



## MODEL : ION-PT2

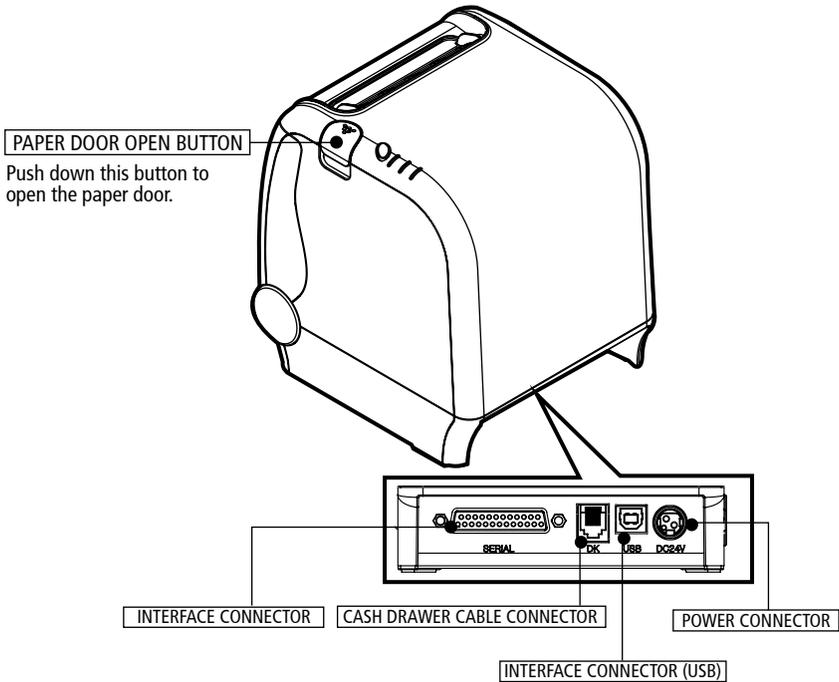
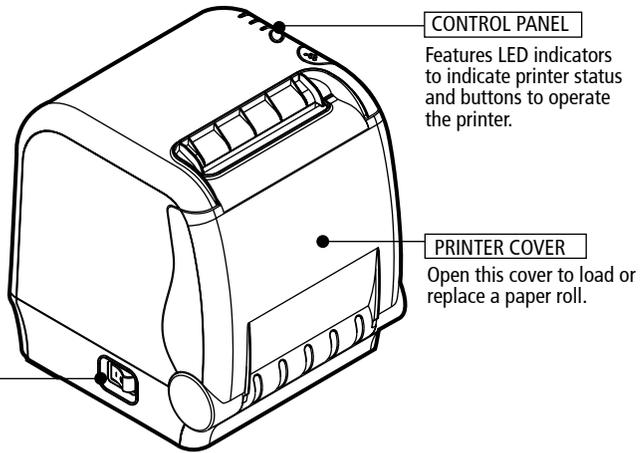
Receipt Printer User's Manual

All specifications are subject to change without notice

# Table of Contents

1. Parts Identifications	3
2. Setting up the printer	4
2.1 Unpacking	4
2.2 Connecting the cables	5
2.3 Loading the paper roll	8
3. Control panel and other functions	10
3.1 Control panel	10
3.2 Error Indicators	10
4. Self Test	11
5. ASCII Print	12
6. Select Baudrate Mode	12
7. Hexadecimal Dump	13
8. Select Error Beep Mode	14
9. Printer Cleaning	14
10. Specifications	15
10.1. General Specifications	15
10.2. Auto Cutter Specifications	16
10.3. Interface	16
10.4. Electrical Characteristics	16
10.5. Environmental Requirements	17
10.6. Reliability	17
10.7. Certification	17
11. Command List	18

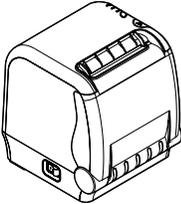
# 1. Parts Identifications



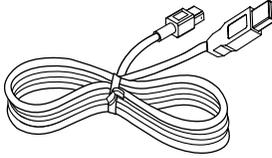
## 2. Setting Up the Printer

### 2-1. Unpacking

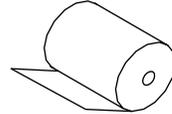
Your printer box should include these items. If any items are damaged or missing, please contact your dealer for assistance.



