User's Guide

Ethernet Module for Barcode Printer

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1. Ethernet Module

1-1. Functions

This Ethernet Module for barcode printer works as a converter that transforms data and signal between Serial port and Ethernet. It can transform PC's serial data into TCP/IP package and send to the printer for printing. Thus users can implement remote printing easily with the Ethernet Module.

1-2. General Specifications

Front

Back

Model		Ethernet Module for Barcode Printer
CPU		32-bits, G5500RG-100
RAM		16 M Bytes
ROM		4 M Bytes
ETHERNET	Port	RJ-45 Connector
	LAN	10 /100 M bps (Auto Detecting)
	Protocol	ARP, IP, UDP, TCP, HTTP, DHCP, FTP
	Mode	TCP Server ; UDP Server
	Setup	HTTP Browser Setup (IE)
	Security	Setup Password & Connect Password
Print Speed	Port	RS-232 TTL * 1 Port
	Speed	2400 bps~115200 bps
	Parity	None, Odd, Even
	Data Bit	7, 8
	Stop Bit	1, 2
POWER		DC 5V, 500mA
LED LAMP		Green LED(Link) ; Yellow LED(Active)
ENVIRONMENT		Operating Temp: 0℃~50℃ Storage Temp : -10℃~70℃
DIMENSIONS		95 x 50 x 20 mm (W x D x H)
WEIGHT		30 gm
OTHERS		Watch Dog Function, Firmware On-lined Updated Via Ethernet

RS-232 Pins :

Pin 1	N.C	**Pin 4**	RTS	**Pin 7**	E_Mode	**Pin 10**	+5V
Pin 2	RXD	**Pin 5**	GND	**Pin 8**	CTS	**Pin 11**	GND
Pin 3	TXD	**Pin 6**	CTS	**Pin 9**	E_RST	**Pin 12**	+5V

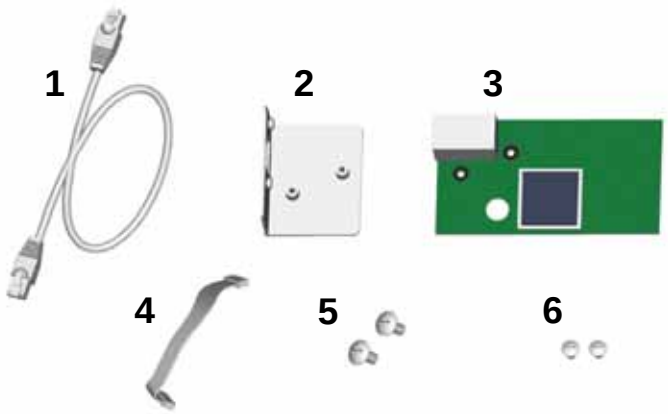
RS232 Wiring Diagram

Serial COM Port	Ethernet Module
2 RX	3 TX
3 TX	2 RX
5 GND	5 GND
7 RTS	6 CTS
8 CTS	4 RTS

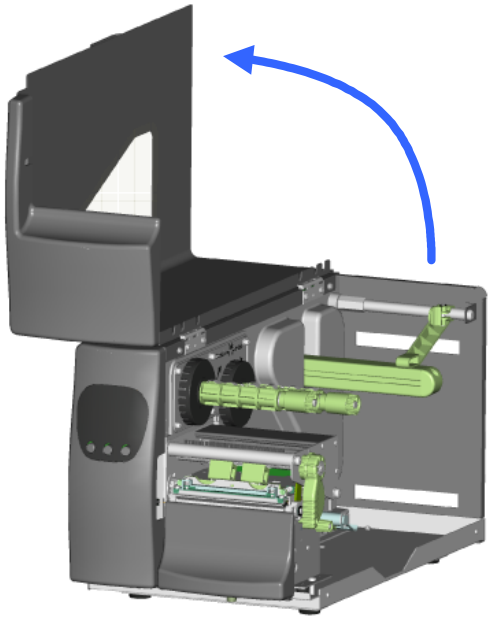
2. Ethernet Module Installation

2-1. Ethernet Module Installation for Industrial Series Printer

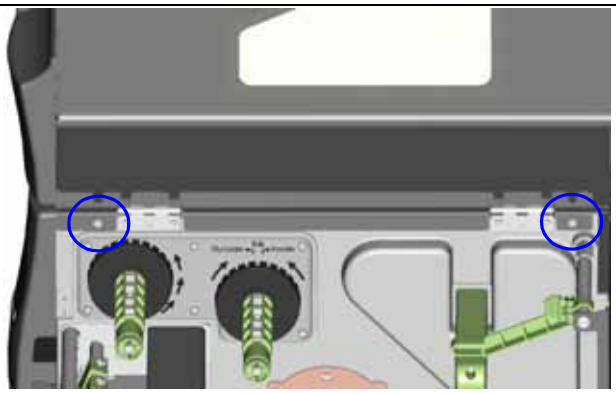
1	Ethernet Cable 1.8M
2	Bracket
3	Ethernet module
4	12 Pin Connector Cable
5	Bracket Screw*2
6	Secure Screw*2

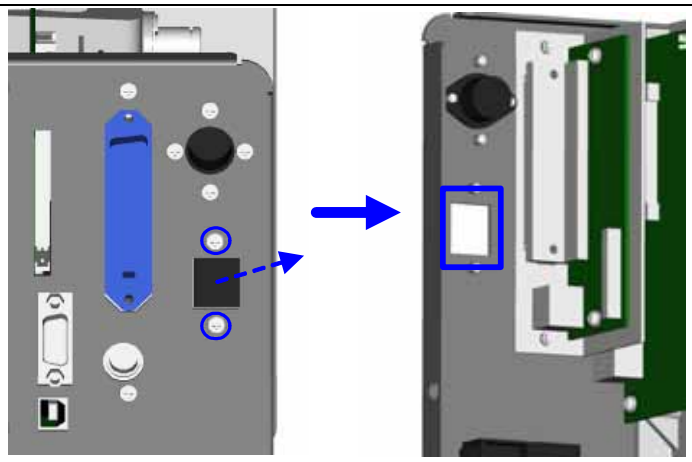
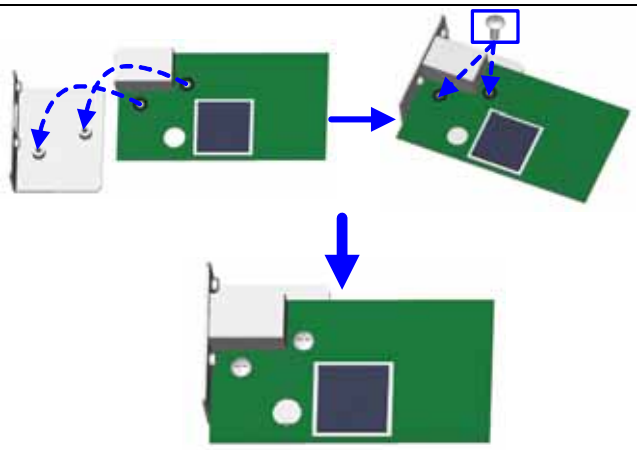
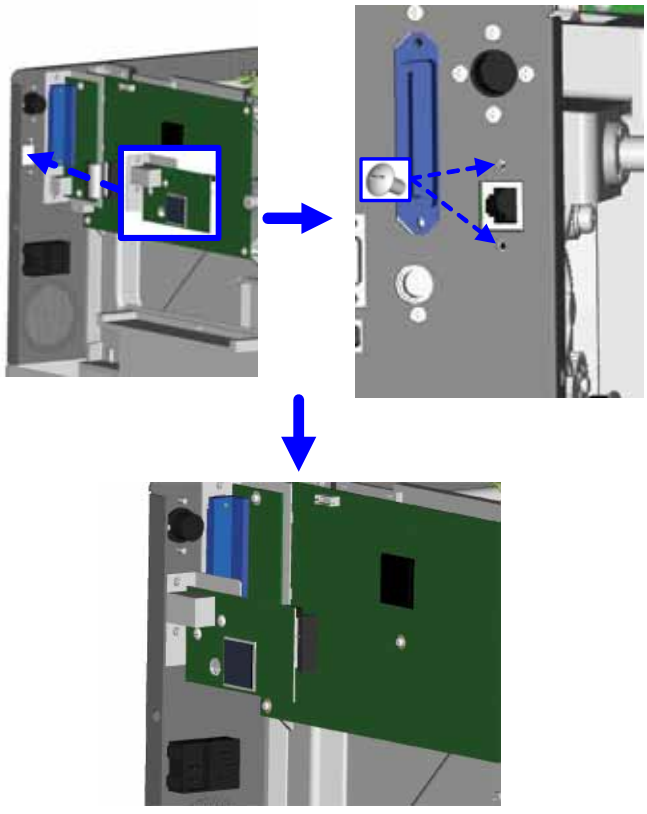


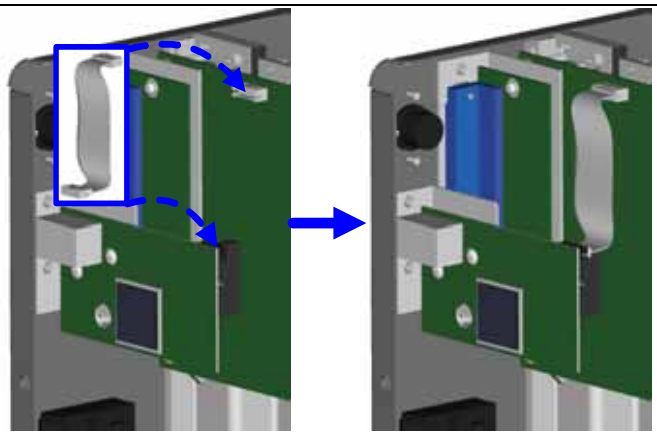
1. Make sure the power is off and the power cable is unplugged. Place the printer onto a smooth surface and open the top cover.



2. Remove the Left Top Cover from the printer.

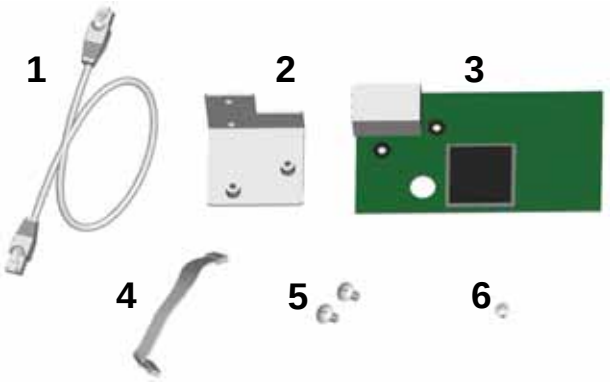


3. Remove the Ethernet port cover from the back plate of the printer.	
4. Secure the Ethernet module onto the bracket.	
5. Mount the module and secure it onto the back plate.	

6. Connect one end of the 12 pin connector cable to the main board at UART1 and the other end to the Ethernet module.	
7. To complete installation, put the Left Top Cover back and plug the RJ-45 cable into the Ethernet port.	

