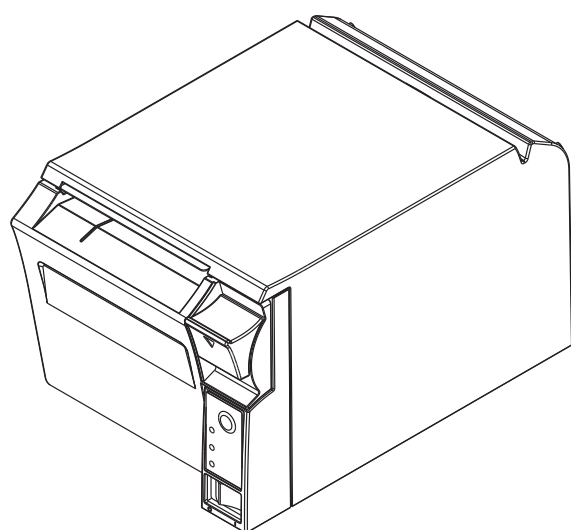


TM-T70II

Technical Reference Guide



Product Overview

Describes features of the product.

Setup

Describes setup and installation of the product and peripherals.

Setting/Checking Modes

Describes the modes to set and check settings.

Application Development Information

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

Handling

Describes how to handle the product.

Replacement of the TM-T70

Describes precautions for replacement.

Appendix

Describes general specifications and character codes.

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

EPSON is a registered trademark of Seiko Epson Corporation.

Exceed Your Vision and ESC/POS are registered trademarks or trademarks of Seiko Epson Corporation.

Microsoft and Windows are registered trademarks of Microsoft Corporation.

The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Seiko Epson Corporation is under license.

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

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

ESC/POS® Command System

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



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

© Seiko Epson Corporation 2013-2018. All rights reserved.

For Safety

Key to Symbols

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

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

Warnings



WARNING

- **To avoid risk of electric shock, do not set up this product or handle cables during a thunderstorm.**
- **Never insert or disconnect the power plug with wet hands.**
Doing so may result in severe shock.
- **Handle the power cable with care.**
Improper handling may lead to fire or electric shock.
 - * Do not modify or attempt to repair the cable.
 - * Do not place any heavy object on top of the cable.
 - * Avoid excessive bending, twisting, and pulling.
 - * Do not place the cable near heating equipment.
 - * Check that the plug is clean before plugging it in.
 - * Be sure to push the plug all the way in.
- **Be sure to use the specified power source.**
Connection to an improper power source may cause fire or shock.
- **Do not place multiple loads on the power outlet.**
Overloading the outlet may lead to fire.
- **Shut down your equipment immediately if it produces smoke, a strange odor, or unusual noise.**
Continued use may lead to fire. Immediately unplug the equipment and contact qualified service personnel.
- **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 or fire.
- **Do not allow foreign matter to fall into the equipment.**
Penetration by foreign objects may lead to fire.
- **If water or other liquid spills into this equipment, do not continue to use it.**
Continued use may lead to fire. Unplug the power cord immediately and contact qualified service personnel.
- **Do not use aerosol sprayers containing flammable gas inside or around this product.**
Doing so may cause fire.

Cautions



CAUTION

- **Do not connect cables in ways other than those mentioned in this manual.**
Different connections may cause equipment damage or fire.
- **Be sure to set this equipment on a firm, stable, horizontal surface.**
The product may break or cause injury if it falls.
- **Do not use this product in locations subject to high humidity or dust levels.**
Excessive humidity and dust may cause equipment damage or fire.
- **Do not place heavy objects on top of this product. Never stand or lean on this product.**
Equipment may fall or collapse, causing breakage and possible injury.
- **To avoid injury, do not insert fingers or any part of the hand in the roll paper opening where the manual cutter is installed.**
- **Do not open the roll paper cover without taking the necessary precautions, as this can result in injury from the autocutter fixed blade.**
- **To ensure safety, unplug this product before leaving it unused for an extended period.**

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.

About this Manual

Aim of the Manual

This manual was created to provide information on development, design, and installation of POS systems and development and design of printer applications for developers.

Manual Content

The manual is made up of the following sections:

Chapter 1	Product Overview
Chapter 2	Setup
Chapter 3	Setting/Checking Modes
Chapter 4	Application Development Information
Chapter 5	Handling
Chapter 6	Replacement of the TM-T70
Appendix	Product Specifications Option Specifications Specifications of Interface and Connector Character Code Tables

Contents

■ For Safety	3
Key to Symbols.....	3
Warnings.....	4
Cautions.....	4
■ Restriction of Use	5
■ About this Manual	6
Aim of the Manual	6
Manual Content	6
■ Contents	7

Product Overview 11

■ Features	11
■ Product Configuration	12
Interface.....	12
Buzzer	12
Color.....	12
Accessories	12
■ Parts Name and Function	14
Power Switch	14
Power Switch Cover.....	14
Control Panel	15
Connectors	16
Offline	16
■ Error Status	17
Automatically Recoverable Errors	17
Recoverable Errors.....	17
Unrecoverable Errors	18
■ NV Memory (Non-Volatile Memory)	19
NV Graphics Memory	19
User NV Memory.....	19
Memory Switches.....	19
R/E (Receipt Enhancement)	20
User-defined Page	20
Maintenance Counter.....	20

Setup 21

■ Flow of Setup..... 21

■ Installing the Printer 22

Important Notes on Installation 23

Affixing Position of DF-10 23

■ Connecting the Printer to the Host Computer 24

For Serial Interface 24

For Parallel Interface 26

For USB Interface 27

For LAN Interface 29

For Wireless LAN Interface..... 30

For Bluetooth Interfaces..... 30

■ Connecting the AC Adapter..... 31

Connecting the AC Adapter..... 31

■ Setting the Memory Switches/Receipt Enhancement 32

Functions 33

■ Connecting the Optional External Buzzer..... 42

Unpacking 42

Installation Position 42

Installation Procedures..... 43

Adjusting the Buzzer Volume..... 44

Setting the Optional External Buzzer 44

■ Connecting the Cash Drawer..... 45

Connecting the Drawer Kick-out Cable..... 45

Setting the Internal Buzzer (for Models with an Internal Buzzer) 46

Setting/Checking Modes 47

Self-test Mode..... 47

Hexadecimal Dumping Mode..... 49

NV Graphics Information Print Mode 50

R/E (Receipt Enhancement) Information Print Mode 51

Memory Switch Setting Mode 52

Application Development Information 59

■ Controlling the Printer 59

ESC/POS 59

■ Controlling the Cash Drawer 60

■ Controlling the Built-in Buzzer 61

■ Controlling the Optional External Buzzer 62

■ Software and Manuals 63

Development Kits..... 63

Drivers..... 64

Utilities.....	65
Download.....	66

Handling 67

■ Installing and Replacing Roll Paper	67
■ Removing Jammed Paper	69
■ Cleaning the Thermal Head	69
■ Preparing for Transport.....	70

Replacement of the TM-T70..... 71

■ Compatibility	71
Printing.....	71
Print Density.....	71
Number of Head Energizing Parts.....	71
Printable Area (for 80 mm Width Paper/58 mm Width Paper)	71
Cutting Method.....	72
Manual Paper Feed	72
Receive Buffer	72
Memory Capacity	72
Electrical Characteristics	72
DIP Switches.....	72
Printer Status.....	72
Logo Registration	73
Driver Compatibility	73
USB Power-Saving Function	73
Maintenance Counter	73
Buzzer	73
Overall Dimensions.....	74
■ Additional Functions and Functional Improvements.....	75
Print Speed.....	75
Barcodes	75
Number of Characters.....	76
Image Tone Setting	76
Interface.....	76
USB Class.....	76
Coupon Printing.....	76
Memory Switches	77
R/E Information Print Mode	77
Reliability	78

Appendix..... 79

■ Product Specifications	79
Printing Specifications	80
Character Specifications	82
Printable Area	86

Printing and Cutting Positions	88
Paper Specifications.....	88
Electrical Characteristics	90
Environmental Conditions	91
External Dimensions and Mass.....	92
■ Option Specifications	93
AC Adapter (PS-180)	93
■ Specifications of Interface and Connector	94
RS-232 Serial Interface	94
IEEE 1284 Parallel Interface	97
USB (Universal Serial Bus) Interface	100
■ Character Code Tables	101

Product Overview

This chapter describes features and specifications of the product.

Features

The TM-T70II is a receipt printer with high speed printing and a small footprint. With its compact design, it can be placed in a narrow space, such as under a counter, and it also has full front access for easy operability.

High speed printing

- Issuing of batch receipts is possible.
Maximum print speed: 250 mm/s {9.84"/s} (200 mm/s {7.87"/s} for some models)
- Graphics are also printed with high-speed printing.
- Multi-tone graphic printing
- Coupon print function is supported.

Front operation

- Easy drop-in paper loading
- Front access operation of the power switch and operation panel
- Front access operation for receipt ejection

Software

- Command protocol is based on the ESC/POS Proprietary Command System.
- OPOS ADK and Windows printer driver are available.
- In addition to supporting several kinds of bar code printing, GS1-DataBar printing and two-dimensional symbol (PDF417, QR code, MaxiCode, Composite Symbology) printing are possible.
- Various layouts are possible by using page mode.
- A maintenance counter function is supported.
- Paper-saving function is supported.

Environmental

- TM-T70II is ENERGY STAR qualified. (Some models may be exempted.)

Others

- Various interface boards (EPSON UB series) can be used.
- The TM-T70II Software & Documents Disc (drivers, utility software, and manuals)

Product Configuration

Interface

- Serial interface model (RS-232)
- Parallel interface model (IEEE1284)
- USB interface model (full-speed)
- Ethernet interface model (100BASE-TX/10BASE-T)
- Wireless LAN interface model (IEEE802.11a/b/g/n)
- *Bluetooth* interface model (*Bluetooth* Ver.2.1 + EDR)



CAUTION

For this printer, never use a LAN interface board or a wireless LAN interface board with a buzzer function.

Otherwise, the printer or the interface board may be damaged.

The name of interface boards with a buzzer function has "A" at the end.

Example) UB-E**A, UB-R**A (*: alphanumeric character)

Buzzer

- Model with the buzzer function
- Model without the buzzer function

CAUTION

The optional external buzzer and the internal buzzer cannot be used together at the same time.

Color

- ECW (Epson Cool White)
- EDG (Epson Dark Gray)

Accessories

Included

- Roll paper (for operation check)
- Power switch cover
- AC adapter*
- AC cable*

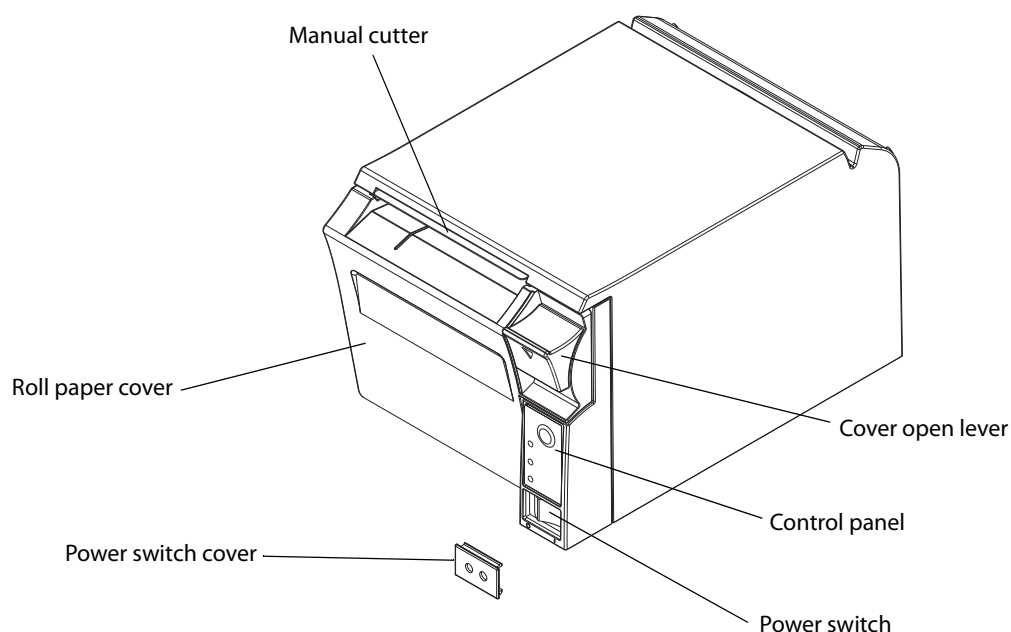
- Locking wire saddle*
- The TM-T70II Software & Documents Disc (drivers, utility software, and manuals)*
- Setup Guide
- Warranty certificate*

* May not be included depending on the model.


Options

- AC adapter
- AC cable
- Connector cover (Model: OT-CC702W/OT-CC702B)
Protects cables and interface connected to the printer.
- Affixing tapes for fixing the printer (Model: DF-10)
- Interface boards (UB series)
- Optional external buzzer (Model: OT-BZ20)

Parts Name and Function



Power Switch

Turns the printer on or off. The marks on the switch: ( / |)



Before turning on the printer, be sure to check that the AC adapter is connected to the power supply.

CAUTION

Before turning the printer off, it is recommended to send a power-off command to the printer. If you use the power-off sequence, the latest maintenance counter values are saved. (Maintenance counter values are usually saved every two minutes.)
For detailed information about ESC/POS commands, see the ESC/POS Command Reference.

Power Switch Cover

Install the power switch cover that comes with the TM-T70II onto the printer to prevent inadvertent changing of the power switch, to prevent tampering, and to improve the appearance of the printer.

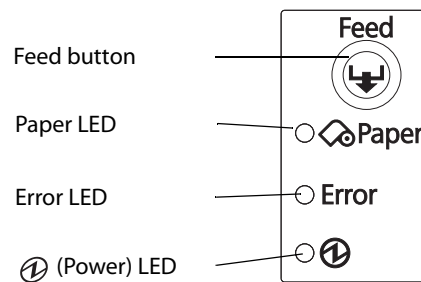
To reset the printer when the power switch cover is installed, insert a long, thin object (such as the end of a paper clip) into the hole in the power switch cover and press the power switch.



If an accident occurs with the power switch cover attached, unplug the power cord immediately.

Continued use may cause fire or shock.

Control Panel



Feed button

Pressing this button once feeds the roll paper by one line. Holding this button down feeds the roll paper continuously.

LEDs

Paper LED (orange)

- Lights when there is little remaining.
- Off when there is a sufficient amount of roll paper remaining.
- Flashes when a self-test is in progress or when macro execution standby state.

Error LED (orange)

Lights or flashes when the printer is offline.

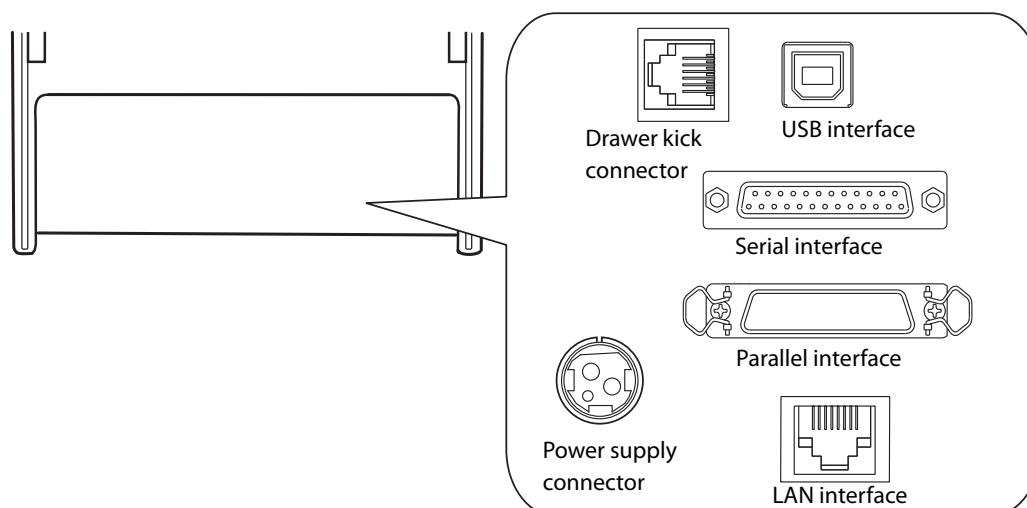
- Lights after the power is turned on or after a reset (offline). Automatically goes out after a while to indicate that the printer is ready.
- Lights when the end of the roll paper is detected, and when printing has stopped (offline). If this happens, replace the roll paper.
- Flashes when an error occurs. (For details about the flash codes, see ["Error Status" on page 17.](#))
- Goes out during regular operation (online).

