

Wireless LAN Card

User's Manual

The user guide is fit for both Long Range Wireless LAN Card WPC-3110



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Chapter 1 Introduction

This chapter describes the package contents, PC Card description, system requirements, features & benefits, applications and network configurations of our wireless LAN products.

1.1 Package Contents

The PC Card package contains the following items as shown in **Figure 1-1**

1. One PC Card
2. One Installation CD

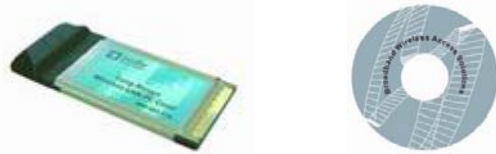


Figure 1-1

1.2 PC Card Descriptions

The PC Card is a standard PC Card that fits into any PCMCIA Card Type II slot. The PC Card has a LED indicator as shown in **Figure 1-2**.



Figure 1-2

The LED shows three Link statuses:

Blinking – When the PC Card operate in **Ad hoc** (Peer-to-Peer) mode, no matter the wireless is connected or not.

Solid Green – When the PC card setup a wireless connection with an Access Point.

Off – No wireless activity.

1.3 System Requirements

Installation of the PC Card requires:

1. PC/AT compatible computer with PCMCIA Type II slot.
2. Windows 98//ME/2000/XP operating system environment.
3. Minimum 1.3M bytes free disk space for installing the PC Card driver and utility program.

1.4 Network Configurations

To better understand how the wireless LAN products work together to create a wireless network, it might be helpful to depict a few of the possible wireless LAN PC card network configurations. The wireless LAN products can be configured as:

1. Ad-hoc (or peer-to-peer) for departmental or SOHO LANs.
2. Infrastructure for enterprise LANs or IP Sharing for 56K/ISDN TA/Cable/DSL Modem – Connect Internet and your SOHO network.

Ad hoc (peer-to-peer) Mode

This is the simplest network configuration that several computers equipped with the PC Cards that form a wireless network whenever they are within range of one another (**Figure 1-3**). In ad-hoc mode, each client, is peer-to-peer, would only have access to the resources of the other client and requires no the access point. This is the easiest and least expensive way for the SOHO to set up a wireless network.

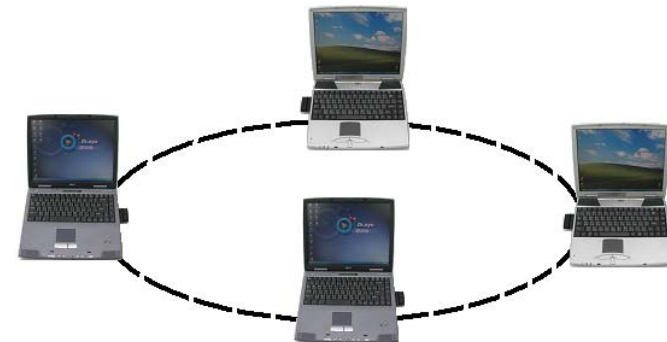


Figure 1-3 A wireless Ad-hoc network

Infrastructure Mode

The infrastructure mode requires the use of an access point (AP). In this mode, all wireless communications between two computers have to be via the AP no matter the AP is wired to Ethernet network or stand-alone. If wired to an Ethernet network as shown in **Figure 1-4**, the AP serves as a bridge and provides the link between the server and the wireless clients. The wireless clients can move freely throughout the coverage area of the AP while remaining connected to the server. Since the AP is connected to the wired network, each client would have access to server resources as well as to other clients.



Figure 1-4 Infrastructure mode

Chapter 2 Installing Driver & Client Utility

This chapter describes how to install the PC Card drivers and client utility under Windows 98SE/ME/2000/XP.

2.1 Installation for Windows XP

During the installation, Windows XP may need to copy Windows systems files from the Windows XP installation diskette or CD-ROM. Therefore you will need a copy of the Windows XP installation diskette or CD-ROM at hand before installing the driver.

Installation Procedure:

1. Turn on your computer.
2. Insert the **Wireless LAN Driver** CD into your CD-ROM drive.
3. Double click the "**IPN2120 Wlan Driver and Utility.exe**" located in "\WLAN Utility with AP\" as shown in **Figure 2-1**.

