

Wireless Access Point

WAP-3000

User Manual



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Federal Communication 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 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:

1. Reorient or relocate the receiving antenna.

2. Increase the separation between the equipment and receiver.

- 3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- 4. Consult the dealer or an experienced radio 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 the equipment.

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, and (2) this Device must accept any interference received, including interference that may cause undesired operation.

Federal Communication Commission (FCC) Radiation Exposure Statement

This equipment complies with FCC radiation exposure set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm(8 inches) during normal operation.

R&TTE Compliance Statement

This equipment complies with all the requirements of DIRECTIVE 1999/5/CE OF THE EUROPEAN PARLIAMENT AND THE COUNCIL OF 9 March 1999 on radio equipment and telecommunication terminal Equipment and the mutual recognition of their conformity (R&TTE)

The R&TTE Directive repeals and replaces in the directive 98/13/EEC (Telecommunications Terminal Equipment and Satellite Earth Station Equipment) As of April 8,2000.

Safety

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this and of the computer manufacture must therefore be allowed at all times to ensure the safe use of the equipment.

EU Countries Intended for Use

The ETSI version of this device is intended for home and office use in Austria, Belgium, Denmark, Finland, France (with Frequency channel restrictions). Germany, Greece, Ireland, Italy, Luxembourg .The Netherlands, Portugal, Spain, Sweden and United Kingdom.

The ETSI version of this device is also authorized for use in EFTA member states Iceland, Liechtenstein, Norway and Switzerland.

Potential restrictive use

France: Only channels 10,11,12 and 13

Revision

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Chapter 1 Introduction

Thank you for purchasing WAP-3000. This device features the latest innovation wireless technology making the wireless networking world happened. This manual guides you on how to install and properly use the WAP-3000 in order to take full advantage of its features.

1.1 Features

- 2.4GHz ISM band, unlicensed operation
- Wireless connection without the hassles and cost of cabling
- Wireless LAN IEEE 802.11b compliant
- Up to 11Mbps data rate with CSMA/CA
- Utilize Direct Sequence Spread Spectrum (DSSS) Technology to provide robust, interference-resistant solution in a multi-user environment
- Working range up to 350 feet indoor and 1100 feet outdoor
- Seamless integration with IEEE 802.3 LAN through WAP-3000 or other IEEE 802.11b compliant Access Point
- Channel Agility to Avoid In-Band Interference from Household Appliances, such as Microwave Ovens and Cordless Phones
- Provides Window-based Configuration Utility
- Support IEEE802.11e standard (Future Function)
- Parameterized Quality of Service (QoS) to Support Multimedia Distribution and Ensure Delivery of Isochronously /Time-Dependent Content (Future Function).

1.2 Applications

1. Remote access to corporate network information

E-mail, file transfer and terminal emulation.

2. Difficult-to-wire environments

Historical or old buildings, asbestos installations, and open area where wiring is difficult to employ.

3. Frequently changing environments

Retailers, manufacturers and banks who frequently rearrange the workplace and change location.

4. Temporary LANs for special projects or peak time

Trade shows, exhibitions and construction sites need temporary setup for a short time period. Retailers, airline and shipping companies need additional workstations for a peak period. Auditors require workgroups at customer sites.

5. Access to database for mobile workers

Doctors, nurses, retailers, white-collar workers need access to database while being mobile in the hospital, retail store or office campus.

6. SOHO (Small Office and Home Office) users

SOHO users need easy and quick installation of a small computer network.

7. High security connection

The wireless security network installs quickly and provides the flexibility to reconfigure easily.

Product	Wire Free – Wireless Access Point
Model Name	WAP-3000
LED Indicators	Power, Act, IEEE802.11e, PC/HUB, CM/DCT
Operating Frequency / Channel	2.412~2.462GHz (FCC, Canada) / 11 Channels
	2.412~2.4835GHz (Japan, TELEC) / 14 Channels
	2.412~2.472GHz (Euro ETSI) / 13 Channels
RF Modulation	Direct Sequence Spread Spectrum (DSSS) Technology
	(CCK, DQPSK, DBPSK)
RF Output Power	20dBm
Sensitivity	-83dBm (@ PER<8%)
Data Rate	11, 5.5, 2, 1 Mbps with auto-rate fall back
Media Access Protocol	CSMA/CA + ACK, IEEE802.11b Compliant
Standard Antenna	Built-in antenna
Range	Up to 1100 feet outdoor and 350 feet indoor
Dimension (D x W x H)	163 x 89 x 55mm
Temperature	0 – 55 degree C (Operating), -20~70 degree C (Storage)
Humidity	0-90%, non-condensing (Operating and storage)
Management	Windows-Based Configuration Utility
	SNMP
Power Requirement	5V DC, 2A
STANDARDS COMPLIANCE	
Electromagnetic Compatibility	FCC Part 15 class A, CE, ETSI 300, 328

1.3 Specification

1.4 Package Contents

Before installation, please check the items of your package. The package should include the following items:

WAP-3000	x 1
Quick Installation Guide	x 1
Drivers and User's Manual CD	x 1
USB Cable (for configuration)	x 1
Power Adapter	x 1

If any of the above items are missing, contact your supplier as soon as possible.