The Printer



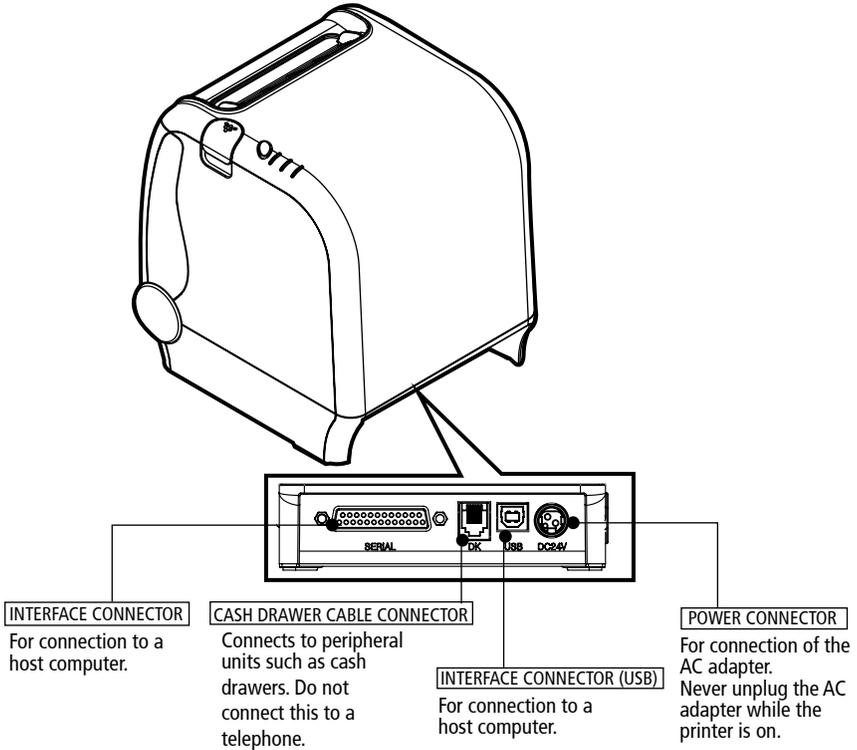
Interface Cables



Paper Roll

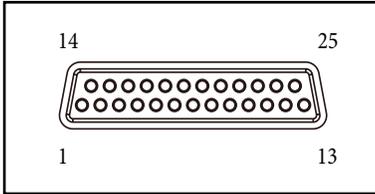
## 2-2. Connecting the Cables

All cables connect to the connector panel on the back of the printer which is shown below:

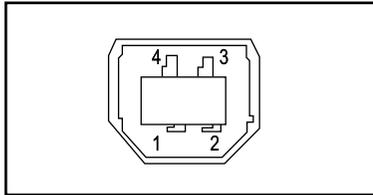


**WARNING:** Before connecting any of the cables, make sure both the printer and the computer are turned off.

## 2-2-1. Interface Connector



<D-SUB 25 Female Serial>



<USB "B" Type>

### 25Pin Serial Interface

Pin	Signal	I/O	Description
2	TxD	Output	Printer transmit data line RS-232C level
3	RxD	Input	Printer receive data line RS-232C level
4, 20	DTR	Output	Printer handshake to host line RS-232C level
6	DSR	Input	Data Send Ready
1,7	GND	-	System Ground

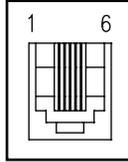
### USB Interface

Pin	Signal	I/O	Description
1	+5V	-	+5V
2	DATA-	-	Printer transmit data line
3	DATA+	-	Printer transmit data line
4	GND	-	System Ground

### 2-2-2. Cash Drawer Connector

The printer can operate a cash drawer with a 6 pin RJ-11 modular connector.

The driver is capable of supplying a maximum current of 1.0A for 510ms or less when not printing.



