

Hi-Fi2 4x4

**Four Zone - Four Source
Digital Audio Distribution System**

Installation Manual

WARNINGS AND CAUTIONS

- Read and understand all instructions. Follow all warnings and instructions marked on the product.
- Do not use this product near water - e.g., near a tub, wash basin, kitchen sink or laundry tub, in a wet basement, or near a swimming pool.
- Never push objects of any kind into this product through openings, as they may touch dangerous voltages.
- Never install communications wiring or components during a lightning storm.
- Never install communications components in wet locations unless the components are designed specifically for use in wet locations.
- Never touch uninsulated wires or terminals unless the wiring has been disconnected at the network interface.
- Use caution when installing or modifying communications wiring or components.
- **SAVE THESE INSTRUCTIONS.**

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Precautions

Exposure to extremely high noise levels may cause a permanent hearing loss. Individuals vary considerably to noise induced hearing loss but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a sufficient time. The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the following permissible noise level exposures:

DURATION PER DAY (HOURS)	8	6	4	3	2	1
SOUND LEVEL (dB)	90	93	95	97	100	103

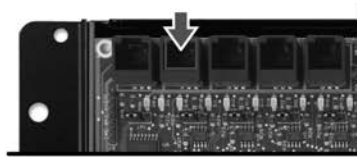
According to OSHA, any exposure in the above permissible limits could result in some hearing loss.

Important Safety Instructions:

1. Read all safety and operating instructions before using this product.
2. All safety and operating instructions should be kept for future reference.
3. Read and understand all warnings listed on the operating instructions.
4. Follow all operating instructions to operate this product.
5. This product should not be used near water (.e. bathtub, sink, swimming pool, wet basement, etc.).
6. Only use dry cloth to clean this product.
7. Do not block any ventilation openings.
8. Do not install this product near any heat sources; such as, radiators, heat registers, stove or other apparatus (including heat producing amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. The wide blade is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement.
10. Protect the power cord being walked on or pinched, particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
11. Only use attachments specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Care should be taken so that objects do not fall and liquids are not spilled into the unit through the ventilation ports or any other openings.
15. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way; such as, a liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally or has been dropped.
16. **WARNING:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

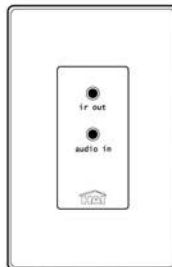


4x4 Wiring Diagram



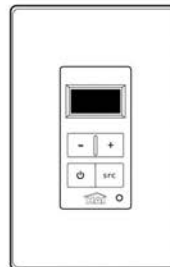
CONTROLLER (OPTIONAL)

Connect to HAI controller or other serial port device. With a controller, select zone and source and control volume and power from an HAI OmniTouch Touchscreen or via controller program.



RIM

- Remote Input Modules allow any source from anywhere in the house to be listened to in any or all zones. RIMs also have an IR emitter port for routed IR commands from VSCs.
- Use Cat5 cable from the RIM to Remote Audio In on the Hi-Fi 2.
- Add a max of 4 RIMs to the main board.



VSC

- Volume-Source Controls allow selection of source and adjustment of volume, bass, treble, balance, and source gain. VSCs also feature an IR receiver.
- Use Cat5 cable from the VSC to Zone Control In on the Hi-Fi 2.
- Add a max of 4 VSCs to the main board.

LOCAL AUDIO INPUTS

Connect local line-level audio sources to these 4 jacks.

VARIABLE OUTPUT

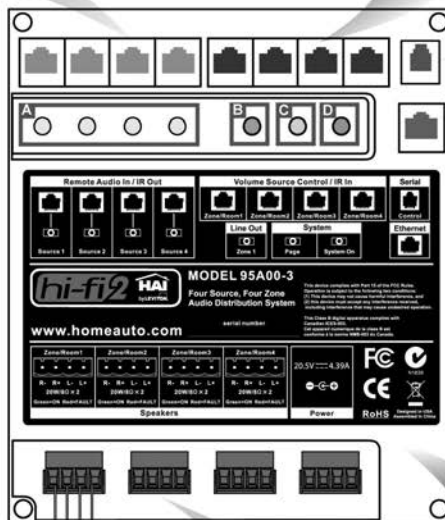
Attach additional amplification to Zone 1.

PAGE INPUT

When triggered, all zones turn on at their preset paging volume and switch to Source 4.

SYSTEM ON OUTPUT

When any audio zones turn on, this output activates an auxiliary amplifier equipped with a voltage trigger.



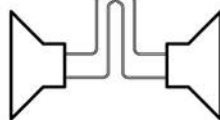
ETHERNET NETWORK PORT

Communicate with IP devices on the network. Compatible with the HAI Music Gateway which can connect to and control the Hi-Fi 2.



POWER SUPPLY INPUT

20.5V Universal power supply (included).



ZONE SPEAKERS

Total of 4 on the main board. Use 8-Ohm speakers and 16-gauge speaker wire (4-conductor stranded suggested for neat installation).

