

User's Manual PV3

BARCODE PRINTER Rev. 1.00



Introduction

The PV3 is a 3-inch thermal barcode printer which simultaneously connects with Bluetooth and Wireless LAN. I deal for smart mobility labelling due to its compact, lightweight design with an easy-to-open peeler and LCD.

***** The main features of the printer are as follows

- 1. 3inch Barcode Printer
- 2. Maximum 5ips (127mm/s) printing speed.
- 3. Compact and light design (119mm x 159mm x 79mm)
- 4. Peeler
- 5. Paper guide (paper width : 25 ~ 80mm)
- 6. Wireless connectivity (Bluetooth V4.1(Classic / LE), Wireless LAN 802.11 a/b/g/n)

It is advisable to read the contents of this manual carefully before using the printer for the first time.

W Use only authorized supplies that can be trusted!

We are not responsible for quality and service for damage caused by the use of unauthorized products (or recycled ones).

Safety Information

A Warning	Warnings must be heeded carefully in order to prevent serious physical harm.		
A Caution	Cautions must be heeded in order to prevent minor injuries, equipment damage, or data loss.		

Symbol Information

	DC (Direct current)
\bigwedge	Warning, Caution
	USB
율	Ethernet

Table of Contents

1. Content Confirmation	10
2. Product Part Names	10
3. Installation & Usage	12
3-1 Battery Installation	
3-2 Battery Charging	
3-2-1 Using AC/DC Adaptor	
3-2-2 Using 1CH Battery Charger (Optional)	
3-2-3 Using 4CH Battery Charger (Optional)	
3-3 Paper Installation	
3-4 Using Peeler	
3-5 Using Belt Strap	
3-7 Using Fan Fold Paper	
3-8 Using 3inch Paper.	
3-9 Using Control Panel	
3-10 Recommended Papers	23
4. Self-Test	24
5. LCD Menu	26
6. Peripherals Connection	
6-1 Bluetooth, Wireless LAN Connection	
7. Printer Cleaning	29
8. Appendix	
8-1 Specifications	
8-2 Label Types	

Manual Information

This user's manual contains basic information for product usage as well as for emergency measures that may be required.

* The following separate manuals provide more detailed content on various technological issues and areas.

1. Software Manual

This manual provides information for development.

Please refer to each manual for more information.

- Windows Driver Manual
- OPOS Driver Manual
- Linux CUPS Driver Manual
- MAC CUPS Driver Manual
- Virtual Com for USB Driver Manual
- iOS Label Printer SDK Manual
- Android Label Printer SDK Manual
- Windows CE SDK Manual
- Windows Label SDK Manual
- Linux Label SDK Manual
- Xamarin SDK Manual
- Unified Label Utility-II Manual
- Net Configuration Tool Manual
- mPrint Server Manual

2. Bluetooth, Wireless LAN Connection Manual

- Bluetooth Connection Manual
 - This manual describes how to connect terminals (PDAs, PCs, etc.) with Bluetooth functionality.
- Wireless LAN Connection Manual
 - This manual describes how to connect wireless LAN in infrastructure or Soft AP

3. Commands Manual

This manual provides information on the protocol and functions of the control commands that can be used with this product.

4. Code Pages Manual

The following pages show the character code tables. To find the character corresponding to a hexadecimal number, count across the top of the table for the left digit and count down the left column of the table for the right digit.

5. SLCS(Programing) Manual

In this chapter, the basic concept of SLCS and some information necessary for the programmer to use SLCS will be explained. Please read this part before starting programming for efficient and easy use of SATO BARCODE PRINTERS.

6. Paper Specification

This manual contains paper specifications needed to use barcode printer.

Safety Precautions

In using the present appliance, please keep the following safety regulations in order to prevent any hazard or material damage.



WARNING

Violating following instructions can cause serious injury or death.





CAUTION

Violating following instructions can cause slight wound or damage the appliance.



Battery Safety Warning

Please be sure to read this guide prior to use.

