



User Guide DT-210/230 Thermal Receipt Printer



Important Safety Instructions (English)

Read the following instructions thoroughly before starting up your printer.

- The device and mains-socket must all times be easily accessible.
- Never carry out maintenance or repair work yourself. Always contact a qualified service technician.
- Keep this user guide in a place which is easily accessible at all times.
- Place the printer on a solid and even base so that it cannot fall.
- Never place the printer in the vicinity of inflammable gas or explosive substances.
- Ensure the printer is connected to a socket with the correct voltage.
- Always disconnect the printer from the power before opening the device to perform maintenance work or remedy errors.
- Do not expose the printer to high temperatures, direct sunlight or dust.
- Keep all liquids away from the printer.
- Protect the printer from shock, impact and vibration.
- Make sure that both the printer and the computer are switched off before connecting the data cable.
- The print head will become very hot during printing; avoid contact with the print head after printing has finished.
- Do not perform any operation or action in any way other than those provided in this manual. When in doubt, contact your dealer or your customer support.

About This Manual

This manual provides information to operators of the DT-210/230 to describe basic operations to enable safe and correct use of the printer.

Symbols Description

The symbols in this manual are identified by their level of importance, as defined below. Read the following carefully before handling the product.



CAUTION: Provides information that must be observed to prevent damage to the equipment or loss of data.



NOTE: Advises you of information that is essential to complete a task.

TABLE OF CONTENTS

ABOUT THIS MANUAL.....	II
1 PRODUCT OVERVIEW	1
1.1 Features	1
1.2 Unpacking	3
1.3 Product Configurations	4
1.4 Part Names and Functions	5
1.4.1 Power Switch.....	6
1.4.2 Control Panel.....	6
1.4.3 LED Indicators	7
2 SETUP.....	8
2.1 Flow of Setup	8
2.2 Installing the Printer.....	9
2.3 Changing the Paper Width.....	10
2.4 Attaching Power.....	11
2.5 Adjusting the Paper Near-end Sensor.....	12
2.6 Loading Roll Paper.....	13
2.7 Installing Optional Kits	15
3 INSTALLING DRIVER	16
3.1 Installation Driver for Ethernet and Wi-Fi Interface	18
3 CONNECTING TO COMPUTER	23
3.1 For USB Interface	24
3.2 For Cash Draw Interface.....	24
3.3 For Serial Interface.....	25
3.4 For Parallel Interface	26
3.5 For Ethernet Interface.....	26
3.6 For Wireless LAN Interface	30
3.6.1 Get IP Address.....	32
3.6.2 Wlan Setup - AP mode	35
3.6.3 Wlan Setup - STA mode.....	37
3.6.4 Return to Factory Setting	38
3.7 Connecting to Bluetooth.....	39
3.7.1 Installing Bluetooth Adapter Driver	39
3.7.2 Changing Printer Port.....	41
3.7.3 Changing Baud Rate of the Printer.....	44
4 SETTING/CHECKING MODES.....	45
4.1 Self-test Mode.....	45
4.2 Hexadecimal Dumping Mode.....	47
5 SETTING DIP SWITCHES	48
5.1 Setting Procedure.....	48
5.2 For Serial Interface (RS-232C)	49
5.3 For Parallel and USB2.0 Interface.....	50
5.4 Selecting the Print Density.....	51

5.5 Auto Cutter Enable/Disable Selection.....	51
6 TROUBLESHOOTING.....	52
6.1 Error Status	52
6.2 Removing Jammed Paper.....	53
6.3 Cleaning Thermal Head.....	54
7 SPECIFICATIONS.....	55
7.1 Printer Specification.....	55
7.2 External Dimension and Mass.....	57
7.3 Interfaces	58
7.3.1 USB interface.....	58
7.3.2 Cash Drawer interface.....	58
7.3.3 Serial interface	59
7.3.4 Parallel interface	59
7.3.5 Ethernet interface	61
7.3.6 Wi-Fi interface	61
7.4 Power Adapter	61
7.5 Paper Specification	62
7.5.1 Printable Area	62
7.5.2 Printing and Cutting Positions.....	64
8 CHARACTER CODE PAGES	65
8.1 Common to All Pages (International Character Set: USA).....	65
8.2 International Character Sets	66
8.3 [User-defined page]	67
8.4 [PC437: USA, Standard Europe]	68
8.5 [PC850: Multilingual]	69
8.6 [PC852: Latin2].....	70
8.7 [PC858: Euro]	71
8.8 [PC860: Portuguese]	72
8.9 [PC863: Canadian-French]	73
8.10 [PC865: Nordic]	74
8.11 [PC866: Cyrillic #2]	75
8.12 [KU42: Thai]	76
8.13 [TIS11: Thai]	77
8.14 [TIS18: Thai]	78
8.15 [PC720: Arabic].....	79
8.16 [PC864: Arabic]	80
8.17 [WPC1256: Arabic]	81
9 PRINTING CONTROL COMMAND SETS.....	82
FCC STATEMENT.....	86
DASCOM REPRESENTATIVES	87

1 PRODUCT OVERVIEW

Tally Dascom's DT-210/230 offers high-speed label printing for a wide range of terminal equipment including data, POS, and kitchen terminals. With extensive features, they can be used in a wide range of applications such as food service, retail and grocery.

With an internal memory large enough to store logos, footers, custom fonts, keywords and downloading custom applications, this unit has it all. The DT-210/230 can be desktop or wall-mounted and comes standard with USB interface, RS-232 serial, Centronics parallel, Ethernet, Wi-Fi or Bluetooth interfaces. Printer drivers included are: Windows XP (32 and 64 bit), Windows Vista (32 and 64 bit), Java POS, OPOS, and Linux.

1.1 Features

Printing

- High speed printing (260 mm/s maximum).
- Versatile roll capacity with ability to use 80mm, and 58mm wide paper rolls.
- Can use paper roll with a maximum of 83mm diameter.
- 2-color printing is supported (When specified paper is used).
- Equipped with a fast and quiet cutter.

Handling

- Compact design, can be installed anywhere.
- Drop-in paper roll mechanism facilitating easy paper handling and head cleaning.
- Drip-proof design.

Software

- Command protocol is based on the ESC/POS Proprietary Command System.
- OPOS ADK, OPOS ADK for .NET, JavaPOS ADK, Linux, and Windows printer drivers are available.
- Barcode and 2D barcode printing supported.
- Various layouts are possible by using page mode.
- Buzzer reminder after each printout.
- Paper-saving function is supported.

- The DT-210/230 is ENERGY STAR qualified. (Some configurations may be exempted, depending on their components.)
-

Others

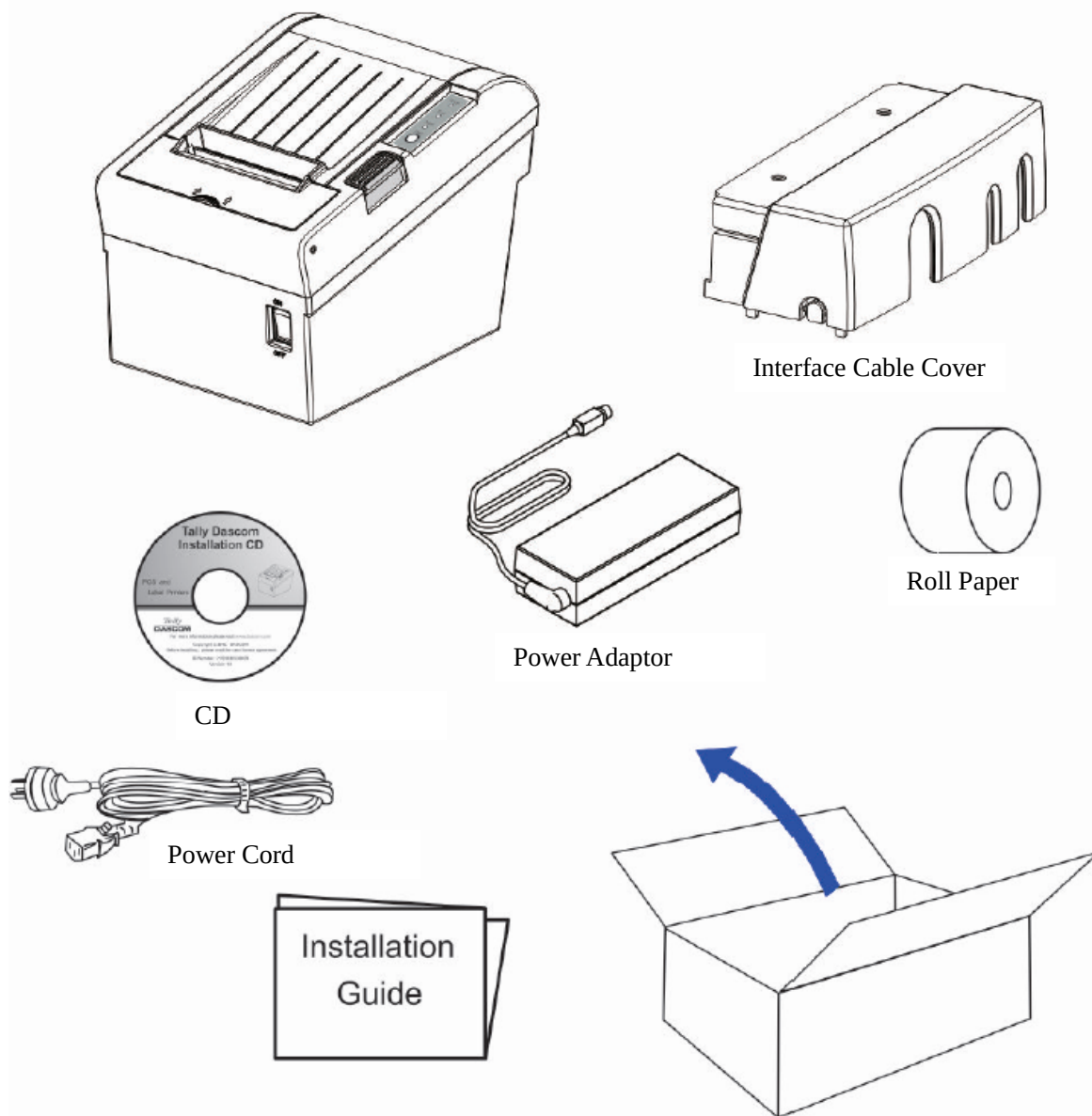
- Wide range of connectivity. The USB interface is standard interface. Serial/parallel/Ethernet/ Wi-Fi/ Bluetooth are optional interfaces. Various interface choices suit all needs.
- Built-in USB interface is also available for all interface models.
- The DT-210/230 Software & Documents Disc (drivers, utility, and manuals).
- Printer status and errors indicated by 3 LEDs and a buzzer.

1.2 Unpacking

Open the packaging, lift the printer out of the cardboard box and remove the remaining packaging material. Check the printer for any visible transport damage and missing items. If you find any transport damage or any accessories are missing, please contact your dealer for assistance.



Please keep the packaging material for future transportation.
The shipping list varies with different customized order requirements.



Shipping List

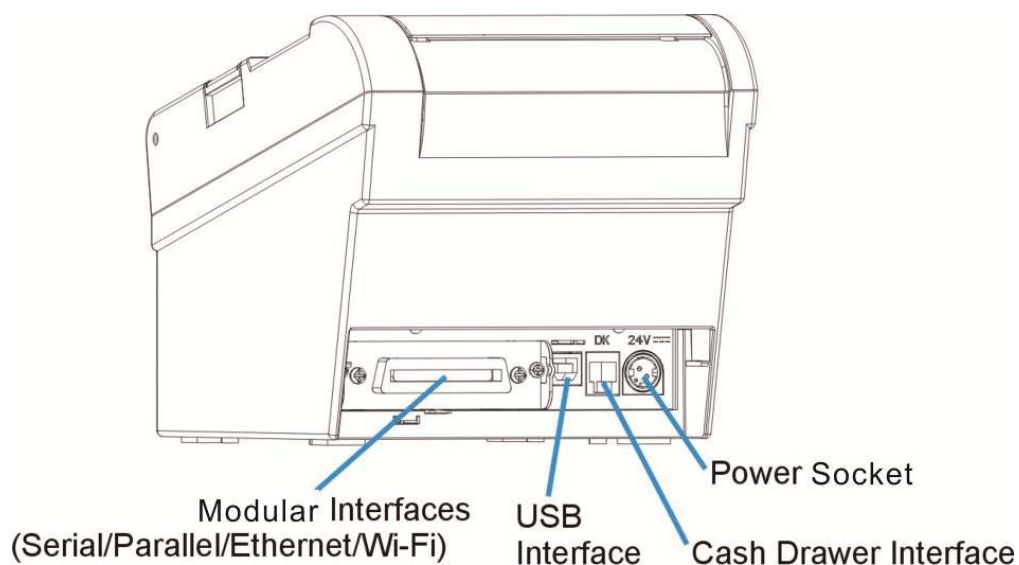
Items	QTY.	Remarks
Printer	1 unit	
Interface Cable Cover	1 piece	
Power Adapter	1 piece	
Power Cord	1 piece	
Roll Paper -Test	1 piece	
Graphic Installation Guide	1 piece	
CD	1 piece	including user guide, graphic installation guide, Driver and demo tool

1.3 Product Configurations

There are two models in this series.

- DM-310: without auto cutter
- DM-330: with auto cutter

Interface Types



- USB model
- Serial UB + built-in USB interface model
- Parallel UB + built-in USB interface model
- Ethernet UB
- Wireless LAN UB
- Bluetooth UB

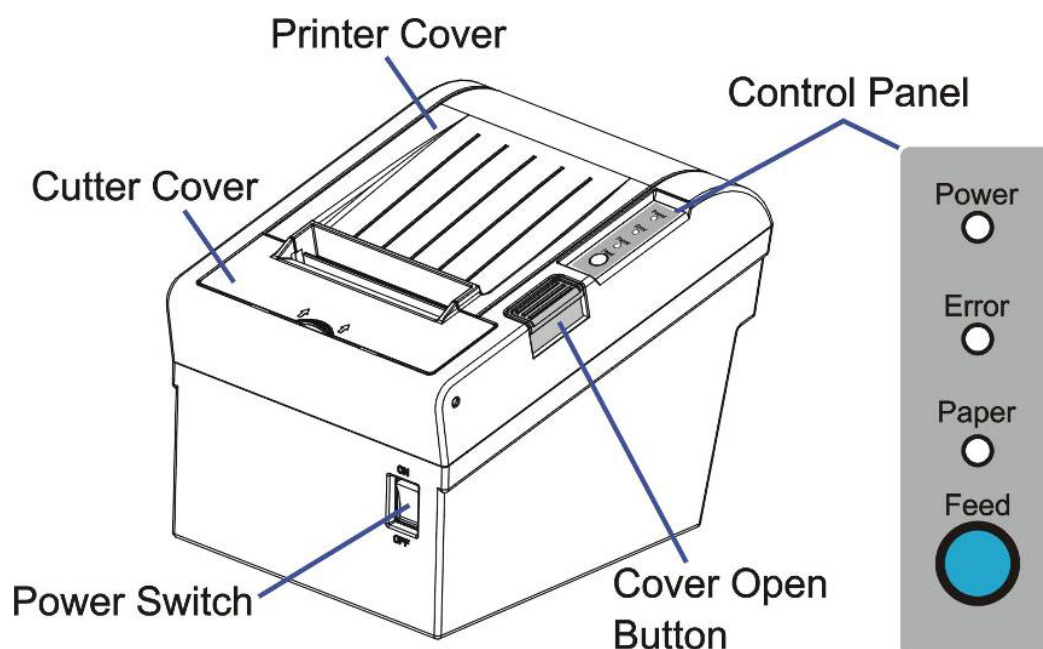
Model	Power Adapter	Interfaces							Power Cord	Paper Cut		Sensor
	100-240	USB	Cashbox	PAR	SER	ETH	Wi-Fi	Fiscal	EN/UK/EU	Cutter	Tear Bar	Black Mark
DT-210	✓	✓	✓	O	O	O	O	O	✓	N	✓	O
DT-230	✓	✓	✓	O	O	O	O	O	✓	✓	✓	O

Remarks: “ ✓ ” indicates standard configuration, “ O ” indicates optional configuration.

PAR=Parallel interface; SER= Serial interface; ETH=Ethernet interface.

1.4 Part Names and Functions

Printer components and functions are shown as below:



Component	Function
Printer Cover	Open the cover when loading roll paper.
Control Panel	Shows printer status.
Power Switch	To power printer ON or OFF.
Cutter Cover	To protect the auto-cutter and to clear paper jam at cutter.
Cover Open Button	Press down to open the Printer Cover

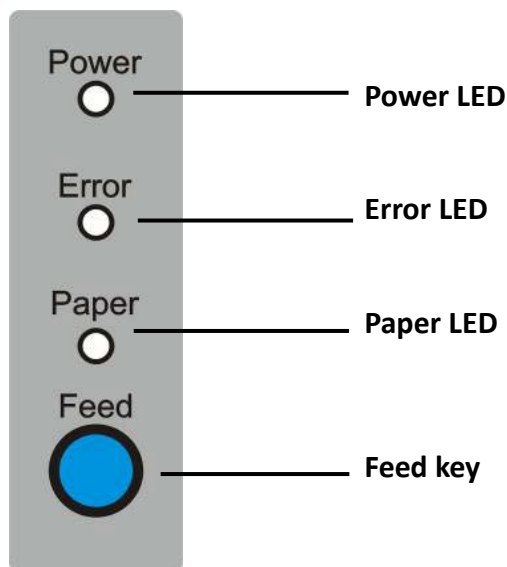
1.4.1 Power Switch

Turn the printer on or off. The marks on the switch: (O: OFF / | : ON)



Before turning on the printer, be sure to check that the AC adapter is connected to the power supply.

1.4.2 Control Panel



LEDs

Power LED (green)

- Lights when the power supply is on.
- Goes out when the power supply is turned off.

Error LED

Lights or flashes when the printer is offline.

- Lights after the power is turned on or after a reset (offline). Automatically goes out after a while to indicate that the printer is ready.
- Lights when the end of the roll paper is detected, and when printing has stopped (offline). If this happens, replace the roll paper.
- Flashes when an error occurs. (For details about the flash code, see "[Error Status](#)" on page 52.)
- Goes out during regular operation (online).

Paper LED

- Lights when there is no more roll paper or there is little remaining.
- Off when there is a sufficient amount of roll paper remaining.
- Flashed when a self-test is in progress.

Feed Key

Pressing this key once feeds the roll paper by one line. Holding this button down feeds the roll paper continuously.

1.4.3 LED Indicators

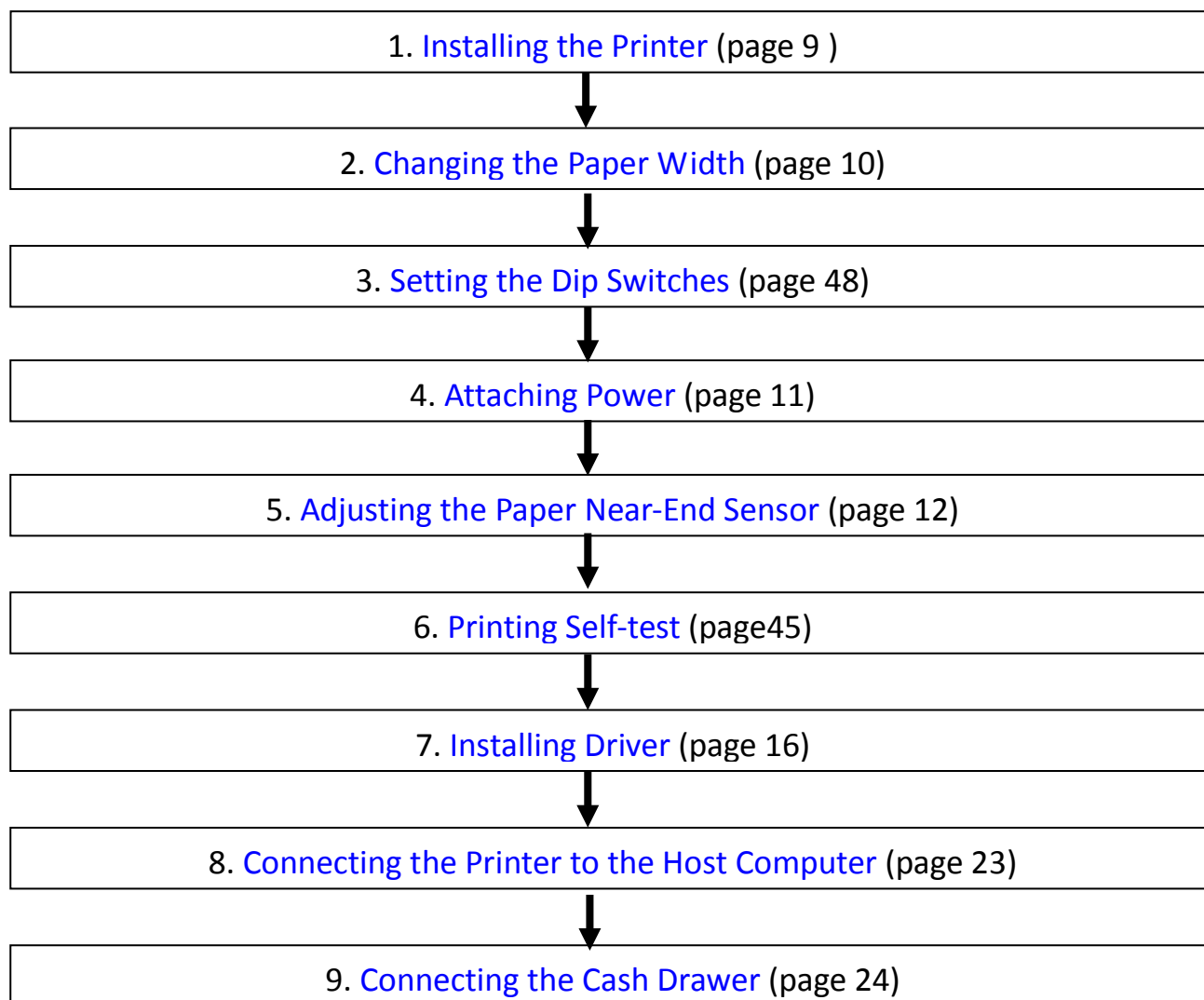
Description	POWER	ERROR	PAPER	BEEPER
Printer Cover is open	On	On	On	Short beep for twice and long beep for once
Roll paper is sufficient	On	Off	Off	No beep
Roll paper end	On	On	On	Short beep for three times
Roll paper near end	On	Off	On	No beep

2 SETUP

This chapter describes the setup and installation of the product and peripherals.

2.1 Flow of Setup

This chapter consists of the following sections along with the setup flow of the product and peripherals.



2.2 Installing the Printer

You can install this printer horizontally. With an optional mounting plate (P/N: 99501), you can also attach the printer to a wall.

Important Notes on Horizontal Installation:

- The printer must be installed horizontally on a flat surface (not tilted).
- Do not place the printer in dusty locations.
- Do not knock or strike the printer. This may cause defective print.
- Do not catch cables or place foreign matter under the printer.

Important Notes on Horizontal Installation:

You need to perform the follow tasks to install the printer on a wall. For more details, turn to [Mounting Plate](#) installation part on page 16.

- Installing the roll-paper stoppers.
- Changing the location of the roll paper near-end sensor.
- Attaching the connector cover.
- Attaching the wall mounting plate (P/N: 99501).



