BELKIN®

Surf POWERLINE AV+ NETWORKING ADAPTER

User Manual

F5D4079 - 8820ea05562

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INTRODUCTION

Thank you for purchasing the Surf Powerline AV+ Networking Adapter (the Adapter). Most people don't enjoy buying long and expensive Ethernet cables or pulling the cables from one place to another, but the Adapter offers one of the easiest ways to enjoy home or small-business networking. Users can now experience a total network solution with the Adapter. The Surf Powerline AV+ Networking Adapter operates on the HomePlug® Powerline AV standard, providing up to 200Mbps* bandwidth over home AC wiring. Since the home power lines are the most pervasive medium in households with multiple outlets in every room, the Adapter allows multiple home desktop and notebook computers to be networked to share an Internet connection, printers, files, stream video, and play games without any additional wiring. The advanced signal processing is capable of maintaining coverage throughout the entire house, even across different phase rings.

Pass through port.

Get rid of the monopoly on the wall socket. The added power socket on your Powerline AV+ allows you to still plug in your Internet Television, Xbox or Blu-ray player power cord, while connecting your devices to the internet. Streaming movies to your television has never been easier.

The installation of the Adapter only requires that a 10/100Mbps Ethernet port is available on your device. This makes the Surf Powerline AV+ Networking Adapter compatible with any device, including Mac, Windows, and UNIX machines. Note that you need at least two adapters to create a powerline network.
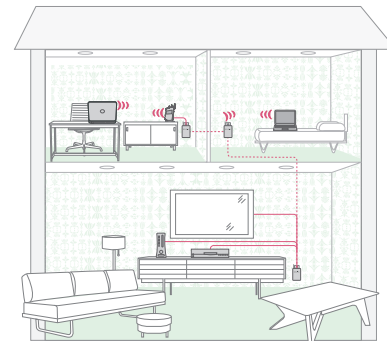
For security, all HomePlug devices are equipped with 128-bit AES encryption. The private home power grid plus encryption makes HomePlug significantly more secure than competing technologies.

The Surf Powerline AV+ Networking Adapter provides the best solution for no-new-wires home networking. With easy plug-and-play installation, and the reliability of HomePlug Ethernet's products, the Surf Powerline AV+ Networking Adapter is the best solution for high-speed networking.
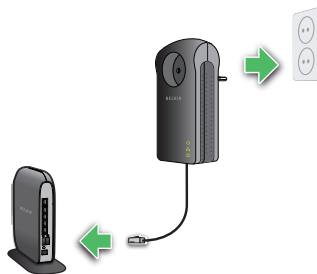
Features

- Up to 200Mbps* bandwidth over standard home power lines

- HomePlug signal easily passes through circuit breaker

- 128-bit AES encryption ensures data security

- Encryption completed by hardware, without sacrifice to bandwidth

- Uses IEEE 802.3 computer interface

- Plug-and-play installation

- HomePlug Powerline AV-compliant

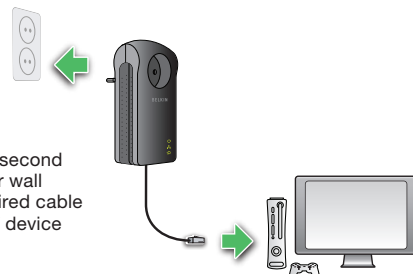- Coexistence with HomePlug 1.0 and 1.0 Turbo networks

Just plug in

Plug the adapter into a wall socket and plug the pre-wired cable into a Router network port

Start to play

Then simply plug the second adapter into any other wall socket and the pre-wired cable into a network port of device you wish to connect.

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Product Specifications

Computer Interface: IEEE 802.3/802.3u

Operating Temperature: 32–104 degrees F (0–40 degrees C)

Storage Temperature: -20 ° to 70 ° C

Operating Humidity: 10% to 90% Non-condensing

Outlet current: 220-240VAC 16A Maximum

*The standard transmission rate—200Mbps—is the physical data rate.
Actual data throughput will be lower.

