



# PlugLink HD AV Pass-Through Adapter User's Guide

PL9667-Q1

**PlugLink**®  
by Asoka®

## QUICKFIND LOCATOR

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66-0384-01Rev.001

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Revision	Date	Description
66-0384-01Rev.001	June2013	Preliminary Release

## Changes in This Revision

- Not applicable (preliminary release)

## Contact Information

For more information about the PlugLink HD AV Pass-Through Adapter or any of Asoka's other leading-edge solutions, please contact us using any of the following methods:

- **Voice calls:** We welcome your calls Monday through Friday, from 9:00 am to 5:00 pm Pacific Time at (408) 550-8167. Voice mail is available during non-business hours.
- **Email:** If you prefer, you can send information requests to our e-mail address: [sales@asokatech.com](mailto:sales@asokatech.com).
- **Fax calls:** You can also send your requests for information to our 24-hour fax number: (408) 884-2390.
- **Web site:** Our Web site contains valuable information about our products, solutions, and services. We encourage you to visit us at <http://www.asokatech.com>.

## Getting Help

Asoka USA backs its products with unparalleled customer service and technical support for our valued customers.

## Customer Service

Customer service, the customer-satisfaction arm of Asoka USA, is available Monday through Friday, from 9:00 am to 5:00 pm Pacific Time, by calling (408) 550-8167 or emailing [custserv@asokatech.com](mailto:custserv@asokatech.com).

## Technical Support

Technical support is available Monday through Friday, from 6:00 am to 6:00 pm Pacific Time, by calling (408) 550-8173 or through email at [support@asokatech.com](mailto:support@asokatech.com).

Please provide the following information about the problem:

- Product name, model number, part number (if applicable) and serial number
- System configuration, including a description of the devices connected to your PL9660
- The circumstances surrounding the error or failure
- A detailed description of the problem and what has been done to try to solve it

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# 1

## Simple Installation

### **Congratulations on your purchase of the PlugLink HD AV Pass-Through Adapter !**

This adapter allows you to network your home or office by plugging directly into an electrical outlet. With your PlugLink HD AV Pass-Through Adapter, you can easily share your high-speed Internet, mp3s, video, and gaming throughout the home or office.

This manual describes how to connect your PlugLink HD AV Pass-Through Adapter to a PC or cable/DSL Router.

### **Package Contents**

- PlugLink HD AV Pass-Through Adapter(PL9667-Q1)
- 6-foot Ethernet cable
- Quick Installation Guide
- Installation Resource CD (for advanced users only)
- Warranty and Support Information Card



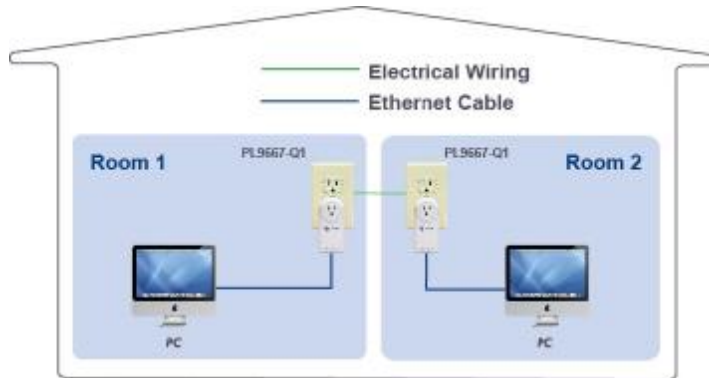
If any of the parts are incorrect, missing, or damaged, contact the retailer where you made your purchase. Keep the carton, including the original packing materials, in case you need to return the unit for repair.

### **Types of Connections**


This section describes what you need to do to before installing the PlugLink HD AV Pass-Through Adapter. You can set up a home or an office network or compliment your existing network by connecting to any device with a 10BaseT/100BaseT Ethernet-capable device.

## Simple Connection (Peer to Peer)

To share a simple connection between computers, attach one PL9667-Q1 device to each computer.



