



# PlugLink HD AV Smart Bridge User's Guide

PL9760-ETH

**PlugLink**<sup>®</sup> *AV*  
by Asoka<sup>®</sup>

## QUICKFIND LOCATOR

**Contact**

**Information**

**Getting Help Table**

**of Contents**

**Installation**

66-0363-00Rev.001

**Asoka® User Guide**  
**PlugLink™ 9760 HD AV Adapter PL9760-ETH**

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The following information is for FCC compliance of Class A devices: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to correct the interference at their own expense.

Modifying the equipment without Asoka's written authorization may result in the equipment no longer complying with FCC requirements for Class A digital devices. In that event, your right to use the equipment may be limited by FCC regulations, and you may be required to correct any interference or radio or television communications at your own expense.

You can determine whether your equipment is causing interference by turning it off. If the interference stops, it was probably caused by the Asoka equipment or one of its peripheral devices. If the equipment causes interference to radio or television reception, try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move the equipment to one side or the other of the television or radio.
- Move the equipment farther away from the television or radio.
- Plug the equipment into an outlet that is on a different circuit from the television or radio. (That is, make certain the equipment and the television or radio is on circuits controlled by different circuit breakers or fuses.)

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## Table of Contents

<b>Chapter</b>	<b>Title</b>	<b>Page</b>
1	Introduction	4
2	Important Safety Instructions for the PlugLink HD AV Smart Bridge	6
3	Overview	7
4	Installation	11
5	Getting Started with the PlugLink HD AV Smart Bridge	15
6	Basic PlugLink HD AV Smart Bridge Configuration	18
7	Advanced Settings	21
8	PlugLink HD AV Smart Bridge Administration	23
9	Technical Support	32
10	Technical Specifications	33
11	Warranty	35
Appendix A	Quick Guide to the PlugLink HD AV Smart Bridge Default Settings	36

## Chapter 1

### Audience

This guide is designed as a reference for the networking or computer technician responsible for installing a PlugLink HD AV Smart Bridge, hereafter referred to as the *gateway*. It is assumed that you are familiar with and have a working knowledge of the concepts and terminology associated with Ethernet and local area networking.

### Purpose

This guide describes the hardware and software features of the PlugLink HD AV Smart Bridge. It describes the physical and performance characteristics of the HD AV Smart Bridge, explains how to install and configure the HD AV Smart Bridge, and provides troubleshooting information and specifications.

### Conventions

This guide employs the conventions described below to convey instructions and information.




Command descriptions use the following conventions:

- Commands and keywords are in *italic text*.
- Arguments for which you supply values are in **bold**.
- Square brackets ([ ]) indicate optional elements.
- Braces ({ }) group require choices and vertical bars (|) separate the alternative elements.
- Braces and vertical bars within square brackets ({{|}}) indicate a required choice within an optional element.

Interactive examples use the following conventions:

- Terminal sessions and system displays are in normal screen font.
- Information to be entered in is in **bold text**.

Notes, cautions and tips use these conventions and symbols:

 <b>Note</b>	Means <i>reader take note</i> . Notes contain helpful suggestions or references to materials not contained in this manual.
	Means <i>reader be careful</i> . In this situation, you might do something that could result in equipment damage or loss of data.
	Means <i>the following will help you solve a problem</i> . The tips information might not be troubleshooting or even an action, but could be useful information.

**Asoka® User Guide**  
**PlugLink™ 9760 HD AV Adapter PL9760-ETH**

## **Obtaining Documentation**

You can access the most current PlugLink™ documentation on the Asoka website at this URL:

<http://www.asokausa.com>

## **Document Feedback**

You can submit comments via email to [custserv@asokausa.com](mailto:custserv@asokausa.com)

You can also submit your comments via regular mail by writing to the following address:

Asoka USA Corporation  
Attn: Customer Service,  
2344-A Walsh Avenue  
Santa Clara CA 95051  
USA

We appreciate your comments.

## Chapter 2

### Important Safety Instruction for the PlugLink HD AV Smart Bridge

The following precautions should be taken when using this product:

- Read all instructions before installing and operating this product.
- Do not open the cover on this product and/or alter this product in any way.
- Follow common household electrical safety practices.

If you have any questions or concerns regarding these safety measures, please contact Technical Support at +1 408 550 8167 or email at [support@asokausa.com](mailto:support@asokausa.com) Monday through Friday from 9:00 am to 5:00 pm PST (excluding holidays.)

## Chapter 3

### Overview

This chapter provides information about the following topics:

- Features
- Package Contains
- Front Panel Description
- Rear Panel Description

### Features

The PlugLink HD AV Smart Bridge is a Powerline Customer Premise Equipment, hereafter referred to as the CPE, based on HomePlugAV Powerline technology. The CPE connects a computer or laptop to a PlugLink™ devices or PlugLAN™ gateway by using Powerline technology to transmit data over ordinary electrical lines.

PlugLink HD AV Smart Bridge features:

- Utilizes the existing electrical wiring to distribute data services
- IEEE 802.3, 802.3u, 802.3x, 802.3z/ab, 802.1q
- One auto-negotiating 10/100BASE-T Ethernet ports
- Status LEDs showing Ethernet activity and link status
- Up to 200Mbps of data transmission

### Package Contains

Open the package and check that you have all the following items:

1. PlugLink HD AV Smart Bridge (PL9760-ETH)
2. 6' Ethernet cable
3. Warranty and Support Information Card
4. Installation Resource CD

If any of the parts are incorrect, missing, or damaged, please 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.

### The Front Panel

The front panel of the PL9760 contains the four (4) status LEDs described below.

**Asoka® User Guide**  
**PlugLink™ 9760 HD AV Adapter PL9760-ETH**

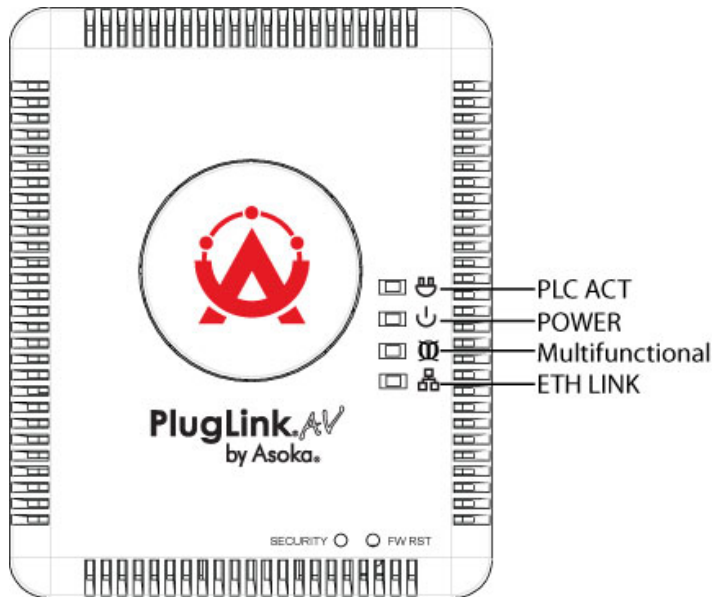


Figure 3-1: PL9760-ETH Front Panel

You can use the status lights to verify connections. Viewed from top to bottom, left to right, the table describes the lights on the front panel of the unit.

Table 3-1: Status Light Descriptions

Power	On Off	Indicates Device Powered On Indicates No Power
PLC Activity	Blinking Off	Indicates Activity on the Powerline Network (Should blink Intermittently) Indicates No Activity on the Powerline Network
Function Indicator	On Blinking Off	Indicates custom functions
ETH Link	On Blinking Off	Indicates Ethernet Connectivity Indicates Ethernet Traffic Indicates No Ethernet Activity

### The Bottom Panel

The bottom panel of the PL9760-ETH contains one (1) Ethernet ports as shown below.



**Asoka® User Guide**  
**PlugLink™ 9760 HD AV Adapter PL9760-ETH**

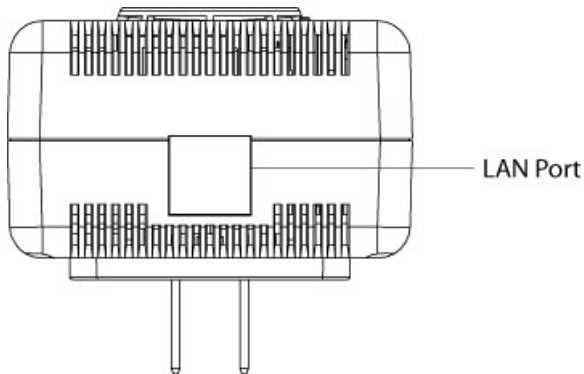


Figure 3-2: PL9760-ETH Bottom Panel

### The Rear Panel

The rear panel is where the product label is located. The product label contains the items listed below.

- Model number
- Unique device password
- IP Address
- WAN MAC Address
- Powerline MAC Address
- Ethernet MAC Address
- Serial number



**Note**

For future convenience, please write this information down in your Warranty Support Information card.



