.

Celeron, Intel, and Intel Core are trademarks of Intel Corporation or its subsidiaries in the United States and/or other countries.

IOS is a trademark or registered trademark of Cisco in the U.S. and other countries and is used under license.

Android™ is a trademark of Google LLC.

QR Code is a registered trademark of DENSO WAVE INCORPORATED in Japan and other countries.

All other trademarks are the property of their respective owners and used for identification purpose only.

For Safety

Key to Symbols

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

⚠️ **WARNING**	You must follow warnings carefully to avoid serious bodily injury.
⚠️ **CAUTION**	Provides information that must be observed to prevent damage to the equipment or loss of data. • Possibility of sustaining physical injuries. • Possibility of causing physical damage. • Possibility of causing information loss.
CAUTION	Provides information that must be observed to avoid damage to your equipment or a malfunction.
NOTE	Provides important information and useful tips.

Warnings

⚠️
WARNING

- If this product produces smoke, a strange odor, or unusual noise, immediately unplug the AC cable, and contact qualified service personnel. Continued use may lead to fire or electric shock.
- Do not use this product with any voltage other than the specified one. Doing so may lead to fire or electric shock.
- Be sure to use the specified AC adapter. Connection to an improper power source may cause fire.
- Use only the power cable supplied with this product. In addition, use the supplied power cable only for this product. Other use may cause electric shock or fire.
- Do not connect the cables in ways other than those specified in the manuals. Different connections may cause equipment damage or fire.
- Do not block the openings of this product. This may cause overheating inside the product and lead to fire.
  - ∗ Do not place the product in an unventilated narrow location, such as a bookshelf.
  - ∗ Do not place the product on carpet.
  - ∗ Do not cover the product with any fabric.
- Do not use this product where inflammable fumes of gasoline, benzine, thinner, or other inflammable liquids may be in the air. Doing so may cause an explosion or fire.
- Do not use aerosol sprayers containing flammable gas inside or around this product. Doing so may cause fire.
- If water or other liquid spills into this product, immediately unplug the AC cable, and contact qualified service personnel. Continued use may lead to fire or shock.
- Do not allow foreign objects to fall into this product. Penetration by foreign objects may lead to fire or electric shock.
- Never attempt to repair this product yourself. Improper repair work can be dangerous.
- Never disassemble or modify this product. Tampering with this product may result in injury, fire, or electric shock.
- Do not attempt to open or disassemble the internal lithium battery. This could result in burns or release of hazardous chemicals.
- Do not leave the internal lithium battery in a hot place such as near a fire or a heater because it could overheat and ignite.

Cautions

⚠ **CAUTION**	• Do not use this product in locations subject to high humidity or dust levels. Excessive humidity and dust may cause paper jams and other problems, such as fire, or electric shock. • Be sure to set this product on a firm, stable, horizontal surface. The product may break or cause injury if it falls. • Do not stand on or place heavy objects on top of this product. Equipment may fall or collapse, causing breakage and possible injury. • Be sure to use this product with the connector cover attached. If it is not attached, foreign objects may enter this product, causing fire or equipment damage. • When you move this product, be sure to hold the main body. If you hold only the connector cover, it may come off and the main body may break or cause injury if it falls. • The print head can be very hot during and immediately after printing. If you need to touch it, such as for cleaning, wait until it cools down. Touching it before that may cause burns. • Be careful of the cutter blades of the printer. • Make sure that the total power requirements of all devices receiving power from this product do not exceed the power supplying capability of the product. Otherwise, the devices may be damaged. • Connecting an outdoor overhead LAN cable directly to this product may lead to lightning damage. If you need to connect such a cable to the product, the cable must be protected against an electrical surge between the cable and the product. You should avoid connecting the product to a non-surge protected outdoor overhead LAN cable. • Do not connect a telephone line to the drawer kick connector of this product. The telephone line or product may become damaged. • To ensure safety, unplug this product before leaving it for an extended period. • Confirm the rated current of the external devices by checking the descriptions on the devices or manuals. Do not use a device whose rated current is unclear. • Connect the external devices only when those total rated current is less than 4.2 A. • To power off the product, use the application or OS function. Do not use the operations shown below unless the product cannot be turned off due to an application or OS problem. Doing so may cause loss of unsaved data, require OS recovery, or damage the SSD or other hardware. 　∗ Forced termination by holding down the power button for approx.4 sec. 　∗ Power shutdown by turning off the circuit breaker on the distribution board or by disconnecting the AC cable/DC cable 　∗ The same phenomenon may also occur due to power shutdown caused by power failure/temporary power failure.

CAUTION	If this product is used in a place where silicon-based gases including siloxane (silicon adhesive, silicon oil, silicon powder, etc.) or malignant gases (nitric acid, hydrogen sulfide, ammonia, chlorine, etc.) are present in the air, contact failure may occur in mechanical contacts such as mechanical switch or DC motor in a short time due to adhesion or oxidation of the insulation film.

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 because it can be very hot after printing.

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.

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   Product Overview

Chapter 2   Setup

Chapter 3   Printer Functions and Settings

Chapter 4   Windows Settings

Chapter 5   TM-DT Software System Development

Chapter 6   PC-POS System Development

Chapter 7   Handling

Chapter 8   Replacement of the TM-T70II-DT

Appendix   Product Specifications

Contents

Product Overview

This chapter describes features of the product.

Features

This product is a compact POS terminal equipped with a printer that is easy to use due to front operation, and can be installed in narrow spaces such as under counters due to its compact size.

Features of the POS Terminal (Controller)

This controller has the following features.

Hardware

- CPU: Uses an Intel® Core™ i5, Core™ i3, or Celeron® processor
- Can be operated by switches on the product front.
- Can be installed in narrow spaces such as under counters as there are no switches or connections on the product top.
- Rich variety of interfaces: Ethernet x1, VGA x1, HDMI x1, USB3.0 x6, USB2.0 x2 (Type A, Type-C), Serial x1, Drawer kick x1
- Dedicated charging port for tablets, etc. (USB2.0 Type-C)

Software

- Windows 10 IoT Enterprise (A model without an OS is also available.)
- Can control POS peripheral devices using TM-DT software

Printer Features

The printer has the following features.
- Front access operation for paper ejection
- Thermal receipt printer
- High speed printing: 250 mm/s maximum
- Print resolution: 180x180 dpi
- Roll paper width: 80 mm
- Paper can be easily set just by putting in roll paper
- Supports TM-Intelligent functions such as server direct printing and XML-base printing

Product Configurations

Models

- Intel® Celeron® model: CPU 2.20GHz, Memory 4 GB
- Intel® Core ™ i3 model: CPU 2.40GHz, Memory 4 GB
- Intel® Core ™ i5 model: CPU 2.60GHz, Memory 4 GB
- Model to which an OS (Operating system) has not been installed.

Accessories

Included

- Start Here
- AC adapter "AC adapter, T1"
- AC power cable (differs depending on the destination)
- Connector cover
- Connector cover (Bottom)
- Power button cover
- Roll paper
- Screws x2 (Connector cover)
- Manual CD
- Product warranty (differs depending on the destination)

Options

- Windows Recovery DVD: Windows model
  (OT-RD01 (Windows 10 IoT Enterprise 2016 LTSB), OT-RD02 (Windows 10 IoT Enterprise 2021 LTSC))
- SSD module
  (OT-SS032 (32 GB), OT-SS064 (64 GB), OT-SS128 (128 GB), OT-SS256 (256 GB))
- Customer display (DM-D110)
- Customer display (DM-D30)
- Affixing tape (DF-10)

Part Names and Functions

Main Unit Front

1	Controller LED	Displays the controller status.
2	Power button	Pressing this button turns the power on or off (shutdown). Pressing and holding (4 seconds or longer) forcibly turns the power off. (See "Functions of the Power button" on page 117) Note: If the power button is disabled by OS settings, pressing the power button will not perform a shutdown.
3	Printer reset button	Pressing and holding this button with a paper-clip or other pointed object until the printer LED turns off resets the printer. This does not turn off the power for this product, and it does not affect the controller functions.
4	Roll paper cover	Open this cover to install/replace the roll paper.
5	Printer LED	Displays the printer status.
6	Feed button	Pressing this button once feeds roll paper for one line. Hold down this button to continue feeding roll paper.
7	Cover open lever	Pressing this lever down opens the roll paper cover.

Controller LED

This displays the controller status.
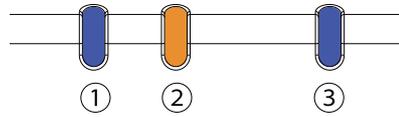
(1) Status LED (Blue)	(2) Status LED (Orange)	(3) Storage Access LED (Blue)	Product status
On	Flashing (Approx. 1 second intervals)	--	Starting up / Updating software
On	Off	--	Power on (Normal)
Flashing (Approx. 1 second intervals)	Off	--	Sleep
Off	Off	--	Power off
On	Flashing (Approx. 600 millisecond intervals)	--	CPU at high temperature (95 ℃ or higher) / USB overcurrent detected / Back-up battery error
--	--	On	Accessing storage

Printer LED

This displays the printer status. For details see
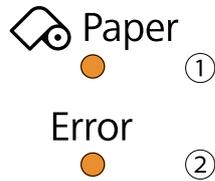
◇ Paper
● ①

Error
● ②

LED	LED status	Description
(3) Paper (Paper) LED (Orange)	On	Roll paper near-end
	Flashing	Waiting to continue self-test printing
	Off	There is a sufficient amount of roll paper remaining
(2) Error (Error) LED (Orange)	On	Offline
	Flashing	Error has occurred
	Off	Normal

Product Rear
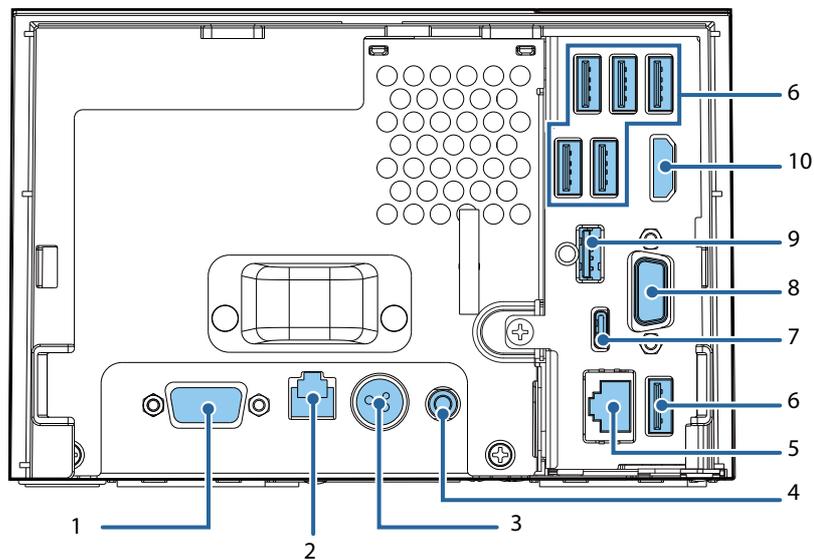
1	Serial port (COM1)	Connect a serial communication device.
2	Drawer kick connector	Connect the cash drawer here.
3	DC-In connector	Connect the AC adapter here.
4	Line-out port	Connect an external speaker here.
5	Ethernet port	Connect the LAN.
6	USB3.0 ports (Type A)	Connect external devices with USB interface here. Supports USB 3.0 and can connect up to 6 devices.
7	USB2.0 port (Type-C)	Dedicated for charging tablets, etc. If setting this port to perform communication, see the "Settings for the USB 2.0 Charging Port" on page 147. Supports USB 2.0
8	VGA port	Connects an VGA-supported device, such as a display.
9	USB2.0 port (Type A)	Connect external devices with USB interface here. Supports USB 2.0
10	HDMI port	Connects an HDMI-supported device, such as a display.

LAN Status LED

The LAN status LEDs are the LEDs on the Ethernet port. They indicate the network communication status of this product.
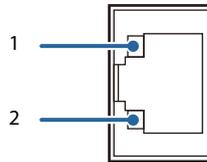
	LED	Status of LED	Description
1	Active/Link	ON (Green)	Link is established correctly
		Flashing (Green)	Data transmission / reception
		OFF	Not connected
2	Speed	ON (Green)	Link at 1000 Mbps communication speed
		ON (Orange)	Link at 100 Mbps communication speed
		OFF	Link at 10 Mbps communication speed, or not connected

Setup

This chapter explains how to install this product, connect peripheral devices, options, and accessories, and perform the test print. The settings and necessary software for this product and peripheral devices vary depending on the system in use. This information is explained in the "TM-DT Software System Development" and "PC-POS" chapters of this guide.

Flow of Setup

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

1. **Installing the Printer (page 21)**

⬇

2. **Connecting the AC Adapter (page 24)**

⬇

3. **Connecting the LAN (page 25)**

⬇

4. **Attaching the Customer Display (page 25)**

⬇

5. **Connecting the Cash Drawer (page 26)**

⬇

6. **Connecting External Devices (page 28)**

⬇

7. **Key Input Device (page 28)**

⬇

8. **Serial Communication Device (page 28)**

⬇

9. **Attaching/Removing the Connector Cover (page 29)**

⬇

10. **Attaching the Power Button Cover (page 31)**

⬇

11. **Securing the Product (page 32)**

Installing the Printer

Install the product horizontally on a firm, stable surface.

The security hook on the back of the product allows you to attach a commercially available antitheft wire.

Security hook
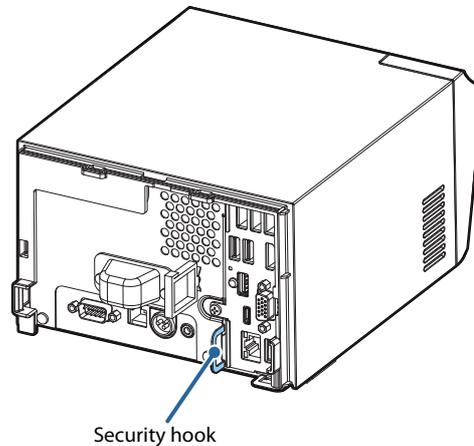
Important Notes on

Display caution regarding the following points when installing the Product.

- The Product must be installed horizontally on a flat surface (not tilted).
- Do not place the printer in dusty locations.
- Do not knock or strike the Product. This may cause defective print.
- Do not catch cables and do not place foreign matter under the printer.
- Firmly fix the printer so that it does not move when you open or close the roll paper cover or when the roll paper is cut.
- Do not put anything that has a force of more than 32.7 N {3 kgf} on the top the printer.

Notes on Installation

Installing the product with a tilt of more than 3° may cause the following problems.

- Roll paper near end cannot be detected.
- The roll paper cover will not close after installing roll paper.
- Roll paper cannot be taken out.

Within ±3° Within ±3° Horizontal
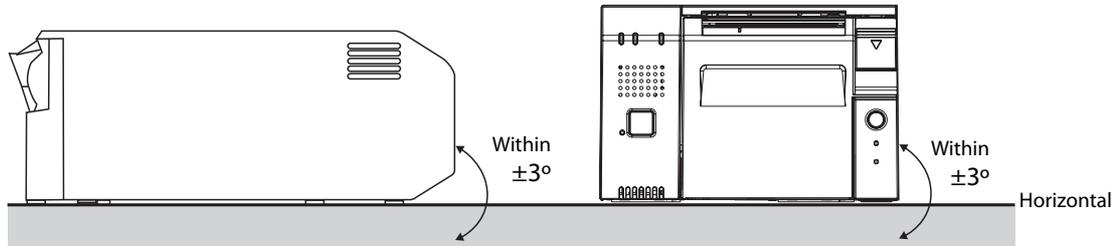
If the printer installation does not fit within the specifications shown in the figure below, the following problems may occur.

- Cannot set the roll paper in the printer
- Cannot cut the paper with the manual cutter

Range that manual cutting is possible
Area required for loading the roll paper (diameter: 83 mm)
Shelf height: 150 mm
Shelf height: 140 mm
Shelf height: 127 mm
Manual cutter
60° or more
7.5 mm
137 mm
109.5 mm
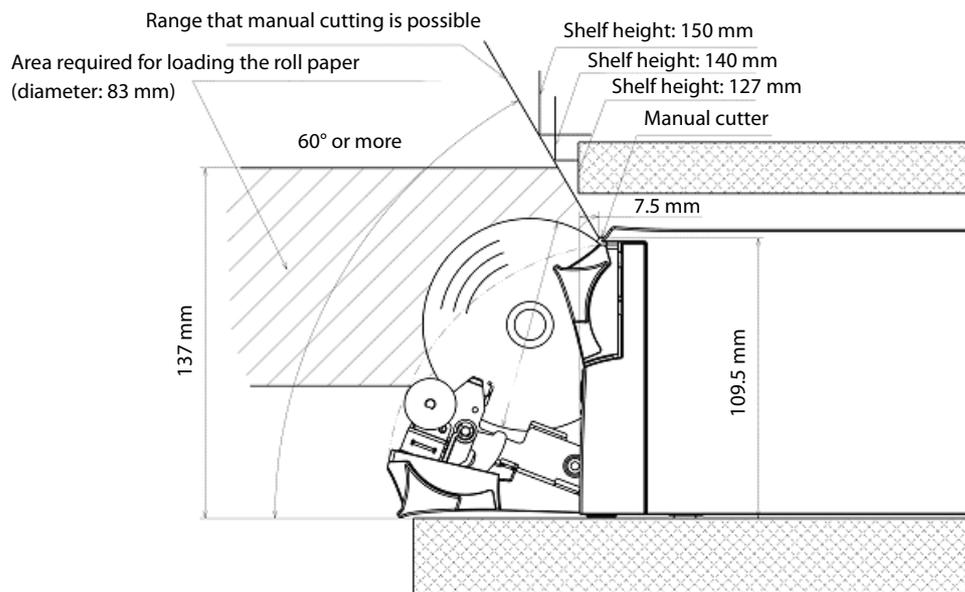
When you install the printer in an enclosed area such as a shelf, secure the following space between the printer and the shelf to avoid heat staying inside.

- Top:　　15 mm or more
- Rear:　　130 mm or more
- Sides:　　50 mm or more (one side only)
- Front:　　open
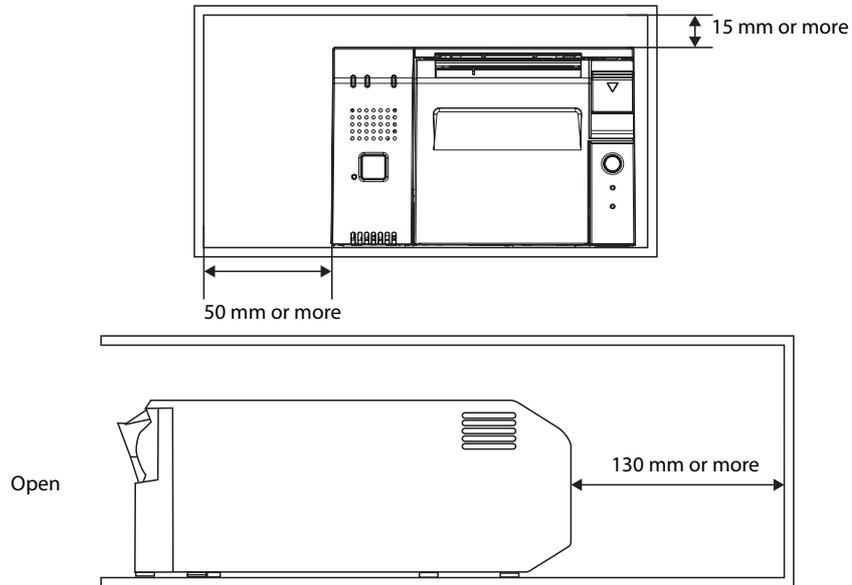
Connecting the AC Adapter

Follow the steps below to connect the AC adapter.

⚠️ **WARNING**	Be sure to use the specified AC adapter [AC Adapter, T1(Model: M284B)] only.

CAUTION	Be sure to leave a space between the AC adapter and the main unit.

1 Firmly insert the DC connector of the AC adapter all the way into the DC-in connector on the product. (① in the illustration)

2 Firmly insert the connector of the AC cable all the way into the AC inlet on the AC adapter. (② in the illustration)

3 Firmly insert the plug all the way into the grounded wall outlet. (③ in the illustration)

4 Set the AC adapter so that its label side is facing down.
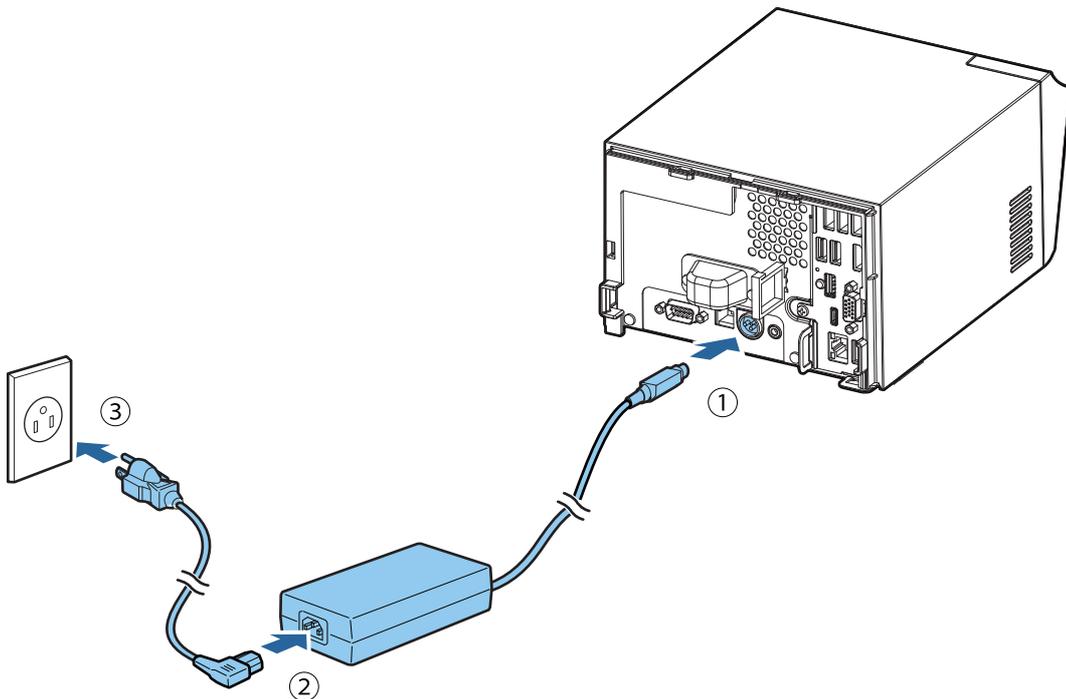
Connecting the LAN

Connect the LAN cable to the Ethernet port. (See "Product Rear" on page 18.)

Network settings such as the IP address are set using the TM-T70II-DT2 Utility or TMNet WebConfig.

Attaching the Customer Display

For the method to attach a DM-D110, see the "DM-D110/ DM-D210 Technical Reference Guide".

For the method to attach a DM-D30, see the "DM-D30 Technical Reference Guide".

The USB port of the DM-D30 cannot be used.

- Systems that use TM-DT software
  This is enabled using EPSON TMNet WebConfig.
- PC-POS System
  The customer display is directly controlled from the application using Advanced Printer Driver for DM-D, OPOS APD, or the like.

Connecting the Cash Drawer

Connect the connector of the drawer kick cable to the printer.

Push the connector of the drawer kick cable into the product until you hear a click.

Drawer kick connector
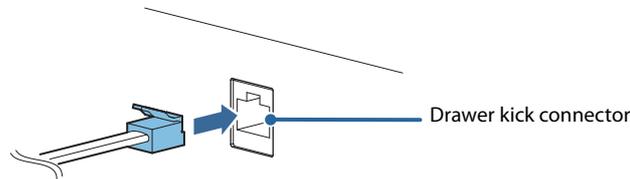
⚠ WARNING	• Specifications of drawers differ a great deal, depending on makers or models. When you use a drawer other than the specified, make sure its specifications meet the following conditions. Otherwise, devices may be damaged. ∗ The load, such as a drawer kick solenoid, must be connected between 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 Ω 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. • Use a shield cable for the drawer kick cable. • Two driver transistors cannot be energized simultaneously. • Leave intervals longer than 4 times the drawer driving pulse when sending it continuously. • Do not insert a telephone line into the drawer kick connector. Doing so may damage the telephone line or printer.

NOTE	We recommend using an optional product for TM printers.

- Systems that use TM-DT software
  The cash drawer is controlled from this product's printer. Configure the printer to use.

- PC-POS System
  The cash drawer is controlled from this product's printer. There is no dedicated driver for the cash drawer you can use the printer driver.