\land Warning

- 1. If the battery is not charged after the charging time, stop charging and contact the seller.
- 2. Store and use the battery where it will not come into contact with liquid (water, salt water, etc.). There may be a risk of overheating, rupturing or igniting.
- 3. Avoid exposing the battery to high temperatures over 50 °C and do not store or use it in a place with high temperature and humidity. There may be a risk of overheating, rupturing or igniting. In addition, it may reduce the performance and life of the battery. There is a risk of explosion, especially when the battery is placed by a fire or stored near a heating device (e.g., heater, etc.).
- 4. Do not put the battery in a microwave oven or high-pressure cooker (pressure cooker, etc.). There may be a risk of overheating, rupturing or igniting.
- 5. Do not use or leave the battery exposed to direct sunlight or high temperatures such as in a car. It may reduce battery performance and life, or there may be a risk of overheating, rupturing or igniting.
- 6. The usage temperature range of the battery is as follows. If used outside of this range, battery performance and life may be reduced, or there may be a risk of overheating, rupturing or igniting.
 - Charging: 0 to 40 $\,^\circ$ C (32 to 104 $\,^\circ$ F)
 - Using: -15 to 50 $\,^\circ\,$ C (5 to 122 $\,^\circ\,$ F)
 - Long-term storage (over 30 days): -15 to 40 ° C (5 to 104 ° F)
- 7. Be sure to only use an adaptor or charger approved by us to charge the battery. Use of any other adaptor or charger may reduce battery performance and life, or cause a risk of overheating, rupturing or igniting.
- 8. Do not use the (+) and (-) terminals of the battery reversely. Failure to use the equipment may result in an abnormal chemical reaction inside the battery, which may cause overheating, rupturing or igniting.
- 9. Do not touch the (+) and (-) terminals of the battery with metal. Also, do not carry or store it with metallic goods (necklaces, hair pins, coins, etc.). There may be a risk of overheating, rupturing or igniting.
- 10. Do not use the battery in a place where static electricity can be generated. It may damage the protective device, resulting in reduction of battery performance and life, or there may be a risk of overheating, rupturing or igniting.
- 11. Avoid causing any strong impact to the battery or throwing it. The protective device inside the battery may be damaged, which may reduce the battery performance and life, or there may be a risk of overheating, rupturing or igniting.

- 12. Do not disassemble or modify the battery. The battery contains safety and protection devices to prevent danger. It may reduce battery performance and life due to damage, or there may be a risk of overheating, rupturing or igniting.
- 13. If any leakage of the battery comes into contact with the eyes or skin, immediately rinse with clean water such as tap water and consult a doctor immediately.
- 14. Keep the battery out of the reach of children and infants. If it is swallowed, consult a doctor immediately.

▲ Recommendations

- 1. Do not charge for longer than the charging time described in this guide, as it may reduce battery performance and duration.
- 2. If the battery is not expected to be used for a long time, remove it from the equipment and keep in a place with low humidity.
- 3. Be sure to turn off the power of the equipment after use. Failure to do so may reduce the performance and life of the battery.
- 4. Batteries that have not been used for a long time may fail to charge properly. Even if you do not use the battery for a long time, charge it at least once every 6 months before storing it.
- 5. If the (+) and (-) terminals of the battery are contaminated, wipe them with a dry cloth and use in a clean condition. The contamination of battery may result in unstable contact with the equipment and the power may be cut off or the battery may not be charged.

\land Disposal

- 1. When using, storing or charging the battery, if you detect any abnormality such as an odor, overheating, discoloration, deformation, leakage, etc., please remove the battery from the equipment or charger and dispose of it immediately.
- 2. When disposing of the battery, completely discharge it, tape the terminals with insulation, and dispose of it at a designated location according to relevant laws and regulations set by the government.

1. Content Confirmation

The following items should all be contained in the printer package. Contact the dealer from which the purchase was made if any item is damaged and/or missing.



2. Product Part Names

• Front



Rear



3. Installation & Usage

3-1 Battery Installation



- 1) Insert the battery in the bottom of the printer, and ensure that you align the battery hook properly.
- 2) Push the battery into the slot until you hear it snap in place.

