User's Manual

BP003

Let your printing Easy and Magic
Thermal Receipt Printer

Declare

About Trademark

Corporation names and product names are the registered trademarks or commodity names of the corporation.

＊ **EPSON and ESC/POS are the registered trademarks of Seiko Epson Corporation.**

＊ **Windows is a registered trademark of Microsoft Corporation.**

Important Safety Instructions

Read all of these instructions carefully and thoroughly and save them for later reference. The unauthorized operation may lead to error or accident. Manufacturers have no responsibilities for the problems which are lead by unauthorized operations.

1. Follow all warnings and instructions in the manual as well as marked on the product.

2. Don't touch the thermal print head with your hand and other solid object at any moment to avoid your body burned or the thermal head damaged.

3. Be careful the dentate cutter when you are installing the paper.

4. Unplug this product from the power outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.

5. Please don't use the printer near the water.

6. Slots and opening on the cabinet and the back or bottom are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, do not block or cover these openings. The openings should never be blocked by placing the product on a bed, sofa, rug or other similar surface. This product should not be placed in a built-in installation unless proper ventilation is provided.

7. Make sure the printer is put on a stable surface and the surrounding is wide enough for paper load and eject.

8. Be sure to use the specified power source. Connection to an improper power source may cause fire or shock.

9. The device should far away from the interference received, for example radio or TV interference.

10. Do not locate this product where the cord will be walked on. When the cord or the plug is mangled, please stop using and get a new one replaced. Make sure the old one is far away from the printer, so it can avoid someone who does not know the inside story getting damaged.

11. This product should never be placed near or over a radiator or heat origin, and should avoid of direct sunshine.

12. Never push objects of any kind into this product though cabinet slots as they may touch dangerous voltage dots or short out parts.

13. Don't remove the printer's out-cover and repair the printer. When needed, call or take it to the professional.

14. Make sure the power is off before connecting or unplugging the power cord and the cables.

15. To ensure safety, please unplug this product prior to leave it unused for an extended period. The wall outlet you plan to connect to should be nearby and unobstructed.

16. This device complies with Part 15 of the FCC Rules.

    Operation is subject to the following two conditions:

    (1) This device may not cause harmful interference.

    (2) This device must accept any interference received, including interference that may cause undesired operation.

    The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

17. Unplug this product from the power outlet and leave servicing to qualified service personnel under the following conditions:

    A. When the power cord or plug is damaged or frayed.

    B. If liquid has been spilled into the product.

    C. If the product has been exposed to rain or water.

D. If the product does not operate normally when the operating instructions are followed.

E. If the product has been dropped or the cabinet has been damaged.

F. If the product exhibits a distinct change in performance, it indicates a need for service.

Warning: In order to ensure the printer life, strictly prohibit printing full line and full black exceeding 2CM.

Notice: The contents of this manual are subject to change without notice.

*All the parts of the printer can be recycled. When it is abandoned, we can call it back freely. Please contact us when you abandon it.

Table of Contents

Chapter 1 Overview

1.1 Features

BP-003 printer is a high-speed mini thermal printer. It is a high-quality, high-reliability and low-noise POS printer without ribbon. It's small, easily-operated and can be widely used in ECR, PC-POS and BANK POS for printing a variety of receipt.

1.2 Product Model Description

In order to fulfill different requirements and operating circumstance, manufacturer develops BP-003 series products which are high-speed thermal mini-printers.

According to different data ports (interfaces), BP-003 series can be classified into different models: BP-003BP, BP-003BR, BP-003BU, BP-003BN, BP-003BT, BP-003BF, BP-003WP, BP-003WU, BP-003WR, BP-003WN, BP-003WT, and BP-003WF

BP-003 series printer is equipped with an auto cutter which has two options for the consumer to select: partial cutter can only cut the paper with one point left while full cutter cuts the paper fully.

Interface:

BP-003 series products are configured with a cash drawer interface, you can choose one of the following data interfaces when purchasing this product:

Model	Interface	Cable	Color
BP-003BP	Parallel interface	Parallel interface cable	Black
BP-003BU	USB interface + Serial interface	USB interface cable	Black
BP-003BR	USB interface + Serial interface	Serial interface cable	Black
BP-003BN	USB interface + Ethernet interface	Ethernet interface cable	Black
BP-003BT	USB interface + Bluetooth	USB interface cable	Black
BP-003BF	USB interface + Wi-Fi	USB interface cable	Black
BP-003WP	Parallel interface	Parallel interface cable	White
BP-003WU	USB interface + Serial interface	USB interface cable	White
BP-003WR	USB interface + Serial interface	Serial interface cable	White
BP-003WN	USB interface + Ethernet interface	Ethernet interface cable	White
BP-003WT	USB interface + Bluetooth	USB interface cable	White
BP-003WF	USB interface + Wi-Fi	USB interface cable	White

Note: Please contact the local dealer to change the interface if needed with added expense.

## 1.3 Main Parts of the Printer
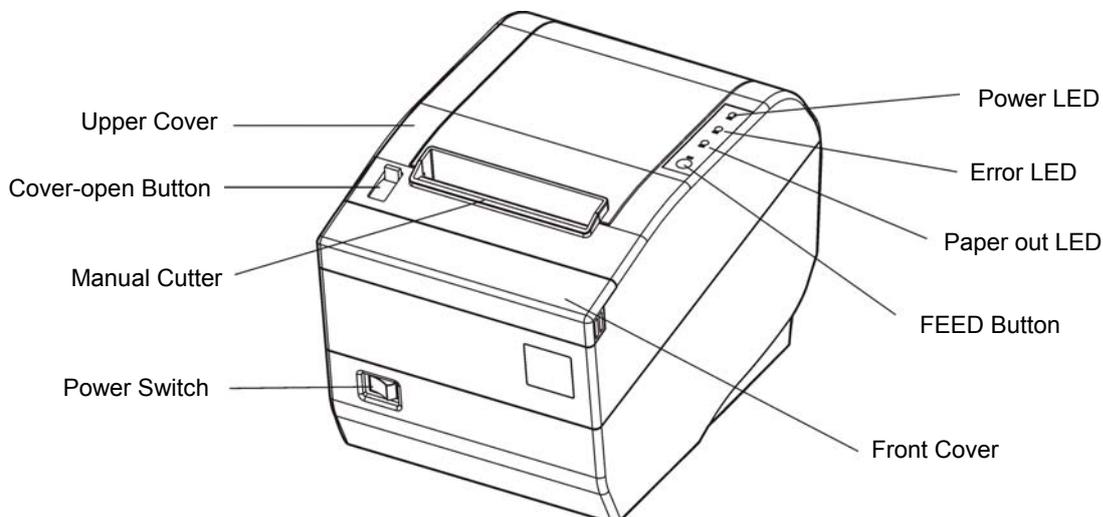


Figure 1-1 Main parts of the printer

Data Interface   Cash Drawer Interface   Power Supply Inlet
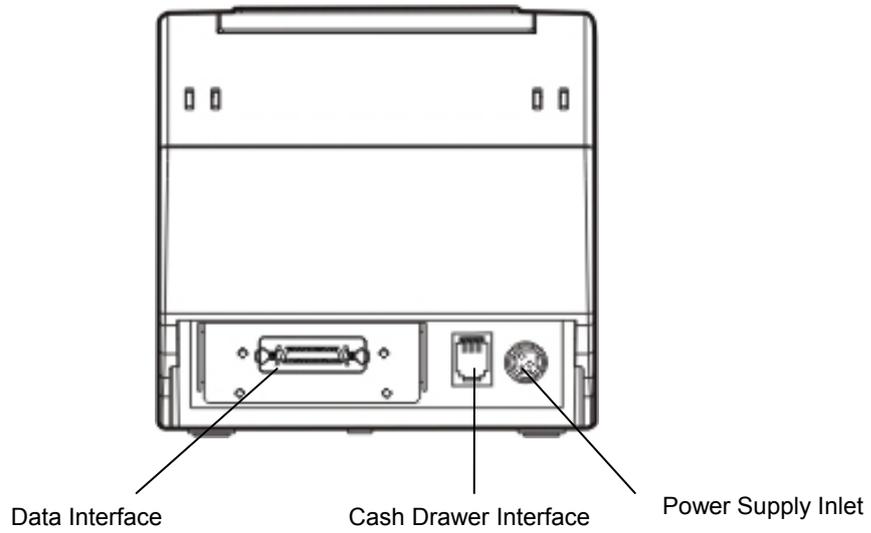
Figure 1-2 Main parts of the printer (Rear)

Note: Please take the specific interface as standard.

Chapter 2 Installing the Printer

2.1 Unpacking & Checking

Check the following items in the package, if any of these items is missing, please contact your dealer.

Printer   Power Cord   Interface Cable (Optional)

Driver CD
(Including *User's Manual* and Driver)   AC Adapter
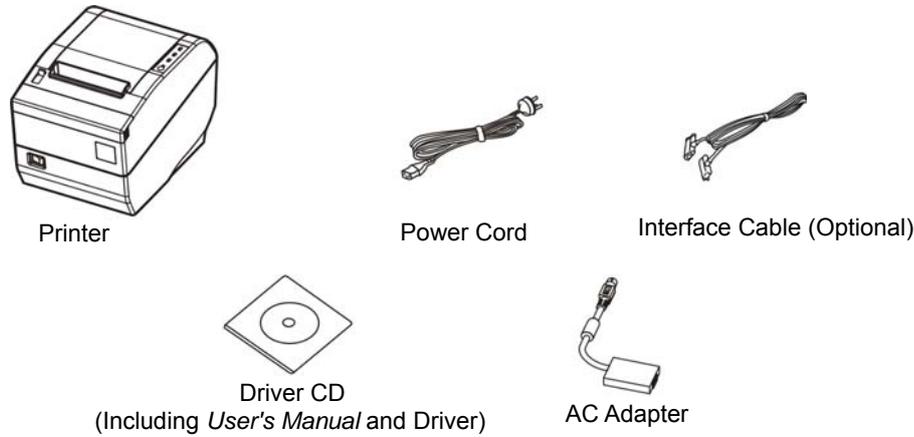
Figure 2-1 Packing items

> **Note: 1. Models with Bluetooth and Wi-Fi are not equipped with interface cable.**
>
>   **2. The interface cable is optional, which will be equipped by the customer's request.**

2.2 Removing the Protective Materials

1. Open the packing box, take out the printer.

2. Save all the original packing materials so that they can be used when transporting the printer.

2.3 Connecting to Your Computer or Other Equipment

The printer is configured with a cash drawer interface and one data interface (parallel interface, USB interface, serial interface + USB interface, Ethernet interface + USB interface, USB interface + Bluetooth or USB interface + Wi-Fi). (Please take the specific interface as standard) Connect the printer to your computer with the correct cable.

> **Note: Before connecting or disconnecting the cash drawer cable, parallel interface cable or serial interface cable, make sure that the power of the printer is turned off. Also make sure the power cable plug is disconnected from the AC outlet. Or else it may damage the printer.**

2.3.1 Connecting the Cash Drawer Cable

Turn off the printer and plug the cash drawer cable into the cash drawer interface on the back of the printer and the other end to the cash drawer, as shown in Figure 2-2.
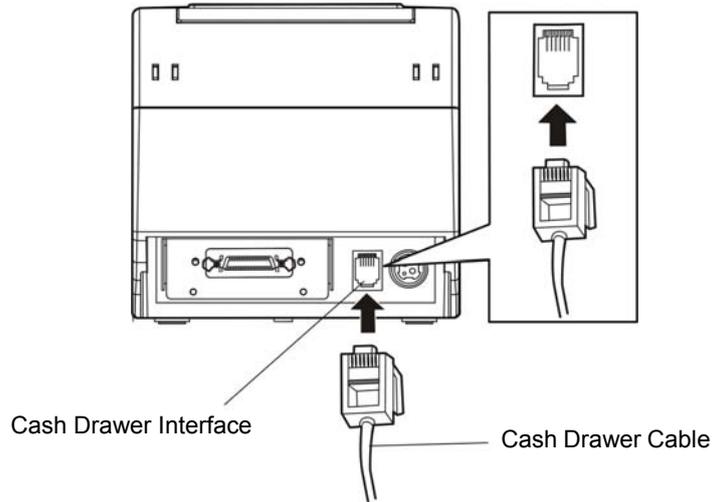
Figure 2-2 Connecting the cash drawer cable

Caution: Please use the appropriate cash drawer. Manufacturer will not honor warranty when using unauthorized cash drawer.

2.3.2 Connecting the Parallel Interface Cable

1. Make sure the computer and the printer are both turned off, connect the parallel interface cable to the connector of the printer, Squeeze the wire clips on both sides and make the cable fixed. As shown in Figure 2-3.
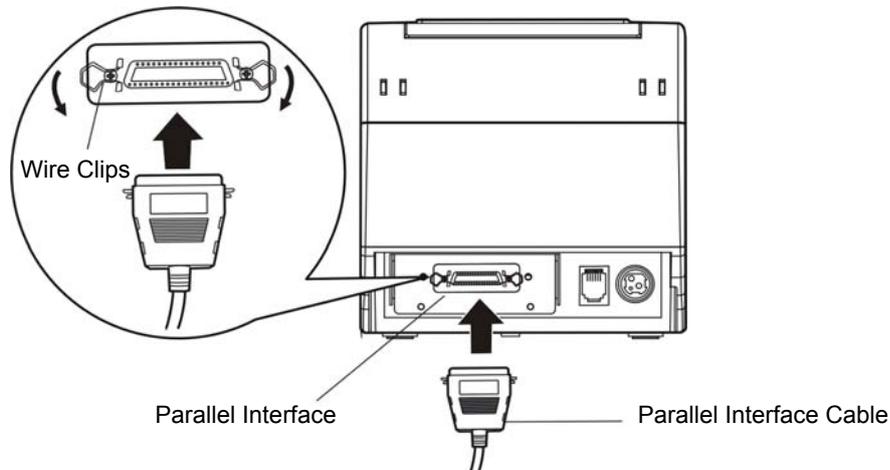
Figure 2-3 Connecting the parallel interface cable

2. Connect the other end of the cable to the computer. Tighten the screws on both sides and make the cable fixed.

2.3.3 Connecting the USB Interface Cable

1. Plug the USB cable A end (flat shape) into the computer's USB interface.

2. Plug the USB cable B end (square shape) into the printer's USB interface as shown in Figure 2-4.

Note: Please don't impact the plug after connecting USB interface cable.
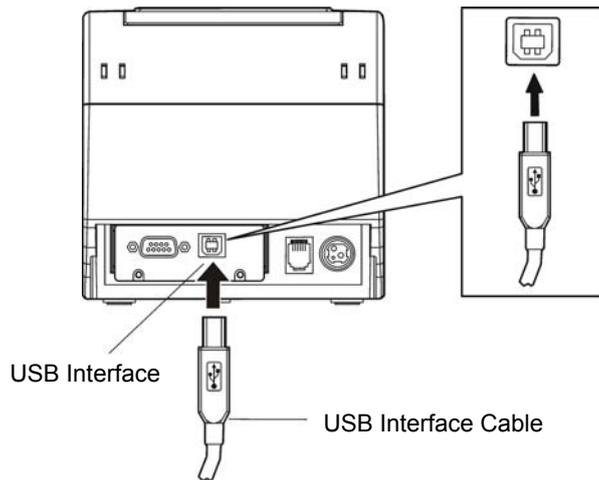
Figure 2-4 Connecting the USB interface cable

2.3.4 Connecting the Serial Interface Cable

1. Make sure the computer and the printer are both turned off, connect the serial interface cable to the connector of the printer. Tighten the screws and make the cable fixed. As shown in Figure 2-5.
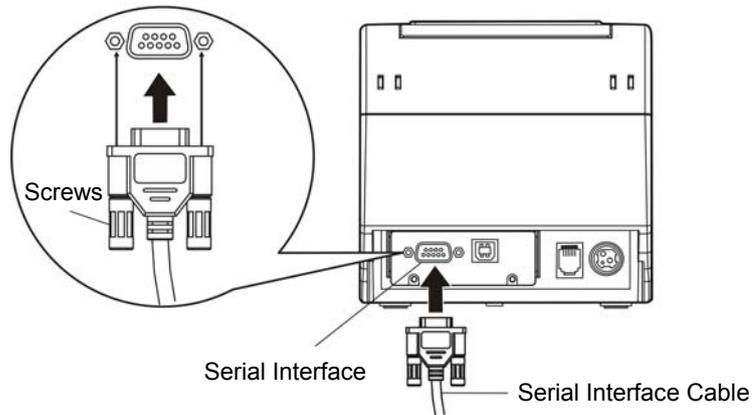
Figure 2-5 Connecting the serial interface cable

2. Connect the other end of the cable to the host's serial interface. Tighten the screws on both sides and make the cable fixed.

2.3.5 Connecting the Ethernet Interface Cable

1. Plug the crystal end of the Ethernet interface cable (RJ-45) into the printer's Ethernet interface as shown in Figure 2-6.

2. Plug the other end of the Ethernet interface cable into the LAN's entrance.
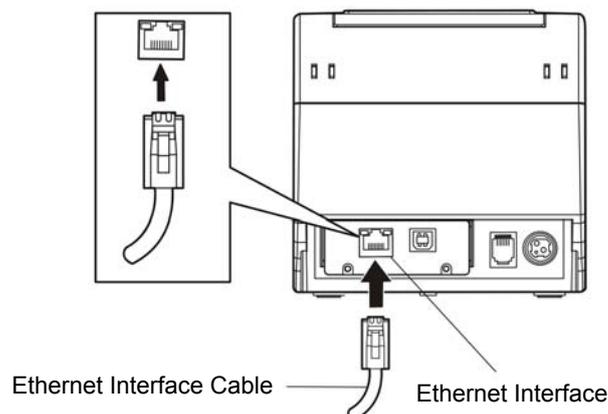
Figure 2-6 Connecting the Ethernet interface cable

> **Note: Please refer to the *user's manual* for the detailed instructions of network settings.**

2.4 Connecting the Power Cord

1. Make sure the printer's power is turned off. (The pressed down side on the switch with "O" mark denotes the printer is off).

2. Make sure the voltage of the electrical outlet matches that of the AC adapter.

3. Plug the AC adapter into the printer's power supply inlet.

4. Plug one end of power cord into the AC adapter, and then plug the other end into the grounded electrical outlet.

——— Power Supply Inlet

AC Adapter
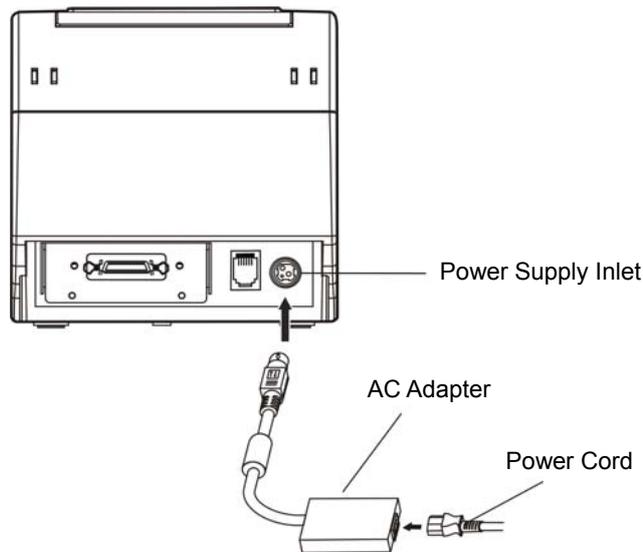
Power Cord

Figure 2-7 Connecting the AC adapter

> **Caution: 1. If the rated voltage doesn't match the outlet voltage, contact your dealer for assistance. Do not plug in the power cord.**
>
> **2. Please use the electrical outlet connecting the ground properly.**
>
> **3. Please use original AC adapter only. Manufacturer will not honor warranty when using unauthorized AC adapter.**

2.5 Installing the Driver and Selecting the Cutter

You should setup the printer driver in Windows before using the BP-003 printer.

