

# User's Manual

## **PRP-080** **THERMAL RECEIPT PRINTER**



*Specifications subjects to  
change without notice*

# Contents

---

<b>1. General Information</b> .....	2
<b>2. Quick Start</b>	
2.1) Unpacking & Parts Identification.....	3
2.2) Loading the Paper Roll.....	4
<b>3. Printer Interface and Connection</b>	
3.1) Connecting the Interface Cable.....	6
3.2) Connecting to a Cash Drawer.....	6
3.3) Connecting the AC Adapter.....	7
<b>4. Configuration</b>	
4.1) Printer Status (Red LED).....	8
4.2) DIP Switch Settings.....	9
4.3) Printer Self Test.....	9
<b>5. Safety and Maintenance</b>	
5.1) Safety Information.....	10
5.2) Periodical Cleaning.....	11
5.3) Preventing Paper Jams.....	11
5.4) Fixing Paper Jam.....	12
<b>Appendix (A) Specifications</b> .....	14
<b>Appendix (B) Configurations</b> .....	16
<b>Appendix (C) Commands List</b> .....	21

# 1. General Information

## Models

PRP-080



**Interface** P = Parallel  
S = Serial

**Color** M = Beige  
B = Black

**Font** I = International font  
B = Big 5 Chinese font  
G = GB Chinese font

(without cutter model is optional)

## Main Features

### 1. High speed printing:

- 220mm/s maximum. Print speed.
- High reliability due to a stable mechanism.

### 2. Application Software:

- Command protocol is based on the ESC/POS standard.
- Various Layouts are possible by using page mode (#).
- Characters can be scaled up to 64 times as large as the standard size.
- Repeated operation and copy printing are possible by using macro definitions.
- Character font size (12x24 font or 24x24 font) can be selected using a command.

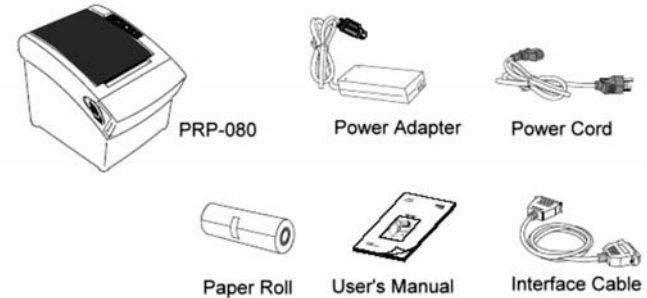
### 3. Printer Handling:

- Easy paper-roll installation.
- Equipped with an auto cutter.
- The printer allows easy maintenance for tasks such as head cleaning.
- Two different print densities can be selected by DIP switches.
- The built-in interface provides control capability for one cash drawer.

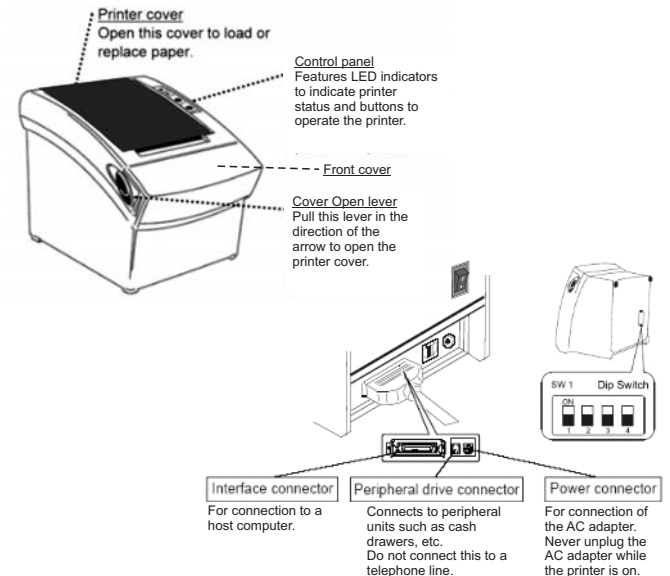
# 2. Quick Start

## 2.1) Unpacking & Parts Identification

### a. Inside the Package:



### b. Parts Identification:



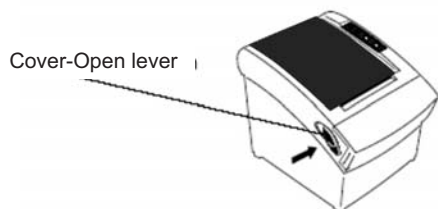
## 2.2) Loading the Paper Roll

- a. Make sure that the paper roll matches the printer's specification. Do not use paper rolls that have the paper glued to the core because the printer cannot detect the paper end correctly. Important: The printing quality and lifespan of the thermal head cannot be guaranteed if any paper other than that recommended is used. Thus, the warranty will be voided automatically if any fault occurs due to the use of wrong paper rolls.