🔕 NOTE

Since the battery is partially changed at the time of purchase, charge the battery prior to product use. (Use the AC/DC adaptor or the optional 1CH/4CH battery charger.)

3-2 Battery Charging

3-2-1 Using AC/DC Adaptor



- 1) Turn off the printer power.
- 2) Connect the power cord ② to the AC/DC adaptor ① and then connect AC power.
- 3) Open the external interface cap in the direction of ③.
- 4) Connect the AC/DC adaptor to the power connector.

🔕 NOTE

Battery charging status descriptions are as follows.

LED	Charge Status	Charge Time
Red LED On	Charging	
Green LED On	Fully Charged	Within 3 hours
Red LED Blinking	Error Replace or Reinstall Battery	

<u>PV3</u>



The printer may incur serious damage if the AC/DC adaptor provided by SATO is not used. SATO is not legally liable for any such damages. (The voltage and electrical current specifications of the printer and battery charger must match.)

Turn off the power before charging the battery for the printer.

3-2-2 Using 1CH Battery Charger (Optional)



- 1) Connect the power cord ② to the battery charger ①.
- Connect the battery charger ① to the power connector of the cradle ③.
- 3) Plug the power cord ② into an electrical outlet.
- 4) Insert the battery ④ into the cradle ③ a snapping sound is heard.



3-2-3 Using 4CH Battery Charger (Optional)



3-2-3-1 Connecting the cables

- 1) Connect the power cord to the Adaptor, and Connect the Adaptor to the power connector of the quad battery charger.
- 2) Plug the power cord into a power Outlet. Input power is 100 ~ 240VAC, 50/60Hz, 1.0A.
- 3) When the power is supplied, the yellow, green and red LEDs are on for three seconds and do the self-test.

AWarning

Use only designated AC/DC Adaptor. (12VDC, 3A)

3-2-3-2 Charging Battery



- 1) Insert the battery into the 4CH Battery Charger as shown in the figure on the left.
- 2) Gently slide the battery until it reaches the bottom of the charger.
- 3) Charging starts as soon as the battery is completely inserted.
- 4) After charging, remove the battery from the 4CH Battery Charger.

Battery charging status descriptions are as follows.

LED	Charge Status	Charge Time
Red LED On	Charging	
Green LED Blinking	Over 80% Charged	
Green LED On	Fully Charged	Within 4 hours
Red LED Blinking	Error Replace or Reinstall Battery	

A Warning	 If the red lamp of the charger blinks, install the battery again. If the red lamp continues to blink despite several attempts (4 ~ 5 times) to install the battery, contact your local dealer. The charging time may vary depending on the type of the charger or ambient temperature.
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3-3 Paper Installation



1) Press the Open button to open the paper cover.

2) Insert the paper as shown. (Remove the empty core.)

- 3) Align the paper as shown.
- 4) Pull out the paper as shown and close the paper cover.



The specification of the paper inner diameter of the standard paper disks are 19 mm.

If you are using paper with a smaller inner diameter, remove the paper disks as shown below and replace it with the supplied 12 mm paper disks.

3-4 Using Peeler



1) Insert the paper after open the peeler as shown.

2) Pull out the paper after close the peeler as shown.

3-5 Using Belt Strap



- 1) Insert the belt strap screw into the belt strap hole.
- 2) Use a coin to tighten the belt strap screw as shown in the image.

3) Unfasten the belt strap Velcro.

4) Slide the belt strap over a belt.

5) Close the Velcro as shown in the image.

3-7 Using Fan Fold Paper



1) After keeping the paper guide wide as shown in the figure, hold the paper guide by lifting left guide holder as shown in the figure.

2) Separate the fan fold cover by pushing as shown in the figure.

3-8 Using 3inch Paper



After keeping the paper guide wide as shown in the figure, hold the paper guide by lifting right guide holder as shown in the figure.

S NOTE

Use only when you are using 3 inch (80mm) paper.

