



instruction manual

# PLB-AS16

16 x 16 Stereo Audio Switcher



Landmark Products

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# Safety Instructions

**ATTENTION!**

Read and follow all safety and operating instructions before installing or operating this device. Adhere to all warnings listed on the device and in the operating instructions.

	<b>CAUTION</b> RISK OF ELECTRIC SHOCK DO NOT OPEN	
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		
 <p>The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.</p>	 <p>The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.</p>	

**WARNING!**

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.



*There are no user-serviceable parts inside the PLB-AS16. Opening the PLB-AS16 may void your warranty and expose you to dangerous voltages.*

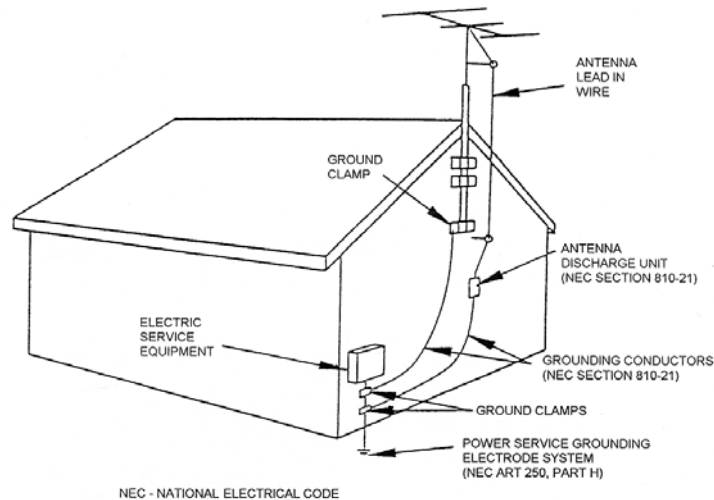
1. **Read Instructions** - Read all of the safety and operating instructions before operating the product.
2. **Retain Instructions** - Retain the safety and operating instructions for future reference.
3. **Heed Warnings** - Adhere to all warnings on the product and in the operating instructions.
4. **Follow Instructions** - Follow all operating and use instructions.
5. **Cleaning** - Unplug this product from the wall outlet or other power source before cleaning. Do not use liquid or aerosol cleaners. Use only a clean, damp cloth for cleaning.
6. **Attachments** - Do not use attachments or accessories that are not recommended by the manufacturer, as they may cause hazards.
7. **Water and Moisture** - Do not use this product near water, such as a bath tub, wash basin, kitchen sink, wet basement, swimming pool, or any other water or wet area.
8. **Accessories** - Do not place this product on an unstable cart, stand, tripod, bracket, table, or other surface or object. The product may fall, causing serious bodily injury to a child or adult. It may also cause equipment damage. Use this product only with a cart, stand, tripod, bracket, table, or other device that is recommended by the manufacturer or sold with the product. Mount this device only in accordance with the manufacturer's instructions, using only mounting accessories recommended by the manufacturer.

- 9. Moving the Product** - A product and cart combination must be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to tip or overturn.
- 10. Power Sources** - Operate this product only from the type of power source indicated by the product documentation or by a marking label on the product. If you are not sure if the power source in your home or building is correct for the product, consult your product dealer or local power company. For products intended for operation from battery power or other sources, refer to the operating instructions.
- 11. Grounding or Polarization** - This product is shipped with a three-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet that is designed for use with this plug. This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace the obsolete or incorrect outlet. Do not defeat the safety purpose of the grounding-type plug.
- 12. Power Cord Protection** - Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed on or against them. Pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.
- 13. Protective Attachment Plug** - If the product is equipped with an attachment plug with overload protection, refer to the manufacturer's instructions for replacement or resetting of this protective device. If replacement of the plug is required, make sure the service technician has used a replacement plug specified by the manufacturer that has the same overload protection as the original plug.



*Use the same bonded-ground as the house. Refer to the FIG. 1 on page c for more information.*

- 14. Outdoor Antenna Grounding** - If an outside antenna or cable system is connected to the product, make sure the antenna or cable system is grounded to provide some protection against voltage surges and built-up static charges (FIG. 1). Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information regarding proper grounding of the mast and supporting structure, grounding of the lead-in wire to the antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.



