ECLine
True value in POS

User's Manual

EC-PM-80320 Series

Thermal Receipt Printer

Declare

About Trademark

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

* **EPSON is a registered trademark of Seiko Epson Corporation.**
* **ESC/POS is a registered trademark 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. Manufacturer will not answer any problems which 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. 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 openings on the cabinet and the back or bottom are provided for air 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 never be placed near or over a radiator or heater. This product should not be placed in a built-in installation or kiosk stand unless proper ventilation is provided.
8. This product should never be placed near or over a radiator or heat origin, and should avoid of 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. Do not use in locations subject to high humidity or dust levels. Excessive humidity and dust may cause equipment damage or fire.
11. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage dots or short out parts.
12. Don't remove the printer's out-cover and repair the printer. When needed, call or take it to the professional.
13. 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.
14. 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.
15. Unplug this product from the power outlet and leave servicing to qualified service personnel under the following conditions:

    When the power cord or plug is damaged or frayed.

    a) If liquid has been spilled into the product.

    b) If the product has been exposed to rain or water.

c) If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since importer adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.

d) If the product has been dropped or the cabinet has been damaged.

e) If the product exhibits a distinct change in performance, indicating 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.**

Table of Contents

Chapter 1 Overview

1.1 Features

EC-PM-80320 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 receipts.

1.2 Product Model Description

In order to fulfill different requirements and operating circumstance, manufacturer develops EC-PM-80320 series products which are high-speed thermal mini-printers.

According to different data ports (interfaces), EC-PM-80320 series can be classified into different models: EC-PM-80320D, EC-PM-80320U, EC-PM-80320US, EC-PM-80320UE, EC-PM-80320UB and EC-PM-80320UW.

EC-PM-80320 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:

EC-PM-80320 series products are configured with a cash drawer interface, you can choose one of the following data interfaces when purchasing this product:

Model	Interface
EC-PM-80320D	Parallel interface
EC-PM-80320U	USB interface
EC-PM-80320US	USB interface + Serial interface
EC-PM-80320UE	USB interface + Ethernet interface
EC-PM-80320 UB	USB interface + Bluetooth
EC-PM-80320UW	USB interface + Wi-Fi

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

1.3 Main Parts of the Printer

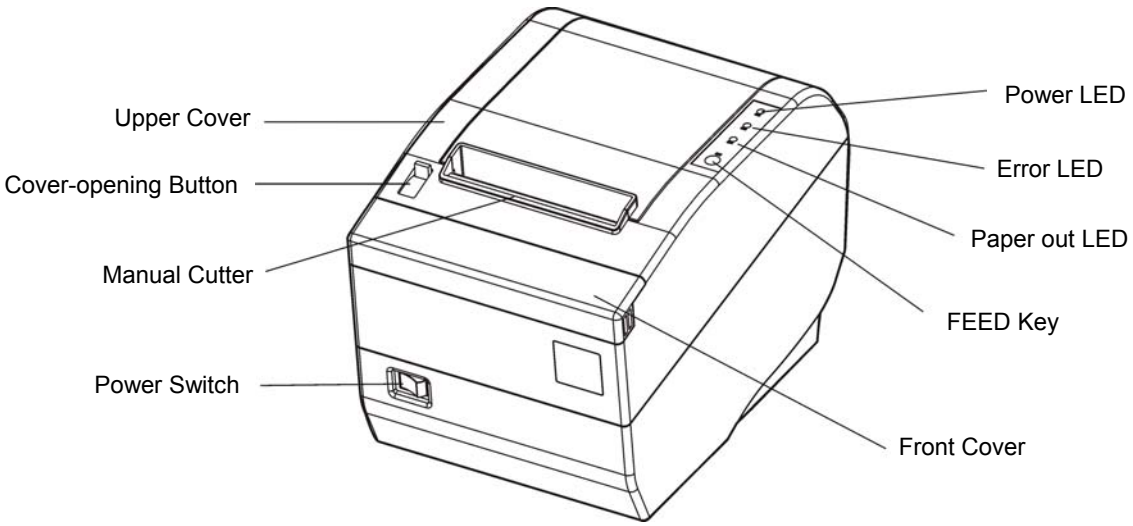


Figure 1-1 Main parts of the printer

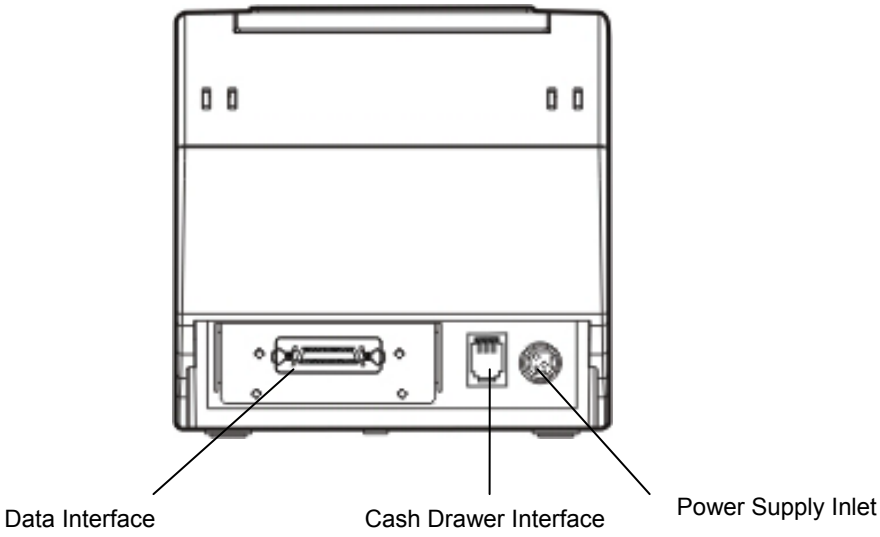


Figure 1-2 Interfaces on the back of the printer

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.

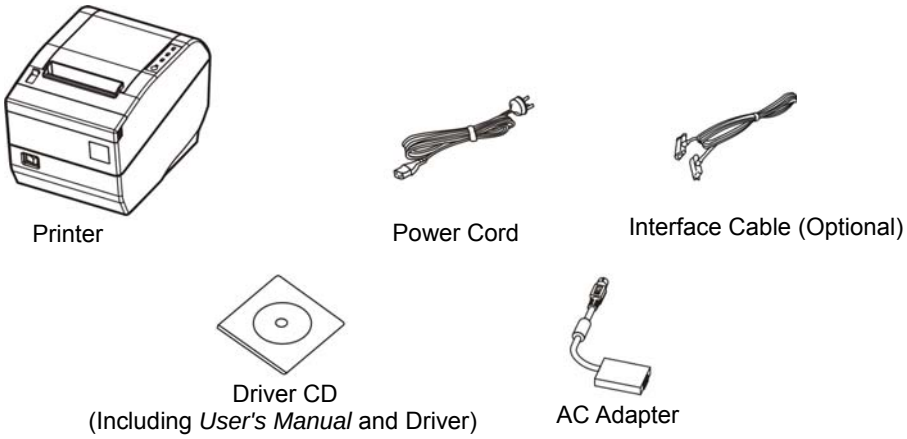


Figure 2-1 Packing items

Note: Models with Bluetooth and Wi-Fi are not equipped with interface cable.

2.2 Unpacking 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 + USB interface, Ethernet + 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.

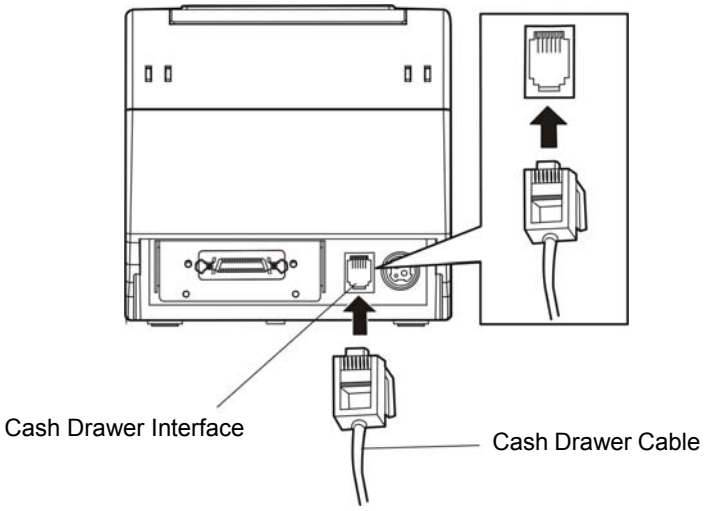


Figure 2-2 Connecting the cash drawer cable

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.

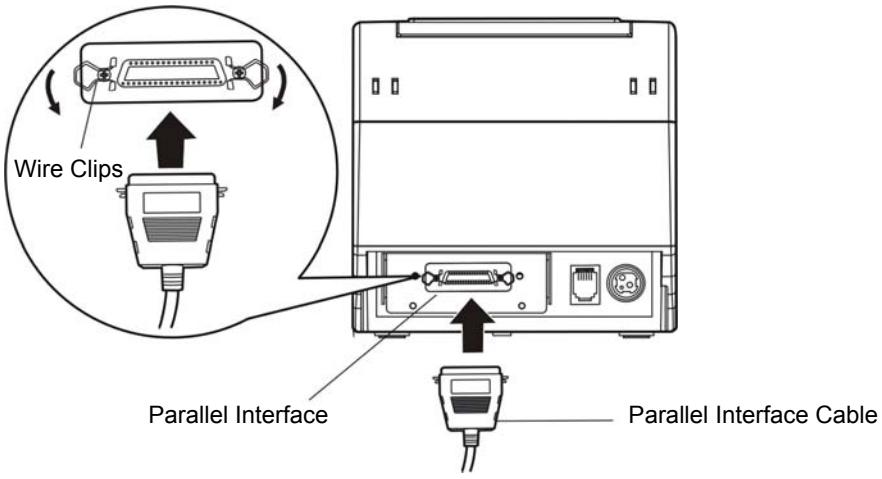


Figure 2-3 Connecting the parallel interface cable

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.

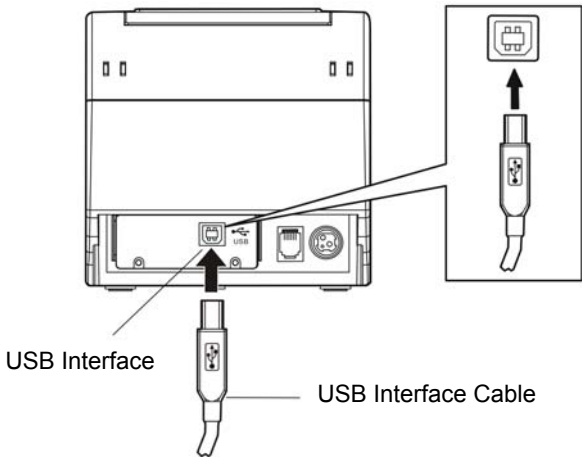


Figure 2-4 Connecting the USB interface cable

Note: Please don't impact the plug after connecting 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.

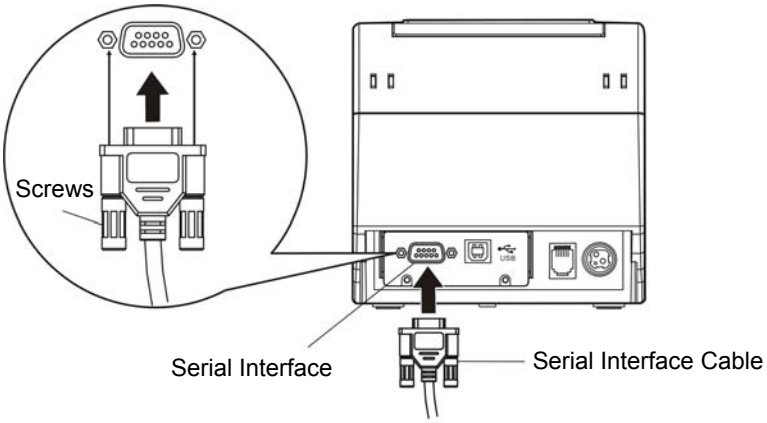


Figure 2-5 Connecting the serial interface cable

2. Connect the other end of the cable to the computer'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.

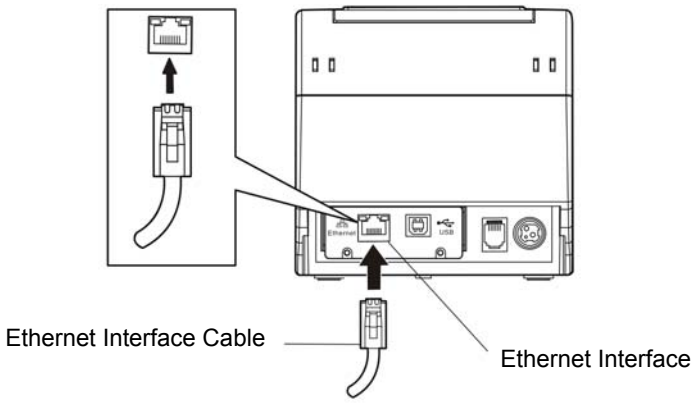


Figure 2-6 Connecting the Ethernet interface cable

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 printer.
3. Plug the AC adapter into printer's power supply inlet.
4. Plug one end of power cord into the AC adapter, and then plug the other of power cord into the grounded electrical outlet.

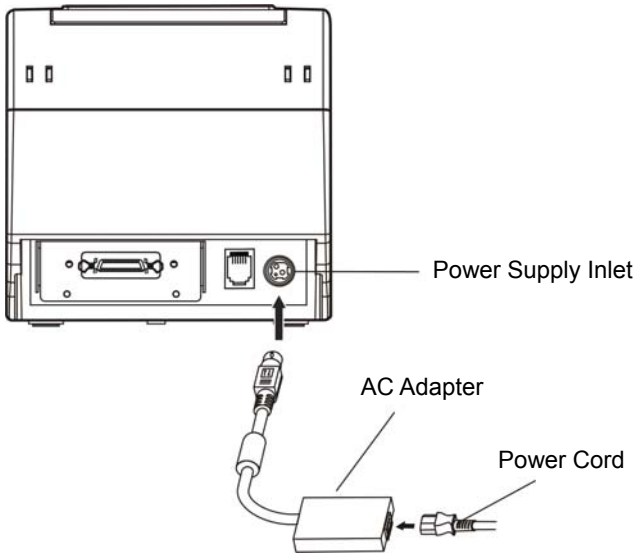


Figure 2-7 Connecting the AC adapter

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

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:

2.5.1 Auto-installing Way (Recommended)

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

Note: Auto-installing way needs the operating systems of Windows2000 and above and the operating systems of Window 98/ME and below are not supported.

2.5.2 Hand-operated Installing Way

Note: This installing way is used for the people who have some knowledge on hand-operated installing and equipment application.

2.5.2.1 The Operating Systems of Windows 2000/XP/Vista/Win7

(1) The hand-operated installing steps of parallel interface or serial interface:

The following steps are used Windows XP as an example. There are slight differences among different operating systems. The installing way with other operating systems depends on the practical installing process.

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, according to your requirement, select “LPT1: (Recommended Printer Port)” or serial interface, click “Next”.

4. A window of “Install Printer Software" 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 follows: 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 and click “Next” gradually till the installation is finished.

(2) The hand-operated installing steps of USB interface:

The following steps are used Windows XP as an example. There are slight differences among different operating systems. The installing way with other operating systems depends on the practical installing process.

1. Connect with the USB cable and turn on both the computer and the printer. After the computer finds out new hardware, and a window of “Found New Hardware” pops up — “Welcome to the new hardware wizard”.

2. Select the “Set from the list or specific position”, then 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 follows: 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 and click “Next” gradually till the installation is finished.

2.5.2.2 The Operating System of Windows 8

The hand-operated installing steps of parallel interface, serial interface or USB interface:

1. Enter “Control Panel” → “Device and Printers”.
2. Click “Add Printer”, then a window of “Add Printer Wizard” pops up, then click “Next”, select “Add Local printer Manually” in the “Local or Network Printer” window.
3. A window of “Select a Printer Port” pops up, according to your requirement, click “Use the Current Port”, select “LPT1: (Printer Port)”, serial interface or USB interface, click “Next”.
4. A window of “Install Printer Driver” 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 follows: CD-ROM → “Drivers” →“Windows 8”, click “Open”, then click “OK” to return to the window of “Install Printer Driver”, click “Next”.
6. Follow the guide and click “Next” gradually till the installation is finished.

2.5.2.3 The Operating System of Windows 98

(1) The installing steps of 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 follows: 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”, according to your requirement, select “serial interface”, click “Next”, and then the printer’s name will be shown. If the system has not installed 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 as default printer: “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 integrate 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 by the following steps.

