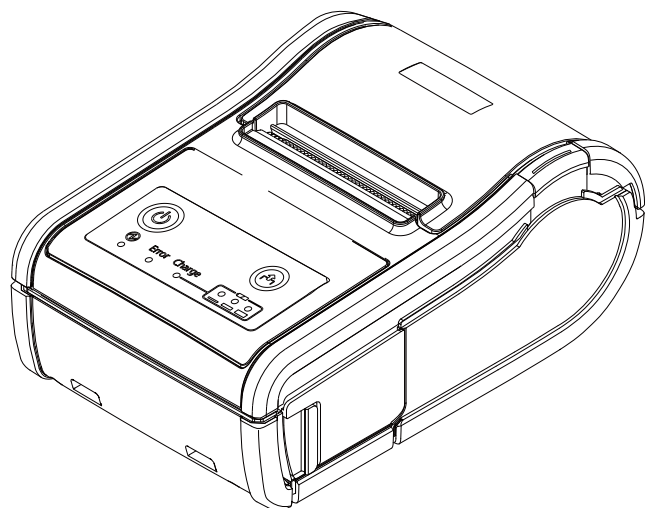# TM-P60II
For receipt models

Technical Reference Guide

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.

For Safety

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

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

Warnings

⚠️ **WARNING**	• 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.
	• **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.

Cautions

⚠ CAUTION	• **Do not connect cables in ways other than those mentioned in this manual.** Different connections may cause equipment damage or fire. • **Be sure to set this equipment on a firm, stable, horizontal surface.** The product may break or cause injury if it falls. • **Do not use this product in locations subject to high humidity or dust levels.** Excessive humidity and dust may cause equipment damage or fire. • **Do not place heavy objects on top of this product. Never stand or lean on this product.** Equipment may fall or collapse, causing breakage and possible injury. • **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. • **Do not open the roll paper cover without taking the necessary precautions, as this can result in injury from the autocutter fixed blade.** • **To ensure safety, 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   Product Overview

Chapter 2   Setup

Chapter 3   Application Development Information

Chapter 4   Handling

Chapter 5   Replacement of the TM-P60

Appendix   Specifications of Interfaces and Connectors
                   Character Code Tables

Contents

Product Overview

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

Features

Printing

Maximum printing speed of 100 mm/s is possible.

Printer handling

- Easy drop-in paper loading.
- 58 mm and 60 mm width paper can be used.
- Belt clip for maximum mobility.
- Long battery life.

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 and two-dimensional symbols are available.
- 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

Accessories

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.

Options

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

Part Names and Functions

Roll paper cover

Open button

Control panel
See "Control Panel"
on page 16.

Battery cover

Connector for AC

USB connector cover

Belt clip
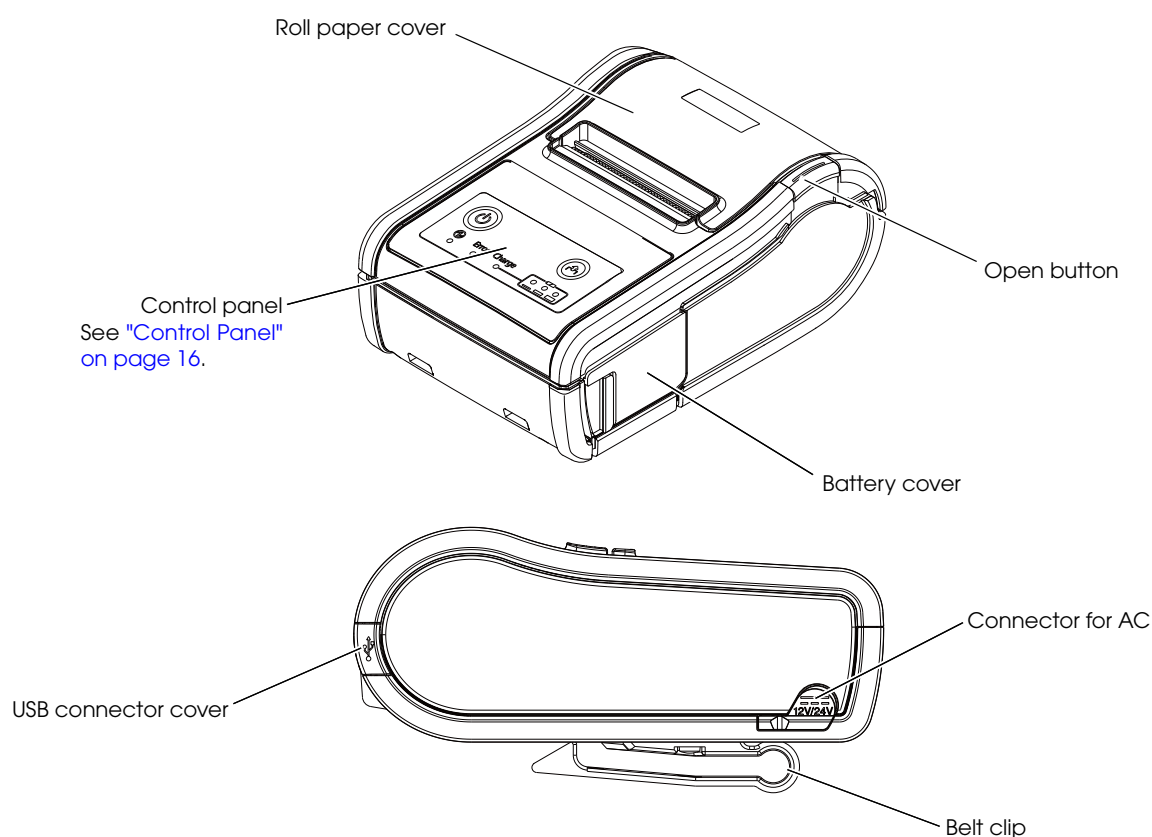
Roll Paper Cover

Open this cover to install or remove the roll paper.

Battery Cover

Open this cover to install or remove the battery.

Open Button

Push this button to open the roll paper cover.

Connector for AC adapter

Connect the optional AC adapter to charge the battery.

Belt clip

Use this clip to hang the printer on your belt.

USB connector cover

Open this cover to connect the USB interface cable.

Control Panel

Power button

Power LED   Error   Charge   Feed button

Power LED   Error LED   Charge LED   Battery LED
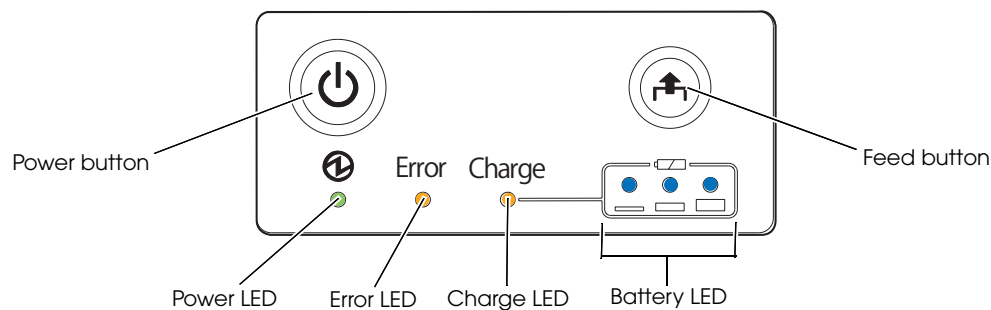
Buttons

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.
	• To turn the printer on immediately after turning the printer off, press the Power button after the LED lights go off.

Feed button

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

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.

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 S or E levels. (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.)
- 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 roll paper cover is open

- When paper is out

- During the self-test

- While roll paper is fed using the Feed button

- When the remaining battery charge is at level E in operation modes 1/2 or at level S in operation mode 2

- 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 44.

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 auto-power off function is initially 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 44. • The printer enters the power saving mode when it has nothing to process. The printer recovers from the power saving status when the roll paper 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 44.

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.
> - 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.
> - The operation mode when battery is low is selectable with the customized value. To set the customized value, see "Software Settings" on page 44.
> - 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 44.

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. 20 ~ 60%	Possible	Possible
Level L	● ○ ○	○	Approx. 10 ~ 20%	Possible	Possible
Level S	● ○ ○ (flash)	●	Approx. below 10%	Impossible	Possible*
Level E	○ ○ ○	●	Approx. 0%	Impossible	Impossible

*: Only for real-time commands.

1
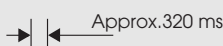
Error Status

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.
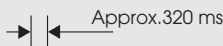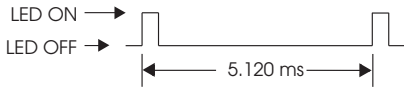
Automatically Recoverable Errors

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

Error	Error description	Error LED flash code Approx.320 ms	Recovery measure
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 turning the power off and then on again or sending an error recovery command after eliminating the cause of the error.

Error	Error description	Error LED flash code Approx.320 ms	Recovery measure
Autocutter error	Autocutter does not work correctly.	LED ON / LED OFF / 5.120 ms	Send the error recovery command, or turn the power off and on to recover.
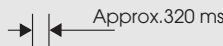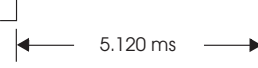
CAUTION | The error recovery command is valid only if a recoverable error (excluding automatically recoverable errors) occurs.

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.

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

Error	Error description	Error LED flash code Approx.320 ms
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 5.120 ms

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.

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 67.

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 Application Programming Guide.

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 44.

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, the number of autocuts, 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 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 Application Programming Guide.

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.

1. Installing the Printer (page 28)

2. Changing the Paper Width (page 29)

3. Installing the Battery (page 32)

4. Connecting the Printer

For Wi-Fi models:

USB Interface (page 37)
or
Wireless LAN Interface (page 39)

For Bluetooth models:

USB Interface (page 37)
or
Bluetooth Interface (page 40)

5. Software Settings (page 44)
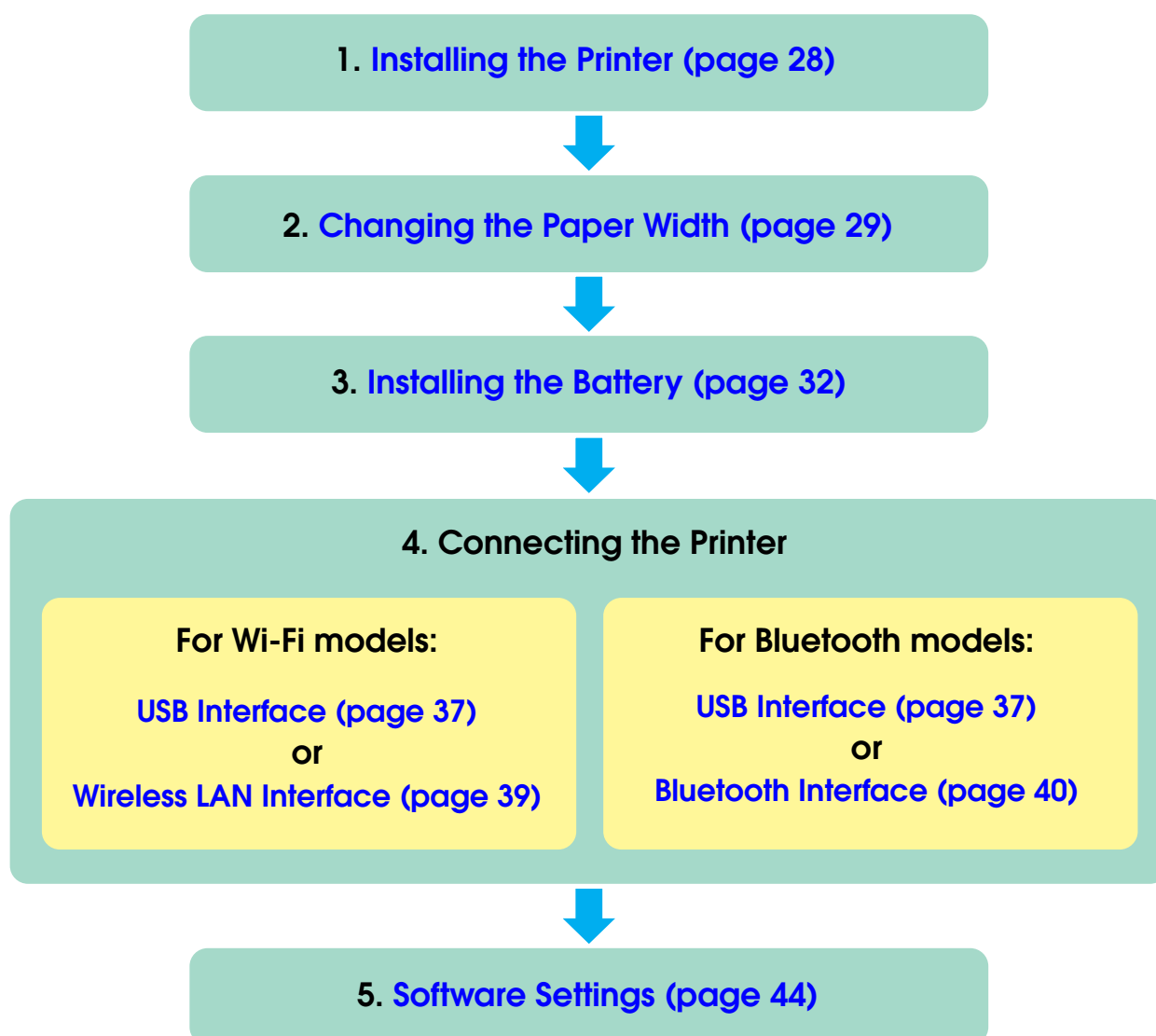
Installing the Printer

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.
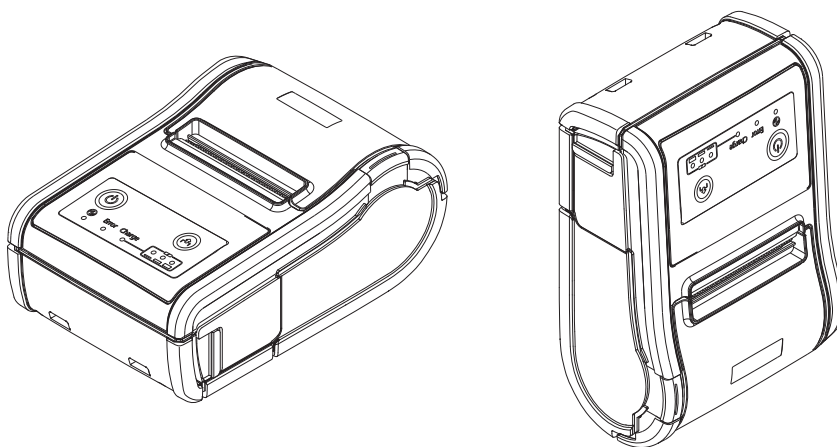
Notes on Using the Wi-Fi Models

- 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. If you use 60 mm {2.36"} width paper, remove the spacer installed in the printer. You can also install it again to use 58 mm width paper.

