# TM-T70II Technical Reference Guide

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ESC/POS® Command System

Epson ESC/POS is a proprietary POS printer command system that includes patented or patent-pending commands. ESC/POS is compatible with most Epson POS printers and displays.
ESC/POS is designed to reduce the processing load on the host computer in POS environments. It comprises a set of highly functional and efficient commands and also offers the flexibility to easily make future upgrades.

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For Safety

Key to Symbols

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

<table>
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<tr>
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<th>Description</th>
</tr>
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<tr>
<td><img src="image" alt="WARNING" /></td>
<td>You must follow warnings carefully to avoid serious bodily injury.</td>
</tr>
</tbody>
</table>
| ![CAUTION](image) | Provides information that must be observed to prevent damage to the equipment or loss of data.  
- Possibility of sustaining physical injuries.  
- Possibility of causing physical damage.  
- Possibility of causing information loss. |
| ![CAUTION](image) | Provides information that must be observed to avoid damage to your equipment or a malfunction. |
| ![NOTE](image) | Provides important information and useful tips. |
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.
* 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 your dealer or a Seiko Epson service center for advice.

Never attempt to repair this product yourself.
Improper repair work can be dangerous.

Never disassemble or modify this product.
Tampering with this product may result in injury 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 your dealer or a Seiko Epson service center for advice.

Do not use aerosol sprayers containing flammable gas inside or around this product.
Doing so may cause fire.
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
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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: ( / )

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

- **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.

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

  **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.
**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-out 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.

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

### 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.

<table>
<thead>
<tr>
<th>Error</th>
<th>Error description</th>
<th>Error LED flash code</th>
<th>Recovery measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autocutter error</td>
<td>Autocutter does not work correctly.</td>
<td></td>
<td>Remove the jammed paper or foreign matter in the printer, close the roll paper cover, send the error recover command.</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Error</th>
<th>Error description</th>
<th>Error LED flash code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory R/W error</td>
<td>After R/W checking, the printer does not work correctly.</td>
<td>[Error LED Flash Code]</td>
</tr>
<tr>
<td>High voltage error</td>
<td>The power supply voltage is extremely high.</td>
<td>[Error LED Flash Code]</td>
</tr>
<tr>
<td>Low voltage error</td>
<td>The power supply voltage is extremely low.</td>
<td>[Error LED Flash Code]</td>
</tr>
<tr>
<td>CPU execution error</td>
<td>The CPU is executing an incorrect address.</td>
<td>[Error LED Flash Code]</td>
</tr>
<tr>
<td>Internal circuit connection error</td>
<td>Internal circuits are not connected correctly.</td>
<td>[Error LED Flash Code]</td>
</tr>
</tbody>
</table>
Chapter 1  Product Overview

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.

[NOTE]

- 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.

[NOTE]

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.

- 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.

- 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.

1. Installing the Printer (page 22)

2. Connecting the Printer to the Host Computer (page 24)

3. Connecting the AC Adapter (page 31)

4. Setting the Memory Switches/Receipt Enhancement (page 32)

5. Connecting the Optional External Buzzer (page 42)

6. Connecting the Cash Drawer (page 45)
**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.
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.

**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
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.
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.

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

---

**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

---

**Diagram:**
- TM-T70II
- USB cable
- Modular cable
- DM-D
- Cash drawer
- AC adapter + AC cable

---

**Diagram Details:**
- Locking wire saddle
- USB upstream connector
- USB cable

---

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

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

- 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.

- 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.

- 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.

**WARNING**

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.

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

*1: Enabled only for the parallel interface

**Customized Values**

<table>
<thead>
<tr>
<th>Item\Method</th>
<th>TM-T70II Utility</th>
<th>Memory Switch Setting Mode</th>
<th>ESC/POS Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customized Values</td>
<td>✔ ✔ ✔</td>
<td>✔ ✔</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>Receive Enhancement</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Auto top logo</td>
<td>✔ ✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Auto bottom logo</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Auto top/bottom logo extended functions</td>
<td>✔ ✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

dpi: dots per inch

*1: Enabled only for the parallel interface
Chapter 2 Setup

*2: Enabled only for South Asia font models
*3: Enabled only for ANK models
*4: Excluding some functions.

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• For information about the TM-T70II Utility, see the TM-T70II Utility User’s Manual.</td>
</tr>
<tr>
<td>• For information about how to use the memory switch setting mode, see &quot;Memory Switch Setting Mode&quot; on page 52.</td>
</tr>
<tr>
<td>• For information about ESC/POS commands, see the ESC/POS Command Reference.</td>
</tr>
</tbody>
</table>

## Functions

### Receive buffer capacity
- 4 KB (initial setting)
- 45 bytes

### BUSY condition
- Receive buffer full/Offline (initial setting)
- Receive buffer full

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>• In either case above, the printer enters the BUSY state after power is turned on, and when a self-test is being run.</td>
</tr>
<tr>
<td>• If BUSY condition is set to &quot;Receive buffer full,&quot; the printer will not become BUSY</td>
</tr>
</tbody>
</table>
  - 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.

