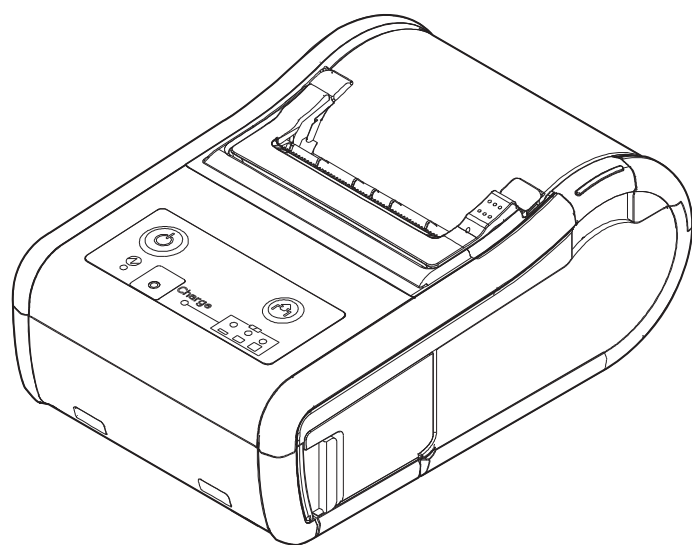


# TM-P60II with Peeler

## Technical Reference Guide

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### Product Overview

Describes features of the product.

### Setup

Describes setup and installation of the product.

### Application Development Information

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

### Handling

Describes how to handle the product.

### Replacement of the TM-P60

Describes information for replacement.

### Appendix

Describes general specifications and character code tables.

## Cautions

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## ESC/POS® Command System

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





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

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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.

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

## Warnings



- **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 electric shock.
- **Handle the power cable with care.**  
Improper handling may lead to fire or electric shock.
  - \* Do not modify or attempt to repair the cable.
  - \* Do not place any heavy object on top of the cable.
  - \* Avoid excessive bending, twisting, and pulling.
  - \* Do not place the cable near heating equipment.
  - \* Check that the plug is clean before plugging it in.
  - \* Be sure to push the plug all the way in.
- **Be sure to use the specified power source.**  
Connection to an improper power source may cause fire or electric 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 turn the power off, disconnect the battery pack, and then 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. Immediately turn the power off, disconnect the battery pack, and then 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.
- **If any liquid from the battery gets into your eyes, promptly wash it out with clean water for more than 10 minutes and consult your doctor immediately.**  
Otherwise, the liquid may cause loss of eye sight.
- **Never disassemble or modify the battery pack.**  
This may cause fire, explosion, leakage, overheating or damage.
- **When storing and moving the battery, attach the battery cover.**  
Shorting of battery terminals could lead to fire, bursting, leakage or overheating.
- **Do not expose the battery to fire or heat it.**  
This may cause fire, explosion, leakage, overheating or damage.
- **Should any battery liquid get on skin or clothing, promptly wash it off with clean water.**  
Otherwise, the liquid may damage your skin.





- **Do not expose the battery to water. Do not allow water to contact the terminals.**  
This may cause fire, overheating, or electric shock.
- **If you notice a strange odor, overheating, discoloration, distortion, or other abnormality of the battery, remove it from the printer or charger, and do not use it.**  
Continued use may cause overheating, fire or explosion.
- **Immediately move the battery pack away from fire or flame if it produces a strange odor or leakage.**  
Leaked electrolyte may flash off, leading to fire or explosion.
- **Be sure to use and charge the specified battery.**  
Using a battery other than the one specified may cause fire, explosion, leakage, overheating, or other damage.

## Cautions



- **Do not connect cables in ways other than those mentioned in this manual.**  
Different connections may cause equipment damage or fire.
- **When connecting a USB cable, do not stress the connector part.**  
Doing so may damage that part.
- **Be careful not to drop this product.**  
The product may break or cause injury if it is dropped.
- **Be sure to set this equipment on a firm, stable, horizontal surface.**  
The product may break or cause injury if it falls.
- **Do not use this product in locations subject to high humidity or dust levels.**  
Excessive humidity and dust may cause equipment damage or fire.
- **Do not place heavy objects on top of this product. Never stand or lean on this product.**  
Equipment may fall or collapse, causing breakage and possible injury.
- **To ensure safety, unplug this product before leaving it unused for an extended period.**
- **Before moving the product, unplug it and unplug all cables connected to it.**
- **Take care not to injure your fingers on the manual cutter:**
  - \* When you remove printed paper.
  - \* When you perform other operations, such as loading/replacing roll paper.
- **To ensure safety, remove the battery before leaving it unused for an extended period.**

## *Restriction of Use*

When this product is used for applications requiring high reliability/safety, such as transportation devices related to aviation, rail, marine, automotive; disaster prevention devices; various safety devices; 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 judgement on this product's suitability after a full evaluation.

## *Note about interference*

- The Radio Frequency module that can be installed in this product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
- If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
  - Reorient or relocate the receiving antenna.
  - Increase the separation between the equipment and receiver.
  - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  - Consult your dealer or an experienced radio/TV technician for help.
- Never disassemble or modify this product or the installed Radio Frequency module.
- Seiko Epson Corporation shall not be liable for interference to radio/TV resulting from changes or modifications to this product or the installed Radio Frequency module not expressly approved by Seiko Epson Corporation.

# About this Manual

## Aim of the Manual

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

## Manual Content

The manual is made up of the following sections:

Chapter 1	<a href="#">Product Overview</a>
Chapter 2	<a href="#">Setup</a>
Chapter 3	<a href="#">Application Development Information</a>
Chapter 4	<a href="#">Handling</a>
Chapter 5	<a href="#">Replacement of the TM-P60</a>
Appendix	<a href="#">Specifications of Interfaces and Connectors</a> <a href="#">Character Code Tables</a>

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# Product Overview

This chapter describes features and specifications of the TM-P60II, a portable thermal printer.

## Features

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### Printing

Maximum printing speed of 100 mm/s is possible.

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### Printer handling

- Easy drop-in paper loading.
- The range of 29.5 mm to 58 mm paper width can be used. A 60 mm paper width can be used by removing the spacer.
- Belt clip for maximum mobility.
- Long battery life.
- Peeler function is installed as the standard. (It is easy to switch between the label peeler issuing mode and the label continuous issuing mode.)

---

### Software

- Command protocol is based on the ESC/POS Proprietary Command System.
- OPOS ADK, JavaPOS ADK, and Windows printer drivers are available.
- Printing various kinds of barcodes, GS1 DataBar, and two-dimensional symbols (PDF417, QR code, MaxiCode, Composite Symbology, Aztec Code, DataMatrix) are available.
- Various layouts are possible by using page mode.
- Has a maintenance counter function.
- ePOS-print is possible with the Wi-Fi models.

---

### Interfaces

- Has Wi-Fi (IEEE802.11 a/b/g/n) or Bluetooth interface.
- USB interface is standard equipment.

---

### Environment

Has a paper-saving function.

# Product Configurations

## Interfaces

- Wi-Fi (IEEE802.11a/b/g/n) + USB interface model
- Bluetooth (Ver. 2.1 + EDR) + USB interface model

## Buzzer

Model with the internal buzzer function.

## Accessories

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### Included

- Thermal roll paper (for operation check)
- Battery pack (OT-BY60II)
- Wire saddle
- USB cable
- User's manual
- Warranty certificate\*

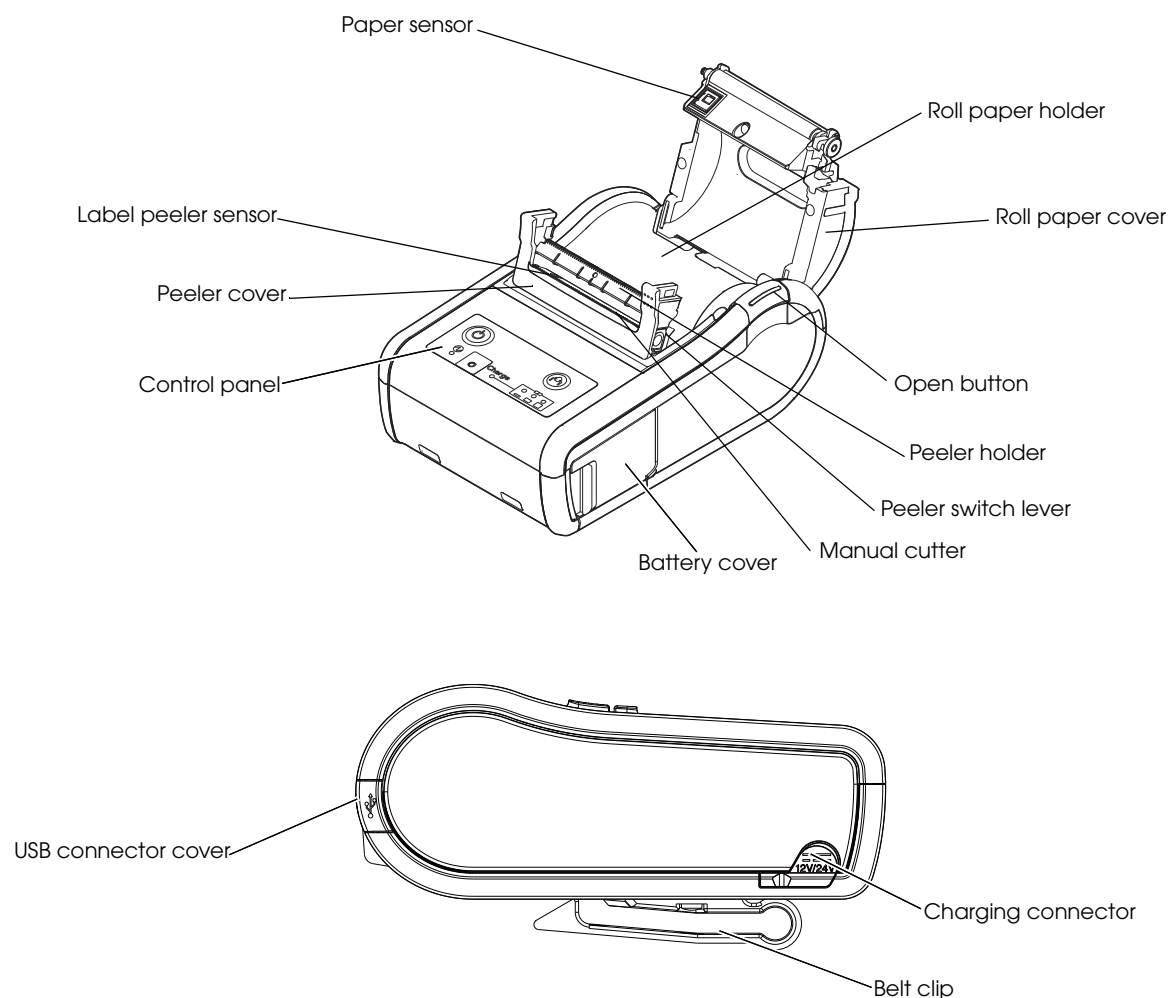
\*May not be included, depending on the model.

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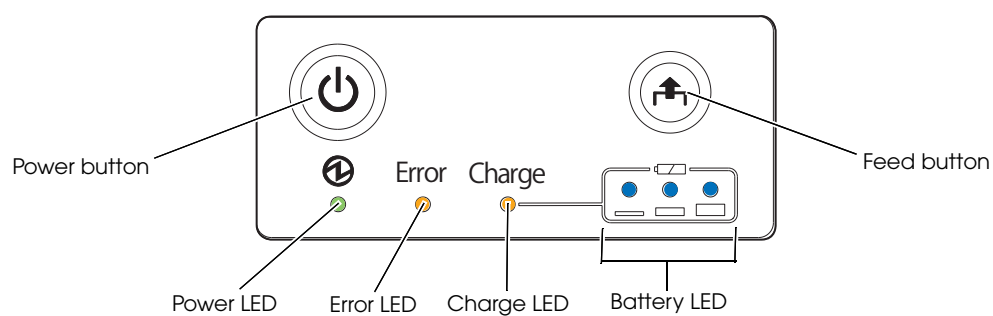
### Options

- Battery pack (OT-BY60II)
- AC adapter (PS-11)
- Battery charger (OT-CH60II)

## Part Names and Functions



### Control Panel



---

## Buttons

### Power Button

Press this button to turn the printer on. Press this button for 2 seconds or more to turn the printer off.

#### CAUTION

- After the power button is pressed, it takes the following time before the printer is initialized. Time to establish the communication is not included.
  - \* IEEE802.11a/b/g/n: Approx. 10 sec. after the Power LED comes on.
  - \* Bluetooth: Approx. 2 sec. after the Power LED comes on.
- The printer does not operate and the LEDs go out when the battery is not installed in the printer even if the printer is connected to the optional AC adapter.
- It is recommended to turn off the printer after executing the power-off sequence command. The latest values of the maintenance counter are automatically stored in the NV memory (the values of the maintenance counter are normally stored every 2 minutes.) For detailed information about ESC/POS commands, see the ESC/POS Command Reference.
- If the battery is removed from the printer without executing the power-off sequence command, the values of the maintenance counter are not updated correctly.
- To turn the printer on immediately after turning the printer off, press the Power button after the LED lights go off.

### Feed button

- When receipt paper is selected for the layout setting, pressing this button once feeds paper by one line. Holding this button down feeds paper continuously.
- When paper other than receipt paper is selected for the layout setting, pressing this button feeds paper to the print starting position on the next label.
- If the printer is used in a situation in which strong light, such as direct sunlight or strong light from illumination strikes the label peeler sensor, even when a label is removed, the label removal status may not be canceled. In this case, pressing this button for approximately 1 second or more cancels the label removal status and feeds paper to the print starting position on the next label.

#### NOTE

Enabling/disabling of the Feed button can be selected by a command. If the command is set to disable the button, it does not function. For detailed information about ESC/POS commands, see the ESC/POS Command Reference.

---

## LEDs

#### CAUTION

The printer does not operate and the LEDs go out when the battery is not installed in the printer even if the printer is connected to the optional AC adapter.

### ① Power LED (Green)

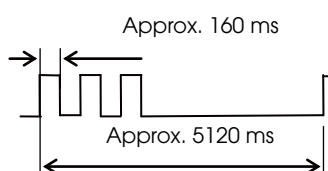
- Lights when the power is on.
- Goes out when the power supply is turned off.
- Flashes when the printer is powering-off or while the Feed button is being pressed in the software setting mode. With the Wi-Fi models, it flashes also when the printer is being initialized after the power is turned on.

### 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 when the printer is ready.
- Lights when the remaining battery charge is at E level or zero (no remaining battery charge). (For details about battery charge levels, see ["Operation Mode When Battery is Low" on page 20.](#))
- Lights when the printer is offline. (For details about offline, see ["Offline" on page 18.](#))
- Flashes when an error occurs. (For details about the flash codes, see ["Error Status" on page 22.](#))
- Flashes when the printer is in the following label removal waiting status.
  - When the label peeler sensor detects the label after the label is fed to the label removal position.
  - When the label peeler sensor detects the label after the power is turned on (initialization) or the peeler cover is closed.

Flashing pattern



- Goes out during normal operation (online).

### Charge LED (Orange)

- Lights when the battery is being charged.
- Off when the battery is fully charged.
- Flashes when there is abnormality in battery charging.

### Battery LED (Blue)

The remaining battery charge is indicated by three LEDs only when the battery is installed in the printer. For details, see ["Operation Mode When Battery is Low" on page 20.](#)

## Offline

The printer automatically goes offline under the following conditions:

- During power on until the printer is ready
- When the cover is open
- When paper is out
- When the remaining battery charge is at level E or zero (no remaining battery charge)
- When an error has occurred

### NOTE

- The Error LED lights during offline. However, it flashes when an error has occurred.
- For details about the battery charge levels and operation modes, see ["Operation Mode When Battery is Low" on page 20](#).
- The buzzer beeps five times when there is no more paper or an error has occurred. You can disable the buzzer with the memory switches. For details on the memory switch settings, see ["Software Settings" on page 49](#).

## Switching Issuing Mode

With the roll paper cover and peeler cover open, you can switch the issuing mode between the label continuous issuing mode and the label peeler issuing mode by folding the peeler holder under the peeler cover or using the peeler switch lever.

Label peeler issuing mode: the label is peeled off from the liner when the paper is fed.

### NOTE

The printer operates in the label peeler issuing mode immediately after closing the peeler cover or turning on the power. When the specified amount of paper is fed, if a label is not detected by the label peeler sensor, the printer operates in the label continuous issuing mode. When the cover is opened or the power is turned off, the mode setting is returned to the default (the label peeler issuing mode).

## Power Functions

You can customize the printer using the power functions, the auto-power off function and battery charge mode function to save the battery power or minimize the battery deterioration.

### Auto-Power Off

The printer turns off the power automatically after the specified amount of time elapses in the power saving status.

The initial setting of the auto-power off function differs depending on the models as follows:

For European models: Enabled (The auto-power off time is set to 60.)

For North America models: Disabled (The auto-power off time is set to 0.)

#### NOTE

- The auto-power off time is selectable with the customized value. To set the customized value, see ["Software Settings" on page 49](#).
- To disable this function, set the auto-power off time to 0.
- When using a USB, even if the set time is defined, the auto-power off function is disabled.
- The printer enters the power saving mode when it has nothing to process. The printer recovers from the power saving status when the cover is opened, the Feed button is pressed, or data is received.

### Battery Charge Modes

The printer acts differently when connected to the optional AC adapter depending on the battery charge mode.

The printer has two modes and is initially set to the mode 1.

#### NOTE

The battery charge mode is selectable with the customized value. To set the customized value, see ["Software Settings" on page 49](#).

#### Mode 1

In the mode 1, the printer charges the battery even if the battery is fully charged.

#### Mode 2

In the mode 2, the printer charges the battery when the remaining battery charge is less than fully charged.

## Operation Mode When Battery is Low

The printer acts differently depending on the remaining battery charge and the operation mode when battery is low.

The printer has two modes and is initially set to the mode 1.

### NOTE

- It is recommended to replace or charge the battery when the remaining battery charge goes down to the level L.
- Replace or charge the battery when the remaining battery charge goes down to the levels S or E.
- The buzzer beeps five times when the remaining battery charge goes down to the levels L or S. You can disable the buzzer with the memory switches. To set the memory switches, see ["Software Settings" on page 49](#).
- The operation mode when battery is low is selectable with the customized value. To set the customized value, see ["Software Settings" on page 49](#).
- The remaining battery charge is detected before printing starts and the displayed amount is then updated. The Battery LED does not indicate the remaining battery charge detected in real time.

### Mode 1

● ● : On

● : Flash

○ : Off

	Battery LED	Error LED	Remaining battery charge	Printing	Communication
Level H	● ● ●	○	Approx. 60 ~ 100%	Possible	Possible
Level M	● ● ○	○	Approx. 20 ~ 60%	Possible	Possible
Level L	● ○ ○	○	Approx. 10 ~ 20%	Possible	Possible
Level S	● ○ ○	○	Approx. below 10%	Possible*	Possible
Level E	○ ○ ○	●	Approx. 0%	Impossible	Impossible

\*: Printing may stop in the middle.



Mode 2

● ● : On      ● : Flash      ○ : Off

	Battery LED	Error LED	Remaining battery charge	Printing	Communication
Level H	● ● ●	○	Approx. 60 ~ 100%	Possible	Possible
Level M	● ● ○	○	Approx. 40 ~ 60%	Possible	Possible
Level L	● ○ ○	○	Approx. 20 ~ 40%	Possible	Possible
Level S	● ○ ○	○	Approx. 10 ~ 20%	Possible	Possible
Level E	○ ○ ○	●	Approx. below 10%	Impossible	Impossible

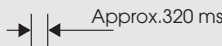


## Error Status

When an error occurs, the printer stops operating, goes offline, and the Error LED flashes.

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

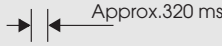

### Automatically Recoverable Errors

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

Error	Error description	Error LED flash code 	Recovery measure
Paper error	The basic position on the label cannot be detected.	LED ON →  LED OFF →	Recovers automatically when the cover is opened.
Temperature error	The temperature of the print head, motor driver IC, or battery is high.	LED ON →  LED OFF →	Recovers automatically when the temperature goes down.

### Recoverable Errors

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

Error	Error description	Error LED flash code 	Recovery measure
Paper layout error	The paper layout differs from the actual paper. Paper jam occurs.	LED ON →  LED OFF →	Recovers by sending an error recovery command.

#### CAUTION

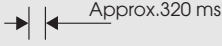
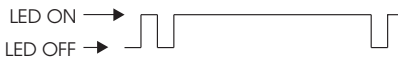




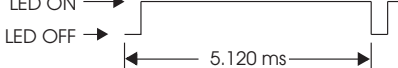

The error recovery command is valid only if a recoverable error (excluding automatically recoverable errors) occurs.

## Unrecoverable Errors

Printing is no longer possible when unrecoverable errors occur. If the same error occurs again even after turning the power back on, contact your dealer or a Epson service center.



**Immediately turn off the power and remove the battery when unrecoverable errors occur.**

Error	Error description	Error LED flash code 
R/W error in memory	After R/W checking, the printer does not work correctly.	LED ON →  LED OFF →
High voltage error	The power supply voltage is high.	LED ON →  LED OFF →
Overload error	The temperature of the print head or battery is extremely high or low.	LED ON →  LED OFF →
CPU execution error	The CPU is executing an incorrect address.	LED ON →  LED OFF →
Wireless communication unit error	Wireless communication does not work correctly or the wireless communication unit is disconnected.	LED ON →  LED OFF →
Internal circuit error	Internal circuits are not connected correctly.	LED ON →  LED OFF → 

## 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
- Customized values and memory switches
- User-defined page
- Maintenance counter

### CAUTION

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

## NV Graphics Memory

Graphics, such as shop logos to be printed on receipts, can be stored. Even if communication speed is low, high speed graphic printing is possible.

Use the TM-P60II Utility to register graphics. You can also print and confirm the registered graphics in the TM-P60II Utility or NV graphics memory print mode.

### CAUTION

The NV graphics memory print mode can be executed in the label continuous issuing mode. If it is executed in the label peeler issuing mode, a paper layout error occurs when paper is detected by the label peeler sensor.

### NOTE

- For detailed information about the TM-P60II Utility, see the TM-P60II Utility User's Manual.
- To use the NV graphics memory print mode, see ["NV Graphics Print Mode" on page 73](#).

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

## Customized Values and Memory Switches

With the customized values and memory switches, which are software switches for the printer, you can configure various settings of the printer.

To set the customized values and memory switches, see ["Software Settings" on page 49](#).

## User-defined Page

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

## Maintenance Counter

With this function, printer information, such as the number of lines fed and printer operation time after the printer starts working, is automatically stored in NV memory. You can read or reset the information with TM-P60II Utility, the Status API of the APD, or OPOS ADK to use it for periodical checks or part replacement.

**NOTE**

Maintenance counter values can also be checked with TM-P60II Utility or by executing a self-test. Maintenance counter values are usually saved every two minutes except in the power saving status. However, if the printer power is turned off by removing the battery or using up the battery charge, the latest maintenance counter will not be saved. For detailed information about ESC/POS commands, see the ESC/POS Command Reference.

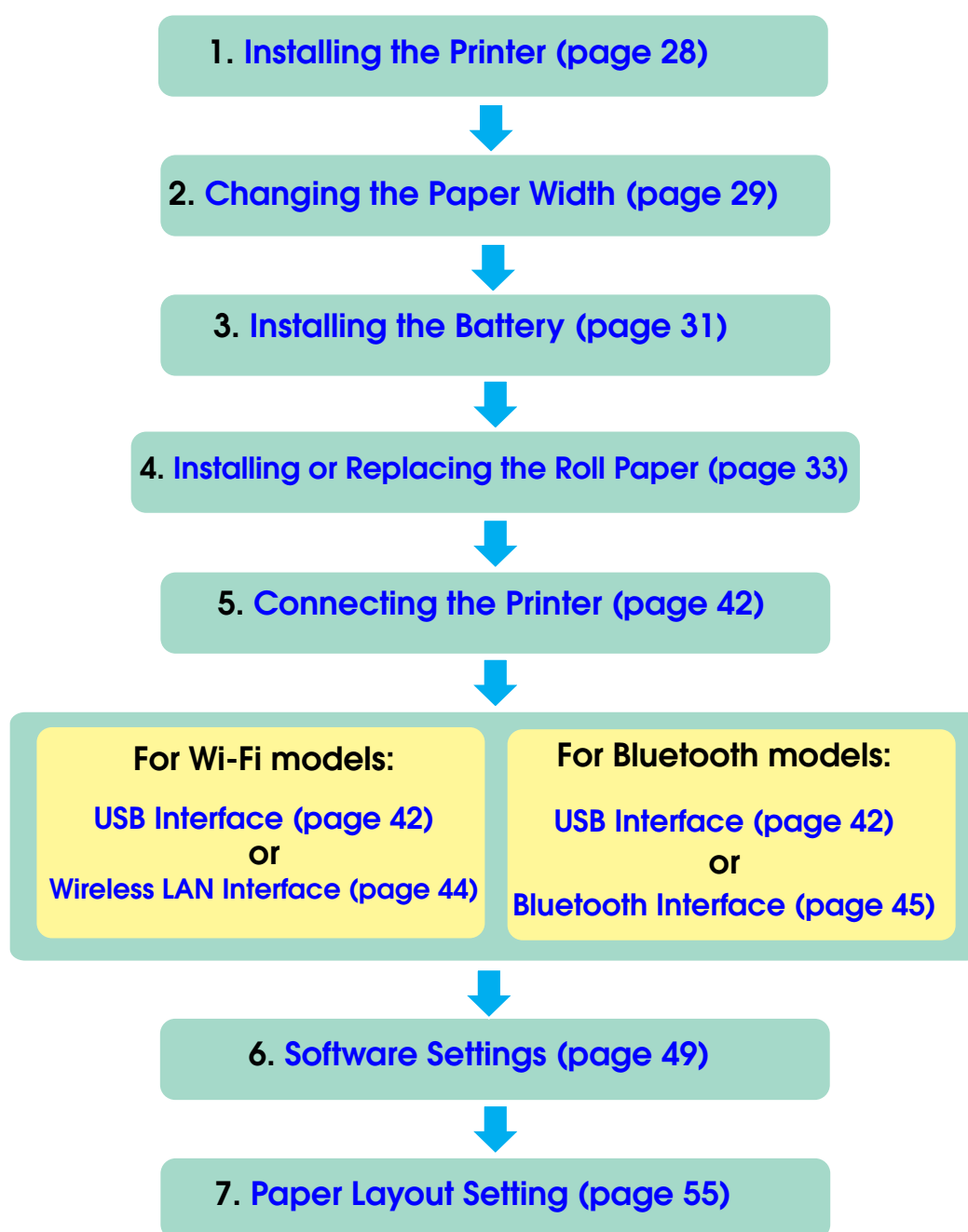


# Setup

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.