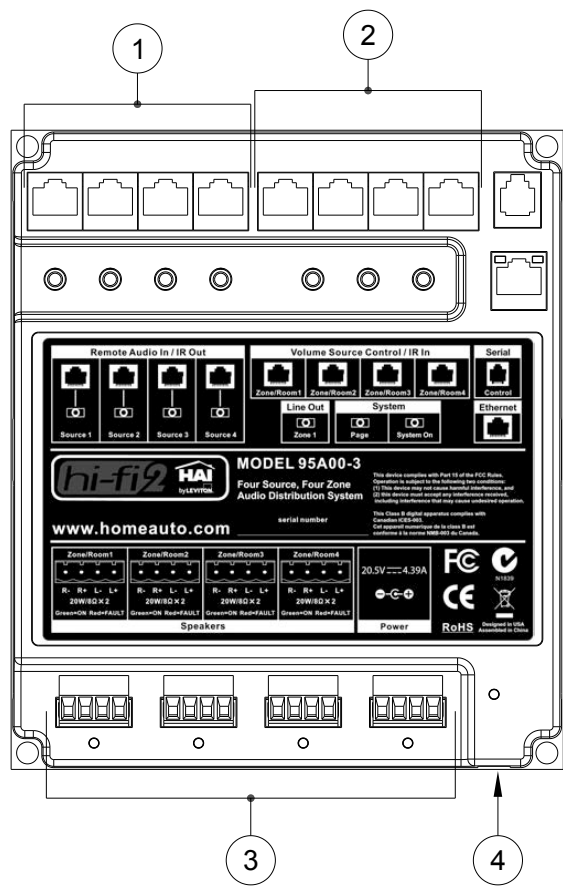
Introduction

Thank you for choosing the Hi-Fi2 4x4 audio distribution system. Hi-Fi2 4x4 is an affordable high fidelity Central Controller Distributed Audio System that powers speakers through digital amplification.

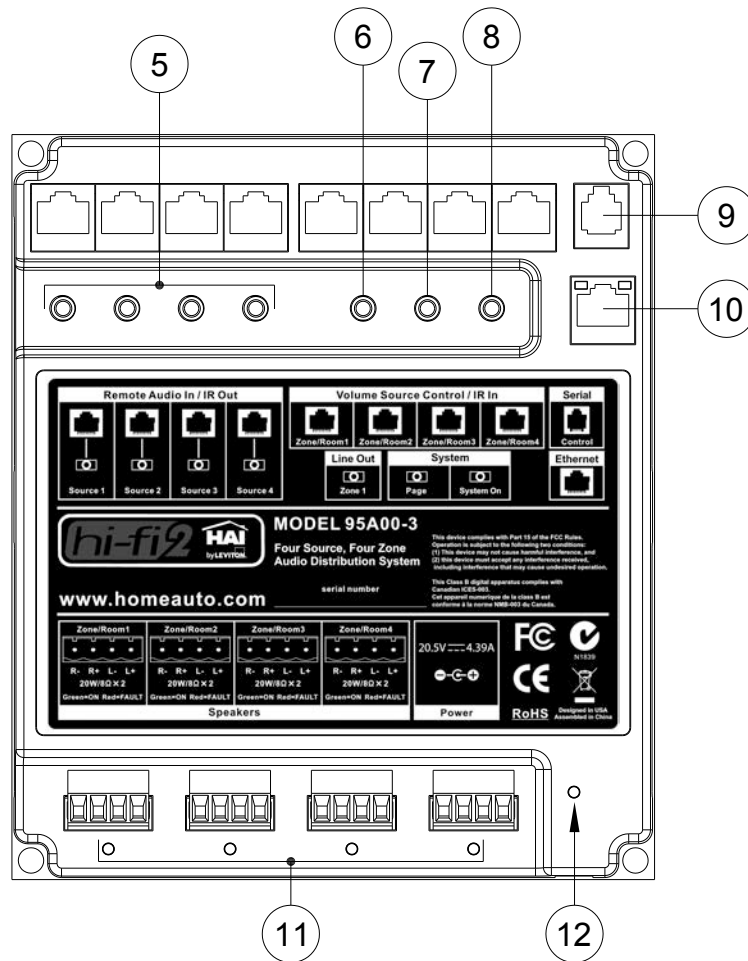
This installation guide is intended as an aid to installing the Hi-Fi2 4x4 (Four Zone, Four Source Kit). The installer should also have thoroughly reviewed and understood the Hi-Fi2 4x4 User's Guide which has important information regarding operation and configuration of the system.

Hi-Fi2 4x4 Inputs and Outputs

The Hi-Fi2 4x4 is equipped with the following inputs and outputs:



1. Remote Audio Inputs / IR Outputs	These jacks are where Remote Input Modules (RIM) are connected using network cables.
2. Zone Control / IR Inputs	These jacks are where Volume-Source Control (VSC) keypads are connected using network cables.
3. Speaker Connectors	These terminals are where all zone speakers are connected.
4. Power Supply Input	This is where the supplied power supply is connected.



