

**1.5 Two-Channel Bridgeable Amplifier  
Owner's Manual**

**S I G N A T U R E**  
*series*

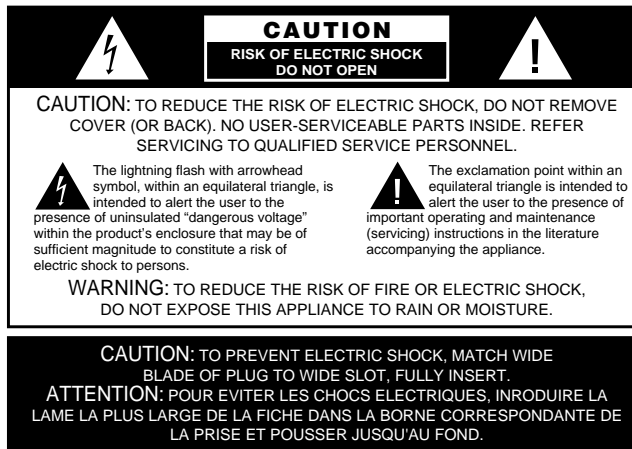
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# Signature 1.5 Two-Channel Bridgeable Amplifier Owner's Manual

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**Congratulations!** As the owner of a Harman Kardon Signature Series 1.5 Power Amplifier, you have at your command a unique product. The 1.5 has been carefully designed to deliver the best possible sonic performance, along with outstanding industrial design, that matches other Harman Kardon Signature Series products and complements any interior design.

In order to fully enjoy the performance of your amplifier, please take a few minutes to read this owner's manual. It contains important information that will help you to make certain that the amplifier is properly connected to the rest of the equipment in your system.

If you have any questions about this product or its installation and operation, please contact your retailer or custom installer. They are your best sources of product information.

You may also contact Harman Kardon via the World Wide Web at [www.harmankardon.com](http://www.harmankardon.com)

Welcome to the Harman Kardon family. We wish you many years of listening pleasure!

## Description and Features

The Signature Series 1.5 is a flexible, state-of-the-art audio power amplifier designed to deliver high performance for use in home theater or music reproduction applications. The following are among its many features:

- Designed and manufactured in the United States
- High-current output capability
- Two channels with bridgeable outputs
- Ultrawide bandwidth design
- Low negative feedback
- Low harmonic and intermodulation distortion
- Massive heat sinks for quiet convection cooling
- High-current power supply
- Remote turn-on/turn-off circuitry with select Signature Series and Harman Kardon products or through optional accessories



## Important Safety Information

### Verify Line Voltage Before Use

Your new Signature Series 1.5 amplifier has been factory-configured for use with 120-volt AC line current.

Connecting the amplifier to a line voltage other than that for which it is intended can create a safety and fire hazard, and may damage the amplifier.

If you have any questions about the voltage requirements for your specific model, or about the line voltage in your area, contact your selling dealer before plugging the unit into a wall outlet.

### Verify AC Circuit Capacity Before Use

High-power output of your amplifier may require heavy current draw under full-load conditions. To ensure proper performance and avoid potential safety hazards, we recommend that it be connected to a circuit with 20-amp capacity. Connecting multiple amplifiers to the same circuit, or connecting the amplifier to a circuit used by other heavy-power devices, such as high-wattage lights, may cause circuit breakers to trip. It is always a good idea to avoid using any audio equipment on the same AC circuit as equipment with motors, such as air conditioners or refrigerators. This will lessen the possibility of power variation and electrical start-up noise affecting your sound system.

### Do Not Use Extension Cords

To avoid safety hazards, use only the power cord supplied with your unit. If a replacement cord is used, make certain that it is of a similar gauge. We do not recommend using extension cords with this product. As with all electrical devices, do not run power cords under rugs or carpets or place heavy objects on power cords. Damaged power cords should be replaced immediately with cords meeting factory specifications.

### Handle the AC Power Cord Gently

When disconnecting the power cord from an AC outlet, always pull the plug, never pull the cord. If you do not intend to use the amplifier for a considerable length of time, disconnect the plug from the AC outlet.

### Do Not Open the Cabinet

There are no user-serviceable components inside this product. Opening the cabinet may present a shock hazard, and any modification to the product will void your guarantee. If water enters the unit, or any metal object such as a paper clip, wire or staple accidentally falls inside the cabinet, disconnect the unit from the AC power source immediately and consult an authorized warranty station.