Drawer kick Connector Circuitry
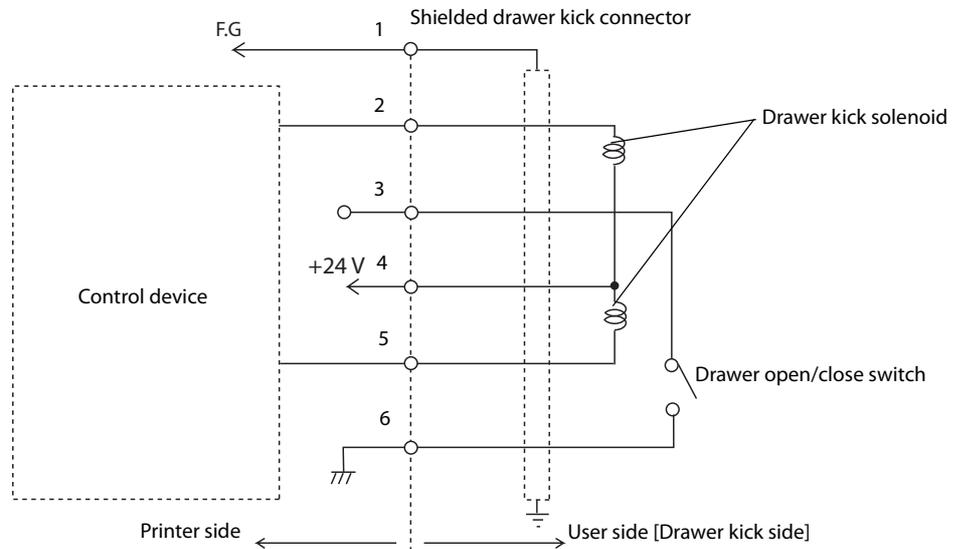
Adaptable Connector

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	-

6 5 4 3 2 1
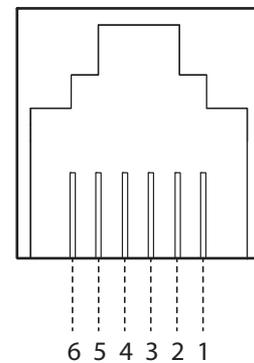
Connecting External Devices

If you connect external devices, turn off the product and then connect each cable to the port/connector on the back of the product.

When connecting the cables whose connectors do not lock themselves (USB cables and line-out cable), pass the cables through the wire saddle to prevent them from coming off.

Wire saddle
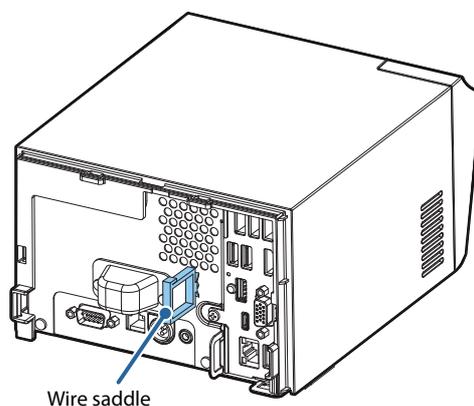
Key Input Device

Connect the key input device to a USB port. For how to set barcode scanners and so on, see the respective product manuals.

- Systems that use TM-DT software
  Set the device ID, control script and so on with EPSON TMNet WebConfig. For details, see "Settings - Web service settings - Key input device" on page 86.

- PC-POS System
  Since it is recognized as a HID device, setting is not required.

CAUTION	Fix the USB cables with wire saddles to prevent detachment.

Serial Communication Device

Connect the serial communication device to a serial port. For how to set the device, install the driver and so on, see the respective product manuals.

- Systems that use TM-DT software
  Align communication conditions between EPSON TMNet WebConfig and the device.
  Set the device ID, communication conditions, control script and so on with EPSON TMNet WebConfig. For details, see "Settings - Web service settings - Serial communication device" on page 87.

- PC-POS System
  Align communication conditions between this product and the device.

Attaching/Removing the Connector Cover

Attaching the connector cover

CAUTION	Be sure to hold both sides of the connector cover when attaching it, or it may become damaged.

Follow the steps below to attach the connector cover to protect cables.

1 **Align the tab on the connector cover with the dent on the main body.**
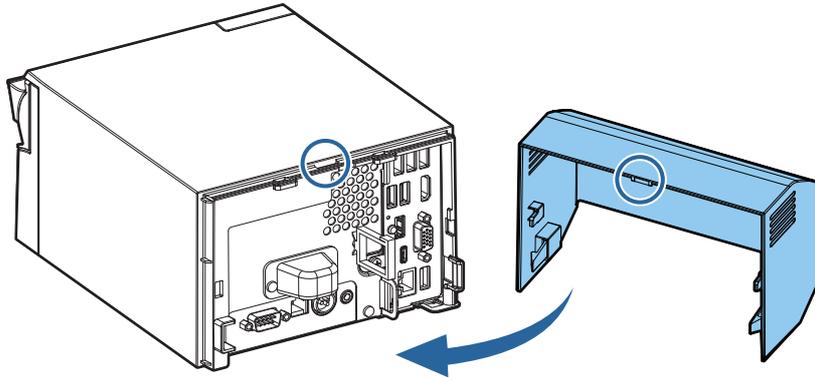
2 **Push the connector cover to click onto the main body.**
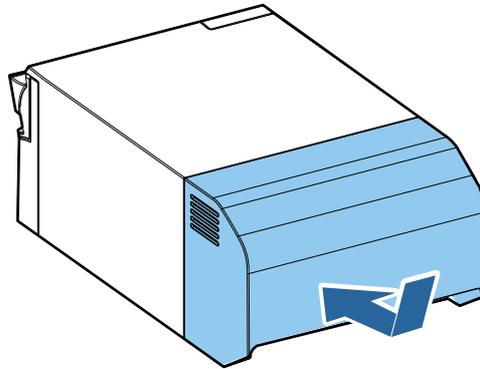
3 Make sure the cables are not pinched.

NOTE

You can also attach bottom cover to hide connectors.
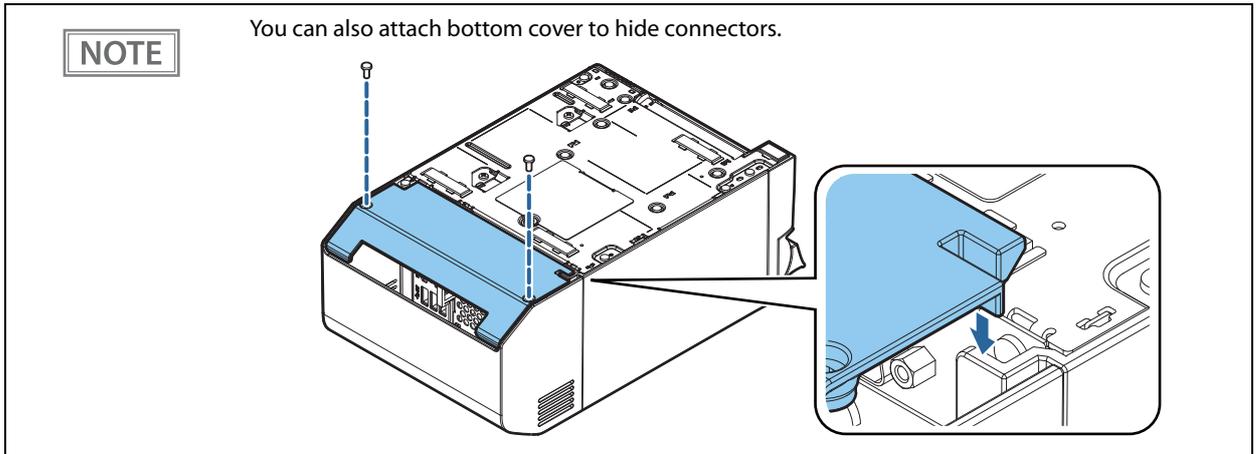
Removing the connector cover

Push the connector cover down while pushing the lower part of the both sides of it inward to detach the hooks from the main body.
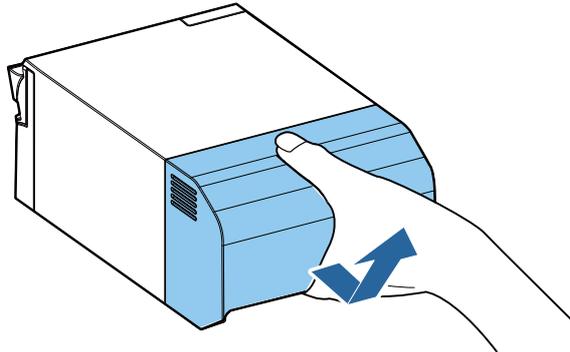
NOTE

If the connector cover (bottom) is attached, first remove the connector cover (bottom).

Attaching the Power Button Cover

Attaching the power button cover that comes with the product onto the power button prevents accidental operation of the power button. Follow the steps below to attach the power button cover.

> **NOTE**
> - It is recommended to clean any dirt around the power button before you attach the cover.
> - You can also disable the power button using OS settings.
>   (See "Functions of the Power button" on page 117.)

1   **Open the power button cover.**
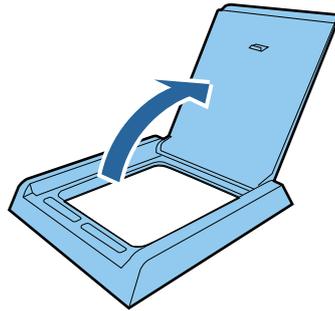
2   **Peel off the backing paper.**
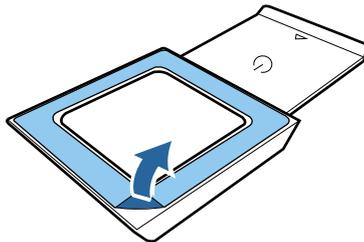
3   **Attach the power button cover as shown in the illustration.**

Align the inside edge of the power button cover with the upper edge of the power button.

Align the inside edge of the power button cover with the left edge of the printer reset button.

Printer reset button

Power button
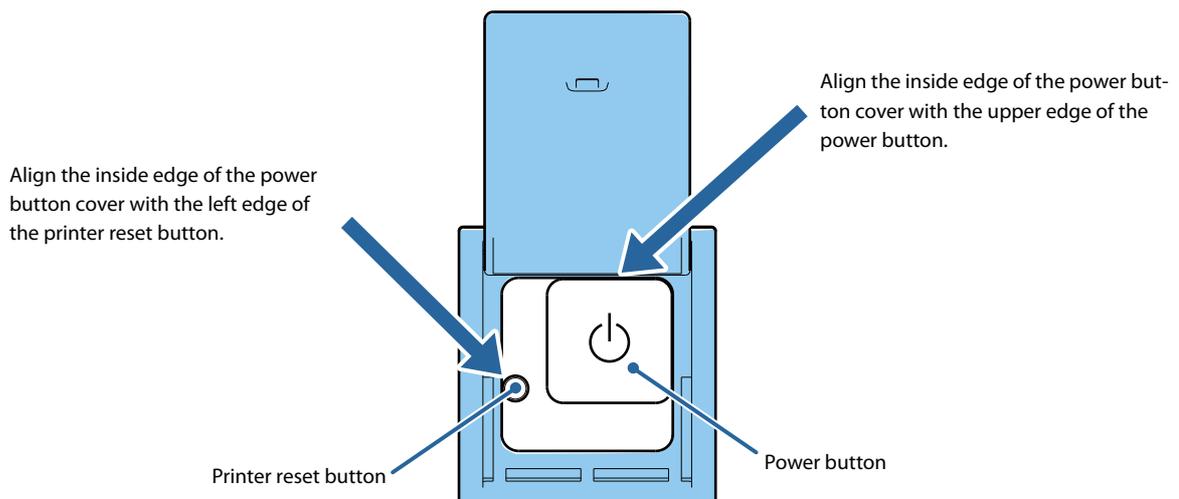
Securing the Product

Using the optional affixing tape (Model: DF-10) secures the product to the installation surface. Follow the steps below to use the affixing tape.

1   **Turn over the product so that you can see its bottom.**

2   **With two pieces of the affixing tape combined, peel off the backing paper of a pair on one side, and paste it to one of the specified positions on the bottom of the product.**

3   **In the same way, paste other three pairs of tape in the specified positions.**

4   **Peel off the backing paper of each pair on the other side of the affixing tape, turn over the product back on its bottom, and place and secure it firmly to the installation surface.**

Positioning lines
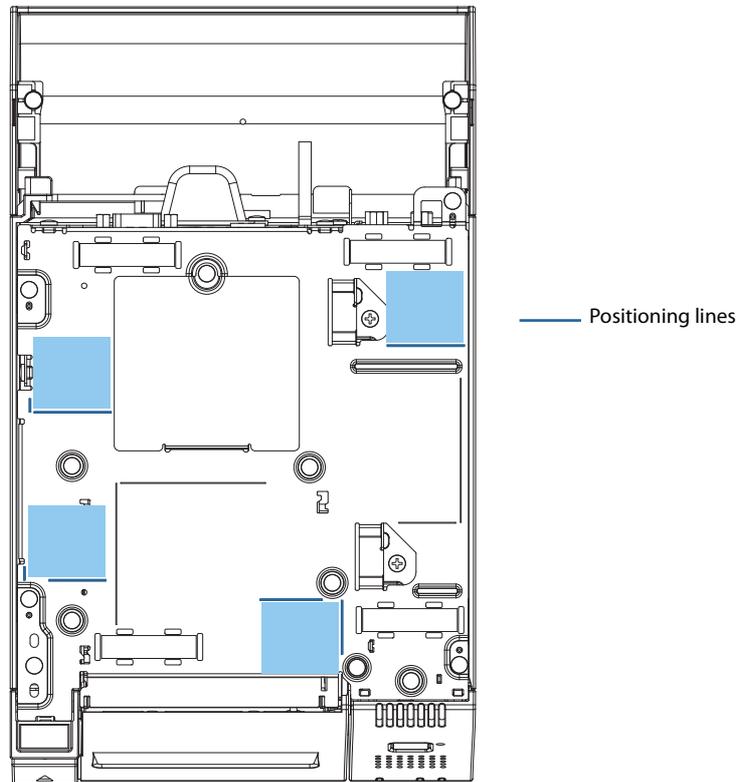
Operating Test

You can confirm the connections and settings you made in the following ways.

Item	Tool	Description
Printer	TM-T70II-DT2 Utility	Use the [Operation Check] to perform printing.
	TMNetWebConfig	Use the test print to print the character string of "TEST_PRINT".
	AdvancedPrinterDriver	Use the test printing.
Cash drawer	TM-T70II-DT2 Utility	Use the [Device Test] to open the cash drawer.
Customer display	TMNetWebConfig	Use the test display to perform display.
	AdvancedPrinterDriver	Use the test display.
Key input device	TMNetWebConfig	In the operation test, the "Operation Test" screen is displayed. Operate the key input device to display the input text.
	Windows text editor	Confirm the characters input from the device.
Serial communication device	TMNetWebConfig	In the operation test, the "Operation Test" screen is displayed. To confirm operation, input and transmit a device command to operate the device.
IP address and other network settings	TMNetWebConfig	Confirm this on the TCP/IP page. When Print IP Address is Enabled, the IP address is printed when this product is started and when the IP address is acquired or changed.
	Windows Network and Internet	You can confirm this on Windows network settings.

2

Printer Functions and Settings

This chapter describes printer functions and settings.

Printer Online and Offline Statuses

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 (Shut down)
- While a self-test is running
- While roll paper is fed using the Feed button
- When the printer stops printing due to a paper end (when the paper out detector detected the paper out)
- While waiting for printer operation
- When an error has occurred (See)
- While the roll paper cover is open

Status and Errors

The status of this product's printer is displayed by turning on or flashing the printer LED.

NOTE	Printing cannot be performed when an error occurs.

Automatically Recoverable Errors

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

Error	Error description	Error LED flash code	Recovery measure
Roll paper cover open error	The roll paper cover was opened during printing.	LED ON LED OFF Approx. 160 ms	Recovers automatically when the roll paper cover is closed.
Print head temperature error	A high temperature outside the head drive operating range was detected.	LED ON LED OFF Approx. 160 ms	Recovers automatically when the print head cools.

Recoverable Errors

Printing is no longer possible when recoverable errors occur. After removing the cause of the error, use the methods below to restore the printer to its normal status.

Error	Error description	Error LED flash code	Recovery measure
Autocutter error	Autocutter does not work correctly.	LED ON LED OFF Approx. 160 ms Approx. 2.56 s	Remove the paper jam or the foreign material and then press the printer reset button, close the roll paper cover, or use the ePOSDevice XML error recovery command to recover.

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

Unrecoverable Errors

Printing cannot be performed if an unrecoverable error occurs. If the same error occurs even after turning the power off and then on again, the device may have a failure. Contact qualified service personnel.

⚠ **CAUTION**   Turn off the power immediately when unrecoverable errors occur.

Error	Error description	Error LED flash code
Memory R/W error	The product does not operate properly after performing a memory read/write check of the printer memory.	LED ON / LED OFF — Approx. 160 ms — Approx. 160 ms — Approx. 2.56 s
High voltage error	The power supply voltage is extremely high.	LED ON / LED OFF — Approx. 160 ms — Approx. 160 ms — Approx. 2.56 s
Low voltage error	The power supply voltage is extremely low.	LED ON / LED OFF — Approx. 160 ms — Approx. 160 ms — Approx. 2.56 s
CPU execution error	The printer CPU is executing an invalid address.	LED ON / LED OFF — Approx. 160 ms — Approx. 160 ms — Approx. 2.56 s
Internal circuit connection error	Internal circuits are not connected correctly.	LED ON / LED OFF — Approx. 160 ms — Approx. 2.56 s

3

Status Display

	Error LED	Paper LED
Online	OFF	OFF
Running a self-test	OFF	-
Waiting to continue self-test	OFF	Flashing
Feeding using the Feed button	OFF	-
Roll paper cover open during error printing	ON	-
No paper	ON	ON
Paper near end	OFF	ON
While updating firmware	OFF	OFF
Power off standing by	OFF	OFF

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

NV Memory

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

- NV graphics memory
- Customized value
- R/E (Receipt Enhancement)
- Maintenance counter

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

NV Graphics Memory

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

This allows you to print items such as logos even if you do not transmit data from the application each time.
To register your graphics data, use TM-T70II-DT2 Utility or ESC/POS commands.
You can check registered graphics data using TM-T70II-DT2 Utility or by printing the data in the NV graphics information print mode.

Customized Values

You can perform various settings for the printer.

For details about customized values, see "Software Settings" on page 40.

R/E (Receipt Enhancement)

You can set the graphics data, such as a shop logo, registered in the NV graphics memory to be printed on the top of each receipt or to be printed on the bottom of each receipt just before the paper is cut.
To make the settings, use TM-T70II-DT2 Utility or ESC/POS commands.
You can check the settings using TM-T70II-DT2 Utility or by printing the settings information in the Receipt enhancement information print mode.

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.
Refer to the counter information and use it for periodic inspections and part replacement.

NOTE	• You can also check the head running length and number of times of autocutting with the self-test (see "Self-test Mode" on page 45). • The maintenance counter values are automatically saved in the NV memory usually every two minutes (up to four minutes). However, the values are not saved when the printer is in power-saving mode or when it is turned off without the use of the power switch.

3

Software Settings

This product has a software setting function that performs various settings for the printer. You can perform settings using the software setting mode by operating the printer panel, or by using the TM-T70II-DT2 Utility or TMNet WebConfig.

Item\Method		Software Setting Mode	TM-T70II-DT2 Utility	TMNet WebConfig *
Customized Values	Automatic paper reduction	✔	✔	-
	Auto paper feed & cut at cover close	✔	✔	-
	Character code table defaults	✔	✔	-
	International character defaults	✔	✔	-
	Font A auto replacement	✔	-	-
	Font B auto replacement	✔	-	-
	Print density	✔	✔	-
	Print speed	✔	✔	-
Logo		-	✔	-
IP address Other network settings		-	-	✔
ePOS-Print		-	-	✔
ProxyInfo		-	-	✔
Server Direct Print		-	-	✔
Status Notification		-	-	✔
Print Forwarding		-	-	✔
Web Contents Updater		-	-	✔
Customer Display		-	-	✔
Network Dev Info		-	-	✔
SSL/TLS Config		-	-	✔
Certificate Config		-	-	✔
Time Config		-	-	✔

∗   TMNet WebConfig can be started from the Windows desktop shortcut or the TM-T70II-DT2 Utility.

Functions

Automatic paper reduction

Extra upper space reduction

- Disabled (default setting)
- Enabled

Extra lower space reduction

- Disabled (default setting)
- Enabled

Line space reduction rate

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

Line feed reduction rate

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

Amount of reduction in barcode height

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

> **NOTE**
> - No reduction is applied to blank dot lines that exist in a graphic data.
> - Reduced barcodes are not guaranteed to be correctly scanned. Make sure to check whether they are properly read by a barcode reader that is actually used.

Auto paper feed&cut at cover close

- Cuts
- Does not cut (default setting)

Character code table defaults

Selectable from 43 pages including user defined page

Initial setting: PC437: USA, Standard Europe

International character defaults

Selectable from 18 sets

Initial setting: USA

Font A auto replacement

- Does not replace (default setting)
- Font B

Font B auto replacement

- Does not replace (default setting)
- Font A

Print density

Set monochrome and multi-tone, respectively.

Selectable from 70 to 130% (5% increment)

Default setting: 100%

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

Original Paper type	Density
AF50KS-E	85%
KT55FA	100%
KT48FA	100%
F5041(55), F5041(48), P30521, P30523, P31523, P35524	105%

NOTE	- When the print density level is increased, print speed may be reduced. - First change the print density, and then configure the Multi-tone density. - In you set the density too high, the contrast becomes lower. Select the density level checking the overall tone balance of your image.

Print speed

Selectable from levels 1 to 13 (Slow ~ Fast)

Default setting: level 13

CAUTION	Print speed is restricted by the settings for the number of head electrification divisions.

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

Setting/Checking Modes

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

- Self-test mode
- NV graphics information print mode
- Receipt Enhancement information print mode
- Software settings mode
- Hexadecimal dumping mode

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

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

Close the roll paper cover, and turn on the printer while pressing the Feed button.
Self-test

①

Briefly press the Feed button.	Hold down the Feed button. *
Continuing the self-test	**Mode selection guidance**

②

Press the Feed button once briefly and then hold it down. *	Press the Feed button twice briefly and then hold it down. *	Press the Feed button three times briefly and then hold it down. *
NV Graphics Information	**Receipt Enhancement Information**	**Software Settings**

Open the roll paper cover, and turn on the printer while pressing the Feed button, and then close the roll paper cover.
Hexadecimal dumping

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

∗ Time for holding (1 second or longer)

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 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.

3

Self-test Mode

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

- Firmware version

- Resident fonts

- Print density

- Maintenance counter information (head running length, number of times of autocutting)

Follow the steps below. You can also run the self-test using the 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.

3

NV Graphics Information Print Mode

Prints the following NV graphic information registered to the printer.

- Capacity of the NV graphics

- Used capacity of the NV graphics

- Unused capacity of the NV graphics

- Number of NV graphics that are registered

- Key code, number of dots in X direction, number of dots in Y direction to be defined.

- NV graphics data

> **NOTE**   For details on NV graphics, see "NV Graphics Memory" on page 38.

Follow the steps below.

1   **After running a self-test, hold down the Feed button for at least one second, and then select the Mode selection.**
The Mode selection guidance is printed, and the Paper LED flashes.

2   **After briefly (less than one second) pressing the Feed button once, hold it down for at least one second, to print the NV graphics information.**
After information printing, the Mode selection guidance is printed again.

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

Receipt Enhancement Information Print Mode

You can check the following items using the R/E information mode:
- Automatic top logo setting

- Automatic bottom logo setting

- Extended settings for automatic top/bottom logo

Follow the steps below.

1   **After running a self-test, hold down the Feed button for at least one second, and then select the Mode selection.**
The Mode selection guidance is printed, and the Power LED flashes.

2   **After briefly (less than one second) pressing the Feed button twice, hold it down for at least one second, to print the R/E information.**
After information printing, the Mode selection guidance is printed again.

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

Software Setting Mode

Set the printer's memory switches and customized values.

- Print density

- Auto reduction of amount of paper to use

- Enabling/disabling paper autocutting at cover close

- Auto replacement of font

- Print speed

NOTE	For details on the memory switches and customized values, see "Software Settings" on page 40.

Follow the steps below.

1 **After running a self-test, hold down the Feed button for at least one second to enter the Mode selection.**
The Mode selection guidance is printed, and the Paper LED flashes.

2 **Briefly press the Feed button three times (less than one second), hold it down for at least one second to enter the Software settings mode (Customize Value Settings).**
The Software setting mode guidance is printed, and the Paper LED flashes.

```
              Customize Value Settings

Modes
   0: Exit
   1: Print Current Settings
   2: Print Density
   3: Serial Interface Settings
   4: Automatic Paper Reduction
   5: Auto Paper Feed&Cut at cover close
   8: Default Character
   9: Embedded Font Replacement
   10: Interface Selection
   11: USB Interface Settings
   13: Printing Speed
   14: Other Settings

Select Modes by executing following
procedure.
   step 1. Press the Feed button less
           than 1 second as many times
           as the selected mode number.
   step 2. Press Feed button for 1
           second or more.
```

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

The setting selected as the setting item, the current settings and default settings are printed.
Depending on the setting item, you may need to continue selecting the setting item before the settings are printed.
For details on setting items, see "Software Settings" on page 40.

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.

3

Hexadecimal Dumping Mode

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

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

Follow the steps below. Entering the hexadecimal dumping mode is also possible using the 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.**
From this point, all data received by the printer is printed in the corresponding hexadecimal numbers and ASCII characters.