<table>
<thead>
<tr>
<th>Original Paper type</th>
<th>Density Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>TF50KS-E, P220AGB-1, AF50KS-E</td>
<td>Level 5 (90%)</td>
</tr>
<tr>
<td>TF60KS-E, PD160R, PD190R, KT48F20, KT55F20, F5041</td>
<td>Level 7 (100%)</td>
</tr>
<tr>
<td>P300, P310, P350</td>
<td>Level 8 (105%)</td>
</tr>
</tbody>
</table>

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

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

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.

<table>
<thead>
<tr>
<th>Interface mode</th>
<th>UIB interface</th>
<th>Built-in USB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Serial/Parallel</td>
<td>Interface other</td>
</tr>
<tr>
<td></td>
<td></td>
<td>than Serial/Parallel</td>
</tr>
<tr>
<td>Automatic selection</td>
<td>Available*1</td>
<td>Available*2</td>
</tr>
<tr>
<td>Fixed to UIB</td>
<td>Available</td>
<td>Available</td>
</tr>
<tr>
<td>Fixed to built-in USB</td>
<td>Not available</td>
<td>Not available</td>
</tr>
</tbody>
</table>

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

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%

- 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**

- 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 (initial setting for Simplified Chinese models and Traditional Chinese models)
- 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) and South Asia font models)

(bps: bits per second)

**Parity**
- None (initial setting)
- Even
- Odd

**Data bit**
- 7 bits
- 8 bits (initial setting)

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

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

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.

- 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.

- 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.

![Affixing tape](image)

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

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

![Drawer kick-out connector](image)
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.

- 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-out connector.
  - When the drawer open/close signal is used, a switch must be provided between drawer kick-out 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 out 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-out connector. Doing so may damage the telephone line or printer.

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

<table>
<thead>
<tr>
<th>Memory switch</th>
<th>Specified connector pin</th>
<th>ON</th>
<th>OFF</th>
<th>Initial setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buzzer frequency</td>
<td>Drawer kick out connector pin 2</td>
<td>Buzzer beeps.</td>
<td>Buzzer does not beep.</td>
<td>OFF</td>
</tr>
<tr>
<td>(Pulse 1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buzzer frequency</td>
<td>Drawer kick out connector pin 5</td>
<td>Buzzer beeps.</td>
<td>Buzzer does not beep.</td>
<td>ON</td>
</tr>
<tr>
<td>(Pulse 2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

**CAUTION**

- 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.
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.

   **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.)

   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."
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.