Please use the cable to connect computer with printer, then turn on the computer and the printer, put the driver CD into the CD-ROM. Install driver by the following ways:

Auto-installing way

Double click the file "Setup.exe" in the driver disc, install driver by the following direct.

> **Note: Auto-install way needs the operation systems of Windows 2000 and above and the operation systems of Window 98/ME and below are not supported.**

Hand operated installing way

> **Note: The hand-operated installing ways of serial interface and parallel interface are the same.**

1) The installing steps of parallel interface for Windows 2000/XP/Vista are as follows:

1. Click "Start" → "Settings" → "Select Printers".

2. Click "Add Printer", then a window of "Add Printer Wizard" pops up, click "Next", then please read the select guide carefully, such as, select "Local printer" in the "Local or Network Printer" window, then click "Next".

3. A window of "Select a Printer Port" pops up, select "LPT1: (Recommended Printer Port)", (If you need to use other ports, please select the respective port), click "Next".

4. A window of "Install Printer Software" pops up, click "Have Disk...", click "Next".

5. A window of "Install From Disk" pops up. Please according to the operating system environment, you should select the path as follow: CD-ROM → "Drivers" → "WIN2000 (XP-Vista-Win7)", click "Open", then click "OK" to return to the window of "Install Printer Software", click "Next".

6. Follow the guide click "Next" gradually till the installation is finished.

2) The installing steps of parallel interface for Windows 7 are as follows:

1. Click "Start" → "Device and Printers".

2. Click "Add Printer", then it pops up a window of "Add Printer Wizard", click "Next", then please read the select guide carefully, such as, select "Local printer" in the "Local or Network Printer" window, then click "Next".

3. A window of "Select a Printer Port" pops up, select a usable port. Such as, select "LPT1: (Recommended Printer Port)", (If you need to use other ports, please select the respective port), click "Next".

4. A window of "Install Printer Driver" pops up, click "Have Disk...", click "Next".

5. A window of "Install From Disk" pops up. Please select the path as follow: CD-ROM → "Drivers" →"WIN2000 (XP-Vista-Win7)", click "Open", then click "OK" to return to the window of "Install Printer Driver", click "Next".

6. Follow the guide click "Next" gradually till the installation is finished.

The USB interface installing steps for Windows 2000/XP/Vista/Win7 are as follows:

The following steps are used Windows XP as an example. There are slight differences among different operating systems.

1. Connect the printer to computer with the USB cable and turn on the printer. After the computer find out new hardware, a window of "Found New Hardware" pops up—"Welcome to Found New Hardware Wizard"

2. Choose "Install from a list or specific location (Advanced)", click "Next".

3. A window of "Please choose your search and installation options" pops up, choose "Don't search, I will choose the driver to install", click "Next".

4. A window of "Add Printer Wizard" pops up, click "Have Disk...".

5. A window of "Install From Disk" pops up. Please according to the operating system environment, you should select the path as follow: CD-ROM → "Drivers" → "WIN2000 (XP-Vista-Win7)", click "Open", then click "OK" to return to the window of "Add Printer Wizard", click "Next".

6. Follow the guide click "Next" gradually till the installation is finished.

The installing steps for Windows 98 are as follows:

(1) The installing steps with a parallel interface cable or a serial interface cable:

1. Click "Start" → "Settings" → "Printers".

2. Double click "Add Printer", then a window of "Add Printer Wizard" pops up, select "Local printer" in the "Local or Network Printer" window, then click "Next".

3. A window of "Click the manufacturer and model of your printer" pops up, click "Have Disk...", please click "Browse", select the path as follow: CD-ROM → "Drivers" → "WIN98 (WINME)", then click "OK".

4. A window of "Install From Disk" pops up, click "OK, return to a window of "Add Printer Wizard", then click "Next".

5. A window of "Printer port" pops up, select "Available ports", such as, select "LPT1: Printer Port", click "Next", and then show the printer's name. If you do not have any other printer driver installed, then this printer driver will be set as the default one by the system, click "Finish". Otherwise according to prompt, choose the printer is default: "Yes", click "Next", choose "Yes-(recommended)", click "Finish". A window of "Printer test page completed" pops up, click "Yes".

6. The printer driver process is installed successfully.

(2) The installing steps with the USB interface cable:

Note: 1. As the system of Windows 98/ME doesn't have integrated USB driver control, please install USB driver before using USB interface printing. Then install USB printer driver.

2. If it has installed the USB driver, please install the USB printer driver directly as the following steps.

USB driver installing steps:

1. Connect the USB cable and turn on the printer.

2. After the computer find out new hardware and finish searching, a window of "Add New Hardware Wizard" pops up, click "Next".

3. A window of "Add New Hardware Wizard" — "Windows operation" pops up, choose "Search the best driver for the device (recommended)", and click "Next".

4. A window of "Search for new drivers" pops up, check "Specify a location", click "Browse", select the path as follows: CD → ROM → "Drivers"-"[WIN98 (WINME) \ USBdriver[", then click "OK".

5. Return to a window of "Add New Hardware Wizard", click "Next"; a window of "Windows driver file search for the device" pops up, click "Next".

6. After the system finishing installing the file automatically, a window of "USB Print Supported" pops up, click "Finish".

7. The printer USB driver process is installed successfully.

USB printer driver installing steps:

1. Click "Start" → "Settings" → "Printers".

2. Click "Add Printer", then a window of "Add Printer Wizard" pops up, click "Next".

3. A window of "Click the manufacturer and model of your printer" pops up, click "Have Disk...", please click "Browse", select the path as follow CD-ROM → "Drivers" → "WIN98 (WINME)", and then click "OK".

4. A window of "Install From Disk" pops up, click "OK", return to a window of "Add Printer Wizard", then click "Next".

5. A window of "Printer port" pops up, select "Available ports", select "JMUSB", click "Next", and then show the printer's name. If you do not have any other printer driver installed, then this printer driver will be set as the default one by the system, click "Finish". Otherwise according to prompt, choose the printer is default: "Yes", click "Next" choose "Yes-(recommended)", click "Finish". A window of "Printer test page completed" pops up, click "Yes".

6. The printer driver process is installed successfully.

Please setup the driver following the setup description in the CD going along with the printer. What's more, you can use the TM-T88II, TM-T88III series driver from EPSON.

If you want to cut the paper after printing, please select the "Full cut" or "Partial cut" in the Paper/Quality page after clicking the "Printing Preferences" button, which lies in the "General" page of the driver properties. Referring figure is shown below.

It is noted that if paper cut effect is the same whichever you select "full cut" or "partial cut" in the driver properties, which means that the cutter (the printer equipped with) can only carry out one kind of cut-methods.
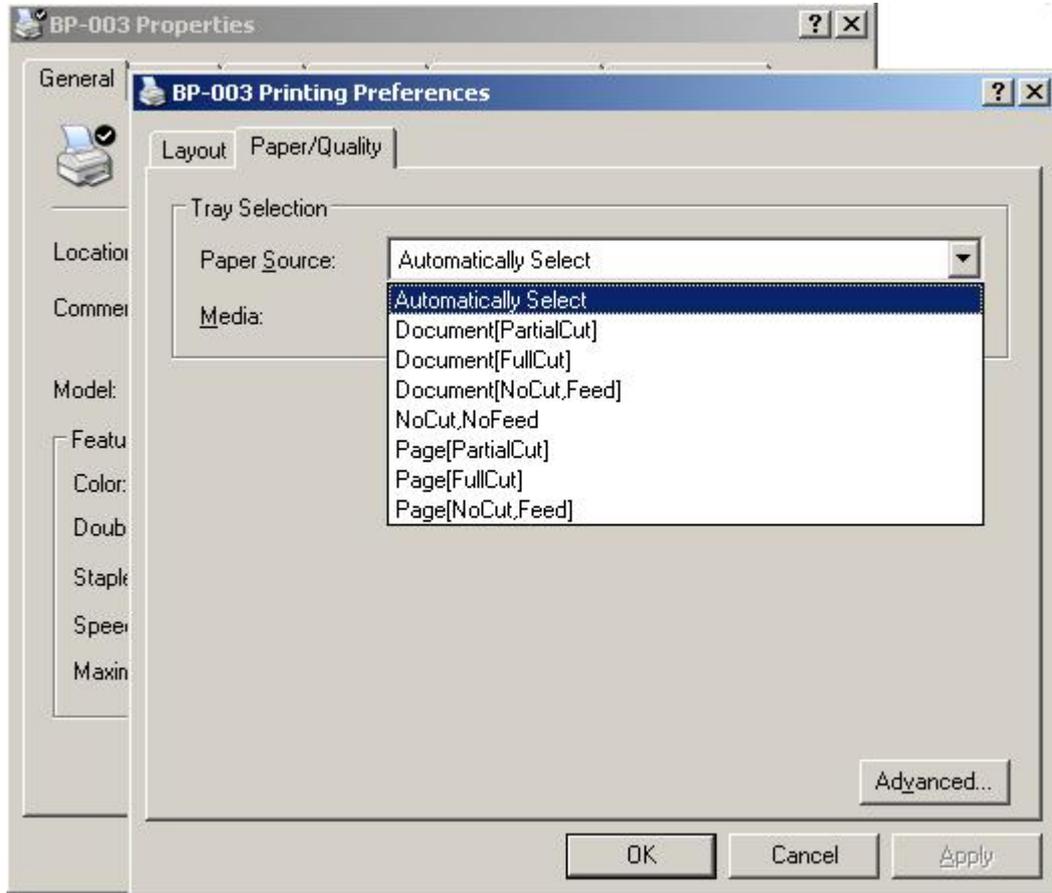
2.6 Installing Bluetooth Interface Driver

> **Note: Select to install this driver according to the chosen model.**

1. Choose the appropriate Bluetooth adapter, the operation system is Window XP or above which with Bluetooth adapter driver.

2. Turn on the printer, search Bluetooth device in Window XP system, and click "Add".
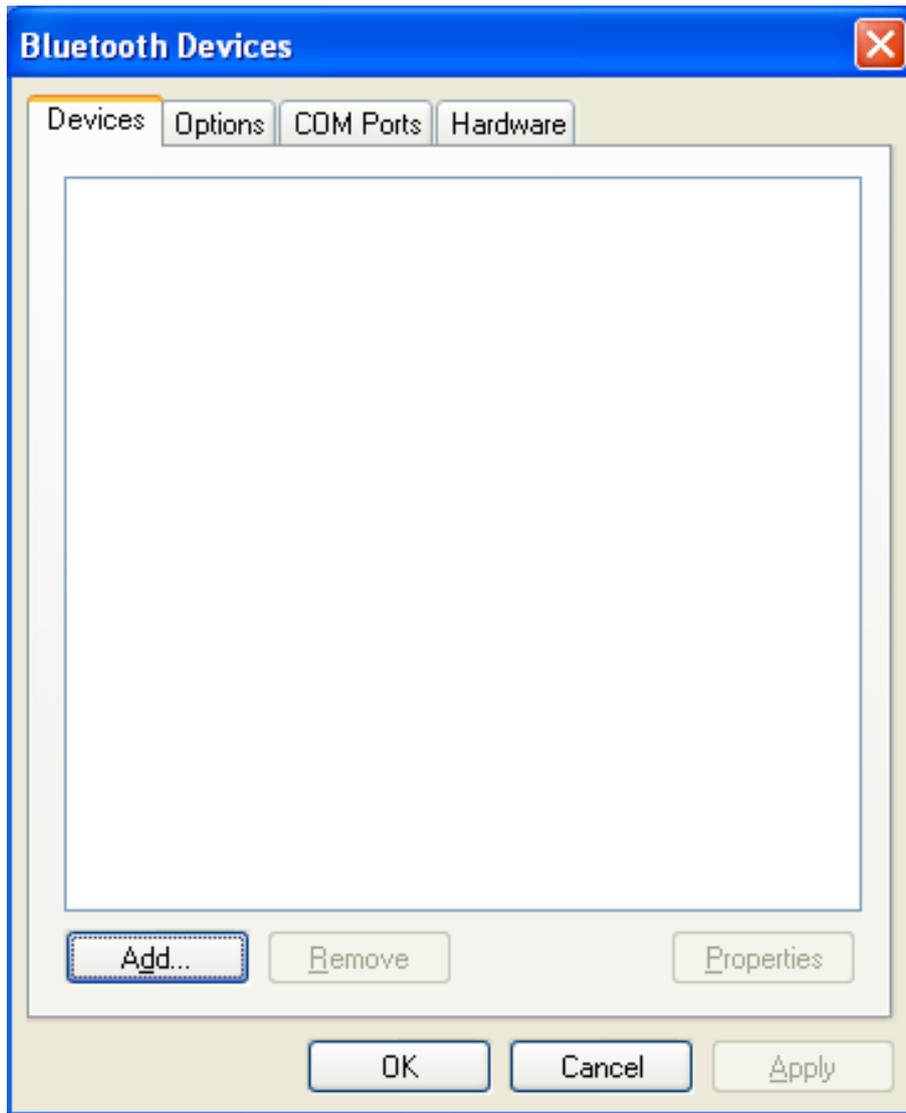
3. Tick off the option of "My device is set up and ready to be found." Click "Next" to continue.

4. Select the "BP-003", and then click "Next".
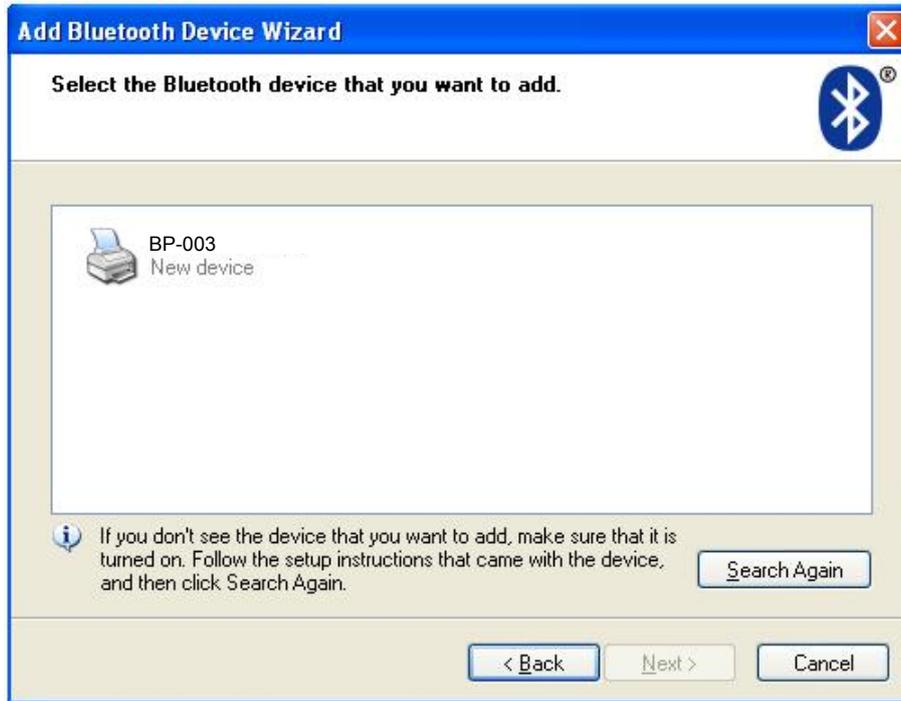
5. Tick off the option of "Let me choose my own passkey" and enter "1234" as shown, then click "Next".
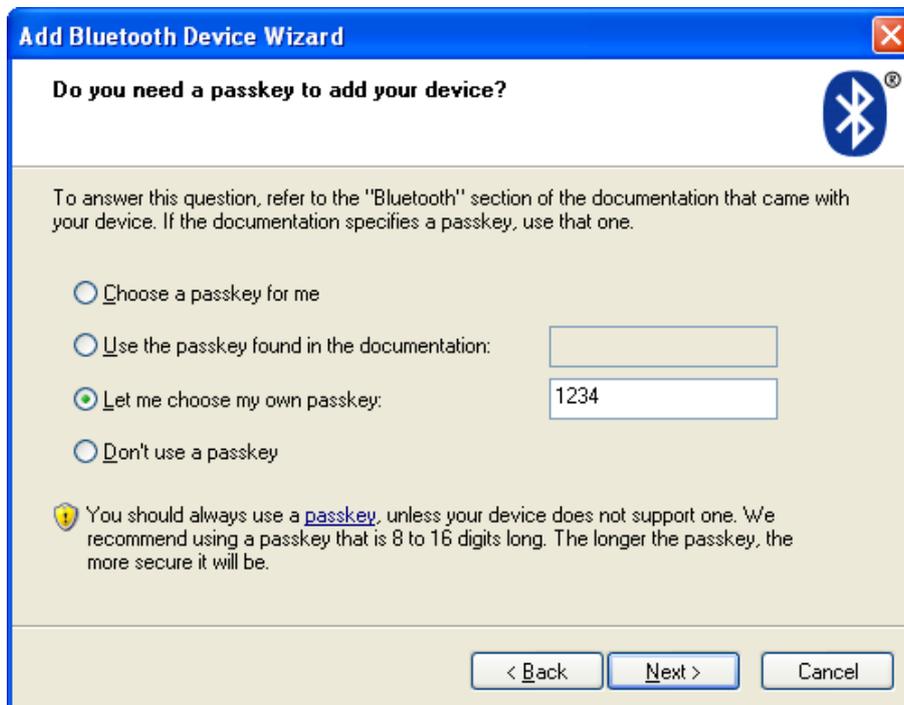
6. Record the Outgoing COM port and click "Finish", then reboot the computer.

7. Set the printer driver print port as the outgoing port and the installation is finished.

> **Note: Every Bluetooth device has its own address. Please reinstall it when replacing the Bluetooth device.**

2.7 Ethernet Settings

> **Caution: The network printing function needs the operating systems of Windows2000 or above and the operating systems of Window 98/ME and below are not supported.**

2.7.1 Connecting Printer

Power on the printer, connect with the Ethernet interface cable which has been connected to LAN, and look into the information of Ethernet LED indicator to ensure the printer has entered the normal connection.

Yellow LED	Green LED	Description
ON	Blink	Online
OFF	OFF	Offline

2.7.2 Setting IP Address

1. Run NetFinder Software

Double click NetFinder.exe in the PC which connects the printer in the same LAN. The figure of the software is shown as follows:
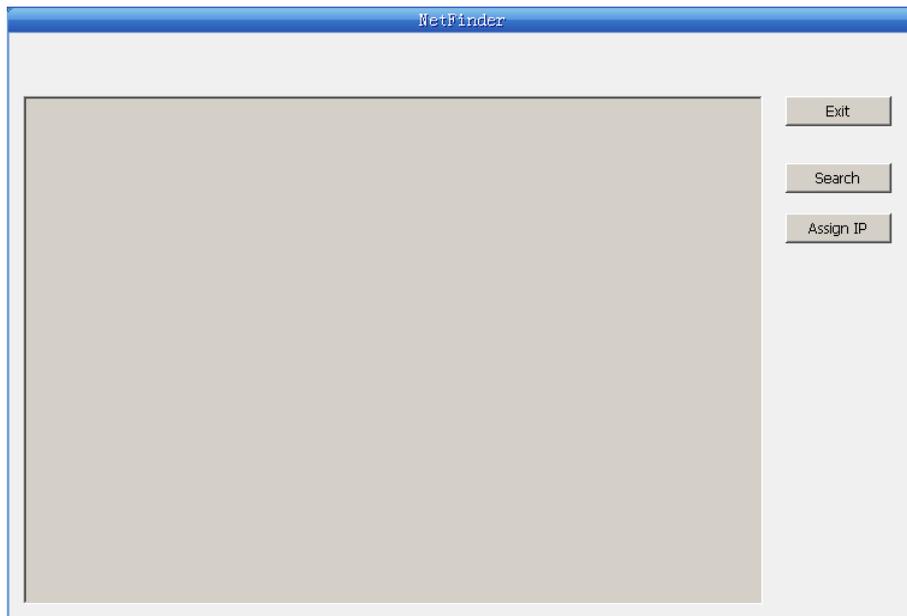
Button description:

Exit — Exit from the software

Search — Search printers in the same LAN

Assign IP — Modify the IP address and other settings for the specified printer.

