

V PLUS Series

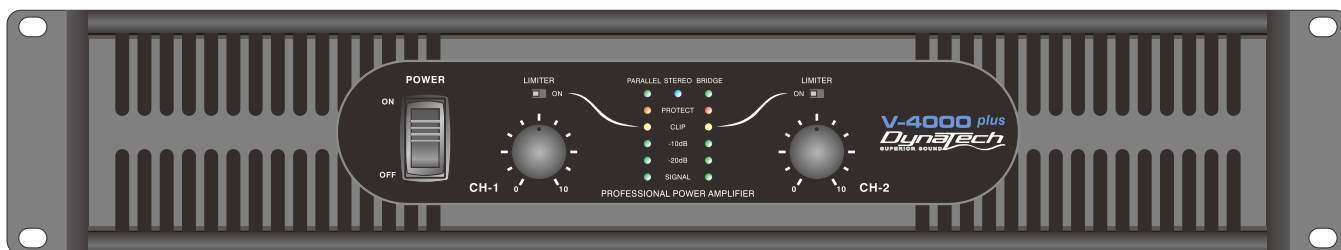
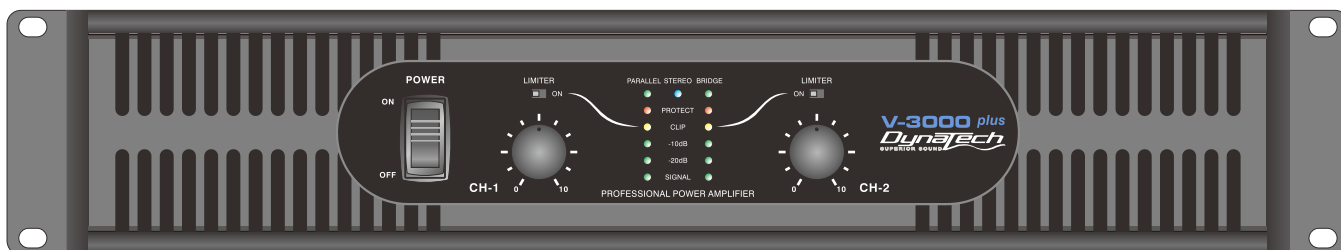
V-3000 PLUS

V-4000 PLUS

USER INSTRUCTIONS



This booklet contains important information concerning the proper and safe operation of your new amplifier.



Important Precautions



This symbol is used to alert the operator to follow important operating procedures and precautions detailed in documentation.



This symbol is used to warn operators that uninsulated "dangerous voltages" are present within the equipment enclosure that may pose a risk of electric shock.

1. Save the carton and packing material even if the equipment has arrived in good condition. Should you ever need to ship the unit, use only the original factory packing.
2. Read all documentation before operating your equipment. Retain all documentation for future reference.
3. Follow all instructions printed on unit chassis for proper operation.
4. Do not spill water or other liquids into or on the unit, or operate the unit while standing in liquid.
5. Make sure power outlets conform to the power requirements listed on the back of the unit.
6. Do not use the unit if the electrical power cord is frayed or broken. The power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords and plugs, convenience receptacles, and the point where they exit from the appliance.
7. Always operate the unit with the AC ground wire connected to the electrical system ground. Precautions should be taken so that the means of grounding of a piece of equipment is not defeated.
8. Mains voltage must be correct and the same as that printed on the rear of the unit. Damage caused by connection to improper AC voltage is not covered by any warranty.
9. Have gain controls on amplifiers turned down during power-up to prevent speaker damage if there are high signal levels at the inputs.
10. Power down & disconnect units from mains voltage before making connections.
11. Do not turn the power switch on the "ON" position if you do not use it.
12. Do not use the unit near stoves, heat registers, radiators, or other heat producing devices.
13. Do not block fan intake or exhaust ports. Do not operate equipment on a surface or in an environment which may impede the normal flow of air around the unit, such as a bed, rug, weathersheet, carpet, or completely enclosed rack. If the unit is used in an extremely dusty or smoky environment, the unit should be periodically "blown free" of foreign matter.
14. Do not remove the cover. Removing the cover will expose you to potentially dangerous voltages. There are no user serviceable parts inside.
15. Connecting amplifier outputs to oscilloscopes or other test equipment while the amplifier is in bridged mode may damage both the amplifier and test equipment!
16. Do not drive the inputs with a signal level greater than that required to drive equipment to full output.
17. Do not connect the inputs / outputs of amplifiers or consoles to any other voltage source, such as a battery, mains source, or power supply, regardless of whether the amplifier or console is turned on or off.
18. Do not run the output of any amplifier channel back into another channel's input. Do not parallel or series connect an amplifier output with any other amplifier output.
19. Do not connect any Bridged speaker Output to ground!
20. Non-use periods. The power cord of equipment should be unplugged from the outlet when left unused for a long period of time.
21. Service Information Equipment should be serviced by qualified service personnel when:
 - A. The power supply cord or the plug has been damaged.
 - B. Objects have fallen, or liquid has been spilled into the equipment.
 - C. The equipment has been exposed rain.
 - D. The equipment does not appear to operate normally, or exhibits a marked change in performance.
 - E. The equipment has been dropped, or the enclosure damaged.
22. To obtain service, contact your nearest dealer.

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WARNING!



Please check up the environment AC POWER supply for the amplifier before installation and use. Mains voltage must be correct and the same as that printed on the rear of the unit. Damage caused by connection to improper AC voltage is not covered by any warranty.