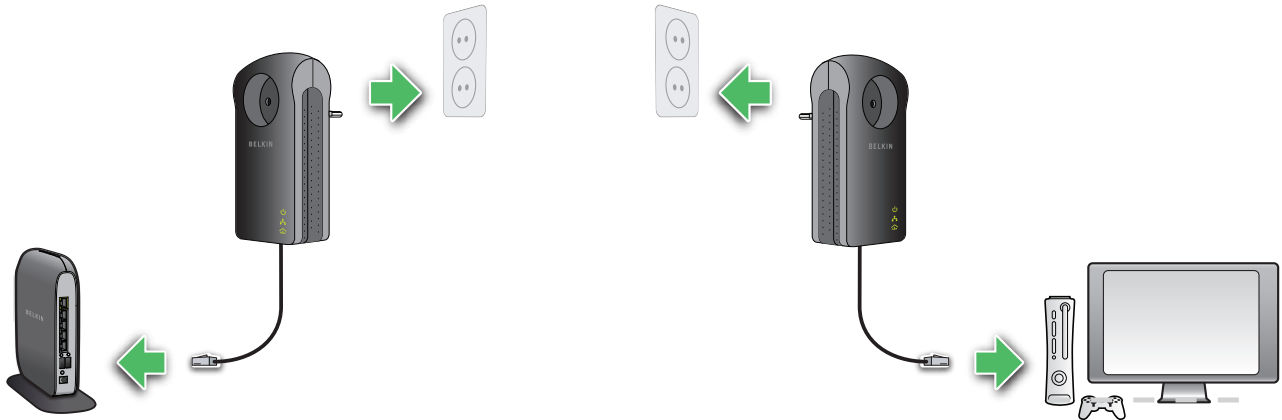| LED No.	Color	Status	Note
Power	Green	Off	Power off
		On	Power on
		Flash	Standby mode
Ethernet	Green	Off	The Ethernet interface is in the non-communication status
		Flash	Data is received or sent on the Ethernet interface
		On	The Ethernet interface is in the communication status
Data	Green	Off	No signals are detected
	Yellow	Green On	PHY RATE>40 Mbps
	Red	Yellow On	20 Mbps <PHY RATE<40 Mbps
		Red On	PHY RATE<20Mbps

System Requirements

- At Least 2 HomePlug AV Devices
- Available Ethernet port on each computer or network device
- Available power outlet
- Standard home powerline wiring
- CD-ROM drive

Package Contents

- Surf Powerline AV+ Networking Adapter(s)
- HomePlug User Manual (on CD)
- CD-ROM
- CAT5/RJ45 Ethernet Cable(s)

INSTALLING AND SETTING UP THE ADAPTERS

Just plug in

Plug the adapter into a wall socket and plug the
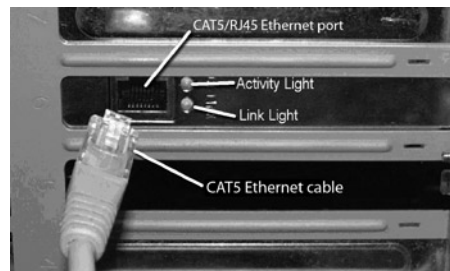pre-wired cable into a Router network port

Start to play

Then simply plug the second adapter into any
other wall socket and the pre-wired cable into a
network port of device you wish to connect.

INSTALLING AND SETTING UP THE ADAPTERS

Overview

Installation of the Surf Powerline AV+ Networking Adapter takes only seconds and does not require setting up long wires throughout the house. Simply plug the units directly into any available wall outlet and connect to any device with an Ethernet port. Users have the option to randomly change the security password for their powerline network.