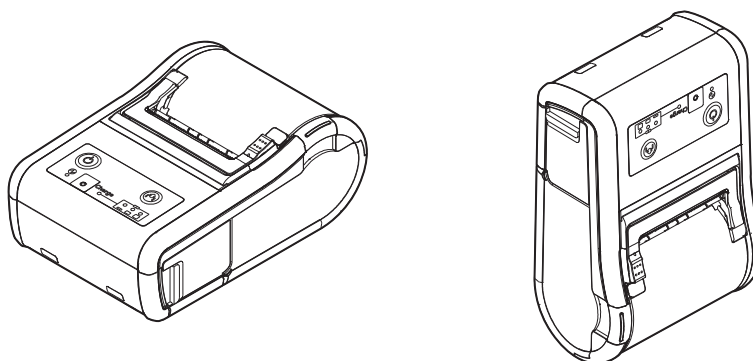


## Installing the Printer

You can install the printer horizontally or vertically. You can also carry it using the belt clip on the back of the printer to hang the printer on your belt.

### CAUTION

- When you install the printer vertically, only the orientation shown below is available. Do not install the printer upside down.
- When you install the printer horizontally, it is recommended to remove the belt clip. Remove the two screws fixing the clip to remove it.



### Notes on Using the Wi-Fi Models

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



## Changing the Paper Width

The printer is initially set to print on 58 mm {2.28"} width paper. When using 29.5 mm {1.16"}, 36 mm {1.82"}, 42 mm {1.65"}, 48.5 mm {1.91"}, 55 mm {2.17"}, or 58 mm {2.28"} width paper, adjust the spacer to the position matching the width of your paper by following the steps below. If you use 60 mm {2.36"} width paper, remove the spacer installed in the printer.

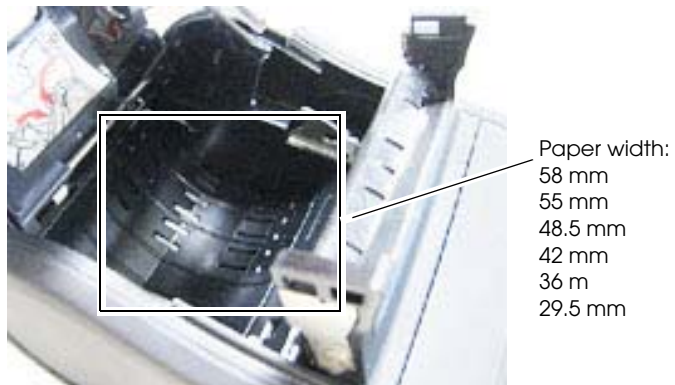
### CAUTION

- When changing the paper width, after adjusting the spacer position, set the paper layout with ESC/POS commands. If the changed settings are not stored in the NV memory, change the settings with the "Paper layout setting" command. If the changed settings are stored in the NV memory, change the settings with the "Paper layout setting" command and store the settings with the "Save the setting values from the work area into the storage area" command. For detailed information about ESC/POS commands, see the ESC/POS Command Reference.
- Do not increase the paper width after you have used a narrower width because if the printer has ever been used with narrow paper, part of the head contacts the platen. Therefore, when a wider setting is used, part of the head may be worn out.

- 1** Make sure that the printer is turned off.
- 2** Press the open button to open the roll paper cover and the peeler cover.
- 3** Remove the roll paper if there is one in the roll paper holder.
- 4** Insert your finger into the hole of the spacer and lift it upward to undo the top part that is fixed in one of the slots.



- 5** Move the spacer to the position matching the width of the paper you are using.



- 6** Insert the top of the spacer and press it down until it clicks.

## Installing the Battery

The printer does not operate without a charged battery installed.

Follow the steps below to install the battery.



**Be sure to use the battery OT-BY60II.**

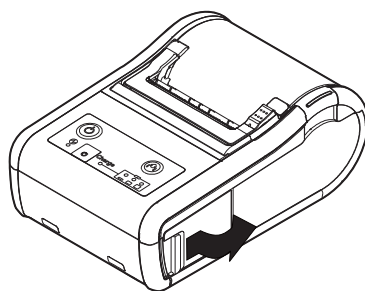
Using a battery other than the one specified may cause fire, explosion, leakage, overheating or other damage.

**CAUTION**

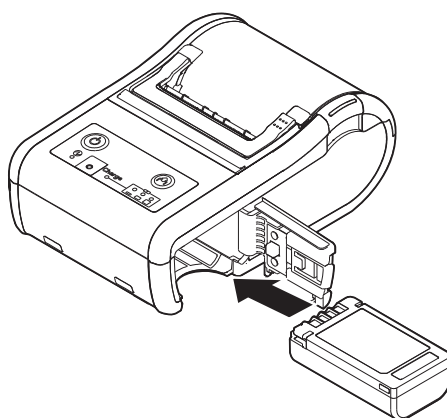
- When removing or installing the battery, be sure to turn off the power before doing so.
- Dispose of used batteries according to the instructions.

**1** Make sure that the printer is turned off.

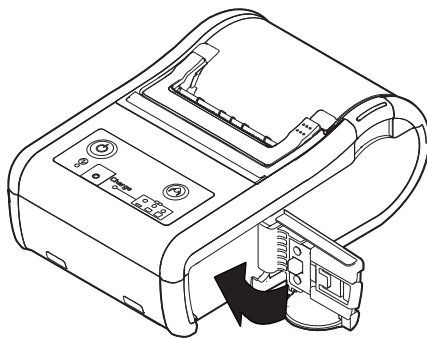
**2** Open the battery cover.



**3** Install the battery.



#### 4 Close the battery cover.



#### NOTE

To charge the battery, see ["Charging Battery" on page 79](#).

## Installing or Replacing the Roll Paper

Follow the steps below to install or replace the roll paper.



**When installing or replacing the roll paper, take care not to injure your fingers on the manual cutter.**

### CAUTION

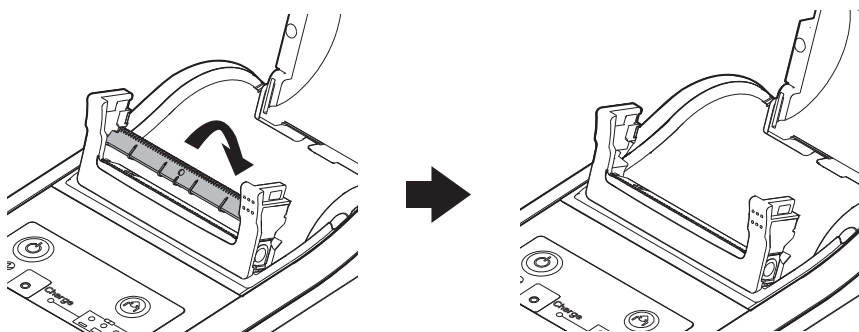
Use paper that meets the printer specifications. For details about paper specifications, see ["Paper Specifications" on page 89](#).

### NOTE

Do not use the roll paper that have the paper glued to the core.

### When Using the Label Continuous Issuing Mode

- 1** Press the open button to open the roll paper cover and the peeler cover.
- 2** Remove the used roll paper core if there is one.
- 3** Fold the peeler holder under the peeler cover. This covers the label peeler sensor.

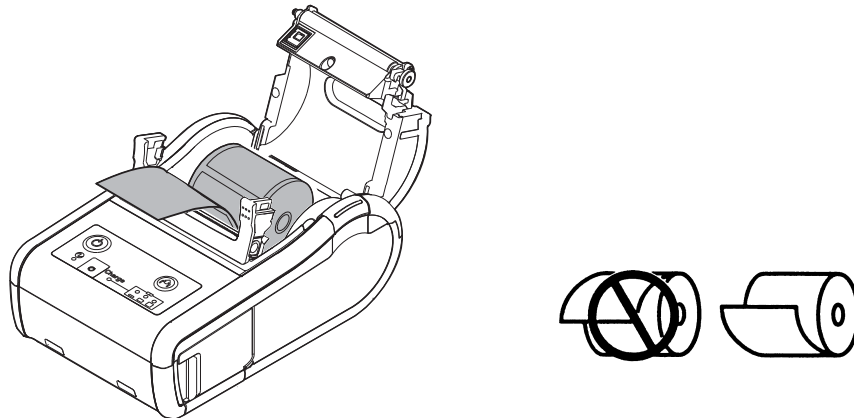


If you hang the printer vertically on a belt using a belt clip on the back of the printer, see ["When installing the printer vertically" on page 35](#).

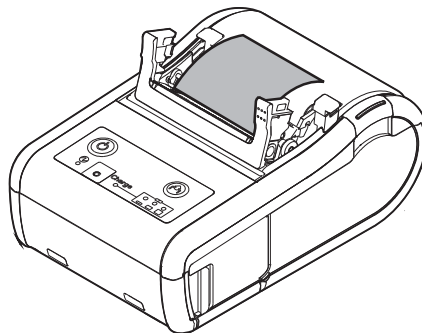
---

## When installing the printer horizontally

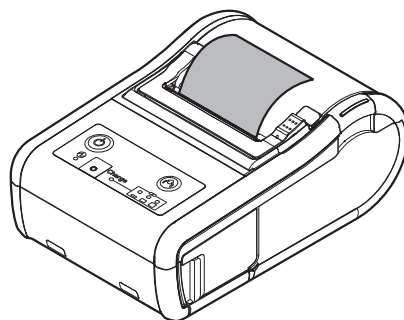
- 4** Set a new roll of paper in the correct direction inside the roll paper holder, and pull the leading edge of the roll paper.



- 5** Close the roll paper cover.

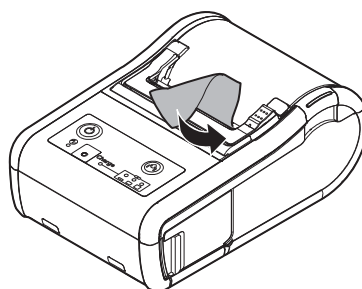


- 6** Close the peeler cover.  
When closing the peeler cover, make sure to close it firmly, pressing both ends.



**NOTE**

When using the label continuous issuing mode, you can tear off the paper.

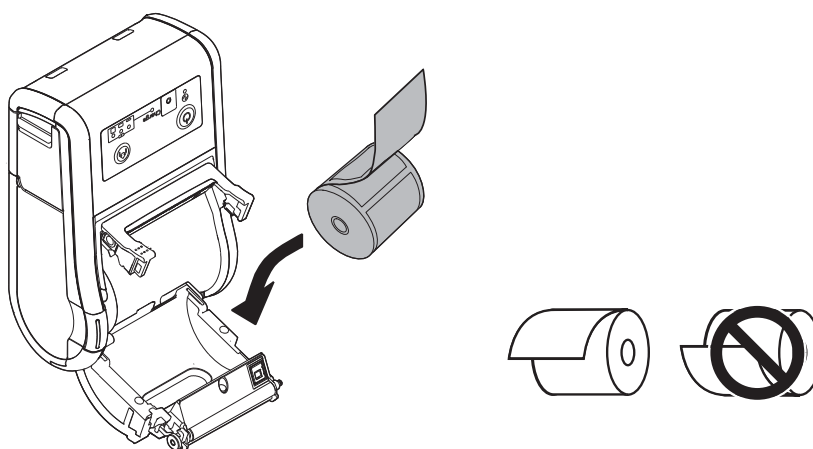


## When installing the printer vertically

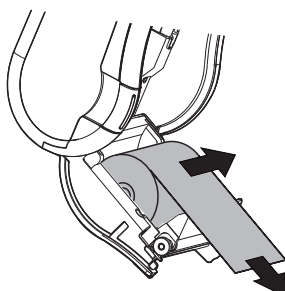
- 4** Set a new roll of paper in the correct direction inside the roll paper cover.

**CAUTION**

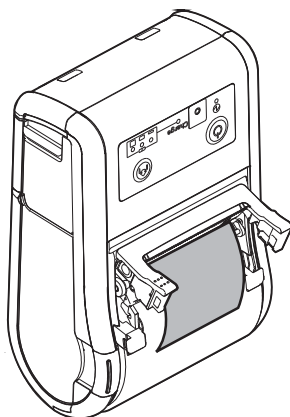
Be sure that roll paper side is at the bottom when you install the printer vertically.



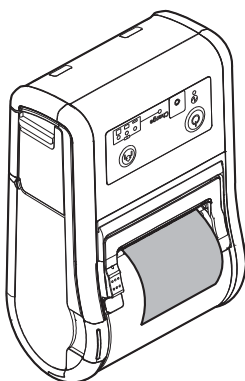
- 5** Pull the leading edge of the roll paper, and align the left edge of the roll paper with the edge of the cover.



**6** Close the roll paper cover.

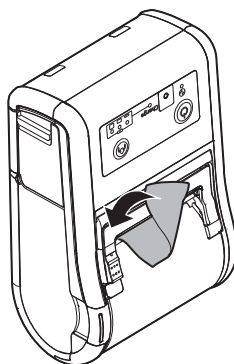


**7** Close the peeler cover.  
When closing the peeler cover, make sure to close it firmly, pressing both ends



**NOTE**

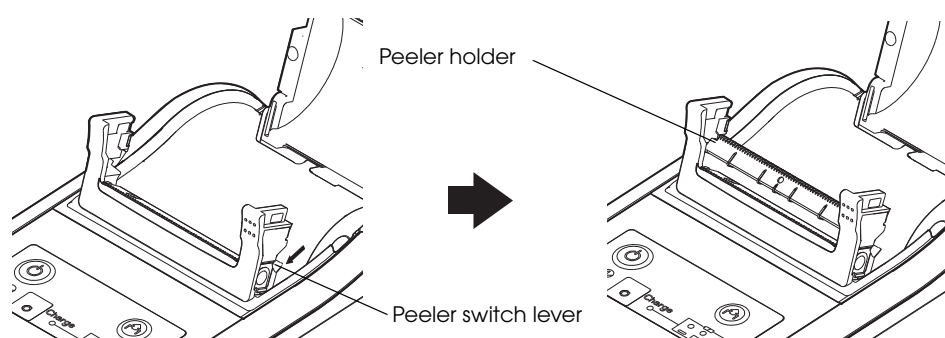
When using the label continuous issuing mode, you can tear off the paper.





## When Using the Label Peeler Issuing Mode

- 1** Press the open button to open the roll paper cover and the peeler cover.
- 2** Remove the used roll paper core if there is one.
- 3** Press the peeler switch lever to lift the peeler holder.



If you hang the printer vertically on a belt using a belt clip on the back of the printer, see ["When installing the printer vertically" on page 39](#).

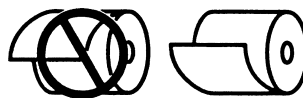
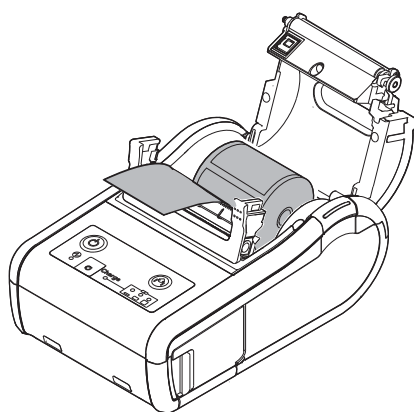
---

## When installing the printer horizontally

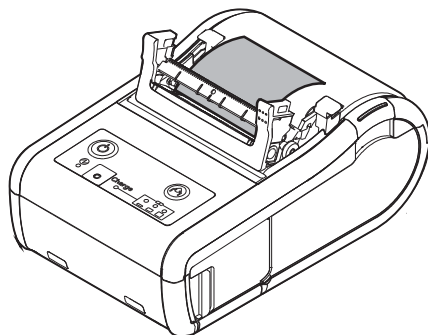
- 4 Set a new roll of paper in the correct direction inside the roll paper holder. Remove the first label off, and pull the label paper so you can set the backing paper in the peeler holder.

**CAUTION**

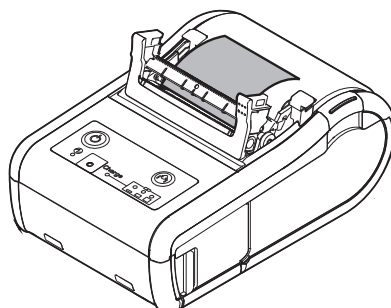
If the first label is not removed when using the label peeler issuing mode, the thickness of the label and the backing paper overloads the peeler holder, possibly stopping the paper feed motor.



- 5 Close the roll paper cover.



- 6** Close the peeler cover.  
When closing the peeler cover, make sure to close it firmly, pressing both ends.

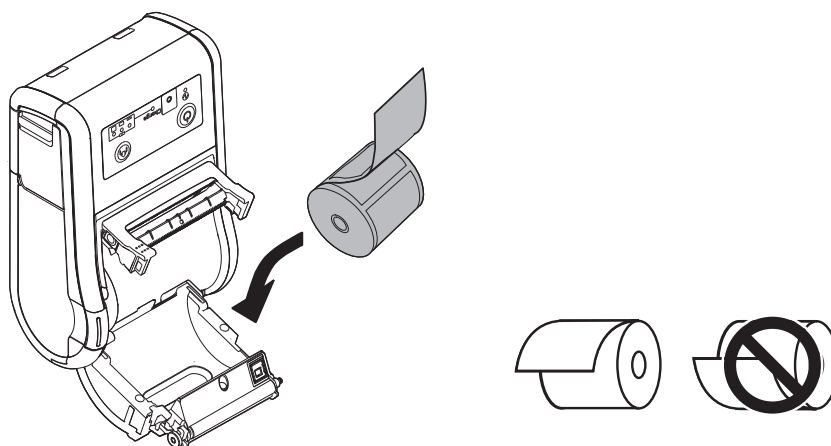


### When installing the printer vertically

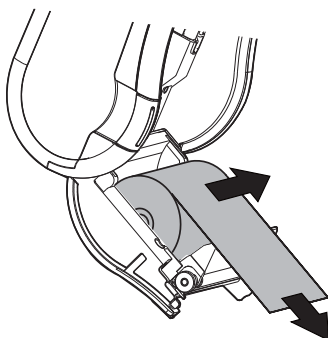
- 4** Set a new roll of paper in the correct direction inside the roll paper cover. Remove the first label off.

#### CAUTION

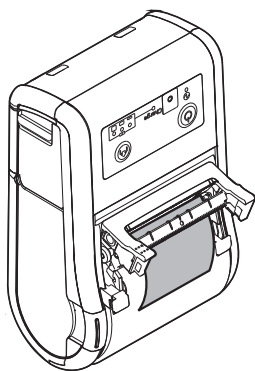
- If the first label is not removed when using the label peeler issuing mode, the thickness of the label and the backing paper overloads the peeler holder, possibly stopping the paper feed motor.
- Be sure that roll paper side is at the bottom when you install the printer vertically.



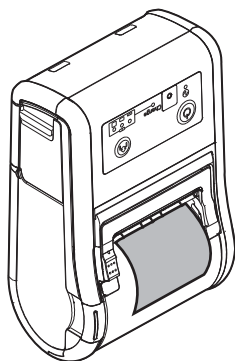
- 5** Pull the label paper so you can set the backing paper in the peeler holder, and align the left edge of the roll paper with the edge of the cover.



- 6** Close the roll paper cover.



- 7** Close the peeler cover.  
When closing the peeler cover, make sure to close it firmly, pressing both ends.



**CAUTION**

When the label peeler sensor detects the label at power on, the printer goes in the label removal waiting state and the Error LED flashes. Be sure to remove the label before powering off the printer. Otherwise, the printer goes into the label removal waiting state when it is powered on again.

**NOTE**

- When the label is completely fed to the peeling position, the printer goes in the label removal waiting state, so remove the label.
- Removing the issued label enables the label peeler sensor to detect a paper end and the printer is ready to print the next label.

## Connecting the Printer

The TM-P60II has dual interfaces: a built-in USB interface and another interface selected by the customer, wireless LAN or Bluetooth interface. See the corresponding section for the interface you selected.

- Wi-Fi models: ["USB Interface" on page 42](#) or ["Wireless LAN Interface" on page 44](#)
- Bluetooth models: ["USB Interface" on page 42](#) or ["Bluetooth Interface" on page 45](#)

### CAUTION

- Before connecting the printer, confirm the current interface mode. The printer is initially set to the Automatic selection mode. To change the interface mode, see ["Software Settings" on page 49](#).
- **Automatic selection:**  
When the USB cable is connected with a host PC, the USB interface is preferentially selected. However, if the printer is turned on before turning on a host PC, the wireless LAN/Bluetooth interface is selected. When the USB cable is not connected with a host PC, the wireless LAN/Bluetooth interface is selected.

## USB Interface

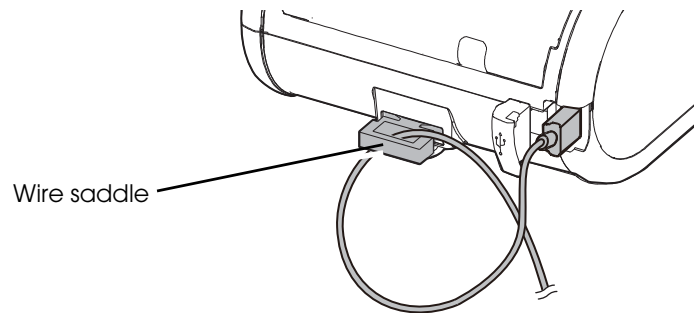
When communicating with a host PC via the USB cable, connect the USB cable to the printer, turn on the PC, and then turn on the printer. For Windows, you can change the printer settings with the TM-P60II Utility. For details on the TM-P60II Utility, see ["Software Settings" on page 49](#).

### CAUTION

- Putting the USB cable through the wire saddle prevents the cable from coming unplugged.
- Do not place any weight or stress on the cable when using. Doing so could damage the cable and connectors.
- When communicating with a host PC via the USB interface, connect the USB cable to the printer before turning on the printer.

- 1** Attach the enclosed wire saddle to the printer as shown in the illustration below.
- 2** Put the USB cable through the wire saddle.
- 3** Connect the USB cable from the host computer to the USB upstream connector.

- 4** Connect the other end of the interface cable to the host computer.



## Wireless LAN Interface

If your printer is a Wi-Fi model, wireless LAN connection is available. Use EpsonNet Config, which is a utility for wireless LAN settings by following the steps below.

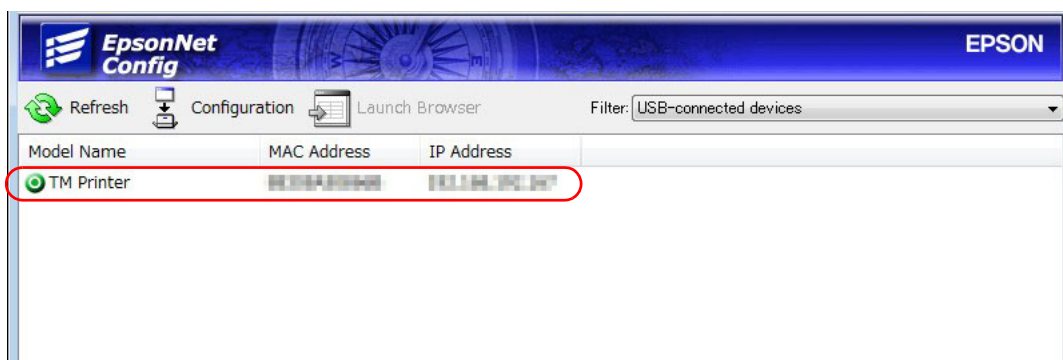
### CAUTION

- Examine the radio wave situation in the surrounding area before use.
- Avoid using the same channel that is used in the neighboring shops where wireless LAN is used.
- In the infrastructure mode, W53 and W56 channels are not available to connect to a stealth SSID access point.

### NOTE

- For detailed information about EpsonNet Config, see the EpsonNet Config manual (operation guide) or the EpsonNet Config online help.
- If you configure the wireless LAN setting without using EpsonNet Config, use the network parameters printed on the dynamic status sheet. To print dynamic status sheet, see ["Dynamic Status Sheet Print Mode \(Only for Wi-Fi Models\)" on page 77](#).
- The network parameters are initially set as follows:
  - \* Communication standard: 802.11b/g/n
  - \* Network mode: Infrastructure
  - \* SSID: EpsonNet
  - \* Security level: WPA-PSK (AES)
  - \* Passphrase: EpsonNet
  - \* IP Address: 192.168.192.168
  - \* Subnet mask: 255.255.255.0
- To initialize the wireless LAN setting, see ["Wireless Communication Setting Initializing Mode" on page 75](#).

- 1 Connect the printer to a PC via the USB cable.  
See ["USB Interface" on page 42](#).
- 2 Turn on the printer.
- 3 Start up EpsonNet Config.
- 4 Double-click on the printer.





**5** Configure the (Network) settings and the (TCP/IP) settings.

**6** Disconnect the USB cable, turn off the printer, and then turn it back on.

**CAUTION**

Be sure to disconnect the USB cable, turn off the printer, and then turn it back on after using EpsonNet Config via the USB interface.

**NOTE**

If you need to configure other settings, use EpsonNet Config (web version). For information about EpsonNet Config (web version), see ["Starting EpsonNet Config \(Web Version\)" on page 66](#).

## Bluetooth Interface

Use a tool, such as a built-in Bluetooth connection tool of your device to establish the connection with the printer. If your device is a Windows computer, use EPSON™ Bluetooth Connector, which is a utility to easily pair a terminal and the printer.

**CAUTION**

- If the host computer and the printer are not connected on a continuous basis but rather connected every time the printer starts printing, some time may be needed for the printer to actually start printing after the host computer commands printing. This pause is the time required for processing the connection between the host computer and the printer, and it depends on the conditions of the environment where used.
- If data transfer from an application of the host computer has already been completed, data might remain in the Bluetooth module internal buffer. As such data remaining in the buffer might be lost when the connection is cut off, use the status or similar functions to check that transmitted data has been completely printed before cutting off the wireless connection.

**NOTE**

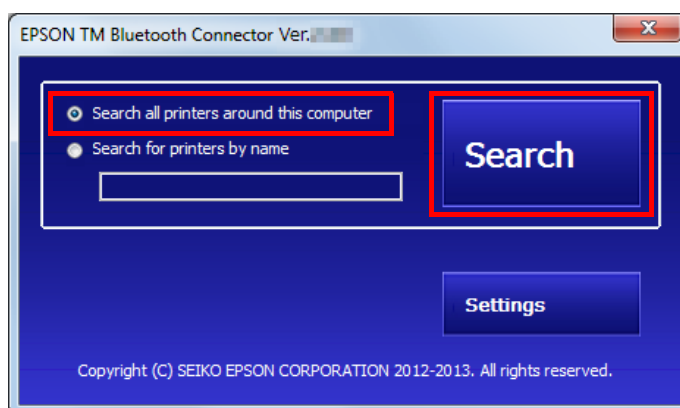
- The device name and passkey are initially set as follows:
  - \* Device name: TM-P60II\_XXXXXX\*  
\*XXXXXX refers to the last 6 digits of the serial number labeled on the back of your printer.
  - \* Passkey: 0000
- For detailed information about EPSON™ Bluetooth Connector, see the TM Bluetooth Connector User's Manual.
- The device name and passkey are editable with the TM-P60II Utility.

