



# User Manual

## PowerLine AV2 2000 Gigabit Adapter

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# Preface

D-Link reserves the right to revise this publication and to make changes to the content herein without obligation to notify any person or organization of such revisions or changes.

## Manual Revisions

Revision	Date	Description
1.0	March 16, 2015	• Hardware revision A1

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## Power Usage

This device is an Energy Related Product (ErP) with High Network Availability (HiNA), and automatically switches to a power-saving Network Standby mode within 1 minute of no packets being transmitted. If it is not needed during certain periods of time, it can be unplugged to save energy.

Network Standby mode: 3.69W

# Table of Contents

<b>Product Overview</b> .....	<b>4</b>
Package Contents .....	4
System Requirements .....	4
Introduction.....	5
Features .....	5
Hardware Overview .....	6
LEDs .....	6
Connection .....	7
<b>Hardware Installation</b> .....	<b>8</b>
Push Button Security .....	9
PowerLine Installation Considerations.....	11
Important Safety Instructions.....	12
<b>Troubleshooting</b> .....	<b>13</b>
<b>Technical Specifications</b> .....	<b>14</b>
<b>Regulatory Information</b> .....	<b>15</b>
<b>Contacting Technical Support</b> .....	<b>21</b>
<b>Warranty</b> .....	<b>22</b>
<b>Registration</b> .....	<b>23</b>

# Product Overview

## Package Contents

### **DHP-700AV PowerLine AV2 2000 Gigabit Adapter**

- D-Link DHP-700AV PowerLine AV2 2000 Gigabit Adapter
- Ethernet Cable
- Quick Installation Guide

### **DHP-701AV PowerLine AV2 2000 Gigabit Adapter Kit**

- D-Link DHP-700AV PowerLine AV2 2000 Gigabit Adapter x 2
- Ethernet Cable x 2
- Quick Installation Guide

## System Requirements

- Windows® 8, 7, Vista®, or XP® (with Service Pack 2), Mac OS X 10.4
- Minimum Browser Requirements: Internet Explorer 6.0, Firefox 12.0, Chrome 20.0, Safari 4.0
- Ethernet network interface (10/100/1000 Mbps)
- PC with 1.5 GHz Processor
- 1 GB memory

# Introduction

The DHP-700AV is a fast, 1900 Mbps<sup>1</sup> PowerLine AV2 2000 Gigabit Adapter which allows you to connect your home computers, networking devices, and gaming devices through the most pervasive medium in your house - the electric powerlines - and share Internet connections and printers, transfer files, play games, and more.

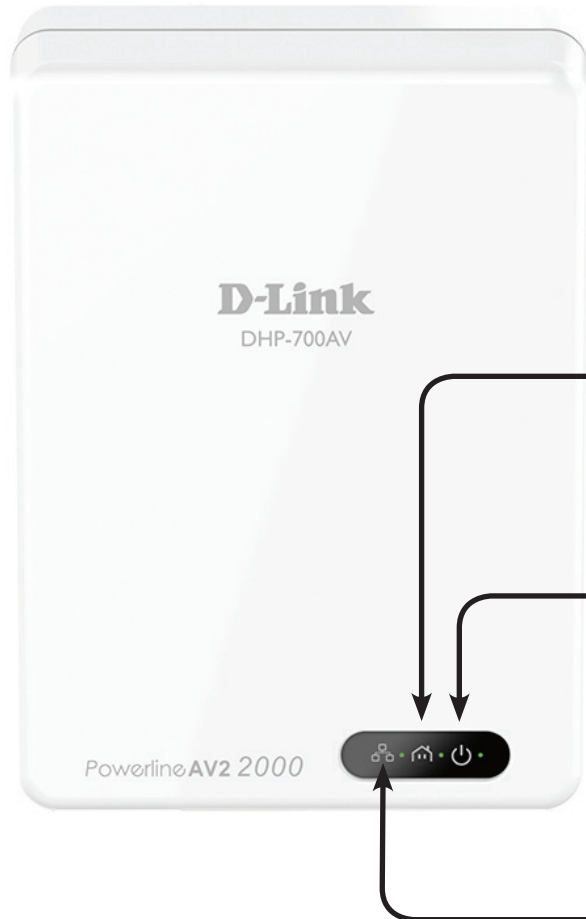
## Features

- Provides Ethernet to PowerLine Connection
- Fast Data Transfer Rate of Up to 1900 Mbps<sup>1</sup>
- One Gigabit Ethernet Port
- Plug & Play, Easy Installation
- Push Button Security
- Power Saving Mode

<sup>1</sup> 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 and IEEE1901 standard.