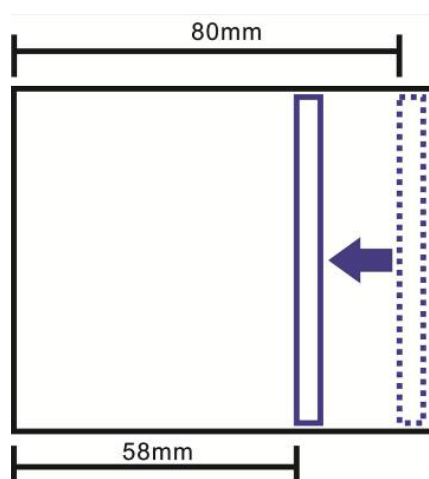
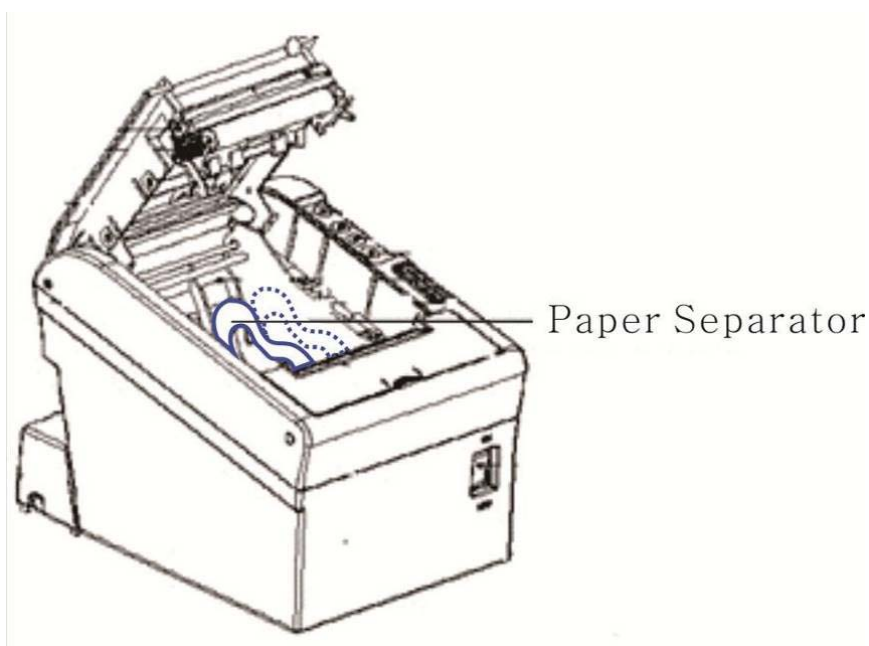
Be sure to attach the connector cover when you install the printer on a wall using the wall mounting plate.

2.3 Changing the Paper Width

The printer is initially set to print on 80 mm width paper and you can change the printer to print on 58 mm width paper by installing the roll paper guide and changing the paper width setting with customized value.

Follow the steps below to install the roll paper guide.

1. Open the roll paper cover.
2. Hold the paper separator and carefully pull it out in the direction of arrow.
3. Move paper separator from right side to the specified position near the middle of paper holder, and carefully insert it into the specified position.



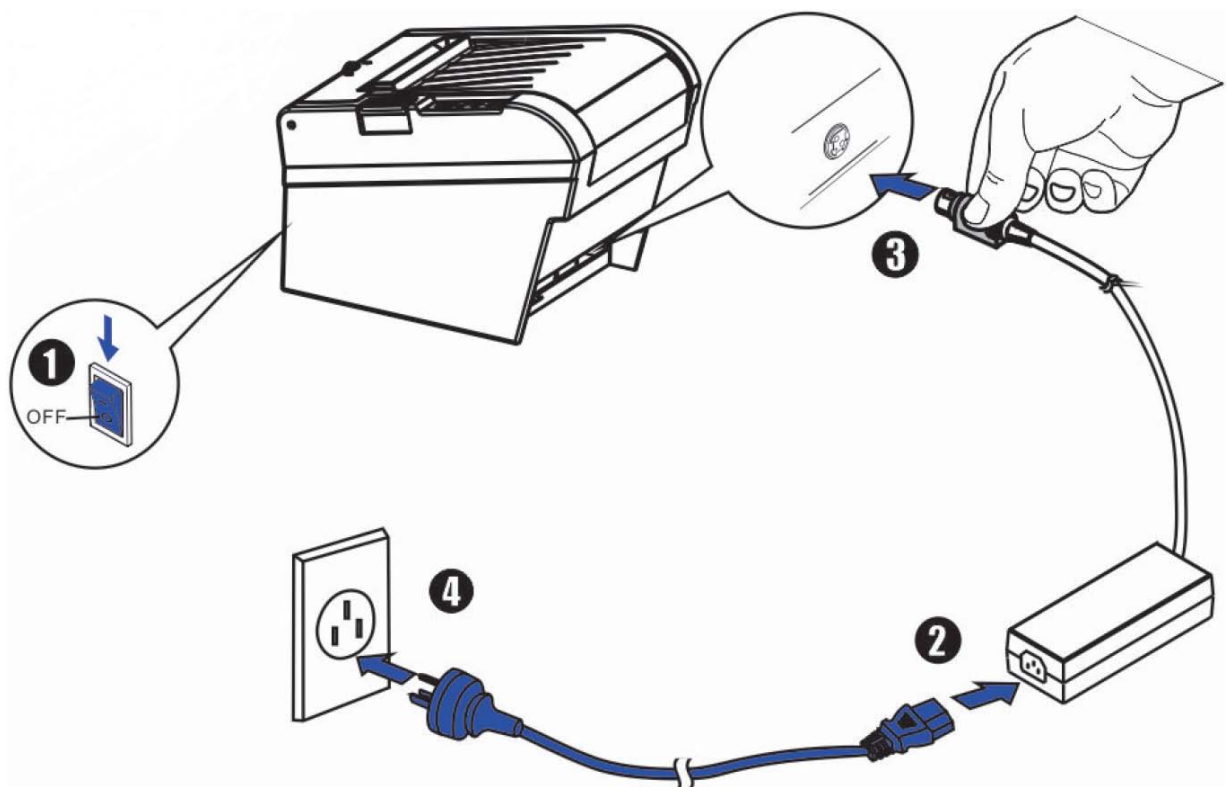
2.4 Attaching Power

Checking the voltage of the power adapter



Before you connect the power adapter to the power socket check if the voltage is correct. If you connect the power adapter to power with incorrect voltage this may result in electrical damage to adapter and printer.

1. Make sure the printer and the computer are powered off.
2. Connect the power cord to the power adapter.
3. Connect the power adapter to the power supply interface at the rear of the printer.
4. Ensure the power cord is securely connected. Connect the power cord plug to a mains socket on the wall.



Power on and power off

- Press the power switch to the “I” position to turn on the printer.
Upon power-on, the Power LED indicator light up.
- Press the power switch to the “O” position to turn off the printer.

2.5 Adjusting the Paper Near-end Sensor

Below are two situations where a paper near-end sensor adjustment is required.

- To adjust the detection position to suit the diameter of the roll paper core used.
- To adjust the detection position of remaining amount of paper.

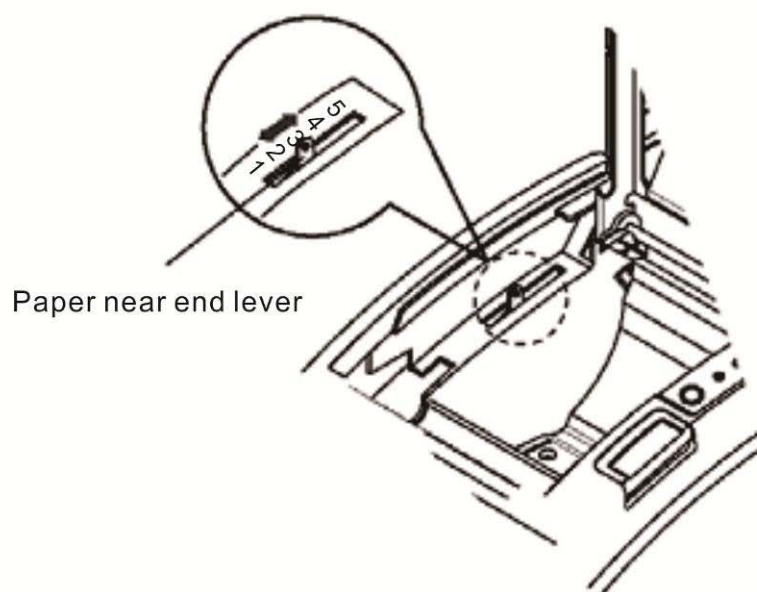


CAUTION!

Since roll paper cores vary slightly in shape, depending on paper roll design and manufacturing tolerances, it is impossible to detect the remaining paper exactly.

Follow the steps below to adjust the roll paper near-end detector.

1. Open the roll paper cover, and remove the roll paper.
2. You will see a black lever inside as shown below.



3. Adjust the lever according to your need.

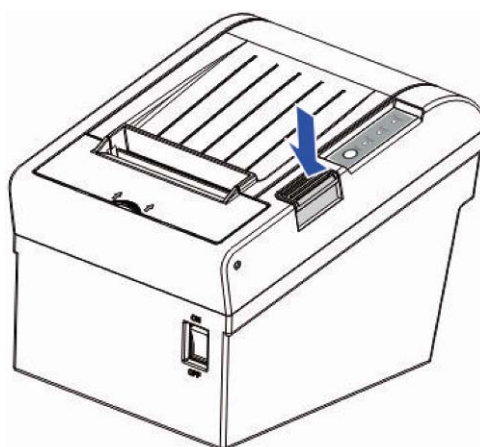
Adjustments position	Remaining amount of paper (outer diameter: mm)
1 (Minimum)	Approx. 26 {1.02"}
2	Approx. 27 {1.06"}
3	Approx. 28 {1.10"}
4	Approx. 30 {1.18"}
5	Approx. 32 {1.26"}
6 (Maximum)	Approx. 33 {1.30"}

2.6 Loading Roll Paper

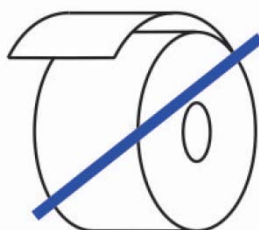
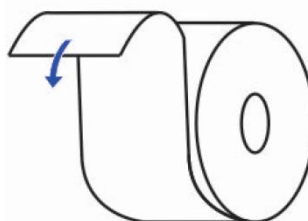
**WARNING!**

When opening the cover, take care not to touch the print head or cutter blade. Otherwise, burning or injury of hand may result.

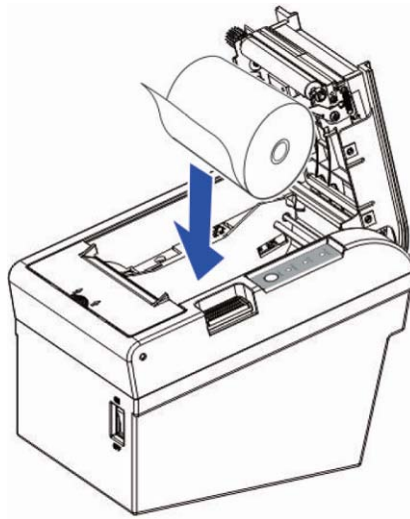
1. Press the cover open button to open the cover.



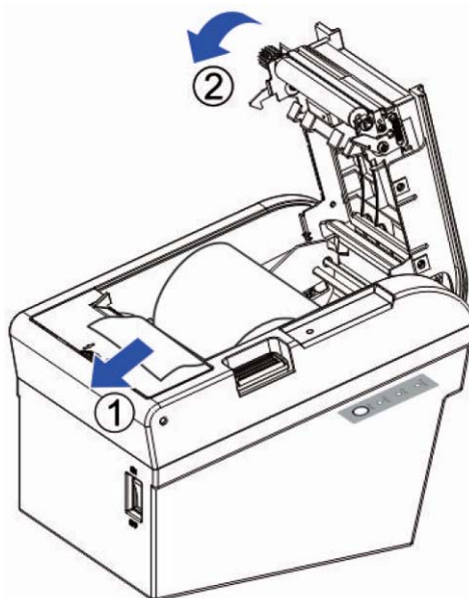
2. Remove the used roll paper core, if any.
3. Insert the paper roll with its print area facing down as shown in the figure.



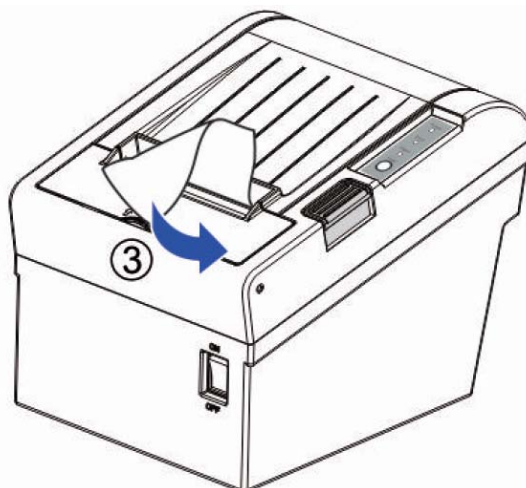
4. Install the media in the correct direction.



5. Pull out some roll paper, and close the cover.



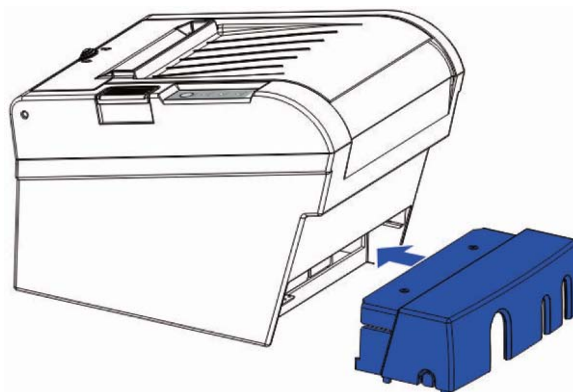
6. Tear off the paper with the manual cutter till you hear a click sound.



2.7 Installing Optional Kits

Interface Cover

Adjust the relative positions between interface cover and printer as shown below, and push the interface cover as arrow shows below.



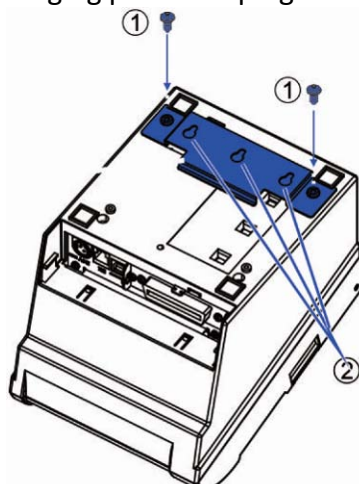
Splash Cover (optional kit)

Slip the fixed hooks on both sides of splash cover into the mounting hole on the printer, and close the splash cover.



Mounting Plate (optional kit)

1. Mount the plate on the lower housing of the printer with screws. _____
2. Align the positioning holes of the hanging plate and plug into the fixed screws on the wall. _____



3 INSTALLING DRIVER

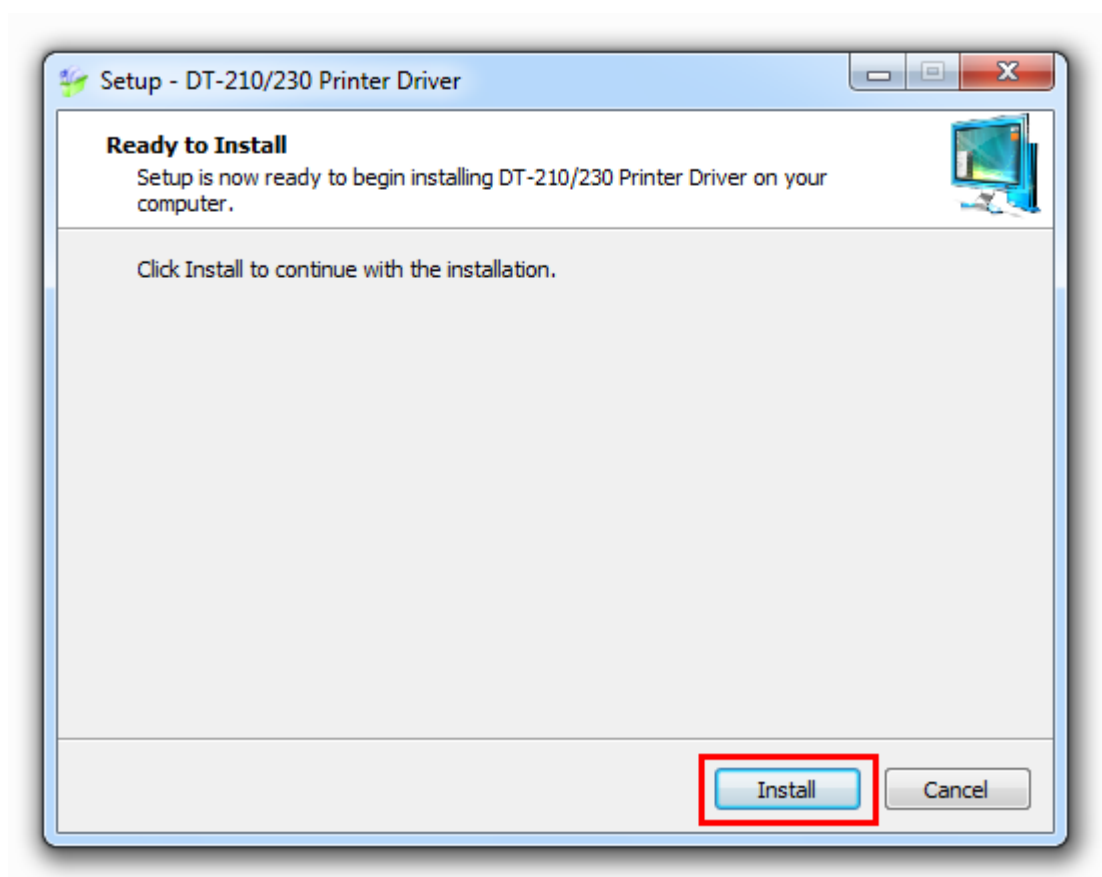
Installing the Windows Driver (Compatible with Windows)



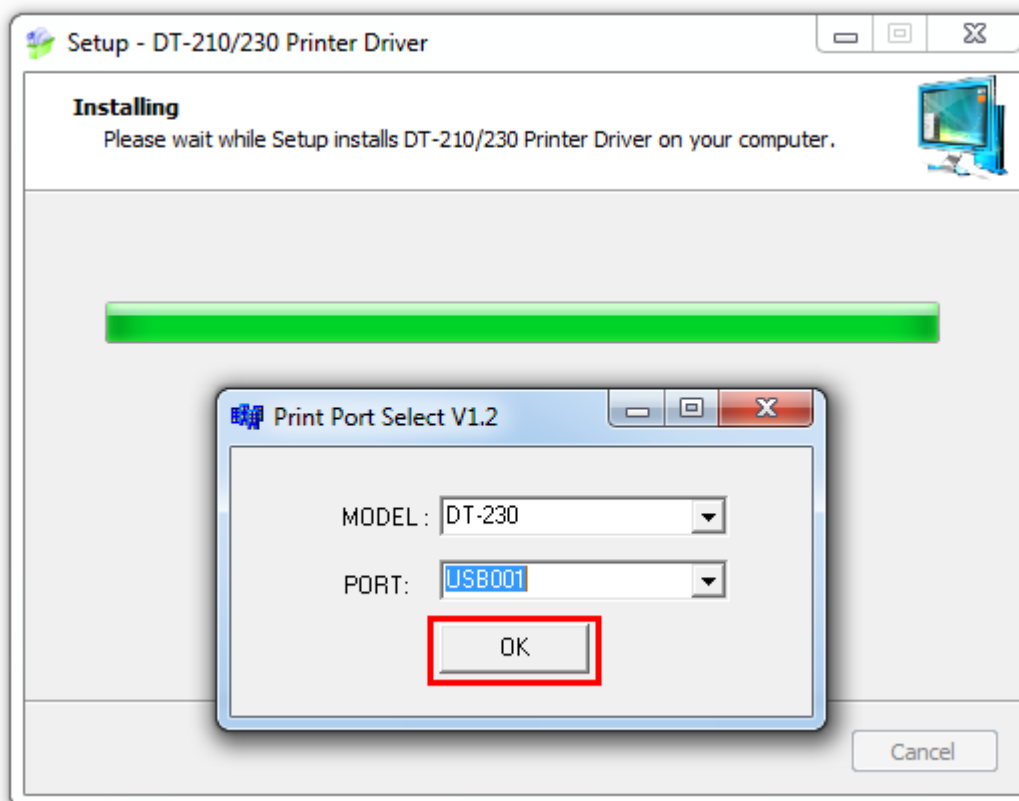
Switch off the printer before running the printer driver setup.

Your printer CD-ROM comes with Windows drivers. Go to the related folder and run the driver setup installer.

1. Double click the driver. You will see the screen as below. Click “Install” to continue.



2. Choose the desired port to use, after selecting the “Port” option (USB001 for USB port, com1 for serial port and LPT1 for parallel port), click “Next” to continue.

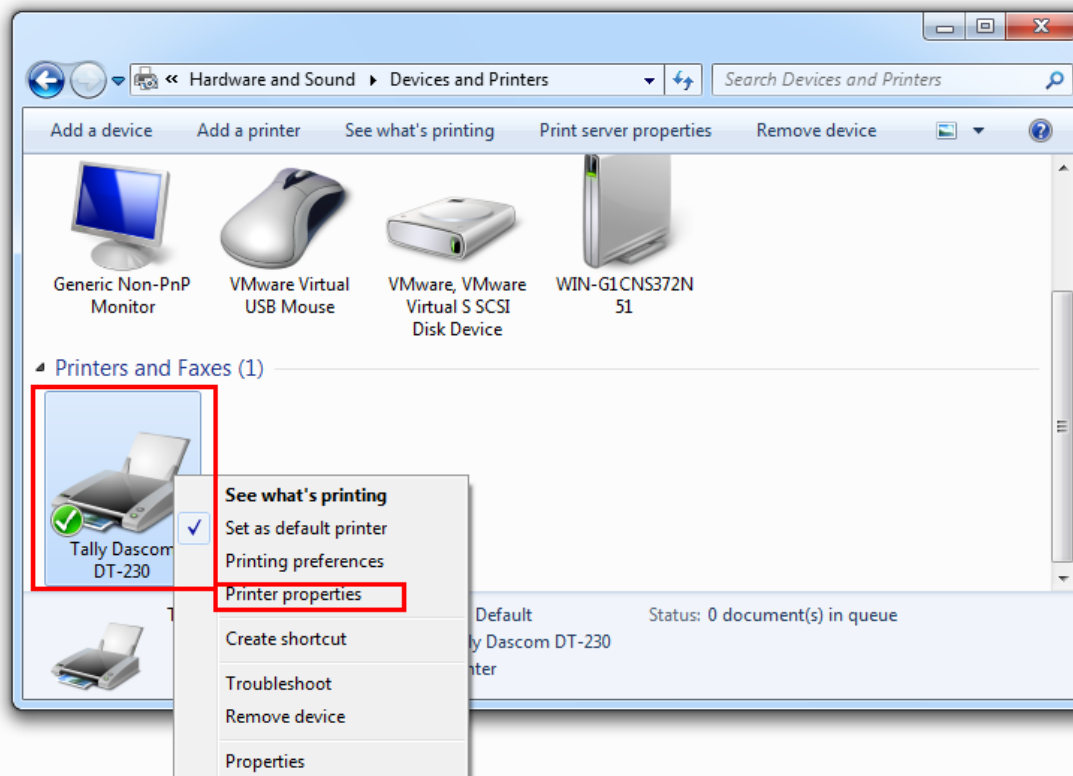


3. Click “Finish” to finish the installation process successfully.

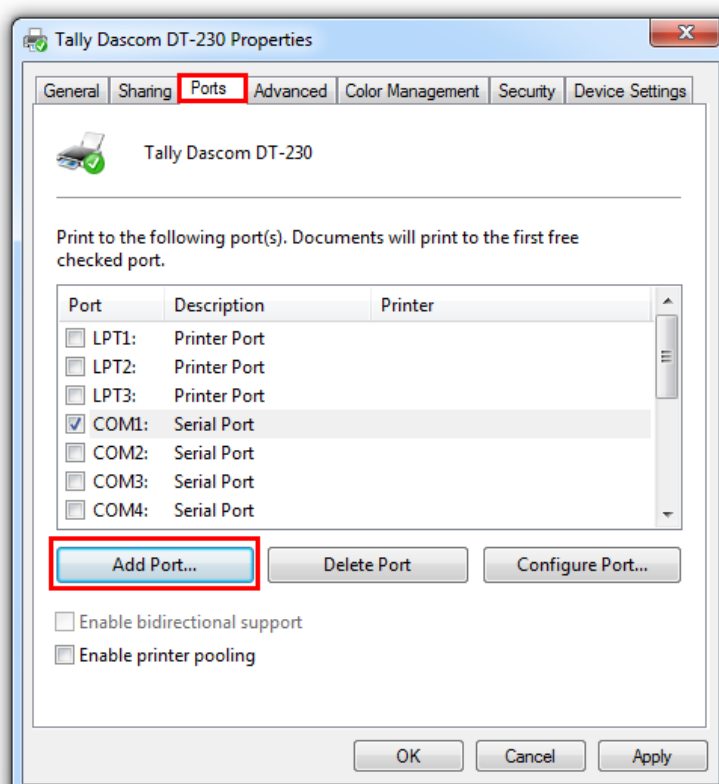


3.1 Installation Driver for Ethernet and Wi-Fi Interface

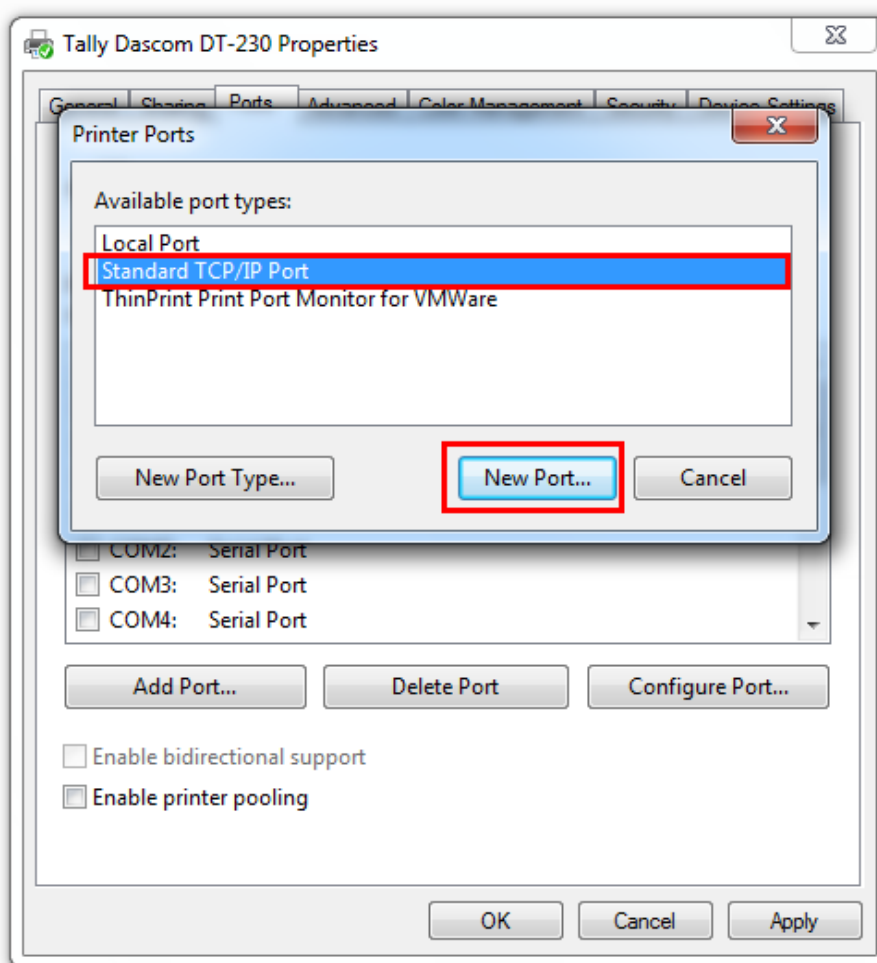
1. Install the printer driver as USB installation.
2. Click “Start”→ “Devices and Printers”, right click on the DT-230 Printer Driver, and then click “Printer Properties”.



