

Linke

The Powerline Ethernet Adapter Kit

BV210C



BV-210

BV-254

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1. IMPORTANT INFORMATION

1.1 Important Safety Notes

- Please read all instructions before installing and operating this product.
- Please keep all instructions for later reference.
- Please follow all warnings and instructions marked on the product.
- **For safety reasons, when the device is powered on, the venting holes should remain uncovered.**
- **Unplug the Powerline device from the wall outlet before cleaning. Use a dry cloth for cleaning. DO NOT use liquid cleaners or aerosol cleaners.**
- **DO NOT** operate this product near any liquid.
- This product should **never** be placed near or over a radiator and heat register.

This product relies on the building's electrical installation for short-circuit (over-current) protection.

- It is recommended that the adapter is plugged directly into an electrical outlet, rather than into an uninterruptable power supply or extension cord with surge protection. brite-View Powerline adapters have their own power filter for surge protection.
- **Only** a qualified technician should service this product. Opening or removing covers may expose you to dangerous voltage or other hazards.

Unplug the product from the wall outlet and refer the product to qualified service personnel for the following conditions:

- If liquid has been spilled into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally when the operating instructions are followed.
- If the product exhibits a distinct change in performance.

1.2 Federal Communications 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 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.

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

Labeling Requirements

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.

RF Exposure Warning

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provide with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

Canada, Industry Canada (IC) Notices

This Class B digital apparatus complies with Canadian ICES-003 and RSS-210.

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.

Radio Frequency (RF) Exposure Information

The radiated output power of the Wireless Device is below the Industry Canada (IC) radio

frequency exposure limits. The Wireless Device should be used in such a manner such that the potential for human contact during normal operation is minimized.

This device has also been evaluated and shown compliant with the IC RF Exposure limits under mobile exposure conditions. (antennas are greater than 20cm from a person's body).

Canada, avis d'Industry Canada (IC)

Cet appareil numérique de classe B est conforme aux normes canadiennes ICES-003 et RSS-210.

Son fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas causer d'interférence et (2) cet appareil doit accepter toute interférence, notamment les interférences qui peuvent affecter son fonctionnement.

Informations concernant l'exposition aux fréquences radio (RF)

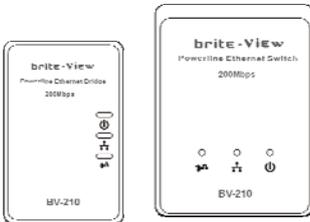
La puissance de sortie émise par l'appareil de sans fil est inférieure à la limite d'exposition aux fréquences radio d'Industry Canada (IC). Utilisez l'appareil de sans fil de façon à minimiser les contacts humains lors du fonctionnement normal.

Ce périphérique a également été évalué et démontré conforme aux limites d'exposition aux RF d'IC dans des conditions d'exposition à des appareils mobiles (les antennes se situent à moins de 20 cm du corps d'une personne).