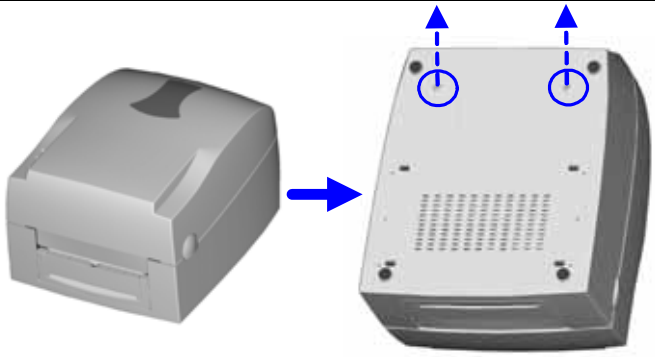
2-2. Ethernet Module Installation for Desktop Series Printer

1	Ethernet Cable 1.8M
2	Bracket
3	Ethernet module
4	12 Pin Connector Cable
5	Bracket Screw*2
6	Secure Screw*1

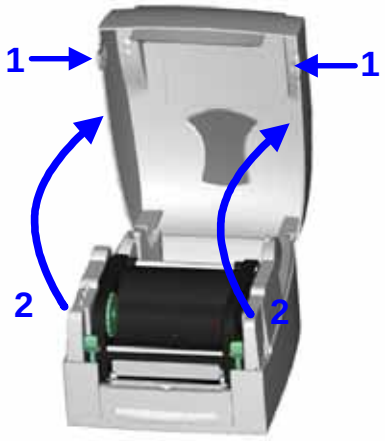


1. Make sure the power is off and the power cable is unplugged. Place the printer onto a smooth surface and flip the whole printer unit upside down.

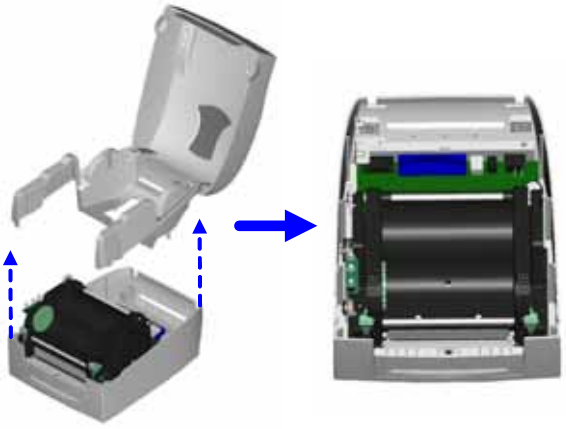
2. Unscrew the screws as indicated in figure

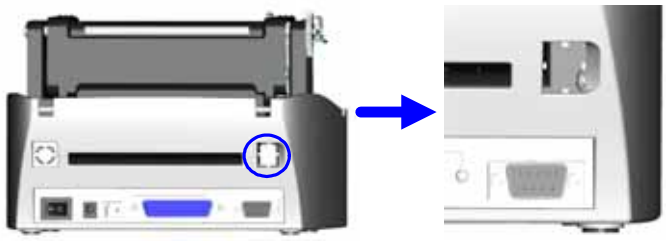
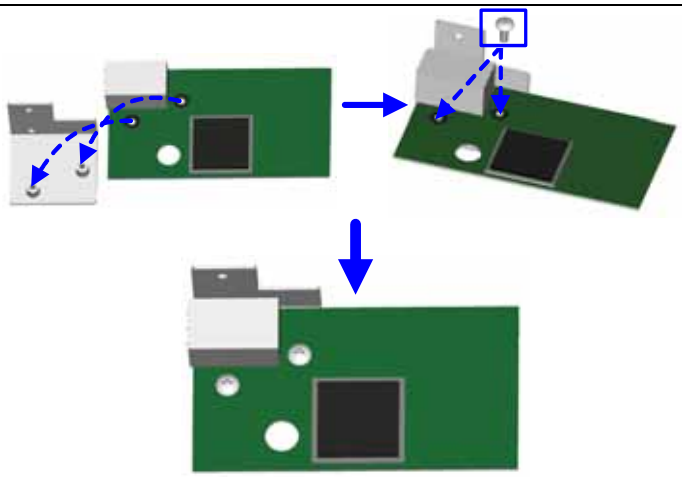
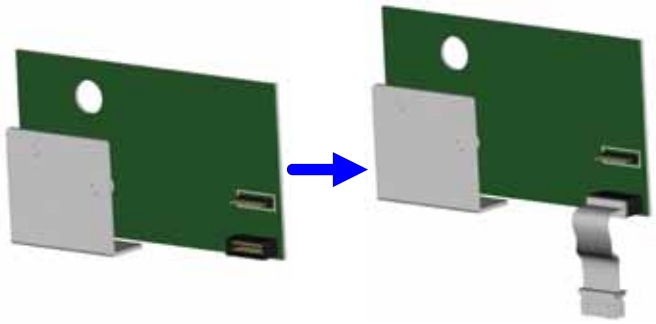
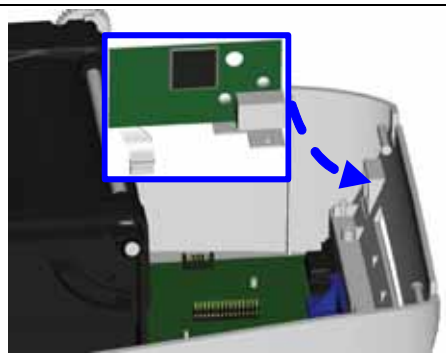
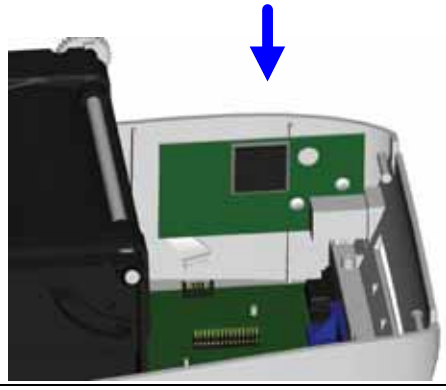


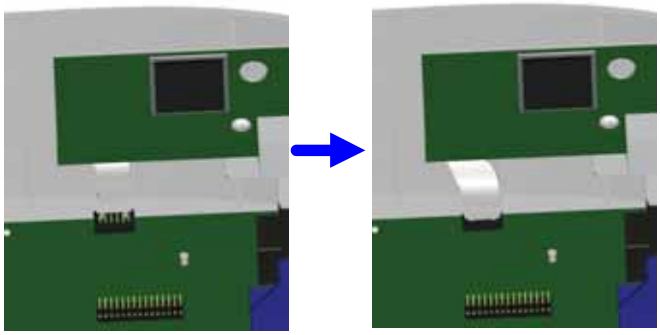
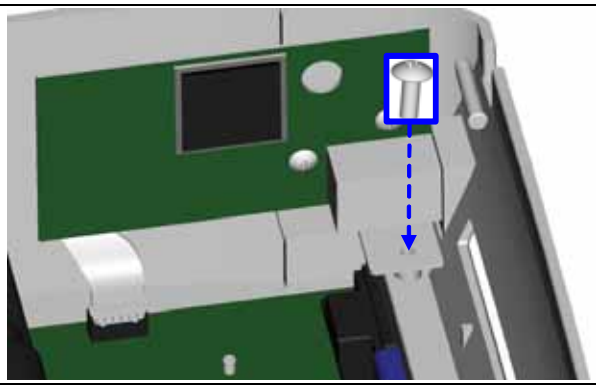
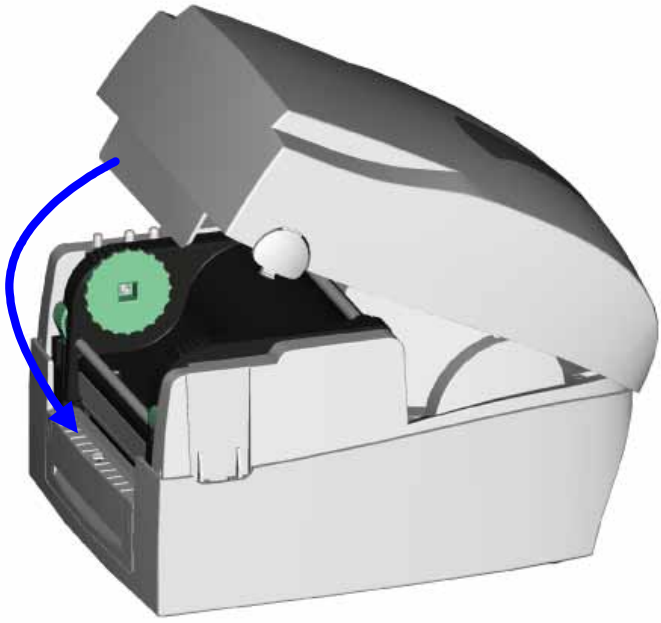
3. Press the Cover Open Button and open the top cover.



4. Remove the middle compartment and the top cover.

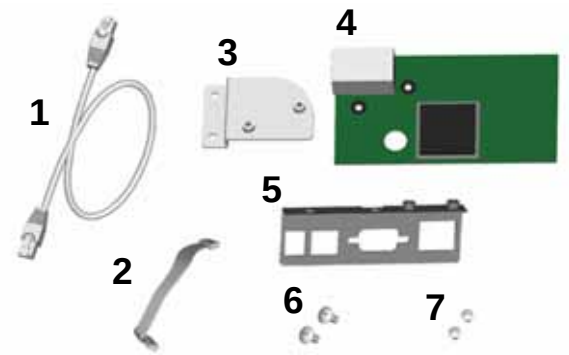


5. Remove the Ethernet port cover from back plate of the printer.	
6. Secure the Ethernet module onto the bracket.	
7. Plug the connector into the socket on Ethernet module.	
8. Align the Ethernet module to the Ethernet port and plug into it.	 

9. Connect the other end of 12 pin connector cable to the main board.	
10. Secure the module onto the back plate.	
11. To complete installation, put the middle compartment back and tighten it onto the bottom of the printer, then put the top cover back.	

2-3. Ethernet Module Installation for Direct-Thermal 2 inch Printer

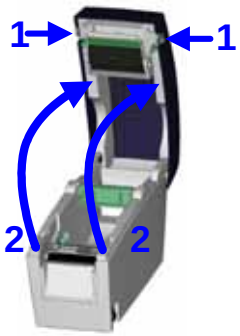
1	Ethernet Cable 1.8M
2	12 Pin Connector Cable
3	Bracket
4	Ethernet module
5	Ethernet Back Panel
6	Bracket Screw*2
7	Secure Screw*2



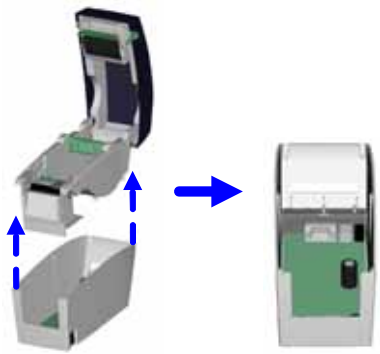
1. Make sure the power is off and the power cable is unplugged. Place the printer onto a smooth surface and flip the whole printer unit upside down.

