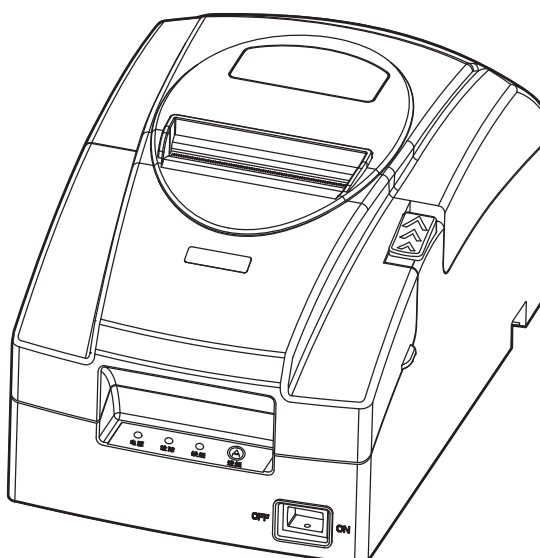




User's Manual

TP230C Series

Printer



Declare

About Trademark

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

Jolimark is a registered trademark of Kong Yue Electronics & Information Industry (XIN HUI) LTD.

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

Windows is a registered trademark of Microsoft Corporation.

Warnings, Cautions, and Notes

Pay attention to the following promises when using this manual:

Warning:

Warnings must be followed carefully to avoid bodily injury.

Caution:

Cautions must be observed to avoid damage to your equipment.

Note:

Notes contain important information and useful tips on the operation of your printer.

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 unauthorized operations.

1. Follow all warnings and instructions in the manual as well as marked on the product.
2. Unplug this product from the power outlet before cleaning. Do not use the chemicals like alcohol to clean the printer.
3. Do not use this product where is easy to get wet.
4. Do not place this product on an unstable cart, stand or table. The product may fall, causing serious damage to you or to the product.
5. 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. And do not place the printer on a bed, sofa, rug or other similar surface in case of blocking the openings. This product should not be placed in small space unless proper ventilation is provided.
6. This product should never be placed near or over a radiator or heat origin, and should avoid of direct sunshine.
7. Do not locate this product where the cord will be stepped on. When the cord or the plug is mangled, please stop using and get a new one replaced. Make sure the old one is far away from the printer, so it can avoid someone who does not know the inside story getting damaged.
8. Only the AC adapter supplied by our company can be used, or else, manufacturer will not answer for any problems which are led by using unauthorized AC adapter.
9. Do not use in locations subject to high humidity or dust levels.
10. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage dots or short out parts.
11. Don't remove the printer's out-cover and repair the printer yourself. When needed, call or take it to the professional.
12. If there are any liquid accidentally splashed into the product, or printer is exposed to rain or water, please remove the plug immediately, and send it to a professional for repair.
13. To ensure safety, please unplug this product prior to leave it unused for an extended period. The wall outlet you plan to connect to should be nearby and unobstructed.
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:
 - 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.

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 Model Information

TP230C (Mini Receipt Printer) is developed by our corporation in order to fulfill different requirements and using environments. TP stands for Mini printer, 230 stands for printer model, "C" means the printer is with cutter. The suffix letters represent the interface, if there is no suffix letter; the printer is equipped with parallel interface. TP230C series printers can be configured with parallel interface, USB interface, USB interface + serial interface, USB interface + Ethernet interface, USB interface + serial interface + Ethernet interface, USB interface + Bluetooth, Wi-Fi interface or USB interface + Wi-Fi.

Interface:

TP230C series products can be equipped with a cash drawer interface, you can choose one of the following data interfaces when purchasing this product:

- Parallel interface (TP230C)
- USB interface (TP230UC)
- USB interface + Serial interface (TP230USC)
- USB interface + Ethernet interface (TP230UEC)
- USB interface + Serial interface + Ethernet interface (TP230USEC)
- USB interface + Bluetooth (TP230UBC)
- Wi-Fi interface (TP230WC)
- USB interface + Wi-Fi (TP230UWC)

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

1.2 Application

- Embedded installation and preprinting common bill printing market
- Embedded installation and duplex-sheet common bill printing market
- Can be applied to tax-controlled cash register for invoice printing
- Can be applied to electronic billing machine for invoice printing
- Can be applied to self-service terminal for invoice printing or applied to other preprinting bill printing

1.3 Main Parts of the Printer

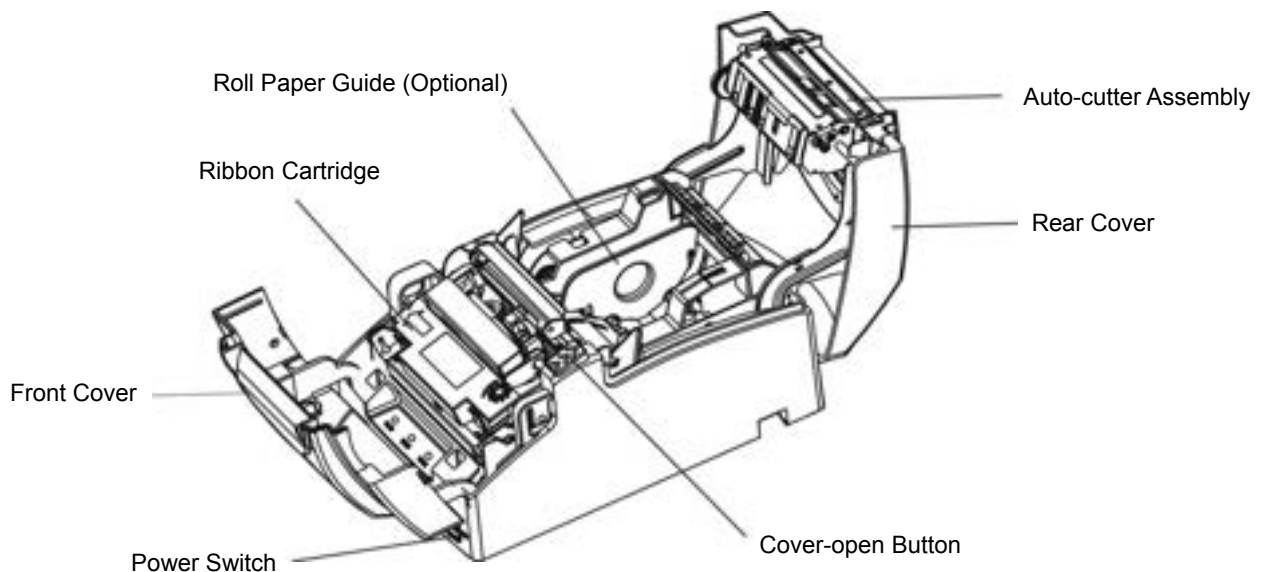


Figure 1-1 Main parts of printer (overlook)

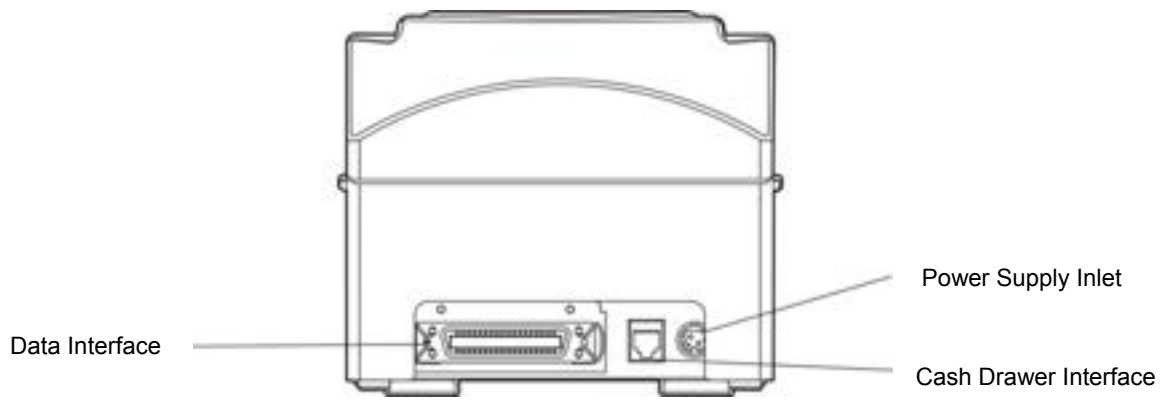


Figure 1-2 Main parts of printer (backwards)

Note: Please take the specific interface as standard.

Chapter 2 Printer Installation

2.1 Unpacking and Checking

Check the following items in the package, if any of these items is missing, please contact your dealer.
(As Figure 2-1 shows)

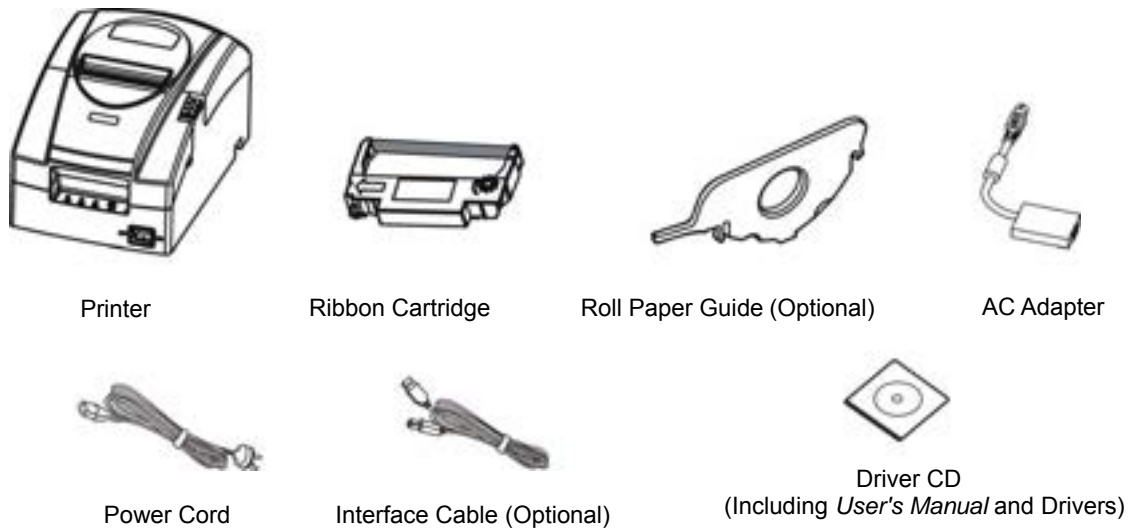


Figure 2-1 Printer packing list

Note: 1. Models with Bluetooth and Wi-Fi are not equipped with interface cable.
2. You could choose the double colors ribbon cartridge.

2.2 Removing the Protective Materials

1. Open the packing box, take out the printer.
2. Save all the packing materials so that they can be used when transporting the printer in the future.

2.3 Connecting to Computer or Other Equipment

This printer can be equipped with one cash drawer interface and a data interface (you can select parallel interface, USB interface, USB interface + serial interface, USB interface + Ethernet interface, USB interface + serial interface + Ethernet interface, USB interface + Bluetooth, Wi-Fi interface or USB interface + Wi-Fi). (Please take the specific interface as standard.) Connect the printer to the computer with correct cable.

Caution: Before connecting or disconnecting the cash drawer interface, parallel interface or serial interface, you should make sure that the power of the printer is turned off. Only after tightening the cable could you turn on the printer, or else, it may damage the printer.

2.3.1 Connecting the Cash Drawer Cable

Make sure the printer is turned off. Plug one end of the cable into the cash drawer interface of the printer and the other end to cash drawer. (Shown as figure 2-2)

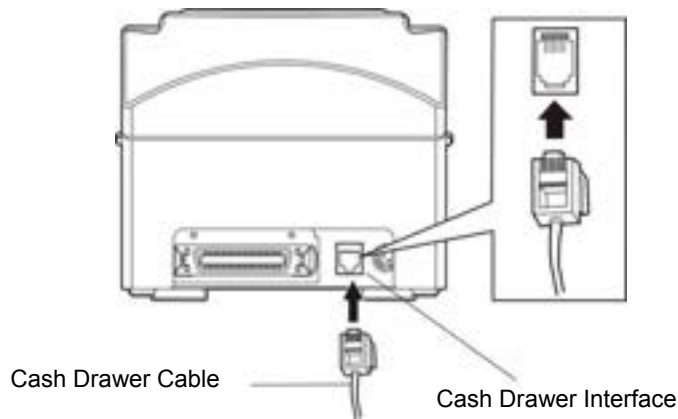


Figure 2-2 Connecting the cash drawer cable

Note: You must use the proper cash drawer. Manufacturer will not honor warranty when using improper cash drawer.

2.3.2 Connecting the Parallel Cable

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

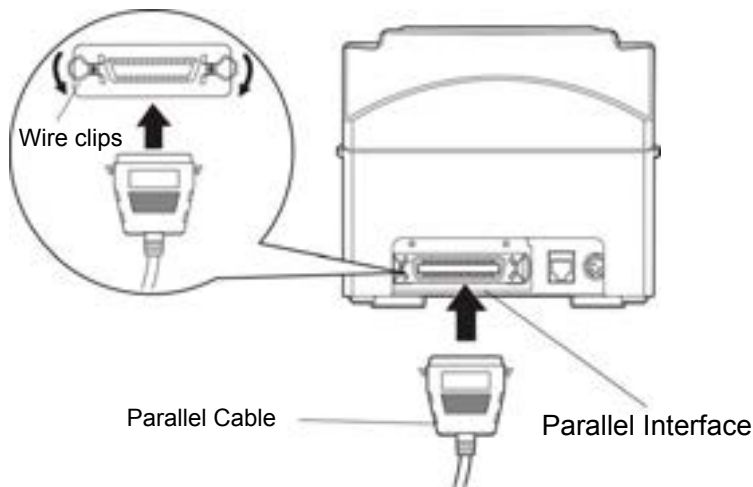


Figure 2-3 Connecting the parallel cable

2. Connect the other end of the cable to the computer's or other devices' parallel interface connector, and tighten the screws on both sides to make the cable fixed.

2.3.3 Connecting the USB Cable

1. Plug the A end of USB cable (flat shape) into the computer's or other devices' USB interface connector.
2. Plug the B end of USB cable (square shape) into the printer's USB interface connector. (As shown in figure 2-4)

Note: Do not impact the plug after connecting the USB cable.

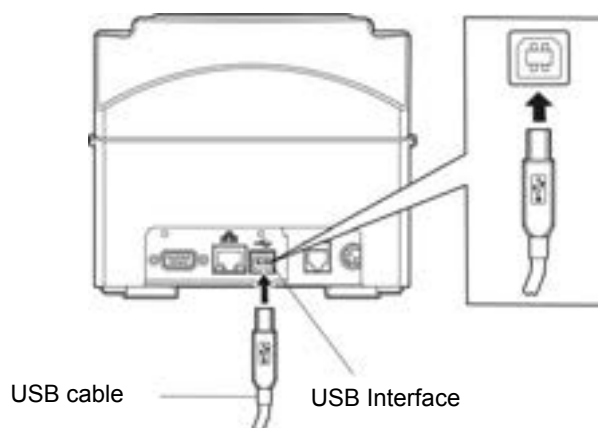


Figure 2-4 Connecting the USB cable

2.3.4 Connecting the Serial Cable

1. Make sure that the computer and the printer are both turned off, connect the serial cable to the serial interface connector of the printer and tighten the screws on both sides to make the cable fixed. (As shown in Figure 2-5)

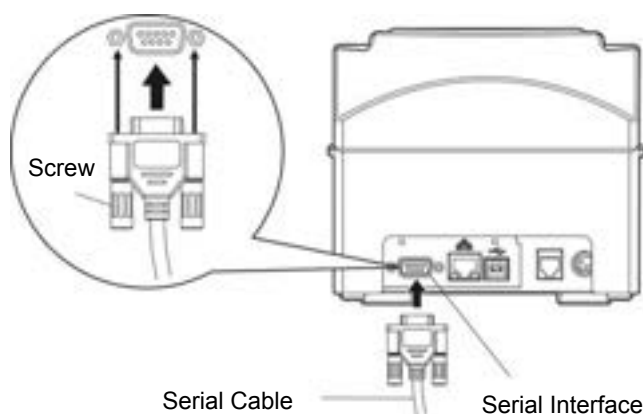


Figure 2-5 Connecting the serial cable

2. Connect the other end of the cable to the computer's or other devices' serial interface connector and tighten the screws on both sides to make the cable fixed.

2.3.5 Connecting the Ethernet Cable

Plug the end of the Ethernet cable (RJ-45) into the printer's Ethernet interface, and then, plug the other end into the LAN's entrance. (Shown as figure 2-6)

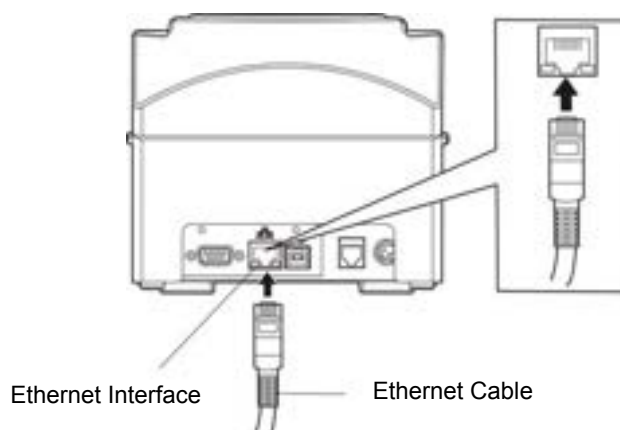


Figure 2-6 Connecting the Ethernet Cable

Note: The detailed information of the network settings, please refer to the *User's Manual*.

2.4 Connecting the Power Cord

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

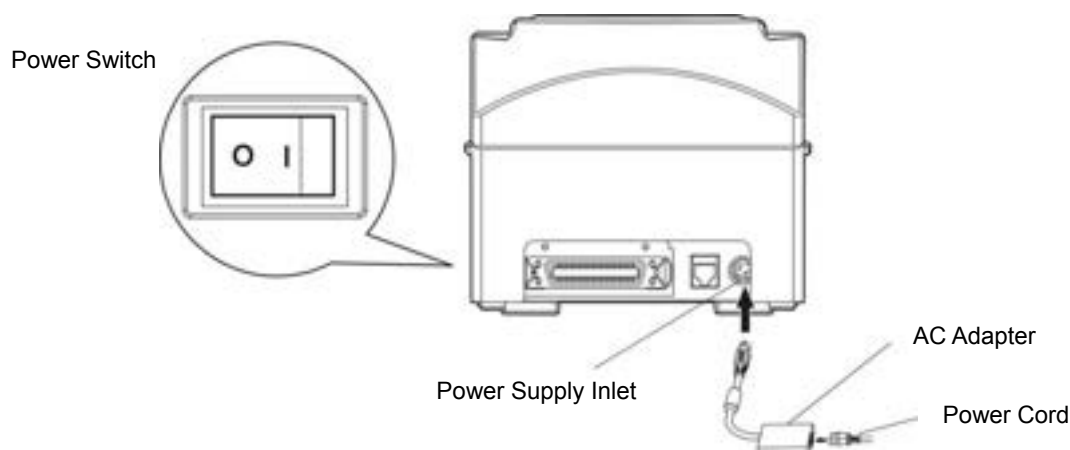


Figure 2-7 Connecting the power cord

Warning: 1. If your outlet voltage do not match the voltage range of the AC adapter, do not plug the power cord to electrical outlet, and contact your dealer for assistance.

2. Please use the electrical outlet connecting the ground properly.

3. Please use the original AC adapter only. Manufacturers have no responsibilities for the problems which are led by using unauthorized AC adapter.

2.5 Installing the Ribbon Cartridge

1. Make sure the printer is turned off.

Note: Don't replace the ribbon cartridge when the power is on, or else, the printer may start to work suddenly and you may get hurt.

2. Open the rear cover firstly, and then pull the projections on both sides of the front cover upwards to open the front cover forcibly.
3. Take out the ribbon cartridge, and then turn the ribbon knob in the direction shown by the arrow to tighten the ribbon.
4. Insert one side of the ribbon cartridge with the ribbon knob on the right, and then press down another side until the ribbon is locked in place.
5. Turn the ribbon knob in the direction shown by the arrow again to tighten the ribbon.

6. Close the rear cover and front cover and the installation is finished.

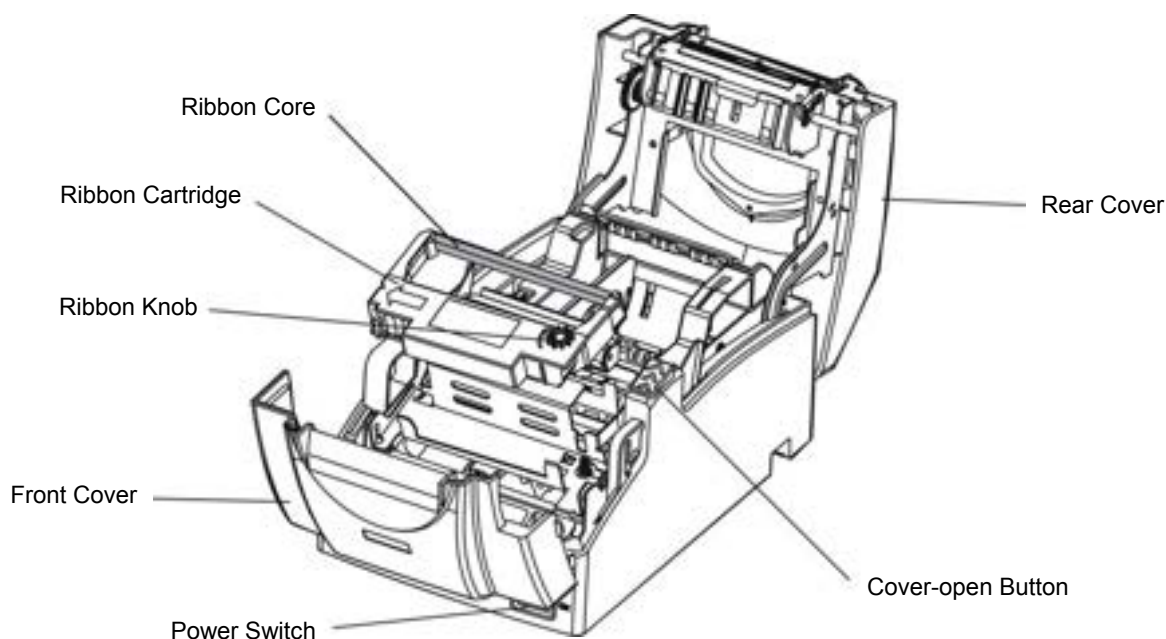


Figure 2-8 Installing the ribbon cartridge

Caution: Don't move the print head when the printer is powered on, or else, it may damage the printer. Moreover, don't touch the print head if the printer has just been used as the print head may be hot.

- Note:**
1. When your print becomes faint, you need to replace the ribbon cartridge. Otherwise, the print quality will be affected and the print head may be damaged.
 2. To remove the old ribbon cartridge, firstly, make sure the power is turned off, then as the above figure shows, hold the ribbon cartridge with your thumb and middle finger, and then lift up the left side of the ribbon cartridge, and then take out the ribbon cartridge. Install a new one as the above steps.
 3. Please use the original ribbon cartridge only. Manufacturer will not honor warranty when using unauthorized ribbon cartridge.
 4. Please turn the ribbon knob in the direction as the arrow shows.

2.6 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:

2.6.1 Auto-installing Way (Recommended)

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

Note: Auto-installing way needs the operating systems of Windows 2000 and above and the operating systems of Window 98/ME and below are not supported.

2.6.2 Hand-operated Installing Way

Note: This installing way is used for people who have some knowledge on operating systems and equipment application.

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

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

In the following, Windows XP is taken as an example to show the installing steps. 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 a window of "Add Printer Wizard" pops up, click "Next", then please read the select guide carefully, for example: 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 "COM1: (serial interface)" or other 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 until the installation is finished.

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

In the following, Windows XP is taken as an example to show the installing steps. 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 "Install 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 until the installation is finished.

2.6.2.2 The Operating System of Windows 8/Windows 10

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

1. Enter "Control Panel" → "Device and Printers".
2. Click "Add Printer", then a window of "Add Printer" pops up, 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)", "COM1: (serial interface)", USB interface or other 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" → "WIN8(WIN10)", click "Open", then click "OK" to return to the window of "Install Printer Driver", click "Next".

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

2.6.2.3 The Operating System of Windows 98

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

1. Click "Start" → "Settings" → "Printers".
2. Double click "Add Printer", then a window of "Add Printer Wizard" pops up, select "Local Printer" in the "Local or Network Printer" window, then click "Next".
3. A window of "Click the manufacturer and model of your printer" pops up, click "Have Disk...", please click "Browse", select the path as 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 "LPT1: (Recommended Printer Port)", or "COM1: (serial interface)" or other 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)" → "USBdriver", then click "OK".
5. Return to the window of "Add New Hardware Wizard", click "Next"; a window of "Windows driver file search for the device" pops up, click "Next".
6. After the system finishing installing the file automatically, a window of "Jolimark USB Printer Supported" pops up, click "Finish".
7. The printer USB driver process is installed successfully.

USB printer driver installing steps:

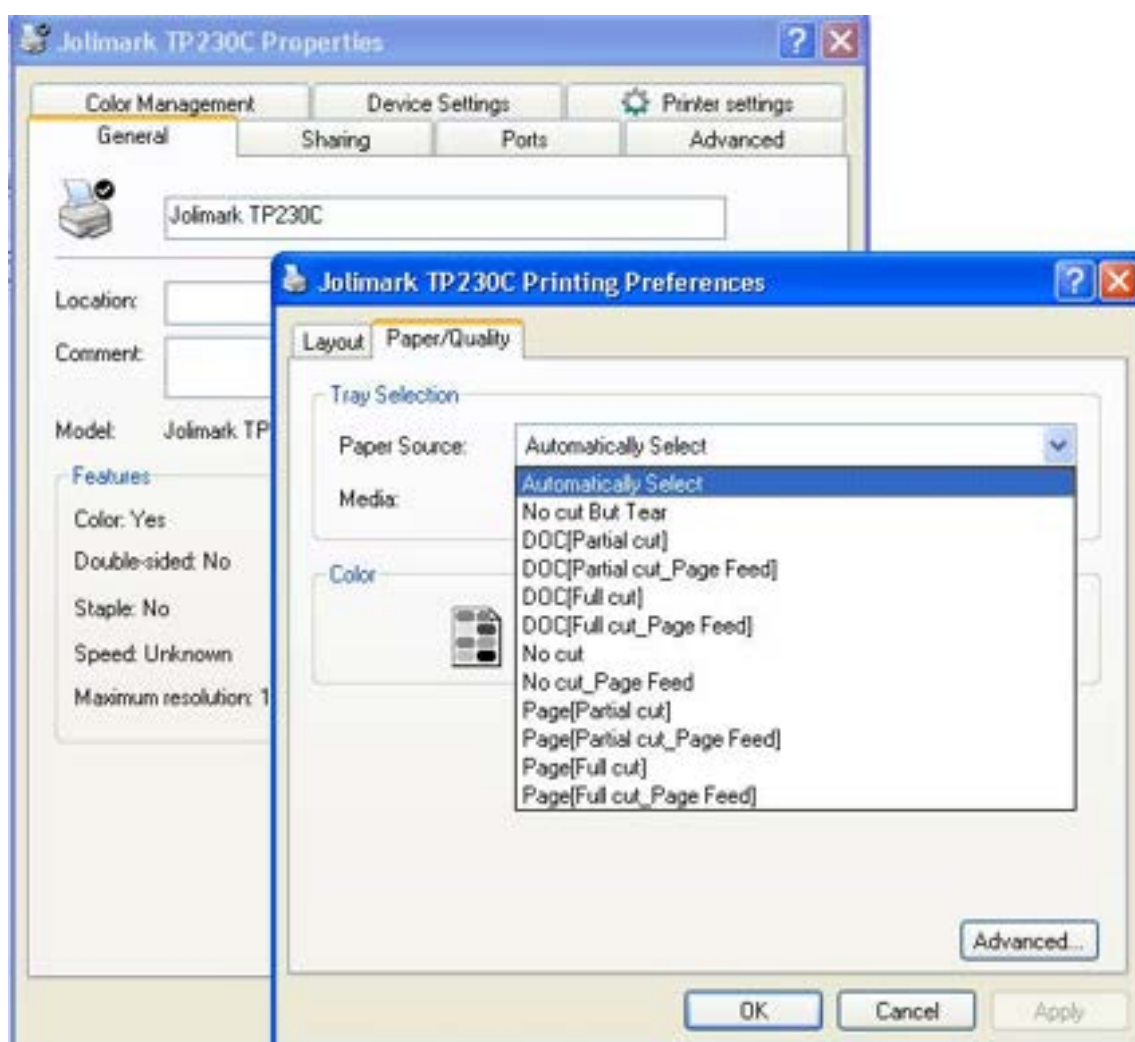
1. Click "Start" → "Settings" → "Printers".
2. Double click "Add Printer", then a window of "Add Printer Wizard" pops up, click "Next".
3. A window of "Click the manufacturer and model of your printer" pops up, click "Have Disk...",

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.

