



User's Manual

BP002

Let your printing Easy and Magic
58 mm Impact Receipt Printer
High-Performance, Flexible and Heavy duty.



Important Safety Instructions

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

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 at any moment to avoid the thermal head damaged.
3. Be careful the manual 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 water.
6. Do not place this product on an unstable cart, stand or table. The product may fall, causing serious damage to you or the product.
7. 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.
8. This product should never be placed near or over a radiator or heat origin, and should avoid direct sunshine.
9. 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 damage.
10. Be sure to use the specified power source. Connection to an improper power source may cause fire or shock.
11. Do not use in locations subject to high humidity or dust levels. Excessive humidity and dust may cause equipment damage or fire.
12. Never push objects of any kind into this product through 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. If water or other liquid spills into this equipment, unplug the power cord immediately, and then contact your dealer or a service center for advice.
15. To ensure safety, please unplug this product prior to leaving it unused for an extended period. The wall outlet you plan to connect to should be nearby and unobstructed.
16. Unplug this product from the wall outlet and refer 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 full black exceeding 2 CM.

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.**

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Chapter 1 Overview

1.1 Features

BP-002 is a low-cost and high-reliability thermal printer facing low-income market. It can be widely used in the fields of supermarket, POS, catering, electronic instrument and so on.

1.2 Product Model Description

According to different data ports (interfaces), BP-002 series is classified into several different models: BP-002BP, BP-002BU, BP-002BR, BP-002BN, BP-002BT, BP-002BF, BP-002WP, BP-002WU, BP-002WR, BP-002WN, BP-002WT, BP-002WF

Configuration of each model:

The products of this series are configured with a cash drawer interface. You can choose one of the following models when purchasing this printer.

Model	Interface	Cable	Color
BP-002BP	Parallel interface	Parallel interface cable	Black
BP-002BU	USB interface + Serial interface	USB interface cable	Black
BP-002BR	USB interface + Serial interface	Serial interface cable	Black
BP-002BN	USB interface + Ethernet interface	Ethernet interface cable	Black
BP-002BT	USB interface + Bluetooth interface	USB interface cable	Black
BP-002BF	USB interface + Wi-Fi interface	USB interface cable	Black
BP-002WP	Parallel interface	Parallel interface cable	White
BP-002WU	USB interface + Serial interface	USB interface cable	White
BP-002WR	USB interface + Serial interface	Serial interface cable	White
BP-002WN	USB interface + Ethernet interface	Ethernet interface cable	White
BP-002WT	USB interface + Bluetooth interface	USB interface cable	White
BP-002WF	USB interface + Wi-Fi interface	USB interface cable	White

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

1.3 Main Parts of the Printer

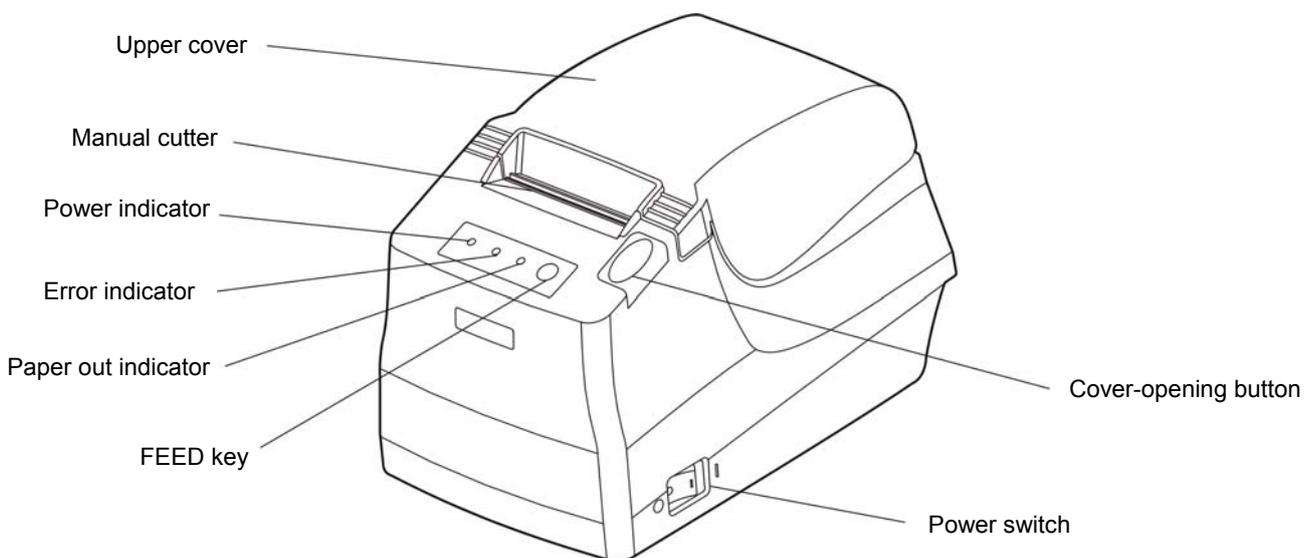


Figure 1-1 Main parts of the printer

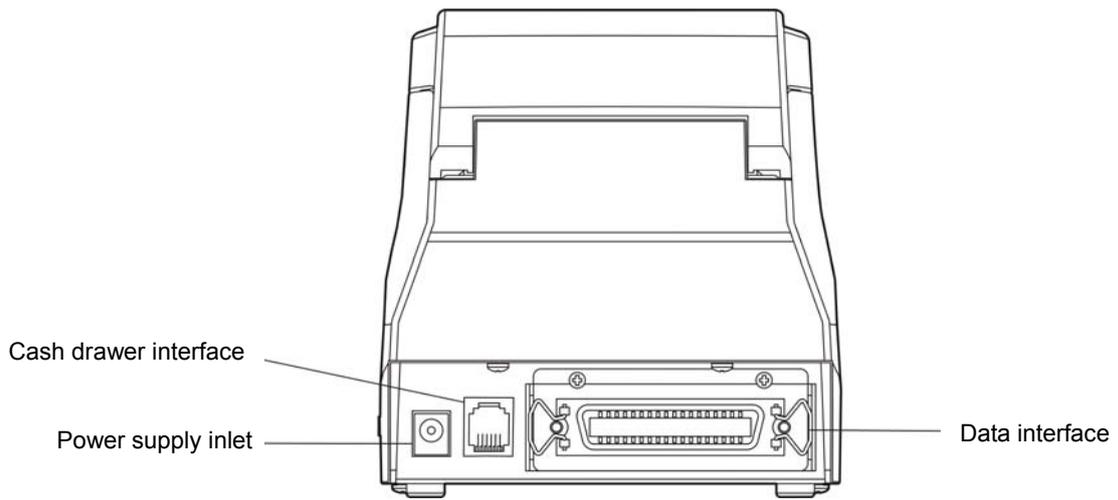


Figure 1-2 Back interfaces of the printer

Note: According to the specific interface standards

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.

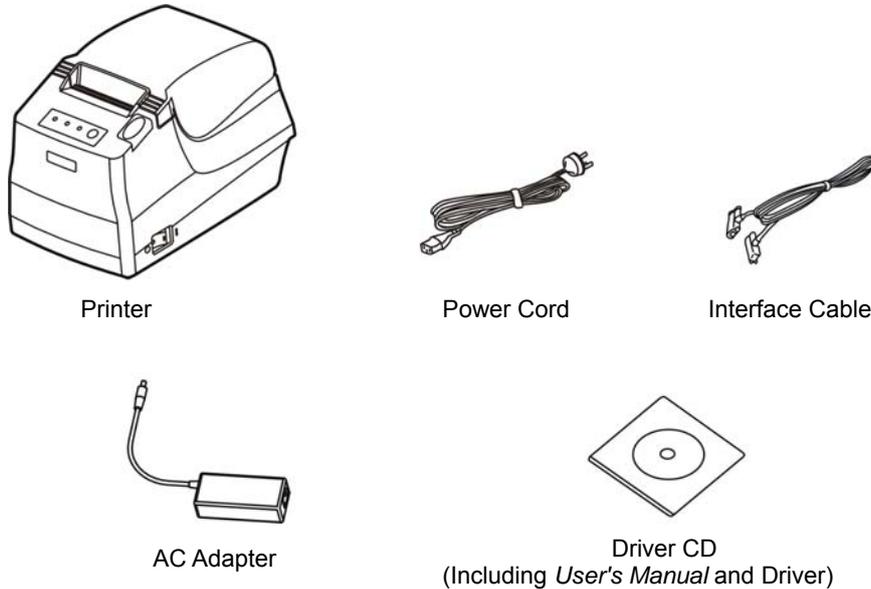


Figure 2-1 Packing List

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 + serial interface, USB + Ethernet interface, USB interface + Bluetooth or USB interface + Wi-Fi). (According to specific interface standards) Please contact your local dealer to change the interface with added expense if needed. Connect the printer to your computer as described below.

Note: Before connecting or disconnecting the cash drawer, serial interface or parallel interface cable, make sure that the power of the printer is turned off. Also make sure the power cable is disconnected with 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 of the printer and the other end is connected to cash drawer, as shown in Figure 2-2.

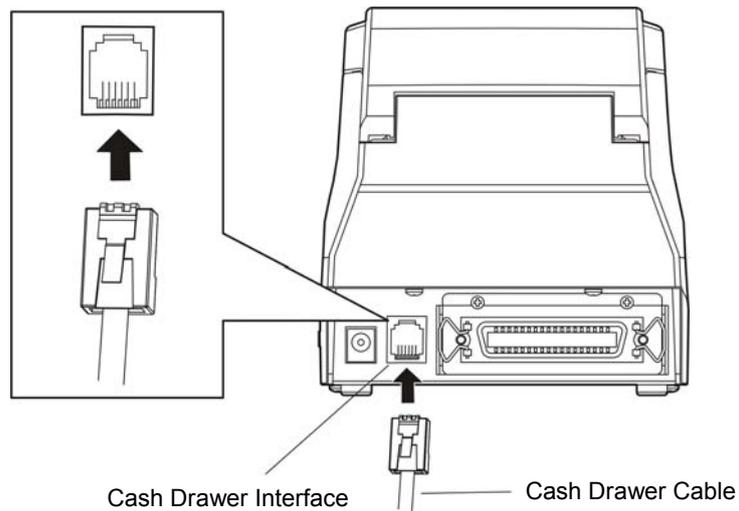


Figure 2-2 Connecting the cash drawer cable

Caution: You must use the appropriate cash drawer, or else our company will not guarantee to keep the printer in good repair when it is damaged by improper 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, and then fasten the wire clips as shown in Figure 2-3.

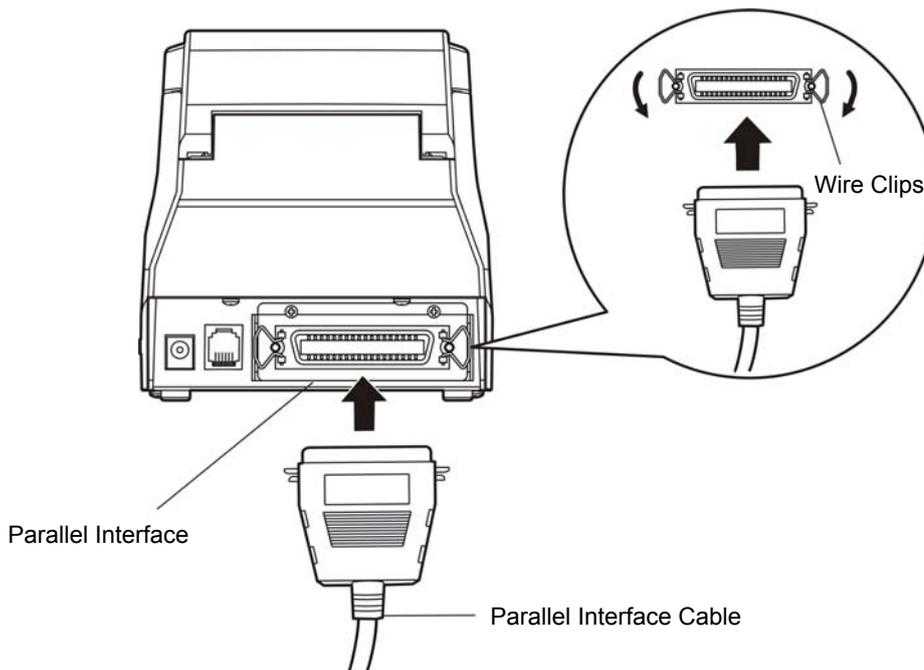


Figure 2-3 Connecting the parallel interface cable

2. Connect the other end of the cable to the computer. Tighten the connector screws.

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 USB interface cable after connecting it.

