Channel Master®

CM-6100 POWERLINE ETHERNET ADAPTER KIT
CM-6104 4-PORT POWERLINE ETHERNET SWITCH KIT

USER MANUAL

Internet-to-tv
POWERLINE ETHERNET ADAPTER KIT

Internet-to-tv
4-PORT POWERLINE ETHERNET SWITCH KIT

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TABLE OF CONTENTS

ORDERING INFORMATION

This user manual describes **Internet-to-TV Powerline Ethernet Adapter** and **4-Port Powerline Ethernet Switch** devices.

The **Internet-to-TV Powerline Ethernet Adapter** device converts the Ethernet packets from its Ethernet port to the Powerline Communication packets (PLC packets), which then run on home electrical power lines, and converts the PLC packets back to Ethernet packets.

The **Internet-to-TV 4-Port Powerline Ethernet Switch** device is a four-port Ethernet Switch device bridged together with the Powerline interface. It converts the Ethernet packets from any of its Ethernet ports to PLC packets, and from PLC packets back to Ethernet packets. Also, Ethernet packets between any two of the four Ethernet ports is common cable (CAT5e), just like a normal Ethernet switch.

PRODUCT SUMMARY

Categories

Description

CM-6100 converts from Ethernet packets to PLC packets, and vice versa.

CM-6104 converts the Ethernet packets from any of its Ethernet ports to PLC packets, and vice versa.

This device can send any packet from any of its Ethernet ports to the Ethernet port of any Powerline Ethernet device!

INCLUDED ITEMS

Internet-to-tv
POWERLINE ETHERNET ADAPTER KIT

CM-6100

2 Internet-to-TV Powerline
Ethernet Adapters

2 Ethernet cables

1 Quick Start Guide

Internet-to-tv
4-PORT POWERLINE ETHERNET SWITCH KIT

CM-6104

1 Internet-to-TV Powerline
Ethernet Adapter
1 Internet-to-TV 4-Port
Powerline Ethernet Switch

2 Ethernet cables

1 Quick Start Guide

IMPORTANT SAFETY INSTRUCTIONS ⚠

This product is intended for connection to the AC power line. For installation instructions, refer to the Installation section (See page 15). The following precautions should be taken when using this product.

- 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 being powered on, this product should NOT be installed in any electric socket which makes the surface with venting holes on the product to face downward (facing the floor).**
- **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 water.
- This product should **never** be placed near or over a radiator, or heat register.
- This product relies on the building's electrical installation for short-circuit (over current) protection.

- **DO NOT** allow anything to rest on the product interconnect plug. **DO NOT** place this product where people may walk on the cords.
- Because this product sends data over the power line, it is recommended that you plug directly into a power outlet.
- **DO NOT** plug the device into a UPS or power strip with surge protection. The product has its own power filter for protection against surges.
- **Only** a qualified technician should service this product. Opening or removing covers may result in exposure to dangerous voltage points or other risks.
- Unplug the product from the wall outlet and refer the product to qualified service personnel for the following conditions:
  - When the interconnect cords are damaged or frayed.
  - 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.
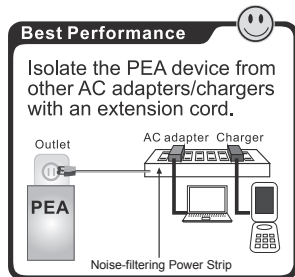 - If the product exhibits a distinct change in performance.

Internet-to-TV Powerline Ethernet Adapters

FIRST THING TO KNOW BEFORE INSTALLATION

Internet-to-TV Powerline Ethernet Adapters (PEA) send data to and from each other over the existing electrical wiring in your home, and may be affected by electrical noises or the length of the wiring at your house. Keep the following in mind when placing this Powerline device in your home.
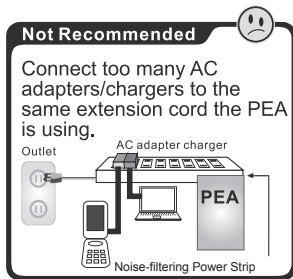
AC Outlets Connection

Avoid connecting this device to an un-interruptible power supply (UPS) or backup power supply device. For best results, we recommend connecting the adaptors directly to a wall outlet. Avoid connecting high power-consumption appliances to the same wall outlet. Plug these power consuming devices into a noise filtering power strip to prevent these devices from interfering with this Powerline device. See the following illustration figure:

For better performance, the following connection is recommended. Not isolating if from other devices by using a noise filtering power strip may cause interference with the Powerline device.

