



EtherAnt II ***EtherAnt II-LR***

***Flat Panel Antenna with built-in
Wireless Ethernet Adapter***



User's Manual

Version 3.0

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LIMITED WARRANTY

Young Design, Inc. (YDI) warrants that your device is free of defects in material and workmanship for a period of one year after initial purchase. YDI will, in this period of time, repair or replace, any YDI product returned to the factory, freight prepaid.

The YDI warranty covers repairs or replacement (at YDI's option) of the product only. YDI is not responsible for the cost of removal, reinstallation, or shipping to the place of repair. YDI does not extend or modify its warranty period as a result of repair or replacement.

YDI reserves the right to void a warranty and/or make reasonable charges for repair of a unit if the warranty seal is broken or the unit displays evidence of misuse, abuse, or tampering.

YDI is not responsible for damage to any other equipment or property, or any other consequential or incidental damages of any kind, whether based on contract, negligence, or strict liability. Maximum liability shall not in any case exceed the purchase price of the unit.

Warranties give you (the buyer) specific legal rights. You may also have other rights that vary from state to state. This warranty is only extended to purchases made in the United States of America or its possessions.

Special Warranty Notice

The antenna warranty is null and void if any of the following occurs:

1. The product enclosure is opened.
2. The antenna connections are not properly waterproofed.
3. The device is installed improperly or with incorrect connectors.
4. The device is operated outside the recommended DC power specifications.
5. The device is damaged by extreme forces of nature, lightning, or 'Acts of God.'

FCC NOTICE

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment when installed as directed. This equipment should be installed and operated with fix-mounted antennas that are installed such that these antennas will have a minimum of 2 meters of separation distance between the antenna and all persons during normal operation.

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.*

** Note: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.*

These products are labeled with one of the following two FCC ID numbers:

FCC ID: NM5-ETH-ANT, NM5-ETH-ANT-LR

TABLE OF CONTENTS

Section 1 OVERVIEW	1
1.1 DESCRIPTION	1
1.2 ETHERANT II CLIENT ADAPTER FEATURES	2
1.3 ETHERANT II CLIENT ADAPTER KIT	3
Section 2 INSTALLATION	4
2.1 LOCATING THE ETHERANT II	4
2.2 MOUNTING THE ETHERANT II	4
2.3 DC POWER INJECTOR	5
2.4 POWER SUPPLY	5
2.5 AIMING ANTENNA AND CHECKING SIGNAL STRENGTH	5
2.6 HARDWARE SETUP	6
Section 3 THE CLIENT MANAGER	8
3.1 INSTALLATION	8
3.2 SELECTING AN ETHERANT II	9
3.3 GENERAL FEATURES	10
3.4 GENERAL INFORMATION	14
3.5 CONFIGURATION	15
3.6 UTILITIES	19
3.7 REMOVE PROGRAM	21
Section 4 WIZARD MANAGER	22
4.1 USING WIRELESS LINK WIZARD	22

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Section 1

OVERVIEW

1.1 Description

The EtherAnt II™ is an flat panel directional antenna with a built-in wireless Ethernet adapter. The equipment is 802.11b WiFi™ compliant, operates at up to 11 Mbps and features 128-bit WEP and the new Agere WEP-Plus. The EtherAnt II provides efficient outdoor high-speed wireless connectivity for desktop PCs, laptop computers and routers equipped with an Ethernet port.

The EtherAnt II offers the simplest, most efficient 2.4 GHz Wireless Internet access solution for an Ethernet-enabled desktop PC. It will communicate with any Access Points or other wireless client that is 100% WiFi™ compatible. It is ideal for use as a client station device for Wireless Internet applications.

With the wireless client adapter built right into the antenna, there are no complicated hardware configurations or radio frequency (RF) cables. Because the EtherAnt II has the radio built-in, professional antenna installation is not required. Once the EtherAnt II is connected, simply install the Client Manager from the CD-ROM included in the kit and configure the network settings.

Two variations of the EtherAnt II are available. The standard series, the EtherAnt II with an integral 18 dBi gain flat panel antenna, and the EtherAnt II -LR with the addition of an integrated bi-directional fixed amplifier to boost range and improve reception. The antenna housing is waterproof and intended to be a pole or wall-mounted outdoor installation.

For those customers that have multiple PCs on a LAN, a low-cost Cable/DSL router can be used to provide a firewall and NAT for their PCs. Access to the internet can be provided with the reassurance of having the customer's LAN behind a firewall. If a router/firewall is not desired, the EtherAnt II can also be plugged directly into a customer's LAN. The built-in Microrouting feature¹ automatically routes IP packets for up to 250 MAC addresses on the LAN, no special configuration is necessary!

The EtherAnt II does not require that a PC be opened in order to install an interface card provided that the PC has an Ethernet Network Interface card (NIC). Attach the outdoor Ethernet cable included in the kit (plus any optional extension cables) to the EtherAnt II. Plug the Ethernet cable into the DC Power Injector. Connect the built-in Ethernet cable from the DC Power Injector into your computer's 10/100BaseT port, plug in the AC adapter and your hardware installation is complete. Because the EtherAnt II uses the PC's existing Ethernet interface, there are no drivers to install for this device.

1. Firmware 2.01 and higher

The Windows-based Client Manager provides configuration and diagnostic utilities that allow you to see vital information regarding the link between the antenna and the base station. Information such as signal-to-noise ratio, signal strength, and noise level all in dB, provides for efficient installation and aiming of the antenna, as well as troubleshooting link problems.

The EtherAnt II kit includes a 50-foot outdoor-rated Ethernet cable with a weatherproof connector (longer cables are available as an option). By using RJ-45 in-line couplers, you can extend the cable up to 300 feet to connect the EtherAnt II to your network. The WLAN device located in the antenna gets its power from the DC Power Injector which puts DC power onto the Ethernet cable.

The EtherAnt-LR can operate only with an Ethernet cable up to a maximum length of 100 feet between the DC Power Injector and the antenna. Both the EtherAnt II and the EtherAnt II-LR version operate from a 15 VDC power supply. A 110 VAC adapter is included with the EtherAnt II package, and a 110/220 VAC “laptop-type” adapter is included with the EtherAnt II-LR package.

CAUTION: Operating the EtherAnt-LR version with more than 15 VDC will damage it. Operating it with less than 15 VDC will cause improper operation.