5. Local Audio Inputs	These jacks are where local line-level audio inputs are connected.
6. Variable Output for Zone 1	This is a variable audio output used for attaching additional amplification to Zone 1.
7. Page Input	When this input is triggered, all audio zones are turned on at their preset paging volume (or muted) and switched to Source 4.
8. “System On” Output	This output is energized when any audio zones are turned on. Used to turn on an auxiliary amplifier that is equipped with a voltage trigger.
9. Serial Control	This jack is where an LEVITON controller or other device with a serial interface is connected for configuration and control of the Hi-Fi2 4x4.
10. Ethernet Port	This port allows a device to connect to, configure, and control the Hi-Fi2 4x4 via a network. Used to interface with the Hi-Fi2 Setup Utility, LEVITON Music Gateway, and LEVITON Dock.
11. Power On / Fault LED Indicators	The LED under the respective audio zone illuminates green when the audio zone is on. The LED under the respective audio zone illuminates red when there is a fault with the zone amplifier.
12. Standby LED indicator	This LED is illuminated green when power is connected to the unit. This LED is off when any of the audio zones are turned on.

Installation

The Hi-Fi2 4x4 Main Assembly houses the Hi-Fi2 4x4 processor, power supply, and amplifiers. It is also the termination point for all components and connections. The Hi-Fi2 4x4 Main Assembly can be installed directly into a Leviton Structured Media Center wiring enclosure at half-width.

The Hi-Fi2 4x4 Main Assembly should be mounted in a location that is protected from high humidity levels and temperature extremes. An AC power outlet should be located within 5 feet.

Installing Remote Input Modules (RIM)

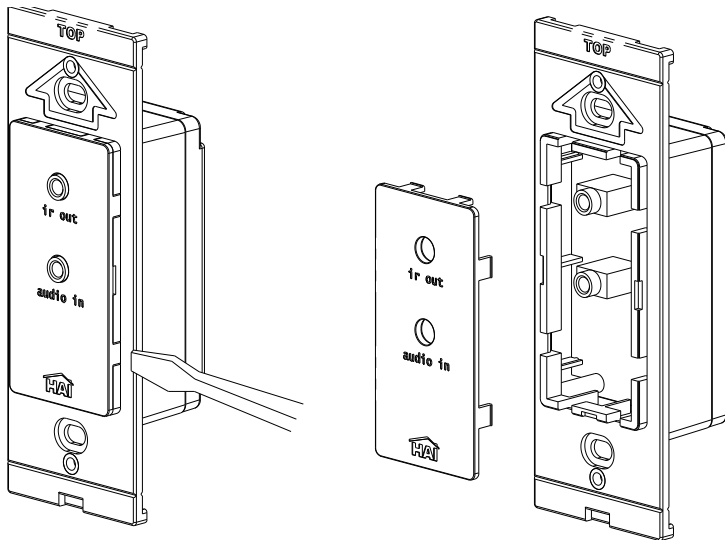
Audio sources can be connected directly to Remote Input Modules (RIM) in rooms that will have music sources. Remote Input Modules connect directly to the Hi-Fi2 4x4 Main Assembly using Cat 5, unshielded, twisted pair (UTP) for communications. Each end of the wire is terminated with an RJ45 connector. The correct wiring scheme for the Cat 5 cable is standard EIA/TIA 568A. Properly terminating the Cat 5 cable is crucial for the operation of the system.

When connecting Remote Input Modules (RIM), no single run of Cat 5 should exceed 500 feet.

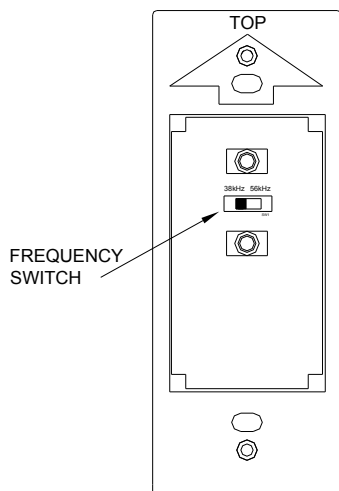
Insert the RJ45 connector on one end of the cable to the respective source input jack (1-4) under “Remote Audio In / IR Out” on the Hi-Fi2 4x4 Main Assembly. Insert the RJ45 connector on the other end of the cable to the jack labeled “Remote Audio” on the RIM.

Changing the Color of the RIM

The color of the RIM may be changed to complement the interior décor. The RIM is supplied with a white faceplate and insert. Additional colors are available; contact your LEVITON distributor for more information. Change the color of the RIM as follows:



1. Remove the faceplate.
2. The insert attaches to the RIM with two latches on the right and two on the left. Using a small-blade screwdriver, gently depress each latch on one side while lifting up on the insert. Once the latches are released on one side, remove the insert from the other side.
3. Align the latches of the new insert to the openings on the RIM and gently snap into place.
4. Attach the new faceplate.