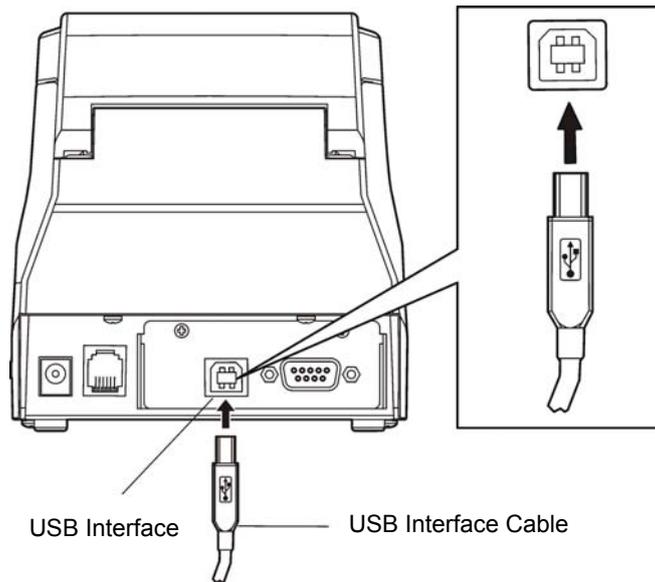


Figure 2-4 Connecting the USB interface cable

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 connector screws as shown in Figure 2-5.

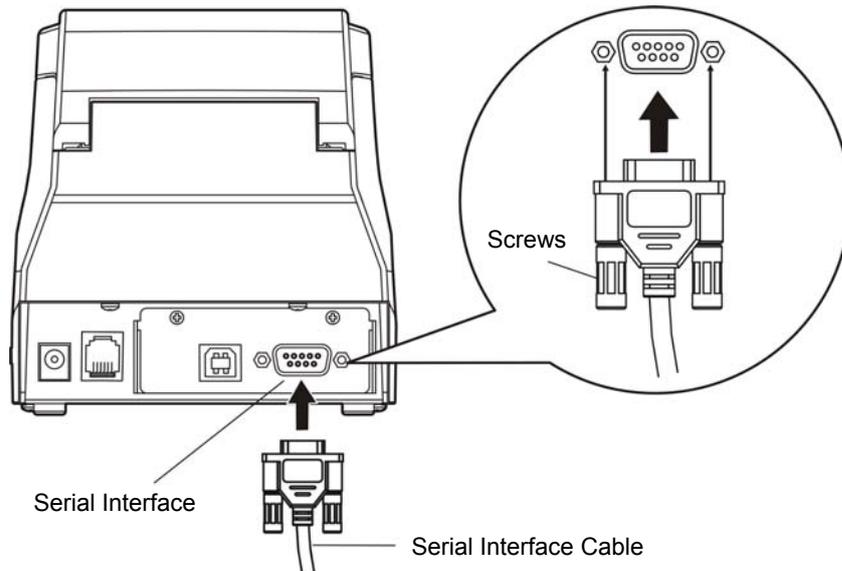


Figure 2-5 Connecting the serial interface cable

2. Connect the other end of the cable to the computer's serial interface and tighten the screws.

2.3.5 Connecting the Ethernet Interface Cable

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

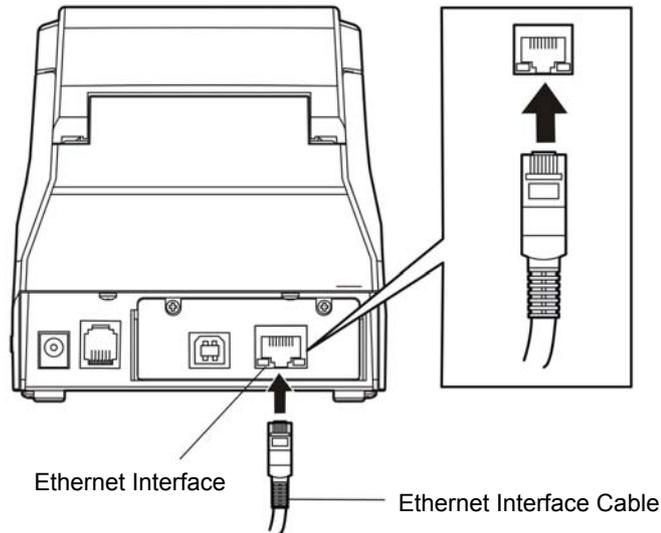


Figure 2-6 Connecting the Ethernet interface cable

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

2.4 Connecting the Power Cord

1. Make sure the printer's power is turned off. (O mark on the power switch is pressed down)
2. Make sure the voltage of the electrical outlet matches that of the AC adapter.
3. Plug the AC adapter to the printer's power supply inlet.
4. Plug one end of power cord into the AC adapter, and then plug the other end of power cord into the grounded electrical outlet.

Note: 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, or else, our company will not guarantee to keep the printer in good repair when it is damaged by unauthorized AC adapter.

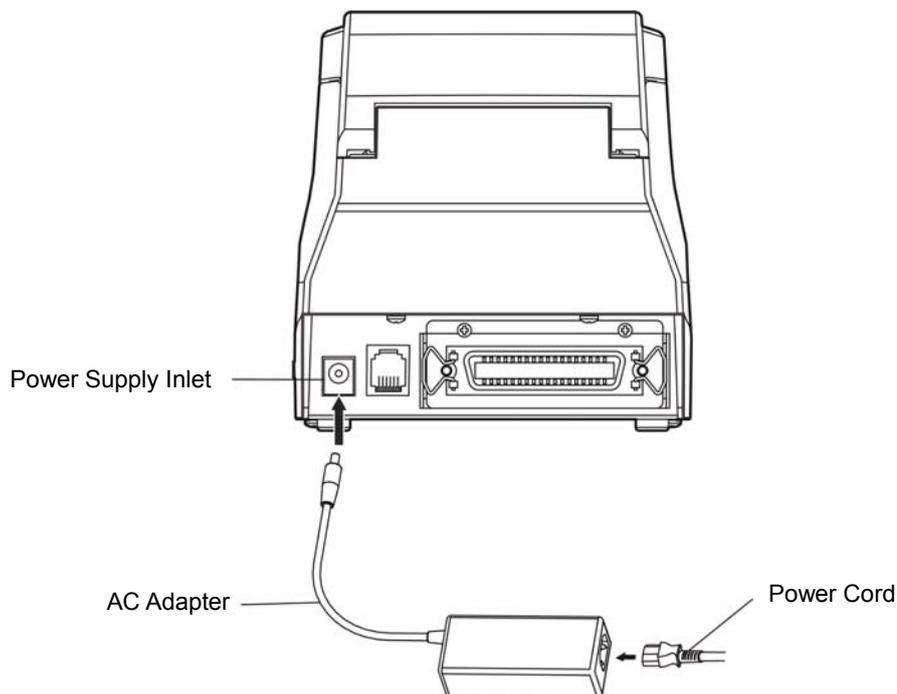


Figure 2-7 Connecting the AC adapter

2.5 Installing the Driver

You should setup the printer driver in Windows before using the BP-002 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-install way

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

Note: Auto-install way needs the operating system of Windows 2000 or above.

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 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)", 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 → "Driver" → "WIN2000 (XP-Vista-Win7)", click "Open", then click "OK" to return to the window of "Install Printer Software", select the respective model, 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)", 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, such as Windows XP operating system, you should select the path as follow: CD-ROM → "Driver" → "WIN2000 (XP-Vista-Win7)", click "Open", then click "OK" to return to the window of "Install Printer Software", select the respective model, 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 example. There are slight differences among different operating systems.

1. Connect the printer to computer with an USB cable and turn on the printer.
2. After the computer find out new hardware and finish searching, pop up a window of "Found New Hardware Wizard", choose "Install from a list or specific location (Advanced)", click "Next".
3. A window of "Found New Hardware Wizard" — "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...", click "Browse".
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 → “Driver” → “WIN2000 (XP-Vista-Win7)”, click “Open”, then click “OK” to return to the window of “Add Printer Wizard”, select the respective model, 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 cable or a serial cable:

1. Click “Start” → “Settings” → “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 “Click the manufacturer and model of your printer” pops up, click “Have Disk...”, please click “Browse”, select the path as follow: CD-ROM → “Driver” → “WIN98 (WINME)”, then click “OK”.
4. A window of “Install From Disk” pops up, click "OK, return to a window of “Add Printer”, 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 the system is not installed by other printer driver process, the printer is treated as default printer by the application process of Window98 environment, click “Next”. 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 an USB 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 an 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)”, 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 → “Driver”-[WIN98 (WINME) \ USBdriver]”, then click “OK”.
5. Return to a window of “Search for new drivers”, 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:

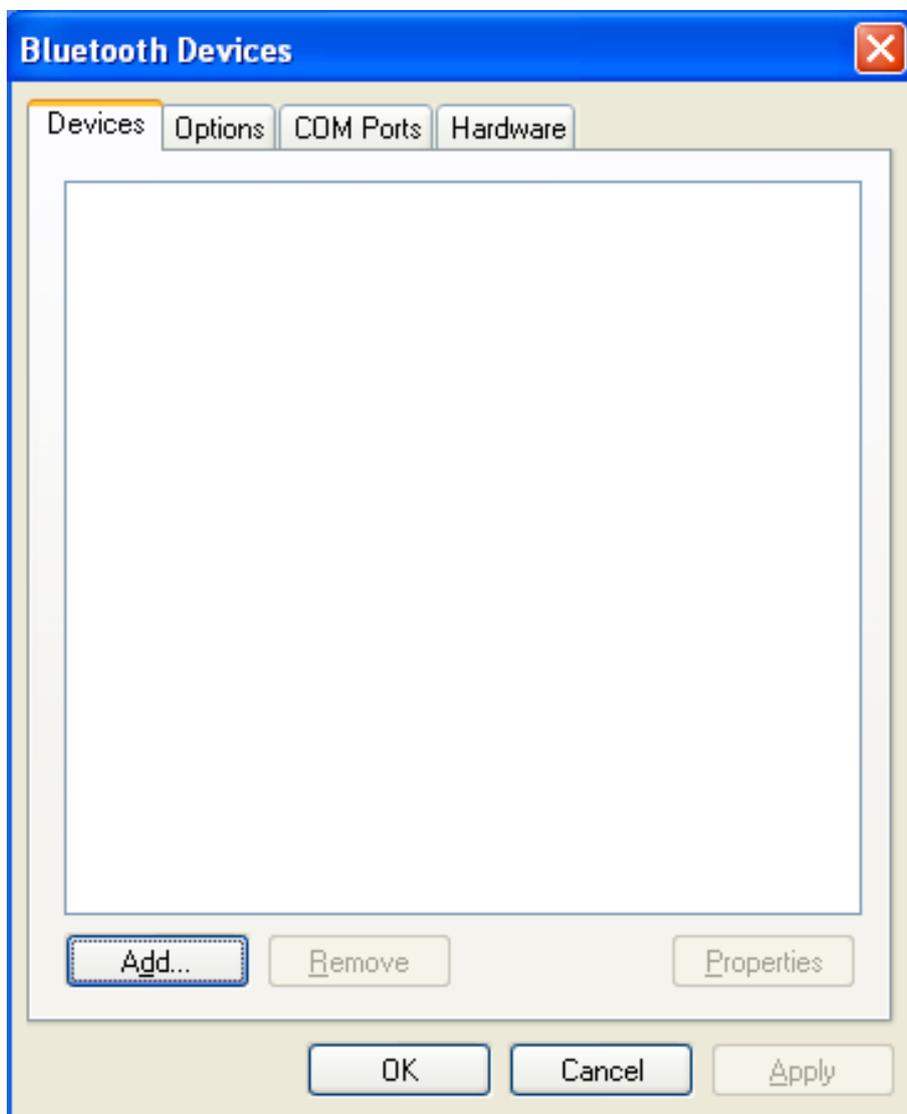
1. Click “Start” → “Settings” → “Printers”.
2. Click “Add Printer”, then a window of “Add Printer Wizard” pops up, click “Next”.
3. A window of “Click the manufacturer and model of your printer” pops up, click “Have Disk...”, please click “Browse”, select the path as follow: CD-ROM → “Driver” → “WIN98 (WINME)”, and then click “OK”.

4. A window of "Install From Disk" pops up, click "OK", return to a window of "Add Printer", 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 the system is not installed by other printer driver process, the printer is treated as default printer by the application process of Window98 environment, click "Next". 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.