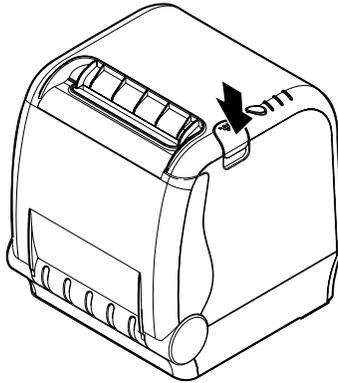
PIN	SIGNAL	DESCRIPTION
1	Signal GND	-
2	Drawer kick-out drive signal	Output
3	Drawer open/close signal	Input
4	+24V	-
5	Drawer kick-out drive signal	Output
6	Signal GND	-

## 2-3. Loading the Paper Roll

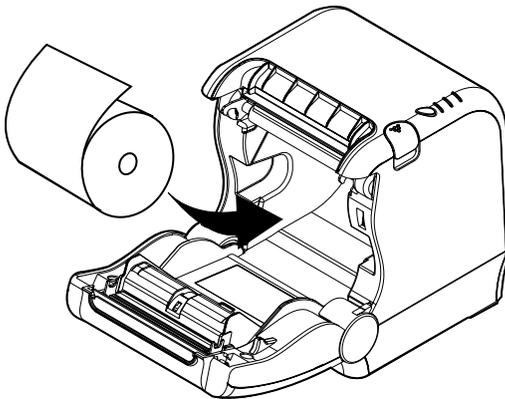
Note: Be sure to use paper rolls that meet the specifications. Do not use paper rolls that have the paper glued to the core because the printer cannot detect the paper end correctly.

Turn off power switch.

1. Make sure that the printer is not receiving data; Otherwise, data may be lost.
2. Open the printer cover by pushing down the paper door open button.

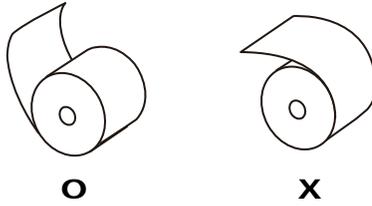


3. Remove the used paper roll core if there is one inside.
4. Insert new paper roll as shown.

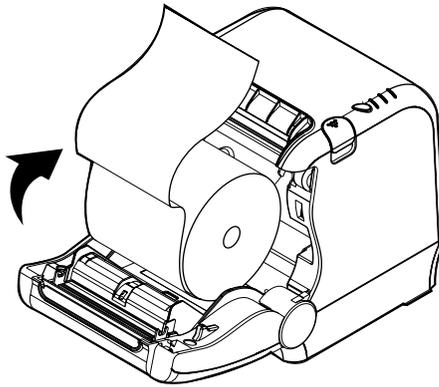




5. Note the correct direction that the paper comes off the roll:



6. Pull out a small amount of paper roll as shown. Then, close the cover.



7. Tear off the paper as shown.

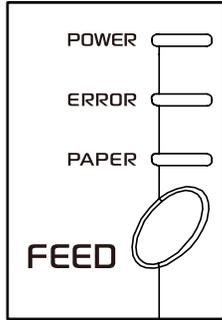


# 3. Control panel and other functions

## 3-1. Control panel

You can control the basic paper feeding operations of the printer with the FEED button on the control panel. The indicator lights let you to monitor the printer's status.

Control Panel



Feed Button

The feed button can be disabled using the ESC c 5 command.

Press the FEED button once to advance paper one line. You can also hold down the FEED button to feed paper continuously.

## 3-2. Error indicators

This section explains the different patterns signaled by the two LED indicators located on the top cover of the printer.

STATUS	PAPER	ERROR	POWER	REMARKS
	RED	RED	GREEN	
Power off	OFF	OFF	OFF	Normal power is not supplied to the printer
Power on	OFF	OFF	ON	Normal power is supplied to the printer
Online	OFF	OFF	ON	Normal error-free mode
Cover open	OFF	ON	ON	Close cover
Paper empty	ON	ON	ON	Insert new paper roll
Test mode	OFF	OFF	ON	Ignored error led

# 4. Self Test

The self-test result indicates whether the printer is operating properly. With this information the user can check the following options or status of the printer.

