# D-Link *Air*Plus Xtreme<sup>™</sup>G **DWL-G800AP**

802.11g Wireless Range Extender

## **Manual**



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**Package Contents** 



### **Contents of Package:**

- D-Link *Air*Plus Xtreme G<sup>™</sup> DWL-G800AP 802.11g Wireless Range Extender
- Power Adapter-DC 5V, 2.5A
- Manual and Warranty on CD
- Quick Installation Guide

If any of the above items are missing, please contact your reseller.

Note: Using a power supply with a different voltage rating than the one included with the DWL-G800AP will cause damage and void the warranty for this product.

### **System Requirements for Configuration:**

- Computers with Windows, Macintosh, or Linux-based operating systems with an installed Ethernet adapter
- Internet Explorer Version 6.0 or Netscape Navigator Version 6.0 and Above

## Introduction

At up to fifteen times the maximum wireless signal rate of previous wireless devices (up to 108Mbps\* in Super G mode), you can work faster and more efficiently, increasing productivity. With the DWL-G800AP, bandwidth-intensive applications like graphics or multimedia will benefit significantly because large files are able to move across the network quickly.

The D-Link *Air*Plus Xtreme<sup>™</sup> G DWL-G800AP Wireless Range Extender is an enhanced 802.11g high-performance, wireless device. It is an ideal way to extend the reach and number of computers connected to your wireless network.

The DWL-G800AP can act as an access point or a wireless repeater. In repeating mode, the DWL-G800AP repeats the wireless signal of D-Link AirPlus Xtreme<sup>TM</sup> G access points and wireless routers to extend the range of your wireless network.

Unlike most 802.11g devices, the DWL-G800AP is capable of data transfer rates up to 108Mbps\* when used with other D-Link *Air*Plus Xtreme<sup>™</sup> G products such as the DWL-G520 Wireless PCI Adapter, DWL-G650 Wireless Cardbus Adapter, and the DI-624 Wireless Router.

The DWL-G800AP is compatible with most popular operating systems, including Macintosh, Linux and Windows, and can be integrated into a large network.

The DWL-G800AP has the newest, strongest and most advanced security features available today. When used with other 802.11 WPA (Wi-Fi Protected Access) and 802.1x compatible products in a network with a RADIUS server, the security features include:

WPA: Wi-Fi Protected Access which authorizes and identifies users based on a secret key that changes automatically at regular intervals. WPA uses TKIP (Temporal Key Integrity Protocol) to change the temporal key every 10,000 packets (a packet is a kind of message transmitted over a network.) This ensures much greater security than the standard WEP security. (By contrast, the previous WEP encryption implementations required the keys to be changed manually.)

**802.1x:** Authentication which is a first line of defense against intrusion. In the authentication process, the Authentication Server verifies the identity of the client attempting to connect to the network. Unfamiliar clients would be denied access.

For home users that will <u>not</u> incorporate a RADIUS server in their network, the security for the DWL-G800AP, used in conjunction with other WPA-compatible 802.11 products, will still be much stronger than ever before. Utilizing the **Pre-Shared Key mode** of WPA, the DWL-G800AP will obtain a new security key every time it connects to the 802.11 network. You only need to input your encryption information once in the configuration menu. No longer will you have to manually input a new WEP key frequently to ensure security. With the DWL-G800AP, you will automatically receive a new key every time you connect, vastly increasing the safety of your communication.

\*Maximum wireless signal rate derived from IEEE Standard 802.11g specifications. Actual data throughput will vary. Network conditions and environmental factors lower actual data throughput rate.

## **Connections**





LED stands for Light-Emitting Diode. The DWL-G800AP Wireless Range Extender has 2 LEDs as shown below:



## **Features and Benefits**

- Extends the range of your wireless network.
- Up to 5X Faster with D-Link AirPlus Xtreme™ G Products high-speed wireless data transfer rates up to 54Mbps. With increased data rate and capacity, the DWL-G800AP delivers media rich content such as digital images, videos, and MP3 files much faster than standard 802.11b networks.
- Fully 802.11b Compatible Fully compatible with the IEEE 802.11b standard and interoperable with all existing 802.11b compliant devices.
- Easy setup with the setup wizard.
- Web-based interface for Managing and Configuring Easy-to-use interface independent of the operating system.
- 2 Different Operation Modes Capable of operating in Access Point or Repeater mode. In Repeater mode the DWL-G800AP will extend your existing wireless network up to 328 feet when used with the D-Link AirPlus Xtreme G DI-624 Enhanced Wireless Router-Firmware 2.37 or newer (Rev.C); as well as other 802.11g and 802.11b standards-compliant routers and access points.
- Auto-MDI/MDIX Ethernet port.

## **Wireless Basics**

D-Link wireless products are based on industry standards to provide easy-to-use and compatible high-speed wireless connectivity within your home, business or public access wireless networks. D-Link wireless products will allow you access to the data you want, when and where you want it. You will be able to enjoy the freedom that wireless networking brings.

A wireless local area network (WLAN) is a computer network that transmits and receives data with radio signals instead of wires. WLANs are used increasingly in both home and office environments, and public areas such as airports, coffee shops and universities. Innovative ways to utilize WLAN technology are helping people to work and communicate more efficiently. Increased mobility and the absence of cabling and other fixed infrastructure have proven to be beneficial for many users.

Wireless users can use the same applications they use on a wired network. Wireless adapter cards used on laptop and desktop systems support the same protocols as Ethernet adapter cards.

People use WLAN technology for many different purposes:

**Mobility** - Productivity increases when people have access to data in any location within the operating range of the WLAN. Management decisions based on real-time information can significantly improve worker efficiency.

**Low Implementation Costs** - WLANs are easy to set up, manage, change and relocate. Networks that frequently change can benefit from WLANs ease of implementation. WLANs can operate in locations where installation of wiring may be impractical.

**Installation and Network Expansion** - Installing a WLAN system can be fast and easy and can eliminate the need to pull cable through walls and ceilings. Wireless technology allows the network to go where wires cannot go - even outside the home or office

**Inexpensive Solution** - Wireless network devices are as competitively priced as conventional Ethernet network devices.

**Scalability** - WLANs can be configured in a variety of ways to meet the needs of specific applications and installations. Configurations are easily changed and range from Peer-to-Peer networks suitable for a small number of users to larger Infrastructure networks to accommodate hundreds or thousands of users, depending on the number of wireless devices deployed.

