



User Manual

Powerline AV 500 Adapter Starter Kit

DHP-501AV

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Package Contents



Two D-Link DHP-500AV PowerLine AV 500 Adapters



Two CAT5 Ethernet Cables



CD-ROM with Software and User Manual



Quick Install Guide

System Requirements

- Windows® 7, Windows Vista®, XP (with Service Pack 3)
- PC with 233MHz Processor, 64MB Memory
- Ethernet Adapter (100Mbit/s)

Introduction

D-Link announces a fast, 500Mbps* PowerLine AV 500 Adapter Starter Kit that allows you to connect your home computers, networking devices and gaming devices through the most pervasive medium in your house, the electric Power lines. With the PowerLine AV 500 Adapter, you can share high speed connection of up to 500Mbps for quality gaming, superior HD media streaming, and faster file transfer.

Features

- Provides Ethernet to PowerLine Connection
- Fast Data Transfer Rate of Up to 500Mbps*
- One Gigabit Ethernet port
- Plug & Play, Easy Installation
- Easy to use Management Utility
- Firmware Upgrade Support
- Push Button Security
- Power Saving mode

* Maximum throughput based on theoretical transmission PHY rate. Actual data throughput will vary. Network conditions and environmental factors, including volume of traffic and network overhead, may lower actual data throughput rate. Interference from devices that emit electrical noise, such as vacuum cleaners and hair dryers, may adversely affect the performance of this product. This product may interfere with devices such as lighting systems that have a dimmer switch, short wave radios, or other PowerLine devices that do not follow the HomePlug AV standard.

Hardware Overview

LEDs

1	Power LED	<ul style="list-style-type: none">• Solid. The device is receiving electrical power.• Blinking. The device is setting itself up after reset or security button was pressed or power saving mode enabled.• Off. The device is not receiving electrical power.
2	PowerLine LED	<ul style="list-style-type: none">• Solid. The device is connected to a PowerLine network.• Blinking. The device is transmitting data.• Off. The device has not found any other compatible PowerLine devices using the same encryption key. <p>The color indicates the PowerLine link rate:</p> <ul style="list-style-type: none">• Green. The PowerLine link rate is faster than 80 Mbps.• Amber. The PowerLine link rate is between 50 Mbps and 80 Mbps.• Red. The PowerLine link rate is less than 50 Mbps.
3	Ethernet LED	<ul style="list-style-type: none">• Solid. The Ethernet port is linked but there is no data traffic.• Blinking. The device is transmitting data.• Off. There is no Ethernet connection.



Hardware Overview

Connection



1	Simple Connect Button	Press to secure your network. Refer to page 8 for more information.
2	Reset Button	Press and hold the button for 1 second to reset to factory default.
3	Gigabit Ethernet Port	Connect the CAT5 Ethernet cable to the PowerLine AV 500 Adapter Gigabit Ethernet port.

Hardware Installation

Power

Plug in the PowerLine AV 500 Adapter into an AC wall outlet.

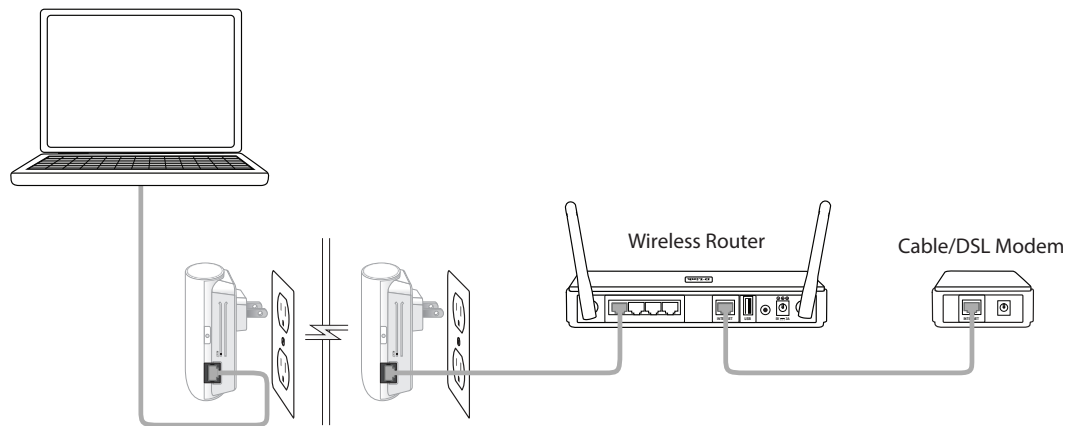
Note: *Power source is confirmed when the Power LED on the Adapter is illuminated.*

