



Wireless Desktop Network Card

Connect your desktop computer to a wireless network



User Manual

F5D6001

TABLE OF CONTENTS

Introduction	1
Overview	2
Features	2
Product Specifications	2
System Requirements	3
Contents of Package	3
Knowing your Wireless Desktop Network Card	4
Installing and Setting Up your Card	6
Step 1: Software and Driver Installation for Windows 98, Me, 2000, and XP . . .	6
Step 2: Installing the Card into your PC	8
Step 3: Finishing the Installation	9
Uninstalling the Software and Drivers	11
Using the Card	12
Using Profiles	18
Using Encryption	20
Troubleshooting	22
Information	23

INTRODUCTION

Thank you for purchasing the Belkin Wireless Desktop Network Card (the Card). This high-speed Card provides you with an innovative wireless networking solution that is easy to set up and use. The Card transmits at a rate of 11, 5.5, 2, or 1Mbps to let you share files and printers on the network—without the hassle and inconvenience of connecting wires! Operating in the ISM band using Direct Sequence Spread Spectrum (DSSS) transmission, the Card implements the IEEE 802.11b standard and supports Windows 98, 2000, Me, or XP operating systems.

OVERVIEW

Features

The Card complies with the IEEE 802.11b standard in order to communicate with other 802.11b-compliant wireless devices.

- 2.4GHz ISM (Industrial, Science, and Medical) band operation
- Includes an easy-to-use profile manager for storing multiple wireless network settings for work, school, home, etc.
- Wireless interface compliance with the IEEE 802.11b standard
- PCI interface, complies with PCI specification 2.1
- 64- or 128-bit Wireless (WEP) Encryption
- Wireless access to networked resources
- Support for both Infrastructure and Ad-Hoc (peer-to-peer) networking modes
- Data rate of up to 11Mbps
 - Supports 11, 5.5, 2, or 1Mbps rates (Auto-Rollback)
- Easy to install and use
- External detachable antenna; optional desktop antenna
- LED link indicator

Product Specifications

Host Interface:	32-bit, PCI 2.2-compliant
Power Consumption:	300mA (max.)
OS Support:	Windows® 98, 2000, Me, or XP
Certification:	FCC Class B, CE Mark, C-Tick
Operating Temperature:	0° C to 55° C
Storage Temperature:	-25° C to 70° C
Typical Operating Range:	Indoor: 160 ft.(50m)@11Mbps, 260 ft.(80m) @5.5Mbps, or lower Outdoor: 490 ft.(150m)@11Mbps, 980 ft.(300m) @5.5Mbps, or lower

OVERVIEW

System Requirements

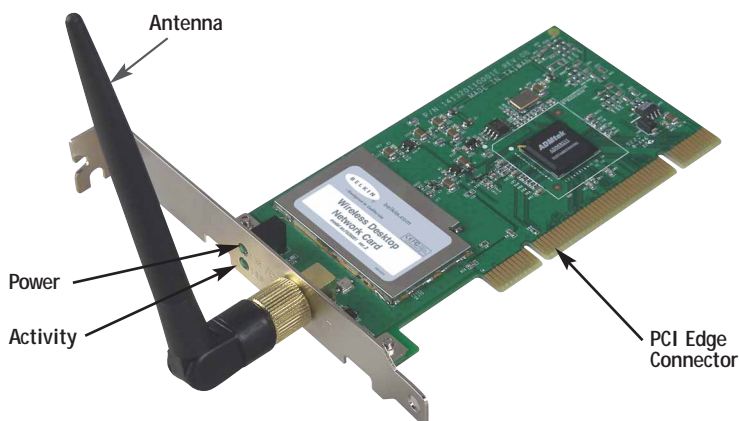
- PC with available PCI expansion slot
- PC running Windows 98 SE, 2000, NT®, Me, or XP
- CD-ROM drive (for loading software)

Contents of Package

- Belkin Wireless Desktop Network Card
- External Antenna
- Software CD
- Quick Installation Guide
- User Manual

KNOWING YOUR WIRELESS DESKTOP NETWORK CARD

Warning! Your Card is sensitive to static electricity. Handle the Card by the edges and avoid touching the PCI edge connector or any of the components on the green printed circuit board.