1.2 EtherAnt II Client Adapter Features

Key Features

- 802.11b radio, Ethernet Converter and amplifier built into the antenna.
- WiFi™ compatible
- LR models of feature a built-in amplifier and provides the maximum range possible
- Ideal solution for providing Wireless Internet access to distant clients
- Communicates with any WiFi™ compatible Access Point
- Remotely configurable and Manageable based on IP address
- Client Manager shows signal, noise and SNR levels in dB
- Professional installation is not required by FCC Part 15 rules
- Connects directly into PCs without installing device drivers
- Supports direct connection to LANs via built-in Microrouting
- Can be mounted in either vertical or horizontal polarization
- Mounts either to a wall or antenna mast up to 1 3/4 inches in diameter
- DC power for electronics in the antenna are carried up the Ethernet cable
- Flat panel antenna offers 18 dbi gain and 15° beamwidth
- Up to 4.5 Mbps actual throughput
- Transmit power of 2 Watts EIRP and 16 Watts EIRP on –LR model
- FCC Part 15 Certified for license-free operation - 11 channels (USA)
- Antenna is only one inch thick and 14 inches square
- Outdoor rated category 5 Ethernet cable provided (50 feet standard)
- Weatherproof: Designed and rated for outdoor use
- Operating range: -20 C to +50 C

- **Ethernet interface.** The EtherAnt II connects to an existing Ethernet port on the PC, so new driver installation is not required as long as a compatible Ethernet port driver is loaded. Once the EtherAnt II is connected, simply install the Client Manager from the CD-ROM and configure the network settings.
- **18 dBi Gain Antenna.** This high-gain directional antenna provides long-range wireless connectivity.
- **Installation.** Part 15 FCC Certification does not require Professional installation. However, someone who is experienced in installing devices outdoors should do the installation.
- **Ideal for Cable/DSL Routers.** The EtherAnt II plugs into the WAN port on a client router to service a LAN.
- **802.11b compliant.** The EtherAnt II is WiFi™ compatible and will work with any certified 802.11b compatible access point or client station. This includes ORiNOCO Access Points such as the AP500, AP1000, AP2000 and WLAN devices such as the YDI Diamond WLAN Card and YDI USB Antenna.
- **FCC Part 15 certified** for license-free operation.

1.3 EtherAnt II Client Adapter Kit

Each EtherAnt II Client Adapter kit includes the following:

- 18 dBi gain Flat panel directional antenna with built-in radio and Ethernet adapter
- Optional integrated bi-directional amplifier for increased transmit power and receive signal sensitivity for longer range (LR model).
- Ethernet cable with weatherproof antenna connector, (50 feet standard).
- Cat 5 DC Power Injector
- DC Power adapter for 110 VAC
- Sturdy steel wall/mast tilt-bracket mount
- CD-ROM with Client Manager software
- User's Manual

You can also visit <http://www.ydi.com/support/downloads.php> for the latest software and Users' Manual.

Section 2 INSTALLATION



CAUTION

Safety Warning

This antenna/transmitter device must be fixed-mounted on outdoor permanent structures with a separation distance of at least 2 meters from all persons. Users and installers must adhere to the antenna installation instructions and transmitter operating conditions in order to comply with the FCC's RF exposure requirements.

2.1 Locating the EtherAnt II

The most important aspect of setting up the EtherAnt II is its location and aiming. It must have clear, unobstructed line of site between it and the base station antenna or the other wireless device it is talking to. If there are any obstacles in the way, it will not get a reliable wireless connection. The EtherAnt II should be installed outdoors, but can be located in a window if necessary. However, for maximum range and the strongest signal, the EtherAnt II must “see” the base station antenna in order to be connected. If they do not have this clear line of sight (LOS), you will likely not get a wireless connection.

2.2 Mounting the EtherAnt II

The antenna can be mounted either vertically or horizontally polarized using the hardware included with the unit. Refer to the polarization arrow on the back label of the antenna. Please note that both ends of the link must use the same polarization. It can be mounted to a mast or pipe as shown in Figure 2.1 or to a flat surface such as a wall. Note that most omni antennas are vertically polarized and if the EtherAnt II is aimed at one, it must be installed vertically polarized, i.e. with the Polarization arrow up and down.

It is very important that the Ethernet connector on the antenna be properly waterproofed. Ensure that a high quality weather resistant electrical tape and/or other water sealant method is utilized. Silicon sealants are not recommended since they are hard to work with, do not ensure a 100% waterproofing of the connectors and are difficult to remove, if ever necessary.



Figure 2.1 shows the antenna in typical horizontally polarized installation. It must be carefully aimed at the base antenna and be mounted with the same polarization. The housing is sealed to prevent water from entering the antenna. The round connector must also be sealed after it is plugged into the antenna. Be sure to provide strain relief the Ethernet cable as well.

If this EtherAnt II antenna is aimed at a vertically polarized omni-directional or sector base station antenna, it must be mounted vertically polarized using the other mounting stud on the back.

2.3 DC Power Injector

The Cat 5 DC Power Injector is not in a waterproof enclosure and must be protected from the weather. It can be permanently mounted to a surface using the double stick tape found on the back of it.

2.4 Power Supply

The EtherAnt II antenna kit normally comes with a 110VAC power supply that has a standard barrel plug [center pin positive (+) tip and outer ring negative (-)]. (220 VAC power supplies are available as an option.) Although normally provided with a power supply, any power source meeting the following specifications can be used:

EtherAnt II	12-24VDC @ 500 mA	maximum cable length: 300 feet
EtherAnt II-LR	15VDC @ 1300 mA	maximum cable length: 100 feet

CAUTION: Operating the EtherAnt-LR version with more than 15 VDC will damage it. Operating it with less than 15 VDC will cause improper operation.

2.5 Aiming Antenna and Checking Signal Strength

The EtherAnt II has signal strength indicator, which can be monitored by the Client Manager software to help optimize the aiming of the antenna. If you are using an Orinoco or YDI Access Point in your wireless network, you can also use the Link Test capability of the AP Manager software to monitor the signal strength of the Ether Ant II into the base unit.

2.6 Hardware Setup

Perform the following procedures once you have determined the optimal location for the antenna:

- Connect the 6-pin N-male connector of the 50-foot Ethernet cable to the flat panel antenna.
- Use the brackets and screws to mount the flat panel antenna to a pole with a maximum diameter of up to 1 3/4 inches.
- Attach the Ethernet cable from the antenna to the Cat 5 DC Power Injector at port RJ-45 labeled “To ANT.”
- Connect the Ethernet cable labeled “To PC or ROUTER” from the Cat 5 DC Power Injector to your computer or router.



CAUTION

*Always **plug** in the power cord after you connect the Ethernet cable and **always unplug** the power cord before you disconnect the Ethernet cable. Failure to do so may cause damage to the EtherAnt II and/or your computer.*

- Plug the AC Adapter into an AC outlet and connect it to the “DC Power” jack on the Cat 5 DC Power Injector.
- Check that the Power and Ethernet LEDs are lit. For LR models, check that the RX / Power amplifier LED (green) is lit.
- Configure the EtherAnt II Client Adapter using the Client Manager software. (See Section 3 for detailed information.)