\<Spacer\>
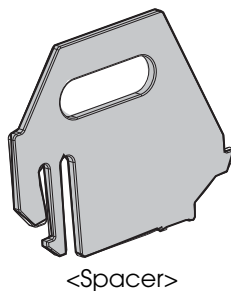
| CAUTION | When changing the paper width, be sure to change the setting for the paper width with the customized value. To set the customized value, see "Software Settings" on page 44. |

Removing the Spacer

Follow the steps below to remove the spacer when you use 60 mm width paper.

1 Make sure that the printer is turned off.

2 Press the open button to open the roll paper cover.
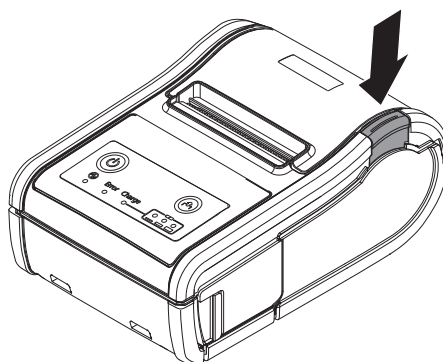
3 Release the hook in direction (1) by using a pointed tool, such as tweezers or a small screwdriver, and lift up (2) the spacer to take it off.
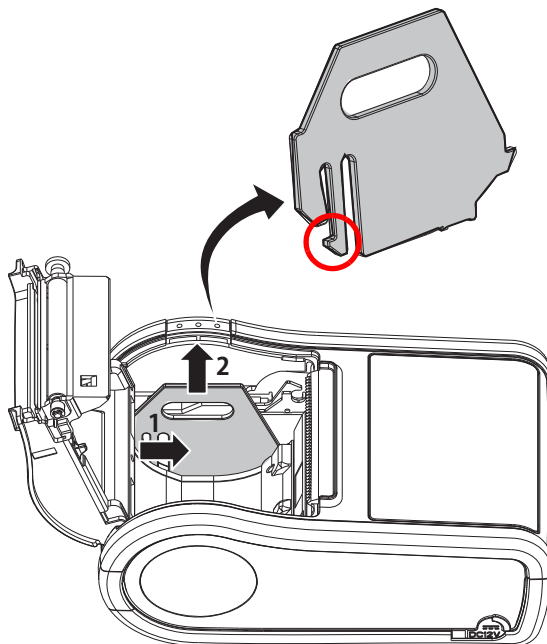
Installing the Spacer

Follow the steps below to install the spacer when you use 58 mm width paper.

1 Make sure that the printer is turned off.

2 Press the open button to open the roll paper cover.
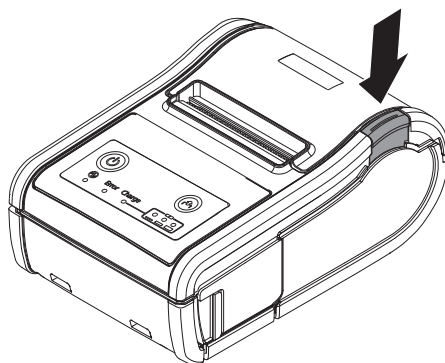
3   Install the spacer by inserting hook 1 and then hook 2.
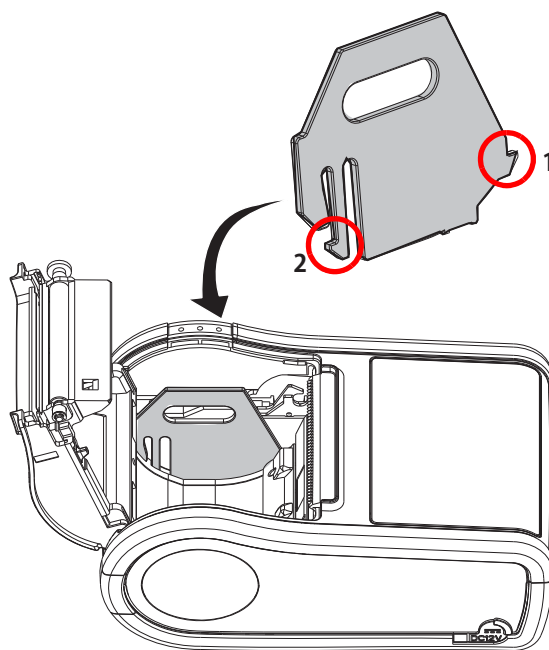
Installing the Battery

The printer does not operate without a charged battery installed.

Follow the steps below to install the battery.

⚠ WARNING	**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.
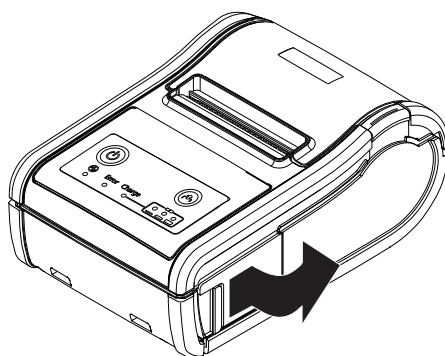
3   Install the battery, and close the battery cover.
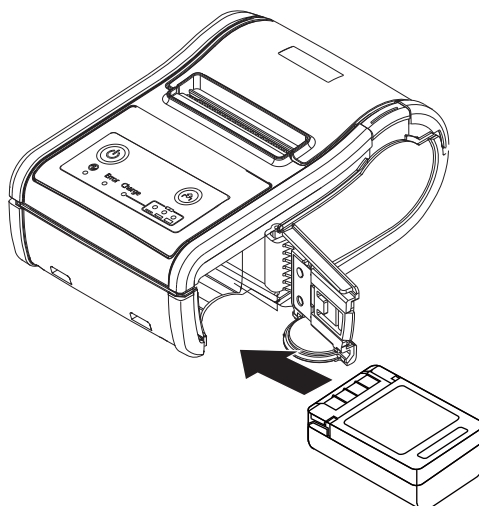
NOTE	To charge the battery, see "Charging Battery" on page 73.

Installing or Replacing the Roll Paper

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

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 34.

CAUTION	Use paper that meets the printer specifications. For details about paper specifications, see "Paper Specifications" on page 84.

When Installing the Printer Horizontally

1 Press the open button to open the roll paper cover.
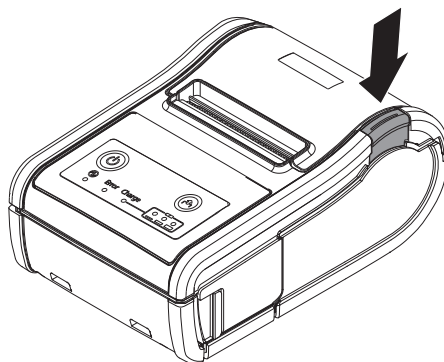
2 Remove the used roll paper core, if there is one.

3 Insert the new roll paper in the correct direction.
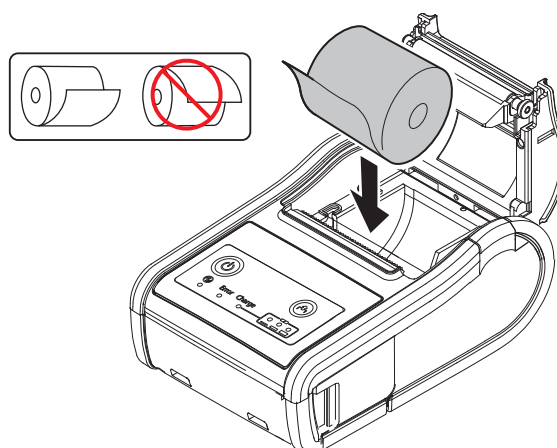
4 Pull out some paper, close the cover, and tear off the paper.
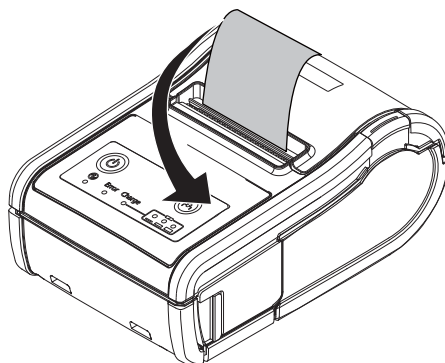
When Installing the Printer Vertically

1 Press the open button to open the roll paper cover.
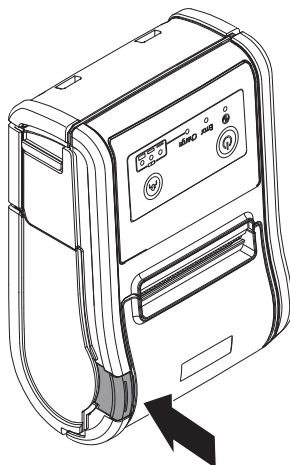
2 Remove the used roll paper core, if there is one.

3   Set the new roll paper in the correct direction on the inside of the roll paper cover.
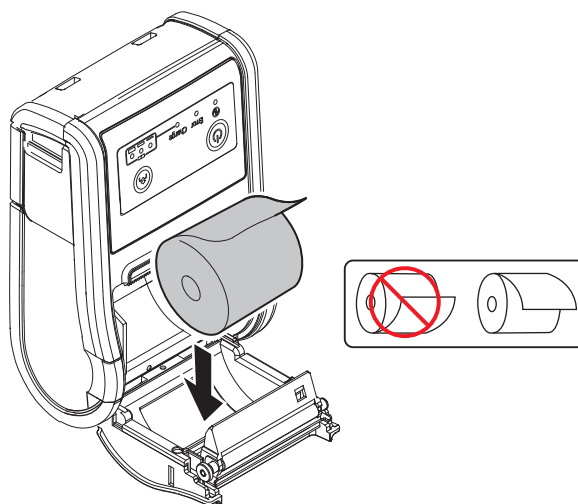
4   Pull the leading edge of the roll paper.
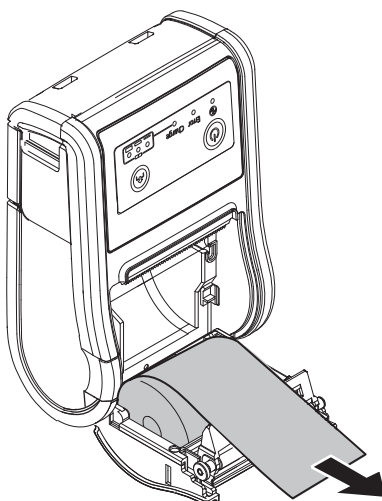
5   Align the left edge of the roll paper with the edge of the cover.
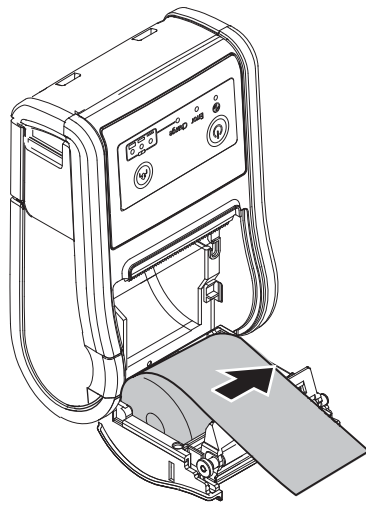
6   Pull out some paper, close the cover, and tear off the paper.
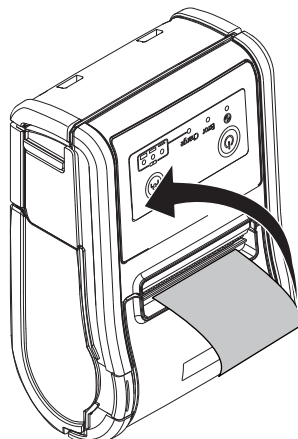
Connecting the Printer

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 37 or "Wireless LAN Interface" on page 39

- Bluetooth models: "USB Interface" on page 37 or "Bluetooth Interface" on page 40

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 44. • **Automatic selection:** When the USB cable is connected with a host PC, the USB interface is preferentially selected. Otherwise, the wireless LAN/Bluetooth interface is selected. Once the interface is selected, the selection is enabled until the power is turned off or the USB cable is disconnected.

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 44.

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.

1 Attach the enclosed wire saddle to the printer as shown in the picture 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.

Wire saddle

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 71.
	• 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 69.