### Recommended Paper Rolls

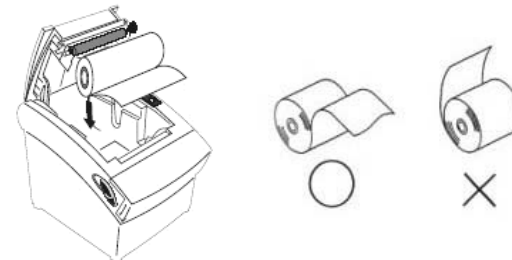
Part Number	Manufacturer
<b>HPK-110</b>	Hansol Patech Co. Ltd.
<b>AF50KS-E</b>	JUJO Paper Co. Ltd.
<b>TF-50KS-E</b>	Nippon Paper Industries Co. Ltd.
<b>PD-160R</b>	New Oji Paper Mfg. Co. Ltd.
<b>F380</b>	Nansaki Specialty Papers Inc.

- b. Open the printer cover by pressing the Cover-Open level

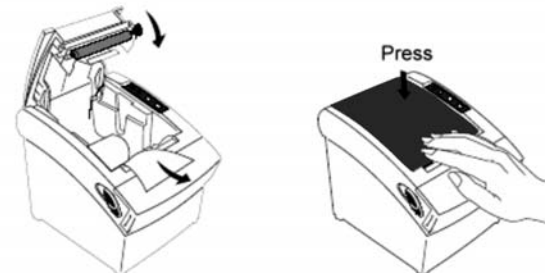


**Important:** Do not pull the cover open lever and open the printer cover when printing is in progress.

- c. While observing the direction of the roll, set the paper roll into the hollow, and pull out the leading edge of the paper toward you as shown:



- d. Close the cover: When closing the cover, press the center of printer cover firmly to prevent paper miss-loading



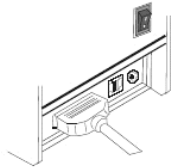
- e. Tear off the paper outside the cover as shown. (If the printer is without auto-cutter)



## 3. Printer Interface and Connection

### 3.1) Connecting the Interface Cable

- Before connecting/disconnecting the interface cable, make sure that power to the printer and all the devices connected to the printer is turned off.
- Connect the interface cable to the connector on the rear panel of the printer.
- In the case of a serial interface, tighten the connector screws. In the case of a parallel interface, fasten the connector clasps.

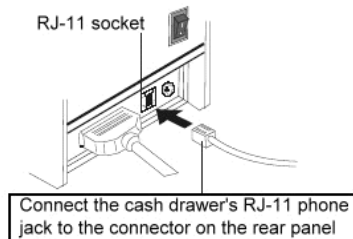


Plug the cable connector securely into the printer's interface connector.



Attach the other end of the cable to the computer

### 3.2) Connecting to a Cash Drawer

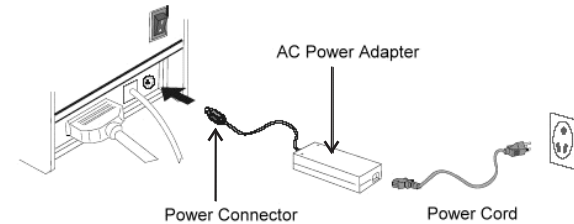


#### Important:

- Make sure that the printer is turned off and unplugged from the AC outlet and that the computer is turned off before making connections.
- Do not connect a telephone line into the RJ-11 socket. Failure to observe this may result in damage to the printer.

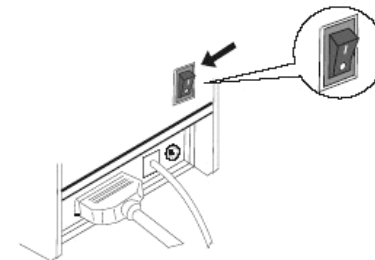
### 3.3) Connecting the AC Adapter

- Connect the AC power cord to the inlet of AC adapter, and then connect the power cord plug to a suitable electrical outlet.
- Connect the adapter cable to power connector of printer; make sure the printer power switch is OFF before making any connections.



