

# BELKIN®

## Dual-Band Wireless A+G Router

Share your broadband Internet connection



### User Manual

Simultaneous ((A+G))	<b>108</b> <sup>Mbps</sup> x2 Wireless
108Mbps for each network	

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# Introduction

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Thank you for purchasing the Belkin Dual-Band Wireless A+G Router (the Router). The following two short sections discuss the benefits of home networking and outline best practices for maximizing your wireless home network range and performance. Please be sure to read through this User Manual completely, and pay special attention to the section entitled “Placement of your Router for Optimal Performance” on page 2. By following our simple setup instructions you will be able to use your Belkin Home Network to:

- Share one high-speed Internet connection with all the computers in your home
- Share resources, such as files and hard drives among all the connected computers in your home
- Share a single printer with the entire family
- Share documents, music, video, and digital pictures
- Store, retrieve, and copy files from one computer to another
- Simultaneously play games online, check Internet email, and chat

## Advantages of a Wireless Network

- **Mobility** – you no longer need a dedicated “computer room”—you can work on a networked laptop or desktop computer anywhere within your wireless range
- **Easy installation** – The Belkin Easy Installation Wizard makes setup simple
- **Flexibility** – set up and access printers, computers, and other networking devices from anywhere in your home
- **Easy expansion** – the wide range of Belkin networking products let you expand your network to include devices such as printers and gaming consoles
- **No cabling required** – you can spare the expense and hassle of retrofitting Ethernet cabling throughout the home or office
- **Widespread industry acceptance** – choose from a wide range of interoperable networking products

## Placement of your Router for Optimal Performance

### Important Factors for Placement and Setup

Your wireless connection will be stronger the closer your computer is to your Router. Typical indoor operating range for wireless devices is between 100 and 200 feet.

In the same way, your wireless connection and performance will degrade somewhat as the distance between your Router and connected devices increases. This may or may not be noticeable to you. As you move farther from your Router, connection speed may decrease. Factors that can weaken signals simply by getting in the way of your network's radio waves are metal appliances or obstructions, and walls.

If you have concerns about your network's performance that might be related to range or obstruction factors, try moving the computer to a position between five and 10 feet from the Router in order to see if distance is the problem. If difficulties persist even at close range, please contact Belkin Technical Support.

**Note:** While some of the items listed below can affect network performance, they will not prohibit your wireless network from functioning; if you are concerned that your network is not operating at its maximum effectiveness, this checklist may help.

### 1. Wireless Router Placement

Place your Router, the central connection point of your network, as close as possible to the center of your wireless network devices.

To achieve the best wireless network coverage for your "wireless clients" (i.e., computers enabled by Belkin Wireless Notebook Network Cards, Wireless Desktop Network Cards, and Wireless USB Adapters):

- Ensure that your Router's antennas are parallel to each other, and are positioned vertically (toward the ceiling). Your Router itself is positioned vertically, point the antennas as much as possible in an upward direction.
- In multistory homes, place the Router on a floor that is as close to the center of the home as possible. This may mean placing the Router on an upper floor.
- Try not to place the Router near a cordless 2.4GHz or 5GHz phone.

## 2. Avoid Obstacles and Interference

Avoid placing your Router near devices that may emit radio “noise”, such as microwave ovens. Dense objects that can inhibit wireless communication include:

- Refrigerators
- Washers and/or dryers
- Metal cabinets
- Large aquariums
- Metallic-based UV tinted windows

If your wireless signal seems weak in some spots, make sure that objects such as these are not blocking the signal's path (between your computers and Router).

## 3. Cordless Phones

If the performance of your wireless network is impaired after attending to the above issues, and you have a cordless phone:

- Try moving cordless phones away from Routers and your wireless-enabled computers.
- Unplug and remove the battery from any cordless phone that operates on the 2.4 or 5GHz band (check the manufacturer's information). If this fixes the problem, the phone may be interfering.
- If your phone supports channel selection, change the channel on the phone to the farthest channel from your wireless network. For example, change the phone to channel 1 and move your Router to channel 11. See your phone's user manual for detailed instructions.
- If necessary, consider switching to a 900MHz cordless phone.