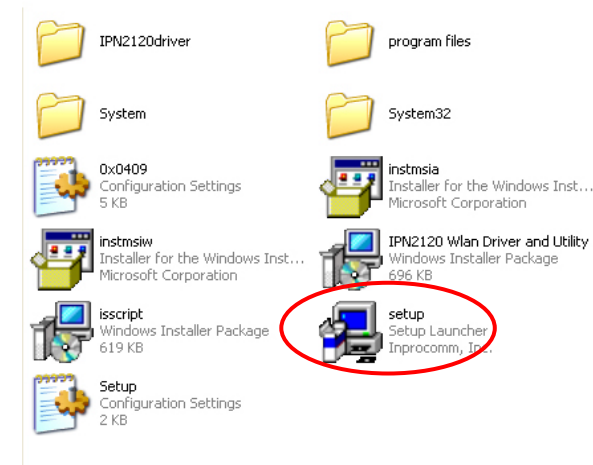


Figure 2-1

4. The program will automatically proceed with installing, press **Next** to continue as shown in **Figure 2-2**.



Figure 2-2

- Review the "License Agreement" then press **Next** as shown in *Figure 2-3*.

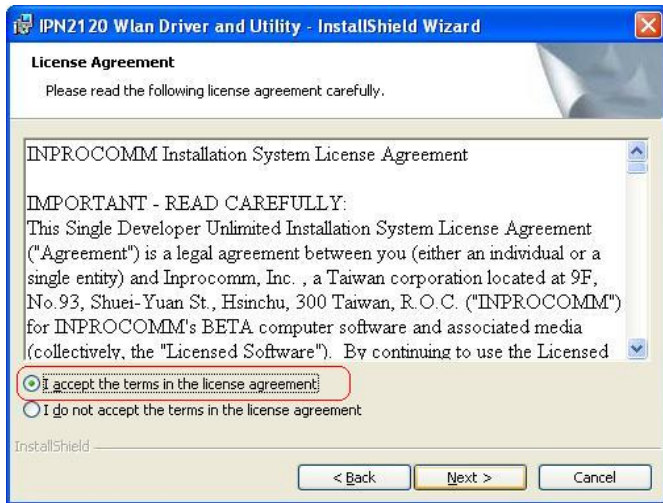


Figure 2-3

- Press **Install** to begin the installation as shown in *Figure 2-4*.

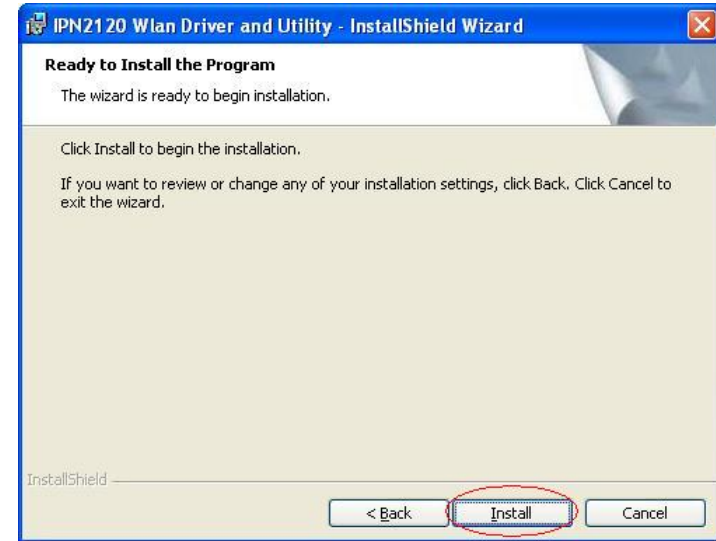


Figure 2-4

- The program will automatically proceed with installing as shown in *Figure 2-5*.