Figure 3-3: Rear Label

**Asoka® User Guide**  
**PlugLink™ 9760 HD AV Adapter PL9760-ETH**

**Operating System and Browser Support**

You can access the web-based interface by using the operating systems and browsers listed in Table 3-2.

OS	Minimum Service Pack or Patch	Microsoft Internet Explorer	Mozilla Firefox	Netscape Communicator	Other
Windows 98SE	Second Edition	5.5 or above	1.x or above	7.x +	Opera 7 +
Windows ME		5.5 or above	1.x or above	7.x +	Opera 7 +
Windows 2000		5.5 or above	1.x or above	7.x +	Opera 7 +
Windows XP		5.5 or above	1.x or above	7.x +	Opera 7 +
Windows 2003 Server		5.5 or above	1.x or above	7.x +	Opera 7 +
Windows NT 4.0		5.5 or above	1.x or above	7.x +	Opera 7 +
RedHat 6.2			1.0	7.x +	Opera 6 Konqueror 3+
RedHat 7.2			1.0	7.x +	Opera 6 Konqueror 3+
Fedora Core 2.0			1.0	7.x +	Opera 6 Konqueror 3+
Fedora Core 3.0			1.0	7.x +	Opera 6 Konqueror 3+
Fedora Core 4.0			1.0	7.x +	Opera 6 Konqueror 3+
Mandriva 10			1.0	7.x +	Opera 6 Konqueror 3+
Unix			1.0	7.x +	Opera 6 Konqueror 3+
Mac OS X		5.2	1.x	7.x +	Opera 7 Safari 1.x +
Mac OS X 1.3x		5.2	1.x	7.x +	Opera 7 Safari 1.x +
Mac OS X 10.4.x		5.2	1.x	7.x +	Opera 7 Safari 1.x +

Table 3-2: Supported operating systems and browsers



**Note**

Ensure that your Internet browser popup blocker is disabled. To disable the popup blocker, follow these steps:

Under Internet Explorer

1. Open a web browser.
2. Under the *Tools* menu, select *Turn off Popup Blocker*.

Under Firefox or Netscape

1. Open a web browser.
2. Under the *Tools* menu, select *Options*.
3. Choose the *Content* icon.
4. Uncheck the box next to *Block Popup Windows*.
5. Click *OK*

## Chapter 4

### Installation

This chapter describes how to install your CPE device and how to interpret the LEDs to ensure proper operation. Read the topics, and perform the procedures in the following order:

- Preparing for Installation
- Warnings
- Installing the CPE
- Connecting to a 10/100 Port
- Wall mounting the CPE

#### Preparing for Installation



If you mount the CPE to a power outlet, use the screws supplied with the CPE.

---



There are no serviceable parts inside the unit. Removing the screws, cover, or otherwise dismantling the unit voids the warranty.

---

#### Warnings

- Only trained and qualified personnel should be allowed to install or replace this equipment.
- Read the installation instructions before you connect the system to its power source.
- Before working on the equipment that is connected to power lines, remove all jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals.
- The plug-socket combination must be accessible at all times because it serves as the main disconnecting device.
- To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of 104°F (40°C).
- This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that a fuse or circuit breaker no larger than 120 VAC, 15A U.S. (240 VAC, 10A International) is used on the phase conductors (all current-carrying conductors).
- A voltage mismatch can cause equipment damage and may pose a fire hazard. If the voltage indicated on the label is different from the power outlet voltage, *do not connect the device to that receptacle.*

**Asoka® User Guide**  
**PlugLink™ 9760 HD AV Adapter PL9760-ETH**

- Do not work on the system or connect or disconnect cables during periods of lightning activity.
- Ultimate disposal of this product should be handled according to all national laws and regulations.

**EMC Regulatory Statements**

**USA**

US regulatory information for this product is in Chapter 10 of this manual.

**FCC Requirements**

Modifying the equipment without Asoka's authorization may result in the equipment no longer complying with FCC requirements from Class A or Class B digital devices. In that event, your right to use the equipment may be limited by FCC regulations, and you may be required to correct any interference to radio or television communications at your own expense.

**Labeling Requirements**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following 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.

**Canada ICES 003, Issue 3**

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

**Korea**

Class B Device: This device is registered for EMC requirements for residential use. This device can be used not only in residential areas but in all other areas.

**Safety Instructions**

Read these safety instructions carefully.

- Read all cautions and warnings on the equipment.
- Plug this equipment directly into a power outlet. No power strips and no extension cords.
- Make sure the equipment is connected to the right voltage.
- For pluggable equipment, the socket-outlet must be installed near the equipment and must be accessible.
- Place the Ethernet cord where people cannot step on it. Do not place anything over the Ethernet cord.
- Disconnect this equipment from the power outlet before cleaning it. Do not use liquid or sprayed detergent for cleaning. Use moisture sheet or cloth for cleaning.
- Keep this equipment from excessive humidity.
- The openings on the enclosure are for air convection and protect the equipment from overheating. Do not cover the openings.

**Asoka® User Guide**  
**PlugLink™ 9760 HD AV Adapter PL9760-ETH**

- If the equipment will not be used for a long period of time, disconnect the equipment from the power outlet to avoid any damage from transient over-voltage.
- Do not pour any liquid into opening. This could cause fire or electrical shock.
- Do not open the equipment casing. For safety reasons, the equipment should only be opened by qualified service personnel.
- Have the equipment checked by a service professional if one of the following situations arises:
  - The plug is damaged.
  - Liquid has entered the equipment.
  - The equipment has been exposed to moisture.
  - The equipment does not work properly, or you cannot get it to work according to user’s manual.
  - The equipment has been dropped or damaged.
  - The equipment has obvious signs of breakage.
  - Do not leave this equipment in an unconditioned environment. Temperatures above 45°C (113°F) can damage the equipment.
  - Keep this guide for later reference.

**Installing the CPE**

You can install the CPE simply by plugging directly into a power outlet or by physically mounting onto a power outlet. Before you begin the installation, decide how you want to install the CPE by reviewing the illustrations in these sections:

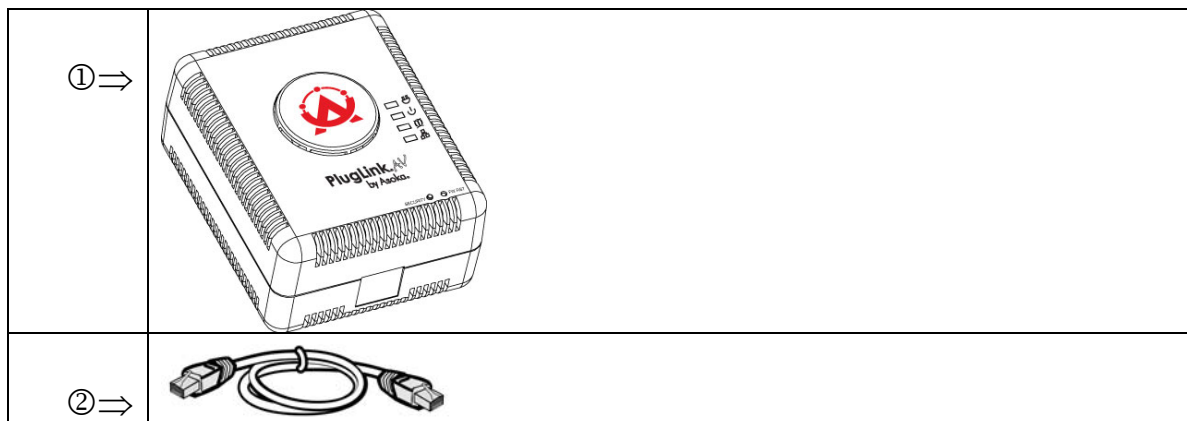
- Installing the CPE directly to a power outlet (without mounting screws and brackets)

**Installing the CPE directly to a power outlet (without mounting screws and brackets)**

The CPE can be simply plugged in directly to a power outlet. If you do not wish to physically mount the CPE onto the power outlet, follow these steps:

- Take out what you need by removing the items shown in Figure 1-1 from the shipping container:

1	PlugLink HD AV Smart Bridge
2	6' Ethernet Cable



**Asoka® User Guide**  
**PlugLink™ 9760 HD AV Adapter PL9760-ETH**

*Figure 3-1: PlugLink HD AV Smart Bridge, Ethernet Cable*

- Connect the CPE into a nearby wall outlet
- Connect the enclosed Ethernet cable to the Ethernet port of the unit
- Connect the opposite end of the cable to an Ethernet port on the PC or laptop

## Chapter 5

### Getting Started with the PL9760 HD AV Smart Bridge

This chapter provides a quick step-by-step installation and setup procedure guide for a standalone HD AV Smart Bridge.