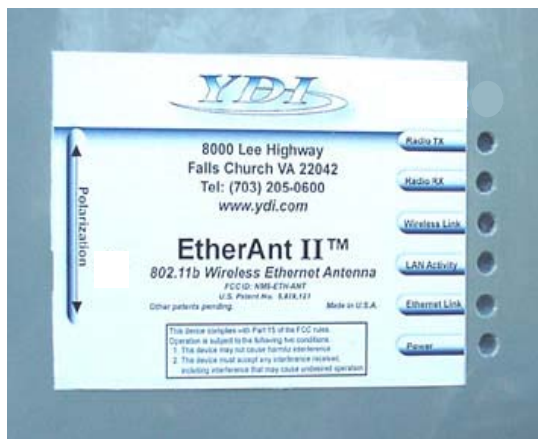


Figure 2.2. EtherAnt II Label and LEDs

Figure 2.2 to the left shows the EtherAnt II label located on the back of the flat panel. LEDs appear to the right that indicate the status of the Radio TX, Radio RX, Wireless Link, LAN Activity, Ethernet Link and Power. LR models have two additional amplifier LEDs. The green LED is for Receive and Power and glows when DC power is applied and the unit is in Receive mode. The red LED is for transmit and glows when the unit is in transmit mode.

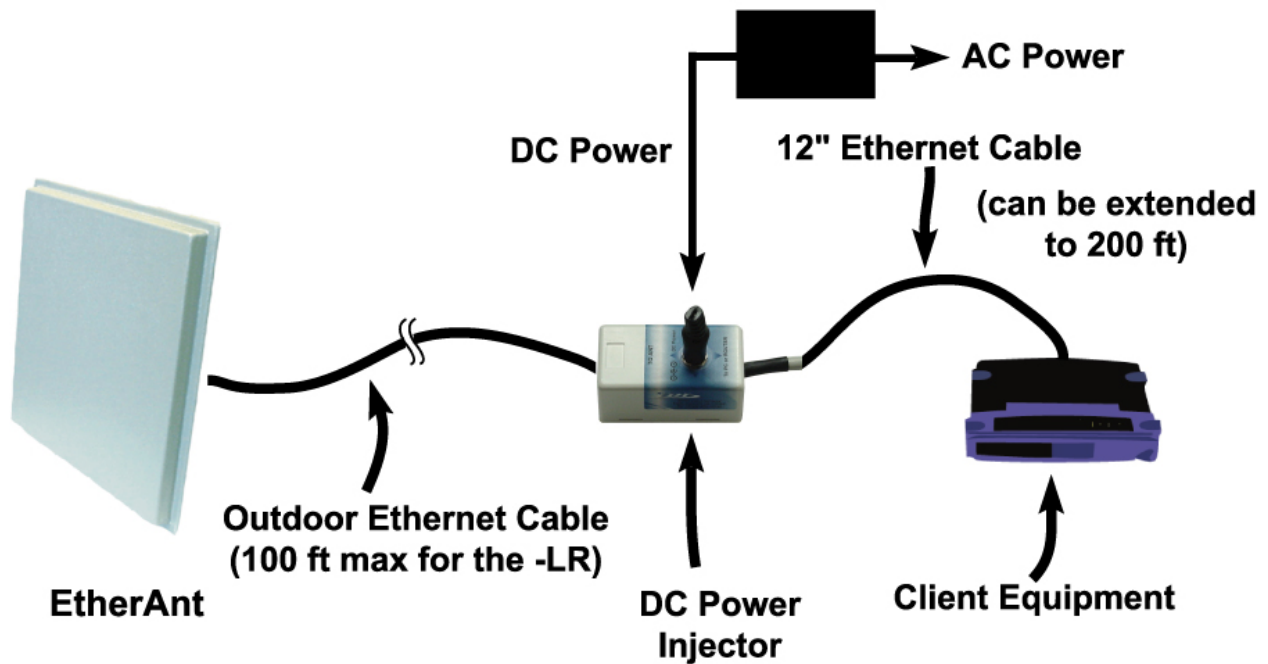
The arrow to the left indicates the polarization of the antenna. Based upon the direction of the arrow, the antenna in this example is vertically polarized.

- EtherAnt II, 50-ft cable, DC Injector, AC Adapter and AC Power Cord



- Typical application

Typical Application



Section 3

THE CLIENT MANAGER

3.1 Installation

The EtherAnt II Client Manager software can be installed on a PC or workstation running Windows 98/ME, 2000, NT, or XP. This software has a GUI (Graphical User Interface), which makes it easy to use. The program allows you to locally or remotely perform the following procedures:

- Display a list of EtherAnt II units running on the local network
- Display and edit the current configuration of the EtherAnt II
- Save and load configurations
- Update the EtherAnt II firmware



CAUTION

NOTE: The Client Manager software communicates with the EtherAnt II using a non-routable protocol. This means that your EtherAnt II units must be accessible on the same subnet as the machine with the Client Manager installed in order to use the software.

Windows Installation. To install the Client Manager in Windows, follow these steps:

1. Insert the CD-ROM included in the EtherAnt II kit into the appropriate drive of your computer. If the Set Up program does not automatically begin, use either *My Computer* or *Windows Explorer* to open the contents of the CD-ROM drive. Select the EtherAnt II directory and run the *Set Up* program. **The latest software and users manual can also be found at: www.vdi.com/downloads.asp.**
2. The **Splash** screen will appear first. Choose **Next** to continue the installation or **Cancel** to terminate.
3. The **Welcome** screen will appear first. Choose **Next** to continue the installation or **Cancel** to terminate.
4. The License Agreement screen will appear. Choose **Yes** to continue the installation. Choosing **No** will terminate the installation.
5. The Destination Folder screen will appear next. You can use the default location or press the **Change** button to specify a different install location. Choose **Yes** to continue the installation. Choosing **No** will terminate the installation.
6. The **Ready to Install the Program** screen will appear displaying the current settings. If you want to review or change any of your installation settings, click **Back**. Once you are satisfied with the settings, click **Install** to begin the installation. You may also click **Cancel** to exit the wizard.

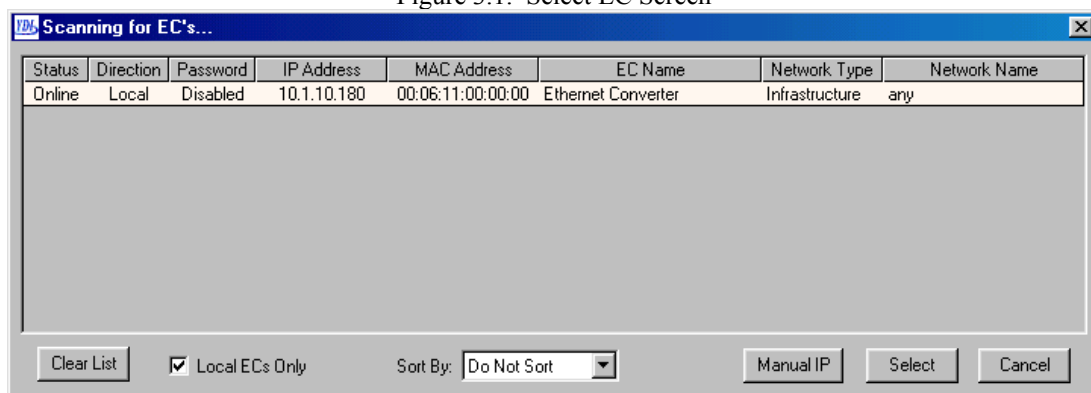
7. The **InstallShield Wizard Completed** screen will appear to indicate successful installation of the Client Manager. Click **Finish** to complete the installation.