V-3000 PLUS / V-4000 PLUS Front & Rear View

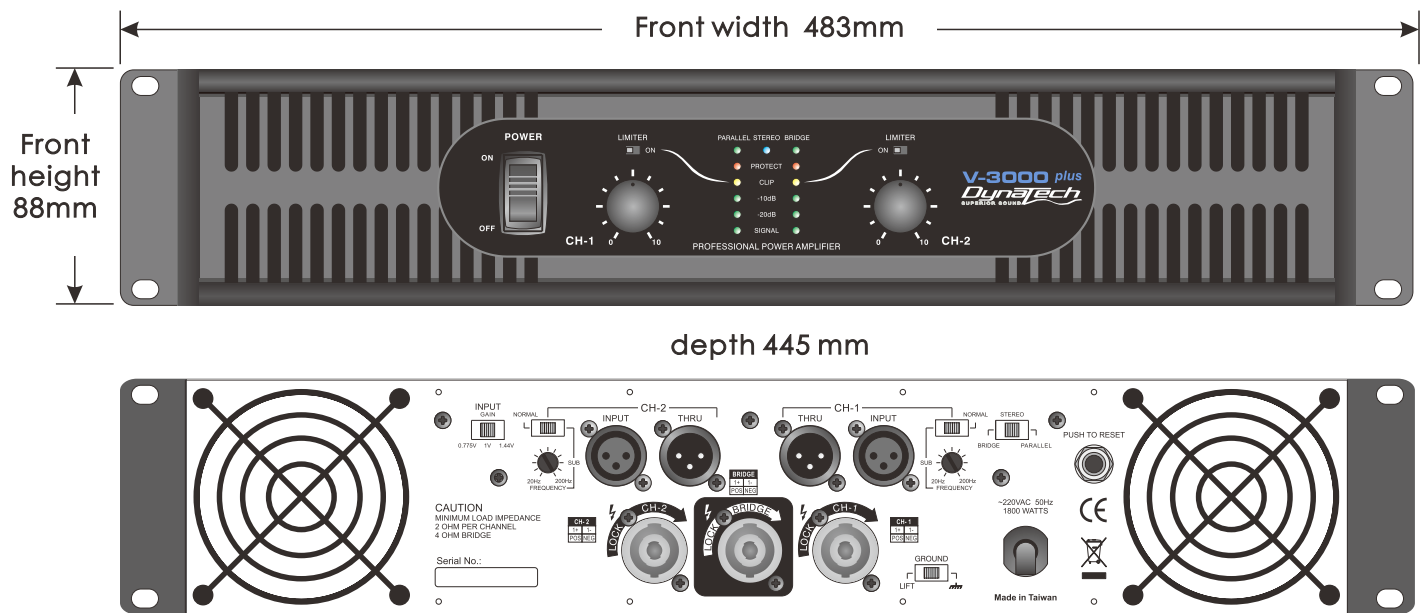


Figure 1

Introduction

Congratulations on your purchase of a new V PLUS Series professional power amplifier, and thank you for your confidence in DynaTech products.

For your safety, please read the Important Precautions section before installing and operating the amplifier.

The DynaTech V PLUS Series is based on the same advanced circuit topologies that have made DynaTech amplifiers the choice of touring professionals worldwide. V PLUS Series amplifiers are designed for high operating efficiency and accurate sonic performance across the full audio bandwidth, even under stressful conditions. Internal components are the finest available, and key sub-assemblies are pre-tested before final assembly. Finally, each amplifier is "burned in" and thoroughly tested (using precision audio test equipment) before shipping. In addition, all V PLUS Series amplifiers incorporate DynaTech's exclusive Tour Class protection features to safeguard both internal circuitry and connected loudspeakers. This proven combination of advanced design, quality construction, and comprehensive circuit protection is your guarantee of fail-safe reliability. You can depend on consistent, stable performance even when your V PLUS Series amplifier is subjected to punishing extremes in the most demanding fixed or mobile sound reinforcement applications.

Unpacking

Please inspect the amplifier carefully immediately after unpacking. If you find any damage, notify your supplier/dealer immediately. Only the shipper may file a damage claim with the carrier for damage incurred during shipping. Be sure to save the carton and all packing materials for the carrier's inspection. If your packing materials are in good condition, please save them. If you ever need to ship the unit back to DynaTech or an authorized service center, you should use only the original factory packing.

Installation and Mounting

V PLUS Series amplifiers is 2-rack-space units. Mount in standard 19-inch racks. Four front-panel mounting holes are provided on each amplifier. Rear mounting ears give additional support, and use of rear supports is highly recommended in all mobile and touring sound systems. Optional rack-mount handles are available.

