

BELKIN®

High-Speed Mode Wireless G Router with Built-In USB Print Server



User Manual



 802.11g	125 High-Speed Mode 2.4GHz • Wireless
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35% FASTER

F5D7231-4P

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Introduction

Thank you for purchasing the Belkin High-Speed Mode Wireless G Router (the Router) with Built-In USB Print Server. Below are two short sections, one discusses the benefits of home networking, the other outlines best practices in order to maximize 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 Wireless Networking Hardware for Optimal Performance” on the next page. By following our simple setup instructions your Belkin Home Network will allow you to:

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

Here are some of the advantages of setting up a Belkin Wireless Network:

Mobility – you’ll no longer need a dedicated “computer room” – now you can work on a networked laptop or desktop computer from virtually anywhere within your wireless range

Easy installation – Belkin’s 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

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Introduction

Placement of your Wireless G Router

Important Factors for Placement and Setup

Your wireless connection will be stronger the closer your computer is to your Wireless Router or Access Point. Typical indoor operating range for your 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 Wireless Router or Access Point and connected devices increases. This may or may not be noticeable to you. As you move further from your Wireless Router or Access Point, 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 ten feet from the Wireless Router or Access Point, 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 or Access Point Placement

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

2. Avoid Obstacles and Interference

Avoid placing your Wireless Router or Access Point 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 Wireless Router or Access Point).

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 Wireless Routers or Access Points and your wireless-enabled computers
- Unplug and remove the battery from any cordless phone that operate on the 2.4GHz band (check manufacturers information). If this fixes the problem, your phone may be interfering.
- If your phone supports channel selection, change the channel on the phone to the furthest channel from your wireless network. For example, change the phone to channel 1 and move your Wireless Router or Access Point to channel 11. See your phone’s user manual for detailed instructions.
- If necessary, consider switching to a 900MHz or 5GHz 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 LAN Utility of your wireless adapter to locate any other wireless networks that are available (see your wireless adapter’s manual), and move your Wireless Router (or Access Point) and computers to a channel as far away from other networks as possible.

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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 in your User Guide.

These guidelines should allow you to cover the maximum possible area with your Wireless Router or Access Point. 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 are connections that 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 on-line banking websites
- Many commercial websites which require a username and password to access your account

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 re-running the VPN or AOL software, or by re-logging into the secure web site.

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 under Windows, see the “Power Options” item in the Control Panel.

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

Introduction

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

US: 877-736-5771
310-898-1100 ext.2263

Europe: 00 800 223 55 460

Australia: 1800 666 040

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Product Overview

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 Wireless 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).

Front-Panel LED Display

Lighted LEDs on the front of the Router indicate which functions are in operation. You'll know at-a-glance whether your Router is connected to the Internet. This feature eliminates the need for advanced software and status-monitoring procedures.

Built-in USB Print Server

Your router includes a built-in USB print server that lets you print to a USB printer from any computer on the network. The print server is very simple to setup and convenient to use. Simply install your printer's drivers and software on each computer, and then run the easy to use Print Server Setup Wizard to setup the print server. In minutes, all of your computers will have access to the same printer.

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.

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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, 4-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) Compatibility

UPnP (Universal Plug-and-Play) 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 Wireless Router will be up and running on the Internet. A separate wizard is included for setup of the print server.

Product Overview

NOTE: Easy Install Wizard software is compatible with Windows 98SE, Me, 2000, XP and Mac OS 9.X and Mac OS X. The Print Server Setup Wizard software is compatible with Windows 98SE, Me, 2000, and XP. If you are using another operating system, the Wireless Router can be set up using the Alternative Method described in this manual (see page 34).

Integrated 802.11g Wireless Access Point

802.11g is an exciting new wireless technology that achieves data rates up to 54Mbps in 54G Mode, nearly five times faster than 802.11b.

125 High-Speed Mode

High-Speed Mode (HSM)*, a 54g™ performance enhancement, provides the fastest wireless connectivity for 802.11g-capable networks in real-world environments. It is designed for home networks that require additional bandwidth for applications such as sharing digital pictures. 125HSM makes 802.11g WLANs more efficient without impacting the performance of neighboring networks, and is compatible at high speeds with leading brands.

Integrated Parental Control Web Content Filter

Belkin has teamed with Cerberian, a leading content-filtering company, to bring you this unique feature. Your Belkin Wireless G Router is the first 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 Parental Control solutions, Parental Control is built into the Belkin Wireless Router, so there is no software to install on any computer and you will never be charged a per-computer fee for the service, ever. Your Wireless Router comes with a six-month free trial of this feature so you can take advantage of the capabilities right away. No credit card is needed to use the trial. You have control: Belkin Parental Control can be modified to meet your needs. You can 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 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 user interface and you can control access to your network.