Setting the Frequency of the IR Output

When using the RIM to send IR data to source equipment, there are two different IR carrier frequencies at which the RIM can transmit the IR signal. The default setting of 38 kHz is used for most audio sources. However, most cable and satellite converter boxes operate at a higher IR carrier frequency closer to 56 kHz. Each RIM has a switch that allows you to change the frequency of the IR output when using such devices.

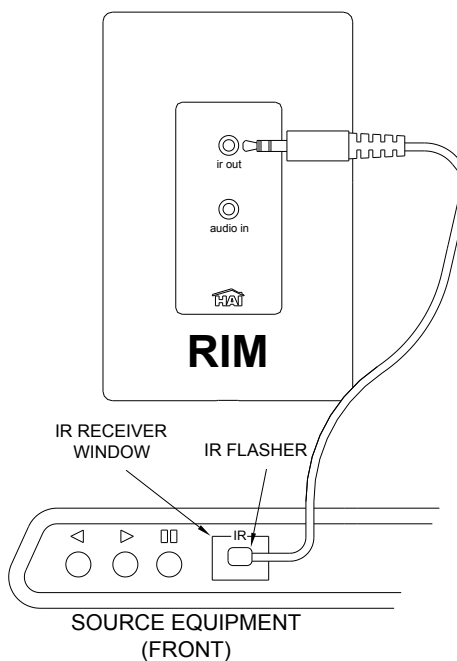
To change the frequency setting, remove the faceplate and insert from the RIM as described under “Changing the Color of the RIM”.

Once the insert has been removed, move the frequency switch (SW1) from the “38kHz” position to the “56kHz” position.

IR Output

Each RIM ships with an IR flasher (62A08-1). The IR flasher is used for sending IR data to the source equipment.

When you point your source equipment remote control at the IR receiver in the VSC and send a signal, the IR data is routed to the appropriate RIM (to which the source equipment is connected), which then sends the IR signal through the IR flasher to the source equipment.



Installing Local Sources

The Hi-Fi2 4x4 is equipped with 4 local source inputs. This is useful if your audio sources are in the same location as the Hi-Fi2 4x4 system. Instead of connecting a RIM for each source, the audio source can be connected directly to the local source input using a 3.5mm male stereo patch cable.

Each local source input is in parallel with the corresponding input for a RIM. Therefore, only a single audio source should be connected to the same source input, whether it is a local source input or a RIM.

Installing Volume-Source Control (VSC) Keypads

The audio sources can be selected and controlled by any Volume-Source Control (VSC). Additionally, each VSC includes an IR receiver that allows you to remotely control the Hi-Fi2 4x4 system and/or audio sources from any audio zone in the house. Volume-Source Control (VSC) Keypads connect directly to the Hi-Fi2 4x4 Main Assembly using Cat 5, unshielded, twisted pair (UTP) for communications. Each end of the wire is terminated with an RJ45 connector. The correct wiring scheme for the Cat 5 cable is standard EIA/TIA 568A. Properly terminating the Cat 5 cable is crucial for the operation of the system.

When connecting VSC keypads, no single run of Cat 5 should exceed 250 feet.

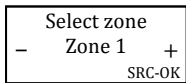
Insert the RJ45 connector on one end of the cable to audio zone input jack (1-4) under “Volume Source Control / IR In” on the Hi-Fi2 4x4 Main Assembly. Insert the RJ45 connector on the other end of the cable to the jack labeled “Zone Control” on the VSC.

Turning a VSC on for the First Time

When you turn a VSC on for the first time, you will need to configure which audio zone the VSC will control. The following screen is displayed:



To configure the audio zone that the VSC will control, press the **src** button on the VSC.



To select the audio zone that the VSC will control, press the **+** button to increase the zone number and press the **-** button to decrease the zone number.

Audio zone settings range from 1 to 4.

If space is available, more than one VSC can be configured to a given audio zone. This is useful if multiple VSC keypads are installed in a large room to control a single audio zone. When multiple VSC keypads are configured to an audio zone, all VSC keypads will mimic one another.

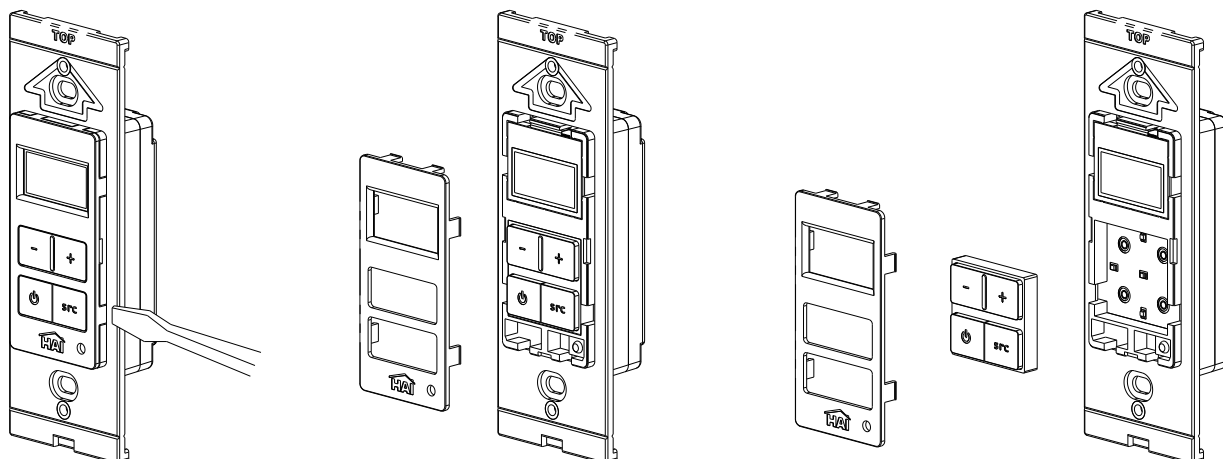
A maximum number of 4 VSC keypads can be installed on a Hi-Fi2 4X4 system.