V-3000 PLUS / V-4000 PLUS Front Panel

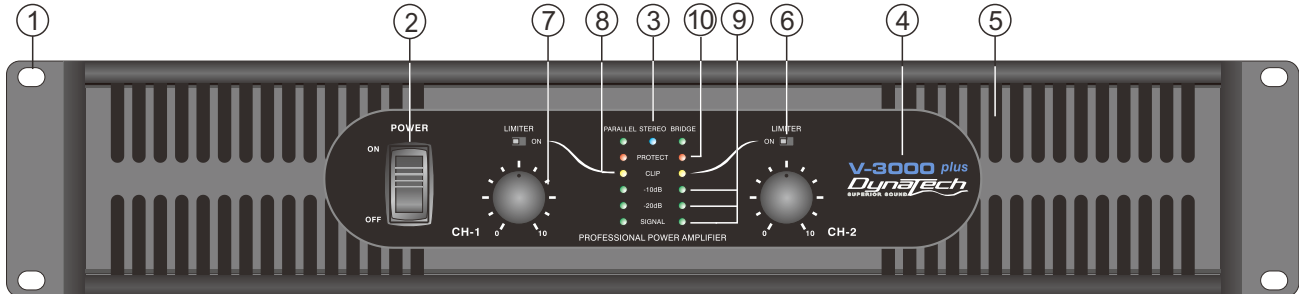


Figure 2

1. **Rack Mounting Ears** - Two front panel mounting holes are provided on each mounting ear.
2. **AC Power Switch** - V PLUS Series amplifiers have a front-panel mains AC power switch.
3. **Mode Indicated LED** - Green LED indicates "parallel" Mode, Blue LED indicates "stereo" Mode, Green indicates "bridge" Mode.
4. **DynaTech Logo and Model No** - V PLUS Series have 2 types of 2U models V-3000 Plus and V-4000 Plus.
5. **Fan Inlet Grills and Filter** -V PLUS Series amplifiers are cooled by two rear-mounted fans. Cool air from front grills are filtered and flows over the heat sinks and exhausts to back side. Make sure these outlets remain clear to allow unrestricted air flow.
6. **Limiter Switch** - You can select limiter on "ON" for limiter working, and another mode is for limiter no working.
7. **Input Attenuators** - Two input attenuators adjust level for their respective amplifier channels.
8. **Clip LED** - Illuminates at the clipping threshold. Continuous illumination also indicates that ACL (Active Clip Limiting) protection circuitry is engaged.
9. **Signal LED** - These green and yellow LED's will glow according to the average signal output.
10. **Protect LED** - The red Protect LED will begin to glow when the channel goes into protect mode. When the channel goes into protect mode all output for that channel will turn off. This is to protect any speakers connected to the channel.

V-3000 PLUS / V-4000 PLUS Rear Panel

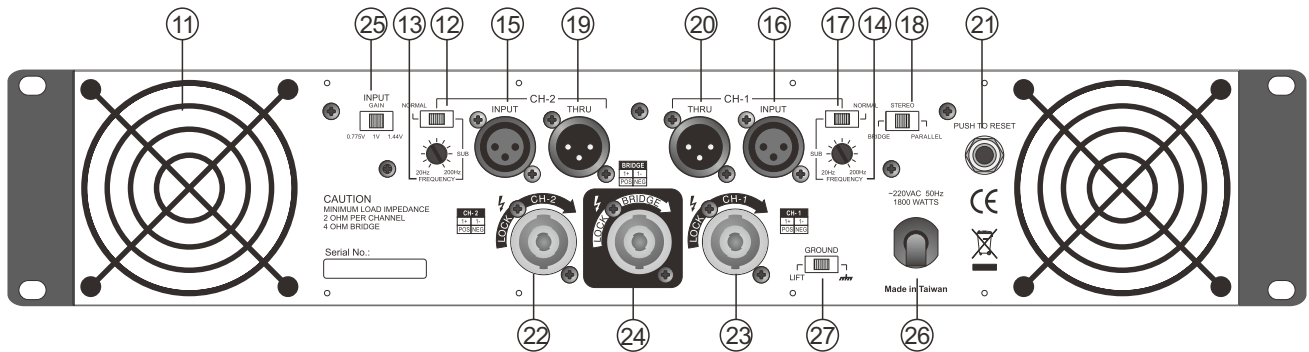


Figure 3

- 11. Fan Outlet Ports** - Cooling air enters the amplifier through the front grills and exhausts through the fans. Be sure not to block these ports when installing the amplifier or other associated equipment. Air must flow unimpeded through these ports.
- 12. Channel 2 Subwoofer Mode On/Off Switch** - To switch the subwoofer mode for channel two on and off.
- 13. Channel 2 Frequency Adj.** - This pot adjust the frequency level sent to your speaker on channel two when using your amplifier in subwoofer mode.
- 14. Channel 1 Frequency Adj.** - This pot adjust the frequency level sent to your speaker on channel one when using your amplifier in subwoofer mode.
- 15. Channel 2 XLR Input** - Channel two 3-pin XLR balanced input jack.
- 16. Channel 1 XLR input** - Channel one 3-pin XLR balanced input jack.
- 17. Channel 1 Subwoofer Mode On/Off Switch** - To switch the subwoofer mode for channel one on and off.
- 18. Mode Selection Switch** - This recessed, three-position switch configures the amplifier for Stereo, Parallel or Bridged Mode operation. Amplifiers are factory-configured for Stereo Mode. See section on Mode Selection for more information.
- 19. Channel 2 XLR THRU Jack** - Channel two 3-pin XLR balanced output jack.
- 20. Channel 1 XLR THRU Jack** - Channel one 3-pin XLR balanced output jack.
- 21. Circuit Breaker** - V PLUS Series amplifiers have a circuit breaker - The circuit breaker shuts off during normal use, please switching off the AC power switch for a minute, then turn on the AC power switch again, push the circuit breaker to reset the power. If the circuit breaker shuts off immediately, the amplifier needs servicing.
- 22. Channel 2 Speakon Output** - Use pins 1+ and 1- of this 4-pole Speakon connector to connect to your speakers input jack.
- 23. Channel 1 Speakon Output** - Use pins 1+ and 1- of this 4-pole Speakon connector to connect to your speakers input jack.
- 24. Bridged Speakon Output** - Use pins 1+ and 1- of this 4-pole Speakon connector to connect to your speakers input jack.
- 25. Input Gain Switch** - This three position switch let you select different input sensitivities, respectively three different Voltage gains. The switch setting are : 1.44V, 1V or 0.775V input sensitivity.
- 26. AC POWER Cord** - Connect to AC power supply. Be sure that the supplied voltage in your area matches the amplifiers required voltage.
- 27. Ground Lift Switch** - This switch is used to disconnect the internal ground signal from the amplifier chassis ground. This may reduce the buzz that is caused from an electrical 50Hz/60Hz cycle.