Hardware Setup

1. Plug your network cable into the device's RJ45 network adapter port.

2. Plug the other end of your network cable into the RJ45 port located at the back of the Adapter.

3. Plug the power cable or wall adapter into the power connector at the back of the Adapter.

4. Insert the power plug of your power cable or wall adapter directly into a power outlet in the wall.

   NOTE: Do not plug the device into a UPS or power strip with surge protection as they may filter the powerline signal.

5. Repeat this process for the second Adapter.

CONFIGURATION

Overview

The Adapter uses 128-bit AES encryption to block access from the outside. By default, the protection is enabled. However, it is recommended that you change the default network password with the "Encryption" button located on the units.

How to use the Pushbutton

This section describes how to add new devices or remove old devices from your HomePlug AV Powerline network. Both can be accomplished using the pushbutton on the device.

While doing this you can monitor the status and the progress of the process using the device's LED's.

Forming a HomePlug AV logical network

When creating a logical network for the first time with two Powerline adapters connected to the same power system and you want to communicate with each other then follow the steps below.

1. Press the encryption button on both the devices A and B for 10 seconds until the units' LED's flash and the units resets. (This does not have to be in the same time).
2. Wait for 30 seconds for the reset to be complete.
3. Press the encryption button on the first device A, which is connected to your router, for less than 3 seconds.
4. Press the encryption button on the second device B, for less than 3 seconds. The button on B must be pressed within 1 minute of pressing the button on the first device A.
5. The adapters should now connect, simply wait for connection to be established.

The Power LED on both of the devices should flash at 1-second intervals until the process has been completed, in success or failure. The Power LED will be illuminated constant once the connection is established successfully. If an error occurs, the Power LED on the device on the existing network (A or B in this example) will flash until the encryption button on the existing device is pressed again.

The new network password has now been saved to the second unit. The password will not be lost, even if the adapters are unplugged from the wall.
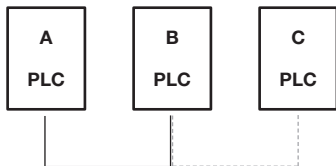
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CONFIGURATION

Joining an existing Network

In this scenario a network has already been established with multiple devices, A and B. You want to add a new device, C. Any of the existing devices on the network can act as the host to allow C to join the network. Follow these steps below.

1. Plug in the device C on the same power system as device A and B.

2. Press the encryption key on the device C for 10 seconds until the unit's LED's flash and the unit resets.

3. Wait for 30 seconds for the reset to be complete.

4. Press the encryption button on the existing device (A or B) for 3 seconds or less, it will then enter host mode.

5. Press the encryption button on the new device C for less than 3 seconds. This must be done within one minute of step 4.

6. The new adapter should now join the existing network, simply wait for the connection to be established.

The Power LED on both of the devices should flash at 1-second intervals until the process has been completed, in success or failure. The Power LED will be illuminated constant once the connection is established successfully. If an error occurs, the Power LED on the device on the existing network (A, B, or C in this example) will flash until the encryption button on the existing device is pressed again.

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CONFIGURATION

Joining a Network

A and B are already communicating on an existing Powerline network.

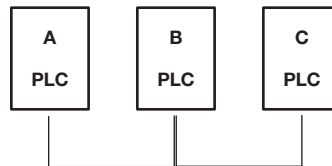Device C wants to join this network.

Press the encryption button on device A or B for less than 3 seconds.

Press the encryption button on device C for less than 3 seconds.

A or B (depending which you used) becomes the host device.

C attempts to join the network

If successful C will join the same network as A and B.

leaving a Network

Leaving a Network

On an existing network when you want to remove a device from the network you may remove the device from the network or move it to an alternate network.

1. Press the encryption button on the device you wish to remove for at least 10 seconds. This will reset and restart the device with a random encryption key.

2. Wait 30 seconds for the reset to complete.

The Power LED on the device will momentarily go off during the reset. It will then flash during restart then illuminate steadily once ready.

Once the process completes, the user may disconnect the device from the socket or follow the process above to join the device to another network.