## 4. Choose the “Quietest” Channel for your Wireless Network

In locations where homes or offices are close together, such as apartment buildings or office complexes, there may be wireless networks nearby that can conflict with yours.

Use the Site Survey capabilities found in the Wireless Network Utility of your wireless adapter to locate any other wireless networks that are available (see your wireless adapter's user

manual), and move your Router and computers to a channel as far away from other networks as possible.

- Experiment with more than one of the available channels, in order to find the clearest connection and avoid interference from neighboring cordless phones or other wireless devices.
- For Belkin wireless networking products, use the detailed Site Survey and wireless channel information included with your wireless network card. See your network card's user guide for more information.

These guidelines should allow you to cover the maximum possible area with your Router. Should you need to cover an even wider area, we suggest the Belkin Wireless Range Extender/Access Point.

## **5. Secure Connections, VPNs, and AOL**

Secure connections typically require a user name and password, and are used where security is important. Secure connections include:

- Virtual Private Network (VPN) connections, often used to connect remotely to an office network
- The "Bring Your Own Access" program from America Online (AOL), which lets you use AOL through broadband provided by another cable or DSL service
- Most online banking websites
- Many commercial websites that require a user name and password to access your account

# Introduction

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Secure connections can be interrupted by a computer's power management setting, which causes it to "go to sleep." The simplest solution to avoid this is to simply reconnect by rerunning the VPN or AOL software, or by re-logging into the secure website.

A second alternative is to change your computer's power management settings so it does not go to sleep; however, this may not be appropriate for portable computers. To change your power management setting in Windows, see the "Power Options" item in the Control Panel.

If you continue to have difficulty with Secure Connections, VPNs, and AOL, please review the steps above to be sure you have addressed these issues.

For more information regarding our networking products, visit our website at [www.belkin.com/networking](http://www.belkin.com/networking) or call Belkin Technical Support at:

<b>US:</b>	<b>877-736-5771</b>
	<b>310-898-1100 ext. 2263</b>
<b>Europe:</b>	<b>00 800 223 55 460</b>
<b>Australia:</b>	<b>1800 235 546</b>
<b>New Zealand:</b>	<b>0800 235 546</b>
<b>Singapore:</b>	<b>800 616 1790</b>

# Overview

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## Product Features

In minutes you will be able to share your Internet connection and network your computers. The following is a list of features that make your new Belkin Dual-Band Wireless A+G Router an ideal solution for your home or small office network.

### Works with Both PCs and Mac® Computers

The Router supports a variety of networking environments including Mac OS® 8.x, 9.x, X v10.x, AppleTalk®, Linux®, Windows® 95, 98, Me, NT®, 2000, and XP, and others. All that is needed is an Internet browser and a network adapter that supports TCP/IP (the standard language of the Internet).

### LED Display

Lighted LEDs on the top of the Router indicate which functions are in operation.

### Web-Based Advanced User Interface

You can set up the Router's advanced functions easily through your web browser, without having to install additional software onto the computer. There are no disks to install or keep track of and, best of all, you can make changes and perform setup functions from any computer on the network quickly and easily.

### NAT IP Address Sharing

Your Router employs Network Address Translation (NAT) to share the single IP address assigned to you by your Internet Service Provider while saving the cost of adding additional IP addresses to your Internet service account.

### SPI Firewall

Your Router is equipped with a firewall that will protect your network from a wide array of common hacker attacks including IP Spoofing, Land Attack, Ping of Death (PoD), Denial of Service (DoS), IP with zero length, Smurf Attack, TCP Null Scan, SYN flood, UDP flooding, Tear Drop Attack, ICMP defect, RIP defect, and fragment flooding.

