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Model H10 H-Type Power Conditioner

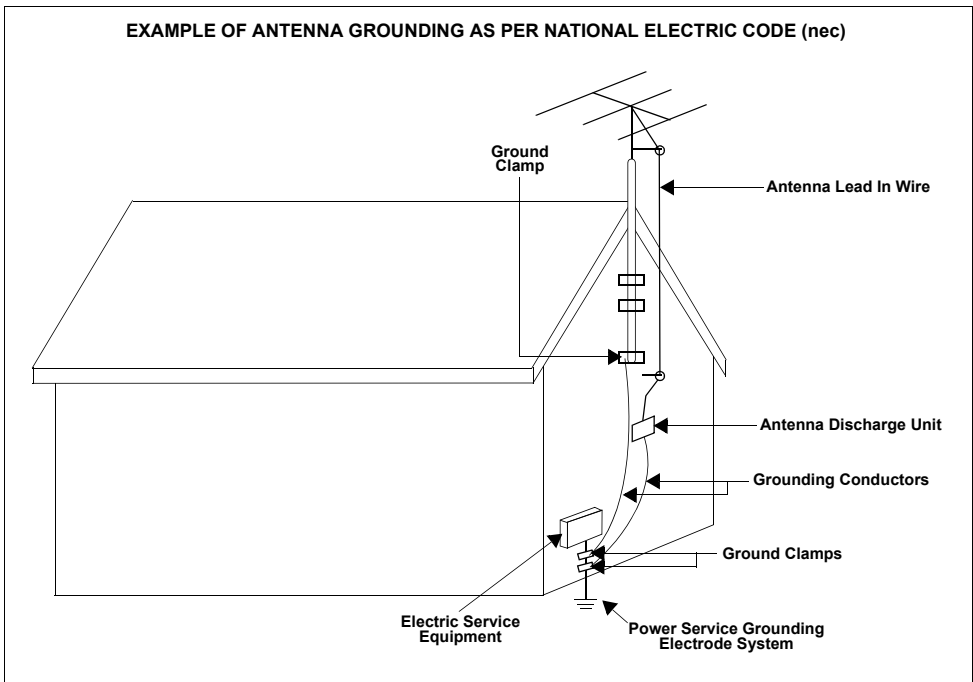
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Safety Information

1. **Read this manual** - Read all of the safety and operating instructions before installing and operating this device.
2. **Keep this manual** - Retain this manual, and all of the safety information that came with this device.
3. **Warnings** - Comply with all warnings presented in this manual, as well as any found on the device.
4. **Follow Instructions** - Follow all operating and use instruction.
5. **Cleaning** - Unplug this device from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a soft damp cloth for cleaning.
Note: A product that is meant for uninterrupted service and for some specific reason, such as the possibility of the loss of an authorization code for a cable TV converter, is not intended to be unplugged by the user for cleaning or any other purpose, may exclude the reference to unplugging this device.
6. **Water and Moisture** - Do not use this product near any source of water, or in an environment where the relative humidity may exceed 95% (non-condensing).
7. **Placement** - Do not install this device on any unsteady surface. Do not install this device on any heat source.
8. **Ventilation** - Do not install this device in an area where the vents provided for cooling purposes, may become obstructed.
9. **Power** - Ensure this device is connected to a properly grounded AC power source. Further ensure the device is plugged into a source providing the required 120 Vac. Do not use a plug adapter which defeats the ground pin of the AC plug.
10. **Polarization** - This device has a polarized AC line plug having one blade wider than the other. This plug will only fit into the wall outlet in one orientation. This is a safety feature. Do not remove the round grounding pin, or use an adapter that defeats this safety feature.
11. **Power Cord** - Ensure power cords are routed in a manner that will preclude them being pinched, frayed, or stepped on. After connecting other devices to this device, do not push the rear of the device up against any surface (wall or shelving unit), as this may create an undesired bend in the power cords which may break the wire strands of the cord.
12. **Antenna Grounding** - Although this device provides protection against electrical surges, when connecting an outside antenna or cable system to devices connected to this device, ensure the antenna or cable system is grounded so as to provide additional protection against voltage surges and static charges in accordance with Section 810 of the National Electric Code, ANSI/NFPA No.70 (see illustration - next page).
13. **Other Grounding** - This device provides a grounding lug at the rear panel for grounding the device to an external Transient Voltage Surge Suppression (TVSS) device. Ensure this connection is made in accordance with the instructions provided by the TVSS device.
14. **Lightning** - This device employs Metal Oxide Varistors (MOVs), and other circuitry to protect against lightning and other sources of voltage surges and sags. It is not necessary to turn this device or the devices connected to this device, off during a lightning storm.
15. **Power Lines** - Do not locate outside antenna systems near overhead power lines, or other electric light or power circuits, or where it may fall or otherwise come in contact with these power sources. Do not allow the ladder being used, or the antenna itself to come into contact with these power sources, and such contact may be fatal.