Power LED

OFF	Power is off
Solid	Power is on

Activity LED

Blinking	Activity
Solid	Linked to the wireless network

KNOWING YOUR WIRELESS DESKTOP NETWORK CARD

Optional Desktop Antenna—F5D6900 (Not included)

Belkin provides an optional desktop antenna to extend the antenna to your desktop. While the antenna that ships with the Card is optimal for most uses, there are some instances where moving the antenna above the desktop is necessary to ensure good signal quality and strength. Use this antenna if, for instance, your computer is placed under or next to a desk which is made of metal, or is under a desk near metal drawers. Metal structures like filing cabinets and drawers can effectively block the wireless signal. The antenna is available from www.belkin.com. Model number: F5D6900.



INSTALLING AND SETTING UP YOUR CARD

Installing your Card is done in three easy steps:

1. Install the software FIRST. If you install the Card inside of your PC before you install the software, it will not work until you install the software.
2. Install the Card inside of your PC.
3. Turn on your PC and let Windows finish installing the Card.

NOTE: INSTALL THE SOFTWARE FIRST BEFORE YOU INSTALL THE CARD INTO YOUR PC

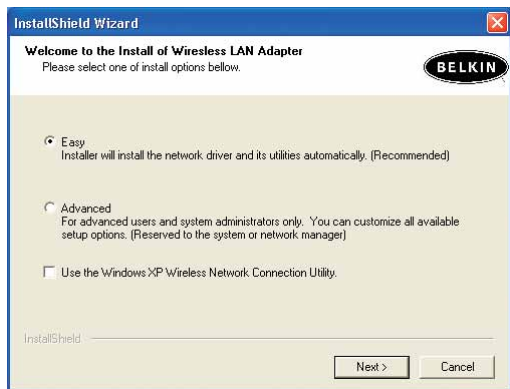
Step 1: Software and Driver Installation for Windows 98, Me, 2000, and XP

1. Shut down any programs that are currently running on your computer.
2. Insert the CD into your CD-ROM drive.
3. The Belkin Wireless Desktop Network Card Setup Utility screen will automatically appear. If it does not appear within 15–20 seconds, then select your CD-ROM drive and double-click on the folder named "Files". Next double-click on the icon named "LAN_UTILITY.exe".
4. In the utility screen, drag your mouse over the "Install" button then select "Click here" to start the software installation program.



INSTALLING AND SETTING UP YOUR CARD

5. The installer will start. Click on or select “Easy” to continue to the next step. If you are using Windows XP, it is recommended that you use the Belkin Wireless Desktop Card Utility to manage the Card’s wireless settings. If you want to use Windows XP to manage the Card, check “Use the Windows XP Wireless Network Connection Utility”. Instructions on how to use the Windows XP Connection Utility are available from Microsoft. Click “Next” to continue.



6. The Wireless Desktop Network Card installer will automatically copy all of the needed files to your computer. You will see the following message when the installer has copied all the files to your computer.



Shut down your computer and install the PCI card now. When you restart your computer, the installation will complete.

7. Remove the CD from the CD-ROM drive and shut down your computer.
Note: Be sure to properly exit Windows by clicking “Start” then “Shut Down”.
8. Follow the direction in Step 2 to install the Card inside of your computer.

INSTALLING AND SETTING UP YOUR CARD

Step 2: Installing the Card into your PC

1. POWER OFF THE COMPUTER AND DISCONNECT THE POWER CORD.
2. Remove the screws that secure the computer cover and remove the cover.
3. Touch any metal part of the case to ground yourself. This will discharge any static electricity that could damage your product or your computer.
4. Locate an empty PCI expansion slot.
5. Confirm that the Card will fit into the slot you have chosen. Keep in mind that the included antenna needs to be oriented with the top pointing up. If there are cords or cables in the way, try to pick a PCI slot that has the least obstructions to the antenna.
6. Remove the port cover from the back of the PC that corresponds to the PCI slot you selected. If there is a screw, place it in a safe spot as you will be using it to attach the Card to the computer chassis later.
7. Push the Card firmly into the PCI slot that you have chosen. Apply pressure as needed until the connector is fully seated.
8. Now secure the Card with the screw that you previously placed in a safe place.
9. Carefully screw the antenna onto the threaded connector on the Card. Turn the antenna until it is vertical and pointing up.



