

AV2500 series II

Five Channel Amplifier

OWNER'S MANUAL

B & K Components Ltd.

P/N 12695

B&K Components, Ltd. 2100 Old Union Road, Buffalo, New York 14227

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Accessories included:	Manual and Power cord



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



SAFETY PRECAUTIONS

PLEASE READ BEFORE INSTALLING

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user of the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be sufficient magnitude to constitute a risk of electric shock to you.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the unit.

- Observance of polarity is essential. Double-check connections before turning the amplifier on. The amplifier can be damaged if polarities are incorrect.
- Damage can occur to your speakers if the power rating* of each individual driver is exceeded by the amplifier. Ensure that all the drivers in your speaker system are capable of handling not only the power being delivered by the amplifier, but the energy that is likely to be generated during strong passages.
- Turn amplifier ‘off’ when plugging in or unplugging input and speaker cables!!!
- The AV2500 series II is equipped with raised feet so that continuous ventilation can be maintained. They help to maintain acoustic feedback into the amplifier at a minimum. They also provide a measure of protection against scratching any surface the unit might be resting on. **Do not alter or remove them.**
- Do not stack anything on top of the amplifier (preamplifier, processor, source...etc.).
- Leave at least 2-3 inches clearance from the top of the amplifier to the next shelf, component, etc., to ensure proper ventilation.

* If you are at all unsure of what the speaker ‘ratings’ are, contact your dealer.

The AV2500 series II's purpose and function

The AV2500 series II is a compact, very efficient, five channel power amplifier. It is designed to be used in all types of audio or audio/video systems. The term versatile is almost adequate to describe the variance of operational modes the AV2500 series II is capable of providing. This is all accomplished through the simple placement of internal jumpers and the paralleling or bridging of it's outputs and/or linking multiple AV2500 series II's.

Here is a listing for some of the many tasks it can be set up to perform:

- The most obvious function for the AV2500 series II is to take five separate audio inputs and provide five separate amplified outputs. Your AV2500 series II has arrived set up in this configuration.
- With the inputs buffered, a line output (OUT BUS) may be taken from either the L BUS, R BUS, or L+R BUS and sent on to another amplifier. This allows for linking of multiple amplifiers.
- Continuing its versatility, the AV2500 series II may be used mono to provide one, high current channel in order to drive a speaker requiring more power.
- As a result of the AV2500 series II's unique bus system, the input to channels 4 and 5 may be inverted thereby allowing the possibility of creating a single high voltage (bridged) channel from one source, through the left bus.

Design and construction

The AV2500 series II utilizes high quality electronic circuitry to achieve an environment wherein a detailed, transparent, and highly musical sound can be realized. The high quality parts complement include state-of-the-art solid state devices, 1% metal film resistors, computer grade electrolytic power supply capacitors, and a high capacity toroidal transformer.

Features

Toroidal Transformer - Efficient high current transformer for improved dynamics.

Discrete Circuitry - More accurate and three dimensional reproduction of source material.

Limited Protection - Provides short term protection from accidental shorting of output devices and protection from thermal overload.

Gold Plated Connectors - Improve connections for better sound and minimized signal loss and degradation.

1% Metal Film Resistors - Low noise resistors for better sound and a greater degree of repeatability.

High Current - Ability to reproduce demanding recordings.

Computer Grade Capacitors - Large capacity computer grade electrolytic capacitors for extended low frequency control and improved dynamics.