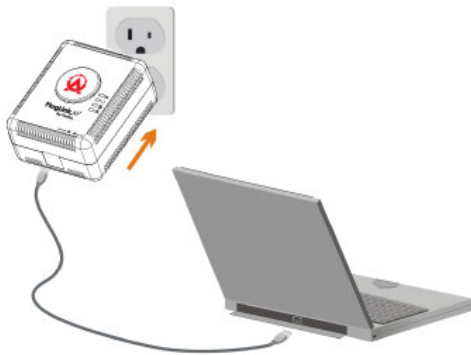
For detailed installation procedures for mounting your CPE, see Chapter 4, "Installation." For product overview information, see Chapter 3, "Overview."

### Connecting to a PC

To perform the initial configuration, follow these steps:

1. Connect a Category-5 straight-through cable to the 10/100 ports on the PL9760 HD AV Smart Bridge.
2. Connect the other end of the cable to an Ethernet (RJ-45) port on the workstation, PC, or server.
3. Plug the PL9760 HD AV Smart Bridge directly into an outlet.

1	PlugLink HD AV Smart Bridge
2	Ethernet cable
3	Power outlet



*Figure 5-1: Connecting to a LAN port.*

### Assigning your PC to the same network as the CPE

The HD AV Smart Bridge has an IP address: *192.168.1.253*.

For network access, you must manually assign your PC an IP address of **192.168.1.x**, where "x" is a number between 1 and 254(excluding 253.)

### Accessing the CPE from your Browser

## Asoka® User Guide PlugLink™ 9760 HD AV Adapter PL9760-ETH

1. Open an Internet browser (i.e. Internet Explorer or Mozilla Firefox).
2. In the address field, type **192.168.1.253** and press *Enter*.

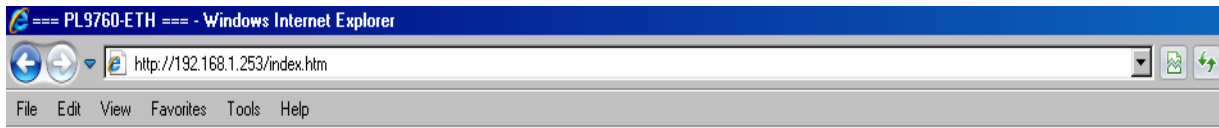
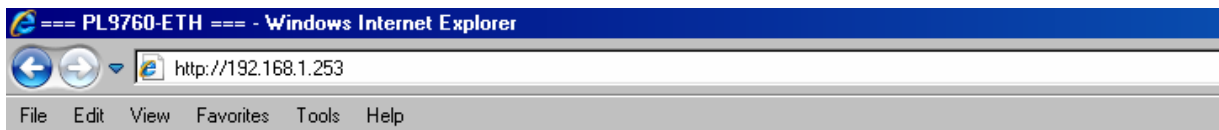


Figure 5-2: Address field.

3. In the *User ID* field, type **admin**.
4. In the *Password* field, type **welcome**.
5. Click *Login*.



User ID:

Password:

Please enter User ID and Password and click Login.

Figure 5-3: Login screen



Note

The username and password are case sensitive.



For security, you should set a unique system user id and password after initial login. For instructions on how to set a unique user id and password, see Chapter 8.

## Understanding the 9760 HD AV Smart Bridge Web Interface



## Asoka® User Guide PlugLink™ 9760 HD AV Adapter PL9760-ETH

When you access the web-based user interface (UI), the System Details page is the first page you will see. The System Details page shows you a quick view of the adapter's status and settings. All setup pages can be reached from this page.



The *System Details* page is also the Home Page of the adapter's web interface.

The screenshot shows the web interface for the Asoka PlugLink 9760. The browser title is "PL9760-ETH - Windows Internet Explorer" and the address bar shows "http://192.168.1.253/index.htm". The page features the Asoka logo on the left and a navigation bar with links for Home, Glossary, Help, and Logout. Below the navigation bar are tabs for SYSTEM, IP ADDRESS, and POWERLINE. The main content area is titled "System Details" and contains a "Device Information" table. A sidebar on the left lists "More Information" options like Details, Password, Logs, Reboot System, Factory Reset, Backup Settings, Restore Backup, Update Firmware, and NTP Setting. Callouts [1] through [5] point to the navigation bar, the "More Information" sidebar, the "Home" link, the "System Details" title, and the "Device Information" table, respectively.

Device Information	
Model Number	PL9760
Serial Number	SA0906050938
Hardware Version	1.01
Firmware Version	1.12.05
Sim Firmware Version	INT6000-MAC-3-3-3348-00-2764-20080808-FINAL-B
Device MAC Address	00:13:c1:00:12:33
PLC MAC Address	00:13:c1:0f:6a:e5
IP Address	192.168.8.177
Subnet Mask	255.255.255.0

Figure 5-4: System Details Page (Homepage)

### 1. Quick Main Navigation Links

The UI is divided into five main logical sections and you can be directed to any of the five sections by clicking on their corresponding links.

### 2. Quick Sub Navigation Links

In each of the five main logical sections, sub navigation links on the right will appear, providing you with logical links for each specific category.

### 3. Quick Buttons

- 1) The *Home* button is available in every page of the UI. Pressing this button will take you back to the home page, which is the *System Details* page.
- 2) The *Glossary* button is available in every page of the UI. Pressing this button will take you to a glossary page that defines many of the technical terms used in this UI.
- 3) The *Help* button is available in every page of the UI. Pressing this button will take you to a help page that provides detailed explanations and steps on configuring your gateway.
- 4) The *Logout* button is available in every page of the UI. Pressing this button will enable you to log out of the gateway.

### 4. Detail Information

**Asoka® User Guide**  
**PlugLink™ 9760 HD AV Adapter PL9760-ETH**

Displays detailed information about the gateway that includes: model number, firmware version number, hardware version, serial number, Internet Wide Area Network (WAN) settings, Local Area Network (LAN) settings and firewall settings.

**5. Page Name**

The page you are on is identified by its *Page Name*.

## Chapter 6

### Basic PL9760 HD AV Smart Bridge Configuration

This chapter presents procedures for configuring the basic parameters of your gateway, including global parameter settings, routing protocols and interfaces.

This chapter contains the following sections:

- LAN Settings
- Powerline Network Management

#### Configuring your LAN Settings

To configure the CPE's LAN settings, click *LAN* on the Main menu. The *LAN Configuration Page* is the first page under the *LAN* section.

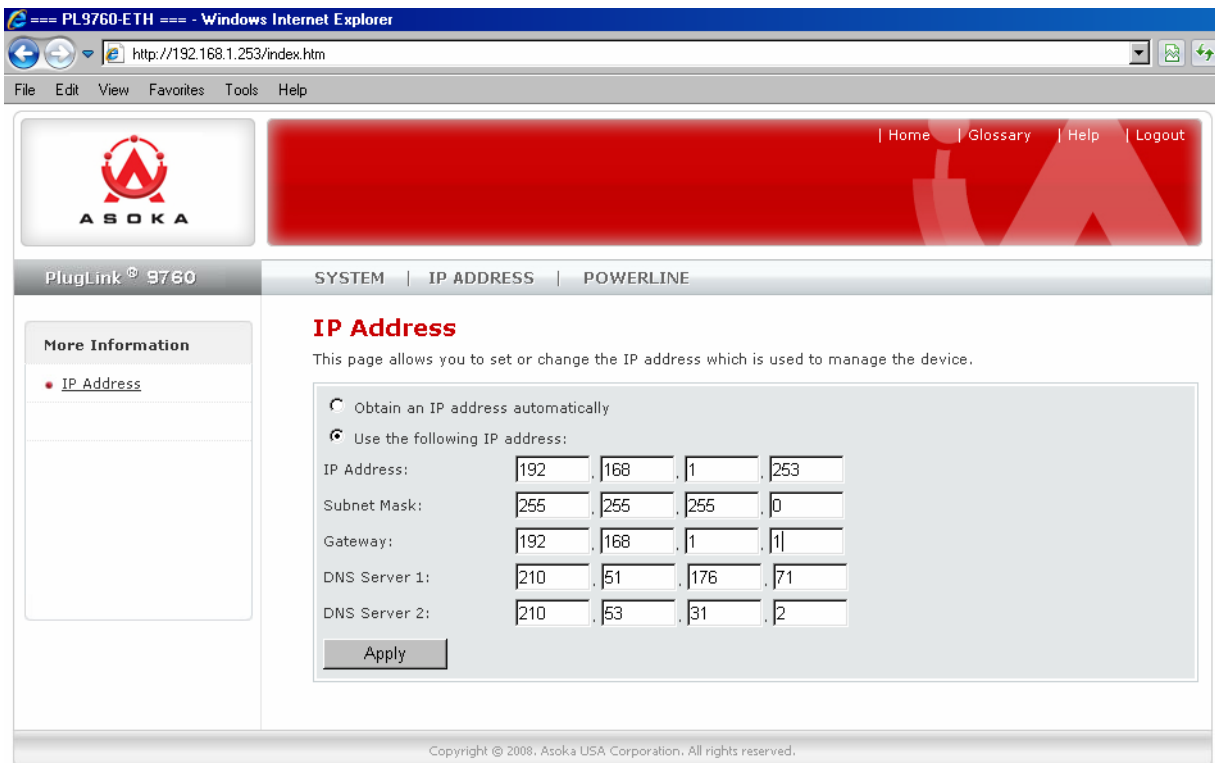


Figure 6-1: LAN Configuration Screen

#### 1. IP Address

The IP Address is the internal IP address of the gateway. The default IP address is **192.168.1.253**. To access the Advanced Setup Interface, type this IP address into the address

**Asoka® User Guide**  
**PlugLink™ 9760 HD AV Adapter PL9760-ETH**

or navigation bar of your web browser. This address can be changed if needed. To change the IP address, type in the new IP address and click *Apply*.