2.6 Installing Bluetooth Interface Driver

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

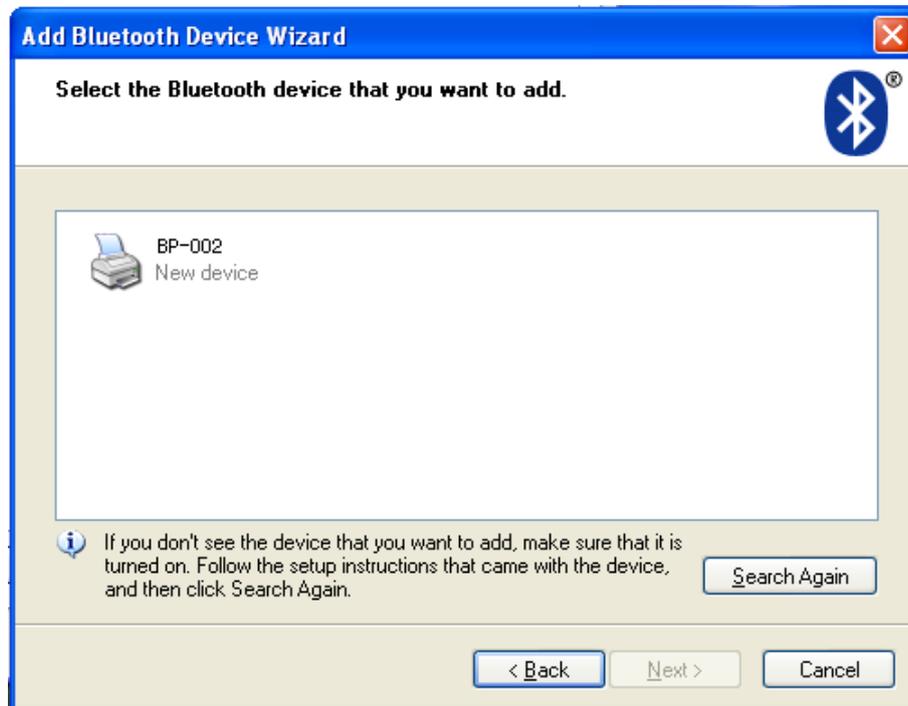
1. Choose the appropriate Bluetooth adapter, the operation system is Window XP or above which with Bluetooth adapter driver.
2. Turn on the printer, search Bluetooth device in Window XP system, and click "Add".



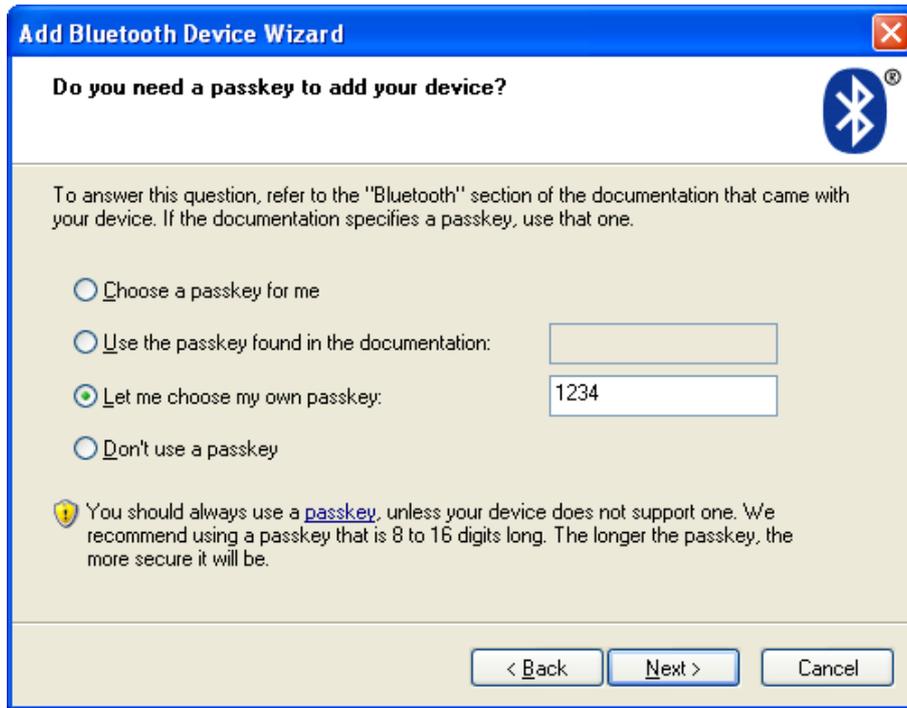
3. Tick off the option of "My device is set up and ready to be found." Click "Next" to continue.



4. Select the “BP-002”, 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 finish.

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

2.7 Ethernet Settings

Please use Birch network setting software NetFinder to set the IP address for Birch Ethernet interface network printers, which can be found in the CD or downloaded from www.birch.com.tw.

Caution: The network printing function needs the operation system of Windows2000 or above.

2.7.1 Connecting Printer

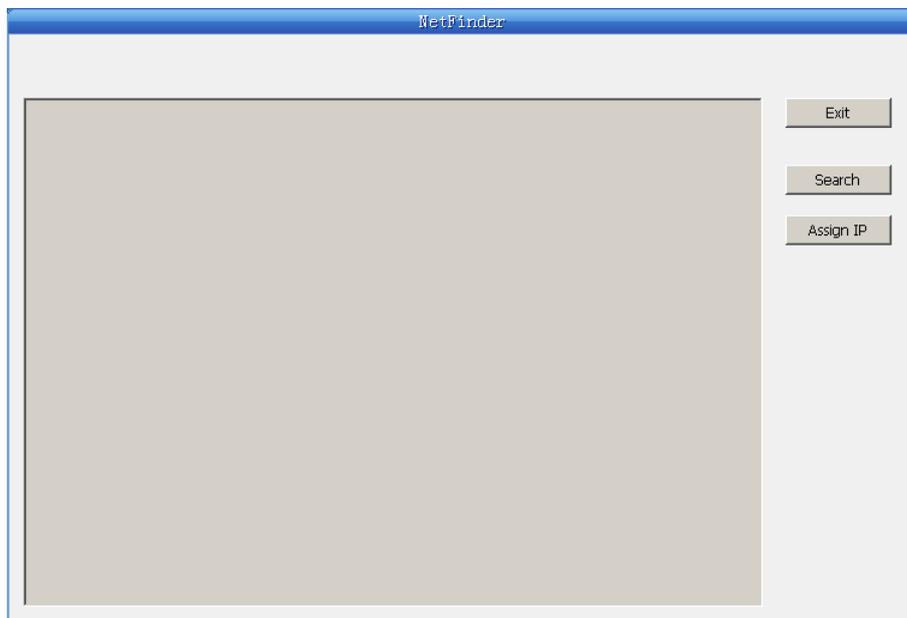
Power on the printer, connect with the Ethernet cable which has been connected to LAN, and look into the information of Ethernet LED indicator to ensure the printer has entered into the normal connection.

Yellow LED	Green LED	Description
ON	Blink	Connecting to network
OFF	OFF	Not connecting to network

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:

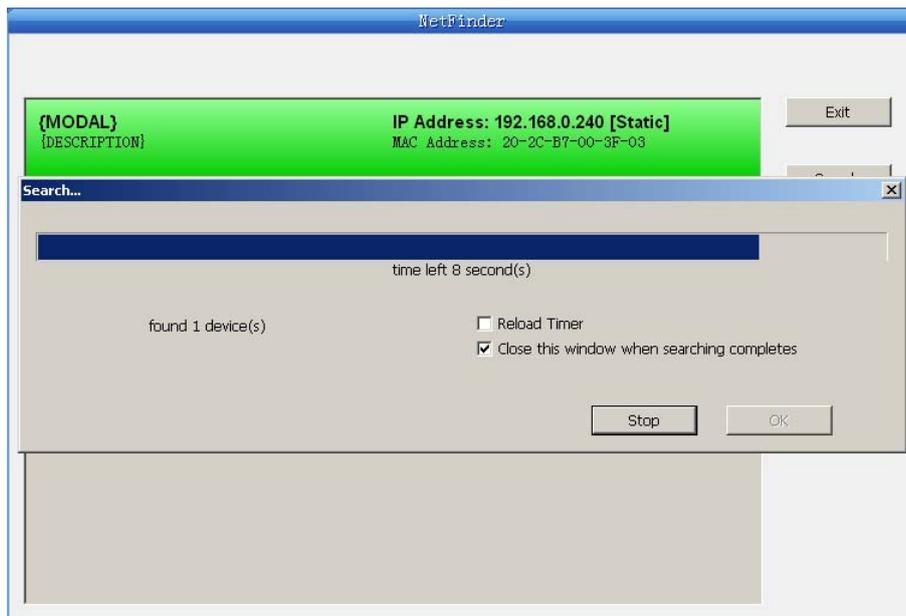
Exit — Exit from the software

Search — Search printers in the same LAN

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

2. Search printer

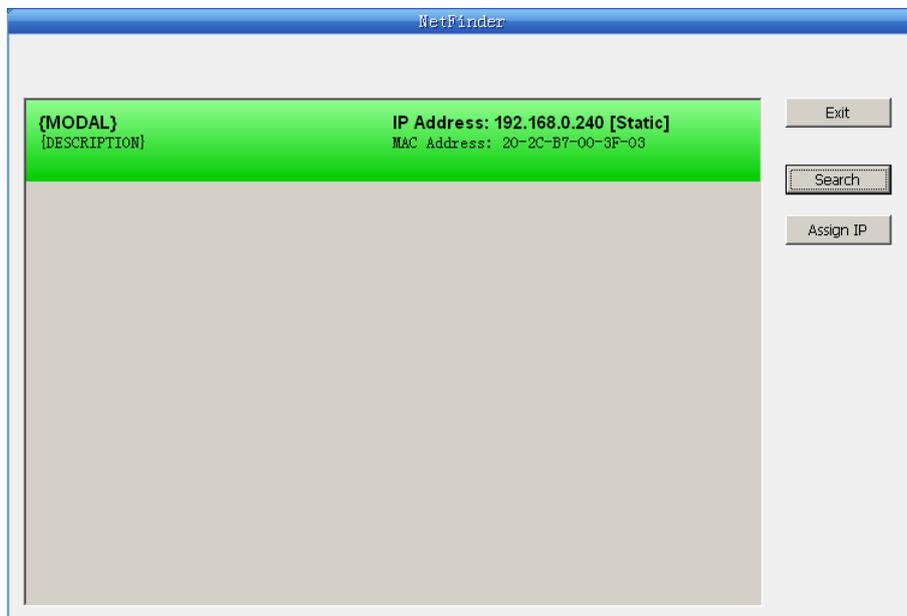
Click “Search” button in the main interface, the dialog box appearing will begin searching automatically and show appearance, listing a printer in the main interface if found. The time is counting down in the progress bar (10s in total) and the search will finish as soon as the time is over. When going 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 opens or not. If there is fire wall, please close it temporarily, open 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 are the IP address 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 dialog box appearing.

Check the "Use DHCP" if need 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. The printer takes response after "Close this window on success" is checked, and then this dialog is closed automatically. Select "Reload Timer" then the software will wait for the printer's response. Generally, printer will take response in a circle time if network connection is correct.

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

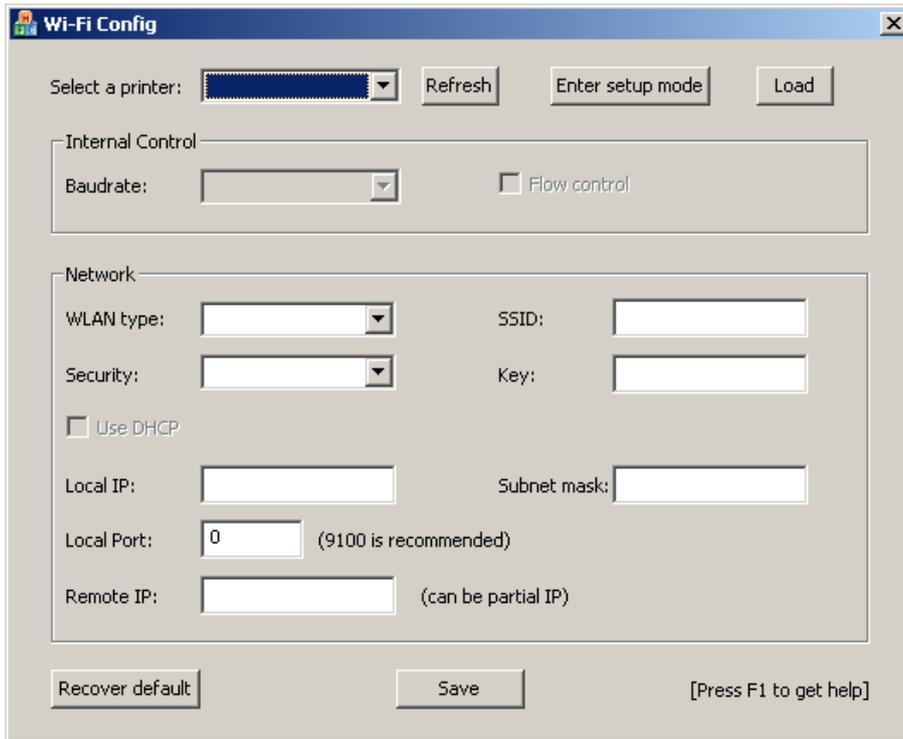
Please use Birch network setting software WiFiConfig to set the IP address for Birch Wi-Fi interface network printers, which can be found in the CD or downloaded from www.birch.com.tw.