Best Performance

Isolate the PEA device from other AC adapters/chargers with an extension cord.

Outlet · AC adapter · Charger · PEA · Noise-filtering Power Strip

The following connections are **NOT** recommended, although current PLC technology will overcome most noise interference from electronic devices' AC adapters or chargers.

Not Recommended

Connect the PEA device to an extension cord.

Outlet

PEA

Noise-filtering Power Strip

Not Recommended

Other AC adapters/chargers connected to the same electrical outlet.

Outlet   AC adapter charger

PEA

Not Recommended

Connect too many AC adapters/chargers to the same extension cord the PEA is using.

Outlet   AC adapter charger

PEA

Noise-filtering Power Strip

Connection Via Power Strip

If you must connect this device to a power strip, please keep the following recommendation in mind:

Internet-to-TV Powerline Ethernet Adapters

- Make sure the power strip does not have a noise filter or a surge protector, as these features may impair communication signaling of the Powerline device sent over the electric wiring, and its throughput or distance will be degraded.
- Use a power strip with an AC cord that is as short as possible.
- Do not connect the adaptor to a power strip that receives power from another power strip.

Electrical Interference

Certain electrical devices emit electrical noise. If this noise is spread over to the electrical wiring in your home, it may interfere with the performance, speed, and reliability of this device. For best results, we recommend connecting an electrical noise filter to noise emitting appliances.

The following appliances are more likely to produce noise:

- Battery chargers (including cell phone chargers)
- Hair dryers
- Power drills
- Halogen light
- Vacuum cleaner

Additionally, this product may interfere with the following appliance:

- Lights or lamps which have a touch-sensitive on/off feature

Electrical Wiring

This device sends data to and from each other over the existing electrical wiring of your house. If two wall outlets are separated by a great distance of electrical wiring, these devices may not communicate well with each other. For more information, refer to the troubleshooting section.

**Note on Installing PLC Device Utility Software**

PLC Device Utility Software can be used for setting up or installing the PLC Device Utility Software on your PC, make sure your PC meets these requirements:

1. Your PC's operating system should be one of the Microsoft Windows* 98SE, ME, 2000, XP, Vista, and 7.
2. Pentium® III 450 MHz processor, equivalent or higher
3. At least 256MB RAM
4. At least one free Ethernet port for this Powerline device.

Internet-to-TV Powerline Ethernet Adapters

PRODUCT OUTLOOK

Internet-to-tv
POWERLINE ETHERNET ADAPTER KIT

Internet-to-tv
4-PORT POWERLINE ETHERNET SWITCH KIT
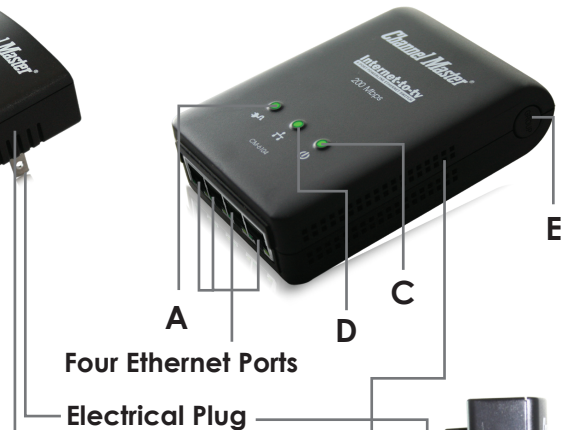
E

A B C
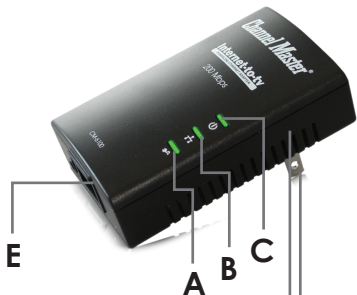
Ethernet Port

The "PLC Link/ACT " LED indicator turns "ON" when Powerline link is detected. If the device is serving as a STATION, the LED indicator will flash to indicate transmit or receive Powerline activity. If the device is serving as a CCo (Central Coordinator), the LED indicator will steadily light ON, even in the presence of Powerline activity.

