

ST1200

Stereo Power Amplifier

OPERATOR'S MANUAL

VERSION 1.0

B&K Components, Ltd.

Welcome to the *versatile*, **ST1200** Multi-Purpose Stereo Amplifier System

The **ST1200** is another extension of B&K's dedicated approach to maximum versatility in the very diverse world of audio amplification and distribution. As little brother to B&K's widely acclaimed AV2500, the **ST1200** applies the same unique, 'programmable channel', architecture in a 2 channel configuration.

No matter how you intend installing the **ST1200**, there are more benefits to be derived than with any other stereo amplifier in its range. Not only will you discover how its remarkable versatility will allow your system to grow incrementally, you will also find that its setup is particularly user-friendly. As a result, no matter how extensive or complicated the system for which it is destined, the **ST1200** can be easily set up to accommodate it.

Why we refer to the ST1200 as "versatile".

- ⊕ The **ST1200**'s unique 'bus' system is easily set up using shorting plugs and allows two channels of line level audio to be distributed separately or mixed, for stereo or mono, dependent on the system.
- ⊕ The **ST1200** can be operated in dual channel mode where each channel output reflects its own input, such as in a home stereo setup.
- ⊕ On the rear panel there is a separate, defeatable, output level control for each channel. This allows the user to fine tune the level of each speaker output.
- ⊕ The **ST1200** can be easily configured to operate in 'common channel' mode where both channels can output either the Left, Right or Mono (L+R) Bus. This can accommodate a situation where a given channel or system segment requires more than one output.
- ⊕ Both channel outputs can be paralleled (a B&K exclusive feature) in order to provide more current to a single line of paralleled speakers. As well, both channels may be bridged in order to provide one channel of high voltage and medium current.
- ⊕ Multiple **ST1200**'s can be linked together or to certain other B&K amplifiers, such as the AV2500, and custom configured for broader distribution, higher voltage or current. And, the on/off muting function of each **ST1200** can be controlled by the source preamp. (if so equipped).

We are very pleased you have decided to install the **ST1200** amplifier in your system. We are sure you will be pleased with the result.

The B&K ST1200 - "More than just a stereo amplifier"

Design and Construction

The **ST1200** is a fully state-of-the-art, multi-channel, audio amplifier. As such, it utilizes only the highest quality circuit components to maintain stable, accurate and reliable operation. Perhaps equally important to the listener, is the attention given to the components necessary to deliver its excellent musical detail. This includes state-of-the-art solid state devices, 1% metal film resistors, computer grade electrolytic power supply capacitors and a high capacity, toroidal, power transformer. Finally, the **ST1200** has been designed to withstand the rigors of continuous operation within either a domestic or commercial environment.

A Sense of Purpose

The term 'versatile' is almost adequate to describe the variance of operational modes the **ST1200** is capable of providing. And, all of this is accomplished through the simple placement of internal jumpers and the paralleling or bridging of its outputs and/or through the 'linking' of multiple **ST1200**'s.

Here is a partial listing of the many tasks it can be set up to perform.

- * The most obvious function for the **ST1200** is to take 2 separate audio inputs, such as a stereo pair, and provide 2, separate, amplified outputs. Your **ST1200** has arrived set up with the foregoing configuration. (See Application #1)
- * The **ST1200**'s 'IN BUS' inputs are fully buffered. Therefore, there is full isolation between channels. As a result, dissimilar audio sources may be input in order to provide an output for distribution where needed. This could be one or two channels of audio from a number of sources, such as a TV set, a CD player, and/or a Tuner. As well, the **ST1200** can be set up to output one source to 2 different locations.
- * With the inputs buffered, a line output (OUT BUS) can be taken from either the L BUS, R BUS or L+R BUS and sent on to another **ST1200**, allowing the 'linking' of a number of **ST1200**'s, should the additional distribution be required. (See also 'Special B&K Applications')
- * Continuing its versatility, the **ST1200** may be bridged to provide one, medium current channel in order to drive a speaker requiring more power. This could be from any source (left, right, center etc.). Or its output could be a combined Left and Right channel for true Mono.
- * As a result of the **ST1200**'s unique 'jumpeted' bus system, the input to channel (2) can be inverted thereby allowing the possibility of creating a single high voltage (bridged) channel from one source, through the Left Bus.

Now you know what we mean by "versatile".