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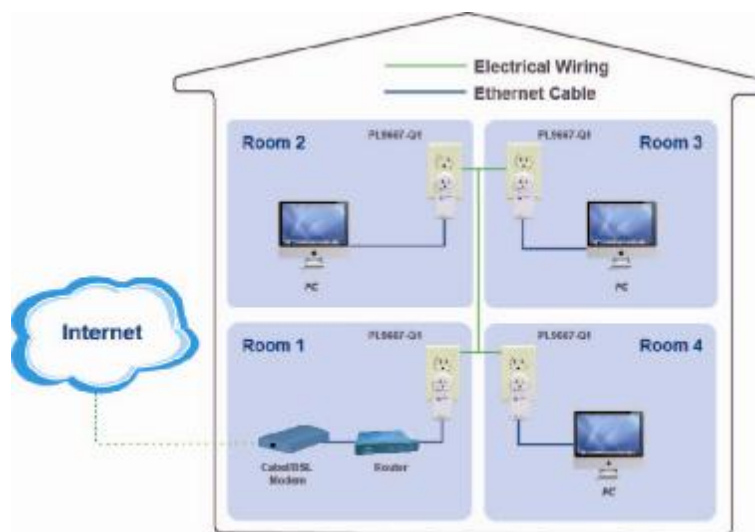
 **NOTE:** Do not connect the PlugLink HD AV Pass-Through Adapter into a power strip, extension cord, un-interruptible power supply (UPS), or surge protector. This may prevent the unit from working properly or degrade the network performance.

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## Simple Broadband Connection

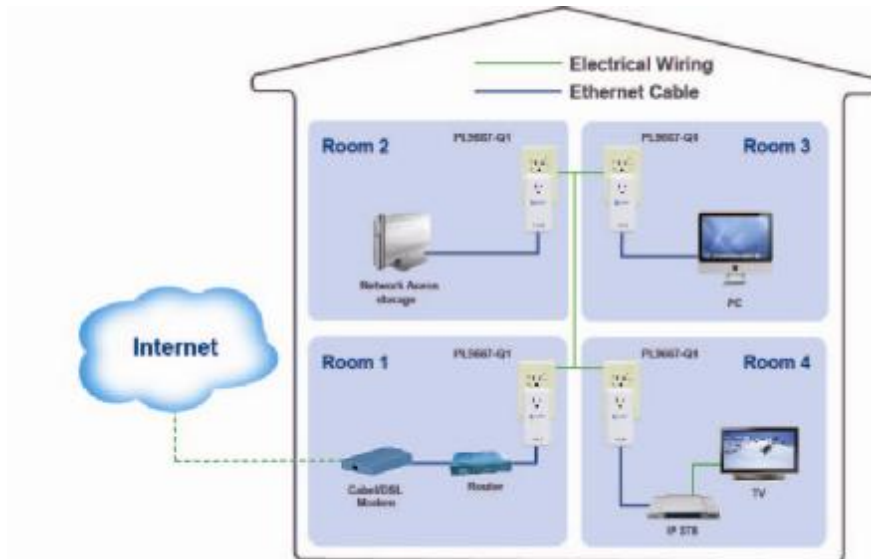
The following items are needed to share a Broadband connection with computers:

- One (1) PL9667-Q1 device attached to a standard cable, DSL, or wireless router;
- One (1) PL9667-Q1 device attached to each computer;



## Other Connections

You can also use the PlugLink HD AV Pass-Through Adapter with other Ethernet enabled devices, such as IP Cameras, IP set top box, game consoles, etc. “Up to eight (8) PL9667 can be placed on the same PLC (Powerline Communication) network.”



## Finding a Suitable Location

Find a suitable location to install your PlugLink HD AV Pass-Through Adapter. Where you install the units can affect their performance. Find a location that is:

- Acceptable temperature and humidity ranges.
- Free of strong electromagnetic field generators (such as motors), vibration, dust, and direct exposure to sunlight.
- An electrical outlet for your PlugLink HD AV Pass-Through Adapter. Outlet must be within six feet (1.82 meters) of the device you are connecting to.

## Installing the Hardware

Connect each of your PlugLink HD AV Pass-Through Adapter.

1. Connect the unit into a nearby wall outlet (Do not plug the adapter into a power strip).
2. Connect the enclosed Ethernet cable to the Ethernet port of the unit.
3. Connect the other end of the cable to the Ethernet port of the PC or device.