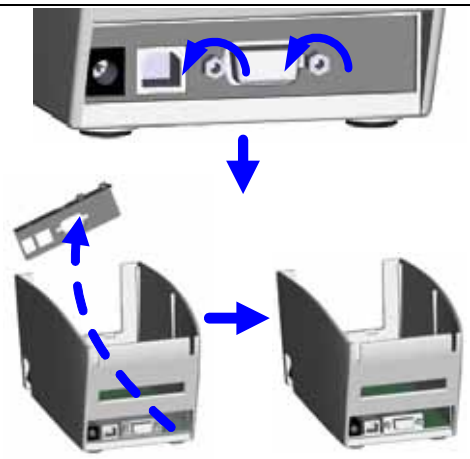
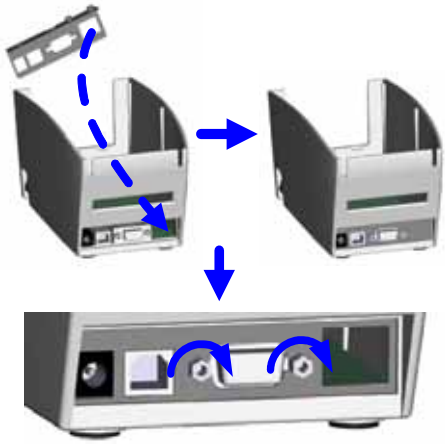
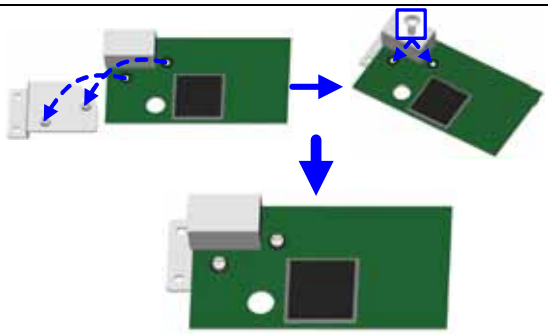
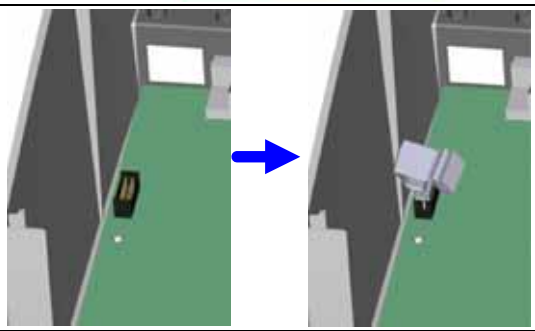
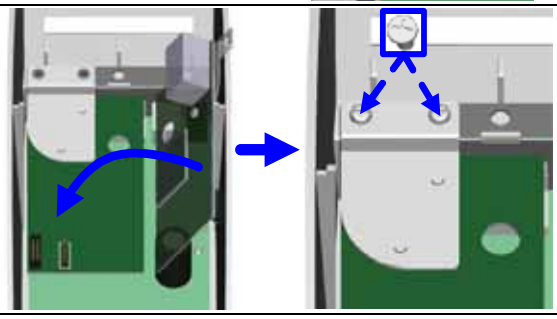
2. Unscrew the bottom case screw as indicated in figure.

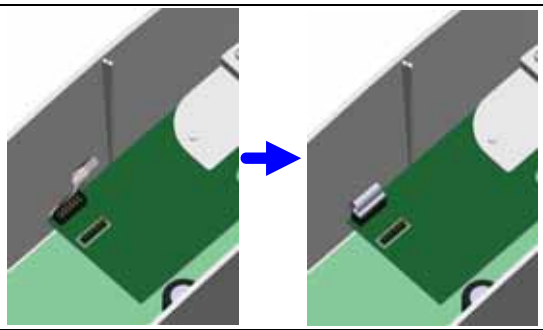
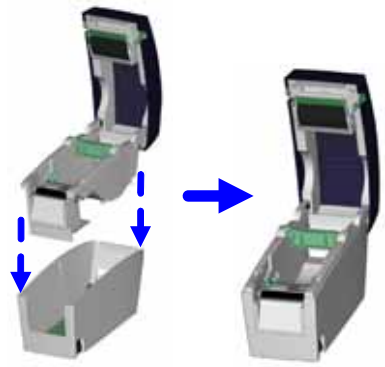
3. Press the Cover Open Button and open the top cover.



4. Remove the middle compartment and the top cover.

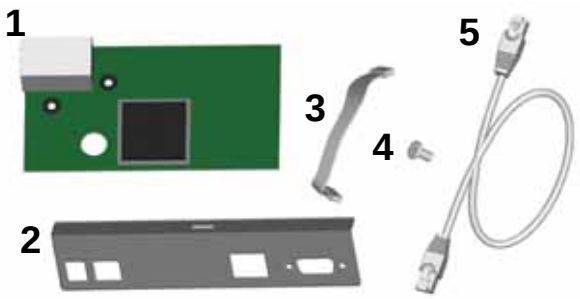


5. Loosen hexagonal screws on both sides of RS-232 port. 6. Remove the standard Back Panel from the printer.	
7. Install the Ethernet Back Panel to the printer. 8. Tighten hexagonal screws on both sides of RS-232 port.	
9. Secure the Ethernet module onto the bracket.	
10. Plug the connector into the socket on main board.	
11. Align the Ethernet module to the Ethernet port and plug into it. 12. Tighten the secure screw to fix Ethernet module onto the main board.	

13. Connect the other end of 12 pin connector cable to the Ethernet module.	
14. Put the middle compartment back and assemble it with bottom compartment of the printer.	
15. Tighten bottom case screws to complete the installation.	

2-4. Ethernet Module Installation for Direct-Thermal 4 inch Printer

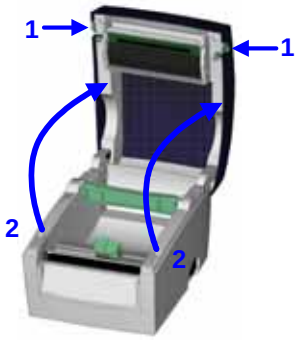
1	Ethernet module
2	Ethernet Back Panel
3	12 Pin Connector Cable
4	Secure Screw*1
5	Ethernet Cable 1.8M



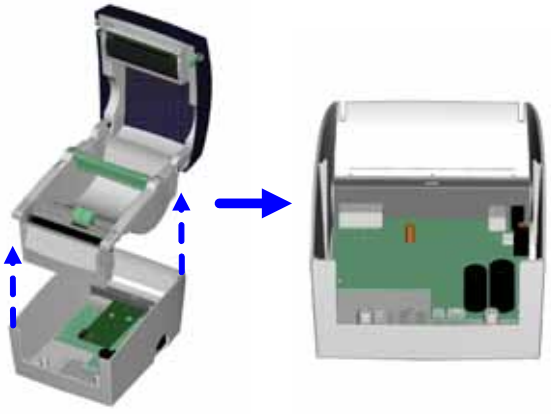
1. Make sure the power is off and the power cable is unplugged. Place the printer onto a smooth surface and flip the whole printer unit upside down.

2. Unscrew bottom case screws as indicated in figure.

3. Press the Cover Open Button and open the top cover.

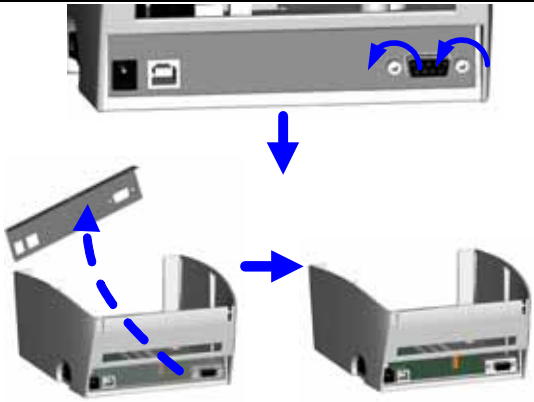


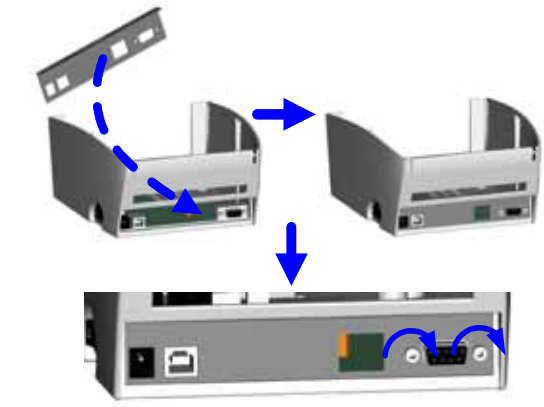
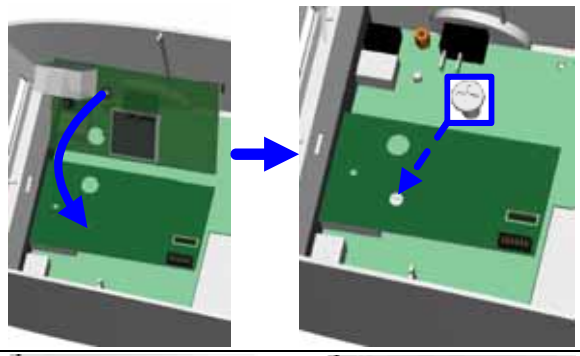
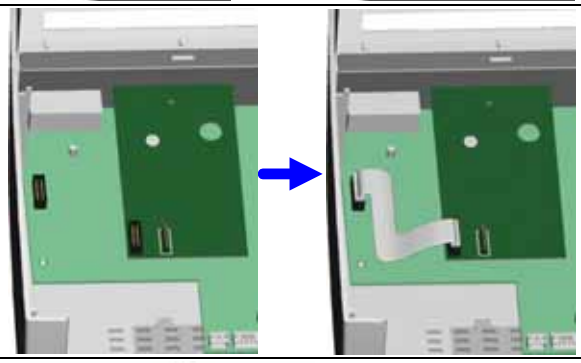
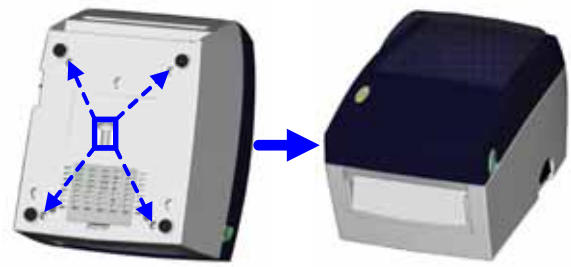
4. Remove the middle compartment and the top cover.



5. Loosen hexagonal screws on both sides of RS-232 port.

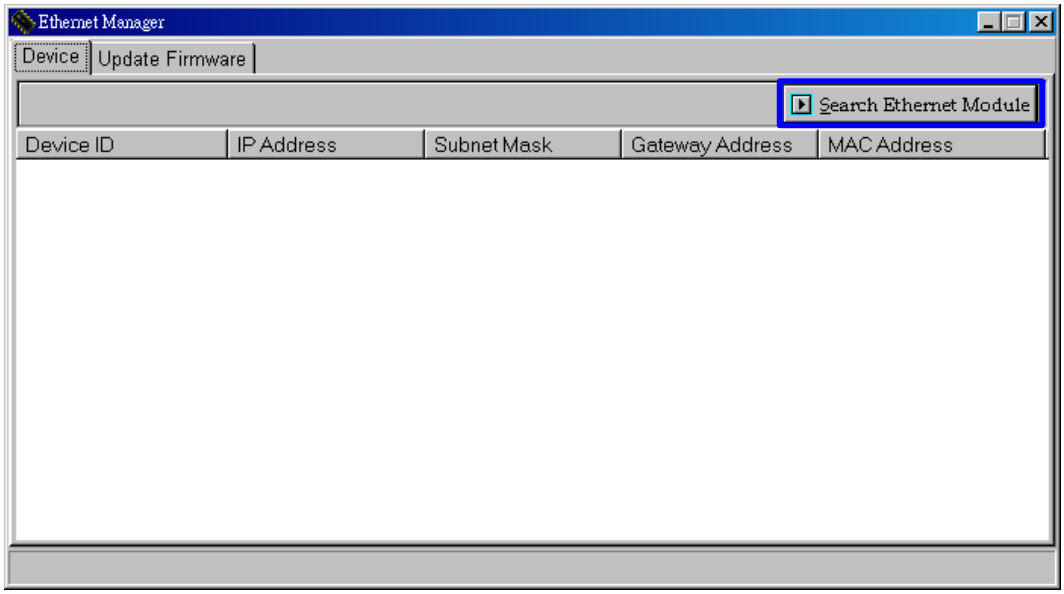
6. Remove the standard Back Panel from the printer.