1   Connect the printer to a PC via the USB cable.
See "USB Interface" on page 37.

2   Turn on the printer.

3   Start up EpsonNet Config.

4   Double-click on the printer.
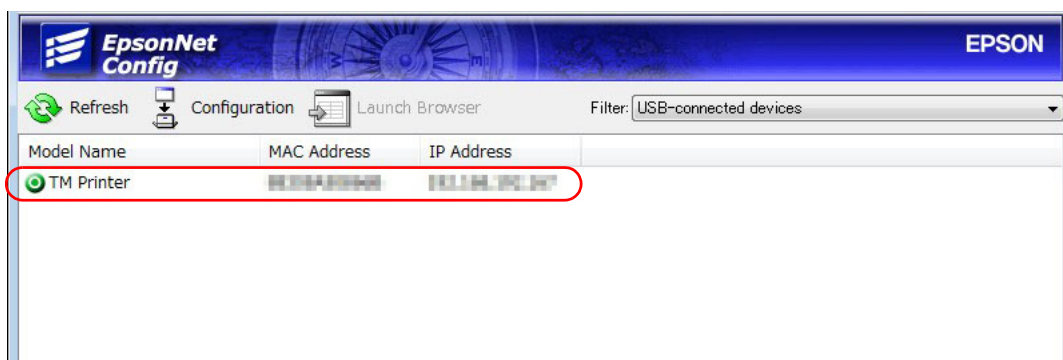
5   Configure the (Network) settings and the (TCP/IP) settings.

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 60.

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 TM 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 TM 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).
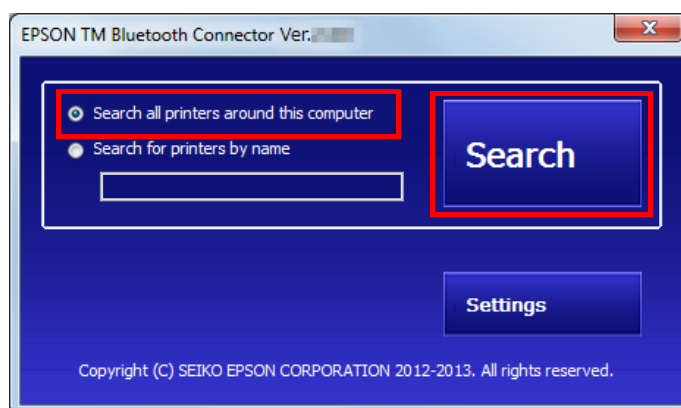
5   Select the printer to be paired (Not been paired yet), and then click (Connect).
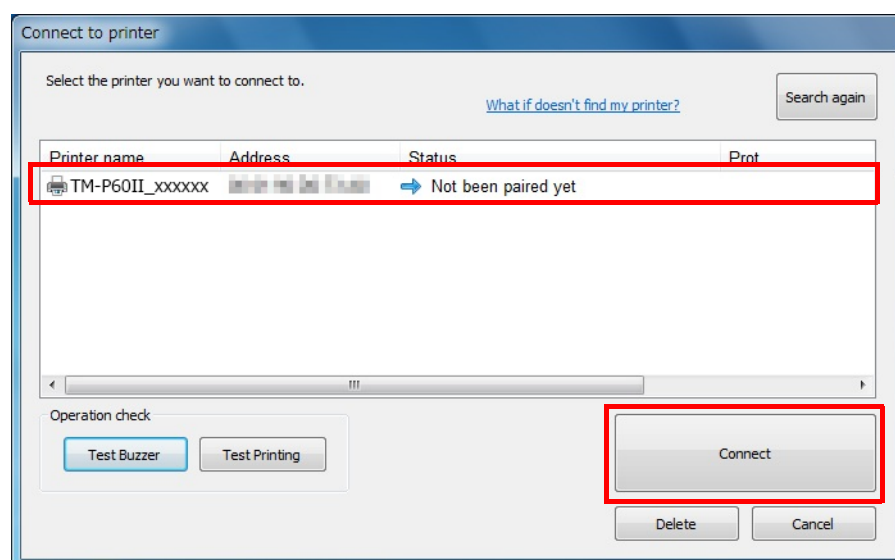
6 If the window to enter a passkey appears, enter a passkey and click (OK).

7 Select the port to be used from the pull-down list, and then click (OK).
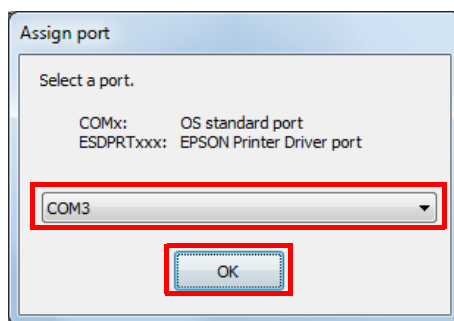
Printing method	Port name
APD print queue	ESDPRTxxx (TM-P60II: *Queue name*)
UPOS	ESDPRTxxx (UPOS for TM-P60II)
ESC/POS command	Displayed virtual COM port (e.g. COM4)

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:

- 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.

2

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		✔	✔
	Roll paper width	✔	✔	✔
	Print density	✔	✔	✔
	Print speed	✔	✔	✔
	Interface mode	✔	✔	✔
	Command execution during offline	✔	✔	✔
	Autocutting at roll paper cover close	✔	✔	✔
	Automatic paper reduction	✔	✔	✔
	Automatic power off time	✔	✔	✔
	Battery charge mode	✔		✔
	Offline response			✔
	Operation mode when battery is low	✔		✔
	Battery status levels			✔
Memory switches	Transmission of status notice	✔	✔	✔
	Buzzer Settings	✔	✔	✔
	Error signal output	✔		
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 68.
- For detailed information about ESC/POS commands, see the ESC/POS Application Programming Guide.

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)

Roll paper width

- 58 mm (initial setting)
- 60 mm

CAUTION	When changing the paper width, you also need to install or remove the spacer. For details, see "Connecting the Printer" on page 37.

Print density

Selectable from levels 1 to 13 (70% ~ 130%) (initial setting: level 7)

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

Original Paper Type	Density Level
P31023, P35023	7 (100%)
P30023	9 (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 74.

Print speed

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

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

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. Otherwise, the wireless LAN/Bluetooth interface is selected. Once the interface is selected, the selection is enabled until the power is turned off or the USB cable is disconnected.

For Wi-Fi models

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

For Bluetooth models

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

Autocutting at roll paper cover close

- Cuts (initial setting)
- Does not cut

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 1 to 60 minutes. (initial setting: Disabled)

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.

Battery charge mode

- Mode 1 (initial setting)
- Mode 2

NOTE	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

| NOTE | 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

| NOTE | For detailed information about the operation mode when battery is low, see "Operation Mode When Battery is Low" on page 20. |

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

| NOTE | 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

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

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)

Error signal output

- Enabled (initial setting)
- Disabled

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)

NOTE	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.)

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 57, 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 52.)

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.

To use ESC/POS commands, you need to agree to a nondisclosure contract first and obtain the ESC/POS Application Programming Guide. Ask your dealer for details.

The ESC/POS command functions are listed below. See the ESC/POS Application Programming Guide for more details.

> **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 *n* lines

Character Commands
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
Print and feed paper
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
Status Commands
Transmit real-time status
Enable/disable Automatic Status Back (ASB)
Transmit status
Set barcode width
Enable/disable Automatic Status Back (ASB) related to extended function
Line Spacing Commands
Select default line spacing
Set line spacing
Panel Button Commands
Enable/disable panel buttons
Customize Commands
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

3

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
Bit-image Commands
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
Two Dimensions Code Commands
Set up and print the symbol
Barcode Commands
Select print position of HRI characters
Select font for HRI characters
Set barcode height
Print barcode
Mechanism Control Commands
Select cut mode and cut paper
Miscellaneous Commands
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

3

Kanji Commands (only for Traditional Chinese model)
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 60.

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
EPSON Advanced Printer Driver (APD): 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.	• APD Install Manual • APD TM/BA/EU Printer Manual • APD Printer Specification • Devmode API/PRINTERINFO Manual • Status API Manual • Sample Program Guide
OPOS ADK: This OCX driver can control POS peripherals using OLE technology[1]. Because controlling POS peripherals with original commands is not required on the application side, efficient system development is possible.	• OPOS Installation Manual • User's Manual • Application Development Guide • UnifiedPOS Retail Peripheral Architecture[2] • Sample Program Guide
OPOS ADK for .NET: OPOS ADK for .NET allows you to develop applications that are compatible with Microsoft POS for .NET. When developing applications, use a separate development environment such as Microsoft Visual Studio .NET.	• OPOS ADK for .NET Installation Guide • UnifiedPOS Retail Peripheral Architecture[2] • User's Reference (SetupPOS) • Application Development Guide

3

Software	Manual
JavaPOS ADK: JavaPOS is the standard specification which defines an architecture and device interface (API) to access various POS devices from a Java based system. Using JavaPOS standard API allows control with Java-based applications of 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.	JavaPOS ADK Installation Guide
EPSON TM Virtual Port Driver: 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.	TM Virtual Port Driver User's Manual

*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
TM-P60II Utility: Use for checking and setting the following functions: • Current settings • Operation check • Storing logos • Paper reduction • Automatic paper cut • Printing control • Communication interface • Backup/restore	TM-P60II Utility User's Manual
EpsonNet Config: Use for wireless LAN setting. For Windows and Mac.	EpsonNet Config manual (operation guide) or EpsonNet Config online help
TM Bluetooth Connector: Use to pair a terminal and the printer for TM Bluetooth connection.	TM Bluetooth Connector User's Manual
Monitoring Tool: 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
Deployment Tool: 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

3

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.

<div align="center">http://xxx.xxx.xxx.xxx</div>

> **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 71. For details on the self-test mode, see "Self-test Mode" on page 65.
> - 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.

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.

3

Information menu

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

Menu		Settings
Basic Information		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
TCP/IP	**IPv4 Address**	IP Address Settings (Acquiring the IP Address, IP Address, Subnet Mask, Default Gateway) Set Using Automatic Private IP Addressing (APIPA)
	DNS/DDNS	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)
SNMP		Community (Read Only) IP Trap (Trap1/2, Address, Community)
Bonjour		Bonjour (Disable/Enable) Bonjour Name, Bonjour Printer Name, Location
Time Setting		Use Time Server Time Server Address, Update Interval, Time Server Status
Timeout		Print (LPR, RAW (Port9100))
ePOS-Print		Version, ePOS-Print (Disable/Enable), Device ID

Configuration menu

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

Menu		Settings
Wireless		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
Security	**SSL/TLS**	Server Certificate, Encryption Strength, Automatic Redirect HTTP to HTTPS
Authentication	**Certificate List**	Self-Signed Certificate (Status, Subject) CA-Signed Certificate 1~3 (Status, Subject) CA Certificate 1~10 (Status, Subject)
	Certificate Import	Certificate Import (File Type, File Name, Password)
TCP/IP	**IPv4 Address**	IP Address Settings (Acquiring the IP Address, IP Address, Subnet Mask, Default Gateway) Set Using Automatic Private IP Addressing (APIPA)
	DNS/DDNS	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)
SNMP		Community (Read Only) IP Trap (Trap1/2, Address, Community)
Bonjour		Bonjour (Disable/Enable) Bonjour Name, Bonjour Printer Name, Location
Time Setting		Use Time Server Time Server Address, Update Interval
Timeout		Print (LPR, RAW (Port9100))
ePOS-Print		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.

3

Setting/Checking Modes

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

- Self-test mode:
- Hexadecimal dumping mode:
- NV graphics print mode:
- Software setting mode:
- Wireless communication setting initializing mode:
- Radio field intensity check mode (only for Wi-Fi models):
- Dynamic status sheet print mode (only for Wi-Fi models):

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, count of autocutting)

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.

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 Paper LED flashes. (The printer is now in the self-test wait mode.):

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

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.

> **NOTE**
> If you select the mode selection, see "NV Graphics Print Mode" on page 67, "Software Setting Mode" on page 68, "Radio Field Intensity Check Mode (Only For Wi-Fi Models)" on page 70, or "Dynamic Status Sheet Print Mode (Only for Wi-Fi Models)" on page 71.

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	• 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 open, while pressing the Feed button, turn on the printer.