**Congratulations!** You have completed the installation of the PL9667 for normal use.

# 2

## Troubleshooting

Following are solutions to a few situations you might encounter. If you do not find a solution in this chapter, contact Asoka USA Technical Support by phone at (408) 550-8173 or through email at [support@asokatech.com](mailto:support@asokatech.com).

**Symptom:** I can't connect to anything and there are no lights activated on my PL9667-Q1.

**Solution:**

1. Unplug the device from the electrical outlet in question.
2. Locate another available outlet in your home.
3. Test the outlet by plugging in another electrical device such as a lamp or radio.
4. Plug the PL9667-Q1 into the working electrical outlet.
5. Check to see if the lights work
6. If the above does not work, the device might be defective.
7. Please contact Technical Support for instructions on returning the device for repair or replacement.

**Symptom:** Some of my devices cannot connect to the Internet or other computers in my network. The lights seem to be functionally normally.

**Solution #1:**

1. Re-Initialize the PL9667-Q1 device.
2. Unplug the PL9667-Q1 from the electrical outlet.
3. Disconnect the Ethernet cable from the device
4. Plug the PL9667-Q1 back into the electrical outlet.
5. Reconnect the Ethernet cable.



**Solution #2:**

The Network Encryption Key (NEK) may not be correct on your devices.

1. Reset the Network Encryption Key using the Factory Reset button located on the bottom of your PL9667-Q1 device. This will reset the NEK back to the default of HomePlug.
2. Test your connection again. If this still does not work, perform the factory reset on all of your other PL9667-Q1 devices in your network.

**Solution #3:**

It is possible some outlets in your home are not connect together.

1. Unplug the PL9667-Q1 from the current electrical outlet.
2. Locate another outlet in the home.
3. Plug the PL9667-Q1 into that outlet.
4. Attach a computer to the PL9667-Q1.
5. Open the Power Manager Utility (located on the enclosed CD).
6. Under the Profile button, check if your PL9667-Q1 is displayed (it Will be the first) and see if your other PL9667-Q1 devices can be seen. If you can see other devices under the Profile screen, your PL9667-Q1 device is functioning properly.

**Solution #4:**

Your broadband connection may have stopped working.

1. Power down your broadband router and/or DSL/cable modem (if applicable) for about 30 seconds and then power them back on.
2. If this step fails, please contact your ISP for assistance.



# Specifications

This appendix lists the specifications for your PL9667-Q1.

<b>Standards Compliance:</b>	•HomePlug® AV • IEEE 802.3, IEEE 802.3x, IEEE 802.3u,IEEE1901
<b>Software Utility System Requirements:</b>	Microsoft Windows® 98 SE, 2000, ME, XP, Vista ,7 (32bit)and 7(64bit) operating systems
<b>Network Protocol:</b>	TCP/IP, CSMA/CA, TDMA (supported in the future)
<b>Network Interface:</b>	One-port 10/100 Mbps Ethernet (RJ-45)
<b>PHY-Rates:</b>	Up to 200 Mbps
<b>Distance:</b>	Over 300 Meter
<b>Operating Frequency:</b>	2 to 30 MHz
<b>Modulation Schemes:</b>	• Orthogonal Frequency Division Multiplexing (OFDM) • QAM 1024/256/64/16 •QPSK •BPSK
<b>EMI and Safety:</b>	• FCC Part 15 Class B •UL (US and Canada) •CE
<b>Additional Protocols:</b>	• Forward Error Correction (FEC) • Automatic Channel Adaptation
<b>Power Supply:</b>	100-240VAC
<b>Surge Energy Rating:</b>	4KV
<b>Power Rating:</b>	• 100-120VAC , 12A max, 60Hz for US plug
<b>Security:</b>	128-bit AES

<b>Environmental Specifications:</b>	<ul style="list-style-type: none"> <li>• Operating temperature: 32°F to 113°F (0°C to 45°C) for EU plug</li> <li>• Operating temperature: 32°F to 95°F (0°C to 35°C) for US plug</li> <li>• Operating humidity: 10% to 85% Non-condensing • Storage temperature: -4°F to 158°F (-20°C to 70°C) • Storage humidity: 5% to 90% Non-condensing</li> </ul>
<b>Quality of Service:</b>	<ul style="list-style-type: none"> <li>• ToS • 802.1q • TDMA (supported in the future)</li> </ul>
<b>Warranty:</b>	lifetime



# Components

## Front Panel

Use the status lights on the front panel to verify connections.