Rear Panel View

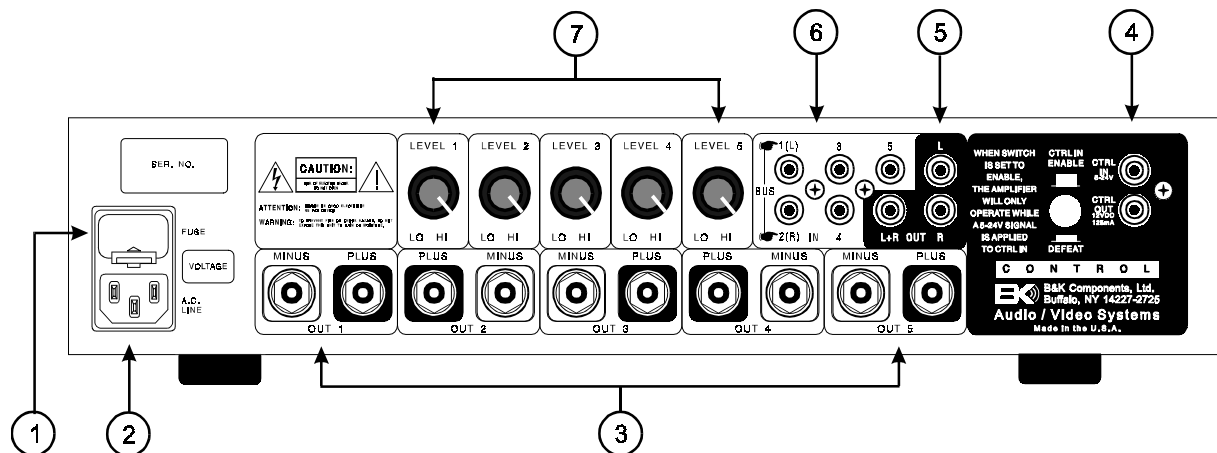


Figure A

1. AC fuse holder
2. AC Input receptacle
3. Speaker outputs
4. Amplifier control muting input/output
5. Line Level outputs
6. RCA inputs
7. Level controls

Rear panel description

- 1. AC fuse holder -** Holds the AC Line fuse. This fuse is an 8 Amp / 250 Volt Slow Blow fuse. Replace with same type and value fuse only.
- 2. AC Input receptacle -** For attaching the supplied AC power cord to the amplifier.
- 3. Speaker outputs -** For connecting the speakers to the amplifier. Explained further on page 8.
- 4. Amplifier control muting input/output -**
To provide remote switching of mute on/off of the amplifier. Explained further on page 5.
- 5. Line level outputs -** For connecting signal to another amplifier (daisy chaining).
- 6. RCA inputs -** For connecting signal patch cables (interconnects) from the preamplifier to the amplifier to pass signal.
- 7. Level controls -** For adjusting the input level to the amplifier. Explained further on page 6.

Control muting

A control is provided on each AV2500 series II amplifier to allow remote switching of mute on/off. The preamplifier's control output, such as is provided with B&K series preamplifiers, can be utilized to provide a control signal to the AV2500 series II. If more than one amplifier is being controlled, the control signal can be extended to include each successive unit by simply running an RCA type audio cable from the CTRL OUT connector of the first amplifier to the CTRL IN connector of the next unit (commonly referred to as 'daisy chaining'). An example of how to connect two amplifiers is illustrated in figure B.

If a source other than a B&K series preamplifier is used to control multiple amplifiers, only the control output voltage from the source is critical. It must be within the range, as indicated on the rear panel, 5-24 volts DC is required. The amplifier will provide each successive amplifier with a control voltage of 12 volts DC for reliable operation. The amplifiers control output may be used as a source of 12 VDC @ 125 mA for other user applications as well. **DO NOT POWER MOTORS WITH THIS CIRCUIT.**

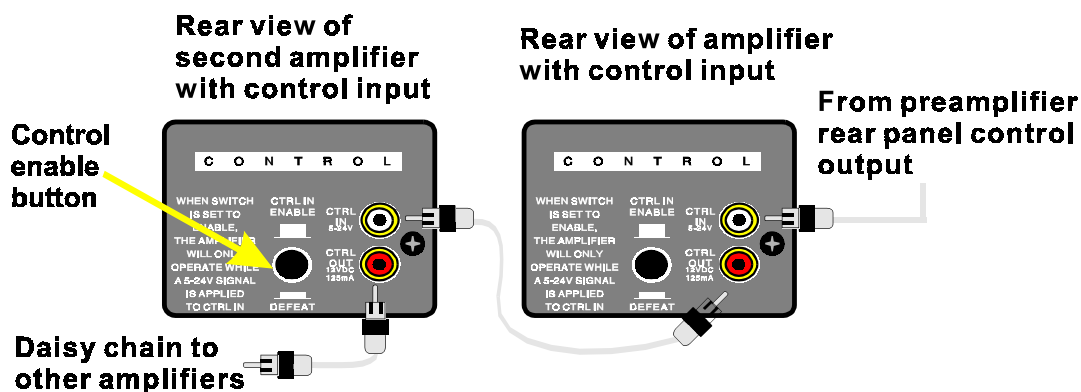


Figure B

If the control function is desired, each unit in the system must remain connected at all times and the control must be enabled. To enable the control function, the CTRL ENABLE button must be out for each controllable amplifier in the system. For more information on the amplifiers output status under various control conditions, refer to the table below.