7. Install the Ethernet Back Panel to the printer. 8. Tighten hexagonal screws on both sides of RS-232 port.	
9. Align the Ethernet module to the Ethernet port and plug into it. 10. Tighten the secure screw to fix Ethernet module onto the main board.	
11. Connect one end of 12 pin connector cable to the main board and the other end to the Ethernet module.	
12. Put the middle compartment back and assemble it with bottom compartment of the printer.	
13. Tighten bottom case screws to complete the installation.	

3. Ethernet Manager

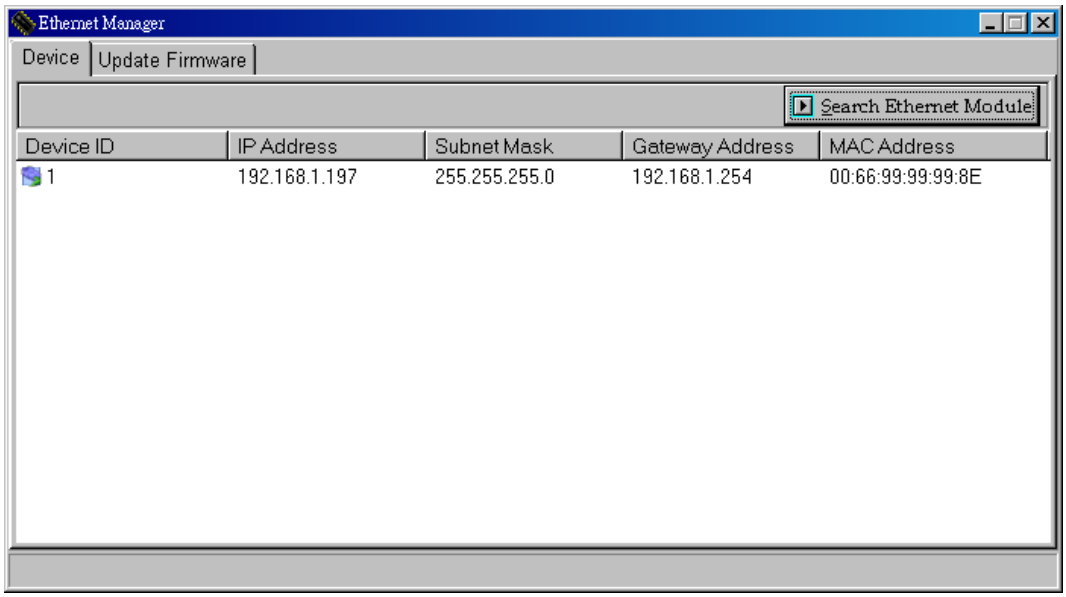
Ethernet Manager can work with the Ethernet Module to detect the networking status and change the network setting. Open the product CD folder, select the “Ethernet Manager.exe” icon and click it to start the program. From the program window, click the ”Search Ethernet Module” (See Figure 1) button, the Ethernet Manager will search Ethernet modules that are installed on the barcode printers throughout the network. If there is any Ethernet module available, the program will show the setting information of module, such as Device ID, IP Address, Subnet Mask, Gateway Address, MAC Address, etc.



(Figure 1)

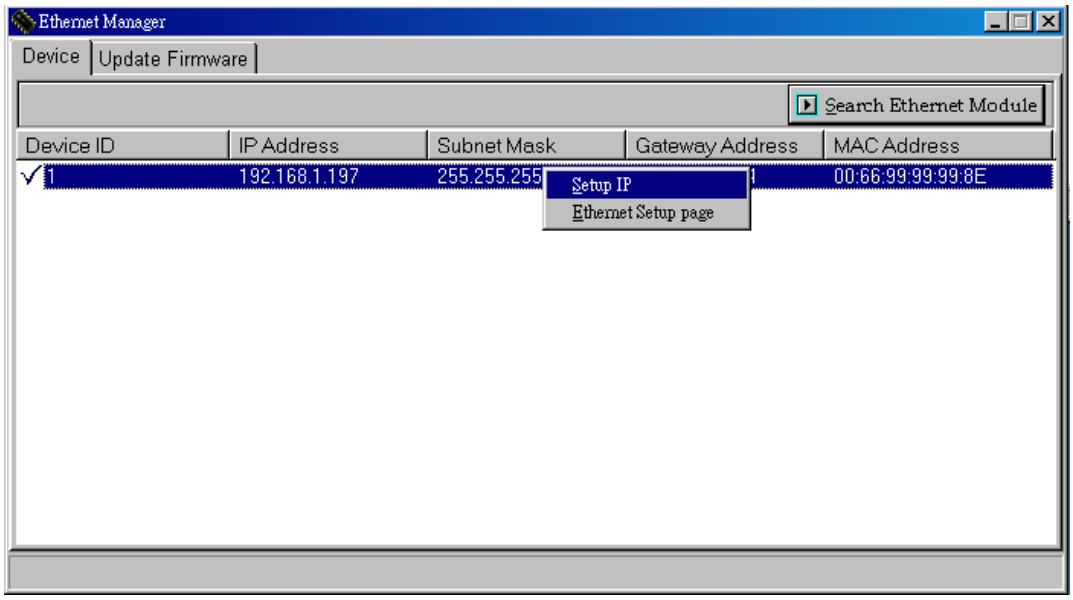
There are two parts of Ethernet Manager (See Figure 2):

1. Device: To show the network configuration of Ethernet modules.
2. Update Firmware: To update the firmware of Ethernet modules. (refer to Chapter 5 for the detail)



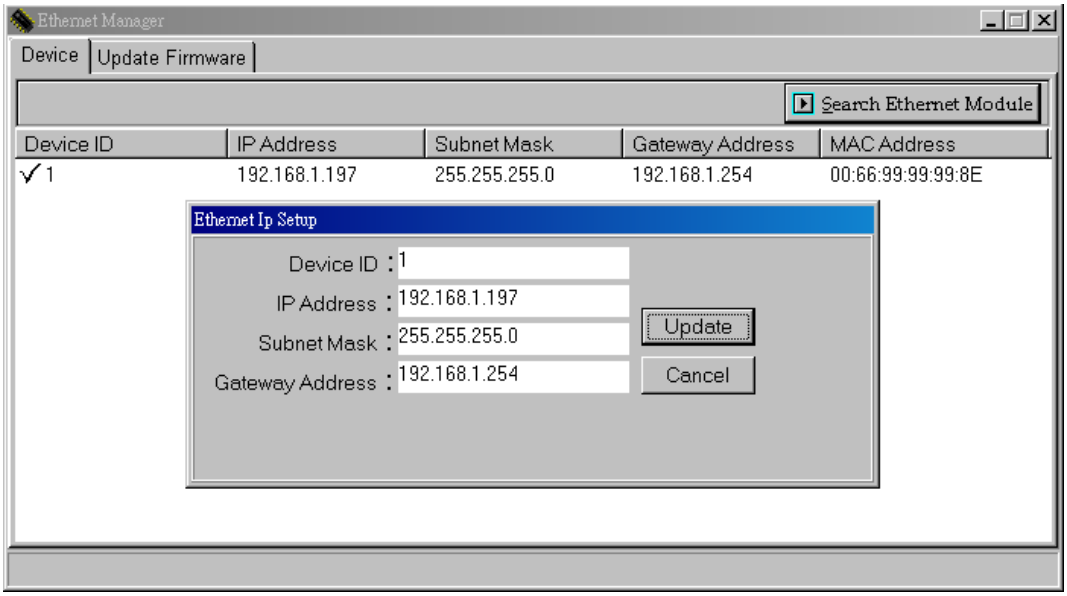
(Figure 2)

Select an Ethernet module and right-click it to see the setup menu. (See Figure 3)



(Figure 3)

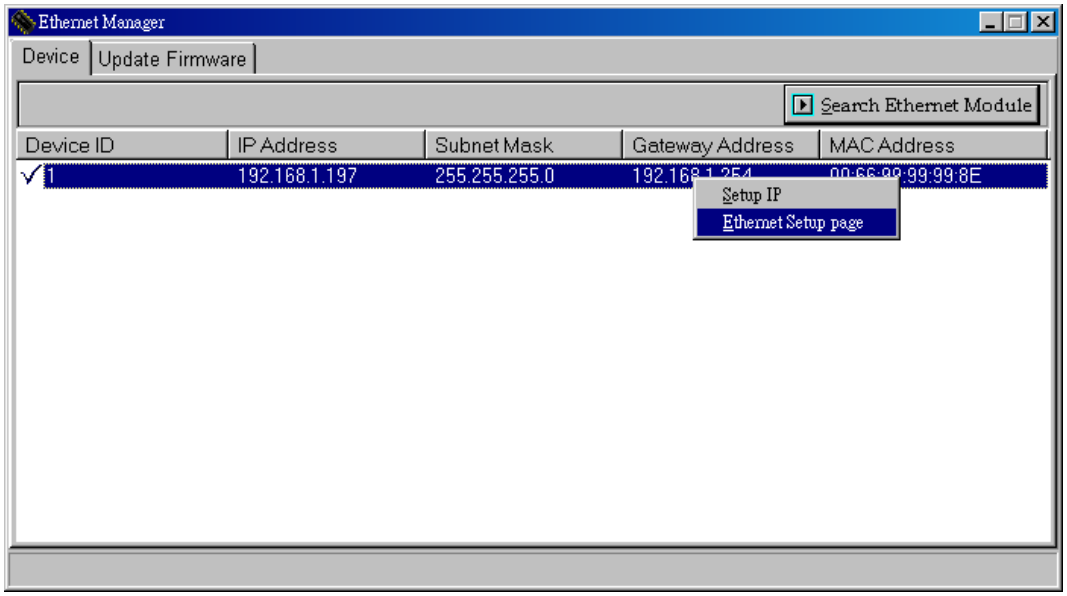
Select “Setup IP” from setup menu to enter the Ethernet Setup window (See Figure 4). The setup options include Device ID, IP Address, Subnet Mask and Gateway Address. To avoid the occurrence of errors, please contact the network administrator before doing any change.