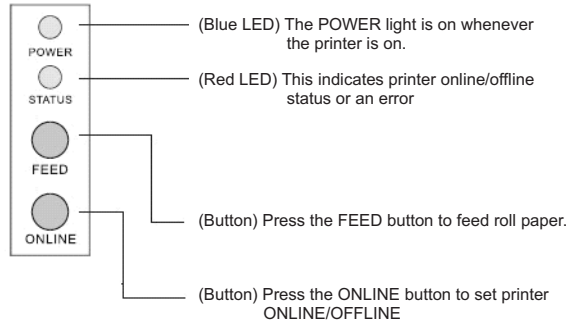
**CAUTION: DO NOT USE ANY AC POWER ADAPTERS OTHER THAN SPECIFIED.**

- Set the power switch as shown. The POWER LED on the control panel will light up.



# 4. Configuration

## Printer Control Panel & Status Indication

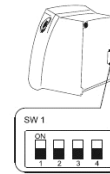


### 4.1) Printer Status (Red LED)

- Red light ON: Indicates that the printer is online.
- Red light OFF: Indicates that the printer is offline.
- Red light flashes: Indicates the printer error(s) such as out of paper, paper jammed, or printer cover is not closed properly.

### 4.2) DIP Switch Settings

The DIP switch panel is located at bottom of the printer as shown:



#### DIP Switch Functions:

Switch	Function	ON	OFF	Default
1	Baud Rate (*)	38400	19200	OFF
2	Auto Cutter	No	Yes	OFF
3	Color Deepness	Deeper	Normal	OFF
4	Beep	Yes	No	OFF

**Note:** Before configure the DIP switch settings, please first turn the printer power off and remove the paper roll.

(\*) Baud Rate is only available for serial interface models.

### 4.3) Printer Self Test

This is to test whether the printer is working properly or not and also checks the printing quality, firmware version, and DIP switch settings

1. Hold the ONLINE button first and then turn on the power at the same time, release the button after around 1 second.
2. If the printer is working properly, it should then automatically print the self-testing result that indicating the firmware version number, printer connection type, English alphanumeric characters, and few Chinese fonts.
3. The test print will be ended with the following message:

\*\*\* COMPLETED \*\*\*

**Note:** The above procedure does not test parallel or serial ports. Please use communication utility such as Windows Hyper Terminal to test the printer connection.

## 5. Safety and Maintenance

### 5.1) Safety Information

1. Do not touch the HEAD of printer with anything.
2. Do not touch the cutter blade.
3. Only use the power supply that is come along with the printer.
4. Do not bend the power cord excessively or place any heavy objects onto it.
5. When connecting or disconnecting the plug, always hold the plug – not the cord.
6. Use only approved accessories and do not try to disassemble, repair or remodel it by yourself.
7. Do not let water or other objects in the printer.
8. Install the printer on the stable surface. Choose a firm, level surface where the printer will not be exposed to vibration.
9. Do not use the printer when it is out of order. This can cause a fire or an electrocution.
10. Do not connect a telephone line into the peripheral drive connector.(RJ-11 socket)
11. We recommend that you unplug the printer from the power outlet whenever you do not plan to use it for long periods.

### 5.2) Periodical Cleaning

Printed characters may become partially unclear due to accumulated paper dust and dirt. To prevent such a problem, paper dust collected in the paper holder and paper transport section and on the surface of the thermal head must be removed periodically. Such cleaning is recommended to be carried out once six month or one million lines.

#### a. Cleaning the Thermal Head

To remove blackish dust collected on the surface of the thermal head, wipe it with Isopropyl alcohol (IPA).

**Note:**The thermal head is easy to damage, so clean it gently with a soft cloth. Take sufficient care not to scratch it when cleaning it.

#### b. Cleaning the Paper Holder

Use a soft cloth to remove paper dust from the paper holder and paper transport section.

### 5.3) Preventing Paper Jams

The paper should not be touched during printing. Shift the paper during paper ejection may cause a feed failure or paper jam.