Caution: The network printing function needs the operation system of Windows2000 or above.

Caution: Wi-Fi interface transfers data through wireless network. The wireless signal may be affected by the surrounding environment, please ensure the signal around printer location is well enough.

2.8.1 Connect to the Printer, Run the WiFiConfig Software

Connect the printer and the computer with the USB interface cable, make sure the printer is in normal working condition, and then turn on both the printer and the computer, double click WiFiConfig.exe in the driver CD. The software interface is as follows:



Explanation Table

Item	Explanation	Note
Select a printer	Select the printer model in the list.	
Refresh	Refresh the printer model.	
Enter setup mode	Enter setup mode. Note: If the printer has entered setup mode, please don't click "Enter setup mode" again.	
Load	Load the current Wi-Fi parameter.	
Baudrate	Set the serial baudrate. This parameter setting usually does not need to change.	
Flow control	Control the flow of communication data. There is no need to change this parameter normally.	
WLAN type	Select the WLAN type Infrastructure, Ad Hoc or OFF. Infrastructure: Select infra, through router to connect network; Ad Hoc: Select ad-hoc, wireless network card can communicate with printer directly; OFF: Select the printer Wi-Fi interface off.	

SSID	Network name. The longest network name is 32 characters and there is no space between characters. When WLAN type Infrastructure, the network name is the same with the router's network name; When WLAN type Ad Hoc, the network name is the same with the wireless network card's network name.	
Security	Select the security mode.	
Key	Enter the corresponding key. When "Security" is selected to "None", do not need to enter key.	
Use DHCP	Select to use dynamic IP assignment or not. There is no need to change this parameter normally. Note: Dynamic IP assignment is uncertain, it is easy lead to unsuccessful communication because of IP mismatching, so we don't suggest using dynamic assignment.	
Local IP	IP address of printer Wi-Fi interface. Note: This IP address should not conflict with other network devices. If "Use DHCP" has been selected, then this IP is invalid.	
Subnet mask	The subnet mask of printer Wi-Fi interface.	
Local port	The local port of printer Wi-Fi interface. It is suggested using 9100.	
Remote IP	The remote IP is a segment of the LAN or the PC IP which communicates with printer. When filling in IP, such as "192.168.0.1", PC is communicate with printer respectively; When filling in segment, such as "192.168.0", the PCs in this segment all can communicate with the printer.	
Recover default	Recover the default setting. After recover the default setting, you should set the Wi-Fi parameters again.	
Save	Save the setting parameter. After saving, please reboot the printer.	
Press F1 to get help	Press F1 to get the help information.	

2.8.2 Set Wi-Fi Parameters

Note: 1. You should use the USB interface cable to connect the printer and computer before configuring Wi-Fi parameters, and run the WiFiConfig software.

2. Configuring Wi-Fi parameters should in the setup mode (besides recover the default setting).

3. You should make sure the printer is in normal working condition before running the WiFiConfig software.

The detail parameter configuration instruction and cautions please refer to the Help of WiFiConfig.exe. Press F1 to pop up the Help instruction when running that software.

1. Connect the printer and the computer with a USB interface cable, and then turn on both the printer and the computer, run the WiFiConfig software.
2. Check if the corresponding printer model is in the list of Select a printer, if no, please click "Refresh", select the corresponding printer model after it appears.
3. Click "Enter setup mode", it will pop up a Success dialog box when it enters the mode successfully.

After entering setup mode, printer could not receive print data, and you should restart the printer before printing.

4. Click "Load", the printer would load the current Wi-Fi setting.

5. Sets the network communication parameters.

Please set the corresponding network communication parameters according to the actual network circumstances. The detailed information please enquire the network administrator.

WLAN type: Select the network mode. Through hotspot, connect the network with router mode, select "Infrastructure"; Wireless network card communicates with the printer directly, select "Ad Hoc"; Do not need the Wi-Fi printing function, select "OFF".

SSID: SSID is the corresponding network name. When "WLAN type" is selected to "Infrastructure", network name and the router network name should be the same; when "WLAN type" is selected to "Ad Hoc", network name and the wireless network card name should be the same.

Security: Select the security mode of the selected network.

Key: Enter the key of the selected network. When "Security" is selected to "None", you do not need to enter key.

6. Set the printer IP parameters.

Please set the corresponding printer IP parameters according to the actual network circumstances. The detail information please enquire the network administrator.

Note: Dynamic assign IP is uncertain, it is easy lead to unsuccessful communication because of IP mismatching, so we don't suggest using dynamic assignment.

IP address and subnet mask should obey the assignment rule of the local LAN.

Use DHCP: Select to use dynamic IP assignment or not. When select "Use DHCP", the IP parameters would be invalid. Please ensure there it DHCP server in the network firstly, or else the printer would not achieve the valid IP address. Do not select "Use DHCP", you should specify static address.

Local IP: The IP address of printer Wi-Fi interface.

Subnet mask: The subnet mask of printer Wi-Fi interface.

Local port: The local port of the printer Wi-Fi interface. It is suggested using 9100.

Record the printer IP address and port number, the IP address and port number would use in the Newly-install way or Upgrade-install way in next chapter.

7. Setting remote IP parameters.

The remote IP is a segment of the LAN or the PC IP which communicates with printer.

When filling in IP, such as "192.168.0.1", PC communicates with printer respectively; when filling in segment, such as "192.168.0", the PCs in this segment all can communicate with the printer.

8. After finish setting, click "Save" to save the setting 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 properly.

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 indicator lights to judge the connection status.

Indicator Lights Description

Light Communication	Network	Infrastructure	Ad Hoc	OFF
Connect		ON	ON	BLINK
Disconnect		BLINK	ON	BLINK

2.8.4 Recover the Default Setting

When the malfunctions of the Wi-Fi parameters lead to the printer unable to connect with the network, you could recover the default setting to set the parameters again.

Note: Printer does not need to enter setup mode when recovering the default setting. If the printer has entered into setup mode, please restart the printer before recovering the default setting.

1. Connect the printer and the computer with a USB interface cable, and then turn on both the printer and the computer and run the WiFiConfig software.
2. Check if the corresponding printer model is in the list of Select a printer, if no, please click "Refresh", select the corresponding printer model after it appears.
3. Click "Recover default", wait several seconds and a dialog box would pop up to denote the recovery is successful or not.
4. After finishing recovering, please restart the printer and set the Wi-Fi parameters again.

2.9 Installing Printer Network Driver

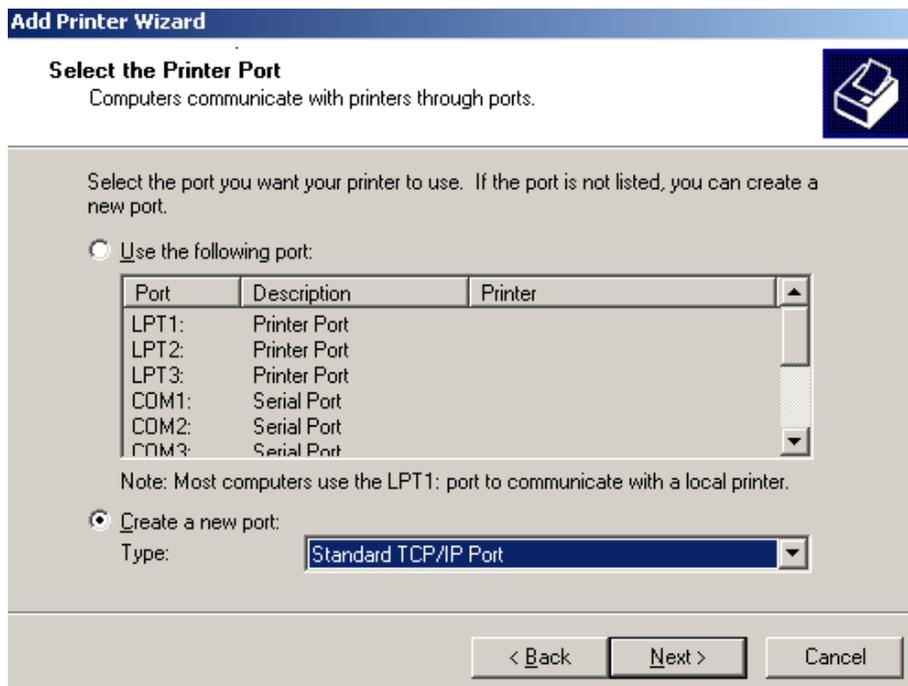
The ways of installing network driver are classified into Newly-install way and Upgrade-install way according to whether the PC installs the printer driver or not.

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".

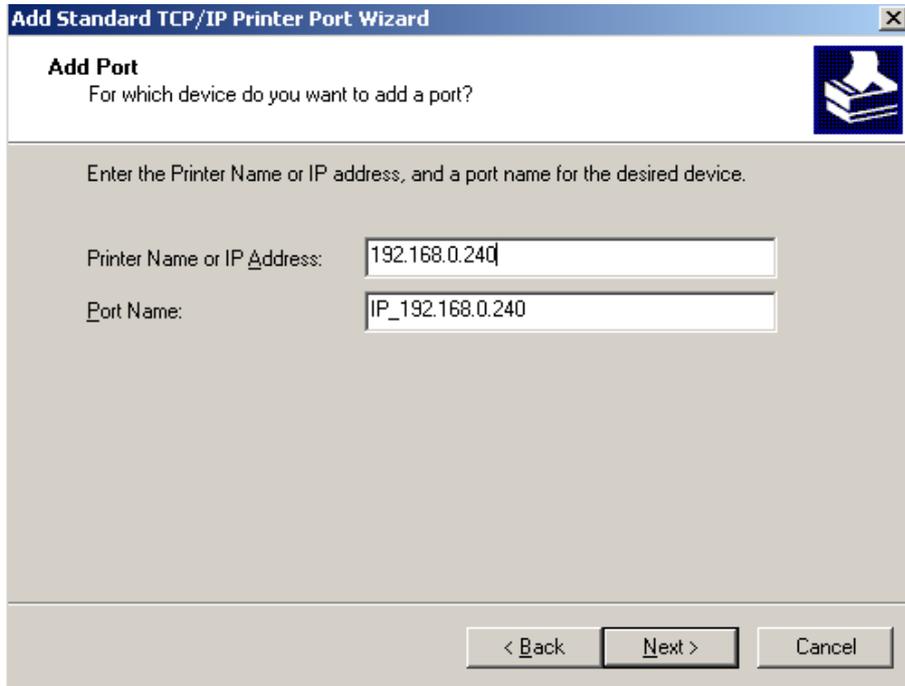
1. Newly-install printer network driver

- 1) Click "Start" → "Settings" → "Select Printers".
- 2) Click "Add printer", then a window of "Add Printer Wizard" pops up, click "next", then please read the select guide carefully. Such as, select "Local or Network Printer", then click "next".
- 3) A window of "Select the Printer port" pops up, select a port you want your printer to use. For example, select "Create a new port", select "Standard TCP/IP Port" in the port, click "next".

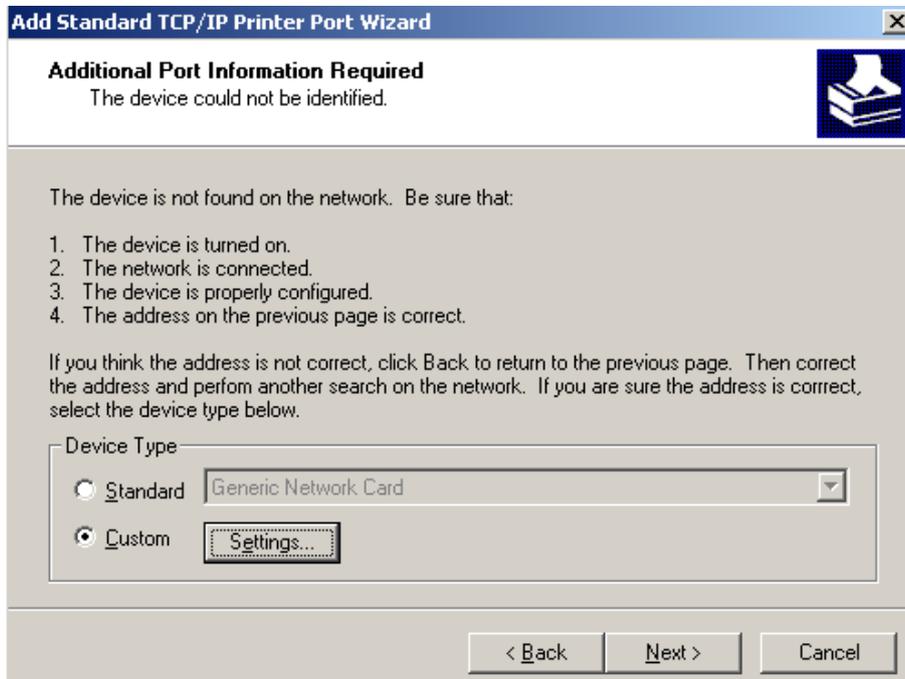


- 4) A window of "Add standard TCP/IP Printer Port Wizard", click "Next".