### Installation Location

- To ensure sufficient ventilation and safe operating temperatures on the outside of the unit's enclosure, we recommend that the unit be installed in an open-backed shelf. It should be placed at least 2" from any wall, with a 4" clearance above the top cover, 1 5/8" clearance on each side and 2" clearance from the back of the shelf.
- To ensure proper operation and to avoid the potential for safety hazards, place the unit on a firm and level surface. When placing the unit on a shelf, be certain that the shelf and any mounting hardware can support the amplifier's weight.
- Make certain that proper space is provided both above and below the unit for ventilation. If the amplifier will be installed in a cabinet or other enclosed area, make certain that there is sufficient air movement within the cabinet. Consult with your dealer or installer for more information.
- Do not place the unit directly on a carpeted surface.
- Avoid installation in extremely hot or cold locations, in an area that is exposed to direct sunlight or near heating equipment.
- Avoid moist or humid locations.
- Do not obstruct the ventilation slots on the top of the unit or place objects directly over them. Remember, power amplifiers generate heat, and the heat sink fins and ventilation slots that form part of the cabinet are specially designed to remove this heat. Placing other electronic equipment near these heat-dissipation systems may possibly affect the long-term reliability of both your amplifier and the objects placed above it.

## Cleaning

When the unit gets dirty, wipe it with a clean, soft and dry cloth. If necessary, first wipe the surface with a soft cloth slightly dampened with mild soapy water, followed by a fresh cloth with clean water. Wipe immediately with a dry cloth. Never use benzene, thinner, alcohol or any other volatile cleaning agent. Do not use abrasive cleaners, as they may damage the finish of metal parts. Avoid spraying insecticide near the unit.

## Moving the Unit

Before moving the unit, be certain to disconnect any interconnection cords with other components, and make certain that you disconnect the unit from the AC outlet.

## Unpacking and Installation

The carton and shipping materials used in protecting your new amplifier were specially designed to cushion it from the shocks and vibration of shipping. We suggest that you save the carton and packing materials for use in shipping if you move or if the unit ever needs repair.

To minimize the size of the carton in storage, you may wish to flatten it. Carefully remove any staples used to close carton seams; carefully slit the tape on the bottom and collapse the carton. Other cardboard inserts may be stored in the same manner. Packing materials that cannot be collapsed should be saved along with the carton in a plastic bag.

When positioning the amplifier in its final location, make certain that it has adequate ventilation on all sides, as well as on the top and bottom. Do not place CDs, record jackets, owner's manuals or other paper on top of, or beneath the unit, or in between multiple amplifiers in a stack. This will block the air flow, causing degraded performance and a possible fire hazard. If the unit is to be enclosed in a cabinet or rack, make certain that there is adequate air circulation, with means provided for hot air to exit and for cool air to be brought in.

## Typographic Conventions

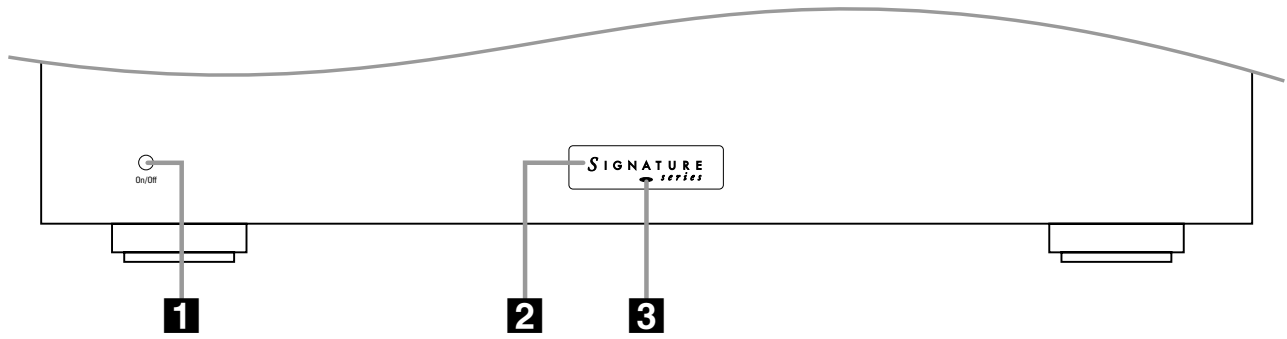
In order to help you use this manual with the front panel controls and rear panel connections, certain conventions have been used.