The IP address you choose should be a non-routable IP. Examples of a non-routable IP are:

192.168.x.x (where x is anything between 0 and 255)

10.x.x.x (where x is anything between 0 and 255)

---

## 2. Subnet Mask

A Subnet Mask allows you to break down what appears (logically) to be a single large network into smaller ones, which reduces network overhead.

## Powerline Network Management

The PL9760 HDAV Adapter allows you to configure the Powerline network encryption key to talk to other Powerline devices on your network.

To scan and view a list of Powerline devices on your network, simply go to *Powerline* in the main menu and select *Device Scan* in the sub menu.

## Asoka® User Guide PlugLink™ 9760 HD AV Adapter PL9760-ETH

PL9760-ETH - Windows Internet Explorer  
http://192.168.1.253/index.htm

File Edit View Favorites Tools Help

ASOKA

Home | Glossary | Help | Logout

PlugLink® 9760

SYSTEM | IP ADDRESS | POWERLINE

### Power Line Device Scan

This page shows all devices within the Powerline network sharing the same Network Management Key (NMK).

Scan Devices in Powerline

Scanned Devices	MAC Address
NO.1	00:13:c1:0f:6a:e5
NO.2	00:13:c1:00:00:46
NO.3	00:13:c1:07:7a:2c
NO.4	00:13:c1:05:18:c1
NO.5	00:13:c1:07:7a:14
NO.6	00:13:c1:07:7a:22
NO.7	00:13:c1:00:00:47
NO.8	00:13:c1:00:00:3d
NO.9	00:13:c1:00:00:36
NO.10	00:13:c1:07:7a:18
NO.11	00:13:c1:07:7a:1c

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Figure 6-2: Device Scan Screen



Note

The *Device Scan* screen will only list Powerline devices on your network that have the same Powerline Network Encryption KEY (NEK).

To Change the Powerline Network Encryption Key on your PL9760 HD AV Smart Bridge, follow these steps:

1. Go to the *Powerline* main menu and select *Password Settings* in the sub menu.
2. Enter the new Powerline network encryption key.
3. Click *GO*.

**Asoka® User Guide**  
**PlugLink™ 9760 HD AV Adapter PL9760-ETH**

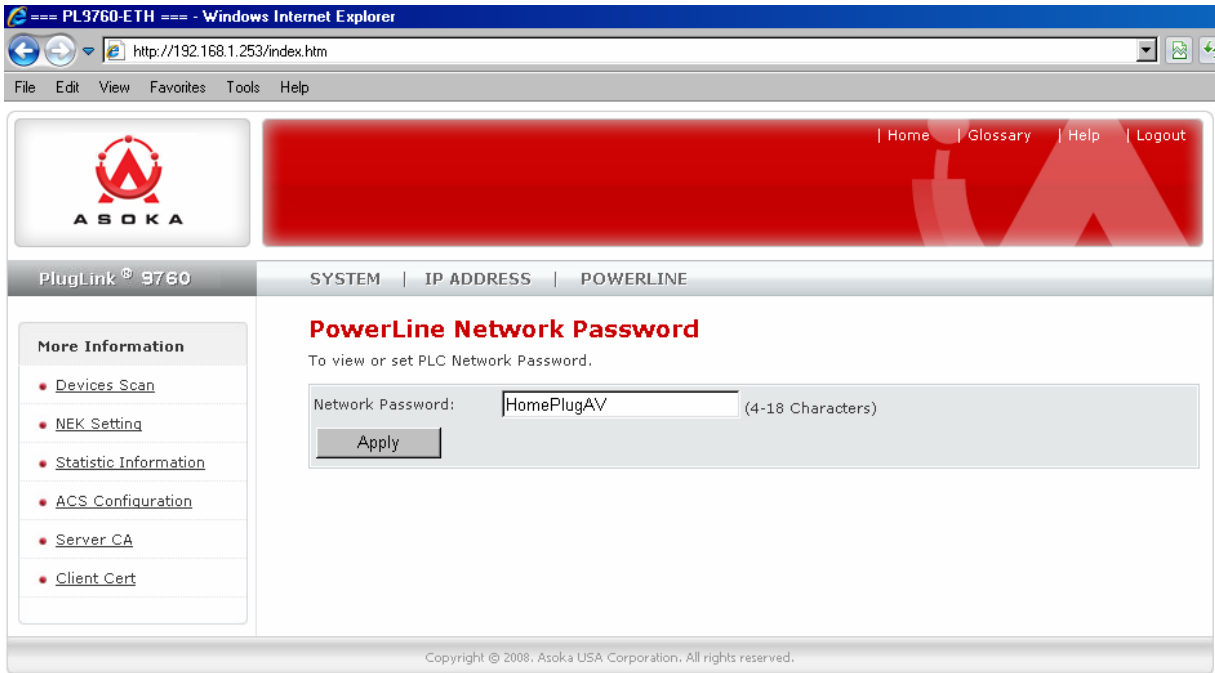


Figure 6-3: Powerline NEK Settings Screen.

## Chapter 7

### PL9760 HD AV Smart Bridge Administration

This chapter describes how to perform operations to administer your PL9760 HD AV Smart Bridge. This chapter consists of the following sections:

- Managing System password
- Managing System Logs
- Configuring Reboots and Factory Default Settings
- Configuring System Backups
- Managing Firmware Update

#### Configuring System Password

You can change the login information to your adapter for security. For security purposes, it is highly recommended that you change the password (*welcome*) when you first configure the CPE.

To change the password:

1. Click on *Systems* in the Main menu.
2. In the Sub menu, select *Password*.
3. In the *System Password* section, type in the old password and then the new password in the appropriate areas, and click *Apply*.

## Asoka® User Guide PlugLink™ 9760 HD AV Adapter PL9760-ETH

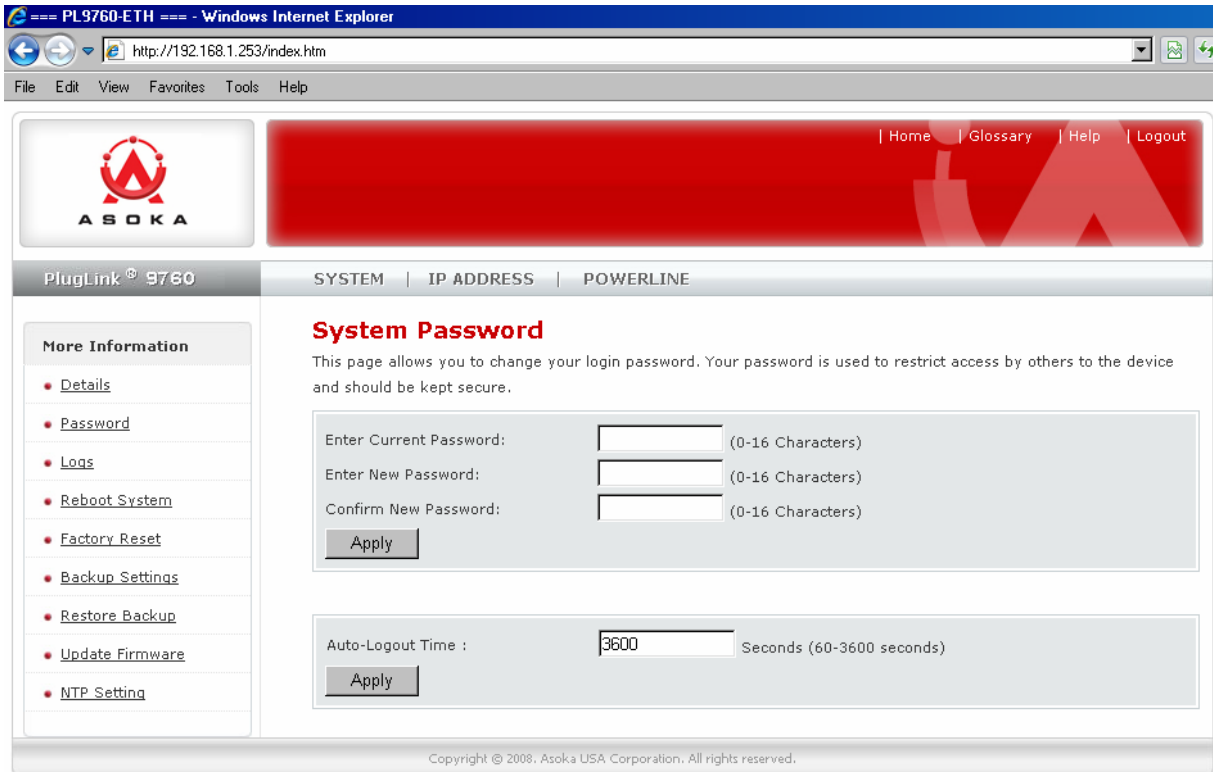


Figure 8-1: System Password Screen

### System Logs

The CPE (PL9760) maintains a System Log which displays potential security threats and system information. This log can be viewed with a browser using the PL9760's web management interface. You can copy the log entries from the web management interface and paste into a report.