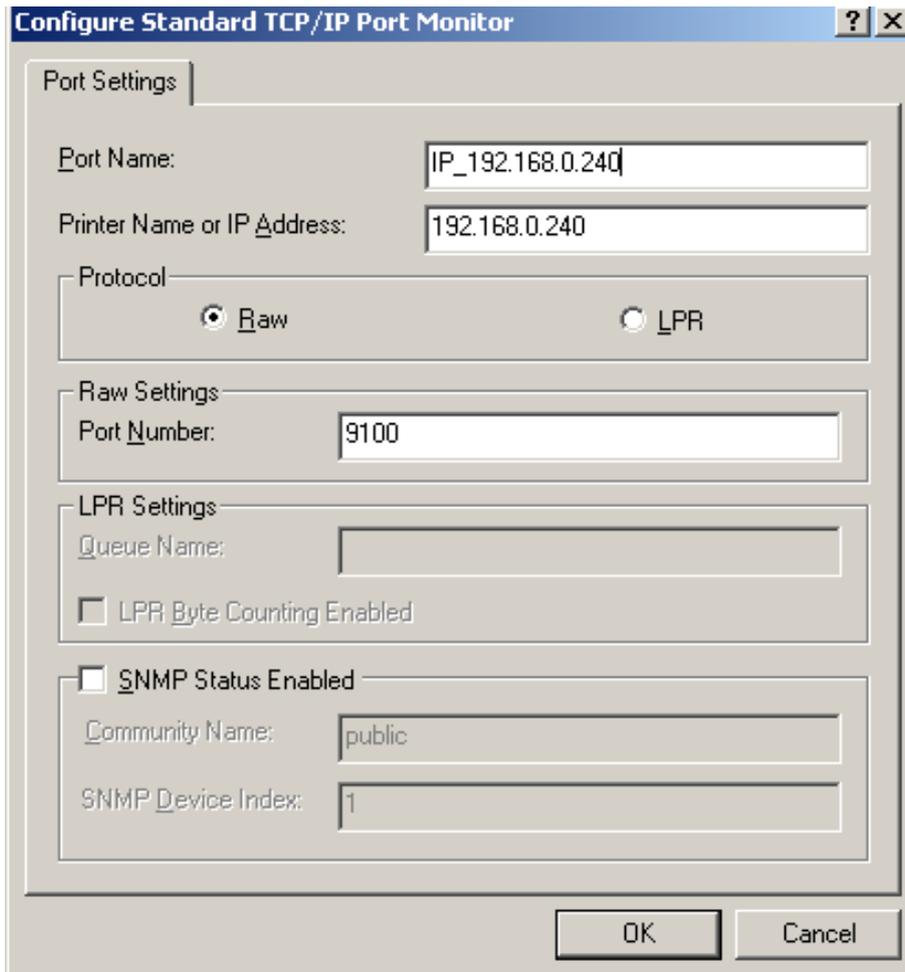
- 5) A window of “Add Port” pops up, enter the IP address reported by the “Setting printer’s IP address” in the “Printer Name or IP Address” column. Take IP address “192.168.0.240” for example. “Port Name” is created automatically after finishing filling in IP address.



- 6) A window of “Additional Port Information Required” pops up, select “Custom” in the “Device Type”, then click “Settings”.



- 7) 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”.

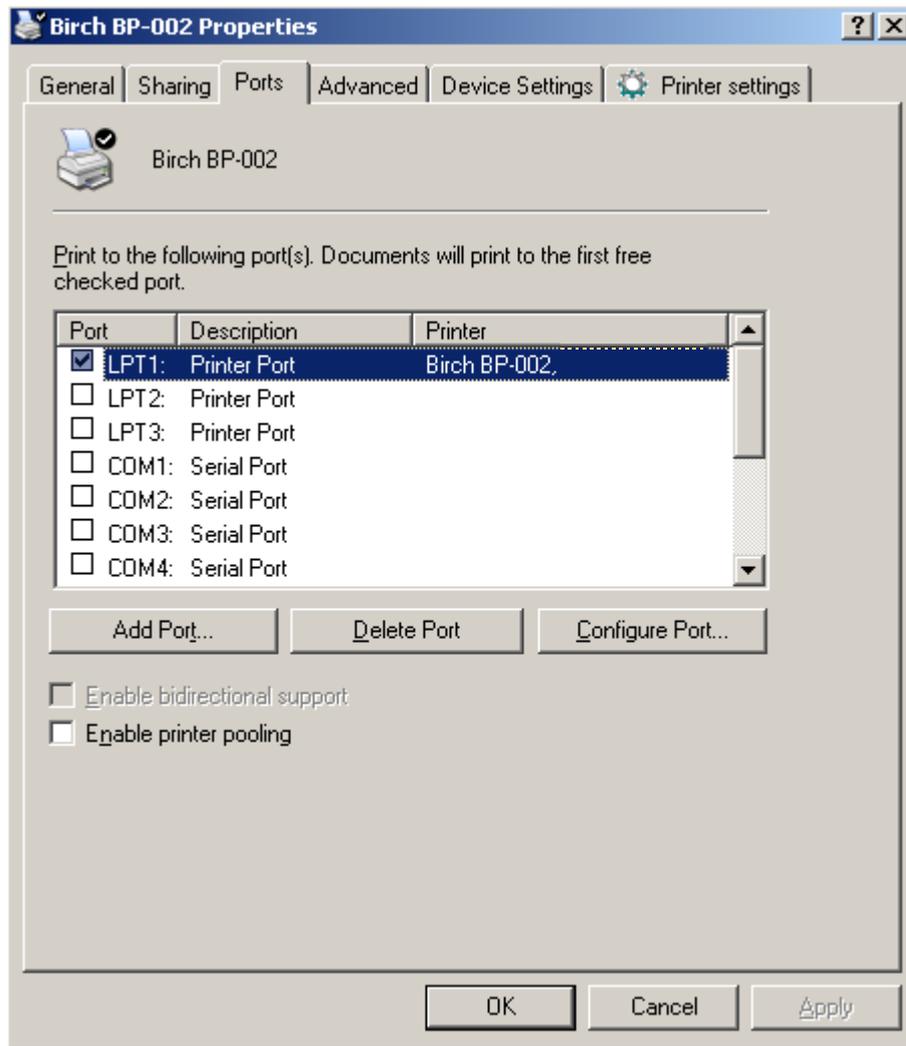


- 8) Return to “Additional Port Information Required”, click “Next”.
- 9) A window of “Completing the Add Standard TCP/IP Printer Port Wizard” pops up, click “Finish”.
- 10) In the selection of “Manufacturers/Printers”, click “Have Disk”, and then click “Next”.
- 11) A window of “Install From Disk” pops 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 → “Driver” → “WIN2000 (XP-Vista-Win7)”, click “Open”, then click “OK” to return to the window of “Install Printer Software”, select the respective model, click “Next”.
- 12) Follow the direct click “next” gradually till the installation is finish. At this time, printer network driver is installed completely.

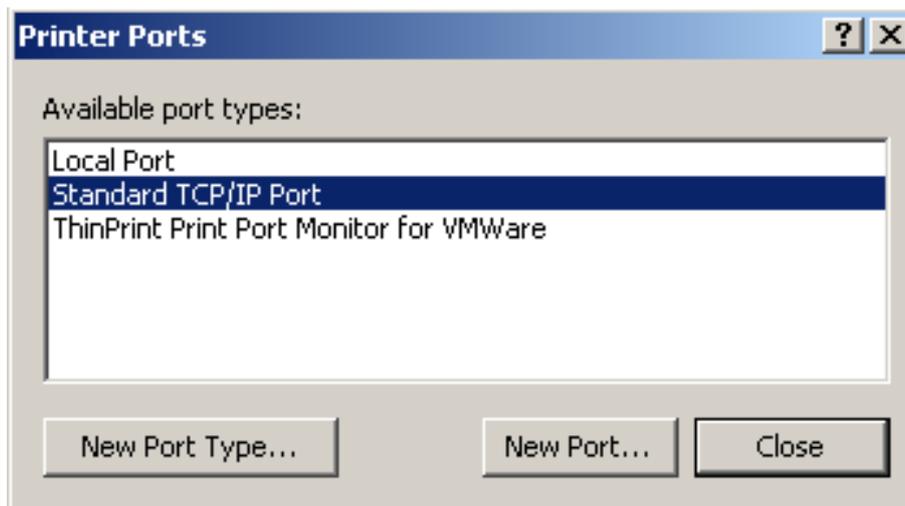
2. Upgrade-install printer network driver (setting driver's network port)

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 BP-002 driver, click “Properties” on the window popping up.
- 3) A window of “Properties” pops up, click “Ports” and “Add Ports”.

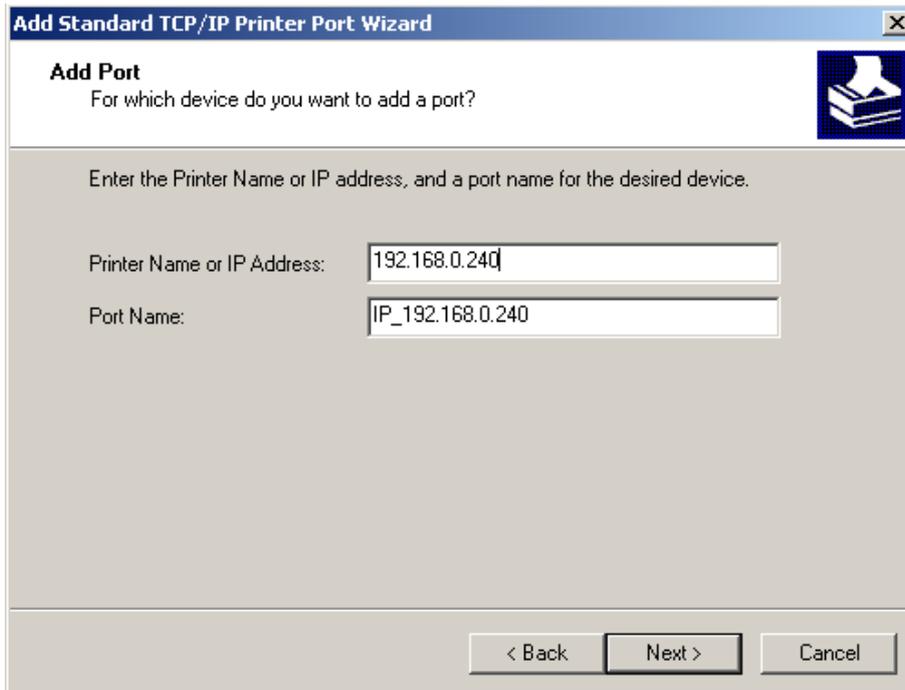


4) A window of "Printer port" pops up, select "Standard TCP/IP Port", click "New port".

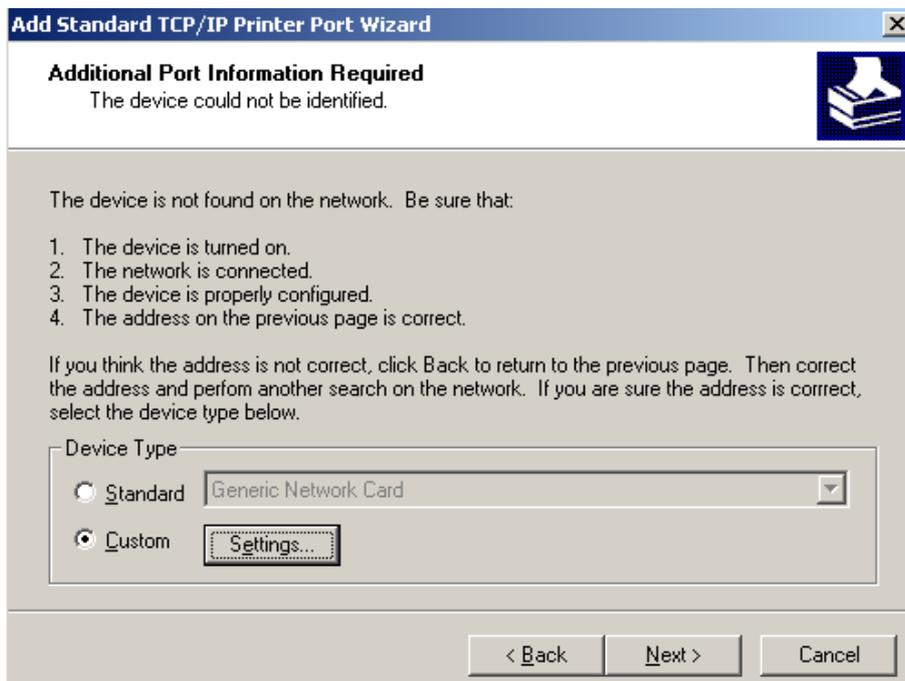


5) A window of "Add Standard TCP/IP Printer Port Wizard" pops up, click "Next".