### Integrated 10/100 4-Port Switch

The Router has a built-in, four-port network switch to allow your wired computers to share printers, data and MP3 files, digital photos, and much more. The switch features automatic detection so it will adjust to the speed of connected devices. The switch will transfer data between computers and the Internet simultaneously without interrupting or consuming resources.



## **Universal Plug and Play (UPnP)**

UPnP is a technology that offers seamless operation of voice messaging, video messaging, games, and other applications that are UPnP-compliant.

## **Support for VPN Pass-Through**

If you connect to your office network from home using a VPN connection, your Router will allow your VPN-equipped computer to pass through the Router and to your office network.

## **Built-In Dynamic Host Configuration Protocol (DHCP)**

Built-In Dynamic Host Configuration Protocol (DHCP) on-board makes for the easiest possible connection of a network. The DHCP server will assign IP addresses to each computer automatically so there is no need for a complicated networking setup.

## **Easy Install Wizard**

The Easy Install Wizard takes the guesswork out of setting up your Router. This automatic software determines your network settings for you and sets up the Router for connection to your Internet Service Provider (ISP). In a matter of minutes, your Router will be up and running on the Internet.

**Note:** Easy Install Wizard software is compatible with Windows 98SE, Me, 2000, XP, and Mac OS 9.X and Mac OS X. If you are using another operating system, the Router can be set up using the Alternate Setup Method described in this User Manual (see page 20).

## **Integrated Dual 802.11g and 802.11a Wireless Access Points**

108 A+G is an exciting new wireless technology that achieves data rates up to 108Mbps.

## **Integrated Parental Control Web Content Filter**

Belkin has teamed with Cerberian, a leading content-filtering company, to bring you this unique feature. Your Belkin Dual-Band Wireless A+G Router is a home networking solution with an integrated web content filter that allows you to block unwanted or offensive web content before it makes it to your network.

Unlike other access-control products, Belkin Parental Control is built into our Router, so there is no software to install on any computer and you will never be charged a per-computer fee for the service. Your Router comes with a free six-month subscription, with no credit card required for this trial period. This lets you take advantage of Parental Control's capabilities right away.

# Overview

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Belkin Parental Control allows you to set up your own policies and block any website you want. There is also an optional reporting feature (fee-based) that allows you to get a report showing you every website that was visited from your network (refer to your Parental Control User Manual for more information).

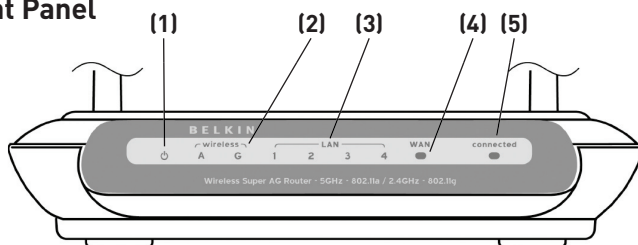
## MAC Address Filtering

For added security, you can set up a list of MAC addresses (unique client identifiers) that are allowed access to your network. Every computer has its own MAC address. Simply enter these MAC addresses into a list using the Web-Based Advanced User Interface and you can control access to your network.

## Product Specifications

The Router has been designed to be placed on a desktop. All of the cables exit from the rear of the Router for better organization and utility. The LED indicators are easily visible on the FRONT of the Router to provide you with information about network activity and status.

### Front Panel



#### 1. Power Icon

The power icon (⏻) indicates the state of the Router. When the icon is **BLINKING**, the Router is booting up. When the icon is **lighted SOLID**, the Router is ready for use. When the light is off, the Router is not powered on.

OFF	Router is OFF
Blinking	Router is booting up
Solid Green	Router is ready for use

## 2. Wireless Network Icons

There are two wireless network icons on the front panel. 802.11g wireless activity is represented by the “G” icon and 802.11a wireless activity is represented by the “A” icon. The icons have three different states.