- Control circuit
- Printer mechanism
- Printing quality
- ROM version
- Interface setting

This test is independent of any other equipment or software.

### Running the self test

1. Make sure the printer is turned off and the printer cover is closed properly before performing the self test
2. Turn the printer on while holding the FEED button until the self-test starts printing. The self-test prints the printer settings then prints the following, and pauses. (Error LED On)

SELECT MODE BY BUTTON

1. ASCII PRINT
2. SELECT BAUDRATE MODE
3. HEXADUMP MODE
4. SELECT ERROR BEEP MODE

3. Press the FEED button consecutively (1~4)

1. ASCII PRINT (press the FEED button once)	Printing test page constructed with ASCII code.
2. SELECT BAUDRATE MODE (press the FEED button twice)	Set the speed of Serial Interface (You can set the BAUDRATE in this mode)
3. HEXADUMP MODE (press the FEED button triple time)	Printing the HEX value received from the interface
4. SELECT ERROR BEEP MODE	Select Printer Error Beep On/Off

Wait for 5~6 seconds if you want to exit. Printer performs a cut when exiting this mode

4. The printer is ready to receive data after finishing the self test.

## 5. ASCII Print

ASCII PRINT prints a test page with ASCII codes. You can use this function to check printer functionality. The ASCII PRINT test automatically ends and cuts the paper after printing the following:

**\*\*\* Completed \*\*\***

The printer is ready to receive data as soon as it completes the ASCII PRINT.

## 6. Select Baudrate Mode

After entering the BAUDRATE MODE, the list of baudrates that can be selected will be printed. Similar to the Self Test, you can press the FEED button to select a BAUDRATE. Once the feed button is pressed to select the baudrate, the printer shows the selected baudrate and stores the setting. The printer is ready to receive data as soon as it completes the function.

SELECT BAUDRATE BY BUTTON

1. 9600bps
2. 19200bps
3. 38400bps
4. 115200bps

## 7. Hexadecimal Dump

This feature allows experienced users to see exactly what data is sent to the printer. This can be useful in finding software problems.

When you go into the hex dump function, the printer prints all commands and other data in hexadecimal format along with a guide section to help you find specific commands.

To use the hex dump feature, follow these steps

1. Turn printer off.
2. Turn printer on while press down the "Feed" button.
3. Press the FEED button three times when the Self Test is printed.
4. Now the printer is in Hex dump mode.
5. Run any software program that sends data to the printer. The printer prints "Hexadecimal printing mode..." and then all the codes it receives in a two-column format. The first column contains the hexadecimal codes and the second column gives the ASCII characters that correspond to the codes.

Hexadecimal Dump

1B 21 00 1B 26 02 40 40 .!.& . @ @

1B 25 01 1B 63 34 00 1B .%.c4 ..

41 42 43 44 45 46 47 48 ABCDEFGH

A period (.) is printed for each code that has no ASCII equivalent.

6. Turn off the printer.
7. Turn on the printer.

## 8. Select Error Beep Mode

This function sets the ON/OFF status of the beep mode when the printer has an error such as low paper, open paper door, etc.

When this mode is selected, the printer will print text similar to the text shown below. Press the FEED button once or twice to select the ON/OFF mode.

SELECT ERROR BEEP MODE BY BUTTON

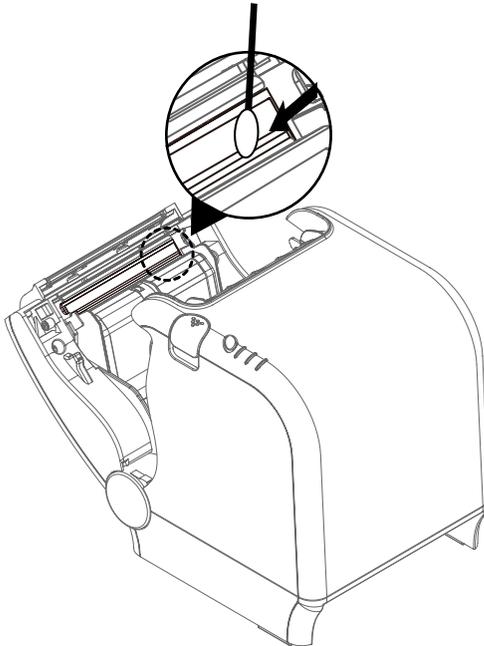
1. BEEP MODE ON
2. BEEP MODE OFF

## 9. Printer cleaning

If the interior of the printer is dusty, the printing quality can be reduced. In this case, follow the instructions below to clean the printer.