Recommendations:

- For optimal results, use in a regular wall outlet without other products plugged into the same outlet. Connecting this product to a power strip or a surge protector may adversely affect the performance of this product.
- Avoid using the PowerLine AV 500 Adapter in an electrical outlet that is located near an appliance that uses a lot of power, such as a washer or dryer or refrigerator.

Connect the Ethernet Cable

Connect the included Ethernet cable to the network cable connector located on the Adapter and attach the other end of the Ethernet cable to the network or PC. Network Connectivity is confirmed when the Ethernet LED on the Adapter is illuminated.



Push Button Security

Understanding PowerLine AV Network Security

The PowerLine AV 500 Adapter Starter Kit on the same network must use an identical encryption key. The default encryption key of each PowerLine AV 500 Adapter Starter Kit is HomePlugAV. All PowerLine AV devices with default encryption key can communicate with each other.

It's recommended to create a private encryption key for network security purpose. The private encryption key allows you to protect your network from unauthorized access via the PowerLine network. To create a private encryption key instead of the default encryption key, please follow below steps:

1. All Adapters

Plug in all the PowerLine AV 500 adapters to be configured and make sure each device's encryption key is set to HomePlugAV (default value). If the encryption key is not set to the default value, press the Reset button for 2 second or use PowerLine AV Utility on your CD for resetting it to the default value.

2. First Adapter

Press the Simple Connect button of the first adapter for no more than two seconds. The Power LED will start blinking after you release the button. The adapter will create a private, randomly generated encryption key that each PowerLine AV 500 Adapter Starter Kit will use.



3. Second Adapter

Within two minutes of pushing the Simple Connect button on the first adapter, press the Simple Connect button on the second adapter in your PowerLine network for no more than two seconds. The Power LED will start blinking after you release the button.



Note: Both Security Connect buttons must be pressed within two minutes.

4. PowerLine Network

After above network security setup steps, your PowerLine network will be securely configured with the same network encryption key. The adapters will memorize the security settings even if they are unplugged.

Note: To change the private encryption key, please reset the adapter back to its default value by pressing the Reset button for 2 second and then follow the security setup procedure above.

5. Adding More Adapters

If you would like to add more than two adapters, press the button on the additional adapter for no more than two seconds. The Power LED will start blinking after you release the button. Then, press the button on any adapter in your existing PowerLine network for no more than two seconds. The Power LED will start blinking after you release the button.

Note: Both Simple Connect buttons must be pressed within two minutes. After the above network security setup steps, your PowerLine network will be securely configured with the same network encryption key.

Using the Setup Wizard

Follow the simple steps below to run the Setup Wizard to guide you quickly through the installation process. Insert the D-Link DHP-501AV CD into your CD-ROM drive. If the CD Autorun function does not automatically start on your computer, click **Start** > **Run**. In the Run command box type "D:\autorun.exe", where D: represents the drive letter of your CD-ROM. If it does start, proceed to the next screen.

Click on **Install** to begin.

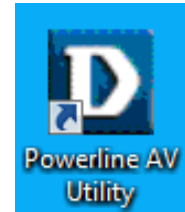
Note: In order to properly install the PowerLine AV utility, you will first need to install WinPcap.