USB driver installing steps:

1. Connect with the USB interface cable and turn on the printer.
2. After the computer finds out new hardware and finishes 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 “Add New Hardware Wizard” pops up, check “Specify a location (L)”, click “Browse”, select the path as follows: CD-ROM → “Drivers”→“WIN98 (WINME)” →”USB driver”, then click “OK”.
5. Return to the window of “Add New Hardware Wizard”, click “Next”; a window of “Windows

driver search for the device" pops up, click "Next".

6. After the system finishing installing the file automatically, a window of "USB Printer Supported" pops up, click "Finish".
7. The printer USB driver process is installed successfully.

USB printer driver installing steps:

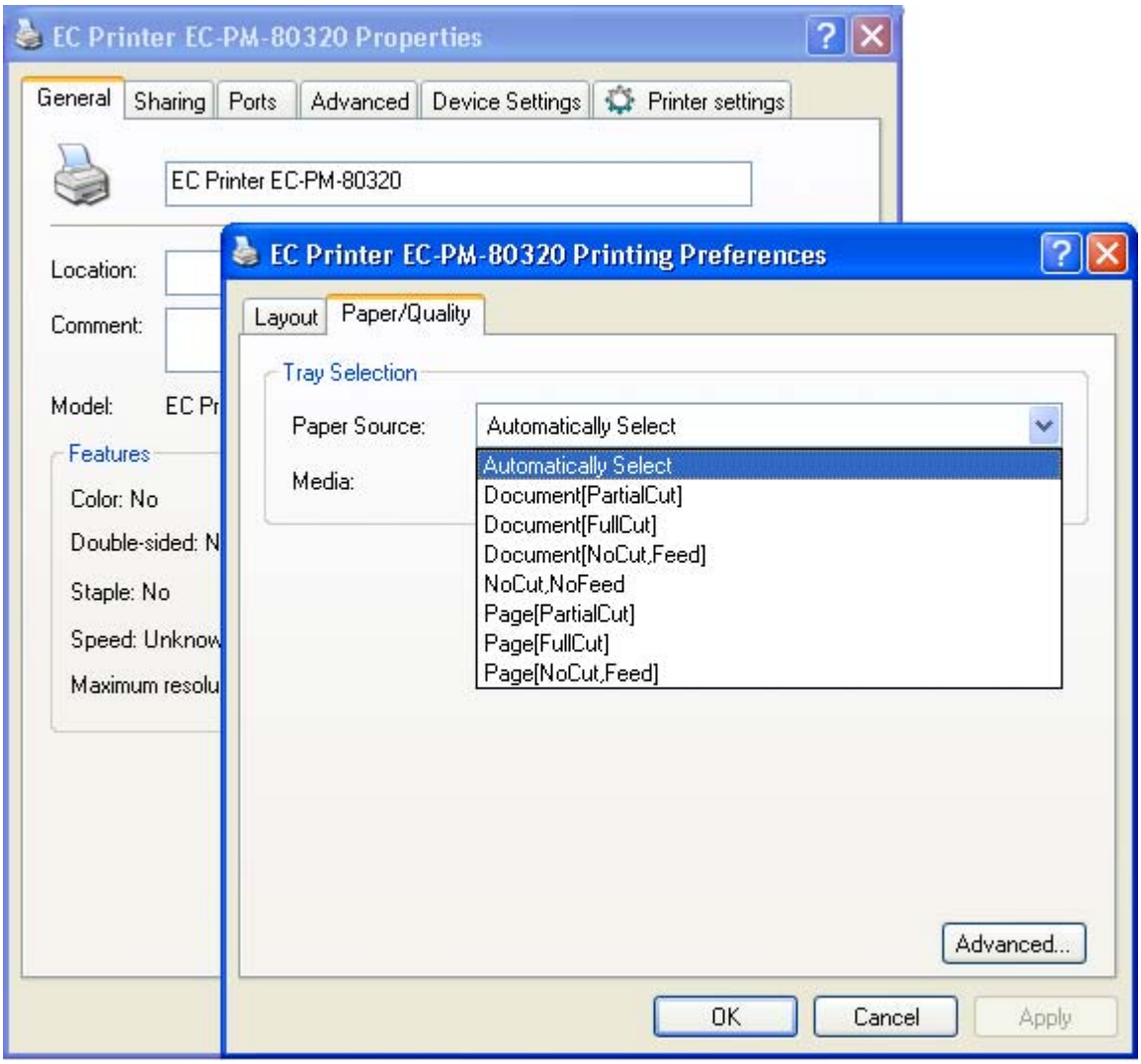
1. Click "Start" → "Settings" → "Printers".
2. Double click "Add Printer", then a window of "Add Printer Wizard" pops up, click "Next".
3. A window of "Click the manufacturer and model of your printer" pops up, click "Have Disk...", please click "Browse", select the path as follows: CD-ROM → "Drivers" → "WIN98 (WINME)", and then click "OK".
4. A window of "Install From Disk" pops up, click "OK", return to the 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 the printer's name will be shown. If the system has not installed 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 Selecting the Cutter

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.

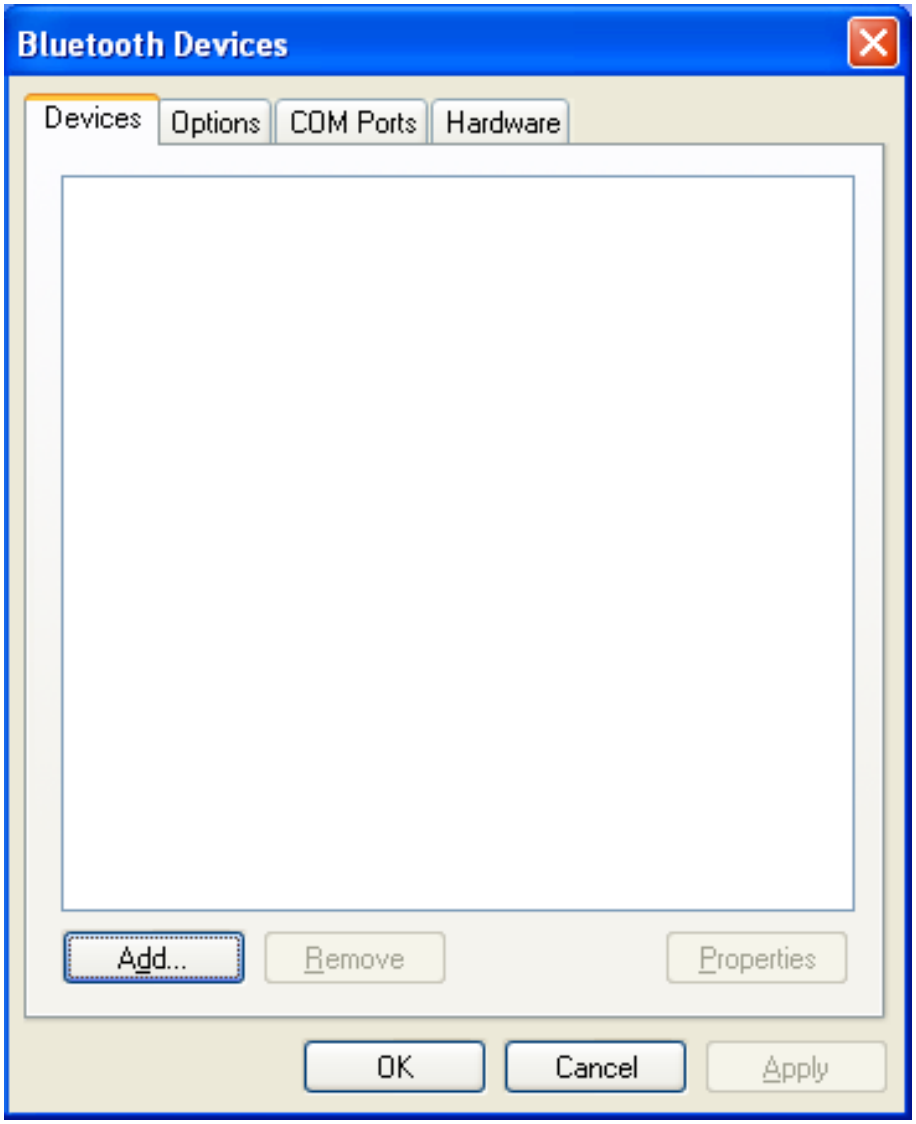
Note: if paper cut effect is the same whichever you select "full cut" or "partial cut" in the driver properties, it means that the cutter (the printer equipped with) can only carry out one kind of cut-methods.



2.7 Installing Bluetooth Interface Driver

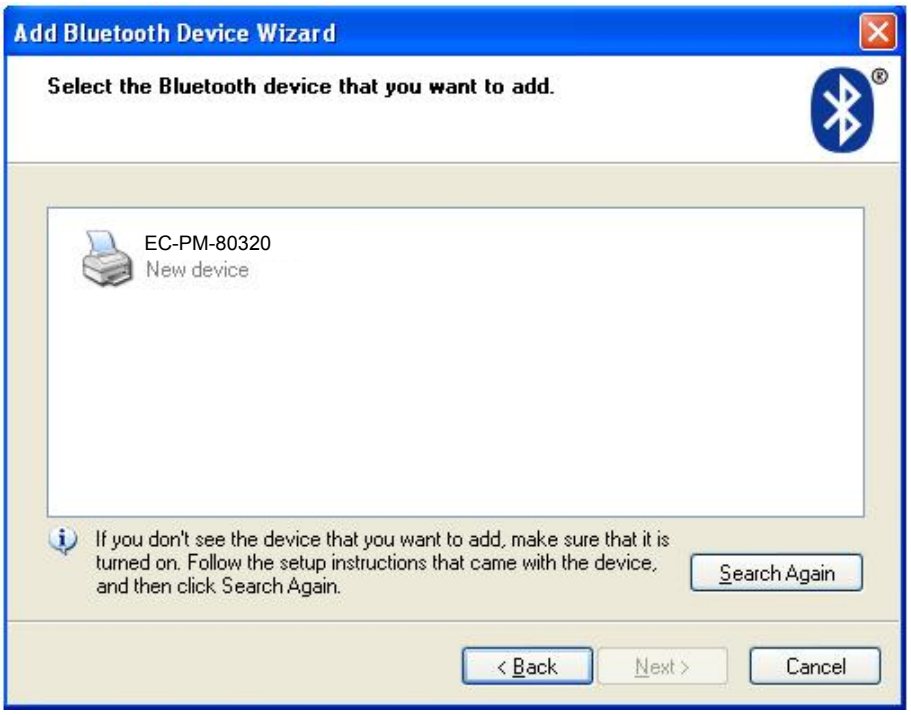
Note: Select to install this driver according to the chosen model.

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

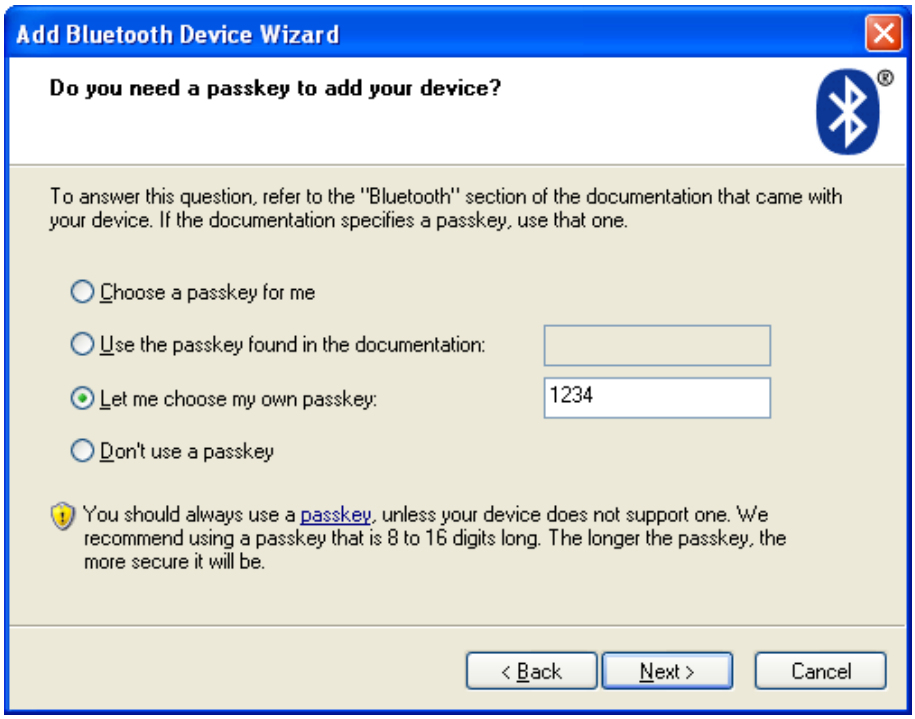


3. Tick off the option of “My device is set up and ready to be found.” Click “Next” to continue.

4. Select the “EC-PM-80320”, 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.

2.8 Ethernet Settings

Please use EC network setting software NetFinder to set the IP address for EC printers, which can be found in the CD or downloaded from www.ecline.com.mx.

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

2.8.1 Connecting Printer

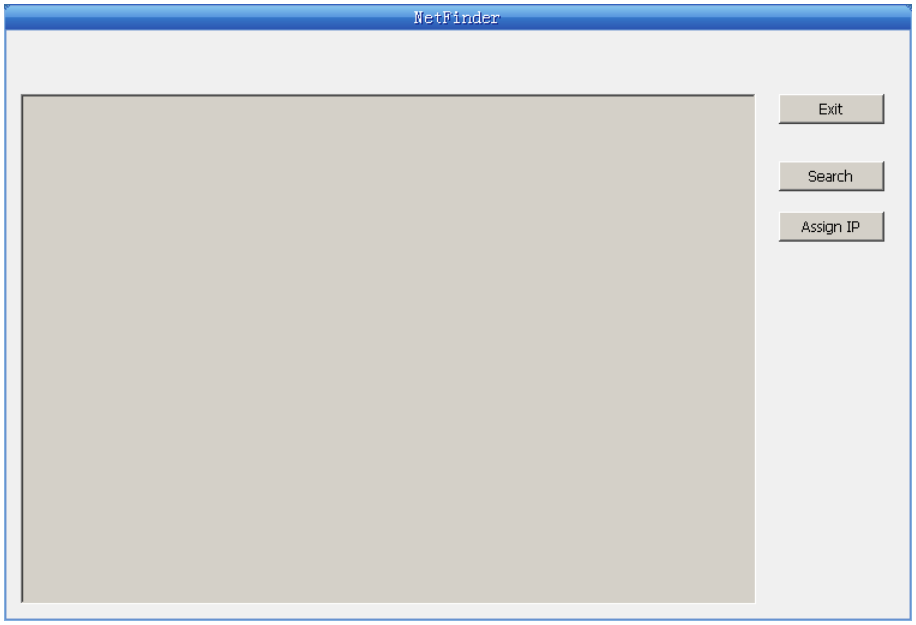
Power on the printer, connect with the Ethernet interface cable which has been connected to LAN, and look into the information of Ethernet LED to ensure the printer has entered the normal connection.