*When operating in High-Speed Mode, this Wi-Fi device may achieve an actual throughput of up to or greater than 34.1Mbps, which is the equivalent throughput of a system following 802.11g protocol and operating at a signaling rate of 125Mbps. Actual throughput will vary depending on environmental, operational and other factors.

Knowing Your Router

Package Contents

- Belkin High-Speed Mode Wireless G Router with Built-In USB Print Server
- Quick Installation Guide
- Belkin Easy Install Wizard Software CD
- Belkin RJ45 Ethernet Networking Cable
- Power Supply
- User Manual

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 running Windows 98SE, Me, 2000, or XP or a Mac computer running Mac OS 9.x or OS X
- Minimum 64MB RAM
- Internet Browser

Print Server Setup Wizard System Requirements

- A PC running Windows 98SE, Me, 2000, or XP
- Minimum 64MB RAM

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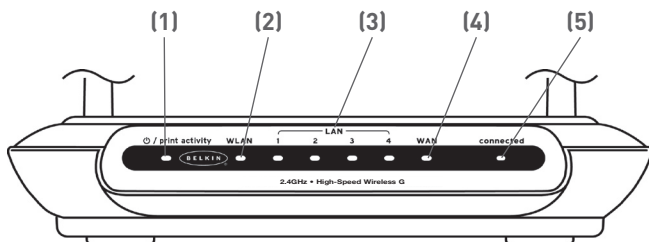
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Knowing Your Router

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.



1. Power/Ready/Print Activity LED

When you apply power to the Router or restart it, a short period of time elapses while the Router boots up. During this time, the LED blinks. When the Router has completely booted up, the Power/Ready LED becomes a SOLID light, indicating the Router is ready for use. When data is being sent to the printer, the light will blink fast.

OFF	Router is OFF
Slow Blinking Green	Router is Booting Up
Solid Green	Router is Ready
Fast Blinking Green	Printer Activity

2. WLAN: Wireless Network LED

OFF	Wireless Network is OFF
Green	Wireless Network is Ready
Blinking	Indicates Wireless Activity

3. LAN Port-Status LEDs

These LEDs 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 LED will light. GREEN means a 10Base-T device is connected, ORANGE means a 100Base-T device is connected. When information is being sent over the port, the LED blinks rapidly.

OFF	No Device is Linked to the Port
Green	10Base-T Device Connected
Orange	100Base-Tx Device Connected
Blinking (Orange or Green)	Port Activity

4. WAN Status LED

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.

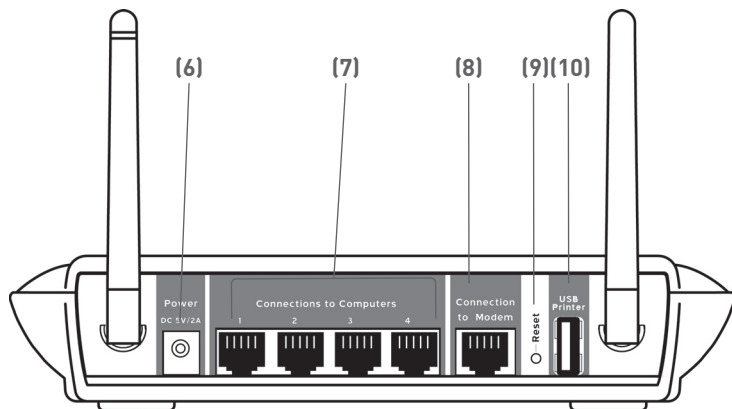
OFF	No WAN Link
Solid Green	Good WAN Link
Blinking Green	WAN Activity

5. Connected LED

This unique LED shows you when the Router is connected to the Internet. When the light is OFF, the Router is NOT connected to the Internet. When the light is blinking, the Router is attempting to connect to the Internet. When the light is solid GREEN, the Router is connected to the Internet. When using the “Disconnect after x minutes” feature, this LED becomes extremely useful in monitoring the status of your Router’s connection.

OFF	Router is not Connected to the Internet
Blinking Green	Router is Attempting to Connect to the Internet
Solid Green	Router is Connected to the Internet

Knowing Your Router



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 front of the Router.

8. Connection to Modem (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.

a. Resetting the Router

Push and release the Reset button. The lights on the Router will momentarily flash. The Power/Ready light will begin to blink. When the Power/Ready light becomes solid again, the reset is complete.

b. Restoring the Factory Defaults

Press and hold the Reset button for at least ten seconds then release it. The lights on the Router will momentarily flash. The Power/Ready light will begin to blink. When the Power/Ready light becomes solid again, the restore is complete.

10. USB Port - PURPLE

For USB printers only. See the section called “Connecting your printer to Router’s print server” on page 22.