**FIG. 1** Outdoor antenna grounding

- 15. Lightning** - For added protection for this product during lightning storms, or when the product is left unattended and unused for long periods of time, unplug it from the wall outlet or other power source and disconnect other wires, such as an antenna or cable system. This will prevent damage to the product due to lightning and power line surges.
- 16. Power Lines** - An outside antenna system should not be located in the vicinity of overhead power lines or other electrical light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care must be taken to keep from touching such power lines or circuits, as contact with them might be fatal.
- 17. Overloading** - Do not overload wall outlets, extension cords, or integral convenience receptacles, as this can result in a risk of fire or electrical shock.
- 18. Object and Liquid Entry** - Never push objects of any kind into this product through openings, as they may contact dangerous voltage points or short out parts, resulting in a fire or electrical shock. Never spill any kind of liquid on this product.
- 19. Servicing** - Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
- 20. Damage Requiring Service** - Unplug this product from the wall outlet or other power source. Refer servicing to qualified service personnel under the following conditions:
- When the power supply cord or plug is damaged.
  - If liquid has been spilled on the product or if objects have fallen into the product.
  - If the product has been exposed to rain or water.
  - If the product does not operate normally by following the operating instructions, adjust only those controls that are covered by the operating instructions. An improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
  - If the product has been dropped or damaged in any way.
  - When the product exhibits a distinct change in performance. This indicates a need for service.

- 21. Replacement Parts** - When replacement parts are required, make sure the service technician has used replacement parts that are specified by the manufacturer or have the same characteristics as the original parts. Unauthorized substitutions may result in fire, electrical shock, or other hazard.
- 22. Safety Check** - Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.
- 23. Wall or Ceiling Mounting** - The product should be mounted to a wall or ceiling only as recommended by the manufacturer.
- 24. Heat** - The product should be situated away from heat sources, such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

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# Product Information

PHAST Landmark Audio Switches distribute stereo program and monaural intercom audio for whole-house sound integration. Operating via the PHASTLink data bus, Landmark Audio Switches respond to keypads, panels, or system automation-routing any input to any output.

Each channel has automated audio pre-amp processing for volume level, balance, bass, treble, loudness, and muting. Interactive feedback is provided for these parameters, plus routing and signal sensing. Each input has signal sensing capability, allowing program events to be triggered by an input signal state.

Inputs can be configured as a stereo pair, or as a mono input, such as for an intercom input. The PLB-AS16 provides programmable switching capabilities for 16 stereo outputs and 16 stereo inputs (or 32 mono inputs).

16 full audio zones are supported. Each output is an audio zone, and each zone can select any input, even if that input is already selected by another audio zone.

Landmark software now allows you to automatically software-connect any audio source to inputs on ALL of the Audio Switches in a system. This allows multiple Audio Switches to share the same sources, increasing the number of audio zones in a system that use those sources.

Each Audio Switch provides 16 audio zones. Intercom capabilities are limited to one Audio Switch, with a maximum of 16 intercom zones (out). Landmark software does not limit the number of Audio Switches in a system, although switching all zones on multiple Audio Switches will slow down the switch response time. Landmark audio switches can be rack or shelf mounted. The rear panel of the PLB-AS16 is shown in .