OFF	Wireless network is OFF
Slow Blinking	Wireless network is ready
Fast Blinking	Indicates wireless activity

## 3. LAN Port-Status LEDs

These icons are labeled 1–4 and correspond to the numbered ports on the rear of the Router. When a computer is properly connected to one of the LAN ports on the rear of the Router, the icon will light when a device is connected. When information is being sent over the port, the icon blinks rapidly.

## 4. WAN Light

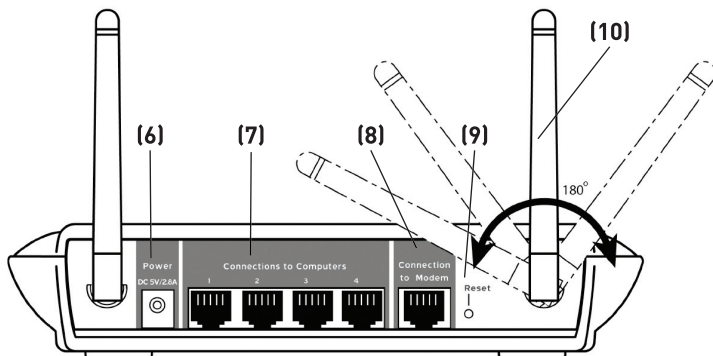
This LED lights in GREEN to indicate that your modem is connected properly to the Router. It blinks rapidly when information is being sent over the port between the Router and the modem.

OFF	No connection to the modem
Solid	Good connection to the modem
Blinking	Data is being sent from the Router to the modem

## 5. Connected Light

The “Connected” light will light green when your Router has a connection to the Internet. The light will blink slowly while the Router is negotiating a connection to the Internet. The light will be OFF when the Router is disconnected from the Internet.

## Rear Panel



### 6. Power Jack – GRAY

Connect the included 5V DC power supply to this jack.

### 7. Connections to Computers (LAN Ports) – BLUE

Connect your wired (non-wireless) computers to these ports. These ports are RJ45, 10/100 auto-negotiation, auto-uplinking ports for standard UTP category 5 or 6 Ethernet cable. The ports are labeled 1 through 4. These ports correspond to the numbered LEDs on the top of the Router.

### 8. Connection to Modem (Internet/WAN Port) – GREEN

This port is for connection to your cable or DSL modem. Use the cable that was provided with the modem to connect the modem to this port. Use of a cable other than the cable supplied with the cable modem may not work properly.

### 9. Reset Button

The “Reset” button is used in rare cases when the Router may function improperly. Resetting the Router will restore the Router’s normal operation while maintaining the programmed settings. You can also restore the factory default settings by using the “Reset” button. Use the restore option in instances where you may have forgotten your custom password.

## **Resetting the Router**

Push and release the “Reset” button. The lights on the Router will momentarily flash. When the lights stop blinking, the reset is complete.

## **Restoring the Factory Defaults**

Press and hold the “Reset” button for at least 10 seconds then release it. The lights on the Router will momentarily flash. When the lights stop blinking, the reset is complete.

## **10. Rotating Antennas**

Both antennas can rotate 180 degrees and swivel up to 90 degrees to allow for optimal positioning of the antennas in either a desktop or wall-mount application. For best wireless performance, the antennas should always be pointing up.

# Overview

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## **System Requirements**

- Broadband Internet connection such as a cable or DSL modem with RJ45 (Ethernet) connection
- At least one computer with an installed network interface adapter
- TCP/IP networking protocol installed on each computer
- RJ45 Ethernet networking cable
- Internet browser

## **Easy Install Wizard Software System Requirements**

A PC with:

- Windows® 98SE, Me, 2000, or XP, or a Mac® computer running Mac OS® 9.x or OS X
- Minimum 64MB RAM
- Internet browser
- CD-ROM drive

## **Package Contents**

- Belkin Dual-Band Wireless A+G Router
- Quick Installation Guide
- Belkin Easy Install Wizard Software CD
- Belkin RJ45 Ethernet Networking Cable
- Power Supply
- User Manual

# Connecting and Configuring the Router

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## Setting Up the Router with the Easy Install Wizard

The following section describes how to set up the Router using the Easy Install Wizard software included in the CD. This software requires that your PC directly connected to your DSL or cable modem is running Windows 98SE, Me, 2000, XP, Mac OS 9.x, or Mac OS X and that your cable or DSL modem Internet connection is **active and working** at the time of installation.