## Wireless Basics (continued)

The DWL-G800AP is compatible, in default mode, with the following wireless products:

- D-Link AirPlus Xtreme G<sup>™</sup>DWL-G650 Wireless Cardbus Adapters used with laptop computers
- D-Link AirPlus Xtreme G<sup>™</sup> DI-624-Firmware 2.37 or newer (Rev.C) Wireless Router
- The DWL-G800AP is also interoperable with other 802.11g and 802.11b standards-compliant devices.

#### **Standards-Based Technology**

The DWL-G800AP Wireless Range Extendert utilizes the **802.11b** and the **802.11g** standards.

The IEEE **802.11g** standard is an extension of the **802.11b** standard. It increases the data rate up to 54 Mbps within the 2.4GHz band, utilizing **OFDM technology.** 

This means that in most environments, within the specified range of this device, you will be able to transfer large files quickly or even watch a movie in MPEG format over your network without noticeable delays. This technology works by transmitting high-speed digital data over a radio wave utilizing **OFDM** (**O**rthogonal **F**requency **D**ivision **M**ultiplexing) technology. **OFDM** works by splitting the radio signal into multiple smaller sub-signals that are then transmitted simultaneously at different frequencies to the receiver. **OFDM** reduces the amount of **crosstalk** (interference) in signal transmissions. The D-Link DWL-G800AP will automatically sense the best possible connection speed to ensure the greatest speed and range possible.

## **Wireless Basics** (continued)

### **Installation Considerations**

The D-Link *Air*Plus Xtreme G<sup>™</sup> DWL-G800AP lets you access your network, using a wireless connection, from virtually anywhere within its operating range. Keep in mind, however, that the number, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. Typical ranges vary depending on the types of materials and background RF (radio frequency) noise in your home or business. The key to maximizing wireless range is to follow these basic guidelines:

- 1 Keep the number of walls and ceilings between the DWL-G800AP and other network devices to a minimum - each wall or ceiling can reduce your DWL-G800AP's range from 3-90 feet (1-30 meters.) Position your devices so that the number of walls or ceilings is minimized.
- 2 Be aware of the direct line between network devices. A wall that is 1.5 feet thick (.5 meters), at a 45-degree angle appears to be almost 3 feet (1 meter) thick. At a 2-degree angle it looks over 42 feet (14 meters) thick! Position devices so that the signal will travel straight through a wall or ceiling (instead of at an angle) for better reception.
- 3 Building materials can impede the wireless signal a solid metal door or aluminum studs may have a negative effect on range. Try to position wireless devices and computers with wireless adapters so that the signal passes through drywall or open doorways and not other materials.
- Keep your product away (at least 3-6 feet or 1-2 meters) from electrical devices or appliances that generate RF noise.

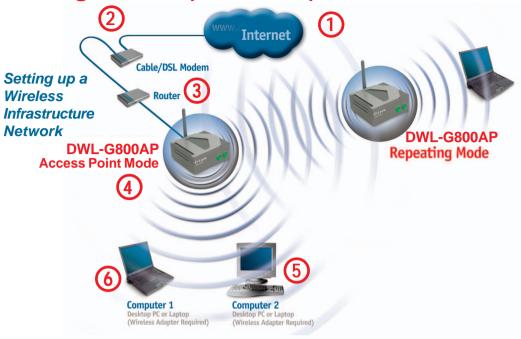
## **Getting Started**

On the following pages we will show you an example of an **Infrastructure Network** incorporating the DWL-G800AP.

An **Infrastructure** network contains an access point or a wireless router. The **Infrastructure Network** example shown on the following page contains the following D-Link network devices (your existing network may be comprised of other devices):

- 2 wireless range extenders -(one is used as an access point and the other as a repeater)
  D-Link AirPlus Xtreme™ G DWL-G800AP
- A wireless router D-Link AirPlus Xtreme™G DI-624-Firmware 2.37 or newer (Rev.C)
- A laptop computer with a wireless adapter -D-Link AirPlus Xtreme™ G DWL-G650
- A desktop computer with a wireless adapter -D-Link AirPlus Xtreme™ G DWL-G520
- A cable modem D-Link DCM-201

**Getting Started (continued)** 



Please remember that **D-Link AirPlus Xtreme**<sup>™</sup>**G** wireless devices are pre-configured to connect together, right out of the box, with their default settings.

For a typical wireless setup at home (as shown above), please do the following:

- You will need broadband Internet access (a cable or DSL-subscriber line into your home or office).
- Consult with your cable or DSL provider for proper installation of the modem.
- Connect the cable or DSL modem to the DI-624 router. (See the printed Quick Installation Guide included with your router.)
- Connect the router to the DWL-G800AP. (See the printed Quick Installation Guide included with the DWL-G800AP.)
- If you are connecting a desktop computer to your network, install the D-Link

  AirPlus Xtreme™ G DWL-G520 wireless PCI adapter into an available PCI slot on
  your desktop computer.

  (See the printed Quick Installation Guide included with the network adapter.)
- Install the D-Link DWL-G650 wireless cardbus adapter into a laptop computer. (See the printed Quick Installation Guide included with the DWL-G650.)

## **Using the Configuration Menu**

After you have completed the *Setup Wizard* (please see the *Quick Installation Guide* that came with the product) you can access the *Configuration* menu at any time by opening the Web browser and typing in the IP address of the DWL-G800AP. The DWL-G800AP default IP address is shown below:

- Open the Web browser
- Type in the **IP address** of the DWI -G800AP



Note: if you have changed the default IP address assigned to the DWL-G800AP, make sure to enter the correct IP address.

- Type admin in the User name field
- Leave the Password blank. (However, if you have changed the password, please enter the correct password.)
- Click OK



#### Home > Wizard

The Home>Wizard screen will appear. Please refer to the Quick Installation Guide for more information regarding the Setup Wizard.



#### Network



LAN IP-

Dynamic IP Address- Select this option to receive a dynamic IP address from the DHCP server on your network.

Static IP Address-

Assign a static IP address to the DWL-G800AP. This selection is recommended for ease of network configuration.

IP Address-

When Static IP Address is selected, you will input the static IP address of the DWL-G800AP into this field. The IP address must be within the range of the IP addresses in your network.

Subnet Mask-

Enter the subnet mask.

Gateway-

Enter the IP address of the router in the network.

**Apply-**

Click **Apply** to save the changes.

#### **Operating Mode -**

AP Mode-Select this mode to use the DWL-G800AP as an access point.

Repeater-Repeater is the default setting. Use this setting to repeat the wireless signal of a D-Link access point.

#### AP Name -

You can rename your DWL-G800AP, especially if you have more than one access point on your network. (Available only in AP mode.)