# Hardware Overview

## LEDs



### PowerLine LED

- **Solid:** The device is connected to a PowerLine network.
- **Off:** The device has not found any other compatible PowerLine devices using the same encryption key.

The color indicates the PowerLine link rate:

- **Green:** The PowerLine link rate is excellent.
- **Amber:** The PowerLine link rate is good.
- **Red:** The PowerLine link rate is fair.

### Power LED

- **Solid:** The device is receiving electrical power.
- **Blinking:** The device is setting itself up after the reset or simple connect button was pressed.
- **Off:** The device is not receiving electrical power.

### Ethernet LED

- **Solid:** The Ethernet port is linked.
- **Off:** There is no Ethernet connection.

# Hardware Overview

## Connection

### Gigabit Ethernet Port

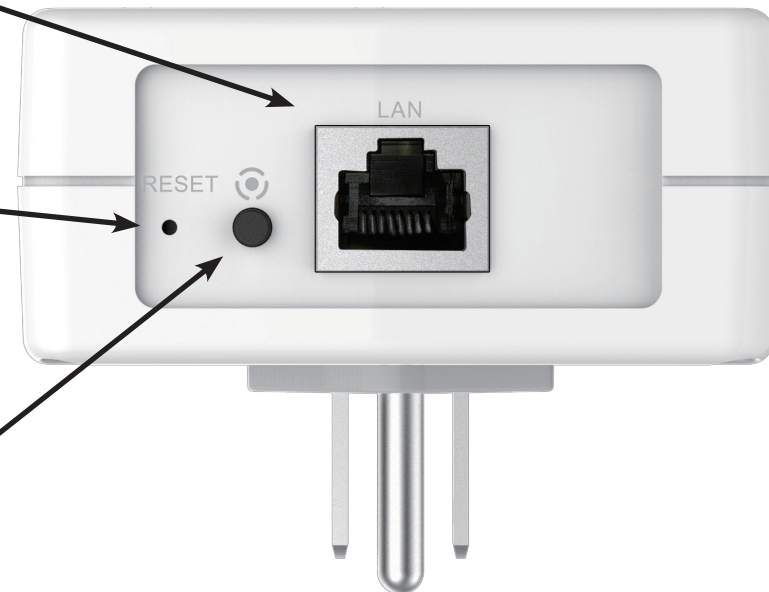
Connect the DHP-700AV to your PC or Ethernet device with a CAT5 Ethernet cable.

### Reset Button

Press and hold the button for 5 seconds to reset to the factory default settings.

### Simple Connect Button

Press to connect to other Powerline devices on your network. Refer to **"Push Button Security"** on page 9 for more information.



# Hardware Installation

## Power


Plug the DHP-700AV into an AC wall outlet or power strip.