**Note:**

1. Make sure to turn the printer power off prior to cleaning.
2. Wait 10 minutes for the print head to cool before cleaning it as it can get very hot during use.
3. When cleaning the print head, take care not to touch the heated part of the print head.  
The print head may be damaged by static electricity.
4. Take care not to allow the print head to become scratched and /or damaged in any way.



1. Use an applicator swab moistened with an alcohol solution to clean the print head and remove any dusts.
2. Once the cleaning is completed, wait a few minutes before adding paper and closing the paper door.

# 10. Specifications

## IMPORTANT!

When connecting or disconnecting the power supply from the printer, be sure that the following cautions are observed.

Use a power supply (Limited Power Supply) of DC 24V±10% and more than 1.75A.

Try to avoid installing the printer in an area where there is electrical noise.

Take the appropriate measures to protect against electrostatic AC line noise, etc.

## 10-1. General Specifications

- (1) Printing Method                      Direct line thermal printing.
- (2) Print speed                            220mm/sec
- (3) Dot density (Hor / Ver)            180 DPI X 180 DPI
- (4) Dot Pitch                              0.141mm X 0.141mm
- (5) Printing Width                      Max 72mm (512 dots/Line)

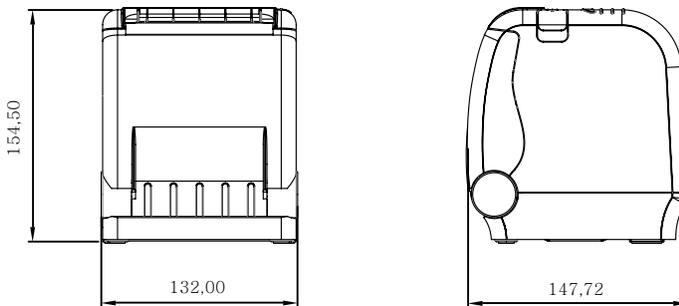
### (6) Number of print columns.

Font "A"	Font "B"
42 columns	56 columns

- (7) Roll paper                              Refer to chapter 2 for details on the recommended paper rolls.  
Paper width : Default 79.5 ±0.5mm  
Roll diameter : Max. ø83mm

- (8) Weight                                 1.7 Kg

### (8) Overall dimension



## 10-2. Auto Cutter Specifications

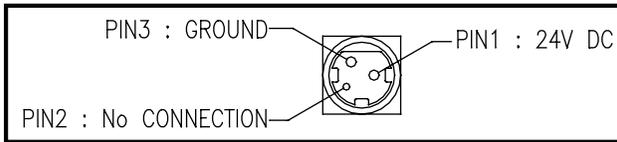
- |                        |   |
|------------------------|---|
| (1) Cutting Frequency  | Max. 30 cuts per minute   |
| (2) Thickness of paper | 0.06 ~ 0.08 mm  |
| (3) Cutter Life        | 1.5 million cuts<br>(if the paper thickness is between 65 and 80µm) |

## 10-3. Interface

USB (B type) + Serial or Ethernet built-in

## 10-4. Electrical Characteristics

- |                         |   |
|-------------------------|---|
| (1) Input Voltage       | DC 24V ± 10%  |
| (2) Current Consumption | Operating: Approx. 1.5 A (at ASC II printing)<br>Peak : Approx. 10 A<br>(at print duty 100%, For 10 seconds or less)<br>Stand-by : Approx. 0.03 A |
| (3) Power Connector     |   |





### 10-5. Environmental Requirements

#### (1) Operating

Temperature 5°F to 104°F (5°C to 40°C)

Humidity 10% to 90% RH (without condensation)