## Connecting method

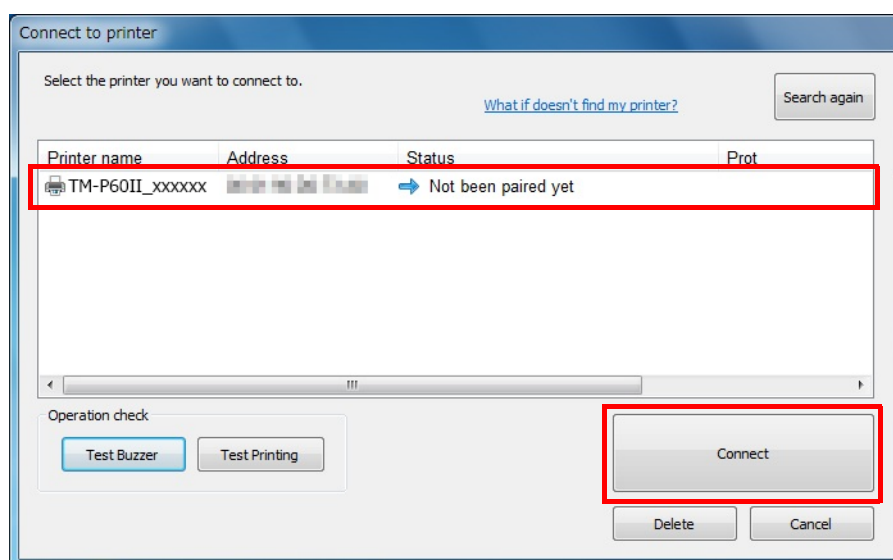
Follow the procedure below and make the settings.

**1** Have a Bluetooth-compatible computer ready.  
Make sure you have installed TM Bluetooth Connector.

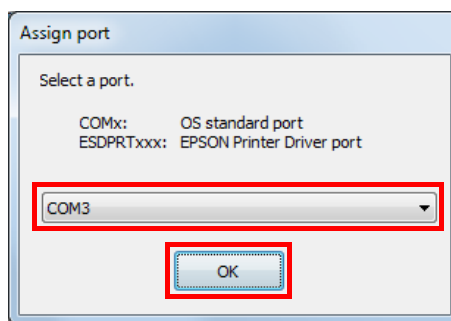
- 2 Turn on the printer.
- 3 Start TM Bluetooth Connector.
- 4 Select (Search all printers around this computer), and then click (Search).



- 5 Select the printer to be paired ( ➡ Not been paired yet), and then click (Connect).



- 6 If the window to enter a passkey appears, enter a passkey and click (OK).
- 7 Select the port to be used from the pull-down list, and then click (OK).



Printing method	Port name
APD print queue	ESDPRTxxx (TM-P60II: <i>Queue name</i> )
UPOS	ESDPRTxxx (UPOS for TM-P60II)
ESC/POS command	Displayed virtual COM port (e.g. COM4)

- 8 The "Connection complete" window appears. Click (Test Buzzer) or (Test Printing) to check operation.
- 9 Click (Back to Main screen) to return to the main window.
- 10 Click the "x" button of TM Bluetooth Connector to exit.

**NOTE**

- If “Error” is displayed when you click the [Search] on the TM Bluetooth Connector, check whether:
  - The Bluetooth adapter is installed to the computer.
  - Bluetooth is ON in the Windows settings.
- If the device is not displayed on the TM Bluetooth Connector or the TM Bluetooth Connector Status shows “✖” after pairing.  
Check whether:
  - The printer is not turned on.  
Turn on the printer. Confirm that the battery is properly loaded in the printer.
  - The printer is 10 m or further away from the computer.
  - Confirm that there is no other wireless device, such as a microwave oven and cordless telephone, that can interfere with the Bluetooth printer.
  - If the printer and the computer are placed in different rooms separated by a wall, move the printer and/or the computer in the same room.
  - The printer may not be detected when the search time is short. Try search again with longer search time.
  - While a computer and printer are communicating, the printer cannot be detected by other computers. Confirm that the printer to be detected is not communicating with any computer.

## Software Settings

With the customized values and memory switches, which are software settings for this printer, you can set the various functions. For an outline of those functions, see the following section. Use TM-P60II Utility, Software setting mode, or ESC/POS commands, to set the customized values and memory switches.

		TM-P60II Utility	Software setting mode	ESC/POS commands
Customized values	User NV memory capacity			✓
	NV graphics memory capacity		✓	✓
	Print density	✓	✓	✓
	Print speed	✓	✓	✓
	Interface mode	✓	✓	✓
	Command execution during offline	✓	✓	✓
	Automatic paper reduction	✓	✓	✓
	Automatic power off time	✓	✓	✓
	Battery charge mode	✓		✓
	Offline response			✓
	Operation mode when battery is low	✓		✓
	Battery status levels			✓
	Adjusted value for movement distance of label peeling position			✓
	Allocation of paper position immediately after the memory switch 8 specific state	✓		✓
Memory switches	Transmission of status notice	✓	✓	✓
	Buzzer Settings	✓	✓	✓
	Paper position immediately after the specific state		✓	✓
USB Class		✓	✓	✓
Bluetooth interface		✓		✓

**NOTE**

- For detailed information about TM-P60II Utility, see the TM-P60II Utility User's Manual.
- For information about how to use the Software setting mode, see ["Software Setting Mode" on page 74](#).
- For detailed information about ESC/POS commands, see the ESC/POS Command Reference.

---

## User NV memory capacity

- 1 KB (initial setting)
- 64 KB
- 128 KB
- 192 KB

---

## NV graphics memory capacity

- None
- 64 KB
- 128 KB
- 192 KB
- 256 KB
- 320 KB
- 384 KB (initial setting)

---

## Print density

Selectable from 70% to 130% (initial setting: 100%)

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

Roll Paper Type	Original Paper Type	Density Level
Die-cut label	DTM9502	130%
Receipt paper	P31023, P35024	100%
	P30023	110%

**CAUTION**

- If the print density is set to a darker level, printing speed may be reduced.
- If the print density is set to a darker level, paper dust accumulates on the print head and print may be faint. For information about how to clean the thermal head, see ["Cleaning the Thermal Head" on page 80](#).

## Print speed

Selectable from levels 1 to 10 (Slow ~ Fast) (initial setting: level 10)

### NOTE

- The printing speed changes automatically depending on power supply voltage and the condition of the head temperature.
- Printing speed may be slower, depending on the data transmission speed and the combination of control commands.

## Interface mode

Selectable from: automatic selection, fixed to wireless LAN/Bluetooth interface, or fixed to built-in USB.

### NOTE

- The TM-P60II has dual interfaces: a built-in USB interface and another interface selected by the customer, wireless LAN or Bluetooth. The tables below describe the modes you can set for the printer to control the dual interfaces.
- **Automatic selection:**  
When the USB cable is connected with a host PC, the USB interface is preferentially selected. However, if the printer is turned on before turning on a host PC, the wireless LAN/Bluetooth interface is selected. When the USB cable is not connected with a host PC, the wireless LAN/Bluetooth interface is selected.

For Wi-Fi models

Interface mode	Wireless LAN	Built-in USB
<b>Automatic selection (initial setting)</b>	Available	Available
<b>Fixed to Wireless LAN</b>	Available	Not available
<b>Fixed to built-in USB</b>	Not available	Available

For Bluetooth models

Interface mode	Bluetooth	Built-in USB
<b>Automatic selection (initial setting)</b>	Available	Available
<b>Fixed to Bluetooth</b>	Available	Not available
<b>Fixed to built-in USB</b>	Not available	Available

---

## Command execution during offline

When this function is enabled, you can execute specified commands even if the printer is offline due to specified causes.

- Enabled (initial setting)
- Disabled

---

## Automatic paper reduction

- Extra upper space reduction: disabled (initial setting) or enabled
- Extra lower space reduction: disabled (initial setting) or enabled
- Line space reduction rate: not reduced (initial setting), 25%, 50%, or 75%
- Line feed reduction rate: not reduced (initial setting), 25%, 50%, or 75%
- Barcode height reduction rate: not reduced (initial setting), 25%, 50%, or 75%

### CAUTION

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

---

## Automatic power off time

Selectable from 0 to 60 minutes. The initial setting of the auto-power off function differs depending on the models as follows:

For European models: Enabled (The auto-power off time is set to 60.)

For North America models: Disabled (The auto-power off time is set to 0.)

### CAUTION

When using the USB interface, this functions is disabled even if the time is set.

### NOTE

For detailed information, see ["Auto-Power Off" on page 19](#).

---

## Adjusted value for movement distance of label peeling position

Selectable from - 32 dots to 32 dots. (initial setting: 0 dots)



---

## Battery charge mode

- Mode 1 (initial setting)
- Mode 2



For detailed information about the battery charge mode, see ["Battery Charge Modes" on page 19](#).

---

## Offline response

Select "offline response for the TM-P60," if you replace a TM-P60 with a TM-P60II.

- Offline response for the TM-P60II (initial setting)
- Offline response for the TM-P60



While the offline response for the TM-P60II includes the offline cause, that for the TM-P60 does not include the offline cause.

---

## Operation mode when battery is low

- Mode 1 (initial setting)
- Mode 2



For detailed information about the operation mode when battery is low, see ["Operation Mode When Battery is Low" on page 20](#).

---

## Allocation of paper position immediately after the memory switch 8 specific state

- Memory switch 8-7 (initial setting)
- Memory switch 8-6 (TM-P60 compatible)

---

## Battery status levels

Select "battery status levels for the TM-P60," if you replace a TM-P60 with a TM-P60II.

- Battery status levels for the TM-P60II (initial setting)
- Battery status levels for the TM-P60



While the battery status for the TM-P60II has 6 levels, that for the TM-P60 has 4 levels.

---

## Transmission of Status notice

- Transmits (initial setting)
- Does not transmit

---

## Buzzer settings

- Buzzer sounds for low battery warning: disabled or enabled (initial setting)
- Buzzer sounds for roll paper end warning: disabled or enabled (initial setting)
- Buzzer sounds for error occurrence warning: disabled or enabled (initial setting)

---

## Paper position immediately after the specific state

- Not specified as “Start of printing” (initial setting)
- Specified as “Start of printing”



To enable this function, select the memory switch 8-7 with the customized value “Allocation of paper position immediately after the memory switch specific state.”

---

## USB class

- Printer Class
- Vendor Class (initial setting)

---

## Bluetooth interface

- Passkey (initial setting: 0000)
- Device name (initial setting: TM-P60II\_XXXXXX)
- Device available for search (initial setting: Enabled)



The device name is initially set to TM-P60II\_XXXXXX.  
(XXXXXX refers to the last 6 digits of the serial number labeled on the back of your printer.)

## *Paper Layout Setting*

Before printing, it is necessary to set the layout information for paper type and size in the printer. Doing paper feeding or printing without this layout setting may result in a paper out (no paper left) or an error. In all of the following cases, therefore, make layout settings before use.

- When using label paper for the first time (except when replacing label paper of the same type)
- When changing the paper type (receipt paper (with/without black mark), die-cut label paper (with/without black mark))
- When changing the size of the label paper

The paper layout can be set with ESC/POS commands. If the changed settings are not stored in the NV memory, change the settings with the “Paper layout setting” command. If the changed settings are stored in the NV memory, change the settings with the “Paper layout setting” command and store the settings with the “Save the setting values from the work area into the storage area” command. For detailed information about ESC/POS commands, see the ESC/POS Command Reference.



# Application Development Information

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

## *Controlling the Printer*

Use a driver, ESC/POS commands, or ePOS-Print to control the printer. ePOS-Print is available only with the Wi-Fi models.

### NOTE

For detailed information about ePOS-Print, see the ePOS-Print API User's Manual or ePOS-Print XML User's Manual.

### Selecting a Driver

Choose one of the drivers listed in ["Printer Drivers" on page 63](#), depending on the application operating environment.

For information about the driver operating environment, see the installation manual for each driver.

### When you develop a new application

- Use APD if you want to print True Type fonts or print many graphics.
- OPOS ADK is recommended for system extensibility. An OPOS driver is provided for various peripherals and it is a POS industry standard now. It enables POS system efficiency, reduction of development cost, and effective use of application assets.

### NOTE

You can use all functions, including ones not supported by OPOS ADK or APD, by using ESC/POS commands through your driver. Use the DIRECT I/O function of OPOS ADK, the control A command of APD, or Status API to send ESC/POS commands from each driver. (See ["ESC/POS command functions" on page 58](#).)

## ESC/POS Commands

ESC/POS is the Epson original printer command system. With ESC/POS commands, you can directly control all the TM printer functions, but detailed knowledge of printer specifications or combination of commands is required.

The ESC/POS command functions are listed below. For detailed information about ESC/POS commands, see the ESC/POS Command Reference.

### CAUTION

With the Bluetooth models, after opening the COM port, leave an interval of 300 msec or more before sending data to the COM port.

Example: For Windows, after obtaining a valid handle of CreateFile, leave an interval of 300 msec or more before executing WriteFile.

### ESC/POS command functions

Print Position Commands
Horizontal tab
Set absolute print position
Set horizontal tab positions
Select print direction in page mode
Set print area in page mode
Set relative print position
Select justification
Set absolute vertical print position in page mode
Set left margin
Set print area width
Set relative vertical print position in page mode
Print Commands
Print and line feed
Print and return to standard mode (in page mode)
Print data in page mode
Print and feed <i>n</i> lines

<b>Character Commands</b>
Cancel print data in page mode
Set right-side character spacing
Select print mode(s)
Turn underline mode on/off
Turn emphasized mode on/off
Select character cod table
Select character font
Select an international character set
Turn upside-down print mode on/off
Select character size
Turn white/black reverse print mode on/off
Turn smoothing mode on/off
<b>Print Paper (Label/Black Mark) Commands</b>
Set the paper layout
Transmit the paper layout information
Transmit the positioning information
Feed paper to the label peeling position
Feed paper to the cutting position
Feed paper to the print starting position
Set the special margin for paper layout error
<b>Status Commands</b>
Transmit real-time status
Enable/disable Automatic Status Back (ASB)
Transmit status
Enable/disable Automatic Status Back (ASB) related to extended function
<b>Line Spacing Commands</b>
Select default line spacing
Set line spacing

<b>Panel Button Commands</b>
Enable/disable panel buttons
<b>Customize Commands</b>
Delete the specified record
Store the data in the specified record
Transmit the data in the specified record
Transmit capacity of the NV user memory currently being used
Transmit the remaining capacity of the NV user memory
Transmit the key code list of stored record
Delete all data in the NV user memory
Change into the use setting mode
End the user setting mode session
Set the memory switch values
Transmit memory switch values
Set the customized setting values
Transmit the customized setting values
Set the configuration item for the Bluetooth interface
Transmit the configuration item for the Bluetooth interface
Set the configuration item for the USB interface
Transmit the configuration item for the USB interface
<b>Bit-image Commands</b>
Transmit the NV graphics memory capacity
Print the graphics data in the print buffer
Transmit the remaining capacity of the NV graphics memory
Transmit the remaining capacity of the download graphics memory
Transmit the key code list for defined NV graphics
Delete all NV graphics data
Delete the specified NV graphics data
Define the NV graphics data (raster format)
Print the specified NV graphics data



Transmit the key code list for defined download graphics
Delete all download graphics data
Delete the specified download graphics data
Define the downloaded graphics data (raster format)
Print the specified download graphics data
Store the graphics data in the print buffer (raster format)
Save the setting values from the work area into the storage area
Load the setting values stored in the storage area to the work area
Select the setting values of the work area after the initialization process
Specify Windows BMP graphics data
<b>Two Dimensions Code Commands</b>
Set up and print the symbol
<b>Barcode Commands</b>
Select print position of HRI characters
Select font for HRI characters
Set barcode height
Set barcode width
Print barcode
<b>Mechanism Control Commands</b>
Select cut mode and cut paper
<b>Miscellaneous Commands</b>
Send real-time request to printer
Execute power-off sequence
Transmit specified status in real-time
Clear buffer(s)
Buzzer sounds
Select peripheral device
Initialize printer
Select page mode
Select standard mode
Enable/disable real-time command

Specify the process ID response
Select print control mode
Select the print speed
Printable area setting when page mode is selected
Draw line
Draw rectangle
Transmit printer ID
Initialize maintenance counter
Transmit maintenance counter
<b>Kanji Commands (only for Traditional Chinese model)</b>
Select print mode(s) for Kanji characters
Select Kanji character mode
Turn underline mode on / off for Kanji characters
Cancel Kanji character mode
Define user-defined Kanji characters
Set Kanji character spacing
Turn quadruple-size mode on / off for Kanji characters

## ePOS-Print

ePOS-Print is functionality to control POS printers in a multi-platform environment. Using ePOS-Print, data can be directly printed from personal computers, smart phones, or tablet computers to ePOS-Print supported TM printers. In addition, print images rendered in HTML5 Canvas on Web browsers can be printed.

### CAUTION

To use ePOS-Print XML or SDK for JavaScript, set ePOS-Print to Enable in EpsonNet Config (Web Version) beforehand.  
For details about EpsonNet Config (Web Version), see ["EpsonNet Config \(Web Version\)" on page 66](#).

### NOTE

For detailed information about ePOS-Print, see the ePOS-Print API User's Manual or ePOS-Print XML User's Manual.

## Software and Manuals

The following software and manuals are provided for application development.

### How to Get Software and Manuals

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>

### Printer Drivers

Software	Manual
<b>EPSON Advanced Printer Driver (APD):</b> In addition to ordinary Windows driver functions, this driver has controls specific to POS, such as controls for paper cut, a cash drawer, or customer display. The Status API (Epson original DLL) that monitors printer status and sends ESC/POS commands is also attached to this driver.	<ul style="list-style-type: none"> <li>• APD Install Manual</li> <li>• APD TM/BA/EU Printer Manual</li> <li>• APD Printer Specification</li> <li>• Devmode API/PRINTERINFO Manual</li> <li>• Status API Manual</li> <li>• Sample Program Guide</li> </ul>
<b>OPOS ADK:</b> This OCX driver can control POS peripherals using OLE technology* <sup>1</sup> . Because controlling POS peripherals with original commands is not required on the application side, efficient system development is possible.	<ul style="list-style-type: none"> <li>• OPOS Installation Manual</li> <li>• User's Manual</li> <li>• Application Development Guide</li> <li>• UnifiedPOS Retail Peripheral Architecture*<sup>2</sup></li> <li>• Sample Program Guide</li> </ul>
<b>OPOS ADK for .NET:</b> OPOS ADK for .NET allows you to develop applications that are compatible with Microsoft POS for .NET. When developing applications, use a separate development environment such as Microsoft Visual Studio .NET.	<ul style="list-style-type: none"> <li>• OPOS ADK for .NET Installation Guide</li> <li>• UnifiedPOS Retail Peripheral Architecture*<sup>2</sup></li> <li>• User's Reference (SetupPOS)</li> <li>• Application Development Guide</li> </ul>

Software	Manual
<p><b>JavaPOS ADK:</b></p> <p>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.</p>	<p>JavaPOS ADK Installation Guide</p>
<p><b>EPSON TM Virtual Port Driver:</b></p> <p>This driver is a Serial-USB and Parallel-USB conversion driver to make an EPSON TM/BA/EU printer connected via USB accessible from a POS application through virtual COM ports and a virtual LPT port. Without making changes in the POS application that controls devices connected through serial or parallel interfaces, devices connected via USB can be directly controlled with ESC/POS commands.</p>	<p>TM Virtual Port Driver User's Manual</p>

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

\*2: This guide describes general information on how to control printers using the OPOS ADK (in the chapter "POS Printer" and "Appendix A"). It does not describe Epson's specific functions.

## Utilities

### CAUTION

After using the following utilities via the USB interface, be sure to disconnect the USB cable, turn off the printer, and then turn it back on.

- EpsonNet Config
- TM Automatic Restore Utility
- Printer Network Setting (included in APD)

Software	Manual
<b>TM-P60II Utility:</b> Use for checking and setting the following functions: <ul style="list-style-type: none"> <li>• Current settings</li> <li>• Operation check</li> <li>• Storing logos</li> <li>• Paper reduction</li> <li>• Printing control</li> <li>• Communication interface</li> <li>• Backup/restore</li> </ul>	TM-P60II Utility User's Manual
<b>EpsonNet Config:</b> Use for wireless LAN setting. For Windows and Mac.	EpsonNet Config manual (operation guide) or EpsonNet Config online help
<b>TM Bluetooth Connector:</b> Use to pair a terminal and the printer for TM Bluetooth connection.	TM Bluetooth Connector User's Manual
<b>Monitoring Tool:</b> Use to check a list of status for the Epson printers connected to the network. You can also update certificates for multiple printers used for WPA-Enterprise in a batch.  Use with Monitoring Tool and TM-P60II Utility to check the status and make settings from the administrator's computer for the printer that is directly connected to the network, or the printer that is connected to the client computer over a network by USB.	Monitoring Tool User's Manual
<b>Deployment Tool:</b> Use to configure network/Wi-Fi settings and printer/driver settings in a batch via the USB interface. It enables deploying more than one printer/driver efficiently and quickly for initial installation.	Deployment Tool User's Manual

## EpsonNet Config (Web Version)

EpsonNet Config (Web version) is a utility to configure the network and other settings on a web browser.

### Starting EpsonNet Config (Web Version)

Follow the steps below to start up EpsonNet Config (web version).

- 1 Start up a PC connected to the network.
- 2 Start up the web browser and input the printer's IP address (http:// printer's IP address) in the address bar as shown below.

http://xxx.xxx.xxx.xxx

#### NOTE

- You can check the printer's IP address from the dynamic status sheet or in self-test mode. For details on printing the dynamic status sheet, see "[Dynamic Status Sheet Print Mode \(Only for Wi-Fi Models\)](#)" on page 77. For details on the self-test mode, see "[Self-test Mode](#)" on page 71.
- A user name and a password will be required on the authentication screen. Enter "epson" for both the user name and the password. You can change the password with [Password] in the Optional configuration menu.
- In the initial setting, a warning message for authentication may appear when you access EpsonNet Config (web version) from a browser.

EpsonNet Config starts.

**EpsonNet Config** EPSON

Home Help About

**Information**  
Network

Basic Information  
TCP/IP  
SNMP  
Bonjour  
Time Server  
Timeout  
ePOS-Print

**Configuration**  
Network

Wireless  
Security  
SSL/TLS  
Authentication  
Certificate List  
Certificate Import  
TCP/IP  
SNMP  
Bonjour  
Time Server  
Timeout  
ePOS-Print

**Optional**  
Administrator Information  
Reset  
Password

**Information - Network**  
Basic Information

Administrator Name	
Location	
Interface Card Model Name	IF_WiFi0
MAC Address	88:2D:1A:5D:04:40
Hardware Version	04.00
Software Version	01.00
Model Name	TM-P60II
Communication Standard	802.11b/g/n
Network Mode	Infrastructure
SSID	TM_P60II
Channel	8
Transmission Rate	72.0Mbps
Access Point MAC Address	88:2D:1A:5D:04:40
Signal Condition	Excellent
Printer Status	Online

Refresh

## Settings

Select from the menu list on the left to check or configure the settings.

### CAUTION

Enable the time server when using a certificate. Otherwise, the printer's Stored Date/Time may not be set correctly and the wireless LAN may be unavailable. If this happens, enable the time server, or initialize the Stored Date/Time from one of the following:

- EpsonNet Config
- EpsonNet Config (Web Version)
- Wireless Communication Setting Initializing Mode

You can check the printer's Stored Date/Time from the dynamic status sheet.

## Information menu

You can check the settings as shown in the table below.

Menu		Settings
<b>Basic Information</b>		Administrator Name, Location, interface Card Model Name, MAC Address, Hardware Version, Software Version, Model Name, Communication Standard, Network Mode, SSID, Channel, Transmission Rate, Access Point MAC Address, Signal Condition, Printer Status
<b>TCP/IP</b>	<b>IPv4 Address</b>	IP Address Settings (Acquiring the IP Address, IP Address, Subnet Mask, Default Gateway) Set Using Automatic Private IP Addressing (APIPA)
	<b>DNS/DDNS</b>	DNS Server Addresses (IPv4) Settings (Acquire DNS Server Address Automatically, DNS Server Addresses) Domain Name Setting (Acquire Domain Name Automatically, Fully Qualified Domain Name, Register the Network Interface's Address to DNS Server)
<b>SNMP</b>		Community (Read Only) IP Trap (Trap1/2, Address, Community)
<b>Bonjour</b>		Bonjour (Disable/Enable) Bonjour Name, Bonjour Printer Name, Location
<b>Time Setting</b>		Use Time Server Time Server Address, Update Interval, Time Server Status
<b>Timeout</b>		Print (LPR, RAW (Port9100))
<b>ePOS-Print</b>		Version, ePOS-Print (Disable/Enable), Device ID



## Configuration menu

You can configure the settings as shown in the table below.

Menu		Settings
<b>Wireless</b>		Wireless Settings (Communication Standard, Network Mode, SSID, Channel, Encryption Type) WPA Pre-Shared Key, Default WEP Key, WEP Key 1/2/3/4, Authentication Algorithm Power Save
<b>Security</b>	<b>SSL/TLS</b>	Server Certificate, Encryption Strength, Automatic Redirect HTTP to HTTPS
<b>Authentication</b>	<b>Certificate List</b>	Self-Signed Certificate (Status, Subject) CA-Signed Certificate 1~3 (Status, Subject) CA Certificate 1~10 (Status, Subject)
	<b>Certificate Import</b>	Certificate Import (File Type, File Name, Password)
<b>TCP/IP</b>	<b>IPv4 Address</b>	IP Address Settings (Acquiring the IP Address, IP Address, Subnet Mask, Default Gateway) Set Using Automatic Private IP Addressing (APIPA)
	<b>DNS/DDNS</b>	DNS Server Addresses (IPv4) Settings (Acquire DNS Server Address Automatically, DNS Server Addresses) Host Name and Domain Name Setting (Acquire Host Name and Domain Name Automatically, Host Name, Domain Name, Register the Network Interface's Address to DNS Server)
<b>SNMP</b>		Community (Read Only) IP Trap (Trap1/2, Address, Community)
<b>Bonjour</b>		Bonjour (Disable/Enable) Bonjour Name, Bonjour Printer Name, Location
<b>Time Setting</b>		Use Time Server Time Server Address, Update Interval
<b>Timeout</b>		Print (LPR, RAW (Port9100))
<b>ePOS-Print</b>		Version, ePOS-Print (Disable/Enable), Device ID

### NOTE

You can also select the following functions from the optional configuration menu.

- **Administrator Information:** Use to register administrator name and the printer location.
- **Reset:** Use to reset the interface card or restore the default settings.
- **Password:** Use to change the password.

---

## Setting/Checking Modes

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

- Self-test mode: [page 71](#)
- Hexadecimal dumping mode: [page 72](#)
- NV graphics print mode: [page 73](#)
- Software setting mode: [page 74](#)
- Wireless communication setting initializing mode: [page 75](#)
- Radio field intensity check mode (only for Wi-Fi models): [page 76](#)
- Dynamic status sheet print mode (only for Wi-Fi models): [page 77](#)

## Self-test Mode

In the self-test mode, the printer prints the current status of the printer and resident characters as a test print).

You can confirm the following information with the status print.

- ROM version
- Interface type
- Interface setting
- Built-in character sets
- Maintenance information (Print head running length)

---

### Starting the status print and test print

Follow the steps below to start a status print and test print on the roll paper.