E

A

D C

Four Ethernet Ports

Electrical Plug

Venting Holes
(Shouldn't face down when device is powered)

F

Channel Master®

Item	Item Name	Description
A	**PLC Link/ACT LED**	**On:** Powerline Link Detected (*1) **Blinking:** **(1)** Powerline traffic detected (*1) **(2)** Powerline device not in any logical network. **Off:** No Powerline traffic detected
B	**Ethernet Link/ACT LED**	**On:** Ethernet Link Detected **Blinking:** Ethernet traffic detected **Off:** No Ethernet Link detected
C	**POWER LED**	**On:** Power on **Blinking:** **(1)** Booting or **(2)** Joining a device to another device's network. **Off:** Power off
D	**HomePlug 1.0 DET LED**	**Blinking:** HomePlug 1.0 Traffic detected **Off:** HomePlug 1.0 not detected
E	**GROUP Button**	Press 2 seconds to join a device into a logical network or clear grouping information
F	**Reset-to-factory-default Button**	Press to reset Firmware setting to Factory default

PRODUCT OVERVIEW

This Powerline device is virtually an Ethernet cable replacement and an Ethernet hub replacement. Two of these **Internet-to-TV Powerline Ethernet Adapters** can be used to replace an Ethernet cable, for connecting any PC to another PC, PC to a DSL router, or a wireless AP to a DSL device. Many of these devices can be connected together to form a mesh network.

For example, three PCs can connect to a DSL router for accessing the Internet via four of these Powerline devices (Each PC connected to one of the Powerline devices, and the DSL router connected to the fourth Powerline device).

Each Powerline device has predefined attributes such as DAK (device password) and Powerline logical network group. Any device node in a logical network group can communicate to any of the other nodes in the same group. Devices in different network groups won't be able to talk to one another. The maximum number of nodes in a Powerline logical network group is defined in the **SPECIFICATIONS** section in this user's manual. Powerline network group is defined by its **Network Name** stored in the device. Each device is shipped with default Public network name of **HomePlugAV**, and thus belong to the same logical network and be able to communicate with each other. The **GROUP** button on the device can be used to change a device's network group attributes. For using the **GROUP** button, please see the first portion of the **PRODUCT INSTALLATION** section. For using the PLC Device Utility software, please refer to the PLC Device Utility User Guide inside the product.

If the user finds two newly purchased devices are not able to communicate with each other, please press the "**reset-to-factory-default**" button while the device is plugged in and powered on to reset the device back into the factory default Powerline Network Group, **HomePlugAV**. If the devices are still not working, please read the other sections in this user manual for **Frequently Asked Questions** (See page 24) and device **Trouble Shooting**(See page 28).

Standby Mode
If there is no Ethernet cable connected to the **Internet-to-TV Powerline Ethernet Adapter** device over two minutes, this device will go into standby mode automatically to save power consumption and its **POWER LED** will blink **ON** and **OFF** at a slow rate. To exit the standby mode, insert the Ethernet cable or plug the device in again.

Note:
1. Some computers support Wake up **LAN** function that may cause our PLC to enter the standby mode.
2. **Internet-to-TV 4-Port Powerline Ethernet Switch** product doesn't support standby mode.

Internet-to-TV Powerline Ethernet Adapters

PRODUCT INSTALLATION

Setting the Logical Network Group

Users can set **Internet-to-TV Powerline Ethernet Adapter** devices into one or many logical network groups. Devices in the same logical network group will communicate with each other. Devices in different network groups won't communicate with each other.

To make Powerline device **B** join device **A**'s logical network, do the following three steps:

Note: It will be more convenient if user places devices, which are to be configured into same logical network group, side by side during the above procedures. After network is set, the devices can be deployed anywhere in the home)

Step 1. First, clear the logical network group of device **B** by pressing its **GROUP** button more than 10 seconds. After release of the button, all **LED** lights simultaneously blink off and on, showing start of procedure to clear network group.

The following steps join device **B** to device **A**'s logical network:

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

Step 3. In less than two minutes after the previous step, press the **GROUP** button of device **B** for 2 to 3 seconds (make sure **POWER LED** starts blinking). After 8 ~ 10 seconds, device **B** will connect to device **A**.

This way, Powerline device **B** joins the same logical network as device **A**. Users can join device **C** to device **A**'s logical network using the same procedures as above. After following this procedure, device **C** joins well into device **A**'s logical network, and device **B** is also in device **A**'s logical network. Thus device **A**, **B**, and **C** are in the same logical network group. Users can assign up to the maximum number of Powerline devices into this logical network group as stated in the **SPECIFICATION** section (See page 23).