*The **B&K ST1200** - "More than just a stereo amplifier"*

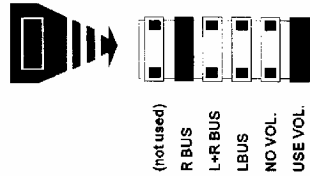
Setting up the ST1200

Fortunately, because of the **ST1200's** compactness, it consumes only a small amount of space in the system. However, the working location for any amplifier should be selected using the following criteria; (a) ventilation, (b) access to AC power source, and (c) access to component intercabling.

When selecting the AC power source for the **ST1200**, it is recommended that you use a different source of power supply than that being used by the source components. This will avoid modulation of the power line which might affect the source components when heavy bass passages are being reproduced by the amplifier.

Functions of the ST1200

By way of an introduction to the **ST1200's** functions, we would like to show you where and how all this 'versatility' is accomplished. Fig. 1 illustrates one of the jumper modules used in configuring each amplifier channel. Each jumper terminal location is conveniently labeled as to the source(s) it can be configured to provide. Here is an explanation of what each of the labels mean.



Note: Only two jumper plugs are provided for each channel. One for the Signal Source Group and the other for the Volume Control Group. The labels included in these two distinct groups are as follows.

Fig.1. The **ST1200's** jumper module showing the Right Channel default jumper settings and jumper location.

The Signal Source Group (L BUS, L+R BUS and R BUS)

This group controls selection of the source you wish to output to the power amplification stage. In order for the signal to be passed on to the amplifier, a jumper plug must be installed at one of these three locations on the channel's jumper module. Only one BUS source R, L+R or L may be selected (jumpered) for each of the Left or Right signal source jumper modules.

L BUS (L Input)

Along with being the Left channel input, it is used as the input to 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 **ST1200's** jumper modules.

Not only will the signal input at 'L' IN BUS appear on the internal jumper modules used to source the Left or Right power amplification stage, it will also appear as a line level signal at the 'L' OUT BUS on the **ST1200's** rear panel (Fig. 3).

R BUS (R Input)

Along with being the Right channel input, it is used as the input to 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 **ST1200's** jumper modules.

Not only will the signal input at 'R' IN BUS appear on the internal jumper modules used to source the Left or Right power amplification stage, it will also appear as a line level signal at the 'R' OUT BUS on the **ST1200's** rear panel (Fig. 3).

The very versatile ST1200 by B&K Components, Ltd.

Setting up the ST1200 (cont'd)

L+R BUS

Installing a jumper plug at this terminal on either of the 2 internal jumper modules selects and combines the 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.

Also, any input to either the L BUS IN or R BUS IN will be summed and appear as a line level signal at the 'L+R' OUT BUS output on the ST1200's rear panel (see Fig. 3).

Note: An internal jumper plug must be installed at L BUS, R BUS or L+R BUS' locations for both the Left or Right channels in order for signal to appear at the Left or Right speaker outputs.

Note: The term 'right bus' is used only to provide a meaningful reference while you are learning how to configure the ST1200's jumpers to suit your needs. In fact, the R bus could be any source you wish to distribute to more than one output channel.

The Volume Control Group

The function of this group of two jumper terminals is relatively simple. If volume control of a specific output channel is desired at the amplifier, beyond that provided at the source, a shorting plug is installed at the 'USE VOL' location. As shown in Fig. 1, 'USE VOL' is the factory default setting. If volume control is desired only from the source, or if the outputs are being combined to obtain higher power, the jumper plug should be installed at the 'NO VOL' location. The 'USE VOL' setting SHOULD NOT be used when channels are bridged or combined.

Reminder: The maximum volume level(s) available from the ST1200 are always dependent on the line level being sent from the source to the ST1200.

Also, a shorting plug must be installed at either the NO VOL or USE VOL terminals in order for the signal to be passed on to the power amplification stage.

Power Summing Feature

The ST1200's two output channels may be paralld (mono) to combine the Left and Right channels output current. This feature allows the ST1200 to double its apparent output current. To use, place the Source Group Jumper for both channels on the 'R BUS' jumper terminal. Place the Volume Group jumper for both channels on the 'NO VOL' jumper terminal. Referring now to the speaker output terminals on the ST1200's rear panel, connect the '+' terminals from the both the Right and Left channels together. Similarly, connect the '-' terminals from both the Right and Left channels together. Finally, connect the speaker cables from (+) and (-) on the rear panel to the speaker's terminals (observing '+' to '+' and '-' to '-').