**Note:** Power supply is confirmed when the Power LED on the DHP-700AV is illuminated.


## Connect the Ethernet Cable

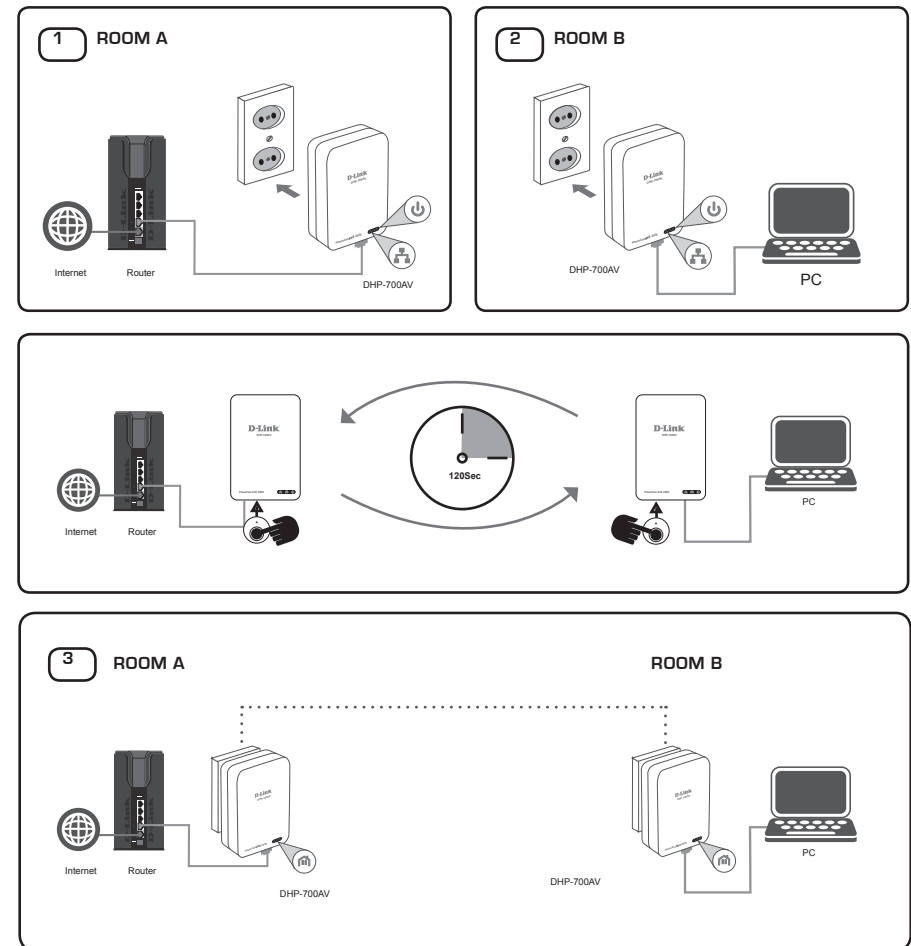
1. Ensure you have a Powerline product connected to your router.

2. In a separate room where you require a network connection, connect the DHP-700AV to your PC or network device using the supplied Ethernet cable. Plug the DHP-700AV into a nearby power socket.

3. Press the Simple Connect button  on the underside of both Powerline devices for no longer than three seconds.

**Note:** Ensure that both Simple Connect buttons are pressed within 120 seconds.

4. Powerline connectivity is confirmed when the Powerline LED indicator  illuminates, indicating the devices are now connected.





# Push Button Security

## Understanding PowerLine AV2 2000 Gigabit Adapter Security

The PowerLine AV2 2000 Gigabit Adapters on the same network must use an identical encryption key. The default encryption key of each PowerLine AV2 2000 Gigabit Adapter is **HomePlugAV**. All PowerLine AV2 2000 Gigabit Adapters with the 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 the steps below:

### 1. All Adapters

Plug in all the adapters to be configured. Each device's encryption key should be set to **HomePlugAV** (default value). If devices do not connect the encryption key may not be set to the default value, press the reset button for 5 seconds to reset it to the default value.

### 2. First Adapter

Press the Simple Connect Button on the first adapter for no more than three 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 AV2 2000 Gigabit Adapter 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 three 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. 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 5 seconds and then follow the security setup procedure above.

### 4. Adding More Adapters

If you would like to add more than two adapters, press the Simple Connect Button of the additional adapter for no more than three seconds. The Power LED will start blinking after you release the button.

Then press the Simple Connect Button of any adapter in your existing PowerLine network for no more than three 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.

# PowerLine Installation Considerations

Plan the location of your PowerLine devices:

1. Connect PowerLine devices to electrical outlets that are not controlled by a wall switch to avoid accidentally turning off power to the device.
2. Do not connect the PowerLine devices to an extension cord, surge protector, or power strip as this might prevent it from working correctly, or reduce the network performance.
3. Avoid using the PowerLine devices in an electrical outlet that is located near an appliance that uses a lot of power, such as a washer or dryer, or a refrigerator. This may prevent the adapter from working correctly, or negatively impact network performance.
4. Verify that your PowerLine devices are electrically rated to operate with the power available in your location.
5. To help prevent electrical shock, be sure to plug the DHP-700AV into properly grounded electrical outlets.
6. The PowerLine device is designed to help ensure proper grounding. Do not use adapter plugs or remove the grounding prong from the cable.