## SSID (Service Set Identifier) -

The name designated for a specific wireless local area network (WLAN).

#### Wireless > Repeater



**Site Survey -** Click **Site Survey** to receive a list of networks that are available for connection. Please see the screen on the following pages for more information on this feature.

**Channel -** Select the channel from the pulldown menu. All devices on the network must share the same channel to communicate. (Available only in AP mode.)

Authentication - Open System - Communicates the key across the network.

Shared Key - Devices must have identical WEP settings to communicate.

**WEP** - Select **Enable Encryption** to use **WEP** (Wired Equivalent **P**rivacy) on the network. All devices on the network, including the access point, must share the same WEP selection - either **Enable** or **Disable**.

**WEP Encryption -** Select either 64- or 128-bit length.

**WEP Mode -** Select **ASCII** or **Hexadecimal** mode and then input the appropriate digits or letters into each Key field. You can create up to 4 keys. Select the key you wish to use.

**Hexadecimal** digits consist of the numbers 0-9 and the letters A-F **ASCII** (American Standard Code for Information Interchange) is a code for representing English letters as numbers from 0-127

**TX Rates** - Select the transmission rate for the network.

Apply - Click Apply to save the changes.

Click **Site Survey** in the **Wireless** configuration screen displayed on the previous page.

#### Wireless Repeater>Site Survey



The DWL-G800AP will scan the network. Please wait a few seconds for this process to complete.

The Site Survey displays the features of each available network as follows:

**BSSID-** Basic Service Set Identifier is the 48-bit MAC address of the wireless interface of the access point.

SSID- Service Set Identifier is a 32-character name that differentiates one WLAN from another. All devices connecting to a specific WLAN must use the same SSID.

**WEP-Yes** in this column indicates that **WEP** is enabled on the network.

#### **Site Survey Completed**



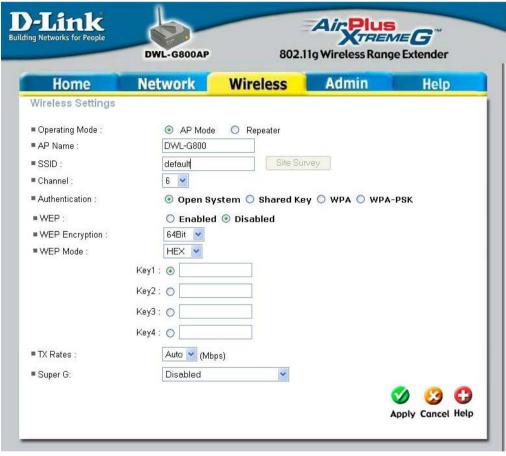
Channel- Displays the Channel the network is using.

Connect- Select the network to which you wish to connect and click Connect.

Exit- Click to exit the site survey function.

The information shown here allows you to select a network to join, or gives you the information you need to configure your DWL-G800AP for a connection to a specific network.

#### Wireless > Access Point



#### **Operating Mode -**

AP Mode-Select this mode to use the DWL-G800AP as an access point. Repeater-Repeater is the default setting. Use this setting to repeat the wireless signal of a D-Link access point.

#### AP Name -

You can rename your DWL-G800AP, especially if you have more than one access point on your network.

#### SSID (Service Set Identifier) -

The name designated for a specific wireless local area network (WLAN).

**Site Survey -** Click **Site Survey** to receive a list of networks that are available for connection. Please see the screen on the following pages for more information on this feature.

#### Wireless > Access Point (continued)

**Channel -** Select the channel from the pulldown menu. All devices on the network must share the same channel to communicate.

#### **Authentication -**

Open System - Communicates the key across the network.

Shared Key - Devices must have identical WEP settings to communicate.

WPA - Wi-Fi Protected Access which authorizes and identifies users based on a secret key that changes automatically at regular intervals. WPA uses TKIP (Temporal Key Integrity Protocol) to change the temporal key every 10,000 packets (a packet is a kind of message transmitted over a network.) This ensures much greater security than the standard WEP security. (By contrast,

to be changed manually.)

WPA-PSK-

For home users that will <u>not</u> incorporate a RADIUS server in their network, the security for the DWL-G800AP, used in conjunction with other WPA-compatible 802.11 products, will still be much stronger than ever before. Utilizing the **Pre-Shared Key mode** of WPA, the DWL-G800AP will obtain a new security key every time it connects to the 802.11 network. You only need to input your encryption information once in the configuration menu. No longer will you have to manually input a new WEP key frequently to ensure security. With the DWL-G800AP, you will automatically receive a new key every time you connect, vastly increasing the safety of your communication.

the previous WEP encryption implementations required the keys

**WEP** - Select **Enable Encryption** to use **WEP** (Wired Equivalent Privacy) on the network. All devices on the network, including the access point, must share the same WEP selection - either **Enable** or **Disable**.

WEP Encryption - Select either 64- or 128-bit length.

**WEP Mode -** Select **ASCII** or **Hexadecimal** mode and then input the appropriate digits or letters into each Key field. You can create up to 4 keys. Select the key you wish to use.

**Hexadecimal** digits consist of the numbers 0-9 and the letters A-F **ASCII** (American Standard Code for Information Interchange) is a code for representing English letters as numbers from 0-127

TX Rates - Select the transmission rate for the network.

#### Wireless > Access Point (continued)

**Super G Mode-** Super G is a group of performance enhancement features that increas end user application throughput in an 802.11g network. Super G is backwards compatible to standard 802.11g devices. For top performance, all wirelss devices on the network should be Super G capable. Select either Disabled, Super G without Turbo, Super G with Dynamic Turbo, or Super G with Static Turbo.

**Disabled-** Standard 802.11g support, no enhanced capabilities.

#### Super G without Turbo-

Capable of Packet Bursting, FastFrames, Compression, and no Turbo mode.

#### **Super G with Dynamic Turbo-**

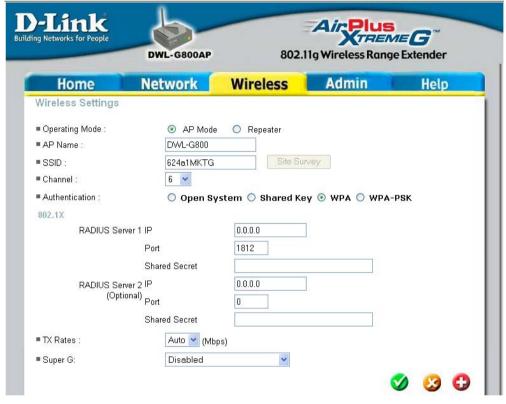
Capable of Packet Bursting, FastFrames, Compression, and Dynamic Turbo. This setting is backwards compatible with non-Turbo (legacy) devices. Dynamic Turbo mode is only enabled when all devices on the wireless network are configured with Super G with Dynamic Turbo enabled.