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

The printer starts printing the current status of the printer on the roll paper.

When the printer finishes printing the printer status, the following message is printed and the ① Power LED flashes. (The printer is now in the self-test wait mode.):

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

- 4** To start the test print, press the Feed button less than 1 second.  
The printer prints a rolling pattern on the roll paper, using only the built-in character set.  
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.

### Starting the hexadecimal dumping mode

Follow the steps below to run this mode.

#### CAUTION

- The hexadecimal dumping mode can only be executed in the label continuous issuing mode. If executed in the label peeler issuing mode, a paper layout error occurs when paper is detected by the label peeler sensor.
- 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 Install the roll paper.
- 2 With the roll paper cover and the peeler cover open, while pressing the Feed button, turn on the printer.
- 3 Close the covers.  
The printer starts printing data received from then on in hexadecimal numbers and their corresponding characters.

Printing example:

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

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

*** Completed ***
```

Turn off the printer or press the Feed button 3 times to return to the normal mode.

## NV Graphics Print Mode

### CAUTION

The NV graphics memory print mode can only be executed in the label continuous issuing mode. If it is executed in the label peeler issuing mode, a paper layout error occurs when paper is detected by the label peeler sensor.

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

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

### NOTE

For detailed information about NV graphics, see ["NV Graphics Memory" on page 24](#).

## Starting the NV graphics print mode

Follow the steps below to run this mode.

- 1** Install the roll paper.
- 2** Close the roll paper cover and the peeler cover.
- 3** While pressing the Feed button, turn on the printer. (Keep pressing the button until the printer starts printing.)  
The printer starts printing the current status of the printer.
- 4** After the printer status has been printed, press the Feed button. (Keep pressing the button until the printer starts printing.)  
The printer starts printing instructions.
- 5** After the printing has been completed, briefly press the Feed button once.
- 6** Press the Feed button again. (Keep pressing the button until the printer starts printing.)  
The printer starts printing the NV graphics information.

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

## Software Setting Mode

### CAUTION

The software setting mode can only be executed in the label continuous issuing mode. If it is executed in the label peeler issuing mode, a paper layout error occurs when paper is detected by the label peeler sensor.

In the software setting mode, you can set the following customized values and memory switches which are software switches of this printer.

- NV graphics memory capacity
- Print density
- Interface mode
- Command execution during offline
- Automatic paper reduction
- Transmission of status notice
- Print speed
- USB class
- Automatic power off time
- Buzzer Settings
- Paper position immediately after the specific state

### NOTE

For detailed information about customized values and memory switches, see ["Software Settings" on page 49](#).

## Starting the software setting mode

Follow the steps below to run this mode.

- 1** Install the roll paper.
- 2** Close the roll paper cover and the peeler cover.
- 3** While pressing the Feed button, turn the power on. (Keep pressing the button until the printer starts printing.)  
The printer starts printing the current status of the printer.
- 4** After the printer status has been printed, press the Feed button. (Keep pressing the button until the printer starts printing.)  
The printer starts printing instructions.
- 5** After the printing has been completed, briefly press the Feed button 2 times.
- 6** Press the Feed button again. (Keep pressing the button until the printer starts printing.)  
The printer starts printing instructions. Follow them.

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

## Wireless Communication Setting Initializing Mode

### CAUTION

The wireless communication setting initializing mode can only be executed in the label continuous issuing mode. If it is executed in the label peeler issuing mode, a paper layout error occurs when paper is detected by the label peeler sensor.

You can initialize the wireless communication settings by running this mode.

When you run this mode with a Wi-Fi model connecting with the wireless LAN interface, the wireless LAN setting will be initialized.

When you run this mode with a Bluetooth model connecting with the Bluetooth interface, the Bluetooth setting will be initialized.

When you run this mode with a Wi-Fi/Bluetooth model connecting with the USB interface, nothing will be initialized.

### Starting the wireless communication setting initializing mode

Follow the steps below to run this mode.

- 1** Install the roll paper.
- 2** Close the roll paper cover and the peeler cover.
- 3** While pressing the Feed button, turn the power on. (Keep pressing the button until the printer starts printing.)  
The printer starts printing the current status of the printer.
- 4** After the printer status has been printed, press the Feed button. (Keep pressing the button until the printer starts printing.)  
The printer starts printing instructions.
- 5** After the printing has been completed, briefly press the Feed button 4 times.
- 6** Press the Feed button again. (Keep pressing the button until the printer starts printing.)  
The printer starts printing instructions.
- 7** Briefly press the Feed button once.
- 8** Press the Feed button again. (Keep pressing the button until the following message is printed.)

“Please release the Feed button.”

The printer is reset and will be initialized after restarting.

## Radio Field Intensity Check Mode (Only for Wi-Fi Models)

### CAUTION

The radio field intensity check mode can only be executed in the label continuous issuing mode. If it is executed in the label peeler issuing mode, a paper layout error occurs when paper is detected by the label peeler sensor.

In the radio field intensity check mode, the printer prints information about the wireless LAN intensity.

---

### Starting the field intensity check mode

Follow the steps below to run this mode.

- 1** Install the roll paper.
- 2** Close the roll paper cover and the peeler cover.
- 3** While pressing the Feed button, turn the power on. (Keep pressing the button until the printer starts printing.)  
The printer starts printing the current status of the printer.
- 4** After the printer status has been printed, press the Feed button. (Keep pressing the button until the printer starts printing.)  
The printer starts printing instructions.
- 5** After the printing has been completed, briefly press the Feed button 3 times.
- 6** Press the Feed button again. (Keep pressing the button until the printer starts printing.)  
The printer starts printing instructions.
- 7** Keep pressing the Feed button until the buzzer beeps once (approximately one second).

If you want to repeat the radio field intensity check, repeat the operation of step 7.

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



## Dynamic Status Sheet Print Mode (Only for Wi-Fi Models)

In the dynamic status sheet print mode, the printer prints the dynamic status sheet indicating the wireless LAN settings.

---

### Starting the dynamic status sheet print mode

Follow the steps below to run this mode.

**CAUTION**

Do not run this mode while communicating with the wireless LAN interface. Otherwise, printing might not be performed normally.

- 1** Install the roll paper.
- 2** Open the roll paper cover and the peeler cover.
- 3** With the covers open, keep pressing the Feed button until the buzzer sounds (approximately 2 seconds).
- 4** Close the roll paper cover and the peeler cover.  
The printer starts printing the dynamic status sheet.

After printing, the printer returns to the normal mode.



# Handling

This chapter describes basic handling of the printer.

## Charging Battery

Follow the steps below to charge the battery. You can charge the battery using the printer itself with the optional AC adapter (PS-11) or using the optional multi-charger (OT-CH60II).



**Be sure to use the battery OT-BY60II.**

Using a battery other than the one specified may cause fire, explosion, leakage, overheating or other damage.

### CAUTION

- The battery can be charged only when the temperature is 0 ~ 40°C {32 ~ 104°F}.
- Dispose of used batteries according to the instructions.
- Do not remove the battery during charging.

### NOTE

- Fully charging a battery that is fully discharged while the printer is turned off will take approximately 2.5 hours.
- Charging the battery at 35°C {95°F} or higher may require a longer charging time than the specified one.
- You can use the printer during the battery charging; however, do not disconnect the AC adapter during printing.
- For information on the optional AC adapter (PS-11), see its User's Manual.
- For information on the optional multi-charger (OT-CH60II), see its User's Manual.

- 1** Install the battery.  
See ["Installing the Battery" on page 31.](#)
- 2** Connect the optional AC adapter to the connector for the AC adapter.  
Charging starts. The Charge LED flashes while charging the battery.

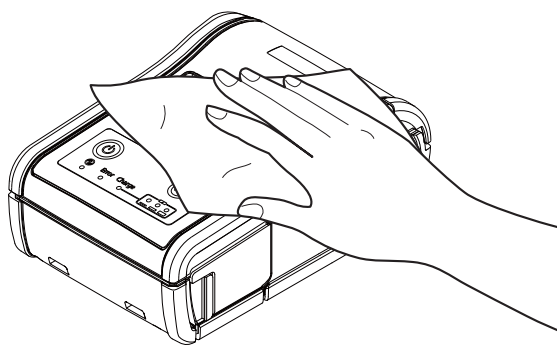
## Cleaning the Printer

### Cleaning the Printer Case

Be sure to unplug the AC cable from the wall socket, remove the battery, and turn off the printer before cleaning. Wipe the dirt off the printer case with a dry cloth or a damp cloth.

#### CAUTION

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



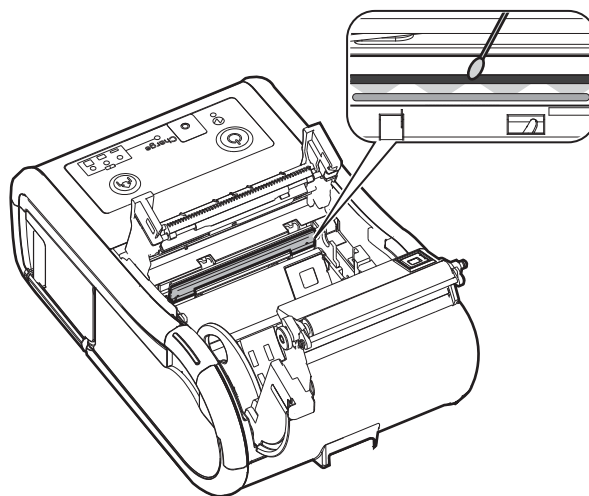
### Cleaning the Thermal Head

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



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



### Cleaning the Platen Roller/Paper Sensor

When paper dust accumulates on the platen roller or the paper sensor, follow the steps below to clean them. To maintain good functional capabilities, clean them regularly (generally every 3 months).

- 1** Turn off the printer, and open the roll paper cover and the peeler cover.
- 2** Clean the platen roller and the paper sensor with a cotton swab lightly moistened with water.



- 3** Close the covers after the water has dried.

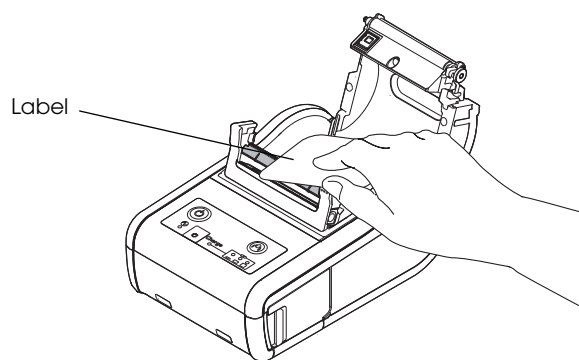
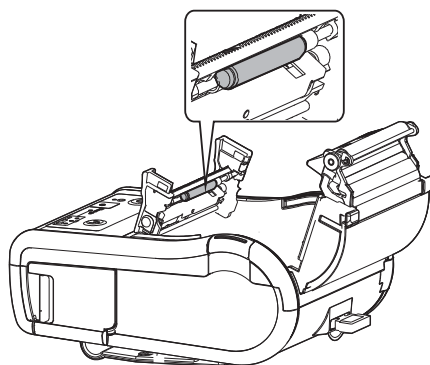
## Cleaning the Peeler Unit

After the peeler is used for a prolonged period of time, the glue from the labels accumulates on the roller or the peeler holder of the peeler unit. If you leave the roller or the peeler holder in such a condition, the glue may stick to issued labels, or a paper jam may occur. To prevent malfunctions and maintain good print quality, clean them regularly (generally every 20,000 labels).

### CAUTION

Do not use any alcohol based solvents for cleaning. Such solvents may enter the roller shaft and cause a malfunction of the peeler.

- 1 Turn off the printer, and open the roll paper cover and the peeler cover.
- 2 Remove the glue with a wasted label.



- 3 Close the covers.

# Replacement of the TM-P60

The TM-P60II is designed so that it can smoothly replace the TM-P60. This chapter describes useful information for the replacement.

## Compatibility

		TM-P60	TM-P60II
Paper width		Changeable (29.5 mm {1.16"}, 36 mm {1.82"}, 42 mm {1.65"}, 48.5 mm {1.91"}, 55 mm {2.17"}, 58 mm {2.28"}, 60 mm {2.36"})	
Density		203 × 203 dpi	
Paper type		Receipt (with/without black mark) Die-cut label paper (with/without black mark)	
Internal buffer for NV area		384 KB	
External Dimensions		65 × 103 × 159 mm	
Case color		EDG (Epson Dark Grey)	EBCK (Epson Black)
Belt clip		Attached	
Shoulder strap		Optional	Not available
Reliability	Printer mechanism	10 million lines printing	
	Thermal head	100 million pulses (for each element)	
	MTBF	120,000 hours	
	MCBF	16 million lines	
Power supply		From the battery or AC adapter	Only from the battery

		TM-P60	TM-P60II
Environmental Conditions	For operation	Without AC adapter and with battery: 0 to 50°C, 10 to 90% RH With AC adapter and without battery: 0 to 45°C, 10 to 90% RH With AC adapter and battery: 0 to 40°C, 10 to 90% RH	Without AC adapter and with battery: 0 to 45°C, 10 to 90% RH With AC adapter and battery: 0 to 40°C, 10 to 90% RH
	For print quality	5 to 45°C, 10 to 90% RH	Without AC adapter and with battery: 5 to 45°C, 10 to 90% RH With AC adapter and battery: 5 to 40°C, 10 to 90% RH
Roll paper	Width	29.5 mm, 36 mm, 42 mm, 48.5 mm, 55 mm, 58 mm, 60 mm	
	Original paper type	TF50KS-E, P300, P310, P350, ETLA series	TF50KS-E, P30023, P31023, P35024, V9NS5, DTM9502
	Roll diameter	Up to 51 mm	
LEDs	Error LED	Red LED	Orange LED
	Battery LED	Red LED	3 Blue LEDs
Dip switches		Dip switches 1-2, 1-3, 1-4 assigned for serial interface settings	Dip switches are not available.
Memory switches		Memory switches 8-1 ~ 8-8	Same as the TM-P60 except Memory switches 8-3, 8-6, and 8-7.
Offline response (See <a href="#">"Software Settings" on page 49.</a> )		Offline response excluding offline cause	Offline response including offline cause
Battery status levels (See <a href="#">"Software Settings" on page 49.</a> )		4 levels	6 levels



		TM-P60	TM-P60II
Interface	Serial	RS-232	Not available
	USB	Not available	USB 2.0
	Bluetooth (Factory option)	Ver. 1.1	Ver. 2.1 + EDR
	Wi-Fi (Factory option)	802.11b (2.4 GHz)	802.11b/g/n (2.4GHz) 802.11a/n (5GHz)
Wi-Fi default mode		Ad-hoc	Infrastructure
Wi-Fi security		WEP	WEP, WPA, WPA2-Personal/ Enterprise
ePOS-Print		Not available	Available with the Wi-Fi models
Startup time		Approx. 2 sec.	Wi-Fi models: Approx. 10 sec. Bluetooth models: Approx. 2 sec.
ESC/POS commands		You can control a TM-P60II with the ESC/POS commands that you used for a TM-P60.	
Drivers	APD	Available	Available
	OPOS ADK	Available	Available
	OPOS ADK for .NET	Available	Available
	JavaPOS ADK (Windows)	Available	Available
	JavaPOS ADK (Linux)	Available	Not available
Power supply unit		PS-10	PS-11
Battery		LIP-2500	OT-BY60II
Time for battery charging by printer		Approx. 4 hours	Approx. 2.5 hours

dpi: dots per inch

cpl: Characters per line

## Additional Functions and Functional Improvements

		TM-P60	TM-P60II
Print Speed		MAX. 80 mm/s (receipt printing)	MAX. 100 mm/s (receipt printing)
Extended graphics (including user-defined page)		128 × 10 pages	128 × 43 pages
International characters		16 sets	18 sets
Battery life (Bluetooth models)		Approx. 20 hours	Approx. 56 hours
Mass (including the battery)		Approx. 640 g	Approx. 613 g
Battery charge LED		Not available	Orange LED
EPSON TM Virtual Port Driver		Not available	Available
Utilities	TM-P60II Utility	Not available	Available
	EpsonNet Config	Not available	Available
	EpsonNet Simple Viewer	Not available	Available
	TM-P60II Remote Configuration Tool	Not available	Available
	TM Bluetooth Connector	Not available	Available
Barcode printing	1D	UPC-A, UPC-E, JAN13/EAN13, JAN8/EAN8, CODE39, ITF, CODABAR, CODE93, CODE128, GS1-128, GS1 DataBar Omnidirectional, GS1 DataBar Truncated, GS1 DataBar Limited, GS1 DataBar Expanded	
	2D	PDF417, MaxiCode, QR Code, Composite Symbolology, Two-dimensional GS1 DataBar	PDF417, MaxiCode, QR Code, Composite Symbolology, Two-dimensional GS1 DataBar, Aztec Code, DataMatrix