Yellow LED	Green LED	Description
ON	Blink	Online
OFF	OFF	Offline

2.8.2 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:

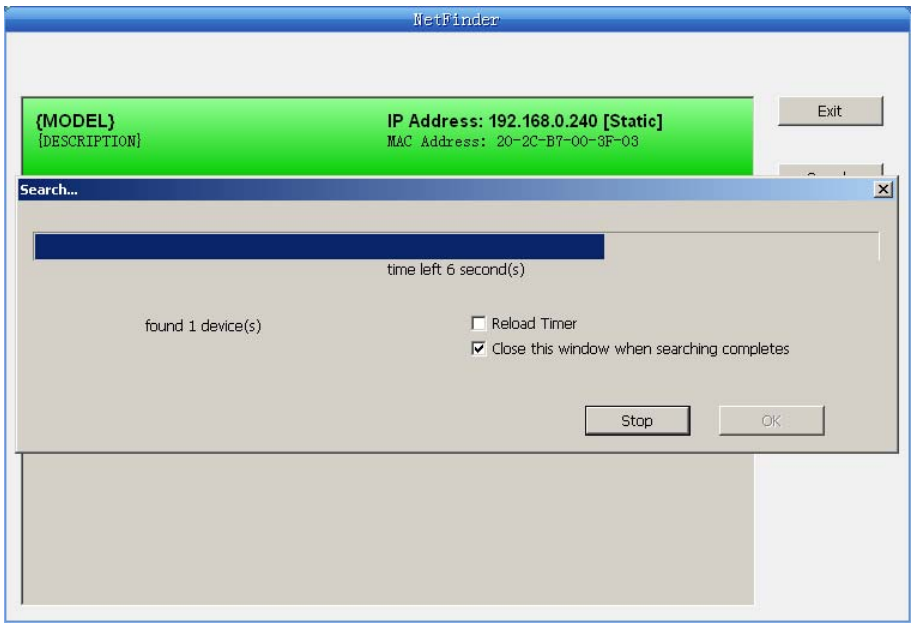
Exit — Exit from the software

Search — Search printers in the same LAN

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

2. Search Printer

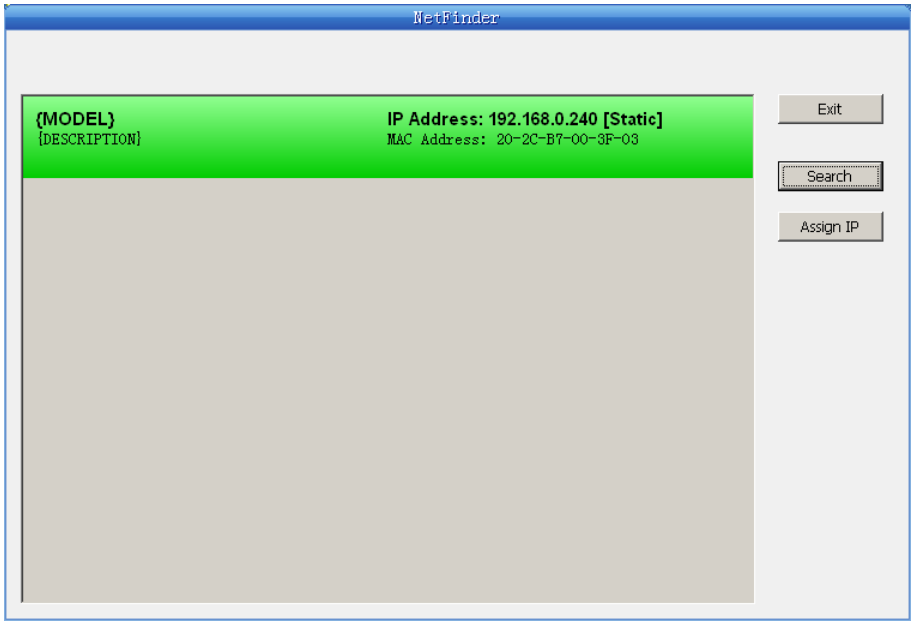
Click “Search” button in the main interface, the dialogue box appearing will begin searching automatically and displays the status, listing a printer in the main interface if found. The time is counting down in the progress bar (10s in total) and the search will finish as soon as the time is over. If 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 side 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

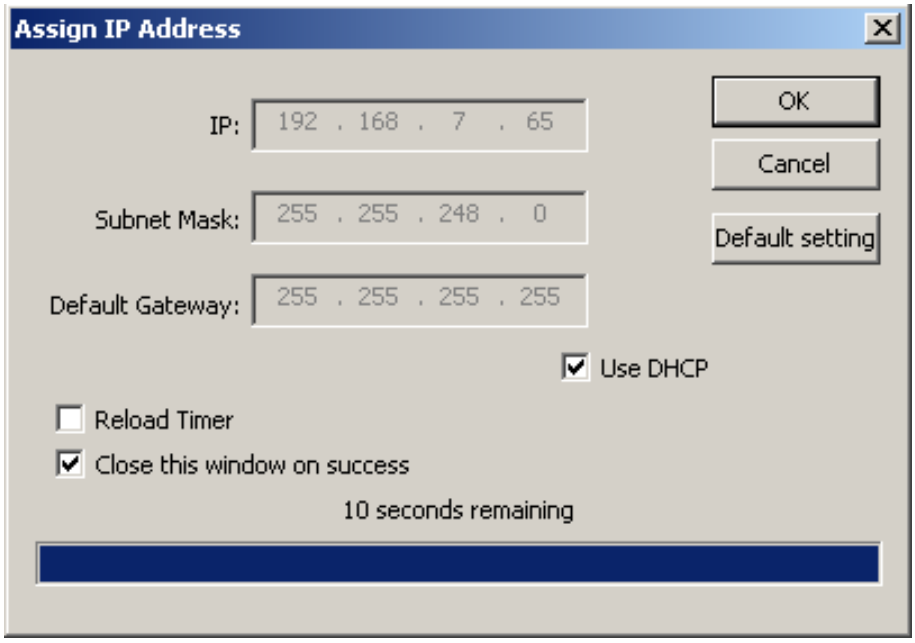
In order to search and set printer's IP address conveniently for the first time, the factory default setting is DHCP mode which assigns IP address dynamically. If there is no DHCP server in the connected LAN and printer is set to DHCP mode as well, then it will use the internal pre-set address (IP: 10.0.0.1, 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 relative 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. The printer takes response after “Close this window on success” is checked, and then this dialogue 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)”.

2.9 Wi-Fi Setting of EC Printer

2.9.1 Connecting the Printer

TP830 is taken as an example to respectively describe the connection of Windows, Android and iOS operation systems. Please make the connection according to the operating guide of the current system, and skip to the next chapter “**Wi-Fi Parameters Description**” when the connection is successful.

(1) Connecting to the equipment in Windows

Take Windows XP operating system as an example to show how to connect the printer with the equipment in Windows system.

1. Turn on the printer and make sure the printer is in normal working condition. Start the operation 30 seconds after the printer is on.
2. Right click “My Network Places”, and then click “Properties” to find the “Local Area Connection

2". Double click it and the window of "Wireless Network Connection" pops up, select and double click the corresponding printer Wi-Fi name. The printer Wi-Fi default name is composed of "the printer model+6 numbers and letters" (as shown in Figure 1)

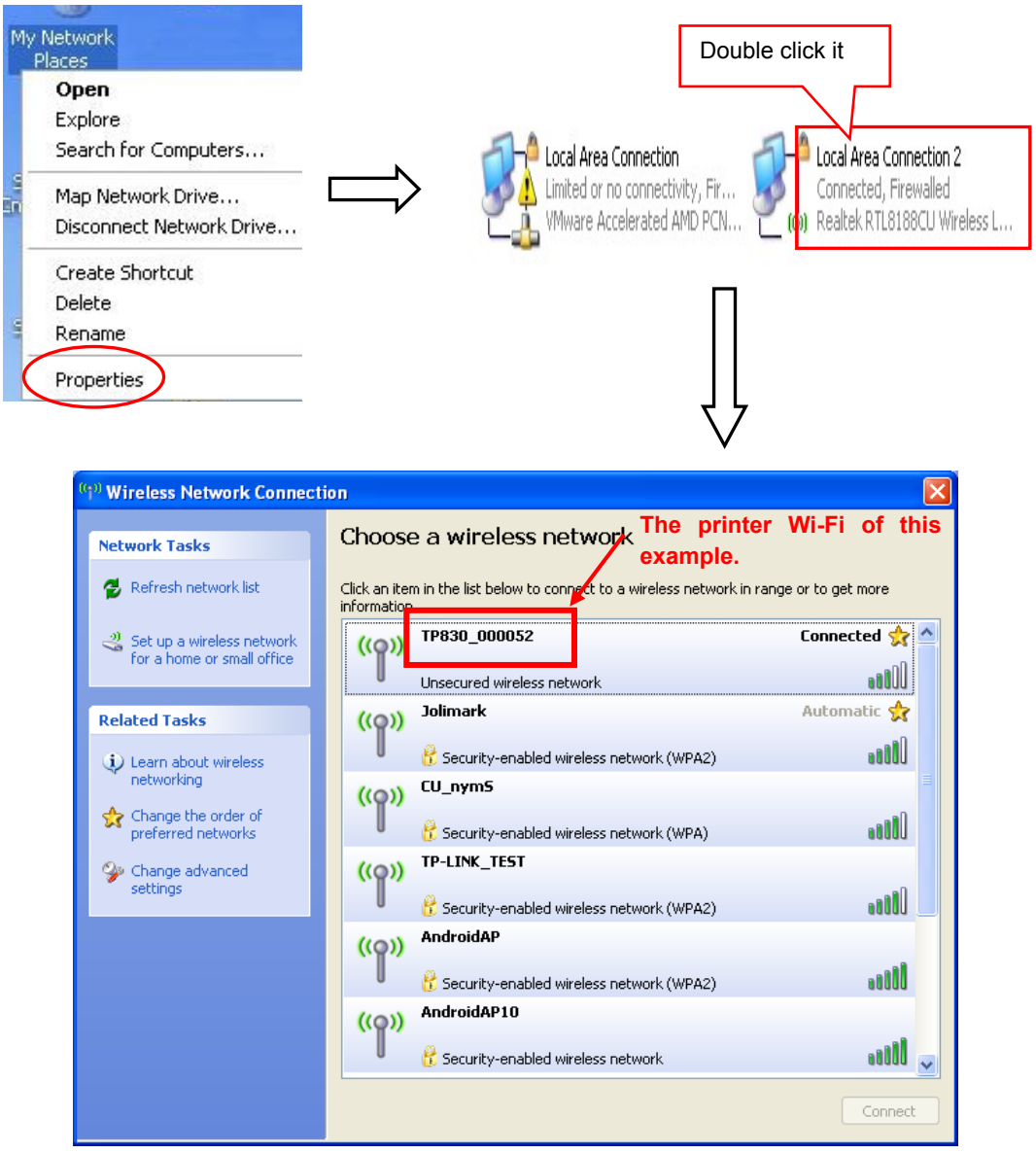


Figure 1

(2) Connecting to the equipment in Android

Take the mobile phone of Android 4.4 as an example to show how to connect the printer with the equipment in Android.

1. Turn on the printer and make sure the printer is in normal working condition. Start the operation 30 seconds after the printer is on.
2. Click "Settings" and the interface pops up. Select the "WLAN" function to "ON", then click the printer Wi-Fi searched by the mobile phone to connect. The printer Wi-Fi default name is composed of "the printer model+6 numbers and letters" (as shown in Figure 2).

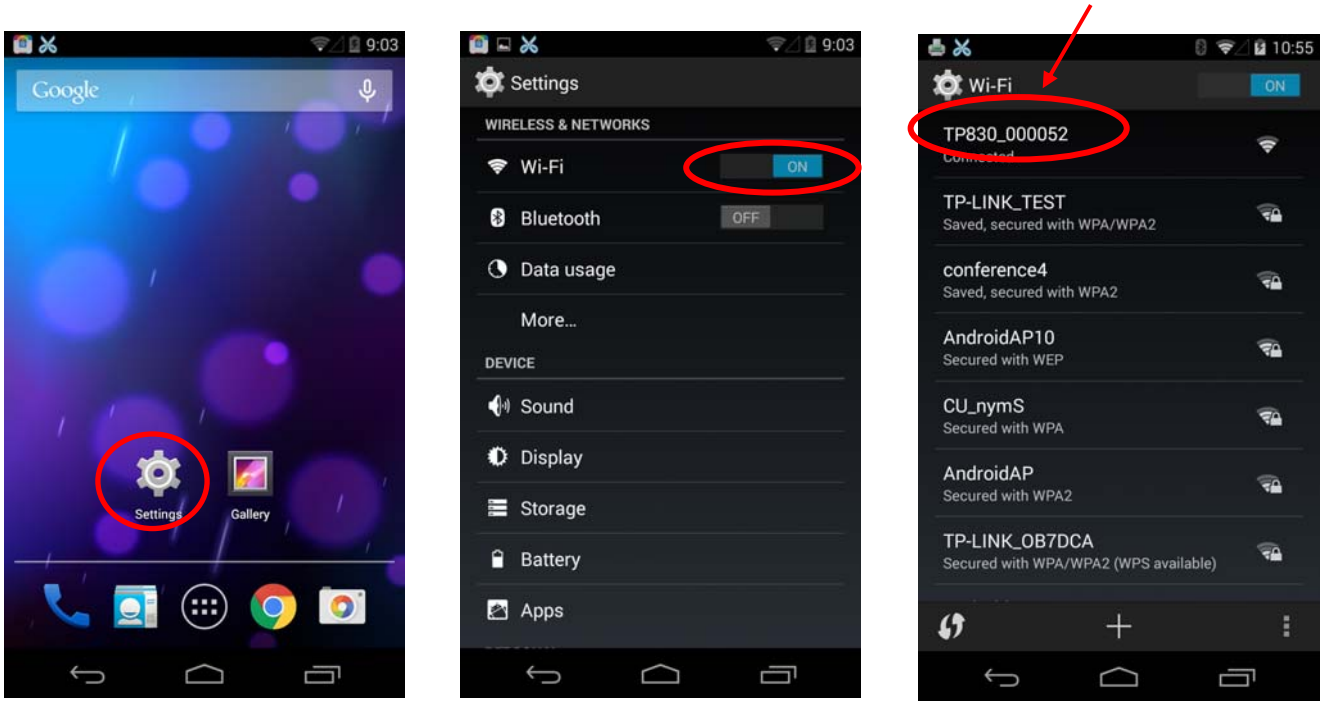


Figure 2

(3) Connecting to the equipment in iOS

Take the mobile phone of iOS 8.1 as an example to show how to connect the printer with the equipment in iOS.

1. Turn on the printer; make sure the printer is in normal working condition. Start the operation 30 seconds after the printer is on.
2. Click “Settings” and the interface pops up. Select the “WLAN” function to “ON”, then click the printer Wi-Fi searched by the mobile phone to connect. The printer Wi-Fi default name is composed of “the printer model+6 numbers and letters” (as shown in Figure 3).

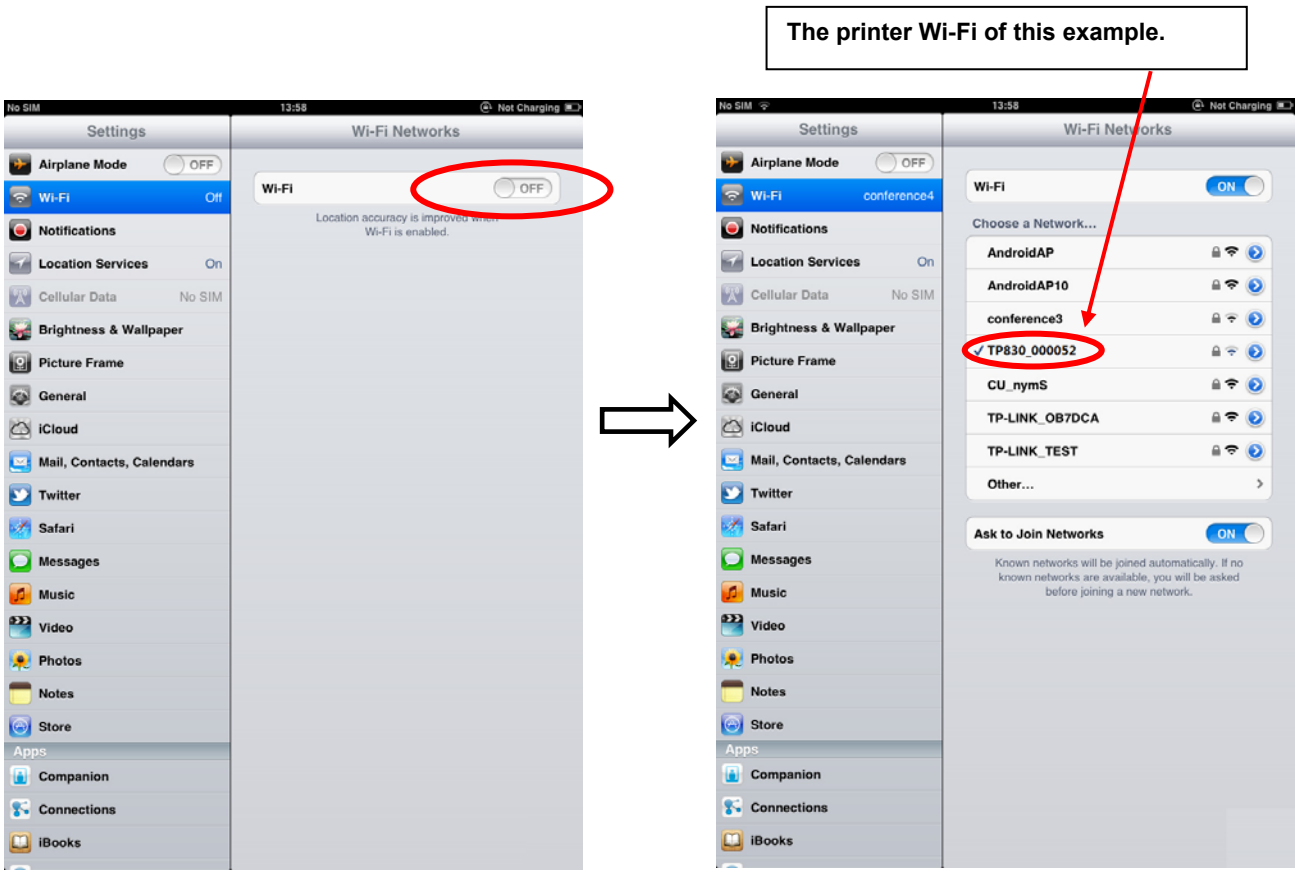


Figure 3

2.9.2 Wi-Fi Parameters Description

After connecting the equipment with the printer through wireless network, please import http://10.10.10.1 in the browser address bar and enter, then the setting interface pops up. The display style of setting interface may differ in different systems, but the parameter items are the same. Take Windows XP as an example in the following, as shown in Figure 4.