2. INTRODUCTION

2.1 Package Content

Two PLC Devices

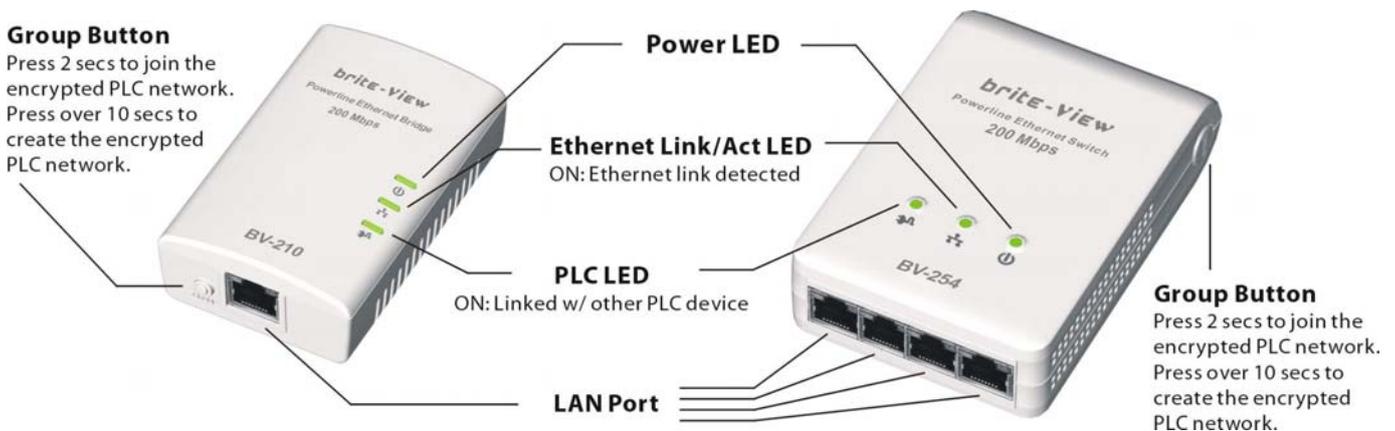


Two Ethernet Cables



2.2 Product Overview

The **Powerline Ethernet Adapters** take advantage of your home's existing electrical wiring to build high speed network connection for surfing website, video streaming, online gaming or any bandwidth applications. Simply plug them to AC outlet and instantly establish powerline network. It means there is no IP configuration or additional wires required.



Powerline Ethernet Bridge

Powerline Ethernet Switch

NOTE: The "PLC LED" indicator will turn on when the powerline link is detected. If the device serves as a station, the LED indicator will blink to show network traffic transaction. If the device serves as CCo (Central Coordinator), the LED indicator will be a solid light.

2.2.1 Button/LED Descriptions

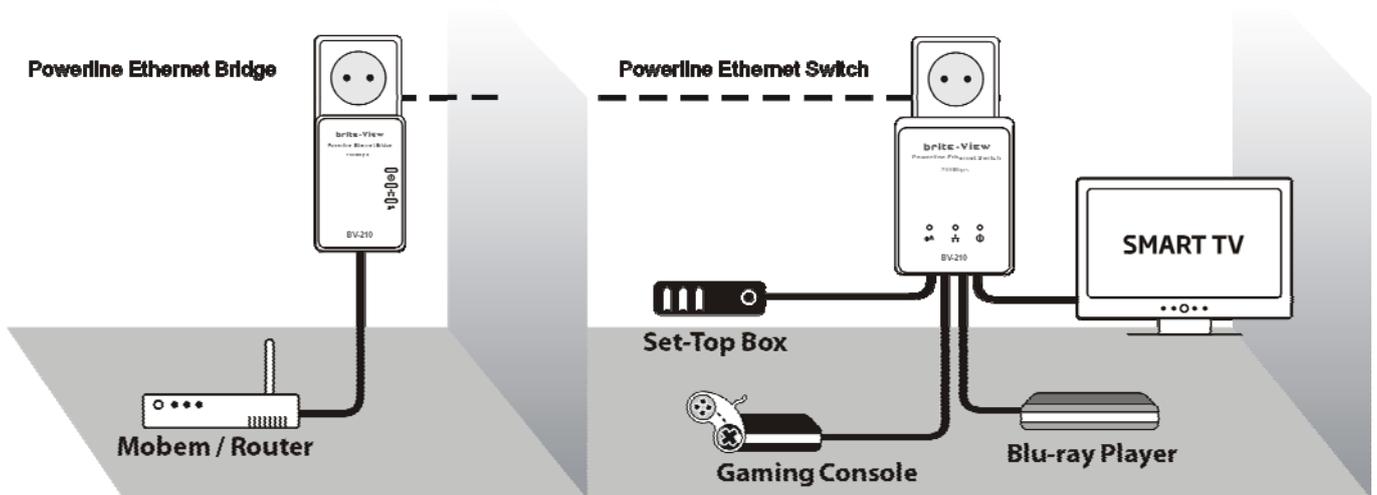
Button/LED	Description
	<p>On: Powered Blinking: (1) Rebooting or (2) The device is sitting at a network node for interfacing with another network Off: powered off</p>
	<p><u>ON</u>: Ethernet connection detected. <u>Blinking</u>: Network transaction. <u>OFF</u>: No Ethernet connection detected.</p>
	<p><u>ON</u>: PLC connection detected.</p> <p><u>Blinking</u>:</p> <ol style="list-style-type: none"> 1. Fast : 100Mbps > Powerline data rate > 60Mbps. 2. Normal : 60Mbps > Powerline data rate > 10Mbps. 3. Slow : 10Mbps > Powerline data rate. <p><u>OFF</u>: No PLC connection detected. (Too far for communication or not paired with other devices).</p>
<p>GROUP Button</p>	<p><u>Press 10 seconds</u>: Randomly generate a new network group name.</p> <p><u>Press 2 to 3 seconds</u>: Start paring with the other PLC device. Paring procedure keeps for 2 minutes or ends automatically when they are paired. It can be stopped manually by pressing the button for 2 to 3 seconds again.</p>
<p>RESET Button</p>	<p><u>Press 1 to 2 seconds</u>: Reset to default group name HomePlugAV. Press the button while the device is powered. (not in standby mode)</p>