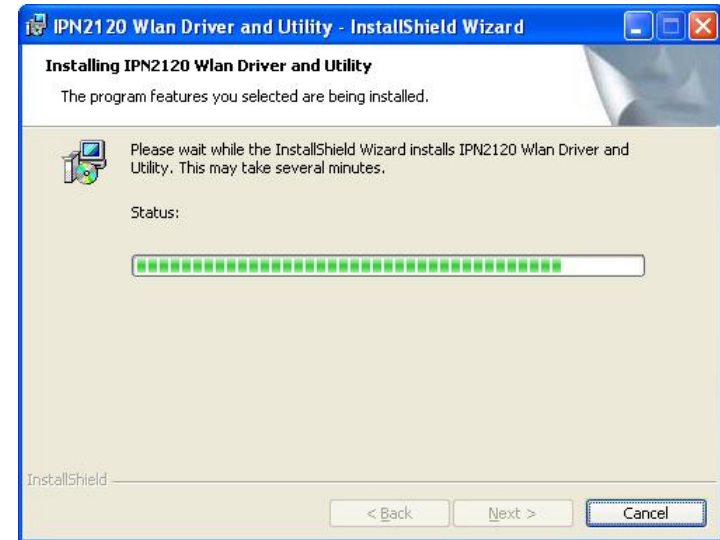
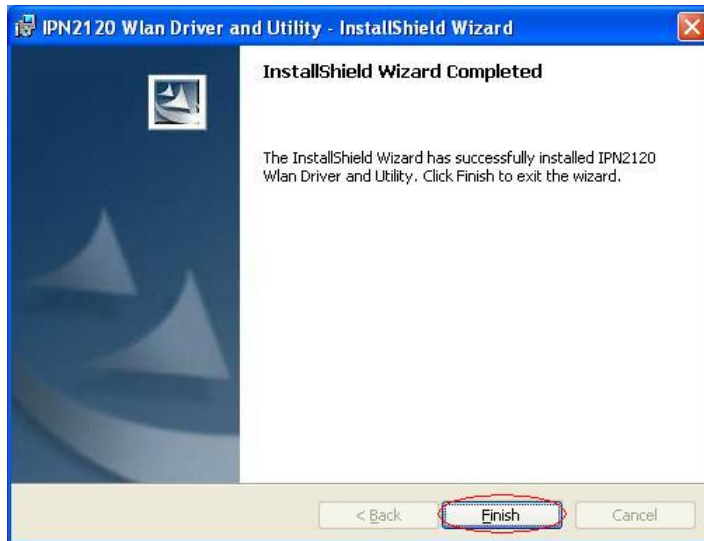


Figure 2-5

- Press **Continue Anyway** and then **Finish** to complete the installation as shown in following figures.



Note

1. If your computer running Windows 95/98/ME/2000/NT installed Wireless LAN PC card and you would like to upgrade to Windows XP, you have to remove Wireless LAN PC card driver & utility from your computer in advance to let the Wireless LAN PC card work with Windows XP properly.
2. Once you finish removing the driver and utility, please refer to the above installation procedure for Windows XP.

Uninstallation Procedure:

1. Insert the Wireless LAN PC Card into the PCMCIA slot and turn on your computer.
2. Right-click on **My Computer** icon on the Windows desktop to choose **Properties** and the **System Properties** window will pop out.
3. Click on the tab **Device Manager** and then move the mouse to **Network Adapters** node to expand the tree list by clicking on the plus sign.
4. Remove Wireless LAN PC Card that you have installed already.
5. Uninstall the Old Driver.
6. You must remove the old existing driver before installing the new driver.
7. Click **Start** icon on the tool bar and select **Control Panel** from setting item.
8. Double click the **Add/Remove Programs** icon to open up Add/Remove Programs window then choose the tab **Install/Uninstall**, pick up the utility that you have installed for Wireless LAN PC Card and press the button Add/Remove.
9. The dialog box will show up to confirm if you want to remove the driver and all of its components. Please click on **OK** button to complete the uninstall procedure of the old driver.
10. Restart the computer and remove the Wireless LAN PC Card.

2.2 Checking after Installation

After installing the driver and utility, follow the steps below to check that the PC Card is operating correctly.

1. Click the **Start** button, and then click **Control Panel**.
2. In the **Control Panel** window, double-click the **System** icon, then select the **Device Manager** tab from **Hardware** page.
3. Double-click **Network adapters**, then select **SendFar IPN2120 Wireless LAN Card** as shown in **Figure 2-6**.