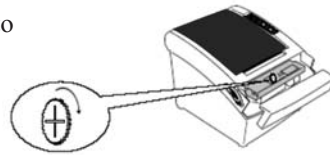
## 5.4) Fixing Paper Jam

The Status LED (Red) on the printer control panel will flash with beeps if paper is jammed. Please follow the below instruction to remove paper jam.

- a. Switch the printer power off.
- b. Open the printer cover by pushing the Cover-Open lever.
- c. If the printer cover opens, removed the jammed paper gently (**take care not to touch the printer head**), and reinstall the paper roll.
- d. **If the printer cover will not open**, please restart the printer by switching power off/on, and try again, if the cover is still unable to open, please follow the instructions below:



- 1) Set the printer power OFF
- 2) Slide off the front cover to reveal the auto-cutter
- 3) Roll the little gear as shown until the warning beeps is stopped.



**Caution:** Since working on the cutter may be dangerous, be sure to turn off the printer first.

**Note:** Do not apply extreme force to open the front cover to prevent damages to the cutter.  
If the front cover will not open properly, please contact your dealer.

- e. Return the cutter to its home-position and release or clean out the jammed paper inside the front cover. Open the printer cover, and then reinstall paper roll.



(Reinstall Paper Roll)



(Tear off the paper as shown)

# Appendix (A) Specifications

<b>Print method</b>	Direct thermal
<b>Max. label width</b>	79.5mm $\pm$ 0.5mm
<b>Character per line</b>	48 (Font A)Effective print width 72mm Print speed 220mm/sec.(max.) or 58 lines/sec.
<b>Print head</b>	
<i>Print density</i>	576 dots/line or 8 dots/mm
<i>Dot space</i>	0.125mm
<i>Print life</i>	100km
<i>Halt-on protection from over-heat</i>	80°C
<b>Interfaces</b>	
<i>Serial port</i>	Dsub 25 pin female connector, 19200 or 38400 bps baud-rate, none parity, 8 data bits and 1 stop bit, supports RTS/CTS & XON/XOFF protocol
<i>Parallel port</i>	36 pin Centronics connector. 8 bits parallel, supports BUSY protocol
<i>Cash drawer port</i>	DC 24V/1A, 6 wires RJ-11 socket
<b>Weight</b>	1400g (without cable)
<b>Dimensions</b>	190mm(L) x 145mm(W) x 147mm(H)
<b>Environment</b>	
<i>Operating</i>	0° ~ +45°C, 10%RH ~ 90%RH
<i>Storage</i>	-10°C ~ +50°C, 10%RH ~ 90%RH

<b>Power supply</b>	
<i>Input</i>	100V AC ~ 240V AC, 50 ~ 60 Hz
<i>Output</i>	+24V DC/2.5A
<b>Print font</b>	
<i>ASCII code</i>	12 x 24 dots, 1.25mm(W) x 3.00mm(H)
<i>Graphic font</i>	24 x 24 dots, 3.00mm(W) x 3.00mm(H)
<b>Print commands</b>	ESC/POS print commands set
<b>Paper adopted</b>	Direct thermal printing paper
<i>Paper width</i>	79.5mm $\pm$ 0.5mm
<i>Max. roll diameter</i>	83mm
<i>Paper thickness</i>	53~60g /m <sup>2</sup>
<b>Auto-Cutter</b>	Life span: over 1,000,000 cuts

# Appendix (B) Configurations

## 1. Interface

### 1.1 RS-232 serial interface

#### 1.1.1 RS-232 Specifications

Data transmission: Serial  
Synchronization: Asynchronous  
Handshaking: DTR/DSR or XON/XOFF control  
Signal levels: MARK =  
                  -3 to -15V: Logic "1"/ OFF  
                  SPACE =  
                  +3 to +15V: Logic "0"/ ON  
Baud rate: 19200bps ~ 38400bps  
Data word length: 8 bits  
Parity Settings: None  
Stop bits: 1 or more  
Connector: Female DSUB-25 pin connector  
(printer side)

**NOTES:** The data word length, baud rate, and parity depend on the DIP switch settings.  
The stop bit for the printer side is fixed to 1.

#### 1.1.2 Switching between on-line and off-line

The printer has an on-line/off-line button.