If you do not have a CD-ROM drive or one of the required operating systems, please continue to the “Alternate Setup Method” section of this manual to install the Router.

## Modem Requirements

Your cable or DSL modem must be equipped with an RJ45 Ethernet port. Many modems have both an RJ45 Ethernet port and a USB connection. If you have a modem with both Ethernet and USB, and are using the USB connection at this time, you will be instructed to use the RJ45 Ethernet port during the installation procedure. If your modem has only a USB port, you can request a different type of modem from your ISP, or you can, in some cases, purchase a modem that has an RJ45 Ethernet port on it.



Ethernet



USB

# Connecting and Configuring the Router

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## Step 1 | Install

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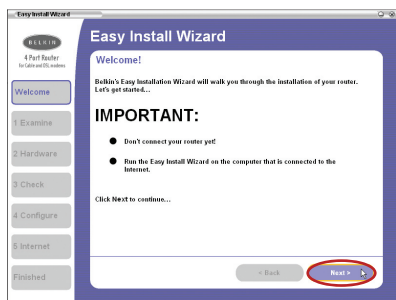
### **Important: Run the Easy Install Wizard software first!**

- 1.1 Do not connect the Router at this time.** From the computer that is directly connected to your high-speed cable or DSL modem, shut down any programs, firewall, and Internet-sharing software applications that are running.
- 1.2 Windows Users:** Insert the Easy Install Wizard software CD into your CD-ROM drive. The Easy Install Wizard screen will automatically appear on your screen within 15 seconds. Click “Next” to start the setup.

**Mac OS Users:** Insert the CD into your CD-ROM drive. A drive will appear on your desktop called “Belkin Easy Install”. Double-click the drive to open it.

**Mac OS 9 users—**double-click the program called “Easy Install OS 9”.

**Mac OS X users—**double-click the program called “Easy Install OSX.dmg”. The Easy Install Wizard screen will appear. Click “Next” to start the setup.

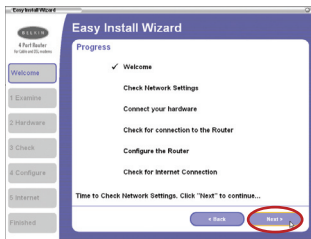


**Note for Windows Users:** If the Easy Install Wizard does not start up automatically, select your CD-ROM drive from “My Computer” and double-click on the file named “EasyInstall.exe” on the CD-ROM.



# Connecting and Configuring the Router

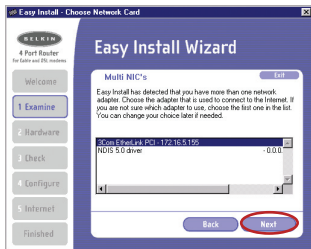
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9



- 1.3 You will now see the first of a series of progress screens to help you know where you are in the setup process. Click “Next” to continue.



- 1.4 The next screen will tell you that the Wizard is examining your network settings. When the Wizard is finished examining your settings, click “Next”.

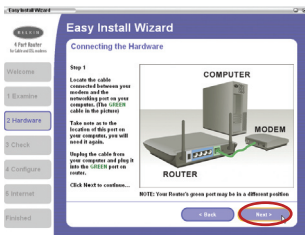


- 1.5 You may see the Multi NICs screen. This screen will appear ONLY if you have more than one network adapter installed in your computer. If you have more than one network card installed in your computer, the Wizard will need to know which adapter is connected to your modem. Select the network adapter that is connected to your modem from the list and click “Next”.

# Connecting and Configuring the Router

## Step 2 | Connect

Connect your Router to your computer and modem.