3 Close the roll paper cover.

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

Printing example:

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




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

              ***  completed  ***
```

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

NV Graphics Print Mode

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

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

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.

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

"Select Modes by pressing Feed button.

Continue SELF-TEST: Less than 1 second

Mode Selection : 1 second or more"

4 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, press the Feed button.

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

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

- Roll paper width
- Print speed
- USB class
- Autocutting at roll paper cover close
- Automatic power off time
- Buzzer Settings

NOTE   For detailed information about customized values and memory switches, see "Software Settings" on page 44.

Starting the memory switch setting mode

Follow the steps below to run this mode.

1 Install the roll paper.

2 Close the roll paper 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.

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

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

4 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, 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

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.

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.

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

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

4 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, 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. Follow them.

3

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

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.

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.

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

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

4 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, 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).

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.

3 With the roll paper cover open, keep pressing the Feed button until the buzzer sounds.

4 Close the roll paper cover.
The printer starts printing the dynamic status sheet.

After printing, the printer returns to the normal mode.

3

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).

⚠ **WARNING** **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.
- For information on the optional AC adapter (PS-11), see its User's Manual.

---

1 Install the battery.
See "Installing the Battery" on page 32.

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.
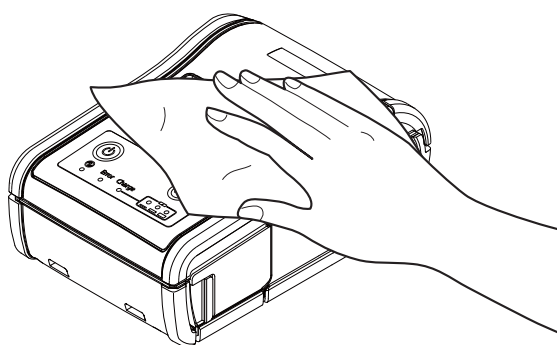
Cleaning the Thermal Head

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

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

Turn off the printer, open the roll paper cover, and clean the thermal elements of the thermal head with a cotton swab moistened with an alcohol solvent (ethanol or IPA).
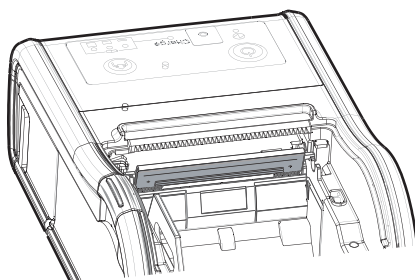
Replacement of the TM-P60

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 (58 mm/60 mm)	
Density		203 × 203 dpi	
Number of dots		58 mm paper width printing: 420 dots 60 mm paper width printing: 432 dots	
Print width		58 mm paper width printing: 52.5 mm 60 mm paper width printing: 54 mm	
Autocutter	Type	Partial cut	
	Top margin	Approx. 6.4 mm	
	Manual-cutter position	Approx. 10.9 mm	
Paper type		Receipt (without black mark) Continuous label paper	
Character structure	Font A	58 mm paper width printing: 12 × 24, 35 cpl 60 mm paper width printing: 12 × 24, 36 cpl	
	Font B	58 mm paper width printing: 10 × 24, 42cpl 60 mm paper width printing: 10 × 24, 43 cpl	
	Font C	58 mm paper width printing: 8 × 16, 52cpl 60 mm paper width printing: 8 × 16, 54 cpl	
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

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		TM-P60	TM-P60II
Reliability	Printer mechanism	10 million lines printing	
	Thermal head	100 million pulses (for each element)	
	Autocutter	Receipt paper: 500,000 cuts Continuous paper: 100,000 cuts	
	MTBF	120,000 hours	
	MCBF	16 million lines	
Power supply		From the battery or AC adapter	Only from the battery
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 without battery: The printer does not work. With AC adapter and battery: 0 to 40°C, 10 to 90% RH
	For print quality	5 to 40°C, 10 to 90% RH	
Roll paper	Width	58 mm, 60 mm	
	Original paper type	TF50KS-E, P300, P310, P350	TF50KS-E, P30023, P31023, P35023, 150PSM
	Thickness	50 ~ 80 µm	
	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~ 8-5	Same as the TM-P60 except Memory switch 8-3 (reserved)
Offline response (See "Software Settings" on page 44.)		Offline response excluding offline cause	Offline response including offline cause

		TM-P60	TM-P60II
Battery status levels (See "Software Settings" on page 44.)		4 levels	6 levels
Interface	Serial	RS-232	Not available
	USB	Not available	USB 2.0
	Bluetooth (Factory option)	Ver. 2.1 + EDR	Ver. 2.1 + EDR
	Wi-Fi (Factory option)	Not available	802.11b/g/n(2.4GHz) 802.11a/n(5GHz)
Wi-Fi default mode		Ad-hoc	Infrastructure
Wi-Fi security		EAP-TLS	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. 70 mm/s	MAX. 100 mm/s
Internal buffer	Receive buffer	128 bytes	4096 bytes
	Page mode area	Approx. 63 KB	Approx. 85 KB
Page mode printable area		58 mm paper width printing: 52.5 × 150 mm 60 mm paper width printing: 54.4 × 150 mm	58 mm paper width printing: 52.5 × 203 mm 60 mm paper width printing: 52.5 × 203 mm
Extended graphics (including user-defined page)		128 × 10 pages	128 × 43 pages
International characters		16 sets	18 sets
Battery life	Wi-Fi models	Approx. 9 hours	Approx. 14 hours
	Bluetooth models	Approx. 20 hours	Approx. 46 hours
Mass (including the battery)		Approx. 670 g	Approx. 630 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

		TM-P60	TM-P60II
Barcode printing	1D	UPC-A, UPC-E, JAN13/EAN13, JAN8/EAN8, Code39, ITF, CODABAR, Code93, Code128	UPC-A, UPC-E, JAN13/EAN13, JAN8/EAN8, Code39, ITF, CODABAR, Code93, Code128, GS-1-128, GS1 DataBar, GS1 DataBar Truncated, GS1 DataBar Limited, GS1 DataBar Expanded
	2D	Not available	PDF417, MaxiCode, QR Code, Composit, GS-1, Aztec, Datamatrix
Automatic reduction of paper		Not available	Available

5

Appendix

Product Specifications

Printing Specifications

	58 mm {2.28"} width paper printing	60 mm {2.36"} width paper printing
Printing method	Thermal line printing	
Dot density	203 × 203 dpi	
Printing direction	Unidirectional with friction feed	
Maximum print speed[1]	Receipt paper: 100 mm/s {3.94"/s} Continuous label Paper: 80 mm/s {3.15"/s} (Recommended)	
Printing width	52.5 mm {2.07"}, 420 dots	54.0 mm {2.13"}, 432 dots
Characters per line	Font A: 35 Font B: 42 Font C: 52 Kanji font[2]: 17	Font A: 36 Font B: 43 Font C: 54 Kanji font[2]: 18
Character spacing	Font A/B/C: 0.28 mm {0.01"} (2 dots) Kanji font A[2]: 0.28 mm {0.01"} (2 dots)	
Paper feed speed	Approx. 100 mm/s {3.94"/s} (when feeding with the Feed button)	
Line spacing[3]	Approx. 3.75 mm {0.15"}	

dpi: dots per inch

*1: 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 the battery remaining amount and the head temperature.

*2: Only for Traditional Chinese Model.

*3: Initial setting. Programmable by commands.

CAUTION	• When changing the paper width, you need to install or remove the spacer and to change the setting for the paper width with the customized value. For details, see "Changing the Paper Width" on page 29. • The maximum printing speed listed above may not be achieved depending on the type of interface, the data transmission speed, and the combination of control commands. Especially, the printing speed may change automatically depending on the communication environment if using a wireless interface. • If the data transmission speed is slower than the maximum printing speed, or depending on the battery depletion and deterioration conditions and environment temperature, the printing speed may fluctuate, and the print result may become shaded and/or dot displacement in paper feeding may occur. • If the data transmission speed is slow, intermittent printing may occur and white lines may be formed when printing graphics. To avoid this, keep the print speed constant by setting it lower. The print speed can be set with the customized value. To set the customized value, see "Software Settings" on page 44.