POWER LED (green)

- Lights when the power supply is on.
- Goes out when the power supply is turned off.

Connectors

All cables are connected to the connector panel on the lower rear of the printer.



- **Drawer kick connector:** Connects the cash drawer or the optional external buzzer.
- **Power supply connector:** Connects the AC adapter.
- **Interface connector:** Connects the printer with the host computer interface.

CAUTION

For printers on which the standard USB connector has a cap, you cannot use the standard USB interface.

NOTE

For details on the various interfaces and how to connect the power supply connector and cash drawer, see ["Connecting the Printer to the Host Computer" on page 24](#) and ["Connecting the Cash Drawer" on page 45](#).

Offline

The printer automatically goes offline under the following conditions:




- During power on (including resetting with the interface) until the printer is ready
- During the self-test
- When the roll paper cover is open
- While roll paper is fed using the Feed button
- When the printer stops printing due to a paper-end (if an empty paper supply is detected by the roll paper end sensor or if the driver has been set to stop printing when a roll paper near-end is detected)
- During a macro execution standby state
- When an error has occurred

Error Status

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


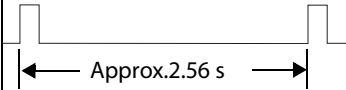
Automatically Recoverable Errors

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

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

Recoverable Errors

Printing is no longer possible when recoverable errors occur. They can be recovered easily by sending an error recovery command after eliminating the cause of the error.

Error	Error description	Error LED flash code 	Recovery measure
Autocutter error	Autocutter does not work correctly.		Remove the jammed paper or foreign matter in the printer, close the roll paper cover, send the error recover command.

CAUTION


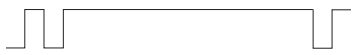



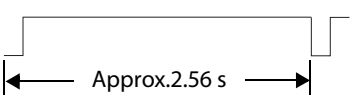
The error recovery command is valid only if a recoverable error (excluding automatically recoverable errors) occurs.

Unrecoverable Errors

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



Turn off the power immediately when unrecoverable errors occur.

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

NV Memory (Non-Volatile Memory)

The printer's NV memory stores data even after the printer power is turned off. NV memory contains the following memory areas for the user:

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



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. Even with a serial interface model whose communication speed is low, high speed graphics printing is possible.

Use the TM-T70II Utility to register graphics. You can also use the TM-T70II Utility or the NV graphics information print mode to confirm the registered graphics.



- For detailed information about the TM-T70II Utility, see the TM-T70II Utility User's Manual.
- For information about how to use the NV graphics information print mode, see ["NV Graphics Information Print Mode" on page 50](#).

User NV Memory

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



For information about ESC/POS commands, see the ESC/POS Command Reference.

Memory Switches

With the memory switches, which are software switches for the printer, you can configure various settings of the printer. For information about the memory switches, see ["Setting the Memory Switches/Receipt Enhancement" on page 32](#).

R/E (Receipt Enhancement)

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

For information about R/E, see ["Setting the Memory Switches/Receipt Enhancement" on page 32](#).

User-defined Page

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

NOTE

- For the character code table, see ["Character Code Tables" on page 101](#).
- User-defined page is not supported by South Asia font models.

Maintenance Counter

With this function, printer information, such as the number of lines printed, the number of autocuts, and printer operation time after the printer starts working, is automatically stored in NV memory. You can read the information with the Status API of the APD or OPOS ADK to use it for periodical checks or part replacement.

NOTE

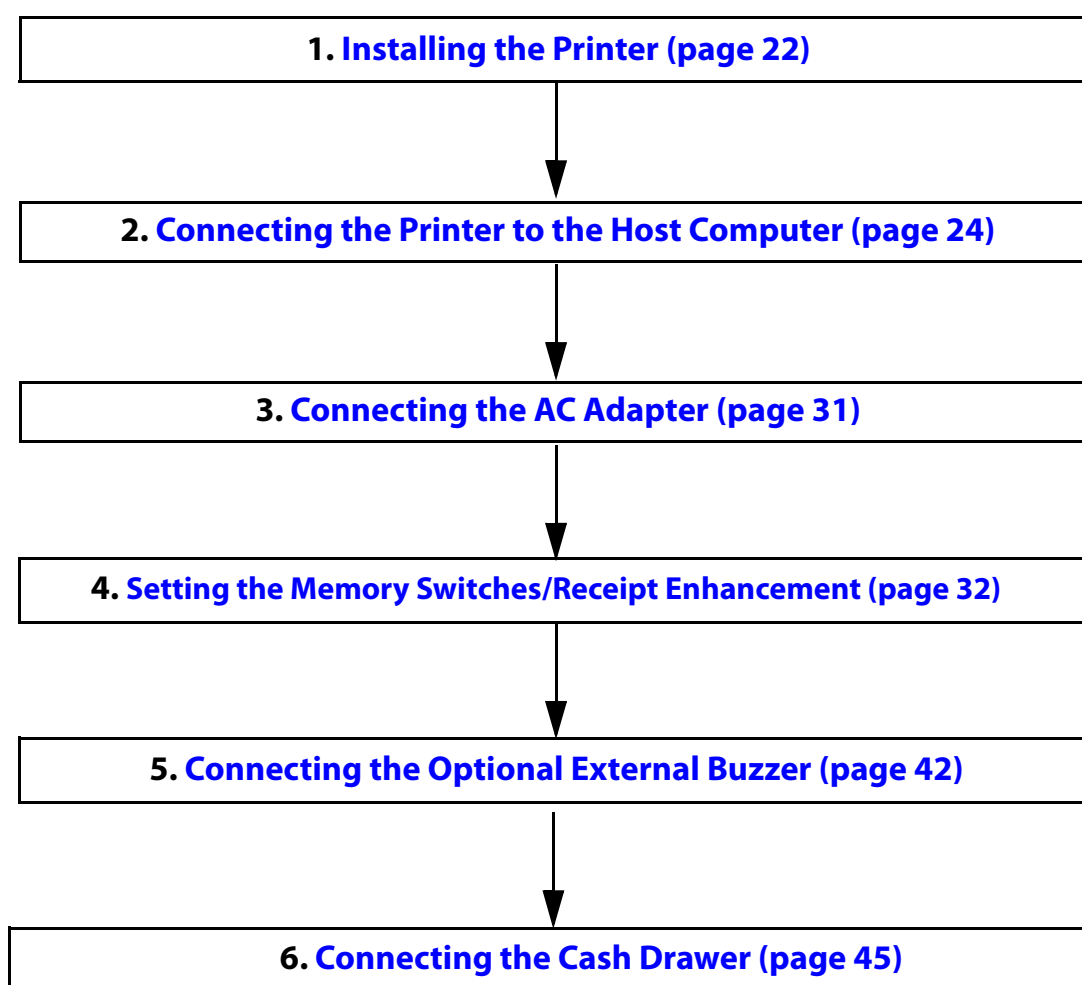
Maintenance Counter can be checked with the TM-T70II Utility or in a self-test.

Setup

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

Flow of Setup

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



Installing the Printer

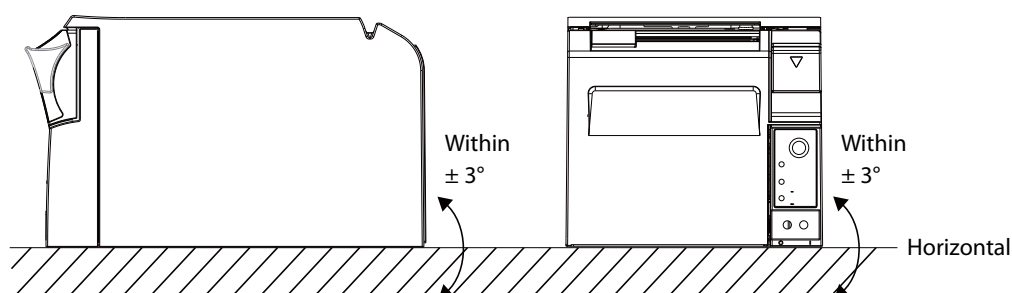
You can install this printer only horizontally.

Fix the printer so that it does not move around when you open the roll paper cover and cut roll paper. A tape for fixing the printer is available as an option. (See ["Affixing Position of DF-10" on page 23.](#))

As shown in the figure below, install the printer with a maximum tilt of 3°.

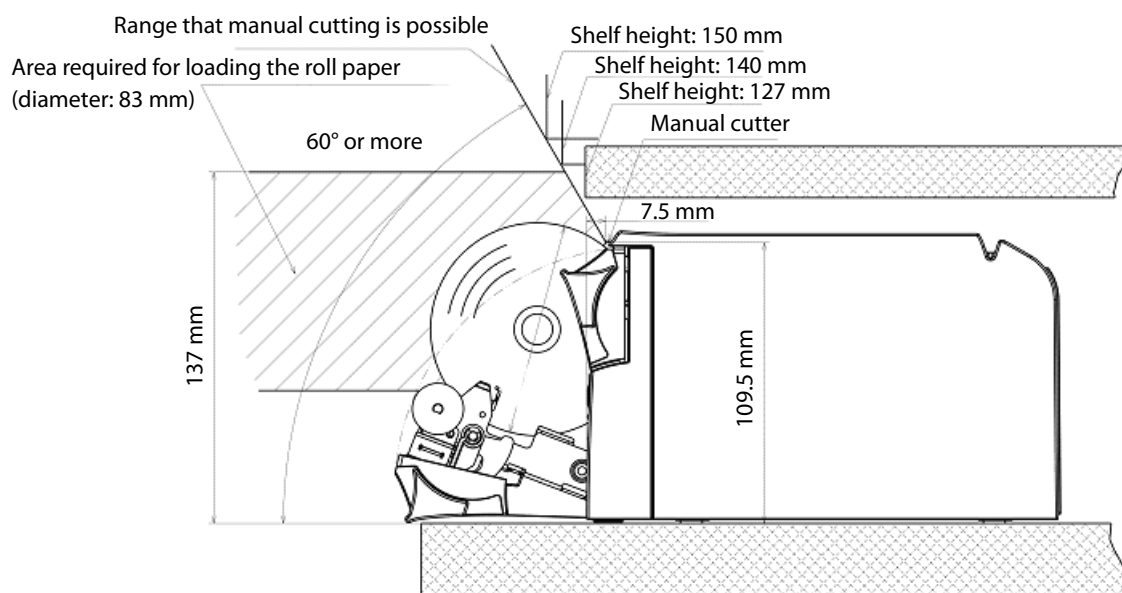
Installing the printer with a tilt of more than 3° may cause the following problems.

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



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

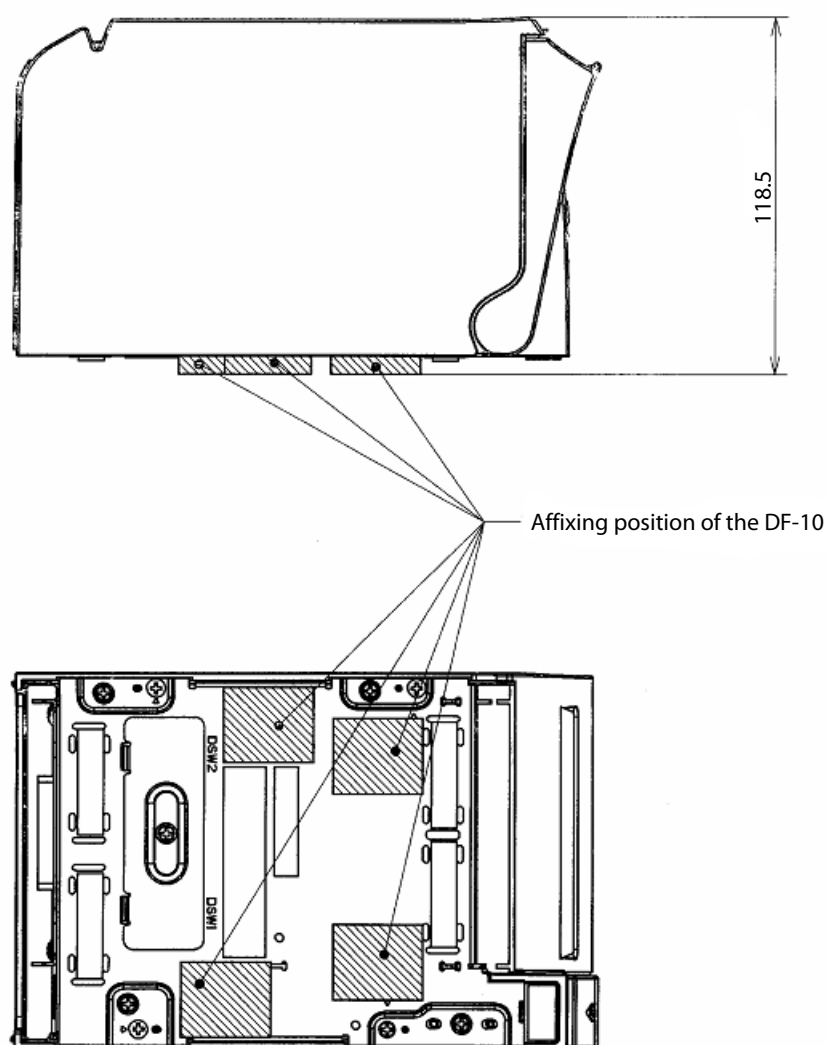


Important Notes on Installation

- The printer must be installed horizontally.
- Do not place the printer in dusty locations.
- Do not catch cables or foreign matter under the printer.
- Do not put anything that has a force of more than 32.7 N {3 kgf} on the top of the printer.

Affixing Position of DF-10

When you use the affixing tapes for fixing the printer (Model: DF-10), paste them as shown in the figure below.



Connecting the Printer to the Host Computer

CAUTION

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

For Serial Interface

Serial interface connection diagram

When this printer is connected to a host computer by the serial interface, two connection forms are possible:

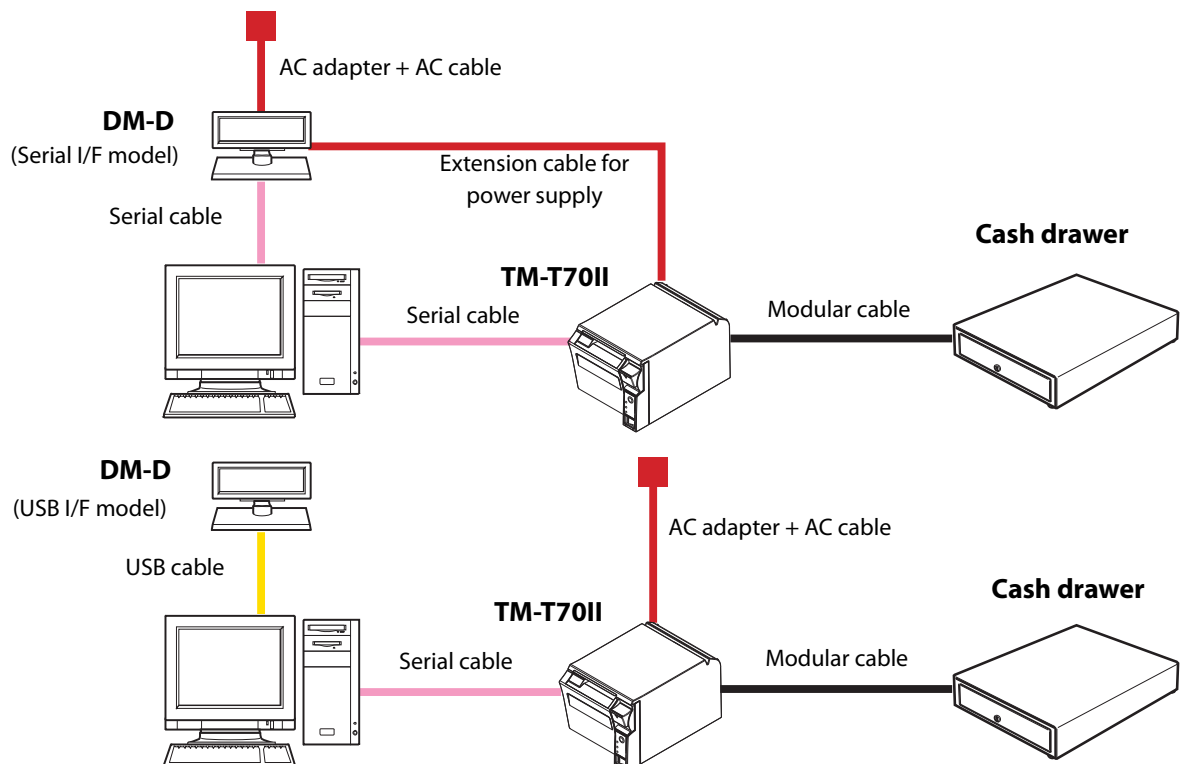
- Stand alone
- Y connection

NOTE

- The modular cable is mounted on the cash drawer.
- Use the extension cable for power supply bundled with the customer display.