3.2 Selecting an EtherAnt II

After completing the Client Manager installation, you are ready to configure your EtherAnt II (commonly referred to as “EC”). Begin at the Windows **Start** menu and choose **Programs**. You should see a folder called **YDI**. Select this folder and click on **Client Manager**.

Select EC – The first screen to appear is the *Select EC* screen shown in Figure 3.1. This screen lists information about any devices associated in your network. If there are no devices listed in the table, then you are not connected. Click on the device you wish to configure. Press the *Select* button and you will be taken to the *General Information* window for that device. The window will automatically update as an EC is discovered. If an EC has been disconnected, the status for the EC will be changed to “Offline.” If any user is logged in to an EC with the Client Manager, the status will change to “Busy” and no other user will be given access to that EC. Once the logged in user logs out, the status will then reflect whether it is online or offline.

Figure 3.1. Select EC Screen



A number of other functions can be performed using the buttons found at the bottom of the screen, as described below.

- Click **Clear List** to clear all ECs from the list. The program will automatically start scanning for devices again.
- The **Local ECs Only** box **will be checked as the default** allowing you to detect only those devices within your local network. If un-checked, the program will extend its search to include all ECs on the network.
- The **Sort By** dropdown menu allows you to list devices by **IP Address, MAC Address, or EC.**
- **Name, Network Type and Network Name.** The default setting for this function is **Do Not Sort.**

- Click **Manual IP** to search for ECs on a specific IP Address that may not have been discovered in the scanning process.
- Click the **Select** button after highlighting the EC you would like to select. You may do this, or double-click the desired EC.
- Press **Cancel** to exit this screen without selecting an EC.

3.3 General Features

This section will discuss the basic menu items in the Client Manager Software. In the *General Information* screen (Figure 3.8), two buttons – *Save Current Settings*, and *Get Current Settings* – are explained below. Also, the four fields at the bottom of each screen of your software, *Host Computer Name*, *Host Computer IP*, *Ethernet Converter Name*, and *Ethernet Converter IP*, will be discussed. Lastly, at the top of your screen, several drop-down menu items are available. They are: *File*, *Edit*, *View*, *Command*, *Tools*, and *Help*.

Save Current Settings

Pressing this button will place all changed parameters into the attached EC.

Get Current Settings

Pressing this button will restore the parameters that are currently saved in the attached EC.

Host Computer Name – This read-only property displays the name of the computer you are using.

Host Computer IP – This read-only property displays the IP address of the computer you are using.

Ethernet Converter Name - This read-only property displays the name of the EC you are currently connected to.

Ethernet Converter IP - This read-only property displays the IP address of the EC you are currently connected to.

File

Scan for ECs – This command will reset the attached EC. Then, the Select EC screen will reappear listing all of the devices you are associated with.

Exit – This command will shut down the Client Manager application.

Edit

Several standard editor commands are available for your use. They are **Undo**, **Cut**, **Copy** and **Paste**.

View

The drop-down menu under **View** lists each of the screens available in the Client Manager. Select the screen you wish to go to and click.

Command

Reset EC – This command will request the attached EC to reset itself.

Tools

Security Features - (Figure 3.2) In this screen, you are able to set a new password, enable password protection and control login dialog. There are two possible passwords that you can define: the Read/Write Password gives users full rights to change the firmware or any configuration parameters. The Read-Only Password allows a user to perform range testing without having permissions to change the configuration, useful for operators or technicians who are not in charge of configuration tasks. The two options for Login Dialog are *Local Configuration* and *Wireless Configuration*. If Local Configuration is checked, the EC can be logged into directly through the Ethernet connection. If the Wireless Configuration is checked the EC can be accessed via a Wireless Connection. At least one of these two boxes must be checked. Click **OK** to save your entries.

Figure 3.2 – Security Features

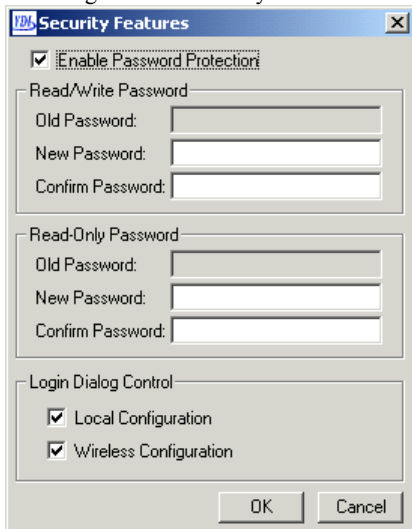
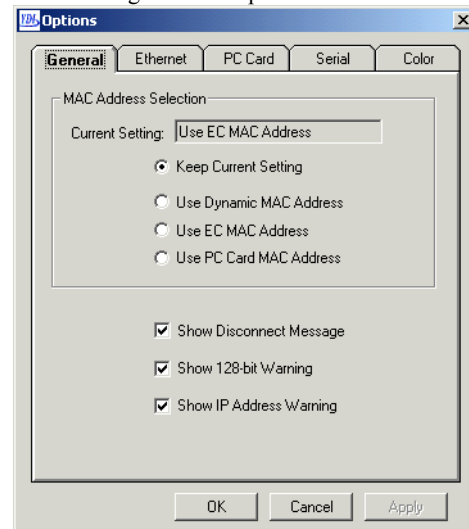
The screenshot shows the 'Security Features' dialog box with a title bar containing the 'IBM' logo and a close button. It has three main sections: 'Enable Password Protection' with a checked checkbox; 'Read/Write Password' with fields for 'Old Password', 'New Password', and 'Confirm Password'; and 'Read-Only Password' with similar fields. A 'Login Dialog Control' section at the bottom has two checked checkboxes: 'Local Configuration' and 'Wireless Configuration'. 'OK' and 'Cancel' buttons are at the bottom right.

Figure 3.3 – Options-General

The screenshot shows the 'Options' dialog box with the 'General' tab selected. It has sub-tabs for 'Ethernet', 'PC Card', 'Serial', and 'Color'. The 'MAC Address Selection' section shows 'Current Setting' as 'Use EC MAC Address' and four radio button options: 'Keep Current Setting' (selected), 'Use Dynamic MAC Address', 'Use EC MAC Address', and 'Use PC Card MAC Address'. Below are three checked checkboxes: 'Show Disconnect Message', 'Show 128-bit Warning', and 'Show IP Address Warning'. 'OK', 'Cancel', and 'Apply' buttons are at the bottom.