@ CTRL IN	Button position	Output status	@ CTRL OUT
Signal	OUT	Sound	Signal
Signal	IN	Sound	Signal
No Signal	OUT	Mute	No Signal
No Signal	IN	Sound	Signal

**Note: The control voltage is for muting control only. Each amplifier must be connected to its own source of AC power in order for it to operate.*

Level controls

There are five level controls on the back of the amplifier. One level control for each channel.

When using the level controls, first start with them turned all the way up (clockwise). Then adjust them according to your system requirements to match the sound level coming from each speaker. This is a rough adjustment for matching different driver impedances. Any fine tuning should be done by the preamplifier.

Example: When using 4 ohm and 8 ohm speakers together, the 4 ohm may sound louder than 8 ohm at a given volume level. The level controls on the amplifier are used to match the speakers volume level. Clockwise will increase the output. Counter clockwise will decrease the output.

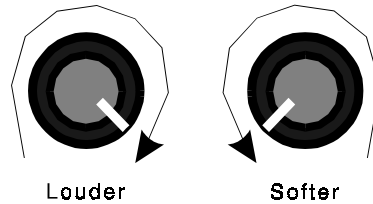
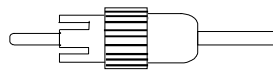


Figure C

Inputs

RCA type connectors accept line input from the preamplifier's unbalanced output connectors. There are two input connectors, one for each channel, that may be used to connect the amplifier to the preamplifier.

RCA cable connector -



Here is a typical input setup:

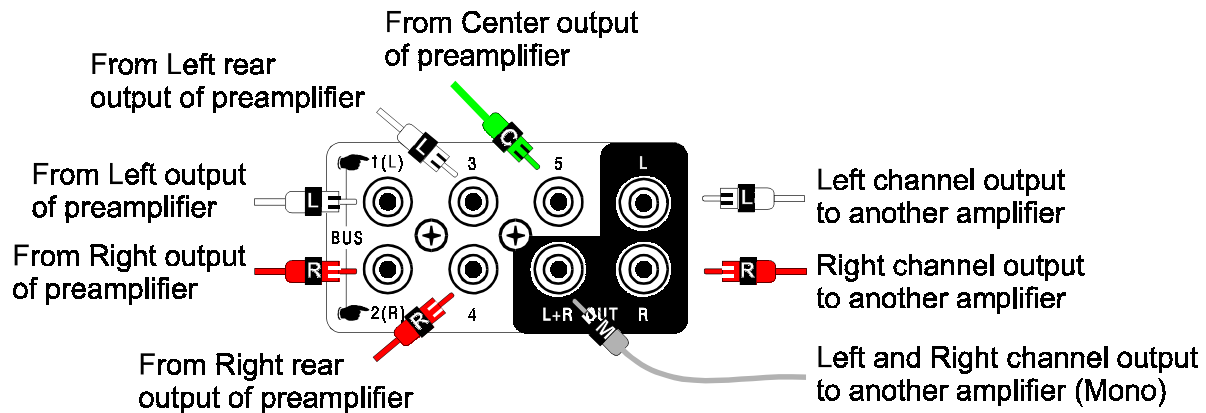
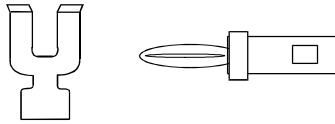


Figure D

You will notice the OUT BUS connections shown above. You may use these to connect to another amplifier. The L BUS OUT carries the same signal as channel 1 (L INPUT). The R BUS OUT carries the same signal as channel 2 (R INPUT). The L+R BUS OUT carries the combined signal from channels 1 and 2 (the left and right inputs).

Outputs

Five way binding posts are provided. One pair for each channel. They are designed to accept a banana-type plug or spade lug connector (shown below) and are color coded for easy identification. The red (+) post should always be connected to the speakers (+) jack. The black (-) post should always be connected to the speakers (-) jack.



Spade connector Banana jack

Here is a typical amplifier setup:

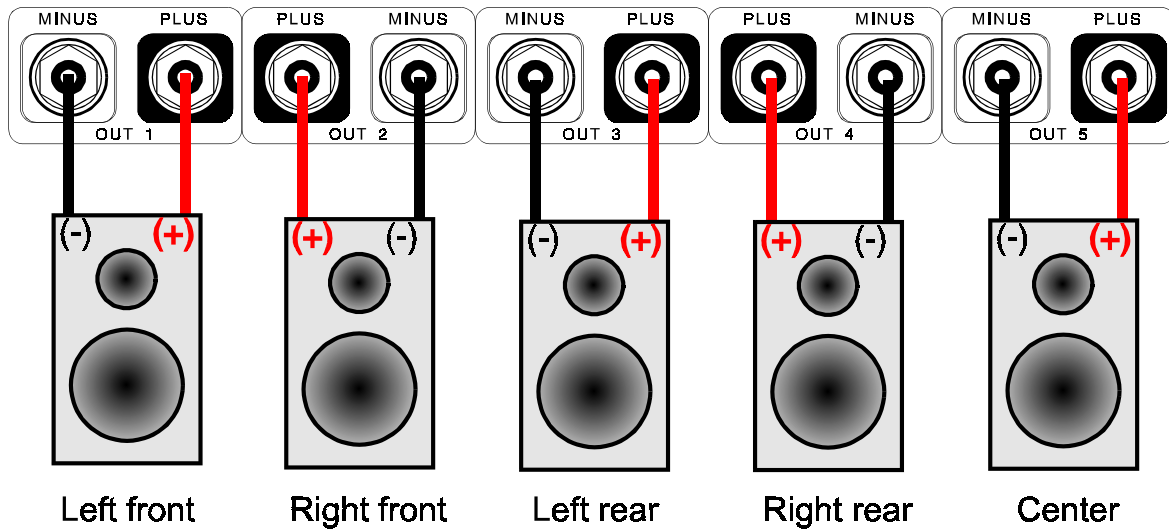


Figure 8

AV2500 series II's internal bus structure

In order to gain access to the internal bus structure, you must first remove the top cover. Turn the amplifier so the rear panel is facing your. The jumper modules may be seen on the circuit board just behind the level controls.

Below is the default setup for the AV2500 series II amplifier. By arranging the jumpers allows you to configure the amplifier for different applications. If you wish to use the amplifier as a five channel amplifier, you need not change any of the settings.

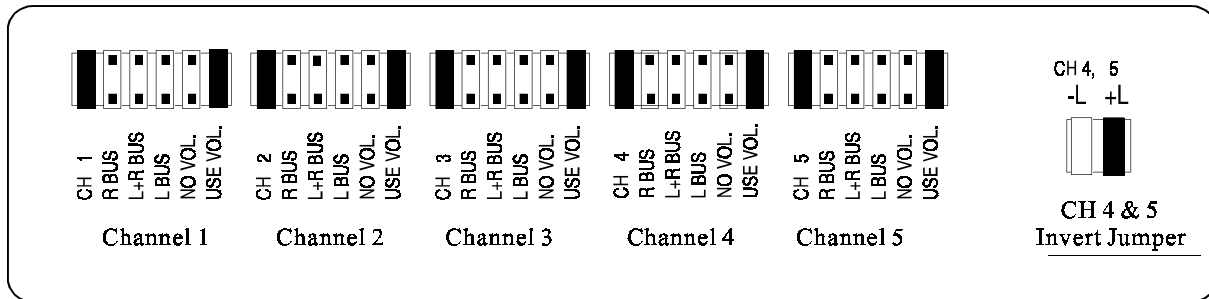


Figure F

In order to reconfigure the AV2500 series II's channels, remove the source control group jumper from its present position (if necessary) and install it on the terminal you wish to select as the source for that channel. Make sure it has been inserted on both terminal pins of the jumper modules.

To complete the configuration, the volume group jumper should be placed at either the 'USE VOL' or 'NO VOL' terminal depending on you configuration.

Note: A channel that is not being used in your configuration should have its jumper plugs installed at the default position as shown in Figure F.

Jumper description

Figure G illustrates the jumper modules used in configuring each channel. Each jumper terminal location is conveniently labeled as to the source it can be configured to provide. Explained further on the following page.