Stand alone

This printer is connected to the host computer via the serial port. When a customer display (DM-D) is to be connected, connect it to the host computer via the serial port or USB port.

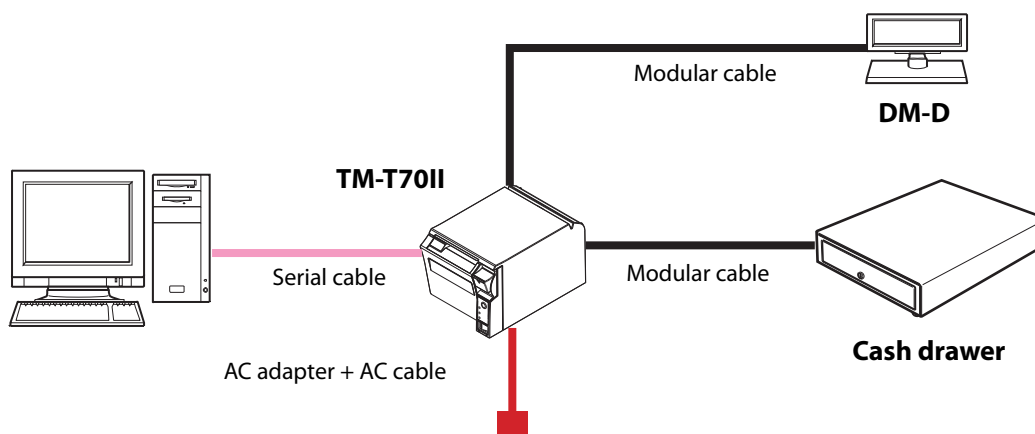


Y connection (only for models with a customer display (DM-D) connector)

This printer is connected to the host computer via the serial port. When a customer display (DM-D) is to be connected, connect it to the printer via the modular cable.

CAUTION

- Make sure to pull out the power cable before connecting cables.
- When connecting a customer display to the printer, connect the modular jack from the customer display to the DM-D connector.
- Set the communication conditions of the customer display as follows:
 - * Baud rate: 19200 bps
 - * Bit length: 8-bit
 - * Parity: no parity
 - * Stop bit: 1



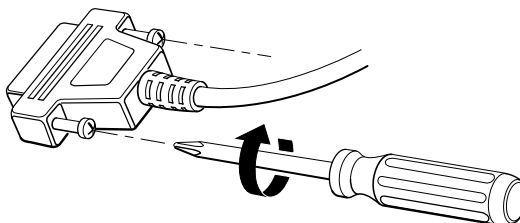
2

Connecting the serial interface (RS-232) cable

**WARNING**

Be sure to turn off the power supply for both the printer and host computer before connecting the cables.

- 1 Insert the interface cable connector firmly into the interface connector on the connector panel.
- 2 When using connectors equipped with screws, tighten them to secure the connectors firmly.



- 3 When using interface cables equipped with a grounding line, attach the ground line to the screw hole marked "FG" on the printer.
- 4 Connect the other end of the interface cable to the host computer.

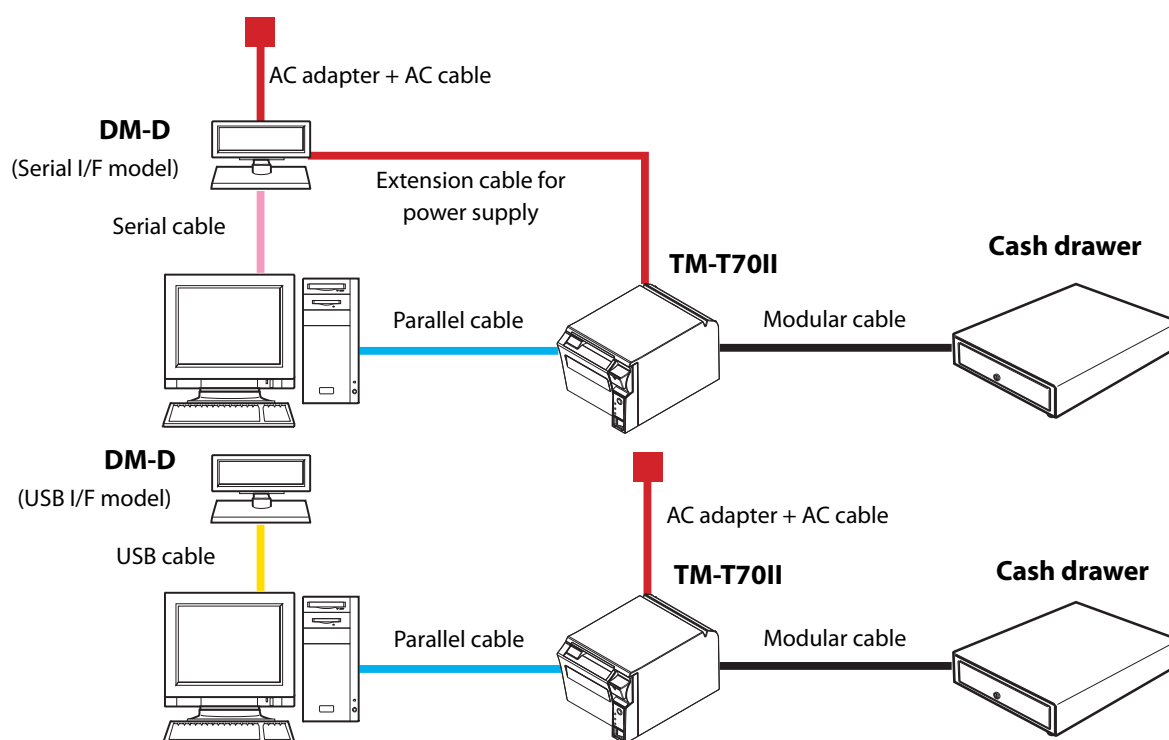
For Parallel Interface

Parallel interface connection diagram

This printer is connected to the host computer via the parallel port. When a customer display (DM-D) is to be connected, connect it to the host computer via the serial port or USB port.

NOTE

- The modular cable is mounted on the cash drawer.
- Use the extension cable for power supply bundled with the customer display.



Connecting the parallel interface cable

- 1 Insert the interface cable connector firmly into the interface connector on the connector panel.
- 2 Press down the clips on either side of the connector to lock it in place.
- 3 When using interface cables equipped with a ground line, attach the ground line to the screw hole marked "FG" on the printer.
- 4 Connect the other end of the interface cable to the host computer.

For USB Interface

USB interface connection diagram

When this printer is connected to the host computer by the USB interface, two connection forms are possible:

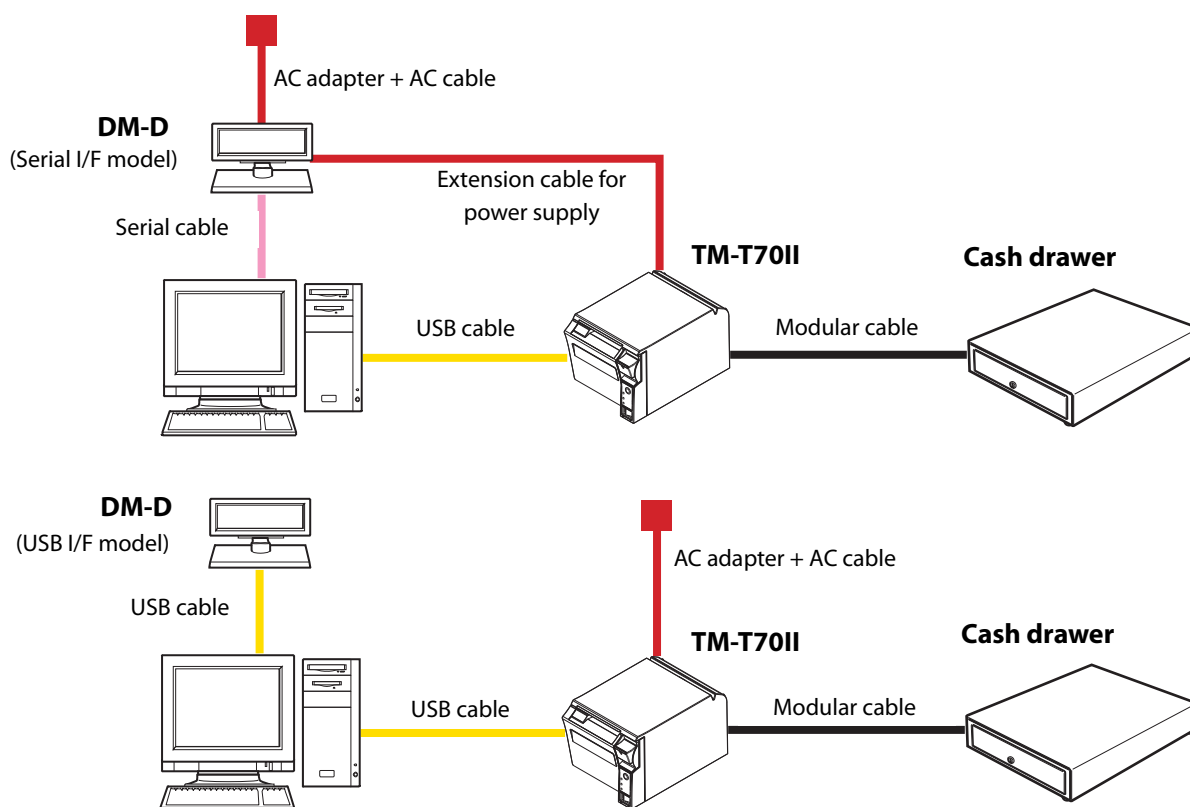
- Stand alone
- Y connection

NOTE

- The modular cable is mounted on the cash drawer and the customer display.
- Use the extension cable for power supply bundled with the customer display.

Stand alone

This printer is connected to the host computer via the USB port. When a customer display (DM-D) is to be connected, connect it to the host computer via the serial port or USB port.

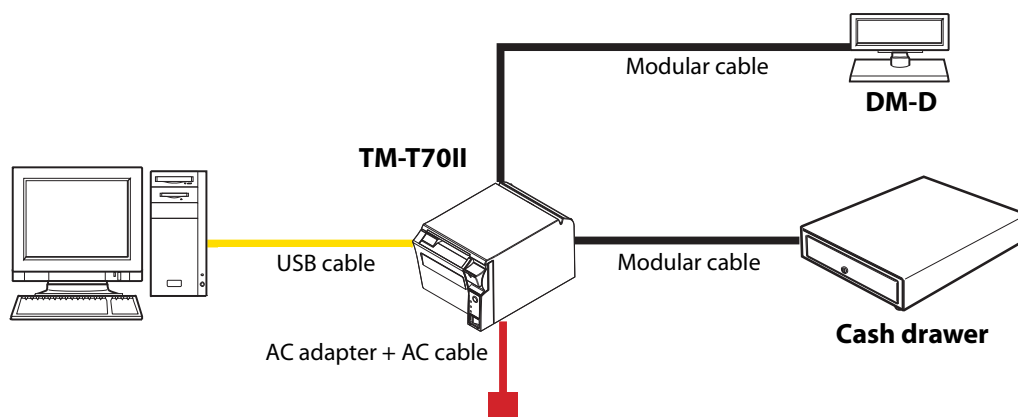


Y connection (only for models with a customer display (DM-D) connector)

This printer is connected to the host computer via the USB port. When a customer display (DM-D) is to be connected, connect it to the printer via the modular cable.

CAUTION

- Make sure to pull out the power cable before connecting cables.
- When connecting a customer display to the printer, connect the modular jack from the customer display to the DM-D connector.
- Set the communication conditions of the customer display as follows:
 - * Baud rate: 19200 bps
 - * Bit length: 8-bit
 - * Parity: no parity
 - * Stop bit: 1

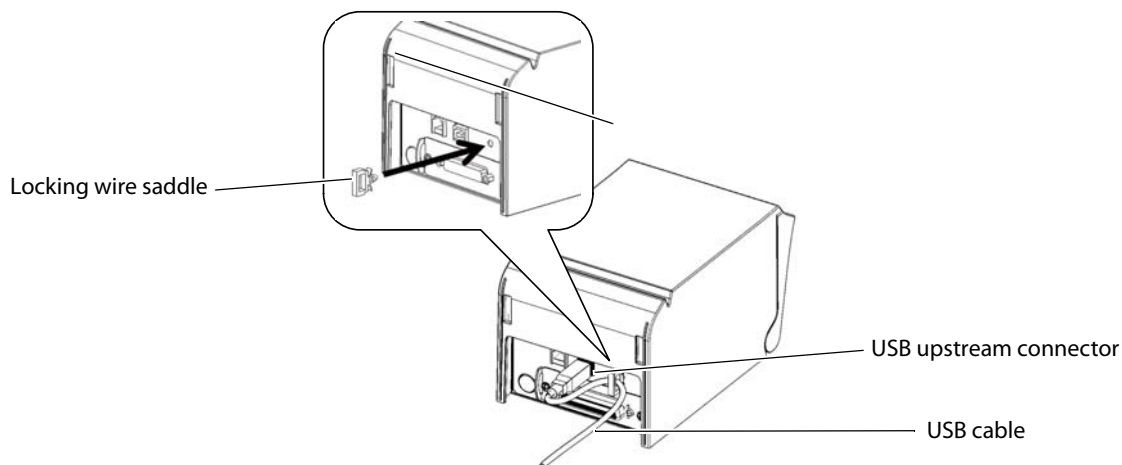


Connecting the USB interface cable

- 1 Attach the locking wire saddle at the location shown in the figure below.
- 2 Put the USB cable through the locking wire saddle.

CAUTION

Putting the USB cable through the locking wire saddle, as shown in the figure below, prevents the cable from coming unplugged.



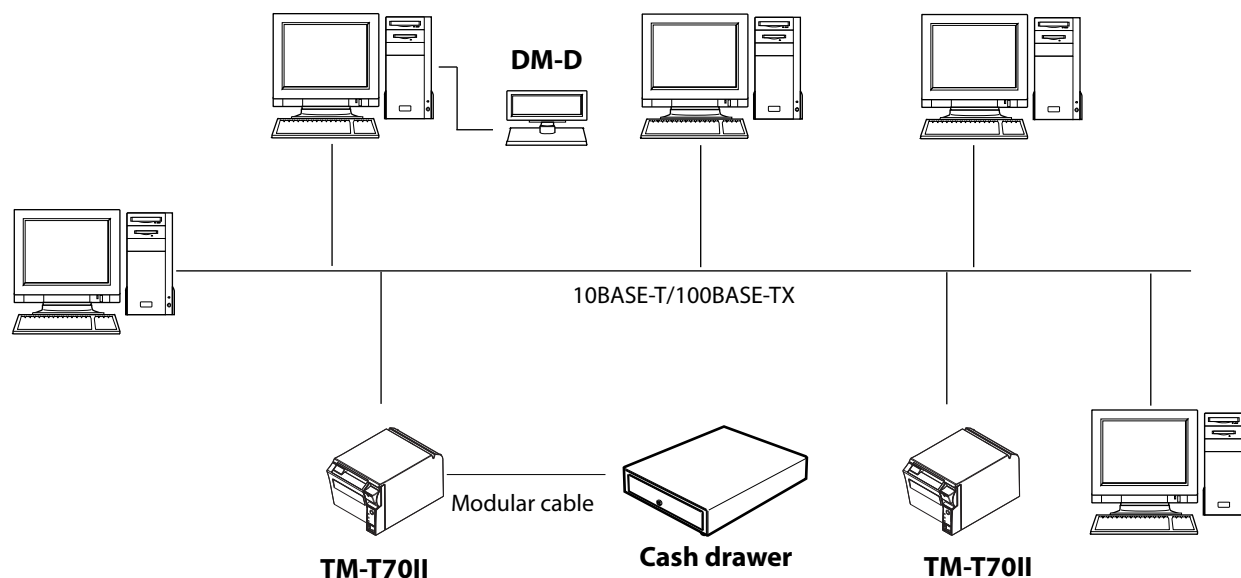
- 3 Connect the USB cable from the host computer to the USB upstream connector.