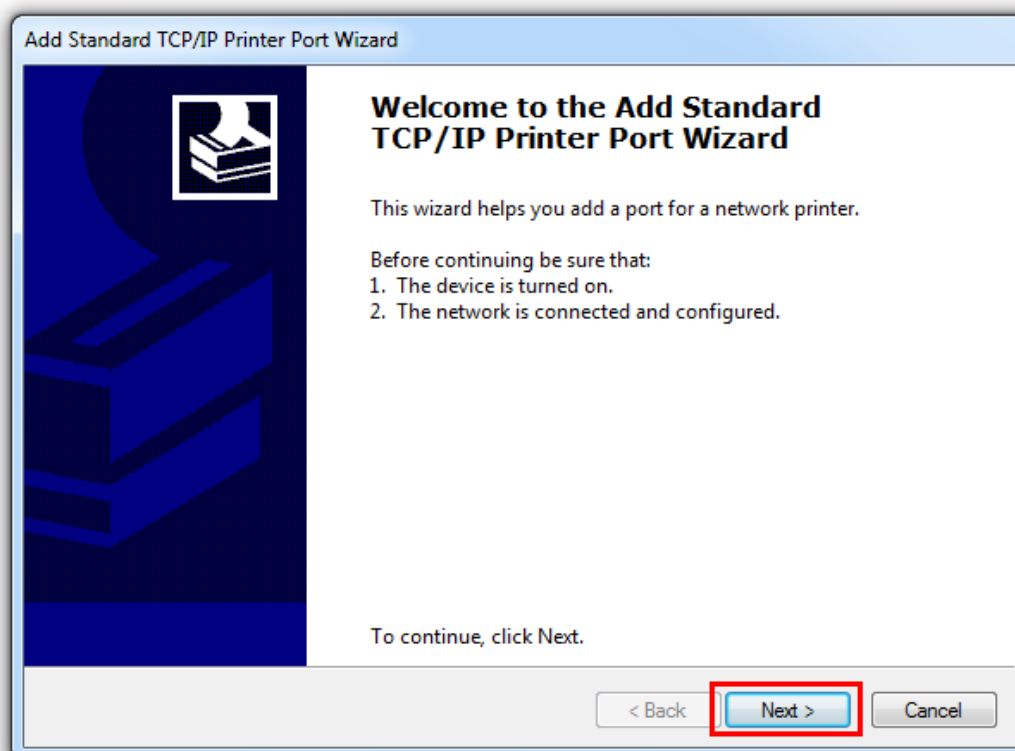
3. Then you will see the screen as below. Click “Ports” → “Add Port”.



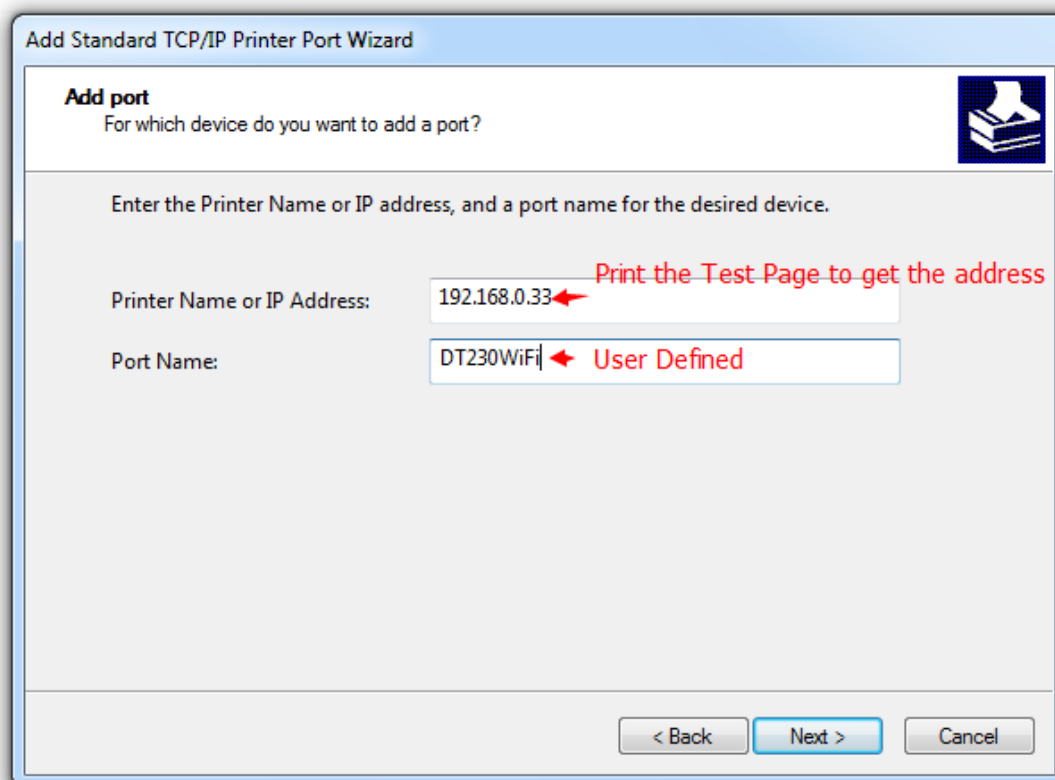
4. Select “Standard TCP/IP Port”, and click “New Port”.



5. You will see the screen as below, click “Next” to continue.

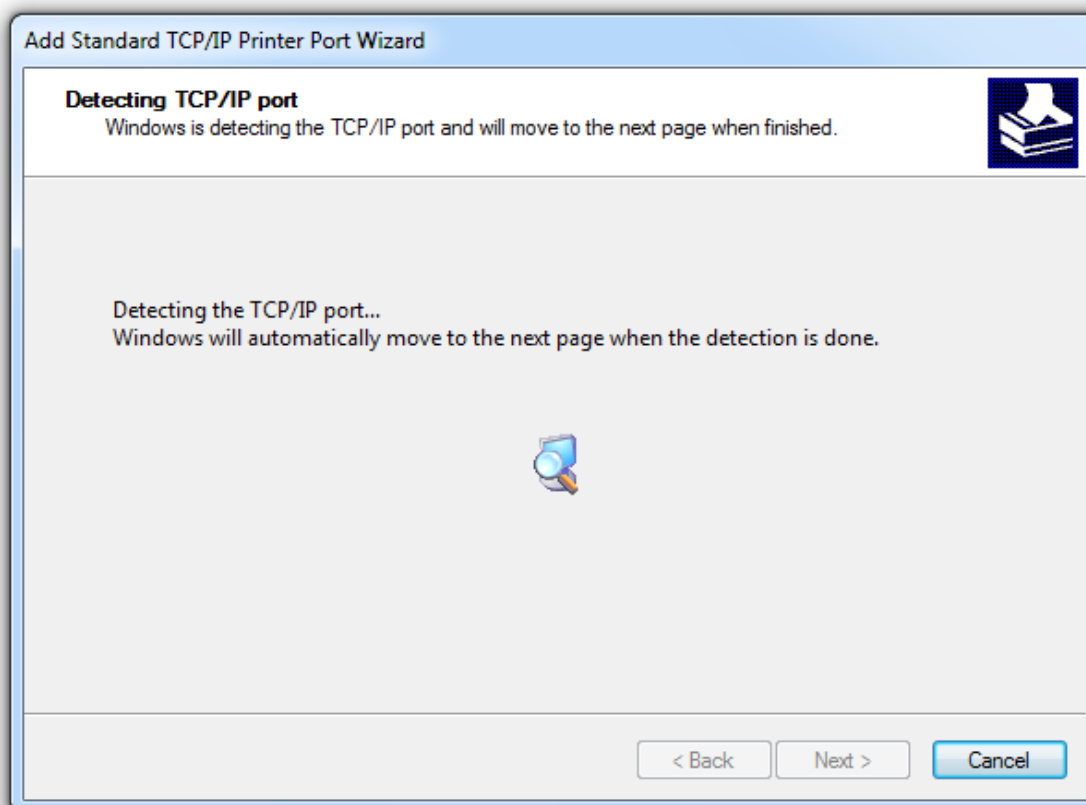


6. Complete the “Printer Name or IP Address” and “Port Name”.



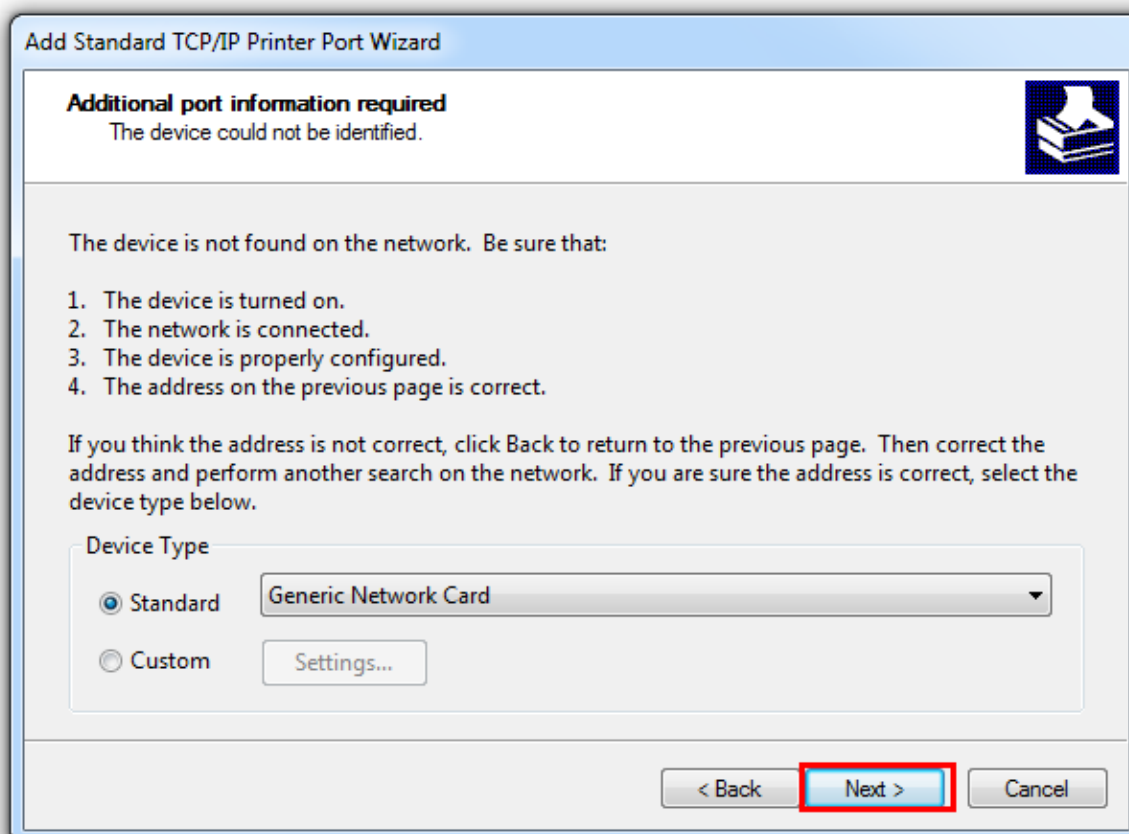
The screenshot shows the 'Add Standard TCP/IP Printer Port Wizard' dialog box. The title bar reads 'Add Standard TCP/IP Printer Port Wizard'. The main heading is 'Add port' with a subtext 'For which device do you want to add a port?'. Below this, it says 'Enter the Printer Name or IP address, and a port name for the desired device.' There are two input fields: 'Printer Name or IP Address:' with the value '192.168.0.33' and 'Port Name:' with the value 'DT230WiFi'. Red annotations with arrows point to these fields: 'Print the Test Page to get the address' points to the IP address, and 'User Defined' points to the port name. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

7. Click “Next” to access the screen as below.

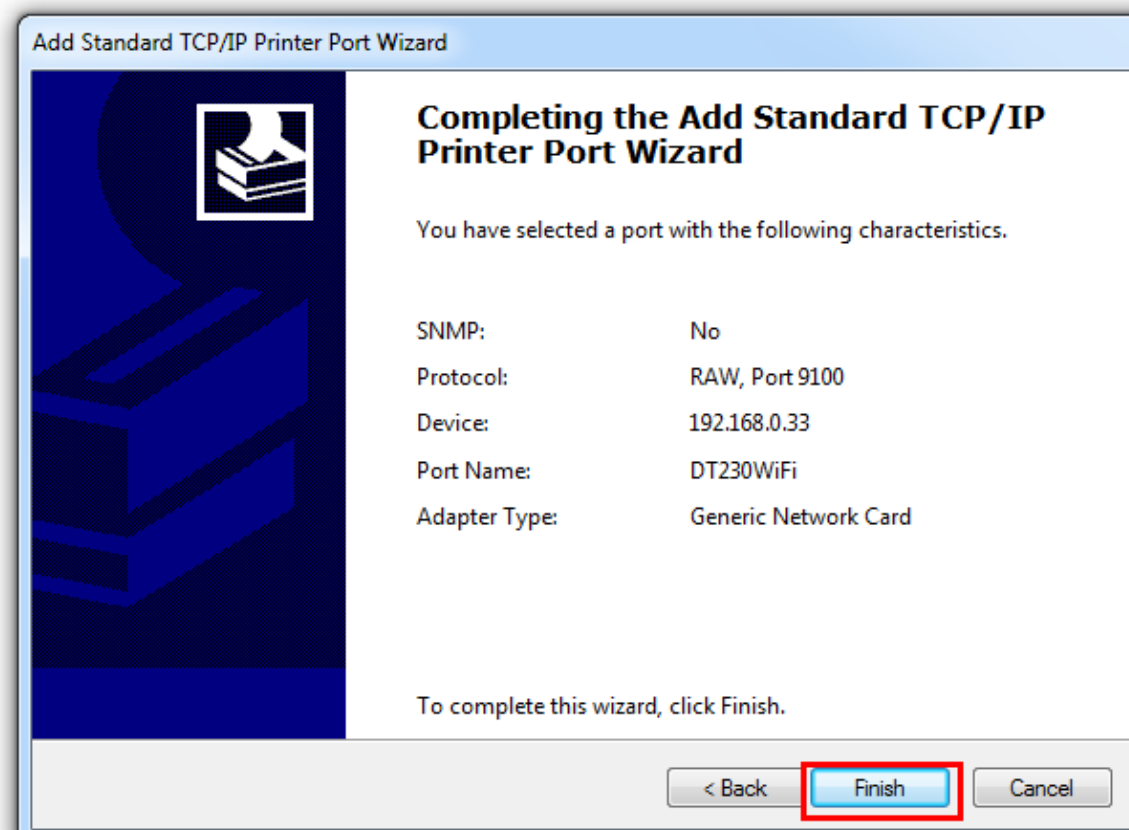


The screenshot shows the 'Add Standard TCP/IP Printer Port Wizard' dialog box at the 'Detecting TCP/IP port' step. The title bar reads 'Add Standard TCP/IP Printer Port Wizard'. The main heading is 'Detecting TCP/IP port' with a subtext 'Windows is detecting the TCP/IP port and will move to the next page when finished.' Below this, it says 'Detecting the TCP/IP port...' and 'Windows will automatically move to the next page when the detection is done.' There is a small icon of a magnifying glass over a document. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

8. And then you will see the screen as below, click “Next” to continue.



9. Click “Finish” to complete the printer driver installation.



10. Click “Start”→ “Devices and Printers”, right click on the DT-230 Printer Driver, and then click “Printer Properties”. Then click “Ports”→ “Configure Port”, finish the setup parameter in the screen as below. Click “OK” to finish the setup.

Configure Standard TCP/IP Port Monitor

Port Settings

Port Name: DT230WiFi

Printer Name or IP Address: 192.168.0.33

Protocol

☒ Raw ☐ LPR

Raw Settings

Port Number: 9100

LPR Settings

Queue Name:

☐ LPR Byte Counting Enabled

☒ SNMP Status Enabled

Community Name: public

SNMP Device Index: 1

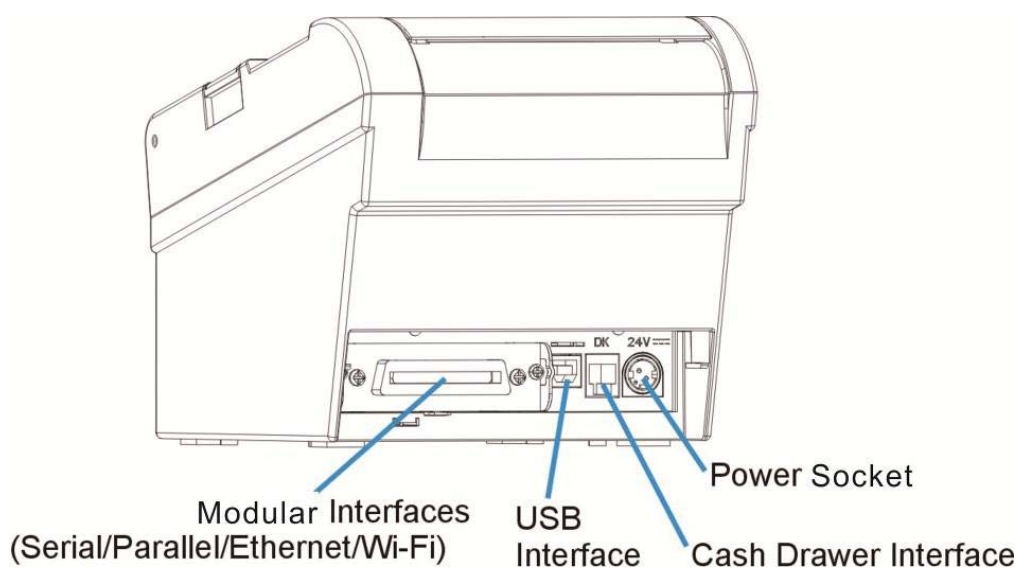
OK Cancel

3 CONNECTING TO COMPUTER

**NOTE!**

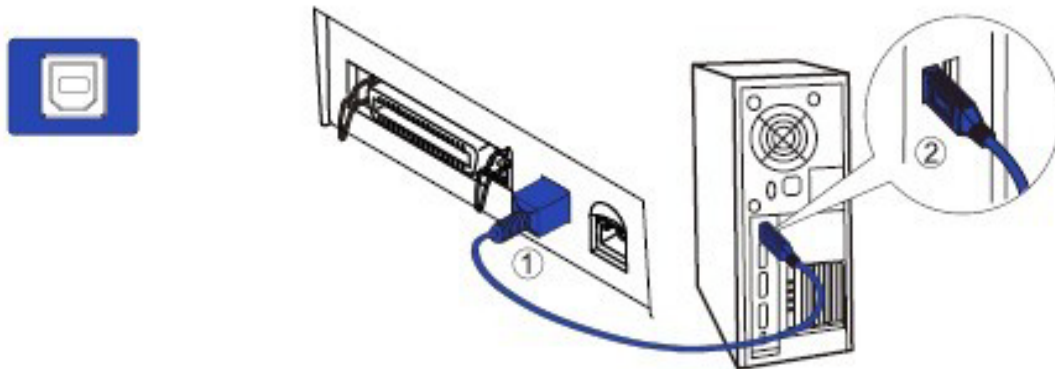
Be sure to install the driver before connecting the printer to the host computer.

Before installing, disconnect the Power Unit from the printer (as well as turning the power switch off). Even when the power switch is off, voltage is still present at some points on the circuit board. Changing components while the power unit is connected can cause damage to the interface board and the printer.



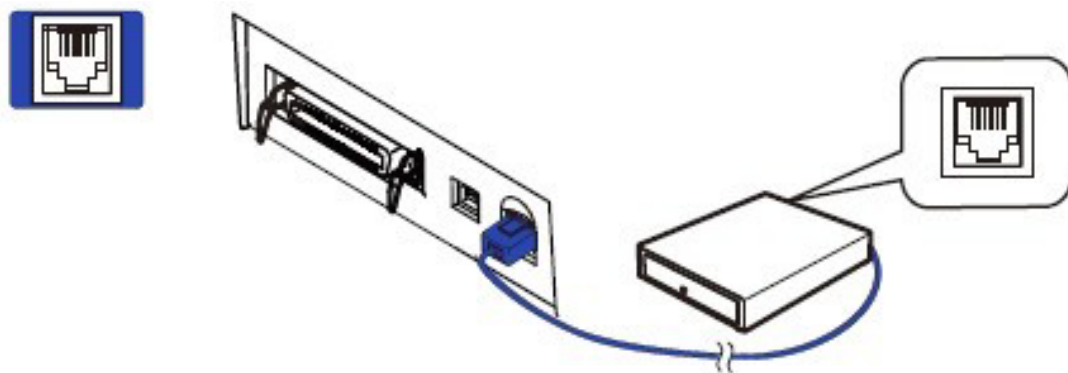
Component	Function
Power Socket	Connects power cord to the printer.
Cash Drawer Interface	Connects Cash Drawer interface cable from the cash drawer.
USB Interface	Connects USB interface cable from the host.
Modular Interface	Connects optional interface (Serial I/F, Parallel I/F, Ethernet I/F or Wi-Fi I/F) from the host.

3.1 For USB Interface

**CAUTION!**

Be careful not to insert the USB interface cable into the cash drawer kick-out connector.