2.7 Selecting the Cutter

This printer supports several cutting modes; please select the cutting mode 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.

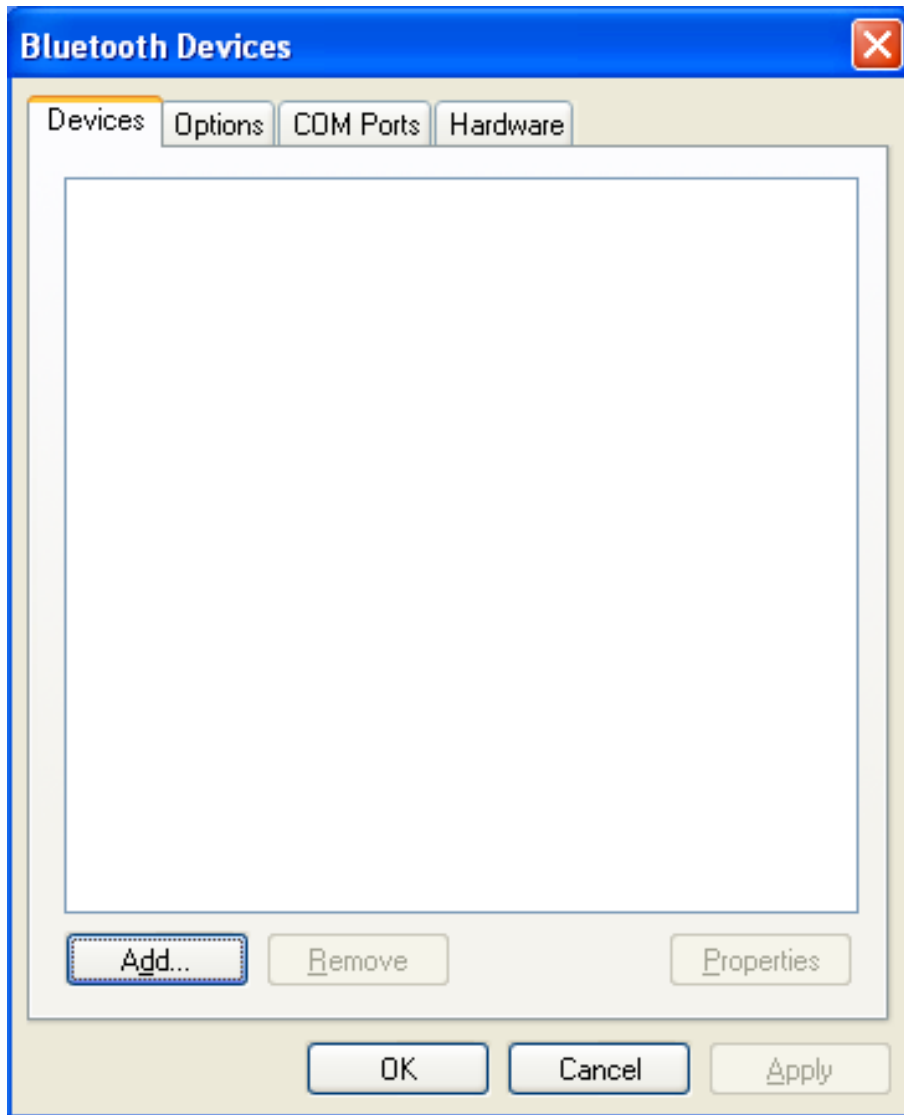


2.8 Installing Bluetooth Interface Driver

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.

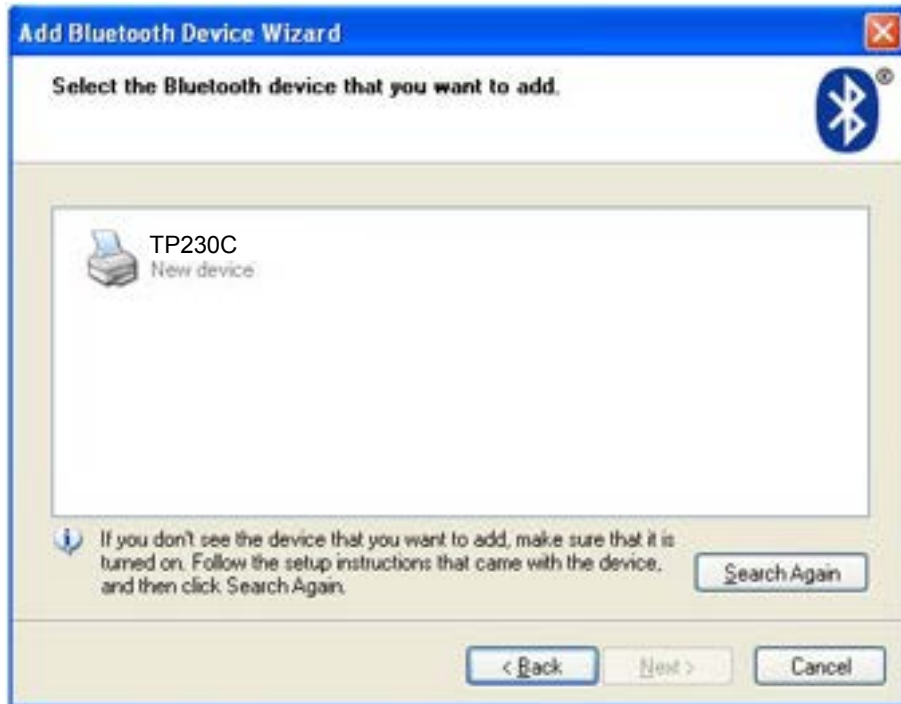
2. Turn on the printer, search Bluetooth device in Window XP system, and click "Add".



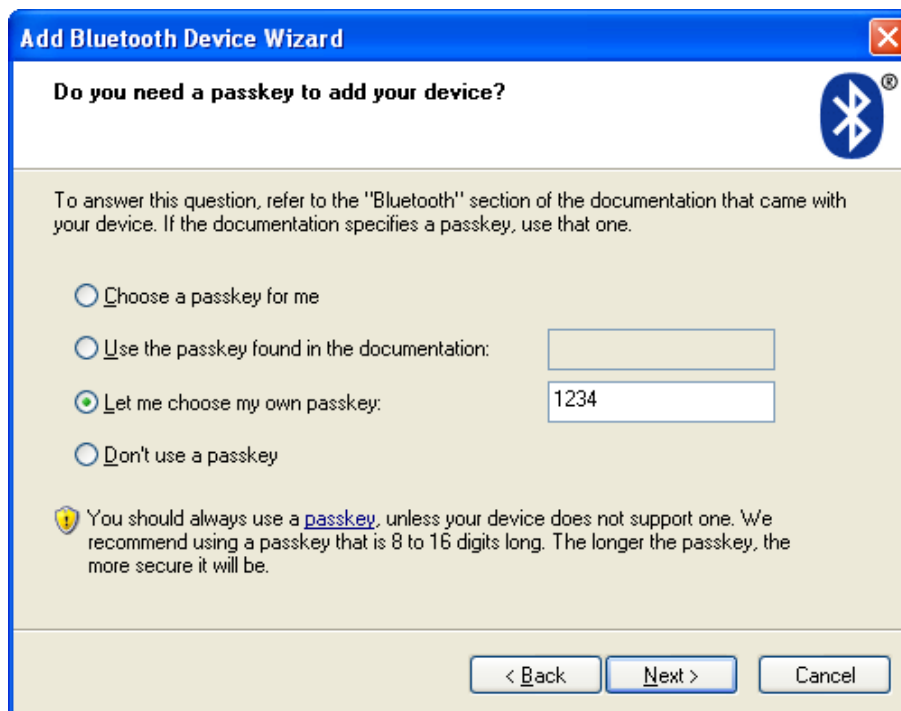
3. Tick off the option of "My device is set up and ready to be found." Click "Next" to continue.



4. Select the "TP230C", 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.

8. After adding the Bluetooth port in the operating system, please install the printer driver by auto-installing way.
9. Select the virtual serial interface which is started with "JMCOM" in the port list of the driver, the port name is corresponding to the serial port number generated by the above steps.
10. Under some circumstances, files and port will be updated after restarting the operating system, if there is no corresponding port after installing the driver, please restart the operating system.

2.9 Network Settings

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

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

2.9.1 Connecting Printer

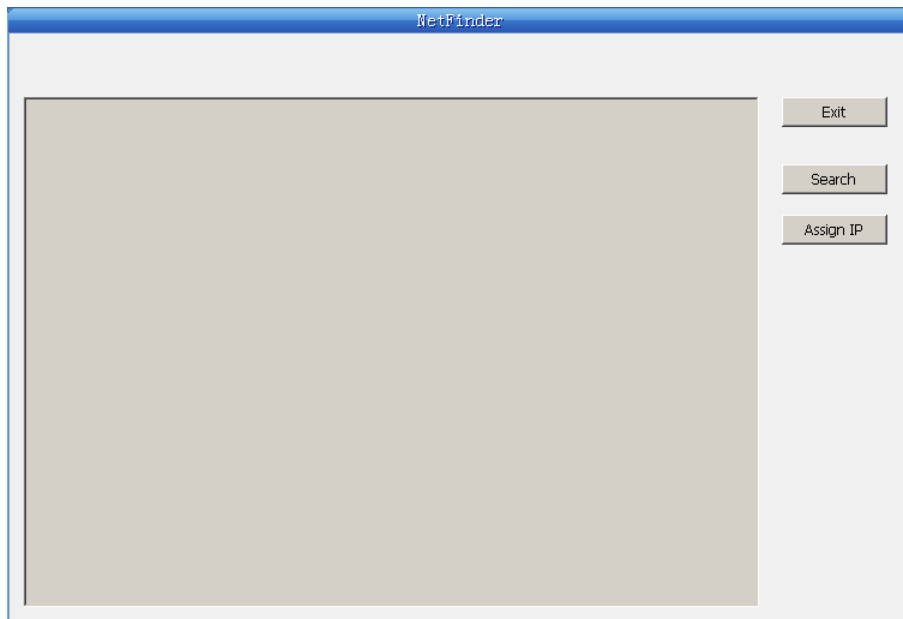
Power on the printer, connect with the Ethernet cable which has been connected to LAN, and look into the information of Ethernet LED indicator to ensure the printer has entered into the normal connection.

| Orange LED | Green LED | Description |
|------------|-----------|---------------------------|
| ON | Blink | Connecting to network |
| OFF | OFF | Not connecting to network |

2.9.2 Setting IP Address

1. Run NetFinder software

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



Button description:

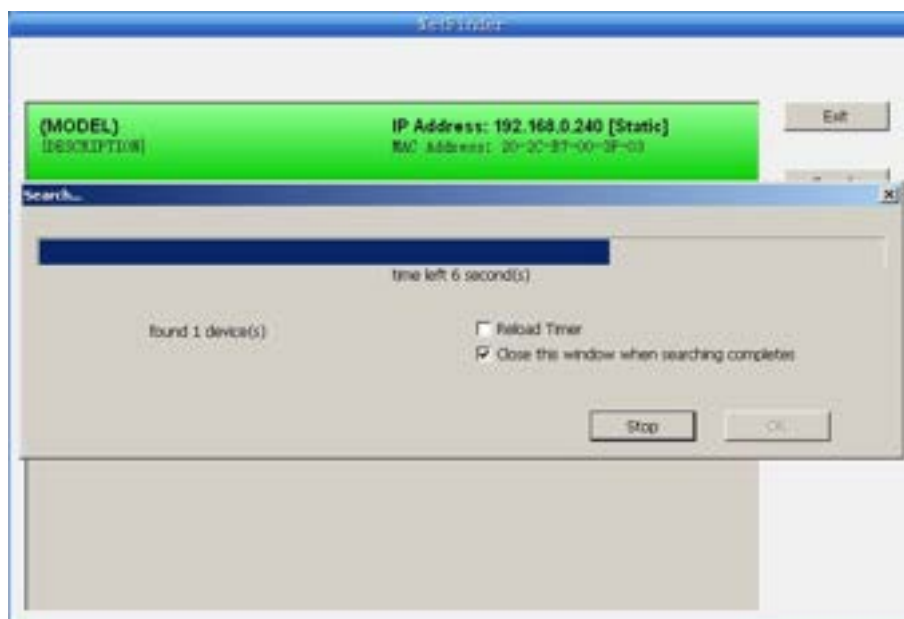
Exit — Exit from the software

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 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.

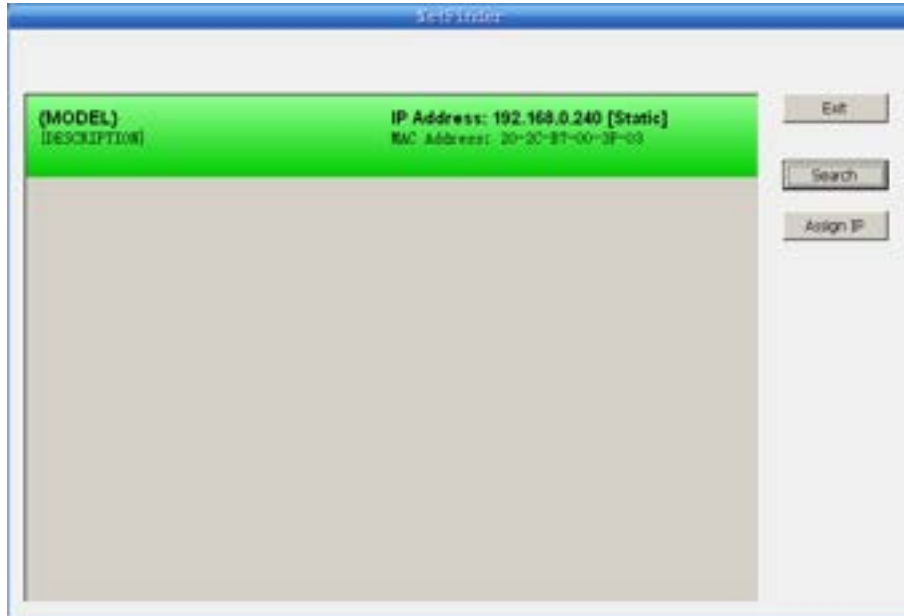


If the printer connects correctly, the IP address can be found in a search period.

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 the fire wall is open, 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 is the IP and MAC address. What's more, the assign mode (dynamic/static) is noted behind the IP address.



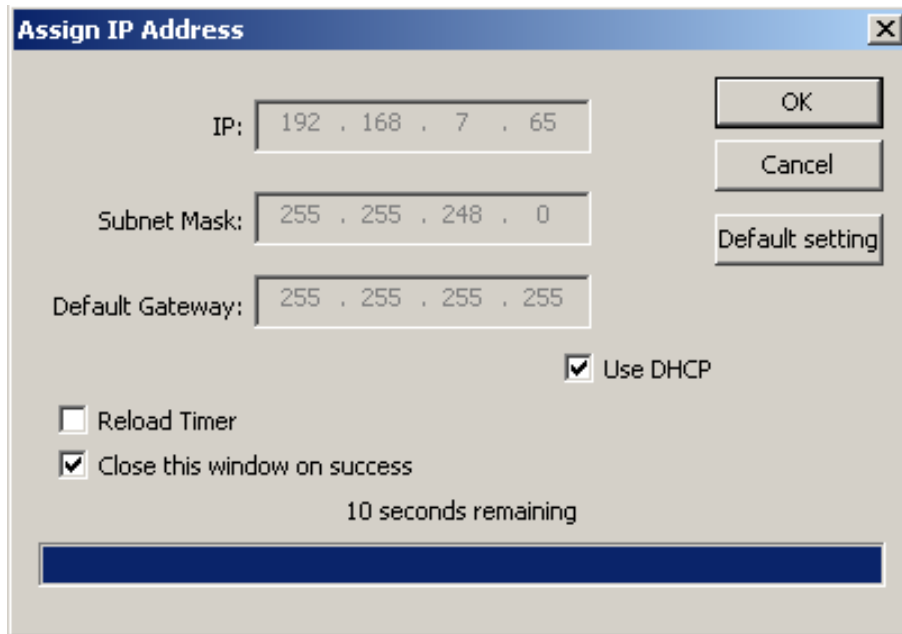
1) Correlative description for IP address settings

In order to search and set printer's IP address conveniently for the first time, the factory default setting is DHCP mode which assigns IP address dynamically. If there is no DHCP server in the connected LAN but printer is set to DHCP mode, 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 is 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 occupied IP). It is not restricted for NetFinder to search printers in the same network but different segment parts (can not stride gateway). Please refer to corresponding information for relative glossary of IP address.

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.



The image shows a Windows-style dialog box titled "Assign IP Address". It contains three input fields for static IP configuration: "IP:" with the value "192 . 168 . 7 . 65", "Subnet Mask:" with "255 . 255 . 248 . 0", and "Default Gateway:" with "255 . 255 . 255 . 255". To the right of these fields are three buttons: "OK", "Cancel", and "Default setting". Below the input fields, there are three checkboxes: "Use DHCP" (checked), "Reload Timer" (unchecked), and "Close this window on success" (checked). At the bottom, a progress bar is shown with the text "10 seconds remaining" above it.

Check the "Use DHCP" if you 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. 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 and restarting the printer.

3) Record printer's IP address

Record 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)".

2.10 Wi-Fi Setting of Jolimark Printer

2.10.1 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 successfully.

(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 by "the printer model+10 SN numbers" (as shown in Figure 1)

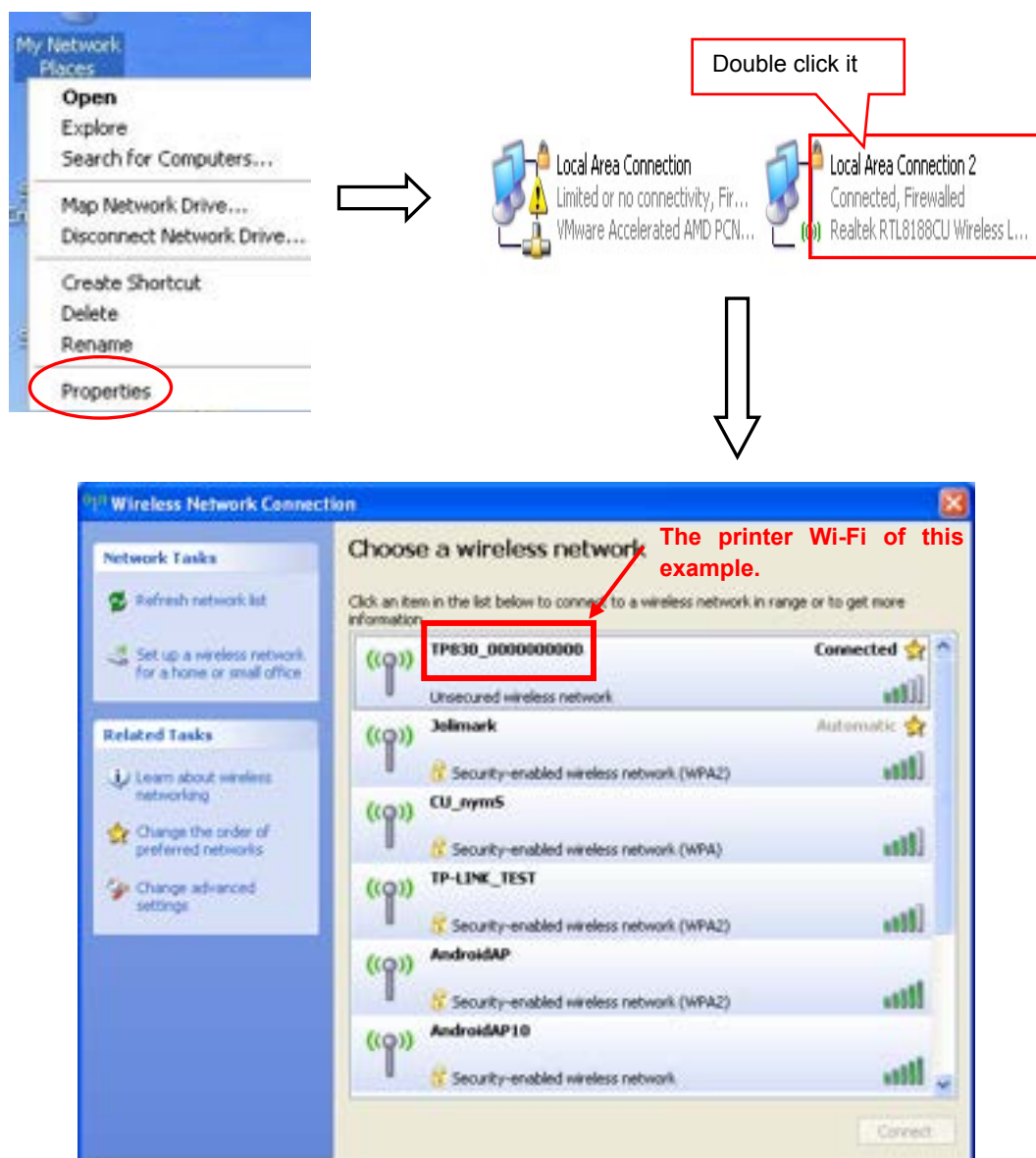


Figure 1

(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 by "the printer model+10 SN numbers" (as shown in Figure 2).

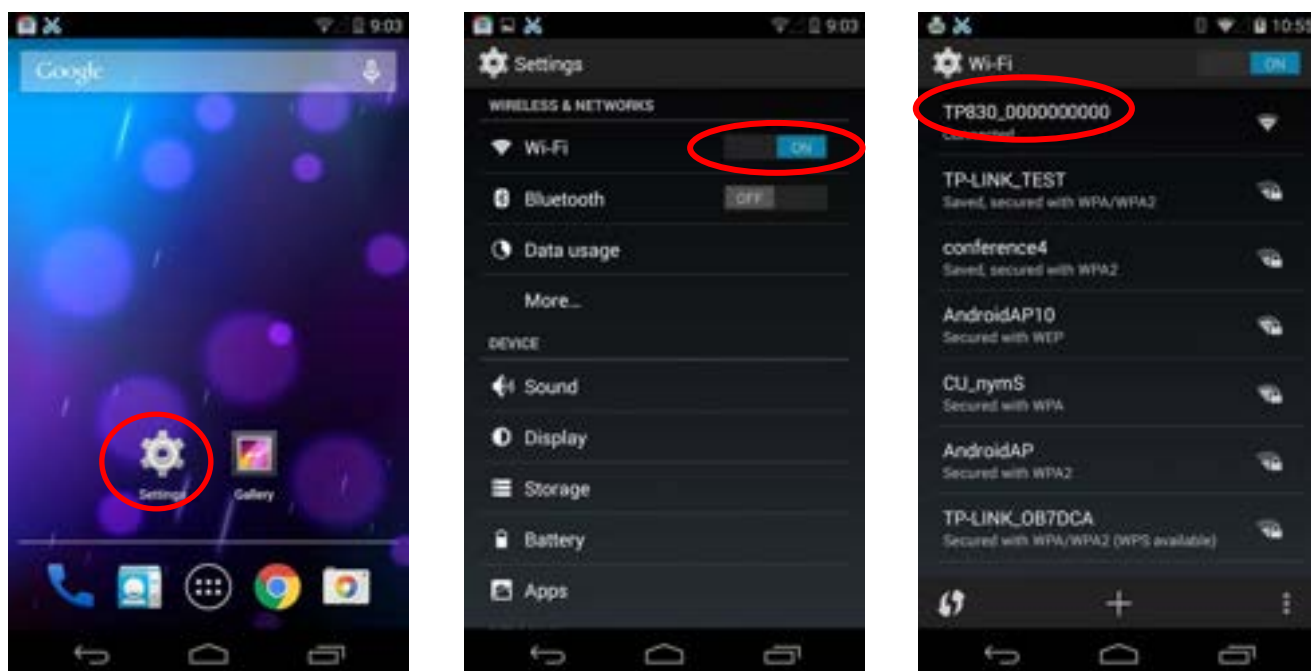
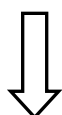


Figure 2

(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 by "the printer model+10 SN numbers" (as shown in Figure 3).



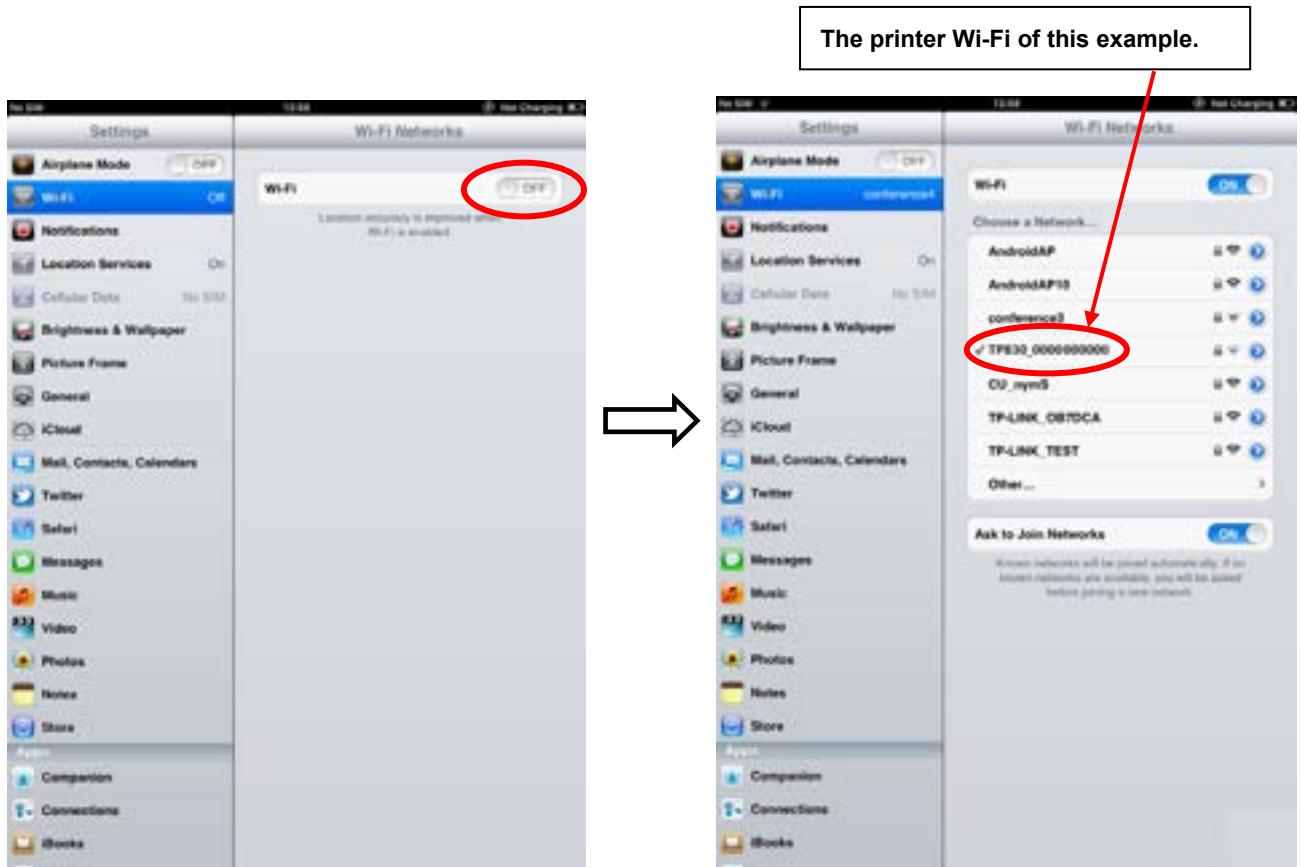


Figure 3

2.10.2 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.