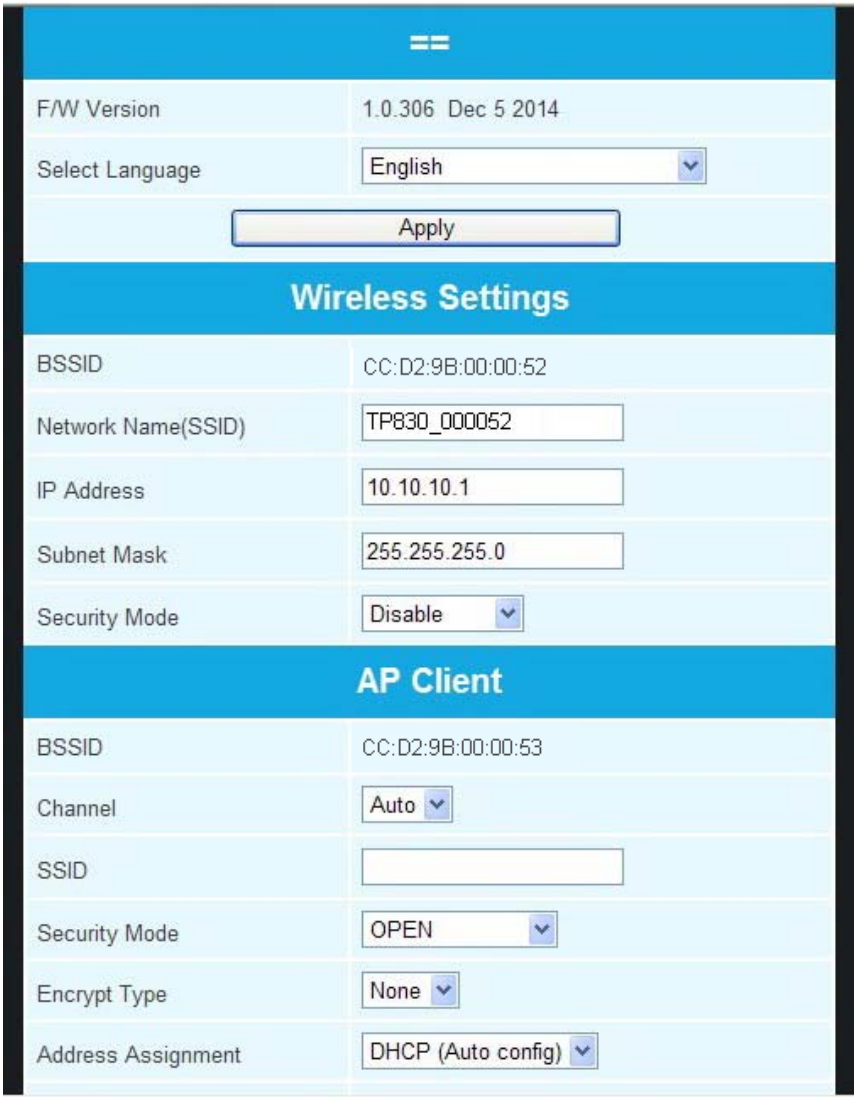


Figure 4

You can select Simple Chinese, Traditional Chinese and English in the “Select Language” and the default language is English. When you need to change the language, just select the language you need in the “Select Language” and then click “Apply” (as shown in Figure 5).

Figure 5

(1) Printer-equipment connected printing

Printer-equipment connected printing is a way of printing which uses printer as the hotspot and connects the wireless equipment for printing.

"Wireless Settings" is the relevant setting parameter when the printer is as the hotspot (as shown in Figure 6). In the printer-equipment connected printing mode, the parameters of the wireless equipment must match that of the printer so as to make the communication successful. Please record the relevant parameters and input them in the wireless equipment correctly.

After you finish resetting the parameters in the setting column, click "Apply" on the upper side of "Update Firmware". Then the countdown interface of saving the modification appears and the wireless equipment can conduct communications with the printer as soon as the countdown is over.

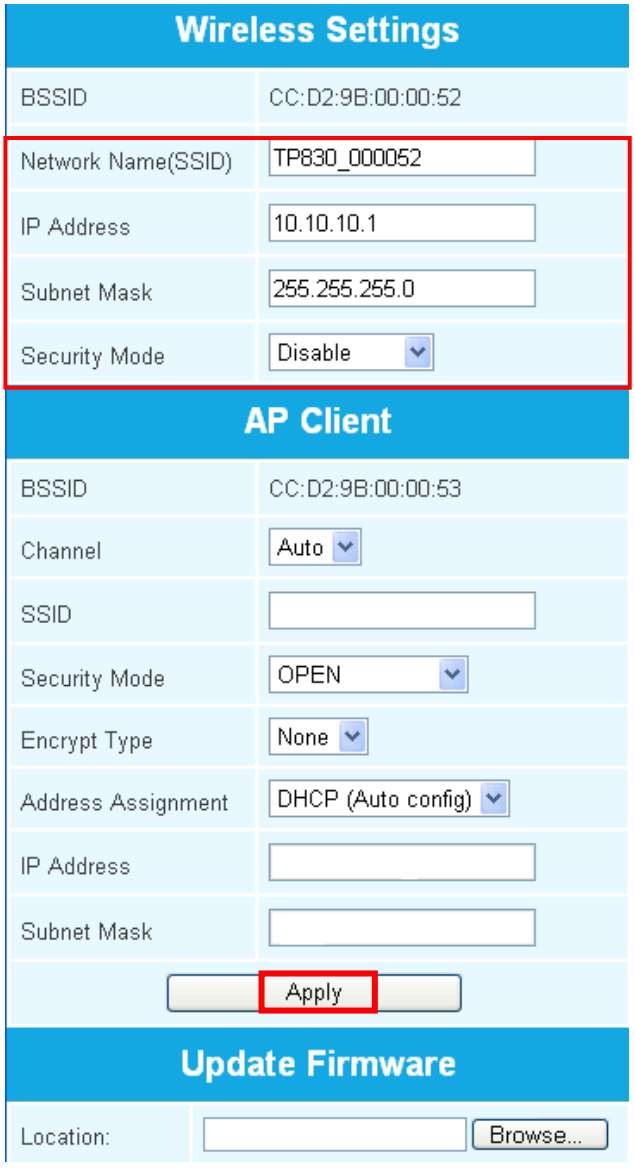


Figure 6

Description in "Wireless Settings"

BSSID: The address of the printer wireless card in the "Wireless Settings", which is the MAC address (Valid when it's in printer-equipment connected printing).

Network name (SSID): The network name of the printer wireless card. You can modify it if necessary, but you have to connect the network again after modifying.

IP Address: The IP address of the printer wireless card. You can modify it if necessary, but you need to enter the browser with the new IP after modifying.

Subnet Mask: The subnet mask of the printer wireless card. You can modify it if necessary.

Security Mode: The security mode of the printer wireless card. You can modify it if necessary.

If the connection between printer and computer is exceptional, please restart the printer or modify "Channel' in "AP Client".

(2) AP connected printing

AP connected printing is a way of printing which connects the printer with the wireless equipment by the outer hotspot.

"AP Client" (as shown in Figure 7) includes the setting parameters of AP connection. Please fill in the information of current outer hotspot in the corresponding place. The parameters of the printer should match that of the current outer hotspot so as to make the communication successful. Please input them correctly.

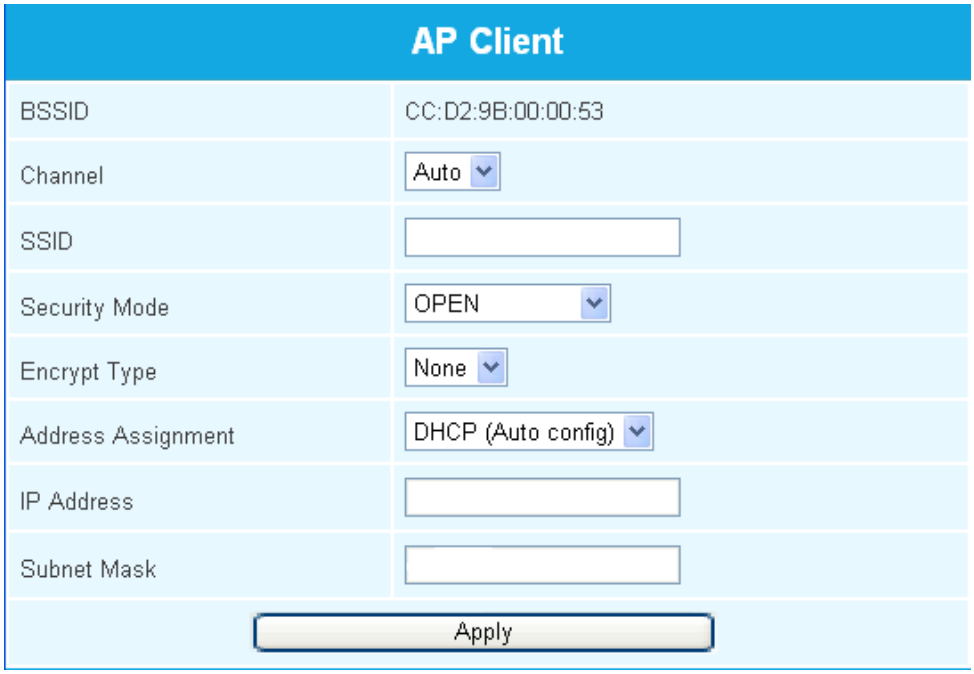


Figure 7

Description in "AP Client"

BSSID: The address of the printer wireless card in "AP Client", which is the MAC address. (Valid when it's in AP connected printing)

Channel: Select the corresponding channel according to the hotspot setting (Automatic is recommended).

SSID: The Wi-Fi name of the current hotspot.

Security mode: Select the corresponding security mode according to the hotspot setting.

Encrypt type: Select the corresponding encrypt type according to the hotspot setting.

Acquiring and Setting the Security Mode and Encrypt Type

There are three ways to acquire security mode and encrypt type:

(1) Get the security mode and encrypt type according to the corresponding network information given by the network administrator

(2) Find them by entering the router of hotspot with the administrator's account.

(3) Find them through Windows operating system and the steps are shown below (Take WIN XP as an example):

① Right click “My Network Places”, and click “Properties”, then double click “Local Area Connection 2” (as shown in Figure 8).

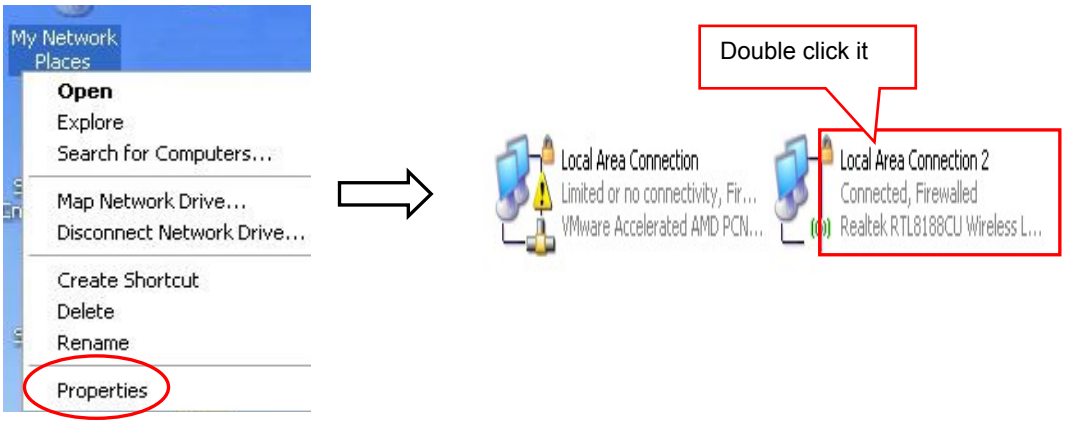


Figure 8

② The dialog box “Wireless Network Connection Status” pops up, then click “Properties” (as shown in Figure 9).

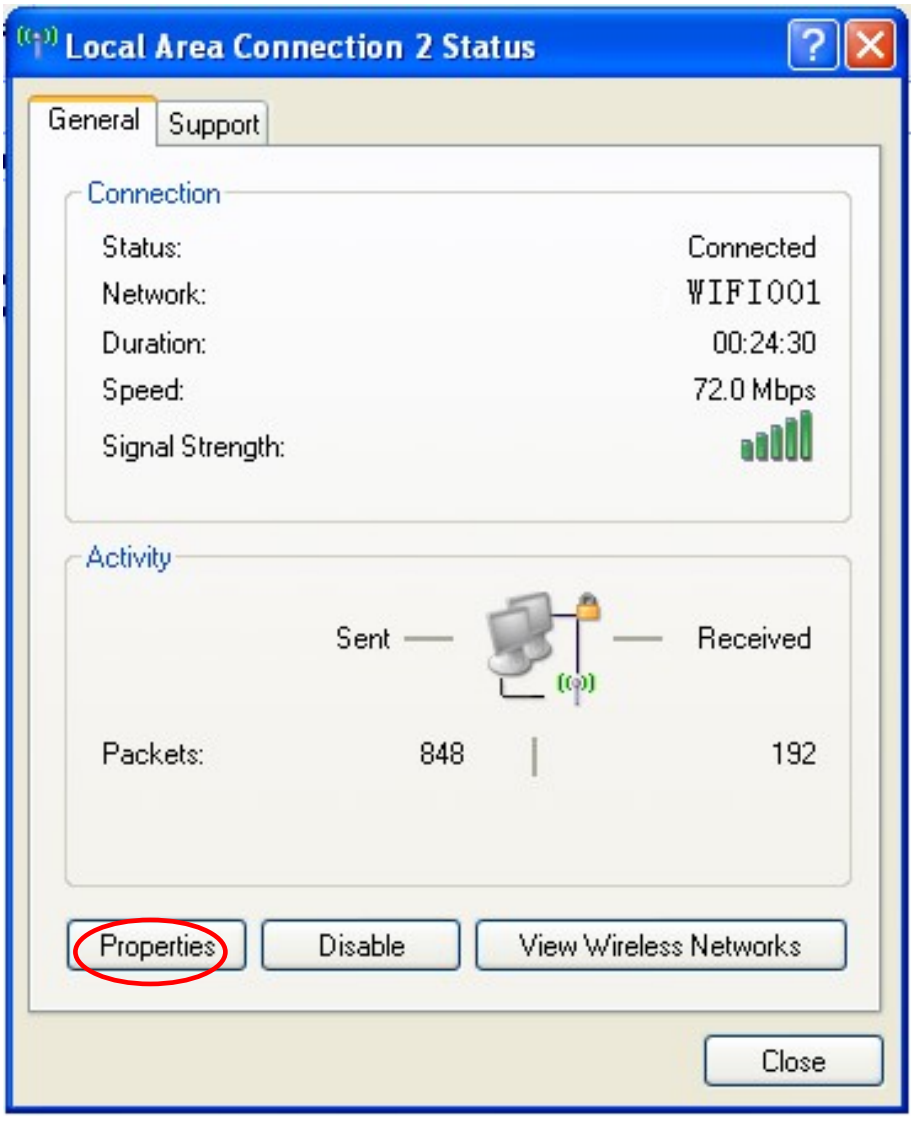


Figure 9

③ When the dialog box pops up, click “Wireless Networks” on the upper side of the dialog box (as shown in Figure 10).