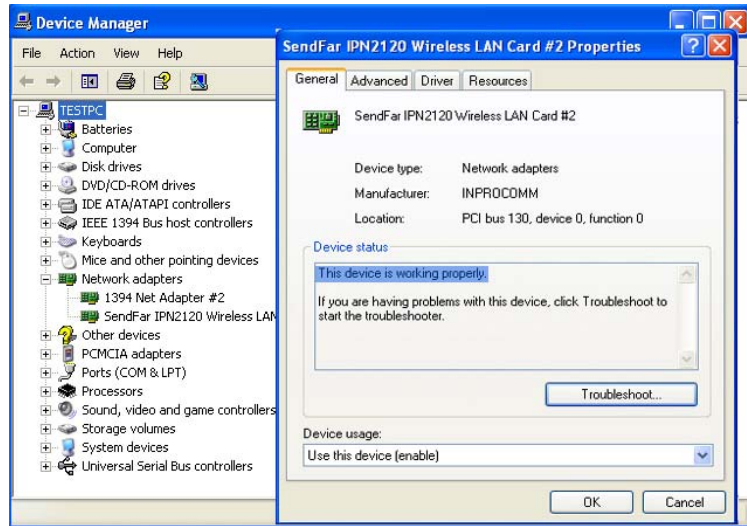


Figure 2-6

4. Click the **Properties** button, then check the message. **This device is working properly** is displayed for Device status.
5. If you find the Yellow (?) sign on the adapter or the above message is not displayed, it shows the installation is not successful or the wireless LAN PC Card is not operating properly. Uninstall and re-install the driver, referring to Chapter 2-5 Uninstalling Driver and Utility.

2.3 Installation for Windows 98SE/ME/2000

Installation for Windows 98SE/ME/2000 are all the same with **Installation for Windows XP**. Before plug WPC-3110 into the PCMCIA slot, you must install the driver and utility at first. So please refer the Windows XP installation procedures to install the driver and utility for your PC or Notebook which installed with Windows 98SE/ME/2000.

2.4 Wireless LAN Client Utility

The wireless LAN Configuration Utility appears as an icon on the system tray of Windows while the card is running.



The icon is appeared as bar diagram with different color and level for representing different connection status. While the station is not associated with other STA/AP, the icon will appear as an empty bar diagram. Once it is associated, it will appear as different color for different level of signal strength. There are 3 levels of icons to represent the signal strength, the green one (signal strength from 100%~50%), the yellow one (50%~25%), and the red one (below 25%).

The Wireless LAN Configuration Utility is a highly integrated application include the following main options.

- **Status**
- **Site Survey**
- **Statistics**
- **About**

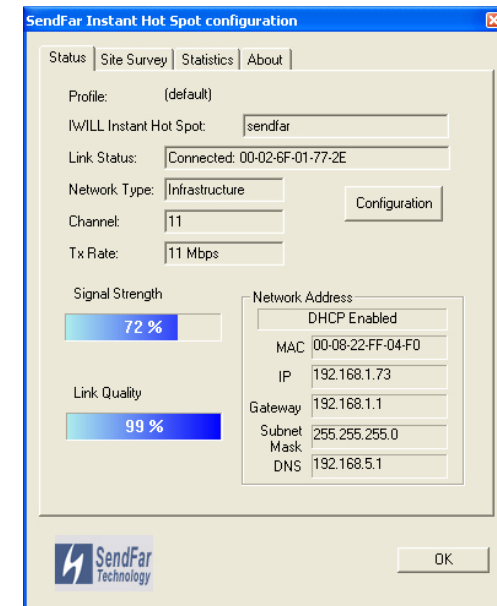


Figure 2-7

Status

A typical screen of the application in Infrastructure mode is shown in **Figure 2-7**. The **Network Address** section shows the current Network status such as the MAC address, Subnet Mask address, Gateway address and DNS server address that you can easily monitor these settings without the “ipconfig” provided by windows.

In order to change the configuration parameters press the **Configuration** button, then it will pop-up a dialog for you to input your settings as shown in **Figure 2-8**.