To view system log:

1. Click on *Systems* in the Main menu.
2. In the Sub menu, select *Logs*.



**Asoka® User Guide**  
**PlugLink™ 9760 HD AV Adapter PL9760-ETH**

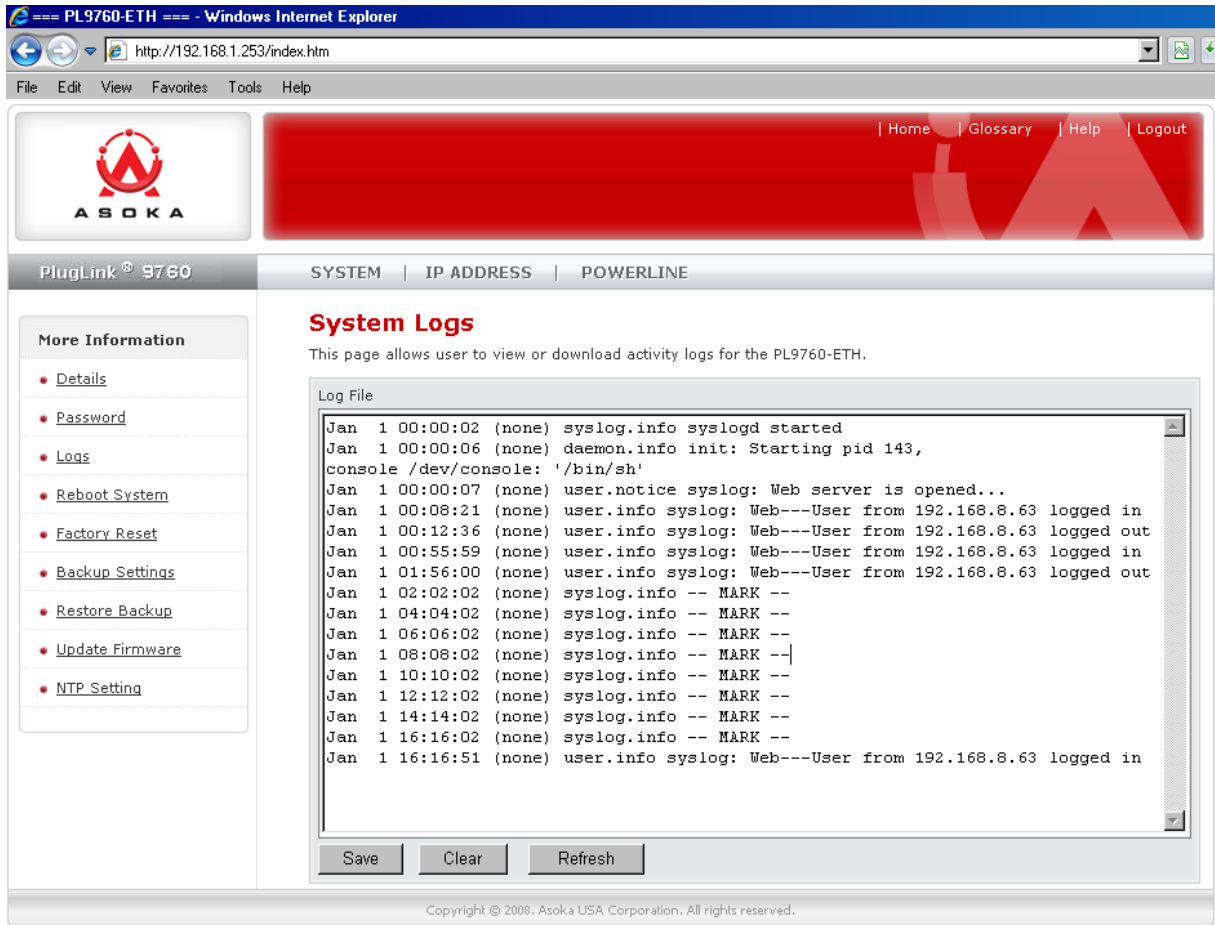


Figure 8-3: System Log View



**Note**

Some network conditions can produce network traffic that appears to be an attack, even when no one is deliberately attacking the LAN. To follow up on a possible attack, contact your ISP to determine the source of the attack. Regardless of the nature of the attack, your LAN is protected and no further steps need be taken.

To configure log settings, fill in the form below the log table.

1. *Weekly/Daily/No* – Enter how often you would like the system logs to be emailed to you.
2. *Day* – Enter the day of the week (like Monday) you would like the system logs to be emailed.
3. *Time* – Enter the time you would like the system logs to be emailed.
4. *Email Address* – Enter your full email address ([username@mydomain.com](mailto:username@mydomain.com)) in the Email Address field to receive the event log via email. Once sent, the log is cleared from the gateway memory. If this field is left blank, the log is not emailed.
5. *SMTP Address* – To email logs, enter the name or IP address of your SMTP server. If this field is left blank, logs are not emailed.
6. *SMTP Account* – Enter the email account ID.
7. *SMTP Password* – Enter the password to your email account.

## Asoka® User Guide PlugLink™ 9760 HD AV Adapter PL9760-ETH

### Reboot

Sometimes it may be necessary to reboot the adapter if it is working improperly. Rebooting will not delete any of your configuration settings. To reboot the adapter:

1. Click on *Systems* in the Main menu.
2. In the Sub menu, select *Reboot System*.
3. Click *Reboot*.
4. A popup window will appear to confirm your request to reboot the adapter. Click *OK* to continue.
5. After a minute, the home page of the adapter will reappear automatically. If not, type the adapter's IP address (default = **192.168.1.253**) into the address or navigation bar of your web browser.



It is important not to turn off the power or unplug the adapter (CPE) during the reboot.

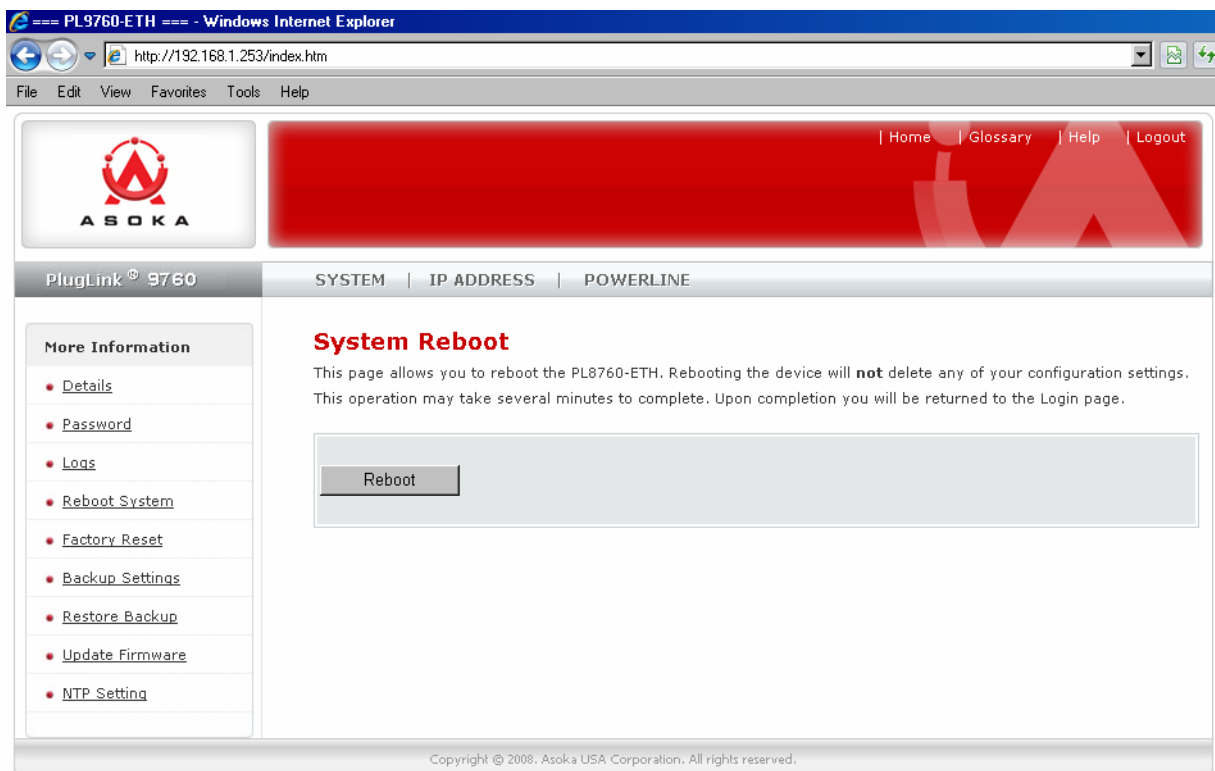


Figure 8-4: Reboot screen

### Restoring Factory Defaults

## Asoka® User Guide PlugLink™ 9760 HD AV Adapter PL9760-ETH

At times, you may need to restore factory default settings on the adapter. It is recommended that you back up your settings prior to restoring to factory default settings. To restore factory default settings:

1. Click on *Systems* in the Main menu.
2. On the Sub menu, select *Factory Reset*.
6. Click *Restore Default*.
7. A popup window will appear to confirm your request to reboot the adapter. Click *OK* to continue.
8. After a minute, the home page of the adapter will reappear automatically. If not, type the adapter's IP address (default = **192.168.1.253**) into the address or navigation bar of your web browser.