The printer goes off-line:

- Between when the power is turned on (including reset using the interface) and when the printer is ready to receive data.
- During the self-test.
- When the cover is open.
- During paper feeding using the paper feed button.
- When the printer stops printing due to a paper-end (in cases when an empty paper supply is detected by either paper roll end detector or the paper roll near-end detector with a printing halt feature by ESC c 4).
- When a temporary abnormality occurs in the power supply voltage.
- When an error has occurred.

#### 1.1.3 Serial interface connection example

Host side	Printer side
TXD .....	RXD
DSR .....	DTR
CTS .....	RTS
RXD .....	TXD
DTR .....	DSR
FG .....	FG
SG .....	SG

**NOTES:** Set the handshaking so that the transmit data can be received. Transmit data to the printer after turning on the power and initializing the printer.

## 1.2 IEEE 1284 Bidirectional Parallel Interface

(Parallel Interface Specifications)

Copyright (C) 1993 by the Institute of Electrical and Electronic Engineers, Inc.

### Interface Pin Assignments for Each Mode

Pin	Source	Compatibility Mode	Nibble Mode	Byte Mode
1	Host	nStrobe	HostClk	HostClk
2	Host/Ptr	Data0(LSB)	Data0(LSB)	Data0(LSB)
3	Host/Ptr	Data1	Data1	Data1
4	Host/Ptr	Data2	Data2	Data2
5	Host/Ptr	Data3	Data3	Data3
6	Host/Ptr	Data4	Data4	Data4
7	Host/Ptr	Data5	Data5	Data5
8	Host/Ptr	Data6	Data6	Data6
9	Host/Ptr	Data7 (MSB)	Data7(MSB)	Data7(MSB)
10	Printer	nAck	PtrClk	PtrClk
11	Printer	Busy	PtrBusy/Data3, 7	PtrBusy
12	Printer	PError	AckDataReq/Data2, 6	AckDataReq
13	Printer	Select	Xflag/Data1, 5	Xflag
14	Host	nAutoFd	HostBusy	HostBusy
15		NC	ND	ND
16		GND	GND	GND
17		FG	FG	FG
18	Printer	Logic-H	Logic-H	Logic-H
19		GND	GND	GND
20		GND	GND	GND
21		GND	GND	GND
22		GND	GND	GND
23		GND	GND	GND
24		GND	GND	GND
25		GND	GND	GND
26		GND	GND	GND
27		GND	GND	GND
28		GND	GND	GND
29		GND	GND	GND
30		GND	GND	GND
31	Host	nInit	nInit	nInit

Pin	Source	Compatibility Mode	Nibble Mode	Byte Mode
32	Printer	nFault	nDataAvail/Data0, 4	nDataAvail
33		GND	ND	ND
34	Printer	DK STATUS	ND	ND
35	Printer	+5V	ND	ND
36	Host	nSelectIn	1284-Active	1284-Active

\*ND: Not Defined

\*NC: No Connect

## 2. Connectors

### 2.1 Interface Connectors

Refer to Interface and Connection section.

### 2.2 Power Supply Connector

This connector is used to connect the printer to an external power source.

#### Power Supply Connector Pin Assignments

Pin Number	Signal Name
1	+24 VDC
2	GND
3	NC
Shell	Frame GND

### 2.3 Drawer Kick-out Connector

The pulse specified by ESC p or DLE DC4 is output to this connector. The host can confirm the status of the input signal by using the DLE EOT, GS a, or GS r commands.

- 1) Pin assignments: Refer to page 22
- 2) Connector model: Printer side: MOLEX 52065-6615 or RJ-11 telephone jack  
User side: 6-position 6-contact (RJ-11 telephone jack)

## Appendix (C) Commands List

### Drawer Kick-out Connector Pin Assignments

Pin Number	Signal Name	Direction
1	Frame GND	
2	GND	
3	NC	
4	Drawer kick-out drive signal	Output
5	NC	
6	NC	