2. Search Printer

Click "Search" button in the main interface, the dialogue box appearing will begin searching automatically and displays the status, listing a printer in the main interface if found. The time is counting down in the progress bar (10s in total) and the search will finish as soon as the time is over. If you need to go on searching, press "Search" button again.
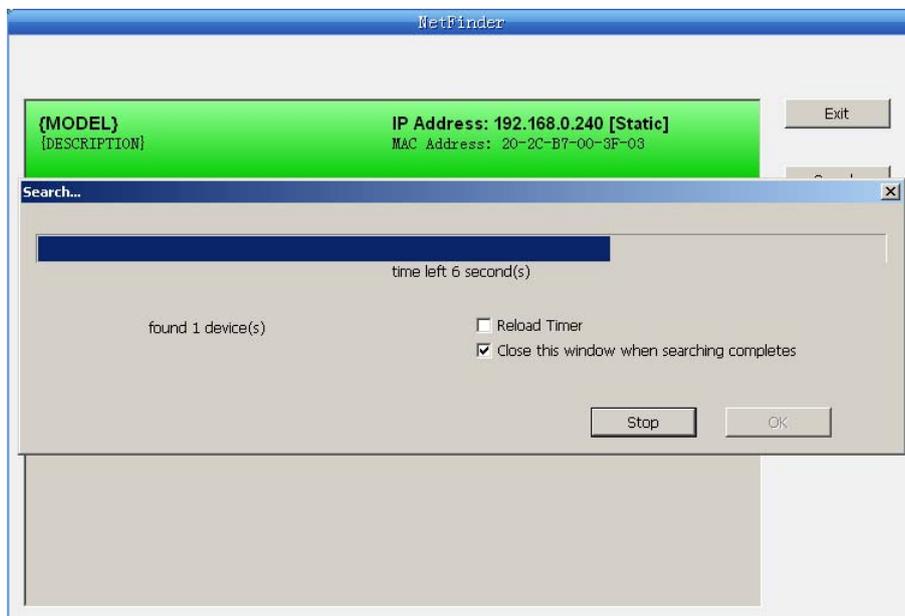
If the printer still can not be found out when the network connection is correct in the same network, Please check whether the network fire wall on the PC is open or not. If there is fire wall, please close it temporarily; open it again after finishing searching and setting a printer completely.

3. Setting printer's IP address

The printer's information is listed in the main interface, the left side of which is the model and description and the right is the IP and MAC address. What's more, the assign mode (dynamic/static)

is noted behind the IP address.
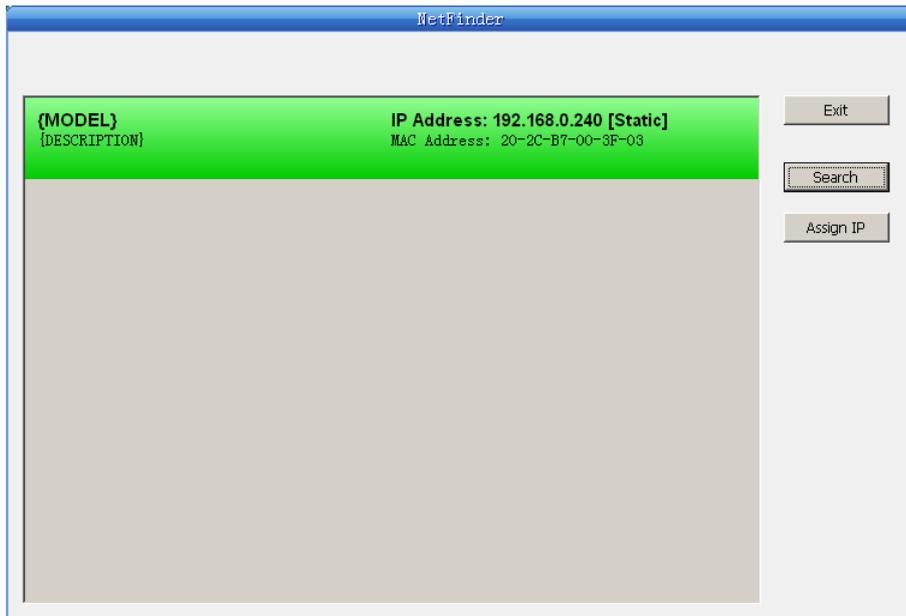
1) Correlative description for IP address settings

In order to search and set printer's IP address conveniently for the first time, the factory default setting is DHCP mode which assigns IP address dynamically. If there is no DHCP server in the connected LAN and printer is set to DHCP mode as well, then it will use the internal pre-set address (IP: 10.0.0.1, Subnet Mask: 255.255.255.0) automatically.

It is suggested that printer's IP set to static in actual usage, which can cut down the time when initializing the Ethernet interface as the printer is turned on and prevent IP conflicts (The dynamic address used in printer may conflict with another one). The network segment part of the IP address and Subnet Mask must be the same as those of PC connecting with a printer. For example, the address of working PC is 192.168.0.1/255.255.255.0 (IP/Subnet Mask), then which of printer should be set to 192.168.0.x/255.255.255.0（x=2~254 and should avoid the IP in used. It is not restricted for NetFinder to search printers in the same network but different segment parts (can not stride gateway). Relative glossary of IP address may refer to corresponding information.

2) Setting printer's IP address

Select the printer information to be modified (black frame appears), click "Assign IP" button. Set the IP in the dialogue box appearing.
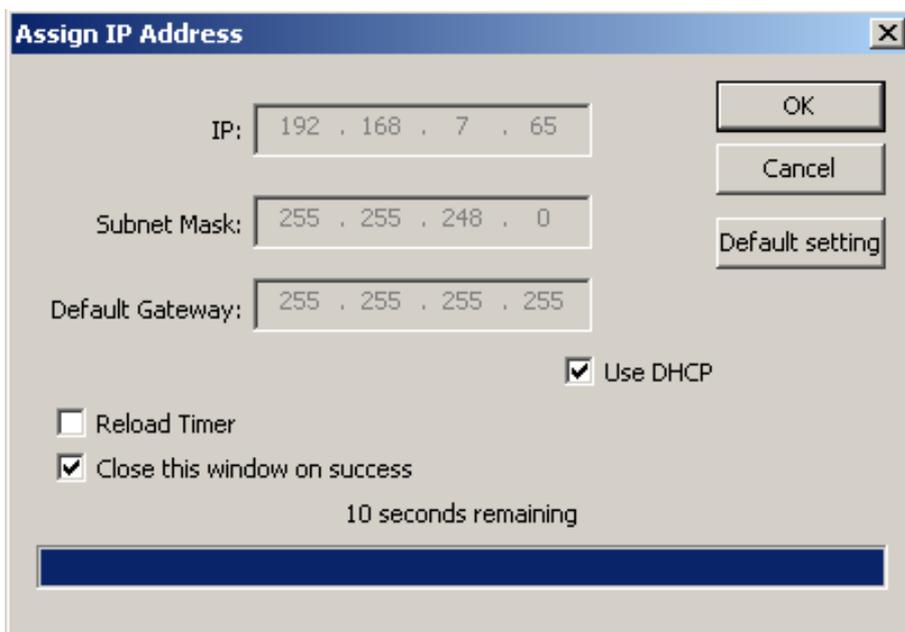
Check the "Use DHCP" if needed to assign dynamic address, the settings above will be disabled automatically. Please make sure there is a DHCP server in the network, or the printer can not receive an effective IP address.

When to specify static address, uncheck "Use DHCP" and fill in "IP address", "Subnet Mask" and "Default Gateway". If there is no gateway in the network, fill 255.255.255.255 in the "Default gateway". "IP address" and "Subnet Mask" should obey the assigning rules of local LAN (Ethernet), please enquire the administrator of networks which the printer connects to for more details.

Click "OK" to send address setting information to the specified printer.

Click "Cancel" if you abandon the modification.

Click "Search" in the main interface again to update printer information after modifying the printer's IP address.

3) Report printer's IP address

Report the printer's IP address, which will be used in the section "Newly-install printer network driver" or "Upgrade-install printer network driver (setting driver's network port)".

2.8 Wi-Fi Setting

> Caution: The network printing function needs the operation systems of Windows2000 and above, the operation systems of Windows98/ME and below are not supported.

2.8.1 Connecting the Printer, Using WiFiConfig Software

Connect the printer and computer with the USB cable and turn on the power both of them. Make sure the printer is in the operating state; double click WiFiConfig.exe in the WiFiConfig software of the CD list. The figure of the software is shown as follows:
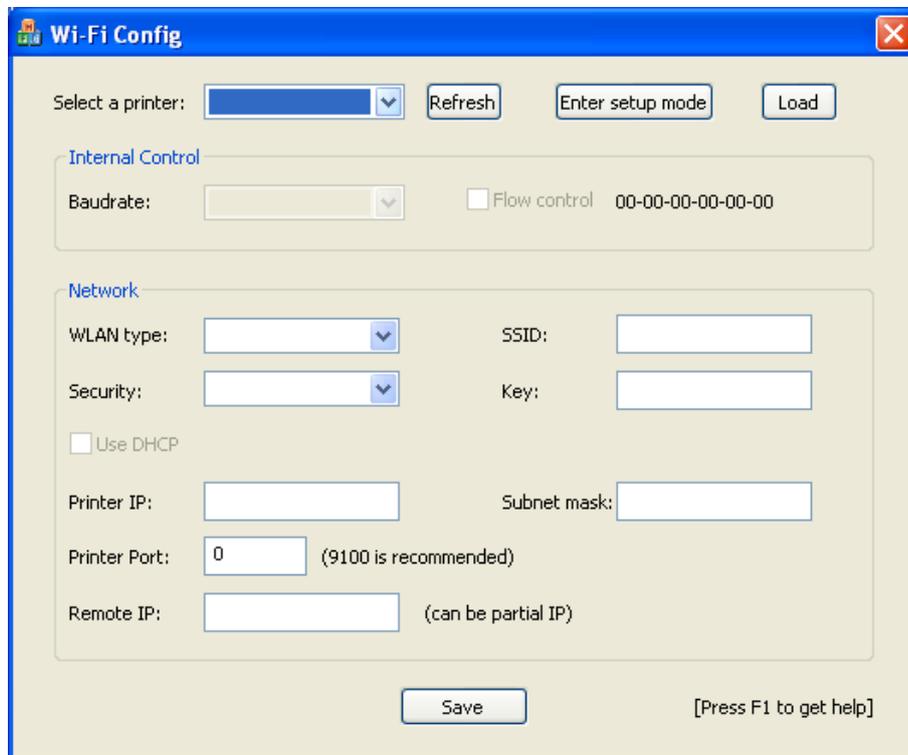
Figure 1

2.8.2 Detailed Settings

1. Select a printer: click "Refresh", then select the corresponding connected printer model in the "Select a printer".

2. Click "Enter setup mode", then a figure of software as figure 2 pops up. The printer and computer is connected successfully when the dialogue box "Connection is successful" appears. Click "OK".

Note: When the dialogue box "Connection is not successful" pops up, you need to check if the printer is turned on or the printer and computer is connected well with the USB cable.
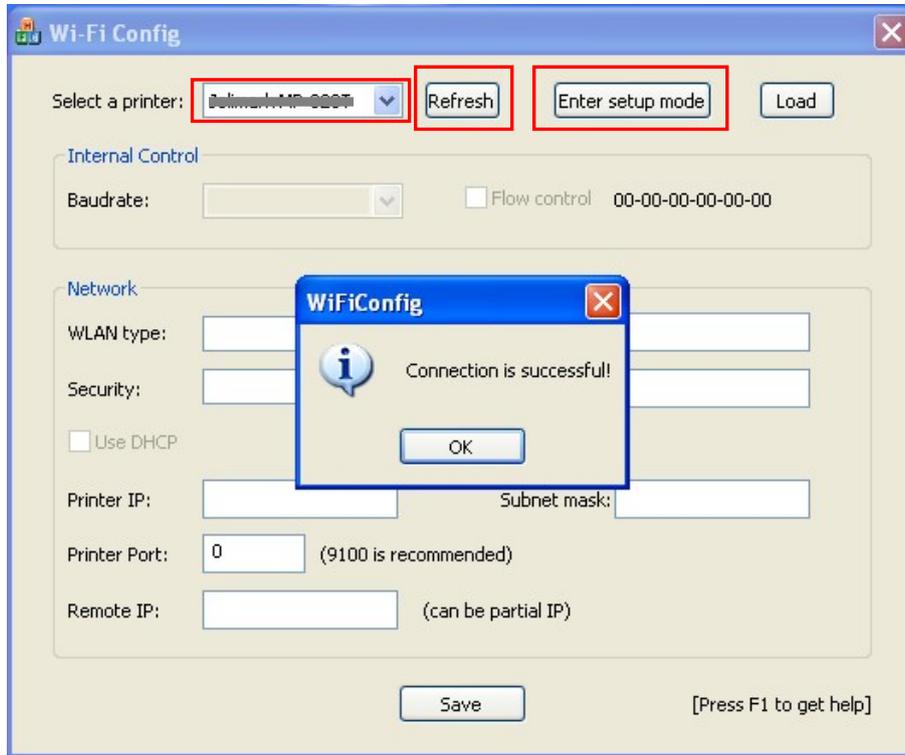
Figure 2

3. Click "Load", the computer will load the information of the printer and display it on the WiFiConfig software. Click "OK" in the dialogue box "Loading is complete" that pops up. (As figure 3 shown)
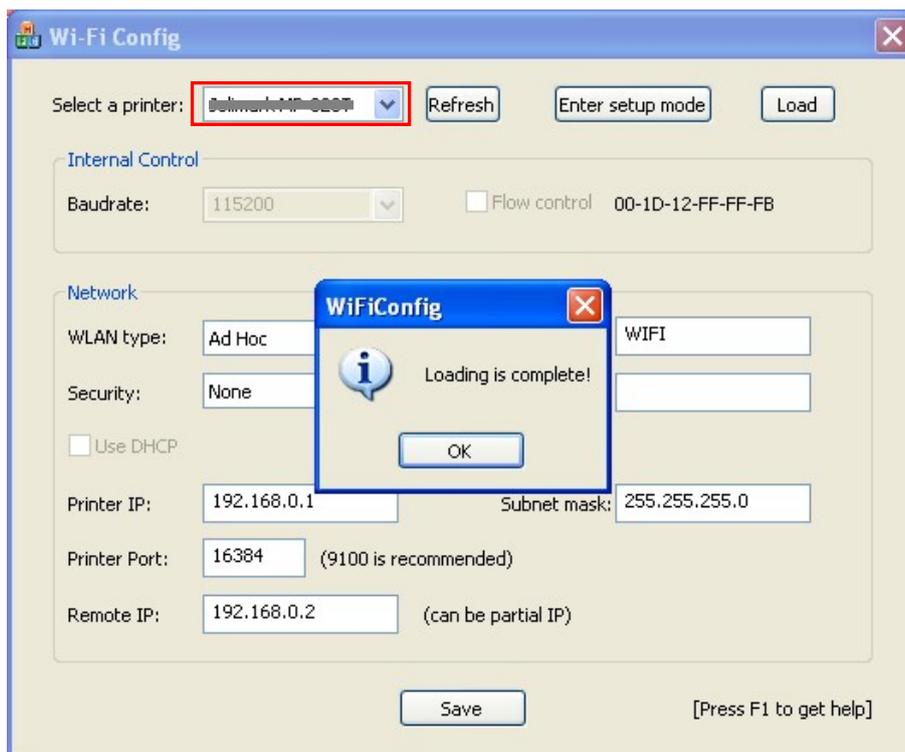
Figure 3

4. The loaded information is just the setting information of the currently connected printer. For normal use, you need to reset the parameters according to the wireless networks you are using.

The detailed settings and description are as follows:

Note: Please make sure the wireless network card has been connected to the related router or hotspot before the following operation.

The WLAN type can be divided into three types: Infrastructure, Ad Hoc and Off. (As figure 4 shown)

Infrastructure: Select infra. This is the common WLAN type which connects the networks through hotspot or router.

Ad Hoc: Select ad-hoc which ueses printer as the hotspot and communicates with the printer directly through wireless network card.

Off: Shut down the Wi-Fi interface of the printer. Printer will not print in the Wi-Fi mode after selecting this item.
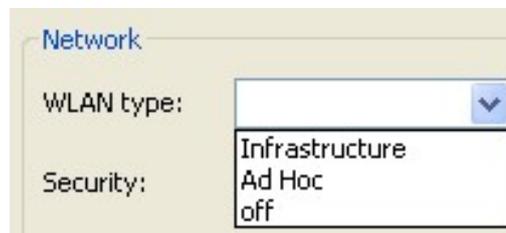
Figure 4

SSID

When "WLAN type" is selected to "Ad Hoc", use the loaded SSID directly (Default setting is WIFI)

When "WLAN type" is selected to "Infrastructure", network name should be the same with the name of hotspot or router.

Note: The longest network name is 32 characters. Make sure there is no space between characters and distinguish the capital and small letter.

You can find out SSID by the following way (Take the operation system WIN XP as an example):

Right click "My Network Places", and then click "Properties" to find the "Local Area Connection 2" you are using. Double click it and the window of "Local Area Connection 2 Status" pops up. You can find the corresponding SSID network name in it. (As shown in figure 5)

Note: Local Area Connection 2 here is just used as an example, and the specific network name should accord with the currently used wireless network.

Double click Local Area Connection 2

SSID
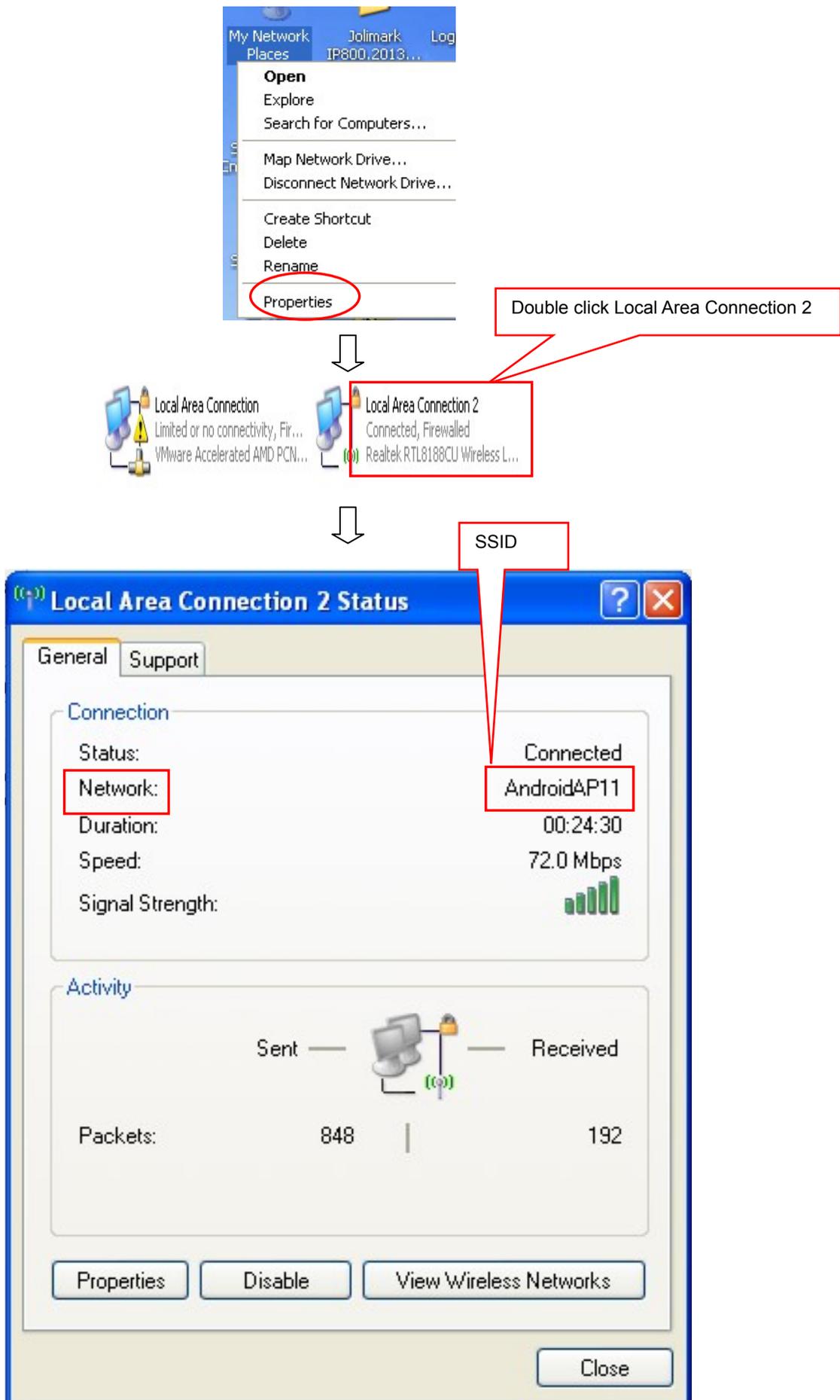
Figure 5

Security   Select the security of the wireless network data.