10. Replace the computer's cover.
11. Now that the Card is installed, you can replace the cover to your computer, reconnect all of the cables, and turn it back on. Proceed to Step 3.

INSTALLING AND SETTING UP YOUR CARD

Step 3: Finishing the Installation

1. Turn your computer on. After your computer restarts, Windows will detect that new hardware has been installed. Depending on your version of Windows, a window similar to the one pictured below may appear. Select the option "Install the software automatically (Recommended)".



2. If you are using Windows 2000 or Windows XP, you may see a screen similar to the one below. This does not mean there is a problem. Select "Continue Anyway".



INSTALLING AND SETTING UP YOUR CARD

- Windows will find the correct driver files and complete the installation. Windows may tell you that the hardware is installed. Click “Finish” if asked to. If you are using Windows 98 or Me, you will be asked to restart your computer. Select “Restart”. If you are using Windows 2000 or XP, you will see a window similar to the one below. Click “Finish”.



- An icon will appear in the bottom right-hand corner of your screen next to the clock. Double-click on this icon to open the wireless network card manager. Also, an icon was placed on your desktop called “Belkin 11Mbps Wireless Desktop Manager”. Double-click this icon to launch the manager.



- Installation is complete. Go to the section called “Using the Card”.




UNINSTALLING THE SOFTWARE AND DRIVERS

If you need to remove the software and drivers for any reason, you can easily accomplish this in one of two ways. You can insert the software CD and click on the Uninstall option in the menu, or you can go to the Windows Control Panel and select the “Add/Remove Programs” option. The Belkin wizard will walk you through the removal process.


USING THE CARD

Using the Belkin WLAN Monitor

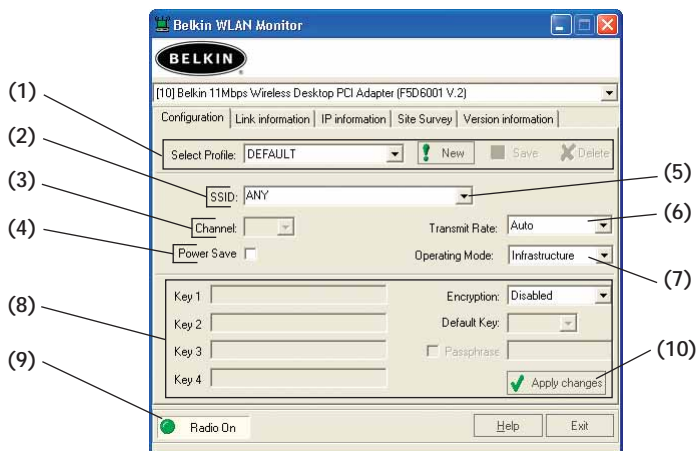
The Card is equipped with a management utility that allows you to change the settings of the wireless card, see the wireless signal strength, turn the Card's radio on or off, and much more. The Card also puts an indicator icon in the bottom right-hand corner of your computer (the system tray) that gives you a quick look at your wireless signal quality.

Green		Excellent signal quality
Yellow		Fair signal quality
Red		Poor to no signal quality

To Open the LAN Monitor Screen

To access the management utility, double-click on the  icon in the bottom right-hand corner of your computer screen. The manager utility window will open. You will see the Belkin Wireless Network Manager window. There are four tabs that perform different functions.

Configuration Tab



USING THE CARD

1. Select Profile

This section of the window shows the profile that the Card is operating under. Using profiles allows you to save configurations for different wireless networks. For instance, if you use your Card at your place of work and also at your home, your wireless network settings may be different for each location. Profiles let you store settings for each location and name them for easy identification. The “default” profile will contain the initial configuration setting when you install the Card. For information about how to use profiles, see “Using Profiles”.

2. SSID

The SSID displays the wireless network name. This box shows you the name of the wireless network that the Card is currently set to connect to. The initial setup of the Card will say “ANY”. When the SSID is set to “ANY”, the Card will connect to the first available wireless network that it finds. You can type in a specific SSID if you wish to connect to a specific network. Type in the name of the network in the SSID box and then press “Apply Changes” (10).