Safety Information (continued)

16. **Overloading** - Do not overload the wall outlet where this device is being connected. Do not overload this device. Ensure the total load to this device does not exceed that which is listed in the Specifications section of this manual.
17. **Openings** - Do not push any object into the vents provided for cooling, as such an object may come into contact with high-voltage components and cause injury, death, or damage to the device. Do not allow liquids to enter any opening in this device.
18. **Servicing** - There are no user-serviceable components within this device. Removal of any cover from this device may present a shock hazard, and/or void the warranty.
19. **Damage Requiring Service** - If any type of damage occurs to this device, immediately disconnect it from the wall outlet. Do not use the Power switch or line cord into the rear of the device to disconnect power. Notify APC Technical Support or Customer Service at once.
20. **Replacement Parts** - There are no components within this device that can or should be removed/replaced unless it is by an APC-qualified technician.
21. **Periodic Inspection** - Inspect the line cords, telephone/data cords, or DSS/Cable TV coaxial cables connected to this device to ensure they remain fully pushed in or attached, and that they are not frayed or otherwise damaged.



Protect Your Investment

Congratulations and thank you for selecting and investing in APC's Model H10 Power Conditioner. At APC, we know you have made an intelligent choice sure to reward you for many years. To ensure you receive all the benefits and protection that accompany your purchase, please take a few minutes to fill out and mail the enclosed Warranty Registration Card, or complete the online form at www.apc.com.

Note: Under California law, failure to register your purchase may not exclude you from provisions of the Warranty and Equipment Protection Policy. Benefits of warranty registration are outlined below.

Registration

By registering your purchase now, it guarantees you will receive all the information and special offers you qualify for as the owner of this product.

Verification

By registering your purchase now, confirms your right to maximum protection under the terms and conditions of the Warranty, and Equipment Protection Policy.

Confirmation

By registering your purchase now, you have a way to confirm yourself as the owner of the product in the event of fire, theft or loss.

Safety Symbols



This “bolt of lightning” indicates uninsulated material within your unit may cause an electrical shock. For the safety of everyone in your home, please do not remove the product cover.



This “exclamation point” calls attention to features for which you should read about in this Manual to prevent operating and maintenance problems.

Warnings, Cautions and Notes

Warnings

Warnings provide information about a procedure which, if not performed exactly as stated, may result in injury or death.

Cautions

Cautions provide information about a procedure which, if not performed exactly as stated, may result in equipment damage.

Notes

Notes provide information which we feel is essential to highlight.

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Introduction

Congratulations on your purchase of APC's H10 Power Conditioner (Figure 1). This unit will protect your high performance audio and video (AV) system from damaging power surges, spikes and lightning. Protection is guaranteed. Isolated noise filter banks and Automatic Voltage Regulation (AVR) will eliminate power as a source of audio and video signal degradation. Data-line surge protection jacks will stop surges traveling over phone lines. Digital Satellite System, Cable Modem, and CATV Coaxial Cable lines are equally protected. With APC's H10, your entire home entertainment experience is bullet-proofed from damage as a result of bad power.



Figure 1. H10 Power Conditioner (Front View)

Proven Expertise...Proven Reliability

From corporate data centers to home offices, APC is regarded as an innovator, designer and manufacturer of high quality power protection solutions. With a proven reputation for Legendary Reliability™, leading companies depend on APC every day to protect and support many of the most critical networks in the world, including those at Microsoft, Toyota Motor Sales, Inc., Time-Warner, and IBM. Over the last 20 years, APC has been a pioneer in the development of new power protection technologies that have resulted in countless industry awards, design patents and an installed-base numbering in the tens of millions of units. Multiple R&D centers, along with APC-owned and controlled factories ensure APC solutions are the safest, most advanced and reliable products available. When you buy APC, you buy "peace of mind".

Safety Precautions

Please ensure you have read and understand all of the safety information located at the front of this manual. If you have any questions about the safety information, or are concerned that your home may not be properly wired for this equipment, please contact APC Technical Support or a qualified and licensed electrician.