3-9 Using Control Panel



Power Button



- This button is used to turn the printer on, off, to move to main menu or to operate the action.
- 1) When the printer is off, press this button for approximately 2 seconds to turn on the power.
- 2) When the printer is on, press this button for approximately 2 seconds to turn off the power.
- 3) Pressing this button while the LCD menu is being operated moves to the main menu or the action selected in the menu is operated.

• Paper Feed Button



This button is used to feed the paper manually or return to the previous step.

- 1) Press and hold this button while the printer is booting to print a self-test page.
- 2) Press this button in the standby mode to feed the paper.
- 3) Press this button to return to the previous menu.

Menu Move Button



This button is used to move the LCD menu.

Press this button to move the LCD menu from the top left to the bottom right.

Menu Select Button



This button is used to select the LCD menu.

Press this button to select the LCD menu or save the selected settings to the printer.

3-10 Recommended Papers

- Receipt paper
 - TF50KS-E (Paper Thickness: 65µm): Nippon Paper Industries Co., Ltd.
 - PD 150R (Paper Thickness: 75µm): New Oji Paper Mfg. Co., Ltd.
 - PD 160R (Paper Thickness: 75µm): New Oji Paper Mfg. Co., Ltd.
 - P350 (Paper Thickness: 62µm): Kansaki Specialty Paper, Inc. (USA)
 - P220AG (Paper Thickness: 65µm): Mitsubishi Paper Mills Limited
 - P220A (Paper Thickness: 65µm): Mitsubishi Paper Mills Limited
 - F5041 (Paper Thickness: 65µm): Mitsubishi HitecPaper Flensburg Gmbh

4. Self-Test

Run the self-test to check the setting information when you are setting up the printer for the first time or if there is a problem.

PV3

If no issue is found with the printer after running the self-test, examine the other devices or peripherals and software. This function is independent of such other devices and software.

• Self-Test Instructions

- 1) Turn the printer power on and go to the Information > System > Config Print menu on the LCD
- 2) Press the power button(Print) to run the self-test.
- 3) The printer settings information is printed on the first page, and the wireless interface information is printed on the next page.
- 4) After the wireless interface information is printed, the self-test is automatically terminated.

• Self-Test Sample

SATO PV3 CONFIGURATION			
FIRMWARE VERSION EMULATION PRINT DARKNESS PRINT SPEED TEAR OFF VALUE TEAR OFF VALUE TEAR OPTION PRINT OFFSET POWER-UP ACTION MEDIA TYPE SENSOR TYPE PRINT METHOD LABEL LENGTH LABEL WIDTH BAUD RATE PARITY DATA BIT(S) STOP BIT(S) HAND SHAKING USB SERIAL NUMBER BPL-Z CODEPAGE SLCS ICS	: V01.00 STD 010118 : SLCS & BPL-Z & BPL-C : 0/30 : 5 IPS : +000 DOT : TEAR-OFF : +0000 DOT : NO ACTION : BLACKMARK PAPER(REAR) : BLACKMARK PAPER(REAR) : BLACKMARK PAPER(REAR) : DIRECT THERMAL : 1013 DOT : 576 DOT : 115200 : NONE : 8 : 1 : HARDWARE : 000000000001 : CP-850(SBE. USA-1 CHARSET) : WCP1252-LATIN1 : U.S.A		
CONFIGURATION CONTROL STATUS			
PRINT SPEED PRINT DARKNESS PRINT WIDTH PRINT OFFSET TEAR OFF MEDIA TYPE LANGUAGE	: COMMAND : COMMAND : COMMAND : COMMAND : COMMAND : COMMAND : COMMAND		

(Bluetooth)



(Wireless LAN)



5. LCD Menu

You can check printer status and setting information through LCD.