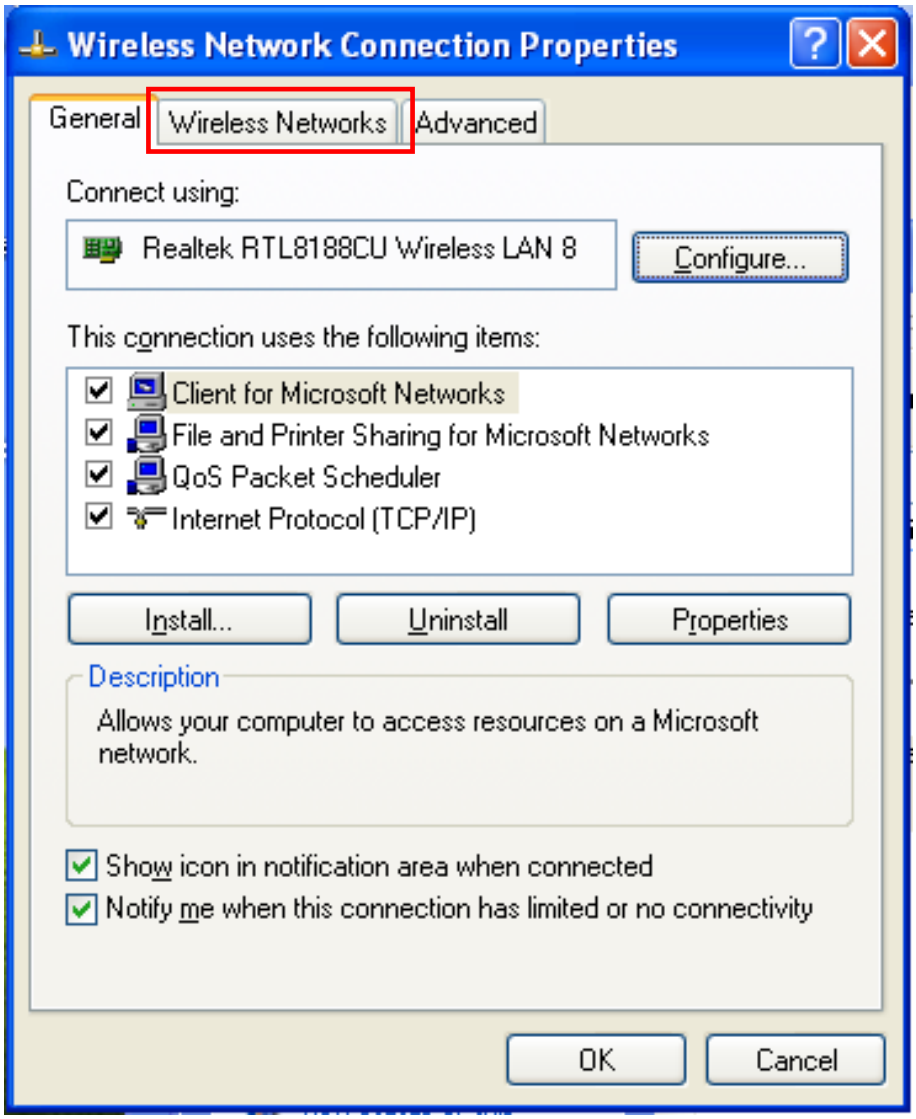


Figure 10

④ Select the current wireless network name in “Preferred networks” and then click “Properties” (as shown in Figure 11).

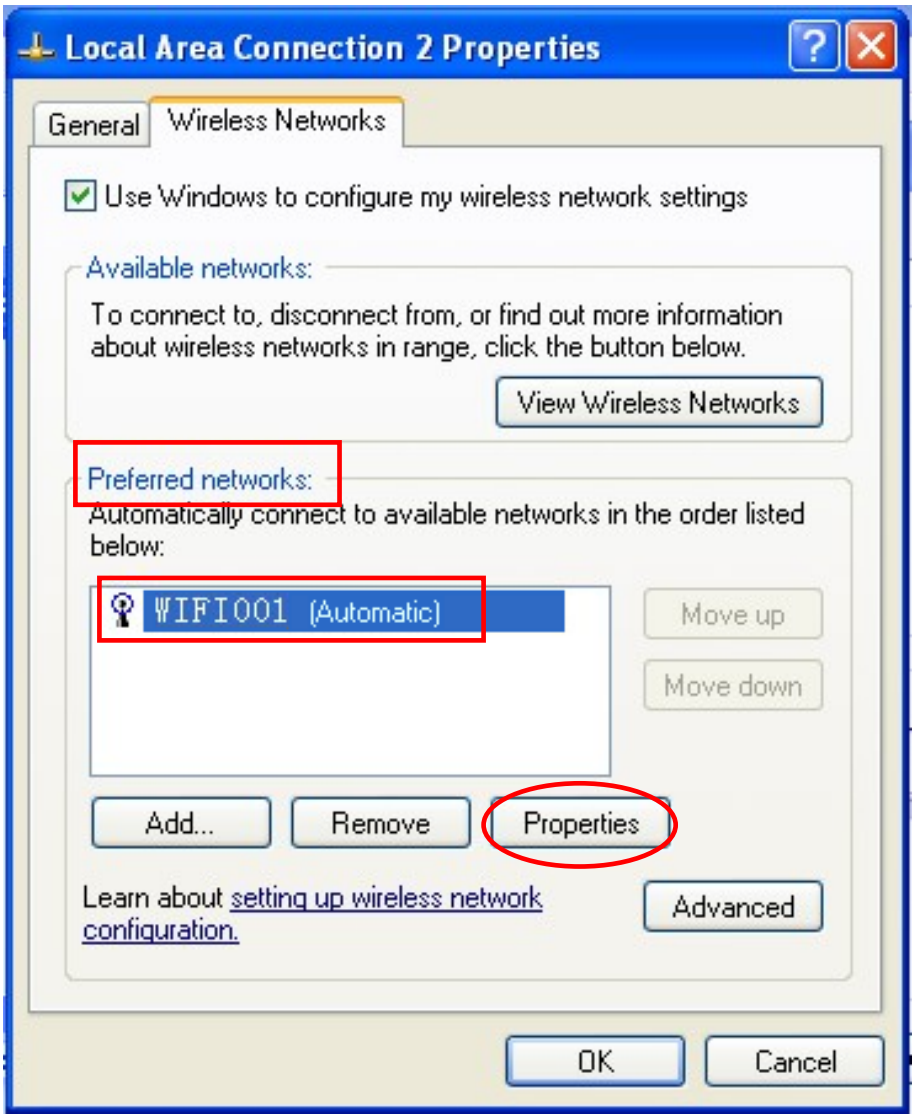


Figure 11

⑤ When the window of “Properties” pops up, find out the security mode and encrypt type in “Wireless network key” (as shown in Figure 12).

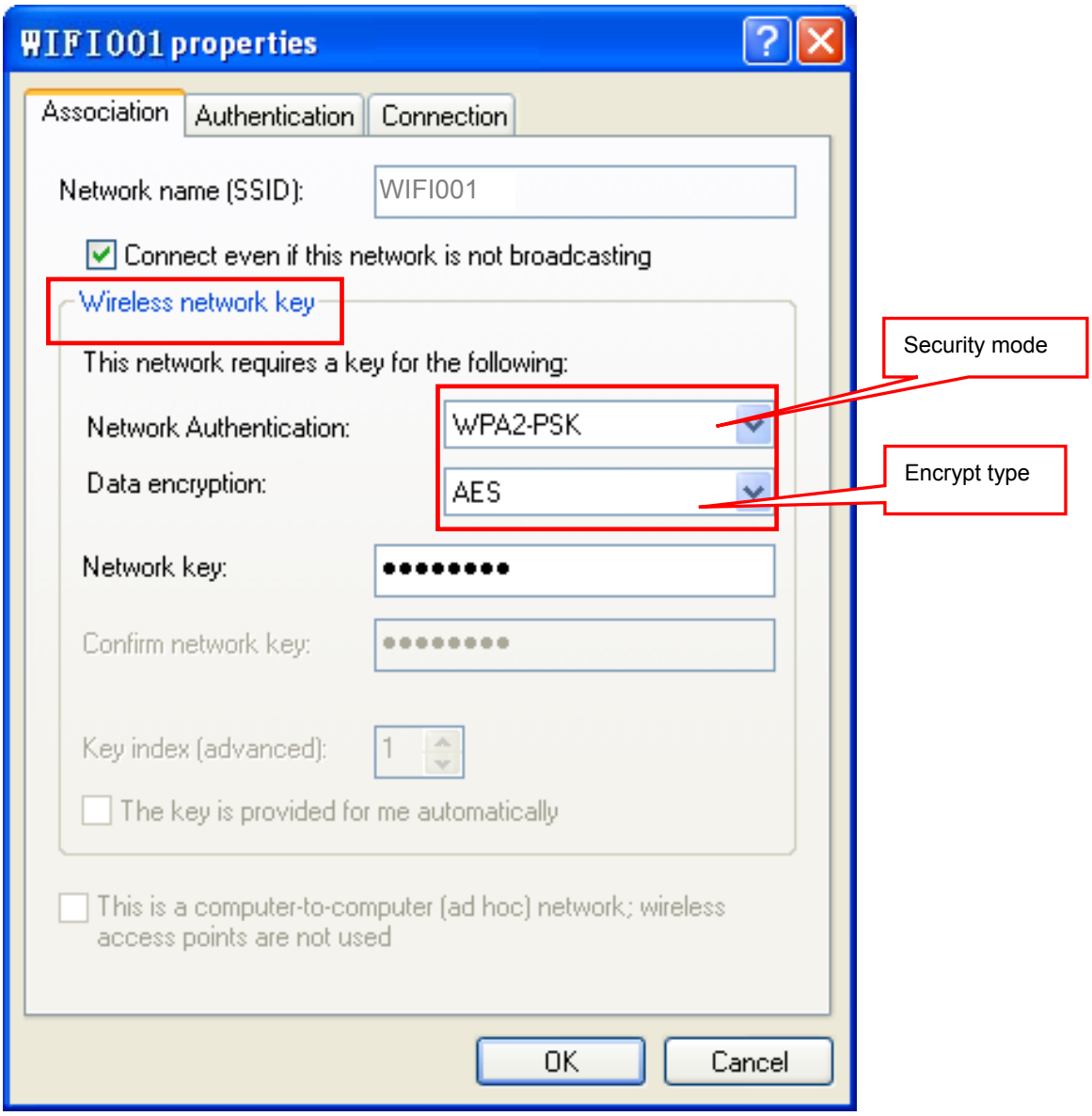


Figure 12

⑥ Close the windows in turn, then the dialog box “Local Area Connection 2 Status” pops up according to the operation of step ①, click “View Wireless Networks” (as shown in Figure 13). When the window of “Wireless Network Connection” pops up, double click the current hotspot and the connection will be disconnected (as shown in Figure 14).

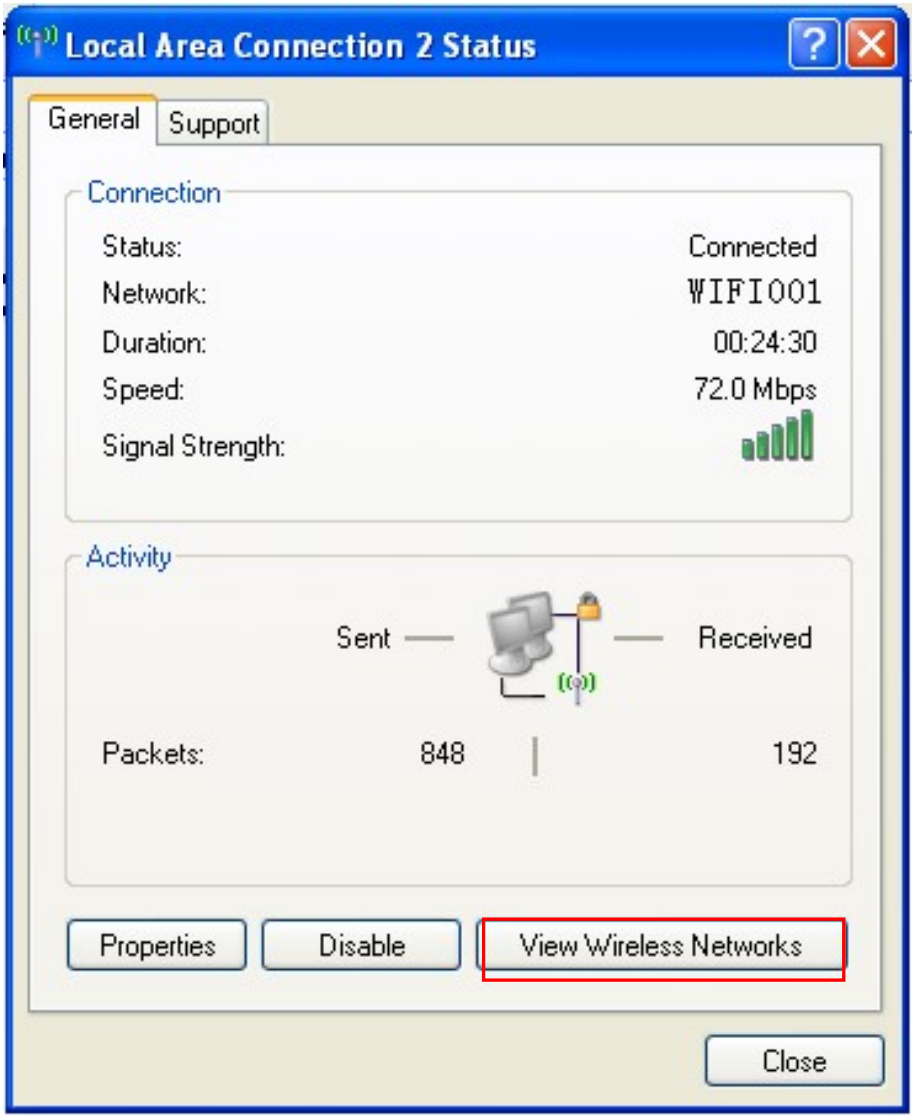

Local Area Connection 2 Status
General
Support
Connection
Status:
Connected
Network:
WIFI001
Duration:
00:24:30
Speed:
72.0 Mbps
Signal Strength:
Activity
Sent
Received
Packets:
848
192
Properties
Disable
View Wireless Networks
Close

Figure 13

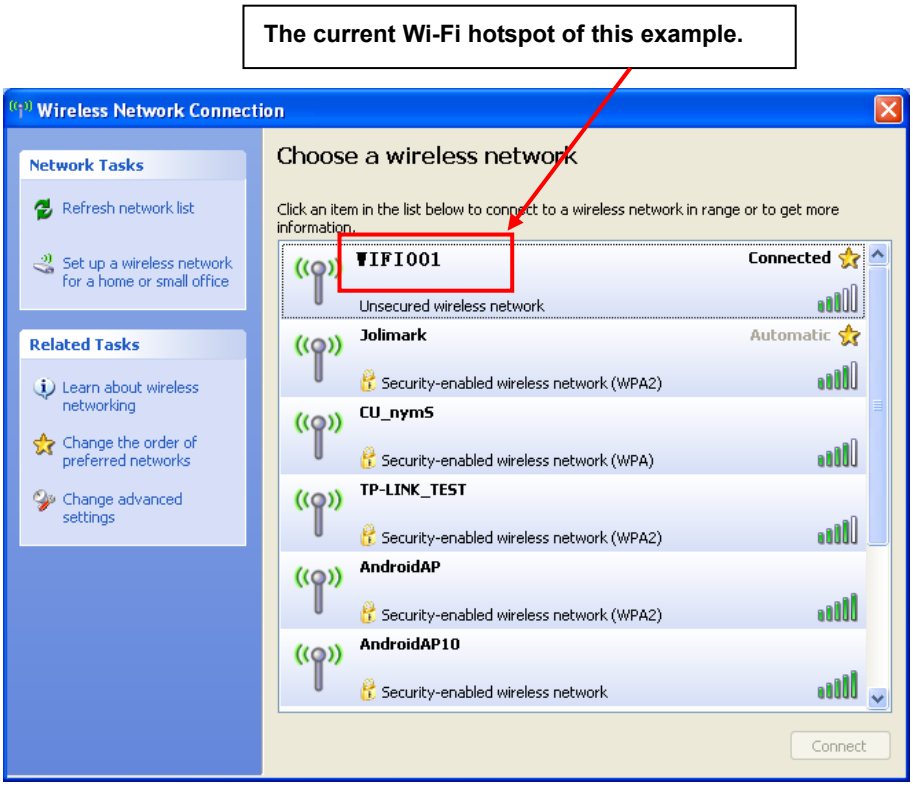


Figure 14

The setting of Security Mode and Encrypt Type

Refer to "**Connecting the Printer**", connect the wireless equipment with the printer and select the parameters acquired by the above steps in the "Security Mode" and "Encrypt Type" of the "**AP Client**".

Pass Phrase: The password of the hotspot

Address Assignment: It includes "DHCP (Auto config)" and "Static (Assigned IP)". You can select the corresponding assignment way according to your need. When selecting "DHCP (Auto config)", the IP Address and Subnet Mask can be acquired automatically (Click "Apply" and the system will assign automatically), and there is no need to set manually (as shown in Figure 15).