The screenshot displays the configuration page of the TP230C device. At the top, the 'F/W Version' is 1.0.306, dated Dec 5 2014. Below this is the 'Select Language' dropdown menu, currently set to 'English', with an 'Apply' button underneath. The 'Wireless Settings' section includes fields for 'BSSID' (CC-D2-9B:35:43:7C), 'Network Name(SSID)' (TP830_0000000000), 'IP Address' (10.10.10.1), 'Subnet Mask' (255.255.255.0), and 'Security Mode' (Disable). The 'AP Client' section includes fields for 'BSSID' (CC-D2-9B:35:43:7D), 'Channel' (Auto), 'SSID' (empty), 'Security Mode' (OPEN), 'Encrypt Type' (None), and 'Address Assignment' (DHCP (Auto config)).

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).

The figure consists of two screenshots. The top screenshot shows the 'Select Language' dropdown menu open, displaying three options: '简体中文 (Simple Chinese)', 'English', and '繁體中文 (Traditional Chinese)'. The bottom screenshot shows the 'Select Language' dropdown menu closed, with '简体中文 (Simple Chinese)' selected. The 'Apply' button is circled in red, indicating the next step to confirm the language change.

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 fill 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.

| Wireless Settings | |
|--------------------|-------------------|
| BSSID | CC:D2:9B:00:00:52 |
| Network Name(SSID) | TP830_0000000000 |
| IP Address | 10.10.10.1 |
| Subnet Mask | 255.255.255.0 |
| Security Mode | Disable |

| AP Client | |
|--------------------|--------------------|
| BSSID | CC:D2:9B:00:00:53 |
| Channel | Auto |
| SSID | |
| Security Mode | OPEN |
| Encrypt Type | None |
| Address Assignment | DHCP (Auto config) |
| IP Address | |
| Subnet Mask | |
| <div>Apply</div> | |

| Update Firmware | |
|-----------------|---|
| Location: | <input type="text"/> <div>Browse...</div> |

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 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.

| AP Client | |
|--------------------------------------|----------------------|
| BSSID | CC:D2:9B:00:00:53 |
| Channel | Auto ▼ |
| SSID | <input type="text"/> |
| Security Mode | OPEN ▼ |
| Encrypt Type | None ▼ |
| Address Assignment | DHCP (Auto config) ▼ |
| IP Address | <input type="text"/> |
| Subnet Mask | <input type="text"/> |
| <input type="button" value="Apply"/> | |

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).

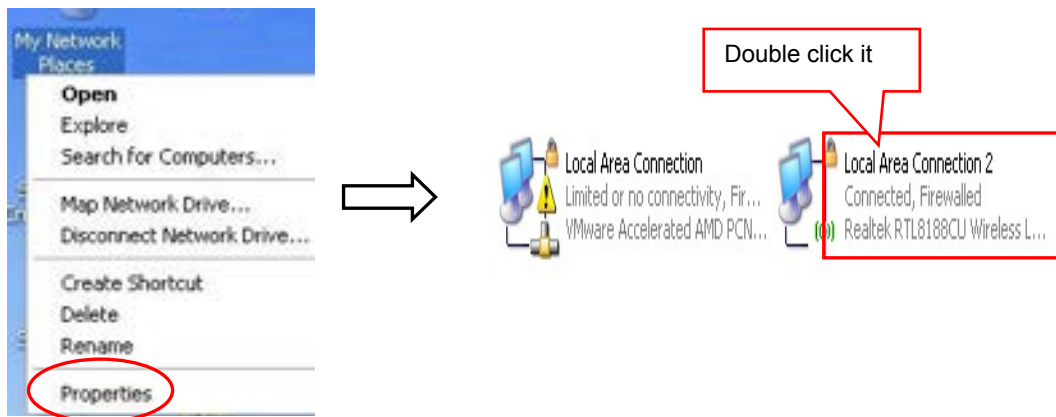


Figure 8

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

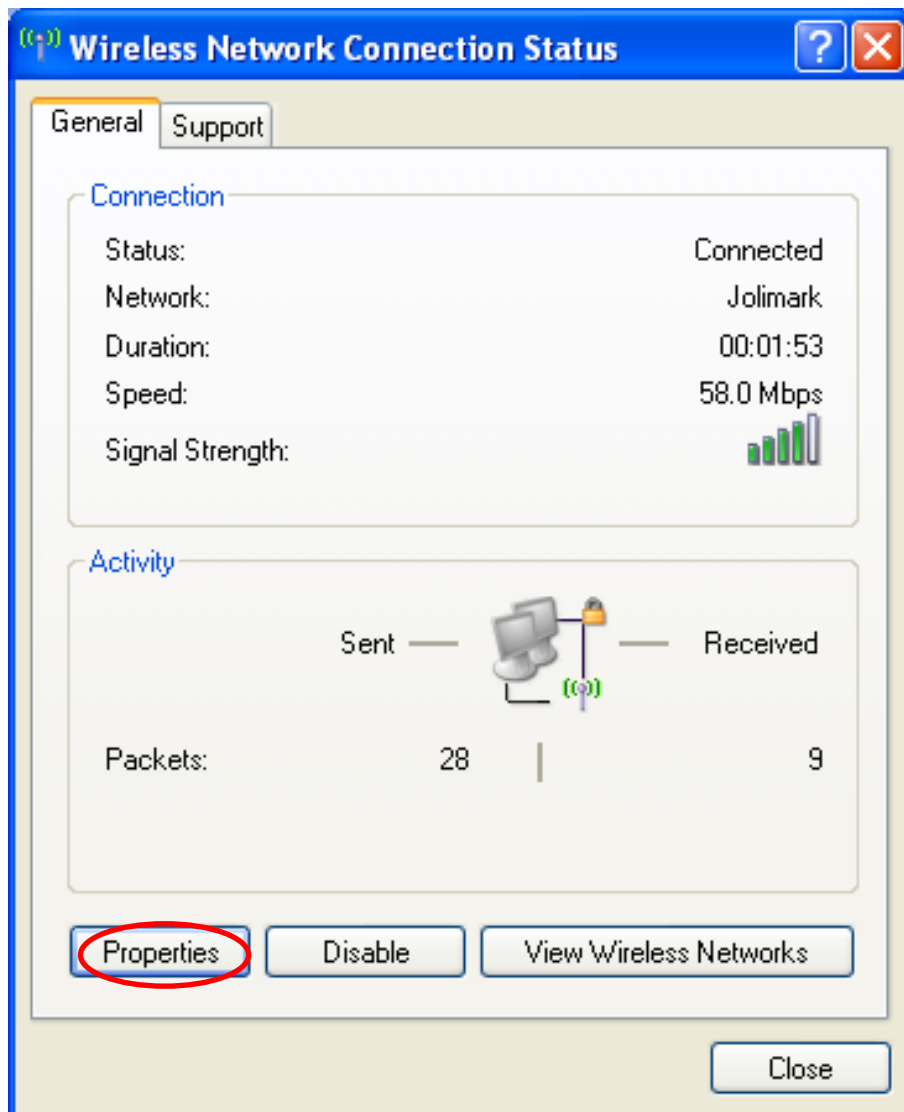


Figure 9

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

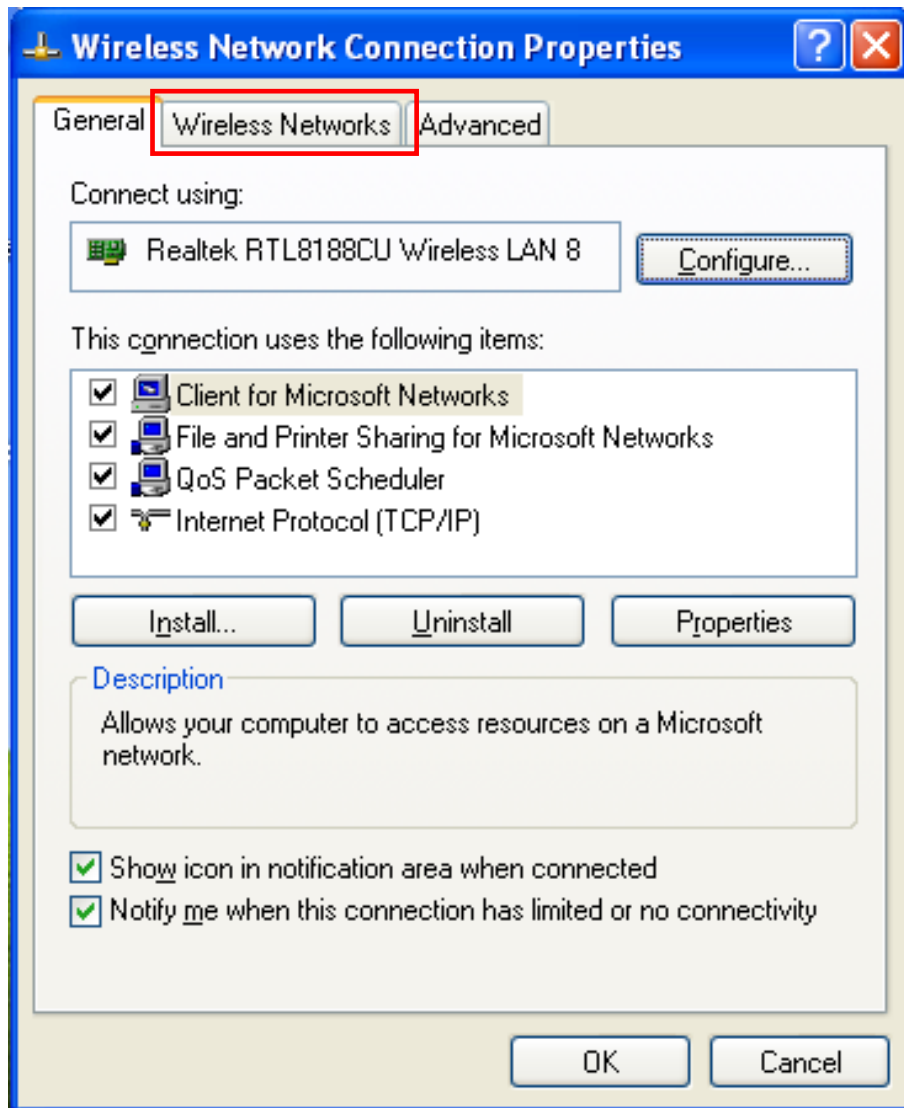


Figure 10

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

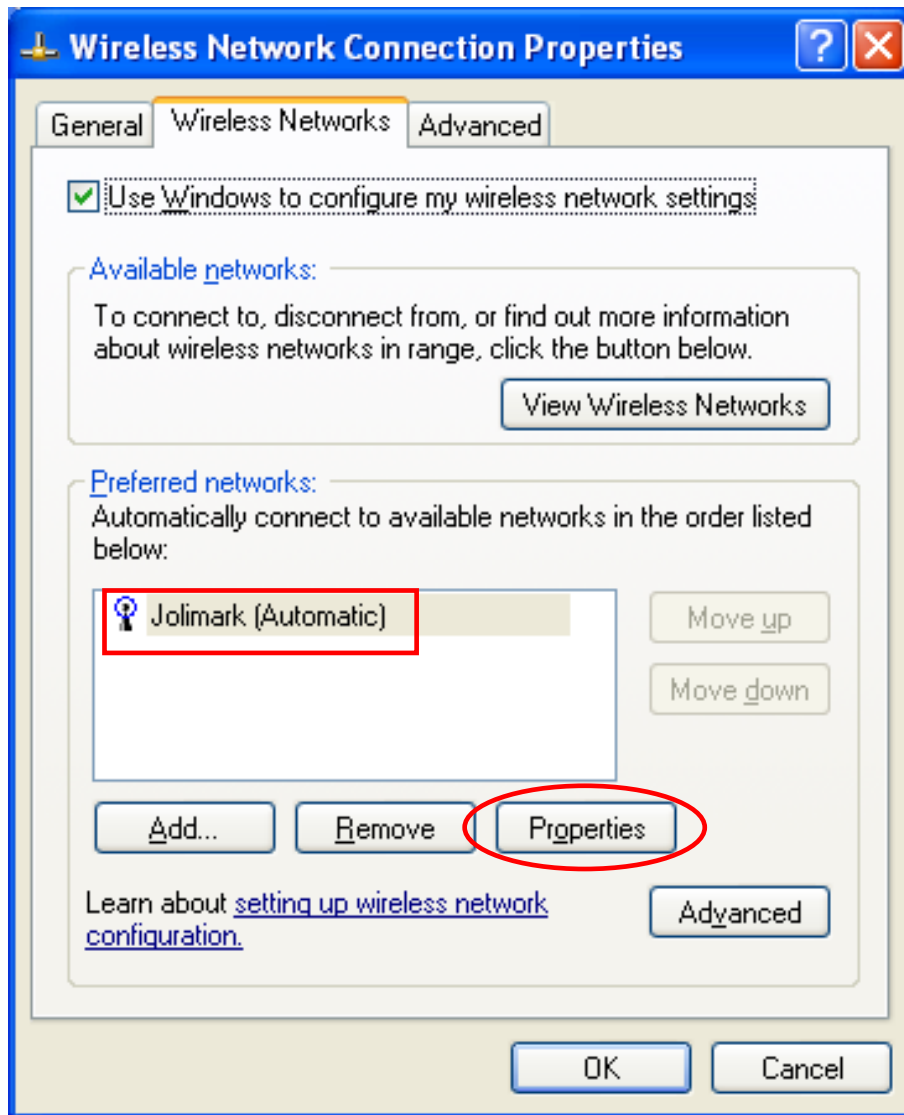


Figure 11

- 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).

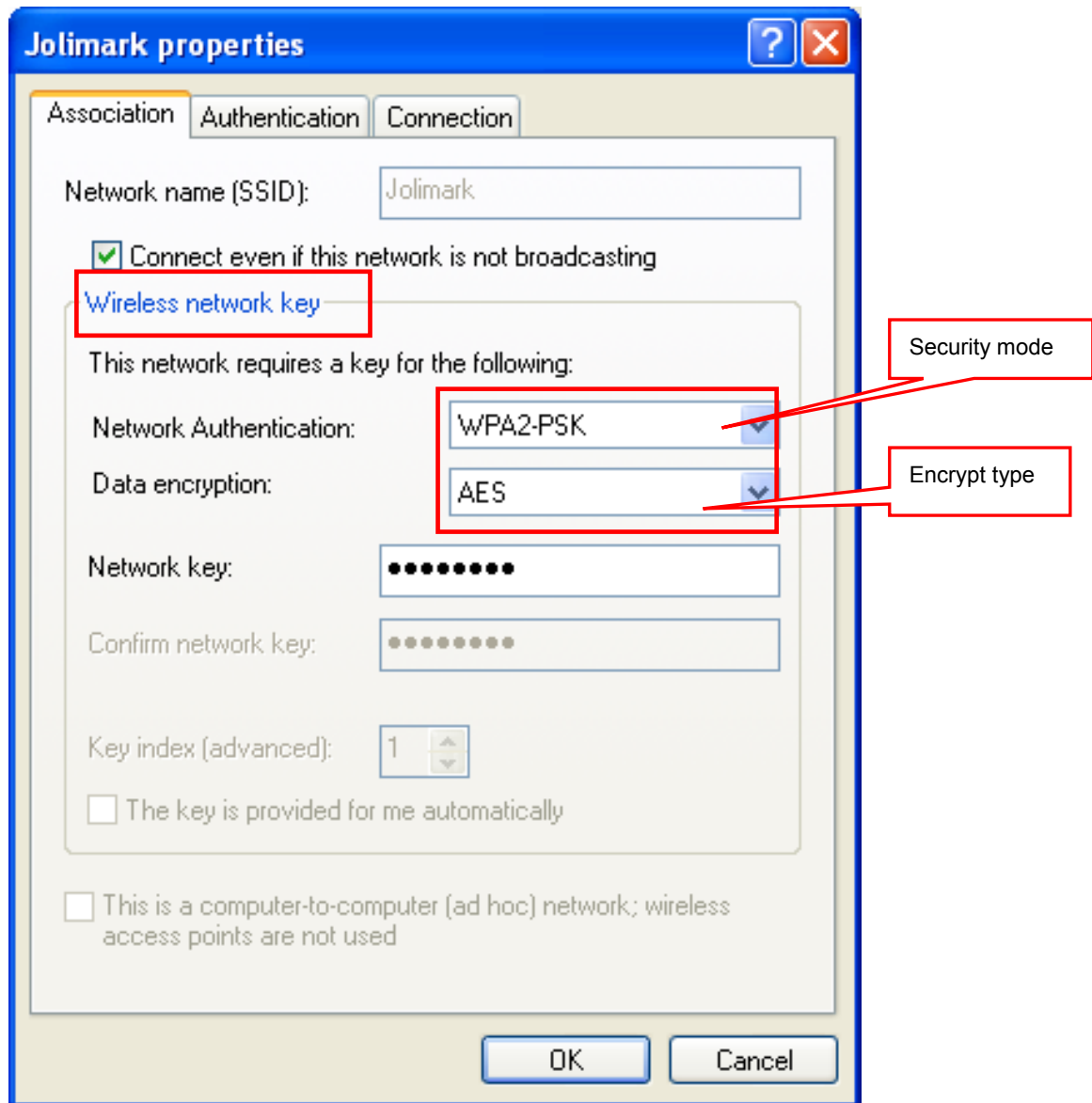


Figure 12

- 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).

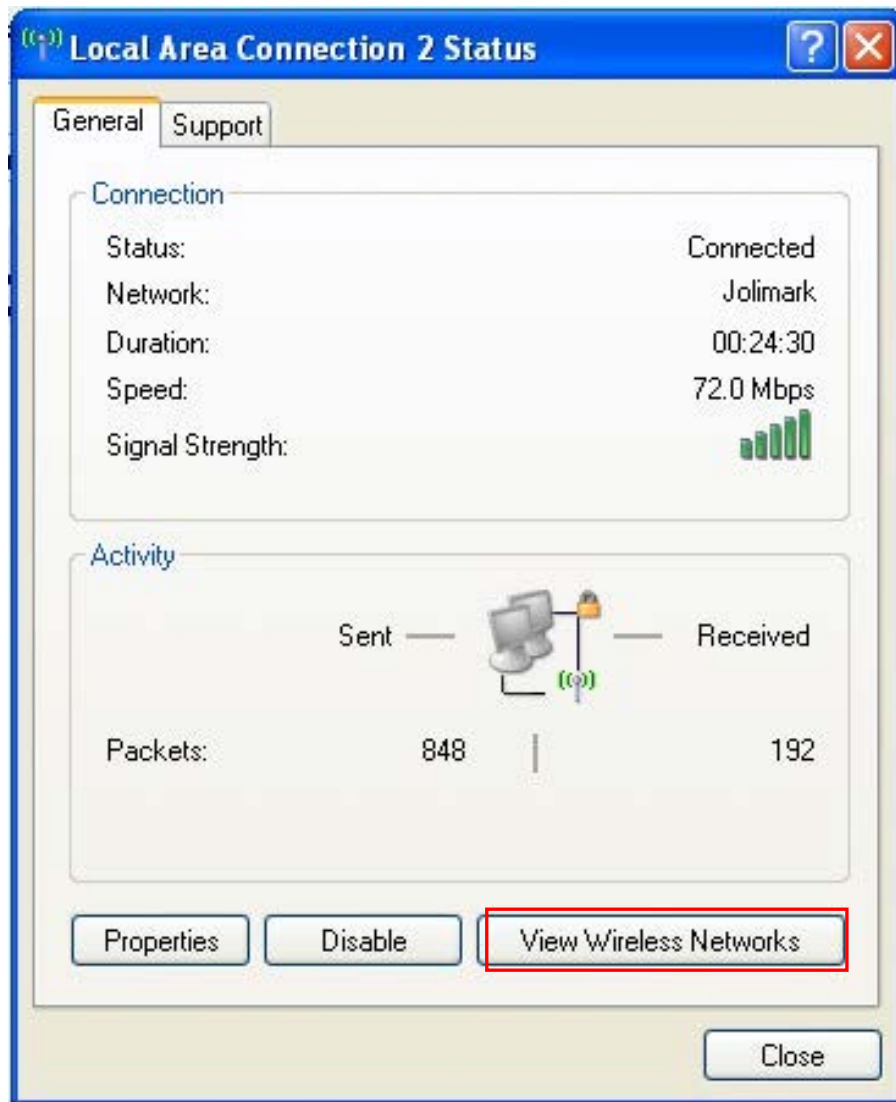


Figure 13

The current Wi-Fi hotspot of this example.

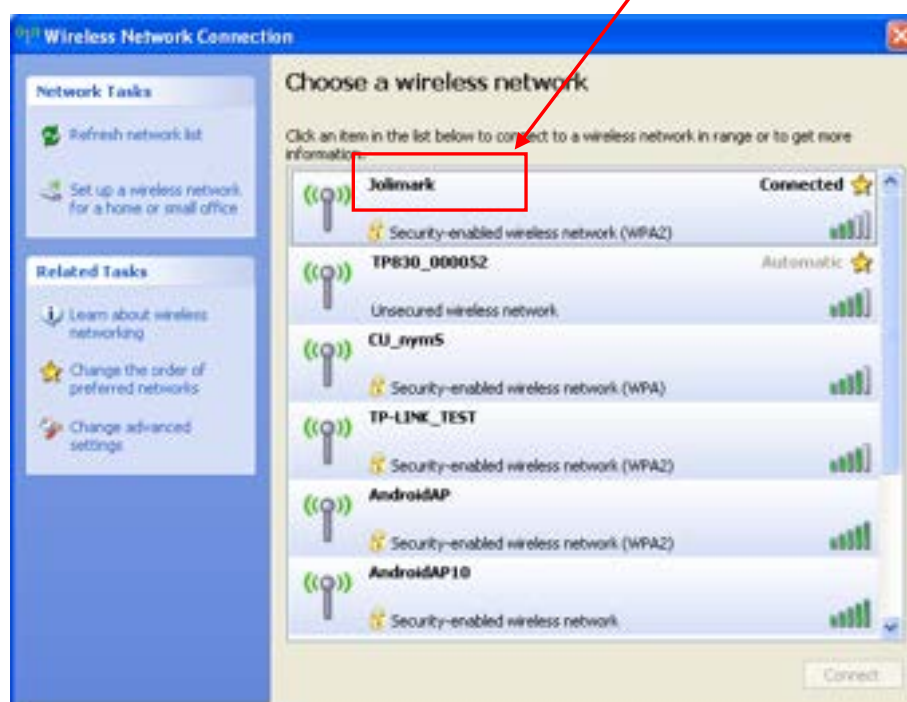


Figure 14

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).


| AP Client | |
|--------------------------------------|--|
| BSSID | CC:D2:9B:00:00:53 |
| Channel | 1 |
| SSID | Jolimark  |
| Security Mode | WPA2PSK |
| Encrypt Type | AES |
| Pass Phrase | •••••••• |
| Address Assignment | DHCP (Auto config) |
| IP Address | 192.168.43.129 |
| Subnet Mask | 255.255.255.0 |
| <input type="button" value="Apply"/> | |

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.

| Update Firmware | |
|--|---|
| Location: | <input type="text"/> <input type="button" value="Browse..."/> |
| <p style="color: red;">It takes about 1 minute to upload and upgrade flash and be patient please. Caution! A corrupted file will hang up the system.</p> | |
| <input type="button" value="Apply"/> | |

Figure 16

2.10.3 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.

2.11 Mobile Equipment Wi-Fi Printing Function Application

The Jolimark printer which is equipped with Wi-Fi interface supports the print service of Android system 4.4 or above version and the AirPrint wireless printing function of iPhone iOS system. After the Android mobile equipment has installed the Jolimark print service plug-in, it can directly use the system print service to realize wireless printing; the iPhone iOS equipment does not need to install any plug-in.

Note: 1. Only if wireless printing function is supported by the APP can it be used.

2. The Android system must be 4.4 or above version and should have the complete Android Print function.

TP830 which is equipped with Wi-Fi interface is taken as an example to describe printing application. Network name (SSID) is "TP830", IP Address is 10.10.10.1, Subnet Mask is 255.255.255.0 and Security Mode is "Disable". Turn on the printer and then conduct the subsequent application steps. As shown in Figure 17.



Figure 17

2.11.1 The System Print Service Application of Android Equipment

As the Android system is relatively open, the equipment manufacturers can customize the special interface and function according to their need. The parameter setting way may be different because of the different interfaces.

1. Install the print service

Download the print service installation package AdrPrintSvc.apk from www.jolimark.com. After

running the installation program, the “JM Print Service” will be added in the Android system.

2. Connect Wi-Fi printer

2.1 Enter into the “Settings” of system, as shown in Figure 18.

2.2 Find out the “WIRELESS & NETWORKS” in “Settings” interface, then click “Wi-Fi”, as shown in Figure 19.

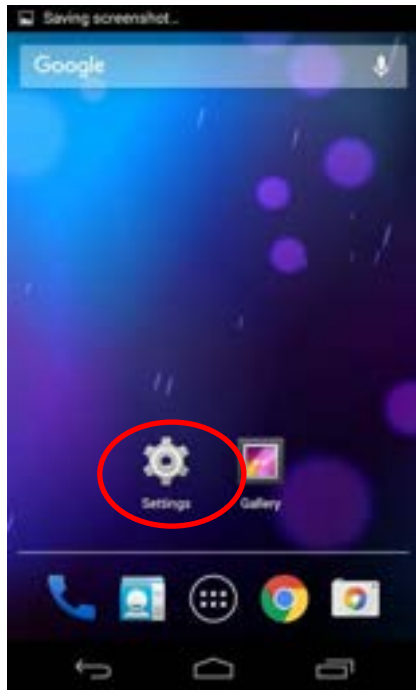


Figure 18



Figure 19

2.3 Select the “Wi-Fi” function to “ON”, and select the “TP830” hotspot, as shown in Figure 20.



Figure 20

3. Turn on the print service

3.1 Enter into the “Settings” of the system, as shown in Figure 18;

3.2 Find out “Printing” in “Settings” interface and enter into, as shown in Figure 21;

3.3 Find out “JM Print Service” in “Printing” interface and enter into, as shown in Figure 22;

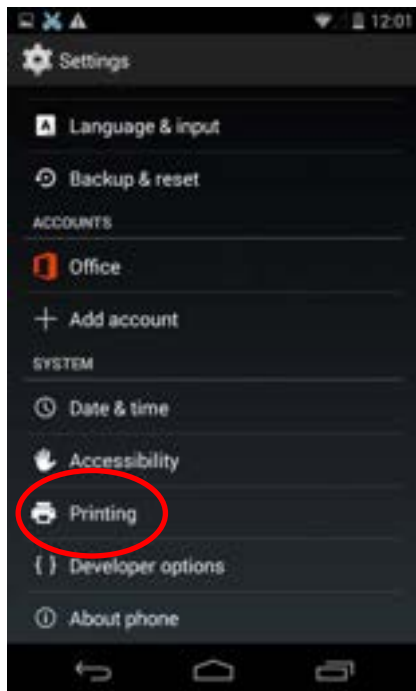


Figure 21

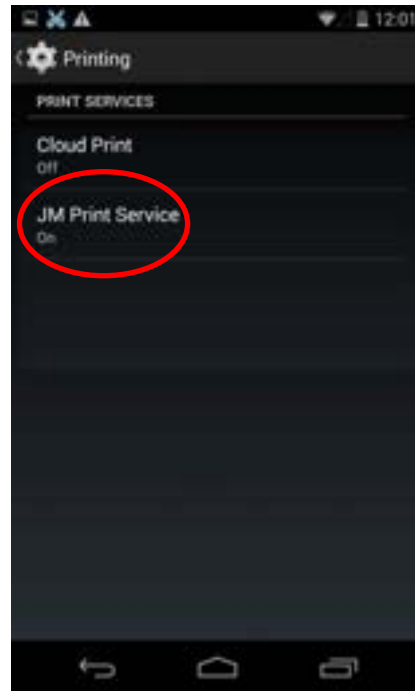


Figure 22

3.4 Switch the “JM Print Service” function from “OFF” to “ON”, as shown in Figure 23;

Note: If there is no function switch in the upper right of “JM Print Service” interface, it means the current system has no complete Android Print function; it does not support the system print service.