**EXAMPLE** – (bold type) indicates a specific front panel control or rear panel connection

**1** – (number in a square) indicates a specific front panel control

① – (number in a circle) indicates a rear panel connection

## Front Panel Controls



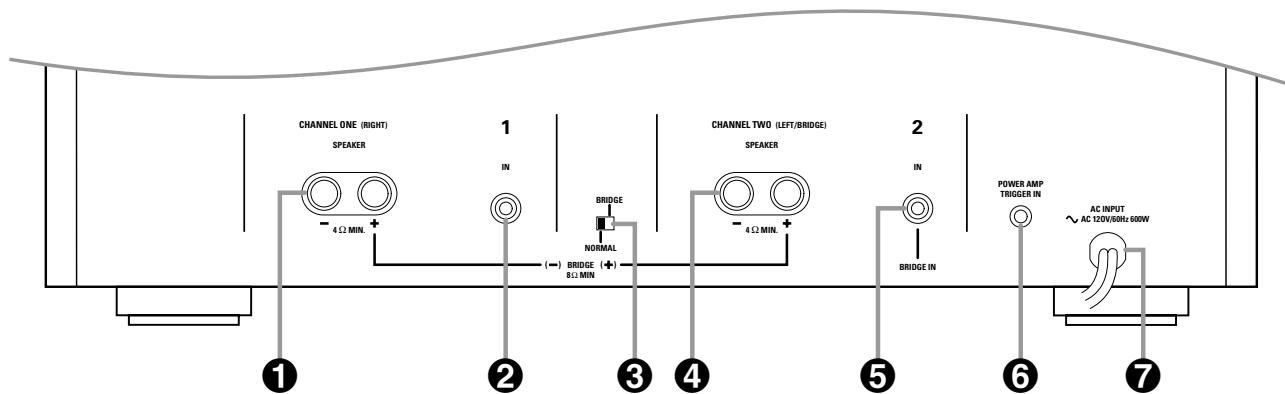
**1 Power Switch:** Press this switch to turn the 1.5 on for manual operation, or to place it in the Standby mode for automatic/remote turn-on when the 1.5 is connected to a device with a compatible trigger circuit.

**Note:** Even when the Power Switch is off, the unit is still connected to the AC power supply.

**2 Power-On Indicator:** When the word SIGNATURE is illuminated in blue, the 1.5 is in a normal operating condition.

**3 LED Indicator:** The color of this indicator varies with the status of the 1.5. It is red when the unit is off and in Manual Operation, amber in the Standby mode, and flashing green during Warm-Up. If the indicator flashes and alternates between red and amber, the 1.5 is in the Protect mode, indicating a problem in the unit or connections to the speakers.

## Rear Panel Connections



**1 Channel One Output:** When the amplifier is being used in the two-channel (Stereo) mode, connect the right channel speaker to the positive (+) and negative (-) terminals. When the amplifier is being used in the Bridged Mono mode connect the Positive (+) terminal ONLY to the Negative (-) terminal on your speaker.

**2 Channel One Input:** When the amplifier is being used in the two-channel (Stereo) mode, connect the right channel output of your preamp or processor to this input jack. When the amplifier is being used in the Bridged Mono mode, this jack is not used.

**3 Bridge/Normal Switch:** When the amplifier is used for two-channel stereo operation, this switch should be in the NORMAL position. For Bridged Mono use only, place the switch in the BRIDGE position.

**4 Channel Two Output:** When the amplifier is being used in the two-channel (Stereo) mode, connect the left channel speaker to the positive (+) and negative (-) terminals. When the amplifier is being used in the Bridged Mono mode connect the Positive (+) terminal ONLY to the Positive (+) terminal on your speaker.

**Important Note:** When the 1.5 is used in the Bridged Mono mode, do not connect a speaker with an impedance less than 8 ohms.

**5 Channel Two/Bridged Input:** When the amplifier is being used in the two-channel (Stereo) mode, connect the left channel output of your preamp or processor to this input jack. When the amplifier is being used in the Bridged Mono mode, connect the output of your preamplifier or other line-level signal source to this jack.

**6 Power Amp Trigger Input:** Connect this jack to a matching 6- to 12-VDC trigger output on a compatible device to have the 1.5 automatically turn on from the Standby mode when voltage is applied from the triggering unit. Note that a 3.5mm mono mini-plug with a positive tip should be used for the connection.

**7 AC Power Cord:** Connect this plug to a non-switched AC outlet. Due to the high-current draw of the Signature 1.5, it is NOT recommended that the accessory outputs on the back of audio/video components be used to power this product.