Acquire the security as the following way (Take the operation system WIN XP with selecting "Infrastructure" in the "WLAN type" as an example):

(1) Click "Properties" in the window of "Local Area Connection 2 Status". (Get reference in figure 5)
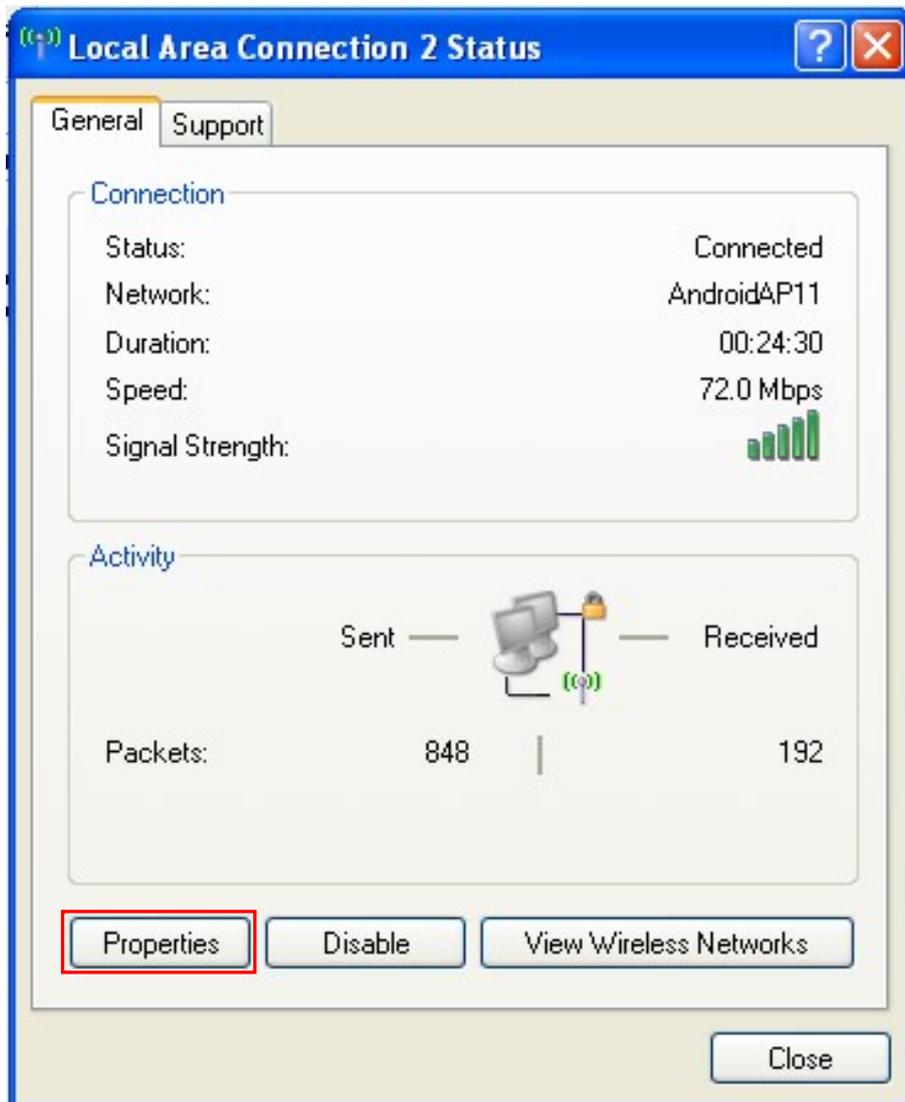
Figure 6

(2) When the window of "Local Area Connection 2 Properties" pops up, click "Wireless Networks" in the upper side of the window. (As shown in figure 7)
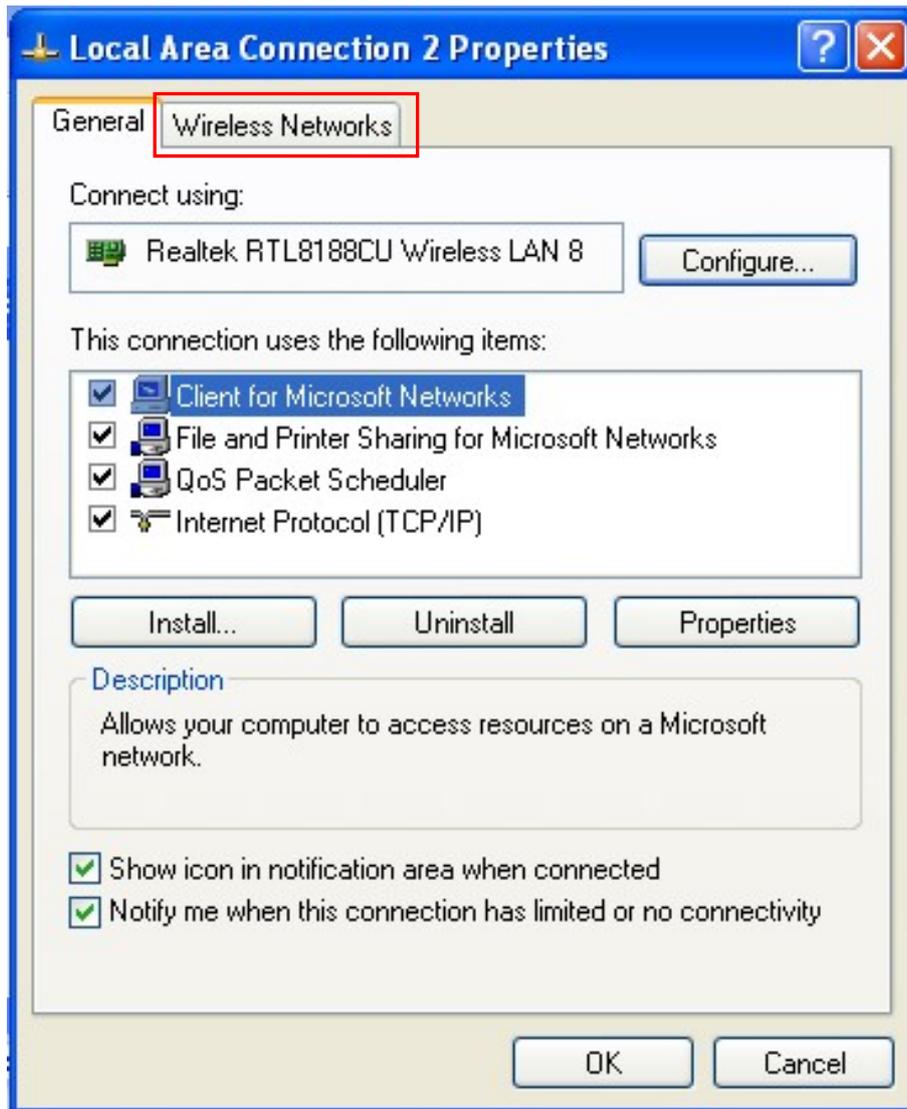
Figure 7

(3) Select the current wireless network name in the item of "Preferred networks" and then click "Properties". (As shown in figure 8)
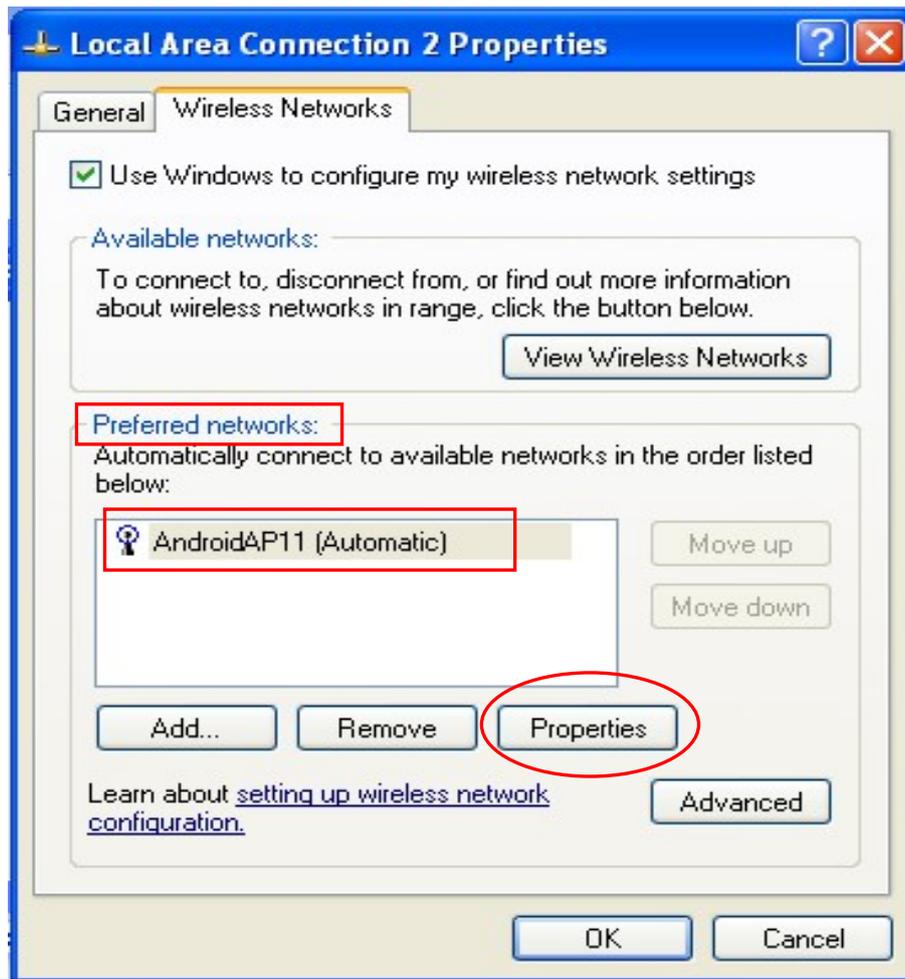
Figure 8

(4) When the window of "Properties" pops up, find the security in the item of "Wireless network key". (As shown in figure 9)
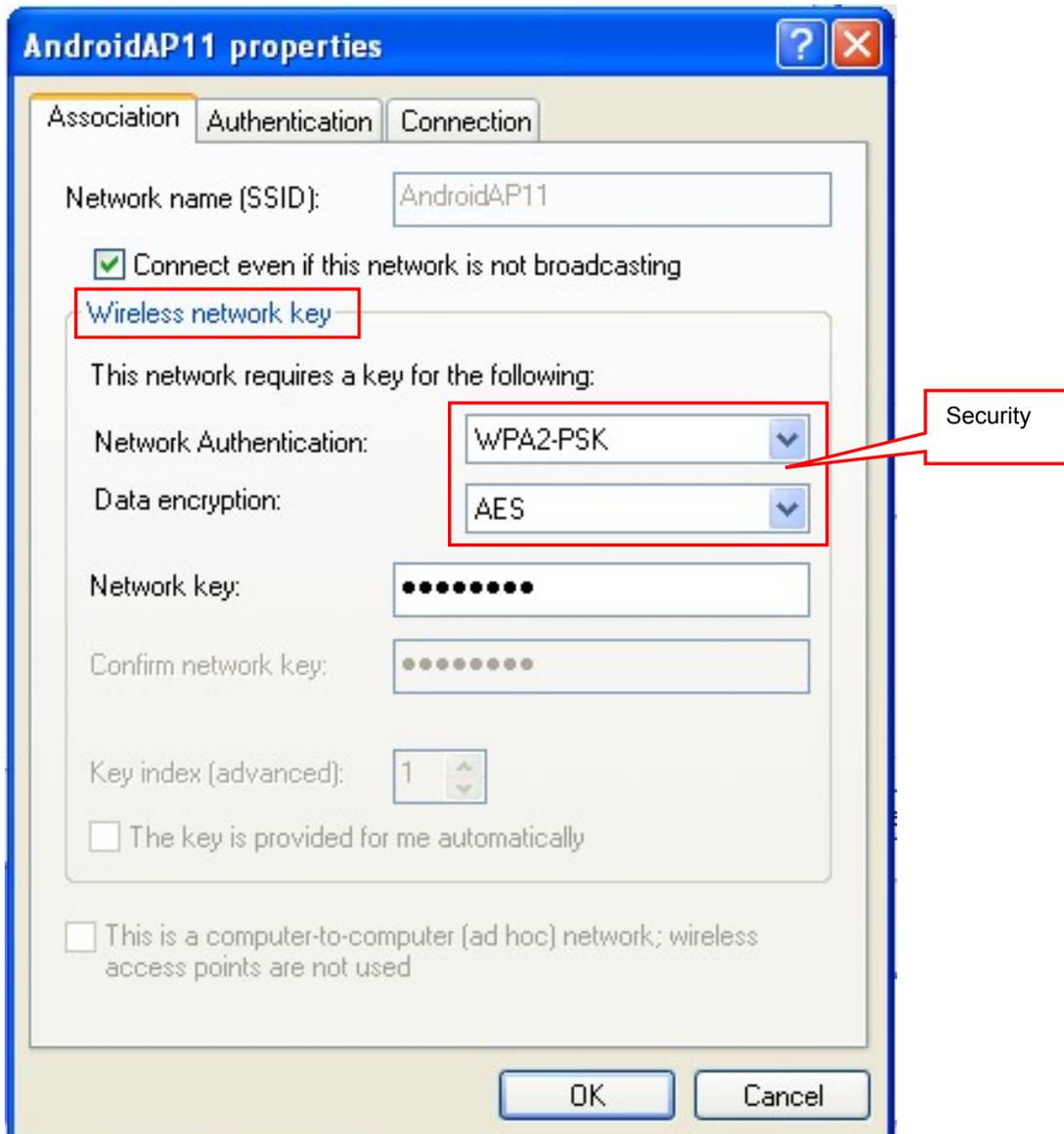
Figure 9

Key   Fill in the corresponding key of the wireless network. When "Security" is selected to "None", you do not need to fill in the key.

Printer IP   Set the IP address of the printer Wi-Fi interface in the same segment with the wireless networks.

The way to find and modify the wireless network segment is as follows: (Take the operation system WIN XP with selecting "Infrastructure" in the "WLAN type" as an example)

(1) Click "Support" in the window of "Local Area Connection 2 Status". (Get reference in figure 5)

Click "Support"
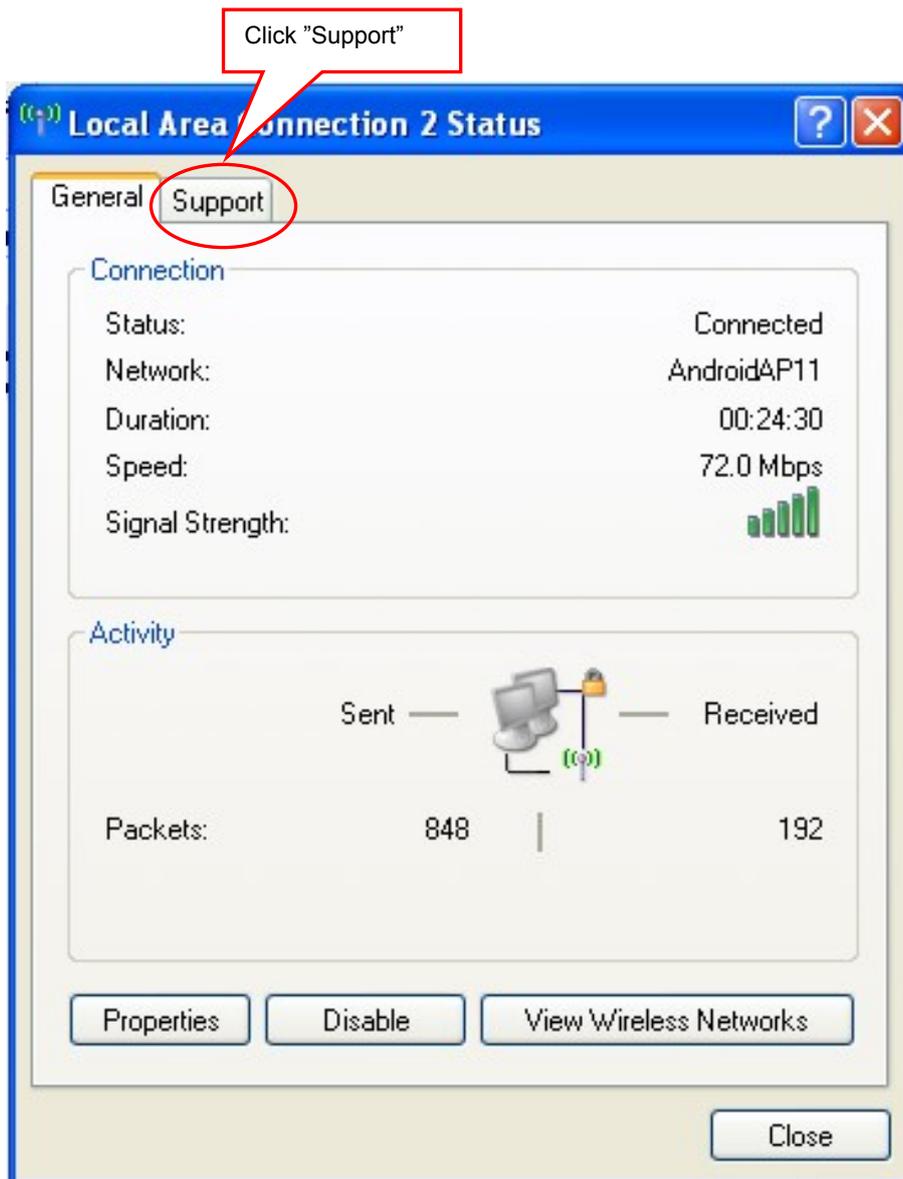
Figure 10

(2) Figure 11 displays the IP address information of the current wireless networks. Please find out the corresponding wireless network segment according to this IP address and set the printer IP with different IP address in the same segment.

In Figure 11, the IP Address is 192.168.43.120 and the segment is 192.168.43. Please do not fill in this IP Address in the item of "Printer IP" directly.

In the item of "Printer IP", you should fill in: 192.168.43.x (1<x<254)，here x≠120.