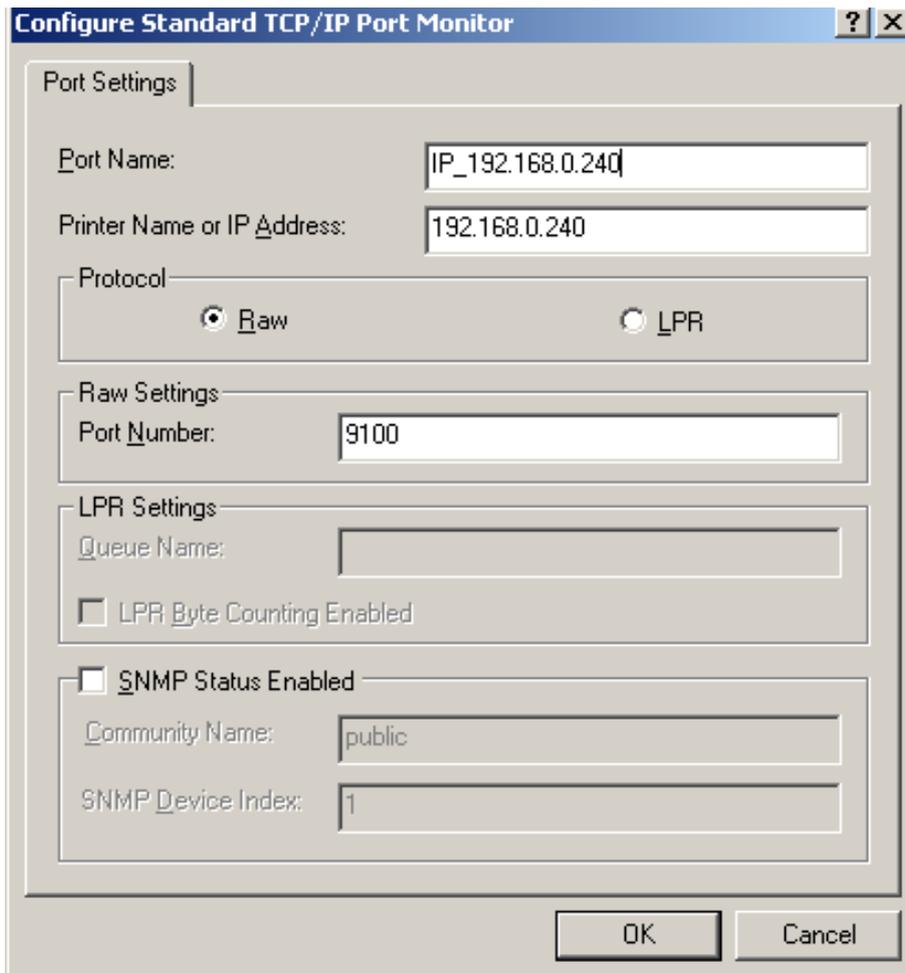
6) A window of "Add a port" pops up, import the IP address reported by the "Setting printer's IP address" in the "Printer name or IP address" column. Take IP address "192.168.0.240" for example. "Port name" is created automatically after finishing filling in IP address. Click "Next".



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



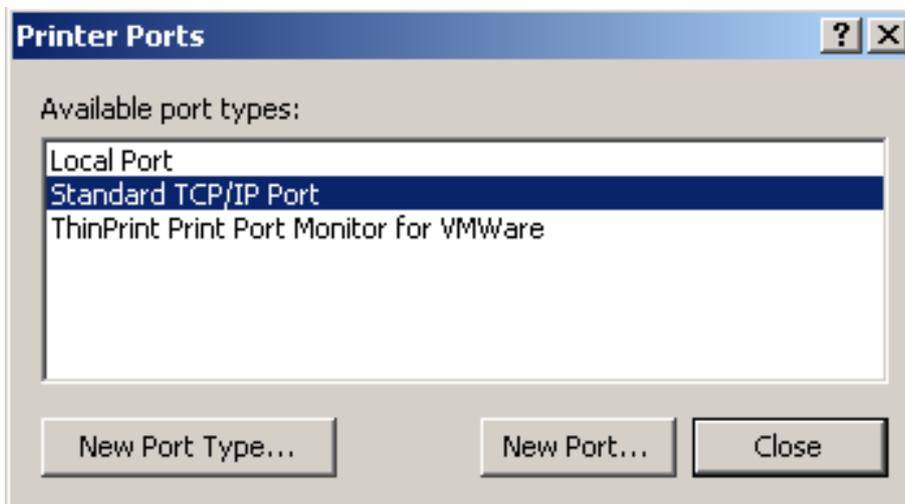
- 8) A window of "Port Settings" pops up. Affirm that "Port name" and "Printer name or IP address" are correct, "Protocol" is "RAW" and "Port Number" is "9100", click "OK".



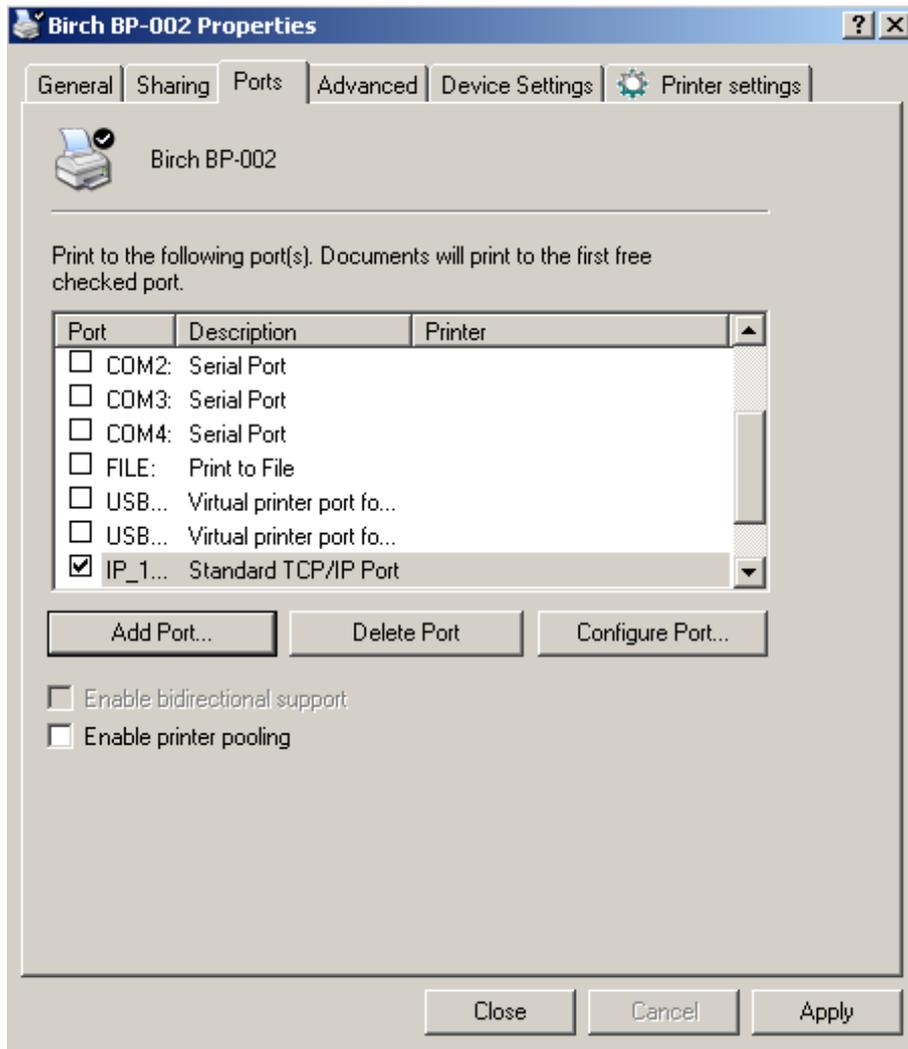
9) Return to “Additional Port Information Required”, click “Next”.

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 indicator lights and one key on the control panel shown as Figure 3-1.



Figure 3-1 Control panel

3.1.1 Indicator light

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

Refer to chapter 6.2 Error message on the control panel for detailed information about indicator light malfunctions.

3.1.2 Key

Key	Function
【FEED】	【FEED】 controls paper feeding, you can enable or disable the button's 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-Printing

Self-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.

Hold down the **FEED** button and turn on the power switch while the printer cover is closed, the **ERROR** indicator blinks once, loosen the button, then the printer will print out self-test information such as the software version, update date and interface etc.

3.3 Hex Dump Printing

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

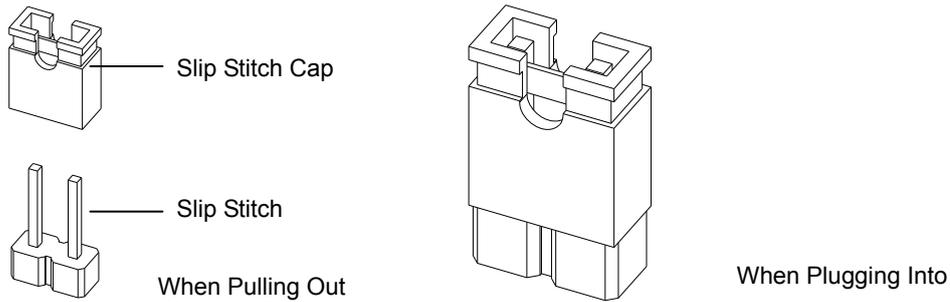
The method is that press **FEED** button and power on the printer, the **ERROR** indicator blinks twice, then loose the button. Turn off the printer when you want to exit this print mode.

3.4 Restoring Factory Printer 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** indicator light blinks three times, and then loose the button, the function is finish and turn off the printer.

3.5 Setting Slip Stitch (UPDATE and BOOT)



Slip Stitch is used to upgrade printer firmware. In normal working condition, BOOT slip stitch should be pulling out while UPDATE slip stitch should be plugging into.

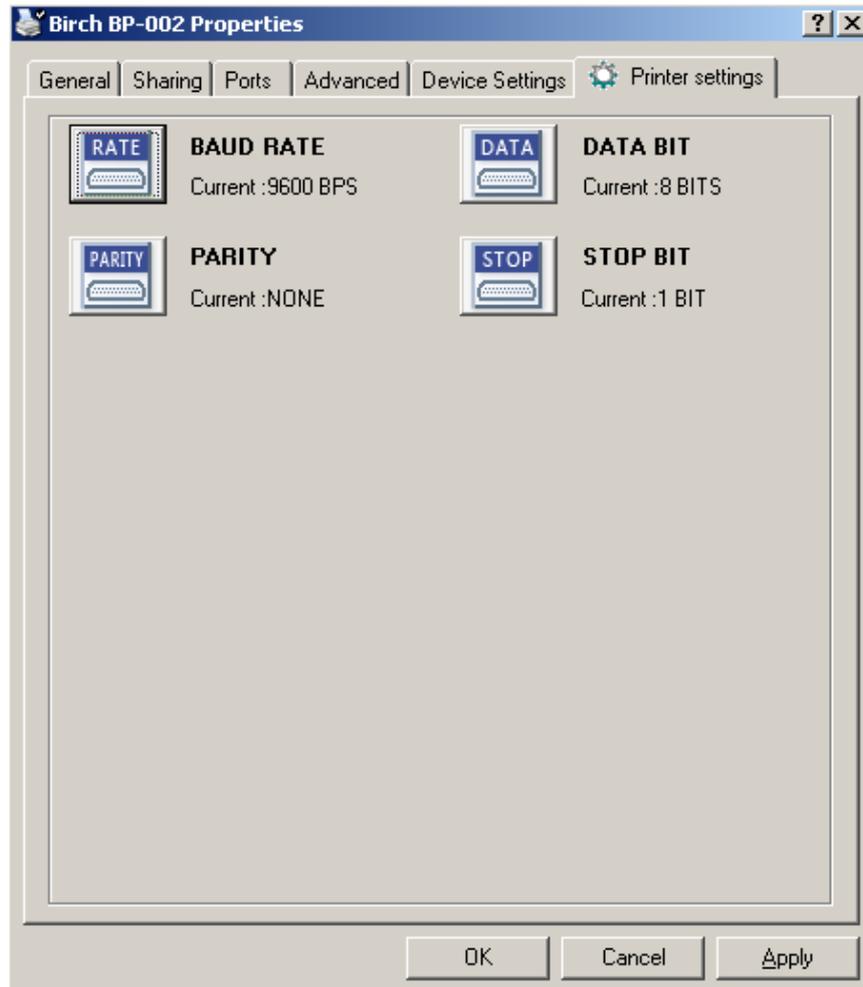
Note: Do not change the Slip Stitch without any permission of the factory, or the printer can not work.