(Figure 4)

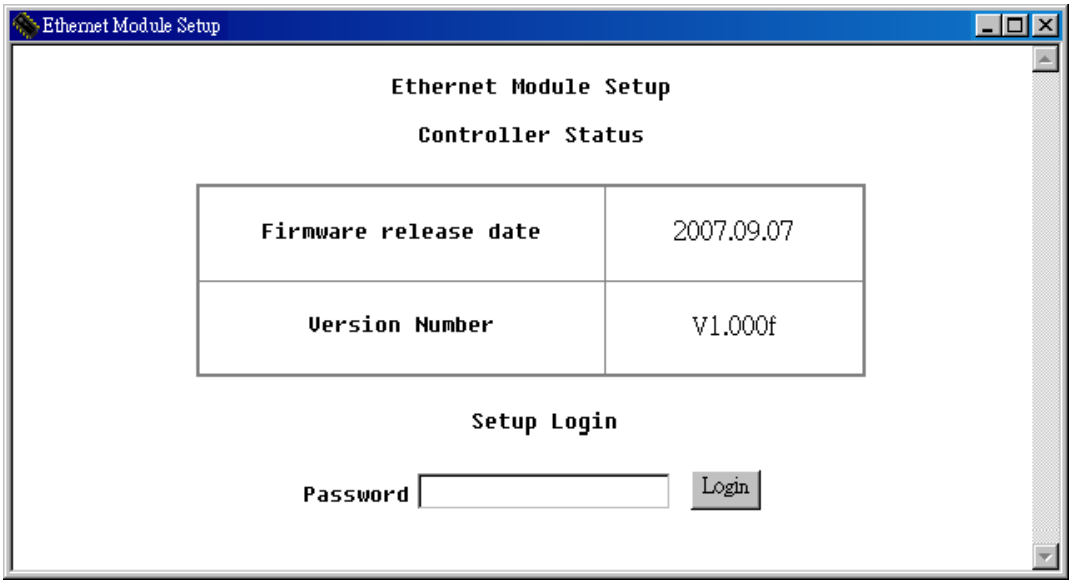
*Note: Please click the ”Search Ethernet Module” button again after setup is changed to ensure that the Ethernet configuration has been updated.

Click the “Ethernet Setup page” (See Figure 5) to enter a web-base configuration menu and do more detailed setting.



(Figure 5)

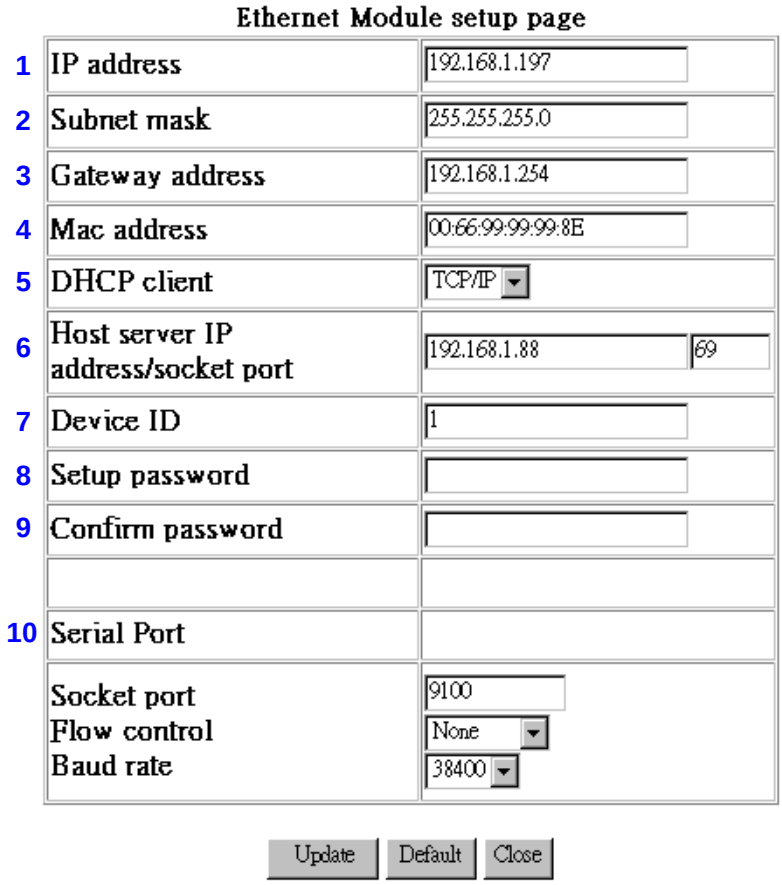
User can use IE or other browsers to setup the Ethernet module. To do so, a Login page (See Figure 6) will be showed in the first stage.



(Figure 6)

The Login page includes:

1. Firmware release date: To show the release date of the firmware that is currently used.
2. Version number: To show the version number of firmware that is currently used.
3. Password: Key in password here to enter the setup page. The default password is blank, i.e. user can enter setup page without keying any password. If you forget the password, please go to “Setting Mode” in printer’s setting option and make the Ethernet module back to factory setting.



(Figure 7)

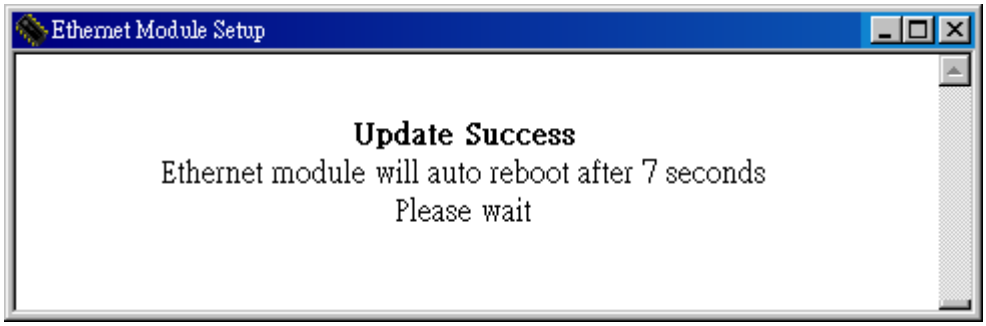
The detailed setup options (See Figure 7) include:

1. IP address : IP address setup
2. Subnet Mask : Subnet mask setup
3. Gateway address : Gateway or Router IP address setup
4. Mac address: Check the Mac address of Ethernet module
5. DHCP client : Set the DHCP or TCP/IP address function
6. Host server IP address/socket port: Set the IP address of PC that is used for updating firmware.
7. Device ID : The ID that represents the Ethernet module
8. Set up password : Set up the login password
9. Confirm password : Enter password again for confirmation
10. Serial port settings: Includes Socket port, Flow control and Baud rate. The default setting of Socket port is 9100; the Flow control function is recommended to set to RTS/CTS; the Baud rate should be set on 38400.

*Note1: Always set the Baud rate to 38400 to make sure the Ethernet module connection can work properly.

*Note2: The “Host server IP address/socket port” should be set to the IP address of PC that is used for updating firmware before the firmware updating. Otherwise, the firmware updating will not work.

When finished the setup, please press OK, then the page will show the information as showed in Figure 8.



(Figure 8)

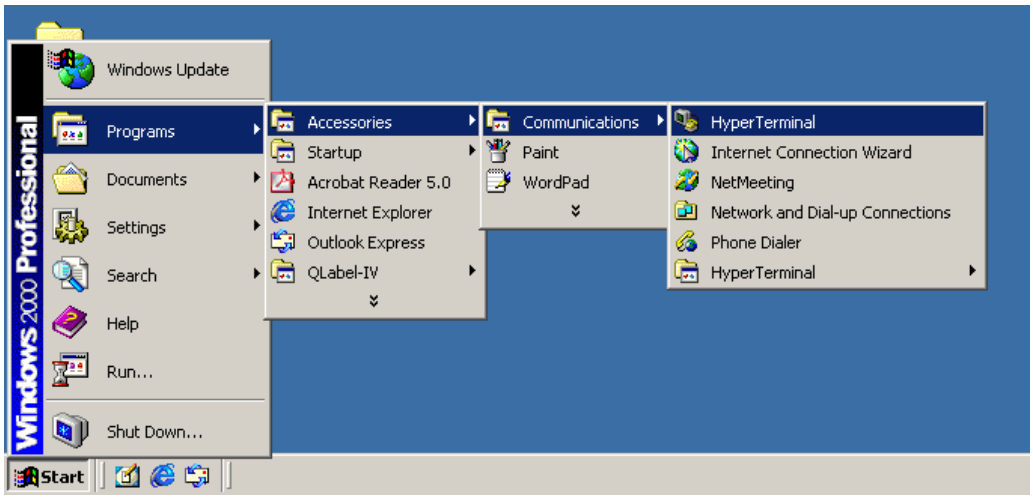
The page will go back to the Login page which means the detailed setup is done, and you can then close the browser.

4. Testing

4-1. Test with Hyper Terminal

Testing software environment:

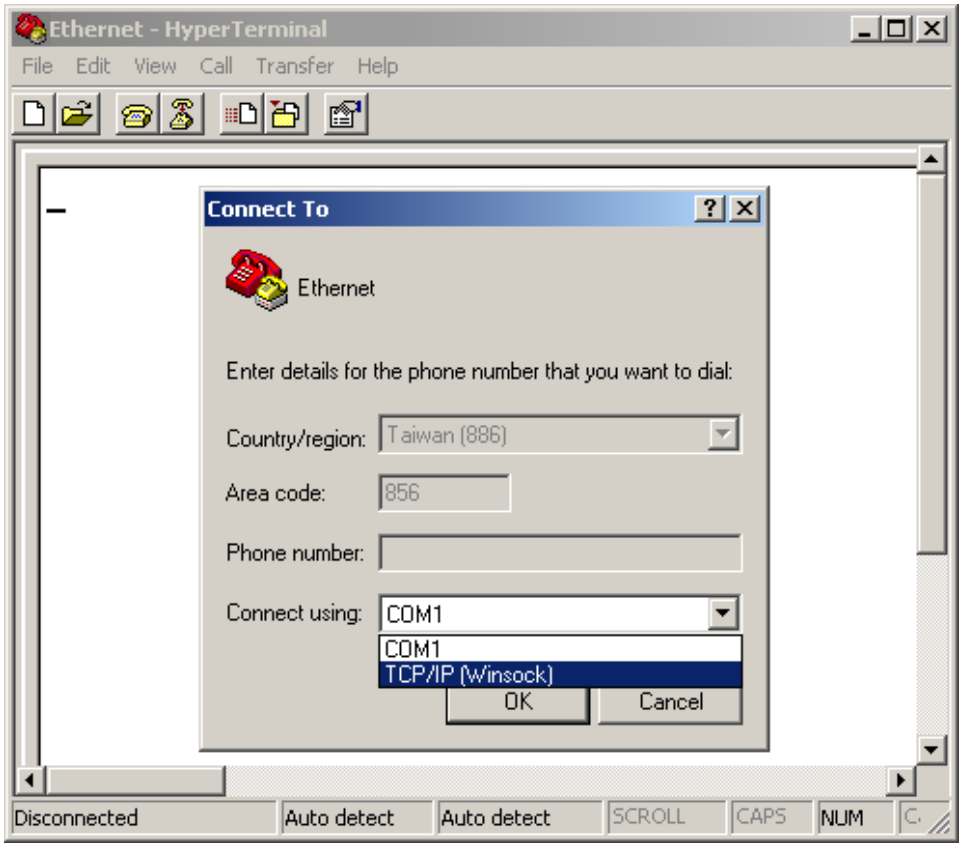
Under Windows 95/98/NT/ME/2000/XP and the Hyper Terminal (See Figure 9) is installed.