Example of printing in hexadecimal dumping mode:

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




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

          ***  completed  ***
```

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

Windows Settings

Windows 10 IoT Enterprise

Windows Initial Settings

The following explains the procedures for the Windows initial settings when you turn on the power for this product for the first time.

1   **Making sure that this product power is off, connect the display, keyboard and mouse.**

2   **Turn on the product.**
The Windows setup screen is displayed the first time you start the product after recovering the OS using the recovery DVD.

3   **When the log-on screen appears, enter the password.**
For the initial settings, the user name is "EPSON-USER" and the password is "T70II-DT2".

4   **The Windows desktop is displayed. Select [Start], then [Control Panel], and [Date and Time]. The "Date and Time Properties" window is displayed. Set the date, time, and the time zone.**

NOTE	Date, time, and time zone can be set later.

Starting Up and Shutting Down Windows

Starting Up Windows

Windows starts up when power to this product is turned on.

Shutting Down Windows

Power to this product is turned off when Windows is shut down.

Enabling or Disabling ePOS-Device

On this product, TM-DT software operates on Windows. If using this product with the PC-POS system do not use this software.

If operation of this software is disabled, the useable memory can be increased by 100MB or more.

NOTE	ePOS-Device Service is set to [Enabled] in the default settings.

Enabling ePOS-Device Service

Run [ePOS-Device Enabled] from the shortcut on the desktop.

Disabling ePOS-Device Service

Run [ePOS-Device Disabled] from the shortcut on the desktop.

CAUTION	• Following functions will be stopped, when ePOS-Device Service is disabled. 　∗ TM-DT software 　∗ TMNet WebConfig 　∗ Store/restore settings of this product • You will no longer be able to call TMNet WebConfig from the TM-T70II-DT2 Utility.

Speaker Volume Setting

Volume of the speakers equipped in this product can be adjusted using the speaker volume adjustment function in Windows.

Windows Recovery

Follow the steps below to perform the recovery and Windows initial setting.

CAUTION	When the recovery procedure is performed, all data will be deleted. Back up any necessary data before performing the procedure.
NOTE	• Recovery requires about 30 minutes. • A DVD drive with USB interface is required in order to perform Windows recovery.

1 **Making sure that this product power is off, connect the display, keyboard, mouse, and DVD drive.**

NOTE	For how to connect peripherals, see "Connecting External Devices" on page 28.

2 **Insert the recovery disk into the DVD drive.**

3 **Turn on the product, and "Press any key to boot from CD or DVD." is displayed. Press any key.**

4 **The system starts using the recovery disk. When a message that says "Do you want to recover?" is displayed. Click [Yes].**

5 **A confirmation message that says "All data on disc will be deleted. Do you really want to start recovery?" is displayed. Click [Yes].**

6 **The "Select language" message is displayed. Select "English(United States)" from the pull-down menu.**
Recovery is performed.

7 **After recovery is completed, this product automatically restarts and the Windows setup screen is displayed. Perform Windows setup.**

NOTE	Do not operate the keyboard or mouse while the Windows setup screen is displayed.

8 **When the log-on screen is displayed, enter the password.**
The initial user name is "EPSON-USER", and the initial password is "T70II-DT2".

9 **Select [Start]-[Settings]-[Time & language], and the [Date and Time] is displayed. Set the Date and time, and Time zone.**

10 **Turn off the product. Then remove the DVD drive.**
This brings the recovery and Windows initial settings to an end.

NOTE	The Windows setup screen is displayed the first time you start the product after recovering the OS using the recovery DVD.

Specification

Preinstallation information

Item	Details
Storage format	
Partition format	GPT format
File system	NTFS
Volume label	Windows (C:)
Preinstalled software	
Startup method	UEFI
OS	Windows 10 IoT Enterprise 2016 LTSB 64 bit
	Windows 10 IoT Enterprise 2021 LTSC 64 bit
Net Framework	.NET Framework 4.6.2
Visual C++ redistribution module	Visual C++ 2005 redistributable package (x86)
	Visual C++ 2008 redistributable package (x86)
	Visual C++ 2010 redistributable package (X86)
Driver	Mobile Intel® Processor Family I/O PCI Express
	Intel® HD Graphics
	Intel® Management Engine Interface
	Intel® Serial IO Driver
	GPIO Driver
	Realtek PCIe GBE Family Controller
	Realtek High Definition Audio
	intel® rapid_storage_technology
	EPSON Advanced Printer Driver Ver.5.09
	VCPdriver_Ver.2.01
	Advanced Printer Driver for DM-D Ver.5.09
TM-DT Software	ePOS-Device Ver.5.XX
Tool	EPSON TMNet WebConfig
	TM-T70II-DT2 Utility
User information (Default)	
User Name	EPSON-USER
User Password	T70II-DT2

4

EPSON TMNet WebConfig Information (Default)		
	User Name	epson
	User Password	"epson" or the product serial number (10 alphanumeric characters, case sensitive)*

*The default setting for the password varies depending on the TM-DT software version.

TM-DT software version　Password

Before 5.03　　　　　　　　"epson"

5.03 or later　　　　　　　　Product serial number (10 alphanumeric characters, case sensitive)

You can check the TM-DT software version using EPSON TMNet WebConfig ("Version Screen Display" on page 80).

You can check the product's serial number on the manufacturing nameplate attached to the product.

TM-DT Software System Development

This chapter describes the information needed to develop systems that use TM-DT software.

Systems that Use TM-DT software

This section describes the functions of TM-DT software.

Software Configuration

```
┌─────────────────────────────────────────────────────────┐
│                    TM-T70II-DT2                          │
│  ┌───────────────────────────────────────────────────┐  │
│  │              TM-T70II (Printer)                    │  │
│  │                               ┌─────────────────┐  │  │
│  │                               │    Control       │  │  │
│  │                               │    program       │  │  │
│  │                               └─────────────────┘  │  │
│  └───────────────────────────────────────────────────┘  │
│  ┌───────────────────────────────────────────────────┐  │
│  │                   Software                         │  │
│  │  ┌──────────────┐  ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐ │  │
│  │  │Printer driver│    TM-DT Software              │  │
│  │  │ for Windows  │  │ ┌──────────────┐ ┌ ─ ─ ─ ─ ┐│  │
│  │  └──────────────┘    │Server Direct │   Utility   │  │
│  │                    │ │   Print      │ │┌────────┐││  │
│  │                      └──────────────┘  │EPSON   │ │  │
│  │                    │ ┌──────────────┐ ││TMNet   │││  │
│  │                      │ Device Data  │  │WebConfig│ │  │
│  │                    │ │ Notification │ │└────────┘││  │
│  │                      └──────────────┘  ┌────────┐ │  │
│  │                    │ ┌──────────────┐ ││        │││  │
│  │                      │ ePOS-Device  │  │Easy Setup│ │
│  │  ┌──────────────┐  │ │  Service     │ │└────────┘││  │
│  │  │   Apache     │    └──────────────┘  ┌────────┐ │  │
│  │  │ HTTP Server  │  │ ┌──────────────┐ ││        │││  │
│  │  └──────────────┘    │ ePOS-Print   │  │Deployment│ │
│  │                    │ │  Service     │ │└────────┘││  │
│  │                      └──────────────┘  ─ ─ ─ ─ ─  │  │
│  │                    └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘ │  │
│  │  ┌───────────────────────────────────────────────┐│  │
│  │  │                 Windows OS                     ││  │
│  │  └───────────────────────────────────────────────┘│  │
│  └───────────────────────────────────────────────────┘  │
└─────────────────────────────────────────────────────────┘
```

5
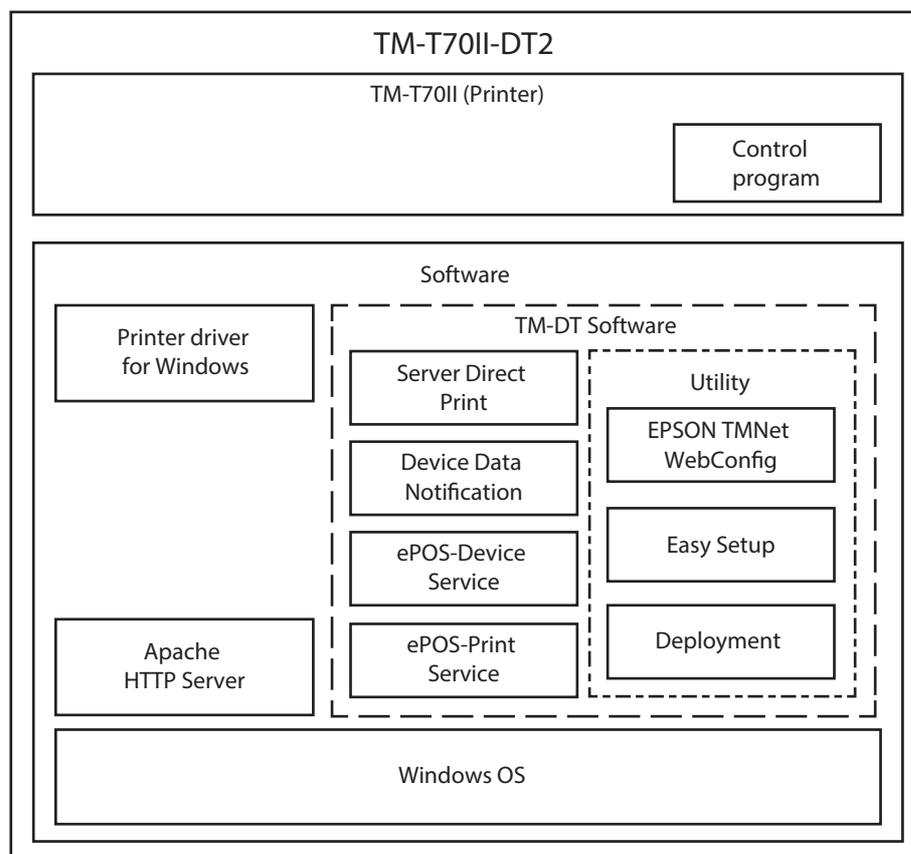
Network Printer Control

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

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

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

For controllable network printers, see "TM-DT Software Specification" on page 107.

Setting Items

Setting	Items
Enabling / Disabling for ePOS-Device Service (page 51)	• Enabling ePOS-Device Service
Web service (page 84)	• Enabling the Device Control
Network printer (page 85)	• Printer model • Device ID • IP Address

5

Spooler and Forward Printing

Spooler

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

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

Processing Flow using the Spooler Function
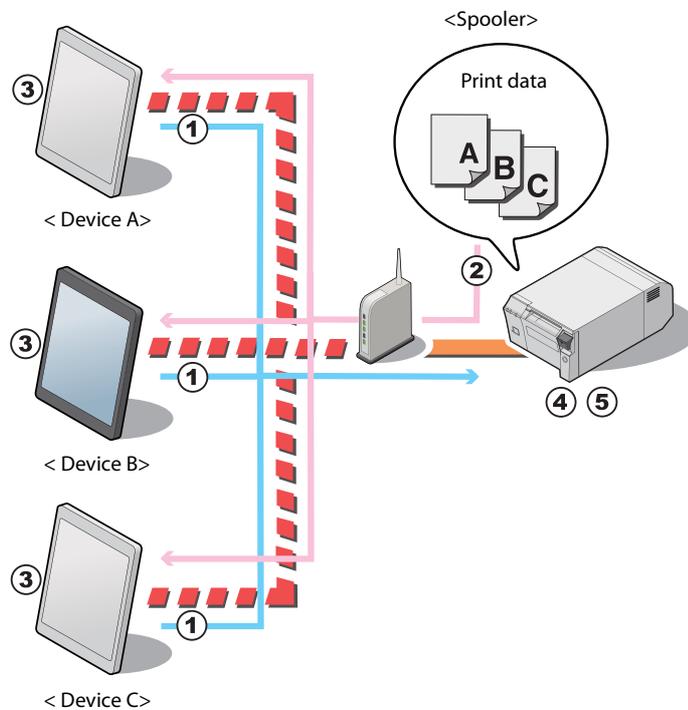
1   **Devices A to C request printing of data A to C almost simultaneously.**

2   **The TM-DT software saves the print data in the spooler in the order it receives it, and returns the printing results (JobID, printing result = true) to each device.**

3   **Each device application completes the printing process and executes the next operation.**

4   **This product successively prints print data A to C.**

5   **The TM-DT software saves the printing results (JobID, printing result = true) in the log.**

CAUTION	• If the printer cannot print because it is offline or there is an error, print data cannot be printed even if spooled. Since printing results are logged, they can be confirmed from the application. For the confirmation method, see "Checking the print results" on page 60. • When power to this product is turned off, the spooler saved fields are erased. • If the print data exceeds the remaining capacity of the spooler and cannot be spooled, the print data is erased. Concerning the spooler capacity, see "TM-DT Software Specification" on page 107.

5

Print Forwarding

Print forwarding, which enables printing to be performed from a different printer if it cannot be performed on another one is implemented in the TM-DT software. You can configure a secure system that enables printing to be performed on a separate printer even if one printer cannot be used. All you need to do is specify the forwarded printer in the case where printing cannot be performed to EPSON TMNet WebConfig. There is no need to resend print data.

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

Processing Flow using the Spooler Function

< Device (application)>   <Printer A>   <Printer B>
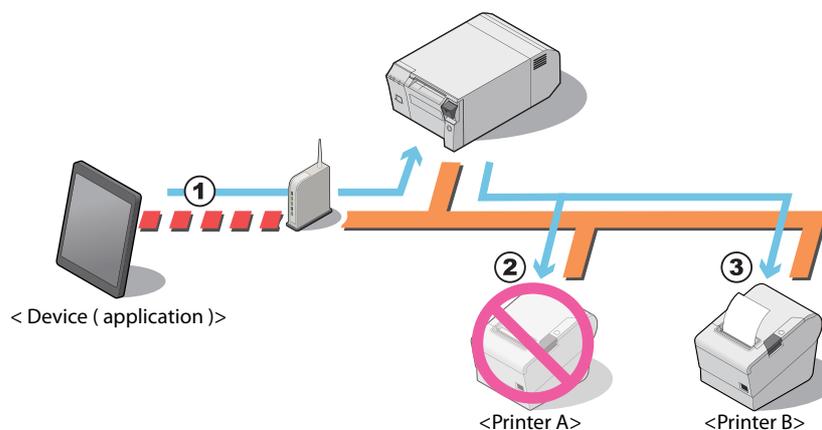
1   **The device application sends the print data to the TM-DT software.**

2   **The TM-DT software tries to conduct printing process on printer A but cannot because the printer is offline. The TM-DT software retries the number of times that is set in the spooler function.**

3   **If printing cannot be performed on Printer A even after the retry, the TM-DT software performs printing on Printer B.**

CAUTION	• If a printer that is set as a forwarding source or forwarding destination cannot print because it is offline or because of an error, printing is not performed even if forward printing is set. The printing results are logged and can be confirmed from the application. For the confirmation method, see "Checking the print results" on page 60.
	″ If the power for this product is turned off, the forwarding print data is erased.
	• If the print data exceeds the remaining capacity of the spooler and cannot be spooled, the print data is erased. Concerning the spooler capacity, see "TM-DT Software Specification" on page 107.

Checking the print results

When the spooler is disabled

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

When the spooler is enabled

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

Checking the print results from the application

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

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

NOTE	• When this product is turned off, data in the spooler and the log storage area is cleared. For detail, see "TM-DT Software Specification" on page 107. • When printing cannot be performed with this products spooler or print forwarding, the print data is cleared. If printing has not been completed when checking in the application, we recommend reprinting.

Setting Items

Spooler and forward printing are configured on the same page.

Setting	Items
Enabling / Disabling ePOS-Device Service (page 51)	• Enabling ePOS-Device Service
Web service (page 84)	• Enabling spooler
Print forwarding (page 90)	• Retry count • Forwarding message • Print forwarding route

Spooler and Print Forwarding

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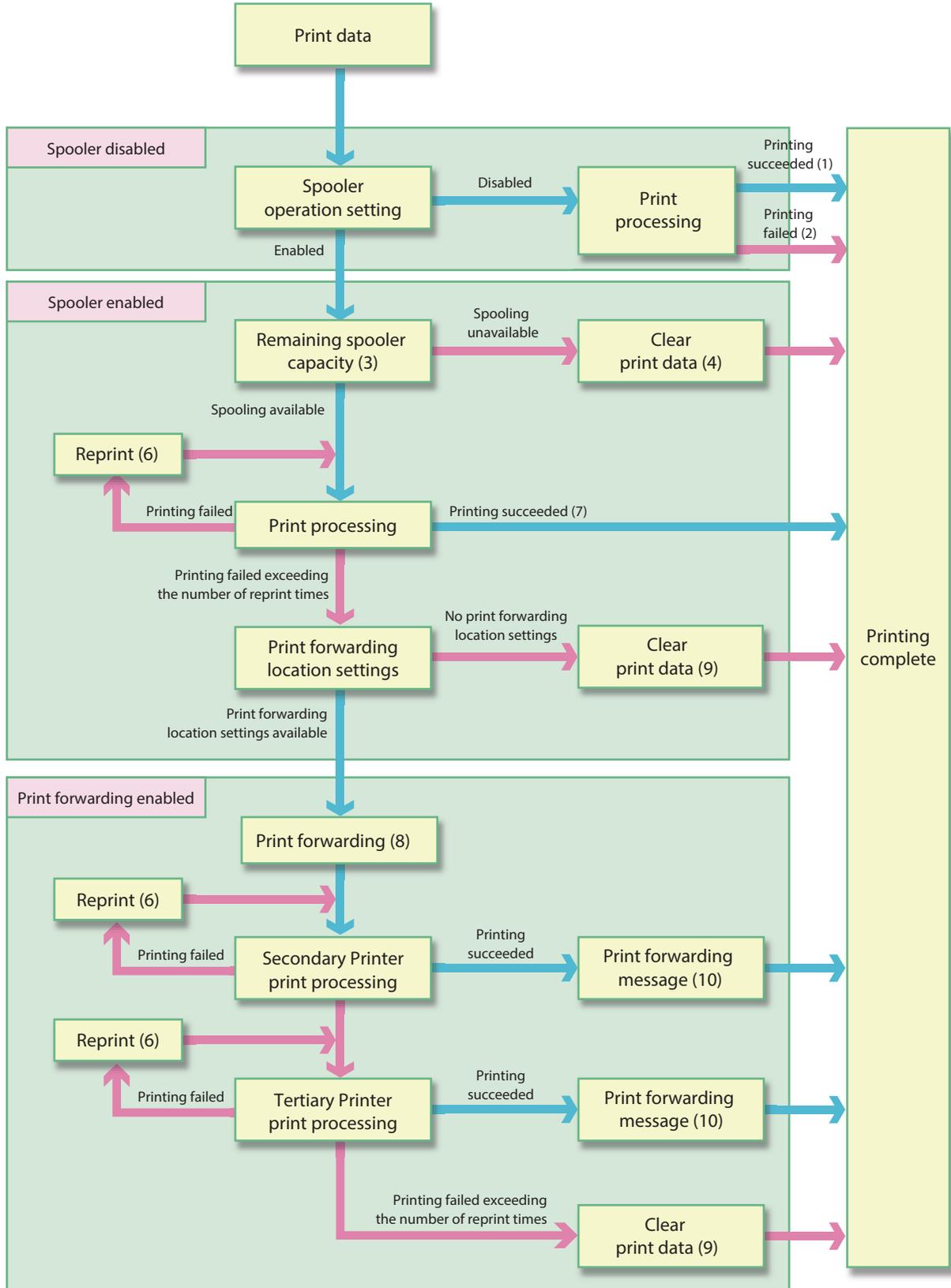
When spooler is disabled

1: If printing is successful, [JobID, Print result = true] is returned to the application.

2: If printing fails, [JobID, Print result = false, Error code = Printer status] is returned to the application.

When spooler is enabled

3: The remaining free space in the spooler and the size of the print data is checked, and the product determines whether or not the print data can be spooled.

4: If the print data cannot be spooled, the print data is cleared. [JobID, Print result = false, Error code = EX_SPOOLER (spooler stopped)] is returned to the application. This data is not stored in the product's spooler or the log storage area.

5: When print data can be spooled, [JobID, Print result = true] is stored in the spooler. [JobID, Print result = true] is also returned to the application.

6: Make the reprint settings (number of times and interval) in EPSON TMNet WebConfig. For detail, see "Settings - Web service settings - Print settings - Spooler" on page 90.

7: When printing is successful, the spooler's print data and [JobID, Print result = true] are deleted. [JobID, Print result = true] are stored in the log storage area of this product.

When Print forwarding is enabled

8: Send print data to Secondary printer.

9: When printing fails, the spooler's print data and [JobID, Print result = true] are deleted. [JobID, Print result = false, Error code = Printer status] are stored in the log storage area of this product.

10:Print with secondary (tertiary) printer. For about settings for forwarding message, see "Settings - Web service settings - Print settings - Spooler" on page 90.

5

Controlling for POS Peripherals

A function for controlling POS peripherals is implemented in the TM-DT software. Communication with peripherals is controlled by device control script files and device control program files.

Device control script files control specific peripherals.

Device control program files control OPOS-specification peripherals.

For controllable POS peripherals, device control script files, and device control program files, see the Epson ePOS SDK and ePOS-Device XML User's Manuals, and the TM-DT Series Peripheral Device Control Guide.

Device control script file

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

Device	Device type
Keyboard	Key input device
Barcode scanner	
Serial communication device	Serial communication device

Device control script files can be developed according to the devices that are used by the customer.

Device control program file

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

Device	Device type
POS keyboard	OposPOSKeyboardHandler.exe
Barcode scanner	OposScannerHandler.exe
MSR	OposMSRHandler.exe

Device control program files can be developed according to the devices that are used by the customer.

5

Setting Items

Setting	Items
Enabling / Disabling ePOS-Device Service (page 51)	• Enabling ePOS-Device Service
Web service (page 84)	• Enabling the Device Control
Customer display (page 85)	• Use / Do not use
Key input device (page 86)	• Device ID • Select the device control script
Serial communication device (page 87)	• Device ID • Select the device control script • Communication settings
Other device (page 88)	• Device ID • Select the device control script
Device control script - Add/delete (page 88)	• Registering the device control script
Device control program - Device registration (page 89)	• Device ID • Select the device control script
Device control program - Add/delete (page 89)	• Registering the device control program

5

Communication Box

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

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

This can be used in TM-DT software Ver.2.5 or later.

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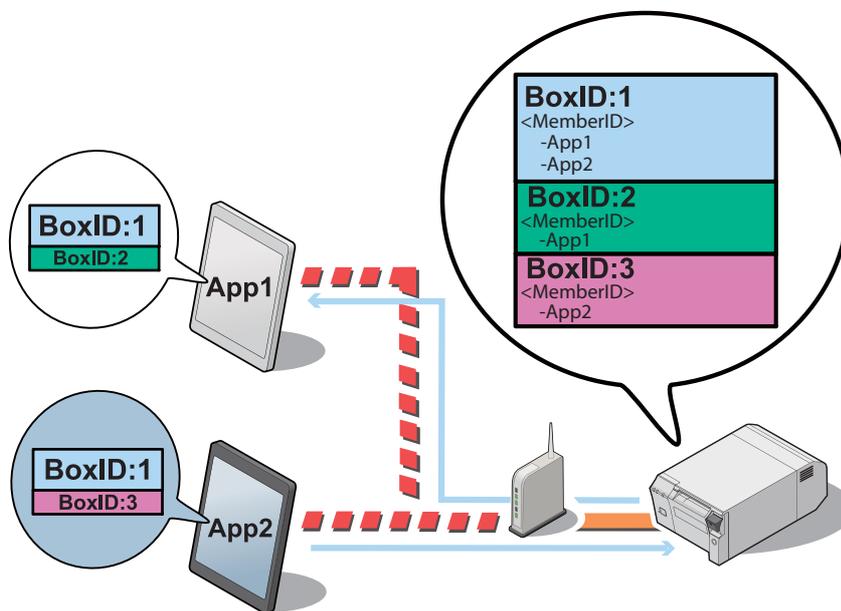
The TM-DT software manages the communication box with a box ID (BoxID in the figure above). Data can be exchanged between applications that belong to the communication box.

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

5

An example for processing the data using communication box
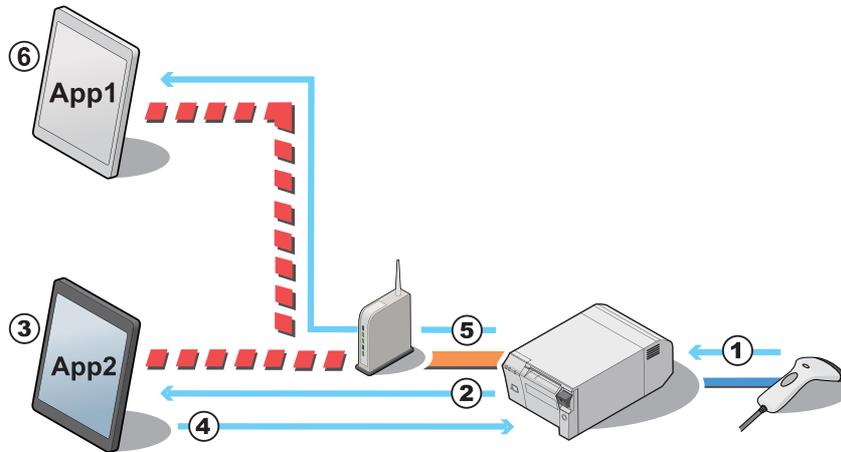
1   The product receive a barcode data scanned from scanner.

2   TM-DT Software notify the barcode data to App2.

3   App2 acquire the barcode data, then convert to POS data.

4   App2 sends display data to communication box of TM-DT Software.

5   TM-DT Software notify the data is stored into communication box to App1.

6   App1 acquire the stored display data from communication box.

System Configuration Using the TM-DT Software

System Configuration

- Systems that implemented application in the smart device
  Using Epson ePOS SDK
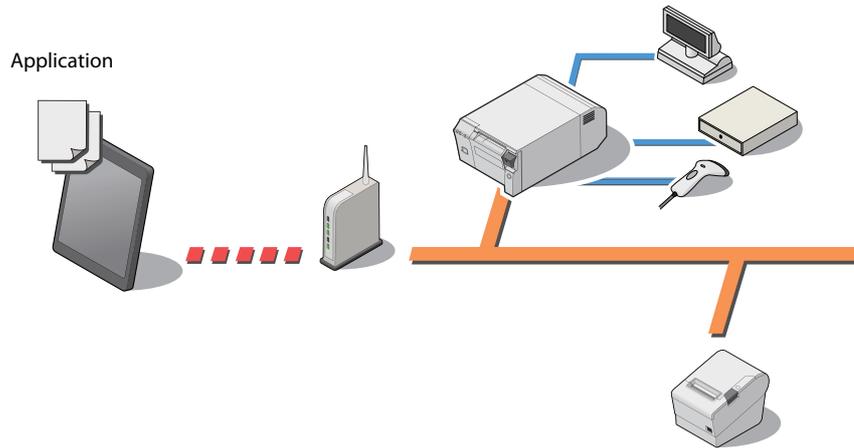
Application

- Web application system
  Using Epson ePOS SDK

Browser

Application

Database

- Server Direct Print system

Application

Acquisition of
print data

Notice of
printing results
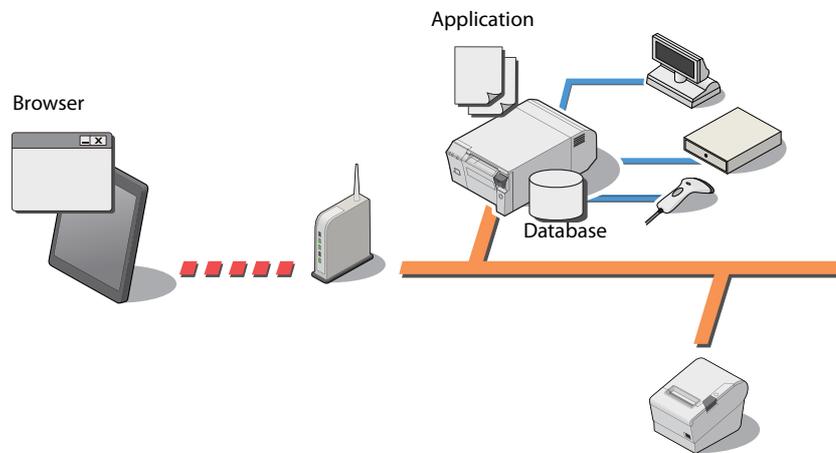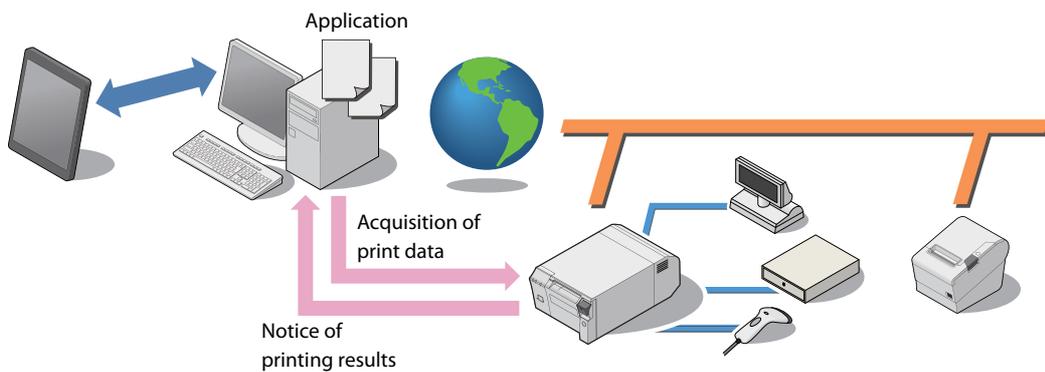
Server Direct Print

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

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

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

Processing Flow Using the Server Direct Print Function
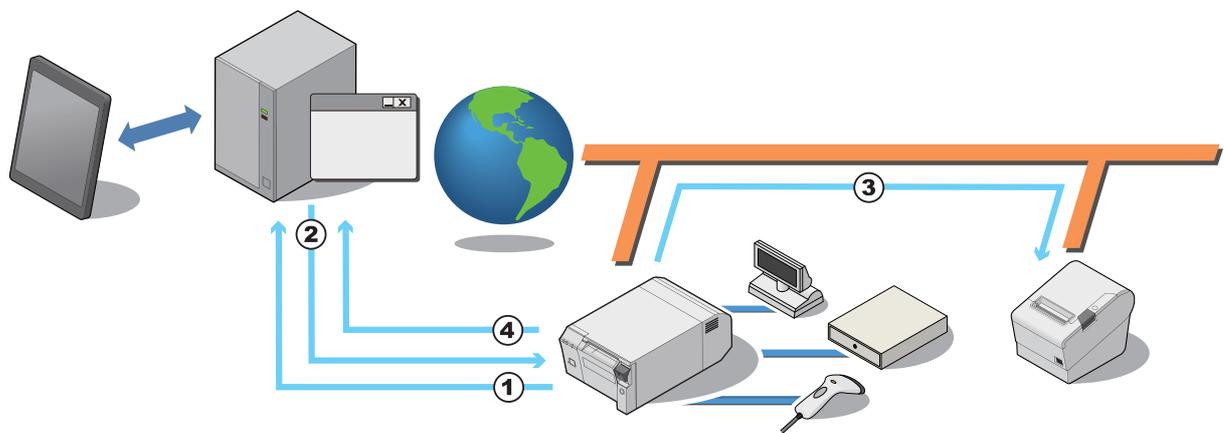
1   **The TM-DT software issues a print request to the Web server application.**

2   **The Web server application sends a response that includes print data to the TM-DT software.**

3   **The TM-DT software sends print data to the printer and performs printing.**

4   **The software notifies the printing results to the application.**

Items to be Prepared by the Customer

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

Setting Items

Setting	Items
Enabling / Disabling ePOS-Device Service (page 51)	• Enabling ePOS-Device Service
Web service (page 84)	• Enabling device control • Enabling server direct print • Enabling status notification
Server direct print (page 92)	• Application server settings
Status notification (page 93)	• Application server settings
Network printer (page 85)	• Printer model • Device ID • IP address
Proxy settings (page 96)	• Proxy server settings

5

Device Data Notification

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

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

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

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

Processing Flow Using the Device Data Notification Function
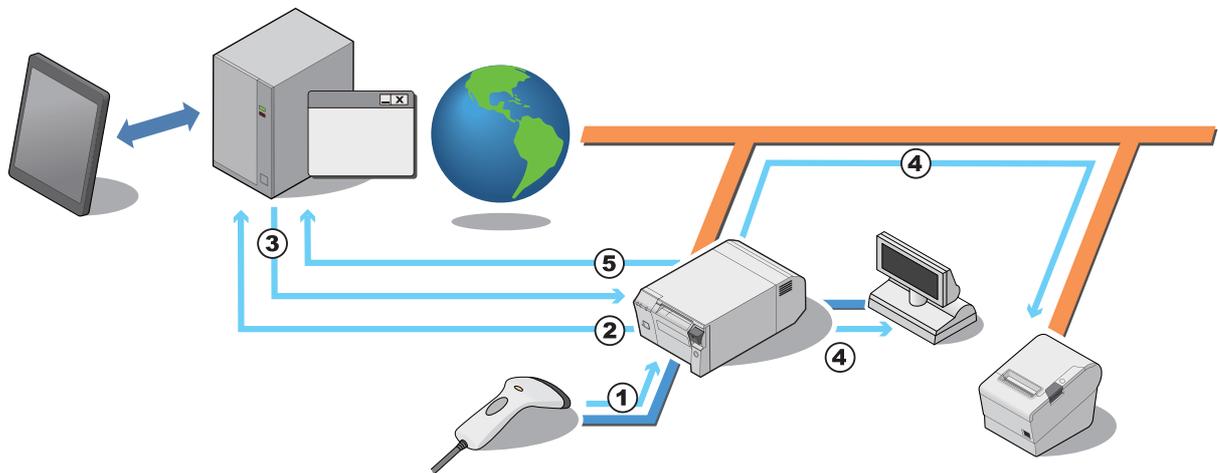
1 The operator scans the ID number, etc. with a barcode scanner.

2 Application for including device control data in response to requests from the TM-DT software

3 The Web server application sends a response that includes device control data to the TM-DT software.

4 The TM-DT software sends the control data to the target device, and processing is performed.

5 The TM-DT software notifies the device control results to the application.

Items to be Prepared by the Customer

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

Setting Items

Setting	Items
Enabling / Disabling ePOS-Device Service (page 51)	• Enabling ePOS-Device Service
Web service (page 84)	• Enabling device control • Enabling device data notification
Device data notification (page 94)	• Application server settings • Error settings
Network printer (page 85)	• Printer model • Device ID • IP address
Customer display (page 85)	• Use / Do not use
Key input device (page 86)	• Device ID • Select the device control script
Serial communication device (page 87)	• Device ID • Select the device control script • Communication settings
Other device (page 88)	• Device ID • Select the device control script
Device control script - Add/delete (page 88)	• Register the device control script file
Proxy settings (page 96)	• Proxy server settings

Controlling POS Peripherals from Smart Devices

A function for controlling this product's POS peripherals and network printers from native applications of smart devices (iOS/Android^{TM}/Universal Windows Apps) is implemented in the TM-DT software.

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

Setting Items

Setting	Items
Enabling / Disabling ePOS-Device Service (page 51)	• Enabling ePOS-Device Service
Web service (page 84)	• Enabling the device control
Printer (page 85)	• Printer model • Device ID • IP address
Customer display (page 85)	• Use / Do not use
Key input device (page 86)	• Device ID • Select the device control script
Serial communication device (page 87)	• Device ID • Select the device control script • Communication settings
Other device (page 88)	• Device ID • Select the device control script
Device control script - Add/delete (page 88)	• Register the device control script

5

Controlling POS Peripherals from Web Applications

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

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

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

Setting Items

Setting	Items
Enabling / Disabling ePOS-Device Service (page 51)	• Enabling ePOS-Device Service
Web service (page 84)	• Enabling the device control
Network printer (page 85)	• Printer model • Device ID • IP address
Customer display (page 85)	• Use / Do not use
Key input device (page 86)	• Device ID • Select the device control script
Serial communication device (page 87)	• Device ID • Select the device control script • Communication settings
Other device (page 88)	• Device ID • Select the device control script
Device control script - Add/delete (page 88)	• Registering the device control script
Device control program - Device registration (page 89)	• Device ID • Select the device control script
Device control program - Add/delete (page 89)	• Registering the device control program
Product's shutdown (page 98)	• Shutdown settings

5

Controlling POS Peripherals from Socket Communication Compatible Applications

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

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

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

Setting Items

Setting	Items
Enabling / Disabling ePOS-Device Service (page 51)	• Enabling ePOS-Device Service
Web service (page 84)	• Enabling the device control
Network printer (page 85)	• Printer model • Device ID • IP address
Customer display (page 85)	• Use / Do not use
Key input device (page 86)	• Device ID • Select the device control script
Serial communication device (page 87)	• Device ID • Select the device control script • Communication settings
Other device (page 88)	• Device ID • Select the device control script
Device control script - Add/delete (page 88)	• Registering the device control script
Device control program - Device registration (page 89)	• Device ID • Select the device control script
Device control program - Add/delete (page 89)	• Registering the device control program
Product's shutdown (page 98)	• Shutdown settings

Web Server

You can configure a Web server system which mounts the server-side scripting (Perl or php) Web contents on the Apache HTTP Server, which is the operating environment for the TM-DT software. You can also use the SQLite database. Moreover, you can configure an automatic update system of Web contents for automatically updating Web contents from a separate Web server at regular intervals.

For the PHP and Perl versions, see "TM-DT Software Specification" on page 107.

Preparation of Web content

File format

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

Package file (*.zip)

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

- Use one-byte alphanumeric characters (ASCII characters) for a zip file name and sub-folder name.
- The maximum size of the files before zipping is 100 MB. Otherwise, registering fails.
- Web contents cannot be registered additionally. All files are overwritten and registered. Zip web contents before registering.

<Example for sample program>