Note: The printer IP should not conflict with other network devices.
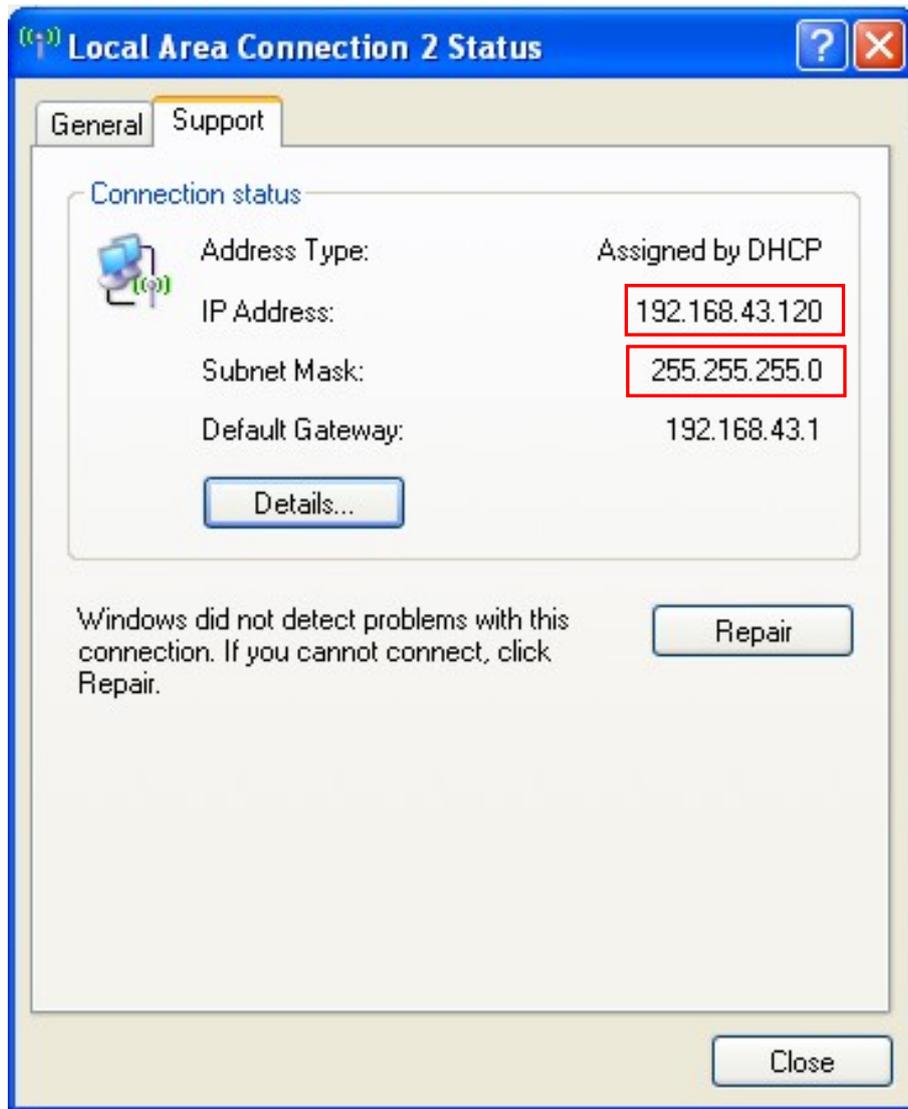
Figure 11

Subnet Mask   Set the subnet mask of the printer Wi-Fi interface. It is suggested that the subnet mask should be the same with the wireless networks. (Check the subnet mask in figure 11)

Printer Port   Set the port number of the printer Wi-Fi interface. 9100 is recommended.

Remote IP   Allow printer to receive the printing data sent by the target IP (or IP segment).

           Fill in the corresponding segment according to the wireless network IP address you find out in figure 11.

    5. Click "Save" to save the set parameters and then restart the printer.

2.8.3 Checking Wi-Fi Parameters

After setting Wi-Fi network parameters, you should check the parameters to ensure the Wi-Fi network connection is proper.

1. Through "ping" command to check if the printer connects to network or not.

2. When "WLAN type" is select to "Infrastructure", you could look into the Wi-Fi LED indicators to judge the connection status.

LED Description

LED / Network / WLAN type	Infrastructure	Ad Hoc	OFF
Connect	ON	ON	BLINK
Disconnect	BLINK	ON	BLINK

2.9 Installing Printer Network Driver

The ways of installing network driver are divided into Newly-install way and Upgrade-install way according to whether the PC is installed the printer driver or not.

If the printer driver hasn't been installed on the PC, adopt newly-install way whose steps are shown in "Newly-install printer network driver".

If the printer driver has been installed on the PC, adopt Upgrade-install way whose steps are shown in "Upgrade-install printer network driver".

1. Newly-install printer network driver

1) Click "Start"→"Settings"→"Select Printers".

2) Click "Add printer", then a window of "Add Printer Wizard" pops up, click "Next".

3) A window of "Add Printer Wizard" pops up, select "Local printer" in the "Local or Network Printer" window, and then click "Next".

4) A window of "Select the Printer port" pops up, select "Create a new port", and then select "Standard TCP/IP Port" in the port and click "Next".
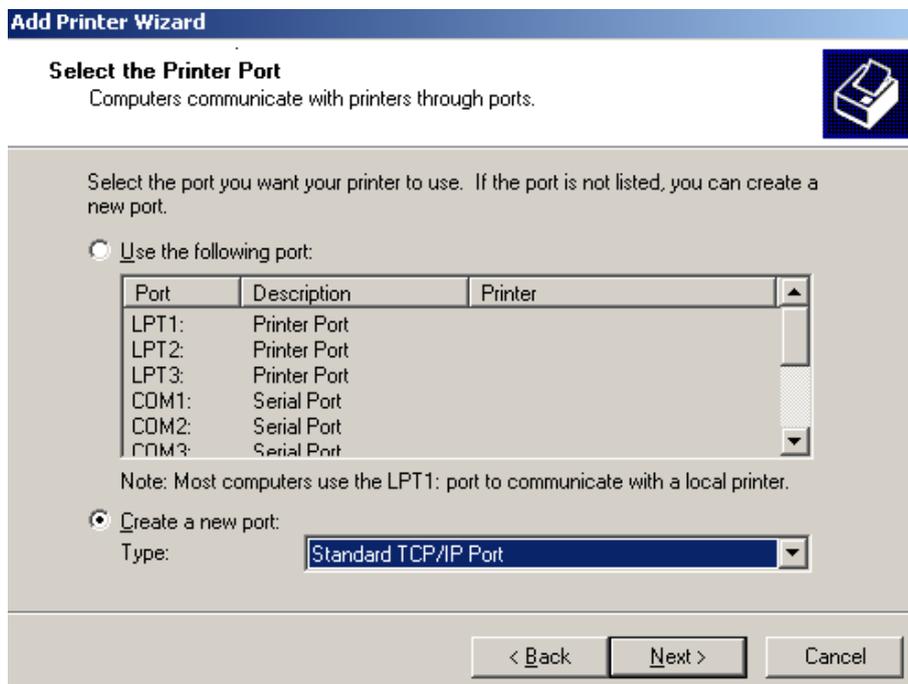
5) A window of "Add standard TCP/IP Printer Port Wizard" pops up, click "Next".

6) A window of "Add Port" pops up, enter the IP address reported by the "Setting printer's IP address" in the "Printer Name or IP Address" column. Take IP address "192.168.0.240" for example. "Port Name" is created automatically after finishing filling in IP address.

7) A window of "Additional Port Information Required" pops up, select "Custom" in the "Device Type", then click "Settings".

8) A window of "Port Settings" pops up. Affirm that "Port name" and "Printer name or IP address" are correct, "Protocol" is "RAW" and "Port Number" is "9100", click "OK".

9) Return to "Additional Port Information Required", click "Next".

10) A window of "Completing the Add Standard TCP/IP Printer Port Wizard" pops up, click "Finish".

11) In the selection of "Manufacturers/Printers", click "Have Disk", and then click "Next".

12) A window of "Install From Disk" pops up. Please according to the operating system environment, such as Windows 2000/XP/Vista/Win7 operating system you should select the path as follows: CD-ROM → "Drivers" → "WIN2000 (XP-Vista-Win7)", click "open", then click "OK", then return to the window "Install Printer Software", click "Next".

13) Follow the guide click "Next" gradually till the installation is finished. At this time, printer network driver is installed completely.

2. Upgrade-install printer network driver (setting driver's network port)

If PC has installed the printer's driver, set driver's network port to carry out network printing. The concrete steps are shown below:

1) Click "Start" → "Settings" → "Select Printers".

2) Right click respective driver, click "Properties" on the window popping up.

3) A window of "Properties" pops up; click "Ports" and "Add Ports".
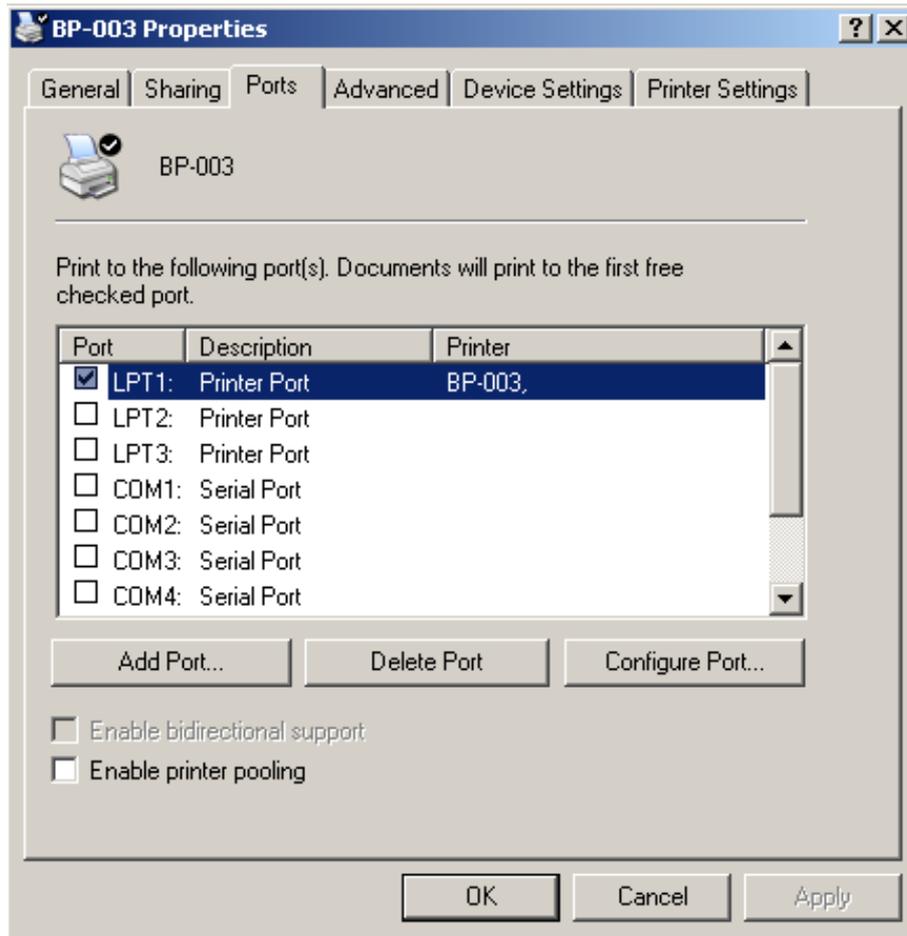
4) A window of "Printer port" pops up, select "Standard TCP/IP Port", click "New port".
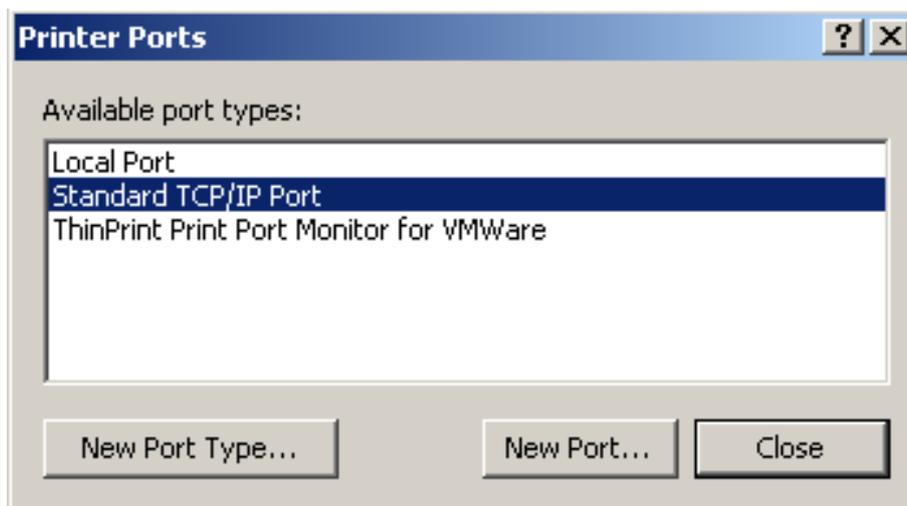
5) A window of "Add Standard TCP/IP Printer Port Wizard" pops up, click "Next".

6) A window of "Add port" pops up, import the IP address reported by the "Setting printer's IP address" in the "Printer name or IP address" column. Take IP address "192.168.0.240" for example. "Port name" is created automatically after finishing filling in IP address. Click "Next".
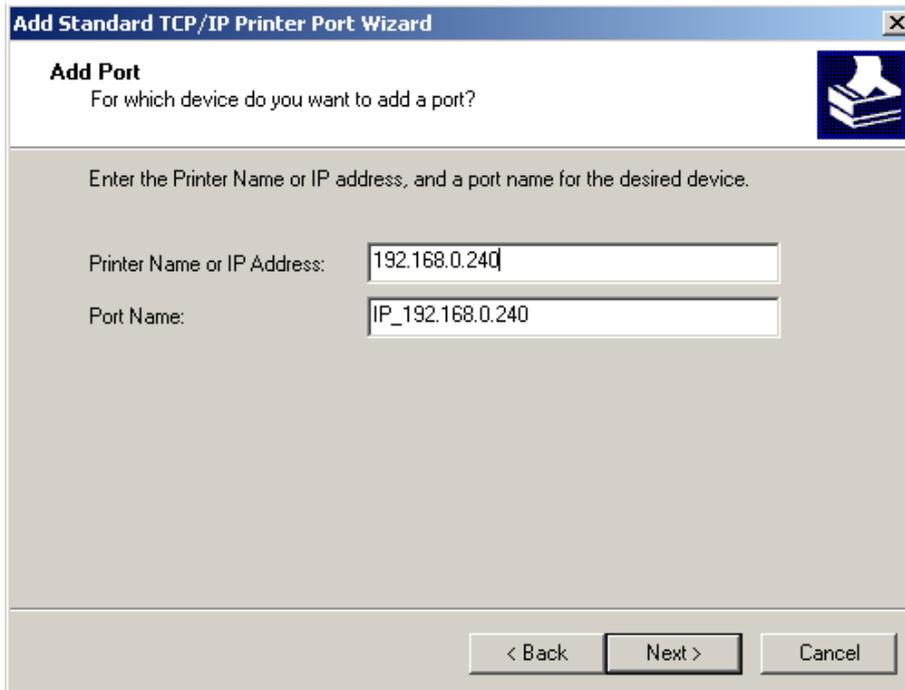
7) A window of "Additional Port Information Required" pops up, select "Custom" in the "Device Type", then click "Settings".
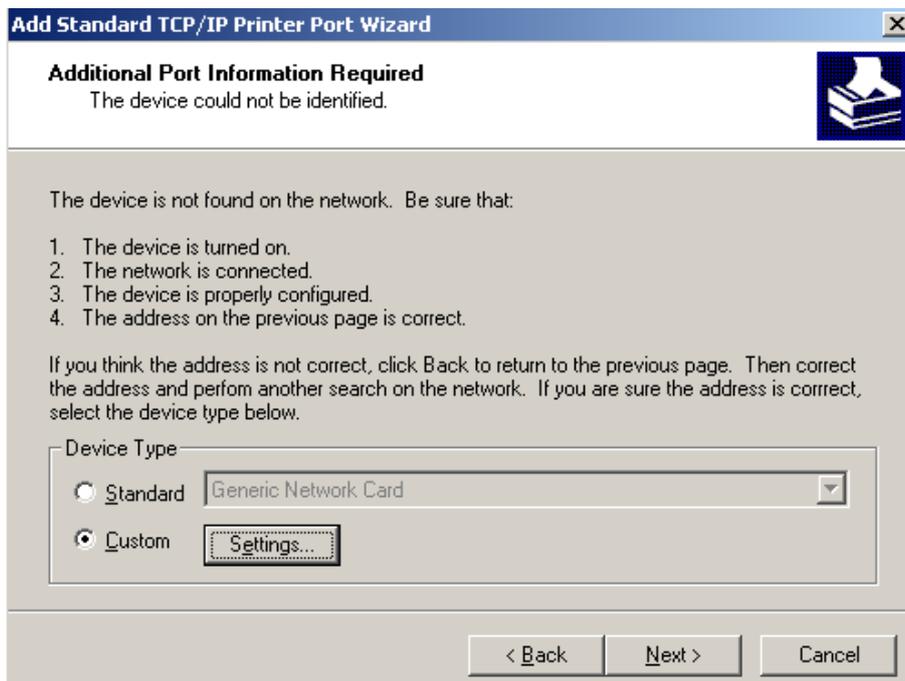
8) A window of "Port Settings" pops up. Affirm that "Port name" and "Printer name or IP address" are correct, "Protocol" is "RAW" and "Port Number" is "9100", click "OK".
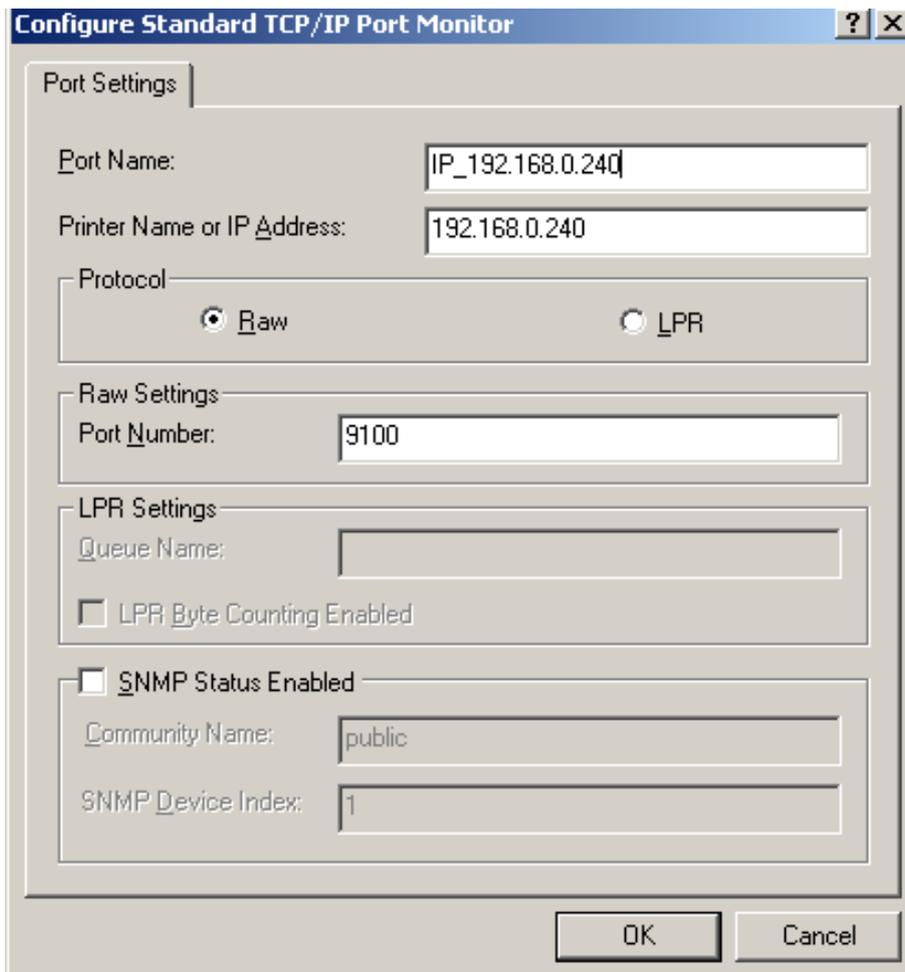
9) Return to "Additional Port Information Required", click "Next".