(Figure 9)

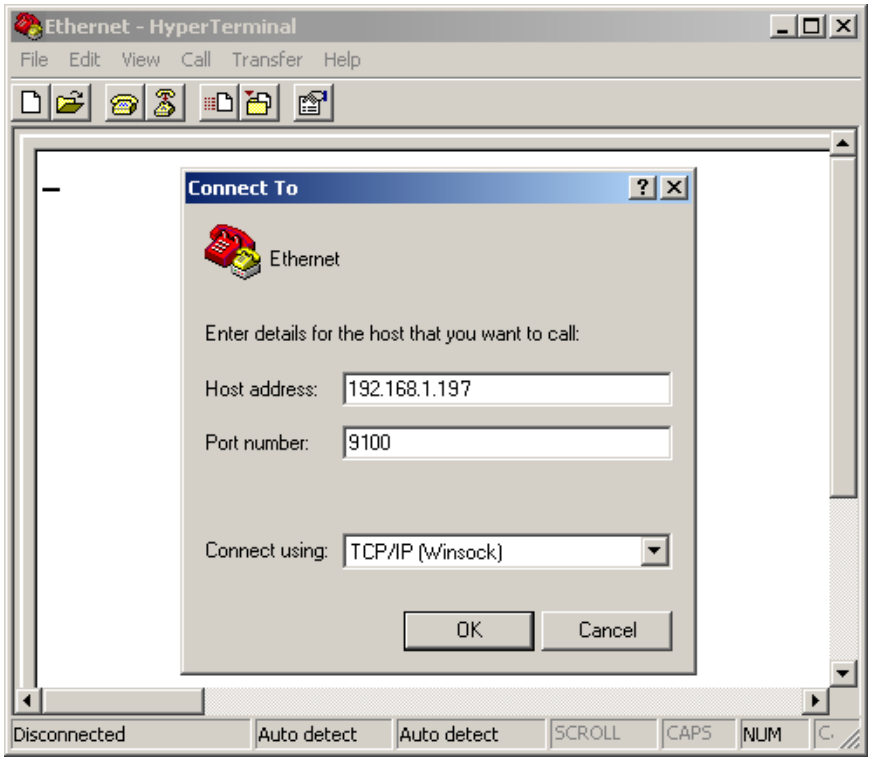
Testing procedures:

Using the Hyper Terminals to activate a terminal and connects with TCP/IP (WinSock) (See Figure 10)



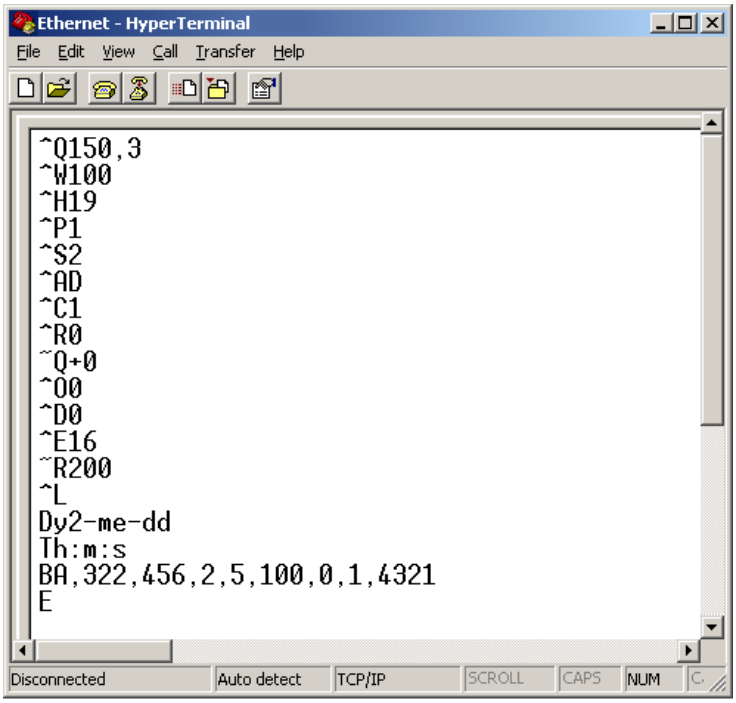
(Figure 10)

The “Host address” setup in terminal is same as the “IP address” in Ethernet Module setting. And the “Port number” setup in terminal is same as the “Socket port” in Ethernet Module setting. (Default setting is 9100) (See Figure 11)



(Figure 11)

After completed terminal setup, key in commands with printer language-EZPL (please refer to printer’s programming manual) on WinSock terminal (See Figure 12). When receiving commands, the printer will print the data immediately. If the WinSock terminals can transfer data from printer to Ethernet module correctly, then the Ethernet module is working in proper status.

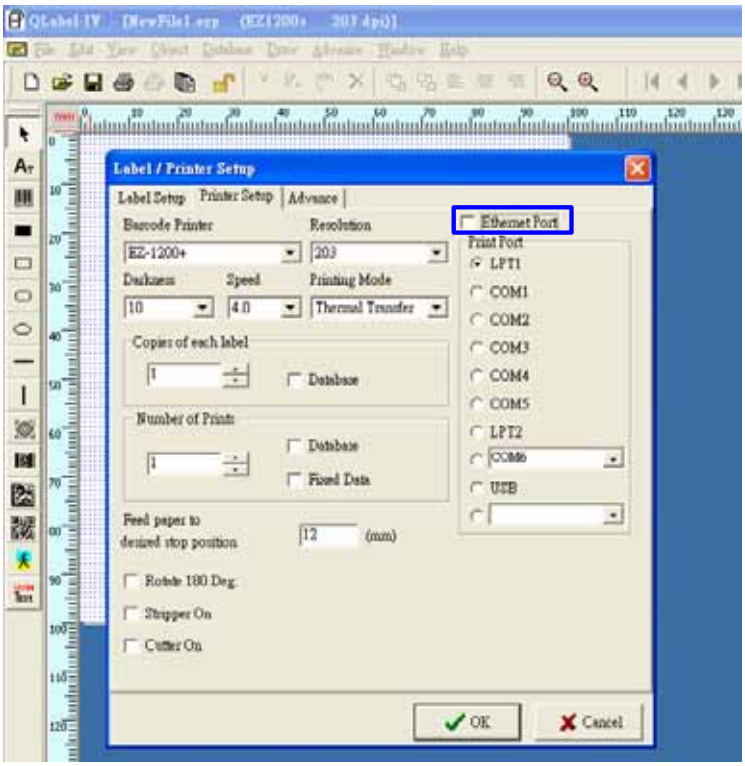


(Figure 12)

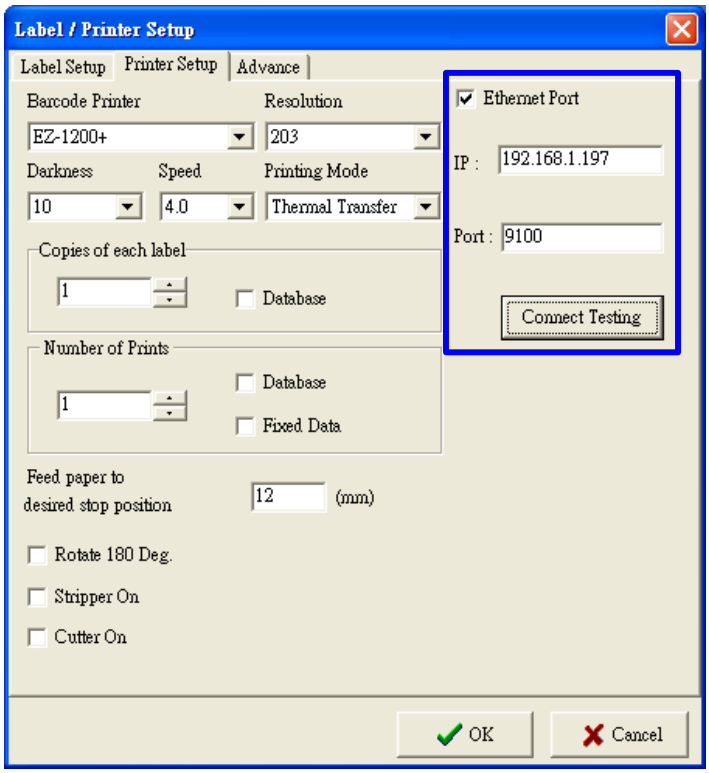
4-2. Test with QLabel

QLabel is a barcode editing software that can implement network printing with Ethernet module. Hence we can test the connection status of Ethernet module by doing network printing with QLabel. QLabel also has a built-in Ethernet connection test tool for checking the network status. To test the Ethernet connection, please do as follows:

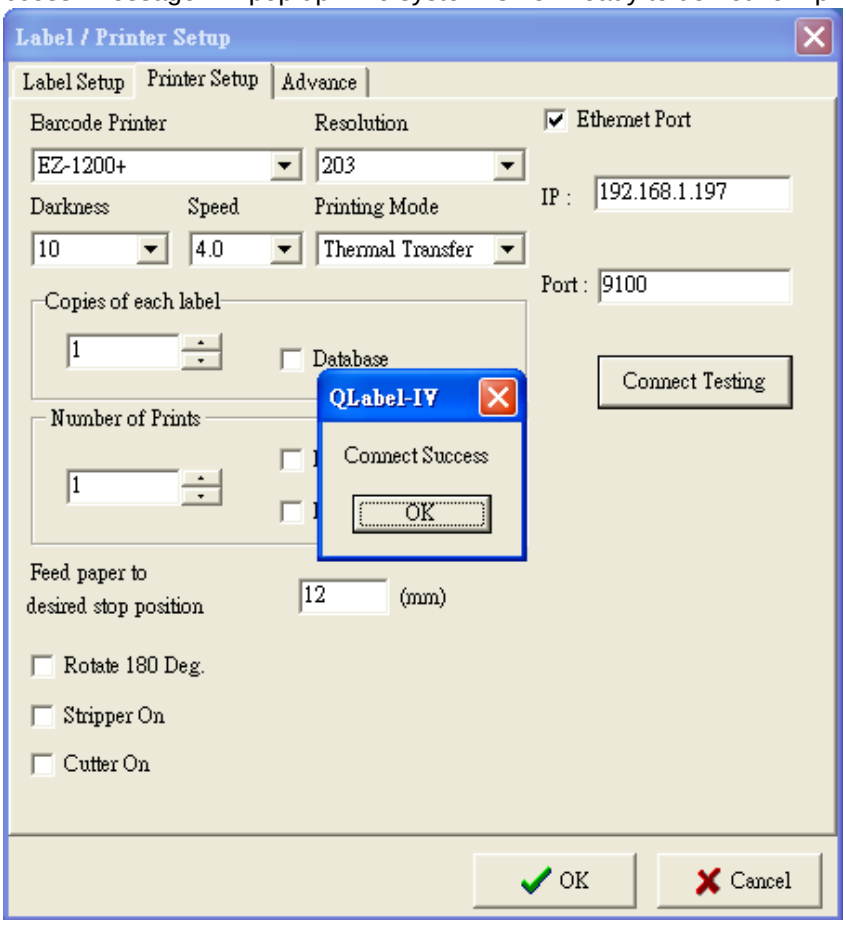
1. Open the QLabel and select the “Printer Setup” tab. Tick the “Ethernet Port” from the options of “Print port”.



2. After setting the “Ethernet Port” as “Print port”, the setting options will change to Ethernet connection test tool as indicated in below figure. Enter the IP address and Port number of the Ethernet module in corresponding input box.



3. Press the “Connecting Testing” button. If there is no problem on the Ethernet connection, a “Connect Success” message will pop up. The system is now ready to do network printing.



