

Wireless LAN Access Point

SWB500

User's Guide

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Table of Contents

Introduction

Features	3
Package Contents	3
System Requirements	3
How to Use	3

Getting to start installation

Installing the device	4
Rear panel	4
Front panel	4
Connection topology	5
Installing the Configuration Utility	5

Configure the Wireless LAN Access Point through Ethernet

Find	7
Configure	8
Wireless Operation Setting	9
Wireless Operation Mode	10
Wireless IP Setting Wireless Privacy Options	11
Wireless Privacy Option	11
Authority Configuration	12
Radio Configuration	12
Ethernet Statistics	13
Wireless Statistics	13
Upgrade Firmware	14
Reset AP	14
Restore defaults	14
About	14
Help	14

FAQ

Specifications

Introduction

Never be bound by cabling restrictions any longer! The Wireless LAN Access Point delivers the freedom to configure your network. Utilization of state-of-art wireless technology gives you the ability to set up your office/home network in fewer hassles and fewer expenses.

The Wireless LAN Access Point high-powered antenna offers a range of operation of up to 457 meters, providing seamless roaming throughout your LAN infrastructure. Advanced user authentication ensures a high level of security for wireless networking. While easy-to-use Windows-based diagnostics and statistic tools ensure that you'll always be in control.

Features

- 4 port 10/100Mbps Ethernet Switch for wired LAN access.
- Interoperable with IEEE 802.11b (DSSS) 2.4GHz-compliant equipment
- Long operating range supports 150m (indoor) and 500m (outdoor)
- Adjustable antenna near the front panel provides for better access angle.
- Wireless access point client & bridging operational mode.
- MAC address filtering, IP filtering, DHCP client, and SNMP configuration utility password protection.
- 128-bit hardware WEP supported.
- Compatible with all major operating systems

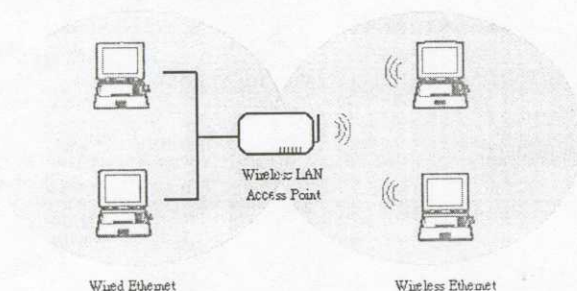
Package Contents

- One SWB-500.
- One AC power adapter.
- One Setup CD-ROM with Configuration utility and User's manual inside.

System Requirements

- A PC with Ethernet Connection.
- Windows 95, 98, ME, NT version 4.0, 2000 professional, or XP installed.
- 500Kbyte's of free disk space for Configuration Utility installation.
- A 10Mbps Category 3 or better network RJ-45 UTP cable connection.

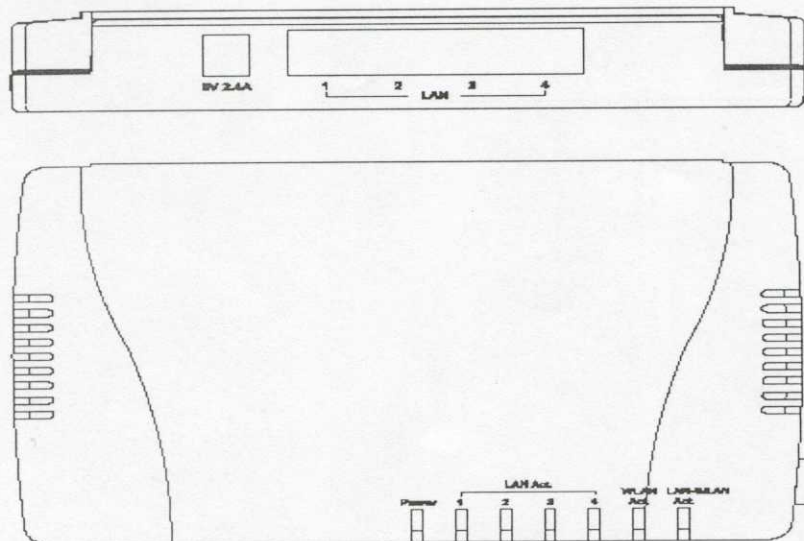
How to Use (see Figure-1)