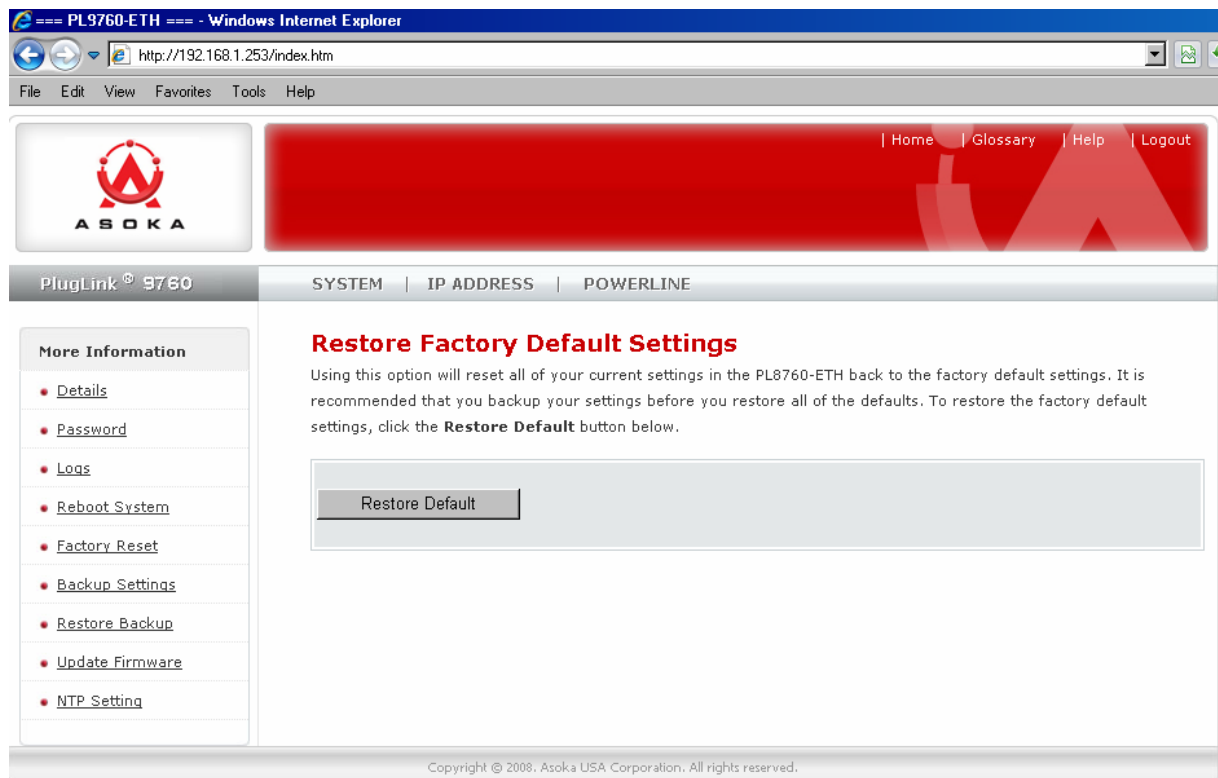


Figure 8-5: Restoring Factory Default screen

### Saving a Current Configuration

You can save your current configuration by using the System Backup feature. Saving your configuration will allow you to restore it later if your settings are lost or changed. It is recommended that you back up your current configuration before performing a firmware update. To restore factory default settings:

1. Click on *Systems* in the Main menu.
2. In the Sub menu, select *Backup Settings*.
3. Click *Save*.
4. A popup window will appear that allows you to select the location where you want to save the configuration file. Select the location to save your configuration file to.

## Asoka® User Guide PlugLink™ 9760 HD AV Adapter PL9760-ETH

5. Click *Save* to continue.

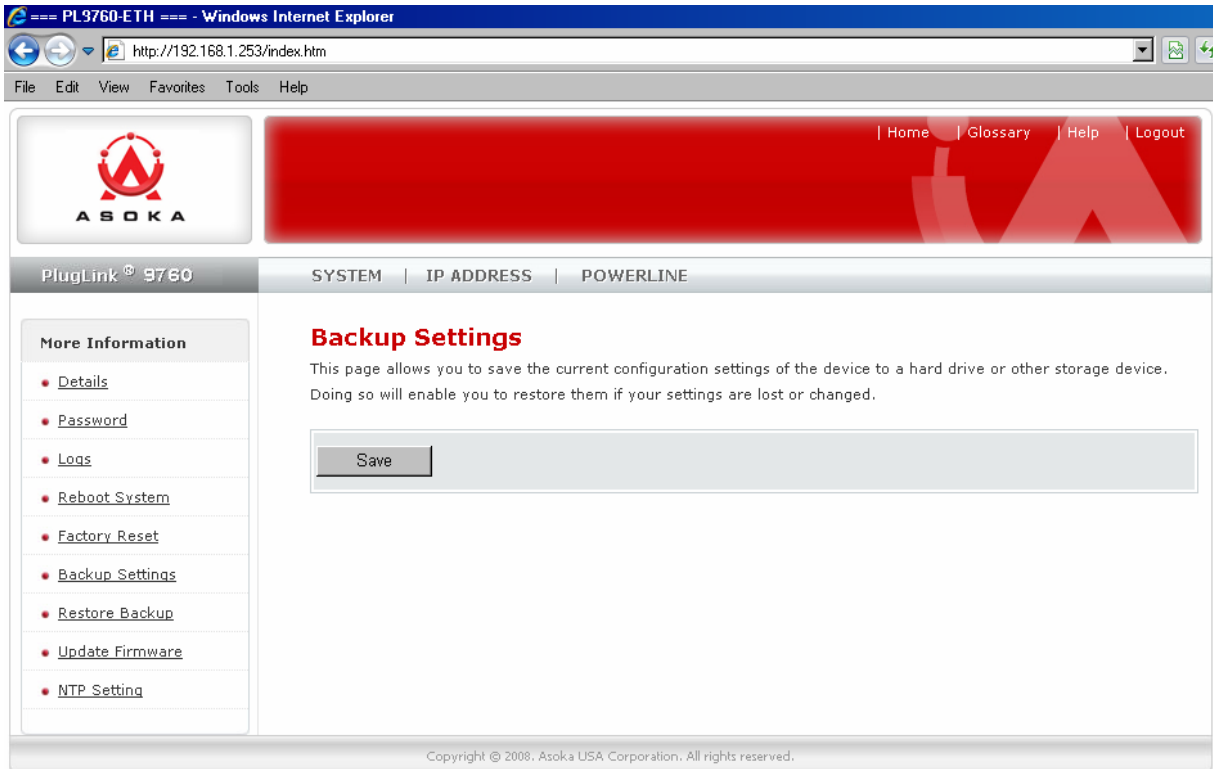


Figure 8-6: Saving a Current Configuration screen

### Restoring a Previous Configuration

You can restore a previous configuration by using the *System Restore Settings* feature. To restore a previous configuration:

1. Click on *Systems* in the Main menu.
2. In the Sub menu, select *Restore Backup*.
3. Click *Restore*.
4. A popup window will appear that allows you to select the location where your old configuration file is located. Select the location of your old configuration file.
5. Click *Open* to continue.
6. You will be asked if you want to continue. Click *OK*.
7. After a minute, the home page of the CPE will reappear automatically. If not, type the CPE's IP address (default = **192.168.1.253**) into the address or navigation bar of your web browser.