Character Specifications

		58 mm {2.28"} width paper printing	60 mm {2.36"} width paper printing
Number of characters		Alphanumeric characters: 95 Extended graphics: 128 × 43 pages (including user-defined page) International characters: 12 sets Traditional Chinese[1]: Big5 13,535	
Character structure (W × H dots)		Font A: 12 × 24 Font B: 10 × 24 (Initial setting) Font C: 8 × 16 Kanji font[1]: 24 × 24	
Character size[2] (Standard/ Double-height/ Double-width/)	W × H (mm)	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 × 6.0/2.0 × 2.0 Kanji font[1]: 3.0 × 3.0/3.0 × 6.0/6.0 × 3.0	
	cpl	Font A: 35/35/17 Font B: 42/42/21 Font C: 52/52/26 Kanji font[1]: 17/17/8	Font A: 36/36/18 Font B: 43/43/21 Font C: 54/54/27 Kanji font[1]: 18/18/9

[1]: Only for Traditional Chinese Model.
[2]: Space between characters is not included.
cpl: Characters per line

Paper Specifications

	58 mm {2.28"} width paper printing	60 mm {2.36"} width paper printing
Type	Thermal paper	
Form	Roll paper	
Size Width	57.5 ± 0.5 mm {2.26 ± 0.02"}	59.5 ± 0.5 mm {2.34 ± 0.02"}
Outside diameter	51.0 mm {2.01"} maximum	
Roll width when taken up	57.5 ± 0.5 mm {2.26 ± 0.02"}	59.5 ± 0.5 mm {2.34 ± 0.02"}
Roll paper core	Outside diameter (receipt): 18.0 mm {0.71"} or more Outside diameter (continuous label): 31.4 mm {1.24"} or more Width: Same as the paper width or less than the paper width by 1 mm {0.04"}	

Specified original paper type

Paper type no.	Manufacturer
P30023, P31023, P35023	Kanzaki Specialty Papers

CAUTION	• For the winding direction of a thermal roll, the chromogenic side must face outside. • 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 44.

Printable Area

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.

Dot 1

58 mm width paper printing

57. 5 ± 0. 5 mm

0. 125 mm

Dot 420

52 mm (Dot 1～420)

(2. 75 mm)　　　　　　　　　(2. 25 mm)

60 mm width paper printing

59. 5 ± 0. 5 mm

0. 125 mm

Dot 432

54 mm (Dot 1～432)

(2. 75 mm)　　　　　　　　　(2. 75 mm)

85
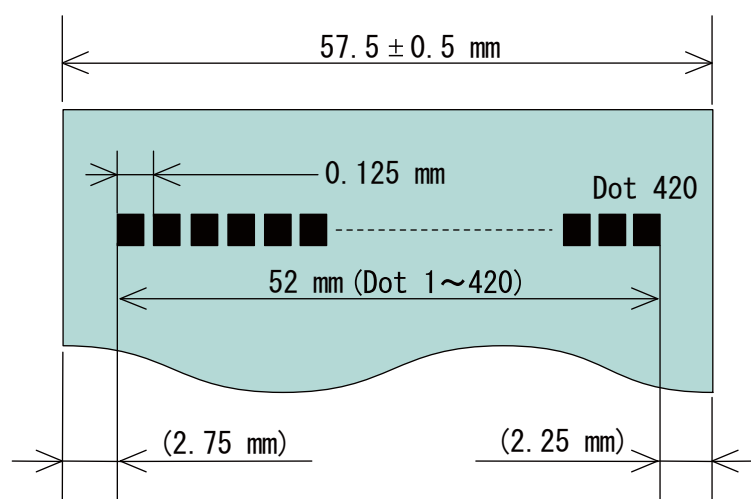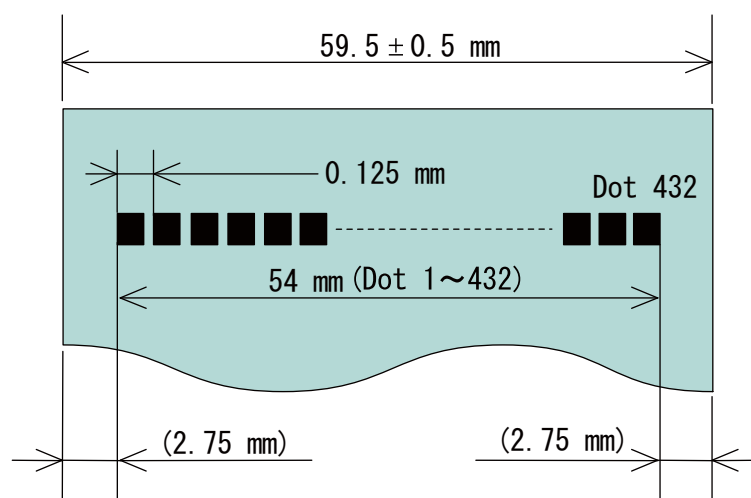
Printing and Cutting Positions

Manual-cutter position

Auto-cutter blade position

Center of the print dotline

Approx. 10.9 mm

Approx. 6.4 mm

Paper feed direction
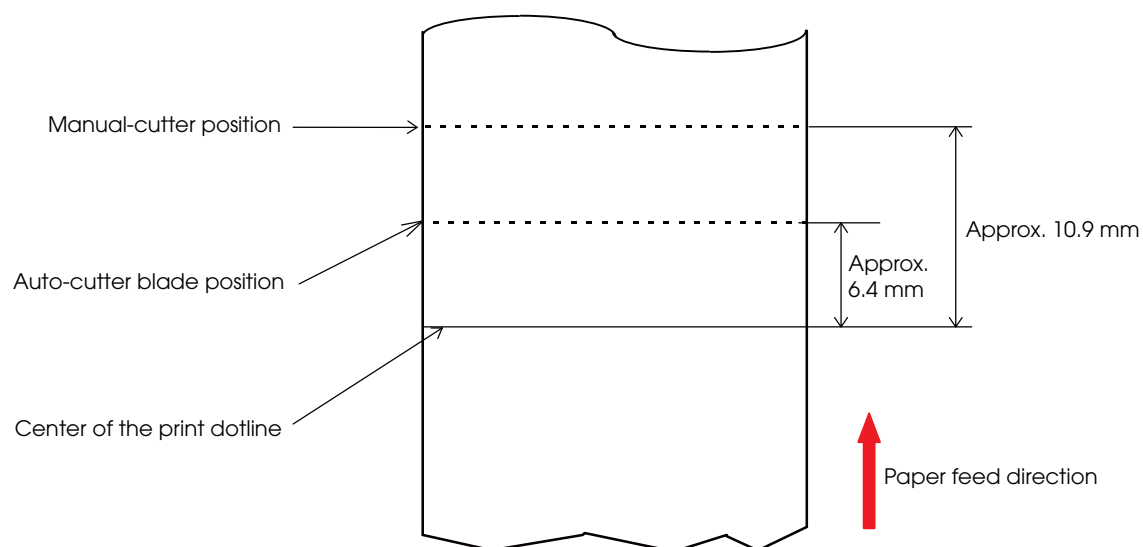
CAUTION	• The values above may vary slightly as a result of paper slack or variations in the paper. Take this into account when setting the cutting position of the auto-cutting. • Paper feeding (approx. 1 mm) is performed automatically before first-time printing after autocutting in order to prevent character deformation. Due to this, be aware that there is approximately a 1 mm space added to the peripheral area 6.4 mm after the autocutting point when continuous printing is performed.

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[*1]
Dedicated AC adapter (PS-11)		Output: DC 24 V/Max. 1.5 A Input: AC 100 V to 240 V
Continuous operating time[*2]	Wi-Fi models	Approx. 14 hours
	Bluetooth models	Approx. 46 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 42 columns × 20 lines + 6 line feeding + autocutting
  ∗ 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 100 ms, DTIM interval of 5, and no broadcast.
  ∗ From when the battery is fully charged until when the battery remaining charge is reduced to approx. 10%.

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

Reliability

Life*[1]	Printer mechanism	10 million lines printing (3.75 mm {0.15"} for one line)
	Thermal head	100 million pulses (for each element), 100 km
	Autocutter	Receipt paper: 500,000 cuts Continuous paper: 100,000 cuts
MTBF (Mean Time Between Failure)*[2]		120,000 hours
MCBF (Mean Cycle Between Failure)*[3]		16 million lines

*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} 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} 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
For storage		Temperature: -25 to 70°C {-13 to 158°F} Storage time: 120 hours

Acoustic noise

During operation	Approximately 53 dB (bystander position) (including autocutting operation) Note: The values above are measured in the Epson evaluation condition. Acoustic noise differs depending on the paper used, printing contents, and the setting values, such as print speed or print density.

External Dimensions and Mass

- Width: Approximately 103 mm {4.06"}
- Depth: Approximately 159 mm {6.26"}
- Height: Approximately 65 mm {2.56"} (including the belt clip)
- Mass: Approximately 630 g {1.39 lb} (including the battery)
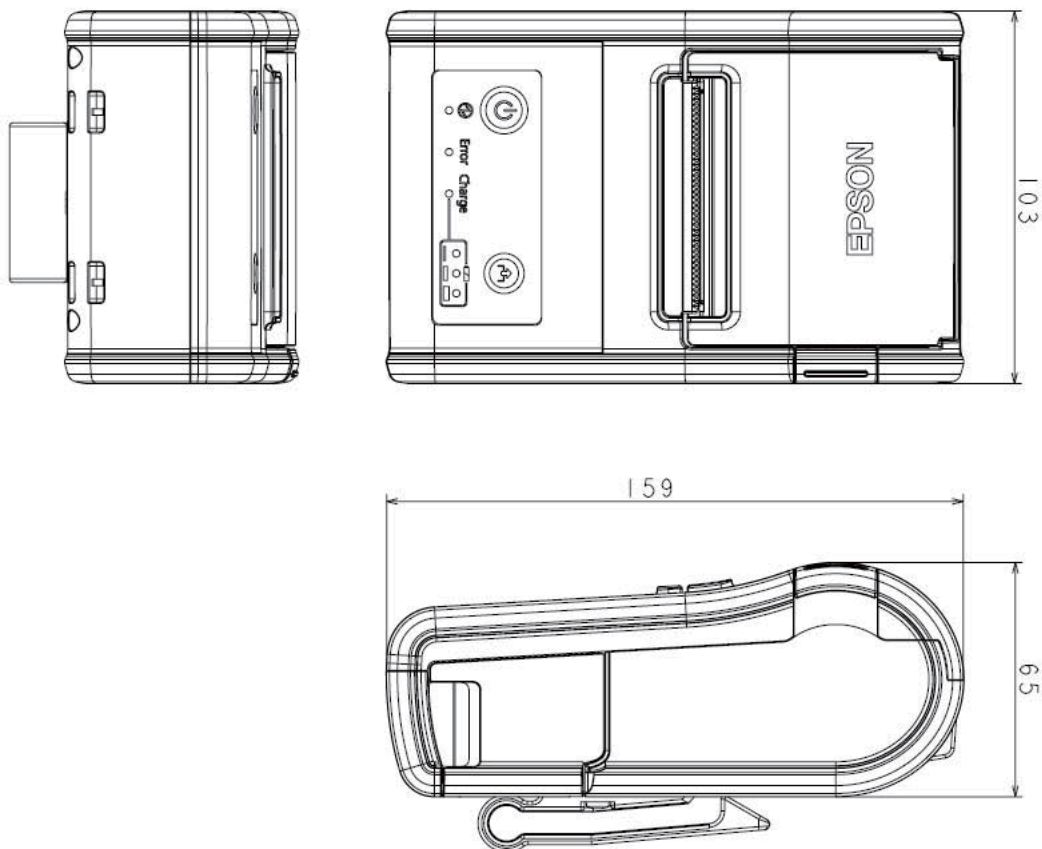
Colors

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 44.

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 Wi-Fi TM-P60II Bluetooth	TM-P60II Wi-Fi TM-P60II 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

021 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*, Hong Kong

* 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 or Hong Kong 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.

011 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.

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

Countries where this product can be used

521, 552 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*, Hong Kong

* Products with an RCM mark only.

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

511, 551 models

Canada, USA

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 2.32.
- When communicating with Android 2.3.3 or later versions, communicate through an insecure connection.

Printing Communication Protocol

- LP, LPR: Transfers printing data
- TCP Socket Port: Transfers printing data and printer status via unidirectional 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: Unidirectional
- 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).

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 141.) 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		1	XON	17	!	33	1	49	A	65	Q	81	a	97	q	113
2		2		18	"	34	2	50	B	66	R	82	b	98	r	114
3		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		22	&	38	6	54	F	70	V	86	f	102	v	118
7		7		23	'	39	7	55	G	71	W	87	g	103	w	119
8		8	CAN	24	(	40	8	56	H	72	X	88	h	104	x	120
9	HT	9		25	)	41	9	57	I	73	Y	89	i	105	y	121
A	LF	10		26	*	42	:	58	J	74	Z	90	j	106	z	122
B		11	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		14	RS	30	.	46	>	62	N	78	^	94	n	110	~	126
F		15		31	/	47	?	63	O	79	_	95	o	111	SP	127

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	▓ 176	└ 192	╨ 208	α 224	≡ 240
1	ü 129	æ 145	í 161	▓ 177	┴ 193	╤ 209	ß 225	± 241
2	é 130	Æ 146	ó 162	▓ 178	┬ 194	╥ 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	╒ 213	σ 229	⌡ 245
6	å 134	û 150	ª 166	╢ 182	╞ 198	╓ 214	μ 230	÷ 246
7	ç 135	ù 151	º 167	╖ 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	¢ 155	½ 171	╗ 187	╦ 203	█ 219	δ 235	√ 251
C	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	ⁿ 252
D	ì 141	¥ 157	¡ 173	╜ 189	= 205	▌ 221	φ 237	² 253
E	Ä 142	₧ 158	« 174	╛ 190	╬ 206	▐ 222	ε 238	■ 254
F	Å 143	ƒ 159	» 175	┐ 191	┴ 207	▀ 223	∩ 239	SP 255

Page 1 (Katakana)

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

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	░ 176	└ 192	ð 208	Ó 224	- 240
1	ü 129	æ 145	í 161	▒ 177	┴ 193	Ð 209	ß 225	± 241
2	é 130	Æ 146	ó 162	▓ 178	┬ 194	Ê 210	Ô 226	= 242
3	â 131	ô 147	ú 163	│ 179	├ 195	Ë 211	Ò 227	¾ 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	ª 166	Â 182	ã 198	Í 214	µ 230	÷ 246
7	ç 135	ù 151	º 167	À 183	Ã 199	Î 215	þ 231	¸ 247
8	ê 136	ÿ 152	¿ 168	© 184	╚ 200	Ï 216	Þ 232	° 248
9	ë 137	Ö 153	® 169	╣ 185	╔ 201	┘ 217	Ú 233	¨ 249
A	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Û 234	· 250
B	ï 139	ø 155	½ 171	╗ 187	╦ 203	█ 219	Ù 235	¹ 251
C	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	ý 236	³ 252
D	ì 141	Ø 157	¡ 173	¢ 189	= 205	¦ 221	Ý 237	² 253
E	Ä 142	× 158	« 174	¥ 190	╬ 206	Ì 222	¯ 238	■ 254
F	Å 143	ƒ 159	» 175	┐ 191	¤ 207	▀ 223	´ 239	SP 255

Page 3 (PC860: Portuguese)

HEX	8		9		A		B		C		D		E		F	
0	Ç	128	É	144	á	160	▓	176	└	192	╨	208	α	224	≡	240
1	ü	129	À	145	í	161	▓	177	┴	193	╤	209	ß	225	±	241
2	é	130	È	146	ó	162	▓	178	┬	194	╥	210	Γ	226	≥	242
3	â	131	ô	147	ú	163	│	179	├	195	╙	211	π	227	≤	243
4	ã	132	õ	148	ñ	164	┤	180	─	196	╘	212	Σ	228	⌠	244
5	à	133	Ò	149	Ñ	165	╡	181	┼	197	╒	213	σ	229	⌡	245
6	Á	134	Ú	150	ª	166	╢	182	╞	198	╓	214	μ	230	÷	246
7	ç	135	ù	151	º	167	╖	183	╟	199	╫	215	τ	231	≈	247
8	ê	136	Ì	152	¿	168	╕	184	╚	200	╪	216	Φ	232	°	248
9	Ê	137	õ	153	Ò	169	╣	185	╔	201	┘	217	θ	233	•	249
A	è	138	Ü	154	¬	170	║	186	╩	202	┌	218	Ω	234	·	250