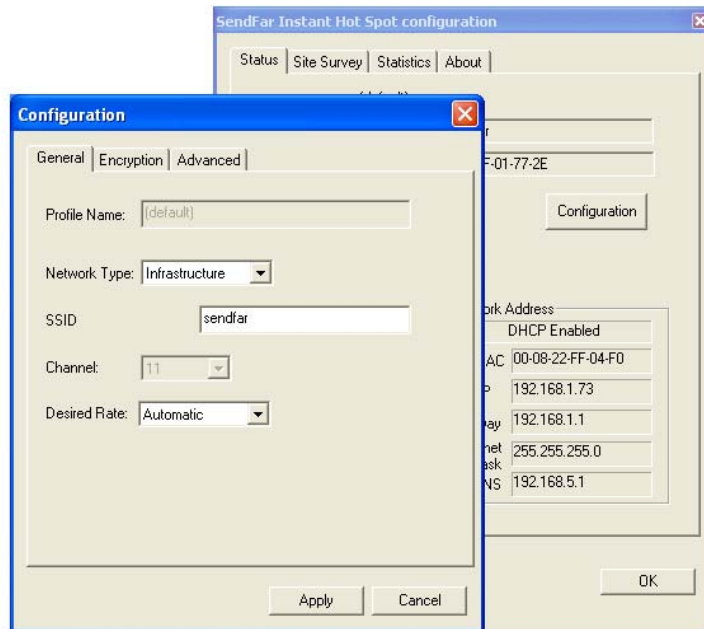


Figure 2-8

There's 3 property pages in the **Configuration** property sheet, which include *General*, *Encryption*, and *Advanced*.

General

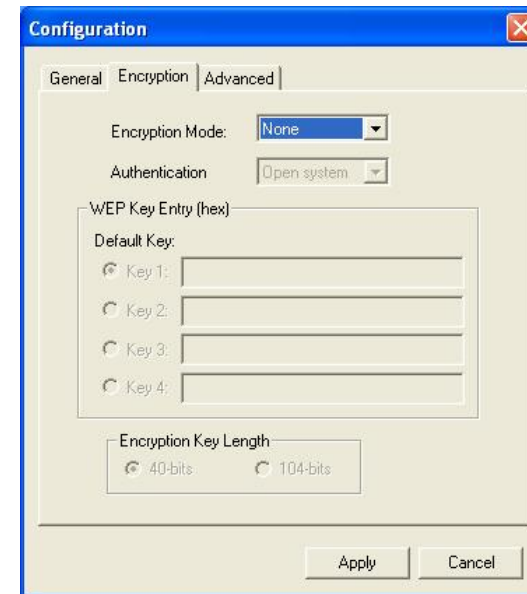
In this page, user can configure the station card with its Network type, SSID (up to 32 characters), channel, and the Desire Tx Rate (Automatic/ 1Mbps/ 2Mbps/ 5.5Mbps/ 11Mbps).

Version 1.00

Encryption

By choosing this option, you can set the card with its encryption mode to NONE or WEP, the authentication mode to **Open system** or **Shared key** or **Auto Switch**.

When set as WEP enabled, you have to set/complete the WEP key materials, key materials length and specify which one of them as the default key (1 to 4) correctly, which means 4 different keys should be in the same length or empty, and the default key radio button should be set to the set with non-empty key material. If the setting is not complete, the APPLY button will remain to be “gray” and cannot be clicked until user do correct settings of this page.



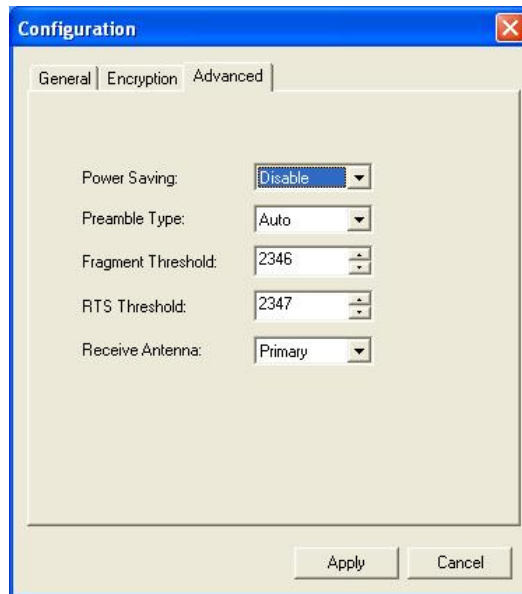
If you require high security in transmission, you can select 40 or 104-bit WEP (Wired Equivalent Privacy) key to encrypt data (Default setting is **None**). WEP encrypts each frame transmitted from the radio using one of the Keys from this panel. When you use WEP to communicate with the other wireless clients, all the wireless devices in this network must have the same encryption key or pass phrase.