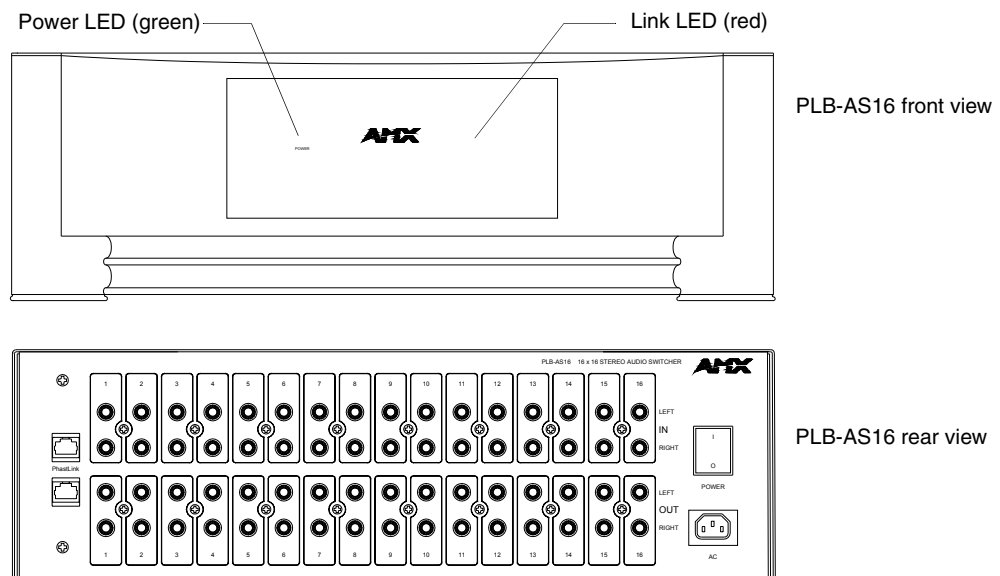


FIG. 1 PLB-AS16 16 x 16 Stereo Audio Switcher (front and rear views)

## PLB-AS16 Specifications

PLB-AS16 Specifications	
Power	<ul style="list-style-type: none"> <li>• <b>DOMESTIC</b> versions - 115 VAC, 60 Hz</li> <li>• <b>INTERNATIONAL</b> version - 230 VAC, 50/60 Hz</li> </ul>
Channels	16 stereo channels
Inputs	32 RCA line level inputs
Outputs	32 RCA line level outputs (16 stereo pairs)
Intercoms	16 intercom (out) zones (16 maximum per Landmark system)
Level Steps	100-step resolution
LEDs	<ul style="list-style-type: none"> <li>• Power LED (green)</li> <li>• Link LED (red) - Indicates ID on a network</li> <li>• Zone-active LEDs (1-16) - conditions are full on, dim, and blinking (used for ID mode recognition). Light to indicate activity on each zone</li> </ul>
Wiring	2 RJ-45 PhastLink ports
Dimensions	5.56" x 17.13" x 15.25" (14.12 cm x 43.51 cm x 38.74 cm)
Weight	16.3 lbs (7.39 kg)
Accessories:	PM-RAC Rack-Mount Kit, requires 3 rack spaces (5.25" / 133.3 mm).

## Connection and Power-Up Procedure

1. Read the Safety Instructions section at the beginning of this document.
2. Plug the PLB-AS16 power cord into a matching and properly grounded 115 or 230 VAC outlet.



NOTE

Verify whether you are using the domestic or international version by checking the serial number.

The serial number for the domestic version starts with "992-10".

The serial number for the international version starts with "992-11".

3. Turn the PLB-AS16 on. The power switch is located at the right side of the rear panel. On power-up, 16 "zone-active" LEDs display at the center of the front panel.

## PHASTLink Ports

There are two PHASTLink ports on the left side of the rear panel of the PLB-AS16. Usually you will use only one, but the second port allows you to daisy chain the Audio Switch to other PhastLink devices, such as additional Landmark Audio Switches or Audio Amplifiers.

It does not matter which PHASTLink port you use; they are both functionally identical.



NOTE

**TERMINATE** any unused ports.

## Line-Level Inputs

There are 32 stereo line-level RCA-type input jacks on the rear panel of the system unit, providing 16 stereo pairs of audio input.

## Line-Level Outputs

There are 32 stereo line-level RCA-type output jacks on the rear panel of the system unit, providing 16 stereo pairs of audio output.

## Note on Intercoms

An RCA intercom cable from an PLH-MIC Mic Hub may plug into either the Right In or Left In connector for an Audio Switch channel. In either case, the Right Out and Left Out for that channel will both carry the same mono signal. In other words, the Right Out and Left Out for a channel always comprise one audio zone.

It is possible to connect one intercom to a Right In and another to a Left In, but only one of those intercoms can be switched to the audio zone output at any given time.



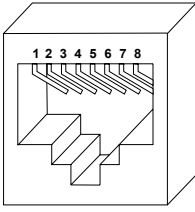
# PHASTLink Cable Information

This section contains information that you will need to make PHASTLink cables, plus general information on connecting PHASTLink devices.