B	Í	139	¢	155	½	171	╗	187	╦	203	█	219	δ	235	√	251
C	Ô	140	£	156	¼	172	╝	188	╠	204	▄	220	∞	236	ⁿ	252
D	ì	141	Ù	157	¡	173	╜	189	═	205	▌	221	φ	237	²	253
E	Ã	142	₧	158	«	174	╛	190	╬	206	▐	222	ε	238	■	254
F	Â	143	Ó	159	»	175	┐	191	╧	207	▀	223	∩	239	SP	255

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	¦ 160	░ 176	└ 192	╨ 208	α 224	≡ 240
1	ü 129	È 145	´ 161	▒ 177	┴ 193	╤ 209	ß 225	± 241
2	é 130	Ê 146	Ó 162	▓ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	â 131	ô 147	Ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	Â 132	Ë 148	¨ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	à 133	Ï 149	¸ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	¶ 134	û 150	³ 166	╢ 182	╞ 198	╓ 214	μ 230	÷ 246
7	Ç 135	ù 151	¯ 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	ê 136	¤ 152	Î 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	ë 137	ô 153	┌ 169	╣ 185	╔ 201	┘ 217	Θ 233	• 249
A	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	ï 139	¢ 155	½ 171	╗ 187	╦ 203	█ 219	δ 235	√ 251
C	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	ⁿ 252
D	= 141	Ù 157	¾ 173	╜ 189	= 205	▌ 221	φ 237	² 253
E	À 142	Û 158	« 174	╛ 190	╬ 206	▐ 222	ε 238	■ 254
F	§ 143	ƒ 159	» 175	┐ 191	╧ 207	▀ 223	∩ 239	SP 255

Page 5 (PC865: Nordic)

HEX	8		9		A		B		C		D		E		F	
0	Ç	128	É	144	á	160	▓	176	└	192	╨	208	α	224	≡	240
1	ü	129	æ	145	í	161	▒	177	┴	193	╤	209	β	225	±	241
2	é	130	Æ	146	ó	162	▒	178	┬	194	╥	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	╒	213	σ	229	⌡	245
6	å	134	û	150	ª	166	╢	182	╞	198	╓	214	μ	230	÷	246
7	ç	135	ù	151	º	167	╖	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	ø	155	½	171	╗	187	╦	203	█	219	δ	235	√	251
C	î	140	£	156	¼	172	╝	188	╠	204	▄	220	∞	236	ⁿ	252
D	ì	141	Ø	157	¡	173	╜	189	═	205	▌	221	φ	237	²	253
E	Ä	142	₧	158	«	174	╛	190	╬	206	▐	222	ε	238	■	254
F	Å	143	ƒ	159	¤	175	┐	191	⊥	207	▀	223	∩	239	SP	255

HEX	8	9	A	B	C	D	E	F
0	Ç 128	Ί 144	ϊ 160	▒ 176	└ 192	Τ 208	ζ 224	- 240
1	ü 129	SP 145	ΐ 161	▒ 177	┴ 193	Υ 209	η 225	± 241
2	é 130	Ό 146	ó 162	▒ 178	┬ 194	Φ 210	θ 226	υ 242
3	â 131	ô 147	ú 163	│ 179	├ 195	Χ 211	ι 227	φ 243
4	ä 132	ö 148	Α 164	┤ 180	─ 196	Ψ 212	κ 228	χ 244
5	à 133	Ύ 149	Β 165	Κ 181	┼ 197	Ω 213	λ 229	§ 245
6	Ά 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	Ώ 152	Ε 168	Ν 184	╚ 200	γ 216	ξ 232	° 248
9	ë 137	Ö 153	Ζ 169	╣ 185	╔ 201	┘ 217	ο 233	¨ 249
A	è 138	Ü 154	Η 170	║ 186	╩ 202	┌ 218	π 234	ω 250
B	ï 139	ά 155	½ 171	╗ 187	╦ 203	█ 219	ρ 235	ϋ 251
C	î 140	£ 156	Θ 172	╝ 188	╠ 204	■ 220	σ 236	ΰ 252
D	Έ 141	έ 157	Ι 173	Ξ 189	= 205	δ 221	ς 237	ώ 253
E	Ä 142	ή 158	« 174	Ο 190	╬ 206	ε 222	τ 238	■ 254
F	Ή 143	ί 159	» 175	┐ 191	Σ 207	■ 223	´ 239	SP 255

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Page 12 (PC853: Turkish)

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	▓ 176	└ 192	SP 208	Ó 224	– 240
1	ü 129	Ċ 145	í 161	▓ 177	┴ 193	SP 209	ß 225	SP 241
2	é 130	Ċ 146	ó 162	▓ 178	┬ 194	Ê 210	Ô 226	ℓ 242
3	â 131	ô 147	ú 163	│ 179	├ 195	Ë 211	Ò 227	ʼn 243
4	ä 132	ö 148	ñ 164	┤ 180	─ 196	È 212	Ġ 228	˘ 244
5	à 133	ò 149	Ñ 165	Á 181	┼ 197	ı 213	ġ 229	§ 245
6	ĉ 134	û 150	ğ 166	Â 182	Ŝ 198	Í 214	µ 230	÷ 246
7	ç 135	ù 151	ğ 167	À 183	ŝ 199	Î 215	Ħ 231	¸ 247
8	ê 136	İ 152	Ĥ 168	Ş 184	Ŀ 200	Ï 216	ħ 232	° 248
9	ë 137	Ö 153	ĥ 169	╣ 185	╔ 201	┘ 217	Ú 233	¨ 249
A	è 138	Ü 154	SP 170	║ 186	╩ 202	┌ 218	Û 234	· 250
B	ï 139	ĝ 155	½ 171	╗ 187	╦ 203	█ 219	Ù 235	SP 251
C	î 140	£ 156	Ĵ 172	╝ 188	╠ 204	▄ 220	Ŭ 236	³ 252
D	ì 141	Ĝ 157	Ş 173	Ż 189	= 205	SP 221	ŭ 237	² 253
E	Ä 142	× 158	« 174	ż 190	╬ 206	Ì 222	• 238	■ 254
F	Ĉ 143	Ĵ 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	└ 192	º 208	Ó 224	─ 240
1	ü 129	æ 145	í 161	▒ 177	┴ 193	ª 209	ß 225	± 241
2	é 130	Æ 146	ó 162	▓ 178	┬ 194	Ê 210	Ô 226	SP 242
3	â 131	ô 147	ú 163	│ 179	├ 195	Ë 211	Ò 227	¾ 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	€ 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	À 183	Ã 199	Î 215	SP 231	¸ 247
8	ê 136	İ 152	¿ 168	© 184	Ŀ 200	Ï 216	× 232	° 248
9	ë 137	Ö 153	® 169	╣ 185	╔ 201	┘ 217	Ú 233	¨ 249
A	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Û 234	· 250
B	ï 139	ø 155	½ 171	╗ 187	╦ 203	█ 219	Ù 235	¹ 251
C	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	ì 236	³ 252
D	ı 141	Ø 157	¡ 173	¢ 189	= 205	¦ 221	ÿ 237	² 253
E	Ä 142	Ş 158	« 174	¥ 190	╬ 206	Ì 222	¯ 238	■ 254
F	Å 143	ş 159	» 175	┐ 191	¤ 207	■ 223	´ 239	SP 255

Page 14 (PC737: Greek)

HEX	8	9	A	B	C	D	E	F
0	A 128	P 144	ι 160	▒ 176	└ 192	╨ 208	ω 224	Ῠ 240
1	B 129	Σ 145	κ 161	▓ 177	┴ 193	╤ 209	ά 225	± 241
2	Γ 130	Τ 146	λ 162	▒ 178	┬ 194	π 210	έ 226	≥ 242
3	Δ 131	Υ 147	μ 163	│ 179	├ 195	╙ 211	ή 227	≤ 243
4	E 132	Φ 148	ν 164	┤ 180	─ 196	╘ 212	ϊ 228	Ϊ 244
5	Z 133	Χ 149	ξ 165	╡ 181	┼ 197	╒ 213	ί 229	Ϋ 245
6	H 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	I 136	α 152	ρ 168	╕ 184	╚ 200	╪ 216	ϋ 232	° 248
9	K 137	β 153	σ 169	╣ 185	╔ 201	┘ 217	ώ 233	• 249
A	Λ 138	γ 154	ς 170	║ 186	╩ 202	┌ 218	Ä 234	· 250
B	M 139	δ 155	τ 171	╗ 187	╦ 203	█ 219	Έ 235	√ 251
C	N 140	ε 156	υ 172	╝ 188	╠ 204	▄ 220	Ή 236	ⁿ 252
D	Ξ 141	ζ 157	φ 173	╜ 189	= 205	▌ 221	Ί 237	² 253
E	O 142	η 158	χ 174	╛ 190	╬ 206	▐ 222	Ὸ 238	■ 254
F	Π 143	θ 159	ψ 175	┐ 191	╧ 207	▀ 223	Ύ 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	SP 128	SP 144	SP 160	° 176	Ϊ̈ 192	Π 208	Ϋ 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	₯ 165	΅ 181	Ε 197	Υ 213	ε 229	υ 245
6	SP 134	SP 150	¦ 166	Ά 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	ͺ 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	Ύ 190	Ξ 206	ή 222	ξ 238	ώ 254
F	SP 143	SP 159	― 175	Ώ 191	Ο 207	ί 223	ο 239	SP 255

Page 16 (WPC1252)

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	¡	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	ƒ	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	ˆ	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

HEX	8	9	A	B	C	D	E	F
0	А 128	Р 144	а 160	▓ 176	└ 192	╨ 208	р 224	Ё 240
1	Б 129	С 145	б 161	▓ 177	┴ 193	╤ 209	с 225	ё 241
2	В 130	Т 146	в 162	▓ 178	┬ 194	╥ 210	т 226	Є 242
3	Г 131	У 147	г 163	│ 179	├ 195	╙ 211	у 227	є 243
4	Д 132	Ф 148	д 164	┤ 180	─ 196	╘ 212	ф 228	Ї 244
5	Е 133	Х 149	е 165	╡ 181	┼ 197	╒ 213	х 229	ї 245
6	Ж 134	Ц 150	ж 166	╢ 182	╞ 198	╓ 214	ц 230	ў 246
7	З 135	Ч 151	з 167	╖ 183	╟ 199	╫ 215	ч 231	ў 247
8	И 136	Ш 152	и 168	╕ 184	╚ 200	╪ 216	ш 232	° 248
9	Й 137	Щ 153	й 169	╣ 185	╔ 201	┘ 217	щ 233	• 249
A	К 138	Ъ 154	к 170	║ 186	╩ 202	┌ 218	ъ 234	· 250
B	Л 139	Ы 155	л 171	╗ 187	╦ 203	█ 219	ы 235	√ 251
C	М 140	Ь 156	м 172	╝ 188	╠ 204	▄ 220	ь 236	№ 252
D	Н 141	Э 157	н 173	╜ 189	═ 205	▌ 221	э 237	¤ 253
E	О 142	Ю 158	о 174	╛ 190	╬ 206	▐ 222	ю 238	■ 254
F	П 143	Я 159	п 175	┐ 191	╧ 207	▀ 223	я 239	SP 255

Page 18 (PC852: Latin2)

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	░ 176	└ 192	đ 208	Ó 224	– 240
1	ü 129	Ĺ 145	í 161	▒ 177	┴ 193	Đ 209	ß 225	˜ 241
2	é 130	Í 146	ó 162	▓ 178	┬ 194	Ď 210	Ô 226	˛ 242
3	â 131	ô 147	ú 163	│ 179	├ 195	Ë 211	Ń 227	ˇ 243
4	ä 132	ö 148	Ą 164	┤ 180	─ 196	ď 212	ń 228	˘ 244
5	ů 133	Ľ 149	ą 165	Á 181	┼ 197	Ň 213	ň 229	§ 245
6	ć 134	ľ 150	Ž 166	Â 182	Ă 198	Í 214	Š 230	÷ 246
7	ç 135	Ś 151	ž 167	Ě 183	ă 199	Î 215	š 231	¸ 247
8	ł 136	ś 152	Ę 168	Ş 184	╚ 200	ě 216	Ŕ 232	° 248
9	ë 137	Ö 153	ę 169	╣ 185	╔ 201	┘ 217	Ú 233	¨ 249
A	Ő 138	Ü 154	€ 170	║ 186	╩ 202	┌ 218	ŕ 234	· 250
B	ő 139	Ť 155	Ź 171	╗ 187	╦ 203	█ 219	Ű 235	ű 251
C	î 140	ť 156	Č 172	╝ 188	╠ 204	▄ 220	ý 236	Ř 252
D	Ź 141	Ł 157	Ş 173	Ż 189	═ 205	Ţ 221	Ý 237	ř 253
E	Ä 142	× 158	« 174	ż 190	╬ 206	Ů 222	ţ 238	■ 254
F	Ć 143	č 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	└ 192	ð 208	Ó 224	240
1	ü 129	æ 145	í 161	▓ 177	┴ 193	Đ 209	ß 225	± 241
2	é 130	Æ 146	ó 162	▓ 178	┬ 194	Ê 210	Ô 226	= 242
3	â 131	ô 147	ú 163	│ 179	├ 195	Ë 211	Ò 227	¾ 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	€ 213	Õ 229	§ 245
6	å 134	û 150	ª 166	Â 182	ã 198	Í 214	µ 230	÷ 246
7	ç 135	ù 151	º 167	À 183	Ã 199	Î 215	þ 231	¸ 247
8	ê 136	ÿ 152	¿ 168	© 184	Ŀ 200	Ï 216	Þ 232	° 248
9	ë 137	Ö 153	® 169	╣ 185	╔ 201	┘ 217	Ú 233	¨ 249
A	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Û 234	· 250
B	ï 139	ø 155	½ 171	╗ 187	╦ 203	■ 219	Ù 235	¹ 251
C	î 140	£ 156	¼ 172	╝ 188	╠ 204	■ 220	ý 236	³ 252
D	ì 141	Ø 157	¡ 173	¢ 189	= 205	¦ 221	Ý 237	² 253
E	Ä 142	× 158	« 174	¥ 190	╬ 206	Ì 222	¯ 238	■ 254
F	Å 143	ƒ 159	» 175	┐ 191	¤ 207	■ 223	´ 239	SP 255

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Page 20 (Thai Code 42)

HEX	8	9	A	B	C	D	E	F
0	⌐ 128	O 144	SP 160	ฒ 176	ย 192	เ 208	่ 224	๊ 240
1	┐ 129	๑ 145	ก 161	ณ 177	ร 193	แ 209	้ 225	๋ 241
2	∟ 130	๒ 146	ข 162	ด 178	ฤ 194	โ 210	๊ 226	๋ 242
3	┘ 131	๓ 147	ค 163	ต 179	ล 195	ใ 211	+ 227	๋ 243
4	│ 132	๔ 148	ฆ 164	ถ 180	ว 196	ไ 212	๋ 228	๋ 244
5	─ 133	๕ 149	ง 165	ท 181	ศ 197	ๅ 213	้ 229	๋ 245