#### Super G with Static Turbo-

Capable of Packet Bursting, FastFrames, Compression, and Static Turbo. This setting is not backwards compatible with non-Turbo (legacy) devices. Static turbo mode is always on and is only enabled when all the devices on the wireless network are configured with Super G with Static Turbo enabled.

Apply - Click Apply to save the changes.

#### Wireless > Access Point>WPA



When you select WPA in the Wireless configuration window, you will configure the following:

RADIUS Server 1 IP- Enter the IP address of the RADIUS server in your network.

Port- Enter the port dedicated to the RADIUS server.

**Shared Secret-** Enter the secret word that devices on the network will input into their wPA configuration.

RADIUS Server 2 IP (Optional)- If there are two RADIUS servers in your network you will need to fill out these fields, as above.

TX Rates- Select the transmission rate from the pulldown menu.

**Super G-** Please refer to page 19 for information about this field.

#### Wireless>Access Point>WPA-PSK



When you select WPA-PSK in the Wireless configuration window, you will configure the following:

**Passphrase-** Enter the Passphrase that all devices on the network will share in order to use the security features of WPA-PSK.

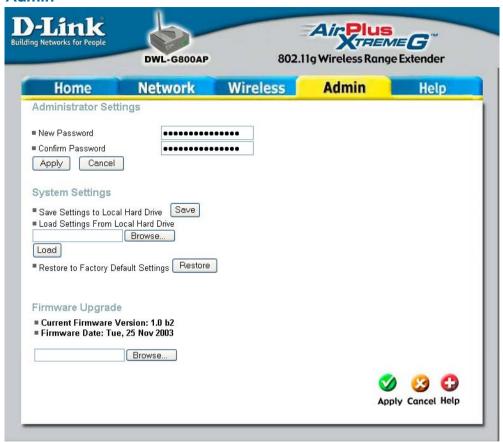
**Confirmed Passphrase-** Enter the passphrase again to confirm.

TX Rates- Select the transmission rate from the pulldown menu.

**Super G-** Please refer to page 19 for information on this field.

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#### **Admin**



**Administrator Settings -** Change your password in this window. Re-enter the new password to confirm. It can be up to 14 characters in length. Please keep a copy of your password in a safe place.

Click **Apply**, if you have made any changes.

**System Settings -** The current system settings can be saved as a file onto the local hard drive by clicking **Save**. The saved file can be loaded back on the DWL-G800AP by clicking **Browse**. When you have selected the settings file, click **Load**.

Click **Restore** to return to **Factory Default Settings**.

**Firmware Upgrade -** Upgrade the firmware for the DWL-G800AP. Find upgrades to the firmware on the D-Link website at <a href="http://support.dlink.com">http://support.dlink.com</a>. After you have downloaded a firmware upgrade to your local drive, click **Browse.** Select the firmware and click **Apply** to complete the upgrade. **Do not upgrade firmware from a computer with a wireless connection. Doing so may damage the device.** 

Apply - Click Apply if you have made any changes.

#### Help



The **Help** window displays information about each section in the Configuration menu. When you change the settings in the Configuration menu, you will need to restart the DWL-G800AP for the changes to take effect.

## **Networking Basics**

#### Using the Network Setup Wizard in Windows XP

In this section you will learn how to establish a network at home or work, using **Microsoft Windows XP.** 

Note: Please refer to websites such as <a href="http://www.homenethelp.com">http://www.homenethelp.com</a> and <a href="http://www.microsoft.com/windows2000">http://www.microsoft.com/windows2000</a> for information about networking computers using Windows 2000/Me/98SE.

Go to Start>Control Panel>Network Connections
Select Set up a home or small office network



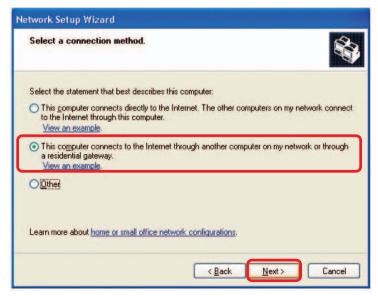
When this screen appears, click Next.

Please follow all the instructions in this window:



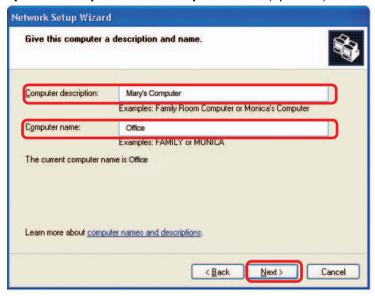
#### Click Next.

In the following window, select the best description of your computer. If your computer connects to the Internet through a router, select the second option as shown.



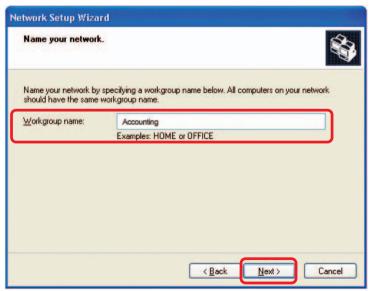
#### Click Next.

Enter a Computer description and a Computer name (optional.)



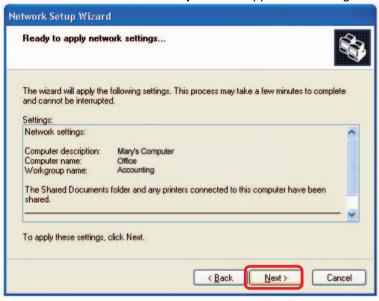
Click Next.

Enter a **Workgroup** name. All computers on your network should have the same **Workgroup** name.



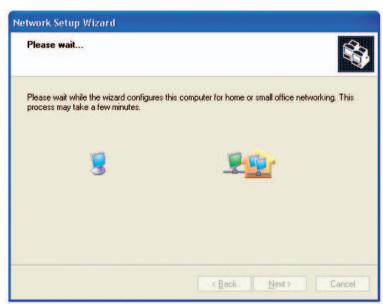
Click Next.

Please wait while the **Network Setup Wizard** applies the changes.

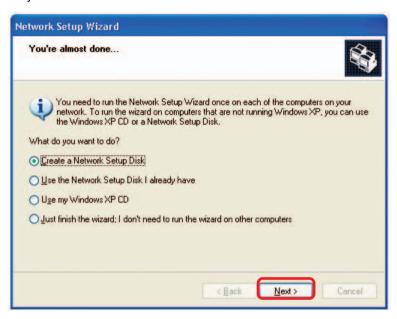


When the changes are complete, Click **Next**.

