

D-Link *AirPlus* **DWL-700AP**

2.4 GHz Wireless Access Point

Manual

Rev. xxxxxx

D-Link[®]
Building Networks for People

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1. Package Contents



Contents of Package:

- **D-Link AirPlus DWL-700AP** 2.4GHz Wireless Access Point
- Power Supply – 5V DC, 2.0A
- Manual on CD
- Quick Installation Guide
- Ethernet Cable

Note: Using a power supply with a different voltage rating than the one included with the DWL-700AP will cause damage and void the warranty for this product.

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

System Requirements:

- Computer with Windows, Macintosh, or Linux-based operating system with an installed Ethernet adapter
- Internet Explorer or Netscape Navigator version 4.0 or above, with JavaScript enabled

2. Introduction

The D-Link *AirPlus* DWL-700AP Wireless Access Point is an 802.1x wireless access point. With a second level of security that is not offered with other conventional 802.11b standard-compatible Access Points, the DWL-700AP ensures a more secure wireless network than ever before. In addition to WEP encryption, the DWL-700AP offers an **Authentication** capability when used with 802.1x compatible devices. This extra layer of protection will ensure a safer and more secure wireless network than has previously been available.

Like most 802.11b Access Points, the DWL-700AP is capable of data transfer speeds of up to 11 Mbps when used with other D-Link *AirPlus* products such as the DWL-650 Wireless Cardbus Adapter.

After completing the steps outlined in the *Quick Installation Guide* (included in your package) you will have the ability to share information and resources, such as files and printers, and enjoy the freedom that wireless networking delivers.

The DWL-700AP is compatible with most popular operating systems, including Macintosh, Linux and Windows, and can be integrated into a large network. This Manual is designed to help you connect the Access Point and the D-Link *AirPlus* 2.4GHz Wireless Adapters into a network in Infrastructure mode. *Please take a look at the **Getting Started** section in this manual to see an example of an Infrastructure network using the DWL-700AP.*

This manual provides a quick introduction to wireless technology and its application as it relates to networking. Please take a moment to read through this manual and get acquainted with wireless technology.

Connections

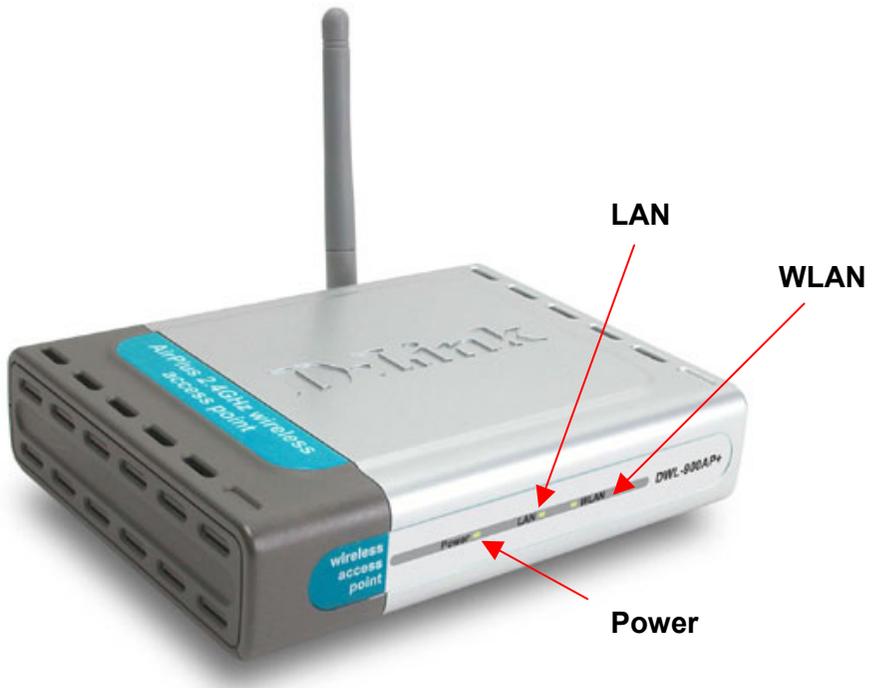


Features & Benefits

- Supports 802.1x for wireless user authentication into the network, resulting in a more secure wireless network than was previously possible.
- With *AirPlus* Products - high-speed wireless data transfer rates up to 11Mbps. With this data rate and capacity, the DWL-700AP delivers media rich content such as digital images, videos, and MP3 files as the 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
- Supports 64/128-bit WEP encryption for security for your data and wireless communication.
- Web-based interface for Managing and Configuring – Easy-to-use interface independent of the operating system
- 4 Different Operation Modes – Capable of operating in one of four different operation modes to meet your wireless networking requirements: Access Point, AP-to-AP Bridging, Wireless Repeater, and Wireless Client.

LEDS

LED stands for **L**ight-**E**mitting **D**iode. The **DWL-700AP Wireless Access Point** has 3 LEDs as shown below:



Power: solid green light indicates connection

LAN: blinking green light indicates activity; solid green light indicates connection

WLAN: blinking green light indicates wireless activity; solid green light indicates connection

3. Wireless Basics

D-Link *AirPlus* 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. Strictly adhering to the IEEE standard, the D-Link *AirPlus* wireless family of products will allow you to securely access the data you want, when and where you want it. You will be able to enjoy the freedom that wireless networking delivers.

A wireless local area network (WLAN) is a cellular computer network that transmits and receives data with radio signals instead of wires. Wireless LANs 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.

Under many circumstances, it may be desirable for mobile network devices to link to a conventional Ethernet LAN in order to use servers, printers or an Internet connection supplied through the wired LAN. A Wireless Access Point (AP) is a device used to provide this link.