For LAN Interface

Connect the printer to a network by a LAN cable via a hub.

For the setting method of the IP address, see the Technical Reference Guide for the interface board.

LAN interface connection diagram



CAUTION

A customer display (DM-D series) cannot be connected to the printer when the printer is connected to the host computer. To connect the customer display, connect the printer to the host computer via the serial interface or the USB interface.

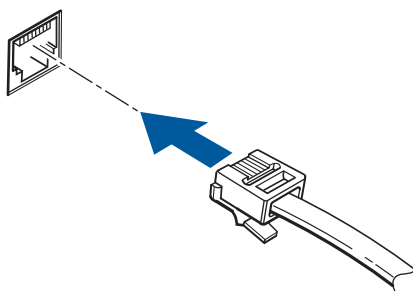
Connecting the LAN interface cable



CAUTION

- When LAN cables are installed outdoors, make sure devices without proper surge protection are cushioned by being connected through devices that do have surge protection. Otherwise, the devices can be damaged by lightning.
- Never attempt to connect the customer display cable, drawer kick-out cable, or the standard telephone line cable to the LAN connector.

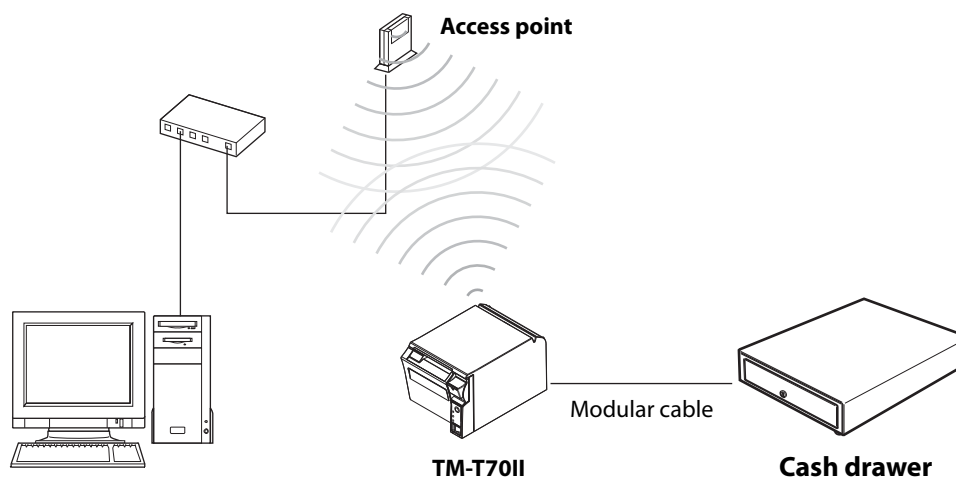
Connect a 10BASE-T/100BASE-TX cable to the LAN connector by pressing firmly until the connector clicks into place.



For Wireless LAN Interface

For details on how to set up a wireless LAN interface, see the Technical Reference Guide for the wireless LAN interface board or the wireless LAN interface unit.

Wireless LAN interface connection diagram



For Bluetooth Interfaces

Connecting to smart devices

You can connect by using your smart device's *Bluetooth* connection settings as well as by using the Epson TM Utility "Bluetooth Setup Wizard". See the *iOS Bluetooth®* TM Printer Technical Reference Guide for details on connecting to iOS devices.

Connecting to Windows PCs

You can connect quickly and easily by using the EPSON TM *Bluetooth®* Connector utility. Start the utility, select the search method, and then click [Search]. Select the printer you want to pair with, and then click [Connect]. If a passkey entry screen is displayed, enter the Passkey, and then click [OK]. Select the port you want to use from the drop-down list, and then click [OK]. The [Connection complete] screen is displayed.

NOTE

- The device name displayed during pairing is TM-T70II_xxxxxx (where the last six digits are the product serial number).
- The default Passkey is "0000".

Connecting the AC Adapter

Use the PS-180 or an equivalent product as the AC adapter.

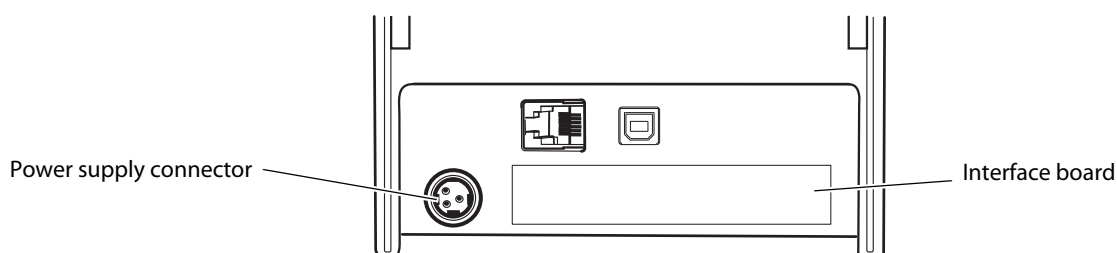


WARNING

- **Always use the PS-180 or an equivalent product as the AC adapter.**
Using a nonstandard power supply can result in electric shock and fire.
- **Should a fault ever occur in the PS-180 or equivalent product, immediately turn off the power to the printer and remove the power supply cable from the wall socket.**

Connecting the AC Adapter

- 1 Make sure the printer's power supply is turned off.
- 2 Connect the AC cable to the AC adapter.
- 3 Insert the DC cable onto the power supply connector (stamped **24V**).



CAUTION

Before removing the DC cable from the AC adapter, make sure the AC cable has been removed from the AC adapter, then grasp the arrow-marked section of the connector and pull straight out.

Setting the Memory Switches/Receipt Enhancement

With the memory switch and R/E (receipt enhancement) function, which are software settings for this printer, you can set the various functions.

For an outline of the functions, see the following section. Use the methods shown in the table below; TM-T70II Utility, Memory Switch Setting Mode, or ESC/POS commands, to set the memory switches and R/E functions.

Item\Method		TM-T70II Utility	Memory Switch Setting Mode	ESC/POS Commands
Memory Switches	Receive buffer capacity	✓	✓	✓
	BUSY condition	✓	✓	✓
	Processing when data receive error	✓	✓	✓
	Auto line feed	✓	✓	✓
	USB power-saving function	✓	✓	✓
	Release condition of receive buffer BUSY	✓	✓	✓
	Paper sensor to output paper-end signals default* ¹	✓		✓
	Error signal output	✓	✓	✓
	Customized Values	Print density	✓	✓
		Multi-tone print density	✓	✓
		Print speed	✓	✓
		Number of head energizing parts		✓
		Thai character print mode* ²	✓	✓
		Character code table default	✓	✓
		International character default	✓	✓
		Interface selection	✓	✓
		Autocutting after closing cover	✓	✓
		Paper reduction	✓	✓
		Font A auto replacement	✓	✓
		Font B auto replacement	✓	✓
		Buzzer	✓	✓
		TM-T70II command-compatible mode* ³	✓	✓
		Communication condition of serial interface	✓	✓
		Communication condition of USB interface	✓	✓
Receipt Enhancement	Auto top logo	✓* ⁴		✓
	Auto bottom logo	✓		✓
	Auto top/bottom logo extended functions	✓* ⁴		✓

dpi: dots per inch

*1: Enabled only for the parallel interface

*2: Enabled only for South Asia font models

*3: Enabled only for ANK models

*4: Excluding some functions.

NOTE

- For information about the TM-T70II Utility, see the TM-T70II Utility User's Manual.
- For information about how to use the memory switch setting mode, see ["Memory Switch Setting Mode" on page 52](#).
- For information about ESC/POS commands, see the ESC/POS Command Reference.

Functions

Receive buffer capacity

- 4 KB (initial setting)
- 45 bytes

BUSY condition

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

CAUTION

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

Processing when data receive error

- Prints "?" (initial setting)
- Ignored

Auto line feed

- Always disabled (initial setting)
- Always enabled

USB power-saving function

- Disabled
- Enabled (initial setting)

CAUTION

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

Release condition of receive buffer BUSY

- Releases when the remaining receive buffer capacity becomes 256 bytes (initial setting)
- Releases when the remaining receive buffer capacity becomes 138 bytes

CAUTION

This function is enabled only when Receive buffer capacity is set to 4 KB.

Paper sensor to output paper-end signals default (only for parallel interface models)

- Paper end sensor enabled, paper near-end sensor enabled
- Disabled (initial setting)

Error signal output

- Enabled (initial setting)
- Disabled

Print density

Selectable from levels 1 to 13 (70% ~ 130%)

Initial setting: level 7 (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 Level
TF50KS-E, P220AGB-1, AF50KS-E	Level 5 (90%)
TF60KS-E, PD160R, PD190R, KT48F20, KT55F20, F5041	Level 7 (100%)
P300, P310, P350	Level 8 (105%)

CAUTION

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

Multi-tone print density

Selectable from levels 1 to 13 (70% ~ 130%)

Initial setting for ANK models: level 7 (100%)

Initial setting for Simplified Chinese models, Traditional Chinese models, and South Asia font models: level 11 (120%)

CAUTION

- First change the print density, and then configure the Multi-tone print density.
- If 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)

Initial setting: level 13

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, or set the transmission speed higher for the serial interface.

Thai character print mode (only for South Asia font models)

- Thai 3 pass
- Thai 1 pass (initial setting)

Selecting the number of head energizing parts

- One-part energizing (initial setting)
- Two-part energizing

NOTE

- Usually, the number of head energizing parts does not need to be changed.
- When printing at the maximum speed, select "One-part energizing."

Character code table default

Selectable from 43 pages including user defined page

Initial setting: Page 0 (PC437: USA, Standard Europe)

NOTE

- For the character code table, see "[Character Code Tables](#)" on page 101.
- User-defined page is not supported by South Asia font models.

International character default

Selectable from 18 sets

Initial setting for Simplified Chinese models: China

Initial setting for ANK models, Traditional Chinese models, and South Asia font models: USA

NOTE

For the character code table, see ["Character Code Tables" on page 101](#).

Interface selection

Selectable from: automatic selection (initial setting), fixed to UIB interface, or fixed to built-in USB. The table below describes the modes you can set for the printer to control the dual interfaces.

Interface mode	UIB interface		Built-in USB
	Serial/Parallel	Interface other than Serial/Parallel	
Automatic selection	Available ^{*1}	Available ^{*2}	Available ^{*1,*2}
Fixed to UIB	Available	Available	Not available
Fixed to built-in USB	Not available	Not available	Available

CAUTION

For printers on which the standard USB connector has a cap, you cannot use the standard USB interface.

NOTE

- Automatic selection
 - *1: The interface of either the serial/parallel or built-in USB to which data is transmitted first is selected.
 - *2: When the USB cable is connected with a host PC, the USB interface is selected.
- Once the interface is selected, the selection is enabled until the power is turned off or the printer is reset.

Autocutting after closing cover

- Cuts
- Does not cut (initial setting)

Paper reduction

Extra upper space reduction

- Disabled (initial setting)
- Enabled

Extra lower space reduction

- Disabled (initial setting)
- Enabled

Line space reduction rate

- Not reduced (initial setting)
- 25%
- 50%
- 75%

Line feed reduction rate

- Not reduced (initial setting)
- 25%
- 50%
- 75%

Barcode height reduction rate

- Not reduced (initial setting)
- 25%
- 50%
- 75%

CAUTION

- Paper reduction is not performed for space dot lines of graphics printing data.
- When reducing barcode height, be sure to check reading a barcode with your barcode reader in advance.

Font A auto replacement

- Does not replace (initial setting)
- Font B

Font B auto replacement

- Does not replace (initial setting)
- Font A

Buzzer

NOTE

- For models without the internal buzzer function, the optional external buzzer (OT-BZ20) needs to be connected to use the buzzer function. For information about how to connect the optional external buzzer, see ["Connecting the Optional External Buzzer" on page 42](#).
- When the optional external buzzer is enabled, a cash drawer cannot be used. Be sure to disable it when you use a cash drawer.

Enables/disables

- Disabled
- Optional external buzzer is enabled
- Internal buzzer is enabled (initial setting)

Buzzer frequency (Error) (only for the optional external buzzer)

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

Sound pattern (Autocut) (only for the optional external buzzer)

Selectable from Patterns A to E

Initial setting: Pattern A

Buzzer frequency (Autocut) (only for the optional external buzzer)

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

Sound pattern (Pulse 1) (only for the optional external buzzer)

Selectable from Patterns A to E

Initial setting: Pattern A

Buzzer frequency (Pulse 1)

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

Sound pattern (Pulse 2) (only for the optional external buzzer)

Selectable from Patterns A to E

Initial setting: Pattern B

Buzzer frequency (Pulse 2)

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

TM-T70II command-compatible mode (only for ANK models)

- Disabled (initial setting)
- Enabled

Communication condition of serial interface

Transmission speed

- 2400 bps
- 4800 bps
- 9600 bps
- 19200 bps
- 38400 bps (initial setting for ANK models (with TM-T70II command-compatible mode enabled))
- 57600 bps
- 115200 bps (initial setting for ANK models (with TM-T70II command-compatible mode disabled), South Asia font models, Simplified Chinese models and Traditional Chinese models)

[bps: bits per second]

Parity

- None (initial setting)
- Even
- Odd

Data bit

- 7 bits
- 8 bits (initial setting)

CAUTION

If set to 7 bits, printing from a printer driver is not possible.

Flow control

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

Communication condition of USB interface

- USB printer class
- USB vendor-defined class (initial setting)

Auto top logo



TM-T70II Utility does not support the function for Number of lines to be deleted below top logo.

Key-code

Selectable from key-codes of registered logos

Alignment

- Left (initial setting)
- Center
- Right

Number of lines to be deleted below top logo

Auto bottom logo

Key-code

Selectable from key-codes of registered logos

Alignment

- Left (initial setting)
- Center
- Right

Auto top/bottom logo extended functions



TM-T70II Utility does not support the following functions.

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

Top logo print while paper feeding to the cutting position

- Disabled
- Enabled (initial setting)

Top logo print when printer is powered on

- Disabled (initial setting)
- Enabled

Top logo print when roll paper cover is closed

- Disabled
- Enabled (initial setting)

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

- Disabled
- Enabled (initial setting)

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

- Disabled (initial setting)
- Enabled

Connecting the Optional External Buzzer

When using the optional external buzzer (OT-BZ20), install the optional external buzzer.

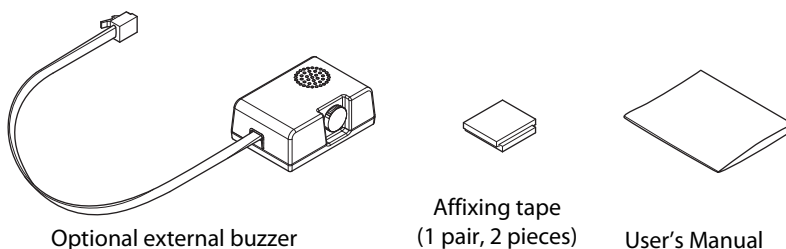
If your printer is not equipped with a buzzer, you can use the optional external buzzer (OT-BZ20) by connecting it to the drawer.

CAUTION

- The optional external buzzer and the drawer cannot be used together at the same time.
- If you configure the memory switch setting to enable the optional external buzzer, the drawer cannot be opened because the pulse is not sent to the drawer kick connector pin.
- Make sure to use the accessory affixing tape to attach the optional external buzzer to the printer.
- Be careful not to spill water, oil, solvent, or any other liquid over the printer. Doing so may result in malfunction of the printer.

Unpacking

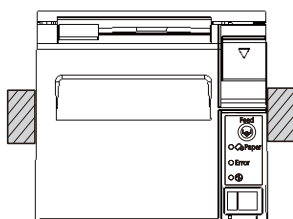
Open the package and confirm that it contains all of the parts listed in the illustration. If any parts are missing or damaged, please contact your dealer for assistance.



Installation Position

This product is recommended to be installed in the following position.

- Either side of the printer.



CAUTION

- Do not install the optional external buzzer at the roll paper exit.
- To prevent liquid from entering inside, it is recommended to install the optional external buzzer so that the volume adjustment knob is positioned sideways or downward. (For details of the volume adjustment knob, see ["Adjusting the Buzzer Volume" on page 44.](#))

Installation Procedures

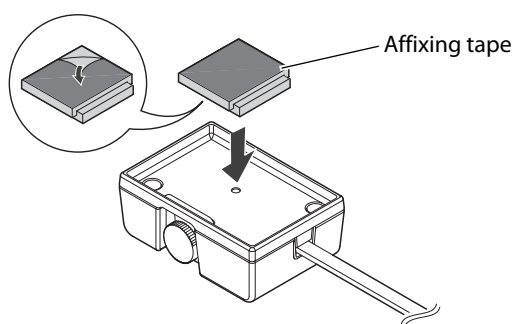
1 Turn off the printer.