3.5 After turning on the “JM Print Service”, it will search automatically and show the printer if found, as shown in Figure 24.

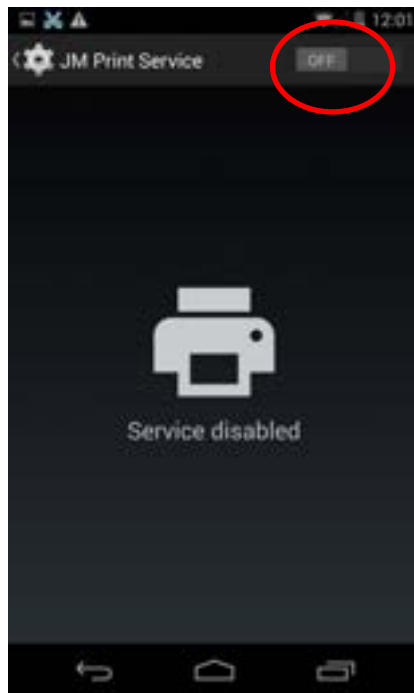


Figure 23

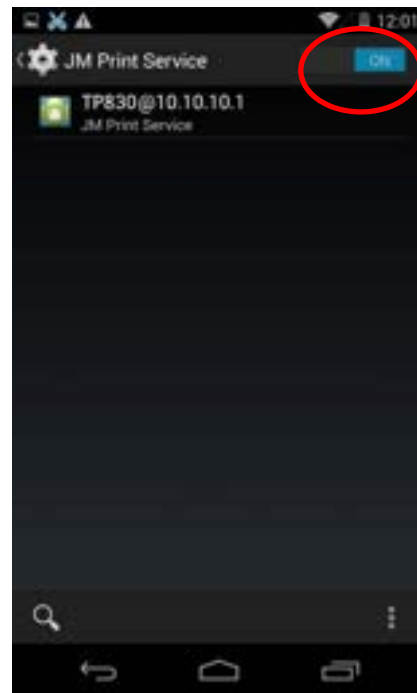


Figure 24

4. Run APP

APP has to support the system's print service, WPS Office is taken as an example to describe.

4.1 Run the APP "WPS Office", as shown in Figure 25;

4.2 Open the document which is to be printed in the software, then click the "Tools" button, as shown in Figure 26;

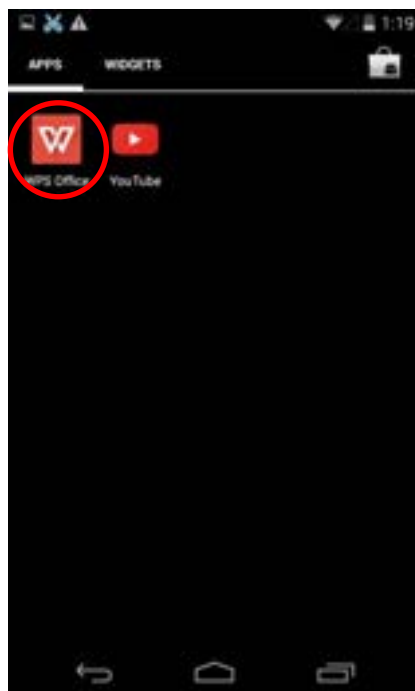


Figure 25



Figure 26

4.3 When the menu pops up, select "Print", as shown in Figure 27;

4.4 When the "Print" interface pops up, click "Print", as shown in Figure 28;

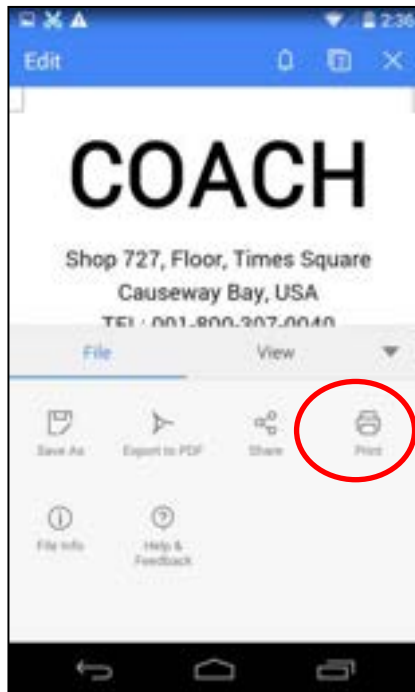


Figure 27

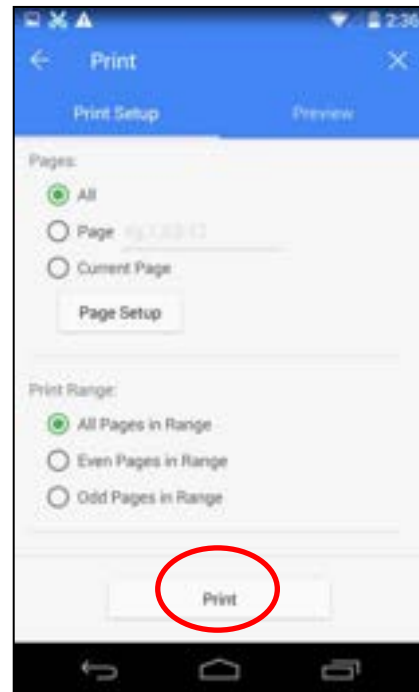


Figure 28

4.5 When the “Select Print Service” interface pops up, select “System Print Service”, as shown in Figure 29;

4.6 Select “TP830@10.10.10.1”, as shown in Figure 30;

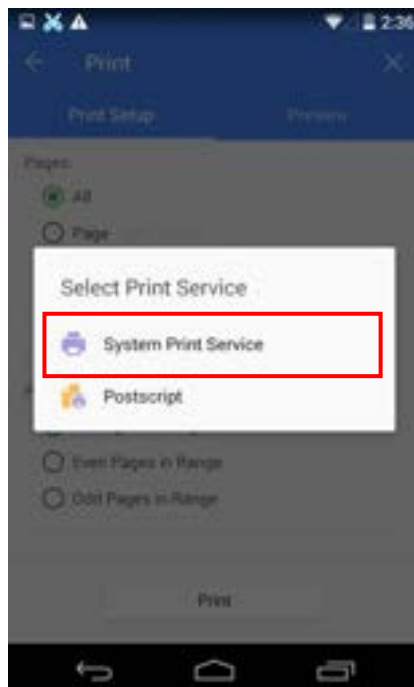


Figure 29

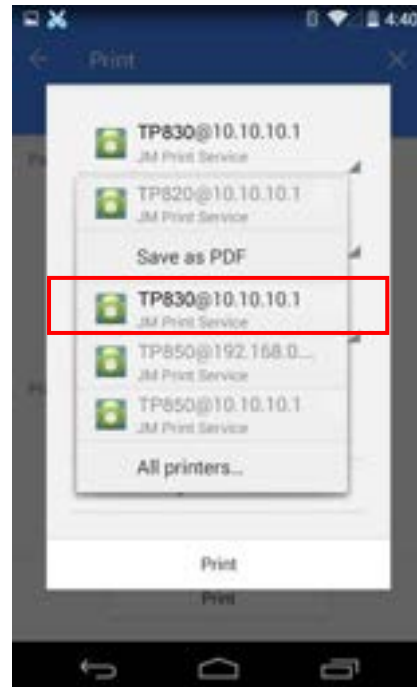


Figure 30

4.7 Make sure the printer and the corresponding printing parameters are correct, click “Print”, as shown in Figure 31;

4.8 The system sends print data to the printer, when the printer finishes receiving, a prompt “Print job completed!” will be shown, as shown in Figure 32.

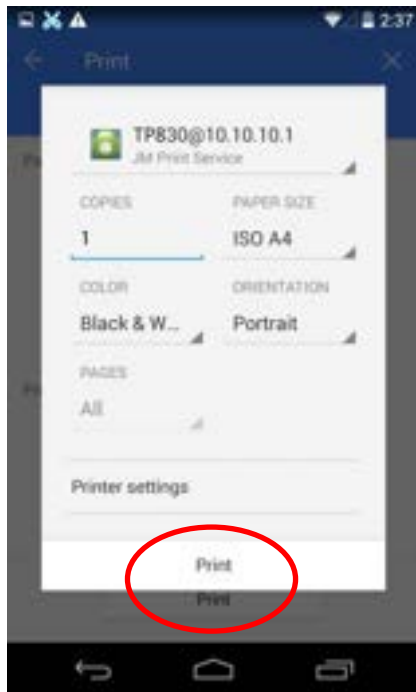


Figure 31

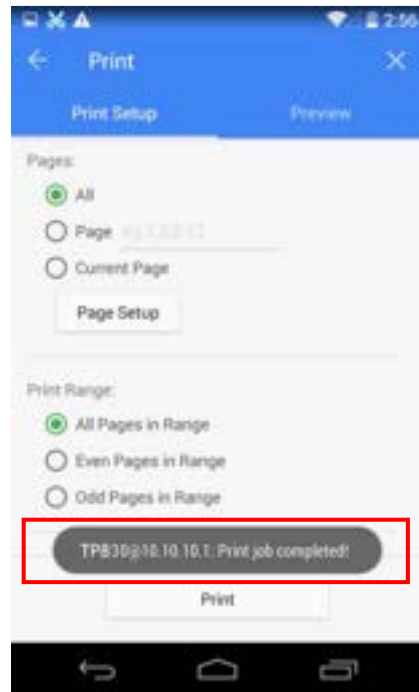


Figure 32

2.11.2 AirPrint Printing Application of iPhone iOS Equipment

iPhone iOS equipment used in this example is iPad Air2, iOS system version is 9.1. The application situation of other iOS equipment or system version may be different to this example.

1. Connect Wi-Fi printer

1.1 Enter into the "Settings" of the system, as shown in Figure 33;

1.2 Find out "WLAN" in "Settings" interface and enter into, as shown in Figure 34;

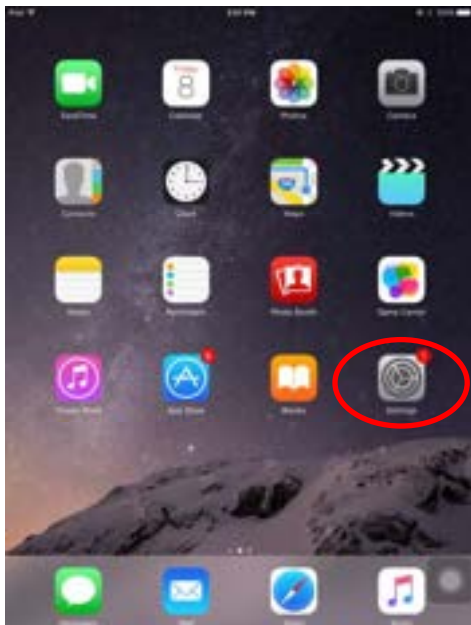


Figure 33



Figure 34

1.3 Turn on the "WLAN" function, equipment will search automatically and show the current hotspot, as shown in Figure 35;

1.4 Select the “TP830” hotspot, as shown in Figure 36;



Figure 35



Figure 36

2. Run APP

As the interface designs of APP are different, the operating way of printing function will also be different. “Word” is taken as an example to describe.

2.1 Install and run “Word”, as shown in Figure 37;

2.2 Open the document which is to be printed, as shown in Figure 38;

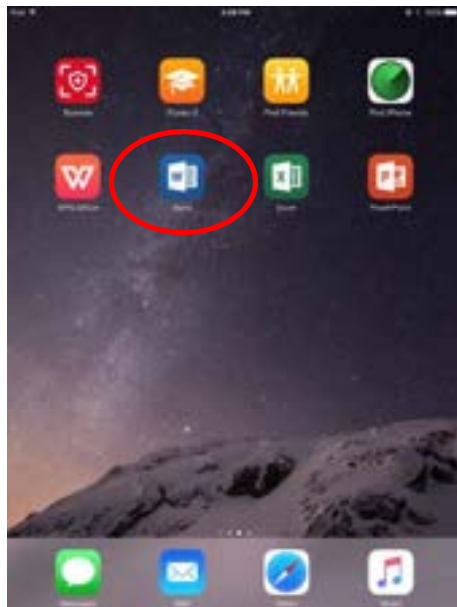


Figure 37

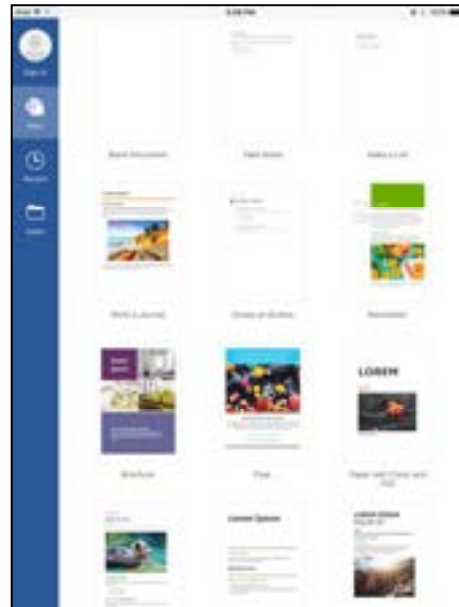


Figure 38

2.3 Click the menu icon on the upper left of the “Word” software interface, as shown in Figure 39;

2.4 When the menu pops up, click “Print”, as shown in Figure 40;



Figure 39

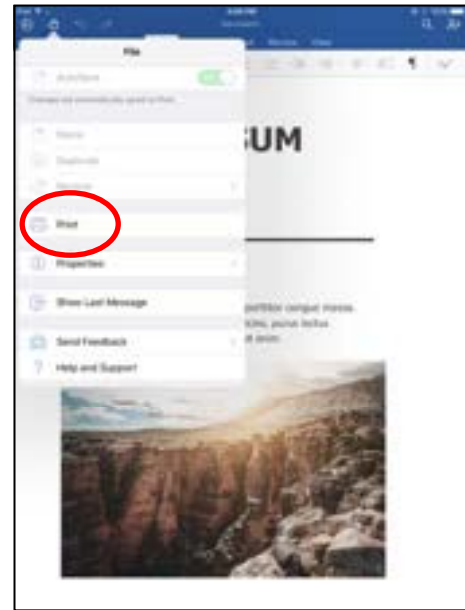


Figure 40

- 2.5 When the “Printer Options” interface pops up, click “Select Printer”, as shown in Figure 41;
 2.6 Select “TP830” in the list, as shown in Figure 42;

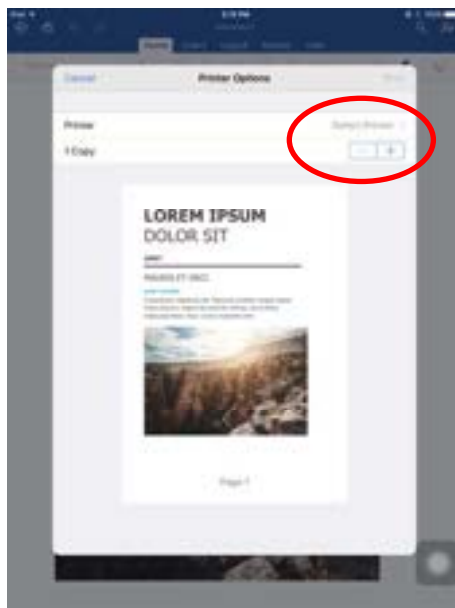


Figure 41



Figure 42

- 2.7 Return to “Printer Options” interface and click “Print”, the system sends print data to the printer, as shown in Figure 43.

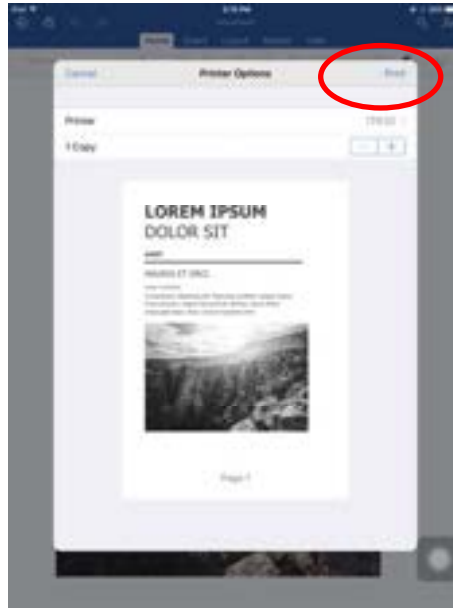


Figure 43

2.12 Installing Printer Network Driver

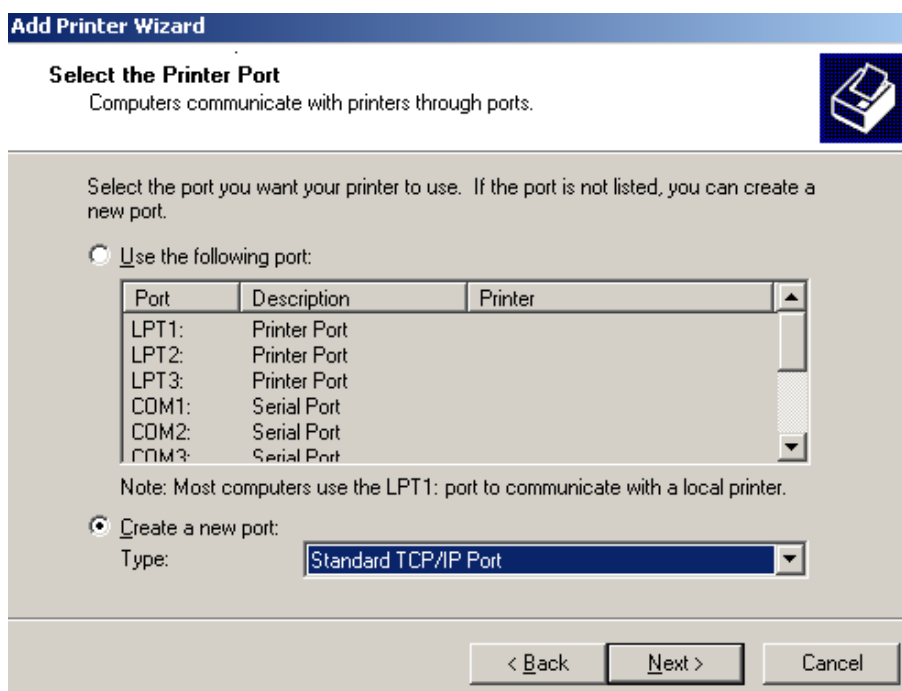
The ways of installing network driver are divided into Newly-install way and Upgrade-install way according to whether the PC is installed the printer driver or not.

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

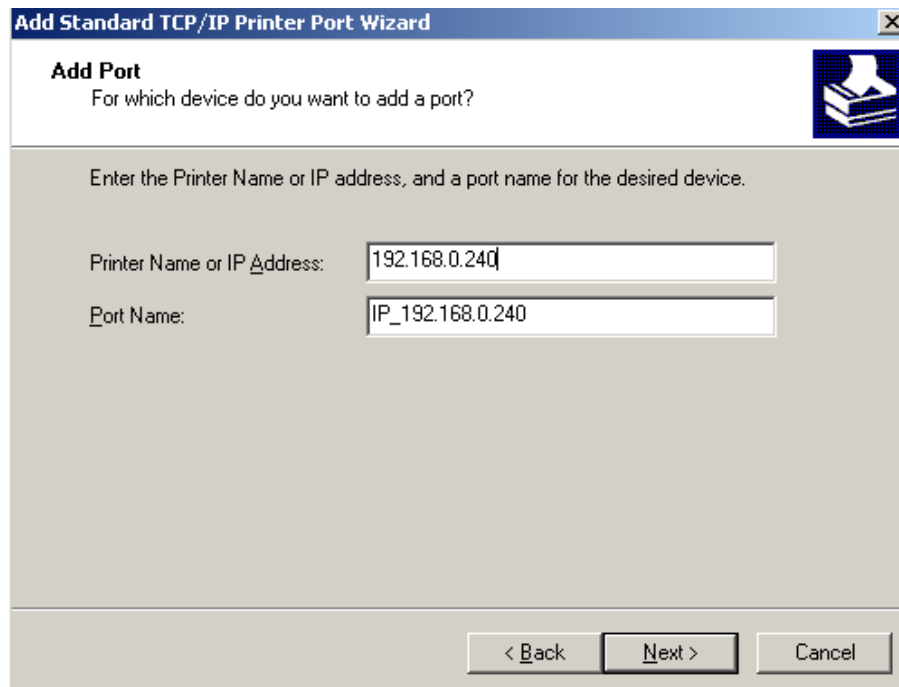
If the printer driver has been installed on the PC, adopt Upgrade-install way whose steps are shown in "Upgrade-install printer network driver" (setting driver's network port).

1. Newly-install printer network driver

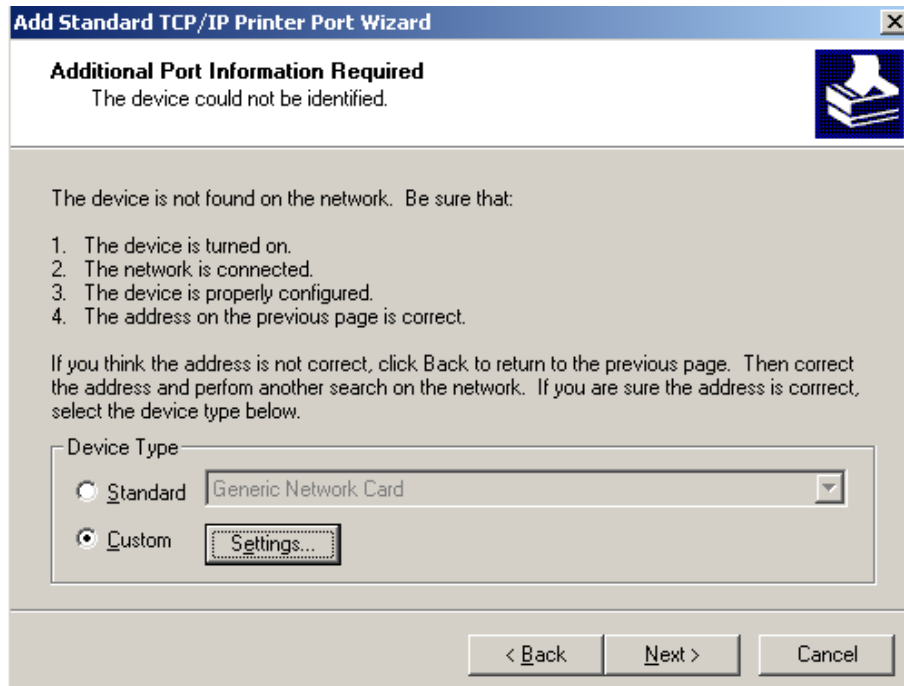
- 1) Click "Start" → "Settings" → "Select Printers".
- 2) Click "Add printer", then a window of "Add Printer Wizard" pops up, click "Next".
- 3) A window of "Add Printer Wizard" pops up, select "Local printer" in the "Local or Network Printer" window, and then click "Next".
- 4) A window of "Select the Printer port" pops up, select "Create a new port", and then select "Standard TCP/IP Port" in the port and click "Next".



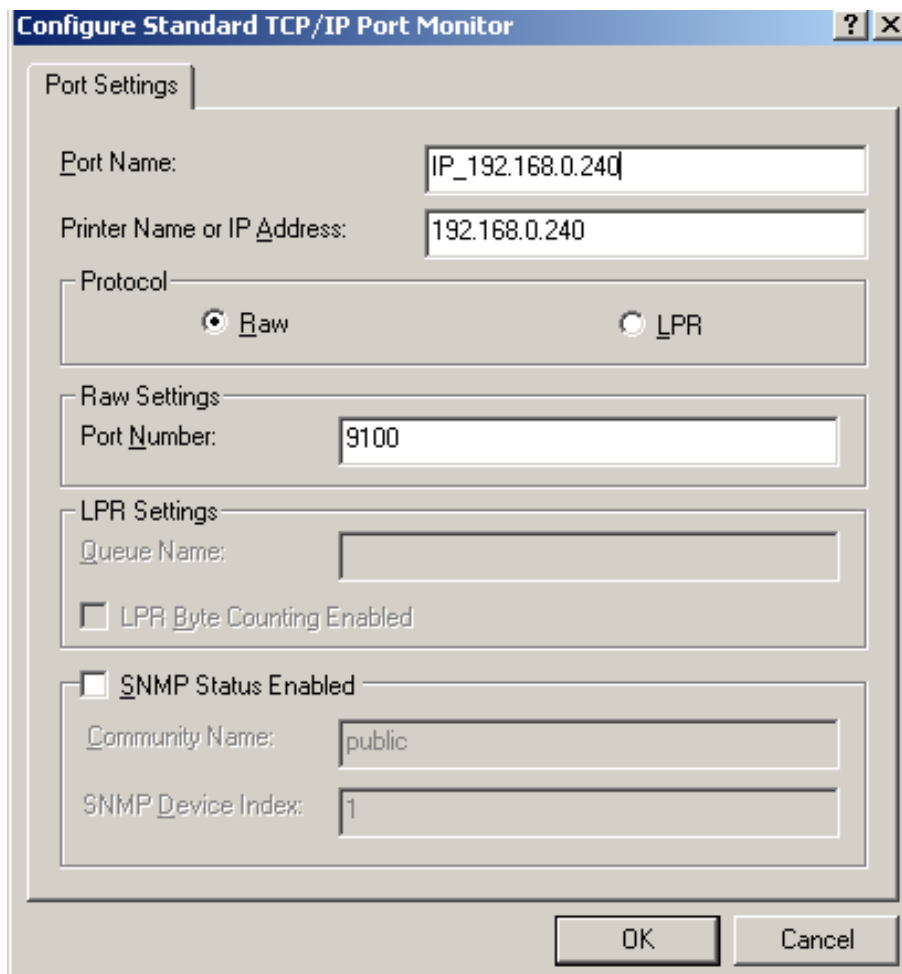
- 5) A window of "Add standard TCP/IP Printer Port Wizard" pops up, click "Next".
- 6) A window of "Add Port" pops up, enter the IP address reported by the "Setting printer's IP address" in the "Printer Name or IP Address" column. Take IP address "192.168.0.240" for example. "Port Name" is created automatically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

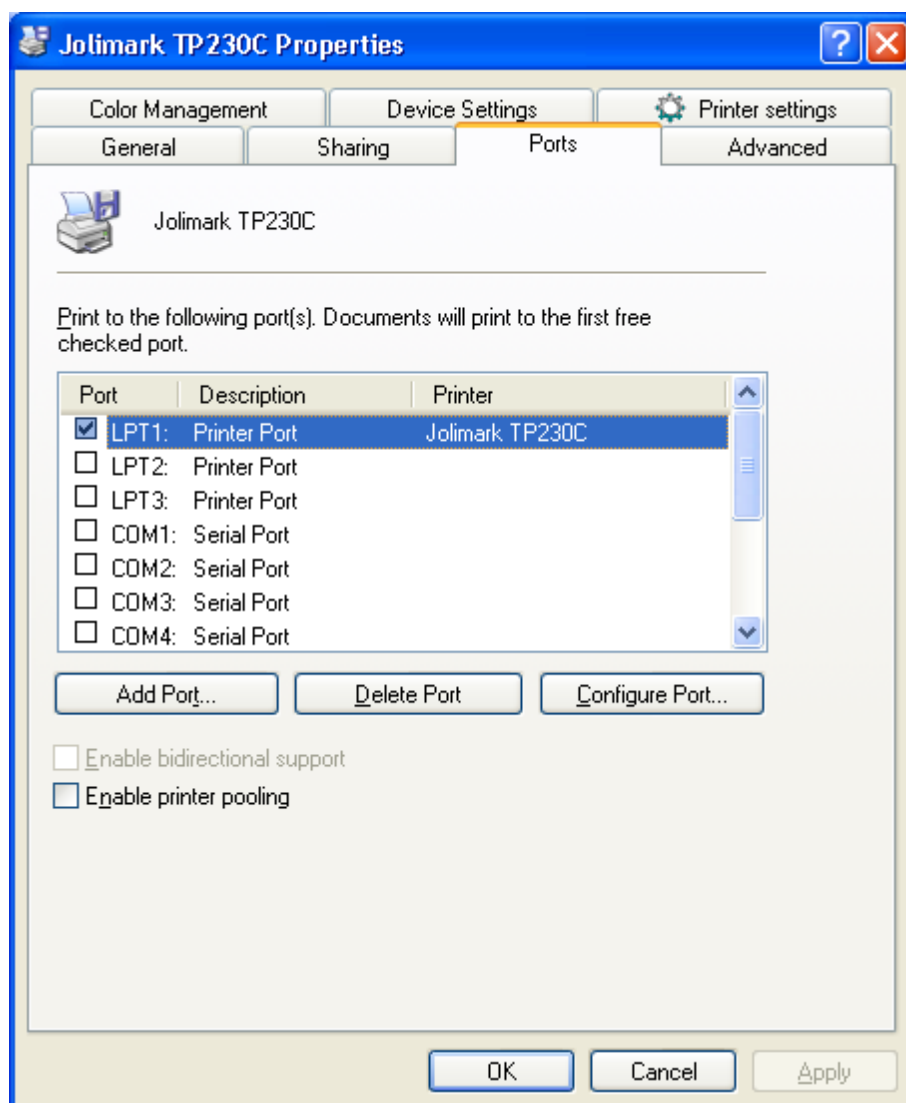


- 9) Return to "Additional Port Information Required", click "Next".
- 10) A window of "Completing the Add Standard TCP/IP Printer Port Wizard" pops up, click "Finish".
- 11) A window of "Install Printer Software" pops up, click "Have Disk".
- 12) A window of "Install From Disk" pops up. Please according to the operating system environment, such as in 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 and click "Next" gradually till the installation is finished. At this time, printer network driver is installed completely.