Remove a device from a logical network Group

For example, device **A** and device **B** are in the same logical network group, if users want to remove device **A** from this logical network group, just follow the procedure in **Step 1** by pressing the **GROUP** button of device **A** for 10 seconds. This will remove device **A** from the logical network group, and it will no longer be able to communicate with device **B**. If users want

to remove a device from a logical network group of 3 or more devices, just operate the **GROUP** button of this device to be removed from the group as in **Step 1**.

Setting a different network Group

When a device is removed from a logical network group, a random network key is generated which is different from the original network group name. This is now the first device in a new network group. Additional devices can be added to the new network by using the same procedures as in **Step 2** and **3**. This method allows users to form two separate logical network groups on the same in-house electrical network.

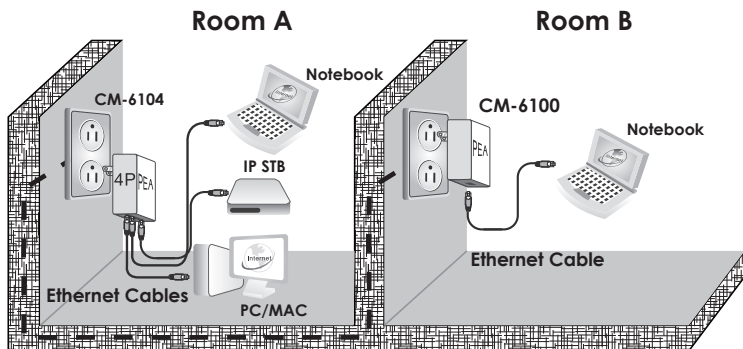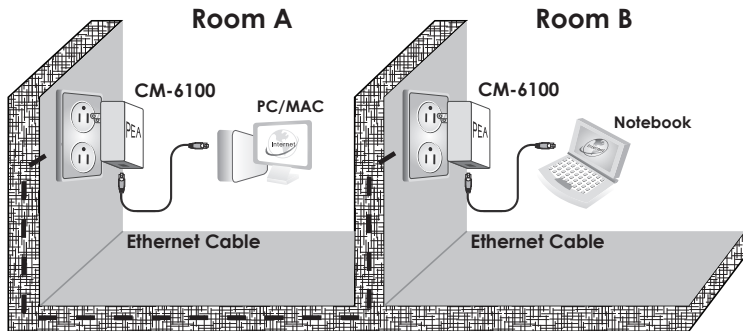**Following are some application examples and installation diagrams:**

Application 1 – Local Powerline Network Among PCs

Using the included Powerline devices for connecting computers in different rooms or floors at home!

Installation Procedure:

Connect the included Powerline device to a PC, such as shown in **Room A** of the following two pictures. If users buy the package which includes two Powerline devices (dual or combo

APPLICATION 1

Room A   **Room B**

CM-6100   PC/MAC   CM-6100   Notebook

Ethernet Cable   Ethernet Cable

Room A   **Room B**

CM-6104   Notebook   CM-6100   Notebook

IP STB

Ethernet Cables   PC/MAC   Ethernet Cable

package), please connect the second included Powerline device with another PC as shown in **Room B** of the following two pictures. The second picture in the following example shows multiple network devices connected to the **4-port Powerline Ethernet Switch** product in **Room A**, and to the Notebook PC in **Room B**.

Application 2 – PC to xDSL Router Connection
Use the included Powerline devices for connecting multiple PC or Ethernet devices to an xDSL router in any other room!

Installation Procedure:
Connect the included Powerline device to a PC like the example shown in **Room A**. Now connect the second included Powerline device to a broadband xDSL router like the example shown in **Room B**. **Room A** of the second example shows multiple network devices linked to the xDSL router in **Room B** via a single **4-port Powerline Ethernet Switch** device.