## Asoka® User Guide PlugLink™ 9760 HD AV Adapter PL9760-ETH

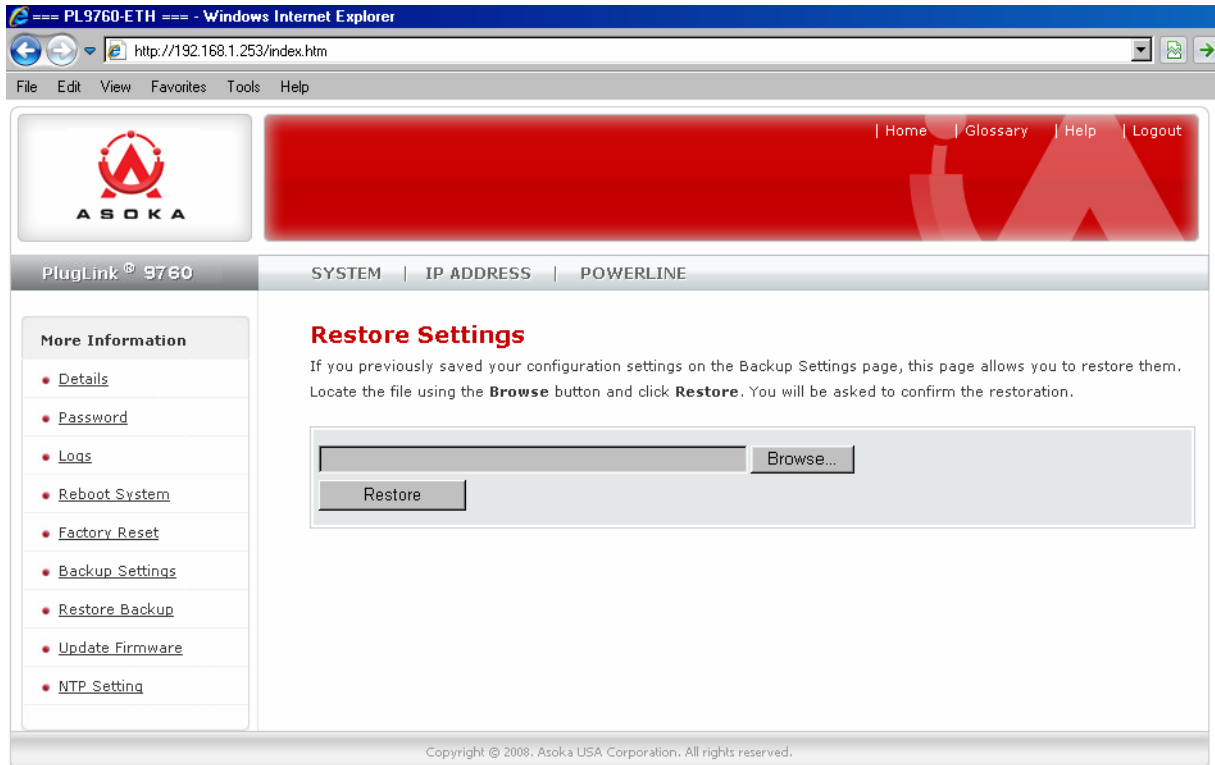


Figure 8-8: Restoring a Previous Configuration screen

### Update Firmware

Firmware updates will be made available periodically from Asoka. Firmware updates contain feature improvements and fixes to problems that may have existed. When Asoka releases new firmware, you can download the firmware from Asoka's web site at <http://www.asokausa.com> and update your adapter's firmware to the latest version.

To upload a new firmware upgrade onto the CPE, follow these steps.

1. Click on *Systems* in the Main menu.
2. In the Sub menu, select *Update Firmware*.
3. Click *Browse* to locate the new firmware update file downloaded from Asoka's web site.
4. The box next to the *Browse* button will now display the location and name of the firmware file you just selected. Click *Update*.
5. You will be asked if you are sure you want to continue. Click *OK*.
6. You will see one more message. This message tells you that the CPE may not respond for up to one minute as the firmware is loaded into the adapter and it is rebooted. Click *OK*.
7. When the firmware upgrade is complete, the adapter home page should appear automatically. If not, type in the CPE's address (default – **192.168.1.253**) into the address or navigation bar of your web browser.

# Asoka® User Guide

## PlugLink™ 9760 HD AV Adapter PL9760-ETH

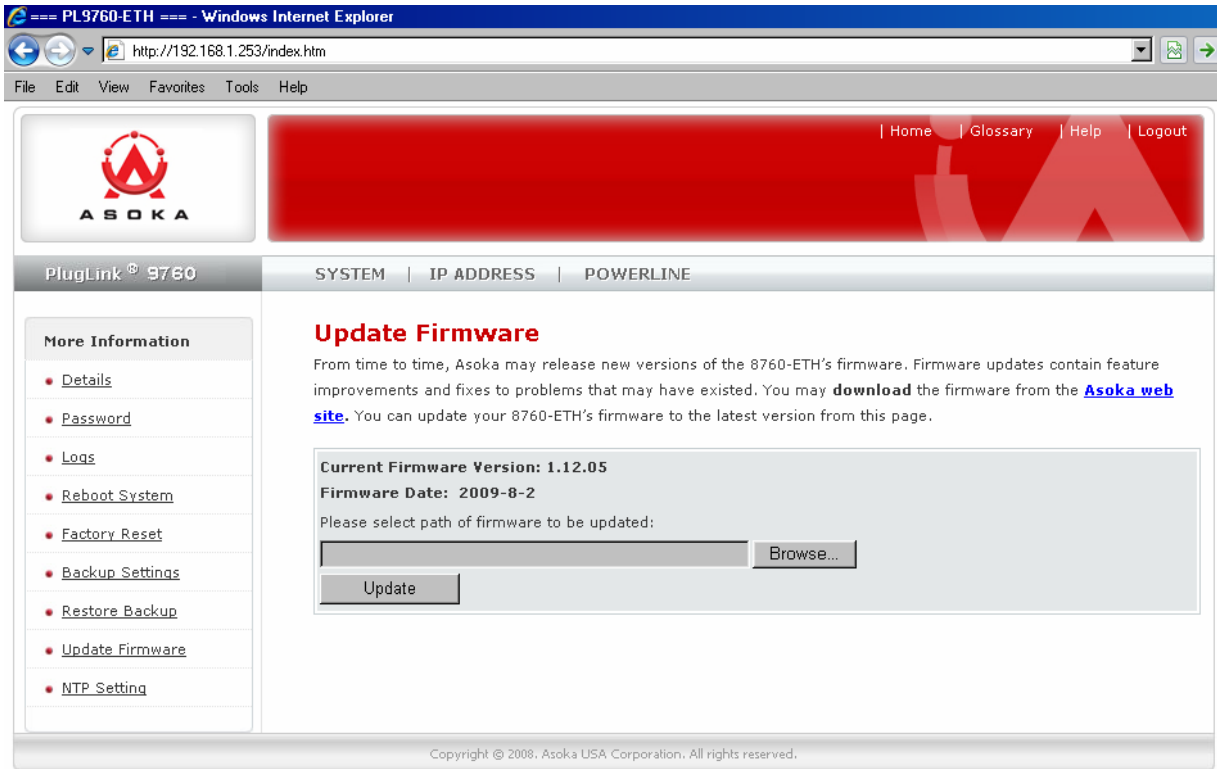
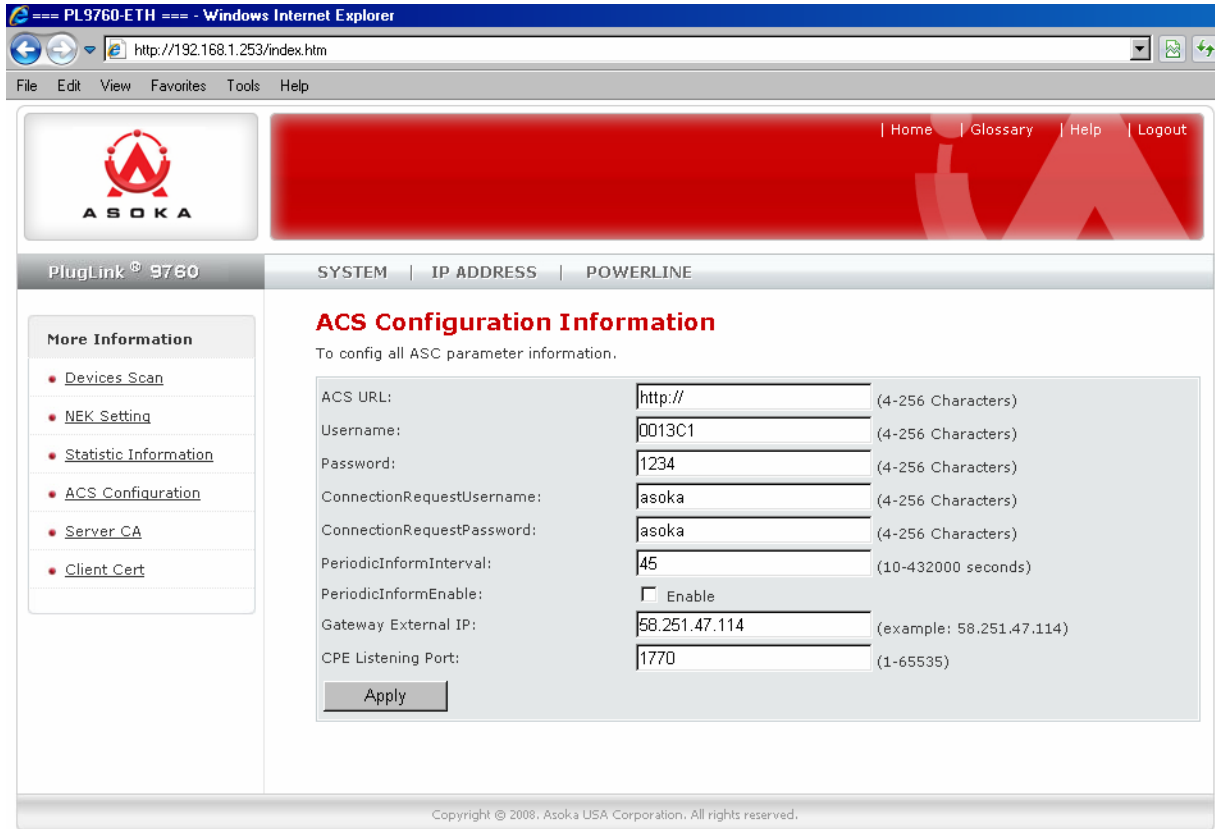