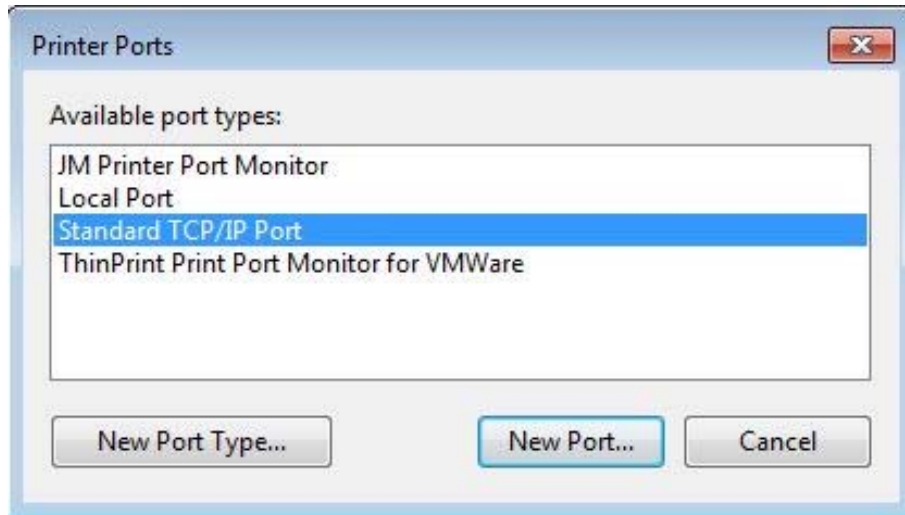
2. Upgrade-install printer network driver (setting driver's network port)

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

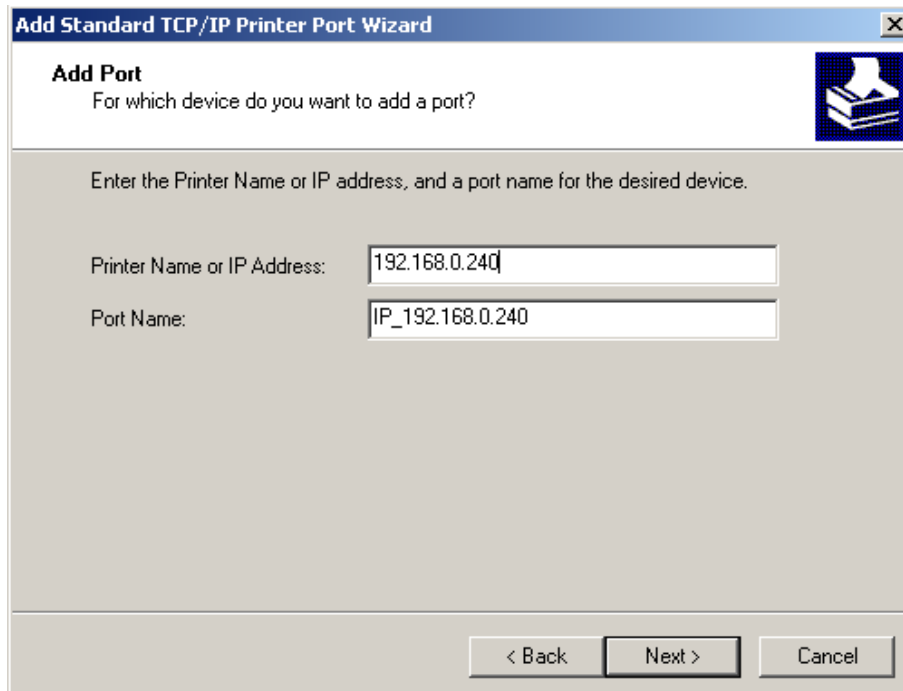
- 1) Click "Start" → "Settings", select "Printers".
- 2) Right click TP230C driver, click "Properties" on the window popping up.
- 3) A window of "Properties" pops up; click "Ports" and "Add Ports".



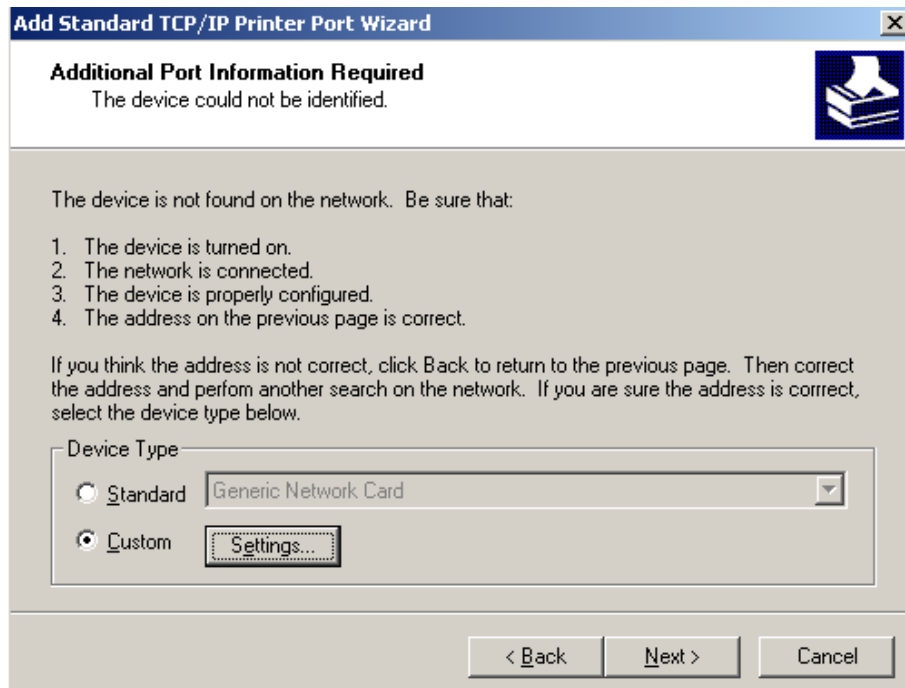
- 4) A window of "Printer Ports" pops up, select "Standard TCP/IP Port", click "New Port".



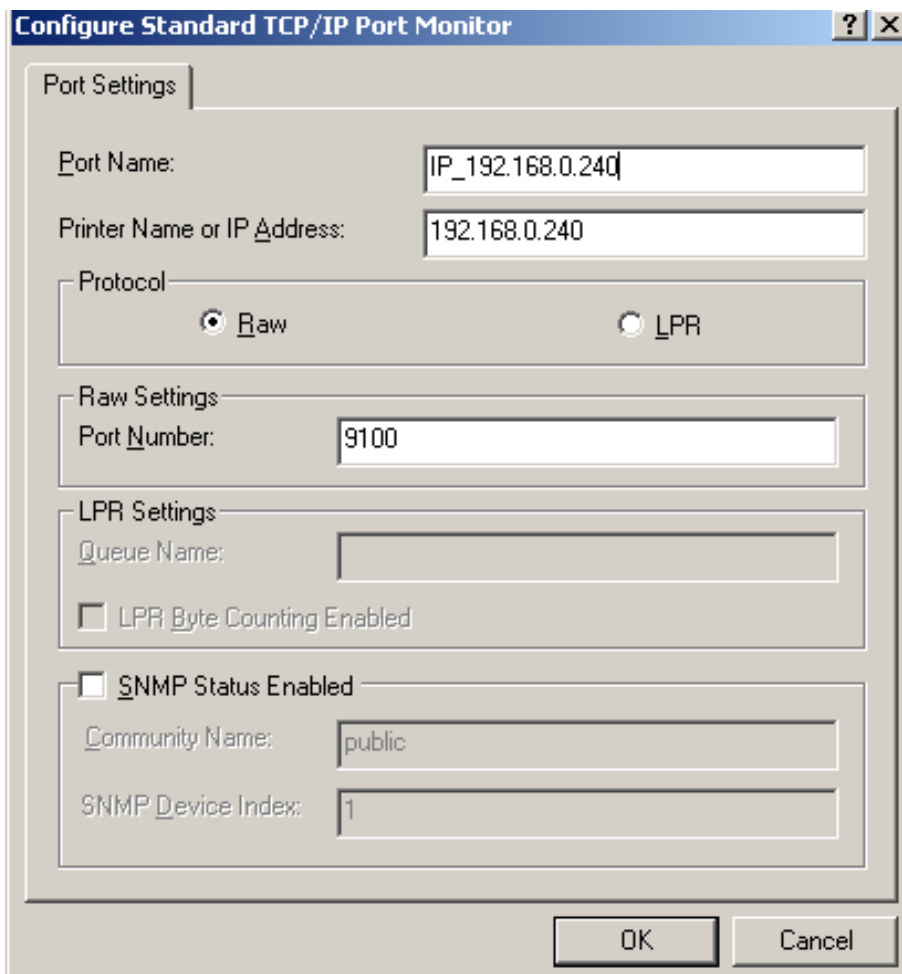
- 5) A window of "Add Standard TCP/IP Printer Port Wizard" pops up, click "Next".
- 6) A window of "Add Port" pops up, import the IP address reported by the "Setting printer's IP address" in the "Printer Name or IP Address" column. Take IP address "192.168.0.240" for example. "Port Name" is created automatically after finishing filling in IP address. Click "Next".



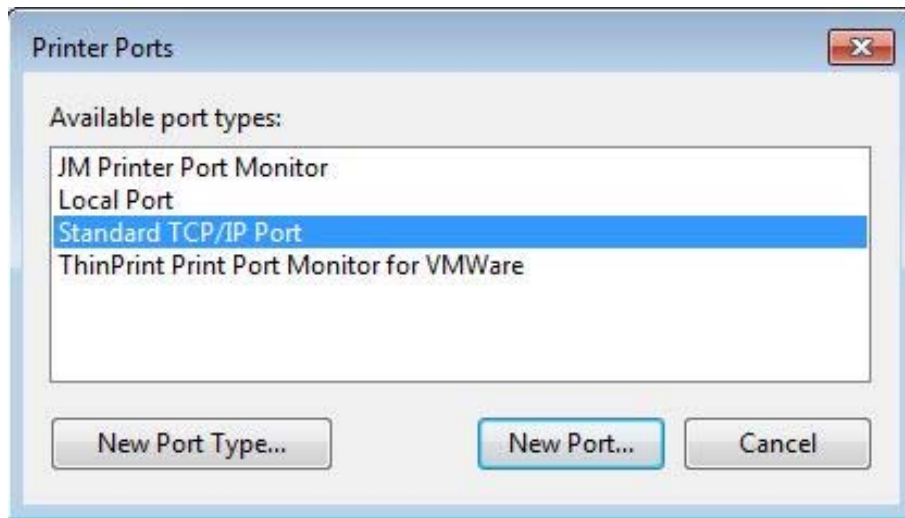
- 7) A window of "Additional Port Information Required" pops up, select "Custom" in the "Device Type", then click "Settings".



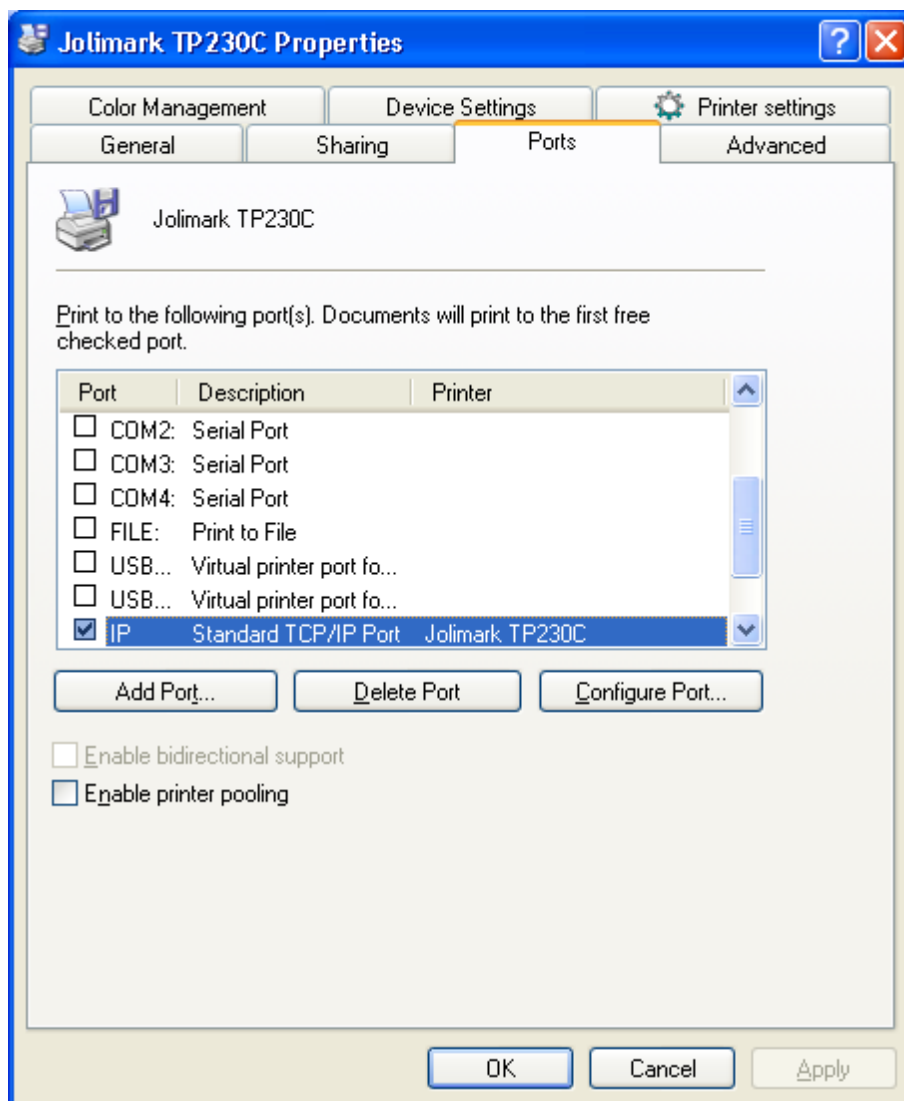
- 8) A window of "Port Settings" pops up. Affirm that "Port Name" and "Printer Name or IP Address" are correct, "Protocol" is "RAW" and "Port Number" is "9100", click "OK".



- 9) Return to "Additional Port Information Required", click "Next".
- 10) A window of "Completing the Add Standard TCP/IP Printer Port Wizard" pops up, click "Finish".
- 11) Return to "Printer Ports", click "Close".



- 12) Return to "Properties", make sure the network port is selected, click "Apply", and then click "Close". Thus, printer's network port setting is finished.



Chapter 3 Operation Instruction

3.1 Control Panel

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



Figure 3-1 Control panel

3.1.1 Indicator LED

| LED | Off | On | Blink |
|-----------|---------------|--------------|---|
| POWER | Power off | Power on | — |
| ERROR | Normal status | Error occurs | Print head is too hot and enters the protection mode. |
| PAPER OUT | Paper in | Paper out | — |

3.1.2 Function Keys

While pressing the **FEED** key and holding on, turn on the printer at the same time. Loosen the **FEED** key according to beeping times, and the printer will perform the following functions correspondingly.

| Beeping times | Description |
|---------------|------------------------|
| One beep | Self-test |
| Two beeps | Pin test |
| Three beeps | Alignment adjustment |
| Four beeps | Hex dump mode |
| Five beeps | Initialize the printer |
| Six beeps | Aging test |

Note: When there is paper in the printer, every time the **FEED** key is pressed (less than 0.5 second), paper will feed one line. If you press and hold the key, the paper will feed one page (default length is 10 inches).

3.2 Self Test and Parameter Settings

3.2.1 Function Mode Setting

■ Self-Test Mode

While pressing the **FEED** key and holding on, turn on the printer. The printer would beep once, then loosen the key, the printer would enter self-test mode.

■ Pin Test

While pressing the **FEED** button and holding on, turn on the printer. The printer beeps twice, and then you should loosen the **FEED** button. The printer will enter the pin test mode.

■ Alignment Adjust Mode

While pressing the **FEED** button and holding on, turn on the printer. The printer beeps three times, and then you should loosen the **FEED** button. The printer will enter the alignment adjust mode.

Each press on the **FEED** button will add 1 to the BID value. If you select BID 08, press **FEED** button for 8 times, and then press this button for a long time, the settings will be saved after the printer beeps twice, and the currently selected value will be printed at the same time. Turn off the printer; the new value will take effect after the printer is restarted.

Note: Alignment adjustment will affect print quality. You must think it over before adjusting and must operate it strictly according to the instruction.

■ Hex Dump Mode

While pressing the **FEED** button and holding on, turn on the printer. The printer beeps four times, and then you should loosen the **FEED** button. The printer will enter the Hexadecimal Printing Mode.

3.2.2 Parameter Settings

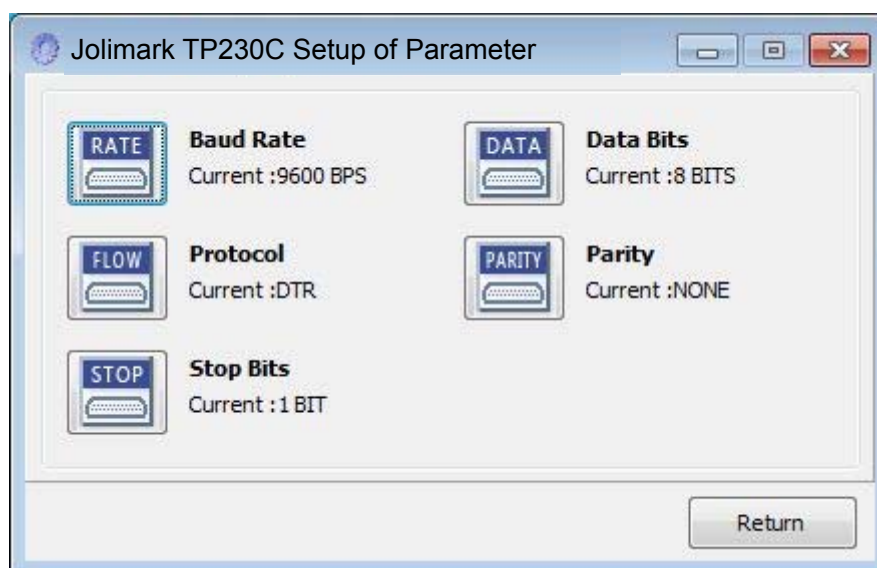
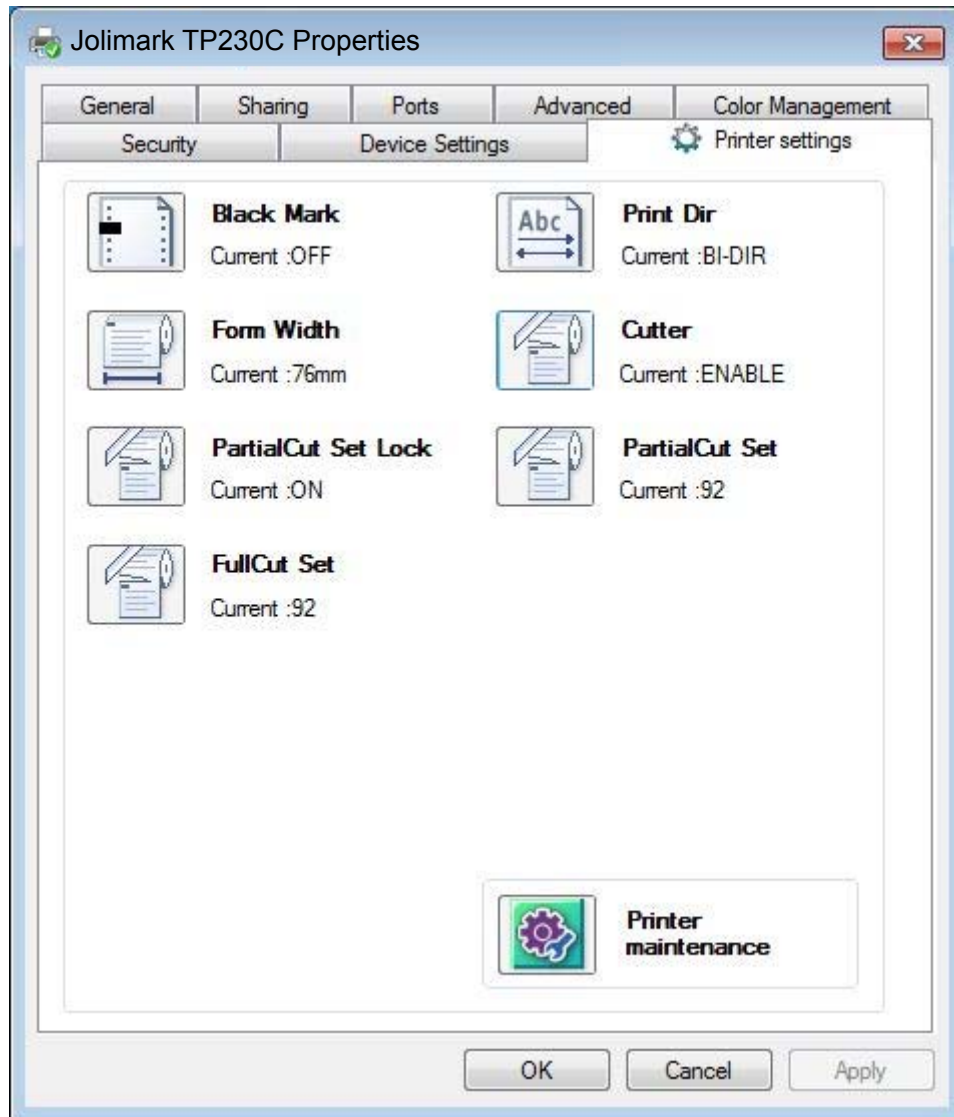
TP230C supports the function of parameter settings, which can be set in the PC with the driver installed in.

The concrete setting steps are shown as follows:

1. Make sure that the computer and the printer are connected with an USB cable and both the computer and the printer are turned on, the printer should be in normal working condition as well.
2. Under the operation system of WIN 2000/WIN XP/VISTA/WIN 7, Click "Start" → "Settings" → "Printers".

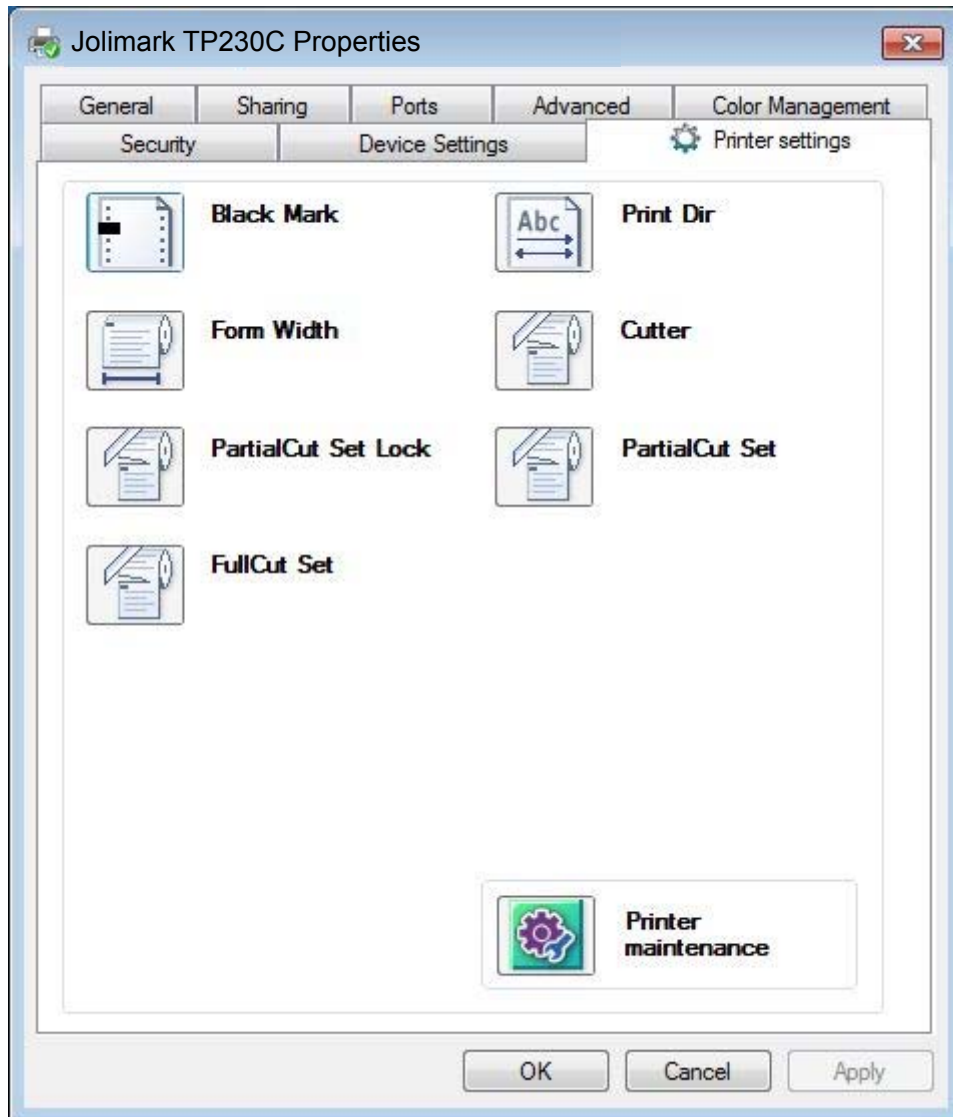
Under the operation system of WIN 8/WIN 10, click "Desktop" in the main panel firstly, and then double click and enter into the window of "Control panel", click "Hardware and Sound" to find "Devices and printers", and open the window of "Devices and printers".

3. Right click "TP230C" in the window of "Printers", and then select "Properties".
4. Then a window of "Properties" pops up, click "Printer Settings" and open the window of "Printer Settings".

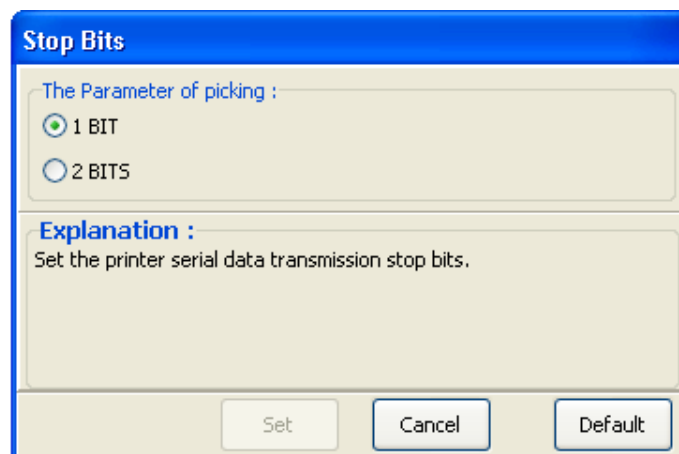


- The left side of each setting item is the parameter icon, the top right is the item name and the bottom right is the current setting. The current settings of the printer will be loaded automatically when opening each parameters settings window. If the printer isn't online or the printer port is set

incorrectly, the current settings will be blank, therefore, please set the printer to online mode or set the correct printer port.



