

# Chapter 2

## Introduction

This chapter describes the features of the NETGEAR DG834PN 108 Mbps RangeMax™ ADSL Modem Wireless Router. The DG834PN is a combination of a built-in ADSL modem, wireless router, 4-port switch, firewall, and up to 108 Mbps wireless access point that enables your entire network to safely share an Internet connection that otherwise is used by a single computer.



**Note:** If you are unfamiliar with networking and routing, refer to [“Wireless Communications:” in Appendix B](#) to become more familiar with the terms and procedures used in this manual.

### About the ADSL Modem Wireless Router

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The DG834PN 108 Mbps RangeMax™ ADSL Modem Wireless Router provides continuous, high-speed 10/100 Ethernet access between your Ethernet devices. The DG834PN enables your entire network to share an Internet connection through the built-in ADSL modem that otherwise is used by a single computer. With minimum setup, you can install and use the ADSL modem wireless router within minutes.

The DG834PN RangeMax ADSL Modem Wireless Router provides multiple Web content filtering options, reporting, and instant e-mail alerts. Parents and network administrators can establish restricted access policies based on time of day, Web site addresses, and address keywords. They can also share high-speed ADSL Internet access for up to 253 personal computers. The included firewall and Network Address Translation (NAT) features protect you from hackers.

## Key Features

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The DG834PN RangeMax ADSL Modem Wireless Router provides the following features:

- RangeMax™ Multi-In, Multi-Out (MIMO) wireless technology
- 802.11g wireless networking, with the ability to operate in Auto 108 Mbps mode, the 802.11b+g modes, and 802.11g-only.
- A built-in ADSL modem
- A powerful, true firewall
- Easy, Web-based setup for installation and management
- Extensive Internet protocol support
- Content filtering
- Auto Sensing and Auto Uplink™ LAN Ethernet connections

These features are discussed below.

### Range Max™ Multi-In, Multi-Out (MIMO) Technology

Netgear's RangeMax Multi-In, Multi-Out (MIMO) technology provides up to five times more coverage than standard 802.11g alone by eliminating “dead spots” in your area of coverage where you use your wireless computers. Your whole house or office suite now becomes a “hot spot” without requiring any range extenders, repeaters, or external antennae. RangeMax maintains your high speed throughout your home, not just when you are close to your router.

RangeMax is an advanced Smart MIMO (Multi-In, Multi-Out) technology that uses six internal antennae. RangeMax constantly surveys your home environment for physical barriers and interference and adjusts the wireless signal to compensate for these performance blockers.

For example, if you carry your laptop from the family room to the bedroom, RangeMax automatically senses the change and selects from over 100 possible antenna configurations to deliver the fastest, clearest connection so that everyone can enjoy consistently high-speed connections, everywhere in your house with no drop-outs and no dead spots.

RangeMax is also 100% compatible with your existing 802.11b/g products (i.e., 802.11b, 802.11g, Centrino, and SuperG™ wireless clients) and boosts their range and speed by up to 50%.

## 802.11g Wireless Networking

The DG834PN RangeMax ADSL Modem Wireless Router includes an 802.11g wireless access point, providing continuous, high-speed 54 Mbps access between your wireless and Ethernet devices. The access point provides:

- Wireless networking at up to 108 Mbps.
- 802.11g wireless networking, with the ability to operate in the following modes, thus providing backwards compatibility with 802.11b devices or dedicating the wireless network to the higher bandwidth 802.11g or 108 Mbps devices:
  - Auto 108 Mbps mode (i.e., all 802.11g, 802.11b, and Netgear 108 Mbps wireless stations can be used
  - 802.11b+g modes
  - 802.11g-only
- 64-bit and 128-bit WEP encryption security.
- WPA-PSK encryption
- WEP keys can be generated manually or by passphrase.
- Wireless access can be restricted by MAC address.
- Wireless network name broadcast can be turned off so that only devices that have the network name (SSID) can connect.

## A Powerful, True Firewall

Unlike simple Internet sharing NAT routers, the DG834PN RangeMax ADSL Modem Wireless Router is a true firewall, using stateful packet inspection to defend against hacker attacks. Its firewall features include:

- Denial of Service (DoS) protection  
Automatically detects and thwarts Denial of Service (DoS) attacks such as Ping of Death, SYN Flood, LAND Attack and IP Spoofing.
- Blocks unwanted traffic from the Internet to your LAN.
- Blocks access from your LAN to Internet locations or services that you specify as off-limits.
- Logs security incidents  
The DG834PN will log security events such as blocked incoming traffic, port scans, attacks, and administrator logins. You can configure the ADSL modem wireless router to e-mail the log to you at specified intervals. You can also configure the ADSL modem wireless router to send immediate alert messages to your e-mail address or e-mail pager whenever a significant event occurs.