Options –

General (Figure 3.3)

MAC Address Selection - This allows you to determine which MAC Address the EC will use for communication. Dynamic MAC Address will use the MAC Address of the most recently received Ethernet frame from the Ethernet port. The EC MAC Address will use the internal MAC Address of the EtherAnt II (this is the default setting). The PC Card MAC Address will use the internal MAC Address of the 802.11(b) PCMCIA Card.

Show Disconnect Message – This option will display a message box when the attached EC has been disconnected.

Show 128-bit Warning – This option will display a message box warning you, when configuring the EC, to use a 128-bit WEP Encryption key.

Show IP Address Warning – This option will display a message box when a user tries to configure an EC for an IP address that is out of the subnet of the Host computer running the Client Manager. The message will be telling the user of this difference in subnets. There are plenty of instances where this is a legal configuration, so the warning message can be turned off by clearing this button.

Ethernet (Figure 3.4)

Ethernet Mode – This option allows you to change the data rate of the local Ethernet port (10 Mbps, Half Duplex is the default setting).

PC Card (Figure 3.5)

PC Card Connection Speed – This option allows you to change the data rate of the EC's internal 802.11(b) PCMCIA Card. The rates available will change according to the distance selected. "Auto" will change the speed of the card "on the fly" as different communication characteristics change (up to 11 Mbps).

Antenna Selection – This option (only available for the Design-In model) allows the user to select which antenna port on the 802.11(b) PCMCIA Card to use.

Figure 3.4 – Options-Ethernet

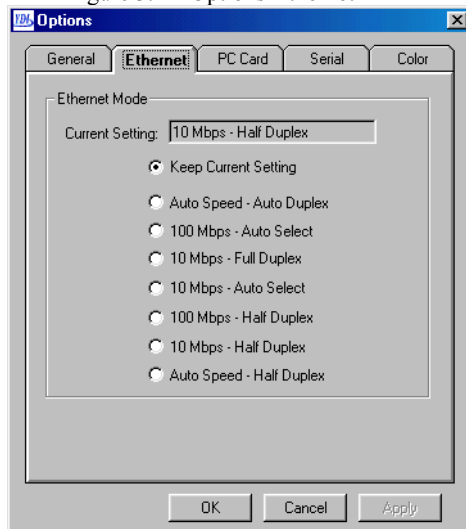
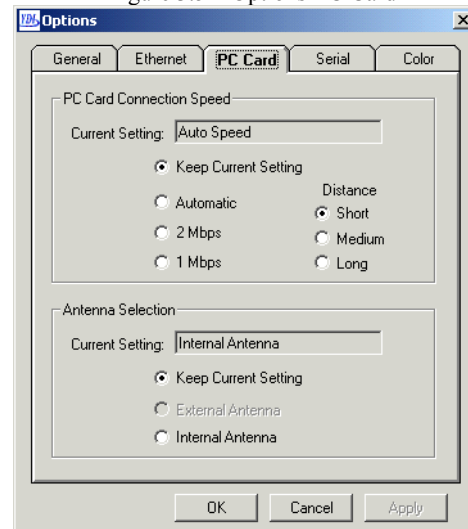


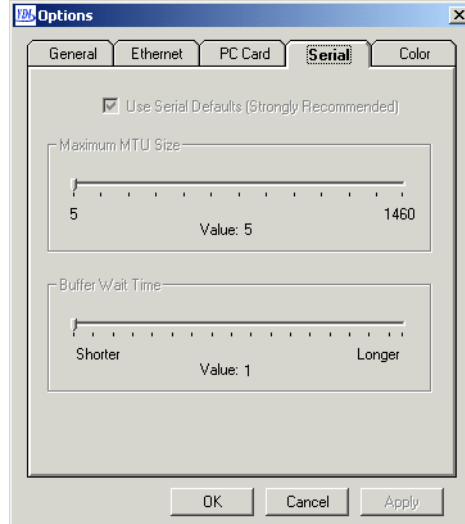
Figure 3.5 – Options-PC Card



Serial (Figure 3.6)

NOTE: Although there is a tab for Serial port settings, the EtherAnt does not use a serial interface. All screens for Serial settings should be ignored since they are not applicable. The Client Manager grays this option out.

Figure 3.6 – Options-Serial (Not Applicable, Ignore)

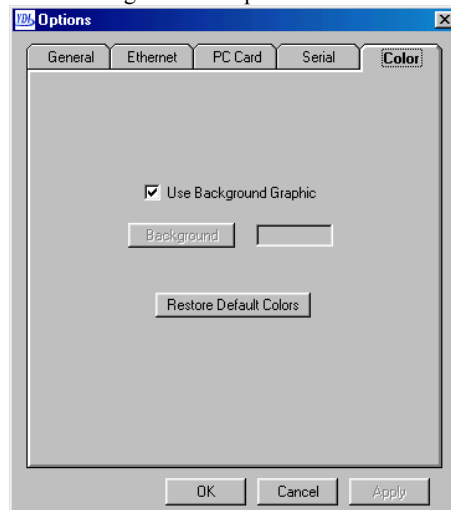


Color (Figure 3.7)

Use Background Graphic - If checked, the Background of the Client Manager will be set to the default color. If un-checked, you may press the *Background* button to choose a custom color.

Restore Default Colors – Press this button to return to the default color setting.

Figure 3.7 – Options-Color



Help

An HTML help file system is part of the Client Manager. This can be invoked following normal Windows standards (F1 or Help->Contents menu item.)

3.4 General Information

General Information - (Figure 3.8) This screen displays specific information pertaining to the network the EC is currently associated with.

Current EC Connection – This read-only property displays whether the EC is currently associated with a network. It will read either *Not Associated*, or *Associated*.

Network Name - This read-only property displays the name of the network that the EC is currently associated with.

Channel ID - This read-only property displays the Channel ID of the network that the EC is currently associated with.

Encryption - This read-only property displays whether the EC currently has Encryption disabled or enabled.

Network Type - This read-only property displays the type of network that the EC is currently associated with.

AP Name/Partner Name - This read-only property displays the name of the 802.11(b) device that the EC is currently associated with. If the attached EC is configured for Infrastructure Mode, the field will read “AP Name”. If configured for Wireless Link Mode, the field will read “Partner Name.” If configured for Peer-to-Peer Mode, this field will not be visible.

Signal Strength – This indicator appears as a horizontal bar that changes color depending on the strength of your signal. Green means an excellent signal; yellow means a good signal; and red means a poor signal. If configured for Peer-to-Peer Mode, this field will not be visible.