Please wait while the **Network Setup Wizard** configures the computer. This may take a few minutes.



In the window below, select the option that fits your needs. In this example, **Create a Network Setup Disk** has been selected. You will run this disk on each of the computers on your network. Click **Next**.



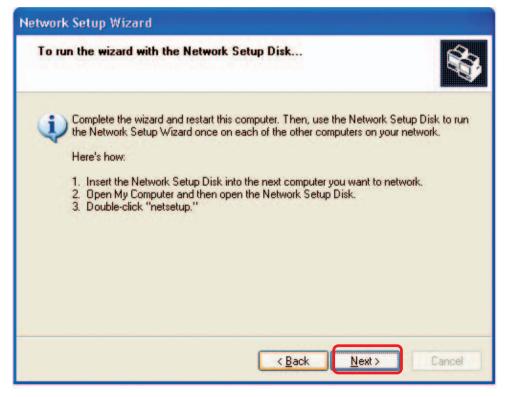
Insert a disk into the Floppy Disk Drive, in this case drive A.



Click Next.



Please read the information under **Here's how** in the screen below. After you complete the **Network Setup Wizard** you will use the **Network Setup Disk** to run the **Network Setup Wizard** once on each of the computers on your network. Click **Next.** 



Please read the information on this screen, then click **Finish** to complete the **Network Setup Wizard**.



The new settings will take effect when you restart the computer. Click **Yes** to restart the computer.



You have completed configuring this computer. Next, you will need to run the **Network Setup Disk** on all the other computers on your network. After running the **Network Setup Disk** on all your computers, your new wireless network will be ready to use.

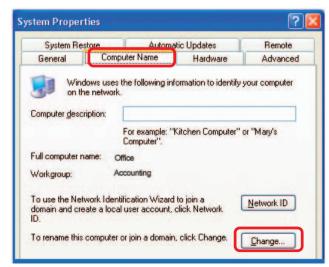
#### **Naming your Computer**

To name your computer using **Windows XP**, please follow these directions:

- Click **Start** (in the lower left corner of the screen)
- Right-click on My Computer
- Select Properties

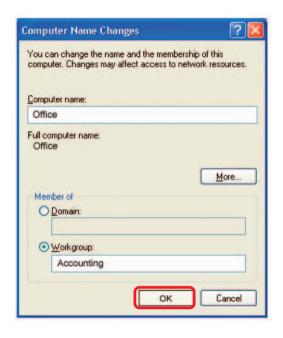


- Select the Computer Name Tab in the System Properties window.
- You may enter a Computer Description if you wish; this field is optional.
- To rename the computer and join a domain, click Change.



#### **Naming your Computer (continued)**

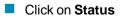
- In this window, enter the Computer name
- Select Workgroup and enter the name of the Workgroup
- All computers on your network must have the same
   Workgroup name.
- Click OK

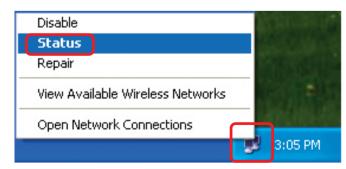


#### Checking the IP Address in Windows XP

The adapter-equipped computers in your network must be in the same IP address range (see *Getting Started* in this manual for a definition of IP address range.) To check on the IP address of the adapter, please do the following:

Right-click on the Local Area Connection icon in the task bar



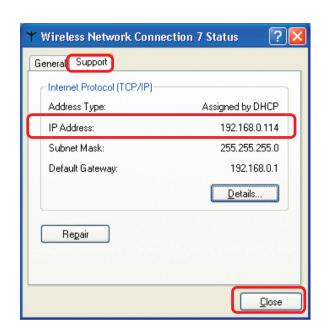


#### Checking the IP Address in Windows XP

This window will appear.

Click the Support tab

Click Close



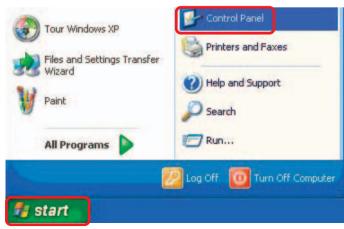
#### Assigning a Static IP Address in Windows XP/2000

Note: DHCP-capable routers will automatically assign IP addresses to the computers on the network, using DHCP (Dynamic Host Configuration Protocol) technology. If you are using a DHCP-capable router you will not need to assign static IP addresses.

If you are not using a DHCP capable router, or you need to assign a static IP address, please follow these instructions:

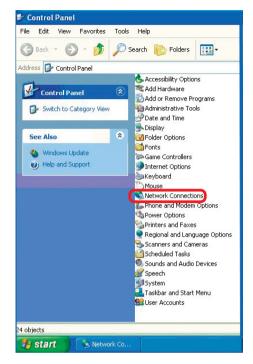
Go to Start

Double-click on Control Panel

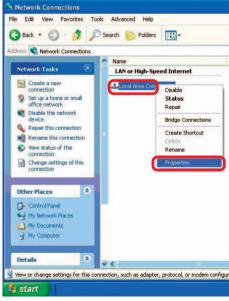


#### Assigning a Static IP Address in Windows XP/2000

Double-click on Network Connections



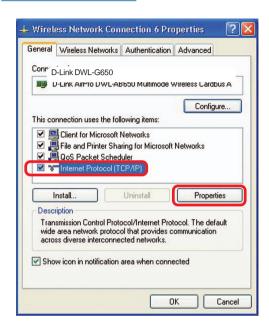
- Right-click on Local Area Connections
- Double-click on Properties

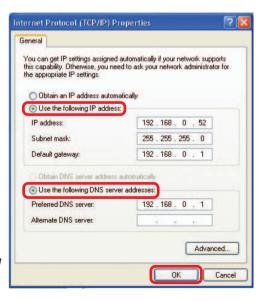


#### Assigning a Static IP Address in Windows XP/2000

- Click on Internet Protocol (TCP/IP)
- Click Properties
- Input your IP address and subnet mask. (The IP addresses on your network must be within the same range. For example, if one computer has an IP address of 192.168.0.2, the other computers should have IP addresses that are sequential, like 192.168.0.3 and 192.168.0.4. The subnet mask must be the same for all the computers on the network.)
- Input your DNS server addresses. (Note: If you are entering a DNS server, you must enter the IP Address of the Default Gateway.)

The DNS server information will be supplied by your ISP (Internet Service Provider.)