#### (2) Transport/Storage (no paper)

Temperature -20°F to 140°F (-20°C to 60°C)

Humidity 10% to 90% RH (without condensation)

### 10-6. Reliability

(1) MCBF 70 million lines

(2) Print Head Life 100 million pulses, 150Km

(3) Cutter Life 1.5 million cuts (if the paper thickness is between 65 and 80µm)

### 10-7. Certification

(1) FCC PART15 CLASS A

(2) UL/cUL (UL 60950-1)

(3) KC

(4) CE-EMCD Class B

(5) ENERGY STAR

This equipment is intended for indoor use. Any damage caused by using this device outdoors is not covered under warranty.

# 11. Command List

No.	Command	Function	REMARKS
1	HT	Horizontal tab	
2	LF	Print and line feed	
3	CR	Print and carriage return	
4	FF	Print and return to standard mode (in page mode)	
5	CAN	Cancel print data in page mode	
6	DLE EOT	Real-time status transmission	
7	DLE ENQ	Real-time request to printer	
8	DLE DC4	Generate pulse at real-time	
9	ESC FF	Print data in page mode	
10	ESC SP	Set right-side character spacing	
11	ESC !	Select print mode(s)	
12	ESC \$	Set absolute print position	
13	ESC %	Select/cancel user-defined character set	
14	ESC &	Define user-defined characters	
15	ESC *	Set bit-image mode	
16	ESC -	Turn underline mode on/off	
17	ESC 2	Select default line spacing	
18	ESC 3	Set line spacing	
19	ESC =	Select peripheral device	
20	ESC ?	Cancel user-defined characters	
21	ESC @	Initialize printer	
22	ESC D	Set horizontal tab positions	
23	ESC E	Turn emphasized mode on/off	
24	ESC G	Turn double-strike mode on/off	
25	ESC J	Print and feed paper using minimum units	
26	ESC L	Select page mode	
27	ESC M	Select character font	
28	ESC R	Select an international character set	
29	ESC S	Select standard mode	
30	ESC T	Select print direction in page mode	
31	ESC V	Turn 90° clockwise rotation mode on/off	
32	ESC W	Set printing area in page mode	
33	ESC \	Set relative print position	
34	ESC a	Select justification	
35	ESC c 3	Select paper sensor(s) to output paper-end signals	
36	ESC c 4	Select paper sensor(s) to stop printing	
37	ESC c 5	Enable/disable panel buttons	
38	ESC d	Print and feed paper n lines	
39	ESC p	General pulse	

No.	Command	Function	REMARKS
40	ESC t	Select character code table	
41	ESC {	Turn upside-down printing mode on/off	
42	FS p	Print NV bit image	
43	FS q	Define NV bit image	
44	GS !	Select character size	
45	GS \$	Set absolute vertical print position in page mode	
46	GS *	Define downloaded bit image	
47	GS /	Print downloaded bit image	
48	GS B	Turn white/black reverse printing mode on/off	
49	GS H	Select printing position of HRI characters	
50	GS I	Transmit printer ID	
51	GS L	Set left margin	
52	GS P	Set horizontal and vertical motion units	
53	GS V	Select cut mode and cut paper	
54	GS W	Set printing area width	
55	GS \	Set relative vertical print position in page mode	
56	GS a	Enable/disable Automatic Status Back(ASB)	
57	GS f	Select font for HRI characters	
58	GS h	Set bar code height	
59	GS k	Print bar code	
60	GS r	Transmit status	
61	GS v 0	Print raster bit image	
62	GS w	Set bar code width	
	< Add >		
1	ESC i	Full cut	
2	ESC m	Partial cut	
3	FS !	Set print mode(s) for Kanji characters	
4	FS &	Select Kanji character mode	
5	FS -	Turn underline mode on/off for Kanji character	
6	FS .	Cancel Kanji character mode	
7	FS 2 c1 d1...dk	Define user-defined Kanji characters	
8	FS C	Select Kanji character code system	
9	FS S 1 2	Set Kanji character spacing	
10	FS W	Turn quadruple-size mode on/off for Kanji character	