3.2 For Cash Draw Interface

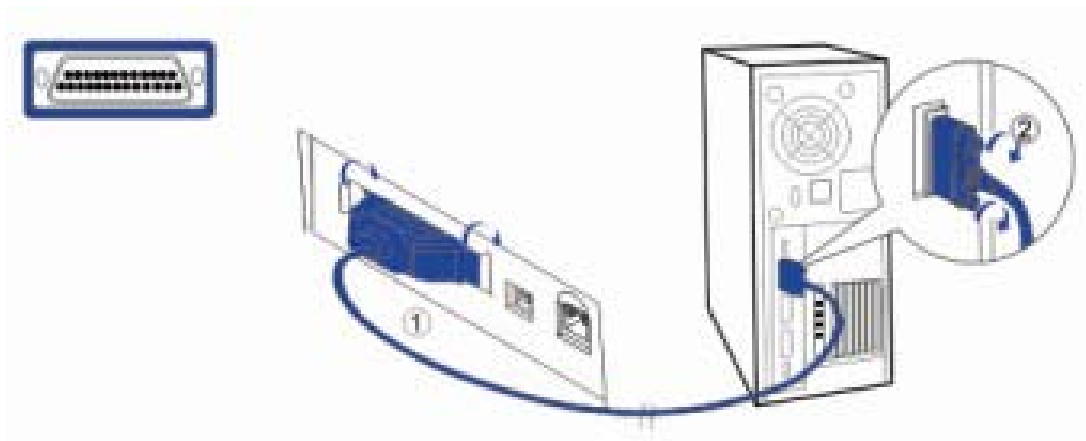


1. Confirm that the power switch is OFF.
2. Confirm the top and button of the cash drawer cable connector and insert it into the cash drawer kick-out connector at the back of the printer.
3. Screw the cash drawer's ground wire to the body of the printer.

**CAUTION!**

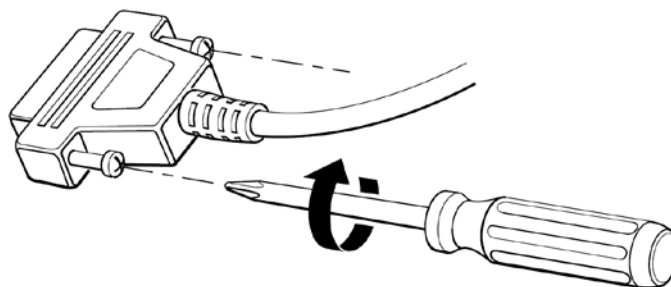
DO NOT connect any other device than the specified cash drawer to the cash drawer kick-out connector. (Do NOT connect a telephone line either)

3.3 For Serial Interface

**WARNING!**

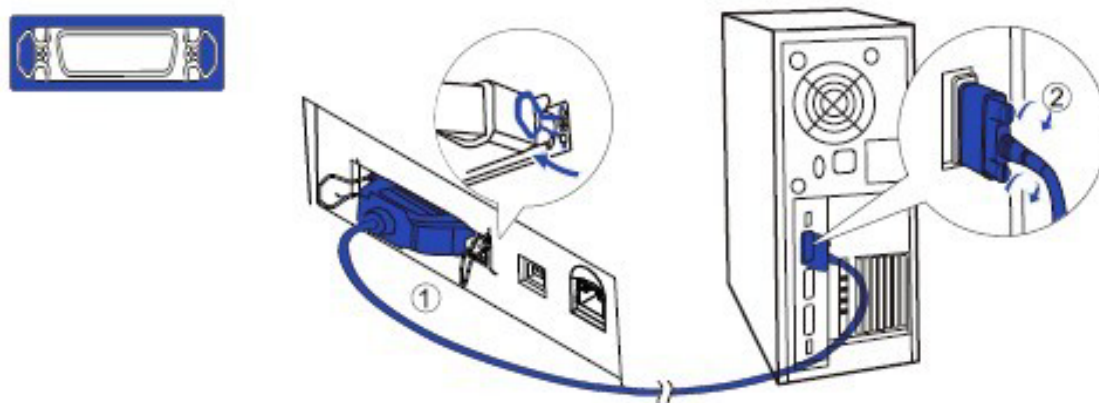
Be sure to turn off the power supply for both the printer and host computer before connecting the cables.

1. Insert the interface cable connector firmly into the interface connector on the connector panel.
2. When using the connectors equipped with screws, tighten them to secure the connectors firmly.



3. When using interface cables equipped with a grounding line, attach the ground line to the screw hole marked "FG" on the printer.
4. Connect the other end of the interface cable to the host computer.

3.4 For Parallel Interface



1. Insert the interface cable connector firmly into the interface connector on the connector panel.
2. Press down the clips on either side of the connector to lock it in place.
3. When using interface cables equipped with a grounding line, attach the ground line to the screw hole marked "FG" on the printer.
4. Connect the other end of the interface cable to the host computer.

3.5 For Ethernet Interface

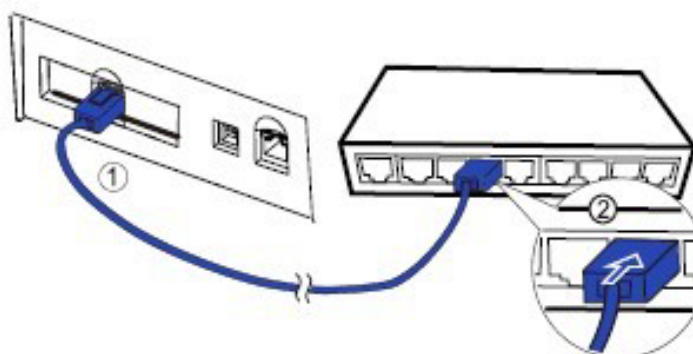
**NOTE!**

Before installation, make you have installed the driver and the driver for Ethernet interface (see [Installing Driver](#) on page 17)

Connect the printer to a network by a LAN cable via a hub.

Connect a 10/100BASE-T cable to the 10/100BASE-T LAN connector by pressing firmly until the connector clicks into place.

When using the Ethernet interface, the network configuration is required. Make the settings on the setup page.



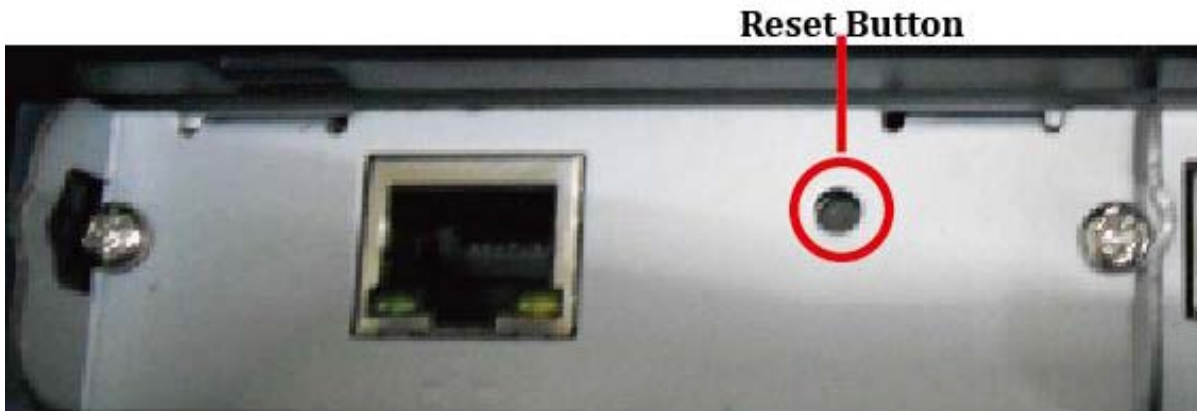
- When LAN cables are installed outdoors, make sure devices without proper surge protection are cushioned by being connected through devices that do

have surge protection.

Otherwise, the devices can be damaged by lightning.

- Never attempt to connect the customer display cable, drawer kick-out cable, or the standard telephone line cable to the 10/100BASE-T LAN connector.

1. Switch on printer, press and hold the Reset key for more than 3 seconds with the tip of pen or small tool. Then the printer will print out a status sheet as shown below.



The following are printed on the status sheet.

- TCP/IP settings.
- Other Information.

```
*****
TCP/IP Settings
IP Address      :192.168.0.31
SubnetMask      :255.255.255.0
Gateway         :192.168.0.1
DHCP            :Disabled

Other Information
MAC Address     :AC:DE:48:00:00:8B
Hard Version    :1.00.00
Soft Version    :1.02.03
*****
```



Make sure your PC IP address and printer IP address are in the same section.

2. The interface is pre-set with the IP address 192.168.0.31. DHCP is disabled. Enter this IP address in your browser to get access to the built in web page.

Item		Explanation
Information	General	Show the ETH01 information
	TCP/IP	Show the TCP/IP information
Configuration	TCP/IP	Set the TCP/IP information
Network	Reset	Reset the ETH01 or return to the factory default setting

3. Click Configuration→Network→TCP/IP, the default setup for getting IP address is manual, you can start setting the IP address, subnet mask and default gate way.

Item	Explanation
Get IP Address	Show the method of setting the IP address
IP Address	Show the IP address
Subnet Mask	Show the subnet mask of the IP address
Default Gateway	Show the default gateway

4. If you want to enable DHCP mode, select “Auto” in Get IP address option.
Or you can do this by pressing the reset button next to the RJ45 socket while you switch on your printer.
Verify the new setting by pressing the button after some seconds again. The new IP address is being printed.

Information

- General
- TCP/IP

Configuration

- Network
- TCP/IP
- Reset

TCP/IP Setting

Get IP Address:

IP Address:

Subnet Mask:

Default Gateway:

5. After TCP/IP setup, click “Submit”, you will see the following interface. Then click “Reset” button, the parameter will be valid.

Information

- General
- TCP/IP

Configuration

- Network
- TCP/IP
- Reset

Configuration change is complete!

To enable changes,
press RESET or turn printer off and on.

Information

- General
- TCP/IP

Configuration

- Network
- TCP/IP
- Reset

Please Wait for printer to reset

6. Configuration page supports initializing TCP/IP parameter. Click Configuration→Network→Reset, you will see “FACTORY DEFAULT” button. Click the button, Ethernet board TCP/IP parameter will return to factory default setup. IP Address is 192.168.0.31.

Information

- General
- TCP/IP

Configuration

- Network
- TCP/IP
- Reset

Reset

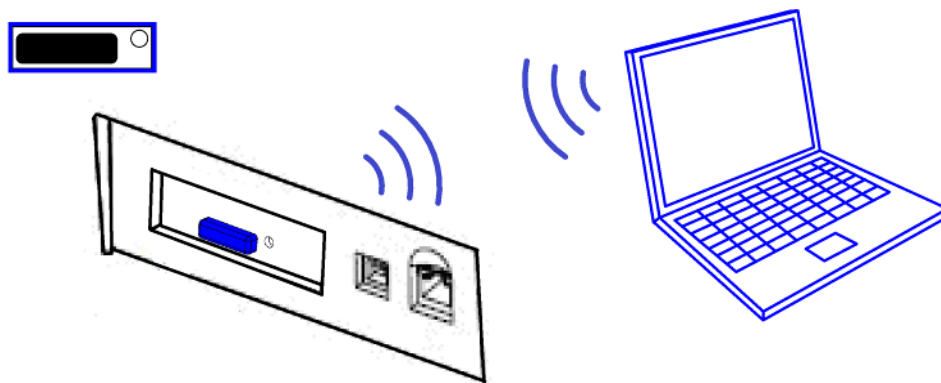
WARNING!

You are resetting the interface card.
Do you wish to proceed?

3.6 For Wireless LAN Interface

If your printer connected to the computer with Wireless Ethernet, there are two ways of connection modes: AP mode and STA mode.

When using the wireless LAN interface, the network configuration is required. Make the settings on setup page.



If your printer connected to the computer with Wireless Ethernet, there are two ways of connection modes: AP mode and STA mode.

1. Switch on printer, press Reset key with the tip of pen or a small tool. Printer will print out a Wi-Fi parameter as shown below.



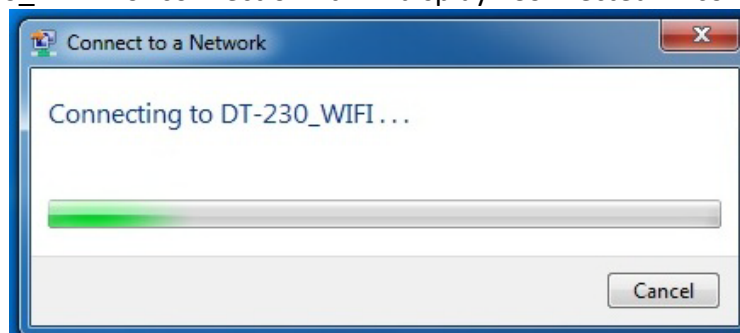
```
*****
Wireless Status
WIFI Work Mode :AP
Firmware       :1.0.04.01

AP Information
SSID           :DT-230_WIFI
Encryption     :Disable
IP Address     :192.168.0.33
Subnet Mask    :255.255.255.0
DHCP Gateway   :192.168.0.33
MAC Address    :ACCF2324172F
DHCP Server    :Enable
*****
```

2. You will see “DT-230_WIFI” in the wireless network connection list. Click “Connect”.



3. Double click “DT-230_WIFI” for connection. It will display “Connected” if connection is successful.

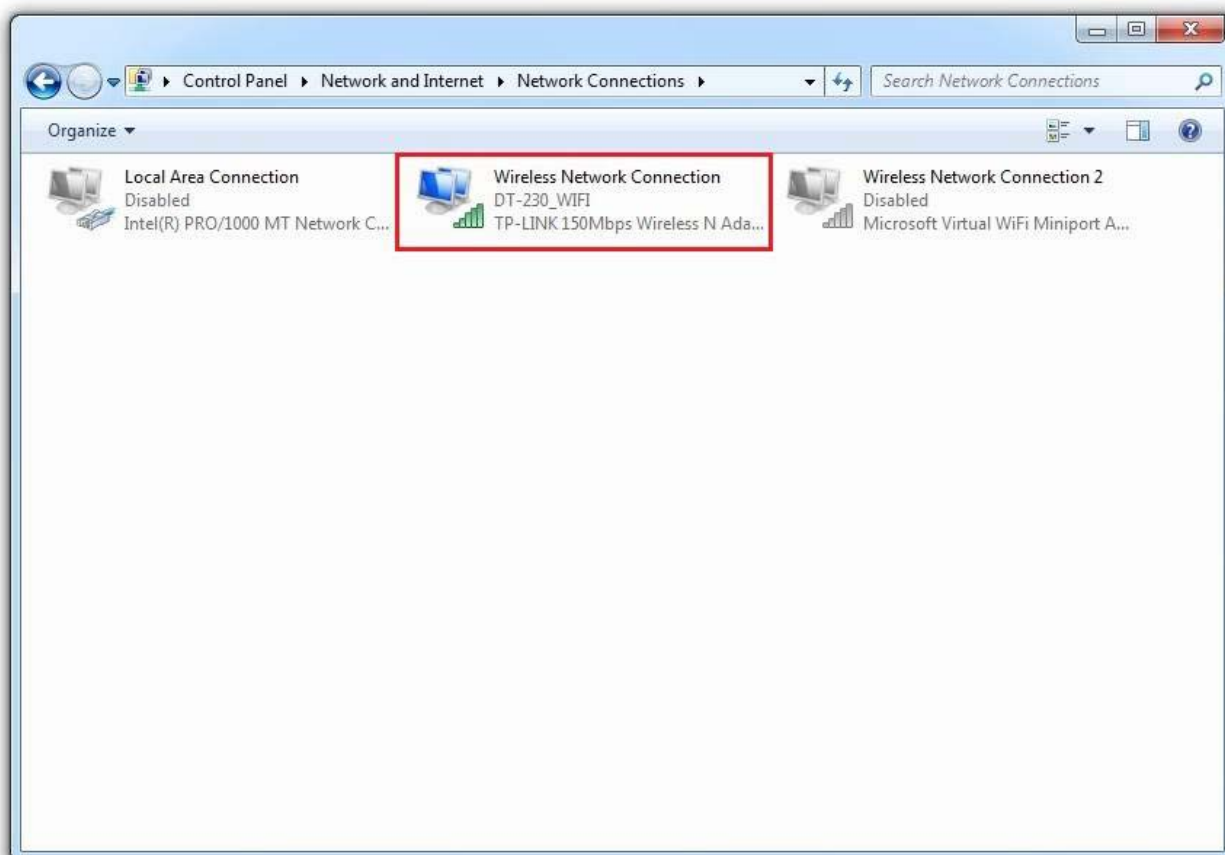


3.6.1 Get IP Address

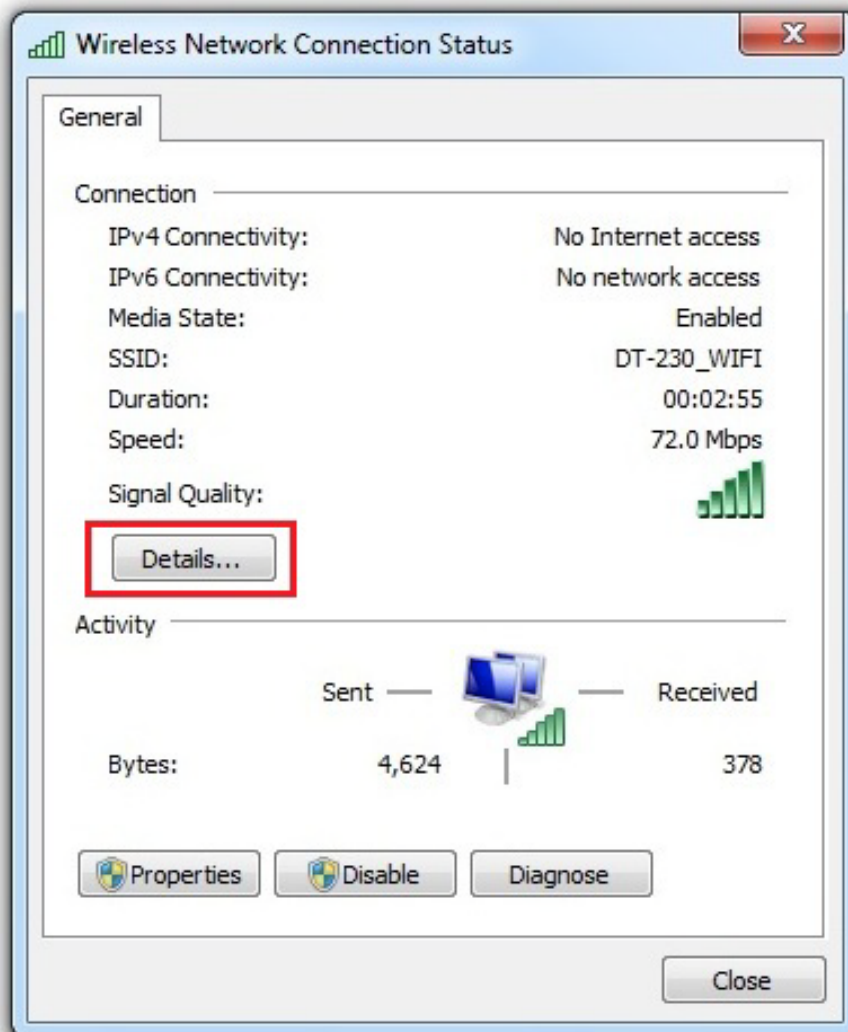
There are two methods to get the IP address of the printer. One way is to look at the Wi-Fi parameter sheet. The other way is to look into the Wi-Fi connection details after your printer is connect to the computer via Wi-Fi module. Here is the procedure:

1. Open the control panel → Network and Internet → Network Connections.

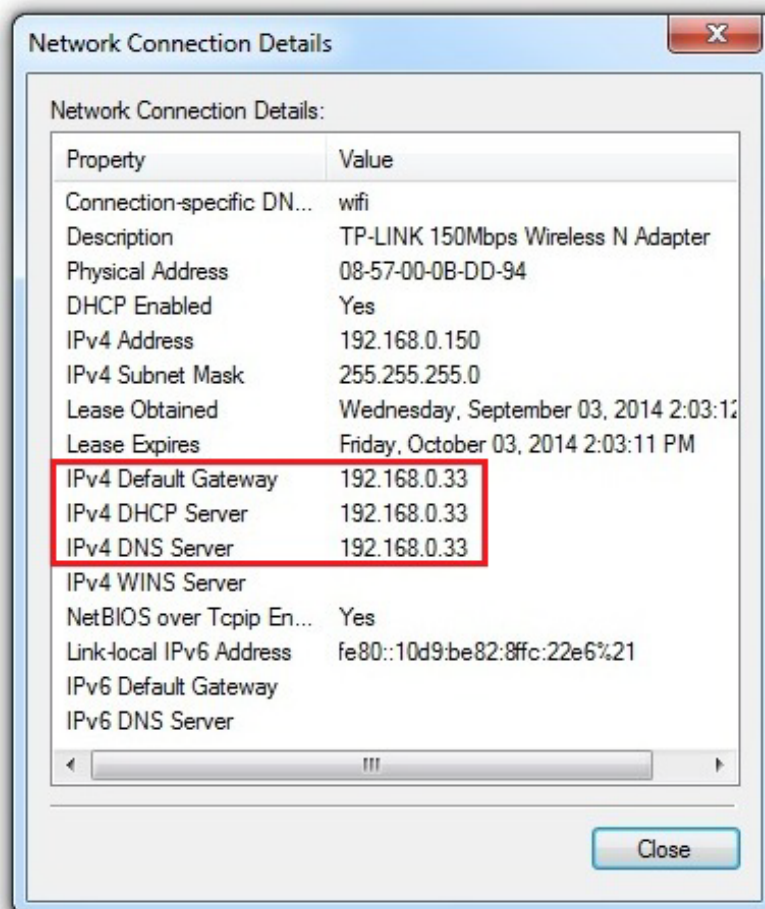
Then you can see this page: double click “Wireless Network Connection”.



2. Click “Details” button on this page.



3. Then you can see the IP Address on the Property “IPv4 Default Gateway”: 192.168.0.33



There are two kinds of working mode for Wlan board connection to the PC. One is AP mode, the other one is STA mode. AP means Access Point (AdHoc Mode); STA means Station mode (Infra Structure Mode). We would suggest you use AP mode for your initial usage.

3.6.2 Wlan Setup - AP mode

1. Visit IP Address <http://192.168.0.33>. Default username is “admin” with password “admin” for the first time to log in. You will see the following Wi-Fi setup page. Click “Submit” button after modifying the parameter. Restart printer, new parameter will be valid.



中文 | English

System

Work Mode

STA Setting

AP Setting

Other Setting

Account

Upgrade SW

Restart

Restore

MID	HF-LPB100
Software Version	V1.0.04.01
WiFi Work Mode	AP
AP mode	
SSID	DT-230_WIFI
IP Address	192.168.0.33
MAC Address	ACCF2324172F
STA Mode	
Router SSID	
Signal Strength	
IP Address	
MAC Address	

Web Ver:1.0.14

2. Log into work mode option, then choose AP mode. Click “Save” button after modifying the parameter. Restart printer, new parameter will be valid.

The screenshot shows a web interface with a sidebar on the left containing the following menu items: System, Work Mode (highlighted), STA Setting, AP Setting, Other Setting, Account, Upgrade SW, Restart, and Restore. The main content area is titled 'Select Mode' and features a dropdown menu labeled 'Select Mode:' with 'AP mode' selected. Below the dropdown is a 'Save' button. In the top right corner, there are language links '中文 | English'. At the bottom center, the text 'Web Ver:1.0.14' is displayed.

3. Log onto AP setting, Click “Save” button after modifying the parameter such as channel, encryption mode, and IP address. Restart printer, new parameter will be valid.

The screenshot displays the 'Wireless AP Setting' web interface. The sidebar on the left includes the same menu items as the previous screenshot, with 'AP Setting' now highlighted. The main content area is divided into three sections: 'Wireless AP Setting', 'Wireless AP Security Setting', and 'Network Parameters Setting'. The 'Wireless AP Setting' section contains fields for Network Mode (11bgn), Network Name(SSID) (DT-230_WIFI), Module MAC Address (ACCF2324172F), and Select Channel (2412MHz(channel 1)), with a 'Save' button below. The 'Wireless AP Security Setting' section has an Encryption Mode field set to 'Disable' and a 'Save' button. The 'Network Parameters Setting' section includes fields for IP Address (DHCP Gateway Setting) (192.168.0.33), Subnet Mask (255.255.255.0), and DHCP Server (Enable), also with a 'Save' button. Language links '中文 | English' are in the top right, and 'Web Ver:1.0.14' is at the bottom center.

3.6.3 Wlan Setup - STA mode

In the Wi-Fi parameter, if there is IP Address, it suggests they are connected successfully by STA mode. Otherwise, they are not connected. Like showed in the picture below, they are connected successfully.

```
*****
Wireless Status
WIFI Work Mode :STA
Firmware       :1.0.04.01

STA Information
SSID           :UPGRADE-AP
Encryption     :Disable
IP Address     :0.0.0.0
Subnet Mask    :0.0.0.0
DHCP Gateway   :0.0.0.0
MAC Address    :ACCF2324172E
DHCP Client    :Enable
*****
```

1. Visit <http://192.168.0.33>. Default username is admin with password admin for the first time to log in. You will see the following Wi-Fi setup page. Click “Submit” button after modifying the parameter. Restart printer, new parameter will be valid.
2. Log into work mode option, then choose STA mode. Click “Save” button after modifying the parameter. Restart printer, new parameter will be valid.
3. Log onto STA setting, Click “Save” button after modifying the parameter such as SSID, and encryption mode. Restart printer, new parameter will be valid.