[Figure – 1. Wireless LAN Access Point Application]

Getting to start installation

Installing the device



[Figure – 2. Front panel & rear panel]

Rear panel, Connectors :

Power: DC 5V, 2.4A

LAN 1, 2, 3, 4: For Ethernet connectivity.

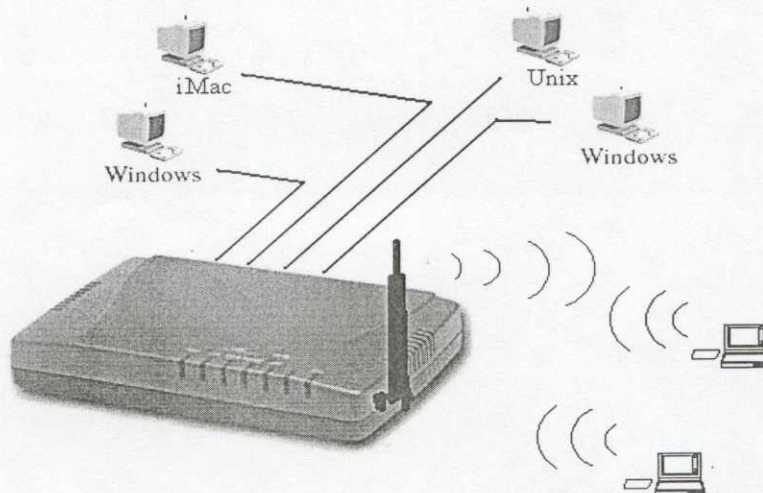
Front panel, LEDs :

Power: Green.

LAN Act. 1, 2, 3, 4 : Green for linkage. Flashing for activities on LAN segment.

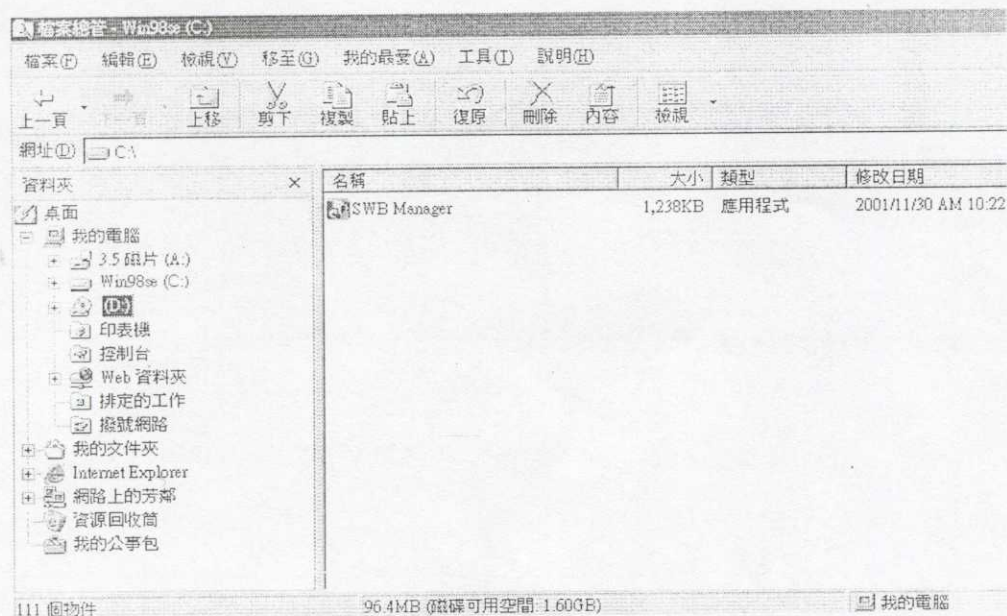
Wireless Act. : Green for wireless carrier detection. Flashing for wireless activity.