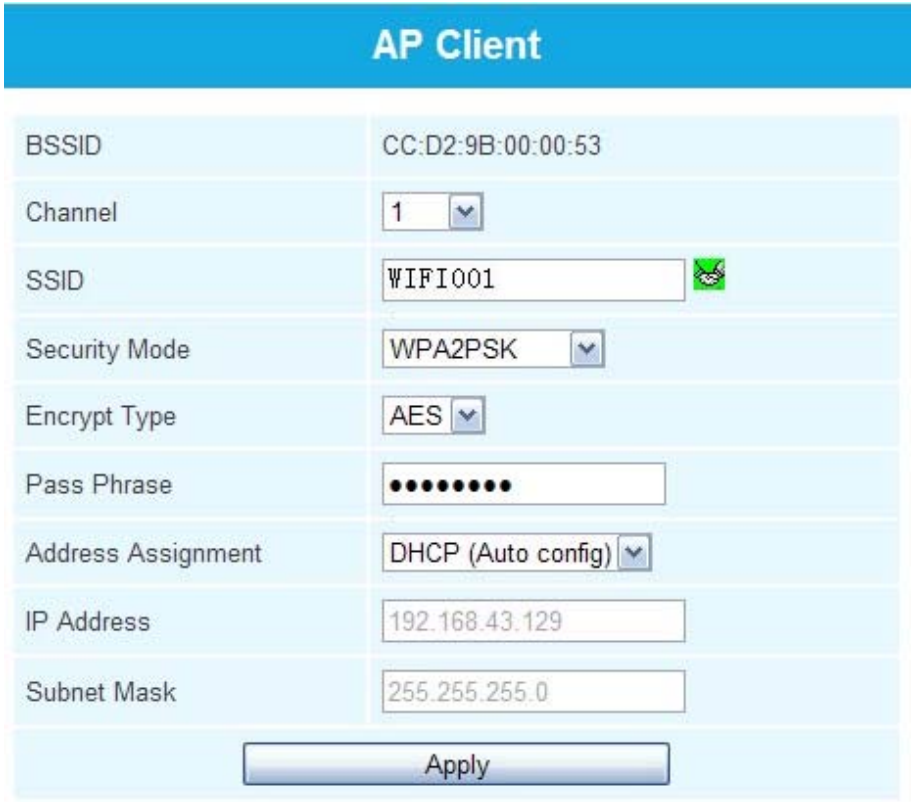


Figure 15

Note: The green handshaking mark on the right side of the SSID column denotes the connection between the printer and the outer Wi-Fi hotspot is successful.

IP Address: Set the IP address of the printer wireless card and the IP address should be in the same segment with the wireless networks you are using.

Subnet mask: Set the subnet mask of the printer wireless card and the subnet mask should be the same with that of the wireless networks you are using.

Click “Apply” after all the parameters are set, then the countdown interface appears. When the time is over, disconnect the computer with the printer and connect the computer with the outer hotspot.

Update Firmware: Upgrade the wireless module of the printer (as shown in Figure 16), and you can neglect it if there is no need to upgrade.

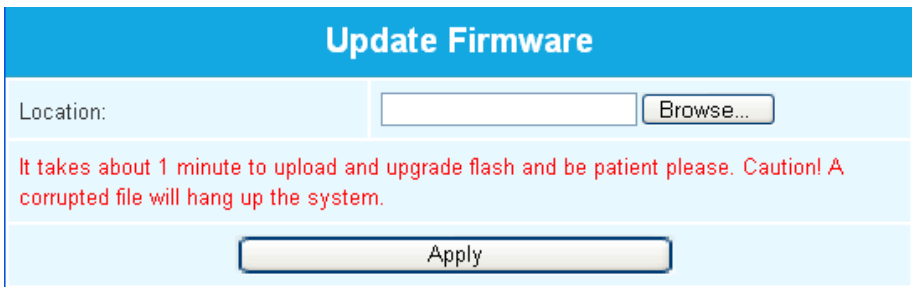


Figure 16

2.9.3 Wi-Fi Interface Status Display and Parameters Reset

Wi-Fi interface is equipped with the “RESET button (Wi-Fi RESET)” and “LED indicator”.

Turn on the printer, the Wi-Fi LED blinks fast, which denotes the interface is on the ON status. 30 seconds later, the Wi-Fi LED blinks slowly, which denotes the Wi-Fi interface is in normal working condition.

If user needs to restore the Wi-Fi parameters to factory default setting; just press the Wi-Fi RESET button to do it in a quick way. The method is as below:

1. Turn on the printer, wait for a few seconds until the Wi-Fi LED blinks slowly, and then press down the Wi-Fi RESET button for 2 seconds. Loosen the button and the LED blinks twice fast then blinks slowly again.
2. Reboot the printer and the factory default settings have been restored.

2.10 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 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”.

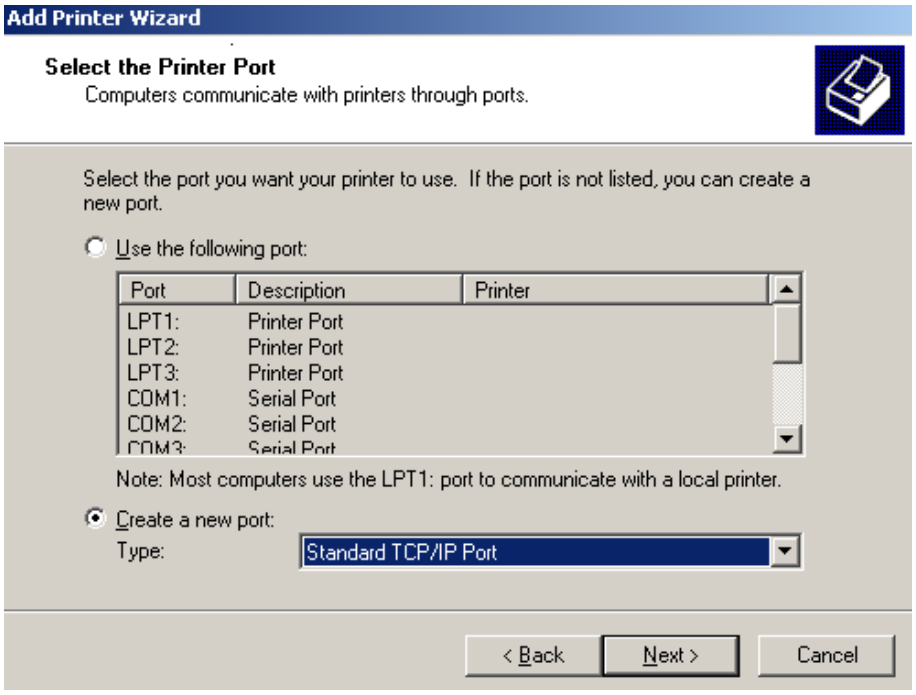
1. Newly-install printer network driver

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”.

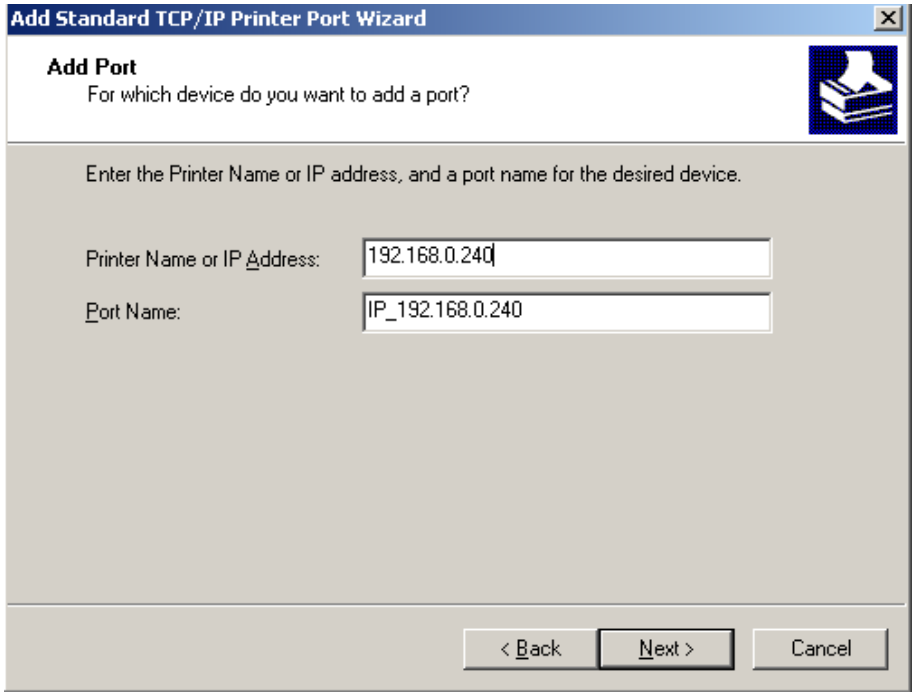
4) A window of “Select the Printer port” pops up, select “Create a new port”, and then select “Standard TCP/IP Port” in the port and click “Next”.



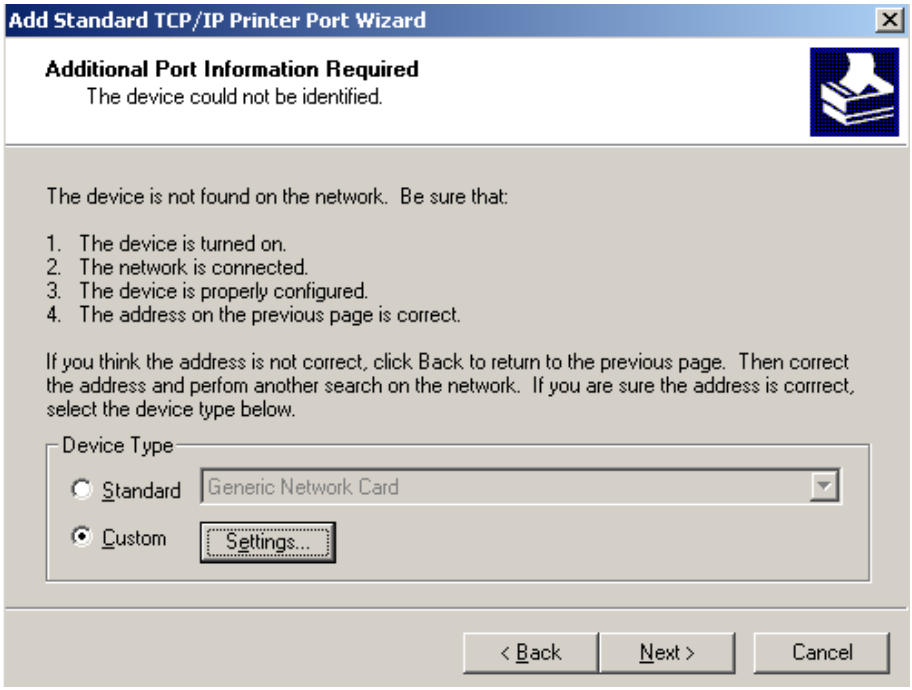
5) A window of “Add standard TCP/IP Printer Port Wizard” pops up, click “Next”.

6) A window of “Add Port” pops up, enter the IP address reported by the “Setting printer’s IP

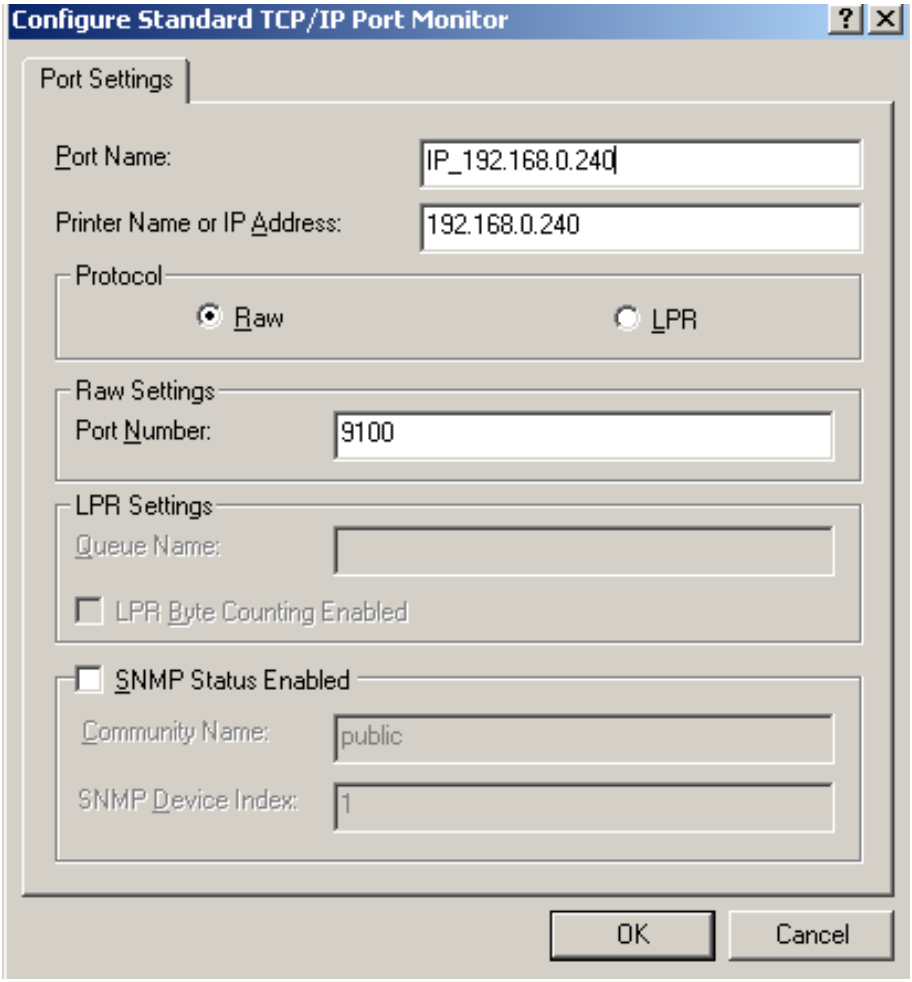
address" in the "Printer Name or IP Address" column. Take IP address "192.168.0.240" for example. "Port Name" is created automatically after finishing filling in IP address.



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” to return to the window of “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.

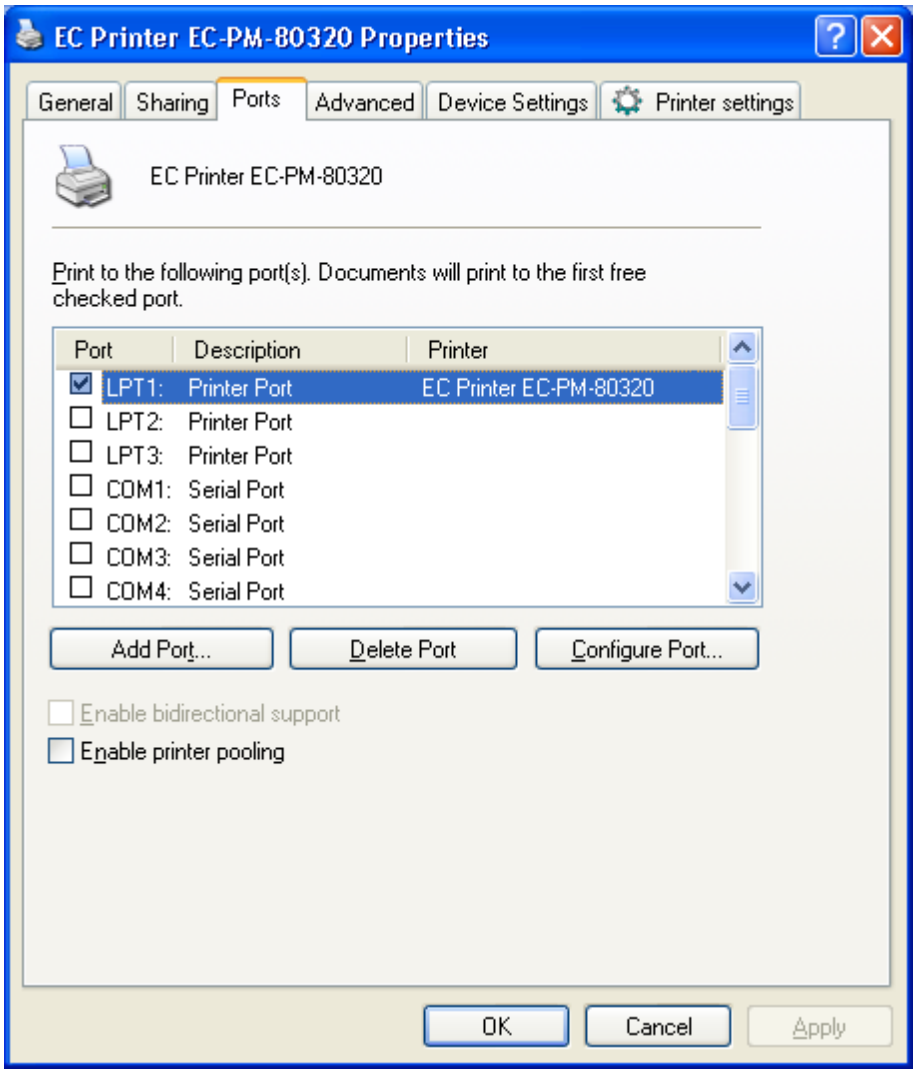
2. Upgrade-install printer network driver (setting driver’s network port)

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

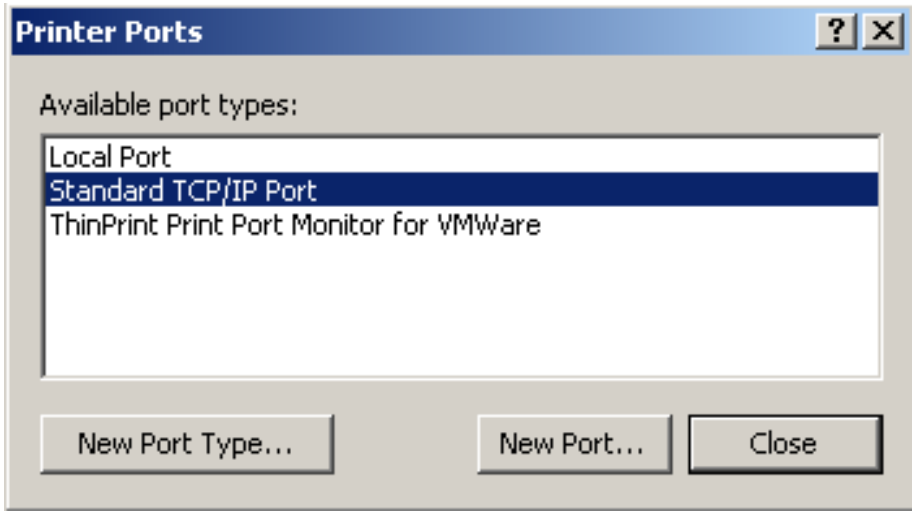
1) Click “Start” → “Settings” → “Select Printers”.