Version 1.00

This panel allows the entry of keys or pass phrase, which can then be written to the driver and registry. Note that each key must consist of hex digits, it means that only digit 0-9 and letters A-F are valid entries. If entered incorrectly, program will not write keys to a driver.

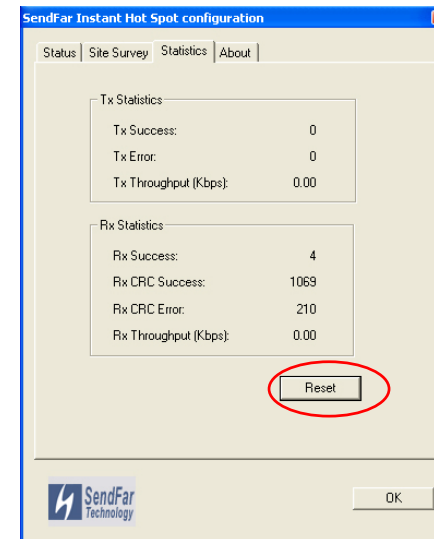
Advanced

Choosing this option, you can change advanced configuration settings, such as the Power Saving mode, Preamble Type, Fragmentation Threshold, and RTS Threshold. Before selecting Short Preamble, make sure that the other stations and APs are also supporting this feature.



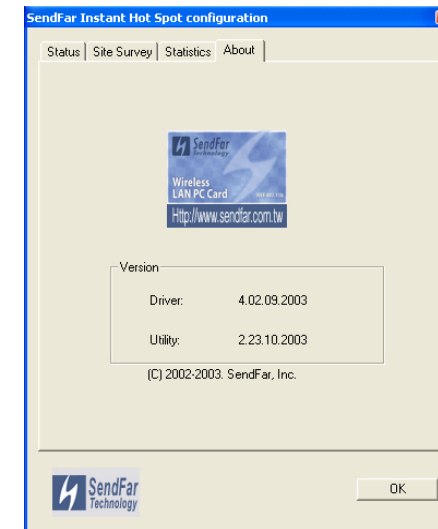
Statistics

This option enables you to view the available statistic information with its Tx counts, Tx Throughput, and its Rx counts, Rx Throughput. You may reset the counters by pressing its **Reset** button.



About

By choosing this option, you can view basic information about the utility such as the Driver and Utility Version. And you can click the hyperlink to connect the website for technical support.



2.5 Uninstalling Driver and Utility

If the PC Card installation is unsuccessful for any reason, the best way to solve the problem may be to completely uninstall the PC Card and its software and repeat the installation procedure again.

1. Insert the Wireless LAN PC Card into the PCMCIA slot.
2. Right click **My Computer**--->Select **Properties**.
3. On the Hardware tab, choose Device Manager, and click **Network Adapter**. Choose **SendFar IPN2120 Wireless LAN Card** and remove it.
4. After removing the **SendFar IPN2120 Wireless LAN Card**, restart your computer.
5. Click the **Start** button, select **Control Panel**. Double click the **Add/Remove Programs** icon on the Control Panel. In the Change or Remove Programs dialog window, choose the and click **Remove** button to uninstall this programs as shown in **Figure 2-9**.

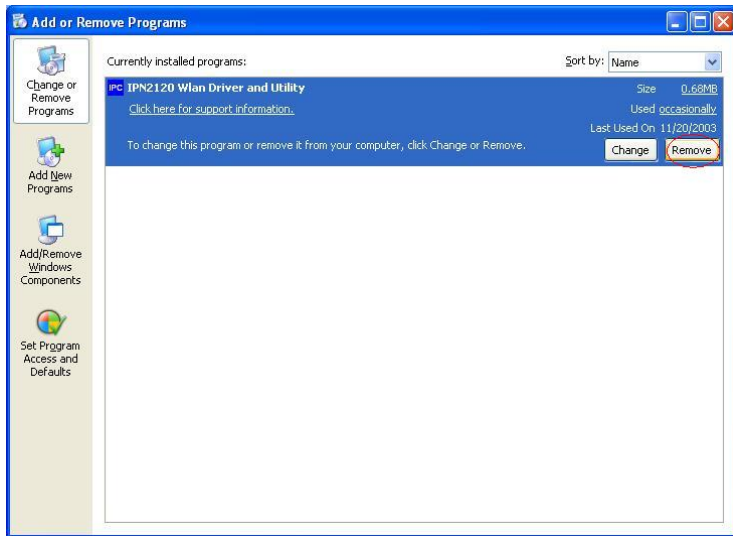


Figure 2-9

Chapter 3 Troubleshooting

This chapter describes the problems and corresponding solutions that may occur when installing a PC Card.