CAUTION

Connect and disconnect the optional external buzzer while the printer is turned off. If you connect it while the printer is turned on, the buzzer does not function correctly.

2 Clean and dry the printer case where the optional external buzzer will be installed.

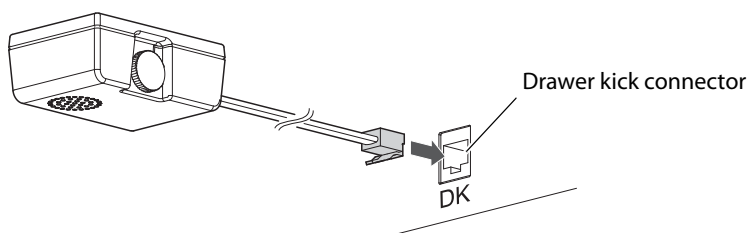
3 With 2 pieces of the affixing tape combined, peel off the sticker on one side, and paste it around the center of the attaching surface of the optional external buzzer.



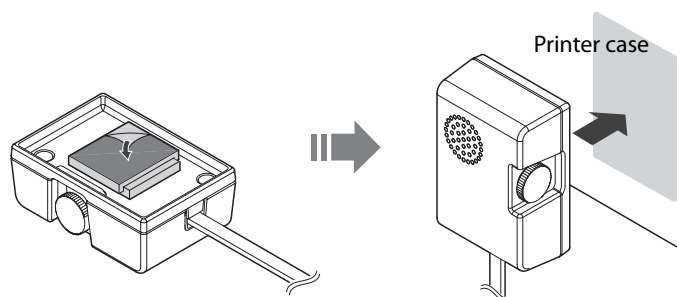
4 Connect the cable of the optional external buzzer to the drawer kick connector on the printer.

CAUTION

- Be sure to connect to the drawer kick connector on the applicable printer.
- Do not connect both the optional external buzzer and the drawer by using a splitter or similar device.



- 5** Peel off the sticker on the other side of the affixing tape, and attach and fix the optional external buzzer to the printer case.



- 6** Turn on the printer.

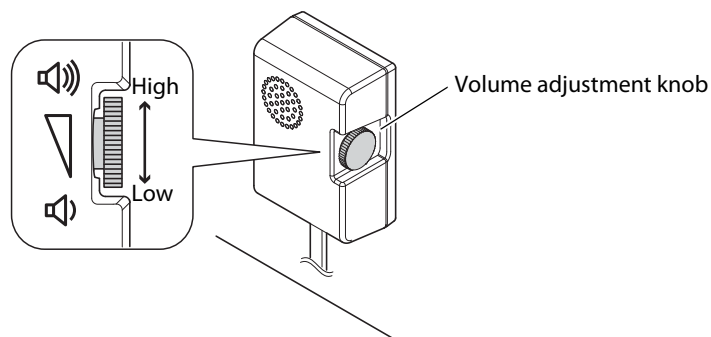
- 7** Make settings for the optional external buzzer on the printer.

CAUTION

- To use this product, be sure to enable the optional external buzzer with the printer setting.
- When the optional external buzzer is enabled with the printer setting, the drawer cannot be driven.

Adjusting the Buzzer Volume

Turn the volume adjustment knob to adjust the buzzer volume.



Setting the Optional External Buzzer

You need to set the memory switches for buzzer enable/disable setting, sound pattern setting, and frequency setting. For information about the memory switches, see ["Setting the Memory Switches/Receipt Enhancement"](#) on page 32.

Connecting the Cash Drawer

Use the cash drawer handled by EPSON or your dealer.

Connecting the Drawer Kick-out Cable



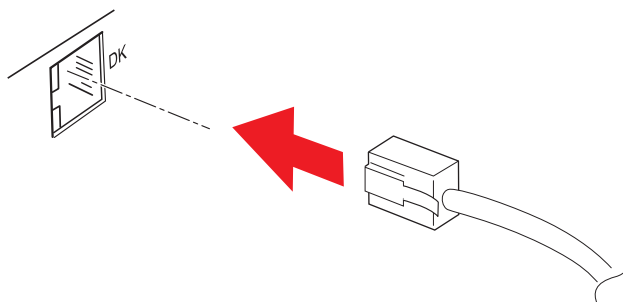
- **Specifications of drawers differ depending on makers or models. When you use a drawer other than specified, make sure its specification meets the following conditions.**

Otherwise, devices may be damaged.

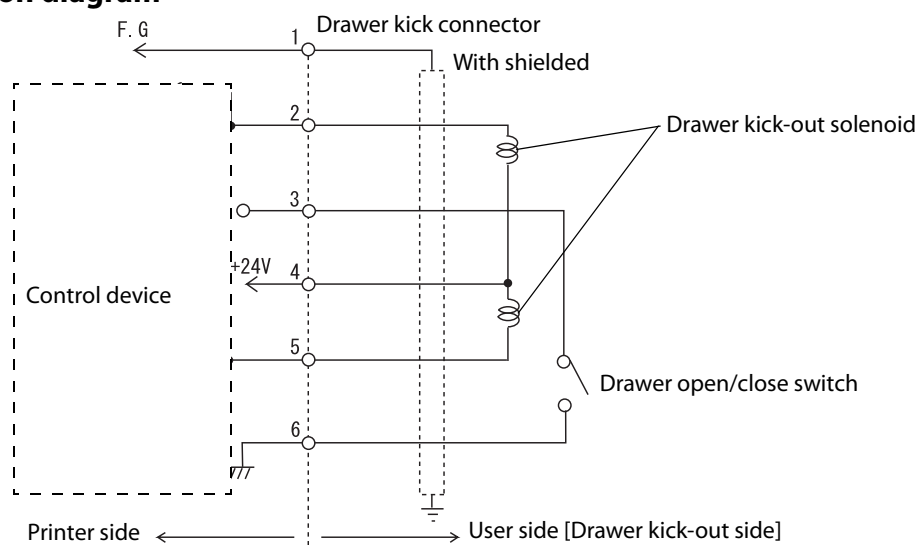
- * The load, such as a drawer kick-out solenoid, must be connected between pins 4 and 2 or pins 4 and 5 of the drawer kick connector.
- * When the drawer open/close signal is used, a switch must be provided between drawer kick connector pins 3 and 6.
- * The resistance of the load, such as a drawer kick-out solenoid, must be 24 Ω or more or the input current must be 1 A or less.
- * Be sure to use the 24 V power output on drawer kick connector pin 4 for driving the equipment.
- **Use a shield cable for the drawer connector cable.**
- **Two driver transistors cannot be energized simultaneously.**
- **Leave intervals longer than 4 times the drawer driving pulse when sending it continuously.**
- **Be sure to use the printer power supply (connector pin 4) for the drawer power source.**
- **Do not insert a telephone line into the drawer kick connector.**

Doing so may damage the telephone line or printer.

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



Drawer connection diagram



Setting the Internal Buzzer (for Models with an Internal Buzzer)

Models with the buzzer function can beep the buzzer when the drawer is opened, by setting the properties of the driver or outputting a pulse signal by a command. The internal buzzer cannot change the buzzer volume and sound pattern but can change the buzzer frequency. When using the internal buzzer, you need to enable the internal buzzer with the memory switch.

The buzzer setting is performed by setting the memory switches for the buzzer and specifying connector pin numbers to which a command outputs a pulse signal, as shown in the table below. For information about the memory switches, see ["Setting the Memory Switches/Receipt Enhancement" on page 32](#)

Memory switch	Specified connector pin	ON	OFF	Initial setting
Buzzer frequency (Pulse 1)	Drawer kick connector pin 2	Buzzer beeps.	Buzzer does not beep.	OFF
Buzzer frequency (Pulse 2)	Drawer kick connector pin 5	Buzzer beeps.	Buzzer does not beep.	ON

CAUTION

Since the buzzer drive signal and the cash drawer drive signal are common in the printer, do not use the same connector pin numbers to output the signal for the buzzer and the cash drawer.

NOTE

- For detailed information about ESC/POS commands, see the ESC/POS Command Reference.
- For detailed information about the driver control, see the manual for each driver.

Setting/Checking Modes

Besides the ordinary print mode, the printer has the following modes to set or check settings of the printer.

- Self-test Mode
- Hexadecimal Dumping Mode ([page 49](#))
- NV Graphics Information Print Mode ([page 50](#))
- Receipt Enhancement Information Print Mode ([page 51](#))
- Memory Switch Setting Mode ([page 52](#))

Self-test Mode

You can confirm the following information by running the self-test mode.

- Control ROM version
- Interface type
- Receive buffer size
- Busy conditions (depending on the interface type)
- Mounted multilingual fonts
- Thai character print mode (only for South Asia font models)
- Auto line feed (with a parallel interface)
- Print density
- TM-T70II command-compatible mode (only for ANK models)
- Maintenance counter information (head running length, number of times of autocutting)
- Memory switch settings

Follow the steps below to run this mode.

- 1 Close the roll paper cover.
- 2 While pressing the Feed button, turn on the printer. (Keep pressing the Feed button until the printer starts printing.)

The printer starts printing current status of the printer.



With the LAN interface, before printing starts, it takes 6 seconds if the IP address is fixed and 13 seconds if the IP address is obtained with the automatic setting. (It may take longer depending on the response time from the host.)

When the printer finishes printing the printer status, the following message is printed and the Paper LED flashes. (The printer is now in the self-test wait mode.):

“Select Modes by pressing Feed button.

Continue SELF-TEST: Less than 1 second

Mode Selection : 1 second or more"

3 Press the Feed button while the printer is in the self-test wait mode.

If you select the SELF-TEST, the printer prints a rolling pattern using only the built-in character set.

If you select the mode selection, follow the instructions printed by the printer.

After printing the following message, the printer is initialized and returned to the normal mode.

*** completed***

Hexadecimal Dumping Mode

In the hexadecimal dumping mode, the printer prints the data transmitted from a host computer in hexadecimal numbers and their corresponding characters.

Follow the steps below to run this mode.

CAUTION

- If there is no character corresponding to print data, "." is printed.
- If print data is less than one line, press the Feed button to print the line.
- Applications that confirm printer status may not work correctly during the hexadecimal dumping mode. The printer returns only the status for "Transmit real-time status."

- 1 Open the roll paper cover.
- 2 While pressing the Feed button, turn on the printer.
- 3 Close the roll paper cover.

The printer starts printing data received from then on in hexadecimal numbers and their corresponding characters.

Printing example:

```
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 ***
```

Turn off the printer or press the Feed button three times to return to the normal mode.

NV Graphics Information Print Mode

You can confirm the following information by running the NV graphics information print mode:

- 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, number of colors to be defined.
- NV graphics data



For detailed information about NV graphics, see "[NV Graphics Memory](#)" on page 19.

Follow the steps below to run this mode.

- 1** Close the roll paper cover.
- 2** While pressing the Feed button, turn on the printer. (Keep pressing the Feed button until the printer starts printing.)

The printer starts printing current status of the printer.



With the LAN interface, before printing starts, it takes 6 seconds if the IP address is fixed and 13 seconds if the IP address is obtained with the automatic setting. (It may take longer depending on the response time from the host.)

- 3** After the printing has been completed, press the Feed button for more than one second.
The printer starts printing instructions.
- 4** After the printing has been completed, press the Feed button.
- 5** Then press the Feed button for more than one second.

Turn the power off and on to return to the normal mode.

R/E (Receipt Enhancement) Information Print Mode

You can confirm the following information by running the R/E information mode:

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

Follow the steps below to run this mode.

- 1 Close the roll paper cover.
- 2 While pressing the Feed button, turn the power on. (Keep pressing the Feed button until the printer starts printing.)

The printer prints current status of the printer.

NOTE

With the LAN interface, before printing starts, it takes 6 seconds if the IP address is fixed and 13 seconds if the IP address is obtained with the automatic setting. (It may take longer depending on the response time from the host.)

- 3 After the printing has been completed, press the Feed button for more than one second.

The printer starts printing instructions.

- 4 After the printing has been completed, press the Feed button twice.

- 5 Then press the Feed button for more than one second.

Turn the power off and on to return to the normal mode.

Memory Switch Setting Mode

You can configure the memory switches of the printer.

- Receive buffer capacity
- Processing when data receive error
- USB power-saving function
- Error signal output
- Multi-tone print density
- Character code table default
- Interface selection
- Auto paper reduction
- Buzzer control
- Communication condition of USB interface
- BUSY condition
- Auto line feed
- Release condition of receive buffer BUSY
- Print density
- Print speed
- International character default
- Autocutting after closing cover
- Font auto replacement
- Communication condition of serial interface
- TM-T70II command-compatible mode (only for ANK models)

NOTE

For detailed information about memory switches, see "[Setting the Memory Switches/Receipt Enhancement](#)" on page 32.

Starting the memory switch setting mode

Follow the steps below to run this mode.

- 1 Close the roll paper cover.
- 2 Turn on the printer while pressing the Feed button. (Keep pressing the Feed button until the printer starts printing.)
The printer prints current status of the printer.

NOTE

With the LAN interface, before printing starts, it takes 6 seconds if the IP address is fixed and 13 seconds if the IP address is obtained with the automatic setting. (It may take longer depending on the response time from the host.)

- 3 After the printing has been completed, press the Feed button for more than one second.
The printer starts printing instructions.

- 4** After the printing has been completed, press the Feed button three times.
- 5** Then press the Feed button for more than one second.
The printer starts printing instructions for settings. Follow the instructions.

After one setting has been completed, the printer stores the setting and then starts initializing. After that, the printer returns to the normal mode.

Setting the memory switch

Follow the steps below to run this mode.

Enter the memory switch setting mode.

1. Check that the roll paper is set and that the printer is turned off.
 2. While pressing the Feed button, turn on the printer. Keep pressing the Feed button until the printer starts printing.
 3. When the printer finishes printing the printer status, press the Feed button. Keep pressing the Feed button until the printer starts printing.
 4. Press the Feed button three times.
 5. Then press the Feed button. Keep pressing the Feed button until the printer starts printing.
- The printer starts printing instructions for settings. Follow the instructions.

Select the setting item

Select the setting item by the number of times the Feed button is pressed as follows.

When the Feed button is not pressed (0 times) or it is pressed more than 12 times, this mode finishes.

- | | |
|--|---|
| <input type="checkbox"/> 1: Print Current Settings | <input type="checkbox"/> 6: Default Character |
| <input type="checkbox"/> 2: Print Density | <input type="checkbox"/> 7: Embedded Font Replacement |
| <input type="checkbox"/> 3: Serial Interface Settings | <input type="checkbox"/> 8: Interface Selection |
| <input type="checkbox"/> 4: Automatic Paper Reduction | <input type="checkbox"/> 9: USB Interface Settings |
| <input type="checkbox"/> 5: Auto Paper Feed&Cut at cover close | <input type="checkbox"/> 10: Printing Speed |
| | <input type="checkbox"/> 11: Other Settings |

When the button is pressed less than or more than shown on the left, the setting has not been changed.

Set the conditions

You can make settings for each condition per setting item by the number of times the Feed button is pressed.

- | | |
|---|--|
| <input type="checkbox"/> Print Current Settings | <input type="checkbox"/> Embedded Font Replacement (page 56) |
| <input type="checkbox"/> Print Density (page 55) | <input type="checkbox"/> Interface Selection (page 56) |
| <input type="checkbox"/> Serial Interface Settings (page 55) | <input type="checkbox"/> USB Interface Settings (page 56) |
| <input type="checkbox"/> Automatic Paper Reduction (page 55) | <input type="checkbox"/> Printing Speed (page 57) |
| <input type="checkbox"/> Auto Paper Feed&Cut at cover close (page 55) | <input type="checkbox"/> Other Settings (page 57) |
| <input type="checkbox"/> Default Character (page 56) | |

Finish the memory switch setting mode

Turn off the printer. Print out the new settings and save them to the NV memory. Software is reset, and the printer is ready to print.