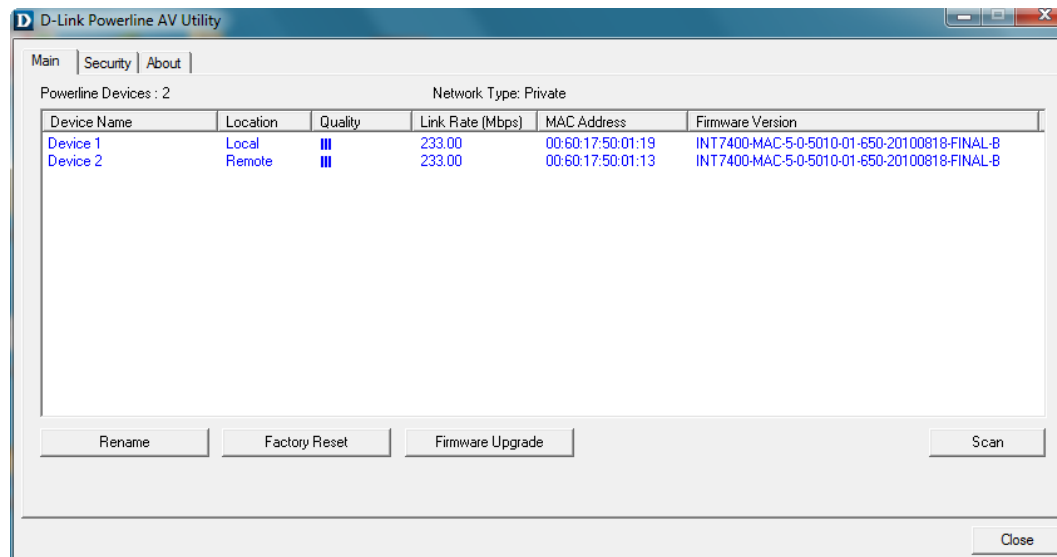
Configuration

After you have completed the D-Link PowerLine AV Utility installation wizard, double-click the D-Link PowerLine AV Utility icon on your desktop to start the configuration of the DHP-501AV.

Double-click the D-Link PowerLine AV Utility icon



The D-Link PowerLine AV Utility provides you the option of setting your own PowerLine network and the network information for the connected PowerLine devices.



Device Name: Shows the name of devices that have been discovered. The device's name is initially set by the utility itself.

Location: Shows if the device is local or remote.

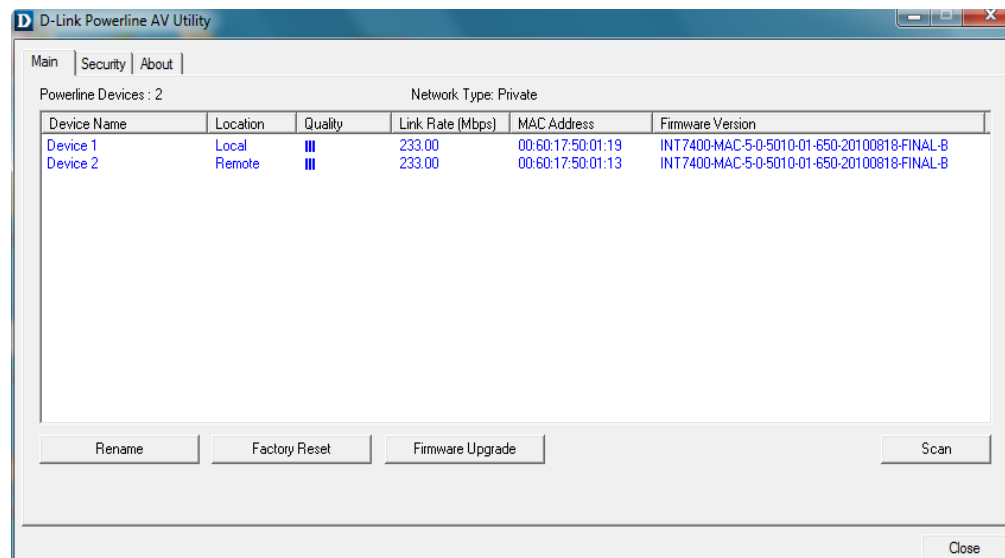
Quality: Shows the network connection quality of the connected device.