• Top icon

lcon	Description
\ast	Bluetooth is enabled but not connected to the host device.
*	Bluetooth is enabled and connected to the host device.
Ŷ	Display signal strength of Wireless LAN.
Ú.	Can not searching the registered AP
79	Password incorrect
[+]	Receiving data, printing or paper feed
6	Paper empty
Ģ	Cover open
	TPH overheating
	Battery level

• Main menu icon

lcon	Description			
	Check / set the status of the wireless interface			
	1) Bluetooth			
	- Check Bluetooth Device name			
	- SSP (Secure Simple Pairing) / PIN code mode setting			
	- Check MAC address			
	- BLE / Classic mode setting			
	- Bluetooth On / Off setting			
(((•)))	2) Wireless LAN			
×**	- Check SSID setting and encryption			
	- Check MAC address and IP address			
	- Check operation mode and port			
	- Wireless LAN On / Off setting			
	- Reset settings			
	- Simple connection			
	(easy connection to AP by linking with simple connection APP)			
	Media settings			
	1) Select paper type and sensor			
	- Label paper (Auto detection / Rear black mark / Gap)			
	- Receipt paper			
യ	- Linerless paper			
	2) Adjust the print density			
	3) Adjust the cutting position			
	4) Filler setting and filler sensor sensitivity adjustment			
	Check firmware information and setting			
	1) Check printer and wireless interface firmware information			
	2) Print the setting information			
	3) Check the battery status			
	Set Backlight, Sleep and Auto Power Off Time			
	1) Backlight On / Off			
	2) Backlight Auto Off time setting			
	3) Power save and Power off function On / Off			
	4) Power save and power off time setting			
ABC	Set hex dump mode			

6. Peripherals Connection

This product can communicate with other devices via Bluetooth, Wireless LAN communication and cable.

6-1 Bluetooth, Wireless LAN Connection



- 1) The printer can be connected to devices equipped with Bluetooth communication capacity (PDAs, PCs, etc.).
- 2) Use the Bluetooth connection function supported by the device to connect to the printer.

The NFC tag built into the printer enables automatic pairing with devices.

🔕 NOTE

Tap your host device to logo on the side of the printer for NFC auto pairing



🕥 NOTE

The device must support NFC Auto Pairing. It may display a message that the device cannot be connected as NFC Auto Pairing is supported up to the Bluetooth pairing and the devices must be connected manually, but this is normal.

 The printer can be connected to other stations, such as PDAs and PCs supporting wireless LAN communication in Ad-hoc mode, Soft AP mode and AP in Infrastructure mode.

Refer to the Bluetooth Wireless LAN Manual for detailed information on its connection. You can check the Bluetooth environment (authentication, encryption, connection mode) and the Wireless LAN environment (IP, SSID, authentication, encryption) via the self-test page.

7. Printer Cleaning

If the interior of the printer is dusty, print quality can decline. In such a case, follow the instructions below to clean the printer.



- 1) Open the paper cover and remove the paper, if present.
- 2) Clean the print head (A) using the cloth or cotton swab soaked in alcohol for medical. Apply the cleaning pen

from the center to the edge of the print head (A) for cleaning.

3) Using the cloth or cotton swab soaked in alcohol for medical, remove the paper dust from the black mark sensor (B).

(Sensor could be located in the middle or on left or on right)

- 4) Do not use the printer for 10 minutes after cleaning the print head (A) until the cleaning agent of the cloth or cotton swab soaked in alcohol for medical has completely evaporated and dried.
- 5) Insert the paper and close the paper cover.

A Caution	 Make sure the printer power is turned off before cleaning. Wait for two to three minutes after power-off before print head cleaning because it may be very hot. Do not to touch the heating region of the print head with your hand while cleaning it. The print head may be damaged by static electricity. Avoid scratching the print head.
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8. Appendix