Changing the Color of the VSC

The color of the VSC may be changed to complement the interior décor. The VSC is supplied with a white faceplate, rubber keypad, and insert. Additional colors are available; contact your LEVITON distributor for more information. Change the color of the RIM as follows:

1. Remove the faceplate.
2. The insert attaches to the VSC with two latches on the right and two on the left. Using a small-blade screwdriver, gently depress each latch on one side while lifting up on the insert. Once the latches are released on one side, remove the insert from the other side.

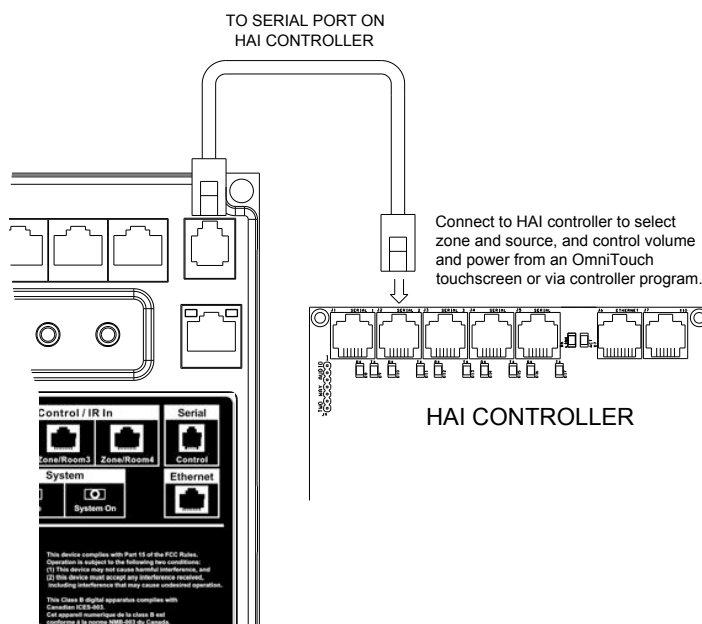
3. Remove the rubber keypad.
4. Insert the new rubber keypad. Align the latches of the new insert to the openings on the VSC and gently snap into place.
5. Attach the new faceplate.



Serial Control

Hi-Fi2 4x4 can be remotely controlled through an LEVITON controller or by a device with a serial interface. When connected, the remote device can select an audio zone and change its power state, source, volume setting, and mute setting, completely configure the Hi-Fi2 4x4 system, and issue transport controls to compatible sources.

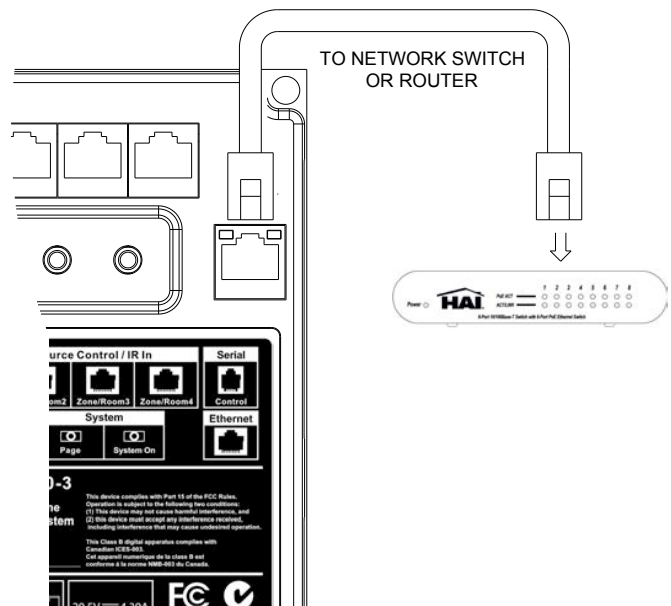
Connect Hi-Fi2 4x4 to an LEVITON Omni or Lumina series Home Control System by inserting the supplied straight-through, 4-position modular cable between an available serial interface connector on the LEVITON controller and the modular connector labeled “Serial Control” on the Hi-Fi2 4x4 Main Assembly.