- Three squares - Suitable for HD video stream connection.
- Two squares - Suitable for SD video stream connection.
- One square - Suitable for data and Internet activity connection.

Link Rate: Shows the link rate of the connected PowerLine device.

MAC Address: Shows the MAC address of the connected PowerLine device.

Firmware Version: Shows the firmware version of the connected PowerLine device.



Security

Understanding the Encryption Key setting:

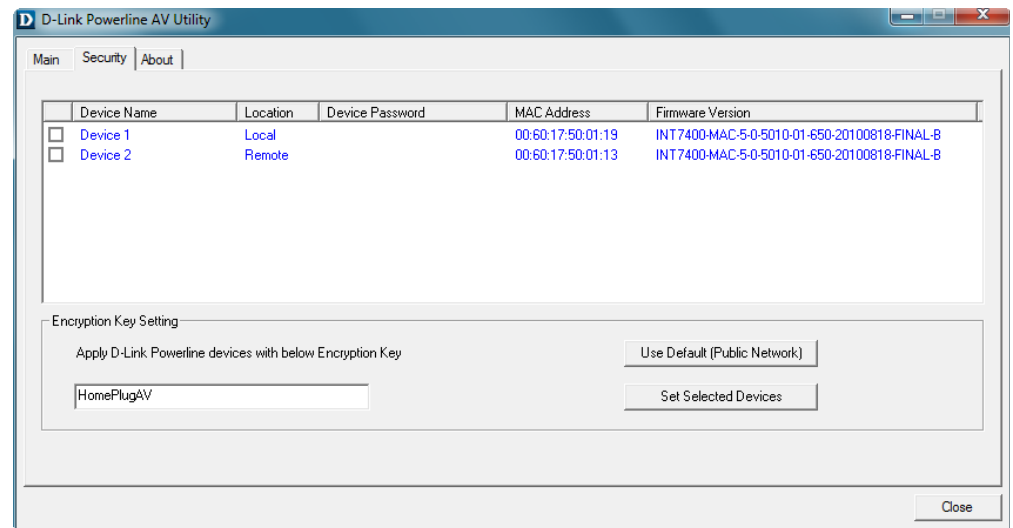
The PowerLine devices on the same network must use an identical encryption key. The default encryption key for each PowerLine device is HomePlugAV. All devices with a default encryption key can communicate with each other. It's recommended to create a private encryption key for network security purpose. The private encryption key allows you to protect your network from unauthorized access via the PowerLine network.

Setting your private Encryption Key

1. Enter the device's password before changing the encryption key:

- Local Device: You do not need to enter the device's password before changing the encryption key.
- Remote Device: You must enter the device's password before changing the encryption key.

Note: Each device has a unique device password on the device label.



2. Select the remote device and then enter the device's password into the Set Device Password window. Then click **OK**.

3. Select the PowerLine devices that you would like to apply the encryption key setting. Then, type your private encryption key into the Encryption Key Setting field and click **Set Selected Devices**. The utility will show a message once the setting is complete.



Adding a Device to your PowerLine Network

If you use the default encryption key within the existing PowerLine network and the new device retains the default encryption key, you can just plug the new device into a power outlet. All the devices should communicate with each other.

If the encryption key within existing PowerLine network has been customized, you have two ways to add the new device to your PowerLine network.

- 1.** You can use the PowerLine AV Utility to apply the customized encryption key in your record to the new device. Then all devices can communicate with each other by using the customized encryption key.
- 2.** You can use the PowerLine AV Utility to set all devices within the existing PowerLine network and the new device back to the default encryption key first. Then, follow the 1 to 3 steps of "Setting your private Encryption Key". Your PowerLine network will be securely configured with a customized encryption key and all devices will be able to communicate with each other after your setting.