8-1 Specifications

Item		Description
	Printing Method	Thermal printing
	Print Speed	Up to 5 ips
	Resolution	203 dpi
		10 SLCS Resident Bitmap Fonts
		One SLCS Resident Scalable Font
	- (16 BPL-Z TM Resident Bitmap Fonts
	Font	One BPL-Z TM Resident Scalable Font
		7 BPL-C1 ^M Resident Bitmap Fonts
		23 Code Page
Printing		1D: Codobar Codo 11 Codo 30 Codo 03 Codo 128 EAN-13
		FAN-8 Industrial 2-of-5 Interleaved 2-of-5 Logmars MSI
	Derech	Plessev, Postnet, GS1 DataBar (RSS-14), Standard 2-of-5.
	Barcode	UPC/EAN extensions, UPC-A, UPC-E, IMB
		2D: Aztec, Codablock, Code 49, Data Matrix, MaxiCode,
		MicroPDF417, PDF417, QR code, TLC 39
	Emulation	SLCS, BPL-Z [™] , BPL-C [™]
	Sensor	Gap Sensor, Black Mark Sensor,
		Paper Cover Open Sensor, Label Presence Sensor
	Cutter Type	lear-Bar
	Paper Snape	Label paper
	Paper Type	Inermal Paper
Paper	Outer Diameter of	Max. Ø66 mm (2.60")
	Midth	$25 - 80 \text{ mm} (0.00^{\circ} - 3.15^{\circ})$
	Thickness	$25 \sim 60$ mm (0.35 ~ 5.15)
	Printer	25 km (Label naner)
Reliability	Battery	Rechargeable up to 300 times
	Dattory	Serial / USB_Bluetooth V4 1(Classic / LE)_NEC Auto paring
• • · ·	Interface	Wireless LAN 802.11 $a/b/g/n$
Communications		*Wireless communication is enabled only for devices with
		Bluetooth or Wireless LAN function.
	Input	Voltage: 100V~240VAC, 50/60 Hz
AC/DC Adaptor	input	Current: 1A
	Output	Voltage: 9VDC
	-	Current: 2A
	Гуре	
	Output	Voltage: 7.4VDC (Available 8.4 ~ 6.8VDC)
Battery	•	Vithin 2 hours
	Charging Time	* Charging current and charging time may depend on the
	Charging Time	type (optional) of charger
		Printer Operating : $-15 \sim 50^{\circ}$ (5~122°E)
		Printer Storage : $-30 \sim 70^{\circ}$ (-22~158°F)
	Temperature	Charging: $0 \sim 10^{\circ}$ (32~104°F)
Usage		*Refer to the temperature conditions on page 9
Conditions		Printer Operating : 10~80% RH (No condensation)
	1.1. 1.1.	Printer Storage : 10~90% RH (No condensation)
	Humidity	Battery: 20~70% RH (No condensation)
		*Refer to the temperature conditions on page 9
Dimensions	Printer	119mm × 159mm × 79mm (4.67 in. × 6.26 in. × 3.12 in.)
		Printer: 584g (1.29lbs)
Weight	Printer	Printer+Battery: 694g (1.53lbs)
		Printer+Battery+Paper: 951g (2.1lbs)
		Package: approx.1100g (2.43lbs)
Accessories	Basic Package	Battery Pack, Belt Strap, Download Guide, Installation Guide,
	<u> </u>	

Sold Separately

8-2 Label Types

- The labels used on this product are composed of the following materials;
 - SATO logo label: PC
 - Rating Label: PET
 Other labels: PET

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SATO maintains ongoing efforts to enhance and upgrade the functions and quality of all our products.

In the following, product specifications and/or user manual content may be changed without prior notice.

Warning - U.S.A

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment 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. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

ii) Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

iii) Caution: Exposure to Radio Frequency Radiation.

To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.

Notice - Canada

i) Class A Digital Device : Wired Device

This Apparatus complies with class "A" limits for radio interference as specified in the Canadian department of communications radio interference regulations.

Get appareil est conforme aux normes class "A" d'interference radio tel que specifier par ministre canadien des communications dans les reglements d'interference radio.

Caution

Some semiconductor devices are easily damaged by static electricity. You should turn the printer "OFF", before you connect or remove the cables on the rear side, in order to guard the printer against the static electricity. If the printer is damaged by the static electricity, you should turn the printer "OFF".

Waste Electrical and Electric Equipment (WEEE)



This marking shown on the product or its literature, indicates that is should not be disposed with other household wastes at the end of its working life, To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources. Household

users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling. Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

Revision History

Rev.	Date	Page	Description
1.00	??.08.19	-	New