**Note:** When making any connections between source components, processors or preamplifiers and the 1.5, or when making any connections to speakers, be certain that both the input device and the 1.5 are turned off. To ensure that there will be no unwanted signal transients that can damage equipment or speakers, it is always best to unplug all equipment from AC power outlets before making any connections. Modern electronic products often have a “standby” mode that may be activated even though the product may appear to be turned off.

## Power Control Connections

The Signature Series 1.5 amplifier features a built-in remote turn-on system that will automatically turn on the amplifier when another device in the system is switched on. To activate this system, this amplifier must be used in conjunction with compatible Signature Series or Harman Kardon products or other approved devices.

**Note:** Before making any connections to remote trigger outlets, it is critical that both the 1.5 and the triggering device be turned off. For additional safety, it is best that these connections be made while both products are unplugged from AC power sources.

### Remote Turn-On with the Signature Series 2.0 and Compatible Harman Kardon Products

Connect one end of the accessory cable supplied with the 2.0 to the **Power Amp Trigger In** jack ⑥ on the rear of the 1.5. Connect the other end to the TRIGGER OUTPUT jack on the 2.0.

### Remote Turn-On Using an External AC-to-DC Converter

If the 1.5 is not used with a compatible Harman Kardon product, it is still possible to activate the unit for automatic turn-on.

To control the amplifier in this manner you will need a small UL/CSA-approved class-2 AC-to-DC power converter capable of delivering a 6- to 12-volt DC signal. The DC voltage should terminate in a standard 3.5 mm mono miniplug, with the tip of the plug “positive” (+). This type of converter may be obtained as a “Power Adapter” from many electronics retailers. Consult your dealer for further information.

Plug the AC adapter into a switched outlet that will be activated when you wish to have the amplifier turn on. This may be the switched outlet at the rear of an AV receiver or other audio equipment, an AC outlet that is part of a current sensing control unit activated by a pre-amp or surround processor or a switched AC wall outlet.

Connect the 3.5 mm miniplug from the power converter to the **Power Amp Trigger In** jack ⑥ on the rear of the 1.5.

## Audio System Connections

As a general rule, avoid running any input signal or speaker wire connections next to or parallel with AC power cords. This may cause undesired hum or other interference that will greatly degrade signal performance.

When making input connections with RCA-type plugs on interconnect cables, make certain to gently but firmly insert the plugs into the jacks on the rear of the 1.5. Loose connections can cause intermittent sound and may damage your speakers.

### Input Connections

**Stereo Mode:** For conventional two-channel stereo operation, connect the right channel output of your pre-amp or processor to the **Channel One Input** ② and the left channel output to the **Channel Two/Bridged Input** ⑤. Make certain that the **Bridge/Normal Switch** ③ is in the NORMAL position (see page 8).

**Bridged Mono Mode:** To use the 1.5 as a single-channel, mono amplifier, connect the line-level output of your preamp, processor or other signal source to the **Channel Two/Bridged Input** connector ⑤ on the rear panel. No connection is required to the Channel One connector in this mode. Make certain that the **Bridge/Normal Switch** ③ is in the BRIDGE position (see page 9).

### Output Connections

The final step of the installation process is to connect the amplifier to your speakers using high-quality cable. A pair of binding posts is provided for each channel output. These posts will accept bare wire or banana-type plugs.

To ensure that the high-quality signals produced by the 1.5 are carried to your speakers without loss of clarity or resolution, we recommend that you use high-quality

speaker cable. Many brands of cable are available, and the choice of cable may be influenced by the distance between your speakers and the amplifier, the type of speakers you use, personal preferences and other factors. Your dealer or installer is a valuable resource to consult in selecting a proper cable for connections between your amplifier and speakers.

Regardless of the brand or type of cable selected, we recommend that you use a cable constructed of high-strand-count copper with a gauge of 14 or smaller. When specifying cable, remember that the smaller the number, the thicker the cable.

Cable with a gauge of 16 may be used for short runs of less than ten feet. We do not recommend the use of cables with an AWG equivalent of 18 or higher due to the power loss and degradation in performance that will occur.

Cables run inside walls should have the appropriate markings to indicate listing with UL ("CL-2/CL-3"), CSA ("FT-4") or appropriate safety agency standards that may be required in your area. Questions about running cables inside walls should be referred to your installer or a licensed electrical contractor who is familiar with the NEC and/or the applicable building or electrical codes in your area.

**Two-Channel/Stereo Systems:** When installing a two-channel (stereo) system, connect the positive (+) and negative (-) terminals from the right and left speakers to the matching terminals ❶ ❷ on the rear panel of the 1.5. Make certain that the **Bridge/Normal Switch** ❸ is in the NORMAL position (see page 8). When the 1.5 is used for two-channel/stereo operation, speakers with an impedance of no less than 4 ohms may be used.