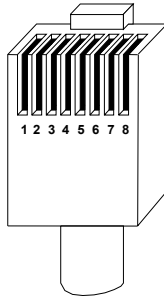
PHASTLink cables are used to connect all PHASTLink-compatible devices, including keypads, dimmers, J-box IR devices, amplifiers, audio switches, etc. PHASTLink uses a standard 10BaseT connection (i.e. Cat 5 wire and RJ-45 connectors), and the wire should be connected in the standard manner illustrated in the following table. If the standard EIA/TIA 568A color code is followed, wiring problems will be minimized.

PHASTLink Cable Information			
Pin #	Wire Color	Polarity	Function
1	White/Green	+	Transmit
2	Green	-	Transmit
3	White/Orange	-	Mic
4	Blue	-	Ground
5	White/Blue	+	12VDC
6	Orange	+	Mic
7	White/Brown	+	Receive
8	Brown	-	Receive

RJ-45 Socket



RJ-45 Plug





NOTE

**It is important that the correct pairing is observed.** Transmit, Receive, and Mic need to be on twisted pairs. Splitting pairs (e.g., using a white/green wire with a blue/white wire for transmit) will result in increased crosstalk, and may result in bus failure or noise on the intercom.

The system comes with a 15-port hub built into the PLB-CF10 cardframe. The maximum length of PHASTLink wire per port is 1,000 feet.

Each PHASTLink device has two RJ-45 jacks to allow multiple devices to be daisy-chained on one PHASTLink port. Remember to always terminate the unused RJ-45 jack of the last device (or the only device) in a chain of PHASTLink devices (see *Building a Double 120-ohm Terminator* for details).

- The limit for each home run is 500 mA or 10 PHASTLink devices, whichever comes first (FIG. 4). Extra hubs can be added to provide additional ports.
- Only one Landmark LCD keypad (i.e. DMS or IMS) can be used per port, so always home-run each keypad.
- Some PHASTLink devices (particularly those devices that require two-way communication to the Master) have relatively high bandwidth requirements. These devices (including SAM modules, the PMB-TCC Remote Television Control Center, and ITI Printer/Automation Module) should also not be daisy-chained.

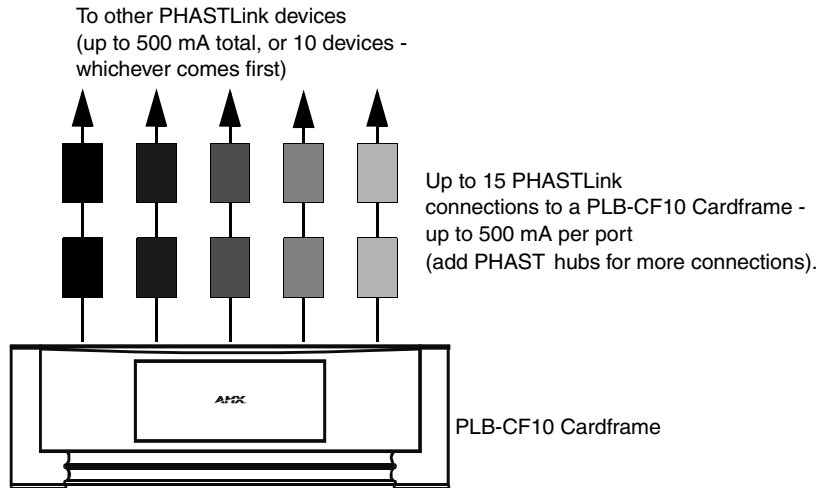


FIG. 4 500 mA or 10 devices (whichever comes first) max per port.

## Building a Double 120-ohm Terminator

For optimum performance, you must install a double 120-ohm terminator in the unused RJ-45 jack of the last device (or the only device) in a chain of PHASTLink devices.

To build a double 120-ohm terminator:

1. Install a 120-ohm resistor (1/4-watt or larger) between pins 1 and 2 of an RJ-45 connector.
2. Install a 120-ohm resistor (1/4-watt or larger) between pins 7 and 8 of the same RJ-45 connector.

When connecting Landmark keypads that will be used as intercoms, the Microphone Hub taps off the intercom audio signal carried on the PHASTLink cable from that keypad.

Landmark LCD keypads must connect directly to a Landmark Hub (or Microphone Hub). Due to power requirements and/or the need for a separate microphone line for each keypad, they cannot be daisy-chained to other LCD keypads. For maximum performance and reliability, a Landmark keypad should be the only device on a home run to a port. PHASTLink devices cannot be wired in a star configuration (see FIG. 5).