- 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:

```
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)

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.

   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.

- 1: Print Current Settings
- 2: Print Density
- 3: Serial Interface Settings
- 4: Automatic Paper Reduction
- 5: Auto Paper Feed & Cut at cover close
- 6: Default Character
- 7: Embedded Font Replacement
- 8: Interface Selection
- 9: USB Interface Settings
- 10: Printing Speed
- 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.

- Print Current Settings
- Print Density (page 55)
- Serial Interface Settings (page 55)
- Automatic Paper Reduction (page 55)
- Auto Paper Feed & Cut at cover close (page 55)
- Default Character (page 56)
- Embedded Font Replacement (page 56)
- Interface Selection (page 56)
- USB Interface Settings (page 56)
- Printing Speed (page 57)
- Other Settings (page 57)

**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**

<table>
<thead>
<tr>
<th>Number of times to press the Feed button</th>
<th>Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No change</td>
</tr>
<tr>
<td>1</td>
<td>Monochrome</td>
</tr>
<tr>
<td>2</td>
<td>Multi-Tone</td>
</tr>
</tbody>
</table>

- **Serial Interface Settings**

<table>
<thead>
<tr>
<th>Number of times to press the Feed button</th>
<th>Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No change</td>
</tr>
<tr>
<td>1</td>
<td>Baud Rate</td>
</tr>
<tr>
<td>2</td>
<td>Parity</td>
</tr>
<tr>
<td>3</td>
<td>Handshaking</td>
</tr>
<tr>
<td>4</td>
<td>Data Bits</td>
</tr>
<tr>
<td>5</td>
<td>Data Receive Error</td>
</tr>
</tbody>
</table>

- **Automatic Paper Reduction**

<table>
<thead>
<tr>
<th>Number of times to press the Feed button</th>
<th>Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No change</td>
</tr>
<tr>
<td>1</td>
<td>Upper Margin</td>
</tr>
<tr>
<td>2</td>
<td>Lower Margin</td>
</tr>
<tr>
<td>3</td>
<td>Blank Line Spacing</td>
</tr>
<tr>
<td>4</td>
<td>Blank Space</td>
</tr>
<tr>
<td>5</td>
<td>Barcode Height</td>
</tr>
</tbody>
</table>

- **Auto Paper Feed&Cut at cover close**

<table>
<thead>
<tr>
<th>Number of times to press the Feed button</th>
<th>Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No change</td>
</tr>
<tr>
<td>1</td>
<td>Enable</td>
</tr>
<tr>
<td>2</td>
<td>Disable</td>
</tr>
</tbody>
</table>
### Default Character

<table>
<thead>
<tr>
<th>Number of times to press the Feed button</th>
<th>Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No change</td>
</tr>
<tr>
<td>1</td>
<td>Code Page</td>
</tr>
<tr>
<td>2</td>
<td>International Character Set</td>
</tr>
</tbody>
</table>

### Embedded Font Replacement

<table>
<thead>
<tr>
<th>Number of times to press the Feed button</th>
<th>Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No change</td>
</tr>
<tr>
<td>1</td>
<td>Font A Replacement</td>
</tr>
<tr>
<td>2</td>
<td>Font B Replacement</td>
</tr>
</tbody>
</table>

### Interface Selection

<table>
<thead>
<tr>
<th>Number of times to press the Feed button</th>
<th>Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No change</td>
</tr>
<tr>
<td>1</td>
<td>UIB</td>
</tr>
<tr>
<td>2</td>
<td>Built-in USB</td>
</tr>
<tr>
<td>3</td>
<td>Auto</td>
</tr>
</tbody>
</table>

### USB Interface Settings

<table>
<thead>
<tr>
<th>Number of times to press the Feed button</th>
<th>Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No change</td>
</tr>
<tr>
<td>1</td>
<td>Class</td>
</tr>
<tr>
<td>2</td>
<td>USB Power Saving</td>
</tr>
</tbody>
</table>
### Printing Speed

<table>
<thead>
<tr>
<th>Number of times to press the Feed button</th>
<th>Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No change</td>
</tr>
<tr>
<td>1</td>
<td>Level 1 (Slow)</td>
</tr>
<tr>
<td>2</td>
<td>Level 2</td>
</tr>
<tr>
<td>3</td>
<td>Level 3</td>
</tr>
<tr>
<td>4</td>
<td>Level 4</td>
</tr>
<tr>
<td>5</td>
<td>Level 5</td>
</tr>
<tr>
<td>6</td>
<td>Level 6</td>
</tr>
<tr>
<td>7</td>
<td>Level 7</td>
</tr>
<tr>
<td>8</td>
<td>Level 8</td>
</tr>
<tr>
<td>9</td>
<td>Level 9</td>
</tr>
<tr>
<td>10</td>
<td>Level 10</td>
</tr>
<tr>
<td>11</td>
<td>Level 11</td>
</tr>
<tr>
<td>12</td>
<td>Level 12</td>
</tr>
<tr>
<td>13</td>
<td>Level 13 (Fast)</td>
</tr>
</tbody>
</table>

### Other Settings

<table>
<thead>
<tr>
<th>Number of times to press the Feed button</th>
<th>Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No change</td>
</tr>
<tr>
<td>1</td>
<td>TM-T70II Compatible Mode</td>
</tr>
<tr>
<td>2</td>
<td>Buzzer Control</td>
</tr>
<tr>
<td>3</td>
<td>Interface Settings</td>
</tr>
</tbody>
</table>
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.

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://nrf.com/resources/retail-technology-standards/unifiedpos
Controlling the Built-in Buzzer

For specifications with a built-in buzzer, a pulse output is sent to the operating pin for the drawer kick connector, and the built-in buzzer beeps.
You cannot change the volume or the sound emitted, but you can change the buzzing time by changing the signal pulse width.
This is controlled by a driver or by commands.

ESC/POS Commands
The output command for the specified pulse is used.