**Bridged Mono Applications:** To use the 1.5 as a single-channel, mono amplifier, connect the (+) terminal on your speaker to the (+) terminal on the **Channel Two Output** ❹ on the 1.5. Connect the negative (-) terminal on your speaker to the positive (+) terminal on the **Channel One Output** ❶ (see page 9).

**Note:** For mono applications, no connections are made to the negative (-) speaker output terminals on the 1.5. Make certain that the **Bridge/Normal Switch** ❸ is in the BRIDGE position (see page 9).

**Important Note:** When the 1.5 is used in the Bridged Mono mode, do not use speakers with an impedance of less than 8 ohms.

When making speaker connections, note that one conductor of the speaker cable may have no markings or an indication of (-) for negative polarity, and the other will have a red line, brand-name markings, a colored thread or some other positive-polarity indication (+).

The wire with the positive indication should be connected to the red terminals on both the 1.5 and your speakers. The negative wire should be connected to the black terminal on the 1.5 and the speakers.

If bare wire is used for connections, strip approximately 3/4" (20 mm) of insulation from the end of each wire and carefully twist the strands of each conductor together. Be careful not to cut the individual strands or twist them off; for optimal performance, all strands must be used.

Next, loosen the knobs of the speaker output terminals far enough so that the cap moves back on its threads past the holes at the rear of the terminal. Making certain that you observe the correct polarity for the type of system being installed (Stereo or Bridged Mono), pass the exposed wire through the hole until the wire is visible from the bottom end. Holding the wire in place, twist the cap back so that the connection is secured. Do not overtighten or use tools, as this may damage the plastic terminal cap or break the delicate wire strands and decrease system performance.

**Important Note:** When making speaker wire connections, be certain that none of the strands from one lead touch any other lead. This will cause a short circuit and may damage your amplifier or speakers. Damage from short circuits caused in this manner is not covered by the product warranty.

Connections may also be made using spade lugs or standard 4 mm OD banana plugs. Before using a banana-type jack, make certain that the plastic screw caps on the 1.5 are firmly tightened by turning them clockwise until they are snug against the chassis. This will ensure that the maximum surface area of the plug is in contact with the jack. Once the wire has been attached to the banana plug following the plug manufacturer's instructions,

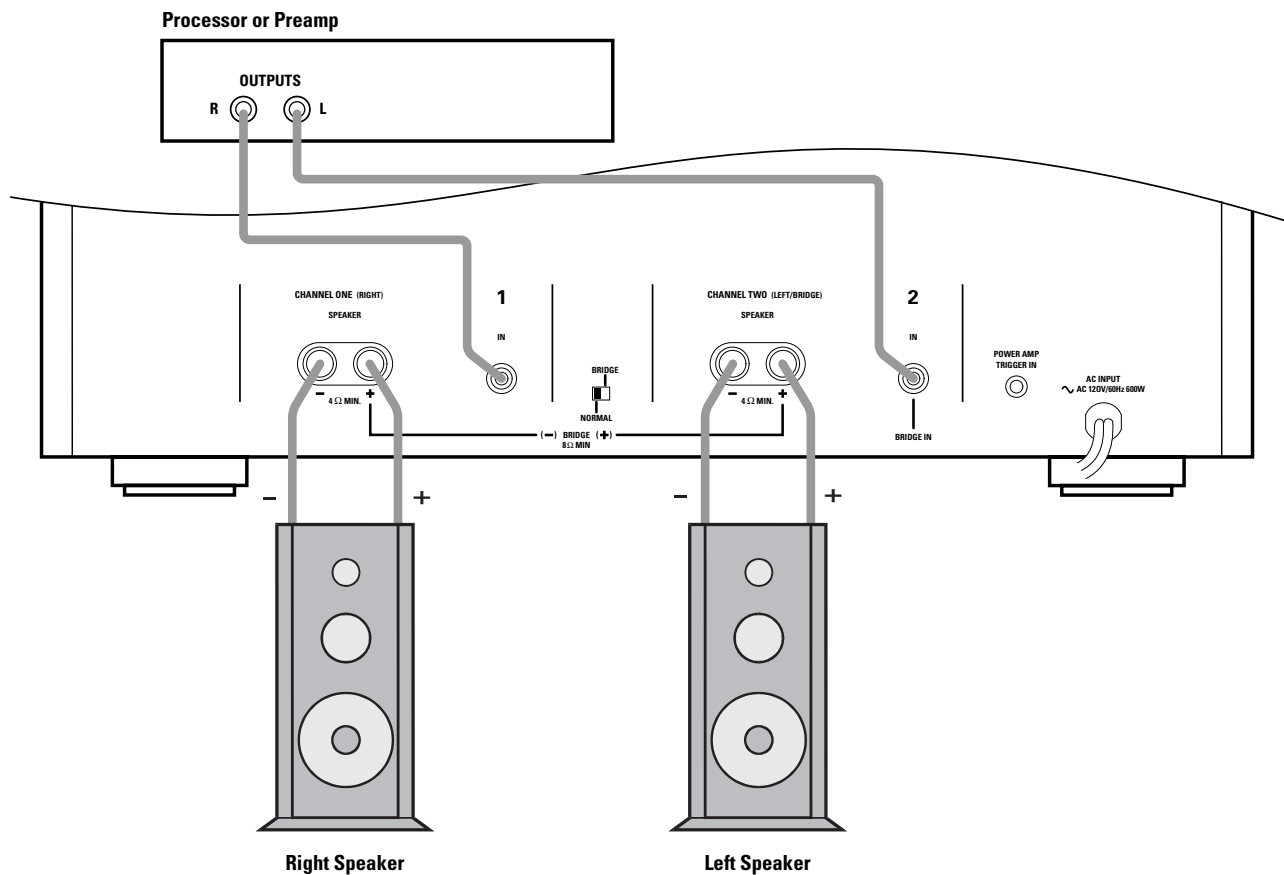
simply insert the banana plug into the hole provided on the rear of the colored screw caps on the terminal posts. Be certain to observe proper polarity.