Resetting to Factory Defaults

Using a pointed object, press and hold the "reset" button for one second to restore defaults. This procedure resets the network password to the default out-of-box value.

INFORMATION

Free Tech Support* *National call rates may apply*   **www.belkin.com**

You can find additional support information on our website www.belkin.com through the tech-support area. If you want to contact technical support by phone, please call the number you need from this list*.

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FCC Statement
DECLARATION OF CONFORMITY WITH FCC RULES FOR ELECTROMAGNETIC COMPATIBILITY

We, Belkin International, Inc., of 12045 East Waterfront Drive, Playa Vista, CA 90094, declare under our sole responsibility that the product, F5D4079, 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 a manner that the potential for human contact during 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 this equipment does 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 International, Inc., may void the user's authority to operate the equipment.

CE

For information on product disposal please refer to http://environmental.belkin.com

Belkin International, Inc., Limited 2-Year Product Warranty

What this warranty covers.

Belkin International, Inc. ("Belkin") warrants to the original purchaser of this Belkin product that the product shall be free of defects in design, assembly, material, or workmanship.

What the period of coverage is.

Belkin warrants the Belkin product for two years.

What will we do to correct problems?

Product Warranty.

Belkin will repair or replace, at its option, any defective product free of charge (except for shipping charges for the product). Belkin reserves the right to discontinue any of its products without notice, and disclaims any limited warranty to repair or replace any such discontinued products. In the event that Belkin is unable to repair or replace the product (for example, because it has been discontinued), Belkin will offer either a refund or a credit toward the purchase of another product from Belkin.com in an amount equal to the purchase price of the product as evidenced on the original purchase receipt as discounted by its natural use.

What is not covered by this warranty?
All above warranties are null and void if the Belkin product is not provided to Belkin for inspection upon Belkin's request at the sole expense of the purchaser, or if Belkin determines that the Belkin product has been improperly installed, altered in any way, or tampered with. The Belkin Product Warranty does not protect against acts of God such as flood, earthquake, lightning, war, vandalism, theft, normal-use wear and tear, erosion, depletion, obsolescence, abuse, damage due to low voltage disturbances (i.e. brownouts or sags), non-authorized program, or system equipment modification or alteration.

How to get service.
To get service for your Belkin product you must take the following steps:

1. Contact Belkin Limited using the details provided on page 8.

2. Your Belkin Customer Service Representative will then instruct you on how to forward your receipt and Belkin product and how to proceed with your claim.

Belkin reserves the right to review the damaged Belkin product. All costs of shipping the Belkin product to Belkin for inspection shall be borne solely by the purchaser. If Belkin determines, in its sole discretion, that it is impractical to ship the damaged equipment to Belkin, Belkin may designate, in its sole discretion, an equipment repair facility to inspect and estimate the cost to repair such equipment. The cost, if any, of shipping the equipment to and from such repair facility and of such estimate shall be borne solely by the purchaser. Damaged equipment must remain available for inspection until the claim is finalized. Whenever claims are settled, Belkin reserves the right to be subrogated under any existing insurance policies the purchaser may have.

How state law relates to the warranty.

THIS WARRANTY CONTAINS THE SOLE WARRANTY OF BELKIN. THERE ARE NO OTHER WARRANTIES, EXPRESSED OR, EXCEPT AS REQUIRED BY LAW, IMPLIED, INCLUDING THE IMPLIED WARRANTY OR CONDITION OF QUALITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND SUCH IMPLIED WARRANTIES, IF ANY, ARE LIMITED IN DURATION TO THE TERM OF THIS WARRANTY.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

IN NO EVENT SHALL BELKIN BE LIABLE FOR INCIDENTAL, SPECIAL, DIRECT, INDIRECT, CONSEQUENTIAL OR MULTIPLE DAMAGES SUCH AS, BUT NOT LIMITED TO, LOST BUSINESS OR PROFITS ARISING OUT OF THE SALE OR USE OF ANY BELKIN PRODUCT, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

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

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