中文 | English

System
Work Mode
STA Setting
AP Setting
Other Setting
Account
Upgrade SW
Restart
Restore

Network Name (SSID)
Note: case sensitive
HF-LPB100
Scan

Encryption Method
Disable

Obtain an IP address automatically
Enable

IP Address
0.0.0.0

Subnet Mask
0.0.0.0

Gateway Address
0.0.0.0

DNS Server Address
10.10.100.254

Save

Web Ver:1.0.14

3.6.4 Return to Factory Setting

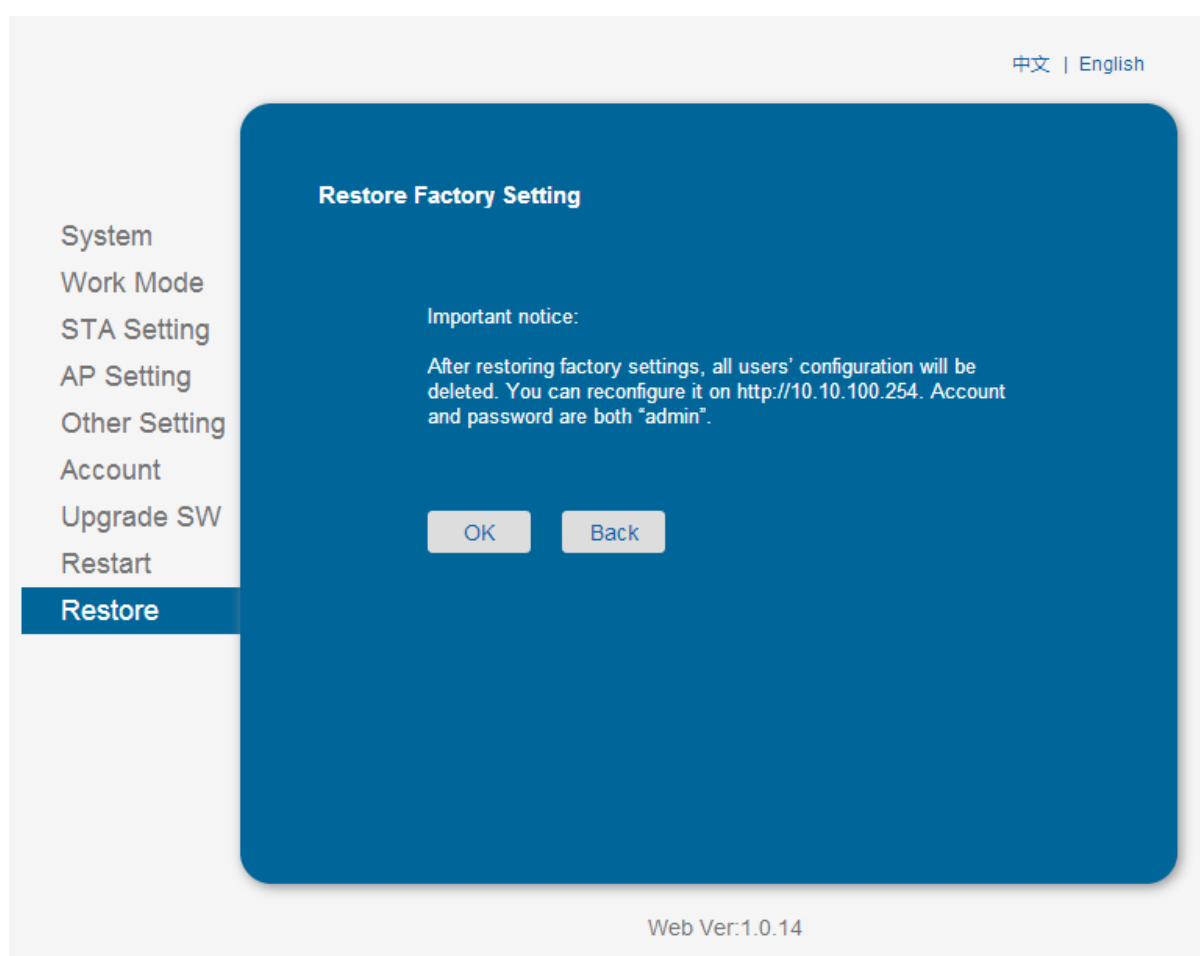
There are two methods to restore factory setting.

Method One:

1. Turn off the printer.
2. Press and hold the black button on the Wlan board. And then turn on the printer.
3. Wait for five seconds, the Wlan board will return to factory setting.

Method Two:

Visit <http://192.168.0.33>. Default username is admin with password admin for the first time to log in. Click OK on the Restore Page.

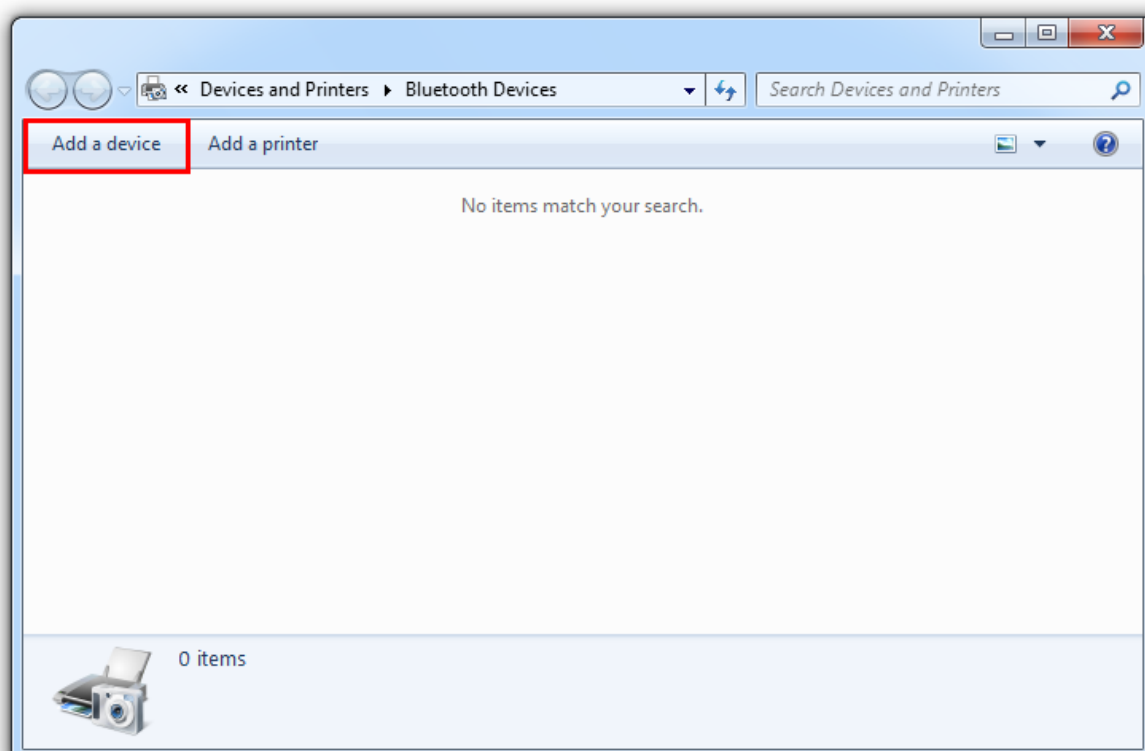


3.7 Connecting to Bluetooth

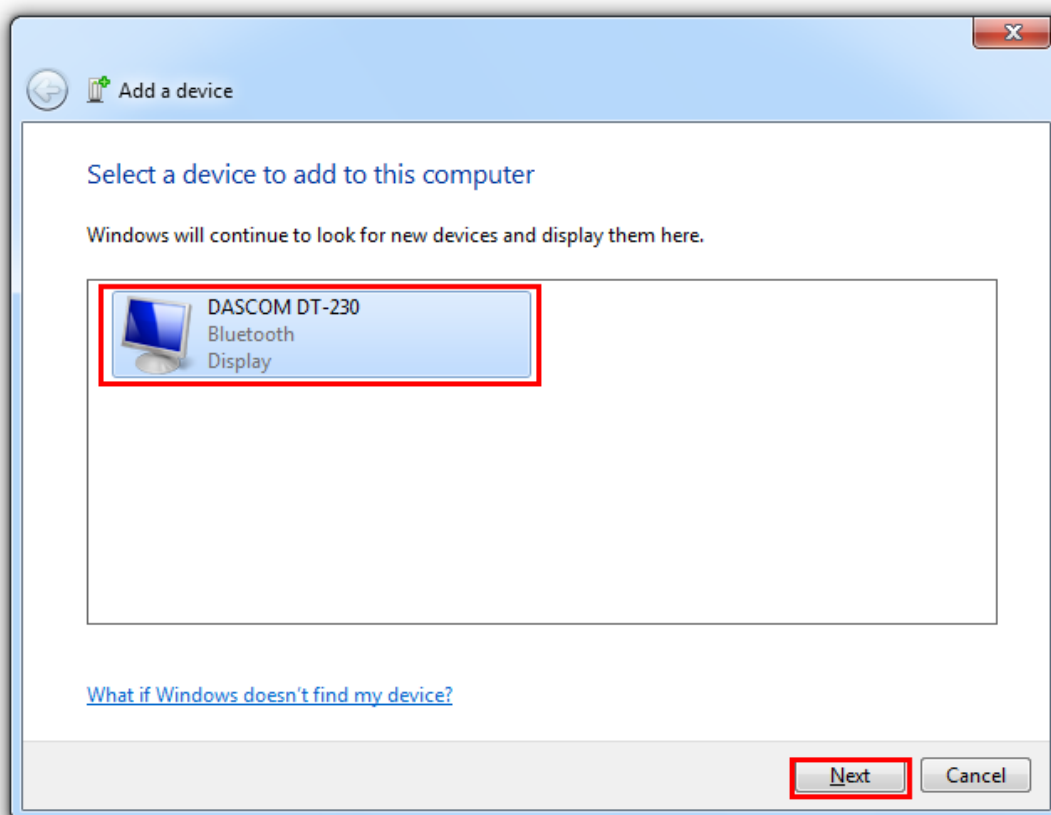
Communication cable is not required while using Bluetooth printer. Users have to prepare a Bluetooth adapter by themselves and install the adapter in the computer so as to connecting the Bluetooth device.

3.7.1 Installing Bluetooth Adapter Driver

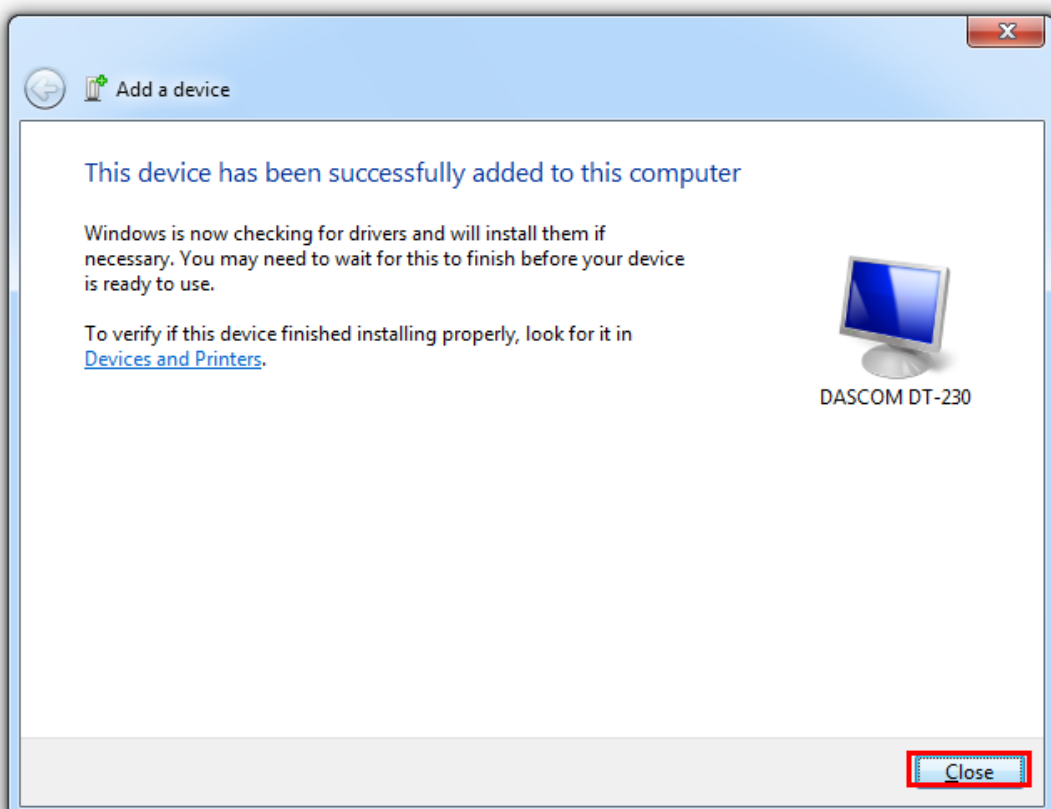
1. Install Bluetooth adapter (V2.0 or above version) that prepared by yourself in the PC via USB interface.
2. Power on printer and load paper roll.
3. Double click the Bluetooth icon  at lower right corner on the PC screen. You will see the following window then Click “Add a device”.



4. Select "Device is ready for searching", and then click "DASCOM DT-230" for searching the Bluetooth printer.

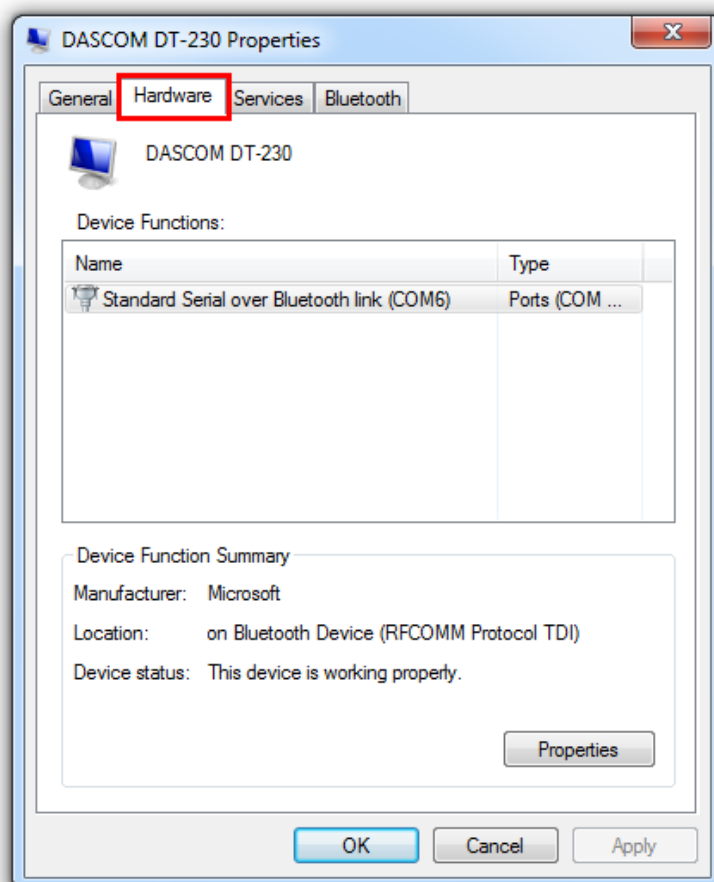
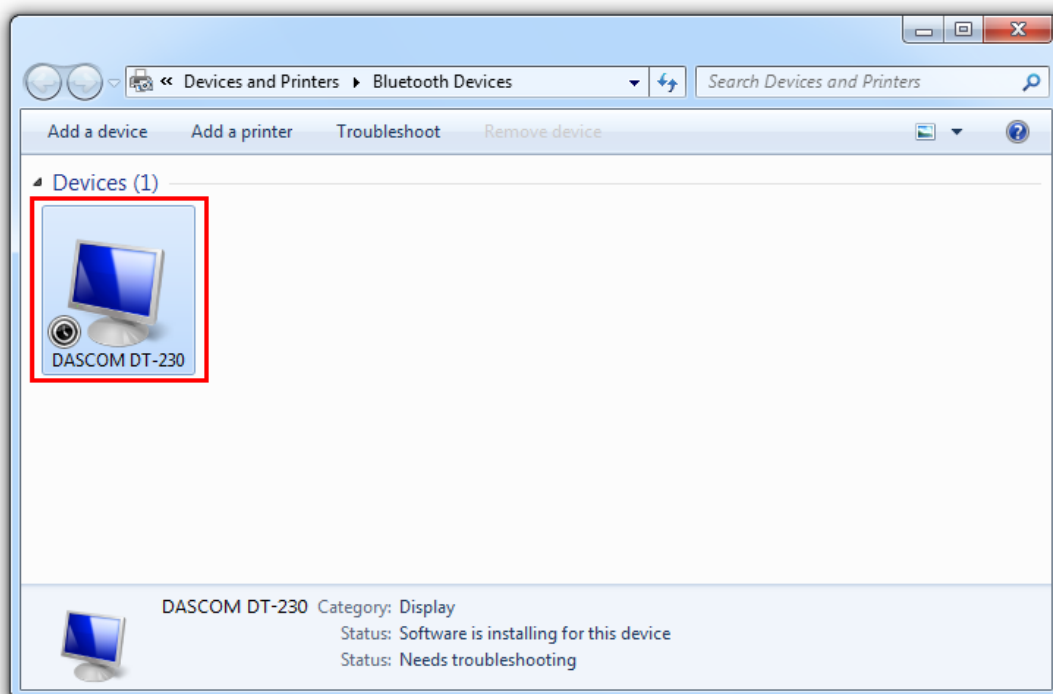


5. Then the Bluetooth adapter has been installed in the computer.

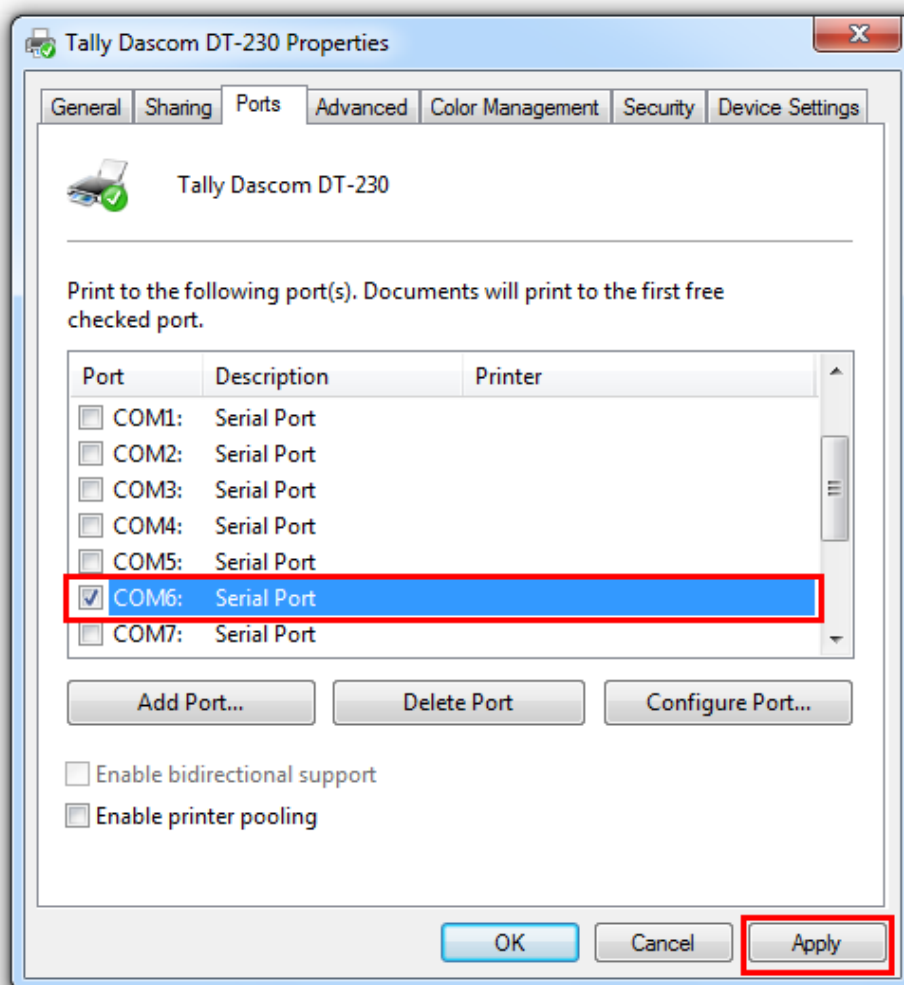


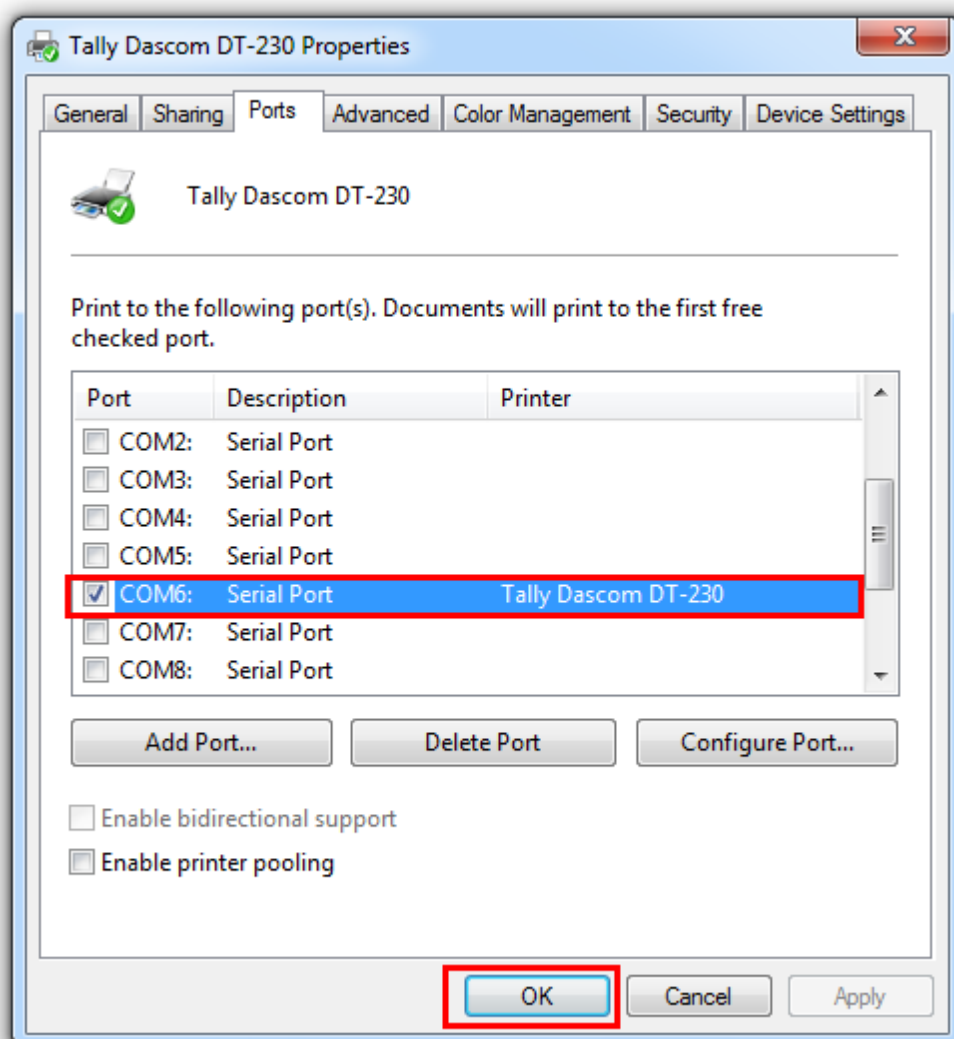
3.7.2 Changing Printer Port

1. Right click any printer, select Properties → Interface, and select the output port that you have put down then click “Apply”.