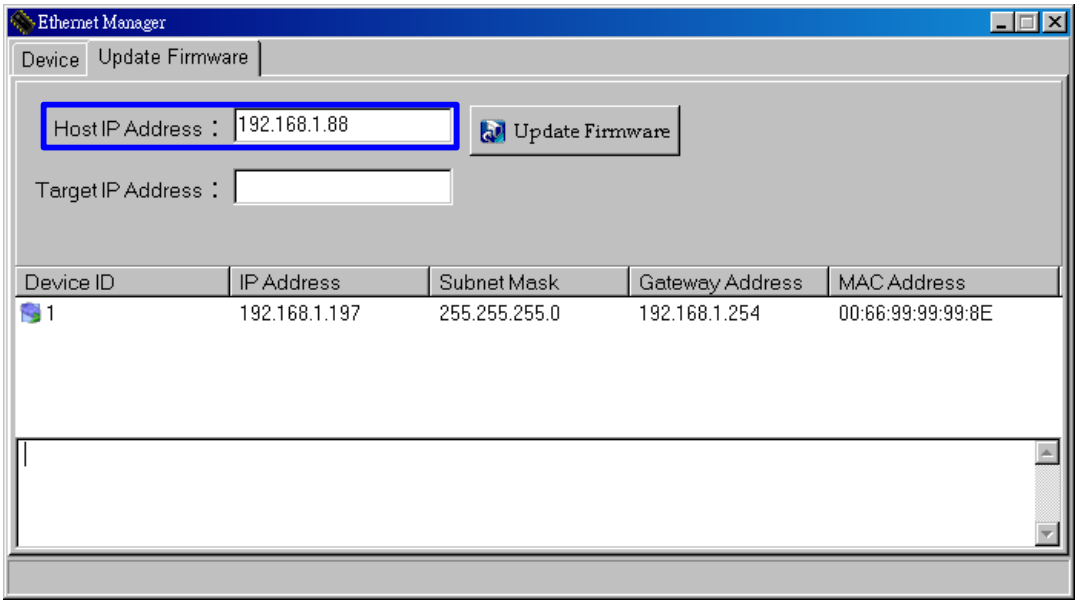
5. Ethernet Module Firmware Download

Step1：On the Ethernet Manager setting page, set the “Host server IP address/socket port” as the IP address of PC that storing the firmware file.

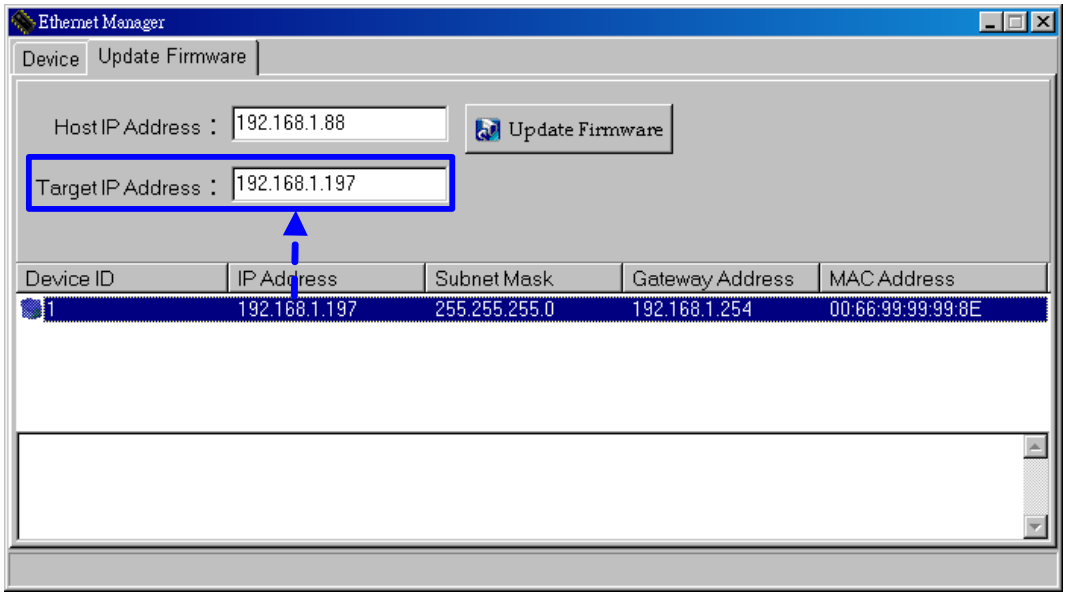
Ethernet Module setup page

IP address	192.168.1.197
Subnet mask	255.255.255.0
Gateway address	192.168.1.254
Mac address	00:66:99:99:99:8E
DHCP client	TCP/IP
Host server IP address/socket port	192.168.1.88 69

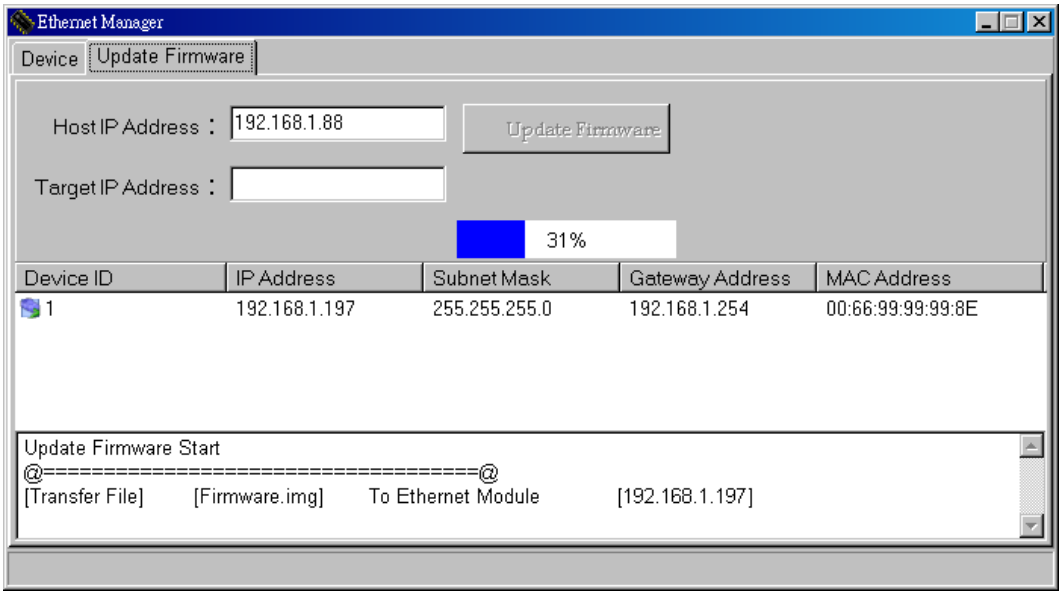
Step2：Close the Ethernet Manager setting page and back to “Update Firmware” window. The ”Host IP Address” input box (see the below figure) will be filled automatically with the PC IP address that has been set on Ethernet Manager setting page. Moreover, the networking setting of available Ethernet modules will be showed on the screen.



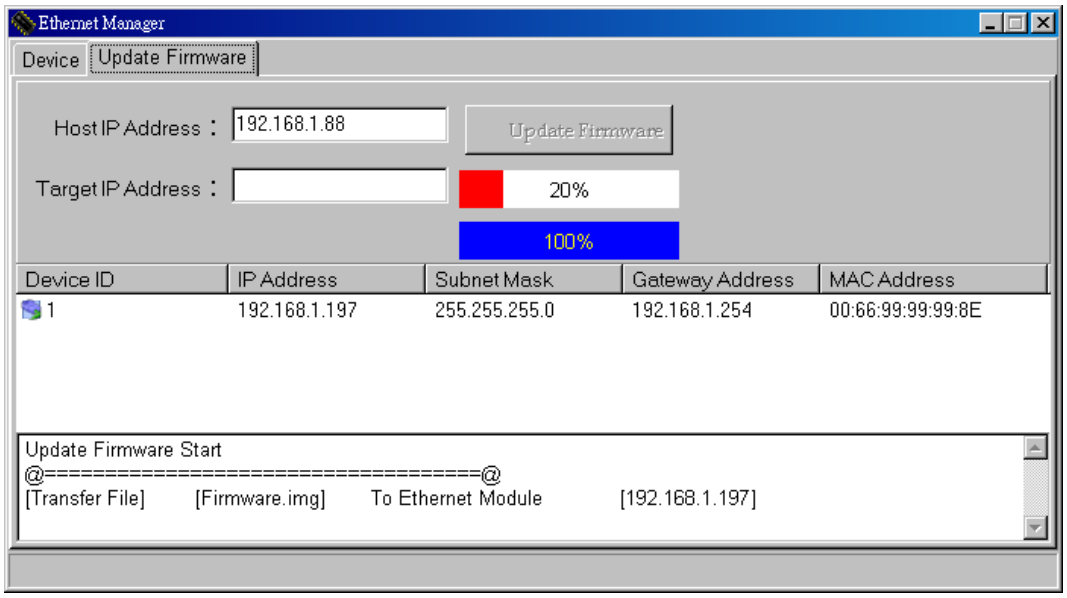
Step3：Select an Ethernet module from the list of available Ethernet modules and click it to make it highlighted. The ”Target IP Address” input box (see the below figure) will be filled with the IP address of selected Ethernet module.



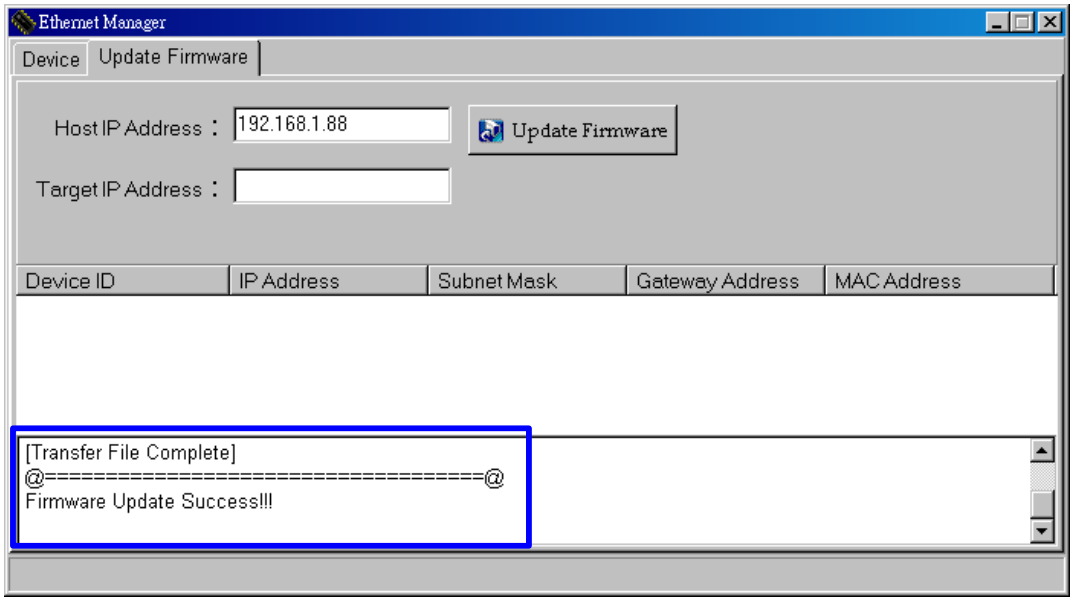
Step4：Press the “Update Firmware” button to start updating. The updating process will begin with initialization and the rate of progress will be showed by a blue bar.



Step5：After the initialization (the blue bar reaches to 100%), the process will proceed to updating. And the progress rate of updating is showed by red bar.