```
epsonsample.zip (Zip file)

├ index.html
├ css
│  └ *.css
├ img
│  ├ *.bmp
│  ├ *.jpg
│  └ *.png
├ js
│  └ *.js
└ sample
   └ *.html
```

5
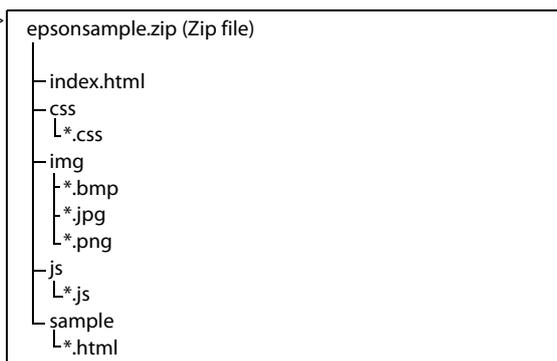
- When you access to registered web contents from an input terminal and so on, the URL differs depending on the folder structure of the zip file.
  ① http://[the product's IP address]/index.html
  ② http://[the product's IP address]/webpage/index.html

①
```
epsonsample.zip
 ├index.html
 ├css
 │ └*.css
 ├img
 │ ├*.bmp
 │ ├*.jpg
 │ └*.png
 ├js
 │ └*.js
 └sample
    └*.html
```

②
```
epsonsample.zip
 └webpage ................................. : A folder added
    ├index.html
    ├css
    │ └*.css
    ├img
    │ ├*.bmp
    │ ├*.jpg
    │ └*.png
    ├js
    │ └*.js
    └sample
       └*.html
```
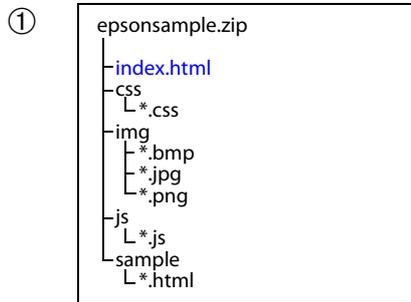
Register the prepared Web content file to TM-DT Software.

Setting Items

Setting	Items
Enabling / Disabling ePOS-Device Service (page 51)	• Enabling ePOS-Device Service
Web content update (page 91)	• Register the web content • Web server settings for automatically updating
Web service (page 84)	• Enabling automatic web content update

5

Automatic Certificate Update Feature

This function automates registration and periodic updating of the security certificates registered to the product. This reduces the burden on the user of tasks such as updating.

Overview

When printing from application software that uses Epson ePOS SDK for JavaScript, if using security communication (SSL/TLS communication), security certificates must be registered on the product and updated periodically.

Using this function automates the registration and periodic updates of security certificates so that users do not have to perform this task.

Use of this function requires the serial number of the connected product to be entered.
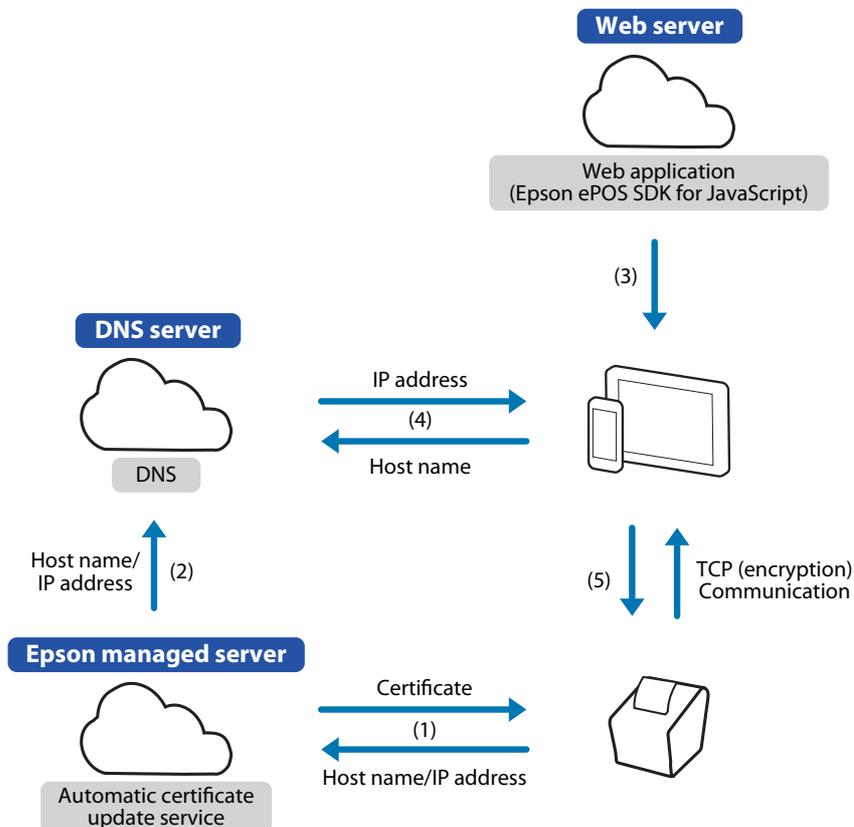
(1) The product downloads a certificate from the Epson-managed server and sends the host name and IP address.

(2) The Epson server sets the host name and IP address to the DNS.

(3) The host device uses a browser and web application to print.

(4) The host device acquires the IP address associated with the host name from the DNS.

(5) The host device uses TCP (encryption) communications with the product to print.

> **NOTE**   No personal information is acquired from the customer on the Epson-managed server side.

Use environment

- TM-DT software version: 5.70 or later.
- Application software developed using Epson ePOS SDK for JavaScript Ver.2.24.0b or later
- Both the host device and product are connected to an Internet environment

Software required

- Epson ePOS SDK for JavaScript Ver.2.24.0b or later

One of the following setting utilities.

- EPSON TMNet WebConfig
- TM-T70II-DT2 Utility

Refer to "Software and Manuals" on page 108 for information on software.

Refer to "Systems that Use TM-DT software" on page 55 for EPSON TMNet WebConfig.

Limitations

- The security certificate is updated at product startup and at a set time (if the product has an update time set). If the product is to run continuously without being turned off, be sure to set the update time.
- Set the security certificate update time to a time when the product is not in use.
- Use NTP, etc., to set the product time. This function may not operate correctly if the product time is very incorrect.
- Depending on the proxy configuration, this function may not be usable.
  In this case, add the following to the browser's proxy exclusion list.

  *.omnilinkcert.epson.biz
- If a security certificate is already registered, overwrite it.
- This function requires ISRG Root X1 in the host device certificate store.

5

Implementation

Programming in Epson ePOS SDK for JavaScript

For information on how to program in Epson ePOS SDK for JavaScript, refer to the user manual and samples included in Epson ePOS SDK for JavaScript.

Printer settings

1 **Use EPSON TMNet WebConfig or TM-T70II-DT2 Utility to configure the following settings.**

- Automatic Certificate Update Settings: Enable the setting
- Update time: Set the time to update the certificate
- Connection type: Select the network connection type to be used for automatic certificate updates.
- Proxy: Set up proxy as needed

2 **Connect the host device and product to an Internet environment.**

3 **Print from application software developed using Epson ePOS SDK for JavaScript.**
To use this function, the host name of the product must be designated when executing a connect method. The host name is generated by converting the serial number of the product.
A program to enter the product's serial number is necessary on the application side.
Refer to the sample programs in Epson ePOS SDK for JavaScript for information on how to convert to the host name.

5

TM-DT Software Settings

Use EPSON TMNet WebConfig to set the TM-DT software.

Each section describes the items that are displayed from [Information] and [Settings] of EPSON TMNet Web-Config.

Starting EPSON TMNet WebConfig

Start EPSON TMNet WebConfig by the following method.

If ePOS-Device Service is invalid, EPSON TMNet WebConfig will not start. For details, see "Enabling or Disabling ePOS-Device" on page 51.

1   **Connect a display and keyboard to this product.**
Login with a user account that has administrator authority.

2   **Start EPSON TMNet WebConfig from the desktop shortcut.**

3   **"Windows Security" screen appears, input the user name and password, then click [OK].**
For details, see "Settings - Admin settings - Admin information - Password" on page 106.

EPSON TMNet WebConfig starts.

NOTE	When setting from a PC connected to the network, enter the following into the Web browser URL entry field. http://<*product's IP address*>/webconfig/

Help Screen Display

Click [Help] to display the help screen for EPSON TMNet WebConfig.

Version Screen Display

Click [About] to display the version screen for EPSON TMNet WebConfig.

Updating TM-DT Software

When you update the TM-DT software, you can use its new functions. Download the following file from Epson's Web site to update.

File name: ePOS-Device System Update Package

For details on how to update, see the Readme file inside the ePOS-Device update package.

NOTE	You cannot downgrade the TM-DT software.

Information - Current status

You can check the basic settings for this product.

Item			Description
Admin infor-mation	Administrator name		Displays the administrator name for this product.
	Installation location		Displays the installation location for this product.
Web service function	Web service function		Displays whether the Web service function is enabled or not.
Status of Web content update	Automatic update for Web con-tent		Displays the schedule for automatic updates for Web content.
	Date and time of Web content installed		Displays the date and time that the Web contents were installed.
	Date and time of last automatic update		Displays the date and time of the last automatic update performed.
	Result of automatic update		Displays the result of the automatic update.
Server direct print		Run state	Displays the run state of the server direct print.
		ID	Displays the web server ID acquiring print data of the server direct print.
	Server 1 Server 2 Server 3	Interval (sec.)	Displays the interval for acquiring print data.
		Date and time last run	Displays the date and time last run of the server direct print.
		Final run results	Displays the final run results of the server direct print.
Status notification	Run state		Displays the run state of the status notification.
	ID		Displays the web server ID sending status notification.
	Interval (sec.)		Displays the interval for sending status notification.
	Date and time last run		Displays the date and time last run of the status notification.
	Final run results		Displays the final run results of the status notification.

5

Information - System settings - Network

You can check the network settings for this product.

Item			Description
Wired LAN			
	TCP/IP Information	IP address	Displays this product's IP address for a wired LAN network.
		Subnet Mask	Displays the subnet mask.
		Default Gateway	Displays the default gateway.
		Acquire DNS Server Address Automatically	Displays whether the Acquire DNS Server Address Automatically function is enabled or not.
		DNS Server Address (in order of use)	Displays automatically acquired DNS server addresses in the order they are used.

When the TM-DT software version is earlier than 5.70

Security			
	SSL settings	SSL	Displays whether the SSL is enable or disable.
		Domain of the certificate	Displays the domain of the certificate.
		Validity period of the certificate	Displays the validity period of the certificate.
	Proxy settings	Web content update	Web contents automatic update, displaying whether or not proxy is used.
		Server Direct Print	Server direct print, displaying whether or not proxy is used.
		Status notification	Status notification, displaying whether or not proxy is used.
		Store/restore settings	Store / restore settings, displaying whether or not proxy is used.
		Update Web service functions	Update web service function, displaying whether or not proxy is used.
		Device Data Notification	Device data notification, displaying whether or not proxy is used.
	Certificate List		A list of the certificates issued in the SSL settings is displayed.

5

TM-DT software version is 5.70 or later

Security			
	SSL settings	SSL	Displays whether the SSL is enable or disable.
		Domain of the certificate	Displays the domain of the certificate.
		Validity period of the certificate	Displays the validity period of the certificate.
	Automatic Certificate Update	Automatic Certificate Update Settings	Displays whether the automatic certificate update settings is enable or disable.
		Update time	Displays the update time.
		Connection type	Displays the connection type.
Web Access			
	Proxy settings	Web content update	Web contents automatic update, displaying whether or not proxy is used.
		Server Direct Print	Server direct print, displaying whether or not proxy is used.
		Status notification	Status notification, displaying whether or not proxy is used.
		Store/restore settings	Store / restore settings, displaying whether or not proxy is used.
		Update Web service functions	Update web service function, displaying whether or not proxy is used.
		Device Data Notification	Device data notification, displaying whether or not proxy is used.
		Automatic Certificate Update	Automatic Certificate Update, displaying whether or not proxy is used.
	Server Authentication Certificate List		A list of the certificates issued in the SSL settings is displayed.

5

Information - System settings - Date and time

You can check this product's time settings.

Item	Description
Date and Time	Displays the time and the time zone set for this product.
Automatically adjust clock for Daylight Saving Time	Displays whether the automatic daylight saving time adjustment function is enabled or not.
Use Time Server	Displays whether the function to use a time server is enabled or not.
Time Server	Displays the address set as a time server.

Settings - Web service settings - Startup settings

Performs the settings for the Web services that are provided with the TM-DT software.

Item		Description
Web service function	Device control	Enables or disables device control functions that use Web service.
	Network disconnection detection (sec.)	Set the time to detect network disconnection. You can set 5, 15, 30, or 45 seconds. The initial setting is 45 seconds.
	Executing device control program	Every time: The device control program starts up every time the device is opened from the application. First time: The device control program opened upon the first communication is used. Using this setting results in a faster response time when using the device from multiple tablets or the like. However, if the connection between this product and the device is broken, the device control program must be reconnected or the OS must be restarted.
	Automatic update of Web content	Enables or disables the automatic update function for Web content.
	Server direct print	Enables or disables the server direct print function.
	Status notification	Enables or disables the status notification function.
	Device Data Notification	Enables or disables the device data notification function.
	The automatic registration and deletion of the key input device	Enables or disables the automatic registration / deletion function of the key input device.
	Apply	Registers the settings to this product.
Print function	Spooler	Enables or disables the spooler function.
	Apply	Registers the settings to this product.

5

Settings - Web service settings - Printer

Performs the settings for printers controlled by TM-DT Software.

You can set the printers when you have set [Enable] under [Device control] in the "Settings - Web service settings - Startup settings" on page 84.

Item		Description
Register printers	Device ID	Set the ID for the controlled printer. (Any character string)
		The initial value for the device ID for the printer equipped in this product is "local_printer".
	Type	Select the type for the controlled printer.
	Model no.	Select the model number for the controlled printer.
	IP address	Set the printer IP address for each device ID.
	Retry interval	Set the timeout retry interval.
	Add	Adds the printer on this product.
Registered printers		Displays a list of registered printers.
	Test printing	Performs a test printing. "TEST_PRINT" is printed.
	Delete	Deletes a registered printer.

Settings - Web service settings - Customer display

Performs the settings for the customer display controlled by TM-DT Software.

You can set the customer display when you have set [Enable] under [Device control] in the "Settings - Web service settings - Startup settings" on page 84.

Item		Description
Do not use		Do not use a customer display.
Use		Use a customer display.
Communication settings	Communication speed (bps)	Set the communication speed.
	Data bit	Set the data bit.
	Parity	Set the parity.
Brightness setting		Set the brightness of the customer display in percentages.
		You can set 20%, 40%, 60%, or 100%. The maximum brightness is 100%.
Display test		Check if the customer display operates properly.
		When [Display test] is clicked, characters appear on the customer display.
Apply		Registers the settings to this product.

Settings - Web service settings - Key input device

Performs the settings for the key input device controlled by TM-DT Software.

You can set the key input devices when you have set [Enable] under [Device control] in the "Settings - Web service settings - Startup settings" on page 84.

Item		Description
Key input devices to be registered	Device ID	Set the ID for the key input device.
	Device name	Set the device name for the key input device.
	Control script	Set the device control script to control the key input device. Register device control scripts as necessary. For details, refer to "Settings - Web service settings - Control script - Add/delete" on page 88.
	Add	Registers the key input device.
Registered key input devices		Displays a list of registered key input devices.
	Operating test	Performs an operating test for a registered key input device. 1. Click to display the "Operating Test" window. 2. Operate the key input device. 3. Confirm that correct operation is performed.
	Delete	Deletes a registered key input device.

5

Settings - Web service settings - Serial communication device

Performs the settings for serial communication devices controlled by TM-DT Software.

You can set the serial communication devices when you have set [Enable] under [Device control] in the "Settings - Web service settings - Startup settings" on page 84.

Item		Description
Serial communication devices to be registered	Device ID	Set the device ID.
	Port	Serial port on the rear of the product.
	Control script	Set the device control script for controlling the serial communication device. Register device control scripts as necessary. For details, refer to "Settings - Web service settings - Control script - Add/delete" on page 88.
	Communication speed (bps)	Set the device communication speed.
	Data bit	Set the data bit.
	Parity	Set the parity.
	Stop bit	Set the stop bit.
	Flow control	Set the flow control.
	Add	Registers the serial communication device on this product.
Registered serial communication devices		Displays a list of registered serial communication devices.
	Detailed display	Displays the device settings confirmation window.
	Operating test	Performs an operating test for a registered serial communication device. 1. Click to display the "Operating Test" window. 2. Enter a value and click [Send]. 3. Confirm that correct operation is performed.
	Delete	Deletes a registered serial communication device.

5

Settings - Web service settings - Other

Performs settings for other devices controlled by TM-DT Software.

You can set the Other devices when you have set [Enable] under [Device control] in the "Settings - Web service settings - Startup settings" on page 84.

Item		Description
Other register devices	Device ID	Set the ID for the controlled device.
	Control script	Set the control script for other devices. Register device control scripts as necessary. For details, refer to "Settings - Web service settings - Control script - Add/delete" on page 88.
	Add	Registers the device on this product.
Other registered devices		Displays other devices registered on this product.

Settings - Web service settings - Control script - Add/delete

Performs registration or deletion for device control scripts used by TM-DT Software.

Item		Description
Control script to be registered		Set the control script to be registered.
	Control script	Specifies the control script file of the device being registered.
	Add	Registers the device control script on this product.
Registered control scripts		Displays a list of device control scripts registered on this product based on the device type.
	Delete	Deletes the corresponding device control script from this product. You cannot delete it if the control script is being used.
	in use	The corresponding device control script is in use.

5

Settings - Web service settings - Control program - Device registration

Performs settings for devices controlled by TM-DT Software. You can set the devices when you have set [Enable] under [Device control] in the "Settings - Web service settings - Startup settings" on page 84.

Item		Description
Register devices	Device ID	Set the ID for the controlled device.
	Control program	Set the device control program to control the device. Register device control programs as necessary. For details, refer to "Settings - Web service settings - Control script - Add/delete" on page 88.
	Add	Registers the device control program on this product.
Registered devices		Displays a list of device registered on this product based on the device type.
	Delete	Deletes the corresponding device control program from this product.

Settings - Web service settings - Control program - Add/delete

Performs registration or deletion for device control program used by TM-DT Software.

Item		Description
Control program to be registered		Set the control program to be registered.
	+	Adds a file selection box for control program files.
	Control program file	Specifies the control program file of the device being registered.
	Add	Registers the device control program on this product.
Registered control programs		Displays a list of device control programs registered on this product based on the device type.
	Detailed display	Displays the details of the control program.
	Delete	Deletes the corresponding device control program from this product. You cannot delete it if the control program is being used.

NOTE	For methods of developing device control programs, see the "TM-DT Series Peripheral Device Control Guide".

5

Settings - Web service settings - Print settings - Spooler

Performs settings for spooler and print forwarding.

You can set the spooler and print forwarding when you have set [Enable] under [Spooler] in the "Settings - Web service settings - Startup settings" on page 84.

Item			Description
Spooler Settings	Retry	Count	Sets the number of retries for when printing error occurs. When printing fails for the set number of times, printing is performed from the forwarded printer if the forwarding path is set.
		Interval (sec.)	Sets the interval between retries when printing error occurs.
Message Text	Message Text		Sets the character string of the notice message that is printed when forward processing takes place.
	Text Attributes		Sets the character decoration of the notice message.
	Position		Sets the printing position of the notice message.
	Cut		Sets whether or not to cut the paper after printing the notice message.
	Apply		Saves the notice message settings to this product.
Print forwarding route to be registered	Primary Printer		Sets the printer to be set for forwarding path.
	Secondary Printer		Sets the forwarded printer for cases where the primary printer fails to print.
	Tertiary Printer		Sets the forwarded printer for cases where the primary printer and the secondary printer fail to print.
	Register		Saves the forwarding path settings to this product.
Registered Print forwarding routes			A list of the registered forwarding paths is displayed.
	Delete		Deletes the settings of ticked forwarding paths.

5

Settings - Web service settings - Web content - Update settings

Performs settings for the installation method and update settings for the Web content registered on this product.