Troubleshooting

- **PowerLine AV utility does not start correctly:**

Reinstall the utility.

- **PowerLine AV utility does not detect the PowerLine AV Network Adapter:**

Please make sure your PowerLine AV 500 Adapter is correctly plugged and connected to the computer or network device.

- **I can't configure any parameter of the PowerLine AV 500 Adapter, an error is shown when I try to configure it:**

Please make sure you have not unplugged the PowerLine AV 500 Adapter while configuring it.

- **I changed the connection cable to another Network adapter and now the utility does not work correctly:**

Please restart the utility each time you disconnect the connection cable.

- **I'm having a lot of problems configuring my network:**

If you are having problems configuring the network with two or more PowerLine AV devices, please reset all the Network adapters and start configuring the adapters again.

Technical Specifications

Network Ports

- One 10/100/1000 Ethernet port

EMC

- FCC Part 15 Class B
- CE Class B
- C-Tick

AC Input

- 100 ~ 240VAC, 50/60Hz

Safety

- UL, CE LVD

Encryption

- 128 bit AES

Operation Temperature

- 0°C ~ 40°C

Storage Temperature

- -10°C ~ 70°C

Humidity

- Operation: 10% ~ 90% RH
- Storage: 5% ~ 90% RH

Contacting Technical Support

U.S. and Canadian customers can contact D-Link technical support through our web site or by phone.

Before you contact technical support, please have the following ready:

- Model number of the product (e.g. DHP-501AV)
- Hardware Revision (located on the label on the bottom of the product (e.g. rev A1))
- Serial Number (s/n number located on the label on the bottom of the product).

You can find software updates and user documentation on the D-Link website as well as frequently asked questions and answers to technical issues.

For customers within the United States:

Phone Support:

(877) 453-5465

Internet Support:

<http://support.dlink.com>

For customers within Canada:

Phone Support:

(800) 361-5265

Internet Support:

<http://support.dlink.ca>

Warranty

Subject to the terms and conditions set forth herein, D-Link Systems, Inc. ("D-Link") provides this Limited Warranty:

- Only to the person or entity that originally purchased the product from D-Link or its authorized reseller or distributor, and
- Only for products purchased and delivered within the fifty states of the United States, the District of Columbia, U.S. Possessions or Protectorates, U.S. Military Installations, or addresses with an APO or FPO.

Limited Warranty:

D-Link warrants that the hardware portion of the D-Link product described below ("Hardware") will be free from material defects in workmanship and materials under normal use from the date of original retail purchase of the product, for the period set forth below ("Warranty Period"), except as otherwise stated herein.

- Hardware (excluding power supplies and fans): One (1) year
- Power supplies and fans: One (1) year
- Spare parts and spare kits: Ninety (90) days

The customer's sole and exclusive remedy and the entire liability of D-Link and its suppliers under this Limited Warranty will be, at D-Link's option, to repair or replace the defective Hardware during the Warranty Period at no charge to the original owner or to refund the actual purchase price paid. Any repair or replacement will be rendered by D-Link at an Authorized D-Link Service Office. The replacement hardware need not be new or have an identical make, model or part. D-Link may, at its option, replace the defective Hardware or any part thereof with any reconditioned product that D-Link reasonably determines is substantially equivalent (or superior) in all material respects to the defective Hardware. Repaired or replacement hardware will be warranted for the remainder of the original Warranty Period or ninety (90) days, whichever is longer, and is subject to the same limitations and exclusions. If a material defect is incapable of correction, or if D-Link determines that it is not practical to repair or replace the defective Hardware, the actual price paid by the original purchaser for the defective Hardware will be refunded by D-Link upon return to D-Link of the defective Hardware. All Hardware or part thereof that is replaced by D-Link, or for which the purchase price is refunded, shall become the property of D-Link upon replacement or refund.