The following table describes the status light functions in the front panel:

Status Light	State	Indication
Power	Illuminated Off Red and Green illuminate alternately	Device is powered on Devices has no power Stand by mode (After 3 minutes no link)
PLC Activity	Blinking Red Blinking Yellow Blinking Green Off	Low connection Good connection Excellent connection No connection
Eth Link	Illuminated Blinking Off	Ethernet connectivity Ethernet traffic No Ethernet connectivity

## Bottom Panel

The bottom panel of the PL9667-Q1 contains the following components:

- RJ-45 Ethernet port



The label on the rear panel of the PlugLink HD AV Pass-Through Adapter contains the information listed below.

- MAC address
- Model number
- Part number
- Serial number
- PLC DAK


**Note:** Write this information down in your Warranty Support Information

card for future reference.

**Asoka USA Corporation**  
PlugLink HD AV Pass-Through Adapter  
Model: PL9667-Q1  
FCC ID:T37PL9667-Q1  
PLC DAK: XXXX-XXXX-XXXX-XXXX  
MAC Address: XXXXXX XXXXXX

Input: 100-120VAC  
Max :12A 60Hz

UL US LISTED E257853 3SPX I.T.E.



SN: XXXXXXXXXX XXX

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.

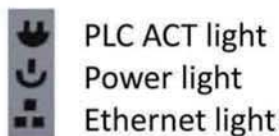
MADE IN CHINA XX-XXXX-XXX

## Buttons

The PlugLink HD AV Pass-Through Adapter device has two hardware push buttons:

- **FW RST (Firmware Default Reset ) button** - Resets the PlugLink HD AV Pass-Through Adapter back to factory default settings. Press and hold the button with a pin or sharp object for about 2 seconds until you see the lights on the device flash briefly.
- **SECURITY (Network ID) button** - All PlugLink HD AV Pass-Through Adapter devices have a default password Network Encryption Key (NEK) set to “HomePlugAV” allowing them to communicate to each other. The SECURITY button allows you to set a devices’ password to a randomized Network Encryption Key (NEK) for maximum security. You can then set other devices to the same NEK by using their SECURITY button. Only units with the same NEK can communicate to each other.

## SETTING A RANDOMIZED NETWORK PASSWORD



Device A



Device B

1. Select a PlugLink HD AV Pass-Through Adapter (Device A) and plug into an AC outlet. The POWER light indicator should be lit solid green.
  - a. Press the SECURITY button BRIEFLY (1 second) and release. The POWER light should now be blinking green.
  - b. **IMPORTANT:** If the POWER light is not blinking green, repeat Step “a” until the power light blinks green.

This unit is now ready to create a new randomized NEK (Net Encryption

- Key) network. This unit will remain in this “adder” mode for about 2 minutes.
2. Select another PlugLink HD AV Pass-Through Adapter (Device B) and plug into a second outlet.
    - a. Press the SECURITY button BRIEFLY (1 second) and release. The POWER light should now be blinking green.
    - b. **IMPORTANT:** If the power light is not blinking green, repeat Step “a” until the power light is blinking green.
  3. In about 15 seconds the POWER light will change from flashing green to solid green and the PLC ACT (Power line Communication Activity) light will turn solid green (flashing green when there is data traffic) indicating they are synchronized with the same NEK.
  4. Congratulations, you are done!