For details, see the ESC/POS Command Reference.

For Windows Printer Drivers (APD)
You can set so that the buzzer beeps at the start/end of printing or start/end of a page. For details, see the manual for drivers.
For API, the API for opening the drawer is used. For details, see the manual for Status API of the driver.

OPOS (OCX Driver)
Register a POS printer using the SetupPOS Utility and control using the DirectIO function.
For details, see the "EPSON OPOS ADK MANUAL APPLICATION DEVELOPMENT GUIDE POSPrinter (TM Series)".

OPOS for .NET
Register a POS printer using the SetupPOS Utility and control using the DirectIO function.
For details, see the "EPSON OPOS ADK for .NET MANUAL Application Development Guide POSPrinter (TM-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.

NOTE
When using a cash drawer operated by pin 5 with a built-in buzzer, you need to change the DIP switch settings for the buzzer circuit so that the buzzer beeps from a pulse signal for pin 2. For details, see "Setting the 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.

NOTE 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

<table>
<thead>
<tr>
<th>Software</th>
<th>Description</th>
<th>Target model</th>
</tr>
</thead>
<tbody>
<tr>
<td>ePOS-Print SDK</td>
<td>This development kit is for controlling the printer from Web applications and native applications of smart devices. It includes libraries, manuals, and sample programs.</td>
<td>Ethernet/ Wireless LAN / Bluetooth / USB</td>
</tr>
<tr>
<td>for Android</td>
<td></td>
<td></td>
</tr>
<tr>
<td>for iOS</td>
<td></td>
<td>Ethernet / Wireless LAN / Bluetooth</td>
</tr>
<tr>
<td>for Windows Store Apps</td>
<td></td>
<td>Ethernet / Wireless LAN / Bluetooth</td>
</tr>
<tr>
<td>for JavaScript</td>
<td></td>
<td>Ethernet¹ / Wireless LAN²</td>
</tr>
</tbody>
</table>

*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

<table>
<thead>
<tr>
<th>Software</th>
<th>Description</th>
<th>Operating environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPSON OPOS ADK</td>
<td>This OCX driver can control POS peripherals using OLE technology¹. Because controlling POS peripherals with original commands is not required on the application side, efficient system development is possible.</td>
<td>Windows</td>
</tr>
<tr>
<td>EPSON OPOS ADK for .NET</td>
<td>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.</td>
<td>Windows</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Software</th>
<th>Description</th>
<th>Operating environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>JavaPOS ADK</td>
<td>JavaPOS is the standard specification which defines an architecture and device interface (API) to access various POS devices from a Java based system. Using JavaPOS standard API allows control with Java based applications of functions inherent to each device. A flexible design with Java language and JavaPOS enables many different types of computer systems, such as stand alone or network configuration, to use a same application. You can use JavaPOS to build applications and drivers independently of platforms. This allows flexible configurations using thin clients to meet the system requirements.</td>
<td>Windows, Linux</td>
</tr>
</tbody>
</table>

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

Drivers

<table>
<thead>
<tr>
<th>Software</th>
<th>Description</th>
<th>Operating environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPSON Advanced Printer Driver (APD)</td>
<td>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.</td>
<td>Windows</td>
</tr>
<tr>
<td>EPSON TM Virtual Port Driver</td>
<td>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.</td>
<td>Windows</td>
</tr>
</tbody>
</table>
### Utilities

<table>
<thead>
<tr>
<th>Software</th>
<th>Description</th>
<th>Operating environment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TM-T70II Utility</strong></td>
<td>A utility for checking and changing various printer settings. Use this utility to:</td>
<td>Windows</td>
</tr>
<tr>
<td></td>
<td>• Checking current settings</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Operation check</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Storing logos</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Coupon settings</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Paper reduction settings</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Automatic paper cut settings</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Printing control settings</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Font settings</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Optional buzzer settings</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Communication I/F settings</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Backup/restore</td>
<td></td>
</tr>
<tr>
<td><strong>EpsonNet Config</strong></td>
<td>A network setting tool for Epson network products. 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.</td>
<td>Windows, Mac</td>
</tr>
<tr>
<td><strong>Monitoring Tool</strong></td>
<td>Use to check a list of status for the Epson printers connected to the network.</td>
<td>Windows</td>
</tr>
<tr>
<td>Software</td>
<td>Description</td>