The **Serial Number**, **Model Name**, **Firmware Version** and **Manufacturing Date** fields will display this information for the attached EC.

Figure 3.8 - General Information Screen

The screenshot shows the 'Ethernet Converter Client Manager' application window. The 'General Information' tab is selected, displaying various fields for network and device information. The 'Current EC Connection' is 'Associated'. The 'Network Name' is 'AP 500', 'Channel ID' is '1', 'Encryption' is 'Disabled', and 'Network Type' is 'Infrastructure'. The 'AP Name' is 'AP 500'. The 'Signal Strength' is indicated by a green bar. Below these, the 'Serial Number' is 'Z280010161', 'Firmware Version' is '2.00', and 'Manufacturing Date' is '07/15/2002'. The 'Model Name' is 'ZEX105'. At the bottom, the 'Host Computer Name' is 'Zeus Wireless', 'Host Computer IP' is '10.1.10.1', 'Ethernet Converter Name' is 'Ethernet Converter', and 'Ethernet Converter IP' is '10.1.10.180'. The status bar at the bottom shows 'General Information', 'Connected', 'Initialized', '7/17/02', and '3:32 PM'.

General Information	
Current EC Connection: Associated	
Network Name:	AP 500
Channel ID:	1
Encryption:	Disabled
Network Type:	Infrastructure
AP Name:	AP 500
Signal Strength:	
Serial Number:	Z280010161
Firmware Version:	2.00
Manufacturing Date:	07/15/2002
Model Name:	ZEX105
Host Computer Name:	Zeus Wireless
Host Computer IP:	10.1.10.1
Ethernet Converter Name:	Ethernet Converter
Ethernet Converter IP:	10.1.10.180

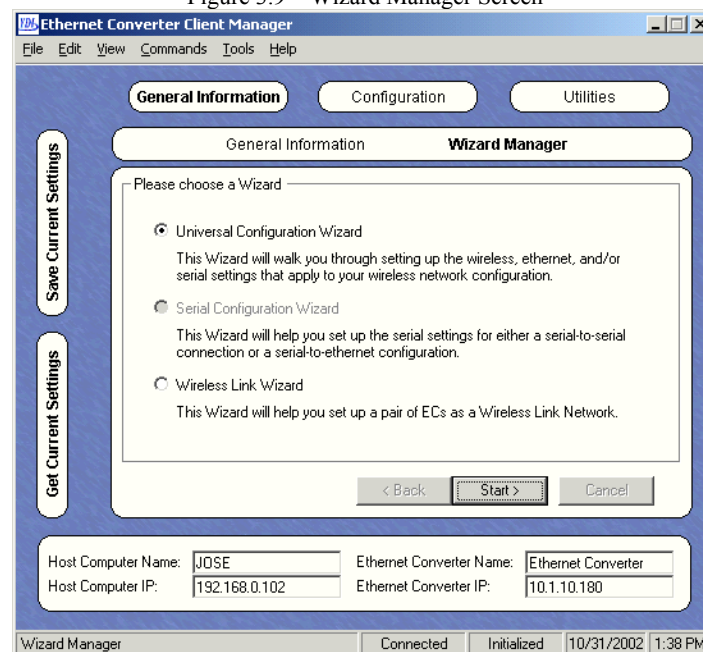
Wizard Manager - (Figure 3.9) This screen allows you to select a specific Wizard that will help you configure displays specific information pertaining to the network the EC is currently associated with. Added a “Universal Wizard” to assist with the automatic configuring of each network topology, Ethernet and serial port settings (depending on the specific mode type).

Universal Configuration Wizard – This Wizard is available in Release 3.0 and above of the Client Manager. This Wizard automates many of the steps required to configure your network topology and Ethernet port settings.

Serial Configuration Wizard – Although there is a Wizard for Serial configuration, the EtherAnt does not use a serial interface. All screens for Serial settings should be ignored since they are not applicable. The Client Manager grays this option out.

Wireless Link Wizard – This Wizard is designed to help you manually configure a pair of Ethernet Converters as a Wireless Link (Bridged) Network. This Wizard will be discussed in detail in *Section 4.1 - Using Wireless Link Wizard*.

Figure 3.9 – Wizard Manager Screen



3.5 Configuration

NOTE: Any updated configuration settings will be retained even when the EtherAnt II is powered off. You can then attach the EtherAnt II unit to another device using the parameters you have already set. That device will not need to have the Client Manager installed because the settings are stored in non-volatile memory of the EtherAnt II.

Ethernet Configuration – (Figure 3.10) This screen allows you to specify the parameters associated with the EC's local Ethernet connection.

Figure 3.10 – Configuration-Ethernet Configuration

The screenshot shows the 'Ethernet Converter Client Manager' window with the 'Configuration' tab selected. The 'Ethernet Configuration' sub-tab is active. The form contains the following fields and options:

- Controller Name: Ethernet Converter
- IP Address: 10.1.10.180
- Subnet Mask: 255.255.255.0
- Gateway: 0.0.0.0
- MAC Address: 00:06:11:00:0E:AB
- ☒ Automatically search for unknown Ethernet Addresses (ARP)
- Default Address: (empty field)

A warning message is displayed: 'Warning: Changing the Ethernet configuration can cause loss of communication to the Ethernet Converter. Verify new settings before saving.'

At the bottom, there are fields for Host Computer Name (JOSE) and Host Computer IP (192.168.0.102), and Ethernet Converter Name (Ethernet Converter) and Ethernet Converter IP (10.1.10.180).

The status bar at the bottom shows 'Ethernet Configuration', 'Connected', 'Initialized', and the date/time '10/31/2002 2:41 PM'.

Controller Name – This field sets a user-friendly name you wish to assign to the EtherAnt II (up to 32 characters).

IP Address – This field sets the IP address used for both local and wireless Ethernet communication.

Subnet Mask – This field sets the Subnet Mask used for both local and wireless Ethernet communication.

Gateway – (router or firewall). This field sets the IP Address of the Gateway. You will need to enter the IP address of your gateway, particularly if you plan to use the EC to access computers or other EtherAnt II units beyond your router or firewall.

MAC Address – This read-only property displays the MAC Address of the EC you are currently connected to.

Automatically Search for Unknown Ethernet Addresses (ARP) – This option allows to turn on/off ARP messages or use a predefined (default) MAC Address for unknown routes. This is useful for the handling of unknown IP packet routes.

Wireless Configuration (Figure 3.11)

Current Profile – This field allows you to select the profile name that identifies the settings for your network. The default setting for this field is *Infrastructure*.

Profile Name – This field represents an arbitrary identifier for each configuration profile you create (up to 32 characters). The value in this field is for convenience in identifying multiple configuration profiles in the Client Manager. You should use a descriptive name that has relevance to your particular network environment. Up to 1000 profiles may be stored within the Client Manager database. This database is preserved when the Client Manager is upgraded.