### ADDING A THIRD OR MORE PLUGLINK HD AV DEVICES



1. Plug your new PlugLink HD AV Pass-Through Adapter (Device C) into an AC outlet. The POWER light indicator should be lit solid green.
  - a. Press the SECURITY button BRIEFLY (1 second) and release. The POWER light should now be blinking green.
  - b. **IMPORTANT:** If the POWER light is not blinking green, repeat Step “a” until the power light is blinking green.
  - c. This unit is now ready to join the existing HD AV network. This unit will remain in this “adder” mode for about 2 minutes.
2. From your existing devices (either device A or device B) press the SECURITY button BRIEFLY (1 second) then release. The POWER light should now be blinking green.
  - d. **IMPORTANT:** If the power light is not blinking green, repeat Step “2” until the power light is blinking green.
3. In about 15 seconds the POWER light will change from flashing green to solid green and the PLC ACT (Power line Communication Activity) light will turn solid green (flashing green when there is data traffic) indicating they are synchronized with the same NEK.
4. To add more PlugLink devices; simple repeat this process per device.
5. Congratulations, you are done!

#### Notes:

1. The other devices already in the Power line network with the proper NEK are not affected and do not need to be reconfigured.
2. If you disconnect power from any device, its NEK value will remain and will not default back to “HomePlugAV” NEK.

3. An adapter can only generate a private key once. To replace a private key, first reset the unit back to its factory defaults by pressing the Firmware Default Reset (FW RST) button for 1 second, then follow the procedure above.



The use of the SECURITY (Network ID) button is optional. You may also use the application software described in the manual to set NEK's as well.

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## Warranty

Asoka warrants that (a) the hardware components of the product will be free from defects in materials and workmanship under normal use from the date of purchase when used within the limits set forth in the Specifications section of the User Guide, and (b) the software components will perform substantially in accordance with Asoka's published specifications for lifetime from the date of purchase, but does not warrant that the software will be error-free or free of all defects.

Should a product fail to perform as described in the User Guide, it will be repaired or replaced with the same or functionally equivalent product by Asoka, at its discretion, free of charge provided that you: (a) return the failed product to an Asoka designated repair facility with shipping charge prepaid, and (b) provide Asoka with proof of the original date of purchase. Repaired or replacement products will be returned to you with shipping charges prepaid. Asoka warrants any replaced or repaired product or component for the life of the product.

This warranty extends only to you, the original purchaser and is not transferable to any subsequent purchasers.

This warranty does not apply if, in the judgment of Asoka, the product fails due to damage from shipment, handling, storage, accident, abuse, misapplication or misuse, or if it has been used or maintained in a manner not conforming to product manual instructions, has been modified in any way, or has had any serial number removed or defaced. Repair by anyone other than Asoka or an approved agent will void this warranty. The maximum liability of Asoka under this warranty is limited to the purchase price of the

product covered by the warranty. Prior to returning any defective product, the purchaser or the authorized merchant from whom the purchaser originally bought the product must obtain a Return Material Authorization (RMA) number from Asoka. All defective products should be returned to Asoka with shipping charges prepaid. Asoka will not accept collect shipments.

WHILE ASOKA HAS MADE EVERY EFFORT TO PROVIDE CLEAR AND ACCURATE TECHNICAL INFORMATION ABOUT ITS PRODUCTS, ASOKA ASSUMES NO LIABILITY FOR ANY EVENTS ARISING OUT OF THE USE OF THE TECHNICAL INFORMATION OR THE PRODUCT, EXCEPT AS SPECIFICALLY PROVIDED IN THIS AGREEMENT OR AS REQUIRED BY LAW. THE WARRANTIES AND REMEDIES STATED ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHERS, ORAL OR WRITTEN, EXPRESS OR IMPLIED. ANY AND ALL OTHER WARRANTIES, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT OF THIRD PARTY RIGHTS ARE EXPRESSLY EXCLUDED. ASOKA SHALL NOT BE LIABLE, UNDER ANY CIRCUMSTANCES, TO ANY PERSON OR ENTITY FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, DAMAGES RESULTING FROM THE USE OR MALFUNCTION OF THE PRODUCTS, LOSS OF PROFITS OR REVENUES, BUSINESS INTERRUPTION, OR COSTS OF REPLACEMENT GOODS, EVEN IF ASOKA IS INFORMED IN ADVANCE OF THE POSSIBILITY OF SUCH DAMAGES.



## FCC Notice

### 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 FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates 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

This device complies with Part 15 of 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.

## **FCC RF Radiation Exposure Statement**

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

**Note:** The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate this equipment.

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