6	├ 134	๖ 150	จ 166	ธ 182	ษ 198	ๆ 214	้ 230	๋ 246
7	┤ 135	๗ 151	ฉ 167	น 183	ส 199	็ 215	้ 231	๋ 247
8	⊥ 136	๘ 152	ช 168	บ 184	ห 200	่ 216	๋ 232	๋ 248
9	⊤ 137	๙ 153	ซ 169	ป 185	ฬ 201	◠ 217	่ 233	๋ 249
A	┼ 138	ป 154	ฌ 170	ผ 186	อ 202	◡ 218	๋ 234	๋ 250
B	■ 139	ค 155	ญ 171	ฝ 187	ฮ 203	◡ 219	๋ 235	๋ 251
C	← 140	๛ 156	ฎ 172	พ 188	๎ 204	◢ 220	๋ 236	๋ 252
D	↑ 141	๏ 157	ฏ 173	ฟ 189	ภ 205	◡ 221	๋ 237	๋ 253
E	→ 142	๛ 158	ฐ 174	ภ 190	ๅ 206	◦ 222	๋ 238	๋ 254
F	↓ 143	เ 159	ฑ 175	ม 191	ๅ 207	๘ 223	๋ 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	128	144	เ 160	ฐ 176	ภ 192	208	เ 224	๐ 240
1	129	145	ก 161	ฑ 177	ม 193	209	แ 225	๑ 241
2	130	146	ข 162	ฒ 178	ย 194	ๅ 210	โ 226	๒ 242
3	131	147	ฃ 163	ณ 179	ร 195	ๆ 211	ใ 227	๓ 243
4	132	148	ค 164	ด 180	ฤ 196	212	ไ 228	๔ 244
5	133	° 149	ฅ 165	ต 181	ล 197	213	ๅ 229	๕ 245
6	134	150	ฆ 166	ถ 182	ฦ 198	214	ๆ 230	๖ 246
7	135	151	ง 167	ท 183	ว 199	215	231	๗ 247
8	136	152	จ 168	ธ 184	ศ 200	216	' 232	๘ 248
9	137	⌐ 153	ฉ 169	น 185	ษ 201	217	233	๙ 249
A	138	⌐ 154	ช 170	บ 186	ส 202	. 218	234	ฯ 250
B	139	L 155	ซ 171	ป 187	ห 203	— 219	+ 235	๚ 251
C	140	⌐ 156	ฌ 172	ผ 188	ฬ 204	⊥ 220	236	๛ 252
D	141		157	ญ 173	ฝ 189	อ 205	T 221	° 237	253
E	142	⊢ 158	ฎ 174	พ 190	ฮ 206	+ 222	238	254
F	143	⊣ 159	ฏ 175	ฟ 191	ฯ 207	฿ 223	@ 239	SP 255

Page 26 (Thai Code 18)

HEX	8	9	A	B	C	D	E	F
0	Γ 128	144	SP 160	176	ภ 192	208	เ 224	0 240
1	ไ 129	145	ก 161	ฑ 177	ม 193	209	แ 225	๑ 241
2	L 130	146	ข 162	ฒ 178	ย 194	ๅ 210	โ 226	๒ 242
3	⌐ 131	147	ฃ 163	ณ 179	ร 195	211	ใ 227	๓ 243
4	│ 132	148	ค 164	ด 180	ฤ 196	212	ไ 228	๔ 244
5	─ 133	149	ฅ 165	ต 181	ล 197	213	ๅ 229	๕ 245
6	├ 134	150	ฆ 166	ถ 182	ฦ 198	214	ๆ 230	๖ 246
7	┤ 135	151	ง 167	ท 183	ว 199	215	๘ 231	๗ 247
8	⊥ 136	152	จ 168	ธ 184	ศ 200	216	' 232	๘ 248
9	⊤ 137	153	ฉ 169	น 185	ษ 201	217	๒ 233	๙ 249
A	┼ 138	154	ช 170	บ 186	ส 202	218	๓ 234	๛ 250
B	█ 139	155	ซ 171	ป 187	ห 203	219	+ 235	251
C	← 140	156	ฌ 172	ผ 188	ฬ 204	220	๔ 236	252
D	↑ 141	157	ญ 173	ฝ 189	อ 205	221	° 237	253
E	→ 142	158	ฎ 174	พ 190	ฮ 206	222	ๅ 238	254
F	↓ 143	เ 159	ฏ 175	ฟ 191	ๆ 207	฿ 223	๐ 239	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	SP 161	SP 177	SP 193	ẹ 209	ổ 225	ủ 241
2	SP 130	SP 146	SP 162	SP 178	SP 194	ê 210	õ 226	ũ 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	ẽ 212	ọ 228	ụ 244
5	SP 133	SP 149	SP 165	à 181	SP 197	ế 213	ồ 229	ừ 245
6	SP 134	SP 150	SP 166	ả 182	ặ 198	ệ 214	ỗ 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	ẫ 200	ỉ 216	ố 232	ứ 248
9	SP 137	SP 153	â 169	ạ 185	ẫ 201	SP 217	ộ 233	ự 249
A	SP 138	SP 154	ê 170	SP 186	ấ 202	SP 218	ờ 234	ỳ 250
B	SP 139	SP 155	ô 171	ẳ 187	ậ 203	SP 219	ở 235	ỷ 251
C	SP 140	SP 156	ơ 172	ẩ 188	è 204	ĩ 220	ỡ 236	ỹ 252
D	SP 141	SP 157	ư 173	ẵ 189	SP 205	í 221	ớ 237	ý 253
E	SP 142	SP 158	đ 174	ắ 190	ẻ 206	ị 222	ợ 238	ỵ 254
F	SP 143	SP 159	SP 175	SP 191	ẽ 207	ò 223	ù 239	SP 255

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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	Ă 161	SP 177	SP 193	Ẹ 209	Ổ 225	Ủ 241
2	SP 130	SP 146	Â 162	SP 178	SP 194	Ê 210	Õ 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	Ẽ 212	Ọ 228	Ụ 244
5	SP 133	SP 149	SP 165	À 181	SP 197	Ế 213	Ồ 229	Ừ 245
6	SP 134	SP 150	SP 166	Ả 182	Ặ 198	Ê 214	Ỗ 230	Ử 246
7	SP 135	SP 151	Đ 167	Ã 183	Ầ 199	Ì 215	Ỗ 231	Ữ 247
8	SP 136	SP 152	SP 168	Á 184	Ẩ 200	Ỉ 216	Ố 232	Ứ 248
9	SP 137	SP 153	SP 169	Ạ 185	Ẫ 201	SP 217	Ộ 233	Ự 249
A	SP 138	SP 154	Ê 170	SP 186	Ấ 202	SP 218	Ờ 234	Ỳ 250
B	SP 139	SP 155	Ô 171	Ẳ 187	Ậ 203	SP 219	Ỡ 235	Ỷ 251
C	SP 140	SP 156	Ơ 172	Ẵ 188	È 204	Ĩ 220	Õ 236	Ỹ 252
D	SP 141	SP 157	Ư 173	Ẫ 189	SP 205	Í 221	Ớ 237	Ý 253
E	SP 142	SP 158	SP 174	Ắ 190	Ẻ 206	Ị 222	Ợ 238	Ỵ 254
F	SP 143	SP 159	SP 175	SP 191	Ẽ 207	Ò 223	Ù 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	SP 128	SP 144	ب 160	░ 176	└ 192	╨ 208	ض 224	≡ 240
1	SP 129	�145	ة 161	▒ 177	┴ 193	╤ 209	ط 225	؍ 241
2	é 130	° 146	ت 162	▓ 178	┬ 194	╥ 210	ظ 226	�ه 242
3	â 131	Ô 147	ث 163	│ 179	├ 195	╙ 211	ع 227	؍ 243
4	SP 132	¤ 148	ج 164	┤ 180	─ 196	╘ 212	غ 228	΄ 244
5	à 133	‒ 149	ح 165	╡ 181	┼ 197	╒ 213	ف 229	ء 245
6	SP 134	Û 150	خ 166	╢ 182	╞ 198	╓ 214	μ 230	΄ 246
7	ç 135	Ù 151	د 167	╖ 183	╟ 199	╫ 215	ق 231	≈ 247
8	ê 136	ء 152	ذ 168	╕ 184	╚ 200	╪ 216	ك 232	° 248
9	ë 137	آ 153	ر 169	╣ 185	╔ 201	┘ 217	ل 233	• 249
A	è 138	أ 154	ز 170	║ 186	╩ 202	┌ 218	م 234	• 250
B	ï 139	ؤ 155	س 171	╗ 187	╦ 203	█ 219	ن 235	√ 251
C	î 140	£ 156	ش 172	╝ 188	╠ 204	▄ 220	ه 236	n 252
D	SP 141	إ 157	ص 173	╜ 189	= 205	▌ 221	و 237	2 253
E	SP 142	ئ 158	« 174	╛ 190	╬ 206	▐ 222	ى 238	■ 254
F	SP 143	ا 159	» 175	┐ 191	╧ 207	▀ 223	ي 239	SP 255

Page 33 (WPC775: Baltic Rim)

HEX	8	9	A	B	C	D	E	F
0	Ć 128	É 144	Ā 160	▓ 176	└ 192	ą 208	Ó 224	– 240
1	ü 129	æ 145	Ī 161	▒ 177	┴ 193	č 209	ß 225	± 241
2	é 130	Æ 146	Ó 162	░ 178	┬ 194	ę 210	Ō 226	" 242
3	ā 131	ō 147	Ż 163	│ 179	├ 195	ė 211	Ń 227	¾ 243
4	ä 132	ö 148	ż 164	┤ 180	─ 196	į 212	õ 228	¶ 244
5	ǵ 133	Ģ 149	Ź 165	Ą 181	┼ 197	š 213	Õ 229	§ 245
6	å 134	¢ 150	” 166	Č 182	Ų 198	ų 214	µ 230	÷ 246
7	ć 135	Ś 151	¦ 167	Ę 183	Ū 199	ū 215	ń 231	„ 247
8	ł 136	ś 152	© 168	Ė 184	╚ 200	ž 216	Ķ 232	° 248
9	ē 137	Ö 153	® 169	╣ 185	╔ 201	┘ 217	ķ 233	• 249
A	Ŗ 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ļ 234	• 250
B	ŗ 139	ø 155	½ 171	╗ 187	╦ 203	█ 219	ļ 235	¹ 251
C	ī 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	ņ 236	³ 252
D	Ź 141	Ø 157	Ł 173	Į 189	= 205	▌ 221	Ē 237	² 253
E	Ä 142	× 158	« 174	Š 190	╬ 206	▐ 222	Ņ 238	■ 254
F	Å 143	¤ 159	» 175	┐ 191	Ž 207	▀ 223	’ 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	ђ 128	љ 144	а 160	░ 176	└ 192	Л 208	Я 224	‑ 240
1	Ђ 129	Љ 145	А 161	▒ 177	┴ 193	Л 209	р 225	Ы 241
2	ѓ 130	њ 146	б 162	▓ 178	Т 194	М 210	Р 226	Ы 242
3	Ѓ 131	Њ 147	Б 163	│ 179	Ѓ 195	М 211	с 227	з 243
4	ё 132	ћ 148	ц 164	┤ 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	є 134	Ќ 150	д 166	Х 182	к 198	о 214	Т 230	Ш 246
7	Є 135	Ќ 151	Д 167	и 183	К 199	О 215	у 231	э 247
8	ѕ 136	ў 152	е 168	И 184	╚ 200	П 216	У 232	Э 248
9	Ѕ 137	Ў 153	Е 169	╣ 185	Ѓ 201	┘ 217	Ж 233	щ 249
A	і 138	џ 154	ф 170	║ 186	╩ 202	Г 218	Ж 234	Щ 250
B	І 139	Џ 155	Ф 171	╗ 187	╦ 203	■ 219	в 235	ч 251
C	ї 140	ю 156	г 172	╝ 188	╠ 204	■ 220	В 236	Ч 252
D	Ї 141	Ю 157	Г 173	й 189	= 205	П 221	ь 237	§ 253
E	ј 142	ъ 158	« 174	Й 190	╬ 206	Я 222	Ь 238	■ 254
F	Ј 143	Ъ 159	» 175	┐ 191	¤ 207	■ 223	№ 239	SP 255

Page 35 (PC861: Icelandic)

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	▓ 176	└ 192	╨ 208	α 224	≡ 240
1	ü 129	æ 145	í 161	▒ 177	┴ 193	╤ 209	ß 225	± 241
2	é 130	Æ 146	ó 162	▒ 178	┬ 194	╥ 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	╘ 212	Σ 228	⌠ 244
5	à 133	þ 149	Í 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	å 134	û 150	Ó 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	ç 135	Ý 151	Ú 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	ê 136	ý 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	Ð 139	Ø 155	½ 171	╗ 187	╦ 203	█ 219	δ 235	√ 251
C	ð 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	ⁿ 252
D	þ 141	Ø 157	¡ 173	╜ 189	= 205	▌ 221	φ 237	² 253
E	Ä 142	₧ 158	« 174	╛ 190	╬ 206	▐ 222	ε 238	■ 254
F	Å 143	ƒ 159	» 175	┐ 191	⊥ 207	▄ 223	∩ 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	א 128	] 144	á 160	░ 176	└ 192	╨ 208	α 224	≡ 240
1	ב 129	ך 145	í 161	▒ 177	┴ 193	╤ 209	ß 225	± 241
2	ג 130	כ 146	ó 162	▓ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	ד 131	ף 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	ה 132	פ 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	ו 133	ץ 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	ז 134	צ 150	ª 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	ח 135	ק 151	º 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	ט 136	ר 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	י 137	ש 153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	• 249
A	ך 138	ת 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	כ 139	¢ 155	½ 171	╗ 187	╦ 203	█ 219	δ 235	√ 251
C	ל 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	ⁿ 252
D	ם 141	¥ 157	¡ 173	╜ 189	= 205	▌ 221	φ 237	² 253
E	מ 142	₧ 158	« 174	╛ 190	╬ 206	▐ 222	ε 238	■ 254
F	ן 143	ƒ 159	» 175	┐ 191	╧ 207	▀ 223	∩ 239	SP 255

Page 37 (PC864: Arabic)

HEX	8	9	A	B	C	D	E	F
0	° 128	β 144	SP 160	◆ 176	¢ 192	ذ 208	─ 224	̈ 240
1	· 129	▥ 145	─ 161	١ 177	ء 193	ر 209	ف 225	̈ 241
2	· 130	φ 146	آ 162	٢ 178	آ 194	ز 210	ق 226	ن 242
3	√ 131	± 147	£ 163	٣ 179	أ 195	سـ 211	ك 227	ه 243
4	▓ 132	½ 148	¤ 164	٤ 180	ؤ 196	ش 212	ل 228	ه 244
5	─ 133	¼ 149	أ 165	٥ 181	ع 197	صـ 213	مـ 229	ى 245
6	│ 134	≈ 150	SP 166	٦ 182	ئ 198	ض 214	ن 230	ي 246
7	┼ 135	« 151	€ 167	٧ 183	ا 199	طـ 215	ه 231	غ 247
8	┤ 136	» 152	ل 168	٨ 184	بـ 200	ظ 216	و 232	ق 248
9	┬ 137	ﻷ 153	بـ 169	٩ 185	ة 201	عـ 217	ى 233	ﻵ 249