| Symptom | Solution |
|--|--|
| Windows does not detect the PC Card when installed. | Verify that the PC Card is properly inserted into the PC Card slot. Check whether the computer has a Plug and Play BIOS. Windows 98SE/ME/2000/XP might not detect the PC Card if a previous installation of the PC Card was cancelled before it was finished. Remove the previous driver, and redo the installation again. |
| Driver fails to load | A resource conflict could exist. For Windows 98SE/ME/2000/XP, use the Device Manager to resolve resource conflicts. Select System from the Control Panel , then click on the Device Manager tab. |
| Device conflict on a Windows system | A device conflict under Windows 98SE/ME/2000/XP may be related to the PC Card. For Windows 98SE/ME/2000/XP, use the Computer properties to identify the used I/O port addresses and IRQ values. If there is a device conflict, select alternative settings for I/O Base Address or IRQ values. If you know which device is conflicting with the PC Card, you have the option of changing that device's I/O address or IRQ instead of changing the PC Card. |
| No resource conflicts were detected, but the wireless station does not attach to the network | Verify that the SSID of the PC Card matches that of the access point. Use the Network Configuration Properties Application in the Control Panel to modify the SSID . |

| | |
|--|---|
| | Verify that the Network Mode of the PC Card is configured correctly. |
| Nonfunctioning card LED | <p>The PC Card is not powered on. The cause may be:</p> <ul style="list-style-type: none"> --No Driver loaded or installed. --Card – Driver mismatch which prevented the driver from loading. --Device conflict which prevented the driver from loading. <p>Actions:</p> <ul style="list-style-type: none"> --Verify that a driver has been installed. --Determine if there is a conflict with another device. |
| Weak signal or intermittent connection | <p>Try reorienting the antenna. The PC Card antenna is attached to the end of the PC Card. For best use of the antenna:</p> <p>Keep the area around the antenna clear from materials that could block radio transmission, such as metal objects, electronic devices, and cordless telephones.</p> <p>If your signal is weak, change the direction of the antenna slightly.</p> <p>If necessary, move your notebook computer a few inches to find a better signal.</p> <p>Use the Link Quality and Signal Strength display in the Client Utility to determine the best location and orientation for a network connection.</p> |

Chapter 4 Product Specifications

General

Radio Data Rate 11, 5.5, 2 and 1 Mbps, Auto Fallback

Operating Voltage 3.3V/5V

Regulation Certifications FCC Part 15/UL, ETSI 300/328/CE

Compatibility Fully interoperable with IEEE802.11b compliant products

LED Indicator RF Link activity

Network Information

Network Architecture Support ad-hoc, peer-to-peer networks and infrastructure communications to wired Ethernet networks via Access Point

Drivers Windows 98SE/ME/2000/XP

Access Protocol CSMA/CA

Roaming IEEE802.11b compliant

Security 64/128-bit WEP data encryption

Radio

Frequency Band 2.4 – 2.4835 GHz

Radio Type Direct Sequence Spread Spectrum (DSSS)

Modulation CCK (11, 5.5Mbps), DQPSK (2Mbps), DBPSK (1Mbps)

Operation Channels 11 for North America & Taiwan, 14 for Japan, 13 for Europe, 2 for Spain, 4 for France

RF Output Power 20dBm (WPC-3110)

Sensitivity @ THP \geq 3Mbps 11 Mbps <-83dBm (WPC-3110),

Environmental

Temperature Range 0 to 55°C (operating), -20 to 75°C (storage)

Humidity (non-condensing) 10% to 95% typical

Physical Specifications

Form Factor PCMCIA Type II PC Card

Dimensions 118 (L)mm * 54(W)mm * 9 / 4.8 (H)mm

Weight 45 g

Chapter 5 Regulatory Compliance Information

Radio Frequency Interference Requirements

This device complies with Part 15 of FCC Rules and Canada RSS-210.

Operation is subject to the following conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.
3. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

Interference Statement

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 of the following measures:

- Reorient 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.

FCC Caution

To assure continued compliance, (example – use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.