# Important Safety Instructions

Please read all of the safety and operating instructions before using your device:

1. Do not open the device or attempt to repair or service the device.
2. Only use the included power adapter to power your device.
3. Ensure that the device is plugged into the wall in a vertical position, with the ports facing down.
4. Use the device in a dry location, and avoid placing it in humid environments.
5. Do not submerge the device in liquid or attempt to clean it with liquids or solvents. To clean the device, disconnect it from the power outlet and use a damp towel.
6. Keep the device out of direct sunlight.
7. Do not cover or block the vents on the device.
8. Make sure that the device has adequate room for ventilation.
9. Avoid placing the device near a heater or radiator.
10. The device should be located only where sufficient ventilation can be ensured.
11. The purpose of this product is to create a constant network connection for your devices. If you wish to power down this product, please simply unplug it from the power outlet.

# Troubleshooting

- **I can't configure any parameters of the PowerLine AV2 2000 Gigabit Adapter; an error is shown when I try to configure it:**  
Please make sure you have not unplugged the PowerLine AV2 2000 Gigabit Adapter while configuring it.
- **I changed the connection cable to another network adapter and now the setup 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 trouble configuring the network with two or more PowerLine AV2 2000 Gigabit Adapters, please reset all of the network adapters and try configuring the adapters again.

# Technical Specifications

General	PowerLine Interface	• Power plug (country-dependent)	
	Ethernet Interface	• Gigabit Ethernet LAN port	• RJ-45 connector
Functionality	Standards	• IEEE 802.3 • IEEE 802.3x	• IEEE 1901 • HomePlug AV2
	Security	• 128-bit AES data encryption	
	LEDs	• Power • Ethernet	• PowerLine
	PowerLine Modulation Scheme	• OFDM symbol modulation	
	PowerLine Frequency Band	• 2 MHz to 86 MHz	
	Data Rate	• Ethernet: 10/100/1000 Mbps (auto-negotiation)	• PowerLine: Up to 1900 Mbps (PHY rate) <sup>1</sup>
	Physical	Dimensions	• 98.9 x 72.7 x 34 mm (3.89 x 2.86 x 1.33 inches)
Weight		• 180 grams (6.43 oz)	
Power		• Input: 100 to 240 V AC, 50/60 Hz	
Power Consumption		• < 5.3 W	
Temperature		• Operating: 0 to 40 °C (32 to 104 °F)	• Storage: -20 to 65 °C (-4 to 149 °F)
Humidity		• Operating: 10% to 90% non-condensing	• Storage: 5% to 95% non-condensing
Certifications		• CE • FCC	• UL • CE/LVD

<sup>1</sup> 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 and IEEE1901 standard.

# Regulatory Information

## **Federal Communication Commission Interference 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 communications. 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 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.

## **Non-modifications Statement:**

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

## **Caution:**

This device 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.

**Industry Canada statement:**

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) this device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes:

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

**CE EMI Class B Warning**

Warning: This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.





## Safety Instructions

Please adhere to the following safety guidelines to help ensure your own personal safety and protect your system from potential damage. Any acts taken that are inconsistent with ordinary use of the product, including improper testing, etc., and those not expressly approved by D-Link may result in the loss of product warranty.

Unless expressly approved by an authorized representative of D-Link in writing, you may not and may not permit others to:

- Disassemble or reverse engineer the device or attempt to derive source code (underlying ideas, algorithms, or structure) from the device or from any other information provided by D-Link, except to the extent that this restriction is expressly prohibited by local law.
- Modify or alter the device.
- Remove from the device any product identification or other notices, including copyright notices and patent markings, if any.

To reduce the risk of bodily injury, electrical shock, fire, and damage to the device and other equipment, observe the following precautions:

### Power Sources

- Observe and follow service markings.
- Do not push any objects into the openings of your device unless consistent with the authorized operation of the device. Doing so can cause a fire or an electrical shock by shorting out interior components.
- The powering of this device must adhere to the power specifications indicated for this product.
- Do not overload wall outlets and/or extension cords as this will increase the risk of fire or electrical shock.
- Do not rest anything on the power cord or on the device (unless the device is made and expressly approved as suitable for stacking).
- Position system cables and power cables carefully; route cables so that they cannot be stepped on or tripped over. Be sure that nothing rests on any cables.
- Operate the device only from the type of external power source indicated on the electrical ratings label.