3.6 Online-aptitude Parameter Settings

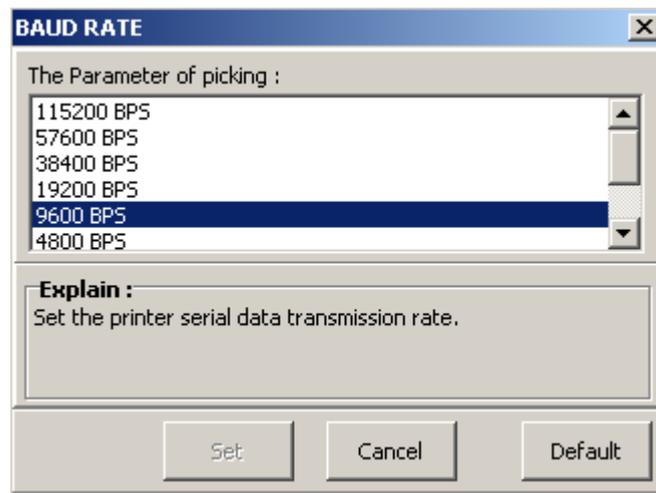
BP-002 supports the function of online-aptitude parameter settings, which can be set in the PC with the driver installed in.

The concrete setting steps are shown as follows:

1. Make sure that the computer and the printer are connected with a cable and both the computer and the printer are turned on, the printer should be in normal working condition as well.
2. Click "Start" → "Settings" → "Printers".
3. Right click "BP-002", select "Properties".
4. Click "Printer settings" in the property page.



5. In the window of Printer Settings, the left side of each item is parameter icon, the top right corner is parameter item and the bottom right corner is current value. The printer will load the current value automatically when each parameter window popping up. If the printer is offline or using improper printer port, the current value will be blank, then, you should set the printer online or use the proper printer port.
6. When setting parameter, please click parameter icon, then parameter setting window will pop up, there are parameter items, decription and control button in this window. Select corresponding parameter and click "Set", the printer will change the parameter settings after receiving setting command. Click "Cancel" to back to the upper window, click "Default" to show the default parameter of this menu item.



7. To set other parameters, refer to the upper setps.
8. After finishing setting, click "OK" to exit the "Properties" window.
9. Reboot the printer.

Chapter 4 Installing Paper

The printer can install the paper conveniently, which should be 58mm wide. How to deal with the paper will be explained in details in this chapter.

4.1 Paper Installation Steps

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

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

1. Push the cover-opening button, open the upper cover.

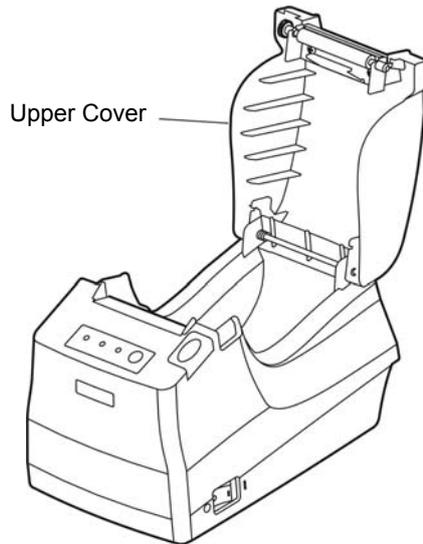


Figure 4-1 Open the upper cover

2. Insert the roll paper as shown below.

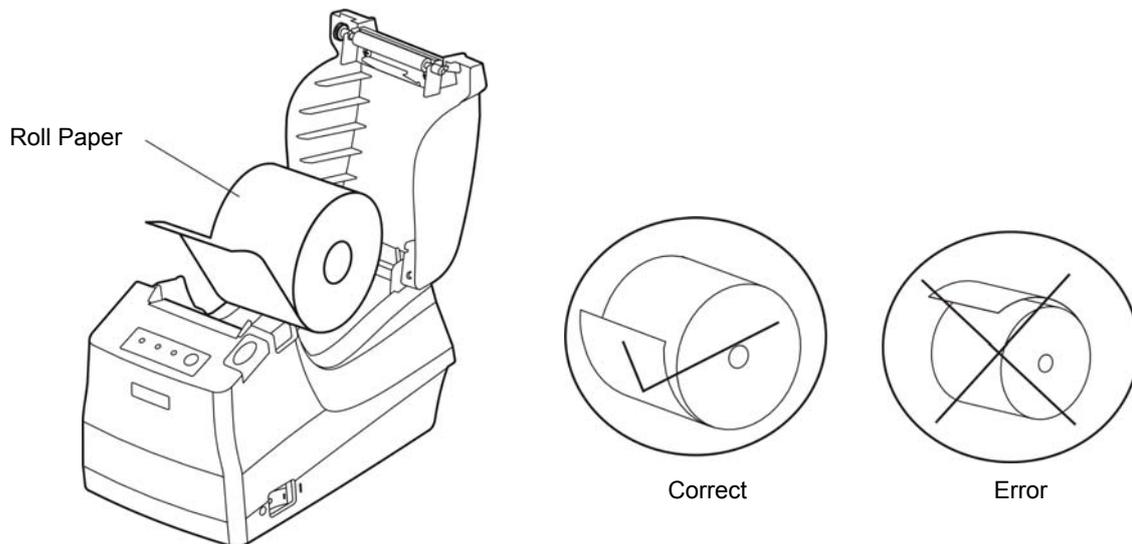


Figure 4-2 Insert the roll paper

Note: Paper head should be pulled out by the direction of paper-input slot, but not the opposite.

3. Pull out a small amount of paper.

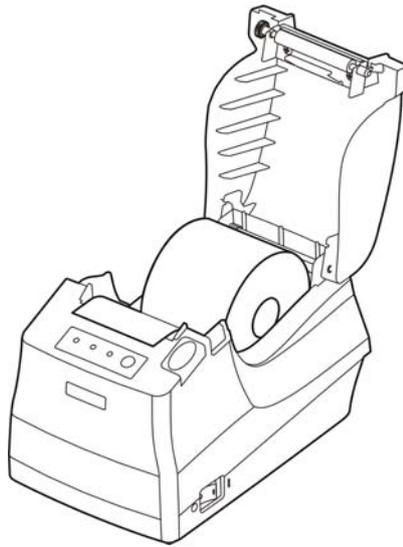


Figure 4-3 Pull out the paper

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

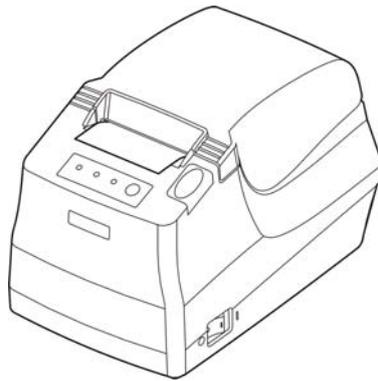


Figure 4-4 Close the cover

NOTE: After finishing installing the paper, if PAPER OUT indicator light and ERROR indicator light 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 Specifaicon

Item	Description
Printing method	Thermal line printing
Printing direction	Line by line
Dot density	384 dots/ line (203×203 DPI)
Printing speed	100 mm/s
Reliability	Print head life:50Km (under special condition), 100 million pulse
Effective printing width	48 mm
Paper feed speed	100 mm/s (Max.)
Paper specifaicon	Thermal paper Model
	TF50KS-E (Japan paper co.ltd)
	AF50KS-E (JUJO THERMAL)
	Width: 57.5 ± 0.5 mm
	Weight: 53 ~ 80 g/m ²
	Outer diameter: Φ83 mm (Max.)
	Thickness: 0.065 ~ 0.15mm
	*Suggestion: Inner diameter of paper shaft is Φ12mm while the outer diameter of paper shaft is Φ18mm.
Character set	ASCII: 14 international character sets (America, France, Germany, U.K., Denmark, Sweden, Italy, Spain I, Japan, Norway, Denmark II, Spain II, Latin America, Korea)
	Chinese: Big 5 or GB 18030
Line spacing	30/203 inch, or programmable in 1/203 inch increments
Interface	<p>Cash drawer interface + data interface (parallel interface, USB + serial interface, USB + Ethernet interface, USB interface + Bluetooth and USB interface + Wi-Fi)</p> <p>Cash drawer interface: RJ-11, DC12V/1A</p> <p>Parallel interface: Centronics</p> <p>USB interface + Serial interface: 2.0 Full-Speed, RS-232C (DB9)</p> <p>USB interface + Ethernet interface: 2.0 Full-Speed, 10/100Base-T</p> <p>USB interface + Bluetooth: 2.0 Full-Speed, 2.0/2.1 + EDR</p> <p>USB interface + Wi-Fi: 2.0 Full-Speed, 802.11b/g/n</p> <p>Note: Only one of the data interfaces is supplied when leaving the factory. (According to the specific interface standards.)</p>
Special function	Online parameter settings, Software online update
Buffer memory	2 KB or 6KB (Ethernet model)
Control command	ESC/POS Emulation
	Character printing command: Support ANK characters, user-define characters and enlarge Chinese characters 1-2 times printing, can adjust character line spacing
	Dot image printing command: Support different densities dot images and downloading image printing
	Linear bar code: UPC-A, UPC-C, EAN-13, EAN-8, CODE39, CODE128, ITF-25, CODABAR

Power Supply	IN	Input voltage: 100 ~ 240 VAC
		Frequency: 50Hz/60Hz
	OUT	Output voltage: 8.5V DC
		Current: 3 A
Environmental conditions	Operating environment	Temperature: 5 ~ 40°C
		Humidity: 20%RH ~ 80%RH (No condensation)
	Storage environment	Temperature: -40 ~ 55°C
		Humidity: ≤93%RH (40°C, No condensation)
Weight	Approx.1 Kg	
Noise	<38 dB (A) (ISO7779 standard)	
Physical dimensions	120 mm (Width) × 192 mm (Depth) × 130 mm (Height)	
Power	①Operation power: 27 W; ②Maximum power: 42 W; ③Standby power: 1.3 W. Note: Only when the product doesn't connect with any power supply, can it consume zero energy.	
Dot spacing	Vertical: 0.125 mm	
	Horizontal: 0.125 mm	
ASCII dot matrix	12 (width) × 24 (height)	
	9 (width) × 17 (height)	
ASCII size	1.50 (width) × 3.00 (height) mm	
Chinese dot matrix	24×24	
Chinese size	3.00 (width) × 3.00 (height) mm	
Characters per line	ASCII 32 (12×24 dot matrix)	
	Chinese 16 (24×24 dot matrix)	
Paper feed mode	Unidirectional with friction feed	
Average no malfunction period	5 million lines	
Code page	0: PC437(Std.Europe), 1: PC437, 2: PC850(Multilingual), 3: PC860(Portuguese), 4: PC863(Canadian), 5: PC865(Nordic), 10: Iran, 15: Iran II, 16: PC1252, 17: PC866, 18: PC852, 19: PC858, 20: Thai(KU42), 21: Thai(TIS11), 22: PC1256(Arabic), 26: Thai(TIS18), 27: Vietnam, 28: PC864(Arabic), 29: PC737(Greek), 61: PC857(Turkish), 62: Hebrew, 70: Thai, 74: PC3840(Russian), 79: PC1254(Turkish), 255:Thai	
Paper cut	Cut manually (Note: Without auto-cutter)	
Control panel	1 button and 3 indicator lights	
Wireless disturb	Grade B	

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 group (Parallel interface, USB interface + Serial interface, USB interface + Ethernet interface, USB interface + Bluetooth or USB interface + Wi-Fi according your need).

5.2.1 Cash Drawer Interface

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

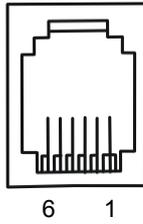


Figure 5-1 Cash drawer connector

Table A-1: Cash drawer connector Pin assignments

Pin number	Signal	Direction
1	Frame GND	---
2	Cash Drawer drive signal	OUT
3	Cash Drawer open/closed signal	IN
4	12VDC	OUT
5	Cash Drawer drive signal	OUT
6	Cash Drawer open/closed signal ground	---
Drive current ≤ 12V/1A		

Table A-1: Cash drawer connector Pin assignments

Note: Make sure the cash drawer meets the specification mentioned above, or we will not guarantee to keep the printer in good repair.

5.2.2 Parallel Interface

BP-002 printer's parallel interface is compatible with CENIRONICS protocol, supporting BUSY/ACK handshaking protocol.