A	├ 138	ﻸ 154	نـ 170	ف 186	تـ 202	غـ 218	يـ 234	ﻷ 250
B	┴ 139	SP 155	ثـ 171	ء 187	ثـ 203	ا 219	ضـ 235	ل 251
C	┐ 140	SP 156	، 172	سر 188	جـ 204	┐ 220	عـ 236	ك 252
D	┌ 141	ﻻ 157	جـ 173	ثر 189	حـ 205	÷ 221	غـ 237	ي 253
E	└ 142	ﻼ 158	حـ 174	صر 190	خـ 206	× 222	غ 238	■ 254
F	┘ 143	◟ 159	خـ 175	؟ 191	د 207	عـ 223	مـ 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	SP 128	Ί 144	ϊ 160	▓ 176	└ 192	┬ 208	ζ 224	‒ 240
1	SP 129	Ϊ 145	ΐ 161	▒ 177	┴ 193	Υ 209	η 225	± 241
2	SP 130	Ό 146	ό 162	░ 178	┬ 194	Φ 210	θ 226	υ 242
3	SP 131	SP 147	ύ 163	│ 179	├ 195	Χ 211	ι 227	φ 243
4	SP 132	SP 148	Α 164	┤ 180	─ 196	Ψ 212	κ 228	χ 244
5	SP 133	Ύ 149	Β 165	Κ 181	┼ 197	Ω 213	λ 229	§ 245
6	Ά 134	Ϋ 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	Ώ 152	Ε 168	Ν 184	└ 200	γ 216	ξ 232	° 248
9	¬ 137	² 153	Ζ 169	╣ 185	╔ 201	┘ 217	ο 233	¨ 249
A	¦ 138	³ 154	Η 170	║ 186	╩ 202	┌ 218	π 234	ω 250
B	' 139	ά 155	½ 171	╗ 187	╦ 203	█ 219	ρ 235	ϋ 251
C	' 140	£ 156	θ 172	╝ 188	╠ 204	▄ 220	σ 236	ΰ 252
D	Έ 141	έ 157	Ι 173	Ξ 189	= 205	δ 221	ς 237	ώ 253
E	― 142	ή 158	« 174	Ο 190	╬ 206	ε 222	τ 238	▪ 254
F	Ή 143	ί 159	» 175	┐ 191	Σ 207	■ 223	΄ 239	SP 255

Page 39 (ISO8859-2: Latin2)

HEX	8	9	A	B	C	D	E	F
0	░ 128	L 144	SP 160	° 176	Ŕ 192	Đ 208	ŕ 224	đ 240
1	▒ 129	⊥ 145	Ą 161	ą 177	Á 193	Ń 209	á 225	ń 241
2	▓ 130	⊤ 146	˘ 162	˛ 178	Â 194	Ň 210	â 226	ň 242
3		131	├ 147	Ł 163	ł 179	Ă 195	Ó 211	ă 227	ó 243
4	┤ 132	─ 148	¤ 164	´ 180	Ä 196	Ô 212	ä 228	ô 244
5	┘ 133	┼ 149	Ľ 165	ľ 181	Ĺ 197	Ő 213	ĺ 229	ő 245
6	┌ 134	■ 150	Ś 166	ś 182	Ć 198	Ö 214	ć 230	ö 246
7	■ 135	■ 151	§ 167	ˇ 183	Ç 199	× 215	ç 231	÷ 247
8	© 136	╚ 152	¨ 168	¸ 184	Č 200	Ř 216	č 232	ř 248
9	╣ 137	╔ 153	Š 169	š 185	É 201	Ů 217	é 233	ů 249
A	‖ 138	╩ 154	Ş 170	ş 186	Ę 202	Ú 218	ę 234	ú 250
B	╗ 139	╦ 155	Ť 171	ť 187	Ë 203	Ű 219	ë 235	ű 251
C	╝ 140	╠ 156	Ź 172	ź 188	Ě 204	Ü 220	ě 236	ü 252
D	¢ 141	= 157	173	˝ 189	Í 205	Ý 221	í 237	ý 253
E	¥ 142	╬ 158	Ž 174	ž 190	Î 206	Ţ 222	î 238	ţ 254
F	╜ 143	® 159	Ż 175	ż 191	Ď 207	ß 223	ď 239	˙ 255

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	͘ı 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	Œ 188	Ì 204	Ü 220	ì 236	ü 252
D	SP 141	SP 157	173	œ 189	Í 205	Ý 221	í 237	ý 253
E	SP 142	SP 158	® 174	Ÿ 190	Î 206	Þ 222	î 238	þ 254
F	SP 143	SP 159	‾ 175	¿ 191	Ï 207	ß 223	ï 239	ÿ 255

Page 41 (PC1098: Farsi)

HEX	8	9	A	B	C	D	E	F
0	SP 128	ؤ 144	ـه 160	░ 176	└ 192	ع 208	ک 224	ـ 240
1	SP 129	ئـ 145	خ 161	▒ 177	┴ 193	ء 209	ک 225	ی 241
2	، 130	بـ 146	خ 162	▓ 178	┬ 194	ـعـ 210	گ 226	بـ 242
3	؛ 131	ـبـ 147	د 163	│ 179	├ 195	غ 211	گ 227	ـ 243
4	؟ 132	پ 148	ذ 164	┤ 180	─ 196	غ 212	ل 228	ه 244
5	٬ 133	پـ 149	ر 165	ض 181	┼ 197	ـغـ 213	ـل 229	١ 245
6	آ 134	ن 150	ز 166	ضـ 182	ظ 198	ـغ 214	م 230	٢ 246
7	آ 135	تـ 151	ژ 167	ط 183	ع 199	ف 215	ـمـ 231	٣ 247
8	آ 136	ث 152	س 168	ط 184	╚ 200	فـ 216	ن 232	٤ 248
9	ا 137	ـثـ 153	سـ 169	╡ 185	╔ 201	┘ 217	ـنـ 233	٥ 249
A	∟ 138	ج 154	ش 170	‖ 186	╩ 202	┌ 218	و 234	٦ 250
B	آ 139	جـ 155	شـ 171	╗ 187	╦ 203	█ 219	ه 235	٧ 251
C	ء 140	چ 156	ص 172	╝ 188	╠ 204	▄ 220	ه 236	٨ 252
D	أ 141	چـ 157	صـ 173	﷼ 189	= 205	ق 221	ه 237	٩ 253
E	ٱ 142	× 158	« 174	ظ 190	╫ 206	ق 222	ة 238	▀ 254
F	ٲ 143	ح 159	» 175	٦ 191	SP 207	▀ 223	ی 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	░ 176	└ 192	ą 208	α 224	≡ 240
1	ü 129	æ 145	í 161	▒ 177	┴ 193	č 209	β 225	± 241
2	é 130	Æ 146	ó 162	▓ 178	┬ 194	ę 210	Γ 226	≥ 242
3	â 131	ô 147	ú 163	│ 179	├ 195	ė 211	π 227	≤ 243
4	ä 132	ö 148	ñ 164	┤ 180	─ 196	į 212	Σ 228	” 244
5	à 133	ò 149	Ñ 165	Ą 181	┼ 197	š 213	σ 229	“ 245
6	å 134	û 150	ª 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	¿ 168	Ė 184	╚ 200	ž 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	¢ 155	½ 171	╗ 187	╦ 203	█ 219	δ 235	√ 251
C	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	ⁿ 252
D	ì 141	¥ 157	¡ 173	Į 189	= 205	▌ 221	φ 237	² 253
E	Ä 142	₧ 158	« 174	Š 190	╬ 206	▐ 222	ε 238	■ 254
F	Å 143	ƒ 159	» 175	┐ 191	Ž 207	▀ 223	∩ 239	SP 255

Page 43 (PC1119: Lithuanian)

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

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

Page 45 (WPC1250: Latin 2)

HEX	8	9	A	B	C	D	E	F
0	€ 128	SP 144	SP 160	° 176	Ŕ 192	Đ 208	ŕ 224	đ 240
1	SP 129	' 145	ˇ 161	± 177	Á 193	Ń 209	á 225	ń 241
2	‚ 130	' 146	˘ 162	˛ 178	Â 194	Ň 210	â 226	ň 242
3	SP 131	" 147	Ł 163	ł 179	Ă 195	Ó 211	ă 227	ó 243
4	„ 132	" 148	¤ 164	´ 180	Ä 196	Ô 212	ä 228	ô 244
5	… 133	• 149	Ą 165	µ 181	Ĺ 197	Ő 213	ĺ 229	ő 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	ą 185	É 201	Ů 217	é 233	ů 249
A	Š 138	š 154	Ş 170	ş 186	Ę 202	Ú 218	ę 234	ú 250
B	‹ 139	› 155	« 171	» 187	Ë 203	Ű 219	ë 235	ű 251
C	Ś 140	ś 156	¬ 172	Ľ 188	Ě 204	Ü 220	ě 236	ü 252
D	Ť 141	ť 157	- 173	˝ 189	Í 205	Ý 221	í 237	ý 253
E	Ž 142	ž 158	® 174	ľ 190	Î 206	Ţ 222	î 238	ţ 254
F	Ź 143	ź 159	Ż 175	ż 191	Ď 207	ß 223	ď 239	· 255

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

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Page 47 (WPC1253: Greek)

HEX	8	9	A	B	C	D	E	F
0	€ 128	SP 144	SP 160	º 176	Ϊ 192	Π 208	Ϋ 224	π 240
1	SP 129	' 145	΅ 161	± 177	Α 193	Ρ 209	α 225	ρ 241
2	‚ 130	' 146	Ά 162	² 178	Β 194	SP 210	β 226	ς 242
3	ƒ 131	" 147	£ 163	³ 179	Γ 195	Σ 211	γ 227	σ 243
4	„ 132	" 148	¤ 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	ª 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	Ύ 190	Ξ 206	ή 222	ξ 238	ώ 254
F	SP 143	SP 159	— 175	Ώ 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	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	ƒ 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	ˆ 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

Page 49 (WPC1255: Hebrew)

HEX	8	9	A	B	C	D	E	F
0	€ 128	SP 144	SP 160	° 176	׳ 192	| 208	א 224	] 240
1	SP 129	' 145	¡ 161	± 177	׃ 193	209	ב 225	װ 241
2	‚ 130	' 146	¢ 162	² 178	׃ 194	ֹ 210	ג 226	ע 242
3	ƒ 131	" 147	£ 163	³ 179	׃ 195	ֻ 211	ד 227	ף 243
4	„ 132	" 148	₪ 164	´ 180	ֹ 196	װ 212	ה 228	פ 244
5	… 133	• 149	¥ 165	µ 181	ֱ 197	ױ 213	ו 229	ץ 245
6	† 134	– 150	¦ 166	¶ 182	ֲ 198	ײ 214	ז 230	צ 246
7	‡ 135	— 151	§ 167	· 183	ֳ 199	׳ 215	ח 231	ק 247
8	ˆ 136	˜ 152	¨ 168	ֶ 184	ֹ 200	״ 216	ט 232	ר 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	ך 234	ת 250
B	‹ 139	› 155	« 171	» 187	ֻ 203	SP 219	כ 235	SP 251
C	SP 140	SP 156	¬ 172	¼ 188	ֺ 204	SP 220	ל 236	SP 252
D	SP 141	SP 157	173	½ 189	ֽ 205	SP 221	ם 237	SP 253
E	SP 142	SP 158	® 174	¾ 190	־ 206	SP 222	מ 238	SP 254
F	SP 143	SP 159	¯ 175	¿ 191	־ 207	SP 223	ן 239	SP 255

HEX	8	9	A	B	C	D	E	F
0	€ 128	گ 144	SP 160	° 176	^ 192	ذ 208	à 224	ء 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	ء 242
3	ƒ 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	إ 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	ˆ 136	ک 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	Œ 140	œ 156	¬ 172	¼ 188	ج 204	ـ 220	ى 236	ü 252
D	چ 141	SP 157	173	½ 189	ح 205	ف 221	ي 237	SP 253
E	ژ 142	SP 158	® 174	¾ 190	خ 206	ق 222	Î 238	SP 254
F	ڈ 143	ں 159	¯ 175	؟ 191	د 207	ك 223	Ï 239	ح 255

Page 51 (WPC1257: Baltic Rim)

HEX	8	9	A	B	C	D	E	F
0	€ 128	SP 144	SP 160	° 176	Ą 192	Š 208	ą 224	š 240
1	SP 129	' 145	SP 161	± 177	Į 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	Ę 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	Ų 216	č 232	ų 248
9	‰ 137	™ 153	© 169	¹ 185	É 201	Ł 217	é 233	ł 249
A	SP 138	SP 154	Ŗ 170	ŗ 186	Ź 202	Ś 218	ź 234	ś 250
B	‹ 139	› 155	« 171	» 187	Ė 203	Ū 219	ė 235	ū 251
C	SP 140	SP 156	¬ 172	¼ 188	Ģ 204	Ü 220	ģ 236	ü 252
D	¨ 141	157	- 173	½ 189	Ķ 205	Ż 221	ķ 237	ż 253
E	ˇ 142	' 158	® 174	¾ 190	Ī 206	Ž 222	ī 238	ž 254
F	˛ 143	SP 159	Æ 175	æ 191	Ļ 207	ß 223	ļ 239	255

137

HEX	8	9	A	B	C	D	E	F
0	€ 128	SP 144	SP 160	° 176	À 192	Đ 208	à 224	đ 240
1	SP 129	' 145	¡ 161	± 177	Á 193	Ñ 209	á 225	ñ 241
2	, 130	' 146	¢ 162	2 178	Â 194	̉ 210	â 226	˙ 242
3	ƒ 131	" 147	£ 163	3 179	Ă 195	Ó 211	ă 227	ó 243
4	„ 132	" 148	¤ 164	́ 180	Ä 196	Ô 212	ä 228	ô 244
5	… 133	• 149	¥ 165	µ 181	Å 197	Ơ 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	ˆ 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	̀ 204	Ü 220	́ 236	ü 252
D	SP 141	SP 157	173	½ 189	Í 205	Ư 221	í 237	ư 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

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Page 53 (KZ1048: Kazakhstan)

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

139

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	₧	$	%	*	@	¡	Ñ	¿	^	`	¨	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	¡	Ñ	¿	é	`	í	ñ	ó	ú
Latin America	#	$	%	*	á	¡	Ñ	¿	é	ü	í	ñ	ó	ú
Korea	#	$	%	*	@	[	₩	]	^	`	{	|	}	~
Slovenia/ Croatia	#	$	%	*	Ž	Š	Đ	Ć	Č	ž	š	đ	ć	č
China	#	¥	%	*	@	[	\	]	^	`	{	|	}	~
Vietnam	đ	$	%	*	@	[	\	]	^	`	{	|	}	~
Arabia	#	$	‰	*	@	[	\	]	^	`	{	|	}	~

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