SET UP

INPUTS - The V PLUS Series allows you to use XLR 3-pin input connector per channel, a XLR female jack for balanced connections to connect the output signal from a mixer, cross-over or EQ to your V PLUS Series power amplifiers. A balanced connection is recommended for cable runs longer than 20ft. When constructing your own XLR cables follow the pin configuration described below for proper connections. You may use the two XLR "Input Thru" jacks to jump a parallel connection to another amplifier or other device. For example: Connect a XLR cable to the input of channel one. You may now connect a XLR cable from the channel one "Input Thru" jack to the input jack of another amplifier's channel one input. This will reduce the use of "Y" cables.

Male XLR Pin Configuration

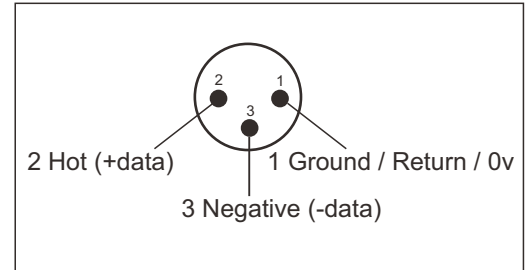


Figure 4

STEREO CONNECTIONS USING THE NEUTRIK SPEAKON OUTPUT CONNECTORS:

Recent regulatory requirements in Europe have outlawed the use of the dual banana plug and force amplifier users to terminate their speaker cables with spade lugs or bare wire ends. This is not advantageous to most users that want to reconfigure their systems or quickly change out an amplifier. The Neutrik Speakon connector provides the most convenient solution to this problem, eliminating the need for spade lugs or bare wire end cables. Major speaker manufacturers have been using Speakon connectors on their products for years, so chances you are ready to use the Speakon connection. With Speakon connectors, you can connect straight from the amplifier to the speaker. The Speakon connector used on this amplifier meets all known safety regulations. Once wired correctly, the connector cannot be plugged in backwards, causing the type of inverted polarity situations that have become common with banana hookups. This connection will provide a safe, secure and reliable method of connecting your speakers to your new amplifier. You can purchase the Speakon NL4FC connectors from your local audio dealer.

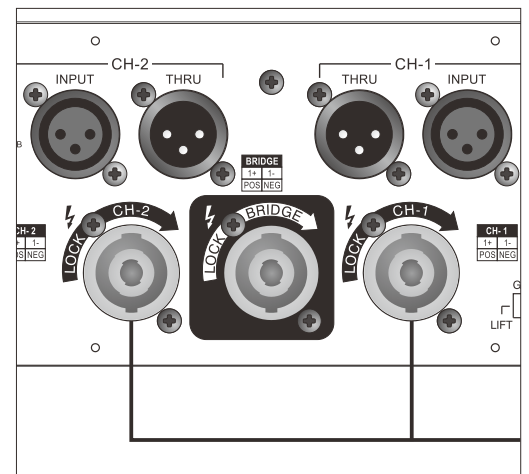
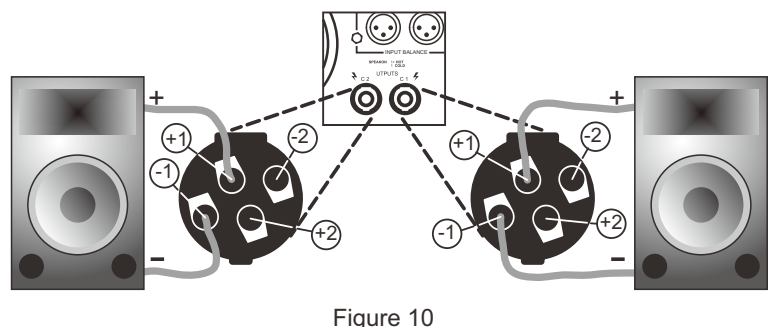
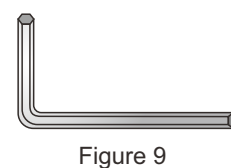
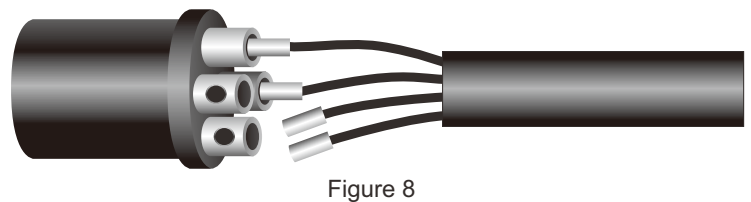
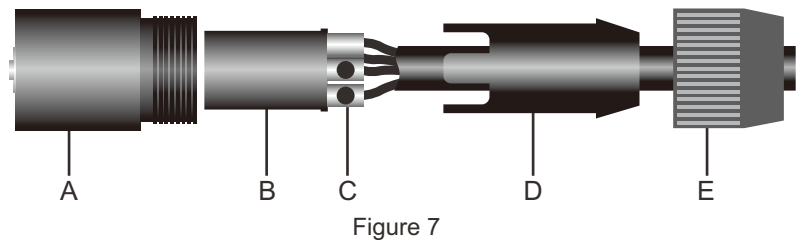
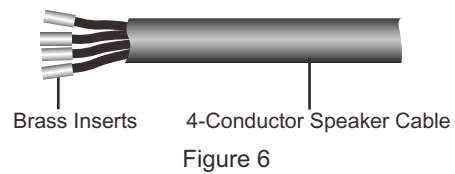