## Easy Installation and Management

You can install, configure, and operate the DG834PN within minutes after connecting it to the network. The following features simplify installation and management tasks:

- Browser-based management  
Browser-based configuration allows you to easily configure your ADSL modem wireless router from almost any type of personal computer, such as Windows, Macintosh, or Linux. A user-friendly Setup Wizard is provided and online help documentation is built into the browser-based Web Management Interface.
- Smart Wizard  
The ADSL modem wireless router automatically senses the type of Internet connection, asking you only for the information required for your type of ISP account.
- Remote management  
The ADSL modem wireless router allows you to log in to the Web management interface from a remote location via the Internet. For security, you can limit remote management access to a specified remote IP address or range of addresses, and you can choose a nonstandard port number.

- **Diagnostic functions**  
The ADSL modem wireless router incorporates built-in diagnostic functions such as Ping, DNS lookup, and remote reboot. These functions allow you to test Internet connectivity and reboot the ADSL modem wireless router. You can use these diagnostic functions directly from the DG834PN when you are connected on the LAN or when you are connected over the Internet via the remote management function.
- **Visual monitoring**  
The ADSL modem wireless router's front panel LEDs provide an easy way to monitor its status and activity.
- **Flash erasable programmable read-only memory (EPROM) for firmware upgrades.**

## Protocol Support

The DG834PN supports Transmission Control Protocol/Internet Protocol (TCP/IP) and Routing Information Protocol (RIP). [“Wireless Communications:” in Appendix B](#) provides further information on TCP/IP.

- **The Ability to Enable or Disable IP Address Sharing by NAT**  
The DG834PN allows several networked PCs to share an Internet account using only a single IP address, which may be statically or dynamically assigned by your Internet service provider (ISP). This technique, known as Network Address Translation (NAT), allows the use of an inexpensive single-user ISP account. This feature can also be turned off completely while using the DG834PN if you want to manage the IP address scheme yourself.
- **Automatic Configuration of Attached PCs by DHCP**  
The DG834PN dynamically assigns network configuration information, including IP, ADSL modem wireless router, and domain name server (DNS) addresses, to attached PCs on the LAN using the Dynamic Host Configuration Protocol (DHCP). This feature greatly simplifies configuration of PCs on your local network.
- **DNS Proxy**  
When DHCP is enabled and no DNS addresses are specified, the ADSL modem wireless router provides its own address as a DNS server to the attached PCs. The ADSL modem wireless router obtains actual DNS addresses from the ISP during connection setup and forwards DNS requests from the LAN.
- **Classical IP (RFC 1577)**  
Some Internet service providers, in Europe for example, use Classical IP in their ADSL services. In such cases, the ADSL modem wireless router is able to use the Classical IP address from the ISP.

- **PPP over Ethernet (PPPoE)**  
PPP over Ethernet is a protocol for connecting remote hosts to the Internet over an ADSL connection by simulating a dial-up connection. This feature eliminates the need to run a login program such as EnterNet or WinPOET on your computer.
- **PPP over ATM (PPPoA)**  
PPP over ATM is a protocol for connecting remote hosts to the Internet over an ADSL connection by simulating an ATM connection.
- **Dynamic DNS**  
Dynamic DNS services allow remote users to find your network using a domain name when your IP address is not permanently assigned. The ADSL modem wireless router contains a client that can connect to many popular Dynamic DNS services to register your dynamic IP address.
- **Universal Plug and Play (UPnP)**  
UPnP is a networking architecture that provides compatibility between networking technologies. UPnP compliant routers provide broadband users at home and small businesses with a seamless way to participate in online games, video conferencing and other peer-to-peer services.

## Content Filtering

With its content filtering feature, the DG834PN prevents objectionable content from reaching your PCs. The ADSL modem wireless router allows you to control access to Internet content by screening for keywords within Web addresses. You can configure the ADSL modem wireless router to log and report attempts to access objectionable Internet sites.

## Auto Sensing and Auto Uplink™ LAN Ethernet Connections

With its internal 4-port 10/100 switch, the DG834PN can connect to either a 10 Mbps standard Ethernet network or a 100 Mbps Fast Ethernet network. The local LAN ports are autosensing and capable of full-duplex or half-duplex operation.

The ADSL modem wireless router incorporates Auto Uplink™ technology. Each local Ethernet port will automatically sense whether the Ethernet cable plugged into the port should have a ‘normal’ connection such as to a computer or an ‘uplink’ connection such as to a switch or hub. That port will then configure itself to the correct configuration. This feature also eliminates the need to worry about crossover cables, as Auto Uplink will accommodate either type of cable to make the right connection.

## What's in the Box?

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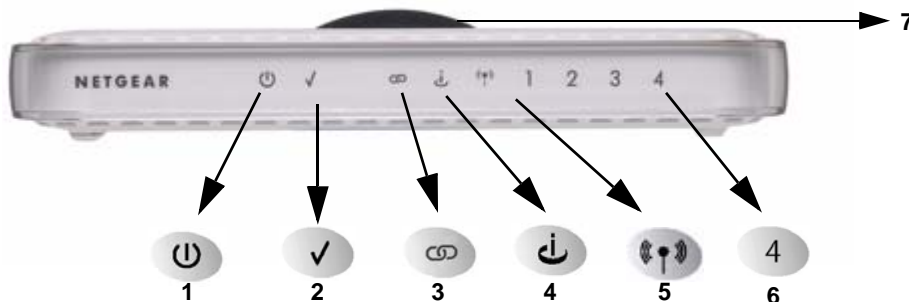
The product package should contain the following items:

- DG834PN 108 Mbps RangeMax™ ADSL Modem Wireless Router
- AC power adapter (varies by region)
- Category 5 (Cat 5) Ethernet cable
- Telephone cable
- Microfilters (quantity and type vary by region)
- *Resource CD*, which includes this guide
- A printed Quick Installation Guide
- Warranty and Support Information cards
- Two plastic feet for standing the unit on one end

If any of the parts are incorrect, missing, or damaged, contact your NETGEAR dealer. Keep the carton, including the original packing materials, in case you need to return the product for repair.