You can set the automatic update when you have set [Enable] under [Automatic update of web content] in the .

Item		Description
Automatic update settings	Update schedule	Set the schedule for automatic update of the Web content.
	ID	Sets ID for identifying this product at the Web server. This ID will be the user ID used for Digest authentication. This set value will also be passed as an ID parameter value for the form data posted to the server.
	Password	Sets password used for Digest authentication.
	File URL	Specify a URL for the file to automatically update. After designating it, click "Access test" and check if the URL is properly specified.
	Server Authentication	Sets whether or not to conduct server authentication based on the registered certificate when conducting access by https.
	Apply	Registers the automatic update settings on this product.
	After setting settings, update Web content immediately	After the automatic update settings are registered on this product, the Web content will be updated.
Manual update	Web content file (*.zip)	Specifies the registered Web content.
	Upload	Uploads the specified Web content.

5

Settings - Web service settings - Server access - Direct print

Performs settings for server direct print.

You can set the server direct print when you have set [Enable] under [Server Direct Print] in the "Settings - Web service settings - Startup settings" on page 84.

Item		Description
ID		Sets the ID for identifying this product on the Web server side.
		This ID becomes the user ID used for Digest authentication. The set value is also passed as the ID parameter value of the form data to be posted to the server.
Password		Specify the password to be used for Digest authentication for the server.
Server 1 Server 2 Server 3	URL	Set the web server URL for acquiring print data.
		After designating it, click "Access test" and check if the URL is properly specified.
	Interval (sec.)	Set the request interval (printing request).
Server Authentication		Sets whether or not to conduct server authentication based on the regis-tered certificate when conducting access by https.
Apply		Registers the settings to this product.

Settings - Web service settings - Server access - Status notification

Performs settings for status notification.

You can set the status notification when you have set [Enable] under [Status Notification] in the "Settings - Web service settings - Startup settings" on page 84.

Item	Description
ID	Sets the ID for identifying this product on the Web server side. This ID becomes the user ID used for Digest authentication. The set value is also passed as the ID parameter value of the form data to be posted to the server.
Password	Specify the password to be used for Digest authentication for the server.
URL	Set the web server URL for sending status notifications. After designating it, click "Access test" and check if the URL is properly specified.
Interval (sec.)	Set the interval for sending status notifications.
Server Authentication	Sets whether or not to conduct server authentication based on the registered certificate when conducting access by https.
Apply	Registers the settings to this product.

5

Settings - Web service settings - Server access - Device Data Notification

Performs settings for device data notification.

You can set the device data notification when you have set [Enable] under [Device Data Notification] in the .

Item			Description
Settings	Server access	ID	Sets the ID for identifying this product on the Web server side.
			This ID becomes the user ID used for Digest authentication. The set value is also passed as the ID parameter value of the form data to be posted to the server.
		Password	Specify the password to be used for Digest authentication for the server.
		URL	Set the web server URL and path to applications.
			Ex: After specifying http://[Web server IP address]/Test_device.php, click [Access Test] and confirm whether or not access is possible.
		Server Authentication	Sets whether or not to conduct server authentication based on the registered certificate when conducting access by https.
		Box ID	Specifies the BoxID of the communication box.
			Sets whether or not to print an error message when Post fails.
	POST Error	Print Message	Sets whether or not to print an error message when Post error occurs.
		Message Text	Sets the character string of the error message.
		Text Attributes	Sets the text decoration of the error message.
		Cut	Sets whether or not to cut the paper.
Capture Devices	Devices		Selects the device for using device data notification.
Apply			Registers the settings to this product.

5

Settings - System settings - Network - TCP/IP

Sets the IP address, etc. of this product.

Item	Description
Get IP Address	Sets the method of getting the IP address.
IP Address	Sets the IP address when [Get IP Address] is set to [Manual].
Subnet Mask	Sets the subnet mask when [Get IP Address] is set to [Manual].
Default Gateway	Sets the default gateway when [Get IP Address] is set to [Manual].
Acquire DNS Server Address Automatically	Sets the method of getting the address of the DNS server when [Get IP Address] is set to [Manual].
DNS Server Address(in order of use)	Sets the addresses of the DNS server in order of usage when [Acquire DNS Server Address Automatically] is set to [Disable].
Print IP Address	When Print IP Address is Enabled, the IP address is printed when this product is started and when the IP address is acquired or changed.
Apply	Registers the settings to this product.

Settings - System settings - Network - SSL

Performs SSL settings for this product.

Item		Description
Disable		Disables SSL authentication.
	Remove the certificate	Select this checkbox to delete the SSL certificate. It can only be selected when the SSL setting is [Disabled].
Enable		Enables SSL authentication.
	Create the self signed certificate	Create a self signed certificate to be registered to this product. It can only be selected when the SSL setting is [Enabled]. Specify the IP address settings before creating a self signed certificate.
	Update the certificate	Renews certificates registered to this product. It can only be selected when the SSL setting is [Enabled].
	Private key file	Selects private key files registered to this product. It can only be selected when the SSL setting is [Enabled].
	Certificate file	Selects server certificate files registered to this product. It can only be selected when the SSL setting is [Enabled].
	Certificate chain file(Option)	Selects certificate chain files registered to this product. It can only be selected when the SSL setting is [Enabled].
Apply		Registers the settings to this product.

5

Settings - System settings - Network - Automatic Certificate Update

Performs automatic certificate update settings for this product.

Item		Description
Disable		Disables automatic certificate update.
Enable		Enables automatic certificate update.
	Update time	Set the certificate to be automatically updated at a specific time. It can only be selected when the automatic certificate settings is [Enable]. By applying a tick to the update time setting, it becomes possible to enter.
	Connection Type	Select the network connection type to be used. It can only be selected when the automatic certificate update settings is [Enable].
Apply		Registers the settings to this product.

Settings - System settings - Proxy settings

Performs settings for this product's proxy and the services that use the proxy.

Item		Description
Proxy URL		Input the URL for the proxy server in use.
Proxy port no.		Input the port number for the proxy server in use.
ID		Register the ID for proxy authentication.
Password		Register the password for proxy authentication.
Proxy settings	Wen content update	Sets whether or not to use proxy for automatic update of Web content.
	Server direct print	Sets whether or not to use proxy for server direct print.
	Status notification	Sets whether or not to use proxy for status notification.
	Store/restore settings	Sets whether or not to use proxy for store/restore settings.
	Update Web service function	Sets whether or not to use proxy for the update Web service function.
	Deployment	Sets whether or not to use proxy for deployment.
	Device Data Notification	Sets whether or not to use proxy for device data notification.
	Automatic Certificate Update	Sets whether or not to use proxy for automatic certificate update.
Apply		Registers the settings to this product.

5

Settings - System settings - Server authentication

Registers certificates to this product and sets or deletes registered certificates.

Item		Description
Import Certificates	Certificate file	Specifies the certificate file to be registered to this product.
	Update	Registers the specified certificate file to this product.
Certificate List	Issuer	The list of certificate files and detailed information registered to this product is displayed. By applying a tick to the listed certificates, it becomes possible to use [Delete].
	Issuer to	Detailed information of certificates can be confirmed.
	Delete	Delete the ticked certificates.

Settings - System settings - Date and time - Time settings

Performs time settings for this product.

Item	Description
Date and time	Sets the time and date.
Time Zone	Sets the area. Sets the time difference from Coordinated Universal Time.
Automatically adjust clock for Daylight Saving Time	Selects whether to automatically adjust the clock for Daylight Saving Time.
Use Time Server	Selects whether to use a time server.
Time Server	Specifies the URL for the time server.
Apply	Registers the settings to this product.

5

Settings - System settings - Power - Shutdown settings

Performs shutdown settings for this product.

Item			Description
Shutdown settings	When the power button is pressed		Set the operation when you press the power button. Select from "Shutdown" and "Do nothing".
	ePOS-Device	Shutdown permission	Specify the permission settings for shutdown from Epson ePOS SDK for JavaScript or ePOS-Device XML.
		Password protection	Specifies whether to perform password authentication for shutdown from an application compatible with ePOS-Device XML or Epson ePOS SDK for JavaScript. It can be selected when "Shutdown permission" is "Permit".
	Apply		Registers the settings to this product.
Shutdown	Turn off the power		Shuts down the product. When the shutdown confirmation screen is displayed, select "Yes" to shutdown this product.
Restart	Execute Restart		Restarts this product. When the restart confirmation screen is displayed, select "Yes" to restart this product.
USB Type-C port charging mode			Standard mode: Mode that can perform charging and communication. Fast Charge mode: Mode dedicated for charging.

5

Settings - Admin settings - Maintenance - Store restore settings

Stores and restores various settings for TM-DT Software.

The stored data is not only used for restoring the product, but is also used to create a TM-T70II-DT2 with the same settings.

Item		Description
Auto backup/ Auto restore settings	Auto store settings	When this setting is enabled, if a USB memory is connected while Windows is operating, the TM-DT software settings are automatically stored on the USB memory.
	Auto restore settings	When this setting is enabled, if a USB memory with TM-DT software settings stored on it is connected to the computer before Windows starts up, the TM-DT software settings are automatically restored when Windows starts up.
	Apply	Registers the settings to this product.
Storing settings	Acquire	Acquires this product's setting files.
Register user specified folder	Folder path	Specifies the folder path for automatically saving the TM-DT software settings.
	Add	Saves the folder path settings to this product.
	Registered user specified folder	A list of the folder paths registered to this product is displayed. When a listed folder path is ticked, it becomes possible to use [Delete].
	Delete	Deletes the folder path that is ticked.

5

Item			Description
Restoring the settings	Specify a local file		Select this when recovering this product using locally saved setting files.
		Setting file	Specifies the setting files for restoring the TM-DT software settings. If you want to restore setting files on an optional file path, select [Input directly] and specify the optional file path. If you want to restore this product's settings using the setting files in the [User specified folder], select [Select from the list] and specify an optional setting file from the list.
	Specify a file URL		Select when restoring this product using a setting files stored on a Web server.
		ID	Sets the ID for identifying the setting file for restoring the TM-DT software settings on the Web server side. This ID becomes the user ID used for Digest authentication. The set value is also passed as the ID parameter value of the form data to be posted to the server.
		Password	Specify the password to be used for Digest authentication for the server.
		Setting file URL	Set the web server URL and path to applications. Ex: After specifying http://[Web server IP address]/Test_device.php, click [Access Test] and confirm whether or not access is possible.
		Server Authentication	Sets whether or not to conduct server authentication based on the registered certificate when conducting access by https.
	Restore		Restores the product from the specified setting file.
	Save URL settings		Saves the setting file URL settings.

5

Restored items

Items to be restored in the [Restore the settings] are as follows.

Item			Availability
Startup settings		• Device control • Network disconnection detection • Device control program startup settings • Automatic update of Web content • Server direct print • Status notification • Device Data Notification • Automatic register / delete of key input device • Spooler	Available
Registered device	Printer	• Device ID • Type • Model no. • IP address • Retry interval	Available
	Customer display	• Do not use/use • Communication settings 　∗ Communication speed 　∗ Data bit 　∗ Parity • Brightness setting	Available
	Kay input device	• Device ID • Device name • VID/PID • Control script	Available
	Serial communication device	• Device ID • Device name • VID/PID • Control script • Communication settings 　∗ Communication speed 　∗ Data bit 　∗ Parity 　∗ Stop bit 　∗ Flow control	Available
	Other	• Device ID • Control script	Available
Control script		• Control scripts	Available
Control program		• Control program device settings • Control programs	Available

Item			Availability
Print settings	Spooler	• Spooler settings • Forwarding message • Print forwarding route	Available
Web content	Automatic update settings	• Update schedule • ID • Password • File URL • Server authentication	Available

Server access	Server direct print	• ID
		• Password
		• Server 1 ~ 3
		  ∗ URL
		  ∗ Interval
		• Server authentication
			Available

	Status notification	• ID • Password • URL • Interval • Server authentication	Available

	Device Data Notification	• Server access
		  ∗ ID
		  ∗ Password
		  ∗ URL
		  ∗ Server authentication
		  ∗ BoxID
		• POST Error
		  ∗ Message Enable/Disable
		  ∗ Message
		  ∗ Text attribute
		  ∗ Cut Enable/Disable
		• Captured device
			Available

Wired LAN	TCP/IP settings	• Get IP address • IP address • Subnet Mask • Default gateway • Acquire DNS server address automatically • DNS server address (in order of use)	Available
Security	SSL settings	• Disable / Enable • Private key file • Certificate file • Certificate chain file (option)	Available
	Automatic Certificate Update	• Disable / Enable • Update time setting • Connection type	Available

5

Item			Availability
Web access	Proxy settings	• Proxy URL • Proxy port no. • ID • Password • Proxy settings	Available
	Server authentication	• Certificate file	Available
Date and time	Time settings	• Date time	Not available
		• Time zone • Automatically adjust clock for daylight saving time • Use time server • Time server	Available
Power	Shutdown settings	• When the power button is pressed • Shutdown permission • Password protection	Available
	USB Type-C port charging mode	• Charging mode	Available
Maintenance	Store/restore settings	• Store / restore settings with automatically • Specify the local file to use / Specify the file URL to use • Setting file / setting file URL • ID • Password • Server authentication	Available
	Update web service function	• Specify the local file to use / Specify the file URL to use • Update file / Update file URL • ID • Password • Server authentication	Available
Admin information	Administrator information	• Administrator name • Installation location	Available
	Password	• Password	Not available
Printer setting		• Printer settings • Logo data registered in printer	Available

5

Settings - Admin settings - Maintenance - Initialization

Initializes the Web service settings for TM-DT Software.

Item	Description
Initialize	Initializes the Web service settings.

NOTE	If you initialize the Web service, the password for EPSON TMNet WebConfig will also be initialized. The initial values are below.

User name: epson
Password*:   "epson" or the product serial number (10 alphanumeric characters, case
                          sensitive)
*The default setting for the password varies depending on the TM-DT software version.

TM-DT software version	Password
Before 5.03	"epson"
5.03 or later	Product serial number (10 alphanumeric characters, case sensitive)

You can check the TM-DT software version using EPSON TMNet WebConfig ().
You can check the product's serial number on the manufacturing nameplate attached to the product.

Settings - Admin settings - Maintenance - Log

Acquires TM-DT Software's log file.

Item	Description
Acquire a log file	Acquires TM-DT Software's log file.

5

Settings - Admin settings - Maintenance - Update Web service function

Updates and sets the Web service function of TM-DT Software.

The latest version TM-DT software can be used through renewing the Web service functions.

Item		Description
Specify a local file		Select when updating the Web service using a locally saved update file.
	Update file	Specify the URL of the file for updating.
Specify a file URL		Select when updating the Web service using an update file saved on the Web server.
	ID	Sets the ID for identifying the renewal file on the Web server side. This ID becomes the user ID used for Digest authentication. The set value is also passed as the ID parameter value of the form data to be posted to the server.
	Password	Sets the password used in Digest authentication.
	Update file URL	Specify the Web server URL and path to the application. Ex: Specify http://[Web server's IP address]/[For updating file name], then click [Access test] to confirm that access is possible.
	Server authentication	Sets whether or not to conduct server authentication based on the registered certificate when conducting access by https.
Update		Updates the Web service functions using the specified update file.
Save URL settings		Saves the [Specify a file URL] setting to this product.

Settings - Admin settings - Admin information - Admin information

Sets the administrator information for TM-DT Software.

Item	Description
Administrator name	Set the administrator name.
Installation location	Set the installation location.
Apply	Registers the settings to this product.

5

Settings - Admin settings - Admin information - Password

Sets the password for launch for EPSON TMNet Webconfig.

Item	Description
Old password	Input the current password.
New password	Input the new password.
New password (Reenter to confirm)	For confirmation, input the new password again.
Apply	Registers the set password on this product.

NOTE	• The initial setting of user name and password for EPSON TMNet Webconfig are following.

NOTE

• The initial setting of user name and password for EPSON TMNet Webconfig are following.
  User name: epson
  Password*:   "epson" or the product serial number (10 alphanumeric characters, case sensitive)
  *The default setting for the password varies depending on the TM-DT software version.

TM-DT software version	Password
Before 5.03	"epson"
5.03 or later	Product serial number (10 alphanumeric characters, case sensitive)

You can check the TM-DT software version using EPSON TMNet WebConfig ("Version Screen Display" on page 80).
You can check the product's serial number on the manufacturing nameplate attached to the product.

• Cannot change the user name

5

TM-DT Software Specification

TM-DT Software specification is following.

Item		Description
Web server		• Apache 2.2.34 • PHP Ver.5.4.5 • Perl Ver.5.26.1
Communication box	Maximum number of communication boxes that can be created	20
	Maximum number of applications that can belong to one communication box	20
	Capacity for transmission histories that one communication box can hold	10,240 Byte
	Size of data that can be transmitted at once	1,024 Byte
Spooler capacity		8 MB
Maximum storage number of JobID		2,000

Controllable printer

Item	Description

Model	• Following TM printers connected to the network
	  • TM-m10 series
	  • TM-m30 series
	  • TM-L90 series
	  • TM-T20 series
	  • TM-T70 series
	  • TM-T82 series (TM-T82II or later)
	  • TM-T88 series (TM-T88V or later)
	  • TM-T90 series
	  • TM-U220 series
	  • TM-P20 series
	  • TM-P60 series (TM-P60II or later)
	  • TM-P80 series
	• Following TM-Intelligent Printers
	  • TM-T70II-DT
	  • TM-T70II-DT2
	  • TM-T88V-DT
	  • TM-T88VI-DT2

Number of printers	20 at maximum

5

Software and Manuals

The following software and manuals are prepared for developing applications.
These can be obtained from one of the following URLs.
For customers in North America, go to the following web site:
> https://www.epson.com/support/

For customers in other countries and regions, go to the following web site:
> https://epson.sn

Systems that Use TM-DT software

Name	Descriptions	How to Obtain	
		Web site	Other
Epson ePOS SDK for iOS for Android for Universal Windows apps for JavaScript	Software development kit for controlling the printer and peripherals from Web applications and smart device applications.	✔	Web Reference
TM-DT Series Peripheral Device Control Guide	Manual describing the method for controlling peripherals with TM-DT series printers. It explains device control programs and scripts. This manual is included in the Epson ePOS SDK package.	✔	-
ePOS-Device XML User's Manual	Manual describing the method for transmitting XML data from applications via socket communication to control printing and peripherals.	✔	-
ePOS-Print XML User's Manual	Manual describing the method for using Web services from applications to conduct printing.	✔	-
Server Direct Print User's Manual	Manual describing the method for developing systems using server direct print.	✔	-
Device Data Notification User's Manual	Manual describing the method for developing systems using device data notification.	✔	-
Deployment Guide	This guide includes the information needed to configure settings for multiple products efficiently.	✔	-

5

Utility

Software	Descriptions
TM-T70II-DT2 Utility	Windows-compatible application that performs printer settings, network settings, and TM-DT software settings for this product. It is already installed in this product.

Related Manuals

Manual	Descriptions
DM-D110/ DM-D210 Technical Reference Guide	Provides the information necessary to develop a system using the customer display (DM-D110).
DM-D30 Technical Reference Guide	Provides the information necessary to develop a system using the customer display (DM-D30).

5

PC-POS System Development

This chapter describes the information necessary to develop a PC-POS system.

System Configuration

You can install a POS application and drivers on this product and connect peripheral devices to create a simple POS system. You can also construct a system using an existing Windows POS application.

System Configuration Figure

Application
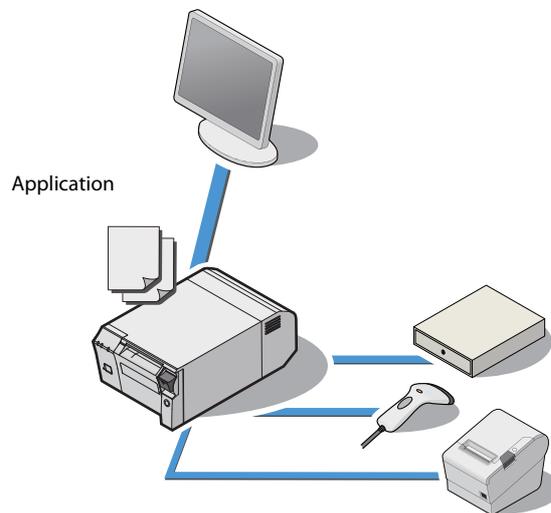
Peripheral Devices

This section describes the connection interfaces and Windows ports for this product's printer and peripheral devices.

Device	Connection interface	Windows port	Description
Product's printer	-	USB	TM printer (TM-T70II) with a local connection.
TM printer (USB)	USB port	USB	TM printer with a local connection.
TM printer	Ethernet	Ethernet	Network printer.
Cash drawer	Drawer kick connector	USB (same as the product's printer)	Controlled via the product's printer.
Dedicated option of customer display (DM-D110)	USB port	COM3 *	Connects to a USB connector but is recognized as a virtual COM port by the COM-USB conversion driver.
Customer display (DM-D30)	USB port	USB	USB device.
HID standard device (Barcode scanner, etc)	USB port	USB	Keyboard device.
Serial communication device	Serial port	COM1	Device connected to a serial port COM1
Display	HDMI port/ VGA port	HDMI/VGA	Display device. Touch panels are connected to USB, etc., while audio is connected to the Line-out port.

∗ This setting is for cases when there is no connection by a USB-serial conversion device other than the customer display. If you connect a USB-serial conversion device, a COM port is assigned to that device for each connection. Refer to the Windows Device Manager for accurate information regarding ports.

6

How to Control Peripherals

Printer

Control can be performed using the following development kits or drivers.

- EPSON OPOS ADK
- EPSON OPOS ADK for .NET
- EPSON Advanced Printer Driver

Cash drawer

Printer development kits and drivers include the control function.

Customer display

Control can be performed using the following development kits or drivers.

- EPSON OPOS ADK
- EPSON OPOS ADK for .NET
- EPSON Advanced Printer Driver for DM-D

Other devices

HID Standard Device

This Windows standard driver is recognized as a keyboard device.

Serial Communication Device

This is recognized as a Windows serial communication device. When dedicated drivers are prepared for each device, they can be controlled by the drivers. For details, see each device manual.

6

Software and Manuals

The following software and manuals are prepared for developing applications.

These can be obtained from one of the following URLs.

For customers in North America, go to the following web site:

　　　https://www.epson.com/support/

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

　　　https://epson.sn

Development kit

The following development kits are provided to support application development. As these are not included in the product, they must be downloaded before use.

Software	Overview
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	OPOS ADK for .NET allows you to develop applications that are compatible with Microsoft POS for .NET. When developing applications, use a separate development environment such as Microsoft Visual Studio .NET.
EPSON JavaPOS ADK	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 func-tions 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.

∗　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 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/spec/UPOS

6

Driver

These are Windows printer drivers for printing on a TM printer, controlling a cash drawer, and displaying to a customer display.

Software	Overview
EPSON Advanced Printer Driver	This is a general Windows printer driver to which control of paper cutting and the cash drawer have been added, and it also 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. This is available for each printer model. The TM-T70II driver is installed in this product. If using another printer, download the driver dedicated for that model.
EPSON Advanced Printer Driver for DM-D	This is the Windows printer driver for control and display of the customer display. An Epson customer display common driver is available. This driver is installed in this product.

Utility

Software	Overview
TM-T70II-DT2 Utility	This is a Windows-compatible application for performing printer settings for this product. It is already installed in this product.

Related Manuals

Manual	Descriptions
DM-D110/ DM-D210 Technical Reference Guide	Provides the information necessary to develop a system using the customer display (DM-D110).
DM-D30 Technical Reference Guide	Provides the information necessary to develop a system using the customer display (DM-D30).

6

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 4.

Notes on Electronic journal and Coupon printing functions

- If you have changed the settings of electronic journal or coupon printing with APD5 Utility, please reboot the OS.

6

Handling

This chapter describes basic handling of the printer.

Turning Power On/Off

⚠️ **CAUTION**	• If you turn the product off, wait more than 10 seconds before you turn it on again. • When the product is turned off or when it is in the sleep mode, do not hold down the power button longer than 4 seconds.

Press the power button to turn on/off the product.
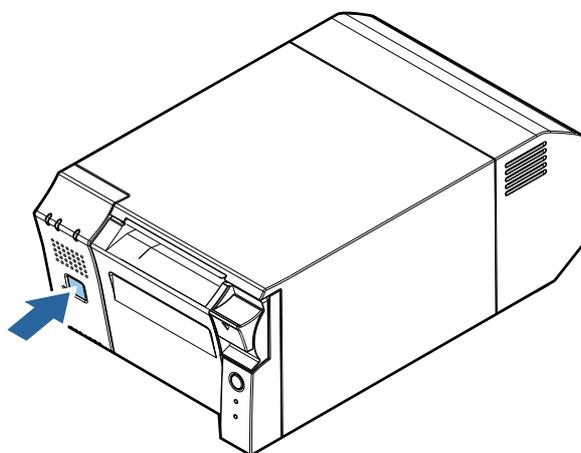
Functions of the Power button

The functions of the power button when this product is on or in sleep mode can be set on the OS.

Power status of this product before the power button is pressed	Time the power button is pressed	Operation of this product after the power button is pressed
On	Less than 4 seconds	If the power button is set to "Do nothing" in OS settings, the power remains on.
		Power off[*1]
		Moves to sleep mode *2
	4 seconds or longer	Forced hardware shutdown *3
Sleep mode	Less than 4 seconds	Recovers from sleep mode and moves to powered on state

∗1   Set the power button function to shutdown using the OS functions.
∗2   Set the power button function to sleep mode using the OS functions.
∗3   Forcible hardware off function to be used if the shutdown cannot be performed via OS functions.

⚠ **CAUTION**	Do not use the forcible shutdown during normal usage. When the product is shutdown using this function, the data in use by the OS and application cannot be saved. This could result in data being lost or files being destroyed. The OS itself may require recovery due to file destruction.

7

Installing and Replacing Roll Paper

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

CAUTION	• Use roll paper that meets the printer specification. For details about paper specification, see "Paper Specifications" on page 132. • Paper must not be pasted to the roll paper spool.

1 **Pressing this lever down opens the roll paper cover.**
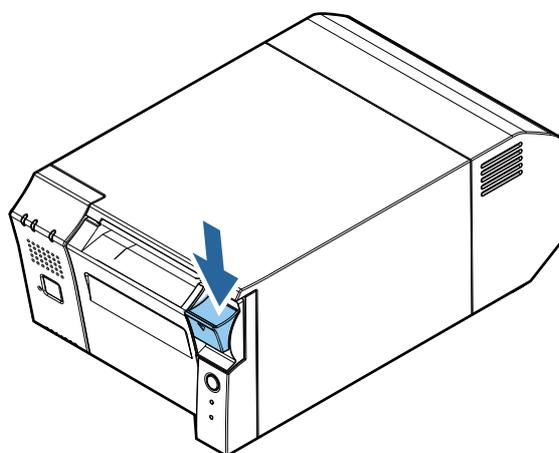
CAUTION	When the roll paper cover cannot be opened, see "Removing Jammed Paper" on page 120.

2 **Remove the used roll paper core if there is one.**

3 **Insert the roll paper in the correct direction.**
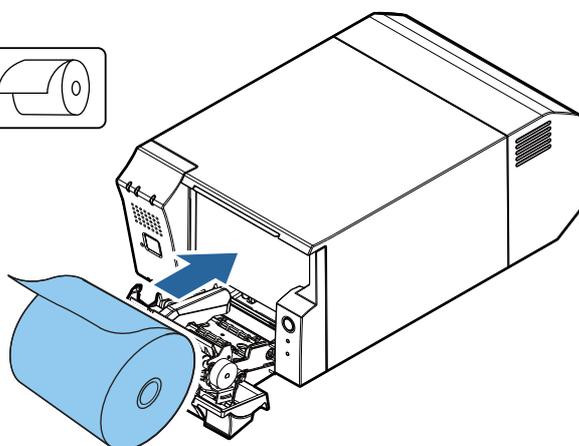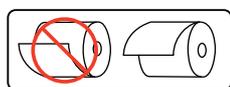
4   **Pull out some paper, and close the roll paper cover.**
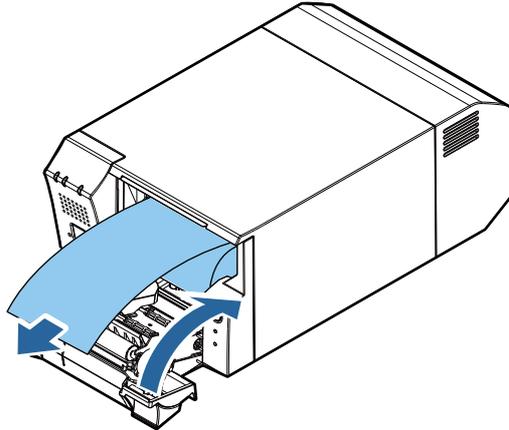
5   **Tear off the paper.**
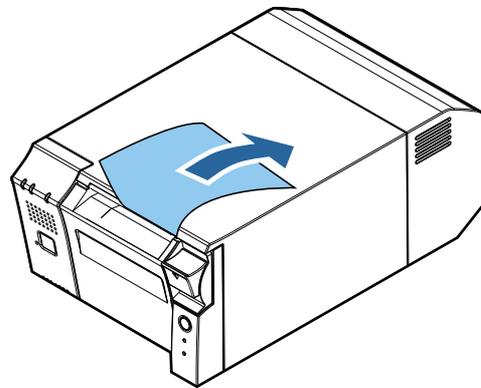
Removing Jammed Paper

⚠️ **CAUTION**

Do not touch the thermal head because it can be very hot after printing.

Thermal head
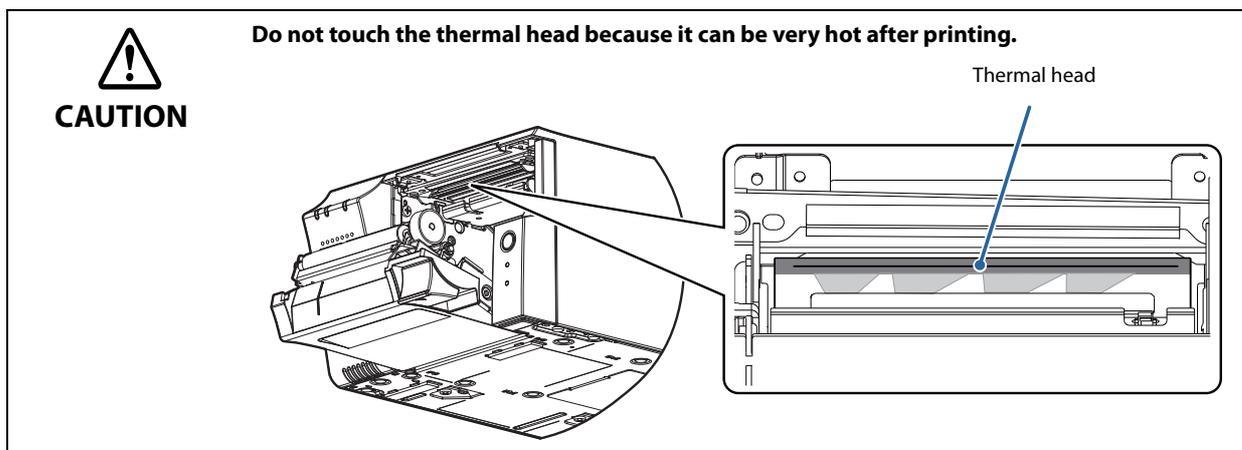
⚠️ **CAUTION**   When a paper jam occurs, never pull out the paper forcibly.

When paper is jammed, never pull out the paper forcibly. Open the roll paper cover"Installing and Replacing Roll Paper" on page 118, and then remove the jammed paper.

7

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.

⚠ **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

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

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

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

Thermal head
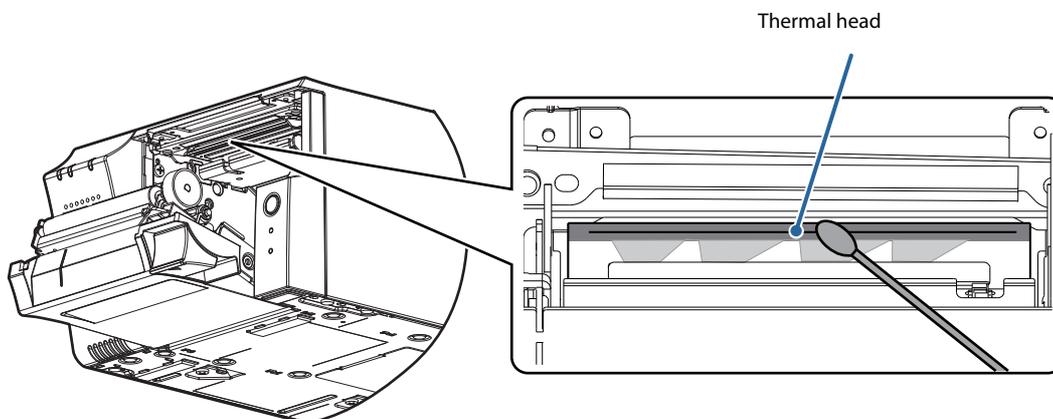
Preparing for Transport

Follow the steps below to transport the printer.

1   **Operate the power button to turn the power off.**

2   **Remove the DC connector of the AC adapter, display, keyboard, mouse, and any peripheral devices.**

3   **Remove the roll paper.**

4   **Pack the printer upright.**

7

Replacement of the TM-T70II-DT

The TM-T70II-DT2 is designed so that it can smoothly replace the TM-T70II-DT.

This chapter describes precautions for the replacement.

Comparison of Product Specifications

	TM-T70II-DT2	TM-T70II-DT
Base printer	TM-T70II (Max.250 mm/s)	TM-T70II (Max.250 mm/s)
CPU	Intel® Celeron® 3965U 2.20 GHz Intel® Core™ i3-7100U 2.40 GHz Intel® Core™ i5-7300U 2.60 GHz	Intel® Atom™ N2600 1.60 GHz Intel® Atom™ N2800 1.86 GHz Intel® Atom™ D2550 1.86 GHz
Main memory	DDR4-2133 4 GB	1.60 GHz model: DDR3-800 2 GB 1.86 GHz model: DDR3-1066 4 GB
USB Port	USB 3.0 Type A x 6 port USB 2.0 Type A x 1 USB 2.0 Type-C x 1	USB 2.0 Type A x 6 port
Ethernet port	10Base-T/ 100Base-TX/ 1000Base-T x1	10Base-T/ 100Base-TX/ 1000Base-T x1
Display	VGA x 1 HDMI x 1	VGA x 1 Display Port x 1
Serial port	1 Port	1 Port
Drawer kick connector	RJ-12 6-pin x 1	RJ-12 6-pin x 1
Sound	Internal monaural speaker External x 1 (Line-out port)	Internal monaural speaker External x 1 (Line-out port)
Auxiliary storage	SATAIII SSD M.2 type 2242 (32 GB or more)	SATAII SSD (16 GB~) Half slim or HDD 2.5″ (500 GB)
LED	Orange LED x1 (Status) Blue LED x1 (Status) Blue LED x1 (Storage) Orange LED x2 (Printer)	Orange LED x1 (Status) Green LED x1 (Status) Green LED x1 (Storage) Orange LED x2 (Printer) Power LED x1
AC adapter	AC Adapter,T1	AC Adapter,T
Dedicated options	Customer display:　　DM-D110 　　　　　　　　　　DM-D30 Wireless LAN dongle:　Use a commercially 　　　　　　　　　　available item. Powered USB Hub:　　- Affixing tape:　　　　DF-10	Customer display:　　DM-D110 　　　　　　　　　　DM-D30 Wireless LAN cable set:　OT-WL01 Powered USB Hub:　　OT-PH10 Affixing tape:　　　　DF-10

	TM-T70II-DT2	TM-T70II-DT
Product power consumption	9.1 W (when standby) /78.9 W (when printing)	N2600/N2800 13 W (when standby)/ 47 W (when printing) D2550 13 W (when standby)/ 47 W (when printing)
OS	Windows 10 IoT Enterprise 2016 LTSB 64 bit Windows 10 IoT Enterprise 2021 LTSC 64 bit	Windows Embedded POSReady 2009 Windows Embedded POSReady 7 TM-DT Linux based on openSUSE 12.2 (N2600/N2800 only)

Compatibility

The TM-T70II-DT2 printer unit is the same as that of the TM-T70II-DT. The print speed, paper area, and other specifications are the same.
Therefore, you can get the same print results without performing any special settings on the application.

Overall Dimensions

The TM-T70II-DT2 has the same overall dimensions and weight as those of the TM-T70II-DT.

TM-T70II-DT2 (W:172 x D:290 x H:114 Approximately 2.8 kg)	TM-T70II-DT (W:172 x D:290 x H:114 Approximately 2.8 kg)

8

Product Specifications

This chapter describes the TM-T70II-DT2 product specifications.

Controller Specifications

Item		Intel® Core ™ i5 model	Intel® Core ™ i3 model	Intel® Celeron® model
CPU		Intel® Core™ i5-7300U 2.60 GHz Max Turbo 3.50 GHz (3 MB SmartCache)	Intel® Core™ i3-7100U 2.40 GHz (3 MB SmartCache)	Intel® Celeron® 3965U 2.20 GHz (2 MB SmartCache)
Main memory		4 GB, DDR4-2133, SO-DIMM		
Video controller		Intel® HD Graphics 620 (Built into CPU)	Intel® HD Graphics 620 (Built into CPU)	Intel® HD Graphics 610 (Built into CPU)
Auxiliary storage		SATAIII SSD M.2 type 2242 (32 GB or more)		
Interface	Ethernet port	10Base-T/100Base-TX/1000Base-T 1port (RJ-45) Supports the Wake On LAN and network boot functions.		
	USB port	USB 3.0 6 ports (Type A) USB 2.0 2 ports (Type A x1, Type-C x1)		
	Serial port	D-sub 9 pin male 1 port		
	VGA port	D-sub 15 pin female 1 port		
	HDMI port	Standard HDMI connector Type A 19 pin female 1 port		
	Drawer kick connector	RJ12 6 pin 1 port		
	Line-out port	φ3.5 mm Mini-jack 1 port		
Backup battery		RTC is backed up by lithium battery		
Sound capability		Internal monaural speaker		

Item		Intel® Core ™ i5 model	Intel® Core ™ i3 model	Intel® Celeron® model
Printer unit	Base printer	TM-T70II		
	Printing method	Direct thermal line thermal printing		
	Speed	250 mm/s		
	Dot density	180 × 180 dpi		
	Paper width	80 mm {3.15"}		
Software	BIOS	AMI Aptio V		
	OS	Windows model: Windows 10 IoT Enterprise 2016 LTSB 64 bit Windows 10 IoT Enterprise 2021 LTSC 64 bit		
	Device control software	ePOS-Device		
Roll paper	Paper width	80 mm: 79.5 ± 0.5 mm {3.13 ± 0.02"}		
	Roll paper diameter	83 mm {3.27"} maximum		
	Roll paper core	Inside: 12 mm {0.47"} Outside: 18 mm {0.71"}		
Power specifications (Dedicated AC adapter)		AC 100 to 240 V / 50 to 60 Hz		
Product power consumption		9.1 W (when not printing) / 78.9 W (when printing)		
Overall dimensions (W × D × H)		172 {6.77"} × 290 {11.42"} × 114 mm {4.49"} (Inclusive of connector cover)		
Case color		Black (EBCK)		
Mass		Approx. 2.8 kg {6.17 lb}		

Printer Specifications

Printing Specifications

Items		Specification
Printing method		Thermal line printing
Dot density		180 × 180 dpi
Printing direction		Unidirectional with friction feed (Reverse feed is not supported.)
Printing width		72.0 mm (2.83"), 512 dots
Characters per line	ANK font A (12 x 24)	42
	ANK font B (9 x 17)	56
Maximum print speed [*1]		250 mm/s[*2]
Line spacing		4.23 mm {1/6"}

dpi: dots per inch

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

*2: The maximum is 100 mm/s {3.94"/s} when printing ladder barcodes or 2-dimensional symbols, and 125 mm/s {4.92"/s} when printing multi-tone graphics.

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

Character Specifications

Items		Specification
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)	ANK font A	12 × 24 dots (Right-side dot space: 2)
	ANK font B	9 × 17 dots (Right-side dot space: 2)
Character size (W x H)	ANK font A	1.41 × 3.39 mm {0.06 × 0.13"}
	ANK font B	0.99 × 2.40 mm {0.04 × 0.09"}
Barcode/ two-dimensional symbol/ composite symbol printing		UPC-A, UPC-E, JAN8, EAN 8, JAN13, EAN13, Code39, Code93, Code128, ITF, CODABAR(NW-7), GS1-128, GS1 DataBar, PDF417, QR Code, Maxi Code, Data Matrix, Aztec Code, Two-dimensional GS1 DataBar, Composite Symbology

Note:

1. Space between characters is not included.

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

Printable Area

80 mm paper width printing

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

Roll paper width

79.5±0.5 mm {3.13±0.02"}

0.141 ± 0.05 mm {0.0056±0.002"}

72.2 ± 0.2 mm {2.84±0.008}

3.65 mm {0.14}   3.65 mm {0.14}

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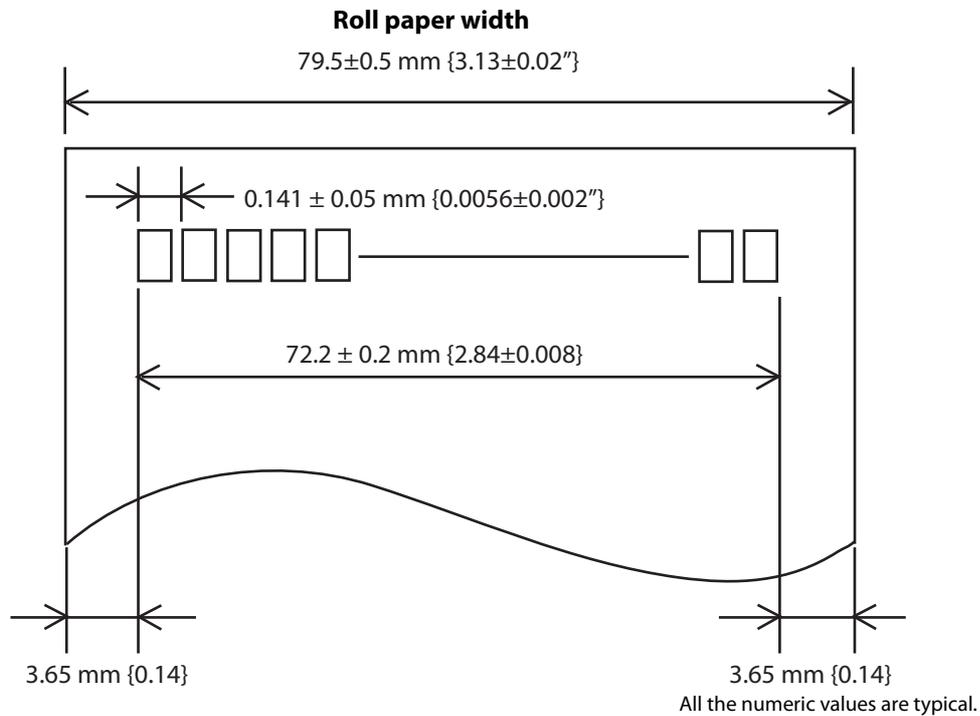
| NOTE | In 2-divided energizing, the print position within the printable area of the thermal elements for dots 1 to 256 and 257 to 512 is shifted approximately 0.07 mm {0.0028"} in the paper feed direction as shown in the figure below. |

1   256

257   512   About 0.07 mm {0.0028"}

Printing and Cutting Positions

Manual-cutter position

Autocutter blade position

Center of the print dotline

Last line of a previous receipt

Approx. 30

Approx. 13

Printable area

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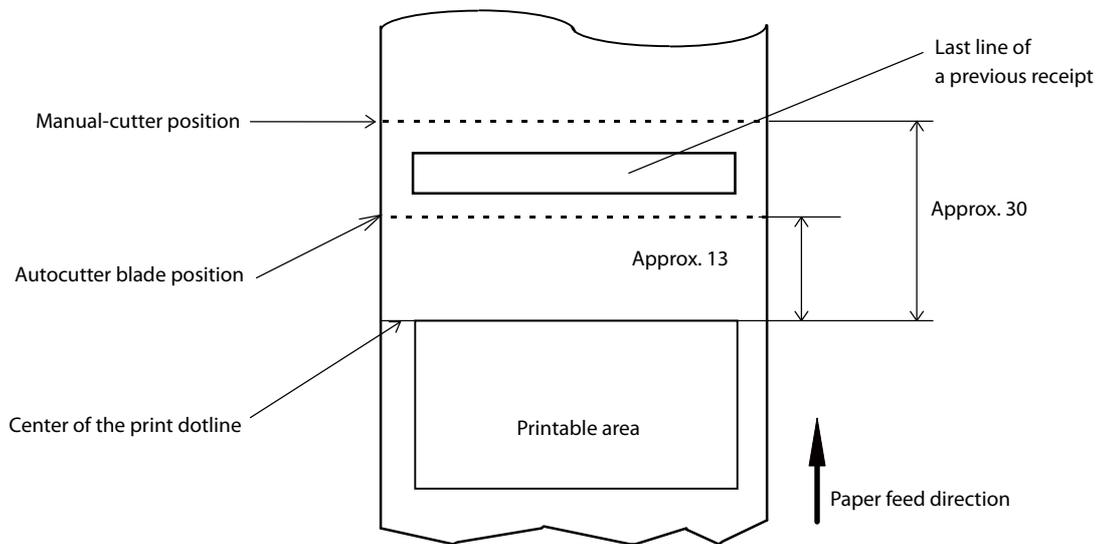
[units: mm (All the numeric values are typical.)]

CAUTION	• The values above may vary slightly as a result of paper slack or variations in the paper. Take this into account when setting the cutting position of the autocutter. • When removing cut paper, the remaining roll paper is pulled at the uncut section and the pitch of the next print may be reduced. When printing after cutting paper for prints with no pitch reduction, feed the paper about 1 mm {16/406 inches} before printing. • When leaving paper loaded for an extended period of time, make sure you feed about 40 mm of paper. This can prevent paper from wrinkling and causing prints to be too light.

Paper Specifications

	80 mm width paper printing
Paper types	Specified thermal paper
Form	Roll paper
Size Roll paper diameter	83 mm {3.27"} maximum
Roll paper spool	Inside: 12 mm {0.47"}, Outside: 18 mm {0.71"}
Roll width when taken up	80 + 0.5/-1.0 mm
Paper width	79.5 ± 0.5 mm
Specified original paper type	P30521, P30523, P31523, P35524 (Kanzaki Specialty Papers) AF50KS-E (Jujo Thermal Oy) F5041 (Mitsubishi HiTec Paper Flensburg GmbH) KT55FA, KT48FA (Koehler Paper Group) Epson Certified Media List for Thermal Receipt Printers ☞ https://support.epson.net/publist/bsredirect.php?code=M001035

CAUTION

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

Power supply capacity for external devices

Port	Power supply	Supply capacity
USB 3.0 Type A *	DC +5 V	900 mA each
USB 2.0 Type A *	DC +5 V	500 mA
USB 2.0 Type-C *	DC +5 V	3 A
Drawer	DC +24 V	1 A
HDMI	DC +5 V	100 mA

∗ The current capacity that can be supplied by USB port is a total of 4.2 A for all USB ports.

Environmental Conditions

Item		Specification
Temperature/ Humidity	Operating	5 to 40℃ {41 to 104°F}, 10 to 90 % RH (See the operating temperature and humidity range below.)
	Storage (Factory packing)	-10 to 50℃ {14 to 122°F}, 10 to 90 % RH (except for paper)
Vibration resistance	When packed	Frequency: 5 to 55 Hz Acceleration: Approximately 19.6 m/s^2 {2 G} Sweep: 10 minutes (half cycle) Time: 1 hour Orientation: x, y, and z There is no external or internal visible damage and the unit operates normally after being subjected to vibration.
	When operating under vibration	Frequency: 10 to 150 Hz Acceleration: Approximately 4.9 m/s^2 {0.5 G} Sweep: 10 minutes (half cycle) Time: 1 hour Orientation: x, y, and z The unit operates normally while under vibration.
Shock resistance	When packed	Packing: Epson standard package specifications Height: 60 cm {23.62"} Orientation: 1 corner, 3 edges, and 6 surfaces There is no external or internal visible damage and the unit operates normally after being dropped.
	When unpacked	Height: 5 cm {1.97"} Orientation: Lift one edge and release it (for all 4 edges) There is no external or internal visible damage and the unit operates normally after being dropped while not operating.
Elevation		3000 m or less

The graph in the operating environment range shows:
- [%RH] axis (Relative humidity) with values 90, 10
- Ambient temperature axis [°C] with values 5, 34, 40
- Operating environment range
- Points: 31℃, 90%; 34℃, 75%; 34℃, 90%; 40℃, 65%; 40℃, 43%
- Specified original paper other than below
- Specified original paper: P30521, P30523, P31523, P35524

Item	Specification
Acoustic noise	When printing: 55 dB When standby: 42 dB 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.

Reliability

Item		Specification
MTBF[*1]	Controller	169,000 hours (excluding SSD, fan, and options)
	Printer	360,000 hours
	AC adapter	150,000 hours
MCBF[*2]	Printer	65 million lines (This is an average failure interval based on failures related to wear out and random failures up to the life of 20 million lines.)
Parts with limited lifespan[*3]	Controller	CPU cooling fan (till the time when speed of rotation is reduced by 30%): Approximately 45,000 hours (ambient temperature of 40℃) Lithium primary battery (for RTC): Around 5 years
	Printer	Printer mechanism: 17 million lines (printing) Thermal head: 120 km (When recommended density and print speed are set) Autocutter: 1.7 million (Normal temperature normal humidity)
RTC		Clock precision: Monthly error: ± 100 seconds

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

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

*3: The lifespan indicates the point at which the wear-out failure period starts.

External Dimensions

- Width: 172 mm {6.77"}
- Depth: 290 mm {11.42"} (including connector cover)
- Height: 114 mm {4.49"}
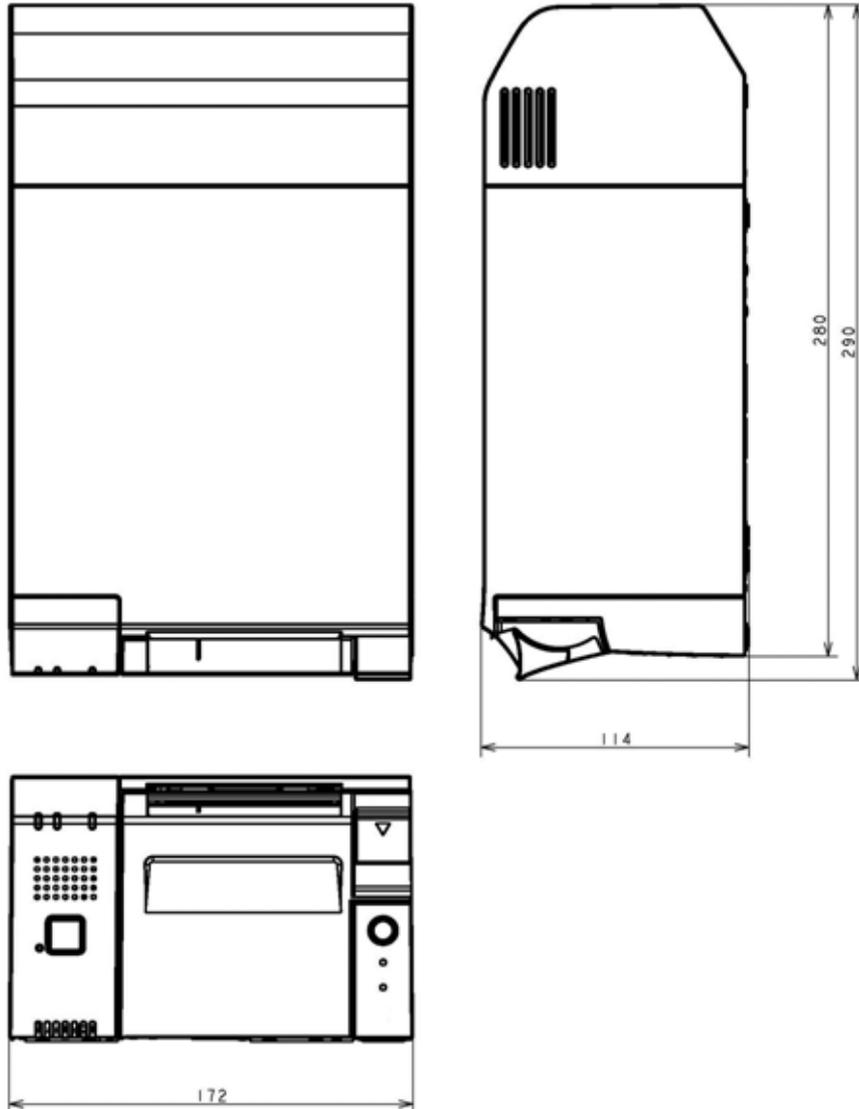
AC Adapter Specifications