The 'Invert' Bridging Module

This is a single jumper module (referred to as the 'Invert Jumper' in these instructions) that is set apart, up and to the right from the channel jumper modules on the circuit board. It provides a special function in that, when the jumper plug is set at the '-L' jumper, the Left BUS signal feeding the Left channel (only) will be inverted. By taking advantage of this feature, a properly configured ST1200 can provide a single higher voltage (bridged) output. To use, place the jumper at the Invert Jumper module on the '-L' terminal. Place the Source Group jumpers for both channels on their respective 'L BUS' terminals. Place the Volume Group jumpers for both channels on their respective 'NO VOL' terminals. Referring now to the speaker output terminals on the ST1200's rear panel, connect the '+' Right to the speaker's '+' terminal, and the '+' Left terminals to the speaker's '-' terminal.

The very versatile **ST1200** by **B&K Components, Ltd.**

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.

Configuring the ST1200

Once you have determined the setup you wish to use for your application, remove the cover of the **ST1200** and familiarize yourself with the jumper module system. Turn it so the back panel is facing you. The jumper modules can be seen on the circuit board just behind the bank of level controls located on the rear panel.

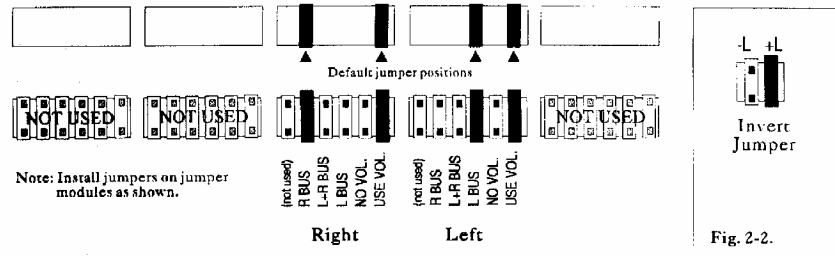


Fig. 2-1 The ST1200's 2 channel Jumper Module layout

Layout of the jumper modules shown in Fig. 2 are the factory default settings. If you wish to use the **ST1200** as a stereo or 2 channel amplifier, as is shown in Application #1, you need not change any of the settings.

In order to re-configure the **ST1200'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 module.

To complete the configuration, the Volume Group jumper should be placed at either the 'USE VOL.' or 'NO VOL' terminal, whichever is your determination as to where control of channel volume must be.

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

Interconnecting ST1200's

One of the most unique features of the ST1200 is its open-ended architecture. If the application requires more outputs or more power, more than one ST1200 can be employed and simply linked together through the line output (OUT BUS) of the first ST1200. In fact, a number of ST1200's can be 'linked' in the same fashion by simply connecting the OUT BUS of the preceding ST1200 to the IN BUS of the next.

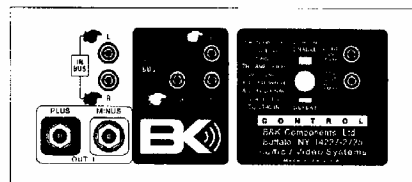


Fig. 3. Rear panel showing line inputs and outputs plus CTRL connections and 'enable' switch.

The B&K ST1200 - "More than just a stereo amplifier"

The Muting Control

A control is provided on each **ST1200** to allow remote switching of mute on/off. Therefore, the preamplifier's control output, such as is provided with B&K A/V preamplifiers, can be utilized to provide a control signal to the **ST1200**. If more than one **ST1200** is being 'linked', 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 **ST1200** to the CTRL IN connector of the second unit. An example of how to connect two **ST1200**'s is illustrated in Fig. 4.

If a source other than a B&K AVP series preamplifier is used to control multiple **ST1200**'s, only the Control output voltage from the source is critical. It must be within the range, as indicated on the **ST1200**'s rear panel, of 5 - 24 VDC. The **ST1200** will provide each successive **ST1200** with a control voltage of 12 VDC for reliable operation. The **ST1200**'s control output may be used as a source of 12 VDC @ 125mA for other user applications as well.