Ethernet Control

The Hi-Fi2 4x4 is equipped with an Ethernet port which makes it network accessible. When connected to the local network, the Hi-Fi2 4x4 can be completely controlled and configured by other compatible IP devices on the network. Furthermore, when used in conjunction with an LEVITON Music Gateway (Part Number: 84A00-1), LEVITON Dock (Part Number 96A00) or other compatible audio source, the Hi-Fi2 VSC can display metadata (album, artist, and track) from the source and is able to control the source using transport control commands.

To access the Hi-Fi2 4x4 from the network, connect the port labeled “Ethernet” to a network switch or router using Cat 5, unshielded, twisted pair (UTP). Each end of the wire is terminated with an RJ45 connector. The wiring scheme for the Cat 5 cable is standard EIA/TIA 568A.



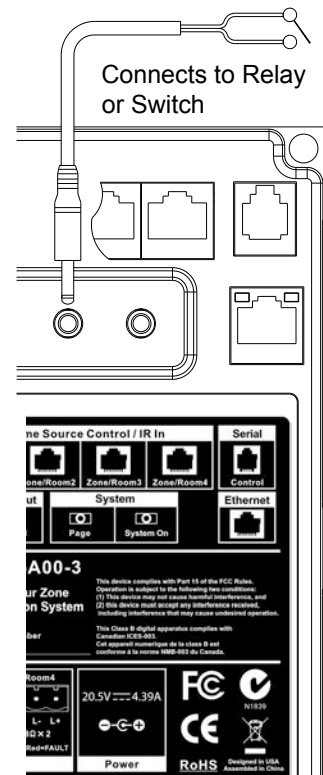
Page / Mute Input

The Hi-Fi2 4x4 paging feature offers the capability of playing a single audio source over all zone speakers. If paging is used, the paging audio source will be connected as audio Source 4. Hi-Fi2 4x4 is also equipped with a Page Input which will, when activated, turn all zones on at the preset paging volume and switch all zones to Source 4. When the input is deactivated, all audio zones will be returned to their previous source selection, power state, and volume setting.

When used with an LEVITON controller and Two-Way Voice Module with Line-Level output and Mute/Page Control, custom announcements can be made over all zone speakers when certain events take place.

If desired, the Page function can be used to mute all zones instead of making an announcement. For example, you may simply want all of the zones on the Hi-Fi2 4x4 systems to be muted when someone is at the door or when the telephone is ringing. To configure Hi-Fi2 4x4 to mute all zones, set the Paging Volume for each zone to “0” as described under “Setting Paging Volume” in the Hi-Fi2 4x4 User’s Guide.

To activate the Page / Mute function, short the two wires on a mono patch cord. When activated, all zones are turned on at the preset paging volume (or muted) and switched to Source 4. The wires on the patch cord may be shorted through relay contacts or a switch. If a solid state switch is used, Tip is positive relative to Ring.



Speaker Wiring

When running the cables for speakers, use 16-gauge two-conductor or four-conductor (four-conductor stranded is recommended for neater installation) speaker wire. Speaker cable is homerun from the speaker location to the location of the Hi-Fi2 4x4 Main Assembly.

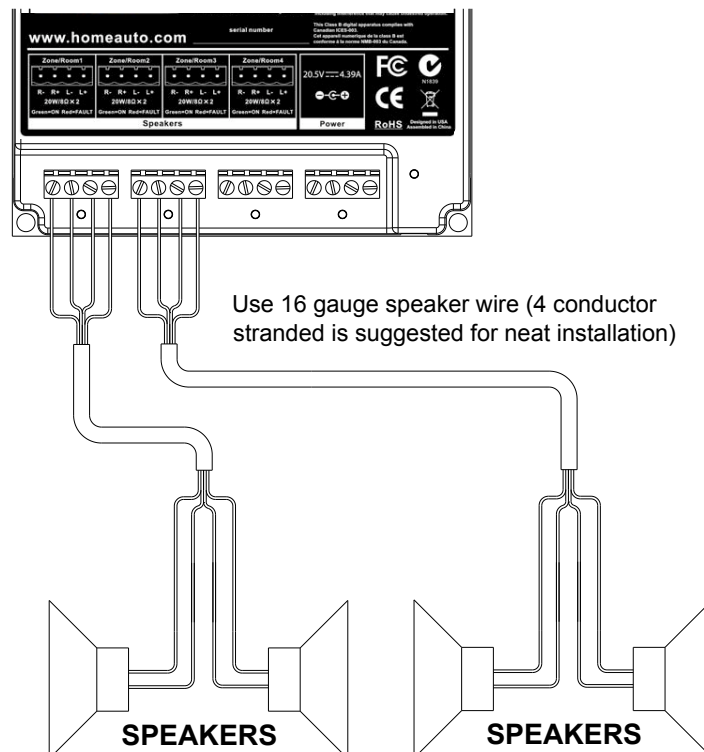
The Hi-Fi2 4x4 system is designed to work with one pair of 8-ohm speakers per audio zone. If additional speakers are required in an audio zone, LEVITON recommends: a) use the Zone Grouping feature of Hi-Fi2 4x4 where two or more audio zones control the same source, volume, and/or power state so that any or all of these items are controlled together; or b) use the variable output and an external power amplifier.