<td>Operating environment</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Deployment Tool</td>
<td>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.</td>
<td>Windows</td>
</tr>
<tr>
<td>BmpToRaster</td>
<td>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.</td>
<td>Windows</td>
</tr>
</tbody>
</table>

**Download**

You can obtain software and manuals from one of the following URLs.
For customers in North America, go to the following web site and follow the on-screen instructions.

http://www.epsonexpert.com/

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

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

This chapter describes basic handling of the printer.

Installing and Replacing Roll Paper

**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

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.

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

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.

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.

<table>
<thead>
<tr>
<th>Number of head energizing parts</th>
<th>TM-T70II</th>
<th>TM-T70</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-part energizing</td>
<td>• One-part energizing</td>
<td></td>
</tr>
<tr>
<td>Two-part energizing</td>
<td>• 58 mm width paper printing One-part energizing/Two-part energizing/Auto energizing</td>
<td></td>
</tr>
</tbody>
</table>

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 ± 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.)
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).

<table>
<thead>
<tr>
<th>Maximum print speed</th>
<th>TM-T70II</th>
<th>TM-T70</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>250 mm/s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(200 mm/s for some models)</td>
<td></td>
</tr>
<tr>
<td>Print speed setting</td>
<td>Levels 1 to 13</td>
<td>Levels 1 to 9</td>
</tr>
</tbody>
</table>

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 Omnidirectional
- 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.

<table>
<thead>
<tr>
<th></th>
<th>TM-T70II</th>
<th>TM-T70</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Character code tables</strong></td>
<td>128 × 43 pages (\text{including user-defined page})</td>
<td>128 × 11 pages (\text{including user-defined page})</td>
</tr>
<tr>
<td><strong>International characters</strong></td>
<td>18 sets</td>
<td>16 sets</td>
</tr>
</tbody>
</table>

**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.

**NOTE** 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
The TM-T70II has improved reliability.

<table>
<thead>
<tr>
<th>Life</th>
<th>TM-T70II</th>
<th>TM-T70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printer mechanism</td>
<td>17 million lines</td>
<td>15 million lines</td>
</tr>
<tr>
<td>Print head</td>
<td>120 million pulses, 120 km</td>
<td>100 million pulses, 100 km</td>
</tr>
<tr>
<td>Autocutter</td>
<td>1.7 million cuts</td>
<td>1.5 million cuts</td>
</tr>
<tr>
<td>MCBF</td>
<td>65 million lines</td>
<td>52 million lines</td>
</tr>
</tbody>
</table>
# Appendix

## Product Specifications

<table>
<thead>
<tr>
<th>Printing method</th>
<th>Thermal line printing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting method</td>
<td>Partial cut (cutting with one point in left edge left uncut)</td>
</tr>
</tbody>
</table>
| 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), Bluetooth (Bluetooth 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 ± 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 × W × D) | 114 × 125 × 194 mm (4.49 × 4.92 × 7.64") |
## Printing Specifications

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

- 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 speed.

### Character Specifications

**Number of characters**

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

<table>
<thead>
<tr>
<th></th>
<th>80 mm width paper printing</th>
<th>58 mm width paper printing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Font A (initial setting)</td>
<td>12 × 24 (including 2-dot horizontal spacing)</td>
<td></td>
</tr>
<tr>
<td>Font B</td>
<td>9 × 17 (including 2-dot horizontal spacing)</td>
<td></td>
</tr>
<tr>
<td>Kanji font</td>
<td>24 × 24</td>
<td></td>
</tr>
<tr>
<td>Special font A</td>
<td>12 × 24 (including 2-dot horizontal spacing)</td>
<td></td>
</tr>
<tr>
<td>Special font B</td>
<td>9 × 24 (including 2-dot horizontal spacing)</td>
<td></td>
</tr>
</tbody>
</table>

### Character size

<table>
<thead>
<tr>
<th>Font</th>
<th>ANK models</th>
<th>Simplified Chinese models</th>
<th>Traditional Chinese models</th>
<th>South Asia font models</th>
<th>Kanji Simplified Chinese models</th>
<th>Traditional Chinese models</th>
<th>South Asia font</th>
<th>Special font A South Asia font models</th>
<th>Special font B South Asia font models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Font A</td>
<td>1.41 × 3.39/1.41 × 6.77/2.82 × 3.39/2.82 × 6.77</td>
<td>1.25 × 3.00/1.25 × 6.00/2.50 × 3.00/2.50 × 6.00</td>
<td>1.25 × 3.00/1.25 × 6.00/2.50 × 3.00/2.50 × 6.00</td>
<td>1.25 × 3.00/1.25 × 6.00/2.50 × 3.00/2.50 × 6.00</td>
<td>3.00 × 3.00/3.00 × 6.00/6.00 × 3.00/6.00 × 6.00</td>
<td>3.00 × 3.00/3.00 × 6.00/6.00 × 3.00/6.00 × 6.00</td>