2) Right click EC-PM-80320 driver, click “Properties” on the window popping up.

3) A window of “Properties” pops up, click “Ports” and “Add Ports”.



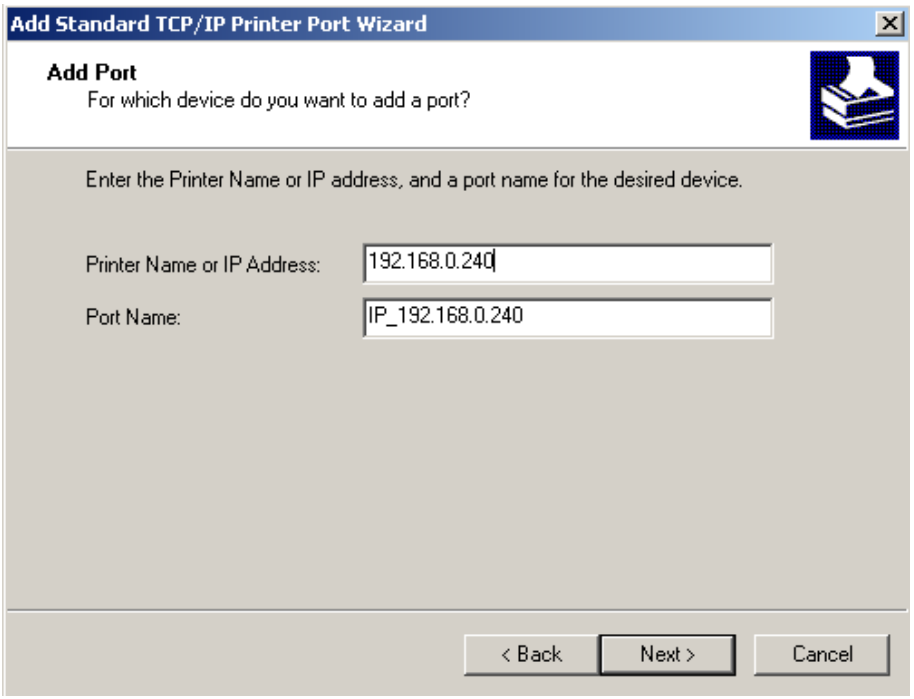
4) A window of “Printer port” pops up, select “Standard TCP/IP Port”, click “New port”.



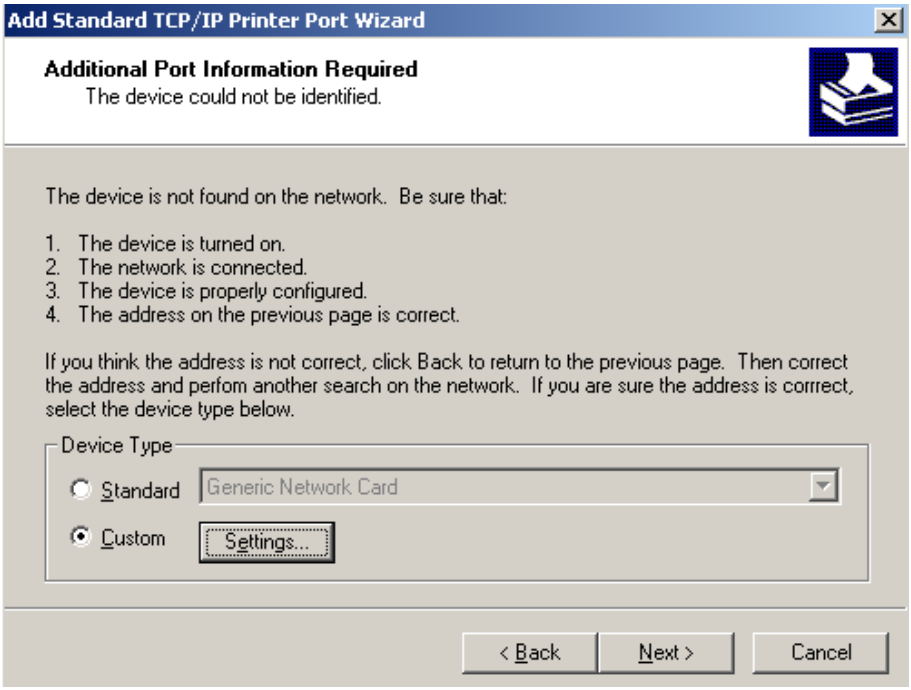
5) A window of “Add Standard TCP/IP Printer Port Wizard” pops up, click “Next”.

6) A window of “Add port” pops up, import the IP address reported by the “Setting printer’s IP

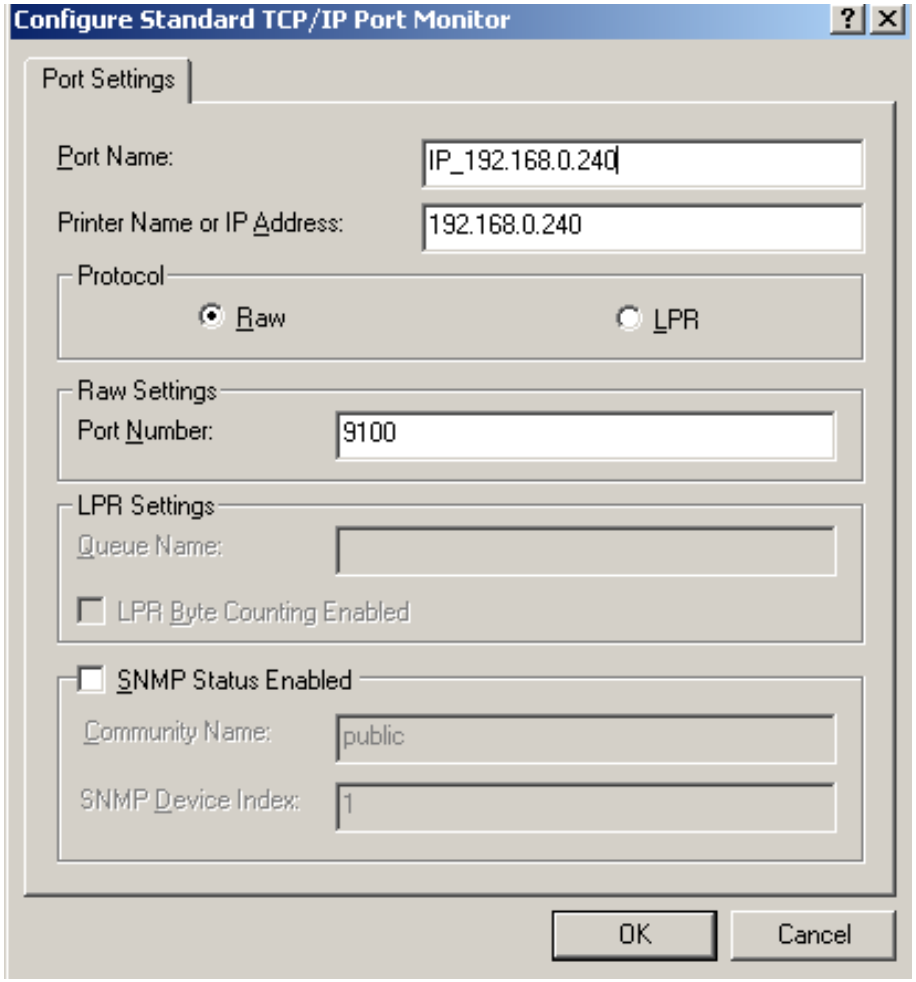
address" in the "Printer name or IP address" column. Take IP address "192.168.0.240" for example. "Port name" is created automatically after finishing filling in IP address. Click "Next".



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



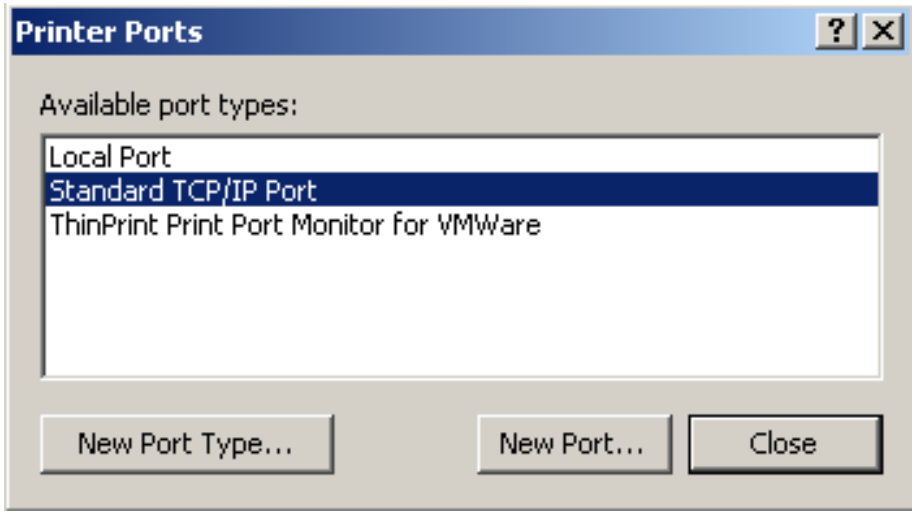
8) A window of "Port Settings" pops up. Affirm that "Port name" and "Printer name or IP address" are correct, "Protocol" is "RAW" and "Port Number" is "9100", click "OK".



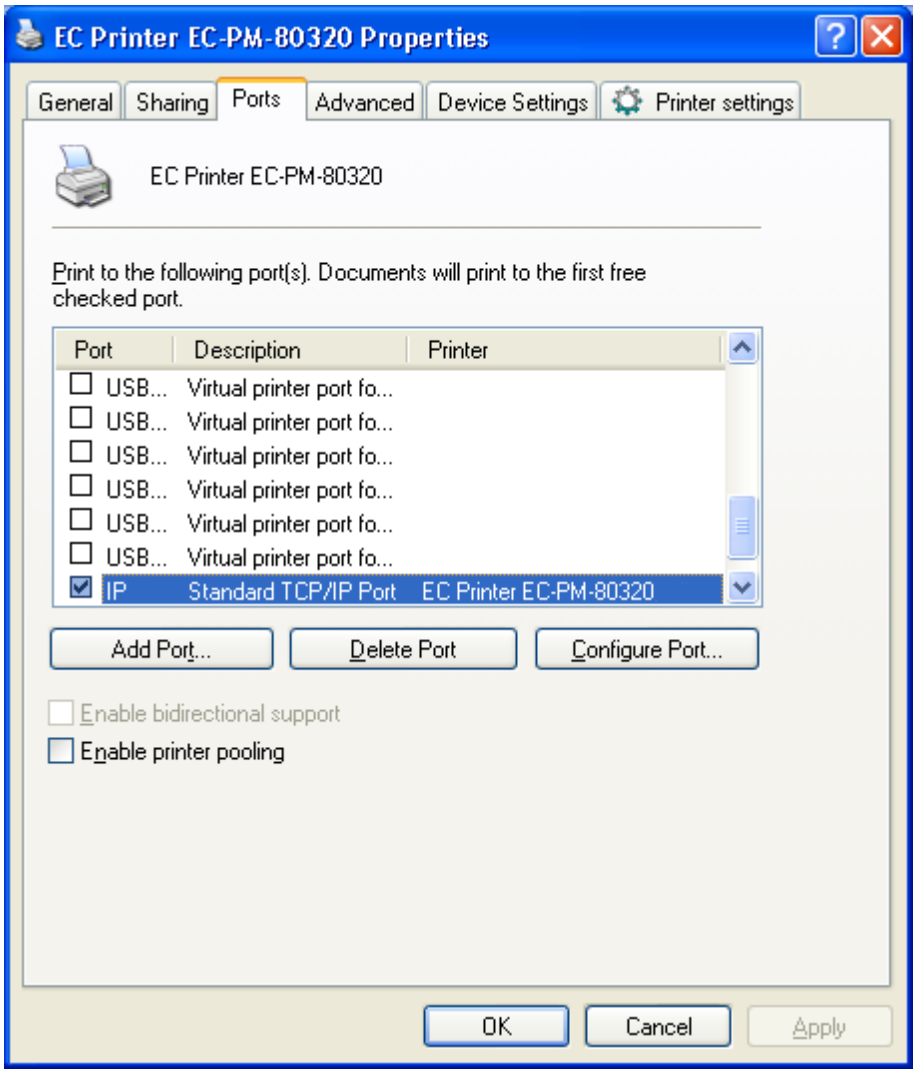
9) Return to “Additional Port Information Required”, click “Next”.

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.


EC Printer EC-PM-80320 Properties
General
Sharing
Ports
Advanced
Device Settings
Printer settings
EC Printer EC-PM-80320
Print to the following port(s). Documents will print to the first free checked port.
Port
Description
Printer
USB... Virtual printer port fo...
USB... Virtual printer port fo...
USB... Virtual printer port fo...
USB... Virtual printer port fo...
USB... Virtual printer port fo...
USB... Virtual printer port fo...
IP Standard TCP/IP Port EC Printer EC-PM-80320
Add Port...
Delete Port
Configure Port...
Enable bidirectional support
Enable printer pooling
OK
Cancel
Apply

Chapter 3 Control Panel

3.1 Control Panel

There are three LEDs and one key on the control panel shown as Figure 3-1.

Figure 3-1 Control panel

3.1.1 LED

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 or is about to end.

Refer to chapter 6.2 Error message on the control panel for detailed information about LED 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 enable, the paper will be fed continuously if you hold on pressing it, or stop if you loosen it.

3.2 Self-test 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 which connecting to the computer. Otherwise, the printer should be repaired.

Hold on pressing the **FEED** key 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 key, 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 the terminal device works properly or not.

The method is that holds on pressing the **FEED** key while turn on the printer, the **ERROR** LED blinks once with two beeps. Go on holding the key 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 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 holds on pressing the **FEED** key while turn on the printer, the **ERROR** LED blinks once with beeping twice at the same time. Do not loosen the key until the **ERROR** LED blinks once with beeping once in about one second. Keep on pressing the key 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

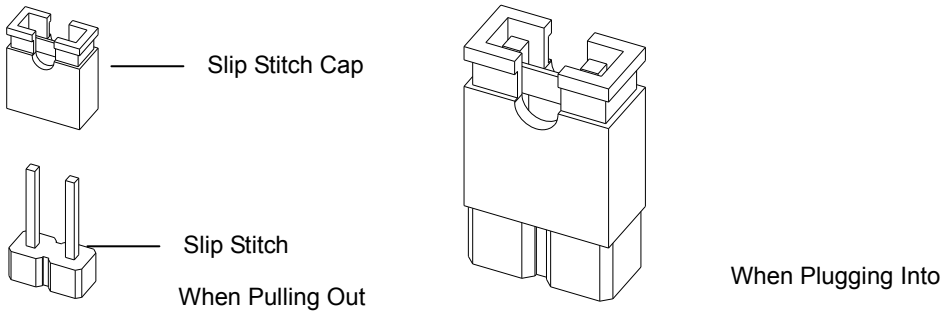


Figure 3-2 Setting slip stitch

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, and then holds on pressing the **FEED** key while turn on the printer, the **ERROR** and **PAPER OUT** LEDs blink once at the same time, which denotes that the printer enters the online-upgrade mode. Loosen the key 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

EC-PM-80320 supports the function of parameter settings, which can be set in the PC with the driver installed in

The serial parameter settings can be changed through the window of “Properties” in the driver. (As shown below)

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 operating system of WIN 2000/WIN XP/VISTA/WIN 7, click “Start” → “Settings” → “Printers”, and open the window of “Printers”.