Package Contents

Your H10 package should include the following items:

- 1 Power Conditioner
- 1 Input Power Cord
- 2 Coaxial cables
- 1 Telephone cable
- 2 Rack Mount Brackets (ears)
- 1 User manual
- 1 Equipment Protection Policy Sheet
- 1 Warranty Registration Card

Unit Power Capacity

The H10 is rated for 1000 Watts (continuous). It has been designed, however, to support component inrush currents that are much higher than its continuous power rating. The H10 is capable of supplying the dynamic peak current draws required by any component designed to work on a 15A circuit. Despite their nameplate power ratings, high performance AV equipment draw much less than their listed power ratings. The H10 can inform the user how much of the power capacity is available as equipment is connected to the unit.

Features

The following are major features of the Model H10:

Automatic Voltage Regulation (AVR)

The H10 is unique in that it provides AVR, which is engaged to correct low and high voltage conditions. In doing so, all equipment connected to the H10 are protected against these undesired voltage fluctuations, thus, prolonging the life of the equipment.

Surge Protection

The H10 Power Conditioner provides a high level of surge protection for the voltage going into the unit, thus protecting the devices connected to the unit. Additionally, surge protected coax/radio frequency (RF) connectors are protected against surges traveling over coaxial lines to protect your digital satellite system (DSS), CATV box, or cable modem. Similarly, the telephone line surge protection feature provides a protected splitter to allow output to a telephone, modem, Digital Subscriber Line (DSL) modem, fax, digital video recorder (DVR), DSS system, set-top internet service provider (such as WebTV), or pay-per-view cable TV function.

Isolated Noise Filter Banks (INFB)

The H10 also provides INFB technology to eliminate electromagnetic and radio frequency interference that can negatively impact sound and video quality.

DC Trigger

When connected to a component acting as a DC trigger, that component controls the turning on/off of the 'delayed' outlet banks. The H10 also allows that DC signal to pass through to another connected component.

***CAUTION:** When connecting to the DC Trigger jacks, connect the source of the DC trigger to the IN jack. The OUT jack should be used only as a pass-through. The DC Trigger signal can be short circuited if the input and output cables are reversed. The maximum input voltage for the DC Trigger is 30VDC. Do not apply an AC voltage to the DC trigger jacks. Failure to comply with this statement may result in equipment damage.*

Removable Support Feet

Feet can be unscrewed and removed to save space when rack mounting.

12 Outlets

All outlets provide surge protection, voltage regulation, and noise filtering.

Sequenced Turn On/Off

Ensures connected equipment is powered-up/down in the proper order and with the right amount of delay between the stages. This feature allows the user to program a delay into the sequence between 0 and 12 seconds. This delay feature eliminates transients that can affect connected components.

Front and Rear Panels

The following sections describe the controls and indicators on the front and rear panels.

Front Panel Controls and Indicators

The front panel controls and indicators for the H10 Power Conditioner are detailed in Figure 2. Each numbered callout refers to the numbered description found immediately below the picture.

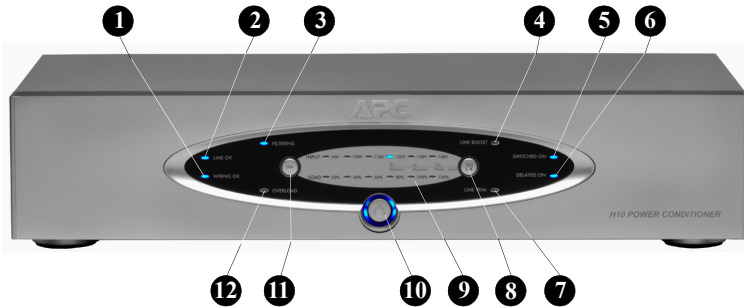


Figure 2. H10 Front Panel Controls and Indicators

- 1 Wiring OK Status Indicator**
When lit, the receptacle the H10 is plugged into is properly wired. If not lit, one of three wiring problems exists in the building wiring circuit: missing ground, overloaded neutral, or reversed polarity. An electrician should be consulted to resolve the problem.
- 2 Line OK Status Indicator**
When lit, input voltage from the utility is within acceptable range. If not lit, the input voltage from the utility is out of the acceptable range for the H10 and it will go into boost or trim mode to compensate for the low or high incoming line voltage.
- 3 Filtering Status Indicator**
When lit, notifies the user that the EMI/RFI noise reduction circuit is active.
- 4 Line Boost Status Indicator**
When lit, Automatic Voltage Regulation (AVR) is engaged to correct low input voltage conditions.