Limited Software Warranty:

D-Link warrants that the software portion of the product ("Software") will substantially conform to D-Link's then current functional specifications for the Software, as set forth in the applicable documentation, from the date of original retail purchase of the Software for a period of ninety (90) days ("Software Warranty Period"), provided that the Software is properly installed on approved hardware and operated as contemplated in its documentation. D-Link further warrants that, during the Software Warranty Period, the magnetic media on which D-Link delivers the Software will be free of physical defects. The customer's sole and exclusive remedy and the entire liability of D-Link and its suppliers under this Limited Warranty will be, at D-Link's option, to replace the non-conforming Software (or defective media) with software that substantially conforms to D-Link's functional specifications for the Software or to refund the portion of the actual purchase price paid that is attributable to the Software. Except as otherwise agreed by D-Link in writing, the replacement Software is provided only to the original licensee, and is subject to the terms and conditions of the license granted by D-Link for the Software. Replacement Software will be warranted for the remainder of the original Warranty Period and is subject to the same limitations and exclusions. If a material non-conformance is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to replace the non-conforming Software, the price paid by the original licensee for the non-conforming Software will be refunded by D-Link; provided that the non-conforming Software (and all copies thereof) is first returned to D-Link. The license granted respecting any Software for which a refund is given automatically terminates.

Non-Applicability of Warranty:

The Limited Warranty provided hereunder for Hardware and Software portions of D-Link's products will not be applied to and does not cover any refurbished product and any product purchased through the inventory clearance or liquidation sale or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product and in that case, the product is being sold "As-Is" without any warranty whatsoever including, without limitation, the Limited Warranty as described herein, notwithstanding anything stated herein to the contrary.

Submitting A Claim:

The customer shall return the product to the original purchase point based on its return policy. In case the return policy period has expired and the product is within warranty, the customer shall submit a claim to D-Link as outlined below:

- The customer must submit with the product as part of the claim a written description of the Hardware defect or Software nonconformance in sufficient detail to allow DLink to confirm the same, along with proof of purchase of the product (such as a copy of the dated purchase invoice for the product) if the product is not registered.
- The customer must obtain a Case ID Number from D-Link Technical Support at 1-877-453-5465, who will attempt to assist the customer in resolving any suspected defects with the product. If the product is considered defective, the customer must obtain a Return Material Authorization ("RMA") number by completing the RMA form and entering the assigned Case ID Number at <https://rma.dlink.com/>.

- After an RMA number is issued, the defective product must be packaged securely in the original or other suitable shipping package to ensure that it will not be damaged in transit, and the RMA number must be prominently marked on the outside of the package. Do not include any manuals or accessories in the shipping package. DLink will only replace the defective portion of the product and will not ship back any accessories.
- The customer is responsible for all in-bound shipping charges to D-Link. No Cash on Delivery ("COD") is allowed. Products sent COD will either be rejected by D-Link or become the property of D-Link. Products shall be fully insured by the customer and shipped to D-Link Systems, Inc., 17595 Mt. Herrmann, Fountain Valley, CA 92708. D-Link will not be held responsible for any packages that are lost in transit to D-Link. The repaired or replaced packages will be shipped to the customer via UPS Ground or any common carrier selected by D-Link. Return shipping charges shall be prepaid by D-Link if you use an address in the United States, otherwise we will ship the product to you freight collect. Expedited shipping is available upon request and provided shipping charges are prepaid by the customer. D-Link may reject or return any product that is not packaged and shipped in strict compliance with the foregoing requirements, or for which an RMA number is not visible from the outside of the package. The product owner agrees to pay D-Link's reasonable handling and return shipping charges for any product that is not packaged and shipped in accordance with the foregoing requirements, or that is determined by D-Link not to be defective or non-conforming.