You can also see a list of all of the networks in the area by clicking on the down-facing arrow (5) next to the SSID box. To join one of these networks, select it from the list and click “Apply Changes” (10).

3. Channel

Displays the current channel the wireless network is operating on. In a wireless network using a wireless router or an access point, the wireless router or access point determines the operating channel. In a computer-to-computer network, the channel is determined by you. For more information, see “Operating Mode”.

4. Power Save

Enabling “Power Save” will help reduce power consumption by turning the Card OFF after each data set is sent or received to or from the network. Enabling this mode will decrease performance of the Card. Use this feature only if necessary.

6. Transmit Rate

Displays the current rate of data transmission. There are five rates possible:

Fixed 11Mbps—Always transmit and receive at 11Mbps data rate regardless of signal quality.

Fixed 5.5Mbps—Always transmit and receive at 5.5Mbps data rate regardless of signal quality.

Fixed 2Mbps—Always transmit and receive at 2Mbps data rate regardless of signal quality.

Fixed 1Mbps—Always transmit and receive at 1Mbps data rate regardless of signal quality.

Auto—Adjust speed according to signal strength. This mode is the recommended setting. It will decrease the amount of transmit and receive errors by reducing the speed of transmission in favor of receiving error-free data. Note that data being sent at Fixed 11Mbps with low signal quality will not necessarily get the data to the computer faster. This is because when errors occur, the data must be resent. When the signal quality is low, the chances for errors to occur at high speeds are greatly increased. Sending the data at lower speeds when the signal quality is poor will reduce the chances of errors, and thus data will get to the computer in the shortest possible time.

7. Operating Mode

Shows the current wireless mode the Card is operating in. There are two operating modes: “Infrastructure” and “802.11 Ad-Hoc”. Infrastructure is the most common mode to operate in and is the factory default setting. Use Infrastructure mode when connecting your PC to a wireless access point or to a wireless router. 802.11 Ad-Hoc mode is used to connect two or more computers together without the use of an access point or wireless router. To change the mode, click the down-facing arrow next to the Operating Mode field. Select the mode you wish to use, then click “Apply Changes” (10).

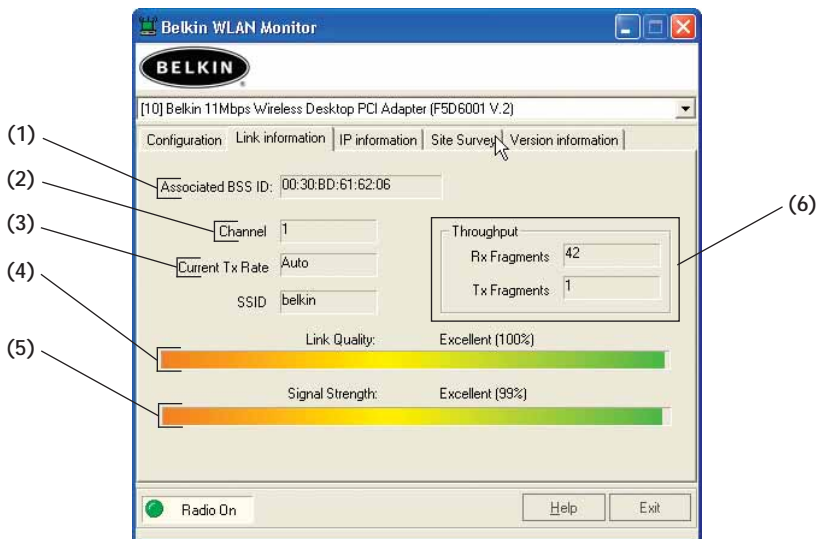
8. Encryption

Enter encryption settings in this area. For information about using encryption, go to the section called “Using Encryption”.

9. Radio ON/OFF Button

It is possible to completely turn off the Card’s wireless transmitter (radio) by pressing the “Radio ON” button. After pressing the button, it will change to read “Radio OFF”. To enable the radio again, click the “Radio OFF” button.