6. When setting the parameter, please click the parameter icon firstly to open the parameter setting window. In the parameter setting window, there are parameter options, item explanation and control buttons. After selecting the corresponding parameter, click "Set", the printer will change the setting at the moment it receives the change command. Click "Cancel" to return to the upper window. Click "Default" to show the default setting of this item.



7. If you need to set several parameters, please refer to the previous point and set the parameters one by one.
8. After finishing setting, click "Set" to exit the "Properties" window.
9. Restart the printer and the new settings take effect.

3.2.3 Menu Terms Descriptions

| Terms | Description |
|----------------------|---|
| Black Mark | After selecting this function on, printer would carry out black mark detection instruction so as to make the vertical positioning printing precisely. (Bills or papers should have black mark on the printed side.) |
| Print Dir | Set the print direction: bidirectional or unidirectional |
| Form Width | Select the bill width. |
| Cutter | When the setting of the cutter is valid, the printer can execute the paper-cut instruction to cut paper. |
| Partial Cut Set Lock | Set partial cut set lock. |
| Partial Cut Set | Set the paper-cut width in the partial cut mode, the paper-cut width is bigger while the value is higher. |
| Full Cut Set | Set the paper-cut width in the full cut mode, the paper-cut width is bigger while the value is higher. |
| Baud Rate | Select the printer serial data transfer rate. |
| Data Bits | Select the serial data bits. |
| Protocol | Select the control way of serial data transfer protocol as software control (XON/XOFF) or hardware control (DTR). |
| Parity | Select the parity bit for serial data transfer. |
| Stop Bits | Select the serial data transfer stop bit. |

3.3 Receipt Recovery Function

3.3.1 Overview

Receipt Recovery is the special function of Jolimark printers, it can solve the problem of data missing and make sure that all the data can be received and printed by printer. When something abnormal happens, printer can achieve the completeness of the receipt by printing again or continuous printing. It is especially suitable for the printing occasions like Wi-Fi, Bluetooth wireless printing, Ethernet and long-distance RS-232.

Receipt Recovery technology can solve the printing abnormality caused by the following situations.

- (1) communication network malfunction
- (2) strong electromagnetic interference
- (3) leaving the valid range of wireless signal
- (4) printer hardware malfunction
- (5) printer power-off unusually
- (6) paper out or cover open during printing

Receipt Recovery technology can support the printing operation of Windows, Android and iOS equipment, developer can use Jolimark Receipt Recovery SDK to finish the design of Receipt Recovery application software. For more details, please ask for the technology supporting department.

Windows user can get the benefit of Receipt Recovery by turning on this function on the driver. It can help the Windows application like Word, Excel and Power Point to realize high reliability of printing.

This function can be used only with Jolimark Receipt Recovery printer.

Receipt Recovery technology is used in LAN and point-to-point printing, and it supports the following ports:

- (1) Bluetooth
- (2) Wi-Fi
- (3) Ethernet
- (4) USB
- (5) Serial interface

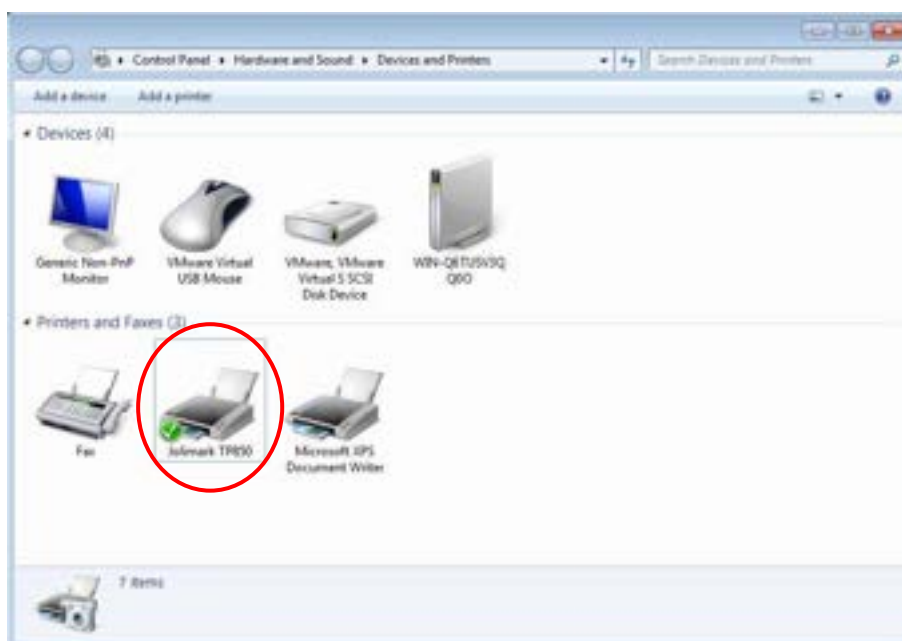
Note: A few of the undetectable hardware malfunction is not included.

3.3.2 How to use Receipt Recovery Function in Windows driver

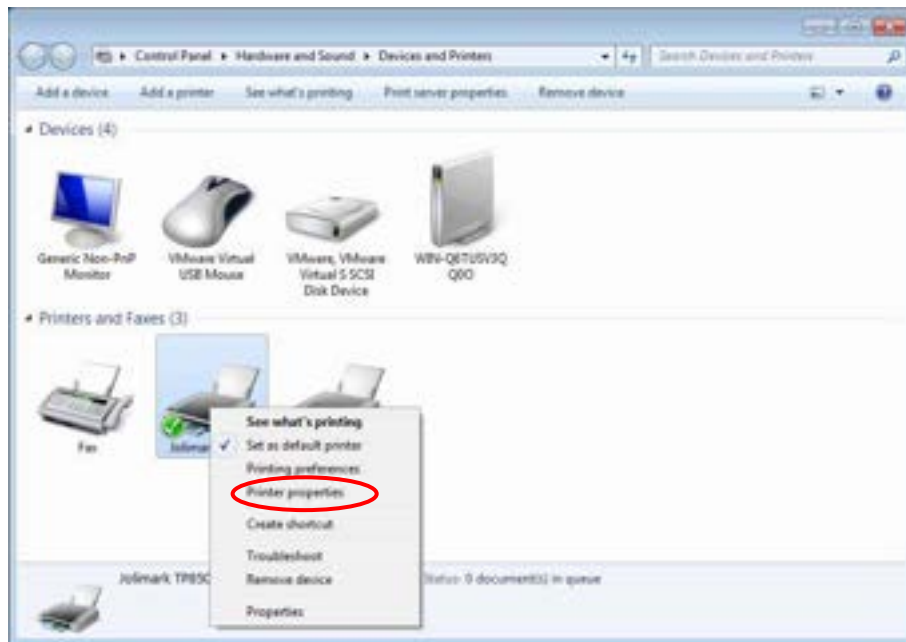
Note: Windows 98 is not supported.

TP850 is taken as an example in the following.

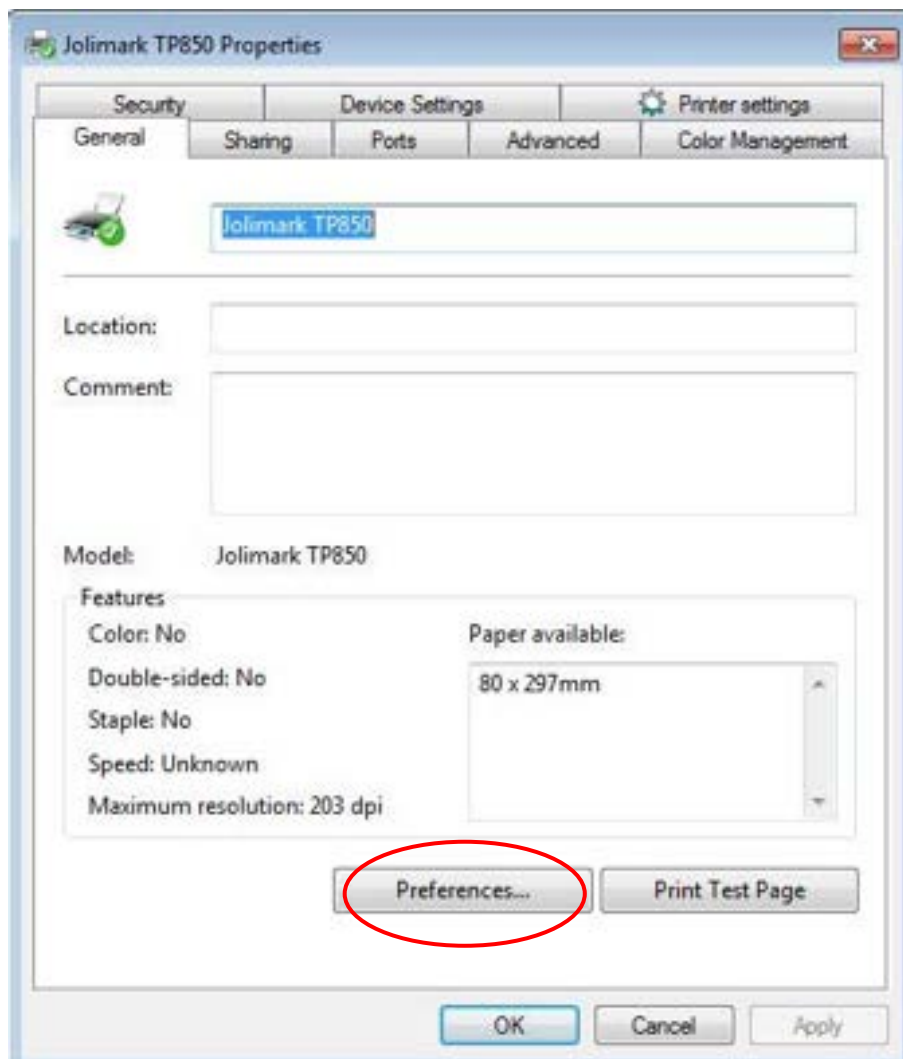
1. Open the interface of “Devices and printers”, find out the printer driver.



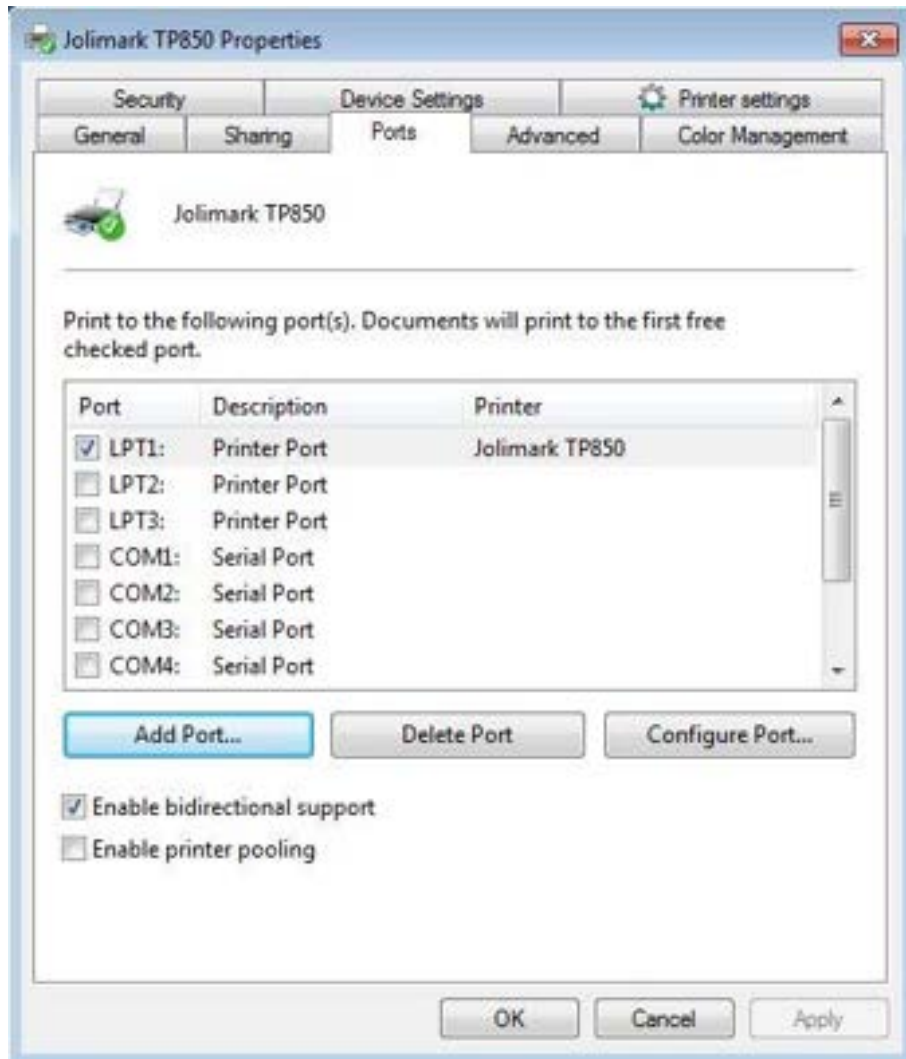
2. Select the corresponding driver, Right click and then select “Properties”.



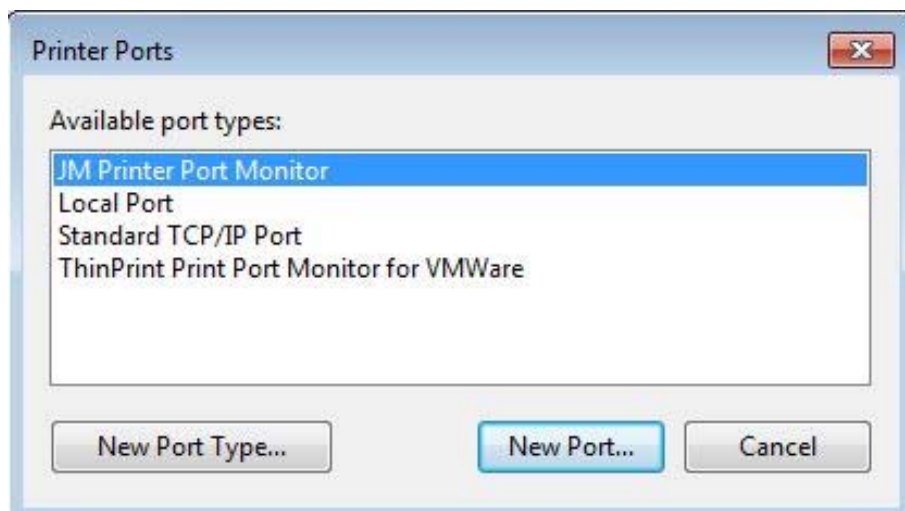
3. Click "preferences" in the "Properties" page.



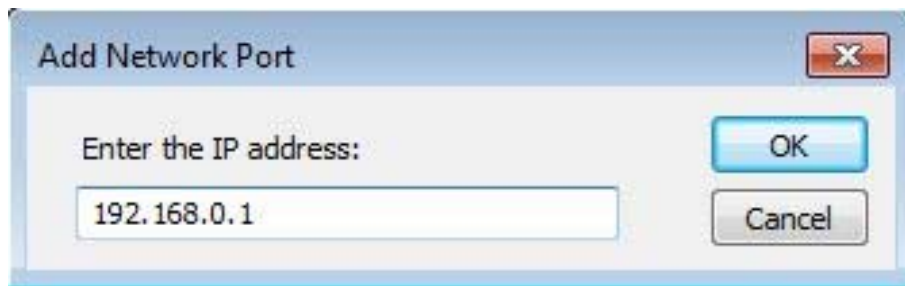
4. If the Ethernet or Wi-Fi is used, user needs to add "JM Printer Port Monitor" new port in the driver. If use other ports, please skip this step.
 - (1) Enter into the "Port" in the "Properties" page and click "Add Port".



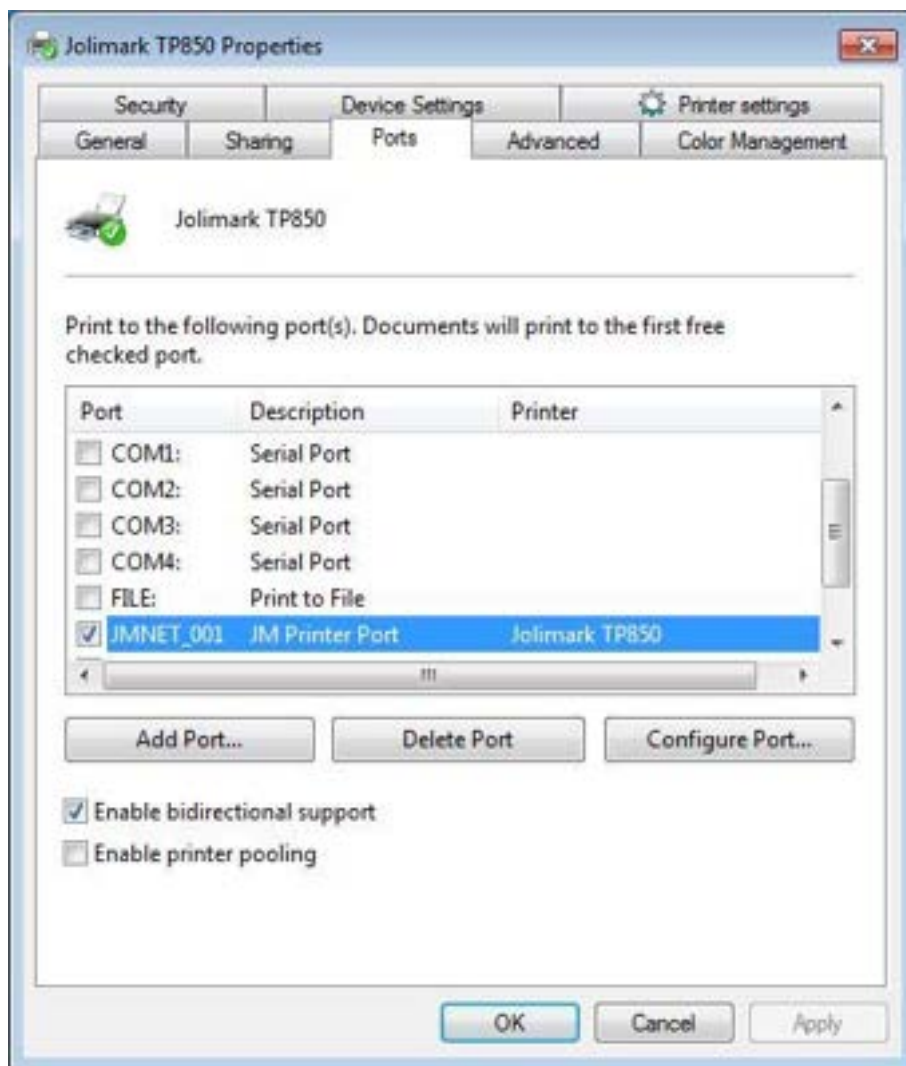
- (2) Enter into the window of "Printer ports" and select the "JM Printer Port Monitor", click "New port".



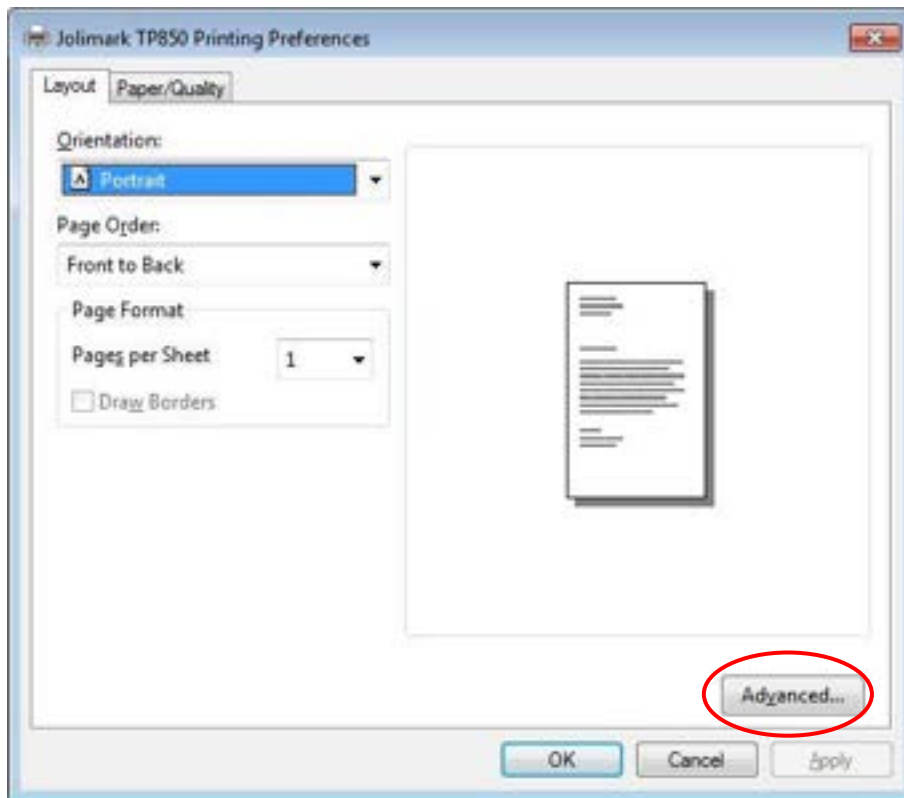
- (3) Enter into the window of “Add Network Port” and fill in the corresponding network address, click “OK”.



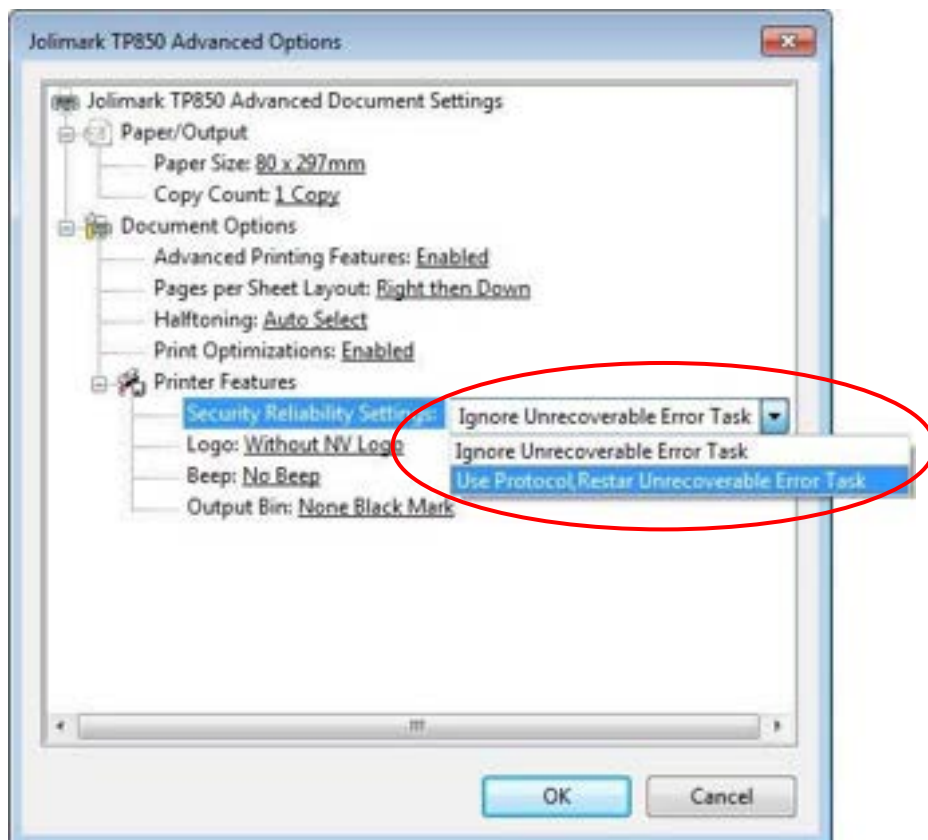
- (4) Close the window of “Printer ports” and return to “Properties” page, select JMNET and click “Apply”.



5. Click “Advanced” in the “Preferences” page.



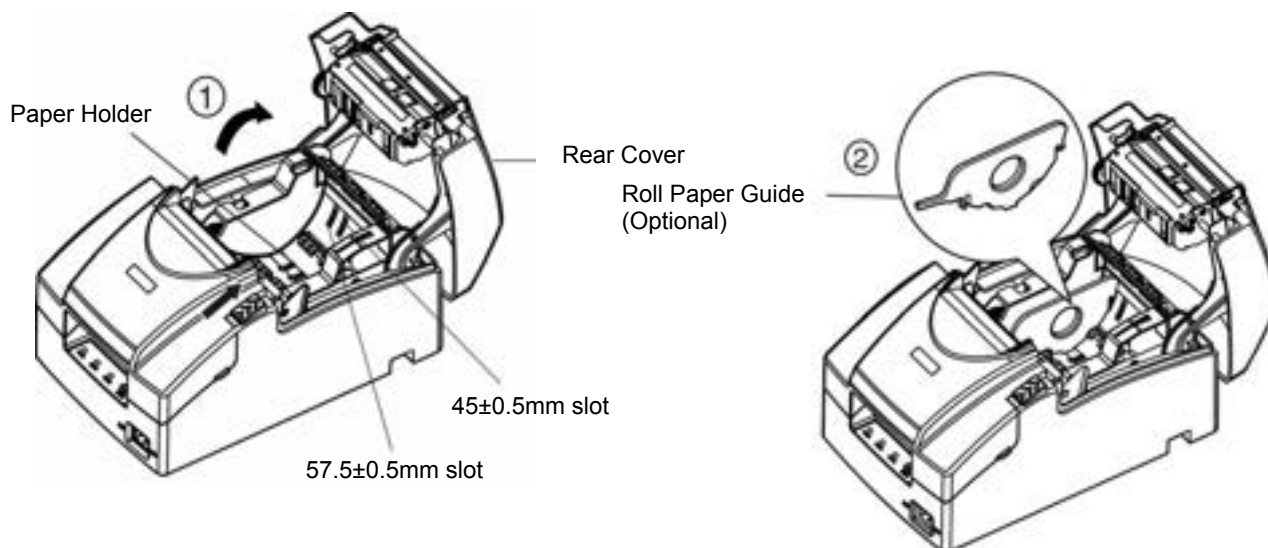
6. Select "Security Reliability Settings" in the Advanced Options interface, if select "Use Protocol Restart Unrecoverable Error Task", it means the function has been turned on. Otherwise, this function is turned off.



Chapter 4 Paper Loading

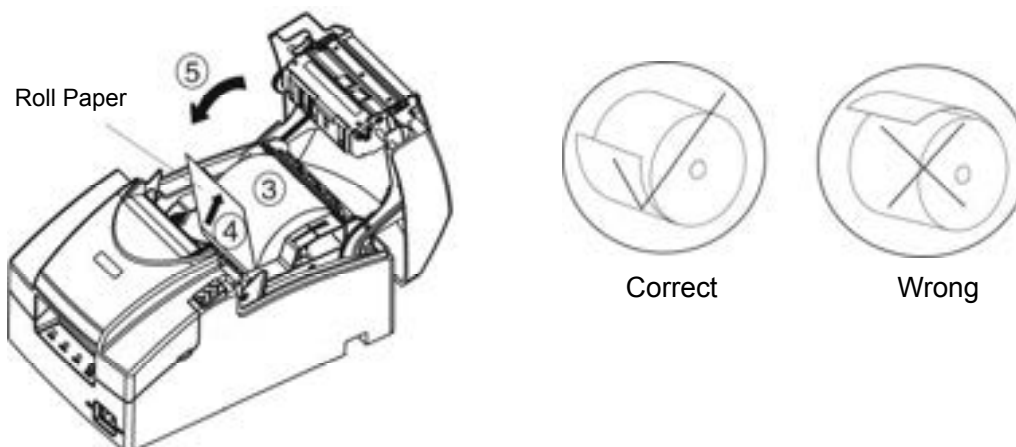
The printer can use the papers with the width of $76\pm0.5\text{mm}$, $45\pm0.5\text{mm}$ and $57.5\pm0.5\text{mm}$, and it is easy to load paper. How to load paper will be introduced in this chapter.