#### Assigning a Static IP Address with Macintosh OSX

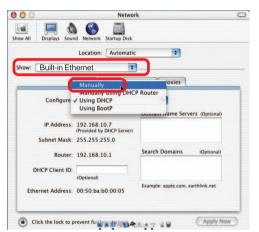
- Go to the Apple Menu and select System Preferences
- Click on Network

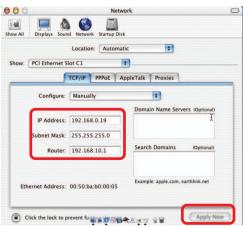
- Select Built-in Ethernet in the Show pull-down menu
- Select Manually in the Configure pull-down menu



Click Apply Now







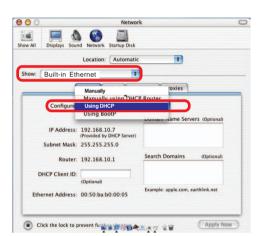
### **Networking Basics (continued)**

#### Selecting a Dynamic IP Address with Macintosh OSX

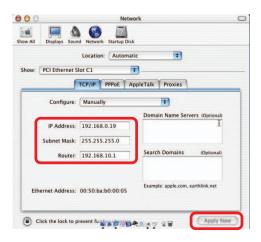
- Go to the Apple Menu and select System Preferences
- Click on Network



- Select Built-in Ethernet in the Show pull-down menu
- Select Using DHCP in the Configure pull-down menu



- Click Apply Now
- The IP Address, Subnet mask, and the Router's IP Address will appear in a few seconds



### **Networking Basics (continued)**

#### Checking the Wireless Connection by Pinging in Windows XP/2000

Go to Start > Run > type cmd. A window similar to this one will appear. Type ping xxx.xxx.xxx, where xxx is the IP address of the wireless router or access point. A good wireless connection will show four replies from the wireless router or access point, as shown.

```
Microsoft Windows XP [Version 5.1.2600]

(C) Copyright 1985-2001 Microsoft Corp.

F:\Documents and Settings\lab3\ping 192.168.0.50

Pinging 192.168.0.50 with 32 bytes of data:

Reply from 192.168.0.50: bytes=32 time(1ms TIL=64
Reply from 192.168.
```

#### Checking the Wireless Connection by Pinging in Windows Me/98

Go to Start > Run > type command. A window similar to this will appear. Type ping xxx.xxx.xxx where xxx is the IP address of the wireless router or access point. A good wireless connection will show four replies from the wireless router or access

point, as shown.

# **Troubleshooting**

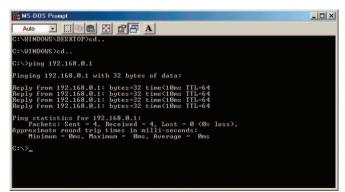
This chapter provides solutions to problems that can occur during the installation and operation of the DWL-G800AP Wireless Range Extender. We cover various aspects of the network setup, including the network adapters. Please read the following if you are having problems.

Note: It is recommended that you use an Ethernet connection to configure the DWL-G800AP Wireless Range Extender.

- 1. The computer used to configure the DWL-G800AP cannot access the configuration menu.
  - Check that the Ethernet LED on the DWL-G800AP is ON. If the LED is not ON, check that the cable for the Ethernet connection is securely inserted.
  - Check that the Ethernet adapter is working properly. Please see item 3 (Check that the drivers for the network adapters are installed properly) in this Troubleshooting section to check that the drivers are loaded properly.
  - Check that the IP address is in the same range and subnet as the DWL-G800AP. Please see Checking the IP Address in Windows XP in the Networking Basics section of this manual.

Note: The IP address of the DWL-G800AP is 192.168.0.30. All the computers on the network must have a unique IP address in the same range, e.g., 192.168.0.x. Any computers that have identical IP addresses will not be visible on the network. They must all have the same subnet mask, e.g., 255.255.255.0

Do a Ping test to make sure that the DWL-G800AP is responding. Go to Start>Run>Type Command>Type ping 192.168.0.30. A successful ping will show four replies.



Note: If you have changed the default IP address, make sure to ping the correct IP address assigned to the DWL-G800AP.

## 2. The wireless client cannot access the Internet in Infrastructure mode.

Make sure the wireless client is associated and joined with the correct device. To check this connection: Right-click on the local area connection icon in the taskbar> select View Available Wireless Networks. The Connect to Wireless Network screen will appear. Please make sure you have selected the correct available network, as shown in the illustration below.





- Check that the IP address assigned to the wireless adapter is within the same IP address range as the existing network. (Since the DWL-G800AP has an IP address of 192.168.0.30, wireless adapters must have an IP address in the same range, e.g., 192.168.0.x. Each device must have a unique IP address; no two devices may have the same IP address. The subnet mask must be the same for all the computers on the network.) To check the IP address assigned to the wireless adapter, double-click on the local area connection icon in the taskbar > select the Support tab and the IP address will be displayed. (Please refer to Checking the IP Address in the Networking Basics section of this manual.)
- If it is necessary to assign a static IP address to the wireless adapter, please refer to the appropriate section in Networking Basics. If you are entering a DNS server address you must also enter the default gateway address. (Remember that if you have a DHCP-capable router, you will not need to assign a static IP address. See Networking Basics: Assigning a Static IP Address.)

## 2. The wireless client cannot access the Internet in the Infrastructure mode (continued).

- If you are using the DWL-G800AP to repeat the wireless signal, check that the Ethernet MAC address of the wireless router or access point is entered properly in the settings. Please note that the Repeater function is compatible with the following D-Link devices:
  - 1 D-Link AirPlus Xtreme G<sup>™</sup> DI-624 Wireless Router Firmware 2.37 (Rev. C) or newer.
  - 2 D-Link AirPlus Xtreme G<sup>™</sup> DWL-2000AP Wireless Access Point -Firmware 1.56 (Rev. A), 2.06 (Rev. B) or newer.
  - 3 D-Link AirPlus Xtreme G<sup>™</sup> DWL-G800AP Wireless Range Extender.
- If you wish to repeat a device that is not a D-Link product, please check the FAQs for supported products on the D-Link support website (http:// support.dlink.com) to make certain that the device can be repeated by the DWL-G800AP.

#### 3. Check that the drivers for the network adapters are installed properly.

You may be using different network adapters than those illustrated here, but this procedure will remain the same, regardless of the type of network adapters you are using.