## The Router's Front Panel

The DG834PN 108 Mbps RangeMax™ ADSL Modem Wireless Router front panel shown below contains status LEDs.



**Figure 2-1**

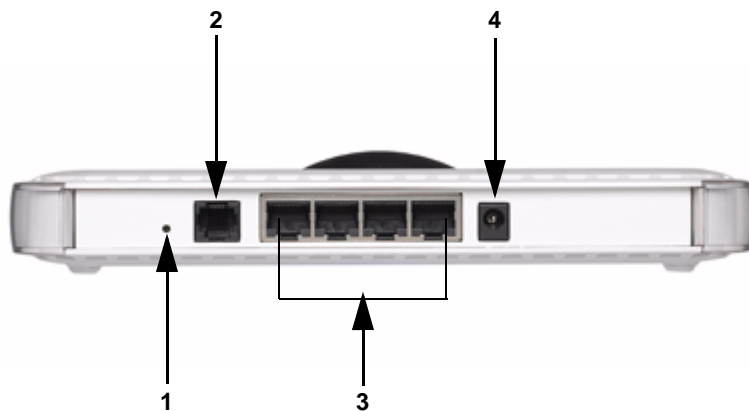
You can use the LEDs to verify various conditions. [Table 2-1](#) lists and describes each LED on the front panel of the router.

**Table 2-1. LED Descriptions**

Item	Function	Activity	Description
1	Power	On Off	Power is supplied to the router. Power is not supplied to the router.
2	Test	On Off	The system is initializing. The system is ready and running.
3	PPP Link	On -- Green Off	PPP link is active or has reached idle timeout. No PPP link, modem is off, or no ADSL connection
4	Internet	Blink -- Amber On -- Green Blink -- Green	Indicates ADSL training. The Internet port has detected a link with an attached device. Data is being transmitted or received by the Internet port.
5	Wireless	On Off	Indicates that the Wireless port is initialized. The Wireless Access Point is turned off.
6	LAN	On (Green) Blink (Green) On (Amber) Blink (Amber) Off	The Local port has detected a link with a 100 Mbps device. Data is being transmitted or received at 100 Mbps. The Local port has detected a link with a 10 Mbps device. Data is being transmitted or received at 10 Mbps. No link is detected on this port.
7	Dome	On (Blue) Off	There are six LEDs in the dome, one for each antenna. Antenna element associated with LED is on. Antenna off or LEDs programmatically switched off.

## The Router's Rear Panel

The rear panel of the DG834PN 108 Mbps RangeMax™ ADSL Modem Wireless Router (Figure 2-2) contains port connections.



**Figure 2-2**

Viewed from left to right, the rear panel contains the following elements:

1. Factory Default Reset push button
2. ADSL port for connecting the router to an ADSL line
3. Four Local Ethernet RJ-45 LAN ports for connecting the router to the local computers
4. DC power in

## Connecting the Router to the Internet

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To connect your DG834PN RangeMax ADSL Modem Wireless Router to the Internet, refer to the *ADSL Modem Wireless Router Setup Manual* on the *Resource CD* or online as shown in the following table.

**Table 2-2.**

Language	URL
Dutch	<a href="http://documentation.netgear.com/dg834pn/nld/208-10025-01/">http://documentation.netgear.com/dg834pn/nld/208-10025-01/</a>
English	<a href="http://documentation.netgear.com/dg834pn/enu/208-10019-01/">http://documentation.netgear.com/dg834pn/enu/208-10019-01/</a>
French	<a href="http://documentation.netgear.com/dg834pn/fra/208-10020-01/">http://documentation.netgear.com/dg834pn/fra/208-10020-01/</a>
German	<a href="http://documentation.netgear.com/dg834pn/deu/208-10021-01/">http://documentation.netgear.com/dg834pn/deu/208-10021-01/</a>
Italian	<a href="http://documentation.netgear.com/dg834pn/ita/208-10022-01/">http://documentation.netgear.com/dg834pn/ita/208-10022-01/</a>
Spanish	<a href="http://documentation.netgear.com/dg834pn/esp/208-10023-01/">http://documentation.netgear.com/dg834pn/esp/208-10023-01/</a>
Swedish	<a href="http://documentation.netgear.com/dg834pn/sve/208-10024-01/">http://documentation.netgear.com/dg834pn/sve/208-10024-01/</a>