1.5 Minimum System Requirements for Configuration

Before installation, please check the following requirements with your equipment.

- Operating System: Windows 98/Me/2000/XP
- Desktop PC or Notebook with CD-ROM drive
- USB Port controller in case of desktop PC or Notebook

1.6 Safety Precaution

Only use the accessories and connection cables attached with the device package. Otherwise, the device may not function. If you miss or damage the accessories or connection cables, please contact your local dealer.

LED	lcon	Color	Function
Power	\square	Green	Off: Power is not connected
	U		Lit: Power On
WLAN Act	~ t~	Green	Off: Wireless LAN is not working
	Ť		Flash: Wireless LAN is working
IEEE802.11e	E	Green	Off: Working in IEEE802.11b
	U		Lit: Working in IEEE802.11e Multimedia mode
			(Future Function)
PC/HUB	Ц	Green	Off: PC/HUB port is not connected.
			Lit: PC/HUB port is connected.
			Flash: There are packets transmitting / receiving
			on this port.
CM/DCT		Green	Off: CM/DCT port is not connected.
	Π		Lit: CM/DCT port is connected.
			Flash: There are packets transmitting / receiving
			on this port.

1.7 LED and Button Definition

Button	Function
Default	Restore the factory default setting of WAP-3000
Reset	Restart WAP-3000
DIP Switch	Select working mode (WiFi / Multimedia 🊱).
(WiFi / 🗳)	Note: Multimedia mode is not supported on current version

1.8 Bottom View

The bottom of WAP-3000 provides the following ports:



USB	Please use the provided USB cable to connect to your Windows PC and
	Configure When the USB cable is connected, the network interface will be
	Configure. When the OOD cable is confidenced, the network interface will be
	disabled. Thus, please disconnect the USB port when configuration is
	completed.
CM/DCT	This port is MDI-X port that can be directly connected to Cable Modem, ADSL
	Modem or PC by straight cable.
PC/HUB	This port is MDI port that is for connecting to Switch/Hub by straight cable or PC
	directly by cross-over cable.
PW	Please use a 5VDC, 2A power adapter to supply power for WAP-3000.
Note: C	M/DCT port and PC/HUB port can be used at the same time. They actually

can be saw as two ports hub with different type of pin-definition

(MDI/MDI-X).

Chapter 2 Configuration Utility Installation

Before you proceed with the installation, it is necessary that you have enough information about the *Wireless Access Point*. Use the Procedure described in below in this chapter to install under Windows 98/Me/2000/XP.

2.1 Windows 98/ME/2000/XP Installation

Note The following installation operates under Window 2000. Procedures will be similar for Window 98/ME/XP

1. Connect WAP-3000 to PC or notebook's USB port. Windows will detect your Access Point and ask you click "Next" for driver installation.



2. When this dialog appears, please select the first option and click "Next" to continue.



3. Please insert Drivers and User's Manual CD into your CD-ROM, then select "Specify a Location" and Click "Next".



- 4. Please set the driver source to WAP-3000 folder in Drivers and User's manual CD. Suppose CD-ROM
 - is E:\, please set the path to E:\Drivers\WAP-3000 and click "Next".

Upgrad	n Dervice Driver Wizard	×
	Inset the manufacture's installation disk into the drive reflected, and then click DK.	OK. Cancel
	Copy nanufacturen: Res hom: El Kalwert/WAR 2000	Browse.

5. Windows will find WAP-3000 driver and may show you the screen below to prompt you the driver doesn't have Digital Signature. Please Click "Yes" to continue the installation of driver.



6. Please click "Finish" to complete the driver installation.



7. After driver installed, the utility installation will be started automatically. Please click "Next" to install utility.



8. Press "Yes" for accepting the License Agreement.

Please read the tolkwing loverse	agreesent cantuly		25
Press the PAGE DOWN key to a	en horest of the agreement.		
Place helde for the end user lic	itaa agaemant.		4
) Do you accept all the least of the	e preciding License Agreene	rill II posicheco	No. the
nation will obtain. The shared in family	ex. Appenio Polek, pou must ap-	orge that against	et.)