<td>1.25 × 3.00/1.25 × 6.00/2.50 × 3.00/2.50 × 6.00</td>
<td>1.25 × 3.00/1.25 × 6.00/2.50 × 3.00/2.50 × 6.00</td>
<td>0.88 × 3.00/0.88 × 6.00/1.75 × 3.00/1.75 × 6.00</td>
</tr>
<tr>
<td>Font B</td>
<td>0.99 × 2.40/0.99 × 4.80/1.98 × 2.40/1.98 × 4.80</td>
<td>0.88 × 2.13/0.88 × 4.25/1.75 × 2.13/1.75 × 4.25</td>
<td>0.88 × 2.13/0.88 × 4.25/1.75 × 2.13/1.75 × 4.25</td>
<td>0.88 × 2.13/0.88 × 4.25/1.75 × 2.13/1.75 × 4.25</td>
<td>3.00 × 3.00/3.00 × 6.00/6.00 × 3.00/6.00 × 6.00</td>
<td>3.00 × 3.00/3.00 × 6.00/6.00 × 3.00/6.00 × 6.00</td>
<td>0.88 × 3.00/0.88 × 6.00/1.75 × 3.00/1.75 × 6.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kanji font</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special font A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special font B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
- 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

<table>
<thead>
<tr>
<th>Font</th>
<th>ANK models</th>
<th>80 mm width paper printing</th>
<th>58 mm width paper printing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simplified Chinese models</td>
<td>48/48/24/24</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Traditional Chinese models</td>
<td>48/48/24/24</td>
<td>34/34/17/17</td>
<td>-</td>
</tr>
<tr>
<td>South Asia font models</td>
<td>48/48/24/24</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Font</th>
<th>ANK models</th>
<th>80 mm width paper printing</th>
<th>58 mm width paper printing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simplified Chinese models</td>
<td>64/64/32/32</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Traditional Chinese models</td>
<td>64/64/32/32</td>
<td>46/46/23/23</td>
<td>-</td>
</tr>
<tr>
<td>South Asia font models</td>
<td>64/64/32/32</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Font</th>
<th>ANK models</th>
<th>80 mm width paper printing</th>
<th>58 mm width paper printing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simplified Chinese models</td>
<td>24/24/12/12</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Traditional Chinese models</td>
<td>24/24/12/12</td>
<td>17/17/8/8</td>
<td>-</td>
</tr>
</tbody>
</table>

| Special font A | South Asia font models | 48/48/24/24 | -                          |
| Special font B | South Asia font models | 64/64/32/32 | -                          |

-: Not supported
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.

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

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

Manual-cutter position

Autocutter blade position

Center of the print dotline

Approx. 30

Approx. 13

Paper feed direction

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

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

Paper Specifications

<table>
<thead>
<tr>
<th></th>
<th>80 mm width paper printing</th>
<th>58 mm width paper printing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper types</td>
<td>Specified thermal paper</td>
<td></td>
</tr>
<tr>
<td>Form</td>
<td>Roll paper</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roll paper diameter</td>
<td>83 mm (3.27&quot;) maximum</td>
<td></td>
</tr>
<tr>
<td>Roll paper spool</td>
<td>Inside: 12 mm (0.47&quot;), Outside: 18 mm (0.71&quot;)</td>
<td></td>
</tr>
<tr>
<td>Roll width when taken up</td>
<td>80 ± 0.5/-1.0 mm</td>
<td>58 ± 0.5/-1.0 mm</td>
</tr>
<tr>
<td>Paper width</td>
<td>79.5 ± 0.5 mm</td>
<td>57.5 ± 0.5 mm</td>
</tr>
<tr>
<td>Specified roll paper type</td>
<td>NTP080-80</td>
<td>NTP058-80</td>
</tr>
<tr>
<td>Specified original paper type</td>
<td>TF50KS-E, TF60KS-E (NIPPON Paper Industries Co., Ltd.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>P220AGB-1 (Mitsubishi Paper Mills Limited.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>P300, P310, P350 (Kanzaki Specialty Papers)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AF50KS-E (Jujo Thermal Oy)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F5041 (Mitsubishi HiTec)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>KT55F20, KT48F20 (Koehler Paper Group)</td>
<td></td>
</tr>
</tbody>
</table>
• 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

<table>
<thead>
<tr>
<th>Supply voltage</th>
<th>DC 24 V ± 7%</th>
</tr>
</thead>
</table>
| **Current consumption (at 24 V, 25°C, normal print density)** | **Standby** Mean: Approximately 0.1 A  
Maximum 1 A for drawer kick-out driving. |
| **Operating (80 mm width paper printing)** | **Operating** Mean: Approximately 2.0 A (180 dpi model)  
Mean: Approximately 1.5 A (203 dpi model)  
Note: When print ratio is approximately 18%. |
| | - Font A  
- 48 columns  
- ASCII character continuous printing for 50 lines (repeats 20H-7FH)  
- 5 line feeding  
- Autocutting |
| **Operating (58 mm width paper printing)** | **Mean:** Approximately 1.4 A (203 dpi model)  
Note: When print ratio is approximately 18%. |
| | - Font A  
- 34 columns  
- ASCII character continuous printing for 50 lines (repeats 20H-7FH)  
- 5 line feeding  
- Autocutting |

![Diagram](image-url)
# Environmental Conditions

<table>
<thead>
<tr>
<th>Temperature/Humidity</th>
<th>Operating</th>