Figure 5

SPEAKON ASSEMBLY:

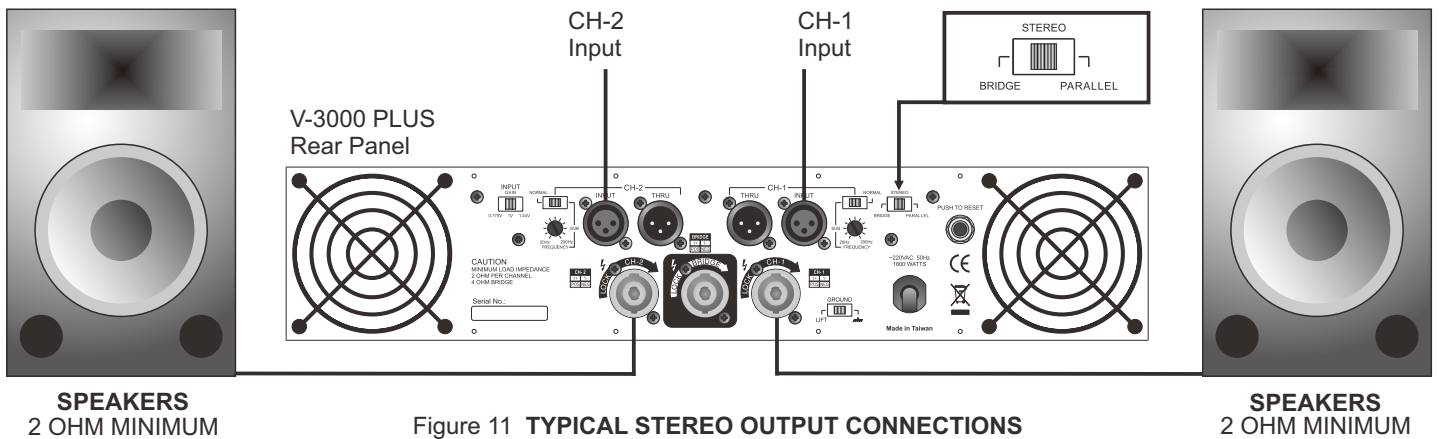
You will need a pair of Neutrik Speakon NL4FC connectors. You will also need high-quality two or four conductor Speakon cable, a pair of needle-nosed pliers and a 1.5-mm Allen key to assemble the Speakon connectors to your speaker wire. To assemble the Neutrik Speakon NL4FC connector, complete the following steps:

1. Strip back 3/4-inch of the cable casing. Strip off 1/4-inch from the end of each of the conductors down to bare wire, and insert the brass fittings (Figure 6).
2. Slide the wire tensioner (D) and the Speakon coupler (E) through the cable end. See Figure 7.
3. Insert each wire with the brass fittings into the top of appropriate slot of the connector insert (B) as shown in Figure 8. Use a 1.5-mm Allen key to tighten the connection (Figure 9).
4. Be sure to properly match the positive (+) and negative (-) leads of each wire (Figure 10).
5. Slide the connector insert (B) into the connector housing (A), making sure that the large notch on the outer edge of the insert lines up with the large groove on the inside of the connector housing. The insert should slide easily through the housing and out the other side until it extends approximately 3/4-inch from the end of the housing.
6. Slide the cable tensioner (D) along the cable and insert into the housing (A), making sure that the large notch lines up with the large groove on the inside of the connector housing (A). The cable tensioner (D) should slide easily into the housing until only 3/8-inch of the tensioner (D) extends from the back end of the connector.
7. Slide the coupler (E) along the cable and screw it onto the end of the housing (A). Before tightening, you may want to test the connector to make sure it has been assembled properly.

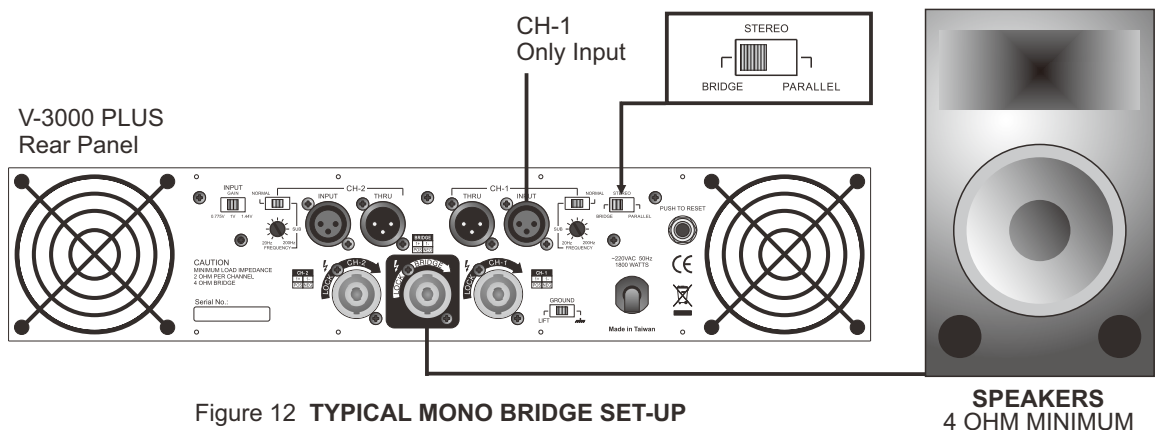


Operating Modes

STEREO OPERATION : Page 8 / Figure 11 detail examples of a typical stereo set-up. Connect your inputs into channels one and two of the amplifier. Connect your speakers to the outputs on the rear of the amplifier. Be sure that your front gain controls are turned down to their lowest level (fully counter-clockwise). Turn your amp on. Turn your input source level up. Use your front gain controls to regulate the output volume. Be sure not to raise the volume to the clip level, however an intermittent clip signal is acceptable.