[Units: mm]
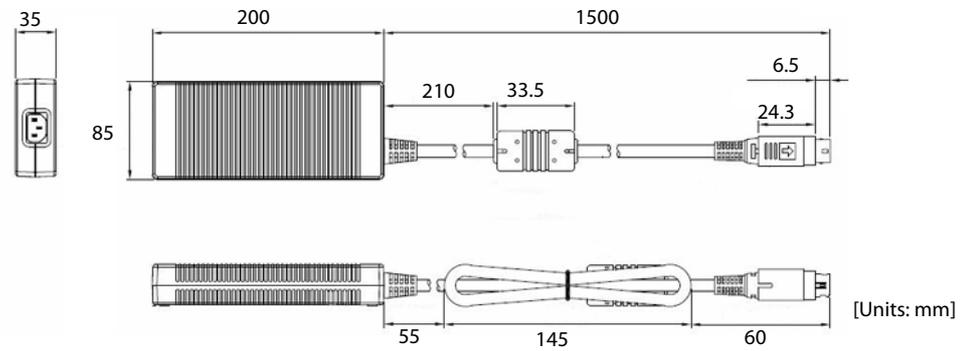
Item		Specification
Input conditions	Input voltage	AC 100 to 240 V
	Frequency	50/60 Hz
	Input current (rating)	2.4 A
Output conditions	Output voltage (rating)	DC 24 V ± 5 %
	Output current (rating)	4.2A

Interface

USB 3.0 port

Item	Specifications
Compliant standards	USB 3.0 Specification
Number of ports	6 ports
Connector	Type A
Bus power (Bus power is output even at Sleep)	5V, 900mA each

Functions of each connector pin

Pin No.	Signal	I/O	Description
1	VBUS	--	Bus power output
2	D-	I/O	USB2.0 data -
3	D+	I/O	USB2.0 data +
4	GND	--	GND
5	SSRX-	I	USB 3.0 reception data -
6	SSRX+	I	USB 3.0 reception data +
7	GND	--	GND
8	SSTX-	O	USB 3.0 transmission data -
9	SSTX+	O	USB 3.0 transmission data +

USB 2.0 port (Type A)

Item	Specifications
Compliant standards	USB 2.0 Specification
Number of ports	1 ports
Connector	Type A
Bus power (Bus power is output even at Sleep)	5V, 500mA

Functions of each connector pin

Pin No.	Signal	I/O	Description
1	VBUS	--	Bus power output
2	D-	I/O	USB2.0 data -
3	D+	I/O	USB2.0 data +
4	GND	--	GND

USB 2.0 port (Type-C)

Item	Specifications
Compliant standards	USB 2.0 Specification
Number of ports	1 ports
Connector	Type-C
Bus power (Bus power is output even at Sleep)	5V, 3A

Functions of each connector pin

Pin No.	Signal	I/O	Description	Pin No.	Signal	I/O	Description
A1	GND	--	GND	B12	GND	--	GND
A2	SSTXp1	--	Not used (NC)	B11	SSRXp1	--	Not used (NC)
A3	SSTXn1	--	Not used (NC)	B10	SSRXn1	--	Not used (NC)
A4	VBUS	--	Bus power	B9	VBUS	--	Bus power
A5	CC1	--	For connection configuration	B8	SBU2	--	Not used (NC)
A6	Dp1	I/O	USB2.0 D+	B7	Dn2	I/O	USB2.0 D-
A7	Dn1	I/O	USB2.0 D-	B6	Dp2	I/O	USB2.0 D+
A8	SBU1	--	Not used (NC)	B5	CC2	--	For connection configuration
A9	VBUS	--	Bus power	B4	VBUS	--	Bus power
A10	SSRXn2	O	Not used (NC)	B3	SSTXn2	O	Not used (NC)
A11	SSRXp2	--	Not used (NC)	B2	SSTXp2	--	Not used (NC)
A12	GND	--	GND	B1	GND	--	GND

Ethernet port

Item	Specifications
Compliant standards	10Base-T/ 100Base-TX/ 1000Base-T IEEE 802.3
Number of ports	1 ports
Connector	RJ-45

Supports the Wake On LAN and network boot functions.

Network parameters

Item	Initial settings
Get IP Address	Auto [*1]
IP Address	192.168.192.168 [*2]
Subnet Mask	255.255.255.0 [*2]
Default Gateway	Not set [*2]
Acquire DNS Server Address Automatically	Enable
DNS Server Address	Not set [*3]
Print IP Address	Enable

*1 When shipped from the factory, the controller is set with the IP address assigned by the DHCP server.
     If there is no DHCP server, an automatic private address (169.254.*.*) will be set by APIPA.
*2 Default value when [Get IP address] is set to [Manual].
*3 Default value when [Acquire DNS Server Address Automatically] is set to [Disable].

Item	Specifications
Connector	φ3.5mm stereo mini jack
Number of ports	1 ports

Functions of each connector pin

Pin No.	Signal	I/O	Description
1	GND	--	GND
2	LINE_L	O	Line-out, left channel
3	GND	--	GND
4	LINE_JS	I	Jack sense input
5	LINE_R	O	Line-out, right channel

NOTE	When an external speaker is connected to this jack, output to the internal TM-T70II-DT2 speaker is instead sent to the external speaker.

Serial port

Item	Specifications
Number of ports	1 port
Connector	DSUB 9-pin male
Female screw	Unified (inch) screw No.4-40 UNC
Maximum Communication speed	115200 bps

Functions of each connector pin

Pin No.	Signal	I/O	Description
1	N.C.	--	Not used
2	RXD	I	RXD (Receive data)
3	TXD	O	TXD (Transmit data)
4	DTR	O	DTR
5	GND	--	GND
6	DSR	I	DSR
7	RTS	O	RTS
8	CTS	I	CTS
9	N.C.	--	Not used

VGA port

Item	Specifications
Compliant standards	VESA Video Signal Standard (VSIS) Version 1, Rev.2 Compliant Support DDC communication (+5V level I2C interface)
Maximum resolution	1920 x 1200 dots /60Hz
Number of ports	1 port
Connector	DSUB 15-pin female

Functions of each connector pin

Pin No.	Signal	I/O	Description	Note
1	RED	O	Red data	
2	GREEN	O	Green data	
3	BLUE	O	Blue data	
4	N.C.	--	No connection	
5 - 8	GND	--	Ground	
9	+5 V	--	+5 V output	Output 5 V through PTC
10	GND	--	Ground	
11	N.C.	--	No connection	
12	DDCDATA	I/O	DDC data	5 V-level signal
13	HSYNC	O	Horizontal Sync	5 V-level signal
14	VSYNC	O	Vertical Sync	5 V-level signal
15	DDCCLK	I/O	DDC clock	5 V-level signal

HDMI port

Item	Specifications
Compliant standards	HDMI 1.4 Specification
Maximum resolution	4096 x 2160 @ 24 Hz; 24 bpp
Number of ports	1 port
Connector	Standard HDMI 19pin Type A Receptacle (female)

Functions of each connector pin

Pin No.	Signal	I/O	Description
1	TMDS Data2+	O	TMDS data channel 2 (DDI0_TXP2)
2	GND	--	GND (TMDS data 2 shield)
3	TMDS Data2−	O	TMDS data channel 2 (DDI0_TXN2)
4	TMDS Data1+	O	TMDS data channel 1 (DDI0_TXP1)
5	GND	--	GND (TMDS data 1 shield)
6	TMDS Data1−	O	TMDS data channel 1 (DDI0_TXN1)
7	TMDS Data0+	O	TMDS data channel 0 (DDI0_TXP0)
8	GND	--	GND (TMDS data 0 shield)
9	TMDS Data0−	O	TMDS data channel 0 (DDI0_TXN2)
10	TMDS Clock+	O	TMDS clock (DDI0_AUXP)
11	GND	--	GND (TMDS clock shield)
12	TMDS Clock−	O	TMDS clock (DDI0_AUXN)
13	CEC (NC)	--	Not supported
14	Reserved (NC)	--	Not supported HEC function
15	SCL	I/O	I^2C serial clock for DDC (DDI0_DDC_CLK)
16	SDA	I/O	I^2C serial data for DDC (DDI0_DDC_DATA)
17	GND	--	GND
18	+5 V_S	--	+5 V, 100mA (disabled on S3 State)
19	HPD	I	Hot plug detect (DDI0_HDP)

Drawer kick connector

Item	Specifications
Compliant standards	RJ12 6pin
Number of ports	1 port
Drawer side connector	RJ12 telephone jack (6-position 6-contact)

Functions of each connector pin

Pin No.	Signal	Direction
1	Frame GND	--
2	Drawer kick drive signal 1	Output
3	Drawer open/close signal	Input
4*	+24 V	--
5	Drawer kick drive signal 2	Output
6	Signal GND	--

∗ Pin number 4 outputs +24 V when the power is on. However, do not use this for purposes other than drawer drive.

DC-in connector

Connector for supplying power from the AC adapter

Functions of each connector pin

Pin No.	Signal
1	+24 V
2	GND
3	N.C
SHELL	F.G

BIOS

This section describes the controller BIOS.

Starting and Ending BIOS Setup

The following describes the methods for starting and ending BIOS Setup.

Starting

1 **Confirm that the power of this product is off and then connect the display, keyboard, and mouse.**

2 **While pressing the [Delete] key on the keyboard, turn the power for this product on.**

3 **BIOS Setup will start up.**

Ending

1 **When the Save & Exit menu is displayed, select "Discard Changes and Reset" if you do not want to save settings, or select "Save Changes and Reset" if you do want to save the settings.**

2 **Follow the on-screen instructions and select [Yes].**

3 **BIOS Setup ends and this product starts up.**

Settings for the USB 2.0 Charging Port

By default settings, the USB 2.0 port (Type-C) is a charging-dedicated port. If enabling communication, perform BIOS Setup settings.

1 **Once BIOS Setup starts up, select [Chipset] - [USB Configuration] - [Type-C Port Charge].**

2 **Press [Enter] to change the Mode.**

Item	Description
Mode 1	Charging, Communication
Mode 2	Dedicated Charging (Factory default)

3 **Press [F4] to save the settings.**

Disabling the USB Port

By disabling the USB port that is not in use, you can prevent the controller from detecting a USB memory or the like that is connected.

1 Once BIOS starts up, select [Security] - [USB Port Configuration].

2 Select [USB Port Disable Override].

3 Select [Select Per-Pin].

4 Select the number of the USB port and set it to [Disable].
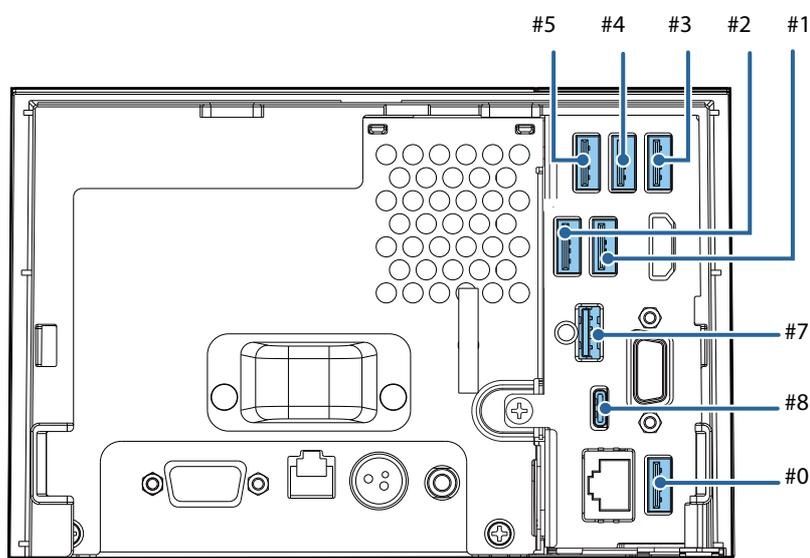
| CAUTION | Do not set USB port #6 to [Disable]. If you do so, you will not be able to use the printer. |

5 Press [F4] to save the settings.

BIOS setting

Menu		Item
Main	-	Hardware Information CPU Total Memory SATA SSD1 SATA SSD2 NVME SSD1 NVME SSD1 Sub Board MAC BIOS Information BIOS Vendor Core Version Project Version Model Access Level System Date System Time
Advanced	CPU Configuration	Type ID Speed L1 Data Cache L1 Instruction Cache L2 Cache L3 Cache L4 Cache VMX SMT/TXT Microcode Revision

	Intel ICC	DMI/BCLK/PEG/SATA/USB3/PCIe Clock Settings
		    Default Clock Settings
		
		    Frequency Range Limits
		    Maximum Spread %

Menu		Item
Advanced	Thermal Configuration	ACPI Shutdown Temperature
		CPU Temperature
		Fan Speed
		CPU Fan Mode
		CPUFAN Temperature 1
		CPUFAN DC/PWM 1
		CPUFAN Temperature 2
		CPUFAN DC/PWM 2
		CPUFAN Critical Temp Tolerance
	ACPI Configuration	Enable ACPI Auto Configuration
		Enable Hibernation
		ACPI Sleep State
	CSM Configuration	CSM Support
		CSM16 Module Version
		GateA20 Active
		Option ROM Messages
		INT19 Trap Response
		Boot option filter
		Option ROM execution
		Launch PXE OpROM
		Storage
		Video
	SMBIOS Configuration	SMBIOS Configuration
		Product Name
		Serial Number
		UUID
		SMBIOS Auto Fill
		> Auto Fill Now
		Auto Fill On Boot
		Target USB Port
		Product Suffix
		S/N Conversion

Menu		Item
Advanced	Intel ME Configuration	ME Firmware Version ME Firmware Mode ME Firmware SKU ME State Manageability Features State ME Unconfig on RTC Clear
		ME Firmware Update Configuration
Chipset	USB Configuration	USB Configuration USB Module Version USB Controllers: USB Devices: Type-C Port Charge Legacy USB Support XHCI Hand-off USB Mass Storage Driver Support USB hardware delays and time-outs: USB transfer time-out Device reset timu-out Device power-up delay
	Network Configuration	Ethernet Controller Wake On LAN Network Stack Ipv4 PXE Support Ipv4 HTTP Support Ipv6 PXE Support Ipv6 HTTP Support IP6 Configuration Policy PXE boot wait time Media detect count

Menu		Item
Chipset	SATA Configuration	SATA Controller(s) SATA Mode Selection SATA Controller Speed Serial ATA Port 1 Software Preserve Port 1 Serial ATA Port 2 Software Preserve Port 2
	NVMe Configuration	NVMe Configuration
	Serial Port Configuration	Serial Port 1 Configuration
	GPIO Configuration	SIO GP20 GP20 Output setting SIO GP21 GP21 Output setting ISH GP2 GP2 Output setting
	-	HD Audio Controller
	-	Status LED
Security	-	Administrator Password
	-	Maintainer Password
	-	User Password
	-	P2:SM619GXE DES
	USB port Configuration	USB Port Disable Override USB Controller #0 /#1/ #2/ #3/ #4/ #5/ #6/ #7/ #8

Menu		Item
Security	TPM Configuration	Security Device Support Active PCR banks Available PCR banks SHA-1 PCR Bank SHA256 PCR Bank Pending operation Platform Hierarchy Storage Hierarchy Endorsement Hierarchy TPM2.0 UEFI Spec Version Physical Presence Spec Version TPM 20 InterfaceType Device Select
Boot	-	Quiet Boot Hide Specified Log Fast Boot SATA Support VGA Support USB Support NetWork Stack Driver Support Setup Prompt Timeout Bootup NumLock State AC Power Recovery Notify Battery Error FIXED BOOT ORDER Priorities Boot Option #1 Boot Option #2 Boot Option #3 Boot Option #4 Boot Option #5 Boot Option #6 Boot Option #7 Boot Option #8
Save & Exit	-	Save Options Save Changes and Reset Discard Changes and Reset Restore Defaults Boot Override

Character Code Tables

See the Character Code Tables for TM Printers that can be accessed from the following URL:

https://support.epson.net/publist/reference_en/

Open Source Software License

1) This printer product includes open source software programs listed in Section 5) according to the license terms of each open source software program.

2) We provide the source code of the GPL Programs and LGPL Programs until five (5) years after the discontinuation of same model of this printer product. If you desire to receive the source code above, please contact the customer support for your region. You shall comply with the license terms of each open source software program.

3) The open source software programs are WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. See the license agreements of each open source software program for more details.

4) OpenSSL toolkit
This printer product includes software developed by the OpenSSL project for use in the OpenSSL Toolkit (https://www.openssl.org/).
This product includes cryptographic software written by Eric Young (eay@cryptsoft.com).

5) The list of open source software programs included with this printer product and the whole license agreements of each license can be found in the following URL.

http://xxx.xxx.xxx.xxx/licenses/

* For "xxx.xxx.xxx.xxx" in the above URL, input your printer's IP address.

MICROSOFT SOFTWARE LICENSE TERMS

WINDOWS 10 IOT ENTERPRISE & MOBILE (ALL EDITIONS)

IF YOU LIVE IN (OR IF YOUR PRINCIPAL PLACE OF BUSINESS IS IN) THE UNITED STATES, PLEASE READ THE BINDING ARBITRATION CLAUSE AND CLASS ACTION WAIVER IN SECTION 9. IT AFFECTS HOW DISPUTES ARE RESOLVED.

Thank you for choosing Microsoft!

Depending on how you obtained the Windows software, this is a license agreement between (i) you and the device manufacturer or software installer that distributes the software with your device; or (ii) you and Microsoft Corporation (or, based on where you live or if a business where your principal place of business is located, one of its affiliates) if you acquired the software from a retailer. Microsoft is the device manufacturer for devices produced by Microsoft or one of its affiliates, and Microsoft is the retailer if you acquired the software directly from Microsoft.

This agreement describes your rights and the conditions upon which you may use the Windows software. You should review the entire agreement, including any supplemental license terms that accompany the software and any linked terms, because all of the terms are important and together create this agreement that applies to you. You can review linked terms by pasting the (aka.ms/) link into a browser window.

By accepting this agreement or using the software, you agree to all of these terms, and consent to the transmission of certain information during activation and during your use of the software as per the privacy statement described in Section 3. If you do not accept and comply with these terms, you may not use the software or its features. You may contact the device manufacturer or installer, or your retailer if you purchased the software directly, to determine its return policy and return the software or device for a refund or credit under that policy. You must comply with that policy, which might require you to return the software with the entire device on which the software is installed for a refund or credit, if any.

1. **Overview.**

    a. **Applicability.** This agreement applies to the Windows software that is preinstalled on your device, or acquired from a retailer and installed by you, the media on which you received the software (if any), any fonts, icons, images or sound files included with the software, and also any Microsoft updates, upgrades, supplements or services for the software, unless other terms come with them. It also applies to Windows apps developed by Microsoft that provide functionality such as mail, calendar, contacts, music and news that are included with and are a part of Windows. If this agreement contains terms regarding a feature or service not available on your device, then those terms do not apply.

    b. **Additional terms.** Depending on your device's capabilities, how it is configured, and how you use it, additional Microsoft and third party terms may apply to your use of certain features, services and apps.

        (i) Some Windows apps provide an access point to, or rely on, online services, and the use of those services is sometimes governed by separate terms and privacy policies, such as the Microsoft Services Agreement at (aka.ms/msa). You can view these terms and policies by looking at the service terms of use or the app's settings, as applicable; please read them. The services may not be available in all regions.

        (ii) The manufacturer or installer may also preinstall apps, which will be subject to separate license terms.

        (iii) The software may include third party software such as Adobe Flash Player that is licensed under its own terms. You agree that your use of Adobe Flash Player is governed by the license terms for Adobe Systems Incorporated at (aka.ms/adobeflash). Adobe and Flash are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.

        (iv) The software may include third party programs that are licensed to you under this agreement, or under their own terms. License terms, notices and acknowledgements, if any, for the third party program can be view at (aka.ms/thirdpartynotices).

2. **Installation and Use Rights.**

    a. **License.** The software license is permanently assigned to the device with which you acquired the software. You many only use the software on that device.

    b. **Device.** In this agreement, "device" means a physical hardware system) with an internal storage device capable of running the software. A hardware partition or blade is considered to be a device.

    c. **Restrictions.** The manufacturer or installer and Microsoft reserve all rights (such as rights under intellectual property laws) not expressly granted in this agreement. For example, this license does not give you any right to, and you may not:

        (i) use or virtualize features of the software separately;

        (ii) publish, copy (other than the permitted backup copy), rent, lease, or lend the software;

        (iii) transfer the software (except as permitted by this agreement);

        (iv) work around any technical restrictions or limitations in the software;

        (v) use the software as server software, for commercial hosting, make the software available for simultaneous use by multiple users over a network, install the software on a server and allow users to access it remotely, or install the software on a device for use only by remote users;

(vi) reverse engineer, decompile, or disassemble the software, or attempt to do so, except and only to the extent that the foregoing restriction is (a) permitted by applicable law; (b) permitted by licensing terms governing the use of open source components that may be included with the software; or (c) required to debug changes to any libraries licensed under the GNU Lesser General Public License which are included with and linked to by the software; and

(vii) when using Internet-based features you may not use those features in any way that could interfere with anyone else's use of them, or to try to gain access to or use any service, data, account, or network, in an unauthorized manner.

d. Multi use scenarios.

(i) **Multiple versions.** If when acquiring the software, you were provided with multiple versions (such as 32-bit and 64-bit versions), you may install and activate only one of those versions at a time.

(ii) **Multiple or pooled connections.** Hardware or software you use to multiplex or pool connections, or reduce the number of devices or users that access or use the software, does not reduce the number of licenses you need. You may only use such hardware or software if you have a license for each instance of the software you are using.

(iii) **Device connections.** You may allow up to 20 other devices to access the software installed on the licensed device for the purpose of using the following software features: file services, print services, Internet information services, and Internet connection sharing and telephony services on the licensed device. The 20 connection limit applies to devices that access the software indirectly through "multiplexing" or other software or hardware that pools connections. You may allow any number of devices to access the software on the licensed device to synchronize data between devices. This section does not mean, however, that you have the right to install the software, or use the primary function of the software (other than the features listed in this section), on any of these other devices.

(iv) **Remote access.** Users may access the licensed device from another device using remote access technologies, but only on devices separately licensed to run the same or higher edition of this software.

(v) **Remote assistance.** You may use remote assistance technologies to share an active session without obtaining any additional licenses for the software. Remote assistance allows one user to connect directly to another user's computer, usually to correct problems.

(vi) **POS application.** If the software is installed on a retail point of service device, you may use the software with a point of service application ("POS Application"). A POS Application is a software application which provides only the following functions: (i) process sales and service transactions, scan and track inventory, record and/or transmit customer information, and perform related management functions, and/or (ii) provide information directly and indirectly to customers about available products and services. You may use other programs with the software as long as the other programs: (i) directly support the manufacturer's specific use for the device, or (ii) provide system utilities, resource management, or anti-virus or similar protection. For clarification purposes, an automated teller machine ("ATM") is not a retail point of service device.

(vii) **Cloud Computing Devices.** If your device uses Internet browsing functionality to connect to and access cloud hosted applications: (i) no desktop functions may run locally on the device, and (ii) any files that result from the use of the desktop functions may not be permanently stored on the system. "Desktop functions," as used in this agreement, means a consumer or business task or process performed by a computer or computing device. This includes but is not limited to email, word processing, spreadsheets, database, scheduling, network or internet browsing and personal finance.