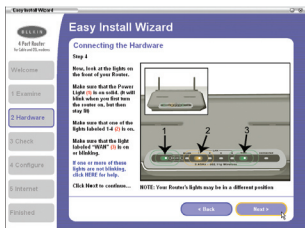
- 2.1** This step instructs you to locate the cable connected between your modem and the networking port on your computer. Unplug this cable from the computer and plug it into the GREEN port on the Router. Click “Next” to continue. (The color of your modem cable may vary from this setup image.)



- 2.2** This step instructs you to locate the BLUE cable that is included with your Router. Plug one end of this cable into ANY one of the BLUE ports on your Router. Plug the other end of the cable into the networking port on your computer. Click “Next” to continue.



- 2.3** This step instructs you to locate the power supply that is included with your Router. Plug the power supply's small connector into the GRAY port on the Router. Plug the power supply into an empty power outlet. Click “Next” to continue.



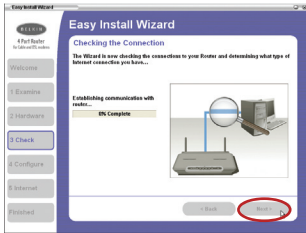
- 2.4** This step instructs you to look at the lights on the front of your Router. Make sure the appropriate lights are ON. Refer to the Easy Install Wizard software on your computer's screen for more details. Click “Next” to continue.

# Connecting and Configuring the Router

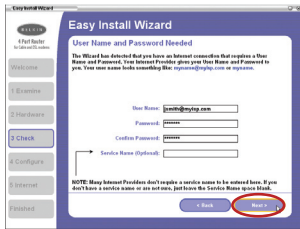
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## Step 3 | Check

The Easy Install Wizard software will verify your connections.



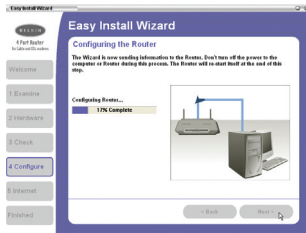
3.1 Once you have completed connecting the Router, the Wizard will check the connection to the Router and then go on to determine what type of Internet connection you have.



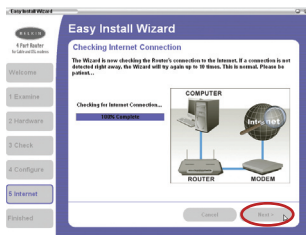
3.2 If you have a connection type that requires a user name and a password (from a high-speed carrier that may require you to log on to access the Internet), you may see this screen. The Wizard will ask you to type in your user name and password. After entering this information, click “Next”.

**Note:** Your user name and password is provided to you by your Internet Service Provider. If you have to type in a user name and password to connect to the Internet, then type that same user name and password in here. Your user name looks something like “jsmith@myisp.com” or simply “jsmith”. The service name is optional and is very rarely required by your ISP. If you don’t know your service name, leave this blank.

# Connecting and Configuring the Router



**3.3** The Wizard will now transfer all of the configuration information to the Router. This will take approximately one minute. During this time, do not turn off the Router or computer. The Router will restart itself at the end of this step.



**3.4** The Wizard will now check for an Internet connection. This can take a few minutes. The Wizard may not detect a connection right away. If not, it will retry 10 times. The “Connected” light on the front panel of the Router will flash during this time. Please be patient through this process.

**Note:** If the Easy Install Wizard repeatedly displays an error message that says it cannot make an Internet connection, you may have to power cycle your modem in order to establish an Internet connection. This step will allow the modem to reconfigure itself properly to work with the router. Please follow the instructions below:

## Sequence:

1. Unplug the power from the modem (supplied by your ISP).
2. Unplug the power from your Belkin Router.
3. Wait for five minutes.
4. Reconnect power to the modem.
5. Wait for the modem to power up (about one minute, please refer to the modem's documentation).
6. Reconnect power to the Router.
7. Check your Internet connection.