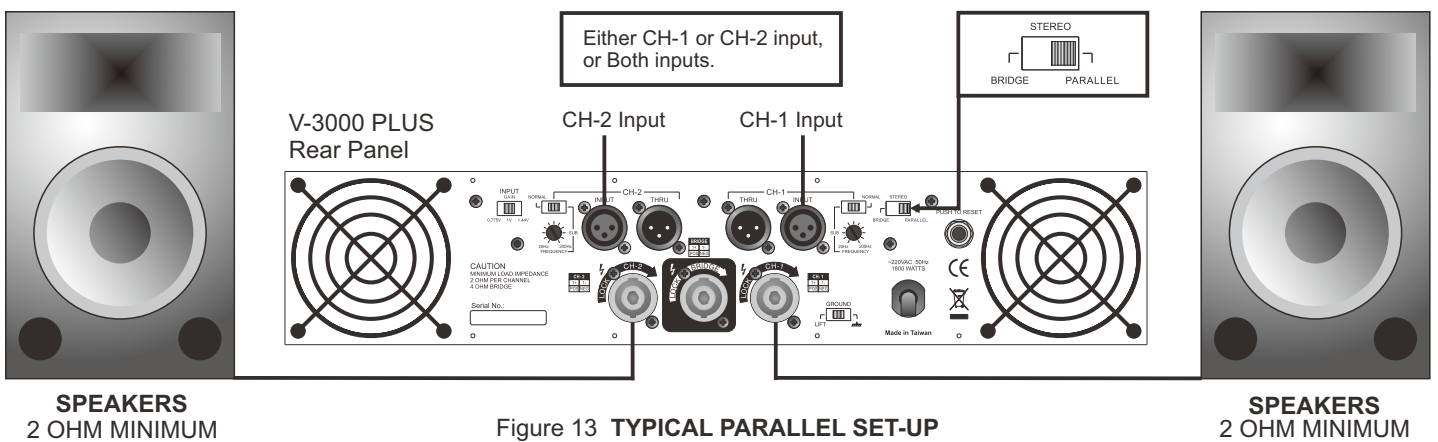


MONO BRIDGE OPERATION : Page 8 / Figure 12 details a mono bridge set-up. Be sure you amplifier and all other audio equipment are powered down. Flip the Parallel/Stereo/Mono Bridge switch to the Mono Bridge position. Connect an input signal to channel one. Connect your speaker across the red output binding post on the rear of your amplifier. Turn your equipment on (your amplifier should always be the last item you turn on). Apply an input source signal to your amplifier. Use the channel one gain control to regulate your amplifier output.



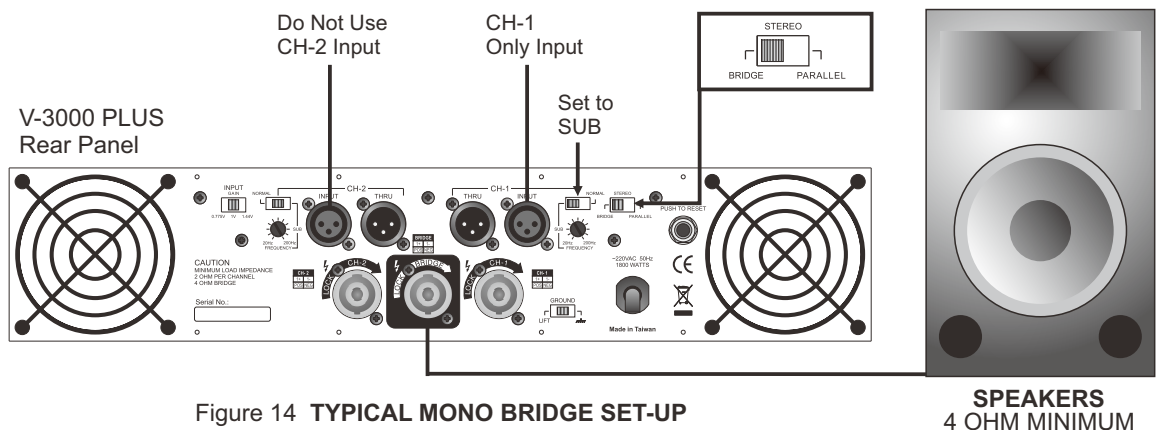
Operating Modes

PARALLEL MONO: Parallel ties the two channel line inputs together so that they will both be driven by the same signal, without the need for external jumpers or wiring. Both amplifier channels will operate independently. Though they carry the same signal, their gain controls affect only their respective channels, and they both must use their respected speaker outputs. Never attempt to parallel the speaker outputs, this may cause serious damage to your amplifier! This mode is recommended when using the V PLUS amplifier to run bass speakers, to achieve better low end. To run in parallel mono mode connect your system as you would if you were going to run in stereo mode. Then flip the mode switch to Parallel. Be sure the amp is off or the power is disconnected before making any changes.