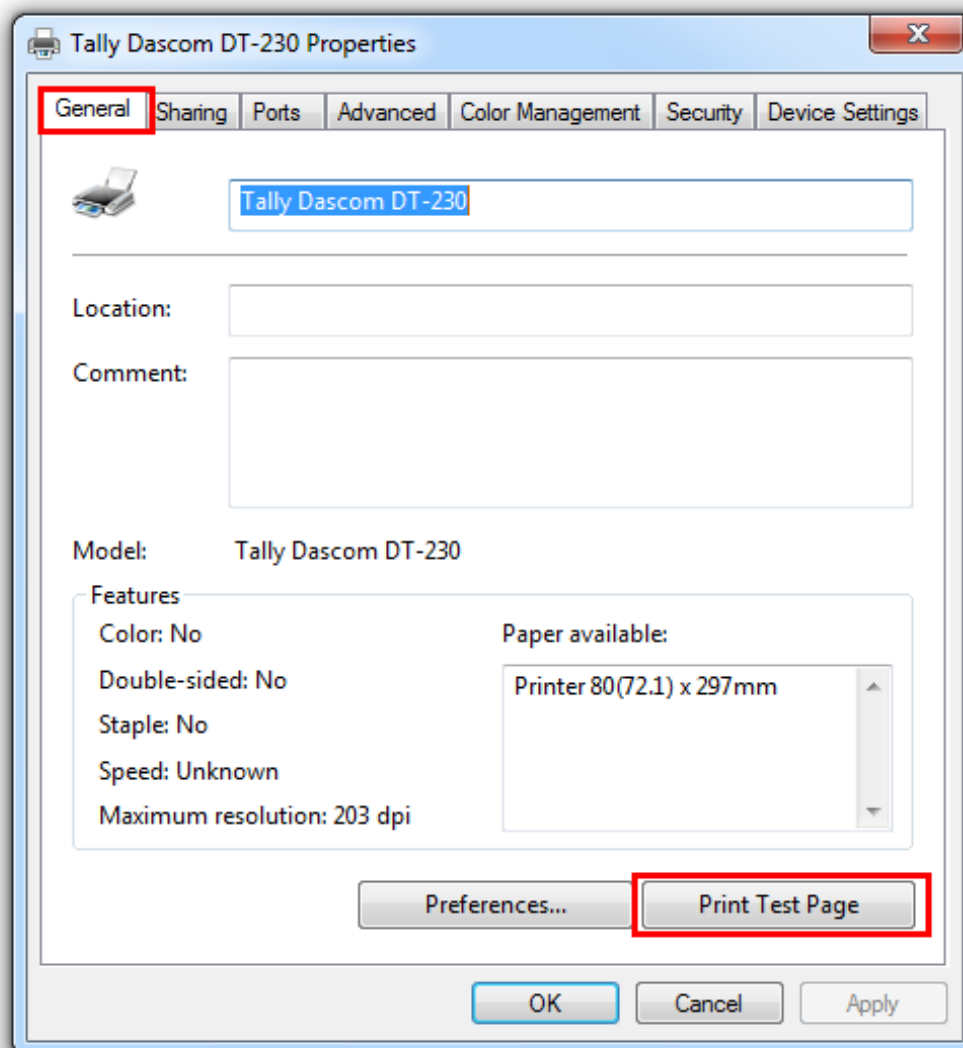


2. Right click any printer, select Properties → Interface, and select the output port that you have put down (in the case COM6) then click “Apply”.





3. Select Normal → Interface, run test page to see the printing outcome.



Setting pages vary depending on the different types of Bluetooth adapter.

3.7.3 Changing Baud Rate of the Printer

The baud rate of the printer and that of the Bluetooth board should be of the same frequency. The default baud rate of the Bluetooth I/F is 115200 bps, so you have to change the DIP setting so as to change the printer baud rate. (see [Setting DIP Switches](#) on page 48)

4 SETTING/CHECKING MODES

Besides the ordinary print mode, the printer has the following modes to set or to check settings of the printer.

- Self-test Mode
- Hexadecimal Dumping Mode

4.1 Self-test Mode

Before you connect the printer to the computer, make sure that the printer is in proper working order. You can do this by printing a configuration status label.

Follow the steps below to run this mode.

1. Make sure the media is properly loaded, the top cover of the printer is closed and the printer is power off.
2. While pressing the FEED button, turn on the printer. (Keep pressing the FEED button until the printer starts printing.)

The printer then starts printing current status of the printer.



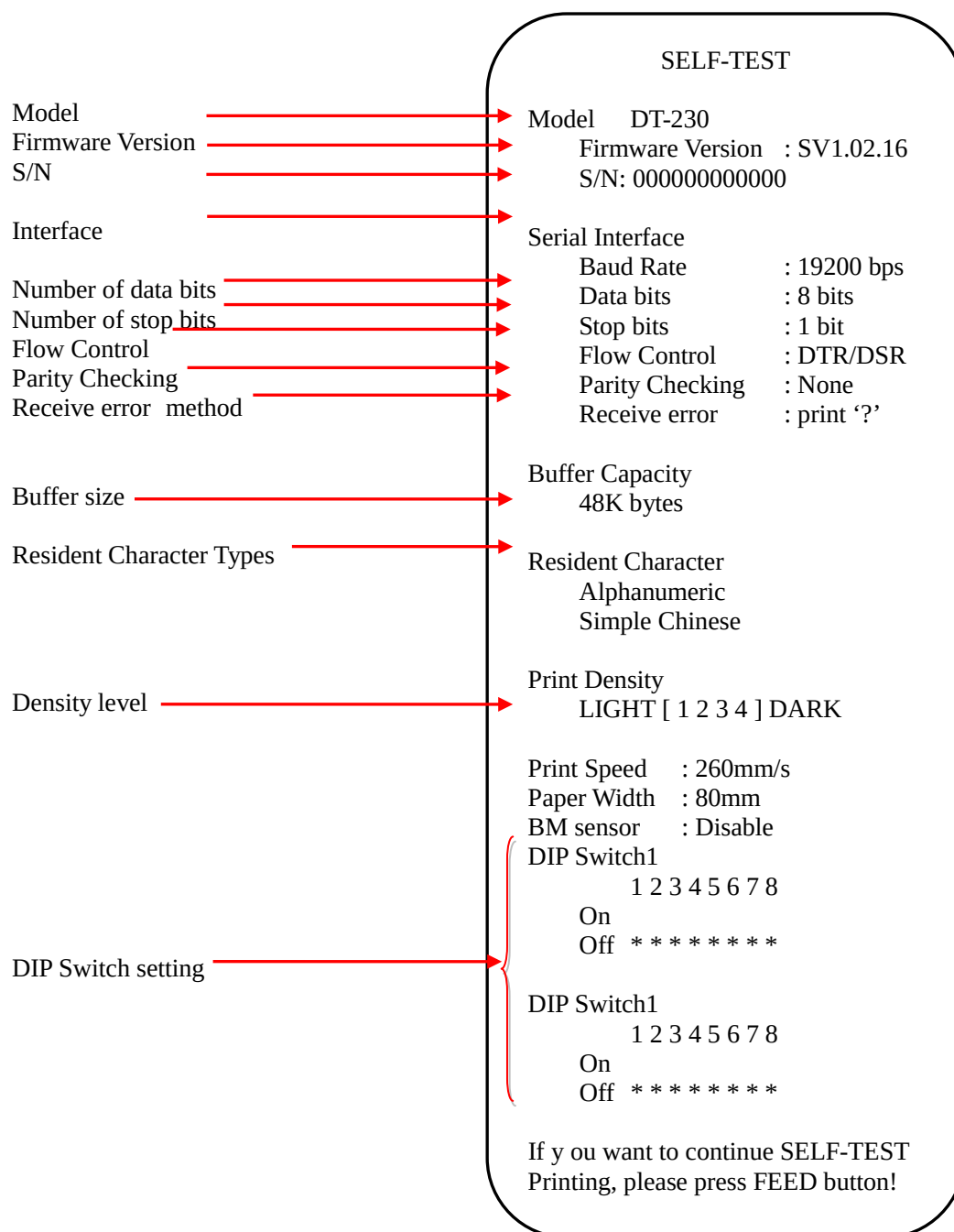
With the LAN interface, before printing starts, it takes 6 seconds if the IP address is fixed and 13 seconds if the IP address is obtained with the automatic setting. (It may take longer depending on the response time from the host.)

When the printer finishes printing the printer status, the following message is printed and the Paper LED flashed. (The printer is now in the self-test wait mode.):

“If you want to continue SELF-TEST

Printing, please press FEED button!”

Here is the self test status page and its explanation. The printout is an example. It may differ depending of installed options or interfaces:



3. Press the FEED button while the printer is in the self-test mode.

Then the printer will print a rolling pattern using only the built-in character set.

After printing the following message, the printer is initialized and returned to the normal mode.

4.2 Hexadecimal Dumping Mode

This function is to print out all received data in hexadecimal numbers. If printing cannot occur correctly, this function allows checking whether or not the printer is receiving data correctly.

Follow the steps below to run this mode.

1. Open the roll paper cover.
2. While pressing the FEED button, turn on the printer.
3. Close the roll paper cover.

The printer starts printing "HEX DUMP PRINT MODE" followed by the received data printed in hexadecimal numbers and some characters.

CAUTION!



- The printer prints "." if there is no characters corresponding to data.
 - During hexadecimal dump, functions except some command will be disabled.
 - If print data does not cover a line, press the FEED switch to print the line.
-

Printing example:

Hexadecimal Dump

To terminate hexadecimal dump,
press FEED button three times.

```
1B 21 00 1B 26 02 40 40 1B 69 . ! . . & . @ @ . i
1B 25 01 1B 63 34 00 1B 30 31 . % . . c 4 . . 0 1
41 42 43 44 45 46 47 48 49 4A B C D E F G H I J
```

*** completed ***

Turn off the printer or press the FEED button three times to return to the normal mode.

5 SETTING DIP SWITCHES

On this printer, you can make various settings such as printer density, baud rate, and auto-cutter enable/disable etc. with DIP switches.

The DIP switches are already set for the current interfaces. Change the setting if necessary. Functions of the DIP switches differ depending on the interface.

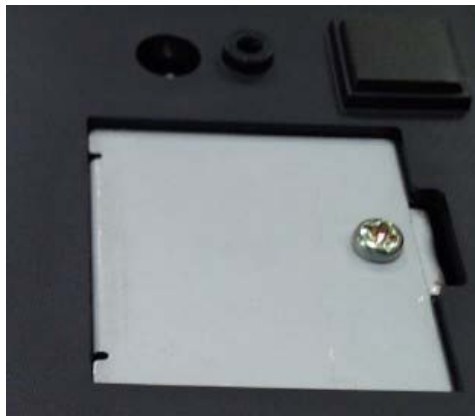
5.1 Setting Procedure

Follow the steps below to change the DIP switch settings.

CAUTION!

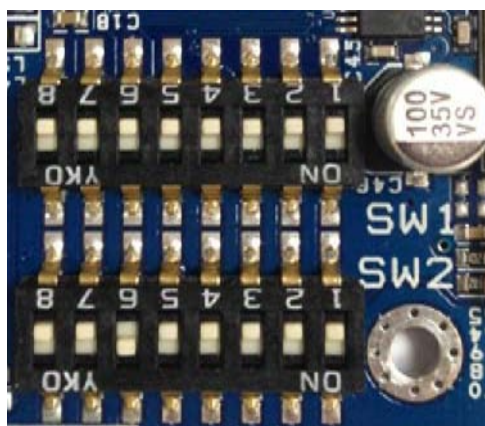
- Before you remove the DIP switch cover, turn the printer off. Otherwise, short-circuit may cause the printer to malfunction.
 - DIP switch settings are enabled only when the power is turned on or the printer is reset via the interface. If the settings are changed after that, the functions will not change.
-

1. Make sure the power supply for the printer is turned off.
2. Unscrew the screw to remove the DIP switch cover from the base of the printer.



Metal Plate

3. Set the DIP switches, using the tip of a tool, such as a small screwdriver. There are two DIP switch banks on the main controller board (SW1 and SW2), eight DIP switches for each bank.



DIP Switch 1 & Switch 2

4. Replace the DIP switch cover, and screw it in place.



New DIP switch settings are enabled after the printer is turned on!

5.2 For Serial Interface (RS-232C)

When using the built-in USB interface, it is not necessary to change the DIP switch setting but their function changes. For the details, see “[For Parallel and USB2.0 Interface](#)”.

DIP Switches Bank 1

SW	Function	ON	OFF	Initial setting
1-1	Auto Line Feed at CR	Enable	Disable	OFF
1-2	Handshaking	XON/XOFF	DTR/DSR	OFF
1-3	Data Length	7bits	8bits	OFF
1-4	Parity Check	Yes	No	OFF
1-5	Parity Selection	EVEN	ODD	OFF
1-6	Baud Rate Selection (bps)	See the “ Transmission Speed ” table below		OFF
1-7				ON
1-8				OFF

Transmission Speed

Transmission Speed (bps: bits per second)	1-6	1-7	1-8
2400	ON	OFF	OFF
4800			ON
9600	OFF	ON	OFF
19200 (default)	OFF	OFF	
38400	OFF	ON	ON
57600	OFF	OFF	
115200	ON	ON	

Note: Depending on print conditions, such as print duty, print head temperature, and data transmission speed, print speed is automatically adjusted, which can cause white lines due to intermittent print (the motor sometimes stops). To avoid this, set the transmission speed higher or keep the print speed constant by setting it lower.

DIP Switches Bank 2

SW	Function	ON	OFF	Initial setting
2-1	Reserved	-	-	OFF
2-2	Internal bell control	Internal bell disable	Internal bell enable	OFF
2-3	Auto Cutter	Disable	Enable	OFF

2-4	BUSY Condition	Receive Buffer Full	Offline or Receive Buffer Full	OFF
2-5	Print Density	See “ Selecting the Print Density ” on page 48.		OFF
2-6				OFF
2-7				OFF
2-8	Near-End Sensor Status	Disable	Enable	OFF

5.3 For Parallel and USB2.0 Interface

When using the serial interface, it is not necessary to change the DIP switch setting but their function changes. For the details, see “[For Serial Interface \(RS-232C\)](#)” on page 47 .

DIP Switches Bank 1

SW	Function	ON	OFF	Initial setting
1-1	Auto Line Feed at CR	Enable	Disable	OFF
1-2	Reserved	-	-	OFF
~				
1-8				

DIP Switches Bank 2

SW	Function	ON	OFF	Initial Setting
2-1	Reserved	-	-	OFF
2-2	Internal bell control	Internal bell disable	Internal bell enable	OFF
2-3	Auto Cutter	Disable	Enable	OFF
2-4	BUSY Condition	Receive Buffer Full	Offline or Receive Buffer Enable	OFF
2-5	Print Density	See “ Selecting the Print Density ” on page 53.		OFF
2-6				OFF
2-7				OFF
2-8	Near-End Sensor Status	Disable	Enable	OFF

5.4 Selecting the Print Density

2-5	2-6	2-7	Print Density (Mono color)	Default
ON	ON	Reserved	1 (Light)	2
OFF	OFF	Reserved	2 (Standard)	
ON	OFF	Reserved	3 (Darker than standard)	
OFF	ON	Reserved	4 (Dark)	



- If the print density is set to 3 or 4 level, printing speed may be reduced.
- The print density can be set with DIP switches or the customized value.

5.5 Auto Cutter Enable/Disable Selection

Dip Switch Set 2		
SW 2-3	ON	Auto Cutter Disabled
	OFF	Auto Cutter Enabled
Application	Ignores Auto Cutter error for continuous printing.	

6 TROUBLESHOOTING

Your printer is extremely reliable, but occasionally problems may occur. This chapter provides information on some of the common problems you may encounter and how you may solve them. If you encounter problems that you cannot resolve, contact your dealer for assistance.

Read the following instructions before maintenance and avoid incorrect operation, so as to prevent injury to you and damage to the printer.

6.1 Error Status

LED indicators on the control panel and buzzer alarm

Trouble	Potential Problem	Solution
No LEDs on	Incorrect power supply cable connections and power outlet	Check the power supply cable connections and the power outlet and correct them.
	PCB damaged	Contact your dealer for assistance.
Paper LED always on	Paper near end	The roll paper is near end, the printer can work normally, procure new paper.
Error LED always on and beeper alarms	Printer Cover open	Close the Printer Cover.
Power, Paper and Error LEDs always on and beeper alarms	Paper end	Reload the roll paper.
Error LED blinks and beeper alarms	Thermal Print Head overheated	Turn the printer off and wait some minutes before you resume.
	Overvoltage	Print with specified voltage.
	Low-voltage	Print with specified voltage, use original power adapter.

Trouble occur during printing

Trouble	Potential Problem	Solution
Colored stripe in the paper	Paper near end	Install a new roll of paper.
Blurred or spot printing	Incorrect roll paper	Install the paper roll correctly.
	Poor paper quality	Use recommended thermal roll paper.
	Dirty thermal head or print roller	Clean the thermal head or print roller.
	Low Print density	Increase the print density level.
Paper Jam	Paper stuck	Open the printer cover, check the paper path and remove jammed paper.

Vertical dot line missing	Dirty thermal head or print	Clean the thermal head or print roller.
	Thermal head damaged	Contact your dealer for assistance.

6.2 Removing Jammed Paper

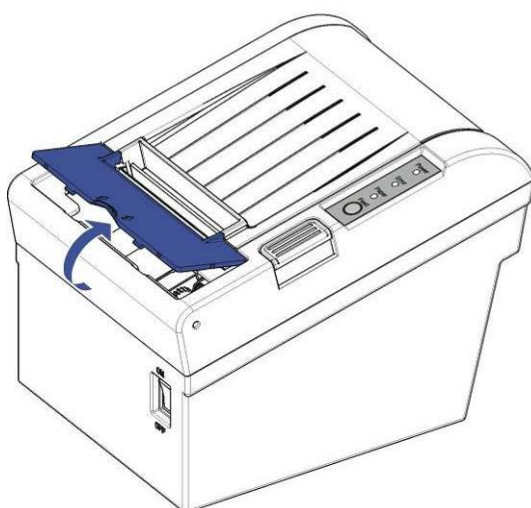
When a paper jam occurs, never pull out the paper forcibly. Open the roll paper cover and remove the jammed paper.

When the cover cannot be opened, follow the steps below to remove the jammed paper.



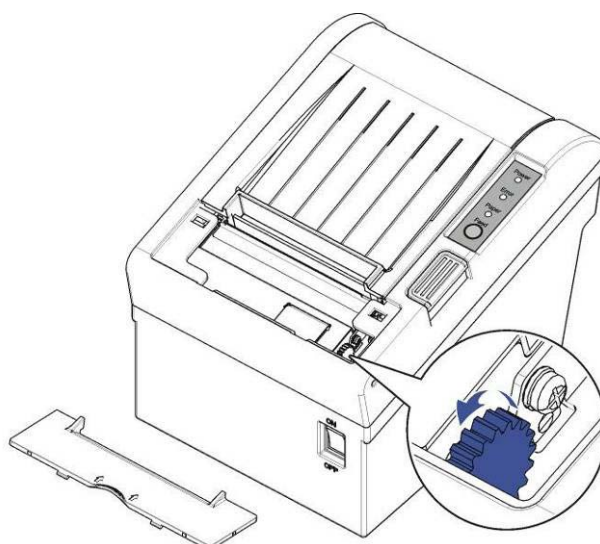
Printhead may be hot, please do not touch!

1. Turn off the printer.
2. Lift up the cutter cover to open it like the picture shows.



3. Turn the knob until the cutter blade returns to the normal position.

This returns the cutter blade to the normal position. There is label near the cutter to assist you.



4. Close the cutter cover.
5. Open the printer cover and remove the jammed paper.

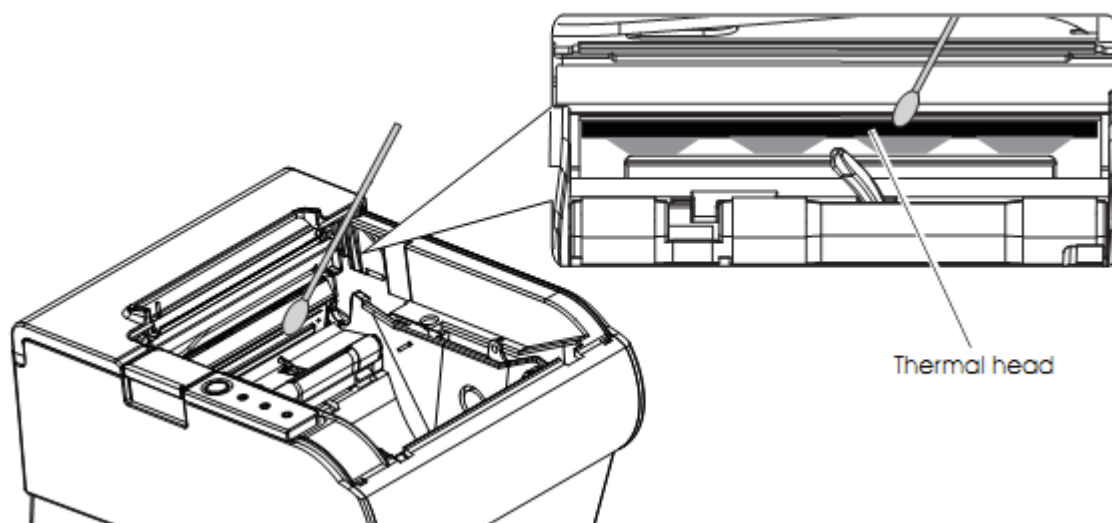
6.3 Cleaning Thermal Head

DASCOM recommends cleaning the thermal print head periodically (generally every 3 months) to maintain receipt print quality.



- After printing, the thermal print head becomes very hot. Be careful not to touch it and to let it cool before you clean it.
- Do not damage the thermal print head by touching it with your fingers or any hard object.

Turn off the printer, open the printer cover, and clean the thermal elements of the print head with a cotton swab moistened with an alcohol solvent (ethanol, methanol, or isopropyl).



Depending on the roll paper used, paper dust may stick to the platen roller and roll paper end sensor. To remove the paper dust, clean the platen roller and roll paper end sensor with a cotton swab moistened with water. Turn on the printer power only after the water has completely dried.

7 SPECIFICATIONS

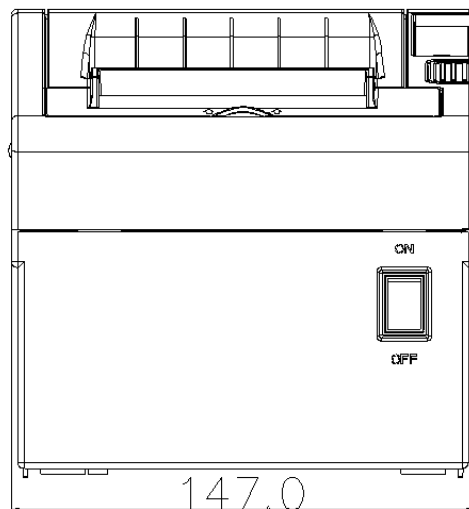
7.1 Printer Specification

Print Parameter	Print method	Direct thermal line printing
	Resolution	203DPI, 8dots/mm
	Print speed	DT-230: 260mm/s Default; 240-270mm/s adjustable via DIP. DT-210: 220mm/s Default; 210-230mm/s adjustable via DIP.
	Print width	72mm (576dots)
	Interface	USB (On-board) + Cash Drawer (On-board) + one optional interface (daughter board): Serial, Parallel, Ethernet, Wi-Fi or fiscal interface.
	Print density	The density can be adjusted to different levels: DT-210: Level 1 Density light: Speed 230 m/s Level 2 Density middle: Speed 220 m/s Level 3 Density middle: Speed 210 m/s Level 4 Density dark: Speed 200 m/s DT-230: Level 1 Density light: Speed 270 m/s Level 2 Density middle: Speed 260 m/s Level 3 Density middle: Speed 250 m/s Level 4 Density dark: Speed 240 m/s
Power consumption		51.6W(Normal) 7W(Standby)
Memory	RAM	1Mbytes
	Flash	4Mbytes
Receive buffer		48Kbytes
Fonts	Characters per line	Font A, Special Font A: 48 cpl Font B, Special Font B: 64 cpl
	User-defined	Supported
	Code page	14 code pages (PC437, PC850, PC852, PC858, PC860, PC863, PC865, PC866, KU42, TIS11, TIS18, PC720, PC864, WPC1256)
	Chinese Character	GB18030 24×24
Barcodes	1D	UPC-A, UPC-E, EAN8, EAN13, CODE39, ITF, CODEBAR, CODE128, CODE32
	2D	PDR417, QR code
Graphics		Supports several bitmap densities and download image printing. (Maximum size of each bitmap is 64kB. The total size of memory is 256K.)
Detect Function	Sensors	Paper End, Paper Near End, Paper Jam and Cover Open sensors.
Power Supply		External power adapter
	Input	AC 100V-240V 50-60Hz
	Output	DC 24V±5%, 2.15A, A-1009-3P interface
Paper Handling	Paper type	Standard Thermal Paper (see P31- 5.4 paper specification)

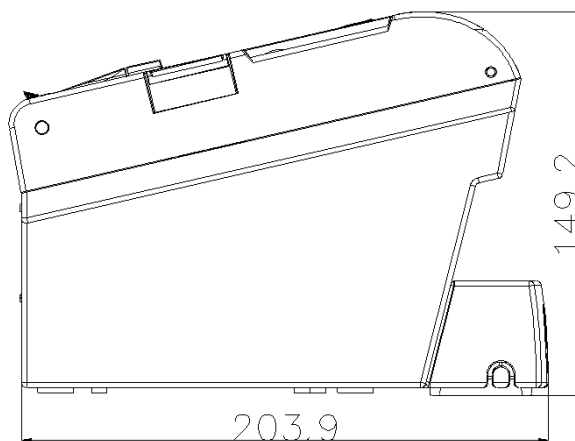
	Paper width	79.5±0.5mm/57.5±0.5mm
	Paper thickness	0.056~0.1mm
	Paper roll diameter	Max. OD ϕ 83mm Min. ID ϕ 13mm
	Paper load	Upward cover open and Easy paper loading
	Paper cut	Manual tear; Auto-cutter (hay cutter type) and partial cut.
Emulation		ESC/POS (TM-T88IV) Compatible command set
Noise		The noise level will be less than 50 dBA at 260mm/s printing speed (to be measured in accordance with ISO 7779)
Physical Spec.	Operating condition	5~45°C/10~95% RH
	Storage condition	-10~50°C/10~95% RH
	Dimensions	147×198×146 (W×L×H mm)
	Color	Black
	Weight	Approx. 1.8kg
Optional Kits		Splash cover and Hanging plate
Accessory		Interface cover
Reliability	Head lifetime	150km
	MTBF	360,000 hours
	Cutter lifetime	2,000,000 cuts
	MCBF	52,000,000 lines
Software	Driver	Windows, 32 & 64 Bit
Certification		CCC, CE, UL, FCC, Energy Star

7.2 External Dimension and Mass

- Width: Approximately 147 mm {5.78"}
- Depth: Approximately 203.9 mm {8.03"}
- Width: Approximately 149.2 mm {5.87"}
- Mass: DT-210: Approx. 1.6kg {3.53lb} (excluding power adapter)
DT-230: Approx. 1.7kg {3.75lb} (excluding power adapter)



Front View



Side View

7.3 Interfaces

Power Supply interface, USB interface and cash drawer interface are standard interfaces for the printer. Serial interface, Parallel interface, Ethernet interface and Wi-Fi interface are optional interfaces for the printer.