Automatic reduction of paper		Not available	Available

# Appendix

## Product Specifications

### Printing Specifications

Printing method	Thermal line printing
Dot density	203 × 203 dpi
Feeding method	Friction feed
Paper width* <sup>1</sup>	29.5 mm {1.16"}, 36 mm {1.82"}, 42 mm {1.65"}, 48.5 mm {1.91"}, 55 mm {2.17"}, 58 mm {2.28"} (default), 60 mm {2.36"}
Printing width	54.0 mm {2.13"} maximum, 432 dots (when the paper width is 60 mm) 48.5 mm {1.91"} dots, 388 dots (when the label width is 54 mm and the paper width of the backing paper (liner) is 58 mm)
Characters per line	Font A: 36 Font B: 43 Font C: 54 Kanji font* <sup>2</sup> : 18
Maximum print speed* <sup>3</sup>	100 mm/s {3.94"/s} (receipt printing) 80 mm/s {3.15"/s} (label continuous issuing mode) 40 mm/s {1.57"/s} (label peeler issuing mode) 40 mm/s {1.57"/s} (ladder bar code and 2-dimensional symbols printing)
Paper feed speed* <sup>4</sup>	100 mm/s {3.94"/s} (receipt printing) 80 mm/s {3.15"/s} (label continuous issuing mode) 40 mm/s {1.57"/s} (label peeler issuing mode)
Line spacing* <sup>5</sup>	3.75 mm {0.15"}

dpi: dots per inch

\*1: Receipt paper with a width of 58 mm or 60 mm can be used.

\*2: Only for Traditional Chinese Model.

\*3: The printing speed listed above are the values when using a new battery fully charged, the print density is 100%, and at normal temperature. The printing speed changes automatically depending on power supply voltage and the condition of the head temperature. Receipt and label printing can be changed by setting the paper layout.

\*4: With label printing, peeler issuing and continuous issuing modes change automatically depending on the peeler use conditions.

\*5: Initial setting. Programmable by commands.

**CAUTION**

- For changing the paper width, see ["Changing the Paper Width" on page 29](#).
- Printing speed may be slower, depending on the data transmission speed and the combination of control commands.

## Character Specifications

Number of characters		Alphanumeric characters: 95 Extended graphics: 128 × 43 pages (including user-defined page) International characters: 18 sets Traditional Chinese* <sup>1</sup> : Big5 13,535
Character structure		Font A: 12 × 24 Font B: 10 × 24 (Initial setting) Font C: 8 × 16 Kanji font* <sup>1</sup> : 24 × 24
Character size (Standard/ Double-height/ Double-width/)	W × H (mm)* <sup>2</sup>	Font A: 1.5 × 3.0/1.5 × 6.0/3.0 × 3.0 Font B: 1.25 × 3.0/1.25 × 6.0/2.5 × 3.0 Font C: 1.0 × 2.0/1.0 × 4.0/2.0 × 2.0 Kanji font* <sup>1</sup> : 3.0 × 3.0/3.0 × 6.0/6.0 × 3.0
	cpl* <sup>3</sup>	Font A: 36/36/18 Font B: 43/43/21 Font C: 54/54/27 Kanji font* <sup>1</sup> : 18/18/9

\*1: Only for Traditional Chinese Model.

\*2: The actual print character may be smaller than the size shown in the table above because the above size includes spaces in the font.

\*3: The "characters per line" shows the value of receipt printing when the paper width is 60 mm {2.36"}.

cpl: Characters per line

## Paper Specifications

Type	Thermal paper: Die-cut label paper (without black mark) Die-cut label paper (with black mark) Receipt paper (without black mark) Receipt paper (with black mark)
Form	Roll paper
Size    Width* <sup>1</sup>	29.5 mm paper width: $29.0 \pm 0.5$ mm {1.14 $\pm$ 0.02"} 36.0 mm paper width: $35.5 \pm 0.5$ mm {1.40 $\pm$ 0.02"} 42.0 mm paper width: $41.5 \pm 0.5$ mm {1.63 $\pm$ 0.02"} 48.5 mm paper width: $48.0 \pm 0.5$ mm {1.90 $\pm$ 0.02"} 55.0 mm paper width: $54.5 \pm 0.5$ mm {2.15 $\pm$ 0.02"} 58.0 mm paper width: $57.5 \pm 0.5$ mm {2.26 $\pm$ 0.02"} 60.0 mm paper width: $59.5 \pm 0.5$ mm {2.34 $\pm$ 0.02"} Outside diameter
	51.0 mm {2.01"} maximum
Roll width when taken up	29.5 mm paper width: $29.5 + 0/-1.0$ mm {1.16 + 0/- 0.04"} 36.0 mm paper width: $36.0 + 0/-1.0$ mm {1.82 + 0/- 0.04"} 42.0 mm paper width: $42.0 + 0/-1.0$ mm {1.65 + 0/- 0.04"} 48.5 mm paper width: $48.5 + 0/-1.0$ mm {1.91 + 0/- 0.04"} 55.0 mm paper width: $55.0 + 0/-1.0$ mm {2.17 + 0/- 0.04"} 58.0 mm paper width: $58.0 + 0/-1.0$ mm {2.28 + 0/- 0.04"} 60.0 mm paper width: $60.0 + 0/-1.0$ mm {2.36 + 0/- 0.04"} Roll paper core
	Outside diameter (die-cut label): 31.4 mm {1.24"} or more Outside diameter (receipt): 18 mm {0.71"} or more

\*1: Receipt paper with a width of 58 mm or 60 mm can be used.

### Specified original paper type

Paper type	Paper type no.	Manufacturer
Die-cut label	DTM9502 (label paper: KL370 or KIP37032)	MACtac (Kanzaki Specialty Papers (USA))
Receipt	P30023, P31023, P35024	Kanzaki Specialty Papers (USA)

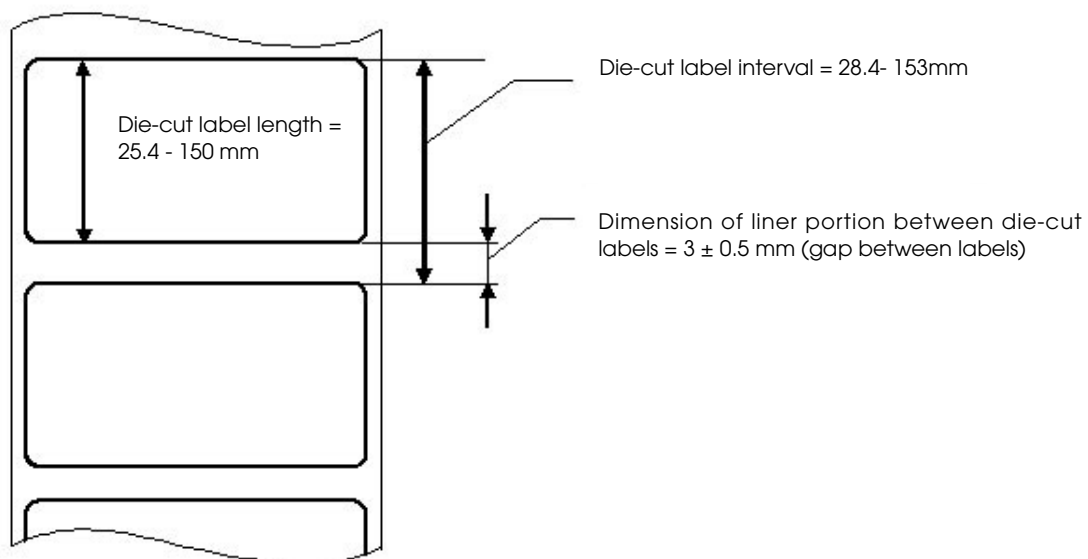
#### CAUTION

- Paper must not be pasted to the roll paper spool.
- For the best print quality for each paper type, it is recommended to set the print density. The print density can be set with the customized value. To set customized value, See ["Software Settings" on page 49](#).
- Be sure to use the specified paper.

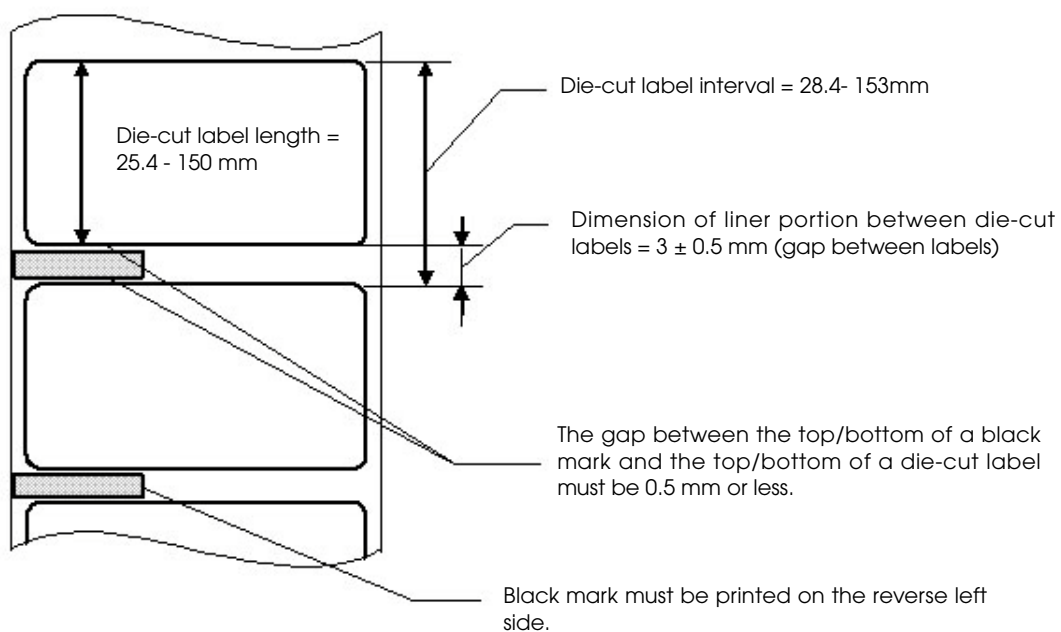
#### NOTE

A red line that indicates the paper end is recommended to be preprinted on the end of the roll paper.

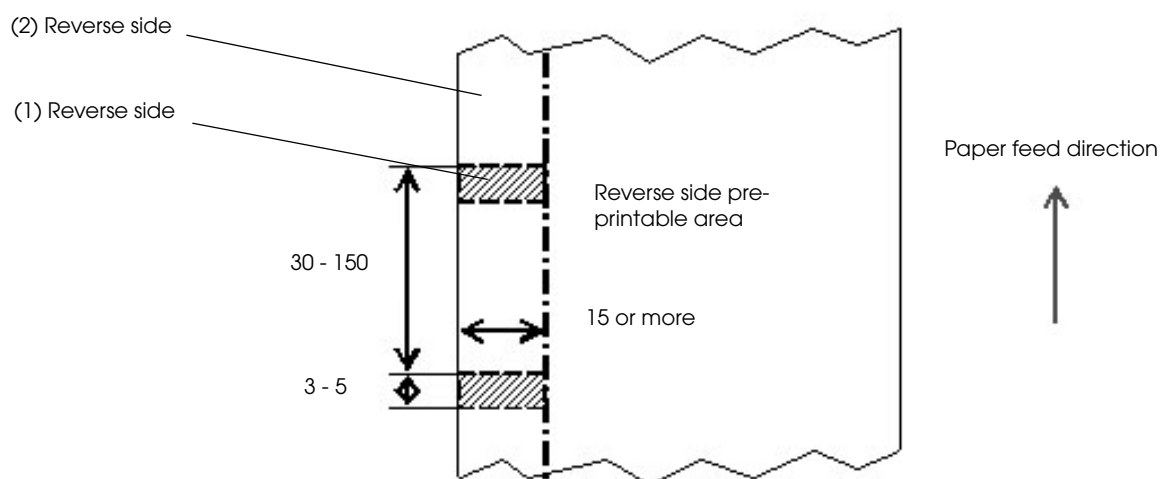
## Requirement for die-cut label (without black mark)



## Requirement for die-cut label (with black mark)



## Requirement for black mark printing



(Units: mm)

The allowable relation between the reflecting rate in the black mark portion (1) and the non black mark portion (2) must be as shown in the table below:

	Allowable combination of the reflecting rate (units: %)					
Black mark portion (1)	17	16	15	14	13	or less
Black mark portion (2)	90	85	80	75	70	or more

### NOTE

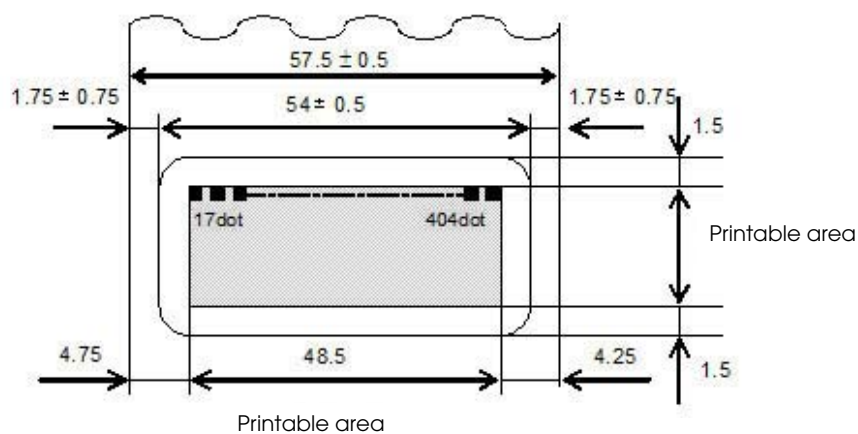
The reflecting rate means the value which is measured with a Macbeth density meter (PCMII) D filter.



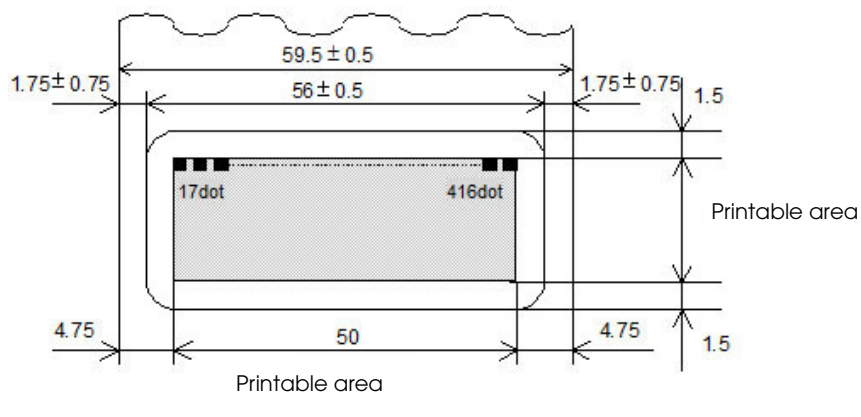
## Printable Area

### Die-cut label paper

Example: Liner width: 57.5 mm/Label width: 54 mm



Example: Liner width: 59.5 mm/Label width: 56 mm



#### NOTE

The printable area may be out of alignment by 2.8 mm {0.11"} maximum (left or right), due to the paper position or tolerance of parts. To make the margin for both sides safely, it is recommended to set a margin of 2.8 mm {0.11"} or more.

## Liner width and printable area (recommended)

Liner width (mm)		60	58	55	48.5	42	36	29.5
Liner width (design value) (mm)		59.5 ± 0.5	57.5 ± 0.5	54.5 ± 0.5	48.0 ± 0.5	41.5 ± 0.5	35.5 ± 0.5	29.0 ± 0.5
Label width (mm)		56	54	51	44.5	38	32	25.5
Printable area (mm)		50	48.5	45	39	32	26	20
Liner paper edge - label edge (left)		1.75	1.75	1.75	1.75	1.75	1.75	1.75
Liner paper edge - label edge (right)		1.75	1.75	1.75	1.75	1.75	1.75	1.75
Left margin (mm)		3	3	3	3	3	3	3
Right margin (mm)		3	2.5	3	2.5	3	3	2.5
Positioning dot number		17 to 416	17 to 404	17 to 376	17 to 328	17 to 272	17 to 224	17 to 176
Characters per line	Font A	33	32	30	26	21	17	13
	Font B	40	38	36	31	25	20	16
	Font C	50	48	45	39	32	26	20

It is assumed that the label is placed on the center of the liner exactly. Numeric values used here are average values for designing.

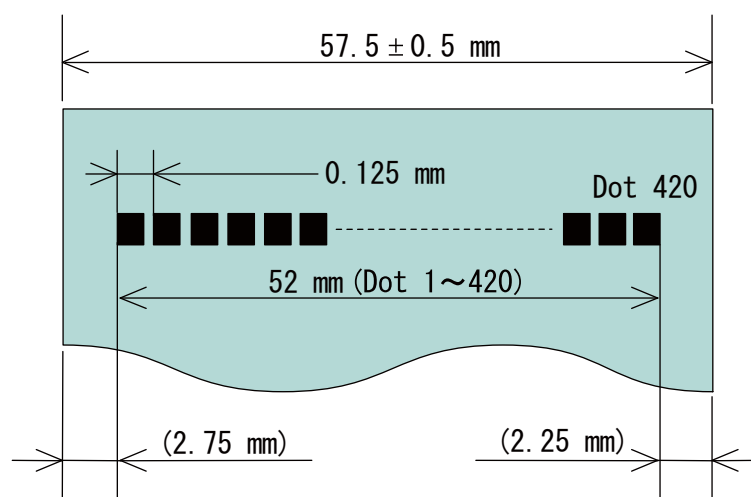
## Receipt paper

### CAUTION

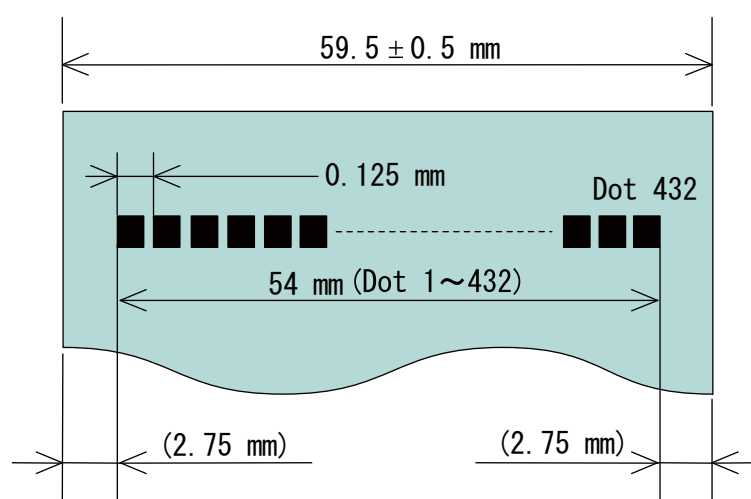
Printing is automatically performed in one to four-part energization depending on the printing conditions. During printing with two to four-part energization, a maximum misalignment (horizontal ruled line shift) of 1/4 to 1/2 dot might occur in the paper feeding direction due to segmented printing.



### 58 mm width paper printing



### 60 mm width paper printing

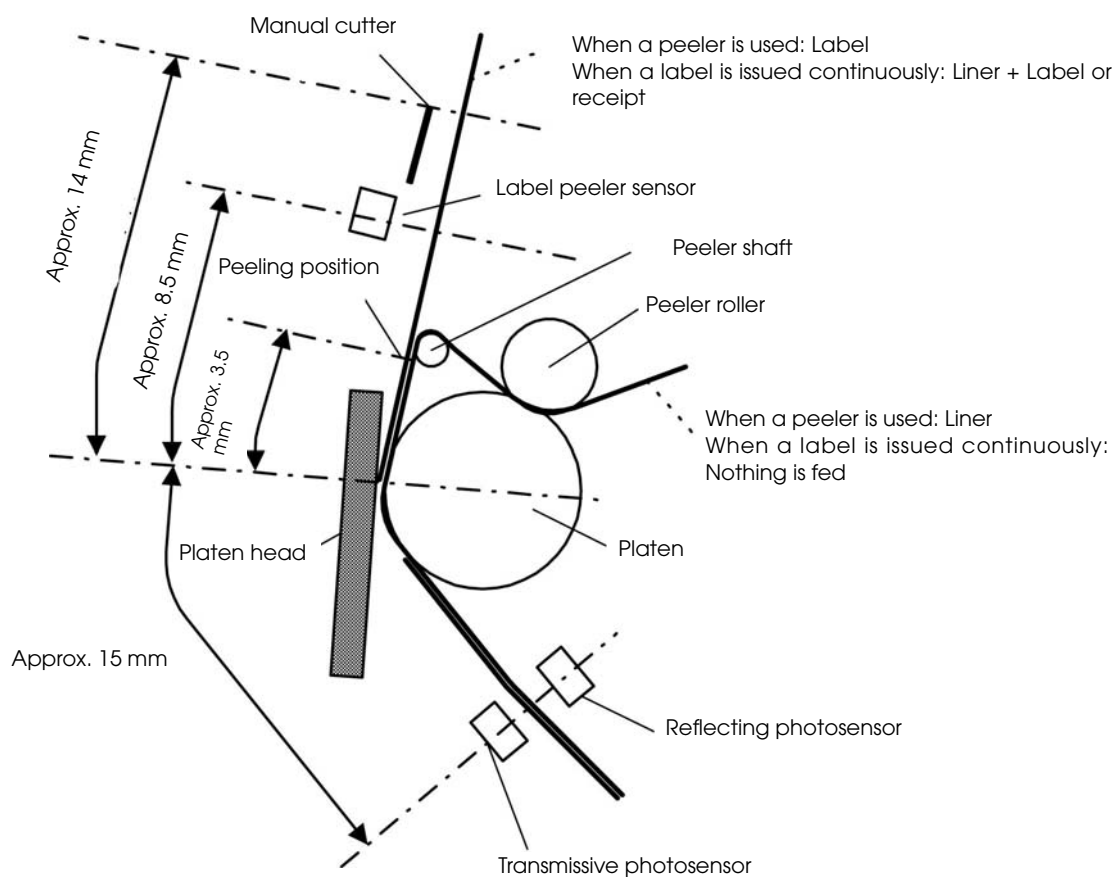


## Paper width and printable area

Paper width (mm)		60	58
Paper width (design value) (mm)		59.5 ± 0.5	57.5 ± 0.5
Printable area (mm)		54	52.5
Left margin (mm)		2.75	2.75
Right margin (mm)		2.75	2.25
Positioning dot number		1 to 432	1 to 420
Total number of dots		432	420
Characters per line	Font A	36	35
	Font B	43	42
	Font C	54	52

Numeric values used here are average values for designing.

## Printing and Cutting Positions



### CAUTION

Numeric values used here are typical values. The values above may vary slightly as a result of paper slack or variations in the paper. Take this into account when setting the manual cutting position.

## Electrical Characteristics

### CAUTION

- Be sure to install the battery in the printer. The printer does not operate with the optional AC adapter only.
- Always use a limited power source (LPS) for the printer.
- Be sure to use the optional PS-11 as the AC adapter.

Dedicated battery (OT-BY60II)	Model: D141A	Rated voltage: DC 7.4 V Capacity: 2000 mAh
	Model: D161A	Rated voltage: DC 7.2 V Capacity: Typ. 1950 mAh, Min. 1850 mAh
Power supply		Input: DC24 V/Max. 1.5 A or DC12 V/Max. 1.0 A* <sup>1</sup>
Dedicated AC adapter (PS-11)		Output: DC 24 V/Max. 1.5 A Input: AC 100 V to 240 V
Consumption		During standby: 0.3 W/230 V, when using PS-11 During charging: 15 W/230 V, when using PS-11
Continuous operating time* <sup>2</sup>	Wi-Fi models	Power save mode enabled: approx. 34 hours Power save mode disabled: approx. 15 hours
	Bluetooth models	Approx. 56 hours

\*1: This is the input voltage required to charge the battery with the printer.

\*2: Test conditions:

- \* Using a fully charged new battery
- \* Printing ANK 38 columns, 6 line feeding + feeding to the print starting position on the next label (25.4 mm {1"} length label printing)
- \* With interval of printing once per 2.5 minutes
- \* At 25°C {77°F}
- \* Printing density: 100%
- \* Access point: CISCO AIR-LAP1142N-P-K9
- \* Wireless communication conditions: Beacon interval of 200 ms, DTIM interval of 1, and no broadcast.
- \* From when the battery is fully charged until when the battery remaining charge is reduced to approx. 0% (level E).

### NOTE

Above continuous operating times will vary depending on changes in the use environment.

## Reliability

Life* <sup>1</sup>	Printer mechanism	When printing labels: 500,000 labels issued (When the length of the label in the paper feeding direction is 25.4 mm {1"} through 100 mm {3.94"}). The value above corresponds to approximately 14 km to 50 km {8.71 to 31.1 miles} of running length. When printing labels whose length exceeds 100 mm, the label-issuing life is 50 km {31.1 miles} of running length.  When printing receipts: 10,000,000 lines printed (3.75 mm {0.15"} for one line) (When the value above is calculated, the printer uses 26-line feeding and 20-line printing repeatedly. This corresponds to approximately 50 km of running length.)
	Thermal head	100 million pulses (for each element)
MTBF (Mean Time Between Failure)* <sup>2</sup>		120,000 hours
MCBF (Mean Cycle Between Failure)* <sup>3</sup>		16 million lines

### NOTE

Depending on the paper condition, paper or glue may stick to the thermal head, platen, or peeler holder. The reliability values listed above are given for the condition of performing cleaning after every 20,000 label issued (label length: 25.4 mm).

\*1: End of life is defined as the point at which the printer reaches the beginning of the wear out period.

\*2: Failure is defined as a random failure occurring at the time of the random failure period.

\*3: This is an average failure interval based on failures related to wear out and random failures up to the life of 10 million lines.)

## Environmental Conditions

### Temperature and humidity

For operation	When using only battery for power supply	Temperature: 0 to 45°C {32 to 113°F} (except for print quality) Humidity: 10 to 90% RH (except for paper)
	When using battery and AC adapter for power supply	Temperature: 0 to 40°C {32 to 104°F} (except for print quality) Humidity: 10 to 90% RH (except for paper)
For print quality	When using only battery for power supply	Temperature: 5 to 45°C {41 to 113°F} Humidity: 10 to 90% RH
	When using battery and AC adapter for power supply	Temperature: 5 to 40°C {41 to 104°F} Humidity: 10 to 90% RH
For battery charging		Temperature: 0 to 40°C {32 to 104°F} Humidity: 10 to 90% RH
Storage at high temperature and high humidity		Temperature: 45°C {113°F} Humidity: 90% RH Storage time: 120 hours
Storage at high temperature		Temperature: 70°C {158°F} Storage time: 120 hours
Storage at low temperature		Temperature: -25°C {-13°F} Storage time: 120 hours

### Acoustic noise

During operation	<p>Approximately 50 dB (bystander position)</p> <p>Note:</p> <p>The values above are measured in the Epson evaluation condition.</p> <p>Acoustic noise differs depending on the paper used, printing contents, and the setting values, such as print speed or print density.</p>
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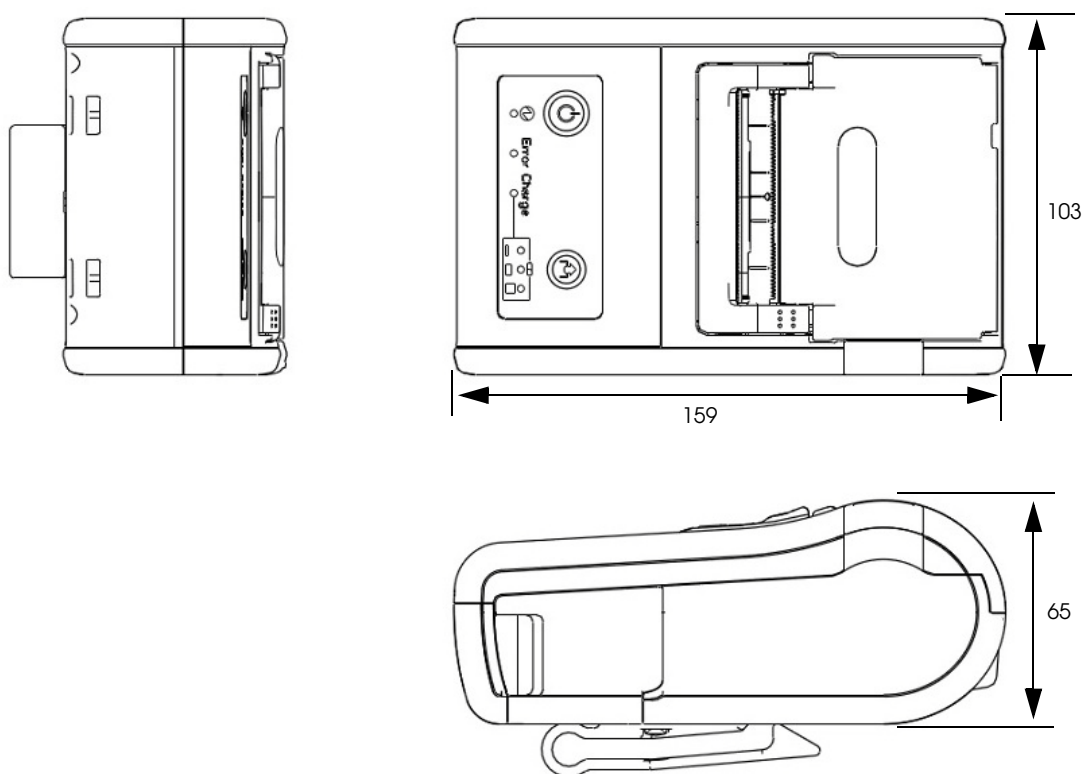
#### NOTE

If the printer is not used for a long time with paper installed, some part of the printing may be light due to the deformation of the paper. If the printer is not used for a long time with paper installed, be sure to feed paper approximately 30 mm {1.18"} before printing.



## External Dimensions and Mass

- Width: Approximately 103 mm {4.06"}
- Depth: Approximately 159 mm {6.26"}
- Height: Approximately 65 mm {2.56"} (the belt clip excluded)
- Mass: Approximately 613 g {1.35 lb} (the battery and belt clip included; roll paper excluded)



(Units: mm)

## Colors

EBCK (Epson Black)

# Specifications of Interfaces and Connectors

## USB (Universal Serial Bus) Interface

### USB interface connector

Has a USB upstream port connector (mini USB type-B connector)

### USB transmission specifications

#### USB function

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

#### NOTE

To set the USB device class, see ["Software Settings" on page 49](#).

## USB descriptor

		USB vendor-defined class	USB printer class
Vendor ID		04b8h	04b8h
Product ID		0202h	0E0Eh
String Descriptor	Manufacturer	EPSON	EPSON
	Product	TM-P60II Peeler Wi-Fi TM-P60II Peeler Bluetooth	TM-P60II Peeler Wi-Fi TM-P60II Peeler Bluetooth
	Serial number	Character string based on the product serial number	Character string based on the product serial number

## IEEE802.11a/b/g/n Wireless LAN Interface

## Countries where this product can be used

## 321 model

Austria, Belgium, Bulgaria, Czech, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, UK, Australia\*, New Zealand\*

\* Products with an RCM mark only.

**CAUTION**

- Using W53 (CH52 - CH64), and W56 (CH100 - CH140) in ad-hoc mode is either prohibited or unavailable.
- Using W52 (CH36 - CH48) outdoors is prohibited.
- Using W53 (CH52 - CH64) outdoors in Australia is prohibited.
- Using W58 (CH149 - CH165) is either prohibited or unavailable.
- Using the TM-P60II outdoors in France is prohibited.
- In Italy, if used outside of own premises, general authorization is required.

## 311 model

Canada, USA

**CAUTION**

- Using W53 (CH52 - CH64), and W56 (CH100 - CH140) in ad-hoc mode is prohibited.
- Using W52 (CH36 - CH48) outdoors is prohibited.
- With W56, CH120, 124, and 128 are unavailable.

---

## Specification

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

## Communication speed

- IEEE802.11a (5 GHz): Automatic change
- IEEE802.11b (2.4 GHz): Automatic change
- IEEE802.11g (2.4 GHz): Automatic change
- IEEE802.11n (2.4 GHz): Automatic change (65 Mbps at maximum)
- IEEE802.11n (5 GHz): Automatic change (65 Mbps at maximum)

## Security

Security can be selected from among the following:

- none
- WEP-64bit (40bit)
- WEP-128bit (104bit)
- WPA-PSK(TKIP)
- WPA-PSK(AES)\*
- WPA-Enterprise (TKIP)
- WPA-Enterprise (AES)\*

\* WPA and WPA2 are both supported.

## Initial settings

Parameter	Setting value
Communication standard	802.11b/g/n
Network mode	Infrastructure mode
SSID	EpsonNet
Encryption type	WPA-PSK(AES)
Passphrase	EpsonNet
IP Address	192.168.192.168
Subnet Mask	255.255.255.0

\*You can connect to a WPA2-PSK (AES) access point using the settings above.

---