Link Information Tab



1. Associated BSS ID

Displays the MAC address of the access point or wireless router that the Card is currently connected to.

2. Channel

Displays the current channel the wireless network is operating on. In a wireless network using a wireless router or an access point, the wireless router or access point determines the operating channel. In a computer-to-computer network, the channel is determined by you. For more information, see "Operating Mode".

3. Current Tx Rate

Displays the current rate of data transmission.

4. Link Quality bar

Displays the quality of the wireless signal from 0 to 100%. The closer to 100%, the better the link quality is. Link quality differs from signal strength by measuring the actual quality of the signal. It is possible to have low signal strength and high link quality.

5. Signal Strength bar

Displays the strength of the wireless signal from 0 to 100%. The closer to

USING THE CARD

100%, the better the signal strength is. The closer you are to a wireless router or access point, the stronger the signal should be.

6. Throughput

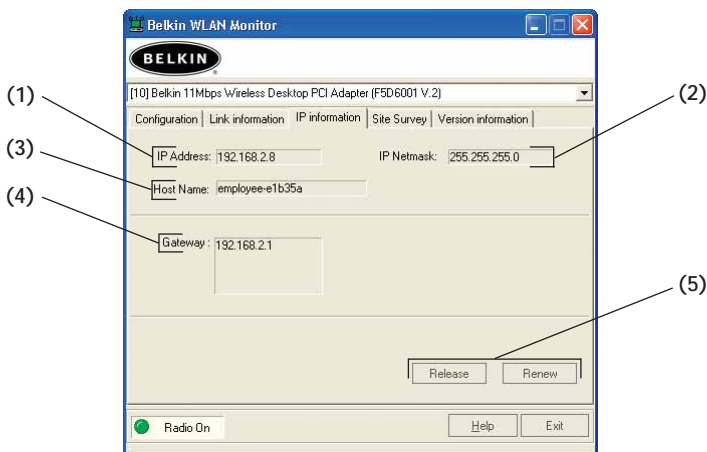
Displays the cumulative number data fragments sent and received since joining the current network. This display is used mainly for troubleshooting purposes.

IP Information Tab

Displays your IP configuration for your wireless card.

1. IP Address: displays the IP address assigned to the Card.
2. IP Netmask: displays the subnet mask assigned to the Card.
3. Host Name: displays the host name of the computer.
4. Gateway: displays the gateway IP address.
5. Release/Renew buttons:

If your Card is set up to obtain an IP address automatically from a DHCP server, changing networks may require you to renew the IP address for that network. If you switch from one wireless network to another without shutting down your computer, you can use the release/renew buttons to renew the IP settings. Click "Release" and wait until all the information turns to zero. Then click "Renew". You will see your new IP settings when the Card gets them.

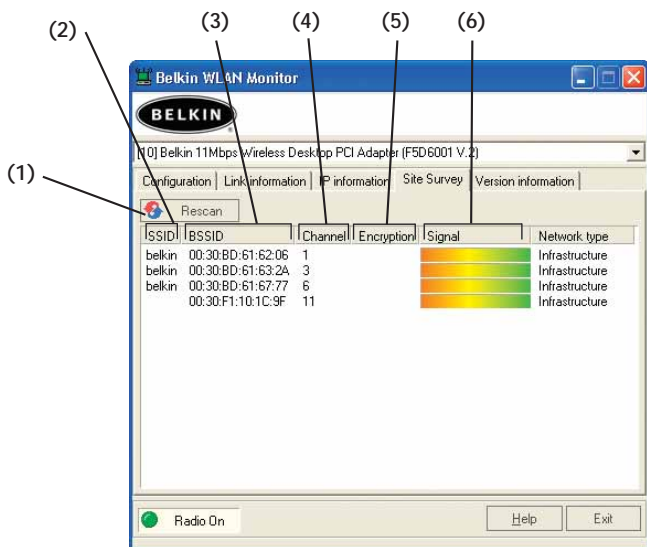


USING THE CARD

Site Survey

To display a list of all the available wireless networks in your area, use this tab. Viewing the tab will show you all of the available networks in your area, if they are encrypted, what the name of the network is, and what the MAC address of the access point is.