5 Switched On Status Indicator

If illuminated, power is on at all outlets except those with a programmed delay.

6 Delayed On Status Indicator

If illuminated, power is 'on' at those outlets.

7 Line Trim Status Indicator

Automatic Voltage Regulation (AVR) is engaged to correct high input voltage conditions.

8 SEQ/AVR Push Button

This push button is used to adjust the AVR range of the H10, as well as to set the Delay time for sequenced outlets. To adjust H10 AVR range, or to set the Delay time, proceed as follows:

To set the AVR range:

1. Push and hold the SEQ/AVR push button for three seconds; all LEDs are extinguished, indicating the H10 is in delay programming mode. The LED corresponding to the current AVR range setting flashes (Narrow, Normal, or Wide).
2. To change AVR range, press the SEQ/AVR push button until the LED corresponding to the desired setting flashes. After releasing the push button, the unit returns to normal status and the normally illuminated LEDs are lit.

The AVR Range adjustments have the following value:

- **Narrow AVR Range:** 102-132 Volts,
Regulates to: 120 Volts \pm 5%
- **Normal AVR Range:** 97-139 Volts,
Regulates to: 120 Volts \pm 10%
- **Wide AVR Range:** 92-145 Volts,
Regulates to: 120 Volts \pm 15%

To set the Delay time for the sequenced outlets:

Push the SEQ/AVR push button briefly; all LEDs are extinguished, indicating the H10 is in delay programming mode. The LED corresponding to the number of seconds of delay flashes (0s, 6s, 12s). To change the delay time, press the button until the LED corresponding to the desired number of seconds flashes. After releasing the push button, the unit returns to normal status and the normally illuminated LEDs are lit.

9 LED Display and Unit Customization

The LED bars display voltage IN (line voltage) and LOAD. Additionally, the LED bars are used when programming features such as delay time and AVR range setting.

10 On/Off switch

Controls power to all 12 outlets. APC recommends the H10 be left 'on' at all times.

11 Dimmer Push Button

The LEDs, can be dimmed to any one of eight levels of brightness using the Dimmer push button. Simply press the push button until the desired brightness level is achieved.

12 Overload Status Indicator

This indicator will illuminate when the unit is overloaded; unplug equipment connected to the unit until the indicator is no longer lit.

Rear Panel Connectors and Circuit Breaker

The rear panel connectors for the H10 Power Conditioner are detailed in Figure 3. Each numbered callout refers to the numbered description found in the following pages.

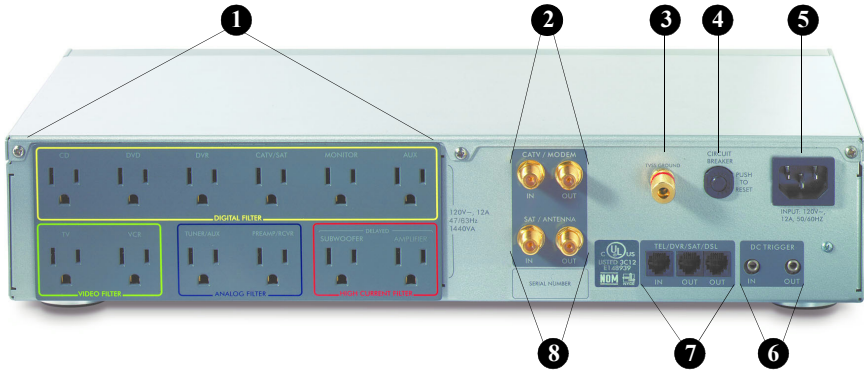


Figure 2. H10 Rear Panel Connectors

Note: All outlets provide surge protection, voltage regulation, and noise filtering.

① **AC-Powered Outlets**

The H10 Power Conditioner provides for connection of up to twelve (12) AC-powered devices. The outlets are arranged according to the type of filtering protection provided for a given application. These Isolated Noise Filter Banks eliminate electromagnetic and radio frequency interference (EMI/RFI) that can negatively impact sound and video quality. APC recommends you plug your devices into the outlets as marked, in order to assure optimum protection for your equipment. The outlets are further defined in the following:

Digital Filter Outlets provides filtering of the incoming AC power to protect your most sensitive digital devices (CD, DVD, DVR, CATV/SAT, Monitor, and AUX (one auxiliary digital device)).