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Connecting and Configuring Your Router

Verify the contents of your box. You should have the following:

- Belkin High-Speed Mode Wireless G Router
- Quick Installation Guide
- Belkin Easy Install Wizard Software CD
- RJ45 Ethernet Networking Cable (for connection of the Router to the computer)
- Power Supply
- User Manual

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

ALWAYS INSTALL YOUR ROUTER FIRST! IF YOU ARE INSTALLING NUMEROUS NETWORK DEVICES FOR THE FIRST TIME, IT IS IMPORTANT THAT YOUR ROUTER IS CONNECTED AND RUNNING BEFORE ATTEMPTING TO INSTALL OTHER NETWORK COMPONENTS SUCH AS NOTEBOOK CARDS AND DESKTOP CARDS.

Easy Install Wizard

Belkin has provided our Easy Install Wizard software to make installing your Router a simple and easy task. You can use it to get your Router up and running in minutes.

The Easy Install Wizard requires that your Windows® 98SE, Me, 2000, XP or Mac OS 9.2x, X.1.x computer be connected directly to your cable or DSL modem and that the Internet connection is active

Connecting and Configuring Your Router

and working at the time of installation. If it is not, you must use the “Alternate Setup Method” section of this manual to configure your Router. Additionally, if you are using an operating system other than Windows 98SE, Me, 2000, or XP, you must set up the Router using the “Alternate Setup Method” section of this manual.

IMPORTANT: Run the Easy Install Wizard software from the computer that is directly connected to the cable or DSL modem. **DO NOT CONNECT THE ROUTER AT THIS TIME.**

Step 1 | Run the Easy Install Wizard Software

1. Shut down any programs that are running on your computer at this time.
2. Make sure you have the following items at the computer that is now directly connected to the cable or DSL modem. **DO NOT CONNECT THE ROUTER AT THIS TIME.**
 - Quick Installation Guide
 - The Easy Install Wizard CD-ROM
 - The Router
 - The Router power supply
 - RJ45 Ethernet networking cable
 - This User Manual
3. Turn off any firewall or Internet connection sharing software on your computer.
4. Insert the Easy Install Wizard software CD into your CD-ROM drive. The Installation Menu will automatically appear on your screen within 15 seconds. If it does not, select your CD-ROM drive from “My Computer” and double-click on the file named “Start.exe” on the CD-ROM.

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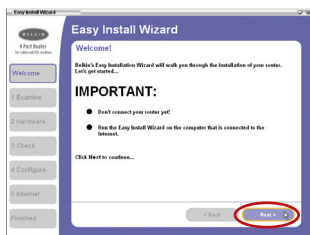
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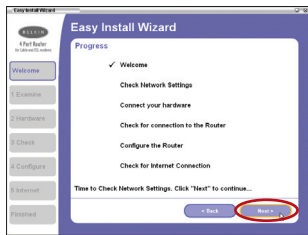
Connecting and Configuring Your Router

5. Click “Run Router Setup Wizard”.



Welcome Screen

The Wizard's welcome screen will appear. Make sure you have not connected the Router at this point. If you have connected your Router, please reconnect your computer directly to the modem. Click “Next” when you are ready to move on.

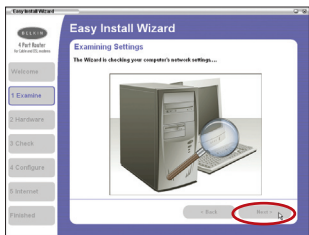


Progress Screen

Easy Install will show you a progress screen each time a step in the setup has been completed. Each time you see the progress screen, click “Next” when you are ready to move to the next step.

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Examining Settings

The Wizard will now examine your computer's network settings and gather information needed to complete the Router's connection to the Internet. When the Wizard is finished examining your computer, click "Next".

Multi-NICs Screen

If you have more than one network adapter installed in your computer a Multi-NIC Screen will appear. If you have more than one network adapter installed in your computer, the Wizard will need to know which adapter is connected to your modem. Select the network card that is connected to your modem from the list and click "Next". If you are not sure which adapter to choose, select the adapter at the top of the list. If you mistakenly choose the wrong adapter now, you will be able to choose a different one later.

Step 2 Hardware Setup

The Wizard will walk you through connecting your Router to your computer and modem. Follow the steps on the screen using the pictures as a guide.

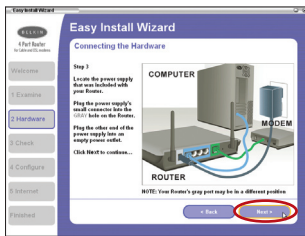


2.1 This step instructs you to locate the cable connected between your modem and the networking port on your computer. Unplug this cable from the computer and plug it into the GREEN port on the Router. Click "Next" to continue.

Connecting and Configuring Your Router



- 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 software on your computer's screen for more details. Click “Next” to continue.