(viii) **Desktop Functions.** If your system performs desktop functions, then you must ensure that they: (i) are only used to support the application, and (ii) operate only when used with the application.

e. Specific Use. The manufacturer designed the licensed device for a specific use. You may only use the software for that use.

f. Backup copy. You may make a single copy of the software for backup purposes, and may also use that backup copy to transfer the software if it was acquired as stand-alone software, as described below.

3. **Privacy; Consent to Use of Data.** Your privacy is important to us. Some of the software features send or receive information when using those features. Many of these features can be switched off in the user interface, or you can choose not to use them. By accepting this agreement and using the software you agree that Microsoft may collect, use, and disclose the information as described in the Microsoft Privacy Statement available at (aka.ms/privacy), and as may be described in the user interface associated with the software features.

4. **Transfer**

   a. **Software preinstalled on device.** If you acquired the software preinstalled on a device, you may transfer the license to use the software directly to another user, only with the licensed device. The transfer must include the software and, if provided with the device, an authentic Windows label including the product key. Before any permitted transfer, the other party must agree that this agreement applies to the transfer and use of the software.

   b. **Stand-alone software.** If you acquired the software as stand-alone software, you may transfer the software to another device that belongs to you. You may also transfer the software to a device owned by someone else if (i) you are the first licensed user of the software and (ii) the new user agrees to the terms of this agreement. You may use the backup copy we allow you to make or the media that the software came on to transfer the software. Every time you transfer the software to a new device, you must remove the software from the prior device. You may not transfer the software to share licenses between devices.

5. **Authorized Software and Activation.** You are authorized to use this software only if you are properly licensed and the software has been properly activated with a genuine product key or by other authorized method. When you connect to the Internet while using the software, the software will automatically contact Microsoft or its affiliate to confirm the software is genuine and the license is associated with the licensed device. You can also activate the software manually by Internet or telephone. In either case, transmission of certain information will occur, and Internet, telephone and SMS service charges may apply. During activation (or reactivation that may be triggered by changes to your device's components), the software may determine that the installed instance of the software is counterfeit, improperly licensed or includes unauthorized changes. If activation fails the software will attempt to repair itself by replacing any tampered Microsoft software with genuine Microsoft software. You may also receive reminders to obtain a proper license for the software. Successful activation does not confirm that the software is genuine or properly licensed. You may not bypass or circumvent activation. To help determine if your software is genuine and whether you are properly licensed, see (aka.ms/genuine). Certain updates, support, and other services might only be offered to users of genuine Microsoft software.

6. **Updates.** You may obtain updates only from Microsoft or authorized sources, and Microsoft may need to update your system to provide you with those updates. The software periodically checks for system and app updates, and may download and install them for you. To the extent automatic updates are enabled on your device, by accepting this agreement, you agree to receive these types of automatic updates without any additional notice.

7. **Geographic and Export Restrictions.** If your software is restricted for use in a particular geographic region, then you may activate the software only in that region. You must also comply with all domestic and international export laws and regulations that apply to the software, which include restrictions on destinations, end users, and end use. For further information on geographic and export restrictions, visit (aka.ms/georestrict) and (aka.ms/exporting).

8. **Support and Refund Procedures.** For the software generally, contact the device manufacturer or installer for support options. Refer to the support number provided with the software. For updates and supplements obtained directly from Microsoft, Microsoft may provide limited support services for properly licensed software as described at (aka.ms/mssupport). If you are seeking a refund, contact the manufacturer or installer to determine its refund policies. You must comply with those policies, which might require you to return the software with the entire device on which the software is installed for a refund.

9. **Binding Arbitration and Class Action Waiver if You Live in (or if a Business Your Principal Place of Business is in) the United States.**
   We hope we never have a dispute, but if we do, you and we agree to try for 60 days to resolve it informally. If we can't, you and we agree to **binding individual arbitration before the American Arbitration Association ("AAA") under the Federal Arbitration Act ("FAA"), and not to sue in court in front of a judge or jury.** Instead, a neutral arbitrator will decide and the arbitrator's decision will be final except for a limited right of appeal under the FAA. **Class action lawsuits, class-wide arbitrations, private attorney-general actions, and any other proceeding where someone acts in a representative capacity aren't allowed. Nor is combining individual proceedings without the consent of all parties.** "We," "our," and "us" includes Microsoft, the device manufacturer, and software installer.

   a. **Disputes covered—everything except IP.** The term "dispute" is as broad as it can be. It includes any claim or controversy between you and the manufacturer or installer, or you and Microsoft, concerning the software, its price, or this agreement, under any legal theory including contract, warranty, tort, statute, or regulation, **except disputes relating to the enforcement or validity of your, your licensors', our, or our licensors' intellectual property rights.**

   b. **Mail a Notice of Dispute first.** If you have a dispute and our customer service representatives can't resolve it, send a Notice of Dispute by U.S. Mail to the manufacturer or installer, ATTN: LEGAL DEPARTMENT. If your dispute is with Microsoft, mail it to Microsoft Corporation, ATTN: LCA ARBITRATION, One Microsoft Way, Redmond, WA 98052-6399. Tell us your name, address, how to contact you, what the problem is, and what you want. A form is available at (aka.ms/disputeform). We'll do the same if we have a dispute with you. After 60 days, you or we may start an arbitration if the dispute is unresolved.

   c. **Small claims court option.** Instead of mailing a Notice of Dispute, and if you meet the court's requirements, you may sue us in small claims court in your county of residence (or if a business your principal place of business) or our principal place of business–King County, Washington USA if your dispute is with Microsoft. We hope you'll mail a Notice of Dispute and give us 60 days to try to work it out, but you don't have to before going to small claims court.

158

d. **Arbitration procedure.** The AAA will conduct any arbitration under its Commercial Arbitration Rules (or if you are an individual and use the software for personal or household use, or if the value of the dispute is $75,000 USD or less whether or not you are an individual or how you use the software, its Consumer Arbitration Rules). For more information, see (aka.ms/adr) or call 1-800-778-7879. To start an arbitration, submit the form available at (aka.ms/arbitration) to the AAA; mail a copy to the manufacturer or installer (or to Microsoft if your dispute is with Microsoft). In a dispute involving $25,000 USD or less, any hearing will be telephonic unless the arbitrator finds good cause to hold an in-person hearing instead. Any in-person hearing will take place in your county of residence (of if a business your principal place of business) or our principal place of business—King County, Washington if your dispute is with Microsoft. You choose. The arbitrator may award the same damages to you individually as a court could. The arbitrator may award declaratory or injunctive relief only to you individually to satisfy your individual claim.

e. **Arbitration fees and payments.**
   (i) **Disputes involving $75,000 USD or less.** The manufacturer or installer (or Microsoft if your dispute is with Microsoft) will promptly reimburse your filing fees and pay the AAA's and arbitrator's fees and expenses. If you reject our last written settlement offer made before the arbitrator was appointed, your dispute goes all the way to an arbitrator's decision (called an "award"), and the arbitrator awards you more than this last written offer, the manufacturer or installer (or Microsoft if your dispute is with Microsoft) will: (1) pay the greater of the award or $1,000 USD; (2) pay your reasonable attorney's fees, if any; and (3) reimburse any expenses (including expert witness fees and costs) that your attorney reasonably accrues for investigating, preparing, and pursuing your claim in arbitration. The arbitrator will determine the amounts unless you and we agree on them.
   (ii) **Disputes involving more than $75,000 USD.** The AAA rules will govern payment of filing fees and the AAA's and arbitrator's fees and expenses.
   (iii) **Disputes involving any amount.** If you start an arbitration we won't seek our AAA or arbitrator's fees and expenses, or your filing fees we reimbursed, unless the arbitrator finds the arbitration frivolous or brought for an improper purpose. If we start an arbitration we will pay all filing, AAA, and arbitrator's fees and expenses. We won't seek our attorney's fees or expenses from you in any arbitration. Fees and expenses are not counted in determining how much a dispute involves.

f. **Must file within one year.** You and we must file in small claims court or arbitration any claim or dispute (except intellectual property disputes — see Section 9.a.) within one year from when it first could be filed. Otherwise, it's permanently barred.

g. **Severability.** If the class action waiver is found to be illegal or unenforceable as to all or some parts of a dispute, those parts won't be arbitrated but will proceed in court, with the rest proceeding in arbitration. If any other provision of Section 9 is found to be illegal or unenforceable, that provision will be severed but the rest of Section 9 still applies.

h. **Conflict with AAA rules.** This agreement governs if it conflicts with the AAA's Commercial Arbitration Rules or Consumer Arbitration Rules.

i. **Microsoft as party or third-party beneficiary.** If Microsoft is the device manufacturer or if you acquired the software from a retailer, Microsoft is a party to this agreement. Otherwise, Microsoft is not a party but is a third-party beneficiary of your agreement with the manufacturer or installer to resolve disputes through informal negotiation and arbitration.

10. **Governing Law.** The laws of the state or country where you live (or if a business where your principal place of business is located) govern all claims and disputes concerning the software, its price, or this agreement, including breach of contract claims and claims under state consumer protection laws, unfair competition laws, implied warranty laws, for unjust enrichment, and in tort, regardless of conflict of law principles. In the United States, the FAA governs all provisions relating to arbitration.

11. **Consumer Rights, Regional Variations.** This agreement describes certain legal rights. You may have other rights, including consumer rights, under the laws of your state or country. You may also have rights with respect to the party from which you acquired the software. This agreement does not change those other rights if the laws of your state or country do not permit it to do so. For example, if you acquired the software in one of the below regions, or mandatory country law applies, then the following provisions apply to you:

a. **Australia.** References to "Limited Warranty" are references to the express warranty provided by Microsoft or the manufacturer or installer. This warranty is given in addition to other rights and remedies you may have under law, including your rights and remedies in accordance with the statutory guarantees under the Australian Consumer Law.
In this section, "goods" refers to the software for which Microsoft or the manufacturer or installer provides the express warranty. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

b. **Canada.** You may stop receiving updates on your device by turning off Internet access. If and when you re-connect to the Internet, the software will resume checking for and installing updates.

c. **European Union.** The academic use restriction in Section 12.d(i) below does not apply in the jurisdictions listed on this site: (aka.ms/academicuse).

    d. Germany and Austria.

        (i) **Warranty.** The properly licensed software will perform substantially as described in any Microsoft materials that accompany the software. However, the manufacturer or installer, and Microsoft, give no contractual guarantee in relation to the licensed software.

        (ii) **Limitation of Liability.** In case of intentional conduct, gross negligence, claims based on the Product Liability Act, as well as, in case of death or personal or physical injury, the manufacturer or installer, or Microsoft is liable according to the statutory law.

    Subject to the preceding sentence, the manufacturer or installer, or Microsoft will only be liable for slight negligence if the manufacturer or installer or Microsoft is in breach of such material contractual obligations, the fulfillment of which facilitate the due performance of this agreement, the breach of which would endanger the purpose of this agreement and the compliance with which a party may constantly trust in (so-called "cardinal obligations"). In other cases of slight negligence, the manufacturer or installer or Microsoft will not be liable for slight negligence.

    e. Other regions. See (aka.ms/variations) for a current list of regional variations

12. Additional Notices.

    a. Networks, data and Internet usage. Some features of the software and services accessed through the software may require your device to access the Internet. Your access and usage (including charges) may be subject to the terms of your cellular or internet provider agreement. Certain features of the software may help you access the Internet more efficiently, but the software's usage calculations may be different from your service provider's measurements. You are always responsible for (i) understanding and complying with the terms of your own plans and agreements, and (ii) any issues arising from using or accessing networks, including public/open networks. You may use the software to connect to networks, and to share access information about those networks, only if you have permission to do so.

    b. H.264/AVC and MPEG-4 visual standards and VC-1 video standards. The software may include H.264/MPEG-4 AVC and/or VC-1 decoding technology. MPEG LA, L.L.C. requires this notice:
THIS PRODUCT IS LICENSED UNDER THE AVC, THE VC-1, AND THE MPEG-4 PART 2 VISUAL PATENT PORTFOLIO LICENSES FOR THE PERSONAL AND NON-COMMERCIAL USE OF A CONSUMER TO (i) ENCODE VIDEO IN COMPLIANCE WITH THE ABOVE STANDARDS ("VIDEO STANDARDS") AND/OR (ii) DECODE AVC, VC-1, AND MPEG-4 PART 2 VIDEO THAT WAS ENCODED BY A CONSUMER ENGAGED IN A PERSONAL AND NON-COMMERCIAL ACTIVITY AND/OR WAS OBTAINED FROM A VIDEO PROVIDER LICENSED TO PROVIDE SUCH VIDEO. NO LICENSE IS GRANTED OR SHALL BE IMPLIED FOR ANY OTHER USE. ADDITIONAL INFORMATION MAY BE OBTAINED FROM MPEG LA, L.L.C. SEE WWW.MPEGLA.COM

    c. Malware protection. Microsoft cares about protecting your device from malware. The software will turn on malware protection if other protection is not installed or has expired. To do so, other antimalware software will be disabled or may have to be removed.

    d. Limited rights versions. If the software version you acquired is marked or otherwise intended for a specific or limited use, then you may only use it as specified. You may use other programs with the software as long as the other programs directly support the manufacturer's specific use for the device, or provide system utilities, resource management, or anti-virus or similar protection.

        (i) **Academic.** For academic use, you must be a student, faculty or staff of an educational institution at the time of purchase.

        (ii) **Evaluation.** For evaluation (or test or demonstration) use, you may not sell the software, use it in a live operating environment, or use it after the evaluation period. Notwithstanding anything to the contrary in this Agreement, evaluation software is provided "AS IS".

        (iii) **NFR.** You may not sell software marked as "NFR" or "Not for Resale".

13. Entire Agreement. This agreement (together with the printed paper license terms or other terms accompanying any software supplements, updates, and services that are provided by the manufacturer or installer, or Microsoft, and that you use), and the terms contained in web links listed in this agreement, are the entire agreement for the software and any such supplements, updates, and services (unless the manufacturer or installer, or Microsoft, provides other terms with such supplements, updates, or services). You can review this agreement after your software is running by going to (aka.ms/useterms) or going to Settings - System - About within the software. You can also review the terms at any of the links in this agreement by typing the URLs into a browser address bar, and you agree to do so. You agree that you will read the terms before using the software or services, including any linked terms. You understand that by using the software and services, you ratify this agreement and the linked terms. There are also informational links in this agreement. The links containing notices and binding terms are:

- Windows 10 Privacy Statement (aka.ms/privacy)
- Microsoft Services Agreement (aka.ms/msa)
- Adobe Flash Player License Terms (aka.ms/adobeflash)

<u>NO WARRANTY</u>

THE SOFTWARE ON YOUR DEVICE (INCLUDING THE APPS) IS LICENSED "AS IS." TO THE MAXIMUM EXTENT PERMITTED BY YOUR LOCAL LAWS, YOU BEAR THE ENTIRE RISK AS TO THE SOFTWARE'S QUALITY AND PERFORMANCE. SHOULD IT PROVE DEFECTIVE, YOU ASSUME THE ENTIRE COST OF ALL SERVICING OR REPAIR. NEITHER THE DEVICE MANUFACTURER NOR MICROSOFT GIVES ANY EXPRESS WARRANTIES, GUARANTEES, OR CONDITIONS FOR THE SOFTWARE. TO THE EXTENT PERMITTED UNDER YOUR LOCAL LAWS, THE MANUFACTURER AND MICROSOFT EXCLUDE ALL IMPLIED WARRANTIES AND CONDITIONS, INCLUDING THOSE OF MERCHANTABILITY, QUALITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. YOU MAY HAVE ADDITIONAL CONSUMER RIGHTS OR STATUTORY GUARANTEES UNDER LOCAL LAWS THAT THESE TERMS CANNOT CHANGE.

IF YOUR LOCAL LAWS IMPOSE A WARRANTY, GUARANTEE, OR CONDITION EVEN THOUGH THIS AGREEMENT DOES NOT, ITS TERM IS LIMITED TO 90 DAYS FROM WHEN THE FIRST USER ACQUIRES THE SOFTWARE. IF THE MANUFACTURER OR MICROSOFT BREACHES SUCH A WARRANTY, GUARANTEE, OR CONDITION, YOUR SOLE REMEDY, AT THE MANUFACTURER'S OR MICROSOFT'S ELECTION, IS (I) REPAIR OR REPLACEMENT OF THE SOFTWARE AT NO CHARGE, OR (II) RETURN OF THE SOFTWARE (OR AT ITS ELECTION THE DEVICE ON WHICH THE SOFTWARE WAS INSTALLED) FOR A REFUND OF THE AMOUNT PAID, IF ANY. THESE ARE YOUR ONLY REMEDIES FOR BREACH OF A WARRANTY, GUARANTEE, OR CONDITION YOUR LOCAL LAWS IMPOSE.

TO THE EXTENT NOT PROHIBITED BY YOUR LOCAL LAWS, IF YOU HAVE ANY BASIS FOR RECOVERING DAMAGES, YOU CAN RECOVER FROM THE MANUFACTURER OR MICROSOFT ONLY DIRECT DAMAGES UP TO THE AMOUNT YOU PAID FOR THE SOFTWARE (OR UP TO $50 USD IF YOU ACQUIRED THE SOFTWARE FOR NO CHARGE). YOU WILL NOT, AND WAIVE ANY RIGHT TO, SEEK TO RECOVER ANY OTHER DAMAGES OR REMEDY, INCLUDING LOST PROFITS AND DIRECT, CONSEQUENTIAL, SPECIAL, INDIRECT, OR INCIDENTAL DAMAGES, UNDER ANY PART OF THIS AGREEMENT OR UNDER ANY THEORY. THIS LIMITATION APPLIES TO (I) ANYTHING RELATED TO THIS AGREEMENT, THE SOFTWARE (INCLUDING THE APPS), THE DEVICE, SERVICES, CORRUPTION OR LOSS OF DATA, FAILURE TO TRANSMIT OR RECEIVE DATA, CONTENT (INCLUDING CODE) ON THIRD PARTY INTERNET SITES OR THIRD PARTY PROGRAMS, AND (II) CLAIMS FOR BREACH OF CONTRACT, WARRANTY, GUARANTEE, OR CONDITION; STRICT LIABILITY, NEGLIGENCE, OR OTHER TORT; VIOLATION OF A STATUTE OR REGULATION; UNJUST ENRICHMENT; OR UNDER ANY OTHER THEORY.

THE DAMAGE EXCLUSIONS AND REMEDY LIMITATIONS IN THIS AGREEMENT APPLY EVEN IF YOU HAVE NO REMEDY (THE SOFTWARE IS LICENSED "AS IS"), IF REPAIR, REPLACEMENT, OR A REFUND (IF REQUIRED BY YOUR LOCAL LAW) DOES NOT FULLY COMPENSATE YOU FOR ANY LOSSES, IF THE MANUFACTURER OR MICROSOFT KNEW OR SHOULD HAVE KNOWN ABOUT THE POSSIBILITY OF THE DAMAGES, OR IF THE REMEDY FAILS OF ITS ESSENTIAL PURPOSE.

Check with your device manufacturer to determine if your device is covered by a warranty.