Setting conditions

- Print Density

Number of times to press the Feed button	Settings
0	No change
1	Monochrome
2	Multi-Tone

- Serial Interface Settings

Number of times to press the Feed button	Settings
0	No change
1	Baud Rate
2	Parity
3	Handshaking
4	Data Bits
5	Data Receive Error

- Automatic Paper Reduction

Number of times to press the Feed button	Settings
0	No change
1	Upper Margin
2	Lower Margin
3	Blank Line Spacing
4	Blank Space
5	Barcode Height

- Auto Paper Feed&Cut at cover close

Number of times to press the Feed button	Settings
0	No change
1	Enable
2	Disable

- Default Character

Number of times to press the Feed button	Settings
0	No change
1	Code Page
2	International Character Set

- Embedded Font Replacement

Number of times to press the Feed button	Settings
0	No change
1	Font A Replacement
2	Font B Replacement

- Interface Selection

Number of times to press the Feed button	Settings
0	No change
1	UIB
2	Built-in USB
3	Auto

- USB Interface Settings

Number of times to press the Feed button	Settings
0	No change
1	Class
2	USB Power Saving

- Printing Speed

Number of times to press the Feed button	Settings
0	No change
1	Level 1 (Slow)
2	Level 2
3	Level 3
4	Level 4
5	Level 5
6	Level 6
7	Level 7
8	Level 8
9	Level 9
10	Level 10
11	Level 11
12	Level 12
13	Level 13 (Fast)

- Other Settings

Number of times to press the Feed button	Settings
0	No change
1	TM-T70II Compatible Mode
2	Buzzer Control
3	Interface Settings



Application Development Information

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

Controlling the Printer

The printer supports the following command systems:

- ESC/POS

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

- OPOS ADK
- OPOS ADK for .NET
- JavaPOS ADK
- EPSON Advanced Printer Driver (APD)
- ePOS-Print SDK (for Android/iOS/Windows Store Apps/JavaScript)

ESC/POS

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

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

www.epson-biz.com/pos/reference/

Controlling the Cash Drawer

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

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

These controls are executed by a driver or by commands.

ESC/POS Commands

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

For details, see the ESC/POS Command Reference.

For Windows Printer Drivers (APD)

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

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

OPOS (OCX Driver)

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

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

OPOS for .NET

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

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

ePOS-Print SDK

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

NOTE

- Whether or not pin 2 or pin 5 operates the drawer kick connector depends on the connected cash drawer.
- You can acquire documents regarding the UnifiedPOS from the following link.
<https://www.omg.org/retail/unified-pos.htm>

Controlling the Built-in Buzzer

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

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

This is controlled by a driver or by commands.

ESC/POS Commands

The output command for the specified pulse is used.

For details, see the ESC/POS Command Reference.

For Windows Printer Drivers (APD)

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

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

OPOS (OCX Driver)

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

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

OPOS for .NET

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

For details, see the "EPSON OPOS ADK for .NET MANUAL Application Development Guide POSPrinter (TM-T70II)".

ePOS-Print SDK

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



When using a cash drawer operated by pin 5 with a built-in buzzer, you need to change the DIP switch settings for the buzzer circuit so that the buzzer beeps from a pulse signal for pin 2. For details, see ["Setting the Internal Buzzer \(for Models with an Internal Buzzer\)" on page 46](#).

Controlling the Optional External Buzzer

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

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

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

ESC/POS Command

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

For details, see the ESC/POS Command Reference.

For Windows Printer Drivers (APD)

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

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

OPOS (OCX Driver)

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

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

OPOS for .NET

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

For details, see the "EPSON OPOS ADK for .NET MANUAL Application Development Guide POSPrinter (TM-T70II)".

ePOS-Print SDK

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



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

Software and Manuals

The following software and manuals are provided for application development.

Development Kits

Software	Description	Target model
ePOS-Print SDK	This development kit is for controlling the printer from Web applications and native applications of smart devices. It includes libraries, manuals, and sample programs.	
for Android		Ethernet/ Wireless LAN / Bluetooth / USB
for iOS		Ethernet / Wireless LAN / Bluetooth
for Windows Store Apps		Ethernet / Wireless LAN / Bluetooth
for JavaScript		Ethernet ^{*1} / Wireless LAN ^{*2}

*1: Except for models with the following interface boards.

UB-E02, UB-E02A, UB-E03

*2: Except for models with the following interface boards.

UB-R02, UB-R02A, UB-R03, UB-R03A

Software	Description	Operating environment
EPSON OPOS ADK	This OCX driver can control POS peripherals using OLE technology ^{*1} . Because controlling POS peripherals with original commands is not required on the application side, efficient system development is possible.	Windows
EPSON OPOS ADK for .NET	The OPOS ADK for .NET is a POS industry standard printer driver compatible with Microsoft POS for .NET. It allows you to develop applications that are compatible with the UPOS (Unified POS) specification. When developing applications, use a separate development environment such as Microsoft Visual Studio .NET.	Windows

Software	Description	Operating environment
JavaPOS ADK	<p>JavaPOS is the standard specification which defines an architecture and device interface (API) to access various POS devices from a Java based system.</p> <p>Using JavaPOS standard API allows control with Java based applications of functions inherent to each device.</p> <p>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.</p> <p>You can use JavaPOS to build applications and drivers independently of platforms.</p> <p>This allows flexible configurations using thin clients to meet the system requirements.</p>	Windows, Linux

*1: OLE technology developed by Microsoft divides software into part blocks.

The OPOS driver is presupposed to be used with a development environment such as Visual Basic, unlike ordinary Windows printer drivers. It is not a driver to be used for printing from commercial applications.

Drivers

Software	Description	Operating environment
EPSON Advanced Printer Driver (APD)	In addition to ordinary Windows printer driver functions, this driver has controls specific to POS. The Status API (Epson original DLL) that monitors printer status and sends ESC/POS commands is also attached to this driver.	Windows
EPSON TM Virtual Port Driver	This is a serial/parallel-USB/LAN conversion driver to make an Epson TM/BA/EU printer connected via USB or LAN accessible from a POS application through a virtual serial or parallel port. It allows you to directly control devices connected via USB or LAN with ESC/POS commands without making changes in the POS application that controls devices connected via a serial or parallel interface.	Windows
TM-T70II Mac Printer Driver	<p>Mac printer driver allows you to control the TM-T70II using Common UNIX Printing System (CUPS) on Mac OS X.</p> <p>This is a full raster printer driver. It is able to print images, text, and vector graphics etc., that an application displays. With this driver many printer controls are possible, such as paper cut timing control, cash drawer control, print speed control, blank line skip, and upside-down printing. It also provides API and dialogues for print setting, sample applications, and logo setting utility.</p>	Mac

Software	Description	Operating environment
Epson TM/BA Series Thermal Printer Driver	<p>This driver allows you to control the TM-T70II using Common UNIX Printing System (CUPS) on GNU/Linux.</p> <p>This is a full raster printer driver. It is able to print images, text, and vector graphics etc., that an application displays. With this driver many printer control are possible, such as paper cut timing control, cash drawer control, print speed control, blank line skip, and upside-down printing.</p>	Linux

Utilities

Software	Description	Operating environment
TM-T70II Utility	<p>A utility for checking and changing various printer settings. Use this utility to:</p> <ul style="list-style-type: none"> • Checking current settings • Operation check • Storing logos • Coupon settings • Paper reduction settings • Automatic paper cut settings • Printing control settings • Font settings • Optional buzzer settings • Communication I/F settings • Backup/restore 	Windows
EpsonNet Config	<p>A network setting tool for Epson network products.</p> <p>In the case of this printer, you can use this tool to check and/or set network parameters by connecting the Wireless LAN model to a computer for setup via the USB interface.</p>	Windows, Mac
Monitoring Tool	Use to check a list of status for the Epson printers connected to the network.	Windows
Deployment Tool	Use to make network and printer settings simultaneously, via USB. Allows you to make settings efficiently at the time of introducing TM printers for the first time, or when configuring multiple TM printers at the same time.	Windows
BmpToRaster	This is a command line and GUI utility that converts Windows BMP files to raster graphics data for ESC/POS commands. You can create a variety of multiple tone or monochrome image print data. You can print graphics by sending the created binary file to the printer as it is.	Windows

Download

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

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

www.epson.com/support/

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

www.epson-biz.com/

Handling

This chapter describes basic handling of the printer.

Installing and Replacing Roll Paper



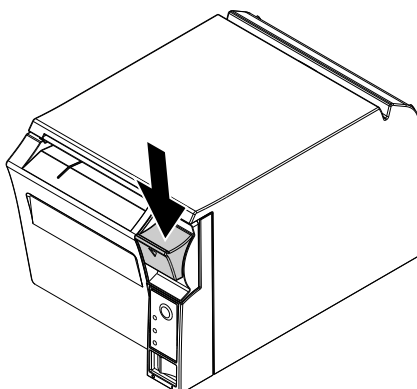
WARNING

- **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.

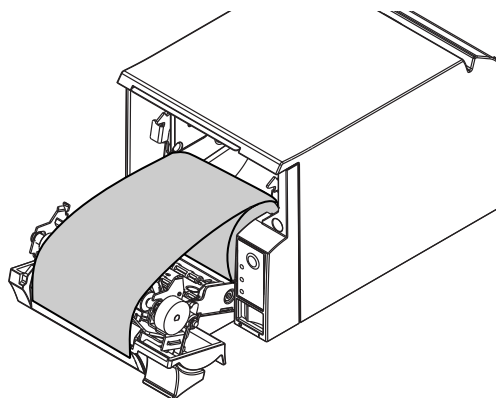
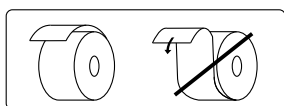
CAUTION

- Use roll paper that meets the printer specification. For details about paper specification, see ["Paper Specifications" on page 88](#).
- Paper must not be pasted to the roll paper spool.

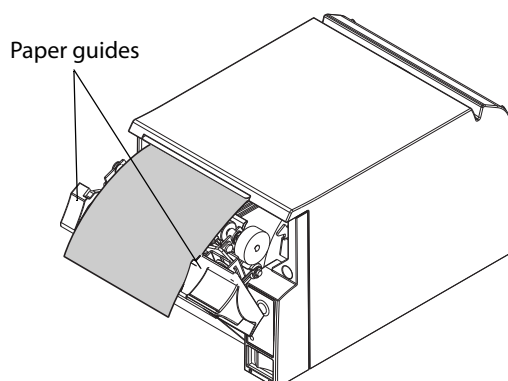
- 1 Press the cover open lever to open the roll paper cover.



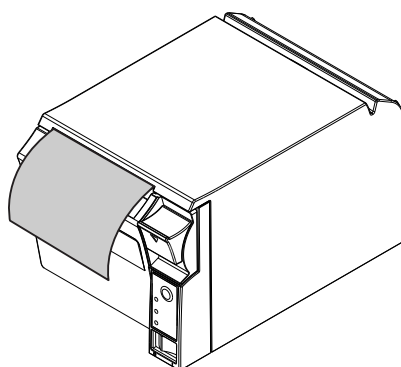
- 2 Remove the used roll paper core, if any.
- 3 In the correct direction of the roll paper, install the roll paper.



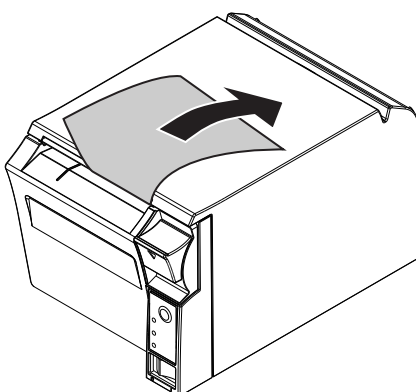
- 4** Pull out some roll paper, and make sure that the roll paper is set between the paper guides.



- 5** Close the roll paper cover.



- 6** Tear off the roll paper.



Removing Jammed Paper



Do not touch the thermal head (See "[Cleaning the Thermal Head](#)" on page 69.) because it can be very hot after printing.

- 1 Turn off the printer and press the cover open lever to open the roll paper cover.
- 2 Remove the jammed paper, reinstall the roll, and close the roll paper cover.

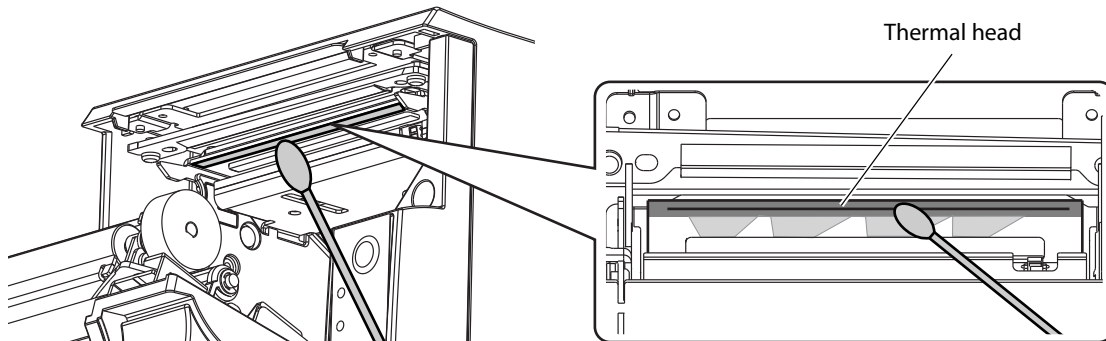
Cleaning the Thermal Head

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




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.

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



Preparing for Transport

Follow the steps below to transport the printer.

- 1** Turn off the printer.
- 2** Confirm that  LED is off.
- 3** Remove the power supply connector.
- 4** Remove the roll paper.
- 5** Pack the printer upright.

Replacement of the TM-T70

The TM-T70II is designed so that it can smoothly replace the TM-T70. This chapter describes precautions for the replacement.

Compatibility

Printing

The printing and character specifications are the same as those of the TM-T70. Without special configurations, the TM-T70II prints the same results as the TM-T70 prints.

Print Density

The print density of the TM-T70II can be set with the memory switch as can the TM-T70.

NOTE

For detailed information about the memory switch, see ["Setting the Memory Switches/Receipt Enhancement" on page 32.](#)

Number of Head Energizing Parts

For the TM-T70II, the initial setting of the number of head energizing parts is “One-part energizing.” You can change the setting with the memory switch (See ["Setting the Memory Switches/Receipt Enhancement" on page 32.](#)); however it does not usually need to be changed.

	TM-T70II	TM-T70
Number of head energizing parts	<ul style="list-style-type: none">One-part energizingTwo-part energizing	<ul style="list-style-type: none">58 mm width paper printing One-part energizing/Two-part energizing/Auto energizing80 mm width paper printing One-part energizing/Two-part energizing

Printable Area (for 80 mm Width Paper/58 mm Width Paper)

The printable area (left/right margins, print start position from the autocutting position, print start position from the manual cutting position) of the TM-T70II is the same as that of the TM-T70.

Cutting Method

The TM-T70II uses the partial cutting method (cutting with one point in left edge left uncut) as does the TM-T70.

Manual Paper Feed

Manual paper feed is not possible with the TM-T70II while it is possible with the TM-T70 after printing pauses.

Receive Buffer

You can set the receive buffer of the TM-T70II to 4 KB or 45 bytes with the memory switch, while you can set the receive buffer of the TM-T70 with the DIP switch. The buffer full condition and buffer full release condition of the TM-T70II are the same as those of the TM-T70.

Memory Capacity

The sizes of the download buffer and NV graphics data of the TM-T70II are the same as those of the TM-T70.

Electrical Characteristics

The operating voltage of the TM-T70II is DC $24 \pm 7\%$, the same as the TM-T70. The current consumption differs, depending on the print duty.

DIP Switches

TM-T70II does not have DIP switches; however, various functions can be set with memory switches. For detailed information about the memory switches, see ["Setting the Memory Switches/Receipt Enhancement" on page 32](#).

Printer Status

The TM-T70II goes to the same status under the same conditions as the TM-T70. You can replace the TM-T70II with the TM-T70 without modifying applications.

Logo Registration

The TM-T70II can register logos in the NV memory (NVRAM) with the TM-T70II Utility, while the TM-T70 can register logos with the TM Flash LOGO Setup Utility for NVRAM (TM-Flogo).

NOTE

For detailed information about the TM-T70II Utility, see the TM-T70II Utility User's Manual.

Driver Compatibility

You can operate the TM-T70II with a driver for the TM-T70 (APD Ver.3xx or later or APD Ver.4.54 or later).

CAUTION

You cannot operate the TM-T70 with a driver for the TM-T70II.

Advanced Printer Driver

When the TM-T70 was controlled by APD Ver. 4.00 ~ 4.53, you need to install APD Ver.4.54 or later versions.