LAN-WLAN Act. : Green for wireless carrier detection. Flashing for traffic between wired and wireless LAN.



[Figure – 3. Installation tology]

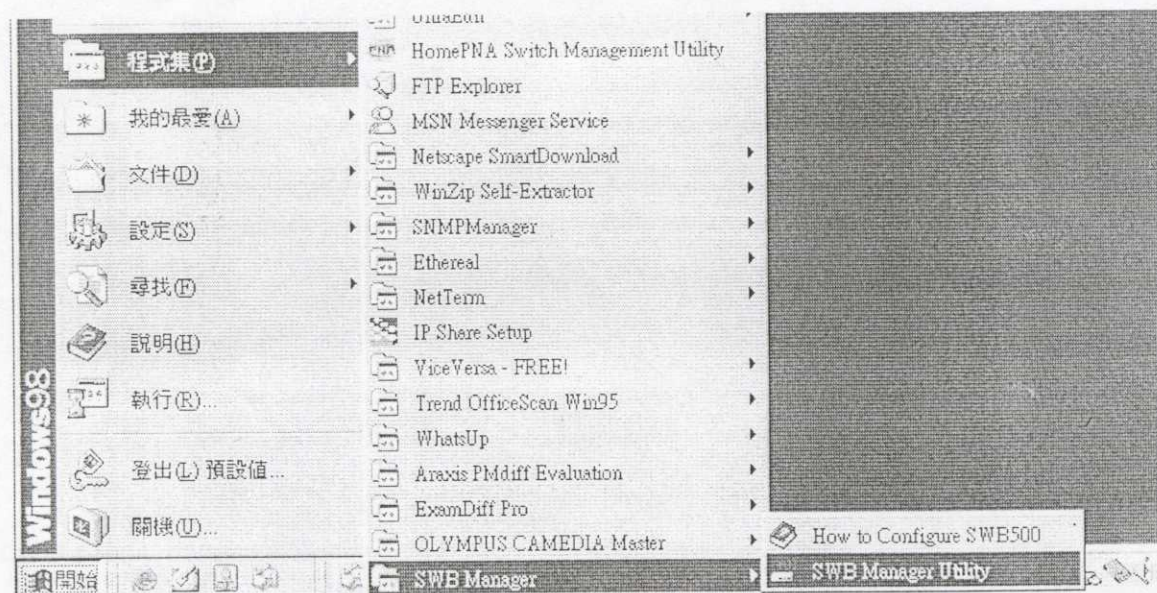
Installing the Configuration Utility



[Figure – 4. Start Configuration Utility installation]

Steps to install :

- Step 1: Insert CD-ROM and double click on SWB-Manager to install the Configuration Utility.(See Figure-4).
- Step 2: Follow the hints and instructions prompted in each page to complete the installation.
- Step 3: Go to \Start\Programs\SWB Manager. You can start the utility. (see Figure-5)



[Figure-5. Run Configuration Utility]