Go to Start > My Computer > Properties

Select the Hardware tab

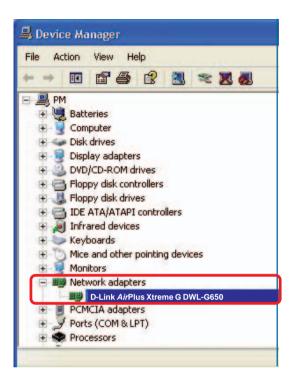
Click Device Manager





- Double-click on Network Adapters
- Right-click on D-Link
  AirPlus Xtreme G DWLG650 Wireless Cardbus
  Adapter (In this example
  we use the DWL-G650;
  you may be using other
  network adapters, but the
  procedure will remain the
  same.)
- Select Properties to check that the drivers are installed properly
- Look under Device Status to check that the device is working properly

Click OK





#### 4. What variables may cause my wireless products to lose reception?

D-Link products let you access your network from virtually anywhere you want. However, the positioning of the products within your environment will affect the wireless range. Please refer to **Installation Considerations** in the **Wireless Basics** section of this manual for further information about the most advantageous placement of your D-Link wireless products.

#### 5. Why does my wireless connection keep dropping?

- Antenna Orientation Try different antenna orientations for the DWL-G800AP. Try to keep the antenna at least 6 inches away from the wall or other objects.
- If you are using 2.4GHz cordless phones, X-10 equipment or other home security systems, ceiling fans, and lights, your wireless connection will degrade dramatically or drop altogether. Try changing the channel on your router, access point and wireless adapter to a different channel to avoid interference.
- Keep your product away (at least 3-6 feet) from electrical devices that generate RF noise, like microwaves, monitors, electric motors, etc.

#### 6. Why can't I get a wireless connection?

If you have enabled encryption on the DWL-G800AP, you must also enable encryption on all wireless clients in order to establish a wireless connection.

- Make sure that the encryption bit level is the same on the DWL-G800AP and the wireless client.
- Make sure that the SSID on the DWL-G800AP and the wireless client are exactly the same. If they are not, wireless connection will not be established.
- Check that the DWL-G800AP is configured properly, whether as a repeater or an access point.
- Check that the wireless clients are working properly.

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#### 6. Why can't I get a wireless connection? (continued)

- Make sure that all devices are set to Infrastructure mode.
- Check that the LEDs are indicating normal activity. If not, check that the AC power and Ethernet cables are firmly connected.
- Check that the IP address, subnet mask, and gateway settings are correctly entered for the network.
- If you are using 2.4GHz cordless phones, X-10 equipment or other home security systems, ceiling fans, and lights, your wireless connection will degrade dramatically or drop altogether. Try changing the channel on your DWL-G800AP, and on all the devices in your network to avoid interference.
- Keep your product away (at least 3-6 feet) from electrical devices that generate RF noise, like microwaves, monitors, electric motors, etc.

#### 7. I forgot my encryption key.

Reset the DWL-G800AP to its factory default settings and restore the other devices on your network to their default settings. You may do this by pressing the Reset button on the back of the unit. You will lose the current configuration settings.

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#### 8. Resetting the DWL-G800AP to factory default settings

After you have tried other methods for troubleshooting your network, you may choose to **Reset** the DWL-G800AP to the factory default settings.



**Reset button** 

To hard-reset the D-Link DWL-G800AP to the factory default settings, please do the following:

- Locate the Reset button on the back of the DWL-G800AP
- Use a paper clip to press the Reset button
- Hold for about 5 seconds and then release
- After the DWL-G800AP reboots (this may take a few minutes) it will be reset to the factory **Default** settings

# **Technical Specifications**

#### **Standards**

- IEEE 802.11g
- IEEE 802.11
- IEEE 802.11b
- IEEE 802.3
- IEEE 802.3u

#### **Device Management**

- Web-Based- Internet Explorer v6 or later; Netscape Navigator v6 or later; or other Java-enabled browsers
- DHCP Server and Client

#### Wireless Operating Range\*

- Indoors up to 328 feet (100 meters)
- Outdoors up to 1312 feet (400 meters)

#### **Temperature**

- Operating: 32°F to 149°F (0°C to 55°C)
- Storing: 4°F to 167°F (-20°C to 75°C)

#### **Humidity:**

95% maximum (non-condensing)

#### Safety and Emissions:

- FCC
- UL

#### Wireless Frequency Range:

2.4GHz to 2.4835GHz

#### Wireless Data Rates with Automatic Fallback:

54 Mbps
 48 Mbps
 9 Mbps
 36 Mbps
 6 Mbps
 24 Mbps
 18 Mbps
 12 Mbps
 1 Mbps
 1 Mbps

<sup>\*</sup> Environmental conditions may adversely affect wireless signal range.

### **Technical Specifications (continued)**

#### **Receiver Sensitivity:**

- 54Mbps OFDM, 10% PER, -68dBm
- 48Mbps OFDM, 10% PER, -68dBm
- 36Mbps OFDM, 10% PER, -75dBm
- 24Mbps OFDM, 10% PER, -79dBm
- 18Mbps OFDM, 10% PER, -82dBm
- 12Mbps OFDM, 10% PER, -84dBm
- 11Mbps CCK, 8% PER, -82dBm
- 9Mbps OFDM, 10% PER, -87dBm
- 6Mbps OFDM, 10% PER, -88dBm
- 5.5Mbps CCK, 8% PER, -85dBm
- 2Mbps QPSK, 8% PER, -86dBm
- 1Mbps BPSK, 8% PER, -89dBm

#### **Physical Dimensions:**

- L = 5.6 inches (142mm)
- W = 4.3 inches (109mm)
- H = 1.2 inches (31mm)

#### **Wireless Transmit Power:**

■ 15dBm (32mW) ± 2dB

#### Security:

64-,128-bit WEP encryption

#### **External Antenna Type:**

1.0dBm gain with reverse SMA connector

#### **Modulation Technology:**

- Orthogonal Frequency Division Multiplexing (OFDM)
- Complementary Code Keying (CCK)

### **Technical Specifications (continued)**

#### **Media Access Control:**

CSMA/CA with ACK

#### **Power Input:**

Ext. Power Supply DC 5V, 2.5A

#### Weight:

.44 lbs. (200 g)

#### Warranty:

3 year

# **Technical Support**

You can find software updates and user documentation on the D-Link website.

D-Link provides free technical support for customers within the United States and within Canada for the duration of the warranty period on this product.

U.S. and Canadian customers can contact D-Link technical support through our web site, or by phone.

#### Tech Support for customers within the United States:

D-Link Technical Support over the Telephone:

(877) 453-5465

24 hours a day, seven days a week.