10) A window of "Completing the Add Standard TCP/IP Printer Port Wizard" pops up, click "Finish".

11) Return to "Printer Ports", click "Close".
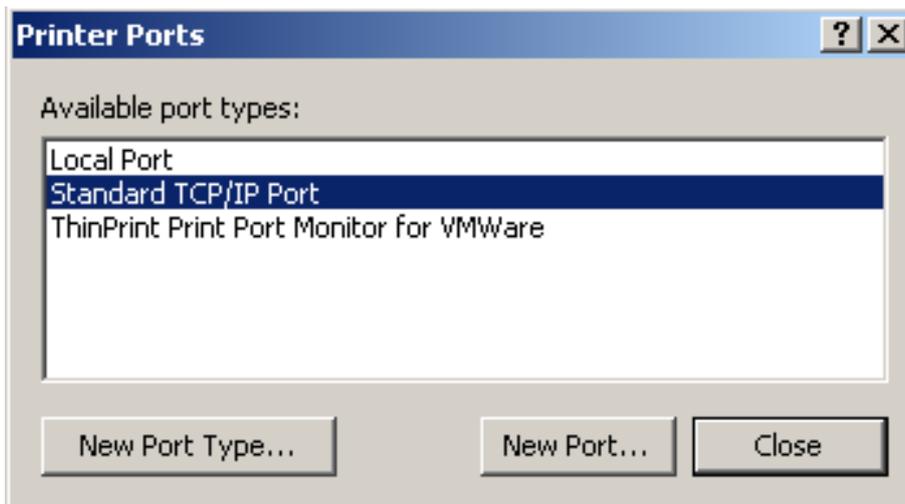
12) Return to "Properties", make sure the network port is selected, click "Apply", and then click "Close". Thus, printer's network port setting is finished.
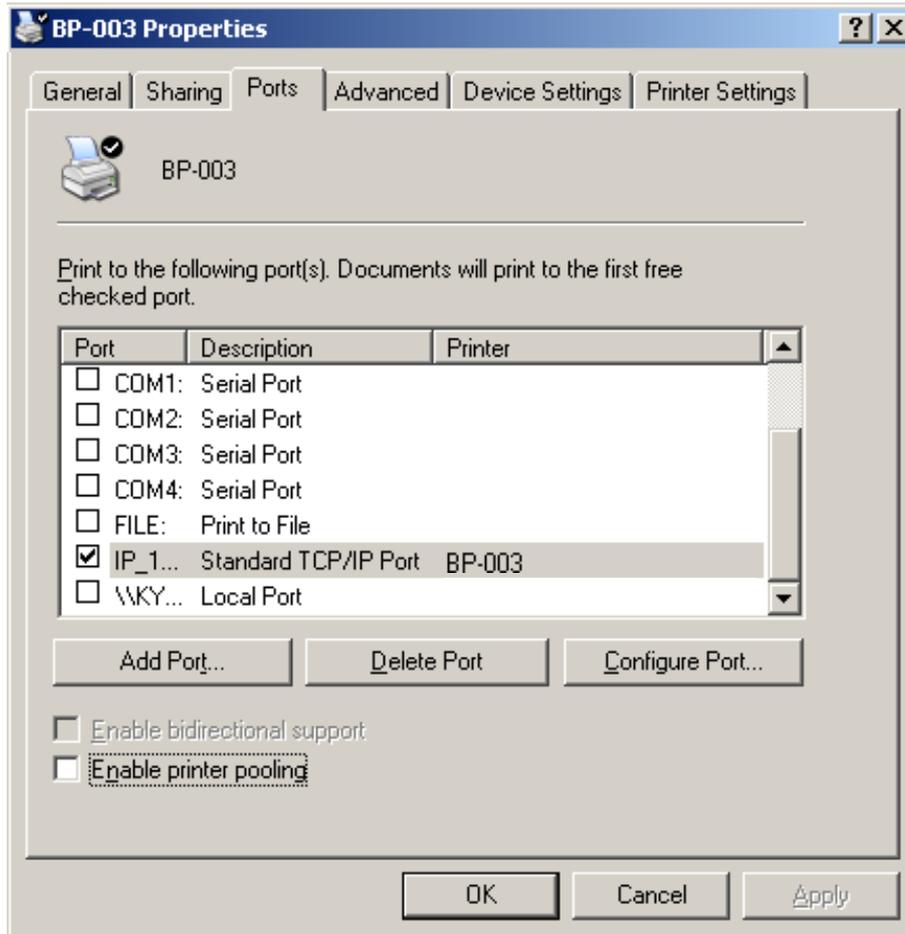
Chapter 3 Control Panel

3.1 Control Panel

There are three LED indicators and one button on the control panel shown as Figure 3-1.
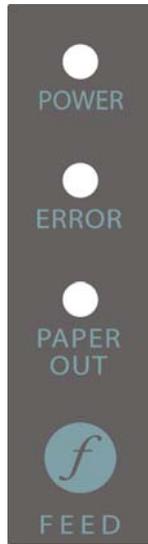
Figure 3-1 Control panel

3.1.1 LED Indicator

LED	Description
POWER (Green)	Denotes whether the printer's power supply is connected or not. The LED is on when the power is connected.
ERROR (Red)	Denotes printer's status. The LED is on when the malfunction appears.
PAPER OUT (Red)	Denotes printer's paper status. The LED is on when paper out occurs or is about to end.

> **Refer to chapter Error message on the control panel for detailed information about LED indicator malfunctions.**

3.1.2 Button

Button	Function
【FEED】	【**FEED**】controls paper feeding, you can enable or disable the key function with a command. When enabled, the paper will be fed continuously if you press and hold on it, or stop if you loosen it.

3.2 Self-test Printing

Self-test printing lets you know if the printer is working properly. If the printer printouts the self-test content normally, it denotes that there is nothing wrong with the printer except for the interface connecting to the computer. Otherwise, the printer should be repaired.

The printer will print out self-test information such as the software version, update date and interface etc.

Hold down the **FEED** button and turn on the power switch while the printer cover is closed. The **ERROR** LED blinks once with two beeps (if beeper is installed in the printer), loosen the button, then the printer prints out the self-test information.

3.3 Hex Dump Printing

This function allows you to check whether the connection between the printer and the host or the terminal device works properly or not.

The method is that press **FEED** button and power on the printer, the **ERROR** LED blinks once with two beeps. Go on holding the button for about one second, and then loosen it after the **ERROR** LED blinks once again with a beep. Turn off the printer when you want to exit this print mode.

3.4 Restoring Factory Default Settings

The function is to clear the settings stored in the printer and to restore the factory settings for correlative parameters.

The method is that press **FEED** button and power on the printer, the **ERROR** LED blinks once with two beeps. Do not loosen the button until the **ERROR** LED blinks once with one beep in about one second. Keep on pressing until **ERROR** LED blinks one more time with a beep in about one second. At this time, turn off the printer and the function takes effect.

3.5 Setting Slip Stitch

Slip Stitch Cap

Slip Stitch

When Pulling Out

When Plugging Into
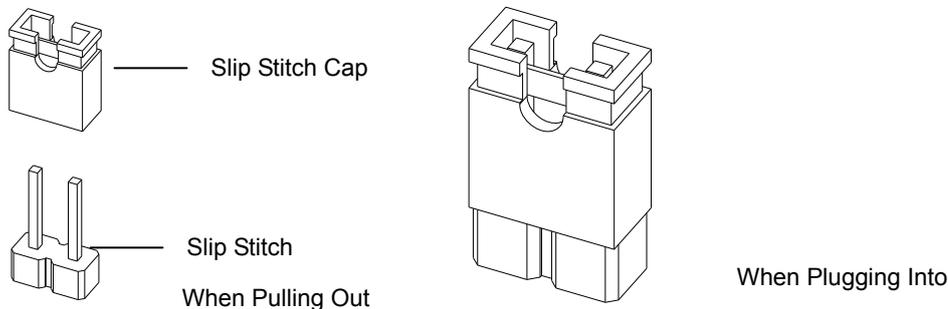
Figure 3-2 Setting slip stitch

If needed, Slip Stitch is used to upgrade printer firmware or it should be closed in normal working condition. When to upgrade, pull out the Slip Stitch Cap after the printer is turned off, press **FEED** button and power on again, the **ERROR** and **PAPER OUT** LEDs blink once at the same time, which denotes that the printer enters the online-upgrade mode. Loosen the button and then use the computer software equipped with the printer to upgrade. Turn off the printer after finishing upgrading, plug Slip Stitch Cap and then the printer can work normally.

> **Note: Do not change the Slip Stitch without any permission of the factory, or the printer will not work.**

3.6 Online-aptitude Parameter Settings

BP-003 supports the function of online-aptitude parameter settings, which can be set in the PC with the driver installed in.

The concrete setting steps are shown as follows:

1. Make sure that the computer and the printer are connected with the USB cable and both the computer and the printer are turned on, the printer should be in normal working condition as well.

2. Under the operation systems of WIN 2000/WIN XP/VISTA/WIN7, Click "Start" → "Settings" → "Printers".

   Under the operation system of Windows 8, click "Desktop" in the main panel firstly, and then double click and enter the window of "Control panel", click "Hardware and Sound" to find "Devices and printers", at last, open the window of "Devices and printers".

3. In the window of "Devices and printers", right click "BP-003", select "Properties".

4. Click "Printer Settings" in the Properties page.
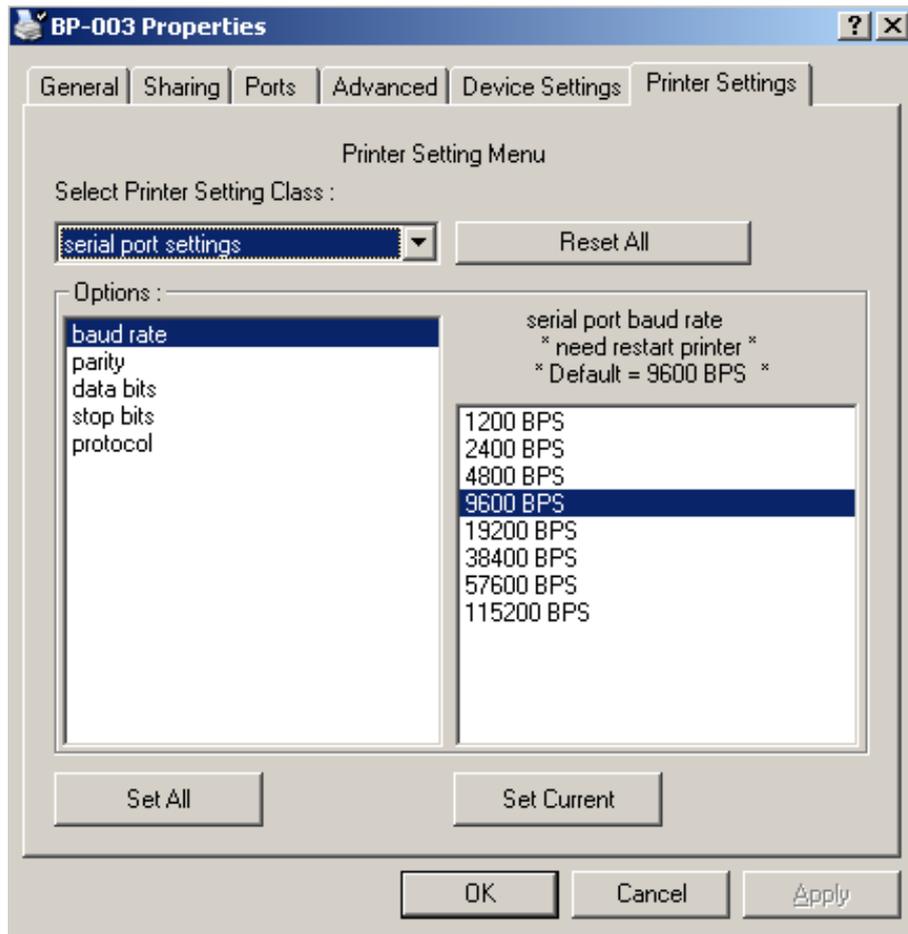
5. Check whether the selected port in the "Ports" is matched with the port which connecting to the printer in practical. Return to "Printer Settings" page layout, the list in the left are the items you want to set and the right are the item's parameters. If you only want to change one item, click "Set Current", or if you want to change multiple items, click "Set All" after having set all items. The settings are saved with the printer beeping once.

> **Note: The parameter settings shown in the "Printer Settings" are not the current parameter of the printer.**

6. After finishing settings, click "OK", exit the "Properties" window.

7. Reboot the printer.

Chapter 4 Loading Roll Paper

The printer can install the paper conveniently, which should be 80mm wide. How to deal with the paper will be explained in details in this chapter.

4.1 Installing Steps of Thermal Roll Paper

Note: 1. Don't touch the thermal print head after printing to avoid being hurt.

2. Don't pull the paper out directly with your hand.

1. Push the cover-open button, open the upper cover.
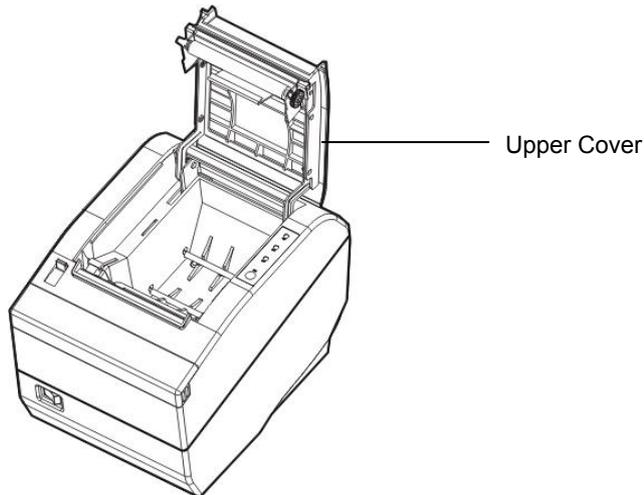
Figure 4-1 Open the upper cover

2. Load the roll paper into the paper holder.
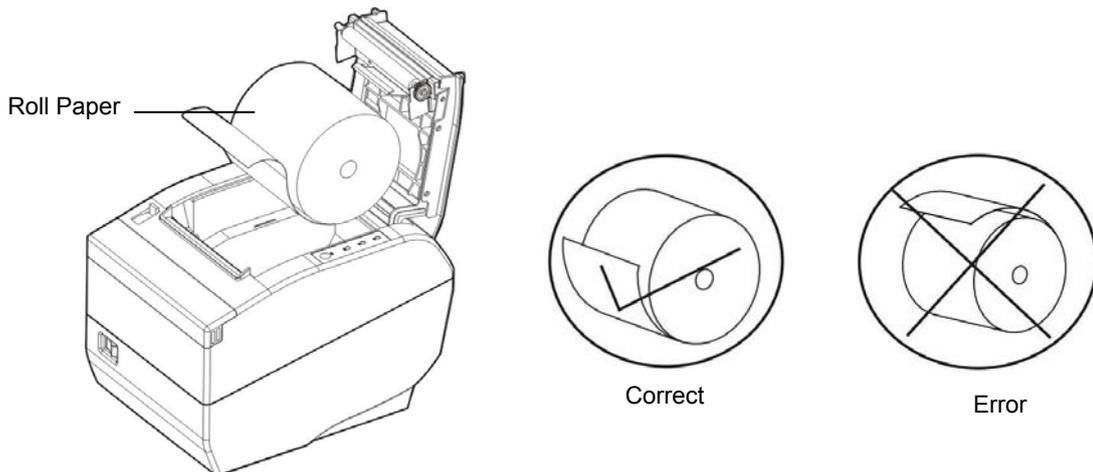
Figure 4-2 Load the roll paper

Note: Paper head should be placed down and pulled towards the paper-input slot, but not the opposite.

3. Pull out a small amount of paper as shown in Figure 4-3.
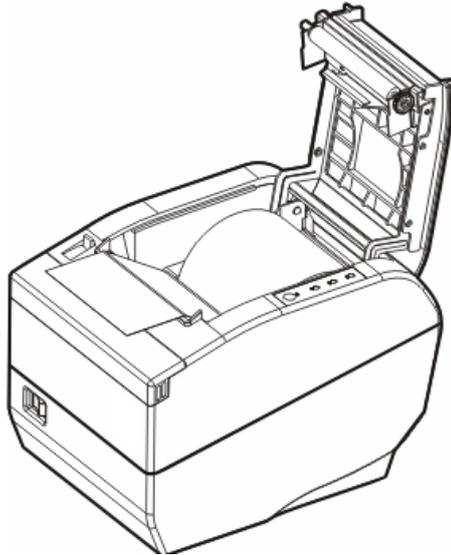
Figure 4-3 Pull out the paper

4. Put the paper as shown below, and then close the cover.

Figure 4-4 Close the cover

Note: After finishing installing the paper, if PAPER OUT LED and ERROR LED are still on, or the printer makes strange noise when feeding paper, please open the cover and re-close it tightly.

Chapter 5 Specification

5.1 General Specification

Item	Description	
Printing method	Direct thermal printing	
Dot density	576 dots/line (203×203 DPI)	
Effective printing width	72 mm	
Print speed	220 mm/s	
Paper specification	Thermal roll paper model	TF50KS-E (Japan paper co.ltd)
		AF50KS-E (JUJO THERMAL)
	Width: 79.5 ± 0.5 mm	
	Weight: 53 ~ 80 g/m^2	
	Maximum diameter: Φ80 mm	
	Paper thickness: 0.065 ~ 0.15 mm	
	Note: The inner diameter of paper shaft is Φ12 mm and the outer diameter of paper shaft is Φ18 mm	
Character set	ASCII: 13 international character sets	
Code page	76 kinds	
Line space	1/6 inch, or programmable in 1/203 inch increments	
Interface	This printer can be equipped with the following interfaces: Parallel interface: Centronics USB interface: 2.0 Full-Speed USB interface (2.0 Full-Speed) + Serial interface (RS-232C, DB9)) USB interface (2.0 Full-Speed) + Ethernet interface (10/100Base-T) USB interface (2.0 Full-Speed) + Bluetooth (2.0/2.1 + EDR) USB interface (2.0 Full-Speed) + Wi-Fi (802.11b/g/n) **Note: 1. Only one of the data interfaces is supplied when leaving the factory. 2. Please take the specific interface as standard.**	
Cash drawer interface	RJ-11, 24V (DC)/1A	
Special function	Automatic cutter, Online parameter settings, Online software upgrade	
Input buffer	4 MB	
Control command	ESC/POS Emulation	
	Character printing command: Support ANK characters, user-define characters and enlarge Chinese characters 1~8 times printing, can adjust character line spacing	
	Dot image printing command: Support different densities dot images and downloading image printing, can save NV bitmap without electricity (Can save LOGO for long)	
	Bar code	Linear bar code: UPC-A, UPC-E, EAN-13, EAN-8, CODE39, CODE128, ITF-25, CODABAR
		Two-dimension code: PDF417, QR CODE
Power Supply (AC adapter)	IN	Input voltage: 100 ~ 240 V(AC)
		Frequency: 50Hz/60Hz

	OUT	Output voltage: 24 V(DC)
		Current: 2.5 A
Environmental conditions	Operating environment	Temperature: 5 ~ 35℃
		Humidity: 25 ~ 80%RH (No condensation)
	Storage environment	Temperature: -40 ~ 55℃
		Humidity: ≤93%RH (40℃, No condensation)
Weight	Approx. 2 Kg	
Noise	＜38 dB (A) (ISO7779 standard)	
Physical dimensions	145 mm (Width) × 200 mm (Depth) × 145 mm (Height)	
Power consumption	① Operating: 40 W; ② Standby: Approximately 3.2 W **Note: Only when the product is unconnected with outer power supply, can it achieve zero energy consumption state.**	
Control panel	One key and three LEDs.	
Paper type	Thermal roll paper	
Safety standard	EN60950	
Certificate	CE, FCC **Note: The series of models have been authenticated and the specific model please takes the certificate as standard.**	

Note: All the technical instructions in this user's manual are the laboratorial measurements which achieved under national standard store and work environment (room temperature), the measuring paper accords with the specification in this user's manual.