Configure the Wireless LAN Access Point through Ethernet

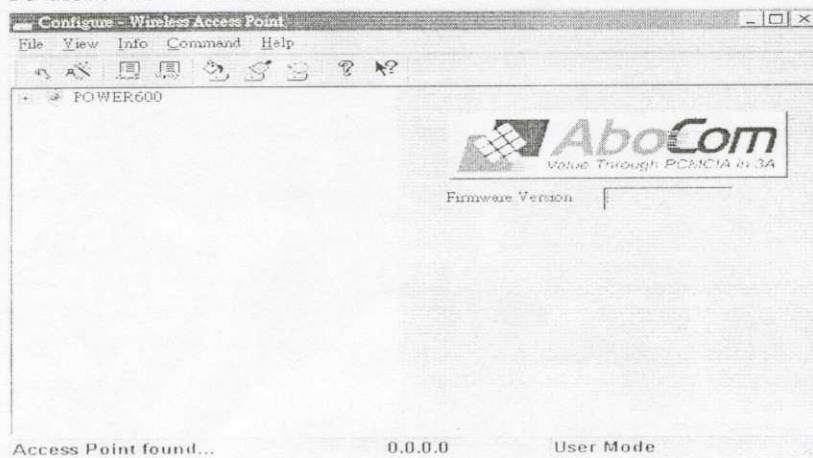
The Configuration Utility contains seven major functions, Find, Configure, Ethernet Statistics, Wireless Statistics, Upgrade Firmware, Reset AP, Restore defaults, About, and Help, for the device management. You can either click on icon on the tool bar or drop the menu to select the text for execution.

This utility program allows you to manage the Wireless AP through wired/wireless network. The default network settings for the Wireless AP are to obtain IP address from DHCP server. Therefore, please install DHCP server on local network first and make sure your computer running this utility has the same network IP address as the Wireless AP.

If your computer does not have the same network IP address as the Wireless AP, please change your computer IP address to the one

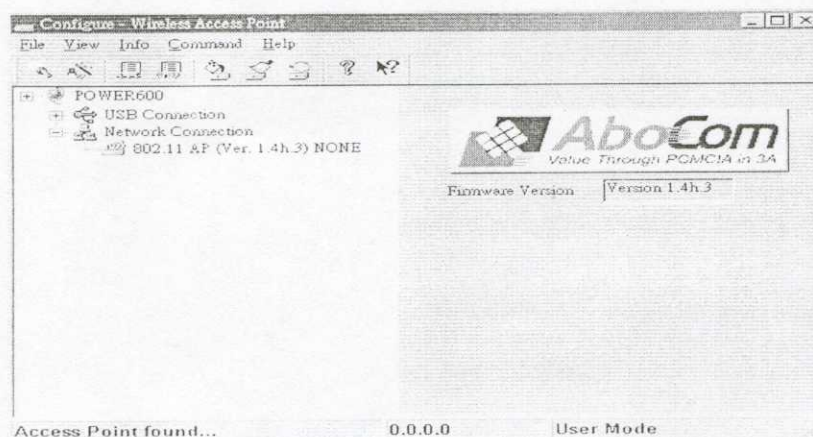
1. Find

To discover Wireless Access Points on the attached wired/wireless network.



[Figure 8. Configuration Utility – Start finding device]

Click Find to search the Wireless APs on both Ethernet or wireless LAN. All discovered devices will be listed under your computer. (See Figure-9.)



[Figure 9. Configuration Utility- Device found]

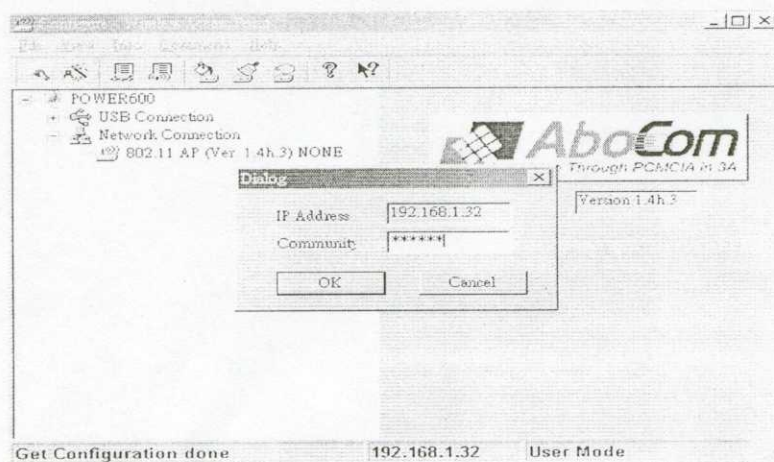
2.Configure

This function allows you for further customization of the Wireless Network Access Point and your wireless network through your Ethernet or wireless connection.