The connector is a 36-PIN connector, whose pins are shown as below.

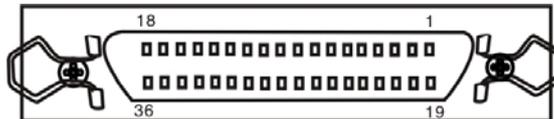


Figure 5-2 Parallel interface

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	These signals are respective represent the parallel data from the first bit to the eight. "1" means high level, while "0" means low level.
3	DATA2	IN	
4	DATA3	IN	
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 for receiving 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 resistor.

32	/ERR	OUT	Low level means the printer is in error state
14, 15, 17, 18, 34, 36	NC	---	Not connect
16, 19~30, 33	GND	---	GND, "0" level in logic

Table A-2: Connector Pin Assignments

Note: ① "IN" means input to the printer, "OUT" means output from printer.

② The signal logical level is TTL level.

Relative signal is shown as Figure 5-3.

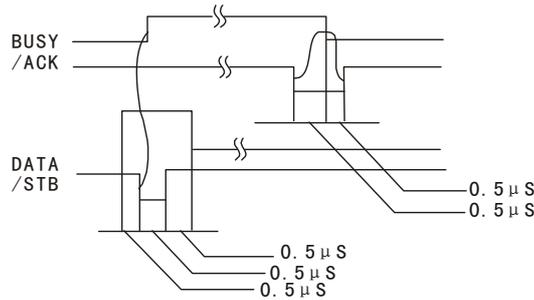


Figure 5-3 Timing signal in parallel interface

5.2.3 USB Interface

USB interface interface is USB-B type interface (As Figure 5-4 shown).

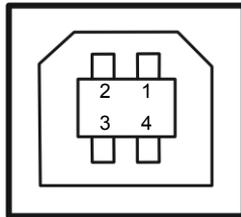


Figure 5-4 USB interface

Interface connector A and B's signal wire assignment is as Table A-3 shown:

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

5.2.4 Serial Interface

BP-002 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 definitions are shown as below.

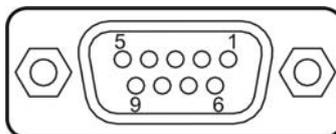


Figure 5-5 Sequence numbers of Serial connector

Table A-4 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 for receiving data.
5	GND	—	Signal GND
4	DTR	Printer	Signal terminal is ready

Table A-4 Pin assignments of the serial interface

- 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-002 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.

Serial interface connection pictures:

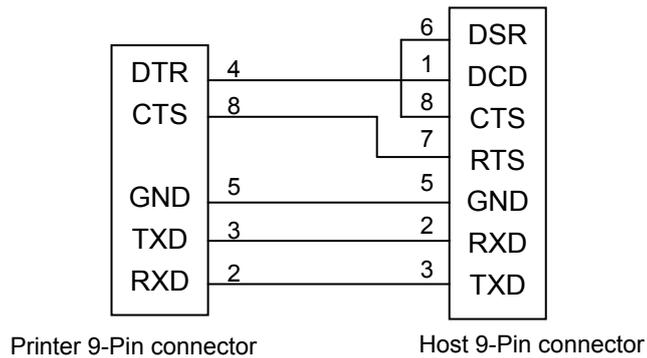


Figure 5-6 BP-002 connecting with 9-Pin PC

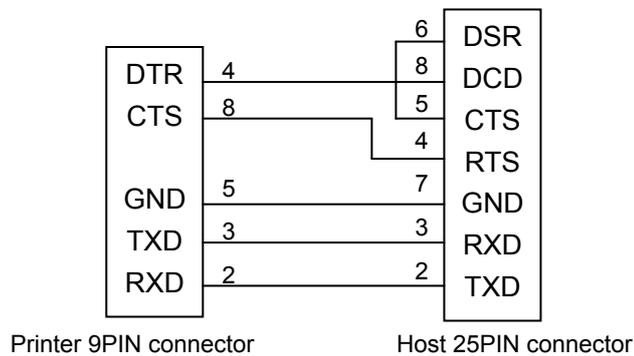


Figure 5-7 BP-002 connecting with 25-Pin PC

5.2.5 Ethernet Interface

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

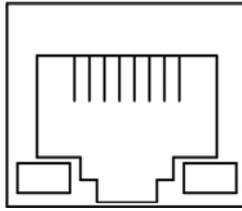


Figure 5-8 Ethernet interface

5.2.6 Power Supply Inlet

The BP-002 printer connects with a $8.5V \pm 5\%$ and 3A AC adapter. The power supply inlet is shown as Figure 5-9.

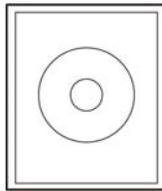


Figure 5-9 Power supply inlet

Chapter 6 Troubleshooting and Maintenance

6.1 Maintenance

To prolong the printer's life, make sure that the printer is well away from heaters and other sources of extreme heat, and the surrounding area is clean, dry, and free of dust.

Cleaning paper holder and thermal print head periodically is the main task of maintaining the printer. We will speak about this problem in this section. It is noted that make sure to turn off the printer before maintenance.

Printer Cleaning:

Dirt and dust do the most damage to the printer. Clean the paper in the printer and accumulated dirt in the thermal head as well despite the outer case of the printer prevents greater part of dust from invading.

Clean Printer Case:

Remove the dirt in the printer case with clean, soft cloth, and take out the paper pieces with a nipper.

Attention: Be careful not to scratch the printer parts when cleaning.

Clean the printer periodically according to the prescription as follows.

- Periodically cleaning: Once every 6 months or 300 working hours
- Cleaning tool: Dry cloth (Soft cloth if metal parts)

6.2 Error Message on the Control Panel

When the malfunction occurs, the printer will be off-line and give an alarm through indicator lights. You can make out different malfunctions through the following table.

Error indicator	PAPER OUT indicator	Malfunction	Solution
ON	OFF	Cover is open	Close the cover tightly
ON	ON	Paper out	Load the paper again
Blink	OFF	Print head overheated	Recover automatically

Chapter 7 Control Commands

7.1 General

The commands BP-002 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

HT	Horizontal tab
Format: ASCII: HT	
Decimal: 9	
Hex: 09	

Description:

Move the print position to the next horizontal tab position

LF	Print and line feed
Format: ASCII: LF	
Decimal: 10	
Hex: 0A	

Description:

Print the data in the print buffer and feed one line based on the current line spacing. Feed paper one line when there is no data in the print buffer.

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, $1 \leq n \leq 4$; 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 SP	Set right-side character spacing
Format: ASCII: ESC SP n	
Decimal: 27 32 n	
Hex: 1B 20 n	

Description:

Set the right-side spacing 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 define
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-width selected
6	----	Not define
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-define characters set

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

Description:

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

Default: n=0

ESC & Define user-define 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-define 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≤10; that is to say each time define characters could not over 10;

y specifies the number of bytes in the vertical direction, x specifies the number of dots in the horizontal direction, d specifies the user-define 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 is used to select dots image mode.

M	Mode	Vertical direction		Horizontal direction	
		Number of dots	Dot density	Dot density	Number of dots (max)
0	8-dot single-density	8	68DPI	101DPI	288
1	8-dot double-density	8	68DPI	203DPI	576
32	24-dot single-density	24	203DPI	101DPI	288
33	24-dot double-density	24	203DPI	203DPI	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 spacing to 30/203 inch

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

Description:

Set the line spacing to 30/203 inch.

ESC 3					User-define line spacing
Format:	ASCII:	ESC	3	n	
	Decimal:	27	51	n	
	Hex:	1B	33	n	

Description:

Set the line spacing to n*. n=0~255.

BP-002 printer's line spacing is the minimum unit of horizontal n*

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-define 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 was turn 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 JPrint and feed paper

Format:	ASCII:	ESC	J	n
	Decimal:	27	74	n
	Hex:	1B	4A	n

Description:

Print the data in print 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 MSelect 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 RSelect 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 VTurn 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 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 print 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 is t2*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:

n=0 PC437(Std.Europe)	n=1 PC437	n=2 PC850(Multilingual)	n=3 PC860(Portuguese)
n=4 PC863(Canadian)	n=5 PC865(Nordic)	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=26 Thai(TIS18)
n=27 Vietnam	n=28 PC864(Arabic)	n=29 PC737(Greek)	n=61 PC857(Turkish)
n=62 Hebrew	n=70 Thai	n=74 PC3840(Russian)	n=79 PC1254(Turkish)
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 turn off.

When the LSB of n is 1, upside-down printing mode is turn 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 define
1	-	-	-	Not define
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 define
5	-	-	-	Not define
6	-	-	-	Not define
7	Off	00	0	Underline is not selected
	On	80	128	Underline is selected

FS &

Set Chinese language mode

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

Description:

Set Chinese language mode

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 printed.

FS	2	Define user-define 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; In this range, each time C2 can choose at most 6, that is to say, each time can define 6 Chinese characters at most. 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 spacing			
Format:	ASCII:	FS	S	n1	n2
	Decimal:	28	83	n1	n2
	Hex:	1C	53	n1	n2

Description:

$0 \leq n1 \leq 255, 0 \leq n2 \leq 255$

Set the character left-side spacing to $n1 \times$ (horizontal or vertical motion unit), right-side spacing to $n2 \times$ (horizontal or vertical motion unit).

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:

$0 \leq n \leq 255$

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.

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

Description:

$n = 0, 1, 16, 17;$

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 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:

n=0, 48: NO HRI printing. n=1, 49: above the barcode. n=2, 50: above 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 1/203 inch is selected.

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 ~ 48。

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

当 m > 64 时选用格式*

m	Bar code type	Amount of data	The range of k	character	Character code
0	UPC-A	Fixed	$11 \leq k \leq 12$	0 ~ 9	$48 \leq d \leq 57$
1	UPC-E	Fixed	$11 \leq k \leq 12$	0 ~ 9	$48 \leq d \leq 57$
2	EAN13	Fixed	$12 \leq k \leq 13$	0 ~ 9	$48 \leq d \leq 57$
3	EAN8	Fixed	$7 \leq k \leq 8$	0 ~ 9	$48 \leq d \leq 57$
4	CODE39	Can be changed	$1 \leq k$	0 ~ 9, A ~ Z, SP, \$, %, +, -, ., / *(start character)	$48 \leq d \leq 57, 65 \leq d \leq 90, d =$ 32, 36, 37, 43, 45, 46, 47. d = 42 (start character)
5	ITF	Can be changed	$1 \leq K$ (Even)	0~9	$48 \leq d \leq 57$
6	CODABAR	Can be changed	$1 \leq k$	0 ~ 9, A ~ D, \$, +, -, ., /, :	$48 \leq d \leq 57, 65 \leq d \leq 68, 36,$ 43, 45, 46, 47, 58
*65	UPC-A	Fixed	$11 \leq n \leq 12$	0 ~ 9	$48 \leq d \leq 57$
*66	UPC-E	Fixed	$11 \leq n \leq 12$	0 ~ 9	$48 \leq d \leq 57$
*67	EAN13	Fixed	$12 \leq n \leq 13$	0 ~ 9	$48 \leq d \leq 57$
*68	EAN8	Fixed	$7 \leq n \leq 8$	0 ~ 9	$48 \leq d \leq 57$
*69	CODE39	Can be changed	$1 \leq n < 255$	0 ~ 9, A ~ Z, SP, \$, %, +, -, ., / *(start character)	$48 \leq d \leq 57, 65 \leq d \leq 90d =$ 32, 36, 37, 43, 45, 46, 47. d = 42 (start character)
*70	ITF	Can be changed	$1 \leq n \leq 255$ (Even)	0 ~ 9	$48 \leq d \leq 57$
*71	CODABAR	Can be changed	$1 \leq n \leq 255$	0 ~ 9, A ~ D,	$48 \leq d \leq 57, 65 \leq d \leq 68, 36,$ 43, 45, 46, 47, 58

				\$, +, -, ,, /, :	
*73	CODE128	Can be changed	$2 \leq n < 255$	NUL ~ SP(7FH)	$0 \leq d \leq 127$

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.

n=2.

Appendix Commands List

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

Control commands	Functions
HT	Horizontal tab
LF	Print and line feed
DLE EOT	Real-time status transmission
ESC SP	Set right-side character spacing
ESC !	Set print mode
ESC \$	Set absolute print position
ESC %	Select/cancel user-defined character set
ESC &	Define user-define characters
ESC *	Select bit-image mode
ESC –	Turn underline mode on/off
ESC 2	Set default line spacing to 30/203 inch
ESC 3	Set line spacing
ESC =	Select peripheral device
ESC ?	Cancel user-define 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 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-define Chinese characters

FS S	Set Chinese character spacing
FS W	Turn quadruple-size mode on/off for Chinese character
GS !	Select Character size
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 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