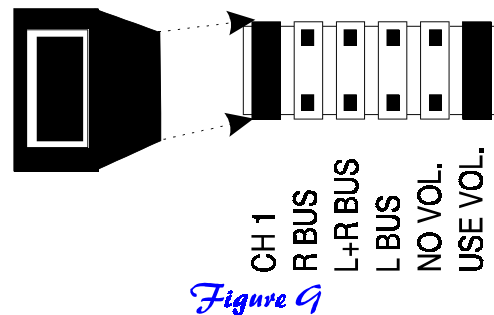


Figure G

- CH x -** (x is either 1, 2, 3, 4, or 5)
With the jumper plug set to this location on a channels jumper module will only let the signal present at that channel's input to appear at it output.
- R BUS -** Along with being channel 2's input, it is used as the input to the right bus and the right source for the 'L+R BUS'. Because it is a BUS input, any signal input here will appear at the 'R BUS' jumper terminal for both of the AV2500 series II's jumper modules.
- L+R BUS -** Installing a jumper plug at this terminal on any of the five internal jumper modules selects the combined signal being carried by both the left and right inputs. If the left bus and right bus are being used to carry stereo right and left channels, a jumper plug installed at the 'L+R BUS' location will provide a true L+R mono output.
- L BUS -** Along with being channel 1's input, it is used as the input to the left bus and the left source for the 'L+R BUS'. Because it is a BUS input, any signal input here will appear at the 'L BUS' jumper terminal for both of the AV2500 series II's jumper modules.
- NO VOL -** If volume control is desired only from the source, or if outputs are being combined to obtain higher power, the jumper plug should be installed at the 'NO VOL' location.
- USE VOL -** If volume control is desired at the amplifier, beyond that provided at the source, a shorting plug is installed at the 'USE VOL' location. The 'USE VOL' setting **SHOULD NOT** be used when channels are bridged or combined.
- Invert Jumper module -**
This is a single jumper module that is set apart, up and to the right from the channel jumper modules on the circuit board. It provides a special function, when the jumper is set on the '-L' pins, the left bus signal feeding the left channel will be inverted.

Note: A jumper **MUST** be installed at CH (x), L BUS, R BUS, or L+R BUS, **AND** a jumper **MUST** be installed at NO VOL or USE VOL for the amplifier to operate.

Mono application (High current)

The AV2500 series II's five output channels may be paralleled (mono) to combine the output current for all channels. This feature allows the amplifier to increase its apparent output current. To use, place the source group jumper for all channels on the 'L BUS' jumper terminal. Place the volume group jumper for all channels on the 'NO VOL' jumper terminal.

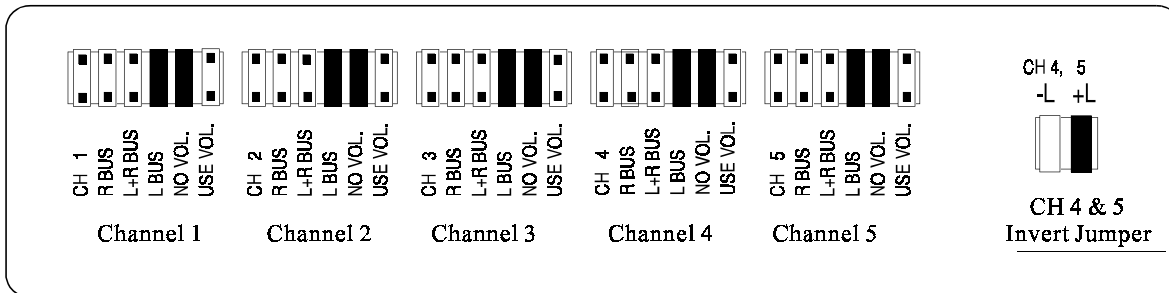


Figure H

The speaker output terminals on the AV2500 series II's rear panel must be paralleled in order to complete the setup. Simply connect the (+) terminals for all channels together using jumper wires (not supplied with the amplifier). Finally, connect the speaker cables from channel 1's (+) and (-) terminals to the speakers. Input your source signal into the left channel input. The instructions show the use of the left channel. You may also use the right channel if you desire, just follow the above instructions using the right channel. You may also use the L+R BUS to send a mono signal out of the amplifier derived from the left and right channels. See below:

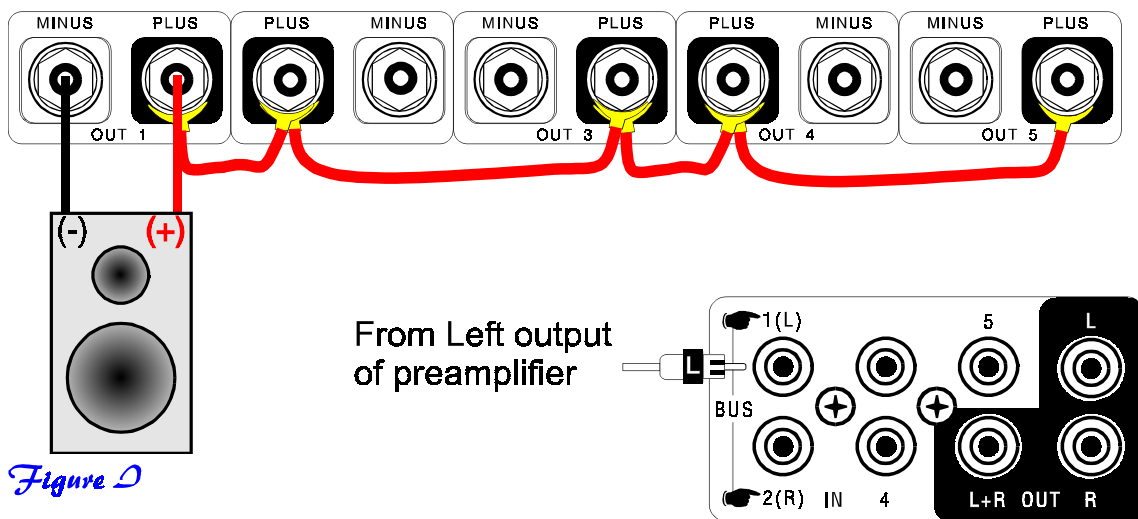


Figure D

Figure D

Bridged application (High voltage)

The AV2500 series II may operate with 2 channels bridged to drive a high impedance speaker. To use, place the source group jumper for both channels on the 'L BUS' jumper terminal. Place the volume group jumper for both channels on the 'NO VOL' jumper terminal. Place the invert jumper module on the '-L' terminal. One of the bridged channels **must** be either channel 4 OR 5.

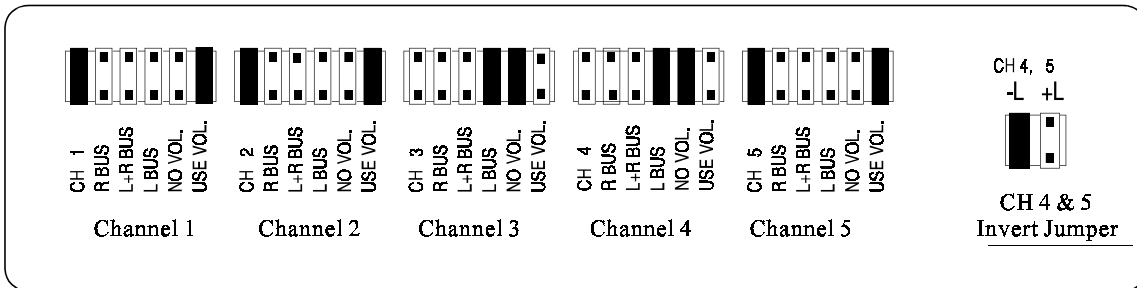


Figure K

Finally, connect the speakers (+) to channel 3's (+) terminal and the speakers (-) to channel 4's (+) terminal. Input your source signal into the left channel input (**only the left channel may be used for bridging the other three channels may be used individually**).

Note: The default position for this jumper plug is set to the '+L' terminal. The jumper plug must be installed at this location at all times when not using the '-L' (invert) function.

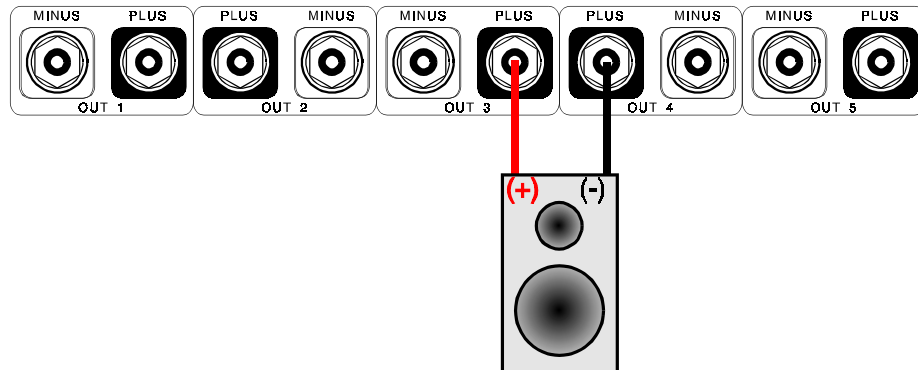


Figure L

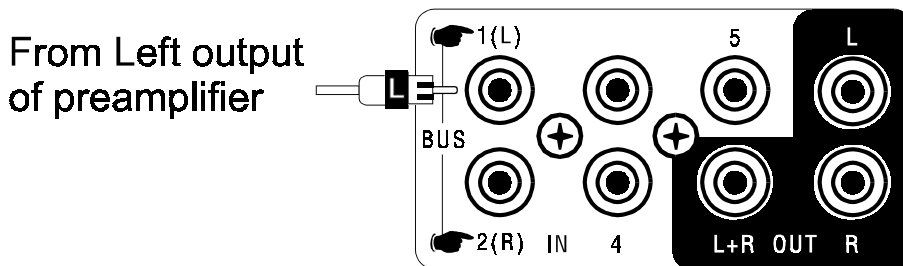


Figure M

System installation

There will most likely be a number of cables involved in the installation of your home entertainment system. Pre-planning is essential in order to maximize system efficiency. We recommend the following as a means of helping you reach that goal:

- Make a diagram of your proposed system by laying out the relative location of each component in the system. Then lay out the proposed cable runs between them. Number each cable and record its length on the diagram for future reference.
- Cable runs are critical in that they must be kept away from sources of power radiation (amplifiers, power cords, heaters, etc...). For the sake of safety, they should also be kept out of traffic areas.
- The process of optimizing the system will include the type of cable, the length of the run, and the obstructions it must deal with along its run. Your dealer can advise you on the products available and their relative merits. If building custom length audio cables is not your strength, your dealer should be able to help you with that as well.
- When possible, use a separate AC power line for the amplifier, one that is not shared by any other component in the system or any other house hold component.

Tip: Take a piece of stout string (longer than the longest cable run) and mark it at each foot of length. Then do a mock cable run using the string, dressing it neatly along the way. Count the divisions to the next full foot, and add one foot to allow for some movement of the components. This will provide you with the ideal cable length.

Making the connection

- Before doing anything, ensure that the power switch on the amplifier's front panel is in the 'off' position. Again, it is recommended that you locate a separate AC power outlet for the amplifier, one that is **not** shared by any other audio component in the system or any other house hold component. This will eliminate the possibility of the amplifier 'modulating' the power being supplied to the component and compromising the signal originating from that component.
- Locate the AC power cord provided with the amplifier and plug it into the power input receptacle in the rear panel. **Do not connect it to the AC power source yet!**
- Connect the audio cables from your preamplifier's output to the corresponding input connector on the amplifier.

- Connect the wires from your speakers to the appropriate output on the amplifier. It is absolutely essential that you observe correct polarity in these connections.

Example: If you connect your right output of your preamplifier to channel 2 input on the amplifier, remember to connect your right front speaker wires to channel 2's outputs. Always observe polarity when connecting speakers, connect amplifiers (+) to the speakers (+) and amplifiers (-) to speakers (-).

- Double check all connections.
- Plug the amplifier's power cord into the AC power source. Turn the amplifier's power switch 'on'. The panel light should be illuminated. Leave the preamplifier turned off. Before proceeding to the next step turn the amplifier off and wait 30 seconds for the amplifier to discharge. Both the preamplifier and amplifier should be off.
- Connect a playback unit (CD, VLD, Tuner, etc...) to the preamplifier. Turn the volume on the preamplifier to minimum. Turn on the preamplifier, then the amplifier (in that order). Set source on the preamplifier to the playback unit you've just connected. Turn volume up slowly and music should be heard from all channels. If this is not the case, double check your installation.
- Should you encounter any problems that cannot be traced to the source or the material being played, consult the "TROUBLESHOOTING" section on page 15.

*Note: When turning equipment 'off', the amplifier should always be turned off **first**, then the preamplifier. When turning equipment 'on', the preamplifier should always be turned on **first**, then the amplifier. Before turning anything on, ensure the preamplifier is at a low volume level.*

Troubleshooting

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
No sound ('on' LED not illuminated)	<ol style="list-style-type: none"> 1. Power cord not plugged in. 2. Power off at AC source. 3. AC power inlet fuse blown or faulty. 4. Control switch in the wrong position. 	<ol style="list-style-type: none"> 1. Reconnect power cord. 2. Check AC switch or fuse. 3. Check for shorts or overloading. 4. Place control switch in proper position. (Page 5)
No sound on some or all selected channels ('on' LED illuminated)	<ol style="list-style-type: none"> 1. Speaker leads loose or faulty. 2. Line stage to amp. cables loose. or faulty. 3. Source to line stage cables loose or faulty. 4. Line stage or source not correctly selected. 	<ol style="list-style-type: none"> 1. Tighten, repair, or replace cable. 2. Tighten, repair or replace cable. 3. Tighten, repair or replace cable. 4. Check all switch settings.
Sound lacks direction, bass weak	<ol style="list-style-type: none"> 1. Speakers connected out of phase. 	<ol style="list-style-type: none"> 1. Check connections making sure that cables are connected (+) to (+) and (-) to (-).
Loud hum or buzz on one or more channels	<ol style="list-style-type: none"> 1. Poor ground connection in interconnect cables. 	<ol style="list-style-type: none"> 1. Check all connectors and repair as necessary.
Low output from amplifier	<ol style="list-style-type: none"> 1. Balanced switch in balanced mode when using unbalanced inputs. 	<ol style="list-style-type: none"> 1. Put balanced switch in correct position.
Channel sounds distorted and low in output	<ol style="list-style-type: none"> 1. Blown rail fuse. 	<ol style="list-style-type: none"> 1. Replace blown rail fuse inside amplifier.