OPOS ADK

If the TM-T70 was controlled by an OPOS ADK, you can replace it with the TM-T70II without modifying the OPOS ADK.

USB Power-Saving Function

With the TM-T70II, you can enable the USB power-saving function with the memory switch.

Maintenance Counter

For the TM-T70II, "Number of lines fed (when the print head was replaced)" is added.

Buzzer

For an application that can beep an internal buzzer of the TM-T70, the application can also beep an internal buzzer or optional external buzzer of the TM-T70II without any changes of the application. TM-T70II is available with an internal buzzer or without the buzzer. Even if you purchase the one without the buzzer, you can attach an optional external buzzer. You can beep the buzzer with the pulse signal using a command. (See ["Setting the Internal Buzzer \(for Models with an Internal Buzzer\)" on page 46](#), ["Connecting the Optional External Buzzer" on page 42](#).)

NOTE

For detailed information about ESC/POS commands, see the ESC/POS Command Reference.

Overall Dimensions

You can place the TM-T70II in the same location as the TM-T70, since its overall dimensions and weight are about the same as or smaller than those of the TM-T70.

Additional Functions and Functional Improvements

Print Speed

The TM-T70II has increased its print speed up to a maximum of 250 mm/s (200 mm/s for some models).

	TM-T70II	TM-T70
Maximum print speed	250 mm/s (200 mm/s for some models)	170 mm/s
Print speed setting	Levels 1 to 13	Levels 1 to 9

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

CAUTION

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

Barcodes

With the TM-T70II, printing the following barcodes, two-dimensional symbols and composite symbology is additionally possible.

- GS1-128
- GS1 DataBar Omnidirectional
- GS1 DataBar Truncated
- GS1 DataBar Stacked
- GS1 DataBar Stacked Ominidirectional
- GS1 DataBar Limited
- GS1 DataBar Expanded
- GS1 DataBar Expanded Stacked
- MaxiCode
- Composite Symbology

Number of Characters

For the TM-T70II, character code tables and international characters are added.

	TM-T70II	TM-T70
Character code tables	128 × 43 pages (including user-defined page)	128 × 11 pages (including user-defined page)
International characters	18 sets	16 sets

Image Tone Setting

The TM-T70II allows you to specify tone of images (2 tones/Multi-tone).

Interface

The USB interface is added to the main unit of the TM-T70II as standard equipment.

USB Class

When using the built-in USB interface or USB Plus Power, USB printer class can be used beside the USB vendor-defined class. This setting can be done with the memory switch. (See "[Setting the Memory Switches/Receipt Enhancement](#)" on page 32.)

Coupon Printing

The TM-T70II allows you to print coupons registered and set with the TM-T70II Utility.



For detailed information about the TM-T70II Utility, see the TM-T70II Utility User's Manual.

Memory Switches

For the TM-T70II, the following memory switches are added.

- Multi-tone print density
- Initial value of the character code table
- Initial value of the international character set
- Buzzer
- USB class
- Interface mode
- Paper autocutting after closing the cover
- Automatic paper-saving (upper space reduction)
- Automatic paper-saving (lower space reduction)
- Automatic paper-saving (line space reduction rate)
- Automatic paper-saving (line feed reduction rate)
- Automatic paper-saving (barcode height reduction rate)
- Font A replacement
- Font B replacement



For detailed information about the memory switches, see "[Setting the Memory Switches/Receipt Enhancement](#)" on page 32.

R/E Information Print Mode

The TM-T70II has a Receipt Enhancement (R/E) Information Print mode that lets you confirm the following information:

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

Reliability

The TM-T70II has improved reliability.

		TM-T70II	TM-T70
Life	Printer mechanism	17 million lines	15 million lines
	Print head	120 million pulses, 120 km	100 million pulses, 100 km
	Autocutter	1.7 million cuts	1.5 million cuts
MCBF		65 million lines	52 million lines

Appendix

Product Specifications

Printing method		Thermal line printing
Cutting method		Partial cut (cutting with one point in left edge left uncut)
Roll paper (single-ply) width		80 mm width paper printing: 79.5 ± 0.5 mm { 3.13 ± 0.02 "} 58 mm width paper printing: 57.5 ± 0.5 mm { 2.26 ± 0.02 "}
Interface		Serial (RS-232), Parallel (IEEE1284), LAN (10BASE-T/100BASE-TX), USB (Full-speed), Wireless LAN (IEEE802.11a/b/g/n), <i>Bluetooth</i> (<i>Bluetooth</i> Ver.2.1 + EDR)
Buffer	Receive buffer	4 KB/45 bytes (selectable using the memory switch)
	Downloaded buffer	12 KB (both for user-defined characters and downloaded images)
	Macro buffer	2 KB
	NV graphics memory	256 KB
	Download graphics memory	208 KB
	User NV memory	1 KB
Barcode/two-dimensional code printing		UPC-A, UPC-E, JAN 8 (EAN 8), JAN 13 (EAN 13), CODE 39, ITF, CODABAR (NW-7), CODE 93, CODE 128, GS1-128, GS1 DataBar Omnidirectional, GS1 DataBar Truncated, GS1 DataBar Stacked, GS1 DataBar Stacked Omnidirectional, GS1 DataBar Limited, GS1 DataBar Expanded, GS1 DataBar Expanded Stacked, PDF417, QR CODE, MaxiCode, Composite Symbology
DKD Function		2 drives
Supplied voltage		DC 24 V \pm 7%
Life	Mechanism	17 million lines
	Thermal head	120 million pulses, 120 km
	Autocutter	1.7 million cuts
	MTBF	360,000 hours
	MCBF	65 million lines
Temperature/humidity		Operating: 5 to 45°C {41 to 113°F}, 10 to 90% RH Storage: -10 to 50°C {14 to 122°F}, 10 to 90% RH
Overall dimensions (H \times W \times D)		114 \times 125 \times 194 mm {4.49 \times 4.92 \times 7.64"}
Weight (mass)		Approx. 1.7 kg {3.75 lb} (Roll paper excluded)

Printing Specifications

		80 mm width paper printing	58 mm width paper printing
Printing method		Thermal line printing	
Dot density	ANK models	180 dpi	-
	Simplified Chinese models	203 dpi	-
	Traditional Chinese models	203 dpi	-
	South Asia font models	203 dpi	-
Printing direction		Unidirectional with friction feed (Reverse feed is not supported.)	
Maximum printable width	ANK models	72.2 mm {2.84"}, 512 dots	-
	Simplified Chinese models	72 mm {2.83"}, 576 dots	-
	Traditional Chinese models	72 mm {2.83"}, 576 dots	52 mm {2.05"}, 416 dots
	South Asia font models	72 mm {2.83"}, 576 dots	-
Characters per line	ANK models	Font A: 42, Font B: 56	-
	Simplified Chinese models	Font A: 48, Font B: 64, Kanji font: 24	-
	Traditional Chinese models	Font A: 48, Font B: 64, Kanji font: 24	Font A: 34, Font B: 46, Kanji font: 17
	South Asia font models	Font A: 48, Font B: 64, Special font A: 48, Special font B: 64	-
Line spacing	ANK models	4.23 mm {1/6"} (initial setting, programmable by command)	-
	Simplified Chinese models	3.75 mm {1/5"} (initial setting, programmable by command)	-
	Traditional Chinese models	3.75 mm {1/5"} (initial setting, programmable by command)	-
	South Asia font models	3.75 mm {1/5"} (initial setting, programmable by command)	-
Character spacing	ANK models	0.28 mm {0.0110"} (2 dots)	-
	Simplified Chinese models	0.25 mm {0.0098"} (2 dots)	-
	Traditional Chinese models	0.25 mm {0.0098"} (2 dots)	-
	South Asia font models	0.25 mm {0.0098"} (2 dots)	-
Maximum print speed*		250 mm/s {9.84"/s} (200 mm/s {7.87"/s} for some models)	

-: Not supported

dpi: dots per inch

*: When the printer prints with the default print density level at 24 V and 25°C {77°F}.

NOTE

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

Character Specifications

Number of characters


ANK models	Font A (initial setting)	Alphanumeric characters: 95 Extended graphics: 128 × 43 pages (including user-defined page) International characters: 18 sets
	Font B	
Simplified Chinese models	Font A (initial setting)	Alphanumeric characters: 95 Extended graphics: 128 × 43 pages (including user-defined page) International characters: 18 sets
	Font B	
	Kanji font	GB18030-2000: 28,553
Traditional Chinese models	Font A (initial setting)	Alphanumeric characters: 95 Extended graphics: 128 × 43 pages (including user-defined page) International characters: 18 sets
	Font B	
	Kanji font	Big5: 13,535
South Asia font models	Font A (initial setting)	Alphanumeric characters: 95 Extended graphics: 128 × 42 pages (user-defined page is not supported) International characters: 18 sets
	Font B	
	Special font A	
	Special font B	

Character structure

	80 mm width paper printing	58 mm width paper printing
Font A (initial setting)	12 × 24 (including 2-dot horizontal spacing)	
Font B	9 × 17 (including 2-dot horizontal spacing)	
Kanji font	24 × 24	
Special font A	12 × 24 (including 2-dot horizontal spacing)	
Special font B	9 × 24 (including 2-dot horizontal spacing)	

Character size

		Standard/Double-height/Double-width/Double-width, double-height W × H (mm)	
		80 mm width paper printing	58 mm width paper printing
Font A	ANK models	1.41 × 3.39/1.41 × 6.77/2.82 × 3.39/2.82 × 6.77	-
	Simplified Chinese models	1.25 × 3.00/1.25 × 6.00/2.50 × 3.00/2.50 × 6.00	-
	Traditional Chinese models	1.25 × 3.00/1.25 × 6.00/2.50 × 3.00/2.50 × 6.00	
	South Asia font models	1.25 × 3.00/1.25 × 6.00/2.50 × 3.00/2.50 × 6.00	-
Font B	ANK models	0.99 × 2.40/0.99 × 4.80/1.98 × 2.40/1.98 × 4.80	-
	Simplified Chinese models	0.88 × 2.13/0.88 × 4.25/1.75 × 2.13/1.75 × 4.25	-
	Traditional Chinese models	0.88 × 2.13/0.88 × 4.25/1.75 × 2.13/1.75 × 4.25	
	South Asia font models	0.88 × 2.13/0.88 × 4.25/1.75 × 2.13/1.75 × 4.25	-
Kanji font	Simplified Chinese models	3.00 × 3.00/3.00 × 6.00/6.00 × 3.00/6.00 × 6.00	-
	Traditional Chinese models	3.00 × 3.00/3.00 × 6.00/6.00 × 3.00/6.00 × 6.00	
Special font A	South Asia font models	1.25 × 3.00/1.25 × 6.00/2.50 × 3.00/2.50 × 6.00	-
Special font B	South Asia font models	0.88 × 3.00/0.88 × 6.00/1.75 × 3.00/1.75 × 6.00	-



-: Not supported

Note:

Space between characters is not included.

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

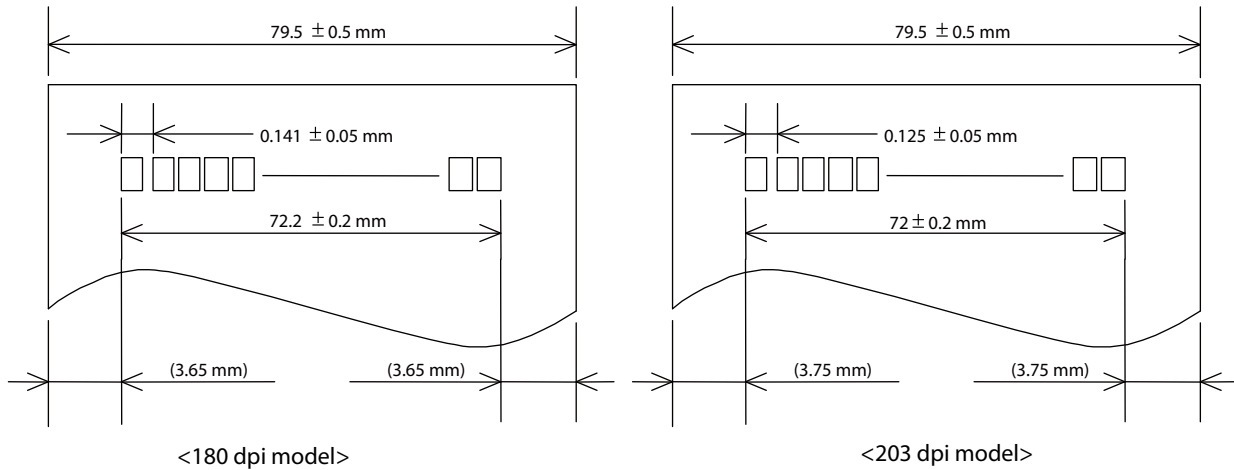
Characters per line

		Standard/Double-height/Double-width/Double-width, double-height W × H (mm)	
		80 mm width paper printing	58 mm width paper printing
Font A	ANK models	42/42/21/21	-
	Simplified Chinese models	48/48/24/24	-
	Traditional Chinese models	48/48/24/24	34/34/17/17
	South Asia font models	48/48/24/24	-
Font B	ANK models	56/56/28/28	-
	Simplified Chinese models	64/64/32/32	-
	Traditional Chinese models	64/64/32/32	46/46/23/23
	South Asia font models	64/64/32/32	-
Kanji font	Simplified Chinese models	24/24/12/12	-
	Traditional Chinese models	24/24/12/12	17/17/8/8
Special font A	South Asia font models	48/48/24/24	-
Special font B	South Asia font models	64/64/32/32	-

-: Not supported

Printable Area

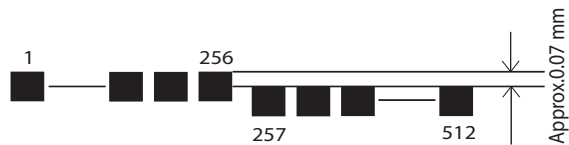
80 mm paper width printing



CAUTION

<180 dpi model>

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"} as shown in the figure below in the paper feed direction.

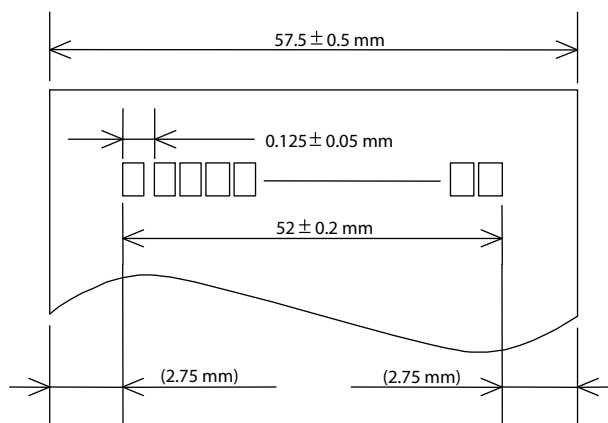


<203 dpi model>

In 2-divided energizing, the print position within the printable area of the thermal elements for dots 1 to 288 and 289 to 576 is shifted approximately 0.06 mm {0.0024"} as shown in the figure below in the paper feed direction.

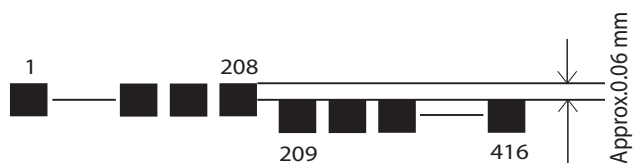


58 mm paper width printing

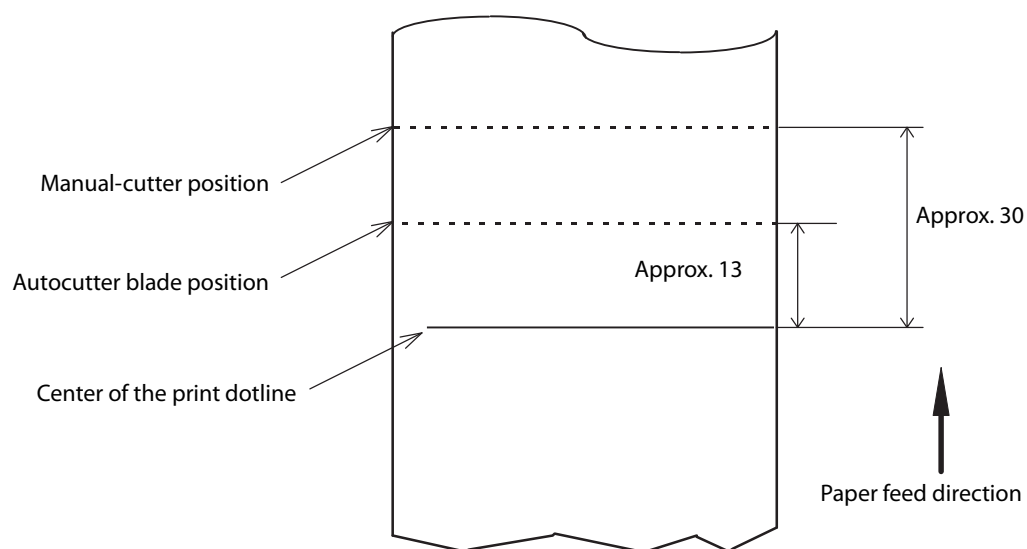


CAUTION

In 2-divided energizing, the print position within the printable area of the thermal elements for dots 1 to 208 and 209 to 416 is shifted approximately 0.06 mm {0.0024"} as shown in the figure below in the paper feed direction.