<th>5 to 45°C (41 to 113°F), 10 to 90% RH (See the operating temperature and humidity range below.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage (Factory packing)</td>
<td>-10 to 50°C (14 to 122°F), 10 to 90% RH (except for paper)</td>
<td></td>
</tr>
</tbody>
</table>

![Temperature-Humidity Diagram]

<table>
<thead>
<tr>
<th>Ambient temperature (°C)</th>
<th>Relative humidity (%RH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>90</td>
</tr>
<tr>
<td>34</td>
<td>90</td>
</tr>
<tr>
<td>40</td>
<td>65</td>
</tr>
<tr>
<td>45</td>
<td>50</td>
</tr>
</tbody>
</table>

**Acoustic noise (Operating)**
Approximately 55 dB (Bystander position)

Note: The values above are measured in the Epson evaluation condition.
The acoustic noise differs depending on the paper used, printing contents, or the setting values such as print speed or print density.
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)

<table>
<thead>
<tr>
<th>Electric characteristics</th>
<th>Input conditions</th>
<th>Output conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Input voltage (rating): AC 90 to 264 V (AC 100 V -10% to AC 230 V +15%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Frequency (rating): 50/60 Hz ± 3 Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Power consumption (rating): 100 VA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Output voltage (rating): DC 24 V ± 5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Output current (rating): 2.0 A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Output electric power (rating): 48 VA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Output peak current: 4.5 A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Case specifications</th>
<th>Dimensions (H x W x D)</th>
<th>Weight</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>68 x 136 x 32 mm (2.68 x 5.35 x 1.26&quot;) (excluding projections)</td>
<td>Approx. 0.4 kg (14.11 oz) (excluding the AC cable)</td>
<td>Black (matte)</td>
</tr>
</tbody>
</table>

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

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® TM Printer Technical Reference Guide.

RS-232 Serial Interface

Interface board specifications (RS-232-compliant)

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data transfer method</td>
<td>Serial</td>
</tr>
<tr>
<td>Synchronization</td>
<td>Asynchronous</td>
</tr>
<tr>
<td>Handshake</td>
<td>Select one of the following with the memory switch (see &quot;Setting the Memory Switches/Receipt Enhancement&quot; on page 32):</td>
</tr>
<tr>
<td></td>
<td>• DTR/DSR</td>
</tr>
<tr>
<td></td>
<td>• XON/XOFF</td>
</tr>
<tr>
<td>Signal level</td>
<td>MARK: -3 V to -15 V logic &quot;1&quot;/OFF</td>
</tr>
<tr>
<td></td>
<td>SPACE: +3 V to +15 V logic &quot;0&quot;/ON</td>
</tr>
<tr>
<td>Bit length</td>
<td>Select one of the following with the memory switch (see &quot;Setting the Memory Switches/Receipt Enhancement&quot; on page 32):</td>
</tr>
<tr>
<td></td>
<td>• 7 bits</td>
</tr>
<tr>
<td></td>
<td>• 8 bits</td>
</tr>
<tr>
<td>Transmission speed (bps: bits per second)</td>
<td>Select one of the following with the memory switch (see &quot;Setting the Memory Switches/Receipt Enhancement&quot; on page 32):</td>
</tr>
<tr>
<td></td>
<td>2400/4800/9600/19200/38400/57600/115200 bps</td>
</tr>
<tr>
<td>Parity selection</td>
<td>Select one of the following with the memory switch (see &quot;Setting the Memory Switches/Receipt Enhancement&quot; on page 32):</td>
</tr>
<tr>
<td></td>
<td>• None</td>
</tr>
<tr>
<td></td>
<td>• Odd</td>
</tr>
<tr>
<td></td>
<td>• Even</td>
</tr>
<tr>
<td>Stop bit</td>
<td>1 or more bits</td>
</tr>
<tr>
<td></td>
<td>However, the stop bit for data transfer from the printer is fixed to 1 bit.</td>
</tr>
<tr>
<td>Connector</td>
<td>Printer side</td>
</tr>
<tr>
<td></td>
<td>DSUB 25-pin (female) connector</td>
</tr>
</tbody>
</table>

Functions of each connector pin

<table>
<thead>
<tr>
<th>Pin no.</th>
<th>Signal name</th>
<th>Signal direction</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FG</td>
<td>—</td>
<td>Frame ground</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Pin no.</th>
<th>Signal name</th>
<th>Signal direction</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>TXD</td>
<td>Output</td>
<td>Transmission data</td>
</tr>
<tr>
<td>3</td>
<td>RXD</td>
<td>Input</td>
<td>Reception data</td>
</tr>
<tr>
<td>4</td>
<td>RTS</td>
<td>Output</td>
<td>Equivalent to DTR signal (pin 20)</td>
</tr>
<tr>
<td>6</td>
<td>DSR</td>
<td>Input</td>
<td>This signal indicates whether the host computer can receive data. SPACE indicates that the host computer can receive data. MARK indicates that the host computer cannot receive data. When DTR/DSR control is selected, the printer transmits data after confirming this signal (except if transmitted using some ESC/POS commands). When XON/XOFF control is selected, the printer does not check this signal.</td>
</tr>
<tr>
<td>7</td>
<td>SG</td>
<td>—</td>
<td>Signal ground</td>
</tr>
<tr>
<td>20</td>
<td>DTR</td>
<td>Output</td>