Caution: In order to ensure the use life of printer, strictly prohibit printing full line full black exceeding 2 CM.

5.2 Interface Specifications

The printer is configured with one cash drawer interface and one data interface (you can select Parallel interface, USB interface, USB interface + serial interface, USB interface + Ethernet interface, USB interface + Bluetooth or USB interface + Wi-Fi). Please connect the printer to the computer with the suitable interface cable.

5.2.1 Cash Drawer Interface

The cash drawer interface of the printer is the RJ-11 interface, which is shown below.

6   1
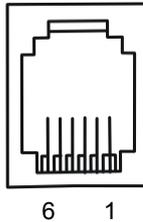
Figure 5-1 Cash drawer interface

Table A-1: Cash drawer interface Pin assignments

Pin Number	Signal	Direction
1	Frame GND	---
2	Cash Drawer drive signal	OUT
3	Cash Drawer Open/closed signal	IN
4	24V(DC)	OUT
5	Cash Drawer drive signal	OUT
6	Cash Drawer Open/closed signal ground	---
Drive current≤24V/1A		

> **Note: Please use the cash drawer meets the specification mentioned above. Manufacturer will not honor warranty when using unauthorized cash drawer.**

5.2.2 Parallel Interface

BP-003 printer's parallel interface is compatible with CENIRONICS protocol, supporting BUSY/ACK handshaking protocol and the interface connector is the 36 PIN Centronics type.
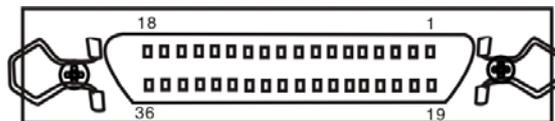
Figure 5-2 Parallel interface

Table A-2: Connector Pin Assignments

Pin Number	Signal	Direction	Description
1	/STB	IN	Trigger in low level, read the data in rising edge
2	DATA1	IN	
3	DATA2	IN	
4	DATA3	IN	These signals respectively represent the parallel data from the first bit to the eighth. "1" means high level, while "0" means low level.
5	DATA4	IN	
6	DATA5	IN	
7	DATA6	IN	
8	DATA7	IN	

9	DATA8	IN	
10	/ACK	OUT	Acknowledge signal, Low level means that printer is ready to receive data.
11	BUSY	OUT	High level means printer is too busy to receive data
12	PE	OUT	High level means that paper is out.
13	SEL	OUT	High level with the pull-up resistance
32	/ERR	OUT	Low level means the printer is in error state
14, 15, 17, 18, 34, 36	NC	---	NC
16, 19~30, 33	GND	---	GND, "0" level in logic

> **Note:** ① **"IN" means input to the printer, "OUT" means output from printer.**
> ② **The signal logical level is TTL level.**

Relative pin specification is shown as Figure 5-3.
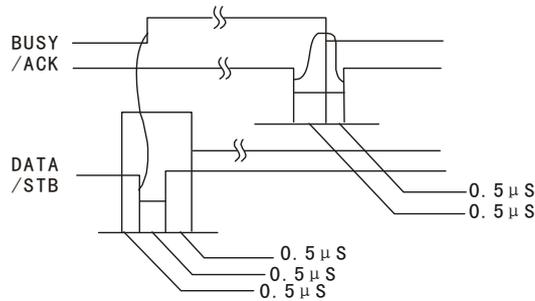
Figure 5-3 Pin specification of parallel interface

5.2.3 USB Interface

USB interface is 2.0 Full-Speed version.

Contact Number	Signal Name	Typical Wiring Assignment
1	VBUS	Red
2	D-	White
3	D+	Green
4	GND	Black
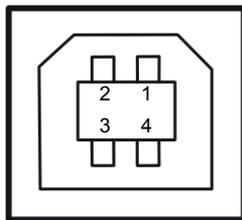
Figure 5-4 USB interface

5.2.4 Serial Interface

BP-003 printer's serial interface is compatible with RS-232C protocol, supporting RTS/CTS and XON/XOFF handshaking protocol. Its connector is a DB-9 type connector and each pin's assignments are shown as below.
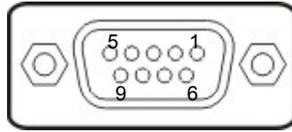
Figure 5-5 Pin number of serial interface connector

Table A-3 Pin assignments of the serial interface

Pin Number	Signal	From	Description
2	RXD	Host	Receive data from Host
3	TXD	Printer	Sent control code X-ON/X-OFF and data to the Host
8	CTS	Printer	"MARK" state means printer is too busy to receive data; "SPACE" means printer is ready to receive data.
5	GND	—	Signal GND
4	DTR	Printer	Data terminal is ready

> **Note: ① "From" means the source where signal comes out.**
>
> ② **Signal level is EIA level.**

The default settings in serial connecting way are 9600bps, 8 bits, parity check disabled and 1 stop bit.

BP-003 printer's serial interface can be connected with the standard RS-232C connector. When connecting with a PC, the connecting picture is shown as Figure 5-6. While connecting with an IBM PC or a compatible PC, you can connect the cable as shown in Figure 5-7.

The connection of serial interface:
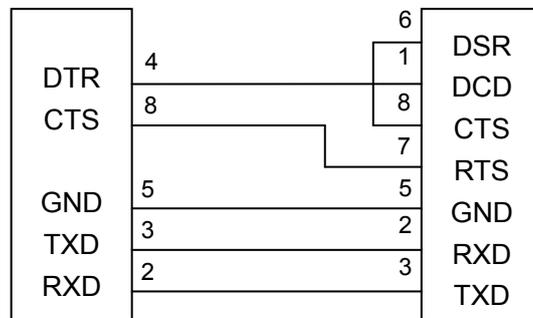
Printer 9-Pin connector   Host 9-Pin connector

Figure 5-6 The connection figure of host 9 PIN and printer
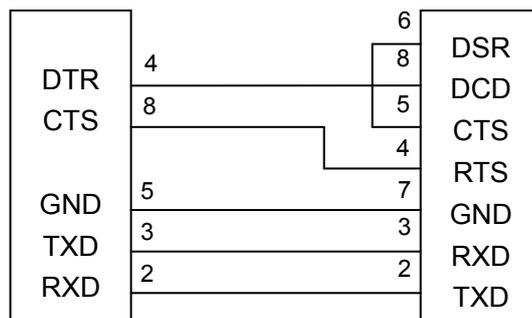
Printer 9PIN connector   Host 25PIN connector

Figure 5-7 The connection figure of host 25 PIN and printer

5.2.5 Ethernet Interface

Ethernet interface of 10/100 Base-T can be connected to 10/100M.
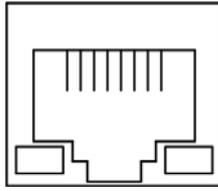
Figure 5-8 Ethernet interface

5.2.6 Power Supply Inlet

The BP-003 printer connects with a 24V±10% and 2.5A AC adapter. The power supply inlet is shown as Figure 5-8.
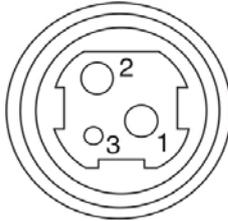
Figure 5-8 Power supply inlet

Chapter6 Printer Maintenance

6.1 Cleaning the Printer

- **Cleaning periodically and the cleaning tool**

  Periodical cleaning: every 3 months or every 300 working hours once

  Cleaning tool: dry cloth (please use soft cloth to clean metal parts)

- **Cleaning the spare parts**

  Clean the oily spare parts of the printer with dry cloth.

- **Cleaning the paper feed path**

  Wipe off the wasted paper and clean the dirt and dust.

- **Cleaning the photoelectric sensor part**

  As the paper sensor is a correlation photoelectric sensor. You should clean the parts periodically. Clean the shield of the sensor every three months.

> **Caution: 1. Turn off the printer and pull out the power cord before cleaning.**
>
> **2. Print head and the surrounding part may be high temperature after using. Please avoid cleaning it at the moment.**
>
> **3. Don't use hard cloth or combustible solvent to clean the printer.**

6.2 Error Message on the Control Panel

When the malfunction occurs, the printer will be off-line and give an alarm through LED indicators. You can make out different malfunctions through the Table A-4 as shown below.

Table A-4: Error message on the control panel

Error LED	PAPER OUT LED	Malfunction	Solution
BLINK FAST	OFF	Cutter error	Reposit the cutter
ON	OFF	Upper cover is open	Close the upper cover tightly
OFF	BLINK	Paper is about to end	Load paper again
ON	ON	Paper out	Load paper again
BLINK	OFF	Print head overheated	It would recover automatically after cooling

6.3 Auto-Cutter Jammed or Error

When the auto-cutter is jammed by paper, please open the upper cover of the printer and remove the jammed paper. If the upper cover can not be opened, as well as the auto-cutter still can not return to the normal position after the printer is restarted, please pull out the front cover which locates above the auto-cutter to expose the auto-cutter. Then turn the gear in the arrow direction. If the gear can't be moved in the arrow direction, don't force it, please turn it in the reverse direction until the auto-cutter returns to the normal position. As shown in Figure 6-1.

> If cutter jams, turn the gear in the arrow direction. If the gear can't be moved any further, turn it in the reverse direction until the cutter returns to the normal position.

Upper Cover
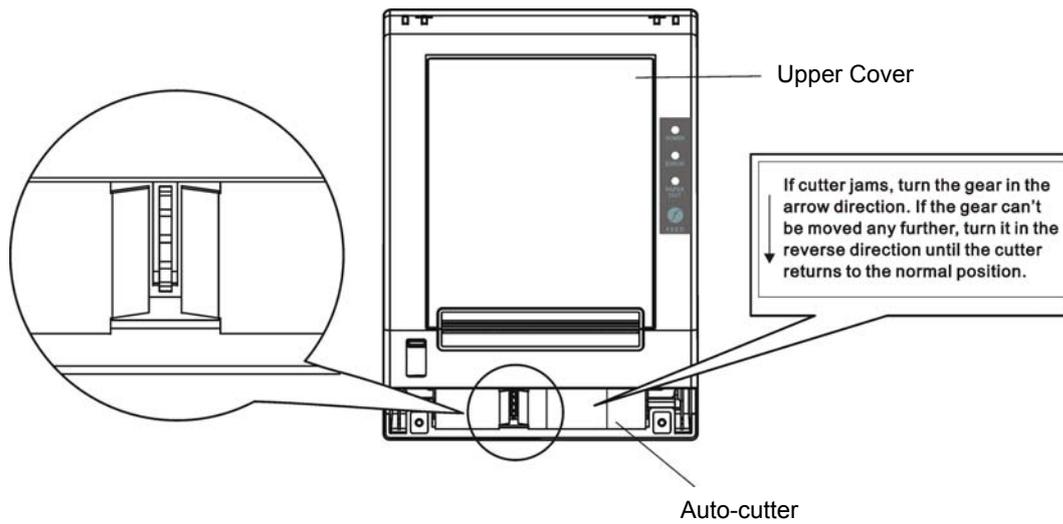
Auto-cutter

Figure 6-1 Adjust the auto-cutter by hand

6.4 Contact the Technical Service Center

If the printer is malfunctioned and you cannot solve the problem through the operation shown in 6.2, the components of the printer are damaged during using or you need to buy some consumables, please contact the authorized technical service center.

Chapter 7 Control Commands

7.1 General

The commands BP-003 supplies are based on ESC/POS.

The format described as following:

Command	Function
Format: ASCII: Indicates the ASCII equivalents	
Decimal: Indicates the decimal equivalents	
Hex: Written in hexadecimal code	

Description: The function and using instruction of that command.

Example: Some examples are listed for easier understanding.

7.2 Explanation of Terms

BEL	Beeper
Format: ASCII: BEL	
Decimal: 7	
Hex: 07	

Description:

Active the printer buzzer

HT	Horizontal tab
Format: ASCII: HT	
Decimal: 9	
Hex: O9	

Description:

Move the print position to the next horizontal tab position

LF	Print and line feed
Format: ASCII: LF	
Decimal: 10	
Hex: OA	

Description:

Print the data in the input buffer and feed one line based on the current line space.

FF	Print and Feed to next black mark position
Format: ASCII: FF	
Decimal: 12	
Hex: OC	

Description:

Print the data in the input buffer and feeds paper to the print starting position on the next black mark position when black mark takes effect.

DLE EOT n	Real-time status transmission *
Format: ASCII: DLE EOT n	
Decimal: 16 4 n	
Hex: 10 04 n	

Description:

Transmit the selected printer status according to the specified parameter n in serial interface, 1≤n≤4; this instruction is still valid even though in error or off-line status.

n=1: Transmit print status

n=2: Transmit off-line status

n=3: Transmit error status

n=4: Transmit paper roll sensor status

ESC BEL n1 n2						Beep for appointment

Format:	ASCII:	ESC	BEL	n1	n2	n3
	Decimal:	27	7	n1	n2	n3
	Hex:	1B	07	n1	n2	n3

Description:

N1 specifies the length of beeping time, n2 specifies the length of intermission time and n3 is the beeping times. The unit of n1 and n2 is 100 milliseconds.

ESC SP				Set right-side character space

Format:	ASCII:	ESC	SP	n
	Decimal:	27	32	n
	Hex:	1B	20	n

Description:

Set the right-side space of the character to n*(horizontal or vertical motion unit) n=0~255.

Horizontal or vertical motion unit is specified by GS P command

ESC !				Set print mode

Format:	ASCII:	ESC	!	n
	Decimal:	27	33	n
	Hex:	1B	21	n

Description:

Select the print mode using n as follows. n=0~255

Bit	Value	Function
0	0	Character A
	1	Character B
1, 2	-- -- --	Not defined
3	0	Emphasize mode not selected
	1	Emphasize mode selected
4	0	Double-height not selected
	1	Double-height selected
5	0	Double-width not selected
	1	Double-height selected
6	-- -- --	Not defined
7	0	Underline mode not selected
	1	Underline mode selected

ESC $	Set absolute print position

Format:	ASCII:	ESC	$	nL	nH
	Decimal:	27	36	nL	nH
	Hex:	1B	24	nL	nH

Description:

Set the distance from the beginning of the line to the position at which subsequent characters are to be printed.

The distance is (nL+nH*256)* (horizontal or vertical motion unit). Nl, nH=0~255.

Horizontal or vertical motion unit are specified by GS P command.

ESC %	Selected/cancel user-defined characters set

Format:	ASCII:	ESC	%	n
	Decimal:	27	37	n
	Hex:	1B	25	n

Description:

n=1, Select the user-defined characters; n=0, Select inter characters.

Default: n=0

ESC &	Define user-defined characters

Format:	ASCII:	ESC	& y	c1	c2	[x1 d1..d(y*x1)]	[xk d1..d(y*xk)]
	Decimal:	27	38 y	c1	c2	[x1 d1..d(y*x1)]	[xk d1..d(y*xk)]
	Hex:	1B	26 y	c1	c2	[x1 d1..d(y*x1)]	[xk d1..d(y*xk)]

Description:

Define the user-defined Characters from c1 to c2.

y=3; 32≤c1≤c2≤126;

0≤x≤12; [Character A 12*24], 0≤x≤9; [Character B 8*16];

d=0~255; k=c2-c1+1;

y specifies the number of bytes in the vertical direction, x specifies the number of dots in the horizontal direction, d specifies the user-defined data.

ESC *	Select bit-image mode

Format:	ASCII:	ESC *	m	n1	n2	d1..dk
	Decimal:	27 42	m	n1	n2	d1..dk
	Hex:	1B 2A	m	n1	n2	d1..dk

Description:

Select the image mode with m; n1 and n2 specify the number of dots. The image data d1…dk

m=0, 1, 32, 33; n1=0~255; n2=0~3; d=0~255.

k=n1+256×n2 (m=0, 1)

k= (n1+256×n2) × 3 (m=32, 33)

The number of dots in horizontal direction is n1+256×n2.

If the number dots exceed the max dot number in a line (shown as below), the excess data is ignored.

m	Mode	Vertical direction		Horizontal direction	
		Number of dots	Dot density	Dot density	Number of dots (max)
0	8-dot single-density	8	68 DPI	101 DPI	288
1	8-dot	8	68 DPI	203 DPI	576

	double-density				
32	24-dot single-density	24	203 DPI	101 DPI	288
33	24-dot double-density	24	203 DPI	203 DPI	576

ESC -   Turn underline mode on/off

Format:	ASCII:	ESC	-	n
	Decimal:	27	45	n
	Hex:	1B	2D	n

Description:

n=0, 48   Turn underline mode off.

n=1, 49   one-dot thick underline mode on

n=2, 50   two-dot thick underline mode on

ESC 2   Set default line space

Format:	ASCII:	ESC	2
	Decimal:	27	50
	Hex:	1B	32

Description:

Set the line space to 1/6 inch.

ESC 3   Set line space as n/203 inch

Format:	ASCII:	ESC	3	n
	Decimal:	27	51	n
	Hex:	1B	33	n

Description:

Set the line space to n*(vertical or horizontal motion unit) n=0~255.

The vertical or horizontal motion units are specified by GS P Command.

ESC =   Select peripheral device

Format:	ASCII:	ESC	=	n
	Decimal:	27	61	n
	Hex:	1B	3D	n

Description:

The Last bit of n is 0, printer disable.

The Last bit of n is 1, printer enable.

ESC ?   Cancel user-defined character

Format:	ASCII:	ESC	?	n
	Decimal:	27	63	n
	Hex:	1B	3F	n

Description:

Cancel the character specified by n. n=32~126.

ESC @				Initialize printer
Format:	ASCII:	ESC	@	
	Decimal:	27	64	
	Hex:	1B	40	

Description:

Initialize the printer to the state when the printer is turned on.

ESC D					Set horizontal tab position
Format:	ASCII:	ESC	D	n1……nk NUL	
	Decimal:	27	68	n1……nk NUL	
	Hex:	1B	44	n1……nk NUL	

Description:

Set the horizontal tab position to the column specified by nk from the beginning of the line.
n=0~255; k=0~32;

ESC E				Turn emphasized mode on/off
Format:	ASCII:	ESC	E	n
	Decimal:	27	69	n
	Hex:	1B	45	n

Description:

When the last bit (LSB) of the n is 0, the emphasized mode is turned off.

When LSB of the n is 1, the emphasized mode is turned on.

ESC J				Print and feed paper
Format:	ASCII:	ESC	J	n
	Decimal:	27	74	n
	Hex:	1B	4A	n

Description:

Print the data in input buffer and feed the paper n*(horizontal or vertical motion unit) inches.
n=0~255; Horizontal or vertical motion unit are specified by GS P command.

ESC M				Select character font
Format:	ASCII:	ESC	M	n
	Decimal:	27	77	n
	Hex:	1B	4D	n

Description:

n=0, 48; Character A (12*24) is selected;

n=1, 49; Character B (8*16) is selected.

ESC R				Select the international character set
Format:	ASCII:	ESC	R	n
	Decimal:	27	82	n
	Hex:	1B	52	n

Description:

Select the international character set according the value of n as shown in the follow.

0: USA	1: France	2: Germany	3: U.K		4: Denmark I	5: Sweden	6: Italy
7: Spain I	8: Japan	9: Norway	10: Denmark II	11: Spain II	12: Latin America		13: Korea

---

ESC V   Turn 90°clockwise rotation mode on/off

Format:	ASCII:	ESC	V	n
	Decimal:	27	86	n
	Hex:	1B	56	n

Description:

n=0, 48 Turn off 90°clockwise rotation mode.

n=1, 49 Turn on 90°clockwise rotation mode.

No 90°clockwise rotation for underline in underline mode.

ESC \   Set relative print position

Format:	ASCII:	ESC	\	nL	nH
	Decimal:	27	92	nL	nH
	Hex:	1B	5C	nL	nH

Description:

Set the print position at (nL+nH*256)* (horizontal or vertical motion unit) inches from current position; nL, nH=0~255. Horizontal or vertical motion unit is specified by GS P command.