1. Push the cover-open button to open the rear cover. If you want to use $45\pm0.5\text{mm}$ or $57.5\pm0.5\text{mm}$ paper to print, you must install the roll paper guide.

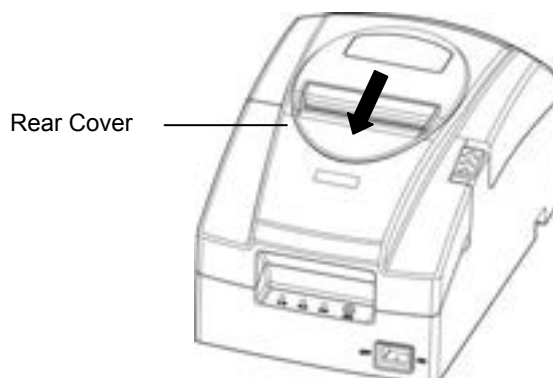


2. Place the roll paper into the paper holder.

Note: Paper head should be placed downwards and pulled towards the print head, but not the opposite.



3. Pull out a small amount of paper and then close the rear cover.



Chapter 5 Specifications

5.1 General Specifications

| Item | Description | | | |
|--|---|--|-------------------------------|-----------|
| Printing method | 9 Pins dot matrix impact | | | |
| Printing direction | Bidirectional logic seeking | | | |
| Diameter of wire | 0.3 mm | | | |
| Resolution | Horizontal: 160 DPI | | | |
| | Vertical: 144 DPI | | | |
| Print speed | Max.4.7 LPS (40 columns,16 cpi) | | | |
| Printing width | Max.63.4 mm | | | |
| Copy | Original + 1 copy | | | |
| Paper feed speed | 140 mm/s (Max.) | | | |
| Paper type | Roll paper (normal paper, black mark paper, copy paper) | | | |
| Paper loading way | Easy to load paper | | | |
| Paper specifications | Paper model | Normal single sheet roll paper | | |
| | | Normal duplex-sheet copy paper | | |
| | Paper width | 45±0.5 mm, 57.5 ±0.5 mm, 76 ±0.5 mm | | |
| | Thickness | Single sheet roll paper: 0.06 ~ 0.085 mm | | |
| | | Duplex-sheet copy paper (each page): 0.05 ~ 0.08 mm, total thickness≤0.14 mm | | |
| | Maximum diameter | 83 mm | | |
| Note: The inner diameter of paper shaft is Φ12.5 mm and the outer diameter of paper shaft is Φ16 mm. | | | | |
| Character per line | Paper width | 76 ±0.5 mm | 57.5 ±0.5 mm | 45±0.5 mm |
| | ASCII character | 40 CPL | 31 CPL | 24 CPL |
| Character set | ASCII character set, International character set | | | |
| Character size | ASCII: 1.252×2.42 | | | |
| | Character dot matrix: 7×8; 15×16 | | | |
| Character pitch | ASCII: 16 CPI | | | |
| Line spacing | 1/6 inch, or by programmable in 1/144 inch increments | | | |
| Emulation | ESC/POS | | | |
| Ribbon | Model: JMR132 black; JMR133 purple; JMR134 black and red. (compatible with ERC-38 ribbon) | | | |
| | Life | JMR132: 3 million characters | | |
| | | JMR133: 4 million characters | | |
| | | JMR134 | Black: 1.5 million characters | |
| | | | Red: 750000 characters | |
| | Note: Only one of the ribbons is supplied. Please take the specific ribbon as standard. | | | |
| Cutting method | Auto cut (Full cut, partial cut); switch to manual tear after turning off the auto cut | | | |
| Auto cutter | Cutting speed: 30 times/minute (Max.) | | | |
| | Cutting frequency: every 2 seconds once | | | |
| | Cutting thickness: 0.065 ~ 0.14 mm | | | |
| | Cutter life: 1.5 million times (Testing under the condition of 0.08mm cutting | | | |

| | | |
|---------------------------|---|---|
| | thickness.) | |
| Interface | <p>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) + Serial interface [RS-232C (DB9)] + Ethernet interface (10/100Base-T) USB interface (micro) + Bluetooth Wi-Fi (802.11b/g/n) USB interface (micro) + Wi-Fi (802.11b/g/n)</p> <p>Note: 1. Only one of the data interfaces is supplied when leaving the factory. 2. Please take the specific interface as standard.</p> | |
| Cash drawer interface | RJ-11, 24V(DC)/1A | |
| Black mark | Standard | |
| Input buffer | 60 KB | |
| Power supply (AC adapter) | Input | Voltage: 100 ~ 240V(AC) |
| | | Frequency: 50Hz ~ 60Hz |
| | Output | Voltage: 24V(DC) |
| | | Current: 2.5 A |
| Power input | Parameters | Input voltage: 24 V(DC) |
| | | Current: 2.5 A |
| | | <p>Warning: Please use the original AC adapter only. Manufacturers have no responsibilities for the problems which are led by using unauthorized AC adapter.</p> |
| | | |
| Environmental condition | Operating environment | Temperature: 5 ~ 35°C |
| | | Humidity: 25 ~ 80%RH (No condensation) |
| | Storage environment | Temperature: -40 ~ 55°C |
| | | Humidity: ≤93%RH (40°C, No condensation) |
| Weight | 2.9 Kg | |
| Noise | <65 dB (A) (ISO7779 standard) | |
| Control panel | 1 key and 3 LED indicators | |
| Physical dimensions | 162 mm (Width) × 253 mm (Depth) × 140 mm (Height) | |
| Power consumption | ① Operating: 25 W; ② Standby: Approximately 3.2 W | |
| | <p>Note: Only when the product is unconnected with outer power supply, can it achieve zero energy consumption state.</p> | |
| Certificate | CE, FCC, IC | |

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

5.2 Interface

This printer is equipped with one cash drawer interface and one data interface (you can select parallel interface, USB interface, USB interface + serial interface, USB interface + Ethernet interface, USB interface + Serial interface + Ethernet interface, USB interface + Bluetooth, Wi-Fi interface or USB interface + Wi-Fi).

5.2.1 Cash Drawer Interface

(1) The cash drawer interface is RJ-11 interface (6 lines), shown as below.

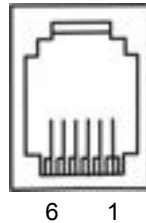


Figure 5-1 Cash drawer interface

(2) Definition of pins

The definition of the cash drawer interface pins is shown as the Table below:

Table A-1 Definition of the Cash drawer Interface Pins

| Pin NO. | Signal Name | Electric Characteristic | Signal Direction |
|------------------------|------------------------------------|-------------------------|------------------|
| 1 | Frame GND | | |
| 2 | Cash drawer drive signal | 24V(DC)/1A | Output |
| 3 | Cash drawer Open/closed signal | TTL | Input |
| 4 | 24V (DC) Power | | |
| 5 | NC | | |
| 6 | Cash drawer Open/closed signal GND | | |
| Drive current≤1A (24V) | | | |

Note: Please use the proper cash drawer. Manufacturer will not honor warranty when using improper cash drawer.

5.2.2 Parallel Interface

(1) Technology specifications

- a) Select pulse: Pulse/STROBE is supplied by exterior.
- b) Signal exchange: /ACKNLG (answer) and BUSY.
- c) Logic electric level: All the input data and signal controlled by interface are compatible with TTL electric level.

(2) Linker

Parallel interface is 57-30360 (AMPHENOL), it is a 36PIN connector. The pin numbers of parallel interface connector are shown as Figure 5-2.

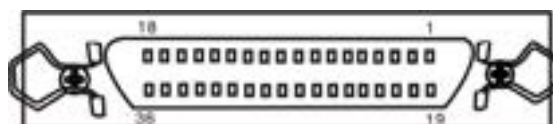


Figure 5-2 Pin numbers of the parallel interface connector

(3) Definition of pins (as shown in table A-2)

Table A-2 Pin definition of parallel interface connector

| Pin | Return | Signal name | | Direction | Description |
|-------|--------|-------------|---------------------------|-----------|--|
| 1 | 19 | /STROBE | Data selected | IN | Width of selected pulse is 0.5μ sec. |
| 2 | 20 | DATA1 | Date bit 1 | IN / OUT | Represent 8 bits of parallel data signal. High level means logical "1", low level means logical "0". |
| 3 | 21 | DATA2 | Date bit 2 | IN / OUT | |
| 4 | 22 | DATA3 | Date bit 3 | IN / OUT | |
| 5 | 23 | DATA4 | Date bit 4 | IN / OUT | |
| 6 | 24 | DATA5 | Date bit 5 | IN / OUT | |
| 7 | 25 | DATA6 | Date bit 6 | IN / OUT | |
| 8 | 26 | DATA7 | Date bit 7 | IN / OUT | |
| 9 | 27 | DATA8 | Date bit 8 | IN / OUT | |
| 10 | 28 | /ACK | Answer out | OUT | Pulse width is about 12μ sec. Low level means that data is received and the printer is ready to receive more data. |
| 11 | 29 | BUSY | Printer state | OUT | Outputting high level means that printer is too busy to receive data. This pin outputs high level under the following conditions: 1. When data is being imported; 2. When the printer is printing; 3. When the printer is offline; 4. When error occurs. |
| 12 | 30 | PE | Paper out | OUT | High level means paper out. |
| 13 | | SLCT | Printer selected is | OUT | Pull up to 5V by the 3.3KΩ resistor. |
| 14 | | /AUTOFEED | Auto feed | IN | At low level, the printer will change to the next line automatically after printing one line. |
| 15 | | NC | Empty pin | --- | This pin is empty. |
| 16 | | GND | Logical ground | --- | Logical ground |
| 17 | | CHASSIS | Structure ground | --- | It is structure ground of printer, and it is separated from logical ground. |
| 18 | | NC | Empty pin | --- | This pin is empty. |
| 19~30 | | GND | Ground | --- | Loop ground that is twisted with signal wire. |
| 31 | 16 | /INIT | Initialization of printer | IN | Low level means the printer is initialized |
| 32 | | /ERROR | Error occurs in printer. | OUT | When the printer is in state of paper out, offline mode or error, this signal level becomes low. |
| 33 | | GND | Ground | --- | Same with 19~30 pins. |
| 34 | | NC | Empty pin | --- | This pin is empty. |

| | | | | | |
|----|--|---------|-----------------------------------|-----|---|
| 35 | | +5V | +5V supply | OUT | Pull up to 5V by the 3.3KΩ resistor. |
| 36 | | /SLCTIN | Printer is selected and answered. | IN | Only when this signal level is low, can the data be put into the printer. |

- * The “Direction” in the title column means the flow direction of printer signal to the printer.
- * The “Return” in the title column means pair-twist return. You must confirm that the interface cable is a pair-twist shielding line, and every signal line is looped with ground line and pair-twisted together. Shielding line should be connected with the frame ground of host computer and printer.
- * All the interface state is based on TTL level. The rising and falling time of signal must be less than 0.2 ms.
- * The data transfer must comply with the specification of ACKING or Busy signal. Only when the level of ACKING or Busy signal is low can data be transferred.

(4) Time sequence of Parallel to transmit data (as shown by Figure 5-3):

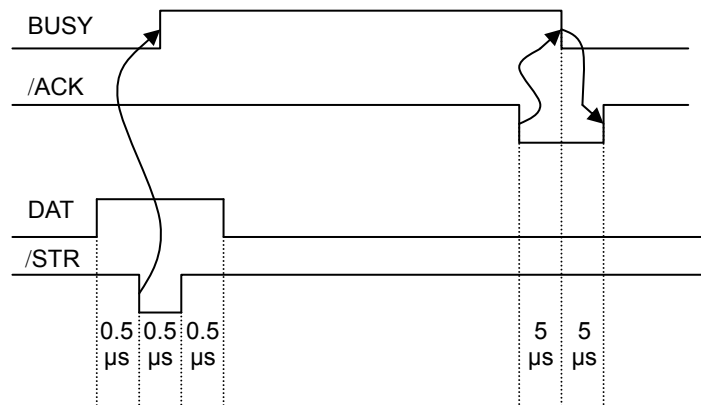


Figure 5-3 Time sequence of parallel to transmit data

5.2.3 USB Interface

(1) 2.0 Full-Speed version USB interface.

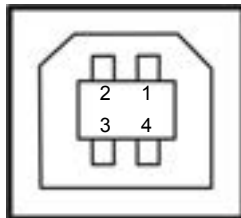


Figure 5-4 (1) 2.0 Full-Speed USB interface

| Sequence number | Signal name | Color |
|-----------------|-------------|-------|
| 1 | VBUS | Red |
| 2 | D- | White |
| 3 | D+ | Green |
| 4 | GND | Black |

(2) Micro USB interface.

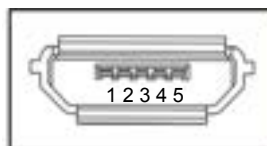


Figure 5-4 (2) micro USB interface

| Sequence number | Signal name |
|-----------------|-------------|
| 1 | VBUS |
| 2 | D- |
| 3 | D+ |
| 4 | — |
| 5 | GND |

5.2.4 Serial Interface

TP230C 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 pin number of serial interface connector is shown as below.

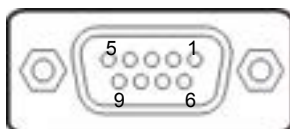


Figure 5-5 Pin number of serial interface connector

Signal definition of each pin is shown as Table A-3:

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

Table A-3 Signal of the serial interface pin

Note: ① "From" means the source where signal comes out.
 ② The logical level of signal is EIA level.

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

TP230C printer's serial interface can be connected with the standard RS-232C interface. When

connecting with a computer or other device, the connecting picture is shown as Figure 5-6.

The connection of serial interface:

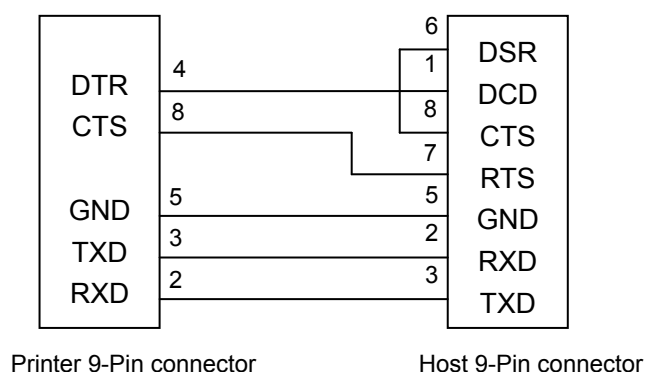


Figure 5-6 The connection figure of host 9 PIN and printer

5.2.5 Ethernet Interface

10/100Base-T Ethernet interface can connect to 10/100M Ethernet.

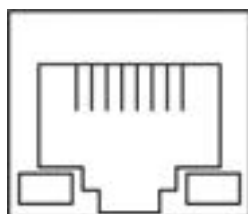


Figure 5-7 Ethernet interface

5.2.6 Power Supply Inlet

TP230C printer connects with AC adapter of 24V±10% and 2.5A. The power supply inlet is shown as Figure 5-8.



Figure 5-8 Power supply inlet

5.3 Auto-cutter Specification

TP230C is equipped with an auto-cutter assembly; its specification is shown as table A-4:

Table A-4 Auto-cutter Assembly Specification

| Item | Specification |
|-----------------------|---|
| Paper width | 80 mm (max.) |
| Paper thickness | 0.065 ~ 0.14 mm |
| Cutting mode | full cut or partially cut (leaving about 2mm) |
| Operation voltage (V) | Motor drive: 24, detector: 3.3 |

| | |
|--|----------|
| Startup current (A) | 0.8 |
| Cutting speed (second/ cut period) | 1S |
| Cutting frequency (cuts/minute) | 20 |
| Physical dimensions (length× width ×height) (mm) | 95×50×18 |

Chapter 6 Maintenance and Technical Service

6.1 Cleaning the Printer

Clean the paper scrap and other objects inside the printer periodically.

■ Cleaning periodically and the cleaning tool

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

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

■ Cleaning the paper feed path and the parts under carriage

Wipe off paper scrap and clean dirt and dust.

■ Cleaning the carriage shaft

There is a layer of oil covering the carriage shaft, which guarantees the carriage runs smoothly. But the oil is easy to absorb dust, please clean the dust with soft cloth first, and then add proper amount of lube (NYE180 lube of NYE Company is recommended), move print head back and forth to make lube scattered evenly.

Note: 1. Turn off printer and pull out the power cord before cleaning.

2. While being used under dust circumstance, the carriage shaft may stack much dust, which may affect the print quality. Therefore, please shorten the cleaning period.

3. The temperature of print head and the surrounding part may be high after using. Please avoid cleaning it at the moment.

4. Don't use hard cloth or combustible solvent to clean the printer.

6.2 Problems and Solutions

(1) Turn on the printer, all LEDs are off, and printer has no action

Make sure that the printer is connected to the power, and check whether the two ends of the power cord are connected properly. If it still can not work, plug another electrical device into the outlet to check whether the outlet works properly.

(2) Self-test is normal, but online printing is disabled.

- ① Please make sure that the printer is connected with the computer correctly and the paper is already loaded.
- ② Check whether the print port is set right.
- ③ If it still can't print in online mode, please replace the interface cable with a new one.

(3) Paper out

Phenomenon: PAPER OUT LED is on but printer cannot print; or when the printer stops working during printing, the PAPER OUT LED is on.

Reason: Paper out

Solution: Install the roll paper again.

(4) Print head overheating protection

Phenomenon: The print head moves, but prints nothing, ERROR LED blinks.

Reason: The temperature of the print head is too hot, and it enters the protection state.

Solution: Please wait patiently; the print head will work automatically after cooling.

(5) Print quality

- ① Phenomenon: The printer can't print at all.

Solution: 1. Check whether the ribbon cartridge is installed or not.

2. Make sure that the interface cable is connected correctly.

- ② Phenomenon: The printed characters are faint.

Solution: Remove the ribbon cartridge and turn the ribbon knob, then install it again. If the printed characters are still faint, please replace a new one.

- ③ Phenomenon: Only one character is printed in one line, or the spacing between characters is too large.

Solution: Initialize the printer and make it restore to factory default setting.

Method: Pressing the **FEED** key, and turn on the printer at the same time, when the printer beeps five times, loosen the **FEED** key, the printer is initialized automatically.

(6) Print character

Phenomenon: The printer can't print the appropriate characters.

Solution: Make sure the driver is installed correctly, and the character font set by the application is what you need.

6.3 Contact the Technical Service Centre

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

Chapter 7 Command Code Summary

7.1 General

The TP230C printer's control commands are compatible with ESC/POS. Explanation of every command contains format and description. "Format" parts give three kinds of command format, including ASCII Code, Decimal code and hexadecimal code. "Description" parts describe the function of command. These three kinds of command format are equivalent, and you can select one of them by your need.

The explanation format of each command is shown as following:

| Command | Function |
|---|----------|
| Format: ASCII: Shown in standard ASCII character serial | |
| Decimal: Shown in Decimal number serial | |
| Hex: Shown in Hex number serial | |
| Description: the function and using instruction of that command | |

7.2 Explanation of Command

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

[Description]

Move the print position to the next horizontal tab position.

If the current printing position exceeds the last horizontal tab position, the HT command will not be executed.

Horizontal tab positions are set by "ESC D" command.

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

[Description]

Print one line data in the line editing buffer and feed one line based on the current line spacing.

If the line editing buffer is empty, then only feed one line based on the current line spacing without printing.

| CR | Print and carriage return |
|-------------------------|---------------------------|
| Format: ASCII: CR | |
| Decimal: 13 | |
| Hex: 0D | |

[Description]

The printer prints one line data in the line editing buffer and the print head returns to the left position automatically.

| FF | Print and change page |
|-------------------------|-----------------------|
| Format: ASCII: FF | |
| Decimal: 12 | |
| Hex: 0C | |

[Description]

Print one line data in the line editing buffer and feed to the top of next page based on the current page length.

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 character to n times of half dot spacing (1/144 Inch).

n=0~32; Default n=0.

ESC ! Set character printing mode

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

[Description]

“ESC ! n” is synthetic setting command for character printing mode, and is used for selecting size and underline of printed character. The bit definition of print parameter “n” is shown as follows:

| Bit | Function | Value | |
|-----|----------------|----------|----------|
| | | 0 | 1 |
| 0 | Character font | 7×7 | 5×7 |
| 1 | undefined | | |
| 2 | undefined | | |
| 3 | undefined | | |
| 4 | Double-height | Canceled | Selected |
| 5 | Double-width | Canceled | Selected |
| 6 | undefined | | |
| 7 | Underline | Canceled | Selected |

Default n=0. That means: 7×7 dot matrix, normal character size and no underline.

ESC % Select/cancel user-defined character set

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

[Description]

Parameter n is one byte, and only the lowest bit is valid.

When $n \leq \text{*****}1 > B$, the user-defined character set is selected.

When $n \leq \text{*****}0 > B$, the inner character set is selected.

When $0 \leq n \leq 255$, default n=0.

ESC & Define user-defined characters

Format: ASCII: ESC & s n m a d1 d2.....db
 Decimal: 27 38 s n m a d1 d2.....db
 Hex: 1B 26 s n m a d1 d2.....db

[Description]

This command is used for self-defining characters. The meaning of each parameter is shown as follows:

- s: The number of longitudinal byte. Here s=1, 2. When n=1, define 7×7 character. When n=2, define 7×9 or half-size character.
- n: Starting ASCII code of user-defined character set. $n \geq 32$.

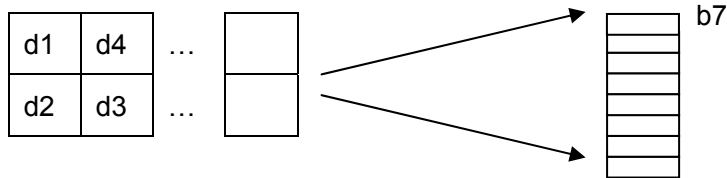
m: Ending ASCII code of user-defined character set. $m \leq 127$. The number of user-defined characters is $m-n+1$, and the maximum number is 96. When user defines only 1 character, $m=n$.

a: The byte number of user-defined characters.

d1 d2...db: The data of user-defined characters. Every character has $s \times a$ bytes. $m-n+1$ characters altogether have $(s \times a) \times (m-n+1)$ bytes ($b = (s \times a) \times (m-n+1)$).

The user-defined characters after being defined will be valid all the time until they are defined again or the printer is turned off.

The format of each user-defined character data is shown as follows:



ESC *

Select bit-image mode

Format: ASCII: ESC * m n1 n2 [d] n1+256×n2

Decimal: 27 42 m n1 n2 [d] n1+256×n2

Hex: 1B 2A m n1 n2 [d] n1+256×n2

[Description]

This command is used for setting dot matrix figure mode (m) and setting the transverse dots number (n1, n2) of dot matrix figure.

$m=0, 1$

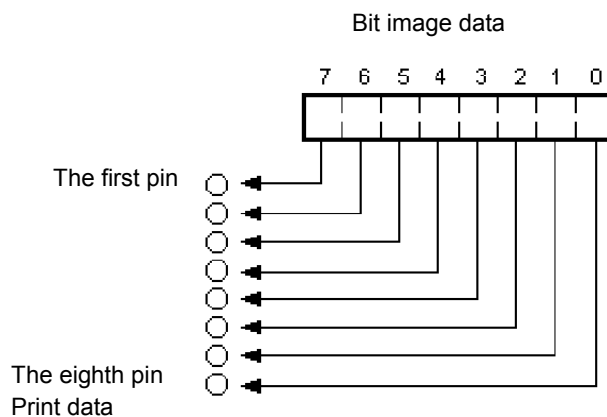
$0 \leq n1 \leq 255, 0 \leq n2 \leq 3, 0 \leq d \leq 255$.

n1, n2 is hexadecimal figure with two bits. n1 is low byte and n2 is high byte. n1, n2 is used for denoting the transverse dots number of figure printed by "ESC *" command. This value should be within the number of maximum line-width dots.

When $m=0$, normal printing is selected, the maximum number of printing dots is 210.

When $m=1$, half-dot printing is selected, the maximum number of printing dots is 420. On this condition the adjacent dots cannot be "1" at the same time.

The definition of [d] is:



ESC -

Set English underline mode

Format: ASCII: ESC - n

Decimal: 27 45 n

Hex: 1B 2D n

[Description]

Set English underline mode

$n=0$, turns off underline mode; $n=1$, turns on underline mode.

ESC 2 Set 1/6 inch line spacing

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

[Description]

Set the line spacing to 1/6 inch.

ESC 3 Set n/144 inch line spacing

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

[Description]

Set the line spacing to n/144 inch.

n=0~255.

Default: n=24.

ESC < Print head returns to standby position

Format: ASCII: ESC <
 Decimal: 27 60
 Hex: 1B 3C

[Description]

This command makes the print head move to the standby position.

ESC ? n Cancel user-defined characters

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

[Description]

Cancel the user-defined character "n". This command function can be canceled only after the computer is restarted.

ESC @ Initialize printer

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

[Description]

This command is used for initializing the printer, and its function is described as follows:

- (1) Clearing the data in the print buffer and line-editing buffer.
- (2) Resuming the default value.
- (3) Setting the printing mode of Chinese character.
- (4) Deleting user-defined characters.

ESC C Set the page length according to line spacing

Format: ASCII: ESC C n
 Decimal: 27 67 n
 Hex: 1B 43 n

[Description]

The command sets the length of detecting black mark in the meantime. If the black mark can't be detected in this length, then it is considered that there is no black mark.

The page length set by this command (Max. 22 inches) = current line spacing* n.

| ESC D | | | | | | Set horizontal tab positions |
|---------|----------|-----|----|------|-----|------------------------------|
| Format: | ASCII: | ESC | D | n[k] | NUL | |
| | Decimal: | 27 | 68 | n[k] | 0 | |
| | Hex: | 1B | 44 | n[k] | 00 | |

[Description]

Set horizontal tab positions to n1, n2, ..., nK.

For TP230C, k=1~21, and it can set 21 horizontal tab positions at most.

The absolute horizontal position of the first horizontal tab position is: n1 times of half-dot spacing;

The absolute horizontal position of the second horizontal tab position is: (n1+n2) times of half-dot spacing;

The absolute horizontal position of the third horizontal tab position is: (n1+n2+n3) times of half-dot spacing;

.....

The absolute horizontal position of the Kth horizontal tab position is: (n1+n2+n3+.....+nK) times of half-dot spacing;

Default value: n1=n2=.....=nK=10.

All the horizontal tab positions (ni) should be within the line width allowed by the printer, ni=1~80. When ni=80, it is equal to 40 7×7 or 7×9 dot matrix characters width, or equal to 20 16×15 Chinese characters width.

After executing "ESC D" command, changing the kind and size of characters will not affect tab positions already set. This can guarantee that tab is put in order when Chinese characters mix with common characters in one line, or when characters are magnified or shrunk.

NUL is put in the end means that this command is over.

| ESC E | | | | | | Set / Cancel boldface printing |
|---------|----------|-----|----|---|--|--------------------------------|
| Format: | ASCII: | ESC | E | n | | |
| | Decimal: | 27 | 69 | n | | |
| | Hex: | 1B | 45 | n | | |

[Description]

This command realizes boldface printing by printing twice in which 2nd printing shifts little rightwards from 1st printing.

- When n is 0, boldface printing is invalid.
- When n is 1, boldface printing is valid.

| ESC G | | | | | | Turn double-strike mode on/off |
|---------|----------|-----|----|---|--|--------------------------------|
| Format: | ASCII: | ESC | G | n | | |
| | Decimal: | 27 | 71 | n | | |
| | Hex: | 1B | 47 | n | | |

[Description]

When double-strike mode is turned on, the same character will be printed twice in the same position.

- When n is 0, double-strike mode is turned off.
- When n is 1, double-strike 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 the print buffer and feed the paper by n/144 inch. If there is no content in buffer, the printer will feed paper directly without printing.

| ESC K | | | | | Print and feed reversely |
|---------|----------|-----|----|---|--------------------------|
| Format: | ASCII: | ESC | K | n | |
| | Decimal: | 27 | 75 | n | |
| | Hex: | 1B | 4B | n | |

[Description]

Print the data in the print buffer and feed the paper by $n \times 1/144$ inch in the reverse direction.