## Printing communication protocol

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

### LP, LPR

- |  |   |
|--|---|
| • Max. simultaneous connections:                         | 2   |
| • Number of connections for which printing is available: | 1 (Other users need to wait until printing is completed.) |
| • Time out:  | 1 min. (changeable)                                       |
| • Job cancel:  | Not available   |
| • Banner printing:                                       | Not available   |

### Socket communication

- |   |   |
|---|---|
| • Port type   | TCP communication port for direct printing                |
| • Port number   | 9100  |
| • Port communication direction                          | bidirectional   |
| • Max. simultaneous connections                         | 2   |
| • Number of connections for which printing is available | 1 (Other users need to wait until printing is completed.) |
| • Time out:   | 1 min. (changeable)                                       |

---

## Setting/Monitoring function

- Displays settings such as wireless and network parameters, and operation by using an Internet browser.
- Displays settings such as wireless and network parameters, and operation by using a specialized utility.
- Support the IP address automatic acquisition function (DHCP, APIPA).

---

## Notes on Wireless LAN connection

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

---

## Notes on use

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

## Bluetooth Wireless Interface

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## Countries where this product can be used

721, 752 models

Austria, Belgium, Bulgaria, Czech, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, UK, Australia\*, New Zealand\*

\* Products with an RCM mark only.

### CAUTION

In Italy, if used outside of own premises, general authorization is required.

711, 751 models

Canada, USA

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## Specification

- Conforms to Bluetooth Specification Version 2.1 + EDR
- Bluetooth Power Class 2
- Built-in antenna
- Pass key setting is possible
- Device name setting is possible

---

## Notes on use

### Time required until printing starts

If the host computer and the printer are not connected on a continuous basis but rather connected every time the printer starts printing, some time may be needed for the printer to actually start printing after the host computer commands printing. This pause is the time required for processing the connection between the host computer and the printer, and it depends on the conditions of the environment where used.

### Timing to shut the connection off

If a connection between the host computer and the printer is shut off while the printer is offline, it may not be re-established. In this case, first clear the printer offline causes, and then try to re-establish the connection.

### Notes when communicating with Android devices

- The printer cannot connect to Android 2.3 and 2.3.2.
- When communicating with Android 2.3.3 or later versions, communicate through an insecure connection.

# Character Code Tables

## CAUTION

- The character code tables show only character configurations. They do not show the actual print pattern.
- "SP" in the table shows a space.

## Common to All Pages

When the international character set (See ["International Character Sets" on page 152.](#)) is USA:

HEX	0	1	2	3	4	5	6	7
0	NUL 0	DLE 16	SP 32	0 48	@ 64	P 80	` 96	p 112
1		XON 17	! 33	1 49	A 65	Q 81	a 97	q 113
2			" 34	2 50	B 66	R 82	b 98	r 114
3		XOFF 19	# 35	3 51	C 67	S 83	c 99	s 115
4	EOT 4	DC4 20	\$ 36	4 52	D 68	T 84	d 100	t 116
5	ENQ 5	NAK 21	% 37	5 53	E 69	U 85	e 101	u 117
6	ACK 6		& 38	6 54	F 70	V 86	f 102	v 118
7			' 39	7 55	G 71	W 87	g 103	w 119
8		CAN 24	( 40	8 56	H 72	X 88	h 104	x 120
9	HT 9		) 41	9 57	I 73	Y 89	i 105	y 121
A	LF 10		* 42	: 58	J 74	Z 90	j 106	z 122
B		ESC 27	+ 43	; 59	K 75	[ 91	k 107	{ 123
C	FF 12	FS 28	, 44	< 60	L 76	\ 92	l 108	 124
D	CR 13	GS 29	- 45	= 61	M 77	] 93	m 109	} 125
E		RS 30	· 46	> 62	N 78	^ 94	n 110	~ 126
F			/ 47	? 63	O 79	_ 95	o 111	SP 127



## Page 0 (PC437: USA, Standard Europe)

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	⌘ 176	Ł 192	⌘ 208	ɑ 224	≡ 240
1	Ü 129	æ 145	í 161	⌘ 177	⌞ 193	⌞ 209	β 225	± 241
2	é 130	Æ 146	ó 162	⌘ 178	τ 194	π 210	Γ 226	≥ 242
3	â 131	ô 147	ú 163	⌞ 179	⌞ 195	⌘ 211	π 227	≤ 243
4	ä 132	ö 148	ñ 164	⌞ 180	— 196	⌞ 212	Σ 228	⌞ 244
5	à 133	ò 149	Ñ 165	⌞ 181	† 197	ƒ 213	σ 229	⌞ 245
6	å 134	û 150	ä 166	⌞ 182	ƒ 198	π 214	μ 230	÷ 246
7	ç 135	ù 151	º 167	π 183	⌞ 199	⌞ 215	τ 231	≈ 247
8	ê 136	ÿ 152	¿ 168	⌞ 184	⌘ 200	⌞ 216	φ 232	° 248
9	ë 137	Ö 153	⌞ 169	⌞ 185	⌞ 201	⌞ 217	θ 233	• 249
A	è 138	Ü 154	⌞ 170	⌞ 186	⌘ 202	⌞ 218	Ω 234	• 250
B	ï 139	ϕ 155	½ 171	⌞ 187	⌞ 203	■ 219	δ 235	√ 251
C	î 140	£ 156	¼ 172	⌞ 188	⌞ 204	■ 220	ω 236	∞ 252
D	ì 141	¥ 157	ï 173	⌘ 189	= 205	⌞ 221	φ 237	² 253
E	ÿ 142	℥ 158	« 174	⌞ 190	⌞ 206	⌞ 222	ε 238	■ 254
F	Ä 143	ƒ 159	» 175	⌞ 191	⌘ 207	■ 223	∩ 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	ー 128	丄 144	SP 160	ー 176	タ 192	ミ 208	ニ 224	× 240
1	ー 129	〒 145	。 161	ア 177	チ 193	ム 209	ト 225	円 241
2	ー 130	冫 146	冫 162	イ 178	ツ 194	メ 210	キ 226	年 242
3	■ 131	ト 147	丿 163	ウ 179	テ 195	モ 211	コ 227	月 243
4	■ 132	一 148	、 164	エ 180	ト 196	ヤ 212	▲ 228	日 244
5	■ 133	一 149	・ 165	オ 181	ナ 197	ユ 213	▲ 229	時 245
6	■ 134	丨 150	ヲ 166	カ 182	ニ 198	ヨ 214	▼ 230	分 246
7	■ 135	丨 151	ア 167	キ 183	ヌ 199	ラ 215	▼ 231	秒 247
8	丨 136	冫 152	イ 168	ク 184	ネ 200	リ 216	♠ 232	〒 248
9	丨 137	冫 153	ウ 169	ケ 185	ノ 201	ル 217	♥ 233	市 249
A	丨 138	丿 154	エ 170	コ 186	ハ 202	レ 218	♦ 234	区 250
B	丨 139	丿 155	オ 171	サ 187	ヒ 203	ロ 219	♣ 235	町 251
C	■ 140	冫 156	ヤ 172	シ 188	フ 204	ワ 220	● 236	村 252
D	■ 141	冫 157	ユ 173	ス 189	ヘ 205	ソ 221	○ 237	人 253
E	■ 142	冫 158	ヨ 174	セ 190	ホ 206	〃 222	/ 238	☼ 254
F	十 143	ノ 159	ツ 175	リ 191	マ 207	。 223	\ 239	SP 255

## Page 2 (PC850: Multilingual)

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	176	Ł 192	ð 208	ó 224	- 240
1	ü 129	æ 145	í 161	177	Ł 193	ð 209	ß 225	± 241
2	é 130	Æ 146	ó 162	178	Ŧ 194	Ê 210	Ô 226	= 242
3	â 131	ô 147	ú 163	179	Ŧ 195	Ë 211	Ò 227	$\frac{3}{4}$ 243
4	ä 132	ö 148	ñ 164	180	- 196	È 212	Õ 228	¶ 244
5	à 133	ò 149	Ñ 165	Á 181	† 197	ı 213	Õ 229	§ 245
6	å 134	û 150	ä 166	Â 182	ã 198	İ 214	μ 230	÷ 246
7	ç 135	ù 151	ö 167	Ã 183	Ǻ 199	Î 215	þ 231	˘ 247
8	ê 136	ÿ 152	ı 168	© 184	Ł 200	İ 216	þ 232	° 248
9	ë 137	ö 153	® 169	185	Ŧ 201	Ĵ 217	Ú 233	˙ 249
A	è 138	Ü 154	¬ 170	186	Ł 202	Ŧ 218	Û 234	• 250
B	ï 139	ø 155	$\frac{1}{2}$ 171	187	Ŧ 203	219	Ù 235	¹ 251
C	î 140	£ 156	$\frac{1}{4}$ 172	188	Ŧ 204	220	Ý 236	³ 252
D	ì 141	Ø 157	ı 173	¢ 189	= 205	ı 221	Ý 237	² 253
E	Ä 142	× 158	« 174	¥ 190	206	Î 222	- 238	254
F	Å 143	f 159	» 175	191	207	223	239	SP 255

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	☼ 176	Ł 192	Ɑ 208	ɑ 224	≡ 240
1	Ü 129	À 145	í 161	☼ 177	⊥ 193	ṽ 209	β 225	± 241
2	é 130	È 146	ó 162	☼ 178	τ 194	π 210	Γ 226	≥ 242
3	â 131	ô 147	ú 163	⌋ 179	⌋ 195	Ɑ 211	π 227	≤ 243
4	ã 132	õ 148	ñ 164	⌋ 180	— 196	ℓ 212	Σ 228	ƒ 244
5	à 133	ò 149	Ñ 165	⌋ 181	† 197	ƒ 213	σ 229	ℓ 245
6	Á 134	Ú 150	ä 166	⌋ 182	ƒ 198	π 214	μ 230	÷ 246
7	ç 135	ù 151	º 167	π 183	⌋ 199	⌋ 215	τ 231	≈ 247
8	ê 136	î 152	¿ 168	⌋ 184	Ɑ 200	⌋ 216	φ 232	° 248
9	Ê 137	Õ 153	Ò 169	⌋ 185	ƒ 201	ℓ 217	θ 233	• 249
A	è 138	Ü 154	¬ 170	⌋ 186	Ɑ 202	ƒ 218	Ω 234	• 250
B	Í 139	Φ 155	½ 171	⌋ 187	π 203	■ 219	δ 235	√ 251
C	Ô 140	£ 156	¼ 172	⌋ 188	⌋ 204	■ 220	ω 236	∞ 252
D	ì 141	Ù 157	ì 173	Ɑ 189	= 205	⌋ 221	φ 237	² 253
E	Ǻ 142	℥ 158	« 174	⌋ 190	⌋ 206	⌋ 222	ε 238	■ 254
F	Â 143	Ó 159	» 175	⌋ 191	Ɑ 207	■ 223	∩ 239	SP 255

## Page 4 (PC863: Canadian-French)

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	Ì 160	⋮ 176	Ł 192	⋈ 208	ɑ 224	≡ 240
1	Ü 129	È 145	Í 161	⋭ 177	⊥ 193	⌚ 209	β 225	± 241
2	é 130	Ê 146	Ó 162	⋮ 178	Τ 194	Π 210	Γ 226	≥ 242
3	â 131	ô 147	Ú 163	⋮ 179	ƒ 195	⋈ 211	π 227	≤ 243
4	Â 132	Ë 148	“ 164	† 180	– 196	ℓ 212	Σ 228	ƒ 244
5	à 133	İ 149	• 165	‡ 181	† 197	ƒ 213	σ 229	ƒ 245
6	¶ 134	û 150	³ 166	‡ 182	ƒ 198	π 214	μ 230	÷ 246
7	ç 135	ù 151	– 167	π 183	‡ 199	‡ 215	τ 231	≈ 247
8	ê 136	Ɑ 152	Î 168	‡ 184	ℓ 200	‡ 216	φ 232	° 248
9	ë 137	Ô 153	ƒ 169	‡ 185	ƒ 201	ƒ 217	Θ 233	• 249
A	è 138	Ü 154	ƒ 170	‡ 186	ℓ 202	ƒ 218	Ω 234	• 250
B	ï 139	ϕ 155	½ 171	¶ 187	¶ 203	■ 219	δ 235	√ 251
C	î 140	£ 156	¼ 172	¶ 188	¶ 204	■ 220	ω 236	ⁿ 252
D	= 141	Û 157	¾ 173	⋈ 189	= 205	■ 221	φ 237	² 253
E	À 142	Û 158	« 174	ƒ 190	‡ 206	■ 222	ε 238	■ 254
F	§ 143	ƒ 159	» 175	ƒ 191	⊥ 207	■ 223	∩ 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	⌘ 176	Ł 192	⌚ 208	ɑ 224	≡ 240
1	Ü 129	æ 145	í 161	⌘ 177	⌞ 193	⌚ 209	β 225	± 241
2	é 130	Æ 146	ó 162	⌘ 178	τ 194	π 210	Γ 226	≥ 242
3	â 131	ô 147	ú 163	⌞ 179	⌞ 195	⌚ 211	π 227	≤ 243
4	ä 132	ö 148	ñ 164	⌞ 180	— 196	ℓ 212	Σ 228	ƒ 244
5	à 133	ò 149	Ñ 165	⌞ 181	† 197	ƒ 213	σ 229	ℓ 245
6	å 134	û 150	ä 166	⌞ 182	† 198	π 214	μ 230	÷ 246
7	ç 135	ù 151	o 167	π 183	⌞ 199	⌞ 215	τ 231	≈ 247
8	ê 136	ÿ 152	č 168	ƒ 184	⌚ 200	† 216	φ 232	° 248
9	ë 137	Ö 153	ƒ 169	⌞ 185	ƒ 201	ℓ 217	θ 233	• 249
A	è 138	Ü 154	ƒ 170	⌞ 186	⌚ 202	ƒ 218	Ω 234	• 250
B	ï 139	ø 155	½ 171	⌞ 187	⌞ 203	■ 219	δ 235	√ 251
C	î 140	£ 156	¼ 172	⌞ 188	⌞ 204	■ 220	ø 236	∞ 252
D	ì 141	Ø 157	ı 173	⌞ 189	= 205	⌞ 221	φ 237	² 253
E	Ä 142	℥ 158	« 174	⌞ 190	⌞ 206	⌞ 222	ε 238	■ 254
F	Å 143	f 159	ⱥ 175	⌞ 191	⌞ 207	■ 223	∩ 239	SP 255

## Page 11 (PC851: Greek)

HEX	8	9	A	B	C	D	E	F
0	Ç 128	İ 144	İ 160	⋯ 176	Ł 192	Ț 208	Ƶ 224	- 240
1	Ü 129	SP 145	İ 161	⋯ 177	⊥ 193	Υ 209	η 225	± 241
2	é 130	ð 146	ó 162	⋯ 178	τ 194	Φ 210	θ 226	υ 242
3	â 131	ô 147	ú 163	ı 179	† 195	Χ 211	ι 227	φ 243
4	ä 132	ö 148	À 164	ı 180	- 196	Ψ 212	κ 228	χ 244
5	à 133	Ƴ 149	Β 165	Κ 181	† 197	Ω 213	λ 229	ς 245
6	À 134	û 150	Γ 166	Λ 182	Π 198	α 214	μ 230	ψ 246
7	ç 135	ù 151	Δ 167	Μ 183	Ρ 199	β 215	ν 231	· 247
8	ê 136	ϣ 152	Ε 168	Ν 184	⋈ 200	γ 216	ξ 232	° 248
9	ë 137	ö 153	Ζ 169	Η 185	Ϛ 201	Ј 217	ο 233	¨ 249
A	è 138	Ü 154	Η 170	Ι 186	⋈ 202	Γ 218	π 234	ω 250
B	ĩ 139	á 155	½ 171	Π 187	π 203	■ 219	ρ 235	Ü 251
C	î 140	£ 156	Θ 172	Ψ 188	⋈ 204	■ 220	σ 236	Û 252
D	Ǝ 141	é 157	Ι 173	Ξ 189	= 205	δ 221	ς 237	ώ 253
E	Ä 142	ñ 158	« 174	Ο 190	⋈ 206	ε 222	τ 238	■ 254
F	Η 143	ί 159	» 175	ι 191	Σ 207	■ 223	´ 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	176	Ł 192	SP 208	Ó 224	- 240
1	Ü 129	Ĉ 145	í 161	177	Ł 193	SP 209	ß 225	SP 241
2	é 130	Ĉ 146	ó 162	178	Ŧ 194	Ê 210	ô 226	ł 242
3	â 131	ô 147	ú 163	ı 179	ƒ 195	Ë 211	ò 227	ħ 243
4	ä 132	ö 148	ñ 164	ı 180	- 196	È 212	ğ 228	244
5	à 133	ò 149	Ñ 165	Á 181	† 197	ı 213	ğ 229	§ 245
6	ĉ 134	û 150	ğ 166	Â 182	Ŝ 198	İ 214	μ 230	÷ 246
7	ç 135	ù 151	ğ 167	À 183	Ŝ 199	Î 215	℥ 231	247
8	ê 136	î 152	Ĥ 168	Ş 184	Ł 200	İ 216	ħ 232	° 248
9	ë 137	ö 153	ĥ 169	ı 185	ŕ 201	Ĵ 217	Ú 233	249
A	è 138	ü 154	SP 170	ı 186	Ł 202	ŕ 218	Û 234	250
B	ï 139	ĝ 155	½ 171	ı 187	Ŧ 203	219	Ù 235	SP 251
C	î 140	£ 156	Ĵ 172	ı 188	ı 204	220	Ŭ 236	³ 252
D	ì 141	Ĝ 157	Ş 173	Ž 189	= 205	SP 221	Ű 237	² 253
E	Ă 142	× 158	« 174	Ž 190	ı 206	Î 222	238	254
F	Ĉ 143	Ĵ 159	» 175	ı 191	207	223	239	SP 255



## Page 13 (PC857: Turkish)

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	176	Ł 192	o 208	Ó 224	- 240
1	ü 129	æ 145	í 161	177	Ł 193	a 209	ß 225	± 241
2	é 130	Æ 146	ó 162	178	Ƨ 194	Ê 210	Ô 226	SP 242
3	â 131	ô 147	ú 163	ı 179	Ƨ 195	Ë 211	ò 227	¾ 243
4	ä 132	ö 148	ñ 164	ı 180	- 196	È 212	õ 228	¶ 244
5	à 133	ò 149	Ñ 165	Á 181	† 197	€ 213	Õ 229	§ 245
6	å 134	û 150	ğ 166	Â 182	ã 198	Í 214	μ 230	÷ 246
7	ç 135	ù 151	ğ 167	Ã 183	Ǻ 199	Î 215	SP 231	· 247
8	ê 136	î 152	ı 168	© 184	Ł 200	İ 216	× 232	° 248
9	ë 137	ö 153	® 169	ı 185	Ƨ 201	Ƨ 217	Ú 233	¨ 249
A	è 138	Ü 154	¬ 170	ı 186	Ł 202	Ƨ 218	Û 234	• 250
B	ï 139	ø 155	½ 171	ı 187	Ƨ 203	■ 219	Ü 235	¹ 251
C	î 140	£ 156	¼ 172	ı 188	Ƨ 204	■ 220	İ 236	³ 252
D	ı 141	Ø 157	ı 173	¢ 189	= 205	ı 221	ÿ 237	² 253
E	Ǻ 142	§ 158	« 174	¥ 190	Ƨ 206	İ 222	- 238	■ 254
F	Ǻ 143	§ 159	» 175	ı 191	Ƨ 207	■ 223	˘ 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	Α 128	Ρ 144	Λ 160	⏏ 176	⏏ 192	⏏ 208	ω 224	Ϸ 240
1	Β 129	Σ 145	Κ 161	⏏ 177	⏏ 193	⏏ 209	ά 225	± 241
2	Γ 130	Τ 146	λ 162	⏏ 178	τ 194	π 210	έ 226	≥ 242
3	Δ 131	Υ 147	μ 163	⏏ 179	⏏ 195	⏏ 211	ή 227	≤ 243
4	Ε 132	Φ 148	ν 164	⏏ 180	— 196	⏏ 212	ϊ 228	ϊ 244
5	Ζ 133	Χ 149	ξ 165	⏏ 181	⏏ 197	⏏ 213	ί 229	ÿ 245
6	Η 134	Ψ 150	ο 166	⏏ 182	⏏ 198	π 214	ό 230	÷ 246
7	Θ 135	Ω 151	π 167	⏏ 183	⏏ 199	⏏ 215	ύ 231	≈ 247
8	Ι 136	α 152	ρ 168	⏏ 184	⏏ 200	⏏ 216	ϋ 232	° 248
9	Κ 137	β 153	σ 169	⏏ 185	⏏ 201	⏏ 217	ώ 233	• 249
A	Λ 138	γ 154	ς 170	⏏ 186	⏏ 202	⏏ 218	Α 234	• 250
B	Μ 139	δ 155	τ 171	⏏ 187	⏏ 203	⏏ 219	Ε 235	√ 251
C	Ν 140	ε 156	υ 172	⏏ 188	⏏ 204	⏏ 220	Η 236	η 252
D	Ξ 141	ζ 157	φ 173	⏏ 189	= 205	⏏ 221	Ι 237	² 253
E	Ο 142	η 158	χ 174	⏏ 190	⏏ 206	⏏ 222	Ο 238	■ 254
F	Π 143	θ 159	ψ 175	⏏ 191	⏏ 207	⏏ 223	Υ 239	SP 255

## Page 15 (ISO8859-7: Greek)

HEX	8	9	A	B	C	D	E	F
0	SP 128	SP 144	SP 160	° 176	İ 192	Π 208	Ü 224	π 240
1	SP 129	SP 145	‘ 161	± 177	Α 193	Ρ 209	α 225	ρ 241
2	SP 130	SP 146	, 162	² 178	Β 194	SP 210	β 226	ς 242
3	SP 131	SP 147	£ 163	³ 179	Γ 195	Σ 211	γ 227	σ 243
4	SP 132	SP 148	€ 164	´ 180	Δ 196	Τ 212	δ 228	τ 244
5	SP 133	SP 149	Ð 165	… 181	Ε 197	Υ 213	ε 229	υ 245
6	SP 134	SP 150	¡ 166	À 182	Ζ 198	Φ 214	ζ 230	φ 246
7	SP 135	SP 151	§ 167	• 183	Η 199	Χ 215	η 231	χ 247
8	SP 136	SP 152	¨ 168	Έ 184	Θ 200	Ψ 216	θ 232	ψ 248
9	SP 137	SP 153	© 169	Ή 185	Ι 201	Ω 217	ι 233	ω 249
A	SP 138	SP 154	• 170	Ί 186	Κ 202	Ϊ 218	κ 234	ϊ 250
B	SP 139	SP 155	« 171	» 187	Λ 203	Ϋ 219	λ 235	ϋ 251
C	SP 140	SP 156	¬ 172	Ό 188	Μ 204	ά 220	μ 236	ό 252
D	SP 141	SP 157	- 173	½ 189	Ν 205	έ 221	ν 237	ύ 253
E	SP 142	SP 158	SP 174	Υ 190	Ξ 206	ή 222	ξ 238	ώ 254
F	SP 143	SP 159	- 175	Ω 191	Ο 207	ί 223	ο 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	€ 128	SP 144	SP 160	° 176	À 192	Ð 208	à 224	ð 240
1	SP 129	‘ 145	í 161	± 177	Á 193	Ñ 209	á 225	ñ 241
2	, 130	’ 146	¢ 162	² 178	Â 194	Ò 210	â 226	ò 242
3	f 131	“ 147	£ 163	³ 179	Ã 195	Ó 211	ã 227	ó 243
4	” 132	” 148	¤ 164	´ 180	Ä 196	Ô 212	ä 228	ô 244
5	… 133	• 149	¥ 165	µ 181	Å 197	Õ 213	å 229	õ 245
6	† 134	- 150	¡ 166	¶ 182	Æ 198	Ö 214	æ 230	ö 246
7	‡ 135	- 151	§ 167	· 183	Ç 199	× 215	ç 231	÷ 247
8	^ 136	~ 152	¨ 168	¸ 184	È 200	Ø 216	è 232	ø 248
9	‰ 137	™ 153	© 169	¹ 185	É 201	Ù 217	é 233	ù 249
A	Š 138	Š 154	ª 170	º 186	Ê 202	Ú 218	ê 234	ú 250
B	‹ 139	› 155	« 171	» 187	Ë 203	Û 219	ë 235	û 251
C	Œ 140	œ 156	¬ 172	¼ 188	Ì 204	Ü 220	ì 236	ü 252
D	SP 141	SP 157	- 173	½ 189	Í 205	Ý 221	í 237	ý 253
E	Ž 142	Ž 158	® 174	¾ 190	Î 206	Þ 222	î 238	þ 254
F	SP 143	ÿ 159	- 175	¿ 191	Ï 207	ß 223	ï 239	ÿ 255

## Page 17 (PC866: Cyrillic #2)

HEX	8	9	A	B	C	D	E	F
0	А 128	Р 144	а 160	␣ 176	Л 192	л 208	р 224	ё 240
1	Б 129	С 145	б 161	␣ 177	Л 193	л 209	с 225	ё 241
2	В 130	Т 146	в 162	␣ 178	Т 194	т 210	т 226	ё 242
3	Г 131	У 147	г 163	І 179	І 195	л 211	у 227	ё 243
4	Д 132	Ф 148	д 164	І 180	— 196	Е 212	ф 228	ї 244
5	Е 133	Х 149	е 165	І 181	† 197	Е 213	х 229	ї 245
6	Ж 134	Ц 150	ж 166	І 182	† 198	П 214	ц 230	ў 246
7	З 135	Ч 151	з 167	П 183	† 199	† 215	ч 231	ў 247
8	И 136	Ш 152	и 168	Э 184	Л 200	† 216	ш 232	° 248
9	Й 137	Щ 153	й 169	І 185	Г 201	Ј 217	щ 233	• 249
A	К 138	Ъ 154	к 170	І 186	Л 202	Г 218	ъ 234	• 250
B	Л 139	Ы 155	л 171	Ї 187	Ї 203	■ 219	ы 235	Ї 251
C	М 140	Ь 156	м 172	Ї 188	Ї 204	■ 220	ь 236	№ 252
D	Н 141	Э 157	н 173	Ї 189	= 205	І 221	э 237	Ѡ 253
E	О 142	Ю 158	о 174	Ј 190	Ї 206	І 222	ю 238	■ 254
F	П 143	Я 159	п 175	Г 191	Ї 207	■ 223	я 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	176	Ł 192	đ 208	ó 224	- 240
1	ü 129	Ĺ 145	í 161	177	Ł 193	Đ 209	ß 225	˜ 241
2	é 130	Ħ 146	ó 162	178	Ŧ 194	Đ 210	ô 226	ˆ 242
3	â 131	ô 147	ú 163	Ĭ 179	Ŧ 195	Ě 211	Ň 227	ˇ 243
4	ä 132	ö 148	À 164	Ħ 180	- 196	ď 212	ň 228	˘ 244
5	û 133	Ľ 149	ą 165	Á 181	† 197	Ň 213	ň 229	š 245
6	ć 134	ĩ 150	ž 166	Â 182	Ǻ 198	İ 214	š 230	÷ 246
7	ç 135	ś 151	ž 167	Ě 183	ǻ 199	Î 215	š 231	˙ 247
8	ł 136	ś 152	Ę 168	Ś 184	Ł 200	ě 216	Ř 232	° 248
9	ë 137	ö 153	ę 169	Ħ 185	Ŧ 201	Ĳ 217	Ú 233	˚ 249