Note: Any digital device can be plugged into the digital outlets, any video device can be plugged into either of the video outlets, etc. Example, if you have a cable box and a satellite receiver, but no monitor, you can plug the cable box into the "CATV/SAT" outlet, and the satellite receiver into the "MONITOR" outlet.

Video Filter Outlets provides filtering for your video devices (TV and VCR).

Analog Filter Outlets provides filtering for your analog-based equipment (Tuner/AUX and Preamp/Receiver).

High Current Filter Outlets provides filtering for your high-current devices (Subwoofer and Amplifier).

② **Surge Protected COAX/RF Connectors**

The H10 provides surge protection for your CATV system, Cable Modem, DSS, or Antenna system. The surge protection feature prevents surges traveling over Coaxial data lines from damaging the system.

Connect the coaxial cable from the CATV or Cable Modem provider to the connector marked “IN.”

Connect other cable from the connector marked “OUT” to the device being protected (CATV box or Cable Modem).

③ **System Ground Terminal**

The H10 provides for the connection of grounding wires from all of your equipment to a central terminal lug. This ground connection eliminates ground loop problems; tie all component grounds to this screw to break any possible ground loops that can cause an audible ‘hum’.

④ **Circuit Breaker**

The H10 also provides a “press-to-reset” circuit breaker. When this breaker is “tripped” due to an electrical surge or overload, the device pops out and shuts down output power to the outlets. To reset the circuit breaker, push it straight inward.

CAUTION: When resetting the Circuit Breaker, push the button in quickly, and release the button. Do not hold the button inward. Failure to comply may result in equipment damage.

⑤ **Input Power Connector**

Connect one end of the supplied AC power cord to the H10 Input Power Connector, connect the other end to the AC utility power source (15 Amp, 120 Vac, 50-60 Hz).

6 DC Trigger jacks

When connected to a component acting as a DC trigger, that component controls turn on/off of the ‘delayed’ outlet banks. The H10 also allows that DC signal to pass through to another connected component.

CAUTION: When connecting to the DC Trigger jacks, connect the source of the DC trigger to the IN jack. The OUT jack should be used only as a pass-through. The DC Trigger signal can be short circuited if the input and output cables are reversed. The maximum input voltage for the DC Trigger is 30VDC. Do not apply an AC voltage to the DC trigger jacks. Failure to comply with this statement may result in equipment damage.

7 Surge Protected Telephone Jacks

The H10 provides a telephone line splitter with surge protection to protect components connected via telephone line. Connect the supplied RJ11 Telephone cable from the wall jack (source) to the telephone line connector marked “IN”. Connect other telephone cables to the connectors marked “OUT A” and/or “OUT B” and then to the equipment to be protected (Telephone, DVR, DSS, or DSL).

8 Additional Surge Protected COAX/RF Connectors

The H10 also provides a surge protection for your DSS system or RF Antenna system. The surge protection feature prevents surges traveling over Coaxial cable from damaging the equipment.

Connect the coaxial cable from the DSS or Antenna system to the connector marked “IN.”

Connect another coaxial cable from the connector marked “OUT” to the device being protected (DSS or Antenna).

Installation

The installation of the H10 consists of the following steps:

1. Make connections
2. Apply power
3. Set up the H10

Make Connections

Prior to connecting equipment to the H10 Power Conditioner, ensure the unit is functional by connecting the AC Power Cord (provided) at the rear panel (❶, Figure 3). Once power is applied to the unit, and the unit is powered on, the front panel LEDs will illuminate. Turn the power switch off - all LEDs extinguish.

Note: Due to the unique filtering and surge protection provided by the H10, APC recommends connecting AV components as noted on the rear panel of the unit (Figure 3).

Connect your AV components as noted on the rear panel, and as defined in the section “*REAR PANEL CONNECTORS and CIRCUIT BREAKER*”. To ensure ground loops are eliminated, thus eliminating an audible hum through your speaker system, ground all AV components to the Ground System terminal located on the rear panel of the unit (❸, Figure 3).

Apply Power

Apply power to the H10 by pressing the front panel Power Switch (❹, Figure 2) fully inward, then releasing the switch. Once power is applied to the unit, the front panel LEDs are illuminated.