$n=0 \sim 48$.

| ESC U | | | | | Turn unidirectional printing mode on/off |
|---------|----------|-----|----|---|--|
| Format: | ASCII: | ESC | U | n | |
| | Decimal: | 27 | 85 | n | |
| | Hex: | 1B | 55 | n | |

[Description]

Turn unidirectional print mode on or off. $n=0 \sim 255$, only the lowest bit is valid.

When $n \leq \text{*****}1 > B$, unidirectional printing mode is set.

When $n \leq \text{*****}0 > B$, bidirectional printing mode is set.

Default $n=0$.

| ESC c 4 n | | | | | Select paper sensor to stop printing |
|-----------|----------|-----|----|----|--------------------------------------|
| Format: | ASCII: | ESC | c | 4 | n |
| | Decimal: | 27 | 99 | 52 | n |
| | Hex: | 1B | 63 | 34 | n |

[Description]

Select the paper sensor to stop printing when paper out is detected.

$n=0 \sim 255$.

$n=05H$, select the paper sensor to stop printing when paper out is detected.

$n=0$, when paper out is detected; printing is not stopped, so that user can print the last bill to the page end.

Default $n=05H$.

| ESC c 5 n | | | | | Enable/disable panel buttons |
|-----------|----------|-----|----|----|------------------------------|
| Format: | ASCII: | ESC | c | 5 | n |
| | Decimal: | 27 | 99 | 53 | n |
| | Hex: | 1B | 63 | 35 | n |

[Description]

- When $n \leq \text{*****}0 > B$, all buttons are enabled (Default).

- When $n \leq \text{*****}1 > B$, all buttons are disabled.

| ESC d | | | | | Print and feed n lines |
|---------|----------|-----|-----|---|------------------------|
| Format: | ASCII: | ESC | d | n | |
| | Decimal: | 27 | 100 | n | |
| | Hex: | 1B | 64 | n | |

[Description]

Print the data in the print buffer and feed n lines.

$n=0 \sim 255$.

ESC e Print and feed reversely n lines

Format: ASCII: ESC e n
 Decimal: 27 101 n
 Hex: 1B 65 n

[Description]

Print the data in the print buffer and feed n lines in the reverse direction.

n=0~2. The maximum reverse paper feed distance is 48 dots (48*0.176mm).

ESC i Full cut

Format: ASCII: ESC i
 Decimal: 27 105
 Hex: 1B 69

[Description]

The printer controls the paper cutter to execute a full cut of paper.

ESC j Print and feed reversely

Format: ASCII: ESC j n
 Decimal: 27 106 n
 Hex: 1B 6A n

[Description]

Print the data in the print buffer and feed the paper in the reverse direction by n/144 inch.

If there is no data in the print buffer, the printer will feed paper directly. n=0~48.

ESC m Partial cut

Format: ASCII: ESC m
 Decimal: 27 109
 Hex: 1B 6D

[Description]

The printer controls the paper cutter to execute a partial cut of paper.

ESC p Generate cash drawer drive pulse

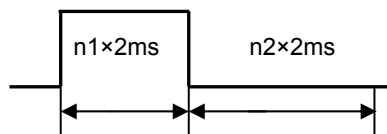
Format: ASCII: ESC p m n1 n2
 Decimal: 27 112 m n1 n2
 Hex: 1B 70 m n1 n2

[Description]

Generate cash drawer drive pulse.

M=0, 1, 48, 49; 0≤n1≤n2≤255

The format of pulse is shown as follows:



ESC v Transmit printer status

Format: ASCII: ESC v
 Decimal: 27 118
 Hex: 1B 76

[Description]

This command is effective by using serial interface; the printer will transmit the status of printer paper to upper computer as 1 byte after receiving this command. The signification of this byte is:

When paper is out, bit2=1; When paper is in, bit2=0;

When black mark is effective, bit7=1 denotes that the current position is the black mark position; bit7=0 denotes that the current position is not the black mark position. If black mark is ineffective, this bit is undefined.

FS ! Select Chinese printing mode

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

[Description]

bit2 of n=0, double-width mode is disabled; bit2=1, double-width mode is enabled

bit3 of n=0, double-height mode is disabled; bit3=1, double-height mode is enabled

bit7 of n=0, underline is disabled; bit7=1, underline is enabled

Default n=0

FS & Enter Chinese characters printing mode

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

[Description]

When the printer receives this command, after finishing current line printing, the printer will change to Chinese characters printing mode from next line.

Default mode is Chinese mode.

FS - Set Chinese underline mode

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

[Description]

When n=0, underline has no effect on Chinese characters;

When n=1, Chinese characters are set to single underline mode;

When n=2, Chinese characters are set to double underline mode, but the tab generated by "HT" command is invalid.

FS 2 Self-define Chinese characters

| | | | | | | | | | |
|---------|----------|----|----|-----|----|----|----|----|--------|
| Format: | ASCII: | FS | 2 | a1 | a2 | d1 | d2 | d3 | ...d32 |
| | Decimal: | 28 | 50 | 248 | a2 | d1 | d2 | d3 | ...d32 |
| | Hex: | 1C | 32 | F8 | a2 | d1 | d2 | d3 | d32 |

[Description]

Define the user-defined Chinese characters.

a1=F8 (Hex); A1≤a2≤FE (Hex).

Chinese code has two bytes: a1 is the first byte and a2 is the second byte.

FS S Set full-size Chinese characters spacing

| | | | | | |
|---------|----------|----|----|----|----|
| Format: | ASCII: | FS | S | n1 | n2 |
| | Decimal: | 28 | 83 | n1 | n2 |
| | Hex: | 1C | 53 | n1 | n2 |

[Description]

n1 defines left-side spacing and n2 defines right-side spacing. Half-size characters will be aligned automatically to ensure that the width of full-size character is twice that of half-size character.

Default: n1=0, n2=2.

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]

When n≤*****1>B, quadruple-size mode is turned on.

When n≤*****0>B, quadruple-size mode is turned off.

GS FF Executes black mark detecting

| | | | |
|---------|----------|----|----|
| Format: | ASCII: | GS | FF |
| | Decimal: | 29 | 12 |
| | Hex: | 1D | 0C |

[Description]

Execute black mark detecting. If black mark is detected, the printer stops feeding paper and returns a value (AAH) by serial interface; If black mark is not detected, the printer feeds paper till the end of this page and returns a value (55H) by serial interface.

GS (A Test command

| | | | | | | | | |
|---------|----------|----|----|----|----|----|---|---|
| Format: | ASCII: | GS | (| A | pL | pH | n | m |
| | Decimal: | 29 | 40 | 65 | pL | pH | n | m |
| | Hex: | 1D | 28 | 41 | pL | pH | n | m |

[Description]

pL=2, pH=0, n=0, m=1, 49

Enter HEX print mode (HEX DUMP)

To cancel this command, you must restart the printer.

GS (F Set offset of black mark orientation

| | | | | | | | | | | |
|---------|----------|----|----|----|----|----|---|---|----|----|
| Format: | ASCII: | GS | (| F | pL | pH | a | m | nL | nH |
| | Decimal: | 29 | 40 | 70 | pL | pH | a | m | nL | nH |
| | Hex: | 1D | 28 | 46 | pL | pH | a | m | nL | nH |

[Description]

The parameters set by this command will be valid even after the printer is restarted.

This command is used for selecting permission of black mark orientation control and used for setting the beginning print-position offset or cutting/tearing position offset from black mark. This value is calculated by dots number.

The parameters of this command are shown as follows:

pL+ (pH×256) =4, that is: pL=4, pH=0

1≤a≤3,

m=0, 48

0≤ (nL+nH×256) < 1700

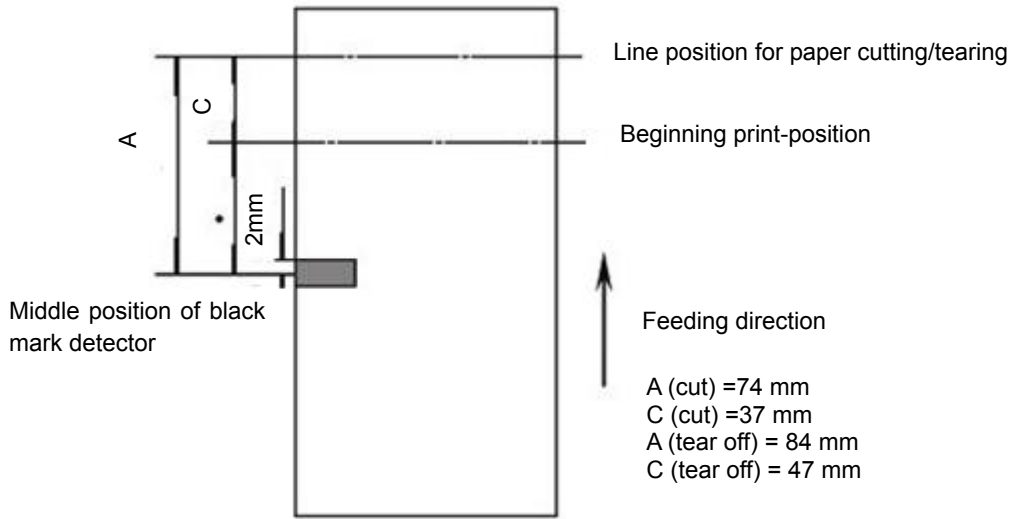


Figure 7-1

- a: set the different offset

| a | function |
|---|--|
| 1 | Set the beginning print-position offset from the black mark detecting position |
| 2 | Set the cutting/tearing position offset from the black mark detecting position |
| 3 | Set the beginning print-position offset from the cutter position |

- m=0 or m=48, calculate the offset in the feed direction;
- The actual distance of offset (set by nL, nH) is $(nL+nH \times 256) \times 0.176\text{mm}$; when a=3, $0 \leq nL \leq 246$; nH=0.
- nL=nH=0, that is, when the black mark is detected, the current print head's position on the bill is the beginning print-position that is set, and the cutting/tearing position of the current bill is the cutting/tearing position that is set.
- Calculation explanation for the cutting/tearing position offset and the beginning print-position offset is shown as follows:
 1. When the distance L between the cutting/tearing position and the black mark position is the same with the inherent mechanical value L_0 of the printer, and the distance Q between the cutting/tearing position and the beginning print-position is the same with the inherent mechanical value Q_0 of the printer (shown as figure 7-2), all the offset value set by "GS (F" command is 0.

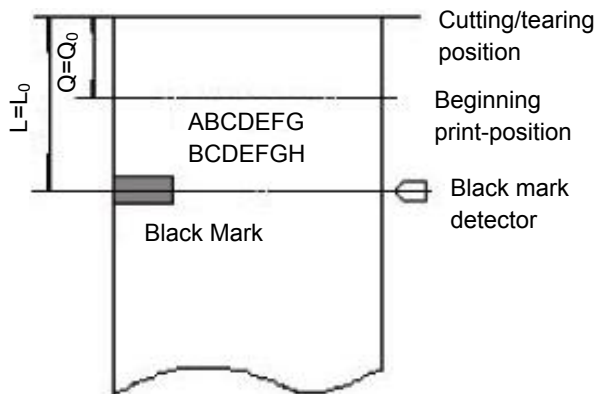


Figure 7-2

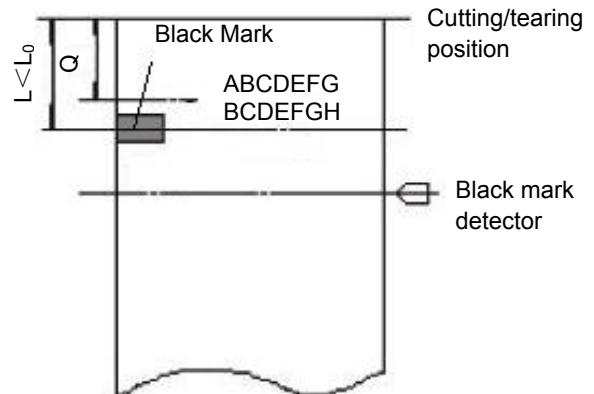


Figure 7-3

2. (1) When the distance L between the cutting/tearing position and the black mark position is less than the inherent mechanical value L_0 of the printer (shown as figure 7-3), the calculation of cutting/tearing position offset is shown as follows:

cutting/tearing position offset= $(L_0-L)/0.176$ (dots number).

- (2) When the distance L between the cutting/tearing position and the black mark position is greater than the inherent mechanical value L_0 of the printer (shown as figure 7-4), the calculation of cutting/tearing position offset is shown as follows:

cutting/tearing position offset= $(L_0 + \text{distance of adjacent two black marks} - L)/0.176$ (dots number)

Note: When the cutting/tearing position offset is being set, the parameter “a” of “GS (F” command should be “2”.

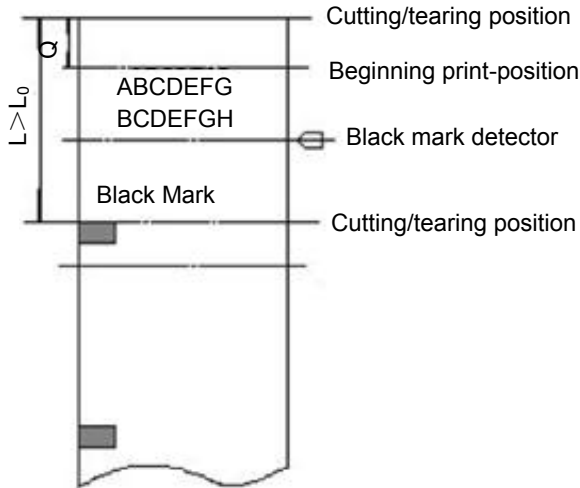


Figure 7-4

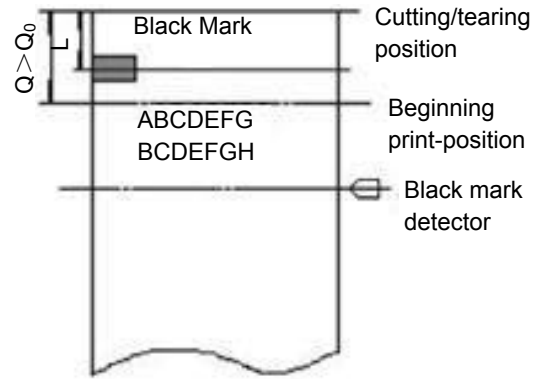


Figure 7-5

3. When the cutting/tearing position offset is not zero, or the distance Q between the beginning print-position and the cutting/tearing position is greater than the inherent mechanical value Q_0 of the printer (shown as figure 7-5), the calculation of the beginning print-position offset of “GS (F” command is shown as follows:

beginning print-position offset= $(Q - Q_0)/0.176 + \text{cutting/tearing position offset}$

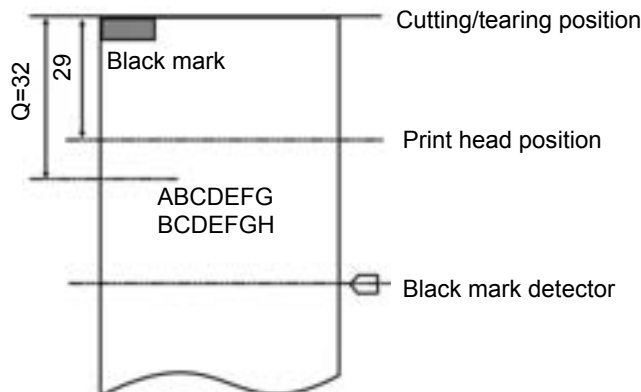
Note: When setting the beginning print-position offset, the parameter “a” of “GS (F” command should be “1”.

4. The inherent mechanical value of the printer: $L_0=A$ (mm) $Q_0=C$ (mm) (shown as figure 7-1).

Examples for the black mark orientation control command of specified bill (Take D model as an example):

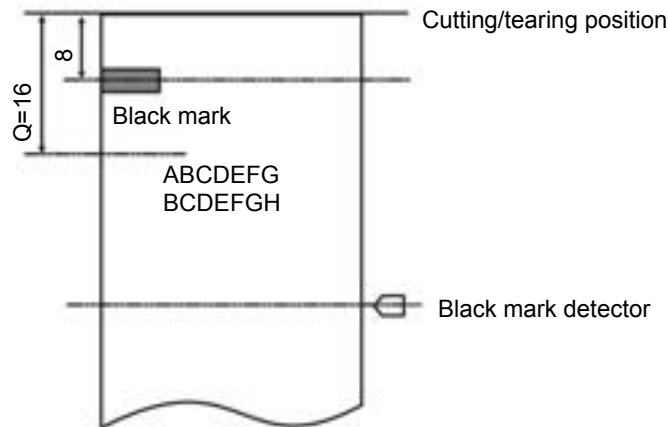
The examples below assume that the paper tear position is on the printer tearing part, $L_0= 67\text{mm}$, $Q_0= 29\text{mm}$ (as Figure 1 shows).

[Example 1] Bill requirement: Cutting/tearing position is on the preprint black mark position, and beginning print-position of every bill is 32mm from the cutting /tearing position.



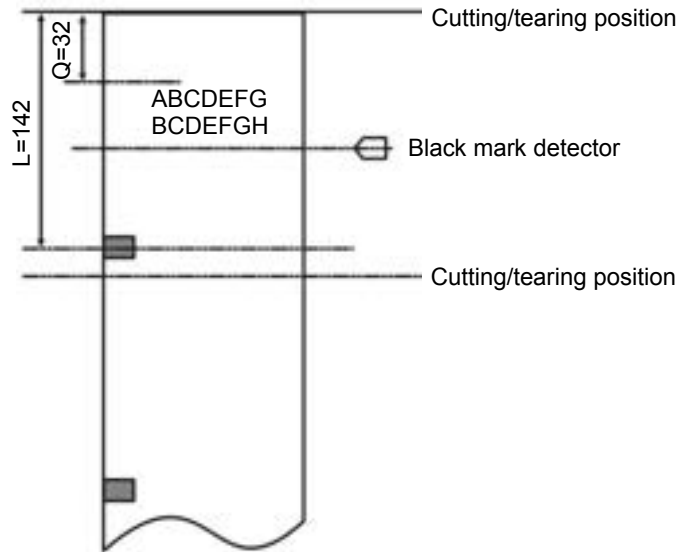
- Calculating the cutting /tearing position offset
As the black mark is on the cutting /tearing position, $L=0$, therefore, cutting /tearing position offset = $(67-0)/0.176=381$ points.
- Using the following command to set the cutting /tearing position offset
1D 28 46 <4> <0> <2> <0> <7D> <1>
- Calculating the beginning print-position offset
 $(32-29)/0.176+381=364$ points
- Using the following command to set the beginning print-position offset
1D 28 46 <4> <0> <1> <0> <6C> <1>
- After finishing the above setting, when printing every bill:
Use GS FF command to feed paper to beginning print-position;
Send the print data of every bill and print out the data line by line;
Use GS V m command to feed paper to cutting /tearing position, and then cut /tear off the bill.

[Example 2] Bill requirement: Cutting /tearing position is 8mm from the black mark position, and the beginning print-position is 16mm from the cutting/tearing position.



- Calculating the cutting /tearing position offset
As the distance between the black mark and the cutting /tearing position is less than L_0 (67mm), therefore, cutting /tearing position offset = $(67-8)/0.176=335$ points.
- Using the following command to set the cutting /tearing position offset
1D 28 46 <4> <0> <2> <0> <4F> <1>
- Calculating the beginning print-position offset
 $(16-29)/0.176+335=261$ points
- Using the following command to set the beginning print-position offset
1D 28 46 <4> <0> <1> <0> <5> <1>
- After finishing the above setting, when printing every bill:
Use GS FF command to feed paper to beginning print-position;
Send the print data of every bill and print out the data line by line;
Use GS V m command to feed paper to cutting/tearing position, and then cut/tear off the bill.

[Example 3] Bill requirement: Bill length is 150mm, cutting /tearing position is 142mm from the black mark position, and beginning print-position is 32mm from the cutting/tearing position.



- Calculating the cutting /tearing position offset
As the distance between the black mark and the cutting/tearing position is greater than L_0 (67mm), therefore, cutting /tearing position offset = $(67+150-142)/0.176=426$ points.
- Using the following command to set the cutting /tearing position offset
1D 28 46 <4> <0> <2> <0> <AA> <1>
- Calculating the beginning print-position offset
 $(32-29)/0.176+426=443$ points
- Using the following command to set the beginning print-position offset
1D 28 46 <4> <0> <1> <0> <BB> <1>
- After finishing the above setting, using the same command as example 1 and example 2 when printing every bill.

Note: 1. As long as the cutting/tearing position offset isn't 0, use GS (F command to set the cutting/tearing position offset (a=2) and beginning print-position offset (a=1) respectively.
2. Only after setting the beginning print-position could use the GS FF command to feed paper to the beginning print-position, or else, it may detect the wrong position or feed paper one page without printing anything.
3. After using GS (F command to change the previous offset, it may detect the wrong position or feed paper one page without printing anything in the first bill printing, but it will be correct in the following bill printing.

| GS | r | | | Transmit printer status |
|---------|----------|----|-----|-------------------------|
| Format: | ASCII: | GS | r | n |
| | Decimal: | 29 | 114 | n |
| | Hex: | 1D | 72 | n |

[Description]

This command is effective at serial interface.

If n=1 or n=49, paper status is returned. If there is paper, the bit2, 3 of the returned byte is 0; if there is no

paper, the bit 2, 3 of the returned byte is 1.

GS V

Feed paper to cutting position

| | | | | | |
|---------|----------|----|----|---|---|
| Format: | ASCII: | GS | V | m | n |
| | Decimal: | 29 | 86 | m | n |
| | Hex: | 1D | 56 | m | n |

[Description]

m=66, 0≤n≤255

When m=66, paper is fed to the position (cutting position + n*1/144 inch) and paper is cut partially (only valid with auto-cutter type). But if the black mark orientation is effective, the value of n is ineffective. The distance of paper feed is decided by the command of "GS (F".

| | | | | |
|---------|----------|----|----|---|
| Format: | ASCII: | GS | V | m |
| | Decimal: | 29 | 86 | m |
| | Hex: | 1D | 56 | m |

[Description]

When m=1 or m=49, paper is fed to the cutting position and is cut partially (only valid with auto-cutter type).

ESC r n

Select the ribbon

| | | | | |
|---------|----------|-----|-----|---|
| Format: | ASCII: | ESC | r | n |
| | Decimal: | 27 | 114 | n |
| | Hex: | 1B | 72 | n |

[Description]

When parameter n=0, select to print in black.

When parameter n=1, select to print in red.

Note: This command is only for the black & red double colors ribbon.

ESC t n

Select the codepage

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

[Description]

Select the default codepage.

| | | | | | |
|---------------|--------------|---------------|----------------|----------------|----------------|
| 0:PC437 | 1:PC850 | 2:PC860 | 3:KU42 | 4:TIS11 | 5:TIS18 |
| 6:TIS26 | 7:JAPAN932 | 8:RUSSIAN | 9:IRAN01 | 10:IRAN02 | 11:VIETNAM |
| 12:HEBREW | 13:PC1252 | 14:PC852II | 15:PC855_0EM | 16:TURKEY_857 | 17:PC1256 |
| 18:PC_864 | 19:PC_737 | 20:PC_1253 | 21:PC863_4 | 22:PC865_5 | 23:PC858_19 |
| 24:PC3840_74 | 25:PC1254_79 | 26:PC437_5052 | 27:PC850_53 | 28:PC860_55 | 29:PC863_57 |
| 30:PC865_58 | 31:Hebrew_8 | 32:Hebrew_31 | 33:PC-869_66 | 34:PC851_65 | 35:PC928_67 |
| 36:PC866_59 | 37:PC1251_73 | 38:PC854_54 | 39:PC1250_72 | 40:PC_68 | 41:PC_86 |
| 42:PC_87 | 43:PC_69 | 44:PC_84 | 45:PC_85 | 46:W_EUROPE_06 | 47:E_EUROPE_09 |
| 48:PC1251_23 | 49:PC1257_25 | 50:katakana_1 | 51:katakana_51 | 52:PC3041_89 | 53:PC861_56 |
| 54:PC3021_88 | 55:PC3847_80 | 56:PC3848_81 | 57:PC3845_78 | 58:PC3844_77 | 59:PC3843_76 |
| 60:PC3841_75 | 61:PC864_63 | 62:PC1001_82 | 63:PC2001_83 | 64:PC3846_79 | 65:Greek_7 |
| 66:WPC1255_32 | 67:UIGUR_30 | 68:PC857_61 | 69:Latvian_21 | 70:PC855_60 | 71:PC874_70 |

Appendix Commands List

| Command (ASCII) | Hexadecimal Code | Function |
|-----------------|----------------------|---|
| HT | 09 | Moves the print position to the next horizontal tab position. |
| LF | 0A | Print the data in the line editing buffer and feed one line |
| CR | 0D | The printer prints one line data and the print head returns to the left position automatically. |
| FF | 0C | Print and feed paper to the top of the next page according to the current page length setting |
| ESC SP | 1B 20 n | Set the right-side spacing of character to n times of half dot spacing (1/144 Inch). |
| ESC ! | 1B 21 n | Set character printing mode |
| ESC % | 1b 25 n | Select/cancel user-defined character set |
| ESC & | 1B 26 s n m a d1..dn | Define user-defined characters |
| ESC * | 1B 2A m n1 n2 | Select bit-image mode |
| ESC - | 1B 2D n | Set English underline mode |
| ESC 2 | 1B 32 | Set 1/6 inch line spacing |
| ESC 3 | 1B 33 n | Set n/144 inch line spacing |
| ESC < | 1B 3C | Print head returns to standby position |
| ESC ? n | 1B 3F n | Cancel user-defined character "n" <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Note: You should restart the printer to cancel this command.</div> |
| ESC @ | 1B 40 | Initialize printer |
| ESC C | 1B 43 n | Set the page length according to line spacing |
| ESC D | 1B 44 n1 ... nk NULL | Set horizontal tab positions |
| ESC E | 1B 45 n | Set / Cancel boldface printing |
| ESC G | 1B 47 n | Turn double-strike mode on/off |
| ESC J | 1B 4A n | Print and feed paper in n/144 inch, if there is no data in the buffer, it may feed paper directly. |
| ESC K | 1B 4B n | Print and reversely feed in n/144 inch, n = 0 ~ 48. |
| ESC U | 1B 55 n | Turn unidirectional printing mode on/off |
| ESC c 4 n | 1B 63 34 | Select paper sensor (s) to stop printing |
| ESC c 5 n | 1B 63 35 | Enable/disable panel buttons |
| ESC d n | 1B 64 n | Print and feed n lines. n = 0 ~ 255. |
| ESC e n | 1B 65 n | Print and reversely feed n lines. n = 0 ~ 2. And the maximum reverse paper feed distance is 48 points (48*0.176mm). <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Note: Reverse paper feed should not over 2 lines.</div> |

| | | |
|---------------------------|-----------------------------|--|
| ESC i | 1B 69 | Full cut |
| ESC j n | 1B 6A n | Print and reversely feed n/144 inch, if there is no data in the buffer, it may feed paper directly, n=0~48. |
| ESC m | 1B 6D | Partial cut |
| ESC p m t1 t2 | 1B 70 | Generate cash drawer drive pulse |
| ESC v | 1B 76 | Transmit printer status |
| FS ! | 1C 21 n | Select Chinese printing mode |
| FS & | 1C 26 | Enter Chinese characters printing mode |
| FS - | 1C 2D n | Set Chinese underline mode |
| FS 2 | 1C 32 | Self-define Chinese characters |
| FS S | 1C 53 n1 n2 | Set full-size Chinese characters spacing |
| FS W | 1C 57 n | Turn quadruple-size mode on/off for Chinese characters |
| GS FF | 1D 0C | Black mark detection |
| GS (A pL pH n m | 1D 28 41 pL pH n m | Enter the Hex print mode (HEX DUMP). pL=2, pH=0, n=0, m=1, 49 Note: You should restart the printer to cancel using this command. |
| GS (F pL pH a m nL nH | 1D 28 46 pL pH a m nL nH | Set offset of black mark. pL=4, pH=0, a=0~3, m=0,48 $0 \leq (nL + nH \times 256) < 1700$ |
| GS r | 1D 72 n | Transmit printer status |
| GS V m n | 1D 56 m n | Feed paper to cutting position. |
| ESC r n | 1B 72 n | Select the ribbon |
| ESC t n | 1B 74 n | Select the codepage. |

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