1. Rescan button: Pressing this button will make the Card scan the area for wireless networks and display the list of networks that it found.
2. SSID: Displays the wireless network name.
3. BSSID: Displays the MAC address of the access point.
4. Channel: Displays the channel that the wireless network is operating on.
5. Encryption: Displays if encryption is on or off.
6. Signal: Displays the relative signal strength of the access point in the particular network.



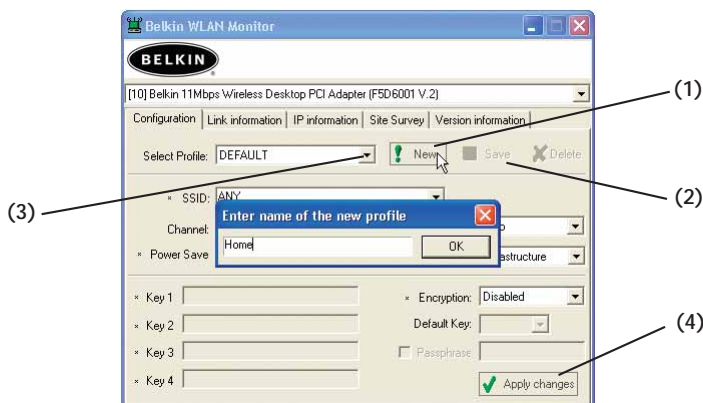
Double-clicking on the SSID of any network in the site browser will make the Card join that network.

USING PROFILES

Using profiles allows you to save configurations for different wireless networks. For instance, if you use your Card at your place of work and also at your home, your wireless network settings may be different for each location. Profiles let you store settings for each location and name them for easy identification. The “default” profile will contain the initial configuration setting when you install the Card.

To create a new profile:

1. Click the “New” (1) button. A small window will appear. Type a new name such as “Work”, then press “OK”.



2. The new profile name will appear in the “Selected Profile” field. Make any changes you need to SSID, Encryption, etc. When finished making the changes, click “Save” (2).
3. Your new profile is now saved.

USING PROFILES

To select a profile:

1. Click the down-facing arrow next to the “Select Profile” bar **(3)**.
A drop-down list of profiles will appear.

***Note:** If you have not saved any profiles, only the “Default” profile will appear as a selection.*

2. Select the profile you want to use by clicking on it with the mouse.
3. Click “Apply Changes” **(4)** to save the change.

The settings for the profile you selected will now be in use.

To delete a profile:

1. Select the profile you wish to delete.
2. Click the “Delete” button.
3. Click “Apply Changes”.

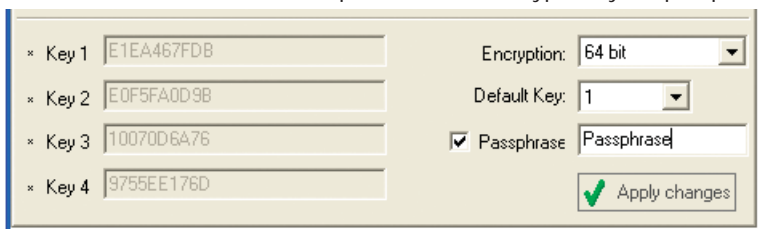
The profile is now deleted.

USING ENCRYPTION

Encryption is fairly easy to understand. Encryption uses what are called “Keys” to encode and decode or “scramble” and “unscramble” data. Keys can be made by entering a passphrase (password) or can be entered manually into the system using an alphanumeric series or a series of two-digit numbers (called hexadecimal). In Infrastructure mode, where an access point or wireless router is being used, the access point or wireless router is programmed with an encryption key. For a wireless device to join the wireless network, the same encryption key must be programmed into the device. Your Card can be programmed with a key in either the passphrase (easy) manner or with an alphanumeric or hexadecimal (advanced) entry.