What Is Not Covered:

The Limited Warranty provided herein by D-Link does not cover:

Products that, in D-Link's judgment, have been subjected to abuse, accident, alteration, modification, tampering, negligence, misuse, faulty installation, lack of reasonable care, repair or service in any way that is not contemplated in the documentation for the product, or if the model or serial number has been altered, tampered with, defaced or removed; Initial installation, installation and removal of the product for repair, and shipping costs; Operational adjustments covered in the operating manual for the product, and normal maintenance; Damage that occurs in shipment, due to act of God, failures due to power surge, and cosmetic damage; Any hardware, software, firmware or other products or services provided by anyone other than D-Link; and Products that have been purchased from inventory clearance or liquidation sales or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product.

While necessary maintenance or repairs on your Product can be performed by any company, we recommend that you use only an Authorized D-Link Service Office. Improper or incorrectly performed maintenance or repair voids this Limited Warranty.

Disclaimer of Other Warranties:

EXCEPT FOR THE LIMITED WARRANTY SPECIFIED HEREIN, THE PRODUCT IS PROVIDED "AS-IS" WITHOUT ANY WARRANTY OF ANY KIND WHATSOEVER INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.

IF ANY IMPLIED WARRANTY CANNOT BE DISCLAIMED IN ANY TERRITORY WHERE A PRODUCT IS SOLD, THE DURATION OF SUCH IMPLIED WARRANTY SHALL BE LIMITED TO THE DURATION OF THE APPLICABLE WARRANTY PERIOD SET FORTH ABOVE. EXCEPT AS EXPRESSLY COVERED UNDER THE LIMITED WARRANTY PROVIDED HEREIN, THE ENTIRE RISK AS TO THE QUALITY, SELECTION AND PERFORMANCE OF THE PRODUCT IS WITH THE PURCHASER OF THE PRODUCT.

Limitation of Liability:

TO THE MAXIMUM EXTENT PERMITTED BY LAW, D-LINK IS NOT LIABLE UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY FOR ANY LOSS OF USE OF THE PRODUCT, INCONVENIENCE OR DAMAGES OF ANY CHARACTER, WHETHER DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF GOODWILL, LOSS OF REVENUE OR PROFIT, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, FAILURE OF OTHER EQUIPMENT OR COMPUTER PROGRAMS TO WHICH D-LINK'S PRODUCT IS CONNECTED WITH, LOSS OF INFORMATION OR DATA CONTAINED IN, STORED ON, OR INTEGRATED WITH ANY PRODUCT RETURNED TO D-LINK FOR WARRANTY SERVICE) RESULTING FROM THE USE OF THE PRODUCT, RELATING TO WARRANTY SERVICE, OR ARISING OUT OF ANY BREACH OF THIS LIMITED WARRANTY, EVEN IF D-LINK HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE SOLE REMEDY FOR A BREACH OF THE FOREGOING LIMITED WARRANTY IS REPAIR, REPLACEMENT OR REFUND OF THE DEFECTIVE OR NONCONFORMING PRODUCT. THE MAXIMUM LIABILITY OF D-LINK UNDER THIS WARRANTY IS LIMITED TO THE PURCHASE PRICE OF THE PRODUCT COVERED BY THE WARRANTY. THE FOREGOING EXPRESS WRITTEN WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ANY OTHER WARRANTIES OR REMEDIES, EXPRESS, IMPLIED OR STATUTORY.

Governing Law:

This Limited Warranty shall be governed by the laws of the State of California. Some states do not allow exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the foregoing limitations and exclusions may not apply. This Limited Warranty provides specific legal rights and you may also have other rights which vary from state to state.

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CE Mark Warning:

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

FCC Statement:

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 and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. 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 to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into 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.

For detailed warranty information applicable to products purchased outside the United States, please contact the corresponding local D-Link office.

Registration

Register your product online at www.onlineregister.com/dlink



Product registration is entirely voluntary and failure to complete or return this form will not diminish your warranty rights.

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