9. You can change the user and company name as you wish or keep using the default. Please click "Next" to continue.

Curtance Information	The second se
Rease enter your information,	
Please other your name. The name of second studyer	I the company to which you work and the product
Une Name	
1020	
CorparyName	
planet	
Serial Number	
PLANET	

10. Please click "Browse" to specify the Destination Folder that you want to install the utility. Or you can keep the default setting and click "Next" to continue.

lesse Destination Location		1.1
Select tokler where Selup-will install like		
Serup will install Waters Access Pairs in	in the following folder.	
To motal to this tokin, claim Newl. To aut another folder	nal to a different lidder, click Drowse	and unlect
Darkedon Febre		
Destention Fakter E 1/Program Faks/PLANET WAP-3080	р.	Dome.

11. Please enter a Network SSID for your Wireless network. You can use the default settings to continue. Please click "Next".

lotwork Identification	
Planue enter à Netwark ID (name) I This name is used to generate a se empled arts the needers retrack, e	to the subtracretional security evolutions identification mady D for the local windows retrieval. Plane of incides and have the same Nativoli. D (
National D (2022)44	

12. Utility will start to be installed into Windows.



13. When installation complete, please click "Finish" to restart you PC.



Chapter 3 Using Configuration Utility

Please double click the icon "WAP-3000 Device Manager" on desktop to start the configuration utility. The Configuration Utility is a convenient application that helps you to configure the WAP-3000.

Real WAP-3000 Manager	
Frounds, Weth	Wi-Fi
Channel in Use	8
Wireless Security	None
Current Data Rate	11
MAC Address	00-30-4f-00-06-05
Network Name	PLANET
PLANET	Esfresh Egit

Before run the configuration utility, please ensure you have already connected WAP-3000 to you PC or Notebook through the USB cable. When you are configuring, WAP-3000 will stop working. After configuration, please remember to remove the USB cable from WAP-3000. Then it will start to work. Following are details of the configuration options.

Note: When first-time runs the utility, you will see a dialog likes below. That is mean the utility had been install to your OS successfully and working fine.



If your have see the dialog below, please try to check your WAP-3000 is connected to your PC completely. You can try to plug out and in the USB cable from WAP-3000. Windows will detect WAP-3000 again. If the problem still exists, please restart your PC.



3.1 Profiles

3.1.1 Edit Profile -> WiFi

In this dialog box, you can set all the settings of your Wireless LAN needed.

frääten.			<u>1</u>
Setrong Henry (2012)	253334	Harbon Encryption	Non 1
Power Metageneed	F	Active Deg Bit.	101 23
Dels cals	11	Boli	(Transmission)
Chanad	F -	Key 2	press.
Setucal Type	Interiorie	Key J.	FILLING CO.
Sale Type	Access Print	Bort	Trent of
Bearing Laternal	100	Preparent Threshold	2190
Desi Rete	F .	NTE Davehalt	poso
F (mitthematic		T Earlis Churcel A	glay
F Statis Basel By	Artheologian	C	OK Gaud

- Network Name (SSID): The ESSID is a unique ID given to the Access Point.
 Wireless clients associating to the Access Point must have the same SSID.
- Power Management: When this function is enabled, WAP-3000 will enter power saving mode when it is idle.
- Data Rate: Shows the maximum Data Transfer Rate. There are 1 Mbps, 2Mbps, 5.5 Mbps and 11 Mbps can be select.
- Channel: Shows the number of the radio channel used for the network.
- Beacon Interval: Determines at which interval the AP will broadcast it's beacon traffic.
- Basic Rate: It means the least speed this AP will use to connect its clients.
- Enable Shared Key Authentication: With this setting only stations using shared key encryption identified by the Access Point are allowed to associate with it.
- Wireless Encryption: The 11Mbps Wireless Access Point allows you to create up to 4 data encryption keys to secure your data from being eavesdropping by unauthorized wireless user.

To activate and set the WEP keys, do the following:

From the WEP encryption option, pull down the menu and it will list two options:

None - Allows wireless clients communicate with WAP-3000 without any

data encryption.

40-bit – Requires wireless stations to use data encryption with 64 bit WEP algorithm when communicating with the WAP-3000.