3. HARDWARE INSTALLATION

The powerline device takes advantage of your home's existing electrical wiring to build high speed network connection for Internet access, HD video streaming, online gaming or any other bandwidth applications.

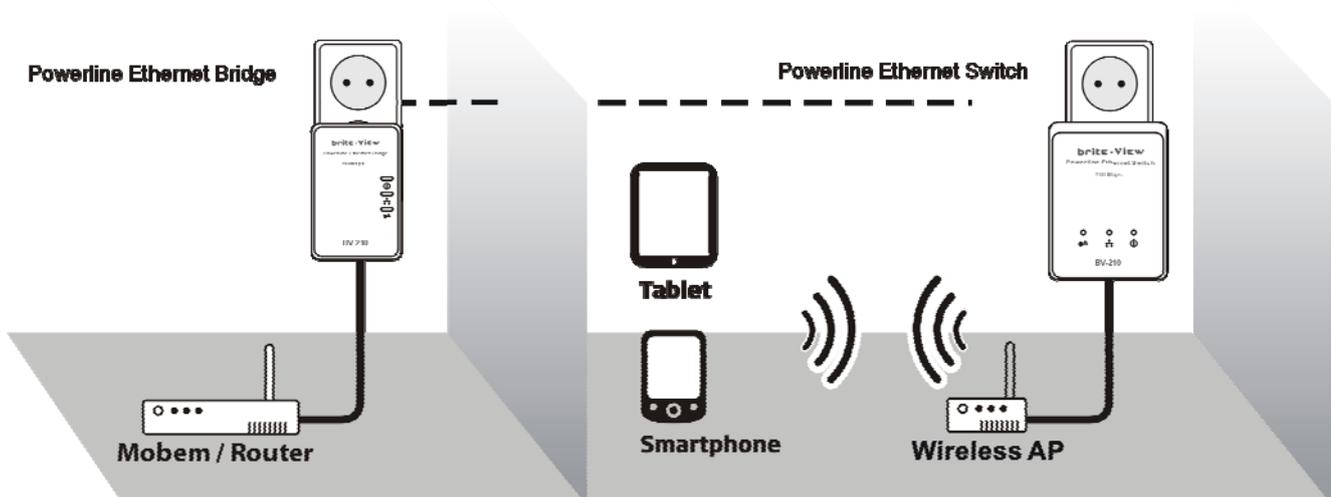
3.1 Application 1 – Provide Network Connection for Your Networked Devices

Provide Internet connection for network compatible devices such as PC, Blu-Ray player, and cable box in any room at home



3.2 Application 2 – Extend Wireless Access Point Coverage

To extend wireless AP coverage in different room or floor, user can place the Wi-Fi router/repeater near the mobile devices such as iPad, Tablet, Smartphone and Notebook. Then connect the Wi-Fi router/repeater to Powerline device that is connected to powerline network for delivering Internet signal.