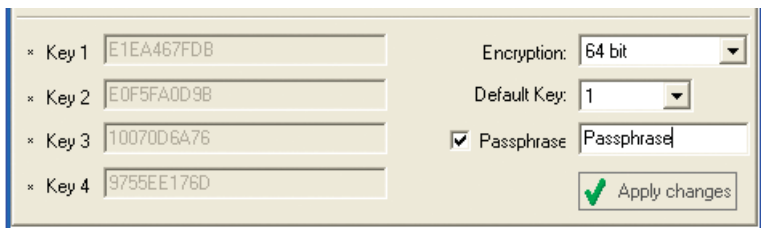
To Create an Encryption Key Using a Passphrase – EASY

1. Click the down-facing arrow next to “Encryption” and select “64-bit” or “128-bit” (see below).
2. Place a check mark in the “Passphrase” box and type in your passphrase.



The screenshot shows a configuration window with four keys listed on the left: Key 1 (E1EA467FDB), Key 2 (E0F5FA0D9B), Key 3 (10070D6A76), and Key 4 (9755EE176D). On the right, there is an 'Encryption' dropdown menu set to '64 bit', a 'Default Key' dropdown menu set to '1', a checked 'Passphrase' checkbox, and a text field containing 'Passphrase'. At the bottom right is a green 'Apply changes' button with a checkmark icon.

3. The keys will be automatically generated. You can select which key you



This is an identical duplicate of the screenshot above, showing the same encryption key configuration interface with four keys, a 64-bit encryption setting, default key 1, a checked passphrase checkbox, and an 'Apply changes' button.

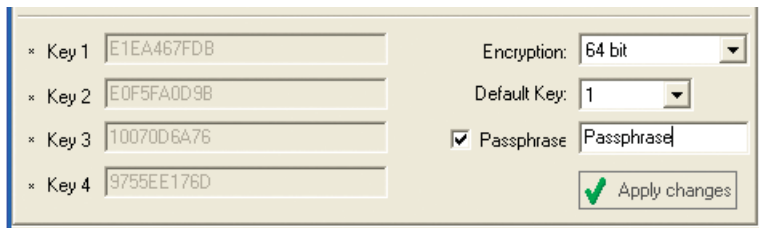
want to use in the “Default Key” menu.

4. Click “Apply changes” to save the passphrase.

USING ENCRYPTION

To Create an Encryption Key Manually – ADVANCED

1. Click the down-facing arrow next to “Encryption” and select “64-bit” or “128-bit” (see below).



The screenshot shows a configuration window for encryption. On the left, there are four text input fields labeled "Key 1", "Key 2", "Key 3", and "Key 4". Each field contains a hexadecimal string: "E1EA467FDB", "E0F5FA0D9B", "10070D6A76", and "9755EE176D" respectively. On the right side, there is a section with a label "Encryption:" followed by a dropdown menu currently set to "64 bit". Below this is a "Default Key:" dropdown menu set to "1". There is a checked checkbox labeled "Passphrase" followed by a text input field containing the word "Passphrase". At the bottom right, there is a green checkmark icon and a button labeled "Apply changes".

2. Type in the hexadecimal keys (provided by your network administrator) in each of the key fields. Depending on the rate of encryption you are using, follow the steps below:
 - a. 64-bit: If you selected 64-bit encryption, then enter a 10-digit hex key into “Key 1”.
 - b. 128-bit: If you selected 128-bit encryption, then enter a 26-digit hex key into “Key 1”.

Note: *In many cases, this key should be provided to you by the network administrator.*

3. Click “Apply changes” to save the key(s).

TROUBLESHOOTING

You can find technical support information at networking.belkin.com or www.belkin.com through the tech support area. If you want to contact technical support by phone, please call 800-223-5546. Technical support is available 24 hours a day, 7 days a week.

INFORMATION

FCC Statement

DECLARATION OF CONFORMITY WITH FCC RULES FOR ELECTROMAGNETIC COMPATIBILITY

We, Belkin Corporation, of 501 West Walnut Street, Compton, CA 90220, declare under our sole responsibility that the product,

F5D6001

to which this declaration relates,
complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution: Exposure to Radio Frequency Radiation.

The radiated output power of this device is far below the FCC radio frequency exposure limits. Nevertheless, the device shall be used in such manner that the potential for human contact normal operation is minimized.

When connecting an external antenna to the device, the antenna shall be placed in such a manner to minimize the potential for human contact during normal operation. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.