Note: Under good power line signal conditions, **Room A** and **Room B** can be many rooms away from each other without a communication problem. (See the **FAQ** section on page 24)

APPLICATION 2

Room A **Room B**

Room A **Room B**

Internet-to-TV Powerline Ethernet Adapters
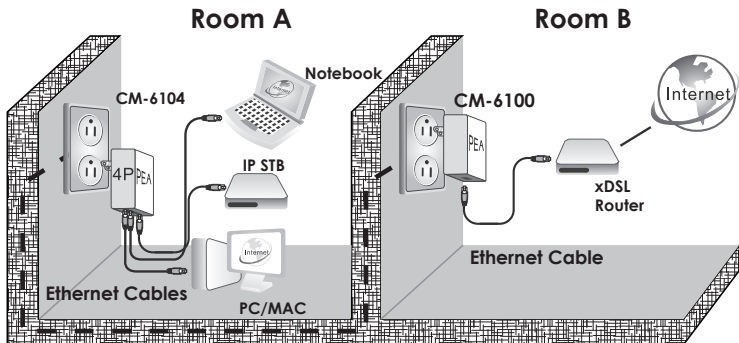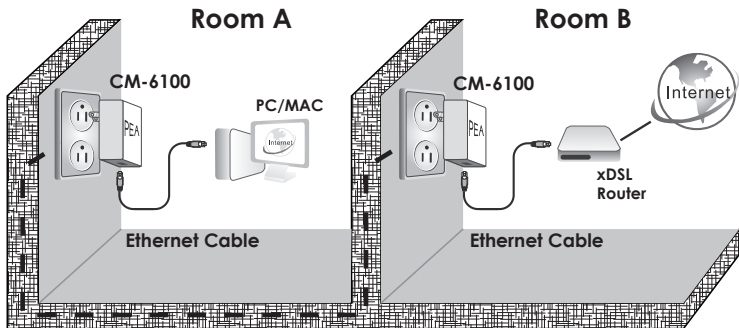
Application 3 – Wireless Access Point Range Extensions
Sometimes, a PC using wireless LAN on one floor of a concrete house can not access the wireless AP router installed on a different floor. Using the included Powerline Ethernet devices will overcome this problem!
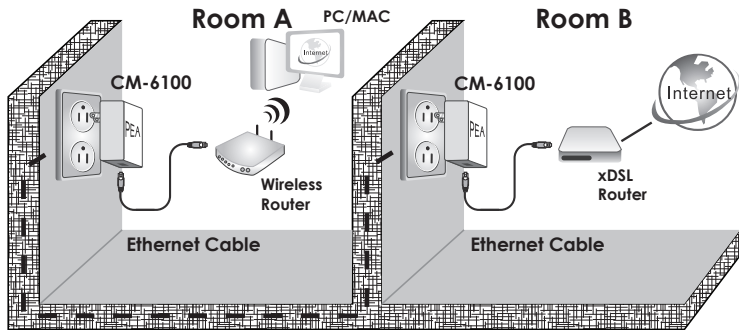
Installation Procedure:
Connect the included Powerline device to a wireless Access Point in the example shown in **Room A**. Now connect another included Powerline device with a broadband xDSL router like the example shown in **Room B**.

Special Care for business installation
We DO NOT recommend these Powerline devices for business environments due to several uncertainties which degrade Powerline performance or block its operation. This device has NO GUARANTEE to operate in a business environment such as offices or factories. However many businesses will find it an inexpensive solution to implement networking with no costly changes to wiring infrastructure.

The distance between two Powerline devices is limited by the noise in the electrical wiring of the business environment.

APPLICATION 3

Room A   PC/MAC   Room B

CM-6100

Wireless Router

Internet

xDSL Router

CM-6100

Ethernet Cable

Ethernet Cable

Interference may be intermittent, for example highest at one time of day, or one day of the week. Normally, a business environment covers a wider area than the recommended home application. Electric wiring in a business environment may be very possible to involve more than one power meter system, which sometimes cause communication difficulties of Powerline devices.

SPECIFICATIONS

Items	Descriptions	
	CM-6100	**CM-6104**
PHY Rate	200Mbps	
Effective Data Rate	TCP: Up to 90 Mbps	TCP: Up to 91 Mbps
	UDP: 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
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	**Full load:** (110 VAC) = 4.2W; (220 VAC) = 5.3W; (240 VAC) = 5.8W
Standby mode:	(110 VAC) = 0.72W; (220 VAC) = 1.36W; (240 VAC) = 1.4W	NA
Certification	CE, CE-LVD, FCC Class B	

FAQ (FREQUENTLY ASKED QUESTIONS)

1. What is the distance this device can transmit?

ANS: Powerline technology provides reliable coverage for considerable distances in a home, but the limiting factor is often noise in your home's electrical system. Since noise is not directly distance-dependant, you may get (considerably) less or more coverage.