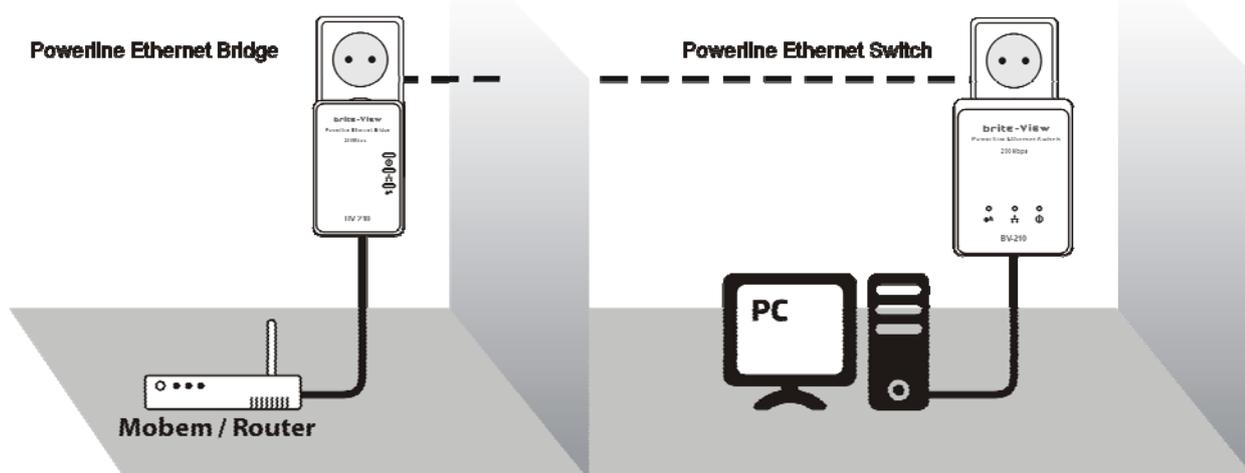


4. ENCRYPTED PLC NETWORK

4.1 Create a Private Encrypted PLC Network Group

The Powerline bridges are compliant HomePlug AV specification. Every 'HomePlug AV' compliant PLC device that has the same default network name, "**HomePlug AV**", is capable of communicating with other "HomePlug AV" devices. This is so called the "**Public Network**". Two or more powerline devices under the same network can communicate with one another.

If you have a pair of powerline device, either one in the pair can be "device A" or "device B". By pressing the GROUP button more than 10 seconds; it will generate a random network group (different from HomePlug AV). Users can take the following two steps to change the public network group to the private network group to protect their data while transmitting over the powerline. Users also can create more than one private network groups by pressing GROUP button directly without software installation required.



*NOTE: Put the devices side by side will be more convenient during the setting procedure. After network group is set, the devices can be deployed anywhere at home.

Step I: Clear Group Attribute

Clear the original network group of device B by pressing its GROUP button more than 10 seconds until all LED lights simultaneously turns off and on once. At this moment, its network group name has been changed to a random name. It means that this device is **(1) ready to be assigned another network name** or **(2) to be used as a seed device so other PLC devices can join to a private network group**.

Step II: Join to Other Network Group

1. Press GROUP button of device A for 2 to 3 seconds (make sure POWER LED starts blinking).
2. Press GROUP button of device B for 2 to 3 seconds (make sure POWER LED starts blinking).

The device B which has cleared its group attribute will join to the device A which has not. This step makes device A and B are under the same encrypted network. Additional device C can be added into device A's logical network by taking same steps, thus all of the device A, B, and C in the same encrypted network group. User can assign as many powerline devices into the logical network group as described in the SPECIFICATION section.

*NOTE: It does not matter which device's button is pressed first, but please press the second device's GROUP button **within two minutes** after pressing first device's GROUP button. After 10 seconds, device will start communicating with device A.