Printing and Cutting Positions



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

CAUTION

The values above may vary slightly as a result of paper slack or variations in the paper. Take the notice into account when setting the cutting position of the autocutter.

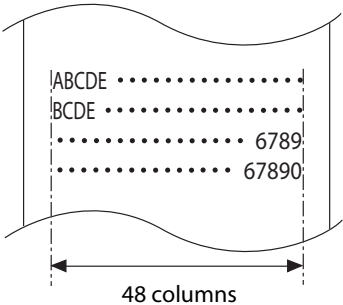
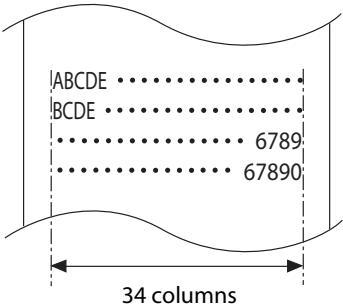
Paper Specifications

		80 mm width paper printing	58 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	58 + 0.5/-1.0 mm
	Paper width	79.5 ± 0.5 mm	57.5 ± 0.5 mm
Specified roll paper type		NTP080-80	NTP058-80
Specified original paper type		TF50KS-E, TF60KS-E (NIPPON Paper Industries Co., Ltd.) PD160R, PD190R (OJI Paper Mfg. Co., Ltd.) P220AGB-1 (Mitsubishi Paper Mills Limited.) P300, P310, P350 (Kanzaki Specialty Papers) AF50KS-E (Jujo Thermal Oy) F5041 (Mitsubishi HiTec) KT55F20, KT48F20 (Koehler Paper Group)	

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.
- For the best print quality for each paper type, it is recommended to set the print density. (See ["Setting the Memory Switches/Receipt Enhancement" on page 32.](#))

Electrical Characteristics

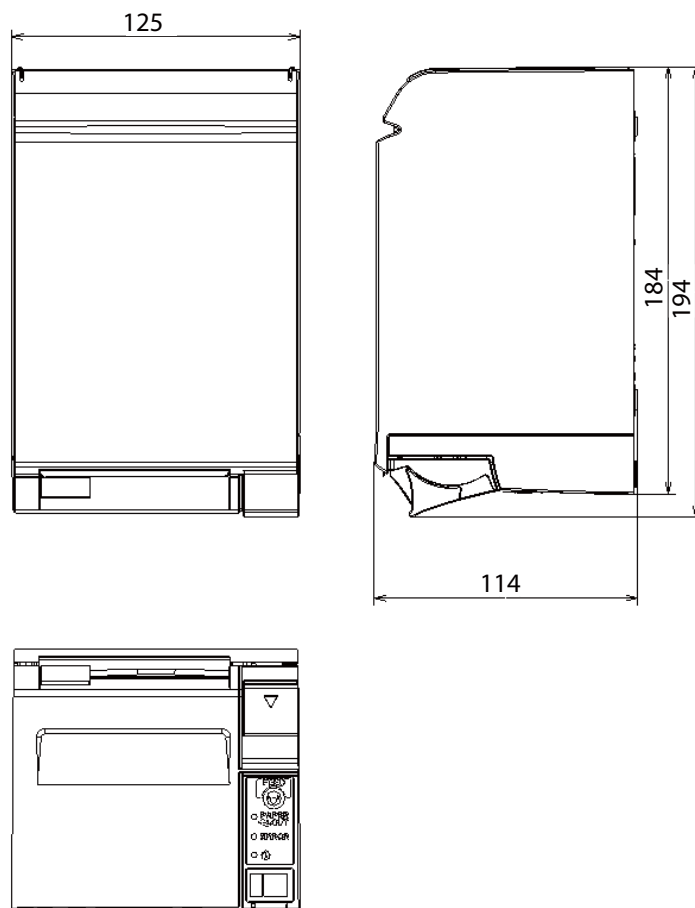
Supply voltage		DC 24 V \pm 7%
Current consumption (at 24 V, 25°C, normal print density)	Standby	<p>Mean: Approximately 0.1 A</p> <p>Maximum 1 A for drawer kick-out driving.</p>
	Operating (80 mm width paper printing)	<p>Mean: Approximately 2.0 A (180 dpi model)</p> <p>Mean: Approximately 1.5 A (203 dpi model)</p> <p>Note: When print ratio is approximately 18%.</p> <ul style="list-style-type: none"> • Font A • 48 columns • ASCII character continuous printing for 50 lines (repeats 20H-7FH) • 5 line feeding • Autocutting 
	Operating (58 mm width paper printing)	<p>Mean: Approximately 1.4 A (203 dpi model)</p> <p>Note: When print ratio is approximately 18%.</p> <ul style="list-style-type: none"> • Font A • 34 columns • ASCII character continuous printing for 50 lines (repeats 20H-7FH) • 5 line feeding • Autocutting 

Environmental Conditions

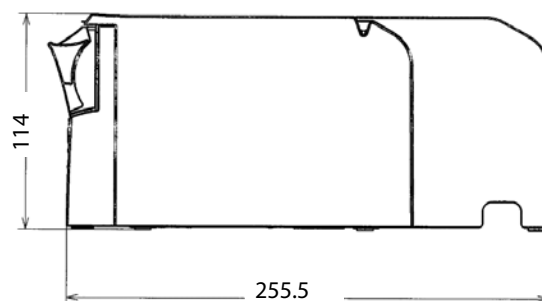
Temperature/ Humidity	Operating	5 to 45°C {41 to 113°F}, 10 to 90% RH (See the operating temperature and humidity range below.)
	Storage (Factory packing)	-10 to 50°C {14 to 122°F}, 10 to 90% RH (except for paper)
		<p>The graph illustrates the operating environment range. The vertical axis represents Relative humidity [%RH] with marked values at 10, 65, and 90. The horizontal axis represents Ambient temperature [°C] with marked values at 5, 34, 40, and 45. The operating range is defined by a solid line: it is constant at 10% RH from 5°C to 34°C, then rises linearly to 90% RH at 34°C, remains constant at 90% RH until 40°C, then falls linearly to 50% RH at 45°C, and remains constant at 50% RH. The area within this boundary is labeled 'Operating environment range'. Specific points on the graph are labeled: 34°C, 90%; 40°C, 65%; and 45°C, 50%.</p>
Acoustic noise (Operating)		<p>Approximately 55 dB (Bystander position)</p> <p>Note: The values above are measured in the Epson evaluation condition.</p> <p>The acoustic noise differs depending on the paper used, printing contents, or the setting values such as print speed or print density.</p>

External Dimensions and Mass

- Height: Approximately 114 mm {4.49"}
- Width: Approximately 125 mm {4.92"}
- Depth: Approximately 194 mm {7.64"}
- Mass: Approximately 1.7 kg {3.75 lb} (except for roll paper)



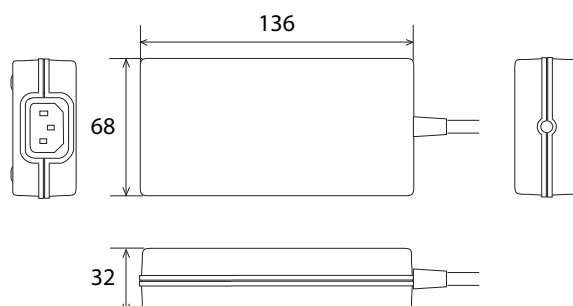
<When the Optional OT-CC702W/OT-CC702B is installed>



[Units: mm]

Option Specifications

AC Adapter (PS-180)



[Units: mm]

Electric characteristics	Input conditions	input voltage (rating): AC 90 to 264 V (AC 100 V -10% to AC 230 V +15%)
		Frequency (rating): 50/60 Hz \pm 3 Hz
		Power consumption (rating): 100 VA
	Output conditions	Output voltage (rating): DC 24 V \pm 5%
		Output current (rating): 2.0 A
		Output electric power (rating): 48 VA
		Output peak current: 4.5 A
Case specifications	Dimensions (H \times W \times D)	68 \times 136 \times 32 mm {2.68 \times 5.35 \times 1.26"} (excluding projections)
	Weight	Approx. 0.4 kg {14.11 oz} (excluding the AC cable)
	Color	Black (matte)

Material

No specific brominated flame retardants, such as PBBE and PBB, are used in this product.

AC cable selection

Select an AC cable that satisfies the following conditions.

- Safety standard product
- Plug with PE terminal

Ground connections

Be sure to ground for safety.

Specifications of Interface and Connector

NOTE

For detailed information about LAN or wireless LAN, see the Technical Reference Guide for the interface board.

For detailed information about *Bluetooth*, see the iOS *Bluetooth*™ Printer Technical Reference Guide.

RS-232 Serial Interface

Interface board specifications (RS-232-compliant)

Item		Specifications
Data transfer method		Serial
Synchronization		Asynchronous
Handshake		Select one of the following with the memory switch (see "Setting the Memory Switches/Receipt Enhancement" on page 32): <ul style="list-style-type: none">DTR/DSRXON/XOFF
Signal level	MARK	-3 V to -15 V logic "1"/OFF
	SPACE	+3 V to +15 V logic "0"/ON
Bit length		Select one of the following with the memory switch (see "Setting the Memory Switches/Receipt Enhancement" on page 32): <ul style="list-style-type: none">7 bits8 bits
Transmission speed [bps: bits per second]		<ul style="list-style-type: none">Select one of the following with the memory switch (see "Setting the Memory Switches/Receipt Enhancement" on page 32): 2400/4800/9600/19200/38400/57600/115200 bps
Parity selection		Select one of the following with the memory switch (see "Setting the Memory Switches/Receipt Enhancement" on page 32): <ul style="list-style-type: none">NoneEvenOdd
Stop bit		1 or more bits However, the stop bit for data transfer from the printer is fixed to 1 bit.
Connector	Printer side	DSUB 25-pin (female) connector

Functions of each connector pin

Pin no.	Signal name	Signal direction	Function
1	FG	—	Frame ground
2	TXD	Output	Transmission data

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

XON/XOFF

When XON/XOFF control is selected, the printer transmits the XON or XOFF signals as follows. The transmission timing of XON/XOFF differs, depending on the setting of memory switch 1-3.

Signal	Printer status	Memory switch 1-3	
		1 (ON)	0 (OFF)
XON	1) When the printer goes online after turning on the power (or reset using the interface)	Transmit	Transmit
	2) When the receive buffer is released from the buffer full state	Transmit	Transmit
	3) When the printer switches from offline to online	—	Transmit
	4) When the printer recovers from an error using some ESC/POS commands	—	Transmit
XOFF	5) When the receive buffer becomes full	Transmit	Transmit
	6) When the printer switches from online to offline	—	Transmit

Code

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

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

CAUTION

- When the printer goes from offline to online and the receive buffer is full, XON is not transmitted.
- When the printer goes from online to offline and the receive buffer is full, XOFF is not transmitted.

IEEE 1284 Parallel Interface

Modes

The IEEE 1284 parallel interface supports the following two modes.

Mode	Communication direction	Other information
Compatibility mode	Host → Printer communication	Centronics-compliant
Reverse mode	Printer → Host communication	Assumes a data transfer from an asynchronous printer

Compatibility Mode

Compatibility mode allows data transmission from host to printer only: Centronics-compatible.

Specification

Data transmission	8-bit parallel
Synchronization	Externally supplied $\overline{\text{STROBE}}$ signals
Handshaking	$\overline{\text{ACK}}$ and BUSY signals
Signal levels	TTL-compatible connector
Connector	ADS-B36BLFDR176 (HONDA) or equivalent product
Reverse communication	Nibble or byte mode

Reverse Mode

The transfer of status data from the printer to the host proceeds in the nibble or byte mode.

This mode allows data transfer from an asynchronous printer under the control of the host. Data transfers in the nibble mode are made via the existing control lines in units of four bits (a nibble). In the byte mode, data transfer proceeds by making the 8-bit data lines bidirectional. Both modes fail to proceed concurrently in the compatibility mode, thereby causing half-duplex transmission.

Interface signals

Pin	Source	Compatibility Mode	Nibble Mode	Byte Mode
1	Host	$\overline{\text{Strobe}}$	HostClk	HostClk
2	Host/Ptr	Data0 (LSB)	Data0 (LSB)	Data0 (LSB)
3	Host/Ptr	Data1	Data1	Data1
4	Host/Ptr	Data2	Data2	Data2
5	Host/Ptr	Data3	Data3	Data3
6	Host/Ptr	Data4	Data4	Data4
7	Host/Ptr	Data5	Data5	Data5
8	Host/Ptr	Data6	Data6	Data6
9	Host/Ptr	Data7 (MSB)	Data7 (MSB)	Data7 (MSB)
10	Printer	$\overline{\text{Ack}}$	PtrClk	PtrClk
11	Printer	Busy	PtrBusy/Data3,7	PtrBusy
12	Printer	Perror	AckDataReq/Data2,6	AckDataReq
13	Printer	Select	Xflag/Data1,5	Xflag
14	Host	$\overline{\text{AutoFd}}$	HostBusy	HostBusy
15		NC	ND	ND
16		GND	GND	GND
17		FG	FG	FG
18	Printer	Logic-H	Logic-H	Logic-H
19		GND	GND	GND
20		GND	GND	GND
21		GND	GND	GND
22		GND	GND	GND
23		GND	GND	GND
24		GND	GND	GND
25		GND	GND	GND
26		GND	GND	GND
27		GND	GND	GND
28		GND	GND	GND
29		GND	GND	GND
30		GND	GND	GND

Pin	Source	Compatibility Mode	Nibble Mode	Byte Mode
31	Host	$\overline{\text{Init}}$	$\overline{\text{Init}}$	$\overline{\text{Init}}$
32	Printer	$\overline{\text{Fault}}$	$\overline{\text{DataAvail/Data0,4}}$	$\overline{\text{DataAvail}}$
33		GND	ND	ND
34	Printer	DK_STATUS	ND	ND
35	Printer	+5 V	ND	ND
36	Host	$\overline{\text{SelectIn}}$	1284-Active	1284-Active

NC: Not Connected

ND: Not Defined

CAUTION

- A signal name with a rule above it indicates an "L" active signal.
- Bidirectional communications cannot take place, unless all signal names for both sides correspond to each other.
- Connect all signal lines using a twisted-pair cable. Connect the return side to the signal ground level.
- Make sure the signals satisfy electrical characteristics.
- Set the leading edge and trailing edge times to 0.5 μs or less.
- Do not ignore $\overline{\text{Ack}}$ or BUSY signals during a data transfer. Ignoring such signals may result in data corruption.
- Make the interface cables as short as possible.

USB (Universal Serial Bus) Interface

CAUTION

For printers on which the standard USB connector has a cap, you cannot use the standard USB interface.

Outline

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

USB transmission specifications

USB function

Overall specifications	According to USB 2.0 specifications
Transmission speed	USB Full-Speed (12 Mbps)
Transmission method	USB bulk transmission method
Power supply specifications	USB self power supply function
Current consumed by USB bus	2 mA
USB packet size (with full-speed connection)	
USB bulk OUT (TM)	64 bytes
USB bulk IN (TM)	64 bytes

Status transmission from printer with USB interface

In order to ensure that there is no lack of status data, it is necessary to periodically retrieve status data at the host computer.

Unlike RS-232 transmission, it cannot spontaneously interrupt data transmission to the host computer.

The printer has a 128-byte status data buffer. Statuses that exceed the buffer capacity are cancelled.

Character Code Tables

Refer to the following URL regarding the character code table.

www.epson-biz.com/pos/reference/charcode/