2. What is the throughput this device can transmit?

ANS: The device's throughput depends largely on several factors:

   (1) The distance with another device,

   (2) Interference by other appliances,

   (3) Number of same Powerline devices which share the common electric wiring, and

   (4) application packet types – TCP or UDP.

   TCP applications will be slower than UDP applications. Longer distance, larger interference, or more Powerline devices will reduce the data throughput. The maximum throughput between two devices for TCP and UDP are specified in the **Specifications** section on page 23.

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3. Do I have to rewire my home electric outlets or install special filters for using this device?

ANS: Our Powerline products use a home's existing electrical wiring to network computers in different rooms so that they can share files, printers, and Internet connections. They use existing electrical sockets (outlets). If your wiring is current, there is no need to rewire outlets or to install special filters.

4. What types of AC outlets can I plug this device into?

ANS: This Powerline product works with AC 100V to 240V with 2-prong or 3-prong electrical outlets, depending on whether the plug is 2-prong or 3-prong type.

5. Can this power-line device work with circuit breakers?

ANS: In many countries Powerline signals will not communicate between different phases.

Please have installers or a local expert in your country to check your home's electric wiring before installation.

6. Is it secure to send private data over this power line device?

ANS: It is secure enough because the technology supports special data encryption. Please refer to the **Specifications**

section on page 23 for the type encryption algorithm used with this device.

7. How can I connect multiple devices together?

ANS: Multiple devices can be connected together if they are in same logical network group. Use the **GROUP** button or utility software on a PC to set the group for this device. By default, 20 devices in a newly shipped dual or combo package are in the same group.

8. How many devices can be assigned into a single group?

ANS: Please see the **SPECIFICATIONS** section on page 23 for the maximum number of devices that can be assigned to a single logical network group. There can be multiple groups in the same electric wiring environment.

9. Does any device in a group communicate to any other device in a group?

ANS: Yes. For example, four Powerline devices, **A**, **B**, **C** and **D** form a logical network group. **B**, **C**, and **D** can all communicate to **A**. If **A** links to a PC, then **B**, **C**, and **D** all can share files of the PC. If **A** links to an xDSL broadband router, then **B**, **C**, and **D** all can surf the internet via the DSL router.

Internet-to-TV Powerline Ethernet Adapters

10. Why use a password?

ANS: Since the device can be configured by a PC utility software, a password protects the device from being configured by unauthorized people.

11. What standard does this device use?

ANS: Powerline devices from multiple manufacturers using this same PLC standard will be able to communicate with each other. Please see SPECIFICATIONS section for the exact PLC standard used in this device.

12. How many of these device's can I install in my home?

ANS: Although multiple devices can be used in a single power-wiring network in a building, multiple installed devices share the bandwidth, and cause unintended performance degradation.

13. Can I install this device in a business environment?

ANS: Powerline devices are not recommended for use in a business environment. However, if the Powerline devices can be installed on the same electrical circuit close to each other, they may work. There are many devices in a business environment that can generate noise on

the electrical wiring (fluorescent lights, copy machines, manufacturing equipment). If this noise level is too high, the Powerline products will not work effectively.

14. Can this PLC device communicate with any other PLC devices purchased in the market?

ANS: PLC devices using different PLC standards (protocol) may have problems communicating with each other, although they all can co-exist on the same electric wires. Check the table in the **Troubleshooting** section for capability of communication between different PLC standards.

Capability of Communication between PLC Standard	HomePlug 1.0	Turbo	AVturbo	UPA	HD-PLC
HomePlug 1.0	**OK**	**OK**	NO	NO	NO
HomePlug turbo	**OK**	**OK**	**OK**	NO	NO
HomePlug AV	NO	NO	**OK**	NO	NO
UPA	NO	NO	NO	**OK**	NO
HD-PLC	NO	NO	NO	NO	**OK**

To understand what type of PLC standard this device uses, please check it in the **SPECIFICATIONS** section.

TROUBLESHOOTING

New devices are shipped with the same logical network group assignment and should have no problems communicating with each other. If two devices can not communicate, check the logical network group to make sure they are using the same PLC configuration utility.