You have to select a device and click on the **Configure** icon. A screen will appear asking you to enter the password. '**public**' is the default password. Enter the Password and then click OK button to continue. (Figure-10.)

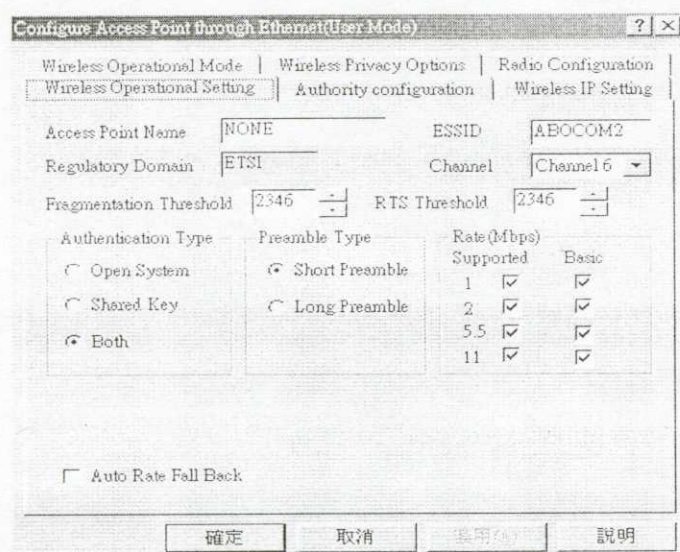
All settings are categorized into 6 tabs :

- Wireless Operation Setting
- Wireless Operation Mode
- Wireless IP Setting Wireless Privacy Options
- Wireless Privacy Option
- Authority Configuration
- Radio Configuration



[Figure 10. Configuration Utility- Configure]

2-1. Wireless Operation Setting



[Figure 11. Configuration Utility- Device found]

Fragment Threshold This value indicates how much of the Access Point's resources are devoted to recovering packet errors. The value should remain at its default setting of 2346. If you have decreased this value and experience high packet error rates, you can increase it again, but it will likely decrease overall network performance. Only minor modifications of this value are recommended.

RTS Threshold This value should remain at its default setting of 2346. Should you encounter inconsistent data flow, only minor modifications of this value are recommended.

Authentication Type The authentication type defines configuration options for the sharing of wireless networks to verify identity and access privileges of roaming wireless network cards. Verify that you've set this to the correct authentication type before clicking the **Apply** button.

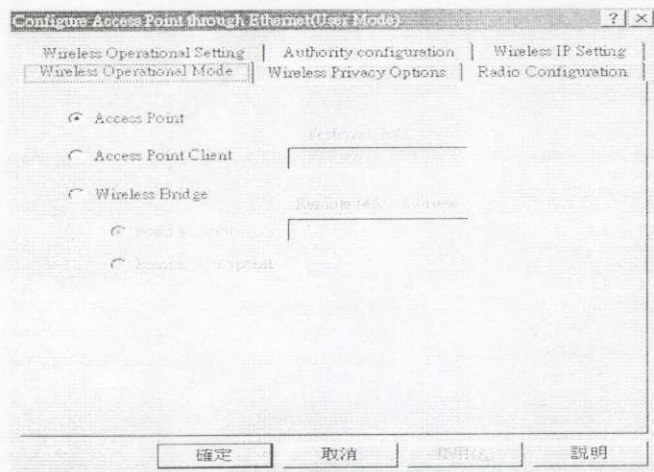
Preamble Type This value defines the length of the CRC block for communication between the Wireless Access Point and the roaming wireless network card.