- To help avoid damaging your device, be sure the voltage selection switch (if provided) on the power supply is set to match the power available at your location.
- Also be sure that attached devices are electrically rated to operate with the power available in your location.
- Use only approved power cable(s). If you have not been provided a power cable for your device or for any AC -powered option intended for your device, purchase a power cable that is approved for use in your country and is suitable for use with your device. The power cable must be rated for the device and for the voltage and current marked on the device's electrical ratings label. The voltage and current rating of the cable should be greater than the ratings marked on the device.
- To help prevent an electrical shock, plug the device and peripheral power cables into properly grounded electrical outlets. These cables are equipped with three-prong plugs to help ensure proper grounding. Do not use adapter plugs or remove the grounding prong from a cable. If you must use an extension cable, use a 3-wire cable with properly grounded plugs.
- Observe extension cable and power strip ratings. Ensure that the total ampere rating of all products plugged into the extension cable or power strip does not exceed 80 percent of the ampere ratings limit for the extension cable or power strip.
- To help protect your device from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).
- Do not modify power cables or plugs. Consult a licensed electrician or your power company for site modifications. Always follow your local/national wiring rules.
- When connecting or disconnecting power to hot-pluggable power supplies, if offered with your device, observe the following guidelines.
- Install the power supply before connecting the power cable to the power supply.
- Unplug the power cable before removing the power supply.
- If the system has multiple sources of power, disconnect power from the device by unplugging all power cables from the power supplies.

### **Servicing/Disassembling**

- Do not service any product except as expressly set forth in your system documentation.
- Opening or removing covers that are marked with the triangular symbol with a lightning bolt may expose you to an electrical shock. Only a trained service technician should service components inside these compartments.
- To reduce the risk of electrical shock, never disassemble this device. None of its internal parts are user-replaceable; therefore, there is no reason to access the interior.
- Do not spill food or liquids on your system components, and never operate the device in a wet environment. If the device gets wet, see the appropriate section in your troubleshooting guide or contact your trained service provider.
- Use the device only with approved equipment.
- Move products with care; ensure that all casters and/or stabilizers are firmly connected to the system. Avoid sudden stops and uneven surfaces.

### **Environment**

- Do not use this device near water (e.g. near a bathtub, sink, laundry tub, fish tank, in a wet basement or near a swimming pool).
- Do not use this device in areas with high humidity.
- This device must not be subjected to water or condensation.
- Keep your device away from radiators and heat sources. Also, do not block cooling vents.

### **Cleaning**

- Always unplug the power before cleaning this device.
- Do not use liquid or aerosol cleaners of any kind. Use only compressed air that is recommended for electronic devices.
- Use a dry cloth for cleaning.

## **Protecting Against Electrostatic Discharge**

Static electricity can harm delicate components inside your system. To prevent static damage, discharge static electricity from your body before you touch any of the electronic components, such as the microprocessor. You can do so by periodically touching an unpainted metal surface on the chassis.

You can also take the following steps to help prevent damage from electrostatic discharge (ESD):

1. When unpacking a static-sensitive component from its shipping carton, do not remove the component from the antistatic packing material until you are ready to install the component in your system. Just before unwrapping the antistatic packaging, be sure to discharge static electricity from your body.
2. When transporting a sensitive component, first place it in an antistatic container or packaging.
3. Handle all sensitive components in a static-safe area. If possible, use antistatic floor pads, workbench pads, and an antistatic grounding strap.

## **Environmental**

This product may contain a battery. Recycle or dispose of batteries in accordance with the battery manufacturer's instructions and local/national disposal and recycling regulations. For more information, please refer to the warranty guide.

# Contacting Technical Support

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

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

- Model number of the product (e.g., DHP-600AV)
- Hardware Revision (located on the label on the bottom of the PowerLine (e.g., rev A1))
- Serial Number (s/n number located on the label on the bottom of the PowerLine).

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:  
(866) 354-6599

Internet Support:  
<http://support.dlink.ca>

# Warranty

## **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.

## **FCC Caution:**

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device 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.

## **IMPORTANT NOTICE:**

### **FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

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 [support.dlink.ca/register](http://support.dlink.ca/register)



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

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