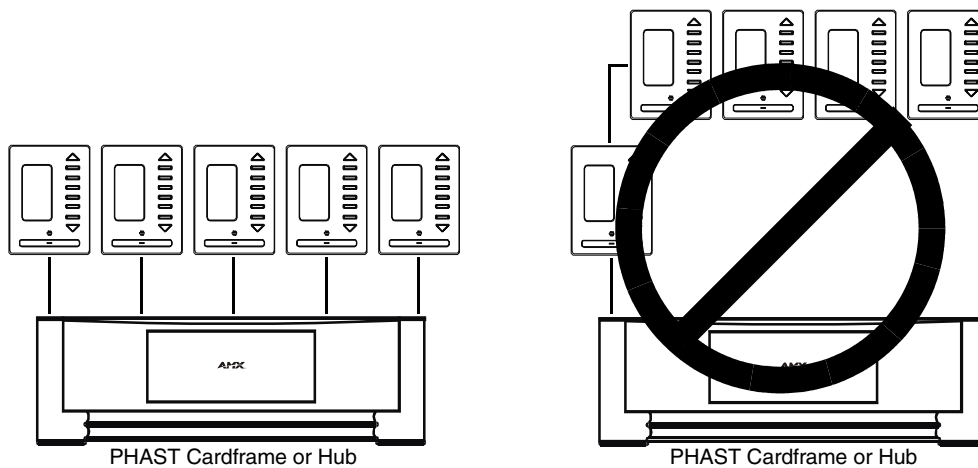


FIG. 5 Home-run each Landmark LCD keypad.

# PhastLink Connections

FIG. 6 shows how PHASTLink and HubLink ports are connected in a Landmark system.

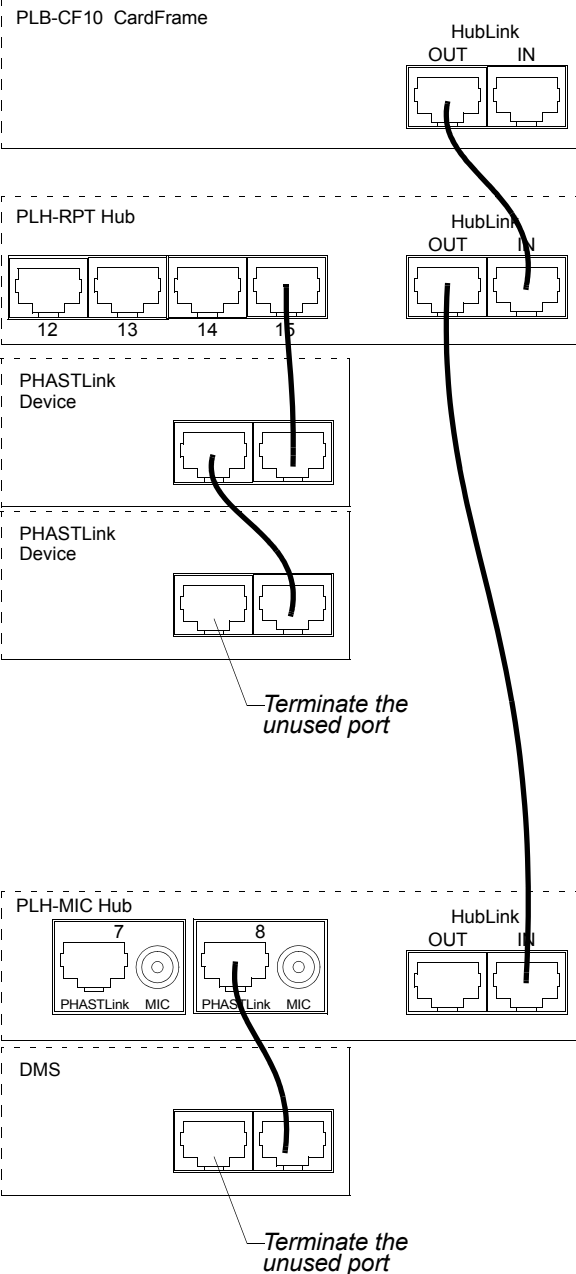


FIG. 6 PHASTLink ports connected in a typical Landmark system



**AMX reserves the right to alter specifications without notice at any time.**

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