- If the configurations are the same, and the devices fail to communicate, the electric wiring may be causing the problem. Examples of potential problems are:
  - Old fuse boxes.
  - Old wiring that does not meet current wiring building codes.
- First, make sure the devices are functioning properly. Plug the units into nearby electric outlets in the same room or into the same power strip with noise filtering. If the two devices can communicate, go to **long distance debugging steps**; if the two devices still can not communicate, continue to check the following:
- Check that the Ethernet cables are securely plugged in
- Check the power supply
- Check the LEDs are properly lit, blinking, or turned off

- Uninstall and reinstall the device
- Perform a "ping" test to see whether your device is connected to the network
- Gradually increase the distance between the Powerline units. Your testing will determine which distances you can achieve.

Long Distance Debugging Steps:
- Gradually increase the distance between the two Powerline devices. Some nearby outlets may be harder for the devices to communicate over than the farther outlets. It all depends on electrical wiring topologies. Try using different outlets on different walls or different rooms.
- Swap devices to isolate the problem to a particular Powerline unit.
- If there are problem areas, have a qualified electrician review the building's electrical plans, assessing the noise conditions for each phase of the power.
- Pay special attention to the electrical noise generated by the following devices:
  – Air conditioning
  – Florescent lights, particularly industrial grade lights
  – Refrigerators

Internet-to-TV Powerline Ethernet Adapters

– Surge protectors and other line filters and conditioning
– Blowers
– Large electrical motors

Note
1) This Powerline device is not designed for business use. Consult a professional electrician to evaluate the electrical noise in your building and to suggest remedies.
2) If you've moved a Powerline unit, or disconnected the cables, your other network devices may need about 5 minutes to refresh the current status.
3) Use all the same Powerline models for best connectivity. Also, software for one model may not work for another model. In particular, remote and advanced features may not work between Powerline device manufacturers.

WARRANTY

LIMITED WARRANTY
This Limited Warranty is a legal document. Keep it in a safe place. Remember to retain your Bill of Sale for warranty service! Any items returned without a copy of the Proof of Purchase will be considered out of warranty.

WHAT THE WARRANTY COVERS
This warranty extends only to the original user of the equipment and is limited to the purchase price of each part. Channel Master warrants this system against defects in materials or workmanship as follows:

Labor: For a period of 90 days from the original date of purchase, if Channel Master determines that the equipment is defective subject to the limitations of this warranty, it will be repaired or replaced at no charge for labor as your sole and exclusive remedy. Channel Master warrants any such work done against defects in materials or workmanship for the remaining portion of the original warranty period, with repair or replacement in accordance with the foregoing as your sole and exclusive remedy.

Parts: For a period of 90 days from the original date of purchase, Channel Master will supply, as your sole and exclusive remedy and at no charge, new or re-manufactured parts in exchange for parts determined to be defective subject to the limitations of this warranty. Channel Master warrants any such replacement parts against defects in materials or workmanship for the remaining part of the original warranty period, with the exchange of such parts in accordance with the foregoing as your sole and exclusive remedy.

Note: "Parts" means items included in this package, it does not include other parts purchased separately.

WHAT THE WARRANTY DOES NOT COVER

- This warranty does not cover installation of the system. If applicable, such installation will be warranted under a separate installation agreement.
- This warranty does not cover consumer instruction, physical setup or adjustment of any consumer electronic devices, remote control batteries, cables, signal reception problems, loss of use of the system, or unused programming charges due to system malfunction.

- This warranty does not cover cosmetic damage, damage due to lightning, electrical or telephone line surges, battery leakage, fire, flood, or other acts of Nature, accident, misuse, abuse, repair or alteration by other than authorized factory service, use of accessories not recommended by the manufacturer, negligence, commercial or institutional use, or improper or neglected maintenance.

- This warranty does not cover equipment sold AS IS or WITH ALL FAULTS, shipping and handling, removal or reinstallation, shipping damage if the equipment was not packed and shipped in the manner prescribed, nor equipment purchased, serviced, or operated outside the continental United States of America.

IF YOU NEED ASSISTANCE

- Visit our website at www.channelmaster.com. Have the date of purchase and your model number available.

- A Customer Service Representative will assist you. If the Representative determines you should return any equipment, you will be given instructions on how to return your equipment. You will be responsible for the cost of shipping back the defective equipment, whether under warranty or not.

- Returned equipment must be packaged properly, using either the original shipping materials or other appropriate packaging. Include a copy of the Bill of Sale. Any items returned without a copy of the Proof of Purchase will be considered out of warranty.
- Follow the instructions given to you by the Customer Service Representative when returning your equipment for service.

LEGAL LIMITATIONS

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