ESSID The ESSID or SSID is the unique name shared among all points in a wireless network. The ESSID must be identical for all points in the network. **It is case-sensitive and must not exceed 30 characters.** Make sure that all points in the network are set the same.

Channel Select the appropriate channel from the list provided to correspond with your network settings. All devices that communicate with this Access Point must use the same channel in order to work correctly.

Basic Rates The basic transfer rates should be set depending on the speed of your wireless network. Older, slower wireless networks should be set at 1-2(Mbps) while a faster wireless network should be set at 1-2-5.5-11 (Mbps).

2-2. Wireless Operation Mode



[Figure 12. Configuration Utility- Device found]

Operational mode by default is set to Access Point. This is for connecting your wireless PCs to a wired network. In most cases, no change is necessary to this default setting.

2-3. Wireless IP Setting Wireless Privacy Options

[Figure 13. Configuration Utility- Device found]

IP Address The IP address assigned here must be unique to your network. We suggest that you use the default IP address.

The DHCP settings are also made from this tab. Check the radio button next to **MAC** address to allow it obtain a dynamic IP address from the DHCP server.

2-4. Wireless Privacy Option

[Figure 14. Configuration Utility- Device found]

WEP(Wired Equivalent Privacy) is a data privacy mechanism based on a 64/128-bit shared key algorithm, as described in 802.11 standard. In order to utilize WEP encryption, all points in your network must have WEP enabled and be set to the same Key Setting.

Note: Whenever changes are made to your WEP settings, you will lose access to your network until the WEP settings are updated on the PCs. Remember that you will need to reconfigure your wireless PCs to the new WEP settings. If you are configuring this wirelessly, you will lose your connection.

2-5. Authority Configuration

The screenshot shows a configuration window titled 'Configure Access Point through Ethernet (User)'. It has four tabs: 'Wireless Operational Mode', 'Wireless Privacy Options', 'Radio Configuration', and 'Wireless IP Setting'. The 'Authority configuration' sub-tab is active. Under 'Administrator Community', the 'New' radio button is selected, with input fields for 'New' and 'Confirm'. The 'User Community' radio button is unselected, with an empty input field. At the bottom are buttons for '確定' (OK), '取消' (Cancel), '適用' (Apply), and '説明' (Help).

[Figure 15. Configuration Utility- Device found]

Administrator Password for administrator's password change. The default value is **admin**. You have to change this value at the first time for security. The max length is 30 characters.

Users login as a administrator are allowed to perform firmware upgrade, device reboot, Factory reset, and modify administrator password.

User Password for general authenticated users to make un-harmful setting changes. The default is empty.

2-6. Radio Configuration

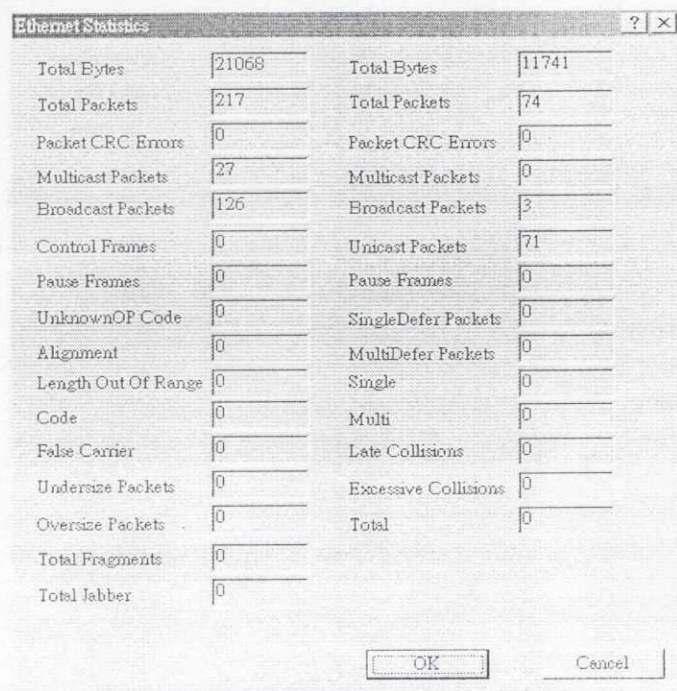
The screenshot shows the same configuration window, but with the 'Radio Configuration' sub-tab active. It displays a grid of 14 channels, each with a dropdown menu. Channel 1 is set to '33', while Channels 2 through 14 are all set to 'EF'. The bottom buttons are the same as in Figure 15.