Figure 3.11. Configuration - Wireless Configuration

The screenshot shows the 'Ethernet Converter Client Manager' window with the 'Configuration' tab selected. The 'Wireless Configuration' sub-tab is active. The 'Current Profile' dropdown is set to 'Default IS Profile'. The 'Profile Name' field contains 'Default IS Profile'. The 'Network Type' dropdown is set to 'Infrastructure'. The 'Network Name' dropdown is set to 'any'. The 'Encryption Enabled' checkbox is unchecked. The 'Host Computer Name' is 'Zeus Wireless' and the 'Host Computer IP' is '10.1.10.1'. The 'Ethernet Converter Name' is 'Ethernet Converter' and the 'Ethernet Converter IP' is '10.1.10.180'. The status bar at the bottom indicates 'Wireless Configuration' is 'Connected' and 'Initialized' on '7/17/02' at '3:36 PM'.

Network Type – This field allows you to select the type of network that you will be connecting to. The options from the drop-down menu are: Infrastructure if you are connecting to an Access Point, Peer-to-Peer if you are setting up an Ad Hoc group or Wireless Link if you are setting up a wireless (bridged) network.

Network Name – This field allows you to enter the Network Name (or ESSID) that is set in your Access Point (AP) or the one that you will use to establish an Ad Hoc group. The Network Name is used to specify a unique IEEE 802.11 wireless network. Wireless stations use the Network Name to associate. Only devices with the same Network Name will associate with each other. Alphanumeric values may be used in this field (up to 32 characters). A Network Name of “Any” may be used in Infrastructure mode to associate with “any” open AP.

Channel ID – This field allows you to set the Channel to use for wireless communication. This field only applies to Peer-to-Peer and Wireless Link modes. When in Infrastructure mode, the EC will automatically scan each channel for the AP.

Partner Name – This field allows you to specify which EC you will be creating a wireless link with. This field only applies to Wireless Link mode.

Distance – This field allows you to set the range of communication between two ECs in a **Wireless Link** environment only. Select *Normal Range* for links less than 12 miles, or *Extended Range* for links greater than 12 miles.

Encryption Enabled – If checked, this allows you to define the encryption keys that the EtherAnt II should use to encrypt and decrypt data that will be transmitted via the wireless interface as shown in Figure 3.12. If not checked, the Encryption function will be disabled.

Figure 3.12 – Encryption Enabled Screen

The screenshot displays the 'Ethernet Converter Client Manager' application window, specifically the 'Wireless Configuration' tab. The interface includes a menu bar (File, Edit, View, Commands, Tools, Help) and three main tabs: General Information, Configuration, and Utilities. The 'Wireless Configuration' tab is active, showing a list of profiles with 'Default IS Profile' selected. Below this, the 'Zeus Wireless' profile is configured. The 'Encryption Enabled' checkbox is checked, and four encryption keys (Key 1 through Key 4) are listed with input fields. A 'Use Key' dropdown menu is also present. The 'Network Type' is set to 'Peer-To-Peer', 'Network Name' is 'any', and 'Channel ID' is 'Channel 1'. At the bottom, the 'Host Computer Name' is 'Zeus Wireless', 'Host Computer IP' is '10.1.10.1', 'Ethernet Converter Name' is 'Ethernet Converter', and 'Ethernet Converter IP' is '10.1.10.180'. The status bar at the bottom indicates 'Wireless Configuration', 'Connected', 'Initialized', and the date/time '7/17/02 3:37 PM'.

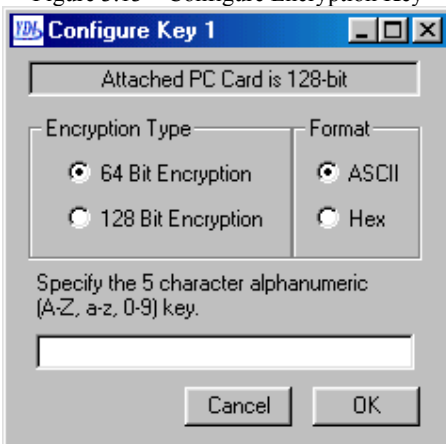
Encryption Keys – These buttons will bring up a configuration window that allows you to set up an encryption key (see Figure 3.13).

Use Key – This field allows you to select which key to use for encryption.

Encryption Type – This field allows you to specify whether to use a 64-bit or a 128-bit encryption key. For a 128-bit encryption key use a 26-character hex key or a 13-character alphanumeric key. For 64-bit encryption key, use a 10 character hex key or a 5 character alphanumeric key.

Encryption Formats – The two formats used to develop encryption keys include hexadecimal or alphanumeric as shown in Figure 3.13. Whichever format you choose, the key that you enter is used in an encryption algorithm to encode the data that you send. Only another wireless card using the same key can decode and receive the data. Hexadecimal values are composed of the NULL character (0x00), 0-9, A-F and a-f. Alphanumeric values are composed of all printable ASCII characters.

Figure 3.13 – Configure Encryption Key



CAUTION

Encryption keys must be the same for *all* wireless stations. If you don't use the right key, you can establish a radio connection with another station on your network, **but you will not be able to send/receive data**. All units must conform to the least common denominator within the entire network.

3.6 Utilities

Diagnostic Utility (Figure 3.14) – The Diagnostic Utility Screen is invaluable for checking the reliability of the radio link. If you are associated with an YDI or ORiNOCO compatible WLAN card in an Access Point or EC, you will also see signal levels of your Partner, typically the Access Point.

Station Name – The name of the EC that you are connected to.

SNR (Signal-to-Noise Ratio) – The ratio measuring the difference between the signal level and the noise level.

Signal Level – This bar-field displays the amount of signal (in decibels) communicated from the Partner EC.

Noise Level – This bar-field displays the amount of ambient interference (in decibels) in the wireless environment.

Partner Name – The name of the EC that you are communicating with.

SNR (Signal-to-Noise Ratio) – The ratio measuring the difference between the signal level and the noise level.

Signal Level – This bar-field displays the amount of signal (in decibels) communicated from the EC you are connected to.