Finally, run the cables to the speaker locations. It is highly recommended that the length of cable connecting any pair of speakers be identical. For example, make certain that the cable length connecting left and right front or left and right rear (surround) speakers is identical, even though one speaker may be physically closer to the amplifier than the other. Do not coil any excess cable, as this may become an inductor that creates frequency response variations in your system.

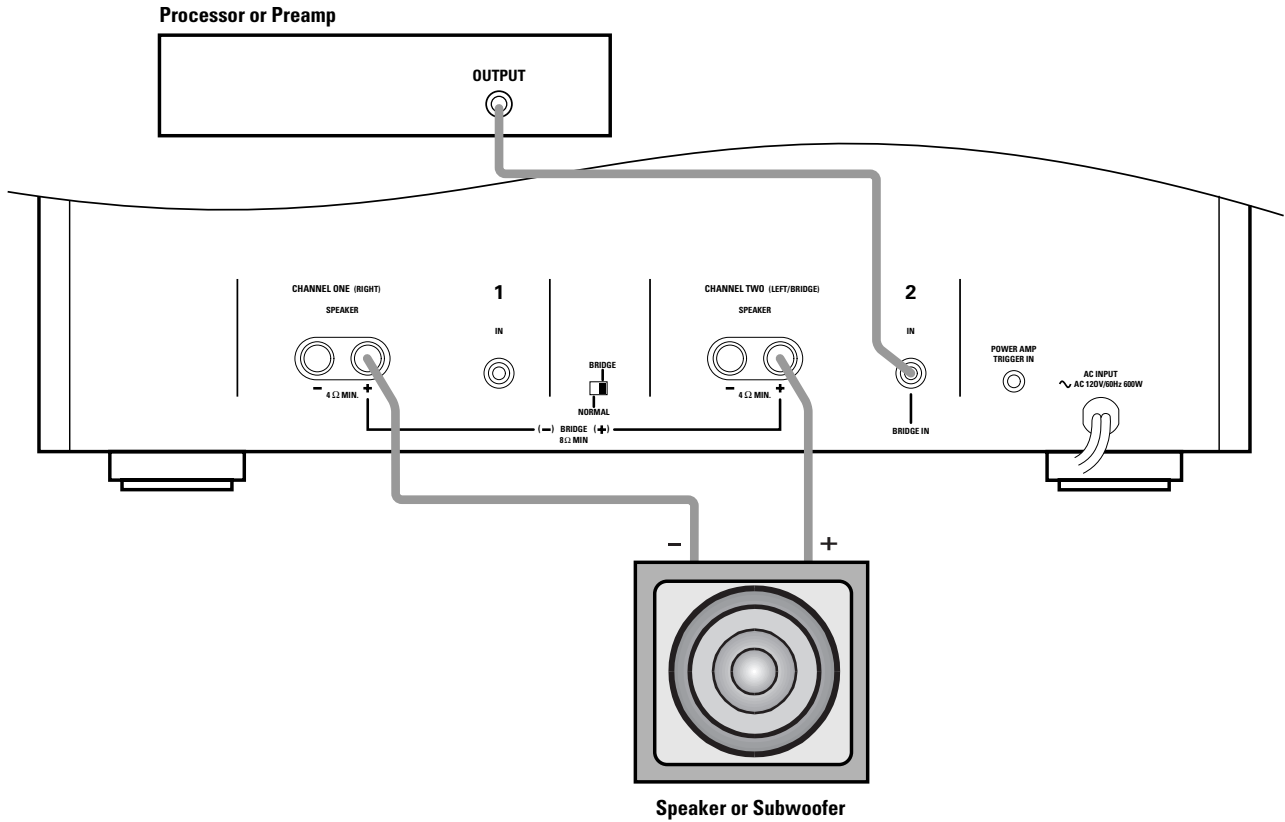
Connect the wires to the speakers, again being certain to observe proper polarity. Remember to connect the negative or black wire to the matching terminal on the speaker. Similarly, the positive or red wire should be connected to the like terminal on the speaker.