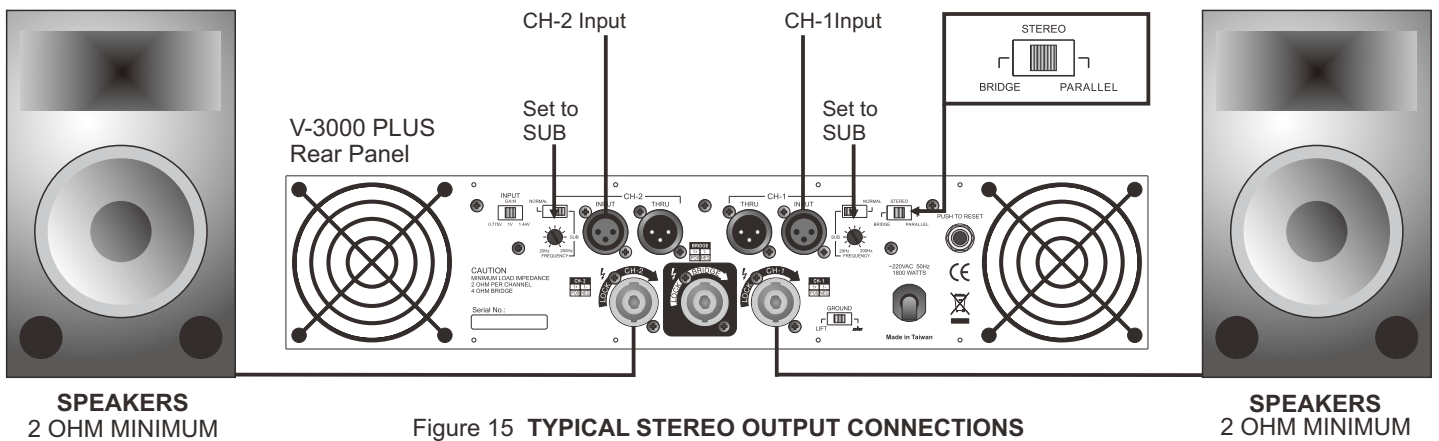


SUBWOOFER MODE : This mode sends low frequencies to your speakers without the use of an external cross-over. The subwoofer operation can be operated in stereo, parallel, or bridge mono modes. Change the different operating modes by flipping the mode switch on the rear of the unit to your desired operating mode. Also, set the subwoofer mode switch to the “SUB” position. Use the frequency selector to adjust the subwoofer output frequency from 20Hz to 200Hz. The different subwoofer modes are listed as follows:

Bridge Subwoofer - This operation allows you to get the most possible power out of your amplifier for the sole purpose of running a high powered subwoofer loudspeaker in mono. To avoid amplifier overheating, never run the amplifier below 4 ohms in this mode. In this mode you may use the frequency adjustment on the rear of the amp, to control the frequency output level. Frequencies may be adjusted from 20Hz to 200Hz. Page 9 / Figure 14 details a typical Bridge Subwoofer set up.

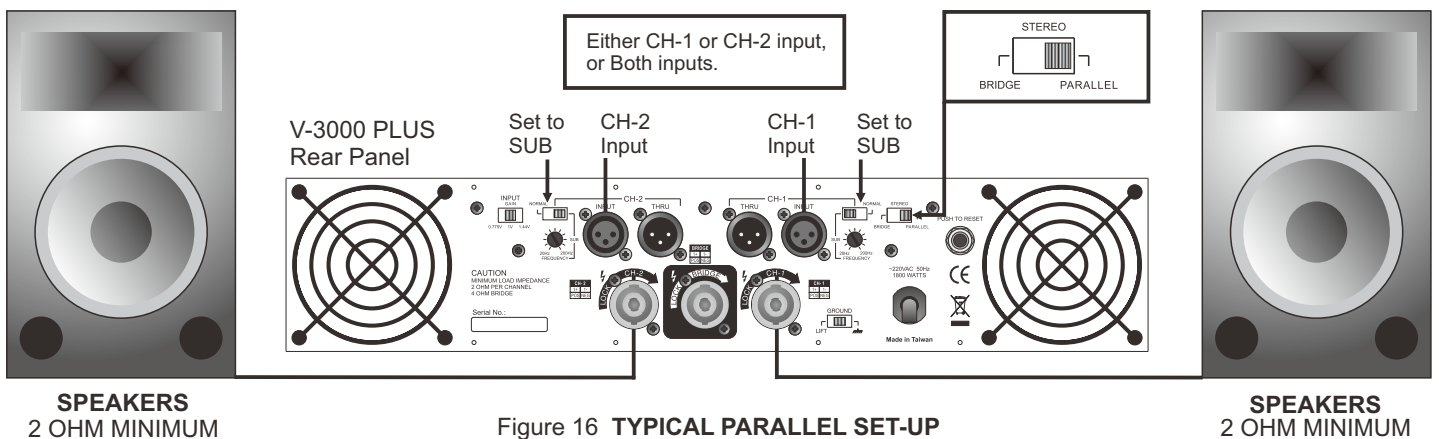


Stereo Subwoofer - This operation is similar to the Bridge Subwoofer operation but in stereo. This operation allows you to run several subwoofers down to a minimum of 2 ohms. To avoid amplifier overheating, never run the amplifier below 2 ohms in this mode. Set up this mode as you would a standard stereo set up. Be sure both channels are set to "SUB." In this mode you may use the frequency adjustment on the rear of the amp, to control the bass frequency output level. Frequencies may be adjusted from 20Hz to 200Hz. Page 10 / Figure 15 details a typical Stereo Subwoofer set up.