<td>1) When DTR/DSR control is selected, this signal indicates whether the printer is BUSY. • SPACE status Indicates that the printer is ready to receive data. • MARK status Indicates that the printer is BUSY. Set BUSY conditions with memory switch 1-3. 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: • During the period from when power is turned on to when the printer is ready to receive data. • During the self-test.</td>
</tr>
<tr>
<td>25</td>
<td>INT</td>
<td>Input</td>
<td>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.</td>
</tr>
</tbody>
</table>

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

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

## Code

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

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

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

**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.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Communication direction</th>
<th>Other information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compatibility mode</td>
<td>Host → Printer communication</td>
<td>Centronics-compliant</td>
</tr>
<tr>
<td>Reverse mode</td>
<td>Printer → Host communication</td>
<td>Assumes a data transfer from an asynchronous printer</td>
</tr>
</tbody>
</table>

#### Compatibility Mode

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

**Specification**

<table>
<thead>
<tr>
<th>Data transmission</th>
<th>8-bit parallel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synchronization</td>
<td>Externally supplied STROBE signals</td>
</tr>
<tr>
<td>Handshaking</td>
<td>ACK and BUSY signals</td>
</tr>
<tr>
<td>Signal levels</td>
<td>TTL-compatible connector</td>
</tr>
<tr>
<td>Connector</td>
<td>ADS-B36BLFDR176 (HONDA) or equivalent product</td>
</tr>
<tr>
<td>Reverse communication</td>
<td>Nibble or byte mode</td>
</tr>
</tbody>
</table>

#### 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

<table>
<thead>
<tr>
<th>Pin</th>
<th>Source</th>
<th>Compatibility Mode</th>
<th>Nibble Mode</th>
<th>Byte Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Host</td>
<td>Strobe</td>
<td>HostClk</td>
<td>HostClk</td>
</tr>
<tr>
<td>2</td>
<td>Host/Ptr</td>
<td>Data0 (LSB)</td>
<td>Data0 (LSB)</td>
<td>Data0 (LSB)</td>
</tr>
<tr>
<td>3</td>
<td>Host/Ptr</td>
<td>Data1</td>
<td>Data1</td>
<td>Data1</td>
</tr>
<tr>
<td>4</td>
<td>Host/Ptr</td>
<td>Data2</td>
<td>Data2</td>
<td>Data2</td>
</tr>
<tr>
<td>5</td>
<td>Host/Ptr</td>
<td>Data3</td>
<td>Data3</td>
<td>Data3</td>
</tr>
<tr>
<td>6</td>
<td>Host/Ptr</td>
<td>Data4</td>
<td>Data4</td>
<td>Data4</td>
</tr>
<tr>
<td>7</td>
<td>Host/Ptr</td>
<td>Data5</td>
<td>Data5</td>
<td>Data5</td>
</tr>
<tr>
<td>8</td>
<td>Host/Ptr</td>
<td>Data6</td>
<td>Data6</td>
<td>Data6</td>
</tr>
<tr>
<td>9</td>
<td>Host/Ptr</td>
<td>Data7 (MSB)</td>
<td>Data7 (MSB)</td>
<td>Data7 (MSB)</td>
</tr>
<tr>
<td>10</td>
<td>Printer</td>
<td>Ack</td>
<td>PtrClk</td>
<td>PtrClk</td>
</tr>
<tr>
<td>11</td>
<td>Printer</td>
<td>Busy</td>
<td>PtrBusy/Data3,7</td>
<td>PtrBusy</td>
</tr>
<tr>
<td>12</td>
<td>Printer</td>
<td>Error</td>
<td>AckDataReq/Data2,6</td>
<td>AckDataReq</td>
</tr>
<tr>
<td>13</td>
<td>Printer</td>
<td>Select</td>
<td>Xflag/Data1,5</td>
<td>Xflag</td>
</tr>
<tr>
<td>14</td>
<td>Host</td>
<td>AutoFd</td>
<td>HostBusy</td>
<td>HostBusy</td>
</tr>
<tr>
<td>15</td>
<td>NC</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>16</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>17</td>
<td>FG</td>
<td>FG</td>
<td>FG</td>
<td>FG</td>
</tr>
<tr>
<td>18</td>
<td>Printer</td>
<td>Logic-H</td>
<td>Logic-H</td>
<td>Logic-H</td>
</tr>
<tr>
<td>19</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>20</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>21</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>22</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>23</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>24</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>25</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>26</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>27</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>28</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>29</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>Pin</td>
<td>Source</td>
<td>Compatibility Mode</td>
<td>Nibble Mode</td>
<td>Byte Mode</td>
</tr>
<tr>
<td>-----</td>
<td>--------</td>
<td>--------------------</td>
<td>-------------</td>
<td>----------</td>
</tr>
<tr>
<td>30</td>
<td>GND</td>
<td>GND</td>
<td>GND</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Host</td>
<td>Initi</td>
<td>Initi</td>
<td>Initi</td>
</tr>
<tr>
<td>32</td>
<td>Printer</td>
<td>Fault</td>
<td>DataAvail/DA0.4</td>
<td>DataAvail</td>
</tr>
<tr>
<td>33</td>
<td>GND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Printer</td>
<td>DK_STATUS</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>35</td>
<td>Printer</td>
<td>+5 V</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>36</td>
<td>Host</td>
<td>SelectIn</td>
<td>1284-Active</td>
<td>1284-Active</td>
</tr>
</tbody>
</table>

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 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

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

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

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.