4.2 Remove Device from an Existing Network Group

If you would like to remove powerline device from an existing network group, you can generate a new group name (referring to Step I) to stop communication with an existing network group.

4.3 Create Additional Private Network

If you want to create additional private network for your powerline devices that co-existence with your existing powerline private network group, please repeat the **Step 1 & 2** to generate new private network group for selected powerline devices.

P.S. Users can press the RESET button to reset the network name back to its factory default.

4.4 Standby Mode

Standby mode enables the powerline device to save power consumption. The device automatically enters standby if no Ethernet cable is connected, or the PC connecting this device enters standby, hibernation, or powered-off over two minutes. During standby, only POWER LED blinks at slower rate. To exit standby, just insert the Ethernet cable to the device, or wake up the connecting PC.

Note:

Some computers support Wake up LAN function that may cause our PLC can't enter the standby mode.

5. ENHANCE PLC PERFORMANCE

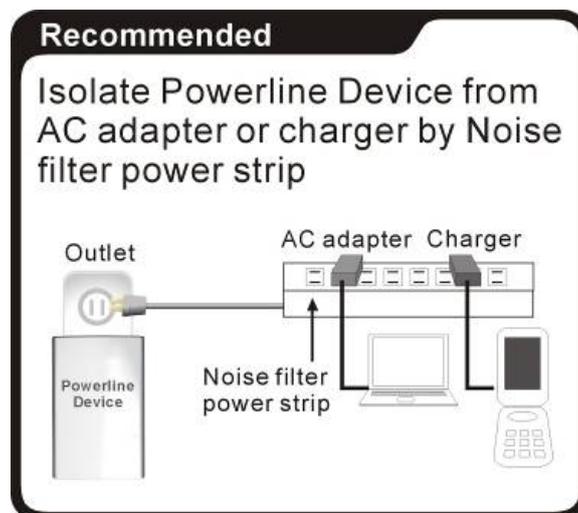
While Powerline device delivers data over the existing electrical wiring in the house, the actual performance may be affected by electrical noises or the length of the wiring. To improve PLC performance, please refer to below recommendations while placing the Powerline device.

AC Outlets Connection

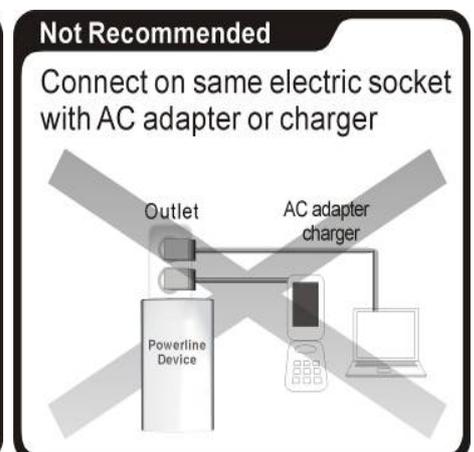
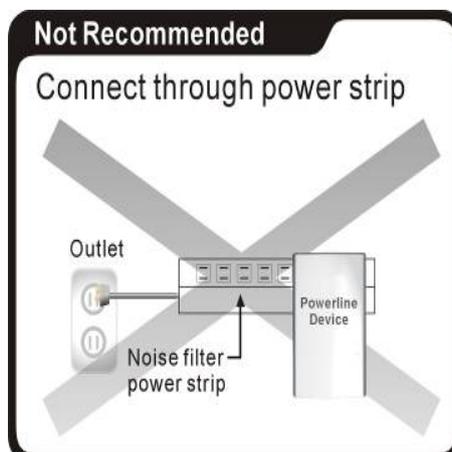
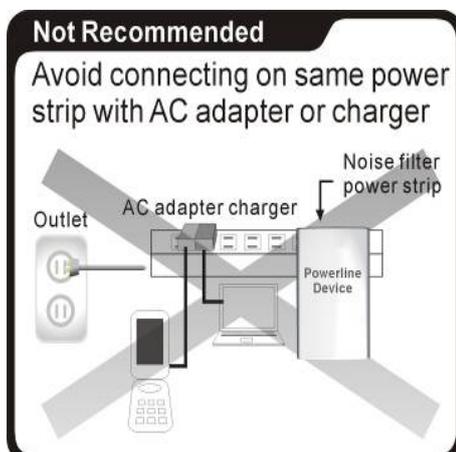
- Avoid connecting PLC device to an uninterruptible power supply (UPS) or backup power supply device. For best results, connect the adaptors directly to a wall outlet is recommended.
- Avoid connecting high-power consuming appliances to the same wall outlet.