**Note:** While most speaker manufacturers adhere to an industry standard of using black terminals for negative and red ones for positive, some manufacturers may not adhere to this configuration. To ensure properly phased connections and optimal performance, consult the identification plate on your speaker terminals, or the speaker's manual to verify polarity. If you do not know the polarity of your speaker, ask your dealer or installer for advice before proceeding, or consult the speaker's manufacturer.

## Installation for Two-Channel/Stereo Applications



## Installation for Bridged Mono Applications



**Important Note:** When the Signature 1.5 is used in the Bridged Mono mode, do not use speakers with an impedance rating of less than 8 ohms.

The Signature 1.5 may be operated in either a manual or automatic mode. If the unit is being used in standalone operation you should follow the instructions below for Manual Operation. When the 1.5 is connected to another Signature Series product or to another compatible device, follow the instructions for Automatic Operation.

Operation of the Signature Series 1.5 is simple. There are no controls to adjust once the installation is complete.

### Manual Operation

For conventional, standalone operation, first make all connections to speakers and input sources as outlined on the previous pages. Make certain that the front panel **Power Switch 1** is in the fully extended “off” position and then connect the **AC Power Cord 7** to a wall-mounted AC outlet with sufficient current capacity. Note that the **LED Indicator 3** will glow red.

To turn the unit on, press the front panel **Power Switch 1** until it is flush with the front panel. Once the switch is turned on, the 1.5 will go into a brief Warm-Up mode, as indicated by the **LED Indicator 3** flashing green. This is normal, and it protects your speakers from damage as the amplifier stabilizes.

When the 1.5 is fully ready for operation the LED Indicator will go out and the **Power-On Indicator 2** will glow blue behind the word SIGNATURE. At this point you will begin to hear audio from the speakers connected to the 1.5.

You are now ready to enjoy the finest sonic performance available. No further adjustments are needed, as all volume controls and/or level adjustments are made at your preamp controller or surround processor.

To turn the 1.5 off, press the **Power Switch 1** and release it so that it protrudes from the front panel. The unit is in the “off” position when the LED Indicator returns to a red color.

**Note:** Always turn on the source components and processor in your system first, and turn on your amplifier last. This avoids the possibility of any turn-on pops or transients from other equipment being amplified and sent to your speakers, where they may cause damage. Always start with a low volume level on your controller or preamp to avoid damage to your speakers.

### Automatic Operation

Before proceeding, make certain that the connection between the Signature 1.5 and the trigger source has been properly made as outlined previously. At this point the triggering unit should be turned off.

With the **Power Switch 1** in the fully extended “off” position, plug the **AC Power Cord 7** into a wall-mounted AC outlet with sufficient current capacity. The **LED Indicator 3** will glow red.

Press the **Power Switch 1** so that it is in the “on” position and flush with the front panel. At this point the **LED Indicator 3** will turn amber, indicating that the 1.5 is in a Standby mode and ready to turn on when it receives a signal from the Signature 2.0 or other device.

To activate the 1.5, turn on the Signature 2.0 or the other device that is connected to the **Power Amp Trigger In 6**. Once the trigger signal is received the 1.5 will go into a brief Warm-Up mode, as indicated by the **LED Indicator 3** flashing green. This is normal, and it protects your speakers from damage as the amplifier stabilizes.