A	õ 138	Ü 154	€ 170	Ĭ 186	Ł 202	Ŧ 218	ŕ 234	˙ 250
B	õ 139	ř 155	ž 171	Ŧ 187	Ŧ 203	■ 219	Ů 235	ů 251
C	î 140	ř 156	č 172	Ŧ 188	Ŧ 204	■ 220	ý 236	ř 252
D	ž 141	ł 157	š 173	ž 189	= 205	Ŧ 221	ý 237	ř 253
E	Ǻ 142	× 158	« 174	ž 190	Ŧ 206	Ů 222	ţ 238	■ 254
F	Ć 143	č 159	» 175	Ŧ 191	Ǻ 207	■ 223	˘ 239	SP 255

## Page 19 (PC858: Euro)

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	176	Ł 192	Š 208	Ó 224	- 240
1	Ü 129	æ 145	í 161	177	Ł 193	Đ 209	ß 225	± 241
2	é 130	Æ 146	ó 162	178	Ƨ 194	Ê 210	Ô 226	= 242
3	â 131	ô 147	ú 163	ı 179	Ƨ 195	Ë 211	Ò 227	¾ 243
4	ä 132	ö 148	ñ 164	ı 180	- 196	È 212	Õ 228	¶ 244
5	à 133	ò 149	Ñ 165	Á 181	† 197	€ 213	Õ 229	§ 245
6	å 134	û 150	ä 166	Â 182	ã 198	Í 214	µ 230	÷ 246
7	ç 135	ù 151	ó 167	À 183	Ä 199	Î 215	þ 231	· 247
8	ê 136	ÿ 152	č 168	© 184	Ł 200	İ 216	þ 232	° 248
9	ë 137	ö 153	® 169	ı 185	Ƨ 201	Ƨ 217	Ú 233	ˆ 249
A	è 138	Ü 154	¬ 170	ı 186	Ł 202	Ƨ 218	Û 234	• 250
B	ï 139	ø 155	½ 171	ı 187	Ƨ 203	■ 219	Ù 235	¹ 251
C	î 140	£ 156	¼ 172	ı 188	Ƨ 204	■ 220	Ý 236	³ 252
D	ì 141	Ø 157	ı 173	¢ 189	= 205	ı 221	Ý 237	² 253
E	Ā 142	× 158	« 174	¥ 190	Ƨ 206	İ 222	— 238	■ 254
F	Ă 143	f 159	» 175	ı 191	Ƨ 207	■ 223	˘ 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	ร 128	อ 144	SP 160	ผ 176	ย 192	ไ 208	ั 224	๒๓ 240
1	๑ 129	๑ 145	ก 161	ผ 177	ร 193	แ 209	๒ 225	๒๔ 241
2	๒ 130	๒ 146	ป 162	ด 178	ถ 194	โ 210	๓ 226	๒๕ 242
3	๓ 131	๓ 147	ค 163	ต 179	ล 195	ใ 211	๔ 227	๒๖ 243
4	๔ 132	๔ 148	ข 164	ถ 180	ว 196	ไ 212	๕ 228	๒๗ 244
5	๕ 133	๕ 149	ง 165	ท 181	ศ 197	ำ 213	๖ 229	๒๘ 245
6	๖ 134	๖ 150	จ 166	ธ 182	ช 198	า 214	๗ 230	๒๙ 246
7	๗ 135	๗ 151	ฉ 167	น 183	ส 199	ำ 215	๘ 231	๓๐ 247
8	๘ 136	๘ 152	ช 168	บ 184	ห 200	๒ 216	๙ 232	๓๑ 248
9	๙ 137	๙ 153	ซ 169	ป 185	ฬ 201	๓ 217	๐ 233	๓๒ 249
A	๐ 138	๐ 154	ผ 170	ผ 186	อ 202	๔ 218	๑ 234	๓๓ 250
B	๑ 139	๑ 155	อ 171	ผ 187	ฮ 203	๕ 219	๒ 235	๓๔ 251
C	๒ 140	๒ 156	ภ 172	ผ 188	๒ 204	๖ 220	๓ 236	๓๕ 252
D	๓ 141	๓ 157	ภ 173	ผ 189	ภ 205	๗ 221	๔ 237	๓๖ 253
E	๔ 142	๔ 158	ภ 174	ภ 190	ภ 206	๘ 222	๕ 238	๓๗ 254
F	๕ 143	๕ 159	ภ 175	ม 191	ภ 207	๙ 223	๖ 239	SP 255



## Page 21 (Thai Code 11)

HEX	8	9	A	B	C	D	E	F
0	๕- 128	๕+ 144	เ 160	ล 176	ภ 192	๕๕ 208	เ 224	๐ 240
1	๕๕ 129	๕- 145	ก 161	ท 177	ม 193	๕๖ 209	แ 225	๑ 241
2	๕๖ 130	๕๕ 146	ป 162	ฒ 178	ย 194	ำ 210	โ 226	๒ 242
3	๕+ 131	๕๖ 147	บ 163	ณ 179	ร 195	ำ๑ 211	ใ 227	๓ 243
4	๕- 132	๕+ 148	ค 164	ด 180	ถ 196	๕๗ 212	ไ 228	๔ 244
5	๕๕ 133	๐- 149	ค 165	ด 181	ถ 197	๕๘ 213	ำ๑ 229	๕ 245
6	๕๖ 134	๐๕ 150	ฆ 166	ถ 182	ภ 198	๕๙ 214	ำ๑ 230	๖ 246
7	๕+ 135	๐๖ 151	ง 167	ท 183	ว 199	๕๙ 215	๕๙ 231	๗ 247
8	๕๙ 136	๐+ 152	จ 168	ธ 184	ศ 200	๕๙ 216	๕๙ 232	๘ 248
9	๕- 137	๕ 153	ฉ 169	น 185	ช 201	๕๙ 217	๕๙ 233	๙ 249
A	๕๕ 138	๕๑ 154	ช 170	บ 186	ส 202	๕๙ 218	๕๙ 234	๙๑ 250
B	๕๖ 139	๕๑ 155	ช 171	บ 187	ห 203	๕๙ 219	๕๙ 235	๙๑ 251
C	๕+ 140	๕๑ 156	ณ 172	ผ 188	ฬ 204	๕๙ 220	๕๙ 236	๙๑ 252
D	๕- 141	๕๑ 157	ณ 173	ผ 189	อ 205	๕๙ 221	๕๙ 237	๙๑ 253
E	๕๕ 142	๕๑ 158	ณ 174	ผ 190	ฮ 206	๕๙ 222	๕๙ 238	๙๑ 254
F	๕๖ 143	๕๑ 159	ณ 175	ผ 191	๙ 207	๕๙ 223	๕๙ 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	ร 128	ร 144	SP 160	ล 176	ภ 192	ะ 208	เ 224	อ 240
1	ร 129	ร 145	ก 161	ท 177	ม 193	ะ 209	แ 225	ฉ 241
2	ร 130	ร 146	บ 162	ผ 178	ย 194	า 210	โ 226	ด 242
3	ร 131	ร 147	ป 163	ผ 179	ร 195	า 211	โ 227	ต 243
4	ร 132	ร 148	ค 164	ด 180	ถ 196	า 212	โ 228	ล 244
5	ร 133	ร 149	ค 165	ด 181	ถ 197	า 213	า 229	ล 245
6	ร 134	ร 150	ฆ 166	ถ 182	ภ 198	า 214	า 230	ว 246
7	ร 135	ร 151	ง 167	ท 183	ว 199	า 215	ล 231	ถ 247
8	ร 136	ร 152	จ 168	ธ 184	ศ 200	า 216	า 232	ร 248
9	ร 137	ร 153	ฉ 169	น 185	ช 201	า 217	ะ 233	จ 249
A	ร 138	ร 154	ช 170	บ 186	ส 202	า 218	จ 234	เ 250
B	ร 139	ร 155	ช 171	ป 187	ห 203	า 219	า 235	า 251
C	ร 140	ร 156	ผ 172	ผ 188	ฬ 204	า 220	า 236	า 252
D	ร 141	ร 157	อ 173	ผ 189	อ 205	า 221	า 237	า 253
E	ร 142	ร 158	ภ 174	ผ 190	ฮ 206	า 222	า 238	า 254
F	ร 143	ร 159	ภ 175	ผ 191	า 207	อ 223	อ 239	SP 255

## Page 30 (TCVN-3: Vietnamese)

HEX	8	9	A	B	C	D	E	F
0	SP 128	SP 144	SP 160	SP 176	SP 192	é 208	SP 224	SP 240
1	SP 129	SP 145	SP 161	SP 177	SP 193	ẹ 209	ỏ 225	ủ 241
2	SP 130	SP 146	SP 162	SP 178	SP 194	ề 210	ỗ 226	ũ 242
3	SP 131	SP 147	SP 163	SP 179	SP 195	ể 211	ó 227	ú 243
4	SP 132	SP 148	SP 164	SP 180	SP 196	ễ 212	ọ 228	ụ 244
5	SP 133	SP 149	SP 165	à 181	SP 197	ế 213	ồ 229	ữ 245
6	SP 134	SP 150	SP 166	ả 182	ă 198	ệ 214	ổ 230	ử 246
7	SP 135	SP 151	SP 167	ã 183	ầ 199	ì 215	ỗ 231	ữ 247
8	SP 136	SP 152	ă 168	á 184	ã 200	ỉ 216	ố 232	ứ 248
9	SP 137	SP 153	â 169	ạ 185	ã 201	SP 217	ộ 233	ự 249
A	SP 138	SP 154	ê 170	SP 186	ấ 202	SP 218	ở 234	ỳ 250
B	SP 139	SP 155	ô 171	ă 187	ậ 203	SP 219	ở 235	ỷ 251
C	SP 140	SP 156	ơ 172	ã 188	ề 204	ĩ 220	ỡ 236	ỹ 252
D	SP 141	SP 157	ư 173	ã 189	SP 205	í 221	ở 237	ý 253
E	SP 142	SP 158	đ 174	ă 190	ẻ 206	ị 222	ợ 238	ỵ 254
F	SP 143	SP 159	SP 175	SP 191	ễ 207	ò 223	ù 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	SP 128	SP 144	SP 160	SP 176	SP 192	É 208	SP 224	SP 240
1	SP 129	SP 145	Ǻ 161	SP 177	SP 193	Ẹ 209	Ỏ 225	Ủ 241
2	SP 130	SP 146	Â 162	SP 178	SP 194	Ề 210	Ỗ 226	Ỡ 242
3	SP 131	SP 147	SP 163	SP 179	SP 195	Ễ 211	Ó 227	Ú 243
4	SP 132	SP 148	SP 164	SP 180	SP 196	Ễ 212	Ọ 228	Ụ 244
5	SP 133	SP 149	SP 165	À 181	SP 197	Ễ 213	Ồ 229	Ừ 245
6	SP 134	SP 150	SP 166	Ả 182	Ằ 198	Ệ 214	Ỗ 230	Ữ 246
7	SP 135	SP 151	Đ 167	Ằ 183	Ằ 199	Ì 215	Ỗ 231	Ữ 247
8	SP 136	SP 152	SP 168	Á 184	Ằ 200	Ỉ 216	Ỗ 232	Ữ 248
9	SP 137	SP 153	SP 169	Ạ 185	Ằ 201	SP 217	Ộ 233	Ự 249
A	SP 138	SP 154	Ê 170	SP 186	Ằ 202	SP 218	Ỗ 234	Ỡ 250
B	SP 139	SP 155	Ô 171	Ằ 187	Ậ 203	SP 219	Ỗ 235	Ỡ 251
C	SP 140	SP 156	Ớ 172	Ằ 188	Ề 204	Ỉ 220	Ỗ 236	Ỡ 252
D	SP 141	SP 157	Ừ 173	Ằ 189	SP 205	Ỉ 221	Ỗ 237	Ỡ 253
E	SP 142	SP 158	SP 174	Ằ 190	Ề 206	Ỉ 222	Ỗ 238	Ỡ 254
F	SP 143	SP 159	SP 175	SP 191	Ễ 207	Ồ 223	Ừ 239	SP 255

## Page 32 (PC720: Arabic)

HEX	8	9	A	B	C	D	E	F
0	SP 128	SP 144	ب 160	ٲ 176	ل 192	ل 208	ف 224	ٲ 240
1	SP 129	ٲ 145	ة 161	ٲ 177	ل 193	ٲ 209	ط 225	ٲ 241
2	é 130	ٲ 146	ت 162	ٲ 178	ٲ 194	ٲ 210	ظ 226	ٲ 242
3	â 131	ô 147	ث 163	ل 179	ٲ 195	ل 211	ع 227	ٲ 243
4	SP 132	ٲ 148	ج 164	ٲ 180	ٲ 196	ل 212	غ 228	ٲ 244
5	à 133	ٲ 149	ح 165	ٲ 181	ٲ 197	ٲ 213	ف 229	ٲ 245
6	SP 134	û 150	خ 166	ل 182	ٲ 198	ٲ 214	ٲ 230	ٲ 246
7	ç 135	ù 151	د 167	ٲ 183	ٲ 199	ٲ 215	ق 231	ٲ 247
8	ê 136	ٲ 152	ذ 168	ٲ 184	ل 200	ٲ 216	ك 232	ٲ 248
9	ë 137	ٲ 153	ر 169	ل 185	ٲ 201	ل 217	ل 233	ٲ 249
A	è 138	ٲ 154	ز 170	ل 186	ل 202	ر 218	م 234	ٲ 250
B	ï 139	ؤ 155	س 171	ٲ 187	ٲ 203	ٲ 219	ن 235	ٲ 251
C	î 140	ع 156	ش 172	ل 188	ل 204	ٲ 220	ه 236	n 252
D	SP 141	ل 157	ص 173	ل 189	= 205	ل 221	و 237	2 253
E	SP 142	ع 158	« 174	ل 190	ٲ 206	ل 222	ي 238	ٲ 254
F	SP 143	ا 159	» 175	ل 191	ٲ 207	ٲ 223	ي 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	Ć 128	É 144	Ā 160	⋯ 176	Ł 192	ą 208	Ó 224	- 240
1	Ü 129	æ 145	Ī 161	⋯ 177	Ł 193	č 209	β 225	± 241
2	é 130	Æ 146	Ó 162	⋯ 178	Ṭ 194	ę 210	ō 226	“ 242
3	ā 131	ō 147	ž 163	ł 179	ṭ 195	è 211	ń 227	¾ 243
4	ä 132	ö 148	ž 164	ł 180	- 196	ì 212	õ 228	¶ 244
5	ǵ 133	Ǧ 149	ž 165	Ą 181	† 197	š 213	õ 229	§ 245
6	ǻ 134	ϕ 150	” 166	Č 182	Ų 198	ų 214	μ 230	÷ 246
7	ć 135	ś 151	ı 167	Ę 183	Ū 199	ū 215	ń 231	” 247
8	ł 136	ś 152	© 168	Ė 184	Ł 200	ž 216	ķ 232	° 248
9	ē 137	ö 153	® 169	Ĳ 185	ŕ 201	Ĳ 217	ķ 233	• 249
A	ŗ 138	ü 154	¬ 170	Ĳ 186	Ł 202	ŗ 218	Ĳ 234	• 250
B	ŗ 139	ø 155	½ 171	Ĳ 187	ŕ 203	■ 219	Ĳ 235	¹ 251
C	ī 140	£ 156	¼ 172	Ĳ 188	Ĳ 204	■ 220	ŕ 236	³ 252
D	ž 141	Ø 157	Ł 173	Į 189	= 205	■ 221	Ē 237	² 253
E	Ǻ 142	× 158	« 174	Š 190	† 206	■ 222	Ņ 238	■ 254
F	Ǻ 143	ᄀ 159	» 175	Ṭ 191	Ž 207	■ 223	’ 239	SP 255

## Page 34 (PC855: Cyrillic)

HEX	8	9	A	B	C	D	E	F
0	ђ 128	љ 144	а 160	џ 176	Љ 192	л 208	я 224	- 240
1	ћ 129	љ 145	А 161	џ 177	Љ 193	л 209	р 225	ы 241
2	ѓ 130	њ 146	б 162	џ 178	т 194	м 210	р 226	ы 242
3	ѓ 131	њ 147	Б 163	Љ 179	Љ 195	М 211	с 227	з 243
4	ё 132	ћ 148	ц 164	џ 180	- 196	н 212	С 228	З 244
5	Ё 133	ћ 149	Ц 165	х 181	† 197	Н 213	т 229	ш 245
6	е 134	ќ 150	д 166	Х 182	к 198	о 214	Т 230	Ш 246
7	Е 135	ќ 151	Д 167	И 183	К 199	О 215	у 231	э 247
8	ѕ 136	џ 152	е 168	И 184	Љ 200	п 216	у 232	Э 248
9	Ѕ 137	џ 153	Е 169	Љ 185	ѓ 201	Ј 217	ж 233	Щ 249
A	і 138	џ 154	Ф 170	Љ 186	Љ 202	г 218	Ж 234	Щ 250
B	І 139	џ 155	Ф 171	Љ 187	Љ 203	■ 219	В 235	Ч 251
C	ї 140	ю 156	Г 172	Ј 188	Љ 204	■ 220	В 236	Ч 252
D	İ 141	Ю 157	Г 173	Й 189	= 205	П 221	Ь 237	§ 253
E	ј 142	џ 158	« 174	Й 190	Љ 206	Я 222	Ь 238	■ 254
F	Ј 143	џ 159	» 175	Г 191	Љ 207	■ 223	№ 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	⌘ 176	Ł 192	⌚ 208	ɑ 224	≡ 240
1	Ü 129	æ 145	í 161	⌘ 177	⌞ 193	⌚ 209	β 225	± 241
2	é 130	Æ 146	ó 162	⌘ 178	τ 194	π 210	Γ 226	≥ 242
3	â 131	ô 147	ú 163	⌞ 179	⌞ 195	⌚ 211	π 227	≤ 243
4	ä 132	ö 148	Á 164	⌞ 180	— 196	Ł 212	Σ 228	ƒ 244
5	à 133	þ 149	Í 165	⌞ 181	† 197	ƒ 213	σ 229	ℵ 245
6	å 134	û 150	Ó 166	⌞ 182	ƒ 198	π 214	μ 230	÷ 246
7	ç 135	ý 151	Ú 167	π 183	⌞ 199	⌞ 215	τ 231	≈ 247
8	ê 136	ÿ 152	ÿ 168	⌞ 184	⌚ 200	⌞ 216	φ 232	° 248
9	ë 137	Ö 153	ƒ 169	⌞ 185	ƒ 201	⌞ 217	θ 233	• 249
A	è 138	Ü 154	ƒ 170	⌞ 186	⌚ 202	ƒ 218	Ω 234	• 250
B	ð 139	Ø 155	½ 171	⌞ 187	⌞ 203	■ 219	δ 235	√ 251
C	ð 140	£ 156	¼ 172	⌞ 188	⌞ 204	■ 220	ω 236	ⁿ 252
D	þ 141	Ø 157	í 173	⌚ 189	= 205	⌞ 221	φ 237	² 253
E	Ä 142	℥ 158	« 174	⌞ 190	⌞ 206	⌞ 222	ε 238	■ 254
F	Å 143	f 159	» 175	⌞ 191	⌚ 207	■ 223	∩ 239	SP 255






## Page 36 (PC862: Hebrew)

HEX	8	9	A	B	C	D	E	F
0	𐤀 128	𐤁 144	á 160	𐤄 176	𐤅 192	𐤆 208	𐤇 224	𐤈 240
1	𐤉 129	𐤊 145	í 161	𐤋 177	𐤌 193	𐤍 209	𐤎 225	𐤏 241
2	𐤐 130	𐤑 146	ó 162	𐤒 178	𐤓 194	𐤔 210	𐤕 226	≥ 242
3	𐤖 131	𐤗 147	ú 163	𐤘 179	𐤙 195	𐤚 211	𐤛 227	≤ 243
4	𐤜 132	𐤝 148	ñ 164	𐤞 180	— 196	𐤟 212	Σ 228	𐤠 244
5	𐤡 133	𐤢 149	Ñ 165	𐤣 181	† 197	𐤤 213	σ 229	𐤥 245
6	𐤦 134	𐤧 150	𐤨 166	𐤩 182	𐤪 198	𐤫 214	μ 230	÷ 246
7	𐤬 135	𐤭 151	𐤮 167	𐤯 183	𐤰 199	𐤱 215	τ 231	≈ 247
8	𐤴 136	𐤵 152	č 168	𐤶 184	𐤷 200	𐤸 216	φ 232	° 248
9	𐤲 137	𐤳 153	𐤴 169	𐤵 185	𐤶 201	𐤷 217	θ 233	• 249
A	𐤴 138	𐤵 154	𐤶 170	𐤷 186	𐤸 202	𐤹 218	Ω 234	• 250
B	𐤱 139	𐤲 155	½ 171	𐤳 187	𐤴 203	𐤵 219	δ 235	√ 251
C	𐤶 140	𐤷 156	¼ 172	𐤸 188	𐤹 204	𐤺 220	ω 236	ⁿ 252
D	𐤰 141	𐤱 157	ı 173	𐤲 189	= 205	𐤳 221	φ 237	² 253
E	𐤴 142	𐤵 158	« 174	𐤶 190	𐤷 206	𐤸 222	ε 238	■ 254
F	𐤴 143	𐤵 159	» 175	𐤶 191	𐤷 207	𐤸 223	𐤹 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	° 128	β 144	SP 160	• 176	¢ 192	ذ 208	- 224	=" 240
1	• 129	ω 145	- 161	۱ 177	ء 193	ر 209	ف 225	" 241
2	• 130	φ 146	ل 162	۲ 178	آ 194	ز 210	ق 226	ن 242
3	√ 131	± 147	£ 163	۳ 179	أ 195	س 211	ك 227	ه 243
4	▒ 132	½ 148	¤ 164	۴ 180	ؤ 196	ش 212	ل 228	ه 244
5	- 133	¼ 149	ل 165	ه 181	ع 197	ط 213	م 229	ى 245
6	 134	≈ 150	SP 166	٦ 182	ئ 198	ظ 214	ن 230	ي 246
7	† 135	« 151	€ 167	۷ 183	ا 199	ط 215	ه 231	غ 247
8	‡ 136	» 152	ل 168	۸ 184	ب 200	ظ 216	و 232	ق 248
9	‡ 137	لا 153	ب 169	۹ 185	ة 201	ء 217	ى 233	لا 249
A	‡ 138	لا 154	ت 170	ف 186	ن 202	غ 218	ي 234	لا 250
B	⊥ 139	SP 155	ث 171	؛ 187	ث 203	ا 219	ض 235	ل 251
C	٦ 140	SP 156	، 172	س 188	ج 204	ر 220	ع 236	ك 252
D	٦ 141	لا 157	ج 173	ش 189	ح 205	÷ 221	غ 237	ي 253
E	ل 142	لا 158	ح 174	ص 190	خ 206	× 222	غ 238	■ 254
F	ل 143	، 159	خ 175	؟ 191	د 207	ع 223	م 239	SP 255

## Page 38 (PC869: Greek)

HEX	8	9	A	B	C	D	E	F
0	SP 128	Ι 144	ϊ 160	⋯ 176	Λ 192	Τ 208	Ζ 224	- 240
1	SP 129	ϊ 145	Ͽ 161	⋯ 177	⊥ 193	Υ 209	η 225	± 241
2	SP 130	ϐ 146	ό 162	⋯ 178	τ 194	Φ 210	θ 226	υ 242
3	SP 131	SP 147	ύ 163	Ι 179	† 195	Χ 211	Λ 227	Φ 243
4	SP 132	SP 148	Α 164	‡ 180	- 196	Ψ 212	Κ 228	Χ 244
5	SP 133	Υ 149	Β 165	Κ 181	‡ 197	Ω 213	λ 229	Σ 245
6	Α 134	Ͽ 150	Γ 166	Λ 182	Π 198	α 214	μ 230	Ψ 246
7	€ 135	© 151	Δ 167	Μ 183	Ρ 199	β 215	ν 231	… 247
8	• 136	ϐ 152	Ε 168	Ν 184	Λ 200	γ 216	ξ 232	° 248
9	¬ 137	² 153	Ζ 169	‡ 185	Γ 201	ι 217	ο 233	… 249
A	ι 138	³ 154	Η 170	‡ 186	⋯ 202	ρ 218	π 234	ω 250
B	‘ 139	ά 155	½ 171	π 187	π 203	■ 219	ρ 235	ü 251
C	’ 140	£ 156	θ 172	‡ 188	‡ 204	■ 220	σ 236	ü 252
D	Έ 141	έ 157	Ι 173	≡ 189	= 205	δ 221	ς 237	ώ 253
E	— 142	ή 158	« 174	Ο 190	‡ 206	ε 222	τ 238	■ 254
F	Η 143	ί 159	» 175	ι 191	Σ 207	■ 223	´ 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	 128	L 144	SP 160	° 176	Ř 192	Ð 208	ř 224	ď 240
1	 129	Ł 145	Ą 161	ą 177	Á 193	Ñ 209	á 225	ń 241
2	 130	T 146	˘ 162	˙ 178	Â 194	Ň 210	â 226	ň 242
3	I 131	ı 147	Ł 163	ł 179	Ǻ 195	Ó 211	ǻ 227	ó 243
4	ı 132	– 148	ǻ 164	˘ 180	Ǻ 196	Ô 212	ǻ 228	ô 244
5	J 133	† 149	Ĺ 165	ĺ 181	Í 197	Õ 213	í 229	õ 245
6	ŕ 134	■ 150	Š 166	š 182	Ć 198	Ö 214	ć 230	ö 246
7	■ 135	■ 151	Š 167	˘ 183	Ç 199	× 215	ç 231	÷ 247
8	© 136	Ł 152	˘ 168	˙ 184	Č 200	Ř 216	č 232	ř 248
9	ł 137	ŕ 153	Š 169	š 185	É 201	Û 217	é 233	û 249
A	ł 138	Ł 154	Ś 170	ś 186	Ę 202	Ú 218	ę 234	ú 250
B	ł 139	ŕ 155	Ÿ 171	ÿ 187	Ě 203	Ů 219	ě 235	ů 251
C	ł 140	ł 156	Ž 172	ž 188	Ě 204	Ü 220	ě 236	ü 252
D	¢ 141	= 157	- 173	˘ 189	Í 205	Ý 221	í 237	ý 253
E	¥ 142	ł 158	Ž 174	ž 190	Î 206	Ť 222	î 238	ť 254
F	ł 143	® 159	Ž 175	ž 191	Ď 207	ß 223	ď 239	˙ 255

## Page 40 (ISO8859-15: Latin9)

HEX	8	9	A	B	C	D	E	F
0	SP 128	SP 144	SP 160	° 176	À 192	Ð 208	à 224	ð 240
1	SP 129	SP 145	ï 161	± 177	Á 193	Ñ 209	á 225	ñ 241
2	SP 130	SP 146	¢ 162	² 178	Â 194	Ò 210	â 226	ò 242
3	SP 131	SP 147	£ 163	³ 179	Ã 195	Ó 211	ã 227	ó 243
4	SP 132	SP 148	€ 164	ž 180	Ä 196	Ô 212	ä 228	ô 244
5	SP 133	SP 149	¥ 165	μ 181	Å 197	Õ 213	å 229	õ 245
6	SP 134	SP 150	Š 166	¶ 182	Æ 198	Ö 214	æ 230	ö 246
7	SP 135	SP 151	§ 167	· 183	Ç 199	× 215	ç 231	÷ 247
8	SP 136	SP 152	Š 168	Ž 184	È 200	Ø 216	è 232	ø 248
9	SP 137	SP 153	© 169	¹ 185	É 201	Ù 217	é 233	ù 249
A	SP 138	SP 154	ª 170	º 186	Ê 202	Ú 218	ê 234	ú 250
B	SP 139	SP 155	« 171	» 187	Ë 203	Û 219	ë 235	û 251
C	SP 140	SP 156	¬ 172	¼ 188	Ì 204	Ü 220	ì 236	ü 252
D	SP 141	SP 157	- 173	½ 189	Í 205	Ý 221	í 237	ý 253
E	SP 142	SP 158	® 174	¾ 190	Î 206	Þ 222	î 238	þ 254
F	SP 143	SP 159	- 175	¿ 191	Ï 207	ß 223	ï 239	ÿ 255

HEX	8	9	A	B	C	D	E	F
0	SP 128	ؤ 144	ح 160	ۛ 176	ل 192	ع 208	ک 224	- 240
1	SP 129	ٹ 145	خ 161	ۛ 177	ل 193	ع 209	ک 225	ۛ 241
2	، 130	ب 146	د 162	ۛ 178	ت 194	ع 210	گ 226	ی 242
3	؛ 131	ب 147	د 163	ا 179	ت 195	غ 211	گ 227	- 243
4	؟ 132	پ 148	ذ 164	ا 180	- 196	غ 212	ل 228	ۛ 244
5	ء 133	پ 149	ر 165	ض 181	ت 197	غ 213	ل 229	ۛ 245
6	آ 134	ت 150	ز 166	ض 182	ظ 198	غ 214	م 230	ۛ 246
7	آ 135	ت 151	ژ 167	ط 183	ع 199	ف 215	م 231	ۛ 247
8	آ 136	ث 152	س 168	ط 184	ل 200	ف 216	ن 232	ۛ 248
9	ا 137	ث 153	س 169	ا 185	ل 201	ل 217	ن 233	ۛ 249
A	ل 138	ج 154	ش 170	ا 186	ل 202	ر 218	و 234	ۛ 250
B	د 139	ج 155	ش 171	ا 187	ل 203	ۛ 219	و 235	ۛ 251
C	ء 140	چ 156	ص 172	ا 188	ل 204	ۛ 220	ه 236	ۛ 252
D	ا 141	چ 157	ص 173	ا 189	= 205	ق 221	ه 237	ۛ 253
E	ل 142	خ 158	« 174	ظ 190	ل 206	ق 222	ه 238	ۛ 254
F	ۛ 143	ح 159	» 175	ا 191	SP 207	ۛ 223	ی 239	SP 255

## Page 42 (PC1118: Lithuanian)

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	⌘ 176	Ł 192	ą 208	ą 224	≡ 240
1	Ü 129	æ 145	í 161	⌘ 177	Ł 193	č 209	β 225	± 241
2	é 130	Æ 146	ó 162	⌘ 178	τ 194	ę 210	Γ 226	≥ 242
3	â 131	ô 147	ú 163	ł 179	ł 195	è 211	π 227	≤ 243
4	ä 132	ö 148	ñ 164	ł 180	– 196	ì 212	Σ 228	” 244
5	à 133	ò 149	Ñ 165	Ą 181	† 197	š 213	σ 229	“ 245
6	ǎ 134	û 150	ǎ 166	Č 182	Ų 198	ų 214	μ 230	÷ 246
7	ç 135	ù 151	o 167	Ę 183	Ū 199	ū 215	τ 231	≈ 247
8	ê 136	ÿ 152	č 168	Ė 184	Ł 200	ž 216	Φ 232	° 248
9	ë 137	Ö 153	ŗ 169	ł 185	ŗ 201	Ĳ 217	Θ 233	• 249
A	è 138	Ü 154	ŗ 170	ł 186	Ł 202	ŗ 218	Ω 234	• 250
B	ĩ 139	Φ 155	½ 171	ł 187	Ł 203	■ 219	δ 235	√ 251
C	î 140	£ 156	¼ 172	ł 188	ł 204	■ 220	ω 236	n 252
D	ï 141	¥ 157	ı 173	ł 189	= 205	ł 221	φ 237	² 253
E	Ā 142	℥ 158	« 174	Š 190	ł 206	ł 222	ε 238	■ 254
F	Ā 143	f 159	» 175	ł 191	ž 207	■ 223	Ń 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	Ą <small>128</small>	Ą <small>144</small>	ą <small>160</small>	Ą <small>176</small>	Ą <small>192</small>	ą <small>208</small>	ą <small>224</small>	ė <small>240</small>
1	Б <small>129</small>	С <small>145</small>	б <small>161</small>	Б <small>177</small>	Б <small>193</small>	č <small>209</small>	с <small>225</small>	ë <small>241</small>
2	В <small>130</small>	Т <small>146</small>	В <small>162</small>	В <small>178</small>	Т <small>194</small>	ę <small>210</small>	Т <small>226</small>	≥ <small>242</small>
3	Г <small>131</small>	У <small>147</small>	г <small>163</small>	Г <small>179</small>	Г <small>195</small>	ė <small>211</small>	у <small>227</small>	≤ <small>243</small>
4	Д <small>132</small>	Ф <small>148</small>	д <small>164</small>	Д <small>180</small>	— <small>196</small>	į <small>212</small>	ф <small>228</small>	” <small>244</small>