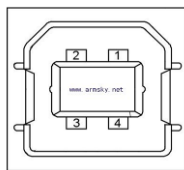
The interface pin assignment is listed below.

7.3.1 USB interface

USB interface pin assignment

PIN No.	Description	Classic wire color
1	VBUS	Red
2	D-	White
3	D+	Green
4	GND	Black

USB interface connector diagram



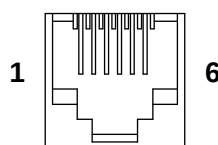
7.3.2 Cash Drawer interface

Cash Drawer interface pin assignment

Cash drawer interface supports DC24V, 1A, RJ-11 6P type socket.

Pin. No.	Description	Direction
1	Frame Ground	-
2	Drawer kick-out drive signal 1	Output
3	Drawer open/close signal	Input
4	+24V	-
5	Drawer kick-out drive signal 2	Output
6	GND	-

Cash Drawer interface connector diagram



7.3.3 Serial interface

Serial interface pin assignment

Serial interface compatible with RS-232 standard, with 25 pin (D hole type) socket.

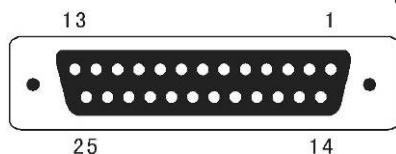
PIN No.	Description
PIN 1	Frame Ground
PIN 2	TXD
PIN 3	RXD
PIN 4	RTS
PIN 5	Unconnected
PIN 6	DSR
PIN 7	Signal Ground
PIN 8~19	Unconnected
PIN 20	DTR
PIN 21~25	Unconnected



User can view the setting of interface via printing configuration sample.

The default setting of serial interface is as follow, 38400 bps (baud rates), 8 bit (data bit), 1 bit (stop bit), no parity, support RTS/CTS handshaking protocol.

Serial interface connector diagram



7.3.4 Parallel interface

Parallel interface pin assignment

Parallel interface with 36 pin CENTRONICS socket.

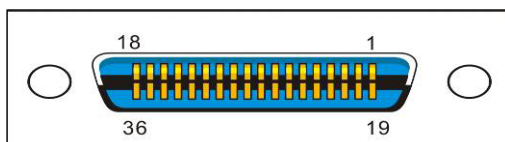
Pin No.	Signal From	Description
1	H	Strobe Signal; Data latch pulse, latch the data to the printer at the rising edge of the negative pulse.
2	H	Data 0 (The lowest bit)

3	H	Data 1
Pin No.	Signal From	Description
4	H	Data 2
5	H	Data 3
6	H	Data 4
7	H	Data 5
8	H	Data 6
9	H	Data 7 (The highest bit)
10	P	ACK Signal; Printer response signal, indicates that the printer has received a Data byte.
11	P	Busy Signal; The printer is busy; High level indicates that the printer can't receive data.
12	P	PE Signal; Paper end signal; High level indicates that the printer is out of paper.
13	—	Unconnected
14	—	Unconnected
15	—	Unconnected
16	Logic Ground	
17	Frame Ground, separated from logic ground.	
18	—	Unconnected
19~30	Logic Ground	
31	—	Unconnected
32	P	Printer error signal. Low level indicates that an error occurs in the printer. It will come with paper end.
33	Logic Ground	
34~35	—	Unconnected
36	Unconnected	



H indicates that signal comes from Host computer; P indicates that signal comes from Printer.

Parallel interface connector diagram

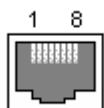


7.3.5 Ethernet interface

Ethernet interface pin assignment

Pin. No.	Name	Description
1	TX+	Tranceive Data+
2	TX-	Tranceive Data-
3	RX+	Receive Data+
4	n/c	Not connected
5	n/c	Not connected
6	RX-	Receive Data-
7	n/c	Not connected
8	n/c	Not connected

Ethernet interface connector diagram



7.3.6 Wi-Fi interface

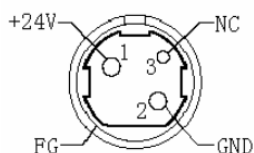
Wi-Fi interface supports 2.4 GHz, IEEE Std. 802.11b standard.

7.4 Power Adapter

Power Socket pin assignment

Pin Number	Signal Name
1	+24 V
2	GND
3	N.C
SHELL	F.G.

Power Supply connector diagram



Power Supply interface type

Printer - Unetop DC-002 or similar products

Computer - Unetop DP-002 or similar products

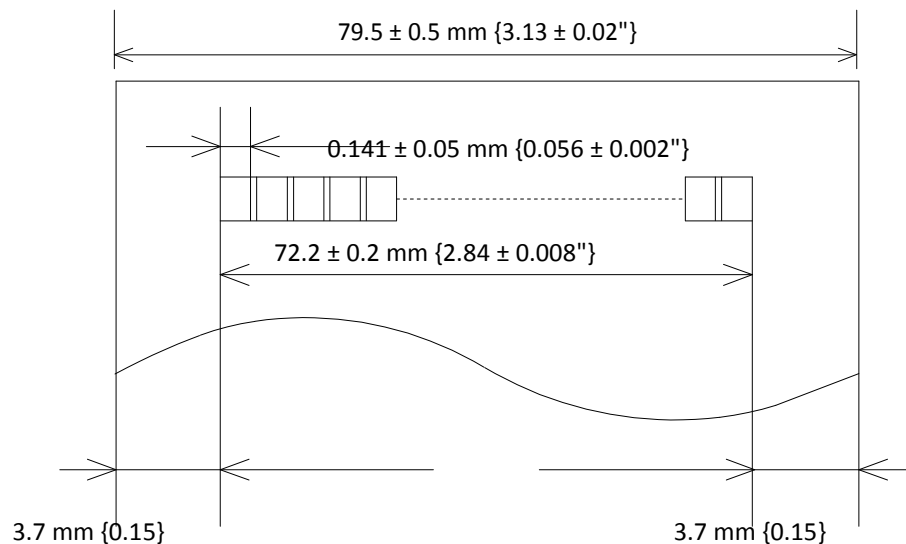
7.5 Paper Specification

Paper type		Specified thermal paper
Form		Roll paper
Size	Roll paper diameter	83 mm {3.27"} maximum
	Min. core diameter	13mm
	Take-up roll paper width	80 + 0.5/-1.0 mm
	Paper width	79.5 ± 0.5 mm
CAUTION • Paper must not be pasted to the roll paper spool. • The remaining amount of the roll paper when a roll paper near-end is detected differs depending on the spool type.		

7.5.1 Printable Area

80 mm paper width printing

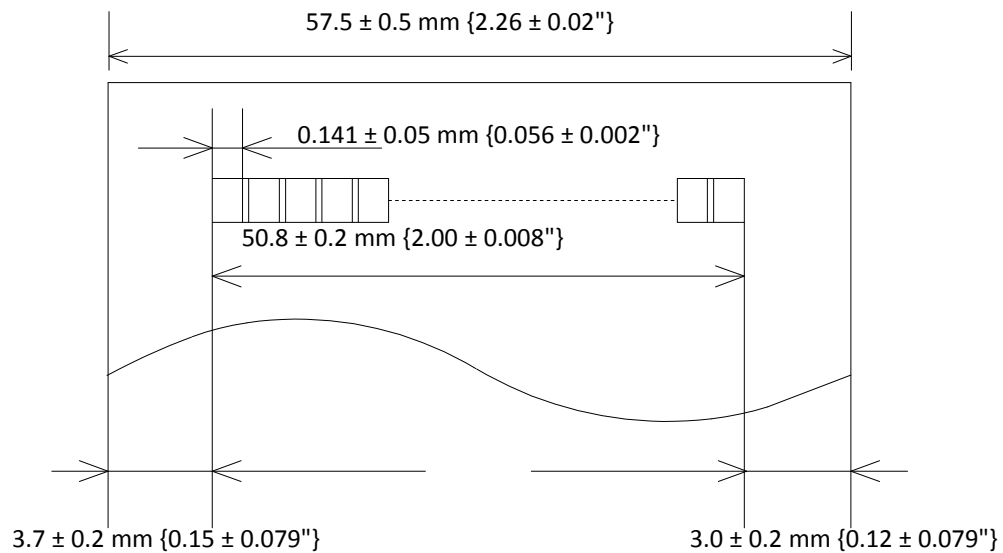
The printable area of a paper with width of 79.5 ± 0.5 mm { 3.13 ± 0.02 " } is 72.2 ± 0.2 mm { 2.84 ± 0.008 " } (576 dots) and the space on the right and left sides are approximately 3.7 ± 2 mm { 0.15 ± 0.079 " }.



All the numeric values are typical.

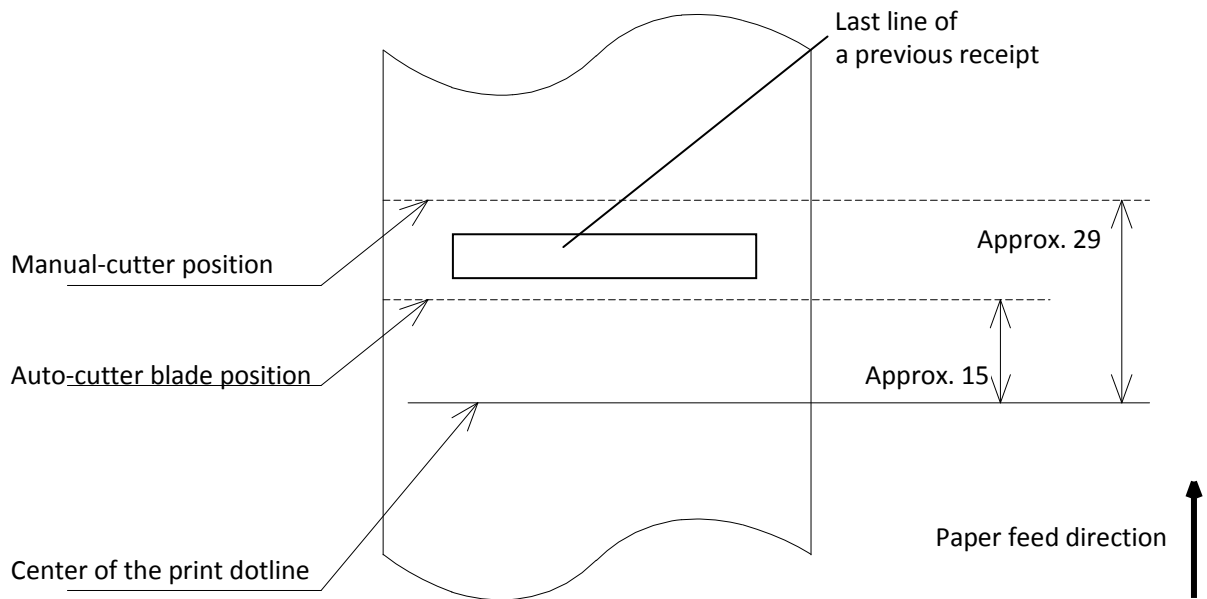
58 mm paper width printing

The printable area of a paper with width of 57.5 ± 0.5 mm $\{2.26'' \pm 0.02''\}$ is 50.8 ± 0.2 mm $\{2.00'' \pm 0.008''\}$ (360 dots), and the space is approximately 3.7mm $\{0.15''\}$ on the left side and approximately 3.0 mm $\{0.12''\}$ on the right side.



All the numeric values are typical.

7.5.2 Printing and Cutting Positions



[Units: mm (All the numeric values are typical.)



The values may vary slightly as a result of paper slack or variations in the paper. Take this into account when setting the cutting position of the auto cutter.

8 CHARACTER CODE PAGES



- The character code tables show only character configurations. They do not show the actual print pattern.
- “SP” in the table shows a space.

8.1 Common to All Pages (International Character Set: USA)

HEX	0	1	2	3	4	5	6	7
0	NUL 00	DLE 16	SP 32	0 48	@ 64	P 208	` 224	p 240
1	01	XON 17	! 33	1 49	A 65	Q 209	a 225	q 241
2	02	18	“ 34	2 50	B 66	R 210	b 226	R 242
3	03	XOFF 19	# 35	3 51	C 67	S 211	c 227	s 243
4	EOT 04	DC4 20	\$ 36	4 52	D 68	T 212	d 228	t 244
5	ENQ 05	NAK 21	% 37	5 53	E 69	U 213	e 229	u 245
6	ACK 06	22	& 38	6 54	F 198	V 214	f 230	V 246
7	07	CAN 23	' 39	7 55	G 199	W 215	g 231	w 247
8	08	24	(40	8 56	H 200	X 216	h 232	x 248
9	HT 09	25	) 41	9 57	I 201	Y 217	i 233	y 249
A	LF 10	26	* 42	: 58	J 202	Z 218	j 234	Z 250
B	11	ESC 27	+ 43	; 59	K 203	[219	k 235	{ 251
C	FF 12	FS 28	, 44	< 60	L 204	\ 220	l 236	 252
D	CR 13	GS 29	- 45	= 61	M 205	] 221	m 237	} 253
E	14	RS 30	. 46	> 62	N 206	^ 222	n 238	~ 254
F	15	31	/ 47	? 63	O 207	_ 223	o 239	SP 255

8.2 International Character Sets

Country	ASCII code (Hex)											
	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
USA	#	\$	@	[	\	]	^	`	{		}	~
France	#	\$	à	°	ç	§	^	`	é	ù	è	¨
Germany	#	\$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
U.K.	£	\$	@	[	\	]	^	`	{		}	~
Denmark I	#	\$	@	Æ	Ø	Å	^	`	æ	ø	å	~
Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy	#	\$	@	°	\	é	^	ù	à	ò	è	ì
Spain I	Pt	\$	@	i	Ñ	¿	^	`	¨	ñ	}	~
Japan	#	\$	@	[	¥	]	^	`	{		}	~
Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Denmark II	#	\$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Spain II	#	\$	á	i	Ñ	¿	é	`	í	ñ	ó	ú
Latin America	#	\$	á	i	Ñ	¿	é	ü	í	ñ	ó	ú
Korea	#	\$	@	[	W	]	^	`	{		}	~
Slovenia/ Croatia	#	\$	Ž	Š	Đ	Ć	Č	ž	š	đ	ć	č
China	#	¥	@	[	\	]	^	`	{		}	~

8.3 [User-defined page]

HEX	8	9	A	B	C	D	E	F
0	SP 128	SP 144	SP 160	SP 176	SP 192	SP 208	SP 224	SP 240
1	SP 129	SP 145	SP 161	SP 177	SP 193	SP 209	SP 225	SP 241
2	SP 130	SP 146	SP 162	SP 178	SP 194	SP 210	SP 226	SP 242
3	SP 131	SP 147	SP 163	SP 179	SP 195	SP 211	SP 227	SP 243
4	SP 132	SP 148	SP 164	SP 180	SP 196	SP 212	SP 228	SP 244
5	SP 133	SP 149	SP 165	SP 181	SP 197	SP 213	SP 229	SP 245
6	SP 134	SP 150	SP 166	SP 182	SP 198	SP 214	SP 230	SP 246
7	SP 135	SP 151	SP 167	SP 183	SP 199	SP 215	SP 231	SP 247
8	SP 136	SP 152	SP 168	SP 184	SP 200	SP 216	SP 232	SP 248
9	SP 137	SP 153	SP 169	SP 185	SP 201	SP 217	SP 233	SP 249
A	SP 138	SP 154	SP 170	SP 186	SP 202	SP 218	SP 234	SP 250
B	SP 139	SP 155	SP 171	SP 187	SP 203	SP 219	SP 235	SP 251
C	SP 140	SP 156	SP 172	SP 188	SP 204	SP 220	SP 236	SP 252
D	SP 141	SP 157	SP 173	SP 189	SP 205	SP 221	SP 237	SP 253
E	SP 142	SP 158	SP 174	SP 190	SP 206	SP 222	SP 238	SP 254
F	SP 143	SP 159	SP 175	SP 191	SP 207	SP 223	SP 239	SP 255

8.4 [PC437: USA, Standard Europe]

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	 176	Ł 192	Ш 208	α 224	≡ 240
1	ü 129	æ 145	í 161	 177	⌞ 193	⌘ 209	β 225	± 241
2	é 130	Æ 146	ó 162	 178	⌟ 194	⌠ 210	Γ 226	≥ 242
3	â 131	ô 147	ú 163	 179	⌡ 195	⌢ 211	π 227	≤ 243
4	ä 132	ö 148	ñ 164	⌣ 180	— 196	⌤ 212	Σ 228	∫ 244
5	à 133	ò 149	Ñ 165	⌥ 181	⌦ 197	⌧ 213	σ 229	∫ 245
6	å 134	û 150	ä 166	⌧ 182	⌨ 198	〈 214	μ 230	÷ 246
7	ç 135	ù 151	ø 167	〈 183	〉 199	⌫ 215	τ 231	≈ 247
8	ê 136	ÿ 152	č 168	⌬ 184	⌭ 200	⌮ 216	Φ 232	° 248
9	ë 137	Ö 153	Г 169	⌭ 185	⌯ 201	⌰ 217	Θ 233	• 249
A	è 138	Ü 154	Г 170	⌯ 186	⌰ 202	⌱ 218	Ω 234	· 250
B	ï 139	¢ 155	½ 171	⌱ 187	⌲ 203	 219	δ 235	√ 251
C	î 140	£ 156	¼ 172	⌲ 188	⌳ 204	 220	∞ 236	ⁿ 252
D	ì 141	¥ 157	ì 173	⌳ 189	= 205	⌴ 221	Φ 237	² 253
E	Ä 142	Pt 158	« 174	⌴ 190	⌵ 206	⌶ 222	ε 238	■ 254
F	Å 143	f 159	» 175	⌶ 191	⌷ 207	 223	∩ 239	SP 255

8.5 [PC850: Multilingual]

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	 176	Ł 192	ð 208	Ó 224	– 240
1	ü 129	æ 145	í 161	 177	ł 193	Ð 209	β 225	± 241
2	é 130	Æ 146	ó 162	 178	Ṭ 194	Ê 210	Ô 226	= 242
3	â 131	ô 147	ú 163	 179	ţ 195	Ë 211	Ò 227	¾ 243
4	ä 132	ö 148	ñ 164	 180	— 196	È 212	õ 228	¶ 244
5	à 133	ò 149	Ñ 165	Á 181	† 197	ı 213	Õ 229	§ 245
6	å 134	û 150	ä 166	Â 182	ã 198	Í 214	μ 230	÷ 246
7	ç 135	ù 151	å 167	À 183	Ã 199	Î 215	þ 231	, 247
8	ê 136	ÿ 152	ç 168	© 184	ŁŁ 200	İ 216	þ 232	° 248
9	ë 137	Ö 153	® 169	 185	ŕ 201	 217	Ú 233	“ 249
A	è 138	Ü 154	¬ 170	 186	ŁŁ 202	ŕ 218	Û 234	· 250
B	ï 139	ø 155	½ 171	 187	ŕŕ 203	■ 219	Ü 235	¹ 251
C	î 140	£ 156	¼ 172	 188	ŕŕ 204	■ 220	Ý 236	³ 252
D	ì 141	Ø 157	ı 173	¢ 189	= 205	ı 221	Ý 237	² 253
E	Ä 142	× 158	« 174	¥ 190	ŕŕ 206	İ 222	— 238	■ 254
F	Å 143	f 159	» 175	 191	¤ 207	■ 223	’ 239	SP 255

8.6 [PC852: Latin2]

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	 176	Ł 192	đ 208	Ó 224	- 240
1	Ü 129	Í 145	í 161	 177	Ł 193	Đ 209	β 225	“ 241
2	é 130	Í 146	ó 162	 178	Ƨ 194	Ǻ 210	Ô 226	‘ 242
3	â 131	ô 147	ú 163	 179	Ƨ 195	Ě 211	Ň 227	˘ 243
4	ä 132	ö 148	Ą 164	ł 180	— 196	ď 212	ň 228	˘ 244
5	û 133	Ĺ 149	ą 165	Á 181	† 197	Ň 213	ň 229	§ 245
6	ć 134	ĳ 150	ž 166	Â 182	Ǻ 198	Í 214	Š 230	÷ 246
7	ç 135	Š 151	ž 167	Ě 183	Ǻ 199	Î 215	š 231	’ 247
8	ł 136	ś 152	Ę 168	Ş 184	Ł 200	ě 216	Ř 232	° 248
9	ë 137	Ö 153	ę 169	Ǻ 185	Ƨ 201	Ĳ 217	Ú 233	“ 249
A	Ŏ 138	Ü 154	SP 170	 186	Ł 202	Ƨ 218	ř 234	• 250
B	ő 139	ť 155	ž 171	Ǻ 187	Ƨ 203	 219	Ů 235	ů 251
C	î 140	ť 156	Č 172	Ǻ 188	Ƨ 204	 220	ý 236	Ř 252
D	Ž 141	Ł 157	ş 173	Ž 189	= 205	Ƨ 221	Ý 237	ř 253
E	Ä 142	× 158	« 174	ž 190	Ƨ 206	Ů 222	ţ 238	■ 254
F	Ć 143	č 159	» 175	Ƨ 191	α 207	 223	’ 239	SP 255

8.7 [PC858: Euro]

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	 176	Ł 192	đ 208	Ó 224	– 240
1	ü 129	æ 145	í 161	 177	Ł 193	Đ 209	β 225	± 241
2	é 130	Æ 146	ó 162	 178	Ƨ 194	Ê 210	Ô 226	= 242
3	â 131	ô 147	ú 163	 179	Ƨ 195	Ë 211	Ò 227	¾ 243
4	ä 132	ö 148	ñ 164	† 180	– 196	È 212	õ 228	¶ 244
5	à 133	ò 149	Ñ 165	Á 181	† 197	€ 213	Õ 229	§ 245
6	å 134	û 150	ä 166	Â 182	ã 198	Í 214	μ 230	÷ 246
7	ç 135	ù 151	å 167	À 183	Ã 199	Î 215	þ 231	, 247
8	ê 136	ÿ 152	č 168	© 184	Ł 200	Ï 216	þ 232	° 248
9	ë 137	Ö 153	® 169	¶ 185	Ƨ 201	Ƨ 217	Ú 233	“ 249
A	è 138	Ü 154	¬ 170	 186	Ł 202	Ƨ 218	Û 234	· 250
B	ï 139	ø 155	½ 171	¶ 187	Ƨ 203	 219	Ü 235	¹ 251
C	î 140	£ 156	¼ 172	¶ 188	Ƨ 204	 220	Ý 236	³ 252
D	ì 141	Ø 157	ì 173	¢ 189	= 205	¡ 221	Ý 237	² 253
E	Ä 142	× 158	« 174	¥ 190	Ƨ 206	Ì 222	– 238	■ 254
F	Å 143	f 159	» 175	Ƨ 191	α 207	 223	´ 239	SP 255