Channel 1	33	Channel 8	EF
Channel 2	EF	Channel 9	EF
Channel 3	EF	Channel 10	EF
Channel 4	EF	Channel 11	EF
Channel 5	EF	Channel 12	EF
Channel 6	EF	Channel 13	EF
Channel 7	EF	Channel 14	EF

[Figure 16. Configuration Utility- Device found]

3. Ethernet Statistics

This will display the connection statistics for you Ethernet network.



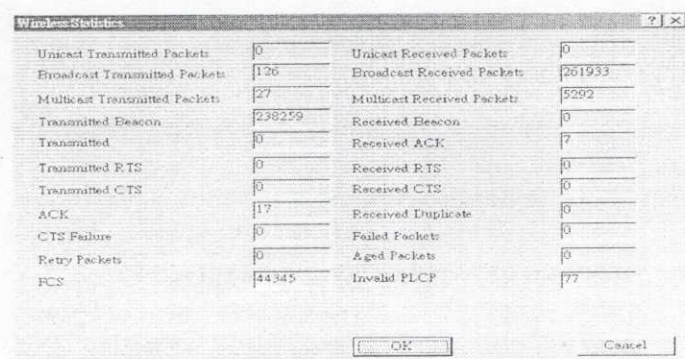
The screenshot shows a dialog box titled "Ethernet Statistics" with a list of network statistics and their corresponding values. The statistics are organized into two columns. At the bottom, there are "OK" and "Cancel" buttons.

Statistic	Value	Statistic	Value
Total Bytes	21068	Total Bytes	11741
Total Packets	217	Total Packets	74
Packet CRC Errors	0	Packet CRC Errors	0
Multicast Packets	27	Multicast Packets	0
Broadcast Packets	126	Broadcast Packets	3
Control Frames	0	Unicast Packets	71
Pause Frames	0	Pause Frames	0
UnknownOP Code	0	SingleDefer Packets	0
Alignment	0	MultiDefer Packets	0
Length Out Of Range	0	Single	0
Code	0	Multi	0
False Carrier	0	Late Collisions	0
Undersize Packets	0	Excessive Collisions	0
Oversize Packets	0	Total	0
Total Fragments	0		
Total Jabber	0		

[Figure 17. Configuration Utility- Device found]

4. Wireless Statistics

This will display the connection statistics for you wireless network.



The screenshot shows a dialog box titled "Wireless Statistics" with a list of network statistics and their corresponding values. The statistics are organized into two columns. At the bottom, there are "OK" and "Cancel" buttons.

Statistic	Value	Statistic	Value
Unicast Transmitted Packets	0	Unicast Received Packets	0
Broadcast Transmitted Packets	126	Broadcast Received Packets	261933
Multicast Transmitted Packets	27	Multicast Received Packets	5292
Transmitted Beacon	238259	Received Beacon	0
Transmitted	0	Received ACK	7
Transmitted RTS	0	Received RTS	0
Transmitted CTS	0	Received CTS	0
ACK	17	Received Duplicate	0
CTS Failure	0	Failed Packets	0
Retry Packets	0	Aged Packets	0
PCS	44345	Invalid PLCP	77

[Figure 18. Configuration Utility- Device found]

5.Upgrade Firmware

A TFTP client is embedded in this utility. Click on the icon, choose the new firmware image file and press **OK**. The firmware upgrade will be completed through network automatically.