- Active key No.: Select which WEP Key will be used.
- Key1~4: You may enter 10 digit hexadecimal values in the range of "A-F", "a-f" and "0-9".
- Fragmentation Threshold: Fragmentation mechanism is used for improving the efficiency when there is high traffic within the wireless network. If you transmit large files in a wireless network, you can enable the Fragmentation Threshold and specify the packet size. The mechanism will split the packet into the packet size you set.
- RTS Threshold: RTS Threshold is a mechanism implemented to prevent the "Hidden Node" problem. "Hidden Node" is a situation in which two stations are within range of the same WAP-3000, but are not within range of each other. Therefore, they are hidden nodes for each other. When a hidden station starts data transmission with the WAP-3000, it might not notice that another station is already using the wireless medium. When these two stations send data at the same time, they might collide when arriving simultaneously at the WAP-3000. The collision will most certainly result in a loss of messages for both stations. Thus, the RTS Threshold mechanism will provide the solution to prevent data collisions. When the RTS is activated, the station and its WAP-3000 will use a Request to Send/Clear to send protocol (RTS/CTS). The station will send an RTS to the WAP-3000, informing that it is going to transmit the data. Upon receipt, the WAP-3000 will respond with a CTS message to all station within its range to notify all other stations to defer transmission. It will also confirm to the requesting station that the WAP-3000 has reserved the channel for transmission.
- Enable Channel Agility: When this function enables, it can automatically switch to another channel to avoid in-band interference from household appliances, such as microwave ovens and cordless phones

3.1.2 Edit Profile -> IP/SNMP

In this dialog box, you can set the IP address to your WAP-3000. And you can set the community for remote SNMP login and access priority.

IP / SNMP Settings					X
DHCP Enabled					
Use This IP Address					
IP Addusss				•	
Default Gateway		,			
Subart <u>M</u> esk					
SNMP					
Community Name - Q	JET				
Community Name - 2	ET		_		11
Community Name - 1	TRAP		_		11
Irap Target					
		OK		Cancel	

- DHCP Enable: If there is a DHCP Server in your LAN, you can enable DHCP function to let WAP-3000 be a client to get an IP address from your DHCP server.
- Use This IP Address: You can set an IP address for your WAP-300 manually.
 Please set the IP Address, Default Gateway, and Subnet Mask to your
 WAP-3000 for the SNMP function to work.
- **SNMP:** You can use SNMP program to check WAP-3000 status.

Community Name – GET: When user login with this community, it just allows the user to see WAP-3000 settings.

Community Name – SET: When user login with this community, it allows the user to modify WAP-3000 settings.

Community Name – TRAP: When user login with this community, it allows the user to get the TRAP information from WAP-3000. You can set this community the same with GET or SET. When user enters this community to login, he can get two functions at the same time.

Trap Target: You can enter an IP address which WAP-3000 will send the Trap information to the destination.

3.2 Help

Click "Help" -> "About...", the following dialog box will be shown. You can know this utility version for this box.



Appendix

This section provides some technology document of IEEE802.11b. Read the description below to know the standards about IEEE802.11b.

✓ What is the IEEE 802.11b standard?

The IEEE 802.11b Wireless LAN standards subcommittee, which is formulating a standard for the industry. The objective is to enable wireless LAN hardware from different manufactures to communicate.

✓ What IEEE 802.11 feature are supported?

The product supports the following IEEE 802.11 functions:

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

✓ 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 WEP?

WEP is Wired Equivalent Privacy, a data privacy mechanism based on a 64/128 bit shared key algorithm, as described in the IEEE 802.11b standard.

Can Wireless products support printer sharing?

Wireless products perform the same function as LAN products. Therefore, Wireless products can work with Netware, Windows NT/2000/XP, or other LAN operating systems to support printer or file sharing.

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 series offer the encryption function (WEP) to enhance security and Access Control. Users can set it up depending upon their needs.

✓ What is DSSS? What is FHSS? And what are their differences?

Frequency-hopping-spread-spectrum (FHSS) uses a narrowband carrier that changes frequency in a pattern that is known to both transmitter and receiver. Properly synchronized, the net effect is to maintain a single logical channel. To an unintended receiver, FHSS appears to be short-duration impulse noise. Direct-sequence

spread-spectrum (DSSS) generates a redundant bit pattern for each bit to be transmitted. This bit pattern is called a chip (or chipping code). The longer the chip, the greater the probability that the original data can be recovered. Even if one or more bits in the chip are damaged during transmission, statistical techniques embedded in the radio can recover the original data without-the need for retransmission. To an unintended receiver, DSSS appears as low power wideband noise and is rejected (ignored) by most narrowband receivers.

What is Spread Spectrum?

Spread Spectrum technology is a wideband radio frequency technique developed by the military for use in reliable, secure, mission-critical communication systems. It is designed to trade off bandwidth efficiency for reliability, integrity, and security. In other words, more bandwidth is consumed than in the case of narrowband transmission, but the trade off produces a signal that is, in effect, louder and thus easier to detect, provided that the receiver knows the parameters of the spread-spectrum signal being broadcast. If a receiver is not tuned to the right frequency, a spread –spectrum signal looks like background noise. There are two main alternatives, Direct Sequence Spread Spectrum (DSSS) and Frequency Hopping Spread Spectrum (FHSS).