8.8 [PC860: Portuguese]

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	 176	Ł 192	ll 208	α 224	≡ 240
1	ü 129	À 145	í 161	 177	⊥ 193	⌞ 209	β 225	± 241
2	é 130	È 146	ó 162	 178	⌞ 194	π 210	Γ 226	≥ 242
3	â 131	ô 147	ú 163	 179	⌞ 195	ll 211	π 227	≤ 243
4	ã 132	õ 148	ñ 164	⌞ 180	— 196	ℓ 212	Σ 228	∫ 244
5	à 133	ò 149	Ñ 165	⌞ 181	⌞ 197	ƒ 213	σ 229	∫ 245
6	Á 134	Ú 150	ä 166	ll 182	ƒ 198	π 214	μ 230	÷ 246
7	ç 135	ù 151	ø 167	π 183	ll 199	ll 215	τ 231	≈ 247
8	ê 136	Î 152	ç 168	⌞ 184	ll 200	≠ 216	Φ 232	° 248
9	Ê 137	Õ 153	Ö 169	ll 185	ƒ 201	⌞ 217	Θ 233	• 249
A	è 138	Ü 154	¬ 170	ll 186	ll 202	Γ 218	Ω 234	· 250
B	Í 139	¢ 155	½ 171	ll 187	ll 203	 219	δ 235	√ 251
C	Ô 140	£ 156	¼ 172	ll 188	ll 204	 220	∞ 236	n 252
D	ì 141	Ù 157	ì 173	ll 189	= 205	ll 221	Φ 237	² 253
E	Ã 142	Pt 158	« 174	ll 190	ll 206	ll 222	ε 238	■ 254
F	Å 143	Ó 159	» 175	ll 191	ll 207	 223	∩ 239	SP 255

8.9 [PC863: Canadian-French]

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	Ì 160	Ï 176	Ĺ 192	Ț 208	α 224	≡ 240
1	Ü 129	È 145	´ 161	⋈ 177	⊥ 193	Ț 209	β 225	± 241
2	é 130	Ê 146	Ó 162	⋈ 178	Ƨ 194	π 210	Γ 226	≥ 242
3	â 131	ô 147	ú 163	ı 179	Ƨ 195	ℓ 211	π 227	≤ 243
4	Â 132	Ë 148	¨ 164	Ƨ 180	— 196	ℓ 212	Σ 228	∫ 244
5	à 133	Ï 149	‚ 165	Ƨ 181	† 197	Ƒ 213	σ 229	∫ 245
6	¶ 134	û 150	³ 166	Ƨ 182	Ƒ 198	π 214	μ 230	÷ 246
7	ç 135	ù 151	— 167	π 183	Ƨ 199	Ƨ 215	τ 231	≈ 247
8	ê 136	α 152	Î 168	Ƨ 184	ℓ 200	Ƨ 216	Φ 232	° 248
9	ë 137	Ô 153	Ƨ 169	Ƨ 185	Ƨ 201	Ƨ 217	Θ 233	• 249
A	è 138	Ü 154	Ƨ 170	Ƨ 186	Ƨ 202	Ƨ 218	Ω 234	· 250
B	ï 139	¢ 155	½ 171	Ƨ 187	Ƨ 203	■ 219	δ 235	√ 251
C	î 140	£ 156	¼ 172	Ƨ 188	Ƨ 204	■ 220	∞ 236	ⁿ 252
D	= 141	Ù 157	¾ 173	Ƨ 189	= 205	■ 221	Φ 237	² 253
E	À 142	Û 158	« 174	Ƨ 190	Ƨ 206	■ 222	ε 238	■ 254
F	š 143	ƒ 159	» 175	Ƨ 191	± 207	■ 223	∩ 239	SP 255

8.10 [PC865: Nordic]

HEX	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	 176	Ł 192	ll 208	α 224	≡ 240
1	ü 129	æ 145	í 161	 177	Ł 193	ŧ 209	β 225	± 241
2	é 130	Æ 146	ó 162	 178	ŧ 194	π 210	Γ 226	≥ 242
3	â 131	ô 147	ú 163	 179	ŧ 195	ll 211	π 227	≤ 243
4	ä 132	ö 148	ñ 164	ŧ 180	— 196	Ł 212	Σ 228	∫ 244
5	à 133	ò 149	Ñ 165	ŧ 181	ŧ 197	ƒ 213	σ 229	∫ 245
6	å 134	û 150	ä 166	ŧ 182	ƒ 198	π 214	μ 230	÷ 246
7	ç 135	ù 151	ø 167	π 183	ŧ 199	ŧ 215	τ 231	≈ 247
8	ê 136	ÿ 152	č 168	ŧ 184	ll 200	ŧ 216	Φ 232	° 248
9	ë 137	Ö 153	ŗ 169	ŧ 185	ƒ 201	ŧ 217	Θ 233	• 249
A	è 138	Ü 154	ŧ 170	ll 186	ll 202	ŧ 218	Ω 234	· 250
B	ï 139	ø 155	½ 171	ŧ 187	ŧ 203	 219	δ 235	√ 251
C	î 140	£ 156	¼ 172	ŧ 188	ŧ 204	 220	∞ 236	ⁿ 252
D	ì 141	Ø 157	ì 173	ŧ 189	= 205	 221	Φ 237	² 253
E	Ä 142	Pt 158	« 174	ŧ 190	ŧ 206	 222	ε 238	■ 254
F	Å 143	f 159	α 175	ŧ 191	ll 207	 223	∩ 239	SP 255

8.11 [PC866: Cyrillic #2]

HEX	8	9	A	B	C	D	E	F
0	А 128	Р 144	а 160	▒ 176	Л 192	л 208	р 224	Ё 240
1	Б 129	С 145	б 161	▒ 177	┐ 193	т 209	с 225	ё 241
2	В 130	Т 146	в 162	▒ 178	т 194	т 210	т 226	Є 242
3	Г 131	У 147	г 163	 179	└ 195	л 211	у 227	є 243
4	Д 132	Ф 148	д 164	└ 180	— 196	Е 212	ф 228	İ 244
5	Е 133	Х 149	е 165	└ 181	└ 197	Р 213	х 229	ï 245
6	Ж 134	Ц 150	ж 166	 182	т 198	г 214	ц 230	Ÿ 246
7	З 135	Ч 151	з 167	т 183	т 199	т 215	ч 231	ŷ 247
8	И 136	Ш 152	и 168	т 184	л 200	т 216	ш 232	° 248
9	Й 137	Щ 153	й 169	 185	г 201	└ 217	щ 233	• 249
A	К 138	Ъ 154	к 170	 186	л 202	г 218	ъ 234	· 250
B	Л 139	Ы 155	л 171	т 187	т 203	▀ 219	ы 235	√ 251
C	М 140	Ь 156	м 172	л 188	т 204	▀ 220	ь 236	№ 252
D	Н 141	Э 157	н 173	л 189	= 205	▀ 221	э 237	α 253
E	О 142	Ю 158	о 174	└ 190	т 206	▀ 222	ю 238	■ 254
F	П 143	Я 159	п 175	└ 191	└ 207	▀ 223	я 239	SP 255

8.12 [KU42: Thai]

HEX	8	9	A	B	C	D	E	F
0	Γ 128	ο 144	SP 160	ฒ 176	ย 192	ไ 208	' 224	๒ 240
1	ก 129	ด 145	ก 161	ณ 177	ร 193	แ 209	๒ 225	D+ 241
2	ล 130	๒ 146	ข 162	ด 178	ถ 194	โ 210	๒ 226	D๑ 242
3	จ 131	๓ 147	ค 163	ต 179	ล 195	ใ 211	+ 227	D- 243
4	ข 132	๔ 148	ฃ 164	ถ 180	ว 196	ไ 212	๑ 228	D๔ 244
5	— 133	๕ 149	ง 165	ท 181	ศ 197	ๆ 213	• 229	D๒ 245
6	ค 134	๖ 150	จ 166	ธ 182	ษ 198	ๆ 214	◌ 230	D+ 246
7	ค 135	๗ 151	ฉ 167	น 183	ส 199	ๆ 215	๑ 231	D- 247
8	ค 136	๘ 152	ช 168	บ 184	ห 200	๒ 216	๑ 232	D๔ 248
9	ค 137	๙ 153	ช 169	ป 185	ฬ 201	๒ 217	๑ 233	D๒ 249
A	ค 138	๐ 154	ฅ 170	ผ 186	อ 202	๒ 218	๑ 234	D+ 250
B	ค 139	ค 155	ญ 171	ฝ 187	ฮ 203	๒ 219	๑ 235	D- 251
C	← 140	โ 156	ฉ 172	พ 188	ะ 204	๒ 220	๑ 236	D๔ 252
D	↑ 141	ใ 157	ฉ 173	ฟ 189	ภ 205	๒ 221	๑ 237	D๒ 253
E	→ 142	โ 158	ฉ 174	ภ 190	ภ 206	๒ 222	๑ 238	D+ 254
F	↓ 143	ไ 159	ท 175	ม 191	ภ 207	๒ 223	๑ 239	SP 255

8.13 [TIS11: Thai]

HEX	8	9	A	B	C	D	E	F
0	๐ 128	๑ 144	๒ 160	๓ 176	๔ 192	๕ 208	๖ 224	๗ 240
1	๘ 129	๙ 145	๑๐ 161	๑๑ 177	๑๒ 193	๑๓ 209	๑๔ 225	๑๕ 241
2	๑๖ 130	๑๗ 146	๑๘ 162	๑๙ 178	๒๐ 194	๒๑ 210	๒๒ 226	๒๓ 242
3	๒๔ 131	๒๕ 147	๒๖ 163	๒๗ 179	๒๘ 195	๒๙ 211	๓๐ 227	๓๑ 243
4	๓๒ 132	๓๓ 148	๓๔ 164	๓๕ 180	๓๖ 196	๓๗ 212	๓๘ 228	๓๙ 244
5	๓๔ 133	๓๕ 149	๓๖ 165	๓๗ 181	๓๘ 197	๓๙ 213	๔๐ 229	๔๑ 245
6	๔๒ 134	๔๓ 150	๔๔ 166	๔๕ 182	๔๖ 198	๔๗ 214	๔๘ 230	๔๙ 246
7	๔๔ 135	๔๕ 151	๔๖ 167	๔๗ 183	๔๘ 199	๔๙ 215	๕๐ 231	๕๑ 247
8	๕๒ 136	๕๓ 152	๕๔ 168	๕๕ 184	๕๖ 200	๕๗ 216	๕๘ 232	๕๙ 248
9	๕๔ 137	๕๕ 153	๕๖ 169	๕๗ 185	๕๘ 201	๕๙ 217	๖๐ 233	๖๑ 249
A	๖๒ 138	๖๓ 154	๖๔ 170	๖๕ 186	๖๖ 202	๖๗ 218	๖๘ 234	๖๙ 250
B	๖๔ 139	๖๕ 155	๖๖ 171	๖๗ 187	๖๘ 203	๖๙ 219	๗๐ 235	๗๑ 251
C	๖๔ 140	๖๕ 156	๖๖ 172	๖๗ 188	๖๘ 204	๖๙ 220	๗๐ 236	๗๑ 252
D	๖๔ 141	๖๕ 157	๖๖ 173	๖๗ 189	๖๘ 205	๖๙ 221	๗๐ 237	๗๑ 253
E	๖๔ 142	๖๕ 158	๖๖ 174	๖๗ 190	๖๘ 206	๖๙ 222	๗๐ 238	๗๑ 254
F	๖๔ 143	๖๕ 159	๖๖ 175	๖๗ 191	๖๘ 207	๖๙ 223	๗๐ 239	๗๑ 255

8.14 [TIS18: Thai]

HEX	8	9	A	B	C	D	E	F
0	๐ 128	๑ 144	SP 160	๒ 176	๓ 192	๔ 208	๕ 224	๖ 240
1	๑ 129	๒ 145	๓ 161	๔ 177	๕ 193	๖ 209	๗ 225	๘ 241
2	๒ 130	๓ 146	๔ 162	๕ 178	๖ 194	๗ 210	๘ 226	๙ 242
3	๓ 131	๔ 147	๕ 163	๖ 179	๗ 195	๘ 211	๙ 227	๐ 243
4	๔ 132	๕ 148	๖ 164	๗ 180	๘ 196	๙ 212	๐ 228	๑ 244
5	๕ 133	๖ 149	๗ 165	๘ 181	๙ 197	๐ 213	๑ 229	๒ 245
6	๖ 134	๗ 150	๘ 166	๙ 182	๐ 198	๑ 214	๒ 230	๓ 246
7	๗ 135	๘ 151	๙ 167	๐ 183	๑ 199	๒ 215	๓ 231	๔ 247
8	๘ 136	๙ 152	๐ 168	๑ 184	๒ 200	๓ 216	๔ 232	๕ 248
9	๙ 137	๐ 153	๑ 169	๒ 185	๓ 201	๔ 217	๕ 233	๖ 249
A	๐ 138	๑ 154	๒ 170	๓ 186	๔ 202	๕ 218	๖ 234	๗ 250
B	๑ 139	๒ 155	๓ 171	๔ 187	๕ 203	๖ 219	๗ 235	๘ 251
C	๒ 140	๓ 156	๔ 172	๕ 188	๖ 204	๗ 220	๘ 236	๙ 252
D	๓ 141	๔ 157	๕ 173	๖ 189	๗ 205	๘ 221	๙ 237	๐ 253
E	๔ 142	๕ 158	๖ 174	๗ 190	๘ 206	๙ 222	๐ 238	๑ 254
F	๕ 143	๖ 159	๗ 175	๘ 191	๙ 207	๐ 223	๑ 239	SP 255

8.15 [PC720: Arabic]

HEX	8	9	A	B	C	D	E	F
0	SP 128	SP 144	ب 160	ٲ 176	ل 192	ل 208	ض 224	ٲ 240
1	SP 129	س 145	ة 161	ٲ 177	ل 193	ٲ 209	ط 225	ٲ 241
2	é 130	و 146	ت 162	ٲ 178	ٲ 194	ٲ 210	ظ 226	ٲ 242
3	a 131	ô 147	ث 163	ل 179	ٲ 195	ل 211	ع 227	ٲ 243
4	SP 132	ٲ 148	ج 164	ٲ 180	ـ 196	ل 212	غ 228	ٲ 244
5	à 133	ـ 149	ح 165	ٲ 181	ٲ 197	ف 213	ف 229	ٲ 245
6	SP 134	û 150	خ 166	ٲ 182	ٲ 198	ٲ 214	ٲ 230	ٲ 246
7	ç 135	ù 151	د 167	ٲ 183	ٲ 199	ٲ 215	ق 231	ٲ 247
8	ê 136	ء 152	ذ 168	ٲ 184	ل 200	ٲ 216	ك 232	و 248
9	ë 137	آ 153	ر 169	ٲ 185	ٲ 201	ل 217	ل 233	و 249
A	è 138	أ 154	ز 170	ٲ 186	ل 202	ر 218	م 234	و 250
B	ï 139	ؤ 155	س 171	ٲ 187	ٲ 203	ٲ 219	ن 235	ٲ 251
C	î 140	ع 156	ش 172	ٲ 188	ٲ 204	ٲ 220	ه 236	ٲ 252
D	SP 141	إ 157	ص 173	ل 189	ٲ 205	ٲ 221	و 237	2 253
E	SP 142	ئ 158	« 174	ل 190	ٲ 206	ٲ 222	ى 238	ٲ 254
F	SP 143	ا 159	» 175	ل 191	SP 207	ٲ 223	ي 239	SP 255

8.16 [PC864: Arabic]

HEX	8	9	A	B	C	D	E	F
0	° 128	β 144	SP 160	• 176	c 192	ذ 208	- 224	? 240
1	· 129	∞ 145	 161	١ 177	ء 193	ر 209	ف 225	? 241
2	· 130	φ 146	آ 162	٢ 178	آ 194	ز 210	ق 226	ن 242
3	√ 131	± 147	£ 163	٣ 179	أ 195	س 211	ك 227	ه 243
4	 132	½ 148	¤ 164	٤ 180	ؤ 196	ش 212	ل 228	٥ 244
5	- 133	¼ 149	أ 165	٥ 181	ع 197	ص 213	م 229	ى 245
6	 134	≈ 150	SP 166	٦ 182	ئ 198	ض 214	ن 230	ي 246
7	† 135	« 151	€ 167	٧ 183	ا 199	ط 215	ه 231	غ 247
8	‡ 136	» 152	ا 168	٨ 184	ب 200	ظ 216	و 232	ق 248
9	T 137	أل 153	ب 169	٩ 185	ة 201	ع 217	ى 233	آل 249
A	‡ 138	لا 154	ت 170	ف 186	ت 202	غ 218	ي 234	لا 250
B	⊥ 139	SP 155	ث 171	؛ 187	ث 203	ا 219	ض 235	ل 251
C	٦ 140	SP 156	، 172	س 188	ج 204	٦ 220	ع 236	ك 252
D	Г 141	ال 157	ج 173	ش 189	ح 205	÷ 221	غ 237	ي 253
E	L 142	الا 158	ح 174	ص 190	خ 206	× 222	غ 238	■ 254
F	J 143	ء 159	خ 175	؟ 191	د 207	ع 223	م 239	SP 255

8.17 [WPC1256: Arabic]

HEX	8	9	A	B	C	D	E	F
0	€ 128	گ 144	SP 160	° 176	^ 192	ذ 208	à 224	° 240
1	' 129	' 145	' 161	± 177	ء 193	ر 209	ل 225	* 241
2	پ 130	' 146	¢ 162	² 178	آ 194	ز 210	â 226	° 242
3	f 131	“ 147	£ 163	³ 179	أ 195	س 211	م 227	° 243
4	” 132	” 148	¤ 164	' 180	ؤ 196	ش 212	ن 228	Ô 244
5	... 133	• 149	¥ 165	μ 181	إ 197	ص 213	ه 229	' 245
6	† 134	— 150	¡ 166	¶ 182	ئ 198	ض 214	و 230	° 246
7	‡ 135	— 151	§ 167	· 183	ا 199	× 215	ç 231	÷ 247
8	^ 136	ک 152	“ 168	د 184	ب 200	ط 216	è 232	° 248
9	‰ 137	™ 153	© 169	¹ 185	ة 201	ظ 217	é 233	ù 249
A	ٹ 138	ڑ 154	ھ 170	؛ 186	ت 202	ع 218	ê 234	° 250
B	‹ 139	› 155	« 171	» 187	ث 203	غ 219	ë 235	û 251
C	Œ 140	œ 156	¬ 172	¼ 188	ج 204	- 220	ی 236	ü 252
D	چ 141	SP 157	 173	½ 189	ح 205	ف 221	ي 237	SP 253
E	ژ 142	SP 158	® 174	¾ 190	خ 206	ق 222	î 238	SP 254
F	ڈ 143	ں 159	— 175	؟ 191	د 207	ك 223	ï 239	ء 255

9 PRINTING CONTROL COMMAND SETS

- Be compatible with ESC/POS command set
- Support NV image and page mode printing

List of Commands

Command	Name
HT	Horizontal tab
LF	Print and line feed
FF	Print and return to standard mode (in page mode)
CR	Print and carriage return
CAN	Cancel print data in page mode
DLE EOT	Transmit real-time status
DLE ENQ	Send real-time request to printer
DLE DC4	Generate pulse in real-time ($fn = 1$)
	Execute power-off sequence ($fn = 2$)
	Clear buffer(s) ($fn = 8$)
ESC FF	Print data in page mode
ESC SP	Set right-side character spacing
ESC !	Select print mode(s)
ESC \$	Set absolute print position
ESC %	Select/cancel user-defined character set
ESC &	Define user-defined characters
ESC *	Select bit-image mode
ESC -	Turn underline mode on/off
ESC 2	Select default line spacing
ESC 3	Set line spacing
ESC =	Select peripheral device
ESC ?	Cancel user-defined characters
ESC @	Initialize printer
ESC D	Set horizontal tab positions
ESC E	Turn emphasized mode on/off
ESC G	Turn double-strike mode on/off
ESC J	Print and feed paper
ESC L	Select page mode
ESC M	Select character font
ESC R	Select an international character set
ESC S	Select standard mode
ESC T	Select print direction in page mode
ESC V	Turn 90 degrees clockwise rotation mode on/off
ESC W	Set print area in page mode
ESC \	Set relative print position

Command	Name
ESC a	Select justification
ESC c 3	Select paper sensor(s) to output paper-end signals
ESC c 4	Select paper sensor(s) to stop printing
ESC c 5	Enable/disable panel buttons
ESC d	Print and feed <i>n</i> lines
ESC p	Generate pulse
ESC t	Select character code table
ESC {	Turn upside-down print mode on/off
FS g 1	Write to NV user memory
FS g 2	Read from NV user memory
GS !	Select character size
GS \$	Set absolute vertical print position in page mode
GS (A	Execute test print
GS (D	Enable/disable real-time command
GS (E	Set user setup commands <Function 1> Change into the user setting mode. <Function 2> End the user setting mode session. <Function 5> Set the customized setting values. <Function 6> Transmit the customized setting values. <Function 11> Set the configuration item for the serial interface. <Function 12> Transmit the configuration item for the serial interface.
GS (H	Request transmission of response or status <Function 48> Set the process ID response.
GS (K	Select print control method(s) <Function 50> Select the print speed.
GS (L / GS 8 L	Set graphics data <Function 48> Transmit the NV graphics memory capacity. <Function 50> Print the graphics data in the print buffer. <Function 51> Transmit the remaining capacity of the NV graphics memory. <Function 64> Transmit the key code list for defined NV graphics. <Function 65> Delete all NV graphics data. <Function 66> Delete the specified NV graphics data. <Function 67> Define the NV graphics data (raster format). <Function 69> Print the specified NV graphics data. <Function 112> Store the graphics data in the print buffer (raster format).

Command	Name
GS (k	Set up and print symbol <Function 065> PDF417: Set the number of columns in the data region. <Function 066> PDF417: Set the number of rows. <Function 067> PDF417: Set the width of the module. <Function 068> PDF417: Set the row height. <Function 069> PDF417: Set the error correction level. <Function 070> PDF417: Select the options. <Function 080> PDF417: Store the data in the symbol storage area. <Function 081> PDF417: Print the symbol data in the symbol storage area. <Function 082> PDF417: Transmit the size information of the symbol data in the symbol storage area. <Function 167> QR Code: Set the size of module. <Function 169> QR Code: Select the error correction level. <Function 180> QR Code: Store the data in the symbol storage area. <Function 181> QR Code: Print the symbol data in the symbol storage area. <Function 182> QR Code: Transmit the size information of the symbol data in the symbol storage area.
GS *	Define downloaded bit image
GS /	Print downloaded bit image
GS :	Start/end macro definition
GS B	Turn white/black reverse print mode on/off
GS H	Select print position of HRI characters
GS I	Transmit printer ID
GS L	Set left margin
GS P	Set horizontal and vertical motion units
GS V	Select cut mode and cut paper
GS W	Set print area width
GS \	Set relative vertical print position in page mode
GS ^	Execute macro
GS a	Enable/disable Automatic Status Back (ASB)
GS f	Select font for HRI characters
GS g 0	Initialize maintenance counter
GS g 2	Transmit maintenance counter
GS h	Set bar code height
GS k	Print bar code
GS r	Transmit status
GS w	Set bar code width
FS p	Print NV bit image
FS q	Define NV bit image
GS v 0	Print raster bit image

The commands listed below in the first column are defined as “obsolete commands” in the ESC/POS command system.

This printer supports both upward-compatible commands and obsolete commands. However, the upward-compatible commands are recommended to use.

Obsolete command		Upward-compatible command
ESC i	Partial cut (one point left uncut)	GS V
ESC m	Partial cut (three points left uncut)	GS V
ESC u	Transmit peripheral device status	GS r
ESC v	Transmit paper sensor status	GS r
FS p	Print NV bit image	GS (L <Function 69>
FS q	Define NV bit image	GS (L <Function 67>
GS v 0	Print raster bit image	GS (L <Function 112 + 50>



“Obsolete commands” are commands that are supported by legacy models; however it is recommended to replace them with upward-compatible commands, because they will not be supported in the future products.

FCC STATEMENT

1. 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.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orientate or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

RF warning for Mobile device:



This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

C €2200

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