Parallel Subwoofer - This operation is similar to the Stereo Subwoofer operation but in Parallel. When running subwoofers, it is usually recommended to run them in mono mode to achieve a cleaner tighter low end. This operation allows you to run several subwoofers down to a minimum of 2 ohms. To avoid amplifier overheating, never run the amplifier below 2 ohms in this mode. Set up this mode as you would a standard stereo set up. Be sure both channels are set to "SUB" and the mode switch is set to "Parallel." In this mode you may use the frequency adjustment on the rear of the amp, to control the bass frequency output level. Frequencies may be adjusted from 20Hz to 200Hz.

One Channel Normal / One Channel Subwoofer (BI-AMP) - You may also use your amp to bi-amp your system. You may use one side of the amp to power a subwoofer and the other side to power a full range speaker. Follow the set up guides listed above to mix and match your operations.



Protection

Limiters

The V PLUS Series comes with a built-in limiter. When the input signal overloads, the "CLIP LED's" indicate a signal overload, at this time, the volume should be lowered to reduce distortion. If the input gain level is not reduced the built-in limiter will activate. During signal overload, the limiter will reduce the input audio signal enough to minimize the amount of clipping. A limiter takes the gain of an overloading signal and reduces it, the reduction in gain reduces distortion that can cause damage to your speakers and amplifier. During normal operation below clipping, and momentary clips on peaks, the limiter does not affect the audio signal and is inaudible. It will allow brief clipping of peaks and will only activate when continuous, hard clipping occurs. During excessive clipping the limiter will reduce the audio signal enough to minimize the amount of clipping. When the input signal decreases enough that clipping ends, the limiter will deactivate and cease its gain reduction. The limiter has a fixed threshold and can not be adjusted.

Safe Power Levels at Different Output Loads

8-Ohm Loads: The amplifier can operate at its rated power level without risk of overheating. However, it may cause excessive temperature if it is pushed hard enough to continually light the "CLIP" indicator, the amplifier's average output power can reach its maximum peak.

4-Ohm Loads: If the "CLIP" indicator flashes occasionally, the amplifier is approaching its maximum long-term power capacity. If it is lit about half the time, the amplifier channel will probably go into thermal protection within a few minutes.

2-Ohm Loads: Except for an occasional flash, keep the "CLIP" indicator dark to avoid overheating the amplifier channel. Clipping should be kept to a reasonable minimum. An amplifier's peak current draw at full output power into 2 ohms is several times what the "normal" draw is, but its various protection circuits will prevent this condition lasting more than a minute or two.

Short Circuit Protection

The V PLUS Series amplifiers all come with built-in Output Short Circuit Protection IGM (Instantaneous Gain Modulation). The IGM and thermal circuits will protect the amplifier automatically if one side of your amplifier becomes shorted, and goes into "CLIP" mode. The IGM circuit senses the short circuit while under an extremely stressful load condition and attenuates the signal, this is to protect the channel's output transistors from over-current stress. If the short circuit remains the same, the load will be disconnected by the thermal protection circuitry (i.e. output relay opens).

Thermal Protection

Dual 2-speed fans on the V PLUS Series amplifier provide adequate cooling. During low level output, the fans run at normal speeds. During high output and as heat raises, (exceeding 50° C), the fans will run at higher speeds to aid the cooling process. If the heatsink temperature exceeds 91° C, the amplifier will mute until the amplifier cools down. When the amplifier cools below 90° C, the amplifier will return to normal operations. Be sure not to operate your amplifier below the minimum load ratings to reduce the risk of overheating problems.

Input/Output Protection

The input circuits are isolated by resistors. An ultrasonic network uncouples RF from the output and helps to keep the amplifier stable with reactive loads.

Operating Voltage (AC Mains)

On the rear panel will indicate the correct AC mains voltage. Connecting to the wrong voltage is dangerous and may damage the amplifier. Always be sure the source voltage for your area matches the required voltage for your amplifier.

Specifications

MODEL NO.	V-3000 Plus	V-4000 Plus
Output Power: 2 ohm, 1 khz 1% THD 4 ohm, 1 khz 1% THD 8 ohm, 1 khz 1% THD (Bridge Mode, mono) 4 ohm, 1 khz 1% THD 8 ohm, 1 khz 1% THD	1250w RMS Stereo. 800w RMS Stereo. 500w RMS Stereo. 2500w RMS 1600w RMS	1550w RMS Stereo. 1150w RMS Stereo. 700w RMS Stereo. 3100w RMS 2300w RMS
Total Harmonic Distortion: 20Hz~20kHz, @rated output power, 8 ohms	Less than 0.02%	
Input Sensitivity and Impedance: @rated output power, 8 ohms	selectable (0.775V, 1V and 1.44V)	
Dimensions & Weight Height Width Depth Weight	3.5"(8.8cm) 19"(48.3cm) 17.5"(44.5cm) 42.68lbs.(19.4kgs)	3.5"(8.8cm) 19"(48.3cm) 17.5"(44.5cm) 47.08lbs.(21.4kgs)
Frequency Response +/- 1db, 1w RMS, 8ohms +/-0.2db, @rated output, 8 ohms	10Hz - 40kHz 20Hz - 20kHz	
Hum&Noise: Below rated output, 8 ohms	100dB, unweighted	
Power Consumption: @rated output power, 8ohms	5A@230V AC	7A@230V AC
Cooling System:	Dual 2-Speed Fans and Heatsinks	

Dynatech
SUPERIOR SOUND

PROFESSIONAL POWER AMPLIFIER