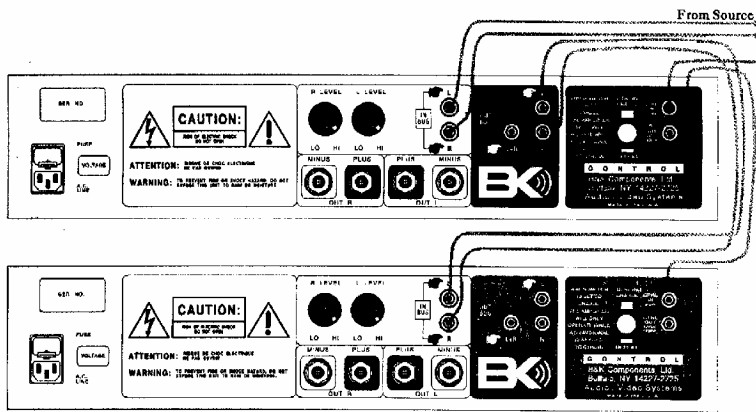


Fig. 4. Shows two **ST1200**'s 'linked' with both signal and control interconnects in place

If the Control function is required, each unit in the system must remain connected at all times. However, to enable the Control function, the 'CTRL ENABLE' button must be 'out' for each controllable amplifier in the system. For more information on the **ST1200**'s output status under various control conditions, refer to the matrix shown in Fig. 5.

@ CTRL IN	Button Pos'n	O/P Status	@ CTRL OUT
Signal	OUT	Sound	Signal
Signal	IN	Sound	Signal
No Signal	OUT	Mute	No Signal
No Signal	IN	Sound	Signal

Fig. 5 Output (O/P) status of the **ST1200** with various CTRL signal and button conditions

Note: The control voltage is for muting control only. Each **ST1200** must be connected to its own source of AC Power in order for it to operate.

The ST1200 - Applications

Now that you have some understanding of how the **ST1200's** unique jumper systems works. We will follow with some practical examples of these configurations. They will be presented with the following data.

1. A graphic presentation for a given application, showing the jumper terminals for each channel and the terminal at which it is installed in order to establish the correct circuit path within the ST1200 to accomplish the desired result.
2. A view of the **ST1200's** rear panel showing how the source and speakers are connected to complete the above installation.
3. A typical layout of the area in which the configuration might be installed.
4. An overview of the project providing information relevant to the installation.

ST1200 SPECIFICATIONS			
Pwr /CH (Music Pwr. into 8Ω)	60W	Slow Rate	14 V/us
Frequency Response	5 - 45 kHz	Dynamic Headroom	1.4 dB
Input Sensitivity	0.775 v	S/N (A-weighted)	95 dB
THD + N @ 1 kHz	0.09%	Voltage Gain	28
Input Impedance	33.2 k ohms	Fuses (2 internal, 1 ext.)	8A Slo-Blo
Damping Factor (@ 50Hz)	100	Dimensions	17" x 11" x 3.5"
Current (p-p)	20 A	Weight (lbs./kg)	20/9.1

Specifications are subject to change without notice.

IN CASE OF DIFFICULTY		
PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
No sound ('ON' LED not illuminated)	<ul style="list-style-type: none"> - Muting control switch enabled - Power cord not plugged in - Power off at AC source - AC power inlet fuse blown or faulty 	<ul style="list-style-type: none"> - Check for proper usage (see page 6) - Reconnect power cord - Check AC source (switch, fuse etc.) - Check for shorts or over loading*
No sound on some or all selected channels	<ul style="list-style-type: none"> - Speaker leads loose or faulty - Line stage-to-amp. cables loose or faulty - Source-to-line stage cables loose or faulty - Line stage or source not correctly selected 	<ul style="list-style-type: none"> - Tighten, repair or replace cable - Tighten, repair or replace cable - Tighten, repair or replace cable - Check all switch settings
Sound directionless, bass weak	<ul style="list-style-type: none"> - Speakers connected out of phase 	<ul style="list-style-type: none"> - Check connections for correct phase
Loud hum or buzz in speaker	<ul style="list-style-type: none"> - Poor ground connection in cabling 	<ul style="list-style-type: none"> - Check all RCA connectors
* If unit continues to blow Power Inlet fuses, have it serviced - - DO NOT USE A HEAVIER FUSE!		

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 three years from 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 term 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 term 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

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 or FAXing B&K at the numbers below. We ask that you provide the following information at that time.

1. Your name and address
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.

No equipment may be returned to B&K Components Ltd. without a RETURN AUTHORIZATION.

B&K Components Ltd.
2100 Old Union Road, Buffalo NY 14227
TEL (716)656-0026 FAX (716)656-1291

LIST YOUR UNIT INFORMATION HERE

MODEL No. _____
SER. No. _____
PURCHASED AT: _____
DATE PURCH'D _____