ESC a n   Select justification

Format:	ASCII:	ESC	a	n
	Decimal:	27	97	n
	Hex:	1B	61	n

Description:

n=0, 48: Left justification; n=1, 49: centering; n=2, 50; right justification.

ESC c 3   Select paper end sensor

Format:	ASCII:	ESC	c	3	n
	Decimal:	27	99	51	n
	Hex:	1B	63	33	n

Description:

n=xxxxxxx1B, xxxxxx1xB, xxxxxx11B, Paper near end sensor takes effect.

n=xxxxx1xxB, xxxx1xxxB, xxxx11xxB, Paper end sensor takes effect.

ESC c 4   Select paper sensor to stop printing

Format:	ASCII:	ESC	c	4	n
	Decimal:	27	99	52	n
	Hex:	1B	63	34	n

Description:

n=xxxxxxx1B, xxxxxx1xB, xxxxxx11B; Paper near end, printer stop printing.

n=xxxxx1xxB, xxxx1xxxB, xxxx11xxB; Paper end, printer stops printing.

ESC c 5   Enable/disable panel button

Format:	ASCII:	ESC	c	5	n
	Decimal:	27	99	53	n
	Hex:	1B	63	35	n

Description:

When the LSB of n is 0, enable button.

When the LSB of n is 1, disable button.

ESC d   Print and feed n lines

Format:	ASCII:	ESC	c	n
	Decimal:	27	100	n
	Hex:	1B	64	n

Description:

Print the data in input buffer and feed n lines, n= 0~255.

ESC p m t1 t2   Generate pulse

Format:	ASCII:	ESC	p	m	t1	t2
	Decimal:	27	112	m	t1	t2
	Hex:	1B	70	m	t1	t2

Description:

Printer output pulse, whose width specified by t1 and t2. On time is t1*2ms, low ist2*2ms.

m=0, 48, 1, 49.

ESC t   Select code page

Format:	ASCII:	ESC	t	n
	Decimal:	27	116	n
	Hex:	1B	74	n

Description:

Select a code page through n as follows:

n=0 PC437	n=1 PC932(katakana)	n=2 PC850	n=3 PC860(Portuguese)
n=4 PC863(Canadian)	n=5 PC865(Nordic)	n=6 (West Europe)	n=7 (Greek)
n=8 (Hebrew)	n=9 (East Europe)	n=10 Iran	n=15 IranII
n=16 PC1252	n=17 PC866	n=18 PC852	n=19 PC858
n=20 Thai(KU42)	n=21 Thai(TIS11)	n=22 PC1256(Arabic)	n=23 (PT151,1251)
n=24 PC747	n=25 (WPC1257)	n=26 Thai(TIS18)	n=27 Vietnam
n=28 PC864(Arabic)	n=29 PC737(Greek)	n=30 (Uigur)	n=31 (Hebrew)
n=32 PC1253(Greek)	n=33 PC775(Baltic)	n=50 PC437(Std.Europe)	n=51 (Katakana)
n=52 PC437(Std.Europe)	n=53 PC858(Multilingual)	n=54 PC852(Latin-2)	n=55 PC860(Portuguese)
n=56 PC861(Icelandic)	n=57 PC863(Canadian)	n=58 PC865(Nordic)	n=59 PC866(Russian)
n=60 PC855(Cyrillic)	n=61 PC857(Turkish)	n=62 Hebrew	n=63 PC864(Arabic)
n=64 PC737(Greek)	n=65 PC851(Greek)	n=66 PC869(Greek)	n=67 PC928(Greek)
n=68 PC772(Lithuanian)	n=69 PC774(Lithuanian)	n=70 Thai	n=71 WPC1252(Latin-1)
n=72 WPC1250(Latin-2)	n=73 WPC1251(Cyrillic)	n=74 PC3840(Russian)	n=75 PC3841(Gost)
n=76 PC3843(Polish)	n=77 PC3844(CS2)	n=78 PC3845(Hungarian)	n=79 PC1254(Turkish)
n=80 PC3847(Brazil-ABNT)	n=81 PC3847(Brazil-ABNT)	n=82 PC1001(Arabic)	n=83 PC2001(Lithuan-KBL)
n=84 PC3001(Estonian-1)	n=85 PC3002(Estonian-2)	n=86 PC3011(Latvian-1)	n=87 PC3012(Latvian-2)
n=88 PC3021(Bulgarian)	n=89 PC3041(Maltese)	n=100 PC3846(Turkish)	n=101 WPC1255(Israel)
n=102 PC857(Tukey)	n=103 PC855(Bulgarian)	n=104 (Latvian)	n=255 Thai

ESC {   Turn on/off upside-down printing mode

Format:	ASCII:	ESC	{	n
	Decimal:	27	123	n
	Hex:	1B	7B	n

Description:

When the LSB of n is 0, upside-down printing mode is turned off.

When the LSB of n is 1, upside-down printing mode is turned on.

FS !   Select Chinese character mode

Format: ASCII: FS   !   n
            Decimal: 28   33   n
               Hex: 1C   21   n

Description:

Bit	Off/On	Hex	Decimal	Function
0	-	-	-	Not defined
1	-	-	-	Not defined
2	Off	00	0	Double-width is not selected
	On	04	4	Double-width is selected
3	Off	00	0	Double-height is not selected
	On	08	8	Double-height is selected
4	-	-	-	Not defined
5	-	-	-	Not defined
6	-	-	-	Not defined
7	Off	00	0	Underline is selected
	On	80	128	Underline is not selected

FS &   Set Chinese language mode

Format: ASCII: FS   &
            Decimal: 28   38
               Hex: 1C   26

Description:

In this mode, the code between 0x81 and 0xff are printed as Chinese character.

FS -   Turn Chinese character underline mode on /off

Format: ASCII: FS   -   n
            Decimal: 28   45   n
               Hex: 1C   2D   n

Description:

n=0, 48 turn off the Chinese character underline mode.

n=1, 49 turn one dot the thick underline of Chinese character mode on.

n=2, 50 turn two dots the thick underline of Chinese character mode on.

Underline mode is ignored if 90°clockwise rotation is turned on at the same time.

FS .   Cancel Chinese language mode

Format: ASCII: FS   .
            Decimal: 28   46
               Hex: 1C   2E

Description:

In this mode No Chinese character is printed.

FS 2						Define user-defined Chinese characters	
Format:	ASCII:	FS	2	c1	c2	d1……d72	
	Decimal:	28	50	c1	c2	d1……d72	
	Hex:	1C	32	c1	c2	d1……d72	

Description:

c1=fe; a1≤c2≤fe; 0≤d≤255; c1 specified the first byte of the character code, c2 specified the second byte of the character code. Data dk defined from up to down 3 bytes one column and from left to right 24 columns.

FS S					Set Chinese character space
Format:	ASCII:	FS	S	n1	n2
	Decimal:	28	83	n1	n2
	Hex:	1C	53	n1	n2

Description:

0≤n1≤255, 0≤n2≤255 Set the character left-side spacing to n1*(horizontal or vertical motion unit), right-side space to n2*(horizontal or vertical motion unit).
Horizontal or vertical motion unit is specified by GS P command.

FS W				Turn quadruple-size mode on/off for Chinese character
Format:	ASCII:	FS	W	n
	Decimal:	28	87	n
	Hex:	1C	57	n

Description:

0≤n≤255

When the LSB of n is 0, turn off the quadruple-size mode.

When the LSB of n is 1, turn on the quadruple-size mode.

FS p n m					Print NV bit image
Format:	ASCII:	FS	p	n	m
	Decimal:	28	112	n	m
	Hex:	1C	70	n	m

Description:

1≤n≤64   m=0, 1, 2, 3, 48, 49, 50, 51

Prints the NV bit image n using the mode specified by m.

m=0, 48 Normal mode; m = 1, 49 Double width mode;

m=2, 50 Double height mode; m = 3, 51 Quadruple mode.

FS q n					Define the NV bit image
Format:	ASCII:	FS	q	n	[xL xH yL yH d1 d2 …dk]1…[xL xH yL yH d1 d2 …dk]
	Decimal:	28	113	n	[xL xH yL yH d1 d2 …dk]1…[xL xH yL yH d1 d2 …dk]
	Hex:	1C	71	n	[xL xH yL yH d1 d2 …dk]1…[xL xH yL yH d1 d2 …dk]

Description:

1≤n≤64; xH= 0; 0≤xL≤72; yH=0; 0≤yL≤30

k= (xL+xH*256)*(yL+yH*256)*8

The command can define 64 bit images at the same time. All NV images preciously defined are canceled when new bit image is defined. When this command processing, ERROR LED will be on for a period, then the PAPER OUT LED and ERROR LED will be both on and the printer resets. No other data or commands follow this command, or it may cause data lost or printing mess. The NV image data will be stored in the printer even which is powered off, and will not lose till this command reprocessed. Excessive use of this function may cause the NV memory damaged. As a guideline, the command should not be processed more than 10 times per day.

The whole command including the bit image data should be less than 128K bytes (1M bits).

xL,xL specifies (xL+xH*256) bytes in the horizontal direction for the NV bit image you defined.

yL,yH specifies (yL+yH*256) bytes in the vertical direction for the NV bit image you defined.

d specifies the definition data for the NV bit image (column format).

GS BEL n1 n2						Beep for appointment

Format:	ASCII:	GS	BEL	n1	n2	n3
	Decimal:	29	7	n1	n2	n3
	Hex:	1D:	07	n1	n2	n3

Description:

N1 specifies the beeping times, n2 specifies the length of beeping time and n3 specifies the length of intermission time. The unit of n1, n2 is 0.1 second.

GS !				Select Character size

Format:	ASCII:	GS	!	n
	Decimal:	29	33	n
	Hex:	1D	21	n

Description:

n=0~7, 16~23, 32~39, 48~55, 64~71, 80~87, 96~103,112~119;

Selects the character height (vertical number of times normal font size) using bits0 to bits3 and selects the character width (horizontal number of times normal size) using bits4 to bits7.

GS *						Define downloaded bit image

Format:	ASCII:	GS	*	n1	n2	d1…dk
	Decimal:	29	42	n1	n2	d1…dk
	Hex:	1D	2A	n1	n2	d1…dk

Description:

Define the downloaded bit image in the downloaded graphic area.

n1=1~48. n2=1~255. n1×n2<1200, k=n1×n2×8.

d specifies the bit image data. n1×8 dots in the horizontal direction and n2×8 dots in the vertical direction.

The downloaded bit image is available till printer is powered off or reset.

The format of bit image is shown below.
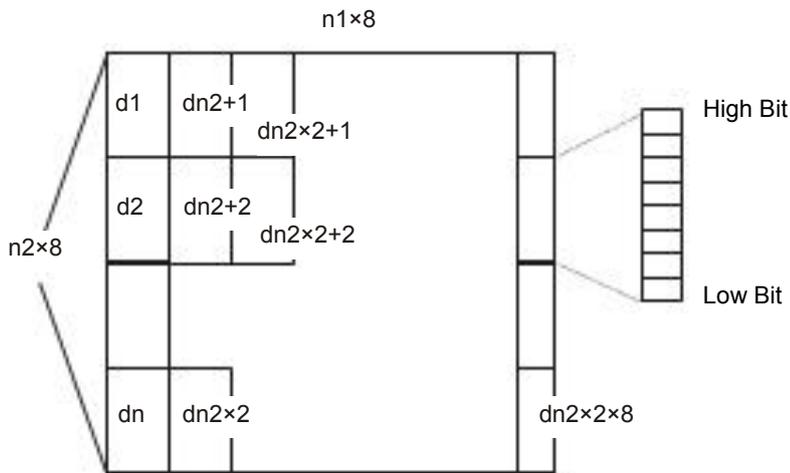
GS /   Print downloaded bit image

Format:	ASCII:	GS	/	n
	Decimal:	29	47	n
	Hex:	1D	2F	n

Description:

Print the downloaded bit image using the mode specified by n. n=0, 1, 2, 3, 48, 49, 50, 51.

The bit image defined by GS * command. n specifies the mode as follows:

n	Mode	Density in vertical	Density in horizontal
0, 48	Normal	203 DPI	203 DPI
1, 49	Double-width	203 DPI	101 DPI
2, 50	Double-height	101 DPI	203 DPI
3, 51	Quadruple	101 DPI	101 DPI

GS B   Turn white/black reverse mode on/off

Format:	ASCII:	GS	B	n
	Decimal:	29	66	n
	Hex:	1D	42	n

Description:

When the LSB of n is 0, turn the white/black reverse mode off.

When the LSB of n is 1, turn the white/black reverse mode on.

GS H   Select print position of HRI character

Format:	ASCII:	GS	H	n
	Decimal:	29	72	n
	Hex:	1D	48	n

Description:

Select the print position of Human Readable Interpretation (HRI) when printing a bar code, using n as follows: n=0, 48: NO HRI printing. n=1, 49: above the barcode. n=2, 50: below the barcode. n=3, 51: Both above and below.

GS L   Set left margin

Format:	ASCII:	GS	L	nL	nH
	Decimal:	29	76	nL	nH
	Hex:	1D	4C	nL	nH

Description:

Set the left margin to (nL+nH*256)*(horizontal or vertical motion unit); nL, nH=0~255.

Horizontal or vertical motion unit is specified by GS P command.

GS P   Set horizontal or vertical motion unit

Format:	ASCII:	GS	P	x	y
	Decimal:	29	80	x	y
	Hex:	1D	50	x	y

Description:

Set the horizontal and vertical unit to 1/x inch and 1/y inch.

When x or y=0, the default horizontal or vertical unit is selected.

| GS V | | | | | | Select cut mode and cut paper |

Format:	ASCII:	GS	V	m	(n)
	Decimal:	29	86	m	(n)
	Hex:	1D	56	m	(n)

Description:

(There is only one cut mode can be selected if the cutter can only realize one cut type.)

m=0, 48; No n parameter, Executes a full cut.

m=1, 49; No n parameter, Executes a partial cut (with one point left in the middle).

m=6, n=0~255; Feed paper to n*(horizontal or vertical motion unit) and executes a full cut.

m=66, n=0~255; Feed paper to n*(horizontal or vertical motion unit) and executes a partial cut.

| GS W | | | | | Set print area width |

Format:	ASCII:	GS	W	nL	nH
	Decimal:	29	87	nL	nH
	Hex:	1D	57	nL	nH

Description:

Set the print area width to (nL+nH*256)* (horizontal or vertical motion unit), nL, nH=0~255.

Horizontal or vertical motion units are specified by GS P.

| GS f | | | | Select the HRI character font |

Format:	ASCII:	GS	f	n
	Decimal:	29	102	n
	Hex:	1D	66	n

Description:

Select the HRI character when printing a bar code, using n as follows:

n=0, 48; Selects character A (12*24)

n=1, 49; Selects character B (8*16)

| GS h | | | | Set bar code height |

Format:	ASCII:	GS	h	n
	Decimal:	29	104	n
	Hex:	1D	68	n

Description:

Set the height of the bar code to n dots.

n=0~255.

| GS k | | | | | | Print bar code |

Format:		ASCII:	GS	k	m	d1..dk	NUL
		Decimal:	29	107	m	d1..dk	0
		Hex:	1D	6B	m	d1..dk	00
	*	ASCII:	GS	k	m	n	d1..dn
		Decimal:	29	107	m	n	d1..dn
		Hex:	1D	6B	m	n	d1..dn

*when m>64

m	Bar code type	Amount of data	The range of k	character	Character code
0	UPC-A	Fixed	11≤k≤12	0~9	48≤d≤57

1	UPC-E	Fixed	11≤k≤12	0~9	48≤d≤57
2	EAN13	Fixed	12≤k≤13	0~9	48≤d≤57
3	EAN8	Fixed	7≤k≤8	0~9	48≤d≤57
4	CODE39	Can be changed	1≤k	0~9, A~Z, SP, $, %, +, -, ., / *(stat, stop)	48≤d≤57, 48≤d≤57, d=32, 36, 37, 43, 45, 46, 47. d=42 (stat, stop)
*65	UPC-A	Fixed	11≤n≤12	0~9	48≤d≤57
*66	UPC-E	Fixed	11≤n≤12	0~9	48≤d≤57
*67	EAN13	Fixed	12≤n≤13	0~9	48≤d≤57
*68	EAN8	Fixed	7≤n≤8	0~9	48≤d≤57
*69	CODE39	Can be changed	1≤n<255	0~9, A~Z, SP, $, %, +, -, ., / *(star, stop)	48≤d≤57, 48≤d≤57, d=32, 36, 37, 43, 45, 46, 47. d=42 (stat character)
*70	ITF	Can be changed	1≤n<255 (Even)	0~9	48≤d≤57
*71	CODABAR	Can be changed	1≤n<255	0 9, A D, $, +, -, ., / , :	48≤d≤57, 65≤d≤68, 36, 43, 45, 46, 47, 58
*73	CODE128	Can be changed	2≤n<255	NUL~SP(7FH)	0≤d≤127

GS v 0   Print raster bit image

Format:	ASCII:	GS	v	0	m	xL	xH	yL	yH	d1…dk
	Decimal:	29	118	48	m	xL	xH	yL	yH	d1…dk
	Hex:	1D	76	30	m	xL	xH	yL	yH	d1…dk

Description:

Print a raster bit image using the mode specified by m as follows.

m=0, 48: normal; m=1, 49: double width; m=2, 50: double height; m=3, 51: quadruple.

XL, xH, yL, yH=0~255;

XL, xH specifies (xL+xH*256) bytes in horizontal direction for the bit image;

YL, yH specifies (yL+yH*256) dots in vertical direction for the image.

k= (xL+xH*256)*(yL+yH*256) indicates the number of bit image data.

GS w   Set barcode width

Format:	ASCII:	GS	w	n
	Decimal:	29	119	n
	Hex:	1D	77	n

Description:

Set the horizontal size of barcode.

2≤n≤6.

Appendix Commands List

Here lists the commands supported in the printer in alphabetical order.

Control Commands	Functions
BEL	Beeper
HT	Horizontal tab
LF	Print and line feed
FF	Print and Feed paper to next black mark position
DLE EOT	Real-time status transmission
ESC BEL	Beep for appointment
ESC SP	Set right-side character space
ESC !	Set print mode
ESC $	Set absolute print position
ESC %	Select/cancel user-defined character set
ESC &	Define user-defined characters
ESC *	Select bit-image mode
ESC –	Turn underline mode on/off
ESC 2	Select default line space
ESC 3	Set line space
ESC =	Select peripheral device
ESC ?	Cancel user-defined character
ESC @	Initialize printer
ESC D	Set horizontal tab position
ESC E	Turn emphasized mode on/off
ESC J	Print and feed paper
ESC M	Select character font
ESC R	Select the international character set
ESC V	Turn 90°clockwise rotation mode on/off
ESC \	Set relative print position
ESC a	Select justification
ESC c 3	Select paper end sensor
ESC c 4	Select paper sensor to stop printing
ESC c 5	Enable/disable panel button
ESC d	Print and feed n lines
ESC p	Generate pulse
ESC t	Select code page
ESC {	Turn on/off upside-down printing mode
FS !	Select Chinese character mode
FS &	Set Chinese language mode
FS -	Turn Chinese character underline on /off
FS .	Cancel Chinese language mode
FS 2	Define user-defined Chinese characters
FS S	Set Chinese character space
FS W	Turn quadruple-size mode on/off for Chinese character

FS p n m	Print NV bit image
FS q n	Define the NV bit image
GS BEL	Beep for appointment
GS !	Select Character size
GS *	Define downloaded bit image
GS /	Print downloaded bit image
GS B	Turn white/black reverse mode on/off
GS H	Select print position of HRI character
GS L	Set left margin
GS P	Set horizontal or vertical motion unit
GS V	Select cut mode and cut paper
GS W	Set print area width
GS f	Select the HRI character font
GS h	Set bar code height
GS k	Print bar code
GS v 0	Print raster bit image
GS w	Set bar code width