#### D-Link Technical Support over the Internet:

http://support.dlink.com email:support@dlink.com

#### Tech Support for customers within Canada:

D-Link Technical Support over the Telephone:

(800) 361-5265

Monday to Friday 7:30am to 9:00pm EST

#### D-Link Technical Support over the Internet:

http://support.dlink.ca email:support@dlink.ca



### Limited Warranty (USA Only)

Subject to the terms and conditions set forth herein, D-Link Systems, Inc. ("D-Link") provides this Limited warranty for its product only to the person or entity that originally purchased the product from:

- D-Link or its authorized reseller or distributor and
- Products purchased and delivered within the fifty states of the United States, the District of Columbia, U.S. Possessions or Protectorates, U.S. Military Installations, addresses with an APO or FPO.

**Limited Warranty:** D-Link warrants that the hardware portion of the D-Link products described below will be free from material defects in workmanship and materials from the date of original retail purchase of the product, for the period set forth below applicable to the product type ("Warranty Period"), except as otherwise stated herein.

3-Year Limited Warranty for the Product(s) is defined as follows:

- Hardware (excluding power supplies and fans) Three (3) Years
- Power Supplies and Fans One (1) Year
- Spare parts and spare kits Ninety (90) days

D-Link's sole obligation shall be to repair or replace the defective Hardware during the Warranty Period at no charge to the original owner or to refund at D-Link's sole discretion. Such repair or replacement will be rendered by D-Link at an Authorized D-Link Service Office. The replacement Hardware need not be new or have an identical make, model or part. D-Link may in its sole discretion replace the defective Hardware (or any part thereof) with any reconditioned product that D-Link reasonably determines is substantially equivalent (or superior) in all material respects to the defective Hardware. Repaired or replacement Hardware will be warranted for the remainder of the original Warranty Period from the date of original retail purchase. If a material defect is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to repair or replace the defective Hardware, the price paid by the original purchaser for the defective Hardware will be refunded by D-Link upon return to D-Link of the defective Hardware. All Hardware (or part thereof) that is replaced by D-Link, or for which the purchase price is refunded, shall become the property of D-Link upon replacement or refund.

Limited Software Warranty: D-Link warrants that the software portion of the product ("Software") will substantially conform to D-Link's then current functional specifications for the Software, as set forth in the applicable documentation, from the date of original retail purchase of the Software for a period of ninety (90) days ("Warranty Period"), provided that the Software is properly installed on approved hardware and operated as contemplated in its documentation. D-Link further warrants that, during the Warranty Period, the magnetic media on which D-Link delivers the Software will be free of physical defects. D-Link's sole obligation shall be to replace the non-conforming Software (or defective media) with software that substantially conforms to D-Link's functional specifications for the Software or to refund at D-Link's sole discretion. Except as otherwise agreed by D-Link in writing, the replacement Software is provided only to the original licensee, and is subject to the terms and conditions of the license granted by D-Link for the Software. Software will be warranted for the remainder of the original Warranty Period from the date or original retail purchase. If a material non-conformance is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to replace the nonconforming Software, the price paid by the original licensee for the non-conforming Software will be refunded by D-Link; provided that the non-conforming Software (and all copies thereof) is first returned to D-Link. The license granted respecting any Software for which a refund is given automatically terminates.

**Non-Applicability of Warranty:** The Limited Warranty provided hereunder for hardware and software of D-Link's products will not be applied to and does not cover any refurbished product and any product purchased through the inventory clearance or liquidation sale or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product and in that case, the product is being sold "As-Is" without any warranty whatsoever including, without limitation, the Limited Warranty as described herein, notwithstanding anything stated herein to the contrary.

**Submitting A Claim**: The customer shall return the product to the original purchase point based on its return policy. In case the return policy period has expired and the product is within warranty, the customer shall submit a claim to D-Link as outlined below:

 The customer must submit with the product as part of the claim a written description of the Hardware defect or Software nonconformance in sufficient detail to allow D-Link to confirm the same.

- The original product owner must obtain a Return Material Authorization ("RMA") number from the Authorized D-Link Service Office and, if requested, provide written proof of purchase of the product (such as a copy of the dated purchase invoice for the product) before the warranty service is provided.
- After an RMA number is issued, the defective product must be packaged securely in the original or
  other suitable shipping package to ensure that it will not be damaged in transit, and the RMA number
  must be prominently marked on the outside of the package. Do not include any manuals or accessories
  in the shipping package. D-Link will only replace the defective portion of the Product and will not
  ship back any accessories.
- The customer is responsible for all in-bound shipping charges to D-Link. No Cash on Delivery ("COD") is allowed. Products sent COD will either be rejected by D-Link or become the property of D-Link. Products shall be fully insured by the customer. D-Link will not be held responsible for any packages that are lost in transit to D-Link. The repaired or replaced packages will be shipped to the customer via UPS Ground or any common carrier selected by D-Link, with shipping charges prepaid. Expedited shipping is available if shipping charges are prepaid by the customer and upon request.
- Return Merchandise Ship-To Address

USA: 17595 Mt. Herrmann, Fountain Valley, CA 92708

Canada: 2180 Winston Park Drive, Oakville, ON, L6H 5W1 (Visit <a href="http://www.dlink.ca">http://www.dlink.ca</a> for detailed warranty information within Canada)

D-Link may reject or return any product that is not packaged and shipped in strict compliance with the foregoing requirements, or for which an RMA number is not visible from the outside of the package. The product owner agrees to pay D-Link's reasonable handling and return shipping charges for any product that is not packaged and shipped in accordance with the foregoing requirements, or that is determined by D-Link not to be defective or non-conforming.

What Is Not Covered: This limited warranty provided by D-Link does not cover: Products, if in D-Link's judgment, have been subjected to abuse, accident, alteration, modification, tampering, negligence, misuse, faulty installation, lack of reasonable care, repair or service in any way that is not contemplated in the documentation for the product, or if the model or serial number has been altered, tampered with, defaced or removed; Initial installation, installation and removal of the product for repair, and shipping costs; Operational adjustments covered in the operating manual for the product, and normal maintenance; Damage that occurs in shipment, due to act of God, failures due to power surge, and cosmetic damage; Any hardware, software, firmware or other products or services provided by anyone other than D-Link; Products that have been purchased from inventory clearance or liquidation sales or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product. Repair by anyone other than D-Link or an Authorized D-Link Service Office will void this Warranty.

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**CE Mark Warning:** This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

**FCC 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 communication. 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.

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For detailed warranty outside the United States, please contact corresponding local

(10/05/04)

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