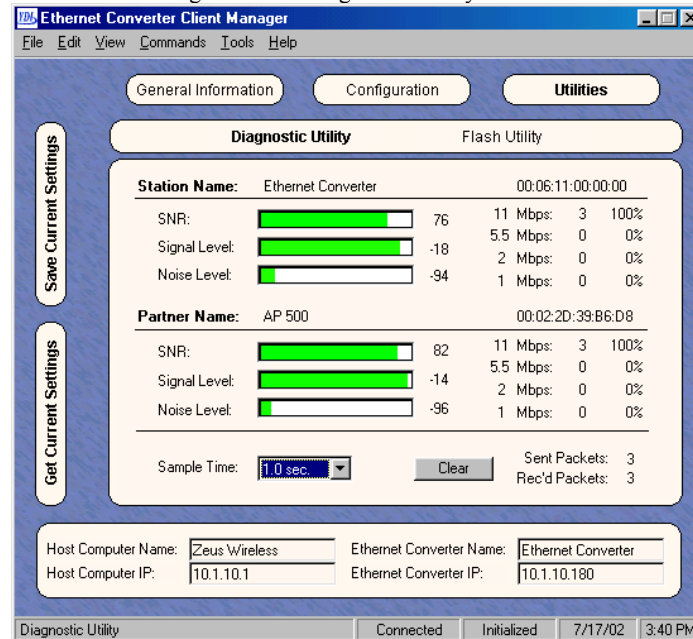
Noise Level – This bar-field displays the amount of ambient interference (in decibels) in the wireless environment.

Sample Time – This field sets the time interval between diagnostic readings.

Clear – Clicking this button will clear the statistics displayed on the screen.

As diagnostic packets are received, the diagnostic utility screen will update the number of successfully received packets at each specified rate.

Figure 3.14 – Diagnostic Utility Screen



These signal levels are also very useful for aiming the antenna. Adjust the aim such that you get the best signal strength with the highest possible Signal-to-Noise Ratio (SNR). The signal levels appear as horizontal bars that change colors depending on the strength of your signal. Green means an excellent signal; yellow means a good signal; and red means a poor signal.

If the Partner is an amplified base station, the weakest link will be the SNR of your signal into it.

NOTE: The signal level information will only appear in the Partner's section of the screen if you are communicating with a device with an Agere or YDI Diamond WLAN card in it (such as an EC, AP 500, AP 1000, AP 2000, etc.).

Flash Utility (Figure 3.15)

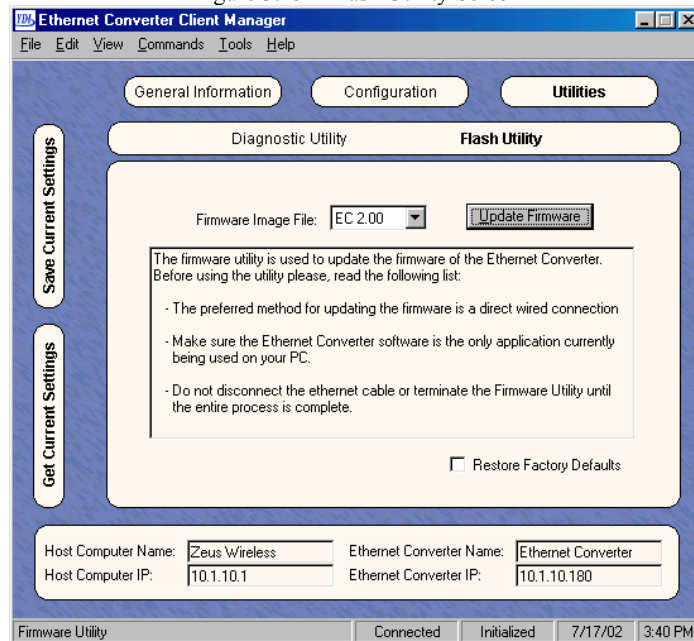
Firmware Image File – This field will display all available firmware images that are located in the ImageData folder, which can be found in the Install directory of the Client Manager. The most recent firmware image will be automatically selected.

Restore Factory Defaults – If checked, this box will replace any changes made by the user with the defaults programmed from the factory.

Periodically, new firmware will be available for this device. When it is available, the **Flash Utility Screen** is used to load the new firmware. Simply follow the instructions in the center of the screen, and they will guide you through this process.

The latest firmware can be found at: www.ydi.com/support/downloads.php . (Firmware and Client Manager software are distributed together to ensure synchronized capability and features for smoother operation.

Figure 3.15 – Flash Utility Screen



3.7 Remove Program

Prior to installing a newer version of the Client Manager program, you will need to remove any older versions. Follow these steps:

- Under the *Start* button on your desktop, go to *Settings*
- Click on *Control Panel*
- Choose *Add/Remove Programs*
- Select *Client Manager*
- The software will un-install itself.

Section 4

WIZARD MANAGER

4.1 Using Wireless Link Wizard

In the Wizard Manager, found in *General Information*, click the *Wireless Link Wizard* box. An information screen will be displayed. Clicking “Next” takes you to the configuration page (see Figure 3.16). For a description of each of the parameters on this screen, please see *Section 3.5 – Configuration* and the sub-section *Wireless Configuration*.

1. *Profile Name*: Enter a descriptive name for your network (up to 32 characters long)
2. *Bridge 1 Name*: Enter a descriptive name for the EC you are currently connected to (up to 32 characters long)
3. *Bridge 2 Name*: Enter a descriptive name for the Partner EC (up to 32 characters long)
4. *Network Name*: Enter a descriptive name for your network. Usually, this will be the same as the Profile Name (up to 32 characters long)
5. *Channel ID*: Choose a channel the network will be communicating on. Select an unused channel number if multiple 802.11 Networks exist in the same geographical area.
6. *Distance*: For longer distances (greater than 12 miles), select “Extended Range,” otherwise select “Normal Range.” Using the “Extended Range” will result in slower data rates.
7. *Encryption Enabled*: To create a more secure link, you may wish to enable encryption by checking this box. Once enabled, you must enter at least one key to use for encrypting and decrypting data.

Once these parameters have been defined, click the “Finish” button to begin programming the EC that you are connected to. After the EC has been programmed, the *Select EC* box will reappear. Choose the EC that you wish to configure as the Partner in your Wireless Link network. The Client Manager will automatically configure the Partner EC.

Figure 3.16 – Wireless Link Wizard

The screenshot shows the 'Ethernet Converter Client Manager' window with the 'Wizard Manager' tab selected. The 'General Information' sub-tab is active, displaying the 'Configure Wireless Link Profile' form. The form includes fields for Profile Name, Bridge 1 Name (pre-filled with 'Ethernet Converter'), Bridge 2 Name, Network Name, Channel ID (set to 'Channel 1'), and Distance (set to 'Normal Range'). There is an 'Encryption Enabled' checkbox and a section for entering four keys (Key 1 through Key 4) and a 'Use Key' dropdown. Navigation buttons '< Back', 'Finish', and 'Cancel' are at the bottom. A status bar at the very bottom shows 'Connected', 'Initialized', the date '7/17/02', and the time '3:40 PM'.

Host Computer Name:	Zeus Wireless	Ethernet Converter Name:	Ethernet Converter
Host Computer IP:	10.1.10.1	Ethernet Converter IP:	10.1.10.180



UNI-POP



EX-1



Amps & Antennas



WIPOP-In-A-Box



Bandwidth Control Unit



EtherAnt II, EtherAnt II-LR

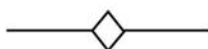


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