Step6：When both blue bar and red bar showed 100%, the message frame on the bottom of window will show “Firmware Update Success!!”, which means the completion of firmware updating. Then go back to ”Device” window and press ”Search Ethernet Module” button to check that Ethernet module is working properly.



*Note1: The firmware file (Firmware.img) need to be stored in the same folder with the Ethernet Manager.exe, or the firmware updating can not be executed.

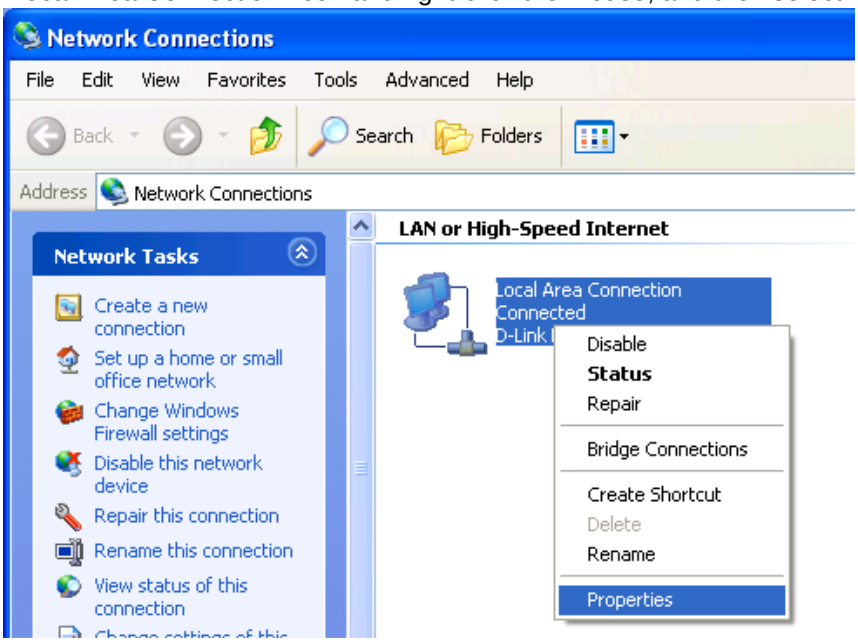
*Note2: The firmware updating process may be interrupted due to network fail or the Ethernet Manager is shut down suddenly. In this case, the unfinished firmware updating needs to be completed. Please open the Ethernet Manager again and go to “Update Firmware” tab. Do not select any of Ethernet modules from the list to keep “Target IP Address” blank and then click “Update Firmware” button directly. The Ethernet Manager will continue the unfinished firmware updating immediately.

6. Managing the Ethernet Module

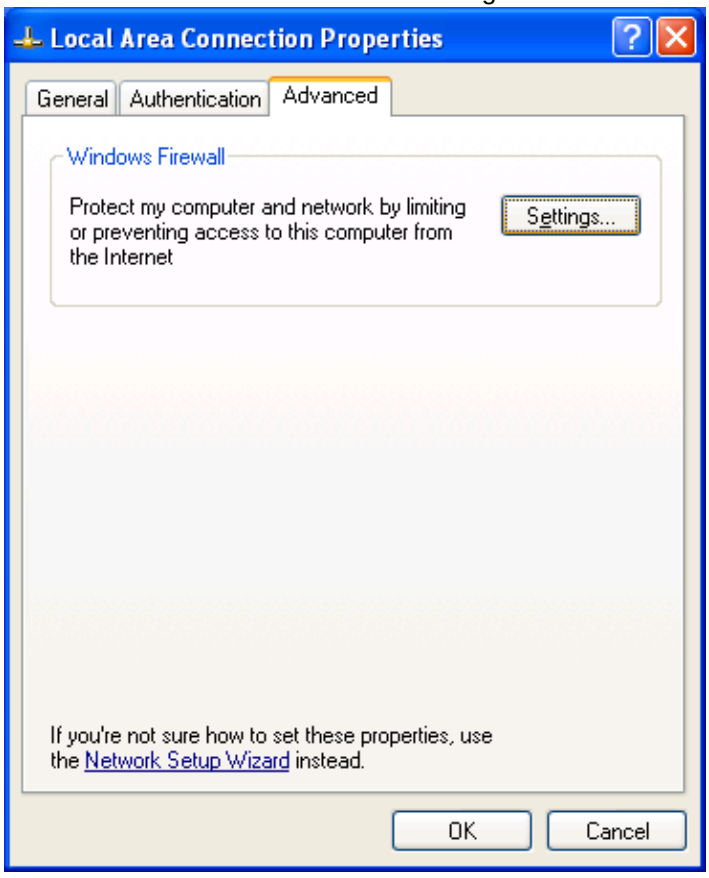
6-1. Firewall Configuration

Ethernet Manager.exe may be blocked by firewall that is set by Windows XP or enterprise. When the Ethernet Manager is blocked, it cannot search the IP address of Ethernet Module. Therefore, sometimes it is necessary to change the firewall configuration to add the Ethernet Manage to exception list. To configure the exception list, please do as follows:

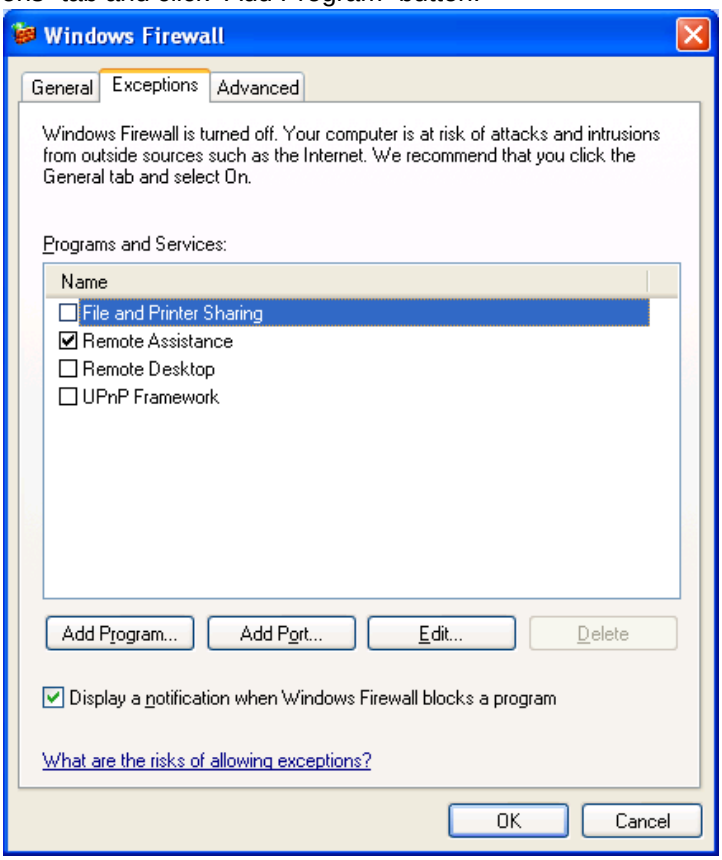
1. Click the “Local Area Connection” icon and right-click the mouse, and then select “Properties”.



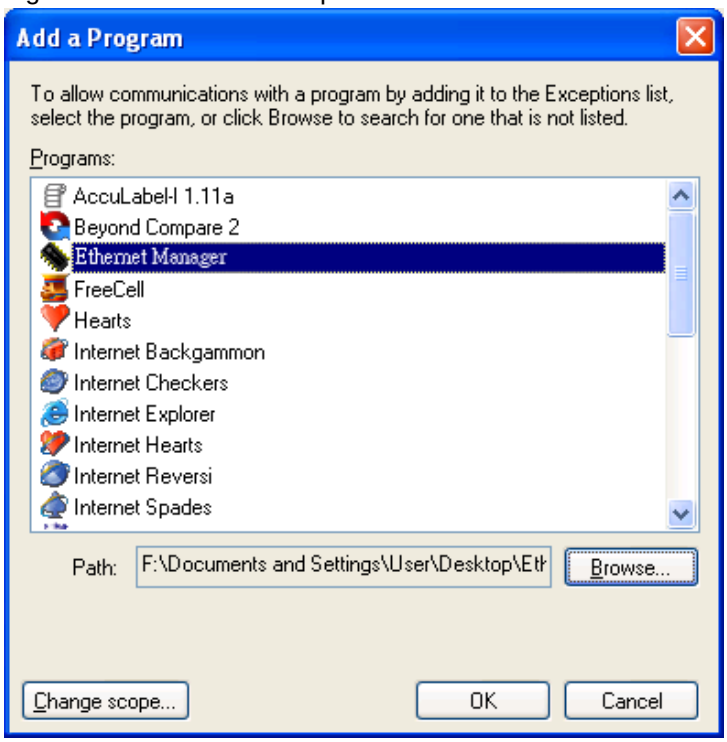
2. Go to “Advanced” tab and click Windows Firewall “Settings” button.



3. Select “Exceptions” tab and click “Add Program” button.



4. Click “Browse” button and locate the file path of Ethernet Manager.exe and then click “OK”. The Ethernet Manager is now added in exception list of firewall.



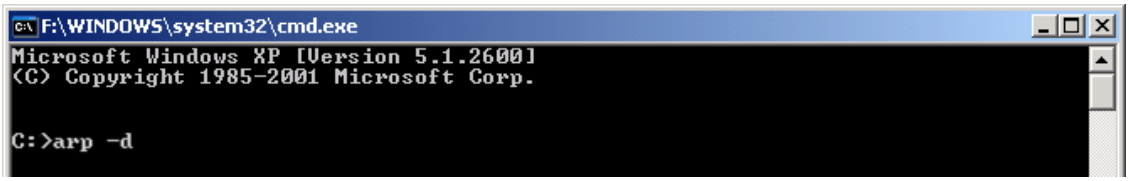
6-2. IP Address Setting

Each Ethernet module has its own unique MAC address. Therefore, even if two different Ethernet modules are set with the same IP address, they are still treated as different Ethernet module since they have different MAC address. The PC will store the information about Ethernet module's IP address and MAC address in its register. When an Ethernet module is replaced by another Ethernet module, the PC and printing software will continue using previous information that is stored in register and hence cause problem for printing software to operate the Ethernet module. Therefore, it is recommended to set different IP address when installing a new Ethernet module for avoiding the conflict of IP addresses.

If it is necessary to set the same IP address when installing a new Ethernet module, please clear the register of PC. You can clear the register by inputting following command on Command Prompt (Figure 13):

" c:> arp –d"

The information about previous Ethernet module will be deleted from the register. By doing this, an identical IP address can be set on new Ethernet Module and the printer can work properly.



(Figure 13)

7. Q & A

Problem	Recommended Solution
Why the Ethernet Manager can not detect the Ethernet module?	◆ Make sure the network cable is connected correctly. ◆ The Ethernet Manger may be blocked by firewall. Please refer to Chapter 6 to change the firewall configuration.
Why I can not use IE to set the Ethernet module?	◆ Please check the Ethernet module's Gateway address is same as the computer's Gateway address. Both of them must be in the same Gateway domain for setting the Ethernet module by IE.
Why the printer is not reacting after commands is sent to printer by Ethernet module?	◆ Please check the Baud rate setting is 38400. ◆ Make sure the Serial port is not occupied by other program.
Why the IP address of Ethernet module can not be changed?	◆ Please login to the web-based setting page (please refer to Chapter 3) and change the "DHCP client" to TCP/IP.