5	Е <small>133</small>	Х <small>149</small>	е <small>165</small>	А <small>181</small>	† <small>197</small>	š <small>213</small>	х <small>229</small>	“ <small>245</small>
6	Ж <small>134</small>	Ц <small>150</small>	ж <small>166</small>	Č <small>182</small>	У <small>198</small>	ų <small>214</small>	ц <small>230</small>	÷ <small>246</small>
7	З <small>135</small>	Ч <small>151</small>	з <small>167</small>	Е <small>183</small>	Ū <small>199</small>	ū <small>215</small>	ч <small>231</small>	≈ <small>247</small>
8	И <small>136</small>	Ш <small>152</small>	и <small>168</small>	Ё <small>184</small>	Ї <small>200</small>	ž <small>216</small>	ш <small>232</small>	° <small>248</small>
9	Й <small>137</small>	Щ <small>153</small>	й <small>169</small>	Ї <small>185</small>	Г <small>201</small>	Ј <small>217</small>	щ <small>233</small>	• <small>249</small>
A	К <small>138</small>	Ь <small>154</small>	к <small>170</small>	Ї <small>186</small>	Ї <small>202</small>	Г <small>218</small>	ь <small>234</small>	• <small>250</small>
B	Л <small>139</small>	Ы <small>155</small>	л <small>171</small>	Ї <small>187</small>	Ї <small>203</small>	■ <small>219</small>	ы <small>235</small>	√ <small>251</small>
C	М <small>140</small>	Ь <small>156</small>	м <small>172</small>	Ї <small>188</small>	Ї <small>204</small>	■ <small>220</small>	ь <small>236</small>	п <small>252</small>
D	Н <small>141</small>	Э <small>157</small>	н <small>173</small>	Ї <small>189</small>	= <small>205</small>	■ <small>221</small>	э <small>237</small>	² <small>253</small>
E	О <small>142</small>	Ю <small>158</small>	о <small>174</small>	Š <small>190</small>	Ї <small>206</small>	■ <small>222</small>	ю <small>238</small>	■ <small>254</small>
F	П <small>143</small>	Я <small>159</small>	п <small>175</small>	Г <small>191</small>	Ž <small>207</small>	■ <small>223</small>	я <small>239</small>	SP <small>255</small>



## Page 44 (PC1125: Ukrainian)

HEX	8	9	A	B	C	D	E	F
0	А 128	Р 144	а 160	⌘ 176	Л 192	л 208	р 224	ё 240
1	Б 129	С 145	б 161	⌘ 177	Л 193	л 209	с 225	ё 241
2	В 130	Т 146	в 162	⌘ 178	Т 194	т 210	т 226	г 242
3	Г 131	У 147	г 163	І 179	І 195	л 211	у 227	г 243
4	Д 132	Ф 148	д 164	І 180	— 196	Е 212	ф 228	Е 244
5	Е 133	Х 149	е 165	І 181	† 197	Е 213	х 229	Е 245
6	Ж 134	Ц 150	ж 166	І 182	† 198	П 214	ц 230	І 246
7	З 135	Ч 151	з 167	П 183	І 199	І 215	ч 231	і 247
8	И 136	Ш 152	и 168	Ї 184	Л 200	† 216	ш 232	ї 248
9	Й 137	Щ 153	й 169	І 185	Г 201	Ј 217	щ 233	ї 249
A	К 138	Ь 154	к 170	І 186	Л 202	Г 218	ь 234	÷ 250
B	Л 139	Ы 155	л 171	Ї 187	Ї 203	■ 219	ы 235	± 251
C	М 140	Ь 156	м 172	Ї 188	І 204	■ 220	ь 236	№ 252
D	Н 141	Э 157	н 173	Ї 189	= 205	І 221	э 237	¤ 253
E	О 142	Ю 158	о 174	Ј 190	І 206	І 222	ю 238	■ 254
F	П 143	Я 159	п 175	І 191	± 207	■ 223	я 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	€ 128	SP 144	SP 160	° 176	Ř 192	Đ 208	ř 224	đ 240
1	SP 129	‘ 145	ˇ 161	± 177	Á 193	Ň 209	á 225	ň 241
2	’ 130	’ 146	ˇ 162	• 178	Â 194	Ň 210	â 226	ň 242
3	SP 131	“ 147	Ł 163	Ż 179	Ă 195	Ó 211	ă 227	ó 243
4	” 132	” 148	Ł 164	˘ 180	Ă 196	Ô 212	ă 228	ô 244
5	… 133	• 149	À 165	μ 181	Í 197	Õ 213	í 229	õ 245
6	† 134	- 150	¡ 166	¶ 182	Ć 198	Ö 214	ć 230	ö 246
7	‡ 135	- 151	§ 167	• 183	Ç 199	× 215	ç 231	÷ 247
8	SP 136	SP 152	“ 168	• 184	Č 200	Ř 216	č 232	ř 248
9	‰ 137	™ 153	© 169	ª 185	É 201	Û 217	é 233	û 249
A	Š 138	Š 154	Š 170	š 186	Ę 202	Ú 218	ę 234	ú 250
B	‹ 139	› 155	« 171	» 187	Ě 203	Ů 219	ě 235	ů 251
C	Ś 140	Ś 156	¬ 172	Ĺ 188	Ě 204	Ü 220	ś 236	ü 252
D	Ť 141	ť 157	- 173	˘ 189	Í 205	Ý 221	í 237	ý 253
E	Ž 142	ž 158	® 174	ř 190	Î 206	Ț 222	î 238	ț 254
F	Ž 143	Ž 159	Ž 175	ž 191	Đ 207	ß 223	đ 239	• 255

## Page 46 (WPC1251: Cyrillic)

HEX	8	9	A	B	C	D	E	F
0	ђ <span>128</span>	ћ <span>144</span>	SP <span>160</span>	° <span>176</span>	А <span>192</span>	Р <span>208</span>	а <span>224</span>	р <span>240</span>
1	ѓ <span>129</span>	‘ <span>145</span>	ђ <span>161</span>	± <span>177</span>	Б <span>193</span>	С <span>209</span>	б <span>225</span>	с <span>241</span>
2	‘ <span>130</span>	’ <span>146</span>	ђ <span>162</span>	І <span>178</span>	В <span>194</span>	Т <span>210</span>	в <span>226</span>	т <span>242</span>
3	ѓ <span>131</span>	“ <span>147</span>	Ј <span>163</span>	і <span>179</span>	Г <span>195</span>	У <span>211</span>	г <span>227</span>	у <span>243</span>
4	” <span>132</span>	” <span>148</span>	Ѧ <span>164</span>	г <span>180</span>	Д <span>196</span>	Ф <span>212</span>	д <span>228</span>	ф <span>244</span>
5	… <span>133</span>	• <span>149</span>	Г <span>165</span>	μ <span>181</span>	Е <span>197</span>	Х <span>213</span>	е <span>229</span>	х <span>245</span>
6	† <span>134</span>	— <span>150</span>	І <span>166</span>	П <span>182</span>	Ж <span>198</span>	Ц <span>214</span>	ж <span>230</span>	ц <span>246</span>
7	‡ <span>135</span>	— <span>151</span>	§ <span>167</span>	• <span>183</span>	З <span>199</span>	Ч <span>215</span>	з <span>231</span>	ч <span>247</span>
8	€ <span>136</span>	SP <span>152</span>	Ё <span>168</span>	ё <span>184</span>	И <span>200</span>	Ш <span>216</span>	и <span>232</span>	ш <span>248</span>
9	‰ <span>137</span>	™ <span>153</span>	© <span>169</span>	№ <span>185</span>	Й <span>201</span>	Щ <span>217</span>	й <span>233</span>	щ <span>249</span>
A	Љ <span>138</span>	љ <span>154</span>	Є <span>170</span>	є <span>186</span>	К <span>202</span>	Ь <span>218</span>	к <span>234</span>	ь <span>250</span>
B	‹ <span>139</span>	› <span>155</span>	« <span>171</span>	» <span>187</span>	Л <span>203</span>	Ы <span>219</span>	л <span>235</span>	ы <span>251</span>
C	Њ <span>140</span>	њ <span>156</span>	¬ <span>172</span>	ј <span>188</span>	М <span>204</span>	Ъ <span>220</span>	м <span>236</span>	ъ <span>252</span>
D	Ќ <span>141</span>	ќ <span>157</span>	— <span>173</span>	Ѕ <span>189</span>	Н <span>205</span>	Э <span>221</span>	н <span>237</span>	э <span>253</span>
E	ћ <span>142</span>	ћ <span>158</span>	® <span>174</span>	ѕ <span>190</span>	О <span>206</span>	Ю <span>222</span>	о <span>238</span>	ю <span>254</span>
F	Ѡ <span>143</span>	ѡ <span>159</span>	Ї <span>175</span>	ї <span>191</span>	П <span>207</span>	Я <span>223</span>	п <span>239</span>	я <span>255</span>

HEX	8	9	A	B	C	D	E	F
0	€ 128	SP 144	SP 160	° 176	ĩ 192	Π 208	ü 224	π 240
1	SP 129	‘ 145	” 161	± 177	Α 193	Ρ 209	α 225	ρ 241
2	, 130	’ 146	À 162	² 178	Β 194	SP 210	β 226	ς 242
3	f 131	“ 147	£ 163	³ 179	Γ 195	Σ 211	γ 227	σ 243
4	” 132	” 148	α 164	´ 180	Δ 196	Τ 212	δ 228	τ 244
5	... 133	• 149	¥ 165	μ 181	Ε 197	Υ 213	ε 229	υ 245
6	† 134	- 150	¡ 166	¶ 182	Ζ 198	Φ 214	ζ 230	φ 246
7	‡ 135	- 151	§ 167	· 183	Η 199	Χ 215	η 231	χ 247
8	SP 136	SP 152	” 168	Έ 184	Θ 200	Ψ 216	θ 232	ψ 248
9	‰ 137	™ 153	© 169	Ή 185	Ι 201	Ω 217	ι 233	ω 249
A	SP 138	SP 154	à 170	Ί 186	Κ 202	Ϊ 218	κ 234	ϊ 250
B	‹ 139	› 155	« 171	» 187	Λ 203	Ϋ 219	λ 235	ϋ 251
C	SP 140	SP 156	¬ 172	Ό 188	Μ 204	ά 220	μ 236	ό 252
D	SP 141	SP 157	- 173	½ 189	Ν 205	έ 221	ν 237	ύ 253
E	SP 142	SP 158	® 174	Υ 190	Ξ 206	ή 222	ξ 238	ώ 254
F	SP 143	SP 159	- 175	Ϟ 191	Ο 207	ί 223	ο 239	SP 255

## Page 48 (WPC1254: Turkish)

HEX	8	9	A	B	C	D	E	F
0	€ 128	SP 144	SP 160	° 176	À 192	Ğ 208	à 224	ğ 240
1	SP 129	‘ 145	ı 161	± 177	Á 193	Ñ 209	á 225	ñ 241
2	, 130	, 146	¢ 162	² 178	Â 194	Ò 210	â 226	ò 242
3	f 131	“ 147	£ 163	³ 179	Ã 195	Ó 211	ã 227	ó 243
4	” 132	” 148	¤ 164	´ 180	Ä 196	Ô 212	ä 228	ô 244
5	… 133	• 149	¥ 165	µ 181	Å 197	Õ 213	å 229	õ 245
6	† 134	- 150	¦ 166	¶ 182	Æ 198	Ö 214	æ 230	ö 246
7	‡ 135	- 151	§ 167	· 183	Ç 199	× 215	ç 231	÷ 247
8	^ 136	~ 152	¨ 168	¸ 184	È 200	Ø 216	è 232	ø 248
9	‰ 137	™ 153	© 169	¹ 185	É 201	Ù 217	é 233	ù 249
A	Š 138	Š 154	ª 170	º 186	Ê 202	Ú 218	ê 234	ú 250
B	‹ 139	› 155	« 171	» 187	Ë 203	Û 219	ë 235	û 251
C	Œ 140	œ 156	¬ 172	¼ 188	Ì 204	Ü 220	ì 236	ü 252
D	SP 141	SP 157	- 173	½ 189	Í 205	İ 221	í 237	ı 253
E	SP 142	SP 158	® 174	¾ 190	Î 206	Ş 222	î 238	ş 254
F	SP 143	ÿ 159	- 175	¿ 191	Ï 207	ß 223	ï 239	ÿ 255

HEX	8	9	A	B	C	D	E	F
0	€ 128	SP 144	SP 160	° 176	· 192	l 208	ℵ 224	l 240
1	SP 129	‘ 145	ı 161	± 177	∴ 193	· 209	ג 225	ו 241
2	, 130	’ 146	¢ 162	2 178	∴ 194	· 210	ל 226	ו 242
3	f 131	“ 147	£ 163	3 179	∴ 195	· 211	ת 227	ך 243
4	” 132	” 148	¤ 164	ˆ 180	· 196	ll 212	ה 228	ג 244
5	… 133	• 149	¥ 165	μ 181	∴ 197	ll 213	ל 229	פ 245
6	† 134	- 150	ı 166	¶ 182	∴ 198	ll 214	ת 230	צ 246
7	‡ 135	- 151	§ 167	· 183	- 199	’ 215	ת 231	ר 247
8	^ 136	~ 152	¨ 168	ˆ 184	ˆ 200	” 216	ט 232	ת 248
9	‰ 137	™ 153	© 169	1 185	· 201	SP 217	י 233	ש 249
A	SP 138	SP 154	× 170	÷ 186	SP 202	SP 218	ת 234	ת 250
B	‹ 139	› 155	« 171	» 187	˜ 203	SP 219	ן 235	SP 251
C	SP 140	SP 156	¬ 172	$\frac{1}{4}$ 188	· 204	SP 220	ז 236	SP 252
D	SP 141	SP 157	- 173	$\frac{1}{2}$ 189	· 205	SP 221	ח 237	SP 253
E	SP 142	SP 158	® 174	$\frac{3}{4}$ 190	- 206	SP 222	ט 238	SP 254
F	SP 143	SP 159	- 175	¿ 191	- 207	SP 223	ל 239	SP 255

## Page 50 (WPC1256: Arabic)

HEX	8	9	A	B	C	D	E	F
0	€ 128	ك 144	SP 160	° 176	^ 192	ذ 208	à 224	” 240
1	پ 129	‘ 145	‘ 161	± 177	ء 193	ر 209	ل 225	” 241
2	، 130	’ 146	¢ 162	² 178	آ 194	ز 210	â 226	” 242
3	f 131	“ 147	£ 163	³ 179	أ 195	س 211	م 227	’ 243
4	” 132	” 148	¤ 164	´ 180	ؤ 196	ش 212	ن 228	ô 244
5	... 133	• 149	¥ 165	μ 181	ل 197	ص 213	ه 229	’ 245
6	† 134	- 150	¦ 166	¶ 182	ئ 198	ض 214	و 230	’ 246
7	‡ 135	- 151	§ 167	· 183	ا 199	× 215	ç 231	÷ 247
8	^ 136	ك 152	¨ 168	¸ 184	ب 200	ط 216	è 232	” 248
9	‰ 137	™ 153	© 169	¹ 185	ة 201	ظ 217	é 233	ù 249
A	ٹ 138	ڑ 154	ھ 170	؛ 186	ت 202	ع 218	ê 234	° 250
B	< 139	> 155	« 171	» 187	ث 203	غ 219	ë 235	û 251
C	£ 140	œ 156	¬ 172	$\frac{1}{4}$ 188	ج 204	- 220	ى 236	ü 252
D	چ 141	SP 157	- 173	$\frac{1}{2}$ 189	ح 205	ف 221	ي 237	SP 253
E	ژ 142	SP 158	® 174	$\frac{3}{4}$ 190	خ 206	ق 222	î 238	SP 254
F	ڈ 143	ں 159	- 175	؟ 191	د 207	ك 223	ï 239	ء 255

HEX	8	9	A	B	C	D	E	F
0	€ 128	SP 144	SP 160	° 176	À 192	Š 208	ą 224	š 240
1	SP 129	‘ 145	SP 161	± 177	Ĭ 193	Ń 209	į 225	ń 241
2	‚ 130	’ 146	¢ 162	² 178	Ā 194	Ņ 210	ā 226	ņ 242
3	SP 131	“ 147	£ 163	³ 179	Ć 195	Ó 211	ć 227	ó 243
4	” 132	” 148	¤ 164	´ 180	Ä 196	Ō 212	ä 228	ō 244
5	… 133	• 149	SP 165	μ 181	Å 197	Õ 213	å 229	õ 245
6	† 134	- 150	¡ 166	¶ 182	Ɛ 198	Ö 214	ę 230	ö 246
7	‡ 135	- 151	§ 167	· 183	Ē 199	× 215	ē 231	÷ 247
8	SP 136	SP 152	Ø 168	ø 184	Č 200	Ț 216	č 232	ț 248
9	‰ 137	™ 153	© 169	¹ 185	É 201	ł 217	é 233	ł 249
A	SP 138	SP 154	Ɔ 170	ƀ 186	Ž 202	Ś 218	ż 234	ś 250
B	‹ 139	› 155	« 171	» 187	Ê 203	Ū 219	ê 235	ū 251
C	SP 140	SP 156	¬ 172	¼ 188	Ġ 204	Ü 220	ğ 236	ü 252
D	“ 141	- 157	- 173	½ 189	Ƙ 205	Ž 221	ƙ 237	ž 253
E	˘ 142	• 158	® 174	¾ 190	Ī 206	Ž 222	ī 238	ž 254
F	˙ 143	SP 159	Æ 175	æ 191	Ł 207	ß 223	ł 239	· 255



## Page 52 (WPC1258: Vietnamese)

HEX	8	9	A	B	C	D	E	F
0	€ 128	SP 144	SP 160	° 176	À 192	Ð 208	à 224	đ 240
1	SP 129	‘ 145	ì 161	± 177	Á 193	Ñ 209	á 225	ñ 241
2	, 130	, 146	¢ 162	² 178	Â 194	” 210	â 226	· 242
3	f 131	“ 147	£ 163	³ 179	Ã 195	Ó 211	ã 227	ó 243
4	” 132	” 148	¤ 164	´ 180	Ä 196	Ô 212	ä 228	ô 244
5	... 133	• 149	¥ 165	µ 181	Å 197	Õ 213	å 229	ơ 245
6	† 134	- 150	¦ 166	¶ 182	Æ 198	Ö 214	æ 230	ö 246
7	‡ 135	- 151	§ 167	· 183	Ç 199	× 215	ç 231	÷ 247
8	^ 136	~ 152	¨ 168	¸ 184	È 200	Ø 216	è 232	ø 248
9	‰ 137	™ 153	© 169	¹ 185	É 201	Ù 217	é 233	ù 249
A	SP 138	SP 154	ª 170	º 186	Ê 202	Ú 218	ê 234	ú 250
B	< 139	> 155	« 171	» 187	Ë 203	Û 219	ë 235	û 251
C	Œ 140	œ 156	¬ 172	¼ 188	Ì 204	Ü 220	ì 236	ü 252
D	SP 141	SP 157	- 173	½ 189	Í 205	Ý 221	í 237	ý 253
E	SP 142	SP 158	® 174	¾ 190	Î 206	~ 222	î 238	đ 254
F	SP 143	ÿ 159	- 175	¿ 191	Ï 207	ß 223	ï 239	ÿ 255

HEX	8	9	A	B	C	D	E	F
0	ӧ <span>128</span>	ӧ̇ <span>144</span>	SP <span>160</span>	° <span>176</span>	А <span>192</span>	Р <span>208</span>	а <span>224</span>	р <span>240</span>
1	ғ <span>129</span>	‘ <span>145</span>	Ұ <span>161</span>	± <span>177</span>	Б <span>193</span>	С <span>209</span>	б <span>225</span>	с <span>241</span>
2	’ <span>130</span>	’ <span>146</span>	ұ <span>162</span>	І <span>178</span>	В <span>194</span>	Т <span>210</span>	в <span>226</span>	т <span>242</span>
3	ѓ <span>131</span>	“ <span>147</span>	Ә <span>163</span>	і <span>179</span>	Г <span>195</span>	У <span>211</span>	г <span>227</span>	у <span>243</span>
4	” <span>132</span>	” <span>148</span>	ӑ <span>164</span>	ө <span>180</span>	Д <span>196</span>	Ф <span>212</span>	д <span>228</span>	ф <span>244</span>
5	… <span>133</span>	• <span>149</span>	Ө <span>165</span>	μ <span>181</span>	Е <span>197</span>	Х <span>213</span>	е <span>229</span>	х <span>245</span>
6	† <span>134</span>	- <span>150</span>	і <span>166</span>	¶ <span>182</span>	Ж <span>198</span>	Ц <span>214</span>	ж <span>230</span>	ц <span>246</span>
7	‡ <span>135</span>	- <span>151</span>	§ <span>167</span>	• <span>183</span>	З <span>199</span>	Ч <span>215</span>	з <span>231</span>	ч <span>247</span>
8	€ <span>136</span>	SP <span>152</span>	Ё <span>168</span>	ё <span>184</span>	И <span>200</span>	Ш <span>216</span>	и <span>232</span>	ш <span>248</span>
9	‰ <span>137</span>	™ <span>153</span>	© <span>169</span>	№ <span>185</span>	Й <span>201</span>	Щ <span>217</span>	й <span>233</span>	щ <span>249</span>
A	Љ <span>138</span>	Љ <span>154</span>	Ғ <span>170</span>	Ғ <span>186</span>	К <span>202</span>	Ы <span>218</span>	к <span>234</span>	ь <span>250</span>
B	‹ <span>139</span>	› <span>155</span>	« <span>171</span>	» <span>187</span>	Л <span>203</span>	Ы <span>219</span>	л <span>235</span>	ы <span>251</span>
C	Њ <span>140</span>	Њ <span>156</span>	ҫ <span>172</span>	ә <span>188</span>	М <span>204</span>	Ь <span>220</span>	м <span>236</span>	ь <span>252</span>
D	Қ <span>141</span>	Қ <span>157</span>	- <span>173</span>	Ң <span>189</span>	Н <span>205</span>	Э <span>221</span>	н <span>237</span>	э <span>253</span>
E	Һ <span>142</span>	Һ <span>158</span>	® <span>174</span>	Ң <span>190</span>	О <span>206</span>	Ю <span>222</span>	о <span>238</span>	ю <span>254</span>
F	Ұ <span>143</span>	Ұ <span>159</span>	Ү <span>175</span>	ү <span>191</span>	П <span>207</span>	Я <span>223</span>	п <span>239</span>	я <span>255</span>

## Page 255 (User-Defined Page)

HEX	8	9	A	B	C	D	E	F
0	SP 128	SP 144	SP 160	SP 176	SP 192	SP 208	SP 224	SP 240
1	SP 129	SP 145	SP 161	SP 177	SP 193	SP 209	SP 225	SP 241
2	SP 130	SP 146	SP 162	SP 178	SP 194	SP 210	SP 226	SP 242
3	SP 131	SP 147	SP 163	SP 179	SP 195	SP 211	SP 227	SP 243
4	SP 132	SP 148	SP 164	SP 180	SP 196	SP 212	SP 228	SP 244
5	SP 133	SP 149	SP 165	SP 181	SP 197	SP 213	SP 229	SP 245
6	SP 134	SP 150	SP 166	SP 182	SP 198	SP 214	SP 230	SP 246
7	SP 135	SP 151	SP 167	SP 183	SP 199	SP 215	SP 231	SP 247
8	SP 136	SP 152	SP 168	SP 184	SP 200	SP 216	SP 232	SP 248
9	SP 137	SP 153	SP 169	SP 185	SP 201	SP 217	SP 233	SP 249
A	SP 138	SP 154	SP 170	SP 186	SP 202	SP 218	SP 234	SP 250
B	SP 139	SP 155	SP 171	SP 187	SP 203	SP 219	SP 235	SP 251
C	SP 140	SP 156	SP 172	SP 188	SP 204	SP 220	SP 236	SP 252
D	SP 141	SP 157	SP 173	SP 189	SP 205	SP 221	SP 237	SP 253
E	SP 142	SP 158	SP 174	SP 190	SP 206	SP 222	SP 238	SP 254
F	SP 143	SP 159	SP 175	SP 191	SP 207	SP 223	SP 239	SP 255

## International Character Sets

Country	ASCII code (Hex)													
	23	24	25	2A	40	5B	5C	5D	5E	60	7B	7C	7D	7E
USA	#	\$	%	*	@	[	\	]	^	`	{		}	~
France	#	\$	%	*	à	°	ç	§	^	`	é	ù	è	¨
Germany	#	\$	%	*	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
U.K.	£	\$	%	*	@	[	\	]	^	`	{		}	~
Denmark I	#	\$	%	*	@	Æ	Ø	Å	^	`	æ	ø	å	~
Sweden	#	¤	%	*	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy	#	\$	%	*	@	°	\	é	^	ù	à	ò	è	ì
Spain I	¢	\$	%	*	@	í	ñ	¿	^	`	í	ñ	}	~
Japan	#	\$	%	*	@	[	¥	]	^	`	{		}	~
Norway	#	¤	%	*	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Denmark II	#	\$	%	*	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Spain II	#	\$	%	*	á	í	ñ	¿	é	`	í	ñ	ó	ú
Latin America	#	\$	%	*	á	í	ñ	¿	é	ü	í	ñ	ó	ú
Korea	#	\$	%	*	@	[	#	]	^	`	{		}	~
Slovenia/ Croatia	#	\$	%	*	Ž	Š	Đ	Ć	Č	Ž	Š	đ	ć	č
China	#	¥	%	*	@	[	\	]	^	`	{		}	~
Vietnam	đ	\$	%	*	@	[	\	]	^	`	{		}	~
Arabia	#	\$	%	*	@	[	\	]	^	`	{		}	~