Terminating Speaker Wires

Always observe proper orientation of the positive and negative signal for each speaker connection.

Typically, when using two-conductor speaker wire, the red wire indicates positive (+) and black wire indicates negative (-). Another indication of positive is a dark line running through the insulation.

Four-conductor wire can also be used and makes for a neater installation. Four-conductor wire has four separate wires in one outer jacket, making it possible to run a single speaker wire for a pair of zone speakers. This type of wire typically uses red and black for one speaker and white as positive and green as negative for the second speaker.



Variable Output

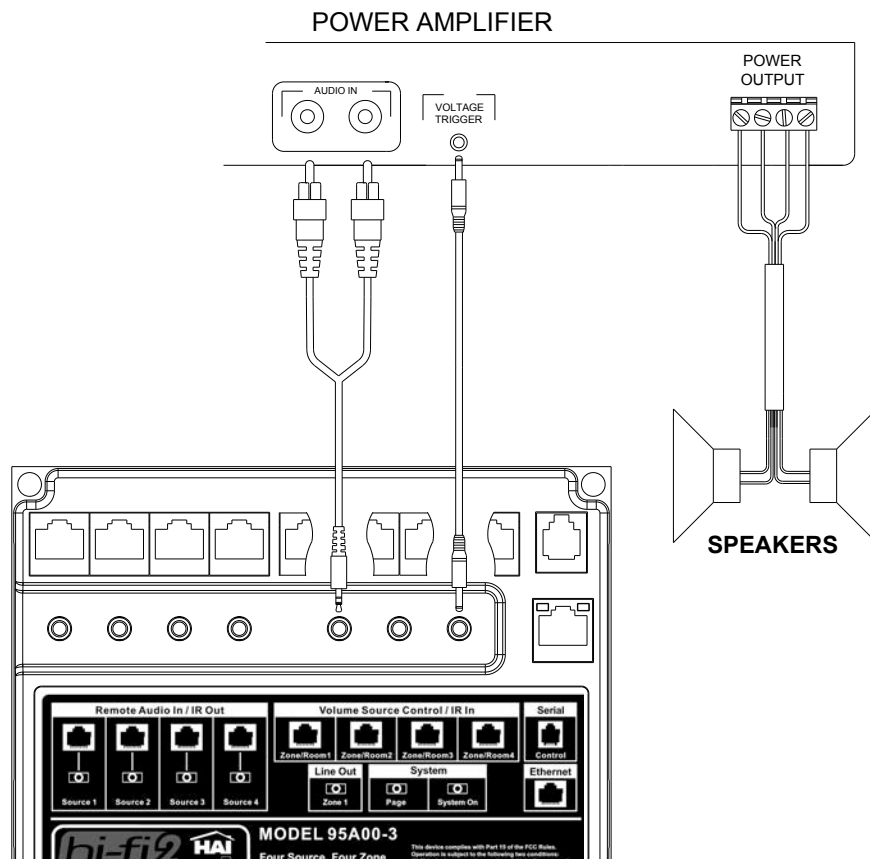
Zone 1 is equipped with a pre-amp variable output for use with an optional power amplifier that allows you to deliver more power to the zone speakers. This is ideal for outdoor areas or a large living room where more power and/or additional speakers are desirable.

To connect Zone 1 to an optional power amplifier using a stereo patch cable:

- 1) Connect the power amplifier to the Hi-Fi2 4x4 Main Assembly by inserting a 3.5mm stereo connector into the 3.5mm jack labeled “Zone 1” under “Line Out” - (LEVITON 62A14-1, 3.5mm male to 2 RCA male retractable patch cable may be used).

If your power amplifier is equipped with a voltage trigger that will turn on the amplifier when energized:

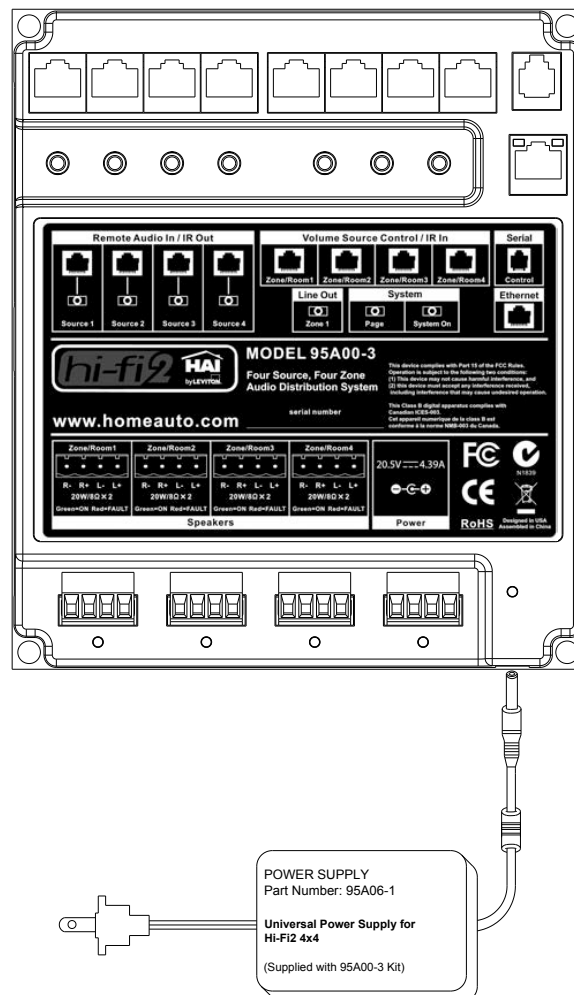
- a) Connect the voltage trigger of the power amplifier to the Hi-Fi2 4x4 Main Assembly by inserting a 3.5mm mono connector into the jack labeled “System On” under “System”.
- b) When any audio zone is turned on, Hi-Fi2 4x4 supplies 5 VDC to the “System On” output.
- c) When all audio zones are turned off, Hi-Fi2 4x4 supplies 0 VDC to the “System On” output.