Figure 8-9: Firmware upgrade screen.

## Chapter 9 TR069 Settings



The screenshot shows a web browser window titled "PL9760-ETH - Windows Internet Explorer" with the address bar displaying "http://192.168.1.253/index.htm". The page features the Asoka logo and navigation links for Home, Glossary, Help, and Logout. A main menu includes SYSTEM, IP ADDRESS, and POWERLINE. The "ACS Configuration Information" section is active, providing instructions to configure all ACS parameter information. The configuration fields are as follows:

ACS URL:	http://	(4-256 Characters)
Username:	0013C1	(4-256 Characters)
Password:	1234	(4-256 Characters)
ConnectionRequestUsername:	asoka	(4-256 Characters)
ConnectionRequestPassword:	asoka	(4-256 Characters)
PeriodicInformInterval:	45	(10-432000 seconds)
PeriodicInformEnable:	<input type="checkbox"/> Enable	
Gateway External IP:	58.251.47.114	(example: 58.251.47.114)
CPE Listening Port:	1770	(1-65535)

An "Apply" button is located at the bottom of the configuration form. The footer of the page reads "Copyright © 2008, Asoka USA Corporation. All rights reserved."

### Configure TR069 Settings

You can configure TR069 settings to make your device be under the management of your Internet Service Provider's ACS server. TR069 is one of the public protocols of Broadband organization.

1. Click on *Powerline* in the Main menu.
2. In the Sub menu, select ACS Configuration.
3. Fill the ACS URL and other information as your ISP suggestion.

## Appendix A

# Default Settings

### **Login and Password:**

User Name: admin

Password: welcome

### **PowerLine Passwords:**

PowerLine password: HomePlugAV

### **IP Setting:**

IP Address: 192.168.1.253

Subnet Mask 255.255.255.0



## Appendix B

# Warranty

Asoka warrants that (a) the hardware components of the product will be free from defects in materials and workmanship under normal use for one (1) year 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 ninety (90) days 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 within the warranted period, 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 remainder of the initial warranty period whichever is longer. Replacement products may be refurbished or contain refurbished materials or components. If Asoka, by its sole determination, is unable to restore the product to proper operating condition, it will refund the depreciated purchase price 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® User Guide**

**PlugLink™ 9760 HD AV Adapter PL9760-ETH**

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.

## Appendix C

# 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. However, there is no guarantee that interference will not occur in a particular installation.

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.

Caution: 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 the equipment.

## Appendix D

# Technical Support

PLEASE REFER TO THE WARRANTY AND SUPPORT INFORMATION CARD THAT WAS SHIPPED WITH YOUR PRODUCT.

By registering your product at [www.asokausa.com/register](http://www.asokausa.com/register), we can provide you with faster expert technical support and timely notices of product and software upgrades.

### Support Information

Phone: (408) 550-8167

Email: [support@asokausa.com](mailto:support@asokausa.com)

URL: [www.asokausa.com](http://www.asokausa.com)

**Complete the information below, and keep it for reference when contacting Technical Support.**

Company product purchased from	
Company telephone number	
Product model number	
Product serial number	

## Appendix E

# Technical Specifications

<p><u>Standards Compliance</u></p> <ul style="list-style-type: none"> <li>▪ HomePlugAV®</li> <li>▪ IEEE 802.3 10BASE-T Ethernet</li> <li>▪ IEEE 802.3x Flow Control</li> <li>▪ IEEE 802.1D Spanning Tree Protocol</li> <li>▪ IETF RFC1332 IP Control Protocol</li> <li>▪ IETF RFC 2684 Bridged Ethernet</li> <li>▪ IETF RFC 826 ARP</li> </ul> <p><u>Network Protocol</u></p> <ul style="list-style-type: none"> <li>▪ TCP/IP</li> </ul> <p><u>Network Interface</u></p> <ul style="list-style-type: none"> <li>▪ One RJ45 10/100 Base-TX Auto-Negotiation LAN Ports</li> </ul> <p><u>Modulation</u></p> <ul style="list-style-type: none"> <li>▪ • Orthogonal Frequency Division Multiplexing (OFDM)</li> <li>▪ • QAM10214/256/64/16</li> <li>▪ • QPSK</li> <li>▪ • BPSK</li> </ul> <p><u>LED</u></p> <ul style="list-style-type: none"> <li>▪ Power</li> <li>▪ PLC Activity</li> <li>▪ Custom Functions</li> <li>▪ ETH Link</li> </ul> <p><u>Memory</u></p> <ul style="list-style-type: none"> <li>▪ 4 MBytes NOR Flash</li> <li>▪ 32 MBytes SDRAM</li> </ul> <p><u>Processor</u></p> <ul style="list-style-type: none"> <li>▪ MIPS 4Kc CPU</li> <li>▪ Embedded cache, 8K-byte I-cache, 8K-cache</li> <li>▪ Embedded memory management unit (MMU) 32-entry TLB</li> <li>▪ 175MHz/227 MIPS</li> </ul>	<ul style="list-style-type: none"> <li>▪ Address Assignment: Static IP, DHCP</li> </ul> <p>Powerline Security: 128-bit AES Encryption</p> <p><u>Bandwidth</u></p> <ul style="list-style-type: none"> <li>▪ 200 Mbps</li> </ul> <p><u>Distance</u></p> <ul style="list-style-type: none"> <li>▪ 100 meters</li> </ul> <p><u>Operating Frequency</u></p> <ul style="list-style-type: none"> <li>▪ 2 to 29 MHz</li> </ul> <p><u>Modulation Schemes</u></p> <ul style="list-style-type: none"> <li>▪ Orthogonal Frequency Division Multiplexing (OFDM)</li> <li>▪ Symbol Modulation DQPSK</li> <li>▪ DBPSK</li> <li>▪ ROBO Carrier Modulation</li> </ul> <p><u>Management Features</u></p> <ul style="list-style-type: none"> <li>▪ Administration Interface: web GUI with protected user name and password, remotely accessible from designated IP address.</li> </ul> <p><u>Maintenance</u></p> <ul style="list-style-type: none"> <li>▪ Save/Restore Configuration, Diagnostics, Upgrades via Web Browser, Logging</li> </ul> <p><u>Power Supply</u></p> <ul style="list-style-type: none"> <li>▪ US Version: 100-120VAC</li> <li>▪ • UK/EU Version: 220-240VAC</li> </ul> <p>Maximum Power</p> <ul style="list-style-type: none"> <li>▪ 7W</li> </ul> <p><u>Dimensions</u></p> <ul style="list-style-type: none"> <li>▪ Size: 9.5 x 6.5 x 4 cm (L x W x H)</li> <li>▪ Weight: 150g(.33lbs)</li> <li>▪ Cable length: 6'</li> </ul>
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**Asoka® User Guide**  
**PlugLink™ 9760 HD AV Adapter PL9760-ETH**

	<p><u>Environmental Specifications</u></p> <p>Operating temperature: 32°F to 113°F (0°C to 40°C)</p> <p>Operating humidity: 10% to 85% Non-condensing</p> <p>Storage temperature: -4°F to 158°F (-20°C to 70°C)</p> <p>Storage humidity: 5% to 90% Non-condensing</p> <p><u>Electromagnetic Emissions</u></p> <ul style="list-style-type: none"><li>▪ FCC Part 15 Class B</li><li>▪ UL (US and Canada)</li><li>▪ CE</li></ul> <p><u>Warranty</u></p> <ul style="list-style-type: none"><li>▪ 1-year warranty</li></ul>
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