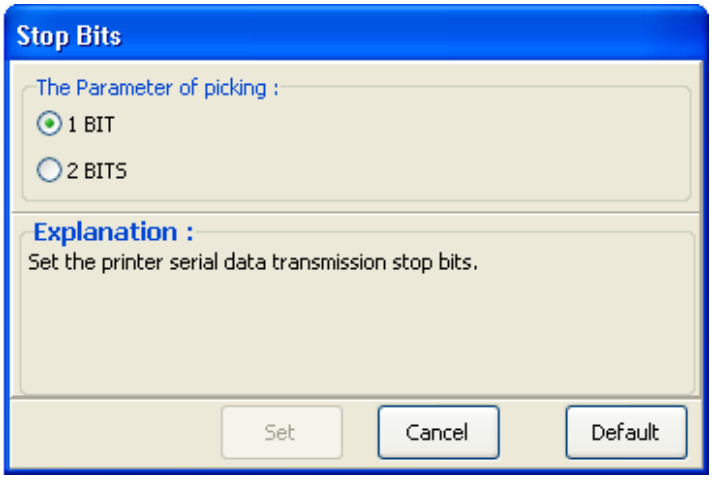
   Under the operating system of Windows 8, click “Desktop” in the main panel firstly, and then double click “Control panel” after entering the window of “Desktop”, click “Hardware and Sound”

to find “Devices and printers”, at last, open the window of “Devices and printers”.

3. Right click “TP850” in the window of “Printers”, and then select “Properties”.
4. Click “Printer settings” in the “Properties” page and open the window of “Printer settings”.

5. In the window of “Parameter settings”, each item on the left of the menu setup item is the parameter icon. The items on the upper right are the parameters and the items on the bottom right are the current settings. The computer will load the printer’s current setting automatically when you open the parameter setting window. The current setting will be blank if the printer is offline or the printer port is set incorrectly. Then you need to set the printer to online mode or set the printer port correctly.

6. To set parameter, first click the parameter icon, then open the parameter setting window. There are Parameter options, Explanation and Control buttons in the window. Select the corresponding parameter and click “Set”; the printer will change the setting at the time it receives the command. Click “Cancel” to return to the upper window and click “Default” to display the default settings of this menu items.



7. If you want to set several parameters, please refer to the previous point and set the parameter one by one.
8. When the setting is finished, click “Set” to exit the window of “Properties”.
9. Restart the printer and the new settings take effect.

Chapter 4 Installing and Replacing the Roll Paper

The printer can install the paper which should be 80mm wide conveniently. 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 getting burned.
2. Don't pull the paper out directly with your hand.

1. Push the cover-open lever, open the upper cover.

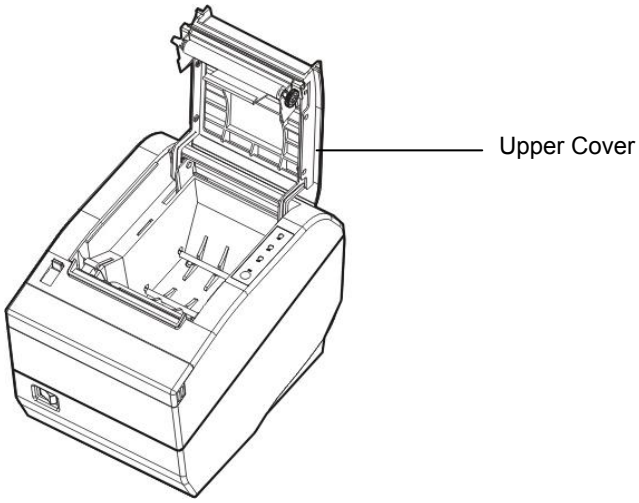


Figure 4-1 Open the upper cover

2. Load the roll paper into the paper holder.

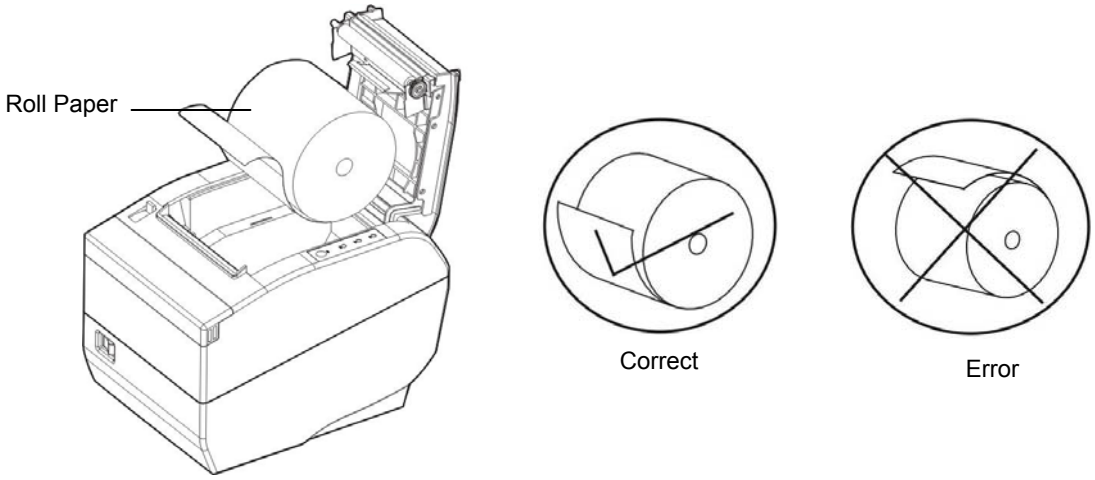


Figure 4-2 Load the roll paper

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.

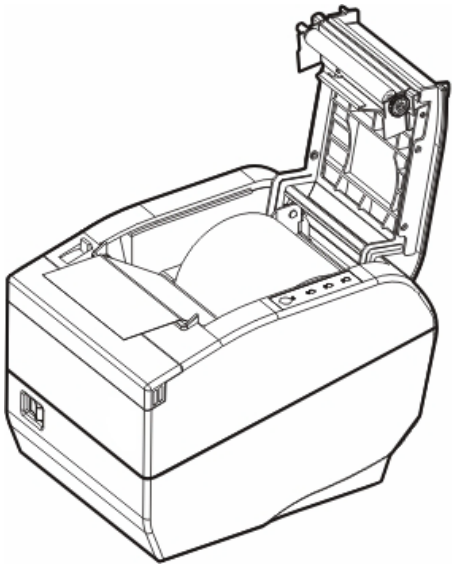


Figure 4-3 Pull out the paper

4. Put the paper as shown below, and then close the upper 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	640 dots/line (203×203 DPI)	
Printing width	Max:80 mm, 640 dots	
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	
Line space	1/6 inch, or programmable in 1/203 inch increments	
Code page	77 kinds	
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 ~ 240V(AC)
		Frequency: 50Hz/60Hz
	OUT	Output voltage: 24V(DC)
		Current: 2.5 A
Power input	Parameters	Input voltage: 24 V (DC)
		Current: 2.5 A
		Warning: Please use the original AC adapter only. Manufacturers have no responsibilities for the problems which are led by using unauthorized AC adapter.
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.**	
Paper type	Thermal roll paper	
Control panel	One key and three LEDs.	
Certificate	CE, FCC	

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 (Parallel interface, USB interface, USB interface + Serial interface, USB interface + Ethernet interface, USB interface + Bluetooth or USB interface + Wi-Fi).

5.2.1 Cash Drawer Interface

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

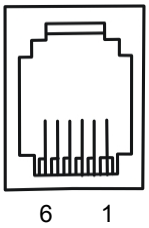


Figure 5-1 Cash drawer connector

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	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

EC-PM-80320 printer's parallel interface is compatible with CENIRONICS protocol, supporting BUSY/ACK handshaking protocol.

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

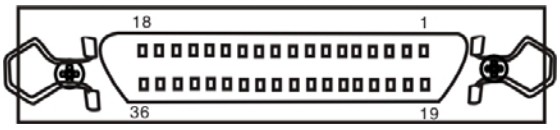


Figure 5-2 Parallel interface

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 3 4 5	DATA1 DATA2 DATA3 DATA4	IN IN IN 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.

6 7 8 9	DATA5 DATA6 DATA7 DATA8	IN IN IN 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	---	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 signal is shown as Figure 5-3.

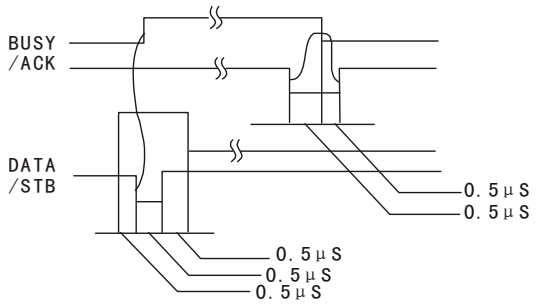


Figure 5-3 Timing signal of parallel interface

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

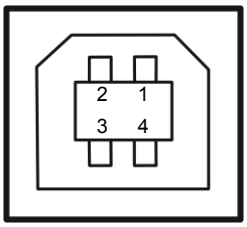


Figure 5-4 USB interface

5.2.4 Serial Interface

EC-PM-80320 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.

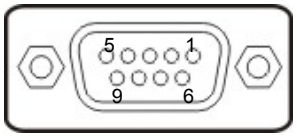


Figure 5-5 Sequence numbers of Serial connector

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

EC-PM-80320 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.

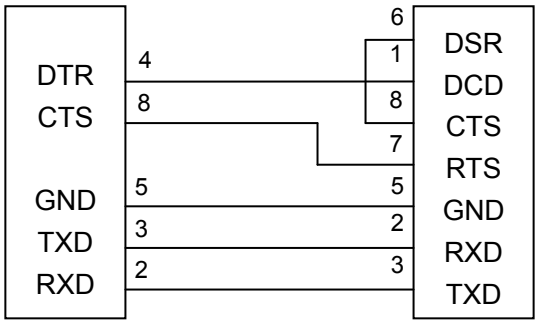


Figure 5-6 Connecting with 9-Pin PC

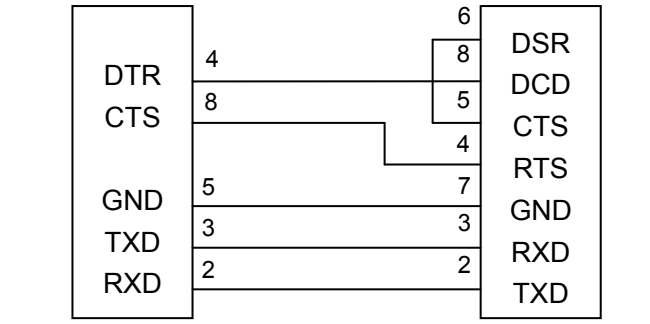


Figure 5-7 Connecting with 25-Pin PC

5.2.5 Ethernet Interface

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

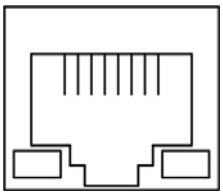


Figure 5-8 Ethernet interface

5.2.6 Power Supply Inlet

The EC-PM-80320 printer connects with a 24V±10% and 2.5A AC adapter. The power supply inlet is shown as Figure 5-9.

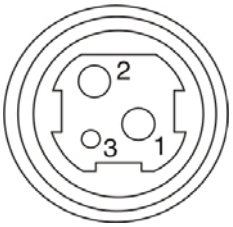


Figure 5-9 Power supply inlet

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 only necessary task of maintaining the printer. We will talk with this problem in this section. It is noted that make sure to turn off the printer before maintenance.

Cleaning the Printer:

Printer is damaged mostly by dust and dirt. Wiping off the wasted paper in the printer and cleaning the accumulated dirt in the thermal head despite the outer case of the printer prevents greater part of dust from invading.

Cleaning the Printer Case:

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

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

Clean the printer periodically according to the prescription as follows.

Periodical cleaning: Every 6 months or 300 working hours once

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 LEDs. You can make out different malfunctions through 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	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.

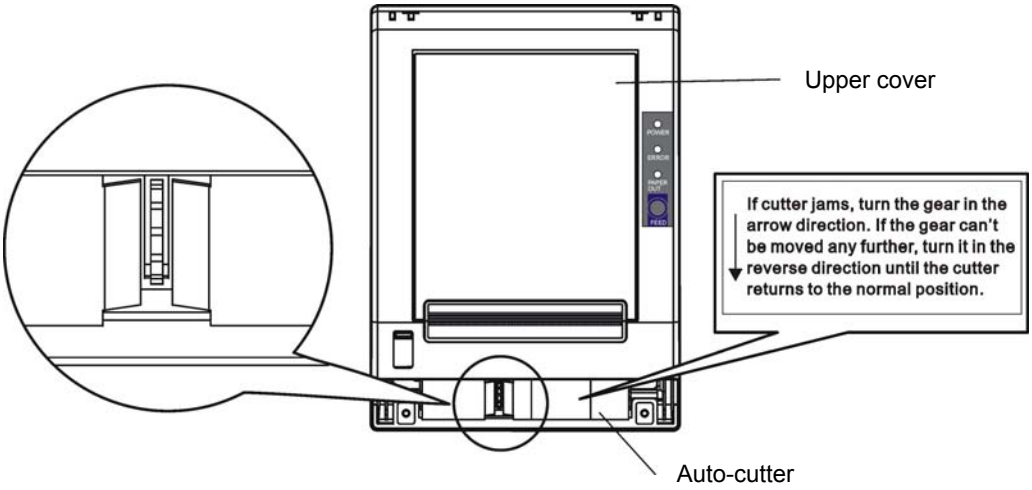


Figure 6-1 Adjust the auto-cutter by hand

Chapter 7 Control Commands

7.1 General

The commands EC-PM-80320 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 print buffer and feed one line based on the current line spacing.

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

Description:

Print the data in the print 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 thought 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 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-height 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;

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	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	8	68DPI	203DPI	576

	double-density				
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

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

Description:

Set the line spacing to 1/6 inch.

ESC 3 Set line spacing as n/203 inch

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

Description:

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

The line spacing of EC-PM-80320 printer is the n* vertical minimum unit.

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 J — Print 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 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 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 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=34 Georgia	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 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 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 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; 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≤n1≤255, 0≤n2≤255 Set the character left-side spacing to n1*(horizontal or vertical motion unit), right-side spacing 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 defined. When this command processing, ERROR indicator will be on for a period time, then the PAPER OUT indicator and ERROR indicator will be both on and the printer resets. No more other data or commands followed this command, or 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 hole command including the bit image data should 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:

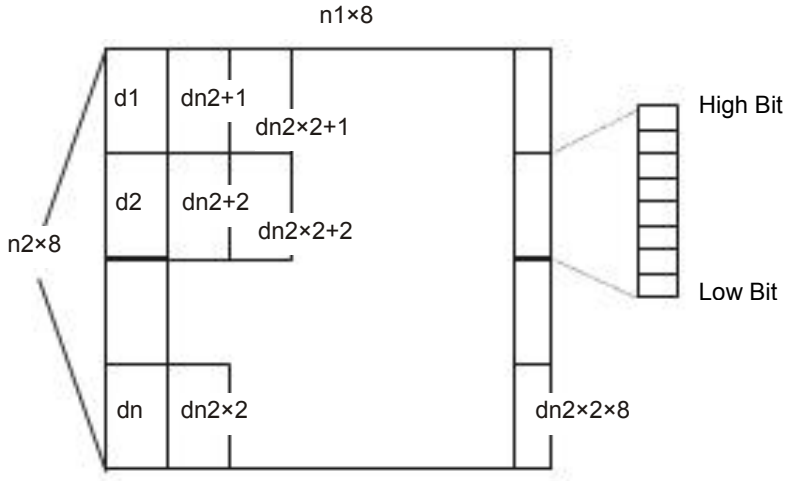
Define the downloaded bit image in the downloaded graphic area.

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	203DPI	203DPI
1, 49	Double-width	203DPI	101DPI
2, 50	Double-height	101DPI	203DPI
3, 51	Quadruple	101DPI	101DPI

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 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	Select default line spacing
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 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-define Chinese characters
FS S	Set Chinese character spacing
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

Manufacturer: EC Line