Powering the Hi-Fi2 4x4 System

The supplied Power Supply (Part Number: 95A06-1) powers the entire system including the Hi-Fi2 4x4 processor, zone amplifiers, Remote Input Modules, and Volume-Source Control keypads.

- 1) Insert the connector for the Power Supply into the Power jack (under the Standby LED Indicator) on the Hi-Fi2 4x4 Main Assembly.
- 2) Plug the power cord from the Power Supply into an electrical outlet. The Standby LED Indicator will illuminate and Hi-Fi2 4x4 system will start.
- 3) Follow the instructions in the User's Guide for operation.



Specifications

Zones 1-8 Power Amplifier Outputs

Continuous Average Output Power:	40W (20W x 2), Two channels driven 20-20kHz @1% THD
Rated Distortion (1/2 power):	0.20%
Rated Impedance:	8 Ohms
Damping Factor:	50+
Frequency Response (20-20kHz):	±1dB

Preamplifier Section

Variable output:	0-600mV
Impedance:	100 Ohms

Source Inputs 1-4

Input Impedance:	10K (minimum)
Input Sensitivity for rated power:	300mV RMS
Input Overload:	1.7V RMS

Emitter Outputs

Output Drive Current:	100mA
Output Drive Voltage:	5V

System

System On:	5V @ 50mA (Ring = Ground)
Page / Mute input:	Normally open (close to activate)

Power

Power Input:	20V <u> </u> 4.5A
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Power Supply

Power Supply Input:	100-240V~2.5A, 50/60Hz
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Power Consumption

All channels driven to full-rated power:	160W
Average operating conditions:	40W
No signal:	Less than 10W

Physical Specifications

Unit Size:	6.38" W x 7.38" H x 0.7" D
Unit Weight:	1 lb.

FCC COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses 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.

FOR CANADA ONLY

For warranty information and/or product returns, residents of Canada should contact Leviton in writing at **Leviton Manufacturing of Canada Ltd to the attention of the Quality Assurance Department, 165 Hymus Blvd, Pointe-Claire (Quebec), Canada H9R 1E9** or by telephone at **1 800 405-5320**.

LEVITON LIMITED WARRANTY

Leviton warrants to the original consumer purchaser and not for the benefit of anyone else that products manufactured by Leviton under the Leviton brand name ("Product") will be free from defects in material and workmanship for the time periods indicated below, whichever is shorter: • **OmniPro II and Lumina Pro**: three (3) years from installation or 42 months from manufacture date. • **OmniLT, Omni ILE, and Lumina**: two (2) years from installation or 30 months from manufacture date. • **Thermostats, Accessories**: two (2) years from installation or 30 months from manufacture date. • **Batteries**: Rechargeable batteries in products are warranted for ninety (90) days from date of purchase. **Note**: Primary (non-rechargeable) batteries shipped in products are not warranted. **Products with Windows® Operating Systems**: During the warranty period, Leviton will restore corrupted operating systems to factory default at no charge, provided that the product has been used as originally intended. Installation of non-Leviton software or modification of the operating system voids this warranty. Leviton's obligation under this Limited Warranty is limited to the repair or replacement, at Leviton's option, of Product that fails due to defect in material or workmanship. Leviton reserves the right to replace product under this Limited Warranty with new or remanufactured product. **Leviton will not be responsible for labor costs of removal or reinstallation of Product.** The repaired or replaced product is then warranted under the terms of this Limited Warranty for the remainder of the Limited Warranty time period or ninety (90) days, whichever is longer. This Limited Warranty does not cover PC-based software products. **Leviton is not responsible for conditions or applications beyond Leviton's control. Leviton is not responsible for issues related to improper installation, including failure to follow written Installation and operation instructions, normal wear and tear, catastrophe, fault or negligence of the user or other problems external to the Product.** To view complete warranty and instructions for returning product, please visit us at www.leviton.com.

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