Set Up the H10

Using the front panel **Dimmer** and **SEQ/AVR** push buttons (**8** and **11**, Figure 2) you can configure the following functions:

- **Dimmer Function** — The **Dimmer** function allows you to set the front panel LEDs to any of 6 brightness levels. Simply press the push button until the desired setting is achieved.
- **AVR range Function** — For information about how to set the AVR range function, see **8** “SEQ/AVR Push Button” under the section on “Front Panel Controls and Indicators”
- **Delay Time Function** — Once the AVR range is set, repeatedly press the **Setup** push button to advance to the Delay Time Function (Figure 6) for the delayed outlets. Use the **Select** then **Setup** push button to select within a range from 0 to 12 seconds.

Technical Specifications

The following table contains the specifications for the H10.

Item	Specification
INPUT	
Input Voltage Range for Operation (on utility)	92V - 145V
Nominal Voltage	120 Vac
Allowable Input Frequency for Operation (on utility)	47 - 63 Hz
Rated Input Current	12 Amps
Input Circuit Breaker Rating	15 Amps
OUTPUT	
Number of Outlets	12 (all outlets are surge protected, conditioned, and regulated)
Outlet type	NEMA 5-15R
Rated VA Capacity	1000VA
Rated Watt Capacity (continuous)	1000 Watts
Rated Output Current	12 Amps
SURGE PROTECTION	
Let-Through Voltage Rating	<40 Volts
Peak Surge Current (NM + CM)	230KA
Data Line Protection Jacks (splitter)	Single-line 2-wire phoneline protection for phone, modem, or fax.
Coax	
MISCELLANEOUS	
DC Trigger	Two 3.5mm mini-jack plugs (5-30V)
EMI/RFI	40-100dB at 100KHz-30MHz
Total Surge Joules	4720

CAUTION: *When connecting to the DC Trigger jacks, connect the source of the DC trigger to the IN jack. The OUT jack should be used only as a pass-through. The DC Trigger signal can be short circuited if the input and output cables are reversed. The maximum input voltage for the DC Trigger is 30VDC. Do not apply an AC voltage to the DC trigger jacks. Failure to comply with this statement may result in equipment damage.*

Physical Dimensions (H x W x D)	3.75 x 17 x 9.5"
Weight: Unpackaged / Shipping	16.7 lbs. / 17.5 lbs.
Safety Agency Approvals	UL1449, cUL, FCC Part 68 Class B

Federal Communications Commission (FCC) Compliance Information

This device complies with Part 68 and Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device must not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation. As required, the bottom of this equipment contains, among other information, the Registration Number and Ringer Equivalence Number (REN) for this equipment. If requested, this information must be provided to the telephone company.

Troubleshooting

This section describes possible causes and solutions for the following problems:

- Unit will not turn on.
- “Wiring OK Indicator” LED is not illuminated.

Unit will not turn on.

Probable Cause: Input power cord is not connected properly.

Solution: Ensure supplied power cord is connected firmly at both ends.

Probable Cause: No power or insufficient power available at the wall outlet.

Solution: Ensure the wall outlet has good power by using a voltmeter, or by plugging in another device.

Note: The unit will not turn on and accept incoming utility power if the power is out of range.

Probable Cause: Circuit Breaker has tripped.

Solution: Check both home and unit circuit breakers. If the circuit breaker located on the rear of the H10 has tripped, the center post will be extended outwards about a quarter to half inch. Push it back in to reset it. If the trip occurs again, reduce the amount of equipment plugged into the unit and try again. While the unit’s breaker is rated for 15 Amps, National Electric Code (NEC) dictates that any particular home circuit should not be loaded more than 80% of its rating.

If the this problem remains unsolved, contact APC Technical Support at 888-88APCAV or by visiting www.apcav.com.

Probable Cause: Unit was overloaded.

Solution: There is an “Overload” LED on the front display panel which will light ‘red’ if the unit is overloaded. If the unit is overloaded or nearly overloaded (>95%), it is recommended that the load be reduced by unplugging one or more components.

“Wiring OK Indicator” LED is not illuminated.

Probable Cause: There are 3 reasons why this LED would not be illuminated:

1. Reversed polarity exists at the wall outlet.
2. Neutral wire is overloaded.
3. Earth ground is missing at the wall outlet.

Solution: Operating the unit under such conditions may impact its surge protection performance. Contact an electrician to have them inspect the building or home wiring to fix the problem.

Probable Cause: Unit is on but LEDs are turned off.

Solution: Push the Setup button, push the Select button two or three times. The LEDs should illuminate. Choose the dimmer setting (see the sections on “Front and Rear Panels” and “Setup the H10”).

Technical Support

Internet Address:	http://www.apc.com/support
Email Support:	support.apcc.com
Toll free:	(888) 88-APCAV