See the following illustration:

For better performance, the following connection is recommended.



The following connections are **NOT** recommended.



Connection via Power Strip

If user intends to connect the PLC device via power strip, please follow below reference for better performance:

- Make sure the power strip does not support a noise filter or a surge protector.

Electrical Interference

Some household appliances may produce noise emission. If noise emission is spread over the electrical wiring it will affect PLC performance in the house. For the best results, we recommend to connect an electrical noise filter with the appliances such as:

- Battery chargers (including cell phone chargers)
- Hair dryers
- Power drills
- Halogen light
- Vacuum cleaner
- Lights or lamps with touch-sensitivity feature supported

Electrical Wiring

The PLC device delivers data over the existing electrical wiring in the house. Actual PLC data transfer rate might vary including the transmission distance between two PLC adapters..

Special Care for Business Installation

Due to several uncertainties that might degrade Powerline performance or block its operation, we DO NOT recommend to install the Powerline devices into business environment. This device has NO GUARANTEE to operate in a business environment such as offices or factories.

6. The transmission distance between two Powerline devices is limited by the noise in the electrical wiring.
7. PLC communication is supported under the same power meter system. Business environment might include more than one power meter systems and it will cause communication lost among the Powerline devices.

6. SPECIFICATIONS

Items	Description	
	Powerline Ethernet Bridge	Powerline Ethernet Switch
PHY Rate	200Mbps	
Effect Data Rate	TCP: Up to 90 Mbps UDP: Up to 91 Mbps	TCP: Up to 91 Mbps UDP: Up to 92 Mbps
Frequency Band	2~28 MHz (With Mask)	
Access Methods	CSMA/CA channel-access schemes	
Qos	Four-level priority based contention access, and multi segment bursting 8-level VLAN priority field, TOS field QoS Classification by destination MAC address and IP Port	
Modulation	OFDM (QAM 8/16/64/256/1024, QPSK, BPSK, ROBO)	
10/100 RJ-45 port	1 port	4 ports
Transmission Distance	AC Wire : 100 meters	
LAN Standards	IEEE 802.3, IEEE 802.3U,	
PLC Standard	HomePlug AV	
Operating System	OS independent	
Max. devices in a network Group	Up to 63 slaves with 1 master, 64 total devices	
IGMP	Support for IPv4/IGMP v1,v2,v3 snooping Support for IPv6 and MLD v1,v2 snooping Max 16 source addresses and Group Members	
Encryption	128-bit AES Link Encryption with key management	
LEDs	1. Power (green), 2. Powerline Activity (green), 3. Ethernet Link/Activity (green)	1. Power (blue), 2. Powerline Activity (blue), 3. AV/1.0 DET (blue),
Temperature	0~40 °C (Operating); -20~60 °C (Storage)	
Relative Humidity	10~85% Non-Condensing (Operating)	
	5~90% Non-Condensing (Storage)	
Power Source	100 ~ 240 VAC 50/60Hz	
Power consumption	Full load: (110 VAC) = 2.7W; (220 VAC) = 3.28W; (240 VAC) = 4W Standby mode: (110 VAC) = 0.72W; (220 VAC) = 1.36W; (240 VAC) = 1.4W	Full load: (110 VAC) = 4.2W; (220 VAC) = 5.3W; (240 VAC) = 5.8W
Certification	CE, CE-LVD, FCC Class B	