People use wireless LAN 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 (Wireless Local Area Networks) are easy to set up, manage, change and relocate. Networks that frequently change, both physically and logically, can benefit from WLANs ease of implementation. WLANs can operate in locations where installation of wiring may be impractical.

Installation Speed and Simplicity - Installing a wireless LAN system can be fast and easy and can eliminate the need to pull cable through walls and ceilings.

Wireless Basics

Network Expansion - Wireless technology allows the network to go where wires cannot go.

Reduced Cost-of-Ownership - While the initial investment required for wireless LAN hardware might be higher than the cost of wired LAN hardware, overall installation expenses and life-cycle costs will be significantly lower. Long-term cost benefits are greatest in dynamic environments requiring frequent moves, adds, and changes.

Scalability – Wireless Local Area Networks (WLANs) can be configured in a variety of topologies 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 full infrastructure networks of thousands of users that allow roaming over a broad area.

D-Link AirPlus Wireless Family of LAN products include:

- ◆ 2.4GHz Wireless Cardbus Adapters used with laptop computers (DWL-650)
- ◆ 2.4GHz Wireless PCI cards used with desktop computers (DWL-520)
- ◆ 2.4GHz Wireless Access Points (DWL-700AP)
- ◆ 2.4GHz Wireless Broadband Router (DI-604)

Standards - Based Technology

The IEEE standard-based technology assures that the D-Link *AirPlus* Products are interoperable with existing compatible 2.4GHz wireless technology. This means you will be able to transfer large files quickly or even watch a movie in MPEG format over your network without noticeable delays. The technology works by using multiple frequencies in the 2.4GHz range at speeds up to 11 Mbps. D-Link *AirPlus* products will automatically sense the best possible connection speed to ensure optimal network performance.

The DWL-700AP Wireless Access Point is 802.1x compatible.

The 802.1x standard solves the problem of ensuring the safety of wireless networks by allowing for an additional layer of security. With two levels of

security, **Authentication** and **Data Encryption**, the 802.1x wireless network is more impervious to intruders than has previously been possible.

The **Authentication** protocol in 802.1x provides the frontline of defense against network intrusion. **EAP** (Extensible Authentication Protocol) is the protocol used for authentication. Windows XP allows you to select the type of EAP you wish to use. All the clients, access points, and servers must share the same type of EAP in order to communicate and ensure that the network is secure.

If you are not using Windows XP, you can purchase EAP software to install for the wireless clients in your network.

The second level of security in the 802.1x wireless network is **WEP data encryption**. Depending on the radius server deployed in your network, you can distribute the certificate automatically and change Encryption keys in the wireless network. This network feature will greatly reduce the amount of time needed to ensure secure networking by automatically changing WEP keys periodically, thus relieving administrators of the onerous task of manually changing keys on a multitude of workstations.

Installation Considerations

Designed to go up to 1,312 feet (400 meters) outdoors and up to 328 feet (100 meters) indoors, D-Link's *AirPlus* DWL-700AP lets you access your network using a wireless connection from virtually anywhere. 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 wireless Access Point and your receiving device (e.g., the DWL-650) to a minimum - Each wall or ceiling can reduce your D-Link *AirPlus* Wireless product's range from 3-90 feet (1-30 meters.) Position your Access Points, Residential Gateways, and computers so that the number of walls or ceilings is minimized.
2. Be aware of the direct line between Access Points, Residential Gateways (routers) and computers. 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! Try to make

sure that the Access Points and adapters are positioned so that the signal will travel straight through a wall or ceiling for better reception.

3. Building Materials make a difference - A solid metal door or aluminum studs may have a negative effect on range. Try to position Access Points, and computers with wireless adapters so that the signal passes through drywall or open doorways and not other materials.
4. Make sure that the device's antenna is positioned for best reception by using the software signal strength tools included with your product.
5. Keep your product away (at least 3-6 feet or 1-2 meters) from electrical devices or appliances that may generate extreme RF noise.

For the average home, signal range should not be an issue. If you experience low or no signal strength in areas of your home that you wish to access, consider positioning the Access Point in a location directly between the computers with wireless adapters. Additional Access Points can be connected to provide better coverage in rooms where the signal does not appear as strong as desired.

4. Getting Started

Right out of the box, with its default settings, the DWL-700AP will automatically connect with other D-Link Air or AirPlus products.

For the price of a single IP Address from your Broadband Internet Service provider you can share the Internet with all the computers on your local network, without sacrificing speed or security, using D-Link AirPlus networking products.

IP ADDRESS

Please note: If you have a DHCP-capable router, such as the D-Link DI-604 or DI-614+, there is no need to assign an IP Address.

If you need to assign IP Addresses to the computers on the network, please remember that the **IP Address for each computer must be in the same IP Address range as all the computers in the network**, and the Subnet mask must be exactly the same for all the computers in the network.

For example: If the first computer is assigned an IP Address of 192.168.0.2 with a Subnet Mask of 255.255.255.0, then the second computer can be assigned an IP Address of 192.168.0.3 with a Subnet Mask of 255.255.255.0, etc.

IMPORTANT: If computers or other devices are assigned the same IP Address, one or more of the devices may not be visible on the network.

An **Infrastructure** network contains an Access Point. The **Infrastructure Network** example shown on the next page contains the following D-Link network devices:

A wireless Access Point - **D-Link AirPlus DWL-700AP**

An Ethernet Broadband Router - **D-Link DI-604**

A laptop computer with a wireless adapter - **D-Link AirPlus DWL-650+**

A desktop computer with a wireless adapter - **D-Link AirPlus DWL-520+**

A Cable modem - **D-Link DCM-200**

***DHCP stands for Dynamic Host Configuration Protocol.
It is a protocol for assigning dynamic IP addresses “automatically.”
With a DHCP-capable gateway/router, there is
no need to manually assign an IP address.***