Federal Communications Commission Notice

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. If not installed and used in accordance with the instructions, it may 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 and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and the receiver.
- Connect the equipment to 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.

Modifications

The FCC requires the user to be notified that any changes or modifications to this device that are not expressly approved by Belkin Corporation may void the users authority to operate the equipment.

INFORMATION

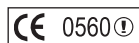
Canada- Industry Canada (IC)

The wireless radio of this device complies with RSS 139 & RSS 210 Industry Canada. This Class B digital complies with Canadian ICES-003.

Cet appareil numérique de la classe B conforme à la norme NMB-003 du Canada.

Europe-European Union Notice

Radio products with the CE 0560 or CE alert marking comply with the R&TTE Directive (1995/5/EC) issued by the Commission of the European Community.



Compliance with this directive implies conformity to the following European Norms (in brackets are the equivalent international standards).



- EN 60950 (IEC60950) – Product Safety
- EN 300 328 Technical requirement for radio equipment
- ETS 300 826 General EMC requirements for radio equipment.

To determine the type of transmitter, check the identification label on your Belkin product.

Products with the CE marking comply with the EMC Directive (89/336/EEC) and the Low Voltage Directive (72/23/EEC) issued by the Commission of the European Community. Compliance with these directives implies conformity to the following European Norms (in brackets are the equivalent international standards).



- EN 55022 (CISPR 22) – Electromagnetic Interference
- EN 55024 (IEC61000-4-2,3,4,5,6,8,11)- Electromagnetic Immunity
- EN 61000-3-2 (IEC610000-3-2) - Power Line Harmonics
- EN 61000-3-3 (IEC610000) – Power Line Flicker
- EN 60950 (IEC60950) – Product Safety

Products that contain the radio transmitter are labeled with CE 0560 or CE alert marking and may also carry the CE logo.

Belkin Corporation Limited Lifetime Product Warranty

Belkin Corporation warrants this product against defects in materials and workmanship for its lifetime. If a defect is discovered, Belkin will, at its option, repair or replace the product at no charge provided it is returned during the warranty period, with transportation charges prepaid, to the authorized Belkin dealer from whom you purchased the product. Proof of purchase may be required.

This warranty does not apply if the product has been damaged by accident, abuse, misuse, or misapplication; if the product has been modified without the written permission of Belkin; or if any Belkin serial number has been removed or defaced.

THE WARRANTY AND REMEDIES SET FORTH ABOVE ARE EXCLUSIVE IN LIEU OF ALL OTHERS, WHETHER ORAL OR WRITTEN, EXPRESSED OR IMPLIED. BELKIN SPECIFICALLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

No Belkin dealer, agent, or employee is authorized to make any modification, extension, or addition to this warranty.

BELKIN IS NOT RESPONSIBLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY, OR UNDER ANY OTHER LEGAL THEORY, INCLUDING BUT NOT LIMITED TO, LOST PROFITS, DOWNTIME, GOODWILL, DAMAGE TO OR REPROGRAMMING, OR REPRODUCING ANY PROGRAM OR DATA STORED IN, OR USED WITH, BELKIN PRODUCTS.

Some states do not allow the exclusion or limitation of incidental or consequential damages or exclusions of implied warranties, so the above limitations of exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.



belkin.com

Belkin Corporation

501 West Walnut Street
Compton • CA • 90220 • USA
Tel: 310.898.1100
Fax: 310.898.1111

Belkin Components, Ltd.

Express Business Park
Shipton Way • Rushden • NN10 6GL
United Kingdom
Tel: +44 (0) 1933 35 2000
Fax: +44 (0) 1933 31 2000

Belkin Components B.V.

Starpac Building • Boeing Avenue 333
1119 PH Schiphol-Rijk • The Netherlands
Tel: +31 (0) 20 654 7300
Fax: +31 (0) 20 654 7349

Belkin Components, Ltd.

7 Bowen Crescent • West Gosford
NSW 2250 • Australia
Tel: +61 (0) 2 4372 8600
Fax: +61 (0) 2 4372 8603

Belkin Tech Support

US: 310.898.1100 ext. 2263
800.223.5546 ext. 2263
Europe: 00 800 223 55 460
Australia: 1800 666 040

P74056-B