6.Reset

Reboot device.

7.Restore Defaults

Click this button to restore the Wireless Network Access

8.About

Information about this utility program.

9.Help

Instant query for detail information about this product settings and terminologies.

Frequently Asked Questions

What IEEE 802.11 features are supported ?

The product supports the following 802.11 functions:

- CSMA/CA plus Acknowledge protocol

Frequently Asked Questions

What IEEE 802.11 features are supported ?

The product supports the following 802.11 functions:

- CSMA/CA plus Acknowledge protocol
- Multi-Channel Roaming
- Automatic Rate Selection
- RTS/CTS feature
- Fragmentation
- Power management

What is infrastructure ?

An integrated wireless and wired LAN is called an infrastructure configuration. Infrastructure is applicable to enterprise scale for wireless access to central database, or wireless application for mobile workers.

What is roaming ?

Roaming is the ability of a portable computer user to communicate continuously while moving freely throughout an area greater than that covered by a single Wireless Network Access Point. Before using the roaming function, the workstation must make sure that it is the same channel number with the Wireless Network Access Point of dedicated coverage area.

What is WEP ?

WEP is Wired Equivalent privacy, a data privacy mechanism based on a 40 bit shared key algorithm, as described in the IEEE 801.11 standard.

What is BSS ID ?

A specific Ad hoc LAN is called a Basic Service Set(BSS). Computers in a BSS must be configured with the same BSS ID.

What is ESS ID ?

An infrastructure configuration could also support roaming capability for mobile workers. More than one BSS can be configured as an Extended Service Set(ESS). Users within an ESS could roam freely between BSSs while maintaining a contiguous connection to the wireless network stations and Wireless Network Access Point.

What is ISM band ?

The FCC and their counterparts outside of the U.S. have set aside bandwidth for unlicensed use in the ISM(Industrial, Science and Medial) band. Spectrum in the vicinity of 2.4 GHz, in particular, is being made available worldwide. This presents a truly revolutionary opportunity to place convenient high speed wireless capabilities in the hands of users around the globe.

Would the information be intercepted while transmitting on air ?

WLAN features two-fold protection in security. On the hardware side, as with Direct Sequence Spread Spectrum technology, it has the inherent security feature of scrambling. On the software side, WLAN offers the encryption function(WEP) to enhance security and Access Control. Users can set it up depending upon their needs.

Specifications

Standards	IEEE 802.11b (wireless), IEEE 802.3 (wired)	
Channels	11 Channels (US, Canada) 13 Channels (Europe) 14 Channels (Japan)	
Ports	Four 10/100BaseT RJ-45 Port	
Data Rate	1, 2, 5.5, and 11Mbps	
Operating Range	Outdoor environment 1 Mbps – 500M (1640 ft.) 2 Mbps – 400M (1312 ft.) 5.5 Mbps – 350M (1148 ft.) 11 Mbps – 250M (820 ft.)	Indoor environment 1 Mbps – 150M (492 ft.) 2 Mbps – 120M (393 ft.) 5.5 Mbps – 80M (262 ft.) 11 Mbps – 50M (164 ft.)
LED indicators	Power Green LAN Act. (x4) 100/10 Green/Orange WLAN Act. Green LAN-WLAN Act. Green	
Protocols	TCP/IP, NetBEUI, SNMP, BOOTP, TFTP, DHCP client/server	
Management	GUI program for Windows 95/98/ME/NT/2000/XP through network	
Input power specifications	DC 5V, @2.4A	
Agency and Regulatory	FCC part 15 Class B, CE, VCCI	
Physical Dimension	160 x 105 x 27 mm ³ (L x W x H)	
Weight	250g	
Operating Temperature	0°C to 50°C	
Operating Humidity	0-90% non-condensing	

FEDERAL COMMUNICATIONS COMMISSION 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 or more 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.

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

FCC RF Radiation Exposure Statement

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