**** Note:** If unit continues to blow power inlet fuses, **DO NOT USE A HEAVIER FUSE!!**, have it serviced.

Care and cleaning

Under normal use, the amplifier will not require any special care. Over time you may wish to clean the exterior of the unit by wiping it with a damp cloth to remove any dirt or dust that accumulates on it. Do not let any liquid enter the amplifier thru the vents in the top cover. You may clean the connectors on the rear panel with isopropyl alcohol annually.

AV2500 series II SPECIFICATIONS

Power rating:	8 ohms 4 ohms	60 watts @ 1 kHz Not recommended
Frequency response		5 Hz - 45 kHz
Input sensitivity		0.77 Volts
THD (S+N)		0.09 % @ 1 kHz
Input impedance		33.2 k ohms
Damping factor		80
Current (peak to peak)		16 Amps
Slew rate		14 V / μ sec
Dynamic headroom		1.0 dB
S/N (A-weighted)		95 dB
Voltage gain		28
Line voltage		120/220/240 VAC switchable
Dimensions (O.A.)		17"(w) X 12"(d) X 3.75"(h)
Weight		23 lbs
Power consumption		450 watts max 4.6 Amps max current draw 30 watts @ no input
Replacement fuses		Line - 8 Amp/250 Volt Slow Blow Rails - 4 Amp/250 Volt Slow Blow

Limited Warranty

B&K Components Ltd., referred to herein as B&K, warrants your B&K equipment against all defects in material and workmanship for a period of five years from the date of purchase. This warranty applies only to the original purchaser and only to equipment in normal residential use and service. Defective equipment must be returned to B&K, prepaid, accompanied by sufficient payment to cover the cost of return shipping and handling, and will be repaired or replaced at the discretion of B&K whose decision as to the method of reparation will be final.

This warranty shall not apply to any equipment which is found to have been improperly installed, incorrectly fused, misused, abused, or subjected to harmful elements, used in any way not in accordance with instructions supplied with the unit, or to have been modified, repaired or altered in any way without the expressed, written consent of B&K. This warranty does not apply to the cabinet, the remote controller, or appearance items such as the faceplate, control buttons, or display lenses, nor does it cover any expenses incurred in shipping the unit to and from the manufacturer's service depot.

No warranty, implied or otherwise created by State law shall extend beyond the terms of this warranty and B&K shall not be liable for any incidental or consequential damage arising out of a defect in material or workmanship of the unit during the terms of this warranty or thereafter. Some States do not allow the exclusion or limitation of incidental or consequential damages and the foregoing exclusions may not apply to you.

This warranty gives you specific legal rights. You may also have other rights which vary from State to State.

No agent, representative, dealer or employee of B&K has the authority to increase or alter the obligations or terms of this warranty.

B&K Components Ltd.

RETURNING EQUIPMENT

No equipment may be returned to B&K Components Ltd. Without a RETURN AUTHORIZATION. Should you find it necessary to return equipment to B&K, for any reason, a RETURN AUTHORIZATION (RA) number must be issued by B&K in respect of the equipment being returned. You may request an RA number by calling B&K at the numbers below. We ask that you provide the following information at that time.

1. Your name, address, and phone number.
2. The model and serial number of the equipment being returned.
3. A description of the problem being experienced.

Your call will be referred to a Technical Service Representative who will work with you to resolve the problem. If it is determined that the unit must be returned for repair, an RA number will be issued.

B&K Components Ltd. 2100 Old Union Road, Buffalo New York 14227
1-800-543-5252 or 1-716-656-0023

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2100 Old Union Road
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LIST YOUR UNIT INFORMATION HERE

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SERIAL # _____

DEALER NAME _____

DEALER PHONE # _____

SALES PERSON _____

DATE PURCHASED _____

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