### 3. Drawer kick-out drive signal

#### Output signal:

Output voltage: Approximately 24 V

Output current: 1A or less

Command	Code Description (Hex)	Function Description
HT	09	Horizontal tab
LF	0A	Print and line feed
CR	0D	Print and carriage return
ESC SP n	1B 20 n 0 ≤ n ≤ 255	Set right-side character spacing
ESC ! n	1B 21 n 0 ≤ n ≤ 255	Select print mode(s)
ESC \$ nL nH	1B 24 nL nH 0 ≤ nL ≤ 255 0 ≤ nH ≤ 255	Set absolute print position
ESC % n	1B 25 n 0 ≤ n ≤ 255	Select/cancel user-defined character set
ESC & y c1 c2	1B 26 y c1 c2 y=3 32 ≤ c1 ≤ c2 ≤ 126	Define user-defined characters
ESC * m nL nH d1...dk	1B 2A m nL nH d1...dk m=0,1,32,33 0 ≤ nL ≤ 255 0 ≤ nH ≤ 3 0 ≤ d ≤ 255	Select bit-image mode
ESC - n	1B 2D n 0 ≤ n ≤ 2 48 ≤ n ≤ 50	Turn underline mode on/off
ESC 2	1B 32	Select default line spacing
ESC 3 n	1B 33 n 0 ≤ n ≤ 255	Set line spacing
ESC ? n	1B 3F n 32 ≤ n ≤ 126	Cancel user-defined characters
ESC @	1B 40	Initialize printer
ESC D n1...nk NUL	1B 44 n1...nk 00 1 ≤ n ≤ 255 0 ≤ k ≤ 32	Set horizontal tab positions
ESC G n	1B 47 n 0 ≤ n ≤ 255	Turn on/off double-strike mode
ESC J n	1B 4A n 0 ≤ n ≤ 255	Print and feed paper
ESC \ nL nH	1B 5C nL nH 0 ≤ nL ≤ 255 0 ≤ nH ≤ 255	Set relative print position
ESC c 5 n	1B 63 35 n 0 ≤ n ≤ 255	Enable/disable panel buttons
ESC d n	1B 64 n 0 ≤ n ≤ 255	Print and feed n lines
ESC p m t1 t2	1B 70 m t1 t2 m=0,1,48,49 0 ≤ t1 ≤ 255 0 ≤ t2 ≤ 255	Generate pulse

Command	Code Description (Hex)	Function Description
GS * x y d1...d(xyx8)	1D 2A x y d1(x x y x 8) 1 ≤ x ≤ 255 1 ≤ y ≤ 48 x x y ≤ 1536 0 ≤ d ≤ 255	Define downloaded bit image
GS / m	1D 2F m 0 ≤ m ≤ 3 48 ≤ m ≤ 51	Print downloaded bit image
GS L nL nH	1D 4C nL nH 0 ≤ nL ≤ 255 0 ≤ nH ≤ 255	Set left margin
GS W nL nH	1D 57 nL nH 0 ≤ nL ≤ 255 0 ≤ nH ≤ 255	Set printing area width
ESC E n	1B 45 n 0 ≤ n ≤ 255	Turn emphasized mode on/off
ESC R n	1B 52 n 0 ≤ n ≤ 13	Select an international character set
ESC a n	1B 61 n 0 ≤ n ≤ 2 48 ≤ n ≤ 50	Select justification
ESC t n	1B 74 n 0 ≤ n ≤ 7 n=19	Select character code table
ESC { n	1B 7B n 0 ≤ n ≤ 255	Turns on/off upside-down printing mode
GS H n	1D 48 n 0 ≤ n ≤ 3 48 ≤ n ≤ 51	Select printing position for HRI characters
(1) GS V m (2) GS V m n	1D 56 m m=0,1,49 1D 56 m n m=66 0 ≤ n ≤ 255	Select cut mode and cut paper
GS h n	1D 68 n 1 ≤ n ≤ 255	Select bar code height
(1) GS k m d1...dk NUL (2) GS k m n d1...dn	1D 6B m d1...dk 00 0 ≤ m ≤ 6 1D 6B m n d1...dn 65 ≤ m ≤ 73	Print bar code
GS v 0 m xL xH yL yH d1...dk	1D 76 30 m xL xH yL yH d1...dk 0 ≤ m ≤ 3 48 ≤ m ≤ 51 0 ≤ xL ≤ 255 0 ≤ xH ≤ 255 0 ≤ yL ≤ 255 0 ≤ d ≤ 255 k=(xL+xHx256)(yL+yHx256)	Print raster bit image
GS w n	1D 77 n 2 ≤ n ≤ 6	Set bar code width

### Command classification

Executing: Printer executes the command, which does not then affect the following data.

Setting: Printer uses flags to make settings, and those settings affect the following data.