When the 1.5 is fully ready for operation the LED Indicator will go out and the **Power-On Indicator 2** will glow blue behind the word SIGNATURE. At this point you will begin to hear audio from the speakers connected to the 1.5.

Once your system is turned on, you are ready to enjoy the finest sonic performance available. There are no controls to adjust. All volume and level adjustments are made by your preamp, controller or surround processor.

At the conclusion of your listening session, there is no need to manually turn off the 1.5. When the 2.0 or other triggering device is turned off, the 1.5 will return to the Standby mode and the **LED Indicator 3** will turn amber.

**Important Note:** If you will not be using your audio system for an extended period of time, such as during a vacation, it is always a good idea to turn the unit off using the Power Switch. This will prevent the automatic turn-on circuits from accidentally turning the system on during your absence.

## Signature 1.5

If your installation has followed the procedures in this manual, you should enjoy many years of trouble-free operation and high-quality listening enjoyment. The 1.5 does not contain any user-serviceable parts. If you suspect a problem that may require service assistance, contact your dealer, installer or an authorized Harman Kardon service depot.

You may also contact Harman Kardon via the World Wide Web at [www.harmankardon.com](http://www.harmankardon.com)

It is important that any repairs be carried out only by an authorized Harman Kardon service agent to ensure proper service and preserve the protection of your Limited Warranty. It is a good idea to keep your sales slip or receipt in a safe place (along with this manual) so that it will be available to verify the purchase date for warranty claims.

### Input/Output Protection

Under some conditions, such as a shorted speaker wire, DC voltage on an input connection or thermal overload, the amplifier will place itself in a Protect mode to prevent damage to the amplifier. When this happens, the LED Power Indicator will flash and alternate between red and amber.

When this occurs, IMMEDIATELY turn off the unit using the Power Switch and correct the problem. Then turn the unit back on. If the unit continues to go into a Protect mode, contact your dealer or installer for assistance.

## Troubleshooting Chart

The items listed below are a brief guide to minor problems that may arise with audio equipment such as the 1.5. Before taking a unit in for service, you should check to see if any of these hints solve the problem. If these solutions do not rectify the problem or if the problem recurs, contact your dealer or an authorized Harman Kardon service depot for assistance.

PROBLEM	DIAGNOSIS	TROUBLESHOOTING HINTS
Amplifier will not turn on.	<ul style="list-style-type: none"><li>• Power Switch turned off. (No Power Light LED)</li><li>• Remote trigger cable not properly connected.</li></ul>	<ul style="list-style-type: none"><li>• Turn on Power Switch.</li><li>• Verify connection of trigger cable at both ends.</li></ul>
Amplifier turns on, but no audio from one or more channels.	<ul style="list-style-type: none"><li>• Inputs not connected to proper jack.</li><li>• Speakers not connected properly.</li><li>• Improper settings or output levels from processor or controller.</li></ul>	<ul style="list-style-type: none"><li>• Check input connections.</li><li>• Check speaker connections.</li><li>• Check the settings on your preamp, processor or controller.</li></ul>
Audio plays, then cuts off.	<ul style="list-style-type: none"><li>• Amplifier shorted (LED flashes amber and red).</li></ul>	<ul style="list-style-type: none"><li>• Check speaker connections for short circuit.</li></ul>

## Signature 1.5 Bridgeable Two-Channel Amplifier Specifications

Power Output:	2 x 200 watts @ 8 ohms 20Hz – 20kHz, <0.03% THD, Both Channels Driven 1 x 650 watts @ 8 ohms 20Hz – 20kHz, <0.03% THD, Bridged Mono Mode 2 x 325 watts @ 4 ohms 20Hz – 20kHz, <0.03% THD, Both Channels Driven
High-Current Capability:	± 130 Amps
Frequency Response:	<1Hz – 170kHz ± 3dB
Power Bandwidth:	<1Hz – >100kHz
THD/IMD:	<0.03% at rated output
Crosstalk	< -87dBr between any two channels at maximum output
Negative Feedback:	<25dB
Input Impedance:	33K ohms
Input Sensitivity:	1 volt for rated output
Remote Trigger Voltage:	6 – 12 volts DC (tip of plug must be “positive” (+))
Remote Trigger Impedance:	20K ohms
Dimensions (H x W x D):	7½ x 17¼ x 15¼ inches 191 x 438 x 387 mm
Weight:	47 lbs/21 kg
Power Requirements:	120VAC, 60Hz 600 watts, maximum

All features and specifications are subject to change without notice.

